



FCC Test Report

Equipment : R610 Access Point
Brand Name : Ruckus
Model No. : R610
FCC ID : S9GR610
Standard : 47 CFR FCC Part 15.407
Operating Band : 5150 MHz – 5250 MHz
5250 MHz – 5350 MHz
5470 MHz – 5725 MHz
5725 MHz – 5850 MHz
Applicant : Ruckus Wireless, Inc.
350 West Java Drive Sunnyvale, California 94089 U.S.A
Manufacturer : Ruckus Wireless, Inc.
350 West Java Drive Sunnyvale, California 94089 U.S.A
Function : ☐ Outdoor; ☒ Indoor; ☐ Fixed P2P
☐ Client
TPC Function : ☒ With TPC ☐ Without TPC

The product sample received on Jul. 25, 2016 and completely tested on Jan. 09, 2018. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.


Cliff Chang
SPORTON INTERNATIONAL INC.





Table of Contents

1	GENERAL DESCRIPTION	5
1.1	Information.....	5
1.2	Testing Applied Standards	10
1.3	Testing Location Information	10
1.4	Measurement Uncertainty	10
2	TEST CONFIGURATION OF EUT	11
2.1	Test Channel Mode	11
2.2	The Worst Case Measurement Configuration.....	11
2.3	EUT Operation during Test	12
2.4	Accessories	12
2.5	Support Equipment.....	12
2.6	Test Setup Diagram	13
3	TRANSMITTER TEST RESULT	15
3.1	Unwanted Emissions.....	15
4	TEST EQUIPMENT AND CALIBRATION DATA	18

APPENDIX A. TEST RESULTS OF UNWANTED EMISSIONS

APPENDIX B. TEST PHOTOS



Summary of Test Result

Conformance Test Specifications			
Report Clause	Ref. Std. Clause	Description	Result
1.1.2	15.203	Antenna Requirement	Complied
3.1	15.407(b)	Unwanted Emissions	Complied



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FCC ID: S9GR610

1 General Description

1.1 Information

1.1.1 RF General Information

Frequency Range (MHz)	IEEE Std. 802.11	Ch. Frequency (MHz)	Channel Number
5150-5250	a, n (HT20), ac (VHT20)	5180-5240	36-48 [4]
5250-5350		5260-5320	52-64 [4]
5470-5725		5500-5720	100-140 [12]
5725-5850		5745-5825	149-165 [5]
5150-5250	n (HT40), ac (VHT40)	5190-5230	38-46 [2]
5250-5350		5270-5310	54-62 [2]
5470-5725		5510-5710	102-134 [6]
5725-5850		5755-5795	151-159 [2]
5150-5250	ac (VHT80)	5210	42 [1]
5250-5350		5290	58 [1]
5470-5725		5530-5690	106-122 [3]
5725-5850		5775	155 [1]

Band	Mode	BWch (MHz)	Nant
5.2G	11a	20	3
5.3G	11a	20	3
5.6G	11a	20	3
5.8G	11a	20	3
5.2G	HT20	20	3
5.3G	HT20	20	3
5.6G	HT20	20	3
5.8G	HT20	20	3
5.2G	HT20,BF	20	3
5.3G	HT20,BF	20	3
5.6G	HT20,BF	20	3
5.8G	HT20,BF	20	3
5.2G	VHT20	20	3
5.3G	VHT20	20	3
5.6G	VHT20	20	3
5.8G	VHT20	20	3
5.2G	VHT20,BF	20	3

5.3G	VHT20,BF	20	3
5.6G	VHT20,BF	20	3
5.8G	VHT20,BF	20	3
5.2G	HT40	40	3
5.3G	HT40	40	3
5.6G	HT40	40	3
5.8G	HT40	40	3
5.2G	HT40,BF	40	3
5.3G	HT40,BF	40	3
5.6G	HT40,BF	40	3
5.8G	HT40,BF	40	3
5.2G	VHT40	40	3
5.3G	VHT40	40	3
5.6G	VHT40	40	3
5.8G	VHT40	40	3
5.2G	VHT40,BF	40	3
5.3G	VHT40,BF	40	3
5.6G	VHT40,BF	40	3
5.8G	VHT40,BF	40	3
5.2G	VHT80	80	3
5.3G	VHT80	80	3
5.6G	VHT80	80	3
5.8G	VHT80	80	3
5.2G	VHT80,BF	80	3
5.3G	VHT80,BF	80	3
5.6G	VHT80,BF	80	3
5.8G	VHT80,BF	80	3

Note:

- ♦ 5.2G/5.2G-I(IC) is the 5.2GHz Band (5.15-5.25GHz).
- ♦ 5.3G/5.3G-I(IC) is the 5.3GHz Band (5.25-5.35GHz).
- ♦ 5.6G is the 5.6GHz Band (5.47-5.725GHz) or w/o TDWR (5.47-5.6GHz and 5.65-5.725GHz).
- ♦ 5.6G-I(IC) is the 5.6GHz IC Band w/o TDWR (5.47-5.6GHz and 5.65-5.725GHz).
- ♦ 5.8G/5.8G-I(IC) is the 5.8GHz Band (5.725-5.850GHz).
- ♦ 11a, HT20 and HT40 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.
- ♦ VHT20, VHT40, VHT80 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM, modulation.
- ♦ BWch is the nominal channel bandwidth.
- ♦ Nss-Min is the minimum number of spatial streams.
- ♦ Nant is the number of outputs. e.g., 2(2,3) means have 2 outputs for port 2 and port 3. 2 means have 2 outputs for port 1 and port 2.

1.1.2 Table for 80+80 MHz Mode

Type	Channel No.	Frequency
1	42+106	5210+5530 MHz
2	42+122	5210+5610 MHz
3	42+138	5210+5690 MHz
4	58+106	5290+5530 MHz
5	58+122	5290+5610 MHz
6	58+138	5290+5690 MHz
7	58+155	5290+5775 MHz
8	106+138	5530+5690 MHz
9	106+155	5530+5775 MHz
10	122+155	5610+5775 MHz
11	138+155	5690+5775 MHz
12	42+58	5210+5290 MHz
13	106+122	5530+5610 MHz
14	122+138	5610+5690 MHz

1.1.3 Antenna Information

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	
					2.4GHz	5GHz
1	Ruckus	R610	PIFA Antenna	I-PEX	1	3
2	Ruckus	R610	PIFA Antenna	I-PEX	1	3
3	Ruckus	R610	PIFA Antenna	I-PEX	1	3

Note: 1. The EUT has three antennas.

2. The EUT is with 3 antennas. Two of the antennas' polarity is vertical and the other antenna's polarity is Horizontal which is 3T2S, the array gain is 1.76dBi.

The 80+80MHz mode which is 2T2S(Chain 1 + Chain 3), the array gain is 0 dBi.

The non-beamforming 80+80MHz mode=beamforming 80+80MHz mode.

<For 2.4GHz Band>

For IEEE 802.11b/g/n/ac mode <3TX/3RX>:

Chain 1, Chain 2 and Chain 3 will transmit/receive the same signal simultaneously.

Chain 1, Chain 2 and Chain 3 can be used as transmitting/receiving antennas.

<For 5GHz Band>

For IEEE 802.11a/n/ac mode <3TX/3RX>:

Chain 1, Chain 2 and Chain 3 will transmit/receive the same signal simultaneously.

Chain 1, Chain 2 and Chain 3 can be used as transmitting/receiving antennas.

For IEEE 802.11ac 80+80MHz <2TX/2RX>:

Chain 1 and Chain 3 will transmit/receive the same signal simultaneously.

Chain 1 and Chain 3 can be used as transmitting/receiving antennas.



