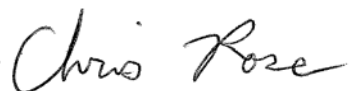




Report of Measurements for  
Models: MSLB-2-XXXX-1-X-XXXXXX and MSLB-2-  
XXXX-2-X-XXXXXX  
For

Bridgelux  
101 Portola Ave  
Livermore, CA 94551  
October 31, 2012

Test Engineer:



Chris Rose

WiSE Engineer

UL - WiSE

Wireless, Interoperability, Security/Payments & EMC

Reviewer:



Michelle Henderson (919-549-1471)

WiSE Operations Manager

UL - WiSE

Wireless, Interoperability, Security/Payments & EMC

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## 1.0 EXECUTIVE SUMMARY

### 1.1 Introduction

This audit report examines the following for conformance to Telcordia Technologies GR-63-CORE, Issue 4, April 2012 – Section 4.4.1 – Earthquake (Zone 4), Telcordia Technologies GR-63-CORE, Issue 4, April 2012 – Section 4.4.3 – Equipment Anchor Criteria, and ETSI EN 300019-2-3 V2.2.2 (2003-2004) – Shock (Class T3.1)\*.

\*Note - Shock levels increased to 30G.

Luminaire Models Evaluated:

- MSLB-2-0606-1-B-AAAA00 (with Thomas Research Products – LED96W-034-C2800-M-D)
- MSLB-2-0606-2-B-AAAA00 (Mean Well – HVG-100-30BBR)



Please note: This report is intended to cover families MSLB-2-XXXX-1-X-XXXXXX and MSLB-2-XXXX-2-X-XXXXXX.

Model Nomenclature (Example: MSLB-2-0606-2-S-AAAA00)

MSLB-2-XXXX-X-X-XXXXXX

Product Family	Generation	Nominal System Wattage (x100)	Number of Modules	Input Voltage	System Color
MSLB	2	01=100W 02=200W 03=300W 04=400W 05=500W 06=600W	01=1 module 02=2modules 03=3modules 04=4modules 05=5modules 06=6modules	1=100-277VAC,50/60Hz  2=347VAC,50/60Hz	W=White S=Standard B=Black

MSLB-2-XXXX-X-X-XXXXXX

1 <sup>st</sup> X	2 <sup>nd</sup> X	3 <sup>rd</sup> X	4 <sup>th</sup> X	5 <sup>th</sup> X	6 <sup>th</sup> X
A=5000CCT,70CRI,C 9000 Array B=4100CCT,70CRI,C 9000 Array C=5600CCT,70CRI,C 9000 Array D=3000CCT,80CRI,C 9000 Array E=2700CCT,80CRI,C 9000 Array F=5000CCT,70CRI,C 5000 Array G=4100CCT,70CRI,C 5000 Array H=5600CCT,70CRI,C 5000 Array I=3000CCT,80CRI,C 5000 Array J=2700CCT,80CRI,C 5000 Array	A=3mm Glass, Clear, no reflector B=Dome, Clear, no reflector C=3mm Glass, Diffuse, no reflector D=Dome, Diffuse, no reflector E=Dome, Clear, Type 3 Med reflector F=Dome, Diffuse, Type 3 Med reflector G=Dome, Clear, Type 4 Med reflector H=Dome, Diffuse, Type 4 Med reflector I=6mm Glass, Clear, no reflector J=6mm Glass, Diffuse, no reflector	A=0-10V dimming  B=Static  C=PWM  D=DALI  E=DMX	A=Indoor Electrical box  C=Pigtails  D=5/8"BX  E=3 Prong plug	TB D	TBD

Additionally the product may be configured as consisting of anywhere between 1 to 6 LED modules.

For example: MSLB-2-0606-1-S-AAAA00 is 6 module, 600W, 120/277VAC, Standard Color (Aluminum color), C9000 Array (CCT5000,CRI70), 3mm clear flat glass (no reflector), dimming indoor electrical box.



Table 1.3 is a detailed summary of the effects of test conditions as prescribed by the aforementioned test document on the functionality of the camera and charger.

### 1.2 Revision History

Revision Number	Description	Revision performed by
1.0	None, original	N/A

### 1.3 Test Result Summary

The table below summarizes the test results of luminaire models MSLB-2-0606-1-B-AAAA00 and MSLB-2-0606-2-B-AAAA00. The details of tests are located in the appropriate Annex for the section under investigation.

Note: The information in the table below should not be used without understanding the underlying circumstances of the test results that are presented in the Annexes of this report.

