



FCC RADIO TEST REPORT

FCC ID : UDX-60067020
Equipment : 802.11a/b/g/n/ac Wireless Access Point
Brand Name : CISCO
Model Name : GR60-HW, GR60-HW-US, GR60-HW-INTL
Applicant : Cisco Systems, Inc.
170 West Tasman Drive, San Jose, CA 95134 USA
Manufacturer : Cisco Systems, Inc.
170 West Tasman Drive, San Jose, CA 95134 USA
Standard : 47 CFR FCC Part 15.247

The product was received on Aug. 22, 2017, and testing was started from Aug. 31, 2017 and completed on Sep. 05, 2017. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, 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 report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

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

Approved by: Sam Chen

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

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Table of Contents

History of this test report.....	3
Summary of Test Result.....	4
1 General Description	5
1.1 Information.....	5
1.2 Testing Applied Standards	11
1.3 Testing Location Information	11
1.4 Measurement Uncertainty	11
2 Test Configuration of EUT	12
2.1 Test Channel Mode	12
2.2 The Worst Case Measurement Configuration	13
2.3 EUT Operation during Test	14
2.4 Accessories	15
2.5 Support Equipment.....	15
2.6 Test Setup Diagram	17
3 Transmitter Test Result	21
3.1 AC Power-line Conducted Emissions	21
3.2 DTS Bandwidth	24
3.3 Maximum Conducted Output Power	33
3.4 Power Spectral Density	36
3.5 Emissions in Non-restricted Frequency Bands	46
3.6 Emissions in Restricted Frequency Bands.....	55
4 Test Equipment and Calibration Data	134

Appendix A. Test Results of Radiated Emission Co-location

Appendix B. Test Photos

Photographs of EUT v01



History of this test report

TEL : 886-3-656-9065
FAX : 886-3-656-9085
Report Template No.: CB Ver1.0

Page Number : 3 of 135
Issued Date : Mar. 29, 2018
Report Version : 01



Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
1.1.2	15.203	Antenna Requirement	PASS	-
3.1	15.207	AC Power-line Conducted Emissions	PASS	-
3.2	15.247(a)	DTS Bandwidth	PASS	-
3.3	15.247(b)	Maximum Conducted Output Power	PASS	-
3.4	15.247(e)	Power Spectral Density	PASS	-
3.5	15.247(d)	Emissions in Non-restricted Frequency Bands	PASS	-
3.6	15.247(d)	Emissions in Restricted Frequency Bands	PASS	-

Reviewed by: **Sam Chen**Report Producer: **Vicky Huang**



1 General Description

1.1 Information

1.1.1 RF General Information

Frequency Range (MHz)	IEEE Std. 802.11	Ch. Frequency (MHz)	Channel Number
2400-2483.5	b, g, n (HT20), ac (VHT20)	2412-2462	1-11 [11]
2400-2483.5	n (HT40), ac (VHT40)	2422-2452	3-9 [7]

Band	Mode	BWch (MHz)	Nant
2.4-2.4835GHz	802.11b	20	2TX
2.4-2.4835GHz	802.11g	20	2TX
2.4-2.4835GHz	802.11n HT20	20	2TX
2.4-2.4835GHz	802.11n HT20-BF	20	2TX
2.4-2.4835GHz	802.11ac VHT20	20	2TX
2.4-2.4835GHz	802.11ac VHT20-BF	20	2TX
2.4-2.4835GHz	802.11n HT40	40	2TX
2.4-2.4835GHz	802.11n HT40-BF	40	2TX
2.4-2.4835GHz	802.11ac VHT40	40	2TX
2.4-2.4835GHz	802.11ac VHT40-BF	40	2TX

Note:

- ♦ 11b mode uses a combination of DSSS-DBPSK, DQPSK, CCK modulation.
- ♦ 11g, HT20 and HT40 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.
- ♦ VHT20, VHT40 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 Antenna Information**

Ant.	Port	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	
						2.4GHz	5GHz
1	1	WNC	48XKAA1Z.SGA.X02	Dipole Antenna	I-PEX	4.84	4.87
2	2	WNC	48XKAA1Z.SGA.X02	Dipole Antenna	I-PEX	4.37	4.86
2TX Correlated Composite Gain(dBi)						4.96	5.15

Note: The EUT has two antennas.

2.4GHz Functions**For IEEE 802.11b/g/n/ac mode (2TX, 2RX):**

Ant. 1 and Ant. 2 could transmit/receive simultaneously.

5GHz Functions**For IEEE 802.11a/n/ac mode (2TX, 2RX):**

Ant. 1 and Ant. 2 could transmit/receive simultaneously.



1.1.3 Mode Test Duty Cycle

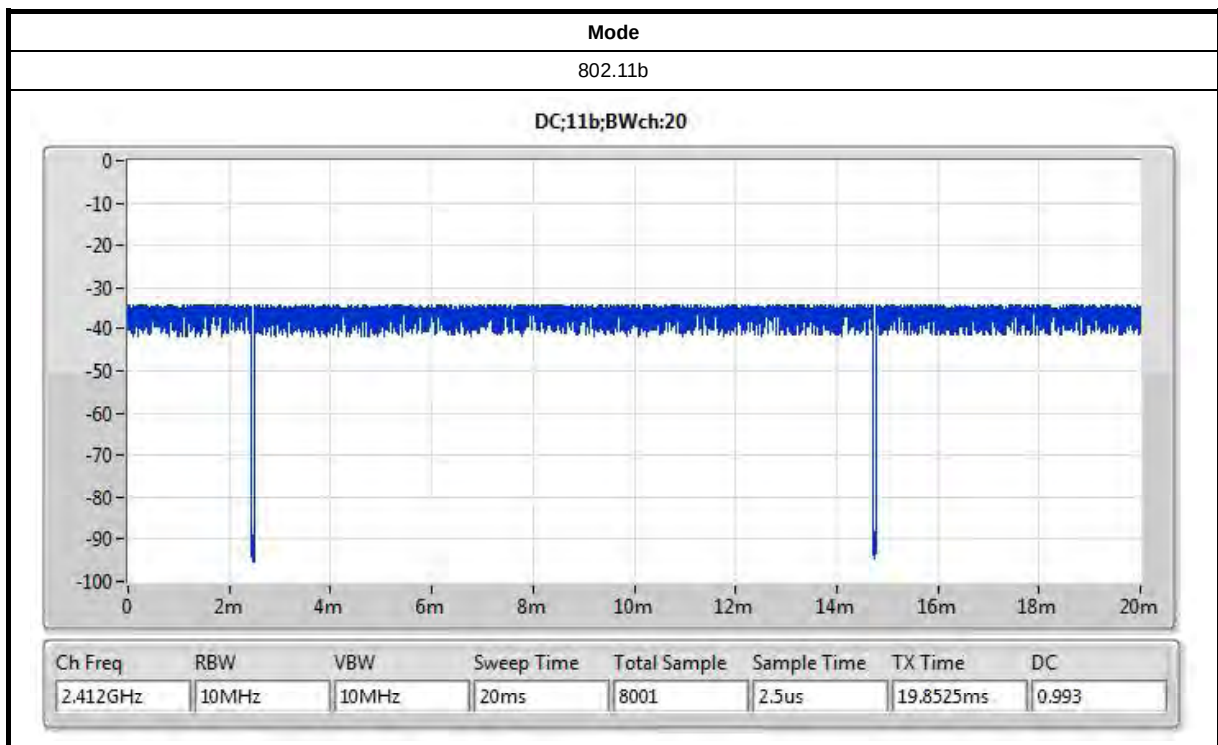
Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
802.11b	0.993	0.031	n/a (DC $\geq$ 0.98)	n/a (DC $\geq$ 0.98)
802.11g	0.958	0.186	2.025m	1k
802.11ac VHT20	0.982	0.079	n/a (DC $\geq$ 0.98)	n/a (DC $\geq$ 0.98)
802.11ac VHT20-BF	0.915	0.386	1.863m	1k
802.11ac VHT40	0.968	0.141	2.418m	1k
802.11ac VHT40-BF	0.927	0.329	1.75m	1k

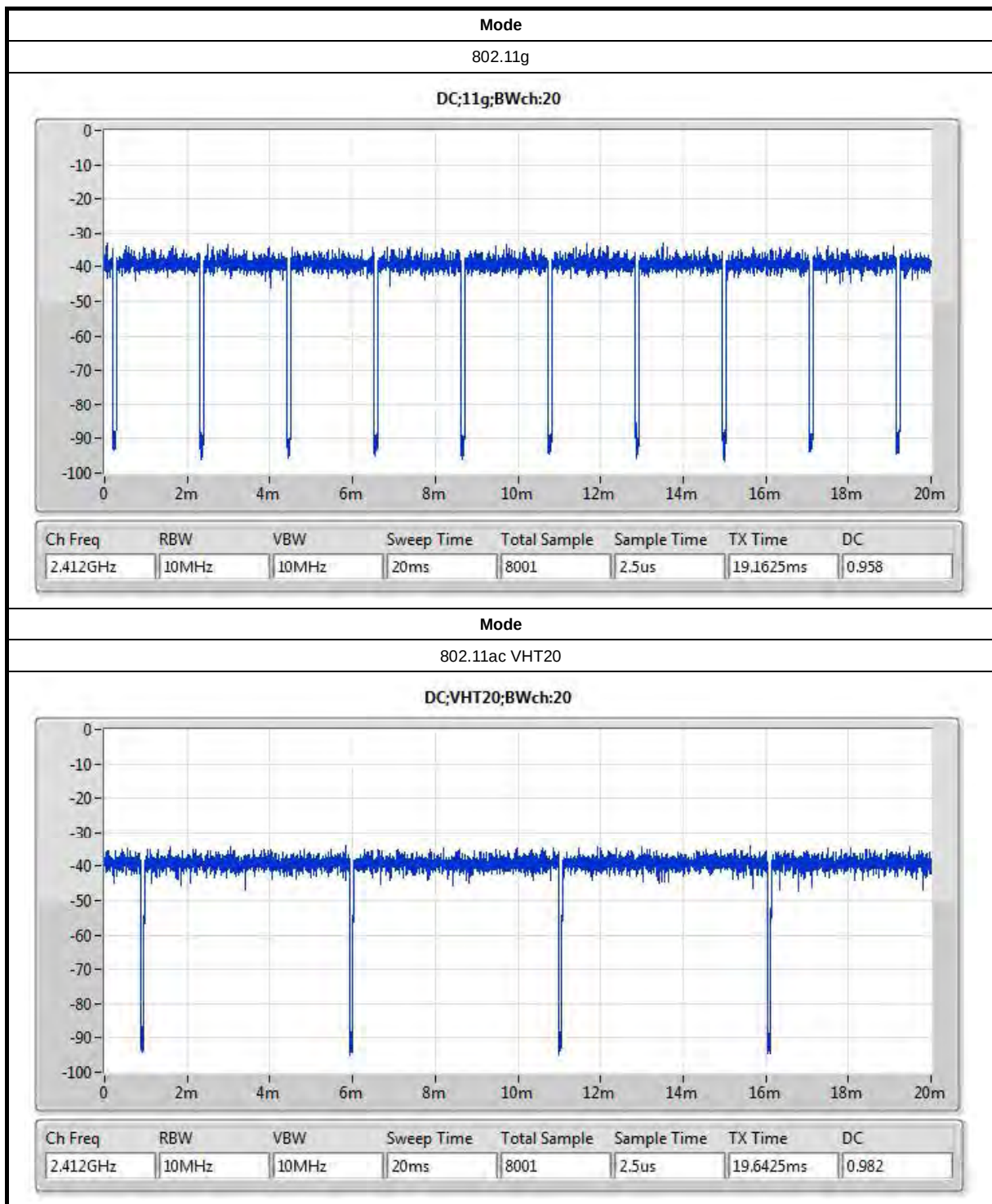
Note:

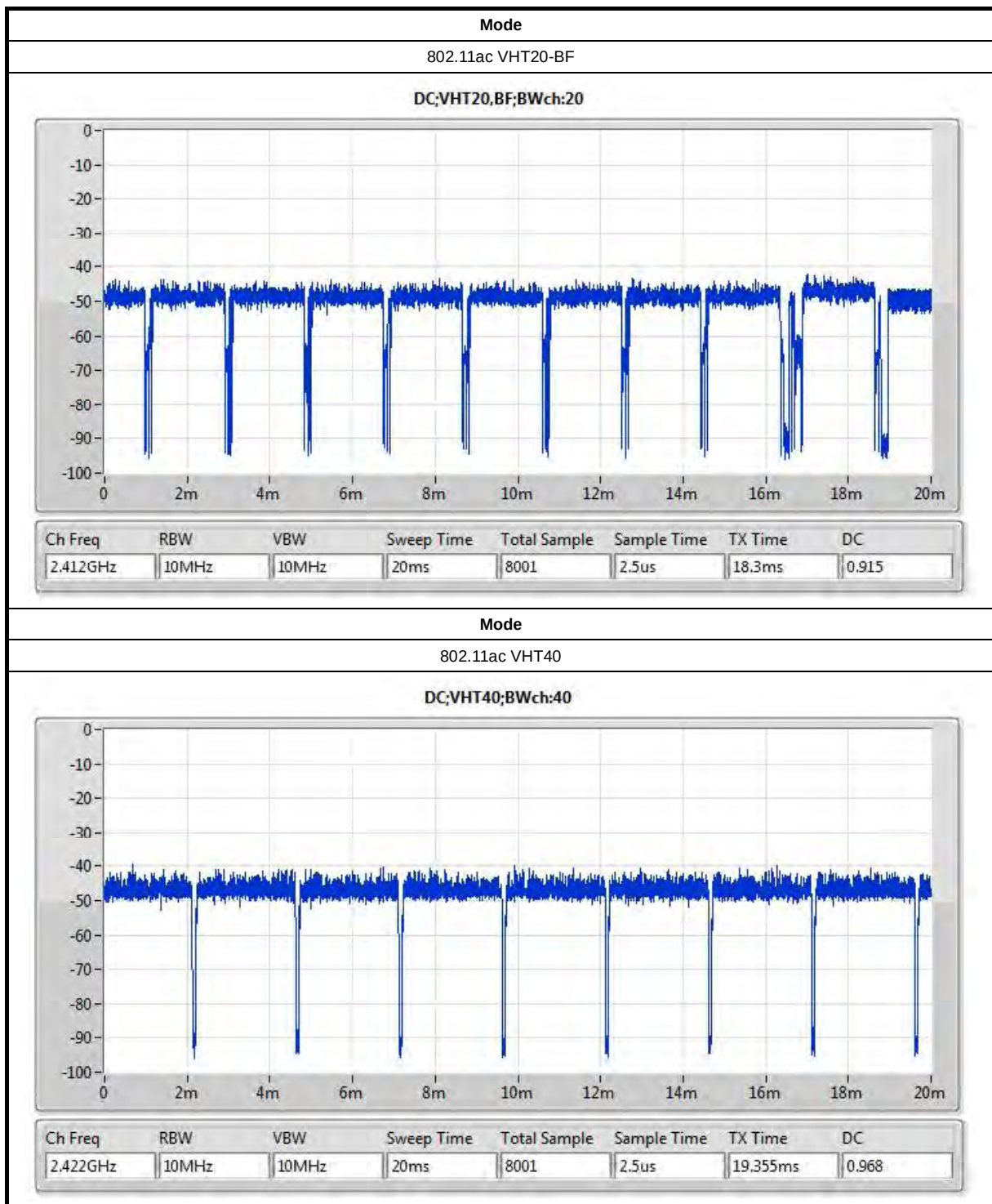
The test procedure refers to ANSI C63.10:2013 clause 11.6 b). The ON and OFF times of the transmitted signal is measured by spectrum analyzer and the setting as follows:

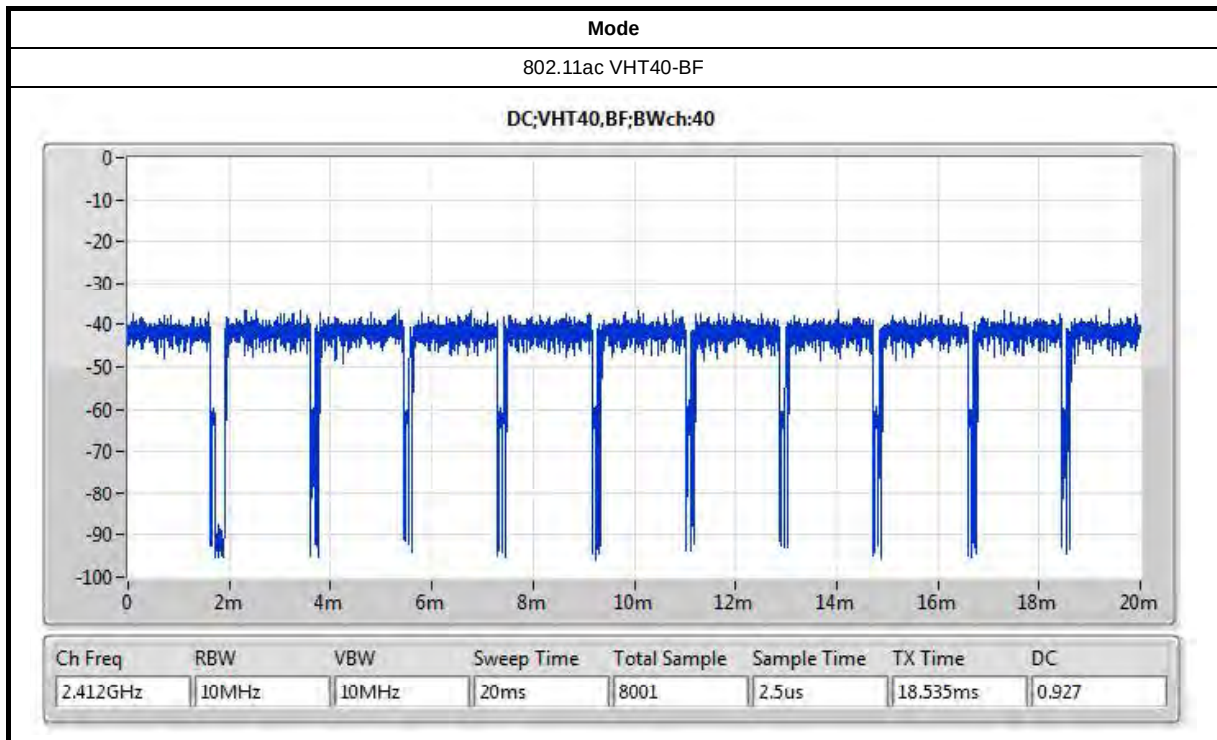
- 1) Set the center frequency of the instrument to the center frequency of the transmission.
- 2) Set RBW $\geq$ OBW if possible; otherwise, set RBW to the largest available value.
- 3) Set VBW $\geq$ RBW. Set detector = peak or average.

The measured result and plots are recorded in 1.1.3.









1.1.4 EUT Operational Condition

EUT Power Type	From Power Adapter or PoE		
Beamforming Function	☒	With beamforming for 802.11n/ac in 2.4GHz/5GHz.	☐ Without beamforming

1.1.5 Table for Multiple Listing

The model names in the following table are all refer to the identical product.

Model Name	Description
GR60-HW	All the models are identical, the different model names served as marketing strategy.
GR60-HW-US	
GR60-HW-INTL	

From the above models, model: GR60-HW was selected as representative model for the test and its data was recorded in this report.



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 558074 D01 v04
- ◆ FCC KDB 662911 D01 v02r01
- ◆ FCC KDB 412172 D01 v01r01

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
RF Conducted	TH01-CB	Gary Chu & Ron Huang	26.9°C / 62%	Sep. 04, 2017
Radiated	03CH01-CB	Justin Lin & Paul Chen	22°C / 54%	Aug. 31, 2017 ~ Sep. 05, 2017
AC Conduction	CO01-CB	Deven Huang	23°C / 60%	Sep. 05, 2017

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
Conducted Emission (150kHz ~ 30MHz)	3.2 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	3.6 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.7 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.7 dB	Confidence levels of 95%
Output Power Measurement	1.33 dB	Confidence levels of 95%
Power Density Measurement	1.27 dB	Confidence levels of 95%
Bandwidth Measurement	9.74 x10 ⁻⁸	Confidence levels of 95%



2 Test Configuration of EUT

2.1 Test Channel Mode

Mode	Power Setting
802.11b_(1Mbps)_2TX	-
2412MHz	21
2437MHz	24
2462MHz	21.5
802.11g_(6Mbps)_2TX	-
2412MHz	18
2437MHz	25
2462MHz	18
802.11ac VHT20_Nss1,(MCS0)_2TX	-
2412MHz	17
2437MHz	25
2462MHz	17.5
802.11ac VHT40_Nss1,(MCS0)_2TX	-
2422MHz	15.5
2437MHz	18
2452MHz	15
802.11ac VHT20-BF_Nss1,(MCS0)_2TX	-
2412MHz	20
2437MHz	22
2462MHz	19
802.11ac VHT40-BF_Nss1,(MCS0)_2TX	-
2422MHz	19
2437MHz	20
2452MHz	18

Note:

- ♦ VHT20/VHT40 covers HT20/HT40, due to same modulation. The power setting for 802.11n HT20 and HT40 are the same or lower than 802.11ac VHT20 and VHT40.
- ♦ There are two modes of EUT for 802.11ac in 2.4GHz/5GHz. One is beamforming mode, and the other is non-beamforming mode. Both modes have been tested and recorded in this test report.

2.2 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral
Operating Mode	Normal Link
1	EUT + Adapter
2	EUT + PoE
For operating mode 2 is the worst case and it was record in this test report.	

The Worst Case Mode for Following Conformance Tests	
Tests Item	DTS Bandwidth Maximum Conducted Output Power Power Spectral Density Emissions in Non-restricted Frequency Bands
Test Condition	Conducted measurement at transmit chains

The Worst Case Mode for Following Conformance Tests	
Tests Item	Emissions in Restricted Frequency Bands
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	Normal Link
1	EUT in Y axis + Adapter
2	EUT in Z axis + Adapter
Mode 2 has been evaluated to be the worst case among Mode 1~2, thus measurement for Mode 3 will follow this same test mode.	
3	EUT in Z axis + PoE
For operating mode 2 is the worst case and it was record in this test report.	
Operating Mode > 1GHz	CTX The EUT was performed at Y axis and Z axis position for Radiated emission above 1GHz test, and the worst case was found at Y axis. So the measurement will follow this same test configuration.
1	EUT in Y axis



The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis - Radiated Emission Co-location
Test Condition	Radiated measurement
Operating Mode	Normal Link
	The EUT was performed at Y axis and Z axis position for radiated emission below 1GHz test, and the worst case was found at Z axis. So the measurement will follow this same test configuration.
1	WLAN 2.4GHz + WLAN 5GHz
Refer to Appendix A for Radiated Emission Co-location.	

The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation
Operating Mode	
1	WLAN 2.4GHz + WLAN 5GHz
Refer to Sporton Test Report No.: FA782229-04AB for Co-location RF Exposure Evaluation.	

Note1: The PoE was for measurement only, would not be marketed.

The PoE information as below:

Support Unit	Brand	Model Number
PoE	CISCO	MA-INJ-4

2.3 EUT Operation during Test

For CTX Mode:

non-beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

beamforming mode:

For Conducted Mode:

The EUT was programmed to be in continuously transmitting mode.

For Radiated 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%.

For Normal Link:

During the test, the EUT operation to normal function.



2.4 Accessories

Accessories			
Equipment Name	Brand Name	Model Name	Rating
Adapter	CISCO	KSAS0361200250HU	INPUT: 100-240V ~ 50/60Hz 1.0A OUTPUT: 12V, 2.5A
Other			
Wall-mounted rack*1			

2.5 Support Equipment

For Test Site No: C001-CB

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
1	NB	DELL	E6430	DoC
2	NB	DELL	E6430	DoC
3	NB	DELL	E6430	DoC
4	PoE	CISCO	MA-INJ-4	DoC

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

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
1	NB	DELL	E4300	DoC
2	NB	Apple	Mac Book	DoC
3	NB	Apple	Mac Book	DoC

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

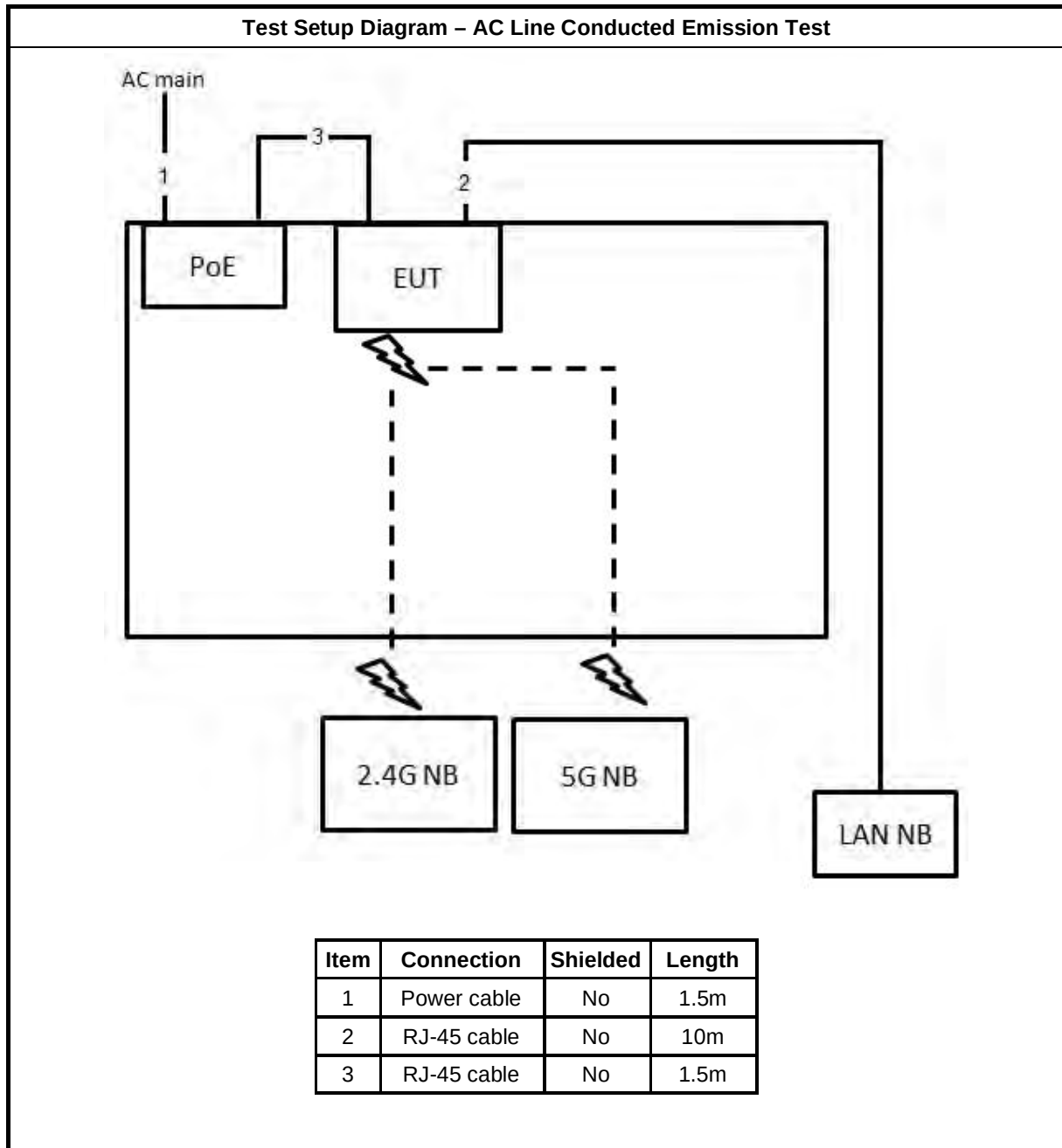
<For Beamforming Mode>

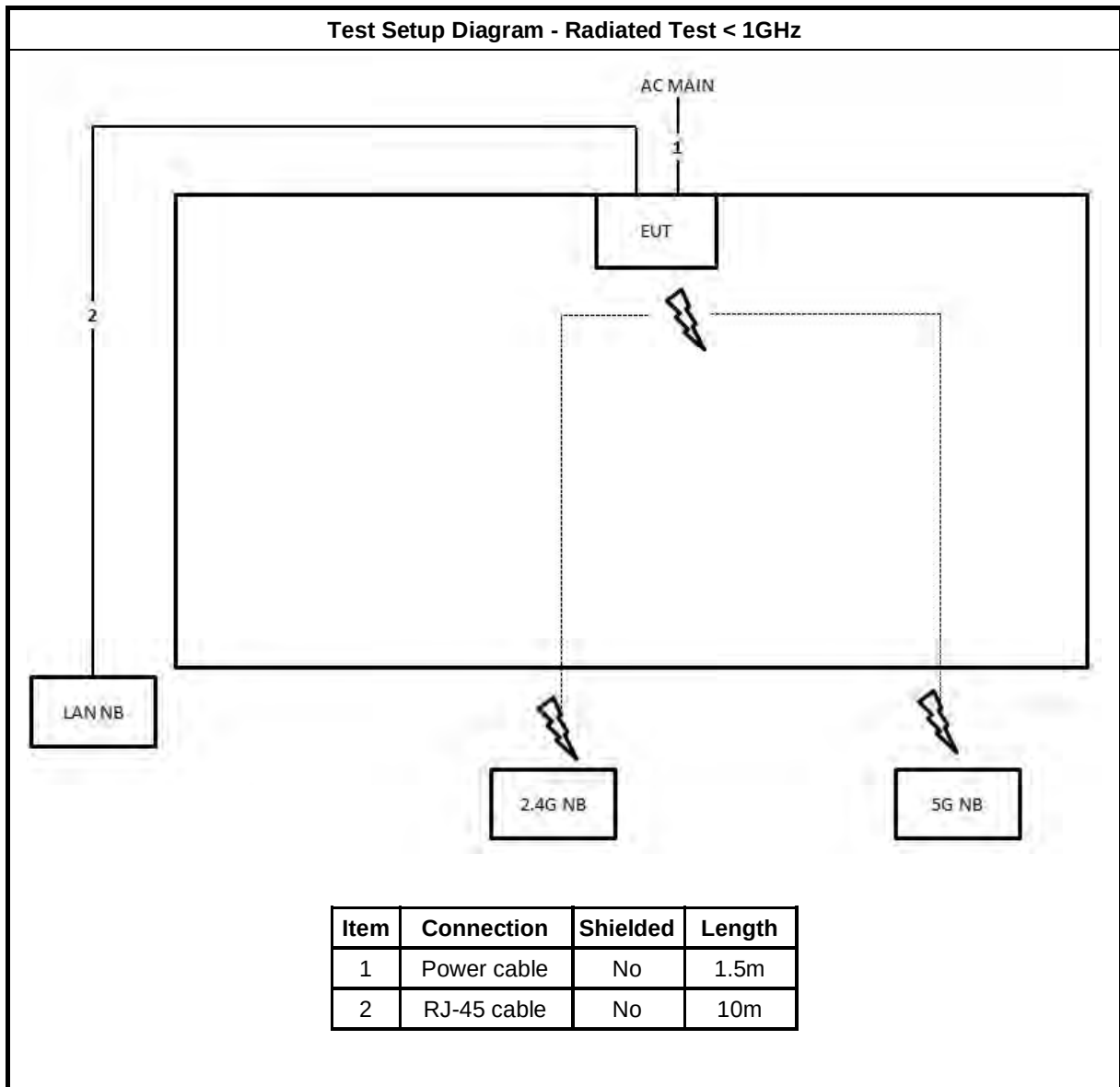
Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
1	NB	DELL	E4300	DoC
2	NB	DELL	E4300	DoC
3	RX Device	CISCO	GR60-HW	UDX-60067010

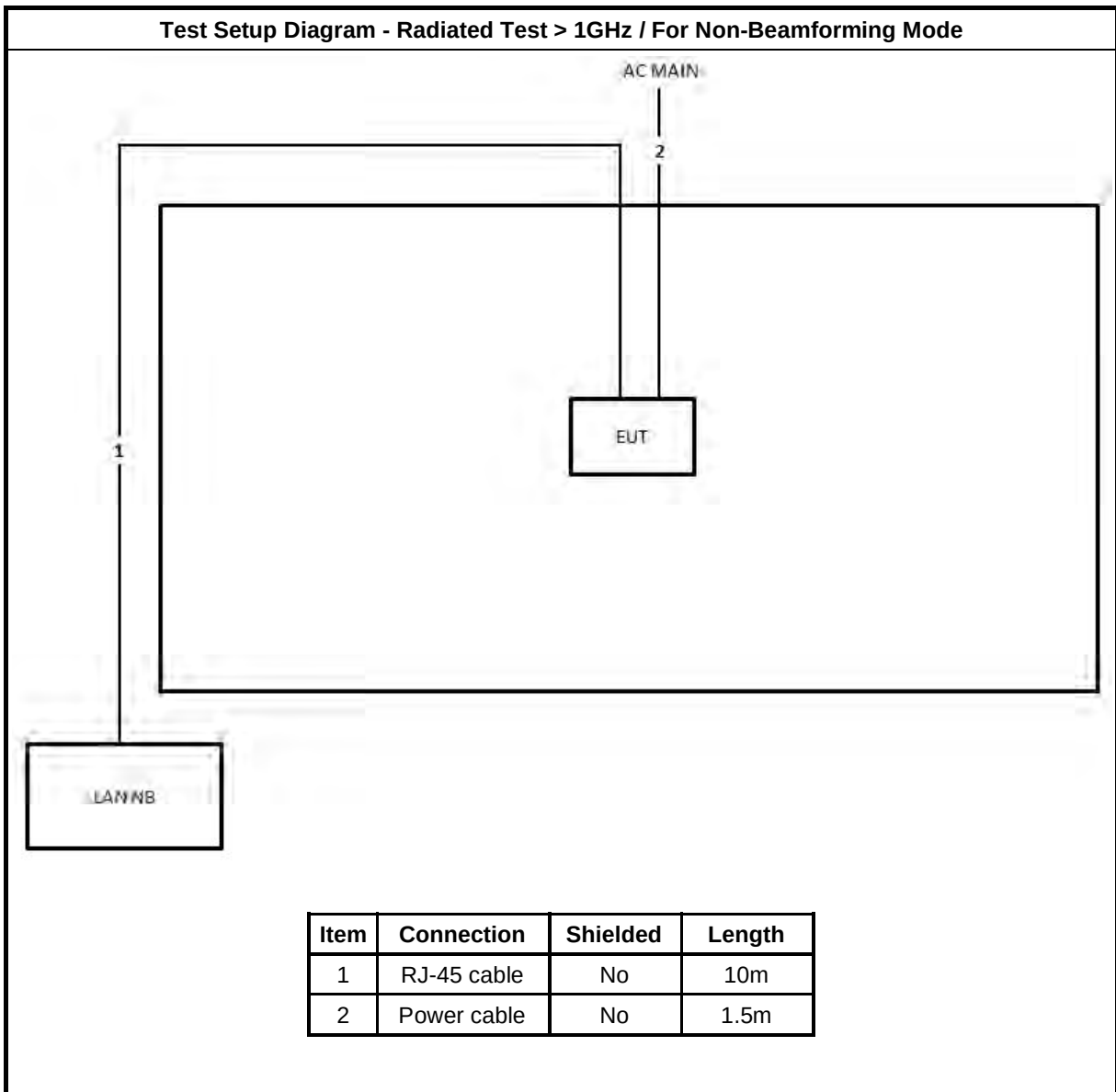
**For Test Site No: TH01-CB**

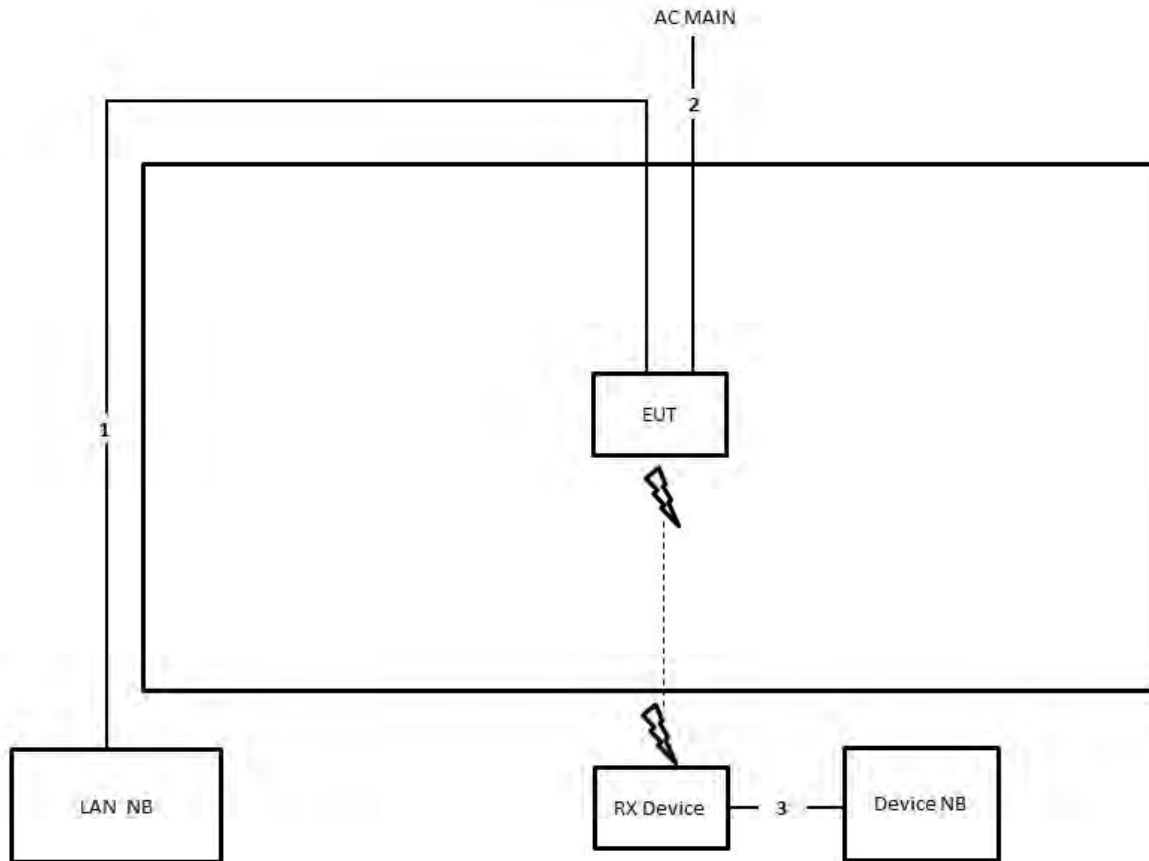
Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
1	NB	DELL	E4300	DoC

2.6 Test Setup Diagram



Test Setup Diagram - Radiated Test < 1GHz


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


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


Item	Connection	Shielded	Length
1	RJ-45 cable	No	10m
2	Power cable	No	1.5m
3	RJ-45 cable	No	1.5m

3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

AC Power-line Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

Note 1: * Decreases with the logarithm of the frequency.

