Test Report

Bureau Veritas Consumer Products Services Inc.

Report No	ET2330-1
Client	Ideal Industries, Inc.
Address	Becker Place Sycamore, IL 60178
Phone	(815) 895-1295
Items tested	Audacy Temperature Sensor (Model: AH-CO2THD)
FCC ID	2AAMXAHCO2THD
IC	11250A-AHCO2THD
FRN	0002862225
Equipment Type	Digital Transmission System
Equipment Code	DTS
Emission Designator	773KG1D
FCC/IC Rule Parts	CFR Title 47 FCC Part 15.247, ISED Canada RSS-247 Issue 2
Test Dates	Sept 18 – Sept 20, 2019
Results	As detailed within this report
Prepared by	Anna Vancheva Anna Vancheva – EMC Engineer
Authorized by	Yunus Fazilioglu – Sr. Engineer
Issue Date	10/28/2019
Conditions of Issue	This Test Report is issued subject to the conditions stated in the '*Conditions of Testing*' section on page 27 of this report.

Bureau Veritas Consumer Products Services Inc.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.

ACCREDITED Cert No. 1627-01

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

Summary

This test report supports an application for certification of a transmitter operating pursuant to: CFR Title 47 FCC Part 15.247, ISED Canada RSS-247 Issue 2.

The product is the Audacy Temperature Sensor (Model: AH-CO2THD). It is a digitally modulated transmitter that operates in the 902.7 – 927.3MHz frequency range.
Antenna: Non-detachable PCB antenna with 2.5dBi gain.

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

Test Methodology

All testing was performed according to the following rules/procedures/documents;
CFR Title 47 FCC Part 15.247, ISED Canada RSS-247 Issue 2, ISED Canada RSS-Gen Issue 5, FCC KDB 558074 D01 15.247 Measurement Guidance v05r02 and ANSI C63.10-2013.

Radiated emissions were maximized by rotating the device around three orthogonal planes (X, Y and Z) as well as varying the test antenna's height and polarity. X orientation was found to be the worst and all radiated emissions tests were performed in that orientation. AC line conducted emissions testing was not applicable since device is battery powered.
During radiated emissions testing EUT was powered with 3.7VDC using an external power supply.

RF measurements were performed at the antenna port on 3 channels as follows:
Low channel = 902.7MHz
Mid channel = 915MHz
High channel = 927.3MHz

Following bandwidths were used during radiated spurious emissions tests:

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

Product Tested - Configuration Documentation

EUT Configuration			
Work Order:	ET2330		
Company:	Ideal Industries Inc.		
Company Address:	1375 Park Ave		
	Sycamore, IL, 60178		
Contact:	Tim Tunnell		
	MN	**PN**	**SN**
EUT:	AH-CO2THD		Test Sample 1
EUT Description:	Audacy Temperature Sensor		
EUT Max Frequency:	927.3 MHz		
Software Operating Mode Description:			
Client supplied test mode for continuous transmission at low, mid, or high channel. Powered by internal battery.			

Statement of Conformity

RSS-GEN	RSP-100	RSS 247	Part 15	Comments
6.4			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.
3.2			15.31	The EUT was tested in accordance with the measurement standards in this section.
6.13.2			15.33	Frequency range was investigated according to this section, unless noted in specific rule section under which the equipment operates.
6.13.1			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.
6.8			15.203	The antenna for this device is a non-detachable PCB antenna with 2.5dBi gain
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	N/A. EUT is not connected to AC mains. Battery powered only.
			15.247	The unit complies with the requirements of 15.247
		RSS 247		The unit complies with the requirements of RSS-247
6.7				Occupied Bandwidth measurements were made.

Modifications Required for Compliance

None.

Test Results

DTS (6dB) Bandwidth

LIMIT

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

MEASUREMENTS / RESULTS

6dB Bandwidth

Date: 9/20/2019 **Work Order:** T2330
Engineer: AV **Operating Voltage/Frequency:** Battery
Temp: 20.8°C **Humidity:** 41% **Pressure:** 1020mBar
Measurement Type: Conducted

Frequency (MHz)	Reading (kHz)	6dB Bandwidth Limit (kHz)	Margin (kHz)	Result (Pass/Fail)
902.7	666.5	≥500	166.5	Pass
915.0	666.7	≥500	166.7	Pass
927.3	667.0	≥500	167.0	Pass

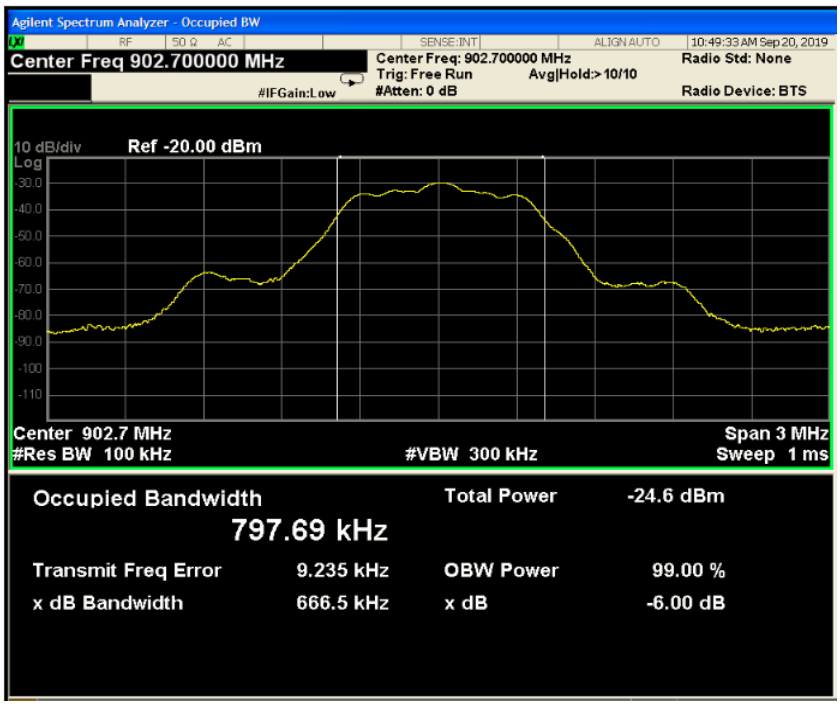
Test Site: CEMI-2 **Cable:** none **Attenuator:** Asset #2121
Analyzer: 1170725

Rev. 9/14/2019

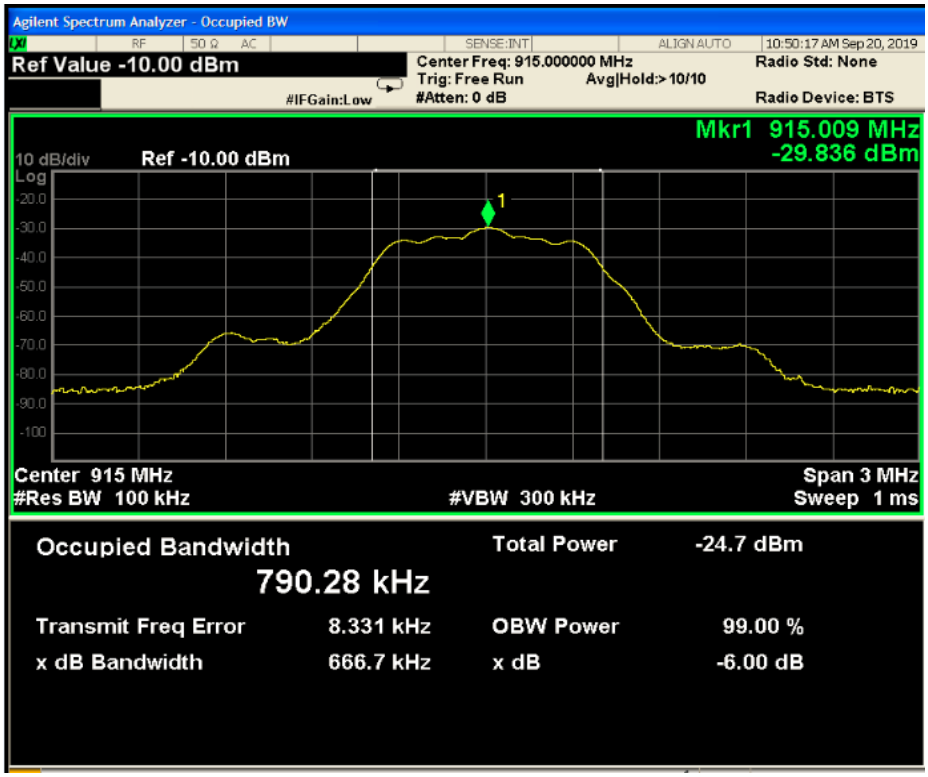
Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Rental MXE EMI Receiver(1170725)	20Hz-26.5GHz	N9038A	Agilent	MY51210151	1170725	I	5/30/2020	5/30/2019