**TABLE 1.3: TEST RESULTS SUMMARY**

Criteria	Sample	Results	Annex	Comment
Earthquake	MSLB-2-0606-1-B-AAAA00	Pass	2	Vertical Axis Only
	MSLB-2-0606-2-B-AAAA00			
Equipment Anchor Criteria	MSLB-2-0606-1-B-AAAA00	Pass	3	
	MSLB-2-0606-2-B-AAAA00			
Shocks	MSLB-2-0606-1-B-AAAA00	Pass	4	Vertical Axis Only
	MSLB-2-0606-2-B-AAAA00			



## 2.0 ANALYSIS SCOPE

### 2.1 Product Description

### 2.2 Modifications Necessary for Compliance

The following modifications were incorporated into the EUT in order to fully comply with the requirements of the specification: None.

### 2.3 EUT Operability

The units were tested in a non-operating state without packaging, as they would normally be installed. Proper operation was verified at the conclusion of testing.

### 2.4 Testing Facilities

Test Category	Location
Earthquake	UL; RTP, NC
Equipment Anchor Criteria	UL; RTP, NC
Shocks	UL; RTP, NC



### 3.0 UL Technical Staff

The following personnel supervised and/or performed technical aspects of the test program:

Michelle Henderson	(919) 549-1471 WiSE Operations Manager
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Chris Rose	(919) 549-1713 WiSE Engineer
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### 4.0 Analysis Criteria

The criteria against which the meters were analyzed are contained in the following documents:

- Telcordia Technologies GR-63-CORE, Issue 4, April 2012
- ETSI EN 300019-2-3 V2.2.2 (2003-2004)





## ANNEX 1 – Equipment Photos

Figure A1- 1: MSLB-2-0606-1-B-AAAA00 (Top)

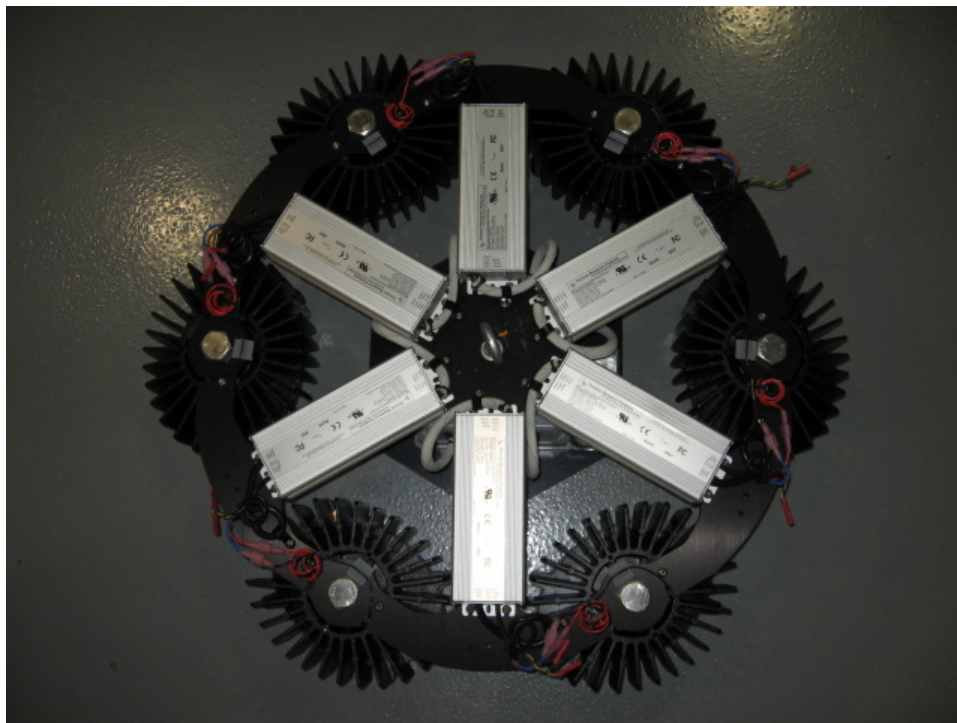


Figure A1- 2: MSLB-2-0606-1-B-AAAA00 (Bottom)



Figure A1- 3: MSLB-2-0606-2-B-AAAA00 (Top)



Figure A1- 4: MSLB-2-0606-2-B-AAAA00 (Bottom)



**ANNEX 2 – Earthquake****Criteria**

Coordinate Point	Frequency [Hz]	Values for upper floor acceleration [m/s <sup>2</sup> ]
1	1	30
2	2	50
3	5	50
4	15	15
5	35	15

**Method**

Subject the equipment to the VERTEQII waveform. Verify the TRS meets or exceeds the RRS in the frequency range from 1.0 to 50 Hz. If the TRS is below the RRS at any point, use the last drive signal and table acceleration to update the transfer function. Apply it to the Telcordia waveform to generate a new drive signal, and retest the equipment. Repeat this step as necessary. The TRS should not exceed the RRS by more than 30% in the frequency range of 1 to 7 Hz. A test may be invalid if an equipment failure occurs when the TRS exceeds the RRS by more than 30% in this frequency range.

