SONGS 3-D High Resolution P-cable Survey Offshore Southern California

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Executive Summary

The 35-day 3-D P-cable seismic survey campaign was conducted from October 3rd, 2013 through November 6th, 2013. The Scripps Institution of Oceanography (SIO) subcontratcted Subsea Systems, Inc. (SSI) to provide geophysical survey services in support of the geophysical project. In addition, SIO contracted support servicers NCS-SubSea to provide navigation and positioning and Geotrace Technologies to access the geophysical data in real time and onshore process the 3-D P-cable seismic data.

The survey was conducted onboard the Scripps Institute of Oceanography's *R/V New Horizon*. Following mobilization of all survey and support instrumentation at Scripps's Nimitz Marine Facility, the *New Horizon* made the 80 km transit north to begin survey operations.

A P-cable acquisition system was employed to acquire nearly 3,000 line-kilometers of 3-D data over two offshore survey areas lying between Oceanside and San Clemente, California. Two seismic sources, a triple plate boomer and a spark-array, were used as a sound source for the survey areas; the boomer at Area One and the spark-array at the deeper water site, Area Two.

The two surveyed areas, designated Area One and Area Two, comprised a series of 101 and 161 roughly shore parallel sail lines respectively. Area One measured a notional 14.2 km by 3.7 km covering an area of 52.5 km² while Area Two measured approximately 6.6 km by 6.0 km and enclosed an area of 39 km².

Seismic reflection data acquired for the two survey areas totaled 2,975 line-kilometers or 1,682 line-kilometers for the Area One survey and 1,293 line-kilometers for the Area Two survey inclusive of re-shoots and infill lines.

On completion of survey operations all digital seismic reflection data and associated navigation files were turned over to the UCSD/SIO Chief Scientist. The entire 35 day project, from mobilization through survey operations and demobilization, was completed with zero incidents, near hits or other safety issues.

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1 Introduction

Scripps Institution of Oceanography (SIO) at University of California, San Diego (UCSD) subcontracted Subsea Sysytems Inc. (SSI) to provide geophysical survey services in support of their 3-D P-cable seismic reflection project.

SSI provided geophysical seismic equipment and personnel and subcontracted NCS-Subsea, Inc. (NCS) of Stafford, Texas to provide positioning equipment and personnel. Under separate contract directly with UCSD/SIO Geotrace Technologies Ltd. was engaged to provide shipboard QA/QC and seismic data processing.

High-resolution 3-D seismic reflection data were acquired within two survey blocks offshore Southern California between San Clemente and Oceanside from 10 October through 05 November, 2013 (Figure 1.1). The survey blocks, Area One and Area Two, are located approximately 12 and 18 kilometers offshore in water depths ranging from 44 m to over 790 m. Nearly 3000 line-kilometers of high-resolution 3-D data were acquired over a 25-day period. The entire survey was confined to US federal waters with no production occurring inside the 3-mile boundary demarcating California state waters. The weather during survey operations was mild and the seas were calm yielding very high quality seismic reflection data.

2 Scope and Purpose

The survey was designed to collect 3-D seismic reflection data on the subsurface faults offshore of a portion of southern California's coastline between San Clemente and Oceanside, approximately 80 km (43 nmi) north of San Diego, California. A low energy sparker and a boomer seismic source were employed to collect the reflection data during a 25-day campaign in October and early November of 2013.

This report presents a summary account of the field survey effort and provides daily documentation of the survey.

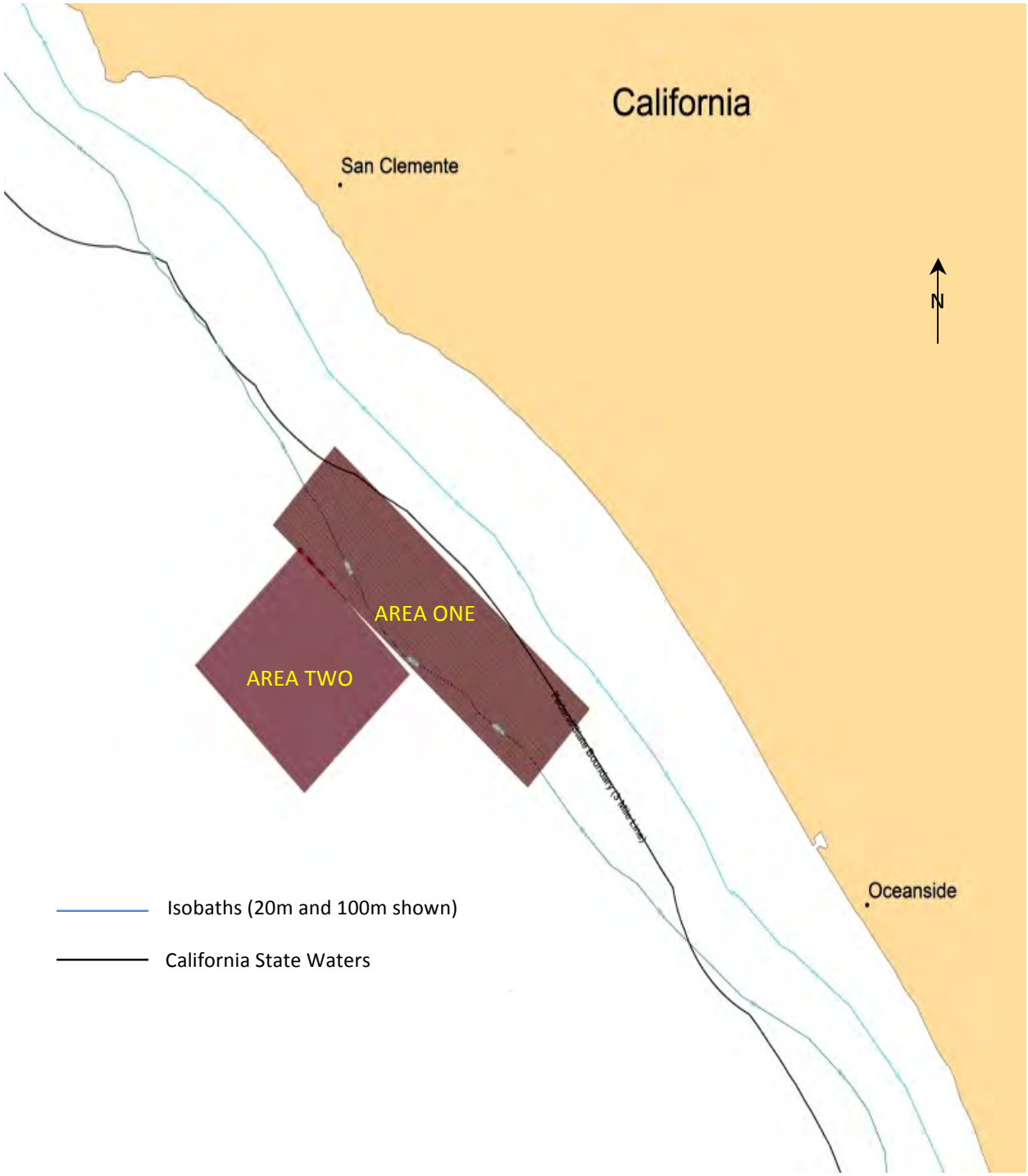

Figure 1.1 Location map showing survey Areas One and Two

3 Survey Instrumentation

A brief description of the survey instrumentation that was mobilized aboard the New Horizon for the SONGS 3-D P-cable seismic reflection project is provided in the following sections.

3.1 Geophysical Acquisition System

The 3-D offshore survey employed the following basic components: a P-Cable comprised of 14 streamers each with 8 channels @ 6.25 m group intervals and deployed from a single transverse cable, a Triple-Plate Boomer (AP3000) seismic source by Subsea Systems Inc., a 2kJ sparker seismic source also by Subsea Systems, Inc. and a Knudsen Engineering, Chirp Model 3260 Echo Sounder.

The P-Cable consists of an array of short streamers used to acquire many closely spaced seismic lines simultaneously. The streamers are supported by a transverse cross-cable deployed between two paravanes. The systems relative slightness of weight makes it easy to deploy and use aboard most research and industry survey vessels.

In order to achieve the small bin size requirements, SSI deployed a P-Cable with 14 streamers separated by a distance of 6.25 meters. Each 50-meter streamer consisted of 8 channels at a group interval of 6.25 meters. With this configuration 112 channels of data were acquired. Data were acquired at a sample rate of 250 microseconds and a record length of up to 1.0 second. This provides a Nyquist frequency of 2 kHz, which spans the bandwidth of most high-resolution marine acoustic energy sources. Subsurface swath width was 43.75 meters for the sail lines spacing of 37.5 meters.

Figure 3.1 *R/V New Horizon* with P-cable deployed.

The seismic source was selected based on the acoustic tests and results from our earlier 2-D test cruise completed in August of this year. For the 3-D cruise, SSI provided both the AP3000 boomer and a 3-tip Sparker Array. Both of these systems are capable of operating at a power level of 2000 joules, while the Sparker Array can operate at higher energy levels. Based on water, the boomer was deployed in Area One and the sparker was used in Area Two.

Data from the P-Cable system are sent via Ethernet to the topside recording computers. These data are converted to SEGY format and stored on the computer hard drive. The SEGY formatted data are backed up to a server after each seismic line is completed. The Geometrics CNT software also allows many QA/QC features. These include complete calibration of the streamer electronics, leakage and capacitance testing of hydrophones, display of all seismic channels, gathers of selected channels and signal/noise measurements. Comprehensive logs recording streamer depths, shot information and any errors that occurred along line were also kept and are provided in Appendix C. Table 3.1 below documents the acquisition parameters of the system used for the 3-D survey.

Table 3.1 P-cable Acquisition Parameters

P-CABLE 3-D ACQUISITION PARAMETERS	
Number of Streamers	14
Streamer Spacing	6.25 meters
Streamer Length	50 meters
Channels per streamer	8
Group Interval	6.25 meters
Streamer Type	Geometrics GeoEel
Width of Active Spread	87.5 meters
3-D Swath Width	43.75 meters
Bin Size (meters)	3.125 x 3.125 meters
Nominal Subsurface Fold	8
Sample Rate	0.25 milliseconds
Record Length	0.75 to 1.0 seconds
Recording format	SEGY or SEGD
Source Type	AP3000 Boomer or 2KJ Sparker Array
Shot Interval	3.125 meters or 6.25 meters

The 3-D high resolution P-Cable array is a surface towed spread and the resulting data quality can be severely compromised with increasing sea states. The general limitations to survey operations due to weather are commonly defined in terms of the Beaufort Scale. Acceptable data quality can be achieved in seas up to about Beaufort Force 3-4 (as whitecaps appear and small crests begin to break). System deployment and recovery operations become a safety

issue for personnel in sea states greater than a low Beaufort Force 5 as well as a damage risk to the towed survey equipment.

3.2 Positioning

SIO subcontracted NCS-SubSea of Houston, Texas (NCS) to provide navigational services. The positioning for the survey vessel, streamers and seismic source used Differential Global Positioning System (DGPS) as the primary and secondary navigation systems. The DGPS survey navigation system was capable of achieving vessel, paravane and buoy surface position accuracy of better than 1 meter. The navigation system uses survey-grade DGPS with real-time, differentially-corrected positions passed to the onboard integrated navigation and data management computer. The integrated navigation system was interfaced with the onboard and in-water DGPS receivers. Compass and depth devices embedded in the cross cable and streamers provide additional positioning information. The DGPS system on the sound source was also wired directly to the navigation system. DGPS data from these positions are input to the navigation computers to model the source and hydrophone locations for the streamer.

The NavPoint Integrated Navigation System used during P-Cable seismic surveys consists of three primary components. These components are two online programs, NavPoint Main and NavPoint Trawler, and one offline program, NavPoint Processing. Final navigation data processing was conducted onboard using the NavPoint Processing software that converts the P2/94 file into a P1/90 data file format. Two such sets of files were logged and subsequently processed to produce the P1/90 files for the boomer and sparker data sets.

3.3 Seismic Data Processing

Geotrace provided onboard QC and seismic data processing. A behemoth computer was mobilized aboard the New Horizon to facilitate near-real time processing of the acquired seismic reflection data. Hardware components of the processing unit included 60 Linux CPUs (15 Quad nodes), 2GB memory per Linux node, a 50TB external hard disk, 2 x 3595 tape drives and CD and DVD drives. Two PC workstations each with dual 30” monitors were part of the Q/C effort.

Software used during QA/QC and data processing comprised Complete DIAMOND™ parallel processing software package including Seismic Data Viewer and Velocity Work Bench. Specifics of the onboard QA/QC procedures is provided in section 6.2 of this report.

4 Survey Platform

The *R/V New Horizon*, owned and operated by the Scripps Institution of Oceanography, University of California, San Diego, was used to perform the geophysical survey. The *New Horizon* (Figure 4.1) is a 52 m long purpose built research vessel operated by SIO Ship Operations. She was built in 1978 with a registered gross tonnage of 297 tons, a beam of 11 m and a maximum draft of 3.7 m. The New Horizon is propelled by two D398, 850hp Caterpillar diesel engines driving two variable pitch screws making her acoustically very quiet and ideal for seismic survey operations. Her two 230kW service generators supply ample electrical servicer for all survey instrumentation. A fuel capacity of over 40,000 gallons and an average consumption rate of 1,000 gallons per day push her range out to 9,600 miles with endurance to 40 days.

Figure 4.1 The *R/V New Horizon* underway off Southern California.

She carries a complement of 12 crew members and has berthing accommodations for an additional 19 scientific personnel. Ample work space aboard the *New Horizon* included 117m² of laboratory space on the main deck and additional lab/office space on the 01 deck. The 160 m² main deck work area easily accommodated the three P-cable system winches and a platform extension to the 01 deck provided the additional space required for the three tow winches. One meter of freeboard made for easy deployment and recovery of the in-water P-cable system components. The aforementioned vessel attributes made the *R/V New Horizon* ideally suited to the SONGS project.

5 Health, Safety and Environment

Scripps Institution of Oceanography and Subsea Systems Inc. is committed to provide a healthy and safe workplace for all personnel on the SONGS project. Our commitment is based on the conviction that accidents are preventable.

In the event of an emergency at sea the captain and his crew constitute the initial emergency services. In the event of an emergency, all crew will report directly to the ship's captain and assist/proceed as directed in accordance to the ship's emergency procedures.

Subsea Systems Inc. commissioned the creation of a safety manual entitled General Offshore Safety Manual (Appendix E1) for the project that was noted and maintained onboard the vessel. Several additional supporting safety documents were also assembled and available shipboard (Appendices E3 through E6). SIO's published *R/V New Horizon* Handbook (Appendix E7) complemented the General Offshore Safety Manual with vessel-specific information also outlined in UNOLS documents (Appendices E8 through E10).

5.1 Drills and Muster

An orientation tour and safety meeting was held on 11 October once the *R/V New Horizon* was on the work site and all extraneous mobilization personnel had disembarked the vessel. A second orientation tour and safety meeting was conducted following a crew change on the 22nd of October. Topics discussed included:

- Boat Stations / Abandon Ship
- Fire
- Man Over Board
- Location of fire extinguishers
- Location of Life Preservers
- Station Bill and Alarms
- Emergency Staging Areas
- First Aid and Eyewash Stations
- Identify First Aid and CPR Trained Responders
- Back Deck / PPE Restricted Area
- Exclusion Zones

Four weekly general muster and drills were held during the survey. Instruction was also presented on the use and location of Emergency Breathing Apparatus (EBA), EPIRBs and emergency flares.

5.2 HSE Safety Meetings

Toolbox Safety meetings were held every morning during mobilization prior to any activities to discuss who would be involved in what activities and what support might be needed. Once the *R/V New Horizon* was underway Toolbox Safety meetings were held prior to any back deck activity. During these meetings discussion was focused on but not limited to environmental conditions, individual responsibilities, details of the expected activity, any additional PPE

requirements. A total of 12 Toolbox meetings were held relating to back deck activities and 6 related to mobilization/demobilization.

All attending these meetings were required to sign the Toolbox Meeting Log and the logs are provided in Appendix F.

5.3 Protected Species Awareness

Four marine turtle species, 24 cetaceans (whales, dolphins, and porpoises), six pinnipeds (seals and sea lions), and one fissiped (southern sea otter) have been recorded along the southern California coast. Seasonal abundance of these taxa varies, with marine turtles, pinnipeds and some dolphins being considered year-round residents, while other species are migratory (i.e. gray whales [*Eschrichtius robustus*]) are more common during specific months (i.e. blue and humpback whales [*Balaenoptera musculus* and *Megaptera novaeangliae*, respectively] in the summer and fall months). Within the project area, both resident and migrant taxa were expected.

Encounters with these species during survey operations were anticipated and as a precaution certain actions and mitigations that are designed to reduce or eliminate adverse impacts to the marine mammals were implemented.

Accordingly, the operating seismic source was shut down if a marine mammal approached or entered an exclusion zone (safety zone). For both the sparker and boomer surveys, the safety zone was set at 100 m.

Survey activity did not resume until the marine mammal had cleared the exclusion zone. Mitigations are initiated by vessel-based Protected Species Observers (PSOs). The size of the exclusion and safety zones were modeled according to specific sources used during the operation. During the SONGS 3D P-cable survey, 3 PSOs were tasked with watching for marine mammals. When a mammal sighting was made, the following information was recorded on Effort and Detection Forms by the on-duty PSO

- Time
- Location (GPS coordinates)
- Speed and activity of the vessel
- Sea state
- Visibility
- Sun glare
- Species
- Group size
- Behavior when first sighted and after initial sighting
- Heading
- Distance from the source and the vessel
- Apparent reaction to activities.

During SONGS P-cable survey, the operating source was shut down during marine mammal entries to the 100-m safety zone and was not started until the mammal group cleared the

exclusion zone. Information regarding sightings was logged by the PSO in an Effort and Detection form and have been recorded and documented by the PSOs.

5.4 Incidents

Safety was a prime concern throughout the SONGS project and was borne out by the project's safety record. The SONGS survey campaign commenced with the initiation of mobilization efforts on October 3rd, 2013 and was completed with all demobilization activities on November 6th, 2013. During the 35-day project, including on-site survey operations, mobilization and demobilization, there were zero incidents, near hits or safety issues.

6 Summary of Survey Operations

6.1 Mobilization

A Pre-mobilization meeting at UCSD's Nimitz Marine Support Facility (MarFac) was held on September 4th, 2013 to discuss operational details related to the survey and to discuss prefabrication and modifications to the *New Horizon* that were needed prior to mobilization.

Prior to mobilizing and throughout survey operations the P-cable system was subject to a barrage of calibration and validation tests (Appendices B1 through B6). Performed by Geometrics at their San Jose, California facility, Geometrics' pre-mobilization testing and calibration included analog performance tests, depth sensor and hydrophone validation tests. It should be noted that field capacitance and leakage were also performed during survey operations.

Mobilization activities aboard the *R/V New Horizon* began on the morning of October 4th, 2013 and were completed by mid-afternoon on October 9th, 2013. She was mobilized for the 3-D survey effort at her UCSD MarFac home port facility in San Diego, California. Subsea Systems personnel traveled to San Diego on October 3rd, 2013 and commenced locating and inventorying survey equipment previously shipped to MarFac. The vessel was made available for mobilization on October 4th, 2013 and installation of geophysical, navigational and data processing instrumentation began. The first few days activities focused mainly on deck related issues; spotting and securing winches, hanging tow blocks and installing a prefabricated 01 deck extension. NCS SubSea personnel were engaged in installing and testing positioning instrumentation, calibrations and documenting system offsets (Appendices C1 and C2). A systems engineer from Geotrace was also present to oversee the on-loading, installation and configuration of their behemoth data processing computer.

6.2 Personnel

The survey team was comprised of 17 scientific and technical personnel from Subsea Systems, Inc., NCS SubSea, Geotrace Technologies, Ltd., Lamont-Dorhety Earth Observatory (LDEO) and Scripps Institute of Oceanography (SIO). A crew change out involving five technical staff was effected on October 22nd, 2013. A listing of scientific and technical personnel and their affiliation for the two survey periods includes:

10 Oct - 22 Oct

M. Barth, Subsea Systems, Inc.
C. Chamberlain, Subsea Systems, Inc.
R. Steinhaus, LDEO
J. Gaytan, NCS SubSea
M. Hall, NCS SubSea
A. Parish, NCS SubSea
S. Traceski, NCS SubSea
D. Fontenot, NCS SubSea
F. Landers, Geotrace
M. Angel, Geotrace
N. Driscoll, Chief Scientist, SIO
J. Holmes, SIO
M. Lande, SIO
G. Ucarkus, SIO
V. Sahakian, SIO
S. Klotsko, SIO
J. Bormann, UNR

22 Oct – 05 Nov

M. Barth, Subsea Systems, Inc.
C. Chamberlain, Subsea Systems, Inc.
R. Steinhaus, LDEO
B. Mattox, NCS SubSea
M. Hall, NCS SubSea
A. Parish, NCS SubSea
S. Traceski, NCS SubSea
D. Fontenot, NCS SubSea
F. Landers, Geotrace
M. Angel, Geotrace
G. Kent, Chief Scientist, SIO
J. Holmes, SIO
A. Harding, SIO
G. Ucarkus, SIO
T. Seaman, SIO
J. Maloney, SIO
J. Bormann, UNR

The *R/V New Horizon's* 12 vessel crew included:

I. Lawrence, Captain
P. Redmond, 1st Mate
J. Irza, 3rd Mate
D. Haddon, A/B
E. Collier, A/B
D. Weaver, A/B
T. Schuler, Chief Engineer
J. Garcia, Wiper
W. Brown, A/E
W. Bouvier, Oiler
E. Lograsso, Sr. Cook
M. Stein, Cook

6.3 Survey Methodology

High-resolution 3-D seismic reflection data were acquired within two survey blocks offshore Southern California between San Clemente and Oceanside (Figure 6.1). The survey activities extended from October 10th, 2013 through November 5th, 2013. The entire survey was confined to US federal waters with no production occurring inside the 3-mile boundary demarcating California state waters.

Seismic reflection data were acquired along 262 pre-plotted sail lines traversing the two survey blocks. A sparker source was employed for lines within AREA TWO and a three-plate boomer was utilized as the sound source in AREA ONE. Data were acquired with the P-cable system and observer logs (Appendices D1 and D2) were maintained to document the acquisition and recorded file data parameters.

Daily Progress Reports (DPRs) were also created to (Appendix A) provide additional details of each day's activities.

Figure 6.1 Location map showing AREA ONE and AREA TWO.

Area One is a rectangular survey block of approximately 52.5 km², comprised of 101 survey lines with a notional line length of 14 km. Bounding coordinates for the Area One block are provided in Table 6.1 below. Roughly shore parallel, the sail lines were oriented along an azimuth of 312° and the reciprocal of 132° and spaced 37.5 m apart. Area One is the shallower of the two survey areas with depths ranging from less than 44m to nearly 360m. Approximately 1682 line-kilometers of reflection data were acquired with the boomer source at a 2kJ power setting in Area One.

Table 6.1 Bounding coordinates for survey Area One.

X	Y	Latitude	Longitude
442,892.06m	3,689447.97m	33° 20’ 33.7237”	-117° 36’ 49.3535”
440,383.92m	3,686,661.21m	33° 19’ 02.7485”	-117° 38’ 25.7580”
450,786.91m	3,677,293.43m	33° 14’ 00.4650”	-117° 31’ 41.5558”
453,296.23m	3,680,080.33m	33° 15’ 31.3591”	-117° 30’ 05.1176”

Area Two is a nearly square survey block contiguous to Area One toward the southwest. Area Two covers approximately 39 km² and is consists of 161 pre-plotted survey lines of a nominal 6.6 km length. Bounding coordinates for the Area Two block are provided in Table 6.2 below. The sail lines were spaced 37.5 m apart along an azimuth of 315° and a reciprocal of 135°. Area Two lies in generally deeper water with depths ranging from 182 m to more than 790 m. In the deeper water, Area Two block the sparker sourced was operated at 2000j to 2400j to acquire approximately 1262 line-kilometers of 3-D seismic reflection data.

Table 6.2 Bounding coordinates for survey Area Two.

X	Y	Latitude	Longitude
441,482.32m	3,685,849.10m	33° 18' 36.5971"	-117 ° 37' 43.0512"
437,179.77m	3,681,623.76m	33° 16' 18.5275"	-117° 40' 28.3800"
441,640.91m	3,677,080.92m	33° 13' 51.9244"	-117° 37' 34.8843"
445,943.53m	3,681,306.33m	33° 16' 09.9317"	-117° 34' 49.5558"

6.4 Acquisition QC and Onboard Processing

Geotrace performed full data acquisition QC. Products and examples are described in this section. QC products were created after the acquisition of each line when the SEG-Y data and P190 navigation data were available. The parameterisation and production of the QC displays take into account the specifications for the acquisition and the local geology and conditions.

Amplitude and Frequency Maps - Amplitude and frequency analyses were conducted as part for the standard QC for every line acquired. The following design windows were used:

Ambient Window: Measured above direct arrival – Amplitude measured in microbars
Boomer Near chan: 2 to 60ms Far chan: 2 to 60ms
Sparker Near chan: 2 to 60ms Far chan: 2 to 60ms

Data Window: Measured over area of best S/N or target. Amplitude and dominant frequency measured-RMS and Hz.
Boomer Near chan: 300 to 400ms Far chan: 300 to 400ms
Sparker Near chan: 1250 to 1500ms Far chan: 1250 to 1500ms

Deep Window: Measured over last 500ms of trace. Amplitude and dominant frequency measured-microbars and Hz.
Boomer Near chan: 700 to 800ms Far chan: 700 to 800ms
Sparker Near chan: 1900 to 2000ms Far chan: 1900 to 2000ms

Whole Trace: Measured over full trace length, RMS and Hz.
Boomer Near chan: 2 to 800ms Far chan: 2 to 800ms
Sparker Near chan: 2 to 2000ms Far chan: 2 to 2000ms

Near Trace Gathers - Four near trace gathers (streamers 1, 5, 10 and 14), were generated for each sail line. These displays were useful in quickly determining any possible errors with acquisition. They reveal source changes, bad records, time break problems and misfires not

reported by the recording system. They also provided a good indication of the geological conditions including the strength of water bottom multiples and swell noise contamination.

Shot Gathers - The raw 0.25 ms and the re-sampled, filtered 1.0 ms shot volumes stored for further processing could be viewed after acquisition and was used to monitor overall data quality and general noise contamination.

Brute Stacks - Two brute stacks, for streamers 5 and 10, were created during the acquisition of each sail line. A constant velocity of 1480 m/s was applied as the brute function to create the stacks.

Channel to Channel Amplitude Diagnostics - Similar to the shot to shot diagnostics, a single RMS value for each channel was calculated from the "data" window RMS. For each channel, every shot RMS contributes to the mean RMS amplitude value for that channel, giving a mean value for each receiver. These values were then displayed adjacently to highlight noisy channels or those with low recording sensitivity.

Offset QC - A check was carried out to comparing the 3D offset assignment derived from the modelled receiver co-ordinates with the expected direct arrival time. The offset QC was created for every channel (all cables and all shots, *e.g.* Chan 1, 9, 17, ...105; Chan 2, 10, 18, ...106, etc).

Any errors in navigation data processing were highlighted from this QC. This allowed subsequent re-processing of the P190 navigation data to be performed where appropriate.

Near Trace Stack - A near trace stack volume was created to verify further the integrity of the seismic data. The stack was created at a 25 m CDP interval thereby giving a nominal fold of 1. The volume was stacked with a single water velocity of 1480 m/s. Normalized time slice, in-line and cross-line displays were created to QC the volume.

The near trace stack was updated after every accepted sequence acquired.

3D Raw Stack - A brute 3D stack volume was created to verify further the integrity of the seismic data. The stack was created at a 3.125 m CDP interval thereby giving a nominal fold of 8 for the Boomer source (3.125 m shot spacing) and a nominal fold of 4 for the Sparker source (6.25 m shot spacing). The volume was stacked with a single water velocity of 1480 m/s. Normalized time slices, in-lines and cross-lines displays were created to QC the volume. The 3D stack was updated after every accepted sequence acquired.

Binning Control - The binning process is monitored by comprehensive printed diagnostics and optional colour displays detailing:

- Acquired fold of coverage – all offsets.
- Fold following trace rejection.
- Fold following trace re-allocation.
- Final fold of coverage – all offsets.
- Mean radial distance to bin centre.

- Standard deviation of the distance from bin centre.
- Mean inline distance to bin centre.
- Mean crossline distance to bin centre.
- Number of traces rejected.
- Fold of coverage plots - Colour displays of both acquired and final fold of coverage of both restricted and full offset ranges are used to check proposed fold and offset distribution.

6.5 Production

Survey operations occurred over a 26-day period from October 10th to November 5th, 2013. During that period 3-D seismic reflection data were acquired within two areas of interest and production for these areas is summarized below. Post plots charts illustrating the bin coverage for each of the surveyed areas are shown in figures 6.2 and 6.3 below. A summary by sequence was generated onboard during acquisition and is reported in Appendix G.

Area One
Primary Survey Lines - 101
Re-shot and Infill Lines - 48
Total Line-kilometers - 1,660.50

Area Two
Primary Survey Lines - 161
Re-shot and Infill Lines - 34
Total Line-kilometers - 1,289.31

Total line-kilometers – 2,950

Daily production details as logged by NCS-SubSea are provided in Appendices C3, C4 and C5. Postplot bin coverage maps are included in Appendix C6 and illustrated in Figures 6.2 and 6.3 below.

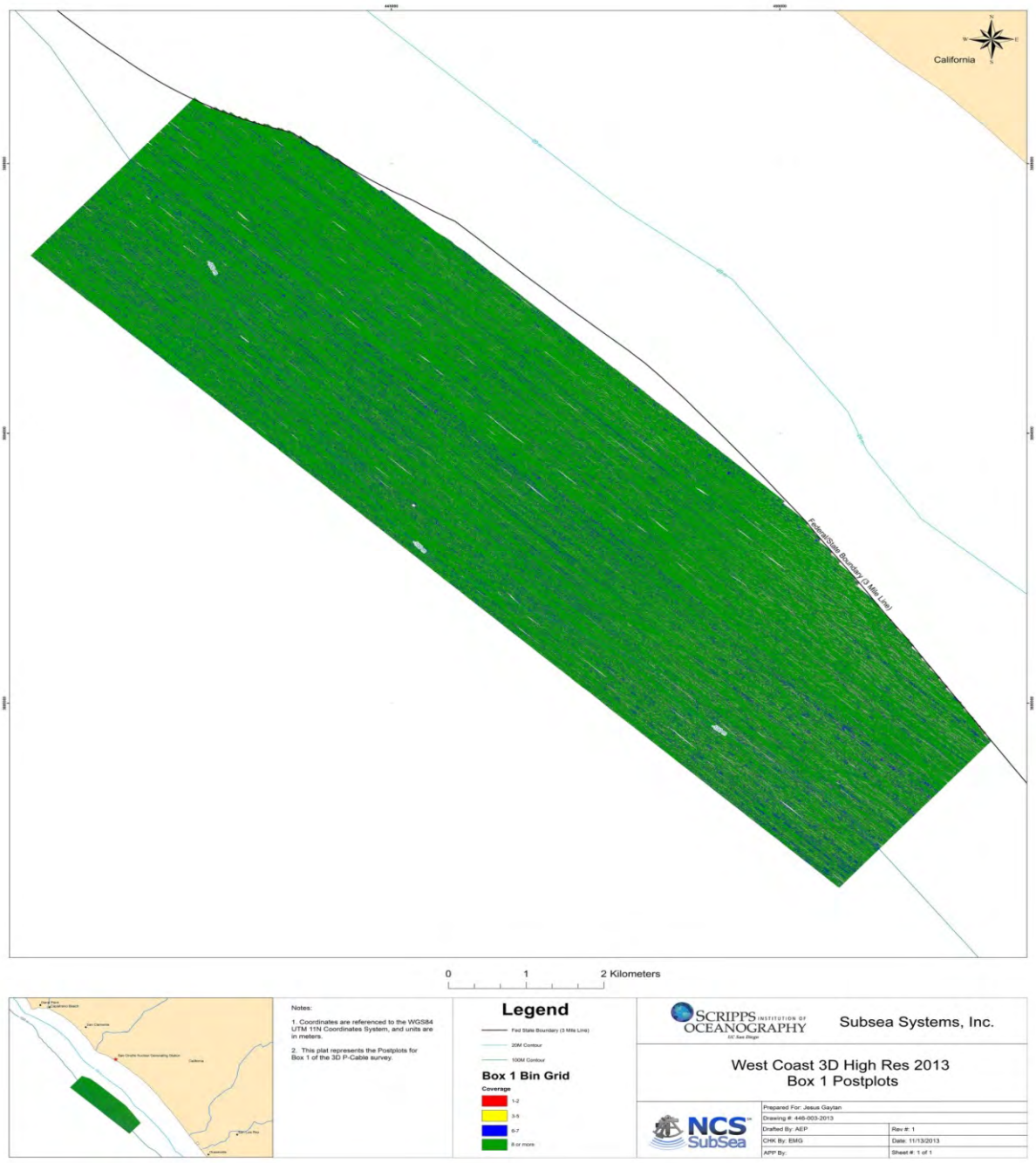

Figure 6.2 Block One bin coverage postplot.

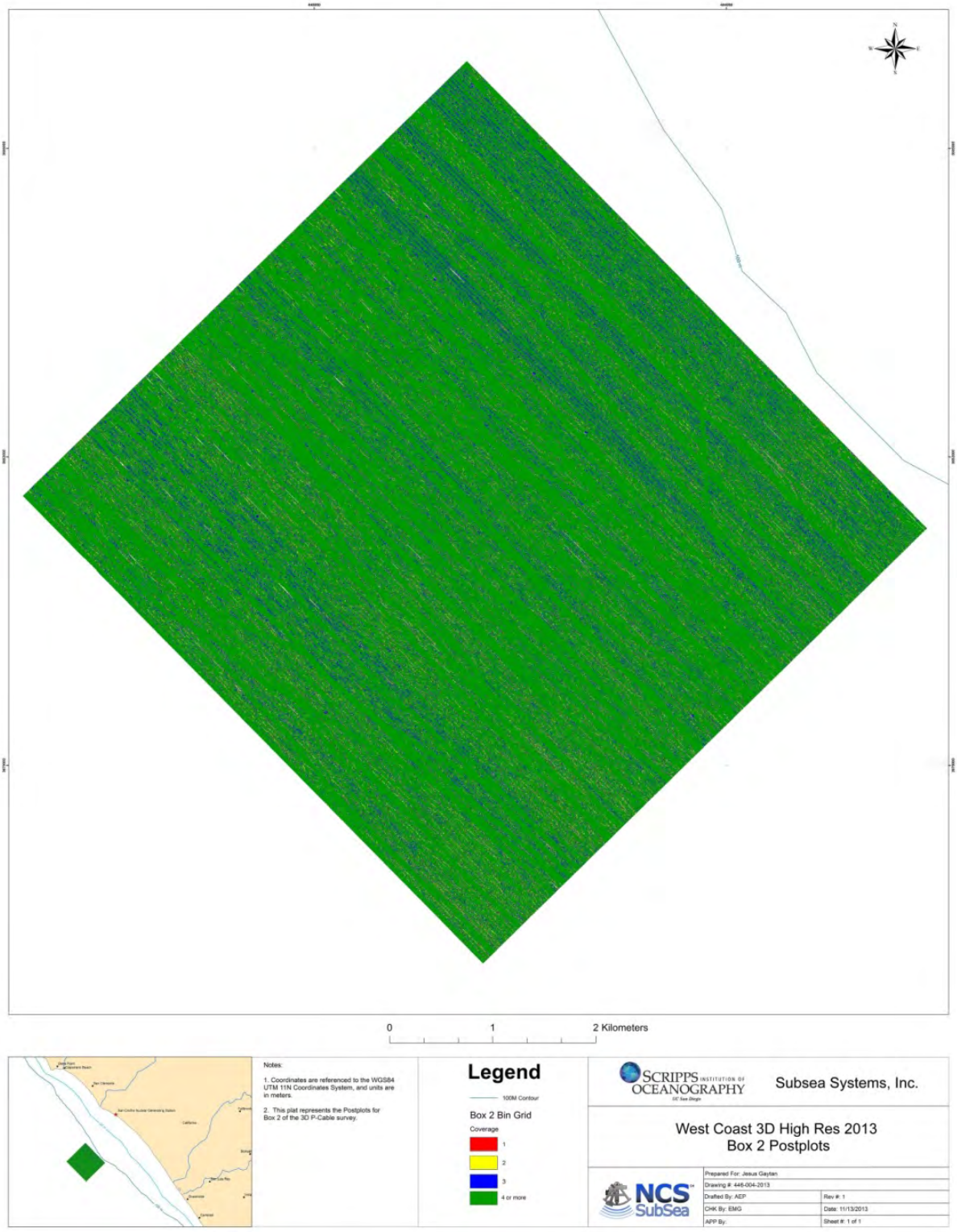

Figure 6.3 Block 2 bin coverage postplot.

Appendix A: Daily Progress Logs

Subsea Systems, Inc.
2290 Eastman Ave., Suite 111, Ventura CA 93003
Phone: 805-658-8388

DAILY PROGRESS REPORT

CLIENT:	Southern Calif. Edison	**DIVISION:**	Survey
JOB DESCRIPTION:	3D P-Cable Survey	**REPORT No.:**	001
VESSEL:	R/V New Horizon	**DATE:**	3-Oct-2013
LOCATION:	UCSD-MarFac	**JOB No.:**	013.90675627
HORIZONTAL DATUM/ZONE:		**CHIEF SCIENTIST**	N. Driscoll
VERTICAL DATUM:	Sea Surface	**TELEPHONE:**	(760) 505 9661

	Name
GEOPHYSICAL ENGINEER	M. Barth
SURVEY PARTY CHIEF	C. Chamberlain
GEOPHYSICAL SURVEY TECH.	
SENIOR SURVEYOR	
SURVEYOR MANAGER	
SURVEYOR	
DECK SUPERVISOR	

HEALTH AND SAFETY:

WEATHER:

	Wind (Kts)	Dir.	Temp (◦F)	Visibility	Sea State
06:00					
12:00					
18:00					
0:00					

04:00	Barth / Chamberlain on travel.
	Barth driving from Venture; Chamberlain flying in from San Francisco
	Barth picks up Chamberlain at SAN and travel to UCSD MarFac.
10:40	Barth / Chamberlain arrive Marfac and meet with George Sutherland and Paul to discuss Mob progess.
	Welding and installation of 01 Deck extension in progress.
	Begin installation of electronics.
	Towing, lifting, signal cable and source tow blocks hung on A-frame
16:30	Finish for day

Party Chief		Approval	
	Subsea Systems Inc.		Client Representative

Subsea Systems, Inc.
2290 Eastman Ave., Suite 111, Ventura CA 93003
Phone: 805-658-8388

DAILY PROGRESS REPORT

CLIENT:	Southern Calif. Edison	**DIVISION:**	Survey
JOB DESCRIPTION:	3D P-Cable Survey	**REPORT No.:**	002
VESSEL:	R/V New Horizon	**DATE:**	4-Oct-2013
LOCATION:	UCSD-MarFac	**JOB No.:**	013.90675627
HORIZONTAL DATUM/ZONE:		**CHIEF SCIENTIST**	N. Driscoll
VERTICAL DATUM:	Sea Surface	**TELEPHONE:**	(760) 505 9661

	Name
GEOPHYSICAL ENGINEER	M. Barth
SURVEY PARTY CHIEF	C. Chamberlain
GEOPHYSICAL SURVEY TECH.	
SENIOR SURVEYOR	J. Gaytan
SURVEYOR MANAGER	E. Majzlik
SURVEYOR	M. Hall
DECK SUPERVISOR	R. Steinhous
PROCESSOR	B. Joiner

HEALTH AND SAFETY:

WEATHER:

	Wind (Kts)	Dir.	Temp (◦F)	Visibility	Sea State
06:00					
12:00					
18:00					
0:00					

07:30	Barth / Chamberlain arrive MarFac, onboard R/V New Horizon installing electronics.
	Welding completed.
	Geotrace personnel (B. Joiner) and equipment placed onboard.
	Position and set up processing station.
14:30	Winches place onboard.
17:30	NCS Subsea personnel arrive MarFac
17:35	Finished for day.

Party Chief		Approval	
	Subsea Systems Inc.		Client Representative

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Phone: 805-658-8388

DAILY PROGRESS REPORT

CLIENT:	Southern Calif. Edison	**DIVISION:**	Survey
JOB DESCRIPTION:	3D P-Cable Survey	**REPORT No.:**	003
VESSEL:	R/V New Horizon	**DATE:**	5-Oct-2013
LOCATION:	UCSD-MarFac	**JOB No.:**	013.90675627
HORIZONTAL DATUM/ZONE:		**CHIEF SCIENTIST**	N. Driscoll
VERTICAL DATUM:	Sea Surface	**TELEPHONE:**	(760) 505 9661

	Name
GEOPHYSICAL ENGINEER	M. Barth
SURVEY PARTY CHIEF	C. Chamberlain
GEOPHYSICAL SURVEY TECH.	
SENIOR SURVEYOR	J. Gaytan
SURVEYOR MANAGER	E. Majzlik
SURVEYOR	M. Hall
DECK SUPERVISOR	R. Steinhous
PROCESSOR	

HEALTH AND SAFETY:

WEATHER:

	Wind (Kts)	Dir.	Temp (◦F)	Visibility	Sea State
06:00					
12:00					
18:00					
0:00					

08:45	Arrive at R/V New Horizon
	Continue mobilization activities.
	Installing navigation equipment.
11:25	Home Despot run for hardware and supplies
13:30	Continue mobilization activities.
	Continue installing navigation equipment.
17:15	End of day.

Party Chief		Approval	
	Subsea Systems Inc.		Client Representative

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DAILY PROGRESS REPORT

CLIENT:	Southern Calif. Edison	**DIVISION:**	Survey
JOB DESCRIPTION:	3D P-Cable Survey	**REPORT No.:**	004
VESSEL:	R/V New Horizon	**DATE:**	6-Oct-2013
LOCATION:	UCSD-MarFac	**JOB No.:**	013.90675627
HORIZONTAL DATUM/ZONE:		**CHIEF SCIENTIST**	N. Driscoll
VERTICAL DATUM:	Sea Surface	**TELEPHONE:**	(760) 505 9661

	Name
GEOPHYSICAL ENGINEER	M. Barth
SURVEY PARTY CHIEF	C. Chamberlain
GEOPHYSICAL SURVEY TECH.	
SENIOR SURVEYOR	J. Gaytan
SURVEYOR MANAGER	E. Majzlik
SURVEYOR	M. Hall
DECK SUPERVISOR	R. Steinhous
PROCESSOR	

HEALTH AND SAFETY:

WEATHER:

	Wind (Kts)	Dir.	Temp (◦F)	Visibility	Sea State
06:00					
12:00					
18:00					
0:00					

08:45	Arrive at R/V New Horizon
09:05	HSE Toolbox safety meeting.
09:12	Complete survey equipment installation and test
	Navigation calibration.
11:30	Fry's Electronics run for printer and office supplies.
	Continue navigation checks and calibration.
	Clean and straighten up lab areas.
17:00	End of day.

Party Chief		Approval	
	Subsea Systems Inc.		Client Representative

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DAILY PROGRESS REPORT

CLIENT:	Southern Calif. Edison	**DIVISION:**	Survey
JOB DESCRIPTION:	3D P-Cable Survey	**REPORT No.:**	005
VESSEL:	R/V New Horizon	**DATE:**	7-Oct-2013
LOCATION:	UCSD-MarFac	**JOB No.:**	013.90675627
HORIZONTAL DATUM/ZONE:		**CHIEF SCIENTIST**	N. Driscoll
VERTICAL DATUM:	Sea Surface	**TELEPHONE:**	(760) 505 9661

	Name
GEOPHYSICAL ENGINEER	M. Barth
SURVEY PARTY CHIEF	C. Chamberlain
GEOPHYSICAL SURVEY TECH.	
SENIOR SURVEYOR	J. Gaytan
SURVEYOR MANAGER	E. Majzlik
SURVEYOR	M. Hall
DECK SUPERVISOR	R. Steinhaus
PROCESSOR	F. Landers
PROCESSOR	M. Angel
Geometrics ENGINEER	D. Sheehan
Geometrics ENGINEER	G. Rhett
Geometrics ENGINEER	B. Stozek

HEALTH AND SAFETY:

WEATHER:

Clear

	Wind (Kts)	Dir.	Temp (◦F)	Visibility	Sea State
06:00					
12:00					
18:00					
0:00					

07:30	Arrive UCSD MarFac
07:48	Toolbox Safety meeting
08:20	Take on FUEL.
	Run cellular antenna
	Assemble second paravene.
	Spot signal cable and cross cable winches.
10:00	Geometrics personnel (D. Sheehan, G. Rhett and B. Stozek) onboard and testing P-cable system.
	Load test paravane hangers - passed
	Geotrace personnel (B. Joiner, F. Landers and M. Angel) onboard and checking out processing system.
10:30	Small hydraulic power pack onboard
11:24	Diesel HPU onboard.
	Running hydraulic lines to winches.
	Develop and test paravene deployment/recovery procedures.
	Cut spikes off streamer reel.
	Complete navigation systems check-out.
17:05	End of day

Party Chief		Approval	
	Subsea Systems Inc.		Client Representative

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DAILY PROGRESS REPORT

CLIENT:	Southern Calif. Edison	**DIVISION:**	Survey
JOB DESCRIPTION:	3D P-Cable Survey	**REPORT No.:**	006
VESSEL:	R/V New Horizon	**DATE:**	8-Oct-2013
LOCATION:	UCSD-MarFac	**JOB No.:**	013.90675627
HORIZONTAL DATUM/ZONE:		**CHIEF SCIENTIST**	N. Driscoll
VERTICAL DATUM:	Sea Surface	**TELEPHONE:**	(760) 505 9661

	Name
GEOPHYSICAL ENGINEER	M. Barth
SURVEY PARTY CHIEF	C. Chamberlain
GEOPHYSICAL SURVEY TECH.	
SENIOR SURVEYOR	J. Gaytan
SURVEYOR MANAGER	E. Majzlik
SURVEYOR	M. Hall
DECK SUPERVISOR	R. Steinhaus
Geometrics ENGINEER	D. Sheehan
Geometrics ENGINEER	G. Rhett
Geometrics ENGINEER	B. Stozek

HEALTH AND SAFETY:

WEATHER:

Partly cloudy

	Wind (Kts)	**Dir.**	**Temp (◦F)**	**Visibility**	**Sea State**
06:00					
12:00					
18:00					
0:00					

07:30	Arrive UCSD MarFac
08:11	Toolbox Safety meerting
08:55	Geometrics Engineers onboard replacing printer and enabling Aux channel.
08:59	Grinding off spike welds and making ready streamer reel for spooling streamers.
10:00	On loading streamer creates.
10:18	Spooling streamers onto streamer reel.
13:48	Streamers on reel.
14:00	Making ready to spool paravane tow ropes onto winches.
14:10	Spooling on starboard paravane tow rope onto tow winch.
14:32	Completed.
14:40	Spooling on port paravane tow rope onto tow winch.
15:03	Completed.
	Rigging sparker tow line.
15:15	Spooling recovery rope onto cross cable winch
15:40	Completed.
15:45	Spooling signal cable onto winch
16:00	Completed.
16:15	Secure deck for evening.
16:30	End of day

Party Chief		Approval	
	Subsea Systems Inc.		Client Representative

Mobilization Complete

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DAILY PROGRESS REPORT

CLIENT:	Southern Calif. Edison	**DIVISION:**	Survey
JOB DESCRIPTION:	3D P-Cable Survey	**REPORT No.:**	007
VESSEL:	R/V New Horizon	**DATE:**	9-Oct-2013
LOCATION:	UCSD-MarFac	**JOB No.:**	013.90675627
HORIZONTAL DATUM/ZONE:		**CHIEF SCIENTIST**	N. Driscoll
VERTICAL DATUM:	Sea Surface	**TELEPHONE:**	(760) 505 9661

	Name
GEOPHYSICAL ENGINEER	M. Barth
SURVEY PARTY CHIEF	C. Chamberlain
GEOPHYSICAL SURVEY TECH.	
SENIOR SURVEYOR	J. Gaytan
SURVEYOR MANAGER	E. Majzlik
SURVEYOR	M. Hall
DECK SUPERVISOR	R. Steinhaus
Geometrics ENGINEER	D. Sheehan
Geometrics ENGINEER	G. Rhett
Geometrics ENGINEER	B. Stozek
Consultant	G. Barker

HEALTH AND SAFETY:

WEATHER:

Overcast with rain expected

	Wind (Kts)	**Dir.**	**Temp (◦F)**	**Visibility**	**Sea State**
06:00					
12:00					
18:00					
0:00					

06:45	Arrive UCSD MarFac
08:00	NCS onboard, Rhett and Gaytan move aboard
08:05	G. Barker onboard
08:11	Toolbox Safety meerting
08:25	Geometrics personnel onboard
08:45	Wet test cross cable - Leakage detected and isolated to first GPS box.
	Fault identified as crimped wire on 60v line.
09:24	Spool cross cable onto winch
09:30	Glen, Ian and Robert rigging paravens.
09:45	Rig and test Stbd paravane deployment and recovery techniques.
10:00	Rigging sparker tow line
10:23	GPS box repaired and reassembled.
10:38	Complete spooling cross mcable on winch.
11:00	Geometrics replacing bad SPSU withh new unit from San Jose.
11:15	Rig and test Port paravane deployment and recovery techniques.
12:30	Continue work on port paravane.
13:00	Port paravane rigging complete.
14:00	Splice fender floats into sparker tow cable.
14:30	Splicing complete on sparker tow cable.
14:45	Sparker / Boomer towed systems onboard.
15:00	Craning aboard turbines, paravane GPS stands and misc. equipment
15:30	Securing deck for transit.
14:30	End of day. - **MOBILIZATION COMPLETE**

Party Chief		Approval	
	Subsea Systems Inc.		Client Representative

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DAILY PROGRESS REPORT

CLIENT:	Southern Calif. Edison	**DIVISION:**	Survey
JOB DESCRIPTION:	3D P-Cable Survey	**REPORT No.:**	008
VESSEL:	R/V New Horizon	**DATE:**	10-Oct-2013
LOCATION:	UCSD-MarFac	**JOB No.:**	013.90675627
HORIZONTAL DATUM/ZONE:		**CHIEF SCIENTIST**	N. Driscoll
VERTICAL DATUM:	Sea Surface	**TELEPHONE:**	(760) 505 9661

Position	Name
GEOPHYSICAL ENGINEER	M. Barth
SURVEY PARTY CHIEF	C. Chamberlain
GEOPHYSICAL SURVEY TECH.	J.Holmes
SENIOR SURVEYOR	J. Gaytan
SURVEYOR MANAGER	E. Majzlik
SURVEYOR	A. Parish
SURVEYOR	S. Traceski
SURVEYOR	D. Fontenot
SURVEYOR	M. Hall
DECK SUPERVISOR	R. Steinhaus
Geometrics ENGINEER	D. Shehan
Geometrics ENGINEER	G. Rhett
Geometrics ENGINEER	B. Stozek
Consultant	G. Barker
SIO Grad Students & 2 Processors	

HEALTH AND SAFETY:

HSE Toolbox meeting held at 12:00hrs to discuss deployment and recovery of P-cable system given by R. Steinhaus

WEATHER:

Partly cloudy and cool in the AM.

Clear and mild in the PM

	Wind (Kts)	Dir.	Temp (◦F)	Visibility	Sea State
06:00					
12:00					
18:00					
0:00					

06:40	Arrive UCSD MarFac
06:45	Onboard R/V New Horizon.
07:00	Tie down lose equipment storage creates and off load unneceded materials.
07:30	Deck secured for transit
07:40	Deck Suporvisor reported that the paravane tow briddles were installed up-side down.
07:52	Delay departure to rectify tow bridle rigging and add GPS stand-offs and turbines to paravenes
08:00	Re-rigging starboard paravane tow bridle.
08:45	Installing GPS paravane stand-off and turbine.
09:20	Starboard paravaneback on hanger
09:30	Port paravane aboard for re-rigging and installation of GPS paravane stand-off and turbine.
10:15	Port paravane rework complete
10:20	Securing paravanes for transit.
10:38	Single-up on all lines
10:44	Gangway away.
10:50	All off and underway.
12:00	**On-site HSE meeting to discuss activities for the day : Practice deployment and recoverey**
12:15	**HSE meeting adjourned.**
12:22	Make ready for practice deployment.
12:29	Lowering port and starboard paravanes to deployment position from transit position.
12:40	Deploying port paravane.
13:05	Port paravane in the water.
13:14	Deploying port paravane to 105m.
13:20	Deploying starboard paravane
13:50	Starboard paravane in the water.
13:51	Deploying starboard paravane to 105m.

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DAILY PROGRESS REPORT

13:59	Paravanes fully deployed and bringing speed up to 4.5 knots.
14:00	A-frame noted to be "working" laterally under the load. Capt and Chief Scientist discuss situation.
	Thinking is that with the cross cable, the paravanes will be drawn closer together and direct the lateral
	forces more toward the aft and consequently reducing the lateral strain on the A-frame.
14:25	Recovering paravanes.
14:32	Both paravanes hauled in along side while preparing cross cable for deployment.
14:45	Redeploying starboard paravane with cross cable, signal cable and tri-point GPS pod.
15:05	Redeploying port paravane with cross cable and spur line GPS pod.
15:20	System deployed with everything except streamers.
15:22	Signal cable out to 110m at drum.
15:23	Motoring about for vessel crew to get familiar with how the vessel handles with the paravanes out.
16:40	Recovering paravanes, cross cable and signal cab le
16:55	Cross cable and signal cable aboard
17:15	Starboard paravane aboard.
17:25	Port paravane aboard.
17:30	Port paravane secured in transit position.
17:37	Starboard paravane secured in transit position.
17:40	In transit to rendezvous with vessel assist to transfer G. Barker, E. Majzlik, D. Shehan, G. Rhett
	and B. Stozek.
19:14	Vessel assist alongside.
19:17	G. Barker, E. Majzlik, D. Shehan, G. Rhett and B. Stozek depart vessel.
19:22	Underway to scout Box One survey area.
23:59	Continuing transit to survey area

Party Chief		Approval	
	Subsea Systems Inc.		Client Representative

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DAILY PROGRESS REPORT

CLIENT:	Southern Calif. Edison	**DIVISION:**	Survey
JOB DESCRIPTION:	3D P-Cable Survey	**REPORT No.:**	009
VESSEL:	R/V New Horizon	**DATE:**	11-Oct-2013
LOCATION:	Offshore So. Calif.	**JOB No.:**	013.90675627
HORIZONTAL DATUM/ZONE:	UTM / 11N	**CHIEF SCIENTIST**	N. Driscoll
VERTICAL DATUM:	Sea Surface	**TELEPHONE:**	(760) 505 9661

Position	Name
GEOPHYSICAL ENGINEER/P.M.	M. Barth
SURVEY PARTY CHIEF	C. Chamberlain
SURVEYOR MANAGER	J. Gaytan
SURVEYOR	M. Hall
SURVEYOR	A. Parish
SURVEYOR	S. Traceski
SURVEYOR	D. Fontenot
DECK SUPERVISOR	R. Steinhaus
DATA PROCESSOR	F. Landers
DATA PROCESSOR	M. Angel
SIO PERSONNEL	M. Lande, G. Icarkus
SIO PERSONNEL	V. Sahakian, S. Klotsko
SIO PERSONNEL	J. Holmes
UNR GRAD STUDENT	J. Bormann

HEALTH AND SAFETY:

WEATHER:
Clear

	Wind (Kts)	Dir.	Temp (◦C)	Barometric Pressure	Sea State
06:00	3.6	360°	15.9	1014.9	2
12:00					
18:00					
0:00	4.5	38°	17	1014.9	2

00:01	Continuing transit to Box One area for scouting.
02:00	On site awaiting daylight to commence scouting runs of area
06:45	Commence scouting of Box One area
07:10	Norwegian bouys (2) noted near northern end of scout line 1 to port and starboard.
08:00	Running deck power cables for Boomer, repair paravane strobe light and cabling to turbine.
09:00	Continueing to scout survey area.
09:53	Scouting complete.
10:00	**Fire and boat drill.**
10:30	**Vessel orientation.**
11:00	HSE Toolbox safety meeting
11:15	Preparation to deploy P-cable system.
11:55	Reposition Starboard paravane to launch positiion.
12:02	Reposition Port paravane to launch positiion.
12:07	Rigging repaired strobe beacon and GPS cabling.
12:25	Port paraqvane in the water and payed out 20m.
12:44	Starboard paravane in the water (with difficulty).
13:00	Populating cross cable with streamer sections.
14:57	Last streamer (14) in the water and starboard paravane fully deployed.
15:15	Port paravane payed out.
15:20	Spread fully deployed.
15:30	Rigging Boomer source for deployment.
16:23	Boomer in the water.
16:29	Boomer source set at 71m.
16:31	Bring vessel speed up to 4 -4.5kts
17:05	SOL Test 1006Z
17:15	Divert to starboard to avoid fishing gear.

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DAILY PROGRESS REPORT

17:23	SOL 1006A, FSP 1042, Seq 2 - **NO SOURCE GPS**
18:14	EOL 1006A, LSP 4121
18:15	Repositioning for SOL 1594
18:35	**Recover Boomer source to replace GPS pod.**
19:11	**Change INI file for new source GPS**
19:27	**Redeploy Boomer source**
19:34	SOL 1594A, FSP 5523, Seq 3
21:20	EOL 1594A, LSP 969
21:57	SOL 1018A, FSP 1748, Seq 4
22:53	EOL 1018A, LSP 4262
23:39	SOL 1606A, FSP 5516, Seq 5
23:40	**GeoEel system problems, Line aborted.**
23:42	EOL 1606A, LSP 5367
23:59	Positioning for Line 1606B

Party Chief		Approval	
	Subsea Systems Inc.		Client Representative

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DAILY PROGRESS REPORT

CLIENT:	Southern Calif. Edison	**DIVISION:**	Survey
JOB DESCRIPTION:	3D P-Cable Survey	**REPORT No.:**	010
VESSEL:	R/V New Horizon	**DATE:**	12-Oct-2013
LOCATION:	Offshore So. Calif.	**JOB No.:**	013.90675627
HORIZONTAL DATUM/ZONE:	UTM / 11N	**CHIEF SCIENTIST**	N. Driscoll
VERTICAL DATUM:	Sea Surface	**TELEPHONE:**	(760) 505 9661

Position	Name
GEOPHYSICAL ENGINEER/P.M.	M. Barth
SURVEY PARTY CHIEF	C. Chamberlain
SURVEYOR MANAGER	J. Gaytan
SURVEYOR	M. Hall
SURVEYOR	A. Parish
SURVEYOR	S. Traceski
SURVEYOR	D. Fontenot
DECK SUPERVISOR	R. Steinhaus
DATA PROCESSOR	F. Landers
DATA PROCESSOR	M. Angel
SIO PERSONNEL	M. Lande, G. Icarkus
SIO PERSONNEL	V. Sahakian, S. Klotsko
SIO PERSONNEL	J. Holmes
UNR GRAD STUDENT	J. Bormann

HEALTH AND SAFETY:

WEATHER:
Clear

	Wind (Kts)	Dir.	Temp (◦C)	Barometric Pressure	Sea State
06:00	5.0	116°	16.3°	1014.5	1
12:00					
18:00					
0:00	6	165°	17.5°	1014.3	2

00:01	Positioning for SOL 1606B
00:29	SOL 1606B, FSP 5578, Seq. 6
02:13	EOL 1606B, LSP 0945
02:53	SOL 1030A, FSP 1663, Seq 7
03:56	EOL 1030A, LSP 4311
04:42	SOL 1618A, FSP 5521, Seq 8
06:27	EOL 1618A, LSP 945
07:03	SOL 1042A, FSP 1560, Seq 9
08:06	EOL 1042A, LSP 4351
08:08	**Navigation modification - turned off handshake between nav and the spsu during line change.**
09:00	SOL 1630A, FSP 5514, Seq 11
09:04	EOL 1630A, LSP 5297 (**Shut down for marine life infringement)**
09:08	SOL 1630B, FSP 5122 , Seq 12 **(continuation of line 1630A)**
09:28	**Streamer reel repaired by ship's engineer Chumlee.**
10:42	EOL 1630B, LSP 943
10:53	**Swap out CSP-D Boomer power supplies. Power set to1750j**
11:15	SOL 1054A, FSP 1474, Seq 13.
12:23	EOL 1054A, LSP 4426
12:24	Positioning for SOL 1642A
13:10	SOL 1642A, FSP 5517, Seq 14
13:57	EOL 1642A, LSP 3616 **(PSO Shutdown)**
13:59	SOL 1642A, FSP 3511, Seq 14 **(PSO All Clear)**
14:56	EOL 1642A, LSP 964
15:30	SOL 1066A, FSP 1424, Seq 15
16:39	EOL 1066A, LSP 4483
16:40	Positioning for SOL 1654A. Logging Nav data 1066Z, Seq 16

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DAILY PROGRESS REPORT

16:41	Seq 16 test SEQ to run Navpoint w/o source
17:20	SOL 1654A, FSP 5490, Seq 17
19:06	EOL 1654A, LSP 964
19:07	Positioning for SOL 1078A
19:42	SOL 1078A, FSP 1399, Seq19
20:51	EOL 1078A, LSP 4591
20:52	Positioning for SOL 1666A
21:36	SOL 1666A, FSP 5507, Seq 21
23:16	EOL 1666A, LSP 976
23:17	Positioning for SOL 1090A
23:49	SOL 1090A, FSP 1381, Seq 23
23:59	On line 1090A

Party Chief		Approval	
	Subsea Systems Inc.		Client Representative

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DAILY PROGRESS REPORT

CLIENT:	Southern Calif. Edison	**DIVISION:**	Survey
JOB DESCRIPTION:	3D P-Cable Survey	**REPORT No.:**	011
VESSEL:	R/V New Horizon	**DATE:**	13-Oct-2013
LOCATION:	Offshore So. Calif.	**JOB No.:**	013.90675627
HORIZONTAL DATUM/ZONE:	UTM / 11N	**CHIEF SCIENTIST**	N. Driscoll
VERTICAL DATUM:	Sea Surface	**TELEPHONE:**	(760) 505 9661

Position	Name
GEOPHYSICAL ENGINEER/P.M.	M. Barth
SURVEY PARTY CHIEF	C. Chamberlain
SURVEYOR MANAGER	J. Gaytan
SURVEYOR	M. Hall
SURVEYOR	A. Parish
SURVEYOR	S. Traceski
SURVEYOR	D. Fontenot
DECK SUPERVISOR	R. Steinhaus
DATA PROCESSOR	F. Landers
DATA PROCESSOR	M. Angel
SIO PERSONNEL	M. Lande, G. Icarkus
SIO PERSONNEL	V. Sahakian, S. Klotsko
SIO PERSONNEL	J. Holmes
UNR GRAD STUDENT	J. Bormann

HEALTH AND SAFETY:

WEATHER:

Overcast in the AM

Partly cloudy at mid-day

Cloudy in the PM

	Wind (Kts)	Dir.	Temp (◦C)	Barometric Pressure	Sea State
06:00	5	119°	17.2°	1014.2	2
12:00	8	223°	17.1°	1015.9	2
18:00	3	189°	15.2°	1015.2	1
0:00	4	60°	15.9°	1015.1	1

00:01	On line 1090A
01:25	EOL 1090A, LSP 4607, Seq 23
01:26	Positioning for SOL 1678A
02:15	SOL 1678A, FSP 5497, Seq 24
03:58	EOL 1678A, LSP 948
03:59	Position for SOL 1102A
04:00	**Replace / test primary CSP-D power supply - Load Fault issue unresolved.**
04:10	Return to running back-up CSP-D power supply.
04:31	SOL 1102A, FSP 1341, Seq 25
	Numerous errors (Trigger time delay exceeded, Disc busy, Nav string not detected, Network slow
	error) occurred between s/p 3425-3570 and s/p 3738-3821. After several rearmings the system was
	again functional.
05:46	EOL 1102A, LSP 4689
05:48	Positioning for SOL 1690A
06:27	SOL 1690A, FSP 5491, Seq 26
07:56	EOL 1690A, LSP 1457
07:57	Positioning for SOL 1114A
08:40	SOL 1114A, FSP 1321, Seq 27
08:50	Abort line due to numerous data logging errors. CNT-2 computer and ethernet switch issues.
09:55	SOL 1114B, FSP - , Seq 28 - **NO TRIGGER RECEIVED FROM NAV**
10:00	SOL 1114B, FSP 1543, Seq 29 **(Restart of Line 1114B)**
11:12	EOL 1114B, LSP 4730
11:14	Positioning for SOL 1702A
12:00	Circle to avoid fishing buoy
12:10	Turn radius too sharp, port paravane stalled, all ok resume turn.
12:15	Fishing boat on port side, will shoot line 1582 instead of 1702 to avoid conflict.

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12:17	SOL 1582A, FSP 5529, Seq 34 - Off line at SOL due to fishing gear.
12:34	Back on line 1528A at S/P 4809
14:02	EOL 1582A, LSP 946
14:03	Positioning for SOL 1114C to re-shoot.
14:24	SOL 1114C, FSP 1332, Seq 37
15:48	EOL 1114C, LSP 4737
15:49	Positioning for SOL 1702C
16:26	SOL 1702C, FSP 5540, Seq 38
16:41	EOL 1702C, LSP 4850
16:42	Circle due to source failure
17:17	SOL 1702D, FSP 4719, Seq 39
18:46	EOL 1702D, LSP 944
18:47	Positioning for SOL 1126A
19:17	SOL 1126A, FSP 1460, Seq 40
20:33	EOL 1126A, LSP 4824
20:34	Positioning for SOL 1714A
21:05	SOL 1714A, FSP 5472, Seq 42
22:52	EOL 1714A, LSP 5472
22:53	Positioning for SOL 1138A
23:18	SOL 1138A, FPS 1256, Seq 43
23:59	On line 1138A

Party Chief		Approval	
	Subsea Systems Inc.		Client Representative

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DAILY PROGRESS REPORT

CLIENT:	Southern Calif. Edison	**DIVISION:**	Survey
JOB DESCRIPTION:	3D P-Cable Survey	**REPORT No.:**	012
VESSEL:	R/V New Horizon	**DATE:**	14-Oct-2013
LOCATION:	Offshore So. Calif.	**JOB No.:**	013.90675627
HORIZONTAL DATUM/ZONE:	UTM / 11N	**CHIEF SCIENTIST**	N. Driscoll
VERTICAL DATUM:	Sea Surface	**TELEPHONE:**	(760) 505 9661

Position	Name
GEOPHYSICAL ENGINEER/P.M.	M. Barth
SURVEY PARTY CHIEF	C. Chamberlain
SURVEYOR MANAGER	J. Gaytan
SURVEYOR	M. Hall
SURVEYOR	A. Parish
SURVEYOR	S. Traceski
SURVEYOR	D. Fontenot
DECK SUPERVISOR	R. Steinhaus
DATA PROCESSOR	F. Landers
DATA PROCESSOR	M. Angel
SIO GRAD STUDENTS	M. Lande, G. Icarkus
SIO GRAD STUDENTS	V. Sahakian, S. Klotsko
SIO GRAD STUDENTS	J. Holmes
UNR GRAD STUDENT	J. Bormann

HEALTH AND SAFETY:

WEATHER:
Overcast in the AM
Partly cloudy at mid-day
Cloudy in the PM

	Wind (Kts)	Dir.	Temp (◦C)	Barometric Pressure	Sea State
06:00	5	338°	15.7°	1015.9	1
12:00					
18:00					
0:00					

00:01	On line 1138A
00:37	EOL 1138A, LSP 4807
00:39	Positioning for SOL 1726A
01:35	SOL 1726A, FSP 5481, Seq 45
	Nav system not functioning. Delayed SOL did not allow recording of data between s/p 5481 - 4833.
01:47	Bridge reported a possible buoy snag on port paravane. No buoy seen, array shape OK, no noise on
	port streamer channels. Continuing down line.
03:03	EOL 1726A, LSP
03:04	Positioning for SOL 1150A
03:29	SOL 1150A, FSP 1230, Seq 46
04:52	EOL 1150A, LSP 4927
04:53	Positioning for SOL 1738A
05:26	SOL 1738A, FSP 5494, Seq 47
07:10	EOL 1738A, LSP 948
07:12	Positioning for SOL 1162A
07:35	SOL 1162A, FSP 1193, Seq 48
08:46	EOL 1162A, LSP 4404 **(PSO Shutdown)**
08:50	SOL 1162A, FSP 4598, Seq 48 **(PSO All Clear)**
09:01	EOL 1162A, LSP 4979
09:06	**HSE Toolbox meeting before recovering source and port paravane to remove fouled fishing gear.**
09:08	Recovering source and Port paravane.
09:12	Source onboard, cleared of kelp and temporarilly sedcured
09:19	Port paravane recovered up close to the stern
09:20	Removing fishing float, line and cleared kelp from tri-point GPS float.
09:27	Redeploying Port paravane.
09:35	Replacing stern boomer plate (flooded and casting cracked)

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DAILY PROGRESS REPORT

10:00	Redeploying boomer source.
10:13	While returning to work area another fishing float was seen between the array but appeared to pass
	beneath the cross cable.
10:20	Continuing to reposition for SOL
10:48	SOL 1750A, FSP 5293, Seq 49
11:48	EOL 1750A, LSP 937. Leakage increasing slowly, payed out +2m of signal cable.
11:50	Positioning for SOL 1174A
12:52	SOL 1174A, FSP 1162, Seq 50
14:18	EOL 1174A, LSP 5042
14:19	Positioning for SOL 1762A
14:47	SOL 1762A, FSP 5601, Seq 51. CSP-D power supply shutdown.
16:33	EOL 1762A, LSP 943
16:34	Positioning for SOL 1186A
16:59	SOL 1186A, FSP 1129, Seq 52. CSP-D power supply shutdown.
18:08	EOL 1186A, LSP 5102
18:30	Vessel alongside with spare CSP-D power supply and boomer plate
	During installation a faulty HV connector on power supply in use. By passed connector and used
	existing power supply.
	Vessel away
	Positioning for SOL 1198A
21:24	SOL 1198A, FSP 1119, Seq 54
22:53	EOL 1198A, LSP5156
22:54	Positioning for SOL 1774A
23:35	SOL 1774A, FSP 5482, Seq 55, Seq 54
23:59	On line 1774A

Party Chief		Approval	
	Subsea Systems Inc.		Client Representative

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DAILY PROGRESS REPORT

CLIENT:	Southern Calif. Edison	**DIVISION:**	Survey
JOB DESCRIPTION:	3D P-Cable Survey	**REPORT No.:**	013
VESSEL:	R/V New Horizon	**DATE:**	15-Oct-2013
LOCATION:	Offshore So. Calif.	**JOB No.:**	013.90675627
HORIZONTAL DATUM/ZONE:	UTM / 11N	**CHIEF SCIENTIST**	N. Driscoll
VERTICAL DATUM:	Sea Surface	**TELEPHONE:**	(760) 505 9661

Position	Name
GEOPHYSICAL ENGINEER/P.M.	M. Barth
SURVEY PARTY CHIEF	C. Chamberlain
SURVEYOR MANAGER	J. Gaytan
SURVEYOR	M. Hall
SURVEYOR	A. Parish
SURVEYOR	S. Traceski
SURVEYOR	D. Fontenot
DECK SUPERVISOR	R. Steinhaus
DATA PROCESSOR	F. Landers
DATA PROCESSOR	M. Angel
SIO PERSONNEL	M. Lande, G. Ucarkus
SIO PERSONNEL	V. Sahakian, S. Klotsko
SIO PERSONNEL	J. Holmes
UNR GRAD STUDENT	J. Bormann

HEALTH AND SAFETY:

WEATHER:

Clear and warm in the AM

	Wind (Kts)	Dir.	Temp (◦C)	Barometric Pressure	Sea State
06:00	0.9	329°	15.6°	1012.6	calm
12:00	3.8	320°	18.5°	1011.0	calm
18:00	4.8	330°	19.9°	1010.9	flat
0:00	1	330°	18.4°	1015.1	calm

00:01	On line 1774A
01:07	EOL 1774A, LSP 947
01:09	Positioning for SOL 1210A
01:31	SOL 1210A, FSP 1033, Seq 56
03:04	EOL 1210A, LSP 5206. Leakage creeping up - in the 200-300 range.
03:04	Positioning for SOL 1786A
03:33	SOL 1786A, FSP 5490, Seq 57
	Leakage peaked out at 1399, Current 3.04 A. Awakened M. Barth for recommendation. Will continue to shoot.
05:20	EOL 1786A, LSP 947
05:21	Positioning for SOL 1222A
05:57	SOL 1222A, FSP 1002, Seq 58
07:43	EOL 1222A, LSP 5299
07:44	Positioning for SOL 1798A
08:13	SOL 1798A, FSP 5490, Seq 59
10:06	EOL 1798A, LSP 946
10:06	Positioning for SOL 1234A
10:28	Stand down for Protected Species encroachment
10:37	Clear to survey
10:38	SOL 1234A, FSP 1127, Seq 60 leakage in signal cable
11:23	EOL 1234A, LSP 5325
12:56	SOL 1810A, FSP 5518, Seq 61 Ongoing leakage in signal cable
14:48	EOL 1810A, LSP 945; Swap out Bang Box on line change S/N 2080453
15:12	SOL 1246A, FSP 887, Seq 62 Continued leakage in signal cable
17:02	EOL 1246A, LSP 5385
17:30	SOL 1822A, FSP 5589, Seq 63 Ongoing leakage in signal cable
19:25	EOL 1822A, LSP 945

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19:50	SOL 1258A, FSP 914, Seq 64 Ongoing signal cable leakage
21:44	EOL 1258A, LSP 5433
22:14	SOL 1834A, FSP 5530, Seq 65 Ongoing signal cable leakage
23:59	On line 1834A

Party Chief		Approval	
	Subsea Systems Inc.		Client Representative

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DAILY PROGRESS REPORT

CLIENT:	Southern Calif. Edison	**DIVISION:**	Survey
JOB DESCRIPTION:	3D P-Cable Survey	**REPORT No.:**	014
VESSEL:	R/V New Horizon	**DATE:**	16-Oct-2013
LOCATION:	Offshore So. Calif.	**JOB No.:**	013.90675627
HORIZONTAL DATUM/ZONE:	UTM / 11N	**CHIEF SCIENTIST**	N. Driscoll
VERTICAL DATUM:	Sea Surface	**TELEPHONE:**	(760) 505 9661

Position	Name
GEOPHYSICAL ENGINEER/P.M.	M. Barth
SURVEY PARTY CHIEF	C. Chamberlain
SURVEYOR MANAGER	J. Gaytan
SURVEYOR	M. Hall
SURVEYOR	A. Parish
SURVEYOR	S. Traceski
SURVEYOR	D. Fontenot
DECK SUPERVISOR	R. Steinhaus
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DATA PROCESSOR	M. Angel
SIO PERSONNEL	M. Lande, G. Ucarkus
SIO PERSONNEL	V. Sahakian, S. Klotsko
SIO PERSONNEL	J. Holmes
UNR GRAD STUDENT	J. Bormann

HEALTH AND SAFETY:

WEATHER:

Clear and warm in the AM

	Wind (Kts)	Dir.	Temp (◦C)	Barometric Pressure	Sea State
06:00	3	286°	18.5°	1015.2	1
12:00	5.1	320°	20.8	1016.2	1
18:00	7.4	353°	20.6	1015.2	1
0:00	9.0	031°	18.4	1014.9	1

00:01	On line 1834A
00:07	EOL 1834A, LSP 5530
00:08	Positioning for SOL 1270A
00:34	SOL 1270A, FSP 982, Seq 66 Ongoing signal cable leakage
02:25	EOL 1270A, LSP 5469
02:26	Positioning for SOL 1846A
02:58	SOL 1846A, FSP , Seq 67 **NO TRIGGER AT SOL, Reset and Rearm SPSU**
03:04	SOL 1846A, FSP 5104, Seq 67. Late start for reasons noted above.
04:50	EOL 1864A, LSP 943
04:52	Positioning for SOL 1282A
05:16	SOL 1282A, FSP 990, Seq 68
07:07	EOL 1282A, LSP 5521
07:09	Positioning for SOL 1858A
07:34	SOL 1858A, FSP 5506, Seq 69
07:40	PSO Shutdown S/P 5241
07:43	PSO Clear S/P 5142
09:29	EOL 1858A, LSP 947
09:31	Positioning for SOL 1294A
09:54	SOL 1294A, FSP , Seq 70
10:09	Off line at S/P 1583 to avoid fishing gear.
10:30	Back on line at S/P 2275
11:49	EOL 1294A, LSP 5538
12:16	SOL 1870A, FSP 5556, Seq 71
14:10	EOL 1870A, LSP 940
14:31	SOL 1450A, FSP 910, Seq 72
16:27	EOL 1450A, LSP 5538

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DAILY PROGRESS REPORT

16:55	SOL 1882A, FSP 5491, Seq 73
18:48	EOL 1882A, LSP 944
19:24	SOL 1150B, FSP 1292, Seq 74
20:52	EOL 1150B, LSP 4940
21:36	SOL 1894A, FSP 5573, Seq 75
23:31	EOL 1894A, LSP 1943
23:59	Positioning for SOL 1078A

Party Chief		Approval	
	Subsea Systems Inc.		Client Representative

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DAILY PROGRESS REPORT

CLIENT:	Southern Calif. Edison	**DIVISION:**	Survey
JOB DESCRIPTION:	3D P-Cable Survey	**REPORT No.:**	015
VESSEL:	R/V New Horizon	**DATE:**	17-Oct-2013
LOCATION:	Offshore So. Calif.	**JOB No.:**	013.90675627
HORIZONTAL DATUM/ZONE:	UTM / 11N	**CHIEF SCIENTIST**	N. Driscoll
VERTICAL DATUM:	Sea Surface	**TELEPHONE:**	(760) 505 9661

Position	Name
GEOPHYSICAL ENGINEER/P.M.	M. Barth
SURVEY PARTY CHIEF	C. Chamberlain
SURVEYOR MANAGER	J. Gaytan
SURVEYOR	M. Hall
SURVEYOR	A. Parish
SURVEYOR	S. Traceski
SURVEYOR	D. Fontenot
DECK SUPERVISOR	R. Steinhaus
DATA PROCESSOR	F. Landers
DATA PROCESSOR	M. Angel
SIO PERSONNEL	M. Lande, G. Ucarkus
SIO PERSONNEL	V. Sahakian, S. Klotsko
SIO PERSONNEL	J. Holmes
UNR GRAD STUDENT	J. Bormann

HEALTH AND SAFETY:

WEATHER:

Clear in the AM

	Wind (Kts)	Dir.	Temp (◦C)	Barometric Pressure	Sea State
06:00	3	109°	17.4°	1016.2	1
12:00	3	310°	19.0°	1016.5	0
18:00	5.8	327°	19.0°	1012.2	0
0:00	3.3	345°	17.9°	1014.5	1

00:01	Positioning for SOL 1078A
00:12	SOL 1078B, FSP 1388, Seq 76
01:31	EOL 1078B, LSP 4581
01:33	Positioning for SOL 1906A
02:20	SOL 1906A, FSP 5632, Seq 77
04:15	EOL 1906A, LSP 943
04:17	Positioning for SOL 1462A
04:38	SOL 1462A, FSP 919, Seq 78
06:33	EOL 1462A, LSP 5536
06:34	Positioning for SOL 1918A
06:54	SOL 1918A, FSP 5590, Seq 79
08:26	Stand down for protected species
08:27	All clear of protected speciess.
08:51	EOL 1918A, LSP 945
08:52	Positioning for SOL 1474A
08:15	SOL 1474A, FSP 930, Seq 80
11:09	EOL 1474A, LSP 5539
11:11	Positioning for SOL 1930A
11:31	SOL 1930A, FSP 5522, Seq 81
12:15	**General Muster and Instruction on Emergency Breathing Apparatus (EBA) use**
13:28	EOL 1930A, LSP 944
13:52	SOL 1486A, FSP 949, Seq 82
15:46	EOL 1486A, LSP 5542
16:12	SOL 1942A, FSP 5520, Seq 83
18:05	EOL 1942A, LSP 945
18:28	SOL 1306A, FSP 955, Seq 84

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DAILY PROGRESS REPORT

20:20	EOL 1306A, LSP 5542
20:50	SOL 1954A, FSP 5581, Seq 85
22:46	EOL 1954A, LSP 943
23:11	SOL 1318A, FSP 920, Seq 86
23:59	On line 1318A

Party Chief		Approval	
	Subsea Systems Inc.		Client Representative

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DAILY PROGRESS REPORT

CLIENT:	Southern Calif. Edison	**DIVISION:**	Survey
JOB DESCRIPTION:	3D P-Cable Survey	**REPORT No.:**	016
VESSEL:	R/V New Horizon	**DATE:**	18-Oct-2013
LOCATION:	Offshore So. Calif.	**JOB No.:**	013.90675627
HORIZONTAL DATUM/ZONE:	UTM / 11N	**CHIEF SCIENTIST**	N. Driscoll
VERTICAL DATUM:	Sea Surface	**TELEPHONE:**	(760) 505 9661

Position	Name
GEOPHYSICAL ENGINEER/P.M.	M. Barth
SURVEY PARTY CHIEF	C. Chamberlain
SURVEYOR MANAGER	J. Gaytan
SURVEYOR	M. Hall
SURVEYOR	A. Parish
SURVEYOR	S. Traceski
SURVEYOR	D. Fontenot
DECK SUPERVISOR	R. Steinhaus
DATA PROCESSOR	F. Landers
DATA PROCESSOR	M. Angel
SIO PERSONNEL	M. Lande, G. Ucarkus
SIO PERSONNEL	V. Sahakian, S. Klotsko
SIO PERSONNEL	J. Holmes
UNR GRAD STUDENT	J. Bormann

HEALTH AND SAFETY:

WEATHER:

Sunny and clear in the AM

	Wind (Kts)	Dir.	Temp (◦C)	Barometric Pressure	Sea State
06:00	2.9	300°	17.4°	1015.1	0
12:00					
18:00					
0:00					

00:01	On line 1318A
01:05	EOL 1318A, LSP 5539
01:06	Positioning for SOL 1966A
01:35	SOL 1966A, FSP 5538 , Seq 87
03:28	EOL 1966A, LSP 943
03:29	Positioning for SOL 1330A
03:55	SOL 1330A, FSP 970, Seq 88
05:51	EOL 1330A, LSP 5539
05:52	Positioning for SOL 1978A
06:15	SOL 1978A, FSP 5530, Seq 89
08:09	EOL 1978A, LSP 947
08:10	Positioning for SOL 1342A
08:35	SOL 1342A, FSP 936, Seq 90
10:29	EOL 1342A, LSP 5539
10:30	Positioning for SOL 1990A
10:56	SOL 1990A, FSP 5524, Seq 91
12:51	EOL 1990A, LSP 944
13:16	SOL 1354A, FSP 917, Seq 92
15:10	EOL 1354A, LSP 5540
15:15	Retrieve boomer source, remove kelp, redeploy
15:39	SOL 2002A, FSP 5544, Seq 93
17:33	EOL 2002A, LSP 947
17:30	On line change, swap out laptop with original Geometrics computer
18:01	SOL 1366A, FSP 1007, Seq 94 Some incomplete segy files written to disk during line
19:55	EOL 1366A, LSP 5540
20:00	Problems transferring data off Geometrics computer; for acq set Queue by time to "0"

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DAILY PROGRESS REPORT

20:27	SOL 2014A, FSP 5566, Seq 95
20:30	Abort line - problems with bang box
20:35	During change, switch to lower rack mount Geometrics computer
20:45	Switch to spare bang box
21:06	SOL 1810B, FSP 4143, Seq 96, Infill Line
21:27	EOL 1810B, LSP 944
22:56	SOL 1378A, FSP 980, Seq 97
23:50	CPS-D power supply kicked out.
23:59	On line 1378A

Party Chief		Approval	
	Subsea Systems Inc.		Client Representative

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DAILY PROGRESS REPORT

CLIENT:	Southern Calif. Edison	**DIVISION:**	Survey
JOB DESCRIPTION:	3D P-Cable Survey	**REPORT No.:**	017
VESSEL:	R/V New Horizon	**DATE:**	19-Oct-2013
LOCATION:	Offshore So. Calif.	**JOB No.:**	013.90675627
HORIZONTAL DATUM/ZONE:	UTM / 11N	**CHIEF SCIENTIST**	N. Driscoll
VERTICAL DATUM:	Sea Surface	**TELEPHONE:**	(760) 505 9661

Position	Name
GEOPHYSICAL ENGINEER/P.M.	M. Barth
SURVEY PARTY CHIEF	C. Chamberlain
SURVEYOR MANAGER	J. Gaytan
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SIO PERSONNEL	M. Lande, G. Ucarkus
SIO PERSONNEL	V. Sahakian, S. Klotsko
SIO PERSONNEL	J. Holmes
UNR GRAD STUDENT	J. Bormann

HEALTH AND SAFETY:

WEATHER:

Fog in the early AM and clear by 07:00.

Patchy fog throughout the day and evening.

	Wind (Kts)	Dir.	Temp (◦C)	Barometric Pressure	Sea State
06:00	2	265°	15.2°	1015.1	0
12:00	8	285°	16.8°	1016.2	2
18:00	6.9	295°	17.7	1014.2	1
0:00	1	360°	15.7°	1015.2	1

00:01	On line 1318A
00:52	EOL 1378A, LSP 5540
00:52	Positioning for SOL 2014B
00:58	Test firing back-up CSP-D power supply during line change - tested OK
01:18	SOL 2014B, FSP 5578, Seq 98
03:12	EOL 2014B, LSP 945
03:13	Positioning for SOL 1390A
03:38	SOL 1390A, FSP 963 , Seq 99
05:30	EOL 1390A, LSP 5540
05:31	Positioning for SOL 2026A
05:55	SOL 2026A, FSP 5525, Seq 100
07:48	EOL 2026A, LSP 988
07:50	Positioning for SOL 1402A
08:16	SOL 1402A, FSP 968, Seq 101
10:11	EOL 1402A, LSP
10:12	Positioning for SOL 2038A
10:39	SOL 2038A, FSP , Seq 102
12:36	EOL 2038A, LSP 939
13:00	SOL 1414A, FSP 989 Seq 103
14:03	Starboard Paravane GPS stopped working due to low battery; probably obstruction in turbine propeller
14:51	EOL 1414A, LSP 5541
15:18	SOL 2050A, FSP 5568, Seq 104
17:07	EOL 2050A, LSP 933
17:42	SOL 1426A, FSP 920, Seq 105
19:35	EOL 1426A, LSP 5540
20:00	SOL 2062A, FSP 5566, Seq 106

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DAILY PROGRESS REPORT

21:59	EOL 2062A, LSP 943
22:25	SOL 1438A, FSP 885, Seq 107
23:17	SP 2882, High Amplitude Spikes on Channel 25 (Streamer 4, Channel 1)
23:59	On line 1438A

Party Chief		Approval	
	Subsea Systems Inc.		Client Representative

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DAILY PROGRESS REPORT

CLIENT:	Southern Calif. Edison	**DIVISION:**	Survey
JOB DESCRIPTION:	3D P-Cable Survey	**REPORT No.:**	018
VESSEL:	R/V New Horizon	**DATE:**	20-Oct-2013
LOCATION:	Offshore So. Calif.	**JOB No.:**	013.90675627
HORIZONTAL DATUM/ZONE:	UTM / 11N	**CHIEF SCIENTIST**	N. Driscoll
VERTICAL DATUM:	Sea Surface	**TELEPHONE:**	(760) 505 9661

Position	Name
GEOPHYSICAL ENGINEER/P.M.	M. Barth
SURVEY PARTY CHIEF	C. Chamberlain
SURVEYOR MANAGER	J. Gaytan
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SIO PERSONNEL	V. Sahakian, S. Klotsko
SIO PERSONNEL	J. Holmes
UNR GRAD STUDENT	J. Bormann

HEALTH AND SAFETY:

WEATHER:

Patchy fog in the early AM

Overcast and cool

	Wind (Kts)	Dir.	Temp (◦C)	Barometric Pressure	Sea State
06:00	4	245°	15.1°	1014.5	0-1
12:00	1.9	227°	16.7°	1015.4	0
18:00	3.3	026°	16.7°	1013.2	1
0:00	5	340°	16.4°	1014.1	1

00:01	On line 1438A
00:26	EOL 1438A, LSP 5543
00:27	Positioning for SOL 2074A
00:51	SOL 2074A, FSP 5532, Seq 108; Channel 25 still noisy
02:44	EOL 2074A, LSP 945
02:45	Positioning for SOL 1498A
03:08	SOL 1498A, FSP 962, Seq 109; Channel 25 still noisy
05:03	EOL 1498A, LSP 5538
05:04	Positioning for SOL 2086A
05:26	SOL 2086A, FSP5522, Seq 110; Channel 25 still noisy
07:20	EOL 2086A, LSP 943
07:21	Positioning for SOL 1510A
07:44	SOL 1510A, FSP 973, Seq 111; Channel 25 still noisy
09:37	EOL 1510A, LSP 5501
09:38	Positioning for SOL 2098
10:18	SOL 2098A, FSP 5529, Seq 112; Channel 25 still noisy
12:04	EOL 2098A, LSP 938
12:27	SOL 1522A, FSP 943, Seq 113; Channel 25 still noisy
14:19	EOL 1522A, LSP 5563
14:47	SOL 2110A, FSP 5560 Seq 114; Channel 25 intermittent noise spikes
14:49	EOL 2110A, LSP 943
17:20	SOL 1306B, FSP 960, Seq 115; Infill in former buoy area
17:52	EOL 1306B, LSP 2255
18:13	SOL 1750B, FSP 2300, Seq 116, Infill line
18:48	EOL 1750B, LSP 942
19:12	SOL 1234B, FSP 970 , Seq 117, Infill line

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DAILY PROGRESS REPORT

19:43	EOL 1234B, LSP2243
20:01	SOL 1690B, FSP 2114, Seq 118, Infill line
20:30	EOL 1690B, LSP 942
20:49	SOL 1282B, FSP 970 , Seq 119, Infill line
22:27	EOL 1282B, LSP 4971
23:11	SOL 2122A, FSP 5522, Seq 120
23:59	On line 2122A

Party Chief		Approval	
	Subsea Systems Inc.		Client Representative

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DAILY PROGRESS REPORT

CLIENT:	Southern Calif. Edison	**DIVISION:**	Survey
JOB DESCRIPTION:	3D P-Cable Survey	**REPORT No.:**	019
VESSEL:	R/V New Horizon	**DATE:**	21-Oct-2013
LOCATION:	Offshore So. Calif.	**JOB No.:**	013.90675627
HORIZONTAL DATUM/ZONE:	UTM / 11N	**CHIEF SCIENTIST**	N. Driscoll
VERTICAL DATUM:	Sea Surface	**TELEPHONE:**	(760) 505 9661

Position	Name
GEOPHYSICAL ENGINEER/P.M.	M. Barth
SURVEY PARTY CHIEF	C. Chamberlain
SURVEYOR MANAGER	J. Gaytan
SURVEYOR	M. Hall
SURVEYOR	A. Parish
SURVEYOR	S. Traceski
SURVEYOR	D. Fontenot
DECK SUPERVISOR	R. Steinhaus
DATA PROCESSOR	F. Landers
DATA PROCESSOR	M. Angel
SIO PERSONNEL	M. Lande, G. Ucarkus
SIO PERSONNEL	V. Sahakian, S. Klotsko
SIO PERSONNEL	J. Holmes
UNR GRAD STUDENT	J. Bormann

HEALTH AND SAFETY:

WEATHER:

Overcast

	Wind (Kts)	Dir.	Temp (◦C)	Barometric Pressure	Sea State
06:00	10	035°	14.0°	1013.9	1-2
12:00					
18:00					
0:00	6	005°	16.3°	1015.1	1

00:01	On line 2122A
01:04	EOL 2122A, LSP 945
01:05	Positioning for SOL 1378B (infill line)
01:33	SOL 1378B, FSP 952, Seq 121
03:29	EOL 1378B, LSP 5538
03:30	Positioning for SOL 2134A
04:00	SOL 2134A, FSP 5502, Seq 122
05:48	EOL 2134A, LSP 944
05:49	Positioning for SOL 1534A
06:13	SOL 1534A, FSP 953, Seq 123
08:02	EOL 1534A, LSP 5543
08:03	Positioning for SOL 2146A
08:28	SOL 2146A, FSP 5517, Seq 124
08:30	PSO stand down at S/P 5454
08:38	PSO all clear; Re-energize source at S/P 5177
08:46	PSO stand down at S/P 4912
09:38	PSO all clear; Re-energize source at S/P 1634
10:28	EOL 2146A, LSP 944
10:30	**HSE Toolbox meeting to discuss system recovery and re-deployment.**
10:40	Retrieve P-Cable system for maintenance and repair
10:45	Remove kelp from all components, especially heavy on paravanes and tripoint buoys. Replace electrical cable on port tripoint gps; attempt repairs on port strobe; recharge and test starboard battery box - propeller jammed with kelp. Replace signal cable. Upon deployment, add weights to streamer #3; change out streamer #4 and digitizer #4 - noise spikes on chl 25; replace digitizer #8 after detecting high leakage and significant increase in current.
19:19	Maintanence complete with P-cable system re-deployed

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DAILY PROGRESS REPORT

19:20	Positioning for Line 2158A
19:56	SOL 2158A, FSP 900, Seq 125
21:44	EOL 2158A, LSP 5539
22:04	SOL 2146B, FSP 5530 , Seq 126
23:59	EOL 2164B, LSP 944

Party Chief		Approval	
	Subsea Systems Inc.		Client Representative

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DAILY PROGRESS REPORT

CLIENT:	Southern Calif. Edison	**DIVISION:**	Survey
JOB DESCRIPTION:	3D P-Cable Survey	**REPORT No.:**	020
VESSEL:	R/V New Horizon	**DATE:**	22-Oct-2013
LOCATION:	Offshore So. Calif.	**JOB No.:**	013.90675627
HORIZONTAL DATUM/ZONE:	UTM / 11N	**CHIEF SCIENTIST**	N. Driscoll
VERTICAL DATUM:	Sea Surface	**TELEPHONE:**	(760) 505 9661

Position	Name
GEOPHYSICAL ENGINEER/P.M.	M. Barth
SURVEY PARTY CHIEF	C. Chamberlain
SURVEYOR MANAGER	J. Gaytan
SURVEYOR	M. Hall
SURVEYOR	A. Parish
SURVEYOR	S. Traceski
SURVEYOR	D. Fontenot
DECK SUPERVISOR	R. Steinhaus
DATA PROCESSOR	F. Landers
DATA PROCESSOR	M. Angel
SIO PERSONNEL	M. Lande, G. Ucarkus
SIO PERSONNEL	V. Sahakian, S. Klotsko
SIO PERSONNEL	J. Holmes
UNR GRAD STUDENT	J. Bormann

HEALTH AND SAFETY:

WEATHER:

Dark in the early AM

Overcast

	Wind (Kts)	Dir.	Temp (◦C)	Barometric Pressure	Sea State
06:00	5	015°	16.0°	1015.1	1
12:00	4.6	325°	16.8°	1014.6	1
18:00	4	210°	17.1°	1013.7	1
0:00	4	305°	17.2°	1014.1	1

00:01	Positioning for SOL 1570A
00:22	SOL 1570A, FSP 995, Seq 127
02:04	EOL 1570A, LSP 5538
02:05	Positioning for SOL 2158A
02:29	SOL 2158A, FSP 5566, Seq 128
04:12	EOL 2158A, LSP 944
04:14	Positioning for SOL 1558A
04:36	SOL 1558A, FSP 972, Seq 129
05:27	EOL 1558A, LSP 3287
05:27	Navigation lock-up, continuing down while attempting to reestablish positioning.
	Numerous navigation lock-ups followed by restarts involving lines 1558B and 1558C (Seq 130-135).
05:49	SOL 1558D, FSP 4067, Seq 136
06:24	EOL 1558D, LSP 5537
06:25	Positioning for SOL 2170A
06:50	SOL 2170A, FSP 5528, Seq 137
08:45	EOL 2170A, LSP 945
08:46	Positioning for SOL 1546B (infill line)
09:00	SOL 1546B, FSP 960, Seq 138
10:30	Crew change: Embark: G. Kent, B. Mattox, J. Maloney, T. Seaman, A. Harding
	Disembark: N. Driscoll, V. Sahakian, S. Klotsko, M. Lande, J. Gaytan
11:01	EOL 1546B, LSP 5537
11:03	Positioning for SOL 2128B
11:59	SOL 2182A, FSP 5522, Seq 139
13:37	EOL 2182A, LSP 1178 PSO Shutdown near EOL
14:07	SOL 1546C, FSP 1006, Seq 1
15:47	EOL 1546C, LSP 5539

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16:13	SOL 2194A, FSP 5558, Seq 141
18:05	EOL 2194A, LSP
18:26	SOL 1558E, FSP 973, Seq 142
20:08	EOL 1558E, LSP 5539
20:40	SOL 2206A, FSP 5543, Seq 143
21:00	EOL 2206A, LSP 5010, lost nav on source, tripoint buoys and vanes
21:06	SOL 2206B, FSP 4561, Seq 144
22:33	EOL 2206B, LSP 944
23:00	SOL 1438B, FSP 949, Seq 145
23:59	On line 1438B

Party Chief		Approval	
	Subsea Systems Inc.		Client Representative

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DAILY PROGRESS REPORT

CLIENT:	Southern Calif. Edison	**DIVISION:**	Survey
JOB DESCRIPTION:	3D P-Cable Survey	**REPORT No.:**	021
VESSEL:	R/V New Horizon	**DATE:**	23-Oct-2013
LOCATION:	Offshore So. Calif.	**JOB No.:**	013.90675627
HORIZONTAL DATUM/ZONE:	UTM / 11N	**CHIEF SCIENTIST**	G. Kent
VERTICAL DATUM:	Sea Surface	**TELEPHONE:**	

Position	Name
GEOPHYSICAL ENGINEER/P.M.	M. Barth
SURVEY PARTY CHIEF	C. Chamberlain
SURVEYOR MANAGER	B. Mattox
SURVEYOR	M. Hall
SURVEYOR	A. Parish
SURVEYOR	S. Traceski
SURVEYOR	D. Fontenot
DECK SUPERVISOR	R. Steinhaus
DATA PROCESSOR	F. Landers
DATA PROCESSOR	M. Angel
SIO PERSONNEL	A. Harding, G. Ucarkus
SIO PERSONNEL	T. Seaman, J. Maloney
SIO PERSONNEL	J. Holmes
UNR GRAD STUDENT	J. Bormann

HEALTH AND SAFETY:

WEATHER:

Dark in the early AM

Overcast and hazy.