Preamps /Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
API - 30dB 20W Attenuator	9KHz-40GHz	89-30-11	API Weinschel	703	2121	I	4/16/2020	4/16/2019

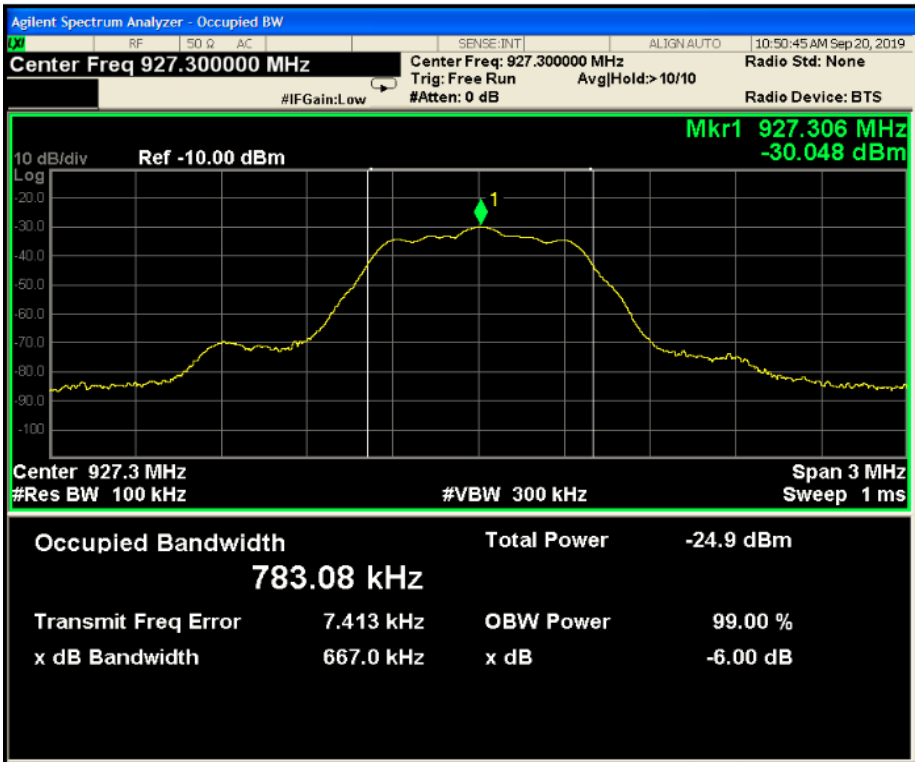
All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.



6dB Bandwidth – Low Channel



6dB Bandwidth – Mid Channel



6dB Bandwidth – High Channel

99% Occupied Bandwidth

REQUIREMENT

When an occupied bandwidth is not specified in the applicable RSS, the transmitted signal bandwidth to be reported is its 99% emission bandwidth, as calculated or measured.
[RSS-GEN Issue 5 Section 6.7]

MEASUREMENTS / RESULTS

99% Occupied Bandwidth

Date: 9/20/2019 **Work Order:** T2330
Engineer: AV **Operating Voltage/Frequency:** Battery
Temp: 20.8°C **Humidity:** 41% **Pressure:** 1020mBar
Measurement Type: Conducted

Frequency (MHz)	99% OBW (kHz)
902.7	772.83
915.0	763.73
927.3	758.40

Test Site: CEMI-2 **Cable:** none **Attenuator:** Asset #2121
Analyzer: 1170725

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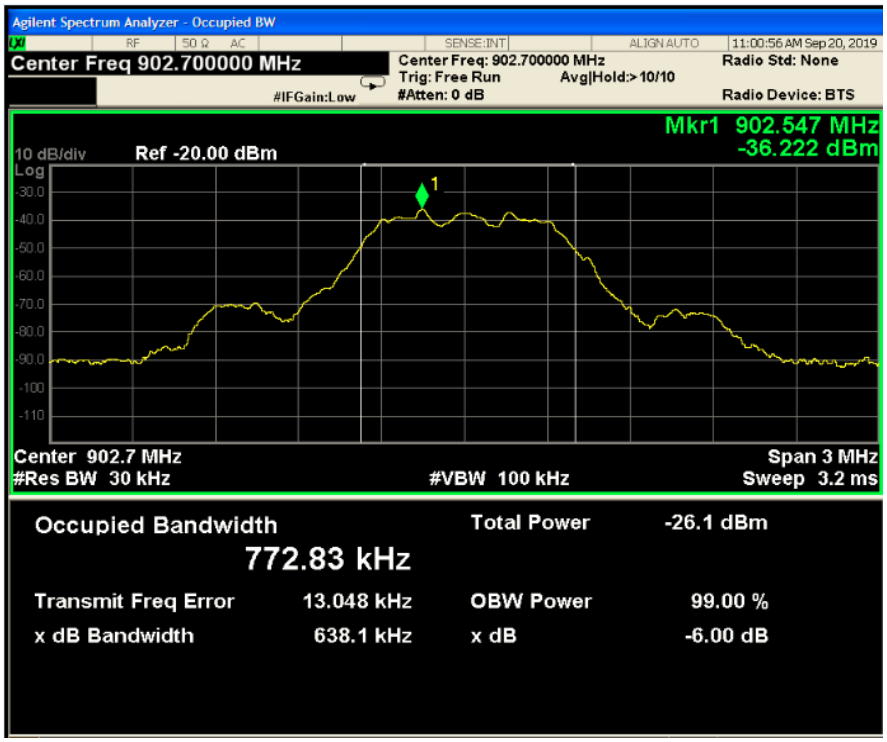
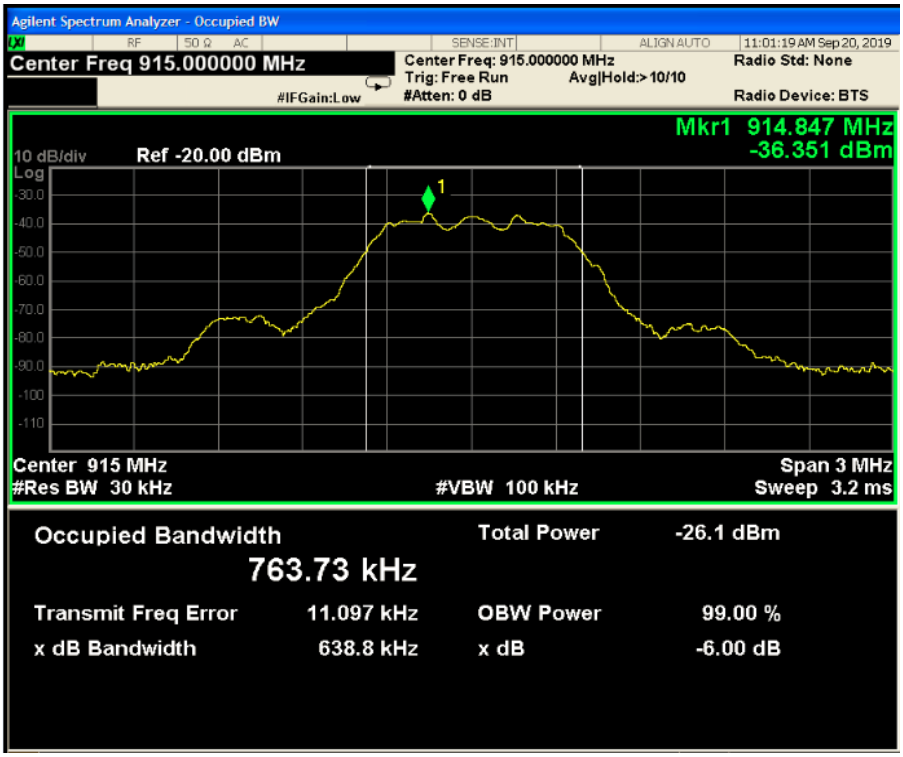
Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Rental MXE EMI Receiver(1170725)	20Hz-26.5GHz	N9038A	Agilent	MY51210151	1170725	I	5/30/2020	5/30/2019

Preamps /Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
API - 30dB 20W Attenuator	9KHz-40GHz	89-30-11	API Weinschel	703	2121	I	4/16/2020	4/16/2019

