EMISSIONS TEST REPORT

(FULL COMPLIANCE)

Report Number: 102965577BOX-018c
Project Number: G102965577

Report Issue Date: 08/06/2017

Model(s) Tested: 7100MHB (5 GHz)
Model(s) Partially Tested: None
Model(s) Not Tested but declared equivalent by the client: 7150MHB

Standards: FCC Part 15 Subpart E: 2017
FCC Part 15 Subpart C: 2017
FCC Part 15 Subpart B: 2017
RSS 210 Issue 9: 08/2016
RSS 102 Issue 5: 03/2015
ICES 003 Issue 6: 01/2016

Tested by:
Intertek Testing Services NA, Inc.
70 Codman Hill Road
Boxborough, MA 01719
USA

Client:
Philips Lifeline
111 Lawrence St
Framingham, MA 01702-8156
USA

Report prepared by

Kouma Sinn / Staff Engineer, EMC

Report reviewed by

Vathana Ven / Staff Engineer, EMC

Table of Contents

1 Introduction and Conclusion

The tests indicated in section 2.0 were performed on the product constructed as described in section 4.0. The remaining test sections are the verbatim text from the actual data sheets used during the investigation. These test sections include the test name, the specified test Method, a list of the actual Test Equipment Used, documentation Photos, Results and raw Data. No additions, deviations, or exclusions have been made from the standard(s) unless specifically noted.

Based on the results of our investigation, we have concluded the product tested **complies** with the requirements of the standard(s) indicated. The results obtained in this test report pertain only to the item(s) tested. Intertek does not make any claims of compliance for samples or variants which were not tested.

2 Test Summary

Section	Test full name	Result
3	Client Information	--
4	Description of Equipment Under Test and Variant Models	--
5	System Setup and Method	--
6	Transmitter Conducted Output Power and Human RF Exposure (CFR47 FCC Part 15 Subpart E: 2017 CFR47 FCC Part 15 Subpart C (15.247): 2017 RSS 247: 02/2017 RSS 102: 03/2015)	Compliant
7	Power Spectral Density (CFR47 FCC Part 15 Subpart E: 2017 CFR47 FCC Part 15 Subpart C (15.247): 2017 RSS 247: 02/2017)	Compliant
8	Bandwidth (CFR47 FCC Part 15 Subpart E: 2017 CFR47 FCC Part 15 Subpart C (15.247): 2017 RSS 247: 02/2017)	Compliant
9	Radiated Emissions (Transmitter Spurious, Band edge, Digital devices and Receiver) (CFR47 FCC Part 15 Subpart E: 2017 CFR47 FCC Part 15 Subpart C (15.247): 2017 RSS 247: 02/2017 FCC Part 15 Subpart B: 2017 ICES 003: 01/2016)	Compliant
10	Conducted Emissions (CFR47 FCC Part 15 Subpart E: 2017 CFR47 FCC Part 15 Subpart C (15.247): 2017 RSS 247: 02/2017 FCC Part 15 Subpart B: 2017 ICES 003: 01/2016)	Compliant
11	Frequency Stability (CFR47 FCC Part 15 Subpart E: 2017 RSS 247: 02/2017)	Compliant
12	Revision History	--

Notes: Testing covers Band 1 and Band 4 only.

3 Client Information

This EUT was tested at the request of:

Client: Philips Lifeline
111 Lawrence St
Framingham, MA 01702-8156
USA

Contact: Bill Bekdash
Telephone: +972 9 9603900
Fax: None
Email: bill.bekdash@philips.com

4 Description of Equipment Under Test and Variant Models

Manufacturer: Philips Lifeline
111 Lawrence St
Framingham, MA 01702-8156
USA.

Equipment Under Test			
Description	Manufacturer	Model Number	Serial Number
Medical alert system.	Philips Lifeline	7100MHB	1040000149 (Unit 1)
Medical alert system.	Philips Lifeline	7100MHB	1040000123 (Unit 2)
AC Adapter	Philips Lifeline	MANGO018-7.5B-USA2	(Not Labeled)

Receive Date:	04/20/2017 & 08/04/2017
Received Condition:	Good
Type:	Production

Description of Equipment Under Test (provided by client)
Medical alert system.

Equipment Under Test Power Configuration			
Rated Voltage	Rated Current	Rated Frequency	Number of Phases
Button (Internal Battery)	0.5 A	N/A	Single
AC - DC Adapter (100-240 VAC)	0.5 A	50/60 Hz	Single

Operating modes of the EUT:

No.	Descriptions of EUT Exercising
1	Transmit mode – Transmitting consecutively on low, mid and high channels.
2	Receive mode.

Software used by the EUT:

No.	Descriptions of EUT Exercising
1	X2.0.41619

Radio/Receiver Characteristics	
Frequency Band(s)	Band 1: 5180-5240 MHz Band 4: 5745-5825 MHz
Modulation Type(s)	802.11 a/n, OFDM
Data Rate(s)	Lowest: 6 Mbps, Highest: 54 Mbps
Maximum Output Power	Band 1: 5180-5250 MHz, 13.33 dBm Band 4: 5745-5825 MHz, 12.57 dBm
Test Channels	As indicated in the test sections
Maximum Bandwidth (26 dB)	21.57 MHz
Frequency Hopper: Number of Hopping Channels	N/A
Frequency Hopper: Channel Dwell Time	N/A
Frequency Hopper: Max interval between two instances of use of the same channel	N/A
MIMO Information (# of Transmit and Receive antenna ports)	One Antenna
Equipment Type	Standalone host
ETSI LBT/Adaptivity	N/A
ETSI Adaptivity Type	N/A
ETSI Temperature Category (I, II, III)	N/A
ETSI Receiver Category (1, 2, 3)	N/A
Antenna Type and Gain	Custom Designed LDS on plastic carrier, Total Efficiency 30% (no gain specified).

Variant Models:

The following variant models were not tested as part of this evaluation, but have been identified by the manufacturer as being electrically identical models, depopulated models, or with reasonable similarity to the model(s) tested. Intertek does not make any claims of compliance for samples or variants which were not tested.

7150MHB

The models covered are 7100MHB and 7150MHB. The tested model covered in this report is the 7100MHB. It represents the worse-case of the 7100MHB and 7150MHB. According to the manufacturer, the 7150MHB help button is physically identical to the 7100MHB. They both have the exactly same hardware, including cellular, WiFi, Bluetooth modules. The only difference is in the firmware configuration on turning ON/OFF the ISM transceiver.

The 7100MHB is configured to use the ISM transceiver to report alarm and device status via 7000C or 7000L communicator when the 7100MHB user is at home. The 7150MHB is configured NOT to use the ISM transceiver, and report alarm and device status ONLY through the cell network. Note that when the 7100MHB is out of the 7000C or 7000L communicators range, it behaves exactly the same as 7150MHB

5 System Setup and Method

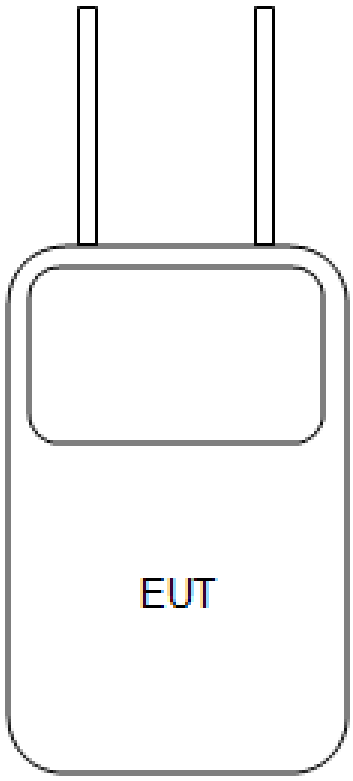
Cables					
ID	Description	Length (m)	Shielding	Ferrites	Termination
--	Adapter to charging cup (fixed)	2	None	None	Charger

Support Equipment			
Description	Manufacturer	Model Number	Serial Number
Laptop	Toshiba	Satellite-C55-B5272	5E247026P

5.1 Method:

Configuration as required by FCC Part 15 Subpart E: 2017, FCC Part 15 Subpart C: 2017, FCC Part 15 Subpart B: 2017, RSS 247 Issue 2: 02/2017, RSS 102 Issue 5: 03/2015, ICES 003 Issue 6: 01/2016 ANS C 63.10: 2013, and ANSI C 63.4: 2014, KDB 789033 DO2 of 5/2/2017 Clause E (2)(e).

5.2 EUT Block Diagram:



6 Transmitter Conducted Output Power and Human RF Exposure

6.1 Method

Tests are performed in accordance with FCC Part 15 Subpart E, FCC Part 15 Subpart C (15.247), RSS 247, RSS 102 and KDB 789033 DO2 of 5/2/2017 Clause E (2)(e).

TEST SITE: EMC Lab

The EMC Lab has one Semi-anechoic Chamber and one Shielded Chamber. AC Mains Power is available at 120, 230, and 277 Single Phase; 208, 400, and 480 3-Phase. Large reference ground-planes are installed in the general lab area to facilitate EMC work not requiring a shielded environment.

6.2 Test Equipment Used:

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
ROS005-1'	Signal and Spectrum Analyzer	Rohde and Shwartz	FSW43	100646	09/15/2016	09/15/2017
DAV004'	Weather Station	Davis Instruments	7400	PE80529A61A	05/10/2017	05/10/2018
MIN23'	Attenuator 2 watt 20dB DC-26GHz	Mini Circuits	BW-S20-2W263+	MIN23	05/26/2017	05/26/2018
CBLSHF204'	Cable, SMA - SMA, 9kHz -40GHz, (Cable Kit 5)	Huber + Suhner	Sucoflex 102EA	234714001	08/27/2016	08/27/2017

Software Utilized:

Name	Manufacturer	Version
None		

6.3 Results:

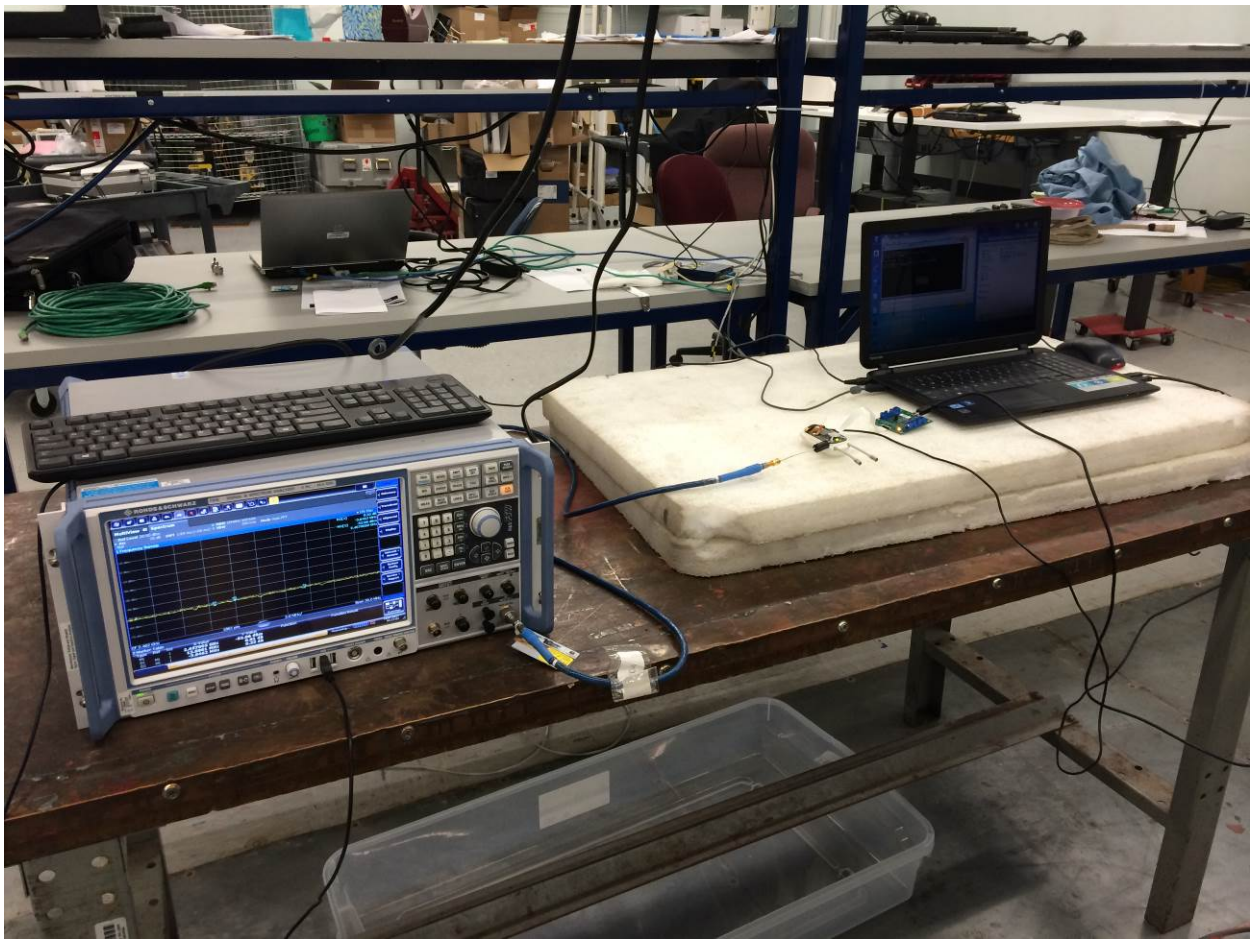
The sample tested was found to Comply.

For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.

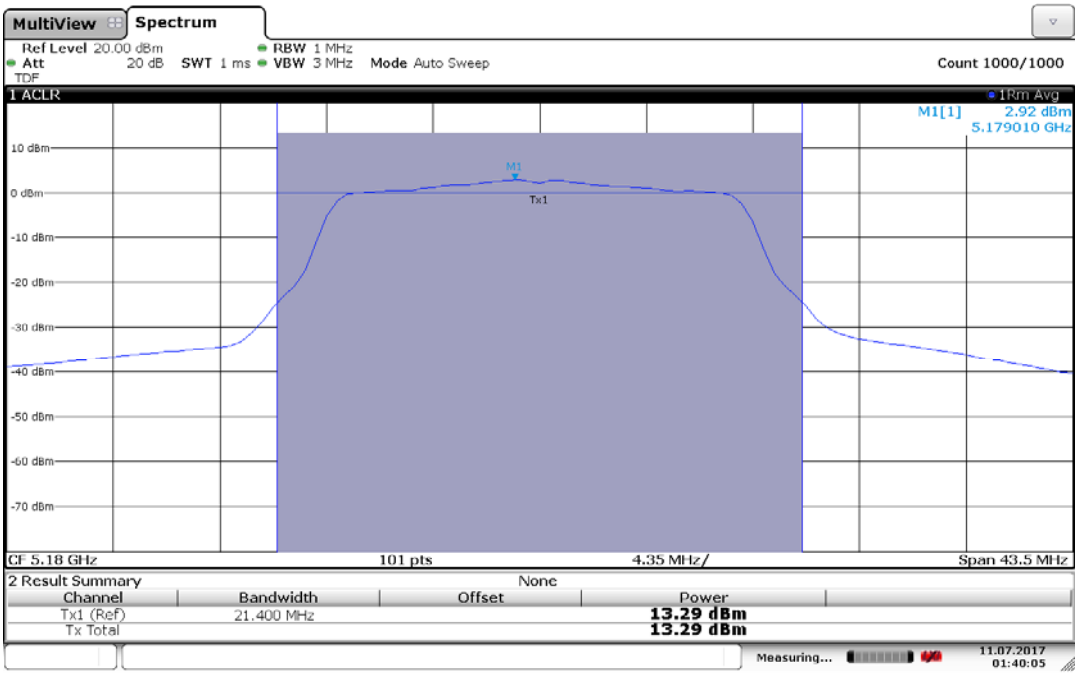
6.4 Setup Photograph:



6.5 Test Data:

Band 1 (20 MHz Bandwidth)

Low Channel: 5180 MHz, Data Rate: 6 Mbps, Output Power: 13.29 dBm



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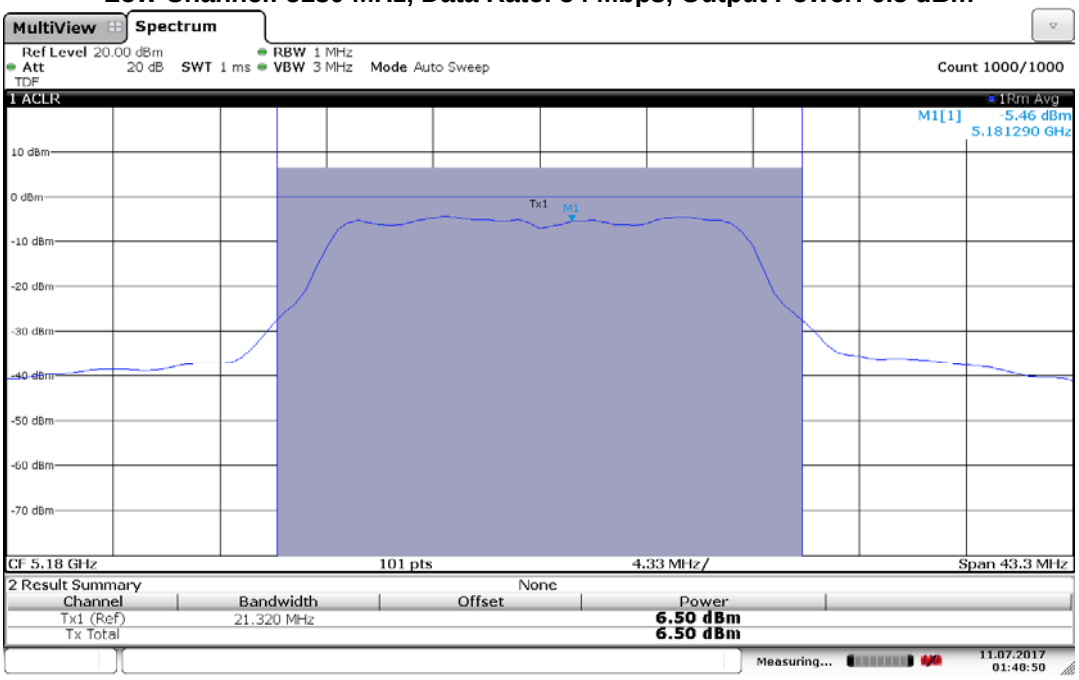
Band 1 (20 MHz Bandwidth)

Low Channel: 5180 MHz, Data Rate: 54 Mbps, Output Power: 6.5 dBm



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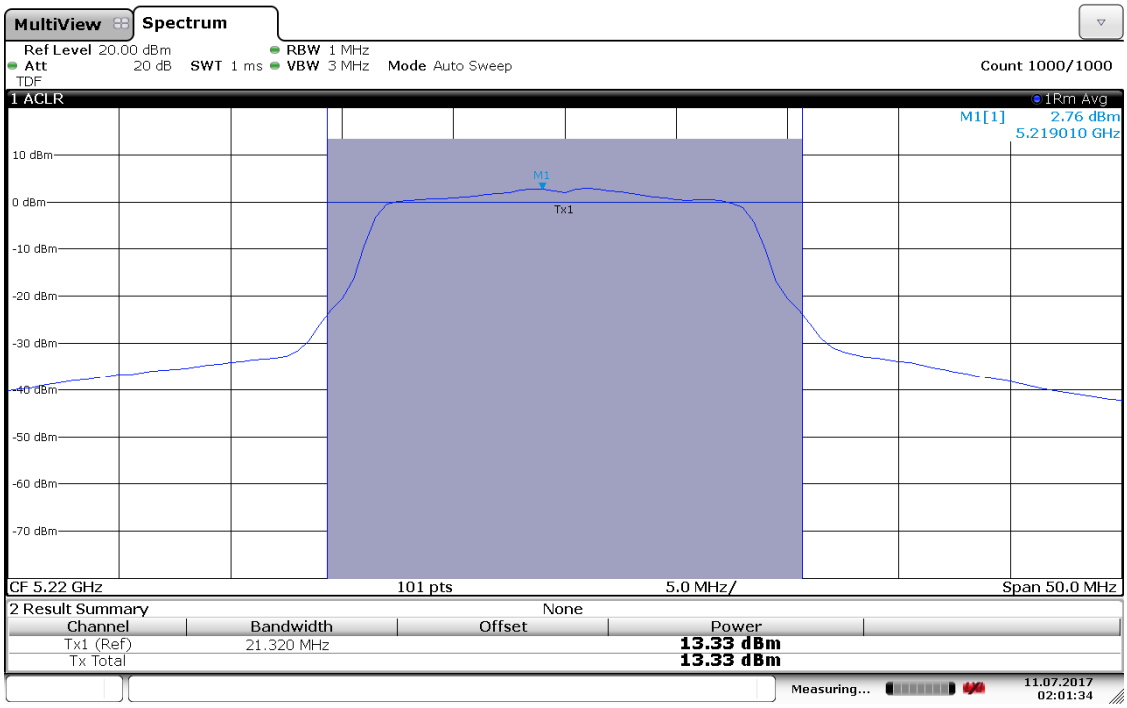
Band 1 (20 MHz Bandwidth)

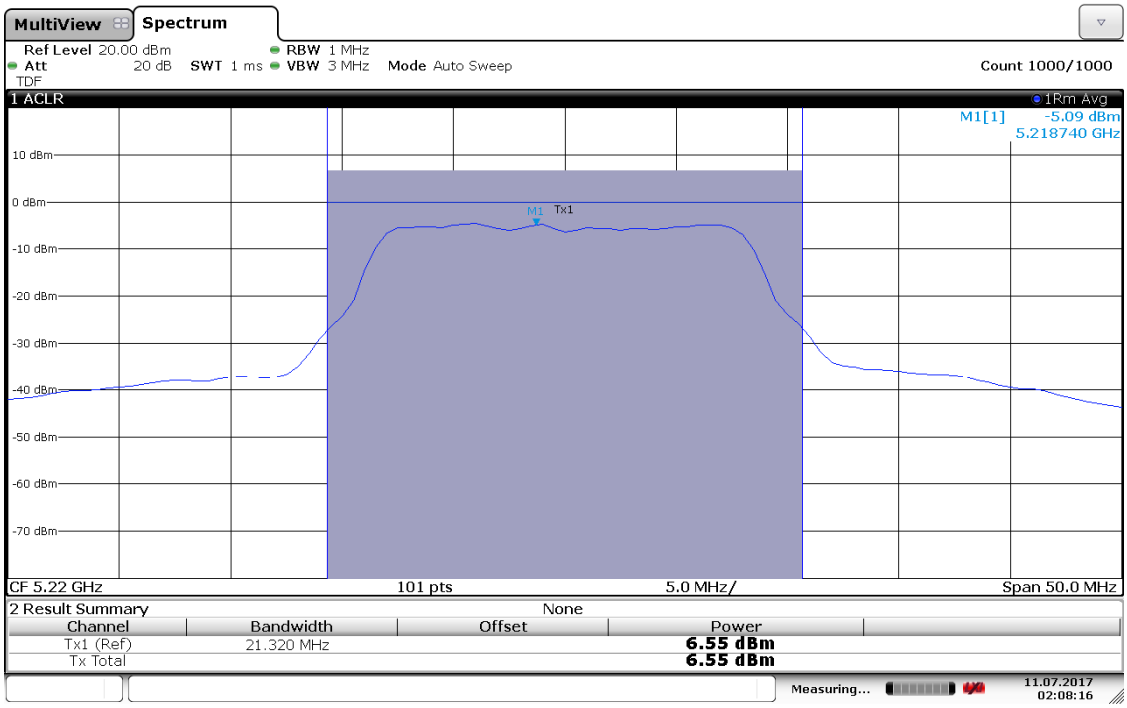
Mid Channel: 5220 MHz, Data Rate: 6 Mbps, Output Power: 13.33 dBm



Date: 11.JUL.2017 02:01:33

Band 1 (20 MHz Bandwidth)

Mid Channel: 5220 MHz, Data Rate: 54 Mbps, Output Power: 6.55 dBm



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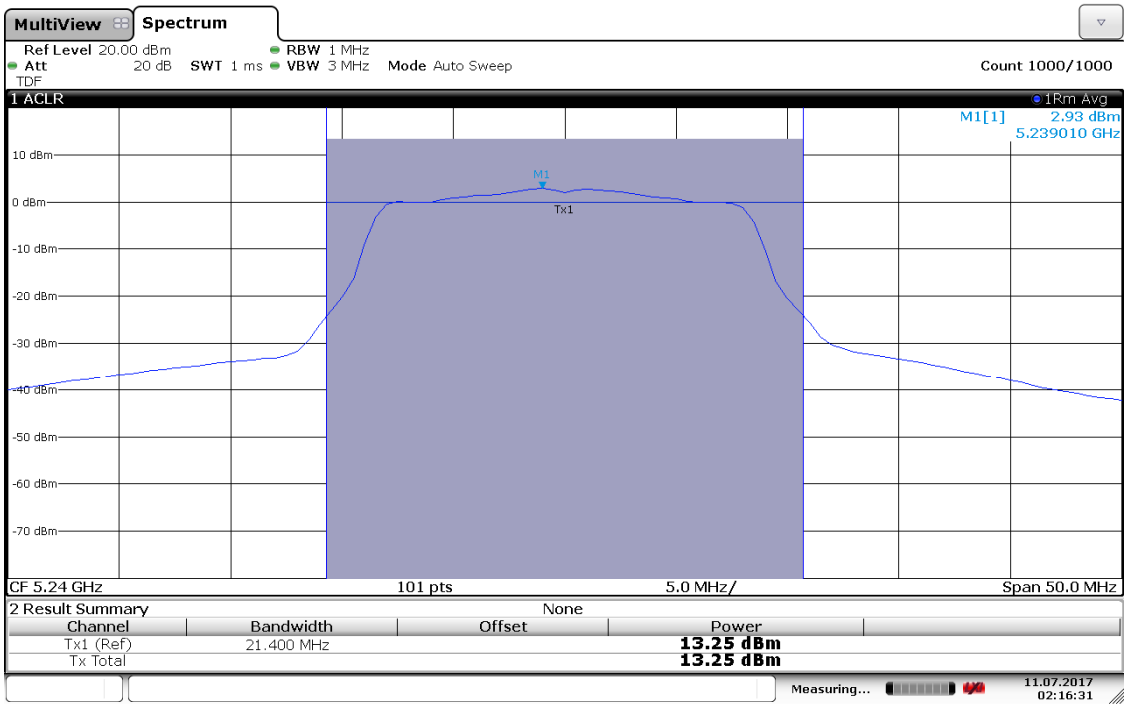
Band 1 (20 MHz Bandwidth)

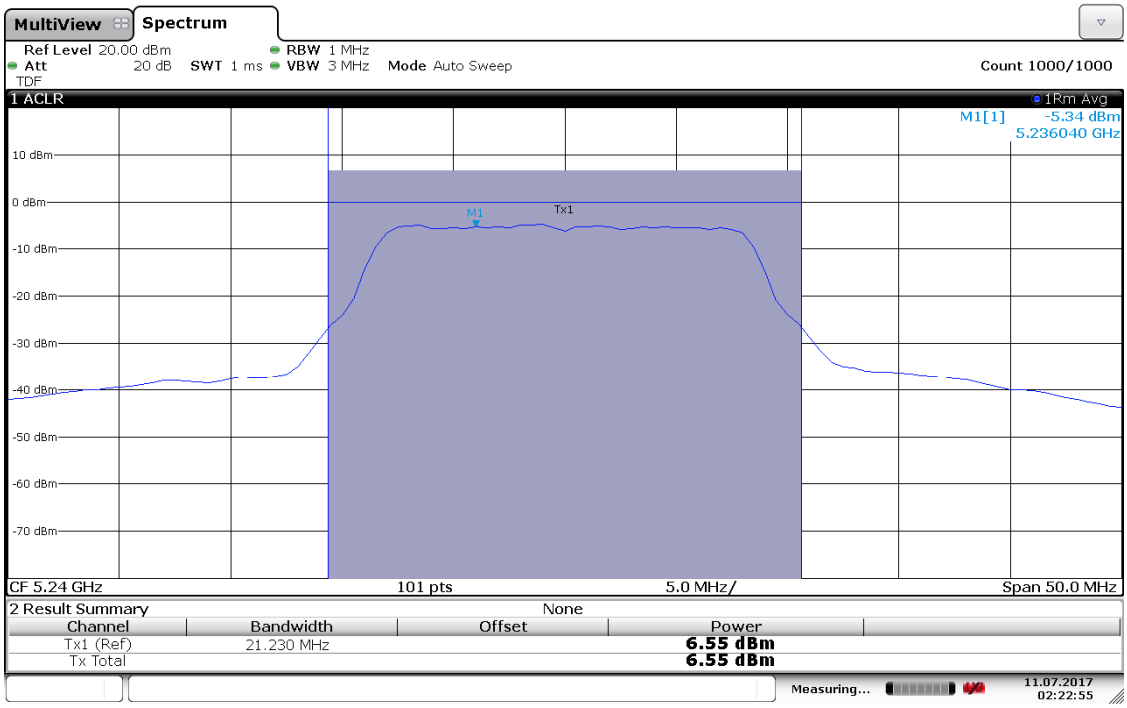
High Channel: 5240 MHz, Data Rate: 6 Mbps, Output Power: 13.25 dBm



Date: 11.JUL.2017 02:16:31

Band 1 (20 MHz Bandwidth)

High Channel: 5240 MHz, Data Rate: 54 Mbps, Output Power: 6.55 dBm



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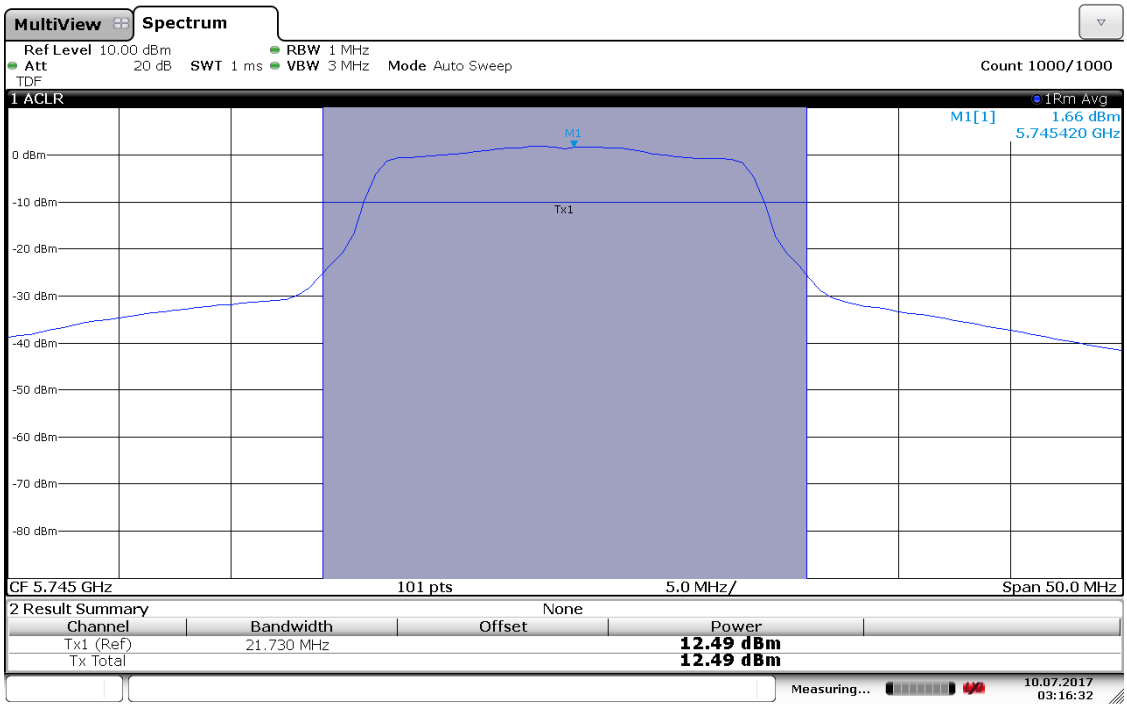
Band 4 (20 MHz Bandwidth)

Low Channel: 5745 MHz, Data Rate: 6 Mbps, Output Power: 12.49 dBm



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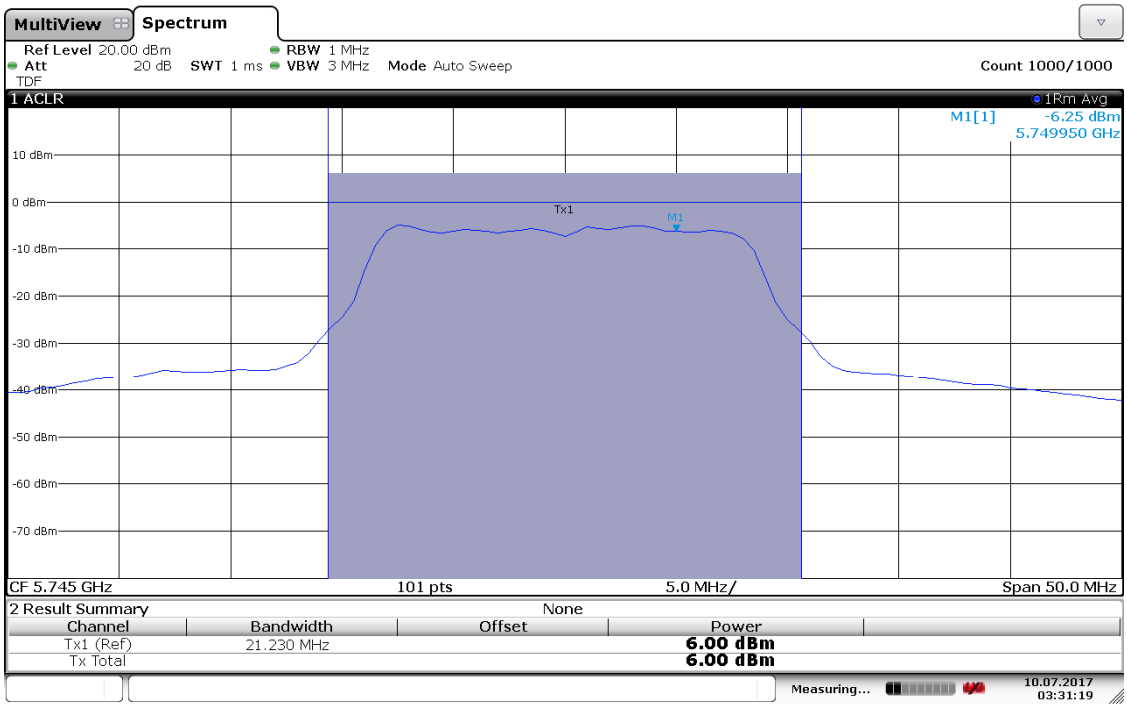
Band 4 (20 MHz Bandwidth)