**Results**

SAMPLE	AXIS	RESULT	COMMENTS
MSLB-2-0606-1-B-AAAA00	Vertical	Pass	
MSLB-2-0606-2-B-AAAA00	Vertical	Pass	

- ☐ The equipment did sustain physical and/or functional damage.  
☒ The equipment did not sustain any physical and/or functional damage.

**Test Instruments**

Description	Serial Number	Manufacturer	Model	Cal. Date	Cal. Due
Signal Conditioner	AX0037	LDS	Laser	2011/12/30	2012/12/30
Accelerometer	AX0023	PCB	J353B15	2012/02/20	2013/02/28
Accelerometer	AX0030	Dytran	3202A1	2011/12/16	2012/12/31



Figure A4- 3: MSLB-2-0606-1-B-AAAA00 – Earthquake Configuration

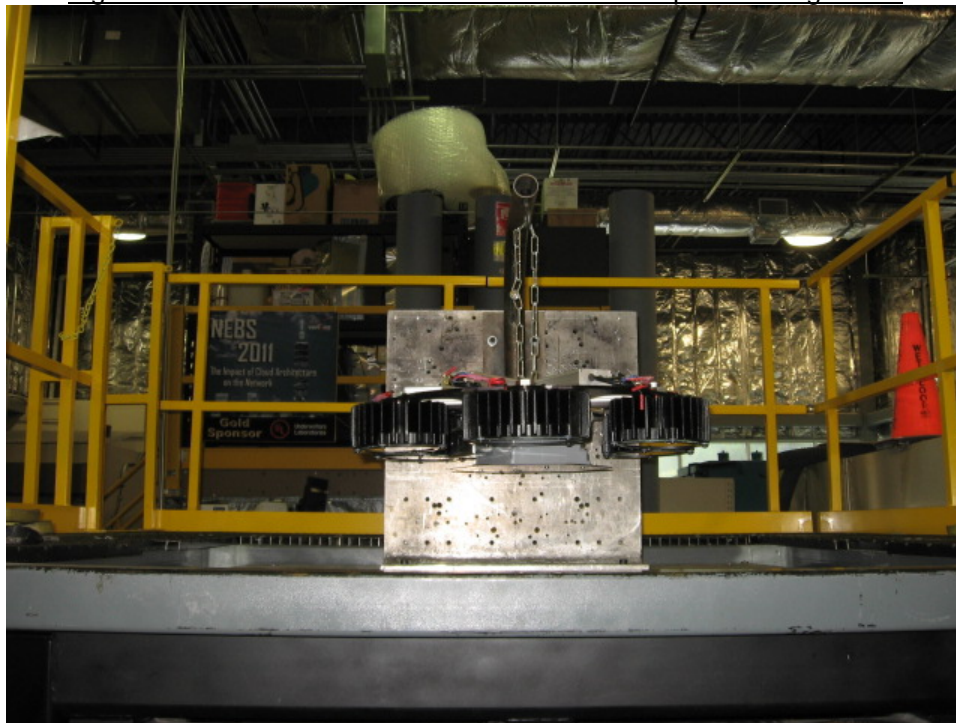


Figure A2- 5: MSLB-2-0606-1-B-AAAA00 - RRS/TRS

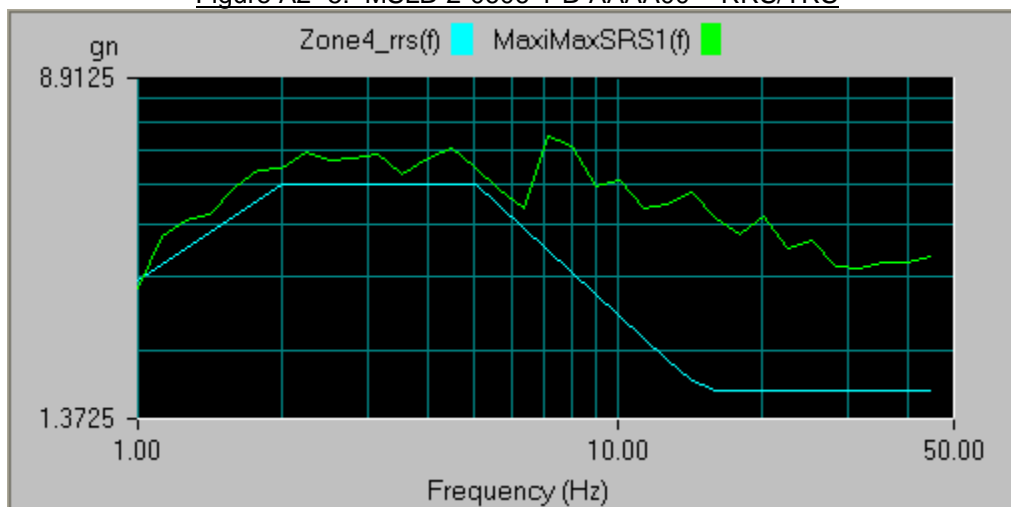




Figure A2- 6: MSLB-2-0606-1-B-AAAA00 - Time History

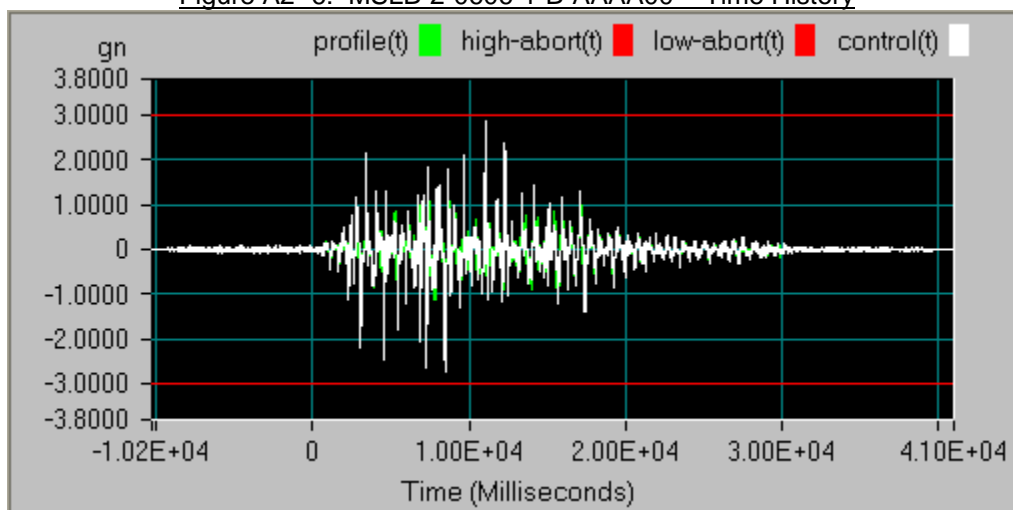


Figure A4- 3: MSLB-2-0606-2-B-AAAA00 – Earthquake Configuration

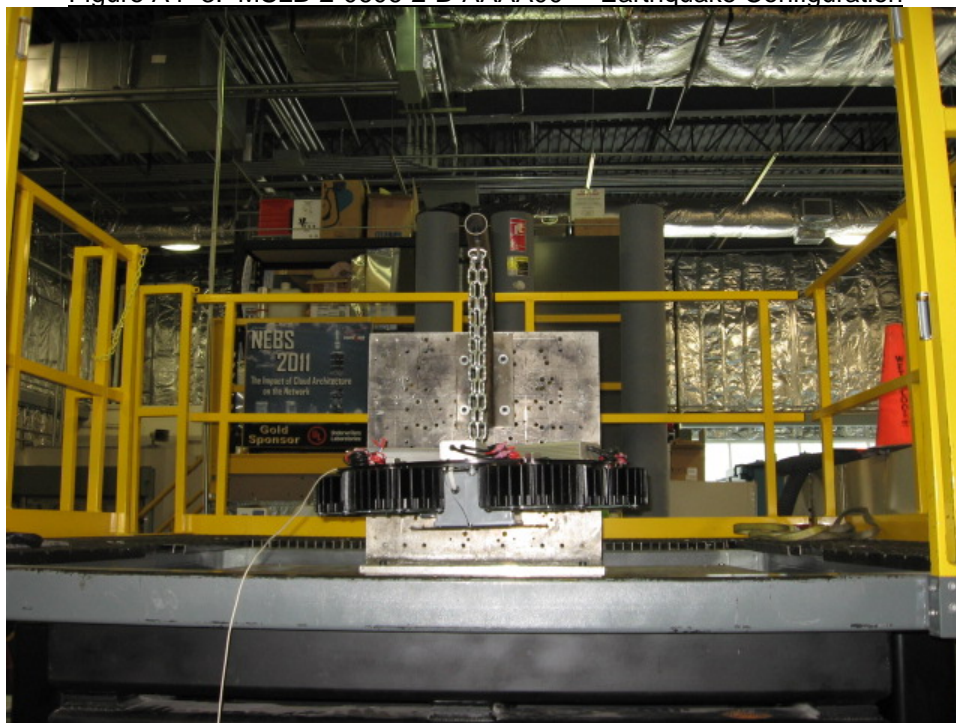


Figure A2- 7: MSLB-2-0606-2-B-AAAA00 - RRS/TRS

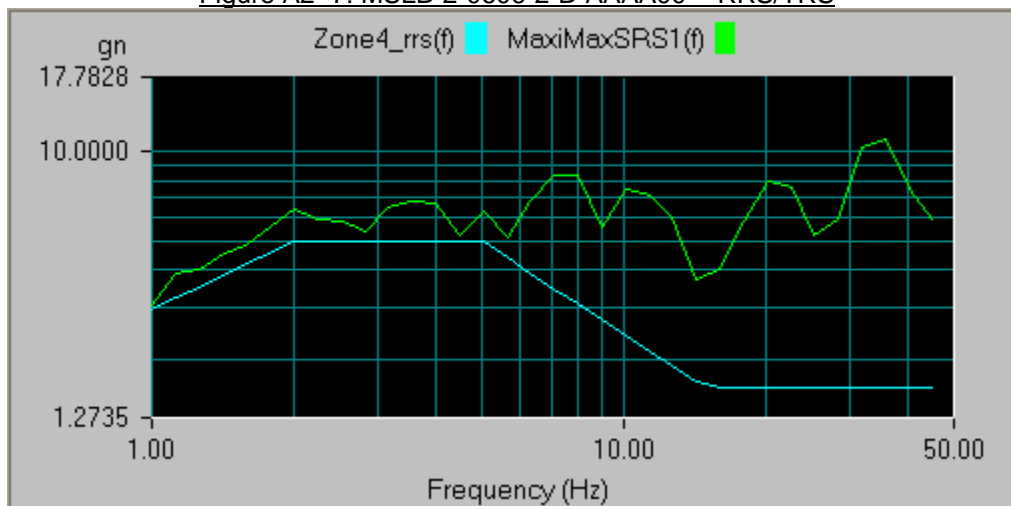
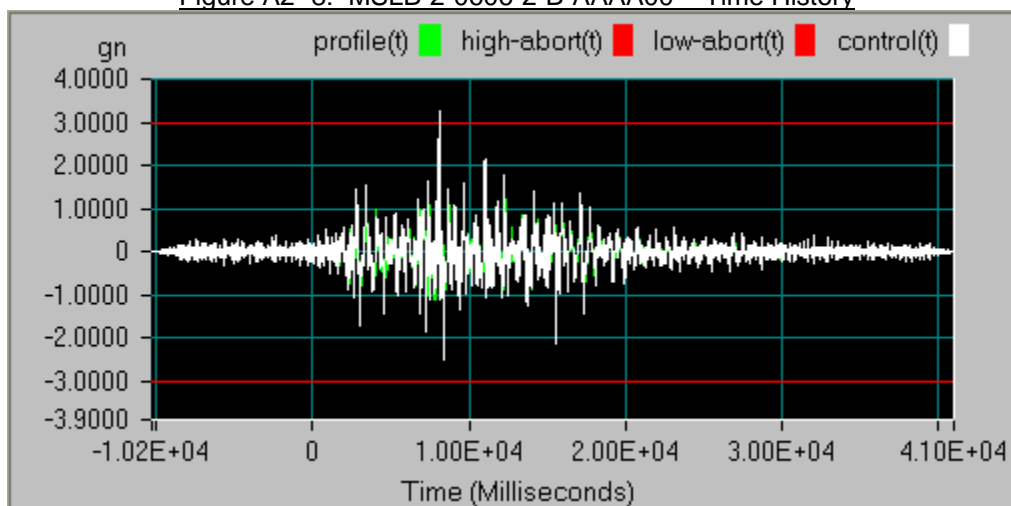


Figure A2- 8: MSLB-2-0606-2-B-AAAA00 - Time History



**Annex 3: Equipment Anchor Criteria****Criteria**

The fastening systems used for the EUT shall withstand a force of 3 times the weight of the EUT applied to the equipment in the vertical direction.

**Procedure**

1. Measure and document the weight of the equipment.
2. Mount the equipment using the fastening system provided/specified by the manufacturer per the installation documentation.
3. Apply a force of 3 times the measured weight to the equipment in the vertical direction.