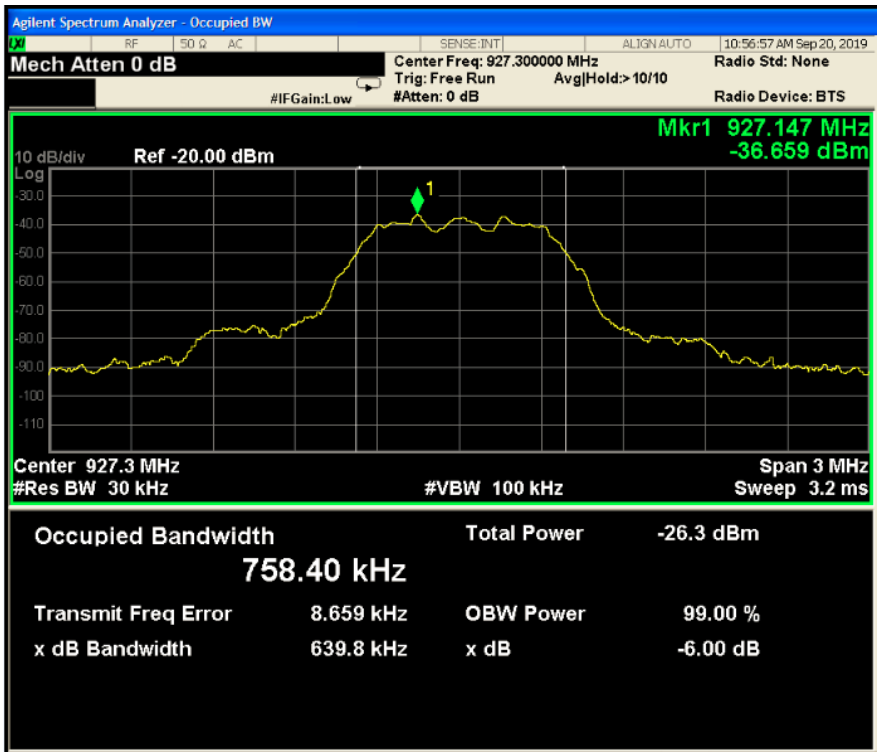
All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.



Occupied Bandwidth – Low Channel



Occupied Bandwidth – Middle Channel



Occupied Bandwidth – High Channel

Peak Output Power

LIMIT

Conducted Output Power: 1 Watt per [15.247(b) (3)]

MEASUREMENTS / RESULTS

Peak Output Power

Date: 9/20/2019 **Work Order:** T2330
Engineer: AV **Operating Voltage/Frequency:** Battery
Temp: 20.8°C **Humidity:** 41% **Pressure:** 1020mBar
Measurement Type: Conducted

Frequency (MHz)	Peak Reading (dBm)	Cable Loss (dB)	Attenuator Loss (dB)	Peak Output Power (dBm)	Limit (dBm)	Margin (dB)	Result (Pass/Fail)
902.7	-26.98	0.00	29.32	2.34	30.0	-27.66	Pass
915.0	-27.07	0.00	29.32	2.25	30.0	-27.75	Pass
927.3	-27.24	0.00	29.32	2.08	30.0	-27.92	Pass

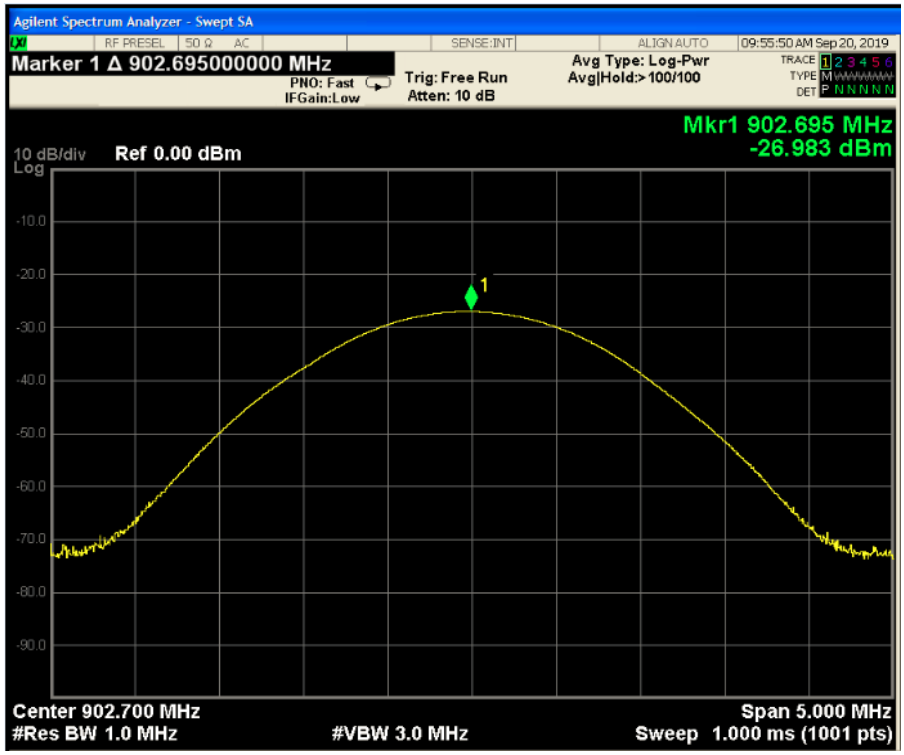
Test Site: CEMI-2 **Cable:** none **Attenuator:** Asset #2121
Analyzer: 1170725
Peak Output Power (dBm)= Peak Reading (dBm) + Cable Loss (dB) + Attenuator Loss (dB)

Rev. 9/14/2019

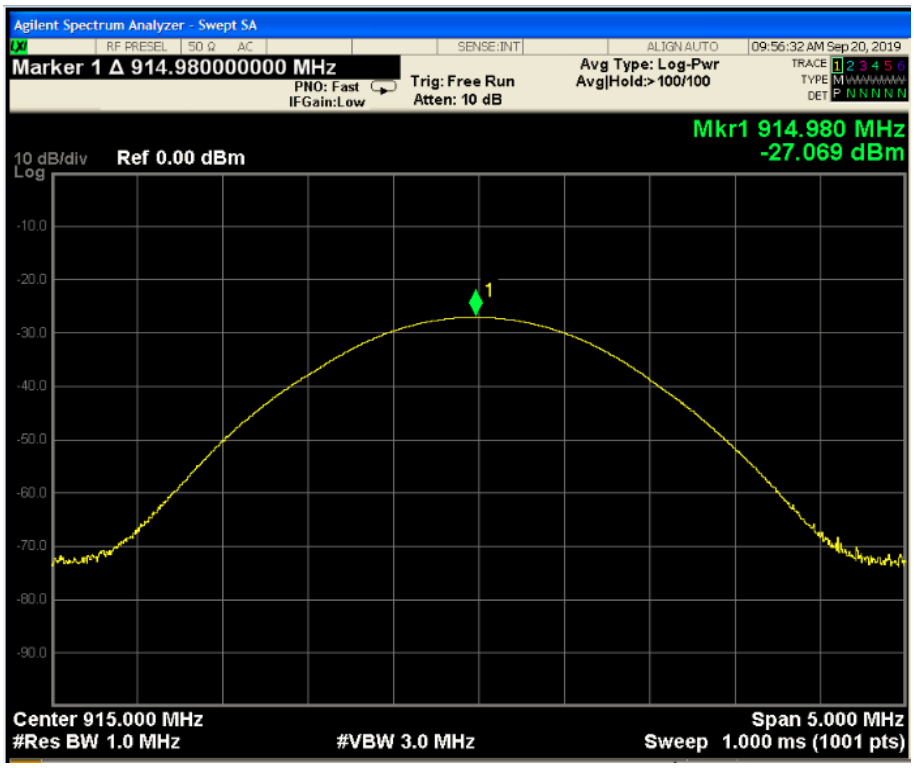
Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Rental MXE EMI Receiver(1170725)	20Hz-26.5GHz	N9038A	Agilent	MY51210151	1170725	I	5/30/2020	5/30/2019

Preamps /Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
API - 30dB 20W Attenuator	9KHz-40GHz	89-30-11	API Weinschel	703	2121	I	4/16/2020	4/16/2019