	Wind (Kts)	Dir.	Temp (◦C)	Barometric Pressure	Sea State
06:00	5	020°	16.7°	1013.6	1-2
12:00	7	340°	17.3°	1014.2	1
18:00					
0:00	3	225°	16.8°	1015.1	1

00:01	On line 1438B
00:46	EOL 1438B, LSP 5540
00:47	Positioning for SOL 1726B
01:09	SOL 1726B, FSP 5523, Seq 146
02:51	EOL 1726B, LSP
02:53	Positioning for SOL 1222B
03:10	SOL 1222B, FSP 988, Seq 147 **Missed S/P 1461 - 2162 to avoid oncoming marine traffic**
04:52	EOL 1222B, LSP 5534
04:53	Positioning for SOL 1846B
05:16	SOL 1846B, FSP 5524, Seq 148
07:07	EOL 1846B, LSP 947
07:08	Positioning for SOL 1330B
07:30	SOL 1330B, FSP 978, Seq 149
09:13	EOL 1330B, LSP 5536
09:14	Positioning for SOL 1714B
09:34	SOL 1714B, FSP 5530, Seq 150
11:32	EOL 1714B, LSP 948
11:34	Positioning for SOL 1210B
11:55	SOL 1210B, FSP 1055, Seq 151
13:31	EOL 1210B, LSP 5402
13:59	SOL 2002B, FSP 5562 , Seq 152
15:50	EOL 2002B, LSP 946
16:38	SOL 2194B, FSP 1703, Seq 154
16:57	EOL 2194B, LSP 942
17:26	SOL 1222C, FSP 1030, Seq 155
18:43	EOL 1222C, LSP 4469

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DAILY PROGRESS REPORT

19:01	SOL 1570B, FSP 4917, Seq 156
19:16	EOL 1570B, LSP 5539
19:46	SOL 1882B, FSP 5536, Seq 157
20:12	EOL 1882B, LSP 4386
20:39	SOL 1390B, FSP 4402, Seq 158
21:05	EOL 1390B, LSP 5546
21:27	SOL 1750C, FSP 5589, Seq 159
22:02	EOL 1750C, LSP 4206
22:35	SOL 1570C, FSP 3940, Seq 161
23:12	EOL 1570C, LSP 5542
23:50	SOL 1798B, FSP 5571, Seq 162
23:59	On line 1798B

Party Chief		Approval	
	Subsea Systems Inc.		Client Representative

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DAILY PROGRESS REPORT

CLIENT:	Southern Calif. Edison	**DIVISION:**	Survey
JOB DESCRIPTION:	3D P-Cable Survey	**REPORT No.:**	022
VESSEL:	R/V New Horizon	**DATE:**	24-Oct-2013
LOCATION:	Offshore So. Calif.	**JOB No.:**	013.90675627
HORIZONTAL DATUM/ZONE:	UTM / 11N	**CHIEF SCIENTIST**	G. Kent
VERTICAL DATUM:	Sea Surface	**TELEPHONE:**	

Position	Name
GEOPHYSICAL ENGINEER/P.M.	M. Barth
SURVEY PARTY CHIEF	C. Chamberlain
SURVEYOR MANAGER	B. Mattox
SURVEYOR	M. Hall
SURVEYOR	A. Parish
SURVEYOR	S. Traceski
SURVEYOR	D. Fontenot
DECK SUPERVISOR	R. Steinhaus
DATA PROCESSOR	F. Landers
DATA PROCESSOR	M. Angel
SIO PERSONNEL	A. Harding, G. Ucarkus
SIO PERSONNEL	T. Seaman, J. Maloney
SIO PERSONNEL	J. Holmes
UNR GRAD STUDENT	J. Bormann

HEALTH AND SAFETY:

WEATHER:

	Wind (Kts)	Dir.	Temp (◦C)	Barometric Pressure	Sea State
06:00	1	245°	16.6°	1015.0	0-1
12:00					
18:00					
0:00	7	320°	17.4°	1017.4	1-2

00:01	On line 1798B
00:17	EOL 1798B, LSP 4432
00:18	Positioning for SOL 1498B
01:16	SOL 1498B, FSP 5074, Seq 163
01:27	EOL 1498B, LSP 5540
01:28	Positioning for SOL 1630B
02:09	SOL 1630B, FSP 5502, Seq 164
02:20	EOL 1630B, LSP 5111
02:21	Positioning for SOL 2206C
03:17	SOL 2206C, FSP 5083 , Seq 165
04:51	EOL 2220C, LSP 958
04:53	Positioning for SOL 1450B
05:14	SOL 1450B, FSP 978, Seq 166
05:33	EOL 1450B, LSP 2660
05:34	Positioning for SOL 1822B
06:29	SOL 1822B, FSP 2331, Seq 167
07:03	EOL 1822B, LSP 947
07:04	Positioning for SOL 1114B,
07:31	SOL 1114B, FSP 1322, Seq 168
07:39	EOL 1114B, LSP 1686, End line early for PSO Stand down.
07:40	Positioning for SOL
08:46	SOL 2146C, FSP 1326, Seq 169
08:56	EOL 2146C, LSP 946
09:36	SOL 1114E, FSP 1311, Seq 170
09:52	EOL 1114E, LSP 1865
11:45	**HSE Toolbox meeting to discuss recovery, de-kelping and re-deployment of P-cable.**

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DAILY PROGRESS REPORT

12:00	Recover boomer source and stow it along starboard railing.
12:30	Commence recovery of cross cable and streamers, de-kelp and check digitizers; tighten all screws and tape over screws to prevent loosening; replaced missing screw on streamer #6 while re-deploying system.
14:15	P-cable fully deployed.
14:30	Rigging sparker source for area #2 survey
15:25	Sparker deployed.
16:06	SOL 4927A, FSP 2049, Seq 202
16:59	EOL 4927A, LSP 973
17:16	SOL 4447A, FSP 962, Seq 203
18:06	EOL 4447A, LSP 2047
18:28	SOL 4915A, FSP 2042, Seq 204; Source GPS stopped working at SOL
19:18	EOL 4915A, LSP 974, Retrieve sparker and replace GPS pod
19:43	SOL 4435A, FSP 985, Seq 205
20:32	EOL 4435A, LSP 2049
20:54	SOL 4903A, FSP 2064, Seq 206
21:46	EOL 4903A, LSP 973
22:05	SOL 4423A, FSP 960, Seq 207
22:57	EOL 4423A, LSP 2048
23:18	SOL 4891A, FSP 2057, Seq 208
23:59	On line 4891A

Party Chief		Approval	
	Subsea Systems Inc.		Client Representative

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DAILY PROGRESS REPORT

CLIENT:	Southern Calif. Edison	**DIVISION:**	Survey
JOB DESCRIPTION:	3D P-Cable Survey	**REPORT No.:**	023
VESSEL:	R/V New Horizon	**DATE:**	25-Oct-2013
LOCATION:	Offshore So. Calif.	**JOB No.:**	013.90675627
HORIZONTAL DATUM/ZONE:	UTM / 11N	**CHIEF SCIENTIST**	G. Kent
VERTICAL DATUM:	Sea Surface	**TELEPHONE:**	

Position	Name
GEOPHYSICAL ENGINEER/P.M.	M. Barth
SURVEY PARTY CHIEF	C. Chamberlain
SURVEYOR MANAGER	B. Mattox
SURVEYOR	M. Hall
SURVEYOR	A. Parish
SURVEYOR	S. Traceski
SURVEYOR	D. Fontenot
DECK SUPERVISOR	R. Steinhaus
DATA PROCESSOR	F. Landers
DATA PROCESSOR	M. Angel
SIO PERSONNEL	A. Harding, G. Ucarkus
SIO PERSONNEL	T. Seaman, J. Maloney
SIO PERSONNEL	J. Holmes
UNR GRAD STUDENT	J. Bormann

HEALTH AND SAFETY:

WEATHER:
Overcast and cool

	Wind (Kts)	Dir.	Temp (◦C)	Barometric Pressure	Sea State
06:00	6	030°	16.8°	1018.1	2
12:00					
18:00					
0:00	10	330°	17.5°	1018.1	1-2

00:01	On line 1798B
00:09	EOL 4891A, LSP 974
00:10	Positioning for SOL 4411A
00:27	SOL 4411A, FSP 987, Seq 209
01:16	EOL 4411A, LSP 2047
01:17	Positioning for SOL 4879A
01:34	SOL 4879A, FSP 2039, Seq 210
02:25	EOL 4879A, LSP 974
02:26	Positioning for SOL 4399A
02:43	SOL 4399A, FSP 1003, Seq 211
03:30	EOL 4399A, LSP 2047
03:31	Positioning for SOL 4867A
03:35	SOL 4867A, FSP 2039, Seq 212
04:37	EOL 4867A, LSP 975
04:39	Positioning for SOL 4387A
04:57	SOL 4387A, FSP 983, Seq 213
05:47	EOL 4387A, LSP 2043
05:49	Positioning for SOL 4855A
06:08	SOL 4855A, FSP 2037, Seq 214
06:57	EOL 4855A, LSP 967, Lost port tri-point GPS mid-line
06:58	Positioning for SOL 4375A
07:04	Navigation reports that port tri-point GPS is down and request a recycle of the SPSU. With the signal cable leakage issue still outstanding, decided to continue survey using port paravane for positioning and deal with the port tri-point GPS when we sort out the signal cable issue.
07:16	SOL 4375A, FSP 987, Seq 215
08:09	EOL 4375A, LSP 2046

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DAILY PROGRESS REPORT

08:09	Positioning for SOL 4843A; An attempted reset of SPSU did not resolve tri-point GPS failure.
08:27	SOL 4843A, FSP 2036, Seq 216
09:16	EOL 4843A, LSP 974
09:17	Positioning for SOL 4363A
09:38	SOL 4363A, FSP 982, Seq 217
10:30	EOL 4363A, LSP 2047
10:32	Positioning for SOL 4831A
10:53	SOL 4831A, FSP 2033, Seq 218
11:43	EOL 4831A, LSP 4949
12:01	SOL, 4351A, FSP 983, Seq 219
12:15	**General muster and instruction on procedures dealing with a pirate attack.**
12:48	EOL 4351A, LSP 2048
13:09	SOL 4819A, FSP 2045, Seq 220
14:02	EOL 4819A, LSP 974
14:20	SOL 4339A, FSP 983, Seq 221
15:07	EOL 4339A, LSP 2047
15:28	SOL 4807A, FSP 2049, Seq 222
16:22	EOL 4807A, LSP 974
16:40	SOL 4327A, FSP 979, Seq 223
17:27	EOL 4327A, LSP 2042
17:46	SOL 4795A, FSP 2050, Seq 224
18:37	EOL 4795A, LSP 974
18:55	SOL 4315A, FSP 975, Seq 225
19:43	EOL 4315A, LSP 2049
20:06	SOL 4783A, FSP 2054, Seq 226
20:56	EOL 4783A, LSP 973
21:16	SOL 4303A, FSP 969, Seq 227
22:06	EOL 4303A, LSP 2047
22:27	SOL 4771A, FSP 2062, Seq 228
23:20	EOL 4771A, LSP 973
23:40	SOL 4303B, FSP 964, Seq 229
23:59	On line 4303B

Party Chief		Approval	
	Subsea Systems Inc.		Client Representative

Subsea Systems, Inc.
2290 Eastman Ave., Suite 111, Ventura CA 93003
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DAILY PROGRESS REPORT

CLIENT:	Southern Calif. Edison	**DIVISION:**	Survey
JOB DESCRIPTION:	3D P-Cable Survey	**REPORT No.:**	024
VESSEL:	R/V New Horizon	**DATE:**	26-Oct-2013
LOCATION:	Offshore So. Calif.	**JOB No.:**	013.90675627
HORIZONTAL DATUM/ZONE:	UTM / 11N	**CHIEF SCIENTIST**	G. Kent
VERTICAL DATUM:	Sea Surface	**TELEPHONE:**	

Position	Name
GEOPHYSICAL ENGINEER/P.M.	M. Barth
SURVEY PARTY CHIEF	C. Chamberlain
SURVEYOR MANAGER	B. Mattox
SURVEYOR	M. Hall
SURVEYOR	A. Parish
SURVEYOR	S. Traceski
SURVEYOR	D. Fontenot
DECK SUPERVISOR	R. Steinhaus
DATA PROCESSOR	F. Landers
DATA PROCESSOR	M. Angel
SIO PERSONNEL	A. Harding, G. Ucarkus
SIO PERSONNEL	T. Seaman, J. Maloney
SIO PERSONNEL	J. Holmes
UNR GRAD STUDENT	J. Bormann

HEALTH AND SAFETY:

WEATHER:

Overcast and cool with scatered fog

	Wind (Kts)	Dir.	Temp (◦C)	Barometric Pressure	Sea State
06:00	4	360°	15.5°	1018.0	1
12:00					
18:00					
0:00	6	075°	16.2°	1015.4	1

00:01	On line 4303B
00:30	EOL 4303B, LSP 2046
00:32	Positioning for SOL 4771B
00:50	SOL 4771B, FSP 2036, Seq 230
01:41	EOL 4771B, LSP 975
01:43	Positioning for SOL 4291A
02:01	SOL 4291A, FSP 991, Seq 231
02:46	Leakage began to fluxuate wildly from -200 to +800, current holding around 3.08
02:50	EOL 4291A, LSP 2047
02:51	Positioning for SOL 4759A
03:10	SOL 4759A, FSP 2022, Seq 232
03:59	EOL 4759A, LSP 975
04:00	Positioning for SOL 4279A
04:19	SOL 4279A, FSP 1005, Seq 233
05:08	EOL 4279A, LSP 2047
05:10	Positioning for SOL 4747A
05:27	SOL 4747A, FSP 2039, Seq 234
06:13	EOL 4747A, LSP 975
06:14	Positioning for SOL 4267A
06:33	SOL 4267A, FSP 981, Seq 235
07:19	EOL 4267A, LSP 2048
07:20	Positioning for SOL 4735A
07:38	SOL 4735A, FSP 2035, Seq 236
08:26	EOL 4735A, LSP 976
08:27	Positioning for SOL 4255A
08:48	SOL 4255A, FSP 984, Seq 237

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DAILY PROGRESS REPORT

09:38	EOL 4255A, LSP 2046
09:39	Positioning for SOL 4723A
10:00	SOL 4723A, FSP 2044, Seq 238
10:51	EOL 4723A, LSP
10:52	Positioning for SOL 4243A
11:11	SOL 4243A, FSP 978, Seq 239
12:01	EOL 4243A, LSP 2047
12:21	SOL 4711A, FSP 2058, Seq 240, Leakage at 1390 (max) Streamer current increased from 3.15A to 3.75A at
13:14	EOL 4711A, LSP 973; Retrieve starboard tripoint for testing
13:30	**HSE Toolbox talk to discuss system retrieval followed by tri-point retrieval.**
14:45	Crosscable aboard; found shark bite on Streamer #1 - replace with S/N 227 ; add three extra weights
15:00	Test signal cable, no leakage. Leakage is in crosscable; will test during deployment
15:15	Deploying crosscable and testing. Streamer #5 compass drawing excessive current - remove
17:24	System deployed; testing, some leakage, but current is fine
18:01	SOL 4315B, FSP 1907, Seq 241
18:07	EOL 4315B, LSP 2049
18:26	SOL 4699A, FSP 2066, Seq 242
19:18	EOL 4699A, LSP 973
19:37	SOL 4231A, FSP 962, Seq 243
20:35	EOL 4231A, LSP 2048
20:45	SOL 4687A, FSP 2061, Seq 244
21:37	EOL 4687A, LSP 973, Bang box S/N 2080453 produced loud pop after EOL, replaced with spare
21:58	SOL 4219A, FSP 950, Seq 245
22:46	EOL 4219A, LSP 2048
23:08	SOL 4675A, FSP 2076, Seq 246
23:57	EOL 4675A, LSP 978
23:59	Positioning for SOL 4219B

Party Chief		Approval	
	Subsea Systems Inc.		Client Representative

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DAILY PROGRESS REPORT

CLIENT:	Southern Calif. Edison	**DIVISION:**	Survey
JOB DESCRIPTION:	3D P-Cable Survey	**REPORT No.:**	025
VESSEL:	R/V New Horizon	**DATE:**	27-Oct-2013
LOCATION:	Offshore So. Calif.	**JOB No.:**	013.90675627
HORIZONTAL DATUM/ZONE:	UTM / 11N	**CHIEF SCIENTIST**	G. Kent
VERTICAL DATUM:	Sea Surface	**TELEPHONE:**	

Position	Name
GEOPHYSICAL ENGINEER/P.M.	M. Barth
SURVEY PARTY CHIEF	C. Chamberlain
SURVEYOR MANAGER	B. Mattox
SURVEYOR	M. Hall
SURVEYOR	A. Parish
SURVEYOR	S. Traceski
SURVEYOR	D. Fontenot
DECK SUPERVISOR	R. Steinhaus
DATA PROCESSOR	F. Landers
DATA PROCESSOR	M. Angel
SIO PERSONNEL	A. Harding, G. Ucarkus
SIO PERSONNEL	T. Seaman, J. Maloney
SIO PERSONNEL	J. Holmes
UNR GRAD STUDENT	J. Bormann

HEALTH AND SAFETY:

WEATHER:

	Wind (Kts)	Dir.	Temp (◦C)	Barometric Pressure	Sea State
06:00	4	360°	15.5°	1018.0	1
12:00					
18:00					
0:00	5	275°	16.9°	1011.2	1-2

00:01	Positioning for SOL 4219B
00:16	SOL 4219B, FSP 997, Seq 247
01:04	EOL 4219B, LSP 2047
01:05	Positioning for SOL 4663A
01:23	SOL 4663A, FSP 2044, Seq 248
02:12	EOL 4663A, LSP 974
02:14	Positioning for SOL 4207A
02:31	SOL 4207A, FSP 972, Seq 249
03:22	EOL 4207A, LSP 2045; CSP-D power supply arched at EOL
03:23	Positioning for SOL 4651A
03:41	SOL 4651A, FSP 2041 , Seq 250; Current up to 3.2A and leakage at 1396
04:05	EOL 4651A, LSP 1536 : CSP-D power supply arched mid-line, Current spiked at 4.5A
04:10	Serious leakage problem in crosscable; standby until daylight to retrieve
07:00	**HSE Toolbox meeting prior to recovering system.**
07:50	Retrieve sparker source
08:00	Retrieve crosscable testing streamers on way in. check signal cable- no leakage. Water in tubing at streamer 3 jbox; connector warm to touch; tubing separated at JBox 4 Replace #3 and #4 jboxes.
12:00	Checking leakage in crosscable - still a problem. Found water in starboard GPS Jbox
13:00	Replace Starboard GPS box; make ready for deployment
13:50	Deploying Crosscable and streamers
14:19	P-Cable fully deployed; all streamers functional; leakage: 017
14:46	Sparker deployed; heading for line
15:24	SOL 4195A, FSP 965, Seq 251
16:14	EOL 4195A, LSP 2048
16:35	SOL 4639A, FSP 2058, Seq 252

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DAILY PROGRESS REPORT

17:29	EOL 4639A, LSP 964
17:54	SOL 4183A, FSP 1110, Seq 253, Delayed start due to PSO shutdown at SOL
18:37	EOL 4183A, LSP 2049
18:57	SOL 4627A, FSP 2051, Seq 254
19:51	EOL 4627A, LSP 975
20:10	SOL 4171A, FSP 970, Seq 255
21:00	EOL 4171A, LSP 2048
21:25	Circling due to navigation problem - loss of differential signal
23:15	Informed navigation issue resolved
23:16	Positioning for SOL 4159A
23:29	SOL 4159A, FSP 1023, Seq 259
23:59	On line 4159A

Party Chief		Approval	
	Subsea Systems Inc.		Client Representative

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DAILY PROGRESS REPORT

CLIENT:	Southern Calif. Edison	**DIVISION:**	Survey
JOB DESCRIPTION:	3D P-Cable Survey	**REPORT No.:**	026
VESSEL:	R/V New Horizon	**DATE:**	28-Oct-2013
LOCATION:	Offshore So. Calif.	**JOB No.:**	013.90675627
HORIZONTAL DATUM/ZONE:	UTM / 11N	**CHIEF SCIENTIST**	G. Kent
VERTICAL DATUM:	Sea Surface	**TELEPHONE:**	

Position	Name
GEOPHYSICAL ENGINEER/P.M.	M. Barth
SURVEY PARTY CHIEF	C. Chamberlain
SURVEYOR MANAGER	B. Mattox
SURVEYOR	M. Hall
SURVEYOR	A. Parish
SURVEYOR	S. Traceski
SURVEYOR	D. Fontenot
DECK SUPERVISOR	R. Steinhaus
DATA PROCESSOR	F. Landers
DATA PROCESSOR	M. Angel
SIO PERSONNEL	A. Harding, G. Ucarkus
SIO PERSONNEL	T. Seaman, J. Maloney
SIO PERSONNEL	J. Holmes
UNR GRAD STUDENT	J. Bormann

HEALTH AND SAFETY:

WEATHER:
Overcast and cloudy

	Wind (Kts)	Dir.	Temp (◦C)	Barometric Pressure	Sea State
06:00	18	255°	16.4°	1010.8	3-4
12:00	11	270°	16.6	1012.3	2-3
18:00					
0:00	8	290°	16.3°	1013.7	2-3

00:01	On line 4159A
00:17	EOL 4159A, LSP 2045
00:18	Positioning for SOL 4615A
00:41	SOL 4615A, FSP 2042, Seq 260
01:33	EOL 4615A, LSP
01:34	Positioning for SOL 4147A
01:55	SOL 4147A, FSP 977, Seq 261
02:46	EOL 4147A, LSP 2049
02:47	Positioning for SOL 4603A
03:11	SOL 4603A, FSP 2045, Seq 262
04:03	EOL 4603A, LSP 976
04:04	Positioning for SOL 4135A
04:24	SOL 4135A, FSP 979, Seq 263
05:15	EOL 4135A, LSP 2046
05:17	Positioning for SOL 4591A
05:38	SOL 4591A, FSP 2046, Seq 264, Winds at +20kts and sea state 3-4, data a little noisy.
06:30	EOL 4591A, LSP 975
06:32	Positioning for SOL 4123A
06:52	SOL 4123A, FSP 978, Seq 265
07:44	EOL 4123A, LSP 2046
07:45	Positioning for SOL 4579A
08:08	SOL 4579A, FSP 2044, Seq 266
09:03	EOL 4579A, LSP
09:05	Positioning for SOL 4111A
09:24	SOL 4111A, FSP 1047, Seq 267; late start due to triggering malfunction.
10:11	EOL 4111A, LSP 2046

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DAILY PROGRESS REPORT

10:12	Positioning for SOL 4567A
10:37	SOL 4567A, FSP 2046, Seq 268
11:28	EOL 4567A, LSP 972
11:51	SOL 4099A, FSP 978, Seq 269
12:40	EOL 4099A, LSP 2048
13:01	SOL4555A, FSP 2056, Seq 270
13:52	EOL 4555A, LSP 973
14:06	SOL 4087A, FSP 972, Seq 271
15:03	EOL 4087A, LSP 2048
15:24	SOL 4543A, FSP 2055, Seq 272
16:17	EOL 4532A, LSP
16:35	SOL 4075A, FSP 967, Seq 273
17:25	EOL 4075A, LSP 2049
17:45	SOL 4531A, FSP 2054, Seq 274
18:34	EOL 4531A, LSP 973
18:53	SOL 4062A, FSP 977, Seq 275
19:42	EOL 4062A, LSP 2048
20:04	SOL 4519A, FSP 2053, Seq 276
20:57	EOL 4519A, LSP 972
21:16	SOL 4051A, FSP 975, Seq 277
22:05	EOL 4051A, LSP 2048
22:26	SOL 4507A, FSP 2051, Seq 278
23:17	EOL 4507A, LSP 972
23:36	SOL 4039A, FSP 976, Seq 279
23:59	On line 4039A

Party Chief		Approval	
	Subsea Systems Inc.		Client Representative

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DAILY PROGRESS REPORT

CLIENT:	Southern Calif. Edison	**DIVISION:**	Survey
JOB DESCRIPTION:	3D P-Cable Survey	**REPORT No.:**	027
VESSEL:	R/V New Horizon	**DATE:**	29-Oct-2013
LOCATION:	Offshore So. Calif.	**JOB No.:**	013.90675627
HORIZONTAL DATUM/ZONE:	UTM / 11N	**CHIEF SCIENTIST**	G. Kent
VERTICAL DATUM:	Sea Surface	**TELEPHONE:**	

Position	Name
GEOPHYSICAL ENGINEER/P.M.	M. Barth
SURVEY PARTY CHIEF	C. Chamberlain
SURVEYOR MANAGER	B. Mattox
SURVEYOR	M. Hall
SURVEYOR	A. Parish
SURVEYOR	S. Traceski
SURVEYOR	D. Fontenot
DECK SUPERVISOR	R. Steinhaus
DATA PROCESSOR	F. Landers
DATA PROCESSOR	M. Angel
SIO PERSONNEL	A. Harding, G. Ucarkus
SIO PERSONNEL	T. Seaman, J. Maloney
SIO PERSONNEL	J. Holmes
UNR GRAD STUDENT	J. Bormann

HEALTH AND SAFETY:

WEATHER:

Overcast and cloudy

Clear in the afternoon

	Wind (Kts)	Dir.	Temp (◦C)	Barometric Pressure	Sea State
06:00	5	105°	14.4°	1013.7	2
12:00	4	125°	15.6°	1016.0	2
18:00	10	265°	16.5°	1014.5	2
0:00	6	345°	345°	1016.2	2

00:01	On line 4039A
00:29	EOL 4039A, LSP 2048
00:31	Positioning for SOL 4495A
00:51	SOL 4495A, FSP 2041, Seq 280
01:42	EOL 4495A, LSP 976
01:43	Positioning for SOL 4027A
01:59	SOL 4027A, FSP 974, Seq 281
02:51	EOL 4027A, LSP 2045
02:51	Positioning for SOL 4483A
03:13	SOL 4483A, FSP 2037, Seq 282
04:04	EOL 4483, LSP
04:05	Positioning for SOL 4015A
04:22	SOL 4015A, FSP 976, Seq 283
05:13	EOL 4015A, LSP 2046
05:14	Positioning for SOL 4471A
05:34	SOL 4471A, FSP 2046, Seq 284
06:23	EOL 4471A, LSP 974
06:23	Positioning for SOL 4003A
06:42	SOL 4003A, FSP 978, Seq 285
07:30	EOL 4003A, LSP 2049
07:31	Positioning for SOL 4459A
07:50	SOL 4459A, FSP 2042, Seq 286
08:37	EOL 4459A, LSP 975
08:38	Positioning for SOL 3991A
08:58	SOL 3991A, FSP 976, Seq 287
09:50	EOL 3991A, LSP 2047

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DAILY PROGRESS REPORT

09:51	Positioning for SOL 4627B
10:16	SOL 4627B, FSP 2033, Seq 288
11:05	EOL 4627B, LSP 975
11:06	Positioning for SOL 3979A
11:31	SOL 3979A, FSP 978, Seq 289
12:23	EOL 3979A, LSP 2047
12:45	SOL 4591B, FSP 2044, Seq 290
13:36	EOL 4591B, LSP 973
13:55	SOL 4195B, FSP 971, Seq 291
14:45	EOL 4195B, LSP 2048
15:14	SOL 4555B, FSP 2065, Seq 292
16:06	EOL 4555B, LSP 975
16:27	SOL 4183B, FSP 983, Seq 293
17:16	EOL 4183B, LSP 2049
17:44	SOL 4891B, FSP 2067, Seq 294, Starboard tripoint GPS intermittent at SOL
18:40	EOL 4891B, LSP 974; Chief scientist made decision to keep shooting with intermittent GPS
19:06	SOL 4111B, FSP 957, Seq 295, Starboard tripoint GPS still intermittent
19:56	EOL4111B, LSP 2048
20:24	SOL 3559A, FSP 2059, Seq 296, Starbord tripoint GPS intermittent
20:40	EOL 3559A, LSP 1739, Abort line; starboard tripoint GPS stopped working
20:52	**HSE Toolbox Safety meeting to discuss retrieval procedure**
20:55	Retrieve sparker and starboard side of crossscable to change GPS cable
22:20	Stbd GPS cable replaced and redeploying system.
22:30	System fully deployed and positioning for SOL 4159C
23:06	SOL 4159C, FSP 968, Seq 297
23:59	EOL 4159C, LSP 2054
23:59	Positioning for SOL 3559B
	SOL 3559B, FSP , Seq 298

Party Chief		Approval	
	Subsea Systems Inc.		Client Representative

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DAILY PROGRESS REPORT

CLIENT:	Southern Calif. Edison	**DIVISION:**	Survey
JOB DESCRIPTION:	3D P-Cable Survey	**REPORT No.:**	028
VESSEL:	R/V New Horizon	**DATE:**	30-Oct-2013
LOCATION:	Offshore So. Calif.	**JOB No.:**	013.90675627
HORIZONTAL DATUM/ZONE:	UTM / 11N	**CHIEF SCIENTIST**	G. Kent
VERTICAL DATUM:	Sea Surface	**TELEPHONE:**	

Position	Name
GEOPHYSICAL ENGINEER/P.M.	M. Barth
SURVEY PARTY CHIEF	C. Chamberlain
SURVEYOR MANAGER	B. Mattox
SURVEYOR	M. Hall
SURVEYOR	A. Parish
SURVEYOR	S. Traceski
SURVEYOR	D. Fontenot
DECK SUPERVISOR	R. Steinhaus
DATA PROCESSOR	F. Landers
DATA PROCESSOR	M. Angel
SIO PERSONNEL	A. Harding, G. Ucarkus
SIO PERSONNEL	T. Seaman, J. Maloney
SIO PERSONNEL	J. Holmes
UNR GRAD STUDENT	J. Bormann

HEALTH AND SAFETY:

WEATHER:
Overcast and cloudy

	Wind (Kts)	Dir.	Temp (◦C)	Barometric Pressure	Sea State
06:00	4	050°	15.2°	1016.2	2
12:00	2.5	288°	17.0°	1017.0	1-2
18:00					
0:00	5	035°	15.6°	1017.5	2

00:01	Positioning for SOL 3559B
00:27	SOL 3559B, FSP 2043, Seq 298
01:20	EOL 3559B, LSP 974
01:21	Positioning for SOL 4051B
01:40	SOL 4051B, FSP 980, Seq 299
02:23	EOL 4051B, LSP 1902
02:24	Positioning for SOL 3547A
02:49	SOL 3547A, FSP 2065, Seq 300
03:40	EOL 3547A, LSP
03:41	Positioning for SOL 4207B
04:03	SOL 4207B, FSP 972, Seq 301
04:54	EOL 4207B, LSP 2046
04:55	Positioning for SOL 3535A
05:18	SOL 3535A, FSP 2047, Seq 302
06:06	EOL 3535A, LSP 975
06:07	Positioning for SOL 4111B
06:30	SOL 4111C, FSP 959, Seq 303
07:18	EOL 4111C, LSP
07:19	Positioning for SOL 3523A
07:42	SOL 3523A, FSP 2047, Seq 304
08:31	EOL 3523A, LSP 976
08:33	Positioning for SOL 3967A
08:53	SOL 3967A, FSP 964, Seq 305
09:46	EOL 3967A, LSP 2047
09:47	Positioning for SOL 3511A
10:07	SOL 3511A, FSP 2027, Seq 306

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DAILY PROGRESS REPORT

10:56	EOL 3511A, LSP 974
10:57	Positioning for SOL 3955A
11:16	SOL 3955A, FSP 960, Seq 307
12:07	EOL 3955A, LSP 2049
12:25	SOL 3499A, FSP 2053, Seq 308
13:18	EOL 3499A, LSP 974
13:37	SOL 3943A, FSP 974, Seq 309
14:25	EOL 3943A, LSP 2049
14:55	SOL 3487A, FSP 1886 , Seq 310, PSO shutdown, SOL 850 m late
15:41	EOL 3487A, LSP 973
16:03	SOL 3931A, FSP 971, Seq 311
16:52	EOL 3931A, LSP 2049
17:13	SOL 3475A, FSP 2082, Seq 312
18:09	EOL 3475A, LSP 973
18:31	SOL 3919A, FSP 971, Seq 313
19:21	EOL 3919A, LSP 2048
19:43	SOL 3463A, FSP 2052, Seq 314
20:36	EOL 3463A, LSP 974
20:56	SOL 3907A, FSP 969, Seq 315
21:46	EOL 3907A, LSP 2050
22:08	SOL 3451A, FSP 2054, Seq 316
23:00	EOL 3451A, LSP 973
23:22	SOL 3895A, FSP 958, Seq 317
23:23	Positioning for SOL 3439A
23:59	Continuing to SOL 3439A

Party Chief		Approval	
	Subsea Systems Inc.		Client Representative

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DAILY PROGRESS REPORT

CLIENT:	Southern Calif. Edison	**DIVISION:**	Survey
JOB DESCRIPTION:	3D P-Cable Survey	**REPORT No.:**	029
VESSEL:	R/V New Horizon	**DATE:**	31-Oct-2013
LOCATION:	Offshore So. Calif.	**JOB No.:**	013.90675627
HORIZONTAL DATUM/ZONE:	UTM / 11N	**CHIEF SCIENTIST**	G. Kent
VERTICAL DATUM:	Sea Surface	**TELEPHONE:**	

Position	Name
GEOPHYSICAL ENGINEER/P.M.	M. Barth
SURVEY PARTY CHIEF	C. Chamberlain
SURVEYOR MANAGER	B. Mattox
SURVEYOR	M. Hall
SURVEYOR	A. Parish
SURVEYOR	S. Traceski
SURVEYOR	D. Fontenot
DECK SUPERVISOR	R. Steinhaus
DATA PROCESSOR	F. Landers
DATA PROCESSOR	M. Angel
SIO PERSONNEL	A. Harding, G. Ucarkus
SIO PERSONNEL	T. Seaman, J. Maloney
SIO PERSONNEL	J. Holmes
UNR GRAD STUDENT	J. Bormann

HEALTH AND SAFETY:

WEATHER:

	Wind (Kts)	Dir.	Temp (◦C)	Barometric Pressure	Sea State
06:00	5	360°	15.1°	1017.1	2
12:00	5	245°	16.7°	1018.2	0-1
18:00	9.4	340°	17.6°	1015.4	2
0:00	4	030°	030°	1017.2	2

00:01	Positioning for SOL 3479A
00:36	SOL 3439A, FSP 2029, Seq 318
01:25	EOL 3439A, LSP 975
01:26	Positioning to SOL 3883A
01:45	SOL 3883A, FSP 967, Seq 319
02:36	EOL 3883A, LSP 2046
02:38	Positioning to SOL 3427A
02:57	SOL 3427A, FSP 2050, Seq 320
03:45	EOL 3427A, LSP 975
03:46	Positioning to SOL 3871A
04:06	SOL 3871A, FSP 966, Seq 321
04:59	EOL 3871A, LSP 2047
05:01	Positioning to SOL 3415A
05:20	SOL 3415A, FSP 2039, Seq 322
06:06	EOL 3414A, LSP 976
06:07	Positioning to SOL 3859A
06:27	SOL 3859A, FSP 980, Seq 323
07:17	EOL 3859A, LSP 2046
07:18	Positioning to SOL 3403A
07:37	SOL 3403A, FSP 2062 , Seq 324
08:18	PSO stand down, S/P 1189
08:22	Back on line, S/P 1095
08:28	EOL 3403A, LSP 946
08:28	Positioning to SOL 3847A
08:52	SOL 3847A, FSP 987 , Seq 325
09:43	EOL 3847A, LSP 2047

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DAILY PROGRESS REPORT

09:44	Positioning to SOL 3391A
10:06	SOL 3391A, FSP 2041, Seq 326
10:57	EOL 3391A, LSP 975
11:00	Positioning to SOL 3835A
11:21	SOL 3835A, FSP 986, Seq 327
12:11	EOL 3835A, LSP 2049
12:34	SOL 3379A, FSP 2048, Seq 328
13:25	EOL 3379A, LSP 974
13:45	SOL 3823A, FSP 970, Seq 329
14:34	EOL 3823A, LSP 2050
14:56	SOL 3667A, FSP 2032, Seq 330
15:47	EOL 3667A, LSP 974
16:07	SOL 3811A, FSP 968, Seq 331
16:56	EOL 3811A, LSP 2047, Perform leakage and cap test on streamers, Chl 106 failed leakage:118 Kohm
17:17	SOL 3355A, FSP 2058, Seq 332
18:10	EOL 3355A, LSP 973
18:31	SOL 3799A, FSP 977, Seq 333
19:18	EOL 3799A, LSP 2048
19:40	SOL 3343A, FSP 2058, Seq 334
20:31	EOL 3343A, LSP 975
20:52	SOL 3787A, FSP 962, Seq 335
21:42	EOL 3787A, LSP 2050
22:04	SOL 3331A, FSP 2055 , Seq 336
22:53	EOL 3331A, LSP 973
22:54	Positioning for SOL 3775A
23:14	SOL 3775A, FSP 964, Seq 337
	EOL 3775A, LSP

Party Chief		Approval	
	Subsea Systems Inc.		Client Representative

Subsea Systems, Inc.
2290 Eastman Ave., Suite 111, Ventura CA 93003
Phone: 805-658-8388

DAILY PROGRESS REPORT

CLIENT:	Southern Calif. Edison	**DIVISION:**	Survey
JOB DESCRIPTION:	3D P-Cable Survey	**REPORT No.:**	030
VESSEL:	R/V New Horizon	**DATE:**	1-Nov-2013
LOCATION:	Offshore So. Calif.	**JOB No.:**	013.90675627
HORIZONTAL DATUM/ZONE:	UTM / 11N	**CHIEF SCIENTIST**	G. Kent
VERTICAL DATUM:	Sea Surface	**TELEPHONE:**	

Position	Name
GEOPHYSICAL ENGINEER/P.M.	M. Barth
SURVEY PARTY CHIEF	C. Chamberlain
SURVEYOR MANAGER	B. Mattox
SURVEYOR	M. Hall
SURVEYOR	A. Parish
SURVEYOR	S. Traceski
SURVEYOR	D. Fontenot
DECK SUPERVISOR	R. Steinhaus
DATA PROCESSOR	F. Landers
DATA PROCESSOR	M. Angel
SIO PERSONNEL	A. Harding, G. Ucarkus
SIO PERSONNEL	T. Seaman, J. Maloney
SIO PERSONNEL	J. Holmes
UNR GRAD STUDENT	J. Bormann

HEALTH AND SAFETY:

WEATHER:

Clear and sunny

	Wind (Kts)	Dir.	Temp (◦C)	Barometric Pressure	Sea State
06:00		°	°		
12:00	5	307°	21.3°	1013.5	1-2
18:00	8	325°	18.6°	1013.7	2
0:00	9	150°	17.5°	1015.6	2

00:01	On line 3775A
00:05	EOL 3775A, LSP 2047
00:07	Positioning for SOL 3319A
00:24	SOL 3319A, FSP 2057, Seq 338
01:12	EOL 3319A, LSP 975
01:13	Positioning for SOL 3763A
01:31	SOL 3763A, FSP 971 , Seq 339
02:22	EOL 3763A, LSP 2047
02:23	Positioning for SOL 3307A
02:41	SOL 3307A, FSP 2049, Seq 340
03:28	EOL 3307A, LSP 975
03:29	Positioning for SOL 3751A
03:48	SOL 3751A, FSP 959, Seq 341
04:37	EOL 3751A, LSP 2047
04:38	Positioning for SOL 3295A
04:56	SOL 3295A, FSP 2053, Seq 342
05:43	EOL 3295A, LSP 975
05:44	Positioning for SOL 3739A
06:04	SOL 3739A, FSP 983, Seq 343
06:52	EOL 3793A, LSP 2047
06:53	Positioning for SOL 3283A
07:12	SOL 3283A, FSP 2036, Seq 344
08:01	EOL 3283A, LSP 975
08:03	Positioning for SOL 3727A
08:24	SOL 3727A, FSP 957, Seq 345
09:13	EOL 3727A, LSP 2047

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09:15	Positioning for SOL 3271A
09:35	SOL 3271A, FSP 2063, Seq 346
10:28	EOL 3271A, LSP 975
10:29	Positioning for SOL 3715A
10:50	SOL 3715A, FSP 961 , Seq 347
11:39	EOL 3715A, LSP
12:00	SOL 3259A, FSP 2055 , Seq 348
12:15	**General Muster and instruction on the use of emergency flares**
12:50	EOL 3259A, LSP 973
13:10	SOL 3703A, FSP 969, Seq 349
13:59	EOL 3703A, LSP 2049
14:19	SOL 3247A, FSP 2054, Seq 350
15:11	EOL 3247A, LSP 973, Hydrophone Leakage Test at EOL; Channel 106 down to 91 kohm, all others okay
15:31	SOL 3691A, FSP 969, Seq 351
16:21	EOL 3691A, LSP 2049
16:43	SOL 3235A, FSP 2050, Seq 352
17:34	EOL 3235A, LSP 970
17:53	SOL 3679A, FSP 975, Seq 353
18:42	EOL 3679A, LSP 2049
19:02	SOL 3223A, FSP 2050, Seq 354
19:52	EOL 322A, LSP 973
20:14	SOL 3667A, FSP 971, Seq 356
21:03	EOL 3667A, LSP 2048
21:27	SOL 3211A, FSP 2051, Seq 357
22:17	EOL 3211A, LSP 973
22:39	SOL 3655A, FSP 367, Seq 358
23:31	EOL 3655A, LSP 2049
23:32	Positioning for SOL 3199A
23:54	SOL 3199A, FSP 2047, Seq 359
23:59	On line 3199A

Party Chief		Approval	
	Subsea Systems Inc.		Client Representative

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DAILY PROGRESS REPORT

CLIENT:	Southern Calif. Edison	**DIVISION:**	Survey
JOB DESCRIPTION:	3D P-Cable Survey	**REPORT No.:**	031
VESSEL:	R/V New Horizon	**DATE:**	2-Nov-2013
LOCATION:	Offshore So. Calif.	**JOB No.:**	013.90675627
HORIZONTAL DATUM/ZONE:	UTM / 11N	**CHIEF SCIENTIST**	G. Kent
VERTICAL DATUM:	Sea Surface	**TELEPHONE:**	

Position	Name
GEOPHYSICAL ENGINEER/P.M.	M. Barth
SURVEY PARTY CHIEF	C. Chamberlain
SURVEYOR MANAGER	B. Mattox
SURVEYOR	M. Hall
SURVEYOR	A. Parish
SURVEYOR	S. Traceski
SURVEYOR	D. Fontenot
DECK SUPERVISOR	R. Steinhaus
DATA PROCESSOR	F. Landers
DATA PROCESSOR	M. Angel
SIO PERSONNEL	A. Harding, G. Ucarkus
SIO PERSONNEL	T. Seaman, J. Maloney
SIO PERSONNEL	J. Holmes
UNR GRAD STUDENT	J. Bormann

HEALTH AND SAFETY:

WEATHER:

	Wind (Kts)	Dir.	Temp (◦C)	Barometric Pressure	Sea State
06:00	3	035°	17.9°	1013.5	0
12:00	4	235°	18.3°	1014.5	1
18:00	6	170°	18.0°	1012.7	1
0:00	10	120°	16.9°	1012.6	2

00:01	On line 3199A
00:42	EOL 3199A, LSP 976
00:43	Positioning for SOL 3643A
01:03	SOL 3643A, FSP 961, Seq 360
01:53	EOL 3643A, LSP 2047
01:54	Positioning for SOL 3187A
02:13	SOL 3187A, FSP 2055, Seq 361
03:02	EOL 3187A, LSP 975
03:04	Positioning for SOL 3631A
03:21	SOL 3631A, FSP 971, Seq 362
04:10	EOL 3631A, LSP
04:12	Positioning for SOL 3175A
04:30	SOL 3175A, FSP 2060, Seq 363
05:20	EOL 3175A, LSP 975
05:21	Positioning for SOL 3619A
05:40	SOL 3619A, FSP 977, Seq 364
06:27	EOL 3619A, LSP 2047
06:28	Positioning for SOL 3163A
06:47	SOL 3163A, FSP 2064 , Seq 365
07:38	EOL 3163A, LSP 976
07:39	Positioning for SOL 3607A
07:58	SOL 3607A, FSP 976, Seq 366
08:46	EOL 3607A, LSP 2047
08:47	Positioning for SOL 3151A
09:09	SOL 3151A, FSP 2059, Seq 367
10:00	EOL 3151A, LSP 975

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DAILY PROGRESS REPORT

10:01	Positioning for SOL 3595A
10:22	SOL 3595A, FSP 970, Seq 368
11:11	EOL 3595A, LSP 2047
11:12	Positioning for SOL 3487B
11:48	SOL 3487B, FSP 2064, Seq 369
12:39	EOL 3487B, LSP 973
13:10	SOL 3583A, FSP 971, Seq 370
13:57	EOL 3583A, LSP 2054
14:30	SOL 3499B, FSP 2053, Seq 371
15:23	EOL 3499B, LSP 975
15:42	SOL 3571A, FSP 976, Seq 372
16:29	EOL 3571A, LSP
16:30	**HSE Toolbox for pre retrival of sparker**, Retrieve Sparker to check electrodes; tips okay
17:08	SOL 3379B, FSP 2058, Seq 373
18:00	EOL 3379B, LSP 974
18:37	SOL 3643B, FSP 963, Seq 374
19:27	EOL 3643B, LSP 2049
19:49	SOL 3139A, FSP 2052, Seq 375, Channel 81 Noisy
20:38	EOL 3139A, LSP 973
21:06	SOL 3823B, FSP 966, Seq 376, Channel 81 Noisy
21:56	EOL 3823B, LSP 2048
22:21	SOL 3127A, FSP 2061, Seq 377, Channel 81 Noise gone
23:13	EOL 3127A, LSP 973
23:43	SOL 3895B, FSP 970, Seq 378
23:59	On line 3895B

Party Chief		Approval	
	Subsea Systems Inc.		Client Representative

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DAILY PROGRESS REPORT

CLIENT:	Southern Calif. Edison	**DIVISION:**	Survey
JOB DESCRIPTION:	3D P-Cable Survey	**REPORT No.:**	032
VESSEL:	R/V New Horizon	**DATE:**	3-Nov-2013
LOCATION:	Offshore So. Calif.	**JOB No.:**	013.90675627
HORIZONTAL DATUM/ZONE:	UTM / 11N	**CHIEF SCIENTIST**	G. Kent
VERTICAL DATUM:	Sea Surface	**TELEPHONE:**	

Position	Name
GEOPHYSICAL ENGINEER/P.M.	M. Barth
SURVEY PARTY CHIEF	C. Chamberlain
SURVEYOR MANAGER	B. Mattox
SURVEYOR	M. Hall
SURVEYOR	A. Parish
SURVEYOR	S. Traceski
SURVEYOR	D. Fontenot
DECK SUPERVISOR	R. Steinhaus
DATA PROCESSOR	F. Landers
DATA PROCESSOR	M. Angel
SIO PERSONNEL	A. Harding, G. Ucarkus
SIO PERSONNEL	T. Seaman, J. Maloney
SIO PERSONNEL	J. Holmes
UNR GRAD STUDENT	J. Bormann

HEALTH AND SAFETY:

WEATHER:
Overcast

	Wind (Kts)	Dir.	Temp (◦C)	Barometric Pressure	Sea State
06:00	6	115°	16.5°	1012.2	2
12:00	11	155°	17.0°	1012.9	2
18:00					
0:00	13	160°	16.4°	1010.3	2

00:01	On line 3859B
00:34	EOL 3895B, LSP 2047
00:35	Positioning for SOL 3115A
00:59	SOL 3115A, FSP 2060, Seq 379
01:47	EOL 3115A, LSP 976
01:48	Positioning for SOL 3751B
02:00	**Time Change to Pacific Standard Time (UTC -8)**
01:12	SOL 3751B, FSP 971, Seq 380
02:02	EOL 3751B, LSP 2047
02:03	Positioning for SOL 3103A
02:24	SOL 3103A, FSP 2072, Seq 381
03:14	EOL 3103A, LSP 975
03:15	Positioning for SOL 3943B
03:24	SOL 3943B, FSP 966, Seq 382
04:30	EOL 3943B, LSP 1961
04:31	Positioning for SOL 3091A
05:00	SOL 3091A, FSP 2058, Seq 383
05:49	EOL 3091A, LSP 975
05:50	Positioning for SOL 3031A
06:26	SOL 3031A, FSP 977, Seq 384
07:15	EOL 3031A, LSP 2047
07:17	Positioning for SOL 3079A
07:42	SOL 3079A, FSP 2068, Seq 385
08:34	EOL 3079A, LSP
08:35	Positioning for SOL 3019A
09:03	SOL 3019A, FSP 970, Seq 386

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DAILY PROGRESS REPORT

09:55	EOL 3019A, LSP 2047
09:56	Positioning for SOL 3067A
10:23	SOL 3067A, FSP , Seq 387
11:13	EOL 3067A, LSP 975
11:50	SOL 3007A, FSP 969, Seq 388
12:41	EOL 3007A, LSP 2049
13:12	SOL 3055A, FSP 2055, Seq 389
14:05	EOL 3055A, LSP 973
14:30	SOL 3571B, FSP 979, Seq 390
15:18	EOL 3571B, LSP 2048
15:40	SOL 3043A, FSP 2058, Seq 391
16:32	EOL 3043A, LSP 973
16:59	SOL 3775B, FSP 969, Seq 392
17:49	EOL 3775B, LSP 2049
18:07	SOL 3235B, FSP 2063, Seq 393
18:59	EOL 3235B, LSP 970
19:35	SOL 4351B, FSP 973, Seq 394
20:25	EOL 4351B, LSP 2049
20:54	SOL 4591B, FSP 2052, Seq 395
21:44	EOL 4591A, LSP 974
22:15	SOL 4075B, FSP 962, Seq 395
23:09	EOL 4075B, LSP 2051
23:10	Positioning for SOL 4519B
23:36	SOL 4519B, FSP 2059, Seq 396
23:59	On line 4519B

Party Chief		Approval	
	Subsea Systems Inc.		Client Representative

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DAILY PROGRESS REPORT

CLIENT:	Southern Calif. Edison	**DIVISION:**	Survey
JOB DESCRIPTION:	3D P-Cable Survey	**REPORT No.:**	033
VESSEL:	R/V New Horizon	**DATE:**	4-Nov-2013
LOCATION:	Offshore So. Calif.	**JOB No.:**	013.90675627
HORIZONTAL DATUM/ZONE:	UTM / 11N	**CHIEF SCIENTIST**	G. Kent
VERTICAL DATUM:	Sea Surface	**TELEPHONE:**	

Position	Name
GEOPHYSICAL ENGINEER/P.M.	M. Barth
SURVEY PARTY CHIEF	C. Chamberlain
SURVEYOR MANAGER	B. Mattox
SURVEYOR	M. Hall
SURVEYOR	A. Parish
SURVEYOR	S. Traceski
SURVEYOR	D. Fontenot
DECK SUPERVISOR	R. Steinhaus
DATA PROCESSOR	F. Landers
DATA PROCESSOR	M. Angel
SIO PERSONNEL	A. Harding, G. Ucarkus
SIO PERSONNEL	T. Seaman, J. Maloney
SIO PERSONNEL	J. Holmes
UNR GRAD STUDENT	J. Bormann

HEALTH AND SAFETY:

WEATHER:

Overcast

	Wind (Kts)	Dir.	Temp (◦C)	Barometric Pressure	Sea State
06:00	6	080°	16.0°	1009.7	2
12:00					
18:00					
0:00					

00:01	On line 4519B
00:31	EOL 4519B, LSP
00:32	Positioning for SOL 3631B
01:17	SOL 3631B, FSP 953, Seq 398
02:14	EOL 3631B, LSP 2047
02:15	Positioning for SOL 4927B
02:58	SOL 4927B, FSP 2071, Seq 399
03:51	EOL 4927B, LSP 975
03:52	Positioning for SOL 4135B
04:24	SOL 4135B, FSP 988, Seq 400
05:19	EOL 4135B, LSP 2048
	END OF SURVEY
05:20	Perform closing capacitance and leakage tests.
05:57	Test complete
07:15	HSE Safety meeting prior to system recovery
07:35	Recovering sparker source.
07:53	Begin recovery of P-cable system. Lots of barnacles on the streamer sections to be scraped off.
10:45	P-cable system onboard.
10:55	Recoreing paravanes and securing for transit.
12:20	All onboard and secured.
12:22	Underway for SIO / MarFac
15:40	Alongside SIO MarFac

Subsea Systems, Inc.

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Phone: 805-658-8388

DAILY PROGRESS REPORT

Party Chief		Approval	
	Subsea Systems Inc.		Client Representative

Appendix B1: Geometrics GeoEel Analog Performance Test Procedure

Geometrics GeoEel Analog Performance Test Procedure

Objective

The GeoEel streamer system consists mainly of hydrophone arrays and in-water digitizers. Each digitizer accepts analog data from eight streamer channels, converts these signals to digital data and sends the data to the recording system on the seismic vessel via ethernet. This procedure describes the method for testing the analog front end of the digitizer, the digitization process and the ethernet communications so that gain accuracy, phase similarity, harmonic distortion and noise levels can be quantified.

Frequency of Testing

The performance testing of each digitizer is done monthly or prior to use on each project. It is also done when a digitizer is changed in the field.

Test Equipment Required

None: The test is performed internally by the digitizers and seismic controller software

Procedure

Start with the seismic controller software enabled and all streamers active. Disarm the system. In the “Testing/QC window, open the “Analog Performance Tests” folder. Highlight the tests to be done, or highlight all for a complete system test. For field repairs it is acceptable to perform only the tests that are appropriate for the gain and sample rate that is being used, if approved by the Party Chief or Client Representative.

CRITERIA

These are Pass/Fail criteria, which are reported by the recording system. In addition, a test report file is generated in the “Log File Folder”.

If the test does not pass, the digitizer must be marked with a REJECT tag until it can be repaired and retested.

PROCEDURE APPROVAL

Approved by: _____ _____

Name Title

_____ _____

Signature Date

TEST REPORT
DATE: 22/Oct/13 TIME: 02:52:17
TOTAL 112 OUT OF 112 CHANNELS TESTED
INTERNAL TEST SYSTEM Analysis Version (2.10)
60Hz power line frequencies rejected
*** indicates channels out of specification

TITLE: Geo-Eel Daily Tests V2.01 7/10/07

TEST 7 Noise/Offset X8.5, 1/4mS

FILE 2013
File Date: Oct/22/13 Time: 02:51:50
Sampling Rate: 250 usec Record Length: 0.512 sec Delay: 0 msec
Preamp Gain: 18 dB Acquisition Filters: OUT OUT

ANALYSIS NOISE 4 0.12 0.0045

CHAN	DC OFFSET (mV)	AC RMS (mV)
1	0.040500	0.002052
2	0.037190	0.002475
3	0.032175	0.002055
4	0.019623	0.002146
5	0.028940	0.002524
6	0.035988	0.002451
7	0.025432	0.001973
8	0.022164	0.002138
9	0.035842	0.002370
10	0.023088	0.002298
11	0.030083	0.002362
12	0.026369	0.001941
13	0.040392	0.002434
14	0.038943	0.002132
15	0.030441	0.002545
16	0.030090	0.002049
17	0.029727	0.001973
18	0.041865	0.002387
19	0.024528	0.002371
20	0.025908	0.002344
21	0.035837	0.002387
22	0.029622	0.002468
23	0.030136	0.002225
24	0.024260	0.002530
25	0.032335	0.001982
26	0.040489	0.002430
27	0.028809	0.002422
28	0.025545	0.002077
29	0.034055	0.002732
30	0.033863	0.002774
31	0.021531	0.002258
32	0.028363	0.002176
33	0.036442	0.002279

34	0.043240	0.002455
35	0.031891	0.002149
36	0.020938	0.002208
37	0.032579	0.002531
38	0.035831	0.002039
39	0.028105	0.002101
40	0.030898	0.002470
41	0.033649	0.002144
42	0.030793	0.001906
43	0.027399	0.002126
44	0.025105	0.001877
45	0.035800	0.002128
46	0.023136	0.002028
47	0.022559	0.002384
48	0.025781	0.002067
49	0.040162	0.002172
50	0.039742	0.002479
51	0.035455	0.002026
52	0.031103	0.002356
53	0.040734	0.002475
54	0.029863	0.002539
55	0.022622	0.002365
56	0.032301	0.001971
57	0.033888	0.001967
58	0.026453	0.002014
59	0.020032	0.002242
60	0.029118	0.002373
61	0.024736	0.002208
62	0.030682	0.002326
63	0.024486	0.002284
64	0.020823	0.002251
65	0.035416	0.002078
66	0.038907	0.002413
67	0.037885	0.002443
68	0.024272	0.002114
69	0.034074	0.002069
70	0.040524	0.002612
71	0.031981	0.001844
72	0.028150	0.002036
73	0.020891	0.002090
74	0.027687	0.001972
75	0.025840	0.001956
76	0.022617	0.002488
77	0.028168	0.002477
78	0.024430	0.001916
79	0.026352	0.002243
80	0.023325	0.002425
81	0.034277	0.002474
82	0.029166	0.002564
83	0.026077	0.002296
84	0.027675	0.002149
85	0.032950	0.002069
86	0.034125	0.002463
87	0.017750	0.002366

```
 88              0.036411           0.002039
 89              0.037922           0.001904
 90              0.036011           0.001776
 91              0.036278           0.002255
 92              0.029446           0.002560
 93              0.033006           0.002361
 94              0.030948           0.002444
 95              0.025054           0.001992
 96              0.026461           0.001992
 97              0.037457           0.002024
 98              0.043822           0.001857
 99              0.031376           0.002163
100              0.027491           0.002415
101              0.038594           0.001947
102              0.022794           0.002290
103              0.018513           0.002215
104              0.028993           0.001996
105              0.044801           0.002392
106              0.029714           0.002380
107              0.035690           0.002418
108              0.034657           0.002469
109              0.034851           0.002147
110              0.033782           0.002176
111              0.031641           0.002435
112              0.036254           0.002454
 ABSOLUTE MEAN:  0.030759           0.002242
WORST CASE CHN:     105                30
DC OFFSET SPECIFICATION ( < 0.120000 mV )
PASSED
AC RMS SPECIFICATION ( < 0.004500 mV )
PASSED

-------------------------------------------------------------------------
-----
TEST 19 Gain, THD, Sim X8.5, 1/4mS, 100Hz

SIGNAL_TYPE SINE 100.000000 225.470642 0.000000 8

FILE 1013
File Date: Oct/22/13   Time: 02:52:13
Sampling Rate:    250 usec   Record Length:  0.512 sec   Delay:    0 msec
Preamp Gain: 18 dB     Acquisition Filters: OUT  OUT

ANALYSIS GAIN 2.0 2.0
INPUT PEAK AMPLITUDE IS    225.471 mV
CHAN    TEST      PEAK AMPLITUDE  ACCURACY     SIMILARITY
 NO.    FREQ          ( mV )        (%)          (%)
  1    100.000       228.119      1.17478        0.17058
  2    100.000       227.773      1.02106        0.01839
  3    100.000       227.608      0.94802       -0.05392
  4    100.000       227.260      0.79372       -0.20670
  5    100.000       228.159      1.19213        0.18776
  6    100.000       227.623      0.95449       -0.04753
  7    100.000       227.689      0.98392       -0.01838
```

8	100.000	227.993	1.11879	0.11515
9	100.000	227.378	0.84608	0.06578
10	100.000	226.396	0.41042	-0.36650
11	100.000	227.129	0.73554	-0.04390
12	100.000	227.498	0.89938	0.11868
13	100.000	226.746	0.56568	-0.21245
14	100.000	227.311	0.81603	0.03597
15	100.000	227.147	0.74354	-0.03596
16	100.000	227.885	1.07087	0.28884
17	100.000	227.141	0.74072	-0.37987
18	100.000	228.046	1.14220	0.01715
19	100.000	228.255	1.23482	0.10874
20	100.000	228.653	1.41146	0.28342
21	100.000	227.747	1.00966	-0.11392
22	100.000	228.514	1.34959	0.22224
23	100.000	227.968	1.10752	-0.01715
24	100.000	227.849	1.05482	-0.06926
25	100.000	227.085	0.71587	-0.07936
26	100.000	227.867	1.06287	0.26490
27	100.000	226.997	0.67688	-0.11804
28	100.000	227.114	0.72887	-0.06646
29	100.000	227.851	1.05563	0.25772
30	100.000	227.757	1.01388	0.21629
31	100.000	226.115	0.28557	-0.50626
32	100.000	227.416	0.86286	0.06647
33	100.000	227.894	1.07469	-0.05765
34	100.000	228.316	1.26202	0.12758
35	100.000	228.084	1.15906	0.02578
36	100.000	228.307	1.25800	0.12361
37	100.000	227.372	0.84336	-0.28639
38	100.000	227.997	1.12059	-0.01226
39	100.000	228.053	1.14538	0.01225
40	100.000	227.918	1.08565	-0.04682
41	100.000	227.793	1.02980	-0.07129
42	100.000	227.030	0.69178	-0.40563
43	100.000	227.760	1.01549	-0.08544
44	100.000	228.256	1.23539	0.13206
45	100.000	228.134	1.18115	0.07841
46	100.000	228.026	1.13326	0.03105
47	100.000	227.884	1.07049	-0.03104
48	100.000	228.168	1.19615	0.09325
49	100.000	226.531	0.47029	0.08376
50	100.000	225.928	0.20290	-0.18261
51	100.000	226.446	0.43253	0.04615
52	100.000	226.237	0.33988	-0.04615
53	100.000	226.818	0.59744	0.21042
54	100.000	226.014	0.24120	-0.14445
55	100.000	226.138	0.29592	-0.08994

56	100.000	226.566	0.48580	0.09921
57	100.000	227.634	0.95932	0.04183
58	100.000	227.651	0.96684	0.04928
59	100.000	227.355	0.83574	-0.08063
60	100.000	227.700	0.98886	0.07110
61	100.000	227.443	0.87489	-0.04183
62	100.000	227.402	0.85638	-0.06017
63	100.000	227.278	0.80174	-0.11431
64	100.000	227.782	1.02492	0.10683
65	100.000	228.070	1.15292	0.00067
66	100.000	228.067	1.15157	-0.00066
67	100.000	227.943	1.09643	-0.05518
68	100.000	228.548	1.36490	0.21024
69	100.000	228.260	1.23692	0.08372
70	100.000	227.957	1.10276	-0.04892
71	100.000	228.371	1.28641	0.13264
72	100.000	228.028	1.13408	-0.01795
73	100.000	226.738	0.56194	-0.06109
74	100.000	226.619	0.50910	-0.11360
75	100.000	227.102	0.72351	0.09948
76	100.000	227.184	0.75993	0.13567
77	100.000	226.518	0.46437	-0.15805
78	100.000	228.160	1.19268	0.56574
79	100.000	226.794	0.58700	-0.03619
80	100.000	226.958	0.65982	0.03618
81	100.000	228.215	1.21711	0.07114
82	100.000	228.363	1.28279	0.13607
83	100.000	226.990	0.67370	-0.46612
84	100.000	228.151	1.18893	0.04327
85	100.000	227.954	1.10139	-0.04327
86	100.000	227.412	0.86092	-0.28102
87	100.000	227.912	1.08262	-0.06184
88	100.000	228.214	1.21672	0.07075
89	100.000	227.660	0.97084	-0.00936
90	100.000	227.497	0.89879	-0.08071
91	100.000	227.383	0.84821	-0.13080
92	100.000	227.762	1.01635	0.03571
93	100.000	227.970	1.10853	0.12699
94	100.000	226.822	0.59930	-0.37729
95	100.000	227.702	0.98974	0.00936
96	100.000	228.138	1.18297	0.20071
97	100.000	226.772	0.57733	-0.08953
98	100.000	226.893	0.63100	-0.03621
99	100.000	227.058	0.70392	0.03622
100	100.000	226.654	0.52488	-0.14163
101	100.000	227.474	0.88860	0.21968
102	100.000	225.820	0.15492	-0.50914
103	100.000	227.328	0.82387	0.15537

104	100.000	227.257	0.79249	0.12421
105	100.000	227.846	1.05356	0.04437
106	100.000	227.339	0.82844	-0.17850
107	100.000	228.081	1.15765	0.14742
108	100.000	227.357	0.83678	-0.17025
109	100.000	226.537	0.47314	-0.53025
110	100.000	227.735	1.00427	-0.00442
111	100.000	227.755	1.01321	0.00443
112	100.000	228.087	1.16054	0.15029
	MEAN:	227.513	0.90583	

WORST CASE CHN: 20 78
GAIN ACCURACY SPECIFICATION (< 2.00000%)
PASSED
GAIN SIMILARITY SPECIFICATION (< 2.00000%)
PASSED

ANALYSIS HARMONIC_DISTORTION 6 0.0015

CHAN NO.	FNDMTL FREQ	FIRST FIVE HARMONIC CONTENT (%) 2	3	4	5	6	RMS TOTAL (%)
1	100.000	0.00053	0.00047	0.00048	0.00026	0.00042	0.00100
2	100.000	0.00056	0.00046	0.00050	0.00024	0.00042	0.00103
3	100.000	0.00060	0.00047	0.00049	0.00025	0.00039	0.00104
4	100.000	0.00059	0.00047	0.00049	0.00024	0.00044	0.00104
5	100.000	0.00054	0.00046	0.00047	0.00028	0.00041	0.00100
6	100.000	0.00054	0.00044	0.00048	0.00025	0.00040	0.00099
7	100.000	0.00059	0.00045	0.00050	0.00026	0.00041	0.00103
8	100.000	0.00063	0.00047	0.00047	0.00026	0.00043	0.00106
9	100.000	0.00053	0.00052	0.00043	0.00043	0.00044	0.00109
10	100.000	0.00047	0.00053	0.00043	0.00043	0.00042	0.00106
11	100.000	0.00045	0.00053	0.00044	0.00043	0.00045	0.00107
12	100.000	0.00044	0.00052	0.00042	0.00042	0.00045	0.00105
13	100.000	0.00046	0.00054	0.00042	0.00042	0.00043	0.00106
14	100.000	0.00047	0.00053	0.00044	0.00042	0.00045	0.00108
15	100.000	0.00046	0.00052	0.00042	0.00041	0.00045	0.00105
16	100.000	0.00045	0.00051	0.00044	0.00041	0.00043	0.00104
17	100.000	0.00036	0.00043	0.00019	0.00047	0.00054	0.00103
18	100.000	0.00037	0.00045	0.00019	0.00045	0.00055	0.00104
19	100.000	0.00037	0.00045	0.00020	0.00047	0.00055	0.00104
20	100.000	0.00037	0.00045	0.00017	0.00046	0.00054	0.00103
21	100.000	0.00037	0.00043	0.00016	0.00049	0.00055	0.00105
22	100.000	0.00035	0.00044	0.00019	0.00050	0.00054	0.00104
23	100.000	0.00037	0.00043	0.00020	0.00048	0.00053	0.00104
24	100.000	0.00037	0.00044	0.00018	0.00045	0.00053	0.00102
25	100.000	0.00024	0.00033	0.00024	0.00037	0.00024	0.00074
26	100.000	0.00024	0.00034	0.00023	0.00038	0.00025	0.00073
27	100.000	0.00023	0.00032	0.00021	0.00039	0.00025	0.00073
28	100.000	0.00025	0.00037	0.00021	0.00038	0.00024	0.00074
29	100.000	0.00024	0.00034	0.00021	0.00039	0.00024	0.00075
30	100.000	0.00025	0.00035	0.00021	0.00038	0.00025	0.00075
31	100.000	0.00023	0.00034	0.00023	0.00039	0.00025	0.00073
32	100.000	0.00029	0.00032	0.00023	0.00038	0.00024	0.00075
33	100.000	0.00025	0.00043	0.00036	0.00030	0.00034	0.00097

34	100.000	0.00024	0.00044	0.00037	0.00031	0.00036	0.00098
35	100.000	0.00024	0.00045	0.00038	0.00029	0.00035	0.00098
36	100.000	0.00023	0.00046	0.00038	0.00031	0.00036	0.00098
37	100.000	0.00025	0.00044	0.00040	0.00031	0.00036	0.00099
38	100.000	0.00028	0.00047	0.00039	0.00029	0.00035	0.00100
39	100.000	0.00026	0.00043	0.00038	0.00031	0.00034	0.00097
40	100.000	0.00024	0.00044	0.00037	0.00030	0.00036	0.00097
41	100.000	0.00036	0.00040	0.00027	0.00030	0.00022	0.00076
42	100.000	0.00034	0.00042	0.00026	0.00029	0.00021	0.00075
43	100.000	0.00032	0.00043	0.00025	0.00031	0.00021	0.00075
44	100.000	0.00030	0.00039	0.00027	0.00030	0.00021	0.00073
45	100.000	0.00033	0.00037	0.00026	0.00033	0.00021	0.00074
46	100.000	0.00035	0.00042	0.00026	0.00029	0.00021	0.00075
47	100.000	0.00034	0.00042	0.00027	0.00031	0.00018	0.00076
48	100.000	0.00030	0.00040	0.00026	0.00028	0.00021	0.00072
49	100.000	0.00081	0.00060	0.00040	0.00053	0.00065	0.00139
50	100.000	0.00077	0.00058	0.00039	0.00049	0.00064	0.00134
51	100.000	0.00078	0.00060	0.00039	0.00049	0.00062	0.00134
52	100.000	0.00072	0.00058	0.00039	0.00051	0.00064	0.00132
53	100.000	0.00078	0.00059	0.00039	0.00050	0.00064	0.00136
54	100.000	0.00079	0.00061	0.00040	0.00051	0.00063	0.00138
55	100.000	0.00076	0.00058	0.00038	0.00050	0.00062	0.00133
56	100.000	0.00077	0.00058	0.00039	0.00051	0.00063	0.00135
57	100.000	0.00018	0.00037	0.00019	0.00043	0.00036	0.00082
58	100.000	0.00018	0.00039	0.00018	0.00041	0.00035	0.00080
59	100.000	0.00017	0.00039	0.00020	0.00042	0.00036	0.00083
60	100.000	0.00015	0.00039	0.00021	0.00043	0.00037	0.00082
61	100.000	0.00018	0.00037	0.00020	0.00041	0.00036	0.00081
62	100.000	0.00019	0.00040	0.00022	0.00041	0.00035	0.00082
63	100.000	0.00017	0.00038	0.00020	0.00040	0.00037	0.00080
64	100.000	0.00017	0.00039	0.00020	0.00043	0.00034	0.00082
65	100.000	0.00049	0.00033	0.00036	0.00025	0.00044	0.00103
66	100.000	0.00044	0.00033	0.00038	0.00022	0.00043	0.00100
67	100.000	0.00043	0.00034	0.00037	0.00025	0.00045	0.00102
68	100.000	0.00043	0.00032	0.00038	0.00024	0.00044	0.00100
69	100.000	0.00046	0.00031	0.00037	0.00024	0.00049	0.00103
70	100.000	0.00044	0.00034	0.00037	0.00023	0.00043	0.00100
71	100.000	0.00044	0.00035	0.00039	0.00023	0.00043	0.00102
72	100.000	0.00042	0.00032	0.00040	0.00023	0.00044	0.00104
73	100.000	0.00056	0.00029	0.00037	0.00025	0.00020	0.00089
74	100.000	0.00057	0.00027	0.00036	0.00024	0.00021	0.00090
75	100.000	0.00060	0.00028	0.00037	0.00025	0.00020	0.00092
76	100.000	0.00065	0.00029	0.00037	0.00027	0.00020	0.00096
77	100.000	0.00055	0.00028	0.00037	0.00025	0.00022	0.00089
78	100.000	0.00055	0.00030	0.00038	0.00024	0.00020	0.00089
79	100.000	0.00059	0.00029	0.00038	0.00024	0.00019	0.00091
80	100.000	0.00057	0.00029	0.00037	0.00025	0.00019	0.00090
81	100.000	0.00045	0.00038	0.00041	0.00046	0.00026	0.00104
82	100.000	0.00048	0.00038	0.00038	0.00048	0.00026	0.00103
83	100.000	0.00047	0.00036	0.00038	0.00046	0.00027	0.00103
84	100.000	0.00052	0.00037	0.00038	0.00045	0.00026	0.00105
85	100.000	0.00046	0.00037	0.00039	0.00045	0.00026	0.00103
86	100.000	0.00044	0.00036	0.00040	0.00047	0.00025	0.00103
87	100.000	0.00045	0.00037	0.00039	0.00047	0.00026	0.00102

88	100.000	0.00047	0.00037	0.00039	0.00046	0.00029	0.00103
89	100.000	0.00045	0.00069	0.00032	0.00034	0.00047	0.00113
90	100.000	0.00046	0.00072	0.00033	0.00036	0.00049	0.00116
91	100.000	0.00045	0.00070	0.00031	0.00034	0.00046	0.00112
92	100.000	0.00046	0.00071	0.00034	0.00033	0.00047	0.00115
93	100.000	0.00045	0.00072	0.00033	0.00035	0.00047	0.00115
94	100.000	0.00046	0.00072	0.00032	0.00036	0.00046	0.00115
95	100.000	0.00044	0.00068	0.00032	0.00034	0.00049	0.00113
96	100.000	0.00045	0.00073	0.00030	0.00035	0.00046	0.00115
97	100.000	0.00038	0.00048	0.00028	0.00047	0.00028	0.00096
98	100.000	0.00041	0.00048	0.00028	0.00047	0.00027	0.00098
99	100.000	0.00037	0.00047	0.00027	0.00045	0.00029	0.00094
100	100.000	0.00039	0.00049	0.00028	0.00047	0.00030	0.00097
101	100.000	0.00042	0.00048	0.00028	0.00047	0.00028	0.00097
102	100.000	0.00040	0.00049	0.00027	0.00047	0.00029	0.00098
103	100.000	0.00038	0.00050	0.00028	0.00045	0.00028	0.00096
104	100.000	0.00039	0.00048	0.00029	0.00044	0.00028	0.00095
105	100.000	0.00043	0.00019	0.00049	0.00024	0.00025	0.00096
106	100.000	0.00041	0.00019	0.00049	0.00026	0.00028	0.00099
107	100.000	0.00041	0.00018	0.00050	0.00026	0.00026	0.00098
108	100.000	0.00043	0.00017	0.00051	0.00025	0.00025	0.00099
109	100.000	0.00043	0.00018	0.00049	0.00025	0.00027	0.00098
110	100.000	0.00042	0.00019	0.00048	0.00025	0.00027	0.00096
111	100.000	0.00041	0.00016	0.00051	0.00025	0.00027	0.00097
112	100.000	0.00043	0.00018	0.00049	0.00025	0.00026	0.00097
						MEAN:	0.00099
					WORST CASE CHN:		49

HARMONIC DISTORTION SPECIFICATION (< 0.00150 %)
PASSED

FILE 1013

ANALYSIS PHASE 0.1

CHAN	TEST FREQ (HZ)	SIMILARITY (DEGREE)
1	100.000	-0.00050
2	100.000	-0.00046
3	100.000	-0.00002
4	100.000	0.00012
5	100.000	-0.00020
6	100.000	0.00002
7	100.000	0.00008
8	100.000	0.00026
9	100.000	-0.00047
10	100.000	-0.00007
11	100.000	-0.00027
12	100.000	0.00049
13	100.000	0.00027
14	100.000	-0.00007
15	100.000	0.00033
16	100.000	0.00007
17	100.000	-0.00018

18	100.000	-0.00013
19	100.000	-0.00002
20	100.000	0.00029
21	100.000	-0.00018
22	100.000	0.00002
23	100.000	0.00065
24	100.000	0.00073
25	100.000	-0.00056
26	100.000	-0.00028
27	100.000	-0.00001
28	100.000	0.00027
29	100.000	-0.00028
30	100.000	0.00001
31	100.000	0.00006
32	100.000	0.00003
33	100.000	-0.00011
34	100.000	-0.00019
35	100.000	0.00062
36	100.000	0.00048
37	100.000	0.00011
38	100.000	0.00020
39	100.000	-0.00030
40	100.000	-0.00021
41	100.000	0.00020
42	100.000	-0.00032
43	100.000	0.00032
44	100.000	0.00008
45	100.000	-0.00008
46	100.000	-0.00034
47	100.000	-0.00045
48	100.000	0.00023
49	100.000	-0.00007
50	100.000	0.00015
51	100.000	0.00066
52	100.000	0.00007
53	100.000	-0.00036
54	100.000	-0.00017
55	100.000	-0.00065
56	100.000	0.00036
57	100.000	0.00025
58	100.000	0.00002
59	100.000	-0.00011
60	100.000	-0.00013
61	100.000	-0.00025
62	100.000	0.00013
63	100.000	0.00029
64	100.000	-0.00002
65	100.000	0.00054

66	100.000	-0.00019
67	100.000	-0.00023
68	100.000	0.00080
69	100.000	-0.00021
70	100.000	-0.00020
71	100.000	0.00019
72	100.000	0.00061
73	100.000	0.00053
74	100.000	0.00043
75	100.000	-0.00051
76	100.000	-0.00031
77	100.000	0.00019
78	100.000	0.00028
79	100.000	-0.00030
80	100.000	-0.00019
81	100.000	-0.00052
82	100.000	0.00007
83	100.000	-0.00064
84	100.000	0.00074
85	100.000	0.00069
86	100.000	-0.00033
87	100.000	-0.00007
88	100.000	0.00066
89	100.000	0.00018
90	100.000	0.00017
91	100.000	-0.00071
92	100.000	0.00029
93	100.000	-0.00062
94	100.000	-0.00065
95	100.000	0.00016
96	100.000	-0.00016
97	100.000	0.00005
98	100.000	-0.00005
99	100.000	0.00036
100	100.000	-0.00063
101	100.000	0.00042
102	100.000	-0.00026
103	100.000	-0.00057
104	100.000	0.00029
105	100.000	-0.00002
106	100.000	-0.00049
107	100.000	0.00002
108	100.000	0.00002
109	100.000	-0.00040
110	100.000	-0.00035
111	100.000	0.00010
112	100.000	0.00030

WORST CASE CHN: 68

PHASE SIMILARITY SPECIFICATION (< 0.100 DEG)
PASSED

TEST RESULT ALL TESTS
PASSED

TOTAL TIME: 47 SECONDS (45+2)

TEST REPORT
DATE: 25/Sep/13 TIME: 19:55:43
TOTAL 168 OUT OF 168 CHANNELS TESTED
INTERNAL TEST SYSTEM Analysis Version (2.10)
60Hz power line frequencies rejected
*** indicates channels out of specification

TITLE: Geo-Eel Daily Tests V2.01 7/10/07

TEST 5 Noise/Offset X1, 1/4mS

FILE 2011
File Date: Sep/25/13 Time: 19:48:59
Sampling Rate: 250 usec Record Length: 0.512 sec Delay: 6 msec
Preamp Gain: 0 dB Acquisition Filters: OUT OUT

ANALYSIS NOISE 4 1.0 0.0375

CHAN	DC OFFSET (mV)	AC RMS (mV)
1	-0.000151	0.017949
2	-0.000517	0.020887
3	-0.000113	0.016818
4	-0.000777	0.017541
5	-0.000209	0.022525
6	0.000306	0.020453
7	-0.000430	0.017119
8	-0.001279	0.017856
9	0.002338	0.019261
10	0.001738	0.020817
11	0.002850	0.019644
12	0.001421	0.017940
13	0.002533	0.020262
14	0.005813	0.019129
15	0.002927	0.020855
16	0.003875	0.016213
17	0.000256	0.015532
18	0.001108	0.019063
19	0.001362	0.019866
20	0.001786	0.019372
21	0.000806	0.021014
22	0.001287	0.020543
23	0.003798	0.018247
24	0.004237	0.020111
25	-0.002424	0.018102
26	-0.004269	0.019994
27	-0.004222	0.020498
28	-0.003447	0.020198
29	-0.004774	0.019204
30	-0.003397	0.016581
31	-0.003115	0.020430
32	-0.004673	0.017105
33	-0.000956	0.020825

34	-0.000546	0.019386
35	-0.001151	0.018538
36	-0.001887	0.018971
37	-0.000485	0.021263
38	-0.000931	0.016284
39	0.000348	0.016230
40	-0.001581	0.021036
41	-0.000036	0.015859
42	0.000444	0.016836
43	0.000285	0.017935
44	0.000310	0.015722
45	-0.000107	0.018180
46	-0.000303	0.017935
47	0.000987	0.021729
48	-0.000093	0.016772
49	0.000208	0.017713
50	-0.001368	0.020435
51	-0.001397	0.016060
52	0.000129	0.019595
53	0.001833	0.022314
54	0.001068	0.021289
55	0.000299	0.020658
56	0.001408	0.016600
57	0.000559	0.017215
58	-0.000635	0.015456
59	-0.000103	0.015651
60	0.000500	0.020053
61	0.003703	0.020377
62	0.001771	0.016540
63	0.000287	0.015829
64	0.001011	0.019777
65	0.000937	0.017357
66	0.000652	0.020760
67	0.000735	0.021079
68	0.000157	0.017393
69	-0.003467	0.016117
70	-0.001872	0.020467
71	0.001803	0.015964
72	-0.000231	0.017146
73	0.003669	0.016812
74	0.001827	0.016422
75	0.002354	0.015470
76	0.003044	0.019899
77	0.002038	0.020596
78	0.003799	0.016083
79	0.002235	0.018483
80	0.002418	0.019128
81	0.006690	0.020239
82	0.004613	0.021084
83	0.004761	0.019573
84	0.006073	0.016873
85	0.006397	0.017973
86	0.009437	0.020862
87	0.006282	0.019674

88	0.010019	0.017596
89	-0.004303	0.016725
90	-0.005194	0.015720
91	-0.003799	0.019608
92	-0.004436	0.020490
93	-0.004234	0.018913
94	-0.006122	0.019644
95	-0.004431	0.016076
96	-0.003897	0.015751
97	-0.000249	0.017485
98	-0.000370	0.016862
99	-0.000723	0.016490
100	0.000092	0.020235
101	0.002010	0.016545
102	-0.000198	0.019780
103	0.001167	0.015671
104	0.001044	0.017114
105	0.001283	0.019954
106	-0.000111	0.022043
107	0.001250	0.020033
108	0.001449	0.020289
109	0.000993	0.018209
110	0.001963	0.016733
111	0.001278	0.021525
112	0.002173	0.020381
113	0.002072	0.021936
114	0.003262	0.018136
115	0.004684	0.017372
116	0.004623	0.020593
117	0.003786	0.016906
118	0.004751	0.017658
119	0.002638	0.017292
120	0.006113	0.020945
121	0.002375	0.016391
122	-0.000299	0.016523
123	0.000022	0.020468
124	-0.000665	0.020280
125	0.001959	0.019959
126	0.001309	0.018982
127	-0.001707	0.019611
128	-0.002413	0.019566
129	-0.000787	0.016948
130	0.001744	0.016000
131	0.000820	0.020476
132	-0.000230	0.015710
133	-0.000779	0.019695
134	-0.001280	0.020550
135	-0.000248	0.020835
136	-0.001672	0.020202
137	0.003433	0.017684
138	0.003292	0.021900
139	0.003921	0.021547
140	0.004502	0.016149
141	0.004224	0.021990

142	0.005678	0.022713
143	0.006575	0.017756
144	0.005692	0.017885
145	0.002190	0.016084
146	0.001131	0.016036
147	-0.001463	0.015693
148	0.001037	0.020801
149	-0.002424	0.017038
150	0.002744	0.015403
151	0.001237	0.017336
152	0.001822	0.018238
153	-0.000359	0.021028
154	-0.002236	0.017485
155	0.000653	0.020678
156	0.001632	0.017821
157	0.002151	0.016313
158	0.002877	0.020193
159	0.001389	0.021472
160	0.005825	0.020654
161	-0.001187	0.020862
162	-0.004495	0.019583
163	-0.004282	0.018424
164	-0.003317	0.021405
165	-0.000233	0.016145
166	-0.001725	0.018406
167	-0.006528	0.019095
168	-0.004993	0.015953
ABSOLUTE MEAN:	0.002278	0.018680
WORST CASE CHN:	88	142

DC OFFSET SPECIFICATION (< 1.000000 mV)
PASSED
AC RMS SPECIFICATION (< 0.037500 mV)
PASSED

TEST 6 Noise/Offset X2.5, 1/4mS

FILE 2012
File Date: Sep/25/13 Time: 19:49:22
Sampling Rate: 250 usec Record Length: 0.512 sec Delay: 6 msec
Preamp Gain: 8 dB Acquisition Filters: OUT OUT

ANALYSIS NOISE 4 0.4 0.016

CHAN	DC OFFSET (mV)	AC RMS (mV)
1	0.000747	0.007317
2	-0.000237	0.008236
3	0.000161	0.006810
4	0.000671	0.007341
5	0.000341	0.008282
6	0.000343	0.008201
7	0.000307	0.006808
8	0.001447	0.007391
9	0.000194	0.007762

10	-0.000738	0.008010
11	-0.000261	0.008309
12	-0.000135	0.006866
13	0.000872	0.008007
14	0.000959	0.007995
15	0.000423	0.008377
16	0.000723	0.006515
17	0.001175	0.006049
18	0.000896	0.007272
19	0.000832	0.008006
20	0.000742	0.008152
21	0.001292	0.008382
22	0.000757	0.008098
23	-0.000084	0.007437
24	-0.000061	0.008400
25	0.002061	0.006854
26	0.002116	0.008022
27	0.002547	0.008255
28	0.002311	0.007891
29	0.001999	0.007906
30	0.002394	0.007480
31	0.002270	0.008549
32	0.003391	0.006938
33	0.000811	0.007636
34	0.001323	0.008628
35	0.000991	0.006865
36	0.000251	0.006809
37	0.000459	0.008376
38	0.000578	0.006802
39	0.000310	0.006733
40	0.000207	0.007543
41	0.001351	0.006411
42	0.000740	0.006924
43	0.001660	0.006665
44	0.002427	0.006429
45	0.002122	0.007033
46	0.002991	0.006835
47	0.002222	0.007929
48	0.003320	0.007436
49	0.000013	0.007849
50	0.000796	0.007970
51	0.001511	0.006429
52	0.001093	0.007859
53	0.000491	0.008688
54	0.001209	0.008035
55	0.001198	0.008665
56	0.001884	0.006876
57	-0.000082	0.006798
58	0.000209	0.006080
59	0.000525	0.006307
60	0.000001	0.007506
61	0.001259	0.008334
62	-0.000026	0.006788
63	-0.000373	0.006340

64	0.000241	0.008617
65	0.000570	0.006472
66	0.000198	0.008170
67	0.001037	0.008238
68	0.001292	0.006585
69	0.000661	0.006457
70	0.001035	0.008426
71	0.000800	0.006293
72	0.002561	0.006866
73	-0.000568	0.006864
74	0.000027	0.006114
75	-0.000347	0.006767
76	-0.000093	0.008440
77	0.000945	0.007997
78	0.000854	0.006736
79	0.000915	0.007395
80	0.000454	0.007668
81	-0.001943	0.008520
82	-0.001931	0.007822
83	-0.002138	0.008115
84	-0.001739	0.007133
85	-0.001314	0.007285
86	-0.002231	0.008435
87	-0.001890	0.007966
88	-0.002021	0.006756
89	0.000056	0.006707
90	0.000110	0.006746
91	0.000326	0.008328
92	0.000120	0.008226
93	0.000437	0.008063
94	0.000509	0.007933
95	0.000687	0.006369
96	0.000566	0.007036
97	-0.000934	0.007007
98	-0.000720	0.006789
99	-0.001425	0.007000
100	-0.001424	0.007866
101	-0.000508	0.006925
102	-0.001390	0.008336
103	-0.001086	0.006893
104	-0.002186	0.006291
105	-0.000155	0.007996
106	-0.000242	0.008427
107	0.000046	0.008306
108	-0.000206	0.008750
109	0.000078	0.007512
110	-0.000715	0.007291
111	-0.000976	0.008322
112	-0.000424	0.007955
113	0.000700	0.008451
114	0.000811	0.007249
115	0.001143	0.006721
116	0.001464	0.008584
117	0.001509	0.007183

118	0.001655	0.006752
119	0.001340	0.006221
120	0.000894	0.009204
121	0.000592	0.006353
122	0.000547	0.006445
123	0.000194	0.007809
124	0.000704	0.007524
125	0.000024	0.007682
126	0.000828	0.007730
127	0.000582	0.007860
128	0.000650	0.006906
129	-0.002198	0.006754
130	-0.000652	0.006686
131	-0.000821	0.007297
132	-0.001467	0.006891
133	-0.001454	0.007991
134	-0.002075	0.008169
135	-0.001439	0.008020
136	-0.002004	0.008200
137	-0.000711	0.006024
138	-0.000989	0.008663
139	-0.001054	0.008677
140	-0.000719	0.007129
141	-0.000283	0.008427
142	-0.000642	0.008758
143	-0.000750	0.007513
144	-0.000645	0.006983
145	0.000301	0.006254
146	0.000256	0.006091
147	0.000041	0.006633
148	0.000179	0.008416
149	-0.000190	0.006614
150	0.001152	0.006596
151	0.000188	0.006370
152	0.000980	0.007431
153	-0.000587	0.008198
154	-0.000727	0.007134
155	-0.000692	0.008223
156	-0.000757	0.007048
157	-0.000418	0.006726
158	-0.000619	0.008892
159	-0.000761	0.008321
160	-0.000993	0.008132
161	0.000403	0.008121
162	-0.000750	0.008035
163	-0.000085	0.007870
164	-0.000394	0.007850
165	-0.000952	0.006843
166	-0.000119	0.007656
167	-0.000487	0.008058
168	-0.000003	0.006158
ABSOLUTE MEAN:	0.000909	0.007484
WORST CASE CHN:	32	120

DC OFFSET SPECIFICATION (< 0.400000 mV)
PASSED
AC RMS SPECIFICATION (< 0.016000 mV)
PASSED

TEST 7 Noise/Offset X8.5, 1/4mS

FILE 2013
File Date: Sep/25/13 Time: 19:49:45
Sampling Rate: 250 usec Record Length: 0.512 sec Delay: 6 msec
Preamp Gain: 18 dB Acquisition Filters: OUT OUT

ANALYSIS NOISE 4 0.12 0.0045

CHAN	DC OFFSET (mV)	AC RMS (mV)
1	0.000183	0.001982
2	-0.000333	0.002534
3	-0.000565	0.002070
4	-0.000347	0.002231
5	-0.000132	0.002727
6	-0.000308	0.002357
7	-0.000310	0.001982
8	-0.000571	0.002214
9	0.000558	0.002310
10	0.000216	0.002229
11	0.000279	0.002320
12	0.000346	0.002112
13	0.000411	0.002401
14	0.000452	0.002240
15	0.000258	0.002266
16	0.000665	0.002002
17	-0.000328	0.001949
18	-0.000461	0.002265
19	-0.000103	0.002340
20	-0.000151	0.002415
21	-0.000366	0.002633
22	-0.000157	0.002371
23	-0.000207	0.002188
24	-0.000258	0.002372
25	-0.000363	0.002078
26	0.000076	0.002240
27	-0.000218	0.002432
28	-0.000362	0.002483
29	0.000014	0.002386
30	-0.000329	0.002088
31	-0.000235	0.002451
32	-0.000619	0.002154
33	0.000666	0.002413
34	0.000431	0.002437
35	0.000444	0.001976
36	0.000178	0.002325
37	0.000469	0.002415
38	0.000509	0.001917

39	0.000703	0.001893
40	0.000640	0.002491
41	0.000181	0.002028
42	-0.000337	0.001919
43	-0.000200	0.002056
44	0.000079	0.002004
45	0.000062	0.002068
46	-0.000119	0.002225
47	-0.000028	0.002376
48	-0.000501	0.002128
49	-0.000155	0.002284
50	0.000201	0.002376
51	-0.000105	0.001954
52	0.000206	0.002384
53	-0.000055	0.002450
54	-0.000088	0.002492
55	0.000274	0.002265
56	-0.000228	0.002086
57	-0.000156	0.002162
58	-0.000138	0.001950
59	0.000142	0.001955
60	-0.000087	0.002341
61	0.000200	0.002297
62	-0.000108	0.001939
63	-0.000001	0.001939
64	0.000098	0.002351
65	-0.000226	0.002033
66	-0.000065	0.002363
67	-0.000216	0.002430
68	-0.000456	0.001994
69	0.000165	0.001804
70	-0.000342	0.002495
71	-0.000593	0.002001
72	-0.000419	0.001971
73	-0.000515	0.002046
74	-0.000295	0.001836
75	-0.000282	0.001862
76	-0.000300	0.002489
77	-0.000441	0.002329
78	-0.000234	0.002047
79	-0.000664	0.002252
80	-0.000588	0.002343
81	-0.000123	0.002233
82	-0.000044	0.002391
83	-0.000313	0.002405
84	-0.000095	0.002196
85	0.000083	0.002090
86	0.000129	0.002325
87	-0.000016	0.002442
88	0.000032	0.002243
89	-0.000065	0.001957
90	0.000051	0.002017
91	0.000365	0.002428
92	0.000242	0.002332

93	0.000398	0.002417
94	0.000332	0.002524
95	0.000371	0.002038
96	0.000478	0.001942
97	-0.000251	0.002061
98	-0.000297	0.001865
99	-0.000341	0.001893
100	-0.000089	0.002416
101	-0.000217	0.001994
102	-0.000310	0.002477
103	-0.000177	0.002037
104	-0.000378	0.002071
105	-0.000157	0.002387
106	0.000156	0.002487
107	0.000244	0.002499
108	0.000497	0.002696
109	0.000318	0.002048
110	0.000343	0.002120
111	0.000352	0.002345
112	0.000400	0.002339
113	-0.000080	0.002463
114	-0.000156	0.002078
115	-0.000042	0.001952
116	-0.000381	0.002427
117	-0.000188	0.002019
118	-0.000054	0.002155
119	0.000064	0.002068
120	-0.000428	0.002445
121	-0.000108	0.002021
122	-0.000349	0.001981
123	-0.000270	0.002253
124	0.000157	0.002391
125	0.000532	0.002475
126	-0.000059	0.002308
127	-0.000305	0.002346
128	0.000095	0.002300
129	-0.000372	0.002018
130	-0.000099	0.001982
131	-0.000305	0.002352
132	-0.000042	0.001933
133	0.000027	0.002209
134	-0.000108	0.002559
135	-0.000324	0.002434
136	-0.000414	0.002444
137	-0.000104	0.001982
138	-0.000030	0.002505
139	-0.000398	0.002480
140	-0.000217	0.001985
141	-0.000093	0.002660
142	-0.000367	0.002448
143	-0.000420	0.002114
144	-0.000364	0.002086
145	0.000002	0.001970
146	-0.000102	0.001874

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147             -0.000202           0.001980
148             -0.000155           0.002470
149             -0.000271           0.001859
150             -0.000609           0.002052
151             -0.000357           0.002040
152             -0.000721           0.002194
153              0.000364           0.002330
154              0.000112           0.002000
155              0.000278           0.002353
156              0.000284           0.002168
157              0.000263           0.002096
158              0.000431           0.002485
159              0.000429           0.002344
160              0.000919           0.002475
161              0.000648           0.002375
162             -0.000117           0.002384
163              0.000292           0.002361
164              0.000077           0.002456
165             -0.000244           0.002103
166              0.000538           0.002214
167             -0.000116           0.002385
168             -0.000005           0.001963
 ABSOLUTE MEAN:  0.000273           0.002223
WORST CASE CHN:     160                 5
DC OFFSET SPECIFICATION ( < 0.120000 mV )
PASSED
AC RMS SPECIFICATION ( < 0.004500 mV )
PASSED

-------------------------------------------------------------------------
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TEST 8 Noise/Offset X34, 1/4mS

FILE 2014
File Date: Sep/25/13   Time: 19:50:08
Sampling Rate:    250 usec   Record Length:  0.512 sec   Delay:    6 msec
Preamp Gain: 30 dB     Acquisition Filters: OUT  OUT

ANALYSIS NOISE 4 0.035 0.0014
CHAN          DC OFFSET (mV)       AC RMS (mV)
  1              0.000221           0.000620
  2             -0.000219           0.000685
  3             -0.000243           0.000581
  4             -0.000114           0.000632
  5             -0.000014           0.000734
  6              0.000069           0.000693
  7             -0.000199           0.000605
  8             -0.000010           0.000563
  9             -0.000029           0.000653
 10             -0.000140           0.000633
 11             -0.000092           0.000659
 12             -0.000064           0.000594
 13             -0.000093           0.000688
 14              0.000048           0.000657
```

15	-0.000095	0.000689
16	0.000028	0.000573
17	0.000055	0.000565
18	-0.000198	0.000671
19	0.000210	0.000669
20	0.000231	0.000695
21	-0.000006	0.000660
22	0.000086	0.000722
23	0.000081	0.000629
24	0.000214	0.000713
25	-0.000078	0.000630
26	0.000426	0.000663
27	0.000188	0.000691
28	0.000168	0.000695
29	0.000318	0.000651
30	0.000185	0.000610
31	0.000019	0.000673
32	0.000405	0.000574
33	0.000133	0.000664
34	0.000175	0.000690
35	-0.000036	0.000612
36	-0.000064	0.000614
37	0.000057	0.000672
38	-0.000040	0.000594
39	-0.000004	0.000571
40	0.000160	0.000690
41	-0.000030	0.000646
42	-0.000171	0.000604
43	-0.000097	0.000608
44	-0.000065	0.000572
45	-0.000206	0.000599
46	-0.000115	0.000608
47	-0.000054	0.000681
48	-0.000115	0.000611
49	0.000220	0.000653
50	-0.000037	0.000662
51	0.000031	0.000578
52	0.000166	0.000687
53	-0.000147	0.000690
54	0.000165	0.000683
55	0.000085	0.000689
56	-0.000057	0.000592
57	-0.000095	0.000617
58	0.000105	0.000562
59	0.000250	0.000575
60	-0.000053	0.000653
61	0.000217	0.000662
62	0.000165	0.000621
63	0.000222	0.000593
64	0.000116	0.000678
65	0.000166	0.000596
66	0.000419	0.000698
67	0.000315	0.000706
68	0.000053	0.000649

69	0.000147	0.000580
70	0.000178	0.000721
71	-0.000075	0.000609
72	0.000203	0.000624
73	-0.000060	0.000569
74	0.000120	0.000570
75	0.000126	0.000569
76	0.000072	0.000677
77	-0.000110	0.000662
78	0.000146	0.000583
79	0.000063	0.000626
80	0.000120	0.000682
81	-0.000053	0.000667
82	0.000066	0.000684
83	-0.000220	0.000646
84	-0.000091	0.000606
85	0.000130	0.000619
86	0.000008	0.000659
87	-0.000255	0.000684
88	-0.000015	0.000612
89	-0.000371	0.000592
90	-0.000044	0.000578
91	0.000180	0.000646
92	-0.000135	0.000637
93	-0.000103	0.000627
94	0.000115	0.000671
95	0.000060	0.000600
96	-0.000033	0.000563
97	0.000063	0.000637
98	-0.000054	0.000586
99	-0.000175	0.000590
100	-0.000096	0.000741
101	-0.000008	0.000610
102	0.000048	0.000707
103	0.000133	0.000579
104	0.000029	0.000604
105	0.000007	0.000678
106	-0.000076	0.000680
107	-0.000003	0.000703
108	0.000154	0.000675
109	0.000131	0.000619
110	-0.000140	0.000614
111	0.000257	0.000656
112	-0.000119	0.000662
113	-0.000244	0.000688
114	0.000022	0.000587
115	0.000036	0.000586
116	-0.000211	0.000717
117	0.000086	0.000592
118	0.000093	0.000597
119	-0.000004	0.000573
120	-0.000103	0.000719
121	0.000004	0.000572
122	-0.000153	0.000597

123	-0.000345	0.000678
124	0.000111	0.000660
125	0.000141	0.000643
126	0.000006	0.000670
127	-0.000170	0.000653
128	-0.000088	0.000648
129	-0.000180	0.000589
130	-0.000123	0.000603
131	-0.000002	0.000660
132	-0.000102	0.000574
133	-0.000189	0.000673
134	-0.000229	0.000687
135	-0.000155	0.000685
136	-0.000202	0.000671
137	0.000079	0.000612
138	0.000107	0.000697
139	-0.000061	0.000732
140	0.000039	0.000590
141	0.000021	0.000715
142	0.000155	0.000712
143	-0.000294	0.000642
144	-0.000344	0.000617
145	0.000106	0.000597
146	0.000075	0.000570
147	-0.000074	0.000630
148	0.000071	0.000685
149	-0.000085	0.000576
150	-0.000160	0.000574
151	-0.000189	0.000669
152	-0.000092	0.000632
153	0.000031	0.000684
154	-0.000019	0.000605
155	-0.000085	0.000667
156	-0.000063	0.000627
157	-0.000099	0.000580
158	-0.000170	0.000674
159	-0.000055	0.000683
160	-0.000176	0.000672
161	0.000120	0.000674
162	-0.000239	0.000676
163	-0.000154	0.000657
164	0.000015	0.000655
165	-0.000017	0.000602
166	0.000186	0.000625
167	-0.000113	0.000702
168	-0.000022	0.000575
ABSOLUTE MEAN:	0.000122	0.000640
WORST CASE CHN:	26	100

DC OFFSET SPECIFICATION (< 0.035000 mV)
PASSED
AC RMS SPECIFICATION (< 0.001400 mV)
PASSED

TEST 9 Noise/Offset X1, 2mS

FILE 2026
File Date: Sep/25/13 Time: 19:50:31
Sampling Rate: 2000 usec Record Length: 4.096 sec Delay: 48 msec
Preamp Gain: 0 dB Acquisition Filters: OUT OUT

ANALYSIS NOISE 4 1.0 0.002

CHAN	DC OFFSET (mV)	AC RMS (mV)
1	-0.000470	0.001061
2	-0.001286	0.001250
3	-0.001439	0.001209
4	-0.000905	0.001020
5	-0.000338	0.001022
6	-0.000237	0.001101
7	-0.000311	0.001151
8	-0.001448	0.001266
9	0.002290	0.001182
10	0.002386	0.001174
11	0.003223	0.001284
12	0.003304	0.001157
13	0.003751	0.001379
14	0.005764	0.001346
15	0.002801	0.001239
16	0.004125	0.001335
17	0.000385	0.001098
18	-0.000890	0.001070
19	0.000263	0.001063
20	0.000883	0.001035
21	0.000121	0.001293
22	0.001248	0.001256
23	0.003081	0.001352
24	0.003971	0.001469
25	-0.000026	0.001055
26	-0.001733	0.001219
27	-0.001186	0.001141
28	0.000057	0.001067
29	-0.001769	0.001215
30	-0.000304	0.001091
31	0.001400	0.001391
32	-0.000918	0.001076
33	0.001437	0.001164
34	0.002541	0.001169
35	0.000441	0.001070
36	-0.001517	0.001059
37	0.000154	0.001256
38	-0.000423	0.001227
39	0.001280	0.001105
40	-0.003002	0.001488
41	-0.001118	0.001096
42	-0.001377	0.001155
43	-0.000919	0.001090

44	0.000174	0.000990
45	0.000015	0.001186
46	-0.001815	0.001393
47	-0.000813	0.001238
48	-0.000234	0.001162
49	-0.000357	0.001053
50	-0.001388	0.001156
51	-0.002901	0.001191
52	-0.002471	0.001130
53	0.000384	0.001279
54	-0.001745	0.001313
55	-0.002097	0.001341
56	-0.003908	0.001440
57	0.001082	0.001200
58	-0.000137	0.001041
59	0.000529	0.001129
60	0.000393	0.001033
61	0.003133	0.001527
62	0.002226	0.001409
63	-0.000499	0.001160
64	-0.000185	0.001218
65	0.001431	0.001115
66	0.001408	0.001119
67	0.001470	0.001139
68	0.000943	0.001041
69	-0.002435	0.001526
70	-0.001188	0.001234
71	0.002422	0.001257
72	0.000131	0.001047
73	0.000630	0.001069
74	0.000809	0.001075
75	0.002072	0.001204
76	0.001531	0.001139
77	-0.000421	0.001475
78	0.000397	0.001124
79	0.001113	0.001307
80	0.000493	0.001226
81	0.003038	0.001320
82	0.002335	0.001228
83	0.002763	0.001219
84	0.003129	0.001139
85	0.002128	0.001247
86	0.003141	0.001234
87	0.002320	0.001203
88	0.004761	0.001237
89	-0.003669	0.001232
90	-0.004858	0.001236
91	-0.002684	0.001233
92	-0.002237	0.001153
93	-0.001903	0.001332
94	-0.003392	0.001356
95	-0.002321	0.001239
96	-0.001283	0.001238
97	-0.000016	0.001226

98	0.000063	0.001101
99	-0.003554	0.001220
100	-0.002082	0.001147
101	-0.000734	0.001094
102	-0.001915	0.001141
103	-0.000813	0.001248
104	-0.004527	0.001290
105	0.002910	0.001216
106	0.000815	0.001103
107	0.001814	0.001206
108	0.002657	0.001136
109	0.002011	0.001341
110	0.001164	0.001338
111	0.001821	0.001310
112	0.001881	0.001391
113	0.004138	0.001233
114	0.004124	0.001184
115	0.005227	0.001210
116	0.005862	0.001117
117	0.005572	0.001231
118	0.006771	0.001345
119	0.005650	0.001254
120	0.006163	0.001357
121	0.006270	0.001168
122	0.003845	0.001263
123	0.004654	0.001178
124	0.004345	0.001135
125	0.004064	0.001540
126	0.004476	0.001340
127	0.003226	0.001352
128	0.002538	0.001369
129	-0.001078	0.001070
130	0.002266	0.001196
131	0.000248	0.001118
132	-0.001845	0.001099
133	-0.000472	0.001252
134	0.000400	0.001315
135	0.000368	0.001133
136	-0.003316	0.001539
137	0.003975	0.001223
138	0.002786	0.001260
139	0.004776	0.001210
140	0.005897	0.001143
141	0.004923	0.001386
142	0.006402	0.001302
143	0.005129	0.001239
144	0.006862	0.001331
145	0.003309	0.001328
146	0.003072	0.001245
147	0.000905	0.001131
148	0.002313	0.001188
149	0.002138	0.001168
150	0.002119	0.001373
151	0.001450	0.001214

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152              0.001999           0.001353
153             -0.000148           0.001080
154             -0.002203           0.001207
155             -0.000193           0.001044
156              0.000119           0.000992
157              0.000189           0.001254
158              0.001405           0.001268
159             -0.000027           0.001138
160              0.003147           0.001341
161              0.004264           0.001143
162              0.003153           0.001162
163              0.001736           0.001174
164              0.003616           0.001089
165              0.006766           0.001243
166              0.006122           0.001162
167              0.001148           0.001167
168              0.005264           0.001221
 ABSOLUTE MEAN:  0.002209           0.001213
WORST CASE CHN:     144                125
DC OFFSET SPECIFICATION ( < 1.000000 mV )
PASSED
AC RMS SPECIFICATION ( < 0.002000 mV )
PASSED

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TEST 10 Noise/Offset X2.5, 2mS

FILE 2027
File Date: Sep/25/13   Time: 19:50:58
Sampling Rate:   2000 usec   Record Length:  4.096 sec   Delay:   48 msec
Preamp Gain: 8 dB     Acquisition Filters: OUT  OUT

ANALYSIS NOISE 4 0.4 0.001
CHAN          DC OFFSET (mV)       AC RMS (mV)
  1             -0.000121           0.000455
  2             -0.001022           0.000544
  3             -0.001098           0.000502
  4             -0.000331           0.000414
  5             -0.000329           0.000440
  6             -0.000374           0.000492
  7             -0.000761           0.000499
  8              0.000341           0.000511
  9              0.000001           0.000432
 10             -0.000591           0.000470
 11             -0.000772           0.000499
 12             -0.000375           0.000429
 13              0.000084           0.000510
 14              0.000208           0.000510
 15             -0.000194           0.000466
 16             -0.000257           0.000418
 17             -0.000015           0.000439
 18             -0.001346           0.000498
 19             -0.000402           0.000432
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20	-0.000479	0.000434
21	-0.000245	0.000460
22	-0.000080	0.000487
23	0.000247	0.000506
24	-0.000117	0.000453
25	0.000570	0.000477
26	0.000521	0.000489
27	0.001235	0.000504
28	0.001806	0.000526
29	0.001758	0.000525
30	0.002431	0.000545
31	0.001792	0.000593
32	0.003296	0.000509
33	-0.000264	0.000438
34	-0.000050	0.000406
35	-0.000298	0.000453
36	-0.000751	0.000453
37	-0.000982	0.000549
38	-0.000599	0.000493
39	-0.000730	0.000538
40	-0.000977	0.000602
41	-0.000038	0.000460
42	-0.000478	0.000493
43	0.000079	0.000445
44	0.000788	0.000444
45	0.000023	0.000494
46	0.000651	0.000557
47	0.000870	0.000515
48	0.001067	0.000554
49	-0.000326	0.000460
50	0.000071	0.000438
51	0.000016	0.000450
52	0.000128	0.000418
53	0.000229	0.000548
54	0.000842	0.000561
55	0.000493	0.000529
56	0.000049	0.000544
57	-0.000125	0.000464
58	-0.000569	0.000443
59	0.000297	0.000467
60	-0.000036	0.000414
61	0.000187	0.000523
62	-0.000291	0.000537
63	-0.000635	0.000498
64	-0.000332	0.000498
65	0.000421	0.000450
66	-0.000015	0.000412
67	0.000528	0.000451
68	0.000906	0.000478
69	0.000297	0.000610
70	0.000606	0.000541
71	0.000476	0.000500
72	0.001961	0.000567
73	-0.002207	0.000461

74	-0.001158	0.000484
75	-0.001469	0.000498
76	-0.001375	0.000472
77	-0.000913	0.000597
78	-0.001026	0.000494
79	-0.000697	0.000592
80	-0.000906	0.000540
81	-0.000061	0.000468
82	-0.000286	0.000475
83	-0.000533	0.000443
84	-0.000074	0.000402
85	0.000239	0.000468
86	0.000305	0.000463
87	-0.000219	0.000450
88	0.000035	0.000461
89	0.000120	0.000422
90	-0.000310	0.000485
91	0.000121	0.000452
92	-0.000122	0.000424
93	0.000657	0.000546
94	0.000271	0.000499
95	0.000293	0.000474
96	0.000500	0.000519
97	0.000283	0.000505
98	0.000454	0.000486
99	-0.000178	0.000439
100	0.000168	0.000434
101	-0.000339	0.000441
102	0.000293	0.000464
103	0.000484	0.000535
104	0.000217	0.000478
105	0.000223	0.000446
106	0.000065	0.000474
107	0.000331	0.000471
108	0.000504	0.000449
109	0.000252	0.000505
110	-0.000375	0.000505
111	-0.000338	0.000488
112	0.000196	0.000542
113	0.000456	0.000446
114	0.000413	0.000449
115	0.000462	0.000473
116	0.000460	0.000441
117	0.000329	0.000486
118	0.000762	0.000495
119	0.000711	0.000484
120	-0.000010	0.000483
121	0.000536	0.000461
122	-0.001319	0.000493
123	-0.001360	0.000485
124	-0.000604	0.000436
125	0.000125	0.000514
126	0.000082	0.000498
127	-0.001561	0.000571

128	-0.001084	0.000565
129	0.000201	0.000441
130	0.000445	0.000467
131	0.000289	0.000459
132	0.000462	0.000437
133	0.000444	0.000542
134	0.000251	0.000544
135	-0.000016	0.000471
136	0.000451	0.000595
137	-0.000372	0.000471
138	-0.000724	0.000535
139	-0.000943	0.000491
140	-0.000177	0.000435
141	-0.000383	0.000535
142	-0.000498	0.000515
143	-0.000838	0.000529
144	-0.000639	0.000518
145	0.000630	0.000533
146	0.000359	0.000462
147	0.000221	0.000455
148	0.000520	0.000470
149	0.001043	0.000498
150	0.000685	0.000595
151	0.000183	0.000502
152	0.000618	0.000539
153	0.000437	0.000466
154	-0.000030	0.000435
155	0.000202	0.000446
156	0.000139	0.000423
157	0.000962	0.000578
158	0.000238	0.000545
159	0.000004	0.000460
160	0.000460	0.000538
161	0.001023	0.000487
162	0.000020	0.000437
163	0.000524	0.000477
164	0.000088	0.000415
165	-0.000651	0.000558
166	0.000557	0.000507
167	-0.000747	0.000516
168	-0.000302	0.000415
ABSOLUTE MEAN:	0.000526	0.000488
WORST CASE CHN:	32	69

DC OFFSET SPECIFICATION (< 0.400000 mV)
PASSED
AC RMS SPECIFICATION (< 0.001000 mV)
PASSED

TEST 11 Noise/Offset X8.5, 2mS

FILE 2028
File Date: Sep/25/13 Time: 19:51:24

Sampling Rate: 2000 usec Record Length: 4.096 sec Delay: 48 msec
Preamp Gain: 18 dB Acquisition Filters: OUT OUT

ANALYSIS NOISE 4 0.12 0.0012 0.0004

CHAN	DC OFFSET (mV)	AC RMS (mV)
1	-0.000434	0.000195
2	-0.000852	0.000208
3	-0.001234	0.000188
4	-0.001015	0.000184
5	-0.000565	0.000198
6	-0.000787	0.000191
7	-0.000878	0.000204
8	-0.001189	0.000190
9	0.000165	0.000186
10	0.000017	0.000162
11	0.000035	0.000185
12	0.000422	0.000189
13	0.000092	0.000185
14	0.000124	0.000186
15	0.000076	0.000176
16	0.000389	0.000208
17	-0.000444	0.000186
18	-0.000947	0.000190
19	-0.000407	0.000197
20	-0.000637	0.000185
21	-0.000399	0.000217
22	-0.000229	0.000199
23	-0.000474	0.000214
24	-0.000424	0.000213
25	-0.000566	0.000187
26	0.000003	0.000180
27	0.000027	0.000172
28	-0.000077	0.000179
29	0.000256	0.000192
30	0.000197	0.000178
31	-0.000153	0.000197
32	-0.000066	0.000174
33	0.000111	0.000173
34	-0.000236	0.000182
35	-0.000249	0.000189
36	-0.000270	0.000176
37	-0.000024	0.000187
38	-0.000106	0.000178
39	-0.000093	0.000195
40	0.000026	0.000235
41	-0.000465	0.000344
42	-0.000740	0.000203
43	-0.000754	0.000191
44	-0.000704	0.000194
45	-0.000498	0.000211
46	-0.000800	0.000213
47	-0.000644	0.000213
48	-0.001058	0.000239
49	-0.000248	0.000184

50	-0.000169	0.000177
51	-0.000513	0.000188
52	-0.000323	0.000186
53	-0.000146	0.000206
54	-0.000198	0.000189
55	-0.000208	0.000184
56	-0.000627	0.000223
57	-0.000669	0.000198
58	-0.000945	0.000189
59	-0.000430	0.000195
60	-0.000781	0.000185
61	-0.000111	0.000183
62	-0.000754	0.000221
63	-0.000888	0.000228
64	-0.000845	0.000205
65	-0.000325	0.000185
66	-0.000303	0.000184
67	-0.000096	0.000182
68	-0.000173	0.000237
69	0.000216	0.000232
70	-0.000033	0.000186
71	-0.000413	0.000201
72	0.000103	0.000192
73	-0.000211	0.000176
74	-0.000140	0.000169
75	-0.000324	0.000182
76	-0.000228	0.000175
77	-0.000060	0.000180
78	-0.000295	0.000195
79	-0.000291	0.000205
80	-0.000436	0.000188
81	0.000056	0.000181
82	0.000432	0.000191
83	0.000139	0.000182
84	0.000379	0.000181
85	0.000599	0.000191
86	0.000920	0.000206
87	0.000359	0.000183
88	0.000431	0.000210
89	-0.000128	0.000173
90	-0.000281	0.000201
91	-0.000023	0.000175
92	-0.000088	0.000166
93	0.000154	0.000193
94	-0.000031	0.000189
95	-0.000069	0.000169
96	-0.000116	0.000185
97	-0.000372	0.000191
98	-0.000333	0.000191
99	-0.000716	0.000196
100	-0.000376	0.000182
101	-0.000260	0.000193
102	-0.000444	0.000190
103	-0.000395	0.000202

104	-0.000767	0.000204
105	-0.000034	0.000179
106	-0.000003	0.000173
107	0.000050	0.000175
108	0.000015	0.000167
109	-0.000096	0.000198
110	-0.000436	0.000202
111	-0.000097	0.000188
112	-0.000189	0.000201
113	0.000096	0.000173
114	0.000117	0.000181
115	0.000227	0.000182
116	0.000137	0.000182
117	0.000353	0.000202
118	0.000190	0.000187
119	0.000373	0.000204
120	0.000166	0.000187
121	-0.000212	0.000177
122	-0.000342	0.000190
123	-0.000290	0.000189
124	0.000105	0.000171
125	0.000329	0.000218
126	-0.000182	0.000199
127	0.000084	0.000202
128	0.000214	0.000182
129	-0.000349	0.000192
130	-0.000729	0.000189
131	-0.000780	0.000192
132	-0.000583	0.000185
133	-0.000323	0.000195
134	-0.000643	0.000223
135	-0.000761	0.000191
136	-0.000712	0.000226
137	-0.000313	0.000185
138	-0.000416	0.000209
139	-0.000492	0.000208
140	-0.000434	0.000181
141	-0.000414	0.000211
142	-0.000591	0.000201
143	-0.001044	0.000203
144	-0.000705	0.000213
145	0.000080	0.000183
146	0.000061	0.000176
147	-0.000241	0.000204
148	0.000116	0.000182
149	-0.000135	0.000173
150	-0.000003	0.000199
151	-0.000061	0.000217
152	-0.000168	0.000190
153	0.000404	0.000190
154	0.000472	0.000194
155	0.000596	0.000198
156	0.000668	0.000182
157	0.000265	0.000174

158	0.000555	0.000213
159	0.000561	0.000197
160	0.001081	0.000188
161	0.000670	0.000187
162	0.000053	0.000172
163	0.000316	0.000192
164	0.000167	0.000180
165	-0.000121	0.000204
166	0.000728	0.000216
167	-0.000108	0.000208
168	0.000108	0.000193
ABSOLUTE MEAN:	0.000364	0.000193
WORST CASE CHN:	3	41

DC OFFSET SPECIFICATION (< 0.120000 mV)
PASSED
AC RMS SPECIFICATION (< 0.001200 mV)
PASSED

TEST 12 Noise/Offset X34, 2mS

FILE 2029
File Date: Sep/25/13 Time: 19:51:51
Sampling Rate: 2000 usec Record Length: 4.096 sec Delay: 48 msec
Preamp Gain: 30 dB Acquisition Filters: OUT OUT

ANALYSIS NOISE 4 0.035 0.008 0.0003

CHAN	DC OFFSET (mV)	AC RMS (mV)
1	0.000023	0.000129
2	-0.000029	0.000129
3	-0.000029	0.000122
4	0.000070	0.000126
5	0.000013	0.000142
6	0.000317	0.000135
7	-0.000036	0.000132
8	0.000185	0.000131
9	-0.000101	0.000131
10	-0.000047	0.000120
11	-0.000017	0.000124
12	0.000171	0.000134
13	-0.000013	0.000124
14	0.000269	0.000128
15	0.000092	0.000125
16	0.000159	0.000126
17	0.000085	0.000126
18	-0.000180	0.000139
19	0.000353	0.000127
20	0.000195	0.000126
21	-0.000004	0.000129
22	0.000215	0.000134
23	0.000177	0.000129
24	0.000410	0.000143
25	-0.000400	0.000126

26	0.000276	0.000132
27	0.000188	0.000122
28	0.000148	0.000125
29	0.000108	0.000130
30	0.000145	0.000127
31	0.000138	0.000132
32	0.000293	0.000122
33	0.000099	0.000126
34	0.000186	0.000129
35	-0.000024	0.000123
36	-0.000184	0.000124
37	-0.000115	0.000125
38	-0.000025	0.000125
39	-0.000083	0.000123
40	-0.000108	0.000150
41	0.000042	0.000323
42	-0.000121	0.000124
43	0.000020	0.000126
44	-0.000333	0.000129
45	-0.000026	0.000148
46	-0.000245	0.000133
47	0.000077	0.000123
48	-0.000225	0.000136
49	0.000093	0.000126
50	-0.000085	0.000131
51	-0.000061	0.000130
52	-0.000016	0.000120
53	-0.000033	0.000134
54	0.000051	0.000127
55	0.000004	0.000133
56	-0.000126	0.000129
57	-0.000007	0.000136
58	0.000084	0.000120
59	0.000256	0.000128
60	-0.000002	0.000127
61	0.000375	0.000131
62	-0.000035	0.000131
63	0.000151	0.000131
64	0.000137	0.000124
65	0.000175	0.000128
66	0.000208	0.000128
67	0.000279	0.000124
68	0.000042	0.000221
69	0.000038	0.000145
70	0.000167	0.000134
71	0.000050	0.000130
72	0.000343	0.000136
73	0.000035	0.000122
74	0.000119	0.000135
75	-0.000064	0.000122
76	0.000033	0.000124
77	-0.000031	0.000123
78	-0.000016	0.000127
79	-0.000044	0.000131

80	-0.000093	0.000128
81	-0.000153	0.000130
82	0.000110	0.000123
83	-0.000235	0.000128
84	-0.000005	0.000124
85	0.000109	0.000128
86	-0.000063	0.000133
87	-0.000176	0.000123
88	-0.000001	0.000127
89	-0.000247	0.000128
90	-0.000095	0.000122
91	0.000006	0.000125
92	-0.000181	0.000121
93	0.000004	0.000130
94	0.000101	0.000137
95	-0.000033	0.000126
96	-0.000150	0.000118
97	0.000102	0.000125
98	0.000060	0.000126
99	-0.000090	0.000122
100	0.000026	0.000121
101	-0.000009	0.000129
102	-0.000012	0.000126
103	0.000100	0.000123
104	0.000003	0.000131
105	-0.000068	0.000124
106	-0.000102	0.000124
107	-0.000032	0.000120
108	0.000194	0.000127
109	0.000117	0.000128
110	-0.000036	0.000128
111	0.000277	0.000141
112	-0.000152	0.000135
113	-0.000160	0.000126
114	0.000086	0.000134
115	0.000136	0.000121
116	0.000004	0.000142
117	0.000187	0.000131
118	0.000068	0.000129
119	-0.000017	0.000134
120	0.000080	0.000127
121	-0.000057	0.000124
122	-0.000266	0.000129
123	-0.000262	0.000132
124	0.000026	0.000122
125	-0.000094	0.000135
126	0.000138	0.000129
127	-0.000087	0.000131
128	-0.000042	0.000124
129	-0.000268	0.000139
130	-0.000381	0.000134
131	-0.000283	0.000124
132	-0.000247	0.000126
133	-0.000251	0.000128

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134             -0.000247           0.000172
135             -0.000290           0.000127
136             -0.000218           0.000136
137              0.000164           0.000140
138              0.000034           0.000134
139             -0.000029           0.000132
140              0.000161           0.000127
141              0.000073           0.000138
142              0.000137           0.000136
143             -0.000137           0.000128
144              0.000038           0.000140
145              0.000070           0.000134
146              0.000095           0.000125
147             -0.000223           0.000127
148             -0.000038           0.000138
149             -0.000108           0.000126
150              0.000015           0.000133
151             -0.000016           0.000168
152             -0.000217           0.000127
153              0.000058           0.000125
154              0.000042           0.000125
155              0.000097           0.000120
156              0.000062           0.000121
157              0.000017           0.000127
158              0.000126           0.000133
159              0.000030           0.000118
160              0.000029           0.000130
161              0.000410           0.000128
162              0.000123           0.000141
163              0.000055           0.000124
164              0.000023           0.000117
165             -0.000010           0.000134
166              0.000441           0.000141
167             -0.000105           0.000155
168              0.000095           0.000126
 ABSOLUTE MEAN:  0.000121           0.000131
WORST CASE CHN:     166                41
DC OFFSET SPECIFICATION ( < 0.035000 mV )
PASSED
AC RMS SPECIFICATION ( < 0.008000 mV )
PASSED

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TEST 17 Gain, THD, Sim X1, 1/4mS, 100Hz

SIGNAL_TYPE SINE 100.000000 800.000000 0.000000 8

FILE 1011
File Date: Sep/25/13   Time: 19:52:20
Sampling Rate:    250 usec   Record Length:  0.512 sec   Delay:    6 msec
Preamp Gain: 0 dB     Acquisition Filters: OUT  OUT

ANALYSIS GAIN 2.0 2.0
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INPUT PEAK AMPLITUDE IS 800.000 mV

CHAN NO.	TEST FREQ	PEAK AMPLITUDE (mV)	ACCURACY (%)	SIMILARITY (%)
1	100.000	807.764	0.97050	-0.17184
2	100.000	809.066	1.13323	-0.01095
3	100.000	807.733	0.96662	-0.17567
4	100.000	809.663	1.20791	0.06289
5	100.000	809.784	1.22294	0.07775
6	100.000	808.906	1.11328	-0.03067
7	100.000	809.406	1.17569	0.03103
8	100.000	809.243	1.15538	0.01095
9	100.000	804.944	0.61794	-0.00869
10	100.000	804.437	0.55466	-0.07158
11	100.000	805.083	0.63543	0.00869
12	100.000	806.228	0.77851	0.15088
13	100.000	803.896	0.48705	-0.13876
14	100.000	804.706	0.58821	-0.03824
15	100.000	805.700	0.71249	0.08527
16	100.000	806.564	0.82054	0.19265
17	100.000	808.200	1.02499	-0.06407
18	100.000	808.643	1.08042	-0.00924
19	100.000	809.115	1.13937	0.04907
20	100.000	809.146	1.14324	0.05291
21	100.000	808.793	1.09910	0.00924
22	100.000	809.186	1.14825	0.05786
23	100.000	808.169	1.02115	-0.06787
24	100.000	807.876	0.98452	-0.10411
25	100.000	806.945	0.86813	0.07079
26	100.000	804.178	0.52228	-0.27233
27	100.000	807.231	0.90391	0.10629
28	100.000	806.833	0.85418	0.05695
29	100.000	805.118	0.63974	-0.15579
30	100.000	805.915	0.73937	-0.05695
31	100.000	807.280	0.90994	0.11227
32	100.000	805.722	0.71522	-0.08091
33	100.000	808.309	1.03866	-0.10229
34	100.000	810.390	1.29871	0.15483
35	100.000	808.734	1.09169	-0.04986
36	100.000	811.144	1.39301	0.24806
37	100.000	808.660	1.08250	-0.05894
38	100.000	809.083	1.13533	-0.00671
39	100.000	809.698	1.21223	0.06932
40	100.000	809.191	1.14891	0.00671
41	100.000	807.786	0.97327	-0.11726
42	100.000	809.201	1.15012	0.05767
43	100.000	807.927	0.99094	-0.09979
44	100.000	808.389	1.04859	-0.04275
45	100.000	809.529	1.19109	0.09821
46	100.000	808.831	1.10382	0.01188

47	100.000	808.706	1.08825	-0.00352
48	100.000	808.763	1.09538	0.00353
49	100.000	803.107	0.38832	0.09156
50	100.000	802.810	0.35126	0.05461
51	100.000	801.284	0.16046	-0.13563
52	100.000	801.957	0.24464	-0.05170
53	100.000	802.434	0.30425	0.00774
54	100.000	801.763	0.22042	-0.07585
55	100.000	802.456	0.30699	0.01047
56	100.000	802.310	0.28873	-0.00774
57	100.000	807.374	0.92173	0.05164
58	100.000	808.096	1.01199	0.14113
59	100.000	807.184	0.89799	0.02811
60	100.000	806.730	0.84128	-0.02811
61	100.000	807.408	0.92605	0.05593
62	100.000	805.815	0.72687	-0.14154
63	100.000	806.084	0.76048	-0.10822
64	100.000	806.365	0.79564	-0.07336
65	100.000	811.005	1.37567	0.14631
66	100.000	809.627	1.20335	-0.02393
67	100.000	809.534	1.19180	-0.03534
68	100.000	810.014	1.25179	0.02393
69	100.000	810.739	1.34235	0.11339
70	100.000	808.949	1.11864	-0.10760
71	100.000	810.042	1.25526	0.02735
72	100.000	809.165	1.14565	-0.08093
73	100.000	801.548	0.19354	-0.23285
74	100.000	803.736	0.46705	0.03950
75	100.000	803.498	0.43731	0.00988
76	100.000	803.408	0.42603	-0.00134
77	100.000	803.430	0.42874	0.00135
78	100.000	803.645	0.45565	0.02815
79	100.000	802.775	0.34686	-0.08019
80	100.000	803.179	0.39740	-0.02986
81	100.000	808.881	1.11007	-0.08466
82	100.000	809.526	1.19072	-0.00496
83	100.000	808.856	1.10699	-0.08770
84	100.000	809.823	1.22785	0.03173
85	100.000	809.606	1.20075	0.00495
86	100.000	807.827	0.97832	-0.21485
87	100.000	809.677	1.20967	0.01377
88	100.000	810.152	1.26901	0.07241
89	100.000	807.561	0.94513	-0.03689
90	100.000	808.015	1.00187	0.01930
91	100.000	807.979	0.99740	0.01487
92	100.000	807.511	0.93884	-0.04312
93	100.000	807.739	0.96737	-0.01487
94	100.000	806.668	0.83354	-0.14739

95	100.000	808.097	1.01211	0.02943
96	100.000	808.912	1.11405	0.13039
97	100.000	803.579	0.44733	-0.18331
98	100.000	804.814	0.60172	-0.02989
99	100.000	804.954	0.61922	-0.01249
100	100.000	804.938	0.61723	-0.01448
101	100.000	805.263	0.65790	0.02594
102	100.000	805.155	0.64437	0.01249
103	100.000	805.861	0.73258	0.10015
104	100.000	805.672	0.70905	0.07677
105	100.000	807.609	0.95111	-0.10023
106	100.000	808.285	1.03563	-0.01659
107	100.000	807.890	0.98624	-0.06547
108	100.000	808.553	1.06917	0.01659
109	100.000	808.683	1.08540	0.03266
110	100.000	808.081	1.01011	-0.04185
111	100.000	809.171	1.14642	0.09304
112	100.000	809.210	1.15131	0.09788
113	100.000	806.805	0.85065	0.08842
114	100.000	807.548	0.94347	0.18053
115	100.000	805.352	0.66905	-0.09181
116	100.000	806.576	0.82198	0.05995
117	100.000	805.297	0.66208	-0.09874
118	100.000	805.065	0.63315	-0.12745
119	100.000	805.609	0.70116	-0.05995
120	100.000	806.780	0.84749	0.08527
121	100.000	806.789	0.84864	-0.02392
122	100.000	808.567	1.07090	0.19641
123	100.000	807.254	0.90670	0.03363
124	100.000	806.552	0.81905	-0.05326
125	100.000	806.861	0.85760	-0.01504
126	100.000	806.993	0.87416	0.00138
127	100.000	806.971	0.87139	-0.00137
128	100.000	807.044	0.88046	0.00762
129	100.000	804.340	0.54253	-0.00386
130	100.000	803.873	0.48414	-0.06194
131	100.000	803.746	0.46831	-0.07769
132	100.000	804.825	0.60314	0.05642
133	100.000	804.402	0.55029	0.00385
134	100.000	804.676	0.58447	0.03784
135	100.000	804.698	0.58729	0.04065
136	100.000	803.635	0.45434	-0.09158
137	100.000	806.892	0.86147	-0.01229
138	100.000	807.597	0.94968	0.07516
139	100.000	807.177	0.89715	0.02308
140	100.000	807.862	0.98276	0.10794
141	100.000	807.090	0.88628	0.01230
142	100.000	806.567	0.82092	-0.05250

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143    100.000       806.886      0.86080       -0.01296
144    100.000       806.644      0.83051       -0.04298

145    100.000       805.736      0.71696        0.02503
146    100.000       803.848      0.48096       -0.20936
147    100.000       805.283      0.66035       -0.03119
148    100.000       806.973      0.87158        0.17858
149    100.000       803.383      0.42292       -0.26700
150    100.000       805.333      0.66656       -0.02503
151    100.000       805.833      0.72906        0.03704
152    100.000       805.769      0.72118        0.02921

153    100.000       803.567      0.44591       -0.10551
154    100.000       805.262      0.65769        0.10511
155    100.000       804.447      0.55586        0.00384
156    100.000       804.883      0.61032        0.05800
157    100.000       804.786      0.59823        0.04597
158    100.000       804.385      0.54815       -0.00383
159    100.000       803.853      0.48166       -0.06996
160    100.000       804.236      0.52952       -0.02236

161    100.000       809.497      1.18714       -0.00591
162    100.000       808.435      1.05435       -0.13713
163    100.000       809.193      1.14912       -0.04348
164    100.000       809.593      1.19910        0.00591
165    100.000       809.220      1.15253       -0.04012
166    100.000       810.053      1.25657        0.06270
167    100.000       809.735      1.21693        0.02353
168    100.000       809.913      1.23912        0.04546
          MEAN:      806.833      0.85419
WORST CASE CHN:                     36             26
GAIN ACCURACY SPECIFICATION ( <  2.00000% )
PASSED
GAIN SIMILARITY SPECIFICATION ( <  2.00000% )
PASSED

ANALYSIS HARMONIC_DISTORTION 6 0.0012
CHAN  FNDMTL             FIRST FIVE HARMONIC CONTENT (%)         RMS
TOTAL (%)
 NO.   FREQ       2         3         4         5         6
  1  100.000   0.00013   0.00019   0.00011   0.00007   0.00014   0.00031
  2  100.000   0.00014   0.00017   0.00008   0.00007   0.00011   0.00028
  3  100.000   0.00016   0.00017   0.00013   0.00006   0.00015   0.00032
  4  100.000   0.00014   0.00017   0.00010   0.00010   0.00013   0.00030
  5  100.000   0.00015   0.00020   0.00013   0.00008   0.00012   0.00032
  6  100.000   0.00015   0.00021   0.00012   0.00006   0.00014   0.00033
  7  100.000   0.00013   0.00019   0.00013   0.00011   0.00011   0.00031
  8  100.000   0.00012   0.00016   0.00012   0.00010   0.00014   0.00031
  9  100.000   0.00024   0.00026   0.00009   0.00011   0.00019   0.00043
 10  100.000   0.00022   0.00024   0.00011   0.00009   0.00013   0.00038
 11  100.000   0.00020   0.00032   0.00011   0.00008   0.00014   0.00044
 12  100.000   0.00021   0.00021   0.00011   0.00010   0.00015   0.00037
 13  100.000   0.00027   0.00025   0.00012   0.00012   0.00014   0.00043
 14  100.000   0.00025   0.00020   0.00012   0.00012   0.00007   0.00038
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15	100.000	0.00023	0.00025	0.00012	0.00008	0.00014	0.00041
16	100.000	0.00024	0.00023	0.00008	0.00008	0.00013	0.00039
17	100.000	0.00006	0.00009	0.00014	0.00012	0.00010	0.00026
18	100.000	0.00006	0.00011	0.00013	0.00008	0.00008	0.00023
19	100.000	0.00005	0.00009	0.00011	0.00009	0.00013	0.00024
20	100.000	0.00005	0.00012	0.00015	0.00010	0.00011	0.00027
21	100.000	0.00008	0.00009	0.00016	0.00008	0.00008	0.00026
22	100.000	0.00011	0.00009	0.00012	0.00008	0.00012	0.00024
23	100.000	0.00008	0.00009	0.00013	0.00011	0.00009	0.00025
24	100.000	0.00009	0.00011	0.00012	0.00011	0.00010	0.00026
25	100.000	0.00011	0.00018	0.00018	0.00015	0.00013	0.00039
26	100.000	0.00014	0.00016	0.00013	0.00017	0.00009	0.00037
27	100.000	0.00016	0.00016	0.00013	0.00020	0.00010	0.00040
28	100.000	0.00014	0.00015	0.00014	0.00018	0.00010	0.00039
29	100.000	0.00011	0.00016	0.00010	0.00014	0.00012	0.00034
30	100.000	0.00014	0.00015	0.00012	0.00018	0.00011	0.00037
31	100.000	0.00012	0.00016	0.00015	0.00015	0.00011	0.00037
32	100.000	0.00016	0.00016	0.00012	0.00014	0.00012	0.00036
33	100.000	0.00010	0.00009	0.00019	0.00011	0.00011	0.00030
34	100.000	0.00010	0.00007	0.00018	0.00011	0.00012	0.00028
35	100.000	0.00012	0.00007	0.00021	0.00015	0.00014	0.00035
36	100.000	0.00014	0.00008	0.00018	0.00012	0.00010	0.00031
37	100.000	0.00012	0.00011	0.00024	0.00013	0.00014	0.00037
38	100.000	0.00010	0.00007	0.00018	0.00013	0.00011	0.00029
39	100.000	0.00011	0.00012	0.00017	0.00017	0.00012	0.00033
40	100.000	0.00011	0.00010	0.00016	0.00011	0.00013	0.00029
41	100.000	0.00009	0.00006	0.00007	0.00016	0.00009	0.00026
42	100.000	0.00014	0.00010	0.00005	0.00016	0.00008	0.00027
43	100.000	0.00011	0.00012	0.00010	0.00017	0.00008	0.00027
44	100.000	0.00009	0.00010	0.00006	0.00012	0.00010	0.00023
45	100.000	0.00008	0.00011	0.00009	0.00017	0.00009	0.00026
46	100.000	0.00010	0.00006	0.00013	0.00012	0.00009	0.00023
47	100.000	0.00011	0.00011	0.00006	0.00016	0.00013	0.00029
48	100.000	0.00011	0.00009	0.00007	0.00018	0.00009	0.00026
49	100.000	0.00017	0.00019	0.00008	0.00012	0.00012	0.00034
50	100.000	0.00019	0.00016	0.00009	0.00006	0.00013	0.00032
51	100.000	0.00017	0.00020	0.00010	0.00009	0.00010	0.00035
52	100.000	0.00018	0.00017	0.00004	0.00011	0.00011	0.00031
53	100.000	0.00016	0.00021	0.00008	0.00010	0.00015	0.00035
54	100.000	0.00015	0.00024	0.00008	0.00006	0.00012	0.00034
55	100.000	0.00015	0.00018	0.00004	0.00010	0.00009	0.00030
56	100.000	0.00016	0.00019	0.00008	0.00007	0.00012	0.00033
57	100.000	0.00011	0.00014	0.00009	0.00015	0.00011	0.00030
58	100.000	0.00007	0.00012	0.00010	0.00016	0.00007	0.00028
59	100.000	0.00008	0.00015	0.00011	0.00016	0.00008	0.00029
60	100.000	0.00010	0.00013	0.00009	0.00015	0.00006	0.00028
61	100.000	0.00011	0.00020	0.00015	0.00015	0.00008	0.00034
62	100.000	0.00011	0.00019	0.00009	0.00015	0.00012	0.00034
63	100.000	0.00007	0.00011	0.00011	0.00016	0.00009	0.00027
64	100.000	0.00007	0.00009	0.00012	0.00015	0.00009	0.00027
65	100.000	0.00021	0.00013	0.00021	0.00011	0.00015	0.00038
66	100.000	0.00021	0.00012	0.00022	0.00009	0.00016	0.00038
67	100.000	0.00023	0.00013	0.00020	0.00009	0.00014	0.00038
68	100.000	0.00024	0.00010	0.00020	0.00011	0.00018	0.00040

69	100.000	0.00020	0.00016	0.00017	0.00010	0.00016	0.00037
70	100.000	0.00019	0.00013	0.00023	0.00013	0.00014	0.00039
71	100.000	0.00024	0.00016	0.00026	0.00009	0.00016	0.00043
72	100.000	0.00022	0.00014	0.00022	0.00007	0.00014	0.00040
73	100.000	0.00017	0.00010	0.00011	0.00007	0.00010	0.00034
74	100.000	0.00019	0.00009	0.00007	0.00004	0.00012	0.00033
75	100.000	0.00012	0.00012	0.00008	0.00007	0.00016	0.00031
76	100.000	0.00019	0.00011	0.00013	0.00003	0.00011	0.00035
77	100.000	0.00019	0.00015	0.00011	0.00009	0.00009	0.00036
78	100.000	0.00022	0.00010	0.00018	0.00006	0.00010	0.00040
79	100.000	0.00017	0.00013	0.00010	0.00006	0.00012	0.00032
80	100.000	0.00016	0.00010	0.00014	0.00010	0.00011	0.00035
81	100.000	0.00006	0.00017	0.00011	0.00011	0.00012	0.00029
82	100.000	0.00008	0.00014	0.00010	0.00011	0.00011	0.00027
83	100.000	0.00007	0.00012	0.00008	0.00007	0.00006	0.00022
84	100.000	0.00008	0.00014	0.00012	0.00009	0.00009	0.00026
85	100.000	0.00013	0.00015	0.00009	0.00011	0.00011	0.00031
86	100.000	0.00009	0.00014	0.00012	0.00010	0.00010	0.00027
87	100.000	0.00009	0.00015	0.00008	0.00010	0.00014	0.00029
88	100.000	0.00008	0.00016	0.00009	0.00009	0.00012	0.00028
89	100.000	0.00013	0.00012	0.00014	0.00013	0.00007	0.00028
90	100.000	0.00013	0.00013	0.00014	0.00014	0.00003	0.00029
91	100.000	0.00016	0.00012	0.00018	0.00015	0.00005	0.00033
92	100.000	0.00015	0.00012	0.00009	0.00014	0.00004	0.00028
93	100.000	0.00016	0.00015	0.00013	0.00014	0.00007	0.00031
94	100.000	0.00016	0.00012	0.00011	0.00015	0.00009	0.00031
95	100.000	0.00013	0.00012	0.00011	0.00011	0.00008	0.00029
96	100.000	0.00016	0.00014	0.00016	0.00012	0.00006	0.00031
97	100.000	0.00017	0.00011	0.00008	0.00011	0.00009	0.00029
98	100.000	0.00015	0.00010	0.00011	0.00013	0.00015	0.00030
99	100.000	0.00015	0.00010	0.00009	0.00013	0.00012	0.00029
100	100.000	0.00014	0.00011	0.00011	0.00011	0.00010	0.00029
101	100.000	0.00015	0.00009	0.00010	0.00013	0.00013	0.00029
102	100.000	0.00012	0.00012	0.00010	0.00010	0.00013	0.00027
103	100.000	0.00015	0.00014	0.00009	0.00012	0.00011	0.00030
104	100.000	0.00016	0.00008	0.00009	0.00011	0.00017	0.00030
105	100.000	0.00009	0.00005	0.00016	0.00005	0.00020	0.00029
106	100.000	0.00008	0.00008	0.00013	0.00009	0.00018	0.00028
107	100.000	0.00006	0.00006	0.00012	0.00008	0.00021	0.00028
108	100.000	0.00010	0.00008	0.00009	0.00006	0.00020	0.00028
109	100.000	0.00009	0.00007	0.00011	0.00008	0.00021	0.00029
110	100.000	0.00008	0.00006	0.00010	0.00006	0.00016	0.00025
111	100.000	0.00008	0.00008	0.00011	0.00010	0.00020	0.00029
112	100.000	0.00008	0.00010	0.00009	0.00005	0.00021	0.00030
113	100.000	0.00010	0.00008	0.00019	0.00017	0.00014	0.00033
114	100.000	0.00015	0.00007	0.00023	0.00020	0.00017	0.00040
115	100.000	0.00012	0.00009	0.00021	0.00017	0.00017	0.00037
116	100.000	0.00014	0.00009	0.00016	0.00015	0.00016	0.00033
117	100.000	0.00015	0.00009	0.00019	0.00021	0.00014	0.00037
118	100.000	0.00019	0.00007	0.00022	0.00018	0.00021	0.00041
119	100.000	0.00012	0.00008	0.00023	0.00020	0.00015	0.00038
120	100.000	0.00015	0.00007	0.00020	0.00021	0.00019	0.00038
121	100.000	0.00015	0.00005	0.00010	0.00017	0.00006	0.00029
122	100.000	0.00012	0.00006	0.00010	0.00019	0.00007	0.00031

123	100.000	0.00017	0.00009	0.00008	0.00019	0.00007	0.00031
124	100.000	0.00018	0.00005	0.00014	0.00016	0.00006	0.00034
125	100.000	0.00018	0.00006	0.00006	0.00022	0.00007	0.00034
126	100.000	0.00014	0.00013	0.00012	0.00018	0.00007	0.00035
127	100.000	0.00016	0.00010	0.00010	0.00016	0.00004	0.00030
128	100.000	0.00013	0.00008	0.00013	0.00015	0.00008	0.00028
129	100.000	0.00008	0.00008	0.00010	0.00007	0.00004	0.00021
130	100.000	0.00007	0.00009	0.00015	0.00008	0.00008	0.00024
131	100.000	0.00006	0.00010	0.00012	0.00010	0.00005	0.00023
132	100.000	0.00009	0.00009	0.00009	0.00011	0.00005	0.00021
133	100.000	0.00008	0.00009	0.00012	0.00010	0.00008	0.00024
134	100.000	0.00010	0.00008	0.00014	0.00010	0.00007	0.00026
135	100.000	0.00009	0.00009	0.00014	0.00005	0.00007	0.00022
136	100.000	0.00007	0.00012	0.00013	0.00008	0.00010	0.00024
137	100.000	0.00019	0.00016	0.00011	0.00010	0.00013	0.00033
138	100.000	0.00020	0.00016	0.00011	0.00010	0.00014	0.00033
139	100.000	0.00024	0.00014	0.00008	0.00013	0.00014	0.00035
140	100.000	0.00017	0.00012	0.00012	0.00014	0.00014	0.00032
141	100.000	0.00024	0.00009	0.00012	0.00009	0.00014	0.00033
142	100.000	0.00020	0.00014	0.00008	0.00012	0.00011	0.00031
143	100.000	0.00018	0.00012	0.00014	0.00011	0.00008	0.00031
144	100.000	0.00021	0.00015	0.00011	0.00012	0.00012	0.00033
145	100.000	0.00017	0.00017	0.00019	0.00009	0.00008	0.00033
146	100.000	0.00016	0.00019	0.00018	0.00015	0.00012	0.00038
147	100.000	0.00014	0.00016	0.00025	0.00013	0.00012	0.00038
148	100.000	0.00018	0.00017	0.00021	0.00009	0.00012	0.00037
149	100.000	0.00015	0.00021	0.00019	0.00013	0.00008	0.00037
150	100.000	0.00013	0.00022	0.00018	0.00010	0.00007	0.00034
151	100.000	0.00011	0.00022	0.00020	0.00011	0.00007	0.00036
152	100.000	0.00014	0.00023	0.00019	0.00014	0.00015	0.00040
153	100.000	0.00015	0.00011	0.00009	0.00023	0.00013	0.00035
154	100.000	0.00017	0.00012	0.00011	0.00021	0.00013	0.00036
155	100.000	0.00013	0.00013	0.00010	0.00014	0.00016	0.00032
156	100.000	0.00014	0.00013	0.00012	0.00022	0.00012	0.00035
157	100.000	0.00015	0.00011	0.00012	0.00018	0.00011	0.00033
158	100.000	0.00011	0.00011	0.00010	0.00022	0.00010	0.00033
159	100.000	0.00013	0.00011	0.00009	0.00020	0.00015	0.00034
160	100.000	0.00014	0.00010	0.00006	0.00024	0.00013	0.00035
161	100.000	0.00011	0.00016	0.00016	0.00010	0.00011	0.00031
162	100.000	0.00015	0.00014	0.00017	0.00009	0.00008	0.00031
163	100.000	0.00014	0.00015	0.00014	0.00012	0.00006	0.00031
164	100.000	0.00010	0.00016	0.00018	0.00011	0.00010	0.00032
165	100.000	0.00019	0.00014	0.00011	0.00016	0.00007	0.00034
166	100.000	0.00020	0.00015	0.00017	0.00019	0.00009	0.00039
167	100.000	0.00021	0.00013	0.00013	0.00013	0.00006	0.00033
168	100.000	0.00017	0.00014	0.00019	0.00013	0.00007	0.00033
						MEAN:	0.00032
					WORST CASE CHN:		11

HARMONIC DISTORTION SPECIFICATION (< 0.00120 %)
PASSED

FILE 1011

ANALYSIS PHASE 0.1

CHAN	TEST FREQ (HZ)	SIMILARITY (DEGREE)
1	100.000	-0.00026
2	100.000	-0.00024
3	100.000	-0.00003
4	100.000	0.00005
5	100.000	-0.00015
6	100.000	0.00003
7	100.000	0.00011
8	100.000	0.00014
9	100.000	-0.00018
10	100.000	-0.00005
11	100.000	-0.00011
12	100.000	0.00017
13	100.000	0.00009
14	100.000	-0.00003
15	100.000	0.00014
16	100.000	0.00005
17	100.000	-0.00015
18	100.000	-0.00012
19	100.000	-0.00011
20	100.000	0.00009
21	100.000	-0.00012
22	100.000	0.00012
23	100.000	0.00027
24	100.000	0.00041
25	100.000	-0.00061
26	100.000	-0.00003
27	100.000	0.00018
28	100.000	-0.00002
29	100.000	-0.00043
30	100.000	0.00002
31	100.000	0.00012
32	100.000	0.00023
33	100.000	-0.00005
34	100.000	-0.00011
35	100.000	0.00029
36	100.000	0.00015
37	100.000	0.00003
38	100.000	0.00006
39	100.000	-0.00020
40	100.000	-0.00009
41	100.000	0.00008
42	100.000	-0.00021
43	100.000	0.00017
44	100.000	0.00003
45	100.000	-0.00005
46	100.000	-0.00021
47	100.000	-0.00017

48	100.000	0.00012
49	100.000	-0.00008
50	100.000	0.00008
51	100.000	0.00095
52	100.000	0.00002
53	100.000	-0.00026
54	100.000	-0.00012
55	100.000	-0.00002
56	100.000	0.00009
57	100.000	-0.00017
58	100.000	0.00018
59	100.000	-0.00014
60	100.000	0.00005
61	100.000	-0.00003
62	100.000	0.00060
63	100.000	-0.00012
64	100.000	0.00012
65	100.000	0.00020
66	100.000	-0.00011
67	100.000	-0.00006
68	100.000	0.00034
69	100.000	-0.00011
70	100.000	-0.00012
71	100.000	0.00005
72	100.000	0.00034
73	100.000	0.00017
74	100.000	0.00009
75	100.000	-0.00031
76	100.000	-0.00017
77	100.000	0.00017
78	100.000	0.00017
79	100.000	-0.00009
80	100.000	-0.00017
81	100.000	-0.00034
82	100.000	-0.00008
83	100.000	-0.00035
84	100.000	0.00024
85	100.000	0.00014
86	100.000	0.00008
87	100.000	-0.00011
88	100.000	0.00020
89	100.000	0.00011
90	100.000	0.00014
91	100.000	-0.00024
92	100.000	0.00020
93	100.000	-0.00026
94	100.000	-0.00021
95	100.000	0.00006

96	100.000	-0.00008
97	100.000	-0.00002
98	100.000	0.00000
99	100.000	0.00017
100	100.000	-0.00024
101	100.000	0.00015
102	100.000	-0.00014
103	100.000	-0.00029
104	100.000	0.00018
105	100.000	-0.00003
106	100.000	-0.00018
107	100.000	0.00005
108	100.000	0.00011
109	100.000	-0.00023
110	100.000	-0.00023
111	100.000	0.00005
112	100.000	0.00024
113	100.000	-0.00008
114	100.000	0.00002
115	100.000	-0.00020
116	100.000	-0.00021
117	100.000	0.00008
118	100.000	0.00012
119	100.000	0.00003
120	100.000	-0.00003
121	100.000	0.00037
122	100.000	0.00026
123	100.000	0.00024
124	100.000	-0.00038
125	100.000	-0.00044
126	100.000	0.00035
127	100.000	-0.00026
128	100.000	-0.00038
129	100.000	-0.00005
130	100.000	0.00029
131	100.000	-0.00021
132	100.000	0.00032
133	100.000	-0.00003
134	100.000	0.00002
135	100.000	-0.00005
136	100.000	0.00005
137	100.000	-0.00026
138	100.000	-0.00008
139	100.000	0.00002
140	100.000	0.00015
141	100.000	-0.00014
142	100.000	-0.00002
143	100.000	0.00011