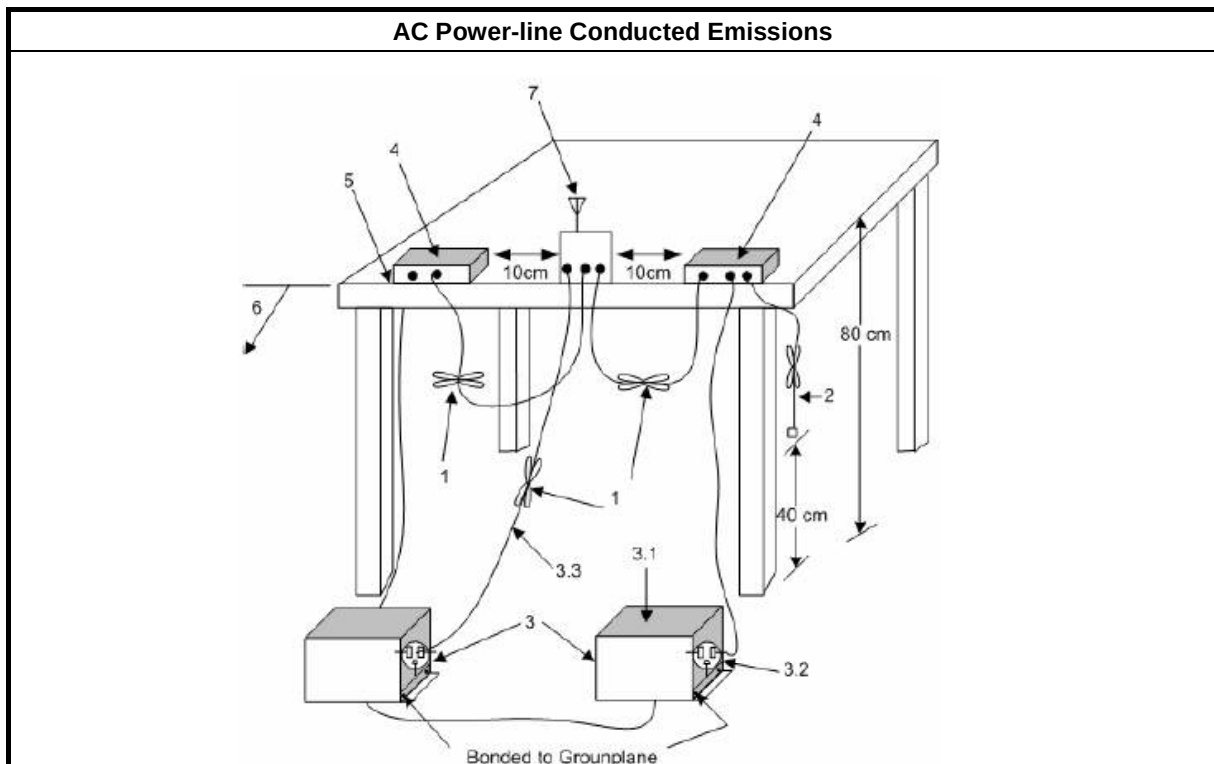
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

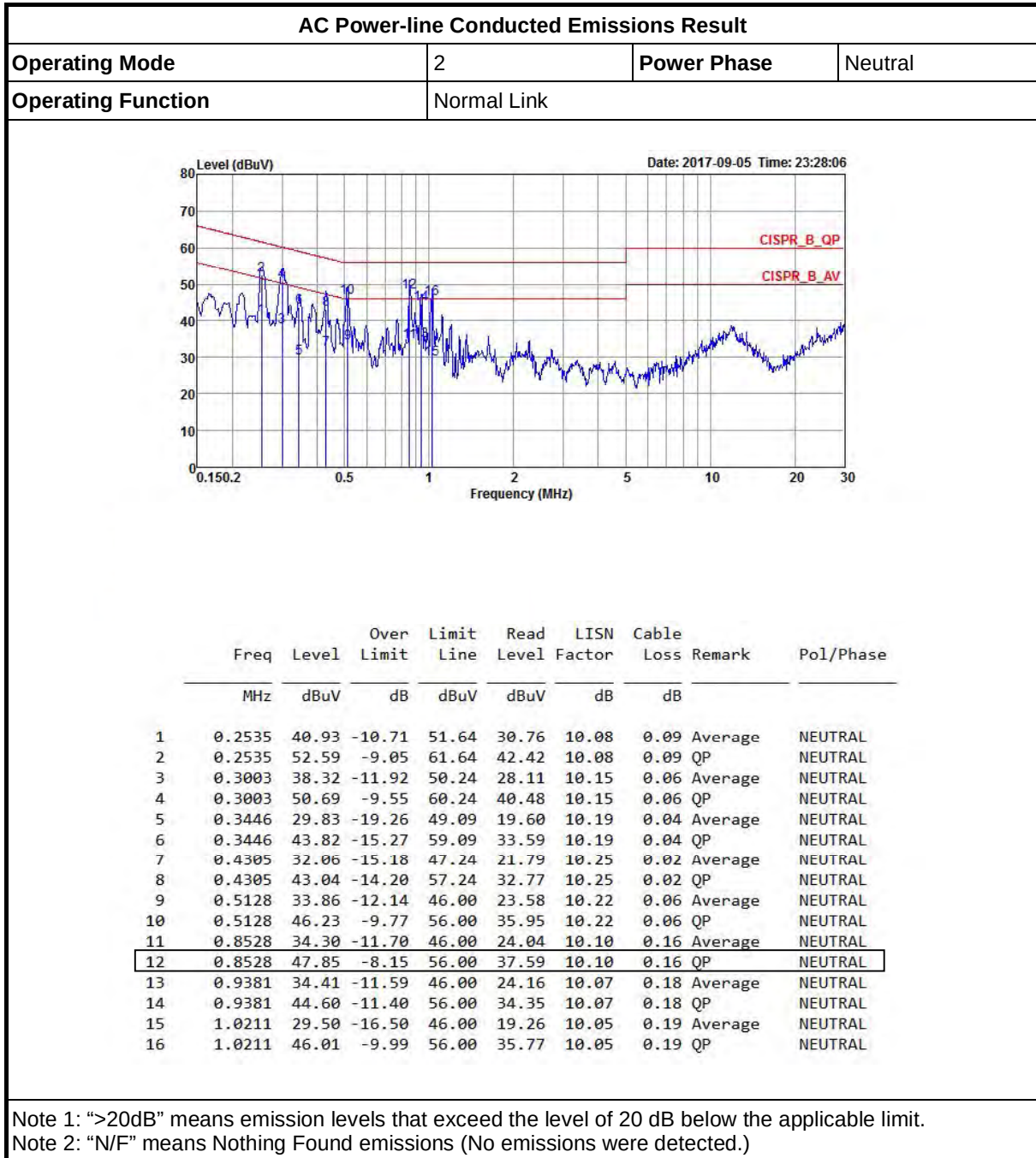
Test Method
☒ Refer as ANSI C63.10-2013 , clause 6.2 for AC power-line conducted emissions.

3.1.4 Test Setup





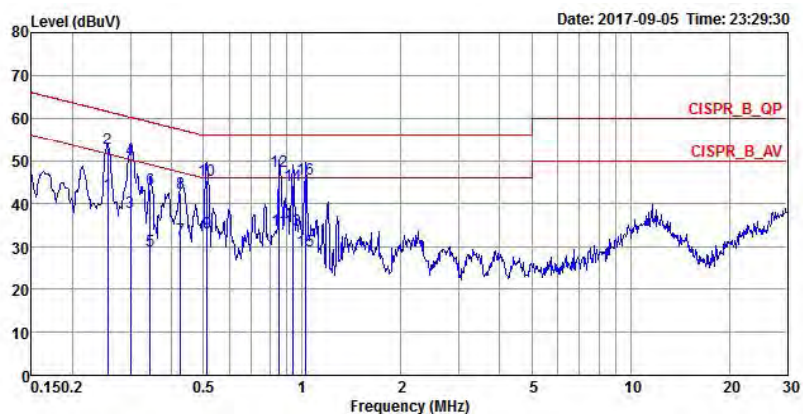
3.1.5 Test Result of AC Power-line Conducted Emissions





AC Power-line Conducted Emissions Result

Operating Mode	2	Power Phase	Line
Operating Function	Normal Link		



	Freq	Level	Over	Limit	Read	LISN	Cable		
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark	Pol/Phase
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.2562	42.23	-9.33	51.56	32.22	9.92	0.09	Average	LINE
2	0.2562	52.73	-8.83	61.56	42.72	9.92	0.09	QP	LINE
3	0.3003	38.18	-12.06	50.24	28.19	9.93	0.06	Average	LINE
4	0.3003	50.26	-9.98	60.24	40.27	9.93	0.06	QP	LINE
5	0.3446	29.34	-19.75	49.09	19.36	9.94	0.04	Average	LINE
6	0.3446	43.34	-15.75	59.09	33.36	9.94	0.04	QP	LINE
7	0.4260	31.91	-15.42	47.33	21.94	9.95	0.02	Average	LINE
8	0.4260	42.46	-14.87	57.33	32.49	9.95	0.02	QP	LINE
9	0.5128	33.28	-12.72	46.00	23.27	9.95	0.06	Average	LINE
10	0.5128	45.59	-10.41	56.00	35.58	9.95	0.06	QP	LINE
11	0.8528	33.87	-12.13	46.00	23.75	9.96	0.16	Average	LINE
12	0.8528	47.44	-8.56	56.00	37.32	9.96	0.16	QP	LINE
13	0.9381	33.86	-12.14	46.00	23.72	9.96	0.18	Average	LINE
14	0.9381	44.33	-11.67	56.00	34.19	9.96	0.18	QP	LINE
15	1.0211	29.22	-16.78	46.00	19.07	9.96	0.19	Average	LINE
16	1.0211	45.75	-10.25	56.00	35.60	9.96	0.19	QP	LINE

Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)

3.2 DTS Bandwidth

3.2.1 6dB Bandwidth Limit

6dB Bandwidth Limit	
Systems using digital modulation techniques:	
▪	6 dB bandwidth $\geq$ 500 kHz.

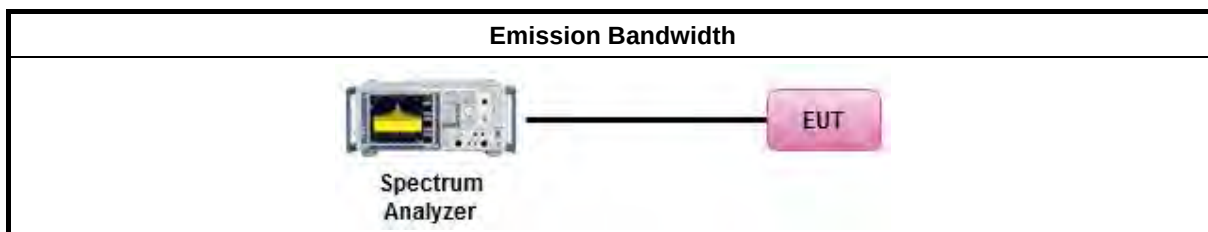
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

Test Method	
▪	For the emission bandwidth shall be measured using one of the options below:
☒	Refer as FCC KDB 558074, clause 8.1 Option 1 for 6 dB bandwidth measurement.
☐	Refer as FCC KDB 558074, clause 8.2 Option 2 for 6 dB bandwidth measurement.
☐	Refer as ANSI C63.10, clause 6.9.1 for occupied bandwidth testing.

3.2.4 Test Setup



3.2.5 Test Result of Emission Bandwidth

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
802.11b_(1Mbps)_2TX	-	-	-	-	-
2.4-2.4835GHz	11.025M	28.511M	28M5G1D	8.05M	13.293M
802.11g_(6Mbps)_2TX	-	-	-	-	-
2.4-2.4835GHz	16.35M	31.259M	31M3D1D	16.3M	16.417M
802.11ac VHT20_Nss1,(MCS0)_2TX	-	-	-	-	-
2.4-2.4835GHz	17.575M	32.959M	33M0D1D	17.525M	17.616M
802.11ac VHT40_Nss1,(MCS0)_2TX	-	-	-	-	-
2.4-2.4835GHz	36.05M	36.082M	36M1D1D	33.4M	35.932M
802.11ac VHT20-BF_Nss1,(MCS0)_2TX	-	-	-	-	-
2.4-2.4835GHz	17.575M	17.691M	17M7D1D	17.55M	17.591M
802.11ac VHT40-BF_Nss1,(MCS0)_2TX	-	-	-	-	-
2.4-2.4835GHz	35.65M	36.082M	36M1D1D	33.75M	35.932M

Max-N dB = Maximum 6dB down bandwidth; **Max-OBW** = Maximum 99% occupied bandwidth;

Min-N dB = Minimum 6dB down bandwidth; **Min-OBW** = Minimum 99% occupied bandwidth;

Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)
802.11b_(1Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	9.025M	13.293M	9.025M	13.468M
2437MHz	Pass	500k	10.05M	18.216M	11.025M	28.511M
2462MHz	Pass	500k	8.075M	13.818M	8.05M	13.893M
802.11g_(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	16.325M	16.417M	16.325M	16.417M
2437MHz	Pass	500k	16.3M	30.81M	16.35M	31.259M
2462MHz	Pass	500k	16.35M	16.417M	16.325M	16.417M
802.11ac VHT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	17.575M	17.641M	17.575M	17.616M
2437MHz	Pass	500k	17.525M	32.409M	17.575M	32.959M
2462MHz	Pass	500k	17.55M	17.616M	17.525M	17.616M
802.11ac VHT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	500k	34.4M	35.932M	35.05M	35.982M
2437MHz	Pass	500k	35.05M	36.082M	36.05M	36.082M
2452MHz	Pass	500k	34.85M	36.032M	33.4M	35.982M
802.11ac VHT20-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	17.55M	17.616M	17.575M	17.641M
2437MHz	Pass	500k	17.575M	17.666M	17.575M	17.691M
2462MHz	Pass	500k	17.575M	17.591M	17.55M	17.616M
802.11ac VHT40-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	500k	33.75M	35.982M	34.75M	35.982M



Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)
2437MHz	Pass	500k	35M	36.032M	35.65M	36.082M
2452MHz	Pass	500k	35.05M	35.982M	33.8M	35.932M

Port X-N dB = Port X 6dB down bandwidth; **Port X-OBW** = Port X 99% occupied bandwidth;



802.11b_(1Mbps)_2TX

EBW

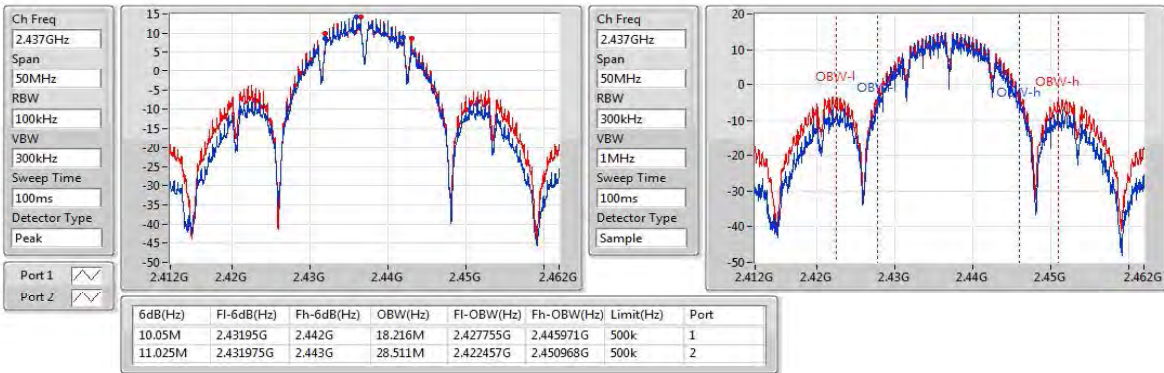
2412MHz



802.11b_(1Mbps)_2TX

EBW

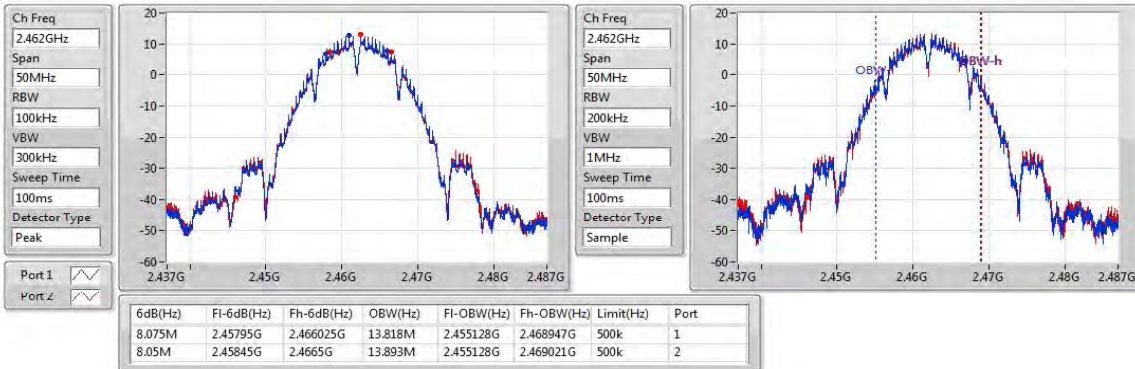
2437MHz



802.11b_(1Mbps)_2TX

EBW

2462MHz

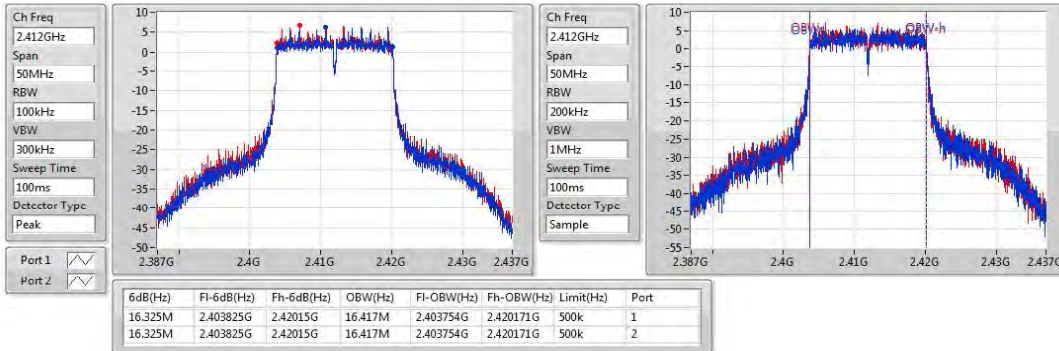




802.11g_(6Mbps)_2TX

EBW

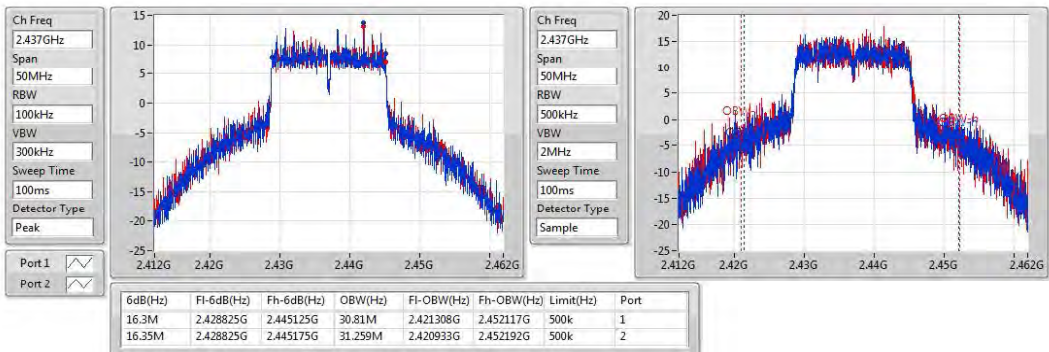
2412MHz



802.11g_(6Mbps)_2TX

EBW

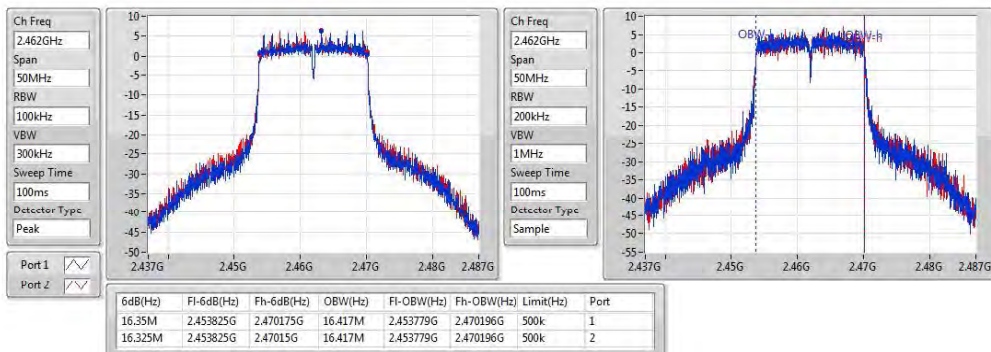
2437MHz



802.11g_(6Mbps)_2TX

EBW

2462MHz

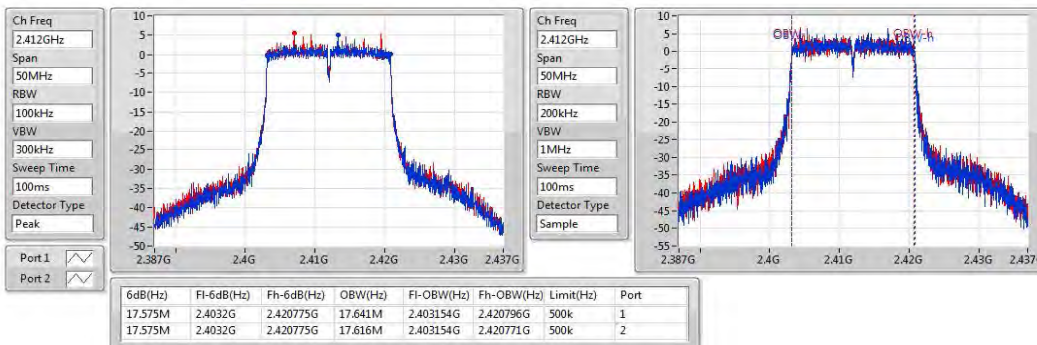




802.11ac VHT20_Nss1,(MCS0)_2TX

EBW

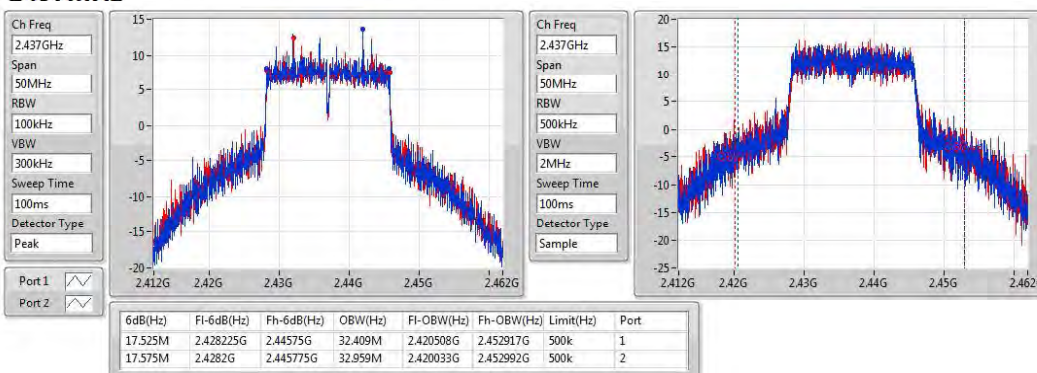
2412MHz



802.11ac VHT20_Nss1,(MCS0)_2TX

EBW

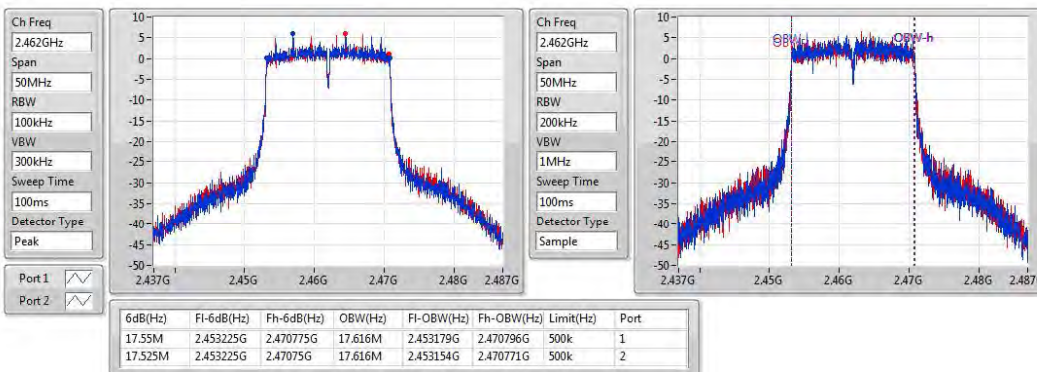
2437MHz



802.11ac VHT20_Nss1,(MCS0)_2TX

EBW

2462MHz

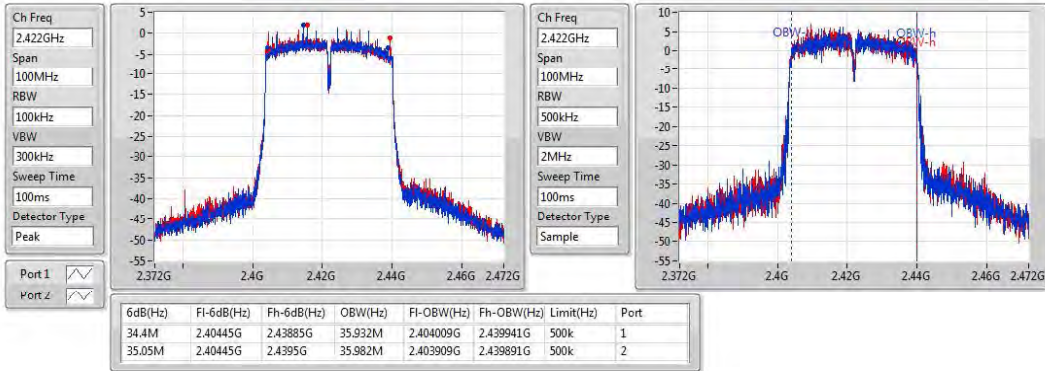




802.11ac VHT40_Nss1,(MCS0)_2TX

EBW

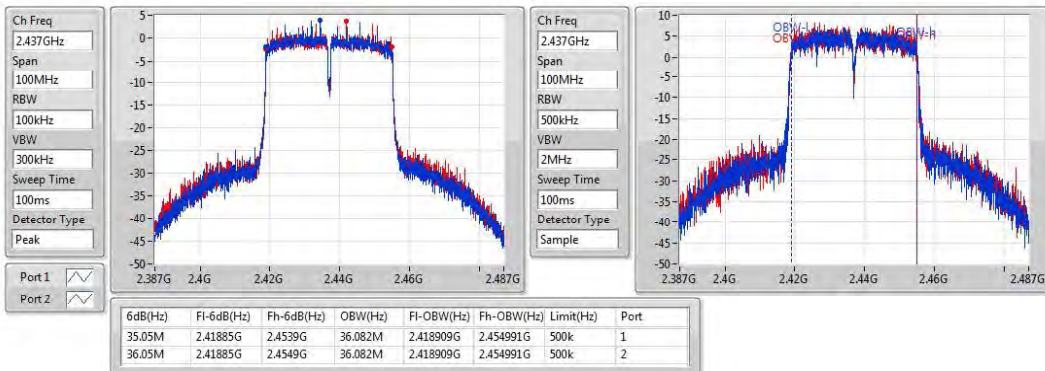
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802.11ac VHT40_Nss1,(MCS0)_2TX