Low Channel: 5745 MHz, Data Rate: 54 Mbps, Output Power: 6.00 dBm



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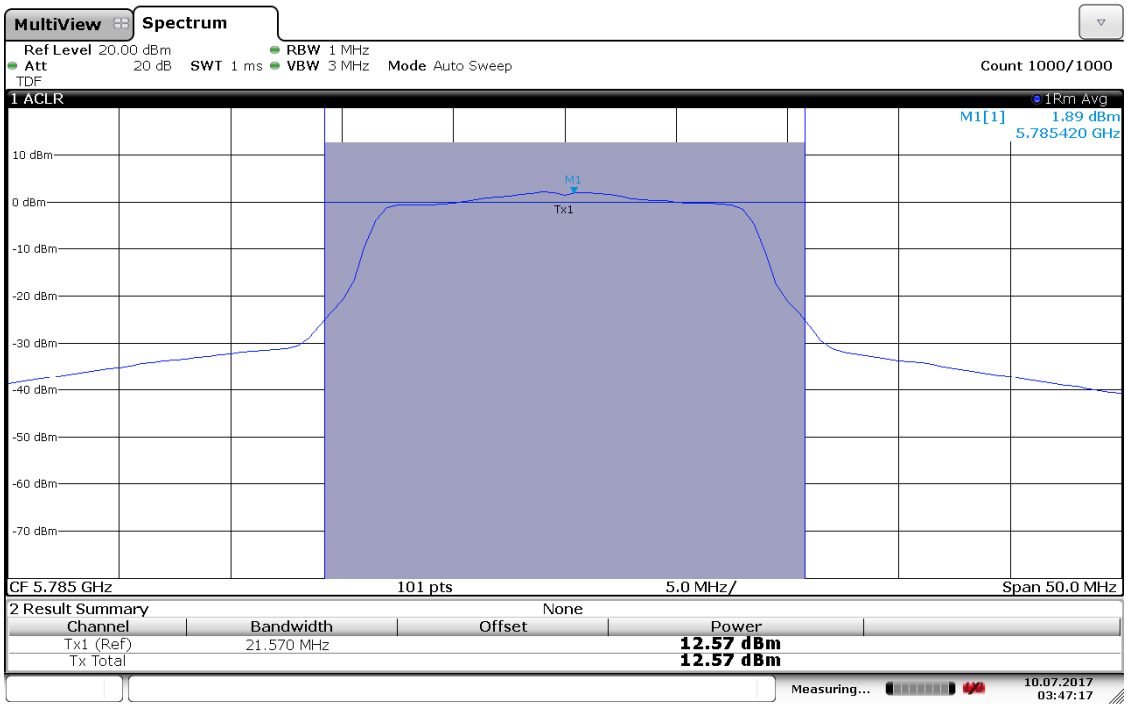
Band 4 (20 MHz Bandwidth)

Mid Channel: 5785 MHz, Data Rate: 6 Mbps, Output Power: 12.57 dBm



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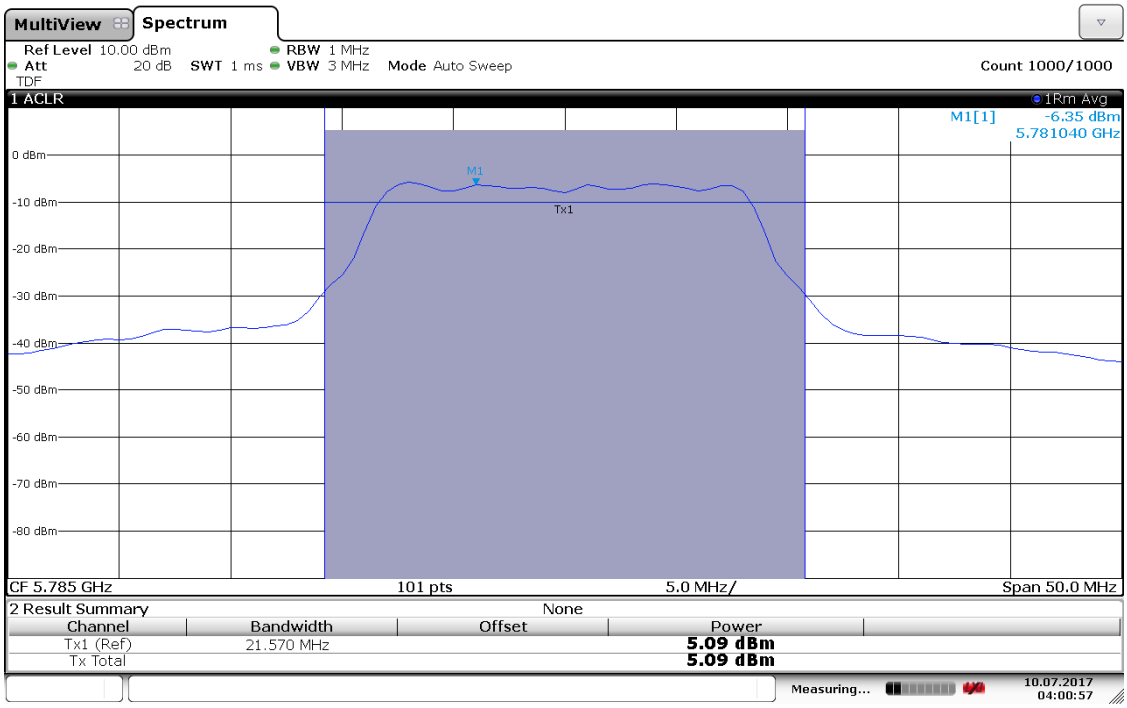
Band 4 (20 MHz Bandwidth)

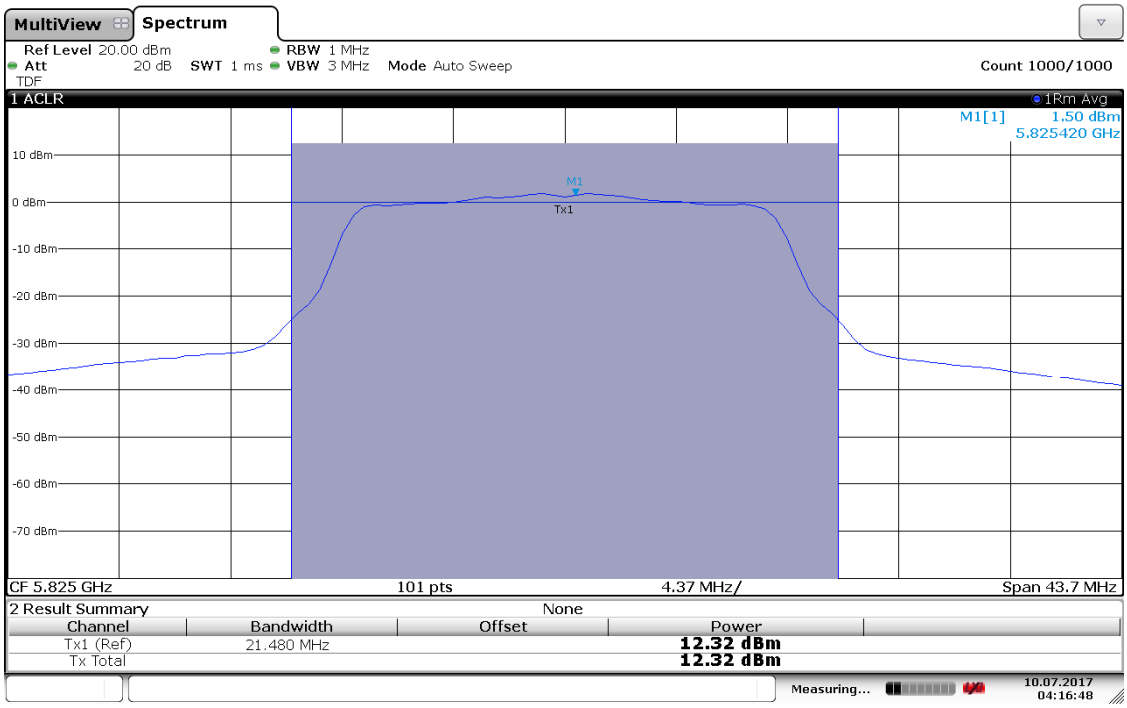
Mid Channel: 5785 MHz, Data Rate: 54 Mbps, Output Power: 5.09 dBm



Date: 10.JUL.2017 04:00:57

Band 4 (20 MHz Bandwidth)

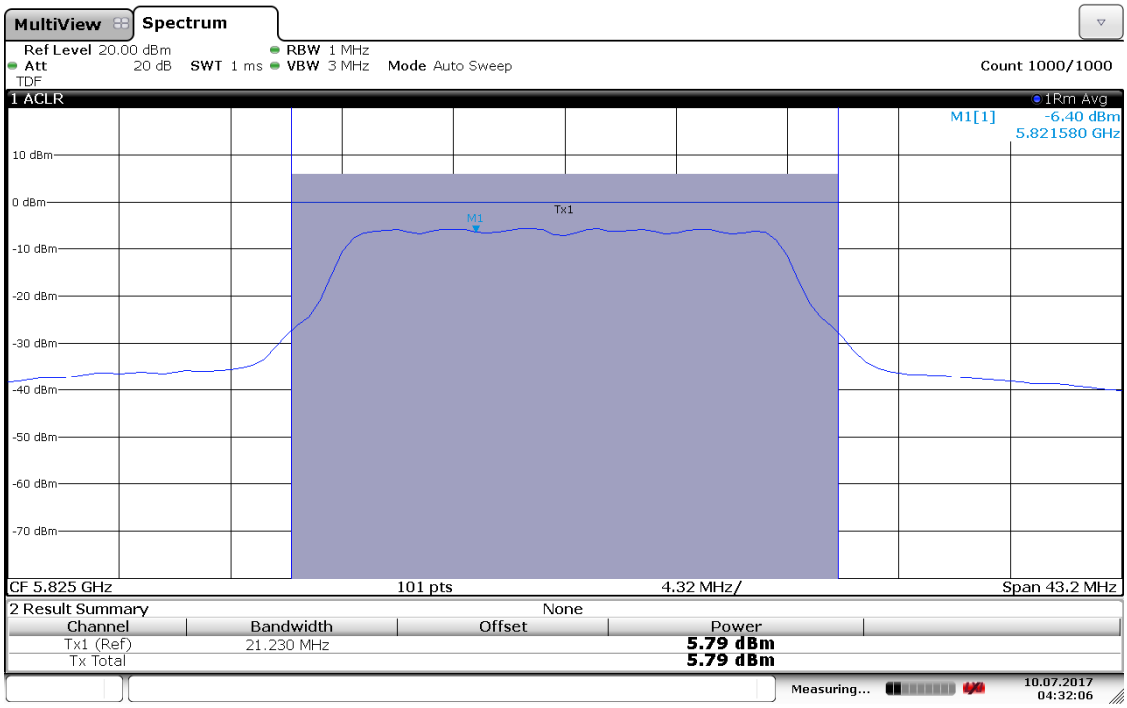
High Channel: 5825 MHz, Data Rate: 6 Mbps, Output Power: 12.32 dBm



Date: 10.JUL.2017 04:16:48

Band 4 (20 MHz Bandwidth)

High Channel: 5825 MHz, Data Rate: 54 Mbps, Output Power: 5.79 dBm



Date: 10.JUL.2017 04:32:05

6.6 Test – Human RF Exposure:

5180-5240 MHz

Maximum Output Power = 13.33 dBm
Maximum antenna gain = no gain specified
EIRP = 13.33 dBm
Output Power = 0.0215 W
$S = EIRP / 4\pi D^2 = 0.0215/4\pi(0.2)^2$
$S = 0.0423\ W/m^2$

5745-5825 MHz

Maximum Output Power = 12.57 dBm
Maximum antenna gain = no gain specified
EIRP = 12.57
Output Power in mW = 0.0181 W
$S = EIRP / 4\pi D^2 = 0.0181/(4\pi(0.2)^2)$
$S = 0.0360\ W/m^2$

FCC Limit for MPE @ 5 GHz is 10 W/m^2

RSS 102 Limit for MPE @ 5 GHz is 8.83 W/m^2

Power density calculated in the all 4 bands above is below the limits.

Test Personnel:	Kouma Sinn KPS	Test Date:	08/05/2017 & 08/06/2017
Supervising/Reviewing Engineer: (Where Applicable)	Vathana F. Ven VFV		
Product Standard:	FCC Part 15 Subpart E RSS 247, RSS 102	Limit Applied:	See report section 6.3
Input Voltage:	120VAC 60Hz Powered via laptop USB port		
Pretest Verification w/ Ambient Signals or BB Source:	**N/A**	Ambient Temperature:	21, 21 ºC
		Relative Humidity:	68, 47 %
		Atmospheric Pressure:	1002, 1004 mbars

Deviations, Additions, or Exclusions: None

7 Power Spectral Density

7.1 Method

Tests are performed in accordance with FCC Part 15 Subpart E, FCC Part 15 Subpart C (15.247) and RSS 247, KDB 789033 DO2 of 5/2/2017 Clause E (2)(e).

TEST SITE: EMC Lab

The EMC Lab has one Semi-anechoic Chamber and one Shielded Chamber. AC Mains Power is available at 120, 230, and 277 Single Phase; 208, 400, and 480 3-Phase. Large reference ground-planes are installed in the general lab area to facilitate EMC work not requiring a shielded environment.

7.2 Test Equipment Used:

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
ROS005-1'	Signal and Spectrum Analyzer	Rohde and Shwartz	FSW43	100646	09/15/2016	09/15/2017
DAV004'	Weather Station	Davis Instruments	7400	PE80529A61A	05/10/2017	05/10/2018
MIN23'	Attenuator 2 watt 20dB DC-26GHz	Mini Circuits	BW-S20-2W263+	MIN23	05/26/2017	05/26/2018
CBLSHF204'	Cable, SMA - SMA, 9kHz -40GHz, (Cable Kit 5)	Huber + Suhner	Sucoflex 102EA	234714001	08/27/2016	08/27/2017

Software Utilized:

Name	Manufacturer	Version
None		

7.3 Results:

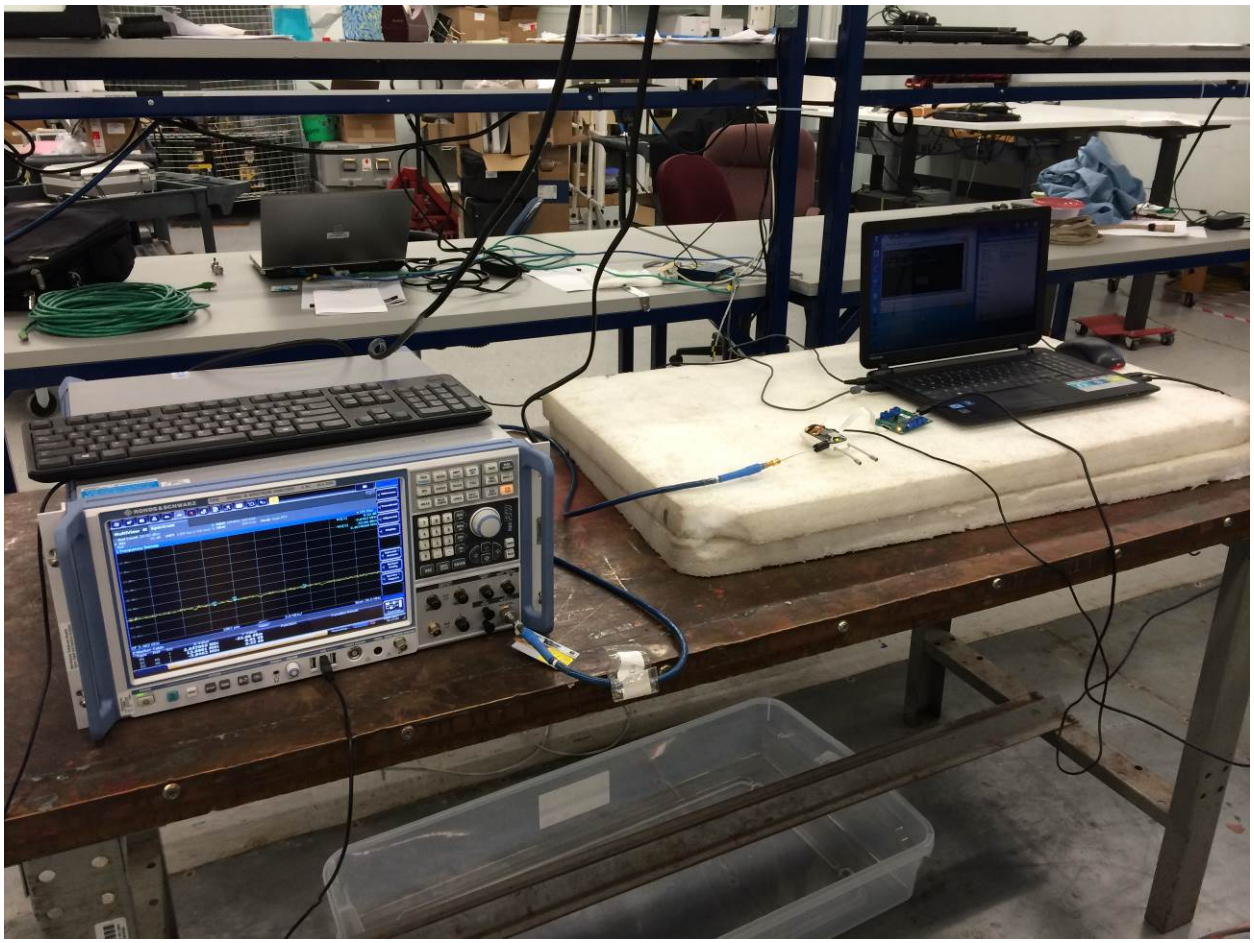
The sample tested was found to Comply.

For client devices in the 5.15-5.25 GHz band the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.

For the band 5.725-5.85 GHz the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.

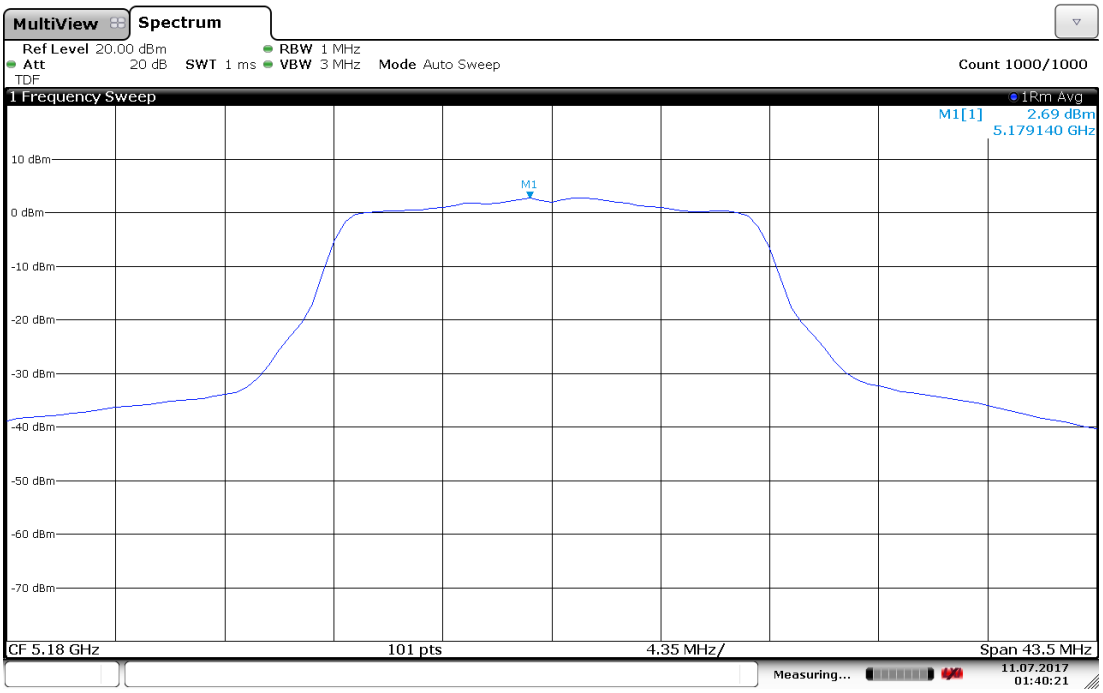
7.4 Setup Photograph:



7.5 Plots/Data:

Band 1 (20 MHz Bandwidth)

Low Channel: 5180 MHz, Data Rate: 6 Mbps, Power Spectral Density: 2.69 dBm



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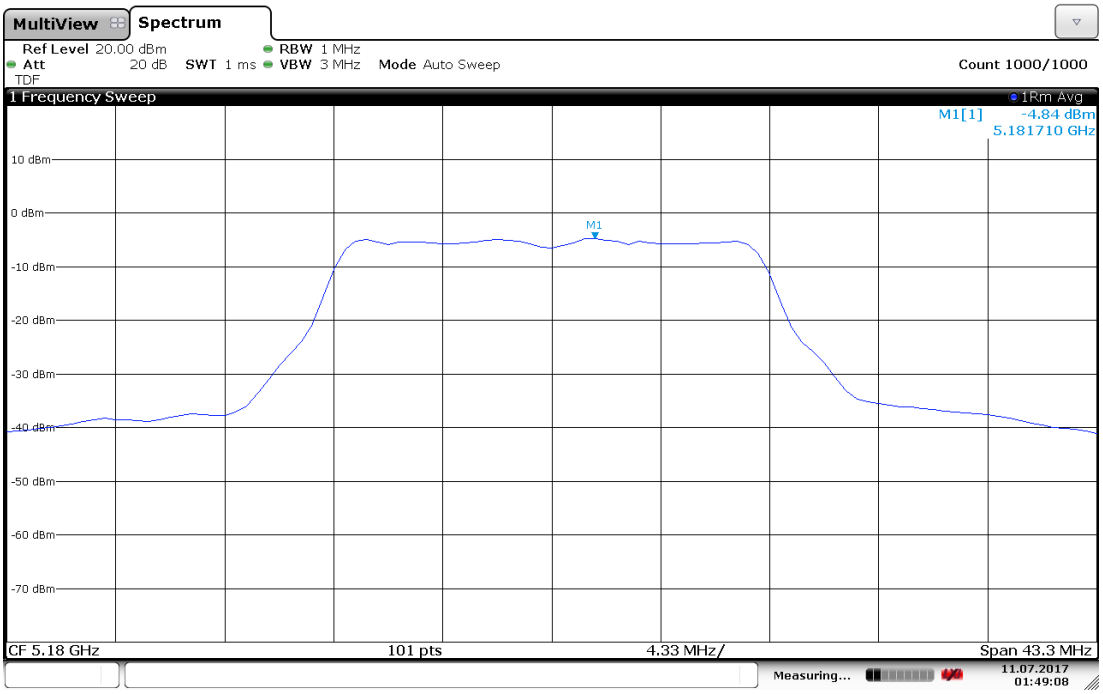
Band 1 (20 MHz Bandwidth)

Low Channel: 5180 MHz, Data Rate: 54 Mbps, Spectral Density: -4.84 dBm



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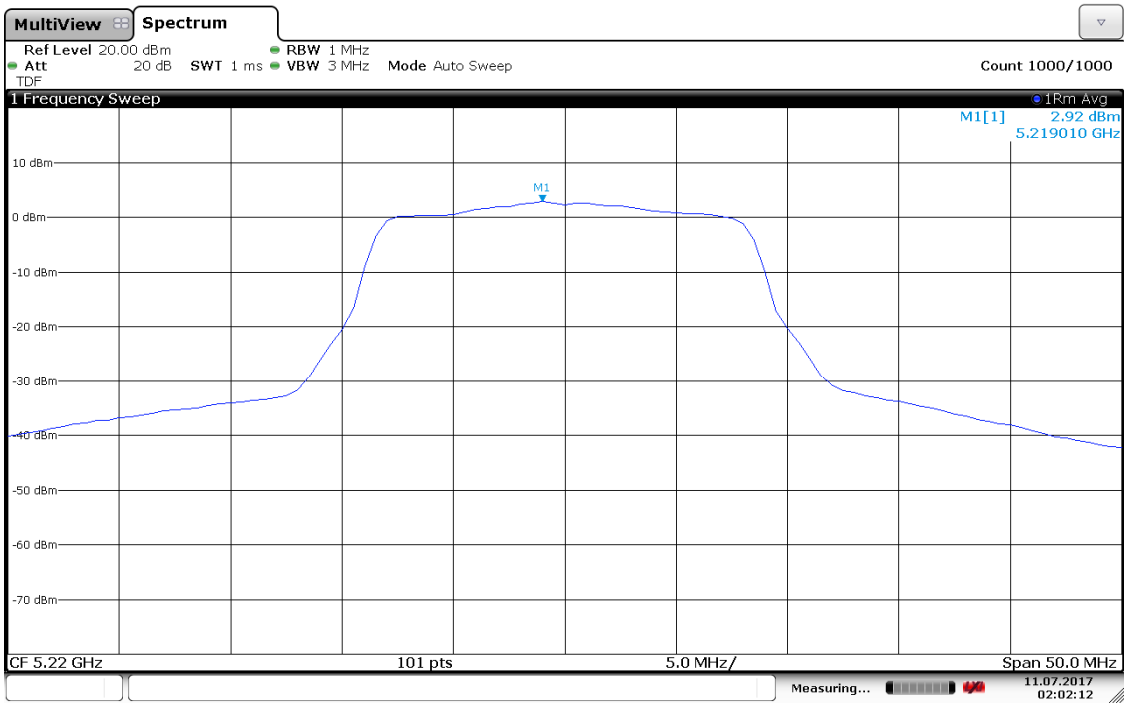
Band 1 (20 MHz Bandwidth)

Mid Channel: 5220 MHz, Data Rate: 6 Mbps, Power Spectral Density: 2.92 dBm



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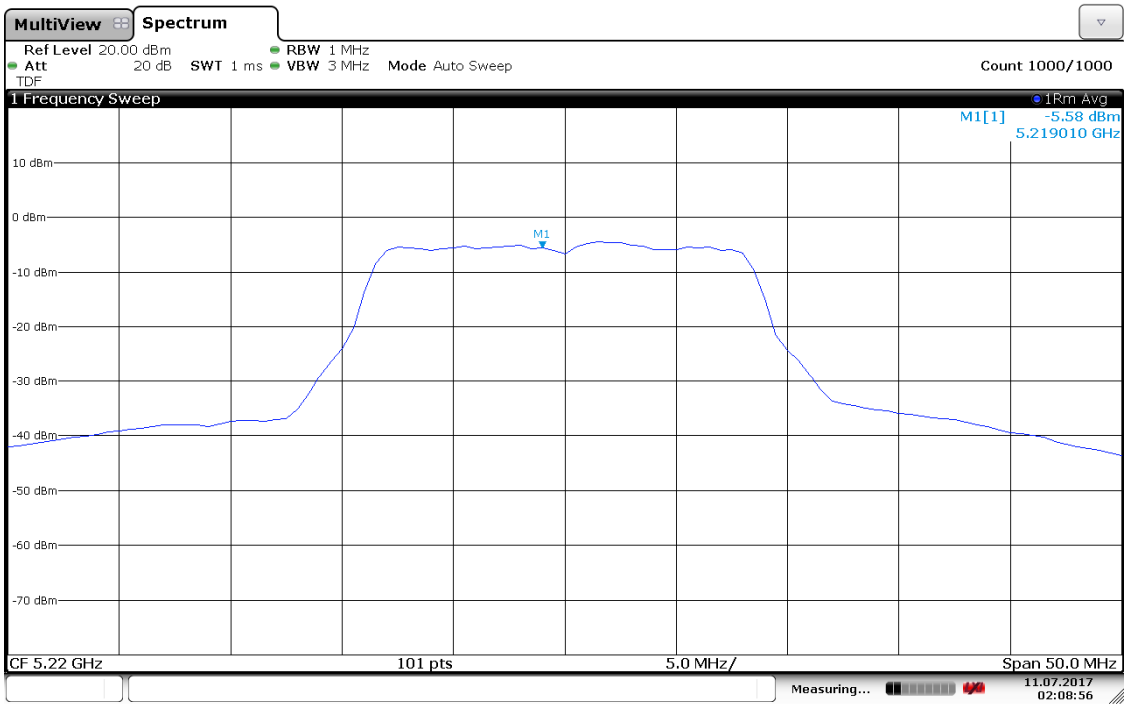
Band 1 (20 MHz Bandwidth)

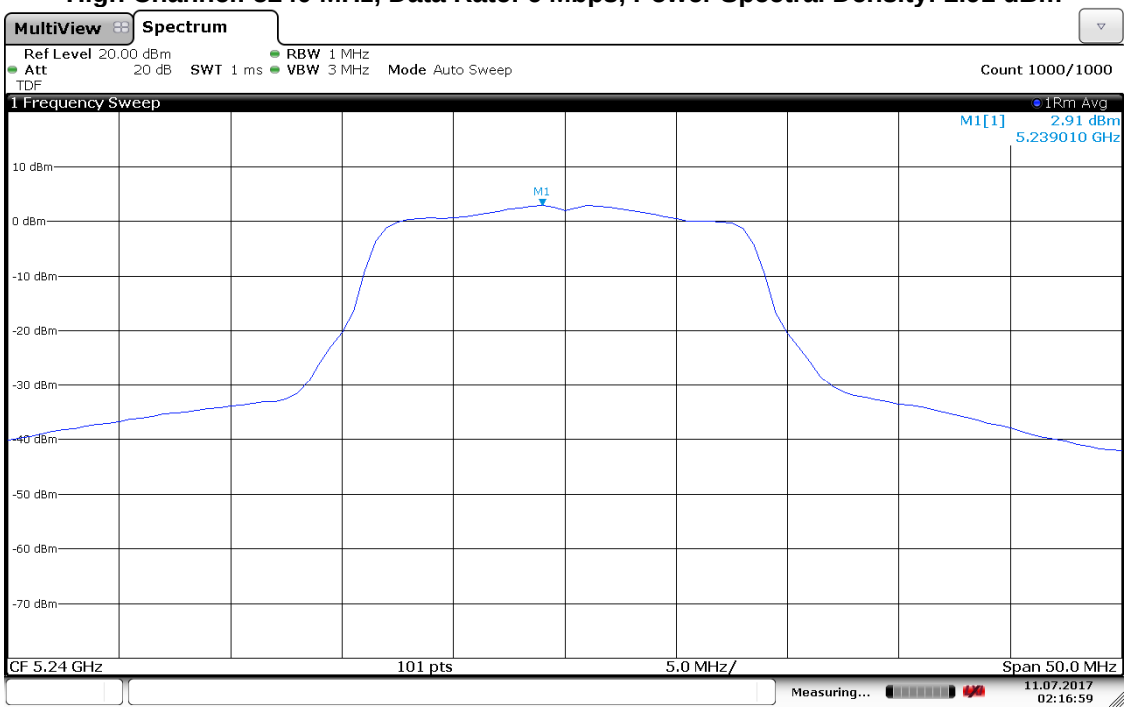
Mid Channel: 5220 MHz, Data Rate: 54 Mbps, Power Spectral Density: -5.58 dBm



Date: 11.JUL.2017 02:08:55

Band 1 (20 MHz Bandwidth)

High Channel: 5240 MHz, Data Rate: 6 Mbps, Power Spectral Density: 2.91 dBm



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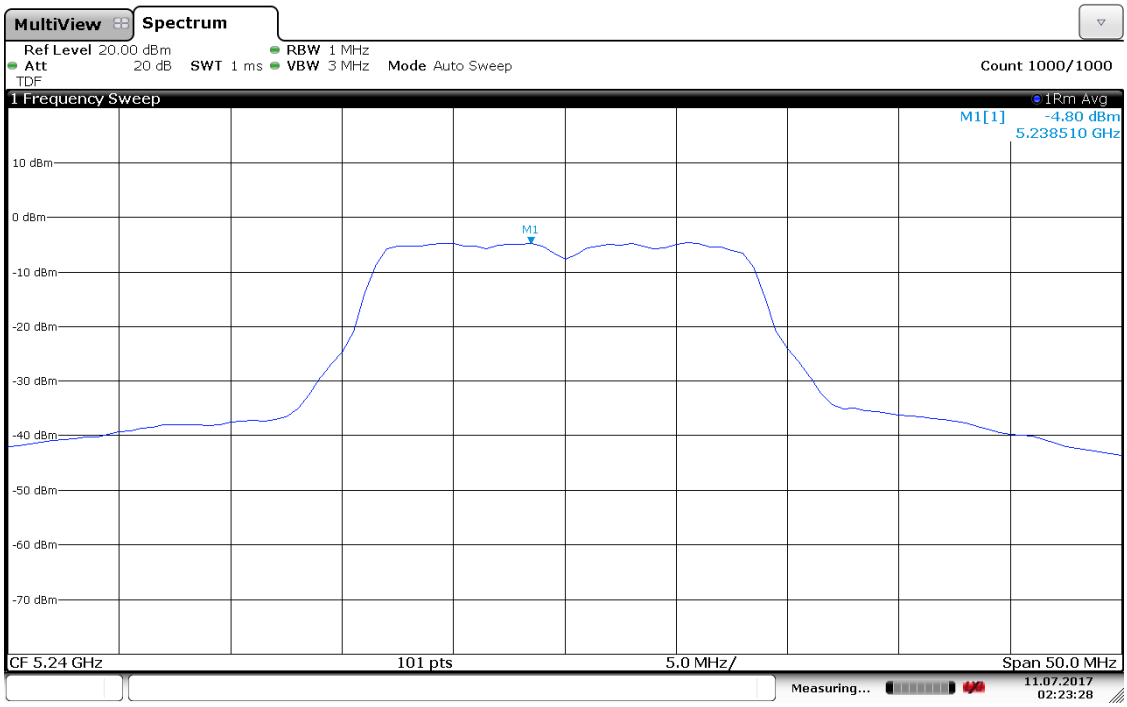
Band 1 (20 MHz Bandwidth)

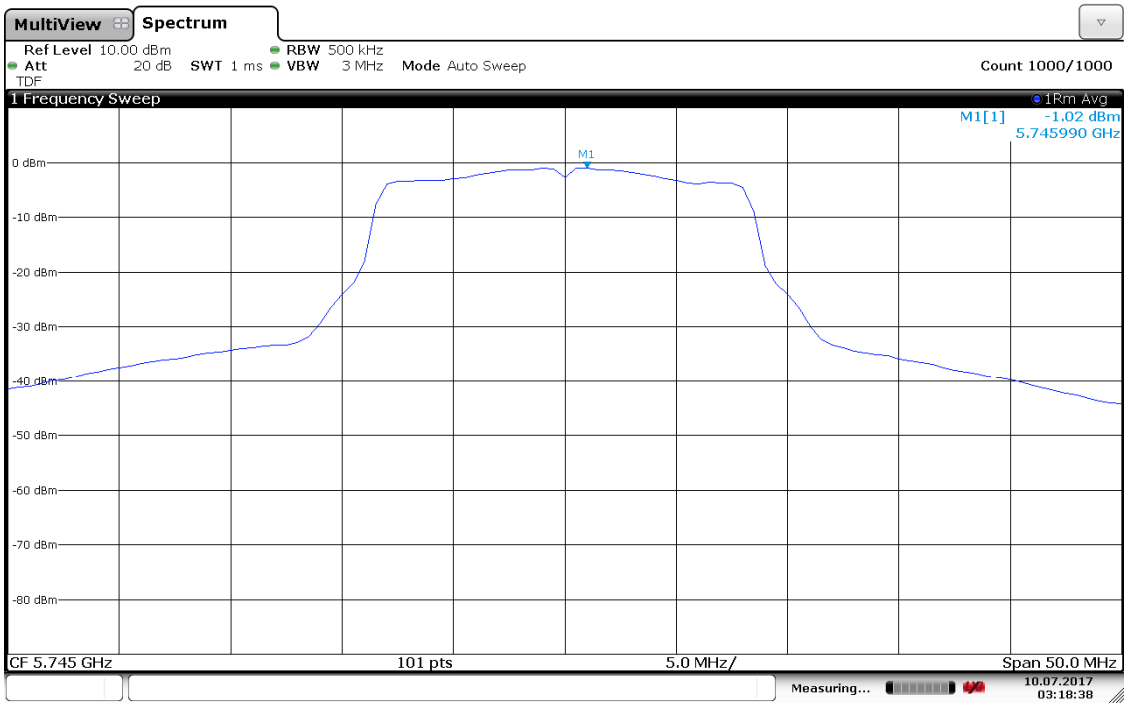
High Channel: 5240 MHz, Data Rate: 54 Mbps, Power Spectral Density: -4.80 dBm



