COMPLIANCE WORLDWIDE INC.
TEST REPORT 120-20

In Accordance with the Requirements of
Federal Communications Commission CFR Title 47 Part 15.225, Subpart C

Innovation, Science and Economic Development Canada
RSS 210, Issue 10

Low Power License-Exempt Radio Communication Devices
Intentional Radiators

Issued to

Velasa Sports, Inc.
30 Sudbury Road
Acton, MA 01720

for the

Sparx™ Skate Sharpener with
13.56 MHz RFID Reader
Models: ES200, PS200

FCC ID: 2AHFF-S200
IC: 21355-S200

Report Issued on February 3, 2020

Tested by

Brian F. Breault
EMC Test Engineer

Reviewed By

Larry K. Stillings

Table of Contents

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1. Scope

This test report certifies that the Velasa Sparx™ models ES200, PS200 Skate Sharpeners with 13.56 MHz RFID Reader, as tested, meets the FCC Part 15.225 Subpart C, and ISED Canada RSS 210 requirements. The scope of this test report is limited to the test samples provided by the client, only in as much as those samples represent other production units. If any significant changes are made to the units, the changes shall be evaluated, and a retest may be required.

2. Product Details

2.1. Manufacturer:	Velasa Sports, Inc.
2.2. Model Numbers:	ES200, PS200
2.3. Serial Numbers:	
2.4. Description:	The Sparx™ Skate Sharpener with 13.56 MHz RFID Reader is an ice skate sharpener that monitors the wheel grinders.
2.5. Power Source:	100-240 VAC, 50/60 Hz
2.6. Hardware Revision:	N/A
2.7. Software Revision:	N/A
2.8. Modulation Type:	Pulse Modulation
2.9. Operating Frequency:	13.56 MHz
2.10. EMC Modifications:	None

3. Product Configuration

3.1. Operational Characteristics & Software

The device under test is powered up normally. No additional steps are necessary.

3.2. EUT Hardware

Manufacturer	Model/Part # / Options	Serial Number	Volts	Freq (Hz)	Description/Function
Velasa Sports	ES200, PS200		120 VAC	60	13.56 MHz RFID Reader

3.3. EUT Connected Hardware

Manufacturer	Model/Part # / Options	Serial Number	Input Voltage	Freq (Hz)	Description/Function
None					

3.4. EUT Cables/Transducers

Cable Type	Length	Shield	From	To
Power	2 Meters	No	EUT	120 VAC, 60 Hz

3.5. Support Equipment

Manufacturer	Model/Part # / Options	Serial Number	Input Voltage	Freq (Hz)	Description/Function
N/A					

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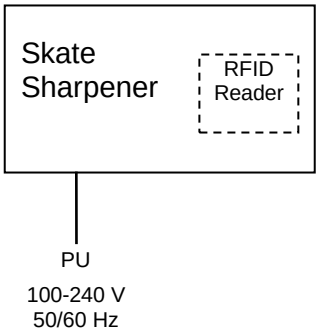
3. Product Configuration (continued)

3.6. Block Diagram



PU – Power Cable, Unshielded

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4. Measurements Parameters

4.1. Measurement Equipment and Software Used to Perform Test

Device	Manufacturer	Model No.	Serial No.	Cal Due	Interval
EMI Test Receiver, 9kHz - 7GHz [1]	Rohde & Schwarz	ESR7	101156	9/10/2020	2 Years
EMI Test Receiver, 10 Hz - 7GHz [1]	Rohde & Schwarz	ESR7	101770	10/3/2020	2 Years
Spectrum Analyzer, 2 Hz to 26.5 GHz[2]	Rohde & Schwarz	FSW26	102057	9/13/2020	2 Years
Spectrum Analyzer, 9 kHz to 40 GHz[3]	Rohde & Schwarz	FSV40	100899	9/10/2020	2 Years
EMI Receiver 9 kHz - 1 GHz	Hewlett Packard	8546A	3650A00360	9/11/2020	2 Years
Loop Antenna 9 kHz - 30 MHz	EMCO	6512	9309-1139	1/28/2022	3 Years
Biconilog Antenna, 30 MHz - 2 GHz	Sunol Sciences	JB1	A050913	6/5/2022	2 Years
Horn Antenna, 960 MHz to 18 GHz	Electro-Metrics	EM-6961	6337	10/3/2020	2 Years
Horn Antenna, 18 to 40 GHz	Com-Power	AH-840	101032	9/28/2020	2 Years
Preamplifier, 1 GHz to 26.5 GHz	Hewlett Packard	8449B	3008A01323	9/11/2020	2 Years
Digital Barometer	Control Company	4195	ID236	4/3/2020	2 Years
Temperature Chamber[4]	Associated Environmental	SD-308	10782	CNR	

[1] ESR7 Firmware revision: V3.48, Date installed: 10/17/2019 Previous V3.46 SP1, installed 12/22/2018.
[2] FSW26 Firmware revision: V4.30 SP1, Date installed: 02/22/2019 Previous V3.36 SP2, installed 10/26/2018.
[3] FSV40 Firmware revision: V2.30 SP4, Date installed: 05/04/2016 Previous V2.30 SP1, installed 10/22/2014.
[4] Used with calibrated measurement equipment.

Manufacturer	Software Description	Title or Model #	Rev.	Report Sections
Compliance Worldwide	Test Report Generation Software	Test Report Generator	1.0	Used to process conducted emissions data

4.2. Measurement & Equipment Setup

Test Dates:	January 22nd, 31st, 2020
Test Engineer:	Sean Defelice, Larry Stillings
Normal Site Temperature (15 - 35°C):	24.0
Relative Humidity (20 -75%RH):	33%
Frequency Range:	.03 MHz to 1 GHz
Measurement Distance:	10 & 3 Meters
EMI Receiver IF Bandwidth:	200 Hz – 10 to 150 kHz 9 kHz – 150 kHz to 30 MHz 120 kHz - 30 MHz to 1 GHz 1 MHz - Above 1 GHz
EMI Receiver Avg Bandwidth:	>= 3 * RBW
Detector Function:	Peak, QP - 30 MHz to 1 GHz Peak, Avg - Above 1 GHz Unless otherwise specified.

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4. Measurements Parameters (continued)

4.3 Measurement Procedure

The test measurements contained in this report are based on the requirements detailed in FCC Part 15, Subpart C - Intentional Radiators, notably Section 15.225, Operation within the band 13.110 – 14.010 MHz. The test procedures for these measurements are detailed in ANSI C63.10-2013.

5. Choice of Equipment for Test Suits

5.1. Choice of Model

This test report is based on the test samples supplied by the manufacturer and are reported by the manufacturer to be equivalent to the production units.

