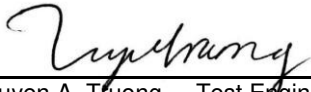




Test Report

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

Report No	EP1864-1
Client	Ideal Industries Inc. Tim Tunnell
Address	Becker Place Sycamore, IL 60178
Phone	(815) 899 - 7774
Items tested	WMS1200
FCC ID	2AAMXWMS1200
IC ID	11250A-WMS1200
FRN	0002862225
Equipment Type	Part 15.247 Digitally Modulated
Equipment Code	DTS
FCC/IC Rule Parts	47 CFR 15.247, RSS-247 Issue 1,
Test Dates	July 7, 10 and September 3, 2015
Results	As detailed within this report
Prepared by	 Tuyen A. Tfuong – Test Engineer
Authorized by	 Christopher Reynolds – EMC Supervisor
Issue Date	1/22/2016
Conditions of Issue	This Test Report is issued subject to the conditions stated in the 'Conditions of Testing' section on page 30 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 47 CFR 15.247. The product is the WMS1200. It is a digitally modulated transmitter that operates in the range 902.7-927.3MHz. Product was tested with a PCB trace antenna with a gain of -7.0dBi.

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	January 22, 2016

page 3 of 31



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Test Methodology

Radiated emission testing was performed according to DTS guidance document 558074D01 v03r03 specified in FCC Guidance for performing compliance measurement on DTS operating under section 15.247, April 19, 2013 and ANSI C63.10 (2009). Radiated Emissions were maximized by rotating the device around its axes as well as varying the test antenna's height and polarity. The device antenna could not be maximized separately.

Conducted emissions testing at the antenna port was not performed as the EUT has a non-removable integral antenna.

AC Main conducted emission was not performed with a 50 Ω /50 μ H since EUT is battery powered.

Low operating channel frequency = 902.7MHz

Mid operating channel frequency = 915MHz

High operating channel frequency = 927.3MHz

The following bandwidths were used during radiated spurious and line conducted emissions.

Frequency	RBW	VBW
0.15-30MHz	9kHz	30kHz
30-1000MHz	120kHz	1MHz
1-10GHz	1MHz	3MHz

Product Tested - Configuration Documentation

EUT Configuration											
Work Order:	P1864										
Company:	Ideal Industries Inc.										
Company Address:	Becker Place										
	Sycamore, IL 60178										
Contact:	Tim Tunnell										
	MN			PN			SN				
EUT:	WMS1200			--			Sample 1				
EUT Description:	Smart Switch										
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 is set to transmit on Low, Mid and High channels from 902.7 to 927.3MHz range.											

Statement of Conformity

The WMS1200 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.
	3.2		15.21	Information to the user is shown in the instruction manual exhibit.
			15.27	No special accessories are required for compliance.
6.1, 6.5			15.31	The EUT was tested in accordance with the measurement standards in this section.
			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 employs a PCB trace antenna with a gain of -7.0dBi.
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	EUT meets the AC Line conducted emissions requirements of this section.
			15.247	The unit complies with the requirements of 15.247
		RSS 247		The unit 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				
15:247(a)(2): Specifies that the minimum 6dB bandwidth shall be at least 500kHz.				
Frequency (MHz)	Mode	6dB BW (KHz)	Limit (kHz)	Margin (KHz)
902.7	DMSS	654.691	>500	-154.691
915	DMSS	661.203	>500	-161.203
Tested by: Tuyen Truong		Cables: 2052+2054		Temp: 24°C
Date: 7/7/2015		Analyzer: Asset 1328		Humidity: 57%
Company: Ideal Industries Inc.		PreAmp: Red		Pressure: 1011mBar
EUT: WMS1200		Antenna: RedBlack		Work Order: P1864

Rev.7/6/2015

Spectrum Analyzers / Receivers / Preselectors SA EMI Chamber (1328)	Range 9kHz-13.2 GHz	MN E4405B	Mfr Agilent	SN MY44210241	Asset 1328	Cat I	Calibration Due 2/20/2016	Calibrated on 2/20/2015
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	Range 0.009-2000MHz	MN ZFL-1000-LN	Mfr CS	SN N/A	Asset 798	Cat II	Calibration Due 1/31/2016	Calibrated on 1/31/2015
Antennas Red-Black Bilog	Range 30-2000MHz	MN JB1	Mfr Sunol	SN A091604-2	Asset 1106	Cat I	Calibration Due 2/9/2017	Calibrated on 2/9/2015
Cables Asset #2052 Asset #2054	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
Meteorological Meters Weather Clock (Pressure Only) TH A#2081		MN BA928 HTC-1	Mfr Oregon Scientific HDE	SN C3166-1	Asset 831 2081	Cat I II	Calibration Due 3/19/2016 4/2/2016	Calibrated on 3/19/2014 4/2/2015

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



6dB Bandwidth

15:247(a)(2): Specifies that the minimum 6dB bandwidth shall be at least 500kHz.

Frequency (MHz)	Mode	6dB BW (KHz)	Limit (kHz)	Margin (KHz)
927.3	DMSS	670.551	>500	-170.551
Tested by: Tuyen Truong		Cables: 2051+2054		Temp: 24°C
Date: 7/7/2015		Analyzer: Asset 1328		Humidity: 56%
Company: Ideal Industries Inc.		PreAmp: Red		Pressure: 1011mBar
EUT: WMS1200		Antenna: RedWhite		Work Order: P1864

Rev. 7/6/2015

Spectrum Analyzers / Receivers / Preselectors SA EMI Chamber (1328)	Range 9kHz-13.2 GHz	MN E4405B	Mfr Agilent	SN MY44210241	Asset 1328	Cat I	Calibration Due 2/20/2016	Calibrated on 2/20/2015
Radiated Emissions Sites EMI Chamber 1	FCC Code 719150	IC Code 2762A-6	VCCI Code A-0015	Range 30-1000MHz		Cat II	Calibration Due 3/21/2017	Calibrated on 3/21/2015
Preamps / Couplers Attenuators / Filters Red	Range 0.009-2000MHz	MN ZFL-1000-LN	Mfr CS	SN N/A	Asset 798	Cat II	Calibration Due 1/31/2016	Calibrated on 1/31/2015
Antennas Red-White Bilog	Range 30-2000MHz	MN JB1	Mfr Sunol	SN A091604-1	Asset 1105	Cat I	Calibration Due 7/24/2015	Calibrated on 7/24/2013
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 #2051 Asset #2054	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

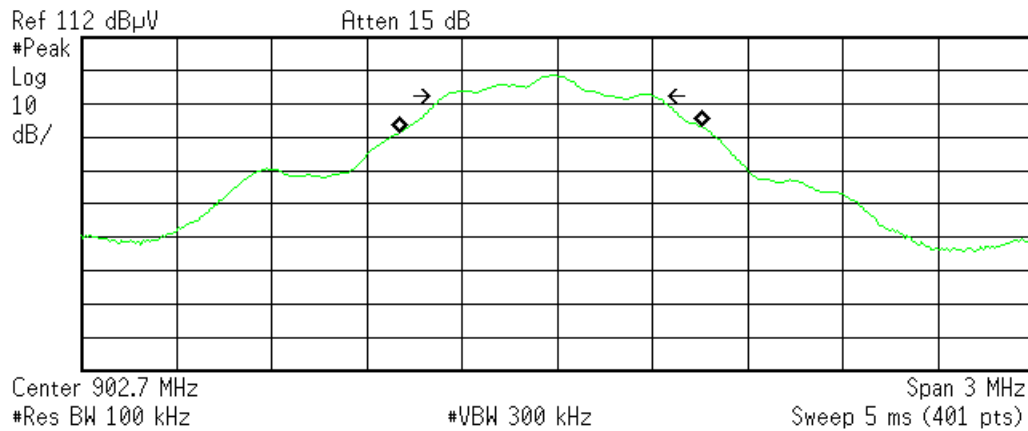
All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.