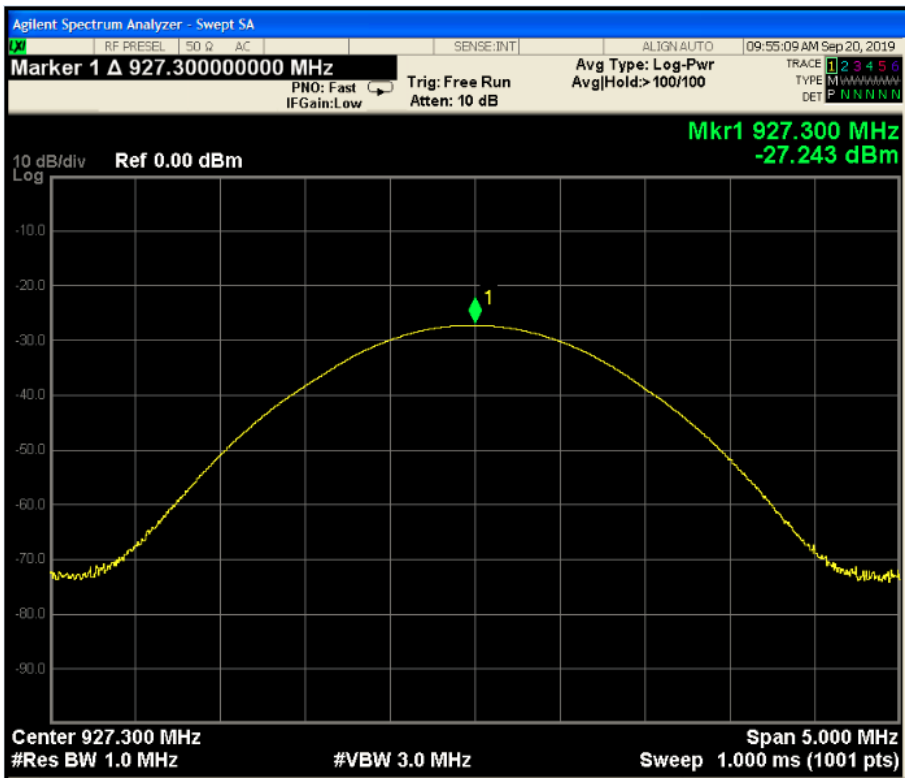
All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.



Peak Output Power – Low Channel



Peak Output Power – Mid Channel



Peak Output Power – High Channel

Peak 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

Peak Power Spectral Density

Date: 9/20/2019 **Work Order:** T2330
Engineer: AV **Operating Voltage/Frequency:** Battery
Temp: 20.8°C **Humidity:** 41% **Pressure:** 1020mBar
Measurement Type: Conducted

Frequency (MHz)	Peak Reading (dBm)	Cable Loss (dB)	Attenuator Loss (dB)	Peak PSD (dBm)	Limit (dBm)	Margin (dB)	Result
902.7	-30.03	0.00	29.32	-0.71	8.0	-8.71	Pass
915.0	-30.10	0.00	29.32	-0.78	8.0	-8.78	Pass
927.3	-30.27	0.00	29.32	-0.95	8.0	-8.95	Pass

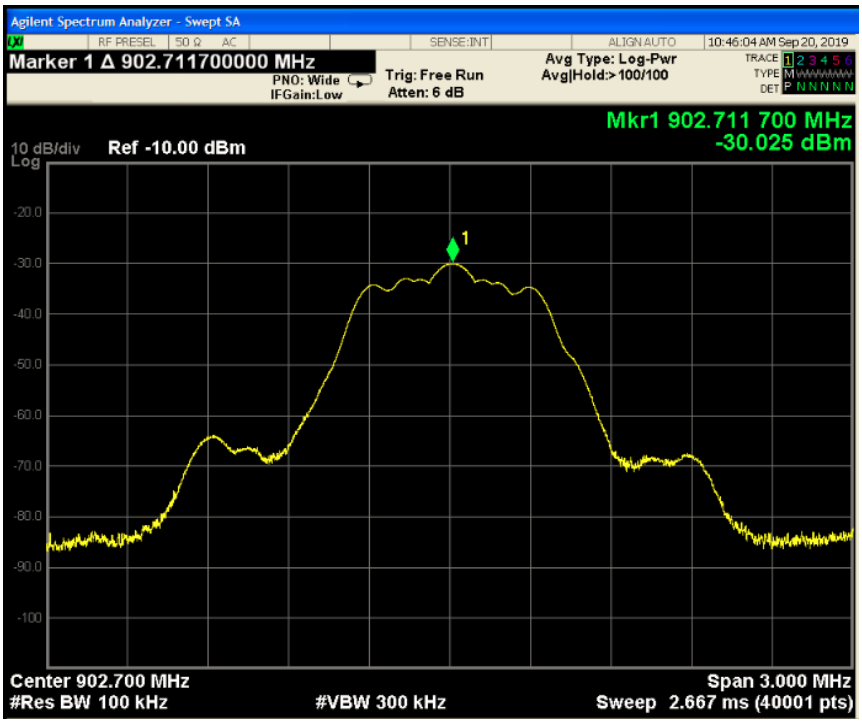
Test Site: CEMI-2 **Cable:** none **Attenuator:** Asset #2121
Analyzer: 1170725
PSD(dBm) = Reading (dBm) + Cable Loss (dB) + Attenuator Loss (dBm)

Rev. 9/14/2019

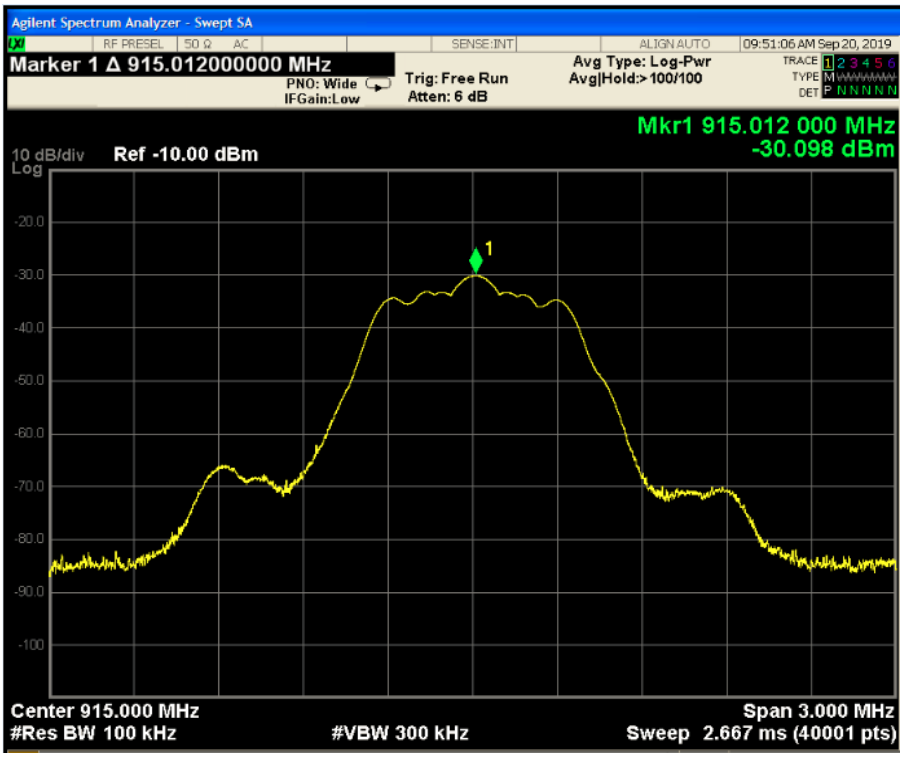
Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Rental MXE EMI Receiver(1170725)	20Hz-26.5GHz	N9038A	Agilent	MY51210151	1170725	I	5/30/2020	5/30/2019

Preamps /Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
API - 30dB 20W Attenuator	9KHz-40GHz	89-30-11	API Weinschel	703	2121	I	4/16/2020	4/16/2019

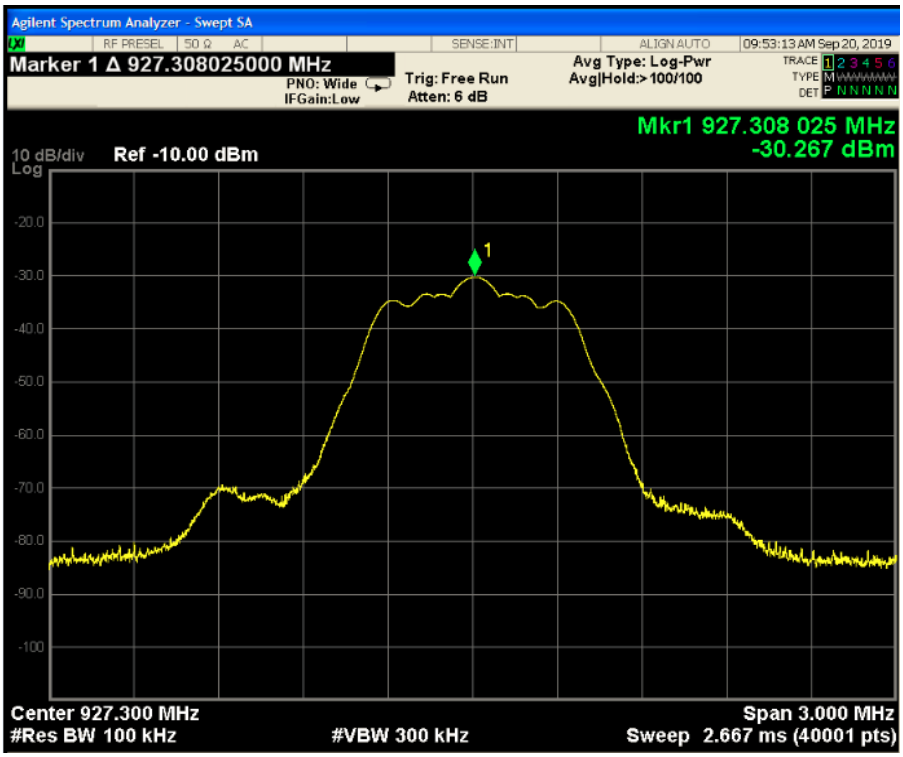
All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.