5.2. Presentation

The test sample was tested complete with all required ancillary equipment. Refer to Section 3 of this report for the product equipment configuration.

5.3. Choice of Operating Frequencies

The transmitter in the unit under test utilizes a single operating frequency at approximately 13.56 MHz

6. Measurement Summary

Test Requirement	FCC Part 15 Reference	RSS Reference	Test Report Section	Result	Comment
Antenna Requirement	15.203	RSS-GEN Section 7.1.2	7.1	Compliant	
Operation within the Band 13.110 MHz – 14.010 MHz (Radiated Field Strength)	15.225 (a), (b), (c)	RSS-210 Section B6	7.2	Compliant	
Spurious Radiated Emissions	15.209		7.3	Compliant	
Operation within the Band 13.110 MHz – 14.010 MHz (Frequency Stability)	15.225 (e)	RSS-210 Section B6	7.4	Compliant	
Occupied Bandwidth/ Lower and Upper Band Edges	15.215(c) C63.10	N/A	7.5	Compliant	
99% Power Bandwidth	N/A	RSS-GEN Section 4.6.1	7.6	Compliant	
Power Line Conducted Emissions	15.207	RSS-GEN Section 7.2.4	7.7	Compliant	
Public Exposure to Radio Frequency Energy Levels.	1.1307 (b)(1)	RSS 102, Issue 5	7.8	Compliant	

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7. Measurement Data

7.1. Antenna Requirement (Section 15.203, RSS-GEN 7.1.2)

Requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section.

Status: Compliant - The RFID antenna utilized by the device under test is a PCB antenna contained inside a non-user accessible enclosure.

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7. Measurement Data (continued)

7.2. Operation within the Band 13.110 MHz – 14.010 MHz (15.225 (a), (b) and (c))

Radiated Field Strength of Fundamental (15.225 (a), (b) and (c))

Requirement: (a) The field strength of any emissions within the band 13.553 - 13.567 MHz shall not exceed 15,848 microvolts/meter (84 dBµV/m) at 30 meters.

(b) Within the bands 13.410–13.553 MHz and 13.567–13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter (50.5 dBµV/m) at 30 meters.

(c) Within the bands 13.110–13.410 MHz and 13.710–14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter (40.5 dBµV/m) at 30 meters.

Test Note: Reference ANSI C63.10-2013 sections 5.3.2 and 6.4.4.2. The following formula was used to extrapolate the measurement distance to the limit distance:

Equation 1 $$FS_{limit} = FS_{max} - 20\log\left(\frac{d_{limit}}{d_{measure}}\right)$$

FS_{limit} is the calculation of field strength at the limit distance (dBµV/m)	**41.67**
FS_{max} is the measured field strength, expressed in (dBµV/m QP @ 10M)	51.21
$d_{measure}$ is the distance of the measurement point from the EUT (Meters)	10.00
d_{limit} is the reference limit distance (Meters)	30.00

The screen captures on the following pages display the value measured at a distance of 10 meters. This distance value was adjusted to the limit distance using the formula detailed in Equation 1.

Result: Compliant - The fundamental frequency radiated field strength of the device under test complies with the requirements detailed in FCC Part 15.225, Section (a).

The peak field strength of the device under test met the average requirement. For this reason, the quasi-peak field strength was not factored using a duty cycle correction factor.

Freq. (MHz)	Ampl.[1] (dBµV/m) Peak	Corr. Ampl.[2] (dBµV/m) (3M) QP	Corr. Ampl.[2] (dBµV/m) (30M) QP	FCC 15.225 Limit (dBµV/m) QP 30M	Margin (dB)	Ant Pos. Par/Per Gnd Par	Ant Height (cm)	Turntable Azimuth (Deg)	Result
13.56	53.69	51.21	41.67	84.00	-42.33	Per	100	137	Compliant

[1] Measurement has been extrapolated from 10 meters to 30 meters using Equation 1 on this page.

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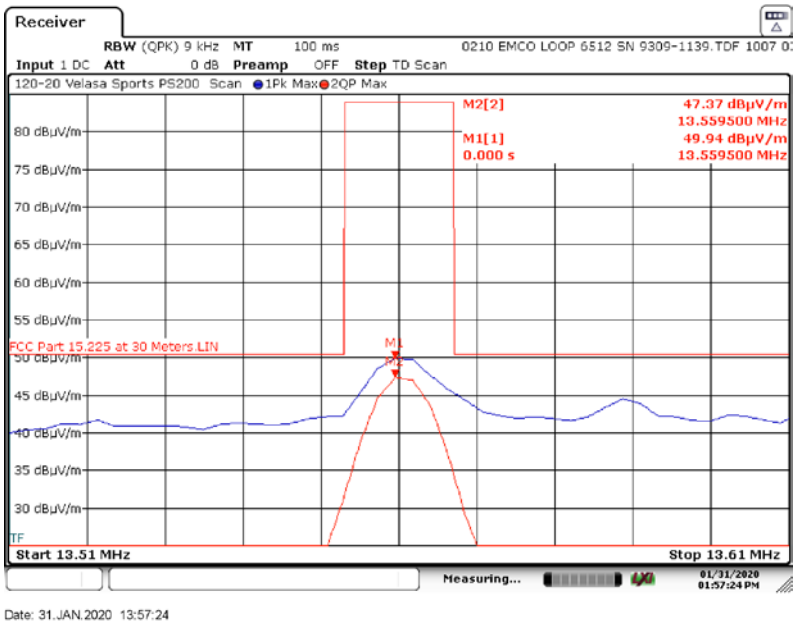
7. Measurement Data (continued)

7.2. Operation within the Band 13.110 MHz – 14.010 MHz (15.225 (a), (b) and (c))

Radiated Field Strength of Fundamental (15.225 (a), (b) and (c)) (continued)