PLOT(s)

* Agilent 10:59:18 Jul 6, 2015

R T



Occupied Bandwidth
954.6174 kHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

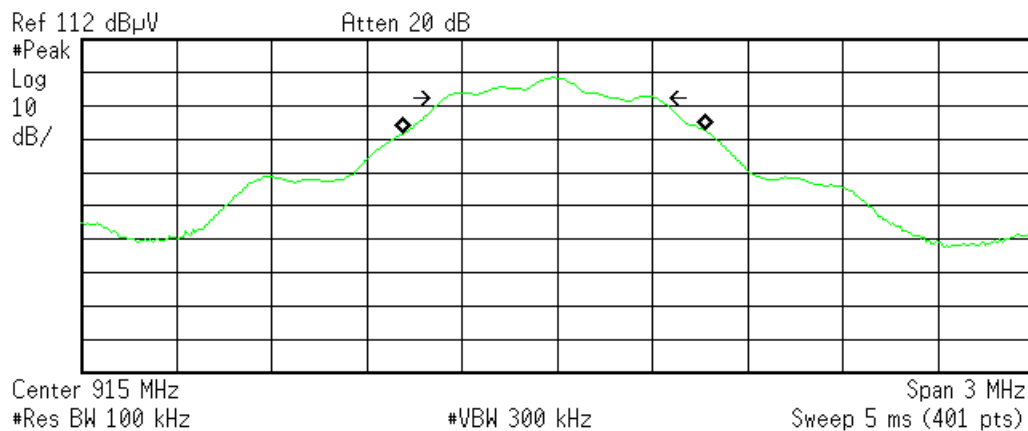
Transmit Freq Error -19.345 kHz
x dB Bandwidth 654.691 kHz

C:\temp.gif file saved

Low Channel – 6dB Bandwidth

* Agilent 13:00:58 Jul 6, 2015

R T



Occupied Bandwidth
948.2624 kHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error -10.060 kHz
x dB Bandwidth 661.203 kHz

C:\temp.gif file saved

Mid Channel – 6dB Bandwidth

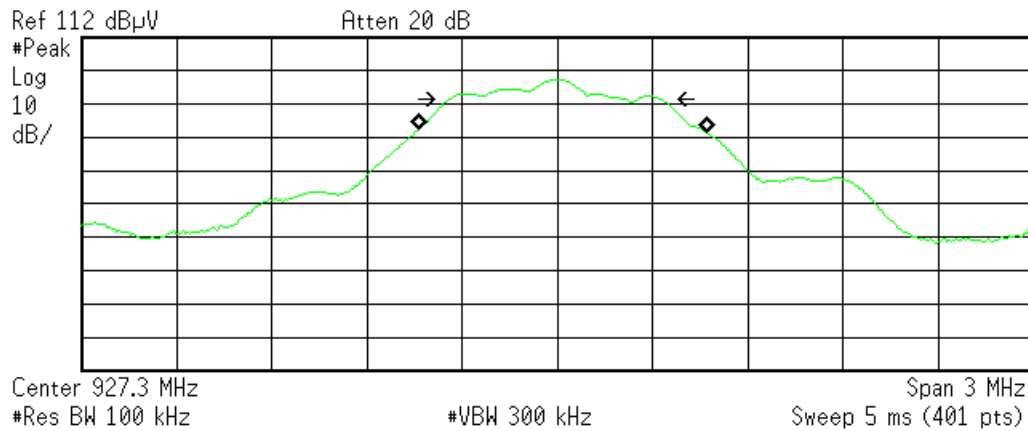


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✱ Agilent 13:58:15 Jul 6, 2015

R T



Occupied Bandwidth
909.7147 kHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error 17.868 kHz
x dB Bandwidth 670.551 kHz

C:\temp.gif file saved

High Channel – 6 dB Bandwidth

Fundamental Emission Output Power**LIMIT**

Conducted Output Power

1 Watt

[15.247(b) (3)]

MEASUREMENTS / RESULTS

Radiated Emissions Table - Output Power												
Date: 07-Jul-15			Company: Ideal Industries Inc.						Work Order: P1864			
Engineer: Tuyen Truong			EUT Desc: WMS1200						EUT Operating Voltage/Frequency: 3.6Vdc			
Temp: 24°C			Humidity: 57%						Pressure: 1011mBar			
Frequency Range: Fundamental Frequencies									Measurement Distance: 3 m			
Notes: (-7)dB antenna 9.2.2.2 - AVGSA-1												
Antenna Polarization (H / V)	Frequency (MHz)	Reading (dBμV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Reading (dBμV/m)	Adjusted EIRP Reading (dBm)	Adjusted Conducted Reading (dBm)	FCC 15.247			Pass / Fail
									Limit (dBm)	Margin (dBm)		
h	902.7	99.8	25.3	22.6	1.8	98.9	3.7	10.7	30	-19.3	---	Pass
h	915.0	99.7	25.1	22.7	1.7	99.0	3.8	10.8	30	-19.2	---	Pass
Table Result: Pass by -19.2 dB Worst Freq: 915.0 MHz												
Test Site: EMI Chamber 2			Cable 1: Asset #2052			Cable 2: Asset #2054			Cable 3: ---			
Analyzer: Asset #1328			Preamp: Red			Antenna: Red-Black			Preselector: ---			

Rev.7/6/2015

Spectrum Analyzers / Receivers / Preselectors		Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
SA EMI Chamber (1328)		9kHz-13.2 GHz	E4405B	Agilent	MY44210241	1328	I	2/20/2016	2/20/2015
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		0.009-2000MHz	ZFL-1000-LN	CS	N/A	798	II	1/31/2016	1/31/2015
Antennas		Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Red-Black Bilog		30-2000MHz	JB1	Sunol	A091604-2	1106	I	2/9/2017	2/9/2015
Cables		Range		Mfr			Cat	Calibration Due	Calibrated on
Asset #2052		9kHz - 18GHz		Florida RF			II	3/8/2016	3/8/2015
Asset #2054		9kHz - 18GHz		Florida RF			II	3/8/2016	3/8/2015
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#2081			HTC-1	HDE		2081	II	4/2/2016	4/2/2015

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

Radiated Emissions Table - Output Power												
Date: 07-Jul-15			Company: Ideal Industries Inc.						Work Order: P1864			
Engineer: Tuyen Truong			EUT Desc: WMS1200						EUT Operating Voltage/Frequency: 3.6Vdc			
Temp: 24°C			Humidity: 56%						Pressure: 1011mBar			
Frequency Range: Fundamental Frequencies									Measurement Distance: 3 m			
Notes: (-7)dB antenna 9.2.2.2 - AVGSA-1												
Antenna Polarization (H / V)	Frequency (MHz)	Reading (dBμV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Reading (dBμV/m)	Adjusted EIRP Reading (dBm)	Adjusted Conducted Reading (dBm)	FCC 15.247			Pass / Fail
									Limit (dBm)	Margin (dBm)		
h	927.3	99.0	25.0	23.0	1.7	98.7	3.5	10.5	30	-19.5	---	Pass
Table Result: Pass by -19.5 dB Worst Freq: 927.3 MHz												
Test Site: EMI Chamber 1			Cable 1: Asset #2051			Cable 2: Asset #2054			Cable 3: ---			
Analyzer: Asset #1328			Preamp: Red			Antenna: Red-White			Preselector: ---			

