
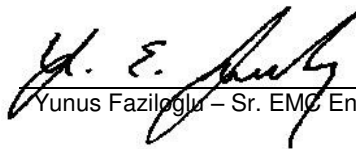




Test Report



Curtis-Straus LLC, a wholly owned subsidiary of BV CPS

Report No	EQ0291-1
Client	Ideal Industries, Inc.
Address	Becker Place Sycamore, IL 60178
Phone	(815) 899 - 7774
Items tested	LS1401
FCC ID	2AAMXLS1401
IC	11250A-LS1401
FRN	0002862225
Equipment Type	Digital Transmission System
Equipment Code	DTS
Emission Designator	847KG1D
FCC/IC Rule Parts	CFR Title 47 FCC Part 15.247, ISED Canada RSS-247 Issue 1
Test Dates	February 6 to 11, 2016
Results	As detailed within this report
Prepared by	 Tuyen A. Truong – Test Engineer
Authorized by	 Yunus Faziloglu – Sr. EMC Engineer
Issue Date	<u>3/20/2017</u>
Conditions of Issue	This Test Report is issued subject to the conditions stated in the 'Conditions of Testing' section on page 26 of this report.

Curtis-Straus LLC is accredited by the American Association for Laboratory Accreditation for the specific scope of accreditation under Certificate Number 1627-01. This report may contain data which is not covered by the A2LA accreditation.



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Form Final Report REV 7-20-07 (DW)



Summary

This test report supports an application for certification of a transmitter operating pursuant to: CFR Title 47 FCC Part 15.247, ISED Canada RSS-247 Issue 1

The product is the LS1401. It is a digitally modulated transmitter that operates in the frequency range of 902.7-927.3MHz. Product has an internal PCB trace antenna with 2.5dBi gain.

We found that the product met the above requirements without modification. The test sample was received in good condition.

Issue No.	Reason for change	Date Issued
1	Original Release	March 20, 2017



Test Methodology

All testing was performed according to the following rules/procedures/documents;
 CFR Title 47 FCC Part 15.247, ISED Canada RSS-247 Issue 1, ISED Canada RSS-Gen Issue 4, FCC KDB 558074 D01 DTS Measurement Guidance v03r04 and ANSI C63.10-2013.

Radiated emissions were maximized by rotating the device around three orthogonal axes as well as varying the test antenna’s height and polarity. The device antenna could not be maximized separately.

Conducted RF measurements at the antenna port could not be performed since the EUT has a non-removable integral antenna.

AC line conducted emissions testing was not applicable since the EUT is battery powered only.

3 channels were tested as follows,

Low = 902.7MHz

Middle = 915MHz

High = 927.3MHz

The following bandwidths were used during radiated spurious emissions testing.

Frequency	RBW	VBW
30-1000MHz	120kHz	1MHz
1-10GHz	1MHz	3MHz



Product Tested - Configuration Documentation

EUT Configuration											
Work Order:	Q0291										
Company:	Ideal Industries Inc.										
Company Address:	Becker Place Sycamore, IL 60178										
Contact:	Tim Tunnell										
	MN			PN			SN				
EUT:	LS1401			--			Sample 1				
EUT Description:	Light Sensor										
EUT TX Frequency:	902.7 - 927.3 MHz										
Port Label	Port Type	# ports	# populated	cable type	shielded	ferrites	length (m)	max length (m)	in/out	under test	comment
none											
Software Operating Mode Description:											
EUT was set to transmit at 902.7 MHz, 915 MHz and 927.3 MHz channels. Channels were changed by pressing the ON button.											



Statement of Conformity

The LS1401 has been found to conform to the following parts of 47 CFR and as detailed below:

RSS-GEN	RSP-100	RSS 247	Part 15	Comments
6.3			15.15(b)	There are no controls accessible to the user that varies the output power to operate in violation of the regulatory requirements.
	3.1		15.19	The label is shown in the label exhibit.
	4		15.21	Information to the user is shown in the instruction manual exhibit.
			15.27	No special accessories are required for compliance.
3, 6.1			15.31	The EUT was tested in accordance with the measurement standards in this section.
6.13			15.33	Frequency range was investigated according to this section, unless noted in specific rule section under which the equipment operates.
8.1			15.35	The EUT emissions were measured using the measurement detector and bandwidth specified in this section, unless noted in specific rule section under which the equipment operates.
8.3			15.203	EUT has a PCB trace antenna with a gain of 2.5dBi.
8.10			15.205 15.209	The fundamental is not in a Restricted band and the spurious and harmonic emissions in the Restricted bands comply with the general emission limits of 15.209 or RSS-Gen as applicable
8.8			15.207	Not applicable since EUT is battery powered.
			15.247	The EUT complies with the requirements of 15.247
		RSS 247		The EUT complies with the requirements of RSS-247
6.6				Occupied Bandwidth measurements were made.



Test Results

Bandwidth

LIMIT

The minimum 6 dB bandwidth shall be at least 500 kHz. [15.247(a) (2)]

MEASUREMENTS / RESULTS

6dB Bandwidth						
Date: 11-Feb-16		Company: Ideal Industries, Inc.			Work Order: Q0291	
Engineer: Tuyen Truong		EUT Desc: LS1401			EUT Operating Voltage/Frequency: Battery powered	
Temp: 22°C		Humidity: 27%		Pressure: 998mbar		
Frequency Range: 902.7-927.3 MHz				Measurement Distance: 3 m		
Notes:				EUT Tx Freq: 902.7-927.3 MHz		
Antenna Polarization (H/V)	Frequency (MHz)	Reading (KHz)	6dB BW			
			Limit (KHz)	Margin (KHz)	Result (Pass/Fail)	
H	902.7	656.848	≥500	+156.848	Pass	
H	915.0	649.264	≥500	+149.264	Pass	
H	927.3	650.470	≥500	+150.470	Pass	
Test Site: EMI Chamber 2		Cable 1: Asset #2052		Cable 2: Asset #2053		Cable 3: ---
Analyzer: Gold		Preamp: Red-White		Antenna: Red-White		Preselector: ---
CSsoft Radiated Emissions Calculator v 1.017.156						
Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor						
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Rev. 2/9/2016

Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Gold	100Hz-26.5 GHz	E4407B	Agilent	MY45113816	1284	I	1/13/2017	1/13/2016
Radiated Emissions Sites	FCC Code	IC Code	VCCI Code	Range		Cat	Calibration Due	Calibrated on
EMI Chamber 2	719150	2762A-7	A-0015	30-1000MHz		II	3/22/2017	3/22/2015
Preamps /Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Red-White	0.009-2000MHz	ZFL-1000-LN	CS	N/A	1258	II	12/27/2016	12/27/2015
Antennas	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Red-White Bilog	30-2000MHz	JB1	Sunol	A091604-1	1105	I	8/12/2017	8/12/2015
Meteorological Meters		MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Weather Clock (Pressure Only)		BA928	Oregon Scientific	C3166-1	831	I	3/19/2016	3/19/2014
TH A#2081		HTC-1	HDE		2081	II	4/2/2016	4/2/2015
Cables	Range		Mfr			Cat	Calibration Due	Calibrated on
Asset #2052	9kHz - 18GHz		Florida RF			II	3/8/2016	3/8/2015
Asset #2053	9kHz - 18GHz		Florida RF			II	3/8/2016	3/8/2015

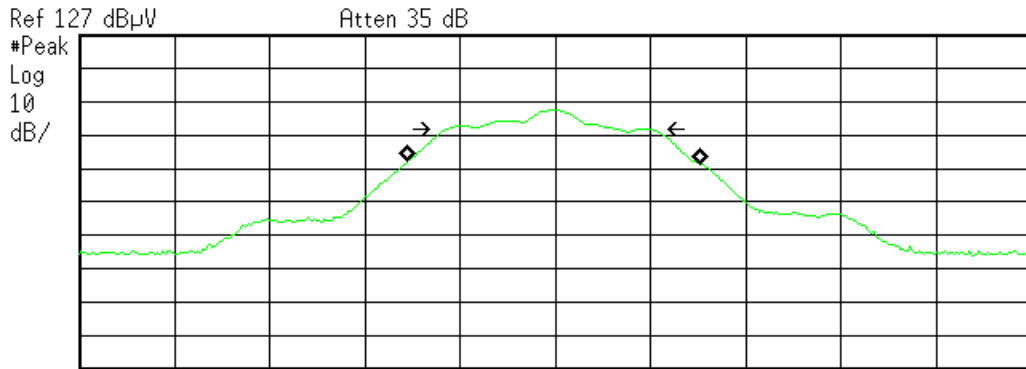
All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.