7.2.1. Worst Case Field Strength of the Fundamental – Parallel Antenna



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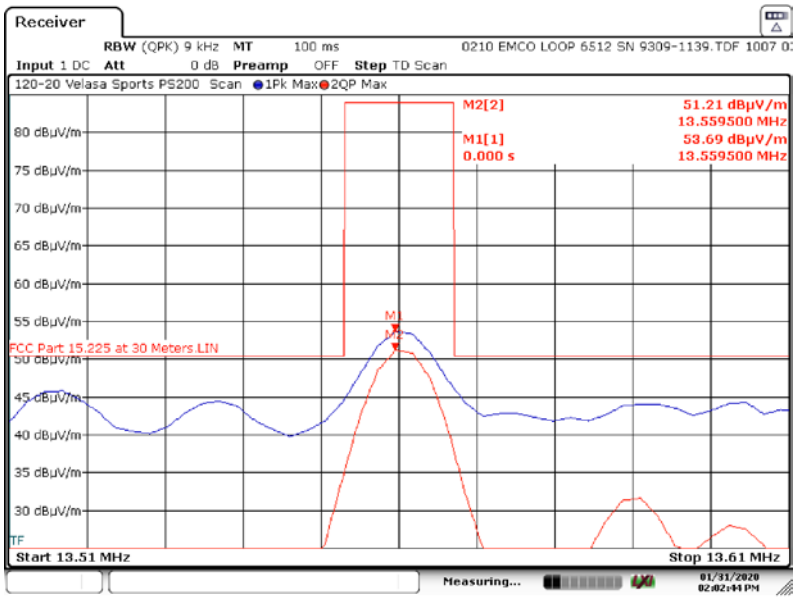
7.2.2. Worst Case Field Strength of the Fundamental – Perpendicular Antenna



Date: 31.JAN.2020 14:02:44

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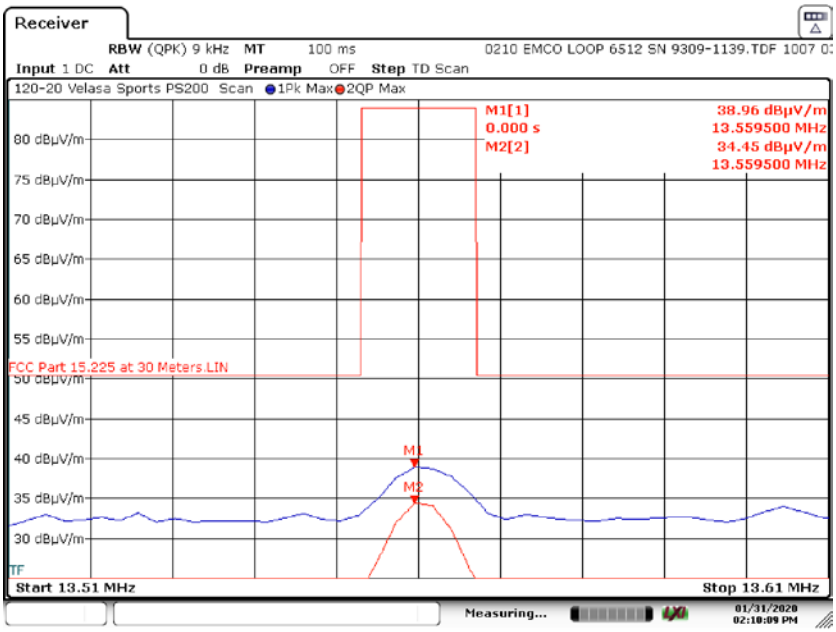
7. Measurement Data (continued)

7.2. Operation within the Band 13.110 MHz – 14.010 MHz (15.225 (a), (b) and (c))

Radiated Field Strength of Fundamental (15.225 (a), (b) and (c)) (continued)

7.2.3. Worst Case Field Strength of the Fundamental – Ground Parallel Antenna



Date: 31.JAN.2020 14:10:09

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7. Measurement Data (continued)

7.3. Transmitter Spurious Radiated Emissions (15.225 (d), 15.209)

Requirement: The emissions from an intentional radiator shall not exceed the field strength levels specified in the following table (Reference FCC 15.209):

Frequency (MHz)	Field Strength (µV/m)	Meas. Dist. (meters)	Field Strength (dBµV/m)	Distance (Meters)
0.009–0.490	2400/F(kHz)	300	128.5 to 93.8	3
0.490–1.705	24000/F(kHz)	30	73.8 to 63.0	3
1.705–30.0	30	30	69.5	3
30-88	100	3	40	3
88-216	150	3	43.5	3
216-960	200	3	46	3
Above 960	500	3	54	3

[1] Measurements in the 9 to 90 kHz, 110 to 490 kHz and above 1000 MHz ranges employ an average detector. Otherwise a quasi-peak detector is used.

[2] Extrapolation below 30 MHz is calculated at 40 dB/decade.

Procedure: Test measurements were made in accordance with ANSI C63.10-2013: American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices, Section 6.5.

Results: Compliant - The transmitter installed in the unit under test meet the FCC Part 15.209 emissions requirements.

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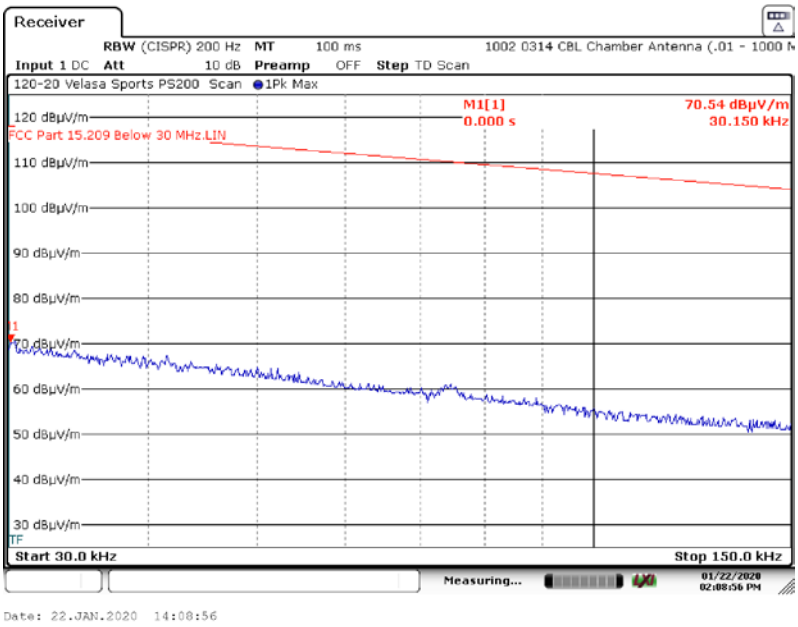
7. Measurement Data (continued)