BUREAU
VERITAS

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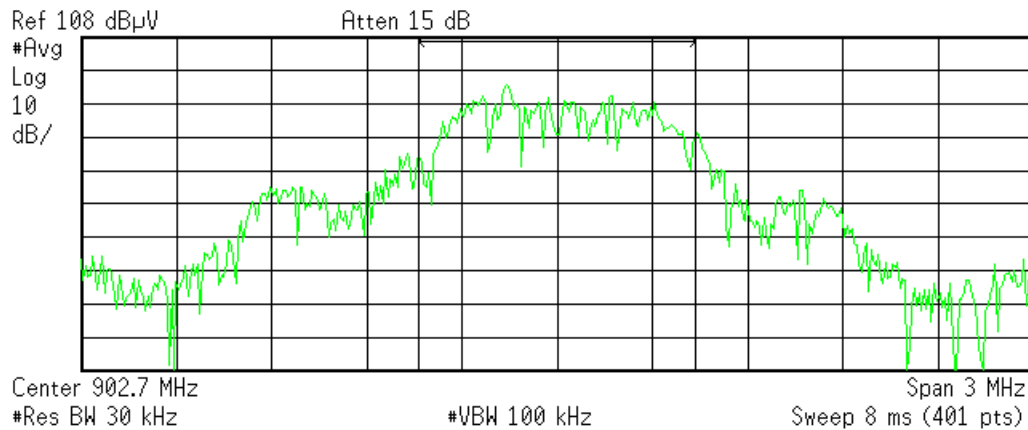
Rev. 7/6/2015

Spectrum Analyzers / Receivers / Preselectors
SA EMI Chamber (1328)**Range**
9kHz-13.2 GHz**MN**
E4405B**Mfr**
Agilent**SN**
MY44210241**Asset**
1328**Cat**
I**Calibration Due**
2/20/2016**Calibrated on**
2/20/2015**Radiated Emissions Sites**
EMI Chamber 1**FCC Code**
719150**IC Code**
2762A-6**VCCI Code**
A-0015**Range**
30-1000MHz**Cat**
II**Calibration Due**
3/21/2017**Calibrated on**
3/21/2015**Preamps / Couplers Attenuators / Filters**
Red**Range**
0.009-2000MHz**MN**
ZFL-1000-LN**Mfr**
CS**SN**
N/A**Asset**
798**Cat**
II**Calibration Due**
1/31/2016**Calibrated on**
1/31/2015**Antennas**
Red-White Bilog**Range**
30-2000MHz**MN**
JB1**Mfr**
Sunol**SN**
A091604-1**Asset**
1105**Cat**
I**Calibration Due**
7/24/2015**Calibrated on**
7/24/2013**Meteorological Meters**
Weather Clock (Pressure Only)
TH A#2080**MN**
BA928
HTC-1**Mfr**
Oregon Scientific
HDE**SN**
C3166-1
2080**Asset**
831
2080**Cat**
I
II**Calibration Due**
3/19/2016
4/2/2016**Calibrated on**
3/19/2014
4/2/2015**Cables**Asset #2051
Asset #2054**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

PLOTS

Agilent 11:29:13 Jul 6, 2015

R T



Channel Power

99.83 dBμV/867.6000 kHz

Power Spectral Density

40.45 dBμV/Hz

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Low Channel – Channel Power

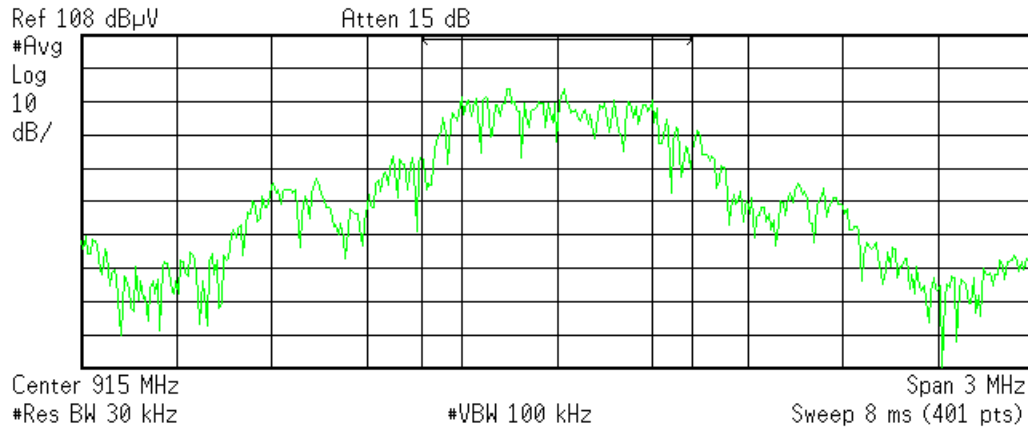


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✱ Agilent 13:06:53 Jul 6, 2015

R T



Channel Power

99.68 dB μ V/853.8000 kHz

Power Spectral Density

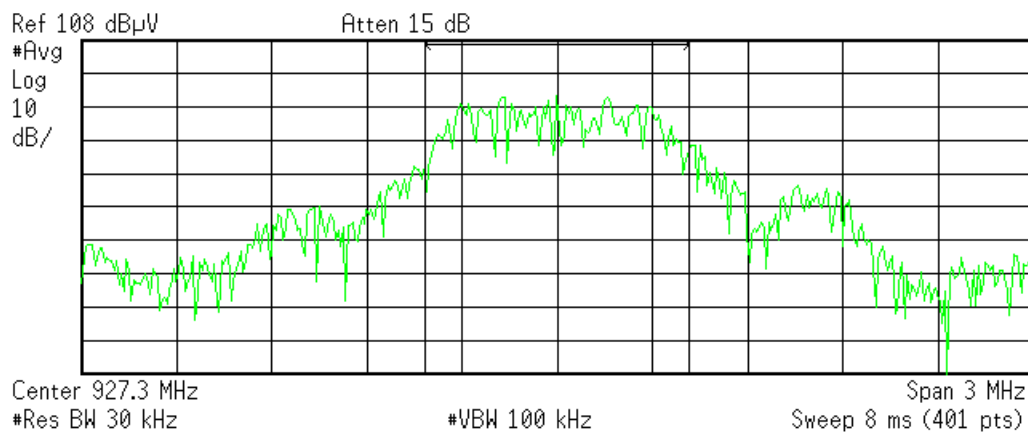
40.37 dB μ V/Hz

C:\temp.gif file saved

Mid Channel – Channel Power

✱ Agilent 14:04:25 Jul 6, 2015

R T



Channel Power

99.03 dB μ V/828.3231 kHz

Power Spectral Density

39.85 dB μ V/Hz

C:\temp.gif file saved

High Channel – Channel Power



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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: 07-Jul-15			Company: Ideal Industries Inc.						Work Order: P1864			
Engineer: Tuyen Truong			EUT Desc: WMS1200						EUT Operating Voltage/Frequency: 3.6Vdc			
Temp: 24°C			Humidity: 56%			Pressure: 1011mBar						
Frequency Range: 30-1000MHz							Measurement Distance: 3 m					
Notes: TX on Low Channel 902.7MHz No Emissions found within 10 dB of Limit - Peak readings only							EUT Max Freq: 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	47.0	36.9	25.4	10.1	0.4	22.0	---	---	---	40.0	-18.0	Pass
h	54.3	29.6	25.4	7.9	0.5	12.6	---	---	---	40.0	-27.4	Pass
v	151.3	36.0	25.3	13.0	0.7	24.4	---	---	---	43.5	-19.1	Pass
h	151.3	32.8	25.3	13.0	0.7	21.2	---	---	---	43.5	-22.3	Pass
v	291.9	35.0	25.2	13.8	0.9	24.5	---	---	---	46.0	-21.5	Pass
h	490.8	29.0	25.5	18.2	1.2	22.9	---	---	---	46.0	-23.1	Pass
v	565.9	30.7	25.3	19.0	1.4	25.8	---	---	---	46.0	-20.2	Pass
h	565.9	30.6	25.3	19.0	1.4	25.7	---	---	---	46.0	-20.3	Pass
Table Result: Pass by -18.0 dB							Worst Freq: 47.0 MHz					
Test Site: EMI Chamber 1			Cable 1: Asset #2051			Cable 2: Asset #2054			Cable 3: ---			
Analyzer: Asset #1328			Preamp: Red			Antenna: Red-White			Preselector: ---			