```
144      100.000     0.00008

145      100.000    -0.00005
146      100.000     0.00021
147      100.000     0.00005
148      100.000    -0.00011
149      100.000     0.00018
150      100.000    -0.00006
151      100.000     0.00012
152      100.000    -0.00023

153      100.000     0.00015
154      100.000     0.00011
155      100.000    -0.00002
156      100.000     0.00038
157      100.000    -0.00014
158      100.000    -0.00020
159      100.000     0.00002
160      100.000    -0.00002

161      100.000    -0.00003
162      100.000     0.00012
163      100.000     0.00011
164      100.000    -0.00015
165      100.000    -0.00008
166      100.000     0.00000
167      100.000     0.00000
168      100.000     0.00009
WORST CASE CHN:        51
PHASE SIMILARITY SPECIFICATION ( < 0.100 DEG )
PASSED

--------------------------------------------------------------------------
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TEST 18 Gain, THD, Sim X2.5, 1/4mS, 100Hz

SIGNAL_TYPE SINE 100.000000 800.000000 0.000000 8

FILE 1012
File Date: Sep/25/13   Time: 19:52:46
Sampling Rate:    250 usec   Record Length:  0.512 sec   Delay:    6 msec
Preamp Gain: 8 dB     Acquisition Filters: OUT  OUT

ANALYSIS GAIN 2.0 2.0
INPUT PEAK AMPLITUDE IS    800.000 mV
CHAN    TEST      PEAK AMPLITUDE  ACCURACY     SIMILARITY
 NO.    FREQ           ( mV )        (%)          (%)
  1    100.000       811.777      1.47213        0.04189
  2    100.000       811.105      1.38809       -0.04096
  3    100.000       808.307      1.03839       -0.38574
  4    100.000       810.560      1.32005       -0.10804
  5    100.000       813.766      1.72078        0.28703
  6    100.000       811.685      1.46069        0.03061
  7    100.000       812.779      1.59741        0.16541
```

8	100.000	811.189	1.39861	-0.03060
9	100.000	808.048	1.00604	0.01760
10	100.000	803.859	0.48235	-0.50097
11	100.000	807.187	0.89837	-0.08902
12	100.000	811.635	1.45441	0.46158
13	100.000	804.849	0.60609	-0.37844
14	100.000	807.764	0.97048	-0.01761
15	100.000	809.126	1.14075	0.15099
16	100.000	812.427	1.55339	0.55959
17	100.000	808.958	1.11977	-0.34496
18	100.000	811.868	1.48356	0.01356
19	100.000	811.743	1.46785	-0.00192
20	100.000	812.768	1.59604	0.12441
21	100.000	811.774	1.47174	0.00192
22	100.000	813.765	1.72060	0.24717
23	100.000	810.688	1.33604	-0.13181
24	100.000	810.273	1.28419	-0.18292
25	100.000	811.213	1.40163	0.26744
26	100.000	804.596	0.57456	-0.55037
27	100.000	809.733	1.21661	0.08449
28	100.000	810.907	1.36332	0.22957
29	100.000	806.902	0.86280	-0.26535
30	100.000	808.366	1.04571	-0.08449
31	100.000	809.840	1.23002	0.09776
32	100.000	807.708	0.96355	-0.16573
33	100.000	809.973	1.24667	-0.21235
34	100.000	813.477	1.68468	0.21935
35	100.000	811.056	1.38198	-0.07899
36	100.000	814.477	1.80968	0.34255
37	100.000	811.052	1.38145	-0.07951
38	100.000	811.601	1.45007	-0.01188
39	100.000	815.253	1.90663	0.43810
40	100.000	811.793	1.47417	0.01187
41	100.000	810.088	1.26101	-0.18048
42	100.000	809.863	1.23293	-0.20815
43	100.000	809.610	1.20129	-0.23935
44	100.000	811.243	1.40536	-0.03818
45	100.000	812.797	1.59961	0.15330
46	100.000	813.917	1.73967	0.29137
47	100.000	812.312	1.53899	0.09355
48	100.000	811.863	1.48283	0.03818
49	100.000	806.455	0.80685	0.25796
50	100.000	804.536	0.56699	0.01941
51	100.000	802.503	0.31282	-0.23337
52	100.000	805.237	0.65459	0.10653
53	100.000	805.941	0.74265	0.19412
54	100.000	803.726	0.46571	-0.08131
55	100.000	803.680	0.46004	-0.08695

56	100.000	804.224	0.52795	-0.01941
57	100.000	811.850	1.48119	0.14963
58	100.000	811.460	1.43248	0.10156
59	100.000	810.894	1.36178	0.03178
60	100.000	810.379	1.29738	-0.03177
61	100.000	811.855	1.48193	0.15036
62	100.000	809.192	1.14897	-0.17823
63	100.000	809.261	1.15768	-0.16963
64	100.000	809.810	1.22619	-0.10203
65	100.000	814.777	1.84715	0.16048
66	100.000	813.748	1.71855	0.03402
67	100.000	813.505	1.68815	0.00412
68	100.000	813.438	1.67978	-0.00411
69	100.000	813.525	1.69057	0.00650
70	100.000	812.485	1.56068	-0.12123
71	100.000	813.076	1.63455	-0.04859
72	100.000	812.569	1.57111	-0.11099
73	100.000	804.564	0.57049	-0.36436
74	100.000	806.649	0.83117	-0.10610
75	100.000	808.401	1.05015	0.11085
76	100.000	808.544	1.06796	0.12849
77	100.000	806.034	0.75425	-0.18230
78	100.000	807.895	0.98692	0.04820
79	100.000	808.022	1.00275	0.06388
80	100.000	807.117	0.88960	-0.04821
81	100.000	811.178	1.39719	-0.10015
82	100.000	814.787	1.84834	0.34433
83	100.000	808.840	1.10499	-0.38804
84	100.000	812.525	1.56559	0.06576
85	100.000	811.457	1.43209	-0.06576
86	100.000	808.623	1.07788	-0.41474
87	100.000	813.499	1.68732	0.18569
88	100.000	812.791	1.59882	0.09851
89	100.000	810.374	1.29678	-0.00486
90	100.000	809.440	1.18003	-0.12010
91	100.000	810.453	1.30662	0.00486
92	100.000	811.221	1.40265	0.09965
93	100.000	810.183	1.27283	-0.02850
94	100.000	808.135	1.01682	-0.28121
95	100.000	811.078	1.38480	0.08203
96	100.000	814.320	1.79002	0.48204
97	100.000	806.297	0.78706	-0.17146
98	100.000	807.100	0.88745	-0.07203
99	100.000	808.263	1.03290	0.07203
100	100.000	807.069	0.88357	-0.07588
101	100.000	809.109	1.13860	0.17672
102	100.000	805.144	0.64302	-0.31414
103	100.000	809.985	1.24813	0.28522

104	100.000	808.851	1.10639	0.14483
105	100.000	810.965	1.37058	-0.03732
106	100.000	810.883	1.36037	-0.04738
107	100.000	811.570	1.44627	0.03732
108	100.000	810.209	1.27613	-0.13046
109	100.000	809.197	1.14964	-0.25519
110	100.000	812.225	1.52807	0.11798
111	100.000	811.634	1.45428	0.04522
112	100.000	812.194	1.52428	0.11425
113	100.000	808.202	1.02519	-0.02573
114	100.000	811.821	1.47758	0.42195
115	100.000	808.618	1.07720	0.02574
116	100.000	808.996	1.12447	0.07252
117	100.000	805.829	0.72861	-0.31922
118	100.000	807.276	0.90953	-0.14019
119	100.000	806.997	0.87463	-0.17472
120	100.000	810.001	1.25013	0.19687
121	100.000	810.326	1.29079	-0.02979
122	100.000	810.692	1.33650	0.01533
123	100.000	811.367	1.42083	0.09856
124	100.000	810.984	1.37295	0.05130
125	100.000	811.825	1.47817	0.15515
126	100.000	809.481	1.18513	-0.13407
127	100.000	808.423	1.05287	-0.26460
128	100.000	810.444	1.30544	-0.01532
129	100.000	809.345	1.16808	0.19995
130	100.000	807.244	0.90554	-0.06007
131	100.000	806.206	0.77571	-0.18866
132	100.000	807.943	0.99287	0.02642
133	100.000	807.516	0.93951	-0.02642
134	100.000	808.377	1.04707	0.08011
135	100.000	809.187	1.14841	0.18048
136	100.000	807.203	0.90044	-0.06513
137	100.000	809.951	1.24384	-0.03730
138	100.000	811.401	1.42519	0.14175
139	100.000	808.796	1.09953	-0.17978
140	100.000	807.986	0.99828	-0.27975
141	100.000	811.644	1.45551	0.17169
142	100.000	811.046	1.38074	0.09787
143	100.000	807.611	0.95135	-0.32609
144	100.000	810.555	1.31939	0.03730
145	100.000	809.012	1.12653	0.19127
146	100.000	805.731	0.71633	-0.21513
147	100.000	806.654	0.83176	-0.10077
148	100.000	809.975	1.24682	0.31045
149	100.000	803.679	0.45989	-0.46920
150	100.000	808.219	1.02737	0.09303
151	100.000	806.717	0.83957	-0.09303

152	100.000	808.454	1.05670	0.12209
153	100.000	805.062	0.63278	-0.39661
154	100.000	809.267	1.15840	0.12363
155	100.000	808.788	1.09853	0.06437
156	100.000	808.063	1.00785	-0.02538
157	100.000	809.633	1.20412	0.16888
158	100.000	807.414	0.92680	-0.10560
159	100.000	808.473	1.05913	0.02537
160	100.000	806.441	0.80518	-0.22597
161	100.000	812.017	1.50217	-0.07213
162	100.000	809.822	1.22772	-0.34232
163	100.000	810.773	1.34658	-0.22531
164	100.000	812.689	1.58610	0.01049
165	100.000	814.745	1.84314	0.26355
166	100.000	814.285	1.78558	0.20688
167	100.000	813.542	1.69269	0.11543
168	100.000	812.518	1.56477	-0.01050
	MEAN:	809.749	1.21857	

WORST CASE CHN: 39 16
GAIN ACCURACY SPECIFICATION (< 2.00000%)
PASSED
GAIN SIMILARITY SPECIFICATION (< 2.00000%)
PASSED

ANALYSIS HARMONIC_DISTORTION 6 0.0012

CHAN NO.	FNDMTL FREQ	FIRST FIVE HARMONIC CONTENT (%) 2	3	4	5	6	RMS TOTAL (%)
1	100.000	0.00024	0.00017	0.00009	0.00014	0.00008	0.00036
2	100.000	0.00026	0.00019	0.00009	0.00013	0.00009	0.00039
3	100.000	0.00026	0.00017	0.00010	0.00014	0.00009	0.00038
4	100.000	0.00027	0.00018	0.00010	0.00012	0.00008	0.00039
5	100.000	0.00023	0.00018	0.00007	0.00014	0.00008	0.00035
6	100.000	0.00025	0.00017	0.00010	0.00013	0.00007	0.00037
7	100.000	0.00025	0.00016	0.00008	0.00014	0.00009	0.00036
8	100.000	0.00026	0.00018	0.00008	0.00013	0.00008	0.00038
9	100.000	0.00015	0.00005	0.00007	0.00013	0.00009	0.00025
10	100.000	0.00013	0.00004	0.00008	0.00012	0.00009	0.00023
11	100.000	0.00015	0.00006	0.00008	0.00014	0.00010	0.00026
12	100.000	0.00014	0.00006	0.00007	0.00011	0.00010	0.00024
13	100.000	0.00017	0.00007	0.00008	0.00015	0.00011	0.00028
14	100.000	0.00016	0.00004	0.00009	0.00014	0.00010	0.00026
15	100.000	0.00016	0.00004	0.00008	0.00013	0.00009	0.00025
16	100.000	0.00015	0.00007	0.00007	0.00012	0.00009	0.00025
17	100.000	0.00020	0.00013	0.00006	0.00007	0.00013	0.00031
18	100.000	0.00025	0.00015	0.00006	0.00006	0.00012	0.00035
19	100.000	0.00026	0.00014	0.00006	0.00006	0.00009	0.00034
20	100.000	0.00029	0.00015	0.00006	0.00006	0.00011	0.00037
21	100.000	0.00014	0.00014	0.00005	0.00006	0.00012	0.00027
22	100.000	0.00016	0.00014	0.00007	0.00006	0.00010	0.00028
23	100.000	0.00015	0.00014	0.00006	0.00005	0.00010	0.00026
24	100.000	0.00017	0.00015	0.00006	0.00006	0.00012	0.00029

25	100.000	0.00020	0.00012	0.00008	0.00011	0.00009	0.00030
26	100.000	0.00024	0.00012	0.00009	0.00013	0.00009	0.00033
27	100.000	0.00026	0.00012	0.00009	0.00013	0.00009	0.00035
28	100.000	0.00028	0.00012	0.00006	0.00013	0.00012	0.00036
29	100.000	0.00021	0.00011	0.00008	0.00013	0.00009	0.00031
30	100.000	0.00020	0.00010	0.00007	0.00012	0.00010	0.00029
31	100.000	0.00024	0.00010	0.00009	0.00014	0.00010	0.00033
32	100.000	0.00023	0.00014	0.00007	0.00013	0.00011	0.00033
33	100.000	0.00018	0.00013	0.00015	0.00010	0.00012	0.00031
34	100.000	0.00017	0.00011	0.00015	0.00010	0.00011	0.00029
35	100.000	0.00019	0.00011	0.00016	0.00011	0.00012	0.00032
36	100.000	0.00019	0.00012	0.00015	0.00011	0.00011	0.00031
37	100.000	0.00017	0.00012	0.00016	0.00011	0.00011	0.00031
38	100.000	0.00017	0.00011	0.00017	0.00009	0.00012	0.00031
39	100.000	0.00018	0.00011	0.00018	0.00010	0.00011	0.00032
40	100.000	0.00018	0.00012	0.00016	0.00011	0.00012	0.00032
41	100.000	0.00012	0.00011	0.00017	0.00013	0.00013	0.00035
42	100.000	0.00013	0.00011	0.00015	0.00013	0.00015	0.00035
43	100.000	0.00013	0.00012	0.00016	0.00014	0.00013	0.00035
44	100.000	0.00012	0.00012	0.00016	0.00013	0.00013	0.00035
45	100.000	0.00012	0.00011	0.00014	0.00014	0.00011	0.00033
46	100.000	0.00010	0.00011	0.00016	0.00012	0.00013	0.00034
47	100.000	0.00014	0.00013	0.00015	0.00014	0.00012	0.00035
48	100.000	0.00012	0.00011	0.00017	0.00013	0.00013	0.00034
49	100.000	0.00008	0.00012	0.00009	0.00014	0.00008	0.00025
50	100.000	0.00009	0.00011	0.00006	0.00014	0.00007	0.00025
51	100.000	0.00011	0.00011	0.00007	0.00013	0.00006	0.00025
52	100.000	0.00012	0.00010	0.00007	0.00014	0.00007	0.00025
53	100.000	0.00009	0.00011	0.00008	0.00013	0.00006	0.00024
54	100.000	0.00010	0.00011	0.00007	0.00014	0.00008	0.00024
55	100.000	0.00009	0.00011	0.00009	0.00014	0.00008	0.00026
56	100.000	0.00010	0.00010	0.00008	0.00015	0.00007	0.00025
57	100.000	0.00021	0.00010	0.00014	0.00007	0.00011	0.00035
58	100.000	0.00022	0.00012	0.00014	0.00007	0.00011	0.00035
59	100.000	0.00026	0.00009	0.00014	0.00009	0.00011	0.00037
60	100.000	0.00022	0.00010	0.00013	0.00006	0.00010	0.00034
61	100.000	0.00015	0.00009	0.00013	0.00006	0.00010	0.00030
62	100.000	0.00015	0.00011	0.00015	0.00008	0.00008	0.00031
63	100.000	0.00014	0.00010	0.00013	0.00008	0.00012	0.00031
64	100.000	0.00015	0.00011	0.00013	0.00007	0.00009	0.00030
65	100.000	0.00009	0.00014	0.00017	0.00010	0.00009	0.00029
66	100.000	0.00011	0.00011	0.00018	0.00009	0.00010	0.00029
67	100.000	0.00012	0.00010	0.00018	0.00011	0.00008	0.00029
68	100.000	0.00013	0.00012	0.00017	0.00009	0.00009	0.00029
69	100.000	0.00007	0.00010	0.00019	0.00010	0.00007	0.00027
70	100.000	0.00009	0.00014	0.00018	0.00009	0.00007	0.00028
71	100.000	0.00009	0.00013	0.00019	0.00010	0.00010	0.00030
72	100.000	0.00010	0.00014	0.00018	0.00009	0.00009	0.00030
73	100.000	0.00017	0.00007	0.00010	0.00012	0.00004	0.00028
74	100.000	0.00021	0.00006	0.00011	0.00012	0.00005	0.00030
75	100.000	0.00020	0.00006	0.00011	0.00012	0.00007	0.00030
76	100.000	0.00025	0.00007	0.00011	0.00012	0.00006	0.00034
77	100.000	0.00014	0.00006	0.00011	0.00013	0.00005	0.00027
78	100.000	0.00013	0.00006	0.00010	0.00013	0.00005	0.00025

79	100.000	0.00017	0.00007	0.00011	0.00011	0.00005	0.00027
80	100.000	0.00017	0.00006	0.00011	0.00011	0.00005	0.00028
81	100.000	0.00022	0.00008	0.00007	0.00005	0.00008	0.00028
82	100.000	0.00024	0.00009	0.00008	0.00005	0.00007	0.00030
83	100.000	0.00023	0.00009	0.00009	0.00005	0.00010	0.00030
84	100.000	0.00027	0.00009	0.00007	0.00004	0.00010	0.00032
85	100.000	0.00023	0.00008	0.00009	0.00005	0.00010	0.00030
86	100.000	0.00022	0.00009	0.00009	0.00006	0.00009	0.00029
87	100.000	0.00021	0.00008	0.00008	0.00004	0.00007	0.00027
88	100.000	0.00022	0.00009	0.00009	0.00005	0.00007	0.00029
89	100.000	0.00019	0.00009	0.00008	0.00009	0.00016	0.00035
90	100.000	0.00021	0.00011	0.00007	0.00009	0.00017	0.00037
91	100.000	0.00019	0.00012	0.00009	0.00010	0.00017	0.00037
92	100.000	0.00020	0.00011	0.00007	0.00009	0.00017	0.00037
93	100.000	0.00020	0.00010	0.00006	0.00009	0.00016	0.00035
94	100.000	0.00022	0.00011	0.00008	0.00009	0.00017	0.00037
95	100.000	0.00019	0.00012	0.00007	0.00009	0.00015	0.00036
96	100.000	0.00022	0.00009	0.00007	0.00010	0.00015	0.00036
97	100.000	0.00014	0.00009	0.00013	0.00017	0.00010	0.00033
98	100.000	0.00015	0.00009	0.00011	0.00015	0.00011	0.00033
99	100.000	0.00015	0.00009	0.00012	0.00014	0.00009	0.00032
100	100.000	0.00019	0.00011	0.00012	0.00015	0.00010	0.00036
101	100.000	0.00009	0.00010	0.00010	0.00013	0.00011	0.00030
102	100.000	0.00008	0.00010	0.00014	0.00016	0.00009	0.00031
103	100.000	0.00013	0.00010	0.00012	0.00014	0.00011	0.00031
104	100.000	0.00013	0.00010	0.00014	0.00014	0.00011	0.00033
105	100.000	0.00013	0.00015	0.00010	0.00007	0.00005	0.00026
106	100.000	0.00015	0.00014	0.00009	0.00010	0.00004	0.00027
107	100.000	0.00015	0.00015	0.00011	0.00008	0.00005	0.00027
108	100.000	0.00012	0.00014	0.00010	0.00007	0.00003	0.00025
109	100.000	0.00013	0.00014	0.00008	0.00008	0.00005	0.00025
110	100.000	0.00015	0.00015	0.00008	0.00008	0.00006	0.00027
111	100.000	0.00015	0.00016	0.00009	0.00006	0.00006	0.00026
112	100.000	0.00016	0.00013	0.00010	0.00009	0.00006	0.00027
113	100.000	0.00016	0.00008	0.00014	0.00010	0.00009	0.00028
114	100.000	0.00016	0.00010	0.00014	0.00011	0.00008	0.00029
115	100.000	0.00017	0.00009	0.00015	0.00010	0.00010	0.00030
116	100.000	0.00014	0.00010	0.00015	0.00011	0.00009	0.00030
117	100.000	0.00015	0.00009	0.00014	0.00012	0.00009	0.00029
118	100.000	0.00013	0.00010	0.00013	0.00009	0.00008	0.00026
119	100.000	0.00015	0.00010	0.00017	0.00011	0.00010	0.00030
120	100.000	0.00016	0.00010	0.00016	0.00013	0.00012	0.00032
121	100.000	0.00010	0.00013	0.00009	0.00016	0.00012	0.00029
122	100.000	0.00009	0.00013	0.00009	0.00016	0.00012	0.00030
123	100.000	0.00011	0.00015	0.00010	0.00017	0.00012	0.00032
124	100.000	0.00011	0.00013	0.00010	0.00017	0.00012	0.00031
125	100.000	0.00013	0.00012	0.00010	0.00017	0.00012	0.00031
126	100.000	0.00011	0.00014	0.00008	0.00016	0.00013	0.00030
127	100.000	0.00011	0.00013	0.00010	0.00015	0.00012	0.00030
128	100.000	0.00009	0.00011	0.00008	0.00015	0.00012	0.00029
129	100.000	0.00015	0.00017	0.00010	0.00008	0.00010	0.00030
130	100.000	0.00017	0.00017	0.00010	0.00008	0.00010	0.00031
131	100.000	0.00019	0.00017	0.00012	0.00007	0.00010	0.00032
132	100.000	0.00019	0.00016	0.00009	0.00008	0.00010	0.00031

133	100.000	0.00015	0.00017	0.00010	0.00007	0.00009	0.00029
134	100.000	0.00014	0.00013	0.00011	0.00007	0.00009	0.00027
135	100.000	0.00016	0.00016	0.00011	0.00007	0.00010	0.00030
136	100.000	0.00018	0.00016	0.00010	0.00008	0.00010	0.00030
137	100.000	0.00008	0.00015	0.00010	0.00008	0.00015	0.00028
138	100.000	0.00009	0.00013	0.00010	0.00007	0.00014	0.00027
139	100.000	0.00008	0.00016	0.00009	0.00006	0.00013	0.00028
140	100.000	0.00007	0.00015	0.00008	0.00009	0.00016	0.00028
141	100.000	0.00008	0.00013	0.00008	0.00008	0.00012	0.00025
142	100.000	0.00009	0.00015	0.00010	0.00008	0.00014	0.00028
143	100.000	0.00009	0.00015	0.00009	0.00008	0.00017	0.00030
144	100.000	0.00011	0.00015	0.00009	0.00007	0.00014	0.00028
145	100.000	0.00014	0.00011	0.00004	0.00005	0.00013	0.00025
146	100.000	0.00014	0.00011	0.00005	0.00005	0.00012	0.00024
147	100.000	0.00015	0.00011	0.00005	0.00003	0.00012	0.00024
148	100.000	0.00016	0.00011	0.00006	0.00004	0.00010	0.00025
149	100.000	0.00006	0.00011	0.00006	0.00005	0.00012	0.00021
150	100.000	0.00008	0.00009	0.00005	0.00005	0.00012	0.00021
151	100.000	0.00008	0.00011	0.00006	0.00005	0.00012	0.00022
152	100.000	0.00012	0.00013	0.00005	0.00006	0.00013	0.00025
153	100.000	0.00015	0.00012	0.00011	0.00007	0.00012	0.00028
154	100.000	0.00014	0.00011	0.00012	0.00009	0.00014	0.00029
155	100.000	0.00012	0.00011	0.00012	0.00008	0.00013	0.00028
156	100.000	0.00012	0.00013	0.00013	0.00008	0.00013	0.00029
157	100.000	0.00017	0.00013	0.00011	0.00010	0.00012	0.00031
158	100.000	0.00013	0.00011	0.00013	0.00009	0.00011	0.00028
159	100.000	0.00013	0.00011	0.00012	0.00007	0.00011	0.00028
160	100.000	0.00013	0.00011	0.00012	0.00009	0.00012	0.00028
161	100.000	0.00015	0.00008	0.00010	0.00016	0.00009	0.00030
162	100.000	0.00015	0.00006	0.00011	0.00018	0.00009	0.00031
163	100.000	0.00019	0.00005	0.00013	0.00017	0.00010	0.00034
164	100.000	0.00019	0.00006	0.00011	0.00017	0.00009	0.00032
165	100.000	0.00012	0.00005	0.00012	0.00017	0.00009	0.00030
166	100.000	0.00014	0.00007	0.00011	0.00018	0.00009	0.00031
167	100.000	0.00015	0.00005	0.00012	0.00019	0.00009	0.00032
168	100.000	0.00014	0.00005	0.00012	0.00017	0.00009	0.00031
						MEAN:	0.00030
					WORST CASE CHN:		2

HARMONIC DISTORTION SPECIFICATION (< 0.00120 %)
PASSED

FILE 1012

ANALYSIS PHASE 0.1

CHAN	TEST FREQ (HZ)	SIMILARITY (DEGREE)
1	100.000	-0.00043
2	100.000	0.00031
3	100.000	-0.00009
4	100.000	0.00003
5	100.000	-0.00024
6	100.000	-0.00003
7	100.000	0.00073
8	100.000	0.00014

9	100.000	-0.00034
10	100.000	-0.00009
11	100.000	-0.00018
12	100.000	0.00031
13	100.000	0.00017
14	100.000	-0.00008
15	100.000	0.00021
16	100.000	0.00006
17	100.000	-0.00017
18	100.000	-0.00012
19	100.000	-0.00006
20	100.000	0.00018
21	100.000	-0.00015
22	100.000	0.00005
23	100.000	0.00043
24	100.000	0.00053
25	100.000	0.00008
26	100.000	-0.00032
27	100.000	0.00006
28	100.000	-0.00024
29	100.000	0.00015
30	100.000	-0.00015
31	100.000	-0.00006
32	100.000	0.00006
33	100.000	-0.00006
34	100.000	-0.00015
35	100.000	0.00043
36	100.000	0.00031
37	100.000	0.00006
38	100.000	0.00012
39	100.000	-0.00023
40	100.000	-0.00015
41	100.000	0.00014
42	100.000	-0.00024
43	100.000	0.00024
44	100.000	0.00006
45	100.000	-0.00005
46	100.000	-0.00024
47	100.000	-0.00031
48	100.000	0.00018
49	100.000	-0.00008
50	100.000	0.00009
51	100.000	0.00041
52	100.000	0.00002
53	100.000	-0.00032
54	100.000	-0.00018
55	100.000	-0.00003
56	100.000	0.00018

57	100.000	-0.00011
58	100.000	0.00032
59	100.000	-0.00011
60	100.000	0.00008
61	100.000	-0.00006
62	100.000	0.00076
63	100.000	-0.00015
64	100.000	0.00024
65	100.000	0.00035
66	100.000	-0.00012
67	100.000	-0.00012
68	100.000	0.00055
69	100.000	-0.00015
70	100.000	-0.00015
71	100.000	0.00012
72	100.000	0.00046
73	100.000	0.00032
74	100.000	0.00023
75	100.000	-0.00040
76	100.000	-0.00023
77	100.000	0.00017
78	100.000	0.00018
79	100.000	-0.00021
80	100.000	-0.00018
81	100.000	-0.00052
82	100.000	-0.00009
83	100.000	-0.00055
84	100.000	0.00040
85	100.000	0.00029
86	100.000	0.00011
87	100.000	-0.00017
88	100.000	0.00032
89	100.000	0.00012
90	100.000	0.00012
91	100.000	-0.00046
92	100.000	0.00023
93	100.000	-0.00043
94	100.000	-0.00043
95	100.000	0.00011
96	100.000	-0.00012
97	100.000	-0.00009
98	100.000	-0.00014
99	100.000	0.00015
100	100.000	-0.00053
101	100.000	0.00015
102	100.000	0.00041
103	100.000	-0.00052
104	100.000	0.00011

105	100.000	-0.00002
106	100.000	-0.00031
107	100.000	0.00003
108	100.000	0.00008
109	100.000	-0.00029
110	100.000	-0.00027
111	100.000	0.00006
112	100.000	0.00026
113	100.000	-0.00008
114	100.000	0.00003
115	100.000	-0.00029
116	100.000	-0.00035
117	100.000	0.00009
118	100.000	0.00018
119	100.000	0.00005
120	100.000	-0.00003
121	100.000	0.00017
122	100.000	0.00000
123	100.000	-0.00005
124	100.000	-0.00002
125	100.000	-0.00012
126	100.000	0.00009
127	100.000	0.00021
128	100.000	0.00002
129	100.000	-0.00005
130	100.000	0.00044
131	100.000	-0.00035
132	100.000	0.00049
133	100.000	-0.00002
134	100.000	0.00000
135	100.000	-0.00003
136	100.000	0.00002
137	100.000	-0.00040
138	100.000	-0.00018
139	100.000	0.00000
140	100.000	0.00020
141	100.000	-0.00020
142	100.000	-0.00002
143	100.000	0.00008
144	100.000	0.00005
145	100.000	-0.00006
146	100.000	0.00029
147	100.000	0.00006
148	100.000	-0.00014
149	100.000	0.00026
150	100.000	-0.00008
151	100.000	0.00018
152	100.000	-0.00040

153 100.000 0.00021
154 100.000 0.00029
155 100.000 0.00000
156 100.000 0.00063
157 100.000 -0.00014
158 100.000 -0.00023
159 100.000 0.00000
160 100.000 -0.00003

161 100.000 0.00000
162 100.000 0.00008
163 100.000 0.00008
164 100.000 -0.00024
165 100.000 -0.00023
166 100.000 -0.00011
167 100.000 -0.00002
168 100.000 0.00003
WORST CASE CHN: 62
PHASE SIMILARITY SPECIFICATION (< 0.100 DEG)
PASSED

TEST 19 Gain, THD, Sim X8.5, 1/4mS, 100Hz

SIGNAL_TYPE SINE 100.000000 225.470642 0.000000 8

FILE 1013
File Date: Sep/25/13 Time: 19:53:12
Sampling Rate: 250 usec Record Length: 0.512 sec Delay: 6 msec
Preamp Gain: 18 dB Acquisition Filters: OUT OUT

ANALYSIS GAIN 2.0 2.0
INPUT PEAK AMPLITUDE IS 225.471 mV

CHAN NO.	TEST FREQ	PEAK AMPLITUDE (mV)	ACCURACY (%)	SIMILARITY (%)
1	100.000	228.229	1.22324	0.16423
2	100.000	227.893	1.07430	0.01685
3	100.000	227.728	1.00096	-0.05572
4	100.000	227.387	0.84975	-0.20536
5	100.000	228.273	1.24305	0.18383
6	100.000	227.748	1.00989	-0.04689
7	100.000	227.816	1.04024	-0.01686
8	100.000	228.115	1.17266	0.11417
9	100.000	227.288	0.80615	0.06999
10	100.000	226.295	0.36564	-0.36731
11	100.000	227.036	0.69421	-0.04113
12	100.000	227.393	0.85256	0.11606
13	100.000	226.627	0.51294	-0.22107
14	100.000	227.218	0.77494	0.03901
15	100.000	227.041	0.69634	-0.03901
16	100.000	227.796	1.03120	0.29339

17	100.000	227.205	0.76910	-0.38152
18	100.000	228.110	1.17039	0.01519
19	100.000	228.318	1.26292	0.10666
20	100.000	228.721	1.44162	0.28333
21	100.000	227.816	1.04014	-0.11357
22	100.000	228.561	1.37041	0.21293
23	100.000	228.040	1.13965	-0.01519
24	100.000	227.910	1.08203	-0.07216
25	100.000	227.644	0.96406	0.03412
26	100.000	226.591	0.49676	-0.42888
27	100.000	228.066	1.15112	0.21945
28	100.000	227.787	1.02741	0.09688
29	100.000	227.318	0.81954	-0.10907
30	100.000	227.096	0.72084	-0.20686
31	100.000	227.597	0.94326	0.01351
32	100.000	227.536	0.91600	-0.01350
33	100.000	227.941	1.09573	-0.06490
34	100.000	228.392	1.29578	0.13285
35	100.000	228.147	1.18719	0.02551
36	100.000	228.389	1.29420	0.13129
37	100.000	227.433	0.87023	-0.28782
38	100.000	228.061	1.14888	-0.01236
39	100.000	228.117	1.17390	0.01236
40	100.000	227.995	1.11969	-0.04122
41	100.000	227.854	1.05724	-0.06376
42	100.000	227.076	0.71216	-0.40501
43	100.000	227.819	1.04135	-0.07947
44	100.000	228.312	1.26024	0.13698
45	100.000	228.189	1.20568	0.08303
46	100.000	228.075	1.15510	0.03301
47	100.000	227.924	1.08833	-0.03302
48	100.000	228.222	1.22034	0.09753
49	100.000	226.404	0.41412	0.08509
50	100.000	225.799	0.14583	-0.18232
51	100.000	226.316	0.37489	0.04598
52	100.000	226.108	0.28262	-0.04598
53	100.000	226.689	0.54046	0.21101
54	100.000	225.881	0.18180	-0.14647
55	100.000	226.008	0.23813	-0.09033
56	100.000	226.405	0.41427	0.08524
57	100.000	227.950	1.09951	0.08249
58	100.000	227.781	1.02466	0.00839
59	100.000	228.048	1.14299	0.12553
60	100.000	227.270	0.79796	-0.21603
61	100.000	227.743	1.00771	-0.00839
62	100.000	227.446	0.87608	-0.13869
63	100.000	227.449	0.87722	-0.13757
64	100.000	227.829	1.04597	0.02948

65	100.000	228.219	1.21897	-0.00398
66	100.000	228.237	1.22703	0.00398
67	100.000	228.113	1.17212	-0.05027
68	100.000	228.720	1.44100	0.21536
69	100.000	228.430	1.31273	0.08865
70	100.000	228.099	1.16578	-0.05653
71	100.000	228.542	1.36221	0.13753
72	100.000	228.181	1.20220	-0.02055
73	100.000	226.705	0.54755	-0.06285
74	100.000	226.593	0.49783	-0.11226
75	100.000	227.078	0.71287	0.10148
76	100.000	227.161	0.74957	0.13795
77	100.000	226.484	0.44953	-0.16026
78	100.000	228.120	1.17491	0.56071
79	100.000	226.761	0.57247	-0.03807
80	100.000	226.934	0.64908	0.03807
81	100.000	228.288	1.24951	0.07308
82	100.000	228.436	1.31516	0.13797
83	100.000	227.060	0.70491	-0.46519
84	100.000	228.223	1.22056	0.04446
85	100.000	228.020	1.13058	-0.04447
86	100.000	227.462	0.88301	-0.28916
87	100.000	227.982	1.11361	-0.06124
88	100.000	228.296	1.25293	0.07645
89	100.000	227.753	1.01221	-0.00192
90	100.000	227.589	0.93955	-0.07384
91	100.000	227.457	0.88094	-0.13186
92	100.000	227.849	1.05500	0.04045
93	100.000	228.055	1.14628	0.13082
94	100.000	226.903	0.63532	-0.37502
95	100.000	227.762	1.01607	0.00191
96	100.000	228.219	1.21886	0.20266
97	100.000	226.820	0.59864	-0.08860
98	100.000	226.942	0.65258	-0.03503
99	100.000	227.101	0.72313	0.03504
100	100.000	226.693	0.54213	-0.14473
101	100.000	227.521	0.90943	0.22006
102	100.000	225.860	0.17286	-0.51148
103	100.000	227.361	0.83819	0.14931
104	100.000	227.286	0.80504	0.11639
105	100.000	227.910	1.08207	0.04155
106	100.000	227.417	0.86319	-0.17508
107	100.000	228.149	1.18799	0.14638
108	100.000	227.428	0.86831	-0.17001
109	100.000	226.606	0.50346	-0.53110
110	100.000	227.802	1.03395	-0.00607
111	100.000	227.830	1.04622	0.00607
112	100.000	228.165	1.19481	0.15313

113	100.000	227.205	0.76929	-0.03423
114	100.000	227.806	1.03564	0.23000
115	100.000	227.361	0.83830	0.03423
116	100.000	227.406	0.85858	0.05435
117	100.000	226.541	0.47455	-0.32661
118	100.000	227.183	0.75957	-0.04387
119	100.000	226.454	0.43623	-0.36463
120	100.000	227.397	0.85416	0.04996
121	100.000	227.787	1.02726	0.04505
122	100.000	227.800	1.03313	0.05087
123	100.000	227.498	0.89900	-0.08196
124	100.000	227.838	1.04979	0.06737
125	100.000	227.582	0.93627	-0.04506
126	100.000	227.556	0.92474	-0.05647
127	100.000	227.422	0.86552	-0.11512
128	100.000	227.924	1.08812	0.10532
129	100.000	227.084	0.71552	0.07459
130	100.000	226.818	0.59753	-0.04265
131	100.000	226.674	0.53391	-0.10586
132	100.000	227.258	0.79252	0.15111
133	100.000	226.925	0.64494	0.00447
134	100.000	226.944	0.65333	0.01280
135	100.000	226.905	0.63595	-0.00447
136	100.000	226.727	0.55706	-0.08285
137	100.000	227.059	0.70427	-0.08074
138	100.000	227.837	1.04972	0.26202
139	100.000	226.970	0.66493	-0.11977
140	100.000	227.100	0.72284	-0.06231
141	100.000	227.836	1.04924	0.26154
142	100.000	227.732	1.00317	0.21583
143	100.000	226.086	0.27295	-0.50869
144	100.000	227.384	0.84845	0.06232
145	100.000	227.287	0.80563	0.12142
146	100.000	227.052	0.70124	0.01774
147	100.000	226.472	0.44396	-0.23780
148	100.000	227.461	0.88292	0.19818
149	100.000	226.205	0.32550	-0.35545
150	100.000	226.971	0.66553	-0.01774
151	100.000	226.624	0.51151	-0.17071
152	100.000	227.066	0.70771	0.02416
153	100.000	225.542	0.03154	-0.47732
154	100.000	226.973	0.66645	0.15436
155	100.000	226.530	0.46980	-0.04129
156	100.000	226.392	0.40846	-0.10232
157	100.000	226.936	0.64982	0.13782
158	100.000	227.213	0.77255	0.25992
159	100.000	226.717	0.55281	0.04129
160	100.000	226.301	0.36839	-0.14218

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161    100.000       227.810      1.03771       -0.12978
162    100.000       227.568      0.93035       -0.23590
163    100.000       227.712      0.99393       -0.17305
164    100.000       228.057      1.14711       -0.02164
165    100.000       228.657      1.41323        0.24140
166    100.000       228.299      1.25456        0.08457
167    100.000       228.443      1.31813        0.14741
168    100.000       228.156      1.19090        0.02164
          MEAN:      227.455      0.88007
WORST CASE CHN:                     20             78
GAIN ACCURACY SPECIFICATION ( <  2.00000% )
PASSED
GAIN SIMILARITY SPECIFICATION ( <  2.00000% )
PASSED

ANALYSIS HARMONIC_DISTORTION 6 0.0015
CHAN  FNDMTL             FIRST FIVE HARMONIC CONTENT (%)          RMS
TOTAL (%)
 NO.   FREQ       2         3         4         5         6
  1  100.000   0.00071   0.00039   0.00046   0.00020   0.00033   0.00107
  2  100.000   0.00074   0.00038   0.00042   0.00021   0.00033   0.00108
  3  100.000   0.00073   0.00038   0.00042   0.00018   0.00031   0.00107
  4  100.000   0.00073   0.00037   0.00044   0.00018   0.00034   0.00108
  5  100.000   0.00071   0.00038   0.00045   0.00019   0.00031   0.00107
  6  100.000   0.00071   0.00038   0.00045   0.00019   0.00032   0.00107
  7  100.000   0.00072   0.00036   0.00045   0.00018   0.00035   0.00108
  8  100.000   0.00073   0.00038   0.00046   0.00020   0.00032   0.00108
  9  100.000   0.00019   0.00032   0.00016   0.00058   0.00056   0.00096
 10  100.000   0.00019   0.00033   0.00017   0.00059   0.00055   0.00097
 11  100.000   0.00018   0.00034   0.00018   0.00058   0.00059   0.00099
 12  100.000   0.00019   0.00031   0.00017   0.00058   0.00054   0.00095
 13  100.000   0.00019   0.00032   0.00017   0.00060   0.00056   0.00097
 14  100.000   0.00018   0.00034   0.00018   0.00059   0.00056   0.00097
 15  100.000   0.00020   0.00031   0.00014   0.00056   0.00056   0.00095
 16  100.000   0.00017   0.00034   0.00017   0.00058   0.00057   0.00097
 17  100.000   0.00071   0.00062   0.00021   0.00046   0.00034   0.00115
 18  100.000   0.00075   0.00064   0.00022   0.00050   0.00033   0.00121
 19  100.000   0.00073   0.00064   0.00021   0.00052   0.00033   0.00121
 20  100.000   0.00079   0.00062   0.00024   0.00047   0.00032   0.00121
 21  100.000   0.00064   0.00062   0.00023   0.00050   0.00033   0.00113
 22  100.000   0.00064   0.00063   0.00023   0.00046   0.00032   0.00112
 23  100.000   0.00063   0.00063   0.00022   0.00049   0.00034   0.00114
 24  100.000   0.00066   0.00065   0.00022   0.00050   0.00032   0.00116
 25  100.000   0.00043   0.00068   0.00034   0.00041   0.00034   0.00118
 26  100.000   0.00044   0.00071   0.00036   0.00040   0.00037   0.00121
 27  100.000   0.00042   0.00070   0.00034   0.00039   0.00037   0.00118
 28  100.000   0.00045   0.00068   0.00032   0.00038   0.00036   0.00119
 29  100.000   0.00044   0.00069   0.00036   0.00039   0.00037   0.00119
 30  100.000   0.00045   0.00069   0.00036   0.00040   0.00037   0.00119
 31  100.000   0.00046   0.00069   0.00036   0.00040   0.00038   0.00121
 32  100.000   0.00044   0.00067   0.00035   0.00040   0.00036   0.00119
 33  100.000   0.00059   0.00029   0.00022   0.00050   0.00038   0.00099
 34  100.000   0.00059   0.00029   0.00021   0.00053   0.00041   0.00101
```

35	100.000	0.00059	0.00030	0.00023	0.00051	0.00041	0.00101
36	100.000	0.00061	0.00031	0.00022	0.00052	0.00039	0.00101
37	100.000	0.00060	0.00029	0.00022	0.00052	0.00040	0.00101
38	100.000	0.00058	0.00030	0.00022	0.00051	0.00039	0.00100
39	100.000	0.00060	0.00030	0.00021	0.00052	0.00041	0.00102
40	100.000	0.00058	0.00030	0.00023	0.00051	0.00042	0.00100
41	100.000	0.00043	0.00062	0.00025	0.00034	0.00040	0.00103
42	100.000	0.00039	0.00063	0.00026	0.00034	0.00038	0.00101
43	100.000	0.00042	0.00065	0.00024	0.00035	0.00042	0.00104
44	100.000	0.00043	0.00062	0.00025	0.00035	0.00037	0.00102
45	100.000	0.00040	0.00066	0.00027	0.00036	0.00038	0.00104
46	100.000	0.00041	0.00062	0.00024	0.00034	0.00038	0.00100
47	100.000	0.00042	0.00064	0.00026	0.00036	0.00038	0.00103
48	100.000	0.00040	0.00064	0.00024	0.00034	0.00041	0.00102
49	100.000	0.00024	0.00024	0.00044	0.00041	0.00030	0.00081
50	100.000	0.00029	0.00023	0.00042	0.00043	0.00029	0.00081
51	100.000	0.00032	0.00026	0.00042	0.00042	0.00029	0.00082
52	100.000	0.00034	0.00027	0.00042	0.00043	0.00029	0.00084
53	100.000	0.00026	0.00026	0.00042	0.00042	0.00028	0.00080
54	100.000	0.00025	0.00023	0.00042	0.00041	0.00028	0.00079
55	100.000	0.00027	0.00025	0.00043	0.00045	0.00028	0.00082
56	100.000	0.00031	0.00026	0.00044	0.00044	0.00028	0.00084
57	100.000	0.00047	0.00017	0.00035	0.00029	0.00026	0.00081
58	100.000	0.00046	0.00018	0.00035	0.00029	0.00026	0.00080
59	100.000	0.00048	0.00017	0.00034	0.00028	0.00025	0.00080
60	100.000	0.00049	0.00018	0.00037	0.00031	0.00025	0.00085
61	100.000	0.00043	0.00018	0.00039	0.00029	0.00025	0.00080
62	100.000	0.00043	0.00017	0.00037	0.00029	0.00026	0.00079
63	100.000	0.00044	0.00017	0.00035	0.00029	0.00029	0.00080
64	100.000	0.00042	0.00018	0.00037	0.00029	0.00025	0.00078
65	100.000	0.00082	0.00040	0.00046	0.00024	0.00026	0.00120
66	100.000	0.00081	0.00042	0.00046	0.00025	0.00027	0.00121
67	100.000	0.00080	0.00039	0.00044	0.00026	0.00028	0.00120
68	100.000	0.00082	0.00039	0.00046	0.00024	0.00024	0.00120
69	100.000	0.00082	0.00041	0.00046	0.00025	0.00025	0.00120
70	100.000	0.00084	0.00041	0.00046	0.00021	0.00025	0.00123
71	100.000	0.00079	0.00042	0.00045	0.00022	0.00025	0.00118
72	100.000	0.00080	0.00041	0.00045	0.00024	0.00027	0.00119
73	100.000	0.00058	0.00049	0.00034	0.00017	0.00032	0.00092
74	100.000	0.00055	0.00052	0.00036	0.00019	0.00033	0.00093
75	100.000	0.00058	0.00055	0.00033	0.00019	0.00033	0.00096
76	100.000	0.00057	0.00053	0.00033	0.00018	0.00035	0.00094
77	100.000	0.00057	0.00053	0.00035	0.00018	0.00031	0.00094
78	100.000	0.00056	0.00053	0.00032	0.00016	0.00036	0.00094
79	100.000	0.00058	0.00054	0.00033	0.00018	0.00033	0.00095
80	100.000	0.00058	0.00052	0.00031	0.00019	0.00034	0.00094
81	100.000	0.00039	0.00045	0.00019	0.00034	0.00033	0.00097
82	100.000	0.00040	0.00044	0.00019	0.00032	0.00032	0.00096
83	100.000	0.00040	0.00044	0.00020	0.00033	0.00033	0.00097
84	100.000	0.00040	0.00043	0.00020	0.00034	0.00032	0.00097
85	100.000	0.00038	0.00044	0.00019	0.00035	0.00032	0.00097
86	100.000	0.00038	0.00043	0.00020	0.00033	0.00032	0.00096
87	100.000	0.00039	0.00041	0.00020	0.00035	0.00031	0.00095
88	100.000	0.00039	0.00044	0.00019	0.00034	0.00035	0.00098

89	100.000	0.00044	0.00032	0.00054	0.00042	0.00035	0.00100
90	100.000	0.00043	0.00031	0.00054	0.00044	0.00034	0.00100
91	100.000	0.00044	0.00033	0.00054	0.00043	0.00036	0.00102
92	100.000	0.00045	0.00035	0.00052	0.00043	0.00035	0.00101
93	100.000	0.00041	0.00033	0.00054	0.00042	0.00033	0.00099
94	100.000	0.00041	0.00034	0.00054	0.00042	0.00036	0.00099
95	100.000	0.00044	0.00036	0.00052	0.00044	0.00034	0.00101
96	100.000	0.00043	0.00033	0.00054	0.00043	0.00034	0.00101
97	100.000	0.00079	0.00031	0.00040	0.00064	0.00044	0.00130
98	100.000	0.00082	0.00031	0.00040	0.00063	0.00041	0.00130
99	100.000	0.00081	0.00030	0.00042	0.00062	0.00041	0.00130
100	100.000	0.00086	0.00031	0.00038	0.00064	0.00043	0.00133
101	100.000	0.00071	0.00028	0.00040	0.00061	0.00039	0.00123
102	100.000	0.00072	0.00031	0.00040	0.00064	0.00040	0.00124
103	100.000	0.00076	0.00031	0.00042	0.00063	0.00040	0.00127
104	100.000	0.00081	0.00033	0.00042	0.00063	0.00042	0.00130
105	100.000	0.00040	0.00021	0.00037	0.00034	0.00077	0.00107
106	100.000	0.00041	0.00022	0.00034	0.00032	0.00077	0.00106
107	100.000	0.00042	0.00022	0.00035	0.00035	0.00076	0.00107
108	100.000	0.00043	0.00021	0.00036	0.00033	0.00076	0.00107
109	100.000	0.00041	0.00020	0.00034	0.00033	0.00076	0.00105
110	100.000	0.00041	0.00022	0.00035	0.00033	0.00076	0.00107
111	100.000	0.00042	0.00022	0.00034	0.00032	0.00077	0.00106
112	100.000	0.00041	0.00021	0.00035	0.00034	0.00076	0.00106
113	100.000	0.00041	0.00041	0.00059	0.00025	0.00069	0.00114
114	100.000	0.00043	0.00037	0.00059	0.00028	0.00068	0.00114
115	100.000	0.00045	0.00038	0.00057	0.00028	0.00071	0.00116
116	100.000	0.00044	0.00040	0.00057	0.00027	0.00069	0.00114
117	100.000	0.00040	0.00036	0.00058	0.00025	0.00070	0.00113
118	100.000	0.00041	0.00040	0.00060	0.00027	0.00072	0.00118
119	100.000	0.00045	0.00040	0.00060	0.00027	0.00070	0.00117
120	100.000	0.00041	0.00035	0.00059	0.00027	0.00069	0.00114
121	100.000	0.00052	0.00039	0.00066	0.00043	0.00041	0.00122
122	100.000	0.00052	0.00039	0.00063	0.00042	0.00038	0.00119
123	100.000	0.00049	0.00039	0.00064	0.00041	0.00040	0.00118
124	100.000	0.00049	0.00038	0.00065	0.00045	0.00040	0.00119
125	100.000	0.00050	0.00038	0.00066	0.00041	0.00039	0.00119
126	100.000	0.00045	0.00038	0.00065	0.00043	0.00037	0.00116
127	100.000	0.00047	0.00039	0.00064	0.00042	0.00038	0.00119
128	100.000	0.00047	0.00039	0.00063	0.00042	0.00039	0.00117
129	100.000	0.00078	0.00033	0.00013	0.00021	0.00055	0.00113
130	100.000	0.00076	0.00032	0.00016	0.00021	0.00054	0.00110
131	100.000	0.00079	0.00031	0.00014	0.00024	0.00056	0.00113
132	100.000	0.00075	0.00033	0.00015	0.00021	0.00054	0.00110
133	100.000	0.00077	0.00032	0.00015	0.00023	0.00053	0.00111
134	100.000	0.00075	0.00032	0.00017	0.00023	0.00055	0.00111
135	100.000	0.00075	0.00031	0.00016	0.00023	0.00054	0.00110
136	100.000	0.00074	0.00031	0.00014	0.00024	0.00054	0.00110
137	100.000	0.00067	0.00036	0.00030	0.00042	0.00028	0.00110
138	100.000	0.00067	0.00037	0.00028	0.00042	0.00028	0.00109
139	100.000	0.00068	0.00038	0.00029	0.00043	0.00030	0.00111
140	100.000	0.00064	0.00039	0.00028	0.00042	0.00026	0.00108
141	100.000	0.00066	0.00039	0.00028	0.00043	0.00025	0.00109
142	100.000	0.00067	0.00039	0.00029	0.00042	0.00027	0.00110

143	100.000	0.00067	0.00038	0.00029	0.00040	0.00026	0.00109
144	100.000	0.00067	0.00037	0.00029	0.00043	0.00025	0.00109
145	100.000	0.00038	0.00041	0.00046	0.00047	0.00030	0.00095
146	100.000	0.00037	0.00038	0.00047	0.00047	0.00032	0.00096
147	100.000	0.00039	0.00039	0.00048	0.00046	0.00031	0.00095
148	100.000	0.00037	0.00041	0.00046	0.00046	0.00030	0.00095
149	100.000	0.00033	0.00038	0.00045	0.00044	0.00029	0.00091
150	100.000	0.00037	0.00040	0.00047	0.00049	0.00032	0.00097
151	100.000	0.00036	0.00041	0.00049	0.00045	0.00029	0.00096
152	100.000	0.00036	0.00042	0.00048	0.00047	0.00029	0.00096
153	100.000	0.00068	0.00039	0.00075	0.00025	0.00038	0.00123
154	100.000	0.00071	0.00040	0.00077	0.00024	0.00039	0.00125
155	100.000	0.00069	0.00039	0.00074	0.00025	0.00041	0.00123
156	100.000	0.00069	0.00042	0.00076	0.00024	0.00039	0.00124
157	100.000	0.00068	0.00041	0.00076	0.00022	0.00039	0.00123
158	100.000	0.00069	0.00040	0.00077	0.00025	0.00036	0.00124
159	100.000	0.00068	0.00039	0.00076	0.00026	0.00040	0.00123
160	100.000	0.00070	0.00039	0.00075	0.00025	0.00038	0.00124
161	100.000	0.00047	0.00031	0.00068	0.00067	0.00043	0.00123
162	100.000	0.00050	0.00034	0.00066	0.00067	0.00042	0.00124
163	100.000	0.00051	0.00032	0.00066	0.00069	0.00043	0.00126
164	100.000	0.00050	0.00031	0.00067	0.00067	0.00043	0.00124
165	100.000	0.00045	0.00033	0.00065	0.00065	0.00048	0.00122
166	100.000	0.00049	0.00034	0.00067	0.00067	0.00044	0.00125
167	100.000	0.00047	0.00031	0.00066	0.00069	0.00044	0.00124
168	100.000	0.00046	0.00032	0.00067	0.00065	0.00042	0.00122
						MEAN:	0.00107
					WORST CASE CHN:		100

HARMONIC DISTORTION SPECIFICATION (< 0.00150 %)
PASSED

FILE 1013

ANALYSIS PHASE 0.1

CHAN	TEST FREQ (HZ)	SIMILARITY (DEGREE)
1	100.000	-0.00047
2	100.000	-0.00046
3	100.000	-0.00002
4	100.000	0.00014
5	100.000	-0.00020
6	100.000	0.00003
7	100.000	0.00009
8	100.000	0.00027
9	100.000	-0.00047
10	100.000	-0.00006
11	100.000	-0.00026
12	100.000	0.00050
13	100.000	0.00027
14	100.000	-0.00006
15	100.000	0.00032
16	100.000	0.00008

17	100.000	-0.00018
18	100.000	-0.00014
19	100.000	-0.00002
20	100.000	0.00027
21	100.000	-0.00017
22	100.000	0.00000
23	100.000	0.00063
24	100.000	0.00070
25	100.000	0.00021
26	100.000	-0.00046
27	100.000	0.00009
28	100.000	-0.00038
29	100.000	0.00024
30	100.000	-0.00011
31	100.000	-0.00009
32	100.000	0.00011
33	100.000	-0.00011
34	100.000	-0.00020
35	100.000	0.00058
36	100.000	0.00047
37	100.000	0.00009
38	100.000	0.00020
39	100.000	-0.00032
40	100.000	-0.00024
41	100.000	0.00020
42	100.000	-0.00032
43	100.000	0.00032
44	100.000	0.00008
45	100.000	-0.00006
46	100.000	-0.00034
47	100.000	-0.00044
48	100.000	0.00023
49	100.000	-0.00018
50	100.000	0.00005
51	100.000	0.00055
52	100.000	-0.00005
53	100.000	-0.00047
54	100.000	0.00041
55	100.000	-0.00009
56	100.000	0.00093
57	100.000	-0.00006
58	100.000	0.00047
59	100.000	-0.00009
60	100.000	0.00006
61	100.000	-0.00014
62	100.000	0.00102
63	100.000	-0.00020
64	100.000	0.00035

65	100.000	0.00053
66	100.000	-0.00020
67	100.000	-0.00024
68	100.000	0.00079
69	100.000	-0.00021
70	100.000	-0.00021
71	100.000	0.00020
72	100.000	0.00061
73	100.000	0.00053
74	100.000	0.00043
75	100.000	-0.00050
76	100.000	-0.00031
77	100.000	0.00020
78	100.000	0.00026
79	100.000	-0.00034
80	100.000	-0.00018
81	100.000	-0.00075
82	100.000	-0.00014
83	100.000	-0.00085
84	100.000	0.00055
85	100.000	0.00047
86	100.000	0.00014
87	100.000	-0.00029
88	100.000	0.00044
89	100.000	0.00018
90	100.000	0.00017
91	100.000	-0.00070
92	100.000	0.00029
93	100.000	-0.00060
94	100.000	-0.00066
95	100.000	0.00017
96	100.000	-0.00015
97	100.000	0.00006
98	100.000	-0.00005
99	100.000	0.00037
100	100.000	-0.00064
101	100.000	0.00043
102	100.000	-0.00024
103	100.000	-0.00056
104	100.000	0.00029
105	100.000	-0.00003
106	100.000	-0.00047
107	100.000	0.00003
108	100.000	0.00002
109	100.000	-0.00043
110	100.000	-0.00037
111	100.000	0.00009
112	100.000	0.00029

113	100.000	0.00047
114	100.000	0.00066
115	100.000	-0.00050
116	100.000	-0.00063
117	100.000	0.00006
118	100.000	0.00020
119	100.000	-0.00005
120	100.000	-0.00011
121	100.000	0.00026
122	100.000	0.00002
123	100.000	-0.00011
124	100.000	-0.00012
125	100.000	-0.00026
126	100.000	0.00015
127	100.000	0.00027
128	100.000	-0.00002
129	100.000	-0.00006
130	100.000	0.00064
131	100.000	-0.00052
132	100.000	0.00073
133	100.000	0.00003
134	100.000	0.00002
135	100.000	0.00000
136	100.000	0.00000
137	100.000	-0.00041
138	100.000	-0.00014
139	100.000	0.00012
140	100.000	0.00043
141	100.000	-0.00012
142	100.000	-0.00055
143	100.000	0.00020
144	100.000	0.00015
145	100.000	-0.00008
146	100.000	0.00041
147	100.000	0.00009
148	100.000	-0.00021
149	100.000	0.00041
150	100.000	-0.00009
151	100.000	0.00029
152	100.000	-0.00064
153	100.000	0.00032
154	100.000	0.00050
155	100.000	0.00003
156	100.000	0.00093
157	100.000	-0.00015
158	100.000	-0.00026
159	100.000	-0.00067
160	100.000	-0.00003

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161      100.000     0.00005
162      100.000     0.00008
163      100.000     0.00011
164      100.000    -0.00035
165      100.000    -0.00037
166      100.000    -0.00021
167      100.000     0.00000
168      100.000     0.00000
WORST CASE CHN:        62
PHASE SIMILARITY SPECIFICATION ( < 0.100 DEG )
PASSED

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TEST 20 Gain, THD, Sim X34, 1/4mS, 100Hz

SIGNAL_TYPE SINE 100.000000 50.476589 0.000000 8

FILE 1014
File Date: Sep/25/13   Time: 19:53:39
Sampling Rate:    250 usec   Record Length:  0.512 sec   Delay:    6 msec
Preamp Gain: 30 dB     Acquisition Filters: OUT  OUT

ANALYSIS GAIN 6.25 3.0
INPUT PEAK AMPLITUDE IS     50.477 mV
CHAN    TEST      PEAK AMPLITUDE  ACCURACY     SIMILARITY
 NO.    FREQ          ( mV )        (%)           (%)
  1    100.000        49.046     -2.83396        0.13389
  2    100.000        49.072     -2.78344        0.18596
  3    100.000        49.459     -2.01508        0.97778
  4    100.000        48.905     -3.11365       -0.15435
  5    100.000        48.828     -3.26563       -0.31097
  6    100.000        48.915     -3.09379       -0.13388
  7    100.000        48.693     -3.53424       -0.58777
  8    100.000        49.228     -2.47338        0.50548

  9    100.000        49.094     -2.73808        0.05911
 10    100.000        49.157     -2.61479        0.18596
 11    100.000        49.036     -2.85300       -0.05911
 12    100.000        48.504     -3.90699       -1.14341
 13    100.000        49.174     -2.58144        0.22027
 14    100.000        49.153     -2.62123        0.17932
 15    100.000        48.750     -3.42105       -0.64350
 16    100.000        48.658     -3.60380       -0.83150