EBW

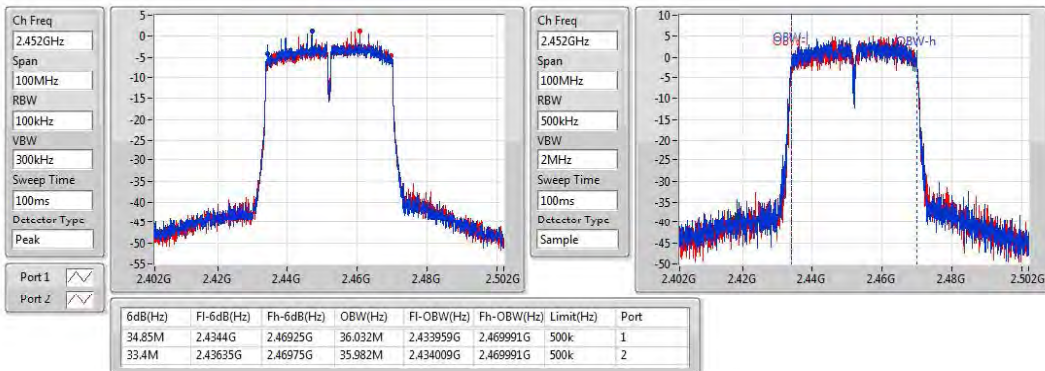
2437MHz



802.11ac VHT40_Nss1,(MCS0)_2TX

EBW

2452MHz

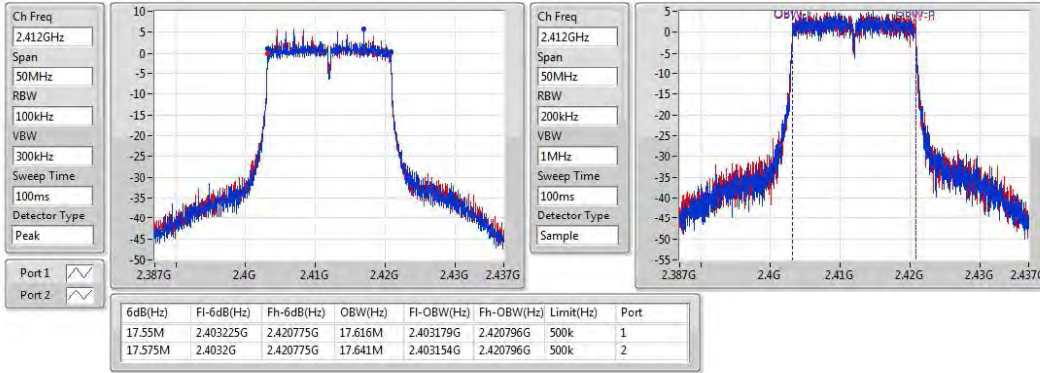




802.11ac VHT20-BF_Nss1,(MCS0)_2TX

EBW

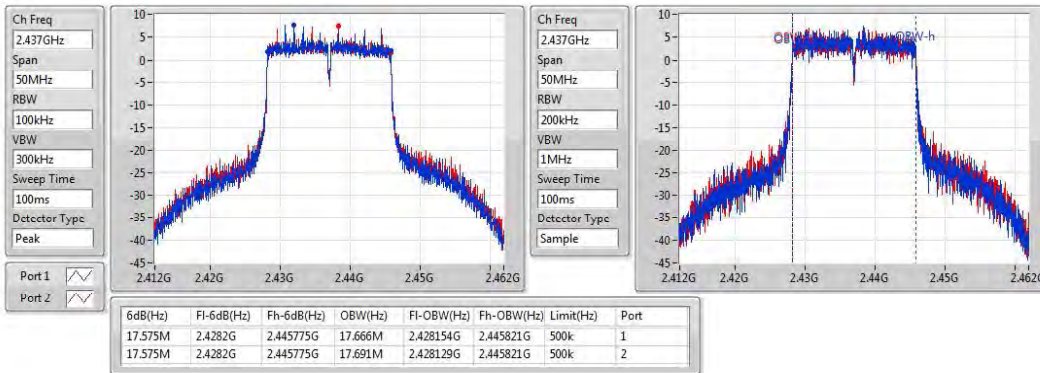
2412MHz



802.11ac VHT20-BF_Nss1,(MCS0)_2TX

EBW

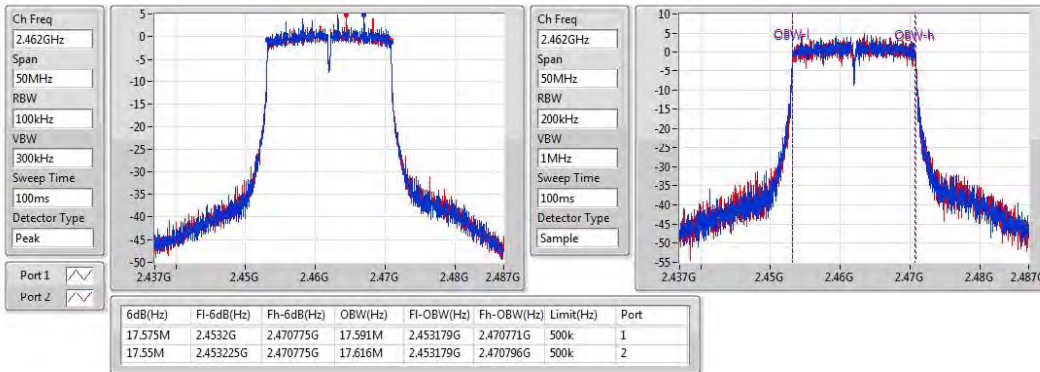
2437MHz



802.11ac VHT20-BF_Nss1,(MCS0)_2TX

EBW

2462MHz

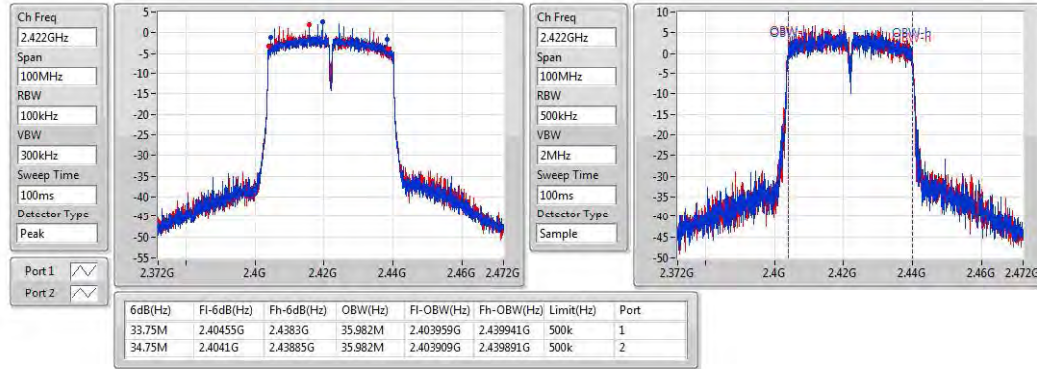




802.11ac VHT40-BF_Nss1,(MCS0)_2TX

EBW

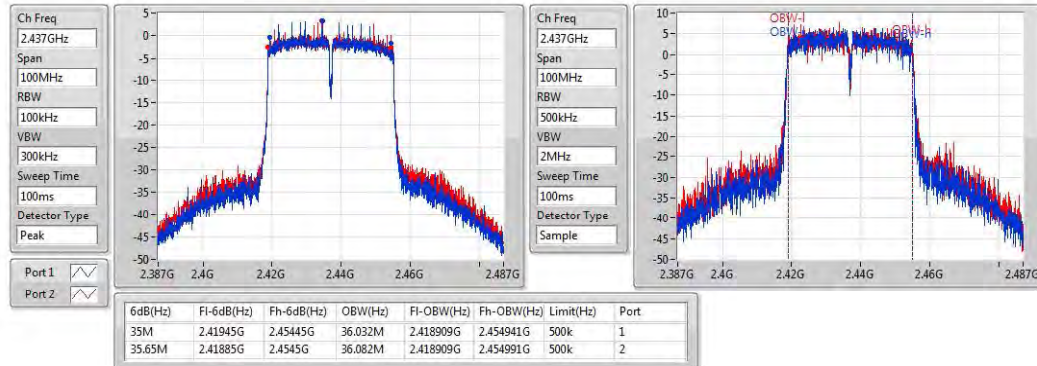
2422MHz



802.11ac VHT40-BF_Nss1,(MCS0)_2TX

EBW

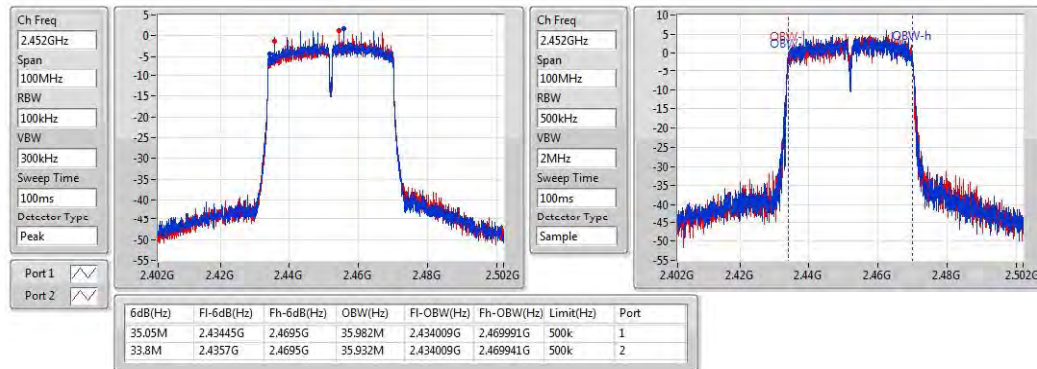
2437MHz



802.11ac VHT40-BF_Nss1,(MCS0)_2TX

EBW

2452MHz



3.3 Maximum Conducted Output Power

3.3.1 Maximum Conducted Output Power Limit

Maximum Conducted Output Power Limit	
	▪ If $G_{TX} \leq 6$ dBi, then $P_{Out} \leq 30$ dBm (1 W)
	▪ Point-to-multipoint systems (P2M): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$ dBm
	▪ Point-to-point systems (P2P): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
	▪ Smart antenna system (SAS):
	- Single beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
	- Overlap beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
	- Aggregate power on all beams: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3 + 8$ dB dBm
P_{Out} = maximum peak conducted output power or maximum conducted output power in dBm, G_{TX} = the maximum transmitting antenna directional gain in dBi.	

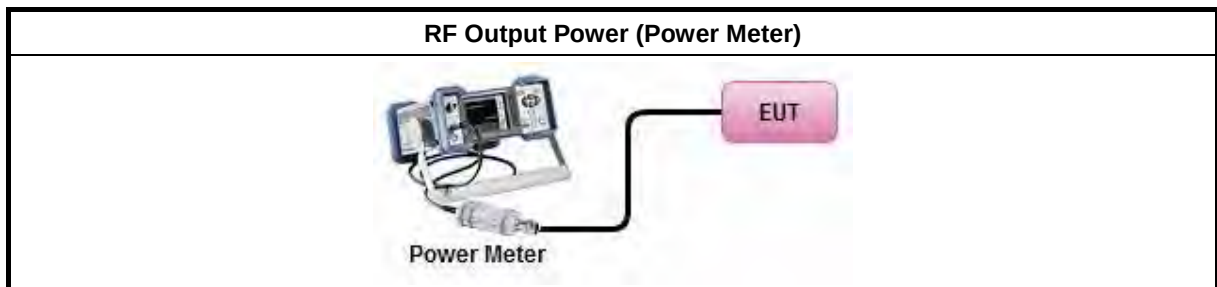
3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

Test Method	
Maximum Peak Conducted Output Power	
☐	Refer as FCC KDB 558074, clause 9.1.1 Option 1 (RBW ≥ EBW method).
☐	Refer as FCC KDB 558074, clause 9.1.2 Option 2 (peak power meter for VBW ≥ DTS BW)
Maximum Conducted Output Power	
[duty cycle ≥ 98% or external video / power trigger]	
☐	Refer as FCC KDB 558074, clause 9.2.2.2 Method AVGSA-1 (spectral trace averaging).
☐	Refer as FCC KDB 558074, clause 9.2.2.3 Method AVGSA-1 Alt. (slow sweep speed)
duty cycle < 98% and average over on/off periods with duty factor	
☐	Refer as FCC KDB 558074, clause 9.2.2.4 Method AVGSA-2 (spectral trace averaging).
☐	Refer as FCC KDB 558074, clause 9.2.2.5 Method AVGSA-2 Alt. (slow sweep speed)
RF power meter and average over on/off periods with duty factor or gated trigger	
☒	Refer as FCC KDB 558074, clause 9.2.3 Method AVGPM-G (using an RF average power meter).
☐	Refer as FCC KDB 558074, clause 9.1.2 PKPM1 Peak power meter method.
For conducted measurement.	
If the EUT supports multiple transmit chains using options given below: Refer as FCC KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them.	
If multiple transmit chains, EIRP calculation could be following as methods: $P_{total} = P_1 + P_2 + \dots + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = P_{total} + DG$	

3.3.4 Test Setup



**3.3.5 Test Result of Maximum Conducted Output Power****Summary**

Mode	Total Power (dBm)	Total Power (W)
802.11b_(1Mbps)_2TX	-	-
2.4-2.4835GHz	26.85	0.48417
802.11g_(6Mbps)_2TX	-	-
2.4-2.4835GHz	26.36	0.43251
802.11ac VHT20_Nss1,(MCS0)_2TX	-	-
2.4-2.4835GHz	26.35	0.43152
802.11ac VHT40_Nss1,(MCS0)_2TX	-	-
2.4-2.4835GHz	21.06	0.12764
802.11ac VHT20-BF_Nss1,(MCS0)_2TX	-	-
2.4-2.4835GHz	21.76	0.14997
802.11ac VHT40-BF_Nss1,(MCS0)_2TX	-	-
2.4-2.4835GHz	20.27	0.10641

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	Power Limit (dBm)
802.11b_(1Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	4.84	20.95	21.06	24.02	30.00
2437MHz	Pass	4.84	23.79	23.89	26.85	30.00
2462MHz	Pass	4.84	21.50	21.22	24.37	30.00
802.11g_(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	4.84	17.84	17.98	20.92	30.00
2437MHz	Pass	4.84	23.39	23.32	26.36	30.00
2462MHz	Pass	4.84	17.88	17.93	20.92	30.00
802.11ac VHT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	4.84	16.84	17.08	19.97	30.00
2437MHz	Pass	4.84	23.36	23.32	26.35	30.00
2462MHz	Pass	4.84	17.51	17.33	20.43	30.00
802.11ac VHT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	4.84	15.75	15.82	18.79	30.00
2437MHz	Pass	4.84	18.13	17.98	21.06	30.00
2452MHz	Pass	4.84	15.33	15.37	18.36	30.00
802.11ac VHT20-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	4.96	16.99	16.99	20.00	30.00
2437MHz	Pass	4.96	18.77	18.72	21.76	30.00
2462MHz	Pass	4.96	16.23	16.14	19.19	30.00
802.11ac VHT40-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	4.96	16.41	16.29	19.36	30.00
2437MHz	Pass	4.96	17.10	17.41	20.27	30.00
2452MHz	Pass	4.96	15.44	15.37	18.42	30.00

DG = Directional Gain; **Port X** = Port X output power



3.4 Power Spectral Density

3.4.1 Power Spectral Density Limit

Power Spectral Density Limit
▪ Power Spectral Density (PSD) ≤ 8 dBm/3kHz

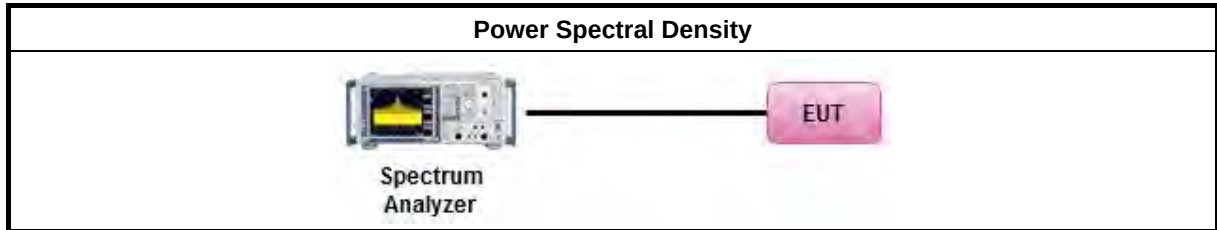
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

Test Method	
▪ Peak power spectral density procedures that the same method as used to determine the conducted output power. If maximum peak conducted output power was measured to demonstrate compliance to the output power limit, then the peak PSD procedure below (Method PKPSD) shall be used. If maximum conducted output power was measured to demonstrate compliance to the output power limit, then one of the average PSD procedures shall be used, as applicable based on the following criteria (the peak PSD procedure is also an acceptable option).	
☒	Refer as FCC KDB 558074, clause 10.2 Method PKPSD (RBW=3-100kHz; Detector=peak). [duty cycle $\geq 98\%$ or external video / power trigger]
☐	Refer as FCC KDB 558074, clause 10.3 Method AVGPS-1 (spectral trace averaging).
☐	Refer as FCC KDB 558074, clause 10.4 Method AVGPS-2 (slow sweep speed) duty cycle $< 98\%$ and average over on/off periods with duty factor
☐	Refer as FCC KDB 558074, clause 10.5 Method AVGPS-1 Alt (spectral trace averaging).
☐	Refer as FCC KDB 558074, clause 10.6 Method AVGPS-2 Alt. (slow sweep speed)
▪ For conducted measurement.	
▪ If The EUT supports multiple transmit chains using options given below:	
☒	Option 1: Measure and sum the spectra across the outputs. Refer as FCC KDB 662911, In-band power spectral density (PSD). Sample all transmit ports simultaneously using a spectrum analyzer for each transmit port. Where the trace bin-by-bin of each transmit port summing can be performed. (i.e., in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3, and so on up to the NTX output to obtain the value for the first frequency bin of the summed spectrum.). Add up the amplitude (power) values for the different transmit chains and use this as the new data trace.
☐	Option 2: Measure and sum spectral maxima across the outputs. With this technique, spectra are measured at each output of the device at the required resolution bandwidth. The maximum value (peak) of each spectrum is determined. These maximum values are then summed mathematically in linear power units across the outputs. These operations shall be performed separately over frequency spans that have different out-of-band or spurious emission limits,
☐	Option 3: Measure and add $10 \log(N)$ dB, where N is the number of transmit chains. Refer as FCC KDB 662911, In-band power spectral density (PSD). Performed at each transmit chains and each transmit chains shall be compared with the limit have been reduced with $10 \log(N)$. Or each transmit chains shall be add $10 \log(N)$ to compared with the limit.

3.4.4 Test Setup



**3.4.5 Test Result of Power Spectral Density****Summary**

Mode	PD (dBm/RBW)
802.11b_(1Mbps)_2TX	-
2.4-2.4835GHz	1.62
802.11g_(6Mbps)_2TX	-
2.4-2.4835GHz	-0.08
802.11ac VHT20_Nss1,(MCS0)_2TX	-
2.4-2.4835GHz	-0.81
802.11ac VHT40_Nss1,(MCS0)_2TX	-
2.4-2.4835GHz	-8.85
802.11ac VHT20-BF_Nss1,(MCS0)_2TX	-
2.4-2.4835GHz	-5.14
802.11ac VHT40-BF_Nss1,(MCS0)_2TX	-
2.4-2.4835GHz	-9.68

RBW=3kHz.

Result

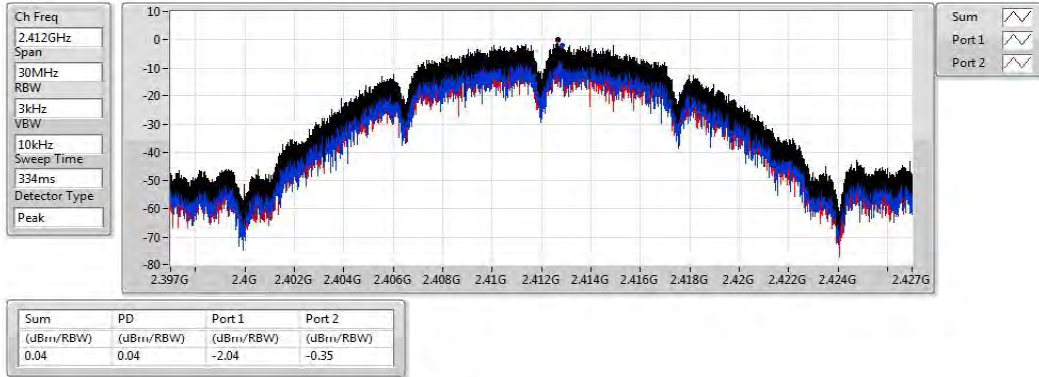
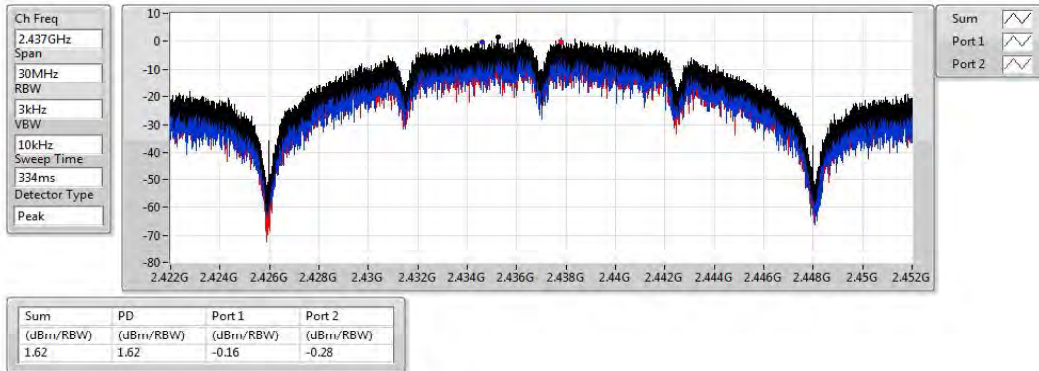
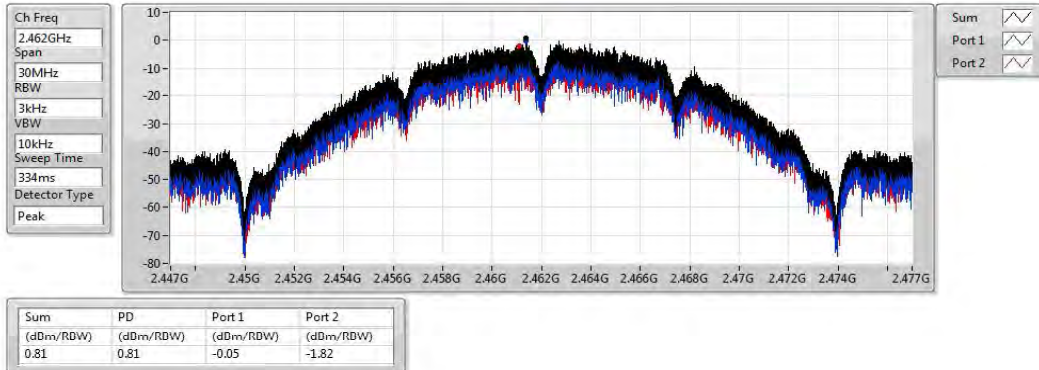
Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
802.11b_(1Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	4.96	-2.04	-0.35	0.04	8.00
2437MHz	Pass	4.96	-0.16	-0.28	1.62	8.00
2462MHz	Pass	4.96	-0.05	-1.82	0.81	8.00
802.11g_(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	4.96	-7.83	-6.72	-5.77	8.00
2437MHz	Pass	4.96	-2.88	-1.82	-0.08	8.00
2462MHz	Pass	4.96	-7.62	-8.93	-6.47	8.00
802.11ac VHT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	4.96	-9.31	-8.18	-7.07	8.00
2437MHz	Pass	4.96	-2.38	-3.34	-0.81	8.00
2462MHz	Pass	4.96	-9.00	-9.71	-8.02	8.00
802.11ac VHT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	4.96	-12.45	-10.85	-8.99	8.00
2437MHz	Pass	4.96	-10.02	-10.97	-8.85	8.00
2452MHz	Pass	4.96	-13.50	-13.49	-11.25	8.00
802.11ac VHT20-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	4.96	-8.47	-8.49	-7.30	8.00
2437MHz	Pass	4.96	-6.16	-6.53	-5.14	8.00
2462MHz	Pass	4.96	-8.96	-9.93	-8.28	8.00
802.11ac VHT40-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	4.96	-12.16	-11.21	-10.65	8.00
2437MHz	Pass	4.96	-9.90	-10.98	-9.68	8.00

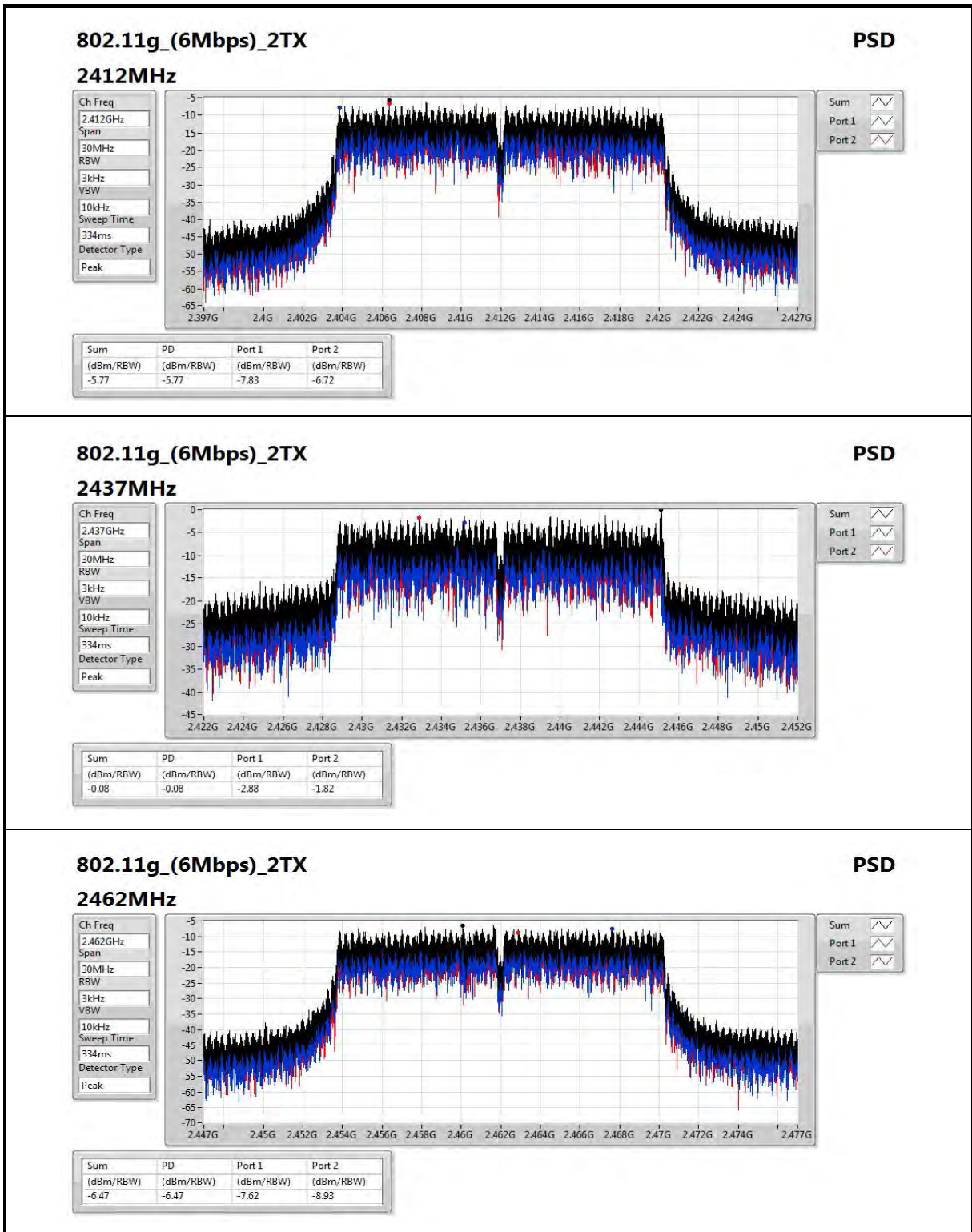


Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
2452MHz	Pass	4.96	-11.90	-13.23	-11.36	8.00

DG = Directional Gain; RBW=3kHz;

PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

802.11b_(1Mbps)_2TX
PSD
2412MHz

802.11b_(1Mbps)_2TX
PSD
2437MHz

802.11b_(1Mbps)_2TX
PSD
2462MHz


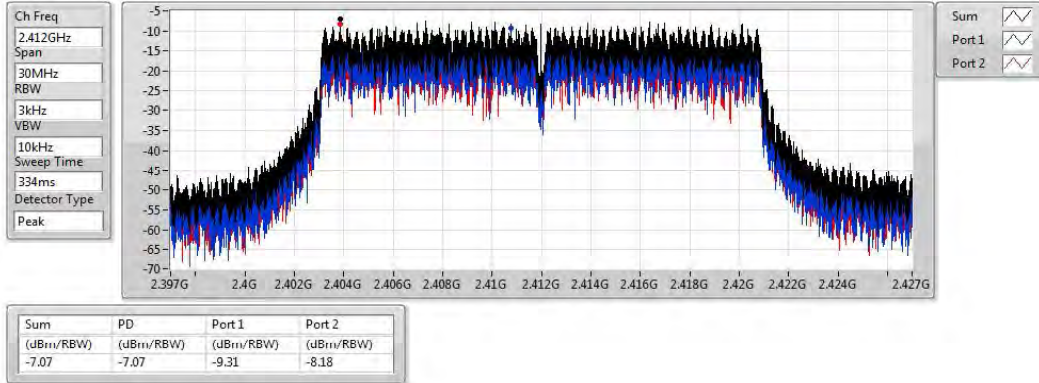




802.11ac VHT20_Nss1,(MCS0)_2TX

PSD

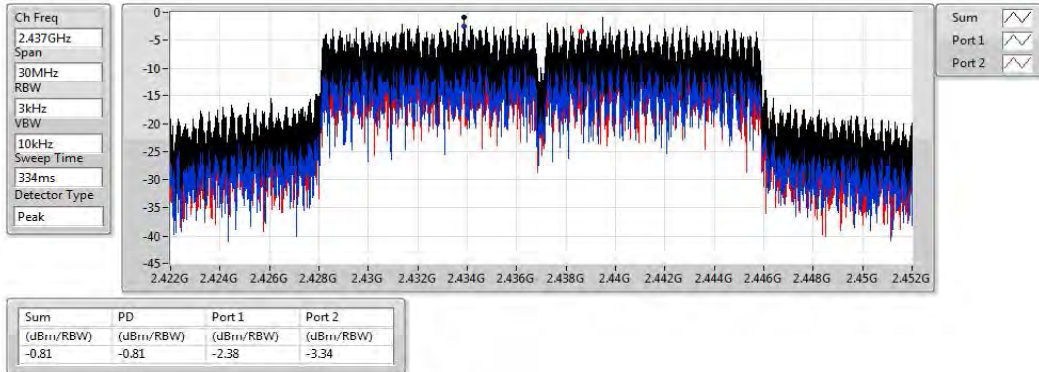
2412MHz



802.11ac VHT20_Nss1,(MCS0)_2TX

PSD

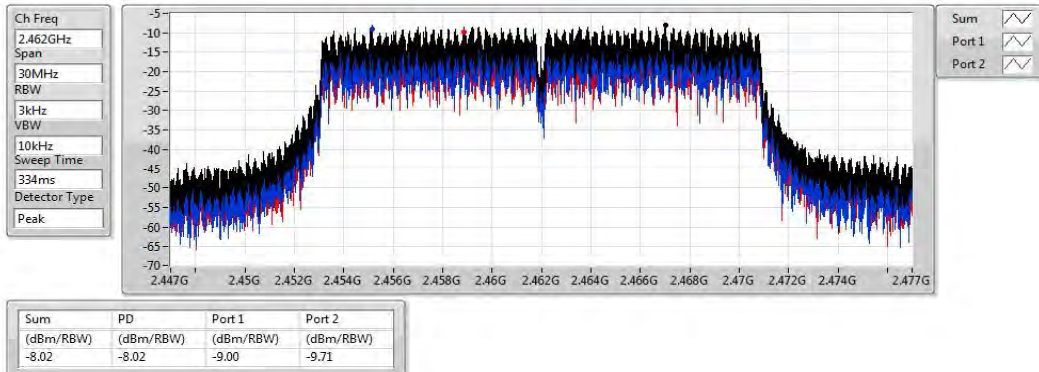
2437MHz



802.11ac VHT20_Nss1,(MCS0)_2TX

PSD

2462MHz

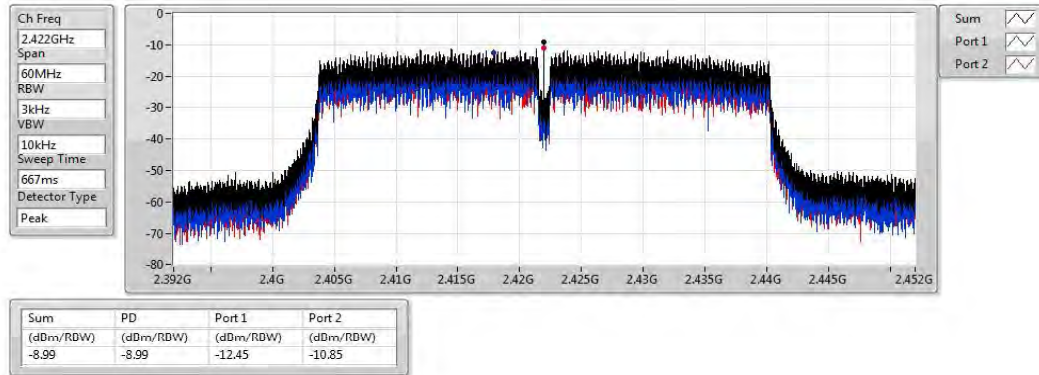




802.11ac VHT40_Nss1,(MCS0)_2TX

PSD

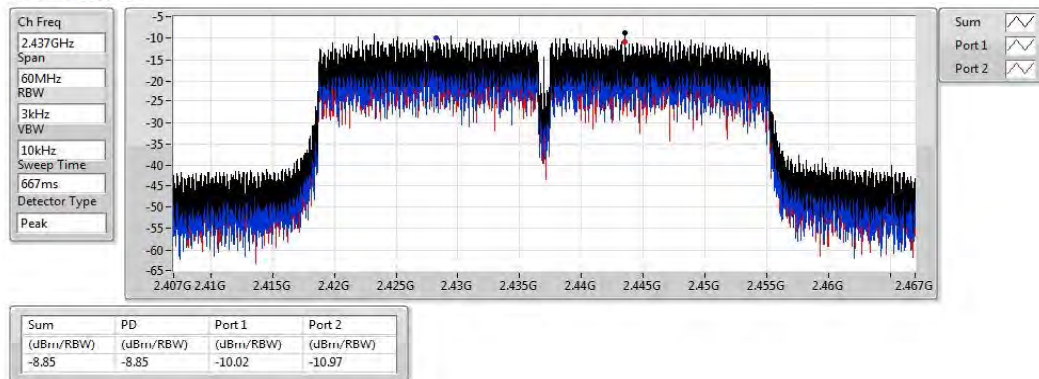
2422MHz



802.11ac VHT40_Nss1,(MCS0)_2TX

PSD

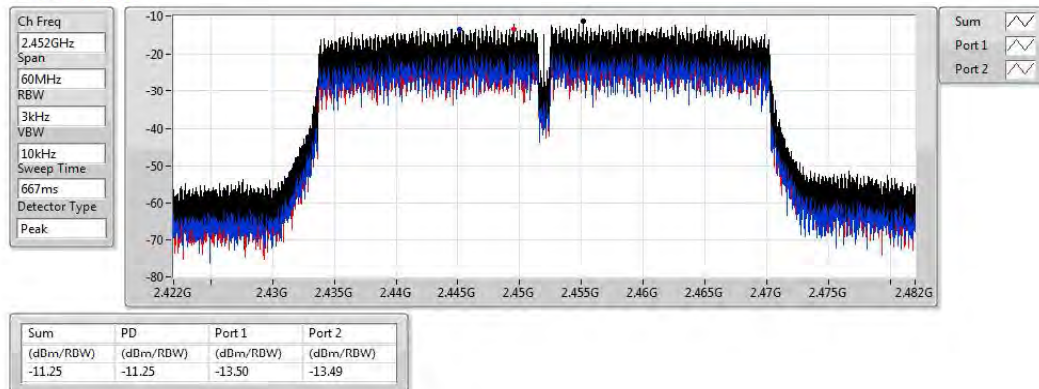
2437MHz



802.11ac VHT40_Nss1,(MCS0)_2TX

PSD

2452MHz

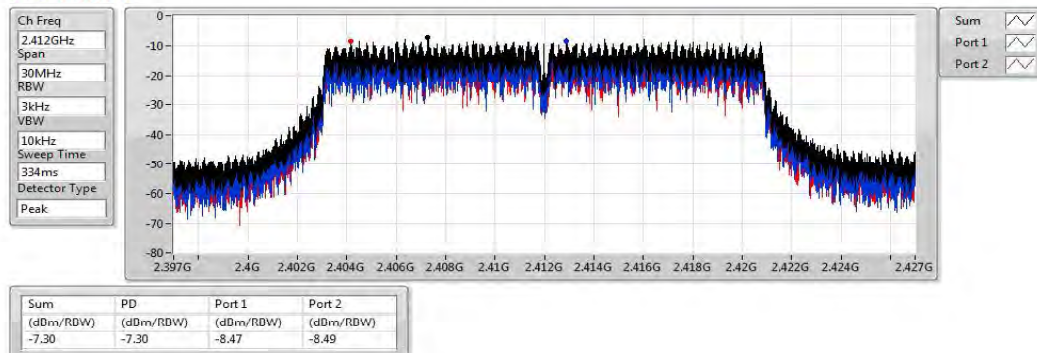




802.11ac VHT20-BF_Nss1,(MCS0)_2TX

PSD

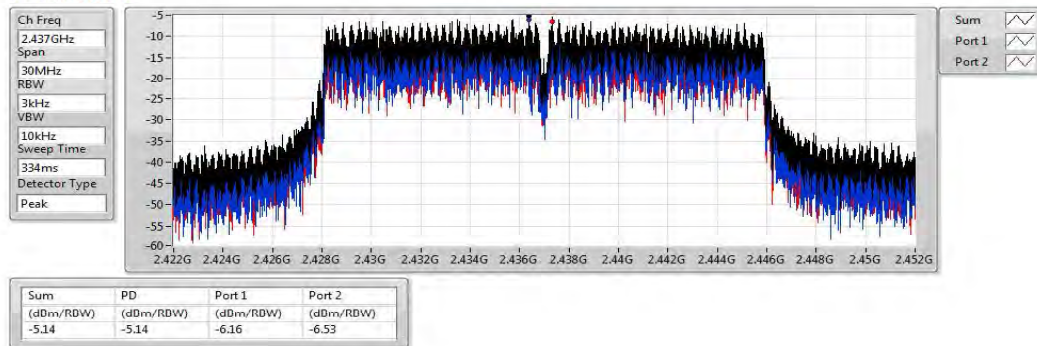
2412MHz



802.11ac VHT20-BF_Nss1,(MCS0)_2TX

PSD

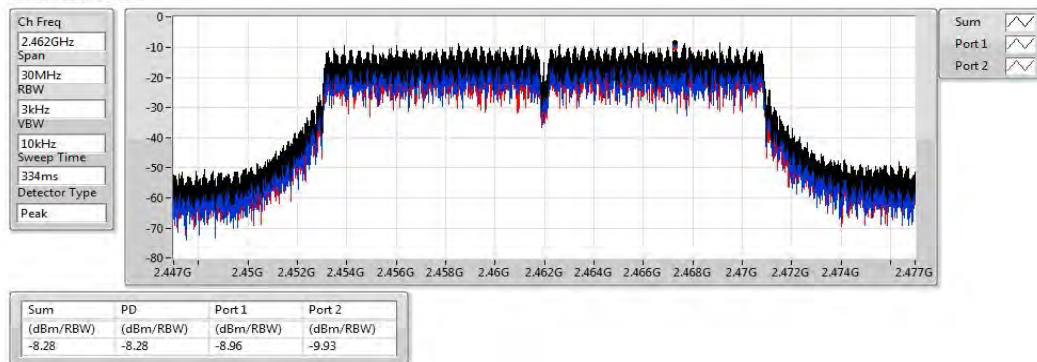
2437MHz

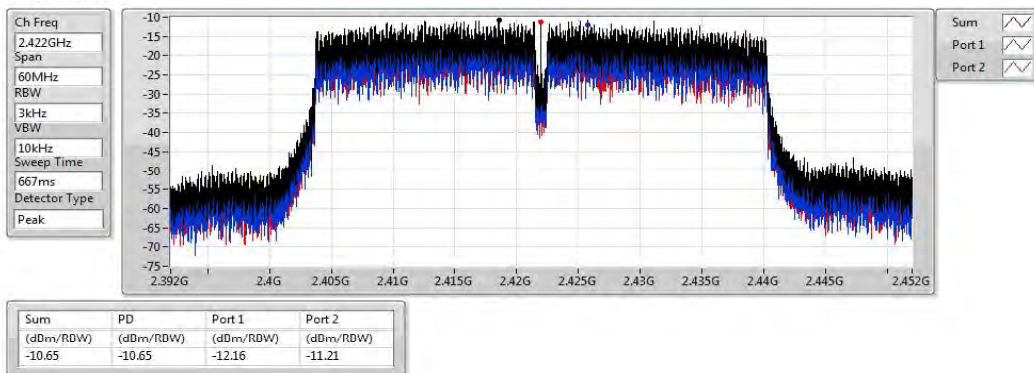
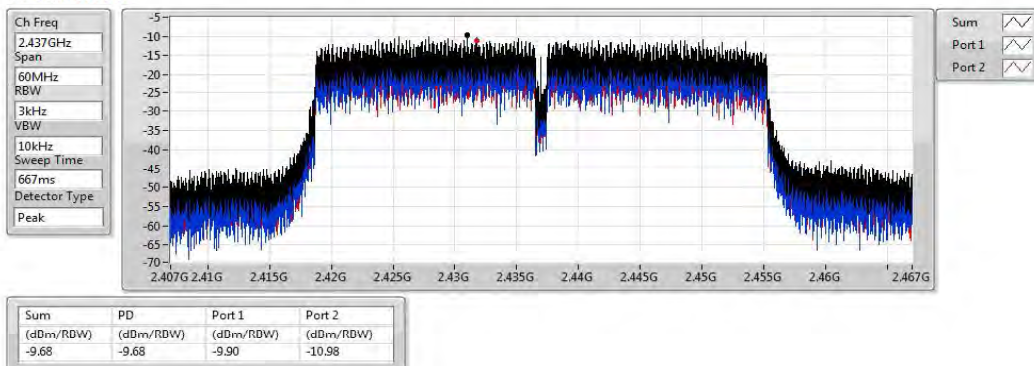
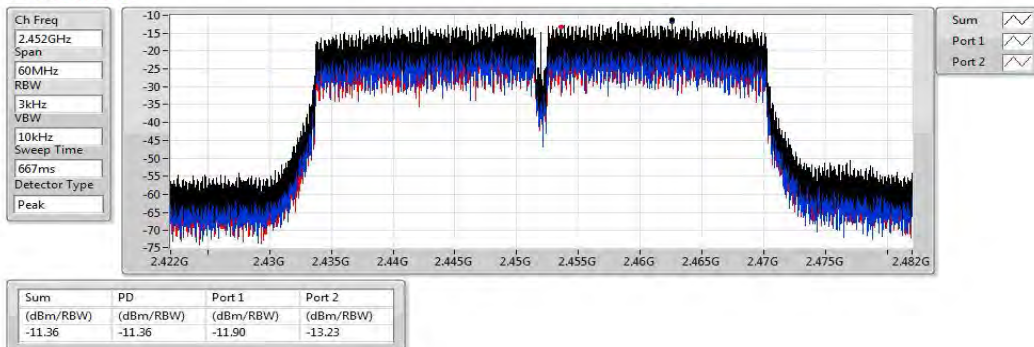


802.11ac VHT20-BF_Nss1,(MCS0)_2TX

PSD

2462MHz



**802.11ac VHT40-BF_Nss1,(MCS0)_2TX****PSD****2422MHz****802.11ac VHT40-BF_Nss1,(MCS0)_2TX****PSD****2437MHz****802.11ac VHT40-BF_Nss1,(MCS0)_2TX****PSD****2452MHz**

3.5 Emissions in Non-restricted Frequency Bands

3.5.1 Emissions in Non-restricted Frequency Bands Limit

Un-restricted Band Emissions Limit	
RF output power procedure	Limit (dB)
Peak output power procedure	20
Average output power procedure	30
Note 1: If the peak output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum measured in-band peak PSD level. Note 2: If the average output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the power in any 100 kHz outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum measured in-band average PSD level.	

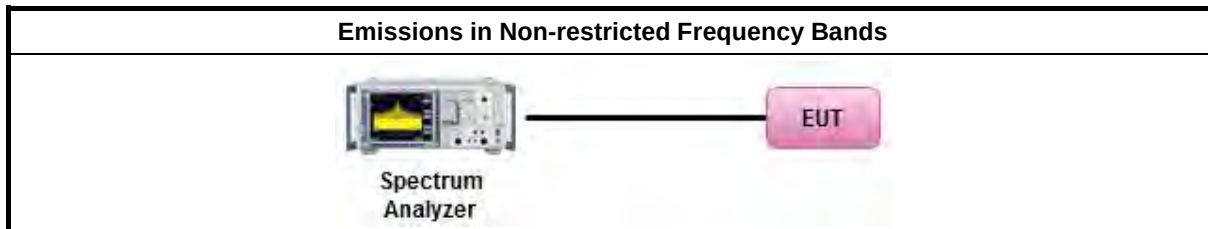
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

Test Method
Refer as FCC KDB 558074, clause 11 for unwanted emissions into non-restricted bands.

3.5.4 Test Setup





3.5.5 Test Result of Emissions in Non-restricted Frequency Bands

Summary

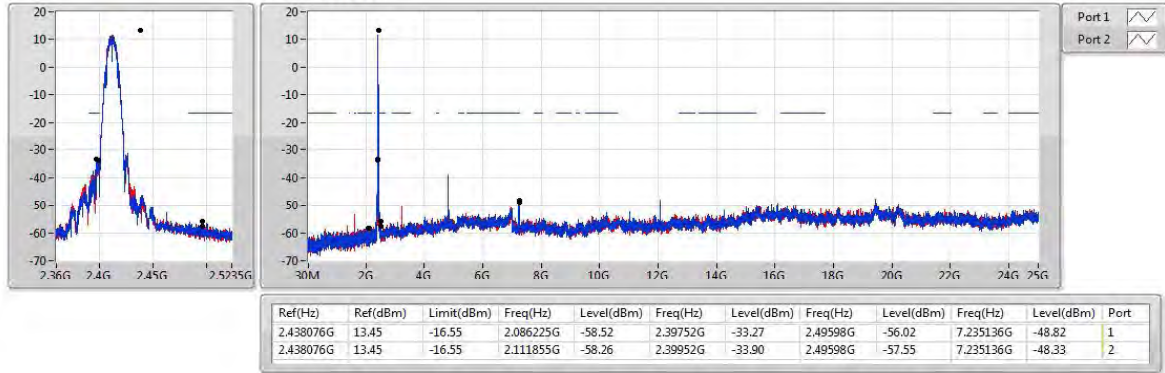
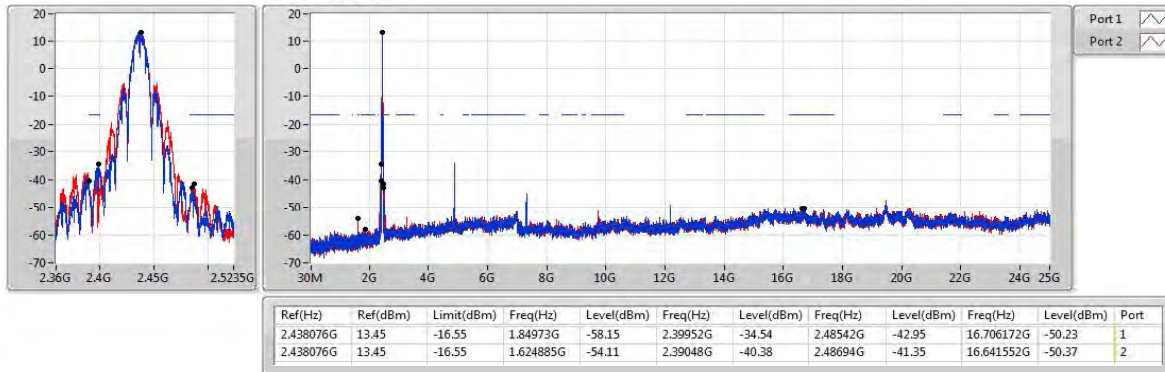
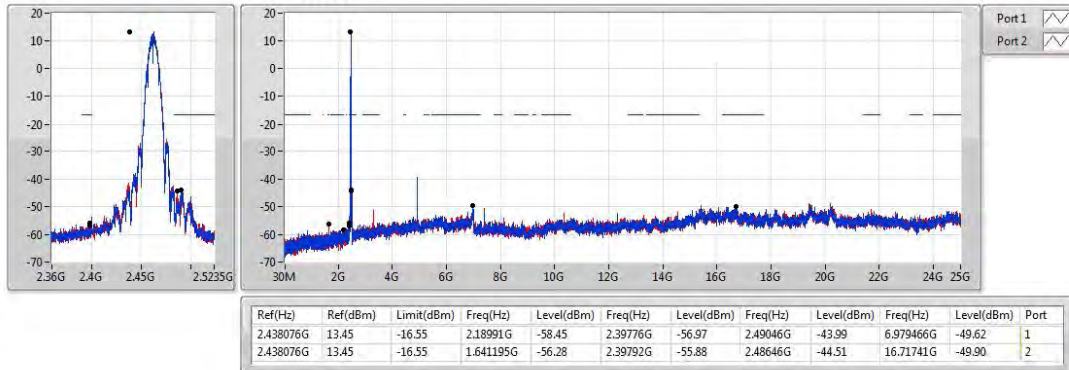
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
802.11ac VHT40-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2.4-2.4835GHz	Pass	2.425718G	2.12	-27.88	2.12077G	-58.50	2.39968G	-32.63	2.48366G	-43.19	16.319879G	-49.18	2

Result

Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
802.11b_(1Mbps)_2TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	2.438076G	13.45	-16.55	2.086225G	-58.52	2.39752G	-33.27	2.49598G	-56.02	7.235136G	-48.82	1
2412MHz	Pass	2.438076G	13.45	-16.55	2.111855G	-58.26	2.39952G	-33.90	2.49598G	-57.55	7.235136G	-48.33	2
2437MHz	Pass	2.438076G	13.45	-16.55	1.84973G	-58.15	2.39952G	-34.54	2.48542G	-42.95	16.706172G	-50.23	1
2437MHz	Pass	2.438076G	13.45	-16.55	1.624885G	-54.11	2.39048G	-40.38	2.48694G	-41.35	16.641552G	-50.37	2
2462MHz	Pass	2.438076G	13.45	-16.55	2.18991G	-58.45	2.39776G	-56.97	2.49046G	-43.99	6.979466G	-49.62	1
2462MHz	Pass	2.438076G	13.45	-16.55	1.641195G	-56.28	2.39792G	-55.88	2.48646G	-44.51	16.71741G	-49.90	2
802.11g_(6Mbps)_2TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	2.432064G	12.48	-17.52	2.30408G	-57.91	2.3976G	-25.69	2.49598G	-55.14	16.703362G	-50.47	1
2412MHz	Pass	2.432064G	12.48	-17.52	1.86371G	-58.57	2.39952G	-24.16	2.49598G	-56.16	3.214652G	-48.92	2
2437MHz	Pass	2.432064G	12.48	-17.52	2.305245G	-58.14	2.39984G	-28.83	2.48406G	-37.68	16.354976G	-50.44	1
2437MHz	Pass	2.432064G	12.48	-17.52	2.309905G	-57.79	2.3996G	-27.46	2.48622G	-33.85	16.703362G	-49.74	2
2462MHz	Pass	2.432064G	12.48	-17.52	1.995355G	-58.48	2.39992G	-53.80	2.48446G	-36.22	16.450501G	-50.47	1
2462MHz	Pass	2.432064G	12.48	-17.52	1.80546G	-58.39	2.39584G	-54.60	2.4839G	-35.47	16.380262G	-50.40	2
802.11ac VHT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	2.432064G	13.27	-16.73	2.114185G	-58.04	2.39704G	-31.71	2.49598G	-55.15	24.704996G	-49.66	1
2412MHz	Pass	2.432064G	13.27	-16.73	1.911475G	-57.09	2.39976G	-31.30	2.49134G	-56.17	3.214652G	-48.97	2
2437MHz	Pass	2.432064G	13.27	-16.73	1.932445G	-58.18	2.39856G	-26.78	2.48422G	-36.63	16.694933G	-50.42	1
2437MHz	Pass	2.432064G	13.27	-16.73	868.8M	-58.47	2.39976G	-24.75	2.48654G	-35.36	16.557265G	-49.92	2
2462MHz	Pass	2.432064G	13.27	-16.73	1.729735G	-58.14	2.3992G	-53.89	2.48382G	-37.58	6.999133G	-50.94	1
2462MHz	Pass	2.432064G	13.27	-16.73	1.97089G	-56.54	2.39456G	-54.47	2.48358G	-36.10	3.282082G	-48.95	2
802.11ac VHT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2422MHz	Pass	2.428223G	4.14	-25.86	2.064665G	-58.52	2.39696G	-39.11	2.49598G	-51.97	16.395602G	-50.31	1
2422MHz	Pass	2.428223G	4.14	-25.86	2.188325G	-58.45	2.39792G	-38.01	2.48478G	-53.97	3.228181G	-48.65	2
2437MHz	Pass	2.428223G	4.14	-25.86	2.30168G	-58.42	2.39968G	-31.16	2.48446G	-41.30	16.297443G	-50.38	1
2437MHz	Pass	2.428223G	4.14	-25.86	873.865M	-58.12	2.39744G	-30.79	2.48382G	-39.10	3.247813G	-49.39	2
2452MHz	Pass	2.428223G	4.14	-25.86	1.97192G	-58.39	2.3936G	-49.96	2.48446G	-38.48	16.395602G	-49.90	1
2452MHz	Pass	2.428223G	4.14	-25.86	1.641015G	-58.53	2.3968G	-50.39	2.48558G	-39.27	17.248189G	-50.60	2
802.11ac VHT20-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	2.430728G	7.36	-22.64	2.30874G	-57.27	2.39712G	-32.35	2.49598G	-52.92	16.433644G	-50.23	1
2412MHz	Pass	2.430728G	7.36	-22.64	1.843905G	-58.13	2.39888G	-30.30	2.4883G	-55.03	3.214652G	-48.54	2
2437MHz	Pass	2.430728G	7.36	-22.64	1.71692G	-57.45	2.3996G	-45.16	2.48446G	-51.59	16.39431G	-50.65	1
2437MHz	Pass	2.430728G	7.36	-22.64	1.767015G	-58.65	2.39824G	-46.06	2.48358G	-52.21	3.248367G	-49.48	2
2462MHz	Pass	2.430728G	7.36	-22.64	2.174765G	-57.23	2.39792G	-53.80	2.4847G	-43.86	16.335309G	-50.67	1
2462MHz	Pass	2.430728G	7.36	-22.64	2.14564G	-57.96	2.39232G	-54.56	2.48382G	-40.45	3.282082G	-50.27	2
802.11ac VHT40-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2422MHz	Pass	2.425718G	2.12	-27.88	2.309695G	-58.22	2.39808G	-34.58	2.48446G	-52.32	16.726541G	-50.10	1



Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2422MHz	Pass	2.425718G	2.12	-27.88	1.844825G	-57.62	2.3984G	-35.58	2.48382G	-52.72	3.228181G	-48.59	2
2437MHz	Pass	2.425718G	2.12	-27.88	2.092145G	-58.40	2.39984G	-36.97	2.48382G	-43.55	16.389993G	-49.73	1
2437MHz	Pass	2.425718G	2.12	-27.88	2.12077G	-58.50	2.39968G	-32.63	2.48366G	-43.19	16.319879G	-49.18	2
2452MHz	Pass	2.425718G	2.12	-27.88	2.199775G	-56.67	2.39968G	-49.24	2.48462G	-42.13	16.681668G	-49.40	1
2452MHz	Pass	2.425718G	2.12	-27.88	1.931845G	-58.31	2.39952G	-50.18	2.48782G	-40.74	16.406821G	-50.15	2

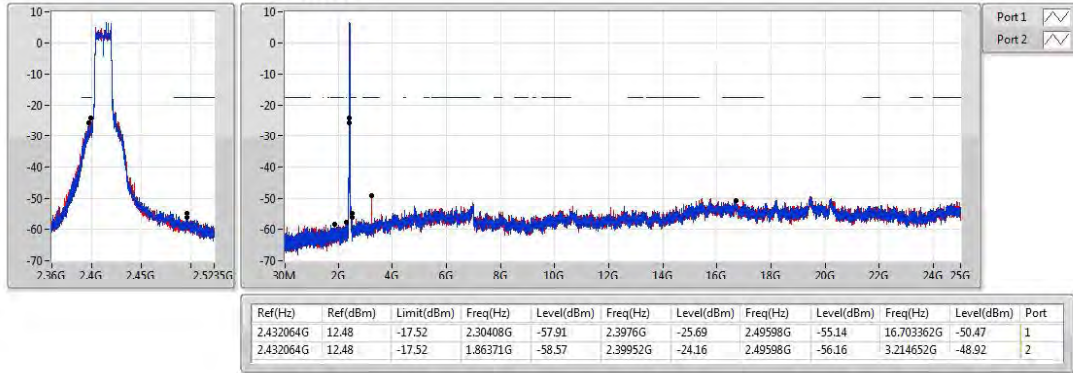
802.11b_(1Mbps)_2TX
CSE NdB
2412MHz

802.11b_(1Mbps)_2TX
CSE NdB
2437MHz

802.11b_(1Mbps)_2TX
CSE NdB
2462MHz




802.11g_(6Mbps)_2TX

CSE NdB

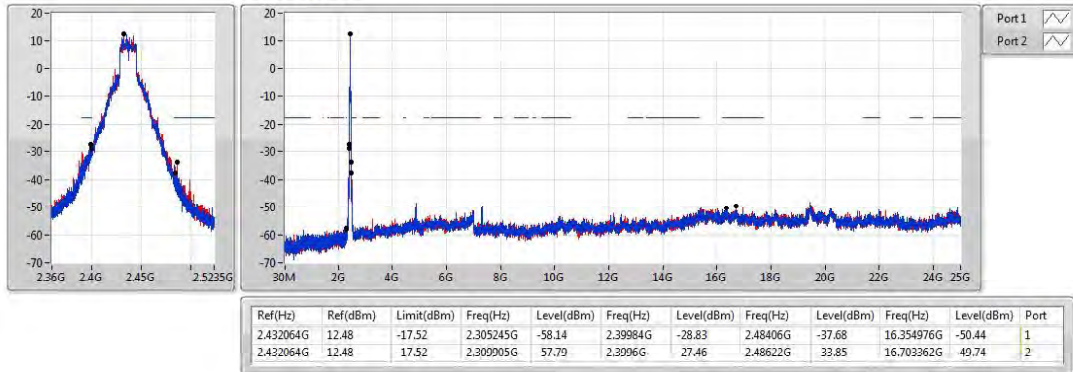
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802.11g_(6Mbps)_2TX

CSE NdB

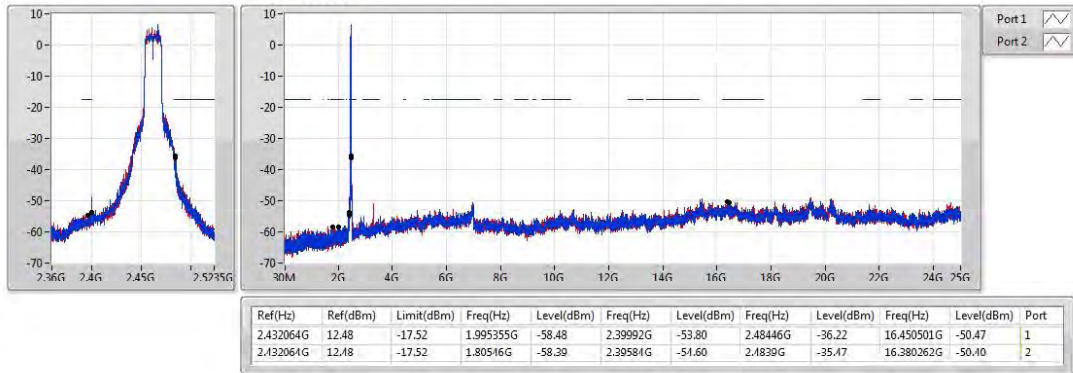
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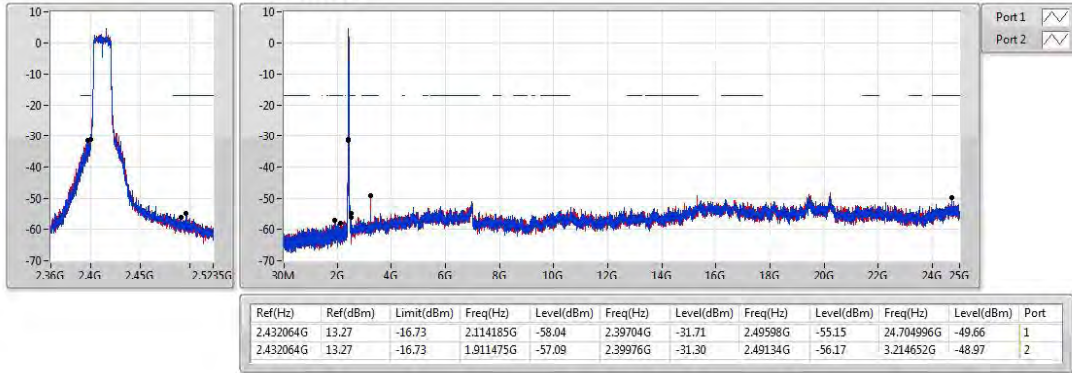
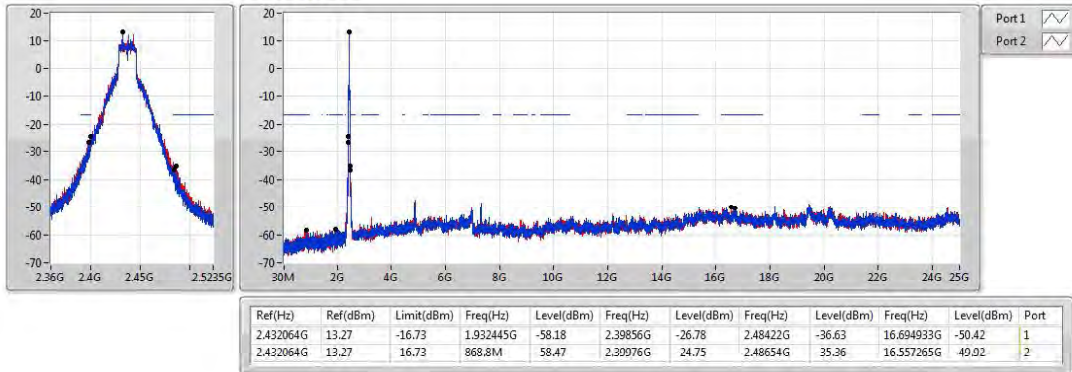
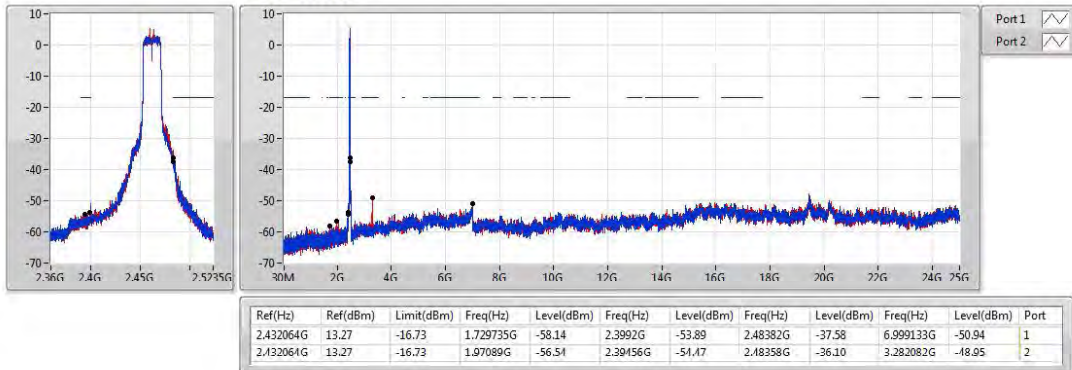


802.11g_(6Mbps)_2TX

CSE NdB

2462MHz



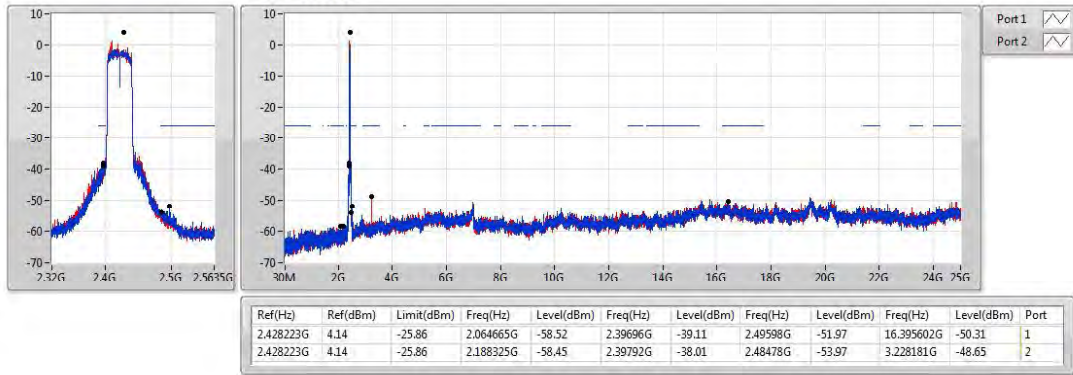
802.11ac VHT20_Nss1,(MCS0)_2TX
CSE NdB
2412MHz

802.11ac VHT20_Nss1,(MCS0)_2TX
CSE NdB
2437MHz

802.11ac VHT20_Nss1,(MCS0)_2TX
CSE NdB
2462MHz




802.11ac VHT40_Nss1,(MCS0)_2TX

CSE NdB

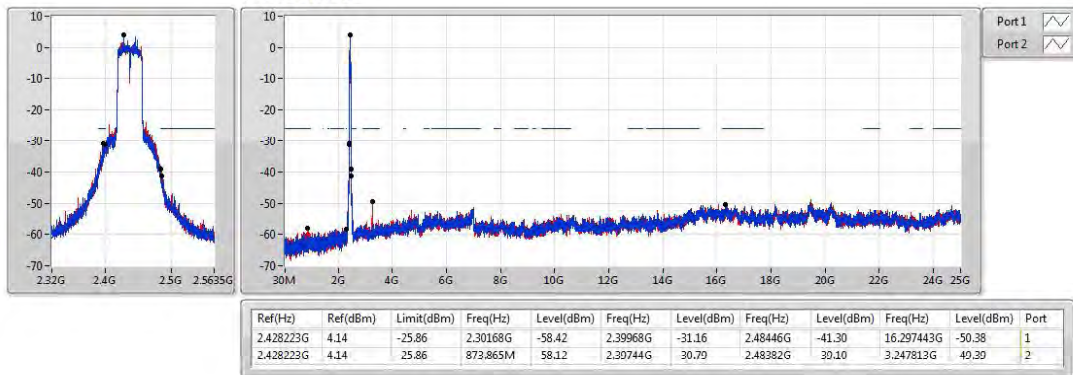
2422MHz



802.11ac VHT40_Nss1,(MCS0)_2TX

CSE NdB

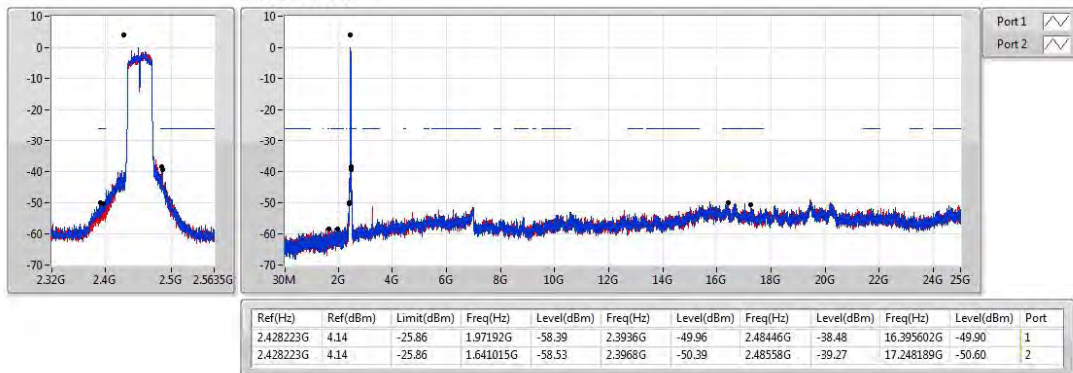
2437MHz

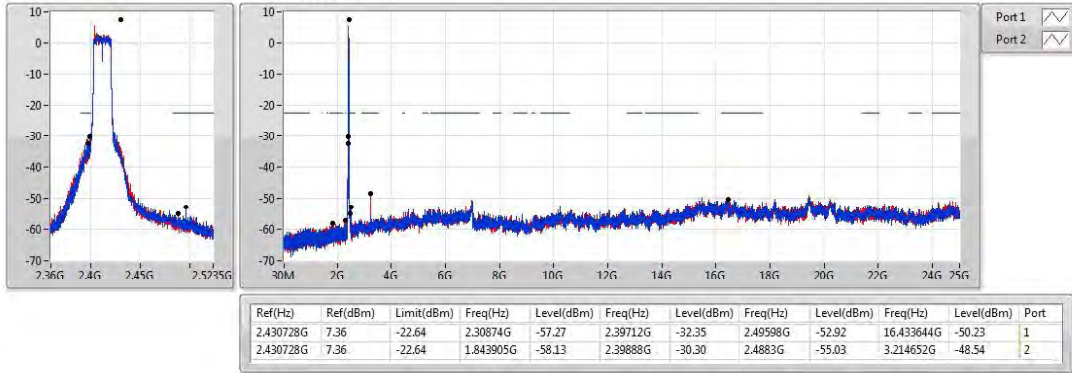
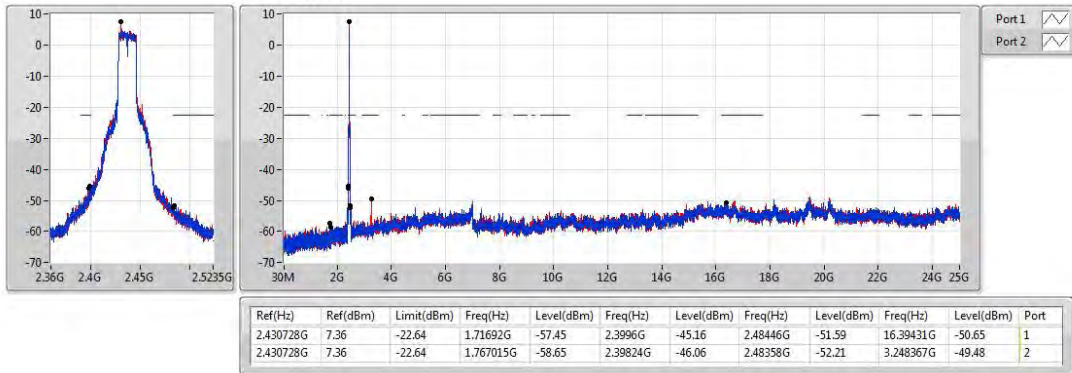
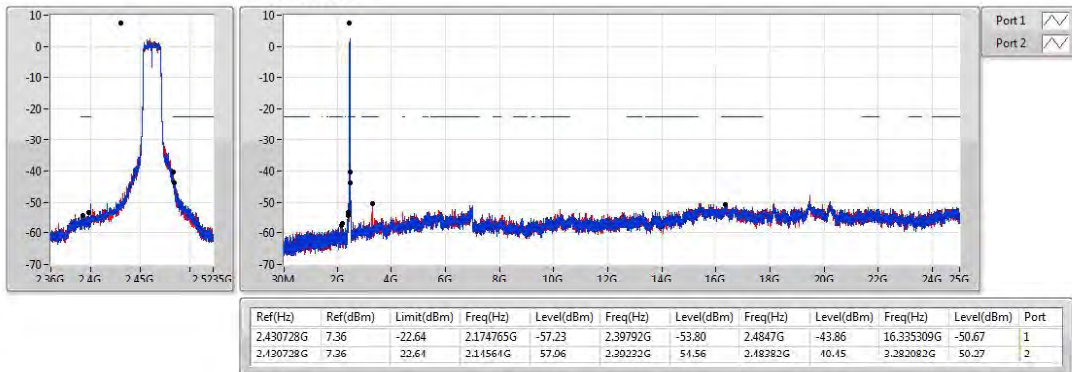


