Report No. 555863-001 **No. of Pages: 65**

TEST REPORT

ON

SNP CAMERA SYSTEMS

For

SAMSUNG TECHWIN AMERICA

Date: September 16, 2015

Prepared By: Matthew Wood
Product Test Manager

Checked By: Donald R. Zoon
Test Engineer

Signed: Signature on File

Date: 9/17/15

Signed: Signature on File

Date: 9/17/15

ISO 9001:2008

ADMINISTRATIVE DATA

1.0 **PURPOSE**: To subject the Camera Systems to NEMA TS-2 and Wind Load testing.

2.0 **MANUFACTURER**: Samsung Techwin America
100 Challenger Road Suite 700
Ridgefield Park, NJ 07600

3.0 **TEST ITEM IDENTIFICATION**: Camera Systems consisting of:

Cameras	Power Supplies
Samsung SNP-5430HN S/N KHUY6V2FA0001PR	Moog PB24BB S/N062293 S/N (NA) Temperature, Vibration and Shock Tests
Samsung SNP-6320HN S/N KHUX6V2FC0003LA	Moog Reg ID PB24 FAC ID SIS0001 2 units, no labels

4.0 **SPECIFICATIONS**: NEMA TS2
FDOT 682 Rev 4

5.0 **QUANTITY OF ITEMS TESTED**: 6 Units

6.0 **SECURITY CLASSIFICATION**: Unclassified

7.0 **DATE TEST COMPLETED**: August 13, 2015

8.0 **TEST CONDUCTED BY**: Tektronix
1133 Route 23 South
Wayne, NJ 07470

9.0 **DISPOSITION OF TEST ITEMS**: Returned

10.0 **ABSTRACT**: Testing performed consisted of Wind Loading, Transient Immunity of AC Power Service, Temperature & Humidity, Vibration and Shock. The applied conditions, methodology of test, and testing results are detailed in the following pages. Throughout testing, operational verification of the units was confirmed by monitoring the supplied laptop.

The Camera Systems completed the prescribed Conformance Testing with no discrepancies noted.

LIST OF APPARATUS

ITEM	MANUFACTURER	MODEL NO.	**Calibration** DATE	DUE DATE
Vibration System	Unholtz-Dickie	T508S	External Equipment	
Vibration System	LDS	V8	External Equipment	
Charge Amplifier	Endevco	133	3/11/15	3/11/16
Vibration Controller	Unholtz-Dickie	APEX	5/28/15	5/28/16
Accelerometer	Endevco	2224C	10/13/14	10/13/15
Accelerometer	Endevco	2226C	2/9/15	2/9/16
Multimeter	Fluke	79	10/21/14	10/21/15
Oscilloscope	Tektronix	2465	7/22/15	7/22/16
Temp/Humidity Chamber	Thermotron	SM16	7/28/14	7/28/15*
Stop Watch	Heuer	1010	5/1/15	5/1/16
Wind Gage	Magnahalic	2625	2/17/15	2/17/16
Stop Watch	Radio Shack	63-5013	12/16/14	12/16/15
High Repetition Transient Generator	Mertronics	NA	External Equipment	
Transient Generator	Mertronics	NA	External Equipment	
Power Supply	ISCO	494	External Equipment	
Blower	SonicAir	11635	External Equipment	

*used from 6/26/15 to 6/30/15

WIND LOADING

The Wind Load Test was performed in accordance with FDOT SPEC 682 rev 4.

Conditions:
Line Input Voltage: **Non-operating**

Procedure:
1. Mount the unit to the individual mount, refer to figures 1 and 2.
2. Subject each unit to the following wind loads

Mph	Duration in minutes
120	10
150	5
120	15
150	5
120	20
150	5

3. Verify that test unit exhibits no damage as a result of the wind loading..

TEST RESULTS

The units exhibited no damage a result of the wind load test.

FUNCTIONAL VERIFICATION and OPERATING VOLTAGE

The Functional Verification and Operating Voltage Tests were performed in accordance with TMIB UMRR-0F Test Plan NEMA TS-2 2003 dated December 15, 2014.

Conditions:
Line Input Voltage: **120V, 60Hz +- 3Hz to AC inputs**

Procedure:

4. Apply nominal input power and ensure video is showing on the screen.
5. Vary the voltage between 89 VAC and 135 VAC.
6. Verify that test unit continues to operate without malfunction during the entire test.

TEST RESULTS

The system was found to operate properly across the prescribed range of tests.

LOW TEMPERATURE TESTS

The low temperature tests were performed in accordance with NEMA TS-2 2003.

The units were placed in the test chamber.

Conditions:

Applied Input Voltage:	**89 VAC**
Temperature:	**-34°C**
Humidity:	**Uncontrolled**
Unit Status:	**Powered & operating in chamber**

Procedure:

1. Beginning at ambient conditions, set input voltage to specified level and confirm correct operation.
2. With unit operating, ramp chamber temperature to -34°C at a rate not exceeding 17°C per hour.
3. Allow unit to operate for a minimum of 5 hours before exercising functions to determine that unit is operable.
4. Remove power from unit for a minimum of 5 hours
5. Restore power to unit and perform Functional /Operational tests.

Conditions:

Applied Input Voltage:	**135 VAC**
Temperature:	**-34°C**
Humidity:	**Uncontrolled**
Unit Status:	**Powered & operating in chamber**

Procedure:

1. With unit stabilized at -34°C, set input voltage to specified level and confirm correct operation.
2. Allow unit to operate for a minimum of 1 hour.
3. Perform Functional /Operational tests as applicable.

TEST RESULTS

The systems did not power up at 89VAC after the 5 hour hold with no power applied. The units operated when 120VAC was applied, power was adjusted to 135 VAC and testing was continued.

Each system was found to operate properly across the prescribed range of tests at the completion of the cold soak.

Refer to figure 3 for a copy of the applied conditions.

HIGH TEMPERATURE TESTS

The high temperature tests were performed in accordance with NEMA TS-2 2003.

Conditions:

Applied Input Voltage:	**135 VAC**
Temperature:	**+74°C**
Humidity:	**18% (not to exceed 95% during ramps)**
Unit Status:	**Powered & operating in chamber**

Procedure:

1. With unit operating, ramp chamber temperature to +74°C at a rate not exceeding 17°C per hour with humidity at 18%.
2. Maintain temperature and humidity conditions and allow unit to operate for a minimum of 15 hours before exercising functions to determine that unit is operable.
3. Perform Functional /Operational tests as applicable.

Conditions:

Applied Input Voltage:	**89 VAC**
Temperature:	**+74°C**
Humidity:	**18%**
Unit Status:	**Powered & operating in chamber**

Procedure:

1. With unit stabilized at +74°C, set input voltage to specified level and confirm correct operation.
2. Perform Functional /Operational tests as applicable to confirm proper operation.
3. Ramp chamber temperature to room ambient at a rate not exceeding 17°C per hour.
4. Allow unit to stabilize at ambient condition for one hour before removing from chamber.
5. Verify that the unit powers up and is able to function normally.

TEST RESULTS

The SNP-6320H system had a display but the controls did not operate properly while the voltage was at 89VAC and 120VAC. The unit started to operate properly at 55°C.

The 5430HN system was found to operate properly across the prescribed range of tests throughout the high temperature test.

Each system was found to operate properly across the prescribed range of tests at the completion of testing.

Refer to figure 3 for a copy of the applied conditions.

VIBRATION TEST

TEST PROCEDURE

The vibration test was performed in accordance with NEMA TS-2 2003.

The units were mounted to the vibration machine as shown in figures 4 through 12. During the test the unit was not operating.

Each unit was subjected to a resonant search in each axis at the following conditions:

Frequency Range:	**5 - 30Hz**
Displacement Level:	**0.015 inch DA**
Number of Sweeps:	**1**
Sweep Duration:	**12.5 minutes**
Number of axis:	**3 (X, Y & Z)**

The units were then vibrated for 1 hour in each axis at 30 hz or at the resonant condition at the following conditions:

Frequency Range:	**5 - 30Hz (Per results of Resonant Search)**
Acceleration Level:	**0.5g**
Dwell Duration:	**1 hour per each axis**
Number of axis:	**3 (X, Y & Z)**

Refer to Appendix 1 for vibration data.

TEST RESULTS

Post-vibration evaluation revealed no physical or cosmetic damage to the test units.

SHOCK TEST

TEST PROCEDURE

The shock test was performed in accordance NEMA TS-2 2003.

The unit was mounted to the vibration machine as shown in figures 4 through 12. During the test the unit was not operating.

Each unit was subjected to the following conditions:

Shock Amplitude:	**10 g's**
Shock Duration:	**10 msec**
Waveform:	**Half-sine**
Number of axis:	**3 (X, Y & Z)**
Number shocks per Orientation:	**2 (one in each direction)**
Total Shocks:	**6**

Refer to Appendix 2 for shock data.

TEST RESULTS

Post-shock evaluation revealed no physical or cosmetic damage to the test units.

Each system was found to operate properly across the prescribed range of tests after the shock test was completed.

TRANSIENT IMMUNITY

The High-Repetition Transient Test was performed in accordance with NEMA TS-2 2003.

Conditions:

Line Input Voltage:	**120V, 60Hz +- 3Hz to AC inputs**
Transient Amplitude:	**300 volts +- 5%**
Transient Polarity:	**Positive and Negative**
Pulse Width:	**10 µs**
Peak Power:	**2,500 watts**
Duration – “Dwell”:	**5 Minutes (each polarity)**

Procedure:

7. Apply nominal input power and program unit to Dwell.
8. Superimpose high-repetition noise transients on the AC input of the unit under test (1 pulse every other cycle, moving uniformly over the full wave to sweep across 360 degrees of the line cycle once every 3 seconds.).
9. Verify that test unit continues to operate without malfunction during the entire test.

TEST RESULTS

Each system was found to operate properly across the prescribed range of tests.

TRANSIENT IMMUNITY, Low Repetition High Energy

The Low-Repetition Transient Test was performed in accordance with NEMA TS-2 2003.

Conditions:

Line Input Voltage:	**120V, 60Hz +- 3Hz to AC inputs**
Transient Amplitude:	**600 volts +- 5%**
Transient Polarity:	**Positive and Negative**
Repetitions:	**10 (each polarity)**
Energy Source:	**Capacitor, oil-filled (10 microfarads)**

Procedure:

1. Apply nominal input power and operate unit in dwell and cycle modes as per the customer's procedure.
2. Charge the capacitor to prescribed voltage and discharge into the AC input of the unit under test (1 discharge every 10 seconds for a total of 10 discharges per polarity.).
3. Verify that test unit continues to operate without malfunction.

TEST RESULTS

Each system was found to operate properly across the prescribed range of tests.

TRANSIENT IMMUNITY, Non-Destruct

The Low-Repetition Transient Test was performed in accordance with NEMA TS-2 2003.

Conditions:

Line Input Voltage:	**0 VAC**
Transient Amplitude:	**1000 volts +- 5%**
Transient Polarity:	**Positive and Negative**
Repetitions:	**3 (each polarity)**
Energy Source:	**Capacitor, oil-filled (15 microfarads)**

Procedure:

1. Charge capacitor to prescribed voltage and discharge into the AC input of the unit under test (1 discharge every 2 seconds for a total of 3 discharges per polarity.).
2. Verify that test unit operates without malfunction.
3. Perform a loopback test.

TEST RESULTS

Each system was found to operate properly after the prescribed range of tests.