Rev. 7/6/2015

Spectrum Analyzers / Receivers / Preselectors		Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
SA EMI Chamber (1328)		9kHz-13.2 GHz	E4405B	Agilent	MY44210241	1328	I	2/20/2016	2/20/2015
Radiated Emissions Sites		FCC Code	IC Code	VCCI Code	Range		Cat	Calibration Due	Calibrated on
EMI Chamber 1		719150	2762A-6	A-0015	30-1000MHz		II	3/21/2017	3/21/2015
Preamps / Couplers Attenuators / Filters		Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Red		0.009-2000MHz	ZFL-1000-LN	CS	N/A	798	II	1/31/2016	1/31/2015
Antennas		Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Red-White Bilog		30-2000MHz	JB1	Sunol	A091604-1	1105	I	7/24/2015	7/24/2013
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 #2051		9kHz - 18GHz		Florida RF			II	3/8/2016	3/8/2015
Asset #2054		9kHz - 18GHz		Florida RF			II	3/8/2016	3/8/2015



Radiated Emissions Table

Date: 10-Jul-15				Company: Ideal Industries Inc.					Work Order: P1864					
Engineer: Chris Bramley				EUT Desc: WMS1200					EUT Operating Voltage/Frequency: 3.6Vdc					
Temp: 24.0°C				Humidity: 49%					Pressure: 1005mBar					
Frequency Range: 1-6GHz								Measurement Distance: 3 m						
Notes: TX on Low Channel 902.7MHz EUT in Z-orientation								EUT Max Freq: 927.3MHz						
Antenna Polarization (H / V)	Frequency (MHz)	Peak Reading (dBuV)	Average Reading (dBuV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Peak Reading (dBuV/m)	Adjusted Avg Reading (dBuV/m)	FCC 15.209 High Frequency - Peak			FCC 15.209 High Frequency - Average		
									Limit (dBuV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBuV/m)	Margin (dB)	Result (Pass/Fail)
h	1178.0	34.04	21.4	21.8	26.4	2.3	40.9	28.3	74.0	-33.1	Pass	54.0	-25.7	Pass
h	1805.3	44.26	37.0	20.6	27.1	2.9	53.7	46.4	74.0	-20.3	Pass	54.0	-7.6	Pass
h	2708.0	34.87	22.0	21.9	29.2	3.6	45.8	32.9	74.0	-28.2	Pass	54.0	-21.1	Pass
h	3610.8	37.08	29.9	20.9	31.5	4.0	51.7	44.5	74.0	-22.3	Pass	54.0	-9.5	Pass
Table Result:		Pass		by		-7.6 dB		Worst Freq:		1805.3 MHz				
Test Site: EMI Chamber 2				Cable 1: Asset #2052					Cable 2: Asset #2054					
Analyzer: Asset #1328				Preamp: Asset #1517					Antenna: Black Horn					

Radiated Emissions Table

Date: 10-Jul-15		Company: Ideal Industries Inc.				Work Order: P1864									
Engineer: Chris Bramley		EUT Desc: WMS1200				EUT Operating Voltage/Frequency: 3.6Vdc									
Temp: 24.0°C		Humidity: 49%				Pressure: 1005mBar									
Frequency Range: 6-10GHz						Measurement Distance: 1 m									
Notes: TX on Low Channel 902.7MHz EUT in Z-orientation						EUT Max Freq: 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.															
Table Result:		---		by		---		dB		Worst Freq: --- MHz					
Test Site: EMI Chamber 2		Cable 1: Asset #2052		Cable 2: Asset #2054											
Analyzer: Asset #1328		Preamp: Asset #1517		Antenna: Black Horn											

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Spectrum Analyzers / Receivers/Preselectors		Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
SA EMI Chamber (1328)		9kHz-13.2 GHz	E4405B	Agilent	MY44210241	1328	I	2/20/2016	2/20/2015
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
1517 HF Preamp		1-20GHz	CS	CS	N/A	1517	II	9/9/2015	9/9/2014
Antennas		Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Black Horn		1-18GHz	3115	EMCO	9703-5148	56	I	8/21/2015	8/21/2014
Cables		Range		Mfr			Cat	Calibration Due	Calibrated on
Asset #2052		9kHz - 18GHz		Florida RF			II	3/8/2016	3/8/2015
Asset #2054		9kHz - 18GHz		Florida RF			II	3/8/2016	3/8/2015
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#2081			HTC-1	HDE		2081	II	4/2/2016	

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



Radiated Emissions Table

Date: 07-Jul-15			Company: Ideal Industries Inc.				Work Order: P1864						
Engineer: Tuyen Truong			EUT Desc: WMS1200				EUT Operating Voltage/Frequency: 3.6Vdc						
Temp: 24°C			Humidity: 56%				Pressure: 1011mBar						
Frequency Range: 30-1000MHz							Measurement Distance: 3 m						
Notes: TX on Mid Channel 915MHz No Emissions found within 10 dB of Limit - Peak readings only							EUT Max Freq: 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	47.0	35.4	25.4	10.1	0.4	20.5	---	---	---	40.0	-19.5	Pass	
h	51.8	34.5	25.4	8.3	0.4	17.8	---	---	---	40.0	-22.2	Pass	
h	85.8	31.6	25.4	7.9	0.5	14.6	---	---	---	40.0	-25.4	Pass	
v	90.6	29.8	25.4	8.2	0.6	13.2	---	---	---	43.5	-30.3	Pass	
v	148.8	36.0	25.3	13.1	0.7	24.5	---	---	---	43.5	-19.0	Pass	
h	156.1	34.2	25.3	12.9	0.8	22.6	---	---	---	43.5	-20.9	Pass	
v	565.9	29.1	25.3	19.0	1.4	24.2	---	---	---	46.0	-21.8	Pass	
h	565.9	31.4	25.3	19.0	1.4	26.5	---	---	---	46.0	-19.5	Pass	
h	565.9	31.4	25.3	19.0	1.4	26.5	---	---	---	46.0	-19.5	Pass	
Table Result: Pass							by -19.0 dB		Worst Freq: 148.8 MHz				
Test Site: EMI Chamber 1			Cable 1: Asset #2051				Cable 2: Asset #2054				Cable 3: ---		
Analyzer: Asset #1328			Preamp: Red				Antenna: Red-White				Preselector: ---		

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Spectrum Analyzers / Receivers / Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
SA EMI Chamber (1328)	9kHz-13.2 GHz	E4405B	Agilent	MY44210241	1328	I	2/20/2016	2/20/2015
Radiated Emissions Sites	FCC Code	IC Code	VCCI Code	Range		Cat	Calibration Due	Calibrated on
EMI Chamber 1	719150	2762A-6	A-0015	30-1000MHz		II	3/21/2017	3/21/2015
Preamps / Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Red	0.009-2000MHz	ZFL-1000-LN	CS	N/A	798	II	1/31/2016	1/31/2015
Antennas	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Red-White Bilog	30-2000MHz	JB1	Sunol	A091604-1	1105	I	7/24/2015	7/24/2013
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 #2051	9kHz - 18GHz		Florida RF			II	3/8/2016	3/8/2015
Asset #2054	9kHz - 18GHz		Florida RF			II	3/8/2016	3/8/2015

