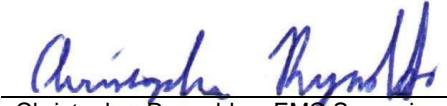




BUREAU
VERITAS

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

Test Report

Report No	EO3616-2
Client	Ideal Industries, Inc. Tim Tunnell
Address	566 Alpha Drive Pittsburgh, PA 15238
Phone	412-436-4077
Items tested	GW1100B
FCC ID	2AAMXGW1100B
IC	11250A-GW1100B
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	December 3, 11 and 22, 2014, January 9 and February 10, 2015
Results	As detailed within this report
Prepared by	 Tuyen Truong A. – Test Engineer
Authorized by	 Christopher Reynolds – EMC Supervisor
Issue Date	10/29/2015
Conditions of Issue	This Test Report is issued subject to the conditions stated in the 'Conditions of Testing' section on page 36 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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Contents

Contents.....	2
Summary.....	3
Test Methodology.....	4
Product Tested - Configuration Documentation	5
<i>Statement of Conformity</i>	6
Test Results	7
<i>Bandwidth</i>	7
Fundamental Emission Output Power	12
<i>Radiated Spurious Emissions</i>	17
<i>Conducted Spurious Emissions</i>	22
Power Spectral Density.....	26
AC Line Conducted Emissions.....	30
<i>Occupied Bandwidth</i>	31
Measurement Uncertainty.....	35
Conditions Of Testing	36

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



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Summary

This test report supports an application for certification of a transmitter operating pursuant to 47 CFR 15.247. The product is the GW1100B. It is a digitally modulated transmitter that operates in the range 902.7-927.3MHz. Product was tested with two antenna using RP-SMA connectors with a gain of 2.5dBi.

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

Issue No.	Reason for change	Date Issued
1	Original Release	January 6, 2016

page 3 of 37



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Test Methodology

Radiated emission and AC line conducted testing were performed according to the procedures specified in FCC Guidance v03r03 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 antenna was maximized separately.

Conducted emissions at the antenna port were performed, as required by rule section.

The EUT operating voltage is 120VAC, 60Hz

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: O3616 Company: Ideal Industries, Inc. Company Address: 566 Alpha Drive Pittsburgh, PA 15238 Contact: Charlie Greene																																																																																		
MN										SN																																																																								
EUT: GW1100B I.T.E AC/DC Power Brick CENB1020A2403B01										Sample 1 Sample 1																																																																								
EUT Description: Gateway EUT Max Frequency: 360MHz EUT TX Frequency: 902.7-927.3MHz																																																																																		
Support Equipment: <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center; width: 15%;">MN</th><th style="text-align: center; width: 85%;">SN</th></tr> </thead> <tbody> <tr> <td style="text-align: center;">Linksys Router</td><td style="text-align: center;">WRT54G2 V1</td></tr> <tr> <td style="text-align: center;">SerialGear CAN</td><td style="text-align: center;">--</td></tr> <tr> <td style="text-align: center;">--</td><td style="text-align: center;">214386</td></tr> </tbody> </table>										MN	SN	Linksys Router	WRT54G2 V1	SerialGear CAN	--	--	214386																																																																	
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EUT Ports: <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center; width: 15%;">Port Label</th><th style="text-align: center; width: 15%;">Port Type</th><th style="text-align: center; width: 15%;">No. of ports</th><th style="text-align: center; width: 15%;">No. Populated</th><th style="text-align: center; width: 15%;">Cable Type</th><th style="text-align: center; width: 15%;">Shielded</th><th style="text-align: center; width: 15%;">Ferrites</th><th style="text-align: center; width: 15%;">Length</th><th style="text-align: center; width: 15%;">Max Length</th><th style="text-align: center; width: 15%;">In/Out</th><th style="text-align: center; width: 15%;">NEBS Type</th><th style="text-align: center; width: 15%;">Unpopulated Reason</th></tr> </thead> <tbody> <tr> <td>Serial</td><td>RS485</td><td style="text-align: center;">1</td><td style="text-align: center;">1</td><td>3-wires</td><td style="text-align: center;">Yes</td><td style="text-align: center;">No</td><td style="text-align: center;">10m</td><td style="text-align: center;">TBD</td><td style="text-align: center;">Indoor</td><td></td><td></td></tr> <tr> <td>Ethernet</td><td>RJ45</td><td style="text-align: center;">2</td><td style="text-align: center;">2</td><td>cat.5</td><td style="text-align: center;">No</td><td style="text-align: center;">No</td><td style="text-align: center;">10m</td><td style="text-align: center;">100m</td><td style="text-align: center;">Indoor</td><td></td><td></td></tr> <tr> <td>Power</td><td>Power</td><td style="text-align: center;">1</td><td style="text-align: center;">1</td><td>2-wires</td><td style="text-align: center;">No</td><td style="text-align: center;">No</td><td style="text-align: center;">1.5m</td><td style="text-align: center;">>3m</td><td style="text-align: center;">Indoor</td><td></td><td></td></tr> <tr> <td>USB</td><td>USB</td><td style="text-align: center;">1</td><td style="text-align: center;">0</td><td>N/A</td><td style="text-align: center;">N/A</td><td style="text-align: center;">N/A</td><td style="text-align: center;">N/A</td><td style="text-align: center;">N/A</td><td style="text-align: center;">N/A</td><td style="text-align: center;">N/A</td><td>Not used in this Config.</td></tr> <tr> <td>Antenna</td><td>SMA</td><td style="text-align: center;">2</td><td style="text-align: center;">2</td><td>SMA Connector</td><td style="text-align: center;">Yes</td><td style="text-align: center;">No</td><td style="text-align: center;">20cm</td><td style="text-align: center;">TBD</td><td style="text-align: center;">Indoor</td><td></td><td></td></tr> </tbody> </table>											Port Label	Port Type	No. of ports	No. Populated	Cable Type	Shielded	Ferrites	Length	Max Length	In/Out	NEBS Type	Unpopulated Reason	Serial	RS485	1	1	3-wires	Yes	No	10m	TBD	Indoor			Ethernet	RJ45	2	2	cat.5	No	No	10m	100m	Indoor			Power	Power	1	1	2-wires	No	No	1.5m	>3m	Indoor			USB	USB	1	0	N/A	Not used in this Config.	Antenna	SMA	2	2	SMA Connector	Yes	No	20cm	TBD	Indoor								
Port Label	Port Type	No. of ports	No. Populated	Cable Type	Shielded	Ferrites	Length	Max Length	In/Out	NEBS Type	Unpopulated Reason																																																																							
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Power	Power	1	1	2-wires	No	No	1.5m	>3m	Indoor																																																																									
USB	USB	1	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not used in this Config.																																																																							
Antenna	SMA	2	2	SMA Connector	Yes	No	20cm	TBD	Indoor																																																																									
Software / Operating Mode Description: EUT is transmitting on one of three pre-programmed channels (Low, Mid and High) between 902.7-927.3MHz.																																																																																		
Performance Criteria: Emissions only																																																																																		



Statement of Conformity

The GW1100 has been found to conform to the following parts of 47 CFR and as detailed below:

RSS-GEN	RSS-247	Part 15	Comments
5.3		15.15(b)	There are no controls accessible to the user that varies the output power above specified limits.
5.2		15.19	The label is shown in the label exhibit.
8.4		15.21	Information to the user is shown in the instruction manual exhibit.
		15.27	No special accessories are required for compliance.
		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.
		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.
6.7		15.203	EUT employs two detachable antennas using RP-SMA connectors. Only one antenna can transmit at one time.
	5.5	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.
8.8		15.207	EUT meets the AC Line conducted emissions requirements of 15.207.
		15.247	The unit complies with the requirements of 15.247
	RSS-247		The unit complies with the requirements of RSS-247
6.6		15.247	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

Engineer	Chris Bramley
Date	12/11/2014
Site	3M Indoor
Environmental Conditions	20°C, 23%, 1017mBar

6dB Bandwidth - Antenna 1

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

Frequency (MHz)	Mode	6dB BW (MHz)	Limit (kHz)	Margin (MHz)
902.7	DMSS	0.675	>500	-0.175
915	DMSS	0.670	>500	-0.170
927.3	DMSS	0.670	>500	-0.170

Tested by: Chris Bramley **RBW** = 100KHz **VBW** = 300KHz
Date: 12/11/2014 **Analyzer:** Brown SA
Company: Ideal Industries, Inc. **Attenuator:** PE7019-20 #791
EUT: GW1100B

6dB Bandwidth - Antenna 2

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

Frequency (MHz)	Mode	6dB BW (MHz)	Limit (kHz)	Margin (MHz)
902.7	DMSS	0.675	>500	-0.175
915	DMSS	0.670	>500	-0.170
927.3	DMSS	0.670	>500	-0.170

Tested by: Chris Bramley **RBW** = 100KHz **VBW** = 300KHz
Date: 12/11/2014 **Analyzer:** Brown SA
Company: Ideal Industries, Inc. **Attenuator:** PE7019-20 #791
EUT: GW1100B

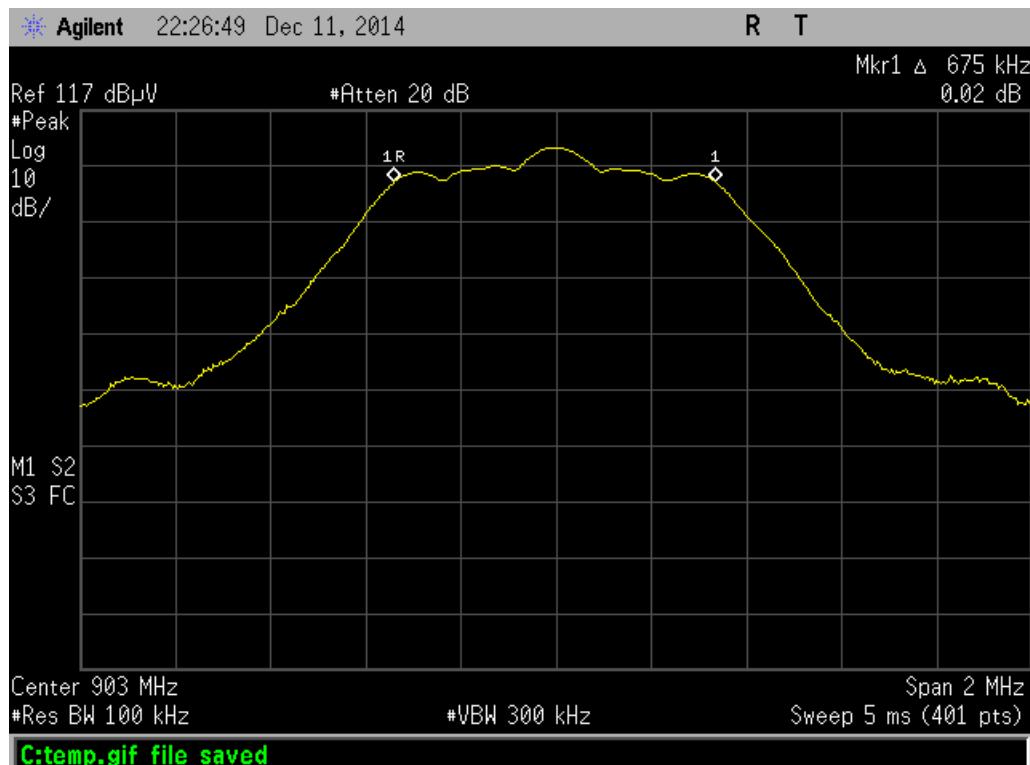


Rev. 1/9/2015

Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Brown	9kHz-26.5GHz	E4407B	Agilent	SG44210511	1510	I	5/12/2015	5/12/2014
Radiated Emissions Sites 1DCC-OATS-3M-H	FCC Code 719150	IC Code 2762A-8	VCCI Code A-0015	Range 30-1000MHz		Cat II	Calibration Due 5/17/2015	Calibrated on 5/17/2013
Preamps/Couplers Attenuators / Filters HF 20dB 50W Attenuator	Range 0.009-18 GHz	MN PE 7019-20	Mfr Pasterнак	SN 1	Asset 791	Cat II	Calibration Due 7/14/2015	Calibrated on 7/14/2014
Meteorological Meters Weather Clock (Pressure Only) TH A#1828	MN BA928 35519-044	Mfr Oregon Scientific Control Company	SN C3166-1 130318292	Asset 831 1828	Cat I II	Calibration Due 3/19/2016 6/13/2015	Calibrated on 3/19/2014 6/13/2013	

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

PLOT(s)



Low Channel – 6dB Bandwidth (Antenna 1)

