

COMPLIANCE WORLDWIDE INC. TEST REPORT 150-17

In Accordance with the Requirements of
Federal Communications Commission 47 CFR Part 15.519, Subpart F
Technical Requirements for Handheld UWB Systems

ISED RSS-220, Issue 1 (March 2009) + Amendment 1 (July 2018)
Devices Using Ultra-Wideband (UWB) Technology

Issued to

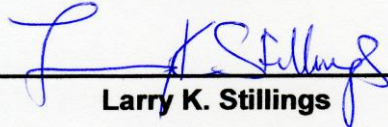
Redpoint Positioning Corporation
100 N Washington Street, 5th Floor
Boston, MA 02114
(617) 207 4096

For the
V6 Badge Tag
Model TAG-B3


FCC ID: 2ADX4-TAGB3
IC: 12677A-TAGB3

Report Issued on August 3, 2018

Tested By


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Reviewed By


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1. Scope

This test report certifies that the Redpoint Positioning V6 Badge Tag as tested, meets the FCC Part 15, Subpart F and ISSED RSS-220 requirements. The scope of this test report is limited to the test sample provided by the client, only in as much as that sample represents other production units. If any significant changes are made to the unit, the changes shall be evaluated and a retest may be required.

2. Product Details

- 2.1. Manufacturer:** Redpoint Positioning Corporation
- 2.2. Model Numbers:** V6 Badge Tag
- 2.3. Serial Numbers:** Pre production
- 2.4. Description:** Designed to operate within Redpoint's RTLS system, the wearable V6 badge tag can track and alert workforce anywhere on your site.
- 2.5. Power Source:** 3.7 Lithium Ion Battery
- 2.6. Hardware Revision:** N/A
- 2.7. Software Revision:** N/A
- 2.8. Modulation Type:** Pulse Modulation, Frequency Hopping
- 2.9. Operating Frequencies:** 3.494 GHz (Channel 1), 3.994 GHz (Channel 2), 4.493 GHz (Channel 3), 6.490 GHz (Channel 5) Center Frequencies Nominal (500 MHz BW)
- 2.10. EMC Modifications:** None

3. Product Configuration

3.1 Operational Characteristics & Software

Hardware Setup:

Connect a notebook PC to the USB port of the dongle card. Using the embedded firmware in the device, configure the UWB radio to transmit on Channels 1, 2, 3 or 5.

3.2. EUT Hardware

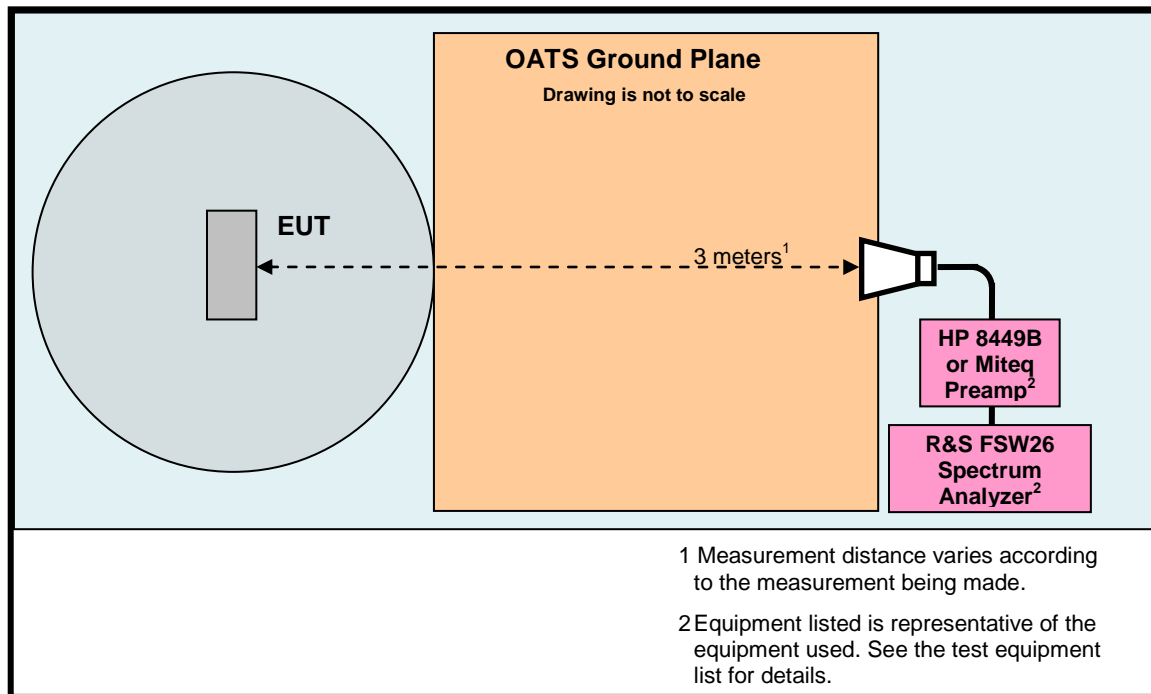
Manufacturer	Model/Part # / Options	Serial Number	Input Volts	Freq (Hz)	Description/Function
Redpoint	V6 Badge Tag	Pre production	3.7	DC	UWB Tag
Taiyo Yuden	FCC ID: RYEEYSGCN IC: 4389B-EYSGCN				BLE Module

3.3. Support Equipment

Manufacturer	Model/Part # / Options	Serial Number	Input Voltage	Freq (Hz)	Description/Function
Dell	Inspiron E1505	5573349937	120	60	Laptop for Configuration

3. Product Configuration (cont.)

3.4. Test Setup Diagram



3.5. EUT Orientation Diagram

In addition, the measurements were performed with the device in three orthogonal positions in accordance with ANSI C63.10-2013, sections 5.10.1, 6.4.6 and Annex H. The three orthogonal axes were defined as follows:

X-Axis		Y-Axis		Z-Axis
X Axis	Upright (Label forward)	Front of unit is facing the antenna at 0°		
Y Axis	Horizontal on left edge	Front of unit is facing the antenna at 0°		
Z Axis	Label Up	Bottom edge of the unit is facing the antenna at 0°		

4. Measurements Parameters

4.1. Measurement Equipment Used to Perform Test

Device	Manufacturer	Model No.	Serial No.	Cal Due	Interval
EMI Receiver 9 kHz to 7 GHz	Rohde & Schwarz	ESR7	101156	7/23/2018	3 Years
Spectrum Analyzer 9 kHz to 40 GHz	Rohde & Schwarz	FSV40	100899	7/23/2018	3 Years
Spectrum Analyzer 10 Hz to 40 GHz	Rohde & Schwarz	FSVR40	100909	5/3/2019	2 Years
Spectrum Analyzer 3 Hz to 26.5 GHz	Rohde & Schwarz	FSW26	102057	12/7/2018	2 Years
Bilog Antenna 30 to 2000 MHz	Sunol Sciences	JB1	A050913	6/3/2019	3 Years
Loop Antenna 9 kHz to 30 MHz	EMCO	6512	9309-1139	10/26/2018	2 Years
Preamplifier 100 MHz to 7 GHz	Miteq	AFS3-00100200-10-15P-4	988773	6/2/2018	2 Years
Preamplifier 100 MHz to 18 GHz	Miteq	AMF-7D-00101800-30-10P	1953081	6/1/2018	1 Year
Preamplifier 1 to 26.5 GHz	Hewlett Packard	8449B	3008A01323	7/22/2018	3 Years
Preamplifier 18 to 40 GHz	Avantek	AWT-40039	FM22038832	6/2/2018	1 Year
Horn Antenna 1 to 18 GHz	ETS-Lindgren	3117	00143292	2/22/2019	3 Years
Horn Antenna 18 to 40 GHz	Com Power	AH-840	3075	10/11/2018	2 Years
High Pass Filter 8 to 18 GHz	Micro-Tronics	HPM50107	G036	5/15/2018	1 Year
Barometer	Control Company	4195	Cal ID# 236	10/8/2018	2 Years

¹ ESR7 Firmware revision: V3.36, SP2 Date installed: 11/02/2017 Previous V3.36, installed 05/16/2017.
² FSV40 Firmware revision: V2.30 SP4, Date installed: 05/04/2016 Previous V2.30 SP1, installed 10/22/2014.
³ FSVR40 Firmware revision: V2.23 SP1, Date installed: 08/19/2016 Previous V2.23, installed 10/20/2014.
⁴ FSW26 Firmware revision: V2.80, Date installed: 10/28/2017 Previous V2.61, installed 04/04/2017.

4. Measurements Parameters (continued)

4.2. Measurement & Equipment Setup

Test Dates:	2/28/2017, 3/7/2017, 3/8/2017, 3/9/2017, 3/10/2017, 7/17/2018, 8/2/2018
Test Engineers:	Larry Stillings
Normal Site Temperature (15 - 35°C):	21.6
Relative Humidity (20 -75%RH):	35
Frequency Range:	10 kHz to 40 GHz
Measurement Distance:	3 Meters
EMI Receiver IF Bandwidth:	200 Hz – 30 kHz 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:	300 Hz – 30 kHz to 150 kHz 30 kHz – 150 kHz to 30 MHz 300 kHz - 30 MHz to 1 GHz 3 MHz - Above 1 GHz
Detector Function:	Peak, Quasi-Peak & Average

4.3. Measurement Procedure

Test measurements were made in accordance FCC Parts 15.209, 15.519 Subpart F and ISSED RSS-220 requirements.

The test methods used to generate the data is this test report is in accordance with ANSI C63.10:2013, American National Standard for Testing Unlicensed Wireless Devices.

4.4. Measurement Uncertainty

The following uncertainties are expressed for an expansion/coverage factor of K=2.

RF Frequency (out of band)	$\pm 1 \times 10^{-8}$
Radiated Emission of Transmitter to 100 GHz	± 4.55 dB
Radiated Emission of Receiver	± 4.55 dB
Temperature	$\pm 0.91^{\circ}$ C
Humidity	$\pm 5\%$

5. Measurements Summary

Test Requirement	FCC Rule Requirement	IC Rule Requirement	Test Report Section	Result	Comment
Antenna Requirement	15.203	RSS-220 5.1 (b)	6.1	Compliant	The antenna is a surface mounted.
Operational Requirements	15.519 (a) (1)	RSS-220	6.2	Compliant	
UWB Bandwidth	15.503 (a) (d) 15.519 (b)	RSS-220 2 RSS-220 5.1	6.3	Compliant	
Radiated Emissions below 960 MHz	15.209	RSS-220 3.4	6.4	Compliant	
Radiated Emissions above 960 MHz	15.519 (c) 15.521 (d)	RSS-220 3.4	6.5	Compliant	
Radiated Emissions in GPS Bands	15.519 (d)	RSS-220 5.3.1 (e)	6.6	Compliant	
RMS Emissions of UWB Transmission in a 1 MHz Bandwidth	15.519 (c) 15.521 (d)	RSS-220 5.3.1 (d)	6.7	Compliant	
Peak Emissions in a 50 MHz Bandwidth	15.519 (e) 15.521 (g)	RSS-220 5.3.1 (g)	6.8	Compliant	
Conducted Emissions	15.207	RSS-GEN	6.9 6.10	Compliant	Tested in AC Charger
Radio Frequency Exposure	FCC OET Bulletin 65	RSS-102, Issue 5	6.11	Compliant	

6. Measurement Data

6.1. Antenna Requirement (15.203, RSS-220 5.1 (b))

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

Result: The antenna utilized by the device under test is a pcb surface mount type.

6. Measurement Data (continued)

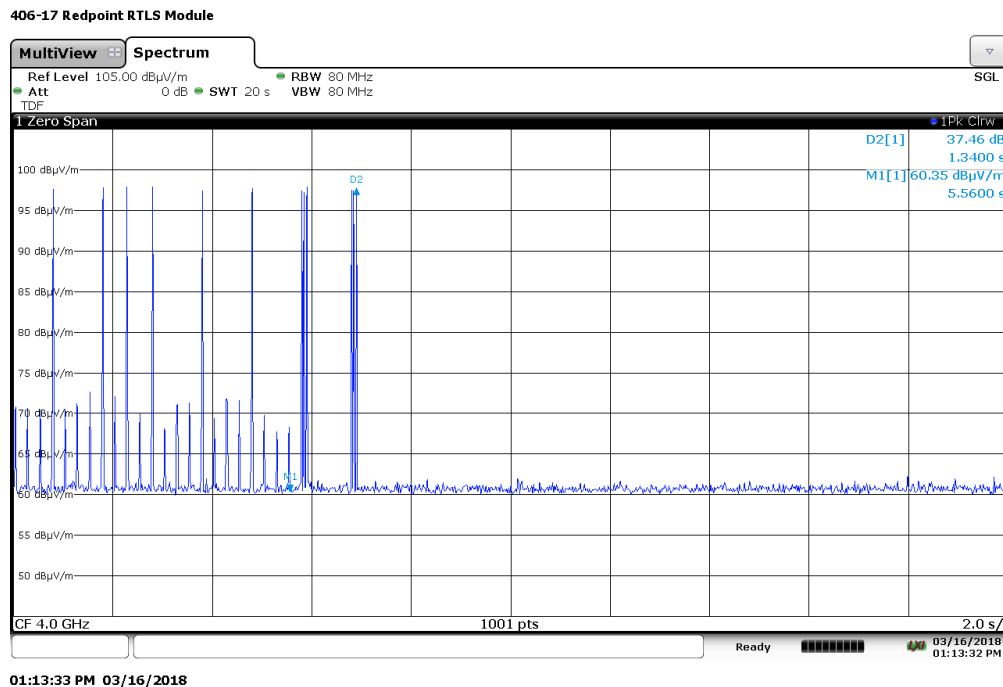
6.2. Operational Requirements of the Device under Test ((15.519 (a) (1)))

Requirement: UWB device operating under the provisions of this section must be hand held, i.e., they are relatively small device that are primarily hand held while being operated and do not employ a fixed infrastructure. UWB devices operating under the provisions of this section may operate indoors or outdoors.

A UWB device operating under the provisions of this section shall transmit only when it is sending information to an associated receiver. The UWB intentional radiator shall cease transmission within 10 seconds unless it receives an acknowledgement from the associated receiver that its transmission is being received. An acknowledgment of reception must continue to be received by the UWB intentional radiator at least every 10 seconds or the UWB device must cease transmitting.

Result: Compliant

6.2.1 Plot of 10 second shutoff



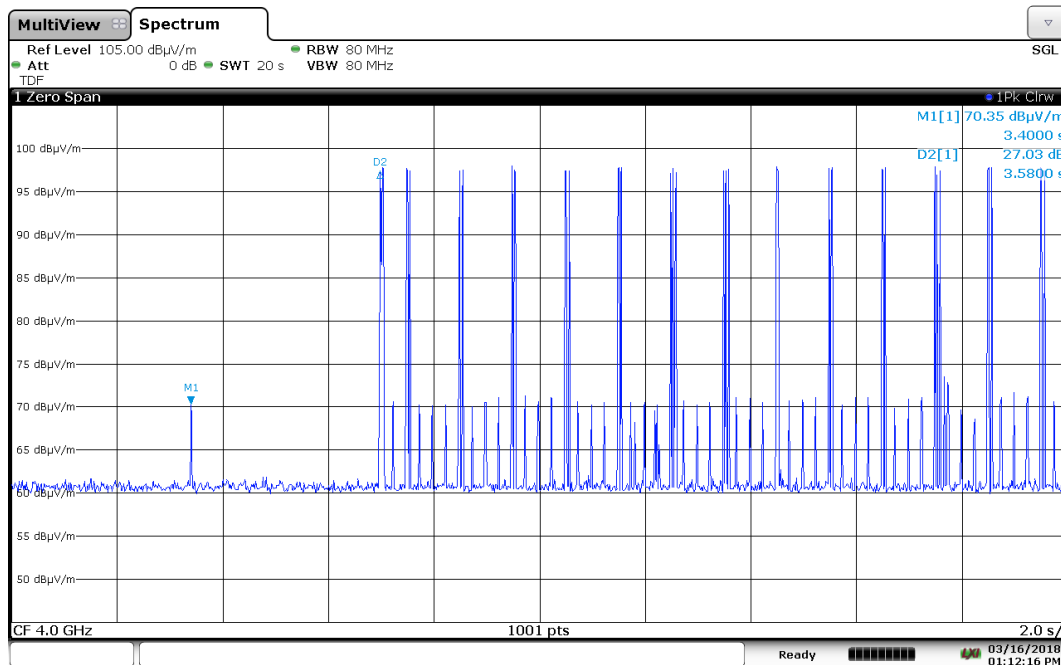
Note: Marker 1 is when the anchor (support equipment) stops transmitting, Marker D2 shows the EUT shutting off after 1.3 Seconds

6. Measurement Data (continued)

6.2. Operational Requirements of the Device under Test (15.519 (a) (1))

6.2.2 Plot of Re-established communications

406-17 Redpoint RTLS Module



01:12:17 PM 03/16/2018

Note: Marker 1 is with anchor (support equipment) turned back on to establish communications, Marker D2 shows EUT re-establishing communication after 3.58 Seconds.

6. Measurement Data (continued)

6.3. UWB Bandwidth (15.503 (a) (d), 15.519 (b))

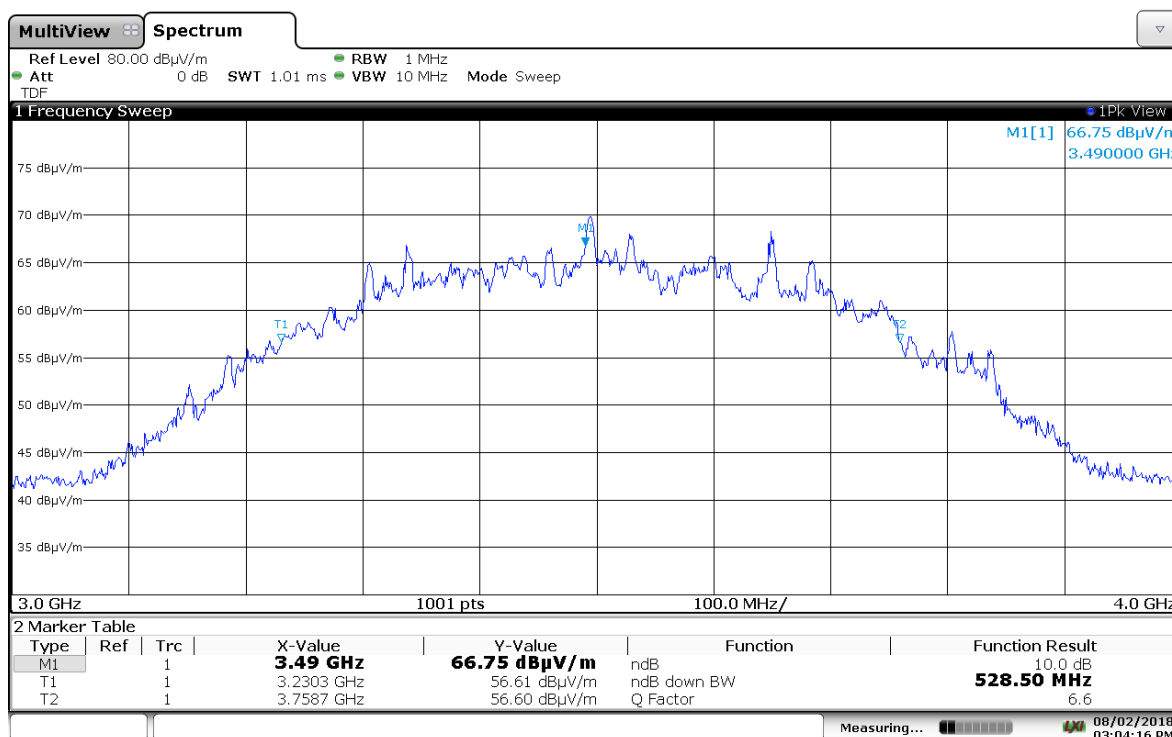
Requirement: The UWB bandwidth of a device operating under the provisions of this section shall be contained between 3,100 MHz and 10,600 MHz and at any point in time, and has a fractional bandwidth equal to or greater than 0.20 or has a UWB bandwidth equal to or greater than 500 MHz, regardless of the fractional bandwidth.