Date: 11.JUL.2017 02:23:28

Band 4 (20 MHz Bandwidth)

Low Channel: 5745 MHz, Data Rate: 6 Mbps, Power Spectral Density: -1.02 dBm



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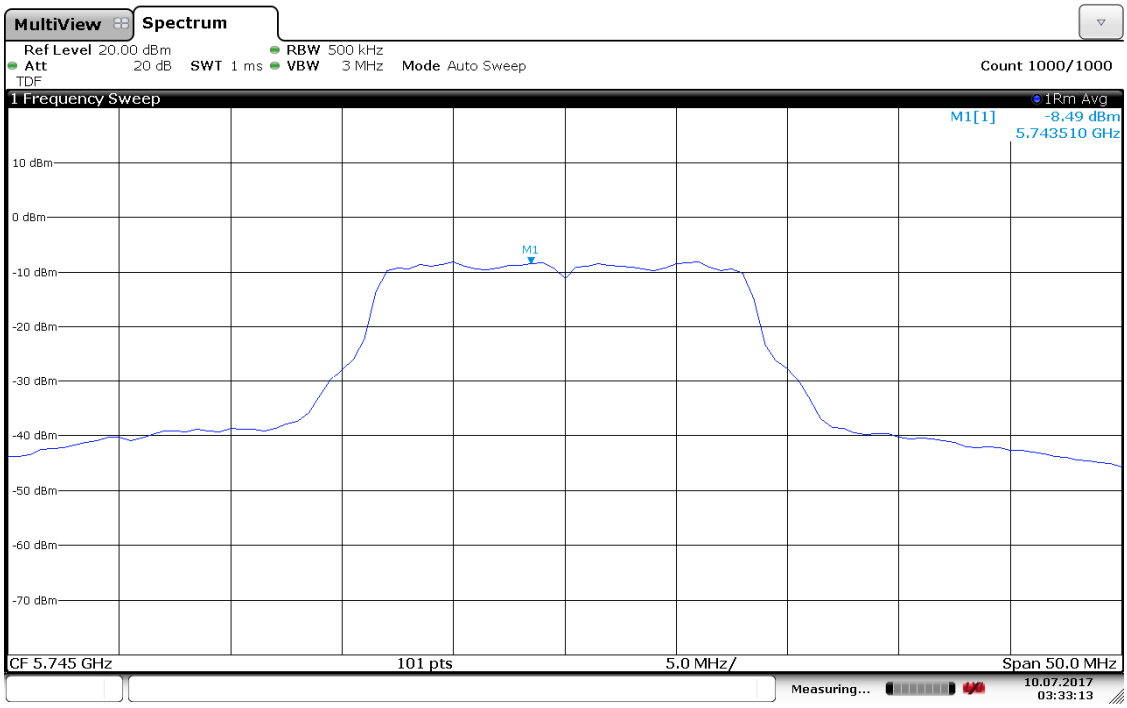
Band 4 (20 MHz Bandwidth)

Low Channel: 5745 MHz, Data Rate: 54 Mbps, Power Spectral Density: -8.49 dBm



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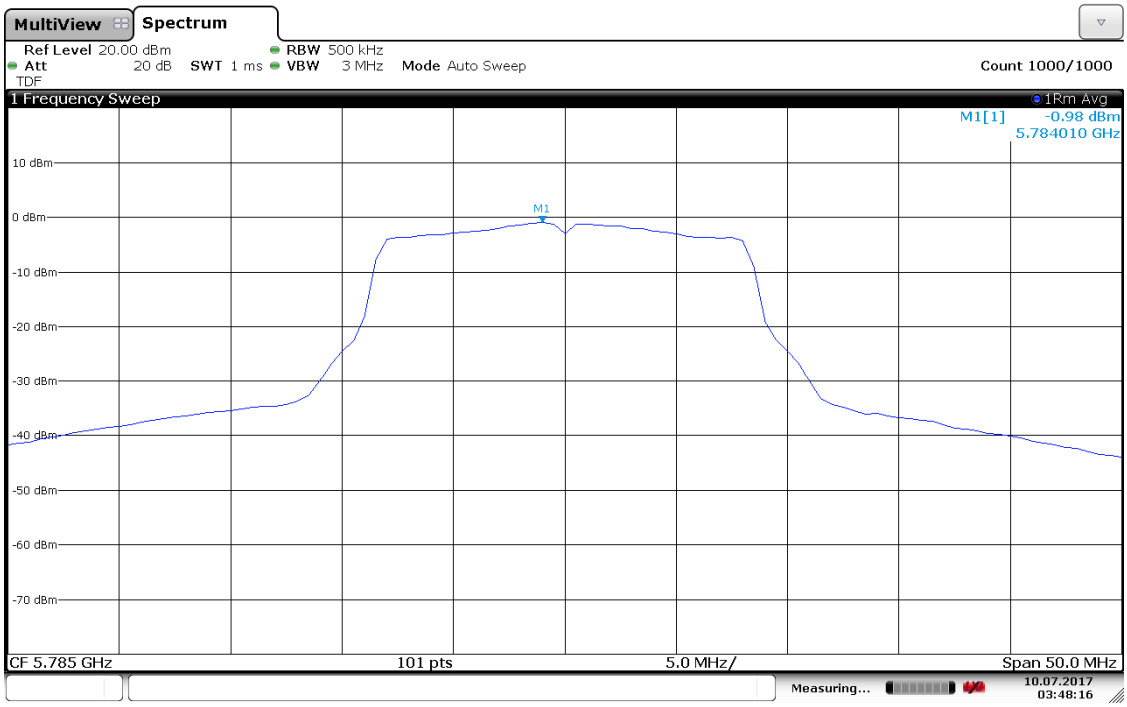
Band 4 (20 MHz Bandwidth)

Mid Channel: 5785 MHz, Data Rate: 6 Mbps, Power Spectral Density: -0.98 dBm



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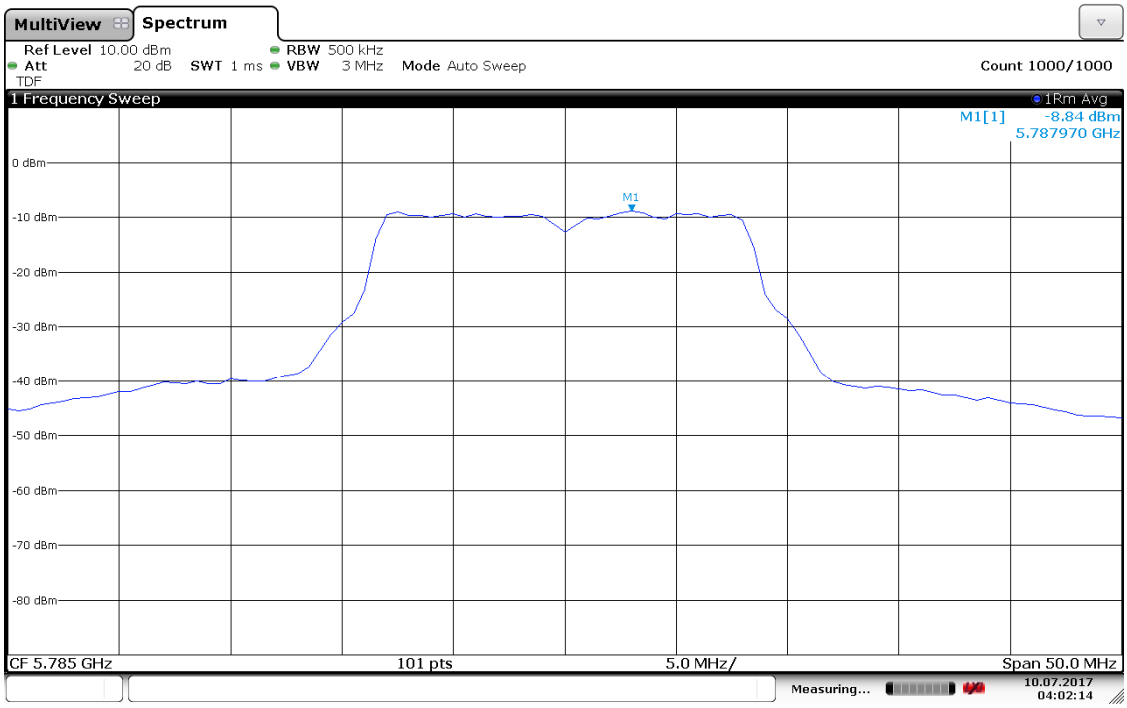
Band 4 (20 MHz Bandwidth)

Mid Channel: 5785 MHz, Data Rate: 54 Mbps, Power Spectral Density: -8.84 dBm



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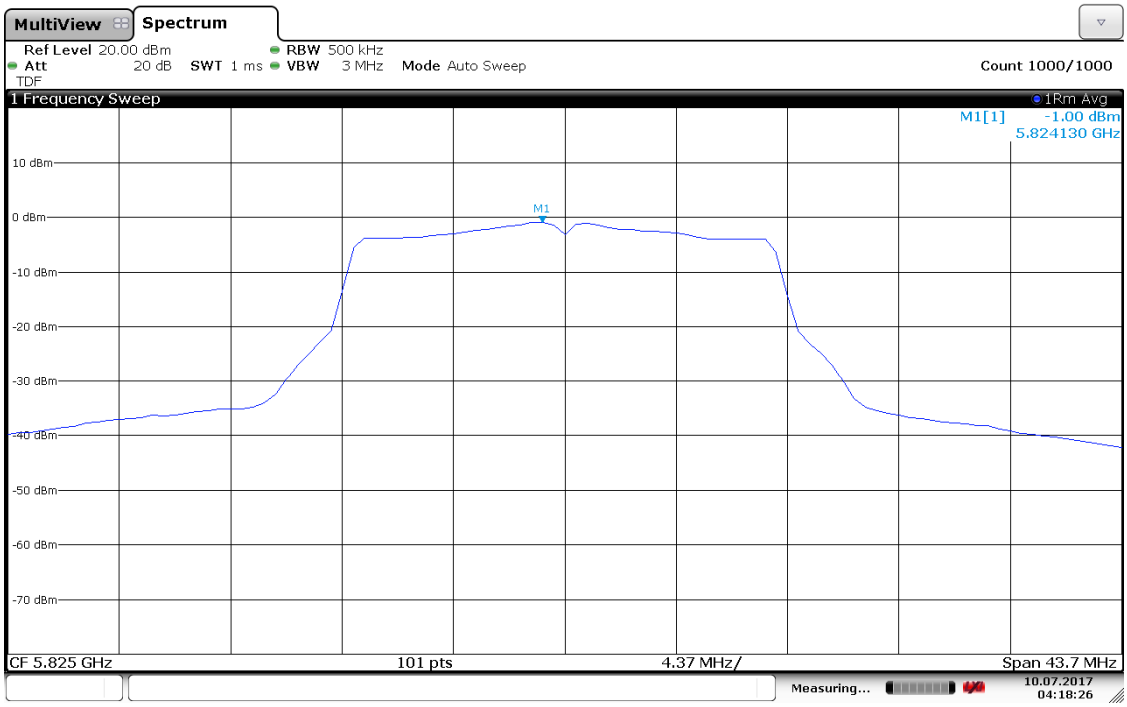
Band 4 (20 MHz Bandwidth)

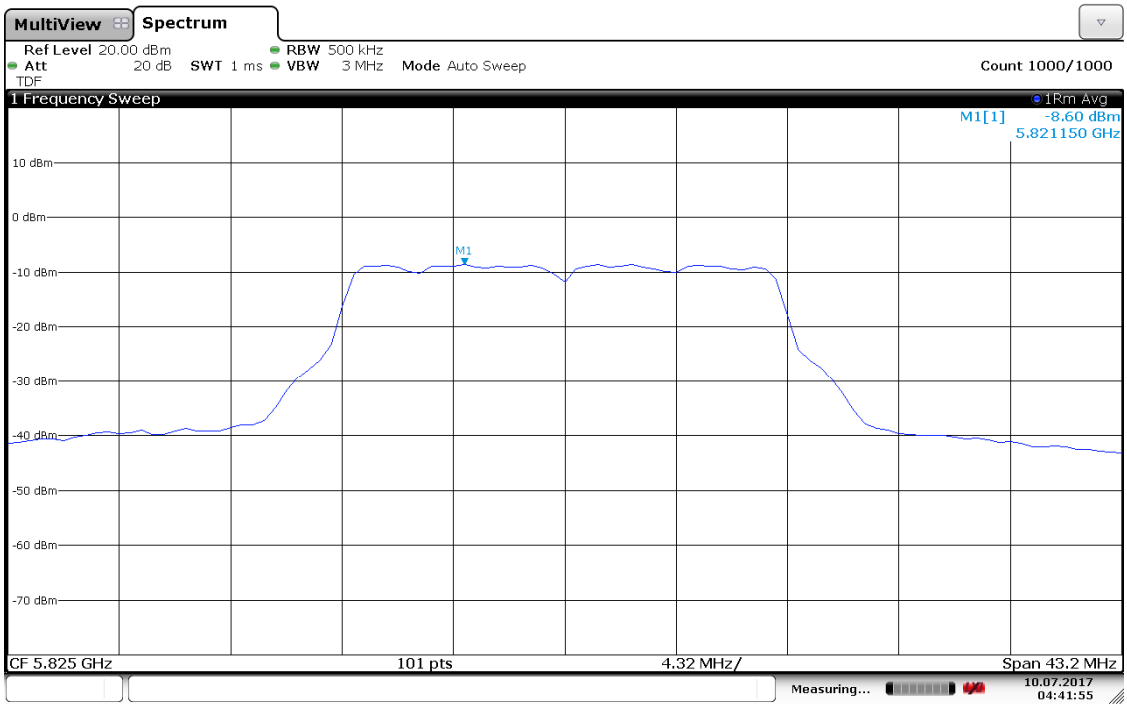
High Channel: 5825 MHz, Data Rate: 6 Mbps, Power Spectral Density: -1.00 dBm



Date: 10.JUL.2017 04:18:25

Band 4 (20 MHz Bandwidth)

High Channel: 5825 MHz, Data Rate: 54 Mbps, Power Spectral Density: -8.60 dBm



Date: 10.JUL.2017 04:41:55

Test Personnel:	Kouma Sinn KPS	Test Date:	08/05/2017 & 08/06/2017
Supervising/Reviewing Engineer: (Where Applicable)	Vathana F. Ven VFV		
Product Standard:	FCC Part 15 Subpart E RSS 247, RSS 102	Limit Applied:	See report section 7.3
Input Voltage:	120VAC 60Hz Powered via laptop USB port	Ambient Temperature:	21, 21 ºC
Pretest Verification w/ Ambient Signals or BB Source:	N/A	Relative Humidity:	68, 47 %
		Atmospheric Pressure:	1002, 1004 mbars

Deviations, Additions, or Exclusions: None

8 Bandwidths

8.1 Method

Tests are performed in accordance with FCC Part 15 Subpart E, FCC Part 15 Subpart C (15.247) and RSS 247, KDB 789033 DO2 of 5/2/2017 Clause E (2)(e).

TEST SITE: EMC Lab

The EMC Lab has one Semi-anechoic Chamber and one Shielded Chamber. AC Mains Power is available at 120, 230, and 277 Single Phase; 208, 400, and 480 3-Phase. Large reference ground-planes are installed in the general lab area to facilitate EMC work not requiring a shielded environment.

8.2 Test Equipment Used:

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
ROS005-1'	Signal and Spectrum Analyzer	Rohde and Shwartz	FSW43	100646	09/15/2016	09/15/2017
DAV004'	Weather Station	Davis Instruments	7400	PE80529A61A	05/10/2017	05/10/2018
MIN23'	Attenuator 2 watt 20dB DC-26GHz	Mini Circuits	BW-S20-2W263+	MIN23	05/26/2017	05/26/2018
CBLSHF204'	Cable, SMA - SMA, 9kHz -40GHz, (Cable Kit 5)	Huber + Suhner	Sucoflex 102EA	234714001	08/27/2016	08/27/2017

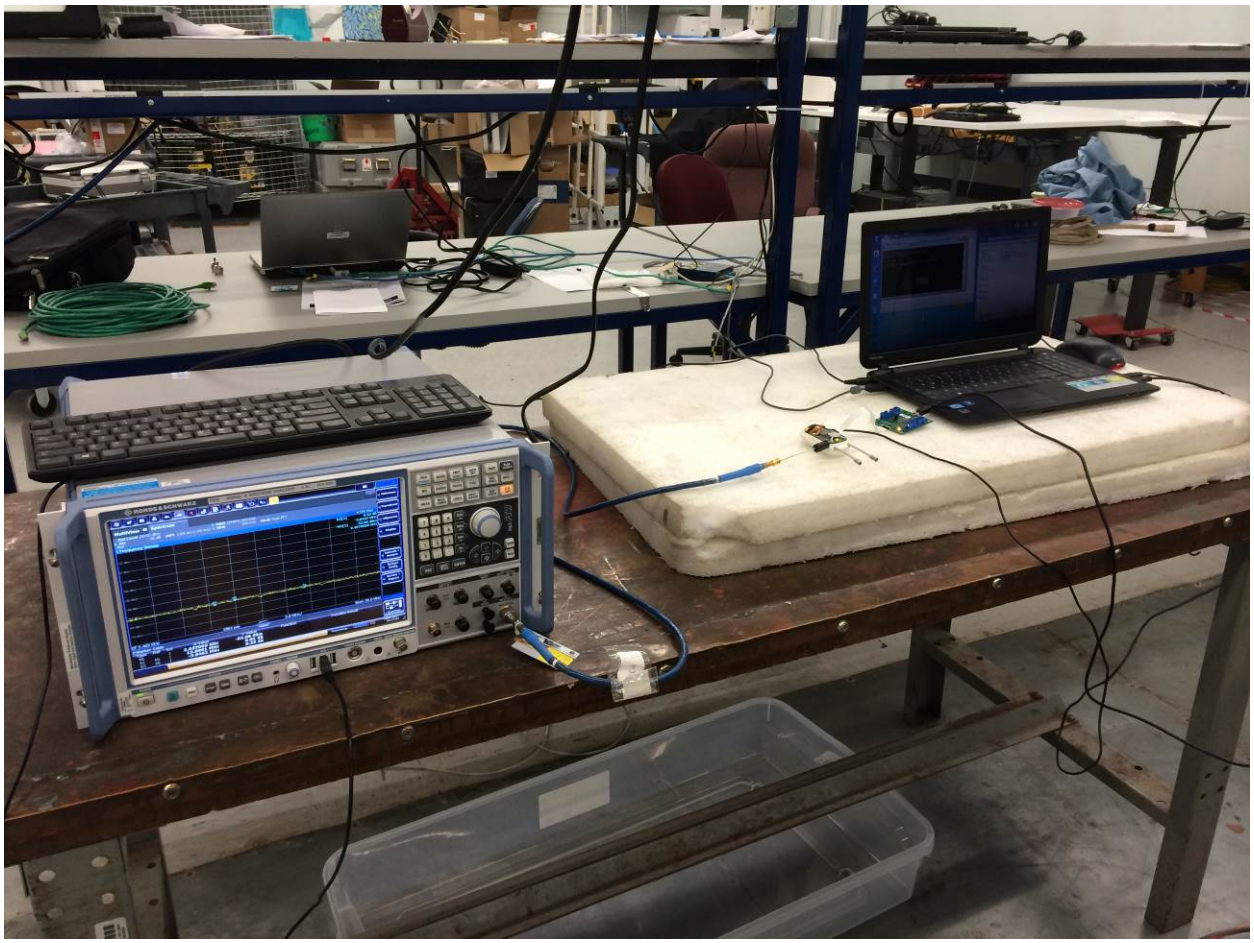
Software Utilized:

Name	Manufacturer	Version
None		

8.3 Results:

The sample tested was found to Comply.

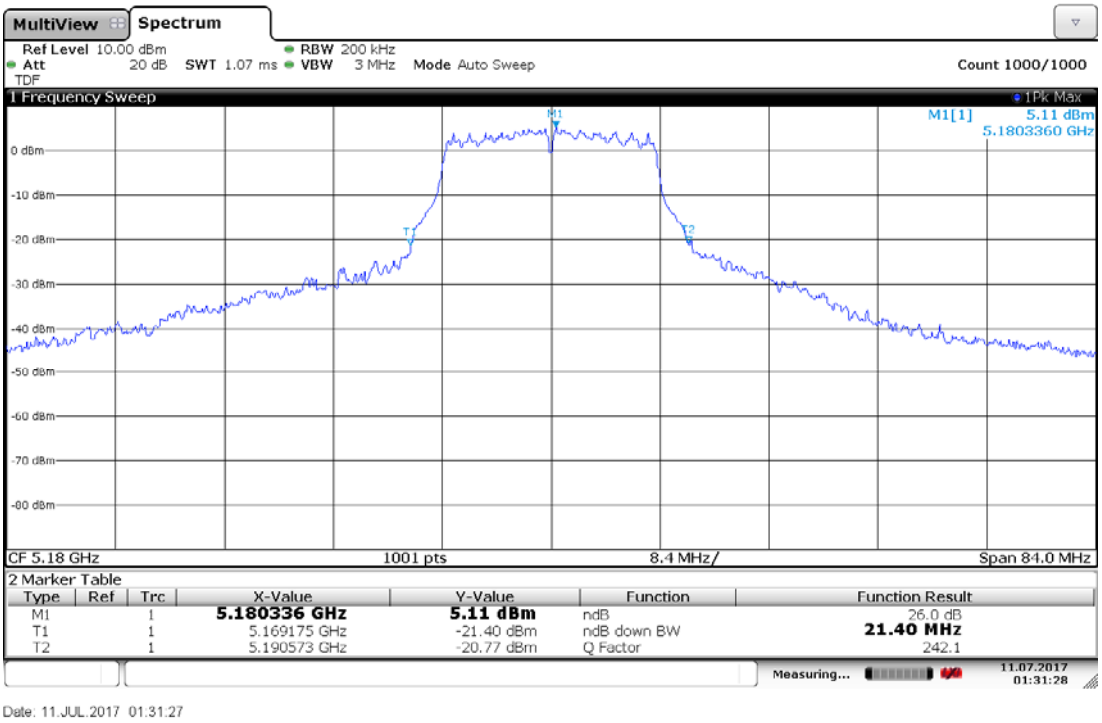
8.4 Setup Photograph:



8.5 Plots/Data:

Band 1 (20 MHz Bandwidth)

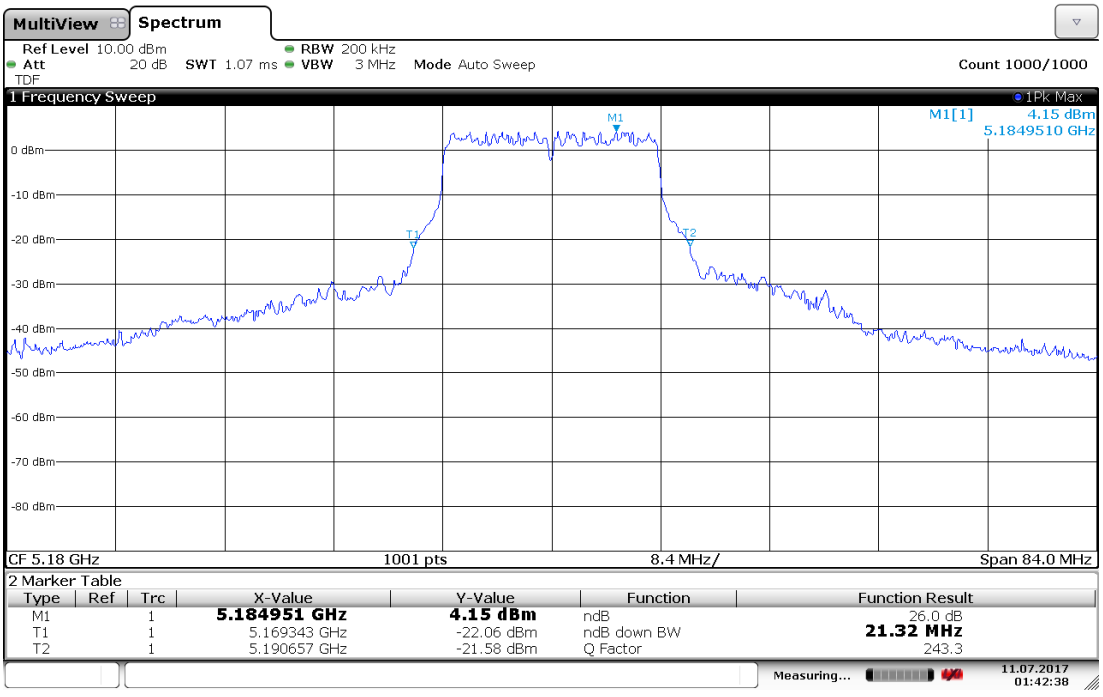
Low Channel: 5180 MHz, Data Rate: 6 Mbps, 26 dB Bandwidth: 21.40 MHz



Date: 11.JUL.2017 01:31:27

Band 1 (20 MHz Bandwidth)

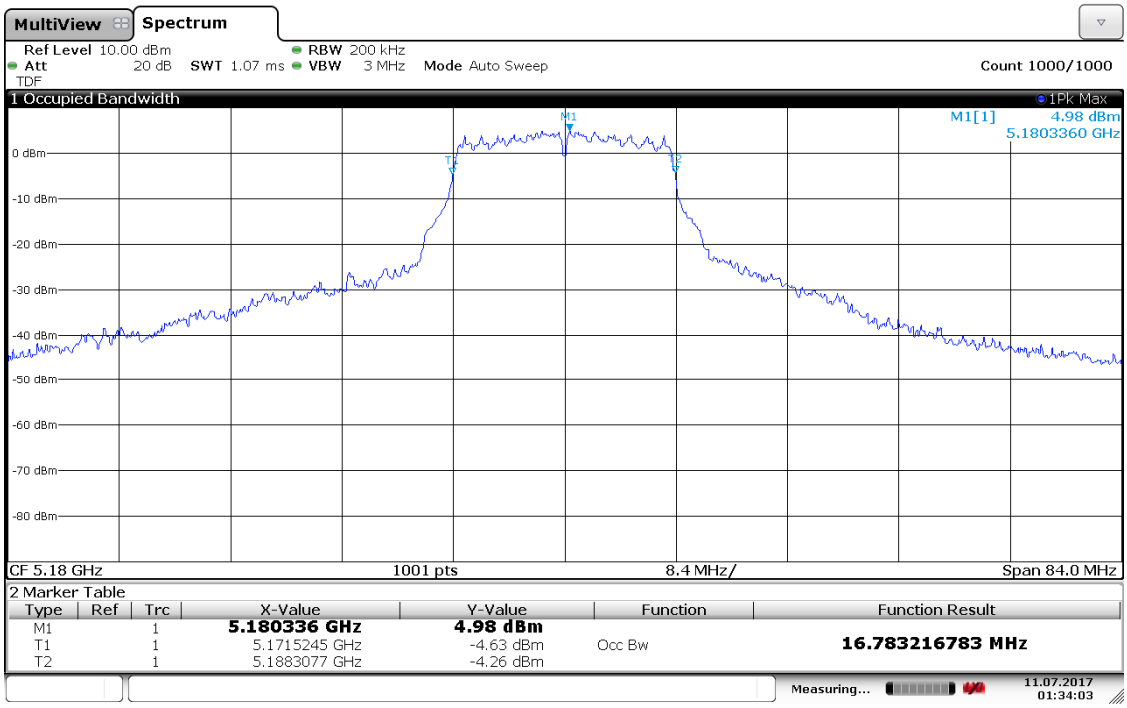
Low Channel: 5180 MHz, Data Rate: 54 Mbps, 26 dB Bandwidth: 21.32 MHz



Date: 11.JUL.2017 01:42:37

Band 1 (20 MHz Bandwidth)

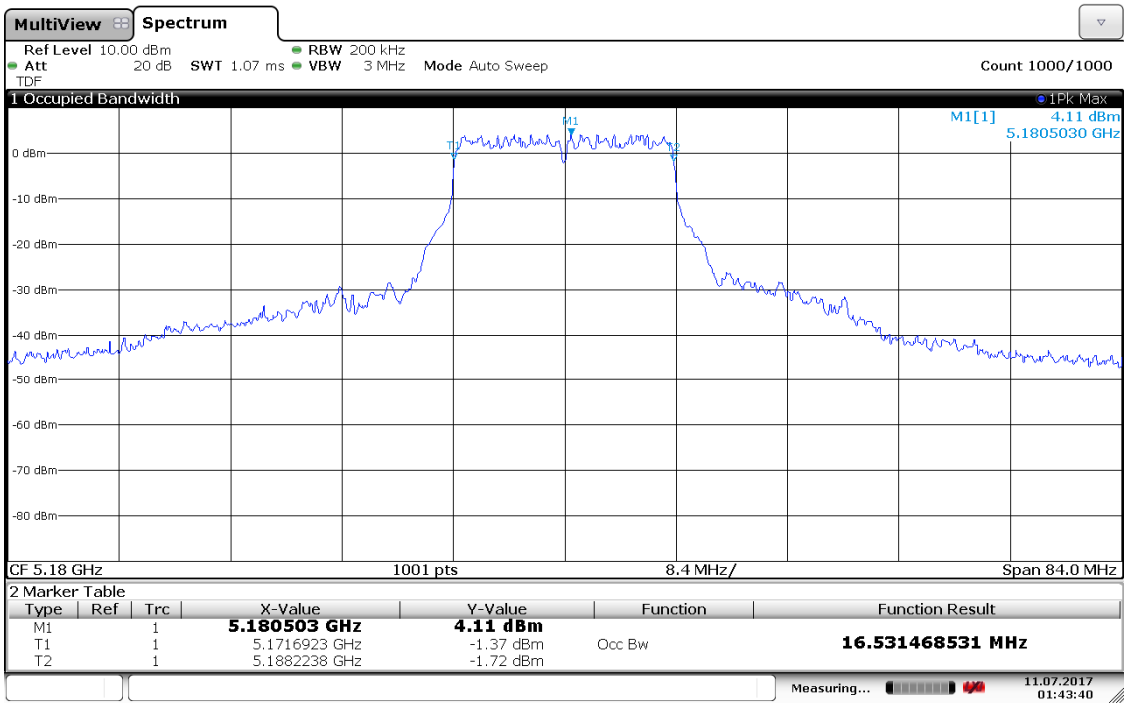
Low Channel: 5180 MHz, Data Rate: 6 Mbps, Occupied Bandwidth: 16.783 MHz



Date: 11.JUL.2017 01:34:03

Band 1 (20 MHz Bandwidth)

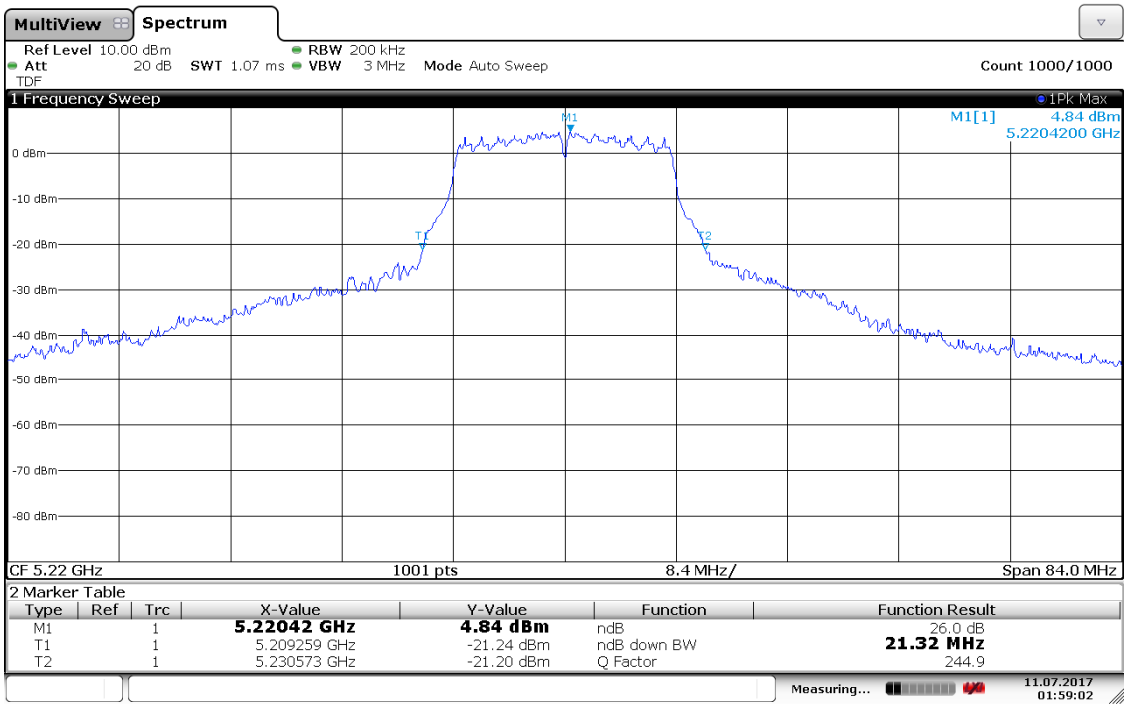
Low Channel: 5180 MHz, Data Rate: 54 Mbps, Occupied Bandwidth: 16.531 MHz



Date: 11.JUL.2017 01:43:40

Band 1 (20 MHz Bandwidth)

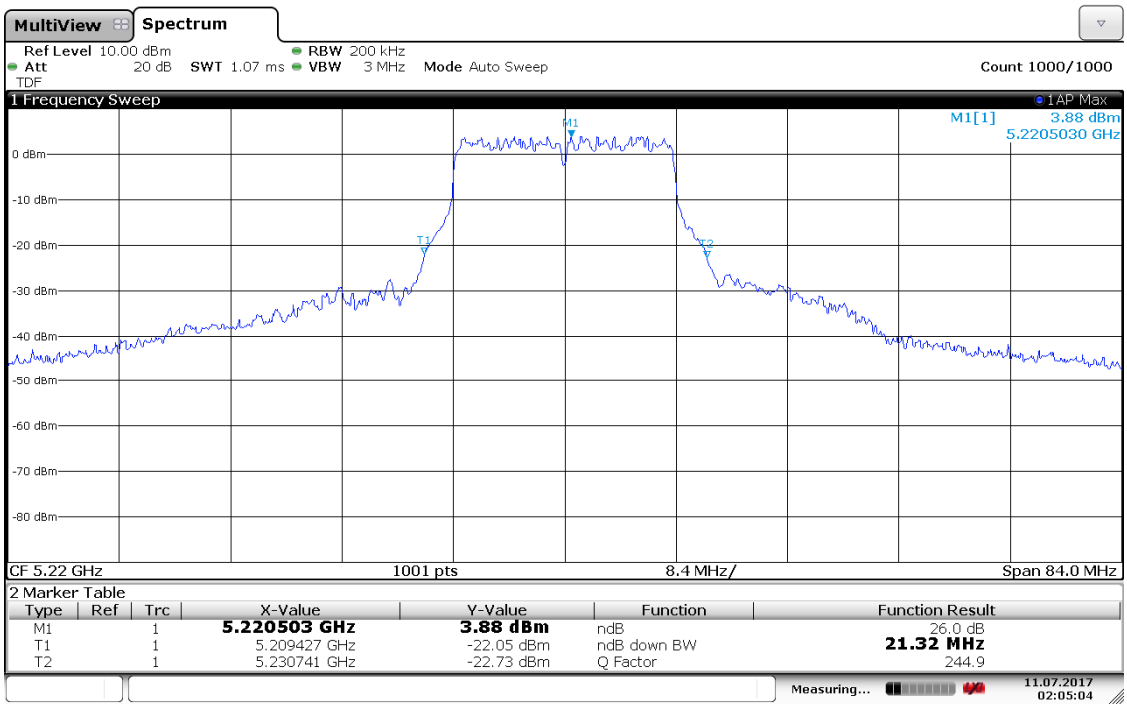
Mid Channel: 5220 MHz, Data Rate: 6 Mbps, 26 dB Bandwidth: 21.32 MHz