1.1.4 Mode Test Duty Cycle

Mode	DC	DCF(dB)
802.11ac VHT40	0.974	0.114
802.11ac VHT40-BF	0.975	0.11

1.1.5 EUT Operational Condition

EUT Power Type	From Power Adapter or PoE		
Beamforming Function	☒	With beamforming 802.11n/ac in 2.4GHz/5GHz	☐ Without beamforming
Weather Band	☒	With 5600~5650MHz	☐ Without 5600~5650MHz
Test Software Version	QCA Radio Control Toolkit		

1.1.6 Table for Class II Change

This product is an extension of original one reported under Sporton project number: FR672501-06

Below is the table for the change of the product with respect to the original one.

Modifications	Performance Checking
Adding diplexer second source (Brand: ACX, Model: DP2012-A2455NXA0).	Unwanted Emissions (Above 1GHz) After evaluating, the worst case is found at 802.11ac VHT40 beamforming mode 5230MHz, 5270MHz, 802.11ac VHT40 non-beamforming mode 5710MHz, 5795MHz and retest this channel only.

Note: The above test items will be based on original output power to re-test.

1.1.7 Table for Diplexer

Source	Brand Name	Part Number	Location
Diplexer main source	ACX	DP2012-A2455NTT	FT7,FT8,FT9
Diplexer second source	ACX	DP2012-A2455NXA0	FT7,FT8,FT9

1.2 Testing Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ◆ 47 CFR FCC Part 15
- ◆ ANSI C63.10-2013
- ◆ FCC KDB 789033 D02 v02r01
- ◆ FCC KDB 662911 D01 v02r01

1.3 Testing Location Information

Testing Location				
☐	HWA YA	ADD : No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.	TEL : 886-3-327-3456	FAX : 886-3-318-0055
☒	JHUBEI	ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C.	TEL : 886-3-656-9065	FAX : 886-3-656-9085

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
Radiated	03CH01-CB	Brian Sun	22°C / 54%	Jan. 03, 2018 ~ Jan. 09, 2018

Test site Designation No. TW0006 with FCC

Test site registered number IC 4086D with Industry Canada.

1.4 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

Test Items	Uncertainty	Remark
Radiated Emission (1GHz ~ 18GHz)	3.7 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%

2 Test Configuration of EUT

2.1 Test Channel Mode

Mode	Power Setting
802.11ac VHT40_Nss1,(MCS0)_3TX	-
5710MHz Straddle 5.47-5.725GHz	18.5
5710MHz Straddle 5.725-5.85GHz	18.5
5795MHz	23
802.11ac VHT40-BF_Nss1,(MCS0)_3TX	-
5230MHz	28
5270MHz	23.5

Note:

- ♦ VHT40 covers HT40, due to same modulation. The power setting for 802.11n HT40 is the same or lower than 802.11ac VHT40.
- ♦ There are two modes of EUT, one is beamforming mode, and the other is non-beamforming mode for 802.11n/ac in 2.4GHz/5GHz, Beamforming mode and non-beamforming mode has been test and record in this test report.

2.2 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	Unwanted Emissions
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.
Operating Mode > 1GHz	CTX
1	EUT in Y axis
2	EUT in Z axis
Mode 2 has been evaluated to be the worst case after evaluating. Consequently, measurement will follow this same test mode.	

2.3 EUT Operation during Test

For CTX Mode:

non-beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

beamforming mode:

During the test, the following programs under WIN 7 were executed.

The program was executed as follows:

1. During the test, the EUT operation to normal function.
2. Executed command fixed test channel under Telnet.
3. Executed "Lantest.exe" to link with the remote workstation to transmit and receive packet by RX Device and transmit duty cycle no less than 98%.

2.4 Accessories

Accessories			
Equipment Name	Brand Name	Model Name	Rating
Adapter	Ruckus	WGF-1200200T3	Input: 100-240V~, 50/60Hz, 0.6A Output: 12.0V, 2.0A
PoE	Ruckus	740-64214-001	Input: 100-240V~50/60Hz 0.75A MAX Output: 48V, 0.5A
Other			
Wall-mounted rack*1			

2.5 Support Equipment

For Test Site No: 03CH01-CB (above 1GHz)