PLOT(s)

Agilent 14:49:34 Feb 11, 2016

R T



Ref 127 dBμV Atten 35 dB
 Center 902.7 MHz Span 3 MHz
 #Res BW 100 kHz #VBW 300 kHz Sweep 5 ms (401 pts)

Occupied Bandwidth
 921.5961 kHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

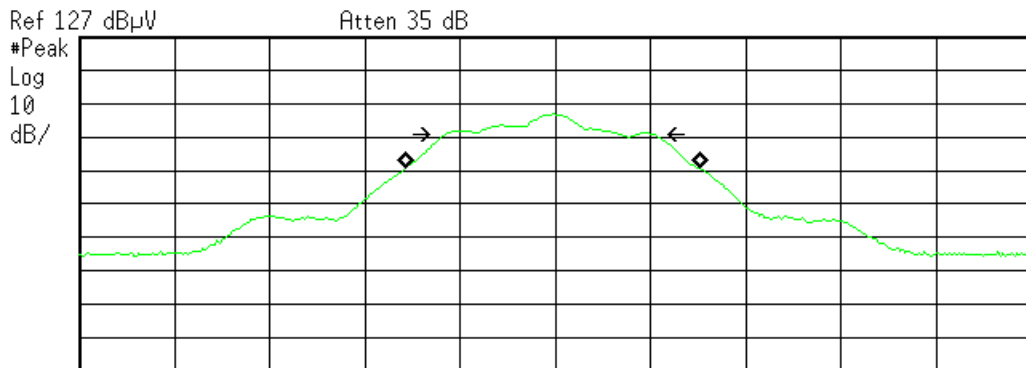
Transmit Freq Error -3.673 kHz
x dB Bandwidth 656.848 kHz

C:\temp.gif file saved

Low Channel – 6dB Bandwidth

Agilent 15:19:58 Feb 11, 2016

R T



Ref 127 dBμV Atten 35 dB
 Center 915 MHz Span 3 MHz
 #Res BW 100 kHz #VBW 300 kHz Sweep 5 ms (401 pts)

Occupied Bandwidth
 929.3457 kHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error -8.201 kHz
x dB Bandwidth 649.264 kHz

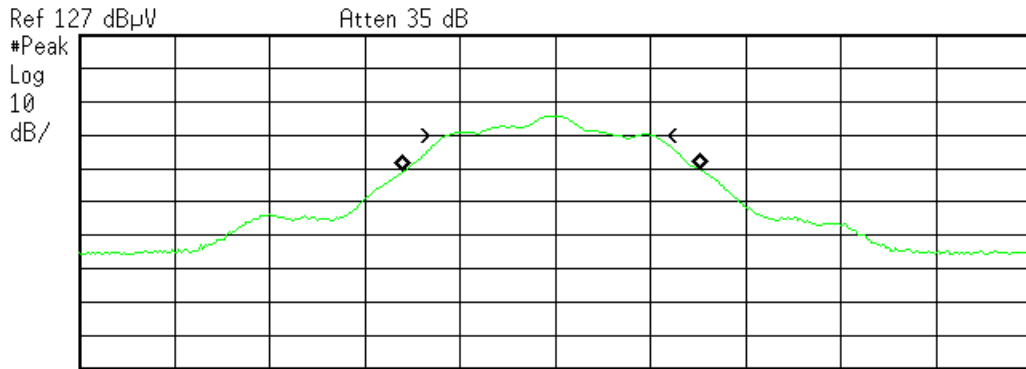
C:\temp.gif file saved

Mid Channel – 6dB Bandwidth



Agilent 15:36:23 Feb 11, 2016

R T



Occupied Bandwidth
937.1205 kHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error -8.431 kHz
x dB Bandwidth 650.470 kHz

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High Channel – 6 dB Bandwidth



Fundamental Emission Output Power

LIMIT

Conducted Output Power

1 Watt

[15.247(b) (3)]

Per 558074 D01 DTS Measurement Guidance v03r04 Section 9.2.2.2 (AVGSA-1 Average Conducted Output Power)

MEASUREMENTS / RESULTS

Fundamental Emission Output Power											
Date: 11-Feb-16			Company: Ideal Industries, Inc.			Work Order: Q0291					
Engineer: Tuyen Truong			EUT Desc: LS1401			EUT Operating Voltage/Frequency: Battery powered					
Temp: 22°C			Humidity: 27%			Pressure: 998mbar					
Frequency Range: 902.7-927.3 MHz						Measurement Distance: 3 m					
Notes:						EUT Tx Freq: 902.7-927.3 MHz					
Antenna Polarization (H/V)	Frequency (MHz)	Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Reading (dBµV/m)	Adjusted ERP Reading (dBm)	Adjusted Conducted Reading (dBm)	FCC 15.247		
									Limit (dBm)	Margin (dB)	Result (Pass/Fail)
H	902.7	104.1	25.3	22.6	1.7	103.1	7.9	5.4	30.0	-24.6	Pass
H	915.0	103.3	25.4	22.6	1.7	102.2	7.0	4.5	30.0	-25.5	Pass
H	927.3	102.4	25.5	22.4	1.6	100.9	5.7	3.2	30.0	-26.8	Pass
Table Result: Pass by -24.6 dB									Worst Freq: 902.7 MHz		
Test Site: EMI Chamber 2			Cable 1: Asset #2052			Cable 2: Asset #2053			Cable 3: ---		
Analyzer: Gold			Preamp: Red-White			Antenna: Red-White			Preselector: ---		
CSsoft Radiated Emissions Calculator v 1.017.156						Copyright Curtis-Straus LLC 2000					
Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor											

Rev. 2/9/2016

Spectrum Analyzers / Receivers / Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Gold	100Hz-26.5 GHz	E4407B	Agilent	MY45113816	1284	I	1/13/2017	1/13/2016
Radiated Emissions Sites	FCC Code	IC Code	VCCI Code	Range	Cat	Calibration Due	Calibrated on	
EMI Chamber 2	719150	2762A-7	A-0015	30-1000MHz	II	3/22/2017	3/22/2015	
Preamps / Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Red-White	0.009-2000MHz	ZFL-1000-LN	CS	N/A	1258	II	12/27/2016	12/27/2015
Antennas	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Red-White Bilog	30-2000MHz	JB1	Sunol	A091604-1	1105	I	8/12/2017	8/12/2015
Meteorological Meters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Weather Clock (Pressure Only)		BA928	Oregon Scientific	C3166-1	831	I	3/19/2016	3/19/2014
TH A#2081		HTC-1	HDE		2081	II	4/2/2016	4/2/2015
Cables	Range	Mfr	Cat	Calibration Due	Calibrated on			
Asset #2052	9kHz - 18GHz	Florida RF	II	3/8/2016	3/8/2015			
Asset #2053	9kHz - 18GHz	Florida RF	II	3/8/2016	3/8/2015			

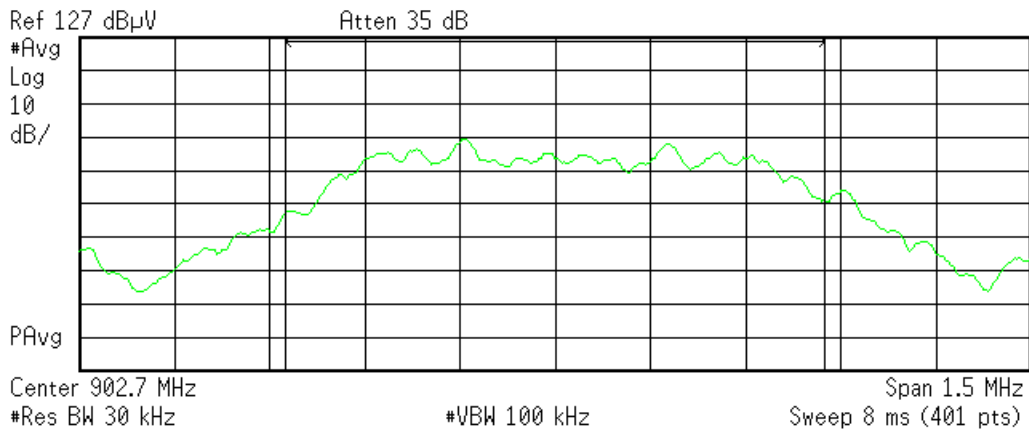
All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.