Date: 11.JUL.2017 01:59:01

Band 1 (20 MHz Bandwidth)

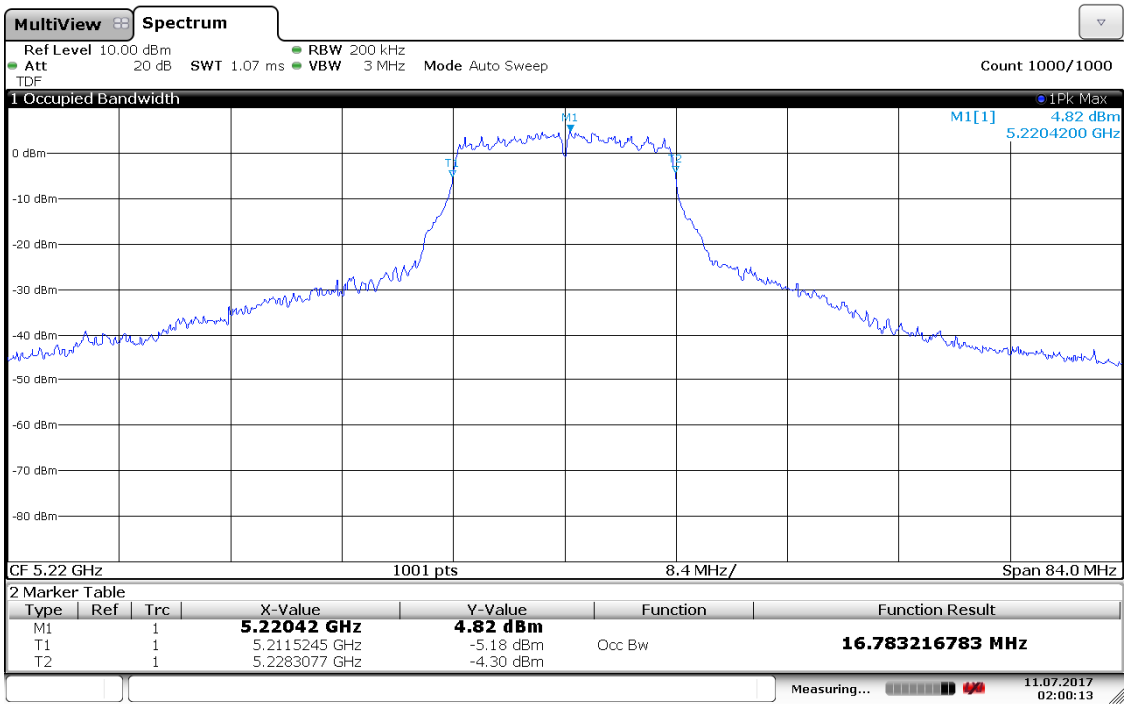
Mid Channel: 5220 MHz, Data Rate: 54 Mbps, 26 dB Bandwidth: 21.32 MHz



Date: 11.JUL.2017 02:05:03

Band 1 (20 MHz Bandwidth)

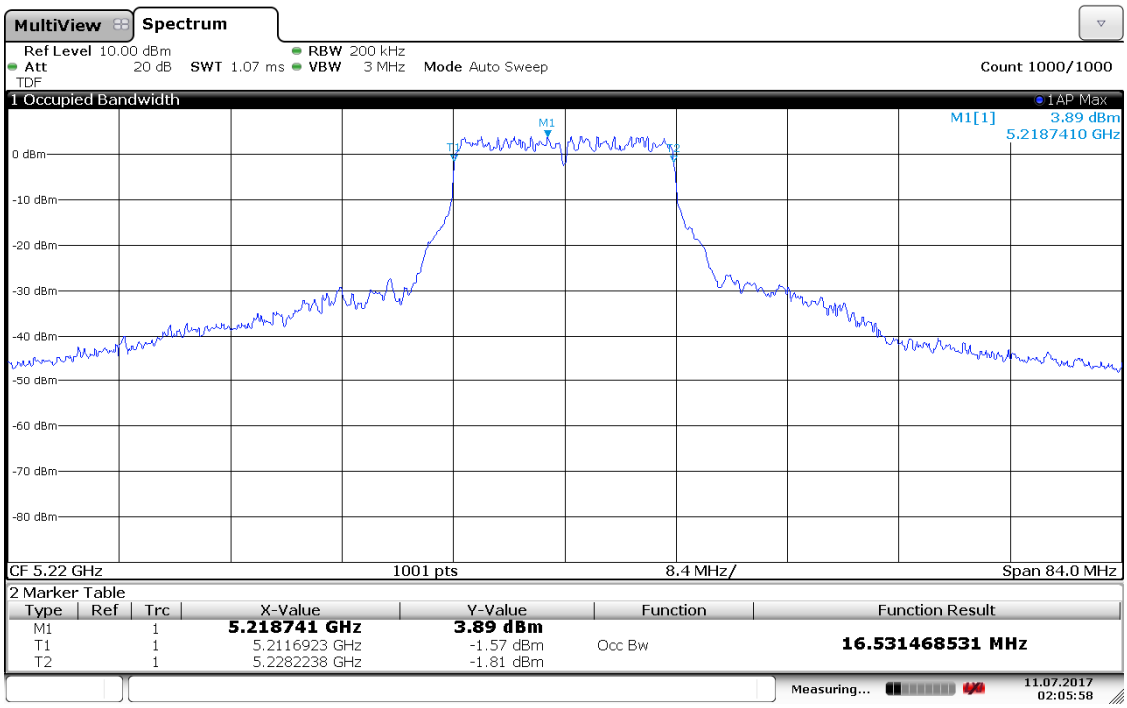
Mid Channel: 5220 MHz, Data Rate: 6 Mbps, Occupied Bandwidth: 16.783 MHz



Date: 11.JUL.2017 02:00:13

Band 1 (20 MHz Bandwidth)

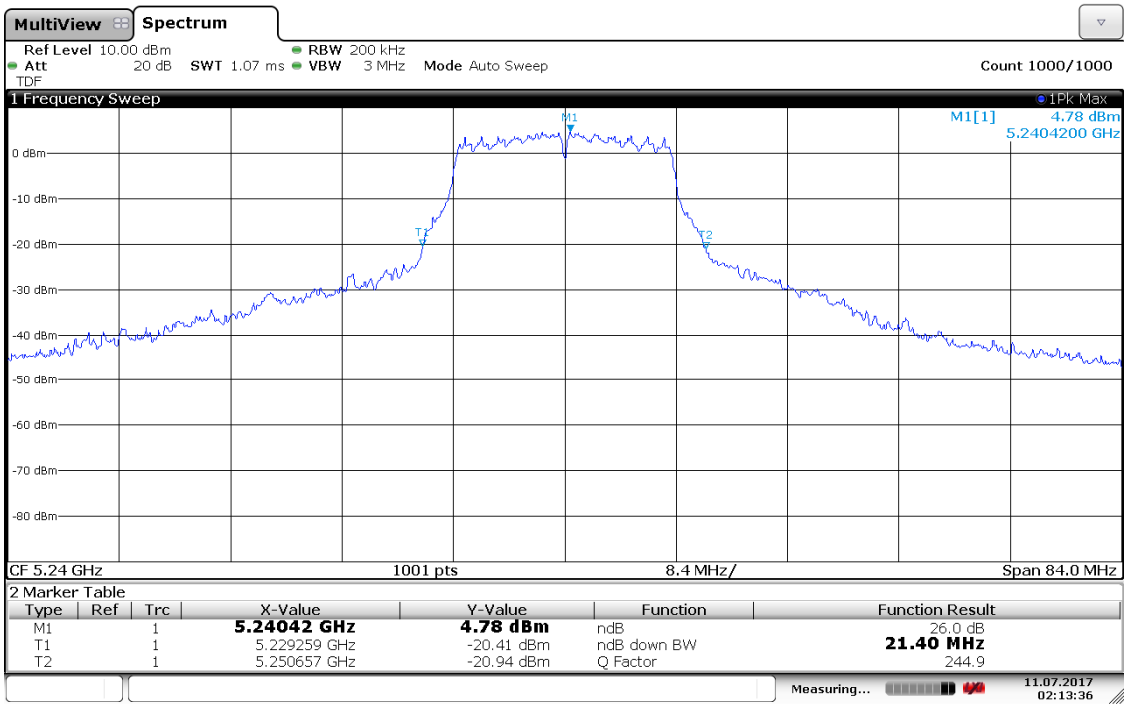
Mid Channel: 5220 MHz, Data Rate: 54 Mbps, Occupied Bandwidth: 16.531 MHz



Date: 11.JUL.2017 02:05:58

Band 1 (20 MHz Bandwidth)

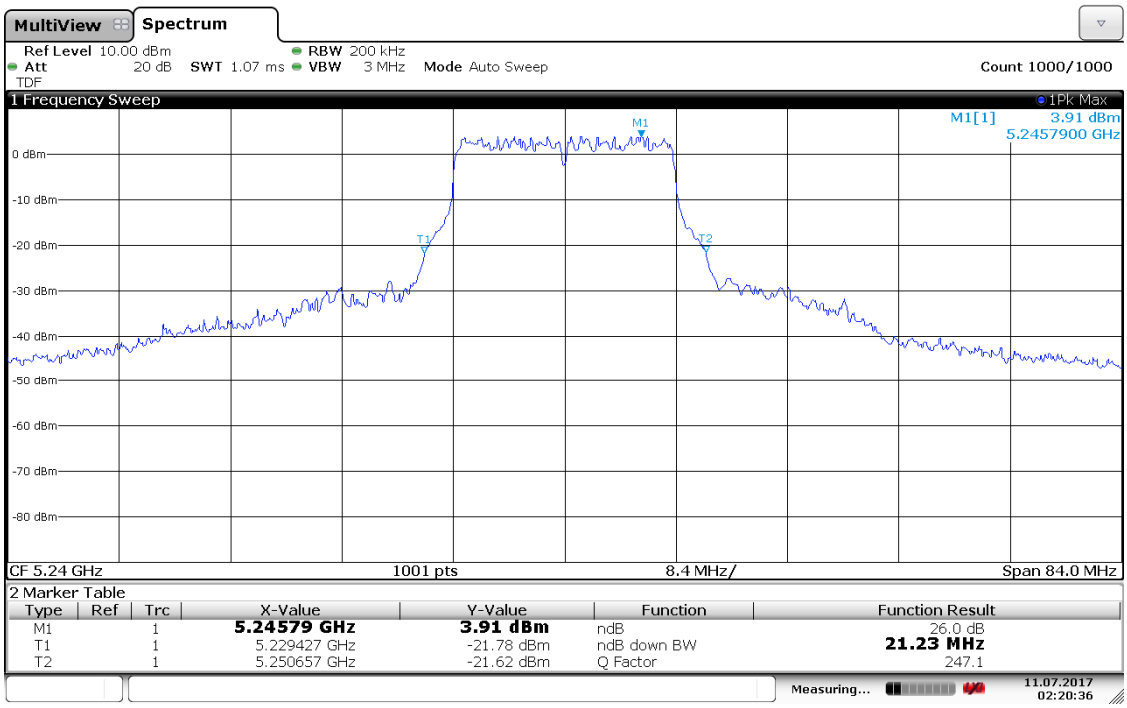
High Channel: 5240 MHz, Data Rate: 6 Mbps, 26 dB Bandwidth: 21.40 MHz



Date: 11.JUL.2017 02:13:35

Band 1 (20 MHz Bandwidth)

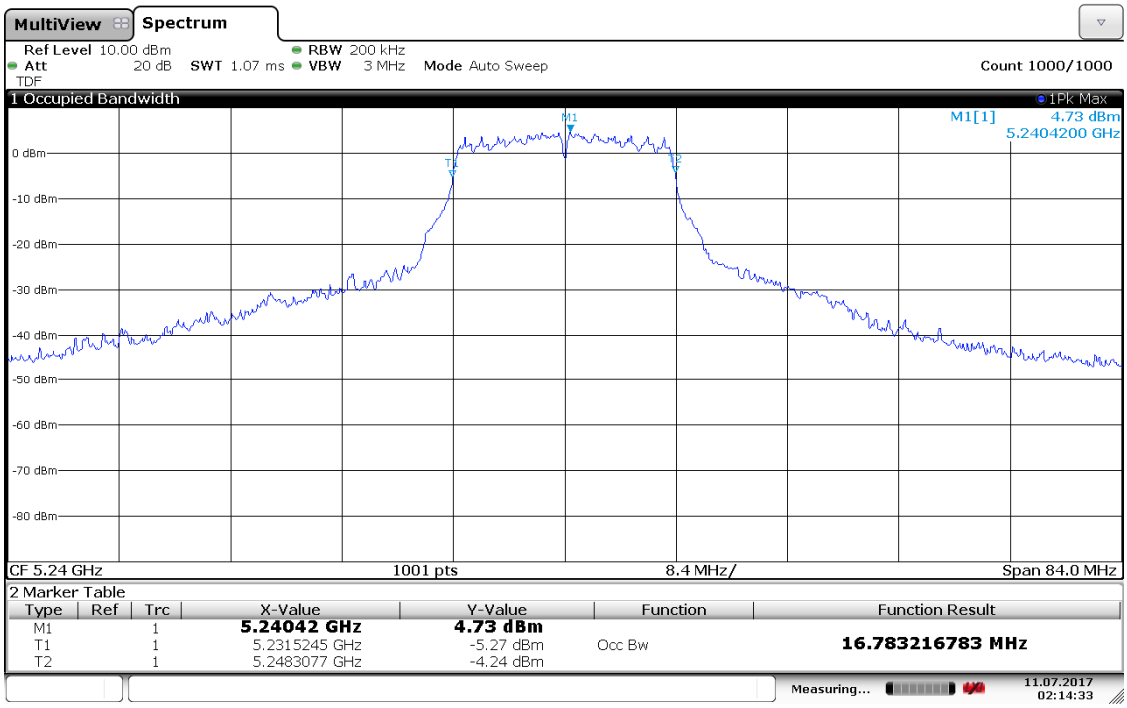
High Channel: 5240 MHz, Data Rate: 54 Mbps, 26 dB Bandwidth: 21.23 MHz



Date: 11.JUL.2017 02:20:36

Band 1 (20 MHz Bandwidth)

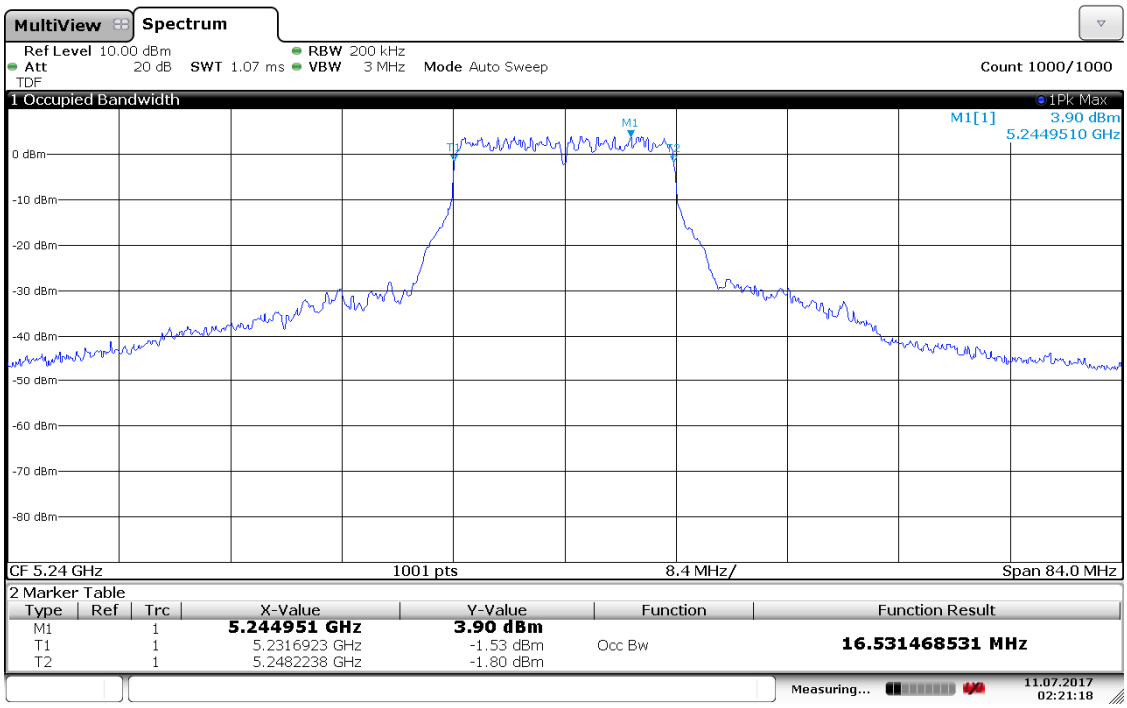
High Channel: 5240 MHz, Data Rate: 6 Mbps, Occupied Bandwidth: 16.783 MHz



Date: 11.JUL.2017 02:14:33

Band 1 (20 MHz Bandwidth)

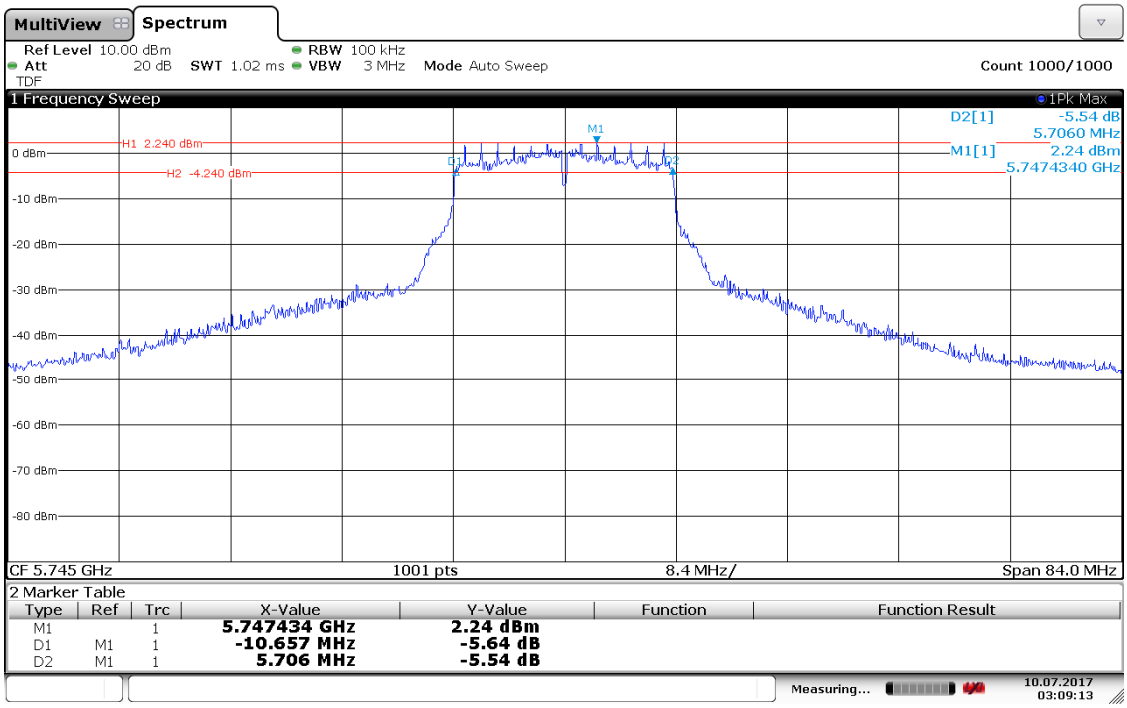
High Channel: 5240 MHz, Data Rate: 54 Mbps, Occupied Bandwidth: 16.531 MHz



Date: 11.JUL.2017 02:21:18

Band 4 (20 MHz Bandwidth)

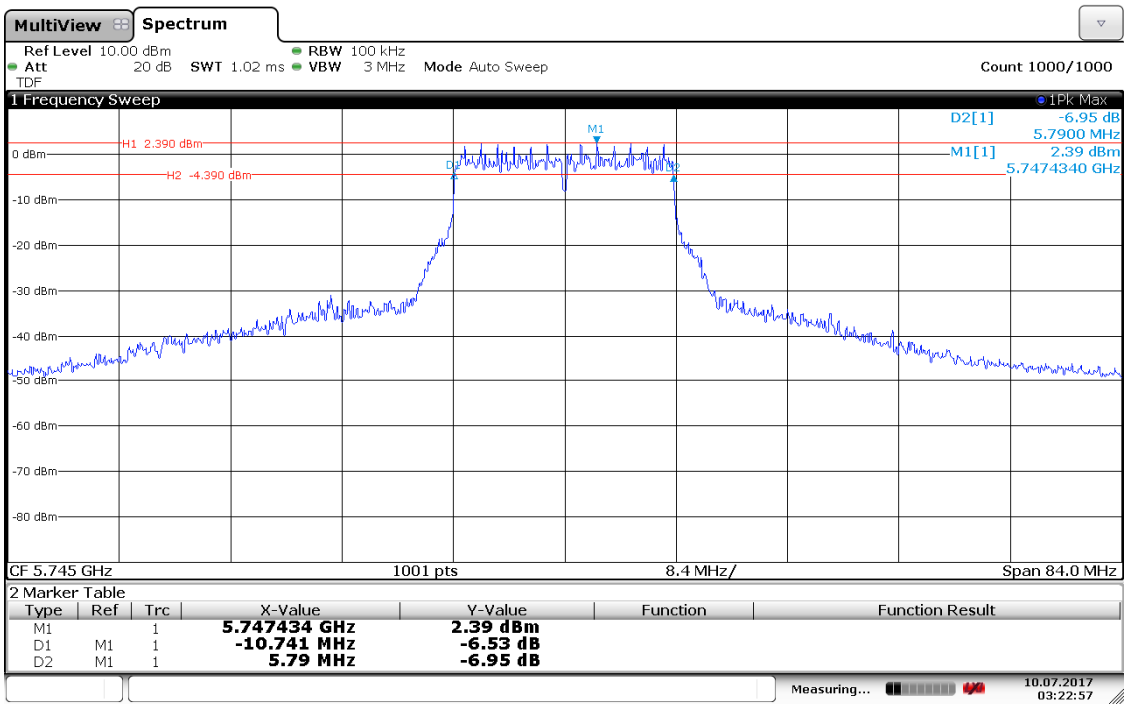
Low Channel: 5745 MHz, Data Rate: 6 Mbps, 6 dB Bandwidth: 16.363 MHz



Date: 10.JUL.2017 03:09:12

Band 4 (20 MHz Bandwidth)

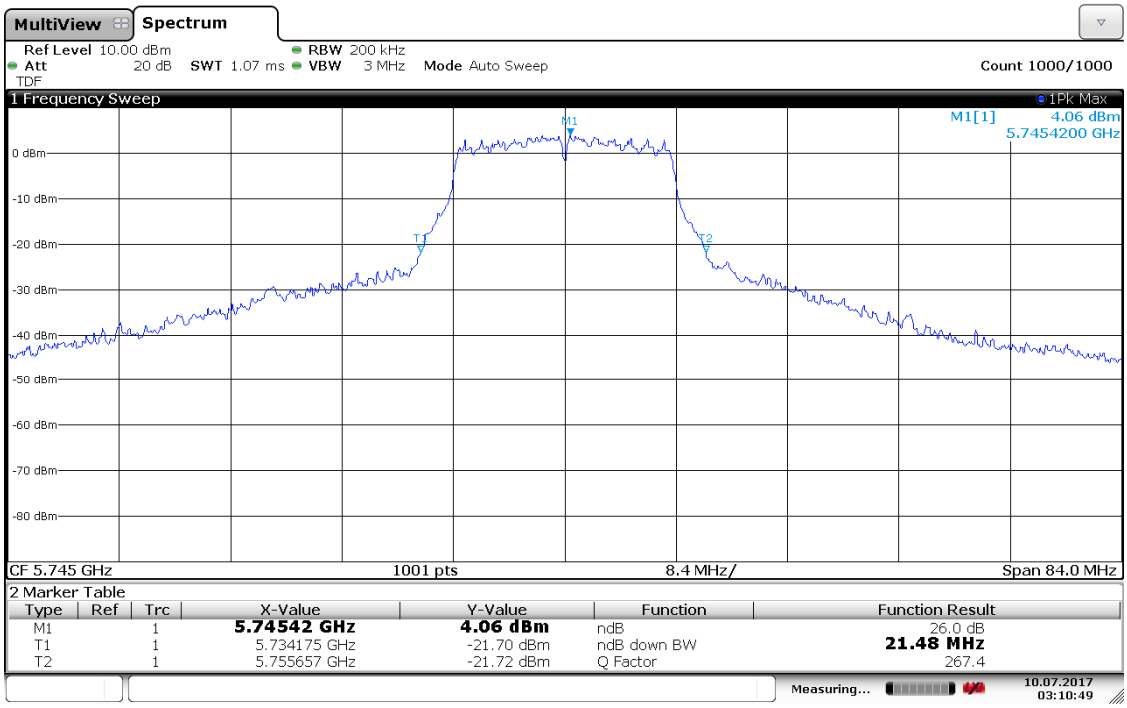
Low Channel: 5745 MHz, Data Rate: 54 Mbps, 6 dB Bandwidth: 16.531 MHz



Date: 10.JUL.2017 03:22:56

Band 4 (20 MHz Bandwidth)

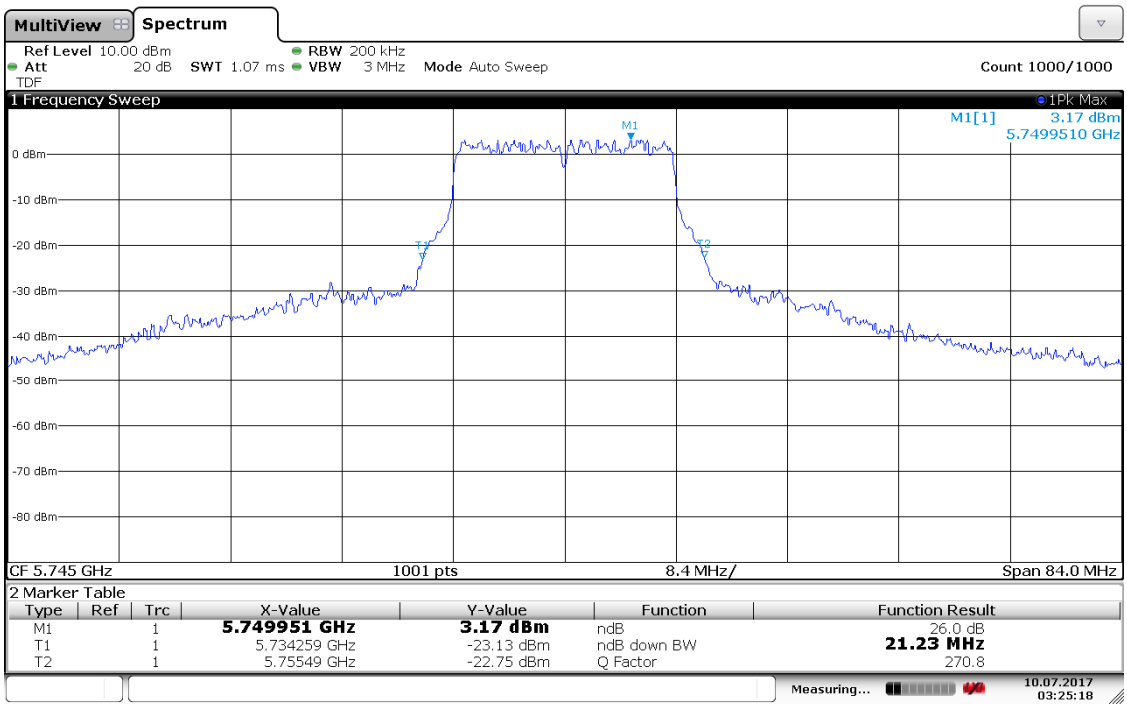
Low Channel: 5745 MHz, Data Rate: 6 Mbps, 26 dB Bandwidth: 21.48 MHz



Date: 10.JUL.2017 03:10:49

Band 4 (20 MHz Bandwidth)

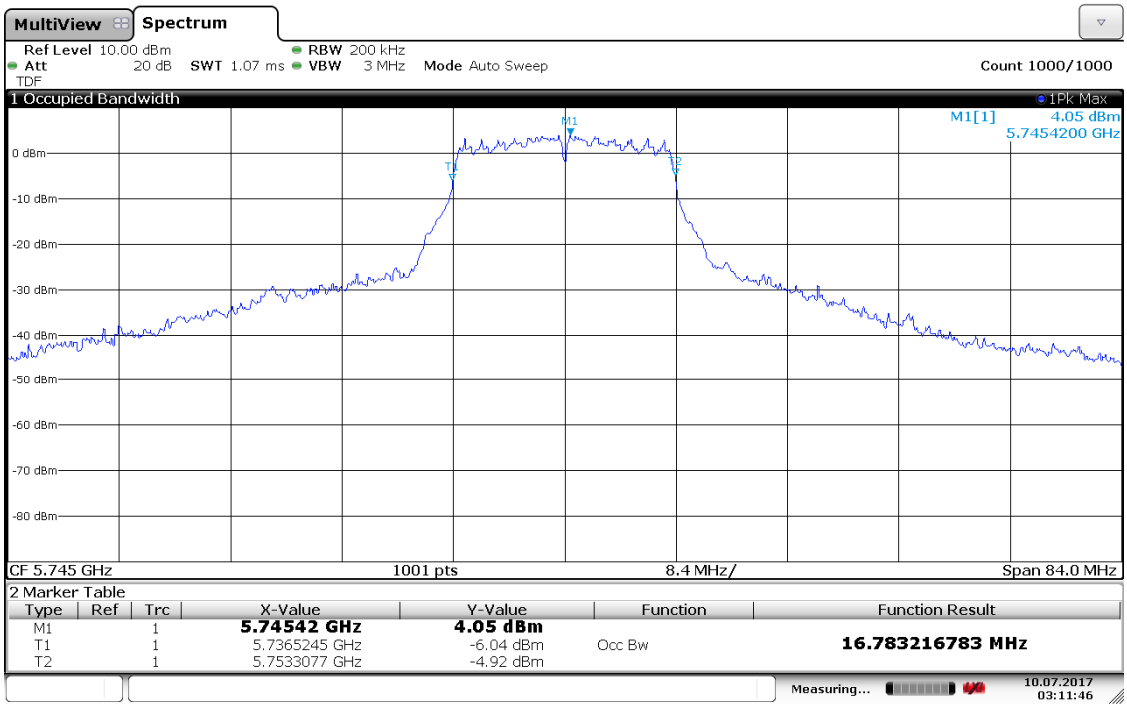
Low Channel: 5745 MHz, Data Rate: 54 Mbps, 26 dB Bandwidth: 21.23 MHz



Date: 10.JUL.2017 03:25:18

Band 4 (20 MHz Bandwidth)

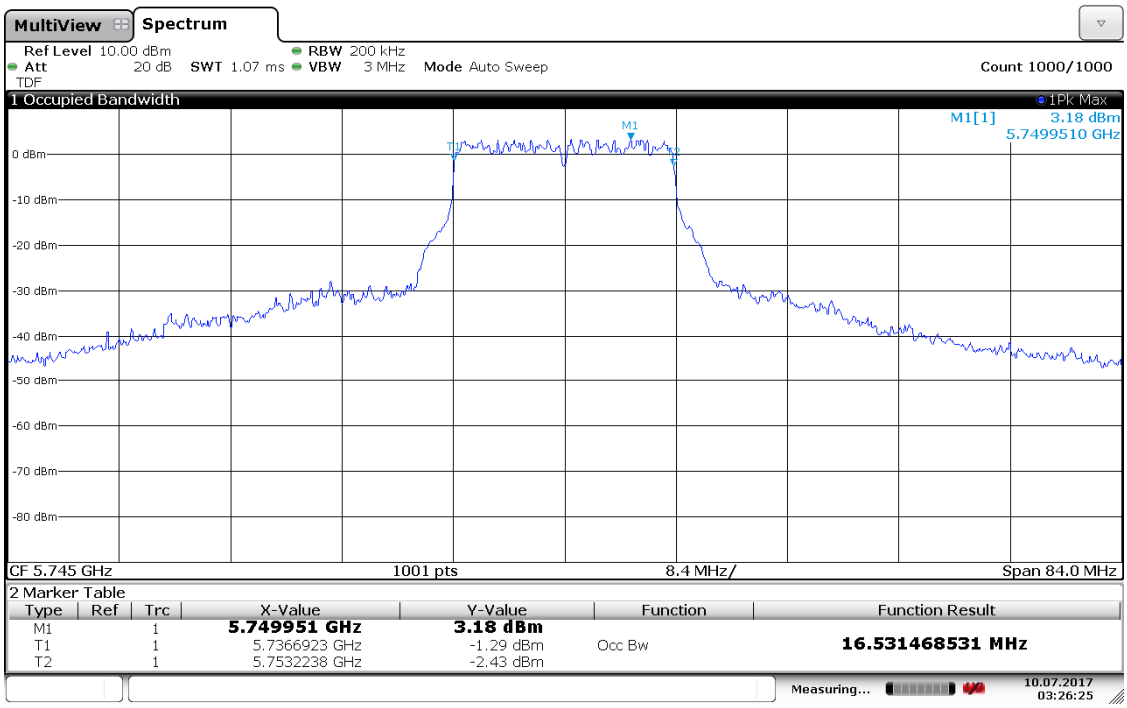
Low Channel: 5745 MHz, Data Rate: 6 Mbps, Occupied Bandwidth: 16.783 MHz



Date: 10.JUL.2017 03:11:46

Band 4 (20 MHz Bandwidth)

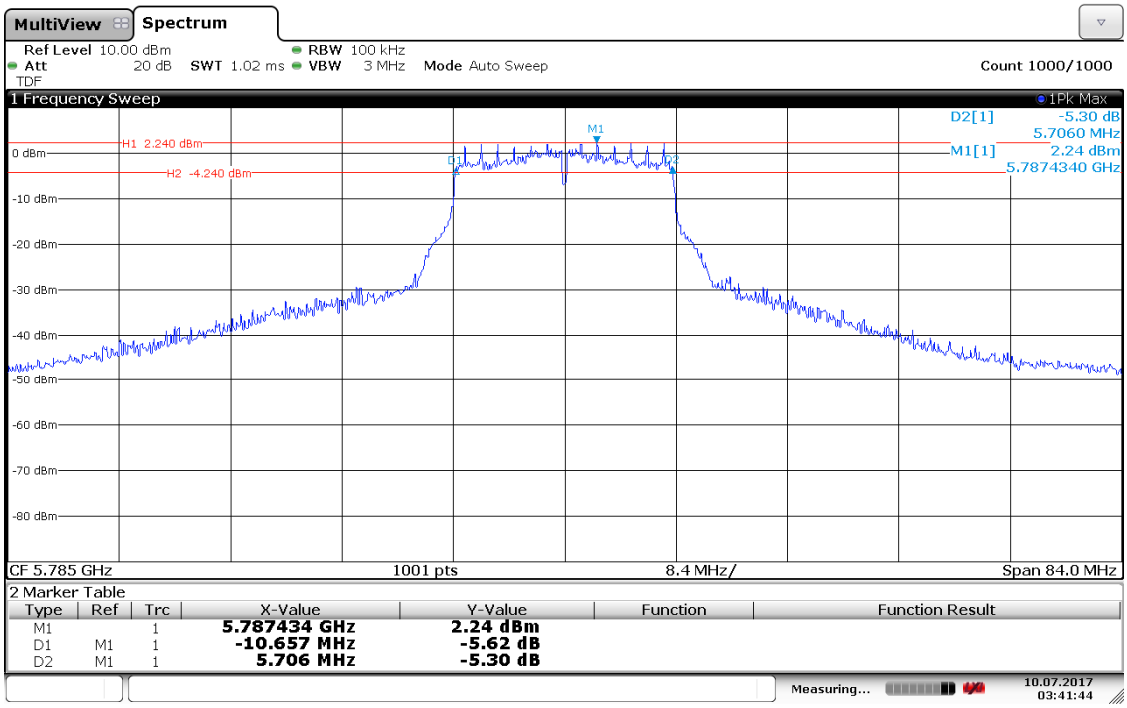
Low Channel: 5745 MHz, Data Rate: 54 Mbps, Occupied Bandwidth: 16.531 MHz