6.3.1. Measurement Data – Values in GHz

		CH1	CH2	CH3	CH5
f_M	The highest emission peak	3.4900	4.1449	4.4960	6.4940
f_L	10 dB below the highest peak	3.2303	3.8102	4.1963	6.1933
f_H	10 dB above the highest peak	3.7587	4.3417	4.7248	6.7527
f_C	Calculated: $(f_H + f_L) / 2$	3.4945	4.0760	4.4606	6.4730
Bandwidth	Calculated: $(f_H - f_L)$	0.5284	0.5315	0.5285	0.5594
Fractional BW	Calculated: $2 \cdot (f_H - f_L) / (f_H + f_L)$	0.1512	0.1304	0.1185	0.0864

6.3.2. Measurement Plot of 10 dB frequencies (Channel 1)

150-17 Redpoint Badge Tag



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Test Number: 150-17

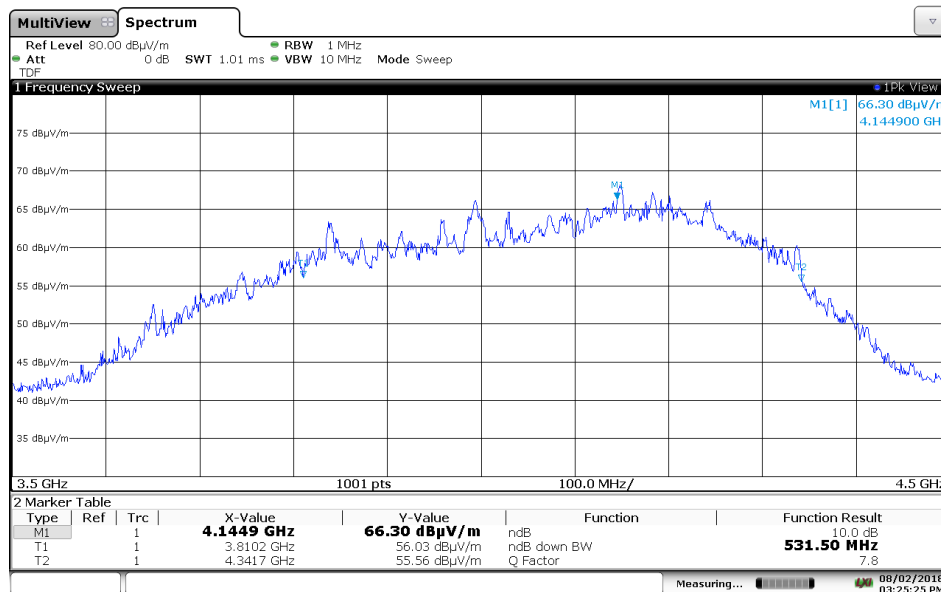
Issue Date: 8/3/2018

6. Measurement Data (continued)

6.3. UWB Bandwidth (15.503 (a) (d), 15.519 (b))

6.3.3. Measurement Plot of 10 dB frequencies (Channel 2)

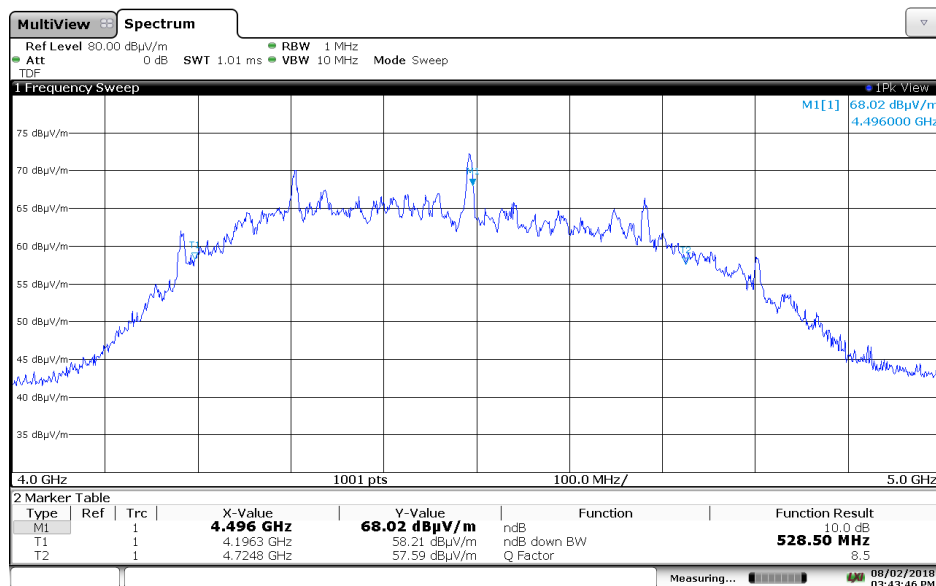
150-17 Redpoint Badge Tag



03:25:25 PM 08/02/2018

6.3.4. Measurement Plot of 10 dB frequencies (Channel 3)

150-17 Redpoint Badge Tag



03:43:46 PM 08/02/2018

Test Number: 150-17

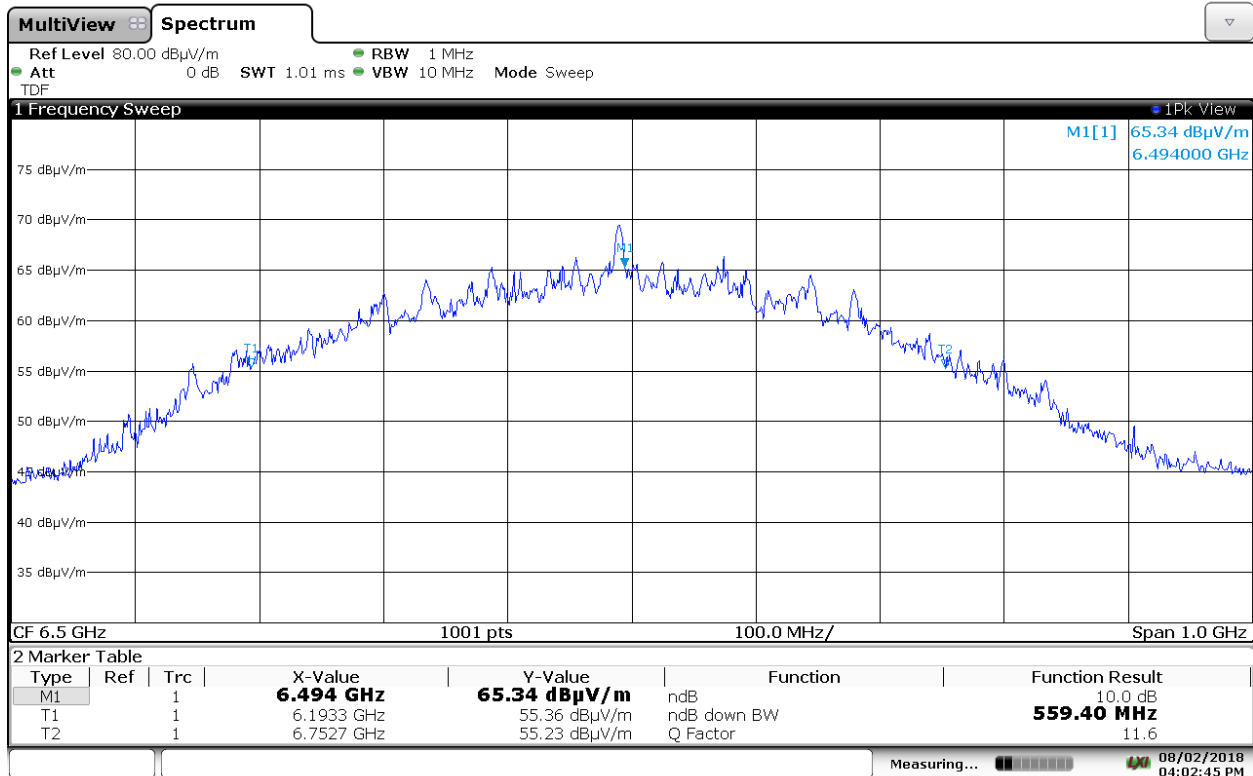
Issue Date: 8/3/2018

6. Measurement Data (continued)

6.3. UWB Bandwidth (15.503 (a) (d), 15.519 (b))

6.3.5. Measurement Plot of 10 dB frequencies (Channel 5)

150-17 Redpoint Badge Tag



04:02:46 PM 08/02/2018

6. Measurement Data (continued)

6.4. Spurious Radiated Emissions below 960 MHz (15.519 (c), 15.209)

Requirement: The radiated emissions at or below 960 MHz from a device operating under the provisions of this section shall not exceed the emission levels in Section 15.209.

Radiated Emissions Field Strength Limits at 3 Meters (Section 15.209)

Frequency (MHz)	Field Strength (dB μ V/m)
0.009 to 0.490	128.5 to 93.8
0.490 to 1.705	73.8 to 63
1.705 - 30	69.5
30 - 88	40
88 - 216	43.5
216 - 960	46
960 - 40,000	54

Test Notes: Refer to Section 4.1 for the test equipment used.

Frequency Range:	10 kHz to 960 MHz
Measurement Distance:	3 Meters
EMI Receiver IF Bandwidth:	200 Hz – 30 kHz to 150 kHz 9 kHz – 150 kHz to 30 MHz 120 kHz - 30 MHz to 960 MHz
EMI Receiver Avg Bandwidth (minimum):	300 Hz – 30 kHz to 150 kHz 30 kHz – 150 kHz to 30 MHz 300 kHz - 30 MHz to 960 MHz
Detector Function:	Peak, Quasi-Peak & Average

Test Number: 150-17

Issue Date: 8/3/2018

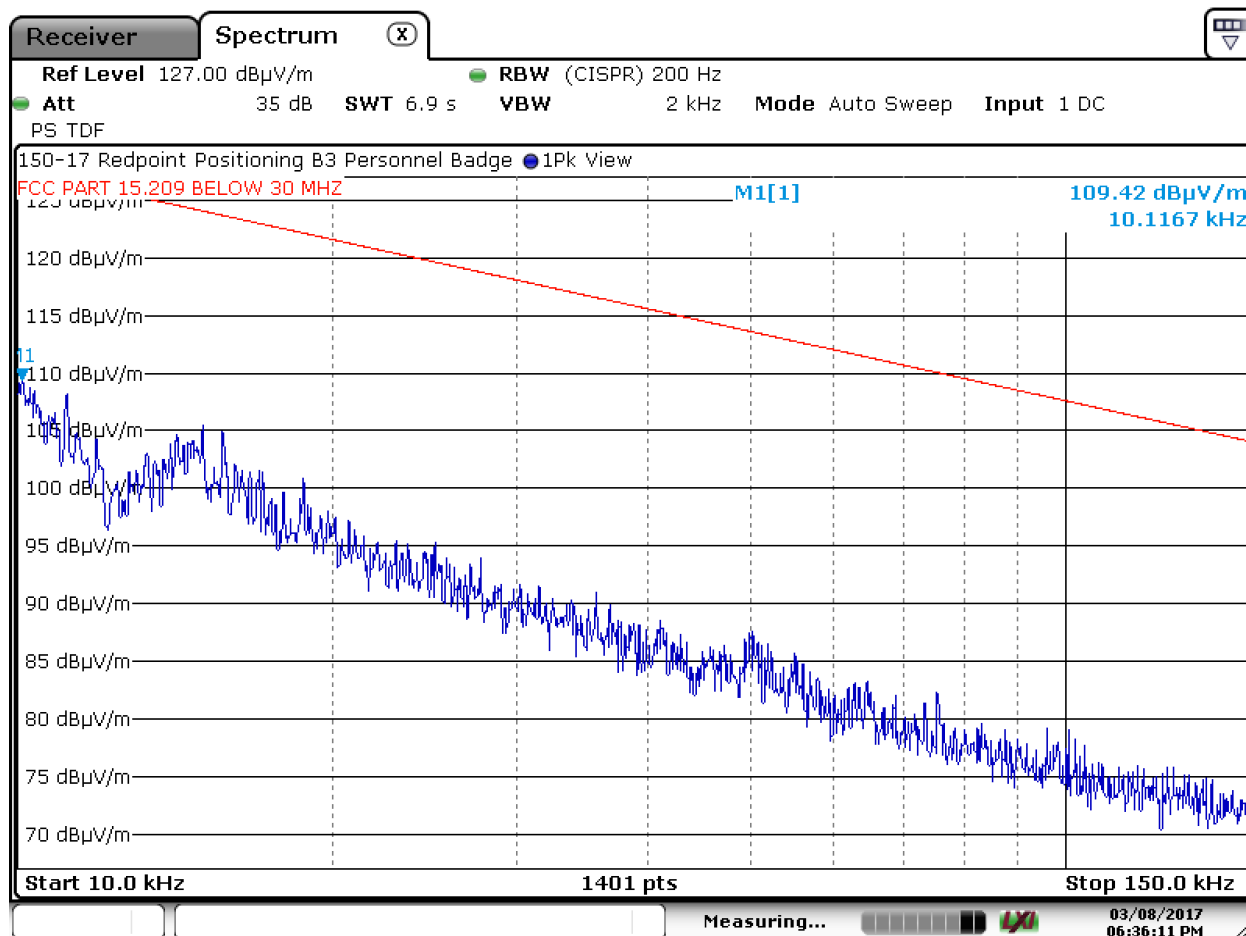
6. Measurement Data (continued)

6.4. Spurious Radiated Emissions (15.209 continued)

6.4.1. 10 kHz to 960 MHz, measured at 3 Meters

The device was prescreened in our 3 Meter Semi-Anechoic Chamber. There were no measurable emissions below 960 MHz on our 3 Meter OATS.

6.4.1.1 Parallel Measurement Antenna – 10 to 150 kHz –



Date: 8.MAR.2017 18:36:11

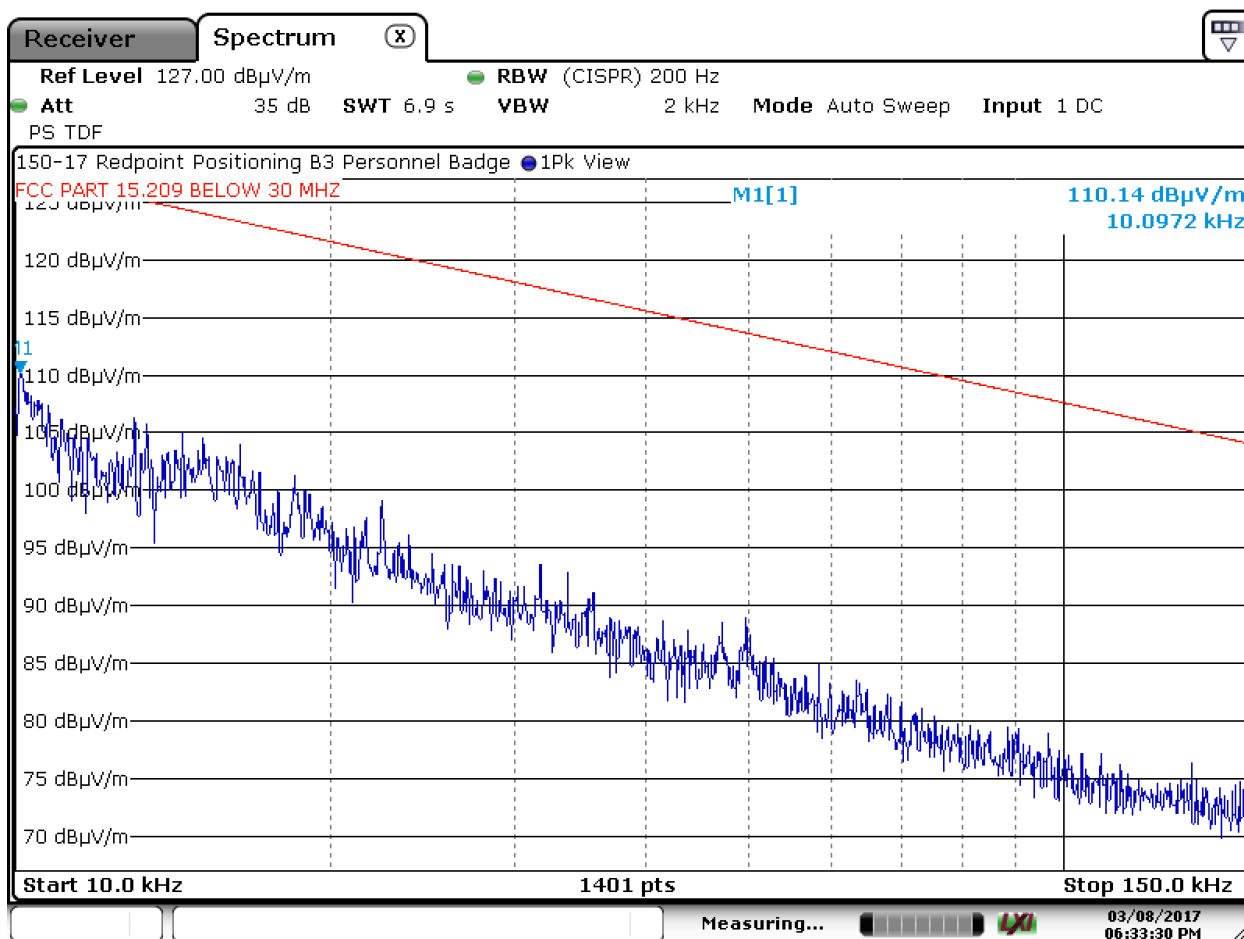
6. Measurement Data (continued)

6.4. Spurious Radiated Emissions (15.209 continued)

6.4.1. 10 kHz to 960 MHz, measured at 3 Meters

The device was prescreened in our 3 Meter Semi-Anechoic Chamber. There were no measurable emissions below 960 MHz on our 3 Meter OATS.