PSD – Low Channel



PSD – Mid Channel



PSD – High Channel

Conducted Bandedge

Band edges must be more than 20dB below fundamental.

MEASUREMENTS / RESULTS

Conducted Bandedge

Date: 9/20/2019 **Work Order:** T2330
Engineer: AV **Operating Voltage/Frequency:** Battery
Temp: 20.8°C **Humidity:** 41% **Pressure:** 1020mBar

Measurement Type: Conducted

	Delta to Peak (dB)	Limit (dB)	Limit (Pass/Fail)
Low Bandedge	38.221	≥ 20	Pass
High Bandedge	43.336	≥ 20	Pass

Test Site: CEMI-2 **Cable:** none **Attenuator:** Asset #2121
Analyzer: 1170725

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Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Rental MXE EMI Receiver(1170725)	20Hz-26.5GHz	N9038A	Agilent	MY51210151	1170725	I	5/30/2020	5/30/2019

Preamps /Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
API - 30dB 20W Attenuator	9KHz-40GHz	89-30-11	API Weinschel	703	2121	I	4/16/2020	4/16/2019

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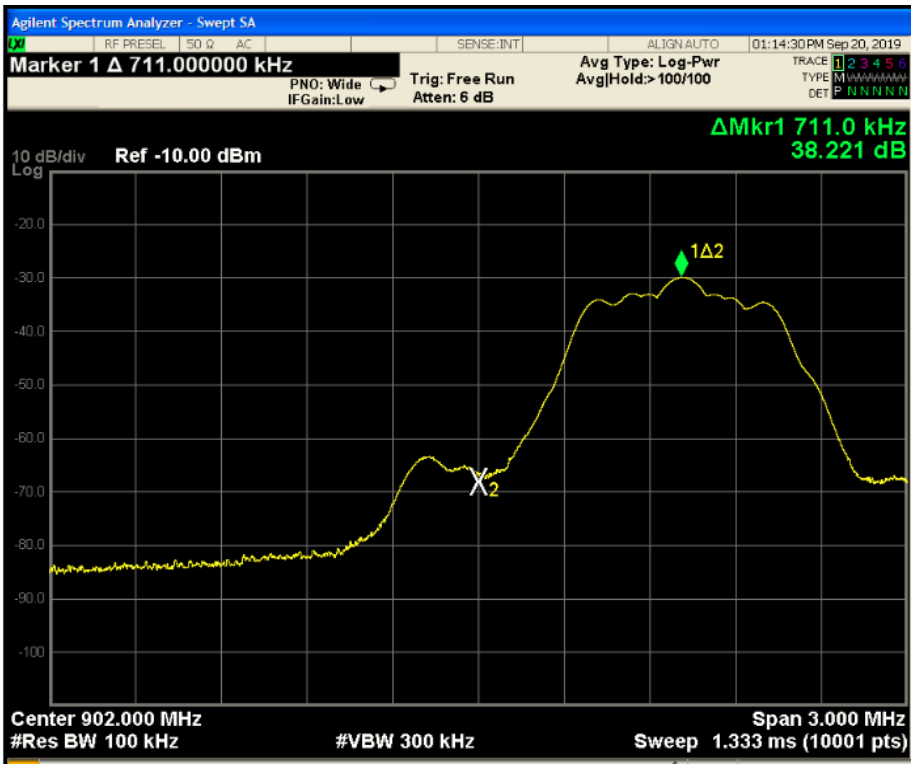


Low Band Edge

High Band Edge

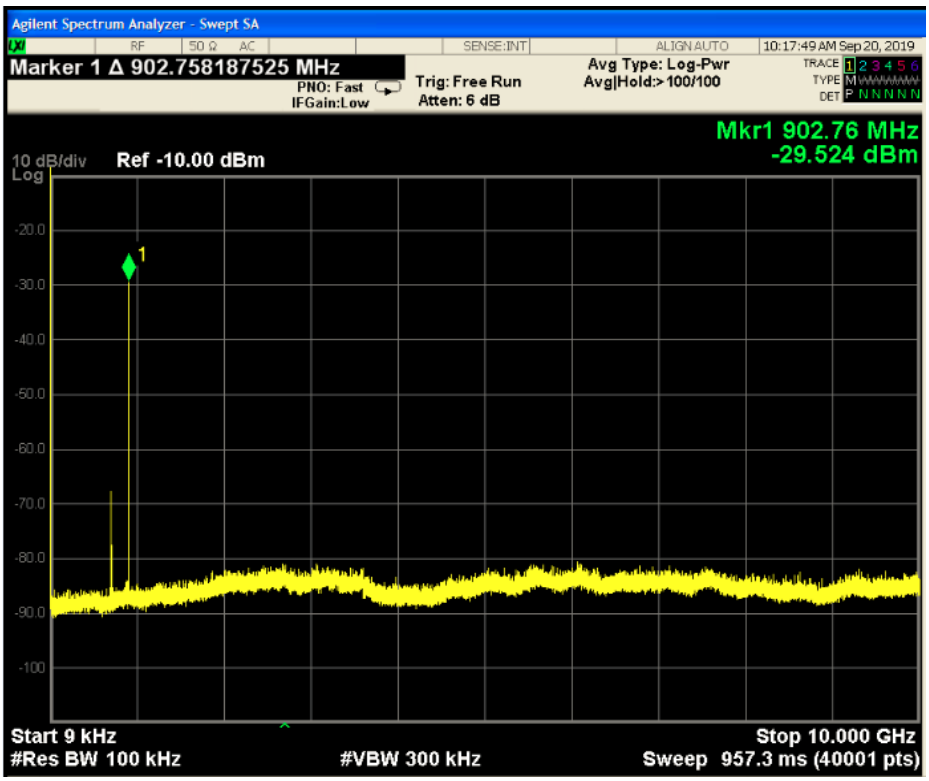
Conducted Spurious Emissions

LIMITS

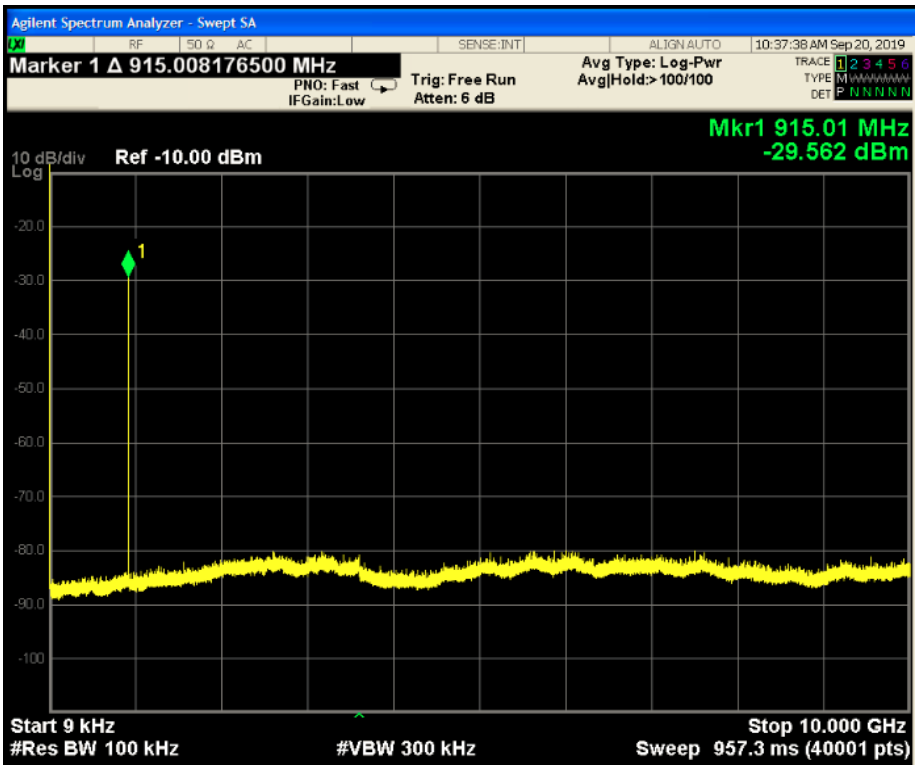
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth that contains the highest level of desired power based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. [15.247(d)]

Conducted spurious emissions at the antenna port were measured in accordance with ANSI C63.10-2013 Section 11.11.