Figure 1
Wind Load Test Setup

Figure 2
Wind Load Test Setup

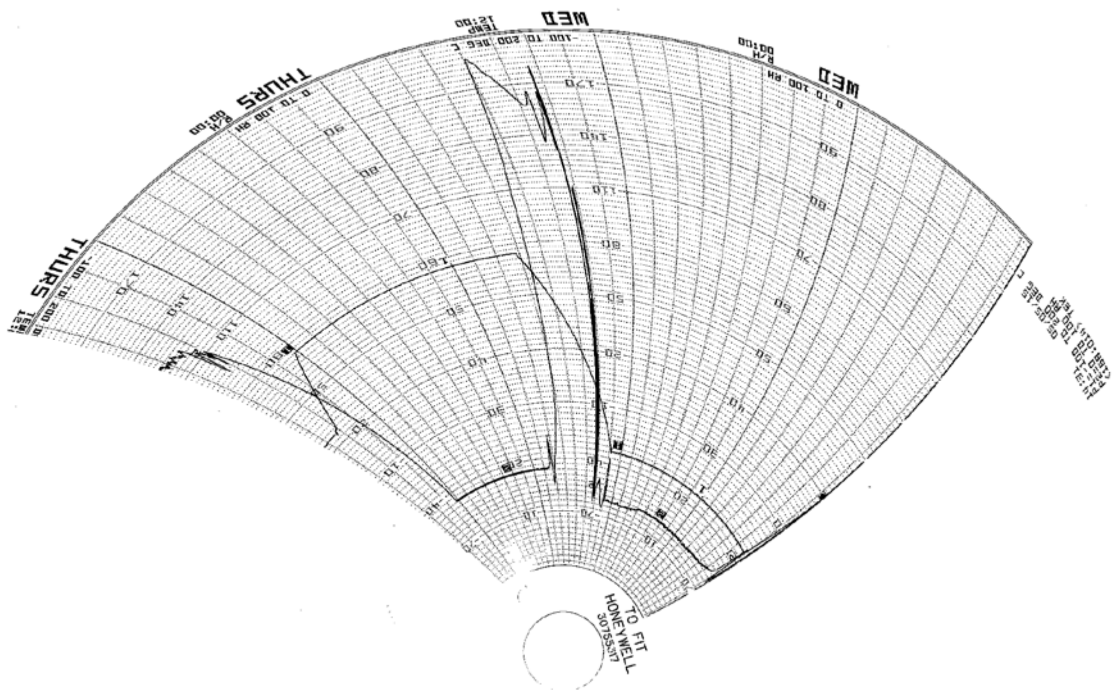


Figure 3
Temperature/Humidity Chart
Typical Conditions

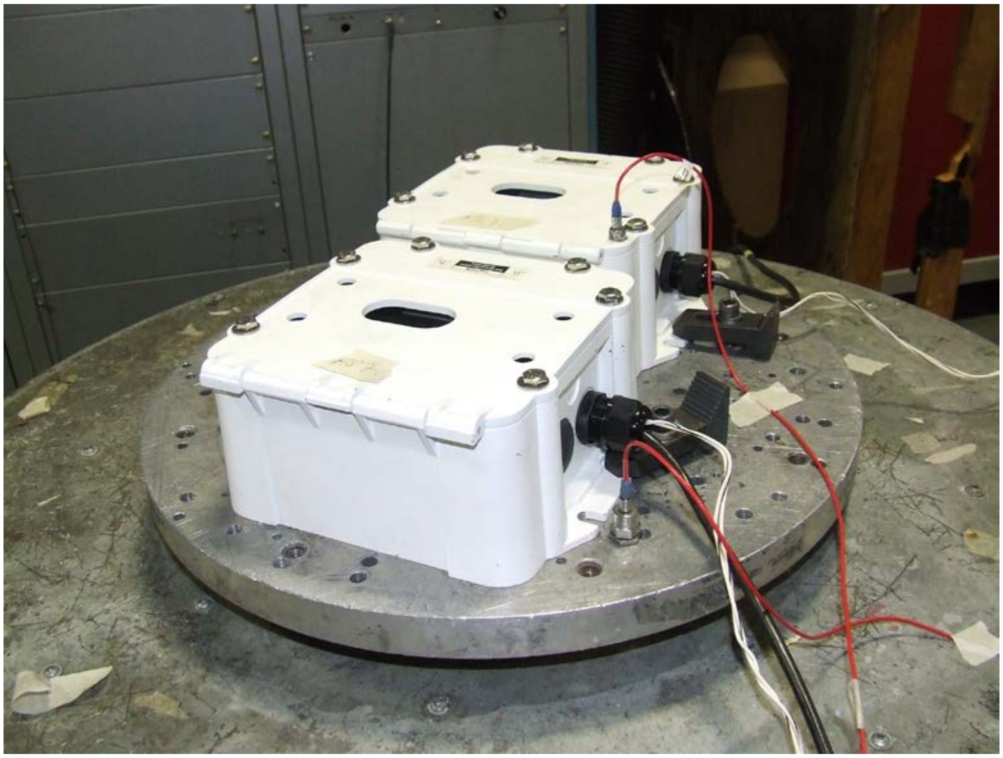


Figure 4
Vertical Vibration and Shock Test Setup

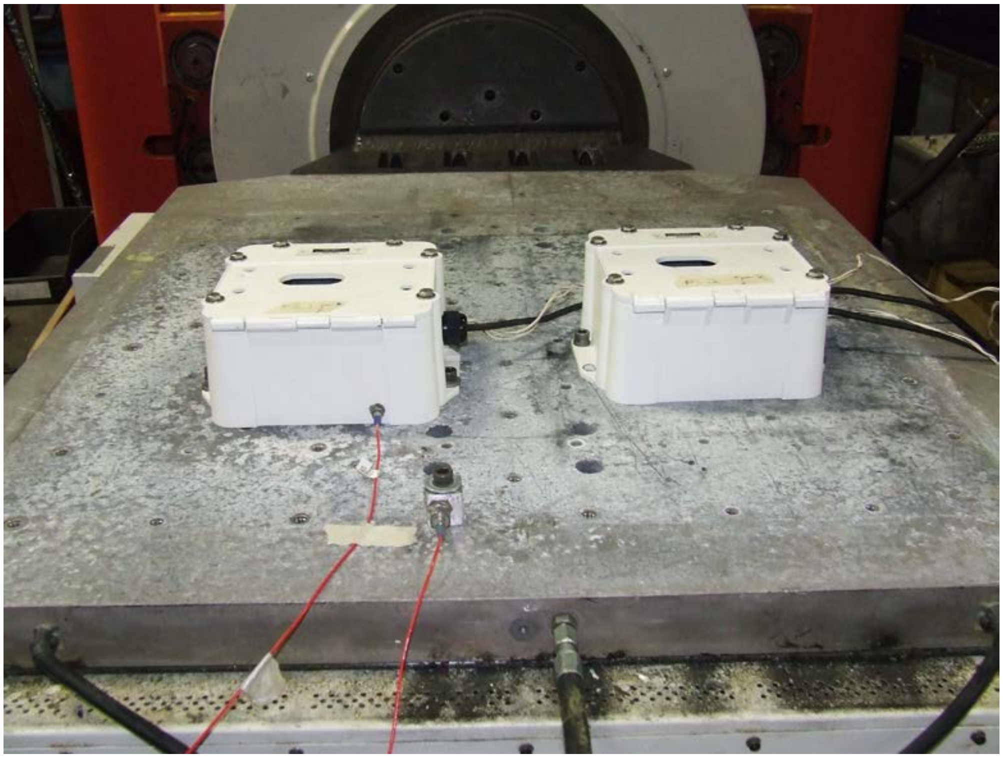


Figure 5
Lateral Vibration and Shock Test Setup

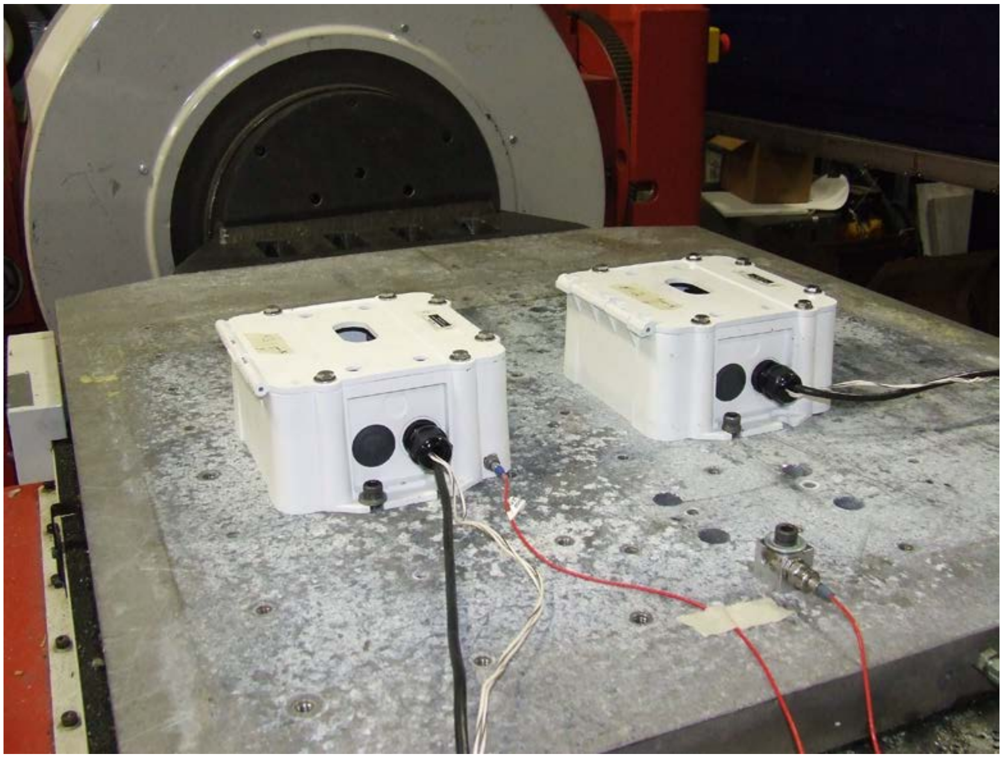


Figure 6
Longitudinal Vibration and Shock Test Setup

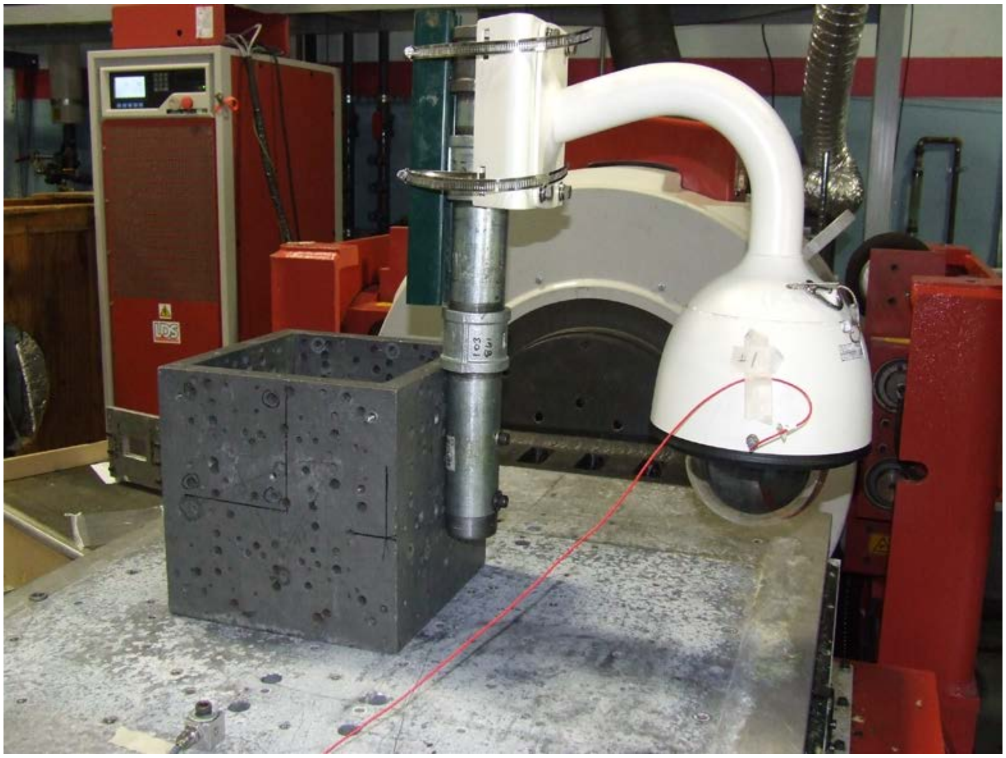


Figure 7
Longitudinal Vibration and Shock Test Setup

Figure 8
Vertical Vibration and Shock Test Setup

Figure 9
Longitudinal Vibration and Shock Test Setup

Figure 10
Vertical Vibration and Shock Test Setup

Figure 11
Longitudinal Vibration and Shock Test Setup

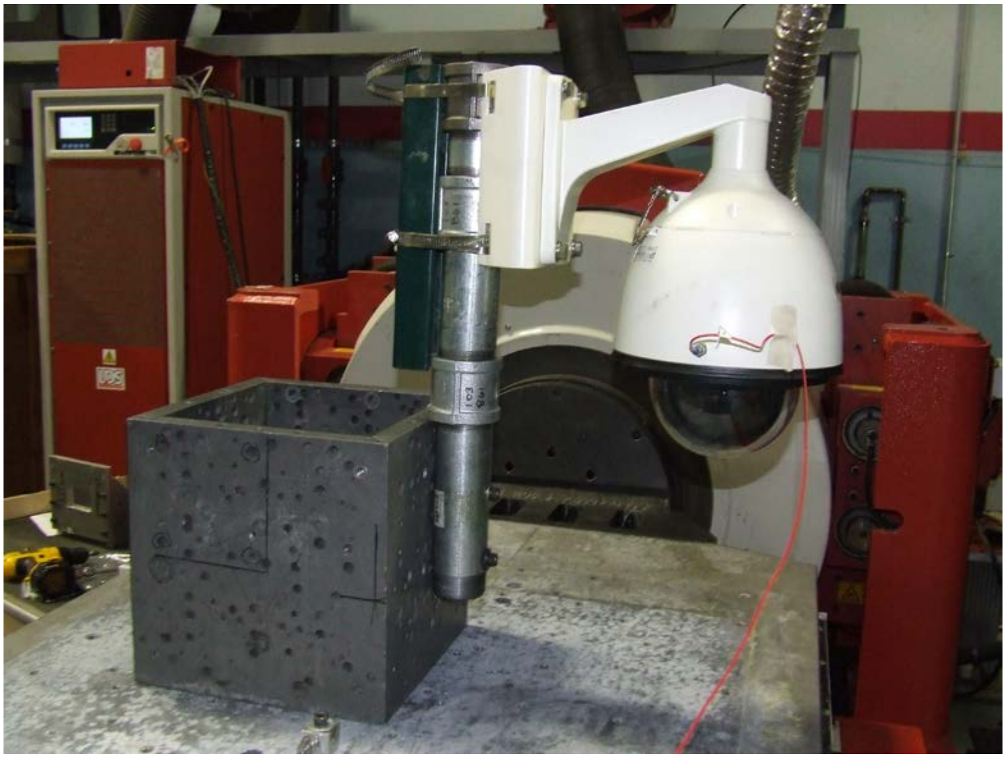
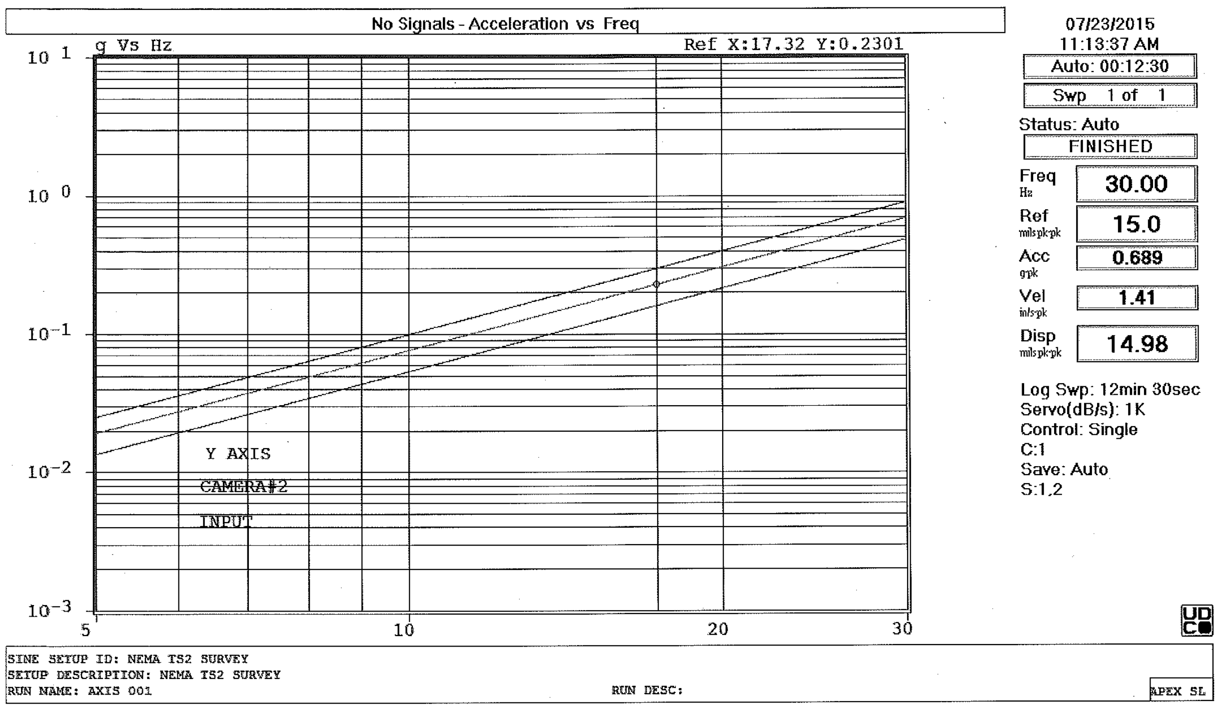
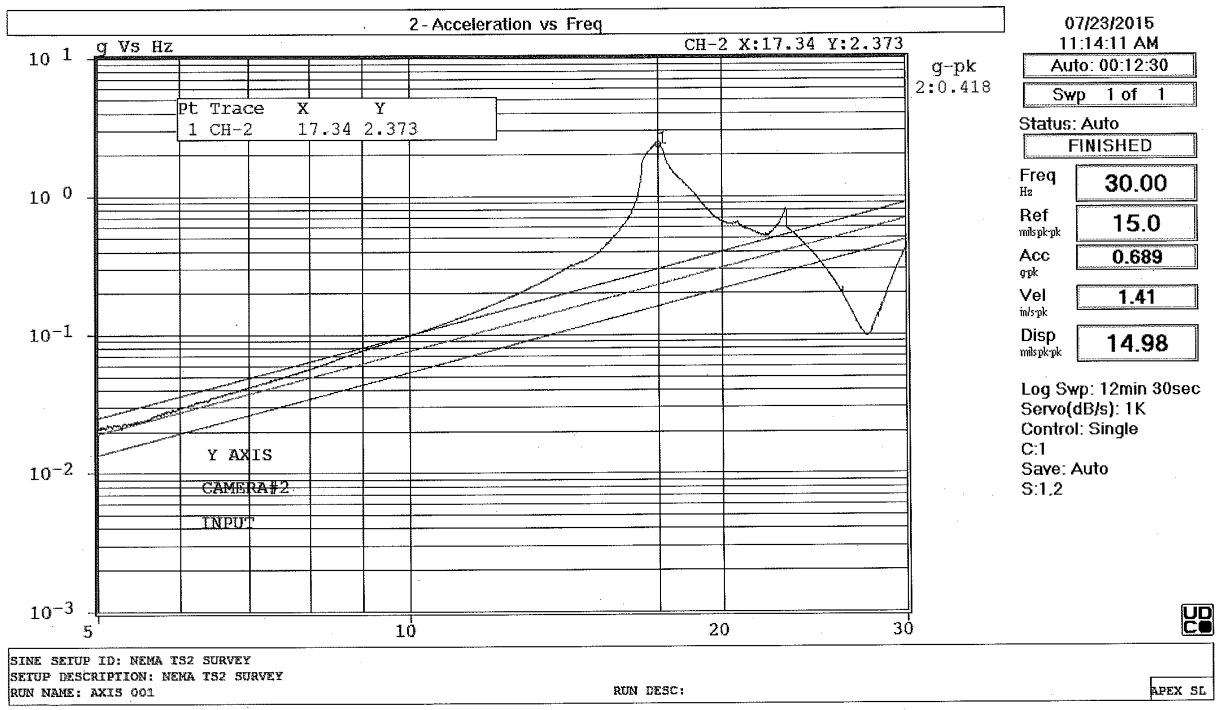


Figure 12
Lateral Vibration and Shock Test Setup

Appendix 1
Vibration Plots


No Signals - Acceleration vs Freq
g Vs Hz
Ref X:17.32 Y:0.2301
10 1
10 0
10-1
10-2
10-3
5
10
20
30
Y AXIS
CAMERA#2
INPUT
07/23/2015
11:13:37 AM
Auto: 00:12:30
Swp 1 of 1
Status: Auto
FINISHED
Freq Hz 30.00
Ref mils pk-pk 15.0
Acc g-pk 0.689
Vel in/s-pk 1.41
Disp mils pk-pk 14.98
Log Swp: 12min 30sec
Servo(dB/s): 1K
Control: Single
C:1
Save: Auto
S:1,2
SINE SETUP ID: NEMA TS2 SURVEY
SETUP DESCRIPTION: NEMA TS2 SURVEY
RUN NAME: AXIS 001
RUN DESC:
APEX SL


2 - Acceleration vs Freq
g Vs Hz
CH-2 X:17.34 Y:2.373
g-pk
2:0.418
Pt Trace X Y
1 CH-2 17.34 2.373
Y AXIS
CAMERA#2
INPUT
07/23/2015
11:14:11 AM
Auto: 00:12:30
Swp 1 of 1
Status: Auto
FINISHED
Freq Hz 30.00
Ref mils pk-pk 15.0
Acc g-pk 0.689
Vel in/s-pk 1.41
Disp mils pk-pk 14.98
Log Swp: 12min 30sec
Servo(dB/s): 1K
Control: Single
C:1
Save: Auto
S:1,2
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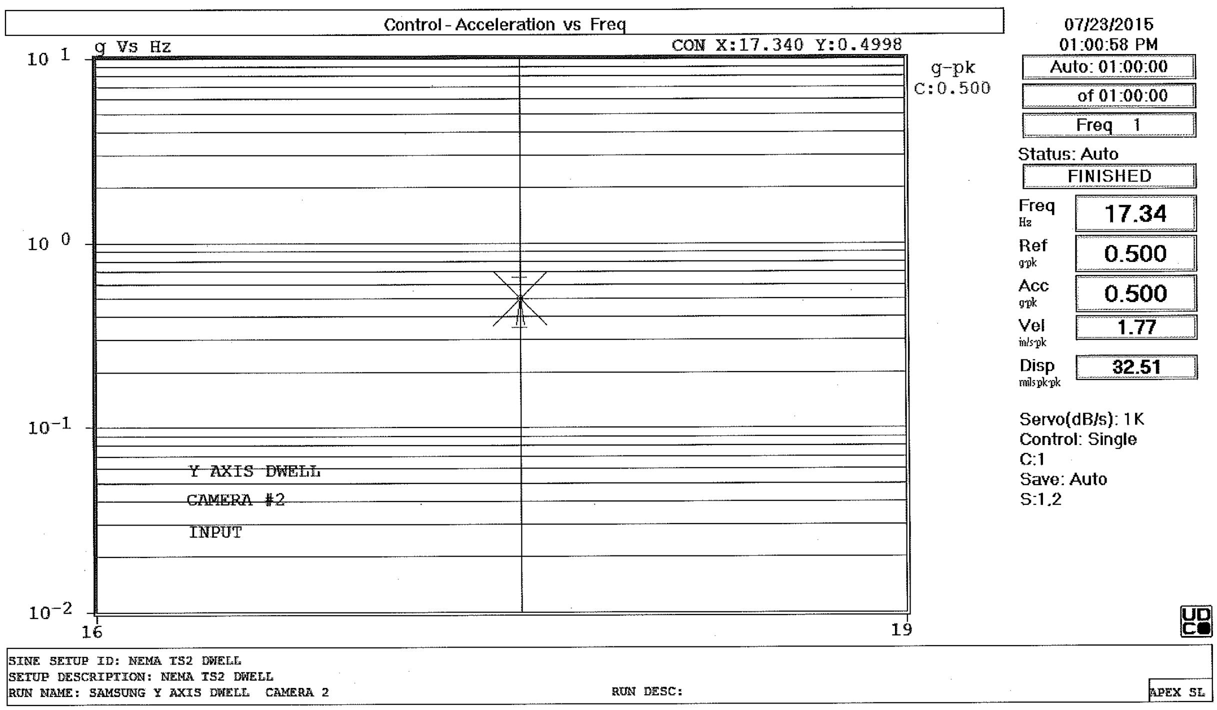
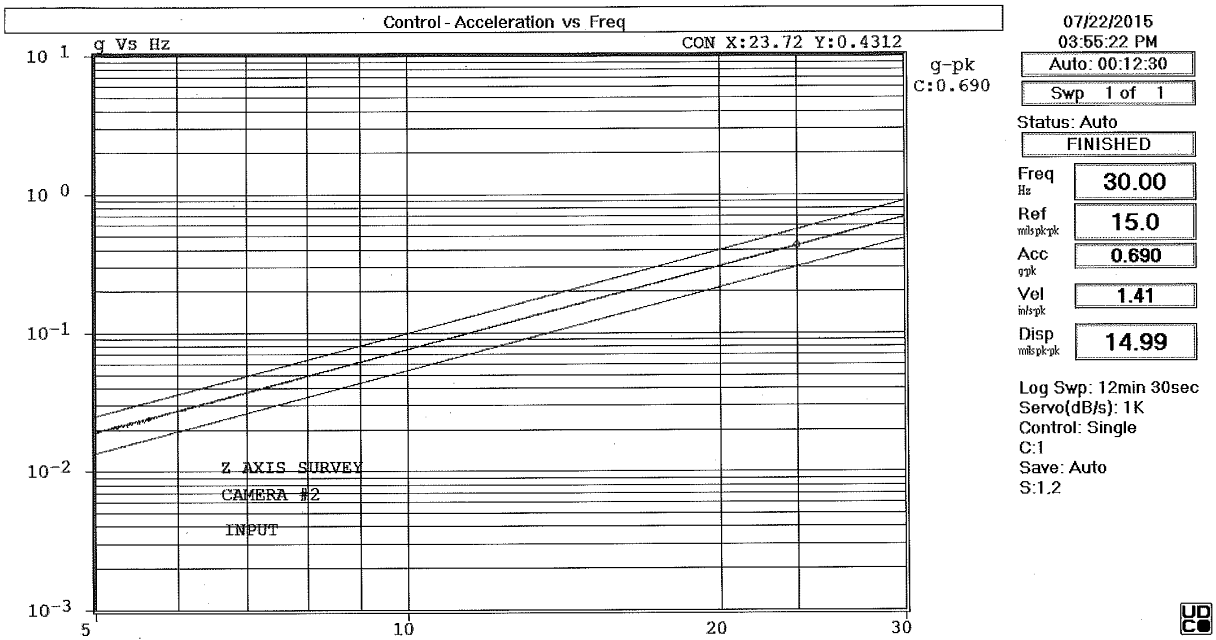
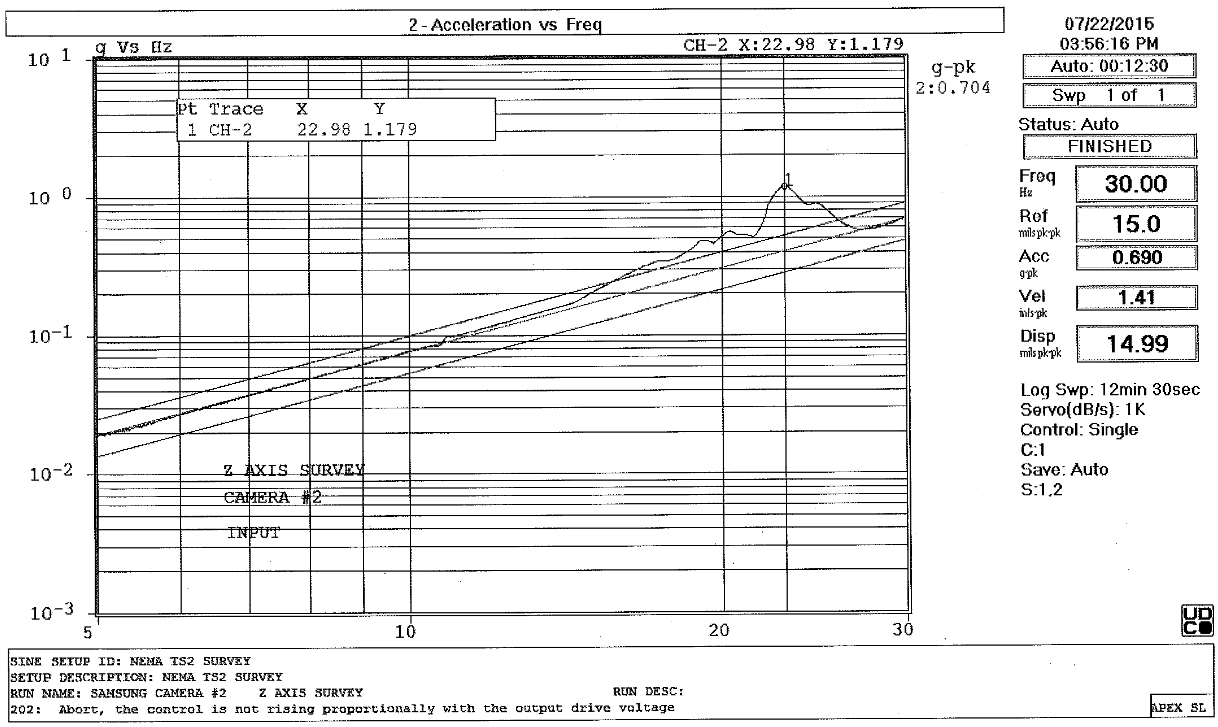
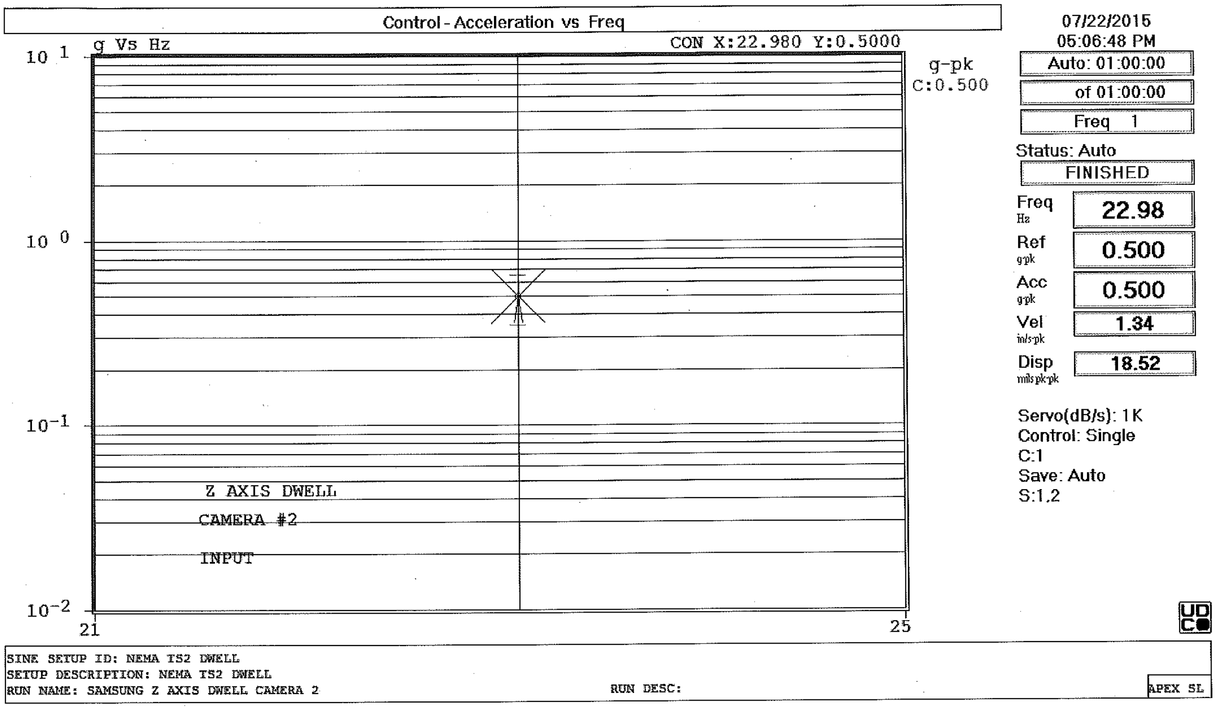
SETUP DESCRIPTION: NEMA TS2 SURVEY
RUN NAME: AXIS 001
RUN DESC:
APEX SL

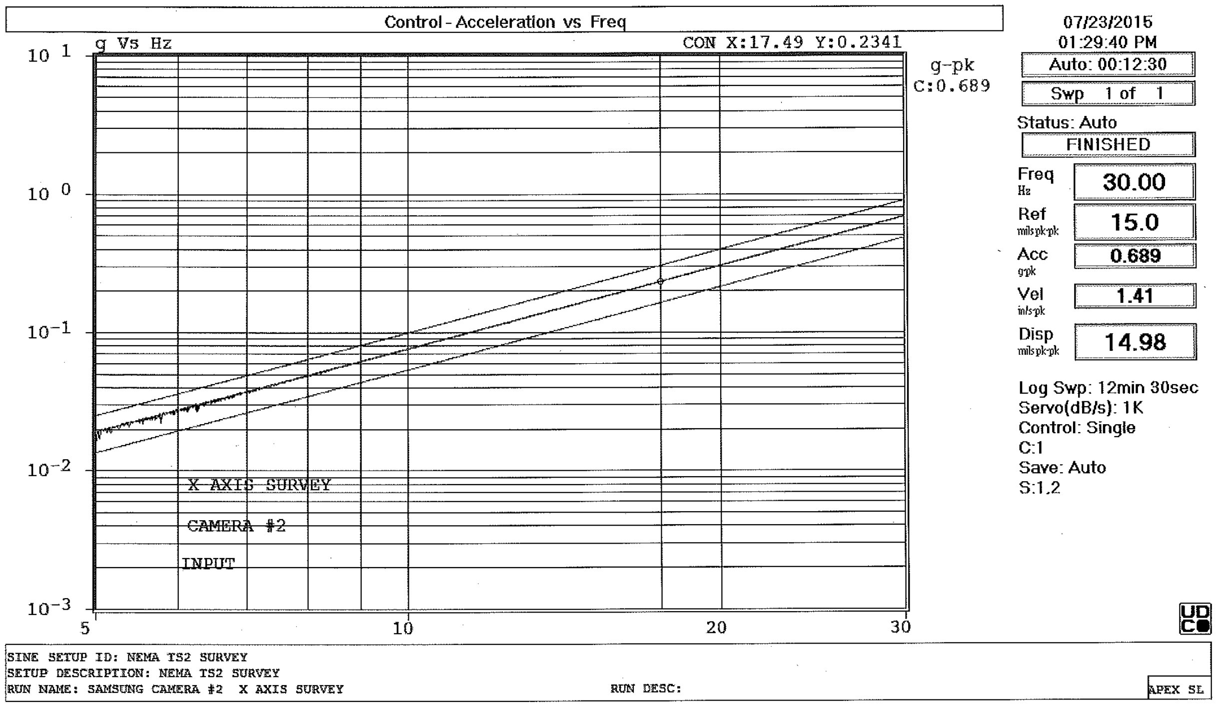

Control - Acceleration vs Freq
g Vs Hz
CON X:17.340 Y:0.4998
g-pk
C:0.500
10 1
10 0
10-1
10-2
16
19
Y AXIS DWELL
CAMERA #2
INPUT
07/23/2015
01:00:58 PM
Auto: 01:00:00
of 01:00:00
Freq 1
Status: Auto
FINISHED
Freq Hz 17.34
Ref g-pk 0.500
Acc g-pk 0.500
Vel in/s-pk 1.77
Disp mils pk-pk 32.51
Servo(dB/s): 1K
Control: Single
C:1
Save: Auto
S:1,2
SINE SETUP ID: NEMA TS2 DWELL
SETUP DESCRIPTION: NEMA TS2 DWELL
RUN NAME: SAMSUNG Y AXIS DWELL CAMERA 2
RUN DESC:
APEX SL