Radiated Emissions Table

Date: 03-Sep-15			Company: Ideal Industries Inc.						Work Order: P1864						
Engineer: Chris Bramley			EUT Desc: WMS1200						EUT Operating Voltage/Frequency: 3.6Vdc						
Temp: 23.1°C			Humidity: 54%						Pressure: 1002mBar						
Frequency Range: 1-6GHz									Measurement Distance: 3 m						
Notes: TX on Mid Channel 915MHz EUT in Z-orientation									EUT Max Freq: 927.3MHz						
Antenna Polarization (H / V)	Frequency (MHz)	Peak Reading (dBuV)	Average Reading (dBuV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Peak Reading (dBuV/m)	Adjusted Avg Reading (dBuV/m)	FCC 15.209 High Frequency - Peak			FCC 15.209 High Frequency - Average			
									Limit (dBuV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBuV/m)	Margin (dB)	Result (Pass/Fail)	
h	1830.0	40.05	32.4	18.2	27.2	2.7	51.8	44.1	74.0	-22.2	Pass	54.0	-9.9	Pass	
h	2745.0	34.43	22.7	18.7	29.1	3.5	48.3	36.6	74.0	-25.7	Pass	54.0	-17.4	Pass	
h	3660.0	35.61	27.3	17.6	31.8	4.1	53.9	45.6	74.0	-20.1	Pass	54.0	-8.4	Pass	
Table Result:				Pass		by		-8.4 dB		Worst Freq: 3660.0 MHz					
Test Site: EMI Chamber 2				Cable 1: Asset #2052						Cable 2: Asset #2053					
Analyzer: Asset #1327				Preamp: Brown						Antenna: Black Horn					
CSsoft Radiated Emissions Calculator v 1.017.146															
Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor															
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CSsoft Radiated Emissions Calculator v 1.017.146

Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor

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Radiated Emissions Table

Date: 03-Sep-15				Company: Ideal Industries Inc.				Work Order: P1864																							
Engineer: Chris Bramley				EUT Desc: WMS1200				EUT Operating Voltage/Frequency: 3.6Vdc																							
Temp: 23.1°C				Humidity: 54%				Pressure: 1002mBar																							
Frequency Range: 6-10GHz								Measurement Distance: 1 m																							
Notes: TX on Mid Channel 915MHz EUT in Z-orientation								EUT Max Freq: 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.																															
Table Result:				---				by				---				dB				Worst Freq:				---				MHz			
Test Site: EMI Chamber 2								Cable 1: Asset #2052								Cable 2: Asset #2053															
Analyzer: Asset #1327								Preamp: Brown								Antenna: Black Horn															
CSsoft Radiated Emissions Calculator v 1.017.146																Copyright Curtis-Straus LLC 2000															
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
SA EMI Chamber (1327)		9kHz-13.2 GHz	E4405B	Agilent	MY45103416	1327	I	7/10/2016	7/10/2015
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
Brown		1-10GHz	CS	CS	N/A	1523	II	4/9/2016	4/9/2015
Antennas		Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Black Horn		1-18GHz	3115	EMCO	9703-5148	56	I	8/21/2016	8/21/2014
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
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

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

Radiated Emissions Table

Date: 07-Jul-15			Company: Ideal Industries Inc.				Work Order: P1864					
Engineer: Tuyen Truong			EUT Desc: WMS1200				EUT Operating Voltage/Frequency: 3.6Vdc					
Temp: 24°C			Humidity: 56%				Pressure: 1011mBar					
Frequency Range: 30-1000MHz							Measurement Distance: 3 m					
Notes: TX on High Channel 927.3MHz No Emissions found within 10 dB of Limit - Peak readings only							EUT Max Freq: 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)
h	47.0	27.8	25.4	10.1	0.4	12.9	---	---	---	40.0	-27.1	Pass
v	56.7	35.8	25.4	7.7	0.5	18.6	---	---	---	40.0	-21.4	Pass
v	117.3	32.6	25.3	13.9	0.6	21.8	---	---	---	43.5	-21.7	Pass
h	156.1	32.7	25.3	12.9	0.8	21.1	---	---	---	43.5	-22.4	Pass
v	165.8	36.6	25.3	12.5	0.8	24.6	---	---	---	43.5	-18.9	Pass
h	289.5	32.3	25.2	13.8	0.9	21.8	---	---	---	46.0	-24.2	Pass
h	490.8	28.8	25.5	18.2	1.2	22.7	---	---	---	46.0	-23.3	Pass
h	565.9	30.9	25.3	19.0	1.4	26.0	---	---	---	46.0	-20.0	Pass
Table Result: Pass by -18.9 dB							Worst Freq: 165.8 MHz					
Test Site: EMI Chamber 1			Cable 1: Asset #2051				Cable 2: Asset #2054			Cable 3: ---		
Analyzer: Asset #1328			Preamp: Red				Antenna: Red-White			Preselector: ---		

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Spectrum Analyzers / Receivers / Preselectors
SA EMI Chamber (1328)**Range**
9kHz-13.2 GHz**MN**
E4405B**Mfr**
Agilent**SN**
MY44210241**Asset**
1328**Cat**
I**Calibration Due**
2/20/2016**Calibrated on**
2/20/2015**Radiated Emissions Sites**
EMI Chamber 1**FCC Code**
719150**IC Code**
2762A-6**VCCI Code**
A-0015**Range**
30-1000MHz**Cat**
II**Calibration Due**
3/21/2017**Calibrated on**
3/21/2015**Preamps / Couplers Attenuators / Filters**
Red**Range**
0.009-2000MHz**MN**
ZFL-1000-LN**Mfr**
CS**SN**
N/A**Asset**
798**Cat**
II**Calibration Due**
1/31/2016**Calibrated on**
1/31/2015**Antennas**
Red-White Bilog**Range**
30-2000MHz**MN**
JB1**Mfr**
Sunol**SN**
A091604-1**Asset**
1105**Cat**
I**Calibration Due**
7/24/2015**Calibrated on**
7/24/2013**Meteorological Meters**
Weather Clock (Pressure Only)
TH A#2080**MN**
BA928
HTC-1**Mfr**
Oregon Scientific
HDE**SN**
C3166-1
2080**Asset**
2080**Cat**
I
II**Calibration Due**
3/19/2016
4/2/2016**Calibrated on**
3/19/2014
4/2/2015**Cables**Asset #2051
Asset #2054**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**Radiated Emissions Table**

Date: 03-Sep-15		Company: Ideal Industries Inc.						Work Order: P1864							
Engineer: Chris Bramley		EUT Desc: WMS1200						EUT Operating Voltage/Frequency: 3.6Vdc							
Temp: 23.1°C		Humidity: 54%						Pressure: 1002mBar							
Frequency Range: 1-6GHz								Measurement Distance: 3 m							
Notes: TX on High Channel 927.3MHz EUT in Z-orientation								EUT Max Freq: 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	38.97	30.8	18.2	27.3	2.7	50.8	42.6	74.0	-23.2	Pass	54.0	-11.4	Pass	
h	2781.9	34.2	22.0	18.7	29.1	3.5	48.1	35.9	74.0	-25.9	Pass	54.0	-18.1	Pass	
h	3709.2	35.6	27.4	17.5	32.1	4.2	54.4	46.2	74.0	-19.6	Pass	54.0	-7.8	Pass	
Table Result:				Pass by -7.8 dB				Worst Freq:				3709.2 MHz			
Test Site: EMI Chamber 2				Cable 1: Asset #2052				Cable 2: Asset #2053				Antenna: Black Horn			
Analyzer: Asset #1327				Preamp: Brown											
CSsoft Radiated Emissions Calculator v 1.017.146														Copyright Curtis-Straus LLC 2000	
Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor															