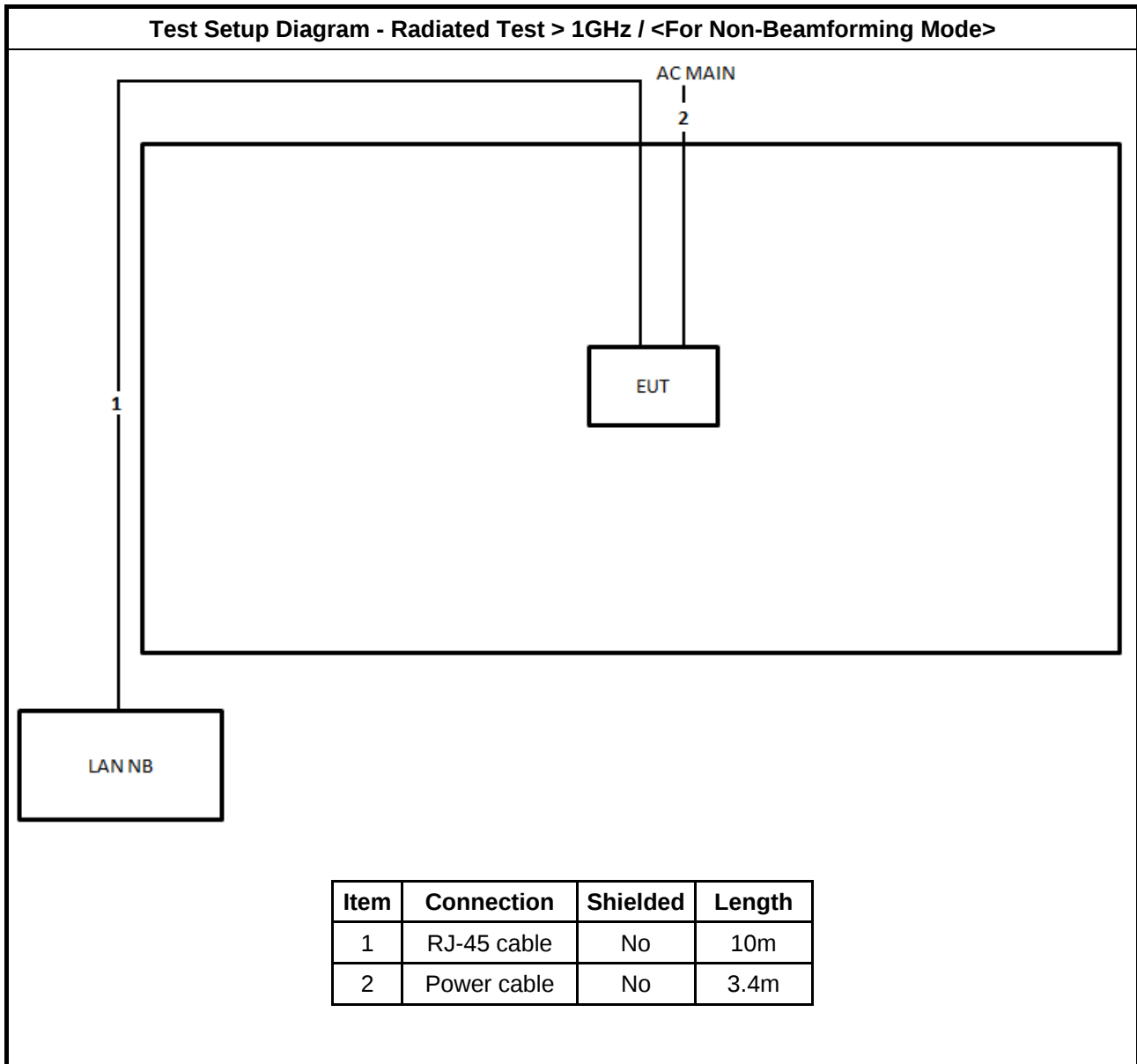
<For Non-Beamforming Mode>

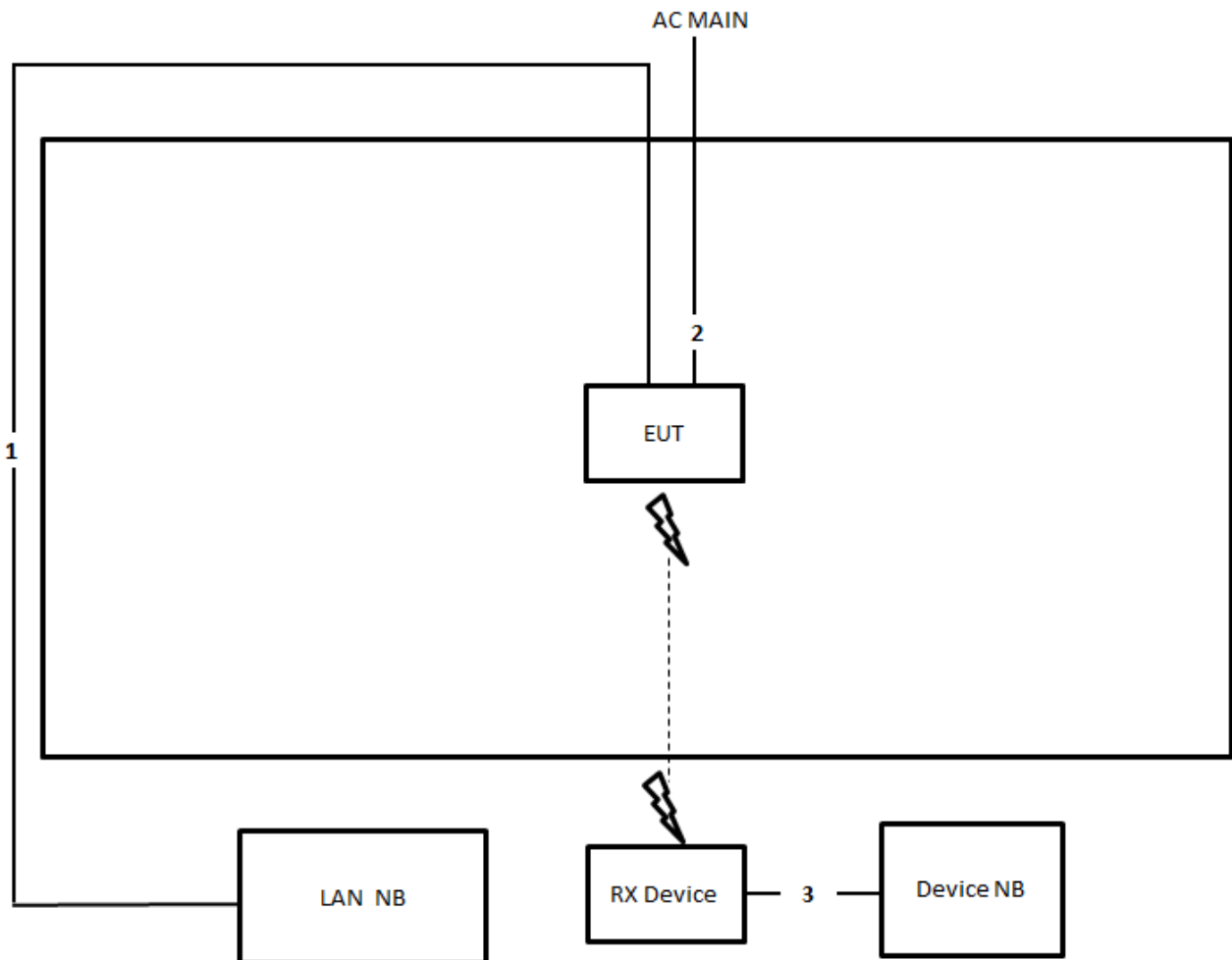
Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
1	NB	DELL	E4300	DoC

<For Beamforming Mode>

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
1	NB	DELL	E4300	DoC
2	NB	DELL	E4300	DoC
3	RX Device	Ruckus	R610	S9GR610

2.6 Test Setup Diagram



Test Setup Diagram - Radiated Test > 1GHz / <For Beamforming Mode>


Item	Connection	Shielded	Length
1	RJ-45 cable	No	10m
2	Power cable	No	3.4m
3	RJ-45 cable	No	10m

3 Transmitter Test Result

3.1 Unwanted Emissions

3.1.1 Transmitter Radiated Unwanted Emissions Limit

Unwanted emissions below 1 GHz and restricted band emissions above 1GHz limit			
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300
0.490~1.705	24000/F(kHz)	33.8 - 23	30
1.705~30.0	30	29	30
30~88	100	40	3
88~216	150	43.5	3
216~960	200	46	3
Above 960	500	54	3

Note 1: Test distance for frequencies at or above 30 MHz, measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

Note 2: Test distance for frequencies at below 30 MHz, measurements may be performed at a distance closer than the EUT limit distance; however, an attempt should be made to avoid making measurements in the near field. When performing measurements below 30 MHz at a closer distance than the limit distance, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two or more distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). The test report shall specify the extrapolation method used to determine compliance of the EUT.

Note 3: Using the distance of 1m during the test for above 18 GHz, and the test value to correct for the distance factor at 3m.

Un-restricted band emissions above 1GHz Limit	
Operating Band	Limit
5.15 - 5.25 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
5.25 - 5.35 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
5.47 - 5.725 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
5.725 - 5.85 GHz	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.

Note 1: Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of

linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

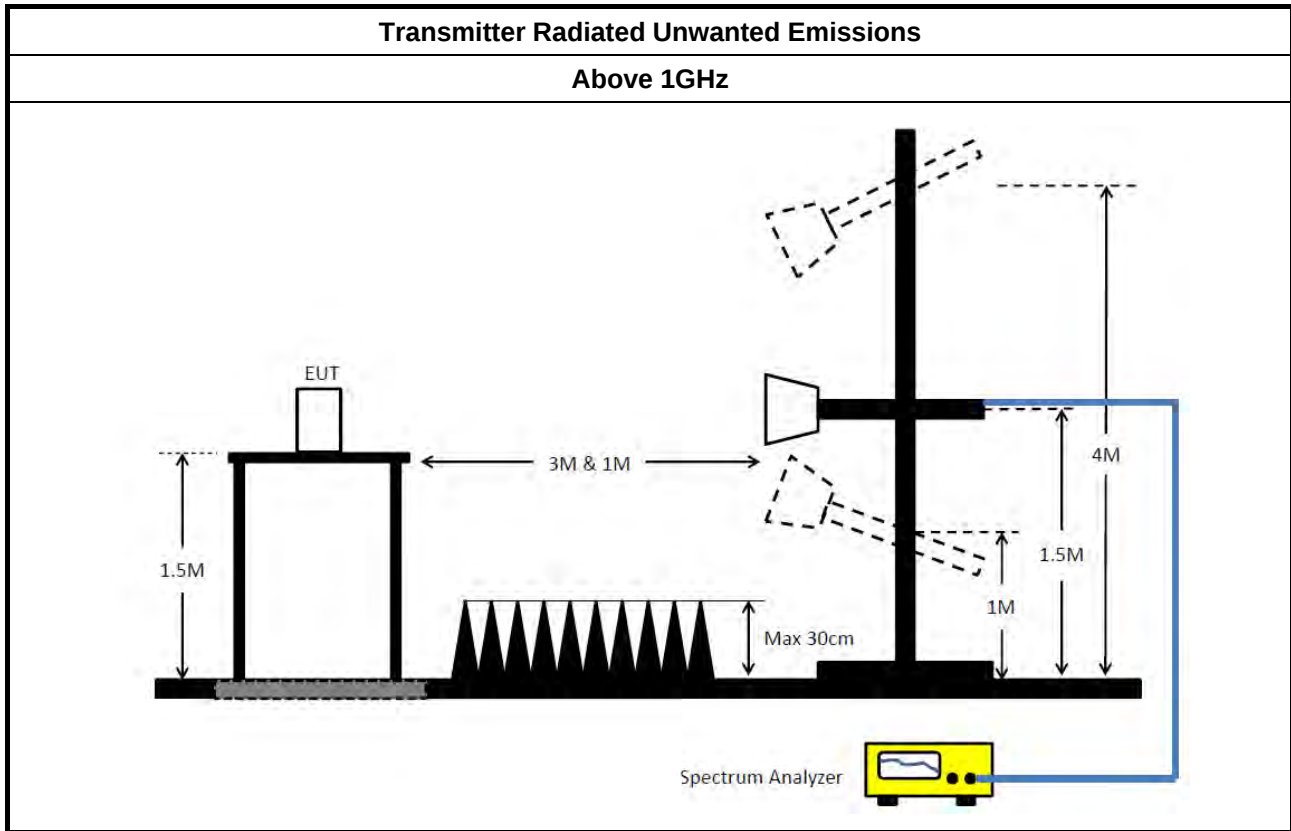
3.1.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