**Results**

<b>Model</b>	<b>Weight of EUT (lbs)</b>	<b>Applied Force (3 * Weight of EUT)</b>	<b>Results of Applied Force (Pass/Fail)</b>
MSLB-2-0606-2-B-AAAA00	60	180lbs	Pass
MSLB-2-0606-1-B-AAAA00	57	180lbs	Pass

**Test Instruments**

<b>Description</b>	<b>Serial Number</b>	<b>Manufacturer</b>	<b>Model</b>	<b>Cal. Date</b>	<b>Cal. Due</b>
Scale	WD0086	Mettler Toledo	VLF01023	2012/03/28	2013/03/28

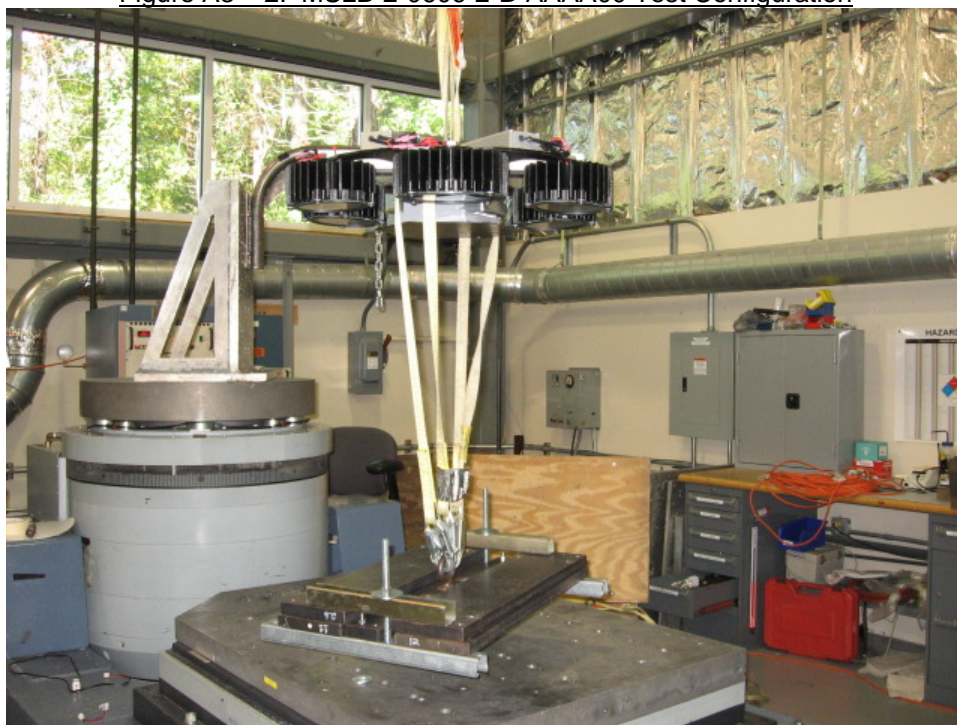


Figure A3 - 1: MSLB-2-0606-1-B-AAAA00 Test Configuration





Figure A3 – 2: MSLB-2-0606-2-B-AAAA00 Test Configuration



**Annex 4: MECHANICAL SHOCK****Criteria**

Shock Spectrum	Duration (ms)	Acceleration (m/s <sup>2</sup> )	Number of Shocks/Direction
Half sine	11ms	300 (30g)	1

**Test Method**

1. The equipment under test shall be mounted to the vibration table.
2. Measure the input acceleration with a suitable transducer.
3. Subject the equipment to the shock spectrum listed above.
4. The sample is configured in its in-use orientation.
5. Testing is conducted in the vertical axis only.

**Results**

Model	Axis	Results of Applied Force (Pass/Fail)
MSLB-2-0606-2-B-AAAA00	Vertical	Pass
MSLB-2-0606-1-B-AAAA00	Vertical	Pass

- ☐ The equipment did sustain physical and/or functional damage.
- ☒ The equipment did not sustain any physical and/or functional damage.

**Test Instruments**

Description	Serial Number	Manufacturer	Model	Cal. Date	Cal. Due
Signal Conditioner	VE0008	UD	CVA-8	2012/12/15	2013/12/31
Signal Generator	PC0021	UD	DSP-8	2012/03/26	2013/03/31
Signal Generator	PC0022	UD	DSP-2	2012/03/26	2013/03/31
Signal Generator	PC0023	UD	VGN-8	2012/03/26	2013/03/31
Accelerometer	AX0012	PCB	J353B31	2011/05/17	2013/05/31