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Radiated Emissions Table

Date: 03-Sep-15				Company: Ideal Industries Inc.				Work Order: P1864											
Engineer: Chris Bramley				EUT Desc: WMS1200				EUT Operating Voltage/Frequency: 3.6Vdc											
Temp: 23.1°C				Humidity: 54%				Pressure: 1002mBar											
Frequency Range: 6-10GHz								Measurement Distance: 1 m											
Notes: TX on High Channel 927.3MHz EUT in Z-orientation								EUT Max Freq: 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.																			
Table Result:				---				by		---		dB		Worst Freq:		---		MHz	
Test Site: EMI Chamber 2				Cable 1: Asset #2052				Cable 2: Asset #2053				Antenna: Black Horn							
Analyzer: Asset #1327				Preamp: Brown															
CSsoft Radiated Emissions Calculator v 1.017.146																			
Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor																			
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Spectrum Analyzers / Receivers/Preselectors SA EMI Chamber (1327)	Range 9kHz-13.2 GHz	MN E4405B	Mfr Agilent	SN MY45103416	Asset 1327	Cat I	Calibration Due 7/10/2016	Calibrated on 7/10/2015
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 Brown	Range 1-10GHz	MN CS	Mfr CS	SN N/A	Asset 1523	Cat II	Calibration Due 4/9/2016	Calibrated on 4/9/2015
Antennas Black Horn	Range 1-18GHz	MN 3115	Mfr EMCO	SN 9703-5148	Asset 56	Cat I	Calibration Due 8/21/2016	Calibrated on 8/21/2014
Cables Asset #2052	Range 9kHz - 18GHz		Mfr Florida RF			Cat II	Calibration Due 3/8/2016	Calibrated on 3/8/2015
Asset #2053	9kHz - 18GHz		Florida RF			II	3/8/2016	3/8/2015
Meteorological Meters Weather Clock (Pressure Only)		MN BA928	Mfr Oregon Scientific	SN C3166-1	Asset 831	Cat I	Calibration Due 3/19/2016	Calibrated on 3/19/2014
TH A#2081		HTC-1	HDE		2081	II	4/2/2016	4/2/2015

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)]

MEASUREMENTS / RESULTS

Radiated Emissions Table - Power Spectral Density												
Date: 07-Jul-15			Company: Ideal Industries Inc.						Work Order: P1864			
Engineer: Tuyen Truong			EUT Desc: WMS1200						EUT Operating Voltage/Frequency: 3.6Vdc			
Temp: 24°C			Humidity: 57%						Pressure: 1011mBar			
Frequency Range: Fundamental Frequencies									Measurement Distance: 3 m			
Notes: 10.3 - AVGPSSD-1 (-7)dB antenna												
Antenna Polarization (H / V)	Frequency (MHz)	Reading (dBμV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Reading (dBμV/m)	Adjusted EIRP Reading (dBm)	Adjusted Conducted Reading (dBm)	FCC 15.247			Pass / Fail
									Limit (dBm)	Margin (dBm)		
h	902.7	91.8	25.3	22.6	1.8	90.9	-4.3	2.7	8	-5.3	---	Pass
h	915.0	91.5	25.1	22.7	1.7	90.8	-4.4	2.6	8	-5.4	---	Pass
Table Result: Pass by -5.3 dB Worst Freq: 902.7 MHz												
Test Site: EMI Chamber 2			Cable 1: Asset #2052						Cable 2: Asset #2054			Cable 3: ---
Analyzer: Asset #1328			Preamp: Red						Antenna: Red-Black			Preselector: ---

Rev.7/6/2015

Spectrum Analyzers / Receivers / Preselectors		Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
SA EMI Chamber (1328)		9kHz-13.2 GHz	E4405B	Agilent	MY44210241	1328	I	2/20/2016	2/20/2015
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		0.009-2000MHz	ZFL-1000-LN	CS	N/A	798	II	1/31/2016	1/31/2015
Antennas		Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Red-Black Bilog		30-2000MHz	JB1	Sunol	A091604-2	1106	I	2/9/2017	2/9/2015
Cables		Range		Mfr			Cat	Calibration Due	Calibrated on
Asset #2052		9kHz - 18GHz		Florida RF			II	3/8/2016	3/8/2015
Asset #2054		9kHz - 18GHz		Florida RF			II	3/8/2016	3/8/2015
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#2081			HTC-1	HDE		2081	II	4/2/2016	4/2/2015

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

Radiated Emissions Table - Power Spectral Density												
Date: 07-Jul-15			Company: Ideal Industries Inc.						Work Order: P1864			
Engineer: Tuyen Truong			EUT Desc: WMS1200						EUT Operating Voltage/Frequency: 3.6Vdc			
Temp: 24°C			Humidity: 56%						Pressure: 1011mBar			
Frequency Range: Fundamental Frequencies									Measurement Distance: 3 m			
Notes: 10.3 - AVGPSSD-1 (-7)dB antenna												
Antenna Polarization (H / V)	Frequency (MHz)	Reading (dBμV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Reading (dBμV/m)	Adjusted EIRP Reading (dBm)	Adjusted Conducted Reading (dBm)	FCC 15.247			Pass / Fail
									Limit (dBm)	Margin (dBm)		
h	927.3	90.5	25.0	23.0	1.7	90.2	-5.0	2.0	8	-6.0	---	Pass
Table Result: Pass by -6.0 dB Worst Freq: 927.3 MHz												
Test Site: EMI Chamber 1			Cable 1: Asset #2051			Cable 2: Asset #2054			Cable 3: ---			
Analyzer: Asset #1328			Preamp: Red			Antenna: Red-White			Preselector: ---			

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VERITAS

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Rev. 7/6/2015

Spectrum Analyzers / Receivers / Preselectors
SA EMI Chamber (1328)

Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
9kHz-13.2 GHz	E4405B	Agilent	MY44210241	1328	I	2/20/2016	2/20/2015

Radiated Emissions Sites
EMI Chamber 1

FCC Code	IC Code	VCCI Code	Range	Cat	Calibration Due	Calibrated on
719150	2762A-6	A-0015	30-1000MHz	II	3/21/2017	3/21/2015

Preamps / Couplers Attenuators / Filters
Red

Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
0.009-2000MHz	ZFL-1000-LN	CS	N/A	798	II	1/31/2016	1/31/2015

Antennas
Red-White Bilog

Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
30-2000MHz	JB1	Sunol	A091604-1	1105	I	7/24/2015	7/24/2013

Meteorological Meters
Weather Clock (Pressure Only)
TH A#2080

MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
BA928	Oregon Scientific	C3166-1	831	I	3/19/2016	3/19/2014
HTC-1	HDE		2080	II	4/2/2016	4/2/2015