PLOTS

Agilent 15:51:44 Feb 11, 2016

R T



Channel Power

Power Spectral Density

104.12 dBµV/847.3643 kHz

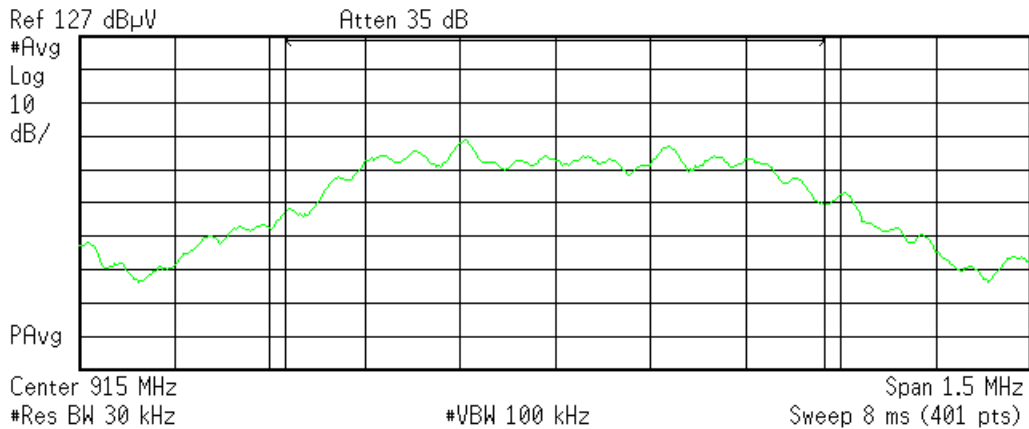
44.84 dBµV/Hz

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Low Channel – Channel Power

Agilent 16:03:27 Feb 11, 2016

R T



Channel Power

Power Spectral Density

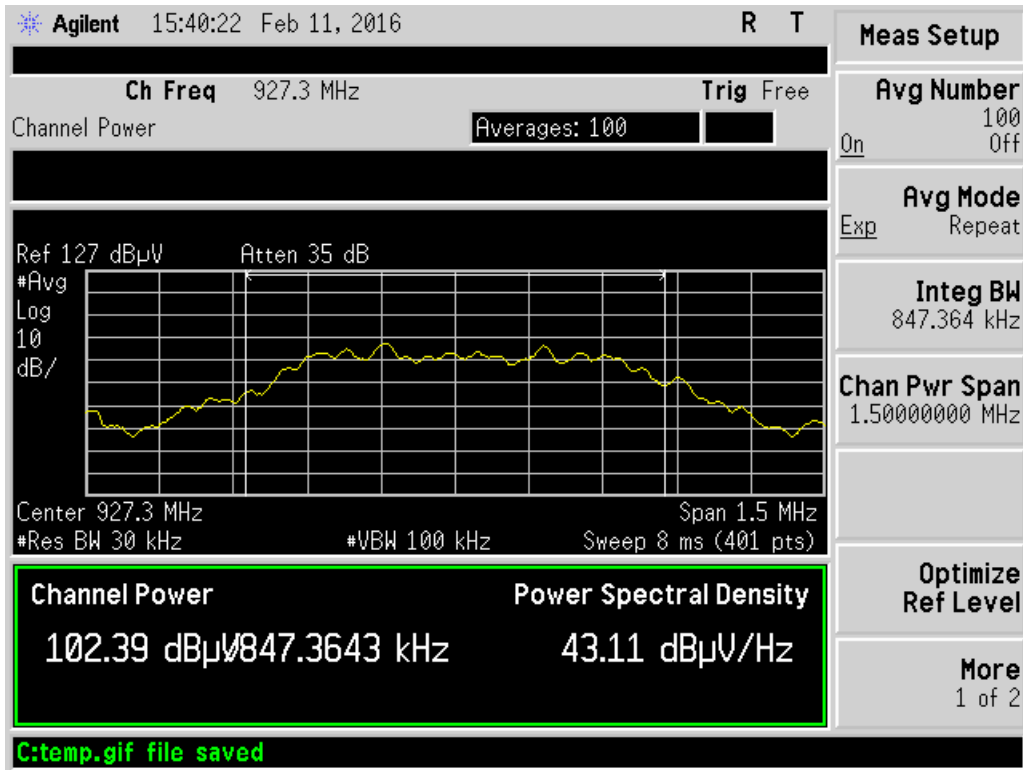
103.26 dBµV/847.3643 kHz

43.98 dBµV/Hz

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Mid Channel – Channel Power





High Channel – Channel Power

Radiated Spurious Emissions

LIMITS

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).
[15.247(d)]

MEASUREMENTS / RESULTS

Radiated Emissions Table												
Date: 06-Feb-16			Company: Ideal Industries, Inc.				Work Order: Q0291					
Engineer: Ahmed ahmed			EUT Desc: LS1401				EUT Operating Voltage/Frequency: Battery powered					
Temp: 23.5°C			Humidity: 24%				Pressure: 1010mBar					
Frequency Range: 30-1000MHz						Measurement Distance: 3 m						
Notes: TX set on Low ch.						EUT Max Freq: <108MHz						
						EUT TX Freq: 902.7-927.3MHz						
Antenna Polarization (H/V)	Frequency (MHz)	Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Reading (dBµV/m)	---			FCC 15.209		
							Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)
V	52.05	32.6	25.4	7.5	0.4	15.1	---	---	---	40.0	-24.9	Pass
V	154.5	34.6	25.9	12.5	0.8	22.0	---	---	---	43.5	-21.5	Pass
V	302.0	35.4	25.6	13.4	1.0	24.2	---	---	---	46.0	-21.8	Pass
H	331.55	31.0	25.6	13.9	1.1	20.4	---	---	---	46.0	-25.6	Pass
V	785.75	34.0	25.6	21.0	1.8	31.2	---	---	---	46.0	-14.8	Pass
H	871.0	34.0	25.5	21.9	1.8	32.2	---	---	---	46.0	-13.8	Pass
Table Result: Pass						by -13.8 dB			Worst Freq: 871.0 MHz			
Test Site: EMI Chamber 2			Cable 1: Asset #2052				Cable 2: Asset #2053					
Analyzer: Gold			Preamp: Red-White				Antenna: Red-White					
CSsoft Radiated Emissions Calculator v 1.017.156							Copyright Curtis-Straus LLC 2000					
Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor												

Rev. 2/5/2016

Spectrum Analyzers / Receivers/Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Gold	100Hz-26.5 GHz	E4407B	Agilent	MY45113816	1284	I	1/13/2017	1/13/2016
Radiated Emissions Sites	FCC Code	IC Code	VCCI Code	Range		Cat	Calibration Due	Calibrated on
EMI Chamber 2	719150	2762A-7	A-0015	30-1000MHz		II	3/22/2017	3/22/2015
Preamps/Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Red-White	0.009-2000MHz	ZFL-1000-LN	CS	N/A	1258	II	12/27/2016	12/27/2015
Antennas	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Red-White Bilog	30-2000MHz	JB1	Sunol	A091604-1	1105	I	8/12/2017	8/12/2015
Meteorological Meters		MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Weather Clock (Pressure Only)		BA928	Oregon Scientific	C3166-1	831	I	3/19/2016	3/19/2014
TH A#2079		HTC-1	HDE		2079	II	4/2/2016	4/2/2015
Cables	Range		Mfr			Cat	Calibration Due	Calibrated on
Asset #2052	9kHz - 18GHz		Florida RF			II	3/8/2016	3/8/2015
Asset #2053	9kHz - 18GHz		Florida RF			II	3/8/2016	3/8/2015

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

Radiated Emissions Table														
Date: 06-Feb-16			Company: Ideal Industries, Inc.				Work Order: Q0291							
Engineer: Ahmed ahmed			EUT Desc: LS1401				EUT Operating Voltage/Frequency: Battery powered							
Temp: 23.5°C			Humidity: 24%				Pressure: 1010mBar							
Frequency Range: 1-6GHz						Measurement Distance: 3 m								
Notes: tx on low channel						EUT Max Freq: <108MHz								
						EUT TX Freq: 902.7-927.3MHz								
Antenna Polarization (H/V)	Frequency (MHz)	Peak Reading (dBµV)	Average Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Peak Reading (dBµV/m)	Adjusted Avg Reading (dBµV/m)	FCC 15.209 High Frequency - Peak			FCC 15.209 High Frequency - Average		
									Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)
H	1805.4	42.02	32.4	18.8	30.6	2.6	56.4	46.8	74.0	-17.6	Pass	54.0	-7.2	Pass
H	3610.8	38.0	30.4	19.1	33.3	4.1	56.3	48.7	74.0	-17.7	Pass	54.0	-5.3	Pass
H	3660.0	37.4	30.4	19.1	33.4	4.1	55.8	48.8	74.0	-18.2	Pass	54.0	-5.2	Pass
Table Result: Pass						by -5.2 dB			Worst Freq: 3660.0 MHz					
Test Site: EMI Chamber 2			Cable 1: Asset #2052				Cable 2: Asset #2053							
Analyzer: Gold			Preamp: Asset #1517				Antenna: Blue Horn							
CSsoft Radiated Emissions Calculator v 1.017.156							Copyright Curtis-Straus LLC 2000							
Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor														



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Radiated Emissions Table														
Date: 06-Feb-16				Company: Ideal Industries, Inc.				Work Order: Q0291						
Engineer: Ahmed ahmed				EUT Desc: LS1401				EUT Operating Voltage/Frequency: Battery powered						
Temp: 23.5°C				Humidity: 24%				Pressure: 1010mBar						
Frequency Range: 6 to 10 GHz							Measurement Distance: 3 m							
Notes: tx on low channel														
EUT Max Freq: <108MHz														
EUT TX Freq: 902.7-927.3MHz														
Antenna Polarization (H/V)	Frequency (MHz)	Peak Reading (dBµV)	Average Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Peak Reading (dBµV/m)	Adjusted Avg Reading (dBµV/m)	FCC 15.209 High Frequency - Peak			FCC 15.209 High Frequency - Average		
									Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)
NO EMISSIONS FOUND WITHIN 10dB OF THE LIMIT														
Table Result: Pass				by				dB				Worst Freq: MHz		
Test Site: EMI Chamber 2				Cable 1: Asset #2052				Cable 2: Asset #2053						
Analyzer: Gold				Preamp: Asset #1517				Antenna: Blue Horn						
CSsoft Radiated Emissions Calculator v 1.017.156														
Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor														
Copyright Curtis-Straus LLC 2000														