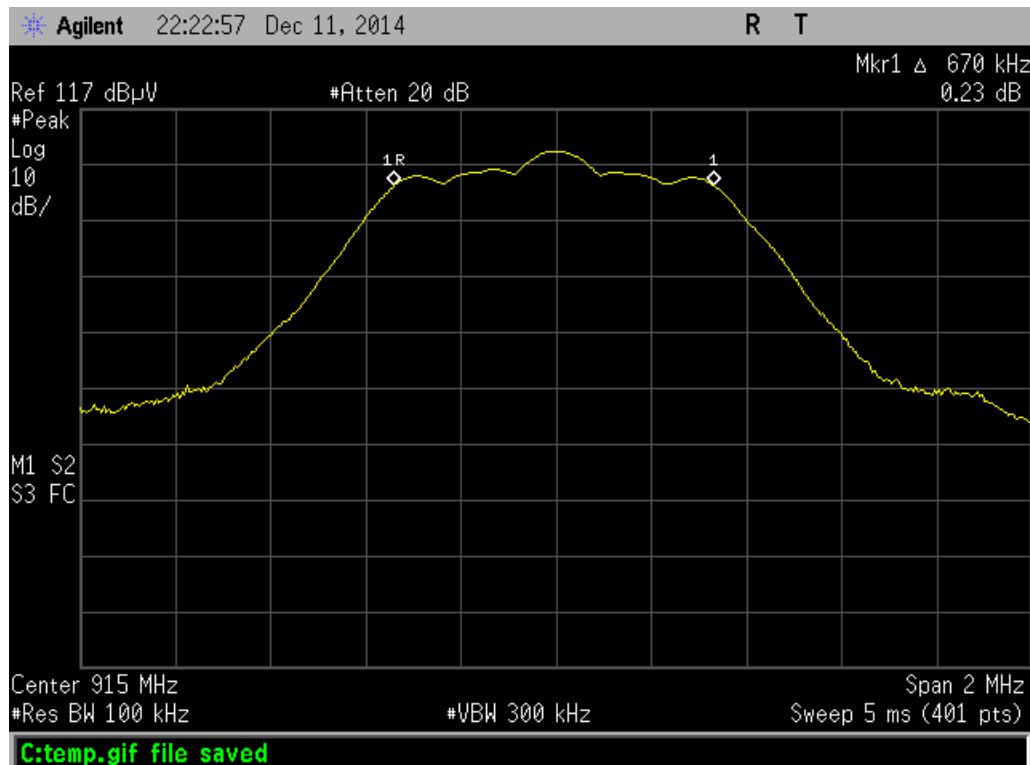


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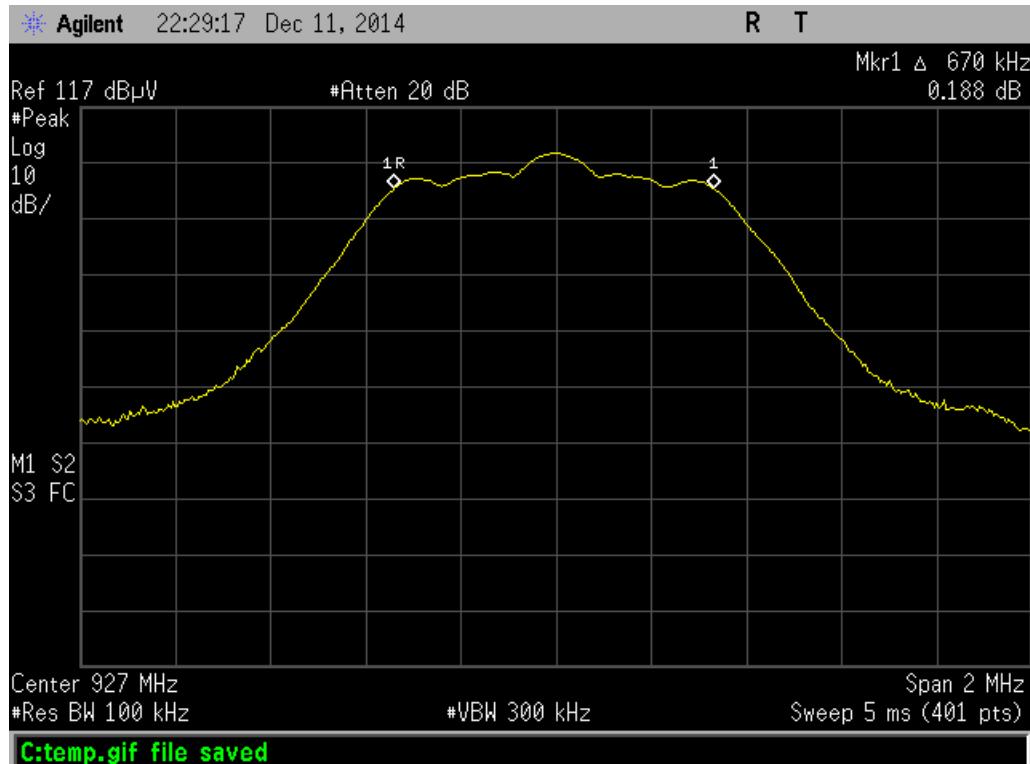


page 8 of 37

ACREDITED
Testing Cert. No. 1627-01

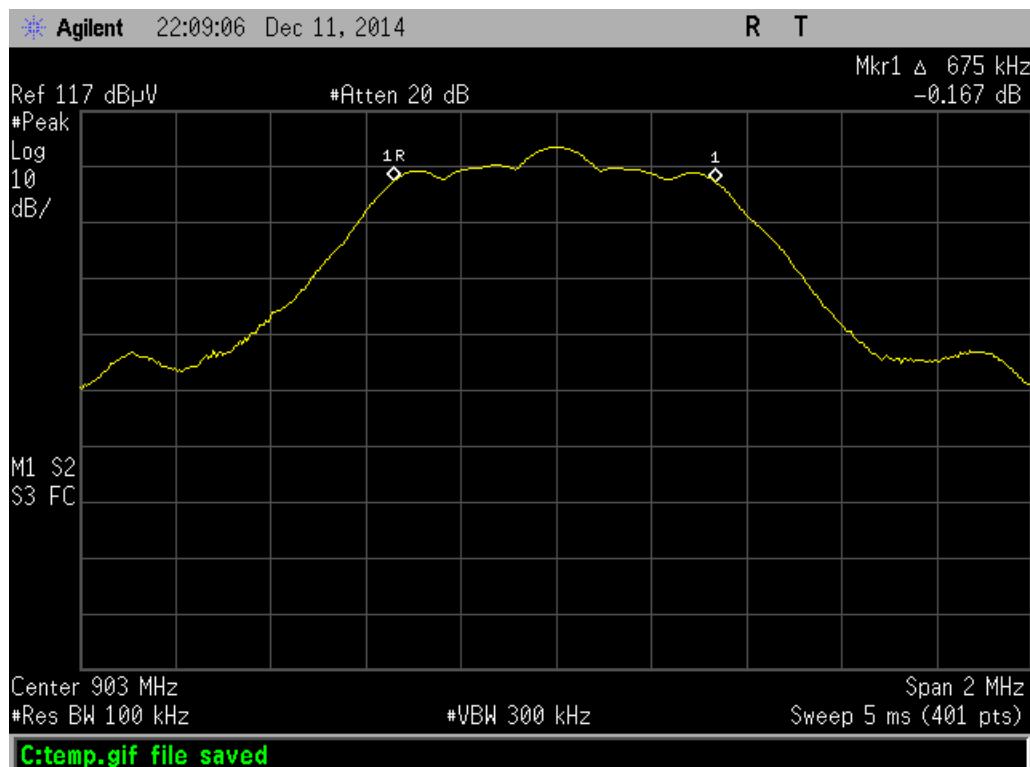


Mid Channel – 6dB Bandwidth (Antenna 1)

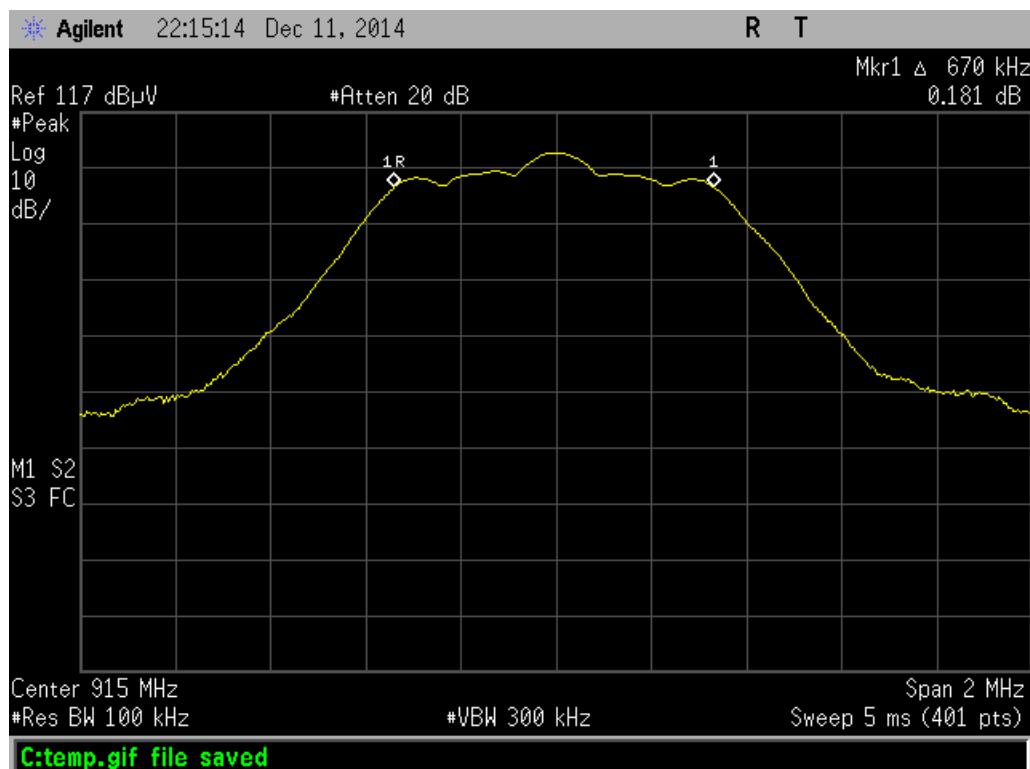


High Channel – 6 dB Bandwidth (Antenna 1)



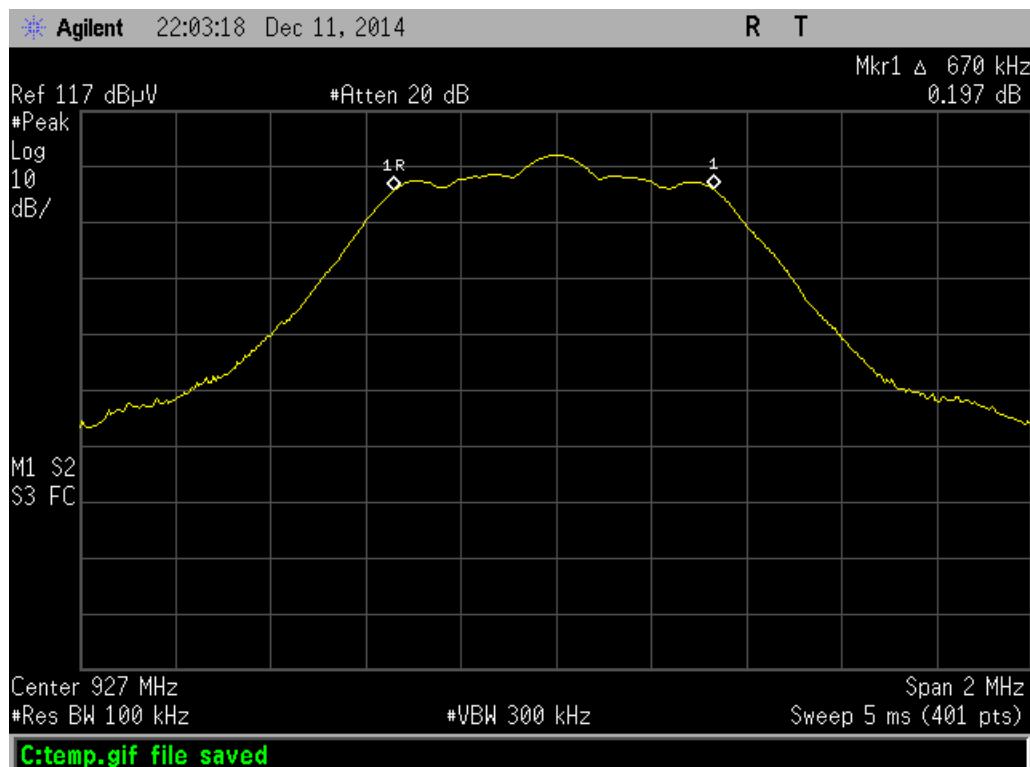


Low Channel – 6dB Bandwidth (Antenna 2)



Mid Channel – 6dB Bandwidth (Antenna 2)





High Channel – 6 dB Bandwidth (Antenna 2)



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page 11 of 37

Testing Cert. No. 1627-01

Fundamental Emission Output Power

LIMIT

Conducted Output Power

1 Watt

[15.247(b) (3)]

MEASUREMENTS / RESULTS

Engineer	Chris Bramley
Date	12/11/2014
Site	3M Indoor
Environmental Conditions	20°C, 33%, 1017mBar

DTS Method 9.2.2.2 Method AVGSA-1 (Trace averaging with the EUT transmitting at full power throughout each sweep)

Maximum Conducted (average) Output Power - Antenna 1

Tested by:	Chris Bramley	WO:	O3616			
Date:	12/11/2014	Analyzer:	Brown SA			
Company:	Ideal Industries, Inc.	Attenuator:	PE7019-20 #791			
EUT:	GW1100B	Operating Voltage:	120Vac/60Hz			
TX Mode: DMSS			Limit = 1Watt or 30dBm			
Channel (MHz)	Measured power (dBm)	Attenuator factor (dB)	Adjusted power measurement (dBm)	Limit (dBm)	Margin (dB)	Result
902.7	2.95	19.57	22.52	30	-7.48	Pass
915	2.15	19.57	21.72	30	-8.28	Pass
927.3	1.41	19.57	20.98	30	-9.02	Pass

Rev. 1/9/2015									
Spectrum Analyzers / Receivers /Preselectors		Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Brown		9kHz-26.5GHz	E4407B	Agilent	SG44210511	1510	I	5/12/2015	5/12/2014
Radiated Emissions Sites		FCC Code	IC Code	VCCI Code	Range		Cat	Calibration Due	Calibrated on
1DCC-OATS-3M-I		719150	2762A-8	A-0015	30-1000MHz		II	5/17/2015	5/17/2013
Preamps/Couplers Attenuators / Filters		Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
HF 20dB 50W Attenuator		0.009-18 GHz	PE 7019-20	Pasternack	1	791	II	7/14/2015	7/14/2014
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#1828		35519-044	Control Company	130318292	1828	II	6/13/2015	6/13/2013	