 17    100.000        49.034     -2.85752       -0.24606
 18    100.000        49.024     -2.87681       -0.26587
 19    100.000        49.276     -2.37919        0.24512
 20    100.000        49.458     -2.01794        0.61608
 21    100.000        49.126     -2.67642       -0.06010
 22    100.000        49.029     -2.86846       -0.25730
 23    100.000        49.185     -2.55938        0.06010
 24    100.000        49.270     -2.38965        0.23438
```

25	100.000	48.627	-3.66513	-0.96989
26	100.000	49.164	-2.60071	0.12432
27	100.000	49.285	-2.36025	0.37150
28	100.000	48.976	-2.97366	-0.25907
29	100.000	49.164	-2.59969	0.12537
30	100.000	48.797	-3.32652	-0.62180
31	100.000	49.042	-2.84257	-0.12432
32	100.000	49.262	-2.40612	0.32435
33	100.000	49.478	-1.97852	0.77412
34	100.000	48.963	-2.99869	-0.27469
35	100.000	49.283	-2.36535	0.37644
36	100.000	48.949	-3.02554	-0.30229
37	100.000	48.933	-3.05810	-0.33577
38	100.000	49.233	-2.46431	0.27469
39	100.000	48.584	-3.75021	-1.04732
40	100.000	49.235	-2.45893	0.28023
41	100.000	49.346	-2.24054	0.52841
42	100.000	48.720	-3.48022	-0.74639
43	100.000	49.270	-2.38980	0.37492
44	100.000	49.390	-2.15354	0.61787
45	100.000	48.918	-3.08762	-0.34266
46	100.000	48.678	-3.56274	-0.83124
47	100.000	49.035	-2.85547	-0.10393
48	100.000	49.137	-2.65332	0.10393
49	100.000	48.595	-3.72686	-0.29749
50	100.000	48.562	-3.79235	-0.36531
51	100.000	49.146	-2.63575	0.83249
52	100.000	48.639	-3.63988	-0.20741
53	100.000	48.912	-3.09957	0.35215
54	100.000	48.669	-3.58023	-0.14564
55	100.000	48.811	-3.29897	0.14564
56	100.000	48.903	-3.11793	0.33313
57	100.000	49.095	-2.73791	0.01009
58	100.000	49.085	-2.75628	-0.00880
59	100.000	49.127	-2.67443	0.07537
60	100.000	48.920	-3.08332	-0.34507
61	100.000	48.812	-3.29813	-0.56595
62	100.000	48.948	-3.02741	-0.28758
63	100.000	49.094	-2.73918	0.00879
64	100.000	49.120	-2.68807	0.06134
65	100.000	48.733	-3.45522	-0.59673
66	100.000	48.950	-3.02376	-0.15250
67	100.000	48.852	-3.21942	-0.35396
68	100.000	49.339	-2.25413	0.63991
69	100.000	49.112	-2.70318	0.17757
70	100.000	48.958	-3.00828	-0.13657
71	100.000	49.227	-2.47654	0.41092
72	100.000	49.092	-2.74300	0.13657

73	100.000	48.950	-3.02410	0.36387
74	100.000	48.787	-3.34685	0.02984
75	100.000	48.742	-3.43630	-0.06274
76	100.000	48.721	-3.47786	-0.10575
77	100.000	48.758	-3.40451	-0.02983
78	100.000	48.790	-3.34195	0.03491
79	100.000	48.532	-3.85258	-0.49355
80	100.000	48.819	-3.28463	0.09423
81	100.000	49.296	-2.33884	0.51998
82	100.000	48.850	-3.22160	-0.38863
83	100.000	49.031	-2.86443	-0.02100
84	100.000	49.051	-2.82363	0.02099
85	100.000	49.195	-2.53818	0.31480
86	100.000	49.329	-2.27331	0.58742
87	100.000	48.847	-3.22777	-0.39498
88	100.000	49.031	-2.86470	-0.02128
89	100.000	48.904	-3.11540	-0.18662
90	100.000	49.270	-2.39027	0.56043
91	100.000	48.793	-3.33607	-0.41396
92	100.000	49.184	-2.56041	0.38515
93	100.000	49.272	-2.38605	0.56478
94	100.000	48.876	-3.17170	-0.24462
95	100.000	49.087	-2.75311	0.18663
96	100.000	48.783	-3.35507	-0.43354
97	100.000	49.000	-2.92610	0.24441
98	100.000	48.921	-3.08224	0.08318
99	100.000	48.789	-3.34273	-0.18582
100	100.000	48.796	-3.32914	-0.17179
101	100.000	49.003	-2.91970	0.25102
102	100.000	48.567	-3.78411	-0.64161
103	100.000	48.839	-3.24333	-0.08318
104	100.000	48.988	-2.94933	0.22043
105	100.000	48.950	-3.02376	0.09767
106	100.000	48.696	-3.52719	-0.42196
107	100.000	49.080	-2.76747	0.36221
108	100.000	48.889	-3.14574	-0.02823
109	100.000	48.454	-4.00693	-0.91715
110	100.000	48.659	-3.60060	-0.49773
111	100.000	48.916	-3.09103	0.02824
112	100.000	49.070	-2.78678	0.34228
113	100.000	49.132	-2.66430	0.30458
114	100.000	48.740	-3.44112	-0.49592
115	100.000	49.050	-2.82674	0.13719
116	100.000	49.013	-2.89986	0.06184
117	100.000	48.952	-3.01988	-0.06184
118	100.000	49.127	-2.67280	0.29582
119	100.000	48.678	-3.56299	-0.62151
120	100.000	48.840	-3.24317	-0.29194

121	100.000	49.123	-2.68140	0.16852
122	100.000	48.986	-2.95299	-0.11102
123	100.000	48.763	-3.39567	-0.56666
124	100.000	48.973	-2.97900	-0.13779
125	100.000	48.737	-3.44585	-0.61832
126	100.000	49.131	-2.66655	0.18380
127	100.000	49.186	-2.55679	0.29678
128	100.000	49.095	-2.73727	0.11102
129	100.000	48.695	-3.52856	-0.36678
130	100.000	49.083	-2.76085	0.42609
131	100.000	49.015	-2.89548	0.28705
132	100.000	49.022	-2.88082	0.30219
133	100.000	48.943	-3.03743	0.14044
134	100.000	48.806	-3.30940	-0.14044
135	100.000	48.747	-3.42685	-0.26173
136	100.000	48.782	-3.35786	-0.19049
137	100.000	48.626	-3.66585	-0.30933
138	100.000	48.863	-3.19666	0.17620
139	100.000	48.750	-3.42051	-0.05545
140	100.000	49.044	-2.83768	0.54769
141	100.000	48.804	-3.31335	0.05545
142	100.000	48.838	-3.24719	0.12392
143	100.000	48.397	-4.11983	-0.77913
144	100.000	48.724	-3.47190	-0.10863
145	100.000	48.793	-3.33515	-0.19662
146	100.000	49.231	-2.46754	0.69916
147	100.000	48.899	-3.12543	0.01991
148	100.000	48.874	-3.17518	-0.03145
149	100.000	48.950	-3.02416	0.12447
150	100.000	48.880	-3.16399	-0.01990
151	100.000	48.938	-3.04896	0.09887
152	100.000	48.808	-3.30538	-0.16588
153	100.000	48.458	-3.99913	-0.17131
154	100.000	48.620	-3.67903	0.16155
155	100.000	48.401	-4.11121	-0.28786
156	100.000	48.519	-3.87813	-0.04549
157	100.000	48.514	-3.88875	-0.05654
158	100.000	49.079	-2.76915	1.10771
159	100.000	48.563	-3.79065	0.04548
160	100.000	48.682	-3.55613	0.28935
161	100.000	48.807	-3.30693	-0.55358
162	100.000	49.118	-2.69079	0.08010
163	100.000	49.128	-2.67169	0.09975
164	100.000	49.055	-2.81719	-0.04989
165	100.000	48.914	-3.09532	-0.33595
166	100.000	48.840	-3.24205	-0.48686
167	100.000	49.223	-2.48299	0.29383
168	100.000	49.104	-2.72017	0.04988
	MEAN:	48.945	-3.03353	

WORST CASE CHN: 143 12
GAIN ACCURACY SPECIFICATION (< 6.25000%)
PASSED
GAIN SIMILARITY SPECIFICATION (< 3.00000%)
PASSED

ANALYSIS HARMONIC_DISTORTION 4 0.007

CHAN NO.	FNDMTL FREQ	FIRST FIVE HARMONIC CONTENT (%) 2	3	4	5	6	RMS TOTAL (%)
1	100.000	0.00094	0.00197	0.00192	0.00165		0.00334
2	100.000	0.00098	0.00191	0.00190	0.00173		0.00335
3	100.000	0.00102	0.00190	0.00189	0.00167		0.00332
4	100.000	0.00100	0.00198	0.00194	0.00167		0.00339
5	100.000	0.00086	0.00190	0.00192	0.00164		0.00327
6	100.000	0.00100	0.00193	0.00199	0.00169		0.00340
7	100.000	0.00097	0.00196	0.00197	0.00170		0.00340
8	100.000	0.00094	0.00189	0.00192	0.00168		0.00331
9	100.000	0.00261	0.00265	0.00240	0.00172		0.00475
10	100.000	0.00265	0.00270	0.00240	0.00173		0.00480
11	100.000	0.00259	0.00268	0.00234	0.00167		0.00470
12	100.000	0.00261	0.00269	0.00231	0.00167		0.00470
13	100.000	0.00263	0.00271	0.00240	0.00170		0.00479
14	100.000	0.00266	0.00270	0.00238	0.00171		0.00479
15	100.000	0.00261	0.00269	0.00240	0.00175		0.00478
16	100.000	0.00262	0.00273	0.00228	0.00169		0.00473
17	100.000	0.00220	0.00107	0.00202	0.00184		0.00367
18	100.000	0.00224	0.00113	0.00198	0.00185		0.00369
19	100.000	0.00224	0.00108	0.00201	0.00186		0.00370
20	100.000	0.00230	0.00112	0.00201	0.00185		0.00374
21	100.000	0.00219	0.00108	0.00202	0.00186		0.00367
22	100.000	0.00225	0.00118	0.00195	0.00190		0.00372

23	100.000	0.00226	0.00109	0.00201	0.00181
0.00370					
24	100.000	0.00227	0.00111	0.00197	0.00185
0.00370					
25	100.000	0.00153	0.00110	0.00081	0.00175
0.00270					
26	100.000	0.00147	0.00112	0.00079	0.00169
0.00263					
27	100.000	0.00159	0.00109	0.00078	0.00166
0.00266					
28	100.000	0.00150	0.00107	0.00076	0.00165
0.00259					
29	100.000	0.00147	0.00119	0.00073	0.00161
0.00259					
30	100.000	0.00147	0.00112	0.00076	0.00169
0.00261					
31	100.000	0.00154	0.00115	0.00083	0.00168
0.00268					
32	100.000	0.00157	0.00115	0.00079	0.00171
0.00271					
33	100.000	0.00226	0.00156	0.00143	0.00297
0.00429					
34	100.000	0.00233	0.00162	0.00139	0.00296
0.00433					
35	100.000	0.00230	0.00154	0.00142	0.00292
0.00427					
36	100.000	0.00235	0.00153	0.00140	0.00288
0.00426					
37	100.000	0.00237	0.00157	0.00143	0.00288
0.00429					
38	100.000	0.00234	0.00158	0.00141	0.00292
0.00430					
39	100.000	0.00239	0.00157	0.00134	0.00289
0.00428					
40	100.000	0.00233	0.00155	0.00140	0.00286
0.00424					
41	100.000	0.00116	0.00201	0.00136	0.00264
0.00377					
42	100.000	0.00114	0.00200	0.00134	0.00265
0.00376					
43	100.000	0.00122	0.00193	0.00129	0.00269
0.00375					
44	100.000	0.00115	0.00201	0.00134	0.00266
0.00377					
45	100.000	0.00128	0.00200	0.00122	0.00260
0.00373					
46	100.000	0.00126	0.00200	0.00136	0.00267
0.00381					
47	100.000	0.00120	0.00198	0.00133	0.00270
0.00380					
48	100.000	0.00117	0.00205	0.00126	0.00264
0.00376					
49	100.000	0.00235	0.00229	0.00136	0.00148
0.00385					

50	100.000	0.00235	0.00230	0.00134	0.00148
0.00385					
51	100.000	0.00229	0.00226	0.00122	0.00146
0.00374					
52	100.000	0.00233	0.00226	0.00130	0.00145
0.00378					
53	100.000	0.00240	0.00224	0.00130	0.00135
0.00378					
54	100.000	0.00234	0.00227	0.00131	0.00149
0.00382					
55	100.000	0.00228	0.00230	0.00139	0.00146
0.00381					
56	100.000	0.00233	0.00229	0.00134	0.00145
0.00382					
57	100.000	0.00214	0.00073	0.00186	0.00135
0.00322					
58	100.000	0.00222	0.00072	0.00186	0.00140
0.00329					
59	100.000	0.00212	0.00073	0.00193	0.00140
0.00328					
60	100.000	0.00211	0.00076	0.00185	0.00143
0.00324					
61	100.000	0.00222	0.00073	0.00188	0.00138
0.00330					
62	100.000	0.00212	0.00075	0.00185	0.00141
0.00323					
63	100.000	0.00219	0.00073	0.00186	0.00139
0.00328					
64	100.000	0.00215	0.00069	0.00186	0.00147
0.00327					
65	100.000	0.00124	0.00167	0.00115	0.00122
0.00267					
66	100.000	0.00118	0.00167	0.00112	0.00127
0.00265					
67	100.000	0.00121	0.00169	0.00117	0.00122
0.00268					
68	100.000	0.00114	0.00166	0.00108	0.00119
0.00257					
69	100.000	0.00119	0.00170	0.00121	0.00123
0.00270					
70	100.000	0.00126	0.00169	0.00114	0.00123
0.00269					
71	100.000	0.00120	0.00165	0.00120	0.00117
0.00264					
72	100.000	0.00115	0.00170	0.00117	0.00122
0.00266					
73	100.000	0.00254	0.00145	0.00116	0.00123
0.00338					
74	100.000	0.00252	0.00136	0.00119	0.00123
0.00334					
75	100.000	0.00259	0.00139	0.00120	0.00126
0.00341					
76	100.000	0.00251	0.00143	0.00116	0.00129
0.00337					

77	100.000	0.00255	0.00145	0.00111	0.00127
0.00339					
78	100.000	0.00252	0.00143	0.00123	0.00125
0.00339					
79	100.000	0.00253	0.00137	0.00121	0.00117
0.00334					
80	100.000	0.00250	0.00146	0.00121	0.00126
0.00338					
81	100.000	0.00247	0.00130	0.00116	0.00075
0.00312					
82	100.000	0.00256	0.00132	0.00123	0.00085
0.00324					
83	100.000	0.00247	0.00127	0.00116	0.00078
0.00311					
84	100.000	0.00257	0.00128	0.00117	0.00077
0.00320					
85	100.000	0.00248	0.00126	0.00114	0.00089
0.00313					
86	100.000	0.00250	0.00125	0.00116	0.00073
0.00311					
87	100.000	0.00249	0.00132	0.00120	0.00078
0.00316					
88	100.000	0.00243	0.00125	0.00118	0.00081
0.00309					
89	100.000	0.00065	0.00125	0.00236	0.00096
0.00291					
90	100.000	0.00063	0.00126	0.00233	0.00097
0.00289					
91	100.000	0.00066	0.00122	0.00235	0.00097
0.00290					
92	100.000	0.00078	0.00124	0.00229	0.00099
0.00289					
93	100.000	0.00069	0.00122	0.00229	0.00095
0.00285					
94	100.000	0.00059	0.00122	0.00233	0.00097
0.00287					
95	100.000	0.00067	0.00120	0.00240	0.00106
0.00296					
96	100.000	0.00064	0.00127	0.00231	0.00101
0.00289					
97	100.000	0.00190	0.00302	0.00106	0.00171
0.00409					
98	100.000	0.00199	0.00301	0.00117	0.00174
0.00417					
99	100.000	0.00193	0.00298	0.00115	0.00169
0.00410					
100	100.000	0.00197	0.00303	0.00113	0.00169
0.00415					
101	100.000	0.00183	0.00300	0.00115	0.00172
0.00408					
102	100.000	0.00183	0.00302	0.00117	0.00172
0.00409					
103	100.000	0.00186	0.00301	0.00115	0.00177
0.00412					

104 100.000   0.00196   0.00306   0.00115   0.00171
0.00418
105 100.000   0.00145   0.00143   0.00183   0.00176
0.00326
106 100.000   0.00144   0.00139   0.00176   0.00179
0.00321
107 100.000   0.00143   0.00141   0.00177   0.00174
0.00319
108 100.000   0.00137   0.00136   0.00184   0.00179
0.00321
109 100.000   0.00147   0.00141   0.00171   0.00171
0.00317
110 100.000   0.00145   0.00139   0.00180   0.00175
0.00322
111 100.000   0.00149   0.00138   0.00175   0.00179
0.00323
112 100.000   0.00153   0.00137   0.00182   0.00175
0.00326
113 100.000   0.00154   0.00250   0.00176   0.00234
0.00415
114 100.000   0.00154   0.00251   0.00175   0.00237
0.00417
115 100.000   0.00156   0.00253   0.00169   0.00237
0.00416
116 100.000   0.00152   0.00257   0.00171   0.00232
0.00415
117 100.000   0.00152   0.00257   0.00171   0.00230
0.00414
118 100.000   0.00152   0.00254   0.00177   0.00234
0.00417
119 100.000   0.00157   0.00250   0.00174   0.00235
0.00416
120 100.000   0.00152   0.00251   0.00178   0.00233
0.00415
121 100.000   0.00107   0.00196   0.00145   0.00263
0.00374
122 100.000   0.00110   0.00191   0.00145   0.00265
0.00374
123 100.000   0.00113   0.00193   0.00146   0.00264
0.00376
124 100.000   0.00108   0.00195   0.00146   0.00262
0.00373
125 100.000   0.00113   0.00192   0.00145   0.00260
0.00372
126 100.000   0.00110   0.00188   0.00144   0.00257
0.00366
127 100.000   0.00108   0.00195   0.00142   0.00266
0.00375
128 100.000   0.00107   0.00190   0.00145   0.00265
0.00373
129 100.000   0.00093   0.00166   0.00331   0.00260
0.00462
130 100.000   0.00094   0.00163   0.00330   0.00256
0.00457

131 100.000 0.00090 0.00159 0.00331 0.00253
0.00455
132 100.000 0.00089 0.00168 0.00338 0.00249
0.00460
133 100.000 0.00096 0.00163 0.00335 0.00261
0.00465
134 100.000 0.00091 0.00168 0.00340 0.00255
0.00465
135 100.000 0.00102 0.00159 0.00330 0.00254
0.00457
136 100.000 0.00087 0.00161 0.00334 0.00257
0.00459
137 100.000 0.00166 0.00283 0.00145 0.00182
0.00402
138 100.000 0.00172 0.00284 0.00142 0.00184
0.00405
139 100.000 0.00171 0.00281 0.00146 0.00184
0.00404
140 100.000 0.00172 0.00285 0.00148 0.00189
0.00410
141 100.000 0.00172 0.00281 0.00146 0.00185
0.00405
142 100.000 0.00171 0.00281 0.00149 0.00182
0.00404
143 100.000 0.00165 0.00283 0.00146 0.00182
0.00402
144 100.000 0.00167 0.00285 0.00147 0.00178
0.00403
145 100.000 0.00197 0.00323 0.00215 0.00104
0.00447
146 100.000 0.00200 0.00317 0.00207 0.00107
0.00442
147 100.000 0.00197 0.00320 0.00206 0.00108
0.00442
148 100.000 0.00198 0.00317 0.00212 0.00107
0.00443
149 100.000 0.00201 0.00320 0.00213 0.00109
0.00448
150 100.000 0.00206 0.00318 0.00212 0.00112
0.00448
151 100.000 0.00198 0.00320 0.00214 0.00102
0.00445
152 100.000 0.00203 0.00320 0.00208 0.00110
0.00446
153 100.000 0.00222 0.00131 0.00215 0.00158
0.00371
154 100.000 0.00218 0.00136 0.00209 0.00163
0.00370
155 100.000 0.00216 0.00125 0.00215 0.00163
0.00367
156 100.000 0.00222 0.00133 0.00208 0.00159
0.00368
157 100.000 0.00221 0.00126 0.00212 0.00157
0.00366

158 100.000   0.00221   0.00121   0.00210   0.00157
0.00364
159 100.000   0.00223   0.00123   0.00209   0.00155
0.00364
160 100.000   0.00218   0.00132   0.00216   0.00158
0.00369
161 100.000   0.00171   0.00133   0.00207   0.00138
0.00330
162 100.000   0.00171   0.00134   0.00208   0.00147
0.00335
163 100.000   0.00172   0.00133   0.00209   0.00139
0.00332
164 100.000   0.00174   0.00129   0.00208   0.00147
0.00335
165 100.000   0.00173   0.00136   0.00204   0.00143
0.00332
166 100.000   0.00175   0.00137   0.00211   0.00143
0.00338
167 100.000   0.00168   0.00134   0.00207   0.00146
0.00332
168 100.000   0.00175   0.00131   0.00207   0.00144
0.00334

MEAN: 0.00367
WORST CASE CHN: 10

HARMONIC DISTORTION SPECIFICATION (< 0.00700 %)
PASSED

FILE 1014

ANALYSIS PHASE 0.1

CHAN	TEST FREQ (HZ)	SIMILARITY (DEGREE)
1	100.000	-0.00029
2	100.000	-0.00018
3	100.000	0.00034
4	100.000	-0.00034
5	100.000	0.00011
6	100.000	0.00032
7	100.000	0.00029
8	100.000	-0.00011
9	100.000	-0.00092
10	100.000	-0.00038
11	100.000	-0.00002
12	100.000	0.00002
13	100.000	0.00005
14	100.000	-0.00040
15	100.000	0.00061
16	100.000	0.00024
17	100.000	-0.00021
18	100.000	-0.00017
19	100.000	-0.00005
20	100.000	0.00026

21	100.000	-0.00018
22	100.000	0.00003
23	100.000	0.00084
24	100.000	0.00081
25	100.000	0.00024
26	100.000	-0.00050
27	100.000	0.00008
28	100.000	-0.00052
29	100.000	0.00038
30	100.000	-0.00006
31	100.000	-0.00012
32	100.000	0.00006
33	100.000	-0.00009
34	100.000	-0.00027
35	100.000	0.00066
36	100.000	0.00046
37	100.000	0.00009
38	100.000	0.00026
39	100.000	-0.00049
40	100.000	-0.00037
41	100.000	0.00006
42	100.000	-0.00052
43	100.000	0.00023
44	100.000	-0.00014
45	100.000	0.00044
46	100.000	-0.00063
47	100.000	-0.00003
48	100.000	0.00003
49	100.000	-0.00017
50	100.000	0.00017
51	100.000	0.00084
52	100.000	-0.00005
53	100.000	-0.00031
54	100.000	-0.00015
55	100.000	0.00006
56	100.000	0.00040
57	100.000	0.00000
58	100.000	0.00060
59	100.000	-0.00012
60	100.000	0.00000
61	100.000	-0.00024
62	100.000	0.00130
63	100.000	-0.00018
64	100.000	0.00043
65	100.000	0.00058
66	100.000	-0.00027
67	100.000	-0.00038
68	100.000	0.00092

69	100.000	-0.00024
70	100.000	-0.00020
71	100.000	0.00020
72	100.000	0.00064
73	100.000	0.00095
74	100.000	0.00092
75	100.000	-0.00107
76	100.000	-0.00020
77	100.000	-0.00009
78	100.000	0.00056
79	100.000	-0.00011
80	100.000	0.00009
81	100.000	-0.00052
82	100.000	0.00009
83	100.000	-0.00072
84	100.000	0.00089
85	100.000	0.00092
86	100.000	-0.00011
87	100.000	-0.00011
88	100.000	0.00014
89	100.000	0.00027
90	100.000	0.00037
91	100.000	-0.00087
92	100.000	0.00040
93	100.000	-0.00047
94	100.000	-0.00066
95	100.000	0.00029
96	100.000	-0.00027
97	100.000	0.00009
98	100.000	-0.00009
99	100.000	0.00035
100	100.000	-0.00089
101	100.000	0.00050
102	100.000	-0.00031
103	100.000	-0.00069
104	100.000	0.00023
105	100.000	0.00003
106	100.000	-0.00063
107	100.000	0.00005
108	100.000	-0.00003
109	100.000	-0.00043
110	100.000	-0.00035
111	100.000	0.00017
112	100.000	0.00034
113	100.000	-0.00006
114	100.000	0.00000
115	100.000	-0.00049
116	100.000	-0.00067

117	100.000	0.00027
118	100.000	0.00047
119	100.000	0.00008
120	100.000	-0.00002
121	100.000	0.00032
122	100.000	0.00003
123	100.000	-0.00023
124	100.000	-0.00026
125	100.000	-0.00034
126	100.000	0.00026
127	100.000	0.00040
128	100.000	-0.00002
129	100.000	-0.00017
130	100.000	0.00079
131	100.000	-0.00066
132	100.000	0.00078
133	100.000	0.00003
134	100.000	0.00002
135	100.000	-0.00002
136	100.000	-0.00012
137	100.000	-0.00060
138	100.000	-0.00024
139	100.000	0.00003
140	100.000	0.00034
141	100.000	-0.00023
142	100.000	0.00005
143	100.000	0.00002
144	100.000	-0.00003
145	100.000	-0.00014
146	100.000	0.00056
147	100.000	0.00008
148	100.000	-0.00034
149	100.000	0.00053
150	100.000	-0.00008
151	100.000	0.00027
152	100.000	-0.00082
153	100.000	0.00044
154	100.000	0.00063
155	100.000	-0.00003
156	100.000	0.00102
157	100.000	-0.00015
158	100.000	-0.00012
159	100.000	-0.00002
160	100.000	0.00002
161	100.000	0.00009
162	100.000	0.00012
163	100.000	0.00015
164	100.000	-0.00049

165 100.000 -0.00040
166 100.000 -0.00023
167 100.000 0.00006
168 100.000 -0.00006
WORST CASE CHN: 62
PHASE SIMILARITY SPECIFICATION (< 0.100 DEG)
PASSED

TEST 21 Gain, THD, Sim X1, 2mS, 25Hz

SIGNAL_TYPE SINE 25.000000 800.000000 0.000000 8

FILE 1026
File Date: Sep/25/13 Time: 19:54:05
Sampling Rate: 2000 usec Record Length: 4.096 sec Delay: 48 msec
Preamp Gain: 0 dB Acquisition Filters: OUT OUT

ANALYSIS GAIN 2.0 2.0
INPUT PEAK AMPLITUDE IS 800.000 mV

CHAN NO.	TEST FREQ	PEAK AMPLITUDE (mV)	ACCURACY (%)	SIMILARITY (%)
1	24.999	811.425	1.42818	-0.17190
2	24.999	812.734	1.59169	-0.01098
3	24.999	811.396	1.42444	-0.17559
4	24.999	813.334	1.66673	0.06287
5	24.999	813.455	1.68187	0.07778
6	24.999	812.573	1.57164	-0.03071
7	24.999	813.075	1.63437	0.03103
8	24.999	812.912	1.61401	0.01099
9	24.999	808.380	1.04751	-0.00869
10	24.999	807.871	0.98391	-0.07162
11	24.999	808.521	1.06507	0.00869
12	24.999	809.670	1.20873	0.15085
13	24.999	807.330	0.91622	-0.13860
14	24.999	808.142	1.01771	-0.03818
15	24.999	809.140	1.14256	0.08536
16	24.999	810.009	1.25109	0.19277
17	24.999	811.771	1.47142	-0.06407
18	24.999	812.217	1.52711	-0.00922
19	24.999	812.691	1.58634	0.04911
20	24.999	812.721	1.59019	0.05290
21	24.999	812.367	1.54584	0.00922
22	24.999	812.762	1.59519	0.05783
23	24.999	811.739	1.46738	-0.06805
24	24.999	811.446	1.43081	-0.10407
25	24.999	810.345	1.29311	0.07093
26	24.999	807.566	0.94575	-0.27223
27	24.999	810.632	1.32904	0.10643
28	24.999	810.232	1.27905	0.05704

29	24.999	808.508	1.06345	-0.15596
30	24.999	809.309	1.16357	-0.05704
31	24.999	810.680	1.33501	0.11234
32	24.999	809.118	1.13972	-0.08060
33	24.999	811.923	1.49036	-0.10217
34	24.999	814.012	1.75150	0.15486
35	24.999	812.349	1.54362	-0.04974
36	24.999	814.770	1.84628	0.24816
37	24.999	812.275	1.53433	-0.05889
38	24.999	812.698	1.58726	-0.00680
39	24.999	813.317	1.66462	0.06935
40	24.999	812.809	1.60107	0.00680
41	24.999	811.200	1.40000	-0.11729
42	24.999	812.622	1.57771	0.05775
43	24.999	811.342	1.41773	-0.09982
44	24.999	811.805	1.47565	-0.04278
45	24.999	812.952	1.61903	0.09846
46	24.999	812.252	1.53145	0.01219
47	24.999	812.124	1.51556	-0.00346
48	24.999	812.181	1.52258	0.00346
49	24.999	806.637	0.82961	0.09134
50	24.999	806.340	0.79251	0.05451
51	24.999	804.807	0.60091	-0.13568
52	24.999	805.483	0.68543	-0.05178
53	24.999	805.963	0.74532	0.00767
54	24.999	805.291	0.66132	-0.07571
55	24.999	805.985	0.74818	0.01051
56	24.999	805.839	0.72987	-0.00767
57	24.999	811.030	1.37875	0.05160
58	24.999	811.755	1.46942	0.14109
59	24.999	810.839	1.35492	0.02809
60	24.999	810.384	1.29800	-0.02809
61	24.999	811.066	1.38320	0.05600
62	24.999	809.464	1.18303	-0.14155
63	24.999	809.735	1.21685	-0.10818
64	24.999	810.017	1.25214	-0.07335
65	24.999	814.606	1.82578	0.14630
66	24.999	813.221	1.65266	-0.02397
67	24.999	813.129	1.64108	-0.03536
68	24.999	813.611	1.70141	0.02397
69	24.999	814.340	1.79247	0.11353
70	24.999	812.541	1.56765	-0.10758
71	24.999	813.639	1.70490	0.02741
72	24.999	812.758	1.59478	-0.08090
73	24.999	805.061	0.63265	-0.23299
74	24.999	807.258	0.90729	0.03928
75	24.999	807.019	0.87733	0.00958
76	24.999	806.928	0.86597	-0.00169

77	24.999	806.955	0.86937	0.00169
78	24.999	807.168	0.89597	0.02805
79	24.999	806.292	0.78656	-0.08041
80	24.999	806.698	0.83720	-0.03021
81	24.999	812.342	1.54276	-0.08467
82	24.999	812.990	1.62380	-0.00493
83	24.999	812.319	1.53991	-0.08748
84	24.999	813.291	1.66132	0.03199
85	24.999	813.071	1.63382	0.00492
86	24.999	811.286	1.41071	-0.21461
87	24.999	813.145	1.64311	0.01407
88	24.999	813.623	1.70291	0.07291
89	24.999	811.003	1.37543	-0.03676
90	24.999	811.458	1.43231	0.01933
91	24.999	811.423	1.42784	0.01493
92	24.999	810.952	1.36903	-0.04306
93	24.999	811.180	1.39756	-0.01493
94	24.999	810.104	1.26305	-0.14757
95	24.999	811.539	1.44241	0.02930
96	24.999	812.360	1.54498	0.13043
97	24.999	807.217	0.90215	-0.18322
98	24.999	808.458	1.05730	-0.02974
99	24.999	808.598	1.07473	-0.01250
100	24.999	808.582	1.07270	-0.01451
101	24.999	808.912	1.11397	0.02632
102	24.999	808.800	1.10000	0.01250
103	24.999	809.509	1.18857	0.10012
104	24.999	809.318	1.16477	0.07658
105	24.999	811.238	1.40475	-0.10024
106	24.999	811.917	1.48959	-0.01667
107	24.999	811.521	1.44008	-0.06544
108	24.999	812.187	1.52343	0.01667
109	24.999	812.318	1.53975	0.03275
110	24.999	811.713	1.46409	-0.04179
111	24.999	812.809	1.60108	0.09317
112	24.999	812.849	1.60606	0.09808
113	24.999	810.466	1.30820	0.08814
114	24.999	811.212	1.40149	0.18030
115	24.999	809.002	1.12526	-0.09260
116	24.999	810.237	1.27961	0.05989
117	24.999	808.949	1.11861	-0.09916
118	24.999	808.719	1.08993	-0.12750
119	24.999	809.267	1.15836	-0.05989
120	24.999	810.443	1.30538	0.08535
121	24.999	810.208	1.27598	-0.02372
122	24.999	811.993	1.49911	0.19656
123	24.999	810.673	1.33418	0.03374
124	24.999	809.970	1.24619	-0.05312

125	24.999	810.279	1.28487	-0.01494
126	24.999	810.411	1.30141	0.00139
127	24.999	810.389	1.29859	-0.00139
128	24.999	810.461	1.30769	0.00758
129	24.999	807.928	0.99094	-0.00388
130	24.999	807.458	0.93223	-0.06202
131	24.999	807.331	0.91634	-0.07776
132	24.999	808.414	1.05178	0.05635
133	24.999	807.990	0.99879	0.00388
134	24.999	808.266	1.03322	0.03798
135	24.999	808.286	1.03581	0.04054
136	24.999	807.219	0.90240	-0.09156
137	24.999	810.343	1.29288	-0.01210
138	24.999	811.051	1.38142	0.07530
139	24.999	810.628	1.32855	0.02311
140	24.999	811.317	1.41457	0.10803
141	24.999	810.539	1.31740	0.01210
142	24.999	810.015	1.25191	-0.05254
143	24.999	810.336	1.29202	-0.01295
144	24.999	810.093	1.26164	-0.04293
145	24.999	809.304	1.16306	0.02503
146	24.999	807.407	0.92592	-0.20944
147	24.999	808.850	1.10624	-0.03115
148	24.999	810.547	1.31839	0.17862
149	24.999	806.943	0.86781	-0.26689
150	24.999	808.899	1.11243	-0.02502
151	24.999	809.401	1.17516	0.03699
152	24.999	809.339	1.16734	0.02926
153	24.999	806.979	0.87241	-0.10541
154	24.999	808.681	1.08508	0.10520
155	24.999	807.862	0.98275	0.00386
156	24.999	808.299	1.03741	0.05799
157	24.999	808.203	1.02534	0.04604
158	24.999	807.800	0.97495	-0.00386
159	24.999	807.265	0.90815	-0.07002
160	24.999	807.650	0.95621	-0.02242
161	24.999	813.051	1.63142	-0.00596
162	24.999	811.985	1.49812	-0.13711
163	24.999	812.748	1.59348	-0.04330
164	24.999	813.148	1.64355	0.00597
165	24.999	812.774	1.59676	-0.04007
166	24.999	813.612	1.70146	0.06295
167	24.999	813.292	1.66154	0.02367
168	24.999	813.471	1.68383	0.04560
	MEAN:	810.369	1.29613	
WORST CASE CHN:			36	26

GAIN ACCURACY SPECIFICATION (< 2.00000%)
PASSED

GAIN SIMILARITY SPECIFICATION (< 2.00000%)
PASSED

ANALYSIS HARMONIC_DISTORTION 6 0.0012

CHAN NO.	FNDMTL FREQ	FIRST FIVE HARMONIC CONTENT (%) 2	3	4	5	6	RMS TOTAL (%)
1	24.999	0.00018	0.00005	0.00004	0.00003	0.00004	0.00020
2	24.999	0.00017	0.00005	0.00004	0.00005	0.00005	0.00020
3	24.999	0.00019	0.00004	0.00004	0.00003	0.00005	0.00021
4	24.999	0.00017	0.00005	0.00004	0.00001	0.00005	0.00019
5	24.999	0.00018	0.00003	0.00004	0.00003	0.00003	0.00020
6	24.999	0.00018	0.00005	0.00004	0.00003	0.00003	0.00020
7	24.999	0.00018	0.00004	0.00005	0.00003	0.00005	0.00020
8	24.999	0.00018	0.00005	0.00004	0.00001	0.00003	0.00020
9	24.999	0.00015	0.00005	0.00002	0.00004	0.00005	0.00018
10	24.999	0.00014	0.00005	0.00004	0.00005	0.00004	0.00017
11	24.999	0.00014	0.00004	0.00003	0.00004	0.00004	0.00017
12	24.999	0.00013	0.00006	0.00004	0.00004	0.00004	0.00017
13	24.999	0.00016	0.00004	0.00005	0.00004	0.00003	0.00019
14	24.999	0.00013	0.00005	0.00002	0.00005	0.00005	0.00016
15	24.999	0.00015	0.00004	0.00003	0.00004	0.00004	0.00018
16	24.999	0.00016	0.00005	0.00003	0.00003	0.00004	0.00018
17	24.999	0.00010	0.00009	0.00003	0.00004	0.00003	0.00016
18	24.999	0.00010	0.00009	0.00002	0.00004	0.00004	0.00016
19	24.999	0.00009	0.00008	0.00003	0.00007	0.00003	0.00017
20	24.999	0.00008	0.00009	0.00003	0.00004	0.00003	0.00015
21	24.999	0.00014	0.00007	0.00003	0.00004	0.00005	0.00018
22	24.999	0.00015	0.00008	0.00004	0.00004	0.00004	0.00020
23	24.999	0.00013	0.00007	0.00003	0.00003	0.00004	0.00017
24	24.999	0.00012	0.00008	0.00003	0.00009	0.00004	0.00020
25	24.999	0.00018	0.00004	0.00004	0.00004	0.00002	0.00020
26	24.999	0.00020	0.00005	0.00005	0.00005	0.00002	0.00023
27	24.999	0.00020	0.00004	0.00005	0.00004	0.00002	0.00021
28	24.999	0.00019	0.00005	0.00005	0.00007	0.00002	0.00022
29	24.999	0.00019	0.00004	0.00005	0.00005	0.00004	0.00021
30	24.999	0.00020	0.00004	0.00004	0.00005	0.00002	0.00022
31	24.999	0.00019	0.00005	0.00006	0.00005	0.00003	0.00022
32	24.999	0.00020	0.00005	0.00004	0.00005	0.00003	0.00022
33	24.999	0.00025	0.00006	0.00003	0.00004	0.00007	0.00028
34	24.999	0.00023	0.00006	0.00004	0.00004	0.00008	0.00026
35	24.999	0.00024	0.00006	0.00004	0.00003	0.00008	0.00027
36	24.999	0.00022	0.00006	0.00004	0.00005	0.00008	0.00025
37	24.999	0.00024	0.00007	0.00005	0.00004	0.00008	0.00027
38	24.999	0.00025	0.00004	0.00005	0.00004	0.00007	0.00027
39	24.999	0.00023	0.00005	0.00004	0.00005	0.00005	0.00026
40	24.999	0.00022	0.00006	0.00003	0.00004	0.00007	0.00025
41	24.999	0.00011	0.00006	0.00004	0.00005	0.00003	0.00015
42	24.999	0.00010	0.00007	0.00004	0.00005	0.00003	0.00015
43	24.999	0.00012	0.00008	0.00003	0.00006	0.00003	0.00017
44	24.999	0.00012	0.00006	0.00004	0.00006	0.00003	0.00017
45	24.999	0.00015	0.00007	0.00004	0.00006	0.00003	0.00019
46	24.999	0.00013	0.00008	0.00004	0.00007	0.00003	0.00018
47	24.999	0.00012	0.00006	0.00005	0.00006	0.00007	0.00018

48	24.999	0.00012	0.00007	0.00004	0.00005	0.00005	0.00017
49	24.999	0.00013	0.00008	0.00006	0.00004	0.00004	0.00018
50	24.999	0.00013	0.00009	0.00004	0.00005	0.00006	0.00019
51	24.999	0.00013	0.00007	0.00005	0.00004	0.00006	0.00018
52	24.999	0.00012	0.00007	0.00006	0.00004	0.00005	0.00017
53	24.999	0.00015	0.00007	0.00006	0.00004	0.00005	0.00019
54	24.999	0.00019	0.00008	0.00009	0.00003	0.00004	0.00023
55	24.999	0.00013	0.00007	0.00006	0.00005	0.00006	0.00018
56	24.999	0.00014	0.00006	0.00007	0.00004	0.00005	0.00018
57	24.999	0.00016	0.00005	0.00006	0.00007	0.00003	0.00020
58	24.999	0.00015	0.00006	0.00004	0.00006	0.00003	0.00019
59	24.999	0.00014	0.00005	0.00005	0.00007	0.00003	0.00019
60	24.999	0.00014	0.00004	0.00005	0.00005	0.00003	0.00018
61	24.999	0.00013	0.00005	0.00006	0.00007	0.00005	0.00019
62	24.999	0.00019	0.00005	0.00004	0.00008	0.00004	0.00023
63	24.999	0.00020	0.00004	0.00005	0.00008	0.00004	0.00023
64	24.999	0.00017	0.00005	0.00005	0.00004	0.00003	0.00020
65	24.999	0.00010	0.00004	0.00005	0.00005	0.00005	0.00015
66	24.999	0.00011	0.00005	0.00006	0.00005	0.00005	0.00015
67	24.999	0.00009	0.00004	0.00005	0.00005	0.00006	0.00014
68	24.999	0.00007	0.00005	0.00004	0.00004	0.00006	0.00013
69	24.999	0.00011	0.00005	0.00005	0.00003	0.00005	0.00015
70	24.999	0.00010	0.00006	0.00005	0.00004	0.00005	0.00015
71	24.999	0.00010	0.00005	0.00004	0.00004	0.00005	0.00014
72	24.999	0.00010	0.00006	0.00005	0.00005	0.00006	0.00016
73	24.999	0.00012	0.00007	0.00006	0.00005	0.00005	0.00017
74	24.999	0.00012	0.00008	0.00005	0.00004	0.00004	0.00017
75	24.999	0.00012	0.00007	0.00005	0.00005	0.00005	0.00016
76	24.999	0.00010	0.00008	0.00006	0.00005	0.00004	0.00016
77	24.999	0.00015	0.00007	0.00005	0.00004	0.00005	0.00019
78	24.999	0.00014	0.00006	0.00006	0.00004	0.00004	0.00017
79	24.999	0.00016	0.00008	0.00005	0.00005	0.00004	0.00019
80	24.999	0.00012	0.00007	0.00005	0.00004	0.00005	0.00016
81	24.999	0.00014	0.00007	0.00003	0.00005	0.00003	0.00018
82	24.999	0.00015	0.00007	0.00004	0.00004	0.00004	0.00018
83	24.999	0.00015	0.00007	0.00005	0.00005	0.00004	0.00019
84	24.999	0.00013	0.00007	0.00004	0.00004	0.00004	0.00017
85	24.999	0.00014	0.00008	0.00005	0.00005	0.00004	0.00018
86	24.999	0.00014	0.00007	0.00004	0.00003	0.00003	0.00017
87	24.999	0.00014	0.00007	0.00005	0.00003	0.00005	0.00018
88	24.999	0.00014	0.00007	0.00005	0.00003	0.00004	0.00018
89	24.999	0.00013	0.00004	0.00004	0.00009	0.00004	0.00018
90	24.999	0.00015	0.00004	0.00005	0.00009	0.00004	0.00019
91	24.999	0.00013	0.00005	0.00004	0.00008	0.00004	0.00018
92	24.999	0.00012	0.00003	0.00005	0.00008	0.00004	0.00017
93	24.999	0.00012	0.00005	0.00004	0.00008	0.00002	0.00017
94	24.999	0.00017	0.00003	0.00005	0.00009	0.00005	0.00021
95	24.999	0.00014	0.00004	0.00006	0.00007	0.00004	0.00019
96	24.999	0.00013	0.00004	0.00006	0.00009	0.00004	0.00019
97	24.999	0.00015	0.00006	0.00006	0.00005	0.00005	0.00019
98	24.999	0.00015	0.00007	0.00006	0.00006	0.00004	0.00019
99	24.999	0.00016	0.00006	0.00006	0.00004	0.00003	0.00019
100	24.999	0.00015	0.00005	0.00005	0.00004	0.00003	0.00018
101	24.999	0.00017	0.00006	0.00006	0.00006	0.00004	0.00021

102	24.999	0.00018	0.00005	0.00004	0.00005	0.00003	0.00020
103	24.999	0.00017	0.00006	0.00006	0.00004	0.00004	0.00020
104	24.999	0.00015	0.00006	0.00006	0.00005	0.00004	0.00018
105	24.999	0.00014	0.00006	0.00006	0.00004	0.00005	0.00018
106	24.999	0.00014	0.00006	0.00006	0.00003	0.00006	0.00019
107	24.999	0.00014	0.00005	0.00006	0.00003	0.00006	0.00018
108	24.999	0.00014	0.00005	0.00006	0.00005	0.00005	0.00018
109	24.999	0.00014	0.00005	0.00007	0.00003	0.00007	0.00019
110	24.999	0.00014	0.00006	0.00006	0.00003	0.00006	0.00018
111	24.999	0.00013	0.00005	0.00006	0.00005	0.00006	0.00018
112	24.999	0.00014	0.00005	0.00006	0.00003	0.00006	0.00018
113	24.999	0.00012	0.00008	0.00005	0.00004	0.00006	0.00018
114	24.999	0.00012	0.00007	0.00005	0.00005	0.00006	0.00018
115	24.999	0.00014	0.00006	0.00006	0.00004	0.00006	0.00018
116	24.999	0.00013	0.00008	0.00005	0.00005	0.00006	0.00018
117	24.999	0.00014	0.00007	0.00006	0.00004	0.00006	0.00019
118	24.999	0.00014	0.00007	0.00003	0.00005	0.00007	0.00018
119	24.999	0.00013	0.00008	0.00006	0.00005	0.00005	0.00019
120	24.999	0.00013	0.00008	0.00005	0.00005	0.00007	0.00019
121	24.999	0.00014	0.00006	0.00005	0.00004	0.00002	0.00017
122	24.999	0.00015	0.00005	0.00006	0.00005	0.00003	0.00019
123	24.999	0.00014	0.00006	0.00005	0.00004	0.00002	0.00017
124	24.999	0.00015	0.00007	0.00005	0.00005	0.00003	0.00018
125	24.999	0.00020	0.00008	0.00004	0.00004	0.00004	0.00023
126	24.999	0.00017	0.00007	0.00006	0.00006	0.00003	0.00021
127	24.999	0.00018	0.00007	0.00007	0.00005	0.00005	0.00022
128	24.999	0.00016	0.00006	0.00005	0.00004	0.00002	0.00019
129	24.999	0.00018	0.00005	0.00002	0.00004	0.00005	0.00020
130	24.999	0.00016	0.00009	0.00002	0.00005	0.00006	0.00021
131	24.999	0.00016	0.00008	0.00002	0.00003	0.00006	0.00021
132	24.999	0.00016	0.00004	0.00002	0.00005	0.00005	0.00019
133	24.999	0.00018	0.00004	0.00002	0.00005	0.00006	0.00022
134	24.999	0.00018	0.00005	0.00001	0.00006	0.00007	0.00021
135	24.999	0.00019	0.00005	0.00002	0.00005	0.00004	0.00022
136	24.999	0.00018	0.00004	0.00002	0.00005	0.00005	0.00021
137	24.999	0.00016	0.00005	0.00004	0.00005	0.00004	0.00019
138	24.999	0.00018	0.00005	0.00003	0.00004	0.00004	0.00020
139	24.999	0.00015	0.00006	0.00004	0.00005	0.00005	0.00018
140	24.999	0.00014	0.00005	0.00004	0.00005	0.00004	0.00017
141	24.999	0.00017	0.00007	0.00006	0.00004	0.00004	0.00021
142	24.999	0.00016	0.00010	0.00005	0.00004	0.00004	0.00021
143	24.999	0.00017	0.00006	0.00004	0.00005	0.00004	0.00021
144	24.999	0.00013	0.00005	0.00003	0.00005	0.00004	0.00017
145	24.999	0.00014	0.00006	0.00004	0.00006	0.00005	0.00017
146	24.999	0.00014	0.00003	0.00004	0.00007	0.00003	0.00018
147	24.999	0.00015	0.00004	0.00005	0.00006	0.00005	0.00019
148	24.999	0.00014	0.00004	0.00004	0.00005	0.00004	0.00017
149	24.999	0.00016	0.00003	0.00005	0.00006	0.00004	0.00019
150	24.999	0.00017	0.00005	0.00005	0.00006	0.00004	0.00021
151	24.999	0.00016	0.00005	0.00004	0.00004	0.00005	0.00019
152	24.999	0.00015	0.00004	0.00003	0.00004	0.00004	0.00017
153	24.999	0.00011	0.00007	0.00006	0.00006	0.00006	0.00017
154	24.999	0.00011	0.00007	0.00004	0.00007	0.00006	0.00017
155	24.999	0.00011	0.00008	0.00005	0.00006	0.00007	0.00017

156	24.999	0.00011	0.00007	0.00004	0.00007	0.00007	0.00017
157	24.999	0.00014	0.00008	0.00004	0.00006	0.00008	0.00020
158	24.999	0.00013	0.00007	0.00006	0.00006	0.00008	0.00019
159	24.999	0.00014	0.00008	0.00005	0.00006	0.00007	0.00019
160	24.999	0.00014	0.00008	0.00004	0.00008	0.00007	0.00020
161	24.999	0.00007	0.00006	0.00005	0.00004	0.00003	0.00013
162	24.999	0.00007	0.00007	0.00004	0.00003	0.00003	0.00014
163	24.999	0.00007	0.00007	0.00004	0.00004	0.00003	0.00013
164	24.999	0.00007	0.00007	0.00003	0.00005	0.00003	0.00013
165	24.999	0.00010	0.00007	0.00004	0.00005	0.00002	0.00015
166	24.999	0.00012	0.00006	0.00004	0.00004	0.00003	0.00016
167	24.999	0.00010	0.00007	0.00003	0.00005	0.00003	0.00015
168	24.999	0.00009	0.00008	0.00004	0.00010	0.00005	0.00018
						MEAN:	0.00019
					WORST CASE CHN:		33

HARMONIC DISTORTION SPECIFICATION (< 0.00120 %)
PASSED

FILE 1026

ANALYSIS PHASE 0.1

CHAN	TEST FREQ (HZ)	SIMILARITY (DEGREE)
1	24.999	-0.00006
2	24.999	-0.00006
3	24.999	0.00000
4	24.999	0.00003
5	24.999	-0.00003
6	24.999	0.00000
7	24.999	0.00003
8	24.999	0.00003
9	24.999	-0.00005
10	24.999	-0.00002
11	24.999	-0.00002
12	24.999	0.00005
13	24.999	0.00005
14	24.999	-0.00002
15	24.999	0.00005
16	24.999	0.00002
17	24.999	-0.00005
18	24.999	-0.00002
19	24.999	-0.00002
20	24.999	0.00002
21	24.999	-0.00005
22	24.999	0.00002
23	24.999	0.00008
24	24.999	0.00011
25	24.999	0.00000
26	24.999	-0.00006
27	24.999	0.00003
28	24.999	-0.00003

29	24.999	0.00003
30	24.999	-0.00003
31	24.999	0.00000
32	24.999	0.00000
33	24.999	-0.00002
34	24.999	-0.00002
35	24.999	0.00008
36	24.999	0.00002
37	24.999	0.00002
38	24.999	0.00002
39	24.999	-0.00005
40	24.999	-0.00002
41	24.999	0.00003
42	24.999	-0.00006
43	24.999	0.00003
44	24.999	0.00000
45	24.999	0.00000
46	24.999	-0.00006
47	24.999	-0.00006
48	24.999	0.00003
49	24.999	0.00000
50	24.999	0.00003
51	24.999	0.00006
52	24.999	0.00000
53	24.999	-0.00006
54	24.999	-0.00003
55	24.999	0.00000
56	24.999	0.00003
57	24.999	-0.00005
58	24.999	0.00005
59	24.999	-0.00005
60	24.999	0.00002
61	24.999	-0.00002
62	24.999	0.00014
63	24.999	-0.00005
64	24.999	0.00002
65	24.999	0.00005
66	24.999	-0.00002
67	24.999	-0.00002
68	24.999	0.00011
69	24.999	-0.00002
70	24.999	-0.00002
71	24.999	0.00002
72	24.999	0.00008
73	24.999	0.00006
74	24.999	0.00003
75	24.999	-0.00006
76	24.999	-0.00003

77	24.999	0.00006
78	24.999	0.00006
79	24.999	-0.00003
80	24.999	-0.00003
81	24.999	-0.00008
82	24.999	-0.00002
83	24.999	-0.00011
84	24.999	0.00005
85	24.999	0.00002
86	24.999	0.00002
87	24.999	-0.00002
88	24.999	0.00005
89	24.999	0.00005
90	24.999	0.00002
91	24.999	-0.00008
92	24.999	0.00002
93	24.999	0.00002
94	24.999	-0.00008
95	24.999	-0.00002
96	24.999	-0.00005
97	24.999	0.00000
98	24.999	0.00000
99	24.999	0.00006
100	24.999	-0.00006
101	24.999	0.00006
102	24.999	-0.00003
103	24.999	-0.00006
104	24.999	0.00006
105	24.999	0.00000
106	24.999	-0.00003
107	24.999	0.00003
108	24.999	0.00003
109	24.999	-0.00003
110	24.999	-0.00003
111	24.999	0.00000
112	24.999	0.00006
113	24.999	0.00000
114	24.999	0.00000
115	24.999	-0.00006
116	24.999	-0.00006
117	24.999	0.00003
118	24.999	0.00003
119	24.999	0.00000
120	24.999	0.00000
121	24.999	0.00002
122	24.999	-0.00002
123	24.999	-0.00002
124	24.999	-0.00002

125	24.999	-0.00002
126	24.999	0.00002
127	24.999	0.00005
128	24.999	0.00002
129	24.999	0.00000
130	24.999	0.00009
131	24.999	-0.00003
132	24.999	0.00009
133	24.999	0.00000
134	24.999	0.00000
135	24.999	0.00000
136	24.999	0.00000
137	24.999	-0.00006
138	24.999	-0.00003
139	24.999	0.00003
140	24.999	0.00006
141	24.999	-0.00003
142	24.999	0.00000
143	24.999	0.00000
144	24.999	0.00003
145	24.999	-0.00002
146	24.999	0.00005
147	24.999	0.00002
148	24.999	-0.00002
149	24.999	0.00005
150	24.999	-0.00002
151	24.999	0.00005
152	24.999	-0.00005
153	24.999	0.00003
154	24.999	0.00003
155	24.999	0.00000
156	24.999	0.00009
157	24.999	-0.00003
158	24.999	-0.00006
159	24.999	0.00000
160	24.999	0.00000
161	24.999	0.00000
162	24.999	0.00003
163	24.999	0.00003
164	24.999	-0.00003
165	24.999	-0.00003
166	24.999	0.00000
167	24.999	0.00000
168	24.999	0.00003

WORST CASE CHN: 62
PHASE SIMILARITY SPECIFICATION (< 0.100 DEG)
PASSED

TEST 22 Gain, THD, Sim X2.5, 2mS, 25Hz

SIGNAL_TYPE SINE 25.000000 800.000000 0.000000 8

FILE 1027
File Date: Sep/25/13 Time: 19:54:35
Sampling Rate: 2000 usec Record Length: 4.096 sec Delay: 48 msec
Preamp Gain: 8 dB Acquisition Filters: OUT OUT

ANALYSIS GAIN 2.6 2.0
INPUT PEAK AMPLITUDE IS 800.000 mV

CHAN NO.	TEST FREQ	PEAK AMPLITUDE (mV)	ACCURACY (%)	SIMILARITY (%)
1	24.999	815.460	1.93254	0.04222
2	24.999	814.784	1.84802	-0.04073
3	24.999	811.974	1.49673	-0.38551
4	24.999	814.236	1.77956	-0.10793
5	24.999	817.457	2.18212	0.28717
6	24.999	815.366	1.92071	0.03060
7	24.999	816.464	2.05797	0.16532
8	24.999	814.867	1.85835	-0.03060
9	24.999	811.721	1.46517	0.01780
10	24.999	807.512	0.93906	-0.50081
11	24.999	810.852	1.35655	-0.08927
12	24.999	815.323	1.91540	0.46160
13	24.999	808.506	1.06327	-0.37837
14	24.999	811.432	1.42905	-0.01781
15	24.999	812.801	1.60012	0.15082
16	24.999	816.116	2.01450	0.55930
17	24.999	812.412	1.55149	-0.34493
18	24.999	815.335	1.91682	0.01358
19	24.999	815.208	1.90105	-0.00189
20	24.999	816.237	2.02963	0.12428
21	24.999	815.239	1.90491	0.00189
22	24.999	817.240	2.15499	0.24730
23	24.999	814.149	1.76857	-0.13190
24	24.999	813.733	1.71657	-0.18294
25	24.999	814.685	1.83563	0.26750
26	24.999	808.040	1.00505	-0.55029
27	24.999	813.197	1.64968	0.08441
28	24.999	814.376	1.79695	0.22941
29	24.999	810.356	1.29444	-0.26536
30	24.999	811.826	1.47822	-0.08441
31	24.999	813.306	1.66322	0.09775
32	24.999	811.166	1.39576	-0.16560
33	24.999	813.418	1.67720	-0.21218
34	24.999	816.935	2.11688	0.21933
35	24.999	814.504	1.81306	-0.07885

36	24.999	817.940	2.24249	0.34260
37	24.999	814.499	1.81234	-0.07956
38	24.999	815.051	1.88132	-0.01185
39	24.999	818.719	2.33984	0.43815
40	24.999	815.244	1.90549	0.01186
41	24.999	813.307	1.66339	-0.18071
42	24.999	813.083	1.63538	-0.20822
43	24.999	812.829	1.60361	-0.23940
44	24.999	814.468	1.80849	-0.03824
45	24.999	816.026	2.00322	0.15295
46	24.999	817.152	2.14396	0.29114
47	24.999	815.542	1.94270	0.09353
48	24.999	815.091	1.88638	0.03823
49	24.999	809.961	1.24514	0.25796
50	24.999	808.033	1.00417	0.01934
51	24.999	805.991	0.74886	-0.23348
52	24.999	808.737	1.09209	0.10640
53	24.999	809.443	1.18043	0.19388
54	24.999	807.218	0.90227	-0.08157
55	24.999	807.173	0.89657	-0.08721
56	24.999	807.721	0.96511	-0.01934
57	24.999	815.361	1.92015	0.14965
58	24.999	814.969	1.87111	0.10146
59	24.999	814.401	1.80017	0.03176
60	24.999	813.884	1.73553	-0.03176
61	24.999	815.363	1.92043	0.14992
62	24.999	812.690	1.58624	-0.17846
63	24.999	812.761	1.59518	-0.16968
64	24.999	813.313	1.66406	-0.10199
65	24.999	818.286	2.28574	0.16049
66	24.999	817.253	2.15659	0.03403
67	24.999	817.008	2.12605	0.00412
68	24.999	816.941	2.11764	-0.00412
69	24.999	817.031	2.12893	0.00694
70	24.999	815.985	1.99814	-0.12113
71	24.999	816.578	2.07223	-0.04858
72	24.999	816.067	2.00840	-0.11108
73	24.999	808.049	1.00607	-0.36438
74	24.999	810.143	1.26787	-0.10613
75	24.999	811.902	1.48781	0.11083
76	24.999	812.045	1.50568	0.12845
77	24.999	809.526	1.19070	-0.18225
78	24.999	811.395	1.42437	0.04825
79	24.999	811.521	1.44018	0.06384
80	24.999	810.612	1.32655	-0.04825
81	24.999	814.729	1.84108	-0.10015
82	24.999	818.355	2.29436	0.34449
83	24.999	812.382	1.54775	-0.38789

84	24.999	816.082	2.01025	0.06579
85	24.999	815.009	1.87610	-0.06580
86	24.999	812.164	1.52049	-0.41463
87	24.999	817.062	2.13273	0.18594
88	24.999	816.350	2.04377	0.09868
89	24.999	813.883	1.73540	-0.00486
90	24.999	812.945	1.61811	-0.12014
91	24.999	813.962	1.74529	0.00487
92	24.999	814.734	1.84178	0.09971
93	24.999	813.690	1.71126	-0.02859
94	24.999	811.633	1.45409	-0.28136
95	24.999	814.589	1.82365	0.08188
96	24.999	817.846	2.23081	0.48208
97	24.999	809.862	1.23274	-0.17139
98	24.999	810.668	1.33347	-0.07206
99	24.999	811.837	1.47961	0.07206
100	24.999	810.637	1.32964	-0.07584
101	24.999	812.687	1.58583	0.17680
102	24.999	808.704	1.08800	-0.31412
103	24.999	813.566	1.69578	0.28523
104	24.999	812.429	1.55358	0.14500
105	24.999	814.589	1.82358	-0.03731
106	24.999	814.506	1.81323	-0.04747
107	24.999	815.197	1.89959	0.03731
108	24.999	813.830	1.72870	-0.13046
109	24.999	812.814	1.60174	-0.25510
110	24.999	815.854	1.98180	0.11802
111	24.999	815.262	1.90770	0.04527
112	24.999	815.825	1.97812	0.11440
113	24.999	811.701	1.46256	-0.02558
114	24.999	815.335	1.91685	0.42205
115	24.999	812.116	1.51449	0.02558
116	24.999	812.498	1.56220	0.07260
117	24.999	809.318	1.16473	-0.31904
118	24.999	810.771	1.34641	-0.14003
119	24.999	810.490	1.31129	-0.17463
120	24.999	813.507	1.68839	0.19693
121	24.999	813.755	1.71936	-0.02967
122	24.999	814.121	1.76517	0.01535
123	24.999	814.799	1.84987	0.09859
124	24.999	814.415	1.80183	0.05139
125	24.999	815.257	1.90709	0.15483
126	24.999	812.903	1.61292	-0.13429
127	24.999	811.842	1.48026	-0.26466
128	24.999	813.871	1.73393	-0.01535
129	24.999	812.532	1.56647	0.19987
130	24.999	810.424	1.30296	-0.06009
131	24.999	809.380	1.17256	-0.18874

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132     24.999       811.125      1.39059        0.02636
133     24.999       810.697      1.33717       -0.02635
134     24.999       811.562      1.44524        0.08027
135     24.999       812.374      1.54678        0.18044
136     24.999       810.382      1.29780       -0.06519

137     24.999       813.416      1.67702       -0.03731
138     24.999       814.873      1.85909        0.14169
139     24.999       812.256      1.53204       -0.17984
140     24.999       811.443      1.43042       -0.27975
141     24.999       815.117      1.88966        0.17174
142     24.999       814.516      1.81454        0.09790
143     24.999       811.066      1.38326       -0.32612
144     24.999       814.023      1.75292        0.03732

145     24.999       812.575      1.57188        0.19093
146     24.999       809.280      1.16003       -0.21531
147     24.999       810.208      1.27600       -0.10092
148     24.999       813.543      1.69283        0.31025
149     24.999       807.220      0.90254       -0.46930
150     24.999       811.780      1.47253        0.09294
151     24.999       810.273      1.28409       -0.09294
152     24.999       812.015      1.50192        0.12193

153     24.999       808.573      1.07165       -0.39658
154     24.999       812.797      1.59956        0.12367
155     24.999       812.315      1.53941        0.06438
156     24.999       811.586      1.44830       -0.02540
157     24.999       813.164      1.64548        0.16892
158     24.999       810.936      1.36697       -0.10555
159     24.999       811.999      1.49984        0.02539
160     24.999       809.958      1.24480       -0.22595

161     24.999       815.597      1.94968       -0.07219
162     24.999       813.392      1.67405       -0.34236
163     24.999       814.350      1.79373       -0.22505
164     24.999       816.273      2.03408        0.01053
165     24.999       818.337      2.29213        0.26346
166     24.999       817.874      2.23428        0.20676
167     24.999       817.128      2.14105        0.11538
168     24.999       816.101      2.01260       -0.01053
          MEAN:      813.246      1.65580
WORST CASE CHN:                     39             16
GAIN ACCURACY SPECIFICATION ( <  2.60000% )
PASSED
GAIN SIMILARITY SPECIFICATION ( <  2.00000% )
PASSED

ANALYSIS HARMONIC_DISTORTION 6 0.0012
CHAN  FNDMTL             FIRST FIVE HARMONIC CONTENT (%)         RMS
TOTAL (%)
 NO.   FREQ       2         3         4         5         6
  1   24.999   0.00017   0.00005   0.00004   0.00003   0.00005   0.00020
  2   24.999   0.00019   0.00005   0.00004   0.00003   0.00006   0.00022
```

3	24.999	0.00019	0.00007	0.00004	0.00003	0.00006	0.00022
4	24.999	0.00018	0.00006	0.00005	0.00003	0.00006	0.00021
5	24.999	0.00018	0.00005	0.00004	0.00002	0.00005	0.00021
6	24.999	0.00018	0.00006	0.00004	0.00003	0.00005	0.00021
7	24.999	0.00016	0.00005	0.00004	0.00002	0.00005	0.00019
8	24.999	0.00018	0.00007	0.00005	0.00003	0.00005	0.00022
9	24.999	0.00014	0.00005	0.00005	0.00005	0.00003	0.00017
10	24.999	0.00016	0.00004	0.00004	0.00005	0.00004	0.00018
11	24.999	0.00015	0.00004	0.00005	0.00005	0.00004	0.00018
12	24.999	0.00016	0.00003	0.00005	0.00006	0.00003	0.00018
13	24.999	0.00015	0.00004	0.00004	0.00006	0.00004	0.00018
14	24.999	0.00014	0.00004	0.00004	0.00006	0.00003	0.00017
15	24.999	0.00014	0.00003	0.00005	0.00005	0.00004	0.00017
16	24.999	0.00016	0.00006	0.00005	0.00006	0.00004	0.00019
17	24.999	0.00009	0.00007	0.00004	0.00003	0.00003	0.00015
18	24.999	0.00012	0.00006	0.00004	0.00004	0.00004	0.00016
19	24.999	0.00012	0.00006	0.00004	0.00004	0.00004	0.00017
20	24.999	0.00016	0.00007	0.00004	0.00004	0.00003	0.00020
21	24.999	0.00009	0.00007	0.00004	0.00004	0.00003	0.00014
22	24.999	0.00008	0.00005	0.00006	0.00004	0.00002	0.00013
23	24.999	0.00007	0.00008	0.00004	0.00003	0.00003	0.00014
24	24.999	0.00008	0.00007	0.00004	0.00003	0.00003	0.00014
25	24.999	0.00020	0.00005	0.00006	0.00009	0.00005	0.00024
26	24.999	0.00020	0.00006	0.00006	0.00008	0.00005	0.00024
27	24.999	0.00020	0.00007	0.00006	0.00009	0.00005	0.00024
28	24.999	0.00020	0.00005	0.00006	0.00009	0.00004	0.00025
29	24.999	0.00020	0.00007	0.00006	0.00009	0.00005	0.00025
30	24.999	0.00019	0.00008	0.00006	0.00009	0.00005	0.00024
31	24.999	0.00019	0.00007	0.00006	0.00009	0.00005	0.00024
32	24.999	0.00020	0.00005	0.00006	0.00009	0.00005	0.00024
33	24.999	0.00019	0.00007	0.00006	0.00002	0.00004	0.00022
34	24.999	0.00018	0.00005	0.00006	0.00002	0.00004	0.00020
35	24.999	0.00019	0.00005	0.00006	0.00002	0.00005	0.00021
36	24.999	0.00019	0.00006	0.00007	0.00002	0.00004	0.00022
37	24.999	0.00019	0.00005	0.00006	0.00003	0.00005	0.00021
38	24.999	0.00019	0.00005	0.00006	0.00002	0.00005	0.00022
39	24.999	0.00016	0.00005	0.00007	0.00002	0.00005	0.00019
40	24.999	0.00017	0.00005	0.00006	0.00002	0.00004	0.00020
41	24.999	0.00019	0.00008	0.00006	0.00005	0.00003	0.00023
42	24.999	0.00020	0.00008	0.00006	0.00005	0.00003	0.00023
43	24.999	0.00019	0.00008	0.00006	0.00005	0.00003	0.00023
44	24.999	0.00021	0.00008	0.00006	0.00005	0.00003	0.00024
45	24.999	0.00020	0.00008	0.00006	0.00005	0.00003	0.00023
46	24.999	0.00020	0.00009	0.00006	0.00005	0.00003	0.00024
47	24.999	0.00020	0.00006	0.00005	0.00005	0.00003	0.00023
48	24.999	0.00020	0.00008	0.00005	0.00005	0.00003	0.00024
49	24.999	0.00015	0.00008	0.00003	0.00006	0.00006	0.00020
50	24.999	0.00016	0.00009	0.00003	0.00006	0.00007	0.00022
51	24.999	0.00019	0.00008	0.00003	0.00006	0.00007	0.00023
52	24.999	0.00019	0.00007	0.00002	0.00006	0.00007	0.00023
53	24.999	0.00015	0.00008	0.00003	0.00006	0.00007	0.00020
54	24.999	0.00014	0.00007	0.00002	0.00006	0.00006	0.00019
55	24.999	0.00015	0.00008	0.00003	0.00006	0.00007	0.00020
56	24.999	0.00017	0.00009	0.00003	0.00006	0.00007	0.00022

57	24.999	0.00019	0.00003	0.00004	0.00004	0.00004	0.00022
58	24.999	0.00019	0.00003	0.00003	0.00005	0.00004	0.00022
59	24.999	0.00020	0.00004	0.00003	0.00005	0.00004	0.00023
60	24.999	0.00020	0.00003	0.00003	0.00005	0.00004	0.00022
61	24.999	0.00018	0.00003	0.00003	0.00004	0.00004	0.00020
62	24.999	0.00017	0.00003	0.00003	0.00005	0.00004	0.00019
63	24.999	0.00017	0.00003	0.00003	0.00005	0.00003	0.00019
64	24.999	0.00016	0.00003	0.00003	0.00005	0.00003	0.00018
65	24.999	0.00009	0.00003	0.00004	0.00003	0.00004	0.00012
66	24.999	0.00007	0.00005	0.00004	0.00003	0.00004	0.00012
67	24.999	0.00008	0.00005	0.00004	0.00003	0.00004	0.00012
68	24.999	0.00008	0.00004	0.00004	0.00004	0.00004	0.00012
69	24.999	0.00008	0.00004	0.00004	0.00004	0.00004	0.00012
70	24.999	0.00007	0.00006	0.00004	0.00003	0.00003	0.00012
71	24.999	0.00008	0.00005	0.00003	0.00003	0.00004	0.00012
72	24.999	0.00008	0.00004	0.00004	0.00003	0.00004	0.00012
73	24.999	0.00011	0.00004	0.00009	0.00005	0.00003	0.00016
74	24.999	0.00014	0.00004	0.00008	0.00005	0.00003	0.00018
75	24.999	0.00015	0.00004	0.00008	0.00005	0.00003	0.00019
76	24.999	0.00018	0.00004	0.00007	0.00005	0.00003	0.00021
77	24.999	0.00010	0.00004	0.00007	0.00006	0.00003	0.00015
78	24.999	0.00009	0.00003	0.00007	0.00005	0.00002	0.00014
79	24.999	0.00010	0.00004	0.00007	0.00005	0.00003	0.00015
80	24.999	0.00010	0.00005	0.00008	0.00005	0.00003	0.00016
81	24.999	0.00014	0.00009	0.00003	0.00004	0.00008	0.00020
82	24.999	0.00016	0.00009	0.00004	0.00005	0.00007	0.00021
83	24.999	0.00015	0.00009	0.00003	0.00004	0.00008	0.00021
84	24.999	0.00017	0.00008	0.00003	0.00004	0.00007	0.00022
85	24.999	0.00015	0.00007	0.00004	0.00004	0.00008	0.00020
86	24.999	0.00013	0.00017	0.00005	0.00004	0.00007	0.00024
87	24.999	0.00013	0.00008	0.00003	0.00004	0.00008	0.00019
88	24.999	0.00015	0.00009	0.00003	0.00004	0.00008	0.00021
89	24.999	0.00010	0.00005	0.00004	0.00006	0.00003	0.00015
90	24.999	0.00010	0.00006	0.00003	0.00006	0.00003	0.00015
91	24.999	0.00010	0.00005	0.00003	0.00006	0.00003	0.00015
92	24.999	0.00011	0.00005	0.00003	0.00006	0.00003	0.00016
93	24.999	0.00010	0.00005	0.00004	0.00006	0.00003	0.00014
94	24.999	0.00012	0.00005	0.00004	0.00007	0.00002	0.00016
95	24.999	0.00011	0.00004	0.00003	0.00006	0.00003	0.00015
96	24.999	0.00011	0.00005	0.00004	0.00006	0.00003	0.00015
97	24.999	0.00019	0.00007	0.00003	0.00004	0.00005	0.00022
98	24.999	0.00019	0.00007	0.00003	0.00004	0.00004	0.00022
99	24.999	0.00020	0.00007	0.00003	0.00004	0.00005	0.00023
100	24.999	0.00020	0.00006	0.00003	0.00004	0.00005	0.00023
101	24.999	0.00020	0.00007	0.00003	0.00004	0.00005	0.00023
102	24.999	0.00019	0.00007	0.00002	0.00004	0.00004	0.00022
103	24.999	0.00019	0.00007	0.00003	0.00004	0.00005	0.00022
104	24.999	0.00020	0.00006	0.00003	0.00004	0.00005	0.00023
105	24.999	0.00012	0.00003	0.00005	0.00005	0.00004	0.00015
106	24.999	0.00013	0.00003	0.00005	0.00005	0.00004	0.00016
107	24.999	0.00013	0.00003	0.00005	0.00005	0.00004	0.00016
108	24.999	0.00012	0.00003	0.00005	0.00005	0.00004	0.00016
109	24.999	0.00013	0.00003	0.00005	0.00005	0.00004	0.00016
110	24.999	0.00014	0.00003	0.00005	0.00006	0.00004	0.00017

111	24.999	0.00013	0.00003	0.00005	0.00006	0.00004	0.00016
112	24.999	0.00015	0.00003	0.00005	0.00005	0.00003	0.00017
113	24.999	0.00011	0.00005	0.00004	0.00007	0.00003	0.00015
114	24.999	0.00010	0.00004	0.00004	0.00007	0.00003	0.00015
115	24.999	0.00012	0.00005	0.00004	0.00007	0.00004	0.00017
116	24.999	0.00012	0.00004	0.00005	0.00007	0.00004	0.00016
117	24.999	0.00012	0.00005	0.00004	0.00008	0.00003	0.00016
118	24.999	0.00011	0.00005	0.00004	0.00007	0.00003	0.00016
119	24.999	0.00011	0.00005	0.00004	0.00008	0.00003	0.00016
120	24.999	0.00010	0.00005	0.00004	0.00007	0.00003	0.00015
121	24.999	0.00009	0.00005	0.00006	0.00006	0.00006	0.00016
122	24.999	0.00009	0.00005	0.00007	0.00006	0.00006	0.00016
123	24.999	0.00007	0.00005	0.00006	0.00005	0.00005	0.00014
124	24.999	0.00008	0.00003	0.00006	0.00006	0.00005	0.00014
125	24.999	0.00010	0.00004	0.00006	0.00005	0.00006	0.00015
126	24.999	0.00010	0.00004	0.00006	0.00005	0.00006	0.00016
127	24.999	0.00009	0.00004	0.00006	0.00006	0.00006	0.00016
128	24.999	0.00008	0.00003	0.00006	0.00006	0.00006	0.00014
129	24.999	0.00014	0.00006	0.00004	0.00006	0.00005	0.00018
130	24.999	0.00016	0.00006	0.00003	0.00007	0.00005	0.00020
131	24.999	0.00016	0.00006	0.00003	0.00006	0.00005	0.00019
132	24.999	0.00017	0.00005	0.00004	0.00006	0.00005	0.00020
133	24.999	0.00015	0.00006	0.00003	0.00006	0.00004	0.00019
134	24.999	0.00015	0.00006	0.00004	0.00006	0.00005	0.00019
135	24.999	0.00015	0.00006	0.00003	0.00006	0.00005	0.00019
136	24.999	0.00016	0.00006	0.00003	0.00006	0.00006	0.00019
137	24.999	0.00012	0.00006	0.00004	0.00003	0.00001	0.00015
138	24.999	0.00012	0.00006	0.00004	0.00003	0.00002	0.00015
139	24.999	0.00011	0.00005	0.00004	0.00003	0.00002	0.00014
140	24.999	0.00011	0.00006	0.00004	0.00004	0.00001	0.00014
141	24.999	0.00011	0.00005	0.00004	0.00003	0.00002	0.00014
142	24.999	0.00011	0.00006	0.00004	0.00003	0.00002	0.00014
143	24.999	0.00012	0.00006	0.00004	0.00003	0.00002	0.00015
144	24.999	0.00012	0.00006	0.00004	0.00003	0.00001	0.00014
145	24.999	0.00008	0.00007	0.00005	0.00005	0.00003	0.00014
146	24.999	0.00008	0.00007	0.00004	0.00005	0.00003	0.00013
147	24.999	0.00009	0.00007	0.00006	0.00005	0.00003	0.00014
148	24.999	0.00010	0.00007	0.00005	0.00005	0.00003	0.00014
149	24.999	0.00010	0.00006	0.00005	0.00004	0.00004	0.00014
150	24.999	0.00008	0.00007	0.00005	0.00005	0.00004	0.00014
151	24.999	0.00009	0.00007	0.00005	0.00004	0.00003	0.00014
152	24.999	0.00008	0.00007	0.00005	0.00005	0.00003	0.00014
153	24.999	0.00019	0.00005	0.00002	0.00003	0.00004	0.00021
154	24.999	0.00019	0.00006	0.00002	0.00003	0.00004	0.00021
155	24.999	0.00017	0.00006	0.00003	0.00004	0.00004	0.00020
156	24.999	0.00020	0.00006	0.00003	0.00004	0.00004	0.00022
157	24.999	0.00019	0.00006	0.00002	0.00004	0.00004	0.00021
158	24.999	0.00020	0.00006	0.00002	0.00004	0.00004	0.00021
159	24.999	0.00019	0.00005	0.00002	0.00004	0.00004	0.00021
160	24.999	0.00019	0.00005	0.00002	0.00003	0.00004	0.00021
161	24.999	0.00014	0.00008	0.00005	0.00005	0.00004	0.00020
162	24.999	0.00014	0.00006	0.00006	0.00005	0.00003	0.00019
163	24.999	0.00015	0.00006	0.00005	0.00005	0.00004	0.00019
164	24.999	0.00018	0.00006	0.00005	0.00005	0.00004	0.00022

165	24.999	0.00013	0.00003	0.00006	0.00005	0.00003	0.00017
166	24.999	0.00013	0.00005	0.00005	0.00005	0.00004	0.00017
167	24.999	0.00013	0.00006	0.00005	0.00005	0.00004	0.00018
168	24.999	0.00012	0.00003	0.00005	0.00005	0.00004	0.00016
						MEAN:	0.00018
					WORST CASE CHN:		28

HARMONIC DISTORTION SPECIFICATION (< 0.00120 %)
PASSED

FILE 1027

ANALYSIS PHASE 0.1

CHAN	TEST FREQ (HZ)	SIMILARITY (DEGREE)
1	24.999	-0.00011
2	24.999	-0.00008
3	24.999	-0.00002
4	24.999	0.00002
5	24.999	-0.00005
6	24.999	0.00002
7	24.999	0.00002
8	24.999	0.00005
9	24.999	-0.00011
10	24.999	-0.00005
11	24.999	-0.00005
12	24.999	0.00008
13	24.999	0.00002
14	24.999	-0.00002
15	24.999	0.00005
16	24.999	0.00002
17	24.999	-0.00005
18	24.999	-0.00002
19	24.999	-0.00002
20	24.999	0.00005
21	24.999	-0.00005
22	24.999	0.00002
23	24.999	0.00011
24	24.999	0.00014
25	24.999	0.00002
26	24.999	-0.00008
27	24.999	0.00002
28	24.999	-0.00005
29	24.999	0.00005
30	24.999	-0.00005
31	24.999	-0.00002
32	24.999	0.00002
33	24.999	-0.00002
34	24.999	-0.00005
35	24.999	0.00011
36	24.999	0.00008

37	24.999	0.00002
38	24.999	0.00002
39	24.999	-0.00008
40	24.999	-0.00005
41	24.999	0.00002
42	24.999	-0.00008
43	24.999	0.00005
44	24.999	0.00002
45	24.999	-0.00002
46	24.999	-0.00008
47	24.999	-0.00011
48	24.999	0.00002
49	24.999	-0.00002
50	24.999	0.00002
51	24.999	0.00011
52	24.999	0.00002
53	24.999	-0.00008
54	24.999	-0.00005
55	24.999	-0.00002
56	24.999	0.00005
57	24.999	-0.00003
58	24.999	0.00009
59	24.999	-0.00003
60	24.999	0.00003
61	24.999	-0.00003
62	24.999	0.00018
63	24.999	-0.00003
64	24.999	0.00006
65	24.999	0.00009
66	24.999	-0.00003
67	24.999	-0.00003
68	24.999	0.00015
69	24.999	-0.00003
70	24.999	-0.00003
71	24.999	0.00003
72	24.999	0.00012
73	24.999	0.00008
74	24.999	0.00005
75	24.999	-0.00011
76	24.999	-0.00005
77	24.999	0.00005
78	24.999	0.00005
79	24.999	-0.00005
80	24.999	-0.00005
81	24.999	-0.00012
82	24.999	-0.00003
83	24.999	-0.00015
84	24.999	0.00009

85	24.999	0.00006
86	24.999	0.00003
87	24.999	-0.00003
88	24.999	0.00006
89	24.999	0.00003
90	24.999	0.00003
91	24.999	-0.00012
92	24.999	0.00006
93	24.999	-0.00012
94	24.999	-0.00009
95	24.999	0.00003
96	24.999	-0.00003
97	24.999	0.00000
98	24.999	0.00000
99	24.999	0.00006
100	24.999	-0.00009
101	24.999	0.00006
102	24.999	-0.00003
103	24.999	-0.00009
104	24.999	0.00006
105	24.999	0.00000
106	24.999	-0.00009
107	24.999	0.00000
108	24.999	0.00000
109	24.999	-0.00009
110	24.999	-0.00006
111	24.999	0.00000
112	24.999	0.00006
113	24.999	-0.00002
114	24.999	0.00002
115	24.999	-0.00008
116	24.999	-0.00011
117	24.999	0.00002
118	24.999	0.00005
119	24.999	0.00002
120	24.999	-0.00002
121	24.999	0.00003
122	24.999	0.00000
123	24.999	0.00000
124	24.999	0.00000
125	24.999	-0.00003
126	24.999	0.00003
127	24.999	0.00006
128	24.999	0.00000
129	24.999	-0.00003
130	24.999	0.00012
131	24.999	-0.00009
132	24.999	0.00012

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133       24.999     0.00000
134       24.999     0.00000
135       24.999     0.00000
136       24.999     0.00000

137       24.999    -0.00009
138       24.999    -0.00003
139       24.999     0.00000
140       24.999     0.00006
141       24.999    -0.00003
142       24.999     0.00000
143       24.999     0.00003
144       24.999     0.00000

145       24.999    -0.00002
146       24.999     0.00008
147       24.999     0.00002
148       24.999    -0.00002
149       24.999     0.00008
150       24.999    -0.00002
151       24.999     0.00005
152       24.999    -0.00008

153       24.999     0.00006
154       24.999     0.00009
155       24.999     0.00000
156       24.999     0.00015
157       24.999    -0.00003
158       24.999    -0.00006
159       24.999     0.00000
160       24.999     0.00000

161       24.999     0.00000
162       24.999     0.00003
163       24.999     0.00000
164       24.999    -0.00006
165       24.999    -0.00006
166       24.999    -0.00003
167       24.999     0.00000
168       24.999     0.00000
WORST CASE CHN:        62
PHASE SIMILARITY SPECIFICATION ( < 0.100 DEG )
PASSED

--------------------------------------------------------------------------
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TEST 23 Gain, THD, Sim X8.5, 2mS, 25Hz

SIGNAL_TYPE SINE 25.000000 225.470642 0.000000 8

FILE 1028
File Date: Sep/25/13   Time: 19:55:05
Sampling Rate:   2000 usec   Record Length:  4.096 sec   Delay:   48 msec
Preamp Gain: 18 dB     Acquisition Filters: OUT  OUT
```

ANALYSIS GAIN 2.1 2.0
INPUT PEAK AMPLITUDE IS 225.471 mV

CHAN NO.	TEST FREQ	PEAK AMPLITUDE (mV)	ACCURACY (%)	SIMILARITY (%)
1	24.999	229.255	1.67843	0.16426
2	24.999	228.918	1.52878	0.01684
3	24.999	228.752	1.45520	-0.05565
4	24.999	228.409	1.30322	-0.20537
5	24.999	229.300	1.69837	0.18390
6	24.999	228.772	1.46407	-0.04691
7	24.999	228.841	1.49460	-0.01683
8	24.999	229.141	1.62764	0.11423
9	24.999	228.313	1.26045	0.07006
10	24.999	227.315	0.81798	-0.36720
11	24.999	228.059	1.14789	-0.04116
12	24.999	228.418	1.30712	0.11619
13	24.999	227.649	0.96621	-0.22072
14	24.999	228.242	1.22898	0.03897
15	24.999	228.064	1.15011	-0.03897
16	24.999	228.822	1.48630	0.29326
17	24.999	228.174	1.19919	-0.38146
18	24.999	229.083	1.60225	0.01530
19	24.999	229.293	1.69512	0.10672
20	24.999	229.697	1.87443	0.28323
21	24.999	228.789	1.47180	-0.11312
22	24.999	229.537	1.80339	0.21330
23	24.999	229.013	1.57117	-0.01530
24	24.999	228.883	1.51323	-0.07233
25	24.999	228.561	1.37047	0.03429
26	24.999	227.503	0.90148	-0.42851
27	24.999	228.983	1.55799	0.21934
28	24.999	228.703	1.43367	0.09666
29	24.999	228.233	1.22512	-0.10914
30	24.999	228.009	1.12595	-0.20701
31	24.999	228.513	1.34931	0.01341
32	24.999	228.452	1.32213	-0.01341
33	24.999	228.911	1.52598	-0.06494
34	24.999	229.364	1.72656	0.13250
35	24.999	229.118	1.61781	0.02546
36	24.999	229.360	1.72508	0.13105
37	24.999	228.401	1.29988	-0.28749
38	24.999	229.032	1.57933	-0.01242
39	24.999	229.088	1.60456	0.01242
40	24.999	228.965	1.54982	-0.04146
41	24.999	228.787	1.47094	-0.06413
42	24.999	228.007	1.12482	-0.40501
43	24.999	228.752	1.45516	-0.07967
44	24.999	229.247	1.67493	0.13678

45	24.999	229.124	1.62018	0.08285
46	24.999	229.010	1.56957	0.03301
47	24.999	228.858	1.50254	-0.03301
48	24.999	229.157	1.63495	0.09740
49	24.999	227.389	0.85097	0.08503
50	24.999	226.782	0.58162	-0.18227
51	24.999	227.301	0.81164	0.04600
52	24.999	227.092	0.71893	-0.04600
53	24.999	227.676	0.97791	0.21101
54	24.999	226.864	0.61789	-0.14628
55	24.999	226.991	0.67445	-0.09014
56	24.999	227.391	0.85159	0.08564
57	24.999	228.908	1.52466	0.08271
58	24.999	228.739	1.44939	0.00851
59	24.999	229.007	1.56831	0.12574
60	24.999	228.226	1.22186	-0.21580
61	24.999	228.700	1.43213	-0.00851
62	24.999	228.402	1.30025	-0.13852
63	24.999	228.405	1.30152	-0.13727
64	24.999	228.788	1.47108	0.02989
65	24.999	229.184	1.64693	-0.00397
66	24.999	229.202	1.65501	0.00397
67	24.999	229.078	1.59986	-0.05027
68	24.999	229.687	1.86991	0.21539
69	24.999	229.397	1.74120	0.08877
70	24.999	229.063	1.59343	-0.05660
71	24.999	229.508	1.79064	0.13741
72	24.999	229.146	1.63007	-0.02055
73	24.999	227.653	0.96790	-0.06305
74	24.999	227.541	0.91806	-0.11238
75	24.999	228.027	1.13397	0.10132
76	24.999	228.111	1.17084	0.13782
77	24.999	227.431	0.86941	-0.16053
78	24.999	229.074	1.59824	0.56085
79	24.999	227.710	0.99315	-0.03806
80	24.999	227.883	1.07005	0.03805
81	24.999	229.290	1.69384	0.07314
82	24.999	229.438	1.75967	0.13793
83	24.999	228.057	1.14688	-0.46510
84	24.999	229.224	1.66474	0.04451
85	24.999	229.020	1.57428	-0.04451
86	24.999	228.459	1.32560	-0.28922
87	24.999	228.982	1.55719	-0.06133
88	24.999	229.298	1.69729	0.07654
89	24.999	228.739	1.44959	-0.00187
90	24.999	228.574	1.37654	-0.07387
91	24.999	228.442	1.31782	-0.13175
92	24.999	228.836	1.49259	0.04052

93	24.999	229.042	1.58393	0.13055
94	24.999	227.885	1.07095	-0.37509
95	24.999	228.748	1.45339	0.00187
96	24.999	229.207	1.65725	0.20282
97	24.999	227.811	1.03781	-0.08846
98	24.999	227.932	1.09182	-0.03505
99	24.999	228.092	1.16272	0.03505
100	24.999	227.682	0.98089	-0.14475
101	24.999	228.515	1.35012	0.22037
102	24.999	226.846	0.61000	-0.51150
103	24.999	228.353	1.27816	0.14921
104	24.999	228.277	1.24485	0.11627
105	24.999	228.929	1.53381	0.04187
106	24.999	228.433	1.31380	-0.17491
107	24.999	229.168	1.64004	0.14654
108	24.999	228.444	1.31890	-0.16988
109	24.999	227.618	0.95234	-0.53106
110	24.999	228.819	1.48519	-0.00603
111	24.999	228.847	1.49745	0.00604
112	24.999	229.184	1.64680	0.15320
113	24.999	228.191	1.20637	-0.03387
114	24.999	228.794	1.47384	0.23032
115	24.999	228.345	1.27496	0.03388
116	24.999	228.393	1.29601	0.05467
117	24.999	227.523	0.91028	-0.32634
118	24.999	228.169	1.19664	-0.04348
119	24.999	227.437	0.87189	-0.36425
120	24.999	228.383	1.29164	0.05036
121	24.999	228.758	1.45810	0.04503
122	24.999	228.771	1.46397	0.05082
123	24.999	228.468	1.32925	-0.08203
124	24.999	228.809	1.48070	0.06731
125	24.999	228.552	1.36677	-0.04503
126	24.999	228.526	1.35517	-0.05647
127	24.999	228.392	1.29564	-0.11517
128	24.999	228.896	1.51919	0.10526
129	24.999	228.074	1.15470	0.07486
130	24.999	227.807	1.03610	-0.04247
131	24.999	227.662	0.97212	-0.10577
132	24.999	228.248	1.23183	0.15117
133	24.999	227.914	1.08359	0.00451
134	24.999	227.933	1.09206	0.01290
135	24.999	227.893	1.07447	-0.00451
136	24.999	227.715	0.99525	-0.08288
137	24.999	228.034	1.13688	-0.08069
138	24.999	228.816	1.48373	0.26199
139	24.999	227.945	1.09732	-0.11977
140	24.999	228.076	1.15545	-0.06234

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141     24.999       228.815      1.48337        0.26163
142     24.999       228.711      1.43712        0.21594
143     24.999       227.057      0.70365       -0.50870
144     24.999       228.360      1.28164        0.06233

145     24.999       228.288      1.24975        0.12127
146     24.999       228.052      1.14494        0.01762
147     24.999       227.470      0.88659       -0.23784
148     24.999       228.464      1.32746        0.19811
149     24.999       227.202      0.76777       -0.35534
150     24.999       227.972      1.10929       -0.01763
151     24.999       227.623      0.95463       -0.17056
152     24.999       228.067      1.15150        0.02411

153     24.999       226.574      0.48923       -0.47735
154     24.999       228.012      1.12698        0.15427
155     24.999       227.566      0.92951       -0.04130
156     24.999       227.427      0.86785       -0.10237
157     24.999       227.974      1.11014        0.13759
158     24.999       228.252      1.23363        0.25989
159     24.999       227.754      1.01292        0.04130
160     24.999       227.337      0.82783       -0.14200

161     24.999       228.817      1.48396       -0.12974
162     24.999       228.573      1.37603       -0.23595
163     24.999       228.718      1.44015       -0.17284
164     24.999       229.064      1.59379       -0.02164
165     24.999       229.667      1.86108        0.24139
166     24.999       229.308      1.70180        0.08464
167     24.999       229.451      1.76556        0.14739
168     24.999       229.163      1.63778        0.02164
          MEAN:      228.439      1.31633
WORST CASE CHN:                     20              78
GAIN ACCURACY SPECIFICATION ( <  2.10000% )
PASSED
GAIN SIMILARITY SPECIFICATION ( <  2.00000% )
PASSED

ANALYSIS HARMONIC_DISTORTION 6 0.0012
CHAN  FNDMTL             FIRST FIVE HARMONIC CONTENT (%)         RMS
TOTAL (%)
 NO.   FREQ       2         3         4         5         6
  1   24.999   0.00022   0.00016   0.00020   0.00026   0.00018   0.00048
  2   24.999   0.00024   0.00016   0.00020   0.00027   0.00017   0.00049
  3   24.999   0.00024   0.00017   0.00019   0.00027   0.00017   0.00049
  4   24.999   0.00022   0.00016   0.00020   0.00027   0.00018   0.00048
  5   24.999   0.00023   0.00015   0.00021   0.00026   0.00017   0.00048
  6   24.999   0.00023   0.00016   0.00020   0.00026   0.00018   0.00048
  7   24.999   0.00022   0.00016   0.00020   0.00027   0.00018   0.00048
  8   24.999   0.00025   0.00015   0.00019   0.00026   0.00018   0.00048
  9   24.999   0.00013   0.00019   0.00015   0.00006   0.00014   0.00032
 10   24.999   0.00014   0.00019   0.00014   0.00006   0.00015   0.00032
 11   24.999   0.00013   0.00019   0.00015   0.00006   0.00015   0.00033
 12   24.999   0.00014   0.00020   0.00015   0.00006   0.00016   0.00034
```

13	24.999	0.00014	0.00019	0.00015	0.00006	0.00014	0.00033
14	24.999	0.00014	0.00019	0.00015	0.00006	0.00015	0.00033
15	24.999	0.00014	0.00019	0.00016	0.00006	0.00015	0.00033
16	24.999	0.00014	0.00019	0.00014	0.00006	0.00015	0.00033
17	24.999	0.00015	0.00010	0.00010	0.00016	0.00017	0.00033
18	24.999	0.00019	0.00009	0.00010	0.00017	0.00017	0.00035
19	24.999	0.00022	0.00010	0.00010	0.00017	0.00017	0.00037
20	24.999	0.00026	0.00010	0.00011	0.00016	0.00017	0.00039
21	24.999	0.00011	0.00009	0.00010	0.00018	0.00016	0.00031
22	24.999	0.00012	0.00011	0.00010	0.00017	0.00017	0.00033
23	24.999	0.00012	0.00011	0.00011	0.00018	0.00016	0.00032
24	24.999	0.00014	0.00010	0.00011	0.00017	0.00016	0.00032
25	24.999	0.00011	0.00008	0.00009	0.00013	0.00008	0.00028
26	24.999	0.00015	0.00008	0.00010	0.00013	0.00008	0.00029
27	24.999	0.00016	0.00008	0.00009	0.00012	0.00008	0.00030
28	24.999	0.00020	0.00008	0.00009	0.00012	0.00008	0.00033
29	24.999	0.00008	0.00007	0.00009	0.00012	0.00007	0.00026
30	24.999	0.00010	0.00007	0.00008	0.00012	0.00008	0.00026
31	24.999	0.00012	0.00008	0.00009	0.00013	0.00008	0.00028
32	24.999	0.00012	0.00008	0.00009	0.00012	0.00007	0.00028
33	24.999	0.00011	0.00015	0.00012	0.00016	0.00013	0.00033
34	24.999	0.00010	0.00015	0.00012	0.00015	0.00013	0.00033
35	24.999	0.00011	0.00016	0.00012	0.00016	0.00012	0.00033
36	24.999	0.00014	0.00016	0.00012	0.00015	0.00013	0.00035
37	24.999	0.00010	0.00014	0.00012	0.00016	0.00013	0.00033
38	24.999	0.00010	0.00016	0.00012	0.00016	0.00013	0.00033
39	24.999	0.00010	0.00015	0.00011	0.00016	0.00013	0.00033
40	24.999	0.00011	0.00016	0.00012	0.00015	0.00013	0.00034
41	24.999	0.00013	0.00006	0.00010	0.00015	0.00010	0.00028
42	24.999	0.00014	0.00005	0.00010	0.00017	0.00010	0.00029
43	24.999	0.00014	0.00005	0.00011	0.00016	0.00010	0.00029
44	24.999	0.00016	0.00005	0.00010	0.00016	0.00010	0.00030
45	24.999	0.00012	0.00005	0.00009	0.00015	0.00011	0.00027
46	24.999	0.00012	0.00005	0.00010	0.00016	0.00010	0.00028
47	24.999	0.00013	0.00006	0.00011	0.00016	0.00010	0.00029
48	24.999	0.00016	0.00006	0.00010	0.00017	0.00010	0.00030
49	24.999	0.00015	0.00019	0.00013	0.00017	0.00014	0.00037
50	24.999	0.00014	0.00019	0.00014	0.00018	0.00014	0.00037
51	24.999	0.00014	0.00020	0.00015	0.00017	0.00014	0.00037
52	24.999	0.00014	0.00019	0.00014	0.00017	0.00014	0.00037
53	24.999	0.00014	0.00019	0.00013	0.00018	0.00014	0.00037
54	24.999	0.00015	0.00019	0.00014	0.00017	0.00014	0.00037
55	24.999	0.00015	0.00019	0.00014	0.00017	0.00014	0.00037
56	24.999	0.00014	0.00019	0.00015	0.00017	0.00014	0.00037
57	24.999	0.00013	0.00014	0.00011	0.00011	0.00008	0.00031
58	24.999	0.00014	0.00013	0.00012	0.00011	0.00007	0.00032
59	24.999	0.00016	0.00013	0.00011	0.00011	0.00007	0.00032
60	24.999	0.00016	0.00013	0.00011	0.00011	0.00007	0.00033
61	24.999	0.00010	0.00014	0.00012	0.00011	0.00007	0.00030
62	24.999	0.00010	0.00012	0.00012	0.00010	0.00008	0.00030
63	24.999	0.00011	0.00013	0.00013	0.00010	0.00008	0.00031
64	24.999	0.00012	0.00013	0.00011	0.00010	0.00007	0.00030
65	24.999	0.00011	0.00008	0.00016	0.00019	0.00021	0.00036
66	24.999	0.00011	0.00008	0.00016	0.00019	0.00021	0.00036

67	24.999	0.00012	0.00008	0.00016	0.00018	0.00021	0.00036
68	24.999	0.00015	0.00009	0.00015	0.00019	0.00021	0.00037
69	24.999	0.00012	0.00013	0.00016	0.00018	0.00021	0.00037
70	24.999	0.00011	0.00011	0.00016	0.00019	0.00021	0.00036
71	24.999	0.00011	0.00009	0.00016	0.00019	0.00021	0.00035
72	24.999	0.00011	0.00009	0.00016	0.00019	0.00020	0.00036
73	24.999	0.00020	0.00017	0.00017	0.00009	0.00021	0.00042
74	24.999	0.00023	0.00019	0.00017	0.00009	0.00022	0.00045
75	24.999	0.00024	0.00017	0.00017	0.00009	0.00021	0.00044
76	24.999	0.00029	0.00018	0.00017	0.00009	0.00021	0.00048
77	24.999	0.00017	0.00018	0.00018	0.00009	0.00022	0.00042
78	24.999	0.00017	0.00019	0.00017	0.00009	0.00021	0.00041
79	24.999	0.00019	0.00019	0.00018	0.00009	0.00022	0.00043
80	24.999	0.00020	0.00018	0.00017	0.00009	0.00021	0.00042
81	24.999	0.00014	0.00024	0.00020	0.00021	0.00016	0.00047
82	24.999	0.00017	0.00024	0.00020	0.00021	0.00016	0.00047
83	24.999	0.00016	0.00024	0.00022	0.00020	0.00016	0.00047
84	24.999	0.00017	0.00025	0.00020	0.00021	0.00017	0.00048
85	24.999	0.00014	0.00023	0.00020	0.00021	0.00017	0.00046
86	24.999	0.00015	0.00025	0.00020	0.00021	0.00017	0.00047
87	24.999	0.00013	0.00024	0.00020	0.00021	0.00016	0.00046
88	24.999	0.00016	0.00024	0.00020	0.00020	0.00016	0.00047
89	24.999	0.00017	0.00014	0.00021	0.00017	0.00017	0.00042
90	24.999	0.00020	0.00014	0.00021	0.00017	0.00016	0.00043
91	24.999	0.00020	0.00014	0.00022	0.00016	0.00016	0.00043
92	24.999	0.00022	0.00014	0.00021	0.00017	0.00016	0.00045
93	24.999	0.00016	0.00013	0.00022	0.00017	0.00016	0.00042
94	24.999	0.00017	0.00014	0.00020	0.00017	0.00016	0.00041
95	24.999	0.00019	0.00012	0.00021	0.00017	0.00016	0.00042
96	24.999	0.00020	0.00014	0.00022	0.00017	0.00016	0.00044
97	24.999	0.00013	0.00014	0.00018	0.00010	0.00010	0.00034
98	24.999	0.00011	0.00013	0.00016	0.00010	0.00010	0.00032
99	24.999	0.00012	0.00014	0.00017	0.00010	0.00009	0.00033
100	24.999	0.00012	0.00014	0.00016	0.00010	0.00010	0.00033
101	24.999	0.00016	0.00014	0.00016	0.00011	0.00009	0.00034
102	24.999	0.00016	0.00013	0.00017	0.00010	0.00010	0.00035
103	24.999	0.00013	0.00014	0.00017	0.00010	0.00010	0.00033
104	24.999	0.00013	0.00015	0.00016	0.00010	0.00009	0.00034
105	24.999	0.00021	0.00012	0.00014	0.00023	0.00014	0.00042
106	24.999	0.00022	0.00012	0.00015	0.00022	0.00014	0.00042
107	24.999	0.00023	0.00011	0.00015	0.00023	0.00015	0.00043
108	24.999	0.00022	0.00012	0.00014	0.00024	0.00014	0.00042
109	24.999	0.00024	0.00012	0.00014	0.00023	0.00014	0.00043
110	24.999	0.00024	0.00010	0.00014	0.00023	0.00015	0.00042
111	24.999	0.00023	0.00011	0.00014	0.00024	0.00014	0.00043
112	24.999	0.00025	0.00011	0.00015	0.00024	0.00014	0.00044
113	24.999	0.00025	0.00020	0.00018	0.00021	0.00009	0.00044
114	24.999	0.00027	0.00021	0.00019	0.00020	0.00009	0.00046
115	24.999	0.00031	0.00021	0.00019	0.00020	0.00010	0.00049
116	24.999	0.00030	0.00022	0.00018	0.00021	0.00009	0.00048
117	24.999	0.00023	0.00020	0.00019	0.00020	0.00011	0.00043
118	24.999	0.00025	0.00020	0.00018	0.00021	0.00009	0.00044
119	24.999	0.00026	0.00021	0.00018	0.00020	0.00011	0.00046
120	24.999	0.00029	0.00022	0.00018	0.00021	0.00010	0.00048

121	24.999	0.00016	0.00007	0.00010	0.00012	0.00012	0.00029
122	24.999	0.00015	0.00007	0.00009	0.00012	0.00013	0.00028
123	24.999	0.00016	0.00007	0.00011	0.00012	0.00012	0.00029
124	24.999	0.00016	0.00007	0.00010	0.00012	0.00012	0.00029
125	24.999	0.00020	0.00007	0.00010	0.00011	0.00012	0.00031
126	24.999	0.00016	0.00007	0.00010	0.00013	0.00013	0.00029
127	24.999	0.00016	0.00007	0.00010	0.00013	0.00013	0.00030
128	24.999	0.00016	0.00008	0.00010	0.00012	0.00012	0.00029
129	24.999	0.00021	0.00012	0.00010	0.00007	0.00015	0.00037
130	24.999	0.00019	0.00012	0.00010	0.00006	0.00015	0.00036
131	24.999	0.00018	0.00013	0.00011	0.00006	0.00015	0.00036
132	24.999	0.00016	0.00013	0.00011	0.00007	0.00015	0.00036
133	24.999	0.00024	0.00013	0.00010	0.00007	0.00015	0.00040
134	24.999	0.00022	0.00013	0.00010	0.00006	0.00015	0.00038
135	24.999	0.00022	0.00013	0.00010	0.00007	0.00015	0.00038
136	24.999	0.00019	0.00013	0.00011	0.00007	0.00015	0.00036
137	24.999	0.00011	0.00009	0.00021	0.00015	0.00009	0.00033
138	24.999	0.00013	0.00010	0.00021	0.00016	0.00009	0.00034
139	24.999	0.00012	0.00009	0.00020	0.00016	0.00008	0.00033
140	24.999	0.00013	0.00010	0.00020	0.00016	0.00008	0.00033
141	24.999	0.00012	0.00009	0.00021	0.00016	0.00009	0.00034
142	24.999	0.00014	0.00009	0.00020	0.00016	0.00009	0.00034
143	24.999	0.00014	0.00010	0.00020	0.00016	0.00008	0.00034
144	24.999	0.00015	0.00009	0.00021	0.00016	0.00008	0.00035
145	24.999	0.00016	0.00022	0.00011	0.00010	0.00014	0.00036
146	24.999	0.00016	0.00023	0.00011	0.00010	0.00014	0.00037
147	24.999	0.00017	0.00023	0.00012	0.00010	0.00014	0.00037
148	24.999	0.00018	0.00023	0.00011	0.00009	0.00014	0.00037
149	24.999	0.00015	0.00023	0.00012	0.00010	0.00015	0.00036
150	24.999	0.00016	0.00023	0.00011	0.00010	0.00014	0.00037
151	24.999	0.00016	0.00023	0.00012	0.00010	0.00014	0.00037
152	24.999	0.00016	0.00023	0.00011	0.00009	0.00015	0.00037
153	24.999	0.00019	0.00018	0.00013	0.00013	0.00016	0.00042
154	24.999	0.00021	0.00018	0.00013	0.00013	0.00016	0.00043
155	24.999	0.00023	0.00019	0.00013	0.00012	0.00015	0.00044
156	24.999	0.00026	0.00019	0.00013	0.00012	0.00016	0.00046
157	24.999	0.00019	0.00018	0.00013	0.00013	0.00016	0.00043
158	24.999	0.00020	0.00018	0.00013	0.00013	0.00015	0.00043
159	24.999	0.00019	0.00018	0.00013	0.00013	0.00015	0.00042
160	24.999	0.00023	0.00018	0.00013	0.00012	0.00016	0.00045
161	24.999	0.00012	0.00024	0.00011	0.00012	0.00015	0.00039
162	24.999	0.00013	0.00023	0.00011	0.00012	0.00015	0.00039
163	24.999	0.00013	0.00023	0.00011	0.00012	0.00014	0.00039
164	24.999	0.00015	0.00024	0.00011	0.00013	0.00015	0.00040
165	24.999	0.00013	0.00024	0.00011	0.00011	0.00015	0.00039
166	24.999	0.00011	0.00024	0.00010	0.00011	0.00014	0.00038
167	24.999	0.00013	0.00023	0.00012	0.00011	0.00015	0.00038
168	24.999	0.00011	0.00023	0.00011	0.00012	0.00016	0.00038
						MEAN:	0.00037
					WORST CASE CHN:		3

HARMONIC DISTORTION SPECIFICATION (< 0.00120 %)
PASSED

FILE 1028

ANALYSIS PHASE 0.1

CHAN	TEST FREQ (HZ)	SIMILARITY (DEGREE)
1	24.999	-0.00014
2	24.999	-0.00011
3	24.999	-0.00002
4	24.999	0.00002
5	24.999	-0.00005
6	24.999	0.00002
7	24.999	0.00002
8	24.999	0.00008
9	24.999	-0.00014
10	24.999	-0.00002
11	24.999	-0.00008
12	24.999	0.00011
13	24.999	0.00005
14	24.999	-0.00002
15	24.999	0.00008
16	24.999	0.00002
17	24.999	-0.00006
18	24.999	-0.00003
19	24.999	0.00000
20	24.999	0.00006
21	24.999	-0.00006
22	24.999	0.00000
23	24.999	0.00015
24	24.999	0.00015
25	24.999	0.00005
26	24.999	-0.00011
27	24.999	0.00002
28	24.999	-0.00011
29	24.999	0.00005
30	24.999	-0.00002
31	24.999	-0.00002
32	24.999	0.00002
33	24.999	-0.00003
34	24.999	-0.00003
35	24.999	0.00015
36	24.999	0.00012
37	24.999	0.00003
38	24.999	0.00006
39	24.999	-0.00006
40	24.999	-0.00006
41	24.999	0.00005
42	24.999	-0.00008
43	24.999	0.00008
44	24.999	0.00002
45	24.999	-0.00002

46	24.999	-0.00008
47	24.999	-0.00011
48	24.999	0.00008
49	24.999	0.00000
50	24.999	0.00003
51	24.999	0.00018
52	24.999	0.00000
53	24.999	-0.00009
54	24.999	-0.00006
55	24.999	0.00000
56	24.999	0.00012
57	24.999	-0.00002
58	24.999	0.00011
59	24.999	-0.00002
60	24.999	0.00002
61	24.999	-0.00005
62	24.999	0.00026
63	24.999	-0.00005
64	24.999	0.00008
65	24.999	0.00012
66	24.999	-0.00006
67	24.999	-0.00006
68	24.999	0.00021
69	24.999	-0.00006
70	24.999	-0.00006
71	24.999	0.00006
72	24.999	0.00015
73	24.999	0.00014
74	24.999	0.00011
75	24.999	-0.00014
76	24.999	-0.00008
77	24.999	0.00005
78	24.999	0.00005
79	24.999	-0.00008
80	24.999	-0.00005
81	24.999	-0.00031
82	24.999	0.00125
83	24.999	-0.00034
84	24.999	0.00000
85	24.999	0.00000
86	24.999	-0.00009
87	24.999	0.00122
88	24.999	0.00140
89	24.999	-0.00121
90	24.999	0.00020
91	24.999	-0.00002
92	24.999	0.00023
93	24.999	-0.00142

94	24.999	0.00002
95	24.999	-0.00121
96	24.999	0.00014
97	24.999	0.00000
98	24.999	0.00000
99	24.999	0.00009
100	24.999	-0.00015
101	24.999	0.00009
102	24.999	-0.00006
103	24.999	-0.00015
104	24.999	0.00006
105	24.999	-0.00002
106	24.999	-0.00014
107	24.999	0.00002
108	24.999	0.00002
109	24.999	-0.00011
110	24.999	-0.00008
111	24.999	0.00002
112	24.999	0.00008
113	24.999	-0.00003
114	24.999	0.00000
115	24.999	-0.00012
116	24.999	-0.00015
117	24.999	0.00003
118	24.999	0.00006
119	24.999	0.00000
120	24.999	0.00000
121	24.999	0.00008
122	24.999	0.00002
123	24.999	-0.00002
124	24.999	-0.00005
125	24.999	-0.00008
126	24.999	0.00005
127	24.999	0.00008
128	24.999	-0.00002
129	24.999	0.00000
130	24.999	0.00018
131	24.999	-0.00012
132	24.999	0.00021
133	24.999	0.00003
134	24.999	0.00000
135	24.999	0.00000
136	24.999	0.00000
137	24.999	-0.00012
138	24.999	-0.00006
139	24.999	0.00000
140	24.999	0.00009
141	24.999	-0.00006

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142       24.999     0.00000
143       24.999     0.00003
144       24.999     0.00000

145       24.999    -0.00002
146       24.999     0.00011
147       24.999     0.00002
148       24.999    -0.00005
149       24.999     0.00011
150       24.999    -0.00002
151       24.999     0.00008
152       24.999    -0.00017

153       24.999     0.00008
154       24.999     0.00014
155       24.999     0.00002
156       24.999     0.00023
157       24.999    -0.00005
158       24.999    -0.00008
159       24.999    -0.00002
160       24.999    -0.00002

161       24.999     0.00003
162       24.999     0.00003
163       24.999     0.00003
164       24.999    -0.00006
165       24.999    -0.00006
166       24.999    -0.00006
167       24.999     0.00000
168       24.999     0.00000
WORST CASE CHN:        93
PHASE SIMILARITY SPECIFICATION ( < 0.100 DEG )
PASSED

--------------------------------------------------------------------------
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TEST 24 Gain, THD, Sim X34, 2mS, 25Hz

SIGNAL_TYPE SINE 25.000000 50.476589 0.000000 8

FILE 1029
File Date: Sep/25/13   Time: 19:55:35
Sampling Rate:   2000 usec   Record Length:  4.096 sec   Delay:   48 msec
Preamp Gain: 30 dB     Acquisition Filters: OUT  OUT

ANALYSIS GAIN 6.0 3.0
INPUT PEAK AMPLITUDE IS     50.477 mV
CHAN    TEST      PEAK AMPLITUDE  ACCURACY     SIMILARITY
 NO.    FREQ          ( mV )        (%)           (%)
  1     24.999        49.246     -2.43854        0.13399
  2     24.999        49.271     -2.38785        0.18602
  3     24.999        49.661     -1.61636        0.97785
  4     24.999        49.104     -2.71941       -0.15429
  5     24.999        49.027     -2.87190       -0.31080
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6	24.999	49.114	-2.69962	-0.13398
7	24.999	48.891	-3.14181	-0.58782
8	24.999	49.428	-2.07672	0.50535
9	24.999	49.313	-2.30533	0.05921
10	24.999	49.375	-2.18141	0.18614
11	24.999	49.255	-2.42097	-0.05922
12	24.999	48.720	-3.47915	-1.14301
13	24.999	49.393	-2.14742	0.22095
14	24.999	49.372	-2.18801	0.17938
15	24.999	48.967	-2.99132	-0.64337
16	24.999	48.874	-3.17515	-0.83165
17	24.999	49.255	-2.42110	-0.24605
18	24.999	49.245	-2.44035	-0.26573
19	24.999	49.497	-1.94063	0.24512
20	24.999	49.680	-1.57789	0.61596
21	24.999	49.346	-2.23927	-0.06017
22	24.999	49.249	-2.43144	-0.25662
23	24.999	49.406	-2.12155	0.06017
24	24.999	49.492	-1.95113	0.23439
25	24.999	48.837	-3.24778	-0.96978
26	24.999	49.377	-2.17858	0.12460
27	24.999	49.499	-1.93759	0.37126
28	24.999	49.188	-2.55383	-0.25949
29	24.999	49.377	-2.17765	0.12555
30	24.999	49.009	-2.90791	-0.62190
31	24.999	49.254	-2.42204	-0.12460
32	24.999	49.475	-1.98338	0.32440
33	24.999	49.674	-1.59081	0.77430
34	24.999	49.156	-2.61531	-0.27483
35	24.999	49.478	-1.97899	0.37680
36	24.999	49.143	-2.64205	-0.30220
37	24.999	49.126	-2.67487	-0.33581
38	24.999	49.427	-2.07856	0.27483
39	24.999	48.776	-3.36929	-1.04692
40	24.999	49.430	-2.07305	0.28047
41	24.999	49.565	-1.80570	0.52831
42	24.999	48.937	-3.05045	-0.74602
43	24.999	49.490	-1.95541	0.37504
44	24.999	49.609	-1.71827	0.61782
45	24.999	49.136	-2.65604	-0.34224
46	24.999	48.895	-3.13315	-0.83069
47	24.999	49.253	-2.42325	-0.10392
48	24.999	49.356	-2.22025	0.10391
49	24.999	48.801	-3.32036	-0.29723
50	24.999	48.767	-3.38618	-0.36511
51	24.999	49.354	-2.22474	0.83264
52	24.999	48.845	-3.23327	-0.20742
53	24.999	49.118	-2.69059	0.35224

54	24.999	48.875	-3.17326	-0.14553
55	24.999	49.017	-2.89103	0.14552
56	24.999	49.109	-2.70879	0.33346
57	24.999	49.303	-2.32517	0.01029
58	24.999	49.293	-2.34388	-0.00887
59	24.999	49.335	-2.26161	0.07537
60	24.999	49.128	-2.67229	-0.34513
61	24.999	49.019	-2.88786	-0.56585
62	24.999	49.156	-2.61630	-0.28780
63	24.999	49.302	-2.32656	0.00887
64	24.999	49.328	-2.27536	0.06129
65	24.999	48.938	-3.04807	-0.59695
66	24.999	49.157	-2.61491	-0.15285
67	24.999	49.058	-2.81132	-0.35421
68	24.999	49.547	-1.84200	0.63961
69	24.999	49.319	-2.29295	0.17726
70	24.999	49.165	-2.59894	-0.13647
71	24.999	49.434	-2.06514	0.41083
72	24.999	49.299	-2.33274	0.13647
73	24.999	49.172	-2.58365	0.36398
74	24.999	49.009	-2.90807	0.02974
75	24.999	48.963	-2.99797	-0.06287
76	24.999	48.942	-3.03974	-0.10591
77	24.999	48.980	-2.96581	-0.02974
78	24.999	49.011	-2.90314	0.03482
79	24.999	48.752	-3.41611	-0.49367
80	24.999	49.040	-2.84566	0.09404
81	24.999	49.514	-1.90736	0.51994
82	24.999	49.066	-2.79403	-0.38867
83	24.999	49.247	-2.43514	-0.02089
84	24.999	49.268	-2.39436	0.02089
85	24.999	49.413	-2.10729	0.31507
86	24.999	49.547	-1.84124	0.58770
87	24.999	49.063	-2.80002	-0.39481
88	24.999	49.247	-2.43545	-0.02121
89	24.999	49.124	-2.67910	-0.18670
90	24.999	49.492	-1.95065	0.56041
91	24.999	49.012	-2.90064	-0.41391
92	24.999	49.406	-2.12158	0.38510
93	24.999	49.494	-1.94635	0.56481
94	24.999	49.096	-2.73555	-0.24460
95	24.999	49.308	-2.31502	0.18670
96	24.999	49.003	-2.91983	-0.43360
97	24.999	49.209	-2.51125	0.24415
98	24.999	49.130	-2.66795	0.08302
99	24.999	48.998	-2.92956	-0.18598
100	24.999	49.005	-2.91593	-0.17197
101	24.999	49.212	-2.50441	0.25118

102	24.999	48.774	-3.37250	-0.64145
103	24.999	49.048	-2.82942	-0.08302
104	24.999	49.197	-2.53441	0.22033
105	24.999	49.177	-2.57373	0.09787
106	24.999	48.922	-3.07957	-0.42183
107	24.999	49.307	-2.31642	0.36224
108	24.999	49.115	-2.69653	-0.02829
109	24.999	48.679	-3.56149	-0.91697
110	24.999	48.885	-3.15335	-0.49763
111	24.999	49.143	-2.64146	0.02829
112	24.999	49.297	-2.33598	0.34215
113	24.999	49.345	-2.24260	0.30456
114	24.999	48.951	-3.02252	-0.49568
115	24.999	49.262	-2.40632	0.13658
116	24.999	49.225	-2.47911	0.06189
117	24.999	49.164	-2.59975	-0.06189
118	24.999	49.340	-2.25082	0.29614
119	24.999	48.889	-3.14488	-0.62123
120	24.999	49.051	-2.82373	-0.29171
121	24.999	49.336	-2.26018	0.16851
122	24.999	49.198	-2.53286	-0.11095
123	24.999	48.974	-2.97748	-0.56661
124	24.999	49.185	-2.55898	-0.13772
125	24.999	48.948	-3.02783	-0.61821
126	24.999	49.343	-2.24523	0.18383
127	24.999	49.399	-2.13494	0.29686
128	24.999	49.307	-2.31634	0.11096
129	24.999	48.906	-3.11220	-0.36648
130	24.999	49.295	-2.34136	0.42620
131	24.999	49.227	-2.47649	0.28724
132	24.999	49.234	-2.46189	0.30226
133	24.999	49.155	-2.61911	0.14058
134	24.999	49.017	-2.89253	-0.14059
135	24.999	48.957	-3.01029	-0.26169
136	24.999	48.992	-2.94101	-0.19044
137	24.999	48.849	-3.22451	-0.30943
138	24.999	49.087	-2.75313	0.17615
139	24.999	48.973	-2.97802	-0.05551
140	24.999	49.269	-2.39253	0.54761
141	24.999	49.028	-2.87025	0.05551
142	24.999	49.061	-2.80378	0.12398
143	24.999	48.619	-3.68053	-0.77919
144	24.999	48.947	-3.02970	-0.10875
145	24.999	49.016	-2.89384	-0.19676
146	24.999	49.456	-2.02218	0.69912
147	24.999	49.122	-2.68305	0.01988
148	24.999	49.097	-2.73317	-0.03163
149	24.999	49.174	-2.58131	0.12445

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150     24.999        49.103     -2.72175       -0.01988
151     24.999        49.161     -2.60626        0.09881
152     24.999        49.031     -2.86391       -0.16599

153     24.999        48.659     -3.60025       -0.17120
154     24.999        48.821     -3.27893        0.16156
155     24.999        48.602     -3.71280       -0.28775
156     24.999        48.721     -3.47887       -0.04550
157     24.999        48.715     -3.48941       -0.05641
158     24.999        49.283     -2.36511        1.10787
159     24.999        48.765     -3.39100        0.04549
160     24.999        48.884     -3.15551        0.28936

161     24.999        49.020     -2.88484       -0.55358
162     24.999        49.333     -2.26589        0.08023
163     24.999        49.343     -2.24674        0.09984
164     24.999        49.269     -2.39292       -0.04985
165     24.999        49.128     -2.67190       -0.33553
166     24.999        49.053     -2.81944       -0.48661
167     24.999        49.438     -2.05723        0.29390
168     24.999        49.318     -2.29556        0.04985
          MEAN:       49.159     -2.61126
WORST CASE CHN:                     155             12
GAIN ACCURACY SPECIFICATION ( <  6.00000% )
PASSED
GAIN SIMILARITY SPECIFICATION ( <  3.00000% )
PASSED

ANALYSIS HARMONIC_DISTORTION 4 0.003
CHAN  FNDMTL             FIRST FIVE HARMONIC CONTENT (%)         RMS
TOTAL (%)
 NO.   FREQ       2         3         4         5         6
  1   24.999   0.00054   0.00072   0.00077   0.00102
0.00157
  2   24.999   0.00054   0.00074   0.00073   0.00101
0.00155
  3   24.999   0.00055   0.00072   0.00074   0.00104
0.00156
  4   24.999   0.00057   0.00072   0.00075   0.00102
0.00156
  5   24.999   0.00052   0.00073   0.00075   0.00102
0.00155
  6   24.999   0.00055   0.00072   0.00075   0.00102
0.00156
  7   24.999   0.00055   0.00072   0.00075   0.00101
0.00155
  8   24.999   0.00056   0.00073   0.00076   0.00103
0.00158
  9   24.999   0.00063   0.00039   0.00045   0.00073
0.00113
 10   24.999   0.00061   0.00038   0.00044   0.00073
0.00112
 11   24.999   0.00063   0.00037   0.00044   0.00073
0.00112
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12	24.999	0.00063	0.00036	0.00045	0.00074
0.00114					
13	24.999	0.00062	0.00037	0.00045	0.00076
0.00114					
14	24.999	0.00060	0.00037	0.00046	0.00074
0.00112					
15	24.999	0.00064	0.00036	0.00044	0.00072
0.00112					
16	24.999	0.00061	0.00038	0.00045	0.00073
0.00112					
17	24.999	0.00081	0.00051	0.00058	0.00069
0.00132					
18	24.999	0.00085	0.00052	0.00058	0.00070
0.00135					
19	24.999	0.00083	0.00053	0.00060	0.00071
0.00135					
20	24.999	0.00085	0.00053	0.00056	0.00070
0.00134					
21	24.999	0.00081	0.00051	0.00058	0.00070
0.00131					
22	24.999	0.00083	0.00051	0.00057	0.00070
0.00133					
23	24.999	0.00080	0.00051	0.00058	0.00067
0.00130					
24	24.999	0.00082	0.00052	0.00057	0.00067
0.00131					
25	24.999	0.00063	0.00041	0.00031	0.00061
0.00101					
26	24.999	0.00064	0.00042	0.00033	0.00062
0.00103					
27	24.999	0.00064	0.00045	0.00033	0.00061
0.00104					
28	24.999	0.00060	0.00043	0.00032	0.00062
0.00101					
29	24.999	0.00065	0.00045	0.00034	0.00063
0.00107					
30	24.999	0.00061	0.00044	0.00034	0.00063
0.00104					
31	24.999	0.00062	0.00043	0.00035	0.00061
0.00103					
32	24.999	0.00064	0.00044	0.00034	0.00064
0.00106					
33	24.999	0.00081	0.00061	0.00036	0.00033
0.00113					
34	24.999	0.00082	0.00062	0.00036	0.00031
0.00113					
35	24.999	0.00084	0.00061	0.00035	0.00030
0.00114					
36	24.999	0.00083	0.00060	0.00035	0.00033
0.00114					
37	24.999	0.00081	0.00062	0.00035	0.00032
0.00112					
38	24.999	0.00081	0.00063	0.00036	0.00033
0.00113					

39	24.999	0.00075	0.00063	0.00035	0.00032
0.00109					
40	24.999	0.00077	0.00059	0.00039	0.00032
0.00109					
41	24.999	0.00053	0.00051	0.00079	0.00040
0.00115					
42	24.999	0.00053	0.00053	0.00079	0.00044
0.00118					
43	24.999	0.00055	0.00051	0.00080	0.00042
0.00117					
44	24.999	0.00053	0.00051	0.00080	0.00040
0.00116					
45	24.999	0.00051	0.00054	0.00078	0.00044
0.00116					
46	24.999	0.00049	0.00054	0.00081	0.00041
0.00116					
47	24.999	0.00052	0.00053	0.00080	0.00042
0.00116					
48	24.999	0.00055	0.00053	0.00081	0.00042
0.00119					
49	24.999	0.00031	0.00074	0.00031	0.00030
0.00091					
50	24.999	0.00032	0.00074	0.00029	0.00029
0.00091					
51	24.999	0.00036	0.00073	0.00030	0.00030
0.00092					
52	24.999	0.00036	0.00075	0.00030	0.00031
0.00094					
53	24.999	0.00032	0.00075	0.00032	0.00029
0.00092					
54	24.999	0.00032	0.00074	0.00029	0.00029
0.00090					
55	24.999	0.00033	0.00074	0.00031	0.00029
0.00091					
56	24.999	0.00034	0.00074	0.00031	0.00031
0.00093					
57	24.999	0.00068	0.00045	0.00048	0.00057
0.00110					
58	24.999	0.00073	0.00044	0.00048	0.00055
0.00112					
59	24.999	0.00075	0.00045	0.00046	0.00056
0.00114					
60	24.999	0.00077	0.00046	0.00047	0.00054
0.00115					
61	24.999	0.00073	0.00047	0.00047	0.00057
0.00114					
62	24.999	0.00071	0.00046	0.00047	0.00054
0.00111					
63	24.999	0.00068	0.00045	0.00047	0.00056
0.00110					
64	24.999	0.00070	0.00046	0.00047	0.00055
0.00110					
65	24.999	0.00031	0.00071	0.00056	0.00059
0.00113					

66	24.999	0.00035	0.00074	0.00058	0.00061
0.00117					
67	24.999	0.00037	0.00072	0.00058	0.00056
0.00114					
68	24.999	0.00040	0.00077	0.00060	0.00059
0.00121					
69	24.999	0.00034	0.00078	0.00058	0.00059
0.00118					
70	24.999	0.00036	0.00073	0.00056	0.00059
0.00116					
71	24.999	0.00035	0.00075	0.00057	0.00058
0.00116					
72	24.999	0.00037	0.00072	0.00057	0.00058
0.00115					
73	24.999	0.00048	0.00102	0.00073	0.00072
0.00153					
74	24.999	0.00052	0.00101	0.00073	0.00072
0.00153					
75	24.999	0.00053	0.00098	0.00075	0.00073
0.00153					
76	24.999	0.00059	0.00100	0.00074	0.00071
0.00155					
77	24.999	0.00048	0.00100	0.00074	0.00069
0.00150					
78	24.999	0.00047	0.00102	0.00075	0.00071
0.00152					
79	24.999	0.00050	0.00099	0.00073	0.00069
0.00150					
80	24.999	0.00047	0.00102	0.00073	0.00072
0.00152					
81	24.999	0.00067	0.00052	0.00062	0.00042
0.00113					
82	24.999	0.00066	0.00050	0.00067	0.00042
0.00115					
83	24.999	0.00067	0.00052	0.00066	0.00040
0.00115					
84	24.999	0.00065	0.00053	0.00067	0.00040
0.00114					
85	24.999	0.00066	0.00052	0.00060	0.00042
0.00112					
86	24.999	0.00066	0.00051	0.00065	0.00041
0.00114					
87	24.999	0.00065	0.00051	0.00065	0.00042
0.00114					
88	24.999	0.00068	0.00051	0.00065	0.00042
0.00115					
89	24.999	0.00064	0.00074	0.00116	0.00108
0.00186					
90	24.999	0.00065	0.00075	0.00115	0.00111
0.00188					
91	24.999	0.00063	0.00075	0.00115	0.00108
0.00186					
92	24.999	0.00066	0.00075	0.00116	0.00110
0.00188					

93	24.999	0.00064	0.00076	0.00114	0.00109
0.00186					
94	24.999	0.00062	0.00075	0.00114	0.00109
0.00185					
95	24.999	0.00063	0.00075	0.00114	0.00109
0.00186					
96	24.999	0.00065	0.00076	0.00114	0.00111
0.00188					
97	24.999	0.00075	0.00055	0.00103	0.00058
0.00150					
98	24.999	0.00080	0.00055	0.00102	0.00058
0.00152					
99	24.999	0.00079	0.00056	0.00101	0.00056
0.00151					
100	24.999	0.00082	0.00056	0.00102	0.00058
0.00154					
101	24.999	0.00075	0.00054	0.00102	0.00060
0.00150					
102	24.999	0.00067	0.00056	0.00103	0.00058
0.00147					
103	24.999	0.00079	0.00056	0.00099	0.00058
0.00150					
104	24.999	0.00078	0.00055	0.00102	0.00056
0.00151					
105	24.999	0.00053	0.00053	0.00054	0.00028
0.00097					
106	24.999	0.00052	0.00054	0.00054	0.00029
0.00097					
107	24.999	0.00051	0.00051	0.00055	0.00030
0.00096					
108	24.999	0.00054	0.00052	0.00052	0.00027
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0.00096					
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0.00095					
111	24.999	0.00051	0.00053	0.00052	0.00028
0.00095					
112	24.999	0.00053	0.00051	0.00051	0.00027
0.00093					
113	24.999	0.00059	0.00116	0.00068	0.00047
0.00154					
114	24.999	0.00059	0.00116	0.00066	0.00044
0.00153					
115	24.999	0.00064	0.00114	0.00066	0.00045
0.00153					
116	24.999	0.00063	0.00116	0.00066	0.00046
0.00154					
117	24.999	0.00058	0.00115	0.00066	0.00045
0.00151					
118	24.999	0.00059	0.00113	0.00065	0.00046
0.00150					
119	24.999	0.00061	0.00115	0.00064	0.00046
0.00152					

120 24.999 0.00061 0.00114 0.00066 0.00046
0.00152
121 24.999 0.00068 0.00065 0.00080 0.00081
0.00148
122 24.999 0.00067 0.00064 0.00078 0.00079
0.00145
123 24.999 0.00067 0.00063 0.00081 0.00081
0.00146
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0.00148
125 24.999 0.00069 0.00066 0.00079 0.00078
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126 24.999 0.00067 0.00063 0.00078 0.00081
0.00146
127 24.999 0.00067 0.00064 0.00080 0.00080
0.00145
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0.00149
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0.00106
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132 24.999 0.00053 0.00050 0.00059 0.00047
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133 24.999 0.00053 0.00049 0.00060 0.00047
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134 24.999 0.00055 0.00053 0.00058 0.00048
0.00108
135 24.999 0.00056 0.00051 0.00059 0.00046
0.00106
136 24.999 0.00053 0.00051 0.00058 0.00045
0.00104
137 24.999 0.00056 0.00053 0.00050 0.00091
0.00129
138 24.999 0.00058 0.00052 0.00052 0.00092
0.00131
139 24.999 0.00057 0.00052 0.00050 0.00090
0.00129
140 24.999 0.00058 0.00053 0.00051 0.00091
0.00130
141 24.999 0.00059 0.00052 0.00052 0.00093
0.00133
142 24.999 0.00058 0.00052 0.00051 0.00091
0.00131
143 24.999 0.00059 0.00051 0.00050 0.00091
0.00130
144 24.999 0.00060 0.00051 0.00050 0.00093
0.00132
145 24.999 0.00096 0.00107 0.00075 0.00103
0.00192
146 24.999 0.00093 0.00108 0.00071 0.00102
0.00189

147 24.999 0.00094 0.00109 0.00072 0.00101
0.00190
148 24.999 0.00098 0.00110 0.00072 0.00103
0.00193
149 24.999 0.00089 0.00108 0.00074 0.00103
0.00189
150 24.999 0.00094 0.00110 0.00072 0.00102
0.00190
151 24.999 0.00096 0.00108 0.00071 0.00103
0.00191
152 24.999 0.00095 0.00110 0.00073 0.00103
0.00192
153 24.999 0.00059 0.00131 0.00037 0.00068
0.00163
154 24.999 0.00060 0.00133 0.00036 0.00067
0.00165
155 24.999 0.00060 0.00130 0.00038 0.00068
0.00163
156 24.999 0.00060 0.00132 0.00037 0.00068
0.00165
157 24.999 0.00061 0.00132 0.00037 0.00068
0.00165
158 24.999 0.00061 0.00133 0.00038 0.00069
0.00167
159 24.999 0.00061 0.00130 0.00036 0.00067
0.00163
160 24.999 0.00060 0.00132 0.00037 0.00066
0.00164
161 24.999 0.00069 0.00076 0.00056 0.00074
0.00138
162 24.999 0.00074 0.00074 0.00059 0.00073
0.00141
163 24.999 0.00074 0.00077 0.00055 0.00075
0.00142
164 24.999 0.00075 0.00075 0.00056 0.00072
0.00140
165 24.999 0.00067 0.00075 0.00056 0.00074
0.00137
166 24.999 0.00068 0.00077 0.00056 0.00073
0.00138
167 24.999 0.00066 0.00073 0.00056 0.00073
0.00135
168 24.999 0.00067 0.00076 0.00056 0.00074
0.00138

MEAN: 0.00132
WORST CASE CHN: 148
HARMONIC DISTORTION SPECIFICATION (< 0.00300 %)
PASSED

FILE 1029

ANALYSIS PHASE 0.1
CHAN TEST FREQ SIMILARITY
(HZ) (DEGREE)

1	24.999	-0.00012
2	24.999	-0.00012
3	24.999	0.00000
4	24.999	0.00003
5	24.999	-0.00003
6	24.999	0.00003
7	24.999	0.00000
8	24.999	0.00009
9	24.999	-0.00015
10	24.999	0.00000
11	24.999	-0.00009
12	24.999	0.00009
13	24.999	0.00009
14	24.999	0.00000
15	24.999	0.00006
16	24.999	-0.00003
17	24.999	-0.00005
18	24.999	-0.00005
19	24.999	-0.00002
20	24.999	0.00005
21	24.999	-0.00005
22	24.999	0.00002
23	24.999	0.00020
24	24.999	0.00020
25	24.999	0.00005
26	24.999	-0.00011
27	24.999	0.00002
28	24.999	-0.00014
29	24.999	0.00008
30	24.999	-0.00002
31	24.999	-0.00005
32	24.999	0.00002
33	24.999	-0.00003
34	24.999	-0.00006
35	24.999	0.00015
36	24.999	0.00012
37	24.999	0.00003
38	24.999	0.00006
39	24.999	-0.00012
40	24.999	-0.00009
41	24.999	0.00011
42	24.999	-0.00008
43	24.999	0.00011
44	24.999	0.00002
45	24.999	-0.00002
46	24.999	-0.00011
47	24.999	-0.00014
48	24.999	0.00005

49	24.999	-0.00005
50	24.999	0.00002
51	24.999	0.00020
52	24.999	-0.00002
53	24.999	-0.00011
54	24.999	-0.00005
55	24.999	0.00002
56	24.999	0.00011
57	24.999	0.00000
58	24.999	0.00015
59	24.999	-0.00003
60	24.999	0.00000
61	24.999	-0.00006
62	24.999	0.00031
63	24.999	-0.00006
64	24.999	0.00009
65	24.999	0.00015
66	24.999	-0.00006
67	24.999	-0.00009
68	24.999	0.00021
69	24.999	-0.00006
70	24.999	-0.00006
71	24.999	0.00006
72	24.999	0.00018
73	24.999	0.00018
74	24.999	0.00015
75	24.999	-0.00015
76	24.999	-0.00012
77	24.999	0.00006
78	24.999	0.00006
79	24.999	-0.00009
80	24.999	-0.00006
81	24.999	-0.00021
82	24.999	-0.00006
83	24.999	-0.00027
84	24.999	0.00012
85	24.999	0.00015
86	24.999	0.00006
87	24.999	-0.00012
88	24.999	0.00012
89	24.999	0.00006
90	24.999	0.00009
91	24.999	-0.00021
92	24.999	0.00012
93	24.999	-0.00012
94	24.999	-0.00015
95	24.999	0.00006
96	24.999	-0.00006