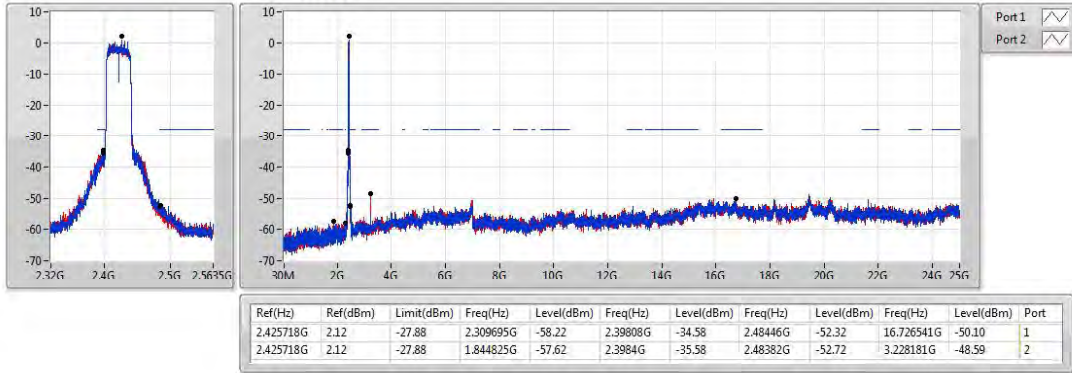
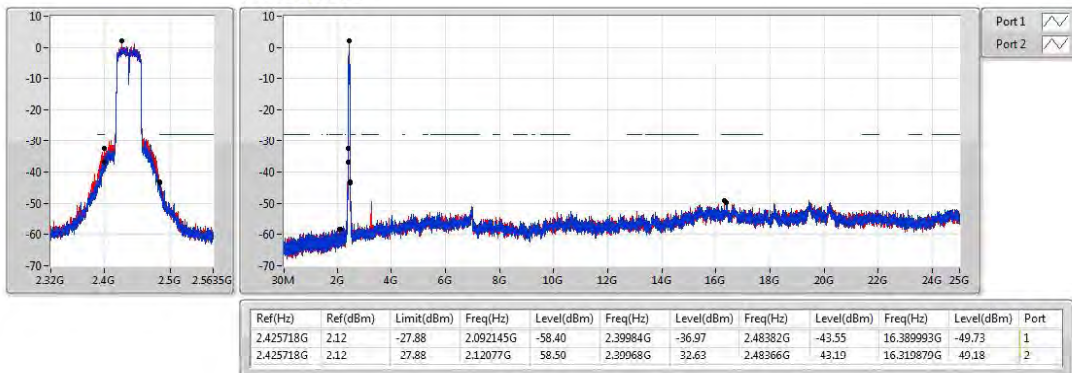
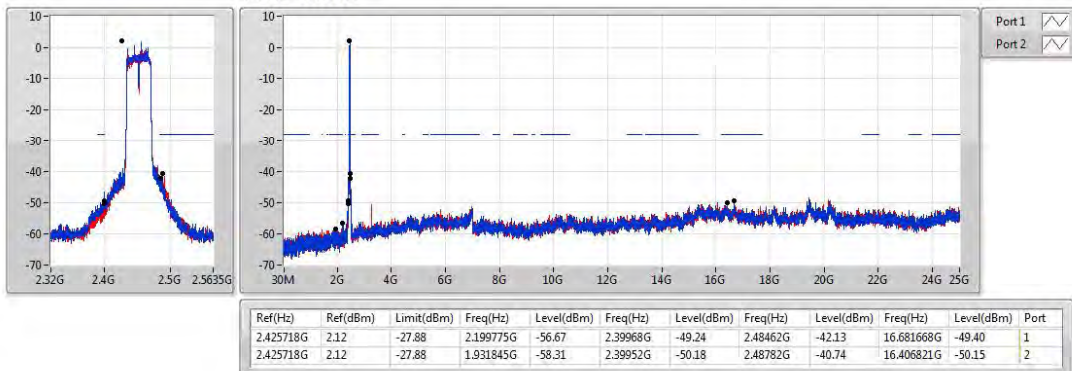
802.11ac VHT40_Nss1,(MCS0)_2TX

CSE NdB

2452MHz



**802.11ac VHT20-BF_Nss1,(MCS0)_2TX****CSE NdB****2412MHz****802.11ac VHT20-BF_Nss1,(MCS0)_2TX****CSE NdB****2437MHz****802.11ac VHT20-BF_Nss1,(MCS0)_2TX****CSE NdB****2462MHz**

**802.11ac VHT40-BF_Nss1,(MCS0)_2TX****CSE NdB****2422MHz****802.11ac VHT40-BF_Nss1,(MCS0)_2TX****CSE NdB****2437MHz****802.11ac VHT40-BF_Nss1,(MCS0)_2TX****CSE NdB****2452MHz**

3.6 Emissions in Restricted Frequency Bands

3.6.1 Emissions in Restricted Frequency Bands Limit

Restricted Band Emissions 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.

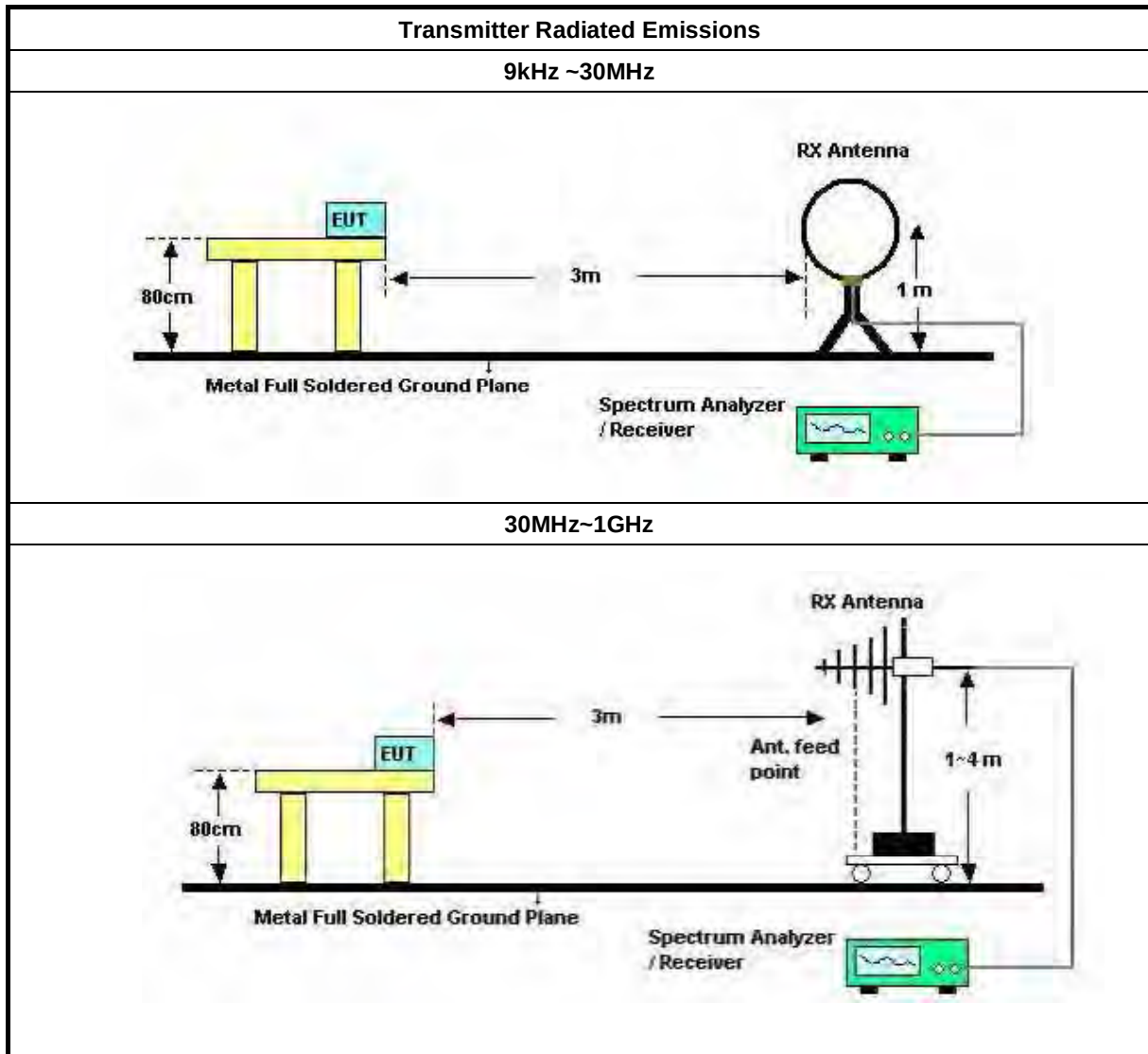
3.6.2 Measuring Instruments

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

**3.6.3 Test Procedures**

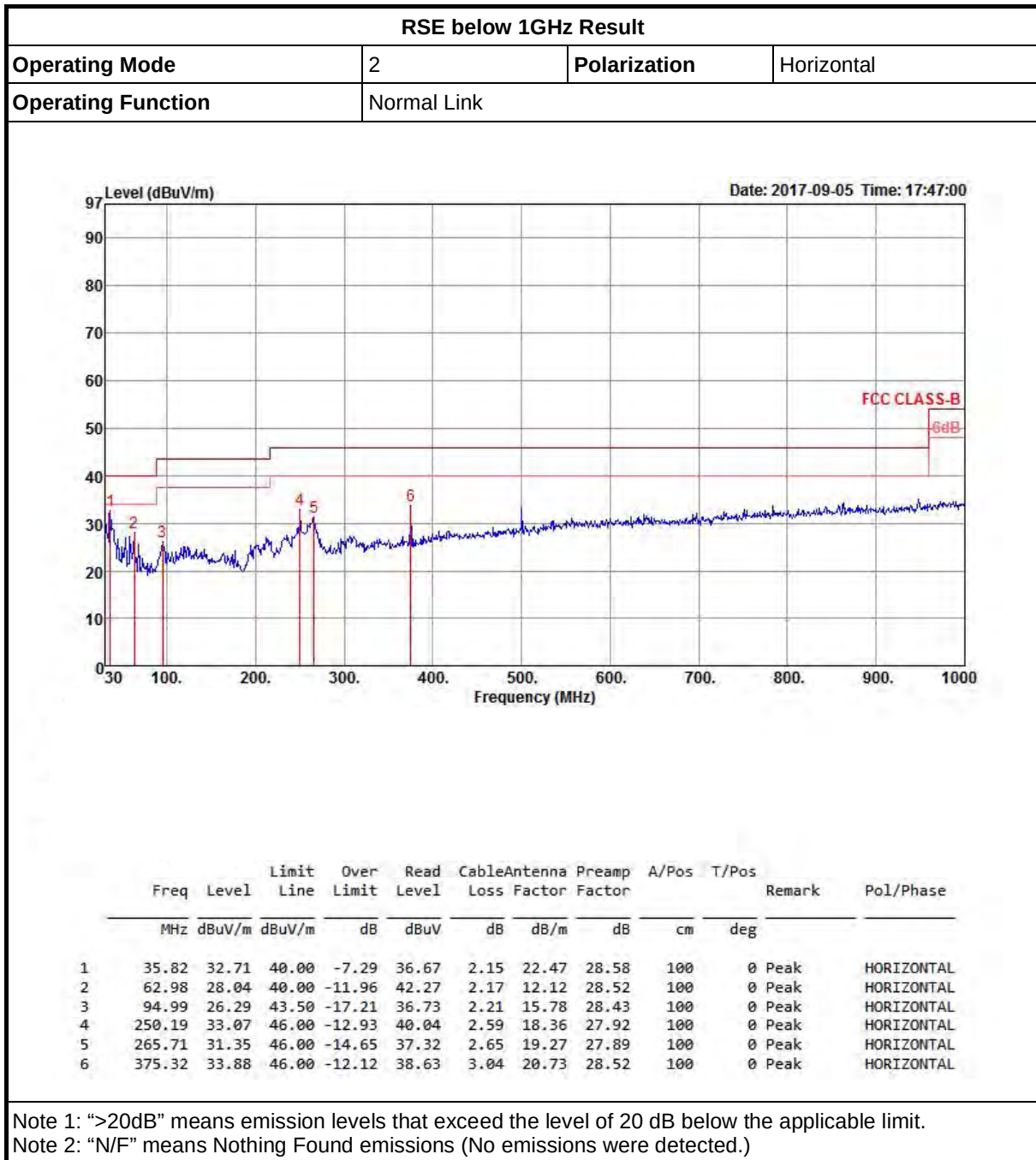
Test Method	
▪ The average emission levels shall be measured in [duty cycle $\geq$ 98 or duty factor].	
▪ Refer as ANSI C63.10, clause 6.9.2.2 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.	
▪ For the transmitter unwanted emissions shall be measured using following options below:	
	▪ Refer as FCC KDB 558074, clause 12 for unwanted emissions into restricted bands.
	☐ Refer as FCC KDB 558074, clause 12.2.5.1 Option 1 (trace averaging for duty cycle $\geq$ 98%)
	☐ Refer as FCC KDB 558074, clause 12.2.5.2 Option 2 (trace averaging + duty factor).
	☒ Refer as FCC KDB 558074, clause 12.2.5.3 Option 3 (Reduced VBW $\geq$ 1/T).
	☐ 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 558074, clause 12.2.4 measurement procedure peak limit.
▪ For the transmitter band-edge emissions shall be measured using following options below:	
	▪ Refer as FCC KDB 558074 clause 13.1, When the performing peak or average radiated measurements, emissions within 2 MHz of the authorized band edge may be measured using the marker-delta method described below.
	▪ Refer as FCC KDB 558074, clause 13.2 (ANSI C63.10, clause 6.9.3) for marker-delta method for band-edge measurements.
	▪ Refer as FCC KDB 558074, clause 13.3 for narrower resolution bandwidth (100kHz) using the band power and summing the spectral levels (i.e., 1 MHz).
▪ For conducted and cabinet radiation measurement, refer as FCC KDB 558074, clause 12.2.2.	
	▪ For conducted unwanted emissions into restricted bands (absolute emission limits). Devices with multiple transmit chains using options given below: (1) Measure and sum the spectra across the outputs or (2) Measure and add 10 log(N) dB
	▪ For FCC KDB 662911 The methodology described here may overestimate array gain, thereby resulting in apparent failures to satisfy the out-of-band limits even if the device is actually compliant. In such cases, compliance may be demonstrated by performing radiated tests around the frequencies at which the apparent failures occurred.

3.6.4 Test Setup



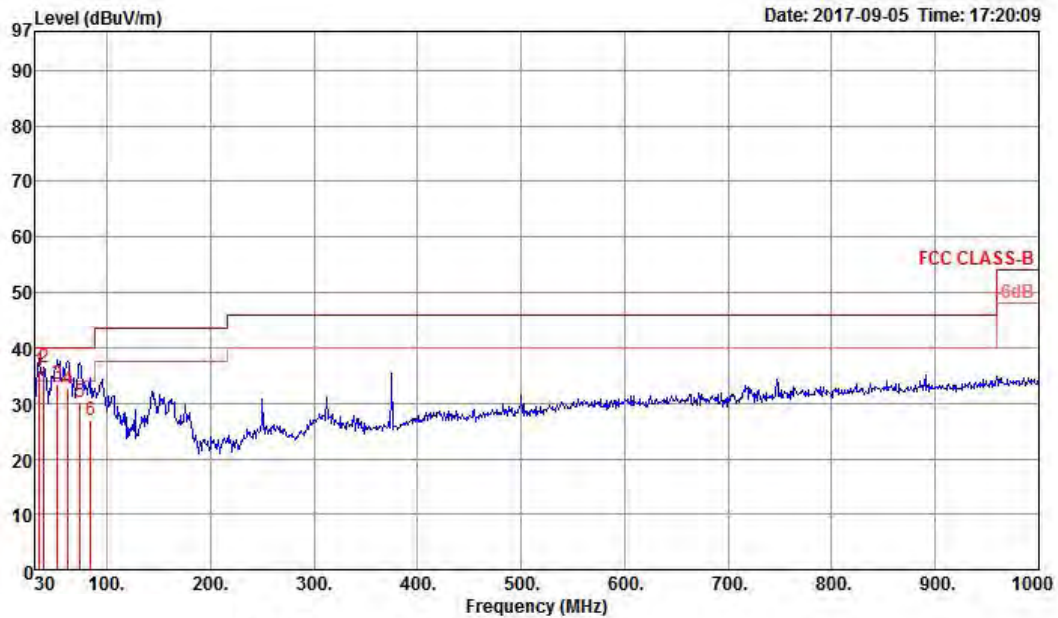


3.6.6 Test Result of Transmitter Radiated Unwanted Emissions



**RSE below 1GHz Result**

Operating Mode	2	Polarization	Vertical
Operating Function	Normal Link		



	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	34.85	35.89	40.00	-4.11	39.20	2.16	23.11	28.58	227	141 QP	VERTICAL
2	38.73	36.53	40.00	-3.47	42.44	2.12	20.55	28.58	100	221 Peak	VERTICAL
3	52.31	33.48	40.00	-6.52	46.40	2.17	13.47	28.56	100	74 QP	VERTICAL
4	62.01	32.76	40.00	-7.24	47.00	2.17	12.11	28.52	145	8 QP	VERTICAL
5	73.65	30.22	40.00	-9.78	44.10	2.19	12.42	28.49	100	8 QP	VERTICAL
6	84.32	26.95	40.00	-13.05	39.40	2.20	13.81	28.46	100	196 QP	VERTICAL

Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)

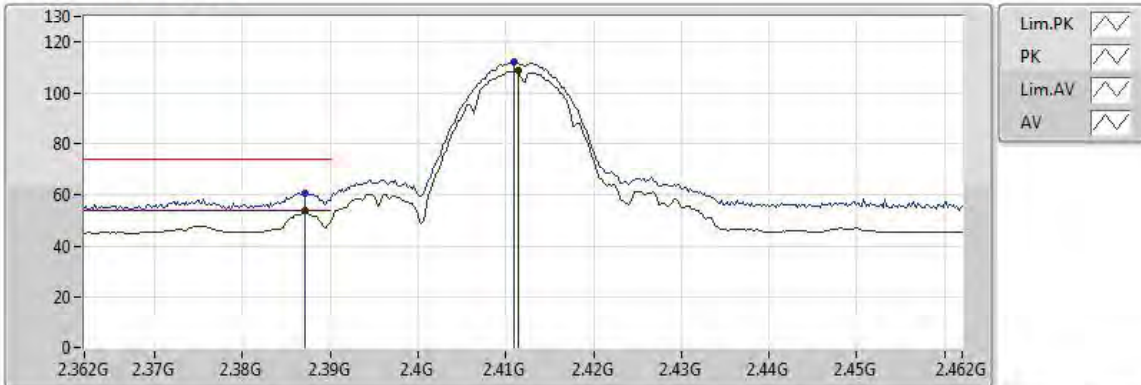
**RSE Above 1GHz Result
Summary**

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Pol. (H/V)	Azimuth (°)	Height (m)	Comments
802.11ac VHT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-	-	-
2.4-2.4835GHz	Pass	AV	2.483502G	53.98	54.00	-0.02	33.19	3	V	86	1.55	-



802.11b_(1Mbps)_2TX

2412MHz_TX



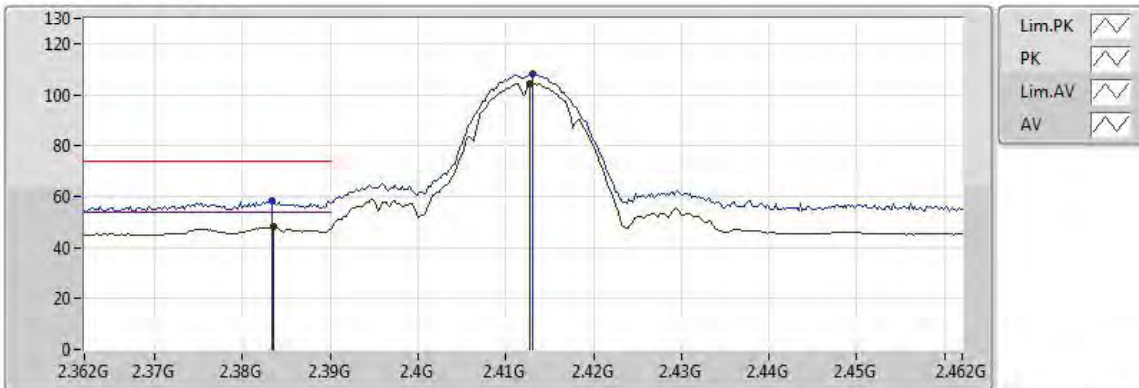
20170829
04-M-0
Setting 21
EUT Y 2TX
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.3872G	53.75	54.00	-0.25	33.15	3	V	270	1.50	-
AV	2.4114G	108.64	Inf	-Inf	33.15	3	V	270	1.50	-
PK	2.3872G	60.52	74.00	-13.48	33.15	3	V	270	1.50	-
PK	2.411G	112.23	Inf	-Inf	33.15	3	V	270	1.50	-



802.11b_(1Mbps)_2TX

2412MHz_TX



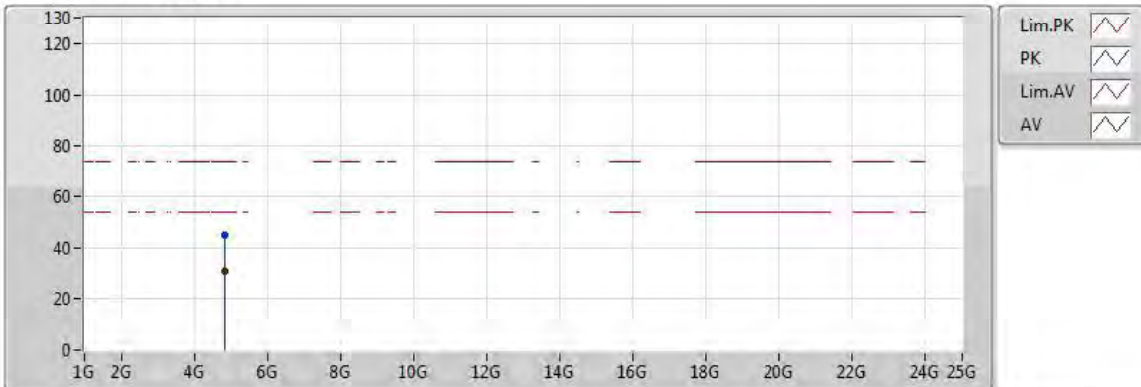
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04-M-0
Setting 21
EUT Y 2TX
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.3836G	47.94	54.00	-6.06	33.15	3	H	206	1.50	-
AV	2.4128G	104.37	Inf	-Inf	33.15	3	H	206	1.50	-
PK	2.3834G	58.35	74.00	-15.65	33.15	3	H	206	1.50	-
PK	2.413G	108.34	Inf	-Inf	33.15	3	H	206	1.50	-



802.11b_(1Mbps)_2TX

2412MHz_TX

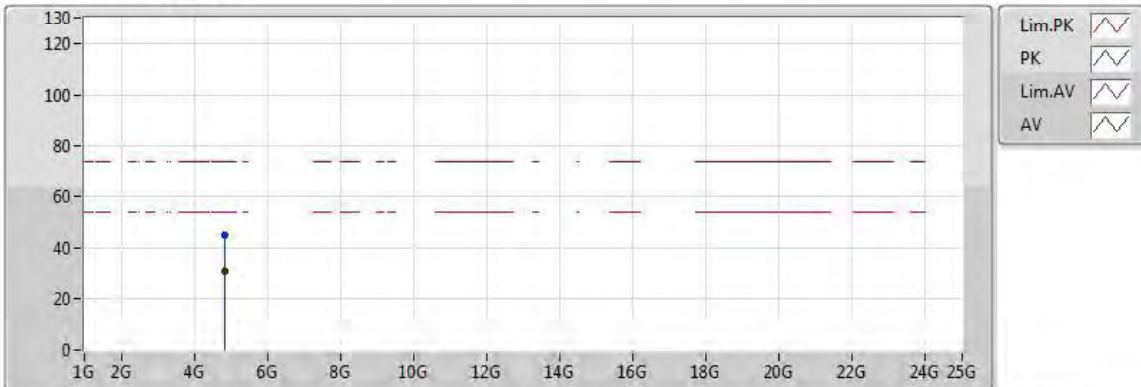


Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.82582G	30.68	54.00	-23.32	4.19	3	V	94	1.50	-
PK	4.81982G	44.68	74.00	-29.32	4.17	3	V	94	1.50	-



802.11b_(1Mbps)_2TX

2412MHz_TX

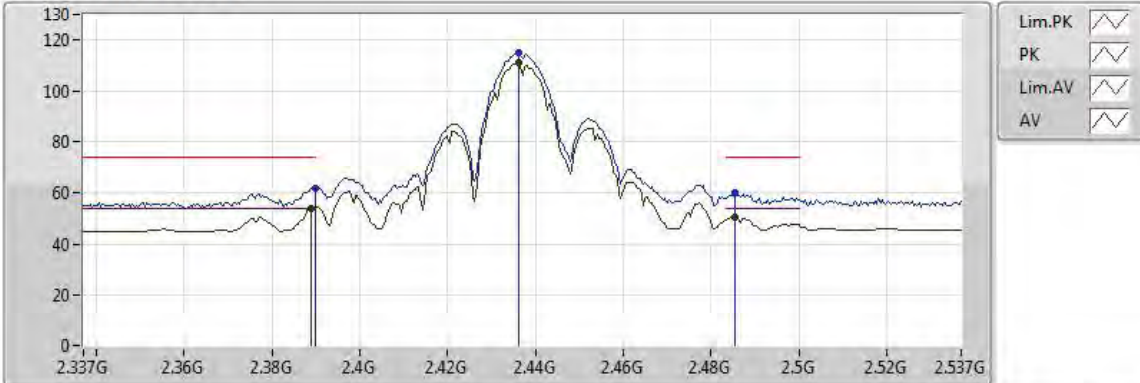


20170829
04-M-0
Setting 21
EUT Y 2TX
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.82824G	30.67	54.00	-23.33	4.20	3	H	190	1.96	-
PK	4.8262G	44.59	74.00	-29.41	4.19	3	H	190	1.96	-

802.11b_(1Mbps)_2TX

2437MHz_TX

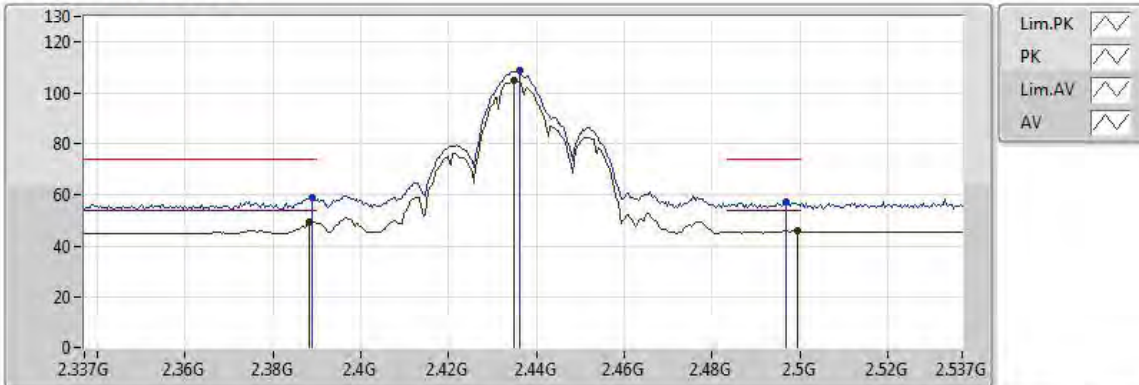


20170829
04-M-0
Setting 24
EUT Y 2TX
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.389G	53.94	54.00	-0.06	33.15	3	V	156	1.68	-
AV	2.4362G	110.80	Inf	-Inf	33.16	3	V	156	1.68	-
AV	2.4854G	50.57	54.00	-3.43	33.19	3	V	156	1.68	-
PK	2.3898G	61.66	74.00	-12.34	33.15	3	V	156	1.68	-
PK	2.4362G	114.67	Inf	-Inf	33.16	3	V	156	1.68	-
PK	2.4854G	59.97	74.00	-14.03	33.19	3	V	156	1.68	-

802.11b_(1Mbps)_2TX

2437MHz_TX



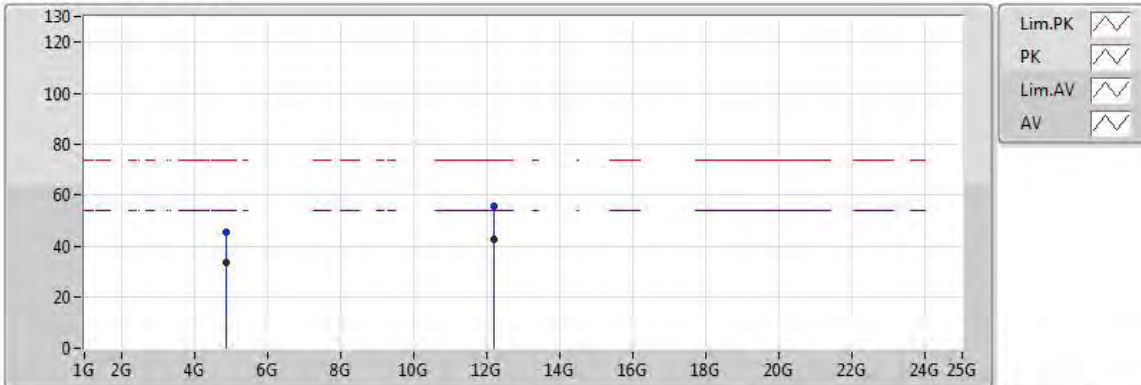
20170829
04-M-0
Setting 24
EUT Y 2TX
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.3882G	49.36	54.00	-4.64	33.15	3	H	321	1.97	-
AV	2.435G	104.91	Inf	-Inf	33.16	3	H	321	1.97	-
AV	2.4994G	45.97	54.00	-8.03	33.20	3	H	321	1.97	-
PK	2.389G	58.60	74.00	-15.40	33.15	3	H	321	1.97	-
PK	2.4362G	108.49	Inf	-Inf	33.16	3	H	321	1.97	-
PK	2.497G	56.92	74.00	-17.08	33.20	3	H	321	1.97	-



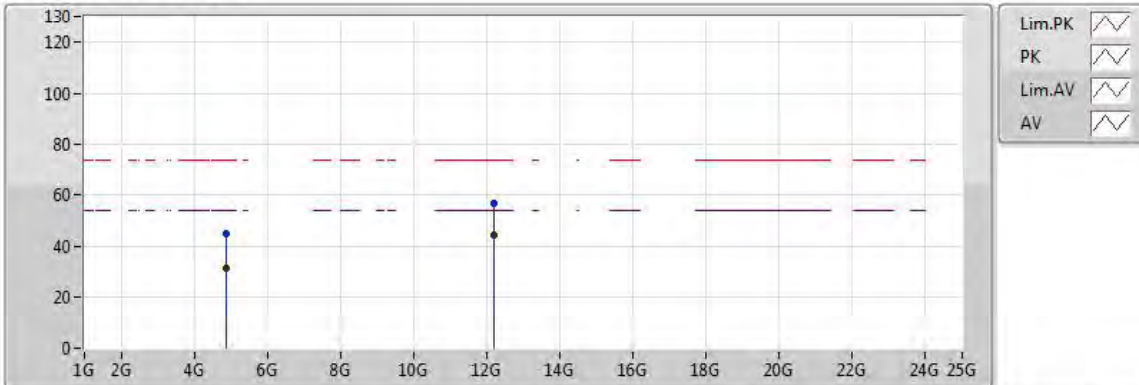
802.11b_(1Mbps)_2TX

2437MHz_TX



20170829
04-M-0
Setting 24
EUT Y 2TX
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.87404G	33.65	54.00	-20.35	4.34	3	V	336	1.03	-
AV	12.18192G	42.69	54.00	-11.31	16.76	3	V	43	1.62	-
PK	4.87384G	45.21	74.00	-28.79	4.34	3	V	336	1.03	-
PK	12.18084G	55.72	74.00	-18.28	16.76	3	V	43	1.62	-