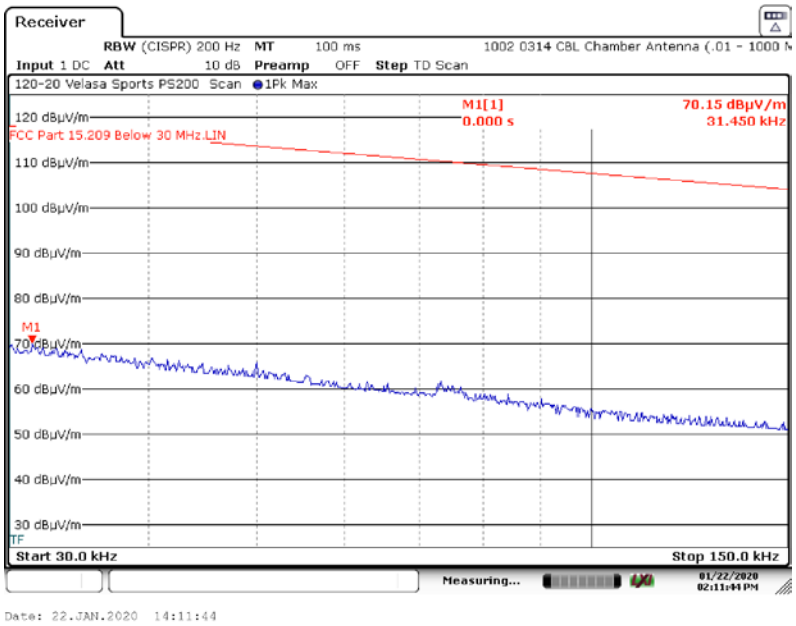
7.3. Spurious Radiated Emissions, 30 kHz to 1 GHz (15.225, § (d), 15.209) (cont'd)

7.3.1. Spurious Radiated Emissions, 30 kHz to 150 kHz Test Results

7.3.1.1. Parallel Antenna



7.3.1.2. Perpendicular Antenna



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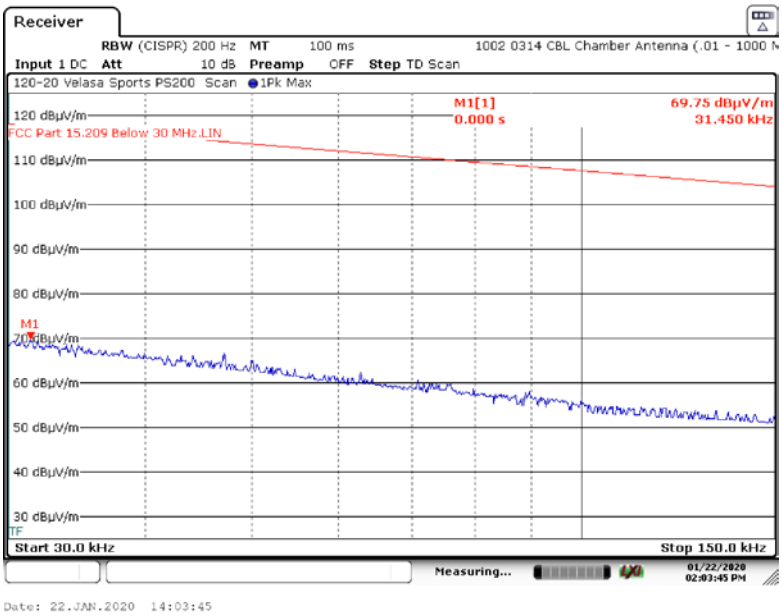
7. Measurement Data (continued)

7.3. Spurious Radiated Emissions, 30 kHz to 1 GHz (15.225, § (d), 15.209) (cont'd)

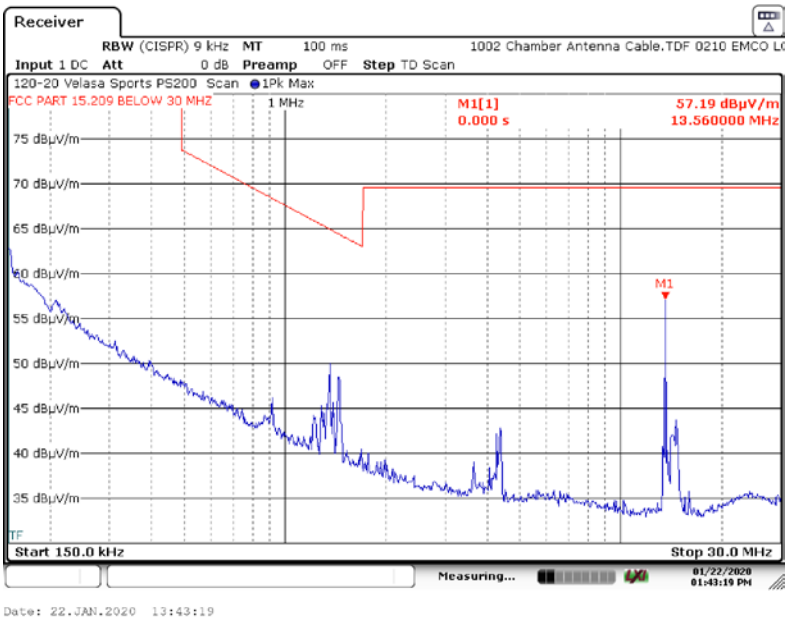
7.3.1. Spurious Radiated Emissions, 30 kHz to 150 kHz Test Results

7.3.1.3. Ground Parallel Antenna



7.3.2. Spurious Radiated Emissions, 150 kHz to 30 MHz Test Results

7.3.2.1. Parallel Antenna



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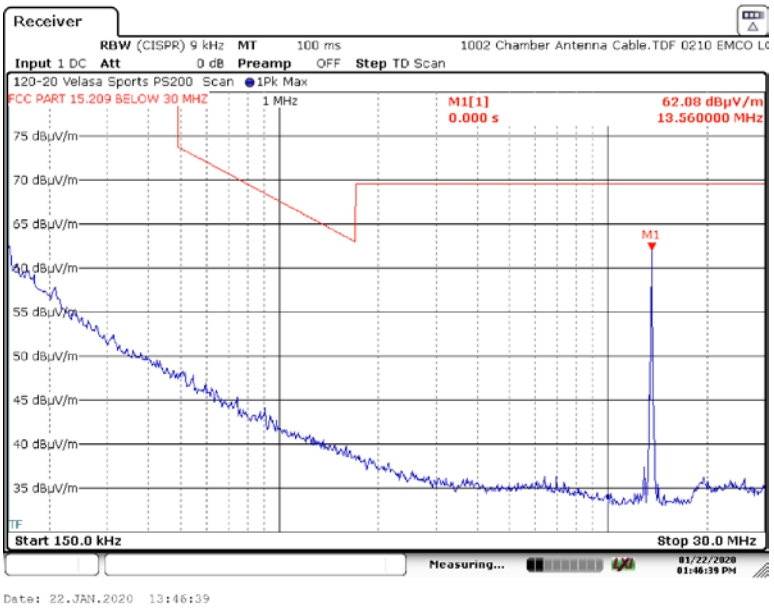
7. Measurement Data (continued)