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



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page 12 of 37

Testing Cert. No. 1627-01

Maximum Conducted (average) Output Power - Antenna 2

Tested by: Chris Bramley	WO: O3616					
Date: 12/11/2014	RBW = 30KHz					
Company: Ideal Industries, Inc.	VBW = 100KHz					
EUT: GW1100B	Limit = 1Watt or 30dBm					
TX Mode: DMSS						
Channel (MHz)	Measured power (dBm)	Attenuator factor (dB)	Adjusted power measurement (dBm)	Limit (dBm)	Margin (dB)	Result
902.7	3.36	19.57	22.93	30	-7.07	Pass
915	2.50	19.57	22.07	30	-7.93	Pass
927.3	1.77	19.57	21.34	30	-8.66	Pass

Rev. 1/9/2015

Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Brown	9kHz-26.5GHz	E4407B	Agilent	SG44210511	1510	I	5/12/2015	5/12/2014
Radiated Emissions Sites 1DCC-OATS-3M-I	FCC Code 719150	IC Code 2762A-8	VCCI Code A-0015	Range 30-1000MHz		Cat II	Calibration Due 5/17/2015	Calibrated on 5/17/2013
Preamps /Couplers Attenuators / Filters HF 20dB 50W Attenuator	Range 0.009-18 GHz	MN PE 7019-20	Mfr Pasternack	SN 1	Asset 791	Cat II	Calibration Due 7/14/2015	Calibrated on 7/14/2014
Meteorological Meters Weather Clock (Pressure Only) TH A#1828	MN BA928 35519-044	Mfr Oregon Scientific Control Company	SN C3166-1 130318292	Asset 831 1828	Cat I II	Calibration Due 3/19/2016 6/13/2015	Calibrated on 3/19/2014 6/13/2013	

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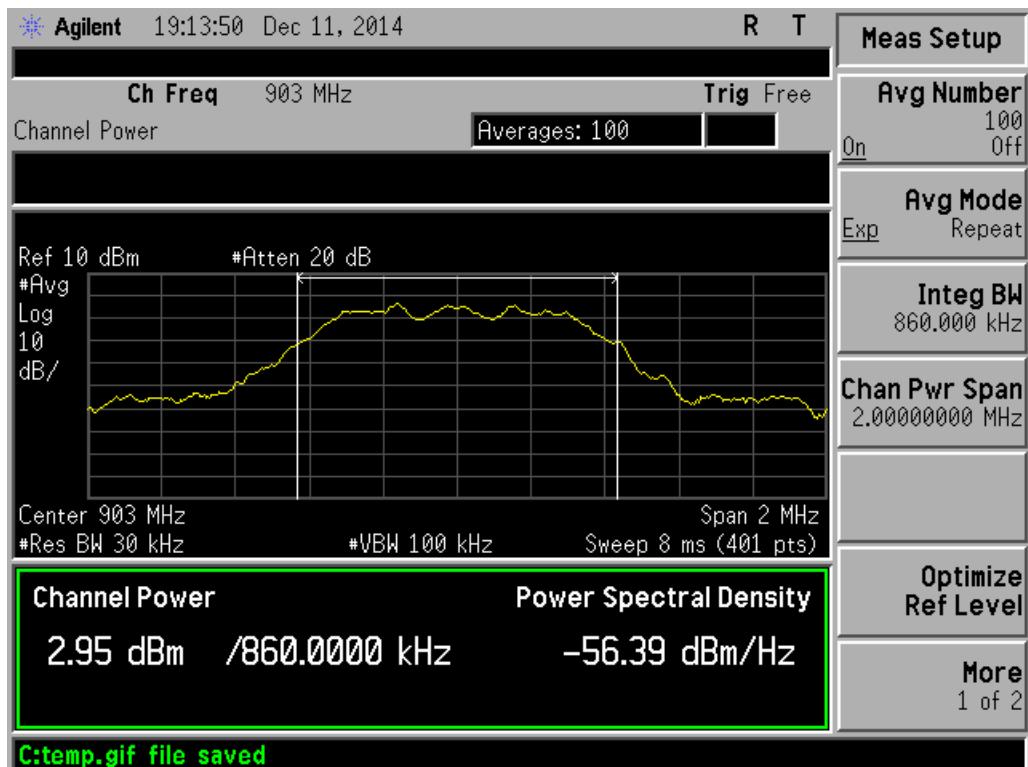
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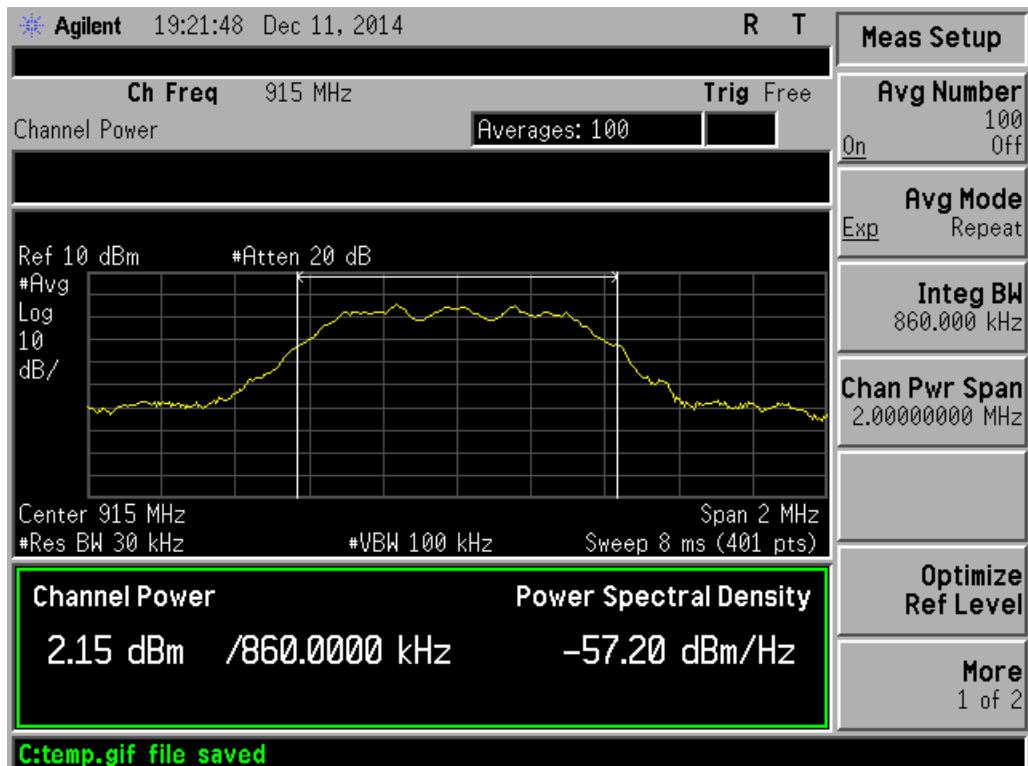
page 13 of 37

Testing Cert. No. 1627-01

PLOTS

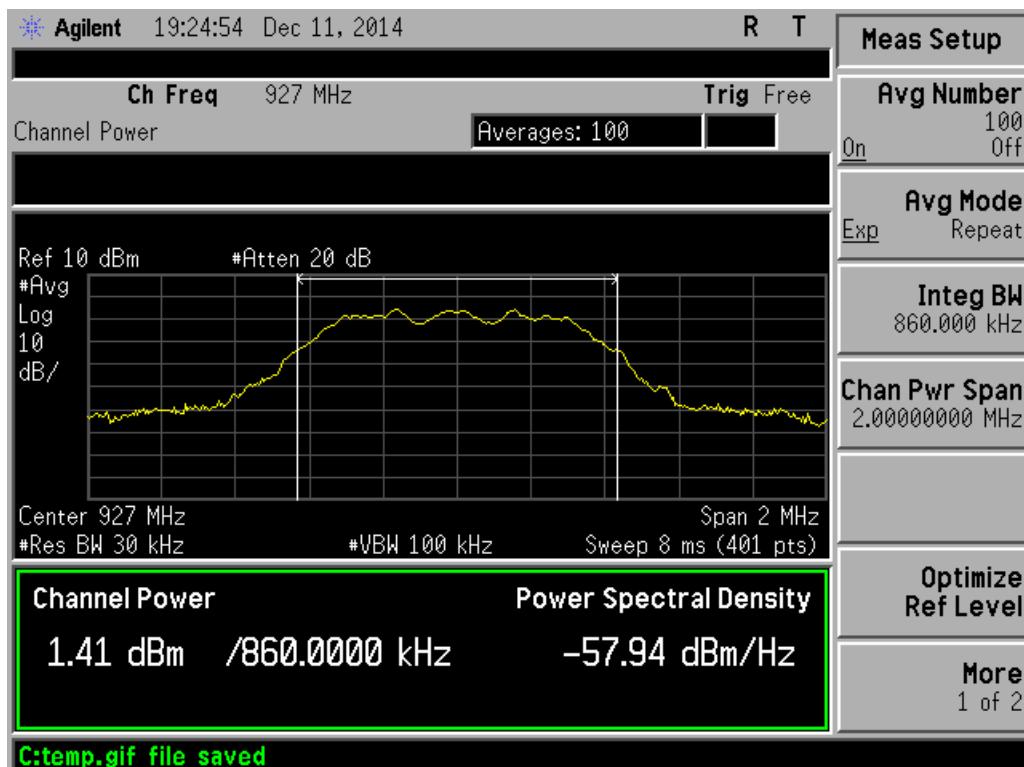


Low Channel – Channel Power (Antenna 1)

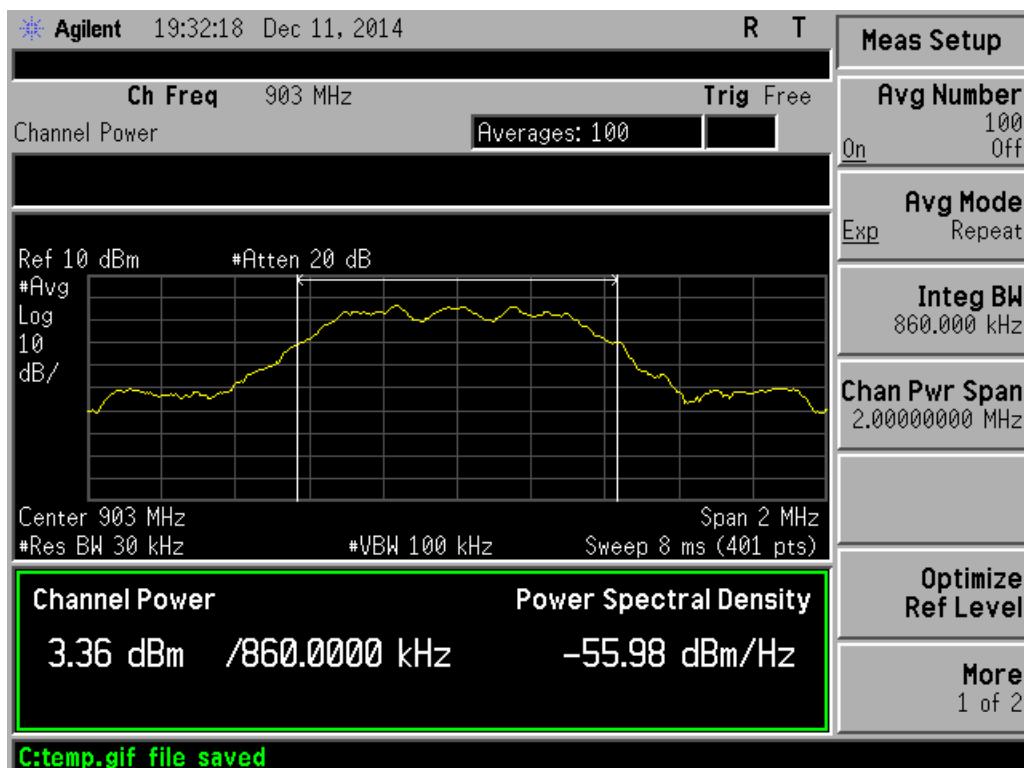


Mid Channel – Channel Power (Antenna 1)



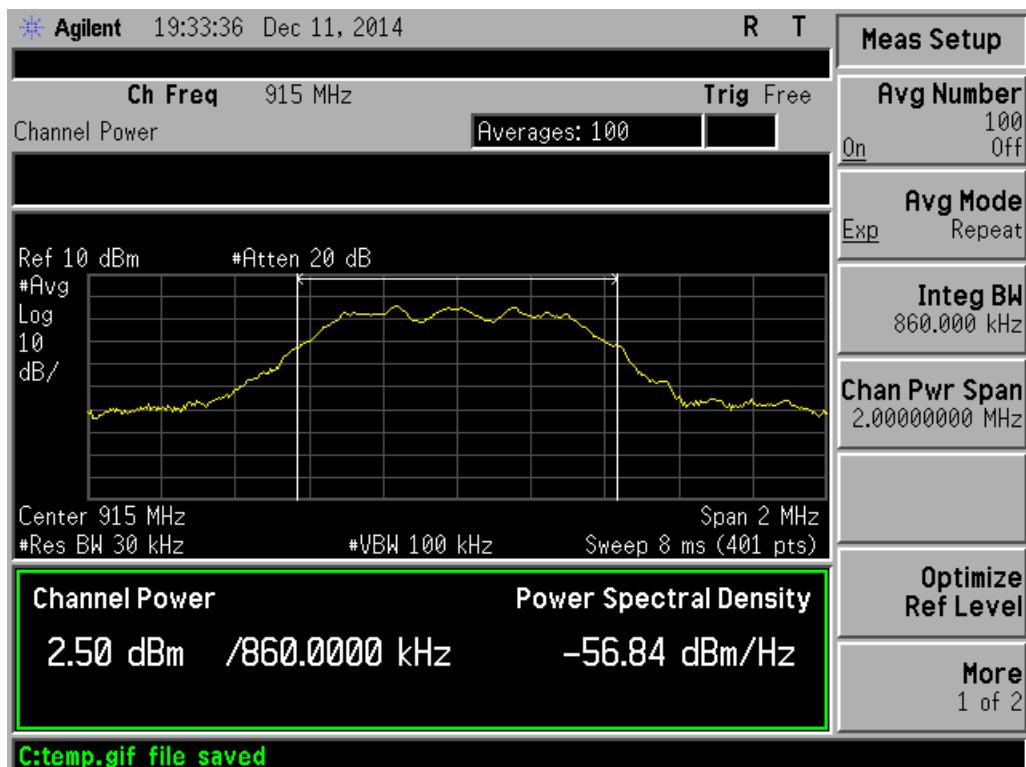


High Channel – Channel Power (Antenna 1)