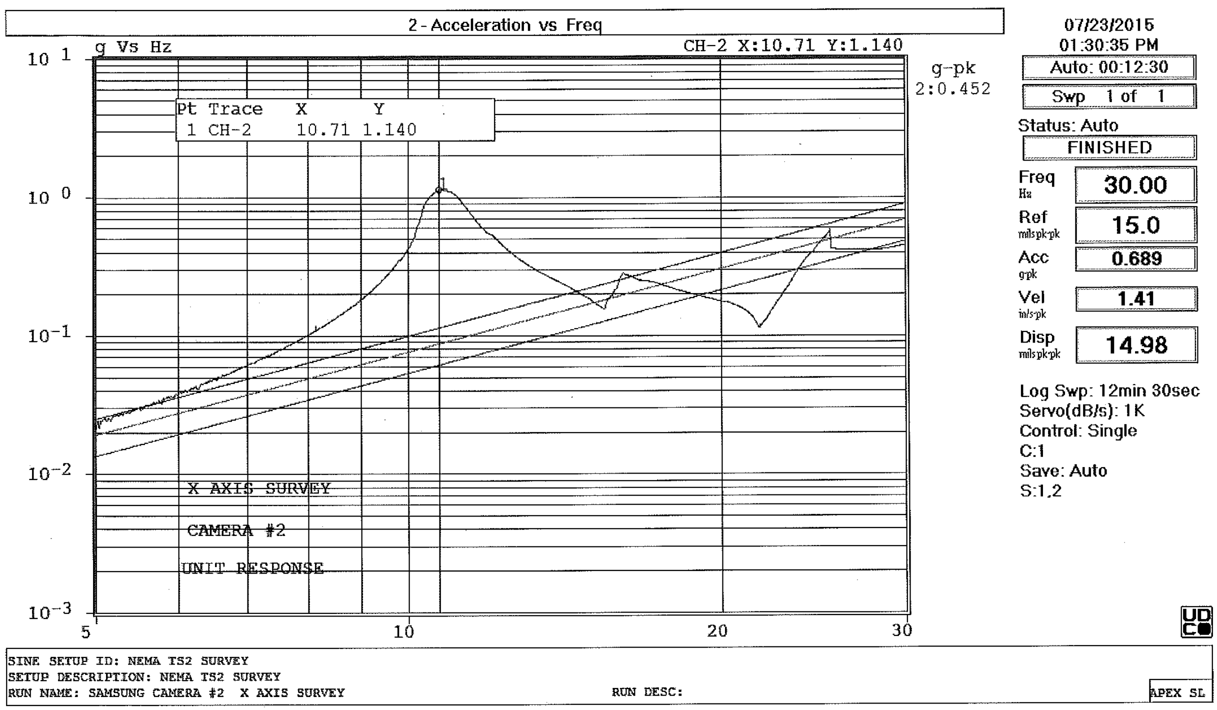


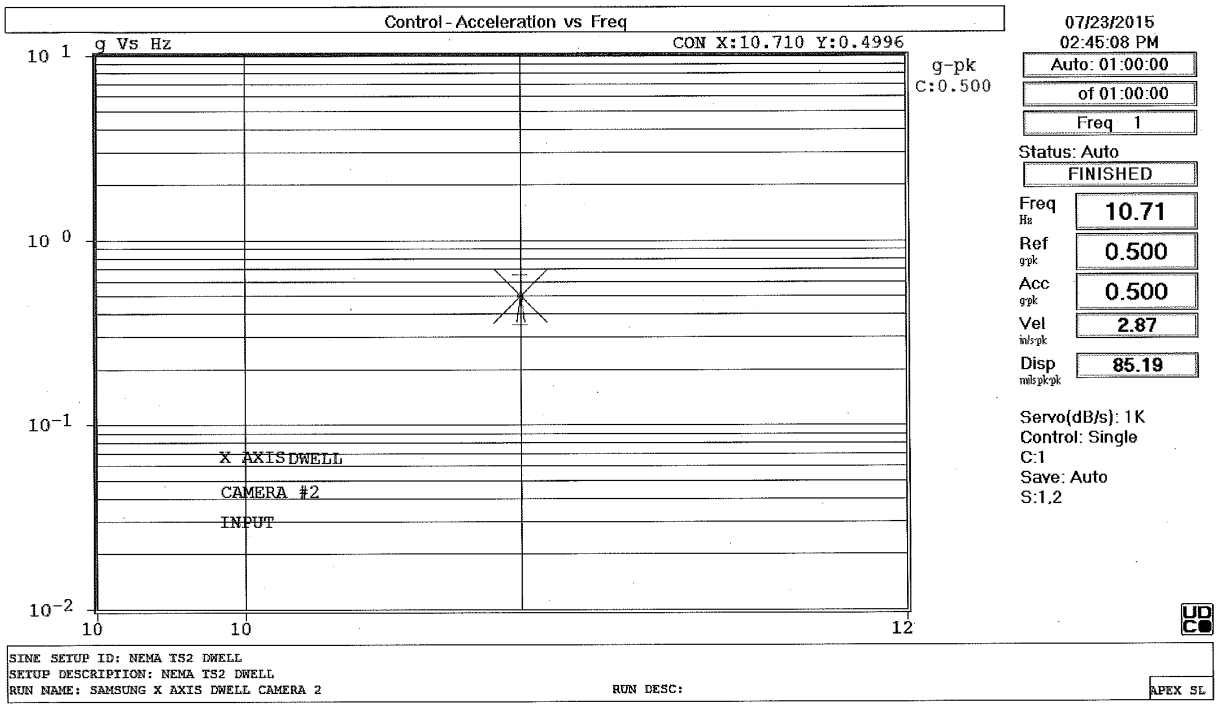
SINE SETUP ID: NEMA TS2 SURVEY
SETUP DESCRIPTION: NEMA TS2 SURVEY
RUN NAME: SAMSUNG CAMERA #2 Z AXIS SURVEY RUN DESC:
202: Abort, the control is not rising proportionally with the output drive voltage
APEX SL


2 - Acceleration vs Freq
g Vs Hz
CH-2 X:22.98 Y:1.179
Pt Trace X Y
1 CH-2 22.98 1.179
g-pk
2:0.704
Z AXIS SURVEY
CAMERA #2
INPUT
07/22/2015
03:56:16 PM
Auto: 00:12:30
Swp 1 of 1
Status: Auto
FINISHED
Freq Hz 30.00
Ref mils pk-pk 15.0
Acc g-pk 0.690
Vel in/s-pk 1.41
Disp mils pk-pk 14.99
Log Swp: 12min 30sec
Servo(dB/s): 1K
Control: Single
C:1
Save: Auto
S:1,2
SINE SETUP ID: NEMA TS2 SURVEY
SETUP DESCRIPTION: NEMA TS2 SURVEY
RUN NAME: SAMSUNG CAMERA #2 Z AXIS SURVEY
RUN DESC:
202: Abort, the control is not rising proportionally with the output drive voltage
APEX SL

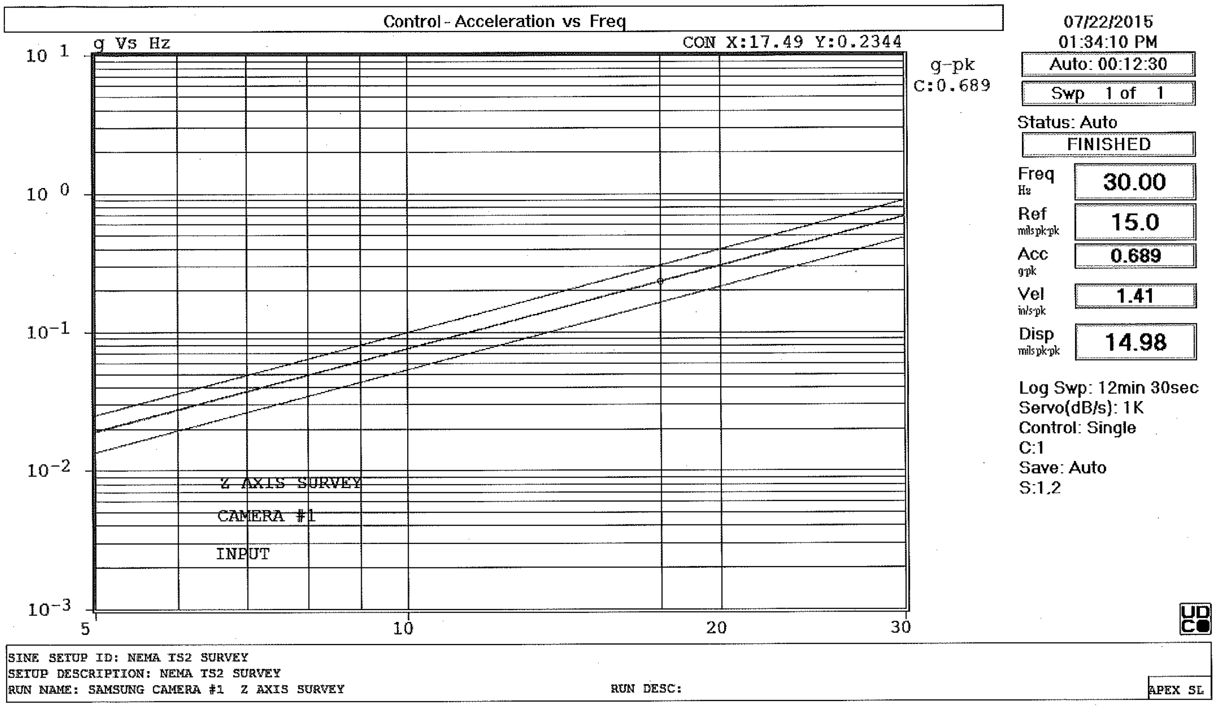

Control - Acceleration vs Freq
g Vs Hz
CON X:22.980 Y:0.5000
g-pk
C:0.500
07/22/2015
05:06:48 PM
Auto: 01:00:00
of 01:00:00
Freq 1
Status: Auto
FINISHED
Freq Hz 22.98
Ref g-pk 0.500
Acc g-pk 0.500
Vel in/s-pk 1.34
Disp mils pk-pk 18.52
Servo(dB/s): 1K
Control: Single
C:1
Save: Auto
S:1,2
Z AXIS DWELL
CAMERA #2
INPUT
21
25
SINE SETUP ID: NEMA TS2 DWELL
SETUP DESCRIPTION: NEMA TS2 DWELL
RUN NAME: SAMSUNG Z AXIS DWELL CAMERA 2
RUN DESC:
APEX SL

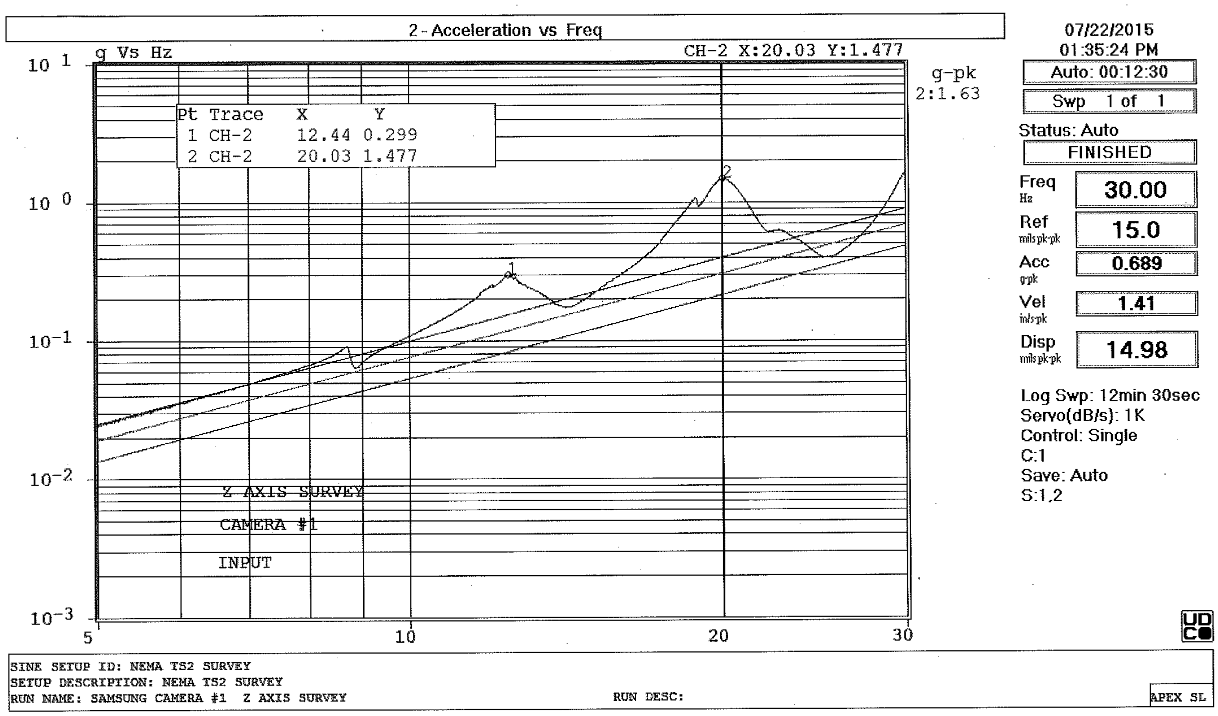

Control - Acceleration vs Freq
g Vs Hz
CON X:17.49 Y:0.2341
g-pk
C:0.689
07/23/2015
01:29:40 PM
Auto: 00:12:30
Swp 1 of 1
Status: Auto
FINISHED
Freq Hz 30.00
Ref mils pk-pk 15.0
Acc g-pk 0.689
Vel in/s-pk 1.41
Disp mils pk-pk 14.98
Log Swp: 12min 30sec
Servo(dB/s): 1K
Control: Single
C:1
Save: Auto
S:1,2
X AXIS SURVEY
CAMERA #2
INPUT
SINE SETUP ID: NEMA TS2 SURVEY
SETUP DESCRIPTION: NEMA TS2 SURVEY
RUN NAME: SAMSUNG CAMERA #2 X AXIS SURVEY
RUN DESC:
APEX SL

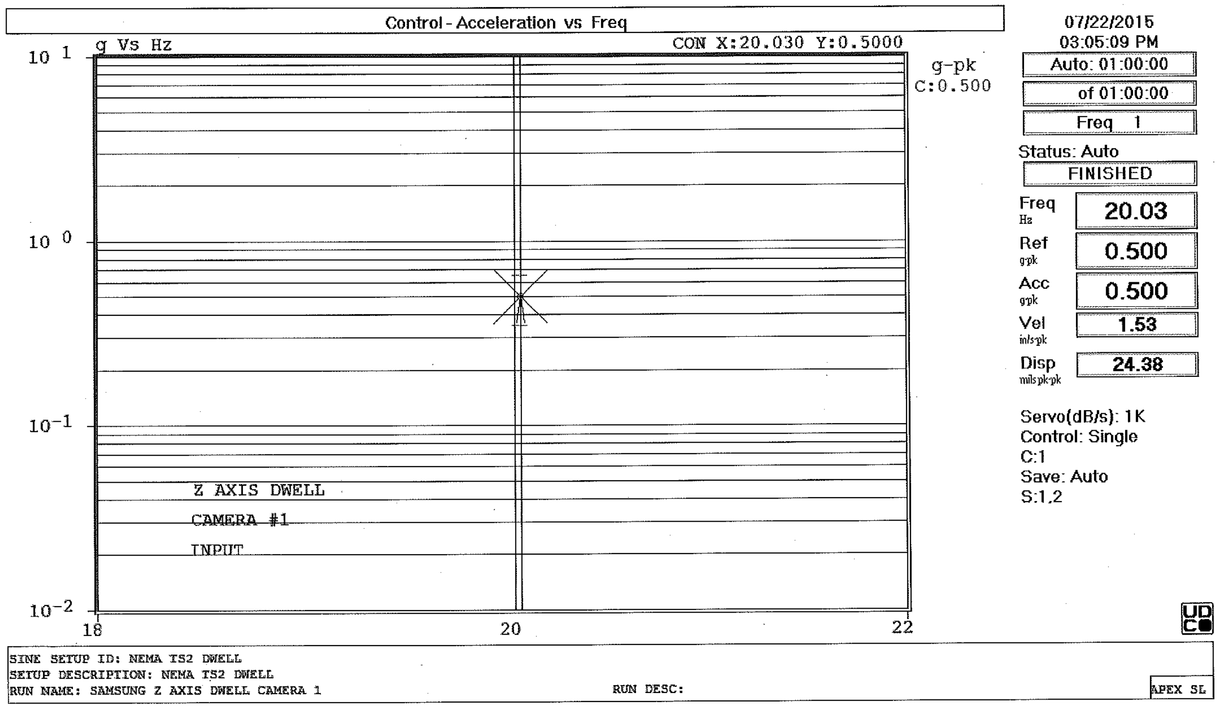

2 - Acceleration vs Freq
g Vs Hz
CH-2 X:10.71 Y:1.140
g-pk
2:0.452
Pt Trace X Y
1 CH-2 10.71 1.140
X AXIS SURVEY
CAMERA #2
UNIT RESPONSE
07/23/2015
01:30:35 PM
Auto: 00:12:30
Swp 1 of 1
Status: Auto
FINISHED
Freq Hz 30.00
Ref mils pk-pk 15.0
Acc g-pk 0.689
Vel in/s-pk 1.41
Disp mils pk-pk 14.98
Log Swp: 12min 30sec
Servo(dB/s): 1K
Control: Single
C:1
Save: Auto
S:1,2
SINE SETUP ID: NEMA TS2 SURVEY
SETUP DESCRIPTION: NEMA TS2 SURVEY
RUN NAME: SAMSUNG CAMERA #2 X AXIS SURVEY
RUN DESC:
APEX SL

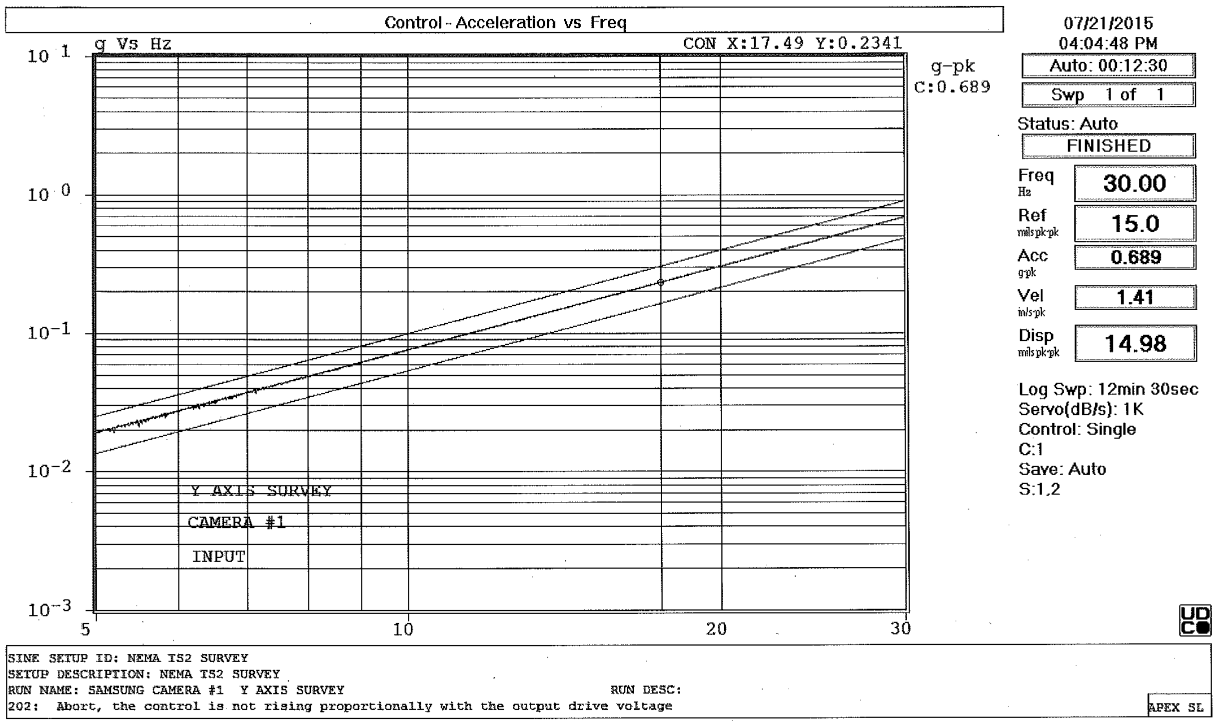


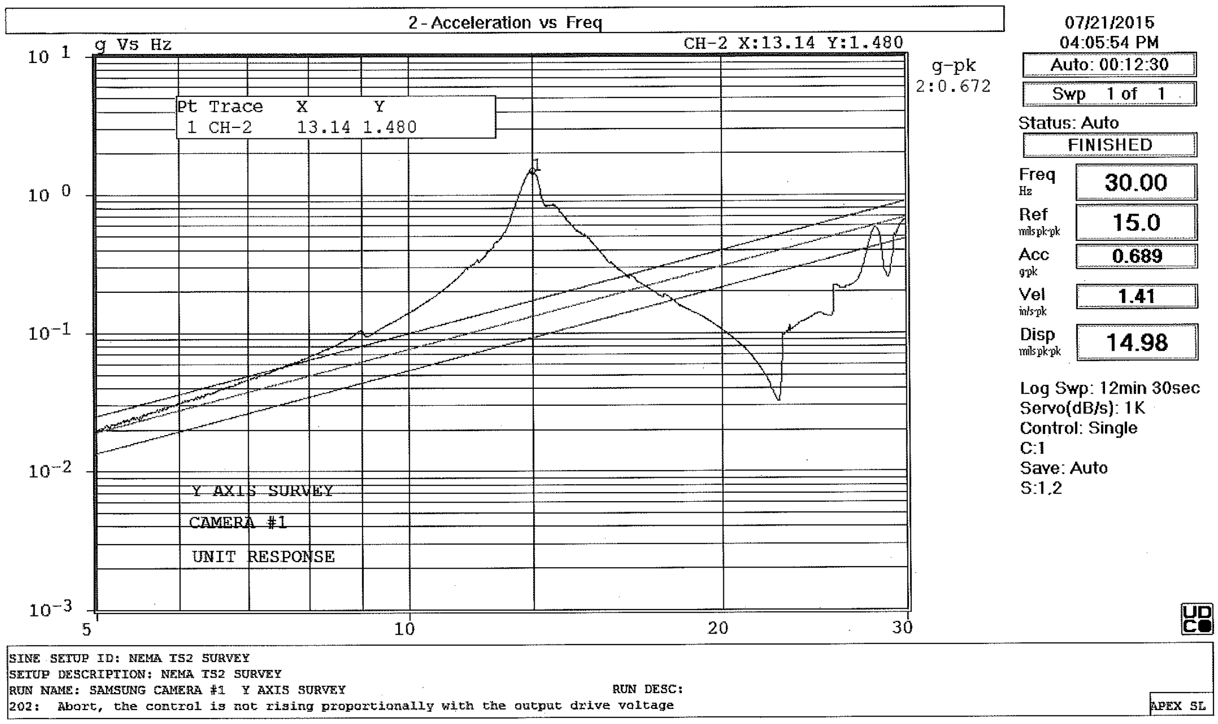
Control - Acceleration vs Freq
g Vs Hz
CON X:10.710 Y:0.4996
g-pk
C:0.500
X AXIS DWELL
CAMERA #2
INPUT
07/23/2015
02:45:08 PM
Auto: 01:00:00
of 01:00:00
Freq 1
Status: Auto
FINISHED
Freq Hz 10.71
Ref g-pk 0.500
Acc g-pk 0.500
Vel in/s-pk 2.87
Disp mils-pk-pk 85.19
Servo(dB/s): 1K
Control: Single
C:1
Save: Auto
S:1,2
SINE SETUP ID: NEMA TS2 DWELL
SETUP DESCRIPTION: NEMA TS2 DWELL
RUN NAME: SAMSUNG X AXIS DWELL CAMERA 2
RUN DESC:
APEX SL