Figure A4 - 1: MSLB-2-0606-1-B-AAAA00 +

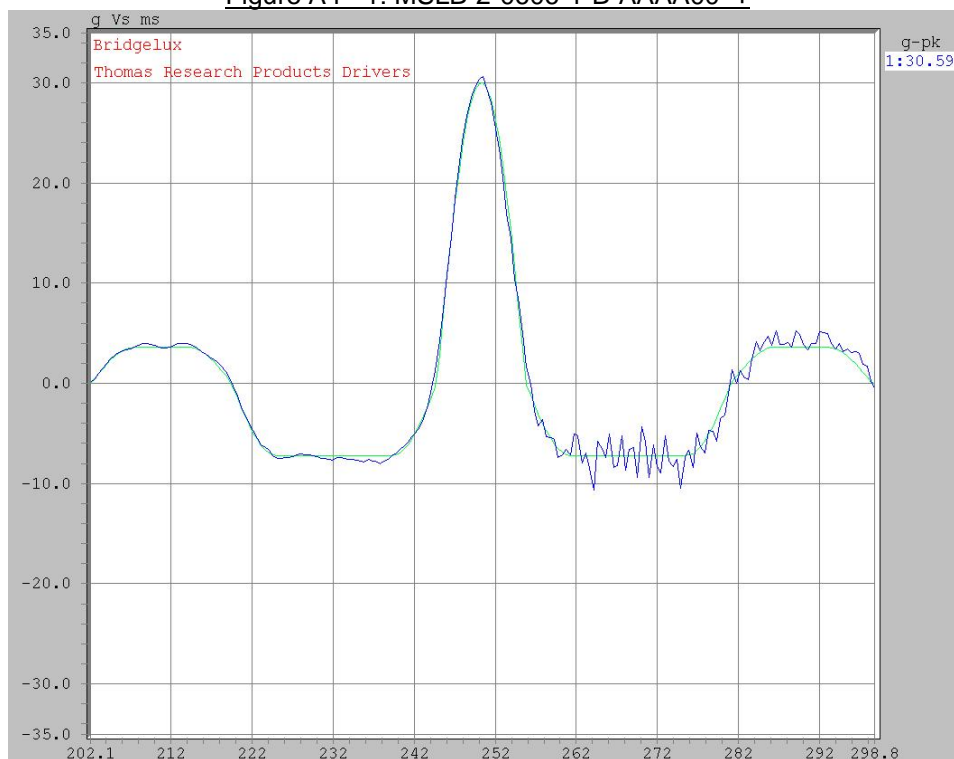


Figure A4 - 2: MSLB-2-0606-1-B-AAAA00 -

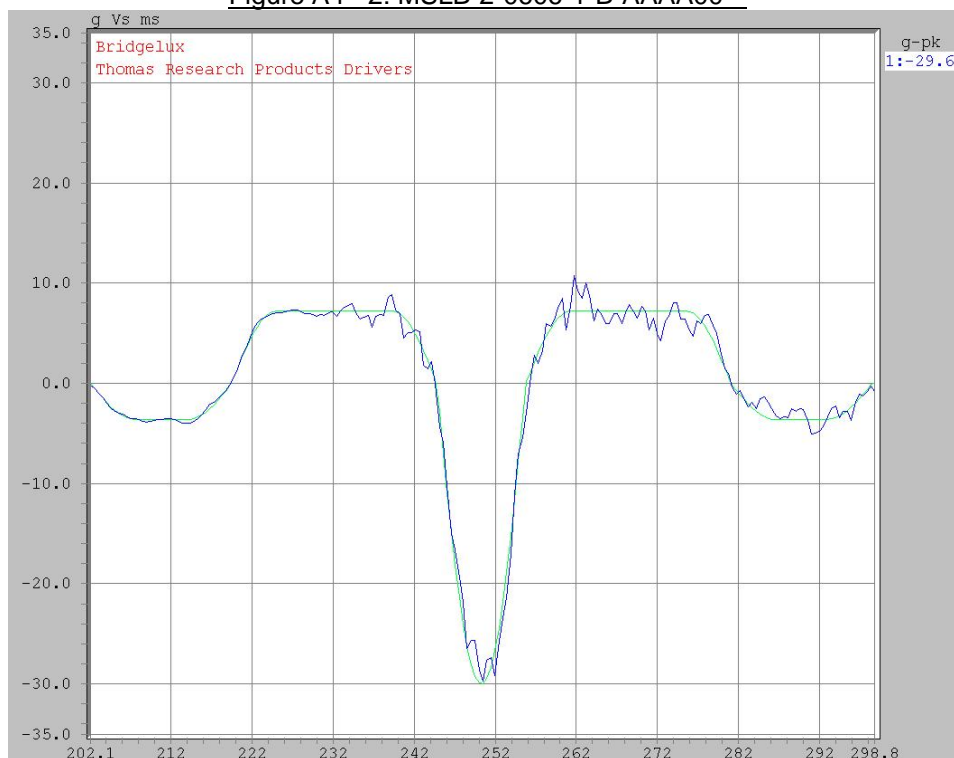


Figure A4 - 3: MSLB-2-0606-2-B-AAAA00 +