7.3. Spurious Radiated Emissions, 30 kHz to 1 GHz (15.225, § (d), 15.209) (cont'd)

7.3.2. Spurious Radiated Emissions, 150 kHz to 30 MHz Test Results

7.3.2.2. Perpendicular Antenna



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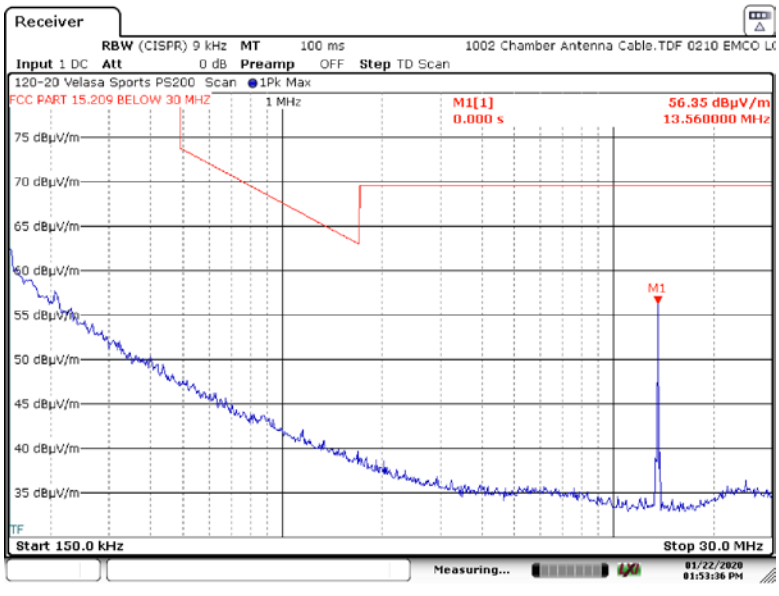
7.3.2. Spurious Radiated Emissions, 150 kHz to 30 MHz Test Results

7.3.2.3. Ground Parallel Antenna



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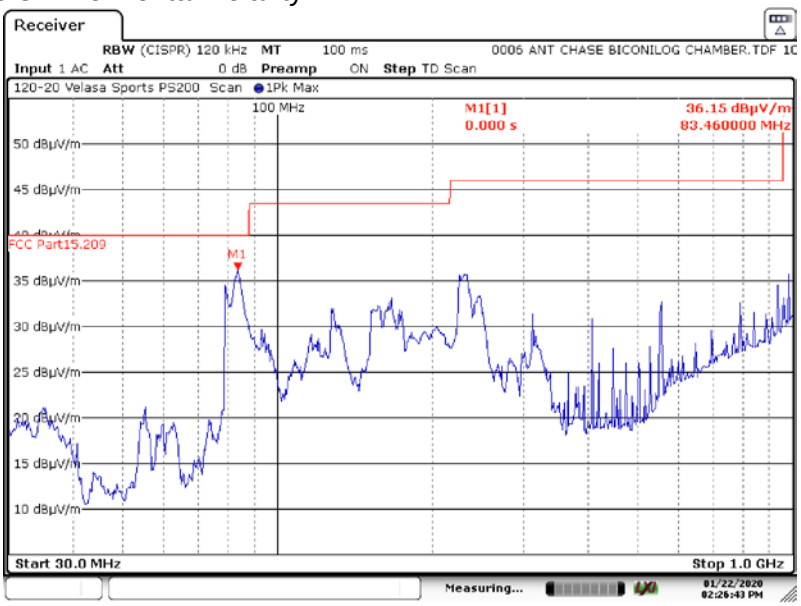
7. Measurement Data (continued)

7.3. Spurious Radiated Emissions, 10 kHz to 25.0 GHz (15.225, § (d), 15.209) (cont'd)

7.3.3. Spurious Radiated Emissions, 30 MHz to 1 GHz Test Results

7.3.3.1 Horizontal Polarity



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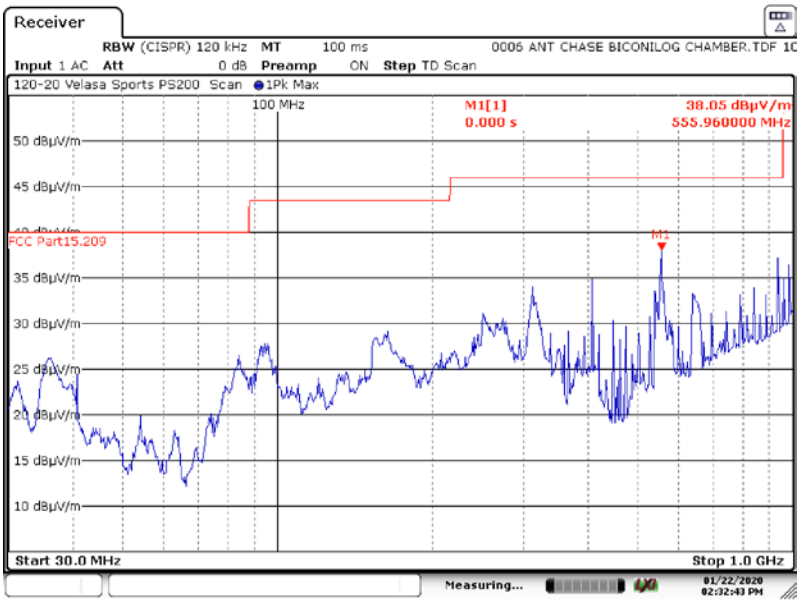
7.3.3.2 Vertical Polarity



Date: 22.JAN.2020 14:32:44

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7. Measurement Data (continued)

7.4. Frequency Stability (§ 15.225 (e))

Requirement: The frequency tolerance of the carrier signal shall be maintained within ±0.01% of the operating frequency over a temperature variation of -20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

Test Notes: The size of the host device that houses the device under test exceeds the volume of the site environmental chamber. In order to test the RFID transmitter and antenna assembly, it was necessary to remove the assembly from the host device and test it in the environmental chamber. In order to do this, a custom cable capable of carrying all power and signal lines to the DUT was constructed. By doing so, the DUT was subjected to the required temperature variations while maintaining operational communications with the host device.

Result: Compliant - The unit under test complies with the requirements detailed in FCC Part 15.225 (e).