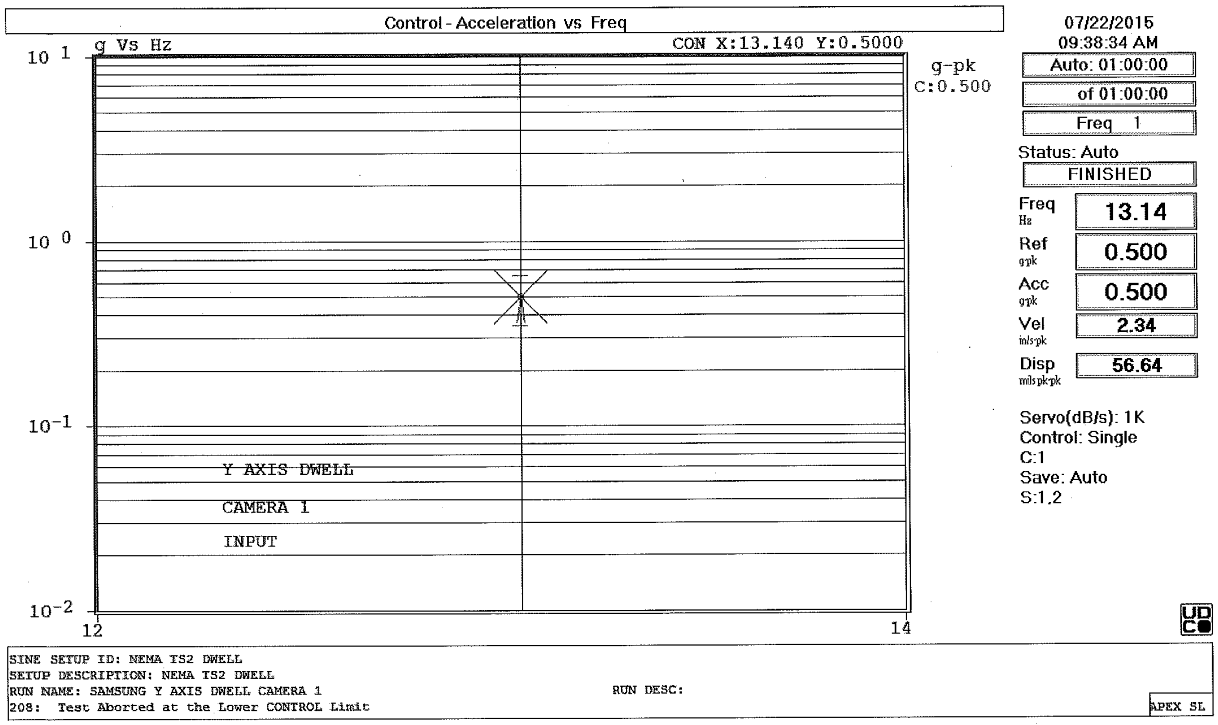

Control - Acceleration vs Freq
g Vs Hz
CON X:17.49 Y:0.2344
g-pk
C:0.689
07/22/2015
01:34:10 PM
Auto: 00:12:30
Swp 1 of 1
Status: Auto
FINISHED
Freq Hz 30.00
Ref mils pk-pk 15.0
Acc g-pk 0.689
Vel in/s-pk 1.41
Disp mils pk-pk 14.98
Log Swp: 12min 30sec
Servo(dB/s): 1K
Control: Single
C:1
Save: Auto
S:1,2
Z AXIS SURVEY
CAMERA #1
INPUT
SINE SETUP ID: NEMA TS2 SURVEY
SETUP DESCRIPTION: NEMA TS2 SURVEY
RUN NAME: SAMSUNG CAMERA #1 Z AXIS SURVEY
RUN DESC:
APEX SL

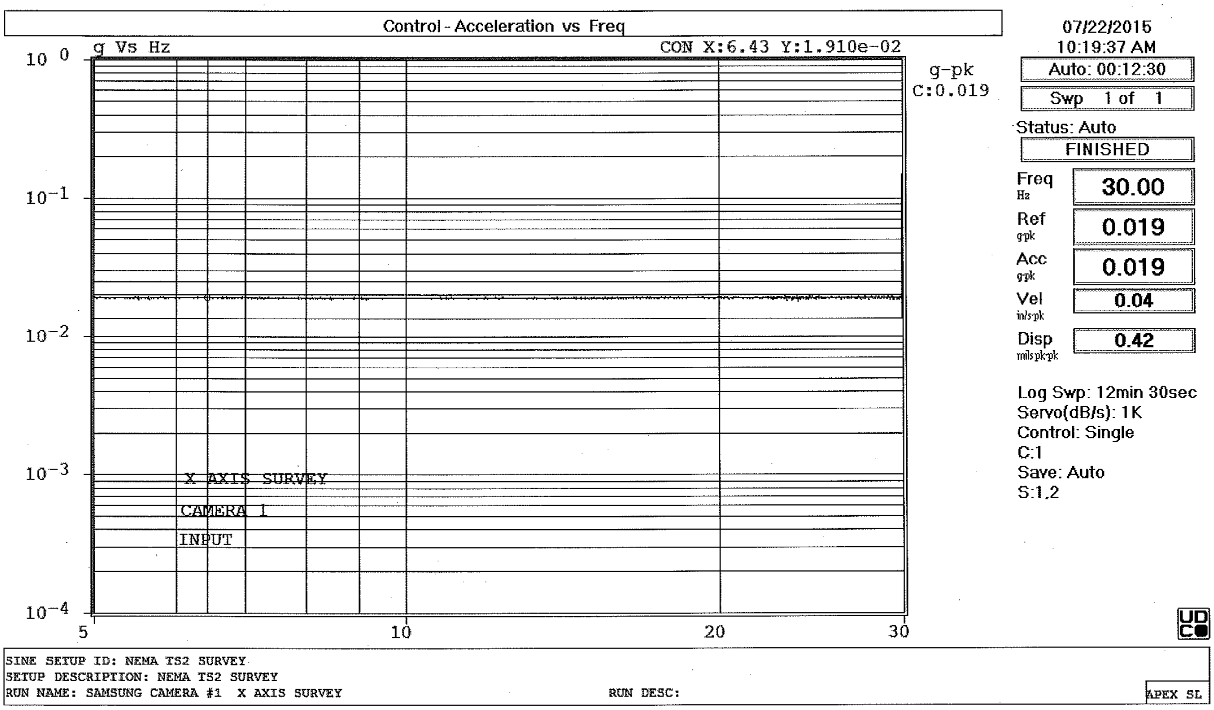

2 - Acceleration vs Freq
g Vs Hz
CH-2 X:20.03 Y:1.477
g-pk
2:1.63
Pt Trace X Y
1 CH-2 12.44 0.299
2 CH-2 20.03 1.477
Z AXIS SURVEY
CAMERA #1
INPUT
07/22/2015
01:35:24 PM
Auto: 00:12:30
Swp 1 of 1
Status: Auto
FINISHED
Freq Hz 30.00
Ref mils pk-pk 15.0
Acc g-pk 0.689
Vel in/s-pk 1.41
Disp mils pk-pk 14.98
Log Swp: 12min 30sec
Servo(dB/s): 1K
Control: Single
C:1
Save: Auto
S:1,2
SINE SETUP ID: NEMA TS2 SURVEY
SETUP DESCRIPTION: NEMA TS2 SURVEY
RUN NAME: SAMSUNG CAMERA #1 Z AXIS SURVEY
RUN DESC:
APEX SL

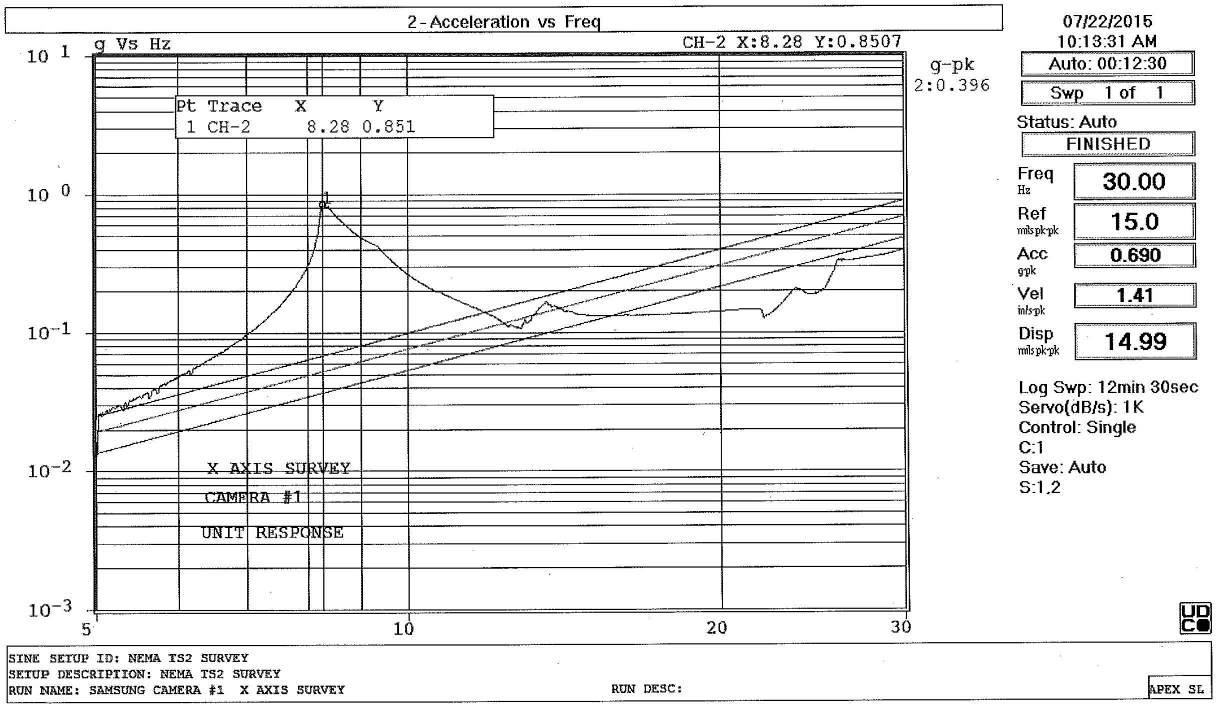

Control - Acceleration vs Freq
g Vs Hz
CON X:20.030 Y:0.5000
g-pk
C:0.500
Z AXIS DWELL
CAMERA #1
INPUT
07/22/2015
03:05:09 PM
Auto: 01:00:00
of 01:00:00
Freq 1
Status: Auto
FINISHED
Freq Hz 20.03
Ref g-pk 0.500
Acc g-pk 0.500
Vel in/s-pk 1.53
Disp mils pk-pk 24.38
Servo(dB/s): 1K
Control: Single
C:1
Save: Auto
S:1,2
SINE SETUP ID: NEMA TS2 DWELL
SETUP DESCRIPTION: NEMA TS2 DWELL
RUN NAME: SAMSUNG Z AXIS DWELL CAMERA 1
RUN DESC:
APEX SL

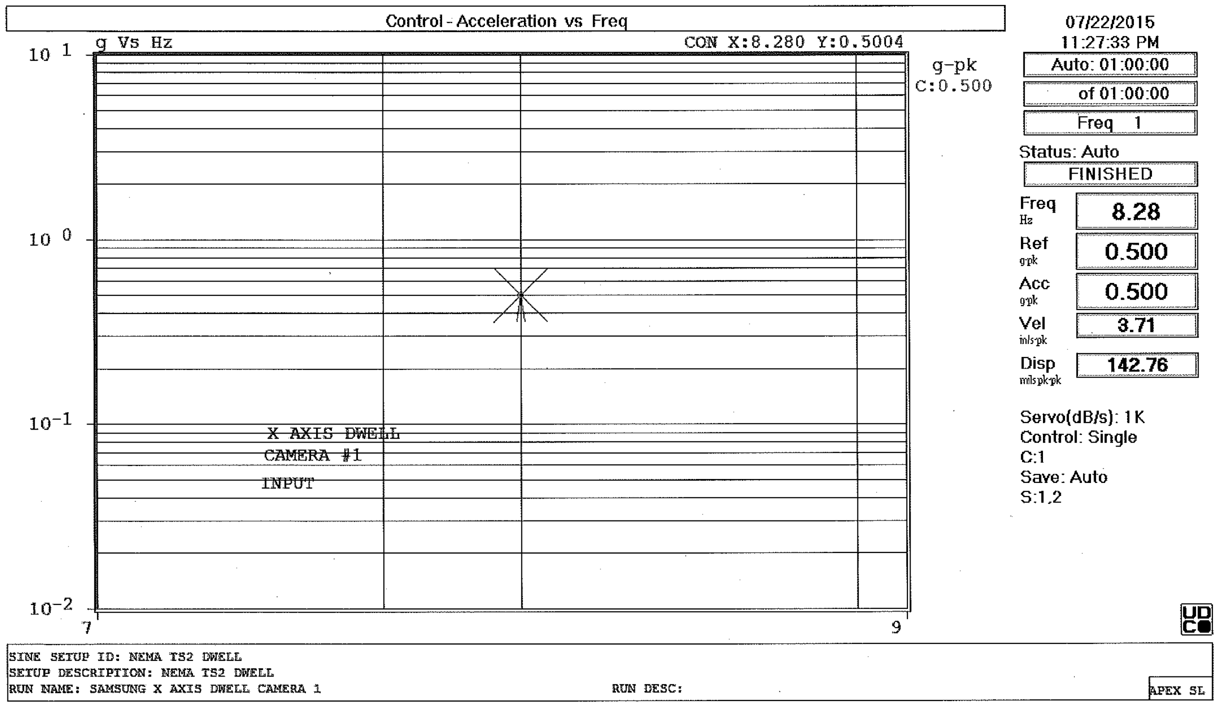

Control - Acceleration vs Freq
g Vs Hz
CON X:17.49 Y:0.2341
g-pk
C:0.689
10 1
10 0
10-1
10-2
10-3
5
10
20
30
Y AXIS SURVEY
CAMERA #1
INPUT
07/21/2015
04:04:48 PM
Auto: 00:12:30
Swp 1 of 1
Status: Auto
FINISHED
Freq Hz 30.00
Ref mils pk-pk 15.0
Acc g-pk 0.689
Vel in/s-pk 1.41
Disp mils pk-pk 14.98
Log Swp: 12min 30sec
Servo(dB/s): 1K
Control: Single
C:1
Save: Auto
S:1,2
SINE SETUP ID: NEMA TS2 SURVEY
SETUP DESCRIPTION: NEMA TS2 SURVEY
RUN NAME: SAMSUNG CAMERA #1 Y AXIS SURVEY
RUN DESC:
202: Abort, the control is not rising proportionally with the output drive voltage
APEX SL

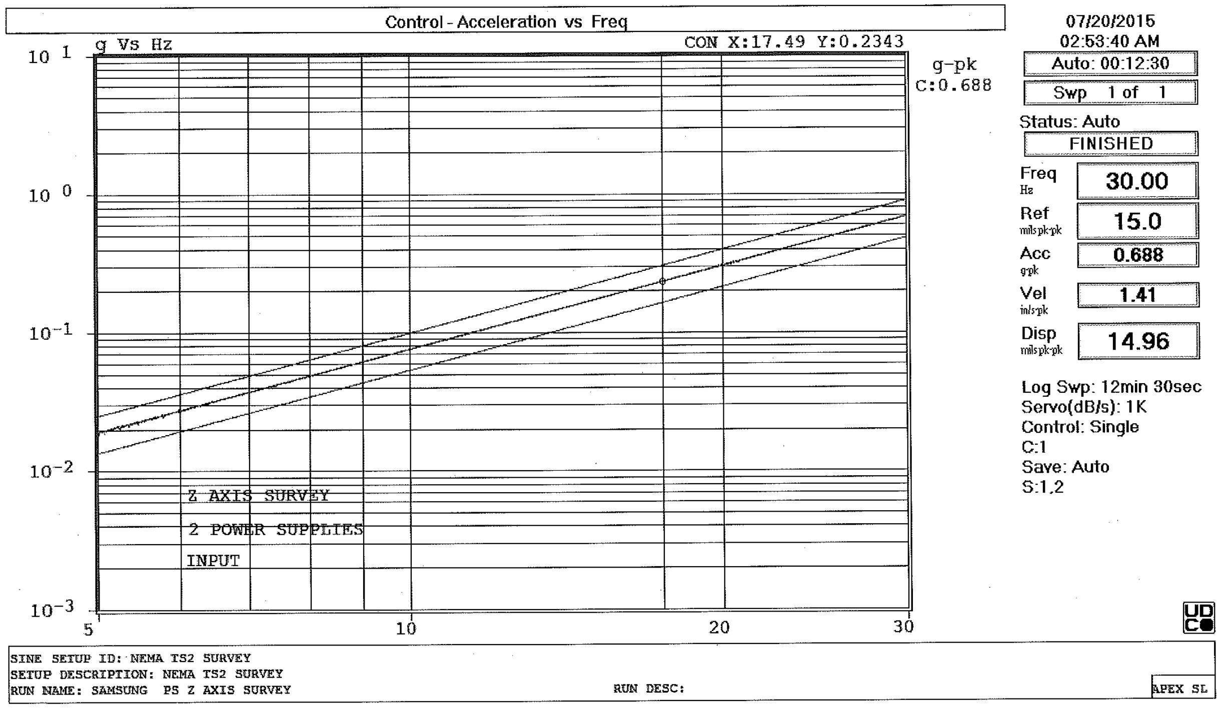

2-Acceleration vs Freq
g Vs Hz
CH-2 X:13.14 Y:1.480
g-pk
2:0.672
Pt Trace X Y
1 CH-2 13.14 1.480
Y AXIS SURVEY
CAMERA #1
UNIT RESPONSE
5
10
20
30
07/21/2015
04:05:54 PM
Auto: 00:12:30
Swp 1 of 1
Status: Auto
FINISHED
Freq Hz 30.00
Ref mils pk-pk 15.0
Acc g-pk 0.689
Vel in/s-pk 1.41
Disp mils pk-pk 14.98
Log Swp: 12min 30sec
Servo(dB/s): 1K
Control: Single
C:1
Save: Auto
S:1,2
SINE SETUP ID: NEMA TS2 SURVEY
SETUP DESCRIPTION: NEMA TS2 SURVEY
RUN NAME: SAMSUNG CAMERA #1 Y AXIS SURVEY
RUN DESC:
202: Abort, the control is not rising proportionally with the output drive voltage
APEX SL

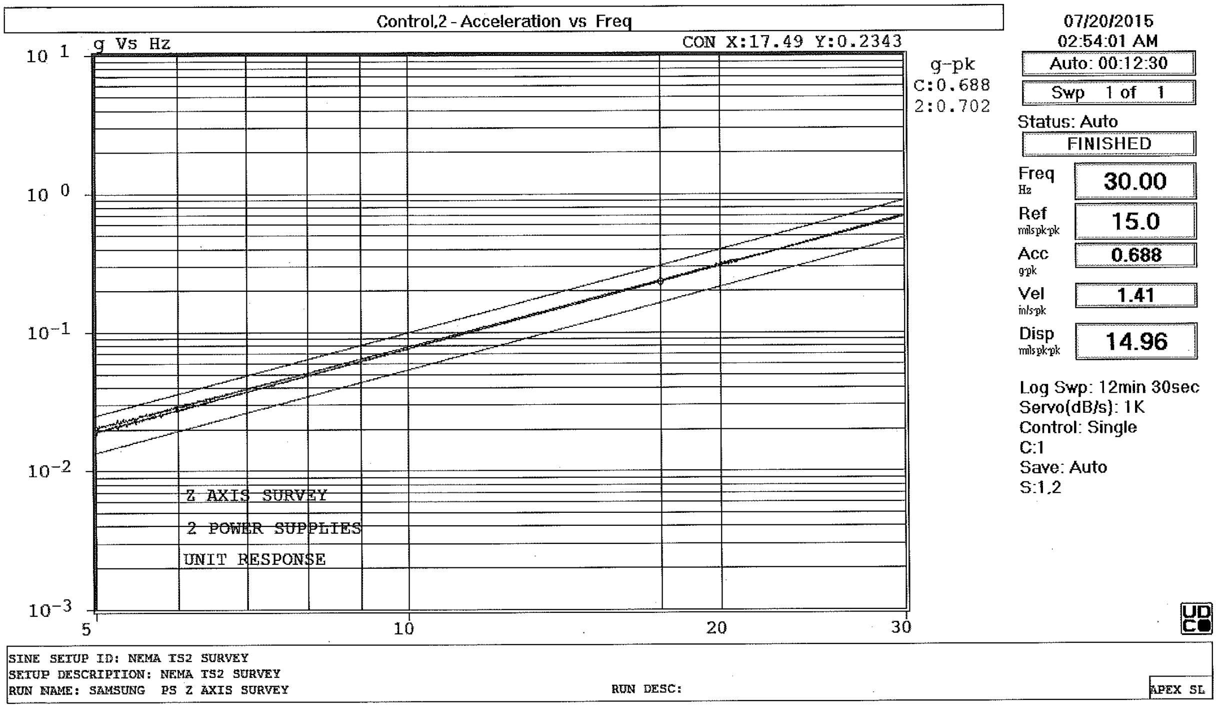

Control - Acceleration vs Freq
g Vs Hz
CON X:13.140 Y:0.5000
g-pk
C:0.500
10 1
10 0
10-1
10-2
12
14
Y AXIS DWELL
CAMERA 1
INPUT
07/22/2015
09:38:34 AM
Auto: 01:00:00
of 01:00:00
Freq 1
Status: Auto
FINISHED
Freq Hz 13.14
Ref g-pk 0.500
Acc g-pk 0.500
Vel in/s-pk 2.34
Disp mils pk-pk 56.64
Servo(dB/s): 1K
Control: Single
C:1
Save: Auto
S:1,2
SINE SETUP ID: NEMA TS2 DWELL
SETUP DESCRIPTION: NEMA TS2 DWELL
RUN NAME: SAMSUNG Y AXIS DWELL CAMERA 1
RUN DESC:
208: Test Aborted at the Lower CONTROL Limit
APEX SL

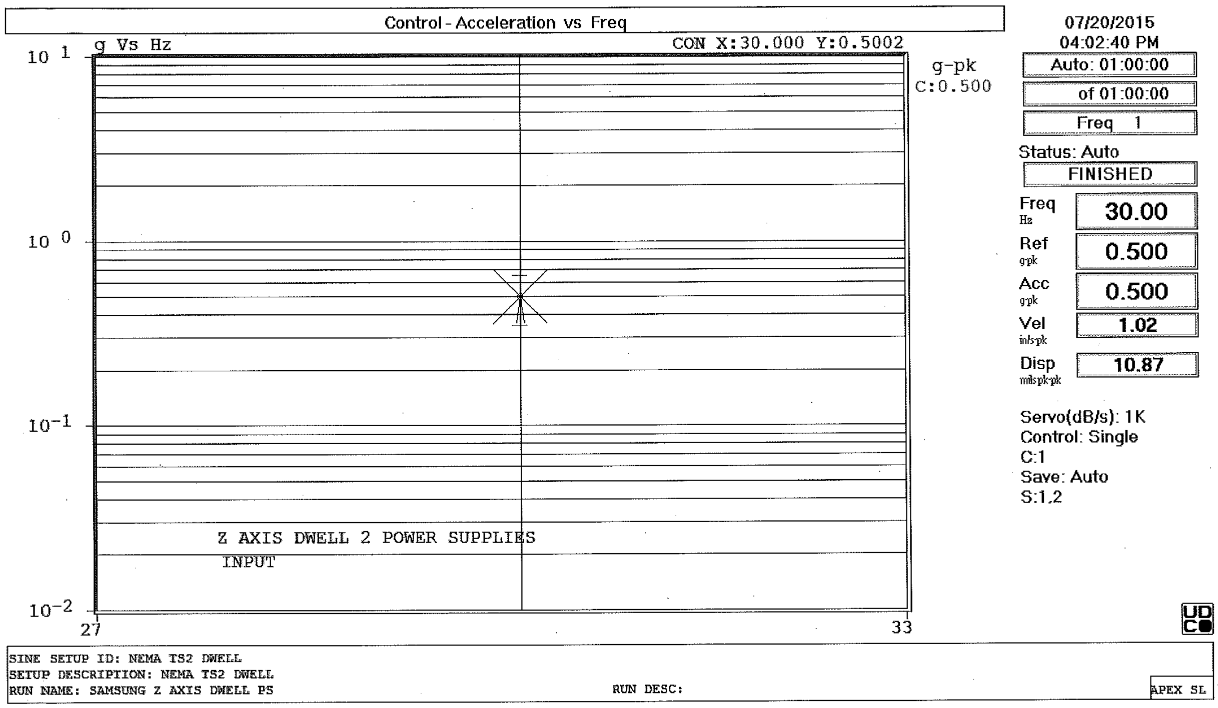

Control - Acceleration vs Freq
g Vs Hz
CON X:6.43 Y:1.910e-02
g-pk
C:0.019
07/22/2015
10:19:37 AM
Auto: 00:12:30
Swp 1 of 1
Status: Auto
FINISHED
Freq Hz 30.00
Ref g-pk 0.019
Acc g-pk 0.019
Vel in/s-pk 0.04
Disp mils pk-pk 0.42
Log Swp: 12min 30sec
Servo(dB/s): 1K
Control: Single
C:1
Save: Auto
S:1,2
X AXIS SURVEY
CAMERA 1
INPUT
SINE SETUP ID: NEMA TS2 SURVEY
SETUP DESCRIPTION: NEMA TS2 SURVEY
RUN NAME: SAMSUNG CAMERA #1 X AXIS SURVEY
RUN DESC:
APEX SL