**802.11b_(1Mbps)_2TX****2437MHz_TX**

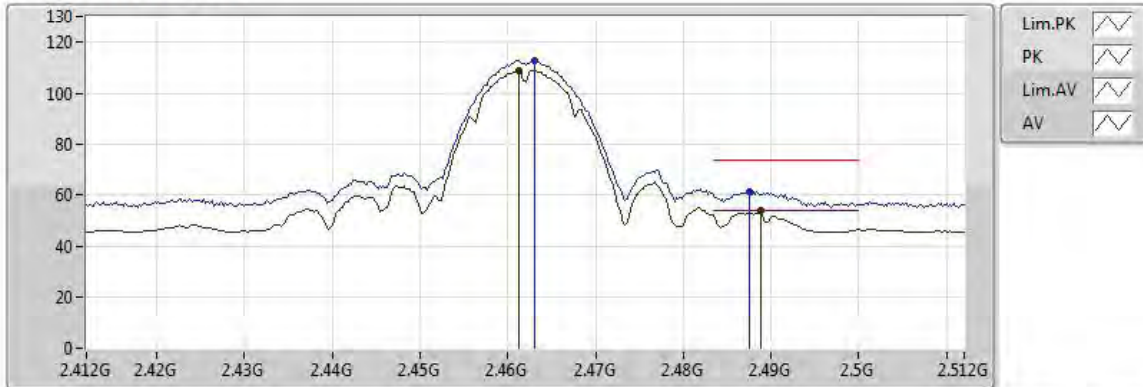
20170829
04-M-0
Setting 24
EUT Y 2TX
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.8738G	31.50	54.00	-22.50	4.34	3	H	221	1.68	-
AV	12.1822G	44.32	54.00	-9.68	16.76	3	H	221	1.68	-
PK	4.88176G	44.74	74.00	-29.26	4.36	3	H	241	1.78	-
PK	12.18276G	56.42	74.00	-17.58	16.76	3	H	241	1.78	-



802.11b_(1Mbps)_2TX

2462MHz_TX

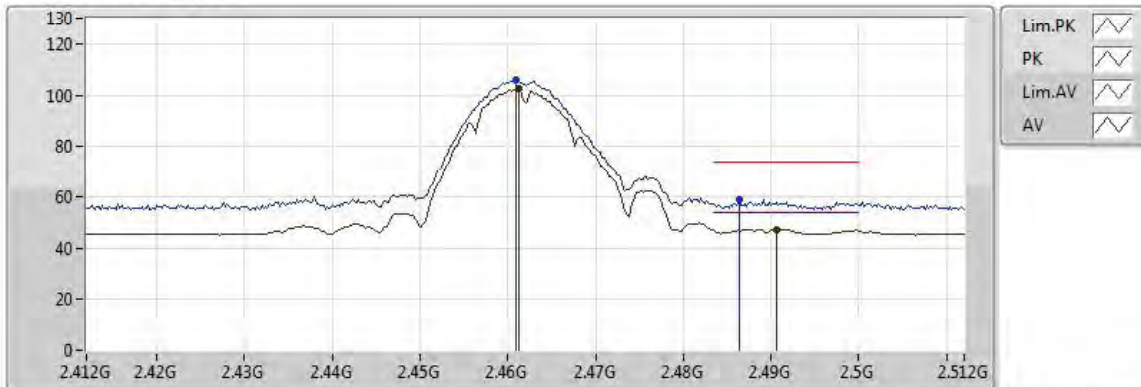


Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.4612G	108.84	Inf	-Inf	33.18	3	V	163	1.87	-
AV	2.4888G	53.96	54.00	-0.04	33.19	3	V	163	1.87	-
PK	2.463G	112.74	Inf	-Inf	33.18	3	V	163	1.87	-
PK	2.4876G	60.88	74.00	-13.12	33.19	3	V	163	1.87	-



802.11b_(1Mbps)_2TX

2462MHz_TX



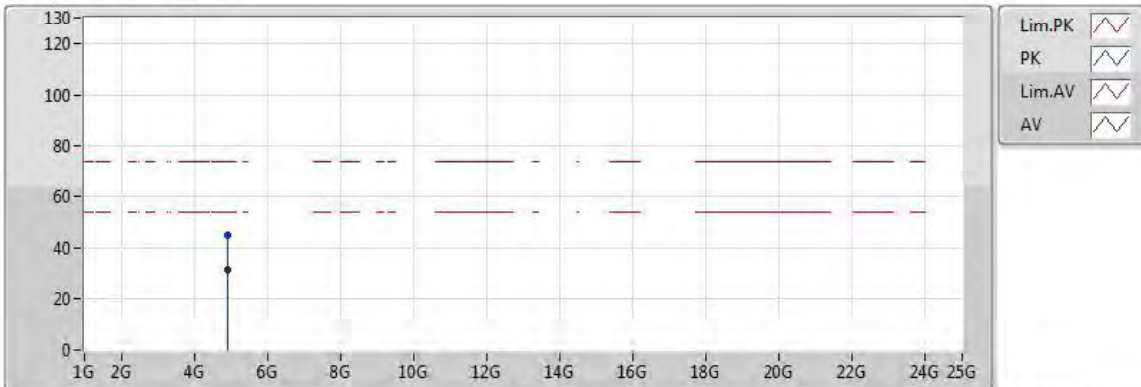
20170829
04-M-0
Setting 21.5
EUT Y 2TX
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.4612G	102.31	Inf	-Inf	33.18	3	H	306	1.51	-
AV	2.4906G	47.23	54.00	-6.77	33.19	3	H	306	1.51	-
PK	2.461G	106.05	Inf	-Inf	33.18	3	H	306	1.51	-
PK	2.4864G	59.03	74.00	-14.97	33.19	3	H	306	1.51	-



802.11b_(1Mbps)_2TX

2462MHz_TX



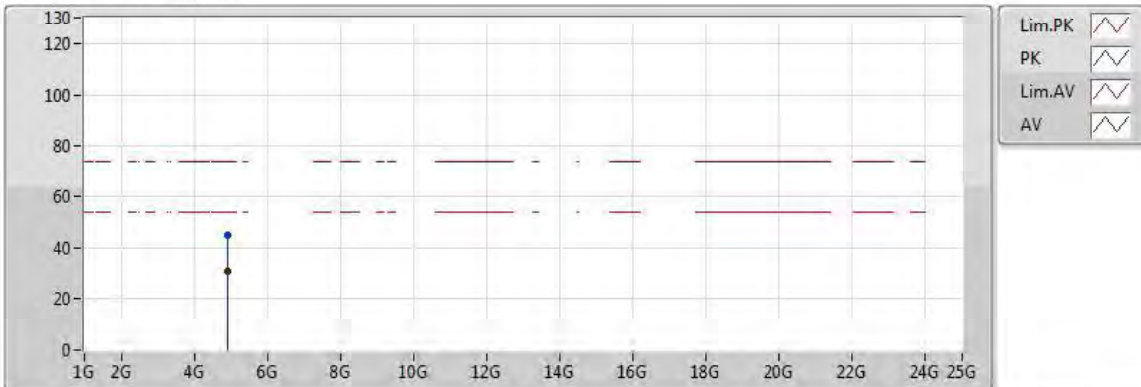
20170829
04-M-0
Setting 21.5
EUT Y 2TX
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.92392G	31.29	54.00	-22.71	4.49	3	V	79	1.86	-
PK	4.92384G	44.89	74.00	-29.11	4.49	3	V	79	1.86	-



802.11b_(1Mbps)_2TX

2462MHz_TX



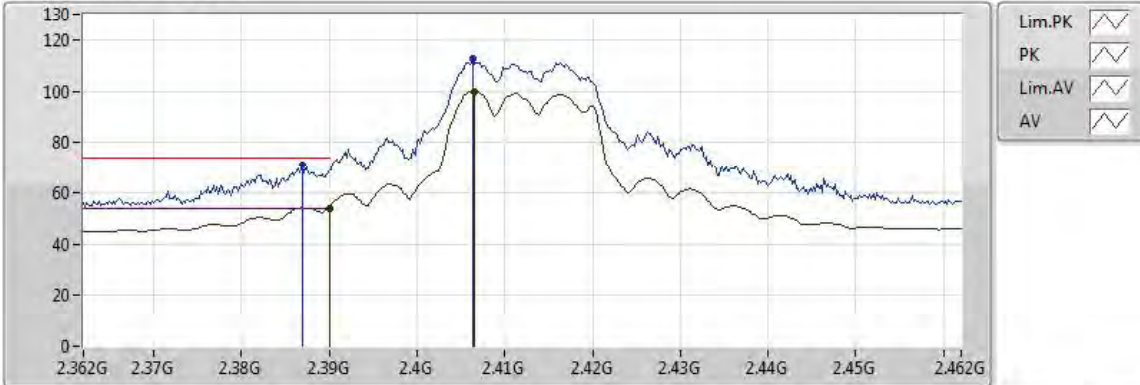
20170829
04-M-0
Setting 21.5
EUT Y 2TX
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.9238G	30.83	54.00	-23.17	4.49	3	H	4	1.94	-
PK	4.91616G	44.84	74.00	-29.16	4.47	3	H	4	1.94	-



802.11g_(6Mbps)_2TX

2412MHz_TX



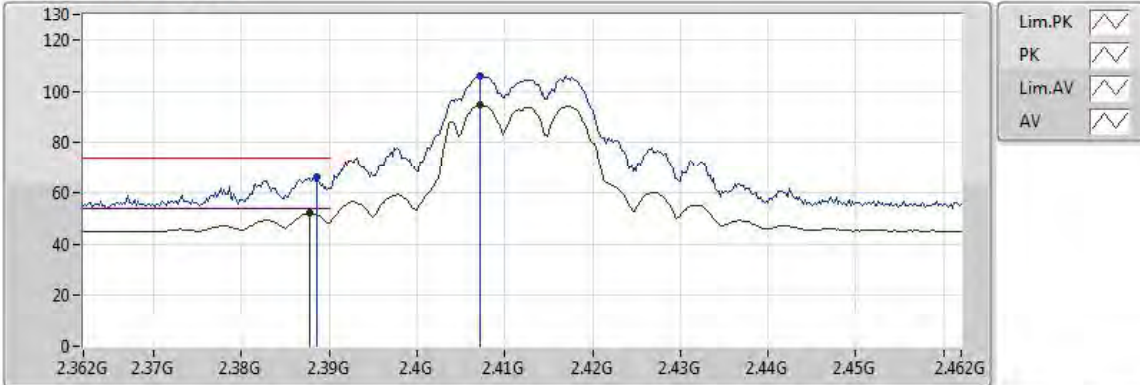
20170829
04-M-0
Setting 18
EUT Y 2TX
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.389998G	53.95	54.00	-0.05	33.15	3	V	98	1.42	-
AV	2.4066G	99.95	Inf	-Inf	33.14	3	V	98	1.42	-
PK	2.387G	70.97	74.00	-3.03	33.15	3	V	98	1.42	-
PK	2.4064G	112.84	Inf	-Inf	33.14	3	V	98	1.42	-



802.11g_(6Mbps)_2TX

2412MHz_TX



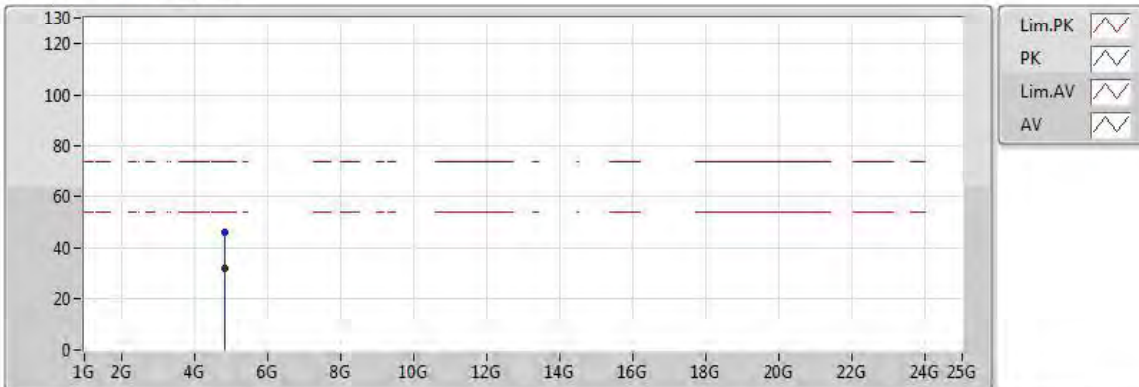
20170829
04-M-0
Setting 18
EUT Y 2TX
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.3878G	51.93	54.00	-2.07	33.15	3	H	207	1.50	-
AV	2.4072G	94.73	Inf	-Inf	33.14	3	H	207	1.50	-
PK	2.3886G	66.32	74.00	-7.68	33.15	3	H	207	1.50	-
PK	2.4072G	106.01	Inf	-Inf	33.14	3	H	207	1.50	-



802.11g_(6Mbps)_2TX

2412MHz_TX



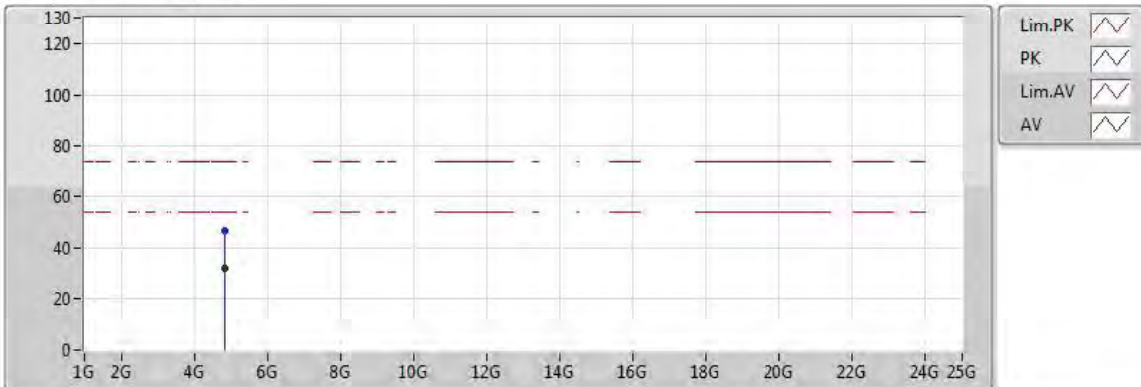
20170829
04-M-0
Setting 18
EUT Y 2TX
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.823864G	31.90	54.00	-22.10	8.08	3	V	68	2.22	-
PK	4.82304G	45.86	74.00	-28.14	8.08	3	V	68	2.22	-



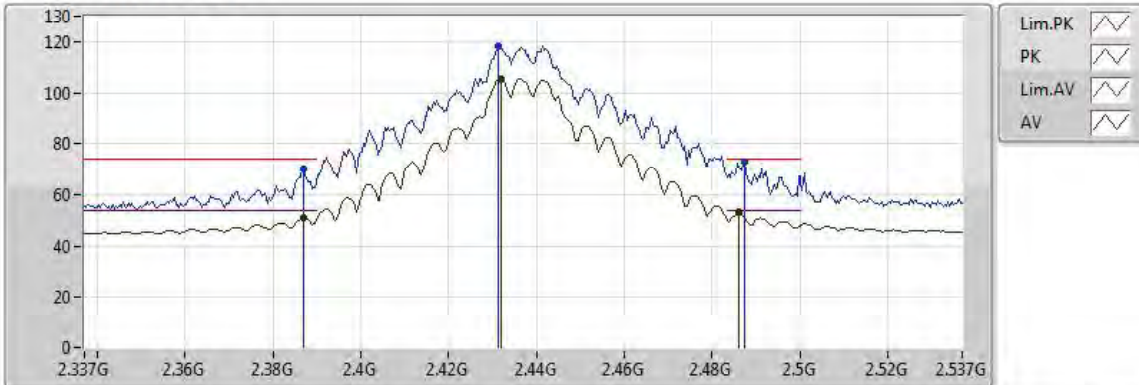
802.11g_(6Mbps)_2TX

2412MHz_TX



20170829
04-M-0
Setting 18
EUT Y 2TX
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.823972G	31.92	54.00	-22.08	8.08	3	H	253	2.21	-
PK	4.824132G	46.38	74.00	-27.62	8.08	3	H	253	2.21	-

**802.11g_(6Mbps)_2TX****2437MHz_TX**

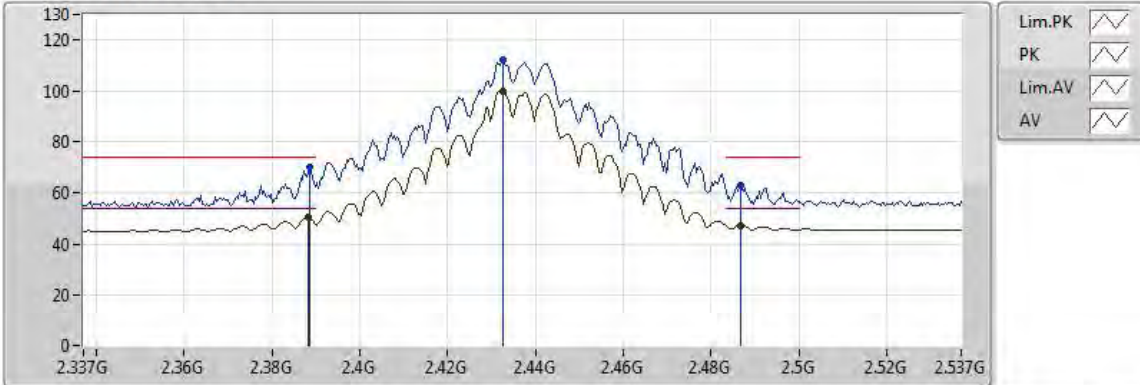
20170829
04-M-0
Setting 25
EUT Y 2TX
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.387G	51.20	54.00	-2.80	33.15	3	V	86	1.41	-
AV	2.4318G	105.62	Inf	-Inf	33.16	3	V	86	1.41	-
AV	2.4862G	53.51	54.00	-0.49	33.19	3	V	86	1.41	-
PK	2.387G	69.96	74.00	-4.04	33.15	3	V	86	1.41	-
PK	2.4314G	118.48	Inf	-Inf	33.16	3	V	86	1.41	-
PK	2.4874G	72.73	74.00	-1.27	33.19	3	V	86	1.41	-



802.11g_(6Mbps)_2TX

2437MHz_TX



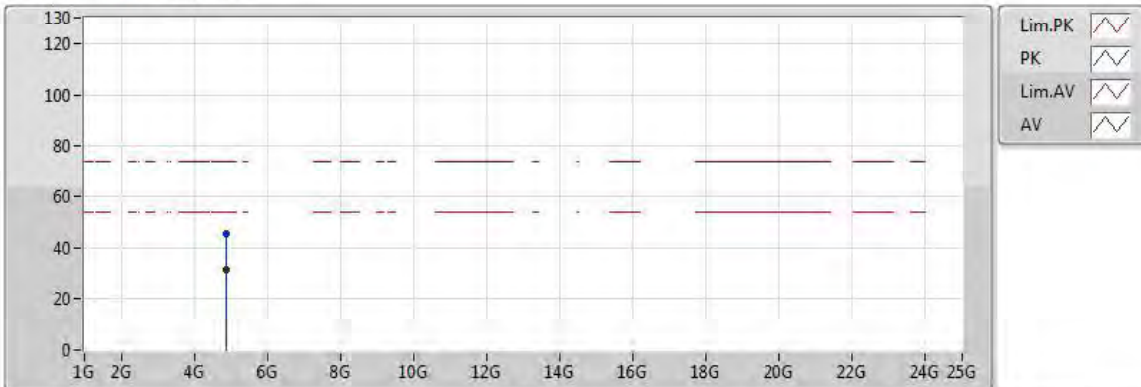
20170829
04-M-0
Setting 25
EUT Y 2TX
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.3882G	50.26	54.00	-3.74	33.15	3	H	205	1.46	-
AV	2.4326G	99.84	Inf	-Inf	33.16	3	H	205	1.46	-
AV	2.4866G	47.27	54.00	-6.73	33.19	3	H	205	1.46	-
PK	2.3886G	69.94	74.00	-4.06	33.15	3	H	205	1.46	-
PK	2.4326G	111.97	Inf	-Inf	33.16	3	H	205	1.46	-
PK	2.4866G	62.58	74.00	-11.42	33.19	3	H	205	1.46	-



802.11g_(6Mbps)_2TX

2437MHz_TX



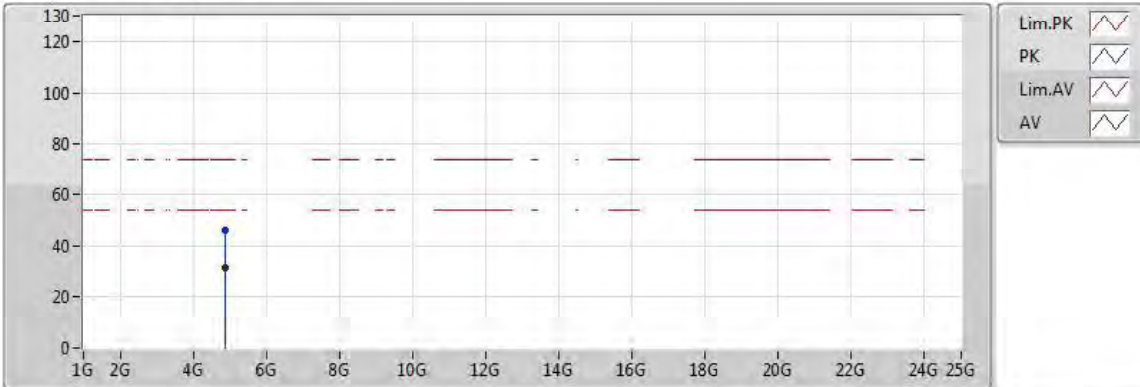
20170829
04-M-0
Setting 25
EUT Y 2TX
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.874676G	31.42	54.00	-22.58	8.24	3	V	301	1.46	-
PK	4.87394G	45.35	74.00	-28.65	8.24	3	V	301	1.46	-



802.11g_(6Mbps)_2TX

2437MHz_TX

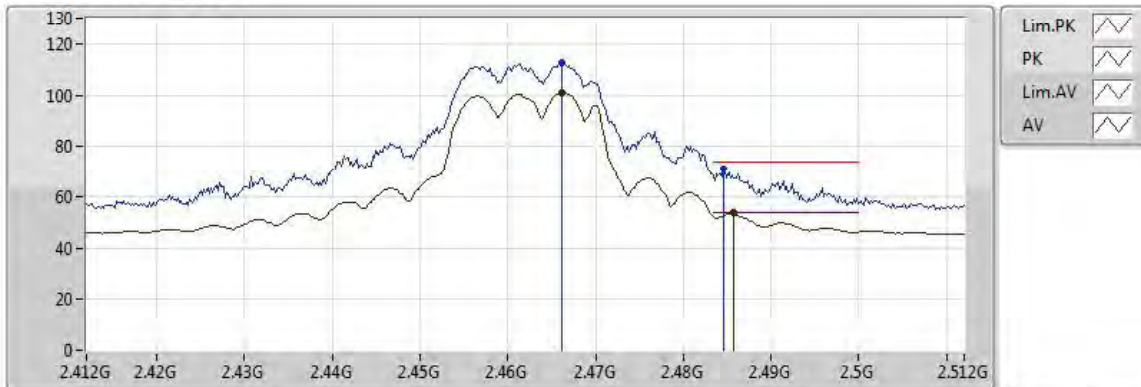


Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.874676G	31.38	54.00	-22.62	8.24	3	H	226	2.23	-
PK	4.8732G	45.67	74.00	-28.33	8.24	3	H	226	2.23	-



802.11g_(6Mbps)_2TX

2462MHz_TX

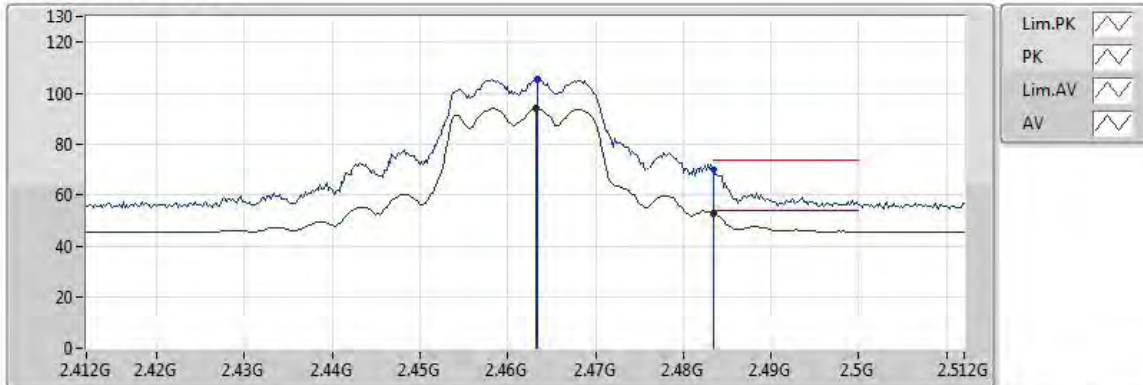


Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.4662G	100.85	Inf	-Inf	33.18	3	V	86	1.55	-
AV	2.4858G	53.83	54.00	-0.17	33.19	3	V	86	1.55	-
PK	2.4662G	112.83	Inf	-Inf	33.18	3	V	86	1.55	-
PK	2.4846G	71.24	74.00	-2.76	33.19	3	V	86	1.55	-



802.11g_(6Mbps)_2TX

2462MHz_TX



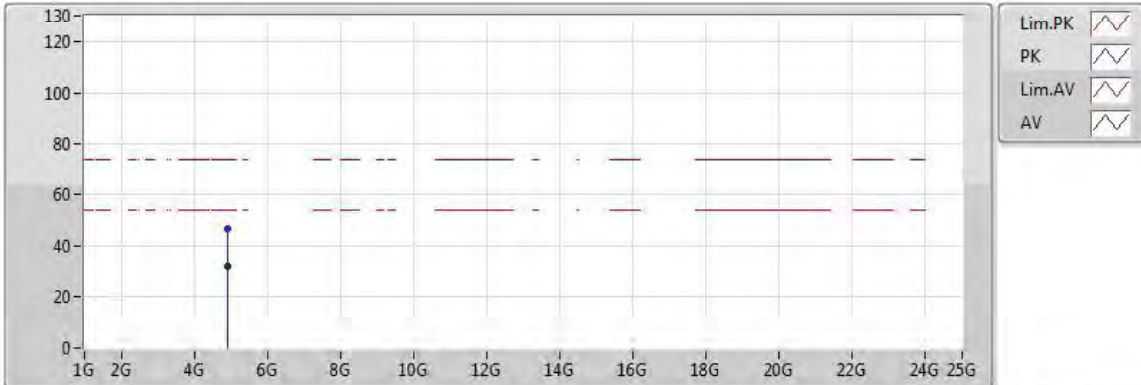
20170829
04-M-0
Setting 18
EUT Y 2TX
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.4632G	94.04	Inf	-Inf	33.18	3	H	320	1.92	-
AV	2.483502G	52.67	54.00	-1.33	33.19	3	H	320	1.92	-
PK	2.4634G	105.45	Inf	-Inf	33.18	3	H	320	1.92	-
PK	2.483502G	69.91	74.00	-4.09	33.19	3	H	320	1.92	-



802.11g_(6Mbps)_2TX

2462MHz_TX



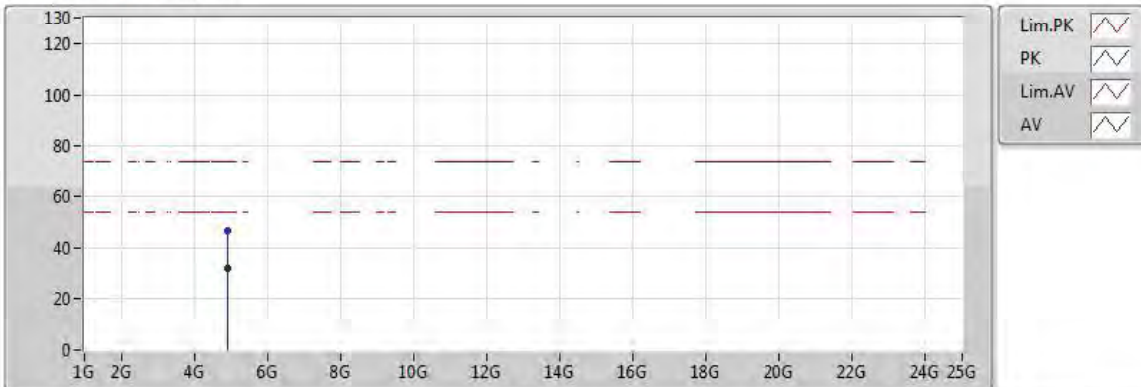
20170829
04-M-0
Setting 18
EUT Y 2TX
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.923824G	31.86	54.00	-22.14	8.39	3	V	206	1.98	-
PK	4.92412G	46.77	74.00	-27.23	8.39	3	V	206	1.98	-



802.11g_(6Mbps)_2TX

2462MHz_TX



20170829
04-M-0
Setting 18
EUT Y 2TX
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.92396G	31.86	54.00	-22.14	8.39	3	H	81	2.26	-
PK	4.92408G	46.29	74.00	-27.71	8.39	3	H	81	2.26	-



802.11ac VHT20_Nss1,(MCS0)_2TX

2412MHz_TX



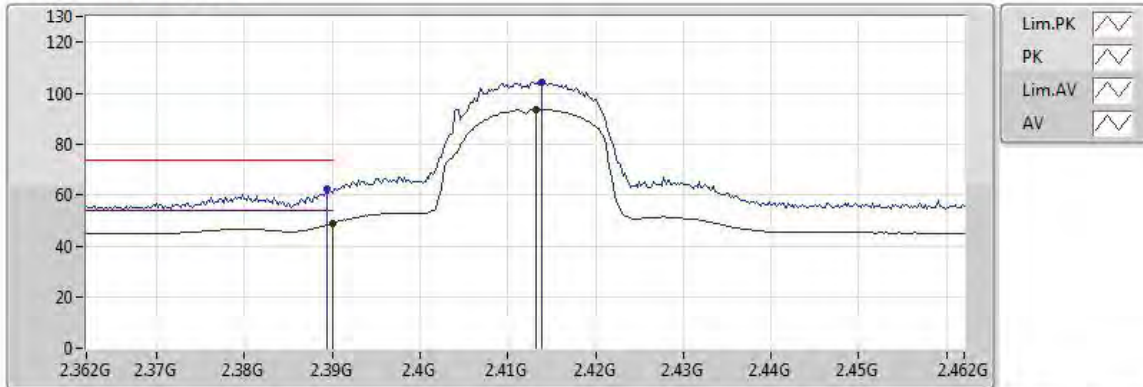
20170829
04-M-0
Setting 17
EUT Y 2TX
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.389998G	53.94	54.00	-0.06	33.15	3	V	101	1.45	-
AV	2.409G	98.84	Inf	-Inf	33.15	3	V	101	1.45	-
PK	2.389G	67.11	74.00	-6.89	33.15	3	V	101	1.45	-
PK	2.409G	109.59	Inf	-Inf	33.15	3	V	101	1.45	-



802.11ac VHT20_Nss1,(MCS0)_2TX

2412MHz_TX



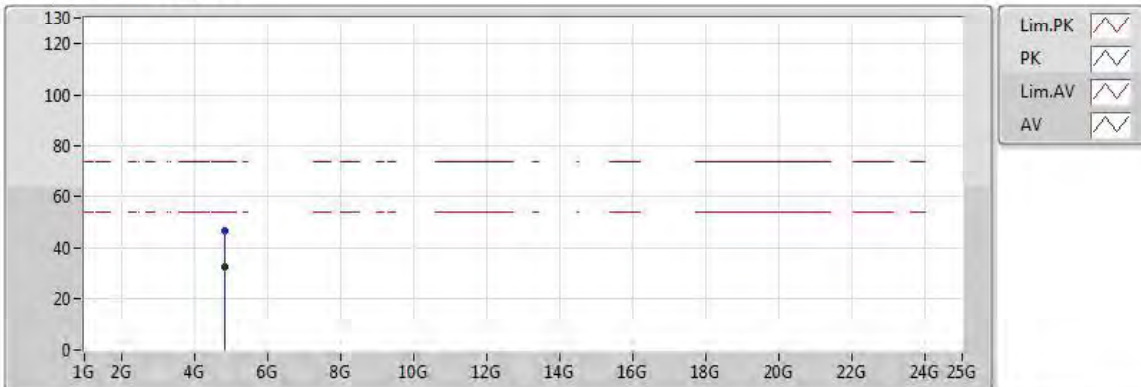
20170829
04-M-0
Setting 17
EUT Y 2TX
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.389998G	48.79	54.00	-5.21	33.15	3	H	206	1.50	-
AV	2.4132G	93.84	Inf	-Inf	33.15	3	H	206	1.50	-
PK	2.3894G	61.93	74.00	-12.07	33.15	3	H	206	1.50	-
PK	2.4138G	104.24	Inf	-Inf	33.15	3	H	206	1.50	-



802.11ac VHT20_Nss1,(MCS0)_2TX

2412MHz_TX



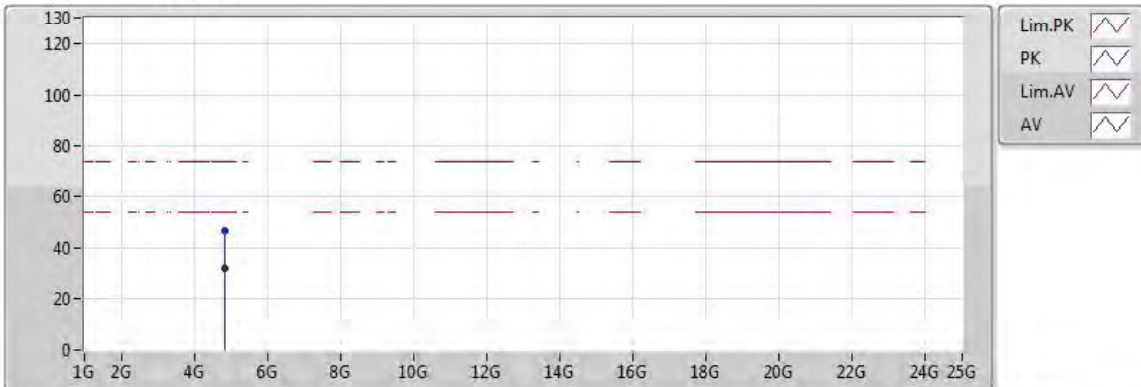
20170829
04-M-0
Setting 17
EUT Y 2TX
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.824068G	32.25	54.00	-21.75	8.08	3	V	192	1.38	-
PK	4.82456G	46.32	74.00	-27.68	8.09	3	V	192	1.38	-