7.4.1. Temperature and Voltage Variation

Temp °C	Supply Voltage	Meas Freq.	Limit			Offset	Result
		(MHz)	F_{MIN} (MHz)	F_{MAX} (MHz)	%	(%)	
Ambient	120 VAC	13.5602800	N/A			N/A	
-20		13.5602795	13.558924	13.561636	±0.01	0.00000369	Compliant
-10		13.5603095	13.558924	13.561636	±0.01	0.00021755	Compliant
0		13.5603195	13.558924	13.561636	±0.01	0.00029129	Compliant
+10		13.5601595	13.558924	13.561636	±0.01	0.00088862	Compliant
+20		13.5602695	13.558924	13.561636	±0.01	0.00007743	Compliant
+30		13.5602195	13.558924	13.561636	±0.01	0.00044616	Compliant
+40		13.5601695	13.558924	13.561636	±0.01	0.00081488	Compliant
+50		13.5601295	13.558924	13.561636	±0.01	0.00110986	Compliant
+20	102 VAC	13.5602895	13.558924	13.561636	±0.01	0.00007006	Compliant
	138 VAC	13.5601295	13.558924	13.561636	±0.01	0.00110986	Compliant

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7. Measurement Data (continued)

7.5. Occupied Bandwidth (Section 15.215 (c) and ANSI C63.10, Section 6.9)

Requirement: Intentional radiators operating under the alternative provisions to the general emission limits, as contained in Sections 15.217 through 15.255 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission is contained within the frequency band designated in the rule. The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW and video bandwidth (VBW) shall be approximately three times RBW

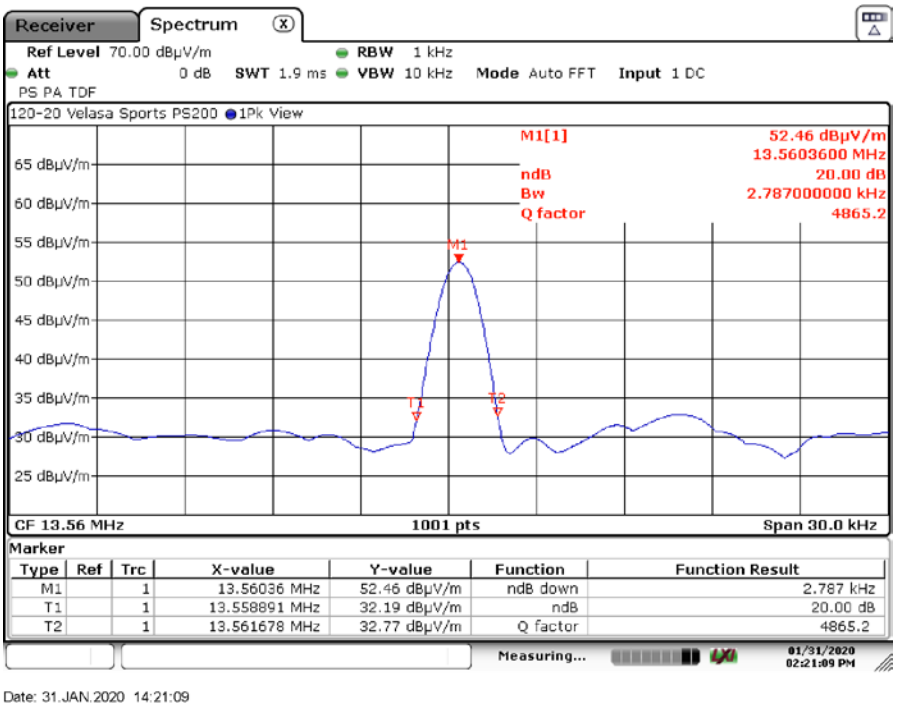
Frequency Band: F_{MIN} = 13.110 MHz

F_{MAX} = 14.010 MHz

Result: Compliant.

-20 dB Frequency Measured		Lower & Upper Band Edge		Result
(F_{LO} & F_{HI})		(F_{MIN} & F_{Max})		
MHz		MHz		
F_{LO}	13.5589	F_{MIN}	13.11	Compliant (F_{LO} > F_{MIN})
F_{HI}	13.5617	F_{MAX}	14.01	Compliant (F_{HI} < F_{Max})

7.5.1. Plot of 20 dB Bandwidth vs. Frequency Band



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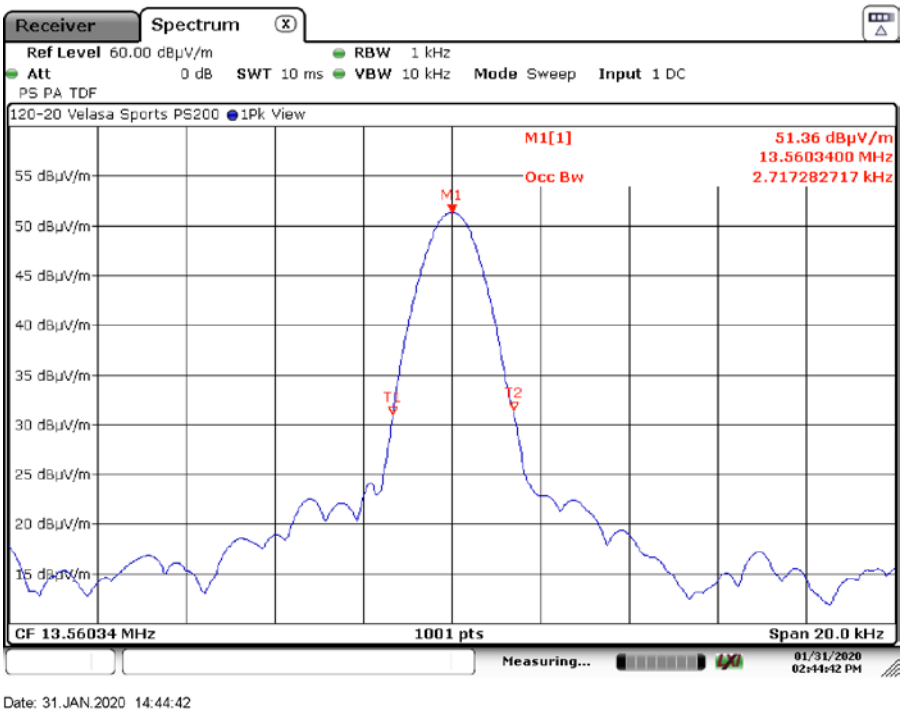
7. Measurement Data (continued)

7.6. 99% Power Bandwidth (RSS-GEN Section 4.6.1)

Requirement: When an occupied bandwidth value 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.
The resolution bandwidth shall be set to as close to 1% of the selected span as is possible without being below 1%. The video bandwidth shall be set to 3 times the resolution bandwidth. Where practical, a sampling detector shall be used given that a peak or peak hold may produce a wider bandwidth than actual.

Procedure: This test was performed utilizing the automated 99% bandwidth function of the spectrum analyzer.