Test Method	
Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 m for frequencies above 30 MHz, unless it can be further demonstrated that measurements at a distance of 30 m or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).	
The average emission levels shall be measured in [duty cycle $\geq$ 98 or duty factor].	
For the transmitter unwanted emissions shall be measured using following options below:	
	Refer as FCC KDB 789033, clause H)2) for unwanted emissions into non-restricted bands.
	Refer as FCC KDB 789033, clause H)1) for unwanted emissions into restricted bands.
	☐ Refer as FCC KDB 789033, H)6) Method AD (Trace Averaging).
	☒ Refer as FCC KDB 789033, H)6) Method VB (Reduced VBW).
	☐ Refer as ANSI C63.10, clause 4.2.3.2.3 (Reduced VBW). VBW $\geq$ 1/T, where T is pulse time.
	☐ Refer as ANSI C63.10, clause 4.2.3.2.4 average value of pulsed emissions.
	☒ Refer as FCC KDB 789033, clause H)5) measurement procedure peak limit.
	☐ Refer as ANSI C63.10, clause 4.2.3.2.2 measurement procedure peak limit.
	For radiated measurement.
	Refer as ANSI C63.10, clause 6.4 for radiated emissions below 30 MHz and test distance is 3m.
	Refer as ANSI C63.10, clause 6.5 for radiated emissions 30 MHz to 1 GHz and test distance is 3m.
	Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1GHz.
	The any unwanted emissions level shall not exceed the fundamental emission level.
All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.	

3.1.4 Test Setup



3.1.5 Test Result of Transmitter Unwanted Emissions

Refer as Appendix A

4 Test Equipment and Calibration Data

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
Horn Antenna	EMCO	3115	00075790	750MHz ~ 18GHz	Nov. 20, 2017	Nov. 19, 2018	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jul. 05, 2017	Jul. 04, 2018	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Jan. 16, 2017	Jan. 15, 2018	Radiation (03CH01-CB)
Pre-Amplifier	MITEQ	TTA1840-35-HG	1864479	18GHz ~ 40GHz	Jul. 10, 2017	Jul. 09, 2018	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	Nov. 23, 2017	Nov. 22, 2018	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16	N/A	1 GHz ~ 18 GHz	Oct. 11, 2017	Oct. 10, 2018	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16+17	N/A	1 GHz ~ 18 GHz	Oct. 11, 2017	Oct. 10, 2018	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G#1	N/A	18GHz ~ 40 GHz	Oct. 11, 2017	Oct. 10, 2018	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G#2	N/A	18GHz ~ 40 GHz	Oct. 11, 2017	Oct. 10, 2018	Radiation (03CH01-CB)

Note: Calibration Interval of instruments listed above is one year.



RSE TX above 1GHz Result

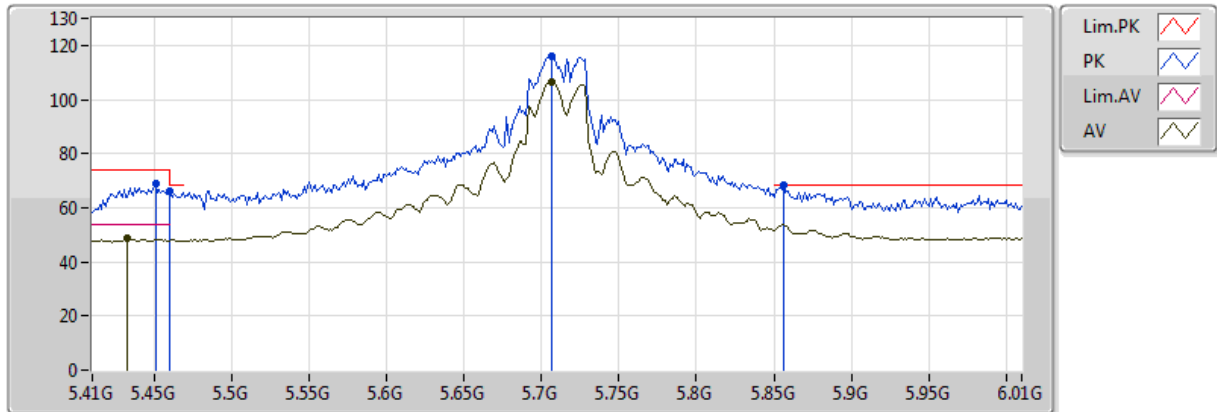
Appendix A

Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
5.47-5.725GHz	-	-	-	-	-	-	-	-	-	-	-	-
802.11ac VHT40_Nss1,(MCS0)_3TX	Pass	PK	5.8564G	68.14	68.20	-0.06	8.48	3	Vertical	229	2.45	-

802.11ac VHT40_Nss1,(MCS0)_3TX

5710MHz Straddle 5.47-5.725GHz_TX

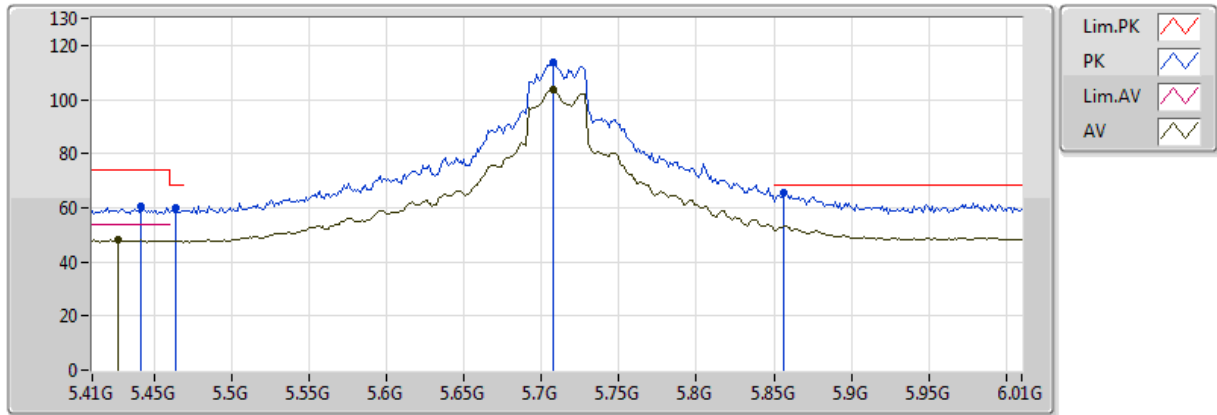


20170103
EUT_Z_3TX
Setting 23
06-B-2-10
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)					
AV	5.4328G	48.47	54.00	-5.53	7.83	3	Vertical	229	2.45					
AV	5.7064G	106.54	Inf	-Inf	8.22	3	Vertical	229	2.45					
PK	5.4508G	69.17	74.00	-4.83	7.85	3	Vertical	229	2.45					
PK	5.4604G	65.97	68.20	-2.23	7.86	3	Vertical	229	2.45					
PK	5.7064G	116.06	Inf	-Inf	8.22	3	Vertical	229	2.45					
PK	5.8564G	68.14	68.20	-0.06	8.48	3	Vertical	229	2.45					