6.4.1.2 Perpendicular Measurement Antenna – 10 to 150 kHz –



Date: 8.MAR.2017 18:33:30

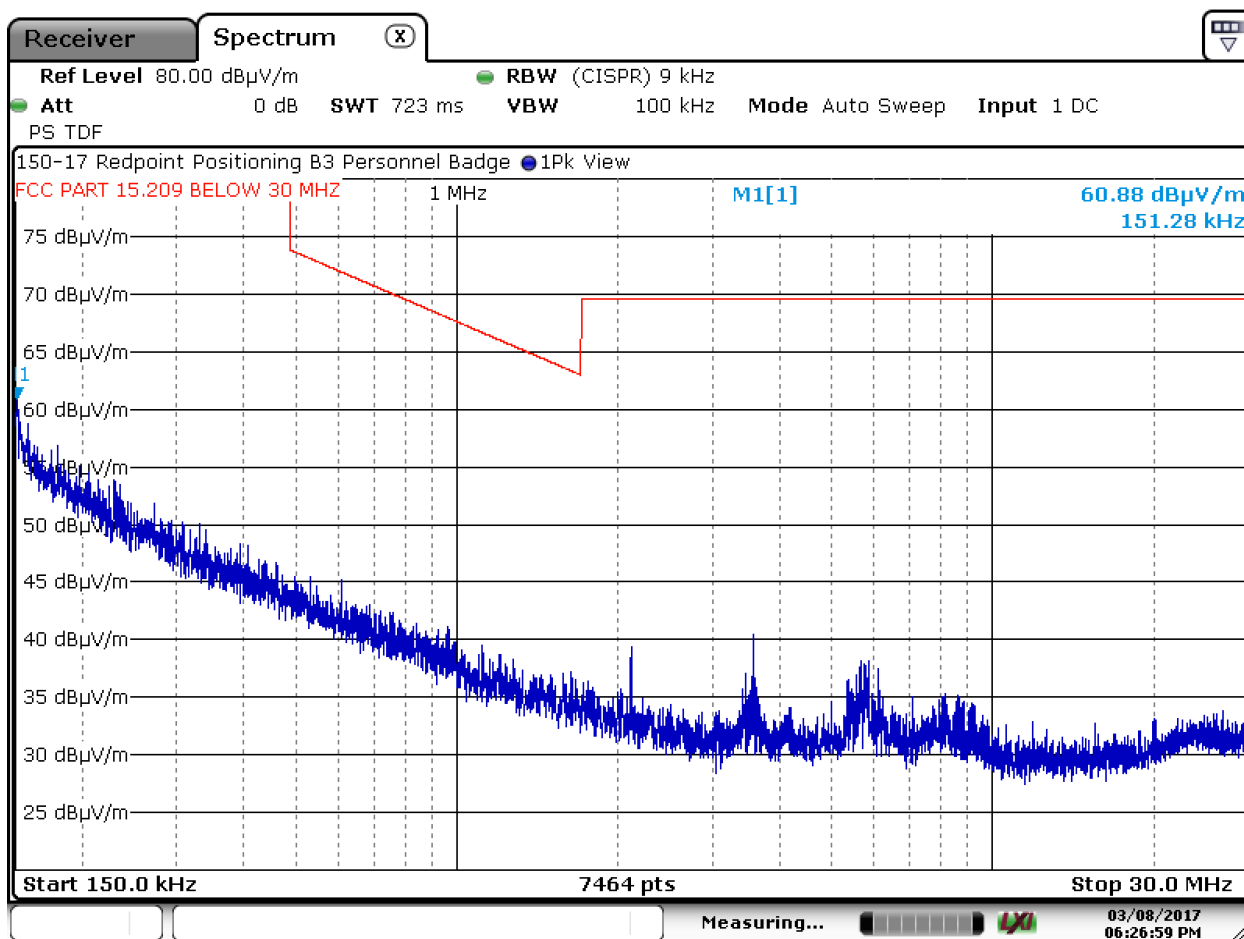
6. Measurement Data (continued)

6.4. Spurious Radiated Emissions (15.209 continued)

6.4.1. 10 kHz to 960 MHz, measured at 3 Meters

The device was prescreened in our 3 Meter Semi-Anechoic Chamber. There were no measurable emissions below 960 MHz on our 3 Meter OATS.

6.4.1.3 Parallel Measurement Antenna – 150 kHz to 30 MHz –



Date: 8.MAR.2017 18:26:59

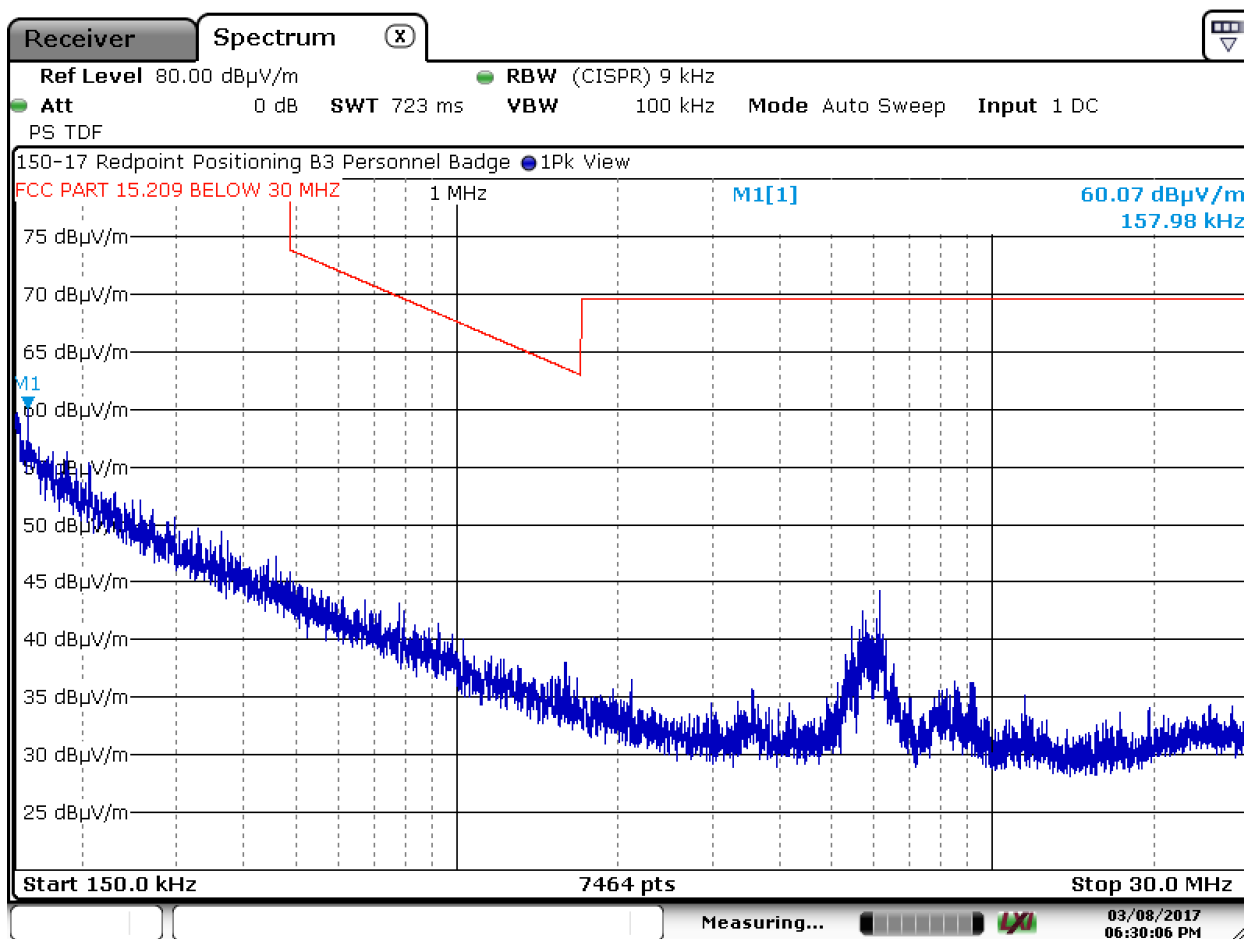
6. Measurement Data (continued)

6.4. Spurious Radiated Emissions (15.209 continued)

6.4.1. 10 kHz to 960 MHz, measured at 3 Meters

The device was prescreened in our 3 Meter Semi-Anechoic Chamber. There were no measurable emissions below 960 MHz on our 3 Meter OATS.

6.4.1.4 Perpendicular Measurement Antenna – 150 kHz to 30 MHz –



Date: 8.MAR.2017 18:30:06

Test Number: 150-17

Issue Date: 8/3/2018

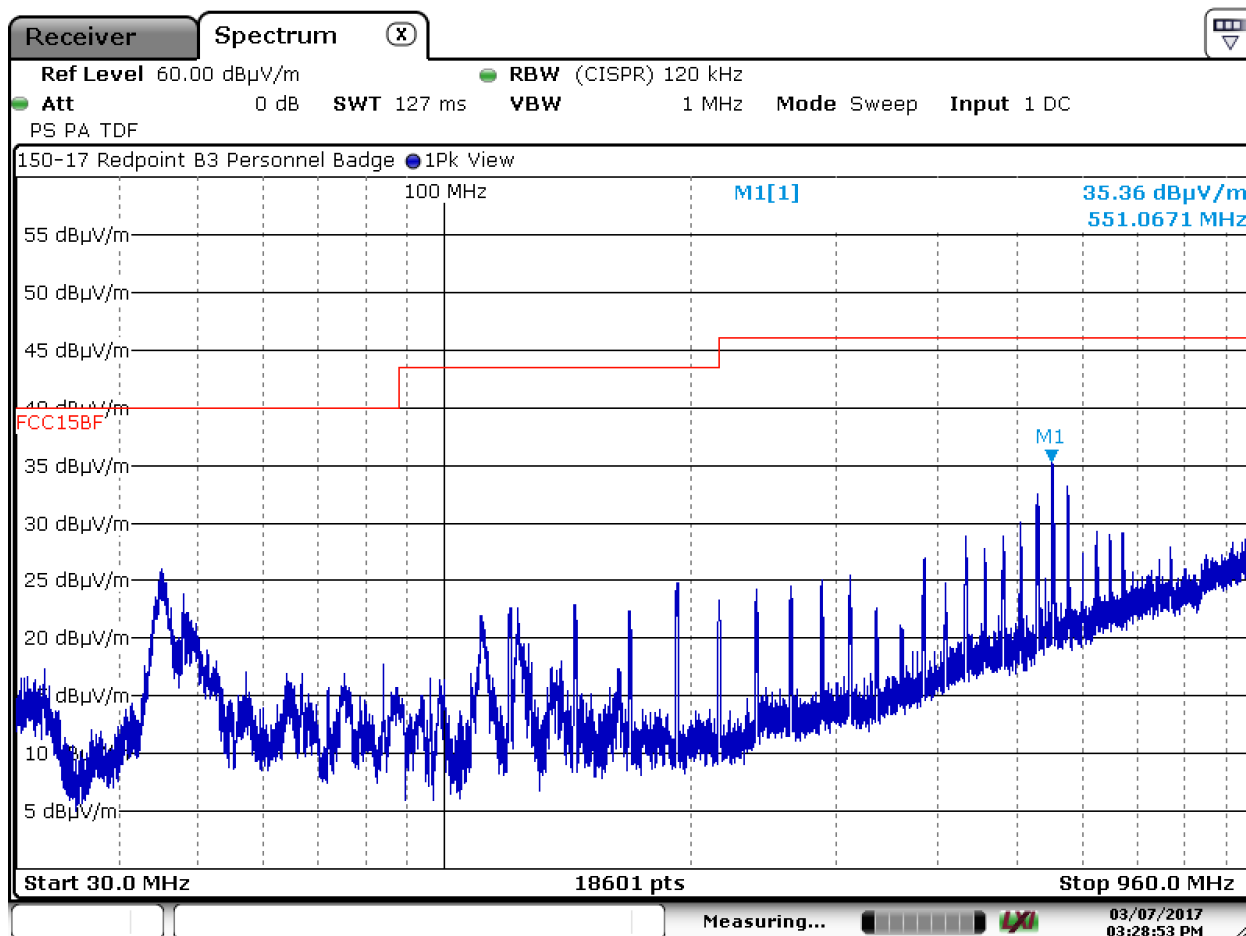
6. Measurement Data (continued)

6.4. Spurious Radiated Emissions (15.209 continued)

6.4.1. 10 kHz to 960 MHz, measured at 3 Meters

The device was prescreened in our 3 Meter Semi-Anechoic Chamber. There were no measurable emissions below 960 MHz on our 3 Meter OATS.

6.4.1.5 Horizontal Polarity – 30 to 960 MHz – Channel 1



Date: 7.MAR.2017 15:28:54

Test Number: 150-17

Issue Date: 8/3/2018

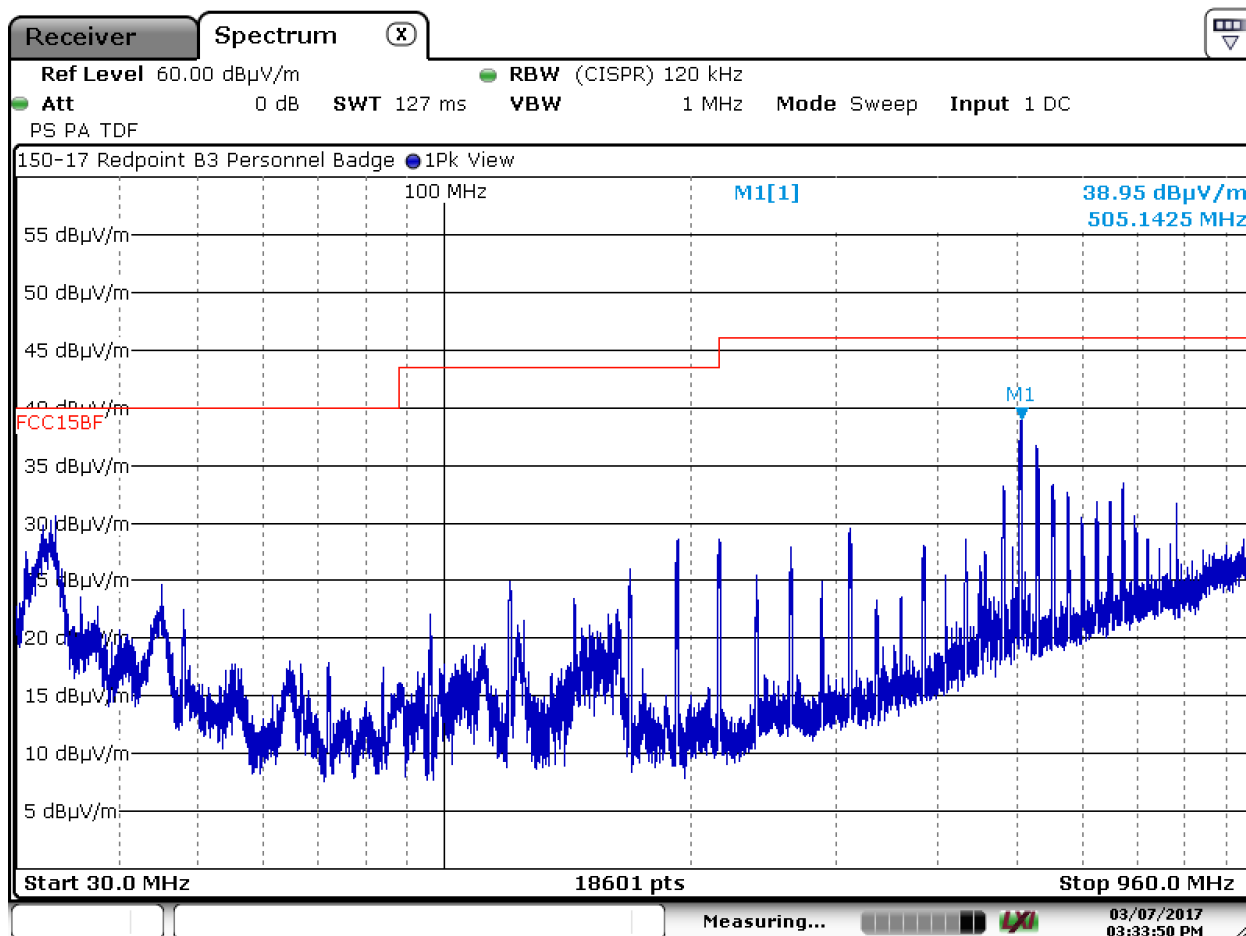
6. Measurement Data (continued)

6.4. Spurious Radiated Emissions (15.209 continued)

6.4.1. 10 kHz to 960 MHz, measured at 3 Meters

The device was prescreened in our 3 Meter Semi-Anechoic Chamber. There were no measurable emissions below 960 MHz on our 3 Meter OATS.

6.4.1.6 Vertical Polarity – 30 to 960 MHz – Channel 1



Date: 7.MAR.2017 15:33:51

6. Measurement Data (continued)**6.5. Spurious Radiated Emissions above 960 MHz (15.519 (c), 15.521 (d))**

Requirement: The radiated emissions above 960 MHz from a device operating under the provisions of this section shall not exceed the following average limits when measured using a resolution bandwidth of 1 MHz:

The RMS average measurement is based on the use of a spectrum analyzer with a resolution bandwidth of 1 MHz, an RMS detector, and a 1 millisecond or less averaging time.

The EIRP in terms of dBm, can be converted to a field strength, in dB μ V/m at 3 Meters by adding 95.2.

Frequency (MHz)	EIRP (dBm)	EIRP at 3 Meters (dB μ V/m)
960 - 1610	-75.3	19.9
1610 - 1990	-53.3	41.9
1990 - 3100	-51.3	43.9
3100 - 10600	-41.3	53.9
Above 10600	-51.3	43.9

Frequency Range:	960 MHz to 40 GHz
Measurement Distance:	1 Meter and 0.3 Meter
EMI Receiver IF Bandwidth:	1 MHz
EMI Receiver Avg Bandwidth	10 MHz
Detector Function:	RMS 1 mS Average as defined in 15.521(d)

Notes: Measurements made from 960 MHz to 18 GHz were made in a semi-anechoic chamber at 1 Meters using a -9.54 dB distance offset was programmed into the spectrum analyzer.

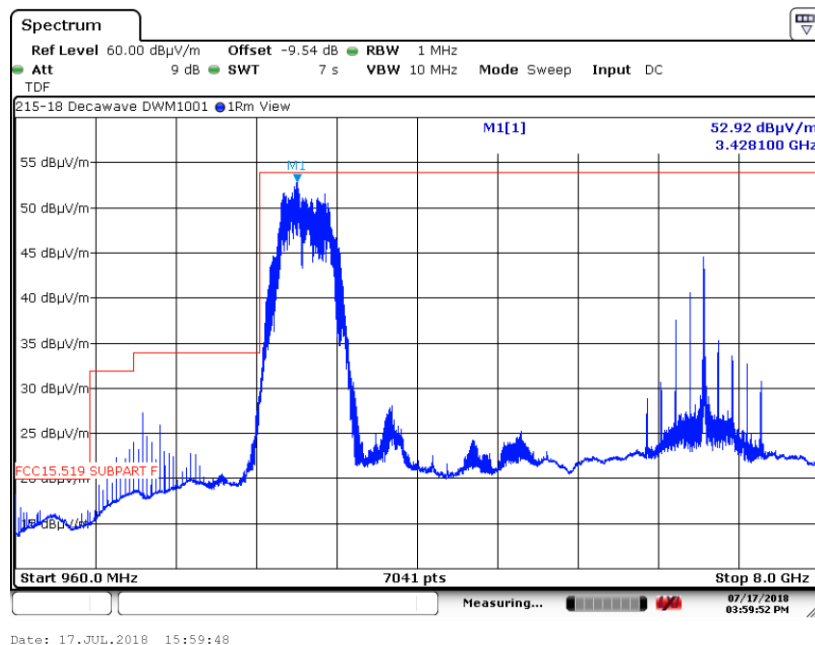
Measurements made from 8 to 18 GHz were done with the aid of a High Pass Filter before the low noise amplifier.