97	24.999	0.00002
98	24.999	-0.00002
99	24.999	0.00008
100	24.999	-0.00023
101	24.999	0.00011
102	24.999	-0.00008
103	24.999	-0.00020
104	24.999	0.00005
105	24.999	0.00000
106	24.999	-0.00015
107	24.999	0.00000
108	24.999	0.00000
109	24.999	-0.00012
110	24.999	-0.00009
111	24.999	0.00003
112	24.999	0.00006
113	24.999	-0.00003
114	24.999	0.00000
115	24.999	-0.00012
116	24.999	-0.00015
117	24.999	0.00006
118	24.999	0.00012
119	24.999	0.00003
120	24.999	0.00000
121	24.999	0.00009
122	24.999	0.00000
123	24.999	-0.00003
124	24.999	-0.00006
125	24.999	-0.00009
126	24.999	0.00006
127	24.999	0.00009
128	24.999	0.00000
129	24.999	-0.00002
130	24.999	0.00020
131	24.999	-0.00017
132	24.999	0.00020
133	24.999	0.00002
134	24.999	-0.00002
135	24.999	0.00002
136	24.999	-0.00002
137	24.999	-0.00012
138	24.999	-0.00006
139	24.999	0.00000
140	24.999	0.00009
141	24.999	-0.00006
142	24.999	0.00000
143	24.999	0.00000
144	24.999	0.00000

```
145       24.999    -0.00003
146       24.999     0.00015
147       24.999     0.00003
148       24.999    -0.00006
149       24.999     0.00012
150       24.999    -0.00003
151       24.999     0.00006
152       24.999    -0.00021

153       24.999     0.00011
154       24.999     0.00014
155       24.999    -0.00002
156       24.999     0.00026
157       24.999    -0.00005
158       24.999    -0.00002
159       24.999     0.00002
160       24.999    -0.00002

161       24.999     0.00002
162       24.999     0.00002
163       24.999     0.00002
164       24.999    -0.00011
165       24.999    -0.00011
166       24.999    -0.00008
167       24.999     0.00002
168       24.999    -0.00002
WORST CASE CHN:        62
PHASE SIMILARITY SPECIFICATION ( < 0.100 DEG )
PASSED

TEST RESULT
ALL TESTS PASSED

TOTAL TIME: 439 SECONDS (424+15)
```

TEST REPORT
DATE: 27/Oct/13 TIME: 00:49:34
TOTAL 112 OUT OF 112 CHANNELS TESTED
INTERNAL TEST SYSTEM Analysis Version (2.10)
60Hz power line frequencies rejected
*** indicates channels out of specification

TITLE: Geo-Eel Daily Tests V2.01 7/10/07

TEST 7 Noise/Offset X8.5, 1/4mS

FILE 2013
File Date: Oct/27/13 Time: 00:49:07
Sampling Rate: 250 usec Record Length: 0.512 sec Delay: 0 msec
Preamp Gain: 18 dB Acquisition Filters: OUT OUT

ANALYSIS NOISE 4 0.12 0.0045

CHAN	DC OFFSET (mV)	AC RMS (mV)
1	0.000888	0.002002
2	0.001068	0.002401
3	0.000950	0.002025
4	0.000807	0.002299
5	0.000726	0.002603
6	0.000797	0.002299
7	0.000845	0.002019
8	0.000802	0.002230
9	0.001185	0.002316
10	0.000925	0.002118
11	0.001356	0.002446
12	0.001156	0.002049
13	0.001437	0.002391
14	0.001324	0.002157
15	0.001122	0.002571
16	0.001258	0.002018
17	0.000644	0.001943
18	0.000839	0.002330
19	0.000519	0.002429
20	0.000490	0.002334
21	0.000506	0.002418
22	0.000355	0.002458
23	0.000588	0.002159
24	0.000217	0.002488
25	0.000469	0.001952
26	0.000836	0.002550
27	0.000686	0.002356
28	0.000488	0.002136
29	0.000435	0.002638
30	0.000300	0.002523
31	0.000163	0.002178
32	0.000497	0.002099
33	0.001202	0.002059

34	0.001770	0.001965
35	0.001489	0.002270
36	0.001181	0.002006
37	0.001144	0.002451
38	0.001249	0.002681
39	0.001377	0.002378
40	0.000905	0.002494
41	0.000942	0.002746
42	0.000921	0.002212
43	0.001156	0.002032
44	0.001450	0.002381
45	0.001178	0.002093
46	0.001266	0.002138
47	0.000926	0.002145
48	0.001268	0.002477
49	0.001141	0.002265
50	0.001294	0.002357
51	0.001017	0.001955
52	0.000769	0.002484
53	0.000983	0.002396
54	0.000453	0.002574
55	0.000414	0.002574
56	0.000502	0.002020
57	0.000372	0.001853
58	0.000215	0.002040
59	-0.000040	0.002407
60	0.000245	0.002378
61	0.000163	0.002298
62	0.000545	0.002288
63	0.000172	0.002425
64	0.000266	0.002091
65	0.000931	0.002027
66	0.000968	0.002397
67	0.001199	0.002420
68	0.000925	0.002046
69	0.000989	0.001950
70	0.000933	0.002535
71	0.001288	0.001981
72	0.000960	0.001924
73	0.000644	0.002018
74	0.000768	0.002009
75	0.000755	0.001832
76	0.000592	0.002297
77	0.000802	0.002419
78	0.000835	0.002007
79	0.000626	0.002188
80	0.000685	0.002442
81	0.001676	0.002375
82	0.001800	0.002467
83	0.001249	0.002316
84	0.001478	0.002033
85	0.001799	0.002097
86	0.001806	0.002532
87	0.001257	0.002370

```
 88              0.001522           0.001944
 89              0.001210           0.001987
 90              0.001635           0.002175
 91              0.001536           0.002258
 92              0.001145           0.002413
 93              0.000586           0.002156
 94              0.001081           0.002334
 95              0.000970           0.001849
 96              0.000887           0.002018
 97              0.001427           0.002009
 98              0.001396           0.002033
 99              0.001187           0.001995
100              0.001242           0.002629
101              0.001401           0.001998
102              0.001026           0.002629
103              0.000921           0.002115
104              0.001310           0.002029
105              0.000981           0.002280
106              0.000498           0.002587
107              0.000664           0.002422
108              0.000653           0.002665
109              0.000221           0.002219
110              0.000444           0.002147
111              0.000779           0.002460
112              0.000767           0.002374
 ABSOLUTE MEAN:  0.000921           0.002252
WORST CASE CHN:      86                 41
DC OFFSET SPECIFICATION ( < 0.120000 mV )
PASSED
AC RMS SPECIFICATION ( < 0.004500 mV )
PASSED

-------------------------------------------------------------------------
-----
TEST 19 Gain, THD, Sim X8.5, 1/4mS, 100Hz

SIGNAL_TYPE SINE 100.000000 225.470642 0.000000 8

FILE 1013
File Date: Oct/27/13   Time: 00:49:30
Sampling Rate:    250 usec   Record Length:  0.512 sec   Delay:    0 msec
Preamp Gain: 18 dB     Acquisition Filters: OUT  OUT

ANALYSIS GAIN 2.0 2.0
INPUT PEAK AMPLITUDE IS    225.471 mV
CHAN    TEST      PEAK AMPLITUDE  ACCURACY     SIMILARITY
 NO.    FREQ          ( mV )        (%)          (%)
  1    100.000       228.114      1.17245       0.17040
  2    100.000       227.768      1.01884       0.01831
  3    100.000       227.603      0.94570      -0.05411
  4    100.000       227.254      0.79095      -0.20733
  5    100.000       228.153      1.18989       0.18766
  6    100.000       227.618      0.95233      -0.04754
  7    100.000       227.684      0.98186      -0.01831
```

8	100.000	227.988	1.11645	0.11495
9	100.000	227.336	0.82711	0.06513
10	100.000	226.354	0.39162	-0.36706
11	100.000	227.087	0.71691	-0.04423
12	100.000	227.456	0.88044	0.11806
13	100.000	226.705	0.54760	-0.21226
14	100.000	227.269	0.79753	0.03577
15	100.000	227.106	0.72545	-0.03576
16	100.000	227.843	1.05209	0.28841
17	100.000	227.146	0.74316	-0.37960
18	100.000	228.051	1.14456	0.01733
19	100.000	228.260	1.23703	0.10877
20	100.000	228.657	1.41315	0.28293
21	100.000	227.753	1.01212	-0.11363
22	100.000	228.522	1.35326	0.22370
23	100.000	227.972	1.10950	-0.01734
24	100.000	227.854	1.05685	-0.06940
25	100.000	226.983	0.67077	-0.07732
26	100.000	227.765	1.01740	0.26674
27	100.000	226.892	0.63031	-0.11748
28	100.000	227.006	0.68112	-0.06704
29	100.000	227.750	1.01082	0.26021
30	100.000	227.654	0.96852	0.21822
31	100.000	226.012	0.23996	-0.50492
32	100.000	227.311	0.81622	0.06705
33	100.000	226.978	0.66869	0.07404
34	100.000	226.713	0.55107	-0.04288
35	100.000	226.585	0.49433	-0.09928
36	100.000	227.161	0.74967	0.15455
37	100.000	226.813	0.59543	0.00122
38	100.000	226.826	0.60096	0.00672
39	100.000	226.808	0.59298	-0.00122
40	100.000	226.625	0.51189	-0.08183
41	100.000	227.120	0.73172	-0.03543
42	100.000	227.727	1.00080	0.23160
43	100.000	227.281	0.80313	0.03543
44	100.000	227.332	0.82533	0.05747
45	100.000	226.449	0.43402	-0.33086
46	100.000	227.107	0.72593	-0.04118
47	100.000	226.381	0.40394	-0.36072
48	100.000	227.324	0.82192	0.05408
49	100.000	226.495	0.45443	0.08428
50	100.000	225.892	0.18705	-0.18211
51	100.000	226.409	0.41614	0.04614
52	100.000	226.200	0.32351	-0.04615
53	100.000	226.782	0.58182	0.21121
54	100.000	225.979	0.22566	-0.14364
55	100.000	226.101	0.27970	-0.08980

56	100.000	226.532	0.47088	0.10067
57	100.000	227.623	0.95465	0.04167
58	100.000	227.640	0.96194	0.04888
59	100.000	227.342	0.83011	-0.08176
60	100.000	227.687	0.98291	0.06967
61	100.000	227.434	0.87056	-0.04167
62	100.000	227.390	0.85141	-0.06065
63	100.000	227.267	0.79655	-0.11501
64	100.000	227.769	1.01929	0.10572
65	100.000	228.042	1.14041	0.00064
66	100.000	228.039	1.13911	-0.00064
67	100.000	227.915	1.08431	-0.05482
68	100.000	228.520	1.35250	0.21035
69	100.000	228.233	1.22506	0.08434
70	100.000	227.932	1.09162	-0.04760
71	100.000	228.346	1.27516	0.13387
72	100.000	228.002	1.12288	-0.01669
73	100.000	226.706	0.54801	-0.06161
74	100.000	226.588	0.49544	-0.11387
75	100.000	227.070	0.70945	0.09885
76	100.000	227.152	0.74570	0.13487
77	100.000	226.487	0.45069	-0.15835
78	100.000	228.129	1.17900	0.56555
79	100.000	226.765	0.57393	-0.03586
80	100.000	226.927	0.64608	0.03586
81	100.000	228.200	1.21039	0.07083
82	100.000	228.348	1.27621	0.13591
83	100.000	226.976	0.66743	-0.46601
84	100.000	228.136	1.18223	0.04299
85	100.000	227.940	1.09528	-0.04299
86	100.000	227.400	0.85571	-0.27985
87	100.000	227.898	1.07665	-0.06141
88	100.000	228.200	1.21046	0.07090
89	100.000	227.685	0.98195	-0.00978
90	100.000	227.521	0.90949	-0.08153
91	100.000	227.408	0.85933	-0.13121
92	100.000	227.787	1.02749	0.03531
93	100.000	227.997	1.12049	0.12739
94	100.000	226.848	0.61097	-0.37712
95	100.000	227.729	1.00172	0.00978
96	100.000	228.163	1.19431	0.20049
97	100.000	226.749	0.56697	-0.08949
98	100.000	226.870	0.62078	-0.03603
99	100.000	227.034	0.69331	0.03602
100	100.000	226.631	0.51445	-0.14166
101	100.000	227.451	0.87844	0.21995
102	100.000	225.799	0.14542	-0.50829
103	100.000	227.307	0.81449	0.15641

104	100.000	227.235	0.78271	0.12484
105	100.000	227.855	1.05739	0.04526
106	100.000	227.345	0.83144	-0.17843
107	100.000	228.088	1.16092	0.14775
108	100.000	227.364	0.83958	-0.17037
109	100.000	226.545	0.47668	-0.52963
110	100.000	227.742	1.00749	-0.00414
111	100.000	227.761	1.01585	0.00414
112	100.000	228.093	1.16286	0.14967
	MEAN:	227.354	0.83535	

WORST CASE CHN: 20 78
GAIN ACCURACY SPECIFICATION (< 2.00000%)
PASSED
GAIN SIMILARITY SPECIFICATION (< 2.00000%)
PASSED

ANALYSIS HARMONIC_DISTORTION 6 0.0015

CHAN NO.	FNDMTL FREQ	FIRST FIVE HARMONIC CONTENT (%) 2	3	4	5	6	RMS TOTAL (%)
1	100.000	0.00071	0.00027	0.00042	0.00035	0.00056	0.00112
2	100.000	0.00070	0.00025	0.00042	0.00034	0.00056	0.00110
3	100.000	0.00069	0.00027	0.00043	0.00035	0.00054	0.00110
4	100.000	0.00071	0.00025	0.00043	0.00035	0.00054	0.00111
5	100.000	0.00070	0.00027	0.00042	0.00035	0.00056	0.00111
6	100.000	0.00071	0.00026	0.00041	0.00037	0.00056	0.00111
7	100.000	0.00071	0.00027	0.00042	0.00035	0.00056	0.00112
8	100.000	0.00069	0.00025	0.00044	0.00034	0.00054	0.00109
9	100.000	0.00026	0.00043	0.00055	0.00035	0.00034	0.00101
10	100.000	0.00029	0.00044	0.00056	0.00038	0.00034	0.00103
11	100.000	0.00030	0.00044	0.00057	0.00037	0.00034	0.00103
12	100.000	0.00031	0.00043	0.00056	0.00038	0.00033	0.00103
13	100.000	0.00026	0.00044	0.00056	0.00038	0.00031	0.00101
14	100.000	0.00029	0.00043	0.00057	0.00038	0.00032	0.00102
15	100.000	0.00029	0.00044	0.00056	0.00036	0.00032	0.00102
16	100.000	0.00029	0.00044	0.00056	0.00037	0.00033	0.00102
17	100.000	0.00028	0.00039	0.00042	0.00019	0.00025	0.00083
18	100.000	0.00026	0.00038	0.00040	0.00019	0.00026	0.00081
19	100.000	0.00030	0.00038	0.00040	0.00019	0.00023	0.00080
20	100.000	0.00035	0.00040	0.00042	0.00017	0.00025	0.00085
21	100.000	0.00028	0.00042	0.00039	0.00019	0.00025	0.00082
22	100.000	0.00026	0.00039	0.00038	0.00020	0.00026	0.00081
23	100.000	0.00025	0.00039	0.00040	0.00020	0.00026	0.00081
24	100.000	0.00033	0.00040	0.00040	0.00019	0.00025	0.00083
25	100.000	0.00044	0.00046	0.00047	0.00044	0.00030	0.00104
26	100.000	0.00047	0.00048	0.00048	0.00044	0.00029	0.00106
27	100.000	0.00049	0.00048	0.00045	0.00044	0.00031	0.00106
28	100.000	0.00051	0.00045	0.00046	0.00045	0.00029	0.00106
29	100.000	0.00051	0.00044	0.00047	0.00045	0.00030	0.00106
30	100.000	0.00051	0.00044	0.00046	0.00045	0.00030	0.00106
31	100.000	0.00049	0.00044	0.00047	0.00046	0.00030	0.00106
32	100.000	0.00053	0.00046	0.00045	0.00044	0.00029	0.00107
33	100.000	0.00024	0.00037	0.00048	0.00036	0.00040	0.00089

34	100.000	0.00025	0.00037	0.00045	0.00035	0.00037	0.00087
35	100.000	0.00026	0.00041	0.00047	0.00037	0.00040	0.00092
36	100.000	0.00027	0.00038	0.00047	0.00035	0.00041	0.00090
37	100.000	0.00024	0.00038	0.00047	0.00037	0.00042	0.00091
38	100.000	0.00023	0.00035	0.00045	0.00036	0.00042	0.00088
39	100.000	0.00024	0.00036	0.00046	0.00035	0.00042	0.00088
40	100.000	0.00027	0.00036	0.00046	0.00033	0.00038	0.00088
41	100.000	0.00060	0.00033	0.00015	0.00031	0.00024	0.00085
42	100.000	0.00059	0.00031	0.00013	0.00032	0.00022	0.00084
43	100.000	0.00058	0.00030	0.00013	0.00031	0.00023	0.00082
44	100.000	0.00059	0.00031	0.00014	0.00031	0.00023	0.00084
45	100.000	0.00059	0.00033	0.00012	0.00033	0.00023	0.00085
46	100.000	0.00057	0.00032	0.00014	0.00033	0.00023	0.00083
47	100.000	0.00059	0.00031	0.00014	0.00032	0.00022	0.00082
48	100.000	0.00057	0.00031	0.00014	0.00031	0.00026	0.00083
49	100.000	0.00045	0.00056	0.00056	0.00053	0.00028	0.00118
50	100.000	0.00045	0.00053	0.00055	0.00053	0.00029	0.00116
51	100.000	0.00045	0.00055	0.00056	0.00054	0.00030	0.00118
52	100.000	0.00046	0.00054	0.00056	0.00053	0.00030	0.00118
53	100.000	0.00047	0.00056	0.00055	0.00053	0.00029	0.00118
54	100.000	0.00046	0.00054	0.00058	0.00053	0.00029	0.00118
55	100.000	0.00045	0.00055	0.00055	0.00053	0.00030	0.00117
56	100.000	0.00047	0.00055	0.00057	0.00052	0.00031	0.00119
57	100.000	0.00058	0.00029	0.00039	0.00039	0.00037	0.00097
58	100.000	0.00066	0.00028	0.00037	0.00038	0.00036	0.00100
59	100.000	0.00063	0.00030	0.00037	0.00037	0.00037	0.00098
60	100.000	0.00067	0.00029	0.00037	0.00037	0.00037	0.00101
61	100.000	0.00057	0.00028	0.00039	0.00040	0.00037	0.00096
62	100.000	0.00059	0.00034	0.00036	0.00034	0.00039	0.00097
63	100.000	0.00060	0.00026	0.00037	0.00037	0.00036	0.00096
64	100.000	0.00064	0.00031	0.00038	0.00037	0.00037	0.00100
65	100.000	0.00039	0.00068	0.00042	0.00048	0.00017	0.00113
66	100.000	0.00038	0.00069	0.00042	0.00048	0.00016	0.00112
67	100.000	0.00037	0.00067	0.00042	0.00047	0.00015	0.00111
68	100.000	0.00037	0.00067	0.00042	0.00047	0.00017	0.00111
69	100.000	0.00038	0.00070	0.00042	0.00048	0.00018	0.00113
70	100.000	0.00037	0.00067	0.00041	0.00047	0.00017	0.00110
71	100.000	0.00040	0.00066	0.00044	0.00046	0.00017	0.00111
72	100.000	0.00036	0.00068	0.00041	0.00048	0.00016	0.00111
73	100.000	0.00016	0.00031	0.00054	0.00024	0.00019	0.00075
74	100.000	0.00019	0.00032	0.00052	0.00026	0.00017	0.00075
75	100.000	0.00019	0.00036	0.00054	0.00023	0.00017	0.00077
76	100.000	0.00023	0.00031	0.00053	0.00025	0.00019	0.00077
77	100.000	0.00016	0.00033	0.00052	0.00025	0.00018	0.00074
78	100.000	0.00017	0.00037	0.00052	0.00024	0.00020	0.00077
79	100.000	0.00017	0.00035	0.00054	0.00024	0.00019	0.00077
80	100.000	0.00018	0.00032	0.00054	0.00023	0.00018	0.00076
81	100.000	0.00019	0.00039	0.00040	0.00051	0.00024	0.00086
82	100.000	0.00019	0.00039	0.00040	0.00052	0.00026	0.00087
83	100.000	0.00017	0.00039	0.00044	0.00053	0.00024	0.00088
84	100.000	0.00020	0.00040	0.00041	0.00052	0.00024	0.00087
85	100.000	0.00016	0.00040	0.00039	0.00052	0.00022	0.00085
86	100.000	0.00018	0.00040	0.00040	0.00051	0.00025	0.00087
87	100.000	0.00018	0.00039	0.00039	0.00051	0.00024	0.00085

88	100.000	0.00018	0.00040	0.00042	0.00053	0.00024	0.00088
89	100.000	0.00030	0.00061	0.00033	0.00040	0.00060	0.00107
90	100.000	0.00029	0.00061	0.00035	0.00041	0.00058	0.00107
91	100.000	0.00026	0.00063	0.00032	0.00039	0.00060	0.00107
92	100.000	0.00027	0.00062	0.00033	0.00040	0.00059	0.00106
93	100.000	0.00029	0.00062	0.00034	0.00042	0.00058	0.00108
94	100.000	0.00030	0.00063	0.00033	0.00041	0.00058	0.00107
95	100.000	0.00028	0.00062	0.00034	0.00040	0.00059	0.00108
96	100.000	0.00027	0.00060	0.00035	0.00040	0.00057	0.00105
97	100.000	0.00038	0.00021	0.00026	0.00021	0.00031	0.00070
98	100.000	0.00039	0.00021	0.00024	0.00022	0.00035	0.00072
99	100.000	0.00042	0.00023	0.00022	0.00023	0.00035	0.00074
100	100.000	0.00043	0.00020	0.00023	0.00021	0.00035	0.00073
101	100.000	0.00036	0.00021	0.00025	0.00024	0.00035	0.00071
102	100.000	0.00036	0.00023	0.00024	0.00022	0.00034	0.00070
103	100.000	0.00038	0.00022	0.00024	0.00024	0.00036	0.00073
104	100.000	0.00039	0.00023	0.00023	0.00022	0.00035	0.00071
105	100.000	0.00036	0.00050	0.00043	0.00055	0.00060	0.00119
106	100.000	0.00037	0.00055	0.00044	0.00056	0.00060	0.00122
107	100.000	0.00038	0.00052	0.00043	0.00057	0.00063	0.00123
108	100.000	0.00039	0.00050	0.00042	0.00056	0.00060	0.00119
109	100.000	0.00038	0.00053	0.00044	0.00057	0.00062	0.00122
110	100.000	0.00039	0.00052	0.00044	0.00057	0.00060	0.00122
111	100.000	0.00040	0.00053	0.00043	0.00057	0.00061	0.00123
112	100.000	0.00041	0.00052	0.00044	0.00057	0.00060	0.00123
						MEAN:	0.00097
					WORST CASE CHN:		111

HARMONIC DISTORTION SPECIFICATION (< 0.00150 %)
PASSED

FILE 1013

ANALYSIS PHASE 0.1

CHAN	TEST FREQ (HZ)	SIMILARITY (DEGREE)
1	100.000	-0.00050
2	100.000	-0.00045
3	100.000	-0.00002
4	100.000	0.00011
5	100.000	-0.00021
6	100.000	0.00002
7	100.000	0.00007
8	100.000	0.00025
9	100.000	-0.00049
10	100.000	-0.00007
11	100.000	-0.00026
12	100.000	0.00049
13	100.000	0.00027
14	100.000	-0.00006
15	100.000	0.00031
16	100.000	0.00006
17	100.000	-0.00019

18	100.000	-0.00013
19	100.000	-0.00002
20	100.000	0.00028
21	100.000	-0.00018
22	100.000	0.00002
23	100.000	0.00065
24	100.000	0.00069
25	100.000	-0.00055
26	100.000	-0.00028
27	100.000	-0.00001
28	100.000	0.00027
29	100.000	-0.00028
30	100.000	0.00001
31	100.000	0.00007
32	100.000	0.00003
33	100.000	-0.00007
34	100.000	0.00064
35	100.000	-0.00050
36	100.000	0.00073
37	100.000	0.00002
38	100.000	0.00000
39	100.000	-0.00000
40	100.000	-0.00001
41	100.000	-0.00015
42	100.000	0.00003
43	100.000	-0.00044
44	100.000	-0.00056
45	100.000	0.00012
46	100.000	0.00027
47	100.000	0.00004
48	100.000	-0.00003
49	100.000	-0.00011
50	100.000	0.00010
51	100.000	0.00063
52	100.000	0.00002
53	100.000	-0.00039
54	100.000	-0.00021
55	100.000	-0.00002
56	100.000	0.00032
57	100.000	0.00024
58	100.000	0.00002
59	100.000	-0.00011
60	100.000	-0.00014
61	100.000	-0.00029
62	100.000	0.00014
63	100.000	0.00027
64	100.000	-0.00002
65	100.000	0.00055

66	100.000	-0.00019
67	100.000	-0.00023
68	100.000	0.00080
69	100.000	-0.00020
70	100.000	-0.00019
71	100.000	0.00019
72	100.000	0.00062
73	100.000	0.00052
74	100.000	0.00042
75	100.000	-0.00053
76	100.000	-0.00033
77	100.000	0.00019
78	100.000	0.00027
79	100.000	-0.00030
80	100.000	-0.00019
81	100.000	-0.00074
82	100.000	-0.00014
83	100.000	-0.00084
84	100.000	0.00053
85	100.000	0.00046
86	100.000	0.00014
87	100.000	-0.00029
88	100.000	0.00045
89	100.000	0.00018
90	100.000	0.00017
91	100.000	-0.00070
92	100.000	0.00029
93	100.000	-0.00061
94	100.000	-0.00066
95	100.000	0.00016
96	100.000	-0.00016
97	100.000	0.00004
98	100.000	-0.00004
99	100.000	0.00035
100	100.000	-0.00065
101	100.000	0.00039
102	100.000	-0.00025
103	100.000	-0.00057
104	100.000	0.00027
105	100.000	-0.00002
106	100.000	-0.00049
107	100.000	0.00003
108	100.000	0.00002
109	100.000	-0.00040
110	100.000	-0.00035
111	100.000	0.00009
112	100.000	0.00029

WORST CASE CHN: 83

PHASE SIMILARITY SPECIFICATION (< 0.100 DEG)
PASSED

TEST RESULT ALL TESTS
PASSED

TOTAL TIME: 48 SECONDS (46+2)

Appendix B2: Geometrics P-Cable Depth Sensor Validation Procedure

Geometrics P-Cable Depth Sensor
Validation Procedure

Objective

The depth sensors used in the Geometrics P-Cable/GeoEel system are mounted in housings in the P-Cable array. The pressure sensor has a threaded port open to sea water which is used for the depth measurement. Each pressure sensor has a unique serial number and is connected to the monitoring computer through the streamer P-Cable. The Geometrics CNT-2 software display the depth in meters of each sensor and also logs the depths in meters to computer file at user specified intervals. This procedure describes the method for measuring the pressure apllied to each sensor and verifying that the depth is within +/- 0.14 meters (+/- 0.20 psi) at a depth of 7.03 meters (10.0 psi)

Frequency of Validation

The validation of each depth sensor is done every twelve months or prior to use on each project.

Test Equipment Required

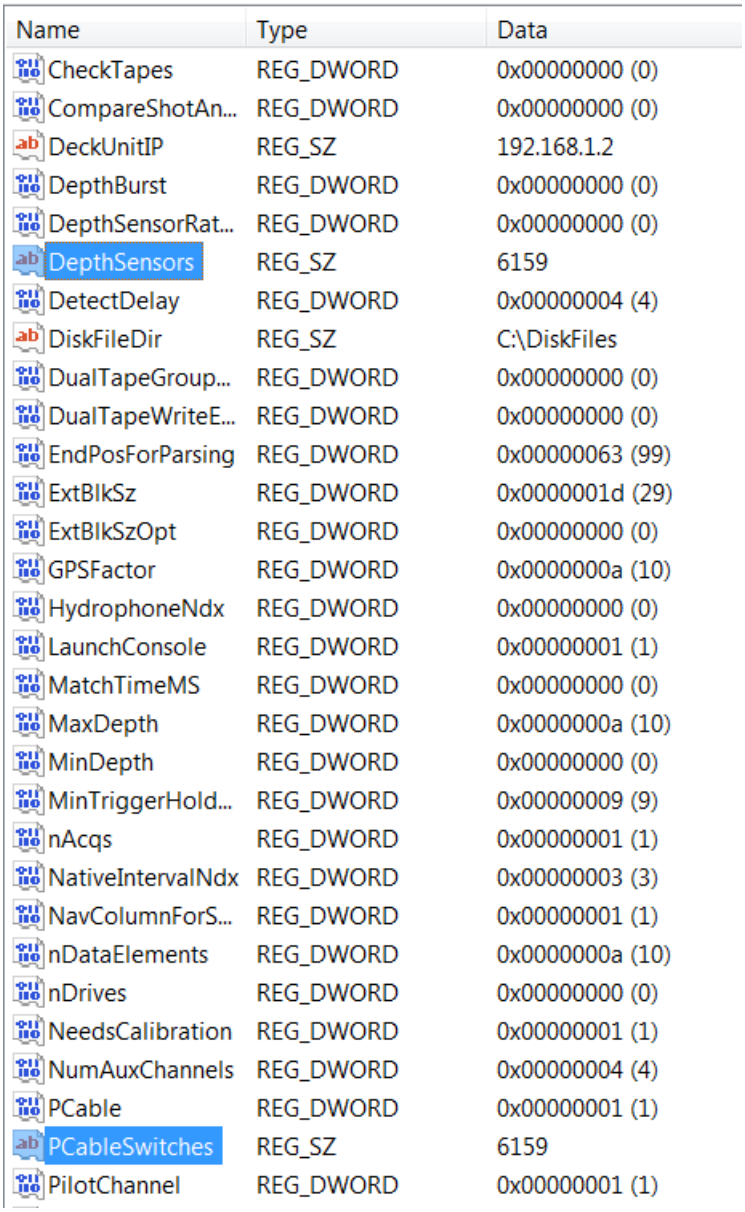
The following equipment is required.

1. Digital Pressure Gauge, Cecomp Electronics Model DPG1000B15PSIG-5
2. Air hose and fittings to connect to the Model 57659-02 switch and sensor module
3. Cables to connect to the switch and acquisition computer running Geometrics CNT-2 software
4. Air compressor capable of supplying at least 25 psi pressure
5. GeoEel manual for reference to various menus being used

Procedure

This procedure is designed to be performed using the accompanying Depth Sensor Validation Data Form. All data must be entered and the procedure signed by the technician performing the test.

1. Record all identification data on the Depth Sensor Validation Data Form form provided.
2. Connect the sensor module under test to the streamer cable. Power on the GeoEel SPSU and acquisition computer. Record the serial number of the module being tested.
3. Properly seal the unit under test into the fittings and pressure gauge.
4. Open the registry and input the serial number of the switch and depth sensor in the correct fields. (The depth sensor and switch that have the same serial number must be used together)

5. 

Name	Type	Data
CheckTapes	REG_DWORD	0x00000000 (0)
CompareShotAn...	REG_DWORD	0x00000000 (0)
DeckUnitIP	REG_SZ	192.168.1.2
DepthBurst	REG_DWORD	0x00000000 (0)
DepthSensorRat...	REG_DWORD	0x00000000 (0)
DepthSensors	REG_SZ	6159
DetectDelay	REG_DWORD	0x00000004 (4)
DiskFileDir	REG_SZ	C:\DiskFiles
DualTapeGroup...	REG_DWORD	0x00000000 (0)
DualTapeWriteE...	REG_DWORD	0x00000000 (0)
EndPosForParsing	REG_DWORD	0x00000063 (99)
ExtBlkSz	REG_DWORD	0x0000001d (29)
ExtBlkSzOpt	REG_DWORD	0x00000000 (0)
GPSFactor	REG_DWORD	0x0000000a (10)
HydrophoneNdx	REG_DWORD	0x00000000 (0)
LaunchConsole	REG_DWORD	0x00000001 (1)
MatchTimeMS	REG_DWORD	0x00000000 (0)
MaxDepth	REG_DWORD	0x0000000a (10)
MinDepth	REG_DWORD	0x00000000 (0)
MinTriggerHold...	REG_DWORD	0x00000009 (9)
nAcqs	REG_DWORD	0x00000001 (1)
NativeIntervalNdx	REG_DWORD	0x00000003 (3)
NavColumnForS...	REG_DWORD	0x00000001 (1)
nDataElements	REG_DWORD	0x0000000a (10)
nDrives	REG_DWORD	0x00000000 (0)
NeedsCalibration	REG_DWORD	0x00000001 (1)
NumAuxChannels	REG_DWORD	0x00000004 (4)
PCable	REG_DWORD	0x00000001 (1)
PCableSwitches	REG_SZ	6159
PilotChannel	REG_DWORD	0x00000001 (1)

6. Open a survey and call it test validation. Set up the survey. (The specifics are not important)
7. With the survey open and the pressure as 0 psi, press Ctl+F1 three times to take a recording at 0 psi.
8. Increase the pressure to 10 psi and press Ctl+F1 three times to take a recording at 10 psi. The depth is recorded in the depth text file under the log file folder.
9. Open the log file with the depth readings. Verify that the depth readings are logged and that they show the readings (in meters) at zero pressure and at 10.00 psi and the correct serial number.
10. Repeat this test for each sensor to be used for the project, including any spares.
11. Print the depth report for all tested pressure sensors and attach to depth sensor validation data form.

CRITERIA

The values for zero pressure are 0.00 +/- .10 meters
The values for 10.00 psi are 7.03+/- 0.14 meters

If the results are outside these ranges, the sensor module must be marked with a REJECT tag until it can be repaired and retested.

If results are acceptable affix label indicating the initials of the person performing the validation, the date of validation, and the due date for the next validation (12 months).

PROCEDURE APPROVAL

Approved by: _____ _____
Name Title

_____ _____
Signature Date

P-Cable Depth Sensor Validation report

S/N	Depth Reading
7001	-0.00m
7001	0.00m
7001	0.00m
7001	7.08m
7001	7.07m
7001	7.07m
6127	0.02m
6127	0.02m
6127	0.02m
6127	7.11m
6127	7.11m
6127	7.10m
6155	0.04m
6155	0.03m
6155	0.04m
6155	7.14m
6155	7.14m
6155	7.14m
7002	0.02m
7002	0.02m
7002	0.02m
7002	7.13m
7002	7.12m
7002	7.12m
6153	0.03m
6153	0.03m
6153	0.03m
6153	7.12m
6153	7.12m
6153	7.11m
6152	0.03m
6152	0.03m
6152	0.03m
6152	7.07m
6152	7.07m
6152	7.07m

S/N	Depth Reading
7003	0.06m
7003	0.06m
7003	0.06m
7003	7.12m
7003	7.12m
7003	7.11m
6149	0.02m
6149	0.02m
6149	0.02m
6149	7.12m
6149	7.12m
6149	7.12m
6150	-0.03m
6150	-0.03m
6150	-0.02m
6150	7.01m
6150	7.00m
6150	7.00m
7004	0.02m
7004	0.02m
7004	0.02m
7004	7.11m
7004	7.11m
7004	7.11m
6147	0.01m
6147	0.01m
6147	0.01m
6147	7.10m
6147	7.10m
6147	7.10m
6128	0.04m
6128	0.04m
6128	0.04m
6128	7.09m
6128	7.10m
6128	7.09m

S/N	Depth Reading
7005	0.06m
7005	0.06m
7005	0.06m
7005	7.12m
7005	7.13m
7005	7.12m
6143	0.03m
6143	0.03m
6143	0.02m
6143	7.09m
6143	7.09m
6143	7.09m
6151	-0.01m
6151	-0.01m
6151	-0.01m
6151	7.04m
6151	7.04m
6151	7.04m
6189	0.02m
6189	0.02m
6189	0.02m
6189	7.09m
6189	7.09m
6189	7.09m
6141	0.04m
6141	0.04m
6141	0.04m
6141	7.11m
6141	7.11m
6141	7.11m
6140	0.03m
6140	0.04m
6140	0.04m
6140	7.08m
6140	7.08m
6140	7.08m

S/N	Depth Reading
7005	0.06m
7005	0.06m
7005	0.06m
7005	7.12m
7005	7.13m
7005	7.12m
6143	0.03m
6143	0.03m
6143	0.02m
6143	7.09m
6143	7.09m
6143	7.09m
6144	-0.01m
6144	-0.01m
6144	-0.01m
6144	7.01m
6144	7.01m
6144	7.01m
6158	0.01m
6158	0.01m
6158	0.01m
6158	7.06m
6158	7.06m
6158	7.06m
6135	0.04m
6135	0.04m
6135	0.03m
6135	7.08m
6135	7.08m
6135	7.08m
6156	0.03m
6156	0.03m
6156	0.03m
6156	7.09m
6156	7.08m
6156	7.08m

S/N	Depth Reading
6131	-0.03m
6131	-0.03m
6131	-0.03m
6131	7.04m
6131	7.03m
6131	7.04m
6145	0.04m
6145	0.04m
6145	0.04m
6145	7.08m
6145	7.07m
6145	7.07m
6200	0.02m
6200	0.01m
6200	0.02m
6200	7.05m
6200	7.05m
6200	7.04m
6201	-0.01m
6201	-0.01m
6201	-0.01m
6201	7.05m
6201	7.04m
6201	7.03m
TC001	-0.00m
TC001	-0.00m
TC001	-0.00m
TC001	7.07m
TC001	7.07m
TC001	7.07m
TC002	-0.00m
TC002	-0.00m
TC002	0.00m
TC002	7.08m
TC002	7.08m
TC002	7.08m

S/N	Depth Reading
TC003	0.04m
TC003	0.04m
TC003	0.04m
TC003	7.13m
TC003	7.13m
TC003	7.13m
TC004	0.03m
TC004	0.03m
TC004	0.03m
TC004	7.11m
TC004	7.11m
TC004	7.11m
TC005	0.02m
TC005	0.02m
TC005	0.02m
TC005	7.11m
TC005	7.10m
TC005	7.11m
TC006	0.02m
TC006	0.02m
TC006	0.02m
TC006	7.10m
TC006	7.09m
TC006	7.09m
TC007	0.02m
TC007	0.02m
TC007	0.02m
TC007	7.12m
TC007	7.12m
TC007	7.12m
TC008	0.01m
TC008	0.01m
TC008	0.01m
TC008	7.08m
TC008	7.08m
TC008	7.08m

S/N	Depth Reading
TC009	0.00m
TC009	0.00m
TC009	0.00m
TC009	7.12m
TC009	7.12m
TC009	7.12m
TC010	0.04m
TC010	0.04m
TC010	0.04m
TC010	7.10m
TC010	7.10m
TC010	7.10m
6188	0.00m
6188	0.00m
6188	0.00m
6188	7.11m
6188	7.11m
6188	7.10m

Appendix B3: Geometrics GeoEel Streamer Capacitance Test

Geometrics GeoEel Streamer Capacitance Test

Survey: SONGS

Line Number: Test7

Date: 10/27/2013

Time: 0:39:46

Version: 5.670:3

Note: All streamer sections including spares for SONGS 3-D survey were tested and recorded below:

Values (nF):

Streamer #1 S/N 227								
Channel:	Ch 1	Ch 2	Ch 3	Ch 4	Ch 5	Ch 6	Ch 7	Ch 8
Cap (nF):	66.46	68.91	66.59	67.11	67.33	68.56	66.67	67.68
Result %:	102.25	106.02	102.45	103.25	103.58	105.48	102.57	104.12
Streamer #2 S/N 251								
Channel:	Ch 9	Ch 10	Ch 11	Ch 12	Ch 13	Ch 14	Ch 15	Ch 16
Cap (nF):	69.33	68.47	67.71	68.35	67.87	68.11	68.02	69.06
Result %:	106.66	105.34	104.17	105.15	104.42	104.78	104.65	106.25
Streamer #3 S/N 226								
Channel:	Ch 17	Ch 18	Ch 19	Ch 20	Ch 21	Ch 22	Ch 23	Ch 24
Cap (nF):	68.59	67.48	69.10	67.33	67.93	67.33	67.08	67.91
Result %:	105.52	103.82	106.31	103.58	104.51	103.58	103.20	104.48
Streamer #4 S/N 277								
Channel:	Ch 25	Ch 26	Ch 27	Ch 28	Ch 29	Ch 30	Ch 31	Ch 32
Cap (nF):	68.86	69.79	70.26	68.89	69.35	69.38	68.45	68.85
Result %:	105.94	107.37	108.09	105.98	106.69	106.74	105.31	105.92
Streamer #5 S/N 278								
Channel:	Ch 33	Ch 34	Ch 35	Ch 36	Ch 37	Ch 38	Ch 39	Ch 40
Cap (nF):	68.87	69.39	68.69	68.67	68.57	68.73	69.61	68.61
Result %:	105.95	106.75	105.68	105.65	105.49	105.74	107.09	105.55
Streamer #6 S/N 285								
Channel:	Ch 41	Ch 42	Ch 43	Ch 44	Ch 45	Ch 46	Ch 47	Ch 48
Cap (nF):	68.76	69.21	69.84	68.71	68.52	69.16	69.35	69.11
Result %:	105.78	106.48	107.45	105.71	105.42	106.40	106.69	106.32
Streamer #7 S/N 282								
Channel:	Ch 49	Ch 50	Ch 51	Ch 52	Ch 53	Ch 54	Ch 55	Ch 56
Cap (nF):	68.47	69.75	69.52	69.34	69.62	69.38	70.37	69.59
Result %:	105.34	107.31	106.95	106.68	107.11	106.74	108.26	107.06
Streamer #8 S/N 284								
Channel:	Ch 57	Ch 58	Ch 59	Ch 60	Ch 61	Ch 62	Ch 63	Ch 64
Cap (nF):	69.63	69.39	69.46	68.42	70.44	70.08	69.98	68.49
Result %:	107.12	106.75	106.86	105.26	108.37	107.82	107.66	105.37
Streamer #9 S/N 281								
Channel:	Ch 65	Ch 66	Ch 67	Ch 68	Ch 69	Ch 70	Ch 71	Ch 72
Cap (nF):	68.76	69.49	68.91	69.48	69.57	69.60	68.78	69.03
Result %:	105.78	106.91	106.02	106.89	107.03	107.08	105.82	106.20

Geometrics GeoEel Streamer Capacitance Test

Survey: SONGS

Line Number: Test7

Streamer #10 S/N 250								
Channel:	Ch 73	Ch 74	Ch 75	Ch 76	Ch 77	Ch 78	Ch 79	Ch 80
Cap (nF):	68.19	68.59	69.02	67.54	68.46	67.83	67.84	68.69
Result %:	104.91	105.52	106.18	103.91	105.32	104.35	104.37	105.68
Streamer #11 S/N 276								
Channel:	Ch 81	Ch 82	Ch 83	Ch 84	Ch 85	Ch 86	Ch 87	Ch 88
Cap (nF):	65.79	66.45	66.57	66.94	68.99	69.07	69.58	69.72
Result %:	101.22	102.23	102.42	102.98	106.14	106.26	107.05	107.26
Streamer #12 S/N 288								
Channel:	Ch 89	Ch 90	Ch 91	Ch 92	Ch 93	Ch 94	Ch 95	Ch 96
Cap (nF):	68.20	68.73	68.76	66.62	69.50	68.94	69.22	68.73
Result %:	104.92	105.74	105.78	102.49	106.92	106.06	106.49	105.74
Streamer #13 S/N 287								
Channel:	Ch 97	Ch 98	Ch 99	Ch 100	Ch 101	Ch 102	Ch 103	Ch 104
Cap (nF):	68.75	68.28	67.87	69.21	68.54	68.63	68.69	68.43
Result %:	105.77	105.05	104.42	106.48	105.45	105.58	105.68	105.28
Streamer #14 S/N 279								
Channel:	Ch 105	Ch 106	Ch 107	Ch 108	Ch 109	Ch 110	Ch 111	Ch 112
Cap (nF):	69.58	68.65	69.63	69.32	69.12	67.76	68.65	69.42
Result %:	107.05	105.62	107.12	106.65	106.34	104.25	105.62	106.80

Geometrics GeoEel Streamer Capacitance Test

Survey: SONGS

Line Number: 3811A

Date: 10/31/2013

Time: 23:05:02

Version: 5.670:3

Note: All streamer sections including spares for SONGS 3-D survey were tested and recorded below:

Values (nF):

Streamer #1 S/N 227								
Channel:	Ch 1	Ch 2	Ch 3	Ch 4	Ch 5	Ch 6	Ch 7	Ch 8
Cap (nF):	67.30	68.30	66.54	66.99	67.96	68.25	67.24	68.06
Result %:	103.54	105.08	102.37	103.06	104.55	105.00	103.45	104.71
Streamer #2 S/N 251								
Channel:	Ch 9	Ch 10	Ch 11	Ch 12	Ch 13	Ch 14	Ch 15	Ch 16
Cap (nF):	68.51	68.34	67.85	67.77	68.61	68.75	68.78	68.97
Result %:	105.40	105.14	104.38	104.26	105.55	105.77	105.82	106.11
Streamer #3 S/N 226								
Channel:	Ch 17	Ch 18	Ch 19	Ch 20	Ch 21	Ch 22	Ch 23	Ch 24
Cap (nF):	68.78	67.15	68.08	67.72	67.47	68.31	67.34	68.04
Result %:	105.82	103.31	104.74	104.18	103.80	105.09	103.60	104.68
Streamer #4 S/N 277								
Channel:	Ch 25	Ch 26	Ch 27	Ch 28	Ch 29	Ch 30	Ch 31	Ch 32
Cap (nF):	70.07	69.66	69.70	68.28	68.67	69.05	68.26	68.99
Result %:	107.80	107.17	107.23	105.05	105.65	106.23	105.02	106.14
Streamer #5 S/N 278								
Channel:	Ch 33	Ch 34	Ch 35	Ch 36	Ch 37	Ch 38	Ch 39	Ch 40
Cap (nF):	69.61	70.08	68.46	69.33	67.27	69.28	68.91	69.24
Result %:	107.09	107.82	105.32	106.66	103.49	106.58	106.02	106.52
Streamer #6 S/N 285								
Channel:	Ch 41	Ch 42	Ch 43	Ch 44	Ch 45	Ch 46	Ch 47	Ch 48
Cap (nF):	69.13	69.81	70.29	69.21	69.15	69.56	69.60	69.23
Result %:	106.35	107.40	108.14	106.48	106.38	107.02	107.08	106.51
Streamer #7 S/N 282								
Channel:	Ch 49	Ch 50	Ch 51	Ch 52	Ch 53	Ch 54	Ch 55	Ch 56
Cap (nF):	68.98	68.84	70.10	69.08	69.32	69.50	70.71	69.11
Result %:	106.12	105.91	107.85	106.28	106.65	106.92	108.78	106.32
Streamer #8 S/N 284								
Channel:	Ch 57	Ch 58	Ch 59	Ch 60	Ch 61	Ch 62	Ch 63	Ch 64
Cap (nF):	69.69	69.14	69.71	68.63	70.58	69.63	69.64	68.73
Result %:	107.22	106.37	107.25	105.58	108.58	107.12	107.14	105.74
Streamer #9 S/N 281								
Channel:	Ch 65	Ch 66	Ch 67	Ch 68	Ch 69	Ch 70	Ch 71	Ch 72
Cap (nF):	69.80	69.39	69.48	69.01	69.66	69.41	68.94	68.99
Result %:	107.38	106.75	106.89	106.17	107.17	106.78	106.06	106.14

Geometrics GeoEel Streamer Capacitance Test

Survey: SONGS

Line Number: 3811A

Streamer #10 S/N 250								
Channel:	Ch 73	Ch 74	Ch 75	Ch 76	Ch 77	Ch 78	Ch 79	Ch 80
Cap (nF):	68.59	68.20	69.03	67.19	68.71	68.30	67.72	68.64
Result %:	105.52	104.92	106.20	103.37	105.71	105.08	104.18	105.60
Streamer #11 S/N 276								
Channel:	Ch 81	Ch 82	Ch 83	Ch 84	Ch 85	Ch 86	Ch 87	Ch 88
Cap (nF):	66.94	67.16	67.01	67.52	69.71	69.14	69.67	69.73
Result %:	102.98	103.32	103.09	103.88	107.25	106.37	107.18	107.28
Streamer #12 S/N 288								
Channel:	Ch 89	Ch 90	Ch 91	Ch 92	Ch 93	Ch 94	Ch 95	Ch 96
Cap (nF):	69.36	69.00	69.18	66.65	69.42	68.58	69.31	68.75
Result %:	106.71	106.15	106.43	102.54	106.80	105.51	106.63	105.77
Streamer #13 S/N 287								
Channel:	Ch 97	Ch 98	Ch 99	Ch 100	Ch 101	Ch 102	Ch 103	Ch 104
Cap (nF):	69.22	68.88	68.68	70.25	68.87	68.28	69.23	68.11
Result %:	106.49	105.97	105.66	108.08	105.95	105.05	106.51	104.78
Streamer #14 S/N 279								
Channel:	Ch 105	Ch 106	Ch 107	Ch 108	Ch 109	Ch 110	Ch 111	Ch 112
Cap (nF):	69.43	595.72	70.12	69.52	69.48	68.61	69.21	68.92
Result %:	106.82	916.49	107.88	106.95	106.89	105.55	106.48	106.03

Channel 106 Failed; Leakage Test shows 188 Kohm

Appendix B4: Geometrics Leakage Report

Geometrics Leakage Report
Survey: SONGS
Line Number: Test7
Date: 10/27/2013
Time: 0:27:02
Version: 5.670:3
Values (kOhms):

Channel:	Ch 1	Ch 2	Ch 3	Ch 4	Ch 5	Ch 6	Ch 7	Ch 8
R (kOhm):	12000	15000	12000	12000	15000	12000	15000	12000
Result:	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed
Channel:	Ch 9	Ch 10	Ch 11	Ch 12	Ch 13	Ch 14	Ch 15	Ch 16
R (kOhm):	15000	12000	12000	12000	15000	12000	12000	15000
Result:	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed
Channel:	Ch 17	Ch 18	Ch 19	Ch 20	Ch 21	Ch 22	Ch 23	Ch 24
R (kOhm):	12000	12000	12000	12000	33248.4	12000	12000	12000
Result:	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed
Channel:	Ch 25	Ch 26	Ch 27	Ch 28	Ch 29	Ch 30	Ch 31	Ch 32
R (kOhm):	12000	12000	12000	12000	30501.6	12000	12000	12000
Result:	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed
Channel:	Ch 33	Ch 34	Ch 35	Ch 36	Ch 37	Ch 38	Ch 39	Ch 40
R (kOhm):	12000	12000	27831.7	12000	33202.4	23011	12000	12000
Result:	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed
Channel:	Ch 41	Ch 42	Ch 43	Ch 44	Ch 45	Ch 46	Ch 47	Ch 48
R (kOhm):	12000	12000	12000	12000	32171.7	12000	12000	12000
Result:	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed
Channel:	Ch 49	Ch 50	Ch 51	Ch 52	Ch 53	Ch 54	Ch 55	Ch 56
R (kOhm):	12000	12000	12000	12000	12000	12000	12000	12000
Result:	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed
Channel:	Ch 57	Ch 58	Ch 59	Ch 60	Ch 61	Ch 62	Ch 63	Ch 64
R (kOhm):	12000	15000	12000	12000	12000	12000	12000	12000
Result:	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed
Channel:	Ch 65	Ch 66	Ch 67	Ch 68	Ch 69	Ch 70	Ch 71	Ch 72
R (kOhm):	12000	12000	12000	12000	12000	12000	12000	12000
Result:	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed
Channel:	Ch 73	Ch 74	Ch 75	Ch 76	Ch 77	Ch 78	Ch 79	Ch 80
R (kOhm):	28571.2	12000	12000	32534.7	12000	12000	12000	12000
Result:	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed

Geometrics Leakage Report
Survey: SONGS
Line Number: Test7
Date: 10/27/2013

Channel:	Ch 81	Ch 82	Ch 83	Ch 84	Ch 85	Ch 86	Ch 87	Ch 88
R (kOhm):	12000	12000	12000	15000	12000	12000	12000	15000
Result:	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed
Channel:	Ch 89	Ch 90	Ch 91	Ch 92	Ch 93	Ch 94	Ch 95	Ch 96
R (kOhm):	12000	12000	15000	12000	12000	12000	12000	12000
Result:	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed
Channel:	Ch 97	Ch 98	Ch 99	Ch 100	Ch 101	Ch 102	Ch 103	Ch 104
R (kOhm):	12000	12000	12000	12000	12000	12000	12000	12000
Result:	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed
Channel:	Ch 105	Ch 106	Ch 107	Ch 108	Ch 109	Ch 110	Ch 111	Ch 112
R (kOhm):	12000	120000	15000	15000	12000	12000	12000	15000
Result:	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed

Geometrics Leakage Report

Survey: SONGS

Line Number: 3811A

Date: 11/1/2013

Time: 0:08:02

Version: 5.670:3

Values (kOhms):

Channel:	Ch 1	Ch 2	Ch 3	Ch 4	Ch 5	Ch 6	Ch 7	Ch 8
R (kOhm):	12000	15000	12000	12000	12000	12000	12000	12000
Result:	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed
Channel:	Ch 9	Ch 10	Ch 11	Ch 12	Ch 13	Ch 14	Ch 15	Ch 16
R (kOhm):	12000	12000	12000	12000	15000	12000	12000	15000
Result:	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed
Channel:	Ch 17	Ch 18	Ch 19	Ch 20	Ch 21	Ch 22	Ch 23	Ch 24
R (kOhm):	12000	12000	12000	12000	12000	15000	12000	12000
Result:	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed
Channel:	Ch 25	Ch 26	Ch 27	Ch 28	Ch 29	Ch 30	Ch 31	Ch 32
R (kOhm):	12000	12000	12000	12000	12000	12000	12000	12000
Result:	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed
Channel:	Ch 33	Ch 34	Ch 35	Ch 36	Ch 37	Ch 38	Ch 39	Ch 40
R (kOhm):	12000	12000	28211.8	12000	12000	12000	12000	12000
Result:	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed
Channel:	Ch 41	Ch 42	Ch 43	Ch 44	Ch 45	Ch 46	Ch 47	Ch 48
R (kOhm):	12000	12000	12000	12000	32171.7	12000	12000	12000
Result:	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed
Channel:	Ch 49	Ch 50	Ch 51	Ch 52	Ch 53	Ch 54	Ch 55	Ch 56
R (kOhm):	12000	12000	12000	12000	12000	12000	12000	12000
Result:	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed
Channel:	Ch 57	Ch 58	Ch 59	Ch 60	Ch 61	Ch 62	Ch 63	Ch 64
R (kOhm):	12000	15000	12000	12000	12000	12000	12000	12000
Result:	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed
Channel:	Ch 65	Ch 66	Ch 67	Ch 68	Ch 69	Ch 70	Ch 71	Ch 72
R (kOhm):	12000	12000	23862.2	12000	12000	12000	12000	30328.2
Result:	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed
Channel:	Ch 73	Ch 74	Ch 75	Ch 76	Ch 77	Ch 78	Ch 79	Ch 80
R (kOhm):	24768.7	12000	12000	24318.7	12000	12000	12000	12000
Result:	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed

Geometrics Leakage Report
Survey: SONGS
Line Number: 3811A
Date: 11/1/2013

Channel:	Ch 81	Ch 82	Ch 83	Ch 84	Ch 85	Ch 86	Ch 87	Ch 88
R (kOhm):	12000	12000	12000	15000	12000	12000	15000	15000
Result:	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed
Channel:	Ch 89	Ch 90	Ch 91	Ch 92	Ch 93	Ch 94	Ch 95	Ch 96
R (kOhm):	12000	12000	15000	12000	12000	12000	12000	12000
Result:	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed
Channel:	Ch 97	Ch 98	Ch 99	Ch 100	Ch 101	Ch 102	Ch 103	Ch 104
R (kOhm):	12000	12000	12000	12000	12000	12000	12000	12000
Result:	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed
Channel:	Ch 105	Ch 106	Ch 107	Ch 108	Ch 109	Ch 110	Ch 111	Ch 112
R (kOhm):	12000	118.2	15000	15000	12000	12000	12000	15000
Result:	Passed	FAILED	Passed	Passed	Passed	Passed	Passed	Passed

Appendix B5: Geometrics GeoEel Streamer Array Hydrophone Validation Procedure

Geometrics GeoEel Streamer Array
Hydrophone Validation Procedure

Objective

The GeoEel Solid Streamer hydrophone arrays consist of eight channels that are grouped into subarrays of twelve hydrophones each. Each array is 50 meters in length. The condition of each hydrophone subarray is determined by a measure of its capacitance and the leakage resistance to other wiring in the streamer. This procedure describes the method for measuring the capacitance and the leakage resistance of the hydrophone array. The objective is to verify that the capacitance of each subarray is between 60 and 70 nanofarads, and that its leakage resistance is greater than 1.0 megohms.

Frequency of Validation

The validation of each hydrophone array is done every twelve months or prior to use on each project.

Test Equipment Required

None: The test is performed by the digitizers

Procedure

A. Hydrophone Capacitance Test: With the all streamers plugged in and acquiring data, depress “F1” to disarm the system. Under the Testing/QC Banner, Select “ Hydrophone Capacitance Test” and click “Enter”. The test will be performed automatically by the controller software. Results will be stored in the “Log Files” directory. Rename the Hydrophone Capacitance Test file so that it can be archived with the other system performance tests.

B. Hydrophone Leakage Test: With the all streamers plugged in and acquiring data, depress “F1” to disarm the system. Under the Testing/QC Banner, Select “Hydrophone Leakage Test” and click “Enter”. The test will be performed automatically by the controller software. Results will be stored in the “Log Files” directory. Rename the Hydrophone Leakage Test file so that it can be archived with the other system performance tests.

CRITERIA

The values for capacitance test (A) are between 60 and 70 nanofarads.
The values for the leakage test (B) are greater than 1.0 megohms

If the results are outside these ranges, the hydrophone array must be marked with a REJECT tag until it can be repaired and retested.

PROCEDURE APPROVAL

Approved by: _____ _____
Name Title

_____ _____
Signature Date

Geometrics GeoEel Capacitance Test

Survey: SONGS

Line Number: Lab Test

Date: 9/23/2013

Time: 4:12 PM

Version: 5.670:3

Nominal Capacitance: 65nf

Note: All streamer sections including spares for SONGS 3-D survey were tested and recorded below:
Values (nF):

Channel:	Ch 1	Ch 2	Ch 3	Ch 4	Ch 5	Ch 6	Ch 7	Ch 8
Cap (nF):	68.76	68.53	68.83	69.30	68.92	68.71	68.86	68.57
Result %:	105.78	105.43	105.89	106.62	106.03	105.71	105.94	105.49
Channel:	Ch 9	Ch 10	Ch 11	Ch 12	Ch 13	Ch 14	Ch 15	Ch 16
Cap (nF):	68.52	68.98	68.93	69.85	69.15	68.77	68.73	69.97
Result %:	105.42	106.12	106.05	107.46	106.38	105.80	105.74	107.65
Channel:	Ch 17	Ch 18	Ch 19	Ch 20	Ch 21	Ch 22	Ch 23	Ch 24
Cap (nF):	69.97	70.11	68.55	68.61	69.08	69.27	68.51	68.52
Result %:	107.65	107.86	105.46	105.55	106.28	106.57	105.40	105.42
Channel:	Ch 25	Ch 26	Ch 27	Ch 28	Ch 29	Ch 30	Ch 31	Ch 32
Cap (nF):	68.58	69.14	69.66	69.11	68.76	68.92	68.72	69.06
Result %:	105.51	106.37	107.17	106.32	105.78	106.03	105.72	106.25
Channel:	Ch 33	Ch 34	Ch 35	Ch 36	Ch 37	Ch 38	Ch 39	Ch 40
Cap (nF):	68.49	69.55	68.97	69.77	69.32	68.83	68.52	69.72
Result %:	105.37	107.00	106.11	107.34	106.65	105.89	105.42	107.26
Channel:	Ch 41	Ch 42	Ch 43	Ch 44	Ch 45	Ch 46	Ch 47	Ch 48
Cap (nF):	68.10	69.45	68.49	68.47	68.45	69.16	69.02	68.61
Result %:	104.77	106.85	105.37	105.34	105.31	106.40	106.18	105.55
Channel:	Ch 49	Ch 50	Ch 51	Ch 52	Ch 53	Ch 54	Ch 55	Ch 56
Cap (nF):	68.63	69.13	68.71	69.38	68.16	68.80	69.31	68.72
Result %:	105.58	106.35	105.71	106.74	104.86	105.85	106.63	105.72
Channel:	Ch 57	Ch 58	Ch 59	Ch 60	Ch 61	Ch 62	Ch 63	Ch 64
Cap (nF):	69.26	69.52	69.56	69.10	69.17	68.48	68.71	69.13
Result %:	106.55	106.95	107.02	106.31	106.42	105.35	105.71	106.35
Channel:	Ch 65	Ch 66	Ch 67	Ch 68	Ch 69	Ch 70	Ch 71	Ch 72
Cap (nF):	69.19	68.34	68.03	69.15	68.42	68.08	68.24	67.78
Result %:	106.45	105.14	104.66	106.38	105.26	104.74	104.98	104.28
Channel:	Ch 73	Ch 74	Ch 75	Ch 76	Ch 77	Ch 78	Ch 79	Ch 80
Cap (nF):	68.27	69.01	69.18	68.70	66.84	68.38	68.70	69.18

Result %:	105.03	106.17	106.43	105.69	102.83	105.20	105.69	106.43
Channel:	Ch 81	Ch 82	Ch 83	Ch 84	Ch 85	Ch 86	Ch 87	Ch 88
Cap (nF):	69.53	67.76	69.23	68.53	69.87	69.51	69.46	69.35
Result %:	106.97	104.25	106.51	105.43	107.49	106.94	106.86	106.69
Channel:	Ch 89	Ch 90	Ch 91	Ch 92	Ch 93	Ch 94	Ch 95	Ch 96
Cap (nF):	67.68	69.51	68.90	67.62	68.13	67.58	68.59	67.39
Result %:	104.12	106.94	106.00	104.03	104.82	103.97	105.52	103.68
Channel:	Ch 97	Ch 98	Ch 99	Ch 100	Ch 101	Ch 102	Ch 103	Ch 104
Cap (nF):	66.85	67.89	68.75	68.11	67.51	67.96	68.42	67.35
Result %:	102.85	104.45	105.77	104.78	103.86	104.55	105.26	103.62
Channel:	Ch 105	Ch 106	Ch 107	Ch 108	Ch 109	Ch 110	Ch 111	Ch 112
Cap (nF):	67.34	68.66	66.99	67.31	67.35	67.47	66.55	68.08
Result %:	103.60	105.63	103.06	103.55	103.62	103.80	102.38	104.74
Channel:	Ch 113	Ch 114	Ch 115	Ch 116	Ch 117	Ch 118	Ch 119	Ch 120
Cap (nF):	66.75	66.83	66.68	66.78	69.35	68.92	68.92	69.28
Result %:	102.69	102.82	102.58	102.74	106.69	106.03	106.03	106.58
Channel:	Ch 121	Ch 122	Ch 123	Ch 124	Ch 125	Ch 126	Ch 127	Ch 128
Cap (nF):	68.27	67.63	67.89	68.00	67.48	68.80	68.43	68.17
Result %:	105.03	104.05	104.45	104.62	103.82	105.85	105.28	104.88
Channel:	Ch 129	Ch 130	Ch 131	Ch 132	Ch 133	Ch 134	Ch 135	Ch 136
Cap (nF):	67.70	66.94	67.48	67.96	67.64	67.16	66.66	67.52
Result %:	104.15	102.98	103.82	104.55	104.06	103.32	102.55	103.88
Channel:	Ch 137	Ch 138	Ch 139	Ch 140	Ch 141	Ch 142	Ch 143	Ch 144
Cap (nF):	67.40	67.93	67.74	67.54	67.38	67.81	67.46	67.87
Result %:	103.69	104.51	104.22	103.91	103.66	104.32	103.78	104.42

Geometrics Streamer Leakage Report

Survey: SONGS

Line Number: Lab Test

Date: 9/23/2013

Time: 16:13:30

Version: 5.670:3

Values (kOhms):

Channel:	Ch 1	Ch 2	Ch 3	Ch 4	Ch 5	Ch 6	Ch 7	Ch 8
R (kOhm):	12000	15000	12000	12000	12000	12000	15000	12000
Result:	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed
Channel:	Ch 9	Ch 10	Ch 11	Ch 12	Ch 13	Ch 14	Ch 15	Ch 16
R (kOhm):	15000	12000	12000	12000	12000	12000	12000	15000
Result:	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed
Channel:	Ch 17	Ch 18	Ch 19	Ch 20	Ch 21	Ch 22	Ch 23	Ch 24
R (kOhm):	12000	12000	12000	12000	12000	12000	12000	12000
Result:	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed
Channel:	Ch 25	Ch 26	Ch 27	Ch 28	Ch 29	Ch 30	Ch 31	Ch 32
R (kOhm):	12000	12000	12000	12000	12000	12000	12000	12000
Result:	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed
Channel:	Ch 33	Ch 34	Ch 35	Ch 36	Ch 37	Ch 38	Ch 39	Ch 40
R (kOhm):	12000	12000	12000	15000	12000	12000	12000	12000
Result:	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed
Channel:	Ch 41	Ch 42	Ch 43	Ch 44	Ch 45	Ch 46	Ch 47	Ch 48
R (kOhm):	30309.4	12000	12000	12000	12000	12000	12000	12000
Result:	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed
Channel:	Ch 49	Ch 50	Ch 51	Ch 52	Ch 53	Ch 54	Ch 55	Ch 56
R (kOhm):	12000	12000	12000	12000	12000	12000	12000	25090.3
Result:	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed
Channel:	Ch 57	Ch 58	Ch 59	Ch 60	Ch 61	Ch 62	Ch 63	Ch 64
R (kOhm):	15000	15000	12000	12000	12000	12000	12000	12000
Result:	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed
Channel:	Ch 65	Ch 66	Ch 67	Ch 68	Ch 69	Ch 70	Ch 71	Ch 72
R (kOhm):	12000	12000	12000	12000	12000	12000	12000	12000
Result:	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed
Channel:	Ch 73	Ch 74	Ch 75	Ch 76	Ch 77	Ch 78	Ch 79	Ch 80
R (kOhm):	23796.1	12000	12000	23933.8	12000	24688.3	12000	12000
Result:	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed

Geometrics Streamer Leakage Report
Survey: SONGS
Line Number: Lab Test
Date: 9/23/2013

Channel:	Ch 81	Ch 82	Ch 83	Ch 84	Ch 85	Ch 86	Ch 87	Ch 88
R (kOhm):	15000	12000	12000	12000	15000	12000	12000	12000
Result:	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed
Channel:	Ch 89	Ch 90	Ch 91	Ch 92	Ch 93	Ch 94	Ch 95	Ch 96
R (kOhm):	12000	12000	12000	12000	12000	12000	12000	12000
Result:	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed
Channel:	Ch 97	Ch 98	Ch 99	Ch 100	Ch 101	Ch 102	Ch 103	Ch 104
R (kOhm):	31799	12000	12000	12000	12000	12000	12000	12000
Result:	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed
Channel:	Ch 105	Ch 106	Ch 107	Ch 108	Ch 109	Ch 110	Ch 111	Ch 112
R (kOhm):	12000	12000	12000	12000	12000	12000	12000	12000
Result:	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed

Appendix B6: PCable Streamer Deployment Checklist

PCable Streamer Deployment Checklist

Date: 11 Oct 2013
Time: 1925 Hrs UTC,1226 Local

Project: SONGS High Res 3D

Streamers: 14 Length: 50 m Group Inter

Observer: Barth, James, Gulsen

Streamer #	IP Address	IP Okay	Trig OK	Leakage	Current (A)
None	NA	NA	NA	011	1.08
1	192.168.1.3	x	x	006	1.11
2	192.168.1.4	x	x	008	1.25
3	192.168.1.5	x	x	008	1.36
4	192.168.1.6	x	x	009	1.50
5	192.168.1.7	x	x	009	1.66
6	192.168.1.8	x	x	010	1.76
7	192.168.1.9	x	x	010	1.92
8	192.168.1.10	x	x	010	2.03
9	192.168.1.11	x	x	010	2.13
10	192.168.1.12	x	x	010	2.29
11	192.168.1.13	x	x	011	2.46
12	192.168.1.14	x	x	011	2.58
13	192.168.1.15	x	x	011	2.76
14	192.168.1.16	x	x	011	2.94

Readings include current in Signal Cable for coax modems

Note: Be sure to unplug deck cable before rotating signal cable wi

Signature

val: 6.25 m

Remarks
Begin Deployment
Leakage in tail compass
Okay; deploy port paravane

nch

PCable Streamer Deployment Checklist

Date: 21 Oct 2013
Time:2305 Hrs UTC,1605 Local
Project: SONGS High Res 3D
Streamers: 14 Length: 50 m Group Interval: 6.25 m
Observer: Valerie, Mike

Streamer #	IP Address	IP Okay	Trig OK	Leakage	Current (A)	Remarks
None	NA	NA	NA	040		Begin Deployment
1	192.168.1.3	x	x	039		#1 compass inop- pings okay
2	192.168.1.4	x	x	029	1.23	
3	192.168.1.5	x	x	030	1.34	
4	192.168.1.6	x	x	030	1.50	Replace digitizer and active due to noisy channel 25
5	192.168.1.7	x	x	023	1.66	
6	192.168.1.8	x	x	022	1.76	
7	192.168.1.9	x	x	022	1.93	
8	192.168.1.10	x	x	022	2.04	Leakage in #8 digitizer - replace
9	192.168.1.11	x	x	021	2.13	
10	192.168.1.12	x	x	021	2.33	
11	192.168.1.13	x	x	021	2.51	
12	192.168.1.14	x	x	021	2.64	
13	192.168.1.15	x	x	021	2.85	
14	192.168.1.16	x	x	021	3.06	
				23	3.12	port tripoint gps on

Readings include current in Signal Cable for coax modems

Note: Be sure to unplug deck cable before rotating signal cable winch

Signature

PCable Streamer Deployment Checklist

Date: 24 Oct 2013
Time: 2030 Hrs UTC,1330 Local

Project: SONGS High Res 3D

Streamers: 14 Length: 50 m Group Inter

Observer: Barth, James

Streamer #	IP Address	IP Okay	Trig OK	Leakage	Current (A)
None	NA	NA	NA	na	na
1	192.168.1.3	x	x	na	na
2	192.168.1.4	x	x	na	na
3	192.168.1.5	x	x	27	1.35
4	192.168.1.6	x	x	na	na
5	192.168.1.7	x	x	na	na
6	192.168.1.8	x	x	021	1.74
7	192.168.1.9	x	x	na	na
8	192.168.1.10	x	x	na	na
9	192.168.1.11	x	x	023	2.16
10	192.168.1.12	x	x	na	n a
11	192.168.1.13	x	x	na	na
12	192.168.1.14	x	x	019	2.64
13	192.168.1.15	x	x	na	na
14	192.168.1.16	x	x	019	3.10

Readings include current in Signal Cable for coax modems

Note: Be sure to unplug deck cable before rotating signal cable wi

Signature

val: 6.25 m

Remarks
Begin Deployment
Change #6 digitizer
All okay

nch

PCable Streamer Deployment Checklist

Date: 26 Oct 2013
Time: 2251 Hrs UTC,1351 Local
Project: SONGS High Res 3D
Streamers: 14 Length: 50 m Group Interval: 6.25 m
Observer: Mike

Streamer #	IP Address	IP Okay	Trig OK	Leakage	Current (A)	Remarks
None	NA	NA	NA	1385	.93	Begin Deployment
1	192.168.1.3	x	x	1384	1.08	
2	192.168.1.4	x	x	na	na	
3	192.168.1.5	x	x	1384	1.33	
4	192.168.1.6	x	x	na	na	
5	192.168.1.7	x	x	1384	1.61	Compass - excessive current
6	192.168.1.8	x	x	1385	1.70	
7	192.168.1.9	x	x	na	na	
8	192.168.1.10	x	x	na	na	
9	192.168.1.11	x	x	1385	2.09	
10	192.168.1.12	x	x	na	na	
11	192.168.1.13	x	x	na	na	
12	192.168.1.14	x	x	1384	2.57	
13	192.168.1.15	x	x	na	na	
14	192.168.1.16	x	x	na	na	
				1384	3.01	port tripoint gps on

Readings include current in Signal Cable for coax modems

Note: Be sure to unplug deck cable before rotating signal cable winch

Signature

PCable Streamer Deployment Checklist

Date: 27 Oct 2013
Time: 2030 Hrs UTC, 1530 Local
Project: SONGS High Res 3D
Streamers: 14 Length: 50 m Group Interval: 6.25 m
Observer: Mike

Streamer #	IP Address	IP Okay	Trig OK	Leakage	Current (A)	Remarks	Prior readings
None	NA	NA	NA	-40	.93	Begin Deployment	.93
1	192.168.1.3	x	x	-37	1.07		1.08
2	192.168.1.4	x	x	na	na		na
3	192.168.1.5	x	x	-050	1.32		1.33
4	192.168.1.6	x	x	na	na		na
5	192.168.1.7	x	x	na	na		1.61
6	192.168.1.8	x	x	-123	1.69		1.70
7	192.168.1.9	x	x	na	na		na
8	192.168.1.10	x	x	na	na		na
9	192.168.1.11	x	x	-111	2.07		2.09
10	192.168.1.12	x	x	na	na		na
11	192.168.1.13	x	x	na	na		na
12	192.168.1.14	x	x	-85	2.55		2.57
13	192.168.1.15	x	x	na	na		na
14	192.168.1.16	x	x	na	na		na
				-67	2.99	port tripoint gps on	3.01

Readings include current in Signal Cable for coax modems

Note: Be sure to unplug deck cable before rotating signal cable winch

Signature

Appendix C1: Mobilization Report – SubSea Systems SONGS P-Cable 2013

Mobilization Report – SubSea Systems SONGS P-Cable Survey – Southern California – Oct 2013

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1 Introduction

On September 26, 2013 NCS-Subsea Inc. (NCS), under contract with SubSea Systems, Inc. (SSI), began work pertinent to the mobilization for the upcoming SONGS PCable survey. Initial calibrations of the cross cable compasses in San Jose, CA were followed by the mobilization of the vessel R/V New Horizon in San Diego, CA. This report details the equipment and personnel mobilization that occurred prior to the commencement of survey operations. Calibration and verification results are also presented.

2 Mobilization Timeline

25-Sept-2013 2300 local– Micah Hall and Jesus Gaytan arrive San Jose, CA. USA.

26-Sep-2013 0800 local – NCS personnel arrive Geometrics, Inc. to gather and set up equipment.

26-Sept-2013 0945 local – N/S and E/W lines laid marked and staked on field.

26-Sept-2013 1115 local – Systems interfaced, Start cross cable compass calibrations.

26-Sept-2013 1206 local – Control azimuth line marked and staked, start logging HDT.

26-Sept-2013 1332 local – Control azimuth HDT stop logging.

26-Sept-2013 1720 local – All cross cable compasses calibrated and verified, including spares.

27-Sept-2013 0800 local – NCS personnel arrive Geometrics, Inc., set up equipment.

27-Sept-2013 0850 local – Troubleshooting streamer tail compasses.

27-Sept-2013 0940 local – Establish communications to streamer tail compasses, resume calibrations.

27-Sept-2013 1000 local – NCS Shipment departs Stafford, TX to San Diego, CA.

27-Sept-2013 1515 local – All streamer tail compasses calibrated and verified, pick up equipment and begin working on plots.

27-Sept-2013 1700 local – NCS personnel depart Geometrics, all verifications acceptable.

30-Sept-2013 1200 local – NCS equipment arrives SIO Nimitz facility – San Diego, CA USA.

04-Oct-2013 1640 local – NCS mobilization team arrives Nimitz facility. Shipment inspected and planning.

05-Oct-2013 – Mobilization continues. Equipment unpacked, cables run, antennas installed.

06-Oct-2013 – Mobilization continues. Testing and integration, cross cable measured, DGPS and Gyro Calibrations.

07-Oct-2013 – Mobilization continues. Testing and integration, DGPS verifications, in-water equipment set up and configured.

08-Oct-2013 – Mobilization continues. Testing and integration, offset measurements, triggers and headers tested, and compasses configured.

09-Oct-2013 – Mobilization complete. Testing and integration, remainder of navigation crew arrives.

10-Oct-2013 – Vessel departs dock for sea trials. Partial equipment deployed for testing configuration and vessel handling. E. Majzlik and others onboard during sea trials depart vessel, New Horizon en route to prospect for scouting.

3 Field and Professional Personnel

Table 1: Survey Personnel

Name	Position	Company
Jesus Gaytan	Chief Navigator	NCS SubSea
Brandon Mattox	Chief Navigator	NCS SubSea
Dwayne Fontenot	Navigator	NCS SubSea
Shane Traceski	Navigator	NCS SubSea
Abby Parish	Navigation Processor	
Micah Hall	Navigation Processor	NCS SubSea
Eddie Majzlik	Field Engineer	NCS SubSea

4 System Information

4.1 NavPoint Integrated Navigation System

The NavPoint integrated navigation system is used to provide positioning for the survey vessel and P-Cable seismic equipment. This system consisted of both online and offline components. The online components were the NavPoint Main, Trawler, Survey Display, Logging, and Binning programs. The offline components are the NavPoint Binning, Processing and FGPS P1Tools programs.

4.1.1 NavPoint Main

The NavPoint Main program is used to provide real-time positions for the survey vessel, energy source, and paravanes. This system received data inputs from the various GPS units, heading sensors, and echosounder. Position data were transformed into the survey datum and used to calculate projected coordinates for the survey nodes. This program also records the relevant survey information into UKOOA P1/90 and P2/94 formats. An additional interface to the

vessel's autopilot allow the online surveyor to steer the vessel along the survey line to ensure that adequate 3D seismic data coverage is achieved.

4.1.2 NavPoint Trawler

The NavPoint Trawler program is used to calculate a position solution for each node in the P-Cable spread. Information from digital compasses and depth sensors embedded in the P-Cable and attached streamers are received by the Trawler program and used as inputs to the positioning calculation. The program uses least-squares methods to create a polynomial model of the cross-cable for each shotpoint. After determining the coordinates of each streamer towpoint on the cross-cable, the program then calculated a position for each seismic receiver group and a common midpoint for each source-receiver combination. The P-Cable position information and raw sensor data are then transmitted to the Main program for further use by the NavPoint system. The Trawler program also provides a real-time QC display of the P-cable network solution as well as sensor data including a depth profile of the cross-cable.

4.1.3 NavPoint Survey Display

The NavPoint Survey Display program is used to display the horizontal position of the survey vessel, source, and P-Cable during survey operations. This program also provides survey line functionality, line steering QC displays, and other plotting and visualization functions. Preplotted survey files in UKOOA P1/90 format are loaded into the Survey Display and used as steering references. The Survey Display is run in slave mode in the wheelhouse and, if desired, in a client office to provide real-time survey information in those locations.

4.1.4 NavPoint Logging

The NavPoint Logging program runs in support of the Main program. This program receives UKOOA formatted data from the Main program and stores those data in an SQL database. At

the completion of the survey line, the Logging program retrieves the data and creates the P1/90 and P2/94 data files for that survey line.

4.1.5 NavPoint Online Binning

The online mode of the NavPoint Binning program is used to display the 3D seismic data coverage during online survey operations. This program receives the position of each common midpoint and plots those positions on the survey bin grid as fold (data density). The program assigns color-coded values to each grid cell to identify the coverage for that cell. Coverage data is stored in an SQL database.

4.1.6 NavPoint Processing

The NavPoint Processing program is used to QC, edit, and process the data stored in the UKOOA P2/94 files into the final P1/90 files delivered to the client. This program provides a variety of graphical displays for use by the processor to analyze the survey data. A number of editing tools are available to remove erroneous sensor information and noise from the sensor signals. After the raw data are edited, the program uses the same geodetic transformations and positioning algorithms employed by the Main and Trawler programs to calculate new coordinates for each survey node at each shotpoint time.

4.1.7 FGPS P1 Tools

The FGPS P1Tools program is used to perform QC of the final P190 files prior to delivery. This program provides graphic and tabular analysis of the P190 files including format integrity checks, offset analysis, positioning trends, raw versus processed file comparison, and replay.

4.2 Vessel Positioning Hardware

The survey vessel is positioned using differentially-corrected GPS data. A CNAV 2050R GPS receiver was used as the primary GPS system. A Trimble SPS361 GPS receiver was used as the

secondary GPS system. The Trimble system also provides true heading data. All position and heading data from the system are logged in the P2/94 raw data files. CNAV Starfire differential corrections were utilized during this survey.

4.3 Source Positioning Hardware

Source positioning is accomplished via SSI proprietary DGPS pods. The units are configured to receive CNAV corrections for this survey. Data is transmitted to and from the vessel via 2.4GHz wireless modems, and are mounted atop the source flotation frames. (Figure 1).

4.4 Paravane Positioning Hardware

The paravanes located at either end of the cross-cable are positioned using differentially-corrected GPS data. A Geometrics OEM Star GPS receiver located above each paravane provides the position data (Figure 2). The GPS systems were contained in waterproof housings mounted approximately 0.5 m above the waterline on each paravane. These units received CNAV differential corrections. GPS data were transmitted to the survey vessel using a 2.4 GHz radio. The GPS units were powered by a 12-volt battery installed inside the waterproof housings and continually recharged by in-water generators located at the rear of the vane on a specially constructed mount (Figure 1). All position data from these systems were logged in the P2/94 raw data files.

4.5 TriPoint Positioning Hardware

Both starboard and port tripoints are positioned using differentially-corrected GPS data, received from the onboard CNAV system. This is accomplished by towing a DGPS equipped A6 buoy with a custom fitted "tophat" cradle at a short offset behind each tripoint (Figure 1). These buoys are equipped with SourcePoint Mk III DGPS units which transmit positioning data via custom junction boxes networked to the P-Cable system.

Figure 1 - In Water DGPS units

5 Offset Diagrams

5.1 R/V New Horizon

New Horizon vessel offsets were measured using a tape measure to all relevant survey instruments and offset positions on the vessels. The origin for all offset measurements was the Navigation Reference Point, which was located at the center of the stern at the waterline. Offset measurements are presented tabular and graphical format in Appendix A.

5.2 P-Cable

P-Cable offsets were measured at the dock during mobilization, with the cross-cable stress member and spur lines under approximately 1500lbs – 1700lbs tension (Figures 2-3). This was done to minimize positioning errors due to stretch of the P-Cable while under tension. These results are presented in tabular and graphical format in Appendix A. As an improvement to last year's P-Cable configuration, the 20 m long spur lines were removed from the system, and the original port and starboard extension pieces were utilized as the spur lines. Offset measurements are presented tabular and graphical format in Appendix A.

Figure 2 - CrossCable under tension

Figure 3 - Spur line under tension

6 Calibrations and Verifications

6.1 Geodetic Datum

The following datum (Table 2) will be used during the acquisition of this survey. All navigation systems, preplots, and data logging will be set to utilize this datum.

Table 2 –Survey Datum Parameters

NCS SubSea

Coordinate Transformation Verification

DATE:08/08/2013	CREW:1127	JOB #:520
CLIENT: SCRIPPS		VESSEL:New Horizon
PROSPECT:West Coast Hi Res 2013		

Transformation to perform: WGS 84 to User Datum

User Datum	WGS84	Datum Shift Parameters	None
Ellipsoid	WGS84	Datum Shift Name	
Inv. Flattening	298.2572235630	Datum Shift Type	
Semi-Major Axis	6378137.000	TX (meters)	
		TY (meters)	
Projection	UTM11 North	TZ (meters)	
Central Meridian	117 00 0.00W	RX (seconds)	
Lat. Of Origin	00 00 0.00	RY (seconds)	
Std. Parallel 1		RZ (seconds)	
Std. Parallel 2		Scale (ppm)	
False Easting	500000.00		
False Northing	0.00		
Scale Factor @ CM	.9996		
Units	Meters		

Test Point

WGS84 Datum	
Latitude	033° 11' 44.26" N
Longitude	117° 42' 0.16" W

User Datum			
Latitude	033° 11' 44.26" N	Easting (x)	434748.8076
Longitude	117° 42' 0.16" W	Northing (y)	3673192.8507

6.2 DGPS Verification

Verifications were performed on all DGPS units to verify that their positioning systems were functioning properly. The check compared the DGPS antenna position to that of an independently verified monument. For the in water DGPS units, this was accomplished by placing the antenna directly over the previously established monument position and logging data for a minimum of 15 minutes. For the onboard DGPS units, a Nikon Total station was used to shift the monument position to the antenna position while the units were logging (Figure 4). Two GPS monuments were previously established quayside at the Nimitz facility using a dual frequency C-Nav 2050R GPS receiver. SD1 (occupied) and SD2 (backsight) were surveyed on 13 August 2013 (Figures 5-6). Raw GPS data collected at the site were converted to RINEX format and sent to the Online Positioning User Service (OPUS) of the National Geodetic Survey for post-processing. The OPUS results are presented in Appendix B. All DGPS units were within acceptable tolerances for units utilizing CNAV differential corrections. Graphical and statistical representations of the verification results are presented in Appendix B.

Figure 4 - Total Station over Monument SD1

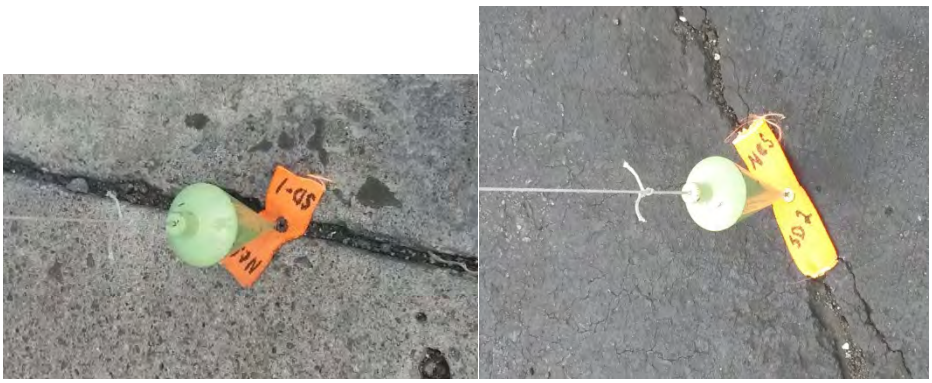


Figure 5 – Monuments SD1 and SD2

Table 3 - GPS Monument Positions

Monument	Latitude (WGS84)	Longitude (WGS84)
SD1 (Occupied)	32° 42’ 26.52473” N	117° 14’ 12.91821” W
SD2 (Backsight)	32° 42’ 24.74042” N	117° 14’ 13.28614” W

6.3 Gyro Calibration

An onboard baseline gyrocompass (gyro) calibration was conducted onboard the New Horizon on 06 October 2013. The calibration was used to determine a calculated minus observed (C-O) value for Trimble SPS 361 heading sensor installed (Primary) and the permanently mounted vessel gyro (secondary). To accomplish this, a third Trimble, model SPS361 GPS heading sensor, was set out on a long baseline across the stern of the vessel (Figure 6). Heading data was interfaced to the NavPoint navigation system and the Vessel Gyro Calibration routine was used to log heading data from all three heading sensors. Data were recorded at 1 second intervals for 20 minutes (Figures 7-8). Following the sample period, the data were entered into a spreadsheet program and reduced to calculate the C-O value for the each of the heading sensors (Table 4). The C-O value was then entered into the NavPoint Main utility running on the vessel.

Figure 6 - Onboard gyro calibration baseline

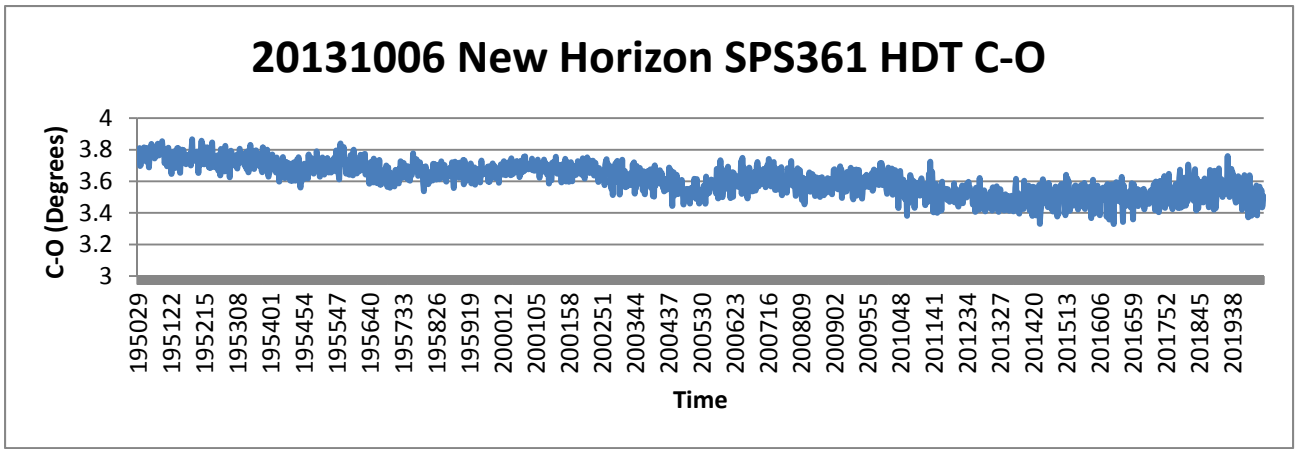


Figure 7 - Graph of C-O values calculated for the Trimble SPS 361 heading sensor

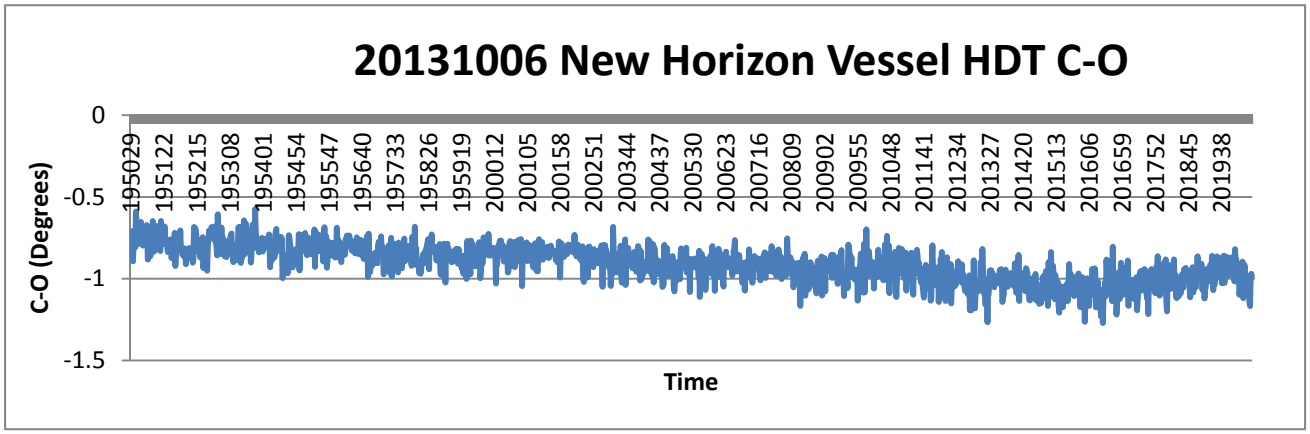


Figure 8 - Graph of C-O values calculated for the Trimble SPS 361 heading sensor

Table 4- C-O statistics calculated for the heading sensors on the New Horizon

Heading Sensor	Calculated C-O	St. Dev.
Trimble SPS 361	3.61°	0.10°
Vessel Gyrocompass	-0.91°	0.11°

6.4 P-Cable Compass Calibration and Verification

6.4.1 P-Cable Compass Calibrations

A 3D calibration of the P-Cable cross cable compasses was accomplished by following NCS procedure *QP-010CAL-035-003 P-Cable Compass (SP3004D) Calibration Procedure* and *QP-010CAL-038-002 P-Cable Compass (DC4) Calibration Procedure.* As previously used, a magnetically quiet field behind the Geometrics facility in San Jose was used for the calibrations and verifications. Using a Trimble SPS 361, a pair of baselines was established running exactly North-South and East-West (Figure 9).

Figure 9 - Compass Cal/Verification Aerial view

6.4.1.1 Cross Cable SP3004D calibrations

For SP3004D compasses, each compass (junction box) was oriented to point north at the intersection of the NS and EW running baselines. While in this general orientation, the compass was pitched a full 360° and back over a period of no less than 10 seconds per rotation. The compass (junction box) was then rotated 90° (to point West). While in this general orientation, the compass was rolled a full 360° and back over a period of no less than 10 seconds per rotation. The above stated process was carried out in sequence twice in its entirety: once while the compass was set to manual calibration mode; and once while the compass was set to automatic calibration mode. Compass calibration results are presented in Table 5.

6.4.1.2 Cross Cable DC4 calibrations

For cross cable DC4 compasses, 12 discrete points were logged within their calibration routine. 6 points were logged with the units facing a northerly direction while they were pitched to each

of the 6 points completing a 360° pitch. The compass (junction box) was then rotated 90° (to point West). While in this general direction, the other 6 points were logged while rolling the compass 360°. It should be noted that the "adaption error" values reported for the new model cross cable compasses (DC4) differs in magnitude from that reported for the older cross cable compasses (SP3004D). Compass calibration results are presented in Table 5.

6.4.1.3 Streamer Tail DC4 calibrations

Similar to the cross cable DC4 compasses, the streamer tail compasses (DC4) also required 12 discrete points logged within their calibration routine. 6 points were logged with the units facing a northerly direction while they were pitched to each of the 6 points completing a 360° pitch. The compass (tail module) was then rotated 90° (to point West). While in this general direction, the other 6 points were logged while rolling the compass 360°. It should be noted that the "adaption error" values reported for the new model cross cable compasses (DC4) differs in magnitude from that reported for the older cross cable compasses (SP3004D). Compass calibration results are presented in Table 5.

Figure 10- Compass Junction box at calibration point

Table 5 - Compass Calibration Results

IP Address	Compass S/N - Type	Calibration Adaption Error	UTC Date Calibrated
Cross-Cable Assembly			
192.168.1.151	6151-3004D	7	26-Sep-2013
192.168.1.143	6143-3004D	8	26-Sep-2013
192.168.3.005	7005-DC4	0.13	26-Sep-2013
192.168.1.128	6128-3004D	7	26-Sep-2013
192.168.1.147	6147-3004D	6	26-Sep-2013
192.168.3.004	7004-DC4	0.2	26-Sep-2013
192.168.1.150	6150-3004D	8	26-Sep-2013
192.168.1.149	6149-3004D	7	26-Sep-2013
192.168.3.003	7003-DC4	0.3	26-Sep-2013
192.168.1.152	6152-3004D	11	26-Sep-2013
192.168.1.153	6153-3004D	7	26-Sep-2013
192.168.3.002	7002-DC4	0.3	26-Sep-2013
192.168.1.155	6155-3004D	13	26-Sep-2013
192.168.1.127	6127-3004D	7	26-Sep-2013
Spare Compass Assembly			
192.168.1.145	6145-3004D	4	26-Sep-2013
192.168.1.144	6144-3004D	7	26-Sep-2013
192.168.1.135	6135-3004D	6	26-Sep-2013
192.168.1.156	6156-3004D	8	26-Sep-2013
Tail Compass Assembly			
192.168.2.8	SC0008-DC4	0.2	27-Sep-2013
192.168.2.6	SC0006-DC4	0.3	27-Sep-2013
192.168.2.3	SC0003-DC4	0.2	27-Sep-2013
192.168.2.9	SC0009-DC4	0.3	27-Sep-2013
192.168.2.7	SC0007-DC4	0.1	27-Sep-2013
192.168.2.2	SC0002-DC4	0.7	27-Sep-2013
192.168.2.1	SC0001-DC4	0.5	27-Sep-2013
192.168.2.5	SC0005-DC4	0.1	27-Sep-2013
192.168.2.10	SC0010-DC4	0.2	27-Sep-2013
192.168.2.4	SC0004-DC4	0.4	27-Sep-2013

6.4.2 P-Cable Compass Verifications

A Trimble SPS 361 was also used to log over 60 minutes of true heading data in a separate azimuth line, the control azimuth (Figure 11). In order to verify the calibration, the straight (forward) edge of each compass junction box and streamer tail compass was oriented exactly along the control baseline such that the compass was pointing at an exactly known azimuth (Figure 12-13). Data were logged for each compass for 15 minutes while along this controlled azimuth. These data were compared to the known azimuth direction and an average C-O was generated. Compasses were not accepted if the average C-O value was greater than 3°. Verification results are presented in Table 6, and full graphical representations of the verification data for each compass are presented in Appendix C.

Figure 11 - Trimble logging on Control Azimuth

Figure 12 - Close-up of compass junction box aligned along control azimuth

Figure 13 - Expanded view of multiple compasses being verified at once

Table 6 - Compass verification results

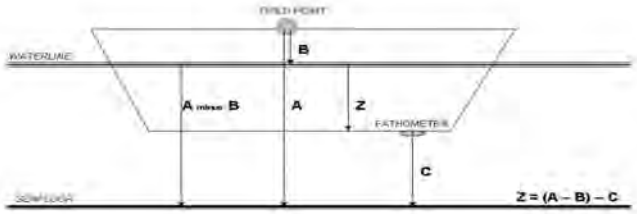
IP Address	Compass S/N	UTC Date Verified	UTC Start Verification	UTC End Verification	Avg. C-O	StDev
Cross-Cable Assembly						
192.168.1.151	6151-3004D	26-Sep-2013	21:13	21:28	1.28	0.13
192.168.1.143	6143-3004D	26-Sep-2013	21:13	21:28	0.97	0.1
192.168.3.005	7005-DC4	26-Sep-2013	22:32	22:48	1.21	0.07
192.168.1.128	6128-3004D	26-Sep-2013	22:49	23:04	-1.49	0.08
192.168.1.147	6147-3004D	26-Sep-2013	22:50	23:05	0.53	0.15
192.168.3.004	7004-DC4	26-Sep-2013	23:02	23:17	-0.85	0.07
192.168.1.150	6150-3004D	26-Sep-2013	23:29	23:44	0.05	0.05
192.168.1.149	6149-3004D	26-Sep-2013	23:26	23:41	0.33	0.09
192.168.3.003	7003-DC4	26-Sep-2013	23:29	23:44	-0.71	0.05
192.168.1.152	6152-3004D	26-Sep-2013	23:36	23:51	0.14	0.07
192.168.1.153	6153-3004D	26-Sep-2013	23:56	00:11	0.70	0.06
192.168.3.002	7002-DC4	26-Sep-2013	23:57	00:12	0.98	0.14
192.168.1.155	6155-3004D	27-Sep-2013	00:01	00:16	1.94	0.06
192.168.1.127	6127-3004D	27-Sep-2013	00:01	00:16	0.08	0.05
Spare Compass Assembly						
192.168.1.145	6145-3004D	27-Sep-2013	01:12	01:17	0.01	0.04
192.168.1.144	6144-3004D	27-Sep-2013	01:12	01:17	1.77	0.06
192.168.1.135	6135-3004D	27-Sep-2013	01:12	01:17	1.58	0.12
192.168.1.156	6156-3004D	27-Sep-2013	01:12	01:17	-0.17	0.28
Tail Compass Assembly						
192.168.2.8	SC0008-DC4	27-Sep-2013	18:01	18:16	0.9	0.07
192.168.2.6	SC0006-DC4	27-Sep-2013	18:46	19:01	0.92	0.15
192.168.2.3	SC0003-DC4	27-Sep-2013	19:13	19:28	-1.76	0.42
192.168.2.9	SC0009-DC4	27-Sep-2013	19:41	19:56	-1.68	0.27
192.168.2.7	SC0007-DC4	27-Sep-2013	20:07	20:22	-0.14	0.10
192.168.2.2	SC0002-DC4	27-Sep-2013	21:03	21:18	0.28	0.13
192.168.2.1	SC0001-DC4	27-Sep-2013	21:42	21:57	0.22	0.45
192.168.2.5	SC0005-DC4	27-Sep-2013	22:08	22:23	-1.86	0.46
192.168.2.10	SC0010-DC4	27-Sep-2013	21:32	22:47	-1.35	0.3
192.168.2.4	SC0004-DC4	27-Sep-2013	22:58	23:13	0.37	0.09

6.5 Echosounder Draft Verification

Lead-line checks were conducted for the vessel to verify the actual draft of the echosounder transducers. Water depths were measured using a tape measure with a weight attached to the end. These measurements were compared to echosounder readings taken during the same time as the lead-line measurements (Figure 14). The draft correction is applied to depth data recorded in the P1/90 files.

NCS SubSea

Date	10 October 2013
Client	SCRIPPS/Subsea Systems
Crew	NCS 1129
Prospect	SONGS PCable 2013
Vessel	RV New Horizon
Location of Test	Dockside, Nimitz, San Diego, CA, USA
Description of fixed points	Both vessel edges, 90 ° to echosounder Y axis
Units used	meters
Water velocity used	1500 m/sec
Draft Correction Value	3.60m



	Starboard	Port	Average
Measured Water Depth (**A**)	7.35	8.62	7.99
Waterline (**B**)	2.02	1.95	2.0
Echosounder Reading (**C**)	2.4	2.4	2.4
Draft Correction Value (Z) *	**2.93**	**4.27**	**3.6**
Mean from hull draft marks	FWD 3.35	AFT 3.5	3.43

Test Performed by NCS SubSea navigators on rotation: Shane Traceski and Micah Hall

Note

Figure 14- Draft Verification

6.6 System Timing Verification

A systems timing test/verification between NavPoint Integrated Navigation System, the acquisition system, and the source system after full integration was conducted. The timing test followed NCS SubSea procedure *QP-010CAL-012-001 Single Vessel Timing Test.* The verification was conducted on 31 October 2013 in between production sequences in the survey area.

All systems were installed and interfaced as they were during production. NavPoint Integrated Navigation system was configured to 'event' on distance, every 6.25m. The triggers from NavPoint into the acquisition system and from the acquisition system to the source system were paralleled and input into a Extech Digital Oscilloscope. Two sets of timing were tested, one with a 0ms delay (Figures 15-16) in the acquisition system and one with a 25ms delay (Figure 17), in case it would be needed during production. Channel A (Yellow) is the trigger from Nav and Channel B (Red) is the confirmation/trigger to source from the acquisition system. It is understood that there is no delay between acquisition confirmation signal and source system fire.