Rev. 2/5/2016

Spectrum Analyzers / Receivers / Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Gold	100Hz-26.5 GHz	E4407B	Agilent	MY45113816	1284	I	1/13/2017	1/13/2016
Radiated Emissions Sites	FCC Code	IC Code	VCCI Code	Range	Cat	Calibration Due	Calibrated on	
EMI Chamber 2	719150	2762A-7	A-0015	1-18GHz	I	4/29/2017	4/29/2015	
Preamps / Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
1517 HF Preamp	1-20GHz	CS	CS	N/A	1517	II	8/6/2016	8/6/2015
Antennas	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Blue Horn	1-18GHz	3117	ETS	157647	1861	I	2/8/2017	2/8/2015
Meteorological Meters	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on	
Weather Clock (Pressure Only)	BA928	Oregon Scientific	C3166-1	831	I	3/19/2016	3/19/2014	
TH A#2080	HTC-1	HDE		2080	II	4/2/2016	4/2/2015	
Cables	Range	Mfr	Cat	Calibration Due	Calibrated on			
Asset #2052	9kHz - 18GHz	Florida RF	II	3/8/2016	3/8/2015			
Asset #2053	9kHz - 18GHz	Florida RF	II	3/8/2016	3/8/2015			

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

Radiated Emissions Table													
Date: 06-Feb-16				Company: Ideal Industries, Inc.				Work Order: Q0291					
Engineer: Ahmed ahmed				EUT Desc: LS1401				EUT Operating Voltage/Frequency: Battery powered					
Temp: 23.5°C				Humidity: 24%				Pressure: 1010mBar					
Frequency Range: 30-1000MHz							Measurement Distance: 3 m						
Notes: TX set on Mid ch.													
EUT Max Freq: <108MHz													
EUT TX Freq: 902.7-927.3MHz													
Antenna Polarization (H/V)	Frequency (MHz)	Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Reading (dBµV/m)	---			FCC 15.209			
							Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	
V	52.05	32.6	25.4	7.5	0.4	15.1	---	---	---	40.0	-24.9	Pass	
V	154.5	34.6	25.9	12.5	0.8	22.0	---	---	---	43.5	-21.5	Pass	
V	302.0	35.4	25.6	13.4	1.0	24.2	---	---	---	46.0	-21.8	Pass	
H	331.55	31.0	25.6	13.9	1.1	20.4	---	---	---	46.0	-25.6	Pass	
V	785.75	34.0	25.6	21.0	1.8	31.2	---	---	---	46.0	-14.8	Pass	
H	883.0	35.3	25.4	22.1	1.7	33.7	---	---	---	46.0	-12.3	Pass	
Table Result: Pass				by				-12.3 dB				Worst Freq: 883.0 MHz	
Test Site: EMI Chamber 2				Cable 1: Asset #2052				Cable 2: Asset #2053					
Analyzer: Gold				Preamp: Red-White				Antenna: Red-White					
CSsoft Radiated Emissions Calculator v 1.017.156													
Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor													
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Rev. 2/5/2016

Spectrum Analyzers / Receivers /Preselectors Gold	Range 100Hz-26.5 GHz	MN E4407B	Mfr Agilent	SN MY45113816	Asset 1284	Cat I	Calibration Due 1/13/2017	Calibrated on 1/13/2016
Radiated Emissions Sites EMI Chamber 2	FCC Code 719150	IC Code 2762A-7	VCCI Code A-0015	Range 30-1000MHz		Cat II	Calibration Due 3/22/2017	Calibrated on 3/22/2015
Preamps /Couplers Attenuators / Filters Red-White	Range 0.009-2000MHz	MN ZFL-1000-LN	Mfr CS	SN N/A	Asset 1258	Cat II	Calibration Due 12/27/2016	Calibrated on 12/27/2015
Antennas Red-White Bilog	Range 30-2000MHz	MN JB1	Mfr Sunol	SN A091604-1	Asset 1105	Cat I	Calibration Due 8/12/2017	Calibrated on 8/12/2015
Meteorological Meters Weather Clock (Pressure Only) TH A#2079		MN BA928 HTC-1	Mfr Oregon Scientific HDE	SN C3166-1	Asset 831 2079	Cat I II	Calibration Due 3/19/2016 4/2/2016	Calibrated on 3/19/2014 4/2/2015
Cables Asset #2052 Asset #2053	Range 9kHz - 18GHz 9kHz - 18GHz		Mfr Florida RF Florida RF			Cat II II	Calibration Due 3/8/2016 3/8/2016	Calibrated on 3/8/2015 3/8/2015

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

Radiated Emissions Table															
Date: 06-Feb-16				Company: Ideal Industries, Inc.				Work Order: Q0291							
Engineer: Ahmed ahmed				EUT Desc: LS1401				EUT Operating Voltage/Frequency: Battery powered							
Temp: 23.5°C				Humidity: 24%				Pressure: 1010mBar							
Frequency Range: 1-6GHz								Measurement Distance: 3 m							
Notes: tx on mid channel															
EUT Max Freq: <108MHz															
EUT TX Freq: 902.7-927.3MHz															
Antenna Polarization (H/V)	Frequency (MHz)	Peak Reading (dBµV)	Average Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Peak Reading (dBµV/m)	Adjusted Avg Reading (dBµV/m)	FCC 15.209 High Frequency - Peak			FCC 15.209 High Frequency - Average			
									Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	
H	1830.0	44.32	36.0	18.8	30.7	2.7	58.9	50.6	74.0	-15.1	Pass	54.0	-3.4	Pass	
H	3660.0	37.4	30.4	19.1	33.4	4.1	55.8	48.8	74.0	-18.2	Pass	54.0	-5.2	Pass	
Table Result: Pass by -3.4 dB Worst Freq: 1830.0 MHz															
Test Site: EMI Chamber 2				Cable 1: Asset #2052				Cable 2: Asset #2053							
Analyzer: Gold				Preamp: Asset #1517				Antenna: Blue Horn							
CSsoft Radiated Emissions Calculator v 1.017.156															
Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor															
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Radiated Emissions Table															
Date: 06-Feb-16				Company: Ideal Industries, Inc.				Work Order: Q0291							
Engineer: Ahmed ahmed				EUT Desc: LS1401				EUT Operating Voltage/Frequency: Battery powered							
Temp: 23.5°C				Humidity: 24%				Pressure: 1010mBar							
Frequency Range: 6 to 10 GHz								Measurement Distance: 3 m							
Notes: tx on mid channel															
EUT Max Freq: <108MHz															
EUT TX Freq: 902.7-927.3MHz															
Antenna Polarization (H/V)	Frequency (MHz)	Peak Reading (dBµV)	Average Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Peak Reading (dBµV/m)	Adjusted Avg Reading (dBµV/m)	FCC 15.209 High Frequency - Peak			FCC 15.209 High Frequency - Average			
									Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	
NO EMISSIONS FOUND WITHIN 10dB OF THE LIMIT															
Table Result: Pass by dB Worst Freq: MHz															
Test Site: EMI Chamber 2				Cable 1: Asset #2052				Cable 2: Asset #2053							
Analyzer: Gold				Preamp: Asset #1517				Antenna: Blue Horn							
CSsoft Radiated Emissions Calculator v 1.017.156															
Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor															
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Spectrum Analyzers / Receivers /Preselectors Gold	Range 100Hz-26.5 GHz	MN E4407B	Mfr Agilent	SN MY45113816	Asset 1284	Cat I	Calibration Due 1/13/2017	Calibrated on 1/13/2016
Radiated Emissions Sites EMI Chamber 2	FCC Code 719150	IC Code 2762A-7	VCCI Code A-0015	Range 1-18GHz		Cat I	Calibration Due 4/29/2017	Calibrated on 4/29/2015
Preamps /Couplers Attenuators / Filters 1517 HF Preamp	Range 1-20GHz	MN CS	Mfr CS	SN N/A	Asset 1517	Cat II	Calibration Due 8/6/2016	Calibrated on 8/6/2015
Antennas Blue Horn	Range 1-18GHz	MN 3117	Mfr ETS	SN 157647	Asset 1861	Cat I	Calibration Due 2/8/2017	Calibrated on 2/8/2015
Meteorological Meters Weather Clock (Pressure Only) TH A#2080		MN BA928 HTC-1	Mfr Oregon Scientific HDE	SN C3166-1	Asset 831 2080	Cat I II	Calibration Due 3/19/2016 4/2/2016	Calibrated on 3/19/2014 4/2/2015
Cables Asset #2052 Asset #2053	Range 9kHz - 18GHz 9kHz - 18GHz		Mfr Florida RF Florida RF			Cat II II	Calibration Due 3/8/2016 3/8/2016	Calibrated on 3/8/2015 3/8/2015