Frequency (MHz)	99% Power Bandwidth (kHz)
13.561	2.717



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7. Measurement Data (continued)

7.7. Power Line Conducted Emissions (FCC Part 15.207)

Requirement: For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 µH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal.

Frequency Range (MHz)	Limits (dBµV)	
	Quasi-Peak	Average
0.15 to 0.50	66 to 56*	56 to 46*
0.50 to 5.0	56	46
5.0 to 30.0	60	50
* Decreases with the logarithm of the frequency.		

Procedure: Test measurements were made in accordance with ANSI C63.10-2013, Section 6.2: Standard test method for ac power-line conducted emissions from unlicensed wireless devices.

Results: The device under test meets the FCC Part 15.207 conducted emissions requirements.

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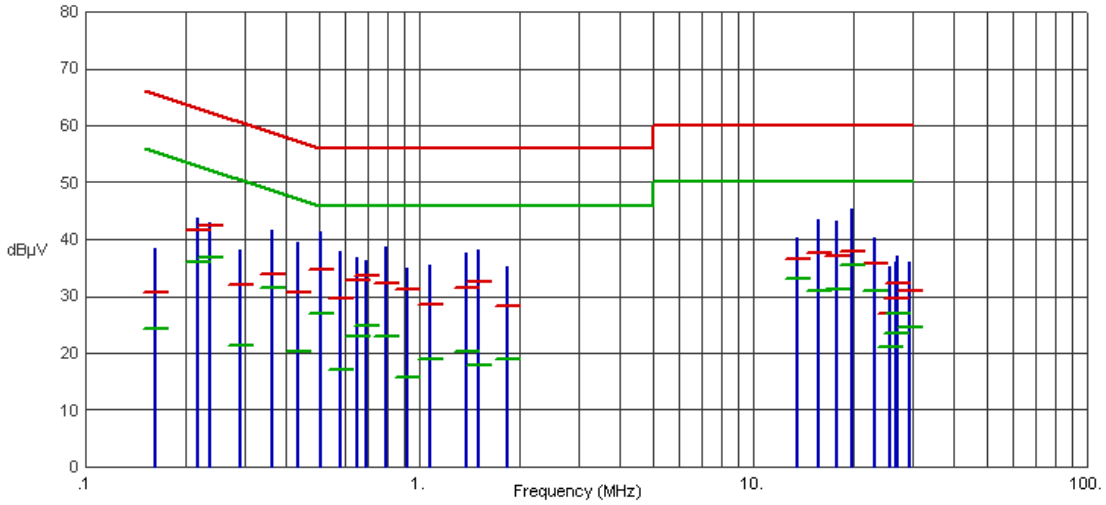
7. Conducted Emissions Test Results

7.7. Power Line Conducted Emissions (15.207)

7.7.1. 120 Volts, 60 Hz Phase

Test No.: 120-20, 120 Volts, 60 Hz Phase FCC, Class B



Frequency (MHz)	Pk Amp (dBµV)	QP Amp (dBµV)	QP Limit (dBµV)	QP Margin (dB)	Avg Amp (dBµV)	Avg Limit (dBµV)	Avg Margin (dB)	Comments
.1613	38.36	30.60	65.40	-34.80	24.27	55.40	-31.13	
.2175	43.75	41.47	62.91	-21.44	36.10	52.91	-16.81	
.2355	42.85	42.32	62.25	-19.93	36.71	52.25	-15.54	
.2895	38.13	32.03	60.54	-28.51	21.29	50.54	-29.25	
.3615	41.49	33.81	58.69	-24.88	31.52	48.69	-17.17	
.4335	39.37	30.76	57.19	-26.43	20.35	47.19	-26.84	
.5055	41.40	34.76	56.00	-21.24	26.85	46.00	-19.15	
.5798	37.89	29.53	56.00	-26.47	17.19	46.00	-28.81	
.6495	36.68	32.76	56.00	-23.24	23.03	46.00	-22.97	
.6945	36.39	33.69	56.00	-22.31	24.71	46.00	-21.29	
.7980	38.55	32.35	56.00	-23.65	23.06	46.00	-22.94	
.9218	34.86	31.29	56.00	-24.71	15.74	46.00	-30.26	
1.0793	35.45	28.47	56.00	-27.53	18.96	46.00	-27.04	
1.3830	37.53	31.45	56.00	-24.55	20.28	46.00	-25.72	
1.5068	38.11	32.49	56.00	-23.51	17.83	46.00	-28.17	
1.8443	35.24	28.14	56.00	-27.86	18.88	46.00	-27.12	
13.5600	40.23	36.64	60.00	-23.36	33.09	50.00	-16.91	
15.6188	43.46	37.49	60.00	-22.51	30.94	50.00	-19.06	
17.6910	43.17	37.13	60.00	-22.87	31.21	50.00	-18.79	
19.7093	45.24	37.75	60.00	-22.25	35.38	50.00	-14.62	
23.1270	40.19	35.65	60.00	-24.35	30.97	50.00	-19.03	
25.7393	35.16	26.87	60.00	-33.13	20.96	50.00	-29.04	
26.6843	36.08	29.55	60.00	-30.45	23.37	50.00	-26.63	
27.1590	36.96	32.25	60.00	-27.75	26.84	50.00	-23.16	
29.2358	36.11	31.02	60.00	-28.98	24.57	50.00	-25.43	

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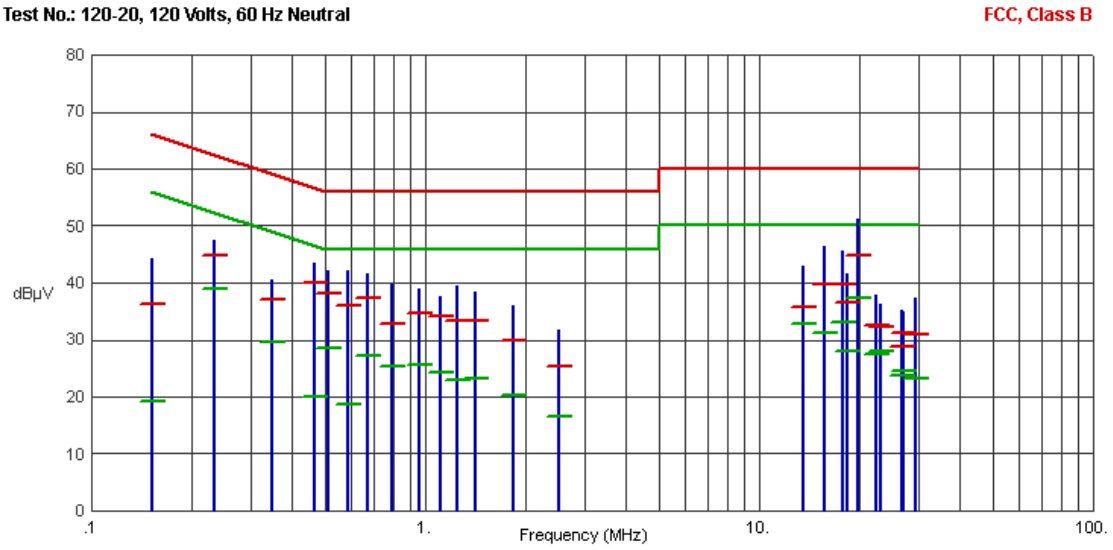
7. Conducted Emissions Test Results