2-Acceleration vs Freq
g Vs Hz
CH-2 X:8.28 Y:0.8507
Pt Trace X Y
1 CH-2 8.28 0.851
g-pk
2:0.396
X AXIS SURVEY
CAMERA #1
UNIT RESPONSE
07/22/2015
10:13:31 AM
Auto: 00:12:30
Swp 1 of 1
Status: Auto
FINISHED
Freq Hz 30.00
Ref mils pk-pk 15.0
Acc g-pk 0.690
Vel in/s-pk 1.41
Disp mils pk-pk 14.99
Log Swp: 12min 30sec
Servo(dB/s): 1K
Control: Single
C:1
Save: Auto
S:1,2
SINE SETUP ID: NEMA TS2 SURVEY
SETUP DESCRIPTION: NEMA TS2 SURVEY
RUN NAME: SAMSUNG CAMERA #1 X AXIS SURVEY
RUN DESC:
APEX SL

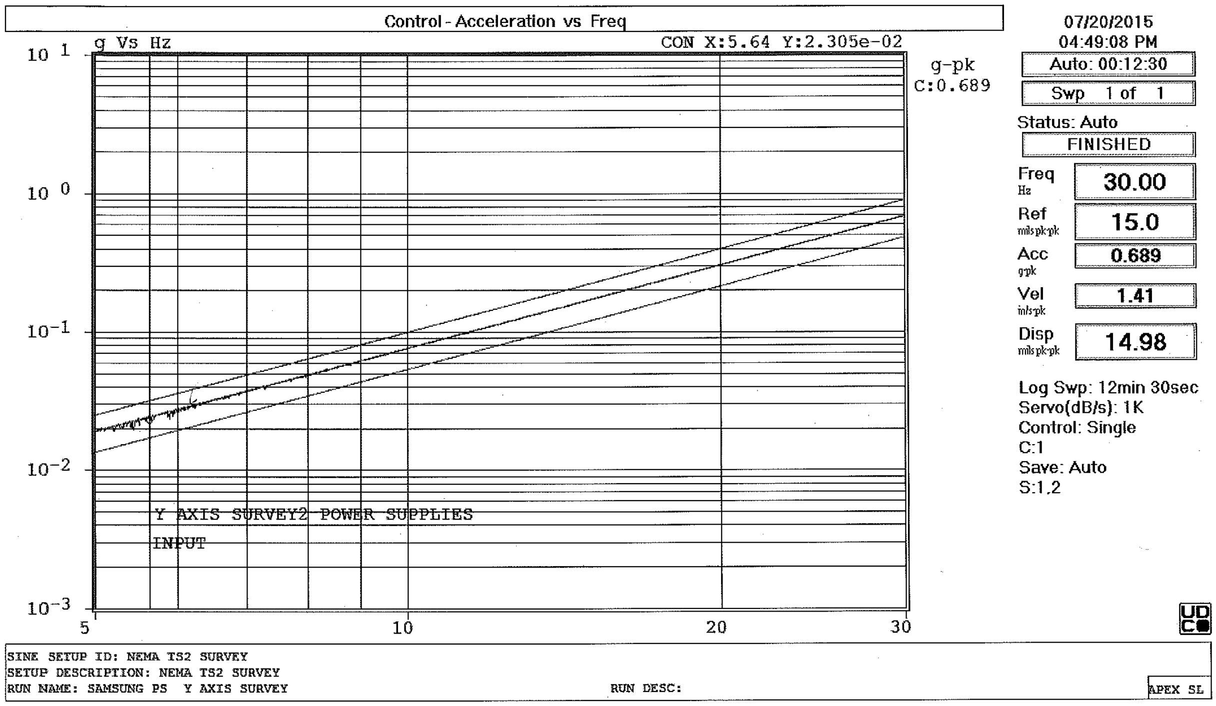

Control - Acceleration vs Freq
07/22/2015
11:27:33 PM
g Vs Hz
CON X:8.280 Y:0.5004
g-pk
C:0.500
Auto: 01:00:00
of 01:00:00
Freq 1
Status: Auto
FINISHED
Freq Hz 8.28
Ref g-pk 0.500
Acc g-pk 0.500
Vel in/s-pk 3.71
Disp mils pk-pk 142.76
Servo(dB/s): 1K
Control: Single
C:1
Save: Auto
S:1,2
X AXIS DWELL
CAMERA #1
INPUT
10 1
10 0
10-1
10-2
7
9
SINE SETUP ID: NEMA TS2 DWELL
SETUP DESCRIPTION: NEMA TS2 DWELL
RUN NAME: SAMSUNG X AXIS DWELL CAMERA 1
RUN DESC:
APEX SL

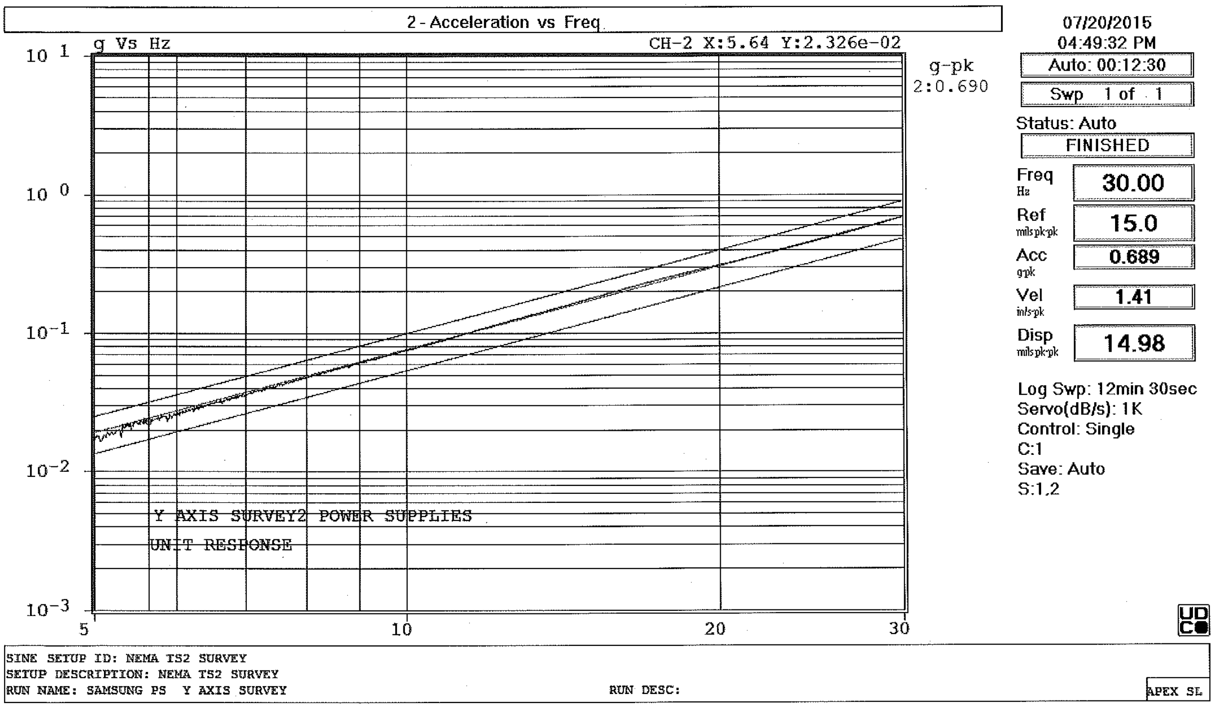

Control - Acceleration vs Freq
g Vs Hz
CON X:17.49 Y:0.2343
g-pk
C:0.688
10 1
10 0
10-1
10-2
10-3
5
10
20
30
Z AXIS SURVEY
2 POWER SUPPLIES
INPUT
07/20/2015
02:53:40 AM
Auto: 00:12:30
Swp 1 of 1
Status: Auto
FINISHED
Freq Hz 30.00
Ref mils pk-pk 15.0
Acc g-pk 0.688
Vel in/s-pk 1.41
Disp mils pk-pk 14.96
Log Swp: 12min 30sec
Servo(dB/s): 1K
Control: Single
C:1
Save: Auto
S:1,2
SINE SETUP ID: NEMA TS2 SURVEY
SETUP DESCRIPTION: NEMA TS2 SURVEY
RUN NAME: SAMSUNG PS Z AXIS SURVEY
RUN DESC:
APEX SL

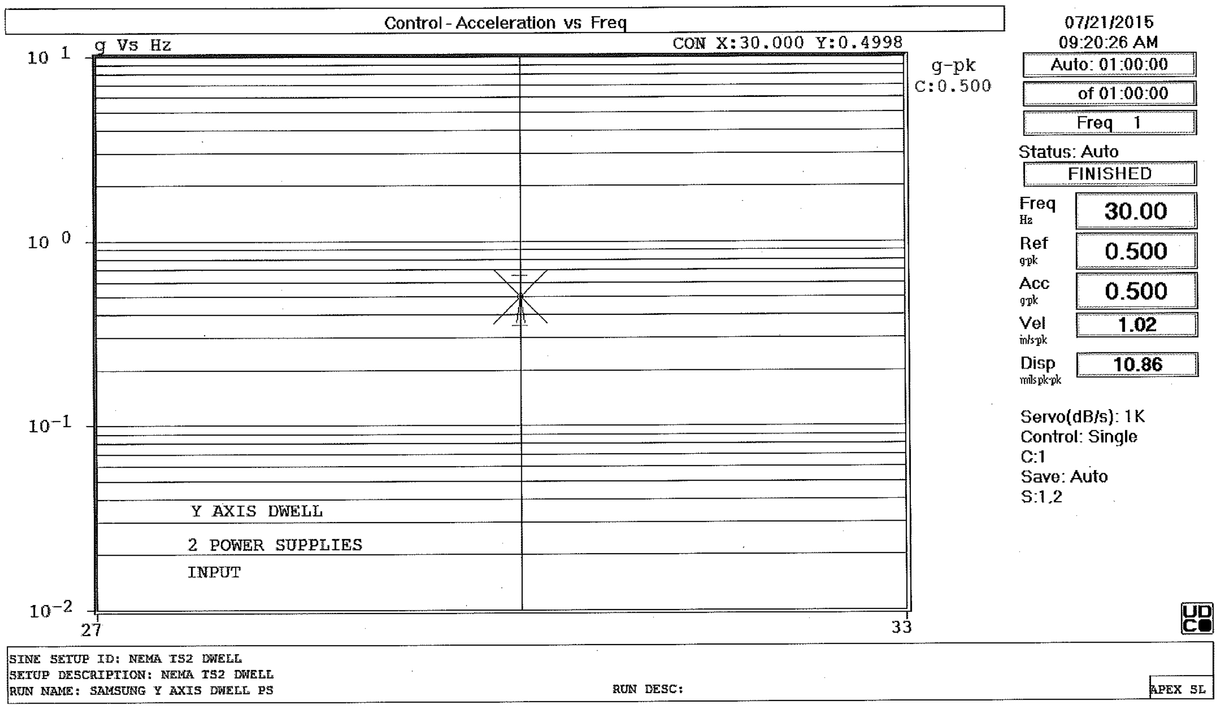

Control,2 - Acceleration vs Freq
g Vs Hz
CON X:17.49 Y:0.2343
g-pk
C:0.688
2:0.702
07/20/2015
02:54:01 AM
Auto: 00:12:30
Swp 1 of 1
Status: Auto
FINISHED
Freq Hz 30.00
Ref mils pk-pk 15.0
Acc g-pk 0.688
Vel in/s-pk 1.41
Disp mils pk-pk 14.96
Log Swp: 12min 30sec
Servo(dB/s): 1K
Control: Single
C:1
Save: Auto
S:1,2
Z AXIS SURVEY
2 POWER SUPPLIES
UNIT RESPONSE
5
10
20
30
SINE SETUP ID: NEMA TS2 SURVEY
SETUP DESCRIPTION: NEMA TS2 SURVEY
RUN NAME: SAMSUNG PS Z AXIS SURVEY
RUN DESC:
APEX SL

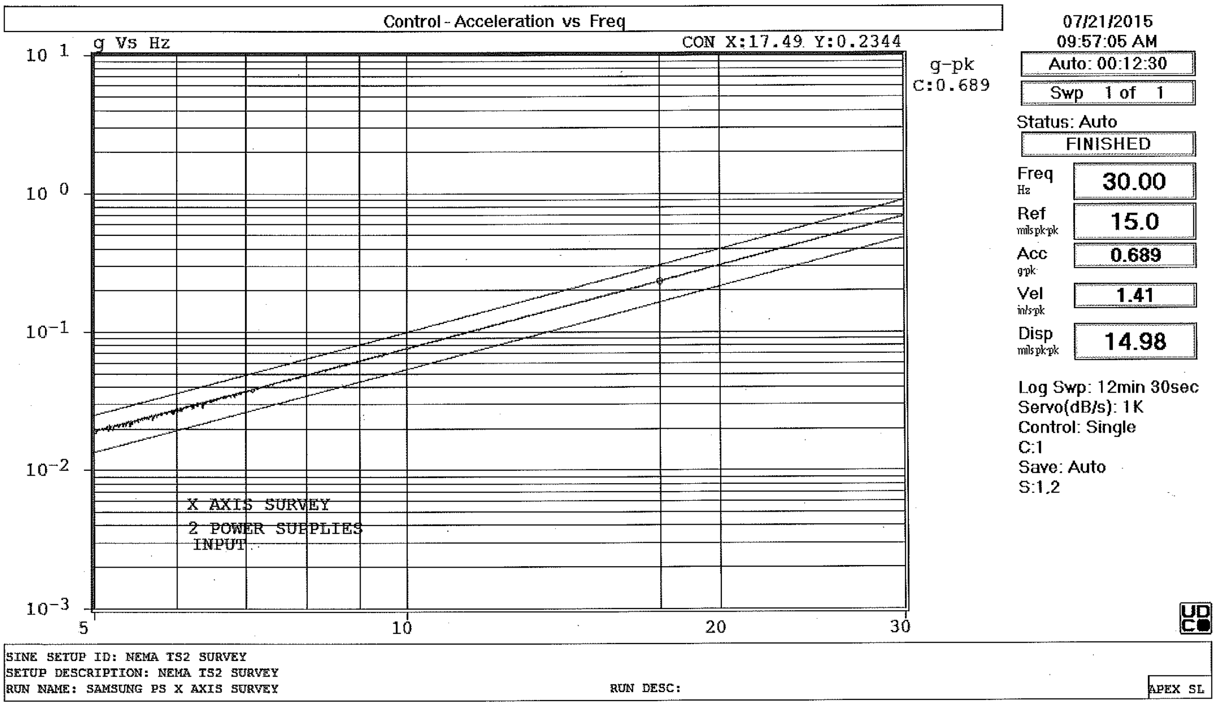


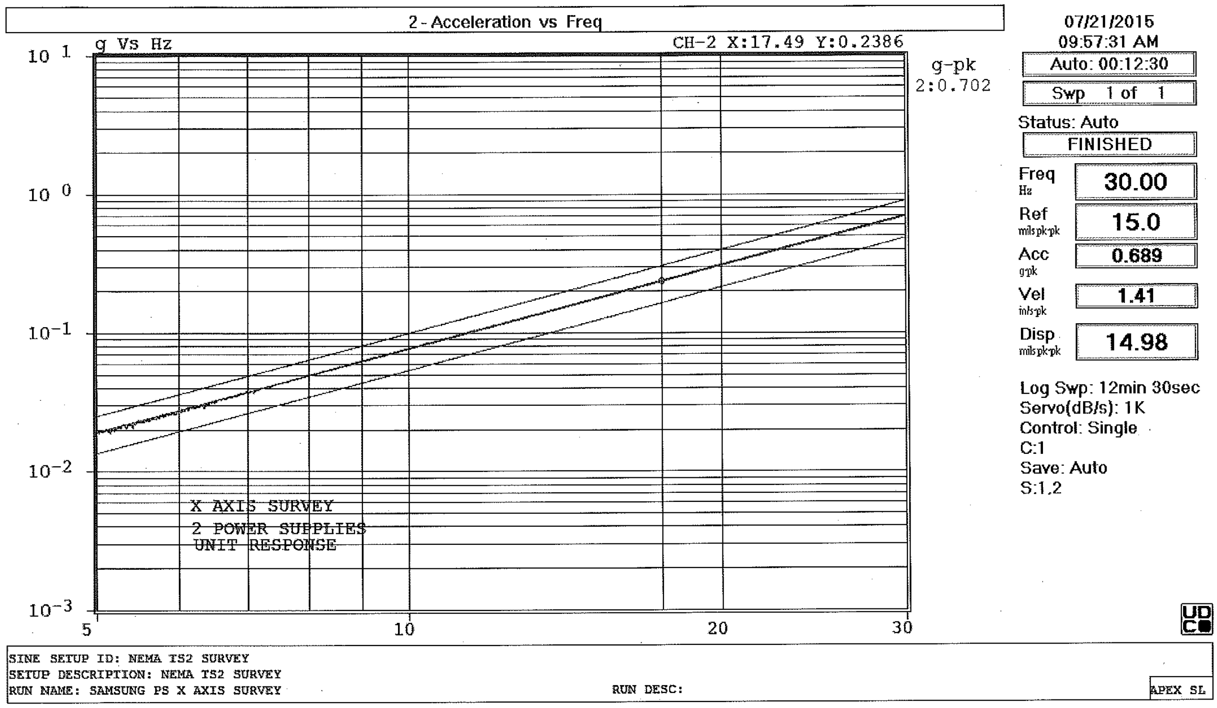
Control - Acceleration vs Freq
g Vs Hz
CON X:30.000 Y:0.5002
g-pk
C:0.500
Z AXIS DWELL 2 POWER SUPPLIES
INPUT
07/20/2015
04:02:40 PM
Auto: 01:00:00
of 01:00:00
Freq 1
Status: Auto
FINISHED
Freq Hz 30.00
Ref g-pk 0.500
Acc g-pk 0.500
Vel in/s-pk 1.02
Disp mils pk-pk 10.87
Servo(dB/s): 1K
Control: Single
C:1
Save: Auto
S:1.2
SINE SETUP ID: NEMA TS2 DWELL
SETUP DESCRIPTION: NEMA TS2 DWELL
RUN NAME: SAMSUNG Z AXIS DWELL PS
RUN DESC:
APEX SL

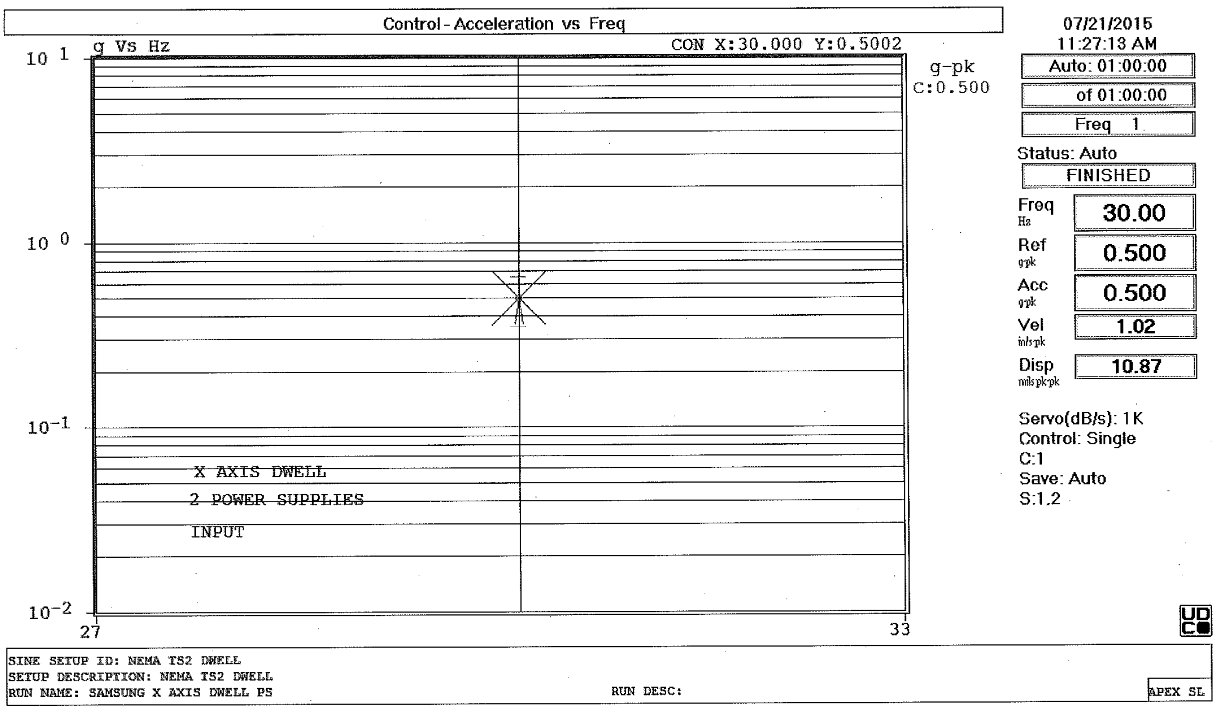

Control - Acceleration vs Freq
g Vs Hz
CON X:5.64 Y:2.305e-02
g-pk
C:0.689
Y AXIS SURVEY2 POWER SUPPLIES
INPUT
07/20/2015
04:49:08 PM
Auto: 00:12:30
Swp 1 of 1
Status: Auto
FINISHED
Freq Hz 30.00
Ref mils pk-pk 15.0
Acc g-pk 0.689
Vel in/s-pk 1.41
Disp mils pk-pk 14.98
Log Swp: 12min 30sec
Servo(dB/s): 1K
Control: Single
C:1
Save: Auto
S:1,2
SINE SETUP ID: NEMA TS2 SURVEY
SETUP DESCRIPTION: NEMA TS2 SURVEY
RUN NAME: SAMSUNG PS Y AXIS SURVEY
RUN DESC:
APEX SL


2 - Acceleration vs Freq
g Vs Hz
CH-2 X:5.64 Y:2.326e-02
g-pk
2:0.690
07/20/2015
04:49:32 PM
Auto: 00:12:30
Swp 1 of 1
Status: Auto
FINISHED
Freq Hz 30.00
Ref mils pk-pk 15.0
Acc g-pk 0.689
Vel in/s-pk 1.41
Disp mils pk-pk 14.98
Log Swp: 12min 30sec
Servo(dB/s): 1K
Control: Single
C:1
Save: Auto
S:1,2
Y AXIS SURVEY2 POWER SUPPLIES
UNIT RESPONSE
SINE SETUP ID: NEMA TS2 SURVEY
SETUP DESCRIPTION: NEMA TS2 SURVEY
RUN NAME: SAMSUNG PS Y AXIS SURVEY
RUN DESC:
APEX SL