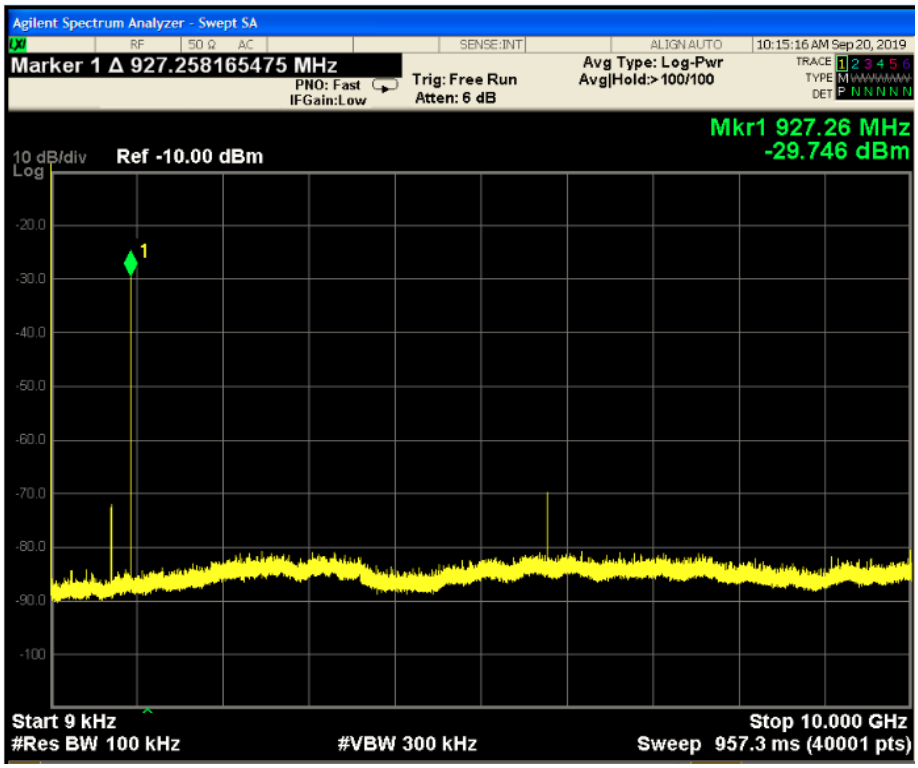
Frequency range up to 10GHz was investigated for all 3 channels (low, middle and high) at the EUT antenna port. No emissions within 20dB of their corresponding fundamental were found.



Low Channel



Mid Channel



High Channel

Radiated Spurious Emissions

LIMITS

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

MEASUREMENTS / RESULTS

30MHz – 1GHz

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 3m Distance
Top Peaks Vertical 30-1000MHz
Notes:
Low Channel

Work Order - T2330
EUT Power Input - Battery
Test Site - Ch2
Conditions - 22.9°C; 43%RH; 1018mBar
Test Engineer - AV

Data Taken at 01:27:31 PM, Wednesday, September 18, 2019

Frequency (MHz)	Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Lim1: FCC_pt15_209 (dBµV/m)	Lim1 Margin (dB)	Lim1 Test Results (Pass/Fail)	Worst Margin Lim1 (dB)	Lim2: FCC_pt15_109_Class_B (dBµV/m)	Lim2 Margin (dB)	Lim2 Test Results (Pass/Fail)	Worst Margin Lim2 (dB)	Antenna Height (cm)	Turntable Azimuth (degrees)
30.509	32.9	-7.1	25.9	40	-14.1	PASS	-14.1	40	-14.1	PASS	-14.1	150	180
76.002	33.2	-19.7	13.5	40	-26.5	PASS		40	-26.5	PASS		150	180
122.683	33.6	-12.9	20.8	43.5	-22.7	PASS		43.5	-22.7	PASS		100	180
193.494	35.4	-15.7	19.7	43.5	-23.8	PASS		43.5	-23.9	PASS		100	270
200.477	34.5	-14.5	20	43.5	-23.5	PASS		43.5	-23.5	PASS		150	225
785.315	32.4	-2.9	29.6	46	-16.4	PASS		46	-16.5	PASS		100	0

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 3m Distance
Top Peaks Horizontal 30-1000MHz
Notes:
Low Channel

Work Order - T2330
EUT Power Input - Battery
Test Site - Ch2
Conditions - 22.9°C; 43%RH; 1018mBar
Test Engineer - AV

Data Taken at 01:36:26 PM, Wednesday, September 18, 2019

Frequency (MHz)	Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Lim1: FCC_pt15_209 (dBµV/m)	Lim1 Margin (dB)	Lim1 Test Results (Pass/Fail)	Worst Margin Lim1 (dB)	Lim2: FCC_pt15_109_Class_B (dBµV/m)	Lim2 Margin (dB)	Lim2 Test Results (Pass/Fail)	Worst Margin Lim2 (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
30.412	32.5	-7	25.5	40	-14.5	PASS	-14.5	40	-14.5	PASS	-14.5	250	315
125.181	33.2	-13.4	19.8	43.5	-23.7	PASS		43.5	-23.7	PASS		100	270
199.119	32.9	-14.6	18.3	43.5	-25.2	PASS		43.5	-25.2	PASS		150	90
804.86	32.1	-2.7	29.4	46	-16.6	PASS		46	-16.6	PASS		200	90

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 3m Distance
Top Peaks Vertical 30-1000MHz
Notes:
Mid Channel

Work Order - T2330
EUT Power Input - Battery
Test Site - Ch2
Conditions - 22.9°C; 43%RH; 1018mBar
Test Engineer - AV

Data Taken at 02:03:53 PM, Wednesday, September 18, 2019

Frequency (MHz)	Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Lim1: FCC_pt15_209 (dBµV/m)	Lim1 Margin (dB)	Lim1 Test Results (Pass/Fail)	Worst Margin Lim1 (dB)	Lim2: FCC_pt15_109_Class_B (dBµV/m)	Lim2 Margin (dB)	Lim2 Test Results (Pass/Fail)	Worst Margin Lim2 (dB)	Antenna Height (cm)	Turntable Azimuth (degrees)
31.14	32.2	-7.5	24.6	40	-15.4	PASS	-15.4	40	-15.4	PASS	-15.4	200	270
79.373	33.2	-19.4	13.7	40	-26.3	PASS		40	-26.3	PASS		200	180
96.76	35.2	-19	16.2	43.5	-27.3	PASS		43.5	-27.3	PASS		200	45
122.877	32.1	-12.8	19.3	43.5	-24.2	PASS		43.5	-24.2	PASS		150	270
186.849	35.6	-16.4	19.2	43.5	-24.3	PASS		43.5	-24.3	PASS		100	135
814.293	31.8	-2.6	29.2	46	-16.8	PASS		46	-16.8	PASS		100	225

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 3m Distance
Top Peaks Horizontal 30-1000MHz
Notes:
Mid Channel

Work Order - T2330
EUT Power Input - Battery
Test Site - Ch2
Conditions - 22.9°C; 43%RH; 1018mBar
Test Engineer - AV

Data Taken at 02:12:56 PM, Wednesday, September 18, 2019

Frequency (MHz)	Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Lim1: FCC_pt15_209 (dBµV/m)	Lim1 Margin (dB)	Lim1 Test Results (Pass/Fail)	Worst Margin Lim1 (dB)	Lim2: FCC_pt15_109_Class_B (dBµV/m)	Lim2 Margin (dB)	Lim2 Test Results (Pass/Fail)	Worst Margin Lim2 (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
30.97	32.7	-7.4	25.3	40	-14.7	PASS		40	-14.7	PASS		150	270
123.168	33.1	-12.8	20.3	43.5	-23.2	PASS		43.5	-23.2	PASS		100	0
201.544	33.6	-14.5	19	43.5	-24.5	PASS		43.5	-24.5	PASS		250	225
700.925	39.6	-4.9	34.8	46	-11.2	PASS		46	-11.3	PASS		200	315
702.477	40.5	-4.9	35.6	46	-10.4	PASS	-10.4	46	-10.4	PASS	-10.4	200	315
798.385	31.9	-2.8	29.1	46	-16.9	PASS		46	-16.9	PASS		150	315