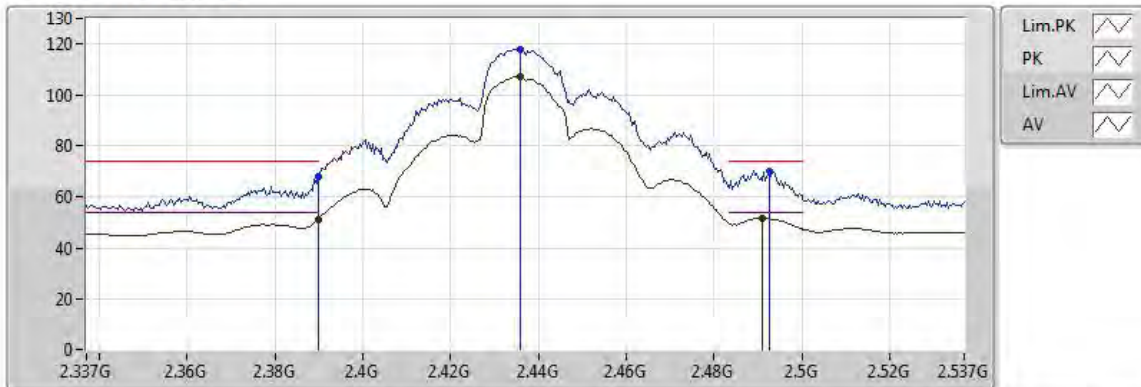
802.11ac VHT20_Nss1,(MCS0)_2TX

2412MHz_TX



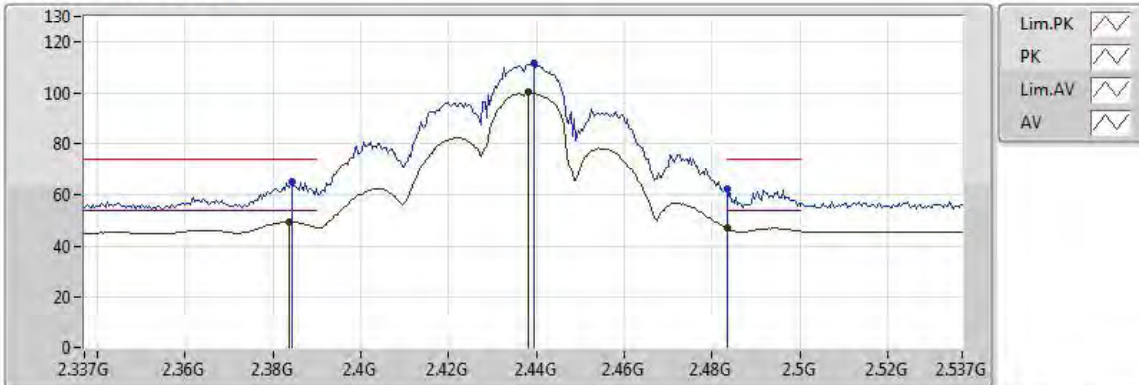
20170829
04-M-0
Setting 17
EUT Y 2TX
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.824216G	32.15	54.00	-21.85	8.09	3	H	34	1.04	-
PK	4.82308G	46.57	74.00	-27.43	8.08	3	H	34	1.04	-

**802.11ac VHT20_Nss1,(MCS0)_2TX****2437MHz_TX**

20170829
04-M-0
Setting 25
EUT Y 2TX
FSP
(Setting 26 PK Fail)

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.3898G	51.18	54.00	-2.82	33.15	3	V	85	1.43	-
AV	2.4358G	106.93	Inf	-Inf	33.16	3	V	85	1.43	-
AV	2.491G	51.71	54.00	-2.29	33.19	3	V	85	1.43	-
PK	2.3898G	67.84	74.00	-6.16	33.15	3	V	85	1.43	-
PK	2.4358G	117.91	Inf	-Inf	33.16	3	V	85	1.43	-
PK	2.4926G	70.29	74.00	-3.71	33.20	3	V	85	1.43	-

**802.11ac VHT20_Nss1,(MCS0)_2TX****2437MHz_TX**

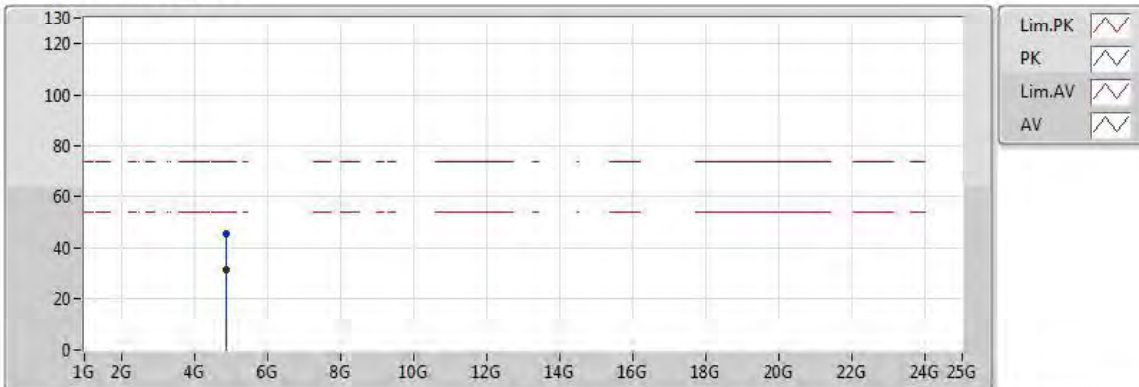
20170829
04-M-0
Setting 25
EUT Y 2TX
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.3838G	49.40	54.00	-4.60	33.15	3	H	204	1.44	-
AV	2.4382G	100.09	Inf	-Inf	33.16	3	H	204	1.44	-
AV	2.483502G	46.90	54.00	-7.10	33.19	3	H	204	1.44	-
PK	2.3842G	65.07	74.00	-8.93	33.15	3	H	204	1.44	-
PK	2.4394G	111.28	Inf	-Inf	33.16	3	H	204	1.44	-
PK	2.483502G	61.93	74.00	-12.07	33.19	3	H	204	1.44	-



802.11ac VHT20_Nss1,(MCS0)_2TX

2437MHz_TX



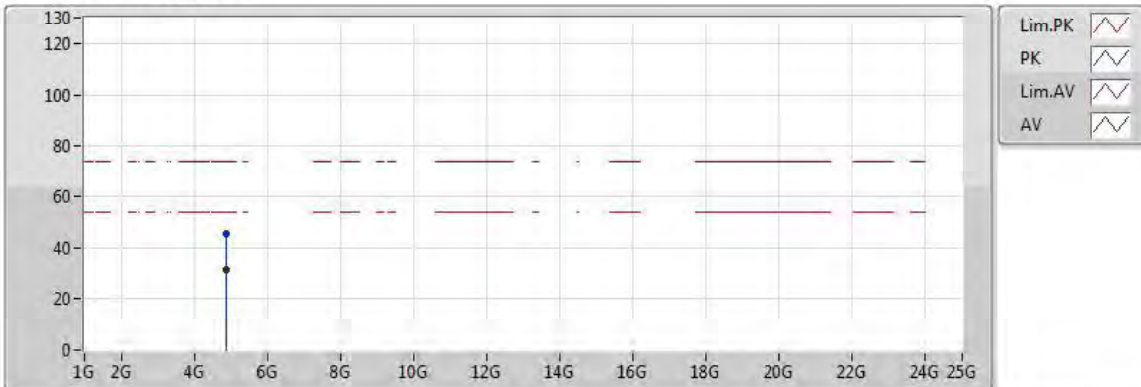
20170829
04-M-0
Setting 25
EUT Y 2TX
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.874972G	31.58	54.00	-22.42	8.24	3	V	218	1.53	-
PK	4.873252G	45.57	74.00	-28.43	8.24	3	V	218	1.53	-



802.11ac VHT20_Nss1,(MCS0)_2TX

2437MHz_TX



20170829
04-M-0
Setting 25
EUT Y 2TX
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.873176G	31.55	54.00	-22.45	8.24	3	H	157	1.51	-
PK	4.874064G	45.37	74.00	-28.63	8.24	3	H	157	1.51	-



802.11ac VHT20_Nss1,(MCS0)_2TX

2462MHz_TX

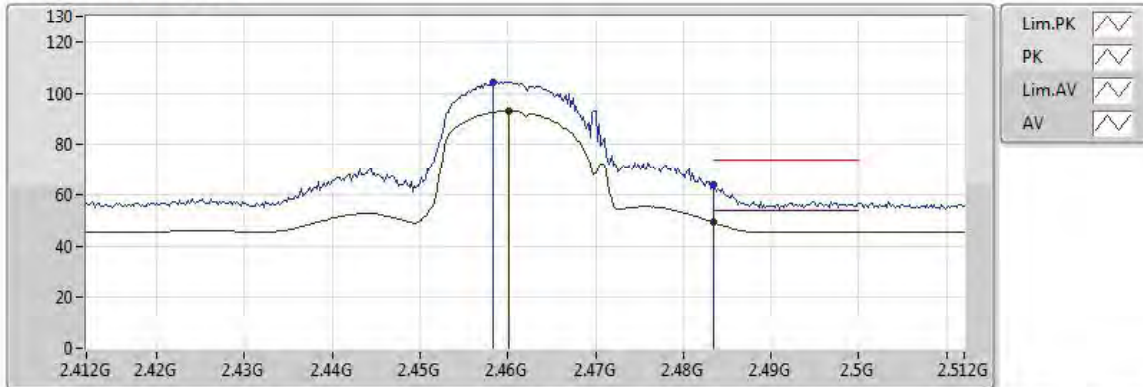


Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.461G	100.21	Inf	-Inf	33.18	3	V	86	1.55	-
AV	2.483502G	53.98	54.00	-0.02	33.19	3	V	86	1.55	-
PK	2.4602G	112.17	Inf	-Inf	33.18	3	V	86	1.55	-
PK	2.483502G	70.68	74.00	-3.32	33.19	3	V	86	1.55	-



802.11ac VHT20_Nss1,(MCS0)_2TX

2462MHz_TX



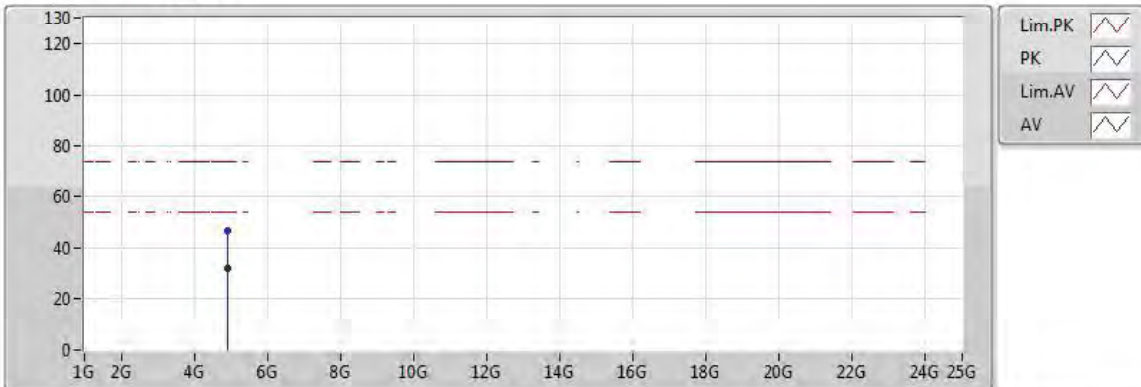
20170829
04-M-0
Setting 17.5
EUT Y 2TX
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.4602G	93.13	Inf	-Inf	33.18	3	H	208	1.58	-
AV	2.483502G	49.14	54.00	-4.86	33.19	3	H	208	1.58	-
PK	2.4584G	104.48	Inf	-Inf	33.18	3	H	208	1.58	-
PK	2.483502G	63.81	74.00	-10.19	33.19	3	H	208	1.58	-



802.11ac VHT20_Nss1,(MCS0)_2TX

2462MHz_TX



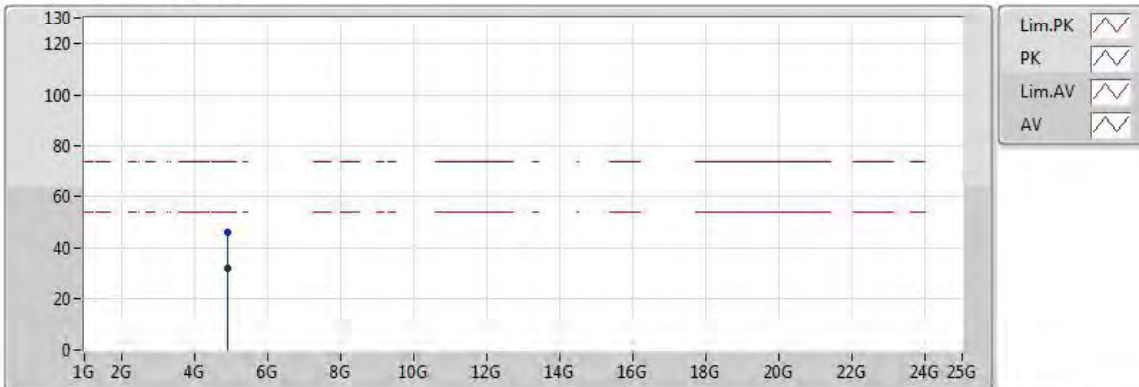
20170829
04-M-0
Setting 17.5
EUT Y 2TX
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.923716G	31.72	54.00	-22.28	8.39	3	V	37	1.40	-
PK	4.924228G	46.33	74.00	-27.67	8.40	3	V	37	1.40	-



802.11ac VHT20_Nss1,(MCS0)_2TX

2462MHz_TX



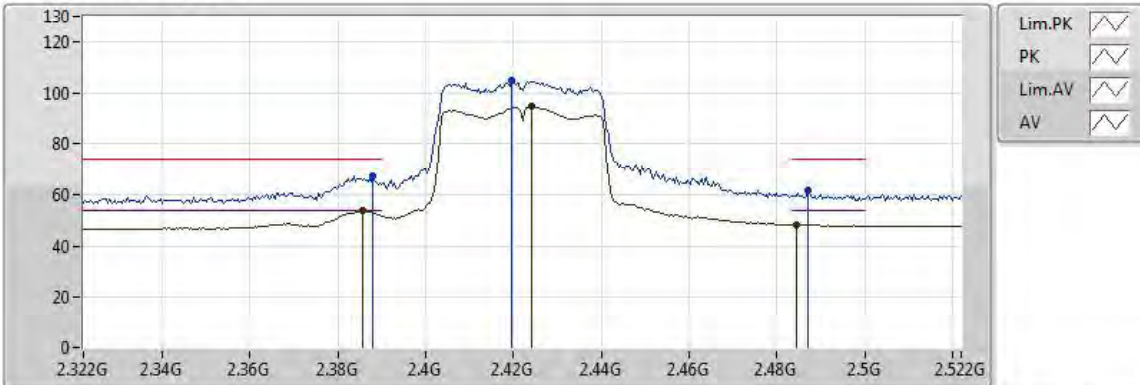
20170829
04-M-0
Setting 17.5
EUT Y 2TX
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.923816G	31.76	54.00	-22.24	8.39	3	H	233	1.55	-
PK	4.924144G	45.95	74.00	-28.05	8.39	3	H	233	1.55	-



802.11ac VHT40_Nss1,(MCS0)_2TX

2422MHz_TX

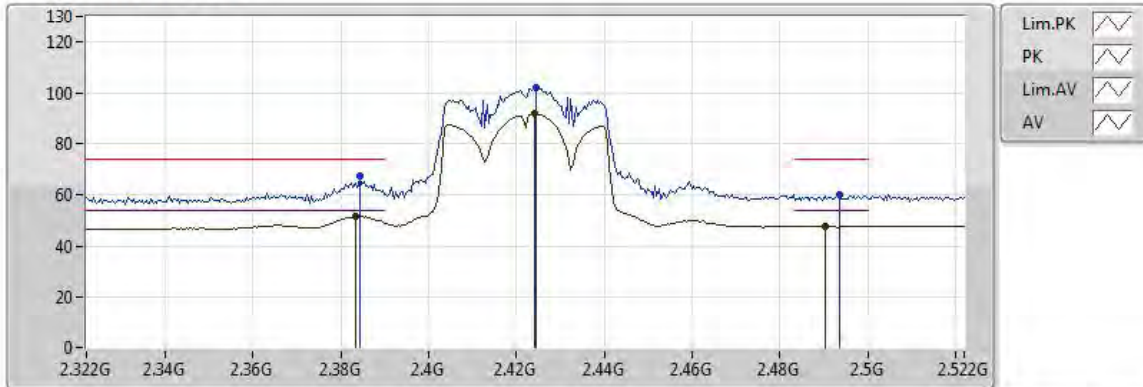


Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.3856G	53.71	54.00	-0.29	31.93	3	V	315	1.47	-
AV	2.424G	94.44	Inf	-Inf	32.04	3	V	315	1.47	-
AV	2.4844G	48.22	54.00	-5.78	32.22	3	V	315	1.47	-
PK	2.388G	67.26	74.00	-6.74	31.93	3	V	315	1.47	-
PK	2.4196G	104.77	Inf	-Inf	32.03	3	V	315	1.47	-
PK	2.4872G	61.41	74.00	-12.59	32.23	3	V	315	1.47	-



802.11ac VHT40_Nss1,(MCS0)_2TX

2422MHz_TX

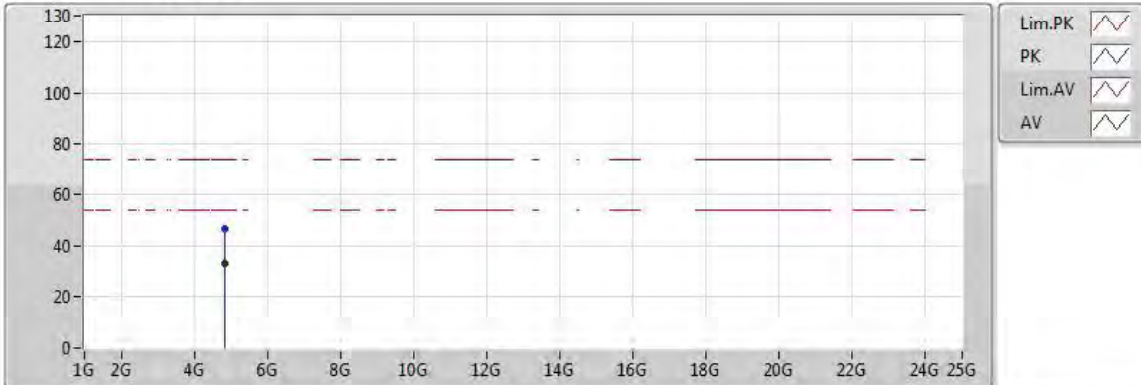


Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.3832G	51.66	54.00	-2.34	31.92	3	H	193	1.45	-
AV	2.424G	91.73	Inf	-Inf	32.04	3	H	193	1.45	-
AV	2.4904G	47.77	54.00	-6.23	32.24	3	H	193	1.45	-
PK	2.3844G	67.21	74.00	-6.79	31.92	3	H	193	1.45	-
PK	2.4244G	101.78	Inf	-Inf	32.04	3	H	193	1.45	-
PK	2.4936G	59.71	74.00	-14.29	32.25	3	H	193	1.45	-



802.11ac VHT40_Nss1,(MCS0)_2TX

2422MHz_TX



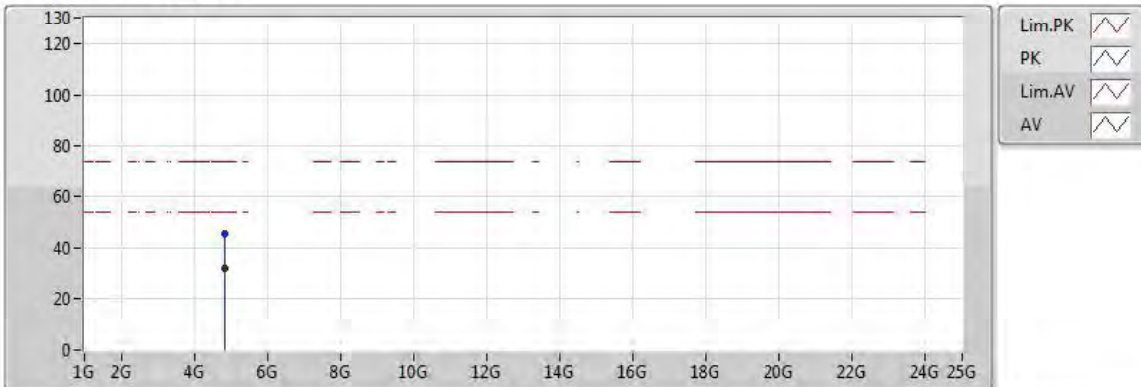
20170831
EUT Y 2TX
Setting 15.5
02-B-2
FSU

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.8428G	32.93	54.00	-21.07	8.14	3	V	185	1.50	-
PK	4.8442G	46.34	74.00	-27.66	8.15	3	V	185	1.50	-



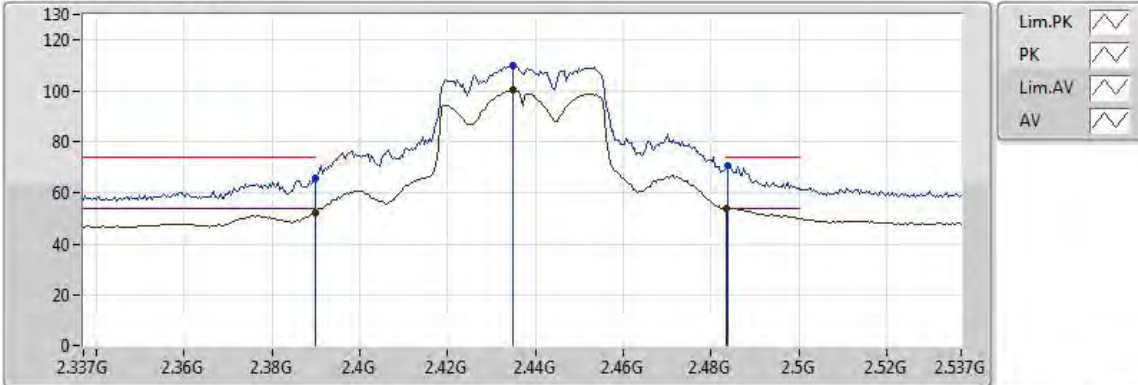
802.11ac VHT40_Nss1,(MCS0)_2TX

2422MHz_TX

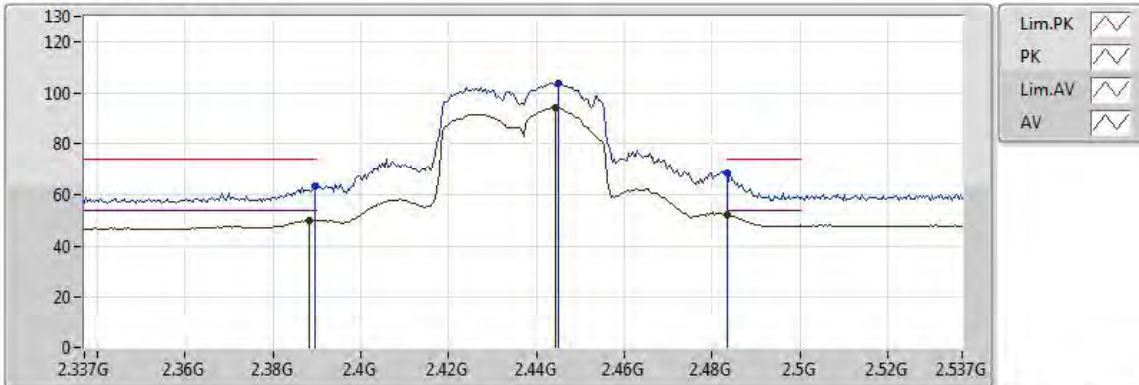


20170831
EUT Y 2TX
Setting 15.5
02-B-2
FSU

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.84387G	32.17	54.00	-21.83	8.15	3	H	127	1.50	-
PK	4.84603G	45.63	74.00	-28.37	8.15	3	H	127	1.50	-

**802.11ac VHT40_Nss1,(MCS0)_2TX****2437MHz_TX**

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.389998G	52.33	54.00	-1.67	31.94	3	V	276	1.42	-
AV	2.435G	100.20	Inf	-Inf	32.08	3	V	276	1.42	-
AV	2.483502G	53.95	54.00	-0.05	32.22	3	V	276	1.42	-
PK	2.389998G	65.72	74.00	-8.28	31.94	3	V	276	1.42	-
PK	2.435G	110.09	Inf	-Inf	32.08	3	V	276	1.42	-
PK	2.4838G	70.46	74.00	-3.54	32.22	3	V	276	1.42	-

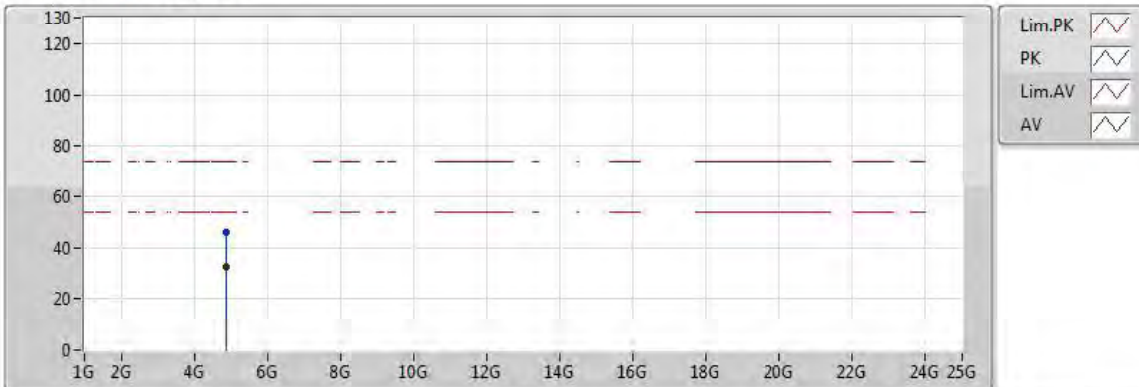
**802.11ac VHT40_Nss1,(MCS0)_2TX****2437MHz_TX**

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.3882G	50.01	54.00	-3.99	31.93	3	H	131	1.69	-
AV	2.4442G	94.01	Inf	-Inf	32.10	3	H	131	1.69	-
AV	2.483502G	52.05	54.00	-1.95	32.22	3	H	131	1.69	-
PK	2.3894G	63.50	74.00	-10.50	31.94	3	H	131	1.69	-
PK	2.445G	103.73	Inf	-Inf	32.10	3	H	131	1.69	-
PK	2.483502G	68.47	74.00	-5.53	32.22	3	H	131	1.69	-



802.11ac VHT40_Nss1,(MCS0)_2TX

2437MHz_TX



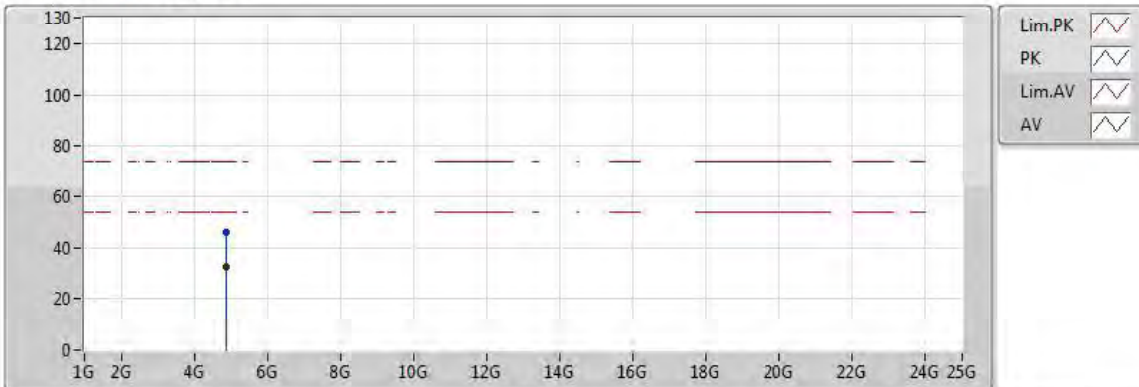
20170831
EUT Y 2TX
Setting 18
02-B-2
FSU

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.873G	32.52	54.00	-21.48	8.24	3	V	159	1.10	-
PK	4.874876G	46.19	74.00	-27.81	8.24	3	V	159	1.10	-



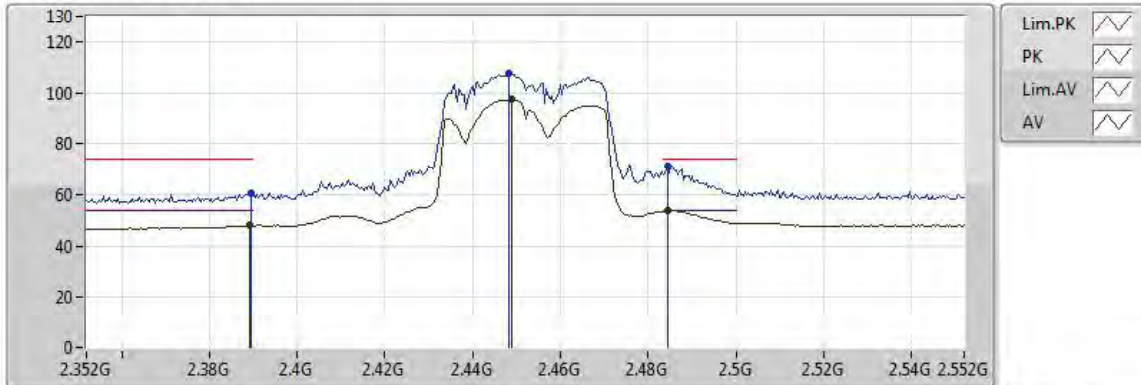
802.11ac VHT40_Nss1,(MCS0)_2TX

2437MHz_TX



20170831
EUT Y 2TX
Setting 18
02-B-2
FSU

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.873304G	32.26	54.00	-21.74	8.24	3	H	255	2.19	-
PK	4.874556G	45.80	74.00	-28.20	8.24	3	H	255	2.19	-

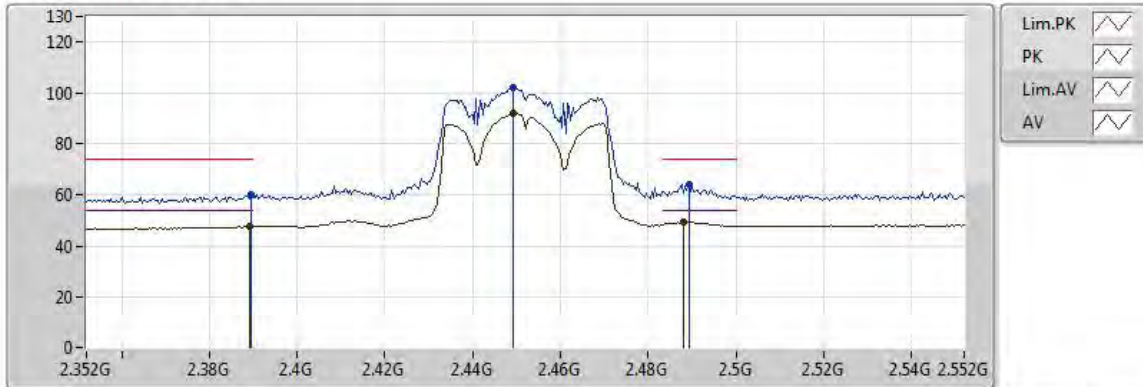
**802.11ac VHT40_Nss1,(MCS0)_2TX****2452MHz_TX**

20170831
EUT Y 2TX
Setting 15
02-B-2
FSU

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.3892G	48.10	54.00	-5.90	31.94	3	V	265	1.42	-
AV	2.4488G	97.31	Inf	-Inf	32.12	3	V	265	1.42	-
AV	2.4844G	53.97	54.00	-0.03	32.22	3	V	265	1.42	-
PK	2.3896G	60.73	74.00	-13.27	31.94	3	V	265	1.42	-
PK	2.4484G	107.46	Inf	-Inf	32.12	3	V	265	1.42	-
PK	2.4844G	71.16	74.00	-2.84	32.22	3	V	265	1.42	-

802.11ac VHT40_Nss1,(MCS0)_2TX

2452MHz_TX



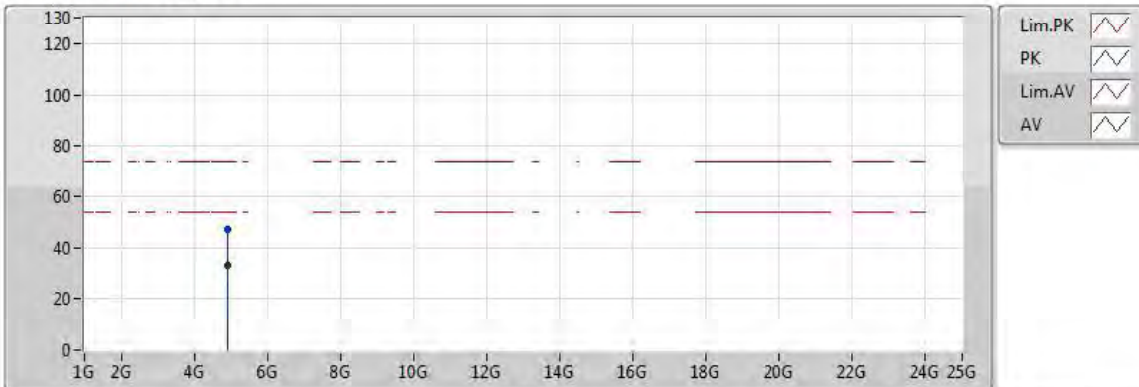
20170831
EUT Y 2TX
Setting 15
02-B-2
FSU