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Radiated Emissions Table												
Date: 06-Feb-16			Company: Ideal Industries, Inc.				Work Order: Q0291					
Engineer: Ahmed ahmed			EUT Desc: LS1401				EUT Operating Voltage/Frequency: Battery powered					
Temp: 23.5°C			Humidity: 24%				Pressure: 1010mBar					
Frequency Range: 30-1000MHz						Measurement Distance: 3 m						
Notes: TX set on High ch.						EUT Max Freq: <108MHz EUT TX Freq: 902.7-927.3MHz						
Antenna Polarization (H/V)	Frequency (MHz)	Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Reading (dBµV/m)	---			FCC 15.209		
							Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)
V	52.05	32.6	25.4	7.5	0.4	15.1	---	---	---	40.0	-24.9	Pass
V	154.5	34.6	25.9	12.5	0.8	22.0	---	---	---	43.5	-21.5	Pass
V	302.0	35.4	25.6	13.4	1.0	24.2	---	---	---	46.0	-21.8	Pass
H	331.55	31.0	25.6	13.9	1.1	20.4	---	---	---	46.0	-25.6	Pass
V	785.75	34.0	25.6	21.0	1.8	31.2	---	---	---	46.0	-14.8	Pass
H	895.0	34.0	25.3	22.5	1.7	32.9	---	---	---	46.0	-13.1	Pass
Table Result: Pass						by -13.1 dB			Worst Freq: 895.0 MHz			
Test Site: EMI Chamber 2			Cable 1: Asset #2052				Cable 2: Asset #2053					
Analyzer: Gold			Preamp: Red-White				Antenna: Red-White					
CSsoft Radiated Emissions Calculator v 1.017.156							Copyright Curtis-Straus LLC 2000					
Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor												

Rev. 2/5/2016

Spectrum Analyzers / Receivers/Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Gold	100Hz-26.5 GHz	E4407B	Agilent	MY45113816	1284	I	1/13/2017	1/13/2016
Radiated Emissions Sites	FCC Code	IC Code	VCCI Code	Range	Cat	Calibration Due	Calibrated on	
EMI Chamber 2	719150	2762A-7	A-0015	30-1000MHz	II	3/22/2017	3/22/2015	
Preamps /Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Red-White	0.009-2000MHz	ZFL-1000-LN	CS	N/A	1258	II	12/27/2016	12/27/2015
Antennas	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Red-White Bilog	30-2000MHz	JB1	Sunol	A091604-1	1105	I	8/12/2017	8/12/2015
Meteorological Meters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Weather Clock (Pressure Only)		BA928	Oregon Scientific	C3166-1	831	I	3/19/2016	3/19/2014
TH A#2079		HTC-1	HDE		2079	II	4/2/2016	4/2/2015
Cables	Range	Mfr	Cat	Calibration Due	Calibrated on			
Asset #2052	9kHz - 18GHz	Florida RF	II	3/8/2016	3/8/2015			
Asset #2053	9kHz - 18GHz	Florida RF	II	3/8/2016	3/8/2015			

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Radiated Emissions Table														
Date: 06-Feb-16			Company: Ideal Industries, Inc.				Work Order: Q0291							
Engineer: Ahmed ahmed			EUT Desc: LS1401				EUT Operating Voltage/Frequency: Battery powered							
Temp: 23.5°C			Humidity: 24%				Pressure: 1010mBar							
Frequency Range: 1-6GHz						Measurement Distance: 3 m								
Notes: tx on high channel						EUT Max Freq: <108MHz EUT TX Freq: 902.7-927.3MHz								
Antenna Polarization (H/V)	Frequency (MHz)	Peak Reading (dBµV)	Average Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Peak Reading (dBµV/m)	Adjusted Avg Reading (dBµV/m)	FCC 15.209 High Frequency - Peak			FCC 15.209 High Frequency - Average		
									Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)
H	1854.6	43.54	34.7	18.8	30.9	2.7	58.3	49.5	74.0	-15.7	Pass	54.0	-4.5	Pass
H	3709.2	38.1	32.2	19.1	33.4	4.2	56.6	50.7	74.0	-17.4	Pass	54.0	-3.3	Pass
Table Result: Pass						by -3.3 dB			Worst Freq: 3709.2 MHz					
Test Site: EMI Chamber 2			Cable 1: Asset #2052				Cable 2: Asset #2053							
Analyzer: Gold			Preamp: Asset #1517				Antenna: Blue Horn							
CSsoft Radiated Emissions Calculator v 1.017.156							Copyright Curtis-Straus LLC 2000							
Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor														



Radiated Emissions Table																	
Date: 06-Feb-16				Company: Ideal Industries, Inc.				Work Order: Q0291									
Engineer: Ahmed ahmed				EUT Desc: LS1401				EUT Operating Voltage/Frequency: Battery powered									
Temp: 23.5°C				Humidity: 24%				Pressure: 1010mBar									
Frequency Range: 6 to 10 GHz								Measurement Distance: 3 m									
Notes: tx on high channel												EUT Max Freq: <108MHz					
												EUT TX Freq: 902.7-927.3MHz					
Antenna Polarization (H/V)	Frequency (MHz)	Peak Reading (dBµV)	Average Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Peak Reading (dBµV/m)	Adjusted Avg Reading (dBµV/m)	FCC 15.209 High Frequency - Peak			FCC 15.209 High Frequency - Average					
									Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)			
NO EMISSIONS FOUND WITHIN 10dB OF THE LIMIT																	
Table Result:				Pass				by				dB		Worst Freq:		MHz	
Test Site: EMI Chamber 2				Cable 1: Asset #2052				Cable 2: Asset #2053									
Analyzer: Gold				Preamp: Asset #1517				Antenna: Blue Horn									
CSsoft Radiated Emissions Calculator v 1.017.156																	
Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor																	
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Spectrum Analyzers / Receivers/Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Gold	100Hz-26.5 GHz	E4407B	Agilent	MY45113816	1284	I	1/13/2017	1/13/2016
Radiated Emissions Sites	FCC Code	IC Code	VCCI Code	Range		Cat	Calibration Due	Calibrated on
EMI Chamber 2	719150	2762A-7	A-0015	1-18GHz		I	4/29/2017	4/29/2015
Preamps/Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
1517 HF Preamp	1-20GHz	CS	CS	N/A	1517	II	8/6/2016	8/6/2015
Antennas	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Blue Horn	1-18GHz	3117	ETS	157647	1861	I	2/8/2017	2/8/2015
Meteorological Meters		MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Weather Clock (Pressure Only)		BA928	Oregon Scientific	C3166-1	831	I	3/19/2016	3/19/2014
TH A#2080		HTC-1	HDE		2080	II	4/2/2016	4/2/2015
Cables	Range		Mfr			Cat	Calibration Due	Calibrated on
Asset #2052	9kHz - 18GHz		Florida RF			II	3/8/2016	3/8/2015
Asset #2053	9kHz - 18GHz		Florida RF			II	3/8/2016	3/8/2015

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.



Power Spectral Density

LIMIT

...the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3 kHz band during any time interval of continuous transmission. [15.247(e)]

Per 558074 D01 DTS Measurement Guidance v03r04 Section 10.3 Method AVGPS-1 (Average PSD)

MEASUREMENTS / RESULTS

Power Spectral Density											
Date: 11-Feb-16			Company: Ideal Industries, Inc.			Work Order: Q0291					
Engineer: Tuyen Truong			EUT Desc: LS1401			EUT Operating Voltage/Frequency: Battery powered					
Temp: 22°C			Humidity: 27%			Pressure: 998mbar					
Frequency Range: 902.7-927.3 MHz						Measurement Distance: 3 m					
Notes:						EUT Tx Freq: 902.7-927.3 MHz					
Antenna Polarization (H/V)	Frequency (MHz)	Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Reading (dBµV/m)	Adjusted ERP Reading (dBm)	Adjusted Conducted Reading (dBm)	FCC 15.247		
									Limit (dBm)	Margin (dB)	Result (Pass/Fail)
H	902.7	93.4	25.3	22.6	1.7	92.4	-2.8	-5.3	8.0	-13.3	Pass
H	915.0	91.7	25.4	22.6	1.7	90.6	-4.6	-7.1	8.0	-15.1	Pass
H	927.3	89.8	25.5	22.4	1.6	88.3	-6.9	-9.4	8.0	-17.4	Pass
Table Result: Pass by -13.3 dB Worst Freq: 902.7 MHz											
Test Site: EMI Chamber 2			Cable 1: Asset #2052			Cable 2: Asset #2053			Cable 3: ---		
Analyzer: Gold			Preamp: Red-White			Antenna: Red-White			Preselector: ---		
CSsoft Radiated Emissions Calculator v 1.017.156 Copyright Curtis-Straus LLC 2000											
Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor											