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 3m Distance
Top Peaks Vertical 30-1000MHz
Notes:
High Channel

Work Order - T2330
EUT Power Input - Battery
Test Site - Ch2
Conditions - 22.9°C; 43%RH; 1018mBar
Test Engineer - AV

Data Taken at 02:26:57 PM, Wednesday, September 18, 2019

Frequency (MHz)	Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Lim1: FCC_pt15_209 (dBµV/m)	Lim1 Margin (dB)	Lim1 Test Results (Pass/Fail)	Worst Margin Lim1 (dB)	Lim2: FCC_pt15_109_Class_B (dBµV/m)	Lim2 Margin (dB)	Lim2 Test Results (Pass/Fail)	Worst Margin Lim2 (dB)	Antenna Height (cm)	Turntable Azimuth (degrees)
30.242	31.7	-6.9	24.8	40	-15.2	PASS	-15.2	40	-15.2	PASS	-15.2	100	180
122.247	33.1	-13	20.1	43.5	-23.4	PASS		43.5	-23.4	PASS		100	180
200.793	33.7	-14.5	19.2	43.5	-24.3	PASS		43.5	-24.3	PASS		150	315
700.731	34	-4.9	29.1	46	-16.9	PASS		46	-16.9	PASS		200	180
703.495	35.7	-4.9	30.7	46	-15.3	PASS		46	-15.3	PASS		150	45
812.887	31.3	-2.6	28.7	46	-17.3	PASS		46	-17.3	PASS		100	0

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 3m Distance
Top Peaks Horizontal 30-1000MHz
Notes:
High Channel

Work Order - T2330
EUT Power Input - Battery
Test Site - Ch2
Conditions - 22.9°C; 43%RH; 1018mBar
Test Engineer - AV

Data Taken at 02:34:57 PM, Wednesday, September 18, 2019

Frequency (MHz)	Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Lim1: FCC_pt15_209 (dBµV/m)	Lim1 Margin (dB)	Lim1 Test Results (Pass/Fail)	Worst Margin Lim1 (dB)	Lim2: FCC_pt15_109_Class_B (dBµV/m)	Lim2 Margin (dB)	Lim2 Test Results (Pass/Fail)	Worst Margin Lim2 (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
30.558	31.9	-7.1	24.8	40	-15.2	PASS		40	-15.2	PASS		250	315
137.719	33.7	-14.3	19.4	43.5	-24.1	PASS		43.5	-24.2	PASS		200	225
200.041	32.9	-14.5	18.4	43.5	-25.1	PASS		43.5	-25.1	PASS		150	225
207.292	35.8	-16.5	19.3	43.5	-24.2	PASS		43.5	-24.2	PASS		200	225
702.792	38.2	-4.9	33.3	46	-12.7	PASS	-12.7	46	-12.7	PASS	-12.7	100	315
797.173	32.6	-2.9	29.7	46	-16.3	PASS		46	-16.3	PASS		100	45

1GHz - 6GHz

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 3m Distance
Top Peaks Vertical 1-6GHz
Notes:
Low Channel

Work Order - T2330
EUT Power Input - Battery
Test Site - Ch2
Conditions - 22.9°C; 43%RH; 1018mBar
Test Engineer - AV

Data Taken at 04:21:35 PM, Wednesday, September 18, 2019

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_209_Peak (dBµV/m)	Margin to Peak Limit (dB)	Peak Limit Test Results (Pass/Fail)	Peak Limit Worst Margin (dB)	Av Lim: FCC_pt15_209_Average (dBµV/m)	Margin to Average Limit (dB)	Average Limit Test Result (Pass/Fail)	Average Limit Worst Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
1248.25	48.4	-7.5	40.9	74	-33.1	PASS		54	-13.1	PASS		100	295
2401.88	48.5	-3.1	45.5	74	-28.5	PASS		54	-8.5	PASS		200	283
3610.88	48.9	-0.7	48.2	74	-25.8	PASS	-25.8	54	-5.8	PASS	-5.8	100	295
4940	46.1	0.9	47	74	-27	PASS		54	-7	PASS		100	295
5476.13	45.4	1.7	47.1	74	-26.9	PASS		54	-6.9	PASS		100	220

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 3m Distance
Top Peaks Horizontal 1-6GHz
Notes:
Low Channel

Work Order - T2330
EUT Power Input - Battery
Test Site - Ch2
Conditions - 22.9°C; 43%RH; 1018mBar
Test Engineer - AV

Data Taken at 04:17:19 PM, Wednesday, September 18, 2019

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_209_Peak (dBµV/m)	Margin to Peak Limit (dB)	Peak Limit Results (Pass/Fail)	Peak Limit Worst Margin (dB)	Av Lim: FCC_pt15_209_Average (dBµV/m)	Margin to Avg Limit (dB)	Avg Limit Results (Pass/Fail)	Avg Limit Worst Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
3610.75	50.7	-0.7	49.9	74	-24.1	PASS	-24.1	54	-4.1	PASS	-4.1	100	144
5993.5	44.8	2.4	47.2	74	-26.8	PASS		54	-6.8	PASS		100	32

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 3m Distance
Top Peaks Vertical 1-6GHz
Notes:
Mid Channel

Work Order - T2330
EUT Power Input - Battery
Test Site - Ch2
Conditions - 22.9°C; 43%RH; 1018mBar
Test Engineer - AV

Data Taken at 03:40:30 PM, Wednesday, September 18, 2019

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_209_Peak (dBµV/m)	Margin to Peak Limit (dB)	Peak Limit Test Results (Pass/Fail)	Peak Limit Worst Margin (dB)	Av Lim: FCC_pt15_209_Average (dBµV/m)	Margin to Average Limit (dB)	Average Limit Test Result (Pass/Fail)	Average Limit Worst Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
1330.75	48.1	-6.8	41.2	74	-32.8	PASS		54	-12.8	PASS		300	223
2878.75	47.8	-2.2	45.5	74	-28.5	PASS		54	-8.5	PASS		300	184
3660.13	49.6	-0.2	49.5	74	-24.5	PASS	-24.5	54	-4.5	PASS	-4.5	100	257
5981.25	45.2	2.3	47.5	74	-26.5	PASS		54	-6.5	PASS		100	220

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 3m Distance
Top Peaks Horizontal 1-6GHz
Notes:
Mid Channel

Work Order - T2330
EUT Power Input - Battery
Test Site - Ch2
Conditions - 22.9°C; 43%RH; 1018mBar
Test Engineer - AV

Data Taken at 03:47:18 PM, Wednesday, September 18, 2019

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_209_Peak (dBµV/m)	Margin to Peak Limit (dB)	Peak Limit Results (Pass/Fail)	Peak Limit Worst Margin (dB)	Av Lim: FCC_pt15_209_Average (dBµV/m)	Margin to Avg Limit (dB)	Avg Limit Results (Pass/Fail)	Avg Limit Worst Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
1312.38	48.6	-7	41.6	74	-32.4	PASS		54	-12.4	PASS		100	70
3660.13	49.8	-0.2	49.6	74	-24.4	PASS		54	-4.4	PASS		300	145
4809.38	46.2	0.8	47	74	-27	PASS		54	-7	PASS		100	258
5266.25	51.7	1	52.6	74	-21.4	PASS		54	-1.4	PASS		300	0
5282	52.1	1	53.1	74	-20.9	PASS	-20.9	54	-0.9	PASS	-0.9	300	0
5986.5	45.4	2.4	47.8	74	-26.2	PASS		54	-6.2	PASS		300	258

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 3m Distance
Top Peaks Vertical 1-6GHz
Notes:
High Channel

Work Order - T2330
EUT Power Input - Battery
Test Site - Ch2
Conditions - 22.9°C; 43%RH; 1018mBar
Test Engineer - AV

Data Taken at 03:59:19 PM, Wednesday, September 18, 2019

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_209_Peak (dBµV/m)	Margin to Peak Limit (dB)	Peak Limit Test Results (Pass/Fail)	Peak Limit Worst Margin (dB)	Av Lim: FCC_pt15_209_Average (dBµV/m)	Margin to Average Limit (dB)	Average Limit Test Result (Pass/Fail)	Average Limit Worst Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
3709.25	49.3	-0.1	49.2	74	-24.8	PASS	-24.8	54	-4.8	PASS	-4.8	100	258
5995.38	45	2.4	47.4	74	-26.6	PASS		54	-6.6	PASS		300	184