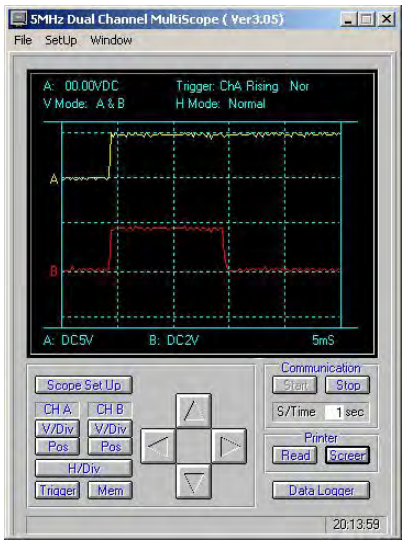


Figure 15 - 0ms delay timing confirmation, 5ms/div

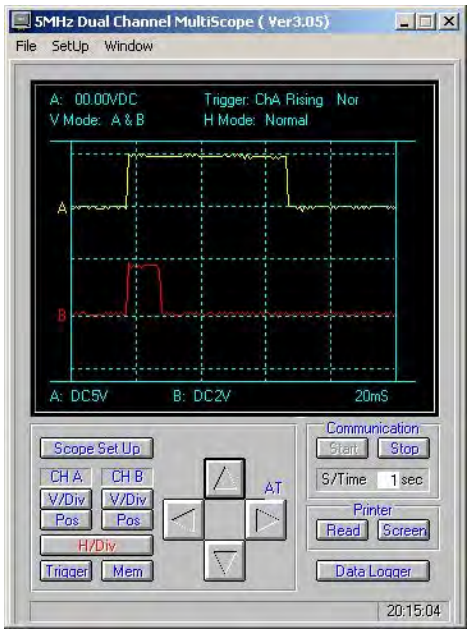


Figure 16 - 0ms delay timing confirmation, 20ms/div

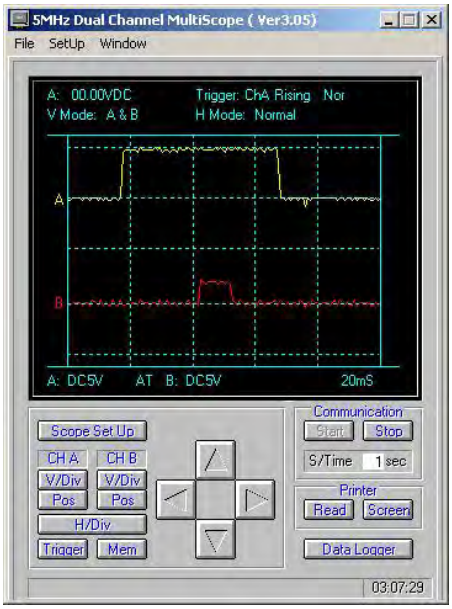
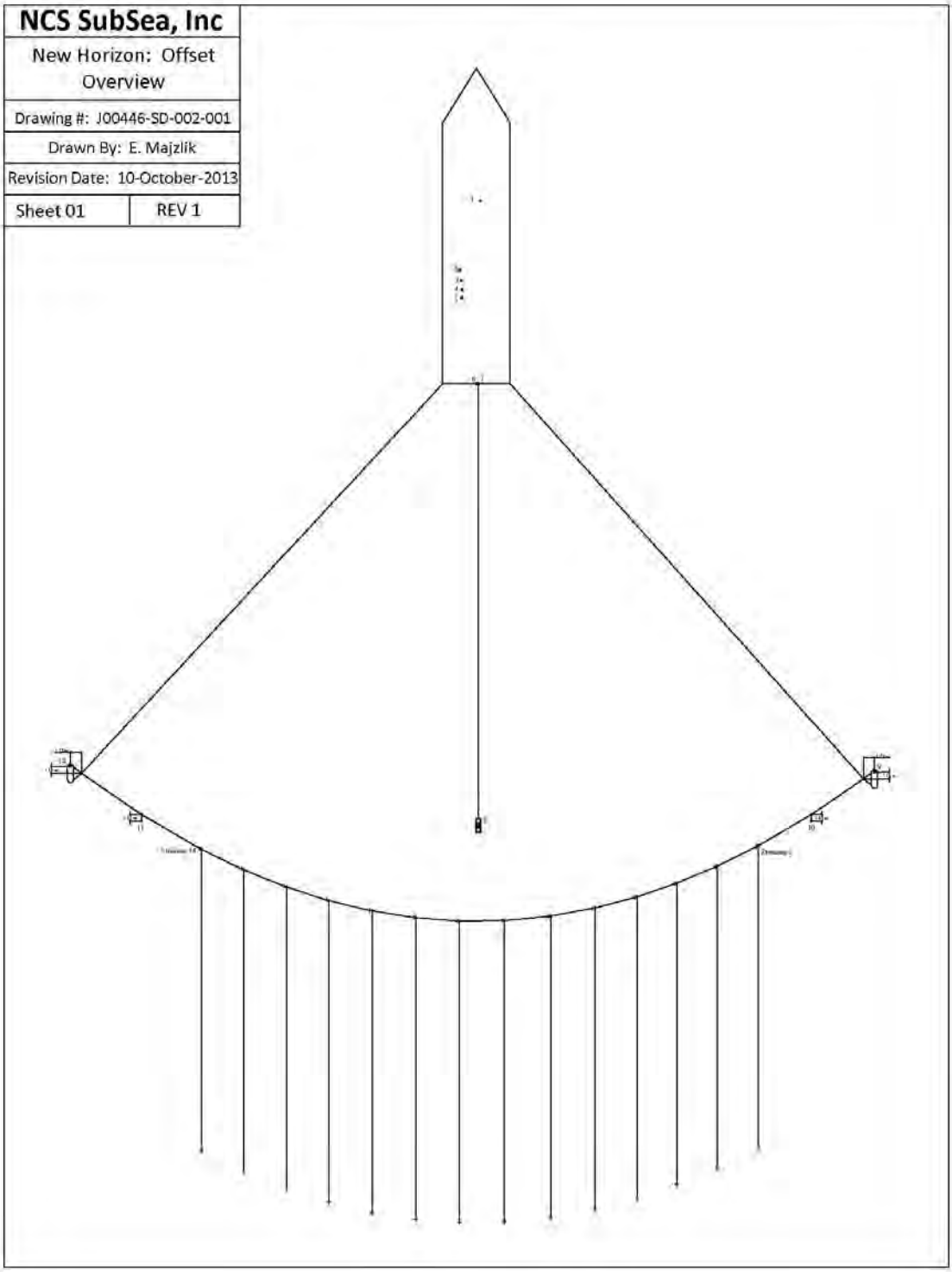


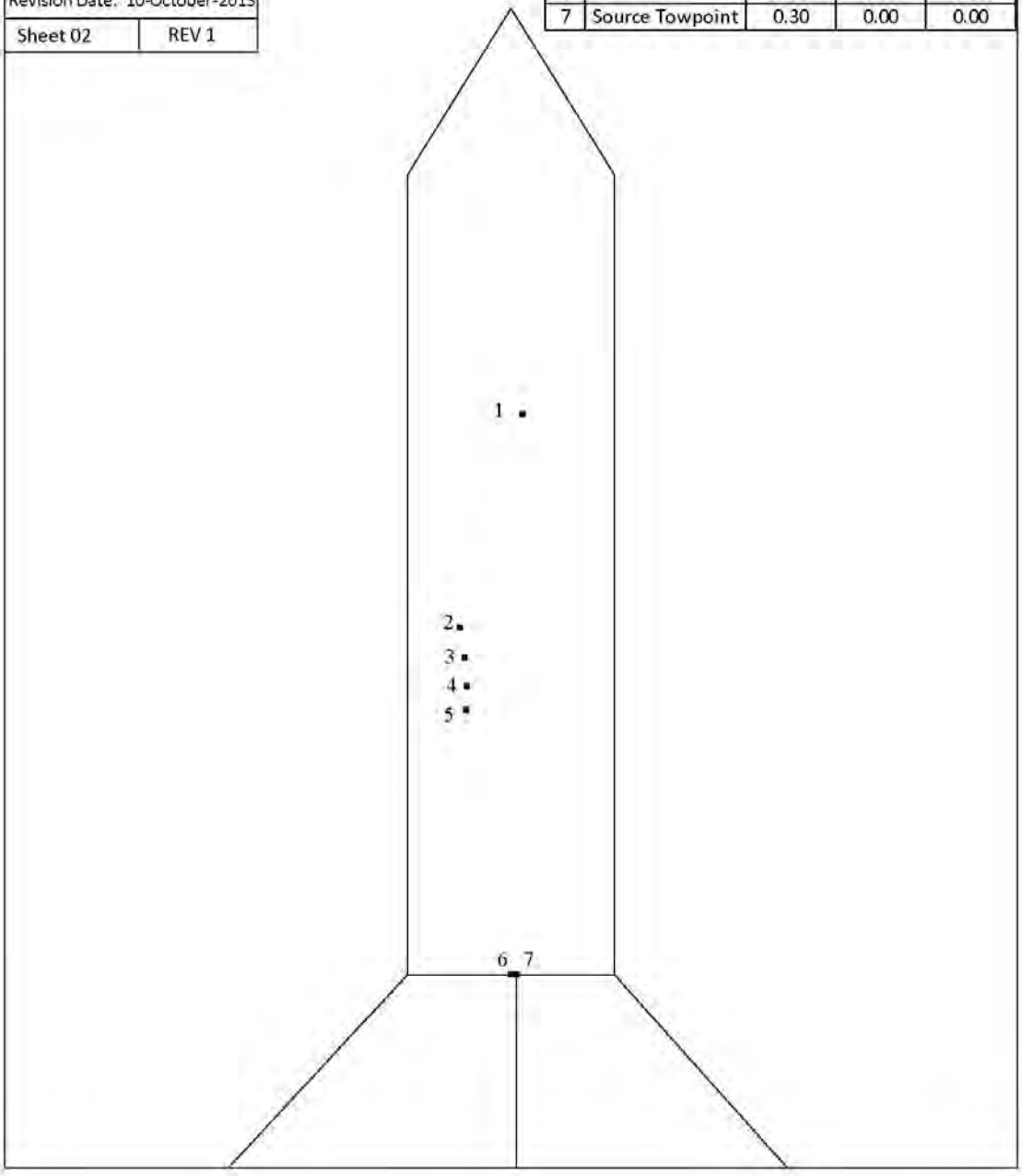
Figure 17 - 25ms delay timing confirmation, 20ms/div

7 Appendix A: New Horizon and P-Cable System Offsets and Diagram

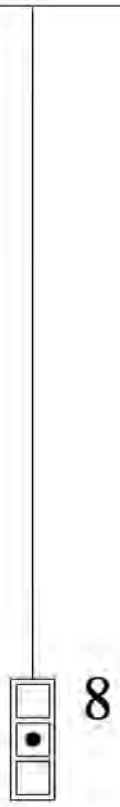


NCS SubSea, Inc	
New Horizon: Vessel Offset Detail	
Drawing #: J00446-SD-002-001	
Drawn By: E. Majzlik	
Revision Date: 10-October-2013	
Sheet 02	REV 1

#	Name	X	Y	Z
1	Echosounder	0.60	29.00	-3.60
2	Trimble 1, Ant. 1	-2.64	17.99	8.73
3	Cnav Antenna	-2.41	16.41	8.72
4	L-Band Antenna	-2.29	14.92	8.21
5	Trimble 1, Ant. 2	-2.33	13.70	8.72
6	NRP	0.00	0.00	0.00
7	Source Towpoint	0.30	0.00	0.00



NCS SubSea, Inc	
New Horizon: Source Offset Detail	
Drawing #: J00446-SD-002-001	
Drawn By: E. Majzlik	
Revision Date: 10-October-2013	
Sheet 03	REV 1



#	Name	X	Y	Z
8	Source GPS	0.00	0.00	0.00
n/a	COS Layback from towpoint	0.00	-70.00	0.00

NCS SubSea, Inc

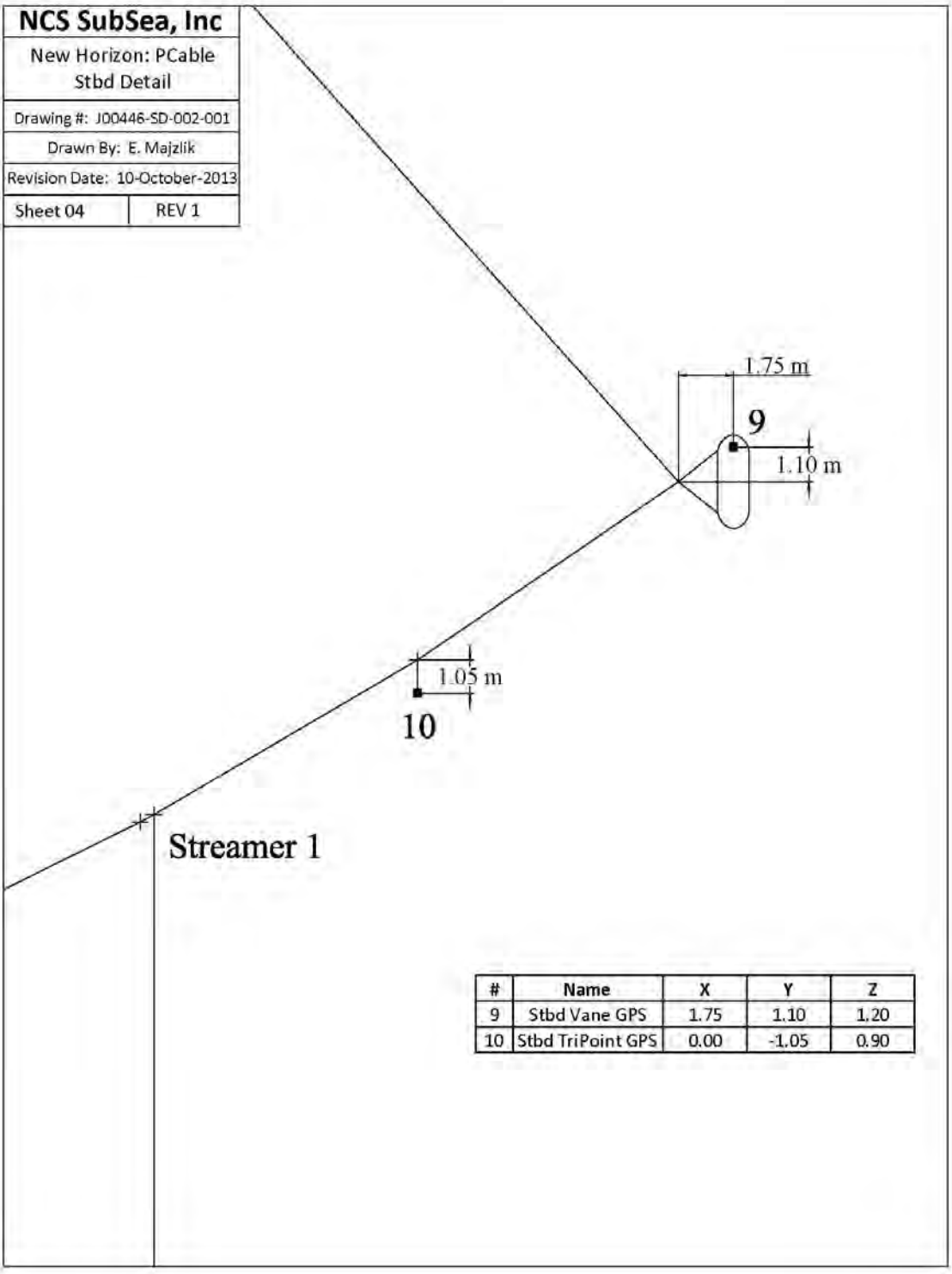
New Horizon: PCable Stbd Detail

Drawing #: J00446-SD-002-001

Drawn By: E. Majzlik

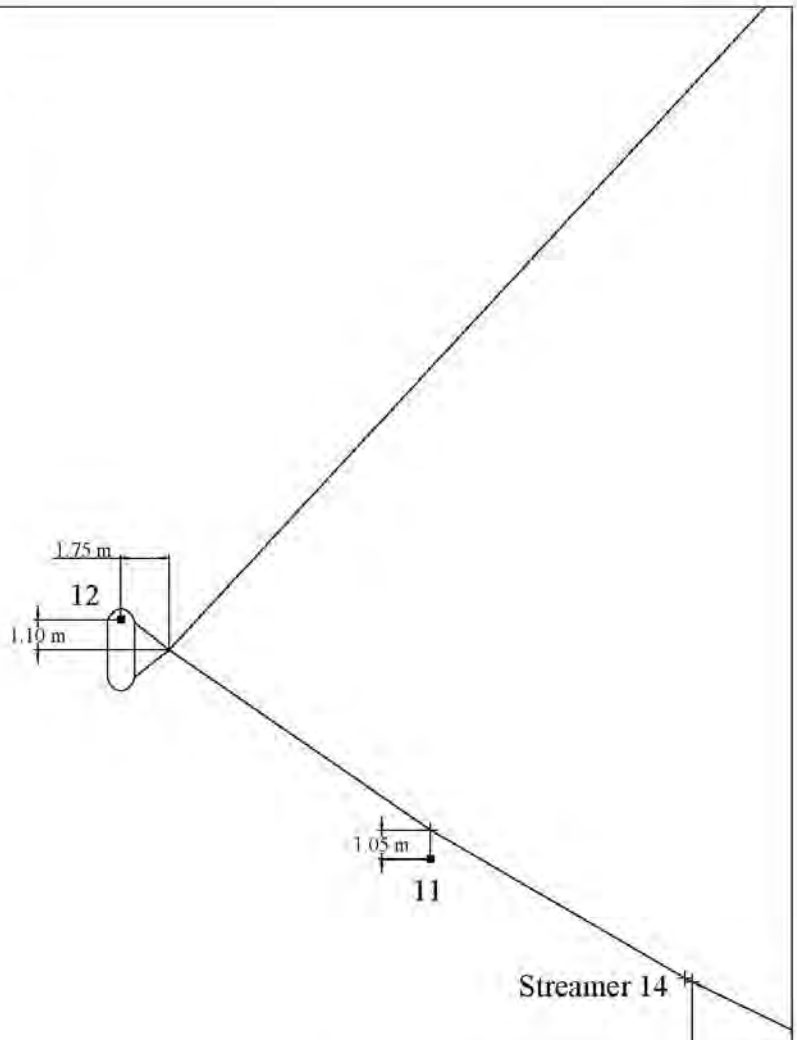
Revision Date: 10-October-2013

Sheet 04 | REV 1



#	Name	X	Y	Z
9	Stbd Vane GPS	1.75	1.10	1.20
10	Stbd TriPoint GPS	0.00	-1.05	0.90

NCS SubSea, Inc	
New Horizon: PCable Port Detail	
Drawing #: J00446-SD-002-001	
Drawn By: E. Majzlik	
Revision Date: 10-October-2013	
Sheet 05	REV 1



#	Name	X	Y	Z
11	Port Vane GPS	-1.75	1.10	1.20
12	Port Tri Point GPS	0.00	-1.05	0.90

NCS SubSea, Inc	
New Horizon: PCable Node Offsets	
Drawing #: J00446-SD-002-001	
Drawn By: E. Majzlik	
Revision Date: 10-October-2013	
Sheet 06	REV 1

200 Nodes

Node	Name	DAW
200	Svane	-10.7
201	Stbd Tri (GPS)	0
202	Port Tri (GPS)	113.3
203	Pvane	125

301 Streamer Towpoint Nodes

Node	DAW
301	9.9
302	17.1
303	24.2
304	30.7
305	37.8
306	44.8
307	52.3
308	59.4
309	66.3
310	73.4
311	80.4
312	87.5
313	94.7
314	102.2

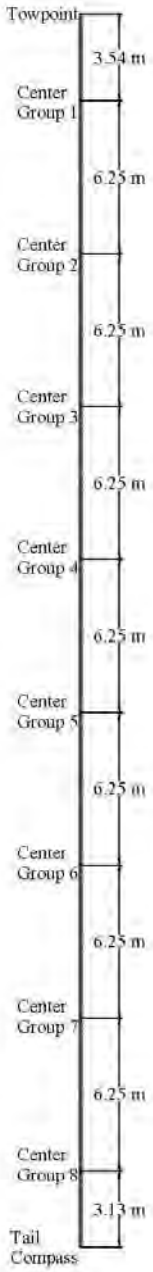
331 Xcompass Nodes

Node	DAW
331	10.3
332	17.4
333	24.5
334	31.1
335	38.1
336	45.2
337	52.6
338	59.6
339	66.7
340	73.7
341	80.8
342	87.9
343	95.1
344	102.5

361 Xdepth Nodes

Node	DAW
361	3
362	10.3
363	17.4
364	24.5
365	31.1
366	38.1
367	45.2
368	52.6
369	59.6
370	66.7
371	73.7
372	80.8
373	87.9
374	95.1
375	102.5
376	109.8

NCS SubSea, Inc	
New Horizon: Streamer Offset Detail	
Drawing #: J00446-SD-002-001	
Drawn By: E. Majzlik	
Revision Date: 10-October-2013	
Sheet 07	REV 1



8 Appendix B: OPUS Results and DGPS Verification Plots

FILE: SD1.bin OP1377619900431

1009 WARNING! No antenna type was selected. No antenna offsets or
1009 pattern will be applied. Coordinates with reduced accuracy
1009 will be returned for the antenna phase center.
1009

NGS OPUS SOLUTION REPORT
==========

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information: http://www.ngs.noaa.gov/OPUS/about.jsp#accuracy

USER: jesus.gaytan@ncs-subsea.com DATE: August 27, 2013
RINEX FILE: sd1_225s.13o TIME: 16:12:49 UTC

SOFTWARE: page5 1209.04 master42.pl 072313 START: 2013/08/13 18:12:00
EPHEMERIS: igr17532.eph [rapid] STOP: 2013/08/13 22:52:00
NAV FILE: brdc2250.13n OBS USED: 10090 / 10932 : 92%
ANT NAME: NONE NONE # FIXED AMB: 70 / 73 : 96%
ARP HEIGHT: 1.44 OVERALL RMS: 0.015(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) IGS08 (EPOCH:2013.6160)

X:	-2458631.790(m)	0.004(m)	-2458632.667(m)	0.004(m)
Y:	-4776409.824(m)	0.007(m)	-4776408.379(m)	0.007(m)
Z:	3426678.066(m)	0.008(m)	3426678.040(m)	0.008(m)

LAT:	32 42 26.50994	0.005(m)	32 42 26.52473	0.005(m)
E LON:	242 45 47.13712	0.001(m)	242 45 47.08179	0.001(m)
W LON:	117 14 12.86288	0.001(m)	117 14 12.91821	0.001(m)
EL HGT:	-32.262(m)	0.009(m)	-33.019(m)	0.009(m)
ORTHO HGT:	3.076(m)	0.027(m)	[NAVD88 (Computed using GEOID12A)]	

	UTM COORDINATES (Zone 11)	STATE PLANE COORDINATES SPC (0406 CA 6)
Northing (Y) [meters]	3618870.839	560403.026
Easting (X) [meters]	477796.400	1907467.299
Convergence [degrees]	-0.12801251	-0.54232239
Point Scale	0.99960608	1.00001351
Combined Factor	0.99961114	1.00001858

US NATIONAL GRID DESIGNATOR: 11SMS7779618870(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DH4102	P472 CAMPELLIOTCS2004 CORS ARP	N325321.139	W1170616.854	23666.6
DM7581	SIO5 SCRIPPS 5-MT SOLE CORS ARP	N325026.632	W1171458.834	14840.6
DG8350	P478 VALLEYCNTRCS2004 CORS ARP	N331408.560	W1170417.677	60602.6

NEAREST NGS PUBLISHED CONTROL POINT

DC0821	J 722	N324228.	W1171421.	216.7

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: SD2_2250.13O OP1377619929084

1009 WARNING! No antenna type was selected. No antenna offsets or
1009 pattern will be applied. Coordinates with reduced accuracy
1009 will be returned for the antenna phase center.
1009

NGS OPUS SOLUTION REPORT
==========

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information: http://www.ngs.noaa.gov/OPUS/about.jsp#accuracy

USER: jesus.gaytan@ncs-subsea.com DATE: August 27, 2013
RINEX FILE: sd2_226a.13o TIME: 16:18:23 UTC

SOFTWARE: page5 1209.04 master13.pl 072313 START: 2013/08/14 00:00:00
EPHEMERIS: igr17533.eph [rapid] STOP: 2013/08/14 02:36:00
NAV FILE: brdc2260.13n OBS USED: 4913 / 5145 : 95%
ANT NAME: NONE NONE # FIXED AMB: 31 / 33 : 94%
ARP HEIGHT: 1.53 OVERALL RMS: 0.014(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) IGS08 (EPOCH:2013.6166)

X:	-2458653.963(m)	0.025(m)	-2458654.840(m)	0.025(m)
Y:	-4776431.962(m)	0.035(m)	-4776430.517(m)	0.035(m)
Z:	3426631.899(m)	0.027(m)	3426631.873(m)	0.027(m)

LAT:	32 42 24.72563	0.008(m)	32 42 24.74042	0.008(m)
E LON:	242 45 46.76919	0.007(m)	242 45 46.71386	0.007(m)
W LON:	117 14 13.23081	0.007(m)	117 14 13.28614	0.007(m)
EL HGT:	-32.106(m)	0.050(m)	-32.864(m)	0.050(m)
ORTHO HGT:	3.234(m)	0.088(m)	[NAVD88 (Computed using GEOID12A)]	

	UTM COORDINATES (UTM (Zone 11))	STATE PLANE COORDINATES (SPC (0406 CA 6))
Northing (Y) [meters]	3618815.916	560348.152
Easting (X) [meters]	477786.699	1907457.197
Convergence [degrees]	-0.12806601	-0.54237855
Point Scale	0.99960608	1.00001360
Combined Factor	0.99961112	1.00001864

US NATIONAL GRID DESIGNATOR: 11SMS7778618815(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
UCLP				188127.2
DN5628	CRHS CRHS_SCGN_CS1999 CORS ARP	N334924.603	W1181621.910	156997.3
AF9714	TORP TORRANCE AIRPORT CORS ARP	N334752.061	W1181950.125	158184.1

NEAREST NGS PUBLISHED CONTROL POINT

AE8655	SHELTER ISLAND WEST END LIGHT2	N324228.281	W1171406.174	214.0

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

DGPS Verification Report

CNAV SN 1099

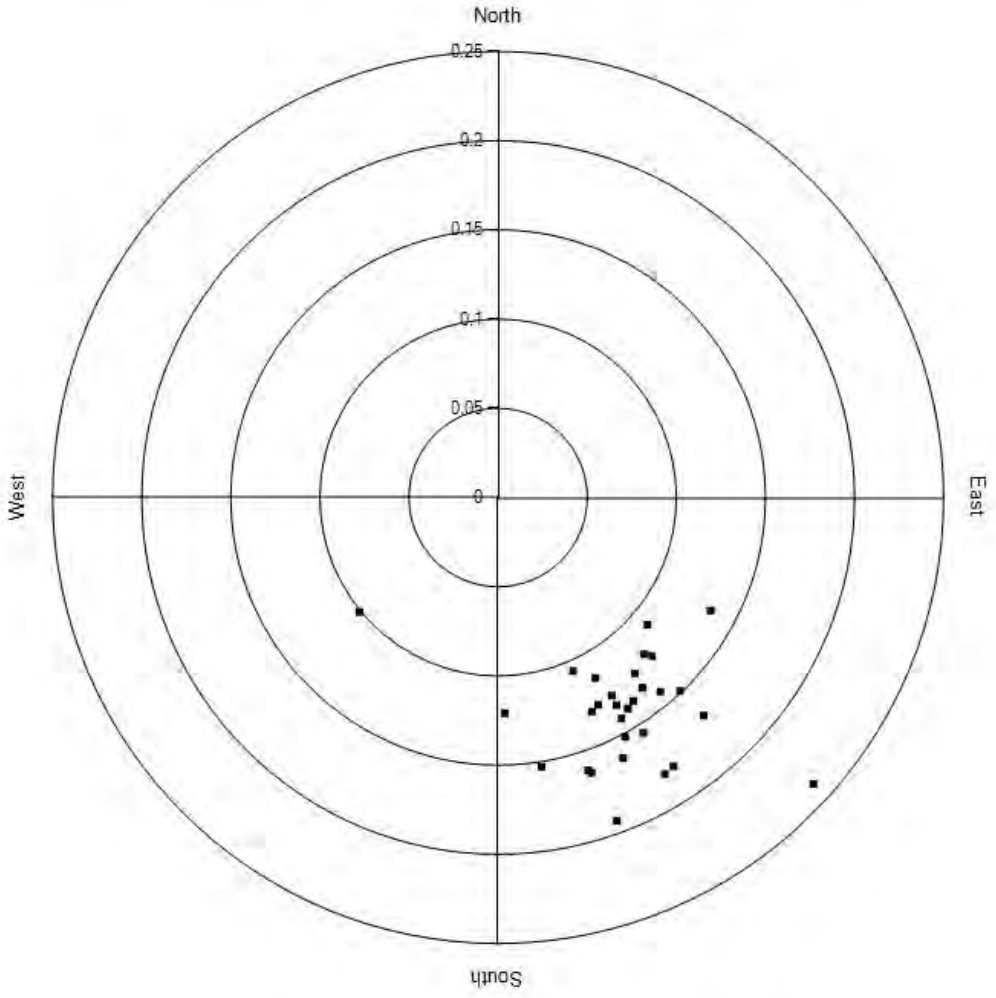
Survey: J00446

Client: SIO/Subsea Systems

Vessel: RV New Horizon

Avg. Error: 0.14 m

St. Dev.: 0.03 m



Report Issued: 10/06/2013 17:00:40

Surveyor: J. Gaytan

DGPS Verification Report

Trimble 5136K78196

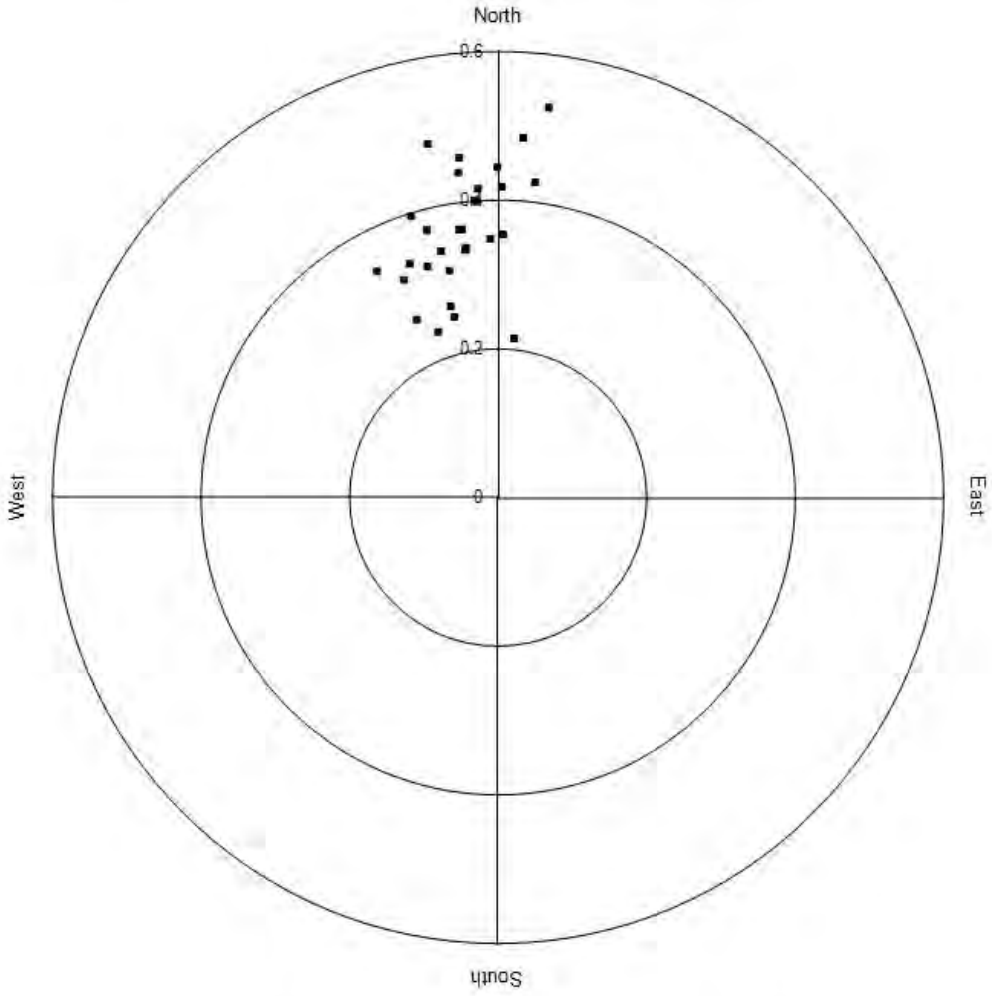
Survey: J00446

Client: SIO/Subsea Systems

Vessel: RV New Horizon

Avg. Error: 0.37 m

St. Dev.: 0.08 m



Report Issued: 10/06/2013 17:04:29

Surveyor: J. Gaytan

DGPS Verification Report

JAVAD 2.130

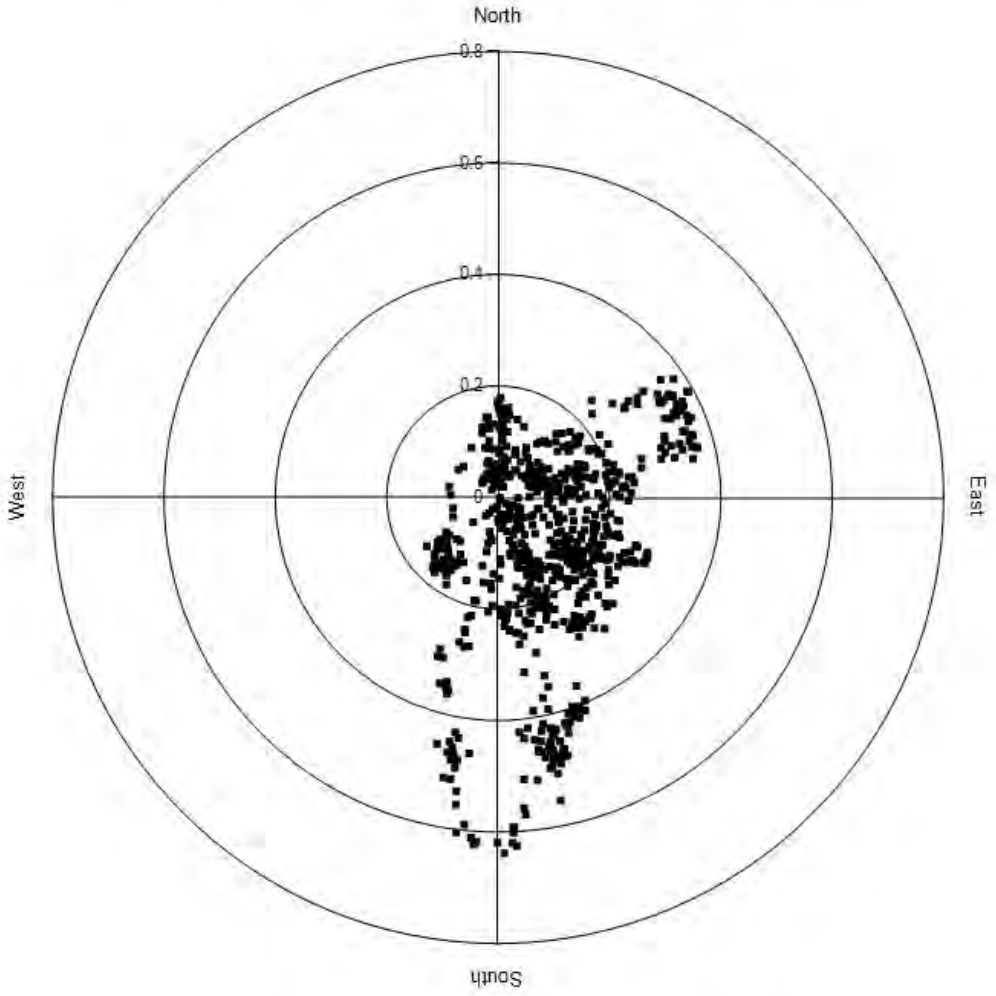
Survey: J00446

Client: SIO/Subsea Systems

Vessel: RV New Horizon

Avg. Error: 0.21 m

St. Dev.: 0.13 m



Report Issued: 10/07/2013 18:48:35

Surveyor: J. Gaytan

DGPS Verification Report

JAVAD 2.132

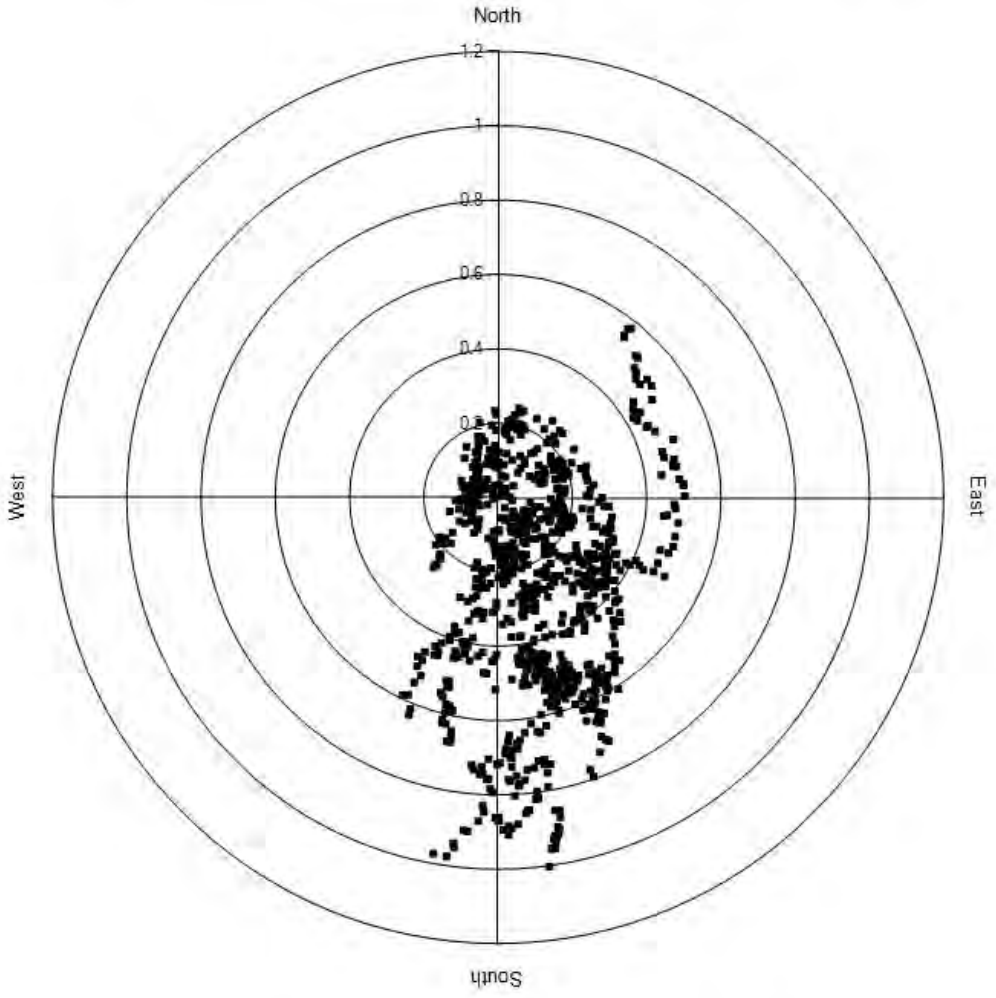
Survey: J00446

Client: SIO/Subsea Systems

Vessel: RV New Horizon

Avg. Error: 0.35 m

St. Dev.: 0.22 m



Report Issued: 10/07/2013 18:24:51

Surveyor: J. Gaytan

DGPS Verification Report

Paravane 1991

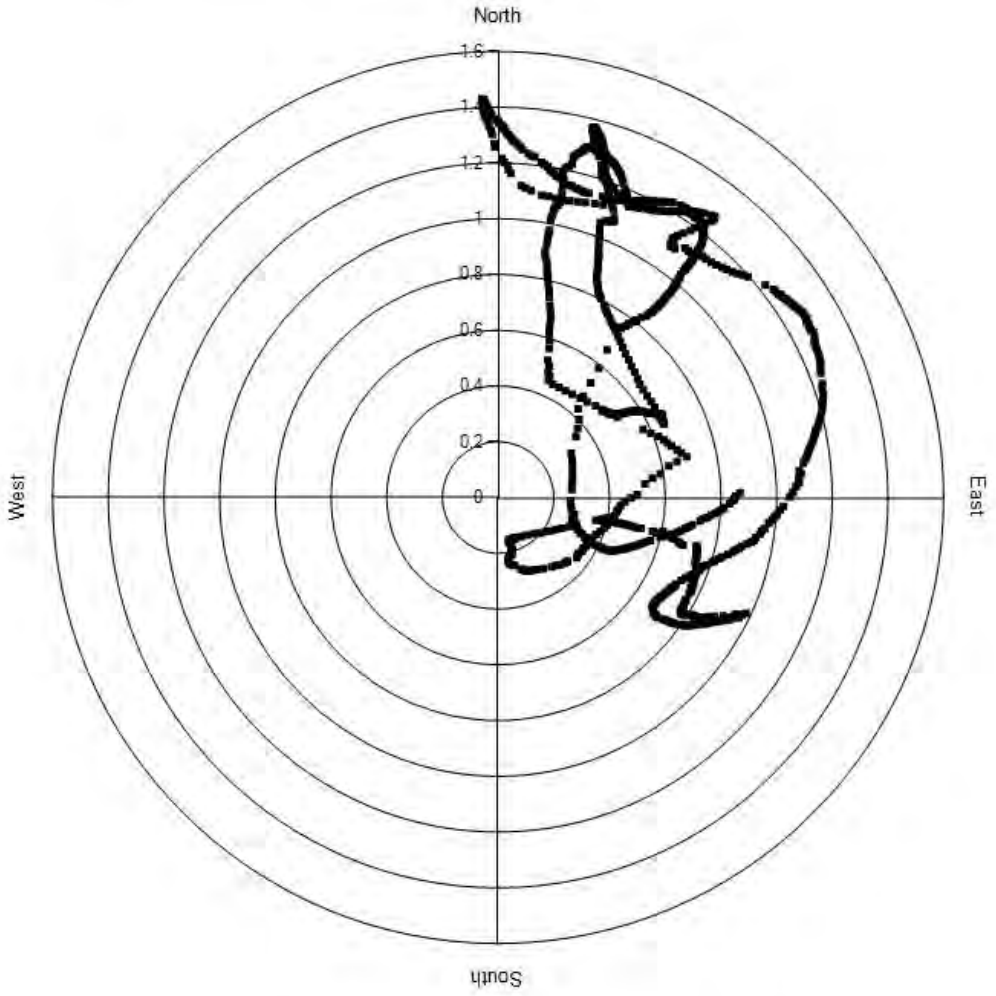
Survey: J00446

Client: SIO/Subsea Systems

Vessel: RV New Horizon

Avg. Error: 0.90 m

St. Dev.: 0.35 m



Report Issued: 11/06/2013 19:26:24

Surveyor: J.Gaytan

DGPS Verification Report

Paravane 1993

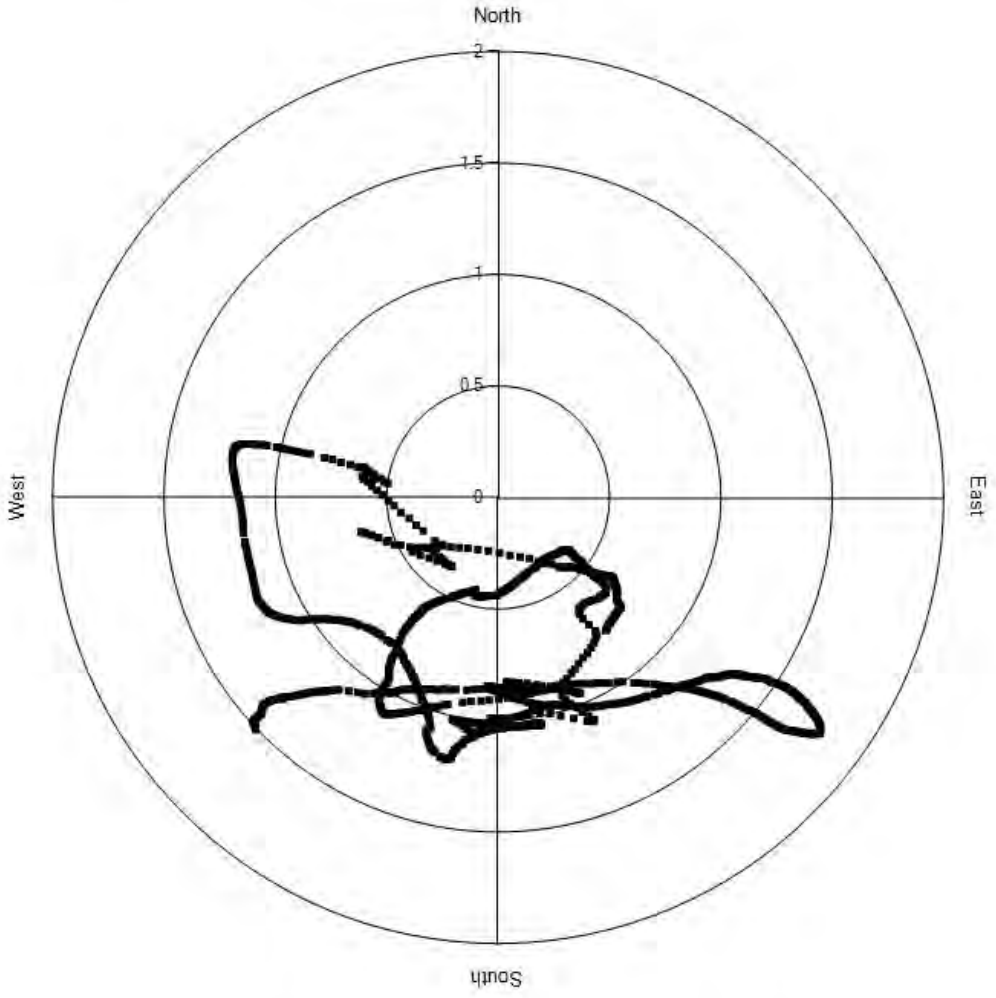
Survey: J00446

Client: SIO/Subsea Systems

Vessel: RV New Horizon

Avg. Error: 0.95 m

St. Dev.: 0.36 m



Report Issued: 11/06/2013 19:31:49

Surveyor: J.Gaytan

DGPS Verification Report

Paravane 1994

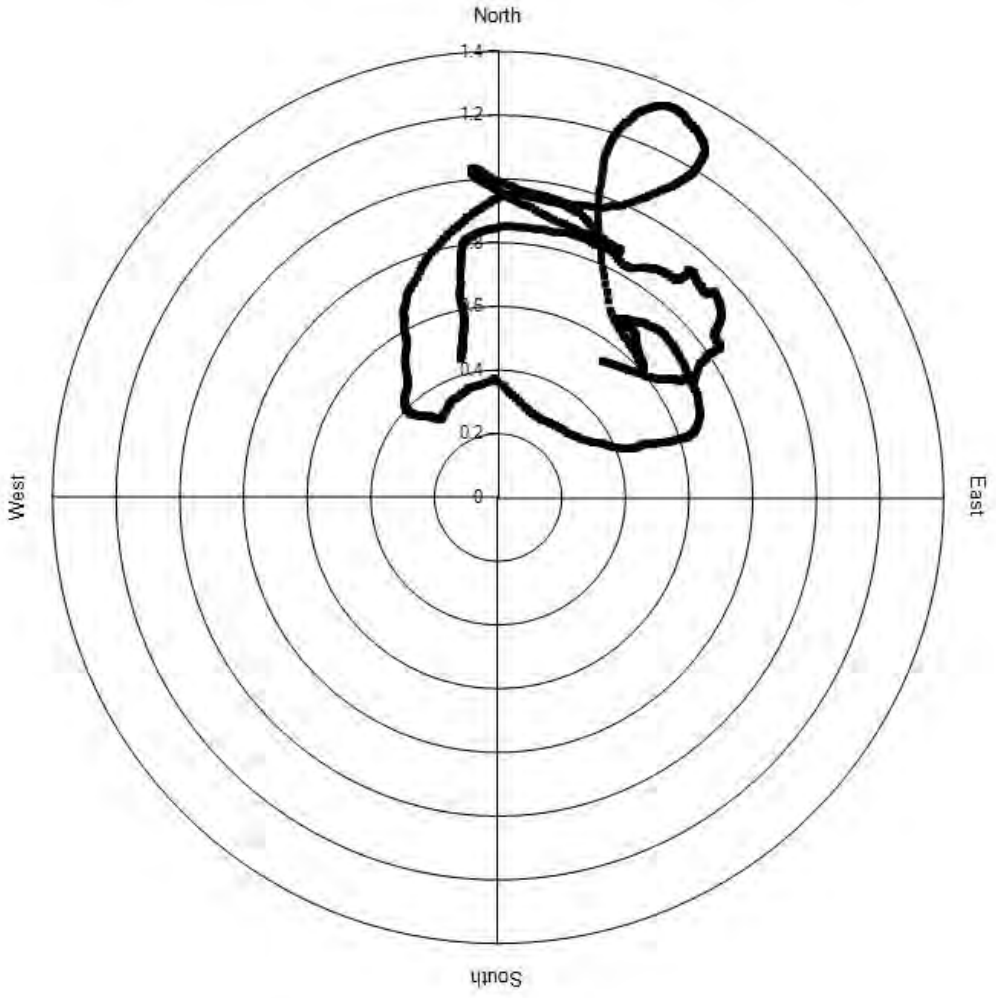
Survey: J00446

Client: SIO/Subsea Systems

Vessel: RV New Horizon

Avg. Error: 0.76 m

St. Dev.: 0.24 m



Report Issued: 11/06/2013 19:33:48

Surveyor: J.Gaytan

DGPS Verification Report

SourcePoint 4116

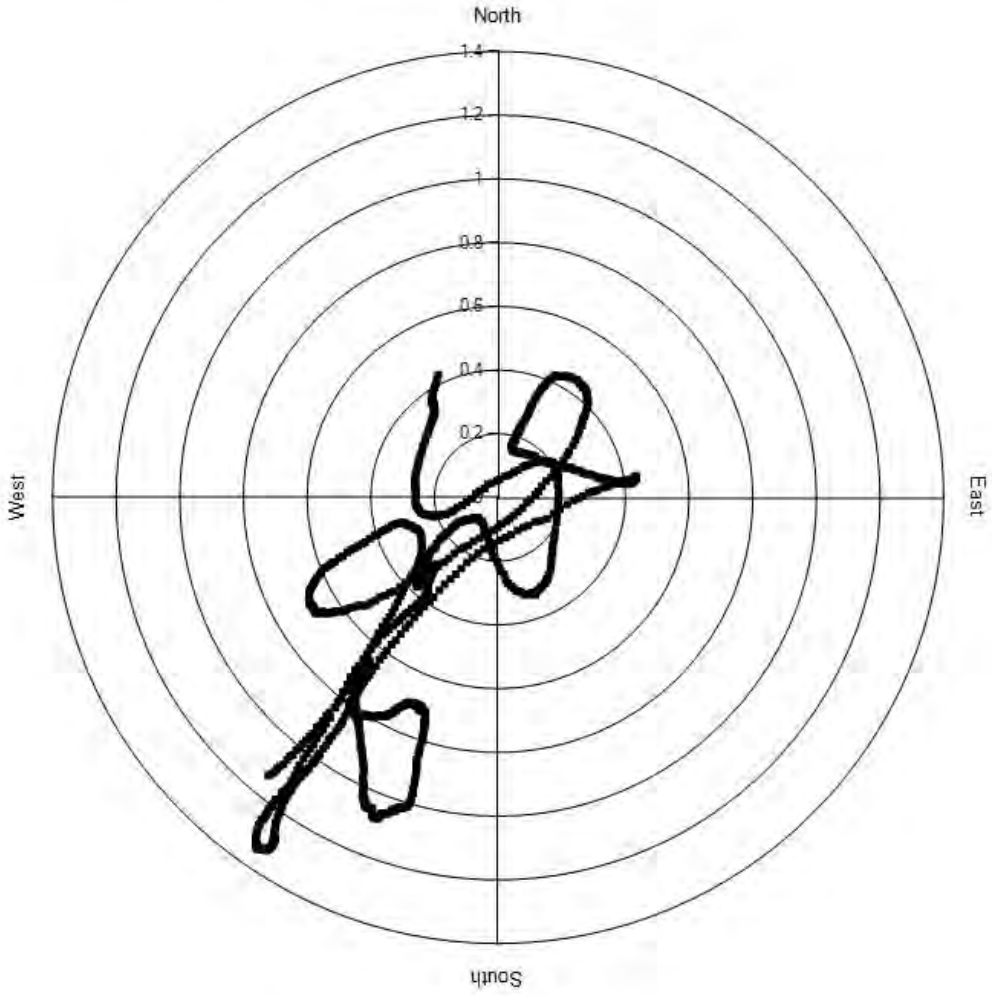
Survey: J00446

Client: SIO/Subsea Systems

Vessel: RV New Horizon

Avg. Error: 0.57 m

St. Dev.: 0.35 m



Report Issued: 10/06/2013 16:17:24

Surveyor: J. Gaytan

DGPS Verification Report

SourcePoint 4118

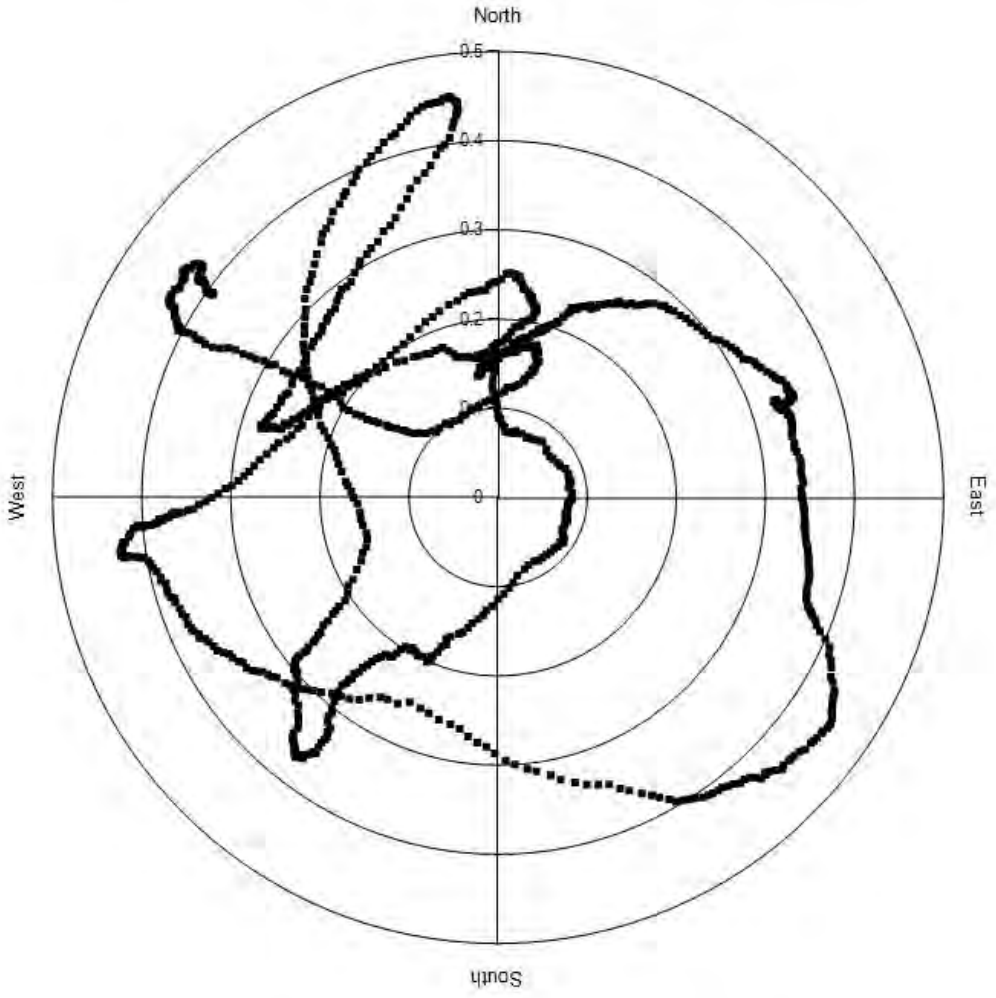
Survey: J00446

Client: SIO/Subsea Systems

Vessel: RV New Horizon

Avg. Error: 0.28 m

St. Dev.: 0.11 m



Report Issued: 10/06/2013 15:10:42

Surveyor: J. Gaytan

DGPS Verification Report

SourcePoint 4119

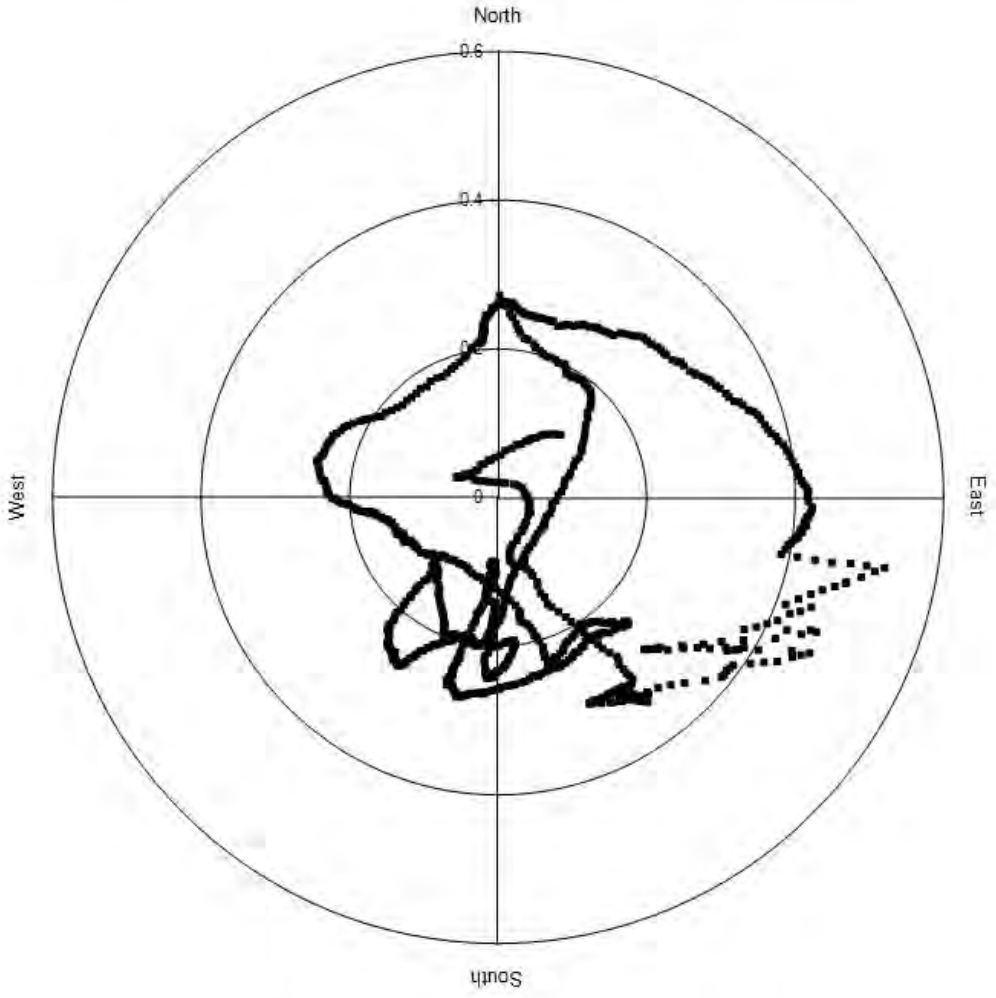
Survey: J00446

Client: SIO/Subsea Systems

Vessel: RV New Horizon

Avg. Error: 0.22 m

St. Dev.: 0.10 m



Report Issued: 10/06/2013 15:08:37

Surveyor: J. Gaytan

DGPS Verification Report

SourcePoint 4124

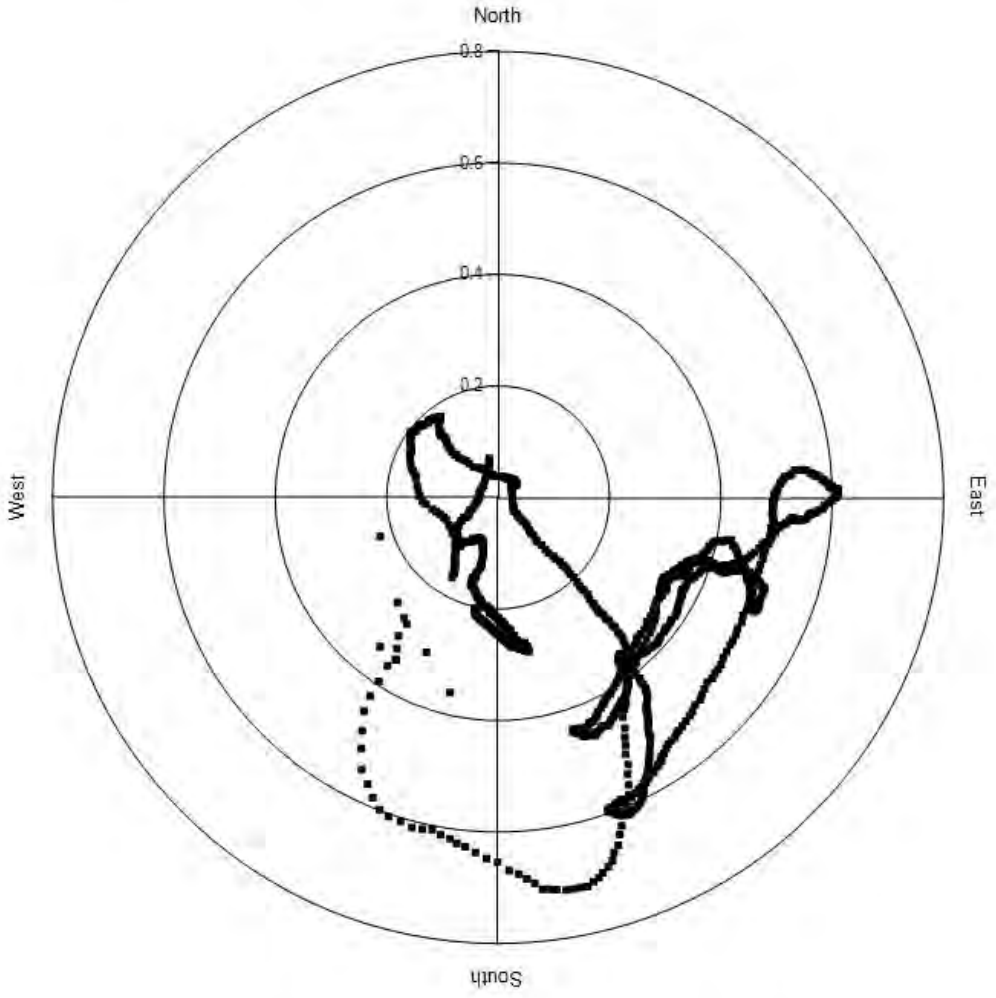
Survey: J00446

Client: SIO/Subsea Systems

Vessel: RV New Horizon

Avg. Error: 0.35 m

St. Dev.: 0.18 m



Report Issued: 10/06/2013 16:22:42

Surveyor: J. Gaytan

DGPS Verification Report

SSI Source 2135

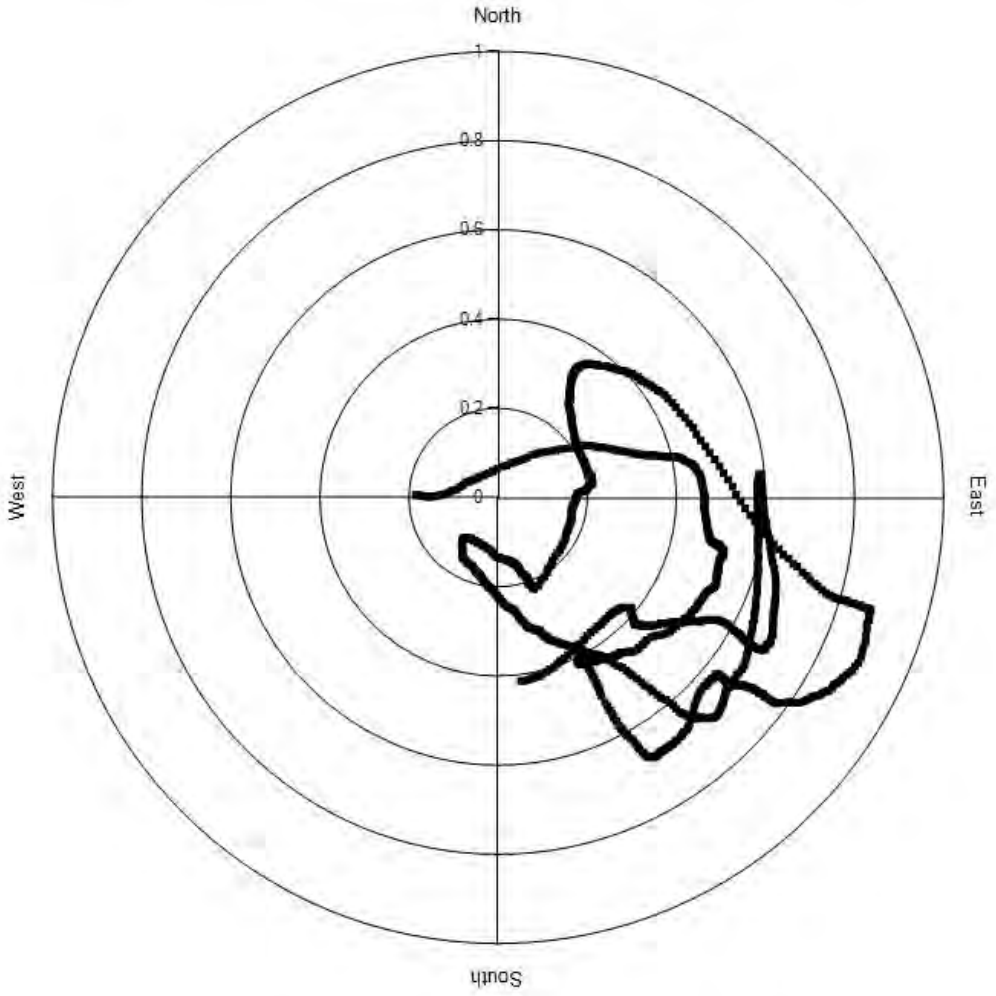
Survey: J00446

Client: SIO/Subsea Systems

Vessel: RV New Horizon

Avg. Error: 0.45 m

St. Dev.: 0.20 m



Report Issued: 11/06/2013 19:41:00

Surveyor: J.Gaytan

DGPS Verification Report

SSI Source 2136

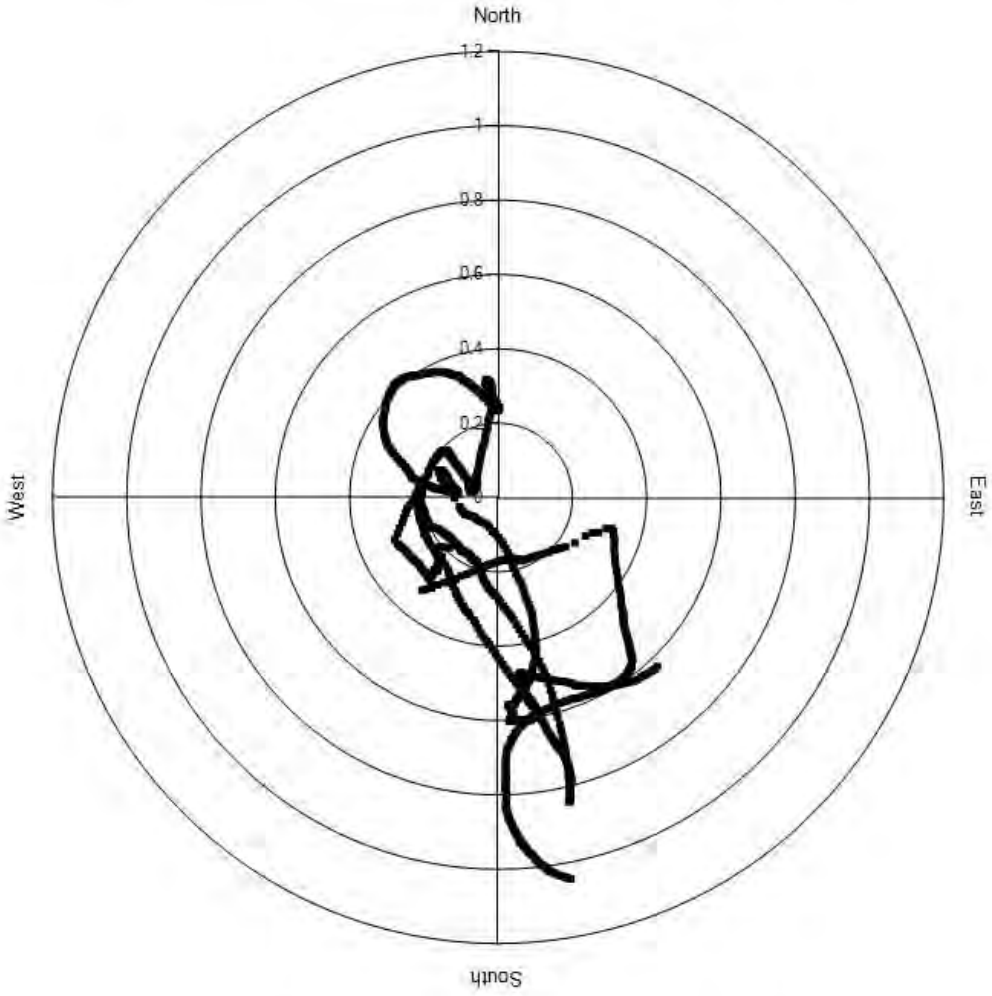
Survey: J00446

Client: SIO/Subsea Systems

Vessel: RV New Horizon

Avg. Error: 0.39 m

St. Dev.: 0.23 m



Report Issued: 11/06/2013 19:45:44

Surveyor: J.Gaytan

DGPS Verification Report

SSI Source 2137

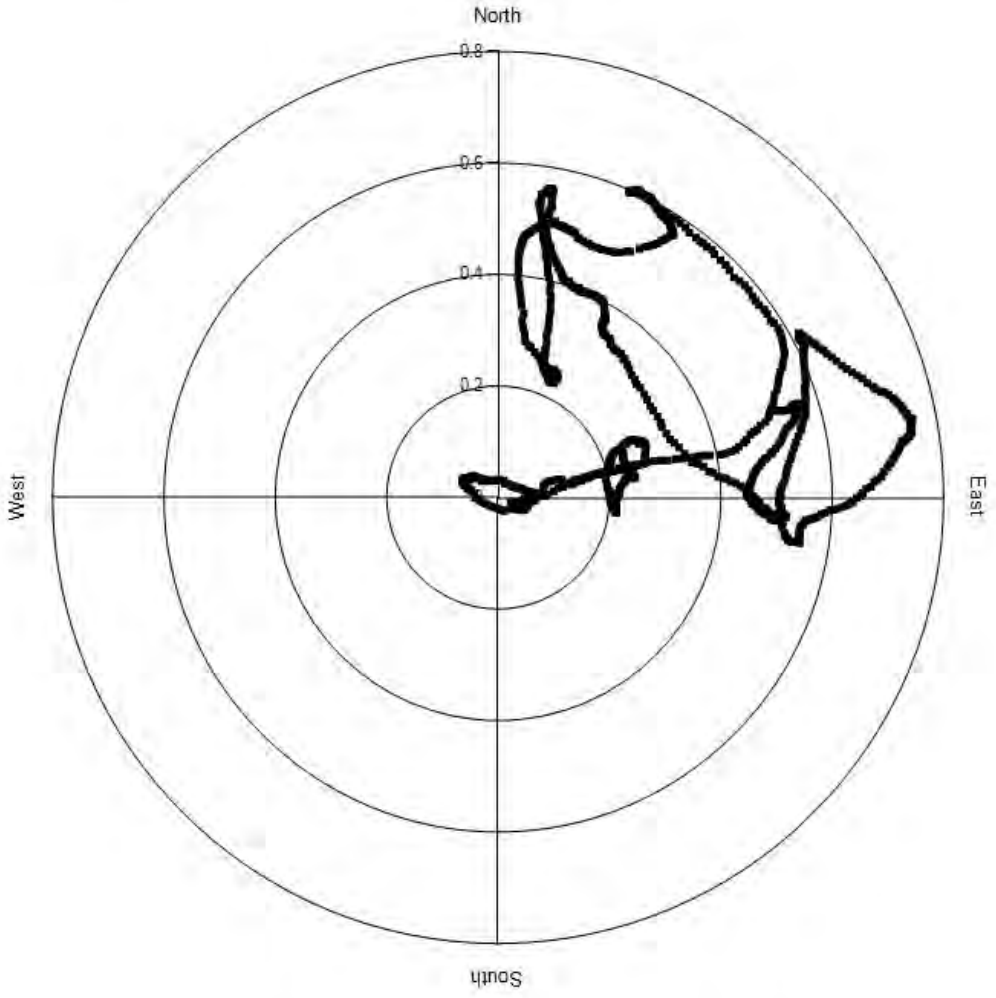
Survey: J00446

Client: SIO/Subsea Systems

Vessel: RV New Horizon

Avg. Error: 0.39 m

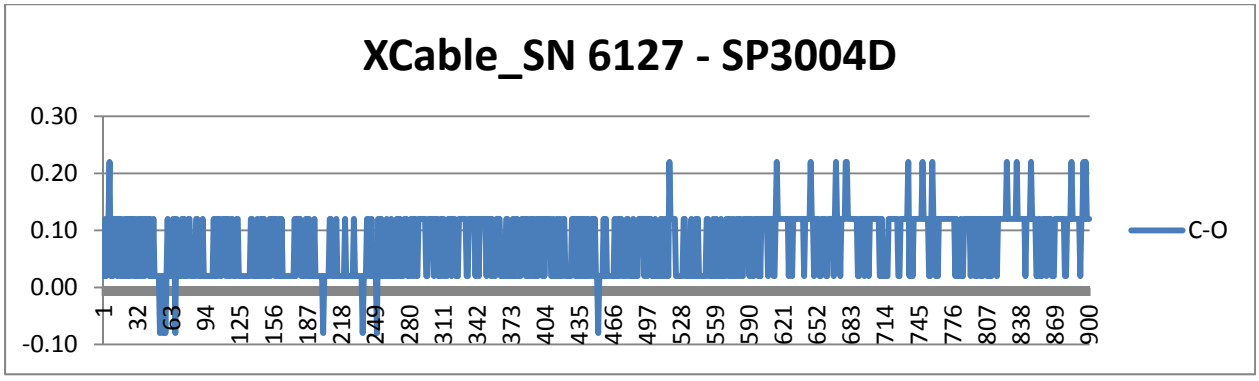
St. Dev.: 0.20 m

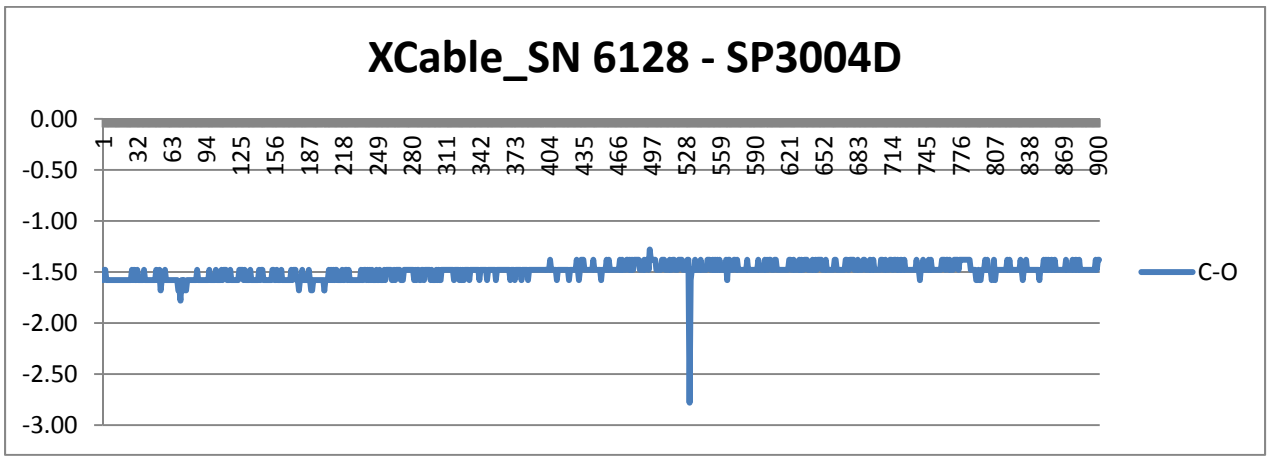


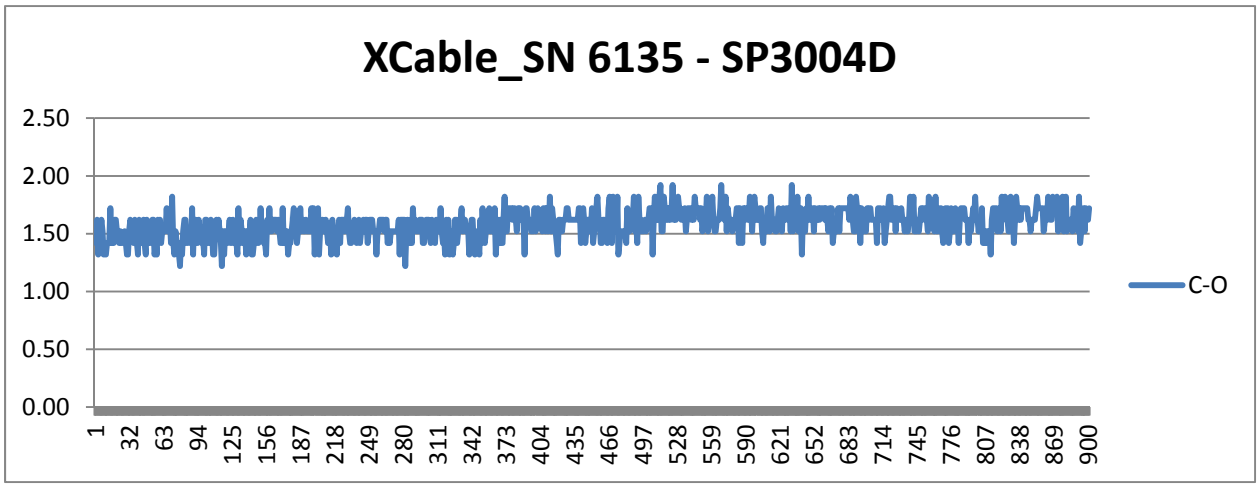
Report Issued: 11/06/2013 19:49:15

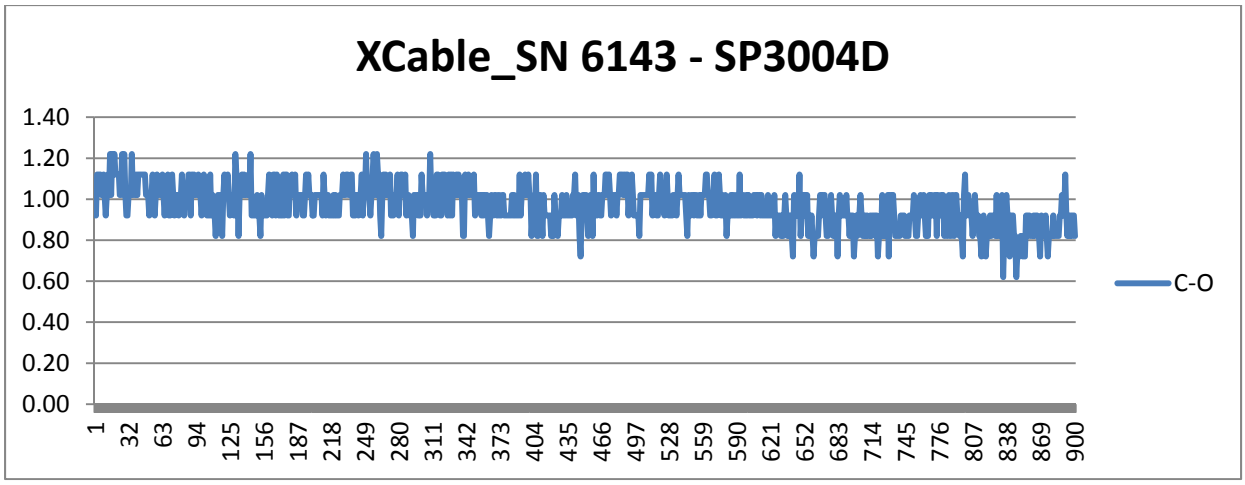
Surveyor: J.Gaytan

9 Appendix C: P-Cable System Compass Verification Graphs





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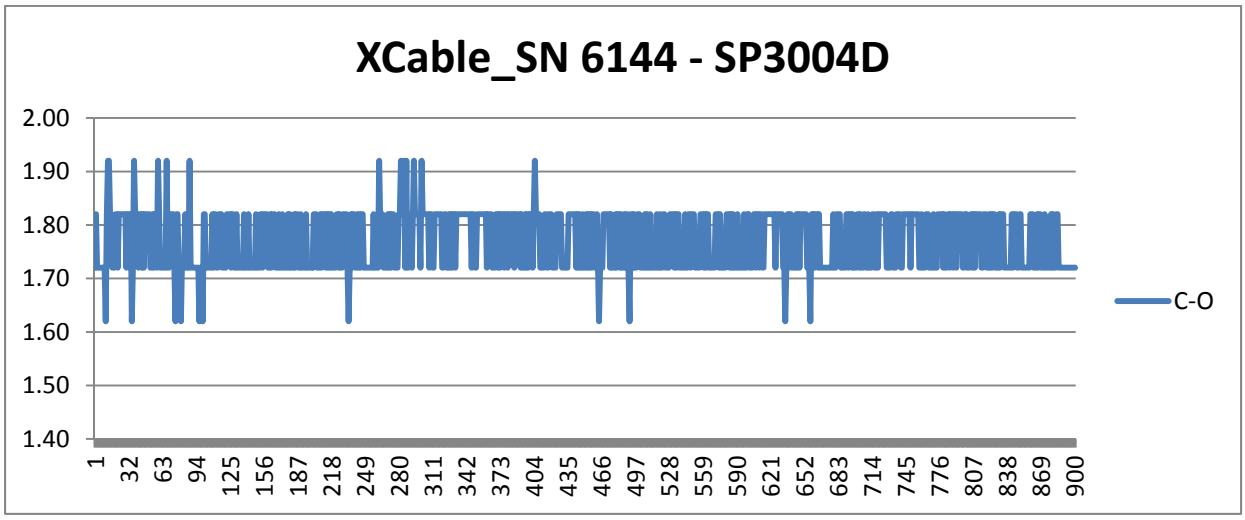
0.60
0.40
0.20
0.00
1
32
63
94
125
156
187
218
249
280
311
342
373
404
435
466
497
528
559
590
621
652
683
714
745
776
807
838
869
900
C-O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63
94
125
156
187
218
249
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311
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621
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807
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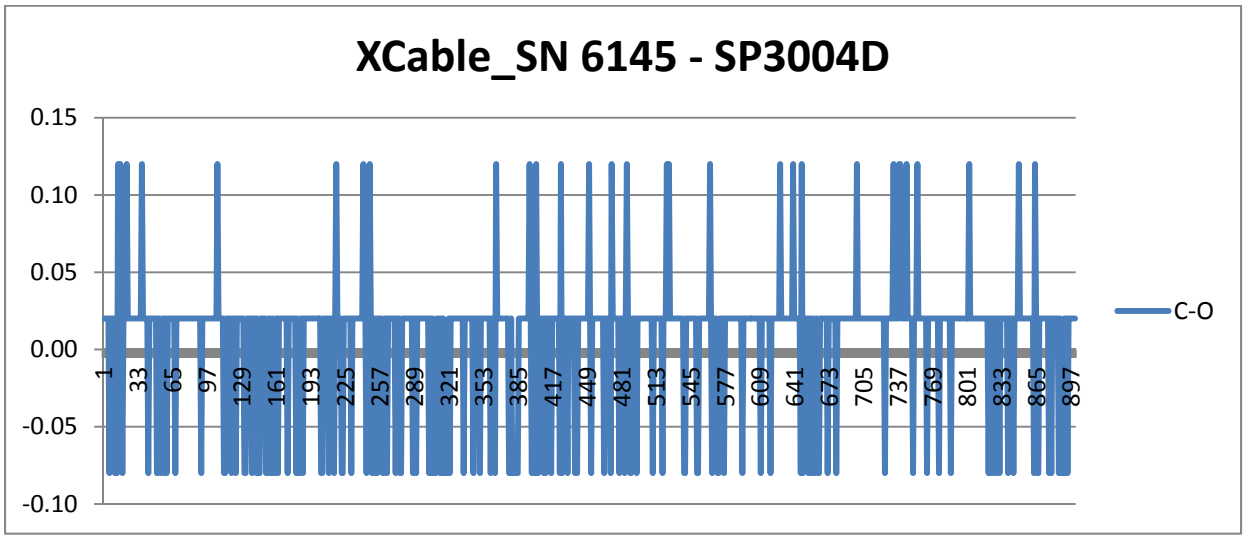
869
900
C-O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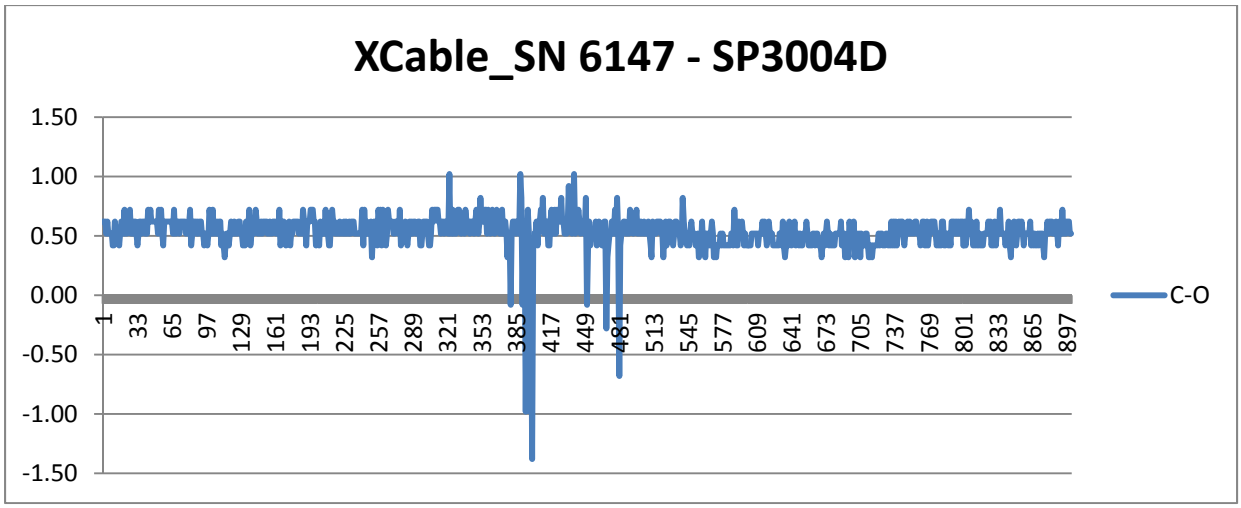
865
897
C-O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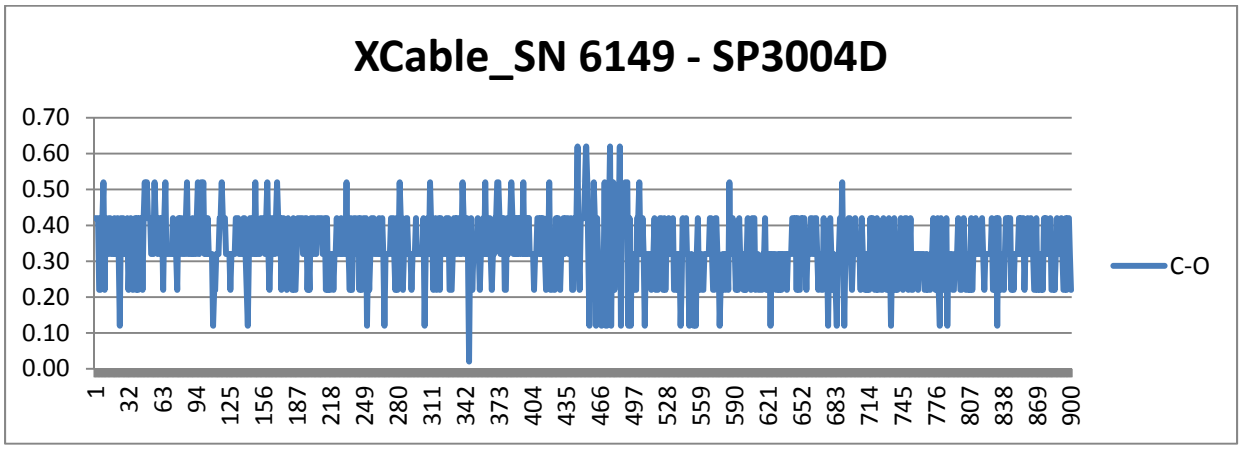
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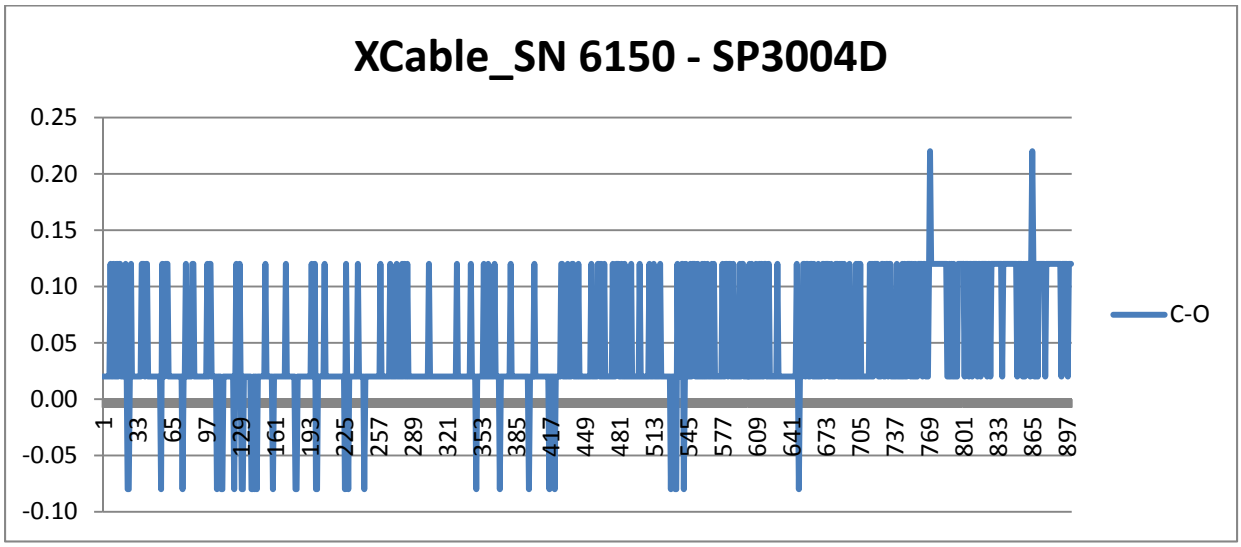
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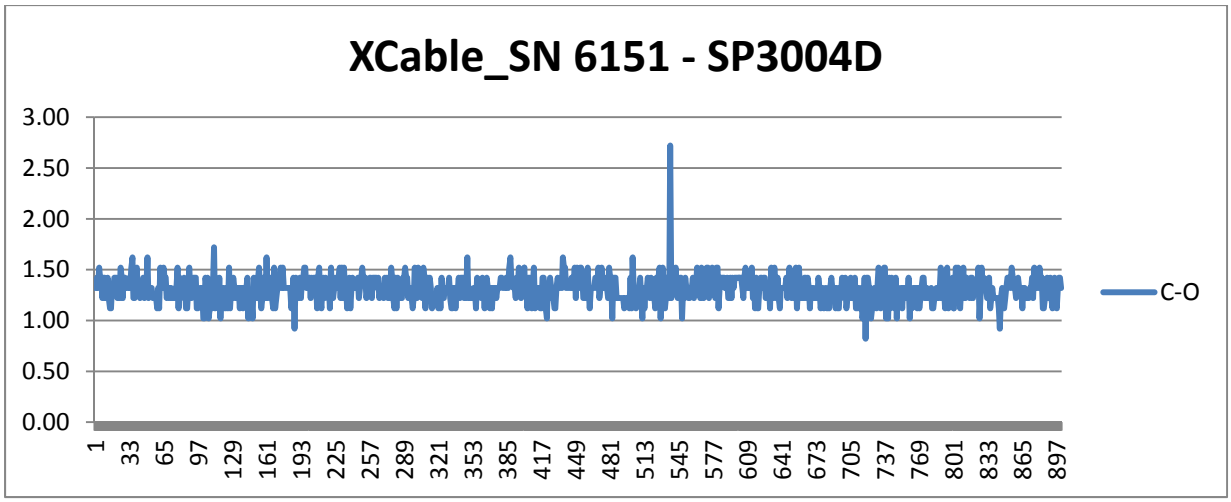
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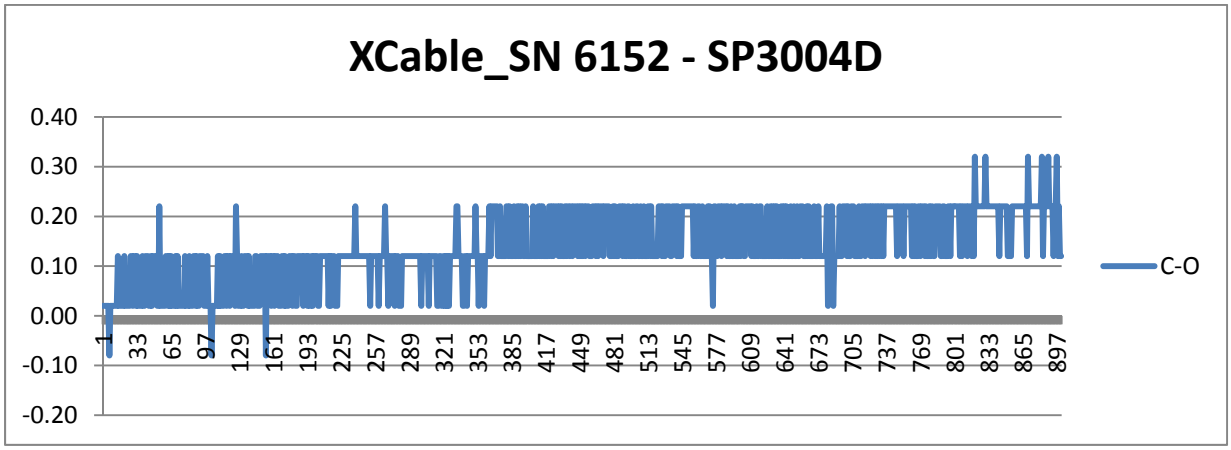
C-O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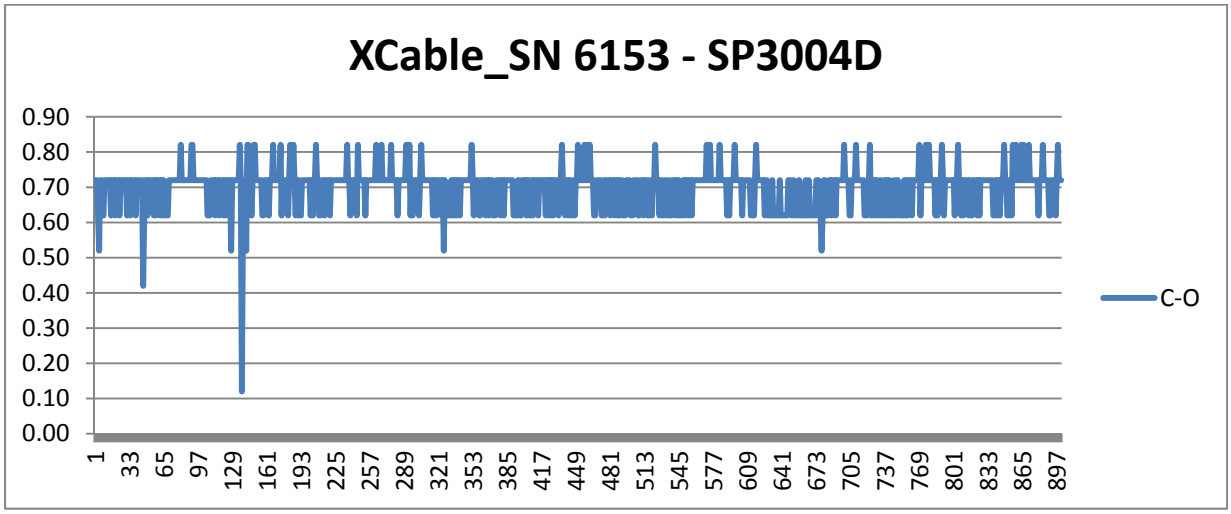
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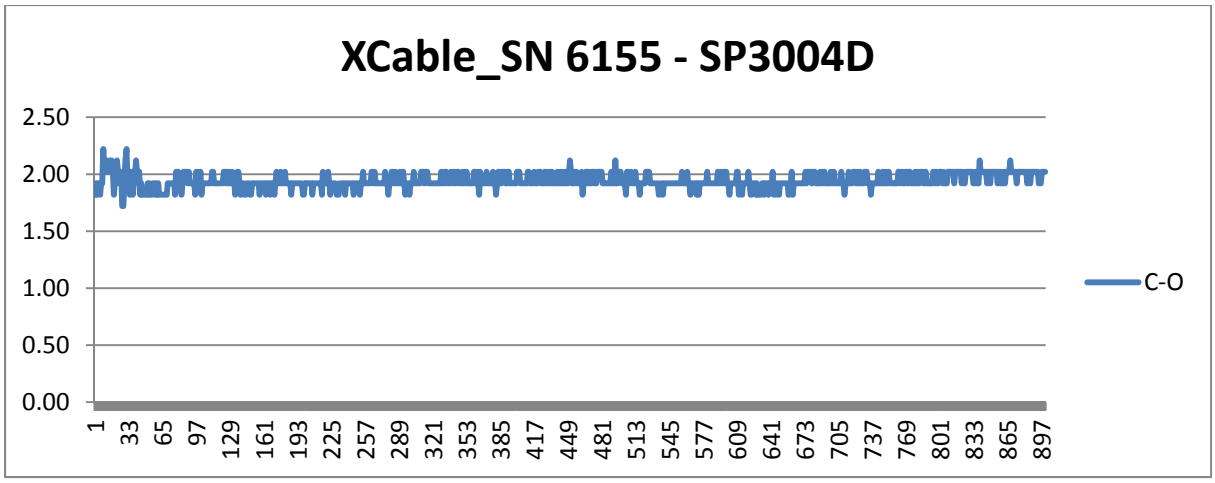
C-O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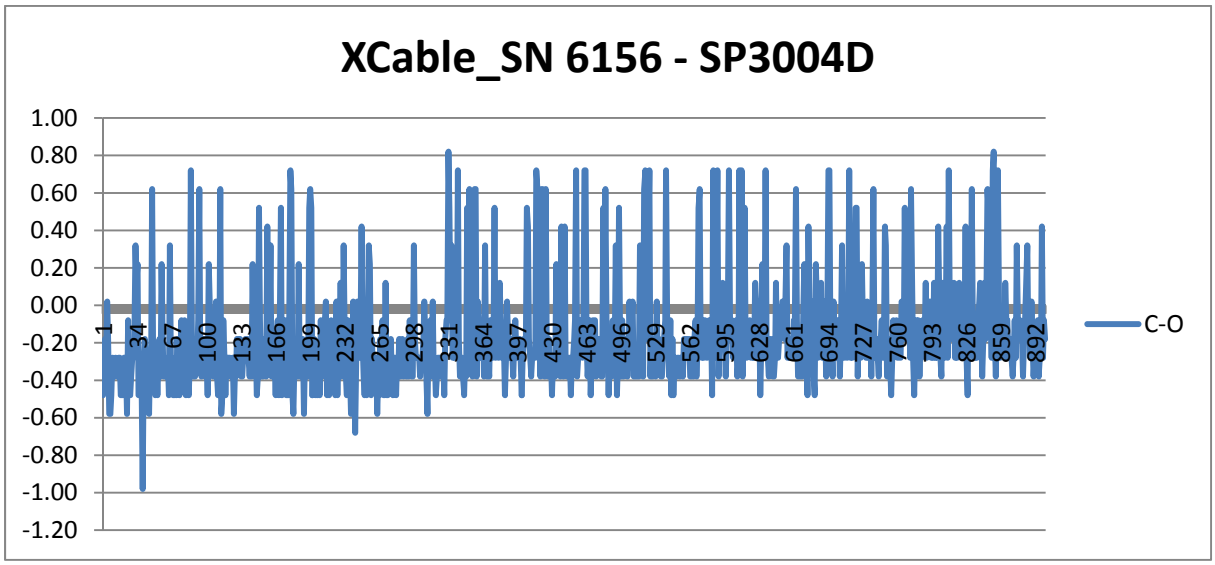
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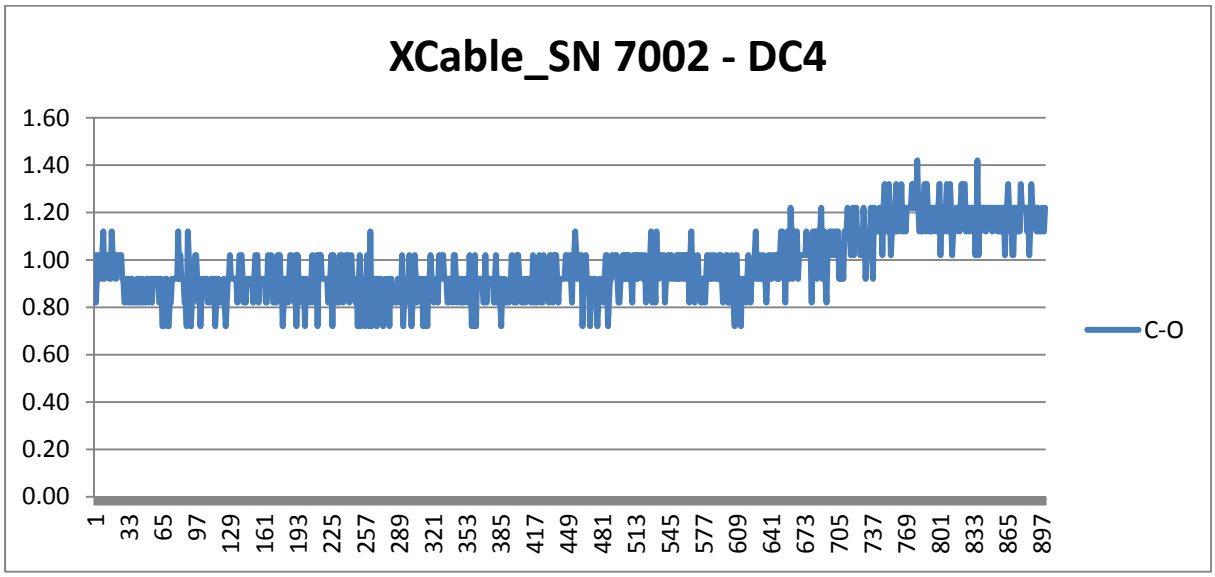
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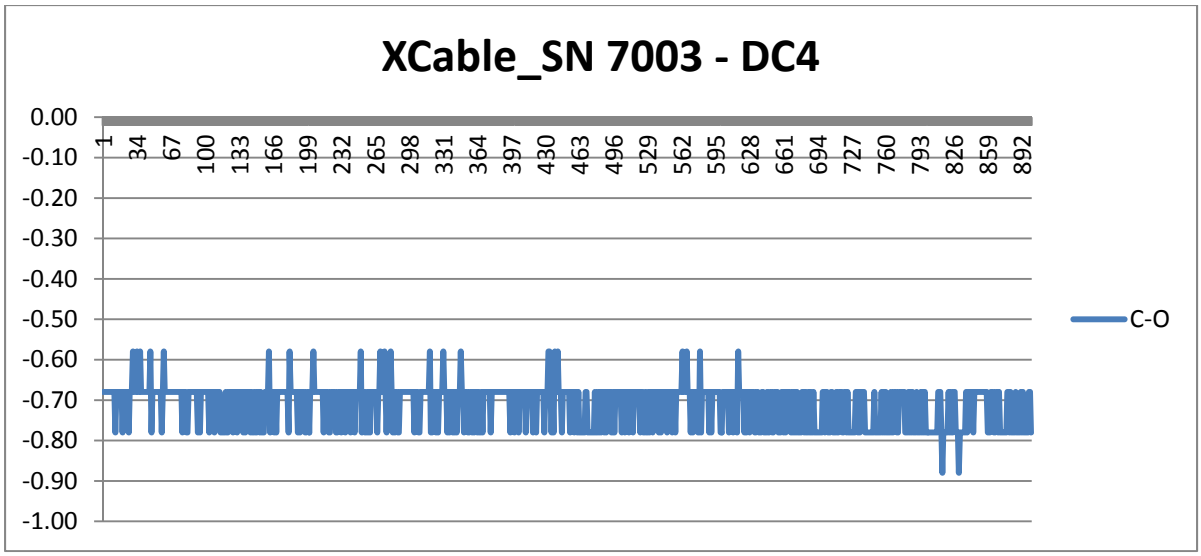
897
C-O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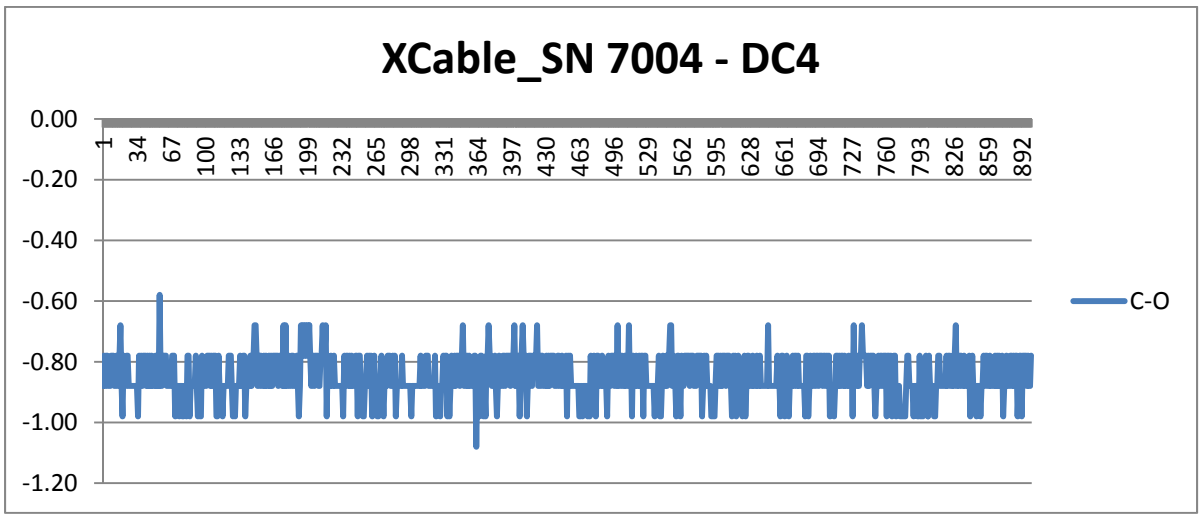
C-O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595
628
661
694
727
760
793
826
859
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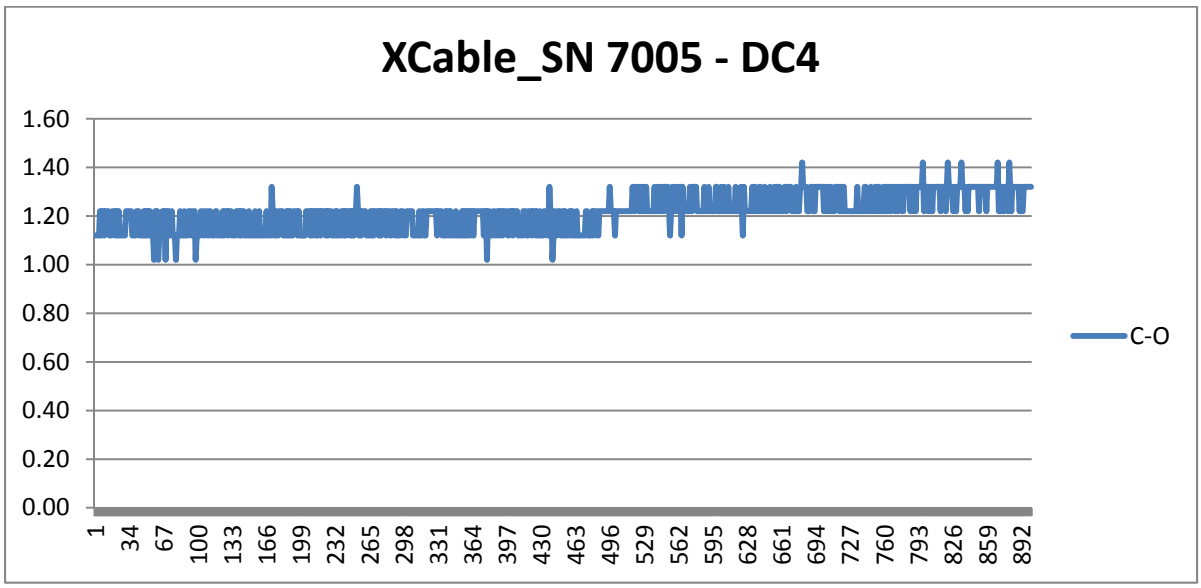
C-O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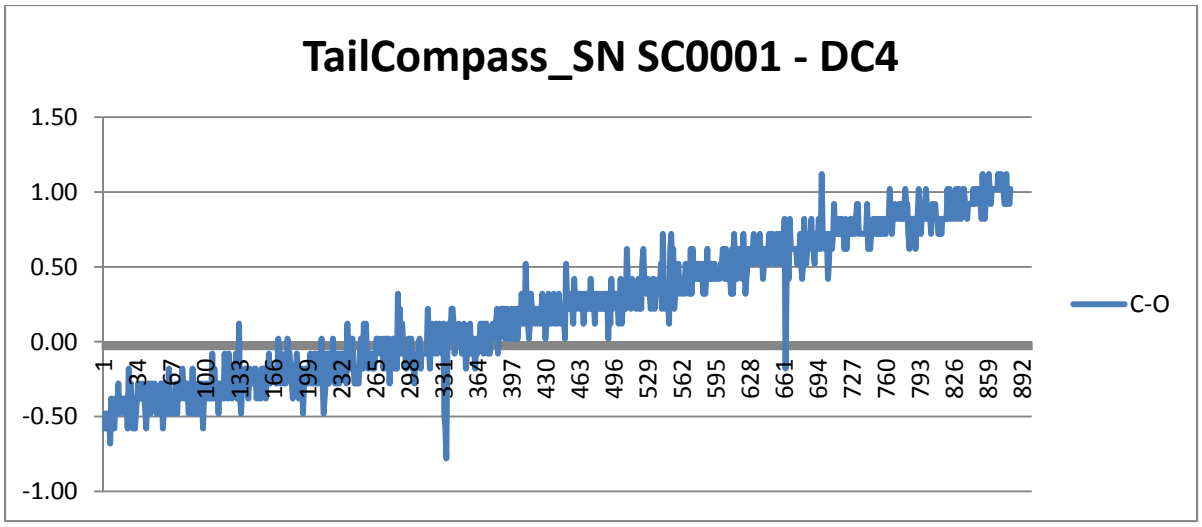
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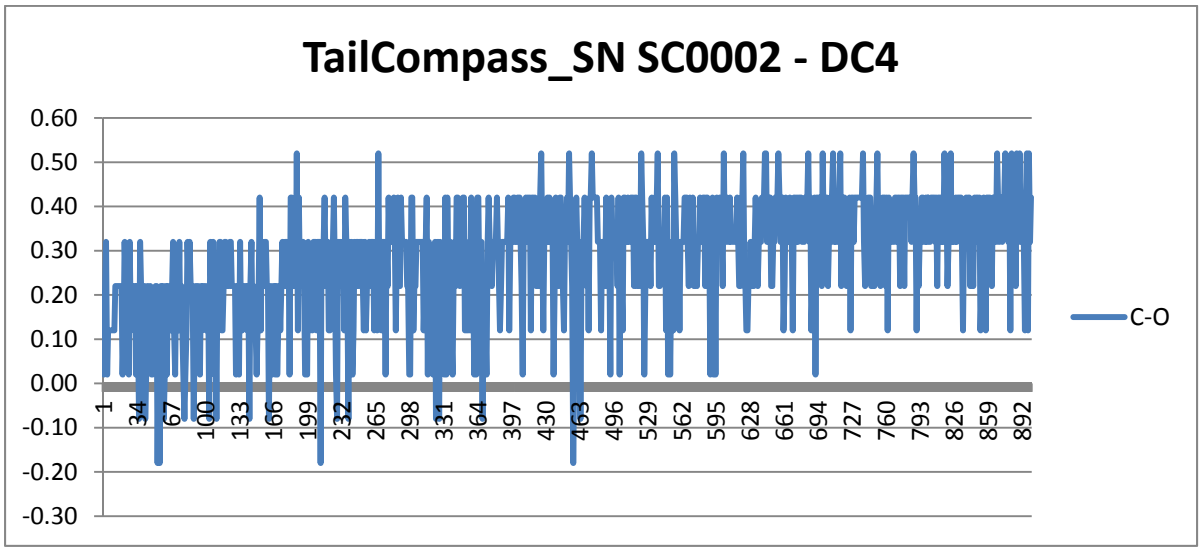
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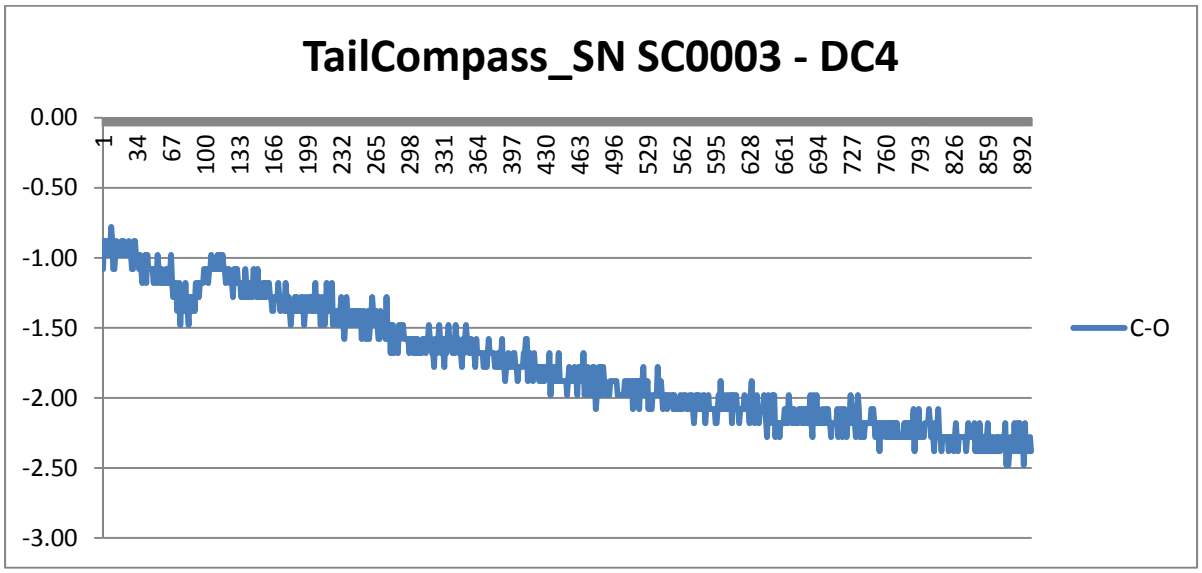
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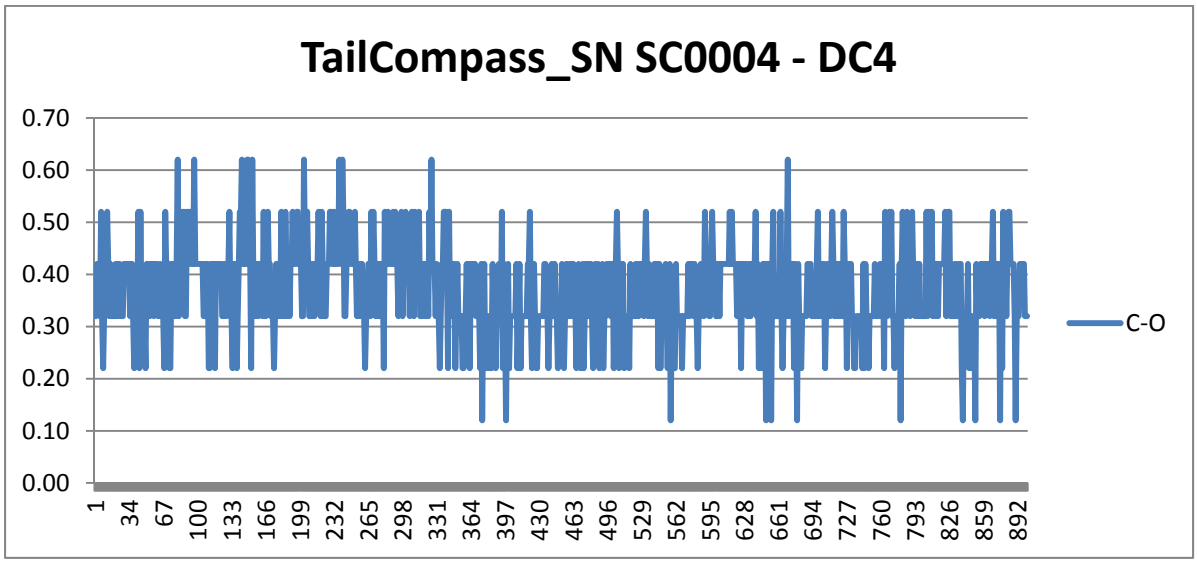
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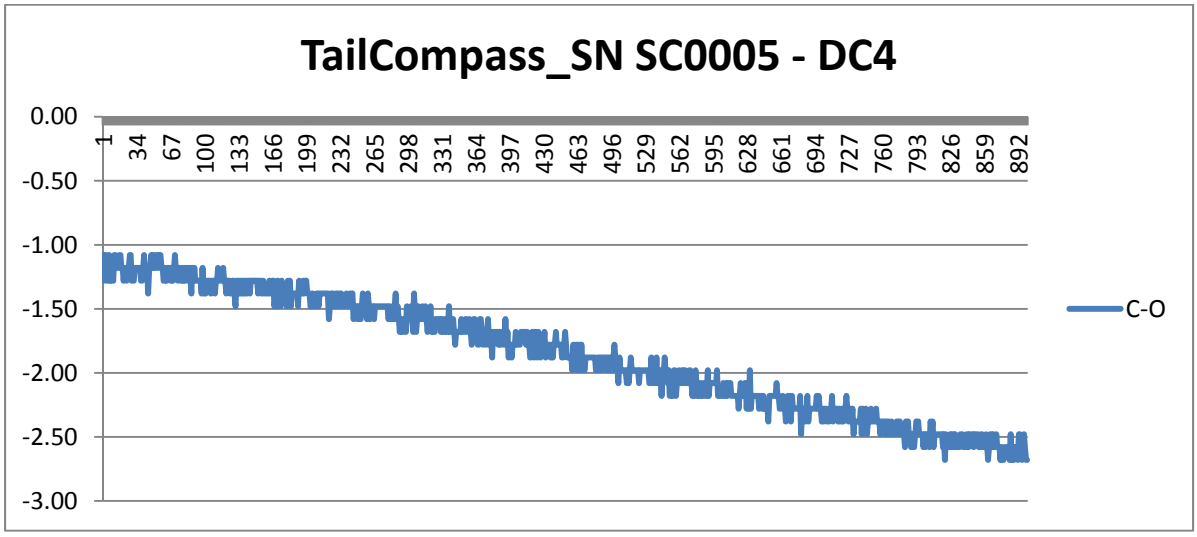
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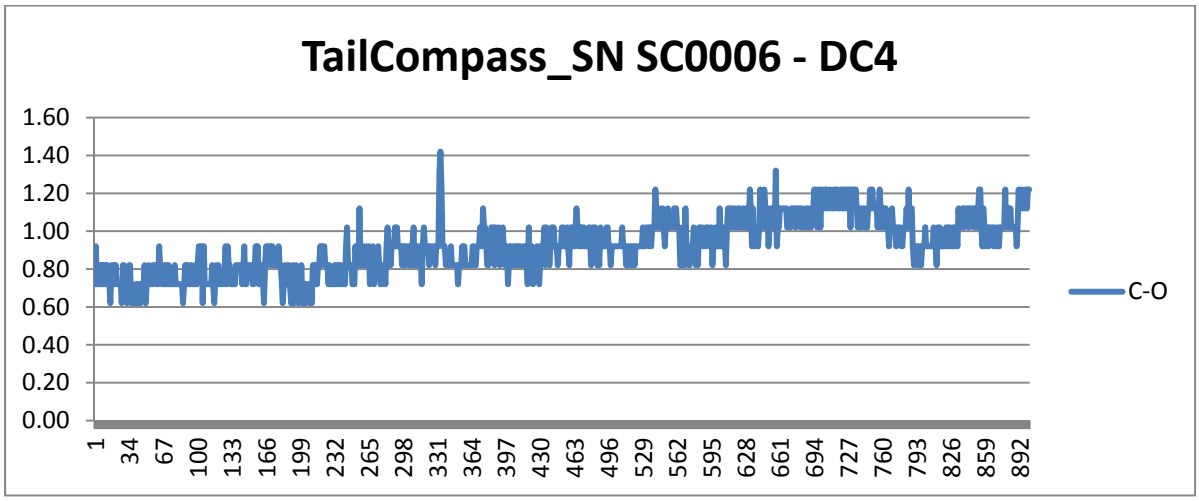
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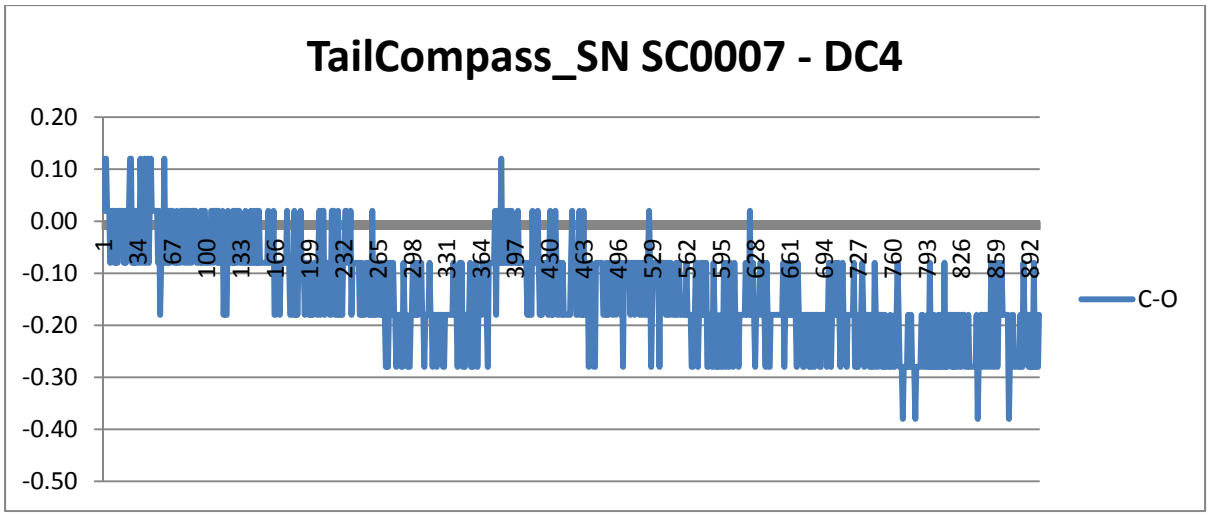
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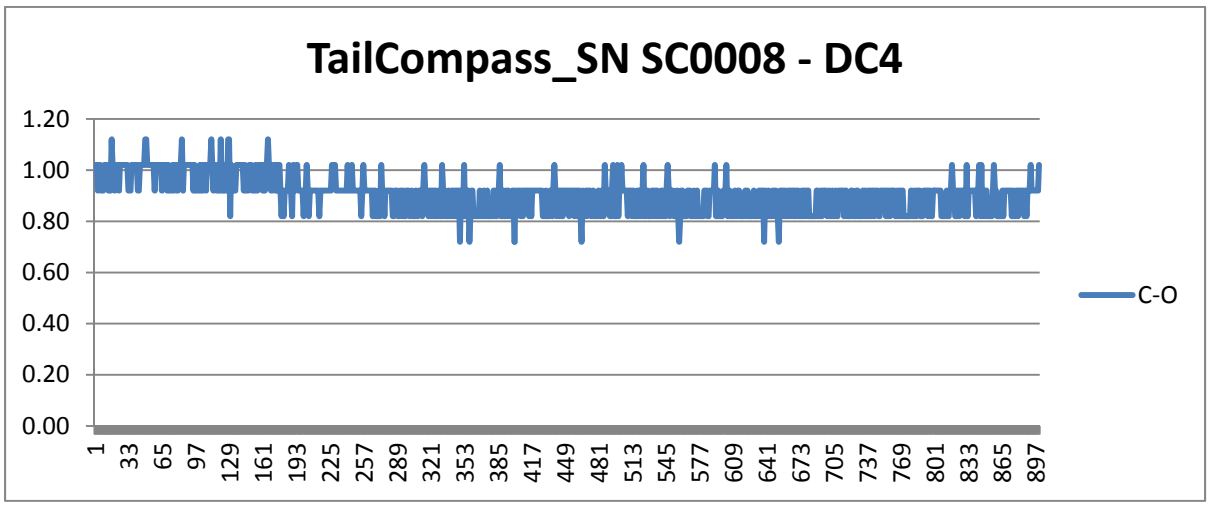
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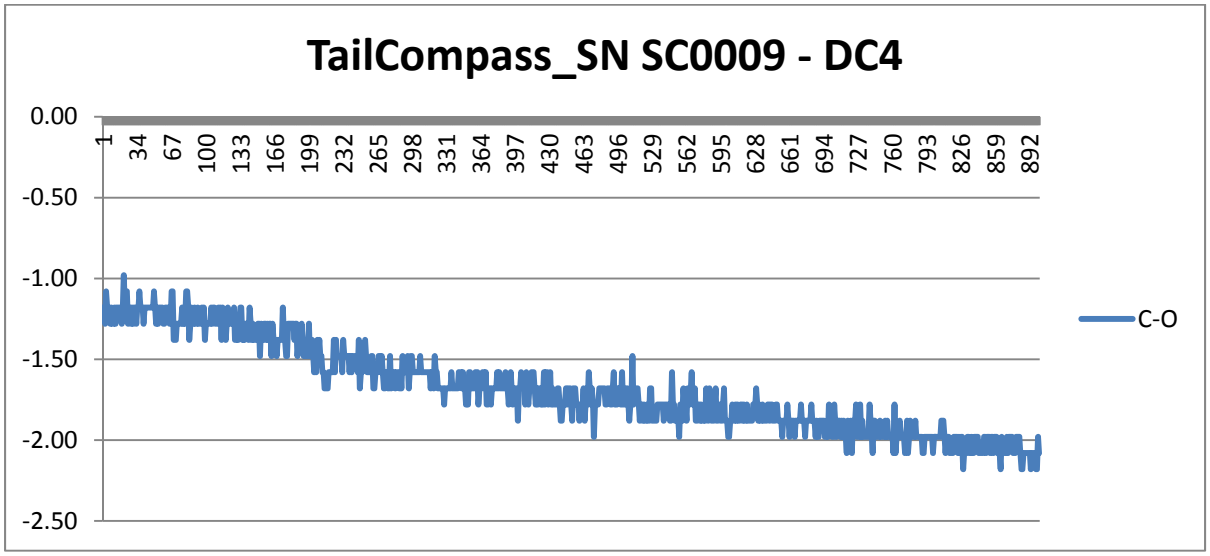
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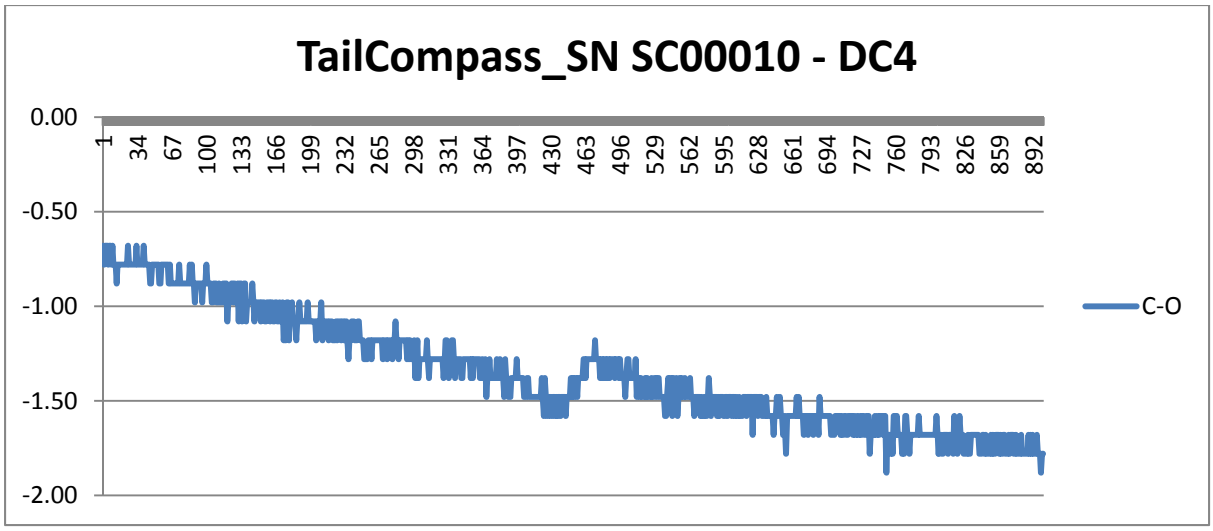
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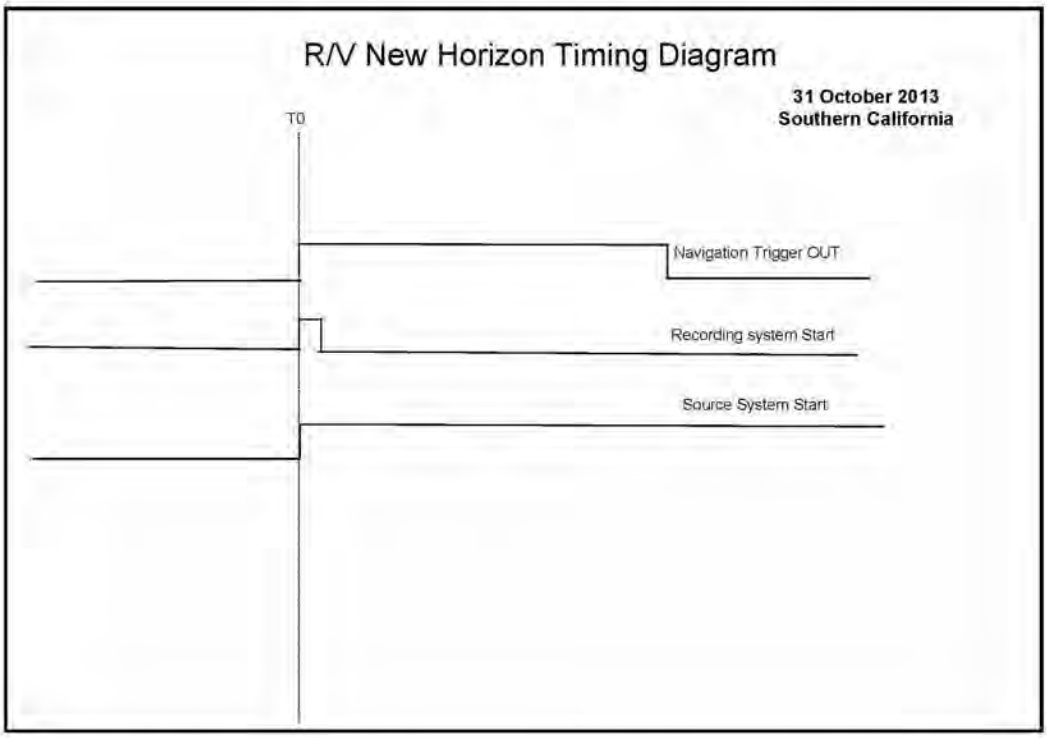
10 Appendix D – System Timing Diagram



Appendix C2: Navigation Daily Production Report

Daily Production Report

Offshore Survey Operations

NCS SubSea, Inc.
3928 Bluebonnet Dr. Stafford, TX 77477
Phone: 1 281-491-3123 Fax: 1 281-491-3105 Email: info@ncs-subsea.com

Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	520
Client Job #		**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	25-Sep-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	0	0	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	0	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	0	0

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
Jennifer Jimenez	HR Manager	NCS SubSea	1 713 857 6608	jennifer.jimenez@ncs-subsea.com
Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	0	0%	Standby
Chief Navigator	Jesus Gaytan	12	0%	San Jose Compass Mobilization
Navigator	Dwayne Fontenot	0	0%	Standby
Navigator	Shane Traceski	0	0%	Standby
Navigation Processor	Micah Hall	12	0%	San Jose Compass Mobilization
Navigation Processor	Abby Parish	0	0%	Standby

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	Off Rate	1	0%	Status
SourcePoint DGPS System	Off Rate	2	0%	Off Rate/Standby= No billing
CNAV WADGPS	Off Rate	1	0%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time)

Time	Comments
23:00	NCS Personnel arrive San Jose, CA for Compass Calibrations and Verifications

Operations Summary (UTC)

Line	Operation	Seq	SOL SP	EOL SP	KM Shot

Daily Production Report

Offshore Survey Operations

NCS SubSea, Inc.
3928 Bluebonnet Dr. Stafford, TX 77477
Phone: 1 281-491-3123 Fax: 1 281-491-3105 Email: info@ncs-subsea.com

Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	520
Client Job #		**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	26-Sep-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	0	0	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	0	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	0	0

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
Jennifer Jimenez	HR Manager	NCS SubSea	1 713 857 6608	jennifer.jimenez@ncs-subsea.com
Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	0	0%	Standby
Chief Navigator	Jesus Gaytan	12	0%	San Jose Compass Mobilization
Navigator	Dwayne Fontenot	0	0%	Standby
Navigator	Shane Traceski	0	0%	Standby
Navigation Processor	Micah Hall	12	0%	San Jose Compass Mobilization
Navigation Processor	Abby Parish	0	0%	Standby

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	Off Rate	1	0%	Status
SourcePoint DGPS System	Off Rate	2	0%	Off Rate/Standby= No billing
CNAV WADGPS	Off Rate	1	0%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time)

Time	Comments
8:00	NCS Personnel arrive Geometrics facility, start compass calibrations/verifications.
17:20	NCS Personnel depart Geometrics facility - compass calibrations/verifications continue.
	-All equipment set up and interfaced
	-All cross cable compasses and spares caibration and verifications complete

Operations Summary (UTC)

Line	Operation	Seq	SOL SP	EOL SP	KM Shot

Daily Production Report

Offshore Survey Operations

NCS SubSea, Inc.
3928 Bluebonnet Dr. Stafford, TX 77477
Phone: 1 281-491-3123 Fax: 1 281-491-3105 Email: info@ncs-subsea.com

Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	520
Client Job #		**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	27-Sep-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	0	0	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	0	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	0	0

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
Jennifer Jimenez	HR Manager	NCS SubSea	1 713 857 6608	jennifer.jimenez@ncs-subsea.com
Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	0	0%	Standby
Chief Navigator	Jesus Gaytan	12	0%	San Jose Compass Mobilization
Navigator	Dwayne Fontenot	0	0%	Standby
Navigator	Shane Traceski	0	0%	Standby
Navigation Processor	Micah Hall	12	0%	San Jose Compass Mobilization
Navigation Processor	Abby Parish	0	0%	Standby

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	In Transit	1	100%	Status
SourcePoint DGPS System	In Transit	2	100%	Off Rate/Standby= No billing
CNAV WADGPS	In Transit	1	50%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time)

Time	Comments
8:00	NCS Personnel arrive Geometrics facility, continue compass calibrations/verifications.
10:00	Equipment Departs Stafford, TX - En Route to San Diego, CA. USA
17:00	NCS Personnel depart Geometrics facility - compass calibrations/verifications coomplete
	-All streamer tail compasses calibrated and verified.
	-All plots and values reviewed and accepted.