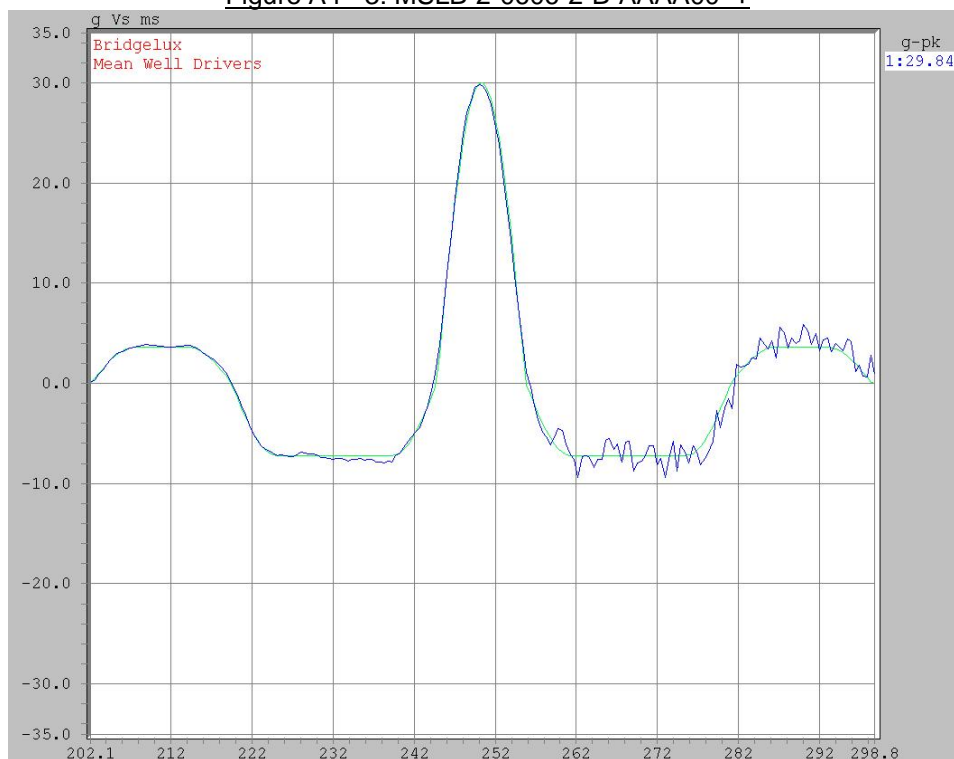


Figure A4 - 4: MSLB-2-0606-2-B-AAAA00 -

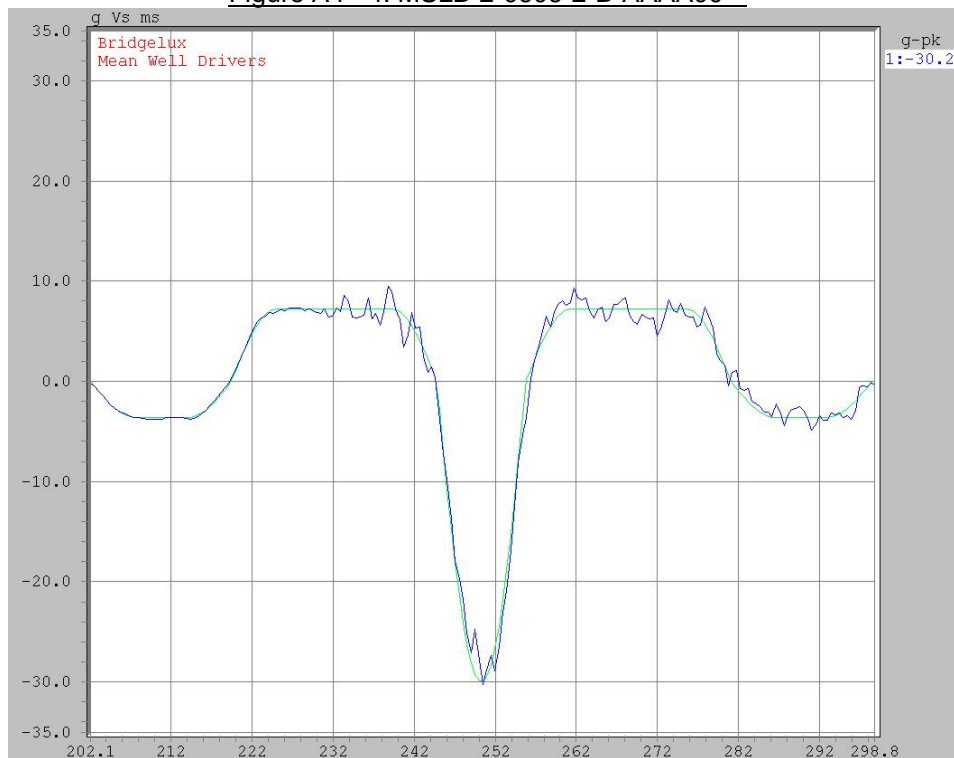


Figure A4 - 5: MSLB-2-0606-1-B-AAAA00 Setup



Figure A4 - 6: MSLB-2-0606-2-B-AAAA00 Setup