802.11ac VHT40_Nss1,(MCS0)_3TX

5710MHz Straddle 5.47-5.725GHz_TX

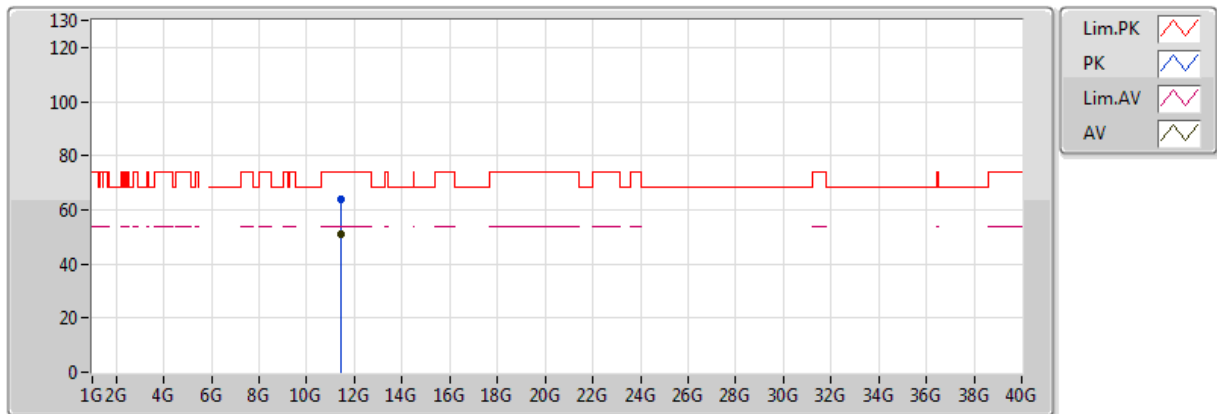


20170103
EUT_Z_3TX
Setting 23
06-B-2-10
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)					
AV	5.4268G	48.05	54.00	-5.95	7.83	3	Horizontal	298	2.43					
AV	5.7076G	103.82	Inf	-Inf	8.22	3	Horizontal	298	2.43					
PK	5.4412G	60.37	74.00	-13.63	7.84	3	Horizontal	298	2.43					
PK	5.464G	59.70	68.20	-8.50	7.86	3	Horizontal	298	2.43					
PK	5.7076G	113.63	Inf	-Inf	8.22	3	Horizontal	298	2.43					
PK	5.8564G	65.55	68.20	-2.65	8.48	3	Horizontal	298	2.43					

802.11ac VHT40_Nss1,(MCS0)_3TX

5710MHz Straddle 5.47-5.725GHz_TX

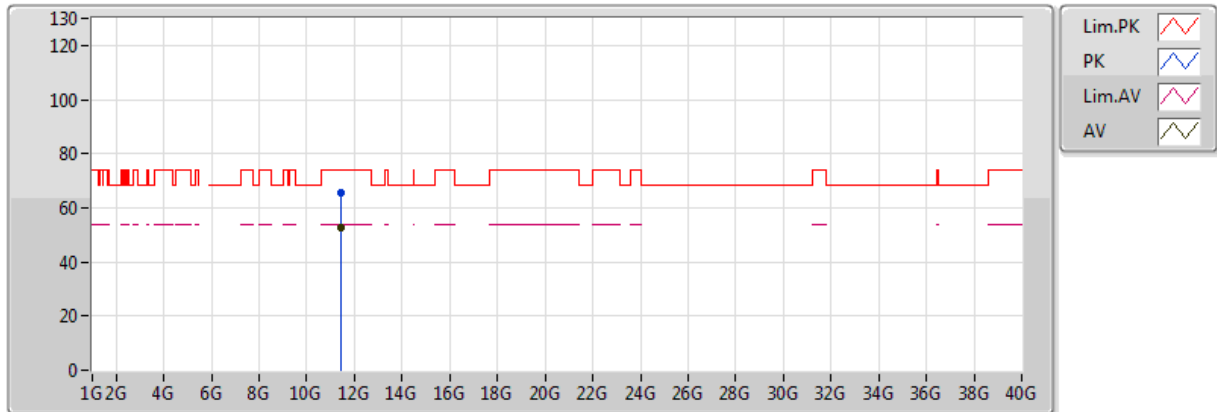


20170103
EUT Z_3TX
Setting 23
06-B-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)					
AV	11.4272G	50.97	54.00	-3.03	18.02	3	Vertical	97	2.16					
PK	11.4261G	63.61	74.00	-10.39	18.02	3	Vertical	97	2.16					

802.11ac VHT40_Nss1,(MCS0)_3TX

5710MHz Straddle 5.47-5.725GHz_TX

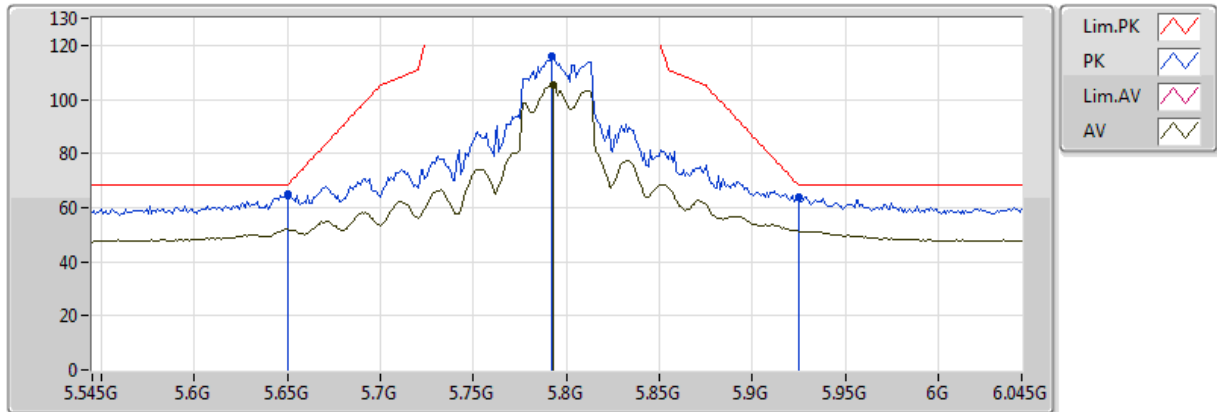


20170103
EUT Z_3TX
Setting 23
06-B-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)					
AV	11.4224G	52.54	54.00	-1.46	18.02	3	Horizontal	328	2.13					
PK	11.4182G	65.34	74.00	-8.66	18.02	3	Horizontal	328	2.13					