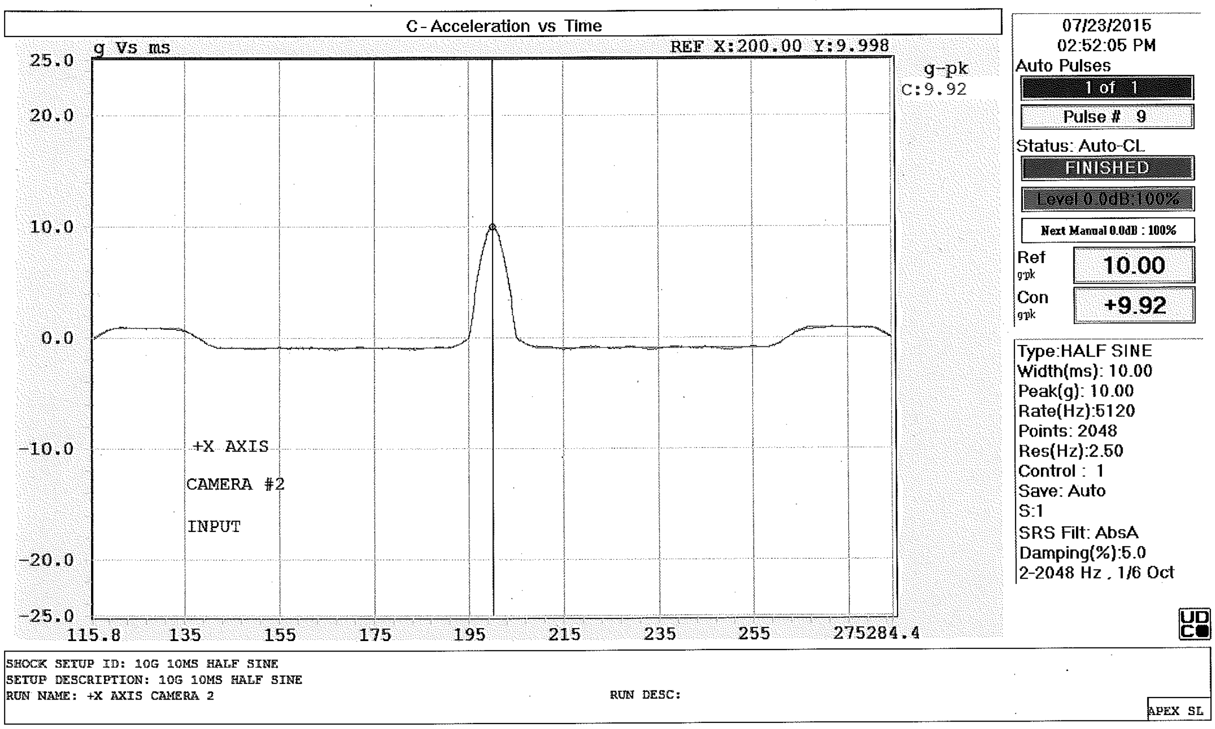

Control - Acceleration vs Freq
g Vs Hz
CON X:30.000 Y:0.4998
g-pk
C:0.500
10 1
10 0
10-1
10-2
27
33
Y AXIS DWELL
2 POWER SUPPLIES
INPUT
07/21/2015
09:20:26 AM
Auto: 01:00:00
of 01:00:00
Freq 1
Status: Auto
FINISHED
Freq Hz 30.00
Ref g-pk 0.500
Acc g-pk 0.500
Vel in/s-pk 1.02
Disp mils pk-pk 10.86
Servo(dB/s): 1K
Control: Single
C:1
Save: Auto
S:1,2
SINE SETUP ID: NEMA TS2 DWELL
SETUP DESCRIPTION: NEMA TS2 DWELL
RUN NAME: SAMSUNG Y AXIS DWELL PS
RUN DESC:
APEX SL

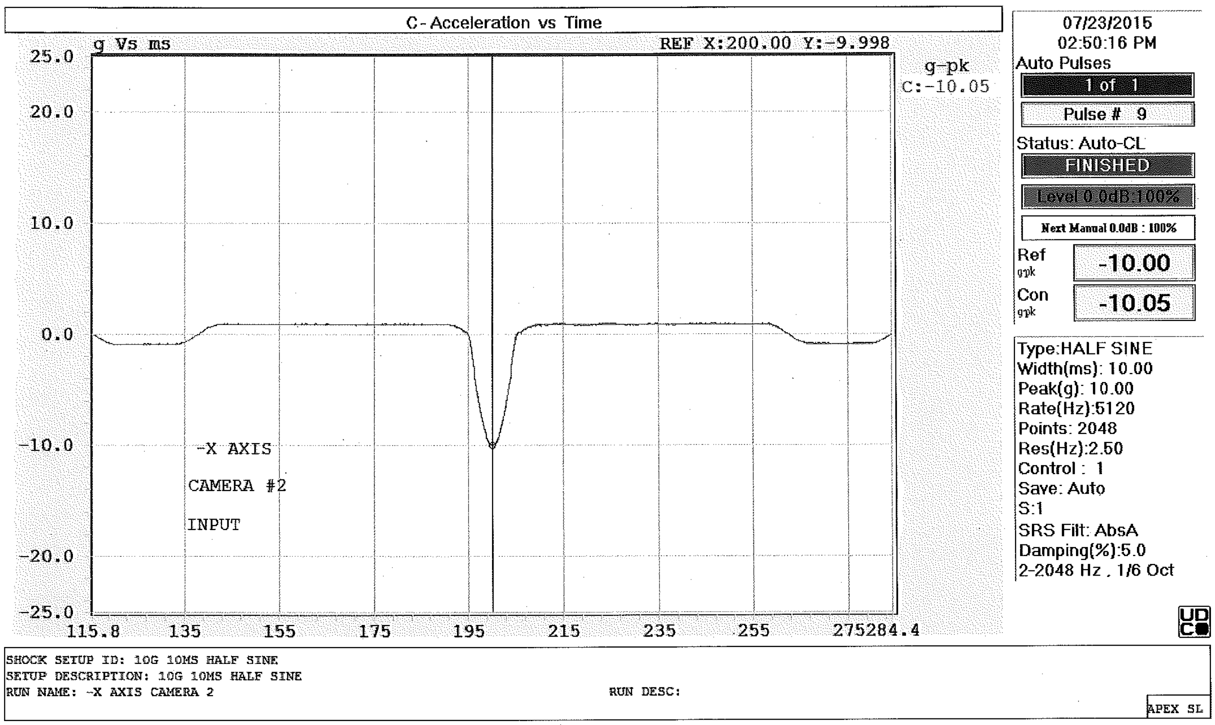

Control - Acceleration vs Freq
g Vs Hz
CON X:17.49 Y:0.2344
g-pk
C:0.689
07/21/2015
09:57:05 AM
Auto: 00:12:30
Swp 1 of 1
Status: Auto
FINISHED
Freq Hz 30.00
Ref mils pk-pk 15.0
Acc g-pk 0.689
Vel in/s-pk 1.41
Disp mils pk-pk 14.98
Log Swp: 12min 30sec
Servo(dB/s): 1K
Control: Single
C:1
Save: Auto
S:1,2
X AXIS SURVEY
2 POWER SUPPLIES
INPUT
SINE SETUP ID: NEMA TS2 SURVEY
SETUP DESCRIPTION: NEMA TS2 SURVEY
RUN NAME: SAMSUNG PS X AXIS SURVEY
RUN DESC:
APEX SL

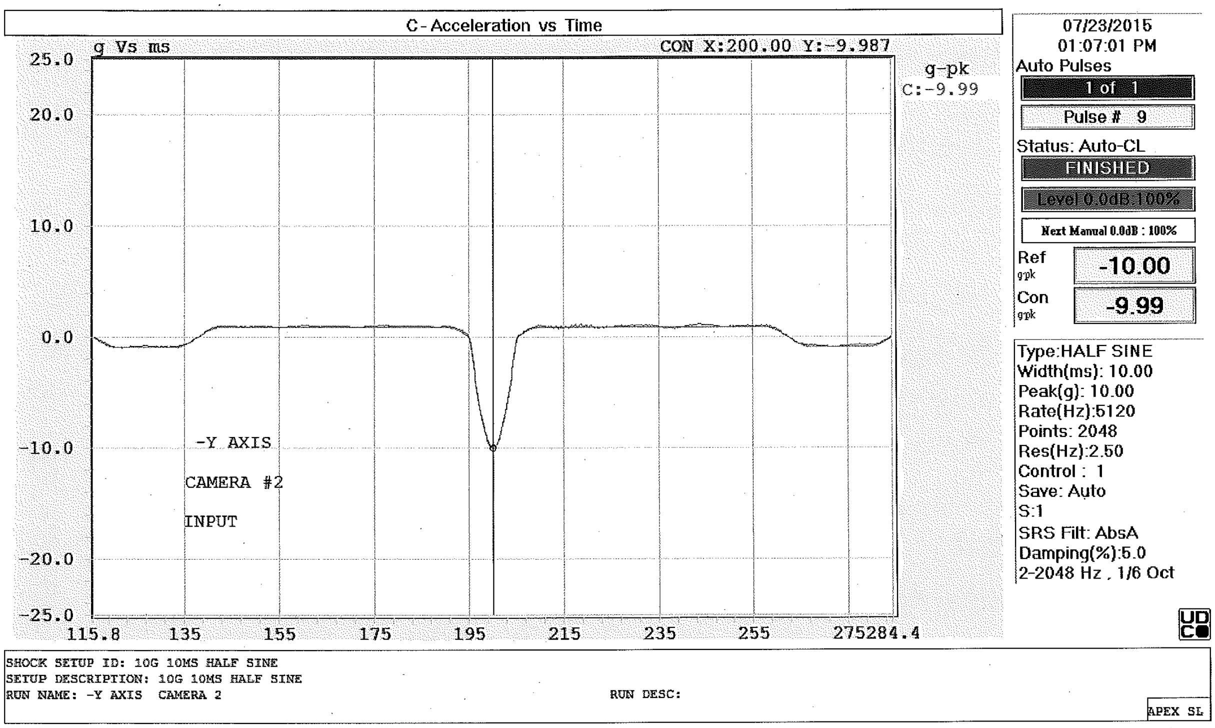

2 - Acceleration vs Freq
g Vs Hz
CH-2 X:17.49 Y:0.2386
g-pk
2:0.702
07/21/2015
09:57:31 AM
Auto: 00:12:30
Swp 1 of 1
Status: Auto
FINISHED
Freq Hz 30.00
Ref mils pk-pk 15.0
Acc g-pk 0.689
Vel in/s pk 1.41
Disp mils pk-pk 14.98
Log Swp: 12min 30sec
Servo(dB/s): 1K
Control: Single
C:1
Save: Auto
S:1,2
X AXIS SURVEY
2 POWER SUPPLIES
UNIT RESPONSE
SINE SETUP ID: NEMA TS2 SURVEY
SETUP DESCRIPTION: NEMA TS2 SURVEY
RUN NAME: SAMSUNG PS X AXIS SURVEY
RUN DESC:
APEX SL

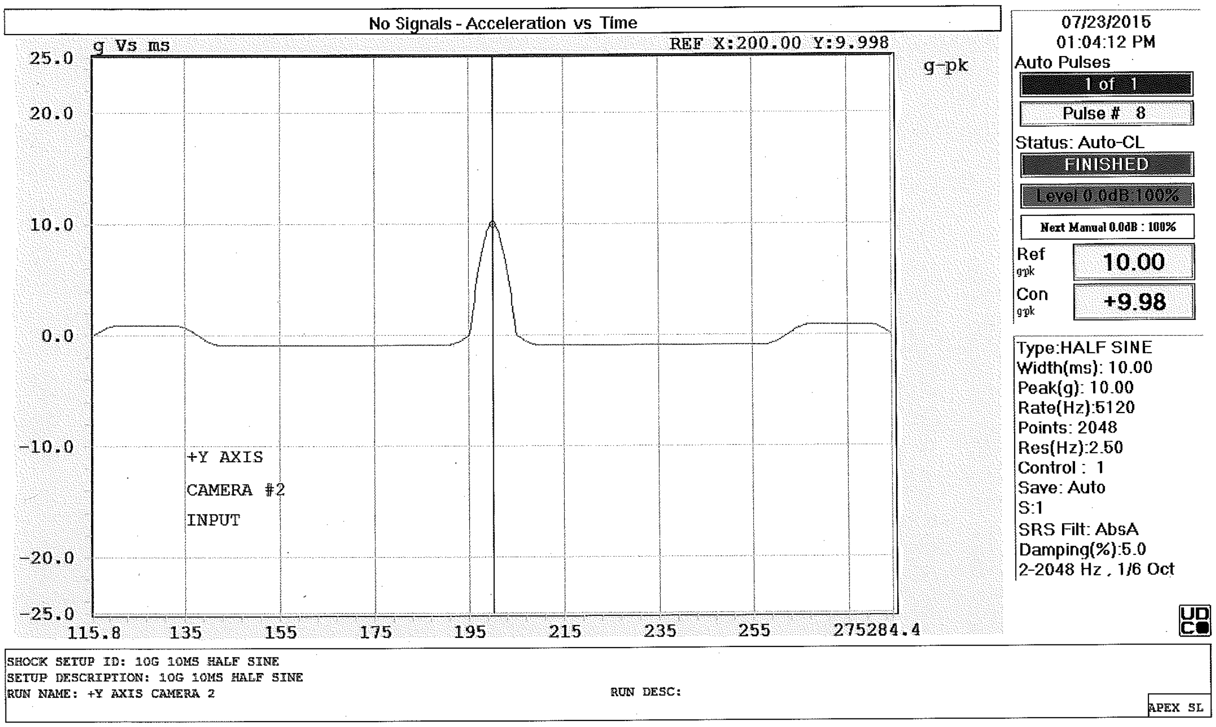

Control - Acceleration vs Freq
g Vs Hz
CON X:30.000 Y:0.5002
g-pk
C:0.500
10 1
10 0
10-1
10-2
27
33
X AXIS DWELL
2 POWER SUPPLIES
INPUT
07/21/2015
11:27:13 AM
Auto: 01:00:00
of 01:00:00
Freq 1
Status: Auto
FINISHED
Freq Hz 30.00
Ref g-pk 0.500
Acc g-pk 0.500
Vel in/s-pk 1.02
Disp mils pk-pk 10.87
Servo(dB/s): 1K
Control: Single
C:1
Save: Auto
S:1,2
SINE SETUP ID: NEMA TS2 DWELL
SETUP DESCRIPTION: NEMA TS2 DWELL
RUN NAME: SAMSUNG X AXIS DWELL PS
RUN DESC:
APEX SL

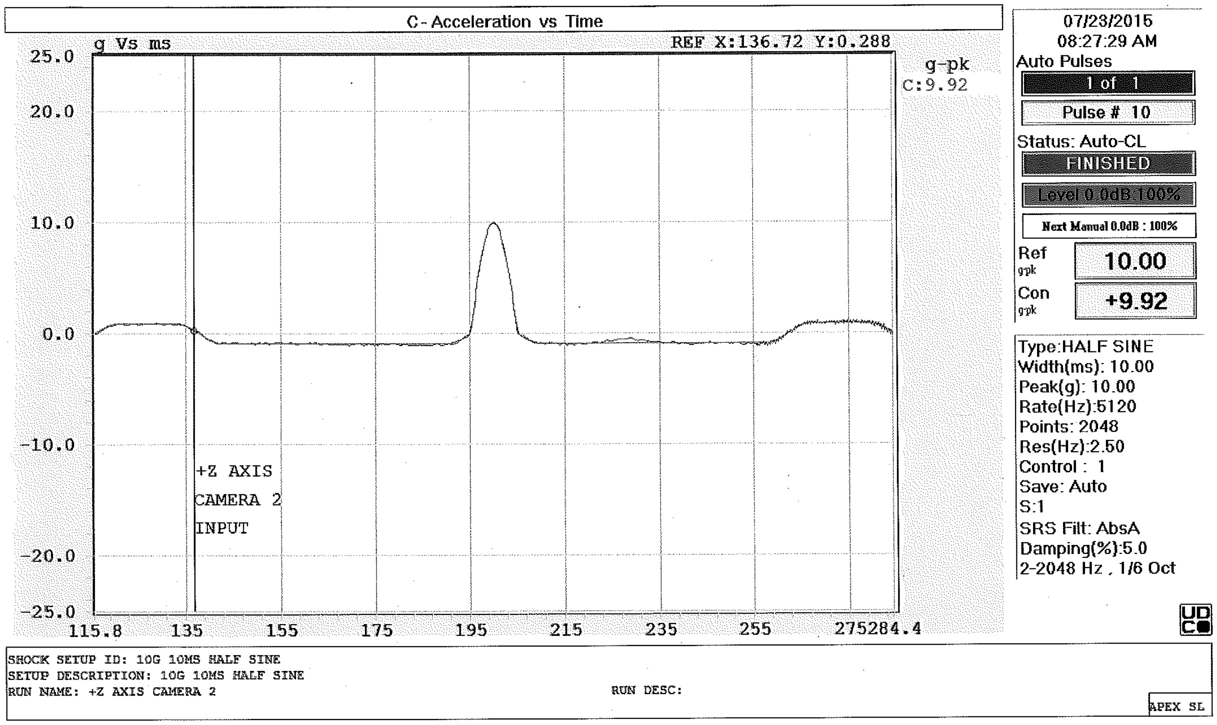
Appendix 2
Shock Plots

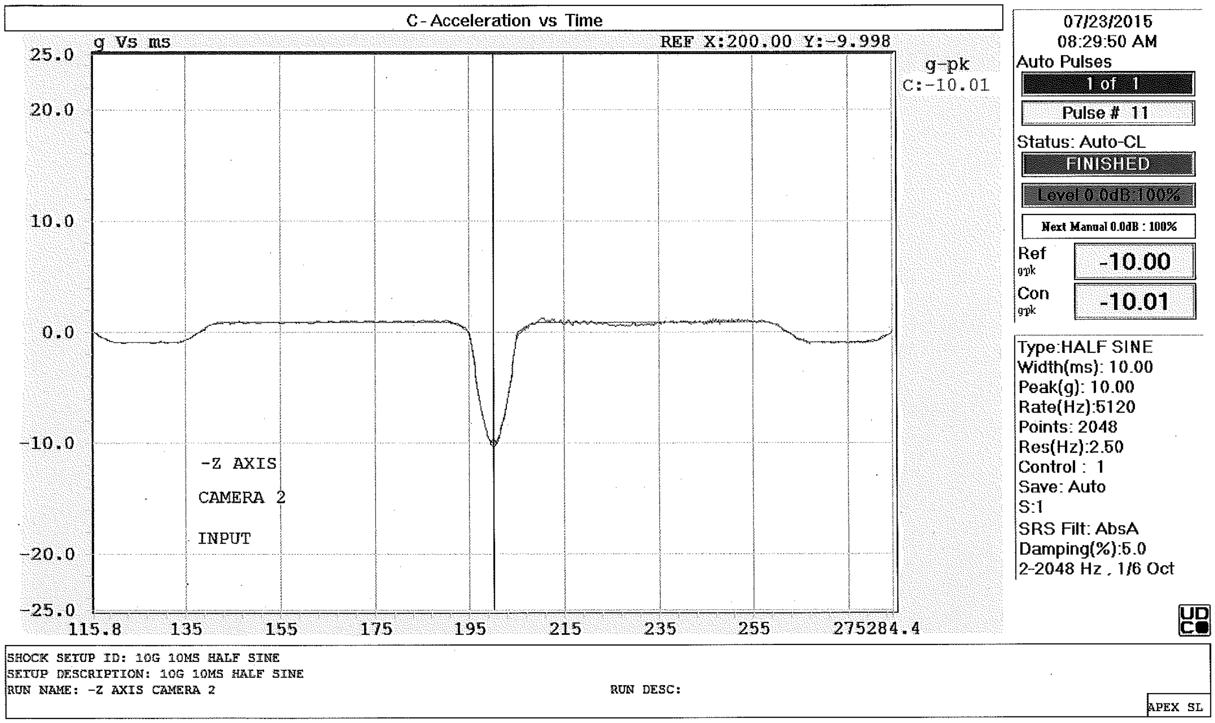

C - Acceleration vs Time
g Vs ms
REF X:200.00 Y:9.998
g-pk
C:9.92
25.0
20.0
10.0
0.0
-10.0
-20.0
-25.0
115.8 135 155 175 195 215 235 255 275284.4
+X AXIS
CAMERA #2
INPUT
07/23/2015
02:52:05 PM
Auto Pulses
1 of 1
Pulse # 9
Status: Auto-CL
FINISHED
Level 0.0dB:100%
Next Manual 0.0dB : 100%
Ref gpk 10.00
Con gpk +9.92
Type:HALF SINE
Width(ms): 10.00
Peak(g): 10.00
Rate(Hz):5120
Points: 2048
Res(Hz):2.50
Control : 1
Save: Auto
S:1
SRS Filt: AbsA
Damping(%):5.0
2-2048 Hz , 1/6 Oct
SHOCK SETUP ID: 10G 10MS HALF SINE
SETUP DESCRIPTION: 10G 10MS HALF SINE
RUN NAME: +X AXIS CAMERA 2
RUN DESC:
APEX SL

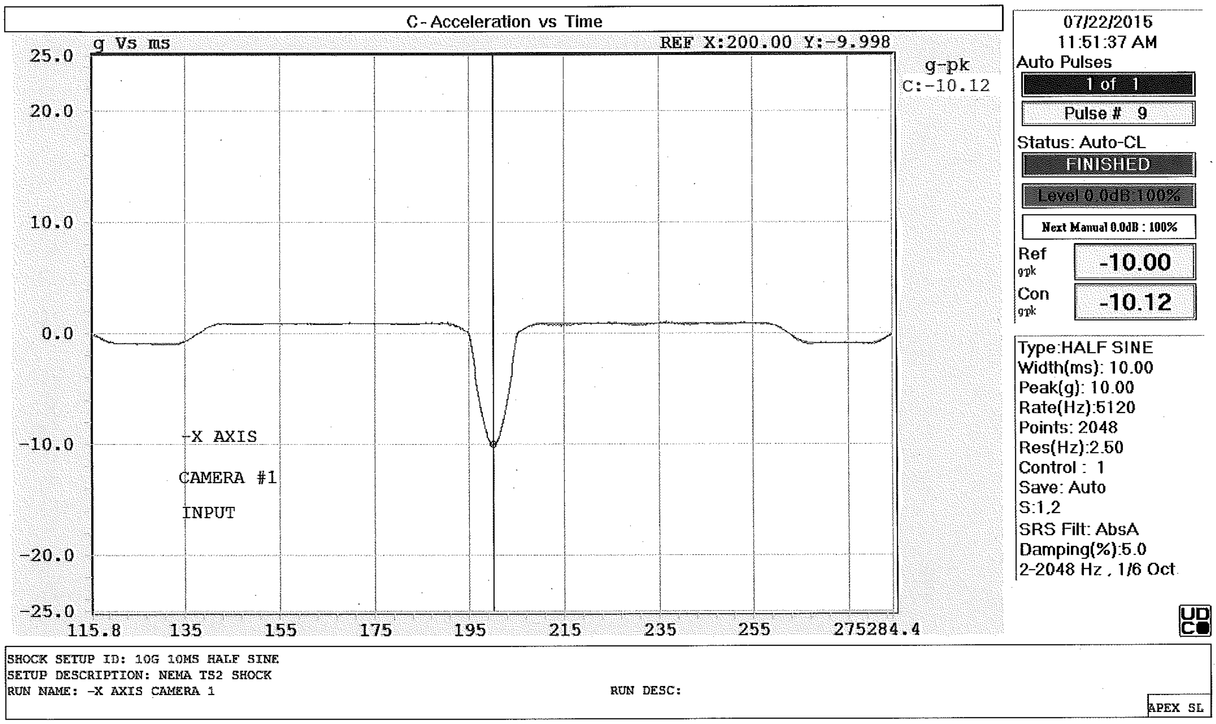

C-Acceleration vs Time
g Vs ms
REF X:200.00 Y:-9.998
g-pk
C:-10.05
25.0
20.0
10.0
0.0
-10.0
-20.0
-25.0
115.8 135 155 175 195 215 235 255 275284.4
-X AXIS
CAMERA #2
INPUT
07/23/2015
02:50:16 PM
Auto Pulses
1 of 1
Pulse # 9
Status: Auto-CL
FINISHED
Level 0.0dB:100%
Next Manual 0.0dB : 100%
Ref gpk -10.00
Con gpk -10.05
Type:HALF SINE
Width(ms): 10.00
Peak(g): 10.00
Rate(Hz):5120
Points: 2048
Res(Hz):2.50
Control : 1
Save: Auto
S:1
SRS Filt: AbsA
Damping(%):5.0
2-2048 Hz , 1/6 Oct
SHOCK SETUP ID: 10G 10MS HALF SINE
SETUP DESCRIPTION: 10G 10MS HALF SINE
RUN NAME: -X AXIS CAMERA 2
RUN DESC:
APEX SL