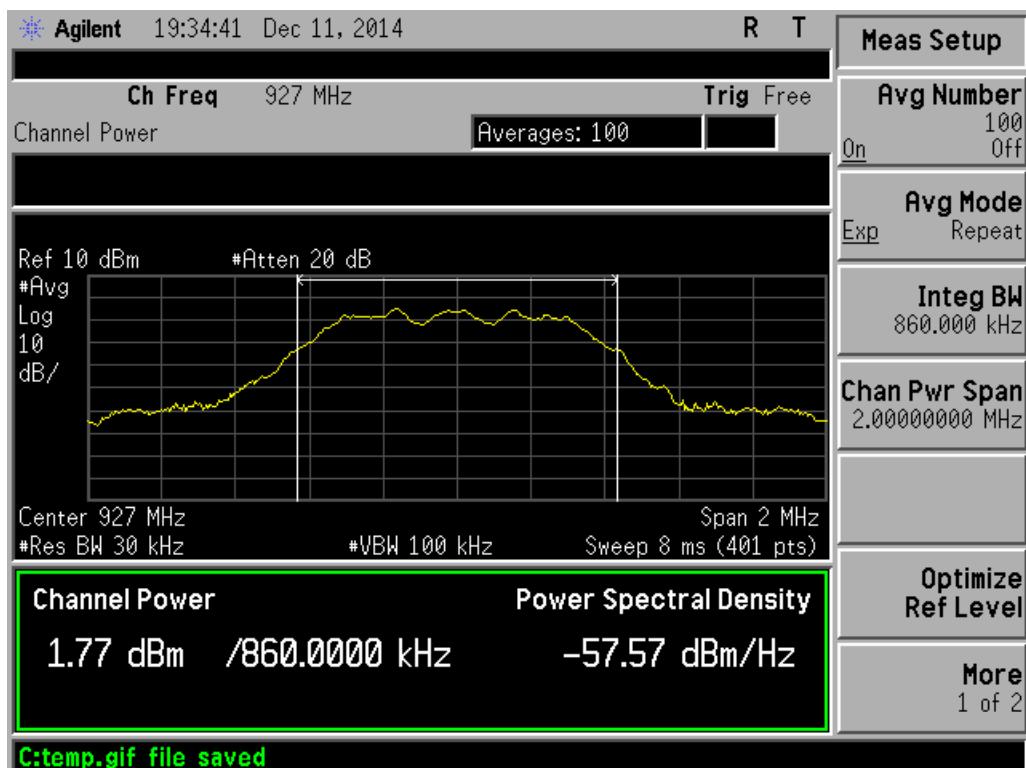


Low Channel – Channel Power (Antenna 2)





Mid Channel – Channel Power (Antenna 2)



High Channel – Channel Power (Antenna 2)



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 - FCC 15.247(d) - restricted band															
Date: 09-Jan-15	Company: Ideal Industries, Inc.							Work Order: 03616							
Engineer: Tuyen Truong	EUT Desc: GW1100B							EUT Operating Voltage/Frequency: 120Vac/60Hz							
Temp: 23°C	Humidity: 2%							Pressure: 1005mBar							
Frequency Range: 30 to 1000MHz						Measurement Distance: 3 m									
Notes: EUT's Low, Mid and High channels were set to transmit via Antenna 1 and tested.						EUT Max Freq: 902.7-927.3MHz									
Antenna Polarization (H / V)	Frequency (MHz)	Reading (dB μ V)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Reading (dB μ V/m)	---			FCC 15.209					
							Limit (dB μ V/m)	Margin (dB)	Result (Pass/Fail)	Limit (dB μ V/m)	Margin (dB)	Result (Pass/Fail)			
No Emissions found from radio within the restricted bands within 10dB of the limit.															
Table Result: Pass by dB						Worst Freq: MHz									
Test Site: EMI Chamber 1	Cable 1: Asset #1787				Cable 2: Asset #1505				Cable 3: ---						
Analyzer: Gold	Preamp: Green				Antenna: Red-Black				Preselector: ---						

Rev.1/9/2015											
Spectrum Analyzers / Receivers /Preselectors			Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on	
Gold			100Hz-26.5 GHz	E4407B	Agilent	MY45113816	1284	I	3/28/2015	3/28/2014	
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	3/15/2015	3/15/2014	
Preamps /Couplers Attenuators / Filters			Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on	
Green			0.009-2000MHz	ZFL-1000-LN	CS	N/A	802	II	9/14/2015	9/14/2014	
Antennas			Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on	
Red-Black Biog			30-2000MHz	JB1	Sunol	A091604-2	1106	I	1/28/2015	1/28/2013	
Cables			Range	Mfr				Cat	Calibration Due	Calibrated on	
Asset #1787			9kHz - 18GHz	Florida RF				II	3/14/2015	3/14/2014	
Asset #1505			9kHz - 18GHz	Florida RF				II	3/7/2015	3/7/2014	
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#1832			35519-044	Control Company	130318277	1832	II	6/13/2015	6/13/2013		

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



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page 17 of 37



Radiated Emissions Table - FCC 15.247(d) - non restricted band

Date: 02-Dec-14	Company: Ideal Industries, Inc.	Work Order: O3616							
Engineer: Ahmed Ahmed	EUT Desc: GW1100B	EUT Operating Voltage/Frequency: 120Vac/60Hz							
Temp: 20°C	Humidity: 3%	Pressure: 1008mBar							
Frequency Range: 30-1000MHz		Measurement Distance: 3 m							
Notes: EUT's Low, Mid and High channels were set to transmit via Antenna 1 and tested. Adjusted Field Strength readings compared to Power Spectral Density (worst case) including the 2.5dBi Antenna Gain with the limit being 30dB below which corresponds to 72.1dBuV/m		EUT Max Freq: 902.7-927.3MHz							
Antenna Polarization (H/V)	Frequency (MHz)	Reading (dB μ V)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Reading (dB μ V/m)	FCC 15.247(d) - non restricted band		
							Limit (dB μ V/m)	Margin (dB)	Result (Pass/Fail)
V	184.1	65.9	25.0	11.7	1.0	53.6	72.1	-18.5	Pass
H	206.0	67.2	25.1	11.4	1.1	54.6	72.1	-17.5	Pass
V	208.9	56.0	25.1	11.3	1.1	43.3	72.1	-28.8	Pass
V	236.15	54.6	25.1	12.0	1.2	42.7	72.1	-29.4	Pass
V	500.0	50.4	25.4	17.8	1.7	44.5	72.1	-27.6	Pass
H	839.9	49.0	25.2	22.3	2.3	48.4	72.1	-23.7	Pass
V	892.3	46.3	25.1	22.7	2.4	46.3	72.1	-25.8	Pass
V	935.9	43.5	24.8	23.2	2.4	44.3	72.1	-27.8	Pass
Table Result: Pass		by -17.5 dB	Worst Freq: 206.0 MHz						
Test Site: EMI Chamber 2		Cable 1: Asset #1787	Cable 2: Asset #1506						
Analyzer: Gold		Preamp: Black	Antenna: Red-White						

Note: No emissions found within 10dB of the limit, which was set -30dB down from the peak of Power Spectral Density of the Fundamental frequency (worst case). (See section 15.247(e) – Power Spectral Density) (i.e. Worst Case Conducted Power Spectral Density Reading + Antenna Gain = EIRP then calculated field strength based off of $P = (Ed)^2/(30G)$. Field Strength – 30dB = Adjusted Limit dBuV/m

Rev.11/30/2014

Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Gold	100Hz-26.5 GHz	E4407B	Agilent	MY45113816	1284	I	3/28/2015	3/28/2014
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	3/9/2015	3/9/2014	
Preamps /Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Black	0.009-2000MHz	ZFL-1000-LN	CS	N/A	799	II	6/22/2015	6/22/2014
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
Cables	Range	Mfr		Cat	Calibration Due	Calibrated on		
Asset #1787	9kHz - 18GHz	Florida RF		II	3/14/2015	3/14/2014		
Asset #1506	9kHz - 18GHz	Florida RF		II	3/7/2015	3/7/2014		
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#1833	35519-044	Control Company	130318278	1833	II	6/13/2015	6/13/2013	

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

Radiated Emissions Table

Date: 09-Jan-15	Company: Ideal Industries, Inc.	Work Order: O3616												
Engineer: Tuyen Truong	EUT Desc: GW1100B	EUT Operating Voltage/Frequency: 120Vac/60Hz												
Temp: 23°C	Humidity: 2%	Pressure: 1005mBar												
Frequency Range: 1-10GHz		Measurement Distance: 3 m												
Notes: EUT's Ant1 is transmitting - Low, Mid and High channels were tested HPF 1288		EUT Max Freq: 902.7-927.3MHz												
Antenna Polarization (H/V)	Frequency (MHz)	Peak Reading (dB μ V)	Average Reading (dB μ V)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Peak Reading (dB μ V/m)	Adjusted Avg Reading (dB μ V/m)	FCC 15.209 High Frequency - Peak			FCC 15.209 High Frequency - Average		
									Limit (dB μ V/m)	Margin (dB)	Result (Pass/Fail)	Limit (dB μ V/m)	Margin (dB)	Result (Pass/Fail)
TX via Antenna 1		---	---	---	---	---	---	---	---	---	---	---		
h	1830.0	43.46	34.8	17.6	27.3	3.2	56.4	47.7	74.0	-17.6	Pass	54.0	-6.3	Pass
h	1806.0	44.81	38.3	17.6	27.2	3.3	57.7	51.2	74.0	-16.3	Pass	54.0	-2.8	Pass
h	1854.0	38.68	29.8	17.6	27.4	3.2	51.7	42.8	74.0	-22.3	Pass	54.0	-11.2	Pass
Table Result: Pass		by -2.8 dB	Worst Freq: 1806.0 MHz											
Test Site: EMI Chamber 1		Cable 1: Asset #1787	Cable 2: Asset #1506											
Analyzer: Gold		Preamp: Brown	Antenna: Orange Horn											



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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	3/28/2015	3/28/2014
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	3/15/2015	3/15/2014
Preamps /Couplers Attenuators / Filters	Brown	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
High Pass Filter	1-10GHz	0.03-9 GHz	CS	CS	N/A	1523	II	4/10/2015	4/10/2014
		VHP-16	Mini-Circuits		NA	1288	II	2/8/2015	1/8/2014
Antennas	Orange Horn	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
	1-18GHz	3115	EMCO	0004-6123	390	I	I	10/13/2015	10/13/2014
Cables	Asset #1787	Range	Mfr				Cat	Calibration Due	Calibrated on
Asset #1505	9kHz - 18GHz	9kHz - 18GHz	Florida RF				II	3/14/2015	3/14/2014
			Florida RF				II	3/7/2015	3/7/2014
Meteorological Meters	Weather Clock (Pressure Only)	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on	
TH A#1832	35519-044	BA928	Oregon Scientific	C3166-1	831	I	3/19/2016	3/19/2014	
		35519-044	Control Company	130318277	1832	II	6/13/2015	6/13/2013	

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

Radiated Emissions Table - FCC 15.247(d) - restricted band

Date: 09-Jan-15	Company: Ideal Industries, Inc.	Work Order: O3616										
Engineer: Tuyen Truong	EUT Desc: GW1100B	EUT Operating Voltage/Frequency: 120Vac/60Hz										
Temp: 23°C	Humidity: 2%	Pressure: 1005mBar										
Frequency Range: 30 to 1000MHz		Measurement Distance: 3 m										
Notes: EUT's Low, Mid and High channels were set to transmit via Antenna 2 and tested.		EUT Max Freq: 902.7-927.3MHz										
Antenna Polarization (H / V)	Frequency (MHz)	Reading (dB μ V)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Reading (dB μ V/m)	---			FCC 15.209		
							Limit (dB μ V/m)	Margin (dB)	Result (Pass/Fail)	Limit (dB μ V/m)	Margin (dB)	Result (Pass/Fail)
No Emissions found from radio within the restricted bands within 10dB of the limit.												
Table Result:		by	dB		Worst Freq:			MHz				
Test Site: EMI Chamber 1		Cable 1: Asset #1787		Cable 2: Asset #1505			Cable 3: ---					
Analyzer: Gold		Preamp: Green		Antenna: Red-Black			Preselector: ---					

Spectrum Analyzers / Receivers /Preselectors		Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Gold		100Hz-26.5 GHz	E4407B	Agilent	MY45113816	1284	I	3/28/2015	3/28/2014
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	3/15/2015	3/15/2014
Preamps /Couplers Attenuators / Filters	Green	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
	0.009-2000MHz	ZFL-1000-LN	CS	N/A	802	II	II	9/14/2015	9/14/2014
Antennas	Red-Black BiLog	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
	30-2000MHz	JB1	Sunol	A091604-2	1106	I	I	1/28/2015	1/28/2013
Cables	Asset #1787	Range	Mfr				Cat	Calibration Due	Calibrated on
Asset #1505	9kHz - 18GHz	9kHz - 18GHz	Florida RF				II	3/14/2015	3/14/2014
			Florida RF				II	3/7/2015	3/7/2014
Meteorological Meters	Weather Clock (Pressure Only)	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on	
TH A#1832	35519-044	BA928	Oregon Scientific	C3166-1	831	I	3/19/2016	3/19/2014	
		35519-044	Control Company	130318277	1832	II	6/13/2015	6/13/2013	

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Radiated Emissions Table - FCC 15.247(d) - non restricted band