802.11ac VHT40_Nss1,(MCS0)_3TX

5795MHz_TX

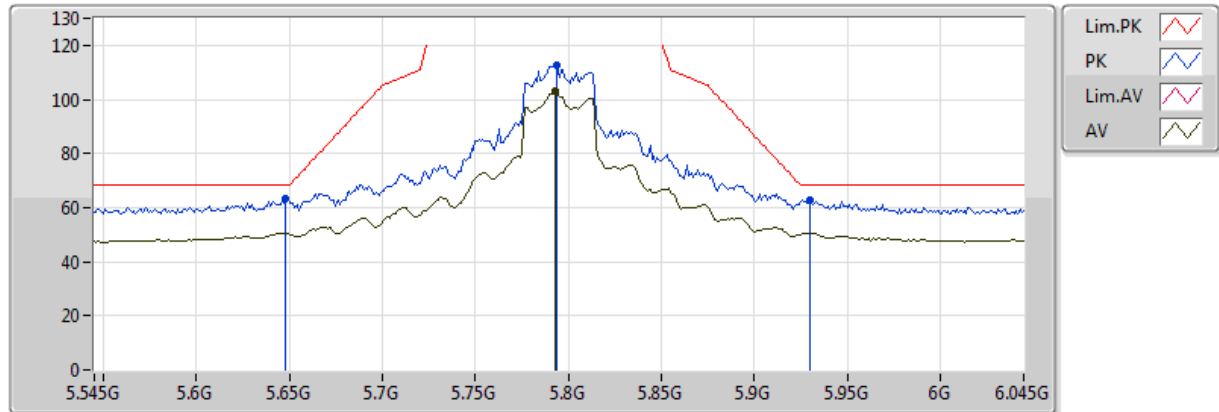


20170103
EUT_Z_3TX
Setting 23
06-B-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)					
AV	5.793G	105.41	Inf	-Inf	8.39	3	Vertical	230	2.32					
PK	5.65G	65.01	68.20	-3.19	8.11	3	Vertical	230	2.32					
PK	5.792G	115.81	Inf	-Inf	8.38	3	Vertical	230	2.32					
PK	5.925G	63.82	68.20	-4.38	8.57	3	Vertical	230	2.32					

802.11ac VHT40_Nss1,(MCS0)_3TX

5795MHz_TX

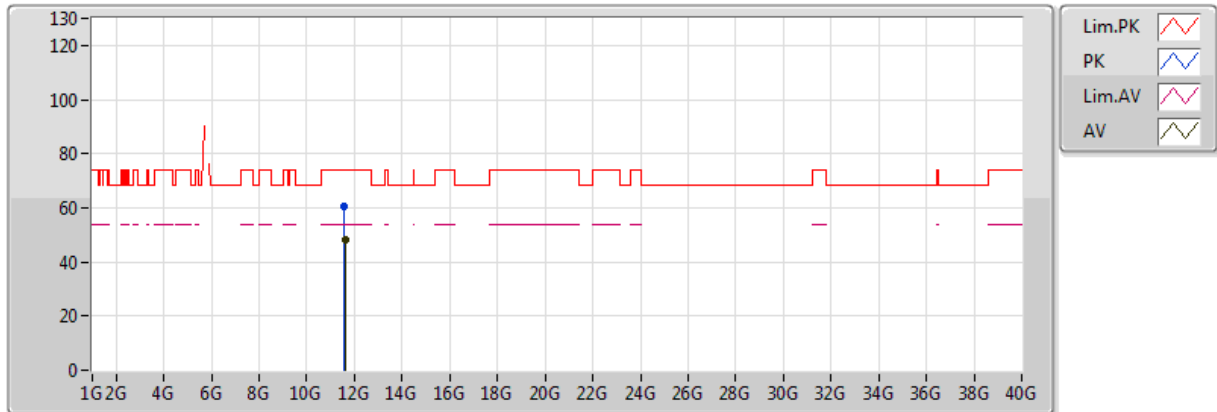


20170103
EUT_Z_3TX
Setting 23
06-B-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)					
AV	5.793G	103.20	Inf	-Inf	8.39	3	Horizontal	296	2.39					
PK	5.648G	63.55	68.20	-4.65	8.10	3	Horizontal	296	2.39					
PK	5.794G	112.88	Inf	-Inf	8.39	3	Horizontal	296	2.39					
PK	5.93G	62.78	68.20	-5.42	8.58	3	Horizontal	296	2.39					

802.11ac VHT40_Nss1,(MCS0)_3TX

5795MHz_TX

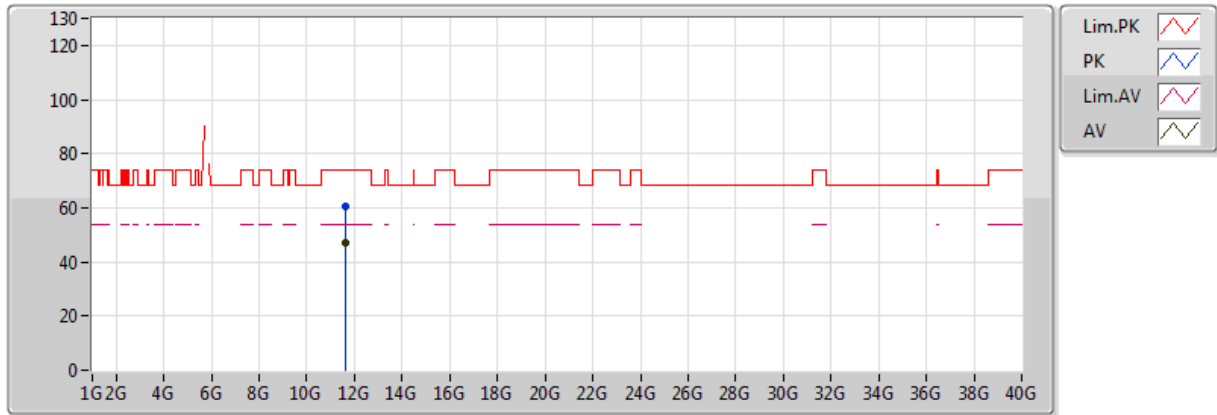


20170103
EUT Z_3TX
Setting 23
06-B-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)					
AV	11.59882G	48.03	54.00	-5.97	18.00	3	Vertical	110	2.34					
PK	11.58058G	60.36	74.00	-13.64	18.00	3	Vertical	110	2.34					

802.11ac VHT40_Nss1,(MCS0)_3TX

5795MHz_TX

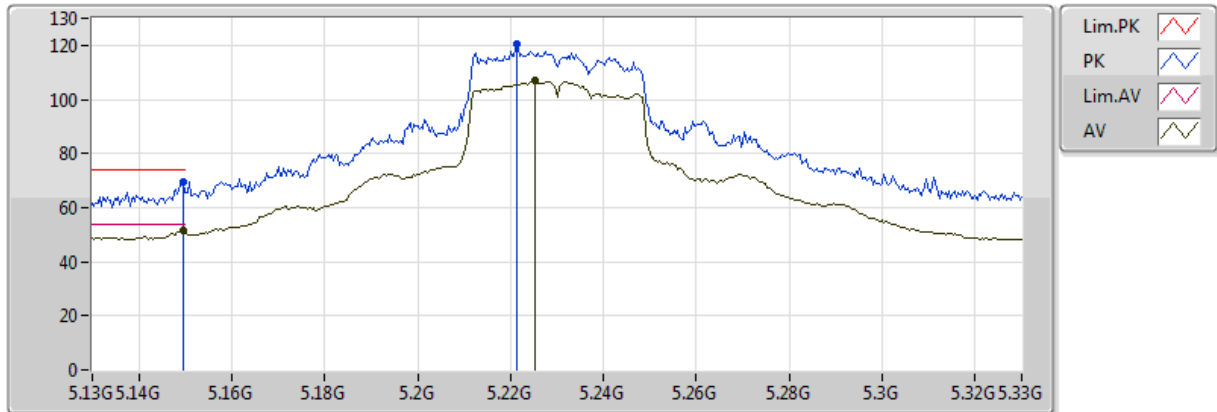


20170103
EUT Z_3TX
Setting 23
06-B-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)					
AV	11.59714G	47.21	54.00	-6.79	18.00	3	Horizontal	152	1.82					
PK	11.5936G	60.34	74.00	-13.66	18.00	3	Horizontal	152	1.82					