Operations Summary (UTC)

Line	Operation	Seq	SOL SP	EOL SP	KM Shot

Daily Production Report

Offshore Survey Operations

NCS SubSea, Inc.
3928 Bluebonnet Dr. Stafford, TX 77477
Phone: 1 281-491-3123 Fax: 1 281-491-3105 Email: info@ncs-subsea.com

Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	520
Client Job #		**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	28-Sep-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	0	0	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	0	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	0	0

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
Jennifer Jimenez	HR Manager	NCS SubSea	1 713 857 6608	jennifer.jimenez@ncs-subsea.com
Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	0	0%	Standby
Chief Navigator	Jesus Gaytan	0	0%	Standby
Navigator	Dwayne Fontenot	0	0%	Standby
Navigator	Shane Traceski	0	0%	Standby
Navigation Processor	Micah Hall	0	0%	Standby
Navigation Processor	Abby Parish	0	0%	Standby

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	In Transit	1	100%	Status
SourcePoint DGPS System	In Transit	2	100%	Off Rate/Standby= No billing
CNAV WADGPS	In Transit	1	50%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time)

Time	Comments
0:00	Equipment in transit to San Diego, Ca USA
12:00	M. Hall departs for Houston.

Operations Summary (UTC)

Line	Operation	Seq	SOL SP	EOL SP	KM Shot

Daily Production Report

Offshore Survey Operations

NCS SubSea, Inc.
3928 Bluebonnet Dr. Stafford, TX 77477
Phone: 1 281-491-3123 Fax: 1 281-491-3105 Email: info@ncs-subsea.com

Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	520
Client Job #		**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	29-Sep-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	0	0	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	0	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	0	0

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
Jennifer Jimenez	HR Manager	NCS SubSea	1 713 857 6608	jennifer.jimenez@ncs-subsea.com
Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	0	0%	Standby
Chief Navigator	Jesus Gaytan	0	0%	Standby
Navigator	Dwayne Fontenot	0	0%	Standby
Navigator	Shane Traceski	0	0%	Standby
Navigation Processor	Micah Hall	0	0%	Standby
Navigation Processor	Abby Parish	0	0%	Standby

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	In Transit	1	100%	Status
SourcePoint DGPS System	In Transit	2	100%	Off Rate/Standby= No billing
CNAV WADGPS	In Transit	1	50%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time)

Time	Comments
0:00	Equipment in transit to San Diego, Ca USA
12:00	J. Gaytan departs for Houston.

Operations Summary (UTC)

Line	Operation	Seq	SOL SP	EOL SP	KM Shot

Daily Production Report

Offshore Survey Operations

NCS SubSea, Inc.
3928 Bluebonnet Dr. Stafford, TX 77477
Phone: 1 281-491-3123 Fax: 1 281-491-3105 Email: info@ncs-subsea.com

Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	520
Client Job #		**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	30-Sep-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	0	0	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	0	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	0	0

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
Jennifer Jimenez	HR Manager	NCS SubSea	1 713 857 6608	jennifer.jimenez@ncs-subsea.com
Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	0	0%	Standby
Chief Navigator	Jesus Gaytan	0	0%	Standby
Navigator	Dwayne Fontenot	0	0%	Standby
Navigator	Shane Traceski	0	0%	Standby
Navigation Processor	Micah Hall	0	0%	Standby
Navigation Processor	Abby Parish	0	0%	Standby

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	In Transit	1	100%	Status
SourcePoint DGPS System	In Transit	2	100%	Off Rate/Standby= No billing
CNAV WADGPS	In Transit	1	50%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time)

Time	Comments
12:00	Equipment arrives SIO Nimitz facility - San Diego, CA USA.

Operations Summary (UTC)

Line	Operation	Seq	SOL SP	EOL SP	KM Shot

Daily Production Report

Offshore Survey Operations

NCS SubSea, Inc.
3928 Bluebonnet Dr. Stafford, TX 77477
Phone: 1 281-491-3123 Fax: 1 281-491-3105 Email: info@ncs-subsea.com

Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	520
Client Job #		**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	1-Oct-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	0	0	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	0	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	0	0

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
Jennifer Jimenez	HR Manager	NCS SubSea	1 713 857 6608	jennifer.jimenez@ncs-subsea.com
Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	0	0%	Standby
Chief Navigator	Jesus Gaytan	0	0%	Standby
Navigator	Dwayne Fontenot	0	0%	Standby
Navigator	Shane Traceski	0	0%	Standby
Navigation Processor	Micah Hall	0	0%	Standby
Navigation Processor	Abby Parish	0	0%	Standby

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	Standby	1	0%	Status
SourcePoint DGPS System	Standby	2	0%	Off Rate/Standby= No billing
CNAV WADGPS	Standby	1	0%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time)

Time	Comments
0:01	Equipment standby at Nimitz facility - San Diego, CA USA.

Operations Summary (UTC)

Line	Operation	Seq	SOL SP	EOL SP	KM Shot

Daily Production Report

Offshore Survey Operations

NCS SubSea, Inc.
3928 Bluebonnet Dr. Stafford, TX 77477
Phone: 1 281-491-3123 Fax: 1 281-491-3105 Email: info@ncs-subsea.com

Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	520
Client Job #		**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	2-Oct-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	0	0	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	0	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	0	0

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
Jennifer Jimenez	HR Manager	NCS SubSea	1 713 857 6608	jennifer.jimenez@ncs-subsea.com
Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	0	0%	Standby
Chief Navigator	Jesus Gaytan	0	0%	Standby
Navigator	Dwayne Fontenot	0	0%	Standby
Navigator	Shane Traceski	0	0%	Standby
Navigation Processor	Micah Hall	0	0%	Standby
Navigation Processor	Abby Parish	0	0%	Standby

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	Standby	1	0%	Status
SourcePoint DGPS System	Standby	2	0%	Off Rate/Standby= No billing
CNAV WADGPS	Standby	1	0%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time)

Time	Comments
0:01	Equipment standby at Nimitz facility - San Diego, CA USA.

Operations Summary (UTC)

Line	Operation	Seq	SOL SP	EOL SP	KM Shot

Daily Production Report

Offshore Survey Operations

NCS SubSea, Inc.
3928 Bluebonnet Dr. Stafford, TX 77477
Phone: 1 281-491-3123 Fax: 1 281-491-3105 Email: info@ncs-subsea.com

Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	520
Client Job #		**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	3-Oct-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	0	0	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	0	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	0	0

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
Jennifer Jimenez	HR Manager	NCS SubSea	1 713 857 6608	jennifer.jimenez@ncs-subsea.com
Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	0	0%	Standby
Chief Navigator	Jesus Gaytan	0	0%	Standby
Navigator	Dwayne Fontenot	0	0%	Standby
Navigator	Shane Traceski	0	0%	Standby
Navigation Processor	Micah Hall	0	0%	Standby
Navigation Processor	Abby Parish	0	0%	Standby

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	Standby	1	0%	Status
SourcePoint DGPS System	Standby	2	0%	Off Rate/Standby= No billing
CNAV WADGPS	Standby	1	0%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time)

Time	Comments
0:01	Equipment standby at Nimitz facility - San Diego, CA USA.

Operations Summary (UTC)

Line	Operation	Seq	SOL SP	EOL SP	KM Shot

Daily Production Report

Offshore Survey Operations

NCS SubSea, Inc.
3928 Bluebonnet Dr. Stafford, TX 77477
Phone: 1 281-491-3123 Fax: 1 281-491-3105 Email: info@ncs-subsea.com

Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	520
Client Job #		**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	4-Oct-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	0	0	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	0	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	0	0

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
Jennifer Jimenez	HR Manager	NCS SubSea	1 713 857 6608	jennifer.jimenez@ncs-subsea.com
Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	12	0%	On Location
Chief Navigator	Jesus Gaytan	12	100%	On Location
Navigator	Dwayne Fontenot	0	0%	Standby
Navigator	Shane Traceski	0	0%	Standby
Navigation Processor	Micah Hall	12	100%	On Location
Navigation Processor	Abby Parish	0	0%	Standby

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	Mobilization	1	100%	Status
SourcePoint DGPS System	Mobilization	2	100%	Off Rate/Standby= No billing
CNAV WADGPS	Mobilization	1	50%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time)

Time	Comments
16:40	NCS Mobilzation team arrives Nimitz facility - San Diego, CA USA. Mobilzation Commences.
17:40	NCS personnel depart New Horizon - Mobilization continues.
	-Equipment Boxes inspected, vessel walkaround.
	-Cable runs and antenna placement planning.
	-Equipment installation planning.
	Mobilization continues

Operations Summary (UTC)

Line	Operation	Seq	SOL SP	EOL SP	KM Shot

Daily Production Report

Offshore Survey Operations

NCS SubSea, Inc.
3928 Bluebonnet Dr. Stafford, TX 77477
Phone: 1 281-491-3123 Fax: 1 281-491-3105 Email: info@ncs-subsea.com

Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	520
Client Job #		**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	5-Oct-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	1	1	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	0	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	0	0

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
Jennifer Jimenez	HR Manager	NCS SubSea	1 713 857 6608	jennifer.jimenez@ncs-subsea.com
Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	12	0%	On Location
Chief Navigator	Jesus Gaytan	12	100%	On Location
Navigator	Dwayne Fontenot	0	0%	Standby
Navigator	Shane Traceski	0	0%	Standby
Navigation Processor	Micah Hall	12	100%	On Location
Navigation Processor	Abby Parish	0	0%	Standby

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	Mobilization	1	100%	Status
SourcePoint DGPS System	Mobilization	2	100%	Off Rate/Standby= No billing
CNAV WADGPS	Mobilization	1	50%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time)

Time	Comments
8:00	NCS personnel arrive New Horizon - Mobilization continues
18:00	NCS personnel depart New Horizon - Mobilization continues.
	-All equipment unpacked and installed
	-Cables run, systems interfaced
	-All antennas installed and tested

Operations Summary (UTC)

Line	Operation	Seq	SOL SP	EOL SP	KM Shot

Daily Production Report

Offshore Survey Operations

NCS SubSea, Inc.
3928 Bluebonnet Dr. Stafford, TX 77477
Phone: 1 281-491-3123 Fax: 1 281-491-3105 Email: info@ncs-subsea.com

Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	520
Client Job #		**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	6-Oct-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	1	2	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	0	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	0	0

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
Jennifer Jimenez	HR Manager	NCS SubSea	1 713 857 6608	jennifer.jimenez@ncs-subsea.com
Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	12	0%	On Location
Chief Navigator	Jesus Gaytan	12	100%	On Location
Navigator	Dwayne Fontenot	0	0%	Standby
Navigator	Shane Traceski	0	0%	Standby
Navigation Processor	Micah Hall	12	100%	On Location
Navigation Processor	Abby Parish	0	0%	Standby

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	Mobilization	1	100%	Status
SourcePoint DGPS System	Mobilization	2	100%	Off Rate/Standby= No billing
CNAV WADGPS	Mobilization	1	100%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time)

Time	Comments
8:00	NCS personnel arrive New Horizon - Mobilization continues. CNAV signals activated today for DGPS Verifications.
18:00	NCS personnel depart New Horizon - Mobilization continues.
	-Equipment testing and integration continues.
	-Cross Cable laid out under tension for offset measurements.
	-DGPS Verifications - Vessel DGPS, SourcePoint Pods, SSI Source Pods, Paravane pods.
	-Vessel Gyro Calibration complete

Operations Summary (UTC)

Line	Operation	Seq	SOL SP	EOL SP	KM Shot

Daily Production Report

Offshore Survey Operations

NCS SubSea, Inc.
3928 Bluebonnet Dr. Stafford, TX 77477
Phone: 1 281-491-3123 Fax: 1 281-491-3105 Email: info@ncs-subsea.com

Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	520
Client Job #		**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	7-Oct-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	1	3	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	0	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	0	0

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
Jennifer Jimenez	HR Manager	NCS SubSea	1 713 857 6608	jennifer.jimenez@ncs-subsea.com
Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	12	100%	On Location
Chief Navigator	Jesus Gaytan	12	100%	On Location
Navigator	Dwayne Fontenot	0	0%	Standby
Navigator	Shane Traceski	0	0%	Standby
Navigation Processor	Micah Hall	12	100%	On Location
Navigation Processor	Abby Parish	0	0%	Standby

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	Mobilization	1	100%	Status
SourcePoint DGPS System	Mobilization	2	100%	Off Rate/Standby= No billing
CNAV WADGPS	Mobilization	1	100%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time)

Time	Comments
8:00	NCS personnel arrive New Horizon - Mobilization continues
18:00	NCS personnel depart New Horizon - Mobilization continues.
	-Equipment testing and integration continues.
	-DGPS Verifications - SSI Javad spares configured and verified.
	-Measurements and rig up of in water gear
	-Decision from client to depart for in-water testing on 10-Oct instead of 09-Oct.

Operations Summary (UTC)

Line	Operation	Seq	SOL SP	EOL SP	KM Shot

Daily Production Report

Offshore Survey Operations

NCS SubSea, Inc.
3928 Bluebonnet Dr. Stafford, TX 77477
Phone: 1 281-491-3123 Fax: 1 281-491-3105 Email: info@ncs-subsea.com

Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	520
Client Job #		**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	8-Oct-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	1	4	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	0	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	0	0

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
Jennifer Jimenez	HR Manager	NCS SubSea	1 713 857 6608	jennifer.jimenez@ncs-subsea.com
Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	12	100%	On Location
Chief Navigator	Jesus Gaytan	12	100%	On Location
Navigator	Dwayne Fontenot	0	0%	Standby
Navigator	Shane Traceski	0	0%	Standby
Navigation Processor	Micah Hall	12	100%	On Location
Navigation Processor	Abby Parish	0	0%	Standby

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	Mobilization	1	100%	Status
SourcePoint DGPS System	Mobilization	2	100%	Off Rate/Standby= No billing
CNAV WADGPS	Mobilization	1	100%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time)

Time	Comments
8:00	NCS personnel arrive New Horizon - Mobilization continues
18:00	NCS personnel depart New Horizon - Mobilization continues.
	-Equipment testing and integration continues.
	-Measurements and rig up of in water gear
	-All compasses configured and tested into system.
	-System triggers and headers tested.

Operations Summary (UTC)

Line	Operation	Seq	SOL SP	EOL SP	KM Shot

Daily Production Report

Offshore Survey Operations

NCS SubSea, Inc.
3928 Bluebonnet Dr. Stafford, TX 77477
Phone: 1 281-491-3123 Fax: 1 281-491-3105 Email: info@ncs-subsea.com

Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	520
Client Job #	NH1323	**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	9-Oct-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	1	5	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	0	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	0	0

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
Jennifer Jimenez	HR Manager	NCS SubSea	1 713 857 6608	jennifer.jimenez@ncs-subsea.com
Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	12	100%	On Location
Chief Navigator	Jesus Gaytan	12	100%	On Location
Navigator	Dwayne Fontenot	12	100%	In Transit/On Location
Navigator	Shane Traceski	12	100%	In Transit/On Location
Navigation Processor	Micah Hall	12	100%	On Location
Navigation Processor	Abby Parish	12	100%	In Transit/On Location

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	Mobilization	1	100%	Status
SourcePoint DGPS System	Mobilization	2	100%	Off Rate/Standby= No billing
CNAV WADGPS	Mobilization	1	100%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time-UTC-8)

Time	Comments
8:00	NCS personnel arrive New Horizon - Mobilization continues. J.Gaytan and M. Hall move onboard.
15:00	A.Parish, D. Fontenot, and S. Traceski arrive and move onboard New Horizon.
18:00	NCS personnel (E.Majzlik) depart New Horizon - Mobilization continues.
	-Equipment testing and integration continues.
	-Measurements and rig up of in water gear.
	-Software enhancements and in depth testing continues.
	-Documentation on mobilization continues.

Operations Summary (UTC)

Line	Operation	Seq	SOL SP	EOL SP	KM Shot

Daily Production Report

Offshore Survey Operations

NCS SubSea, Inc.
3928 Bluebonnet Dr. Stafford, TX 77477
Phone: 1 281-491-3123 Fax: 1 281-491-3105 Email: info@ncs-subsea.com

Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	520
Client Job #	NH1323	**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	10-Oct-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	2	7	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	0	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	0	0

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
Jennifer Jimenez	HR Manager	NCS SubSea	1 713 857 6608	jennifer.jimenez@ncs-subsea.com
Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	12	100%	On Location
Chief Navigator	Jesus Gaytan	24	100%	On Location
Navigator	Dwayne Fontenot	24	100%	On Location
Navigator	Shane Traceski	24	100%	On Location
Navigation Processor	Micah Hall	24	100%	On Location
Navigation Processor	Abby Parish	24	100%	On Location

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	Installed	1	100%	Status
SourcePoint DGPS System	Installed	2	100%	Off Rate/Standby= No billing
CNAV WADGPS	Installed	1	100%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time-UTC-8)

Time	Comments
10:50	Left Dock in San Diego Harbor
12:00	Toolbox meeting for deployment test of equipment
12:25	Moving vanes into staging position
12:56	Begin deployment port vane
13:06	Port vane in the water, letting out to 105m
13:20	Port Vane at 110m
13:26	Begin deployment stbd vane
13:39	Stbd vane in the water
13:42	Stbd vane out of water hanging on A-frame for course correction
13:50	Stbd vane in the water, letting out to 105m
13:57	Stbd vane at 113m
13:58	Increase speed to 4kts
13:59	Speed at 4kts
14:30	Reduce speed to 3kts, pulling in both vanes
14:36	Stbd vane in to 16m port stopped at 48m
14:38	Reduce speed to 2kts
14:43	Connecting cross cable to stbd vane
14:51	Deploying stbd vane and stbd gps
15:04	stbd vane deployed to 98M
15:09	retrieving port vane
15:13	stbd and port GPS deployed and giving postitions
15:15	Increase speed to 3kts , deploy port vane
15:23	port vane deployed to 101M
16:00	1000m rad port turn complete begin stbd turn test
16:13	Stbd turn test complete, coming about to 290 for line test and a/p
16:36	Auto Pilot test complete
16:40	Toolbox meeting for retrieval of equipment
16:45	Begin retrieval of vanes
17:30	vanes onboard
19:19	Off signers and E. Majzlik disembark R/V New Horizon
19:30	R/V New Horizon heading for Prospect ETA 7h
23:59	R/V New Horizon heading for Prospect for scouting lines

Operations Summary (UTC)

Line	Operation	Seq	SOL SP	EOL SP	KM Shot

Daily Production Report

Offshore Survey Operations

NCS SubSea, Inc.
3928 Bluebonnet Dr. Stafford, TX 77477
Phone: 1 281-491-3123 Fax: 1 281-491-3105 Email: info@ncs-subsea.com

Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	520
Client Job #	NH1323	**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	11-Oct-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	1	8	Hazard, Near Miss or Suggestion Report	0	0
Drills	1	1	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	2	2

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
Jennifer Jimenez	HR Manager	NCS SubSea	1 713 857 6608	jennifer.jimenez@ncs-subsea.com
Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	12	100%	On Location
Chief Navigator	Jesus Gaytan	24	100%	On Location
Navigator	Dwayne Fontenot	24	100%	On Location
Navigator	Shane Traceski	24	100%	On Location
Navigation Processor	Micah Hall	24	100%	On Location
Navigation Processor	Abby Parish	24	100%	On Location

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	Installed	1	100%	Status
SourcePoint DGPS System	Installed	2	100%	Off Rate/Standby= No billing
CNAV WADGPS	Installed	1	100%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time-UTC-8)

Time	Comments
00:01	R/V New Horizon heading for Prospect for scouting lines
02:00	Arrived Prospect area, standing by for daylight scouting
06:00	daylight scouting in progress.
09:00	E. Majzlik arrives home, travel complete.
09:50	scouting complete
10:00	Fire drill
10:30	Ship Orientation
11:00	Toolbox meeting - Pre-Deployment, E. Majzlik arrives Houston
11:54	Moving vanes into staging position
12:17	Begin deployment of port vane
12:40	Begin deployment of stbd vane
12:54	Begin connection / deployment of cross-cable and signal cable
14:10	leakage on compass 408 (removed)
14:59	stbd vane deployed out to 105M
15:15	cross-cable and signal cable deployed / connected
15:21	port vane deployed out to 102M
15:34	Begin deployment of sources
16:25	Source 1 deployed
16:31	increasing speed to 4 -4.5kts
17:05	SOL Test 1006Z
17:15	Turn off to stbd to avoid fishing buoy
17:23	SOL 1006A Seq2 FSP 1042 (no source gps)
18:14	EOL 1006A Seq2 LSP 4121
18:15	Heading to line 1594
18:35	Sources Retreived to fix GPS issue
19:11	Change INI file for new Source gps
19:27	Deploying source
19:34	SOL 1594A SEQ3 FSP 5523
21:20	EOL 1594A SEQ3 LSP 969
21:57	SOL 1018A SEQ4 FSP 1900
22:53	EOL 1018A SEQ4 FSP 4262
23:39	SOL 1606A SEQ5 FSP 5516
23:40	GeoEel system problems, Line aborted DNP
23:42	EOL 1606A SEQ5 LSP 5367
23:59	En route to Seq006, Line 1606B

Operations Summary (UTC)

Line	Operation	Seq	SOL SP	EOL SP	KM Shot

Daily Production Report

Offshore Survey Operations

NCS SubSea, Inc.
3928 Bluebonnet Dr. Stafford, TX 77477
Phone: 1 281-491-3123 Fax: 1 281-491-3105 Email: info@ncs-subsea.com

Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	520
Client Job #	NH1323	**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	12-Oct-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	0	8	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	1	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	0	2

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
Jennifer Jimenez	HR Manager	NCS SubSea	1 713 857 6608	jennifer.jimenez@ncs-subsea.com
Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	0	0%	On Location
Chief Navigator	Jesus Gaytan	24	100%	On Location
Navigator	Dwayne Fontenot	24	100%	On Location
Navigator	Shane Traceski	24	100%	On Location
Navigation Processor	Micah Hall	24	100%	On Location
Navigation Processor	Abby Parish	24	100%	On Location

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	Installed	1	100%	Status
SourcePoint DGPS System	Installed	2	100%	Off Rate/Standby= No billing
CNAV WADGPS	Installed	1	100%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time-UTC-8)

Time	Comments
01:25	EOL 1090A SEQ 23 LGSP 4607
01:26	En route to line 1678A
02:15	SOL 1678A SEQ 24 FGSP 5497
03:58	EOL 1678A SEQ 24 LGSP 948
03:59	En route to line 1102A
04:31	SOL 1102A SEQ 25 FGSP 1343
05:46	EOL 1102A SEQ 25 LGSP 4689
05:47	En route to line 1690A
06:26	SOL 1690A SEQ 26 FGSP 5491
07:56	EEOL 1690A SEQ 26 LGSP 1457
07:57	En route to line 1114A
08:39	Line 1114A SEQ 27 - DNP (d/t GEOEEL Errors)
08:04	En route to line 1114B
09:54	SOL 1114B SEQ 29 FGSP 1543
11:11	EOL 1114B SEQ 29 LGSP 4730
11:12	En route to line 1702A
12:00	Circle to avaiod fishing buoy
12:10	Turn radius too low, port vane stall, all ok resume turn
12:15	Fishing boat on port side, change to line 1582 from 1702 to avoid
12:17	SOL 1582A SEQ34 FGSP 5529
12:17	Bridge has steering, off line at SOL due to fishing gear
12:34	Back on line at SP 4809
14:02	EOL 1582A SEQ34 LGSP 946
14:03	Heading to line 1114 to re-shoot d/t missing Nav data
14:24	SOL 1114C SEQ 37 FGSP 1332
15:48	EOL 1114C SEQ 37 LGSP 4737
15:48	Heading to line 1702
16:26	SOL 1702C SEQ 38 FGSP 5540
16:41	EEOL 1702C SEQ 38 LGSP 4850
16:41	Circle due to source failure
17:17	SOL 1702D SEQ 39 FGSP 4719
18:46	EOL 1702D SEQ39 LGSP 944
18:46	Heading to line 1126
19:17	SOL 1126A SEQ 40 FGSP 1460
20:33	EOL 1126A SEQ 40 LGSP 4824
21:05	SOL 1714A SEQ 42 FGSP 5472
22:52	EOL 1714A SEQ 42 LGSP 943
23:18	SOL 1138A SEQ43 FGPS 1256
23:59	In Production, Seq043

Operations Summary (UTC)

Line	Operation	Seq	SOL SP	EOL SP	KM Shot
	DNP	16			
1654A	14 Str, Boomer	17	5490	964	14.1469
	DNP	18			
1078A	14 Str, Boomer	19	1399	4591	9.9781
	DNP	20			
1666A	14 Str, Boomer	21	5507	976	14.1625
	DNP	22			
1090A	14 Str, Boomer	23	1381	4607	10.0844
1678A	14 Str, Boomer	24	5497	948	14.2188
1102A	14 Str, Boomer	25	1343	4689	10.4594
1690A	14 Str, Boomer	26	5491	1457	12.6094
1114A	DNP	27			
	DNP	28			
	DNP	29			
	DNP	30			
	DNP	31			
	DNP	32			
	DNP	33			
1582A	14 Str, Boomer	34	5529	946	14.3250
	DNP	35			
	DNP	36			
1114C	14 Str, Boomer	37	1332	4737	10.6438
	14 Str, Boomer	38	5540	4850	2.1594
			JD Total		112.7875

Daily Production Report

Offshore Survey Operations

NCS SubSea, Inc.
3928 Bluebonnet Dr. Stafford, TX 77477
Phone: 1 281-491-3123 Fax: 1 281-491-3105 Email: info@ncs-subsea.com

Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	520
Client Job #	NH1323	**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	13-Oct-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	0	8	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	1	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	0	2

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
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Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	0	0%	On Location
Chief Navigator	Jesus Gaytan	24	100%	On Location
Navigator	Dwayne Fontenot	24	100%	On Location
Navigator	Shane Traceski	24	100%	On Location
Navigation Processor	Micah Hall	24	100%	On Location
Navigation Processor	Abby Parish	24	100%	On Location

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	Installed	1	100%	Status
SourcePoint DGPS System	Installed	2	100%	Off Rate/Standby= No billing
CNAV WADGPS	Installed	1	100%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time-UTC-8)

Time	Comments
01:25	EOL 1090A SEQ 23 LGSP 4607
01:26	En route to line 1678A
02:15	SOL 1678A SEQ 24 FGSP 5497
03:58	EOL 1678A SEQ 24 LGSP 948
03:59	En route to line 1102A
04:31	SOL 1102A SEQ 25 FGSP 1343
05:46	EOL 1102A SEQ 25 LGSP 4689
05:47	En route to line 1690A
06:26	SOL 1690A SEQ 26 FGSP 5491
07:56	EEOL 1690A SEQ 26 LGSP 1457
07:57	En route to line 1114A
08:39	Line 1114A SEQ 27 - DNP (d/t GEOEEL Errors)
08:04	En route to line 1114B
09:54	SOL 1114B SEQ 29 FGSP 1543
11:11	EOL 1114B SEQ 29 LGSP 4730
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12:17	Bridge has steering, off line at SOL due to fishing gear
12:34	Back on line at SP 4809
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15:48	Heading to line 1702
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16:41	EEOL 1702C SEQ 38 LGSP 4850
16:41	Circle due to source failure
17:17	SOL 1702D SEQ 39 FGSP 4719
18:46	EOL 1702D SEQ39 LGSP 944
18:46	Heading to line 1126
19:17	SOL 1126A SEQ 40 FGSP 1460
20:33	EOL 1126A SEQ 40 LGSP 4824
21:05	SOL 1714A SEQ 42 FGSP 5472
22:52	EOL 1714A SEQ 42 LGSP 943
23:18	SOL 1138A SEQ43 FGPS 1256
23:59	In Production, Seq043

Operations Summary (UTC)

Line	Operation	Seq	SOL SP	EOL SP	KM Shot
	DNP	16			
1654A	14 Str, Boomer	17	5490	964	14.1469
	DNP	18			
1078A	14 Str, Boomer	19	1399	4591	9.9781
	DNP	20			
1666A	14 Str, Boomer	21	5507	976	14.1625
	DNP	22			
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1678A	14 Str, Boomer	24	5497	948	14.2188
1102A	14 Str, Boomer	25	1343	4689	10.4594
1690A	14 Str, Boomer	26	5491	1457	12.6094
1114A	DNP	27			
	DNP	28			
	DNP	29			
	DNP	30			
	DNP	31			
	DNP	32			
	DNP	33			
1582A	14 Str, Boomer	34	5529	946	14.3250
	DNP	35			
	DNP	36			
1114C	14 Str, Boomer	37	1332	4737	10.6438
	14 Str, Boomer	38	5540	4850	2.1594
			JD Total		112.7875

Daily Production Report

Offshore Survey Operations

NCS SubSea, Inc.
3928 Bluebonnet Dr. Stafford, TX 77477
Phone: 1 281-491-3123 Fax: 1 281-491-3105 Email: info@ncs-subsea.com

Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	520
Client Job #	NH1323	**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	14-Oct-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	0	8	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	1	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	0	2

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
Jennifer Jimenez	HR Manager	NCS SubSea	1 713 857 6608	jennifer.jimenez@ncs-subsea.com
Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	0	0%	On Location
Chief Navigator	Jesus Gaytan	24	100%	On Location
Navigator	Dwayne Fontenot	24	100%	On Location
Navigator	Shane Traceski	24	100%	On Location
Navigation Processor	Micah Hall	24	100%	On Location
Navigation Processor	Abby Parish	24	100%	On Location

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	Installed	1	100%	Status
SourcePoint DGPS System	Installed	2	100%	Off Rate/Standby= No billing
CNAV WADGPS	Installed	1	100%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time-UTC-8)

Time	Comments
00:01	In Production, Seq043
00:37	EOL 1138A SEQ 43 LGSP 4867
00:38	En route to line 1726A
01:00	Navigation system failure
01:33	SOL 1726A SEQ 45 FGSP 4833
03:01	EOL 1726A SEQ 45 LGSP 950
03:02	En route to line 1150A
03:28	SOL 1150A SEQ 46 FGSP 1230
04:52	EOL 1150A SEQ 46 LGSP 4927
04:53	En route to line 1738A
05:26	SOL 1738A SEQ 47 FGSP 5490
07:10	EOL 1738A SEQ 47 LGSP 948
07:11	En route to line 1162A
07:34	SOL 1162A SEQ 48 FGSP 1193
09:00	EOL 1162A SEQ 48 LGSP 4979
09:01	fishing buoy caught on port A6 buoy
09:12	source on deck
09:13	pulling port door closer to boat to retrieve fishing buoy
09:29	buoy removed, redeploying port vane to original position
09:34	port vane in position
09:35	Working on source
09:56	Redeploying source
10:01	source cable deployed
10:02	En route to line 1750A
10:47	SOL 1750A SEQ 49 FGSP 5293
12:24	EOL 1750A SEQ 49 LGSP 938
12:51	SOL 1174A SEQ 50 FGSP 1162
14:18	EOL 1174A SEQ 50 LGSP 5042
14:47	SOL 1762A Seq 51 FGSP 5601
15:33	EOL 1762A SEQ 51 LGSP 943
16:59	SOL 1186A SEQ 52 FGSP 1129
16:59	LSOD 1186A SEQ 52 SP 1168
18:28	EOL 1186A SEQ 52 LGSP 5102
18:44	Next line on hold due to source issues
18:56	Daily Geo check
18:56	Support vessel along side for equipment transfer, source spares
19:06	Support vessel departed
19:20	work continues on source power unit, heading to line 1198
21:20	Source operational, heading to start of line
21:23	SOL 1198A SEQ 54 FGSP 1119
22:53	EOL 1198A SEQ 54 LGSP 5156
23:25	SOL 1774A SEQ 55 FGSP 5482
23:59	In Production, Seq055

Operations Summary (UTC)

Line	Operation	Seq	SOL SP	EOL SP	KM Shot
1702D	14 Str, Boomer	39	4719	944	11.8000
1126A	14 Str, Boomer	40	1460	4824	10.5156
	DNP	41			
1714A	14 Str, Boomer	42	5472	943	14.1563
1138A	14 Str, Boomer	43	1256	4867	11.2875
	DNP	44			
1726A	14 Str, Boomer	45	4833	950	12.1375
1150A	14 Str, Boomer	46	1230	1768	1.6844
1738A	14 Str, Boomer	47	5490	948	14.1969
1162A	14 Str, Boomer	48	1193	4979	11.8344
1750A	14 Str, Boomer	49	5293	938	13.6125
1174A	14 Str, Boomer	50	1162	5042	12.1281
1762A	14 Str, Boomer	51	5601	943	14.5594
1186A	14 Str, Boomer	52(A)	1129	1168	0.1250
			JD Total		128.0375

Daily Production Report

Offshore Survey Operations

NCS SubSea, Inc.
3928 Bluebonnet Dr. Stafford, TX 77477
Phone: 1 281-491-3123 Fax: 1 281-491-3105 Email: info@ncs-subsea.com

Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	520
Client Job #	NH1323	**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	15-Oct-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	0	8	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	1	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	0	2

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
Jennifer Jimenez	HR Manager	NCS SubSea	1 713 857 6608	jennifer.jimenez@ncs-subsea.com
Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	0	0%	On Location
Chief Navigator	Jesus Gaytan	24	100%	On Location
Navigator	Dwayne Fontenot	24	100%	On Location
Navigator	Shane Traceski	24	100%	On Location
Navigation Processor	Micah Hall	24	100%	On Location
Navigation Processor	Abby Parish	24	100%	On Location

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	Installed	1	100%	Status
SourcePoint DGPS System	Installed	2	100%	Off Rate/Standby= No billing
CNAV WADGPS	Installed	1	100%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time-UTC-8)

Time	Comments
00:01	In Production, Seq055
01:06	EOL 1774A SEQ 55 LGSP 947
01:07	En route to line 1210A
01:31	SOL 1210A SEQ 56 FGSP 1033
03:04	EOL 1210A SEQ 56 LGSP 5206
03:05	En route to line 1786A
03:33	SOL 1786A SEQ 57 FGSP 5490
05:20	EOL 1786A SEQ 57 LGSP 947
05:21	Spooled out 1 wrap on signal cable
05:22	En route to line 1222A, new instruction to maintain 4.0 Knots at all times to avoid further damage to signal cable.
05:57	SOL 1222A SEQ 58 FGSP 1002
07:43	EOL 1222A SEQ 58 LGSP 5299
07:44	En route to line 1798A
08:13	SOL 1798A SEQ 59 FGSP 5490
10:06	EOL 1798A SEQ 59 LGSP 946
10:07	En route to line 1234A
10:38	SOL 1234A SEQ 60 FGSP 1127
12:24	EOL 1234A SEQ 60 LGSP 5325
12:56	SOL 1810A SEQ 61 FGSP 5518
14:48	EOL 1810A SEQ 61 LGSP 945
15:12	SOL 1246A SEQ 62 FGSP 887
16:59	LSOD 5291 1246A SEQ 62
17:02	EOL 1246A SEQ 62 LGSP 5385
17:29	SOL 1822A SEQ 63 FGSP 5559
19:25	EOL 1822A SEQ 63 LGSP 945
19:51	SOL 1258A SEQ 64 FGSP 914
21:44	EOL 1258A SEQ 64 LGSP 5433
22:14	SOL 1834A SEQ 65 FGSP 5530
23:59	In Production, Seq065

Operations Summary (UTC)

Line	Operation	Seq	SOL SP	EOL SP	KM Shot
1186A	14 Str, Boomer	52(B)	1169	5102	12.2938
	DNP	53			
1198A	14 Str, Boomer	54	1119	5156	12.6188
1774A	14 Str, Boomer	55	5482	947	14.1750
1210A	14 Str, Boomer	56	1033	5206	13.0438
1786A	14 Str, Boomer	57	5490	947	14.2000
1222A	14 Str, Boomer	58	1002	5299	13.4313
1798A	14 Str, Boomer	59	5490	946	14.2031
1234A	14 Str, Boomer	60	1127	5325	13.1219
1810A	14 Str, Boomer	61	5518	945	14.2938
1246A	14 Str, Boomer	62(A)	887	5291	13.7656
			JD Total		135.1469

Daily Production Report

Offshore Survey Operations

NCS SubSea, Inc.
3928 Bluebonnet Dr. Stafford, TX 77477
Phone: 1 281-491-3123 Fax: 1 281-491-3105 Email: info@ncs-subsea.com

Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	520
Client Job #	NH1323	**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	16-Oct-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	0	8	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	1	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	0	2

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
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Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	Installed	1	100%	Status
SourcePoint DGPS System	Installed	2	100%	Off Rate/Standby= No billing
CNAV WADGPS	Installed	1	100%	In transit/Mobilization=100% rate
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Comments: General (Local Time-UTC-8)

Time	Comments
00:01	In Production, Seq065
00:07	EOL 1834A SEQ 65 LGSP 947
00:08	En route to line 1270A
00:34	SOL 1270A SEQ 66 FGSP 982
02:24	EOL 1270A SEQ 66 LGSP 5496
02:25	En route to line 1846A
03:04	SOL 1846A SEQ 67 FGSP 5104
04:50	EOL 1846A SEQ 67 LGSP 943
04:51	En route to line 1282A
05:15	SOL 1282A SEQ 68 FGSP 990
07:07	EOL 1282A SEQ 68 LGSP 5521
07:08	En route to line 1858A
07:30	SOL 1858A SEQ 69 FGSP 5506
09:29	EOL 1858A SEQ 69 LGSP 947
09:30	En route to line 1294A
09:53	SOL 1294A SEQ 70 FGSP 966
11:50	EOL 1294A SEQ 70 LGSP 5538
12:16	SOL 1870A SEQ 71 FGSP 5556
14:11	EOL 1870A SEQ 71 LGSP 940
14:31	SOL 1450A SEQ 72 FGSP 910
16:27	EOL 1450A SEQ 72 LGSP 5538
16:53	SOL 1882A SEQ 73 FGSP 5491
18:48	EOL 1882A SEQ 73 LGSP 944
19:24	SOL 1150B SEQ 74 FGSP 1292
20:53	EOL 1150B SEQ 74 LGSP 4940
21:36	SOL 1894A SEQ 75 FGSP 5573
23:31	EOL 1894A SEQ 75 LGSP 943
23:32	En route to line 1078B
23:59	En route to line 1078B

Operations Summary (UTC)

Line	Operation	Seq	SOL SP	EOL SP	KM Shot
1246A	14 Str, Boomer	62(B)	5292	5385	0.2938
1822A	14 Str, Boomer	63	5559	945	14.4219
1258A	14 Str, Boomer	64	914	5433	14.1250
1834A	14 Str, Boomer	65	5530	947	14.3250
1270A	14 Str, Boomer	66	982	5469	14.0250
1846A	14 Str, Boomer	67	5104	943	13.0063
1282A	14 Str, Boomer	68	990	5521	14.1625
1858A	14 Str, Boomer	69	5506	947	14.2500
1294A	14 Str, Boomer	70	966	5538	14.2906
1870A	14 Str, Boomer	71	5556	940	14.4281
1450A	14 Str, Boomer	72	910	5538	14.4656
1882A	14 Str, Boomer	73	5491	5299	0.6031
			JD Total		142.3969

Daily Production Report

Offshore Survey Operations

NCS SubSea, Inc.
3928 Bluebonnet Dr. Stafford, TX 77477
Phone: 1 281-491-3123 Fax: 1 281-491-3105 Email: info@ncs-subsea.com

Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	446
Client Job #	NH1323	**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	17-Oct-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	0	8	Hazard, Near Miss or Suggestion Report	0	0
Drills	1	2	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	1	3

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
Jennifer Jimenez	HR Manager	NCS SubSea	1 713 857 6608	jennifer.jimenez@ncs-subsea.com
Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	0	0%	On Location
Chief Navigator	Jesus Gaytan	24	100%	On Location
Navigator	Dwayne Fontenot	24	100%	On Location
Navigator	Shane Traceski	24	100%	On Location
Navigation Processor	Micah Hall	24	100%	On Location
Navigation Processor	Abby Parish	24	100%	On Location

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	Installed	1	100%	Status
SourcePoint DGPS System	Installed	2	100%	Off Rate/Standby= No billing
CNAV WADGPS	Installed	1	100%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time-UTC-8)

Time	Comments
00:01	En route to line 1078B
00:09	SOL 1078B SEQ 76 FGSP 1388
01:31	EOL 1078B SEQ 76 LGSP 4581
01:32	En route to line 1906A
02:19	SOL 1906A SEQ 77 FGSP 5532
04:15	EOL 1906A SEQ 77 LGSP 944
04:16	En route to line 1462A
04:37	SOL 1462A SEQ 78 FGSP 919
06:33	EOL 1462A SEQ 78 LGSP 5536
06:34	En route to line 1918A
06:53	SOL 1918A SEQ 79 FGSP 5590
08:50	EOL 1918A SEQ 79 LGSP 945
08:51	En route to line 1474A
09:13	SOL 1474A SEQ 80 FGSP 930
11:09	EOL 1474A SEQ 80 LGSP 5539
11:10	En route to line 1930A
11:31	SOL 1930A SEQ 81 FGSP 5522
12:17	**Abandon Ship Drill**
13:28	EOL 1930A SEQ 81 LGSP 944
13:28	En route to line 1486A
13:52	SOL 1486A SEQ 82 FGSP 949
15:46	EOL 1486A SEQ 82 LGSP 5542
16:11	SOL 1942A SEQ 83 FGSP 5520
16:59	LSOD Line 1942 SEQ 83 SP 3573
18:05	EOL 1942A SEQ 83 LGSP 945
18:28	SOL 1306A SEQ 84 FGSP 955
20:20	EOL 1306A SEQ 84 LGSP 5542
20:51	SOL 1954A SEQ 85 FGSP 5581
22:46	EOL 1954A SEQ 85 LGSP 943
22:47	En route to line 1318A
23:11	SOL 1318A SEQ 86 FGSP 5581
23:59	Line 1318A in production

Operations Summary (UTC)

Line	Operation	Seq	SOL SP	EOL SP	KM Shot
1882A	14 Str, Boomer	73(B)	5298	5109	0.5938
1882A	14 Str, Boomer	73(C)	5044	944	12.8156
1150B	14 Str, Boomer	74	1292	4940	11.4031
1894A	14 Str, Boomer	75	5573	943	14.4719
1078B	14 Str, Boomer	76	1388	4581	9.9813
1906A	14 Str, Boomer	77	5532	944	14.3406
1462A	14 Str, Boomer	78	919	5536	14.4313
1918A	14 Str, Boomer	79(A)	5590	1911	11.5000
1918A	14 Str, Boomer	79(B)	1861	945	2.8656
1474A	14 Str, Boomer	80	930	5539	14.4063
1930A	14 Str, Boomer	81	5522	944	14.3094
1486A	14 Str, Boomer	82	949	5542	14.3563
1942A	14 Str, Boomer	83	5520	3573	6.0875
			JD Total		141.5625

Daily Production Report

Offshore Survey Operations

NCS SubSea, Inc.
3928 Bluebonnet Dr. Stafford, TX 77477
Phone: 1 281-491-3123 Fax: 1 281-491-3105 Email: info@ncs-subsea.com

Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	446
Client Job #	NH1323	**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	18-Oct-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	0	8	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	2	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	0	3

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
Jennifer Jimenez	HR Manager	NCS SubSea	1 713 857 6608	jennifer.jimenez@ncs-subsea.com
Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	0	0%	On Location
Chief Navigator	Jesus Gaytan	24	100%	On Location
Navigator	Dwayne Fontenot	24	100%	On Location
Navigator	Shane Traceski	24	100%	On Location
Navigation Processor	Micah Hall	24	100%	On Location
Navigation Processor	Abby Parish	24	100%	On Location

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	Installed	1	100%	Status
SourcePoint DGPS System	Installed	2	100%	Off Rate/Standby= No billing
CNAV WADGPS	Installed	1	100%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time-UTC-8)

Time	Comments
00:01	Line 1318A in production
01:04	EOL 1318A SEQ 86 LGSP 5539
01:05	En route to line 1966A
01:34	SOL 1966A SEQ 87 FGSP 5538
03:27	EOL 1966A SEQ 87 LGSP 943
03:28	En route to line 1330A
03:54	SOL 1330A SEQ 88 FGSP 970
05:51	EOL 1330A SEQ 88 LGSP 5539
05:52	En route to line 1978A
06:14	SOL 1978A SEQ 89 FGSP 5530
08:08	EOL 1978A SEQ 89 LGSP 947
08:09	En route to line 1342A
08:34	SOL 1342A SEQ 90 FGSP 936
10:29	EOL 1342A SEQ 90 LGSP 5539
10:30	En route to line 1990A
10:55	SOL 1990A SEQ 91 FGSP 5524
12:52	EOL 1990A SEQ 91 LGSP 944
12:55	Pulled in vanes 1.0m
13:16	SOL 1354A SEQ 92 FGSP 917
15:10	EOL 1354A SEQ 92 LGSP 5540
15:10	Slow to 3kts to retrieve source
15:17	Source on board to remove kelp
15:22	Source deployed
22:29	SOL 2002A SEQ 93 FGSP 5544
23:59	LSOD Line 1942 SEQ 93 SP 2331
17:33	EOL 2002A SEQ 93 LGSP 946
17:56	Removed Acquisition laptop and reinstated the rack mount acquisition computer
17:56	SOL 1366A SEQ 94 FGSP 1007
19:55	EOL 1366A SEQ 94 LGSP 5540
20:21	SOL 2014A SEQ 95 FSP 5770
20:33	EEOL 2014A SEQ 5284 LSP Due to source computer
21:04	SOL 1810B SEQ 96 FGSP 4143
22:27	EOL 1810B SEQ 96 LGSP 944
22:28	En route to line 1378A
22:53	SOL 1378A SEQ 97 FGSP 980
23:59	Line 1378A in production

Operations Summary (UTC)

Line	Operation	Seq	SOL SP	EOL SP	KM Shot
1942A	14 Str, Boomer	83(B)	3572	945	8.2125
1306A	14 Str, Boomer	84	955	5542	14.3375
1954A	14 Str, Boomer	85	5581	943	14.4969
1318A	14 Str, Boomer	86	920	5539	14.4375
1966A	14 Str, Boomer	87	5538	943	14.3625
1330A	14 Str, Boomer	88	970	5539	14.2813
1978A	14 Str, Boomer	89	5530	947	14.3250
1342A	14 Str, Boomer	90	936	5539	14.3875
1990A	14 Str, Boomer	91	5524	944	14.3156
1354A	14 Str, Boomer	92	917	5540	14.4500
2002A	14 Str, Boomer	93(A)	5544	2331	10.0438
			JD Total		147.6500

Daily Production Report

Offshore Survey Operations

NCS SubSea, Inc.
3928 Bluebonnet Dr. Stafford, TX 77477
Phone: 1 281-491-3123 Fax: 1 281-491-3105 Email: info@ncs-subsea.com

Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	446
Client Job #	NH1323	**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	19-Oct-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	0	8	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	2	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	0	3

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
Jennifer Jimenez	HR Manager	NCS SubSea	1 713 857 6608	jennifer.jimenez@ncs-subsea.com
Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	0	0%	On Location
Chief Navigator	Jesus Gaytan	24	100%	On Location
Navigator	Dwayne Fontenot	24	100%	On Location
Navigator	Shane Traceski	24	100%	On Location
Navigation Processor	Micah Hall	24	100%	On Location
Navigation Processor	Abby Parish	24	100%	On Location

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	Installed	1	100%	Status
SourcePoint DGPS System	Installed	2	100%	Off Rate/Standby= No billing
CNAV WADGPS	Installed	1	100%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time-UTC-7)

Time	Comments
00:01	Line 1378A in production
00:52	EOL 1378A SEQ 97 LGSP 5540
00:53	En route to line 2014B
01:17	SOL 2014B SEQ 98 FGSP 5578
03:12	EOL 2014B SEQ 98 LGSP 945
03:13	En route to line 1390A
03:37	SOL 1390A SEQ 99 FGSP 963
05:29	EOL 1390A SEQ 99 LGSP 5540
05:30	En route to line 2026A
05:55	SOL 2026A SEQ 100 FGSP 5525
07:48	Shutdown by PSO for Dolphins @ SP 988
07:48	EOL 2026A SEQ 100 LGSP 988
07:50	En route to line 1402A
08:15	SOL 1402A SEQ 101 FGSP 968
10:10	EOL 1402A SEQ 101 LGSP 5539
10:11	En route to line 2038A
10:38	SOL 2038A SEQ 102 FGSP 5530
12:36	EOL 2038A SEQ 102 LGSP 939
13:01	SOL 1414A SEQ 103 FGSP 989
14:52	EOL 1414A SEQ 103 LGSP 5541
15:18	SOL 2050A SEQ 104 FGSP 5568
16:59	LSOD 2050A SEQ 104 LSOD 1601
17:08	EOL 2050A SEQ 104 LGSP 933
17:40	SOL 1426A SEQ 105 FGSP 920
19:35	EOL 1426A SEQ 105 LGSP 5540
20:00	SOL 2062A SEQ 106 FGSP 5566
21:59	EOL 2062A SEQ 106 LGSP 943
22:00	En route to line 1438A
22:24	SOL 1438A SEQ 107 FGSP 885
23:59	Line 1438A in production

Operations Summary (UTC)

Line	Operation	Seq	SOL SP	EOL SP	KM Shot
2002A	14 Str, Boomer	93(B)	2330	946	4.3281
1366A	14 Str, Boomer	94	1007	5540	14.1688
	DNP	95			
1810B	14 Str, Boomer	96	4143	944	10.0000
1378A	14 Str, Boomer	97	980	5540	14.2531
2014B	14 Str, Boomer	98	5578	945	14.4813
1390A	14 Str, Boomer	99	963	5540	14.3063
2026A	14 Str, Boomer	100	5525	988	14.1813
1402A	14 Str, Boomer	101	968	5539	14.2875
2038A	14 Str, Boomer	102	5530	939	14.3500
1414A	14 Str, Boomer	103	989	5541	14.2281
2050A	14 Str, Boomer	104(A)	5568	1601	12.4000
			JD Total		140.9844

Daily Production Report

Offshore Survey Operations

NCS SubSea, Inc.
3928 Bluebonnet Dr. Stafford, TX 77477
Phone: 1 281-491-3123 Fax: 1 281-491-3105 Email: info@ncs-subsea.com

Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	446
Client Job #	NH1323	**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	20-Oct-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	0	8	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	2	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	0	3

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
Jennifer Jimenez	HR Manager	NCS SubSea	1 713 857 6608	jennifer.jimenez@ncs-subsea.com
Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	0	0%	On Location
Chief Navigator	Jesus Gaytan	24	100%	On Location
Navigator	Dwayne Fontenot	24	100%	On Location
Navigator	Shane Traceski	24	100%	On Location
Navigation Processor	Micah Hall	24	100%	On Location
Navigation Processor	Abby Parish	24	100%	On Location

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	Installed	1	100%	Status
SourcePoint DGPS System	Installed	2	100%	Off Rate/Standby= No billing
CNAV WADGPS	Installed	1	100%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time-UTC-7)

Time	Comments
00:01	Line 1438A in production
00:25	EOL 1438A SEQ 107 LGSP 5543
00:26	En route to line 2074A
00:50	SOL 2074A SEQ 108 FGSP 5532
02:44	EOL 2074A SEQ 108 LGSP 945
02:45	En route to line 1498A
03:08	SOL 1498A SEQ 109 FGSP 962
05:02	EOL 1498A SEQ 109 LGSP 5538
05:03	En route to line 2086A
05:26	SOL 2086A SEQ 110 FGSP 5522
07:19	EOL 2086A SEQ 110 LGSP 943
07:20	En route to line 1510A
07:42	SOL 1510A SEQ 111 FGSP 973
09:36	EOL 1510A SEQ 111 LGSP 5541
09:37	En route to line 2098A
10:07	SOL 2098A SEQ 112 FGSP 5529
12:03	EOL 2098A SEQ 112 LGSP 938
12:07	Pulled Vanes in 2m
12:14	Geo Check
12:26	SOL 1522A SEQ 113 FGSP 943
14:19	EOL 1522A SEQ 113 LGSP 5543
14:47	SOL 2110A SEQ 114 FGSP 5520
16:47	EOL 2110A SEQ 114 LGSP 943
17:20	SOL 1306B SEQ 115 FGSP 960
17:52	EOL 1306B SEQ 115 LGSP 2255
18:12	SOL 1750B SEQ 116 FGSP 2300
18:48	EOL 1750B SEQ 116 LGSP 942
19:12	SOL 1234B SEQ 117 FGSP 970
19:44	EOL 1234B SEQ 117 LGSP 2243
20:01	SOL 1690B SEQ 118 FGSP 2142
20:31	EOL 1690B SEQ 118 LGSP 942
20:50	SOL 1282B SEQ 119 FGSP 915
22:27	EOL 1282B SEQ 119 LGSP 4971
23:10	SOL 2122A SEQ 120 FGSP 5522
23:59	Line 2122A SEQ120 in production

Operations Summary (UTC)

Line	Operation	Seq	SOL SP	EOL SP	KM Shot
2050A	14 Str, Boomer	104(B)	1600	933	2.0875
1426A	14 Str, Boomer	105	920	5540	14.4406
2062A	15 Str, Boomer	106	5566	943	14.4500
1438A	14 Str, Boomer	107	885	5543	14.5594
2074A	14 Str, Boomer	108	5532	945	14.3375
1498A	14 Str, Boomer	109	962	5538	14.3031
2086A	14 Str, Boomer	110	5522	943	14.3125
1510A	14 Str, Boomer	111	973	5541	14.2781
2098A	14 Str, Boomer	112	5529	938	14.3500
1522A	14 Str, Boomer	113	943	5543	14.3781
2110A	14 Str, Boomer	114	5520	943	14.3063
			JD Total		145.8031

Daily Production Report

Offshore Survey Operations

NCS SubSea, Inc.
3928 Bluebonnet Dr. Stafford, TX 77477
Phone: 1 281-491-3123 Fax: 1 281-491-3105 Email: info@ncs-subsea.com

Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	446
Client Job #	NH1323	**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	21-Oct-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	0	8	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	2	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	0	3

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
Jennifer Jimenez	HR Manager	NCS SubSea	1 713 857 6608	jennifer.jimenez@ncs-subsea.com
Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	0	0%	On Location
Chief Navigator	Jesus Gaytan	24	100%	On Location
Chief Navigator	Brandon Mattox	12	100%	In Transit
Navigator	Dwayne Fontenot	24	100%	On Location
Navigator	Shane Traceski	24	100%	On Location
Navigation Processor	Micah Hall	24	100%	On Location
Navigation Processor	Abby Parish	24	100%	On Location

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	Installed	1	100%	Status
SourcePoint DGPS System	Installed	2	100%	Off Rate/Standby= No billing
CNAV WADGPS	Installed	1	100%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time-UTC-7)

Time	Comments
00:01	Line 2122A SEQ120 in production
01:03	EOL 2122A SEQ 120 LGSP 945
01:04	En route to line 1378B (infill)
01:31	SOL 1378B SEQ 121 FGSP 952
03:28	EOL 1378B SEQ 121 LGSP 5538
03:29	En route to line 2134A
03:58	SOL 2134A SEQ 122 FGSP 5502
05:48	EOL 2134A SEQ 122 LGSP 944
05:49	En route to line 1534A
06:12	SOL 1534A SEQ 123 FGSP 953
08:01	EOL 1534A SEQ 123 LGSP 5543
08:02	En route to line 2146A
08:28	SOL 2146A SEQ 124 FGSP 5517
08:30	PSO shutdown for Dolphins SP 5435-5178
08:46	PSO shutdown for Dolphins SP 4911-3540
10:36	Offline d/t no GPS
10:44	EOL 2146A SEQ 124 LGSP 944
11:15	recovering source
11:30	Source on Deck
11:31	Recovering Port Parvane
11:59	Tri-point on Deck, cross cable being disconnected
12:00	Recovering stbd Parvane
12:01	Streamers being recovered
12:42	streamers onboard / cross cable recovered
12:43	lifting stbd door
13:00	stbd door onboard
13:19	port door onboard
15:10	toolbox meeting for deployment
15:17	lifting port paravane
15:21	port paravane in the water
15:25	port paravane deployed
15:40	lifting stbd paravane
15:43	stbd door in the water
15:55	stbd tripoint in the water
15:58	begin deploying streamers
18:40	finish deploying streamers
18:46	port tripoint in the water
18:58	Streamers fully deployed
19:06	Source in the water
19:09	source fully deployed
19:55	SOL 1546A SEQ 125 FGSP 900
21:44	EOL 1546A SEQ 125 LGSP 5539
22:14	SOL 2146B SEQ 126 FGSP 5530
23:59	EOL 2146B SEQ 126 LGSP 944

Operations Summary (UTC)

Line	Operation	Seq	SOL SP	EOL SP	KM Shot
1306B	14 Str, Boomer	115	960	2255	4.0500
1750B	14 Str, Boomer	116	2300	942	4.2469
1234B	14 Str, Boomer	117	970	2243	3.9813
1690B	14 Str, Boomer	118	2114	942	3.6656
1282B	14 Str, Boomer	119	915	4971	12.6781
2122A	14 Str, Boomer	120	5522	945	14.3063
1378B	14 Str, Boomer	121	952	5538	14.3344
2134A	14 Str, Boomer	122	5502	944	14.2469
1534A	14 Str, Boomer	123	953	5543	14.3469
2146A	14 Str, Boomer	124_1	5517	5454	0.2000
2146A	14 Str, Boomer	124_2	5177	4912	0.8313
2146A	14 Str, Boomer	124_3	3539	1247	7.1656
2146A	14 Str, Boomer	124_4	1157	944	0.6688
			JD Total		94.7219

Daily Production Report

Offshore Survey Operations

NCS SubSea, Inc.
3928 Bluebonnet Dr. Stafford, TX 77477
Phone: 1 281-491-3123 Fax: 1 281-491-3105 Email: info@ncs-subsea.com

Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	446
Client Job #	NH1323	**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	22-Oct-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	0	8	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	2	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	0	3

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
Jennifer Jimenez	HR Manager	NCS SubSea	1 713 857 6608	jennifer.jimenez@ncs-subsea.com
Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	0	0%	On Location
Chief Navigator	Jesus Gaytan	24	100%	On Location
Chief Navigator	Brandon Mattox	24	100%	On Location
Navigator	Dwayne Fontenot	24	100%	On Location
Navigator	Shane Traceski	24	100%	On Location
Navigation Processor	Micah Hall	24	100%	On Location
Navigation Processor	Abby Parish	24	100%	On Location

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	Installed	1	100%	Status
SourcePoint DGPS System	Installed	2	100%	Off Rate/Standby= No billing
CNAV WADGPS	Installed	1	100%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time-UTC-7)

Time	Comments
00:01	En route to line 1570A
00:22	SOL 1570A SEQ 127 FGSP 995
02:04	EOL 1570A SEQ 127 LGSP 5538
02:05	En route to line 2158A
02:28	SOL 2158A SEQ 128 FGSP 5566
04:12	EOL 2158A SEQ 128 LGSP 944
04:13	En route to line 1558A
04:35	SOL 1558A SEQ 129 FGSP 972
05:31	Navpoint logging error. EEOL 3287
05:31	EOL 1558A SEQ 129 LGSP 3287
05:48	SOL 1558D SEQ 136 FGSP 4067
06:24	EOL 1558D SEQ 136 LGSP 5537
06:25	En route to line 2170A
06:49	SOL 2170A SEQ 137 FGSP 5528
08:35	EOL 2170A SEQ 137 LGSP 945
08:36	En route to line 1546B - infill
09:00	SOL 1546B SEQ 138 FGSP 960 (infill)
11:02	EOL 1546B SEQ 138 LGSP 5537
11:10	En route to line 2182A
11:35	moved both doors in 2 meters
11:59	SOL 2182A SEQ 139 FGSP
13:39	EEOL 2182A SEQ 139 LGSP (PSO SHUTDOWN)
14:05	SOL 1546C SEQ 140 FGSP 1006
15:47	EOL 1546C SEQ 140 LGSP 5539
16:13	SOL 2194A SEQ 141 FGSP 5558
16:59	LSOD 2194A SEQ 141 LSOD 3680
18:06	EOL 2194A SEQ 141 LGSP 947
18:26	SOL 1558E SEQ 142 FGSP 973
20:09	EOL 1558E SEQ 142 LGSP 5539
20:40	SOL 2206A SEQ 143 FGSP 5543
20:54	EEOL 2206A SEQ 143 LGSP 5011 d/t GPS failure
21:06	SOL 2206B SEQ 144 FGSP 4561
22:33	EOL 2206B SEQ 144 LGSP 944
23:00	SOL 1438B SEQ 145 FGSP 949
23:59	Line 1438B Seq 145 in production

Operations Summary (UTC)

Line	Operation	Seq	SOL SP	EOL SP	KM Shot
1546A	14 Str, Boomer	125	900	5539	14.5000
2146B	14 Str, Boomer	126	5530	944	14.3344
1570A	14 Str, Boomer	127	995	5538	14.2000
2158A	14 Str, Boomer	128	5566	944	14.4469
1558A	14 Str, Boomer	129	972	3287	7.2375
	DNP	130			
	DNP	131			
	DNP	132			
	DNP	133			
	DNP	134			
	DNP	135			
1558D	14 Str, Boomer	136	4067	5537	4.5969
2170A	14 Str, Boomer	137	5528	945	14.3250
1546B	14 Str, Boomer	138	960	5537	14.3063
2182A	14 Str, Boomer	139	5522	1178	13.5781
1546C	14 Str, Boomer	140	1006	5539	14.1688
2194A_1	14 Str, Boomer	141_1	5558	3580	6.1844
			JD Total		131.8781

Daily Production Report

Offshore Survey Operations

NCS SubSea, Inc.
3928 Bluebonnet Dr. Stafford, TX 77477
Phone: 1 281-491-3123 Fax: 1 281-491-3105 Email: info@ncs-subsea.com

Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	446
Client Job #	NH1323	**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	23-Oct-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	0	8	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	2	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	0	3

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
Jennifer Jimenez	HR Manager	NCS SubSea	1 713 857 6608	jennifer.jimenez@ncs-subsea.com
Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	0	0%	On Location
Chief Navigator	Jesus Gaytan	24	100%	In Transit
Chief Navigator	Brandon Mattox	24	100%	On Location
Navigator	Dwayne Fontenot	24	100%	On Location
Navigator	Shane Traceski	24	100%	On Location
Navigation Processor	Micah Hall	24	100%	On Location
Navigation Processor	Abby Parish	24	100%	On Location

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	Installed	1	100%	Status
SourcePoint DGPS System	Installed	2	100%	Off Rate/Standby= No billing
CNAV WADGPS	Installed	1	100%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time-UTC-7)

Time	Comments
00:01	Line 1438B Seq 145 in production
00:45	EOL 1438B SEQ 145 LGSP 5540
00:46	En route to line 1726B
01:07	SOL 1726B SEQ 146 FGSP 5523
02:51	EOL 1726B SEQ 146 LGSP 949
02:52	En route to line 1222B
03:08	SOL 1222B SEQ 147 FGSP 988 (missing SP 1461-2162)
04:52	EOL 1222B SEQ 147 LGSP 5534
04:53	En route to line 1846B
05:16	SOL 1846B SEQ 148 FGSP 5524
07:07	EOL 1846B SEQ 148 LGSP 947
07:08	En route to line 1330B
07:29	SOL 1330B SEQ 149 FGSP 978
09:13	EOL 1330B SEQ 149 LGSP 5536
09:14	En route to line 1714B
09:36	SOL 1714B SEQ 150 FGSP 5530
11:31	EOL 1714B SEQ 150 LGSP 948
11:32	En route to line 1210B
11:46	let parvane doors out 1 meter
11:59	SOL 1210B SEQ 151 FGSP 1055
13:31	EOL 1210B SEQ 151 LGSP 5402
13:59	SOL 2002B SEQ 152 FGSP 5562
15:51	EOL 2002B SEQ 152 LGSP 946
16:37	SOL 2194B SEQ 153 DNP
16:38	SOL 2194B SEQ 154 FGSP 1703
16:57	EOL 2194B SEQ 154 LGSP 942
17:27	SOL 1222C SEQ 155 FGSP 1030
18:43	EOL 1222C SEQ 155 LGSP 4469
19:02	SOL 1570B SEQ 156 FGSP 4917
19:16	EOL 1570B SEQ 156 LGSP 5539
19:45	SOL 1882B SEQ 157 FGSP 5536
20:13	EOL 1882B SEQ 157 LGSP 4386
20:38	SOL 1390B SEQ 158 FGSP 4402
21:05	EOL 1390B SEQ 158 LGSP 5546
21:28	SOL 1750C SEQ 159 FGSP 5589
22:05	EOL 1750C SEQ 159 LGSP 4206
22:33	SOL 1570C SEQ 160 DNP
22:36	SOL 1570C SEQ 161 FGSP 3940
23:12	EOL 1570C SEQ 161 LGSP 5542
23:50	SOL 1798B SEQ 162 FGSP 5571
23:59	Line 1798B Seq 162 in production

Operations Summary (UTC)

Line	Operation	Seq	SOL SP	EOL SP	KM Shot
2194A_2	14 Str, Boomer	141_2	3579	947	8.2281
1558E	14 Str, Boomer	142	973	5539	14.2719
2206A	14 Str, Boomer	143	5543	5011	1.6656
2206B	14 Str, Boomer	144	4561	944	11.3063
1438B	14 Str, Boomer	145	949	5540	14.3500
1726B	14 Str, Boomer	146	5523	949	14.2969
1222B	14 Str, Boomer	147	988	5534	14.2094
1846B	14 Str, Boomer	148	5524	947	14.3063
1330B	14 Str, Boomer	149	978	5536	14.2469
1714B	14 Str, Boomer	150	5530	948	14.3219
1210B	14 Str, Boomer	151	1055	5402	13.5875
2002B	14 Str, Boomer	152	5562	946	14.4281
2194B	DNP	153			
2194B	14 Str, Boomer	154	1703	942	2.3813
			JD Total		151.6000

Daily Production Report

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Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	446
Client Job #	NH1323	**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	24-Oct-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	0	8	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	2	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	0	3

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
Jennifer Jimenez	HR Manager	NCS SubSea	1 713 857 6608	jennifer.jimenez@ncs-subsea.com
Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	0	0%	Off Location
Chief Navigator	Jesus Gaytan	0	0%	Off Location
Chief Navigator	Brandon Mattox	24	100%	On Location
Navigator	Dwayne Fontenot	24	100%	On Location
Navigator	Shane Traceski	24	100%	On Location
Navigation Processor	Micah Hall	24	100%	On Location
Navigation Processor	Abby Parish	24	100%	On Location

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	Installed	1	100%	Status
SourcePoint DGPS System	Installed	2	100%	Off Rate/Standby= No billing
CNAV WADGPS	Installed	1	100%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time-UTC-7)

Time	Comments
00:01	Line 1798B Seq 162 in production
00:17	EOL 1798B SEQ 162 LGSP 4433
00:18	En route to Line 1498B
01:16	SOL 1498B SEQ 163 FGSP 5046
01:27	EOL 1498B SEQ 163 LGSP 5540
01:28	En route to Line 1630C
02:09	SOL 1630C SEQ 164 FGSP 5502
02:19	EOL 1630C SEQ 164 LGSP 5111
02:20	En route to Line 2206C
03:16	SOL 2206C SEQ 165 FGSP 5083
04:51	EOL 2206C SEQ 165 LGSP 958
04:52	En route to Line 1450B
05:14	SOL 1450B SEQ 166 FGSP 978
05:53	EOL 1450B SEQ 166 LGSP 2660
05:54	En route to Line 1822B
06:29	SOL 1822B SEQ 167 FGSP 2331
07:03	EOL 1822B SEQ 167 LGSP 947
07:04	En route to Line 1114D
07:29	SOL 1114D SEQ 168 FGSP 1322
07:41	EEOL 1114D SEQ 168 LGSP 1686 (PSO shutdown)
07:42	En route to Line 2146C
08:45	SOL 2146C SEQ 169 FGSP 1325
08:55	EOL 2146C SEQ 169 LGSP 946
08:56	En route to Line 1114E
09:36	SOL 1114E SEQ 170 FGSP 1311
09:51	EOL 1114E SEQ 170 LGSP 1865
12:00	start recovery of source - Heading to Block 2
12:06	source on deck
12:18	port door recovered
12:19	recovering streamers & crosscable
12:20	stbd door recovered
13:28	redeploying streamers and crosscable
13:51	redeploying stbd door
14:10	streamers and crosscable deployed
15:00	Source deployed
15:58	TEST SOL 4729Z SEQ 201
16:04	SOL 4927A SEQ 202 FGSP 2049
16:57	EOL 4927A SEQ 202 LGSP 973
17:15	SOL 4447A SEQ 203 FGSP 962
18:06	EOL 4447A SEQ 203 LGSP 2047
18:25	Source GPS is out, power issue
18:26	SOL 4915A SEQ 204 FGSP 2042
19:18	EOL 4915A SEQ 204 LGSP 974
19:20	Source being recovered to change out GPS
19:28	Source being deployed
19:43	SOL 4435A SEQ 205 FGSP 985
20:33	EOL 4435A SEQ 205 LGSP 2049
20:55	SOL 4903 SEQ 206 FGSP 2064
21:46	EOL 4903 SEQ 206 LGSP 973
22:05	SOL 4423 SEQ 207 FGSP 960
22:57	EOL 4423 SEQ 207 LGSP 2048
23:17	SOL 4891A SEQ 208 FGSP 2057
23:59	Line 4891A in production

Operations Summary Block 1 (UTC)

Line	Operation	Seq	SOL SP	EOL SP	KM Shot
1222C	14 Str, Boomer	155	1030	4469	10.7500
1570B	14 Str, Boomer	156	4917	5539	1.9469
1882B	14 Str, Boomer	157	5536	4386	3.5969
1390B	14 Str, Boomer	158	4402	5546	3.5781
1750C	14 Str, Boomer	159	5589	4206	4.3250
	DNP	160			
1570C	14 Str, Boomer	161	3940	5542	5.0094
1798B	14 Str, Boomer	162	5571	4433	3.5594
1498B	14 Str, Boomer	163	5074	5540	1.4594
1630C	14 Str, Boomer	164	5502	5111	1.2250
2206C	14 Str, Boomer	165	5083	958	12.8938
1450B	14 Str, Boomer	166	978	2660	5.2594
1822B	14 Str, Boomer	167	2331	947	4.3281
1114D	14 Str, Boomer	168	1322	1686	1.1406
2146C	14 Str, Boomer	169	1325	946	1.1875
1114E	14 Str, Boomer	170	1311	1865	1.7344
			JD Total Block 1		61.9938

Operations Summary Block 2 (UTC)

	DNP	201			
4927A	14 Str, Sparker	202	2049	973	6.7313
			JD Total Block 2		6.7313

JD Total All	68.7250

Daily Production Report

Offshore Survey Operations

NCS SubSea, Inc.
3928 Bluebonnet Dr. Stafford, TX 77477
Phone: 1 281-491-3123 Fax: 1 281-491-3105 Email: info@ncs-subsea.com

Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	446
Client Job #	NH1323	**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	25-Oct-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	0	8	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	2	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	0	3

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
Jennifer Jimenez	HR Manager	NCS SubSea	1 713 857 6608	jennifer.jimenez@ncs-subsea.com
Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	0	0%	Off Location
Chief Navigator	Jesus Gaytan	0	0%	Off Location
Chief Navigator	Brandon Mattox	24	100%	On Location
Navigator	Dwayne Fontenot	24	100%	On Location
Navigator	Shane Traceski	24	100%	On Location
Navigation Processor	Micah Hall	24	100%	On Location
Navigation Processor	Abby Parish	24	100%	On Location

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	Installed	1	100%	Status
SourcePoint DGPS System	Installed	2	100%	Off Rate/Standby= No billing
CNAV WADGPS	Installed	1	100%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time-UTC-7)

Time	Comments
00:01	Line 4891A in production
00:09	EOL 4891A SEQ 208 LGSP 974
00:10	En route to Line 4411A
00:26	SOL 4411A SEQ 209 FGSP 987
01:15	EOL 4411A SEQ 209 LGSP 2047
01:16	En route to Line 4897A
01:34	SOL 4897A SEQ 210 FGSP 2039
02:24	EOL 4897A SEQ 210 LGSP 974
02:25	En route to Line 4399A
02:42	SOL 4399A SEQ 211 FGSP 1003
03:30	EOL 4399A SEQ 211 LGSP 2047
03:31	En route to Line 4867A
03:49	SOL 4867A SEQ 212 FGSP 2035
04:37	EOL 4867A SEQ 212 LGSP 975
04:38	En route to Line 4387A
04:57	SOL 4387A SEQ 213 FGSP 983
05:47	EOL 4387A SEQ 213 LGSP 2043
05:48	En route to Line 4855A
06:07	SOL 4855A SEQ 214 FGSP 2037 lost tripoint GPS SP1503
06:57	EOL 4855A SEQ 214 LGSP 967
06:58	En route to Line 4375A
07:16	SOL 4375A SEQ 215 FGSP 987
08:05	EOL 4375A SEQ 215 LGSP 2046
08:06	En route to Line 4843A
08:27	SOL 4843A SEQ 216 FGSP 2036
09:16	EOL 4843A SEQ 216 LGSP 974
09:17	En route to Line 4363A
09:38	SOL 4363A SEQ 217 FGSP 982
10:30	EOL 4363A SEQ 217 LGSP 2047
10:33	Pulled doors in 2 meters
10:52	SOL 4831A SEQ 218 FGSP 2051
11:43	EOL 4831A SEQ 218 LGSP 975
11:43	En route to Line 4351A
12:00	SOL 4351A SEQ 219 FGSP 983
12:48	EOL 4351A SEQ 219 LGSP 2048
12:48	En route to Line 4819A
13:09	SOL 4819A SEQ 220 FGSP 2045
14:02	EOL 4819A SEQ 220 LGSP 974
14:20	SOL 4339A SEQ 221 FGSP 983
15:08	EOL 4339A SEQ 221 LGSP 2047
15:28	SOL 4807A SEQ 222 FGSP 2049
16:22	EOL 4807A SEQ 222 LGSP 974
16:39	SOL 4327A SEQ 223 FGSP 979
17:27	EOL 4327A SEQ 223 LGSP 2042
17:45	SOL 4795A SEQ 224 FGSP 2050
18:37	EOL 4795A SEQ 224 LGSP 974
18:55	SOL 4315A SEQ 225 FGSP 975
19:43	EOL 4315A SEQ 225 LGSP 2049
20:06	SOL 4783A SEQ 226 FGSP 2054
20:57	EOL 4783A SEQ 226 LGSP 973
21:16	SOL 4303A SEQ 227 FGSP 969
22:06	EOL 4303A SEQ 227 LGSP 2047
22:26	SOL 4771A SEQ 228 FGSP 2062
23:06	EOL 4771A SEQ 228 LGSP 973
23:40	SOL 4303B SEQ 229 FGSP 964
23:59	Line 4303B in production

Operations Summary Block 2 (UTC)

Line	Operation	Seq	SOL SP	EOL SP	KM Shot
4447A	14 Str, Sparker	203	962	2047	6.7875
4915A	14 Str, Sparker	204	2042	974	6.6813
4435A	14 Str, Sparker	205	985	2049	6.6563
4903A	14 Str, Sparker	206	2064	973	6.8250
4423A	14 Str, Sparker	207	960	2048	6.8063
4891A	14 Str, Sparker	208	2057	974	6.7750
4411A	14 Str, Sparker	209	987	2047	6.6313
4879A	14 Str, Sparker	210	2039	974	6.6625
4399A	14 Str, Sparker	211	1003	2047	6.5313
4867A	14 Str, Sparker	212	2035	975	6.6313
4387A	14 Str, Sparker	213	983	2043	6.6313
4855A	14 Str, Sparker	214	2037	967	6.6938
4375A	14 Str, Sparker	215	987	2046	6.6250
4843A	14 Str, Sparker	216	2036	974	6.6438
4363A	14 Str, Sparker	217	982	2047	6.6625
4831A	14 Str, Sparker	218	2033	975	6.6188
4351A	14 Str, Sparker	219	983	2048	6.6625
4819A	14 Str, Sparker	220	2045	974	6.7000
4339A	14 Str, Sparker	221	983	2047	6.6563
4807A	14 Str, Sparker	222	2049	974	6.7250
4327A_1	14 Str, Sparker	223_1	979	1419	2.7563
			JD Total		136.3625

Daily Production Report

Offshore Survey Operations

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Phone: 1 281-491-3123 Fax: 1 281-491-3105 Email: info@ncs-subsea.com

Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	446
Client Job #	NH1323	**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	26-Oct-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	0	8	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	2	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	0	3

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
Jennifer Jimenez	HR Manager	NCS SubSea	1 713 857 6608	jennifer.jimenez@ncs-subsea.com
Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	0	0%	Off Location
Chief Navigator	Jesus Gaytan	0	0%	Off Location
Chief Navigator	Brandon Mattox	24	100%	On Location
Navigator	Dwayne Fontenot	24	100%	On Location
Navigator	Shane Traceski	24	100%	On Location
Navigation Processor	Micah Hall	24	100%	On Location
Navigation Processor	Abby Parish	24	100%	On Location

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	Installed	1	100%	Status
SourcePoint DGPS System	Installed	2	100%	Off Rate/Standby= No billing
CNAV WADGPS	Installed	1	100%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time-UTC-7)

Time	Comments
00:01	Line 4303B in production
00:30	EOL 4303B SEQ 229 LGSP 2046
00:31	En route to Line 4771B
00:49	SOL 4771B SEQ 230 FGSP 2036
01:41	EOL 4771B SEQ 230 LGSP 975
01:42	En route to Line 4291A
02:00	SOL 4291A SEQ 231 FGSP 991
02:50	EOL 4291A SEQ 231 LGSP 2047
02:51	En route to Line 4759A
03:10	SOL 4759A SEQ 232 FGSP 2022
04:00	EOL 4759A SEQ 232 LGSP 975
04:01	En route to Line 4279A
04:18	SOL 4279A SEQ 233 FGSP 1005
05:08	EOL 4279A SEQ 233 LGSP 2047
05:09	En route to Line 4747A
05:26	SOL 4747A SEQ 234 FGSP 2039
06:13	EOL 4747A SEQ 234 LGSP 975
06:14	En route to Line 4267A
06:32	SOL 4267A SEQ 235 FGSP 981
07:19	EOL 4267A SEQ 235 LGSP 2048
07:20	En route to Line 4735A
07:37	SOL 4735A SEQ 236 FGSP 2035
08:26	EOL 4735A SEQ 236 LGSP 976
08:27	En route to Line 4255A
08:48	SOL 4255A SEQ 237 FGSP 984
09:38	EOL 4255A SEQ 237 LGSP 2046
09:39	En route to Line 4723A
10:00	SOL 4723A SEQ 238 FGSP 2044
10:50	EOL 4723A SEQ 238 LGSP 975
10:51	En route to Line 4243A
10:52	Let parvane doors out 1 meter
11:11	SOL 4243A SEQ 239 FGSP 978
12:01	EOL 4243A SEQ 239 LGSP 2047
12:21	SOL 4711A SEQ 240 FGSP 2058
13:15	EOL 4711A SEQ 240 LGSP 974
13:20	Testing streamer after SEQ 240 for leakage
13:30	Slacking off signal cable didn't improve leakage
13:40	Retreiving all streamers to chase problem
14:50	All streamer on board - bite marks on tail of last streamer
15:03	Replace last streamer with spare
15:20	Turning to next line while testing streamer
16:20	Redeploying streamers
17:25	All streamer deployed
17:45	Deploying source
18:00	SOL 4315B SEQ 241 FGSP 1907
18:08	EOL 4315B SEQ 241 LGSP 2049
18:26	SOL 4699A SEQ 242 FGSP 2066
19:19	EOL 4699A SEQ 242 LGSP 973
19:37	SOL 4231A SEQ 243 FGSP 962
20:26	EOL 4231A SEQ 243 LGSP 2048
20:44	Bring paravane door in 1 meter
20:45	SOL 4687A SEQ 244 FGSP 2061
21:38	EOL 4687A SEQ 244 LGSP 973
21:56	SOL 4219A SEQ 245 FGSP 950
22:46	EOL 4219A SEQ 245 LGSP 2048
23:07	SOL 4675A SEQ 246 FGSP 2066
23:57	EOL 4675A SEQ 246 LGSP 974
23:59	En route to line 4219B

Operations Summary Block 2 (UTC)

Line	Operation	Seq	SOL SP	EOL SP	KM Shot
4327A_2	14 Str, Sparker	223_2	1420	2042	3.8938
4795A	14 Str, Sparker	224	2050	974	6.7313
4315A	14 Str, Sparker	225	975	2049	6.7188
4783A	14 Str, Sparker	226	2054	973	6.7625
4303A	14 Str, Sparker	227	969	2047	6.7438
4771A	14 Str, Sparker	228	2062	973	6.8125
4303B	14 Str, Sparker	229	964	2046	6.7688
4771B	14 Str, Sparker	230	2036	975	6.6375
4291A	14 Str, Sparker	231	991	2047	6.6063
4759A	14 Str, Sparker	232	2022	975	6.5500
4279A	14 Str, Sparker	233	1005	2047	6.5188
4747A	14 Str, Sparker	234	2039	975	6.6563
4367A	14 Str, Sparker	235	981	2048	6.6750
4735A	14 Str, Sparker	236	2035	976	6.6250
4255A	14 Str, Sparker	237	984	2046	6.6438
4723A	14 Str, Sparker	238	2044	975	6.6875
4243A	14 Str, Sparker	239	978	2047	6.6875
4711A	14 Str, Sparker	240	2058	974	6.7813
4315B	DNP	241			
			JD Total		117.5000

Daily Production Report

Offshore Survey Operations

NCS SubSea, Inc.
3928 Bluebonnet Dr. Stafford, TX 77477
Phone: 1 281-491-3123 Fax: 1 281-491-3105 Email: info@ncs-subsea.com

Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	446
Client Job #	NH1323	**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	27-Oct-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	0	8	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	2	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	1	4

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
Jennifer Jimenez	HR Manager	NCS SubSea	1 713 857 6608	jennifer.jimenez@ncs-subsea.com
Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	0	0%	Off Location
Chief Navigator	Jesus Gaytan	0	0%	Off Location
Chief Navigator	Brandon Mattox	24	100%	On Location
Navigator	Dwayne Fontenot	24	100%	On Location
Navigator	Shane Traceski	24	100%	On Location
Navigation Processor	Micah Hall	24	100%	On Location
Navigation Processor	Abby Parish	24	100%	On Location

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	Installed	1	100%	Status
SourcePoint DGPS System	Installed	2	100%	Off Rate/Standby= No billing
CNAV WADGPS	Installed	1	100%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time-UTC-7)

Time	Comments
00:01	En route to line 4219B
00:16	SOL 4219B SEQ 247 FGSP 997
01:05	EOL 4219B SEQ 247 LGSP 2047
01:06	En route to Line 4663A
01:23	SOL 4663A SEQ 248 FGSP 2044
02:12	EOL 4663A SEQ 248 LGSP 974
02:13	En route to Line 4207A
02:31	SOL 4207A SEQ 249 FGSP 972
03:22	EOL 4207A SEQ 249 LGSP 2045
03:23	En route to Line 4651A
03:41	SOL 4651A SEQ 250 FGSP 2041
04:11	EEOL 4651A SEQ 250 LGSP 1564 (streamer system failure)
04:12	waiting for daylight to retrieve gear
07:45	recovering source
08:00	source on board
08:01	reovering streamer gear
08:45	streamer gear on board
14:30	Streamer and source back in the water
15:24	SOL 4195A SEQ 251 FGSP 965
16:14	EOL 4195A SEQ 251 LGSP 2048
16:35	SOL 4639A SEQ 252 FGSP 2058
16:59	LSOD 4639 SEQ 252 LSOD 1517
17:28	EOL 4639A SEQ 252 LGSP 964
17:47	SOL 4183A SEQ 253 FGSP 953
18:37	EOL 4183A SEQ 253 LGSP 2049
18:57	SOL 4627A SEQ 254 FGSP 2051
19:51	EOL 4267A SEQ 254 LGSP 975
20:10	SOL 4171A SEQ 255 FGSP 970
21:00	EOL 4171A SEQ 255 LGSP 2048
21:05	NAV troubleshooting due to loss of corrections on array
23:25	NAV troubleshooting complete after power cycle streamer/ Nport

Operations Summary Block 2 (UTC)

Line	Operation	Seq	SOL SP	EOL SP	KM Shot
4699A	14 Str, Sparker	242	2066	973	6.8375
4281A	14 Str, Sparker	243	962	2048	6.7938
4687A	14 Str, Sparker	244	2061	973	6.8063
4219A	14 Str, Sparker	245	950	2048	6.8688
4675A	14 Str, Sparker	246	2066	974	6.8313
4219B	14 Str, Sparker	247	997	2047	6.5688
4663A	14 Str, Sparker	248	2044	974	6.6938
4207A	14 Str, Sparker	249	972	2045	6.7125
4651A	14 Str, Sparker	250	2041	1564	2.9875
4195A	14 Str, Sparker	251	965	2048	6.7750
4639A_1	14 Str, Sparker	252_1	2058	1571	3.0500
			JD Total		66.9250

Daily Production Report

Offshore Survey Operations

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Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	446
Client Job #	NH1323	**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	28-Oct-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	0	8	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	3	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	0	4

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
Jennifer Jimenez	HR Manager	NCS SubSea	1 713 857 6608	jennifer.jimenez@ncs-subsea.com
Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	0	0%	Off Location
Chief Navigator	Jesus Gaytan	0	0%	Off Location
Chief Navigator	Brandon Mattox	24	100%	On Location
Navigator	Dwayne Fontenot	24	100%	On Location
Navigator	Shane Traceski	24	100%	On Location
Navigation Processor	Micah Hall	24	100%	On Location
Navigation Processor	Abby Parish	24	100%	On Location

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	Installed	1	100%	Status
SourcePoint DGPS System	Installed	2	100%	Off Rate/Standby= No billing
CNAV WADGPS	Installed	1	100%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time-UTC-7)

Time	Comments
00:01	line 4159B in production
00:17	EOL 4159B SEQ 259 LGSP 2045
00:18	En route to line 4615A
00:41	SOL 4615A SEQ 260 FGSP 2042
01:34	EOL 4615A SEQ 260 LGSP 975
01:35	En route to line 4147A
01:55	SOL 4147A SEQ 261 FGSP 977
02:46	EOL 4147A SEQ 261 LGSP 2049
02:47	En route to line 4603A
03:10	SOL 4603A SEQ 262 FGSP 2045
04:03	EOL 4603A SEQ 262 LGSP 976
04:04	En route to line 4135A
04:24	SOL 4135A SEQ 263 FGSP 979
05:15	EOL 4135A SEQ 263 LGSP 2046
05:16	En route to line 4591A
05:38	SOL 4591A SEQ 264 FGSP 2046
06:30	EOL 4591A SEQ 264 LGSP 975
06:31	En route to line 4123A
06:51	SOL 4123A SEQ 265 FGSP 978
07:44	EOL 4123A SEQ 265 LGSP 2046
07:45	En route to line 4579A
08:07	SOL 4579A SEQ 266 FGSP 2044
09:03	EOL 4579A SEQ 266 LGSP 975
09:04	En route to line 4111A
09:23	SOL 4111A SEQ 267 FGSP 1047
10:11	EOL 4111A SEQ 267 LGSP 2046
10:13	Moved parvane doors in 1 meter
10:14	En route to line 4567A
10:37	SOL 4567A SEQ 268 FGSP 2046
11:28	EOL 4567A SEQ 268 LGSP 972
11:29	En route to line 4099A
11:50	SOL 4099A SEQ 269 FGSP 978
12:41	EOL 4099A SEQ 269 LGSP 2048
13:00	SOL 4555A SEQ 270 FGSP 2056
13:04	ADCP online
13:50	ADCP stopped logging
13:53	EOL 4555A SEQ 270 LGSP 973
14:11	SOL 4087A SEQ 271 FGSP 972
15:04	EOL 4078A SEQ 271 LGSP 2048
15:23	SOL 4543A SEQ 272 FGSP 2055
16:17	EOL 4543A SEQ 272 LGSP 973
16:35	SOL 4075A SEQ 273 FGSP 967
16:59	LSOD 4075A SEQ 273 SP 1499
17:25	EOL 4075A SEQ 273 LGSP 2049
17:44	SOL 4531A SEQ 274 FGSP 2054
18:34	EOL 4531A SEQ 274 LGSP 973
18:52	SOL 4063A SEQ 275 FGSP 977
19:43	EOL 4063A SEQ 275 LGSP 2048
20:04	SOL 4519A SEQ 276 FGSP 2053
20:57	EOL 4519A SEQ 276 LGSP 972
21:15	SOL 4051A SEQ 277 FGSP 975
22:05	EOL 4051A SEQ 277 LGSP 2048
22:26	SOL 4507A SEQ 278 FGSP 2051
23:17	EOL 4507A SEQ 249 LGSP 972
23:36	SOL 4039A SEQ 279 FGSP 976
23:59	Line 4039A in production

Operations Summary Block 2 (UTC)

Line	Operation	Seq	SOL SP	EOL SP	KM Shot
4639A_2	14 Str, Sparker	252_2	1570	964	3.7938
4183A	14 Str, Sparker	253	1110	2049	5.8750
4627A	14 Str, Sparker	254	2051	975	6.7313
4171A	14 Str, Sparker	255	970	2048	6.7438
	DNP	256			
	DNP	257			
	DNP	258			
4159B	14 Str, Sparker	259	1033	2045	6.3313
4615A	14 Str, Sparker	260	2042	975	6.6750
4147A	14 Str, Sparker	261	977	2049	6.7063
4603A	14 Str, Sparker	262	2045	976	6.6875
4135A	14 Str, Sparker	263	979	2046	6.6750
4591A	14 Str, Sparker	264	2046	975	6.7000
4123A	14 Str, Sparker	265	978	2046	6.6813
4579A	14 Str, Sparker	266	2044	975	6.6875
4111A	14 Str, Sparker	267	1047	2046	6.2500
4567A	14 Str, Sparker	268	2046	972	6.7188
4099A	14 Str, Sparker	269	978	2048	6.6938
4555A	14 Str, Sparker	270	2056	973	6.7750
4087A	14 Str, Sparker	271	972	2048	6.7313
4543A	14 Str, Sparker	272	2055	973	6.7688
4075A_1	14 Str, Sparker	273_1	967	1499	3.3313
			JD Total		119.5563

Daily Production Report

Offshore Survey Operations

NCS SubSea, Inc.
3928 Bluebonnet Dr. Stafford, TX 77477
Phone: 1 281-491-3123 Fax: 1 281-491-3105 Email: info@ncs-subsea.com

Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	446
Client Job #	NH1323	**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	29-Oct-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	0	8	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	3	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	0	4

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
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Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

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Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	0	0%	Off Location
Chief Navigator	Jesus Gaytan	0	0%	Off Location
Chief Navigator	Brandon Mattox	24	100%	On Location
Navigator	Dwayne Fontenot	24	100%	On Location
Navigator	Shane Traceski	24	100%	On Location
Navigation Processor	Micah Hall	24	100%	On Location
Navigation Processor	Abby Parish	24	100%	On Location

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	Installed	1	100%	Status
SourcePoint DGPS System	Installed	2	100%	Off Rate/Standby= No billing
CNAV WADGPS	Installed	1	100%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time-UTC-7)

Time	Comments
00:01	Line 4039A in production
00:28	EOL 4039A SEQ 279 LGSP 2048
00:29	En route to line 4495A
00:50	SOL 4495A SEQ 280 FGSP 2041
01:42	EOL 4495A SEQ 280 LGSP 976
01:43	En route to line 4027A
01:58	SOL 4027A SEQ 281 FGSP 977
02:50	EOL 4027A SEQ 281 LGSP 2045
02:51	En route to line 4483A
03:12	SOL 4483A SEQ 282 FGSP 2037
04:03	EOL 4483A SEQ 282 LGSP 975
04:04	En route to line 4015A
04:22	SOL 4015A SEQ 283 FGSP 976
05:13	EOL 4015A SEQ 283 LGSP 2046
05:14	En route to line 4471A
05:33	SOL 4471A SEQ 284 FGSP 2046
06:23	EOL 4471A SEQ 284 LGSP 974
06:24	En route to line 4003A
06:42	SOL 4003A SEQ 285 FGSP 978
07:30	EOL 4003A SEQ 285 LGSP 2049
07:31	En route to line 4459A
07:50	SOL 4459A SEQ 286 FGSP 2042
08:37	EOL 4459A SEQ 286 LGSP 975
08:38	En route to line 3991A
08:58	SOL 3991A SEQ 287 FGSP 976
09:50	EOL 3991A SEQ 287 LGSP 2047
09:51	En route to line 4627B
10:15	SOL 4627B SEQ 288 FGSP 2033
11:05	EOL 4627B SEQ 288 LGSP 975
11:06	bring doors in 1 meter
11:07	En route to line 3979A
11:31	SOL 3979A SEQ 289 FGSP 978
12:23	EOL 3979A SEQ 289 LGSP 2047
12:46	SOL 4591B SEQ 290 FGSP 2044
13:36	EOL 4591B SEQ 290 LGSP 973
13:55	SOL 4195B SEQ 291 FGSP 960
14:45	EOL 4195B SEQ 291 LGSP 2048
15:15	SOL 4555B SEQ 292 FGSP 2065
16:06	EOL 4555B SEQ 292 LGSP 975
16:27	SOL 4183B SEQ 293 FGSP 983
17:17	EOL 4183B SEQ 293 LGSP 2049
17:44	SOL 4891B SEQ 294 FGSP 2067
18:41	EOL 4891B SEQ 294 LGSP 974
19:07	SOL 4111B SEQ 295 FGSP 957
19:57	EOL 4111B SEQ 295 LGSP 2048
20:24	SOL 3559A SEQ 296(DNP)
20:40	EEOL 3559A SAEQ 296 Due to STBD GPS Failure
20:58	source on deck
21:17	starboard tripoint on deck - replace GPS cable
21:55	starboard tripoint in the water
22:24	source in the water
23:07	SOL 4159C SEQ 297 FGSP 968
23:54	EOL 4159C SEQ 297 LGSP 2054
23:59	En route to line 3559B

Operations Summary Block 2 (UTC)

Line	Operation	Seq	SOL SP	EOL SP	KM Shot
4075A_2	14 Str, Sparker	273_2	1500	2049	3.4375
4531A	14 Str, Sparker	274	2054	973	6.7625
4063A	14 Str, Sparker	275	977	2048	6.7000
4519A	14 Str, Sparker	276	2053	972	6.7625
4051A	14 Str, Sparker	277	975	2048	6.7125
4507A	14 Str, Sparker	278	2051	972	6.7500
4039A	14 Str, Sparker	279	976	2048	6.7063
4495A	14 Str, Sparker	280	2041	976	6.6625
4027A	14 Str, Sparker	281	977	2045	6.6813
4483A	14 Str, Sparker	282	2037	975	6.6438
4015A	14 Str, Sparker	283	976	2046	6.6938
4471A	14 Str, Sparker	284	2046	974	6.7063
4003A	14 Str, Sparker	285	978	2049	6.7000
4459A	14 Str, Sparker	286	2042	975	6.6750
3991A	14 Str, Sparker	287	976	2047	6.7000
4627B	14 Str, Sparker	288	2033	975	6.6188
3979A	14 Str, Sparker	289	978	2047	6.6875
4591B	14 Str, Sparker	290	2044	973	6.7000
4195B	14 Str, Sparker	291	971	2048	6.7375
4555B	14 Str, Sparker	292	2065	975	6.8188
4183B_1	14 Str, Sparker	293_1	983	1679	4.3563
			JD Total		135.2125

Daily Production Report

Offshore Survey Operations

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Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	446
Client Job #	NH1323	**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	30-Oct-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	0	8	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	3	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	0	4

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
Jennifer Jimenez	HR Manager	NCS SubSea	1 713 857 6608	jennifer.jimenez@ncs-subsea.com
Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	0	0%	Off Location
Chief Navigator	Jesus Gaytan	0	0%	Off Location
Chief Navigator	Brandon Mattox	24	100%	On Location
Navigator	Dwayne Fontenot	24	100%	On Location
Navigator	Shane Traceski	24	100%	On Location
Navigation Processor	Micah Hall	24	100%	On Location
Navigation Processor	Abby Parish	24	100%	On Location

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	Installed	1	100%	Status
SourcePoint DGPS System	Installed	2	100%	Off Rate/Standby= No billing
CNAV WADGPS	Installed	1	100%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time-UTC-7)