Bureau Veritas Consumer Product Services Inc. — Peak Scan Data, 1MHz RBW, 3MHz VBW — Work Order - T2330

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 3m Distance
Top Peaks Horizontal 1-6GHz
Notes:
High Channel

Work Order - T2330
EUT Power Input - Battery
Test Site - Ch2
Conditions - 22.9°C; 43%RH; 1018mBar
Test Engineer - AV

Data Taken at 04:03:12 PM, Wednesday, September 18, 2019

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_209_Peak (dBµV/m)	Margin to Peak Limit (dB)	Peak Limit Results (Pass/Fail)	Peak Limit Worst Margin (dB)	Av Lim: FCC_pt15_209_Average (dBµV/m)	Margin to Avg Limit (dB)	Avg Limit Results (Pass/Fail)	Avg Limit Worst Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
1405.38	48.6	-7.5	41.1	74	-32.9	PASS		54	-12.9	PASS		200	315
2735.13	48	-2.5	45.5	74	-28.5	PASS		54	-8.5	PASS		100	70
3709.13	51.5	-0.1	51.4	74	-22.6	PASS	-22.6	54	-2.6	PASS	-2.6	100	220
5379.88	45.7	1.4	47.2	74	-26.8	PASS		54	-6.8	PASS		100	183

6GHz-10GHz

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 1m Distance
Top Peaks Vertical 6-18GHz
Notes:
Low Channel

Work Order - T2330
EUT Power Input - Battery
Test Site - Ch2
Conditions - 22.9°C; 43%RH; 1018mBar
Test Engineer - AV

Data Taken at 03:09:44 PM, Wednesday, September 18, 2019

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_209_Peak (dBµV/m)	Margin to Peak Limit (dB)	Peak Limit Test Results (Pass/Fail)	Peak Limit Worst Margin (dB)	Av Lim: FCC_pt15_209_Average (dBµV/m)	Margin to Avg Limit (dB)	Avg Limit Test Results (Pass/Fail)	Avg Limit Worst Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
6841	46.5	3.9	50.4	83.5	-33.1	PASS		63.5	-13.1	PASS		200	107
9921	48	6.8	54.8	83.5	-28.7	PASS	-28.7	63.5	-8.7	PASS	-8.7	175	208

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 1m Distance
Top Peaks Horizontal 6-18GHz
Notes:
Low Channel

Work Order - T2330
EUT Power Input - Battery
Test Site - Ch2
Conditions - 22.9°C; 43%RH; 1018mBar
Test Engineer - AV

Data Taken at 03:14:22 PM, Wednesday, September 18, 2019

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_209_Peak (dBµV/m)	Margin to Peak Limit (dB)	Peak Limit Test Results (Pass/Fail)	Peak Limit Worst Margin (dB)	Av Lim: FCC_pt15_209_Average (dBµV/m)	Margin to Avg Limit (dB)	Avg Limit Test Results (Pass/Fail)	Avg Limit Worst Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
9381.5	47.8	6.2	54	83.5	-29.5	PASS	-29.5	63.5	-9.5	PASS	-9.5	175	283

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 1m Distance
Top Peaks Vertical 6-18GHz
Notes:
Mid Channel

Work Order - T2330
EUT Power Input - Battery
Test Site - Ch2
Conditions - 22.9°C; 43%RH; 1018mBar
Test Engineer - AV

Data Taken at 03:21:13 PM, Wednesday, September 18, 2019

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_209_Peak (dBµV/m)	Margin to Peak Limit (dB)	Peak Limit Test Results (Pass/Fail)	Peak Limit Worst Margin (dB)	Av Lim: FCC_pt15_209_Average (dBµV/m)	Margin to Avg Limit (dB)	Avg Limit Test Results (Pass/Fail)	Avg Limit Worst Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
8297.2	48.2	4.4	52.6	83.5	-30.9	PASS		63.5	-10.9	PASS		200	70
9894.1	47.6	6.7	54.3	83.5	-29.2	PASS	-29.2	63.5	-9.2	PASS	-9.2	175	93

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 1m Distance
Top Peaks Horizontal 6-18GHz
Notes:
Mid Channel

Work Order - T2330
EUT Power Input - Battery
Test Site - Ch2
Conditions - 22.9°C; 43%RH; 1018mBar
Test Engineer - AV

Data Taken at 03:25:21 PM, Wednesday, September 18, 2019

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_209_Peak (dBµV/m)	Margin to Peak Limit (dB)	Peak Limit Test Results (Pass/Fail)	Peak Limit Worst Margin (dB)	Av Lim: FCC_pt15_209_Average (dBµV/m)	Margin to Avg Limit (dB)	Avg Limit Test Results (Pass/Fail)	Avg Limit Worst Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
9847.7	47.7	6.6	54.4	83.5	-29.1	PASS	-29.1	63.5	-9.1	PASS	-9.1	125	19

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 1m Distance
Top Peaks Vertical 6-18GHz
Notes:
High Channel

Work Order - T2330
EUT Power Input - Battery
Test Site - Ch2
Conditions - 22.9°C; 43%RH; 1018mBar
Test Engineer - AV

Data Taken at 03:00:55 PM, Wednesday, September 18, 2019

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_209_Peak (dBµV/m)	Margin to Peak Limit (dB)	Peak Limit Test Results (Pass/Fail)	Peak Limit Worst Margin (dB)	Av Lim: FCC_pt15_209_Average (dBµV/m)	Margin to Avg Limit (dB)	Avg Limit Test Results (Pass/Fail)	Avg Limit Worst Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
9719.3	47.9	6.5	54.4	83.5	-29.1	PASS	-29.1	63.5	-9.1	PASS	-9.1	200	183

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 1m Distance
Top Peaks Horizontal 6-18GHz
Notes:
High Channel

Work Order - T2330
EUT Power Input - Battery
Test Site - Ch2
Conditions - 22.9°C; 43%RH; 1018mBar
Test Engineer - AV

Data Taken at 03:00:55 PM, Wednesday, September 18, 2019

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_209_Peak (dBµV/m)	Margin to Peak Limit (dB)	Peak Limit Test Results (Pass/Fail)	Peak Limit Worst Margin (dB)	Av Lim: FCC_pt15_209_Average (dBµV/m)	Margin to Avg Limit (dB)	Avg Limit Test Results (Pass/Fail)	Avg Limit Worst Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
9969.8	47.6	6.8	54.4	83.5	-29.1	PASS	-29.1	63.5	-9.1	PASS	-9.1	125	315

Rev. 9/14/2019

Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Rental MXE EMI Receiver(1170725)	20Hz-26.5GHz	N9038A	Agilent	MY5121015	1170725	I	5/30/2020	5/30/2019

Radiated Emissions Sites	FCC Code	IC Code	VCCI Code	Range	Asset	Cat	Calibration Due	Calibrated on
EMI Chamber 2	719150	2762A-7	A-0015	30-1000MHz	1686	I	12/7/2020	12/7/2018
EMI Chamber 2	719150	2762A-7	A-0015	1-18GHz	1686	I	12/7/2020	12/7/2018

Preamps /Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
8449B HF Preamp	1-18GHz	8449B	Agilent	1149055		II	11/26/2019	11/26/2018
2311 PA	1-1000MHz	PAM-103	COM-POWER	441174	2311	II	10/29/2019	10/29/2018

Antennas	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Blue Horn	1-18Ghz	3117	ETS	157647	1861	I	3/9/2021	3/9/2019
Red-Black Bilog	30-2000MHz	JB1	Sunol	A091604-2	1106	I	4/26/2021	4/26/2019

Meteorological Meters/Chambers		MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Weather Clock (Pressure Only)		BA928	Oregon Scientific	C3166-1	831	I	5/15/2020	5/15/2018
Asset #2659		1235C97	Control Compa	1.82E+08	2659	I	4/3/2020	4/3/2019

Preamps /Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
2130 BRF	9KHz-10GHz	BRM18770	Micro-Tronic	1	2130	II	2/1/2020	2/1/2019

Cables	Range	Mfr	Cat	Calibration Due	Calibrated on
Asset #2455	9KHz-18GHz	MegaPhase	II	10/29/2019	10/29/2018
Asset #2464	9KHz-18GHz	MegaPhase	II	10/31/2019	10/31/2018
Asset #2606	9KHz-18GHz	MegaPhase	II	4/2/2020	4/2/2019

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

Test Equipment Used

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," "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 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.

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.

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.