802.11ac VHT40-BF_Nss1,(MCS0)_3TX

5230MHz_TX

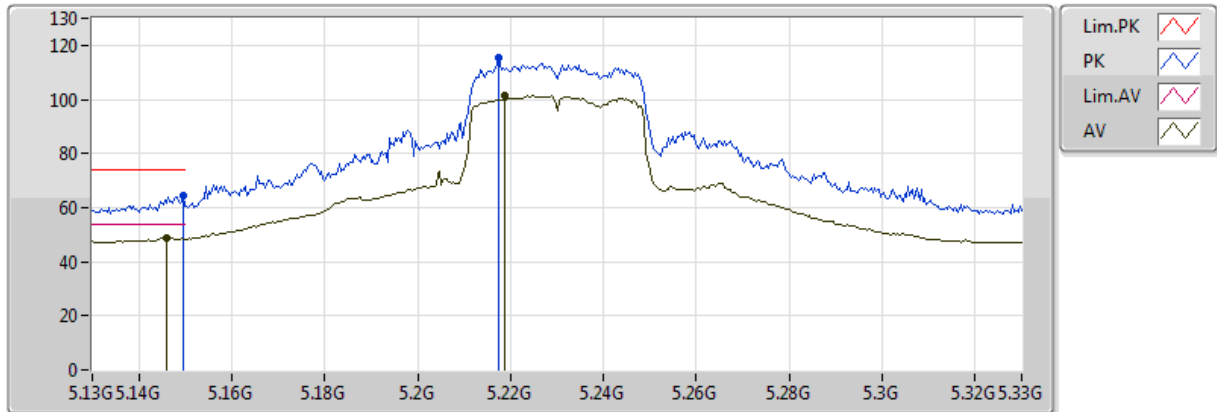


20180105
EUT_Z_3TX
Setting 28
06-Z-1-10
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)					
AV	5.1496G	51.29	54.00	-2.71	7.43	3	Vertical	210	2.54					
AV	5.2252G	106.78	Inf	-Inf	7.55	3	Vertical	210	2.54					
PK	5.1496G	69.36	74.00	-4.64	7.43	3	Vertical	210	2.54					
PK	5.2212G	120.75	Inf	-Inf	7.54	3	Vertical	210	2.54					

802.11ac VHT40-BF_Nss1,(MCS0)_3TX

5230MHz_TX

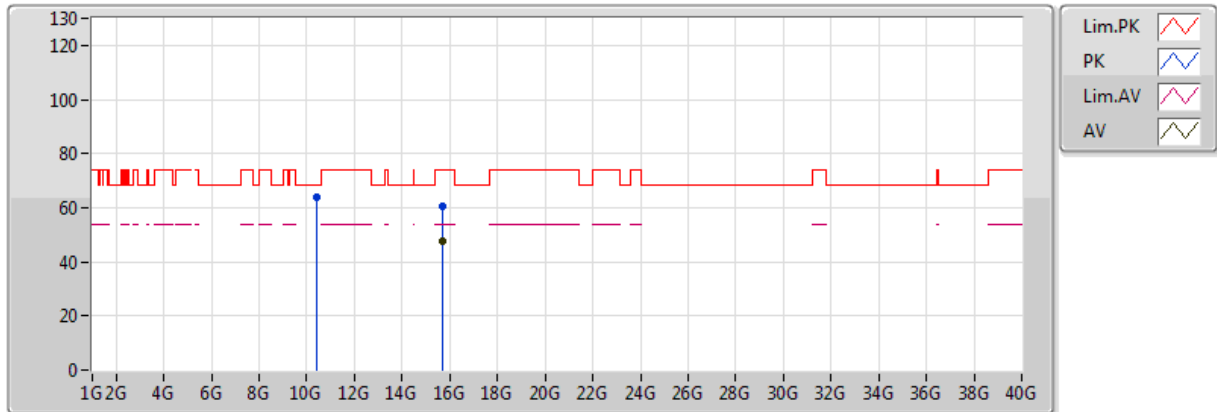


20180105
EUT_Z_3TX
Setting 28
06-Z-1-10
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)					
AV	5.146G	48.92	54.00	-5.08	7.42	3	Horizontal	293	1.94					
AV	5.2188G	101.44	Inf	-Inf	7.54	3	Horizontal	293	1.94					
PK	5.1496G	64.16	74.00	-9.84	7.43	3	Horizontal	293	1.94					
PK	5.2176G	115.26	Inf	-Inf	7.54	3	Horizontal	293	1.94					

802.11ac VHT40-BF_Nss1,(MCS0)_3TX

5230MHz_TX

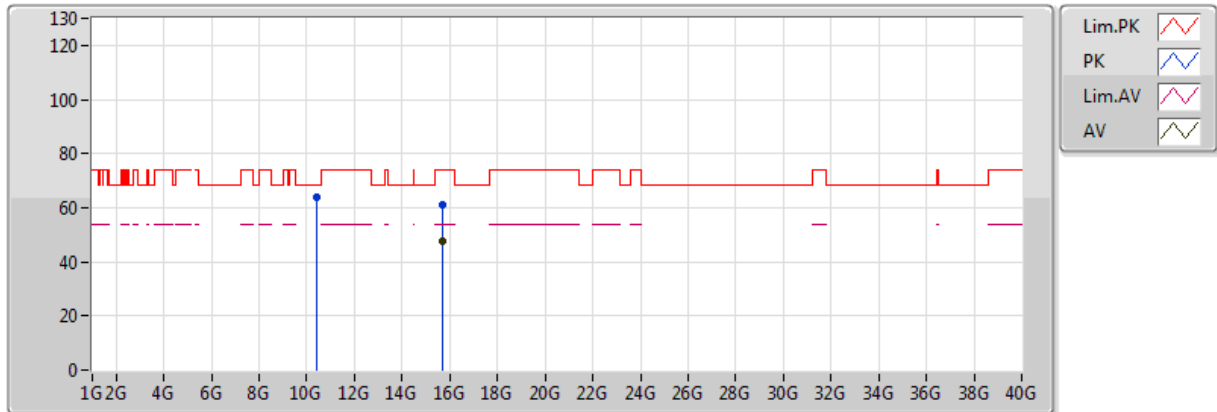


20180105
EUT_Z_3TX
Setting 28
06-Z-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)					
AV	15.67G	47.79	54.00	-6.21	18.22	3	Vertical	158	1.50					
PK	10.44336G	63.63	68.20	-4.57	16.95	3	Vertical	340	1.87					
PK	15.68376G	60.69	74.00	-13.31	18.17	3	Vertical	158	1.50					

802.11ac VHT40-BF_Nss1,(MCS0)_3TX

5230MHz_TX

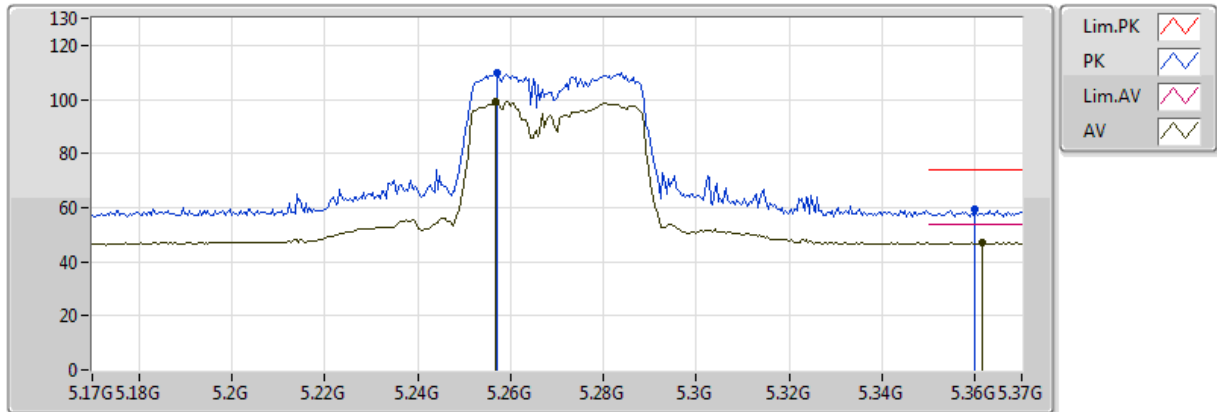


20180105
EUT_Z_3TX
Setting 28
06-Z-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)					
AV	15.67008G	47.74	54.00	-6.26	18.22	3	Horizontal	312	1.17					
PK	10.44216G	63.99	68.20	-4.21	16.95	3	Horizontal	164	2.00					
PK	15.6888G	60.97	74.00	-13.03	18.16	3	Horizontal	312	1.17					