Date: 09-Jan-15	Company: Ideal Industries, Inc.	Work Order: O3616							
Engineer: Tuyen Truong	EUT Desc: GW1100B	EUT Operating Voltage/Frequency: 120Vac/60Hz							
Temp: 23°C	Humidity: 2%	Pressure: 1005mBar							
Frequency Range: 30 to 1000MHz		Measurement Distance: 3 m							
Notes: EUT's Low, Mid and High channels were set to transmit via Antenna 2 and tested.		EUT Max Freq: 902.7-927.3MHz							
Adjusted Field Strength readings compared to Power Spectral Density (worst case) including the 2.5dBi Antenna Gain with the limit being 30dB below which corresponds to 72.1dB _u V/m									
Antenna Polarization (H/V)	Frequency (MHz)	Reading (dB _u V)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Reading (dB _u V/m)	FCC 15.247(d) - non restricted band		
							Limit (dB _u V/m)	Margin (dB)	Result (Pass/Fail)
h	150.15	66.1	25.5	12.2	0.9	53.7	72.1	-18.4	Pass
h	177.15	72.9	25.6	11.0	1.0	59.3	72.1	-12.8	Pass
h	181.875	72.2	25.6	10.9	1.0	58.5	72.1	-13.6	Pass
h	207.0	68.1	25.6	10.9	1.0	54.4	72.1	-17.7	Pass
h	212.25	70.7	25.6	10.5	1.0	56.6	72.1	-15.5	Pass
h	353.0	54.7	25.8	14.5	1.4	44.8	72.1	-27.3	Pass
h	451.0	57.0	25.8	16.9	1.5	49.6	72.1	-22.5	Pass
h	500.0	54.0	25.8	17.7	1.7	47.6	72.1	-24.5	Pass
v	550.0	56.8	25.6	18.3	1.7	51.2	72.1	-20.9	Pass
v	691.0	51.7	25.7	20.1	1.9	48.0	72.1	-24.1	Pass
h	835.1	43.0	25.6	21.8	2.2	41.4	72.1	-30.7	Pass
h	892.28	46.2	25.6	22.3	2.3	45.2	72.1	-26.9	Pass
Table Result: Pass by -12.8 dB						Worst Freq: 177.15 MHz			
Test Site: EMI Chamber 1	Cable 1: Asset #1505	Cable 2: Asset #1787	Cable 3: ---	Analyzer: Gold	Preamp: Green	Antenna: Red-Black	Preselector: ---		

Note: No emissions found within 10dB of the limit, which was set -30dB down from the peak of Power Spectral Density of the Fundamental frequency (worst case). (See section 15.247(e) – Power Spectral Density)

Rev. 1/9/2015

Spectrum Analyzers / Receivers /Preselectors	Range 100Hz-26.5 GHz	MN E4407B	Mfr Agilent	SN MY45113816	Asset 1284	Cat I	Calibration Due 3/28/2015	Calibrated on 3/28/2014
Radiated Emissions Sites EMI Chamber 1	FCC Code 719150	IC Code 2762A-6	VCCI Code A-0015	Range 30-1000MHz		Cat II	Calibration Due 3/15/2015	Calibrated on 3/15/2014
Preamps /Couplers Attenuators / Filters Green	Range 0.009-2000MHz	MN ZFL-1000-LN	Mfr CS	SN N/A	Asset 802	Cat II	Calibration Due 9/14/2015	Calibrated on 9/14/2014
Antennas Red-Black Biog	Range 30-2000MHz	MN JB1	Mfr Sunol	SN A091604-2	Asset 1106	Cat I	Calibration Due 1/28/2015	Calibrated on 1/28/2013
Cables Asset #1787 Asset #1505	Range 9kHz - 18GHz 9kHz - 18GHz		Mfr Florida RF Florida RF			Cat II II	Calibration Due 3/14/2015 3/7/2015	Calibrated on 3/14/2014 3/7/2014
Meteorological Meters Weather Clock (Pressure Only) TH A#1832	MN BA928 35519-044	Mfr Oregon Scientific Control Company	SN C3166-1 130318277	Asset 831 1832	Cat I II	Calibration Due 3/19/2016 6/13/2015	Calibrated on 3/19/2014 6/13/2013	

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page 20 of 37

Testing Cert. No. 1627-01

Radiated Emissions Table											Work Order: 03616								
Date: 09-Jan-15	Company: Ideal Industries, Inc.						EUT Operating Voltage/Frequency: 120Vac/60Hz												
Engineer: Tuyen Truong	EUT Desc: GW1100B						Pressure: 1005mBar												
Temp: 23°C	Humidity: 2%																		
Frequency Range: 1-10GHz											Measurement Distance: 3 m (1-6GHz) and 1m (6-10GHz)								
Notes: EUT's Low, Mid and High channels were set to transmit via Ant2 and tested											EUT Max Freq: 902.7-927.3MHz								
HPF 1288																			
Antenna Polarization (H / V)	Frequency (MHz)	Peak Reading (dB μ V)	Average Reading (dB μ V)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Peak Reading (dB μ V/m)	Adjusted Avg Reading (dB μ V/m)	FCC 15.209 High Frequency - Peak			FCC 15.209 High Frequency - Average							
									Limit (dB μ V/m)	Margin (dB)	Result (Pass/Fail)	Limit (dB μ V/m)	Margin (dB)	Result (Pass/Fail)					
h	1830.0	45.54	39.6	17.6	27.3	3.2	58.4	52.5	74.0	-15.6	Pass	54.0	-1.5	Pass					
h	1806.0	46.34	40.1	17.6	27.2	3.3	59.2	53.0	74.0	-14.8	Pass	54.0	-1.0	Pass					
h	1854.0	43.68	37.7	17.6	27.4	3.2	56.7	50.7	74.0	-17.3	Pass	54.0	-3.3	Pass					
h	2470.0	38.79	27.5	18.4	28.3	4.0	52.7	41.4	74.0	-21.3	Pass	54.0	-12.6	Pass					
h	2980.0	38.02	26.1	18.6	29.8	4.5	53.7	41.8	74.0	-20.3	Pass	54.0	-12.2	Pass					
h	4830.0	36.16	23.5	16.9	32.8	6.1	58.2	45.5	74.0	-15.8	Pass	54.0	-8.5	Pass					
Table Result: Pass by -1.0 dB											Worst Freq: 1806.0 MHz								
Test Site: EMI Chamber 1	Cable 1: Asset #1787						Cable 2: Asset #1505						Cable 3: ---						
Analyzer: Gold	Preamp: Brown						Antenna: Orange Horn						Preselector: ---						

Rev.1/9/2015

Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Gold	100Hz-26.5 GHz	E4407B	Agilent	MY45113816	1284	I	3/28/2015	3/28/2014
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	3/15/2015	3/15/2014
Preamps /Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Brown	1-10GHz	CS	CS	N/A	1523	II	4/10/2015	4/10/2014
High Pass Filter	0.03-9 GHz	VHP-16	Mini-Circuits	NA	1288	II	2/8/2015	1/8/2014
Antennas	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Orange Horn	1-18GHz	3115	EMCO	0004-6123	390	I	10/13/2015	10/13/2014
Cables	Range	Mfr				Cat	Calibration Due	Calibrated on
Asset #1787	9kHz - 18GHz	Florida RF				II	3/14/2015	3/14/2014
Asset #1505	9kHz - 18GHz	Florida RF				II	3/7/2015	3/7/2014
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#1832	35519-044	Control Company	130318277	1832	II	6/13/2015	6/13/2013	

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page 21 of 37



Testing Cert. No. 1627-01

Conducted Spurious Emissions

LIMITS

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth that contains the highest level of desired power based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB ...

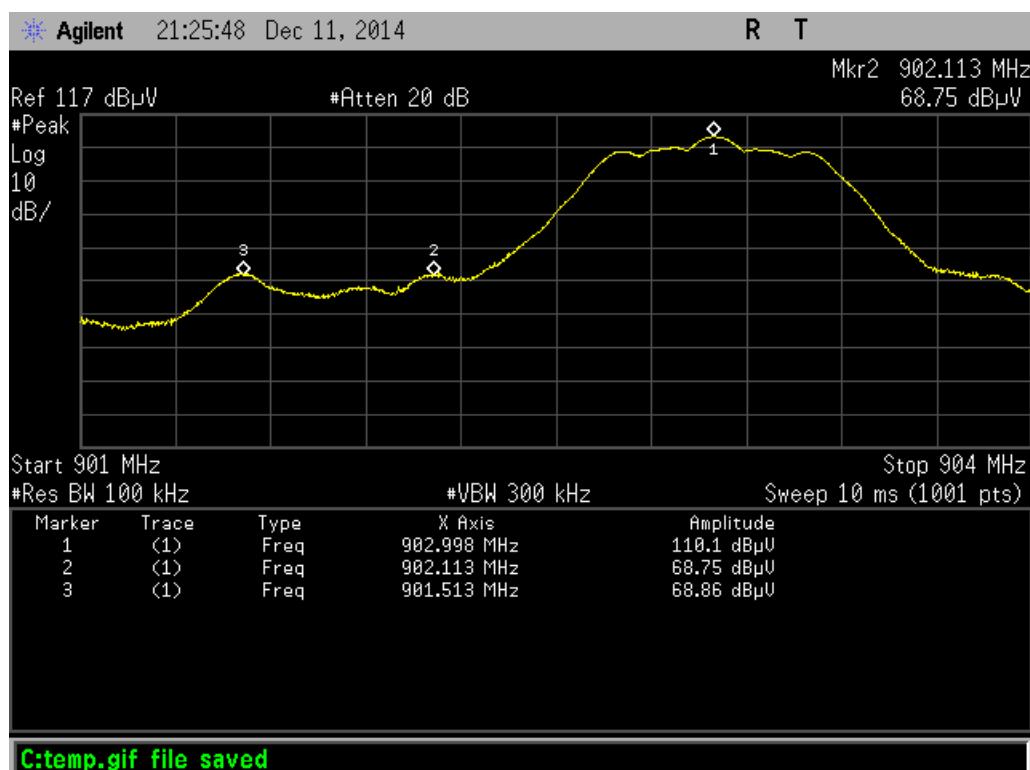
[15.247(d)]

MEASUREMENTS / RESULTS

Engineer	Chris Bramley / Tuyen Truong
Date	12/11/2014 and 12/22/2014
Site	3M indoor
Environmental Conditions	20°C, 33%, 1017mBar

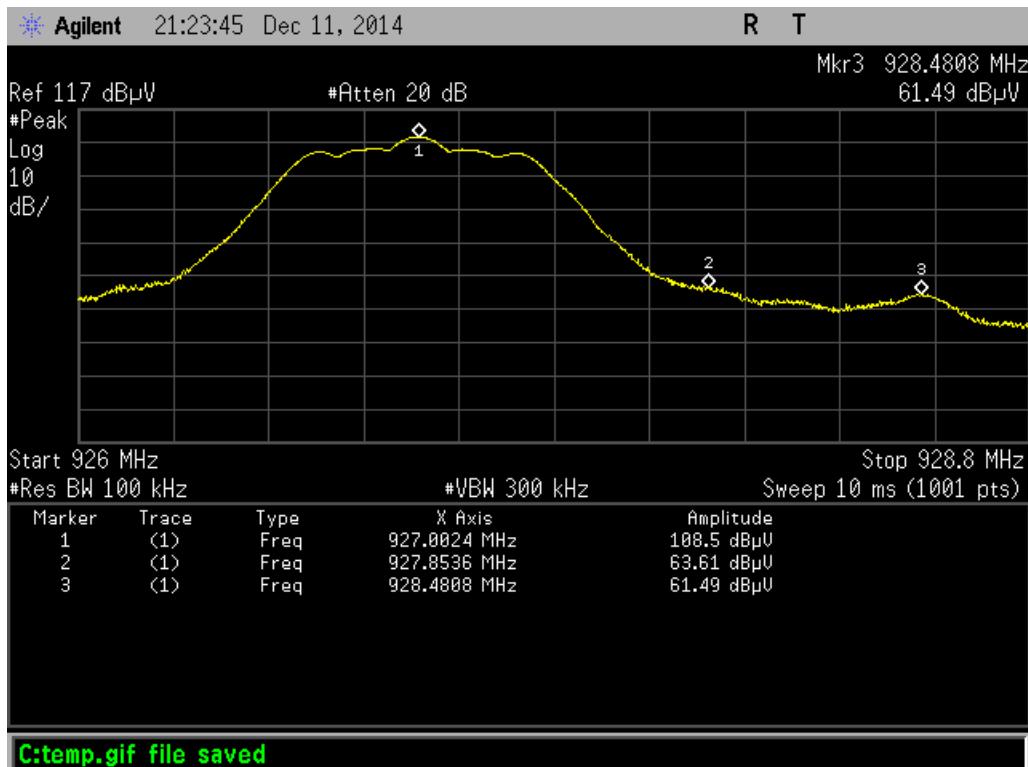
Conducted Band Edge

Plot(s)