7.7. Power Line Conducted Emissions (15.207)

7.7.2. 120 Volts, 60 Hz Neutral



Frequency (MHz)	Pk Amp (dBµV)	QP Amp (dBµV)	QP Limit (dBµV)	QP Margin (dB)	Avg Amp (dBµV)	Avg Limit (dBµV)	Avg Margin (dB)	Comments
.1523	44.17	36.14	65.87	-29.73	19.14	55.87	-36.73	
.2333	47.57	44.69	62.33	-17.64	39.00	52.33	-13.33	
.3480	40.55	37.12	59.01	-21.89	29.52	49.01	-19.49	
.4650	43.36	40.03	56.60	-16.57	20.12	46.60	-26.48	
.5123	42.26	38.15	56.00	-17.85	28.64	46.00	-17.36	
.5843	42.05	36.07	56.00	-19.93	18.74	46.00	-27.26	
.6720	41.55	37.40	56.00	-18.60	27.25	46.00	-18.75	
.7980	39.82	32.75	56.00	-23.25	25.45	46.00	-20.55	
.9600	39.04	34.73	56.00	-21.27	25.48	46.00	-20.52	
1.1085	37.69	34.11	56.00	-21.89	24.24	46.00	-21.76	
1.2458	39.56	33.38	56.00	-22.62	22.92	46.00	-23.08	
1.4055	38.41	33.25	56.00	-22.75	23.19	46.00	-22.81	
1.8285	36.13	29.98	56.00	-26.02	20.17	46.00	-25.83	
2.5103	31.86	25.31	56.00	-30.69	16.61	46.00	-29.39	
13.5600	43.03	35.75	60.00	-24.25	32.91	50.00	-17.09	
15.6188	46.52	39.64	60.00	-20.36	31.30	50.00	-18.70	
17.6933	45.48	39.65	60.00	-20.35	32.95	50.00	-17.05	
18.3660	41.62	36.45	60.00	-23.55	28.01	50.00	-21.99	
19.7115	51.18	44.88	60.00	-15.12	37.28	50.00	-12.72	
22.4565	37.84	32.41	60.00	-27.59	27.35	50.00	-22.65	
23.1293	36.29	32.32	60.00	-27.68	27.87	50.00	-22.13	
26.6258	35.15	28.88	60.00	-31.12	23.67	50.00	-26.33	
27.1613	34.93	31.14	60.00	-28.86	24.64	50.00	-25.36	
29.2403	37.42	30.87	60.00	-29.13	23.15	50.00	-26.85	

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7. Measurement Data (continued)

7.8. Public Exposure to Radio Frequency Energy Levels ((FCC KDB 447498 D01 v06, 1.1307 (b)(1), 2.1091(b)) RSS-GEN, RSS 102, Issue 5

7.8.1 SAR Test Exclusion (FCC KDB 447498 D01 v06, Clause 4.3.1.c)2))

Frequency (MHz)	MPE Distance (mm)	DUT Output Power (mW)	SAR Test Exclusion (mW)	Result
	(1)	(2)	(3)	
13.56	≤50	0.00044055	442.9735	Compliant

(1) FCC KDB 447498 D01 v06, Clause 4.3.1.(c)(2)
(2) Converted from 10M field strength measurement ($FS_{(dB\mu V/m)}$ – 84.77)
Reference Section 7.2, Measured Field Strength
(3) ½(1 + log(100/$f_{(MHz)}$)))
Formula detailed in KDB 447498 D01 v06, Clause 4.3.1.(c)(2)

7.8.2 Exemption Limits for Routine Evaluation – SAR Evaluation (RSS-102 Clause 2.5.1)

Frequency (MHz)	MPE Distance (mm)	DUT Output Power (mW)	SAR Test Exclusion (mW)	Result
	(1)	(2)	(3)	
13.56	≤5 mm	0.00044055	71	Compliant

(1) RSS-102, Clause 2.5.1
(2) Converted from 10M field strength measurement ($FS_{(dB\mu V/m)}$ – 84.77)
Reference Section 7.2, Measured Field Strength
(3) RSS-102, Clause 2.5.1, Table 1 ≤ 300 MHz = 71 mW at ≤ 5mm

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8. Test Site Description

Compliance Worldwide is located at 357 Main Street in Sandown, New Hampshire. The test sites at Compliance Worldwide are used for conducted and radiated emissions testing in accordance with the Federal Communications Commission (FCC) and Industry Canada standards. Through our American Association for Laboratory Accreditation (A2LA) ISO Guide 17025 Accreditation our test sites are designated with the FCC (designation number **US1091**), Industry Canada (file number **IC 3023A-1)** and VCCI (Member number 3168) under registration number A-0274.

Compliance Worldwide is also designated as a Phase 1 CAB under APEC-MRA (US0132) for Australia/New Zealand AS/NZS CISPR 32, Chinese-Taipei (Taiwan) BSMI CNS 13438 and Korea (RRA) KN 11, KN 13, KN 14-1, KN 22, KN 32, KN 61000-6-3, KN 61000-6-4.

The radiated emissions test site is a 3 and 10 meter enclosed open area test site (OATS). Personnel, support equipment and test equipment are located in the basement beneath the OATS ground plane.

The conducted emissions site is part of a 16' x 20' x 12' ferrite tile chamber and uses one of the walls for the vertical ground plane. A second conducted emissions site is also located in the basement of the OATS site with a 2.3 x 2.5 meter ground plane and a 2.4 x 2.4 meter vertical wall.

The radiated emissions test site for measurements above 1GHz is a 3 Meter open area test site (OATS) with a 3.6 by 3.6 meter anechoic absorber floor patch to achieve a quasi-free space measurement environment per ANSI C63.4/C63.10 and CISPR 16-1-4 standards.

The sites are designed to test products or systems 1.5 meters W x 1.5 meters L x 2.0 meters H, floor standing or table top.

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