802.11ac VHT40-BF_Nss1,(MCS0)_3TX

5270MHz_TX

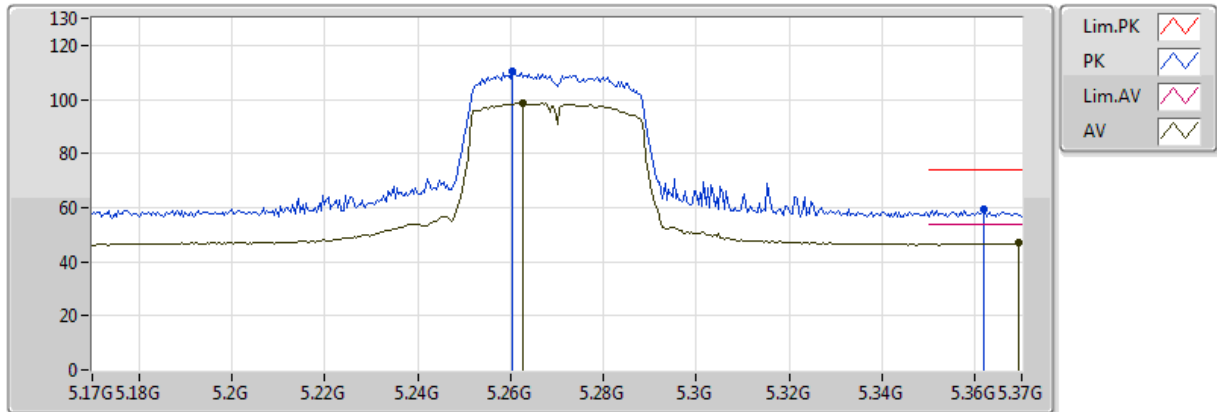


20180105
EUT_Z_3TX
Setting 23.5
06-Z-1-10
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)					
AV	5.2568G	99.30	Inf	-Inf	7.59	3	Vertical	163	2.52					
AV	5.3616G	47.05	54.00	-6.95	7.74	3	Vertical	163	2.52					
PK	5.2572G	109.90	Inf	-Inf	7.59	3	Vertical	163	2.52					
PK	5.36G	59.17	74.00	-14.83	7.74	3	Vertical	163	2.52					

802.11ac VHT40-BF_Nss1,(MCS0)_3TX

5270MHz_TX

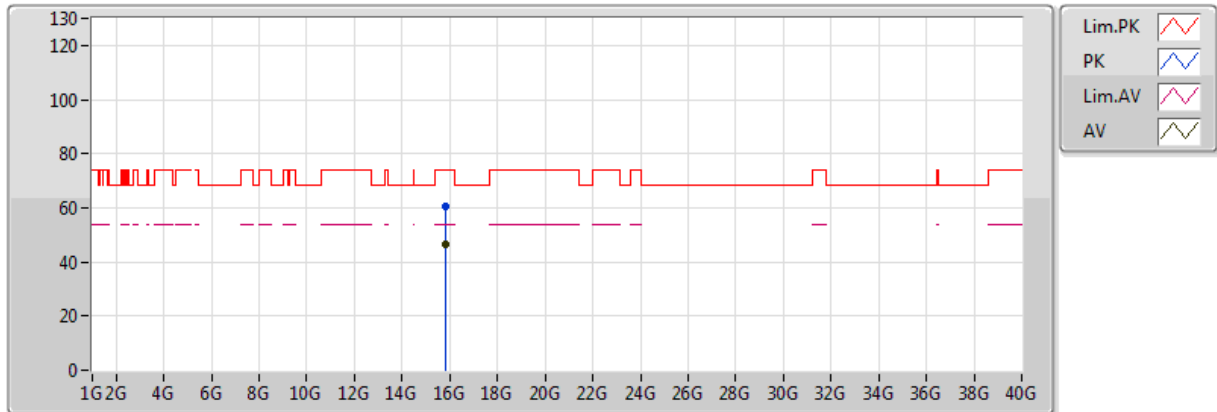


20180105
EUT_Z_3TX
Setting 23.5
06-Z-1-10
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)					
AV	5.2628G	98.61	Inf	-Inf	7.60	3	Horizontal	345	2.47					
AV	5.3692G	47.04	54.00	-6.96	7.76	3	Horizontal	345	2.47					
PK	5.2604G	110.50	Inf	-Inf	7.60	3	Horizontal	345	2.47					
PK	5.362G	59.18	74.00	-14.82	7.74	3	Horizontal	345	2.47					

802.11ac VHT40-BF_Nss1,(MCS0)_3TX

5270MHz_TX

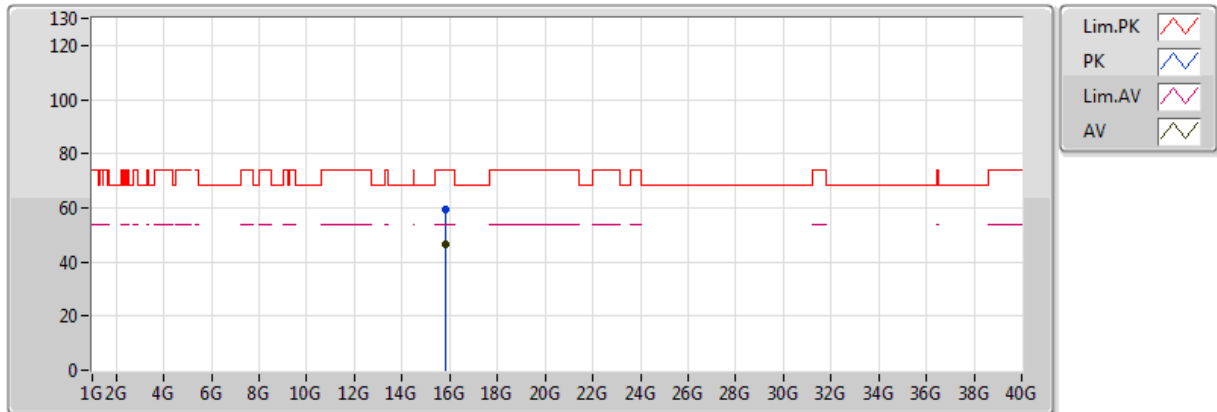


20180105
EUT_Z_3TX
Setting 23.5
06-Z-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)					
AV	15.80296G	46.67	54.00	-7.33	17.79	3	Vertical	65	1.71					
PK	15.8268G	60.43	74.00	-13.57	17.72	3	Vertical	65	1.71					

802.11ac VHT40-BF_Nss1,(MCS0)_3TX

5270MHz_TX



20180105
EUT_Z_3TX
Setting 23.5
06-Z-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)					
AV	15.80936G	46.58	54.00	-7.42	17.77	3	Horizontal	145	1.81					
PK	15.8252G	59.64	74.00	-14.36	17.72	3	Horizontal	145	1.81					