Rev. 2/9/2016

Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Gold	100Hz-26.5 GHz	E4407B	Agilent	MY45113816	1284	I	1/13/2017	1/13/2016
Radiated Emissions Sites	FCC Code	IC Code	VCCI Code	Range	Cat	Calibration Due	Calibrated on	
EMI Chamber 2	719150	2762A-7	A-0015	30-1000MHz	II	3/22/2017	3/22/2015	
Preamps /Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Red-White	0.009-2000MHz ZFL-1000-LN		CS	N/A	1258	II	12/27/2016	12/27/2015
Antennas	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Red-White Bilog	30-2000MHz	JB1	Sunol	A091604-1	1105	I	8/12/2017	8/12/2015
Meteorological Meters	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on	
Weather Clock (Pressure Only)	BA928	Oregon Scientific	C3166-1	831	I	3/19/2016	3/19/2014	
TH A#2081	HTC-1	HDE		2081	II	4/2/2016	4/2/2015	
Cables	Range	Mfr	Cat	Calibration Due	Calibrated on			
Asset #2052	9kHz - 18GHz	Florida RF	II	3/8/2016	3/8/2015			
Asset #2053	9kHz - 18GHz	Florida RF	II	3/8/2016	3/8/2015			

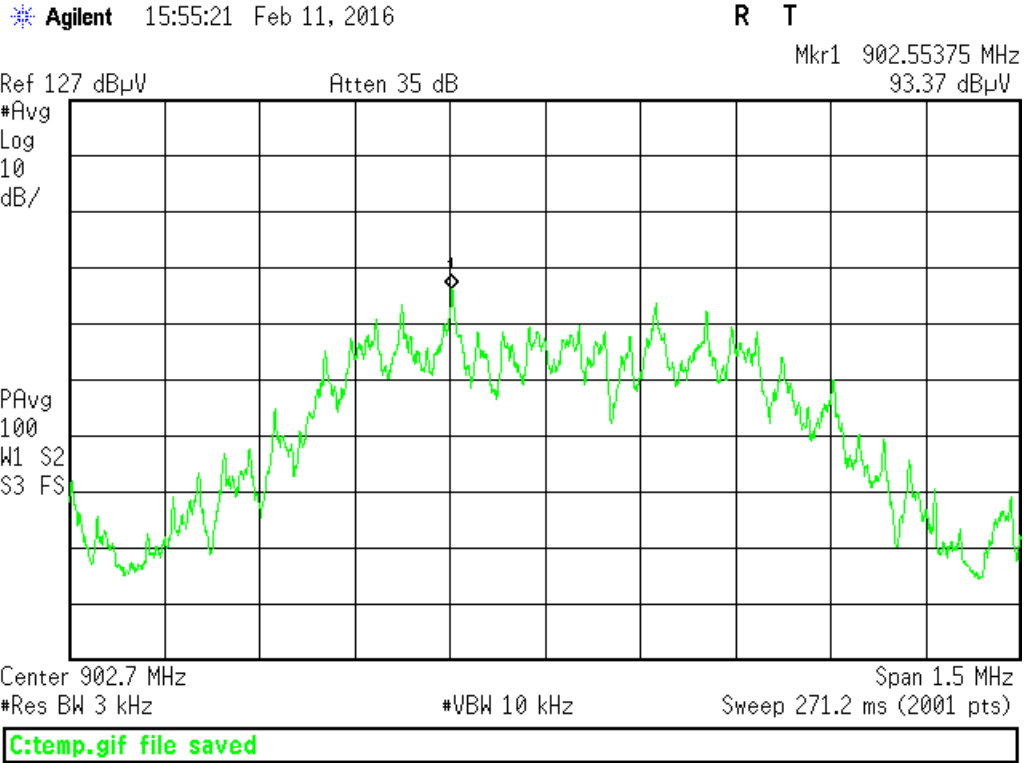
All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.



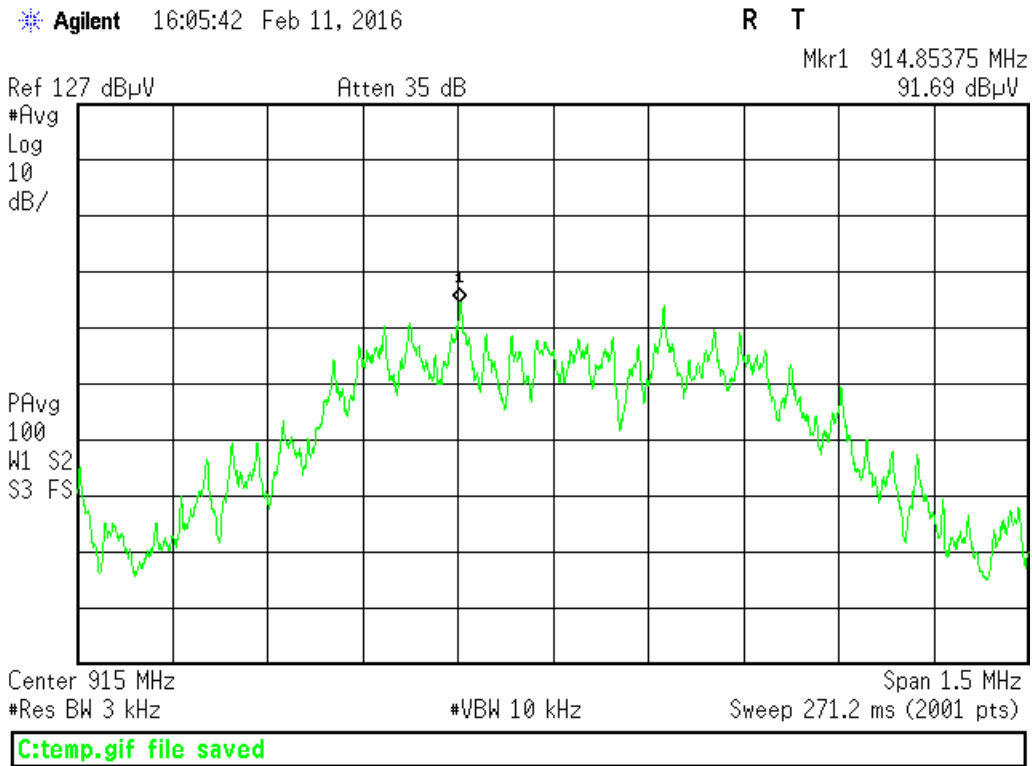
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PLOTS



Low Channel – PSD



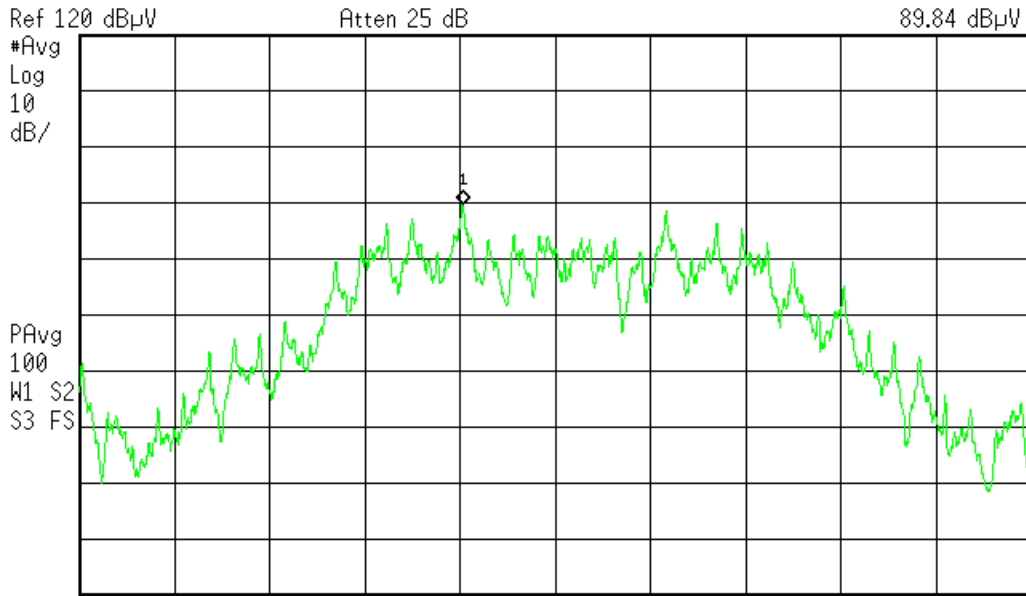
Mid Channel – PSD



Agilent 15:45:26 Feb 11, 2016

R T

Mkr1 927.15450 MHz
89.84 dBμV



Center 927.3 MHz Span 1.5 MHz
#Res BW 3 kHz #VBW 10 kHz Sweep 271.2 ms (2001 pts)

C:\temp.gif file saved

High Channel – PSD



AC Line Conducted Emissions LIMITS

Frequency of emission (MHz)	Quasi-peak limit (dB μ V)	Average limit (dB μ V)
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

[47 CFR 15.207(a)]

MEASUREMENTS / RESULTS

AC line conducted emissions testing was not applicable since the EUT is battery powered only.