Measurements made from 18 to 40 GHz were done at 0.3 meters and a -20.00 dB distance offset was programmed into the spectrum analyzer.

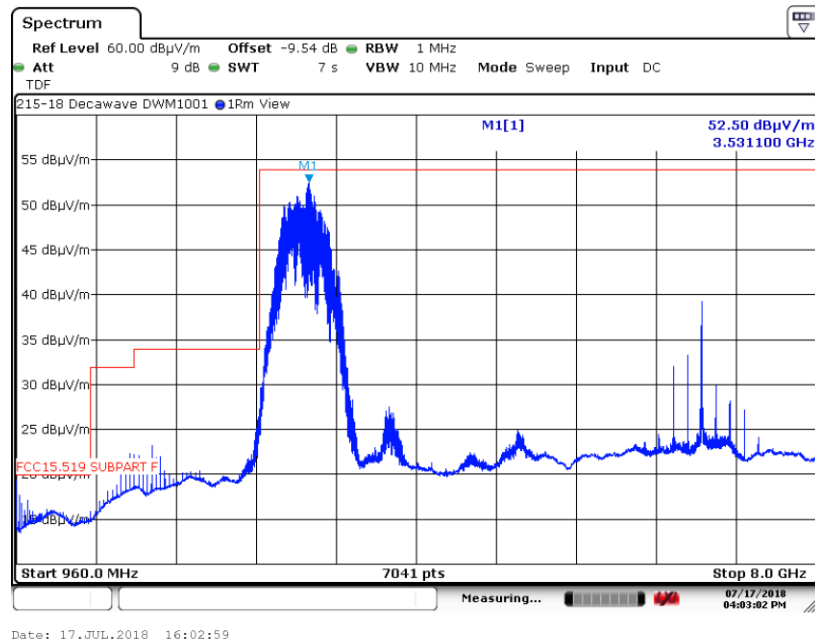
6. Measurement Data (continued)

6.5. Spurious Radiated Emissions (15.519 (c) continued)

6.5.1. 960 MHz to 8 GHz Horizontal at 1 Meter, -9.54 dB offset in analyzer CH1



6.5.2. 960 MHz to 8 GHz Vertical at 1 Meter, -9.54 dB offset in analyzer CH1



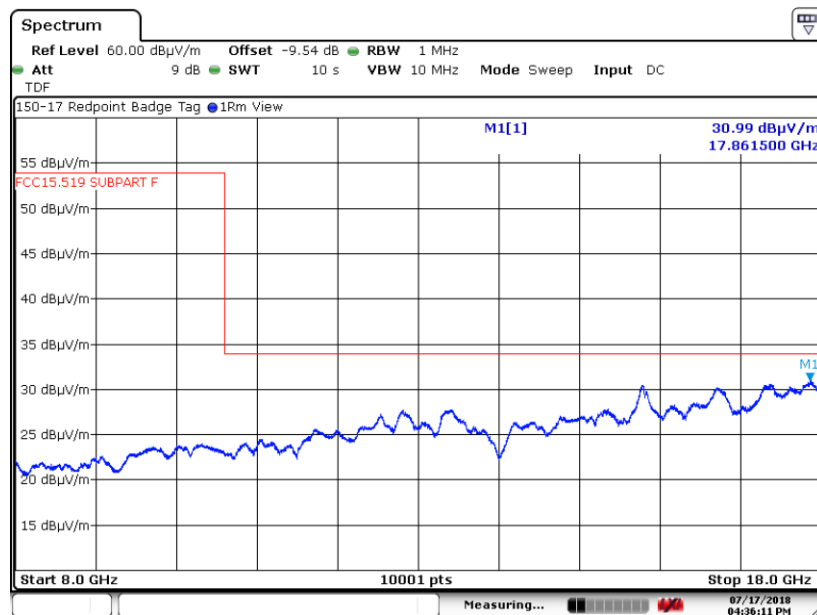
Test Number: 150-17

Issue Date: 8/3/2018

6. Measurement Data (continued)

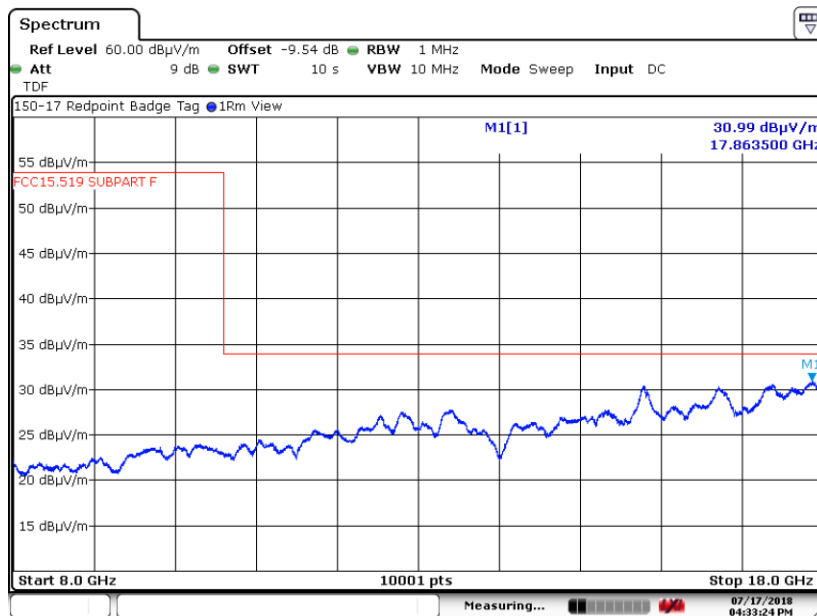
6.5. Spurious Radiated Emissions (15.519 (c) continued)

6.5.3. 8 to 18 GHz Horizontal at 1 Meter, -9.54 dB offset in analyzer CH1



Date: 17.JUL.2018 16:36:08

6.5.4. 8 to 18 GHz Vertical at 1 Meter, -9.54 dB offset in analyzer CH1



Date: 17.JUL.2018 16:33:21

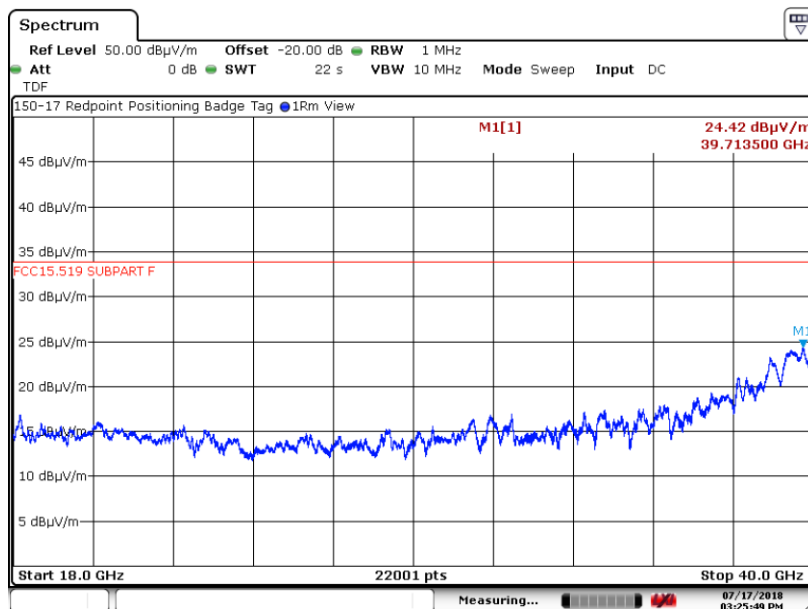
Test Number: 150-17

Issue Date: 8/3/2018

6. Measurement Data (continued)

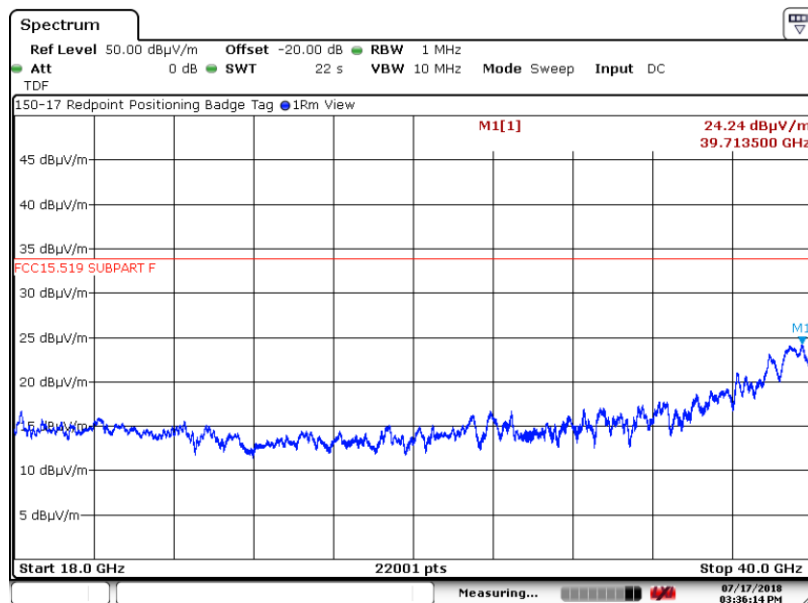
6.5. Spurious Radiated Emissions (15.519 (c) continued)

6.5.5. 18 to 40 GHz Horizontal at 0.3 Meter, -20.00 dB offset in analyzer CH1



Date: 17.JUL.2018 15:25:46

6.5.6. 18 to 40 GHz Vertical at 0.3 Meter, -20.00 dB offset in analyzer CH1

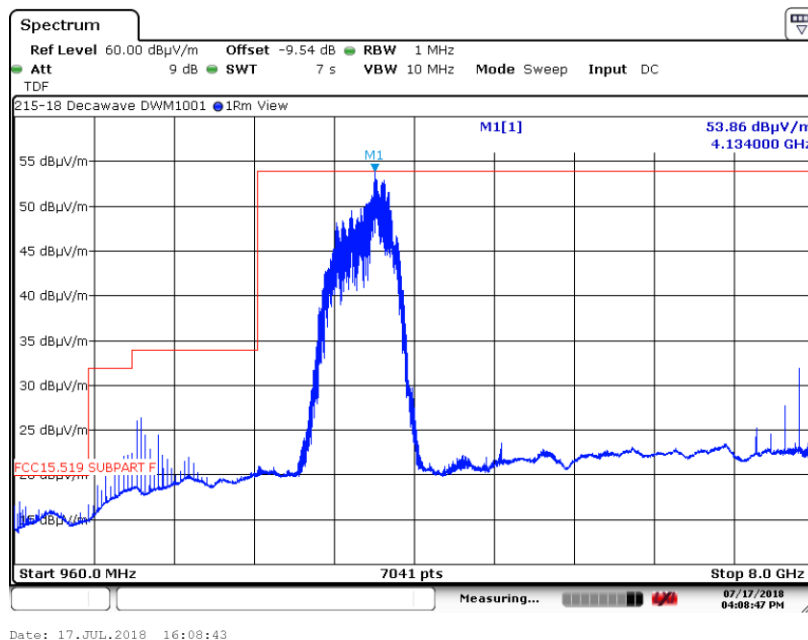


Date: 17.JUL.2018 15:36:11

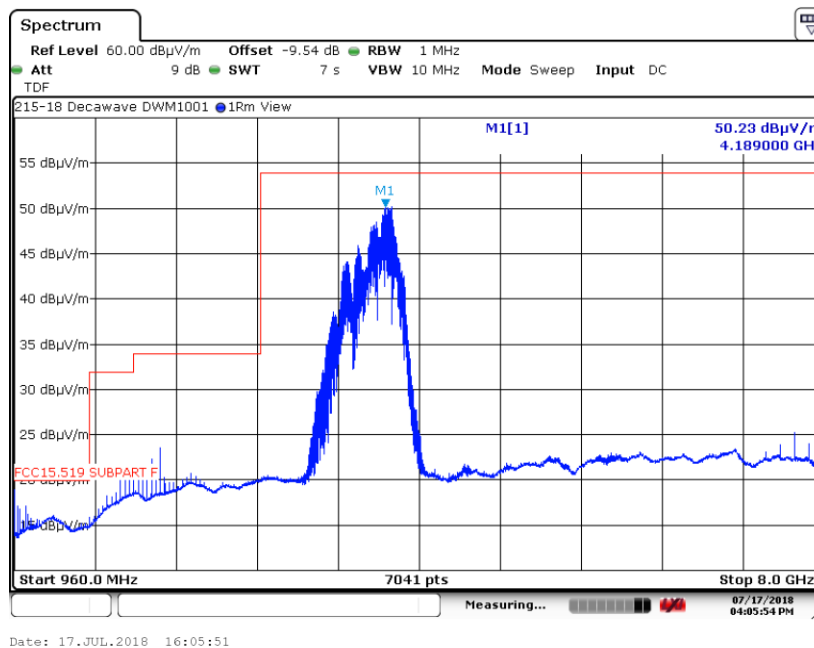
6. Measurement Data (continued)

6.5. Spurious Radiated Emissions (15.519 (c) continued)

6.5.7. 960 MHz to 8 GHz Horizontal at 1 Meter, -9.54 dB offset in analyzer CH2



6.5.8. 960 MHz to 8 GHz Vertical at 1 Meter, -9.54 dB offset in analyzer CH2



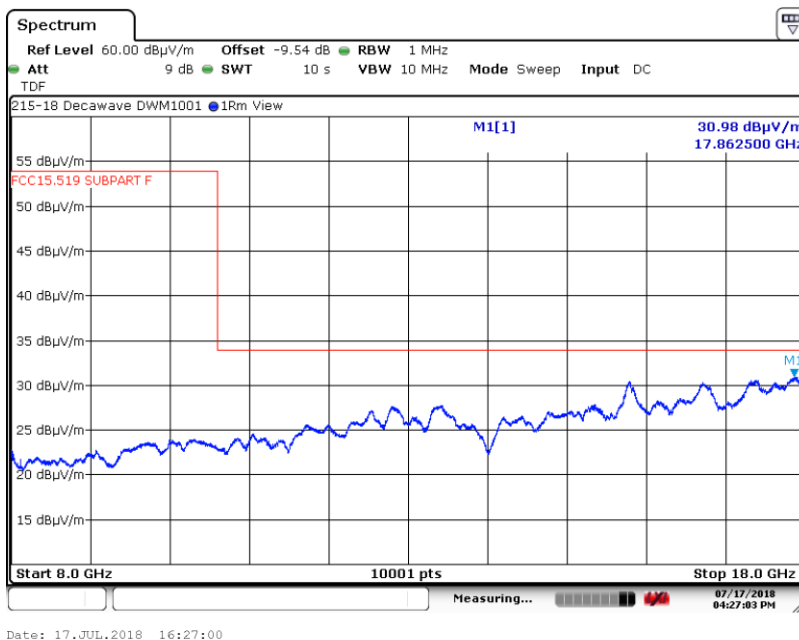
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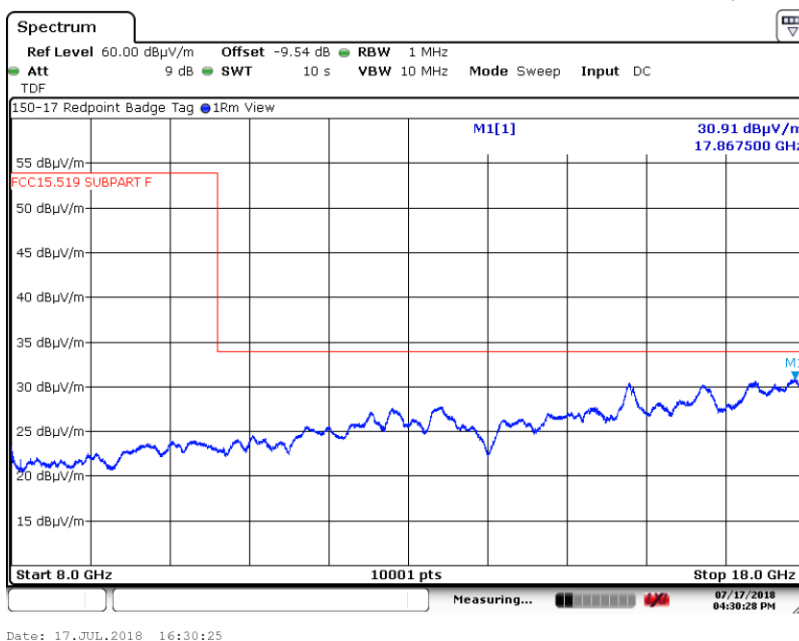
6. Measurement Data (continued)