Date: 10.JUL.2017 03:26:25

Band 4 (20 MHz Bandwidth)

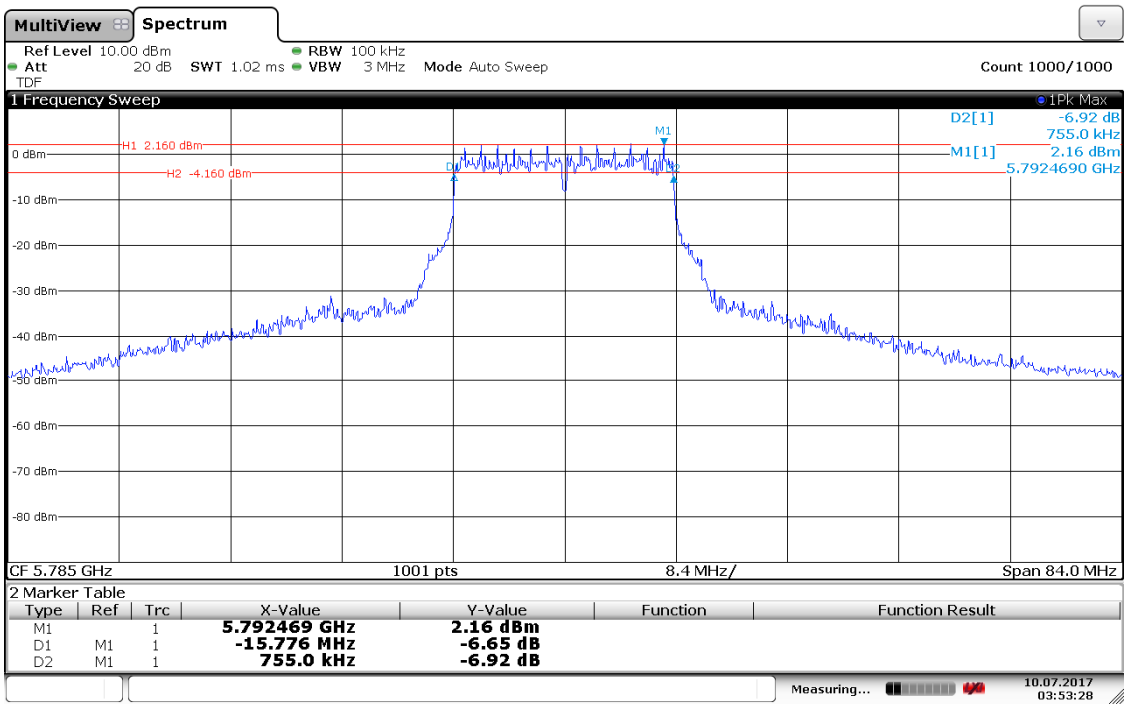
Mid Channel: 5785 MHz, Data Rate: 6 Mbps, 6 dB Bandwidth: 16.363 MHz



Date: 10.JUL.2017 03:41:44

Band 4 (20 MHz Bandwidth)

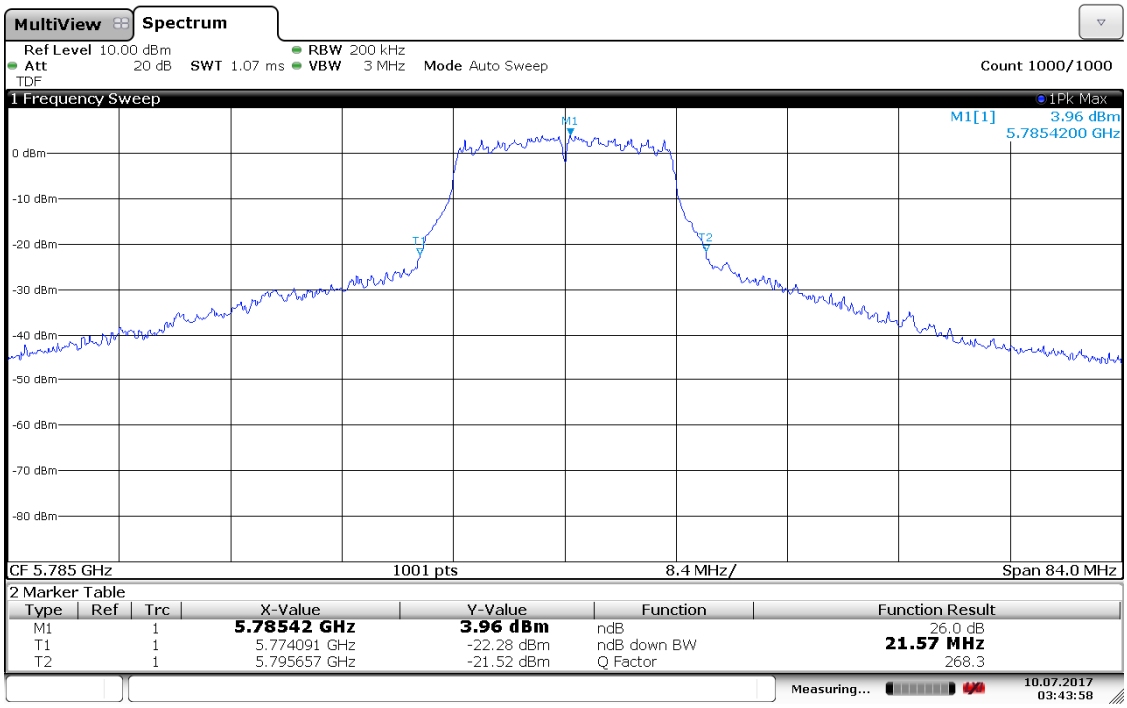
Mid Channel: 5785 MHz, Data Rate: 54 Mbps, 6 dB Bandwidth: 16.531 MHz



Date: 10.JUL.2017 03:53:27

Band 4 (20 MHz Bandwidth)

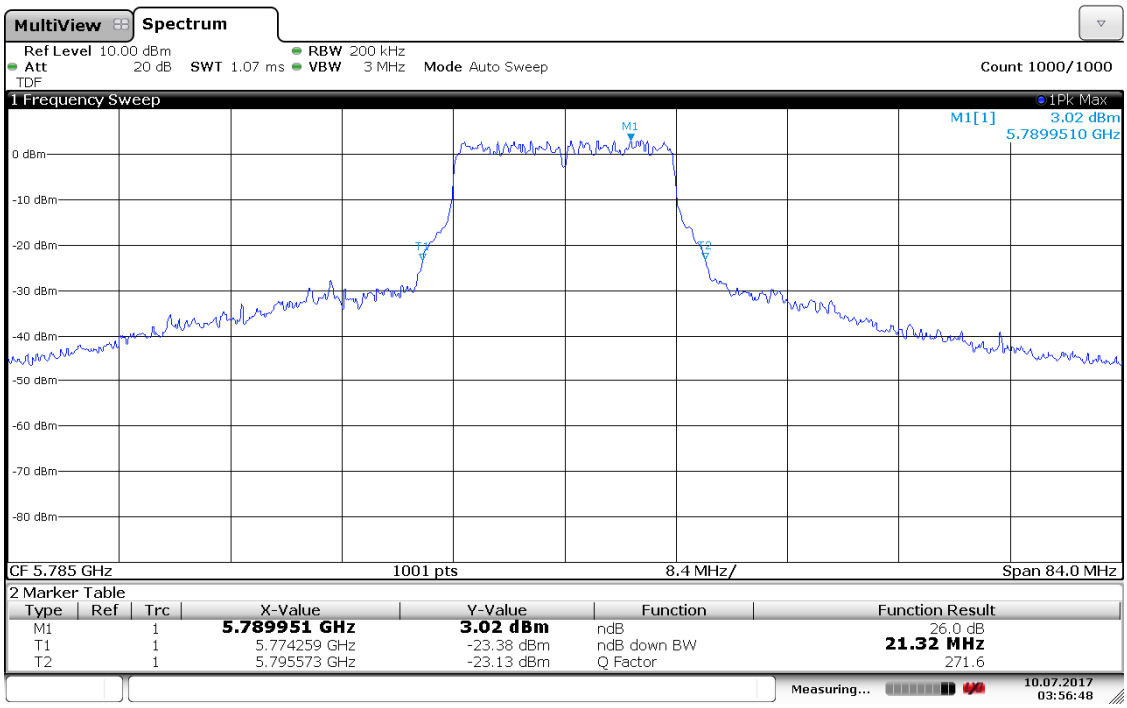
Mid Channel: 5785 MHz, Data Rate: 6 Mbps, 26 dB Bandwidth: 21.57 MHz



Date: 10.JUL.2017 03:43:58

Band 4 (20 MHz Bandwidth)

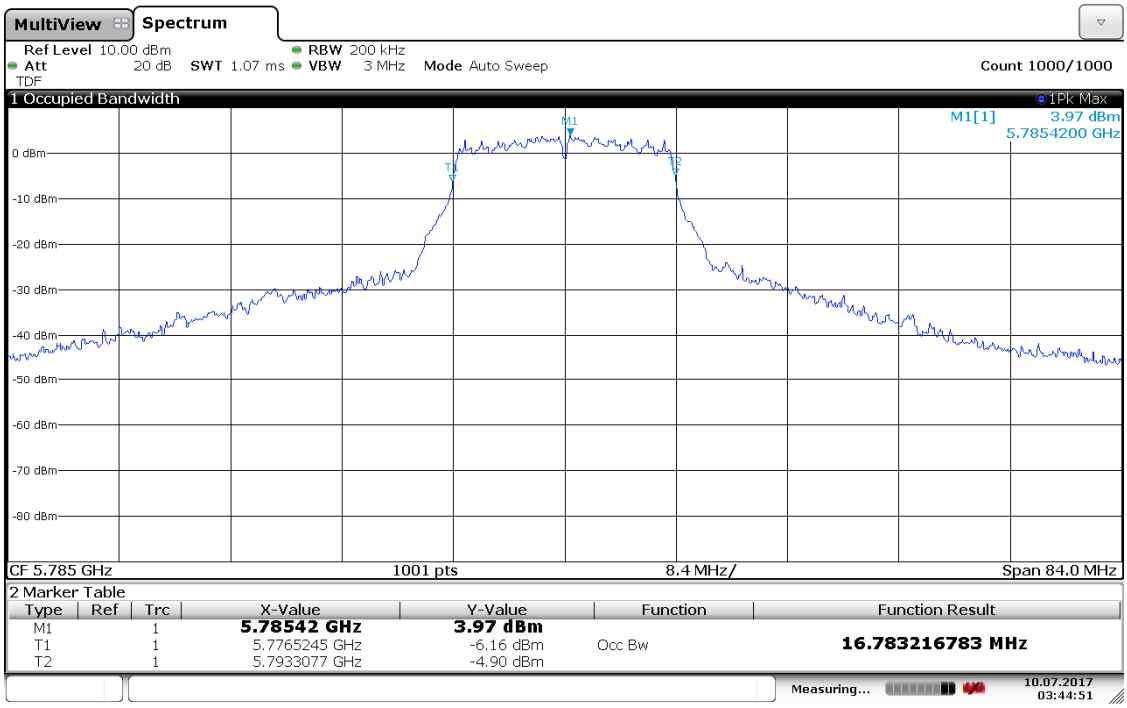
Mid Channel: 5785 MHz, Data Rate: 54 Mbps, 26 dB Bandwidth: 21.32 MHz



Date: 10.JUL.2017 03:56:47

Band 4 (20 MHz Bandwidth)

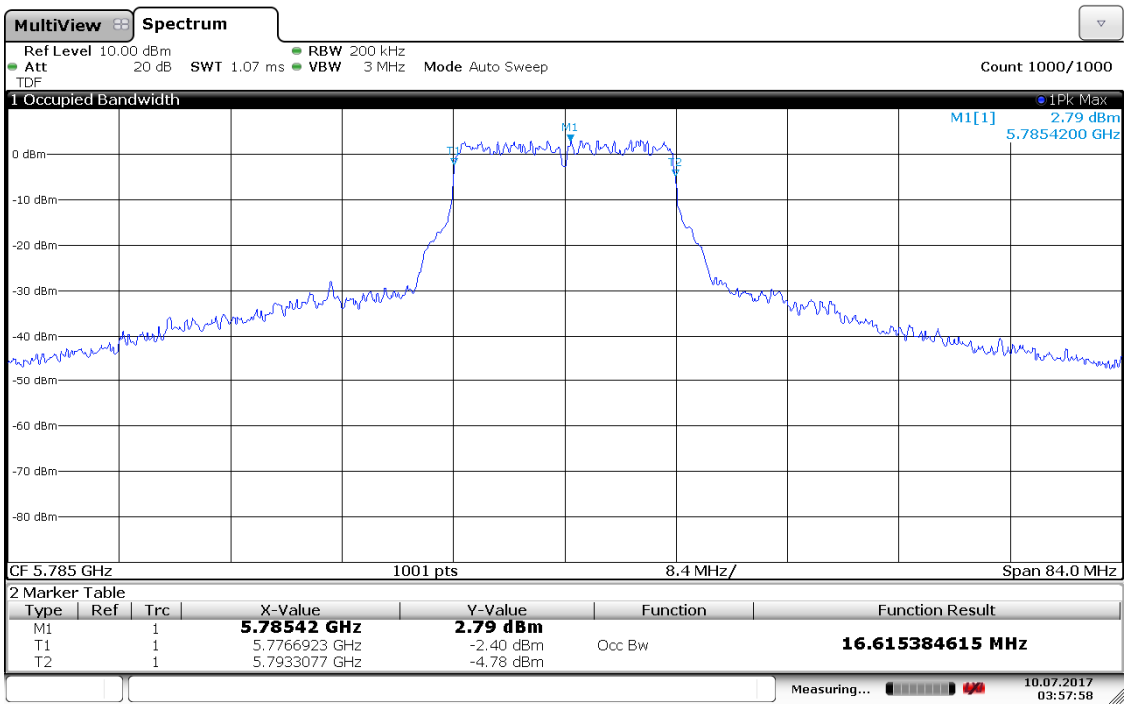
Mid Channel: 5785 MHz, Data Rate: 6 Mbps, Occupied Bandwidth: 16.783 MHz



Date: 10.JUL.2017 03:44:50

Band 4 (20 MHz Bandwidth)

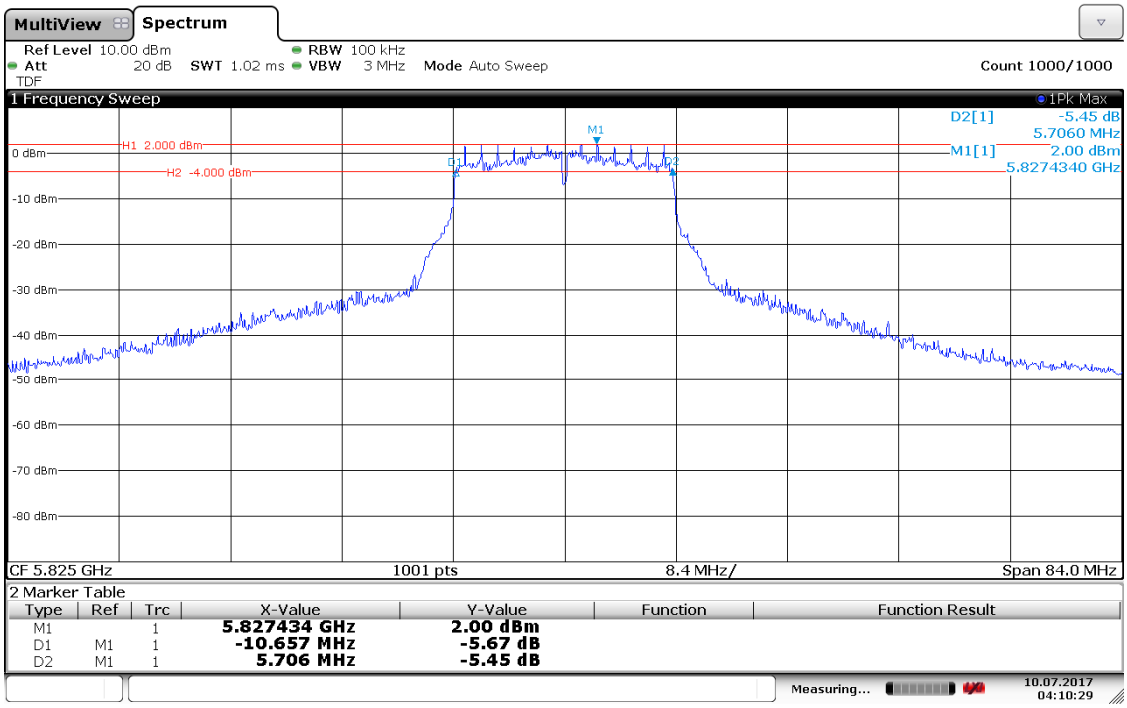
Mid Channel: 5785 MHz, Data Rate: 54 Mbps, Occupied Bandwidth: 16.615 MHz



Date: 10.JUL.2017 03:57:58

Band 4 (20 MHz Bandwidth)

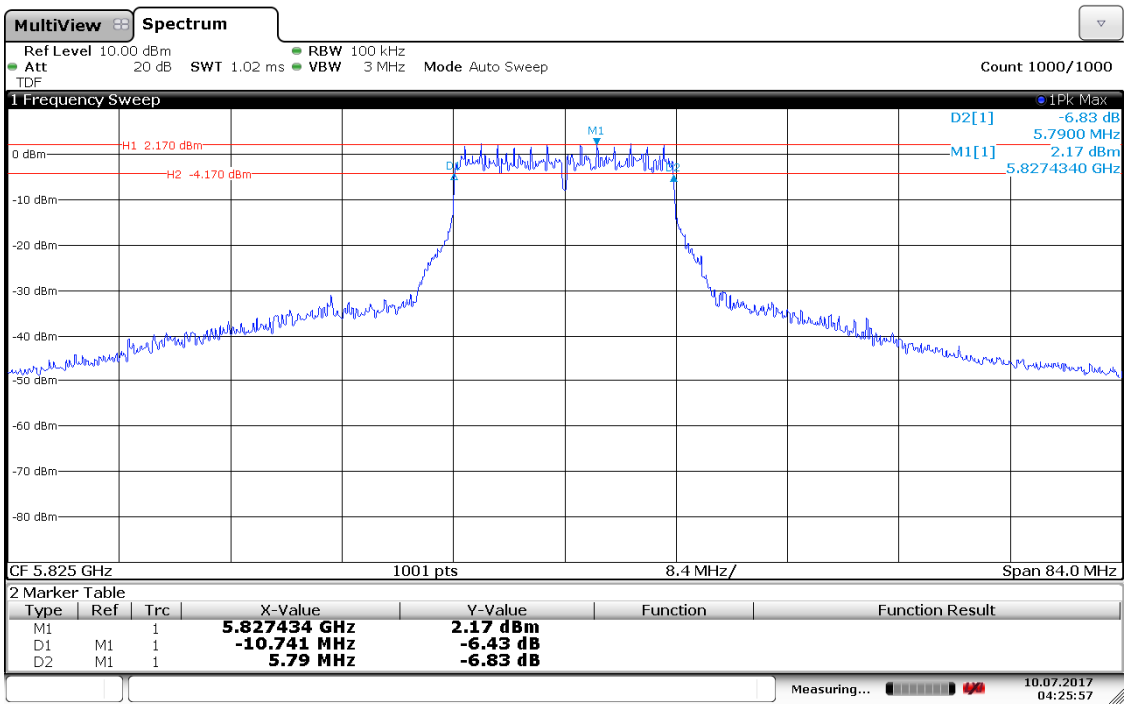
High Channel: 5825 MHz, Data Rate: 6 Mbps, 6 dB Bandwidth: 16.363 MHz



Date: 10.JUL.2017 04:10:29

Band 4 (20 MHz Bandwidth)

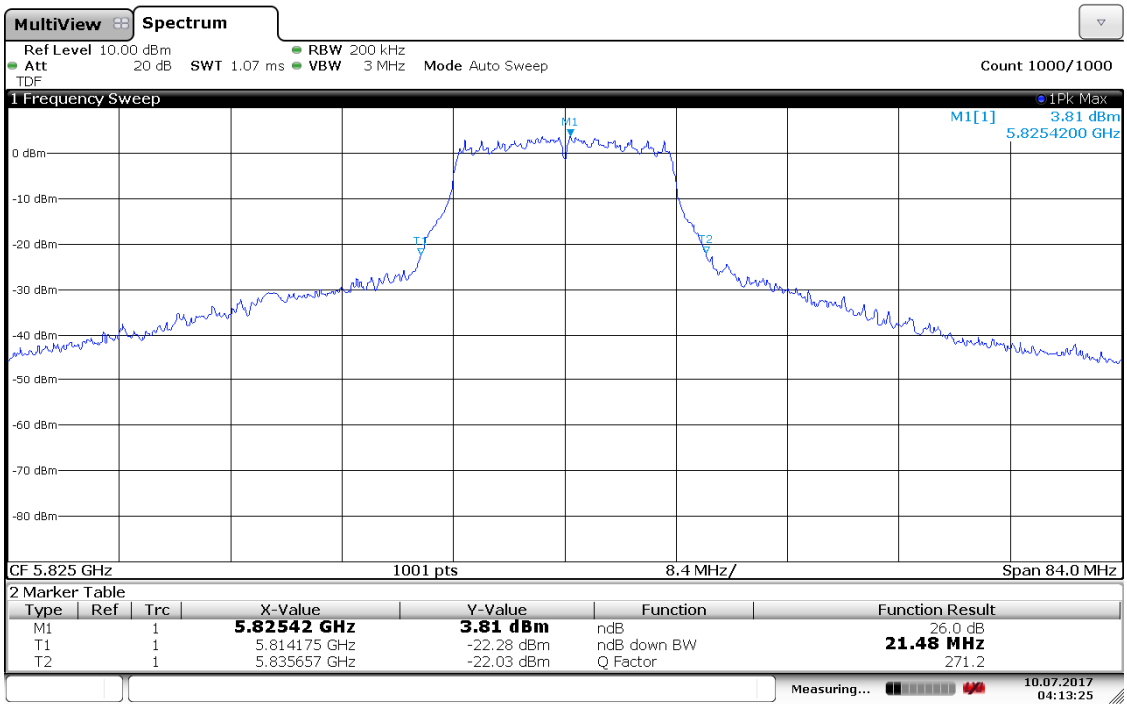
High Channel: 5825 MHz, Data Rate: 54 Mbps, 6 dB Bandwidth: 16.531 MHz



Date: 10.JUL.2017 04:25:56

Band 4 (20 MHz Bandwidth)

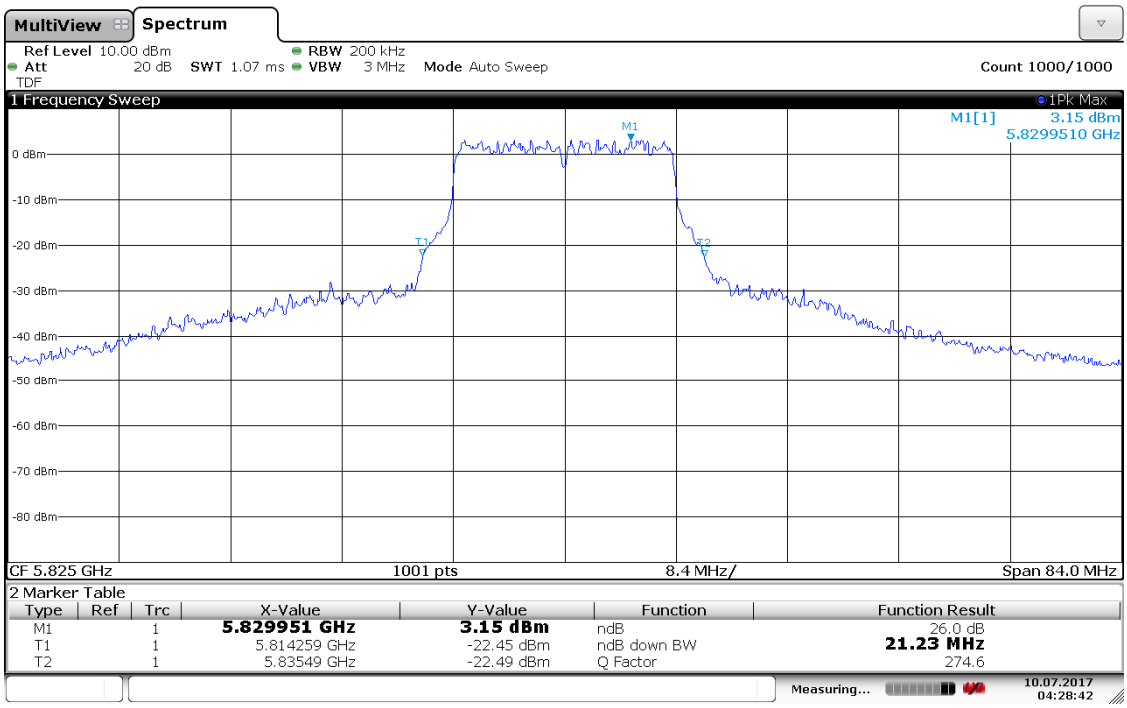
High Channel: 5825 MHz, Data Rate: 6 Mbps, 26 dB Bandwidth: 21.48 MHz



Date: 10.JUL.2017 04:13:24

Band 4 (20 MHz Bandwidth)

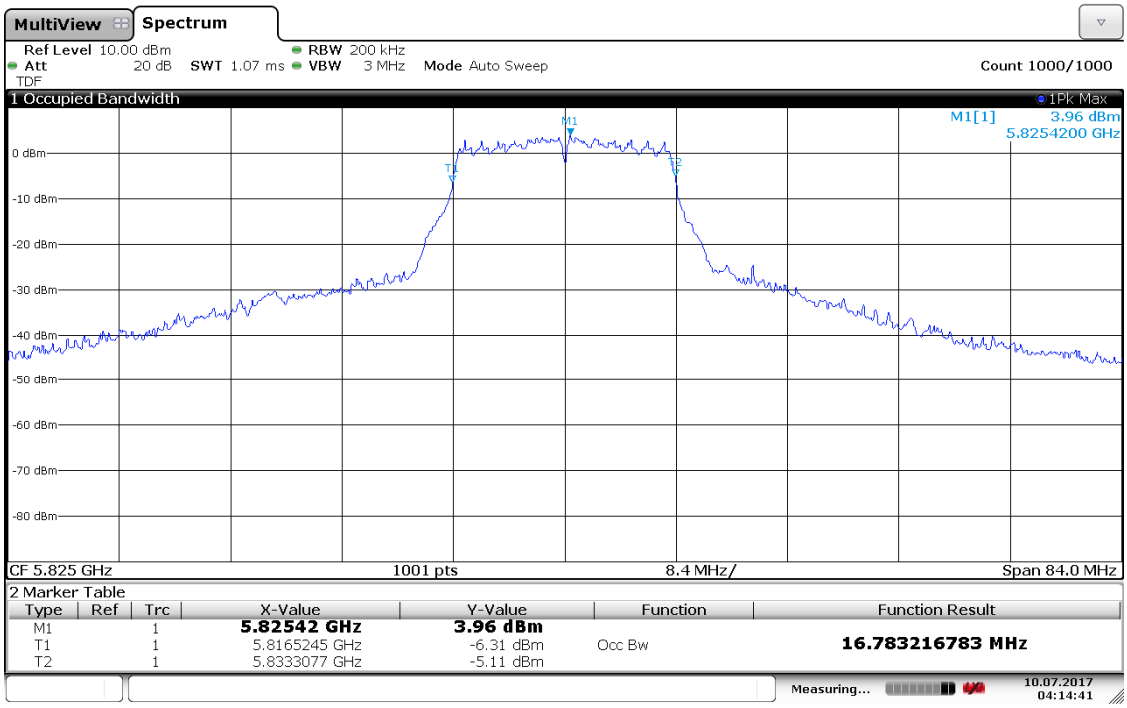
High Channel: 5825 MHz, Data Rate: 54 Mbps, 26 dB Bandwidth: 21.23 MHz



Date: 10.JUL.2017 04:28:42

Band 4 (20 MHz Bandwidth)

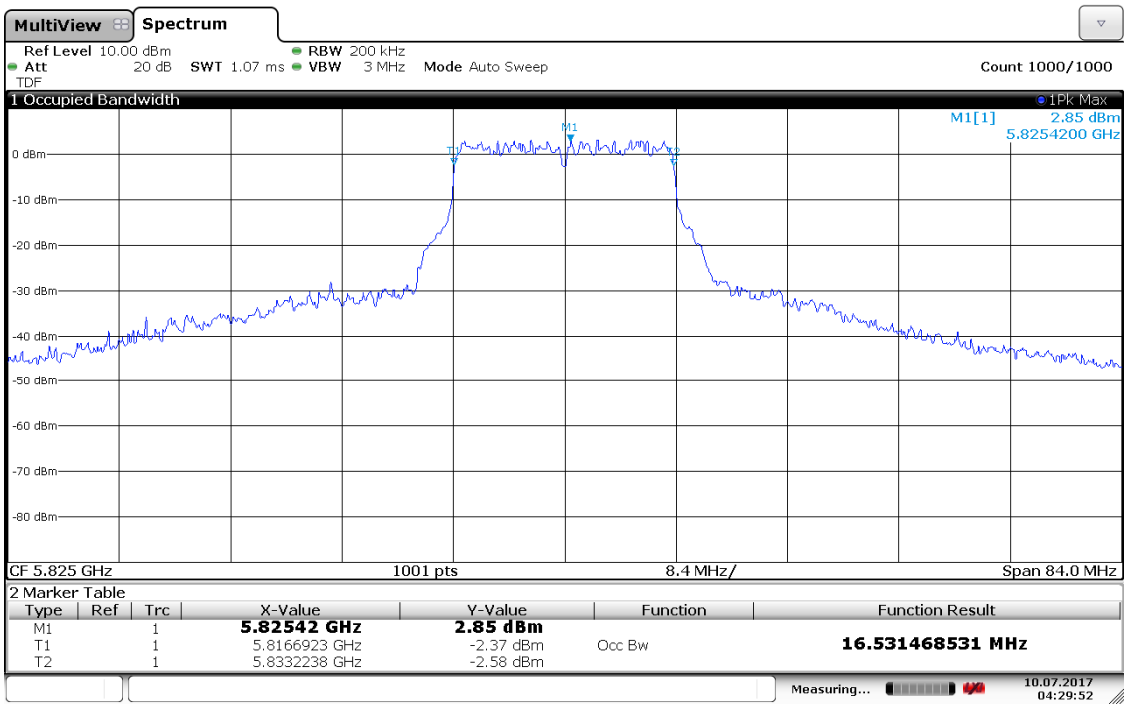
High Channel: 5825 MHz, Data Rate: 6 Mbps, Occupied Bandwidth: 16.783 MHz



Date: 10.JUL.2017 04:14:40

Band 4 (20 MHz Bandwidth)

High Channel: 5825 MHz, Data Rate: 54 Mbps, Occupied Bandwidth: 16.531 MHz



Date: 10.JUL.2017 04:29:52

Test Personnel:	Kouma Sinn KPS	Test Date:	08/05/2017 & 08/06/2017
Supervising/Reviewing Engineer: (Where Applicable)	Vathana F. Ven VFV		
Product Standard:	FCC Part 15 Subpart E RSS 247, RSS 102	Limit Applied:	See report section 8.3
Input Voltage:	120VAC 60Hz Powered via laptop USB port	Ambient Temperature:	21, 21 ºC
Pretest Verification w/ Ambient Signals or BB Source:	N/A	Relative Humidity:	68, 47 %
		Atmospheric Pressure:	1002, 1004 mbars

Deviations, Additions, or Exclusions: None

9 Radiated Emissions (Transmitter Spurious, Band edge, Digital devices and Receiver)

9.1 Method

Tests are performed in accordance with FCC 47CFR Part 15 Subpart B, ICES-003, and ANSI C63.4, KDB 789033 DO2 of 5/2/2017 Clause E (2)(e).

TEST SITE: 10m ALSE

The 10m ALSE is 13m (Length) x 21m (Depth) x 10m (Height) with the effective size in terms of space from the tips of the absorber is 12m (Length) x 20m (Depth) x 8.5m (Height). This chamber achieves broadband performance using a unique arrangement of hybrid and ferrite tile absorber. This chamber has a built in 3m diameter turntable (Embedded type). The metal structure of the table makes electrical connection around the entire circumference of the turntable to the ground plane with a metal brush type connection. The turntable is located on one end of the chamber and the antennas are mounted 3 and 10 meters away at the other end of the chamber on the adjustable an Antenna Mast. The antenna mast is a non-conductive bore sighted type with remote control of antenna height and polarization. The Antenna Mast and the turntable can be remotely controlled through the controller located in the adjacent Control room. A Styrofoam table 80 cm high is used for table-top equipment.

Measurement Uncertainty

Measurement	Frequency Range	Expanded Uncertainty (k=2)	Ucispr
Radiated Emissions, 10m	30-1000 MHz	4.6dB	6.3 dB
Radiated Emissions, 3m	30-1000 MHz	5.3 dB	6.3 dB
Radiated Emissions, 3m	1-6 GHz	4.5 dB	5.2 dB
Radiated Emissions, 3m	6-15 GHz	5.2 dB	5.5 dB
Radiated Emissions, 3m	15-18 GHz	5.0 dB	5.5 dB
Radiated Emissions, 3m	18-40 GHz	5.0 dB	5.5 dB

As shown in the table above our radiated emissions U_{lab} is less than the corresponding U_{CISPR} reference value in CISPR 16-4-2 Table 1, hence the compliance of the product is only based on the measured value, and no measurement uncertainty correction is required, based on CISPR 22 and CISPR 11 (for 2006 and later revisions) Clause 11.

Sample Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CF - AG
Where FS = Field Strength in dBμV/m
RA = Receiver Amplitude (including preamplifier) in dBμV
CF = Cable Attenuation Factor in dB
AF = Antenna Factor in dB
AG = Amplifier Gain in dB

In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows.

Assume a receiver reading of 52.0 dBμV is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted, giving a field strength of 32 dBμV/m. This value in dBμV/m was converted to its corresponding level in μV/m.