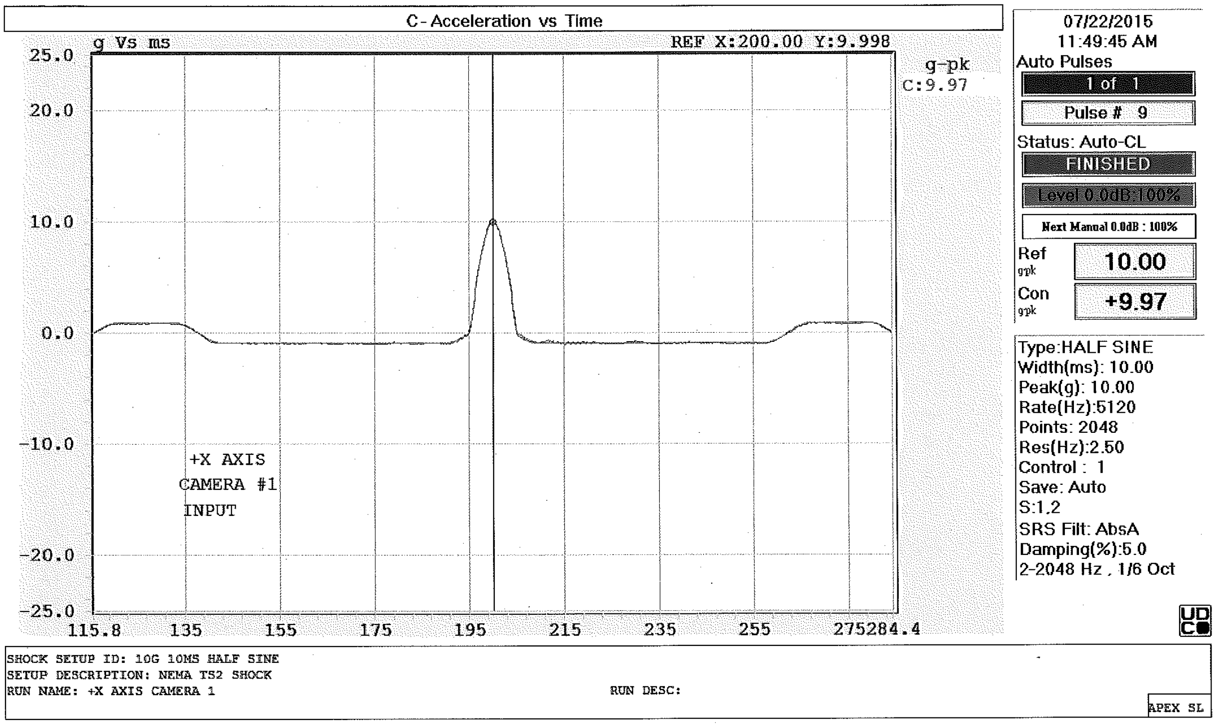

C-Acceleration vs Time
g Vs ms
CON X:200.00 Y:-9.987
g-pk
C:-9.99
25.0
20.0
10.0
0.0
-10.0
-20.0
-25.0
115.8
135
155
175
195
215
235
255
275284.4
-Y AXIS
CAMERA #2
INPUT
07/23/2015
01:07:01 PM
Auto Pulses
1 of 1
Pulse # 9
Status: Auto-CL
FINISHED
Level 0.0dB:100%
Next Manual 0.0dB : 100%
Ref g-pk -10.00
Con g-pk -9.99
Type:HALF SINE
Width(ms): 10.00
Peak(g): 10.00
Rate(Hz):5120
Points: 2048
Res(Hz):2.50
Control : 1
Save: Auto
S:1
SRS Filt: AbsA
Damping(%):5.0
2-2048 Hz , 1/6 Oct
SHOCK SETUP ID: 10G 10MS HALF SINE
SETUP DESCRIPTION: 10G 10MS HALF SINE
RUN NAME: -Y AXIS CAMERA 2
RUN DESC:
APEX SL

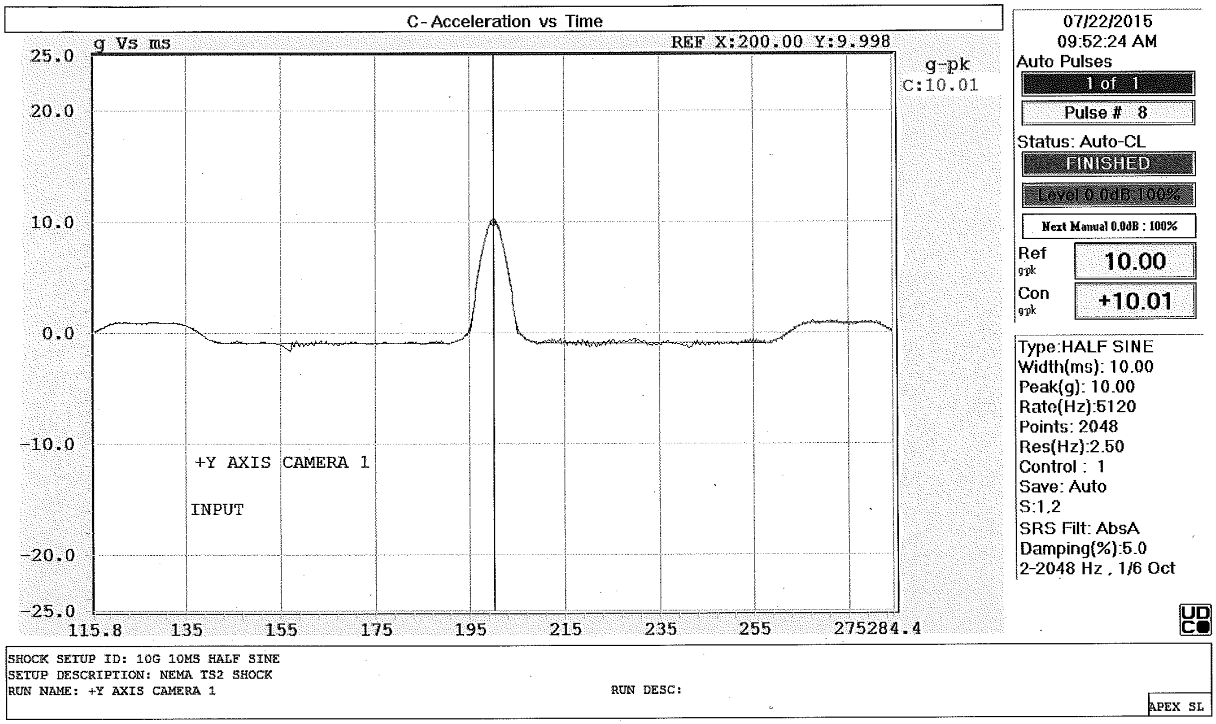

No Signals - Acceleration vs Time
g Vs ms
REF X:200.00 Y:9.998
g-pk
25.0
20.0
10.0
0.0
-10.0
-20.0
-25.0
115.8
135
155
175
195
215
235
255
275284.4
+Y AXIS
CAMERA #2
INPUT
07/23/2015
01:04:12 PM
Auto Pulses
1 of 1
Pulse # 8
Status: Auto-CL
FINISHED
Level 0.0dB:100%
Next Manual 0.0dB : 100%
Ref g-pk 10.00
Con g-pk +9.98
Type:HALF SINE
Width(ms): 10.00
Peak(g): 10.00
Rate(Hz):5120
Points: 2048
Res(Hz):2.50
Control : 1
Save: Auto
S:1
SRS Filt: AbsA
Damping(%):5.0
2-2048 Hz , 1/6 Oct
SHOCK SETUP ID: 10G 10MS HALF SINE
SETUP DESCRIPTION: 10G 10MS HALF SINE
RUN NAME: +Y AXIS CAMERA 2
RUN DESC:
APEX SL

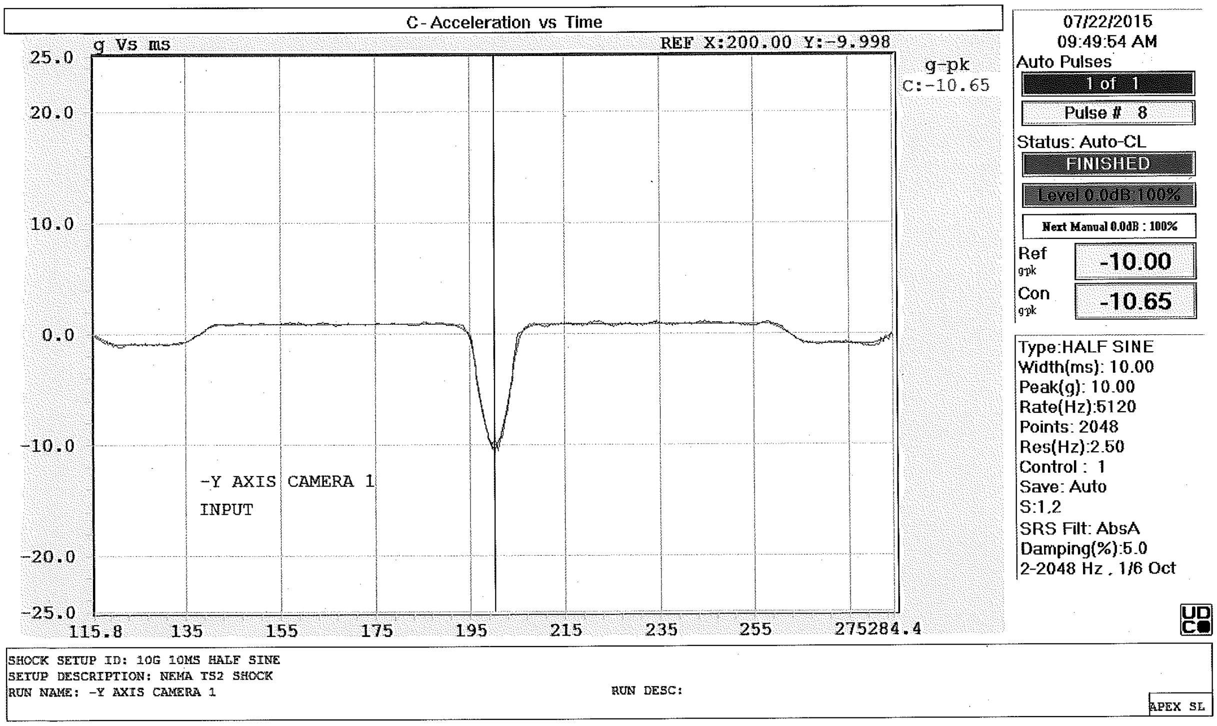

C-Acceleration vs Time
g Vs ms
REF X:136.72 Y:0.288
g-pk
C:9.92
25.0
20.0
10.0
0.0
-10.0
-20.0
-25.0
115.8
135
155
175
195
215
235
255
275284.4
+Z AXIS
CAMERA 2
INPUT
07/23/2015
08:27:29 AM
Auto Pulses
1 of 1
Pulse # 10
Status: Auto-CL
FINISHED
Level 0.0dB:100%
Next Manual 0.0dB : 100%
Ref g-pk 10.00
Con g-pk +9.92
Type:HALF SINE
Width(ms): 10.00
Peak(g): 10.00
Rate(Hz):5120
Points: 2048
Res(Hz):2.50
Control : 1
Save: Auto
S:1
SRS Filt: AbsA
Damping(%):5.0
2-2048 Hz , 1/6 Oct
SHOCK SETUP ID: 10G 10MS HALF SINE
SETUP DESCRIPTION: 10G 10MS HALF SINE
RUN NAME: +Z AXIS CAMERA 2
RUN DESC:
APEX SL


C-Acceleration vs Time
g Vs ms
REF X:200.00 Y:-9.998
g-pk
C:-10.01
25.0
20.0
10.0
0.0
-10.0
-20.0
-25.0
115.8
135
155
175
195
215
235
255
275284.4
-Z AXIS
CAMERA 2
INPUT
07/23/2015
08:29:50 AM
Auto Pulses
1 of 1
Pulse # 11
Status: Auto-CL
FINISHED
Level 0.0dB:100%
Next Manual 0.0dB : 100%
Ref gpk -10.00
Con gpk -10.01
Type:HALF SINE
Width(ms): 10.00
Peak(g): 10.00
Rate(Hz):5120
Points: 2048
Res(Hz):2.50
Control : 1
Save: Auto
S:1
SRS Filt: AbsA
Damping(%):5.0
2-2048 Hz , 1/6 Oct
SHOCK SETUP ID: 10G 10MS HALF SINE
SETUP DESCRIPTION: 10G 10MS HALF SINE
RUN NAME: -Z AXIS CAMERA 2
RUN DESC:
APEX SL

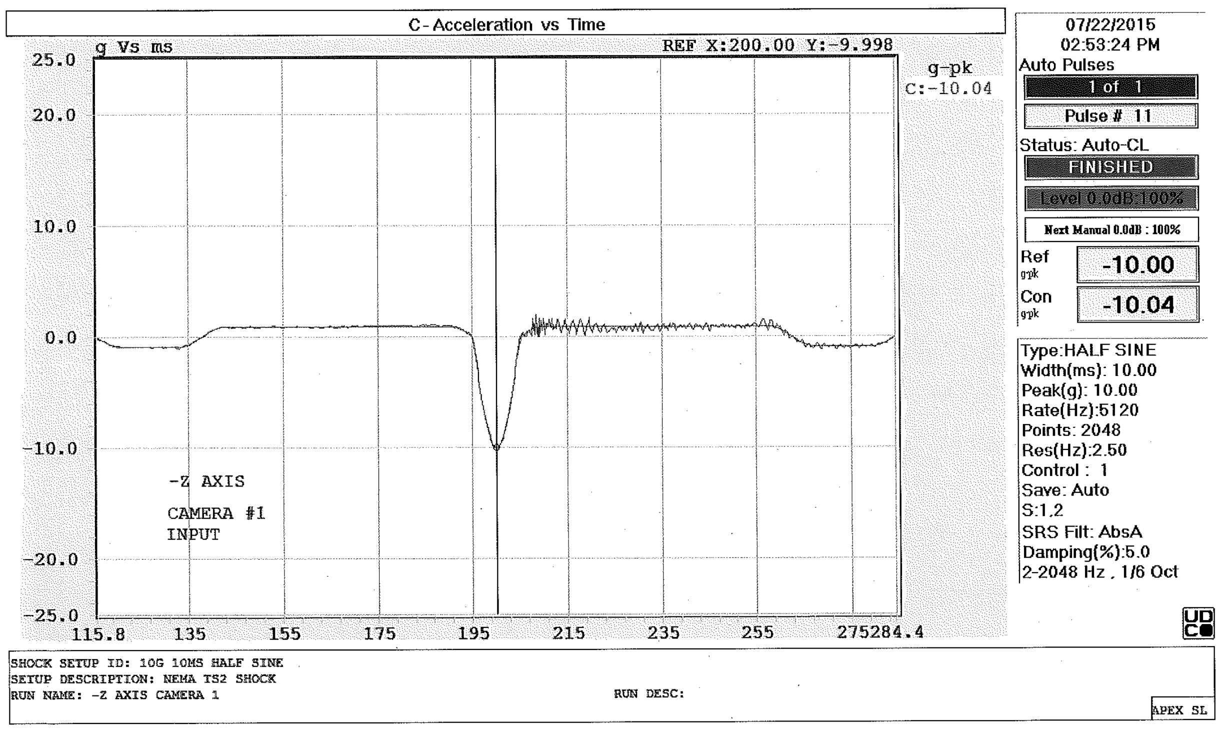

C-Acceleration vs Time
g Vs ms
REF X:200.00 Y:-9.998
g-pk
C:-10.12
25.0
20.0
10.0
0.0
-10.0
-20.0
-25.0
115.8 135 155 175 195 215 235 255 275284.4
-X AXIS
CAMERA #1
INPUT
07/22/2015
11:51:37 AM
Auto Pulses
1 of 1
Pulse # 9
Status: Auto-CL
FINISHED
Level 0.0dB 100%
Next Manual 0.0dB : 100%
Ref gpk -10.00
Con gpk -10.12
Type:HALF SINE
Width(ms): 10.00
Peak(g): 10.00
Rate(Hz):5120
Points: 2048
Res(Hz):2.50
Control : 1
Save: Auto
S:1,2
SRS Filt: AbsA
Damping(%):5.0
2-2048 Hz , 1/6 Oct
SHOCK SETUP ID: 10G 10MS HALF SINE
SETUP DESCRIPTION: NEMA TS2 SHOCK
RUN NAME: -X AXIS CAMERA 1
RUN DESC:
APEX SL

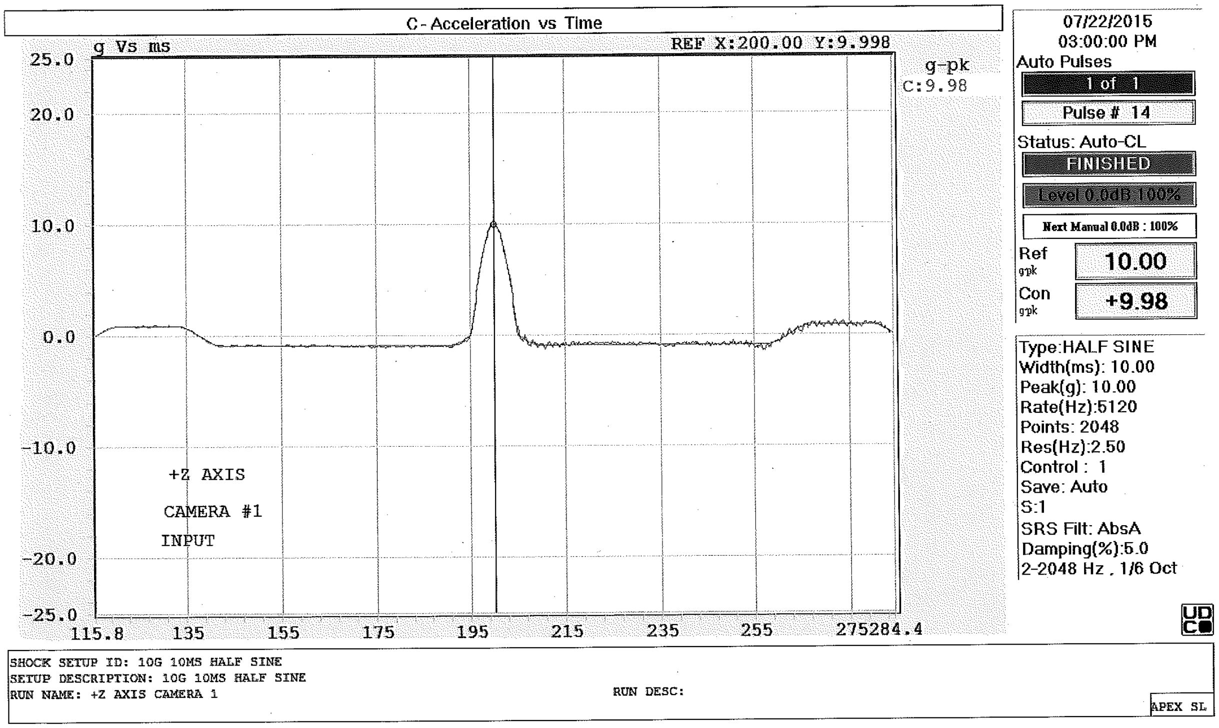

C-Acceleration vs Time
g Vs ms
REF X:200.00 Y:9.998
g-pk
C:9.97
25.0
20.0
10.0
0.0
-10.0
-20.0
-25.0
115.8
135
155
175
195
215
235
255
275284.4
+X AXIS
CAMERA #1
INPUT
07/22/2015
11:49:45 AM
Auto Pulses
1 of 1
Pulse # 9
Status: Auto-CL
FINISHED
Level 0.0dB:100%
Next Manual 0.0dB : 100%
Ref gpk 10.00
Con gpk +9.97
Type:HALF SINE
Width(ms): 10.00
Peak(g): 10.00
Rate(Hz):5120
Points: 2048
Res(Hz):2.50
Control : 1
Save: Auto
S:1,2
SRS Filt: AbsA
Damping(%):5.0
2-2048 Hz , 1/6 Oct
SHOCK SETUP ID: 10G 10MS HALF SINE
SETUP DESCRIPTION: NEMA TS2 SHOCK
RUN NAME: +X AXIS CAMERA 1
RUN DESC:
APEX SL


C-Acceleration vs Time
g Vs ms
REF X:200.00 Y:9.998
g-pk
C:10.01
25.0
20.0
10.0
0.0
-10.0
-20.0
-25.0
115.8
135
155
175
195
215
235
255
275284.4
+Y AXIS CAMERA 1
INPUT
07/22/2015
09:52:24 AM
Auto Pulses
1 of 1
Pulse # 8
Status: Auto-CL
FINISHED
Level 0.0dB 100%
Next Manual 0.0dB : 100%
Ref g-pk 10.00
Con g-pk +10.01
Type:HALF SINE
Width(ms): 10.00
Peak(g): 10.00
Rate(Hz):5120
Points: 2048
Res(Hz):2.50
Control : 1
Save: Auto
S:1,2
SRS Filt: AbsA
Damping(%):5.0
2-2048 Hz , 1/6 Oct
SHOCK SETUP ID: 10G 10MS HALF SINE
SETUP DESCRIPTION: NEMA TS2 SHOCK
RUN NAME: +Y AXIS CAMERA 1
RUN DESC:
APEX SL