Occupied Bandwidth

REQUIREMENT

When an occupied bandwidth is not specified in the applicable RSS, the transmitted signal bandwidth to be reported is its 99% emission bandwidth, as calculated or measured. [RSS-GEN 6.6]

MEASUREMENTS / RESULTS

Occupied Bandwidth		
Date: 11-Feb-16	Company: Ideal Industries, Inc.	Work Order: Q0291
Engineer: Tuyen Truong	EUT Desc: LS1401	EUT Operating Voltage/Frequency: Battery powered
Temp: 22°C	Humidity: 27%	Pressure: 998mbar
Frequency Range: 902.7-927.3 MHz		Measurement Distance: 3 m
Notes:		EUT Tx Freq: 902.7-927.3 MHz
Antenna Polarization (H/V)	Frequency (MHz)	Occupied Bandwidth - Reading (KHz)
H	902.7	821.2928
H	915.0	824.8977
H	927.3	847.3643
Test Site: EMI Chamber 2 Cable 1: Asset #2052 Cable 2: Asset #2053 Cable 3: --- Analyzer: Gold Preamp: Red-White Antenna: Red-White Preselector: --- CSsoft Radiated Emissions Calculator v 1.017.156 Copyright Curtis-Straus LLC 2000 Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor Rev. 2/9/2016		

Spectrum Analyzers / Receivers / Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Gold	100Hz-26.5 GHz	E4407B	Agilent	MY45113816	1284	I	1/13/2017	1/13/2016
Radiated Emissions Sites	FCC Code	IC Code	VCCI Code	Range	Cat	Calibration Due	Calibrated on	
EMI Chamber 2	719150	2762A-7	A-0015	30-1000MHz	II	3/22/2017	3/22/2015	
Preamps / Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Red-White	0.009-2000MHz	ZFL-1000-LN	CS	N/A	1258	II	12/27/2016	12/27/2015
Antennas	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Red-White Bilog	30-2000MHz	JB1	Sunol	A091604-1	1105	I	8/12/2017	8/12/2015
Meteorological Meters	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on	
Weather Clock (Pressure Only)	BA928	Oregon Scientific	C3166-1	831	I	3/19/2016	3/19/2014	
TH A#2081	HTC-1	HDE		2081	II	4/2/2016	4/2/2015	
Cables	Range	Mfr	Cat	Calibration Due	Calibrated on			
Asset #2052	9kHz - 18GHz	Florida RF	II	3/8/2016	3/8/2015			
Asset #2053	9kHz - 18GHz	Florida RF	II	3/8/2016	3/8/2015			

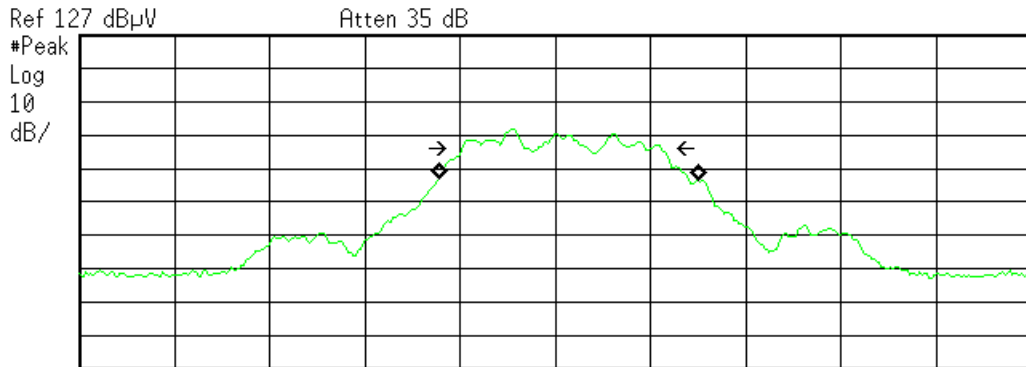
All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.



Plot(s)

Agilent 15:01:23 Feb 11, 2016

R T



Center 902.7 MHz Span 3 MHz
 #Res BW 30 kHz #VBW 100 kHz Sweep 5 ms (401 pts)

Occupied Bandwidth
 821.2928 kHz

Occ BW % Pwr 99.00 %
 x dB -6.00 dB

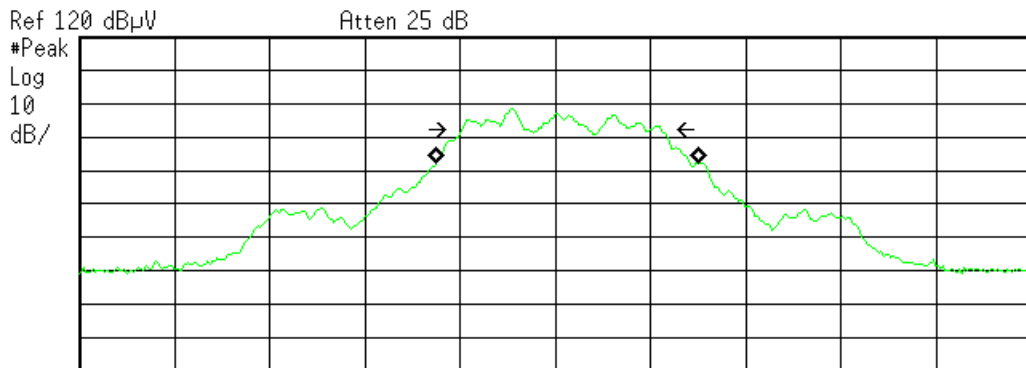
Transmit Freq Error 42.912 kHz
 x dB Bandwidth 627.631 kHz

C:\temp.gif file saved

Low Channel – Occupied Bandwidth

Agilent 15:16:41 Feb 11, 2016

R T



Center 915 MHz Span 3 MHz
 #Res BW 30 kHz #VBW 100 kHz Sweep 5 ms (401 pts)

Occupied Bandwidth
 824.8977 kHz

Occ BW % Pwr 99.00 %
 x dB -6.00 dB

Transmit Freq Error 35.623 kHz
 x dB Bandwidth 627.043 kHz

C:\temp.gif file saved

Mid Channel – Occupied Bandwidth



Measurement Uncertainty

The listed uncertainties are the worst case uncertainty for the entire range of measurement. Please note that the uncertainty values are provided for informational purposes only and are not used in determining the PASS/FAIL results.

Measurement	Expanded Uncertainty k=2	Maximum allowable uncertainty
Radiated Emissions (30-1000MHz)		
NIST	5.6dB	N/A
CISPR	4.6dB	5.2dB (Ucisprr)
Radiated Emissions (1-26.5GHz)	4.6dB	N/A
Radiated Emissions (above 26.5GHz)	4.9dB	N/A
Magnetic Radiated Emissions	5.6dB	N/A
Conducted Emissions		
NIST	3.9dB	N/A
CISPR	3.6dB	3.6dB (Ucisprr)
Telco Conducted Emissions (Current)	2.9dB	N/A
Telco Conducted Emissions (Voltage)	4.4dB	N/A
Electrostatic Discharge	11.5%	N/A
Radiated RF Immunity (Uniform Field)	1.6dB	N/A
Electrical Fast Transients	23.1%	N/A
Surge	23.1%	N/A
Conducted RF Immunity	3dB	N/A
Magnetic Immunity	12.8%	N/A
Dips and Interrupts	2.3V	N/A
Harmonics	3.5%	N/A
Flicker	3.5%	N/A
Radio frequency (@ 2.4GHz)	3.23×10^{-8}	1×10^{-7}
RF power, conducted	0.40dB	0.75dB
Maximum frequency deviation:		
• Within 300Hz and 6kHz of audio frequency / Within 6kHz and 25kHz of audio frequency	3.4% 0.3dB	5% 3dB
Adjacent channel power	1.9dB	3dB
Conducted spurious emission of transmitter, valid up to 12.75GHz	2.39dB	3dB
Conducted emission of receivers	1.3dB	3dB
Radiated emission of transmitter, valid up to 26.5GHz	3.9dB	6dB
Radiated emission of transmitter, valid up to 80GHz	3.3dB	6dB
Radiated emission of receiver, valid up to 26.5GHz	3.9dB	6dB
Radiated emission of receiver, valid up to 80GHz	3.3dB	6dB
Humidity	2.37%	5%
Temperature	0.7°C	1.0°C
Time	4.1%	10%
RF Power Density, Conducted	0.4dB	3dB
DC and low frequency voltages	1.3%	3%
Voltage (AC, <10kHz)	1.3%	2%
Voltage (DC)	0.62%	1%
The above reflects a 95% confidence level		



Conditions Of Testing

[Bureau Veritas Consumer Products Services, Inc., a Massachusetts corporation], and/or its affiliates (collectively, the "Company") will conduct, at the request of the Submitter ("Client"), the tests specified on the submitted Test Request Form or equivalent in accordance with, and subject to, the following terms and conditions (collectively, "Conditions"):