RA = 52.0 dBμV
AF = 7.4 dB/m
CF = 1.6 dB
AG = 29.0 dB
FS = 32 dBμV/m

To convert from dBμV to μV or mV the following was used:

$UF = 10^{(NF / 20)}$ where UF = Net Reading in μV
NF = Net Reading in dBμV

Example:

FS = RA + AF + CF – AG = 52.0 + 7.4 + 1.6 – 29.0 = 32.0
$UF = 10^{(32\ dB\mu V / 20)}$ = 39.8 μV/m

9.2 Test Equipment Used:

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
145145'	Broadband Hybrid Antenna 30 MHz - 3 GHz	Sunol Sciences Corp.	JB3	A122313	05/02/2017	05/02/2018
145-410'	Cables 145-420 145-421 145-422 145-406	Huber + Suhner	10m Track A Cables	multiple	07/30/2016	07/30/2017
PRE10'	30-1000MHz pre-amp	ITS	PRE10	PRE10	12/16/2016	12/16/2017
145128'	EMI Receiver (20 Hz - 40 Ghz)	Rohde & Schwarz	ESIB 40	839283/001	03/15/2017	03/15/2018
ETS002'	1-18GHz DRG Horn Antenna	ETS Lindgren	3117	00143260	05/13/2016	05/13/2017
145014'	Preamplifier (1 GHz to 26.5 GHz)	Hewlett Packard	8449B	3008A00232	05/27/2016	05/27/2017
EMC04'	ANTENNA, RIDGED GUIDE, 18-40 GHZ	EMCO	3116	2090	09/14/2016	09/14/2017
REA004'	3GHz High Pass Filter	Reactel, Inc	7HSX-3G/18G-S11	06-1	02/17/2017	02/17/2018
PRE9'	100MHz-40GHz Preamp	MITEQ	NSP4000-NFG	1260417	08/23/2016	08/23/2017
CBLHF2012-2M-1'	2m 9kHz-40GHz Coaxial Cable - SET1	Huber & Suhner	SF102	252675001	02/08/2017	02/08/2018
CBLHF2012-5M-1'	5m 9kHz-40GHz Coaxial Cable - SET 1	Huber & Suhner	SF102	252676001	02/08/2017	02/08/2018
145-416'	Cables 145-420 145-423 145-424 145-408	Huber + Suhner	3m Track B cables	multiple	07/30/2016	07/30/2017

Software Utilized:

Name	Manufacturer	Version
EMI-Boxborough	Intertek Boxborough	08/27/2010

9.3 Results:

The sample tested was found to Comply.

For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

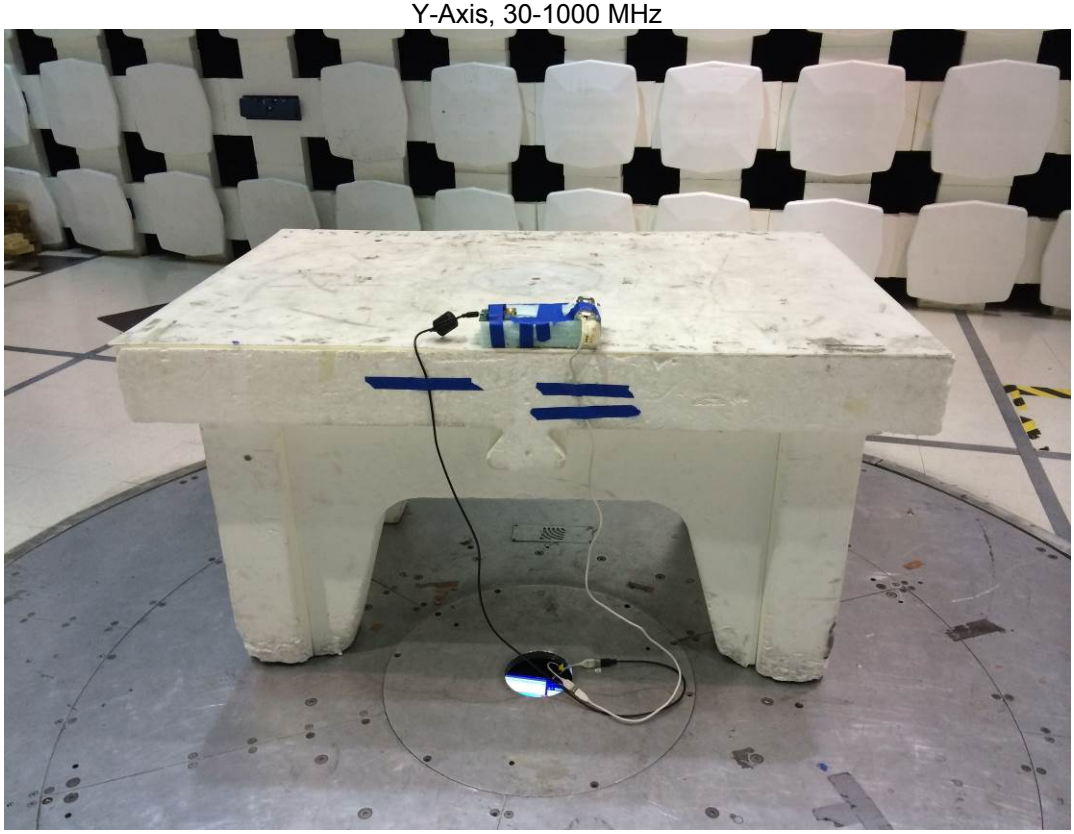
For transmitters operating in the 5.725-5.85 GHz band:

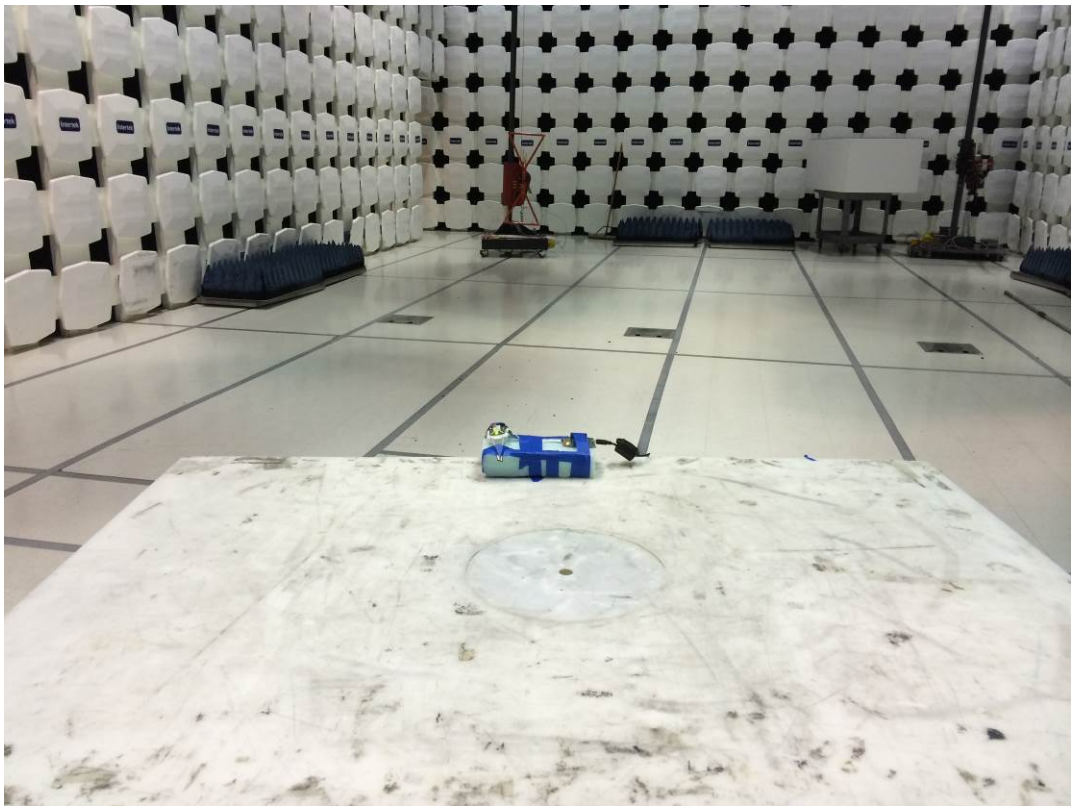
All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

Attenuation below FCC 15.209 limits is not required.

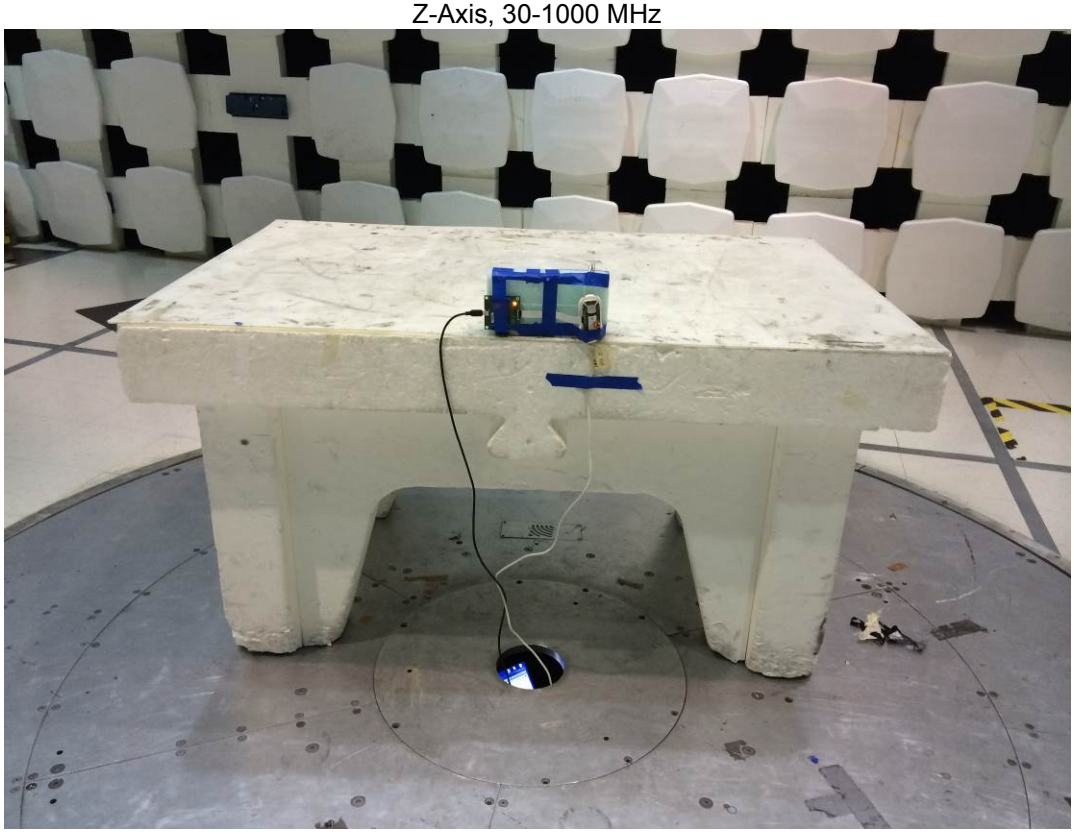
9.4 Setup Photographs:

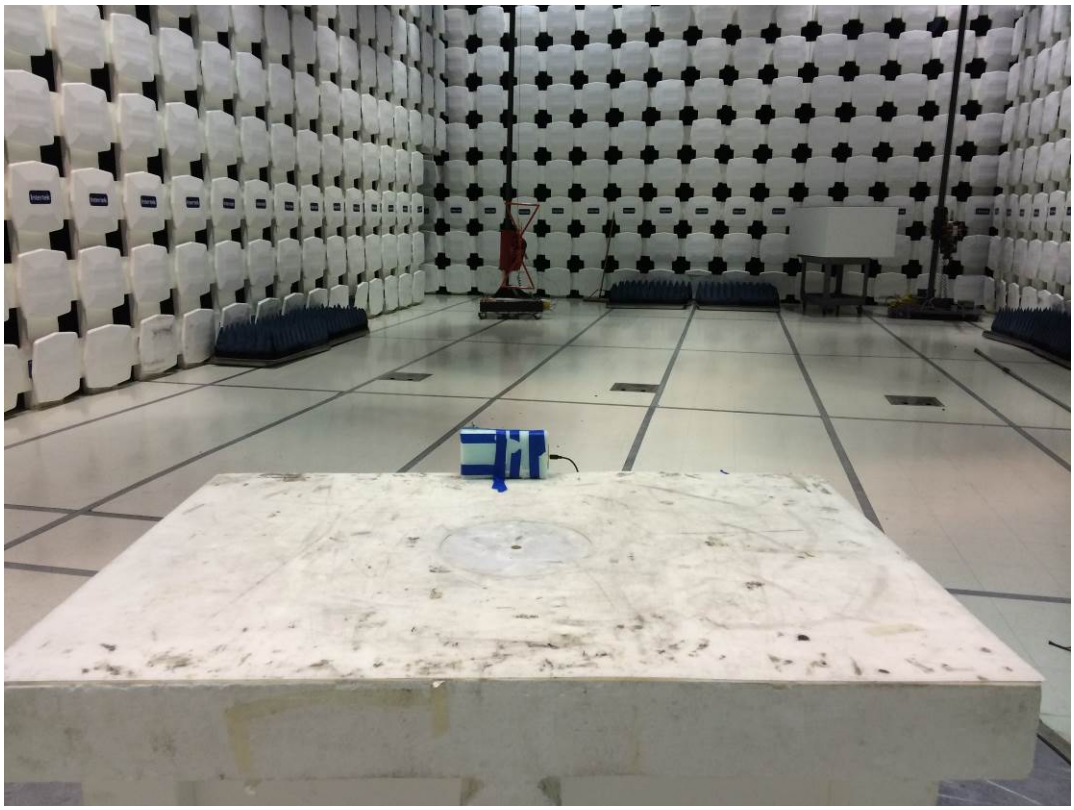
Y-Axis, 30-1000 MHz





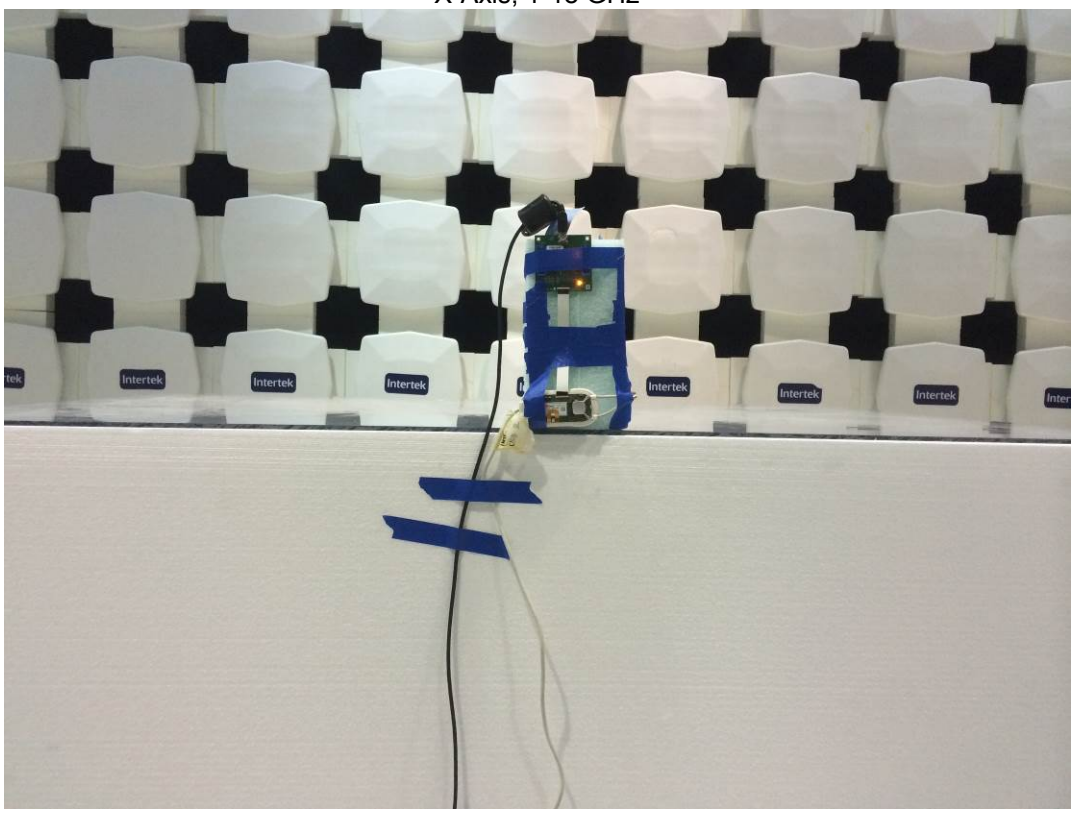
Z-Axis, 30-1000 MHz

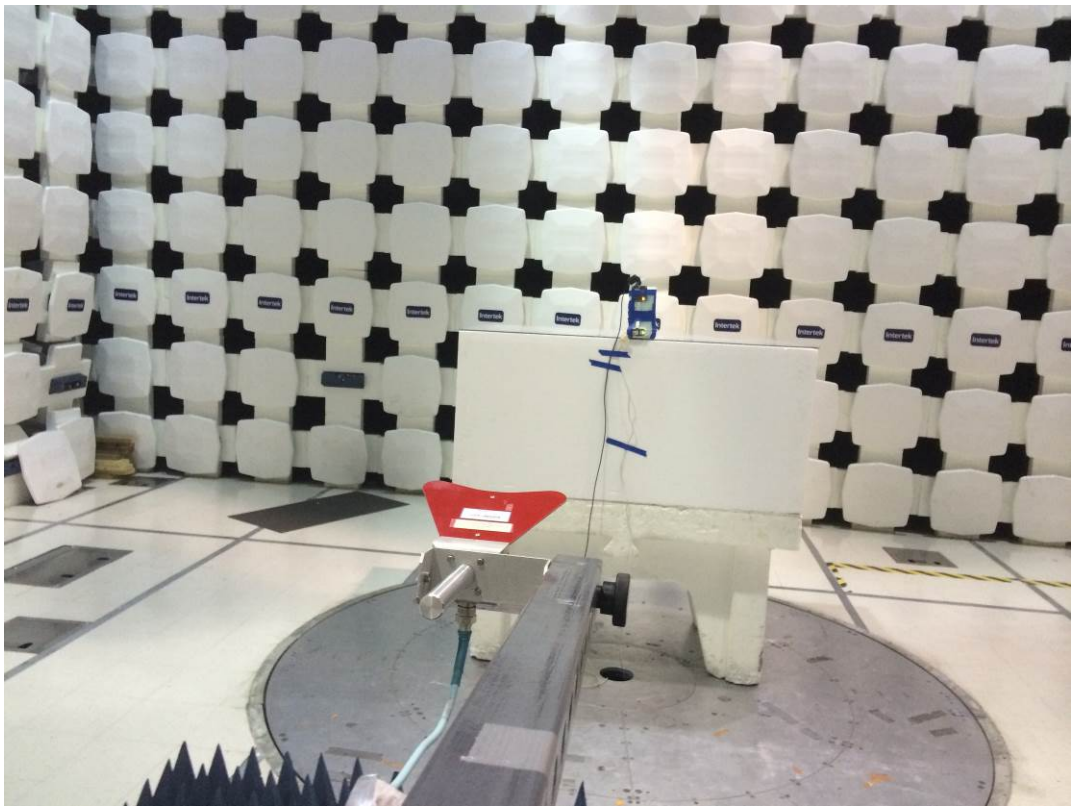




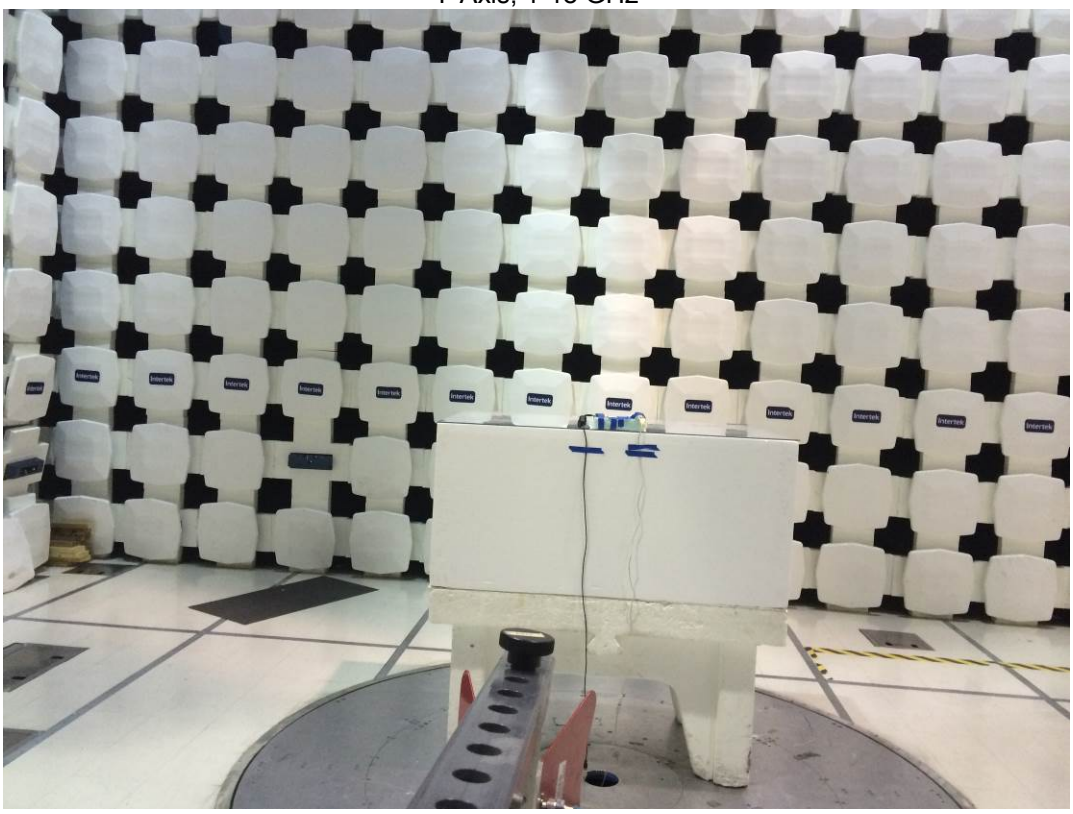
Notes: X-Axis photos not are available, see 1-18 GHz photos.

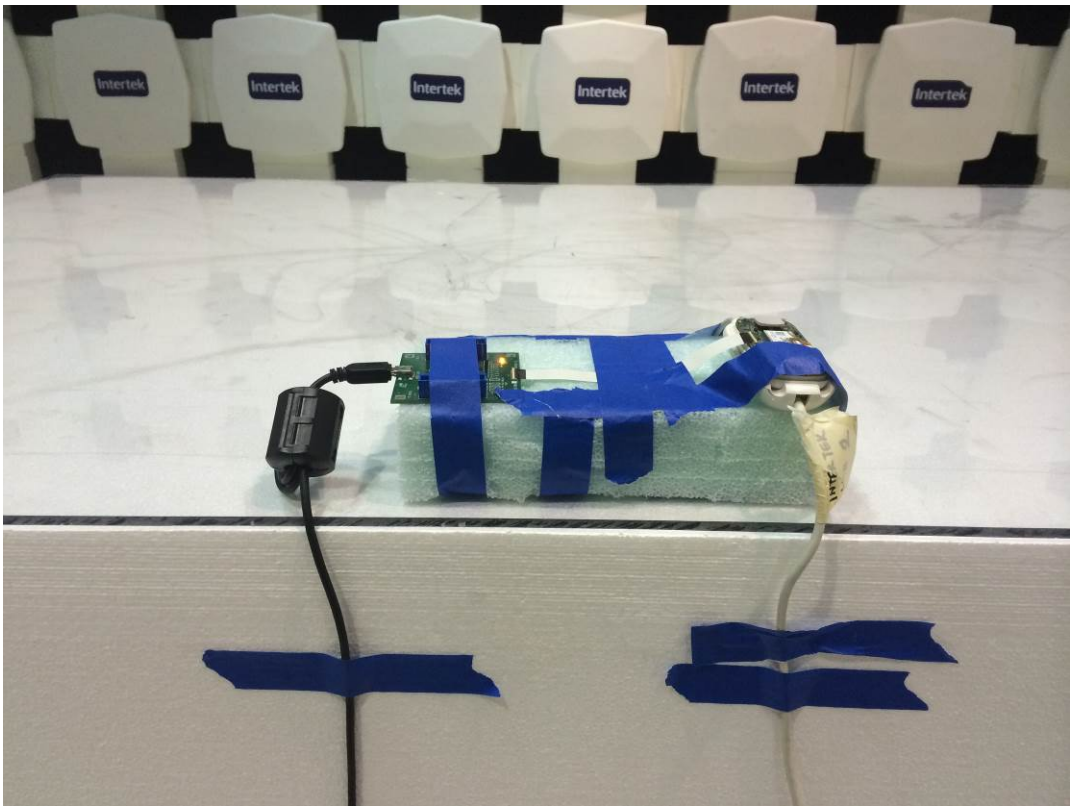
X-Axis, 1-18 GHz



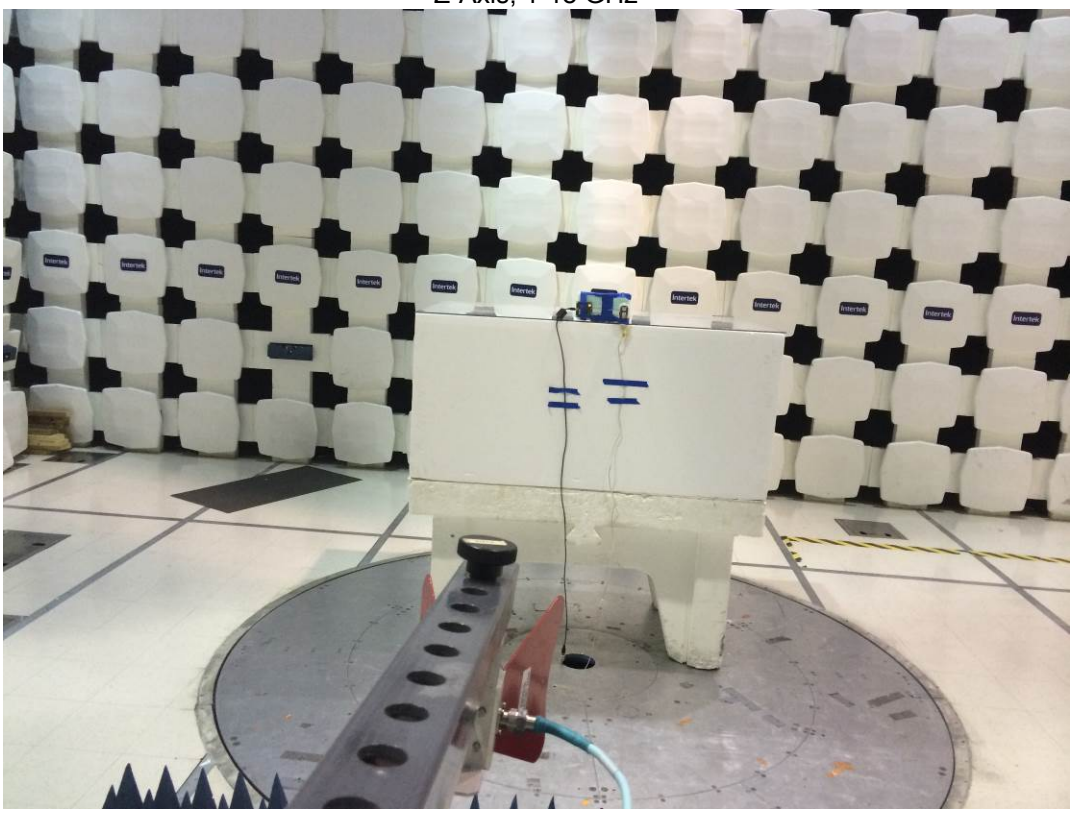


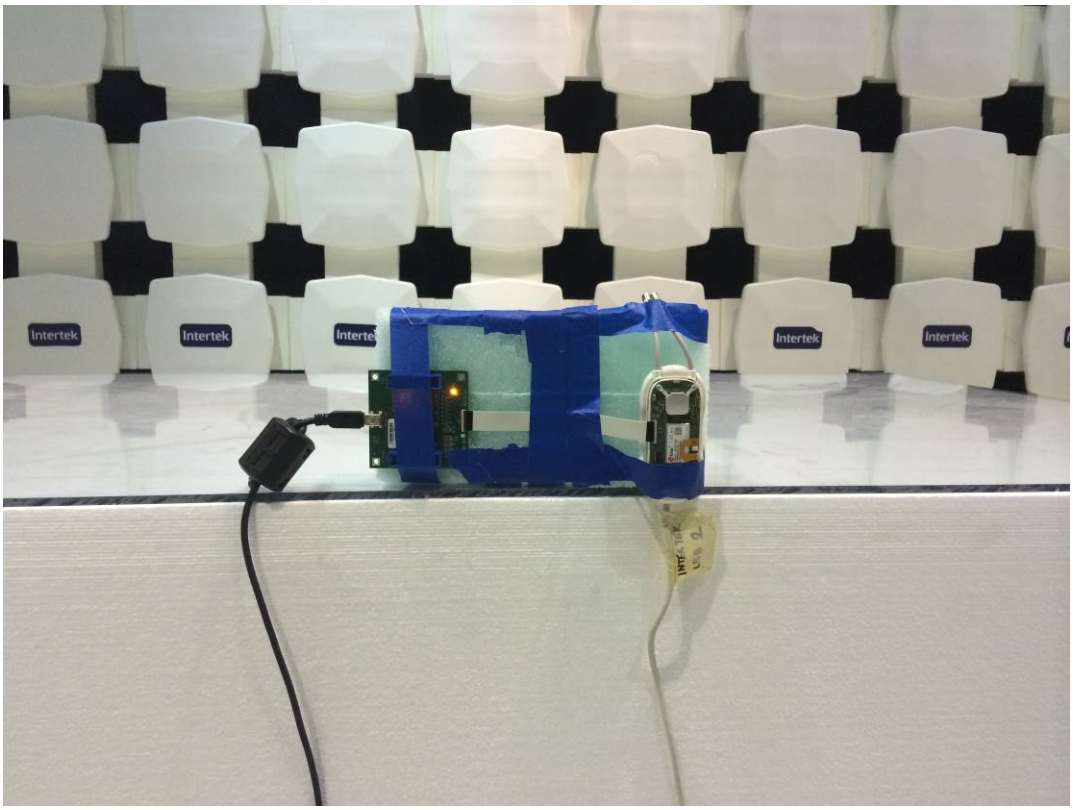
Y-Axis, 1-18 GHz



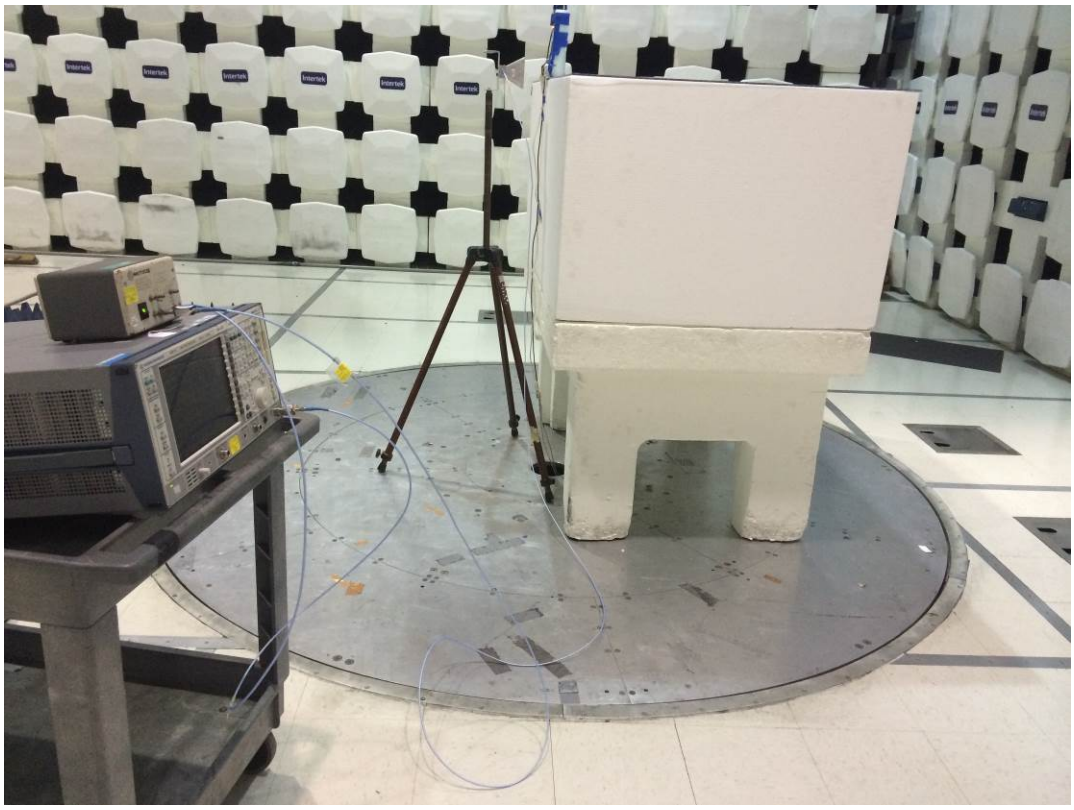


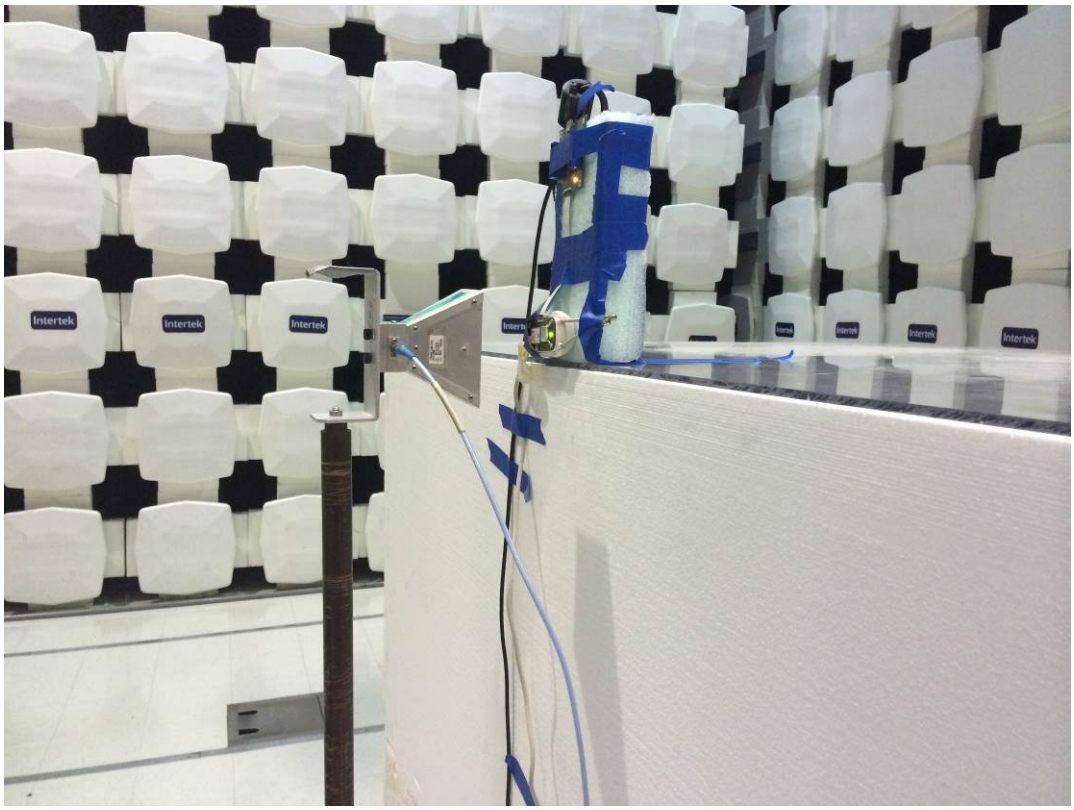
Z-Axis, 1-18 GHz





18-40 GHz





9.5 Test Data:

Band 1 and Band 4, 30-1000 MHz Radiated Emissions

Company: Lifeline System,Inc. Antenna & Cables: N Bands: N, LF, HF, SHF
Model #: As specified in the report Antenna: 145-145_10mH_05-03-18.txt 145-145_10mH_05-03-18.txt
Serial #: As specified in the report Cable(s): 10M track A__7-30-2017.txt NONE.
Engineers: Kouma Sinn Location: 10m chamber Barometer: DAV003 Filter: NONE
Project #: G102965577 Date(s): 06/24/17
Standard: FCC Part 15 Subpart B Class B Temp/Humidity/Pressure: 23C 49% 990mbar
Receiver: 145-128 Limit Distance (m): 3
PreAmp: PRE10_12-16-17.txt Test Distance (m): 10
PreAmp Used? (Y or N): Y Voltage/Frequency: USB Powered Frequency Range: 30-1000 MHz
Net = Reading (dBuV/m) + Antenna Factor (dB1/m) + Cable Loss (dB) - Preamp Factor (dB) - Distance Factor (dB)
Peak: PK Quasi-Peak: QP Average: AVG RMS: RMS; NF = Noise Floor, RB = Restricted Band; Bandwidth denoted as RBW/VBW