6.5. Spurious Radiated Emissions (15.519 (c) continued)

6.5.9. 8 to 18 GHz Horizontal at 1 Meter, -9.54 dB offset in analyzer CH2



6.5.10. 8 to 18 GHz Vertical at 1 Meter, -9.54 dB offset in analyzer CH2



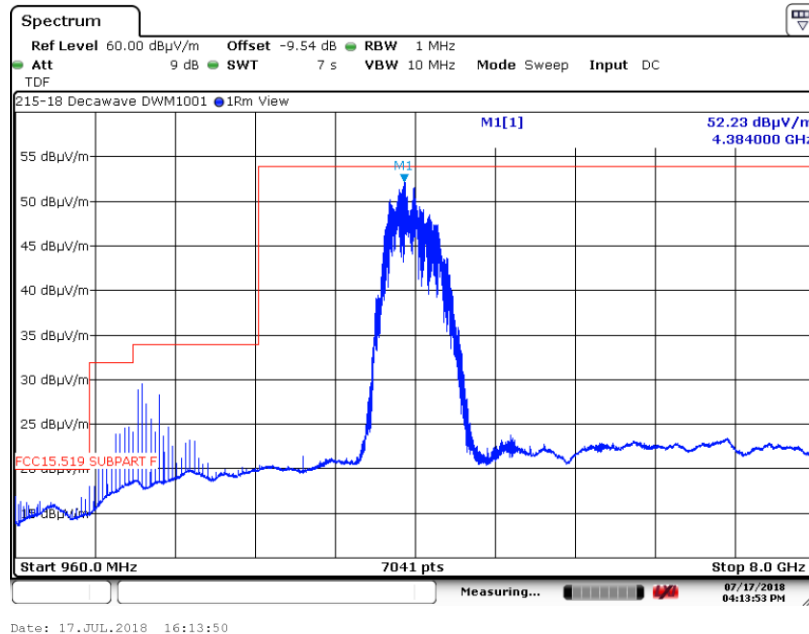
Test Number: 150-17

Issue Date: 8/3/2018

6. Measurement Data (continued)

6.5. Spurious Radiated Emissions (15.519 (c) continued)

6.5.11. 960 MHz to 8 GHz Horizontal at 1 Meter, -9.54 dB offset in analyzer CH3



6.5.12. 960 MHz to 8 GHz Vertical at 1 Meter, -9.54 dB offset in analyzer CH3



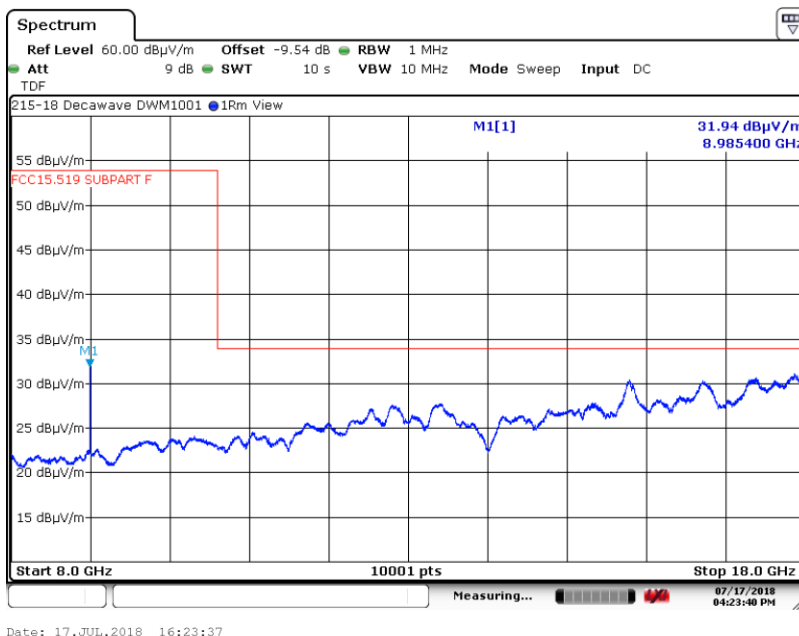
Test Number: 150-17

Issue Date: 8/3/2018

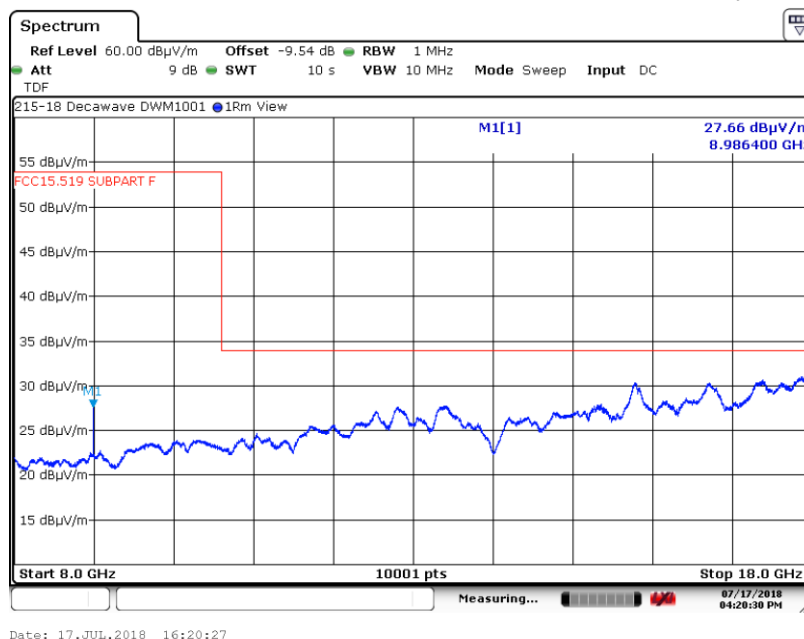
6. Measurement Data (continued)

6.5. Spurious Radiated Emissions (15.519 (c) continued)

6.5.13. 8 to 18 GHz Horizontal at 1 Meter, -9.54 dB offset in analyzer CH3



6.5.14. 8 to 18 GHz Vertical at 1 Meter, -9.54 dB offset in analyzer CH3



Test Number: 150-17

Issue Date: 8/3/2018

6. Measurement Data (continued)

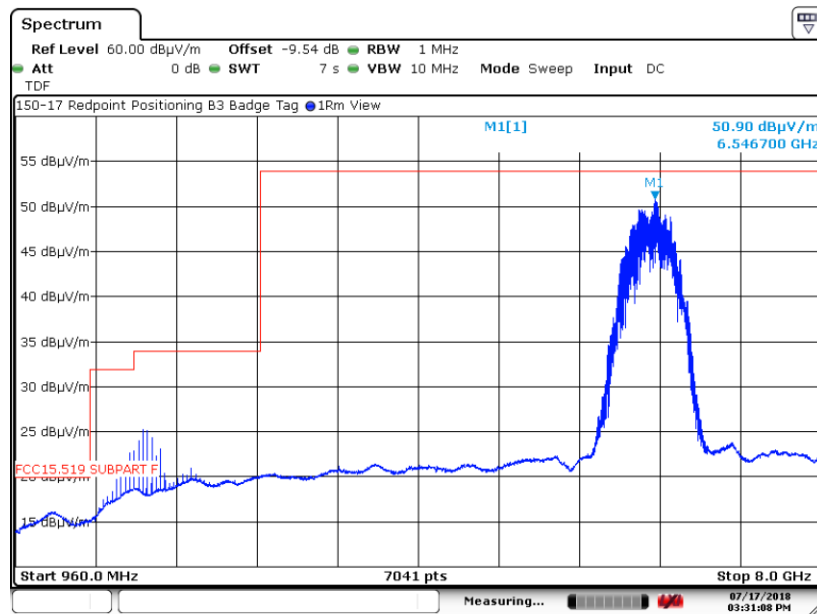
6.5. Spurious Radiated Emissions (15.519 (c) continued)

6.5.15. 960 MHz to 8 GHz Horizontal at 1 Meter, -9.54 dB offset in analyzer CH5



Date: 17.JUL.2018 15:35:33

6.5.16. 960 MHz to 8 GHz Vertical at 1 Meter, -9.54 dB offset in analyzer CH5



Date: 17.JUL.2018 15:31:08

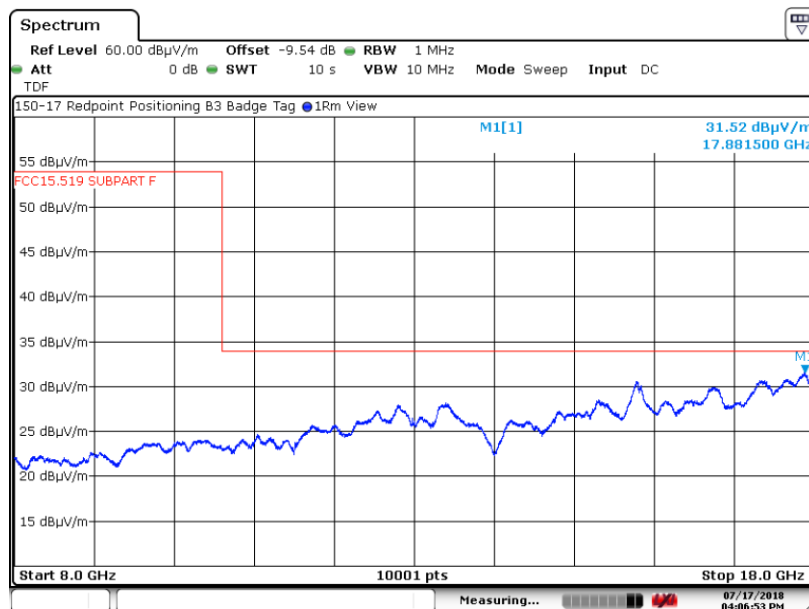
Test Number: 150-17

Issue Date: 8/3/2018

6. Measurement Data (continued)

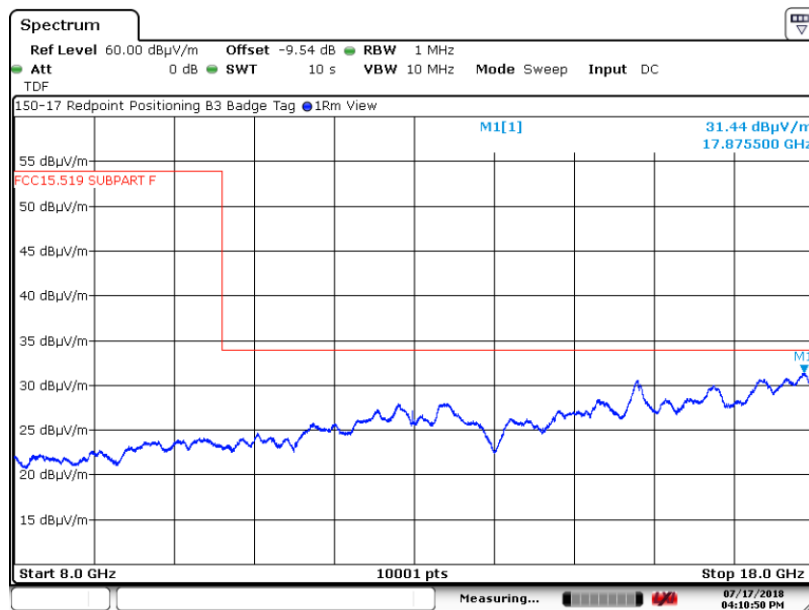
6.5. Spurious Radiated Emissions (15.519 (c) continued)

6.5.17. 8 to 18 GHz Horizontal at 1 Meter, -9.54 dB offset in analyzer CH5



Date: 17.JUL.2018 16:06:49

6.5.18. 8 to 18 GHz Vertical at 1 Meter, -9.54 dB offset in analyzer CH5



Date: 17.JUL.2018 16:10:47

6. Measurement Data (continued)**6.5. Spurious Radiated Emissions (RSS-220 5.3.1 (d) continued)**

Requirement: The radiated emissions at or below 960 MHz from a device shall not exceed the limits in Section 3.4. The radiated emissions above 960 MHz from a device shall not exceed the following average limits when measured using a resolution bandwidth of 1 MHz:

The RMS average measurement is based on the use of a spectrum analyzer with a resolution bandwidth of 1 MHz, an RMS detector, and a 1 millisecond or less averaging time.

The EIRP in terms of dBm, can be converted to a field strength, in dB μ V/m at 3 Meters by adding 95.2.

Frequency (MHz)	EIRP (dBm)	EIRP at 3 Meters (dB μ V/m)
960 - 1610	-75.3	19.9
1610 – 4750	-70.0	25.2
4750 – 10,600	-41.3	53.9
Above 10,600	-61.3	33.9

Frequency Range:	960 MHz to 8 GHz
Measurement Distance:	1 Meter
EMI Receiver IF Bandwidth:	1 MHz
EMI Receiver Avg Bandwidth	10 MHz
Detector Function:	RMS 1 mS Average as defined in Annex Section 4(b)

Notes: Measurements made from 960 MHz to 8 GHz were made in a semi-anechoic chamber at 1 Meter using a -9.54 dB distance offset was programmed into the spectrum analyzer. Worst case orientation was the Z-Axis.

Measurement data above 8 GHz for Channel 5 is provided in plots 6.5.17 to 6.5.18 on the previous pages.

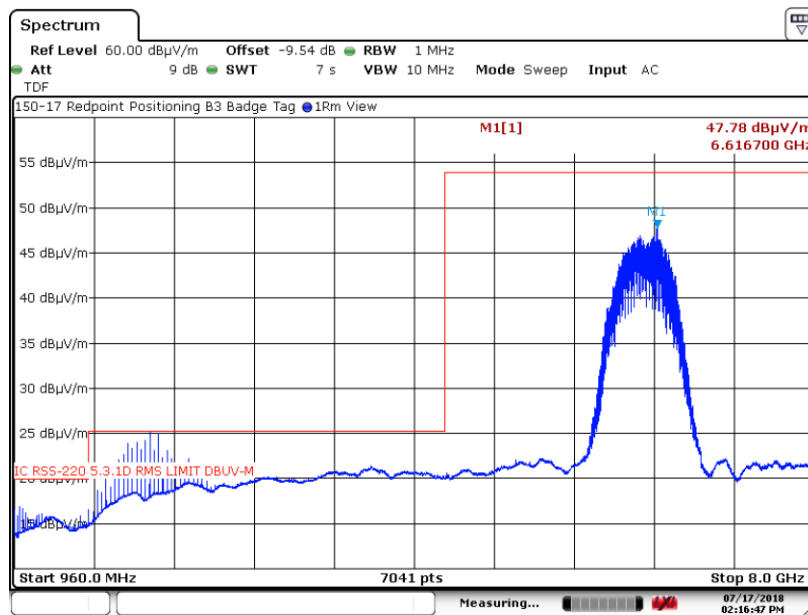
Test Number: 150-17

Issue Date: 8/3/2018

6. Measurement Data (continued)

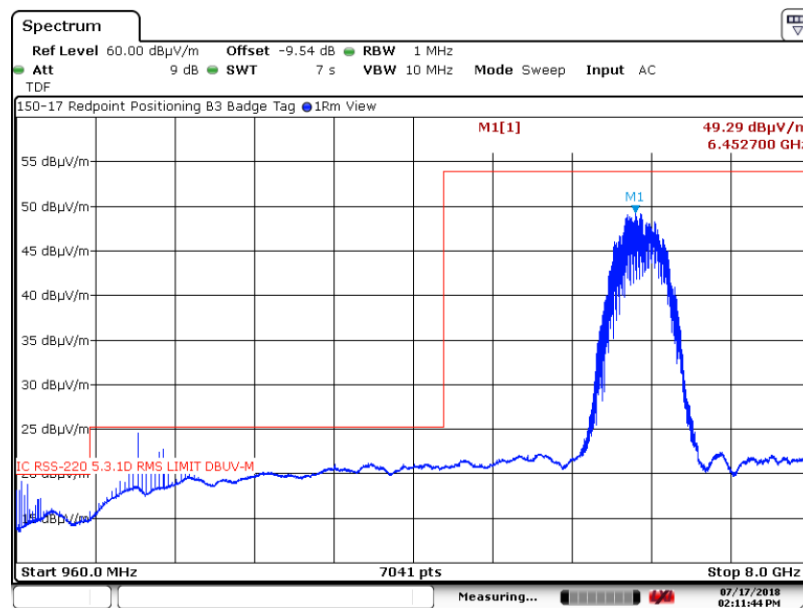
6.5. Spurious Radiated Emissions (RSS-220 5.3.1 (d)) continued)

6.5.19. 960 MHz to 8 GHz Horizontal at 1 Meter, -9.54 dB offset in analyzer CH5



Date: 17.JUL.2018 14:16:44

6.5.20. 960 MHz to 8 GHz Vertical at 1 Meter, -9.54 dB offset in analyzer CH5



Date: 17.JUL.2018 14:11:41

6. Measurement Data (continued)**6.6. Spurious Radiated Emissions in GPS Bands (15.519 (d))**

Requirement: In addition to the radiated emission limits specified in the table in paragraph (d) of this section, UWB transmitters operating under the provisions of this section shall not exceed the following average limits when measured using a resolution bandwidth of no less than 1 kHz:

Frequency (MHz)	EIRP (dBm)	EIRP at 3 Meters (dBμV/m)
1164 - 1240	-85.3	9.9
1559 - 1610	-85.3	9.9

6.6.1. Measurement & Equipment Setup

EMI Receiver IF Bandwidth: 1 kHz
EMI Receiver Avg Bandwidth: 10 kHz
Detector Functions: RMS Average

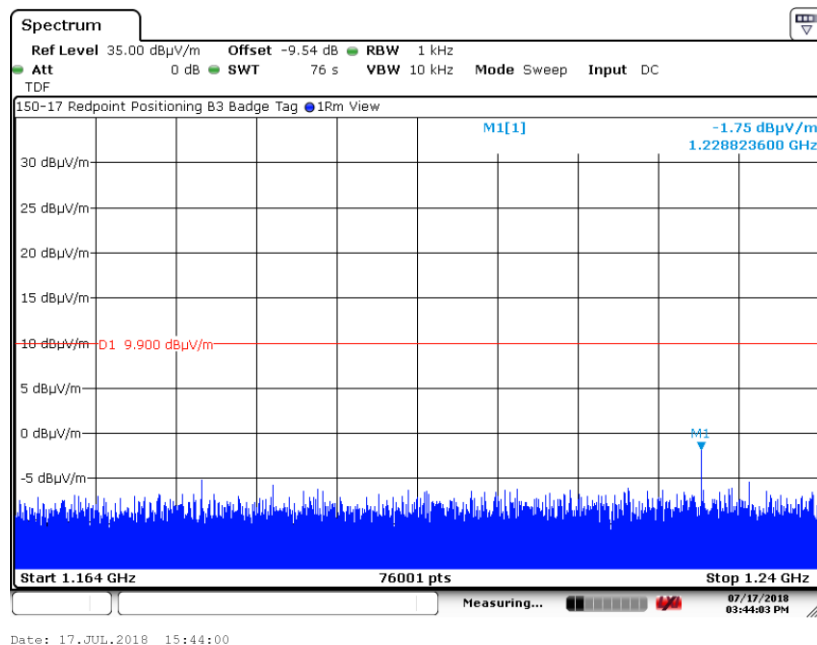
6.6.2. 1164 to 1240 MHz & 1559 to 1610 MHz

There were no broadband emissions related to the UWB transmitter. Measured signals were narrowband and related to the microprocessor / clocks and do not fall under the requirements of this section. Measurements were made at 1 Meter using a -9.54 dB distance correction factor and the -85.3 dBm limit was converted to a field strength limit of 9.9 dBuV/m using a factor of 95.2.