Time	Comments
00:01	En route to line 3559B
00:27	SOL 3559B SEQ 298 FGSP 2043
01:20	EOL 3559B SEQ 298 LGSP 975
01:21	En route to line 4051B
01:40	SOL 4051B SEQ 299 FGSP 980
02:23	EOL 4051B SEQ 299 LGSP 1902
02:24	En route to line 3547A
02:49	SOL 3547A SEQ 300 FGSP 2065
03:40	EOL 3547A SEQ 300 LGSP 975
03:41	En route to line 4207B
04:02	SOL 4207B SEQ 301 FGSP 972
04:54	EOL 4207B SEQ 301 LGSP 2046
04:55	En route to line 3535A
05:17	SOL 3535A SEQ 302 FGSP 2047
06:07	EOL 3535A SEQ 302 LGSP 975
06:08	En route to line 4111B
06:30	SOL 4111C SEQ 303 FGSP 959
07:18	EOL 4111C SEQ 303 LGSP 1993
07:19	En route to line 3523A
07:41	SOL 3523A SEQ 304 FGSP 2047
08:32	EOL 3523A SEQ 304 LGSP 976
08:33	En route to line 3967A
08:52	SOL 3967A SEQ 305 FGSP 964
09:46	EOL 3967A SEQ 305 LGSP 2047
09:47	En route to line 3511A
10:07	SOL 3511A SEQ 306 FGSP 2027
10:56	EOL 3511A SEQ 306 LGSP 974
10:57	port door out 2 meters, stbd door out 1 meter
10:58	En route to line 3955A
11:15	SOL 3955A SEQ 307 FGSP
19:07	EOL 3955A SEQ 307 LGSP
19:25	SOL 3499A SEQ 308 FGSP 2053
14:18	EOL 3499A SEQ 308 LGSP 974
13:36	SOL 3943A SEQ 309 FGSP 959
14:25	EOL 3493A SEQ 309 LGSP 2049
14:47	SOL 3487A SEQ 310 FGSP 2046
15:41	EOL 3487A SEQ 310 LGSP 973
16:03	SOL 3931A SEQ 311 FGSP 971
16:52	EOL 3931A SEQ 311 LGSP 2049
17:13	SOL 3475A SEQ 312 FGSP 2082
18:09	EOL 3475A SEQ 312 LGSP 973
18:33	SOL 3919A SEQ 313 FGSP 971
19:21	EOL 3919A SEQ 313 LGSP 2048
19:44	SOL 3463A SEQ 314 FGSP 2052
20:37	EOL 3463A SEQ 314 LGSP 974
20:56	SOL 3907A SEQ 315 FGSP 969
21:46	EOL 3907A SEQ 315 LGSP 2050
22:09	SOL 3451A SEQ 316 FGSP 2054
23:00	EOL 3451A SEQ 316 LGSP 973
23:21	SOL 3895A SEQ 317 FGSP 958
23:59	Line 3895A in production

Operations Summary Block 2 (UTC)

Line	Operation	Seq	SOL SP	EOL SP	KM Shot
4183B_2	14 Str, Sparker	293_2	1680	2049	2.3125
4891B	14 Str, Sparker	294	2067	977	6.8188
4111B	14 Str, Sparker	295	957	2048	6.8250
	DNP	296			
4159C	14 Str, Sparker	297	968	2054	6.7938
3559B	14 Str, Sparker	298	2043	975	6.6813
4051B	14 Str, Sparker	299	980	1902	5.7688
3547A	14 Str, Sparker	300	2065	975	6.8188
4207B	14 Str, Sparker	301	972	2046	6.7188
3535A	14 Str, Sparker	302	2047	975	6.7063
4111C	14 Str, Sparker	303	959	1993	6.4688
3523A	14 Str, Sparker	304	2047	976	6.7000
3967A	14 Str, Sparker	305	964	2047	6.7750
3511A	14 Str, Sparker	306	2027	974	6.5875
3955A	14 Str, Sparker	307	960	2048	6.8063
3499A	14 Str, Sparker	308	2053	974	6.7500
3943A	14 Str, Sparker	309	974	2049	6.7250
3487A	14 Str, Sparker	310	1886	973	5.7125
3931A	14 Str, Sparker	311	971	2049	6.7438
			JD Total		114.7125

Daily Production Report

Offshore Survey Operations

NCS SubSea, Inc.
3928 Bluebonnet Dr. Stafford, TX 77477
Phone: 1 281-491-3123 Fax: 1 281-491-3105 Email: info@ncs-subsea.com

Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	446
Client Job #	NH1323	**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	31-Oct-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	0	8	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	3	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	0	4

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
Jennifer Jimenez	HR Manager	NCS SubSea	1 713 857 6608	jennifer.jimenez@ncs-subsea.com
Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	0	0%	Off Location
Chief Navigator	Jesus Gaytan	0	0%	Off Location
Chief Navigator	Brandon Mattox	24	100%	On Location
Navigator	Dwayne Fontenot	24	100%	On Location
Navigator	Shane Traceski	24	100%	On Location
Navigation Processor	Micah Hall	24	100%	On Location
Navigation Processor	Abby Parish	24	100%	On Location

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	Installed	1	100%	Status
SourcePoint DGPS System	Installed	2	100%	Off Rate/Standby= No billing
CNAV WADGPS	Installed	1	100%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time-UTC-7)

Time	Comments
00:01	Line 3895A in production
00:13	EOL 3895A SEQ 317 LGSP 2047
00:14	En route to line 3439A
00:35	SOL 3439A SEQ 318 FGSP 2029
01:25	EOL 3439A SEQ 318 LGSP 975
01:26	En route to line 3883A
01:44	SOL 3883A SEQ 319 FGSP 967
02:36	EOL 3883A SEQ 319 LGSP 2046
02:37	En route to line 3427A
02:57	SOL 3427A SEQ 320 FGSP 2050
03:46	EOL 3427A SEQ 320 LGSP 975
03:47	En route to line 3871A
04:06	SOL 3871A SEQ 321 FGSP 966
04:58	EOL 3871A SEQ 321 LGSP 2047
04:59	En route to line 3415A
05:19	SOL 3415A SEQ 322 FGSP 2039
06:06	EOL 3415A SEQ 322 LGSP 976
06:07	En route to line 3859A
06:27	SOL 3859A SEQ 323 FGSP 980
07:17	EOL 3859A SEQ 323 LGSP 2046
07:18	En route to line 3403A
07:37	SOL 3403A SEQ 324 FGSP 2062
08:28	EOL 3403A SEQ 324 LGSP 976 (PSO shutsown SP1190-1094)
08:29	En route to line 3847A
08:51	SOL 3847A SEQ 325 FGSP 987
09:44	EOL 3847A SEQ 325 LGSP 2047
09:45	En route to line 3391A
10:06	SOL 3391A SEQ 326 FGSP 2041
10:57	EOL 3391A SEQ 326 LGSP 975
10:58	En route to line 3835A
11:21	SOL 3835A SEQ 327 FGSP 986
12:12	EOL 3835A SEQ 327 LGSP 2049
12:33	SOL 3379A SEQ 328 FGSP 2048
13:25	EOL 3379A SEQ 328 LGSP 974
13:45	SOL 3823A SEQ 329 FGSP 970
14:34	EOL 3823A SEQ 329 LGSP 2050
14:42	Moved vanes in 2M
14:57	SOL 3367A SEQ 330 FGSP 2032
15:47	EOL 3367A SEQ 330 LGSP 974
16:08	SOL 3811A SEQ 331 FGSP 968
16:56	EOL 3811A SEQ 331 LGSP 2047
17:18	SOL 3355A SEQ 332 FGSP 2058
18:10	EOL 3355A SEQ 332 LGSP 973
18:31	SOL 3799A SEQ 333 FGSP 977
19:18	EOL 3799A SEQ 333 LGSP 977
19:40	SOL 3343A SEQ 334 FGSP 2048
20:31	EOL 3343A SEQ 334 LGSP 975
20:52	SOL 3787A SEQ 335 FGSP 962
21:43	EOL 3787A SEQ 335 LGSP 2050
22:04	SOL 3331A SEQ 336 FGSP 2055
22:53	EOL 3331A SEQ 336 LGSP 973
23:14	SOL 3775A SEQ 337 FGSP 964

Operations Summary Block 2 (UTC)

Line	Operation	Seq	SOL SP	EOL SP	KM Shot
3475A	14 Str, Sparker	312	2082	973	6.9375
3919A	14 Str, Sparker	313	971	2048	6.7375
3463A	14 Str, Sparker	314	2052	974	6.7438
3907A	14 Str, Sparker	315	969	2050	6.7625
3451A	14 Str, Sparker	316	2054	973	6.7625
3895A	14 Str, Sparker	317	958	2047	6.8125
3439A	14 Str, Sparker	318	2029	975	6.5938
3883A	14 Str, Sparker	319	967	2046	6.7500
3427A	14 Str, Sparker	320	2050	975	6.7250
3871A	14 Str, Sparker	321	966	2047	6.7625
3415A	14 Str, Sparker	322	2039	976	6.6500
3859A	14 Str, Sparker	323	980	2046	6.6688
3403A	14 Str, Sparker	324	2062	976	6.7938
3847A	14 Str, Sparker	325	987	2047	6.6313
3391A	14 Str, Sparker	326	2041	975	6.6688
3835A	14 Str, Sparker	327	986	2049	6.6500
3379A	14 Str, Sparker	328	2048	974	6.7188
3823A	14 Str, Sparker	329	970	2050	6.7563
3367A	14 Str, Sparker	330	2032	974	6.6188
3811A	14 Str, Sparker	331	968	2047	6.7500
			JD Total		134.4938

Daily Production Report

Offshore Survey Operations

NCS SubSea, Inc.
3928 Bluebonnet Dr. Stafford, TX 77477
Phone: 1 281-491-3123 Fax: 1 281-491-3105 Email: info@ncs-subsea.com

Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	446
Client Job #	NH1323	**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	1-Nov-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	0	8	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	3	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	0	4

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
Jennifer Jimenez	HR Manager	NCS SubSea	1 713 857 6608	jennifer.jimenez@ncs-subsea.com
Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	0	0%	Off Location
Chief Navigator	Jesus Gaytan	0	0%	Off Location
Chief Navigator	Brandon Mattox	24	100%	On Location
Navigator	Dwayne Fontenot	24	100%	On Location
Navigator	Shane Traceski	24	100%	On Location
Navigation Processor	Micah Hall	24	100%	On Location
Navigation Processor	Abby Parish	24	100%	On Location

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	Installed	1	100%	Status
SourcePoint DGPS System	Installed	2	100%	Off Rate/Standby= No billing
CNAV WADGPS	Installed	1	100%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time-UTC-7)

Time	Comments
00:01	Line 3775A in production
00:05	EOL 3775A SEQ 337 LGSP 2047
00:06	En route to line 3319A
00:24	SOL 3319A SEQ 338 FGSP 2057
01:13	EOL 3319A SEQ 338 LGSP 975
01:14	En route to line 3763A
01:31	SOL 3763A SEQ 339 FGSP 971
02:22	EOL 3763A SEQ 339 LGSP 2047
02:23	En route to line 3307A
02:41	SOL 3307A SEQ 340 FGSP 2049
03:29	EOL 3307A SEQ 340 LGSP 975
03:30	En route to line 3751A
03:48	SOL 3751A SEQ 341 FGSP 959
04:38	EOL 3751A SEQ 341 LGSP 2047
04:39	En route to line 3295A
04:55	SOL 3295A SEQ 342 FGSP 2053
05:44	EOL 3295A SEQ 342 LGSP 975
05:45	En route to line 3739A
06:04	SOL 3739A SEQ 343 FGSP 983
06:52	EOL 3739A SEQ 343 LGSP 2047
06:53	En route to line 3283A
07:11	SOL 3283A SEQ 344 FGSP 2036
08:01	EOL 3283A SEQ 344 LGSP 975
08:02	En route to line 3727A
08:23	SOL 3727A SEQ 345 FGSP 957
09:13	EOL 3727A SEQ 345 LGSP 2047
09:14	En route to line 3271A
09:35	SOL 3271A SEQ 346 FGSP 2063
10:28	EOL 3271A SEQ 346 LGSP 975
10:29	En route to line 3715A
10:49	SOL 3715A SEQ 347 FGSP 961
11:39	EOL 3715A SEQ 347 LGSP 2047
11:40	En route to line 3259A
12:00	SOL 3259A SEQ 348 FGSP 2055
12:51	EOL 3259A SEQ 348 LGSP 973
13:03	Vanes let out 1m
13:11	SOL 3703A SEQ 349 FGSP 969
13:59	EOL 3703A SEQ 349 LGSP 2049
14:18	SOL 3247A SEQ 350 FGSP 2054
15:11	EOL 3247A SEQ 350 LGSP 973
15:31	SOL 3691A SEQ 351 FGSP 969
16:21	EOL 3691A SEQ 351 LGSP 2049
16:43	SOL 3235A SEQ 352 FGSP 2050
16:59	LSOD 3235A SEQ 352 LSOD 1717
17:35	EOL 3235A SEQ 352 LGSP 970
17:53	SOL 3679A SEQ 353 FGSP 975
18:43	EOL 3679A SEQ 353 LGSP 2049
19:02	SOL 3223A SEQ 354 FGSP 2052
19:53	EOL 3223A SEQ 354 LGSP 973
20:00	TEST Shots 3667Z SEQ 355
20:14	SOL 3667A SEQ 356 FGSP 971
21:04	EOL 3667A SEQ 356 LGSP 2048
21:27	SOL 3211A SEQ 357 FGSP 2051
22:17	EOL 3211A SEQ 357 LGSP 973
22:39	SOL 3655A SEQ 358 FGSP 967
23:31	EOL 3655A SEQ 358 LGSP 2049
23:53	SOL 3199A SEQ 359 FGSP 2047
23:59	Line 3199A in production

Operations Summary Block 2 (UTC)

Line	Operation	Seq	SOL SP	EOL SP	KM Shot
3355A	14 Str, Sparker	332	2058	973	6.7875
3799A	14 Str, Sparker	333	977	2048	6.7000
3343A	14 Str, Sparker	334	2058	975	6.7750
3787A	14 Str, Sparker	335	962	2050	6.8063
3331A	14 Str, Sparker	336	2055	973	6.7688
3775A	14 Str, Sparker	337	964	2047	6.7750
3319A	14 Str, Sparker	338	2057	975	6.7688
3763A	14 Str, Sparker	339	971	2047	6.7313
3307A	14 Str, Sparker	340	2049	975	6.7188
3751A	14 Str, Sparker	341	959	2047	6.8063
3295A	14 Str, Sparker	342	2053	975	6.7438
3739A	14 Str, Sparker	343	983	2047	6.6563
3283A	14 Str, Sparker	344	2036	975	6.6375
3727A	14 Str, Sparker	345	957	2047	6.8188
3271A	14 Str, Sparker	346	2063	975	6.8063
3715A	14 Str, Sparker	347	961	2047	6.7938
3259A	14 Str, Sparker	348	2055	973	6.7688
3703A	14 Str, Sparker	349	969	2049	6.7563
3247A	14 Str, Sparker	350	2054	973	6.7625
3691A	14 Str, Sparker	351	969	2049	6.7563
3235A_1	14 Str, Sparker	352_1	2050	1717	2.0875
			JD Total		137.2250

Daily Production Report

Offshore Survey Operations

NCS SubSea, Inc.
3928 Bluebonnet Dr. Stafford, TX 77477
Phone: 1 281-491-3123 Fax: 1 281-491-3105 Email: info@ncs-subsea.com

Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	446
Client Job #	NH1323	**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	2-Nov-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	0	8	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	3	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	0	4

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
Jennifer Jimenez	HR Manager	NCS SubSea	1 713 857 6608	jennifer.jimenez@ncs-subsea.com
Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	0	0%	Off Location
Chief Navigator	Jesus Gaytan	0	0%	Off Location
Chief Navigator	Brandon Mattox	24	100%	On Location
Navigator	Dwayne Fontenot	24	100%	On Location
Navigator	Shane Traceski	24	100%	On Location
Navigation Processor	Micah Hall	24	100%	On Location
Navigation Processor	Abby Parish	24	100%	On Location

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	Installed	1	100%	Status
SourcePoint DGPS System	Installed	2	100%	Off Rate/Standby= No billing
CNAV WADGPS	Installed	1	100%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time-UTC-7)

Time	Comments
00:01	Line 3199A in production
00:42	EOL 3199A SEQ 359 LGSP 976
00:43	En route to line 3643A
01:03	SOL 3643A SEQ 360 FGSP 961
01:53	EOL 3643A SEQ 360 LGSP 2047
01:54	En route to line 3187A
02:13	SOL 3187A SEQ 361 FGSP 2055
03:02	EOL 3187A SEQ 361 LGSP 975
03:03	En route to line 3631A
03:21	SOL 3631A SEQ 362 FGSP 971
04:10	EOL 3631A SEQ 362 LGSP 2047
04:11	En route to line 3175A
04:30	SOL 3175A SEQ 363 FGSP 2060
05:20	EOL 3175A SEQ 363 LGSP 975
05:21	En route to line 3619A
05:40	SOL 3619A SEQ 364 FGSP 977
06:28	EOL 3619A SEQ 364 LGSP 2047
06:29	En route to line 3163A
06:46	SOL 3163A SEQ 365 FGSP 2064
07:38	EOL 3163A SEQ 365 LGSP 976
07:39	En route to line 3607A
07:58	SOL 3607A SEQ 366 FGSP 976
08:46	EOL 3607A SEQ 366 LGSP 2047
08:47	En route to line 3151A
09:08	SOL 3151A SEQ 367 FGSP 2059
10:00	EOL 3151A SEQ 367 LGSP 975
10:01	En route to line 3595A
10:21	SOL 3595A SEQ 368 FGSP 970
11:12	EOL 3595A SEQ 368 LGSP 2047
11:13	En route to line 3487B
11:47	SOL 3487B SEQ 369 FGSP 2064
12:39	EOL 3487B SEQ 369 LGSP 973
13:11	SOL 3583A SEQ 370 FGSP 971
13:58	EOL 3583A SEQ 370 LGSP 2054
14:31	SOL 3499B SEQ 371 FGSP 2053
15:24	EOL 3499B SEQ 371 LGSP 975
15:42	SOL 3571A SEQ 372 FGSP 976
16:30	EOL 3571A SEQ 372 LGSP 2320
16:30	Pulling in source to check electrodes
16:40	Source redeployed
17:07	SOL 3379B SEQ 373 FGSP 2058
18:01	EOL 3379B SEQ 373 LGSP 974
18:37	SOL 3643B SEQ 374 FGSP 963
19:27	EOL 3643B SEQ 374 LGSP 2049
19:48	SOL 3139A SEQ 375 FGSP 2052
20:39	EOL 3139A SEQ 375 LGSP 973
21:06	SOL 3823B SEQ 376 FGSP 966
21:56	EOL 3823B SEQ 376 LGSP 2047
22:21	SOL 3127A SEQ 377 FGSP 2061
23:13	EOL 3127A SEQ 377 LGSP 973
23:43	SOL 3895B SEQ 378 FGSP 970
23:59	Line 3895B in Production

Operations Summary Block 2 (UTC)

Line	Operation	Seq	SOL SP	EOL SP	KM Shot
3235A_2	14 Str, Sparker	352_2	1716	970	4.6688
3679A	14 Str, Sparker	353	975	2049	6.7188
3223A	14 Str, Sparker	354	2052	973	6.7500
	DNP	355			
3667A	14 Str, Sparker	356	971	2048	6.7375
3211A	14 Str, Sparker	357	2051	973	6.7438
3655A	14 Str, Sparker	358	967	2049	6.7688
3199A	14 Str, Sparker	359	2047	976	6.7000
3643A	14 Str, Sparker	360	961	2047	6.7938
3187A	14 Str, Sparker	361	2055	975	6.7563
3631A	14 Str, Sparker	362	971	2047	6.7313
3175A	14 Str, Sparker	363	2060	975	6.7875
3619A	14 Str, Sparker	364	977	2047	6.6938
3163A	14 Str, Sparker	365	2064	976	6.8063
3607A	14 Str, Sparker	366	976	2047	6.7000
3151A	14 Str, Sparker	367	2059	975	6.7813
3595A	14 Str, Sparker	368	970	2047	6.7375
3487B	14 Str, Sparker	369	2064	973	6.8250
3583A	14 Str, Sparker	370	971	2054	6.7750
3499B	14 Str, Sparker	371	2053	975	6.7438
3571A	14 Str, Sparker	372	976	2023	6.5500
			JD Total		132.7688

Daily Production Report

Offshore Survey Operations

NCS SubSea, Inc.
3928 Bluebonnet Dr. Stafford, TX 77477
Phone: 1 281-491-3123 Fax: 1 281-491-3105 Email: info@ncs-subsea.com

Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	446
Client Job #	NH1323	**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	3-Nov-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	0	8	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	3	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	0	4

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
Jennifer Jimenez	HR Manager	NCS SubSea	1 713 857 6608	jennifer.jimenez@ncs-subsea.com
Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	0	0%	Off Location
Chief Navigator	Jesus Gaytan	0	0%	Off Location
Chief Navigator	Brandon Mattox	24	100%	On Location
Navigator	Dwayne Fontenot	24	100%	On Location
Navigator	Shane Traceski	24	100%	On Location
Navigation Processor	Micah Hall	24	100%	On Location
Navigation Processor	Abby Parish	24	100%	On Location

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	Installed	1	100%	Status
SourcePoint DGPS System	Installed	2	100%	Off Rate/Standby= No billing
CNAV WADGPS	Installed	1	100%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time-UTC-7)

Time	Comments
00:01	Line 3895B in Production
00:34	EOL 3895B SEQ 378 LGSP 2047
00:35	En route to line 3115A
00:59	SOL 3115A SEQ 379 FGSP 2060
01:47	EOL 3115A SEQ 379 LGSP 976
01:48	En route to line 3751B
02:00	End of DST / Begin Standard Time
01:11	SOL 3751B SEQ 380 FGSP 971
02:02	EOL 3751B SEQ 380 LGSP 2047
02:03	En route to line 3103A
02:25	SOL 3103A SEQ 381 FGSP 2072
03:14	EOL 3103A SEQ 381 LGSP 975
03:15	En route to line 3943B
03:44	SOL 3943B SEQ 382 FGSP 966
04:30	EOL 3943B SEQ 382 LGSP 1961
04:31	En route to line 3091A
05:00	SOL 3091A SEQ 383 FGSP 2058
05:49	EOL 3091A SEQ 383 LGSP 975
05:50	En route to line 3031A
06:26	SOL 3031A SEQ 384 FGSP 977
07:15	EOL 3031A SEQ 384 LGSP 2047
07:16	En route to line 3079A
07:42	SOL 3079A SEQ 385 FGSP 2068
08:34	EOL 3079A SEQ 385 LGSP 976
08:35	En route to line 3019A
09:03	SOL 3019A SEQ 386 FGSP 970
09:55	EOL 3019A SEQ 386 LGSP 2047
09:56	En route to line 3067A
10:22	SOL 3067A SEQ 387 FGSP 2065
11:13	EOL 3067A SEQ 387 LGSP 975
11:14	En route to line 3007A
11:50	SOL 3007A SEQ 388 FGSP 969
12:41	EOL 3007A SEQ 388 LGSP 2049
13:12	SOL 3055A SEQ 389 FGSP 2055
14:06	EOL 3055A SEQ 389 LGSP 973
14:18	vanes in 1m
14:29	SOL 3571B SEQ 390 FGSP 979
15:19	EOL 3571B SEQ 390 LGSP 2048
15:40	SOL 3043A SEQ 391 FGSP 2058
16:32	EOL 3043A SEQ 391 LGSP 973
16:59	SOL 3775B SEQ 392 FGSP 949
17:49	EOL 3775B SEQ 392 LGSP 2049
18:08	SOL 3235B SEQ 393 FGSP 2071
19:00	EOL 3235B SEQ 393 LGSP 970
19:35	SOL 4351B SEQ 394 FGSP 973
20:26	EOL 4351B SEQ 394 LGSP 2049
20:54	SOL 4591C SEQ 395 FGSP 2052
21:45	EOL 4591C SEQ 395 LGSP 974
23:16	SOL 4075B SEQ 396 FGSP 962
23:59	Line 4075B in Production

Operations Summary Block 2 (UTC)

Line	Operation	Seq	SOL SP	EOL SP	KM Shot
3379B	14 Str, Sparker	373	2058	974	6.7813
3643B	14 Str, Sparker	374	963	2049	6.7938
3139A	14 Str, Sparker	375	2052	973	6.7500
3823B	14 Str, Sparker	376	966	2047	6.7625
3127A	14 Str, Sparker	377	2061	973	6.8063
3895B	14 Str, Sparker	378	970	2047	6.7375
3115A	14 Str, Sparker	379	2060	976	6.7813
3751B	14 Str, Sparker	380	971	2047	6.7313
3103A	14 Str, Sparker	381	2072	975	6.8625
3943B	14 Str, Sparker	382	966	1961	6.2250
3091A	14 Str, Sparker	383	2058	975	6.7750
3031A	14 Str, Sparker	384	977	2047	6.6938
3079A	14 Str, Sparker	385	2068	976	6.8313
3019A	14 Str, Sparker	386	970	2047	6.7375
3067A	14 Str, Sparker	387	2065	975	6.8188
3007A	14 Str, Sparker	388	969	2049	6.7563
3055A	14 Str, Sparker	389	2055	973	6.7688
3571B	14 Str, Sparker	390	979	2048	6.6875
3043A_1	14 Str, Sparker	391_1	2058	1655	2.5250
			JD Total		123.8250

Daily Production Report

Offshore Survey Operations

NCS SubSea, Inc.
3928 Bluebonnet Dr. Stafford, TX 77477
Phone: 1 281-491-3123 Fax: 1 281-491-3105 Email: info@ncs-subsea.com

Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	446
Client Job #	NH1323	**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	4-Nov-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	0	8	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	3	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	0	4

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
Jennifer Jimenez	HR Manager	NCS SubSea	1 713 857 6608	jennifer.jimenez@ncs-subsea.com
Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	0	0%	Off Location
Chief Navigator	Jesus Gaytan	0	0%	Off Location
Chief Navigator	Brandon Mattox	24	100%	On Location
Navigator	Dwayne Fontenot	24	100%	On Location
Navigator	Shane Traceski	24	100%	On Location
Navigation Processor	Micah Hall	24	100%	On Location
Navigation Processor	Abby Parish	24	100%	On Location

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	Installed	1	100%	Status
SourcePoint DGPS System	Installed	2	100%	Off Rate/Standby= No billing
CNAV WADGPS	Installed	1	100%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time-UTC-7)

Time	Comments
00:01	Line 4519B in production
00:31	EOL 4519B SEQ 397 LGSP 974
00:32	En route to line 3631B
01:17	SOL 3631B SEQ 398 FGSP 953
02:14	EOL 3631B SEQ 398 LGSP 2047
02:15	En route to line 4927B
02:58	SOL 4927B SEQ 399 FGSP 2071
03:52	EOL 4927B SEQ 399 LGSP 975
03:53	En route to line 4135B
04:23	SOL 4135B SEQ 400 FGSP 988
05:20	EOL 4135B SEQ 400 LGSP 2048
05:21	Waiting for daylight for recovery of equipment
06:45	pre-recovery safety / tool-box meeting
07:00	recovering source
07:06	source on board
07:07	recovering port door
07:17	Port door disconnected
07:18	Recovering stbd door
07:19	recovering / cleaning cross cable & streamers
11:20	Streamers on board
12:00	stbd door on board
12:30	Heading to San Diego Marfac
18:00	Arrived at dock - Preparing for client tour

Operations Summary Block 2 (UTC)

Line	Operation	Seq	SOL SP	EOL SP	KM Shot
3043A_2	14 Str, Sparker	391_2	1654	973	4.2625
3775B	14 Str, Sparker	392	969	2049	6.7563
3235B	14 Str, Sparker	393	2063	970	6.8375
4351B	14 Str, Sparker	394	973	2049	6.7313
4591C	14 Str, Sparker	395	2052	974	6.7438
4075B	14 Str, Sparker	396	962	2051	6.8125
4519B	14 Str, Sparker	397	2059	974	6.7875
3631B	14 Str, Sparker	398	953	2047	6.8438
4927B	14 Str, Sparker	399	2071	975	6.8563
4135B	14 Str, Sparker	400	988	2048	6.6313
			JD Total		65.2625

Daily Production Report

Offshore Survey Operations

NCS SubSea, Inc.
3928 Bluebonnet Dr. Stafford, TX 77477
Phone: 1 281-491-3123 Fax: 1 281-491-3105 Email: info@ncs-subsea.com

Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	446
Client Job #	NH1323	**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	5-Nov-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	0	8	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	3	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	0	4

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
Jennifer Jimenez	HR Manager	NCS SubSea	1 713 857 6608	jennifer.jimenez@ncs-subsea.com
Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	0	0%	Off Location
Chief Navigator	Jesus Gaytan	0	0%	Off Location
Chief Navigator	Brandon Mattox	24	100%	On Location
Navigator	Dwayne Fontenot	24	100%	On Location
Navigator	Shane Traceski	24	100%	On Location
Navigation Processor	Micah Hall	24	100%	On Location
Navigation Processor	Abby Parish	24	100%	On Location

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	Installed	1	100%	Status
SourcePoint DGPS System	Installed	2	100%	Off Rate/Standby= No billing
CNAV WADGPS	Installed	1	100%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time-UTC-7)

Time	Comments
07:30	Clients arrive to tour vessel and equipment
09:45	Begin demobilization of all navigation equiopment
10:00	Abby Parish and Dwayne Fontenot depart crew
10:30	De-activate Cnav subscription
11:45	Demobilization of navigation equipment complete
12:45	Assisting with crane ops for remainder of equipment
13:00	Shane Traceski departs crew
17:00	Demobilization of all equipment complete
17:15	Brandon Mattox and Micah Hall depart vessel for hotel

Daily Production Report

Offshore Survey Operations

NCS SubSea, Inc.
3928 Bluebonnet Dr. Stafford, TX 77477
Phone: 1 281-491-3123 Fax: 1 281-491-3105 Email: info@ncs-subsea.com

Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	446
Client Job #	NH1323	**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	6-Nov-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	0	8	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	3	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	0	4

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
Jennifer Jimenez	HR Manager	NCS SubSea	1 713 857 6608	jennifer.jimenez@ncs-subsea.com
Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	0	0%	Off Location
Chief Navigator	Jesus Gaytan	0	0%	Off Location
Chief Navigator	Brandon Mattox	24	100%	In Transit
Navigator	Dwayne Fontenot	24	0%	Off Location
Navigator	Shane Traceski	24	0%	Off Location
Navigation Processor	Micah Hall	24	100%	In Transit
Navigation Processor	Abby Parish	24	0%	Off Location

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	In transit	1	100%	Status
SourcePoint DGPS System	In transit	2	100%	Off Rate/Standby= No billing
CNAV WADGPS	In transit	1	50%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time-UTC-7)

Time	Comments
09:21	Brandon Mattox and Micah Hall depart for Houston

Daily Production Report

Offshore Survey Operations

NCS SubSea, Inc.
3928 Bluebonnet Dr. Stafford, TX 77477
Phone: 1 281-491-3123 Fax: 1 281-491-3105 Email: info@ncs-subsea.com

Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	446
Client Job #	NH1323	**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	7-Nov-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	0	8	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	3	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	0	4

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
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Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	0	0%	Off Location
Chief Navigator	Jesus Gaytan	0	0%	Off Location
Chief Navigator	Brandon Mattox	0	0%	Off Location
Navigator	Dwayne Fontenot	0	0%	Off Location
Navigator	Shane Traceski	0	0%	Off Location
Navigation Processor	Micah Hall	0	0%	Off Location
Navigation Processor	Abby Parish	0	0%	Off Location

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	In transit	1	100%	Status
SourcePoint DGPS System	In transit	2	100%	Off Rate/Standby= No billing
CNAV WADGPS	In transit	1	50%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time-UTC-7)

Time	Comments
	Equipment in transit to Houston

Daily Production Report

Offshore Survey Operations

NCS SubSea, Inc.
3928 Bluebonnet Dr. Stafford, TX 77477
Phone: 1 281-491-3123 Fax: 1 281-491-3105 Email: info@ncs-subsea.com

Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	446
Client Job #	NH1323	**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	8-Nov-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	0	8	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	3	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	0	4

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
Jennifer Jimenez	HR Manager	NCS SubSea	1 713 857 6608	jennifer.jimenez@ncs-subsea.com
Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	0	0%	Off Location
Chief Navigator	Jesus Gaytan	0	0%	Off Location
Chief Navigator	Brandon Mattox	0	0%	Off Location
Navigator	Dwayne Fontenot	0	0%	Off Location
Navigator	Shane Traceski	0	0%	Off Location
Navigation Processor	Micah Hall	0	0%	Off Location
Navigation Processor	Abby Parish	0	0%	Off Location

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	In transit	1	100%	Status
SourcePoint DGPS System	In transit	2	100%	Off Rate/Standby= No billing
CNAV WADGPS	In transit	1	50%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time-UTC-7)

Time	Comments
	Equipment in transit to Houston

Daily Production Report

Offshore Survey Operations

NCS SubSea, Inc.
3928 Bluebonnet Dr. Stafford, TX 77477
Phone: 1 281-491-3123 Fax: 1 281-491-3105 Email: info@ncs-subsea.com

Job Information

Client	Subsea Systems, Inc.	**NCS Job #**	446
Client Job #	NH1323	**NCS Crew #**	1129
Job Description	PCable 6.25*6.25-14 Str.	**Location**	San Diego, California
Project Name	SONGS PCable	**Crew Phone #**	
Report Date	9-Nov-13		

QHSE

Event	Today	Job Total	Event	Today	Job Total
Safety/Tailgate/ Meetings	0	8	Hazard, Near Miss or Suggestion Report	0	0
Drills	0	3	Incident	0	0
JSA's Reviewed	0	0	CPAR's Submitted	0	4

Contacts Information

Name	Position	Company	Phone	Email
Jesus Gaytan	Product Line Manager	NCS SubSea	1 832 528 7815	jesus.gaytan@ncs-subsea.com
Brian Brookshire	Survey Manager	NCS SubSea	1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	NCS SubSea	1 832 528 7813	eddie.majzlik@ncs-subsea.com
Jennifer Jimenez	HR Manager	NCS SubSea	1 713 857 6608	jennifer.jimenez@ncs-subsea.com
Al Hise	President	NCS SubSea	1 832 495 2018	al.hise@ncs-subsea.com

Personnel

Position	Name	Exposure Hours	Day Rate	Status
Field Engineer	Edde Majzlik	0	0%	Off Location
Chief Navigator	Jesus Gaytan	0	0%	Off Location
Chief Navigator	Brandon Mattox	0	0%	Off Location
Navigator	Dwayne Fontenot	0	0%	Off Location
Navigator	Shane Traceski	0	0%	Off Location
Navigation Processor	Micah Hall	0	0%	Off Location
Navigation Processor	Abby Parish	0	0%	Off Location

Equipment & Services

Description	Status	Supplied	Invoice	
NavPoint Trawler Nav System	Off Rate	1	0%	Status
SourcePoint DGPS System	Off Rate	2	0%	Off Rate/Standby= No billing
CNAV WADGPS	Off Rate	1	0%	In transit/Mobilization=100% rate
				Installed = 100% rate

Comments: General (Local Time-UTC-7)

Time	Comments
09:30	Equipment arrives at NCS Stafford office
	Return shipment delayed 1 day, no charge for today
	Job complete

Appendix C3: NCS Operational Report

Final Report – SubSea Systems SONGS Pcable – Southern California 2013

Executive Summary

Route/Site Name: *SONGS 3D PCable*

Route/Site Location: *South California Coast*

Water Depth: *85m – 800m.*

Streamer Configuration: *14(Qty) x 50m(length) x 6.25m(separation)*

Navigation Acquisition Software: *NCS SubSea NavPoint Trawler*

Navigation Processing Software: *NCS SubSea NavPoint Processing*

Navigation QC Software: *FGPS P1Tools*

Contents

List of Figures

List of Tables

1 Introduction

On October 8, 2013, under contract with SubSea Systems, Inc (SSI), NCS-Subsea Inc. (NCS) began operations for the SONGS 3D high-resolution P-Cable survey off Southern California (Figure 1). The purpose of this survey was to characterize the shallow subsurface proximal to the San Onofre Nuclear Generating Station. NCS SubSea's role in this survey was to provide precise and accurate positioning of the P-Cable spread and seismic energy source. This document reports the details of the survey.

1.1 Location

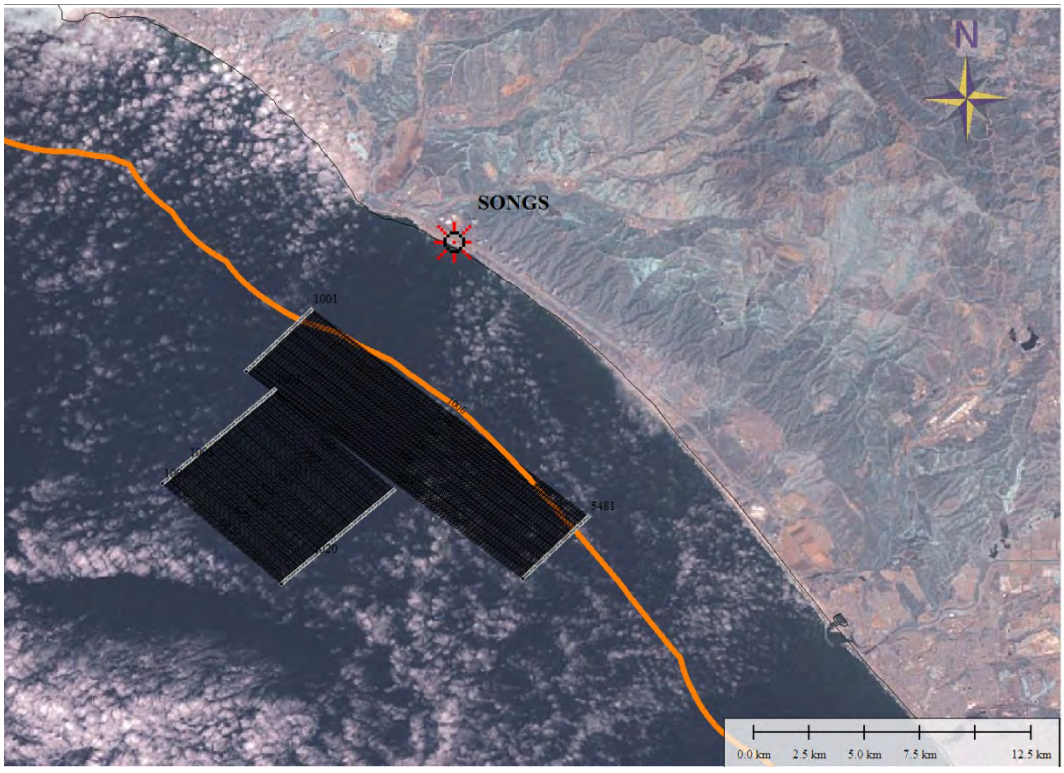


Figure 1 - Scaled map of Block1(N) and Block2 (S)

1.2 Geodetic Parameters

The following parameters (Table 1) were used during the acquisition of this survey. All navigation systems, preplots, and data logging were set to utilize this datum.

Table 1: Survey datum parameters.

PARAMETER	VALUE
GEODETIC DATUM	WGS84
PROJECTION	UTM
ZONE	ZONE 11 NORTH
UNITS	METERS

2 Operational Summary

On October 10, 2013 at 10:50 local, the vessel New Horizon departed the SCRIPPS dock in San Diego, CA. The vessel transited offshore to a clear area to perform equipment deployment tests. The paravanes and the cross cable were successfully deployed and recovered, so commissioning technicians departed the vessel and it continued transit to survey area. The vessel held position in the prospect area until first light the following morning to perform scouting lines throughout the area of Block1. At 09:50 local on Oct. 11, scouting was complete and preparations began for deployment of entire system. Seq2, line 1006A was the start of production at 17:23 local on Oct. 11. There were power interference issues with the source GPS during this sequence so a nominal layback was used. The source was retrieved and GPS unit swapped for Seq3. Production continued fairly smoothly until Oct. 15, when leakage increased on the seismic acquisition system. Instructions were given to maintain 4 knot speeds or less to avoid further damage.

Acquisition continued smoothly, but with occasional source power issues and PSO (protective species observer) shutdowns. On Oct. 21 10:45 local, all equipment was picked up for repair and maintenance. Large amounts of kelp had been snagged by all in-water equipment (Figure 2) and the signal cable was changed with onboard spare. Production continued on Oct. 21 19:55 local. On Oct. 22, there was a science crew change and J. Gaytan departed the crew, with B. Mattox as the relief Chief Navigator. On Oct. 24, Block 1 was completed and all equipment was retrieved for maintenance before start of Block2. Production commenced on Block2 with Sparker source instead of Boomer source and 6.25m shotpoint spacing instead of 3.125m and began on Oct. 24 at 16:04 with Seq201. The source GPS was changed out after Seq203, and production continued. On Oct. 26, all equipment was recovered to troubleshoot leakage. Streamer 1 was found to have 'bite marks' and was replaced with an onboard spare. On 27 Oct, a streamer system failure necessitated system recovery, and production continued after 10 hours of maintenance. On Oct. 29, the Stbd Tripoint GPS failed. The tripoint was recovered and GPS cable replaced. Production continued after 2.5 hours until end of Job, Seq400 on Nov. 4 at 05:20 local. All equipment was retrieved and vessel arrived back to SCRIPPS dock at 18:00 local.

Figure 2: Kelp on tripoint buoy and paravane wires.

3 Field and Professional Personnel

Table 2: Survey personnel.

Name	Position	Company
Jesus Gaytan	Chief Navigator	NCS SubSea
Brandon Mattox	Chief Navigator	NCS SubSea
Abby Parish	Nav. Processor	NCS SubSea
Micah Hall	Nav. Processor	NCS SubSea
Shane Traceski	Navigator	NCS SubSea
Dwayne Fontenot	Navigator	NCS SubSea
Eddie Majzlik	Commissioning Engineer	NCS SubSea

4 System Information

Please refer to the Mobilization Report provided in Appendix B.

5 Operational Procedures and Conditions

NCS SubSea personnel commenced each new survey day by completing a *Start of Acquisition Day Checklist* (Figure 3). In addition, a *Prestart of Line Checklist* and *End of Line Checklist* (Figure 4) was completed for every shooting sequence. These checklists were utilized in order to ensure the consistent functionality and use of the navigation system. Detailed shooting and production logs were also maintained with all of the pertinent information relating to each sequence (Appendix A – Logs).

Start of Acquisition Day Checklist

☐ 1) Turn on the NavPoint Main, Display, Trawler, Logging and Binning software installed on the navigation computers.

☐ 2) Check that the GPS units and heading sensors installed on the survey vessel are turned on and that data is being received by the navigation system.

☐ 3) Check that the GPS units located on the paravanes,tripoints, and source buoy are turned on and that data is being received by the navigation system.

☐ 4) Ensure that all GPS units are receiving differential corrections.

☐ 5) Check that the echosounder is turned on and that depth data is being received by the navigation system.

☐ 6) Check that the P-Cable compasses and depth sensor data is being received by the NavPoint Trawler program.

☐ 7) Check to make sure the correct P1/90 preplot file is loaded into the NavPoint Display program.

☐ 8) Perform Geodetic Check and capture screen shot.

Figure 3: Example Start of Acquisition Day Checklist.

Prestart of Line Checklist

1) Consult the party chief and seismic observer to determine the next survey line for acquisition.

2) Select the desired survey line in the NavPoint Display window.

3) Instruct the wheelhouse to navigate the vessel to a point 500 m before the start of the survey line.

4) When the vessel has reached the point 500m before the start of the survey line instruct the wheelhouse to begin steering the survey line.

5) When the vessel has stabilized on a course along the survey line instruct the wheelhouse to switch the autopilot into Nav mode.

6) When the nominal CMP offset has reached a point 100 m from the start of the survey line check the Active box on the NavPoint Display window.

7) Check that the NavPoint Logging program shows a green Recording On indicator.

8) Check that the NavPoint Trawler program is working properly and events updating properly

9) Ensure binning program is running properly with CMPs in right space and coverage filling.

10) Record the following information in the survey line log for this survey line:
- a.) Sequence number (from the NavPoint Main program)
- b.) First shot point number and time
- c.) Direction of travel

End of Line Checklist

1.) 300 meters from EOL, call bridge and inform them of imminent end of line and take over steering, maintaining course to EOL and then following turn.

2.) When the streamers have cleared the bin grid, uncheck the Active box on the NavPoint Display window.

3.) Check with Observers for LGSP and instruct bridge to turn to next line.

4.) Record the following information in the survey line log for this survey line:
- a.) Last shot point number
- b.) Status of the survey line (i.e. – complete, partial or do not process)
- c.) Ancillary information for line log (weather, DOL, SMG, etc.)

5.) Make an archive copy of the log, P1/90 and P2/94 files on the network drive.

6.) Finalize Navigation Line Log and prepare for next line.

Figure 4: Example Prestart of Line and End of Line Checklists.

Beyond the operation of the navigation system, and the performance of the typical duties expected of a surveyor, NCS SubSea personnel took an active role in deck operations. With guidance from the geophysical data acquisition manager, NCS personnel actively participated in the deployment and recovery of the streamer cable and source systems. NCS SubSea personnel also made themselves available, where appropriate, to assist in the troubleshooting of broader hardware and software issues experienced by the onboard team.

5.1 Line Naming Convention

All line names for the survey are 4 digits and a letter suffix, following the last revisions of the preplots. Block1 lines were 1006-2206, incrementing by 12. Block2 lines were 3007-4927, also incrementing by 12.

AAAAB, where:

A is the preplot line number, always 4 digit.

B is the attempt at line (A-Z incrementing).

Examples:

Line 1006A = Line 1006, First attempt (A).

Line 3007B = Line 3007, Second attempt (B).

6 Data Processing

Data processing was accomplished via the NavPoint Processing suite. NavPoint reads and displays the navigation data stored in the raw P2/94 file format. In NavPoint Processing, the raw data are displayed in graphical and tabular format allowing for precise editing and smoothing

functions to be carried out (Figure 5). Once the (raw data) editing process is complete, and the user specifies the parameters for the network adjustment, a processed P1/90 navigation data file is produced (Figure 6).

Two P2/94, and two P1/90 header versions were produced for this job to account for the 2 different sources, and hence offsets to the source DGPS unit. The source for Block 1 was a triple plate boomer, and the source for Block 2 was a 3 electrode sparker. The nominal offsets recorded in the P1/90 header represent the ideal towing configuration/system geometry intended at the start of each block. The offsets are reflective of a 0.90 shortening factor as measured from tripoint to tripoint.

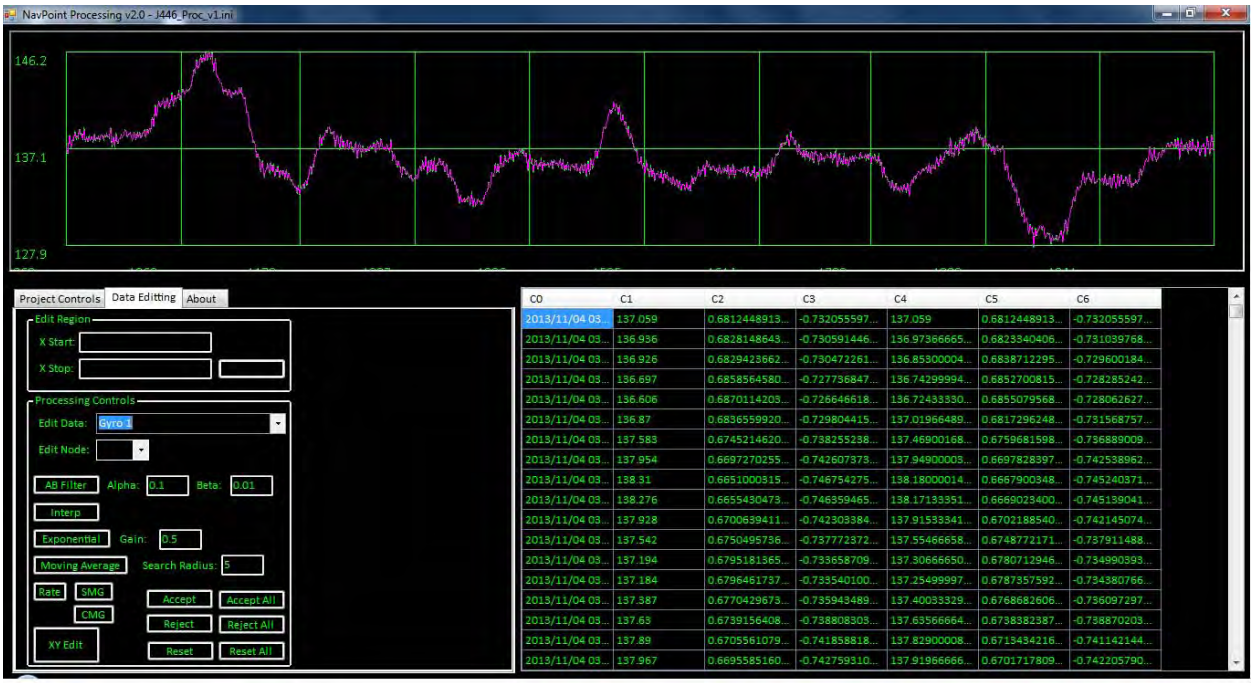


Figure 5: Processing data editing window.

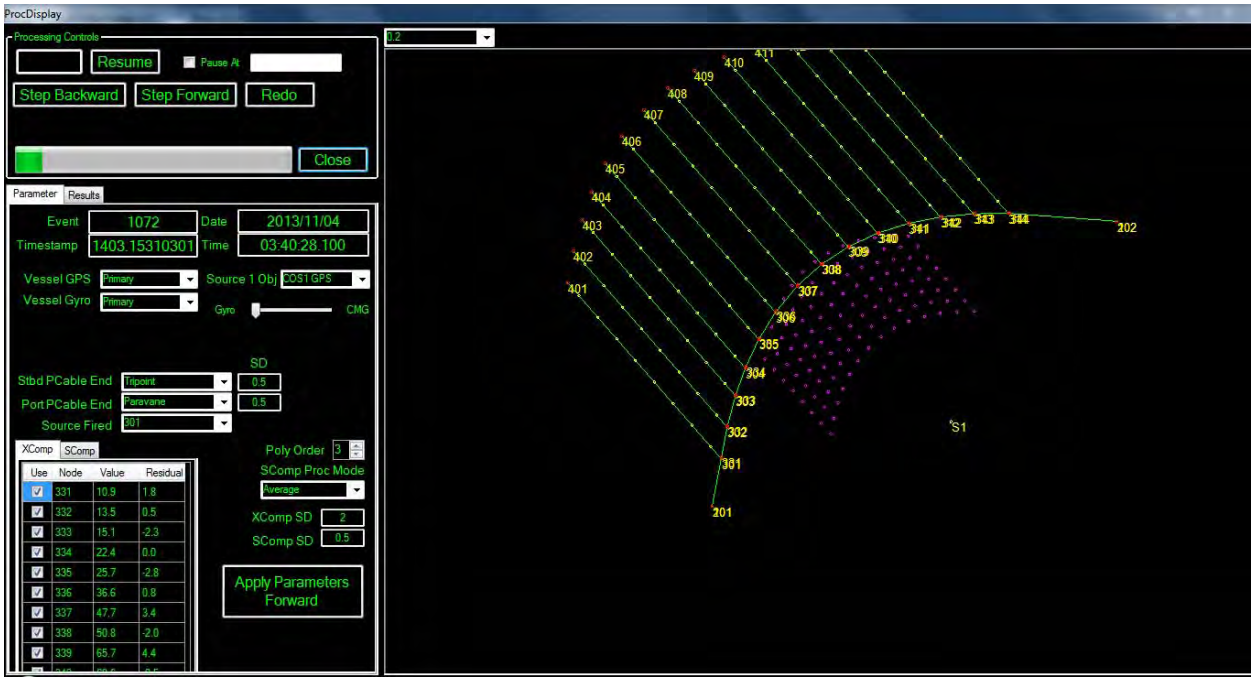


Figure 6: NavPoint Processing network adjustment window.

7 Data Quality and Coverage

7.1 Data Quality

Positioning data quality was generally good to excellent during the entire survey. Most GPS units maintained a good satellite constellation and rarely lost differential corrections. However, the starboard paravane GPS was out for the entirety of the second block, as well as part of the first block. The port tripoint GPS was also out for most of the second block. The source GPS dropped out intermittently throughout the job, often for only a few shots at a time. All compasses performed well with the exception of streamer 8 tail compass. This unit had leakage and was not used. Part way through the job the streamer 1 tail compass dropped out and never came back.

The P-Cable positioning solution suffered slightly during sequence 294 and 295 due to the starboard tripoint GPS intermittently dropping out throughout the lines. After sequence 295, the starboard tripoint was fixed and all quality indicators point to highly accurate positioning solutions for the remainder of the job. Figures 7 and 8 show the trend analysis of various statistics throughout the job. It is of note that 'Separation' is measured between endpoint GPS used, so the spikes are consistent with various GPS dropouts as used for processing. The navigation solution during these periods was still above satisfactory levels.

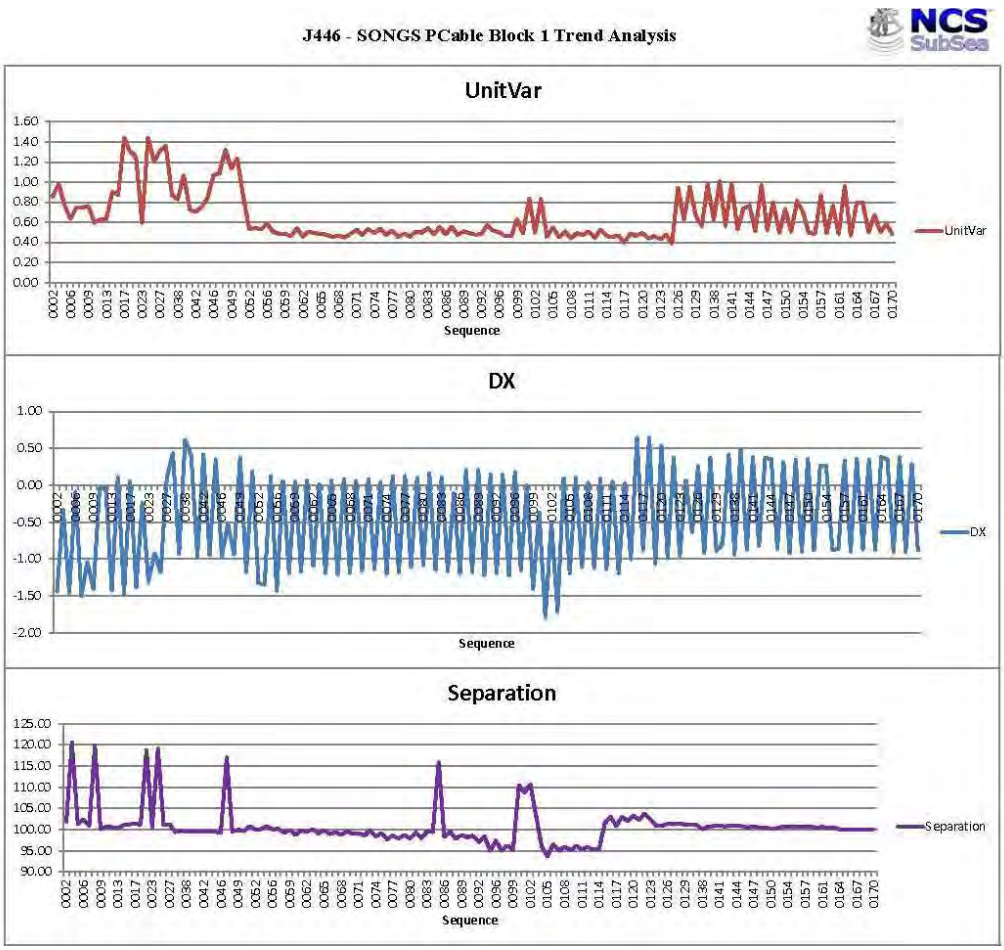


Figure 7: Block 1 trend analysis.

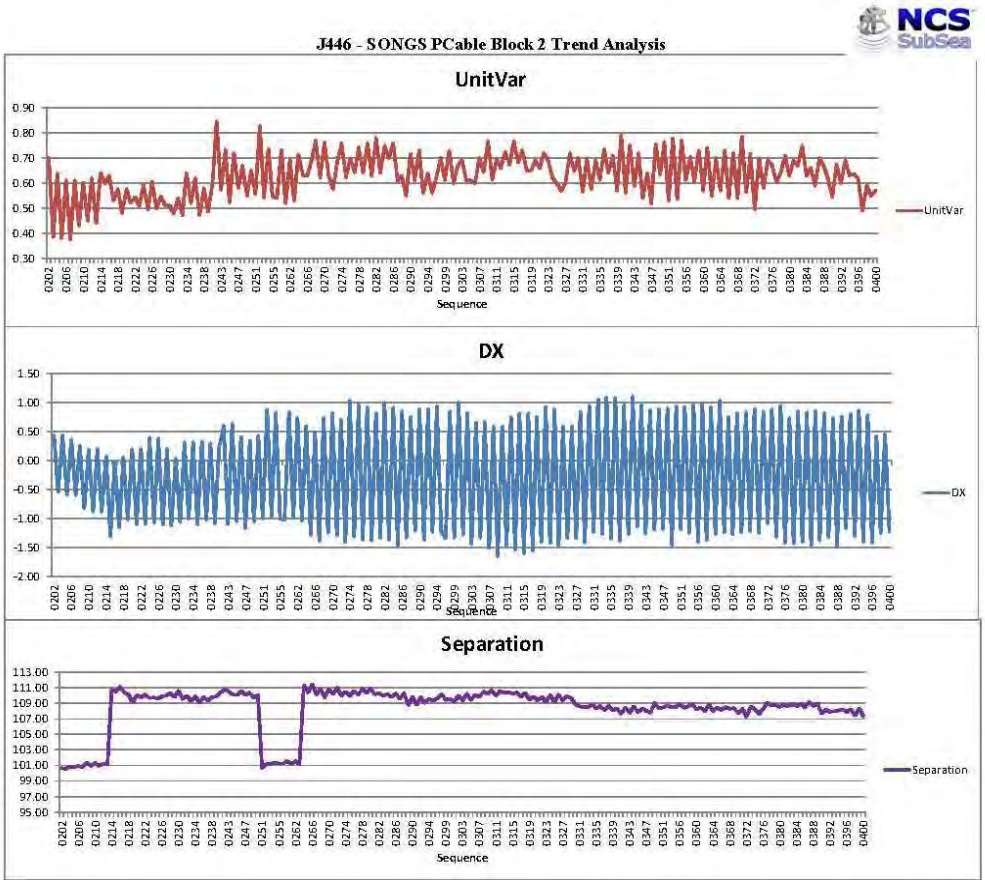


Figure 8: Block 2 trend analysis

7.2 Data Coverage

A total of 370 sequences were logged during the course of the survey. Thirty five of these sequences were marked as DNP for various reasons. Relevant coverage statistics are presented below in Table 3 and 4. Full production logs are included in Appendix A. Figure 9 is an illustration of bin coverage and fold count for Block 1, and Figure 10 is an illustration of bin coverage and fold count for Block 2. The electronic versions of the postplot maps are also included in Appendix D.

Table 3: Block 1 Production statistics.

Sequences	1-170
Total Shots Fired	529661
Sail Line Kilometers	1655.1906
Approximate Square Kilometers Surveyed	52.5

Table 4: Block 2 Production statistics.

Sequences	201-400
Total Shots Fired	206492
Sail Line Kilometers	1290.5750
Approximate Square Kilometers Surveyed	38.4

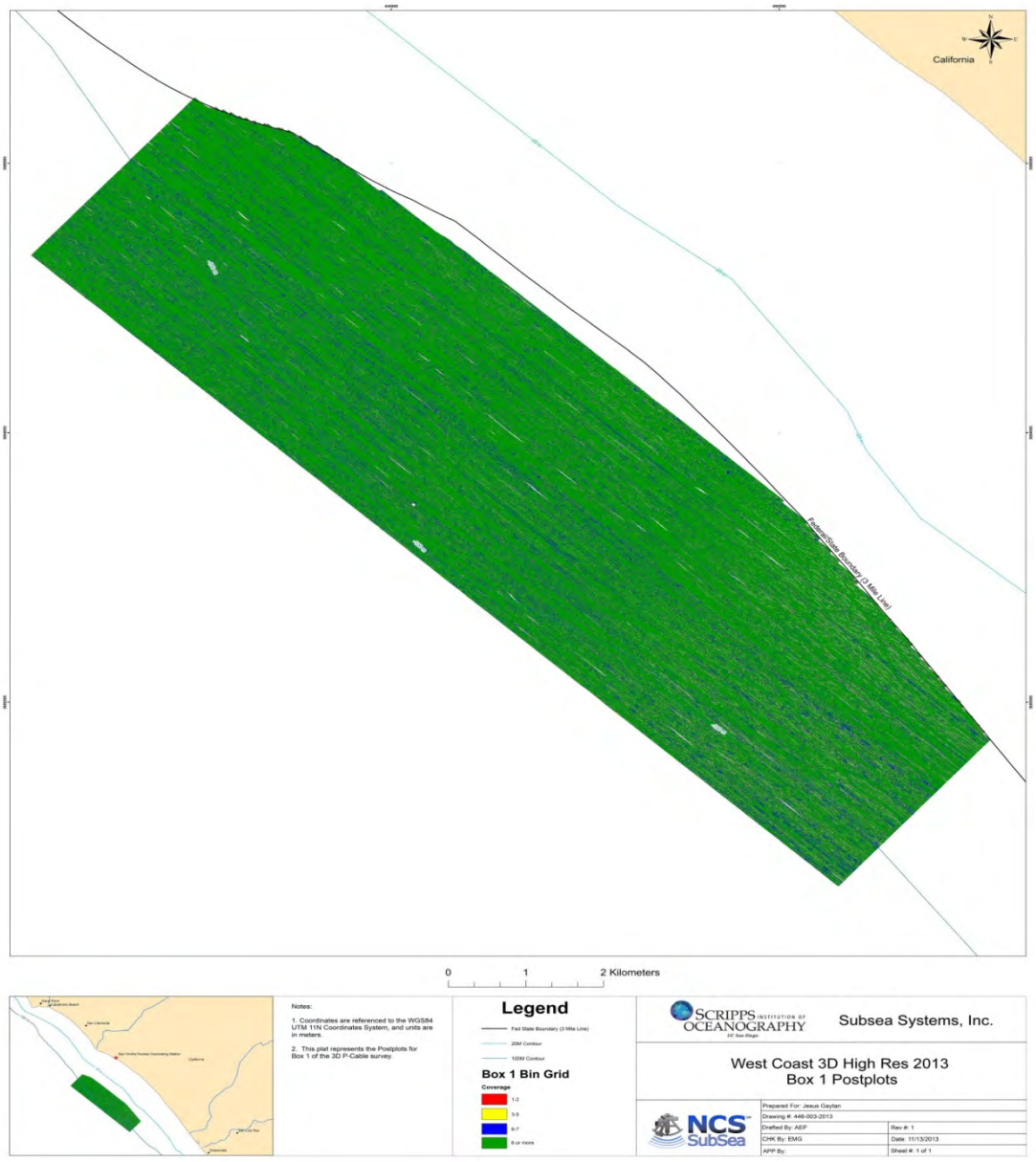


Figure 9: Block1 coverage postplot.

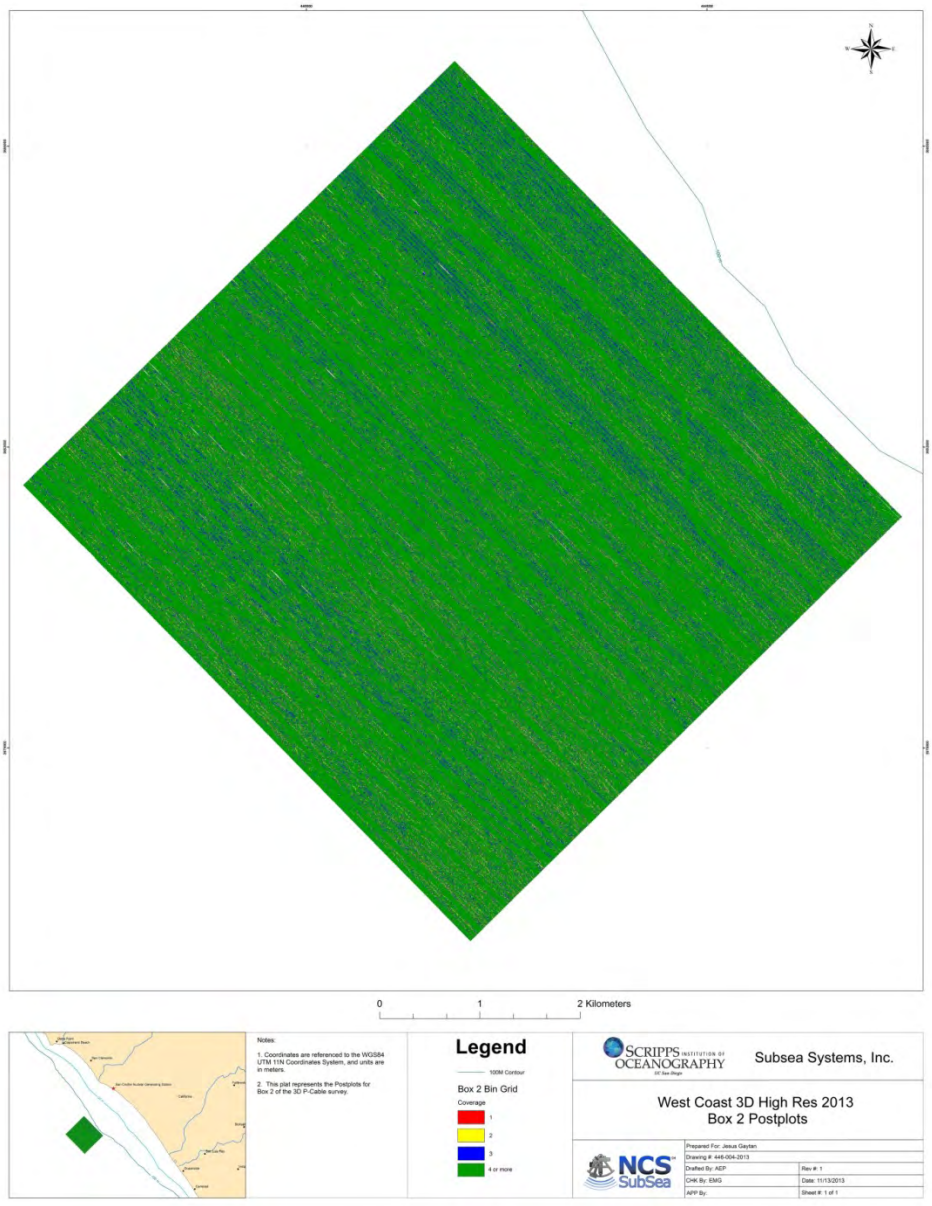


Figure 10: Block2 coverage postplot.

8 Appendix A: Logs

Documents included as electronic appendix.

9 Appendix B: Mobilization Report

Document included as electronic appendix.

10 Appendix C: Work Order

Document included as electronic appendix.

11 Appendix D: Postplot Maps

Document included as electronic appendix.

Appendix C4: NCS Production Logs

SONGS PCable 2013 Daily Production Kilometers Block 1												
SEQ:	DNP?	LINE:	FGSP	LGSP	SPS	INTERVAL:	JD:	DATE:	KILOMETERS:	AREA		
1	Y						285	10/12/2013				
2		1006A	1902	4121	2220	3.125	285	10/12/2013	6.9375	1		
3		1594A	5523	969	4555	3.125	285	10/12/2013	14.2344	1		
4		1018A	1900	4262	2363	3.125	285	10/12/2013	7.3844	1		
5	Y					3.125	285	10/12/2013				
6		1606B	5560	945	4616	3.125	285	10/12/2013	14.4250	1		
7		1030A	1663	4311	2649	3.125	285	10/12/2013	8.2781	1		
8		1618A	5500	945	4556	3.125	285	10/12/2013	14.2375	1		
9		1042A	1560	4351	2792	3.125	285	10/12/2013	8.7250	1		
10	Y					3.125	285	10/12/2013				
11		1630A	5514	5297	218	3.125	285	10/12/2013	0.6813	1		
12		1630B	5121	943	4179	3.125	285	10/12/2013	13.0594	1		
13		1054A	1481	4426	2946	3.125	285	10/12/2013	9.2063	1		
14_1		1642A_1	5517	3616	1902	3.125	285	10/12/2013	5.9438	1		
14_2		1642A_2	3511	964	2548	3.125	285	10/12/2013	7.9625	1		
15		1066A	1427	4483	3057	3.125	285	10/12/2013	9.5531	1	Daily Total:	120.6281
16	Y					3.125	286	10/13/2013				
17		1654A	5490	964	4527	3.125	286	10/13/2013	14.1469	1		
18	Y					3.125	286	10/13/2013				
19		1078A	1399	4591	3193	3.125	286	10/13/2013	9.9781	1		
20	Y					3.125	286	10/13/2013				
21		1666A	5507	976	4532	3.125	286	10/13/2013	14.1625	1		
22	Y					3.125	286	10/13/2013				
23		1090A	1381	4607	3227	3.125	286	10/13/2013	10.0844	1		
24		1678A	5497	948	4550	3.125	286	10/13/2013	14.2188	1		
25		1102A	1343	4689	3347	3.125	286	10/13/2013	10.4594	1		
26		1690A	5491	1457	4035	3.125	286	10/13/2013	12.6094	1		
27	Y					3.125	286	10/13/2013				
28	Y					3.125	286	10/13/2013				
29	Y					3.125	286	10/13/2013				
30	Y					3.125	286	10/13/2013				
31	Y					3.125	286	10/13/2013				
32	Y					3.125	286	10/13/2013				
33	Y					3.125	286	10/13/2013				
34		1582A	5529	946	4584	3.125	286	10/13/2013	14.3250	1		
35	Y					3.125	286	10/13/2013				
36	Y					3.125	286	10/13/2013				
37		1114C	1332	4737	3406	3.125	286	10/13/2013	10.6438	1		
38		1702D	5540	4850	691	3.125	286	10/13/2013	2.1594	1	Daily Total:	112.7875
39		1702D	4719	944	3776	3.125	287	10/14/2013	11.8000	1		
40		1126A	1460	4824	3365	3.125	287	10/14/2013	10.5156	1		
41	Y					3.125	287	10/14/2013				
42		1714A	5472	943	4530	3.125	287	10/14/2013	14.1563	1		
43		1138A	1256	4867	3612	3.125	287	10/14/2013	11.2875	1		
44	Y					3.125	287	10/14/2013				
45		1726A	4833	950	3884	3.125	287	10/14/2013	12.1375	1		
46		1150A	1230	1768	539	3.125	287	10/14/2013	1.6844	1		
47		1738A	5490	948	4543	3.125	287	10/14/2013	14.1969	1		
48		1162A	1193	4979	3787	3.125	287	10/14/2013	11.8344	1		
49		1750A	5293	938	4356	3.125	287	10/14/2013	13.6125	1		
50		1174A	1162	5042	3881	3.125	287	10/14/2013	12.1281	1		
51		1762A	5601	943	4659	3.125	287	10/14/2013	14.5594	1		
52_1		1186A_1	1129	1168	40	3.125	287	10/14/2013	0.1250	1	Daily Total:	128.0375
52_2		1186A_2	1169	5102	3934	3.125	288	10/15/2013	12.2938	1		
53	Y					3.125	288	10/15/2013				
54		1198A	1119	5156	4038	3.125	288	10/15/2013	12.6188	1		
55		1774A	5482	947	4536	3.125	288	10/15/2013	14.1750	1		
56		1210A	1033	5206	4174	3.125	288	10/15/2013	13.0438	11		
57		1786A	5490	947	4544	3.125	288	10/15/2013	14.2000	1		
58		1222A	1002	5299	4298	3.125	288	10/15/2013	13.4313	1		
59		1798A	5490	946	4545	3.125	288	10/15/2013	14.2031	1		
60		1234A	1127	5325	4199	3.125	288	10/15/2013	13.1219	1		
61		1810A	5518	945	4574	3.125	288	10/15/2013	14.2938	1		
62_1		1246A_1	887	5291	4405	3.125	288	10/15/2013	13.7656	1	Daily Total:	135.1469
62_2		1246A_2	5292	5385	94	3.125	289	10/16/2013	0.2938	1		
63		1822A	5559	945	4615	3.125	289	10/16/2013	14.4219	1		
64		1258A	914	5433	4520	3.125	289	10/16/2013	14.1250	1		
65		1834A	5530	947	4584	3.125	289	10/16/2013	14.3250	1		
66		1270A	982	5469	4488	3.125	289	10/16/2013	14.0250	1		
67		1846A	5104	943	4162	3.125	289	10/16/2013	13.0063	1		
68		1282A	990	5521	4532	3.125	289	10/16/2013	14.1625	1		
69		1858A	5506	947	4560	3.125	289	10/16/2013	14.2500	1		
70		1294A	966	5538	4573	3.125	289	10/16/2013	14.2906	1		
71		1870A	5556	940	4617	3.125	289	10/16/2013	14.4281	1		
72		1450A	910	5538	4629	3.125	289	10/16/2013	14.4656	1		
73_1		1882A_1	5491	5299	193	3.125	289	10/16/2013	0.6031	1	Daily Total:	142.3969

73_2		1882A_2	5298	5109	190	3.125	290	10/17/2013	0.5938	1		
73_3		1882A_3	5044	944	4101	3.125	290	10/17/2013	12.8156	1		
74		1150B	1292	4940	3649	3.125	290	10/17/2013	11.4031	1		
75		1894A	5573	943	4631	3.125	290	10/17/2013	14.4719	1		
76		1078B	1388	4581	3194	3.125	290	10/17/2013	9.9813	1		
77		1906A	5532	944	4589	3.125	290	10/17/2013	14.3406	1		
78		1462A	919	5536	4618	3.125	290	10/17/2013	14.4313	1		
79_1		1918A_1	5590	1911	3680	3.125	290	10/17/2013	11.5000	1		
79_2		1918A_2	1861	945	917	3.125	290	10/17/2013	2.8656	1		
80		1474A	930	5539	4610	3.125	290	10/17/2013	14.4063	1		
81		1930A	5522	944	4579	3.125	290	10/17/2013	14.3094	1		
82		1468A	949	5542	4594	3.125	290	10/17/2013	14.3563	1		
83_1		1942A_1	5520	3573	1948	3.125	290	10/17/2013	6.0875	1	Daily Total:	141.5625
83_1		1942A_2	3572	945	2628	3.125	291	10/18/2013	8.2125	1		
84		1306A	955	5542	4588	3.125	291	10/18/2013	14.3375	1		
85		1954A	5581	943	4639	3.125	291	10/18/2013	14.4969	1		
86		1318A	920	5539	4620	3.125	291	10/18/2013	14.4375	1		
87		1966A	5538	943	4596	3.125	291	10/18/2013	14.3625	1		
88		1330A	970	5539	4570	3.125	291	10/18/2013	14.2813	1		
89		1978A	5530	947	4584	3.125	291	10/18/2013	14.3250	1		
90		1342A	936	5539	4604	3.125	291	10/18/2013	14.3875	1		
91		1990A	5524	944	4581	3.125	291	10/18/2013	14.3156	1		
92		1354A	917	5540	4624	3.125	291	10/18/2013	14.4500	1		
93_1		2002A_1	5544	2331	3214	3.125	291	10/18/2013	10.0438	1	Daily Total:	147.6500
93_2		2002A_2	2330	946	1385	3.125	292	10/19/2013	4.3281	1		
94		1366A	1007	5540	4534	3.125	292	10/19/2013	14.1688	1		
95	Y	2014A				3.125	292	10/19/2013		1		
96		1810B	4143	944	3200	3.125	292	10/19/2013	10.0000	1		
97		1378A	980	5540	4561	3.125	292	10/19/2013	14.2531	1		
98		2014B	5578	945	4634	3.125	292	10/19/2013	14.4813	1		
99		1390A	963	5540	4578	3.125	292	10/19/2013	14.3063	1		
100		2026A	5525	988	4538	3.125	292	10/19/2013	14.1813	1		
101		1402A	968	5539	4572	3.125	292	10/19/2013	14.2875	1		
102		2038A	5530	939	4592	3.125	292	10/19/2013	14.3500	1		
103		1414A	989	5541	4553	3.125	292	10/19/2013	14.2281	1		
104_1		2050A_1	5568	1601	3968	3.125	292	10/19/2013	12.4000	1	Daily Total:	140.9844
104_2		2050A_2	1600	933	668	3.125	293	10/20/2013	2.0875	1		
105		1426A	920	5540	4621	3.125	293	10/20/2013	14.4406	1		
106		2062A	5566	943	4624	3.125	293	10/20/2013	14.4500	1		
107		1438A	885	5543	4659	3.125	293	10/20/2013	14.5594	1		
108		2074A	5532	945	4588	3.125	293	10/20/2013	14.3375	1		
109		1498A	962	5538	4577	3.125	293	10/20/2013	14.3031	1		
110		2086A	5522	943	4580	3.125	293	10/20/2013	14.3125	1		
111		1510A	973	5541	4569	3.125	293	10/20/2013	14.2781	1		
112		2098A	5529	938	4592	3.125	293	10/20/2013	14.3500	1		
113		1522A	943	5543	4601	3.125	293	10/20/2013	14.3781	1		
114		2110A	5520	943	4578	3.125	293	10/20/2013	14.3063	1	Daily Total:	145.8031
115		1306B	960	2255	1296	3.125	294	10/21/2013	4.0500	1		
116		1750B	2300	942	1359	3.125	294	10/21/2013	4.2469	1		
117		1234B	970	2243	1274	3.125	294	10/21/2013	3.9813	1		
118		1690B	2114	942	1173	3.125	294	10/21/2013	3.6656	1		
119		1282B	915	4971	4057	3.125	294	10/21/2013	12.6781	1		
120		2122A	5522	945	4578	3.125	294	10/21/2013	14.3063	1		
121		1378B	952	5538	4587	3.125	294	10/21/2013	14.3344	1		
122		2134A	5502	944	4559	3.125	294	10/21/2013	14.2469	1		
123		1534A	953	5543	4591	3.125	294	10/21/2013	14.3469	1		
124_1		2146A_1	5517	5454	64	3.125	294	10/21/2013	0.2000	1		
124_2		2146A_2	5177	4912	266	3.125	294	10/21/2013	0.8313	1		
124_3		2146A_3	3539	1247	2293	3.125	294	10/21/2013	7.1656	1		
124_4		2146A_4	1157	944	214	3.125	294	10/21/2013	0.6688	1	Daily Total:	94.7219
125		1546A	900	5539	4640	3.125	295	10/22/2013	14.5000	1		
126		2146B	5530	944	4587	3.125	295	10/22/2013	14.3344	1		
127		1570A	995	5538	4544	3.125	295	10/22/2013	14.2000	1		
128		2158A	5566	944	4623	3.125	295	10/22/2013	14.4469	1		
129		1558A	972	3287	2316	3.125	295	10/22/2013	7.2375	1		
130	Y	Test				3.125	295	10/22/2013		1		
131	Y	Test				3.125	295	10/22/2013		1		
132	Y	Test				3.125	295	10/22/2013		1		
133	Y	Test				3.125	295	10/22/2013		1		
134	Y	Test				3.125	295	10/22/2013		1		
135	Y	Test				3.125	295	10/22/2013		1		
136		1558D	4067	5537	1471	3.125	295	10/22/2013	4.5969	1		
137		2170A	5528	945	4584	3.125	295	10/22/2013	14.3250	1		
138		1546B	960	5537	4578	3.125	295	10/22/2013	14.3063	1		
139		2182A	5522	1178	4345	3.125	295	10/22/2013	13.5781	1		
140		1546C	1006	5539	4534	3.125	295	10/22/2013	14.1688	1		
141_1		2194A_1	5558	3580	1979	3.125	295	10/22/2013	6.1844	1	Daily Total:	131.8781
141_2		2194A_2	3579	947	2633	3.125	296	10/23/2013	8.2281	1		
142		1558E	973	5539	4567	3.125	296	10/23/2013	14.2719	1		
143		2206A	5543	5011	533	3.125	296	10/23/2013	1.6656	1		
144		2206B	4561	944	3618	3.125	296	10/23/2013	11.3063	1		
145		1438B	949	5540	4592	3.125	296	10/23/2013	14.3500	1		
146		1726B	5523	949	4575	3.125	296	10/23/2013	14.2969	1		
147		1222B	988	5534	4547	3.125	296	10/23/2013	14.2094	1		
148		1846B	5524	947	4578	3.125	296	10/23/2013	14.3063	1		
149		1330B	978	5536	4559	3.125	296	10/23/2013	14.2469	1		
150		1714B	5530	948	4583	3.125	296	10/23/2013	14.3219	1		
151		1210B	1055	5402	4348	3.125	296	10/23/2013	13.5875	1		
152		2002B	5562	946	4617	3.125	296	10/23/2013	14.4281	1		
153	Y	2194B				3.125	296	10/23/2013		1		

154		2194B	1703	942	762	3.125	296	10/23/2013	2.3813	1	Daily Total:	151.6000
155		1222C	1030	4469	3440	3.125	297	10/24/2013	10.7500	1		
156		1570B	4917	5539	623	3.125	297	10/24/2013	1.9469	1		
157		1882B	5536	4386	1151	3.125	297	10/24/2013	3.5969	1		
158		1390B	4402	5546	1145	3.125	297	10/24/2013	3.5781	1		
159		1750C	5589	4206	1384	3.125	297	10/24/2013	4.3250	1		
160	Y					3.125	297	10/24/2013		1		
161		1570C	3940	5542	1603	3.125	297	10/24/2013	5.0094	1		
162		1798B	5571	4433	1139	3.125	297	10/24/2013	3.5594	1		
163		1498B	5074	5540	467	3.125	297	10/24/2013	1.4594	1		
164		1630C	5502	5111	392	3.125	297	10/24/2013	1.2250	1		
165		2206C	5083	958	4126	3.125	297	10/24/2013	12.8938	1		
166		1450B	978	2660	1683	3.125	297	10/24/2013	5.2594	1		
167		1822B	2331	947	1385	3.125	297	10/24/2013	4.3281	1		
168		1114D	1322	1686	365	3.125	297	10/24/2013	1.1406	1		
169		2146C	1325	946	380	3.125	297	10/24/2013	1.1875	1		
170		1114E	1311	1865	555	3.125	297	10/24/2013	1.7344	1	Daily Total Block 1:	61.9938
											Sail Line KMs Block 1 Total	
					529661				0.0000		**1655.1906**	

SONGS PCable 2013 Daily Production Kilometers Block 2												
SEQ:	DNP?	LINE:	FGSP	LGSP	SPS	INTERVAL:	JD:	DATE:	KILOMETERS:	AREA		
201	Y					6.25						
202		4927A	2049	973	1077	6.25	297	10/24/2013	6.7313	2	Daily Total Block 2:	6.7313
203		4447A	962	2047	1086	6.25	298	10/25/2013	6.7875	2		
204		4915A	2042	974	1069	6.25	298	10/25/2013	6.6813	2		
205		4435A	985	2049	1065	6.25	298	10/25/2013	6.6563	2		
206		4903A	2064	973	1092	6.25	298	10/25/2013	6.8250	2		
207		4423A	960	2048	1089	6.25	298	10/25/2013	6.8063	2		
208		4891A	2057	974	1084	6.25	298	10/25/2013	6.7750	2		
209		4411A	987	2047	1061	6.25	298	10/25/2013	6.6313	2		
210		4879A	2039	974	1066	6.25	298	10/25/2013	6.6625	2		
211		4399A	1003	2047	1045	6.25	298	10/25/2013	6.5313	2		
212		4867A	2035	975	1061	6.25	298	10/25/2013	6.6313	2		
213		4387A	983	2043	1061	6.25	298	10/25/2013	6.6313	2		
214		4855A	2037	967	1071	6.25	298	10/25/2013	6.6938	2		
215		4375A	987	2046	1060	6.25	298	10/25/2013	6.6250	2		
216		4843A	2036	974	1063	6.25	298	10/25/2013	6.6438	2		
217		4363A	982	2047	1066	6.25	298	10/25/2013	6.6625	2		
218		4831A	2033	975	1059	6.25	298	10/25/2013	6.6188	2		
219		4351A	983	2048	1066	6.25	298	10/25/2013	6.6625	2		
220		4819A	2045	974	1072	6.25	298	10/25/2013	6.7000	2		
221		4339A	983	2047	1065	6.25	298	10/25/2013	6.6563	2		
222		4807A	2049	974	1076	6.25	298	10/25/2013	6.7250	2		
223_1		4327A_1	979	1419	441	6.25	298	10/25/2013	2.7563	2	Daily Total:	136.3625
223_2		4327A_2	1420	2042	623	6.25	299	10/26/2013	3.8938	2		
224		4795A	2050	974	1077	6.25	299	10/26/2013	6.7313	2		
225		4315A	975	2049	1075	6.25	299	10/26/2013	6.7188	2		
226		4783A	2054	973	1082	6.25	299	10/26/2013	6.7625	2		
227		4303A	969	2047	1079	6.25	299	10/26/2013	6.7438	2		
228		4771A	2062	973	1090	6.25	299	10/26/2013	6.8125	2		
229		4303B	964	2046	1083	6.25	299	10/26/2013	6.7688	2		
230		4771B	2036	975	1062	6.25	299	10/26/2013	6.6375	2		
231		4291A	991	2047	1057	6.25	299	10/26/2013	6.6063	2		
232		4759A	2022	975	1048	6.25	299	10/26/2013	6.5500	2		
233		4279A	1005	2047	1043	6.25	299	10/26/2013	6.5188	2		
234		4747A	2039	975	1065	6.25	299	10/26/2013	6.6563	2		
235		4367A	981	2048	1068	6.25	299	10/26/2013	6.6750	2		
236		4735A	2035	976	1060	6.25	299	10/26/2013	6.6250	2		
237		4255A	984	2046	1063	6.25	299	10/26/2013	6.6438	2		
238		4723A	2044	975	1070	6.25	299	10/26/2013	6.6875	2		
239		4243A	978	2047	1070	6.25	299	10/26/2013	6.6875	2		
240		4711A	2058	974	1085	6.25	299	10/26/2013	6.7813	2		
241	Y					6.25	299	10/26/2013		2	Daily Total:	117.5000
242		4699A	2066	973	1094	6.25	300	10/27/2013	6.8375	2		
243		4281A	962	2048	1087	6.25	300	10/27/2013	6.7938	2		
244		4687A	2061	973	1089	6.25	300	10/27/2013	6.8063	2		
245		4219A	950	2048	1099	6.25	300	10/27/2013	6.8688	2		
246		4675A	2066	974	1093	6.25	300	10/27/2013	6.8313	2		
247		4219B	997	2047	1051	6.25	300	10/27/2013	6.5688	2		
248		4663A	2044	974	1071	6.25	300	10/27/2013	6.6938	2		
249		4207A	972	2045	1074	6.25	300	10/27/2013	6.7125	2		
250		4651A	2041	1564	478	6.25	300	10/27/2013	2.9875	2		
251		4195A	965	2048	1084	6.25	300	10/27/2013	6.7750	2		
252_1		4639A_1	2058	1571	488	6.25	300	10/27/2013	3.0500	2	Daily Total:	66.9250
252_2		4639A_2	1570	964	607	6.25	301	10/28/2013	3.7938	2		
253		4183A	1110	2049	940	6.25	301	10/28/2013	5.8750	2		
254		4627A	2051	975	1077	6.25	301	10/28/2013	6.7313			
255		4171A	970	2048	1079	6.25	301	10/28/2013	6.7438			
256	Y					6.25	301	10/28/2013				
257	Y					6.25	301	10/28/2013				
258	Y					6.25	301	10/28/2013				
259		4159B	1033	2045	1013	6.25	301	10/28/2013	6.3313			
260		4615A	2042	975	1068	6.25	301	10/28/2013	6.6750			
261		4147A	977	2049	1073	6.25	301	10/28/2013	6.7063			
262		4603A	2045	976	1070	6.25	301	10/28/2013	6.6875			
263		4135A	979	2046	1068	6.25	301	10/28/2013	6.6750			
264		4591A	2046	975	1072	6.25	301	10/28/2013	6.7000			
265		4123A	978	2046	1069	6.25	301	10/28/2013	6.6813			
266		4579A	2044	975	1070	6.25	301	10/28/2013	6.6875			
267		4111A	1047	2046	1000	6.25	301	10/28/2013	6.2500			
268		4567A	2046	972	1075	6.25	301	10/28/2013	6.7188			
269		4099A	978	2048	1071	6.25	301	10/28/2013	6.6938			
270		4555A	2056	973	1084	6.25	301	10/28/2013	6.7750			
271		4087A	972	2048	1077	6.25	301	10/28/2013	6.7313			
272		4543A	2055	973	1083	6.25	301	10/28/2013	6.7688			
273_1		4075A_1	967	1499	533	6.25	301	10/28/2013	3.3313		Daily Total:	119.5563
273_2		4075A_2	1500	2049	550	6.25	302	10/29/2013	3.4375			
274		4531A	2054	973	1082	6.25	302	10/29/2013	6.7625			
275		4063A	977	2048	1072	6.25	302	10/29/2013	6.7000			
276		4519A	2053	972	1082	6.25	302	10/29/2013	6.7625			
277		4051A	975	2048	1074	6.25	302	10/29/2013	6.7125			
278		4507A	2051	972	1080	6.25	302	10/29/2013	6.7500			
279		4039A	976	2048	1073	6.25	302	10/29/2013	6.7063			
280		4495A	2041	976	1066	6.25	302	10/29/2013	6.6625			
281		4027A	977	2045	1069	6.25	302	10/29/2013	6.6813			
282		4483A	2037	975	1063	6.25	302	10/29/2013	6.6438			
283		4015A	976	2046	1071	6.25	302	10/29/2013	6.6938			
284		4471A	2046	974	1073	6.25	302	10/29/2013	6.7063			

285		4003A	978	2049	1072	6.25	302	10/29/2013	6.7000			
286		4459A	2042	975	1068	6.25	302	10/29/2013	6.6750			
287		3991A	976	2047	1072	6.25	302	10/29/2013	6.7000			
288		4627B	2033	975	1059	6.25	302	10/29/2013	6.6188			
289		3979A	978	2047	1070	6.25	302	10/29/2013	6.6875			
290		4591B	2044	973	1072	6.25	302	10/29/2013	6.7000			
291		4195B	971	2048	1078	6.25	302	10/29/2013	6.7375			
292		4555B	2065	975	1091	6.25	302	10/29/2013	6.8188			
293_1		4183B_1	983	1679	697	6.25	302	10/29/2013	4.3563		Daily Total:	135.2125
293_2		4183B_2	1680	2049	370	6.25	303	10/30/2013	2.3125			
294		4891B	2067	977	1091	6.25	303	10/30/2013	6.8188			
295		4111B	957	2048	1092	6.25	303	10/30/2013	6.8250			
296	Y					6.25	303	10/30/2013				
297		4159C	968	2054	1087	6.25	303	10/30/2013	6.7938			
298		3559B	2043	975	1069	6.25	303	10/30/2013	6.6813			
299		4051B	980	1902	923	6.25	303	10/30/2013	5.7688			
300		3547A	2065	975	1091	6.25	303	10/30/2013	6.8188			
301		4207B	972	2046	1075	6.25	303	10/30/2013	6.7188			
302		3535A	2047	975	1073	6.25	303	10/30/2013	6.7063			
303		4111C	959	1993	1035	6.25	303	10/30/2013	6.4688			
304		3523A	2047	976	1072	6.25	303	10/30/2013	6.7000			
305		3967A	964	2047	1084	6.25	303	10/30/2013	6.7750			
306		3511A	2027	974	1054	6.25	303	10/30/2013	6.5875			
307		3955A	960	2048	1089	6.25	303	10/30/2013	6.8063			
308		3499A	2053	974	1080	6.25	303	10/30/2013	6.7500			
309		3943A	974	2049	1076	6.25	303	10/30/2013	6.7250			
310		3487A	1886	973	914	6.25	303	10/30/2013	5.7125			
311		3931A	971	2049	1079	6.25	303	10/30/2013	6.7438		Daily Total:	114.7125
312		3475A	2082	973	1110	6.25	304	10/31/2013	6.9375			
313		3919A	971	2048	1078	6.25	304	10/31/2013	6.7375			
314		3463A	2052	974	1079	6.25	304	10/31/2013	6.7438			
315		3907A	969	2050	1082	6.25	304	10/31/2013	6.7625			
316		3451A	2054	973	1082	6.25	304	10/31/2013	6.7625			
317		3895A	958	2047	1090	6.25	304	10/31/2013	6.8125			
318		3439A	2029	975	1055	6.25	304	10/31/2013	6.5938			
319		3883A	967	2046	1080	6.25	304	10/31/2013	6.7500			
320		3427A	2050	975	1076	6.25	304	10/31/2013	6.7250			
321		3871A	966	2047	1082	6.25	304	10/31/2013	6.7625			
322		3415A	2039	976	1064	6.25	304	10/31/2013	6.6500			
323		3859A	980	2046	1067	6.25	304	10/31/2013	6.6688			
324		3403A	2062	976	1087	6.25	304	10/31/2013	6.7938			
325		3847A	987	2047	1061	6.25	304	10/31/2013	6.6313			
326		3391A	2041	975	1067	6.25	304	10/31/2013	6.6688			
327		3835A	986	2049	1064	6.25	304	10/31/2013	6.6500			
328		3379A	2048	974	1075	6.25	304	10/31/2013	6.7188			
329		3823A	970	2050	1081	6.25	304	10/31/2013	6.7563			
330		3367A	2032	974	1059	6.25	304	10/31/2013	6.6188			
331		3811A	968	2047	1080	6.25	304	10/31/2013	6.7500		Daily Total:	134.4938
332		3355A	2058	973	1086	6.25	305	11/1/2013	6.7875			
333		3799A	977	2048	1072	6.25	305	11/1/2013	6.7000			
334		3343A	2058	975	1084	6.25	305	11/1/2013	6.7750			
335		3787A	962	2050	1089	6.25	305	11/1/2013	6.8063			
336		3331A	2055	973	1083	6.25	305	11/1/2013	6.7688			
337		3775A	964	2047	1084	6.25	305	11/1/2013	6.7750			
338		3319A	2057	975	1083	6.25	305	11/1/2013	6.7688			
339		3763A	971	2047	1077	6.25	305	11/1/2013	6.7313			
340		3307A	2049	975	1075	6.25	305	11/1/2013	6.7188			
341		3751A	959	2047	1089	6.25	305	11/1/2013	6.8063			
342		3295A	2053	975	1079	6.25	305	11/1/2013	6.7438			
343		3739A	983	2047	1065	6.25	305	11/1/2013	6.6563			
344		3283A	2036	975	1062	6.25	305	11/1/2013	6.6375			
345		3727A	957	2047	1091	6.25	305	11/1/2013	6.8188			
346		3271A	2063	975	1089	6.25	305	11/1/2013	6.8063			
347		3715A	961	2047	1087	6.25	305	11/1/2013	6.7938			
348		3259A	2055	973	1083	6.25	305	11/1/2013	6.7688			
349		3703A	969	2049	1081	6.25	305	11/1/2013	6.7563			
350		3247A	2054	973	1082	6.25	305	11/1/2013	6.7625			
351		3691A	969	2049	1081	6.25	305	11/1/2013	6.7563			
352_1		3235A_1	2050	1717	334	6.25	305	11/1/2013	2.0875		Daily Total:	137.2250
352_2		3235A_2	1716	970	747	6.25	306	11/2/2013	4.6688			
353		3679A	975	2049	1075	6.25	306	11/2/2013	6.7188			
354		3223A	2052	973	1080	6.25	306	11/2/2013	6.7500			
355	Y					6.25	306	11/2/2013				
356		3667A	971	2048	1078	6.25	306	11/2/2013	6.7375			
357		3211A	2051	973	1079	6.25	306	11/2/2013	6.7438			
358		3655A	967	2049	1083	6.25	306	11/2/2013	6.7688			
359		3199A	2047	976	1072	6.25	306	11/2/2013	6.7000			
360		3643A	961	2047	1087	6.25	306	11/2/2013	6.7938			
361		3187A	2055	975	1081	6.25	306	11/2/2013	6.7563			
362		3631A	971	2047	1077	6.25	306	11/2/2013	6.7313			
363		3175A	2060	975	1086	6.25	306	11/2/2013	6.7875			
364		3619A	977	2047	1071	6.25	306	11/2/2013	6.6938			
365		3163A	2064	976	1089	6.25	306	11/2/2013	6.8063			
366		3607A	976	2047	1072	6.25	306	11/2/2013	6.7000			
367		3151A	2059	975	1085	6.25	306	11/2/2013	6.7813			
368		3595A	970	2047	1078	6.25	306	11/2/2013	6.7375			
369		3487B	2064	973	1092	6.25	306	11/2/2013	6.8250			
370		3583A	971	2054	1084	6.25	306	11/2/2013	6.7750			
371		3499B	2053	975	1079	6.25	306	11/2/2013	6.7438			
372		3571A	976	2023	1048	6.25	306	11/2/2013	6.5500		Daily Total:	132.7688

373		3379B	2058	974	1085	6.25	307	11/3/2013	6.7813			
374		3643B	963	2049	1087	6.25	307	11/3/2013	6.7938			
375		3139A	2052	973	1080	6.25	307	11/3/2013	6.7500			
376		3823B	966	2047	1082	6.25	307	11/3/2013	6.7625			
377		3127A	2061	973	1089	6.25	307	11/3/2013	6.8063			
378		3895B	970	2047	1078	6.25	307	11/3/2013	6.7375			
379		3115A	2060	976	1085	6.25	307	11/3/2013	6.7813			
380		3751B	971	2047	1077	6.25	307	11/3/2013	6.7313			
381		3103A	2072	975	1098	6.25	307	11/3/2013	6.8625			
382		3943B	966	1961	996	6.25	307	11/3/2013	6.2250			
383		3091A	2058	975	1084	6.25	307	11/3/2013	6.7750			
384		3031A	977	2047	1071	6.25	307	11/3/2013	6.6938			
385		3079A	2068	976	1093	6.25	307	11/3/2013	6.8313			
386		3019A	970	2047	1078	6.25	307	11/3/2013	6.7375			
387		3067A	2065	975	1091	6.25	307	11/3/2013	6.8188			
388		3007A	969	2049	1081	6.25	307	11/3/2013	6.7563			
389		3055A	2055	973	1083	6.25	307	11/3/2013	6.7688			
390		3571B	979	2048	1070	6.25	307	11/3/2013	6.6875			
391_1		3043A_1	2058	1655	404	6.25	307	11/3/2013	2.5250		Daily Total:	123.8250
391_2		3043A_2	1654	973	682	6.25	308	11/4/2013	4.2625			
392		3775B	969	2049	1081	6.25	308	11/4/2013	6.7563			
393		3235B	2063	970	1094	6.25	308	11/4/2013	6.8375			
394		4351B	973	2049	1077	6.25	308	11/4/2013	6.7313			
395		4591C	2052	974	1079	6.25	308	11/4/2013	6.7438			
396		4075B	962	2051	1090	6.25	308	11/4/2013	6.8125			
397		4519B	2059	974	1086	6.25	308	11/4/2013	6.7875			
398		3631B	953	2047	1095	6.25	308	11/4/2013	6.8438			
399		4927B	2071	975	1097	6.25	308	11/4/2013	6.8563			
400		4135B	988	2048	1061	6.25	308	11/4/2013	6.6313		Daily Total:	65.2625
											Sail Line KMs Block 2 Total	
					206492				0.0000		**1290.5750**	

Appendix C5: NCS WorkOrder

Work Order for SubSea Systems SONGS P-Cable Survey – Southern California – October 2013

Introduction

This work order describes the scope of services to be performed by NCS SubSea during the SubSea Systems(SSI) SONGS P-Cable survey offshore Southern California – October 2013.

Scope of Services

Equipment

NCS SubSea will provide the following:

- 1 x NavPoint Software Package with associated computer systems and sensors.
- 2 x SourcePoint DGPS for TriPoint positioning
- 1 x CNAV WADGPS system

The echosounder and autopilot devices will be vessel provided.

Personnel

NCS will provide a contingent of five persons: a Chief Navigator, 2 Data Processors, and 2 Navigators.

Quality Control for navigation and positioning will be managed by the onboard NCS Chief Navigator. This person will provide, in coordination with broader shore support, the ability to deal with any and all reasonable navigation and positioning issues which may arise on the crew. The NCS Chief Navigator assigned to the crew is the first line of responsibility and contact, followed by the NCS Product Line Manager for Seismic Operations and the NCS Technical Manager.

Logistics

NCS will provide travel and accommodations for its personnel to travel to and from the crew. These costs will be reimbursed at cost plus 10%.

Alternatively, SSI may provide said logistics at their cost.

Survey Information

Geodetics

The navigation system will be configured with the following geodetic parameters:

NCS SubSea

Coordinate Transformation Verification

DATE:08/08/2013	CREW:1127	JOB #:520
CLIENT: SCRIPPS		VESSEL:New Horizon
PROSPECT:West Coast Hi Res 2013		

Transformation to perform: WGS 84 to User Datum

User Datum	WGS84	Datum Shift Parameters	None
Ellipsoid	WGS84	Datum Shift Name	
Inv. Flattening	298.2572235630	Datum Shift Type	
Semi-Major Axis	6378137.000	TX (meters)	
		TY (meters)	
Projection	UTM11 North	TZ (meters)	
Central Meridian	117 00 0.00W	RX (seconds)	
Lat. Of Origin	00 00 0.00	RY (seconds)	
Std. Parallel 1		RZ (seconds)	
Std. Parallel 2		Scale (ppm)	
False Easting	500000.00		
False Northing	0.00		
Scale Factor @ CM	.9996		
Units	Meters		

Test Point

WGS84 Datum	
Latitude	033° 11′ 44.26″ N
Longitude	117° 42′ 0.16″ W

User Datum			
Latitude	033° 11′ 44.26″ N	Easting (x)	434748.8076
Longitude	117° 42′ 0.16″ W	Northing (y)	3673192.8507

Calibrations and Verifications

A series of calibrations and verifications will be performed on the sensors used for acquisition to verify the integrity of the observations used in the navigation system.

DGPS Verification

All survey operations will be performed using Differential GPS. A DGPS verification will be performed before acquisition to ensure the accuracy of the DGPS position relative to an independently derived position.

Heading Sensor Calibration

The survey vessel will have multiple azimuth determination units to define the heading of the vessel. This unit's alignment with the centerline of the vessel must be determined before acquisition starts if the device is to be used for significant offset calculations.

Echosounder Draft Verification

The echosounder draft for the survey vessel will be determined prior to acquisition using a lead line check.

Offset Diagrams

Detailed offset diagrams will be created for the survey vessel. These diagrams will show, at a minimum, the location of the GPS antenna, echosounder transducer, and tow point. Values along crosscable, nominal center of source and paravane offsets will also be determined. Positions will be referenced to the Navigation Reference Point (NRP), which will be the center of stern at the waterline.

Mobilization Report

A Mobilization Report will be delivered after all calibrations and verifications are complete. This report will include all vessel offset diagrams and document the methodology and results of all calibrations and verifications performed.

Acquisition Quality Control

Daily Checks

Prior to the start of each shift the online navigator will follow the *Start of Acquisition Day Checklist.*
Also, in conjunction with every sequence, a *Pre-start of Line Checklist*, and an *End of Line Checklist* will be followed.

DGPS Health

Data acquisition will only be performed using Differential GPS. Upon the loss of differential corrections for more than 10 consecutive shots the Geophysical supervisor will be consulted regarding the temporary halt of data acquisition.

Operational Logs

An electronic log will be kept on a sequence by sequence basis including all relevant information pertaining to the current line/sequence. Also, a Daily Log of relevant daily events will be kept and later transcribed into the *Daily Progress Report*.

Client Supplied Information

The client is responsible for supplying the following information:

- Survey area boundaries
- Line and shot naming convention
- Line spacing
- Shot interval/spacing

Contractor Deliverables

The following files will be delivered by NCS:

- Navigation Line Logs
- UKOOA P2/94 Raw Navigation Files
- UKOOA P1/90 Processed Navigation Files with Processing Reports
- Coverage Maps

Reports

Daily Progress Report

A progress report (DPR) will be submitted daily by the NCS Chief Navigator listing the equipment and personnel on hire as well as survey progress, general QHSE and operational comments.

Mobilization Report

A Mobilization Report will be delivered after completion of all calibrations and verifications. This report will include all vessel offset diagrams and document the methodology and results of all calibrations and verifications performed.

Final Report

A final report will be written at project completion, and it will include, at a minimum, the following:

- Introduction
- Survey parameters
- Chronological summary
- Issues encountered during job

Contact Information

Contact	Position	Office	Mobile	E-mail
Al Hise	President	+1 281 491 3123	+1 832 495 2018	al.hise@ncs-subsea.com
Brian Brookshire	Survey Manager	+1 281 491 3123	+1 832 715 1181	brian.brookshire@ncs-subsea.com
Eddie Majzlik	Technical Manager	+1 281 491 3123	+1 832 528 7813	eddie.majzlik@ncs-subsea.com
Jesus Gaytan	Product Line Manager	+1 281 491 3123	+1 832 538 7815	jesus.gaytan@ncs-subsea.com
Jennifer Jimenez	Human Resources Manager	+1 281 491 3123	+1 713 857 6608	jennifer.jimenez@ncs-subsea.com
Brandon Mattox	Senior Surveyor	+1 281 481 3123	+1 713 392 2977	Brandon.mattox@ncs-subsea.com

NCS Representative Signature _____ Date_____

Client Representative Signature _____ _____ Date_____

445000

450000

3688000

3684000

3680000

N

W

E

S

California

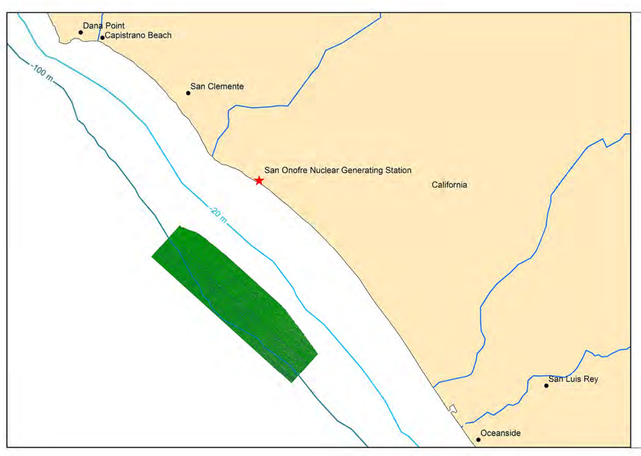
-20 m

-100 m

-400 m

Federal/State Boundary (3 Mile Line)

0 1 2 Kilometers



Notes:

1. Coordinates are referenced to the WGS84 UTM 11N Coordinates System, and units are in meters.

2. This plat represents the Postplots for Box 1 of the 3D P-Cable survey.

Legend

- Fed State Boundary (3 Mile Line)
- 20M Contour
- 100M Contour

Box 1 Bin Grid

Coverage

- 1-2
- 3-5
- 6-7
- 8 or more

SCRIPPS INSTITUTION OF OCEANOGRAPHY
UC San Diego

Subsea Systems, Inc.

West Coast 3D High Res 2013
Box 1 Postplots

NCS SubSea℠

Prepared For: Jesus Gaytan	
Drawing #: 446-003-2013	
Drafted By: AEP	Rev #: 1
CHK By: EMG	Date: 11/13/2013
APP By:	Sheet #: 1 of 1

440000

444000

3685000

3682000

3679000

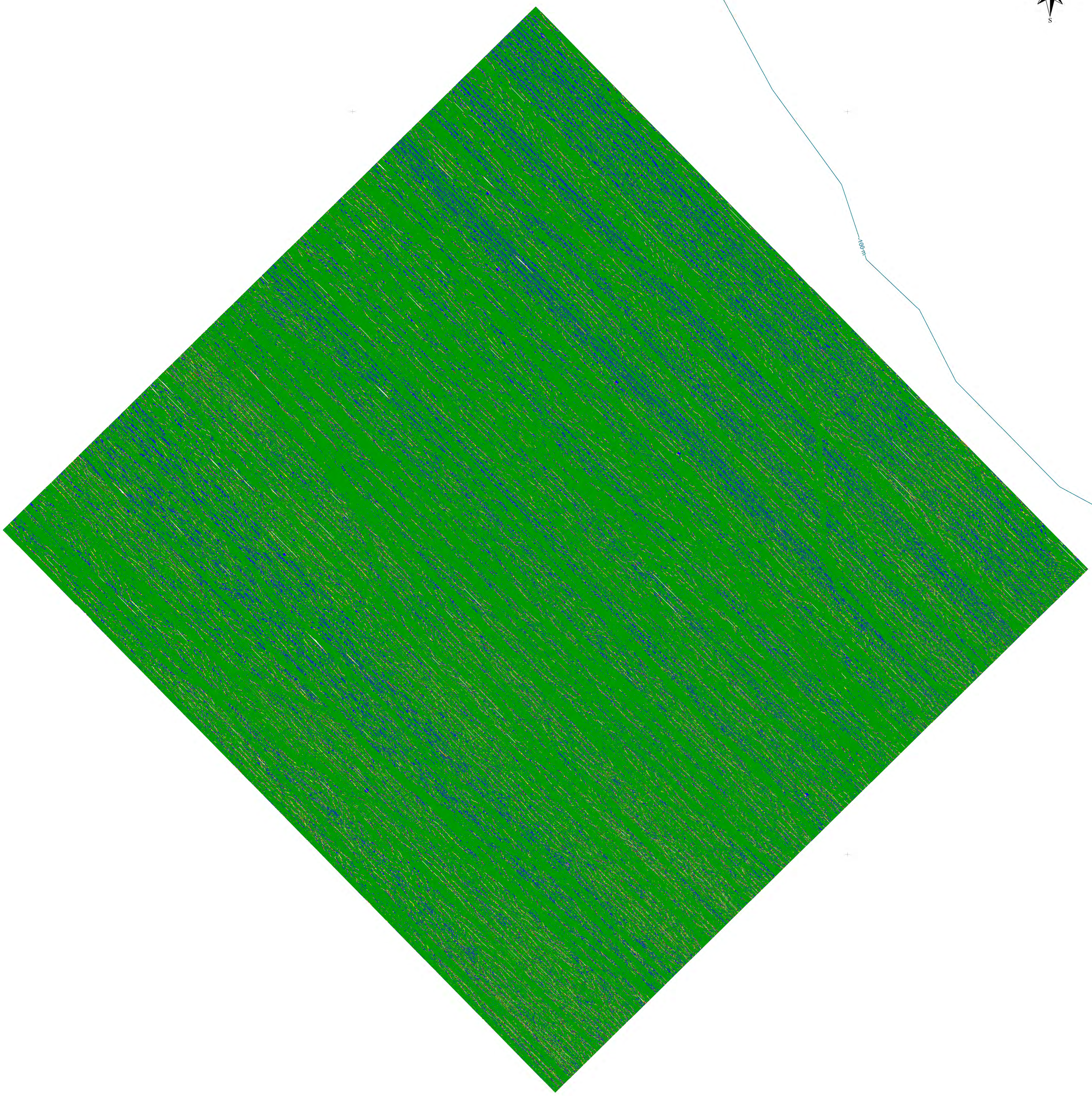
N

W

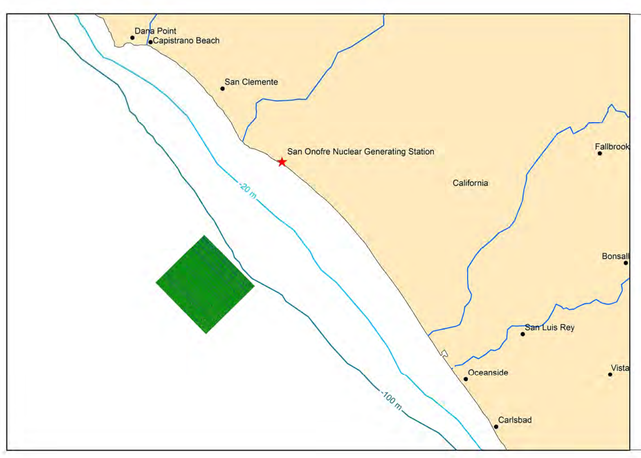
E

S

100 m



0 1 2 Kilometers



Notes:

1. Coordinates are referenced to the WGS84 UTM 11N Coordinates System, and units are in meters.

2. This plat represents the Postplots for Box 2 of the 3D P-Cable survey.

Legend

100M Contour

Box 2 Bin Grid

Coverage

- 1
- 2
- 3
- 4 or more

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UC San Diego

Subsea Systems, Inc.

West Coast 3D High Res 2013
Box 2 Postplots

NCS SubSea SM

Prepared For: Jesus Gaytan	
Drawing #: 446-004-2013	
Drafted By: AEP	Rev #: 1
CHK By: EMG	Date: 11/13/2013
APP By:	Sheet #: 1 of 1

Appendix C5: NCS Postplot Maps