Detector Type	Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Distance Factor dB	Net dB(uV/m)	Limit dB(uV/m)	Margin dB	Bandwidth
Band 1, Low CH 5180 MHz (6 Mbps - Worst-case)											
QP	V	45.154	35.94	16.32	0.90	40.71	-10.46	22.91	40.00	-17.09	120/300 kHz
QP	V	57.380	42.23	13.40	1.04	40.69	-10.46	26.44	40.00	-13.56	120/300 kHz
QP	V	119.977	41.22	20.00	1.54	40.66	-10.46	32.55	43.50	-10.95	120/300 kHz
QP	V	152.099	35.29	18.50	1.75	40.67	-10.46	25.33	43.50	-18.17	120/300 kHz
QP	V	237.286	44.00	17.63	2.23	40.69	-10.46	33.62	46.00	-12.38	120/300 kHz
QP	V	359.994	40.28	21.00	2.69	40.76	-10.46	33.66	46.00	-12.34	120/300 kHz
Band 4, Mid CH 5785 MHz (6 Mbps - Worst-case)											
QP	V	36.000	36.90	23.00	0.76	40.73	-10.46	30.39	40.00	-9.61	120/300 kHz
QP	V	50.720	43.93	13.98	0.99	40.70	-10.46	28.66	40.00	-11.34	120/300 kHz
QP	V	60.268	54.00	13.63	1.07	40.69	-10.46	38.46	40.00	-1.54	120/300 kHz
QP	V	225.790	46.57	17.08	2.18	40.70	-10.46	35.59	46.00	-10.41	120/300 kHz
QP	V	338.720	40.00	20.20	2.61	40.74	-10.46	32.53	46.00	-13.47	120/300 kHz
QP	V	480.000	38.00	24.00	3.18	40.67	-10.46	34.97	46.00	-11.03	120/300 kHz

Band 1, 1-40 GHz Radiated Emissions

Company: Philips Lifeline
Model #: As specified in the report
Serial #: As specified in the report
Engineers: Naga Suryadevara
Project #: G102965577
Standard: FCC Part 15.209
Receiver: 145-128
PreAmp: 145014__6-5-18_MHz values.txt

Antenna & Cables: HF Bands: N, LF, HF, SHF
Antenna: ETS001_2-13-2018.txt ETS001_2-13-2018.txt
Cable(s): 3M track B_10k-18GHz.txt NONE.
Location: 10 M Chamber Barometer: DAV004 Filter: REA006
Date(s): 06/24/17
Temp/Humidity/Pressure: 24C 42% 996 mbars
Limit Distance (m): 3
Test Distance (m): 3
PreAmp Used? (Y or N): Y Voltage/Frequency: Internal Battery Frequency Range: 1-40 GHz

Net = Reading (dBuV/m) + Antenna Factor (dB1/m) + Cable Loss (dB) - Preamp Factor (dB) - Distance Factor (dB)
Peak: PK Quasi-Peak: QP Average: AVG RMS: RMS; NF = Noise Floor, RB = Restricted Band; Bandwidth denoted as RBW/VBW

Detector Type	Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Distance Factor dB	Net dB(uV/m)	Limit dB(uV/m)	Margin dB	Bandwidth	FCC
Low Channel 5180 MHz 6 Mbps Data rate X axis												
PK	V	10360.000	36.63	37.37	13.42	35.20	0.00	52.22	74.00	-21.78	1/3 MHz	
AVG	V	10360.000	23.73	37.37	13.42	35.20	0.00	39.32	54.00	-14.68	1/3 MHz	
PK	V	15540.000	34.37	40.50	16.01	33.96	0.00	56.93	74.00	-17.07	1/3 MHz	RB
AVG	V	15540.000	22.37	40.50	16.01	33.96	0.00	44.93	54.00	-9.07	1/3 MHz	RB
Low Channel 5180 MHz 6 Mbps Data rate Y axis												
PK	V	10360.000	36.59	37.37	13.42	35.20	0.00	52.18	74.00	-21.82	1/3 MHz	
AVG	V	10360.000	23.53	37.37	13.42	35.20	0.00	39.12	54.00	-14.88	1/3 MHz	
PK	V	15540.000	34.78	40.50	16.01	33.96	0.00	57.34	74.00	-16.66	1/3 MHz	RB
AVG	V	15540.000	21.22	40.50	16.01	33.96	0.00	43.78	54.00	-10.22	1/3 MHz	RB
Low Channel 5180 MHz 6 Mbps Data rate Z axis												
PK	V	10360.000	35.49	37.37	13.42	35.20	0.00	51.08	74.00	-22.92	1/3 MHz	
AVG	V	10360.000	21.19	37.37	13.42	35.20	0.00	36.78	54.00	-17.22	1/3 MHz	
PK	V	15540.000	34.62	40.50	16.01	33.96	0.00	57.18	74.00	-16.82	1/3 MHz	RB
AVG	V	15540.000	21.63	40.50	16.01	33.96	0.00	44.19	54.00	-9.81	1/3 MHz	RB
Mid Channel 5220 MHz 6 Mbps Data rate X axis												
PK	V	10440.000	35.33	37.44	13.52	35.12	0.00	51.17	74.00	-22.83	1/3 MHz	
AVG	V	10440.000	24.18	37.44	13.52	35.12	0.00	40.02	54.00	-13.98	1/3 MHz	
PK	V	15660.000	33.12	40.58	15.91	33.84	0.00	55.77	74.00	-18.23	1/3 MHz	RB
AVG	V	15660.000	23.18	40.58	15.91	33.84	0.00	45.83	54.00	-8.17	1/3 MHz	RB
Mid Channel 5220 MHz 6 Mbps Data rate Y axis												
PK	V	10440.000	36.29	37.44	13.52	35.12	0.00	52.13	74.00	-21.87	1/3 MHz	
AVG	V	10440.000	25.12	37.44	13.52	35.12	0.00	40.96	54.00	-13.04	1/3 MHz	
PK	V	15660.000	32.12	40.58	15.91	33.84	0.00	54.77	74.00	-19.23	1/3 MHz	RB
AVG	V	15660.000	22.19	40.58	15.91	33.84	0.00	44.84	54.00	-9.16	1/3 MHz	RB
Mid Channel 5220 MHz 6 Mbps Data rate Z axis												
PK	V	10440.000	35.54	37.44	13.52	35.12	0.00	51.38	74.00	-22.62	1/3 MHz	
AVG	V	10440.000	24.02	37.44	13.52	35.12	0.00	39.86	54.00	-14.14	1/3 MHz	
PK	V	15660.000	31.19	40.58	15.91	33.84	0.00	53.84	74.00	-20.16	1/3 MHz	RB
AVG	V	15660.000	21.98	40.58	15.91	33.84	0.00	44.63	54.00	-9.37	1/3 MHz	RB
High Channel 5240 MHz 6 Mbps Data rate X axis												
PK	V	10480.000	34.46	37.49	13.57	35.04	0.00	50.49	74.00	-23.51	1/3 MHz	
AVG	V	10480.000	23.22	37.49	13.57	35.04	0.00	39.25	54.00	-14.75	1/3 MHz	
PK	V	10720.000	32.98	37.70	13.90	34.78	0.00	49.80	74.00	-24.20	1/3 MHz	RB
AVG	V	10720.000	21.22	37.70	13.90	34.78	0.00	38.04	54.00	-15.96	1/3 MHz	RB
High Channel 5240 MHz 6 Mbps Data rate Y axis												
PK	V	10480.000	35.87	37.49	13.57	35.04	0.00	51.90	74.00	-22.10	1/3 MHz	
AVG	V	10480.000	24.48	37.49	13.57	35.04	0.00	40.51	54.00	-13.49	1/3 MHz	
PK	V	10720.000	33.02	37.70	13.90	34.78	0.00	49.84	74.00	-24.16	1/3 MHz	RB
AVG	V	10720.000	22.76	37.70	13.90	34.78	0.00	39.58	54.00	-14.42	1/3 MHz	RB
High Channel 5240 MHz 6 Mbps Data rate Z axis												
PK	V	10480.000	34.89	37.49	13.57	35.04	0.00	50.92	74.00	-23.08	1/3 MHz	
AVG	V	10480.000	23.76	37.49	13.57	35.04	0.00	39.79	54.00	-14.21	1/3 MHz	
PK	V	10720.000	32.19	37.70	13.90	34.78	0.00	49.01	74.00	-24.99	1/3 MHz	RB
AVG	V	10720.000	23.22	37.70	13.90	34.78	0.00	40.04	54.00	-13.96	1/3 MHz	RB

Band 4, 1-40 GHz Radiated Emissions

Company: Philips Lifeline
Model #: As specified in the report
Serial #: As specified in the report
Engineers: Vathana Ven
Project #: G102965577
Standard: FCC Part 15.209
Receiver: 145-128
PreAmp: 145014__6-5-18_MHz values.txt

Location: 10 M Chamber
Date(s): 06/30/17
Limit Distance (m): 3
Test Distance (m): 3
PreAmp Used? (Y or N): Y
Voltage/Frequency: Internal Battery

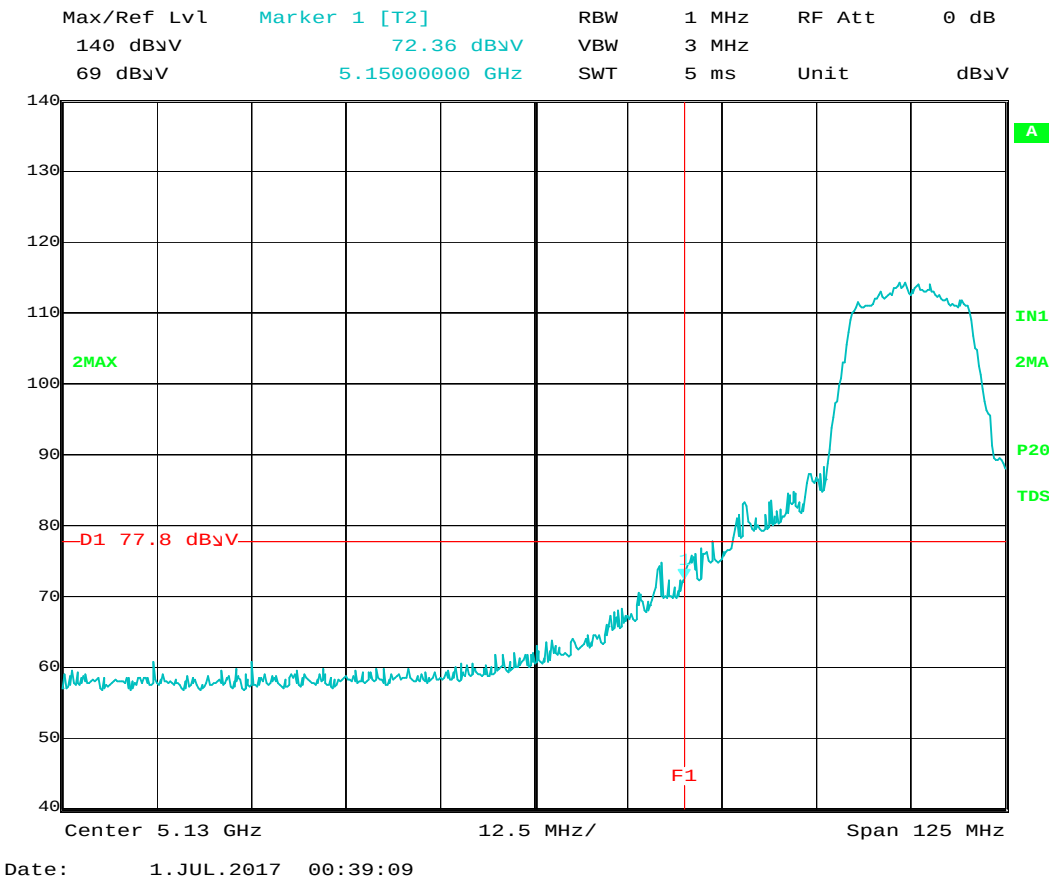
Antenna & Cables: HF
Antenna: ETS001_2-13-2018.txt
Cable(s): 3M track B_10k-18GHz.txt
Barometer: DAV003
Temp/Humidity/Pressure: 24C

Bands: N, LF, HF, SHF
ETS001_2-13-2018.txt
NONE.
Filter: REA006
45%
1001mbar
Frequency Range: 1-40 GHz

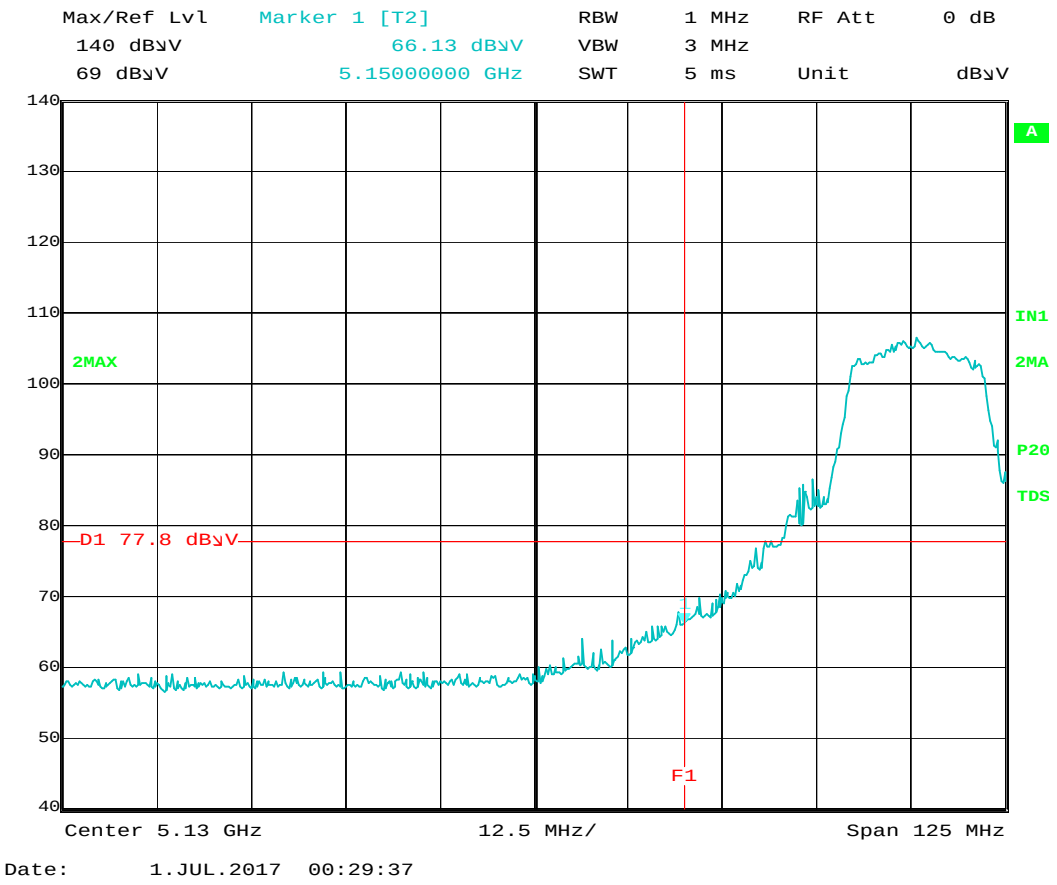
Net = Reading (dBuV/m) + Antenna Factor (dB1/m) + Cable Loss (dB) - Preamp Factor (dB) - Distance Factor (dB)
Peak: PK Quasi-Peak: QP Average: AVG RMS: RMS; NF = Noise Floor, RB = Restricted Band; Bandwidth denoted as RBW/VBW

Detector Type	Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Distance Factor dB	Net dB(uV/m)	Limit dB(uV/m)	Margin dB	Bandwidth	FCC
Low Channel 5745 MHz 6 Mbps Data rate X axis												
PK	V	11490.000	36.50	38.20	14.13	34.31	0.00	54.52	74.00	-19.48	1/3 MHz	RB
AVG	V	11490.000	23.22	38.20	14.13	34.31	0.00	41.24	54.00	-12.76	1/3 MHz	RB
PK	V	17235.000	34.59	41.35	17.46	33.50	0.00	59.90	74.00	-14.10	1/3 MHz	
AVG	V	17235.000	22.42	41.35	17.46	33.50	0.00	47.73	54.00	-6.27	1/3 MHz	
Low Channel 5745 MHz 6 Mbps Data rate Y axis												
PK	V	11490.000	35.90	38.20	14.13	34.31	0.00	53.92	74.00	-20.08	1/3 MHz	RB
AVG	V	11490.000	22.89	38.20	14.13	34.31	0.00	40.91	54.00	-13.09	1/3 MHz	RB
PK	V	17235.000	34.58	41.35	17.46	33.50	0.00	59.89	74.00	-14.11	1/3 MHz	
AVG	V	17235.000	22.38	41.35	17.46	33.50	0.00	47.69	54.00	-6.31	1/3 MHz	
Low Channel 5745 MHz 6 Mbps Data rate Z axis												
PK	V	11490.000	35.40	38.20	14.13	34.31	0.00	53.42	74.00	-20.58	1/3 MHz	RB
AVG	V	11490.000	22.98	38.20	14.13	34.31	0.00	41.00	54.00	-13.00	1/3 MHz	RB
PK	V	17235.000	34.50	41.35	17.46	33.50	0.00	59.81	74.00	-14.19	1/3 MHz	
AVG	V	17235.000	22.38	41.35	17.46	33.50	0.00	47.69	54.00	-6.31	1/3 MHz	
Mid Channel 5785 MHz 6 Mbps Data rate X axis												
PK	V	11570.000	35.14	38.27	14.10	34.30	0.00	53.22	74.00	-20.78	1/3 MHz	RB
AVG	V	11570.000	23.15	38.27	14.10	34.30	0.00	41.23	54.00	-12.77	1/3 MHz	RB
PK	V	17355.000	35.80	41.25	17.38	33.50	0.00	60.93	74.00	-13.07	1/3 MHz	
AVG	V	17355.000	22.56	41.25	17.38	33.50	0.00	47.69	54.00	-6.31	1/3 MHz	
Mid Channel 5785 MHz 6 Mbps Data rate Y axis												
PK	V	11570.000	35.24	38.27	14.10	34.30	0.00	53.32	74.00	-20.68	1/3 MHz	RB
AVG	V	11570.000	23.11	38.27	14.10	34.30	0.00	41.19	54.00	-12.81	1/3 MHz	RB
PK	V	17355.000	34.80	41.25	17.38	33.50	0.00	59.93	74.00	-14.07	1/3 MHz	
AVG	V	17355.000	22.58	41.25	17.38	33.50	0.00	47.71	54.00	-6.29	1/3 MHz	
Mid Channel 5785 MHz 6 Mbps Data rate Z axis												
PK	V	11570.000	35.55	38.27	14.10	34.30	0.00	53.63	74.00	-20.37	1/3 MHz	RB
AVG	V	11570.000	23.17	38.27	14.10	34.30	0.00	41.25	54.00	-12.75	1/3 MHz	RB
PK	V	17355.000	34.85	41.25	17.38	33.50	0.00	59.98	74.00	-14.02	1/3 MHz	
AVG	V	17355.000	22.56	41.25	17.38	33.50	0.00	47.69	54.00	-6.31	1/3 MHz	
High Channel 5825 MHz 6 Mbps Data rate X axis (EUT on its back)												
PK	V	11650.000	35.20	38.38	14.08	34.30	0.00	53.36	74.00	-20.64	1/3 MHz	RB
AVG	V	11650.000	22.98	38.38	14.08	34.30	0.00	41.14	54.00	-12.86	1/3 MHz	RB
PK	V	17475.000	34.98	41.17	17.31	33.50	0.00	59.97	74.00	-14.03	1/3 MHz	
AVG	V	17475.000	22.51	41.17	17.31	33.50	0.00	47.50	54.00	-6.50	1/3 MHz	
High Channel 5825 MHz 6 Mbps Data rate Y axis (EUT short side, cable side)												
PK	V	11650.000	35.20	38.38	14.08	34.30	0.00	53.36	74.00	-20.64	1/3 MHz	RB
AVG	V	11650.000	22.86	38.38	14.08	34.30	0.00	41.02	54.00	-12.98	1/3 MHz	RB
PK	V	17475.000	35.01	41.17	17.31	33.50	0.00	60.00	74.00	-14.00	1/3 MHz	
AVG	V	17475.000	22.50	41.17	17.31	33.50	0.00	47.49	54.00	-6.51	1/3 MHz	
High Channel 5825 MHz 6 Mbps Data rate Z axis												
PK	V	11650.000	35.40	38.38	14.08	34.30	0.00	53.56	74.00	-20.44	1/3 MHz	RB
AVG	V	11650.000	23.05	38.38	14.08	34.30	0.00	41.21	54.00	-12.79	1/3 MHz	RB
PK	V	17475.000	35.00	41.17	17.31	33.50	0.00	59.99	74.00	-14.01	1/3 MHz	
AVG	V	17475.000	22.52	41.17	17.31	33.50	0.00	47.51	54.00	-6.49	1/3 MHz	

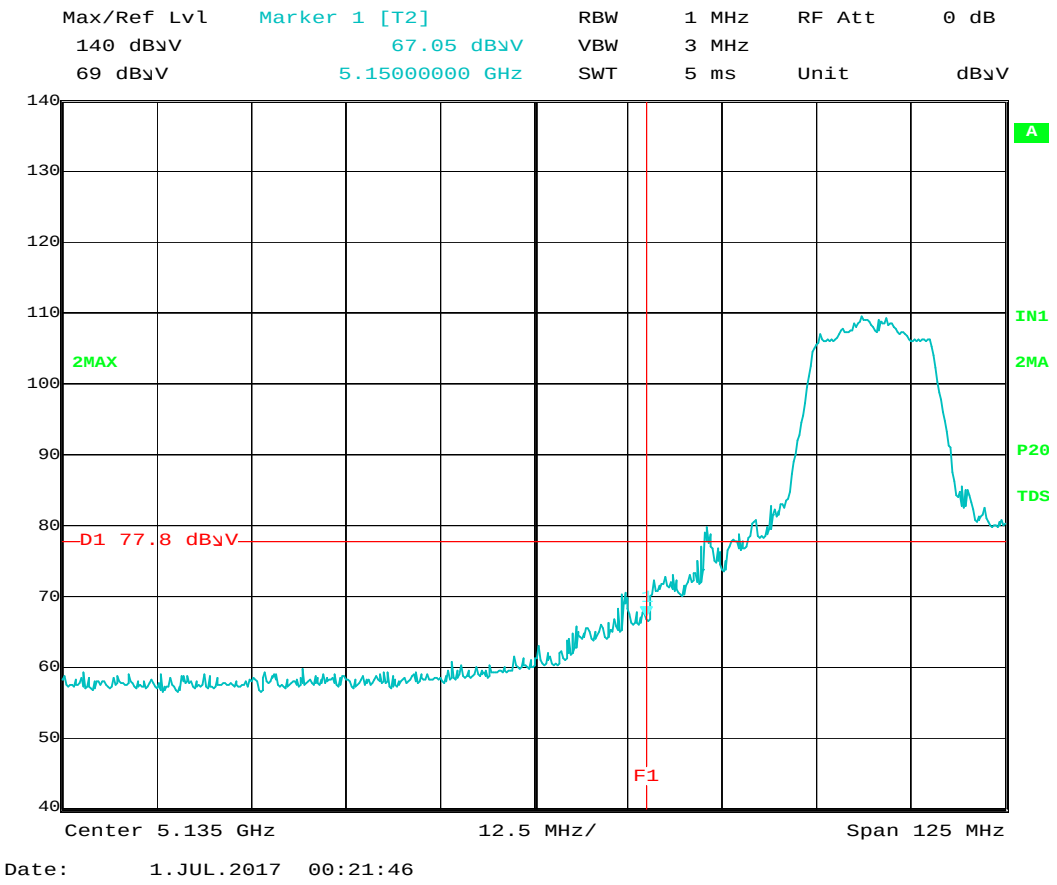
Band 1, Lower Band Edge (X-Axis) at 1 meter



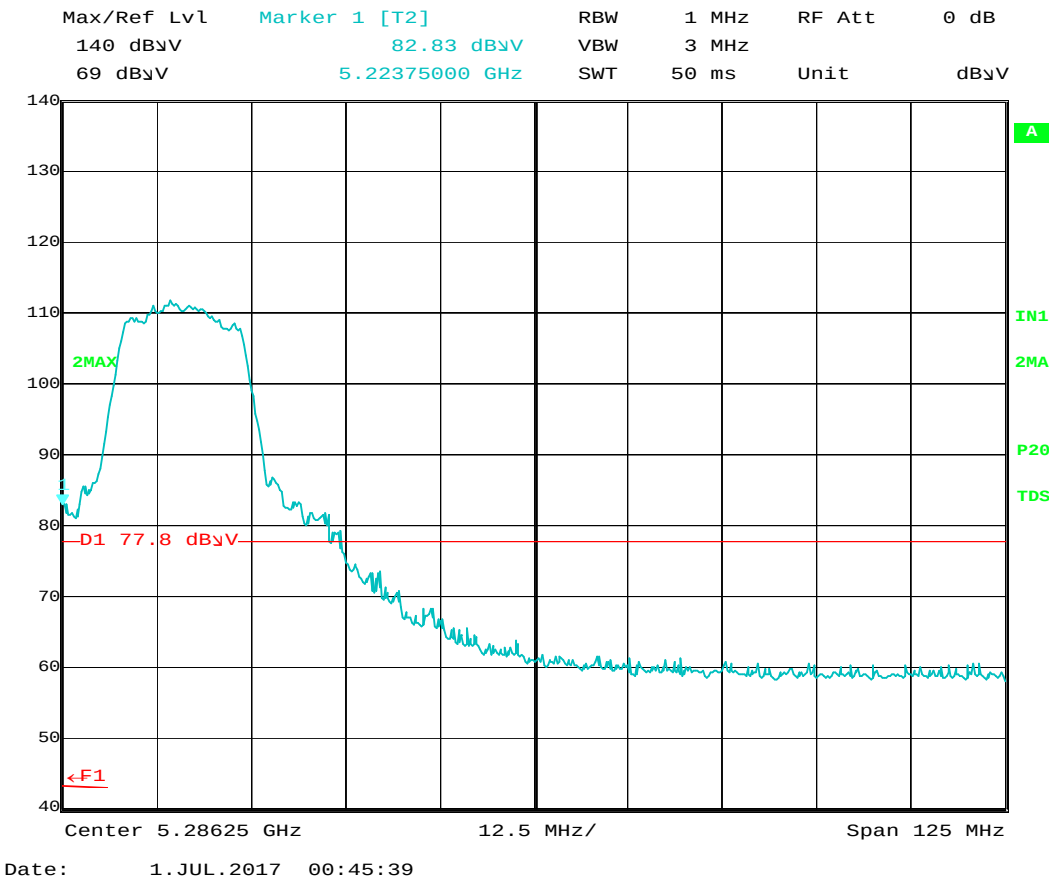
Band 1, Lower Band Edge (Y-Axis) at 1 meter



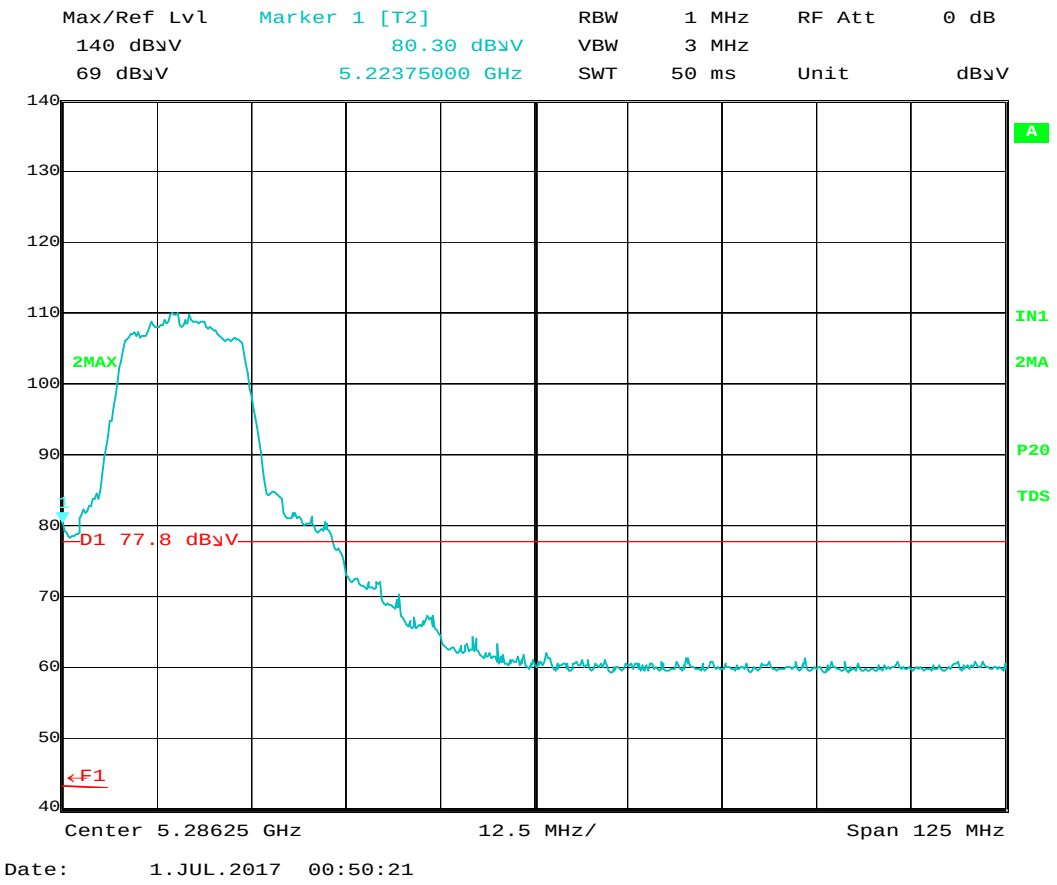
Band 1, Lower Band Edge (Z-Axis) at 1 meter



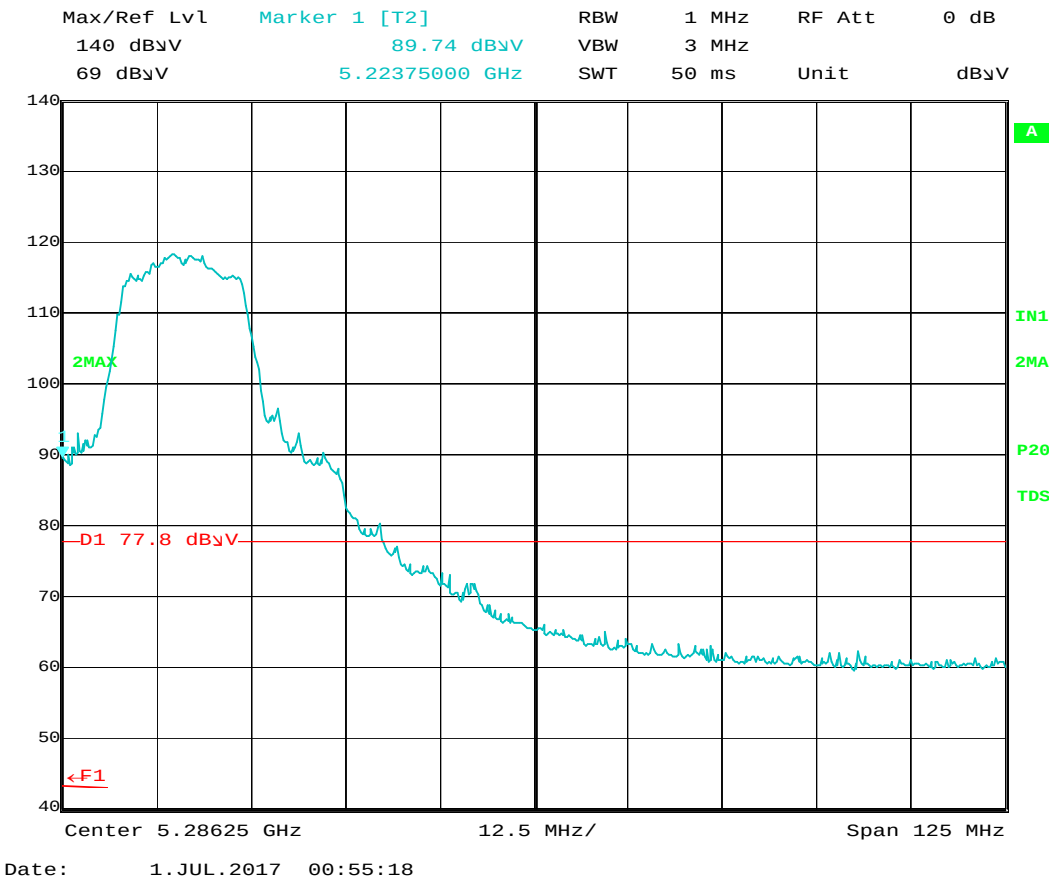
Band 1, Upper Band Edge (X-Axis) at 1 meter



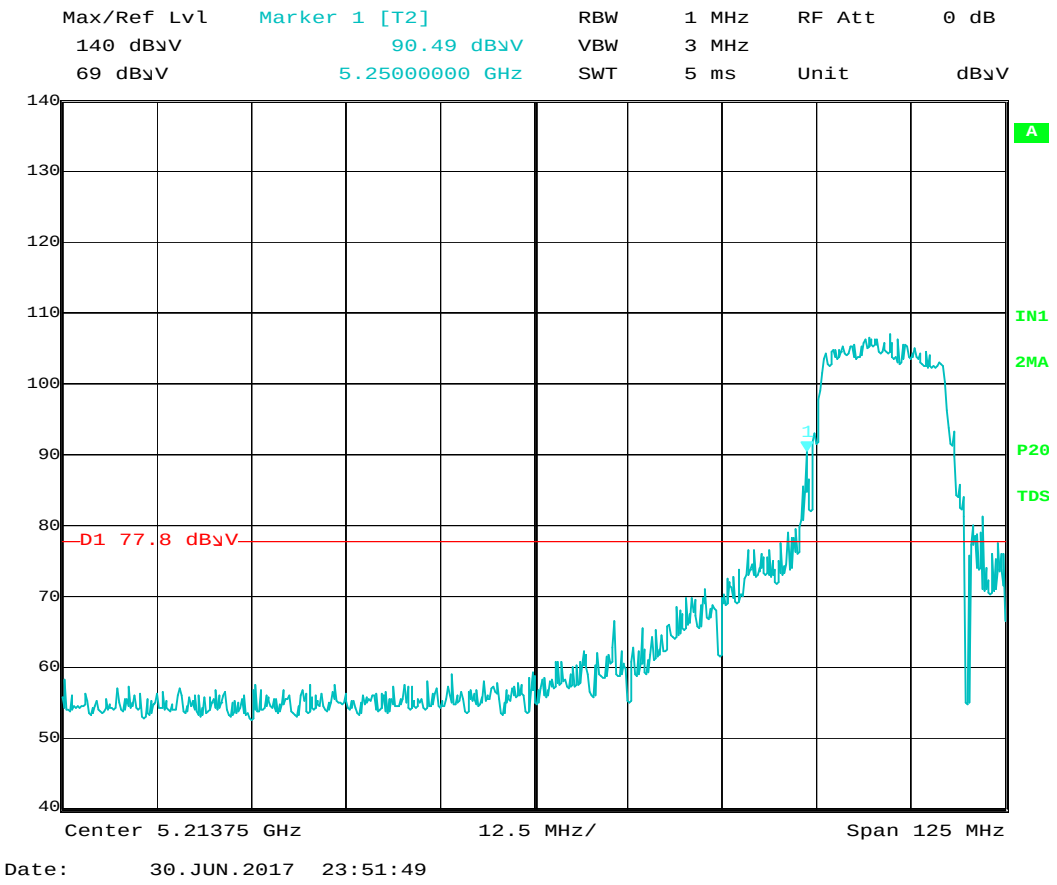
Band 1, Upper Band Edge (Y-Axis) at 1 meter