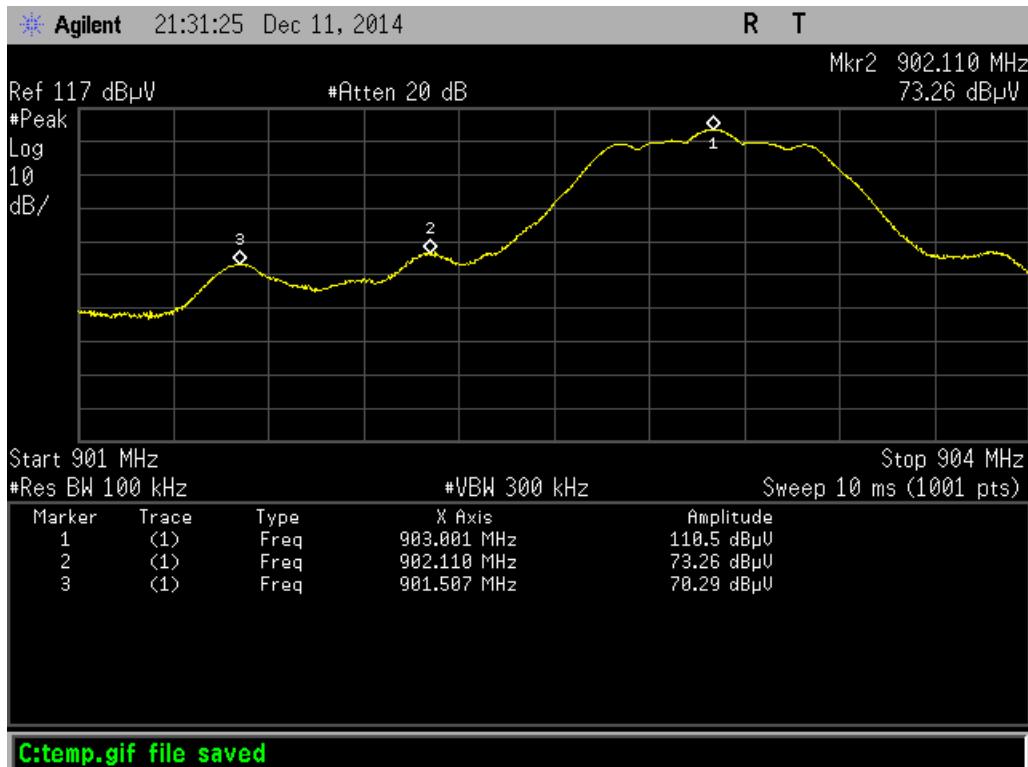


Lower Channel – Band-edge (<-30dBm) – Antenna 1



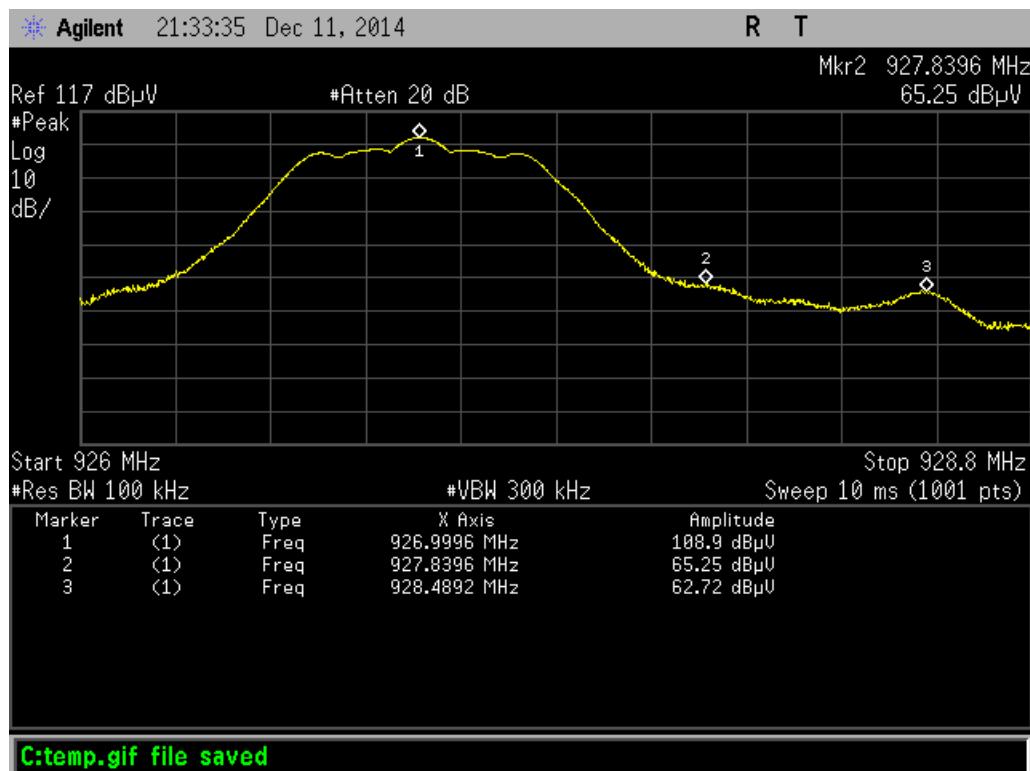


Upper Channel – Band-edge (<-30dBm) – Antenna 1



Lower Channel – Band-edge (<-30dBm) – Antenna 2





Upper Channel – Band-edge (<-30dBm) – Antenna 2



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Conducted Spurious Emission

Conducted Spurious Emissions at the Antenna Port:

For these scans, the spectrum analyzer was set to the following:

Span: 400MHz or less
 Resolution Bandwidth: 100 KHz
 Video Bandwidth: 300 KHz
 Points per sweep: 8192

The frequency range 30MHz-10GHz was tested at EUT antenna port and no emissions were found within 10dB of the limit, which was set at 30dB below the power of the transmit frequency. The low, mid, and high channels were tested. Both antenna ports were tested.

Conducted Spurious Emissions Table																						
Date: 22-Dec-14	Company: Ideal Industries Inc.								Work Order: 03616													
Engineer: Tuyen Truong	EUT Desc: GW1100B																					
Temp: 21°C	Humidity: 29%								Pressure: 1015mBar													
Frequency Range: 30MHz-10GHz																						
Notes: NF - Noise Floor																						
	Frequency (MHz)	Reading (dB μ V)	Attn Factor (dB)			Adjusted Reading (dB μ V/m)	---			---												
							Limit (dB μ V/m)	Margin (dB)	Result (Pass/Fail)	Limit (dB μ V/m)	Margin (dB)	Result (Pass/Fail)										
Fundamental	927.0	108.5	19.7	---	---	128.2	---	---	---	N/A	N/A											
Worst Case NF	2985.0	59.1	20.0	---	---	79.1	---	---	---	98.2	-19.1											
Table Result: Pass by --- dB						Worst Freq: --- MHz																
Test Site: 3MIndoor	Cable 1: ---			Cable 2: ---			Cable 3: ---															
Analyzer: Brown	Preamp: ---			Antenna: ---			Attenuator: 791															
Adjusted Reading = Reading + Attenuation Factor																						

Rev. 12/6/2014

Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Brown	9kHz-26.5GHz	E4407B	Agilent	SG44210511	1510	I	5/12/2015	5/12/2014
Radiated Emissions Sites 1DCC-OATS-3M-I	FCC Code 719150	IC Code 2762A-8	VCCI Code A-0015	Range 30-1000MHz		II	Calibration Due 5/17/2015	Calibrated on 5/17/2013
Preamps /Couplers Attenuators / Filters HF 20dB 50W Attenuator	Range 0.009-18 GHz	MN PE 7019-20	Mfr Pasternack	SN 1	Asset 791	Cat II	Calibration Due 7/14/2015	Calibrated on 7/14/2014
Meteorological Meters Weather Clock (Pressure Only) TH A#1830	MN BA928 35519-044	Mfr Oregon Scientific Control Company	SN C3166-1 130320003	Asset 831 1830	Cat I II	Calibration Due 3/19/2016 6/13/2015	Calibrated on 3/19/2014 6/13/2013	

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page 25 of 37

Testing Cert. No. 1627-01

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

Engineer	Chris Bramley
Date	12/09/2014
Site	3M Indoor
Environmental Conditions	20°C, 23%, 1017mb

DTS Method 10.3 AVGPSD-1 (trace averaging with EUT transmitting at full power throughout each sweep)

15.247 (e) Maximum Power Spectral Density - Antenna 1

Tested by: Chris Bramley
Date: 12/11/2014 Analyzer: Brown SA
Company: Ideal Industries, Inc. Attenuation: PE7019-20 #791 RBW = 3KHz Span = 1.5MHz
EUT: GW1100B VBW = 10KHz Sweep = 1001 pts

channel (MHz)	mode	measured PSD (dBm)	attenuator factor (dB)	adjusted power measurement	bandwidth correction factor adjustment	limit (dBm)	margin (dB)	result
902.7	DMSS	-15.15	19.57	4.42	0	8	-3.58	Pass
915	DMSS	-15.68	19.57	3.89	0	8	-4.11	Pass
927.3	DMSS	-16.90	19.57	2.67	0	8	-5.33	Pass

15.247 (e) Maximum Power Spectral Density - Antenna 2

Tested by: Chris Bramley
Date: 12/11/2014 Analyzer: Brown SA
Company: Ideal Industries, Inc. Attenuation: PE7019-20 #791 RBW = 3KHz Span = 1.5MHz
EUT: GW1100B VBW = 10KHz Sweep = 1001 pts

channel (MHz)	mode	measured PSD (dBm)	attenuator factor (dB)	adjusted power measurement	bandwidth correction factor adjustment	limit (dBm)	margin (dB)	result
902.7	DMSS	-14.86	19.57	4.71	0	8	-3.29	Pass
915	DMSS	-15.64	19.57	3.93	0	8	-4.07	Pass
927.3	DMSS	-16.71	19.57	2.86	0	8	-5.14	Pass

Rev. 1/9/2015	Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
	Brown	9kHz-26.5GHz	E4407B	Agilent	SG44210511	1510	I	5/12/2015	5/12/2014
	Radiated Emissions Sites	FCC Code	IC Code	VCCI Code	Range		Cat	Calibration Due	Calibrated on
	1DCC-OATS-3M-I	719150	2762A-8	A-0015	30-1000MHz		II	5/17/2015	5/17/2013
	Preamps/Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
	HF 20dB 50W Attenuator	0.009-18 GHz	PE 7019-20	Pasternack	1	791	II	7/14/2015	7/14/2014
	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#1828	35519-044	Control Company	130318292	1828	II	6/13/2015	6/13/2013	

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

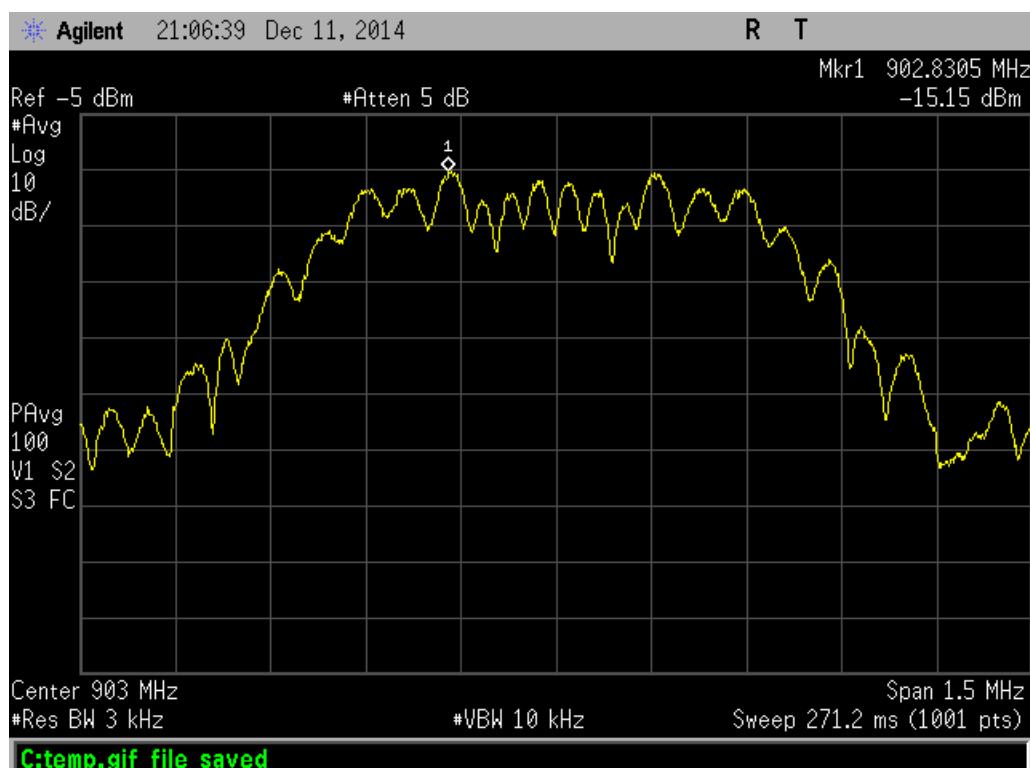


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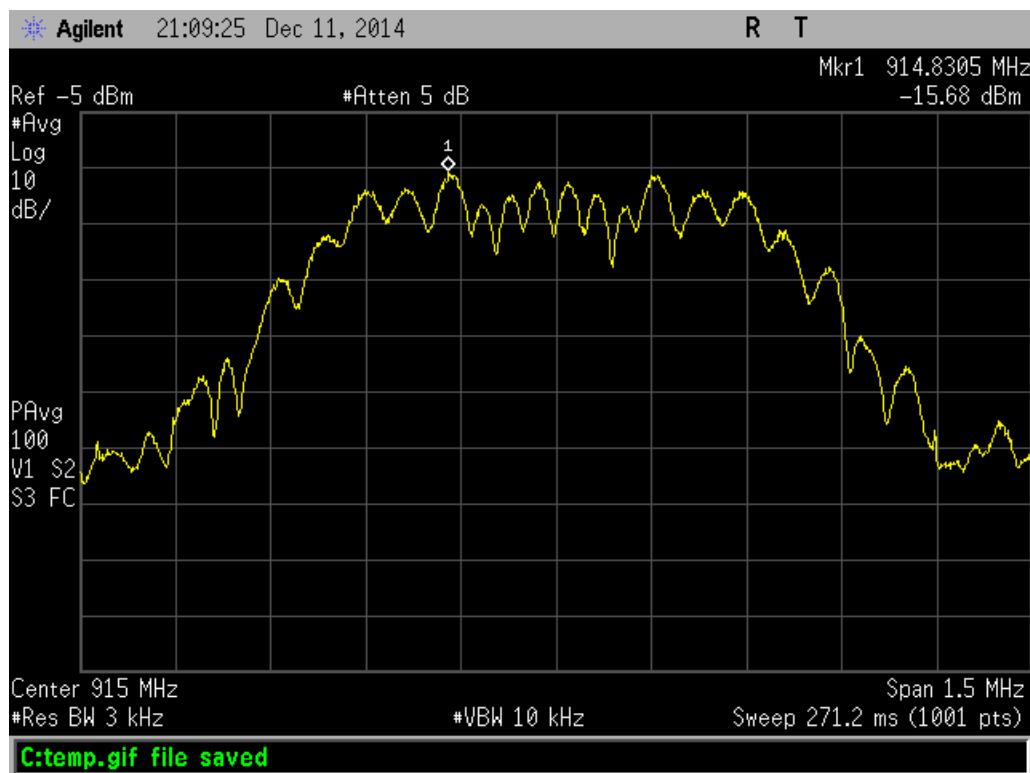
page 26 of 37