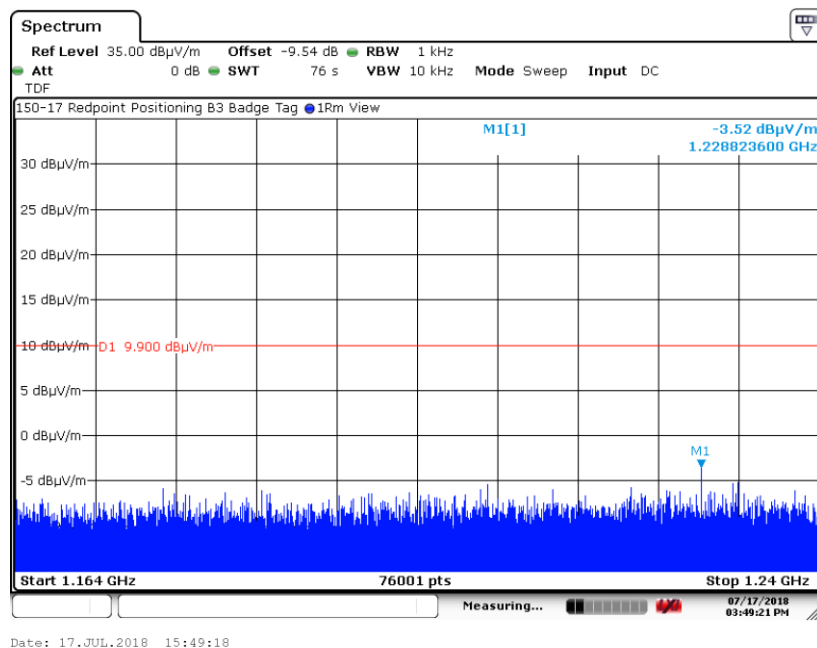
6. Measurement Data (continued)

6.6. Spurious Radiated Emissions in GPS Bands (15.519 (d) continued)

6.6.3.1 Horizontal Measurement Polarity 1164 to 1240 MHz



6.6.3.2 Vertical Measurement Polarity 1164 to 1240 MHz



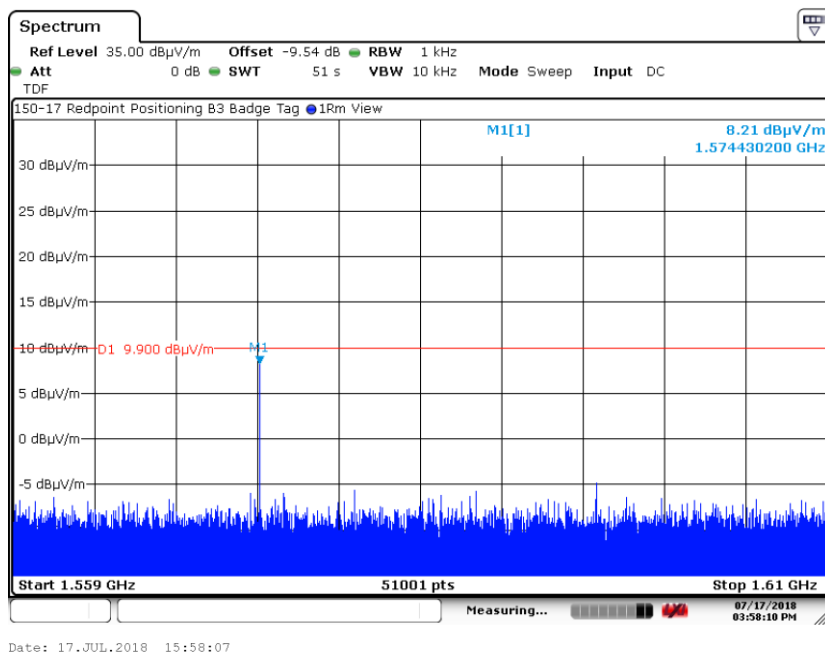
Test Number: 150-17

Issue Date: 8/3/2018

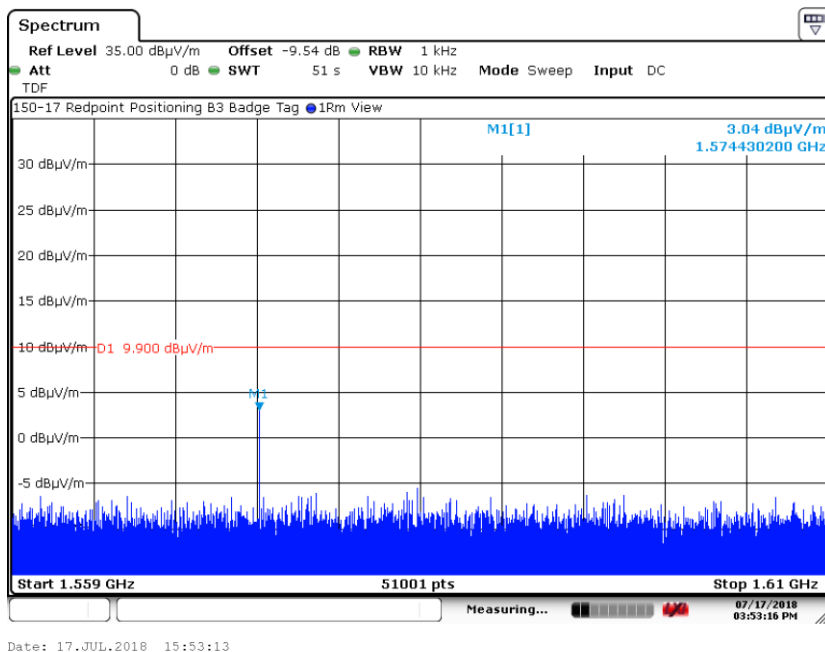
6. Measurement Data (continued)

6.6. Spurious Radiated Emissions in GPS Bands (15.519 (d) continued)

6.6.3.3 Horizontal Measurement Polarity 1559 to 1610 MHz



6.6.3.4 Vertical Measurement Polarity 1559 to 1610 MHz



6. Measurement Data (continued)

6.7. Radiated Emissions of UWB Transmission (15.519 (c), 15.521 (d))

Requirement: The radiated emissions above 960 MHz from a device operating under the provisions of this section shall not exceed the following average limits when measured using a resolution bandwidth of 1 MHz:

The RMS average measurement is based on the use of a spectrum analyzer with a resolution bandwidth of 1 MHz, an RMS detector, and a 1 millisecond or less averaging time.

The EIRP in terms of dBm, can be converted to a field strength, in dB μ V/m at 3 Meters by adding 95.2.

Frequency (MHz)	EIRP (dBm)	EIRP at 3 Meters (dB μ V/m)
3100 - 10600	-41.3	53.9

Frequency Range:	3 to 4 GHz, 3.5 to 4.5 GHz, 4 to 5 GHz, 6 to 7 GHz
Measurement Distance:	3 Meters
EMI Receiver IF Bandwidth:	1 MHz
EMI Receiver Avg Bandwidth	10 MHz
Detector Function:	RMS 1 mS Average as defined in 15.521(d)

6. Measurement Data (continued)

6.7. Spurious Radiated Emissions (15.519 (c), 15.521(d))

6.7.1. Plot of RMS Power at 3 Meters (Channel 1)

Frequency (GHz)	Amplitude ¹	Limit	Margin	Ant Polarity	Ant Height	Turntable Azimuth	Result
	(dBμV/m)	(dBμV/m)	(dB)	H/V	cm	Deg	
3.5360	53.81	53.90	-0.09	H	282	112	Compliant

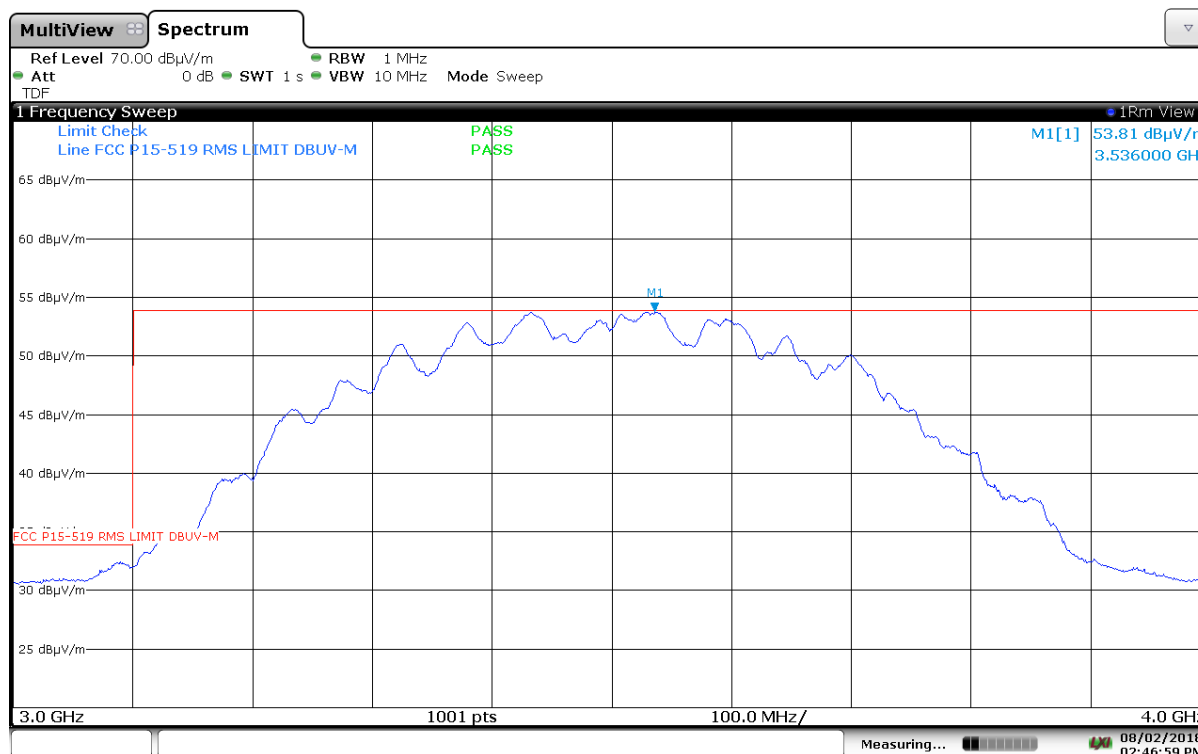
Notes: ¹ Antenna Factor (AF), Cable Factor (CF) and External Preamplifier Gain (PAG) have been entered into the analyzer as transducer factors.

Equation (22) from ANSI C63.10-2013, $EIRP = E_{meas} + 20 \log(d_{meas}) - 104.7$; $d_{meas} = 3$

$EIRP (dBm) = E_{meas} (dBμV/m) - 95.2$

Frequency (GHz)	Amplitude ¹ (dBm)	Limit (dBm)	Margin	Ant Polarity	Ant Height	Turntable Azimuth	Result
	EIRP	EIRP	(dB)	H/V	cm	Deg	
3.5360	-41.39	-41.30	-0.09	H	282	112	Compliant

150-17 Redpoint Badge Tag



02:46:59 PM 08/02/2018

6. Measurement Data (continued)

6.7. Spurious Radiated Emissions (15.519 (c), 15.521(d)) continued

6.7.2. Plot of RMS Power at 3 Meters (Channel 2)

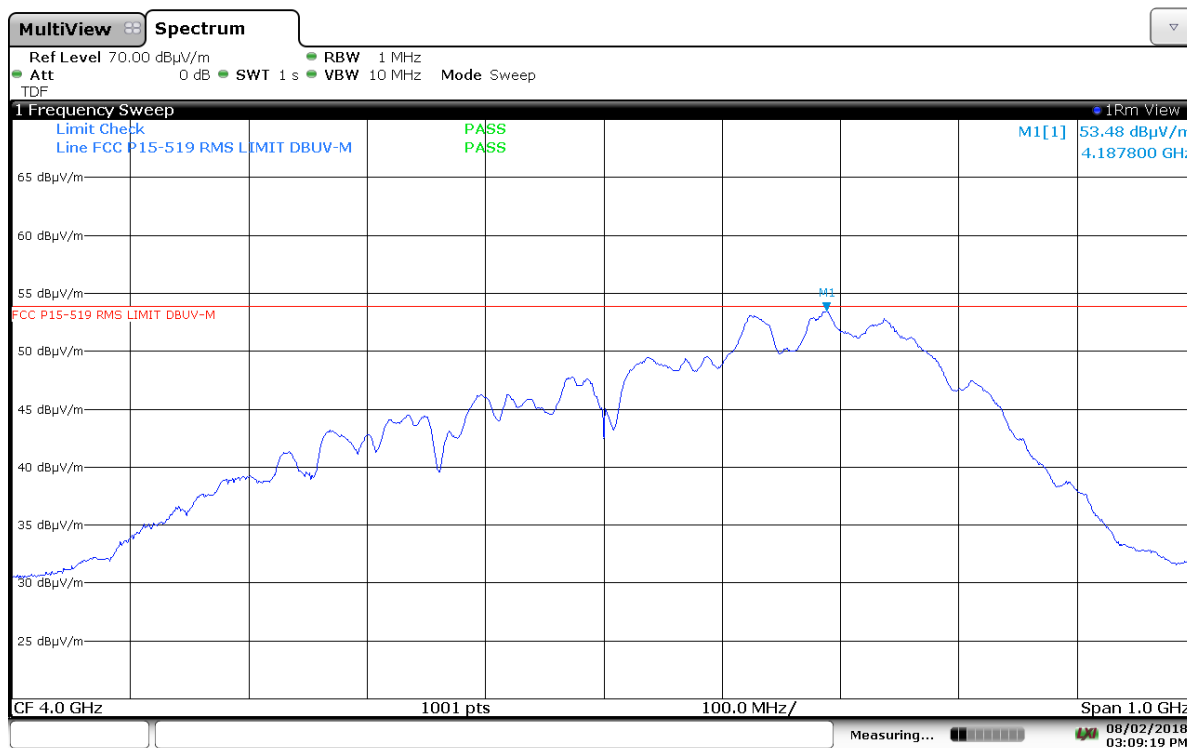
Frequency (GHz)	Amplitude ¹	Limit	Margin	Ant Polarity	Ant Height	Turntable Azimuth	Result
	(dBμV/m)	(dBμV/m)	(dB)	H/V	cm	Deg	
4.1878	53.64	53.90	-0.26	H	268	113	Compliant

Notes: ¹ Antenna Factor (AF), Cable Factor (CF) and External Preamplifier Gain (PAG) have been entered into the analyzer as transducer factors.

Equation (22) from ANSI C63.10-2013, $EIRP = E_{meas} + 20 \log(d_{meas}) - 104.7$; $d_{meas} = 3$
 $EIRP (dBm) = E_{meas} (dBμV/m) - 95.2$

Frequency (GHz)	Amplitude ¹ (dBm)	Limit (dBm)	Margin	Ant Polarity	Ant Height	Turntable Azimuth	Result
	EIRP	EIRP	(dB)	H/V	cm	Deg	
4.1878	-41.56	-41.30	-0.26	H	268	113	Compliant

150-17 Redpoint Badge Tag



03:09:19 PM 08/02/2018

Test Number: 150-17

Issue Date: 8/3/2018

6. Measurement Data (continued)

6.7. Spurious Radiated Emissions (15.519 (c), 15.521(d)) continued

6.7.3. Plot of RMS Power at 3 Meters (Channel 3)

Frequency (GHz)	Amplitude ¹	Limit	Margin	Ant Polarity	Ant Height	Turntable Azimuth	Result
	(dBμV/m)	(dBμV/m)	(dB)	H/V	cm	Deg	
4.4281	53.54	53.90	-0.36	H	102	118	Compliant

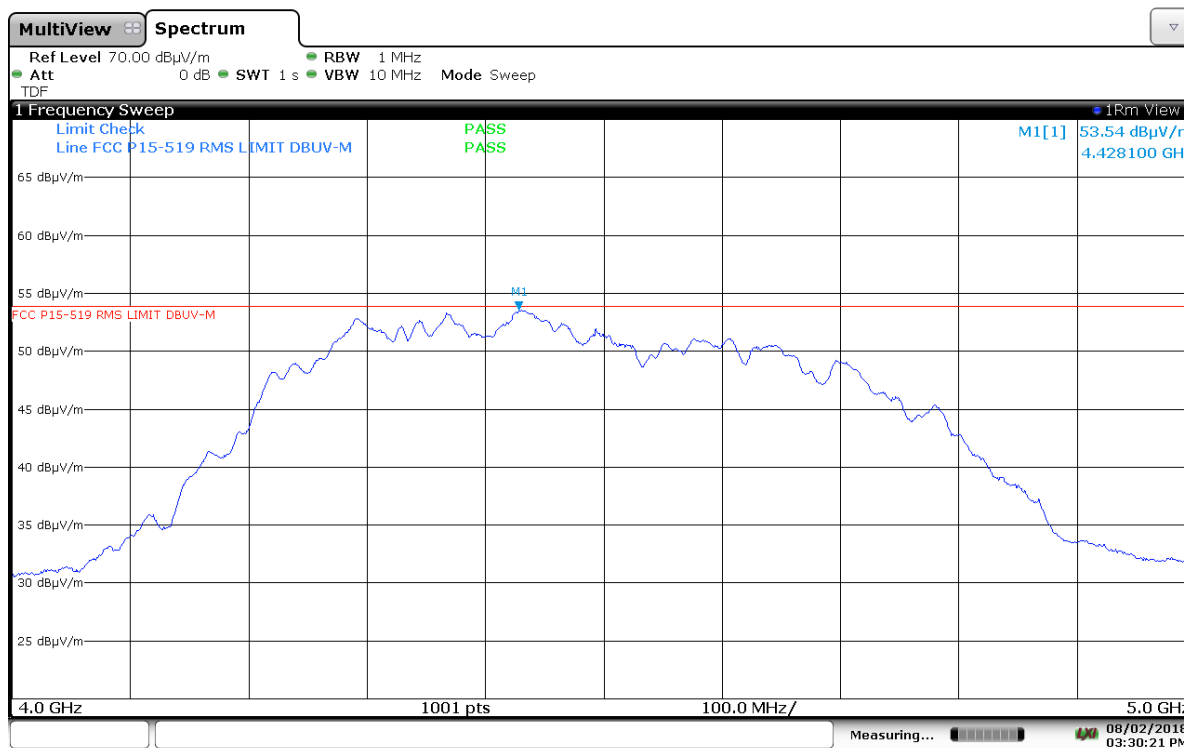
Notes: ¹ Antenna Factor (AF), Cable Factor (CF) and External Preamplifier Gain (PAG) have been entered into the analyzer as transducer factors.

Equation (22) from ANSI C63.10-2013, $EIRP = E_{meas} + 20 \log(d_{meas}) - 104.7$; $d_{meas} = 3$

$EIRP (dBm) = E_{meas} (dBμV/m) - 95.2$

Frequency (GHz)	Amplitude ¹ (dBm)	Limit (dBm)	Margin	Ant Polarity	Ant Height	Turntable Azimuth	Result
	EIRP	EIRP	(dB)	H/V	cm	Deg	
4.4281	-41.66	-41.30	-0.36	H	102	118	Compliant

150-17 Redpoint Badge Tag



03:30:21 PM 08/02/2018

Test Number: 150-17

Issue Date: 8/3/2018

6. Measurement Data (continued)

6.7. Spurious Radiated Emissions (15.519 (c), 15.521(d)) continued

6.7.4. Plot of RMS Power at 3 Meters (Channel 5)

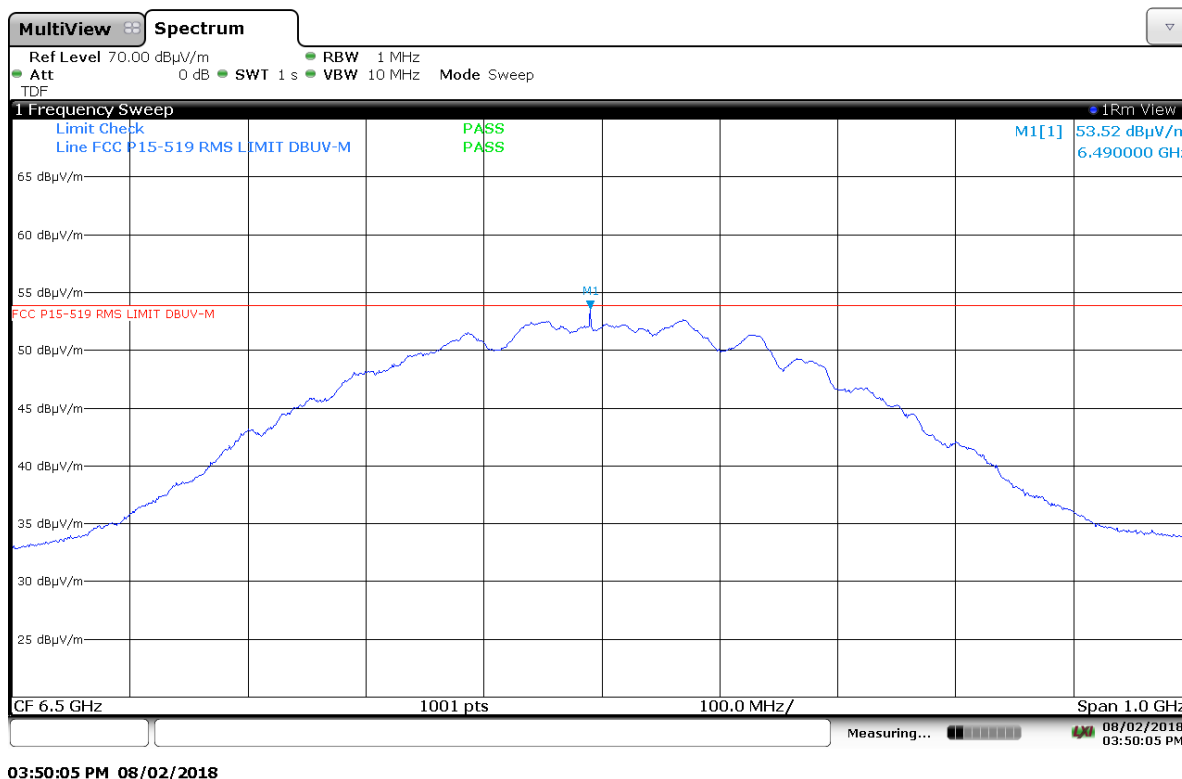
Frequency (GHz)	Amplitude ¹ (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Ant Polarity H/V	Ant Height cm	Turntable Azimuth Deg	Result
6.4900	53.52	53.90	-0.38	H	244	318	Compliant

Notes: ¹ Antenna Factor (AF), Cable Factor (CF) and External Preamplifier Gain (PAG) have been entered into the analyzer as transducer factors.