CablesAsset #2051
Asset #2054

Range
9kHz - 18GHz
9kHz - 18GHz

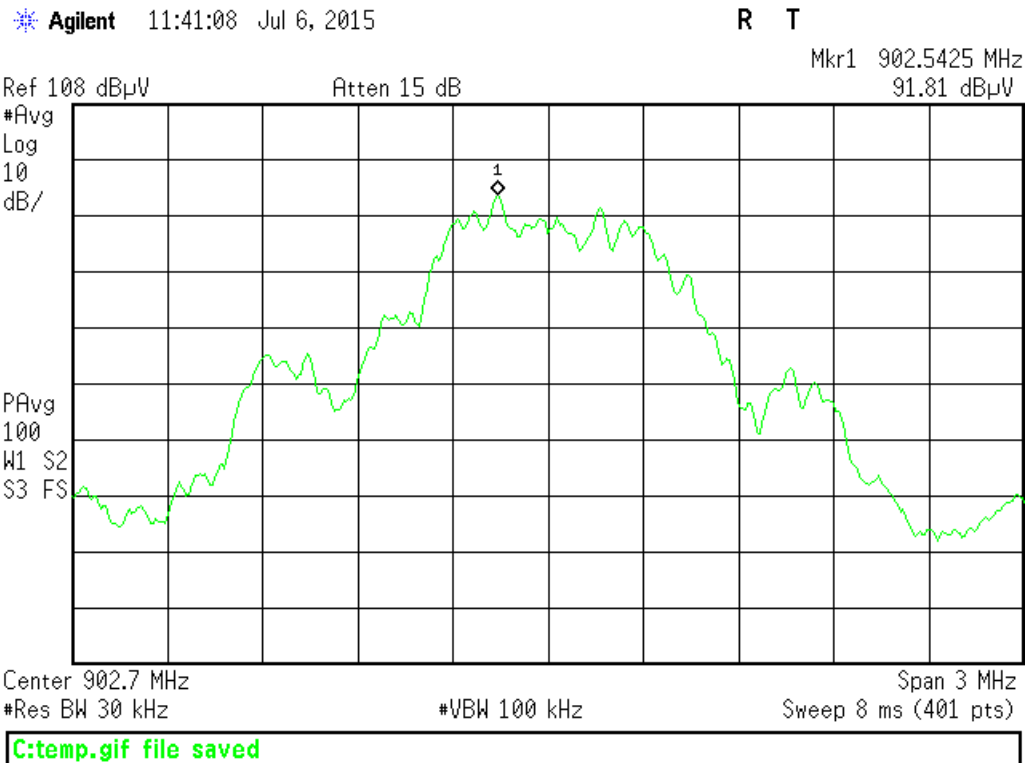
Mfr
Florida RF
Florida RF

Cat	Calibration Due	Calibrated on
II	3/8/2016	3/8/2015
II	3/8/2016	3/8/2015

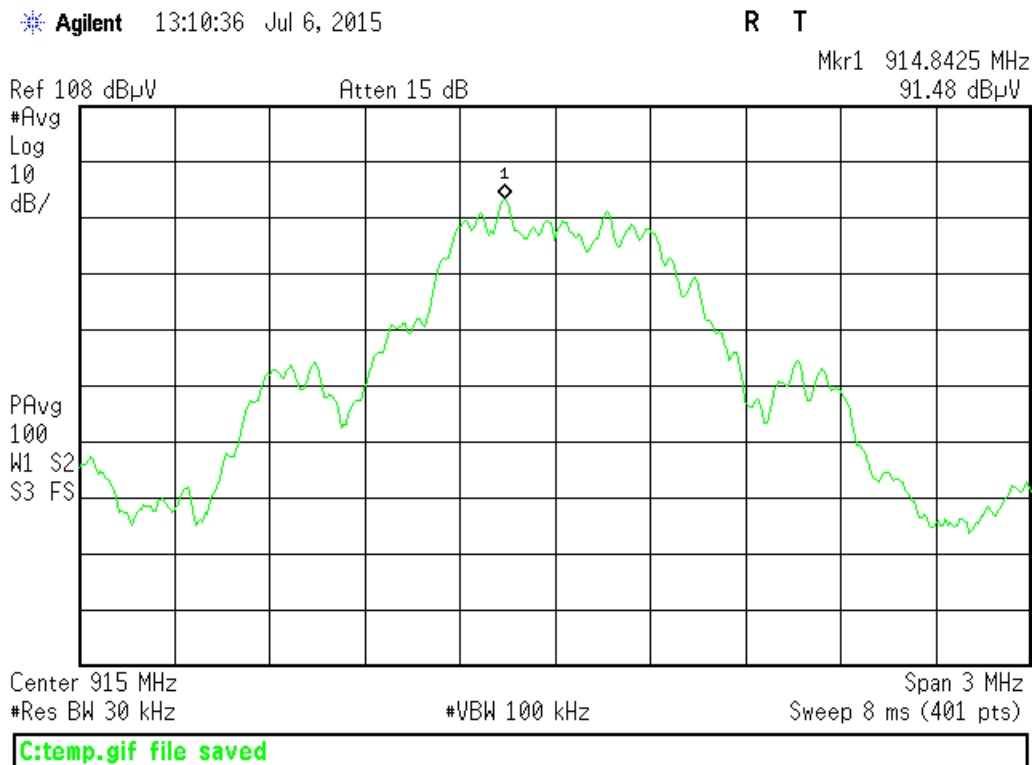
All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.



PLOTS



Channel Low – PSD

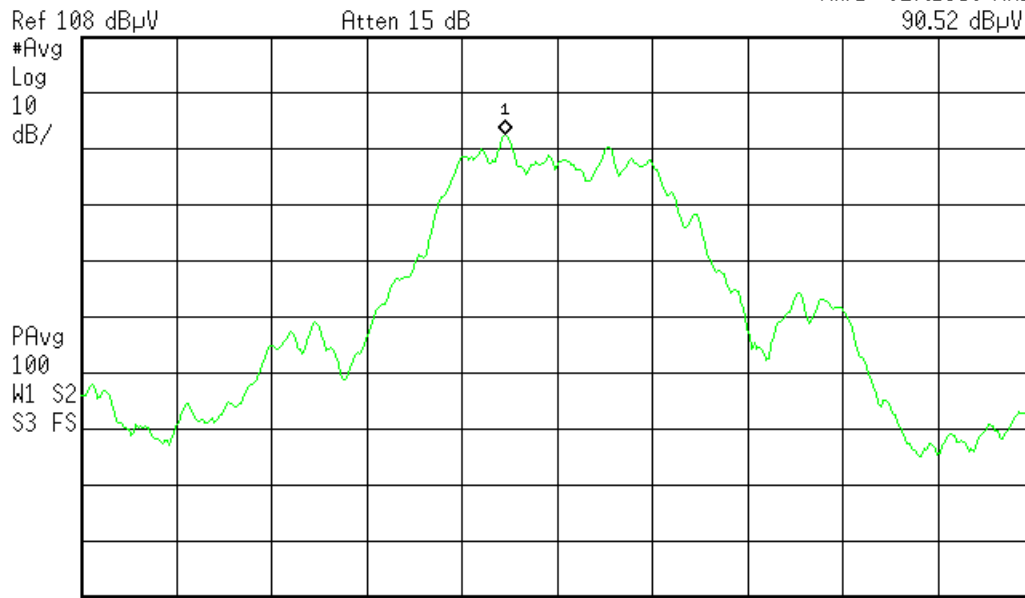


Channel Mid – PSD

Agilent 14:08:06 Jul 6, 2015

R T

Mkr1 927.1350 MHz
90.52 dBμV



Center 927.3 MHz Span 3 MHz
#Res BW 30 kHz #VBW 100 kHz Sweep 8 ms (401 pts)

C:\temp.gif file saved

Channel High – 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

Not applicable since EUT is battery powered.