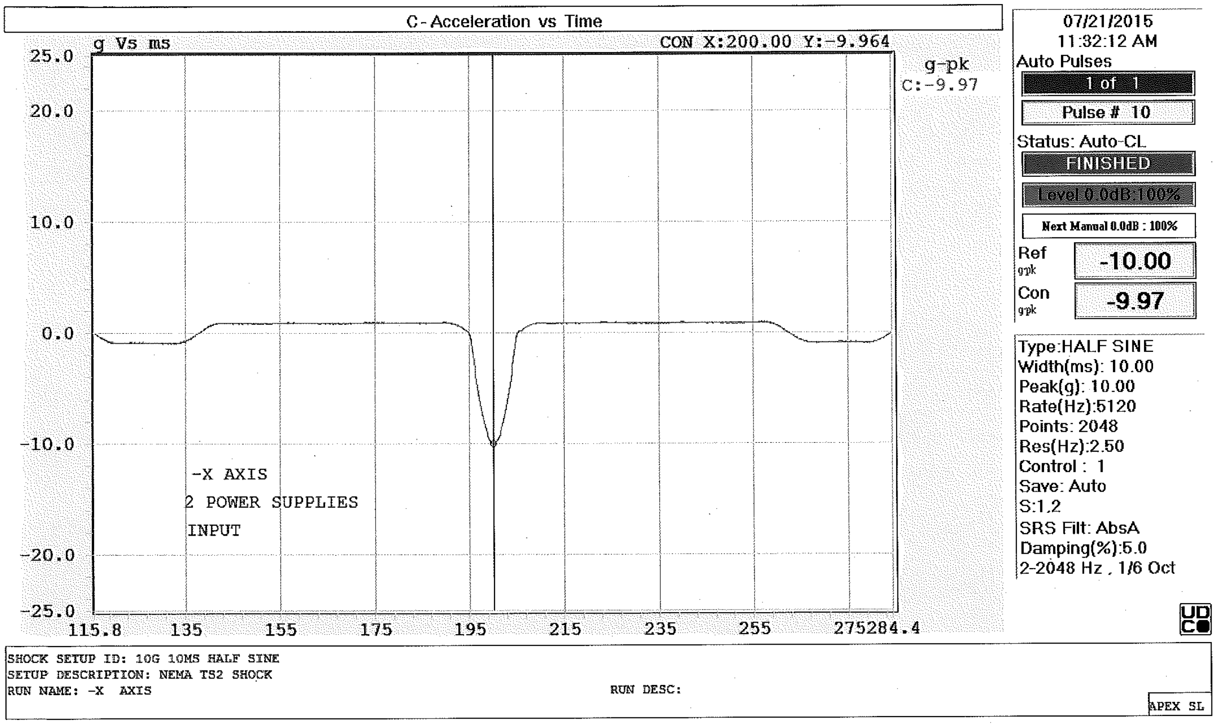


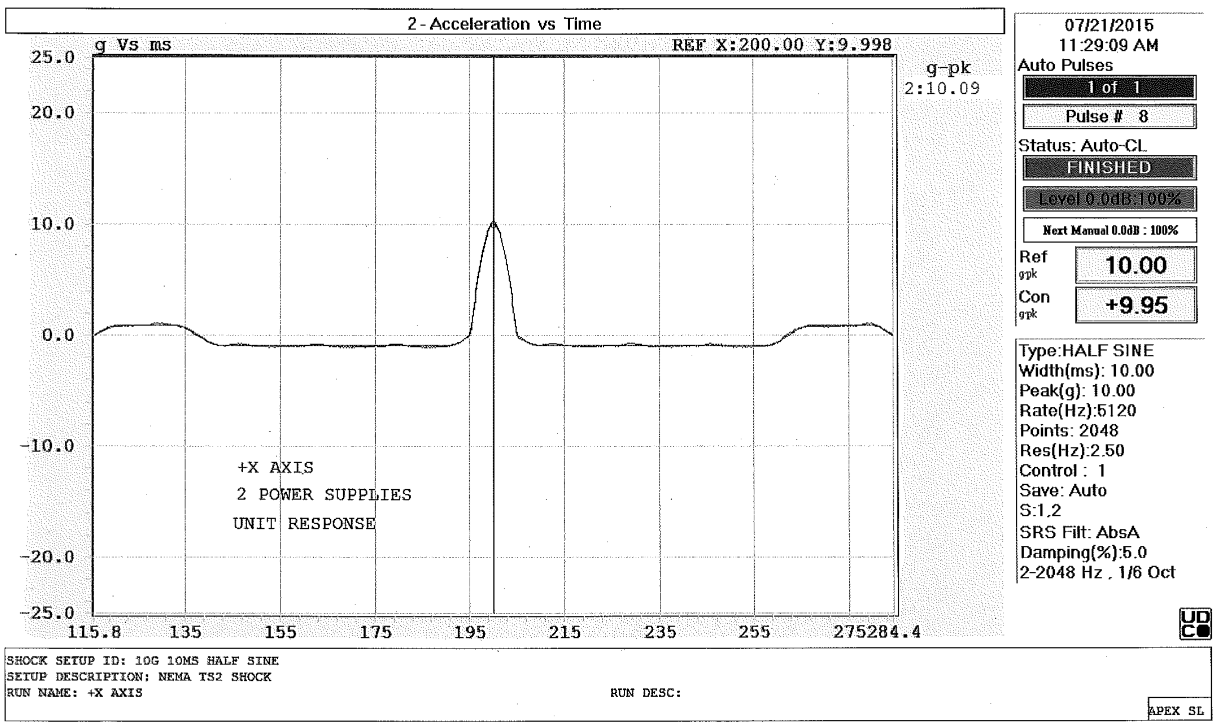
C-Acceleration vs Time
g Vs ms
REF X:200.00 Y:-9.998
g-pk
C:-10.65
25.0
20.0
10.0
0.0
-10.0
-20.0
-25.0
115.8
135
155
175
195
215
235
255
275284.4
-Y AXIS CAMERA 1
INPUT
07/22/2015
09:49:54 AM
Auto Pulses
1 of 1
Pulse # 8
Status: Auto-CL
FINISHED
Level 0.0dB:100%
Next Manual 0.0dB : 100%
Ref g-pk -10.00
Con g-pk -10.65
Type:HALF SINE
Width(ms): 10.00
Peak(g): 10.00
Rate(Hz):5120
Points: 2048
Res(Hz):2.50
Control : 1
Save: Auto
S:1,2
SRS Filt: AbsA
Damping(%):5.0
2-2048 Hz , 1/6 Oct
SHOCK SETUP ID: 10G 10MS HALF SINE
SETUP DESCRIPTION: NEMA TS2 SHOCK
RUN NAME: -Y AXIS CAMERA 1
RUN DESC:
APEX SL

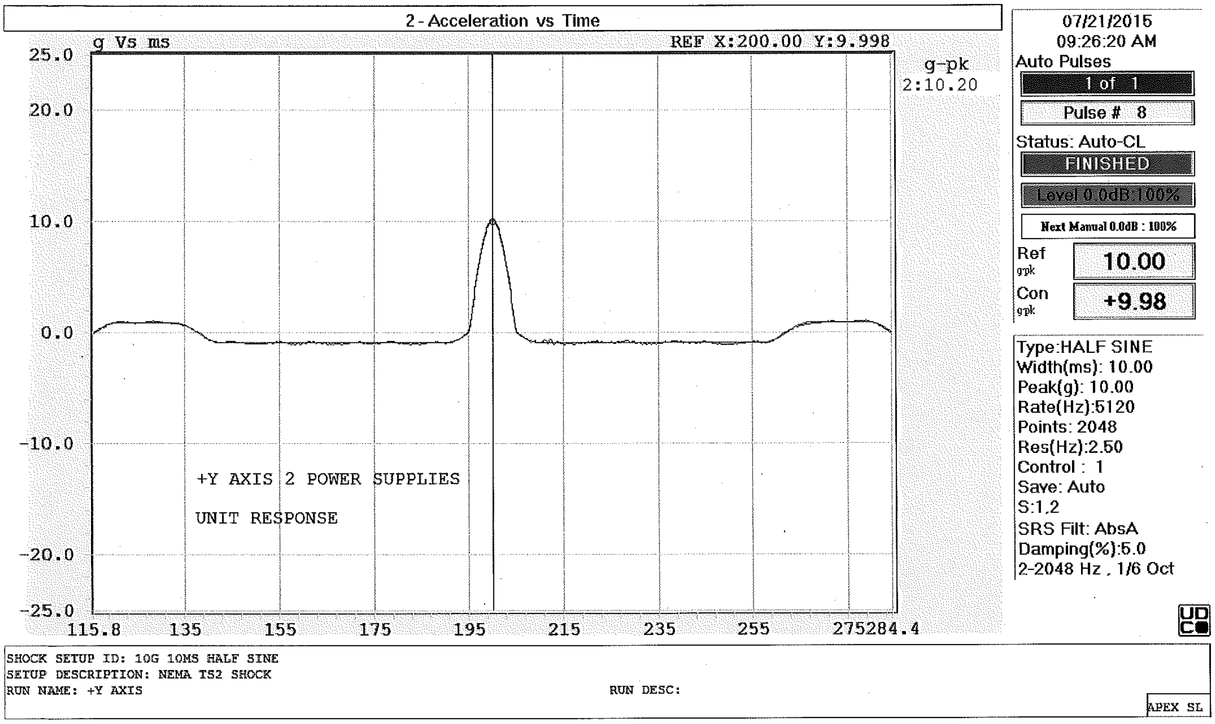

C-Acceleration vs Time
g Vs ms
REF X:200.00 Y:-9.998
g-pk
C:-10.04
25.0
20.0
10.0
0.0
-10.0
-20.0
-25.0
115.8
135
155
175
195
215
235
255
275284.4
-Z AXIS
CAMERA #1
INPUT
07/22/2015
02:53:24 PM
Auto Pulses
1 of 1
Pulse # 11
Status: Auto-CL
FINISHED
Level 0.0dB:100%
Next Manual 0.0dB : 100%
Ref gpk -10.00
Con gpk -10.04
Type:HALF SINE
Width(ms): 10.00
Peak(g): 10.00
Rate(Hz):5120
Points: 2048
Res(Hz):2.50
Control : 1
Save: Auto
S:1.2
SRS Filt: AbsA
Damping(%):5.0
2-2048 Hz , 1/6 Oct
SHOCK SETUP ID: 10G 10MS HALF SINE
SETUP DESCRIPTION: NEMA TS2 SHOCK
RUN NAME: -Z AXIS CAMERA 1
RUN DESC:
APEX SL

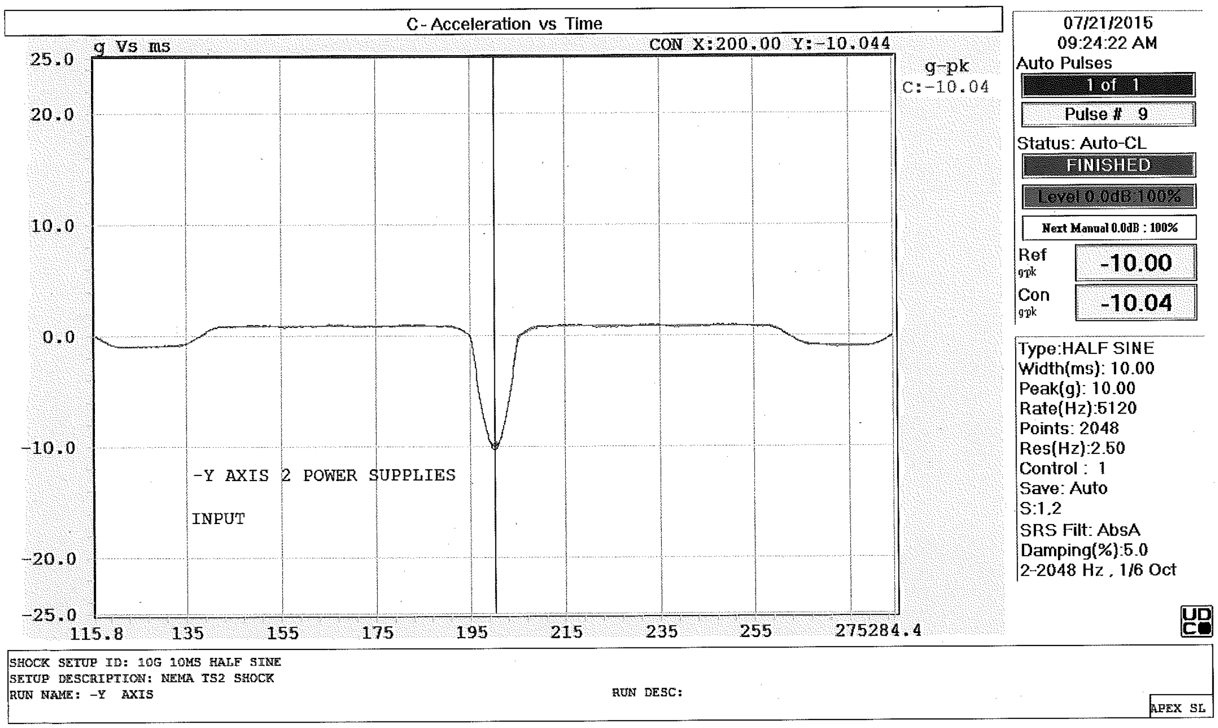


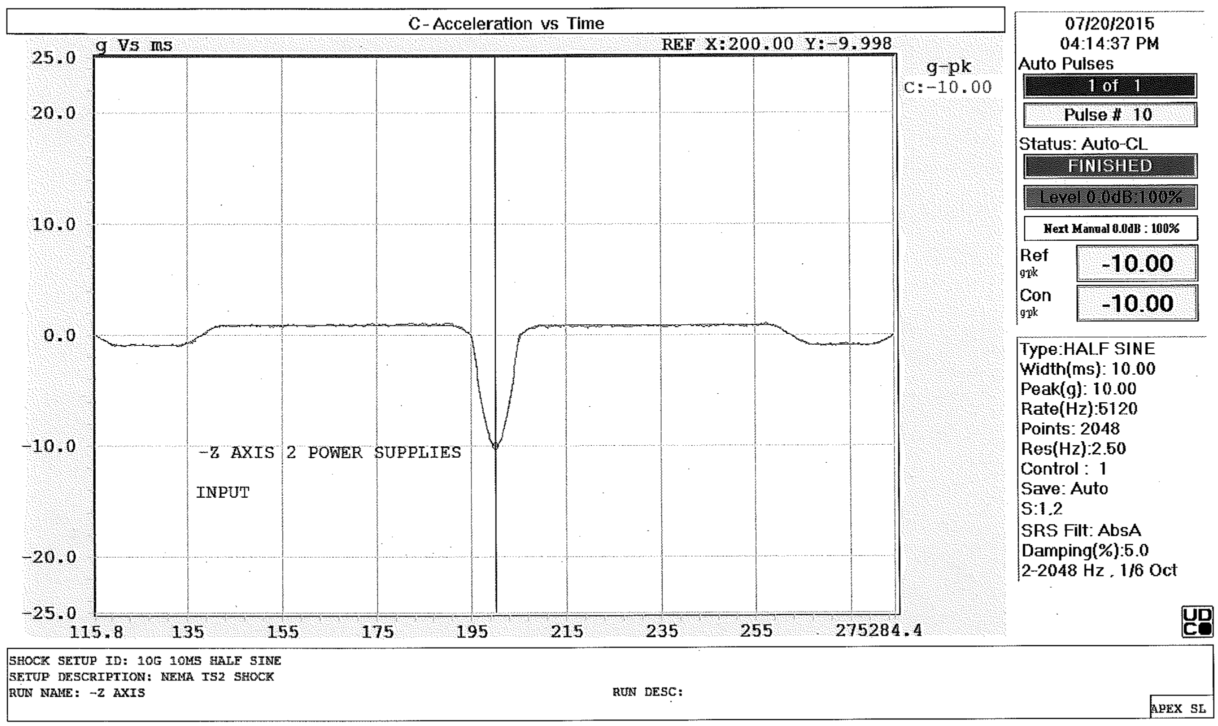
C-Acceleration vs Time
g Vs ms
REF X:200.00 Y:9.998
g-pk
C:9.98
25.0
20.0
10.0
0.0
-10.0
-20.0
-25.0
115.8
135
155
175
195
215
235
255
275284.4
+Z AXIS
CAMERA #1
INPUT
07/22/2015
03:00:00 PM
Auto Pulses
1 of 1
Pulse # 14
Status: Auto-CL
FINISHED
Level 0.0dB 100%
Next Manual 0.0dB : 100%
Ref gpk 10.00
Con gpk +9.98
Type:HALF SINE
Width(ms): 10.00
Peak(g): 10.00
Rate(Hz):5120
Points: 2048
Res(Hz):2.50
Control : 1
Save: Auto
S:1
SRS Filt: AbsA
Damping(%):5.0
2-2048 Hz , 1/6 Oct
SHOCK SETUP ID: 10G 10MS HALF SINE
SETUP DESCRIPTION: 10G 10MS HALF SINE
RUN NAME: +Z AXIS CAMERA 1
RUN DESC:
APEX SL

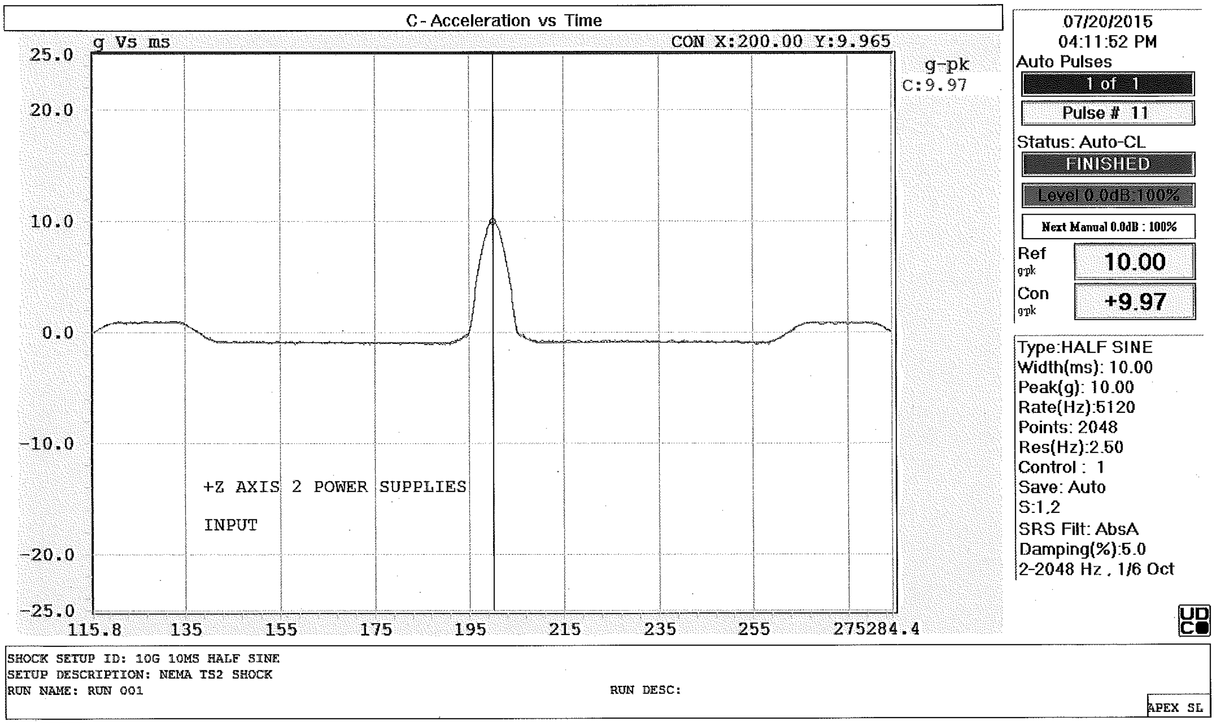

C-Acceleration vs Time
g Vs ms
CON X:200.00 Y:-9.964
g-pk
C:-9.97
25.0
20.0
10.0
0.0
-10.0
-20.0
-25.0
115.8
135
155
175
195
215
235
255
275284.4
-X AXIS
2 POWER SUPPLIES
INPUT
07/21/2015
11:32:12 AM
Auto Pulses
1 of 1
Pulse # 10
Status: Auto-CL
FINISHED
Level 0.0dB:100%
Next Manual 0.0dB : 100%
Ref gpk -10.00
Con gpk -9.97
Type:HALF SINE
Width(ms): 10.00
Peak(g): 10.00
Rate(Hz):5120
Points: 2048
Res(Hz):2.50
Control : 1
Save: Auto
S:1.2
SRS Filt: AbsA
Damping(%):5.0
2-2048 Hz , 1/6 Oct
SHOCK SETUP ID: 10G 10MS HALF SINE
SETUP DESCRIPTION: NEMA TS2 SHOCK
RUN NAME: -X AXIS
RUN DESC:
APEX SL


2 - Acceleration vs Time
g Vs ms
REF X:200.00 Y:9.998
g-pk
2:10.09
25.0
20.0
10.0
0.0
-10.0
-20.0
-25.0
115.8
135
155
175
195
215
235
255
275284.4
+X AXIS
2 POWER SUPPLIES
UNIT RESPONSE
07/21/2015
11:29:09 AM
Auto Pulses
1 of 1
Pulse # 8
Status: Auto-CL
FINISHED
Level 0.0dB:100%
Next Manual 0.0dB : 100%
Ref gpk 10.00
Con gpk +9.95
Type:HALF SINE
Width(ms): 10.00
Peak(g): 10.00
Rate(Hz):5120
Points: 2048
Res(Hz):2.50
Control : 1
Save: Auto
S:1,2
SRS Filt: AbsA
Damping(%):5.0
2-2048 Hz , 1/6 Oct
SHOCK SETUP ID: 10G 10MS HALF SINE
SETUP DESCRIPTION: NEMA TS2 SHOCK
RUN NAME: +X AXIS
RUN DESC:
APEX SL


2 - Acceleration vs Time
g Vs ms
REF X:200.00 Y:9.998
g-pk
2:10.20
25.0
20.0
10.0
0.0
-10.0
-20.0
-25.0
115.8
135
155
175
195
215
235
255
275284.4
+Y AXIS 2 POWER SUPPLIES
UNIT RESPONSE
07/21/2015
09:26:20 AM
Auto Pulses
1 of 1
Pulse # 8
Status: Auto-CL
FINISHED
Level 0.0dB:100%
Next Manual 0.0dB : 100%
Ref gpk 10.00
Con gpk +9.98
Type:HALF SINE
Width(ms): 10.00
Peak(g): 10.00
Rate(Hz):5120
Points: 2048
Res(Hz):2.50
Control : 1
Save: Auto
S:1.2
SRS Filt: AbsA
Damping(%):5.0
2-2048 Hz , 1/6 Oct
SHOCK SETUP ID: 10G 10MS HALF SINE
SETUP DESCRIPTION: NEMA TS2 SHOCK
RUN NAME: +Y AXIS
RUN DESC:
APEX SL


C-Acceleration vs Time
g Vs ms
CON X:200.00 Y:-10.044
g-pk
C:-10.04
25.0
20.0
10.0
0.0
-10.0
-20.0
-25.0
115.8
135
155
175
195
215
235
255
275284.4
-Y AXIS 2 POWER SUPPLIES
INPUT
07/21/2015
09:24:22 AM
Auto Pulses
1 of 1
Pulse # 9
Status: Auto-CL
FINISHED
Level 0.0dB 100%
Next Manual 0.0dB : 100%
Ref g-pk -10.00
Con g-pk -10.04
Type:HALF SINE
Width(ms): 10.00
Peak(g): 10.00
Rate(Hz):5120
Points: 2048
Res(Hz):2.50
Control : 1
Save: Auto
S:1,2
SRS Filt: AbsA
Damping(%):5.0
2-2048 Hz , 1/6 Oct
SHOCK SETUP ID: 10G 10MS HALF SINE
SETUP DESCRIPTION: NEMA TS2 SHOCK
RUN NAME: -Y AXIS
RUN DESC:
APEX SL


C-Acceleration vs Time
g Vs ms
REF X:200.00 Y:-9.998
g-pk
C:-10.00
25.0
20.0
10.0
0.0
-10.0
-20.0
-25.0
115.8 135 155 175 195 215 235 255 275284.4
-Z AXIS 2 POWER SUPPLIES
INPUT
07/20/2015
04:14:37 PM
Auto Pulses
1 of 1
Pulse # 10
Status: Auto-CL
FINISHED
Level 0.0dB:100%
Next Manual 0.0dB : 100%
Ref g-pk -10.00
Con g-pk -10.00
Type:HALF SINE
Width(ms): 10.00
Peak(g): 10.00
Rate(Hz):5120
Points: 2048
Res(Hz):2.50
Control : 1
Save: Auto
S:1.2
SRS Filt: AbsA
Damping(%):5.0
2-2048 Hz , 1/6 Oct
SHOCK SETUP ID: 10G 10MS HALF SINE
SETUP DESCRIPTION: NEMA TS2 SHOCK
RUN NAME: -Z AXIS
RUN DESC:
APEX SL


C-Acceleration vs Time
g Vs ms
CON X:200.00 Y:9.965
g-pk
C:9.97
25.0
20.0
10.0
0.0
-10.0
-20.0
-25.0
115.8 135 155 175 195 215 235 255 275284.4
+Z AXIS 2 POWER SUPPLIES
INPUT
07/20/2015
04:11:52 PM
Auto Pulses
1 of 1
Pulse # 11
Status: Auto-CL
FINISHED
Level 0.0dB:100%
Next Manual 0.0dB : 100%
Ref gpk 10.00
Con gpk +9.97
Type:HALF SINE
Width(ms): 10.00
Peak(g): 10.00
Rate(Hz):5120
Points: 2048
Res(Hz):2.50
Control : 1
Save: Auto
S:1,2
SRS Filt: AbsA
Damping(%):5.0
2-2048 Hz , 1/6 Oct
SHOCK SETUP ID: 10G 10MS HALF SINE
SETUP DESCRIPTION: NEMA TS2 SHOCK
RUN NAME: RUN 001
RUN DESC:
APEX SL