Equation (22) from ANSI C63.10-2013, $EIRP = E_{meas} + 20 \log(d_{meas}) - 104.7$; $d_{meas} = 3$
 $EIRP (dBm) = E_{meas} (dBμV/m) - 95.2$

Frequency (GHz)	Amplitude ¹ (dBm)	Limit (dBm)	Margin (dB)	Ant Polarity H/V	Ant Height cm	Turntable Azimuth Deg	Result
6.4900	-41.68	-41.30	-0.38	H	244	318	Compliant

150-17 Redpoint Badge Tag



6. Measurement Data (continued)**6.8. Peak Emissions in a 50 MHz Bandwidth (15.519 (e), 15.521 (g))**

Requirement: There is a limit on the peak level of the emissions contained within a 50 MHz bandwidth centered on the frequency at which the highest radiated emission occurs, f_M . That limit is 0 dBm EIRP.

The EIRP in terms of dBm, can be converted to a field strength, in dB μ V/m at 3 Meters by adding 95.2. As used in this subpart, EIRP refers to the highest signal strength measured in any direction and at any frequency from the UWB device.

Frequency (MHz)	EIRP (dBm)	EIRP at 3 Meters (dB μ V/m)
3100 - 10600	0	95.2

Frequency Range:	3 to 4 GHz, 3.5 to 4.5 GHz, 4 to 5 GHz, 6 to 7 GHz
Measurement Distance:	3 Meters
EMI Receiver IF Bandwidth:	50 MHz
EMI Receiver Avg Bandwidth	80 MHz
Detector Function:	Peak, Max Held

6. Measurement Data (continued)

6.8. Peak Emissions in a 50 MHz Bandwidth (15.519 (e), 15.521 (g) continued)

6.8.1 Plot of Peak Power at 3 Meters (Channel 1)

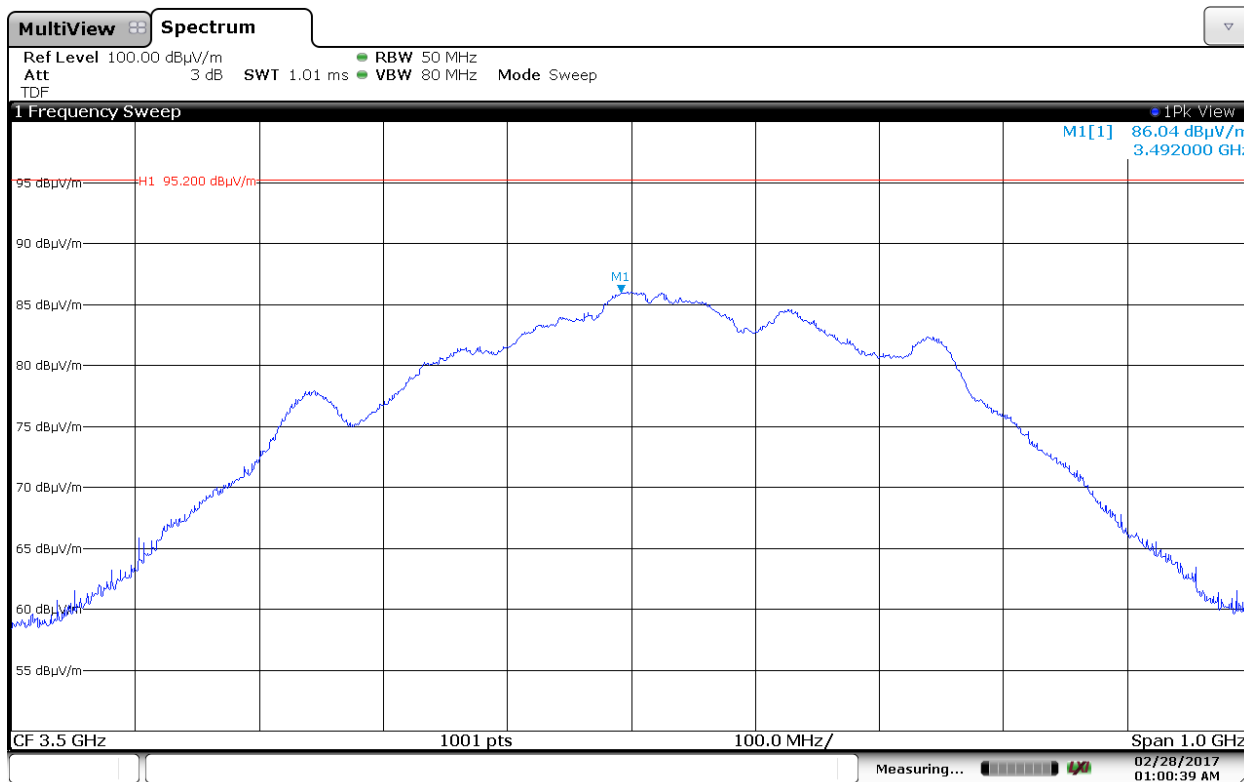
Frequency (GHz)	Amplitude ¹	Limit	Margin	Ant Polarity	Ant Height	Turntable Azimuth	Result
	(dBμV/m)	(dBμV/m)	(dB)	H/V	cm	Deg	
3.4920	86.04	95.20	-9.16	H	240	67	Compliant

Notes: ¹ Antenna Factor (AF), Cable Factor (CF) and External Preamplifier Gain (PAG) have been entered into the analyzer as transducer factors.

Equation (22) from ANSI C63.10-2013, $EIRP = E_{meas} + 20 \log(d_{meas}) - 104.7$; $d_{meas} = 3$

$EIRP (dBm) = E_{meas} (dBμV/m) - 95.2$

Frequency (GHz)	Amplitude ¹ (dBm)	Limit (dBm)	Margin	Ant Polarity	Ant Height	Turntable Azimuth	Result
	EIRP	EIRP	(dB)	H/V	cm	Deg	
3.4920	-9.16	0.00	-9.16	H	240	67	Compliant



01:00:40 AM 02/28/2017

6. Measurement Data (continued)

6.8. Peak Emissions in a 50 MHz Bandwidth (15.519 (e), 15.521 (g) continued)

6.8.2 Plot of Peak Power at 3 Meters (Channel 2)

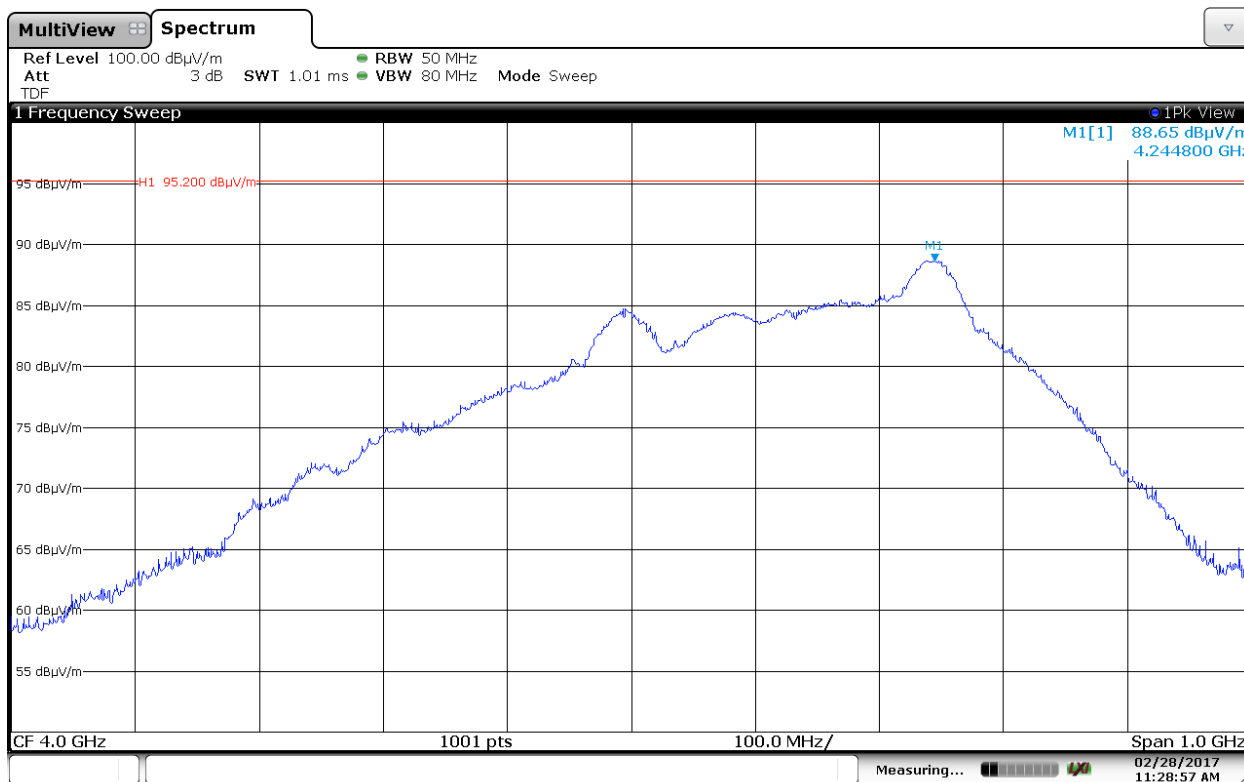
Frequency (GHz)	Amplitude ¹	Limit	Margin	Ant Polarity	Ant Height	Turntable Azimuth	Result
	(dBμV/m)	(dBμV/m)	(dB)	H/V	cm	Deg	
4.2448	88.65	95.20	-6.55	H	240	247	Compliant

Notes: ¹ Antenna Factor (AF), Cable Factor (CF) and External Preamplifier Gain (PAG) have been entered into the analyzer as transducer factors.

Equation (22) from ANSI C63.10-2013, $EIRP = E_{meas} + 20 \log(d_{meas}) - 104.7$; $d_{meas} = 3$

$EIRP (dBm) = E_{meas} (dBμV/m) - 95.2$

Frequency (GHz)	Amplitude ¹	Limit	Margin	Ant Polarity	Ant Height	Turntable Azimuth	Result
	(dBm)	(dBm)	(dB)	H/V	cm	Deg	
4.2448	-6.55	0.00	-6.55	H	240	247	Compliant



11:28:58 AM 02/28/2017

6. Measurement Data (continued)

6.8. Peak Emissions in a 50 MHz Bandwidth (15.519 (e), 15.521 (g) continued)

6.8.3 Plot of Peak Power at 3 Meters (Channel 3)

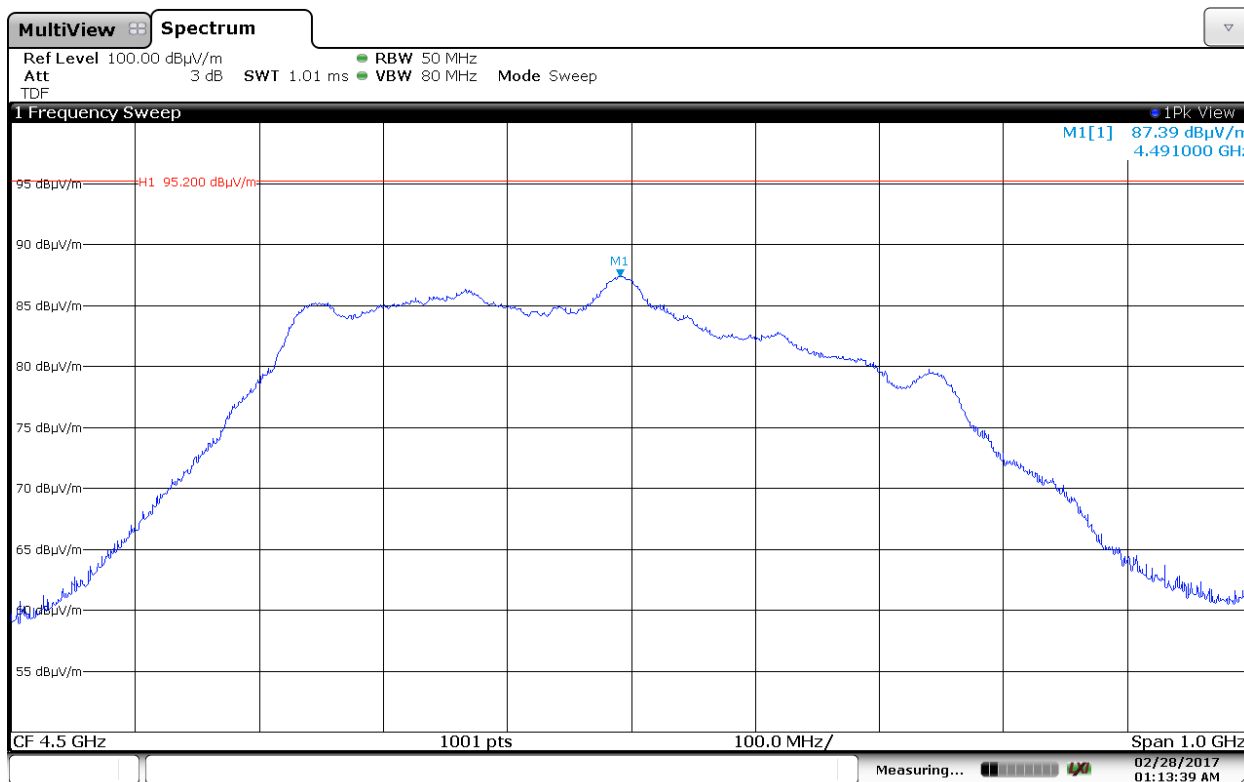
Frequency (GHz)	Amplitude ¹	Limit	Margin	Ant Polarity	Ant Height	Turntable Azimuth	Result
	(dBμV/m)	(dBμV/m)	(dB)	H/V	cm	Deg	
4.4910	87.39	95.20	-7.81	H	240	88	Compliant

Notes: ¹ Antenna Factor (AF), Cable Factor (CF) and External Preamplifier Gain (PAG) have been entered into the analyzer as transducer factors.

Equation (22) from ANSI C63.10-2013, $EIRP = E_{meas} + 20 \log(d_{meas}) - 104.7$; $d_{meas} = 3$

$EIRP \text{ (dBm)} = E_{meas} \text{ (dBμV/m)} - 95.2$

Frequency (GHz)	Amplitude ¹ (dBm)	Limit (dBm)	Margin	Ant Polarity	Ant Height	Turntable Azimuth	Result
	EIRP	EIRP	(dB)	H/V	cm	Deg	
4.4910	-7.81	0.00	-7.81	H	240	88	Compliant



01:13:40 AM 02/28/2017

6. Measurement Data (continued)

6.8. Peak Emissions in a 50 MHz Bandwidth (15.519 (e), 15.521 (g) continued)

6.8.4 Plot of Peak Power at 3 Meters (Channel 5)

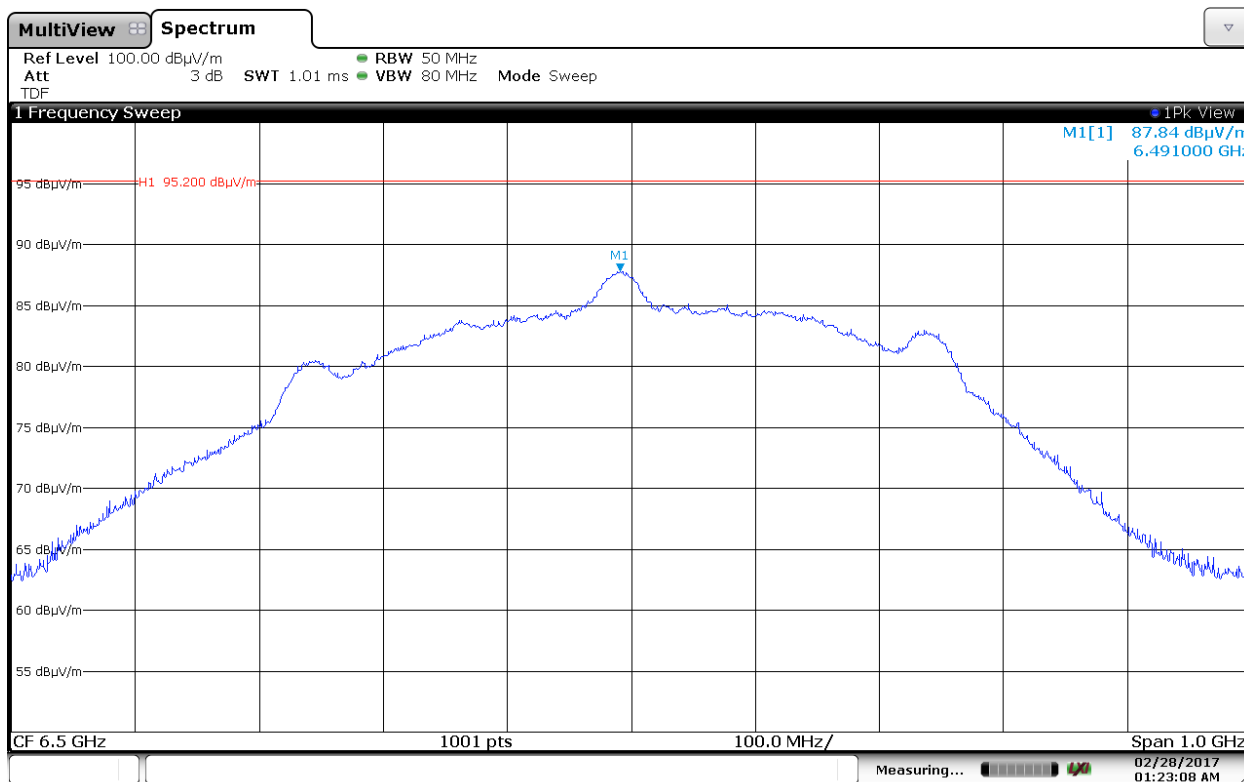
Frequency (GHz)	Amplitude ¹	Limit	Margin	Ant Polarity	Ant Height	Turntable Azimuth	Result
	(dBμV/m)	(dBμV/m)	(dB)	H/V	cm	Deg	
6.4910	87.84	95.20	-7.36	H	240	314	Compliant

Notes: ¹ Antenna Factor (AF), Cable Factor (CF) and External Preamplifier Gain (PAG) have been entered into the analyzer as transducer factors.