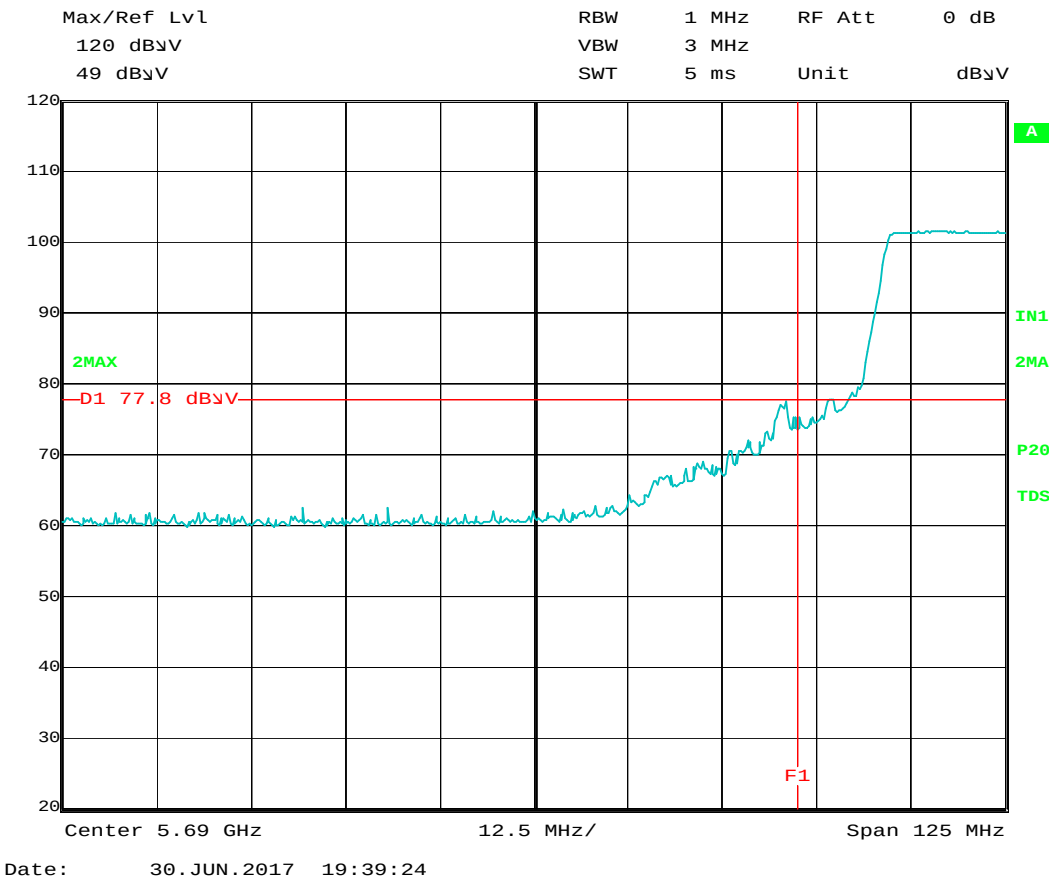
Band 1, Upper Band Edge (Z-Axis) at 1 meter



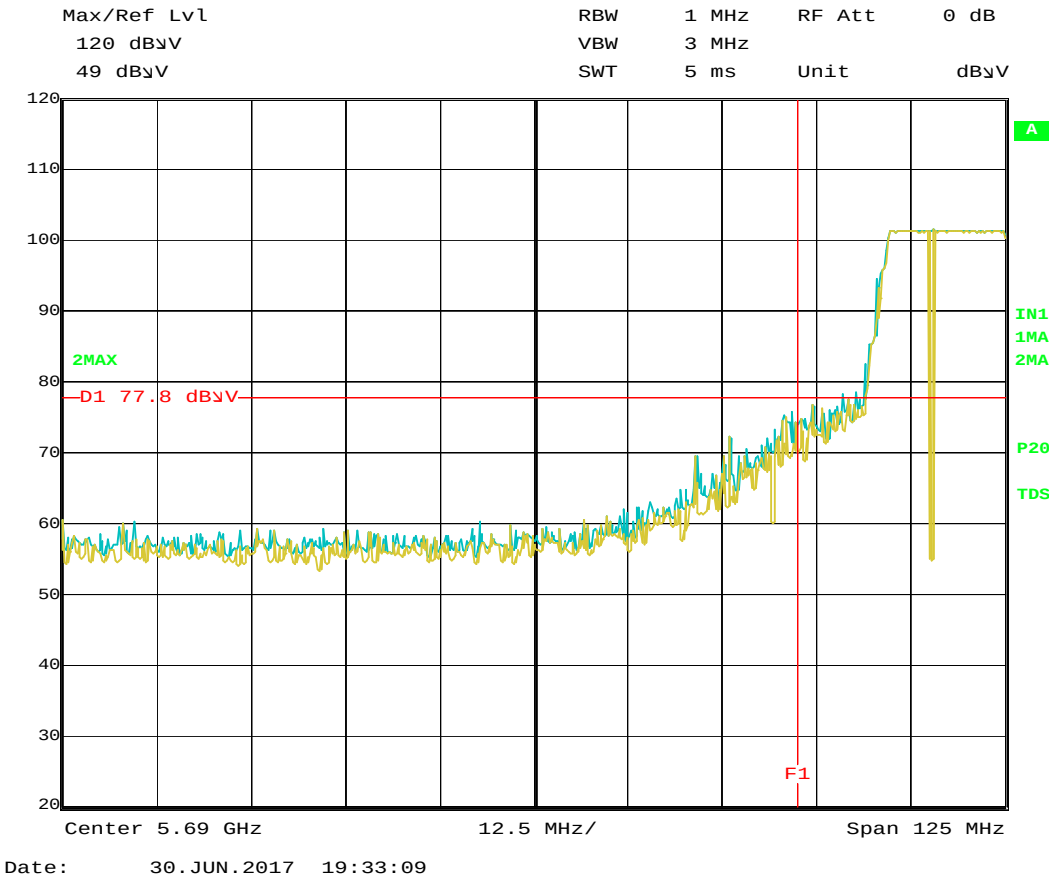
Band 2, Lower Band Edge (X-Axis) at 1 meter



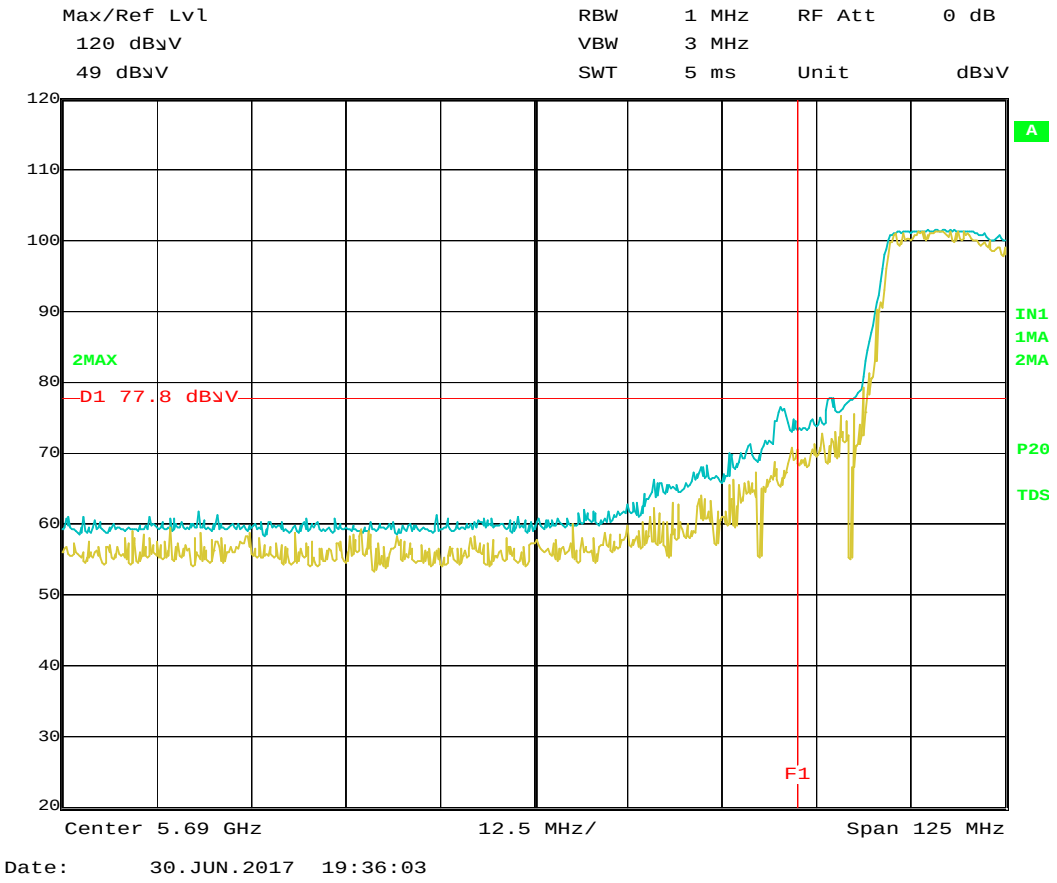
Band 4, Lower Band Edge (X-Axis) at 1 meter



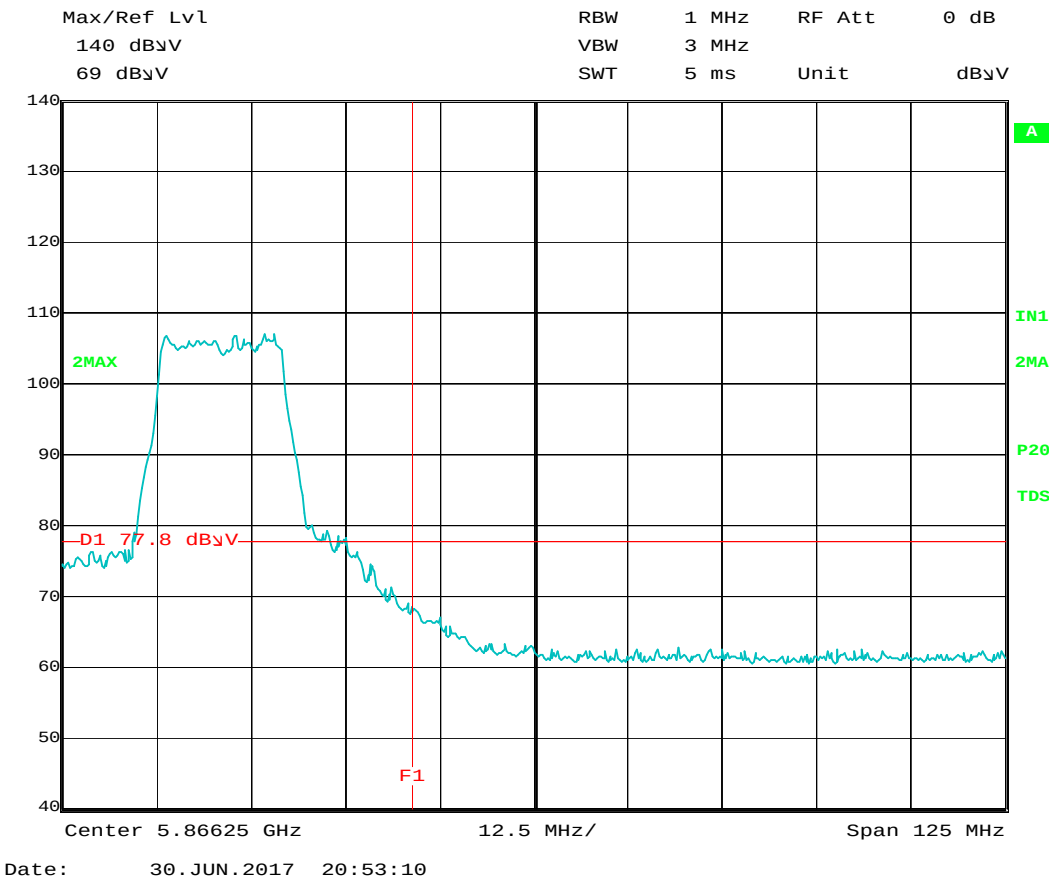
Band 4, Lower Band Edge (Y-Axis) at 1 meter



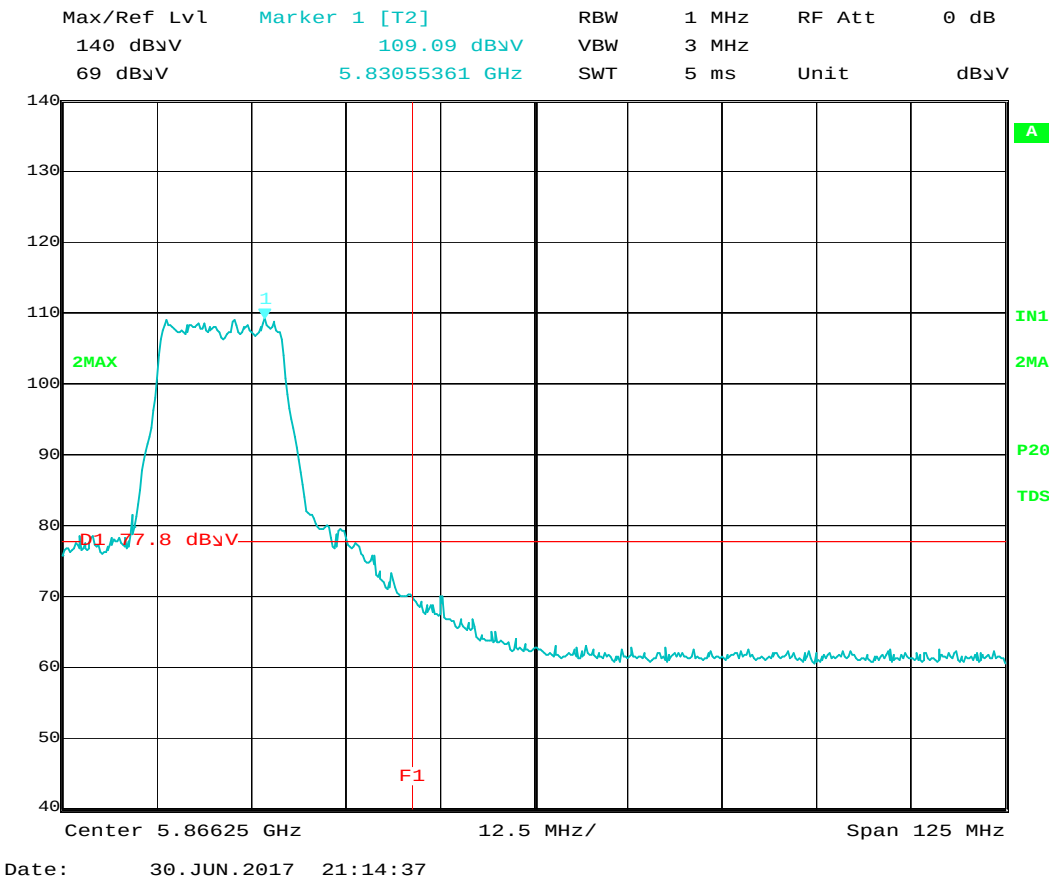
Band 4, Lower Band Edge (Z-Axis) at 1 meter



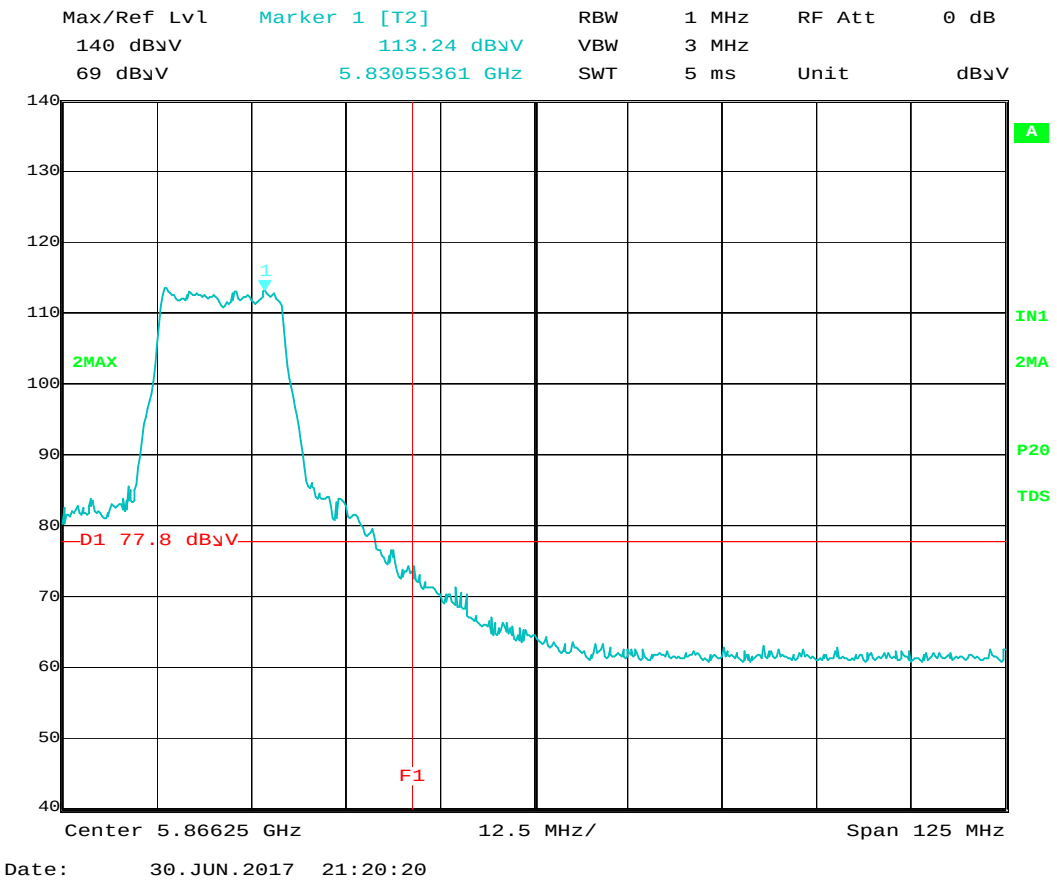
Band 4, Upper Band Edge (X-Axis) at 1 meter



Band 4, Upper Band Edge (Y-Axis) at 1 meter



Band 4, Upper Band Edge (Z-Axis) at 1 meter



Test Personnel:	Kouma Sinn KPS	Test Date:	06/24/2017, 06/25/2017
	Vathana F. Ven VFV		07/01/2017
Supervising/Reviewing Engineer: (Where Applicable)	N/A		
Product Standard:	FCC 47CFR Part 15 Subpart E RSS-247	Limit Applied:	Fundamental frequency remains in assigned band
Input Voltage:	120VAC	Ambient Temperature:	See test data
Pretest Verification w/ Ambient Signals or BB Source:	N/A	Relative Humidity:	See test data
		Atmospheric Pressure:	See test data

Deviations, Additions, or Exclusions: None

10 AC Mains Conducted Emissions

10.1 Method

Tests are performed in accordance with FCC Part 15 Subpart C, FCC Part 15 Subpart B, RSS 247 and ICES 003.

TEST SITE: EMC Lab

The EMC Lab has one Semi-anechoic Chamber and one Shielded Chamber. AC Mains Power is available at 120, 230, and 277 Single Phase; 208, 400, and 480 3-Phase. Large reference ground-planes are installed in the general lab area to facilitate EMC work not requiring a shielded environment.

Measurement Uncertainty

Measurement	Frequency Range	Expanded Uncertainty (k=2)	Ucispr
AC Line Conducted Emissions	150 kHz - 30 MHz	2.8dB	3.4dB
Telco Port Emissions	150 kHz - 30 MHz	3.2dB	5.0dB

As shown in the table above our conducted emissions U_{lab} is less than the corresponding U_{CISPR} reference value in CISPR 16-4-2 Table 1, hence the compliance of the product is only based on the measured value, and no measurement uncertainty correction is required, based on CISPR 22 and CISPR 11 (for 2006 and later revisions) Clause 11.

Sample Calculations

The following is how net line-conducted readings were determined:

NF = RF + LF + CF + AF
Where NF = Net Reading in dBμV
RF = Reading from receiver in dBμV
LF = LISN or ISN Correction Factor in dB
CF = Cable Correction Factor in dB
AF = Attenuator Loss Factor in dB

To convert from dBμV to μV or mV the following was used:

$UF = 10^{(NF / 20)}$ where UF = Net Reading in μV
NF = Net Reading in dBμV

Example:

NF = RF + LF + CF + AF = 28.5 + 0.2 + 0.4 + 20.0 = 49.1 dBμV
$UF = 10^{(49.1\ dB\mu V / 20)}$ = 285.1 μV/m

Alternately, when C5 Software is used, the "Level" includes all losses and gains and is compared directly in the "Margin" column to the "Limit". "TF" is the Transducer Factor; in this case LISN or ISN loss.

10.2 Test Equipment Used:

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
DAV002'	Weather Station	Davis Instruments	7400	PE80519A93	06/01/2016	06/01/2017
ROS002'	9kHz to 3GHz EMI Test Receiver	Rohde & Schwartz	ESCI 1166.5950K03	100067	07/29/2016	07/29/2017
DS22'	Attenuator, 20dB	Mini Circuits	20dB, 50 ohm	DS22	09/08/2016	09/08/2017
CBLBNC7'	30 ft 50 ohm coax, BNC - BNC	ITT Pomona	RG 58 C/U	CBLBNC7	01/10/2017	01/10/2018
LISN34'	LISN - CISPR16 Compliant 9kHz-30MHz	Com-Power	LI-215A	191956	06/27/2016	06/27/2017

Software Utilized:

Name	Manufacturer	Version
Compliance 5	Teseq	5.26.46.46

10.3 Results:

The sample tested was found to Comply.

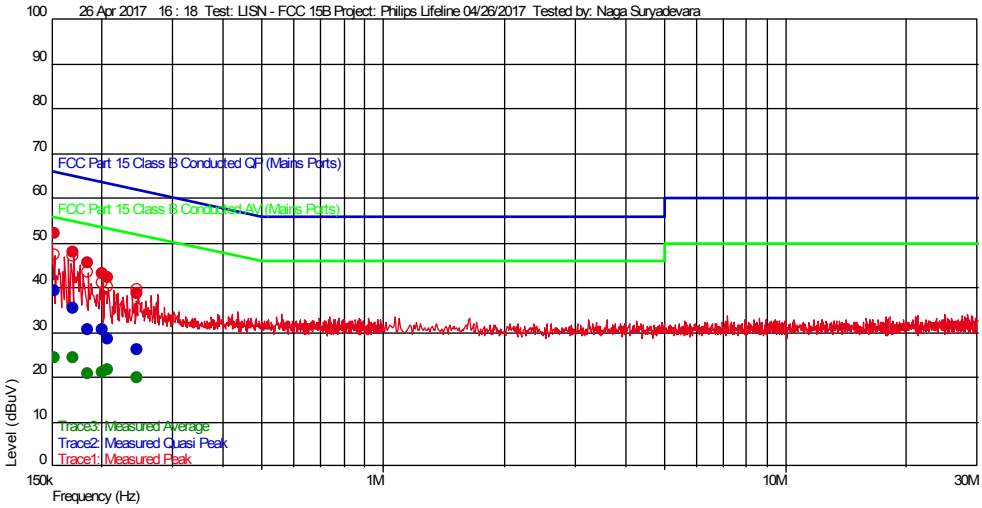
10.4 Plots/Data:

120VAC 60Hz – Charging Mode

Test Information

Test Details	User Entry	Additional Information
Test:	LISN – FCC15 Class B	
Project:	Philips Lifeline 04/26/2017	
Test Notes:	120VAC 60Hz – Charging	
Tested by:	Naga Suryadevara	
Test Started:	26 Apr 2017 16 : 18	

Prescan Emission Graph



Measured Peak Value
Measured Quasi Peak Value
Measured Average Value
Maximum Value of Mast and Turntable
Swept Peak Data
Swept Quasi Peak Data
Swept Average Data

Emissions Test Data

Trace2: Measured Quasi Peak

Frequency(Hz)	Level(dBuV)	TF	PA+CL	Limit(dBuV)	Margin(dBuV)	RBW(Hz)	Comment	LINE
246.05 k	26.00	1.034	20.621	61.889	-35.89	9 k		N
207.8 k	28.57	1.272	20.620	63.293	-34.72	9 k		N
185.7 k	30.51	1.732	20.620	64.227	-33.72	9 k		L1
201.0 k	30.65	1.314	20.620	63.569	-32.92	9 k		L1
170.4 k	35.34	2.172	20.620	64.941	-29.60	9 k		N
152.55 k	39.36	2.687	20.620	65.860	-26.50	9 k		N

Trace3: Measured Average

Frequency(Hz)	Level(dBuV)	TF	PA+CL	Limit(dBuV)	Margin(dBuV)	RBW(Hz)	Comment	LINE
185.7 k	20.77	1.732	20.620	54.227	-33.45	9 k		L1
201.0 k	21.00	1.314	20.620	53.569	-32.57	9 k		L1
246.05 k	19.72	1.034	20.621	51.889	-32.17	9 k		N
207.8 k	21.50	1.272	20.620	53.293	-31.80	9 k		N
152.55 k	24.27	2.687	20.620	55.860	-31.59	9 k		N
170.4 k	24.30	2.172	20.620	54.941	-30.64	9 k		N

Test Personnel:	Naga Suryadevara N.S	Test Date:	04/26/2017
Supervising/Reviewing Engineer: (Where Applicable)	N/A		
Product Standard:	FCC Part 15 Subpart B ICES-003	Limit Applied:	All Class B
Input Voltage:	120VAC 60Hz		
Pretest Verification w/ Ambient Signals or BB Source:	Yes	Ambient Temperature:	22 ºC
		Relative Humidity:	38 %
		Atmospheric Pressure:	1002 mbars

Deviations, Additions, or Exclusions: None

11 Frequency Stability

11.1 Method

Tests are performed in accordance with FCC Part 15 Subpart E.

TEST SITE: Safety Lab

11.2 Test Equipment Used:

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
148012'	Temp/Humidity Chamber	Envirotronics	SH27C	08015563S11263	09/13/2016	09/13/2017
ROS005-1'	Signal and Spectrum Analyzer	Rohde and Shwartz	FSW43	100646	09/15/2016	09/15/2017
CBLHF2012-5M-1'	5m 9kHz-40GHz Coaxial Cable - SET 1	Huber & Suhner	SF102	252676001	02/08/2017	02/08/2018

Software Utilized:

Name	Manufacturer	Version
None		

11.3 Results:

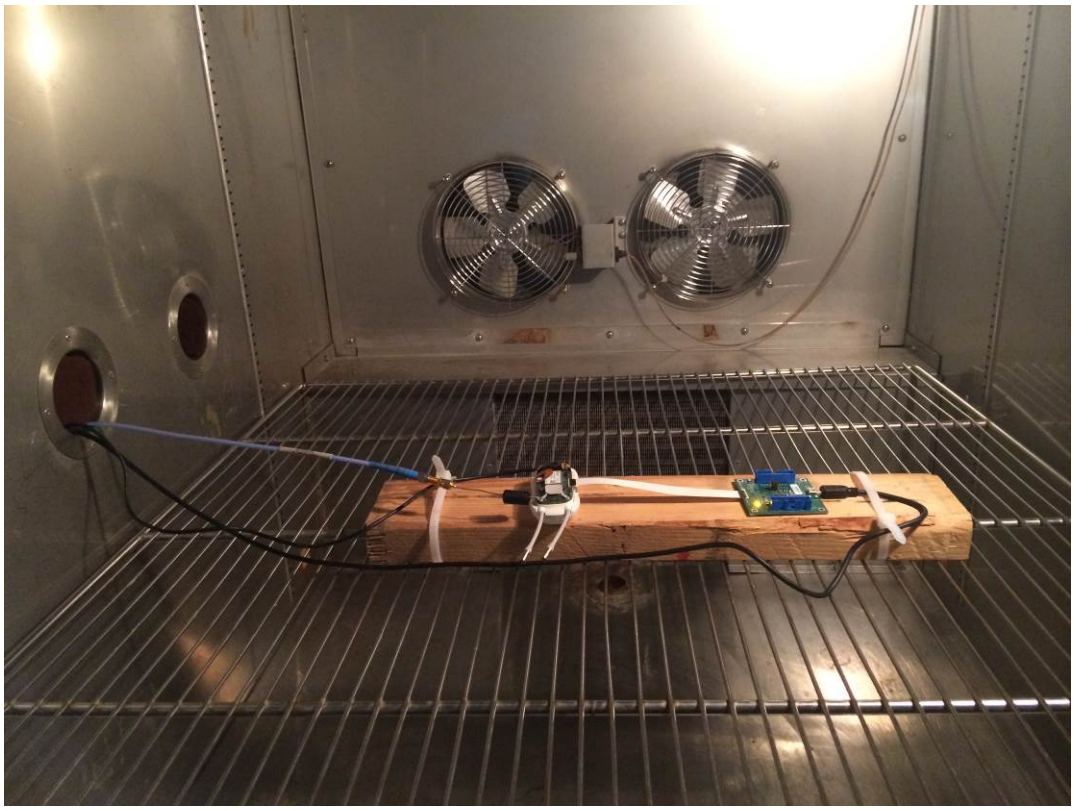
The sample tested was found to Comply. Test was performed from -20 C to 40 C and the fundamental emission remained within the assigned band during testing.

Per manufacturer specification the EUT is not designed or intended to be used in below -20°C or 40°C temperature range.

Environmental

	Operating	Storage
Temperature	41° F to 95° F (5° C to 35° C)	-4° F to 140° F (-20° C to 60° C)
Relative Humidity	10 to 90% (non-condensing)	10 to 90% (non-condensing)
Atmospheric Pressure	101 kPa to 77 kPa (approximately 0-7500 ft/0-2286 m)	N/A
Altitude*	6,600 feet (2 km) Maximum	N/A

11.4 Setup Photographs:



11.5 Test Data:

Band 1 Frequency Stability

Company: Lifeline Systems
Model #: As specified in the report
Serial #: As specified in the report
Engineer(s): Kouma Sinn
Project #: G102965577
Standard: FCC Part Subpart E (5 GHz)

Location: Safety
Date(s): 07/01/17

Test Equipment Used:
CBLHF2012-5M-2
ENV2
ROS005-1

Band 1 Low Ch

Temp Celsius	Frequency MHz	Deviation MHz	Limit kHz
-30	EUT shut off at this temp.		N/A
-20	5179.004250	-0.499250	N/A
-10	5179.483250	-0.020250	N/A
0	5181.796250	2.292750	N/A
10	5181.851250	2.347750	N/A
20	5179.503500	0	N/A
30	5181.461750	1.958250	N/A
40	5180.648250	1.144750	N/A
50	EUT shut off at this temp.		N/A

Band 1 Mid Ch

Temp Celsius	Frequency MHz	Deviation MHz	Limit kHz
-30	EUT shut off at this temp.		N/A
-20	5222.174250	2.68	N/A
-10	5218.959250	-0.54	N/A
0	5221.233250	1.74	N/A
10	5219.383250	-0.11	N/A
20	5219.496250	0.00	N/A
30	5218.619250	-0.88	N/A
40	5219.507250	0.01	N/A
50	EUT shut off at this temp.		N/A

Band 1 High CH

Temp Celsius	Frequency MHz	Deviation MHz	Limit kHz
-30	EUT shut off at this temp.		N/A
-20	5241.278250	2.78	N/A
-10	5241.815250	3.31	N/A
0	5238.782250	0.28	N/A
10	5241.295250	2.79	N/A
20	5238.503250	0.00	N/A
30	5240.913250	2.41	N/A
40	5238.980250	0.48	N/A
50	EUT shut off at this temp.		N/A

Band 4 Frequency Stability

Company: Lifeline Systems
Model #: 7100MHB (5 GHz)
Serial #: TBD
Engineer(s): Kouma Sinn
Project #: G102965577
Standard: FCC Part Subpart E (5 GHz)

Location: Safety
Date(s): 07/01/17

Test Equipment Used:
CBLHF2012-5M-2
ENV2
ROS005-1

Band 4 Low Ch

Temp Celsius	Frequency MHz	Deviation MHz	Limit kHz
-30	EUT shut off at this temp.		N/A
-20	5746.358250	-0.285000	N/A
-10	5745.874250	-0.769000	N/A
0	5745.820250	-0.823000	N/A
10	5746.419250	-0.224000	N/A
20	5746.643250	0	N/A
30	5746.681250	0.038000	N/A
40	5743.743250	-2.900000	N/A
50	EUT shut off at this temp.		N/A

Band 4 Mid Ch

Temp Celsius	Frequency MHz	Deviation MHz	Limit kHz
-30	EUT shut off at this temp.		N/A
-20	5785.836250	1.836000	N/A
-10	5786.448250	2.448000	N/A
0	5786.355750	2.355500	N/A
10	5786.708250	2.708000	N/A
20	5784.000250	0.000000	N/A
30	5784.484250	0.484000	N/A
40	5782.529250	-1.471000	N/A
50	EUT shut off at this temp.		N/A

Band 4 High CH

Temp Celsius	Frequency MHz	Deviation MHz	Limit kHz
-30	EUT shut off at this temp.		N/A
-20	5824.523750	-1.767500	N/A
-10	5825.598750	-0.692500	N/A
0	5826.264750	-0.026500	N/A
10	5824.027250	-2.264000	N/A
20	5826.291250	0	N/A
30	5826.285250	-0.006000	N/A
40	5826.664250	0.373000	N/A
50	EUT shut off at this temp.		N/A

Test Personnel: Kouma Sinn KPS
Supervising/Reviewing Engineer: (Where Applicable) Vathana F. Ven VFV
Product Standard: RSS-247 FCC 47CFR Part 15 Subpart E
Input Voltage: Powered from laptop USB port
Pretest Verification w/ Ambient Signals or BB Source: N/A

Test Date: 07/01/2017
Limit Applied: Fundamental frequency remains in assigned band
Ambient Temperature: N/A
Relative Humidity: N/A
Atmospheric Pressure: N/A

12 Revision History

Revision Level	Date	Report Number	Prepared By	Reviewed By	Notes
0	08/06/2017	102965577BOX-018c	KPS KPS	VFV VFV	Original Issue