1. All orders for tests are subject to acceptance by the Company, and no order will constitute a binding commitment of the Company unless and until such order is accepted by it, as evidenced by the issuance of a written report ("Test Report") by the Company. The Test Report is issued solely by the Company, is intended for the exclusive use of Client and shall not be published, used for advertising purposes, copied or replicated for distribution to any other person or entity or otherwise publicly disclosed without the prior written consent of the Company. By submitting a request for services to the Company, Client consents to the disclosure to accreditation bodies of those records of Client relevant to the accreditation body's assessment of the Company's competence and compliance with relevant accreditation criteria. The Company shall not be liable for any loss or damage whatsoever resulting from the failure of the Company to provide its services within any time period for completion estimated by the Company. If Client anticipates using the Test Report in any legal proceeding, arbitration, dispute resolution forum or other proceeding, it shall so notify the Company prior to submitting the Test Report in such proceeding. The Company has no obligation to provide a fact or expert witness at such proceeding unless the Company agrees in advance to do so for a separate and additional fee.
2. The Test Report will set forth the findings of the Company solely with respect to the test samples identified therein. Unless specifically and expressly indicated in the Test Report, the results set forth in such Test Report are not intended to be indicative or representative of the quality or characteristics of the lot from which a test sample is taken, and Client shall not rely upon the Test Report as being so indicative or representative of the lot or of the tested product in general. The Test Report will reflect the findings of the Company at the time of testing only, and the Company shall have no obligation to update the Test Report after its issuance. The Test Report will set forth the results of the tests performed by the Company based upon the written information provided to the Company. The Test Report will be based solely on the samples and written information submitted to the Company by Client, and the Company shall not be obligated to conduct any independent investigation or inquiry with respect thereto.
3. The Company may, in its sole discretion, destroy samples which have been furnished to the Company for testing and which have not been destroyed in the course of testing. The Company may delegate the performance of all or a portion of the services contemplated hereunder to an affiliate, agent or subcontractor of the Company, and Client consents to such delegation.
4. These Conditions and the Test Report represent the entire understanding of the parties hereto with respect to the subject matter hereof and of the Test Report, and no modification, variance or extrapolation with respect thereto shall be permitted without the prior written consent of the Company.
5. The names, service marks, trademarks and copyrights of the Company and its affiliates, including the names "**BUREAU VERITAS**," "**BUREAU VERITAS CONSUMER PRODUCTS SERVICES**," "**BVCPS**," "**MTL**," "**ACTS**," "**MTL-ACTS**" and "**CURTIS-STRAUS**" (collectively, the "Marks") are and shall remain the sole property of the Company or its affiliates and shall not be used by Client except solely to the extent that Client obtains the prior written approval of the Company and then only in the manner prescribed by the Company. Client shall not contest the validity of the Marks or take any action that might impair the value or goodwill associated with the Marks or the image or reputation of the Company or its affiliates.
6. Payment in full shall be due 30 days after the date of invoice. Interest shall be due on overdue amounts from the due date until paid at an interest rate of 1.5% per month or, if less, the maximum rate permitted by law. The Company reserves the right, at any time and from time to time, to revoke any credit extended to Client. Client shall reimburse the Company for any costs it incurs in collecting past due amounts, including court costs and fees and expenses of attorneys and collection agencies. The Test Report may not be used or relied upon by Client if and for so long as Client fails to pay when due any invoice issued by the Company or any affiliate of it to Client or any affiliate or subsidiary of Client together with interest and penalties, if any, accrued thereon.
7. The Company disclaims any and all responsibility or liability arising out of or in connection with e-mail transmissions of such information.
8. Client understands and agrees that the Company is neither an insurer nor a guarantor, that the Company does not take the place of Client or any designer, manufacturer, agent, buyer, distributor or transportation or shipping company, and that the Company disclaims all liability in such capacities. Client further understands that if it seeks assurance against loss or damage, it should obtain appropriate insurance.
9. Client agrees that the Company, by providing the services, does not take the place of Client nor any third party, nor does the Company release them from any of their obligations, nor does the Company otherwise assume, abridge, abrogate or undertake to discharge any duty of any third party to Client or any duty of Client or any third party to any other third party, and Client will not release any third party from its obligations and duties with respect to the tested goods.
10. Client shall, on a timely basis, (a) provide adequate instructions to the Company in order to enable the Company to perform properly its services, (b) provide, or cause Client's suppliers and contractors to provide, the Company with all documents necessary to enable the Company to perform its services, (c) furnish the Company with all relevant information regarding Client's intended use and purposes of the tested goods, (d) advise the Company of essential dates and deadlines relevant to the tested goods and (e) fully exercise all rights and remedies available to Client against third parties in respect of the tested goods.
11. The Company shall undertake due care and ordinary skill in the performance of its services to Client, and the Company shall accept responsibility only where such skill has not been exercised and, even in such event, only to the extent of the limitation of liability set forth herein.
12. If Client desires to assert a claim arising from or relating to (i) the performance, purported performance or non-performance of any services by the Company or (ii) the sale, resale, manufacture, distribution or use of any tested goods, it must submit that claim to the Company in a writing that sets forth with particularity the basis for such claim within 60 days from discovery of the potential claim and not more than six months after the date of issuance of the Test Report to Client. Client waives any and all such claims including, without limitation, claims that the Test Report is inaccurate, incomplete or misleading or that additional or different testing is required, unless and then only to the extent that Client submits a written claim to the Company within both such time periods.
13. CLIENT SHALL, EXCEPT TO THE EXTENT OF COMPANY'S LIABILITY TO CLIENT HEREUNDER (WHICH IN NO EVENT SHALL EXCEED THE LIMITATION OF LIABILITY HEREIN), HOLD HARMLESS AND INDEMNIFY THE COMPANY, ITS AFFILIATES AND THEIR RESPECTIVE DIRECTORS, OFFICERS, EMPLOYEES, AGENTS AND SUBCONTRACTORS AGAINST ALL ACTUAL OR ALLEGED THIRD PARTY CLAIMS FOR LOSS, DAMAGE OR EXPENSE OF WHATSOEVER NATURE AND HOWSOEVER ARISING FROM OR RELATING TO (i) THE PERFORMANCE, PURPORTED PERFORMANCE OR NON-PERFORMANCE OF ANY SERVICES BY THE COMPANY OR (ii) THE SALE, RESALE, MANUFACTURE, DISTRIBUTION OR USE OF ANY TESTED GOODS.
14. EXCEPT AS MAY OTHERWISE BE EXPRESSLY AGREED TO IN WRITING BY THE COMPANY AND NOTWITHSTANDING ANY PROVISION TO THE CONTRARY CONTAINED HEREIN OR IN ANY TEST REPORT, NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE, IS MADE.



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15. (A) IN NO EVENT WHATSOEVER SHALL THE COMPANY BE LIABLE FOR ANY CONSEQUENTIAL, SPECIAL, INCIDENTAL, EXEMPLARY OR PUNITIVE DAMAGES IN CONNECTION WITH, RELATING TO OR ARISING OUT OF THE TEST REPORT OR THE SERVICES PROVIDED BY THE COMPANY HEREUNDER, INCLUDING WITHOUT LIMITATION LOSS OF OR DAMAGE TO PROPERTY; LOSS OF INCOME, PROFIT OR USE; OR ANY CLAIMS OR DEMANDS MADE AGAINST CLIENT OR ANY OTHER PERSON BY ANY THIRD PARTY IN CONNECTION WITH, RELATING TO OR ARISING OUT OF THE SERVICES PROVIDED BY THE COMPANY HEREUNDER.

(B) NOTWITHSTANDING ANY PROVISION TO THE CONTRARY CONTAINED HEREIN, AND IN RECOGNITION OF THE RELATIVE RISKS AND BENEFITS TO CLIENT AND THE COMPANY ASSOCIATED WITH THE TESTING SERVICES CONTEMPLATED HEREBY, THE RISKS HAVE BEEN ALLOCATED SUCH THAT UNDER NO CIRCUMSTANCES WHATSOEVER SHALL THE LIABILITY OF THE COMPANY TO CLIENT OR ANY THIRD PARTY IN RESPECT OF ANY CLAIM FOR LOSS, DAMAGE OR EXPENSE, OF WHATSOEVER NATURE OR MAGNITUDE, AND HOWSOEVER ARISING, EXCEED AN AMOUNT EQUAL TO FIVE (5) TIMES THE AMOUNT OF THE FEES PAID TO THE COMPANY FOR THE SPECIFIC SERVICES WHICH GAVE RISE TO SUCH CLAIM OR U.S.\$10,000, WHICHEVER IS THE LESSER AMOUNT.

16. The Company shall not be liable for any loss or damage resulting from any delay or failure in performance of its obligations hereunder resulting directly or indirectly from any event of force majeure or any event outside the control of the Company. If any such event occurs, the Company may immediately cancel or suspend its performance hereunder without incurring any liability whatsoever to Client.

17. Company's services, including these Conditions, shall be governed by, and construed in accordance with, the local laws of the country where the Company performs the tests or, in the case of tests performed in the United States of America, the laws of Massachusetts without regard to conflicts of laws principles. If any aspect(s) of these Conditions is found to be illegal or unenforceable, the validity, legality and enforceability of all remaining aspects of these Conditions shall not in any way be affected or impaired thereby. Any proceeding related to the subject matter hereof shall be brought, if at all, in the courts of the country where the Company performs the tests or, in the case of tests performed in the United States of America, in the courts of Massachusetts. Client waives the right to interpose any counterclaim or setoffs of any nature in any litigation arising hereunder.

The complete list of the Approved Subcontractors Curtis-Straus may use to delegate the performance of work can be provided upon request.
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