PLOTS

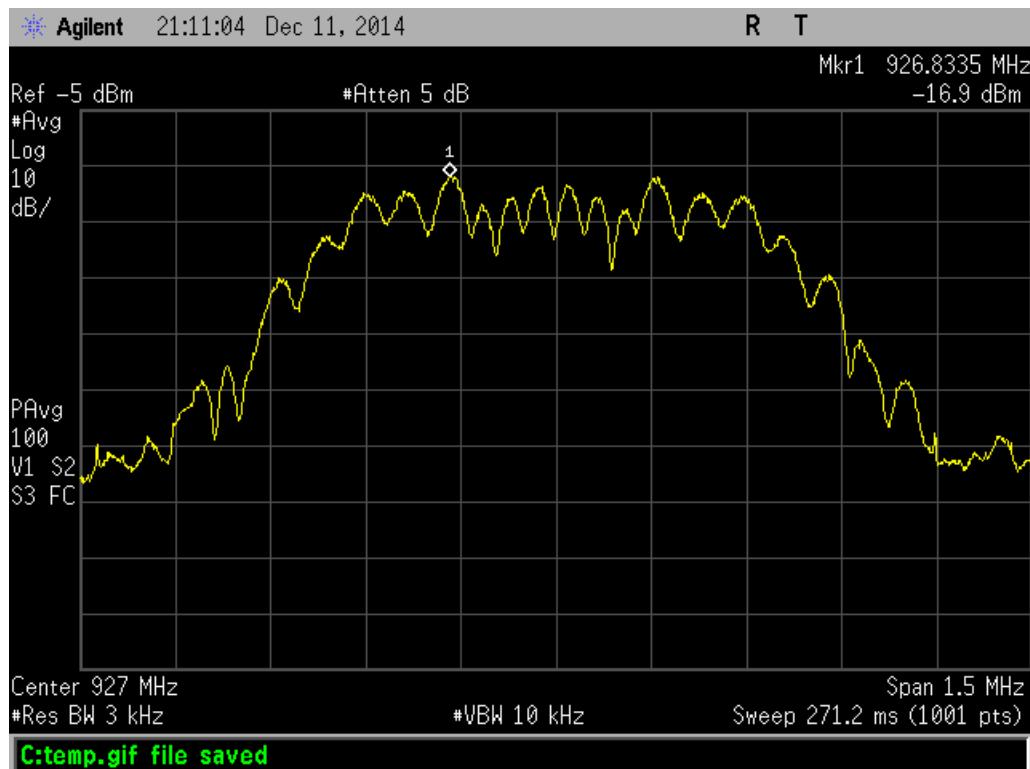


Channel Low – PSD (Antenna 1)

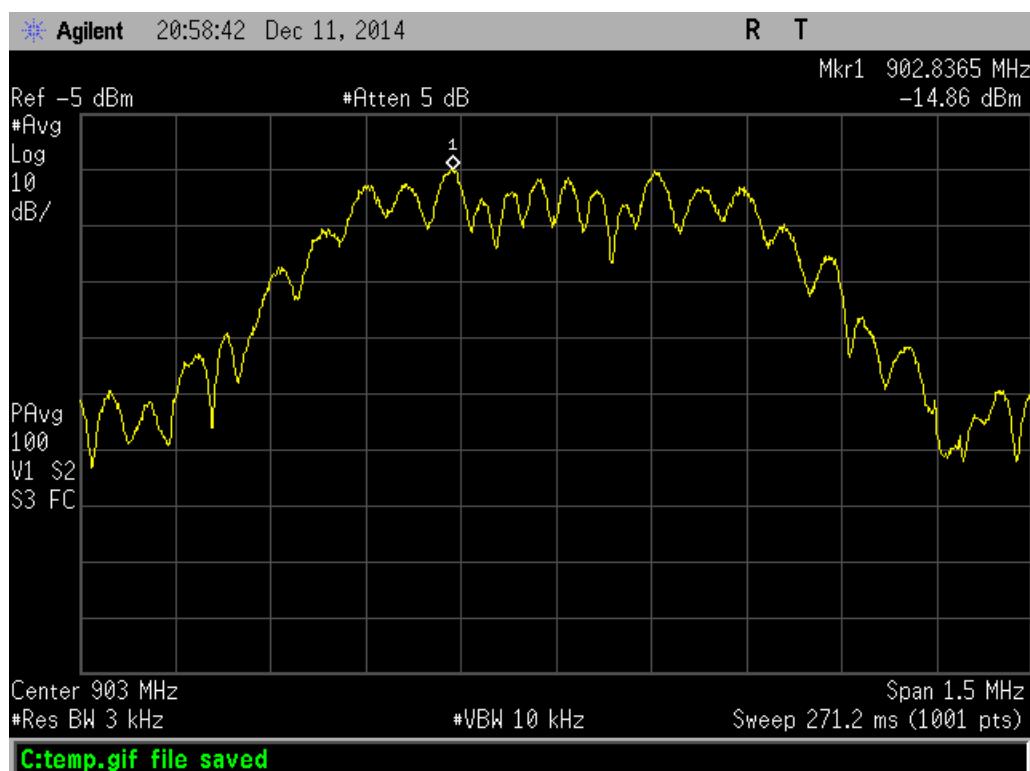


Channel Mid – PSD (Antenna 1)





Channel High – PSD (Antenna 1)



Channel Low – PSD (Antenna 2)

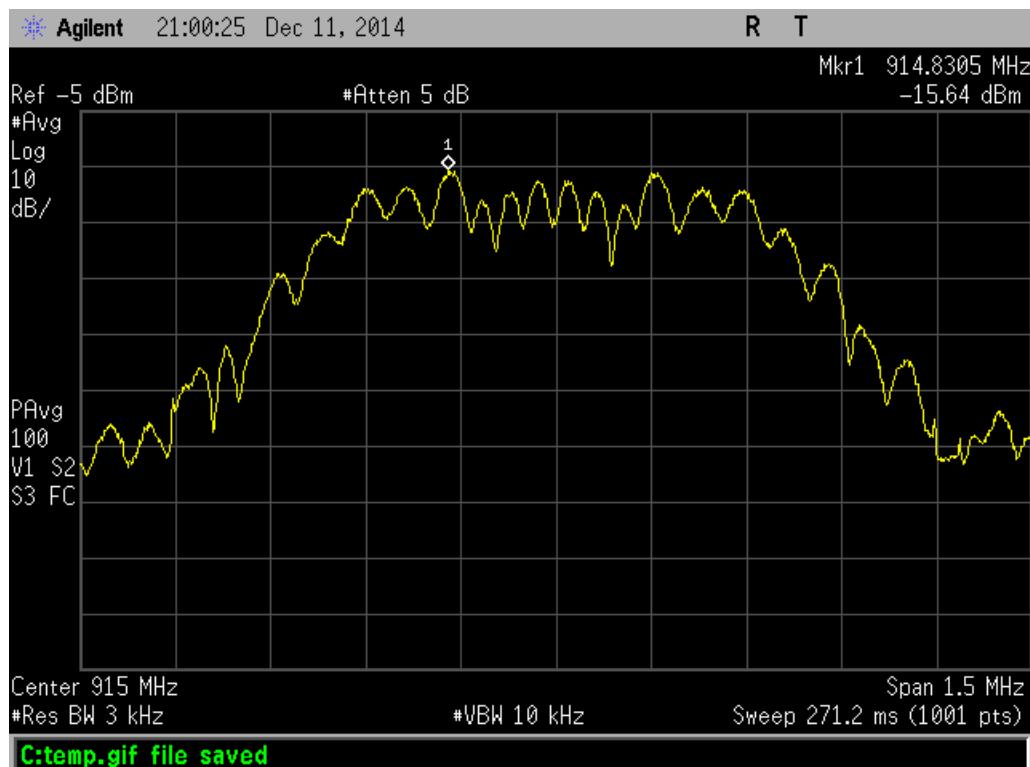


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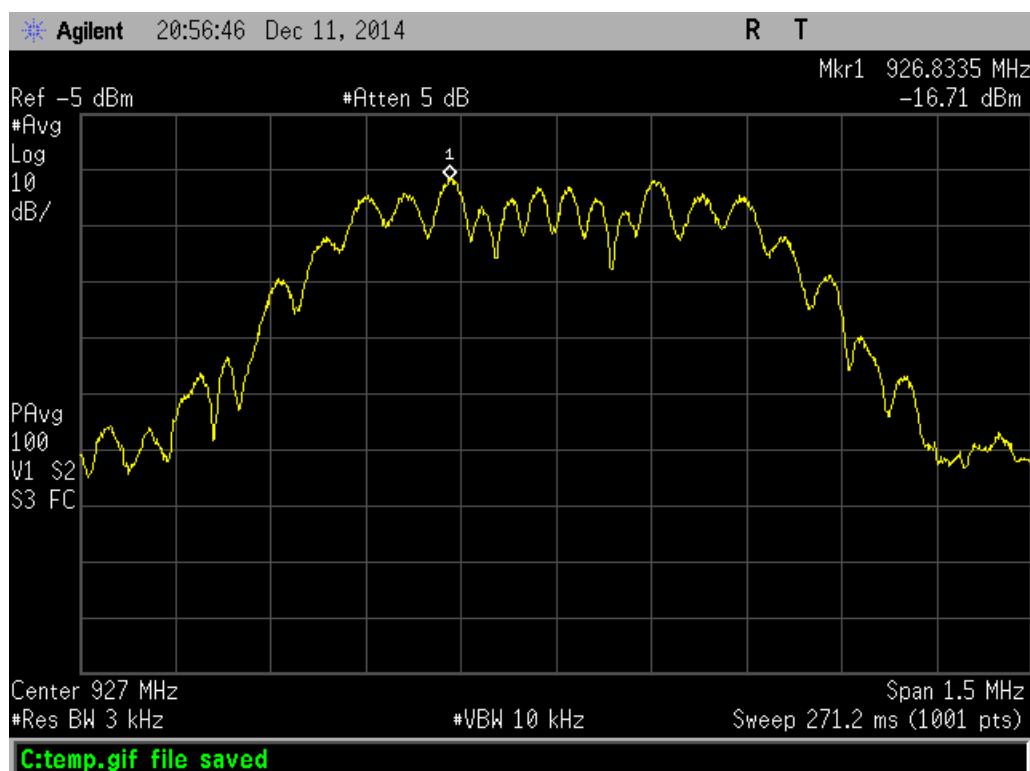


page 28 of 37

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 Testing Cert. No. 1627-01



Channel Mid – PSD (Antenna 2)



Channel High – PSD (Antenna 2)



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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)] as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN).

MEASUREMENTS / RESULTS

AC Conducted Emissions Data Table											
				Frequency Range: 0.15-30				EUT Input Voltage/Frequency: 120Vac/60Hz			
Frequency (MHz)	Quasi-Peak Readings		Average Readings		LISN Factors		Cable Factor (dB)	ATTN Factor (dB)	FCC 15.207		
	QP1 (dB μ V)	QP2 (dB μ V)	AVG1 (dB μ V)	AVG2 (dB μ V)	L1 (dB)	L2 (dB)			QP Limit (dB μ V)	Margin (dB)	Result (Pass/Fail)
0.16	35.4	35.3	21.9	22.2	-0.1	-0.1	0.0	-19.9	65.7	-10.3	Pass
0.21	28.6	30.4	19.5	21.8	-0.1	-0.1	-0.1	-19.9	63.4	-13.0	Pass
0.73	23.0	24.2	15.1	15.9	0.0	0.0	-0.1	-19.9	56.0	-11.9	Pass
1.12	21.7	21.8	13.3	14.3	0.0	0.0	-0.1	-19.9	56.0	-14.2	Pass
8.32	18.7	18.8	14.8	14.7	-0.1	0.0	-0.2	-19.9	60.0	-21.1	Pass
9.50	21.0	18.1	15.0	14.1	-0.1	0.0	-0.2	-19.9	60.0	-18.9	Pass

Result: Pass **Worst Margin:** -10.2 dB **Frequency:** 0.727 MHz

Measurement Device: LISN ASSET 1732(Line 1) LISN ASSET 1733(Line 2)	Cable: CEMI-11	Spectrum Analyzer: Reference EMI Test Receiver
	Attenuator: 20dB Attenuator-08	Site: CEMI 5

AC Conducted Emissions Data Table											
				Frequency Range: 0.15-30				EUT Input Voltage/Frequency: 120Vac/60Hz			
Frequency (MHz)	Quasi-Peak Readings		Average Readings		LISN Factors		Cable Factor (dB)	ATTN Factor (dB)	FCC 15.207		
	QP1 (dB μ V)	QP2 (dB μ V)	AVG1 (dB μ V)	AVG2 (dB μ V)	L1 (dB)	L2 (dB)			QP Limit (dB μ V)	Margin (dB)	Result (Pass/Fail)
0.16	33.3	29.8	21.9	20.4	-0.1	-0.1	0.0	-19.9	65.7	-12.4	Pass
0.21	29.5	30.3	21.2	22.4	-0.1	-0.1	-0.1	-19.9	63.4	-13.1	Pass
0.73	23.0	24.5	15.0	16.5	0.0	0.0	-0.1	-19.9	56.0	-11.6	Pass
1.12	21.0	23.0	13.0	15.3	0.0	0.0	-0.1	-19.9	56.0	-13.0	Pass
8.32	19.4	19.2	15.6	15.5	-0.1	0.0	-0.2	-19.9	60.0	-20.5	Pass
9.50	19.0	18.2	15.3	14.0	-0.1	0.0	-0.2	-19.9	60.0	-20.9	Pass