Equation (22) from ANSI C63.10-2013, $EIRP = E_{meas} + 20 \log(d_{meas}) - 104.7$; $d_{meas} = 3$

$EIRP (dBm) = E_{meas} (dBμV/m) - 95.2$

Frequency (GHz)	Amplitude ¹ (dBm)	Limit (dBm)	Margin	Ant Polarity	Ant Height	Turntable Azimuth	Result
	EIRP	EIRP	(dB)	H/V	cm	Deg	
6.4910	-7.36	0.00	-7.36	H	240	314	Compliant



01:23:08 AM 02/28/2017

6. Measurement Data (continued)

6.9 Conducted Emissions Test Setup

6.9.1. Regulatory Limit: FCC Part 15, Class B, IC RSS-GEN

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.

6.9.2 Measurement Equipment and Software Used to Perform Test

Device	Manufacturer	Model No.	Serial No.	Cal Due
EMI Receiver	Hewlett Packard	8546A	3330A00115	12/4/2018
RF Filter Section	Hewlett Packard	85460A	3325A00121	12/4/2018
LISN	EMCO	3825/2	9109-1860	11/17/2017
Manufacturer	Software Description		Title/Model #	Rev.
Compliance Worldwide	Test Report Generation Software		Test Report Generator	1.0

6.9.3. Measurement & Equipment Setup

Test Date:	07/12/2017
Test Engineer:	Nate Milliken
Site Temperature (°C):	22.8
Relative Humidity (%RH):	48.3
Frequency Range:	0.15 MHz to 30 MHz
EMI Receiver IF Bandwidth:	9 kHz
EMI Receiver Avg Bandwidth:	30 kHz
Detector Functions:	Peak, Quasi-Peak. & Average

6.9.4. Test Procedure

Test measurements were made in accordance with ANSI C63.4-2014, Standard Methods of Measurement of Radio Noise Emissions from Low-Voltage Electrical and Electronics Equipment in the Range of 9 kHz to 40 GHz.

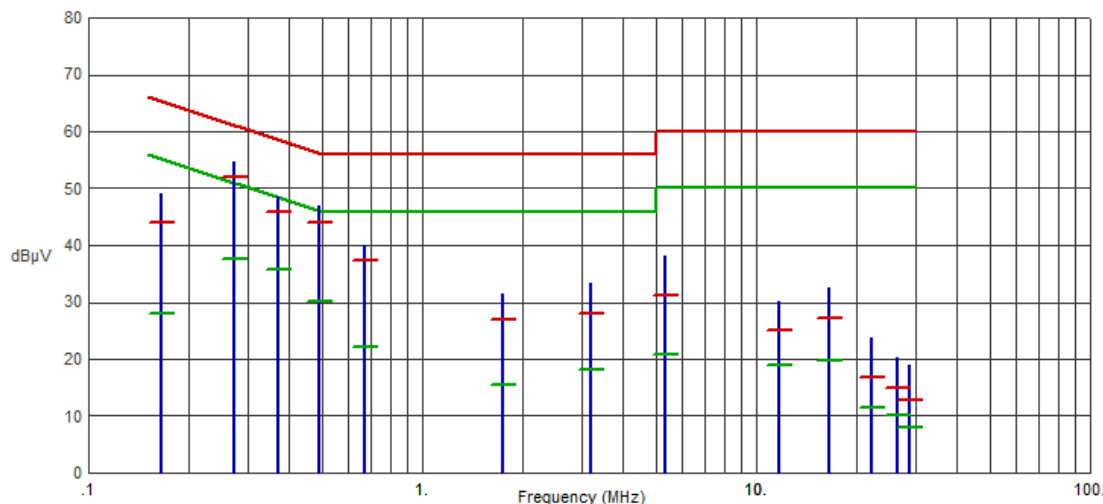
6. Measurement Data (continued)

6.10 Conducted Emissions Test Results

6.10.1. 120 Volts, 60 Hz Phase

Test No.: 321-17, 120 Volts, 60 Hz Phase

EN55032, Class B



Note: 321-17 is the data from the test report for the unintentional emissions

Frequency (MHz)	Pk Amp (dBμV)	QP Amp (dBμV)	QP Limit (dBμV)	QP Margin (dB)	Avg Amp (dBμV)	Avg Limit (dBμV)	Avg Margin (dB)	Comments
.1658	48.96	43.95	65.17	-21.22	28.04	55.17	-27.13	
.2738	54.58	52.02	61.00	-8.98	37.71	51.00	-13.29	
.3705	48.66	45.93	58.49	-12.56	35.60	48.49	-12.89	
.4898	46.81	44.10	56.17	-12.07	30.03	46.17	-16.14	
.6743	40.06	37.39	56.00	-18.61	22.14	46.00	-23.86	
1.7340	31.55	26.93	56.00	-29.07	15.60	46.00	-30.40	
3.1898	33.37	28.03	56.00	-27.97	18.15	46.00	-27.85	
5.3588	38.25	31.24	60.00	-28.76	20.84	50.00	-29.16	
11.7353	30.04	25.07	60.00	-34.93	19.06	50.00	-30.94	
16.5638	32.41	27.09	60.00	-32.91	19.78	50.00	-30.22	
22.1820	23.66	16.81	60.00	-43.19	11.43	50.00	-38.57	
26.5493	20.23	14.93	60.00	-45.07	10.08	50.00	-39.92	
28.7768	19.02	12.82	60.00	-47.18	8.12	50.00	-41.88	

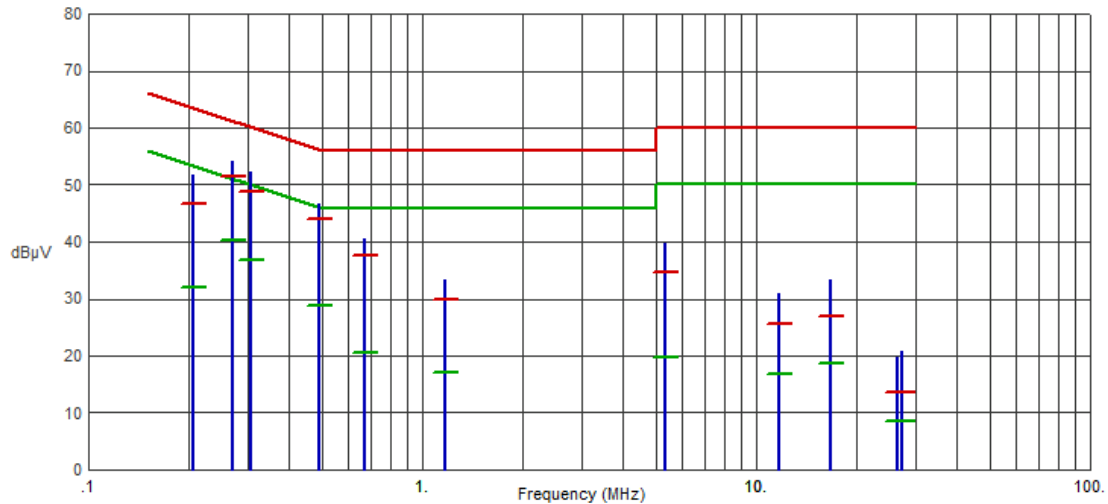
6. Measurement Data (continued)

6.10. Conducted Emissions Test Results (continued)

6.10.2. 120 Volts, 60 Hz Neutral

Test No.: 321-17, 120 Volts, 60 Hz Neutral

EN55032, Class B



Note: 321-17 is the data from the test report for the unintentional emissions

Frequency (MHz)	Pk Amp (dBμV)	QP Amp (dBμV)	QP Limit (dBμV)	QP Margin (dB)	Avg Amp (dBμV)	Avg Limit (dBμV)	Avg Margin (dB)	Comments
.2063	51.67	46.63	63.35	-16.72	31.97	53.35	-21.38	
.2693	54.14	51.48	61.14	-9.66	40.27	51.14	-10.87	
.3053	52.20	48.84	60.10	-11.26	36.92	50.10	-13.18	
.4898	46.56	44.05	56.17	-12.12	28.76	46.17	-17.41	
.6720	40.40	37.66	56.00	-18.34	20.56	46.00	-25.44	
1.1670	33.26	29.95	56.00	-26.05	17.09	46.00	-28.91	
5.3228	39.83	34.71	60.00	-25.29	19.66	50.00	-30.34	
11.7263	31.06	25.52	60.00	-34.48	16.91	50.00	-33.09	
16.7078	33.35	26.82	60.00	-33.18	18.61	50.00	-31.39	
26.5740	19.81	13.73	60.00	-46.27	8.61	50.00	-41.39	
27.2153	20.77	13.57	60.00	-46.43	8.55	50.00	-41.45	

6. Measurement Data (continued)

6.11. Public Exposure to Radio Frequency Energy Levels (1.1307 (b)(1))

6.11.1. SAR Test Exclusion Calculation

Requirement: Portable devices as defined in § 2.1093 of this chapter operating under Part 15 are subject to radio frequency radiation exposure requirements as specified in §§ 1.1307(b) and 2.1093 of this chapter.
For a 1-g SAR, the test exclusion result must be ≤ 3.0 .

Test Notes: The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by the following formula:

$$\text{SAR Test Exclusion} = \frac{P_{\text{MAX}}}{d_{\text{MIN}}} \times \sqrt{f_{(\text{GHz})}} \quad (1)$$

P_{MAX} mW Maximum power of channel, including tune-up tolerance

d_{MIN} mm Minimum test separation distance, mm (≤ 50 mm)

$f_{(\text{GHz})}$ GHz $f_{(\text{GHz})}$ is the RF channel transmit frequency in GHz (>100 MHz and <6 GHz)

(1) FCC OET 447498 - Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies.

Result: The device under test meets the exclusion requirement detailed in FCC OET 447498.

		Channel 1	Channel 2	Channel 3	
Input:	P_{MAX}	0.1205	0.2198	0.1645	mW
	d_{MIN}	5.00	5.00	5.00	mm
	$f_{(\text{GHz})}$	3.4920	4.2448	4.4910	GHz
Test Exclusion:		0.045	0.091	0.070	
Limit Exemption:		3.000	3.000	3.000	

¹ Taken from the peak data in Section 6.5 of this test report (converted to mW).

The device does not exceed the test limit exemption and therefore a routine SAR Evaluation is not required

UWB and BLE radios do not operate simultaneously.

6. Measurement Data (continued)

6.11. Public Exposure to Radio Frequency Energy Levels (1.1307 (b)(1)), RSS-GEN, Issue 4 Section 3.2, RSS 102, Issue 5

6.11.2 RF Exposure for devices that operate above 6 GHz

Center Frequency (GHz)	MPE Distance (cm)	DUT Output Power (dBm)	DUT Antenna Gain (dBi)	Power Density		FCC Limit (mW/cm ²)	IC Limit (W/m ²)
				(mW/cm ²)	(W/m ²)		
	(1)	(2)	(3)	(4)		(5)	(6)
6.490	5	-7.36	0.0	0.0005846	0.0058459	1	10

$$PD = \frac{OP + AG}{(4 \times \pi \times d^2)}$$

1. Reference CFR 2.1093(b): For purposes of this section, a portable device is defined as a transmitting device designed to be used so that the radiating structure(s) of the device is/are within 5 centimeters of the body of the user.
2. Section 6.7 of this test report.
3. Data supplied by the client.
4. Power density is calculated from field strength measurement and antenna gain.
5. Reference CFR 1.1310, Table 1: Limits for Maximum Permissible Exposure (MPE), Section (B): Limits for General Population/Uncontrolled Exposure.
6. Reference IC RSS-102 Section 4 Table 4 RF Field Strength Limits for Devices Used by the General Public (Uncontrolled Environment)

6. Measurement Data (continued)**6.11. Public Exposure to Radio Frequency Energy Levels (1.1307 (b)(1))****Public Exposure to Radio Frequency Energy Levels 1.1307 (b)(1), RSS-GEN, Issue 4
Section 3.2, RSS 102****6.11.3. RSS-102 Issue 5 Requirements**

Requirement: SAR evaluation is required if the separation distance between the user and/or bystander and the antenna and/or radiating element of the device is less than or equal to 20 cm, except when the device operates at or below the applicable output power level (adjusted for tune-up tolerance) for the specified separation distance defined in Table 1. Portable devices are subject to radio frequency radiation exposure requirements.

Test Notes: The limit was taken from Table 1 of RSS-102 Issue 5. For limb-worn devices where the 10 gram value applies, the exemption limits for routine evaluation in Table 1 are multiplied by a factor of 2.5.

Results: Compliant

Frequency	Separation Distance	Maximum Power	RSS-102 Limit	Result
MHz	mm	mW	mW	
3492	≤5	0.121	5.04	Compliant
4245	≤5	0.220	4.19	Compliant
4491	≤5	0.164	3.92	Compliant

7. 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 17025:2005 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 22, 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.

Both 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.

8. Test Images

8.1. Spurious and Harmonic Emissions – 10 kHz to 1 GHz Front



8. Test Images

8.2. Spurious and Harmonic Emissions – 10 kHz to 30 MHz Rear



8. Test Images

8.3. Spurious and Harmonic Emissions – 30 MHz to 1 GHz Rear



8. Test Images

8.4. Spurious and Harmonic Emissions – Above 1 GHz Front



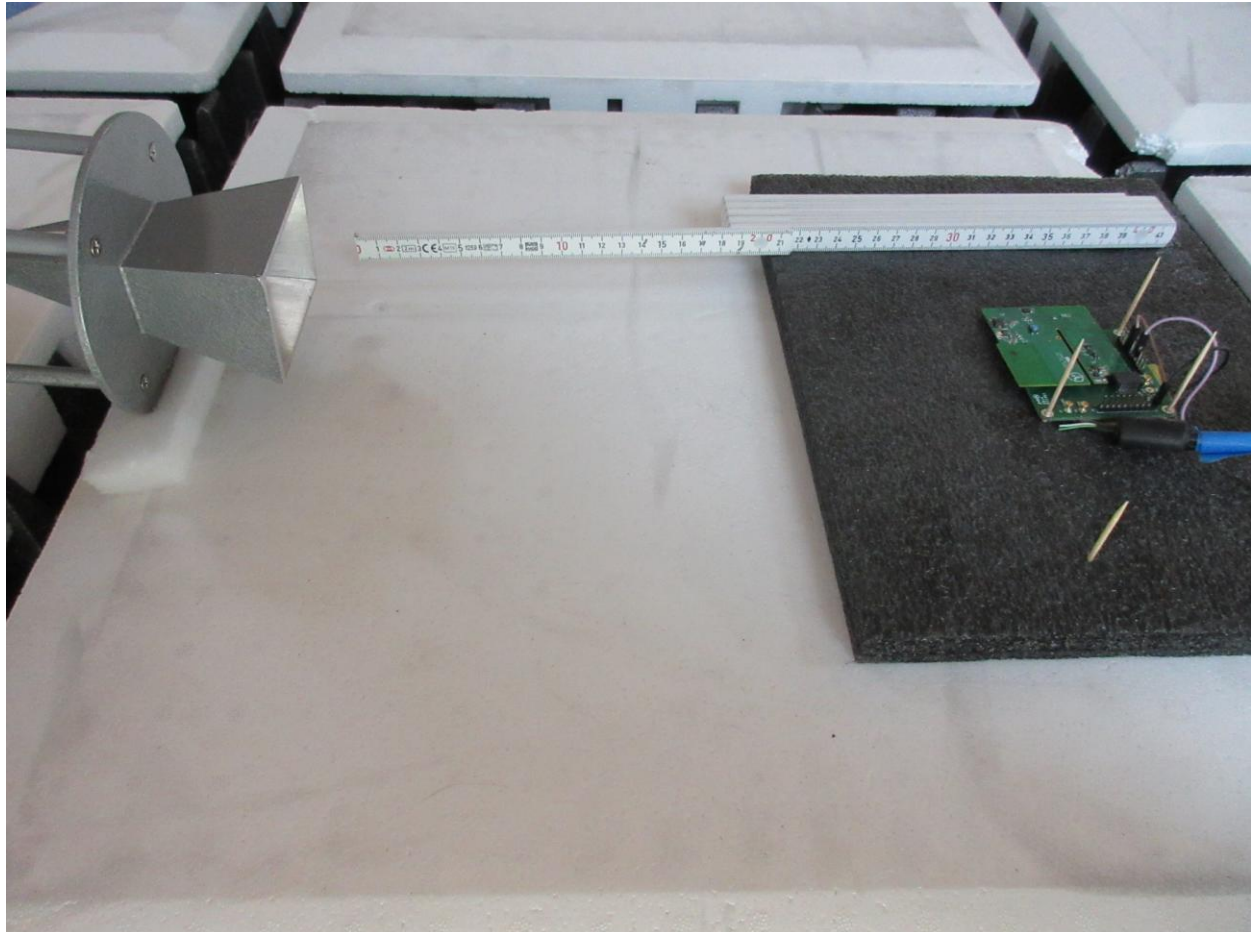
8. Test Images

8.5. Spurious and Harmonic Emissions – 1 to 18 GHz Rear



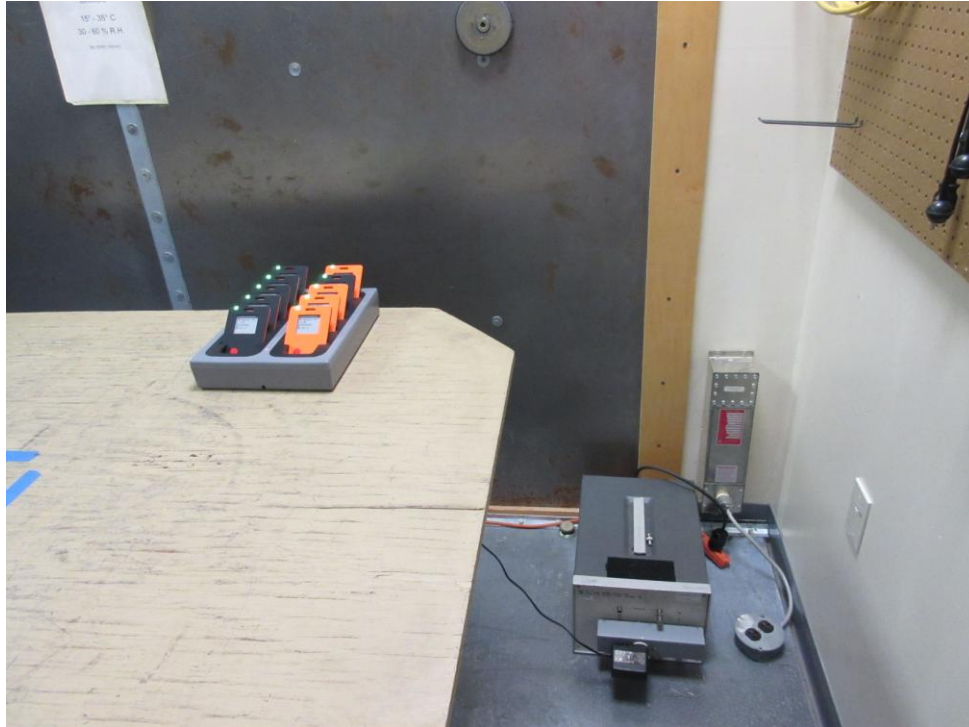
8. Test Images

8.6. Spurious and Harmonic Emissions – 18 to 40 GHz Rear



8. Test Images

8.7. Conducted Emissions (Front View)



8. Test Images

8.8. Conducted Emissions (Rear View)