Occupied Bandwidth**REQUIREMENT**

When an occupied bandwidth is not specified in the applicable RSS, the transmitted signal bandwidth to be reported is to be its 99% emission bandwidth, as calculated or measured.
[RSS-GEN 4.6.1]

MEASUREMENTS / RESULTS

Occupied Bandwidth			
Frequency (MHz)	Mode	99% Occupied Bandwidth (KHz)	
902.7	DMSS	867.5531	
915	DMSS	853.7933	
Tested by: Tuyen Truong Date: 7/7/2015 Company: Ideal Industries Inc. EUT: WMS1200		Cables: 2052+2054 Analyzer: Asset 1328 PreAmp: Red Antenna: RedBlack	Temp: 24°C Humidity: 57% Pressure: 1011mBar Work Order: P1864

Rev. 7/6/2015

Spectrum Analyzers / Receivers / Preselectors SA EMI Chamber (1328)	Range 9kHz-13.2 GHz	MN E4405B	Mfr Agilent	SN MY44210241	Asset 1328	Cat I	Calibration Due 2/20/2016	Calibrated on 2/20/2015
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	Range 0.009-2000MHz	MN ZFL-1000-LN	Mfr CS	SN N/A	Asset 798	Cat II	Calibration Due 1/31/2016	Calibrated on 1/31/2015
Antennas Red-Black Bilog	Range 30-2000MHz	MN JB1	Mfr Sunol	SN A091604-2	Asset 1106	Cat I	Calibration Due 2/9/2017	Calibrated on 2/9/2015
Cables Asset #2052 Asset #2054	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
Meteorological Meters Weather Clock (Pressure Only) TH A#2081		MN BA928 HTC-1	Mfr Oregon Scientific HDE	SN C3166-1	Asset 831 2081	Cat I II	Calibration Due 3/19/2016 4/2/2016	Calibrated on 3/19/2014 4/2/2015

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

Occupied Bandwidth			
Frequency (MHz)	Mode	99% Occupied Bandwidth (KHz)	
927.3	DMSS	828.3231	
Tested by: Tuyen Truong Date: 7/7/2015 Company: Ideal Industries Inc. EUT: WMS1200		Cables: 2051+2054 Analyzer: Asset 1328 PreAmp: Red Antenna: RedWhite	Temp: 24°C Humidity: 56% Pressure: 1011mBar Work Order: P1864



Rev. 7/6/2015

Spectrum Analyzers / Receivers / Preselectors
SA EMI Chamber (1328)

Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
9kHz-13.2 GHz	E4405B	Agilent	MY44210241	1328	I	2/20/2016	2/20/2015

Radiated Emissions Sites
EMI Chamber 1

FCC Code	IC Code	VCCI Code	Range	Cat	Calibration Due	Calibrated on
719150	2762A-6	A-0015	30-1000MHz	II	3/21/2017	3/21/2015

Preamps / Couplers Attenuators / Filters
Red

Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
0.009-2000MHz	ZFL-1000-LN	CS	N/A	798	II	1/31/2016	1/31/2015

Antennas
Red-White Bilog

Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
30-2000MHz	JB1	Sunol	A091604-1	1105	I	7/24/2015	7/24/2013

Meteorological Meters
Weather Clock (Pressure Only)
TH A#2080

MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
BA928	Oregon Scientific	C3166-1	831	I	3/19/2016	3/19/2014
HTC-1	HDE		2080	II	4/2/2016	4/2/2015

CablesAsset #2051
Asset #2054

Range
9kHz - 18GHz
9kHz - 18GHz

Mfr
Florida RF
Florida RF

Cat	Calibration Due	Calibrated on
II	3/8/2016	3/8/2015
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 11:21:46 Jul 6, 2015

R T

Mkr1 902.5500 MHz
94.38 dBμV

Ref 112 dBμV

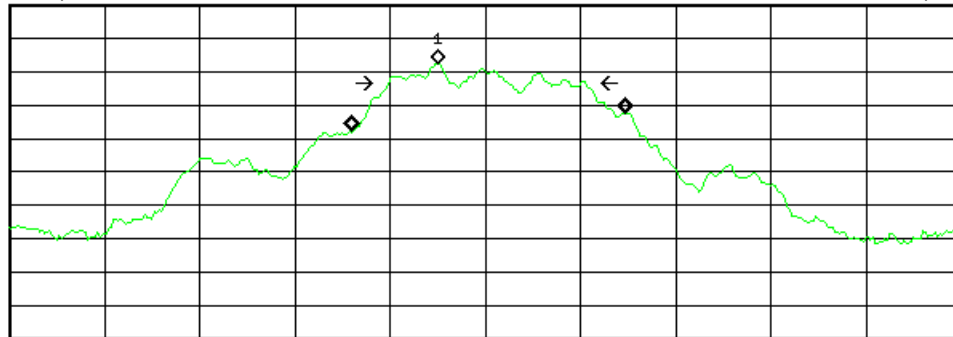
Atten 15 dB

#Peak

Log

10

dB/



Center 902.7 MHz

#Res BW 30 kHz

#VBW 100 kHz

Span 3 MHz

Sweep 5 ms (401 pts)

Occupied Bandwidth
867.5531 kHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error 11.779 kHz
x dB Bandwidth 625.531 kHz

C:\temp.gif file saved

Low Channel – Occupied Bandwidth

Agilent 13:03:48 Jul 6, 2015

R T

Ref 112 dBμV

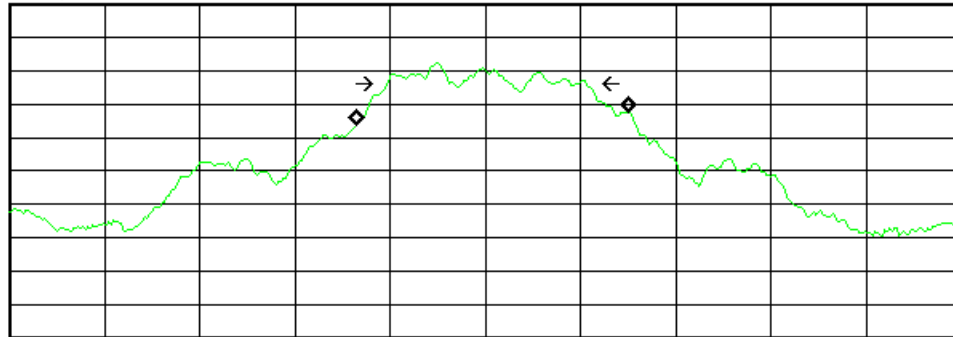
Atten 20 dB

#Peak

Log

10

dB/



Center 915 MHz

#Res BW 30 kHz

#VBW 100 kHz

Span 3 MHz

Sweep 5 ms (401 pts)

Occupied Bandwidth
853.7933 kHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error 22.858 kHz
x dB Bandwidth 627.778 kHz

C:\temp.gif file saved

Mid Channel – Occupied Bandwidth



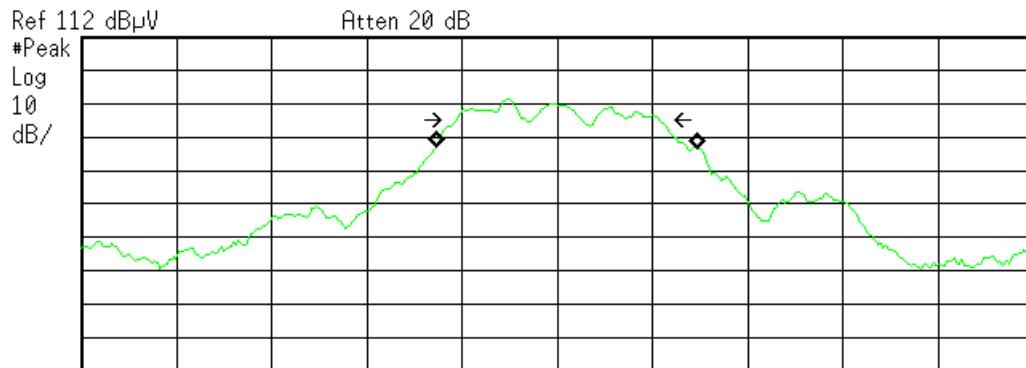
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Agilent 14:00:09 Jul 6, 2015

R T



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

Occupied Bandwidth
828.3231 kHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error 29.502 kHz
x dB Bandwidth 638.519 kHz

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High 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)	5.6dB	N/A
NIST	4.6dB	5.2dB (Ucisprr)
CISPR		
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%	5%
	0.3dB	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.
Rev.160009121(2)_#684340 v14CS