Result: Pass **Worst Margin:** -9.6 dB **Frequency:** 0.727 MHz

Measurement Device: LISN ASSET 1732(Line 1) LISN ASSET 1733(Line 2)	Cable: CEMI-11	Spectrum Analyzer: Reference EMI Test Receiver
	Attenuator: 20dB Attenuator-08	Site: CEMI 5

Rev. 1/9/2015											
Spectrum Analyzers / Receivers /Preselectors											
MXE EMI Receiver											
Range 20Hz-8.4GHz	MN N9038A	Mfr Agilent	SN MY53290009	Asset 1168255	Cat I	Calibration Due 11/5/2015	Calibrated on 11/5/2014				
LISNs/Measurement Probes											
LISN Asset 1732	Range 150kHz-30MHz	MN LI-150A	Mfr Com-Power	SN 201094	Asset 1732	Cat I	Calibration Due 2/10/2015	Calibrated on 2/10/2014			
LISN Asset 1733	150kHz-30MHz	LI-150A	Com-Power	201095	1733	I	2/10/2015	2/10/2014			
Conducted Test Sites (Mains / Telco)											
CEMI 5	FCC Code 719150	VCCI Code A-0015			Cat III	Calibration Due NA	Calibrated on N/A				
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#1828	35519-044	Control Company	130318292	1828	II	6/13/2015	6/13/2013				
Cables	Range 9kHz - 2GHz	Mfr C-S			Cat II	Calibration Due 5/3/2015	Calibrated on 5/3/2014				
CEMI-11											
Attenuators	Range 9kHz-2GHz	MN PE7000-20	Mfr Pasternack	SN N/A	Asset II	Calibration Due 7/26/2015	Calibrated on 7/26/2014				
20dB Attenuator-08											

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



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page 30 of 37

Testing Cert. No. 1627-01

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	779.5183
915	DMSS	770.8663
927.3	DMSS	767.3045
Tested by: Tuyen Truong Date: 2/10/2015 Company: Ideal Industries, Inc. EUT: GW1100B	RBW = 30KHz VBW = 100KHz Analyzer: Gold SA Attenuator: PE7019-20 #791 Temp/Humidity/Pressure: 20° Celcius, 3% and 1011mBar	

Occupied Bandwidth		
Frequency (MHz)	Mode	99% Occupied Bandwidth (KHz)
902.7	DMSS	795.1586
915	DMSS	774.2376
927.3	DMSS	772.0105
Tested by: Tuyen Truong Date: 2/10/2015 Company: Ideal Industries, Inc. EUT: GW1100B	RBW = 30KHz VBW = 100KHz Analyzer: Gold SA Attenuator: PE7019-20 #791 Temp/Humidity/Pressure: 20° Celcius, 3% and 1011mBar	

Rev. 2/6/2015	Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
	Gold	100Hz-26.5 GHz	E4407B	Agilent	MY45113816	1284	I	1/20/2016	1/20/2015
	Radiated Emissions Sites	FCC Code	IC Code	VCCI Code	Range		Cat	Calibration Due	Calibrated on
	1DCC-OATS-3M-I	719150	2762A-8	A-0015	30-1000MHz		II	5/17/2015	5/17/2013
	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#1830	35519-044	Control Company	130320003	1830	II	6/13/2015	6/13/2013	
	Preamps /Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
	HF 20dB 50W Attenuator	0.009-18 GHz	PE 7019-20	Pasterneck	1	791	II	7/14/2015	7/14/2014

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



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page 31 of 37

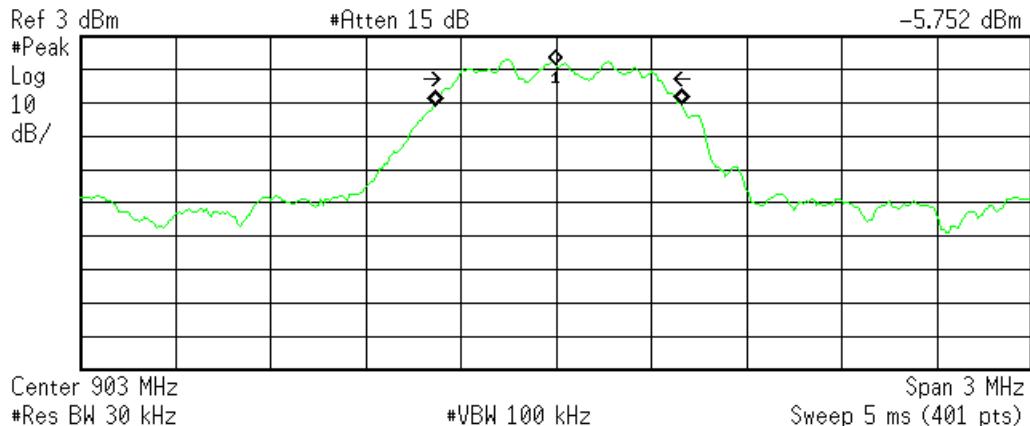
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Plot(s)

* Agilent 12:22:21 Feb 10, 2015

R T

Mkr1 903.0000 MHz
-5.752 dBm



Transmit Freq Error 4.613 kHz
x dB Bandwidth 635.374 kHz

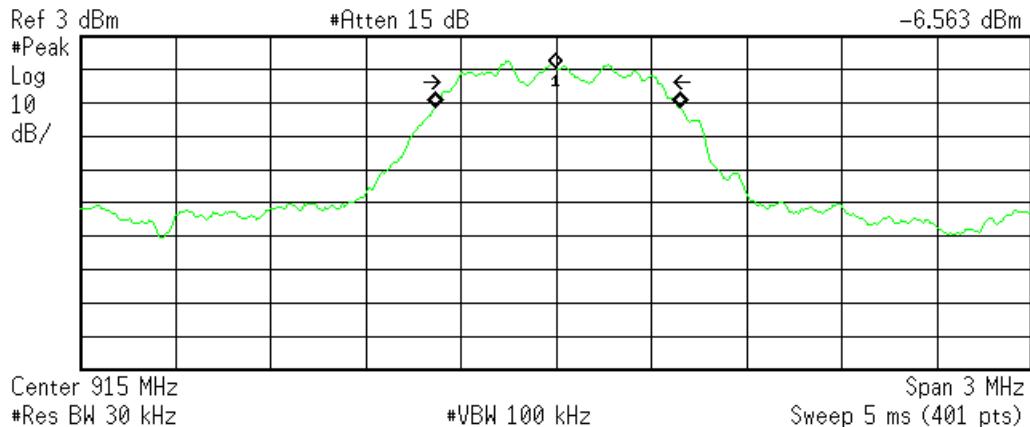
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Low Channel – Occupied Bandwidth (Antenna 1)

* Agilent 12:26:26 Feb 10, 2015

R T

Mkr1 915.0000 MHz
-6.563 dBm



Transmit Freq Error 5.289 kHz
x dB Bandwidth 634.586 kHz

C:\temp.gif file saved

Mid Channel – Occupied Bandwidth (Antenna 1)



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page 32 of 37

Testing Cert. No. 1627-01

* Agilent 12:30:10 Feb 10, 2015

R T

Mkr1 927.0000 MHz
-7.383 dBm

Ref 3 dBm

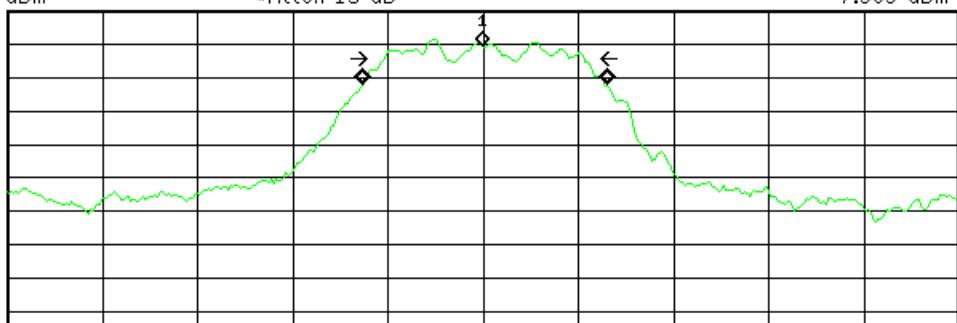
#Atten 15 dB

#Peak

Log

10

dB/



Center 927 MHz

#Res BW 30 kHz

#VBW 100 kHz

Span 3 MHz

Sweep 5 ms (401 pts)

Occupied Bandwidth

767.3045 kHz

Occ BW % Pwr 99.00 %

x dB -6.00 dB

Transmit Freq Error 2.834 kHz
x dB Bandwidth 634.415 kHz

C:\temp.gif file saved

High Channel – Occupied Bandwidth (Antenna 1)

* Agilent 12:11:37 Feb 10, 2015

R T

Mkr1 903.0000 MHz
-7.383 dBm

Ref 3 dBm

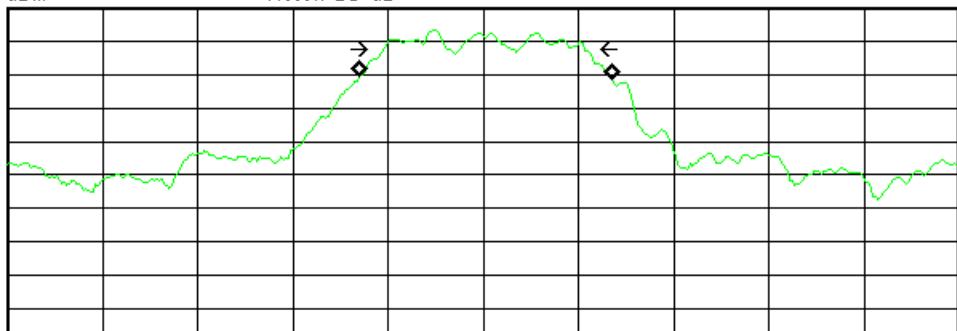
#Atten 15 dB

#Peak

Log

10

dB/



Center 903 MHz

#Res BW 30 kHz

#VBW 100 kHz

Span 3 MHz

Sweep 5 ms (401 pts)

Occupied Bandwidth

795.1586 kHz

Occ BW % Pwr 99.00 %

x dB -6.00 dB

Transmit Freq Error 7.476 kHz
x dB Bandwidth 636.490 kHz

Option not installed

Low Channel – Occupied Bandwidth (Antenna 2)



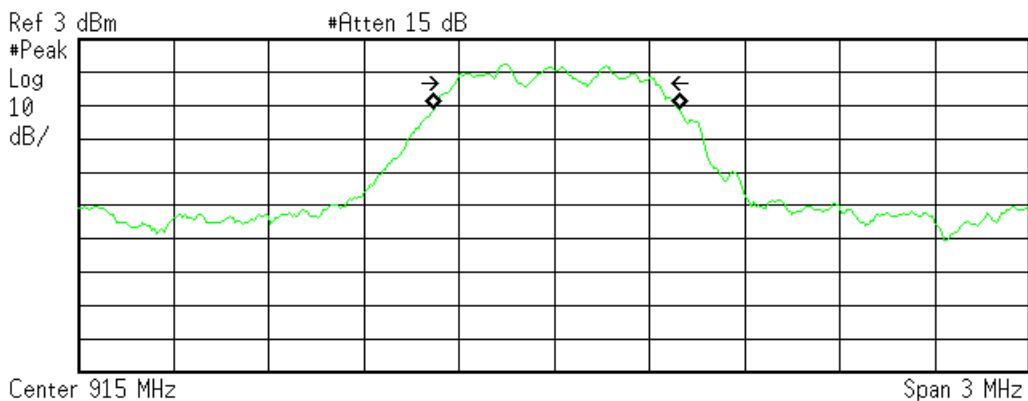
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page 33 of 37

 Agilent 12:16:19 Feb 10, 2015

R T



Occupied Bandwidth
774 2376 kHz

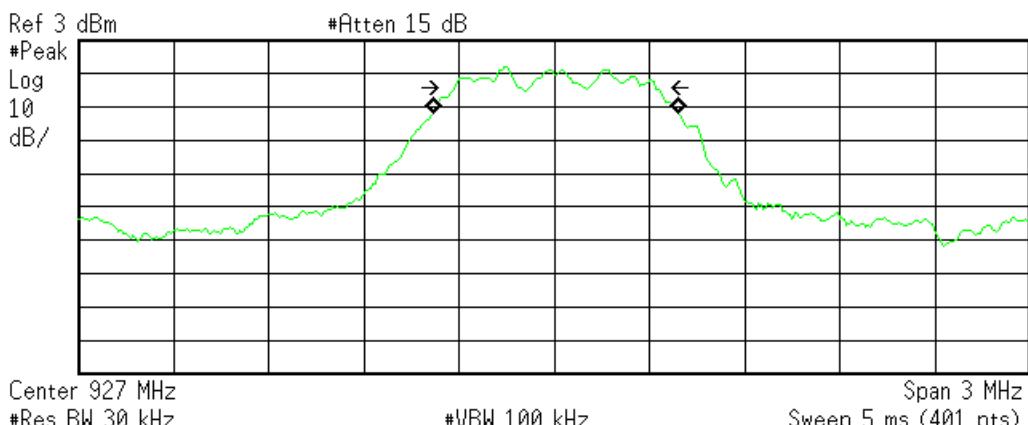
Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error x dB Bandwidth

C:\temp.gif file saved

Mid Channel – Occupied Bandwidth (Antenna 2)

 Agilent 12:18:56 Feb 10, 2015



Occupied Bandwidth
772 0105 kHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error x dB Bandwidth

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High Channel – Occupied Bandwidth (Antenna 2)



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page 34 of 37

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 CISPR	5.6dB 4.6dB	N/A 5.2dB (Ucispr)
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 CISPR	3.9dB 3.6dB	N/A 3.6dB (Ucispr)
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**," "**BVCP**," "**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 were 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.



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page 36 of 37

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.

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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page 37 of 37