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.3892G	47.77	54.00	-6.23	31.94	3	H	199	1.34	-
AV	2.4492G	91.73	Inf	-Inf	32.12	3	H	199	1.34	-
AV	2.488G	49.44	54.00	-4.56	32.23	3	H	199	1.34	-
PK	2.3896G	59.68	74.00	-14.32	31.94	3	H	199	1.34	-
PK	2.4492G	102.06	Inf	-Inf	32.12	3	H	199	1.34	-
PK	2.4892G	63.67	74.00	-10.33	32.24	3	H	199	1.34	-



802.11ac VHT40_Nss1,(MCS0)_2TX

2452MHz_TX

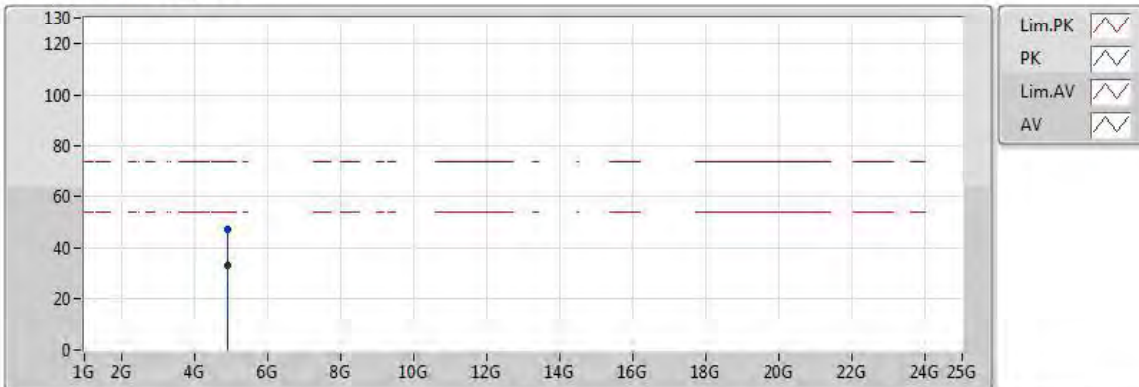


Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.90462G	33.01	54.00	-20.99	8.33	3	V	157	2.38	-
PK	4.903832G	46.93	74.00	-27.07	8.33	3	V	157	2.38	-



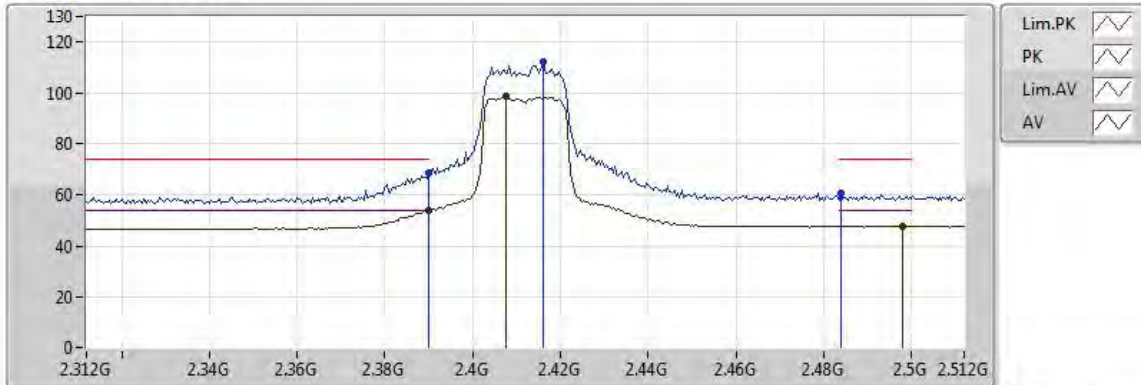
802.11ac VHT40_Nss1,(MCS0)_2TX

2452MHz_TX

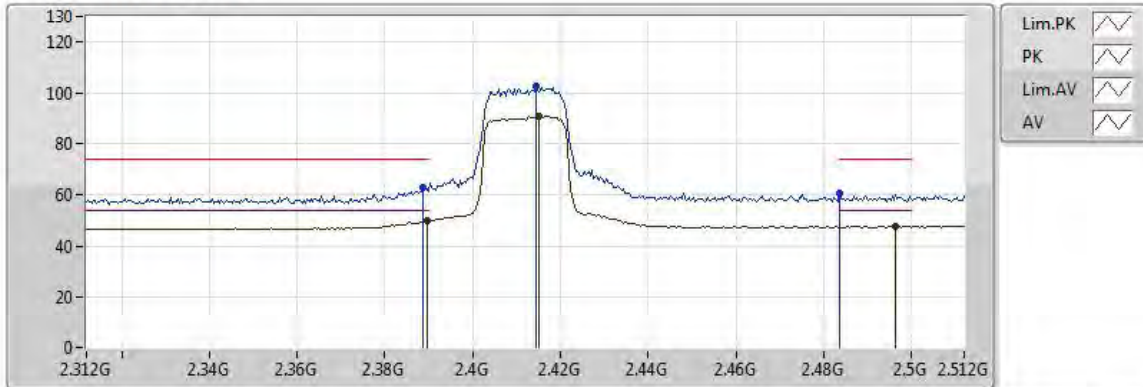


20170831
EUT Y 2TX
Setting 15
02-B-2
FSU

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.903792G	33.13	54.00	-20.87	8.33	3	H	181	2.48	-
PK	4.904956G	46.93	74.00	-27.07	8.34	3	H	181	2.48	-

**802.11ac VHT20-BF_Nss1,(MCS0)_2TX****2412MHz_TX**

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.39G	53.92	54.00	-0.08	31.94	3	V	263	1.47	-
AV	2.4076G	98.84	Inf	-Inf	31.99	3	V	263	1.47	-
AV	2.498G	47.85	54.00	-6.15	32.26	3	V	263	1.47	-
PK	2.39G	68.62	74.00	-5.38	31.94	3	V	263	1.47	-
PK	2.416G	112.05	Inf	-Inf	32.02	3	V	263	1.47	-
PK	2.484G	60.78	74.00	-13.22	32.22	3	V	263	1.47	-

**802.11ac VHT20-BF_Nss1,(MCS0)_2TX****2412MHz_TX**

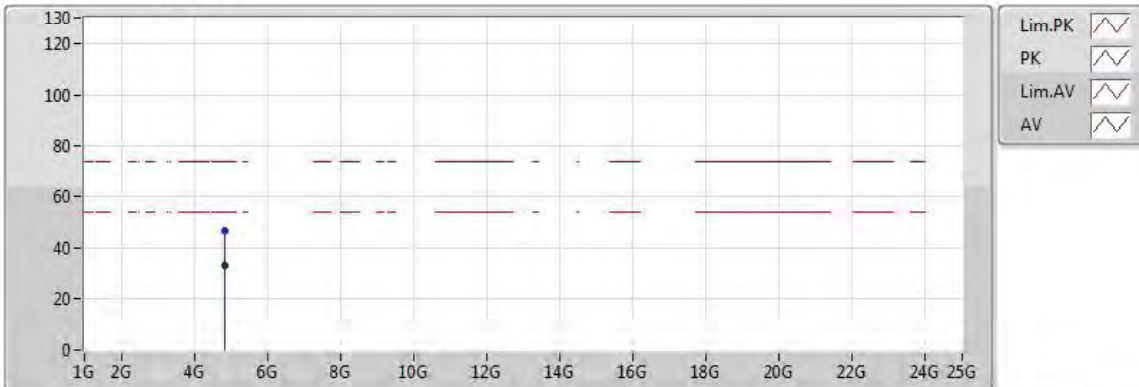
20170831
EUT Y 2TX
Setting 20
02-B-2
FSU

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.3896G	49.84	54.00	-4.16	31.94	3	H	203	1.49	-
AV	2.4152G	90.87	Inf	-Inf	32.02	3	H	203	1.49	-
AV	2.4964G	47.68	54.00	-6.32	32.26	3	H	203	1.49	-
PK	2.3888G	62.87	74.00	-11.13	31.94	3	H	203	1.49	-
PK	2.4144G	102.66	Inf	-Inf	32.01	3	H	203	1.49	-
PK	2.4836G	60.53	74.00	-13.47	32.22	3	H	203	1.49	-



802.11ac VHT20-BF_Nss1,(MCS0)_2TX

2412MHz_TX



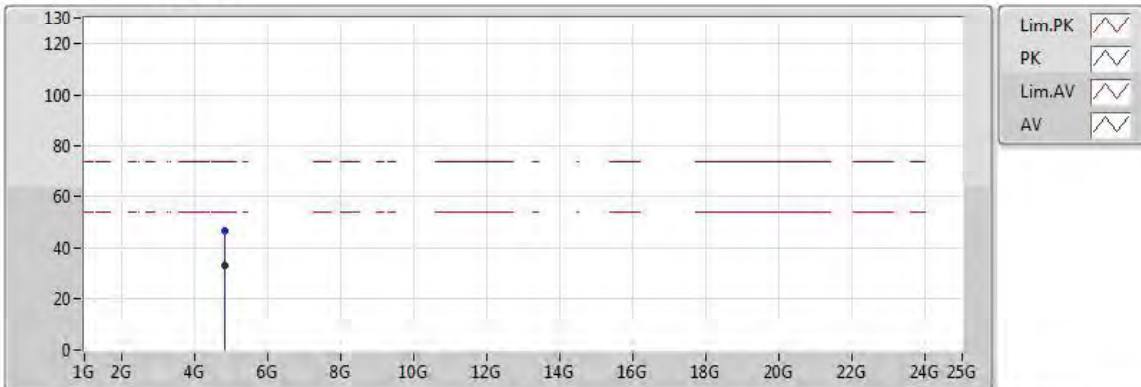
20170831
EUT Y 2TX
Setting 20
02-B-2
FSU

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.8243G	32.94	54.00	-21.06	8.09	3	V	300	1.65	-
PK	4.823268G	46.33	74.00	-27.67	8.08	3	V	300	1.65	-



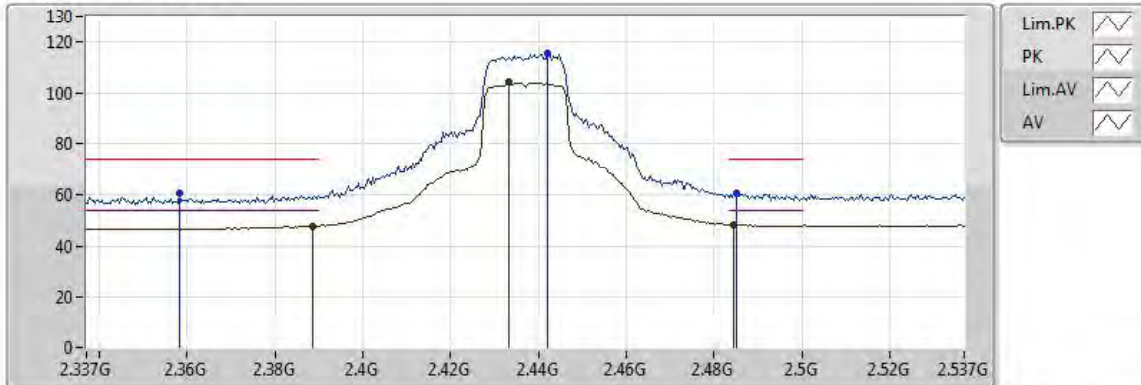
802.11ac VHT20-BF_Nss1,(MCS0)_2TX

2412MHz_TX



20170831
EUT Y 2TX
Setting 20
02-B-2
FSU

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.82418G	32.88	54.00	-21.12	8.08	3	H	143	1.13	-
PK	4.823128G	46.36	74.00	-27.64	8.08	3	H	143	1.13	-

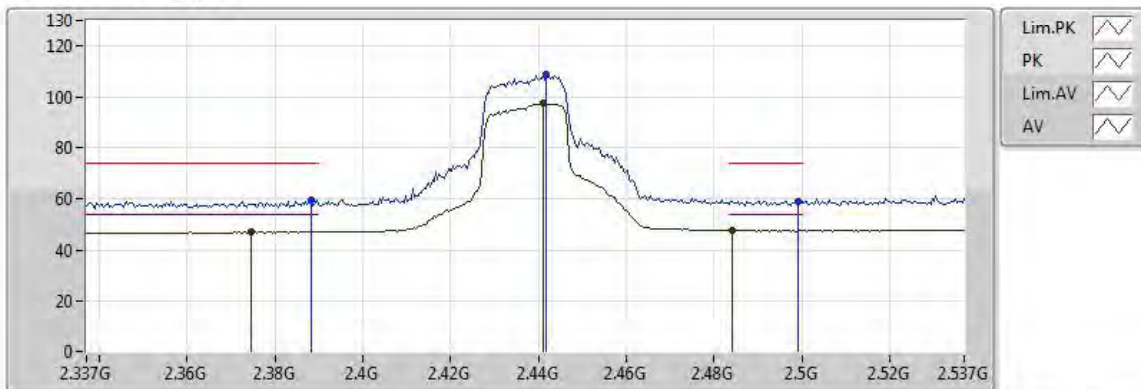
**802.11ac VHT20-BF_Nss1,(MCS0)_2TX****2437MHz_TX**

20170831
EUT Y 2TX
Setting 22 (Max setting)
02-B-2
FSU

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.3886G	47.83	54.00	-6.17	31.93	3	V	269	1.45	-
AV	2.4334G	104.21	Inf	-Inf	32.07	3	V	269	1.45	-
AV	2.4846G	48.38	54.00	-5.62	32.22	3	V	269	1.45	-
PK	2.3582G	60.42	74.00	-13.58	31.84	3	V	269	1.45	-
PK	2.4422G	115.19	Inf	-Inf	32.10	3	V	269	1.45	-
PK	2.485G	60.31	74.00	-13.69	32.23	3	V	269	1.45	-

802.11ac VHT20-BF_Nss1,(MCS0)_2TX

2437MHz_TX



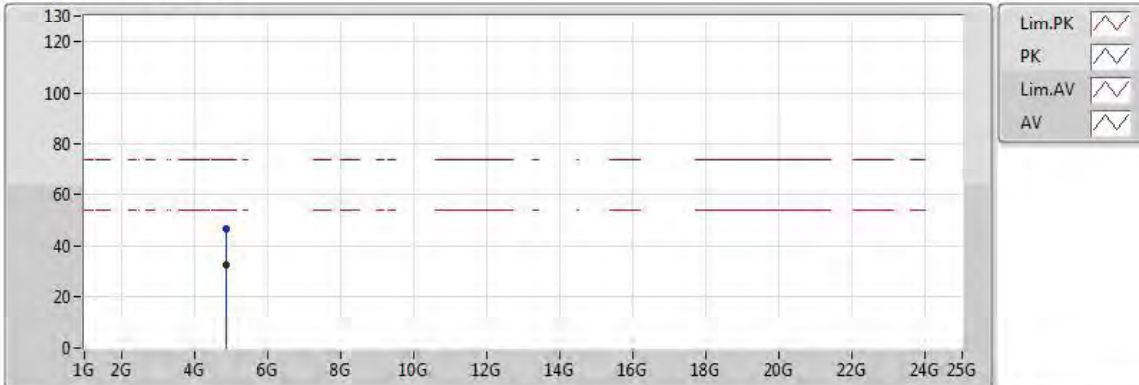
20170831
 EUT Y 2TX
 Setting 22 (Max setting)
 02-B-2
 FSU

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.3746G	47.15	54.00	-6.85	31.89	3	H	305	1.75	-
AV	2.441G	97.34	Inf	-Inf	32.09	3	H	305	1.75	-
AV	2.4842G	47.67	54.00	-6.33	32.22	3	H	305	1.75	-
PK	2.3882G	59.43	74.00	-14.57	31.93	3	H	305	1.75	-
PK	2.4418G	108.63	Inf	-Inf	32.10	3	H	305	1.75	-
PK	2.499G	59.07	74.00	-14.93	32.27	3	H	305	1.75	-



802.11ac VHT20-BF_Nss1,(MCS0)_2TX

2437MHz_TX



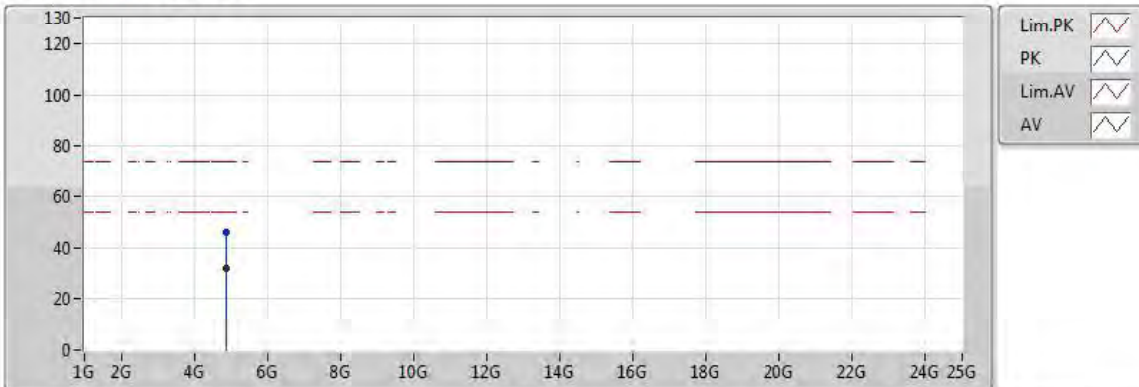
20170831
EUT Y 2TX
Setting 22 (Max setting)
02-B-2
FSU

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.87466G	32.32	54.00	-21.68	8.24	3	V	220	1.81	-
PK	4.874964G	46.61	74.00	-27.39	8.24	3	V	220	1.81	-



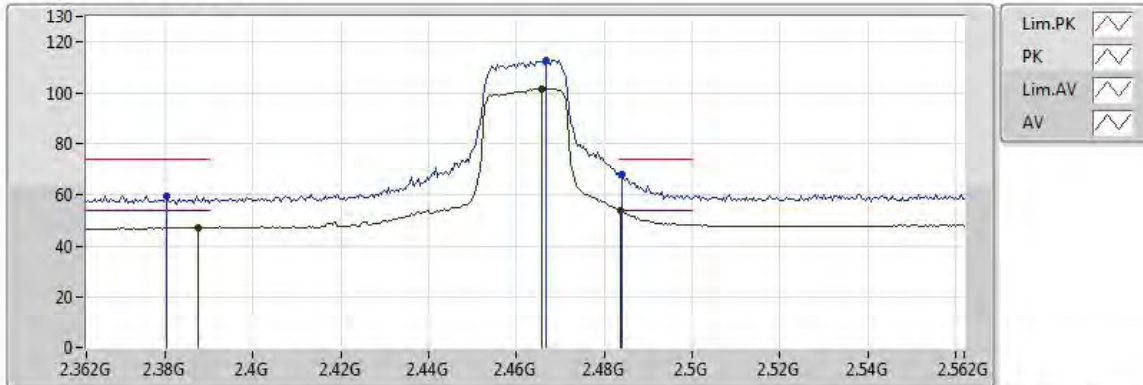
802.11ac VHT20-BF_Nss1,(MCS0)_2TX

2437MHz_TX



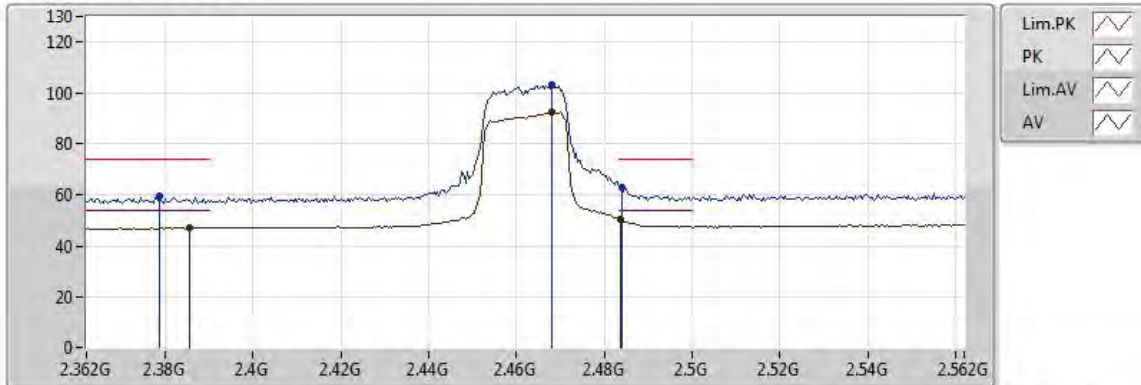
20170831
EUT Y 2TX
Setting 22 (Max setting)
02-B-2
FSU

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.874864G	32.20	54.00	-21.80	8.24	3	H	51	1.21	-
PK	4.874652G	46.18	74.00	-27.82	8.24	3	H	51	1.21	-

**802.11ac VHT20-BF_Nss1,(MCS0)_2TX****2462MHz_TX**

20170831
EUT Y 2TX
Setting 19
02-B-2
FSU

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.3876G	47.23	54.00	-6.77	31.93	3	V	267	1.38	-
AV	2.4656G	101.70	Inf	-Inf	32.17	3	V	267	1.38	-
AV	2.4836G	53.80	54.00	-0.20	32.22	3	V	267	1.38	-
PK	2.3804G	59.63	74.00	-14.37	31.91	3	V	267	1.38	-
PK	2.4668G	112.60	Inf	-Inf	32.17	3	V	267	1.38	-
PK	2.484G	67.90	74.00	-6.10	32.22	3	V	267	1.38	-

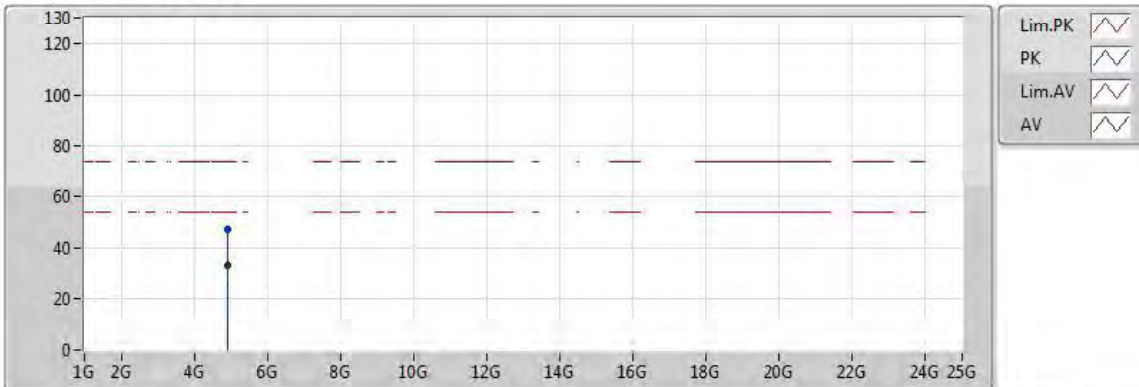
**802.11ac VHT20-BF_Nss1,(MCS0)_2TX****2462MHz_TX**

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.3856G	47.17	54.00	-6.83	31.93	3	H	294	1.74	-
AV	2.468G	92.25	Inf	-Inf	32.17	3	H	294	1.74	-
AV	2.4836G	50.28	54.00	-3.72	32.22	3	H	294	1.74	-
PK	2.3788G	59.30	74.00	-14.70	31.90	3	H	294	1.74	-
PK	2.468G	103.19	Inf	-Inf	32.17	3	H	294	1.74	-
PK	2.484G	63.03	74.00	-10.97	32.22	3	H	294	1.74	-



802.11ac VHT20-BF_Nss1,(MCS0)_2TX

2462MHz_TX



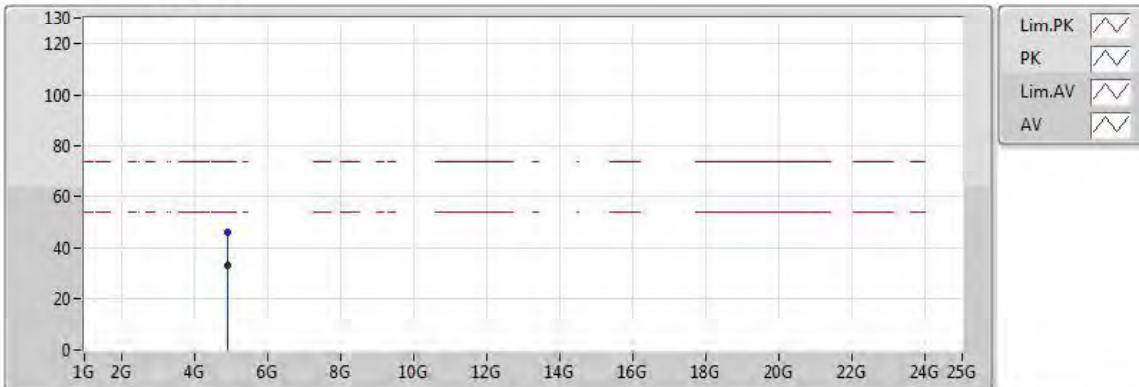
20170831
EUT Y 2TX
Setting 19
02-B-2
FSU

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.924932G	32.97	54.00	-21.03	8.40	3	V	181	2.21	-
PK	4.923912G	47.22	74.00	-26.78	8.39	3	V	181	2.21	-



802.11ac VHT20-BF_Nss1,(MCS0)_2TX

2462MHz_TX

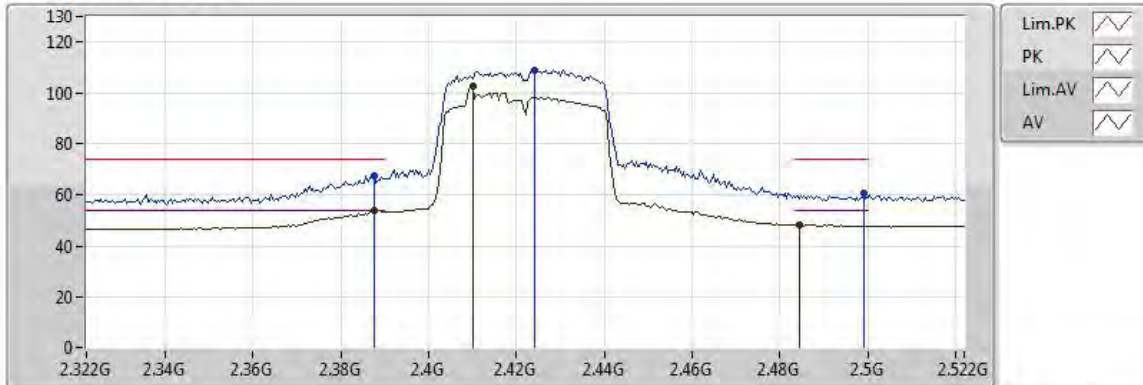


20170831
EUT Y 2TX
Setting 19
02-B-2
FSU

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.924012G	32.81	54.00	-21.19	8.39	3	H	58	1.93	-
PK	4.92374G	45.97	74.00	-28.03	8.39	3	H	58	1.93	-

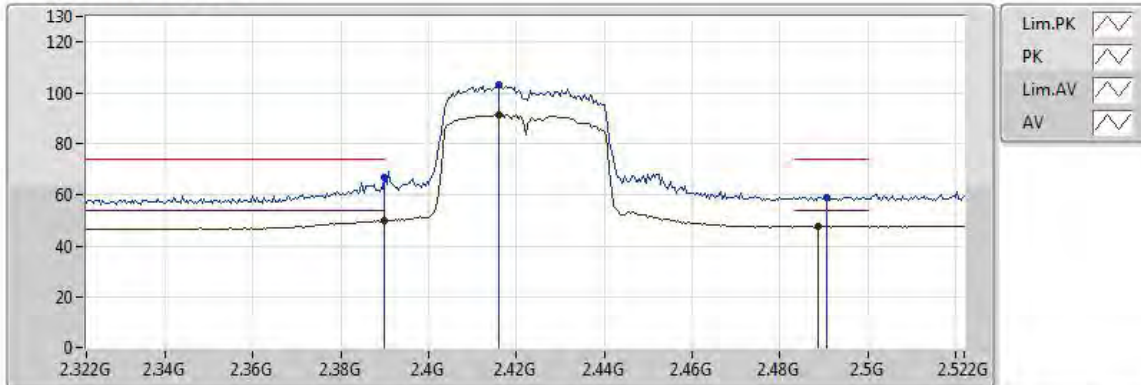
802.11ac VHT40-BF_Nss1,(MCS0)_2TX

2422MHz_TX



20170831
 EUT Y 2TX
 Setting 19
 02-B-2
 FSU

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.3876G	53.96	54.00	-0.04	31.93	3	V	280	1.77	-
AV	2.41G	102.63	Inf	-Inf	32.00	3	V	280	1.77	-
AV	2.4844G	48.41	54.00	-5.59	32.22	3	V	280	1.77	-
PK	2.3876G	67.26	74.00	-6.74	31.93	3	V	280	1.77	-
PK	2.424G	108.75	Inf	-Inf	32.04	3	V	280	1.77	-
PK	2.4992G	60.49	74.00	-13.51	32.27	3	V	280	1.77	-

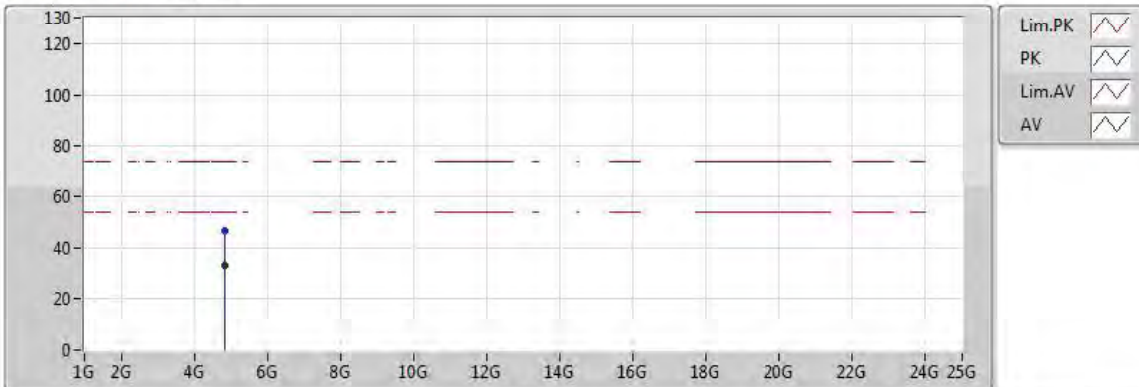
**802.11ac VHT40-BF_Nss1,(MCS0)_2TX****2422MHz_TX**

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.39G	49.82	54.00	-4.18	31.94	3	H	95	1.76	-
AV	2.416G	91.28	Inf	-Inf	32.02	3	H	95	1.76	-
AV	2.4888G	47.66	54.00	-6.34	32.24	3	H	95	1.76	-
PK	2.39G	66.66	74.00	-7.34	31.94	3	H	95	1.76	-
PK	2.416G	103.23	Inf	-Inf	32.02	3	H	95	1.76	-
PK	2.4908G	59.02	74.00	-14.98	32.24	3	H	95	1.76	-



802.11ac VHT40-BF_Nss1,(MCS0)_2TX

2422MHz_TX



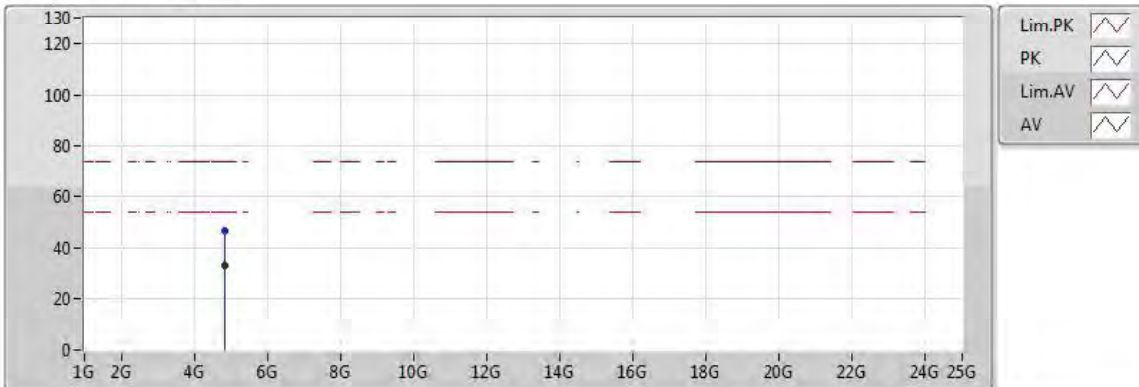
20170831
EUT Y 2TX
Setting 19
02-B-2
FSU

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.84464G	33.07	54.00	-20.93	8.15	3	V	51	2.44	-
PK	4.84436G	46.70	74.00	-27.30	8.15	3	V	51	2.44	-



802.11ac VHT40-BF_Nss1,(MCS0)_2TX

2422MHz_TX

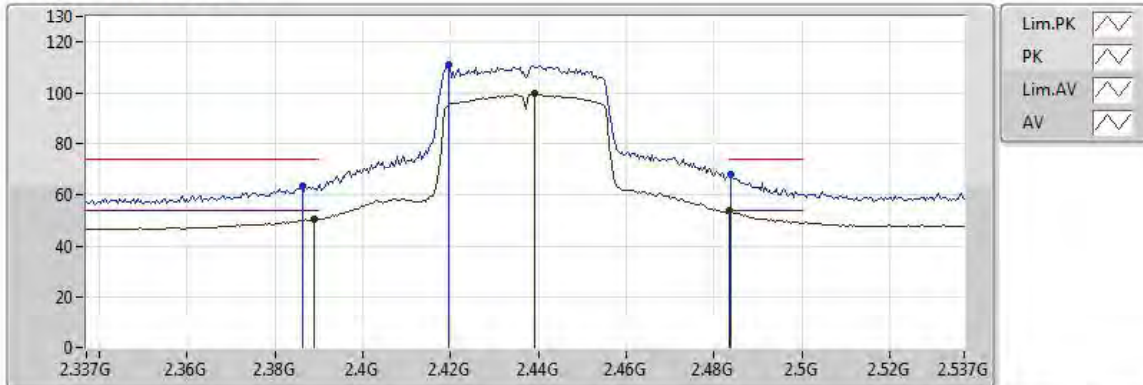


20170831
EUT Y 2TX
Setting 19
02-B-2
FSU

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.844748G	32.98	54.00	-21.02	8.15	3	H	156	1.25	-
PK	4.84358G	46.60	74.00	-27.40	8.15	3	H	156	1.25	-

802.11ac VHT40-BF_Nss1,(MCS0)_2TX

2437MHz_TX

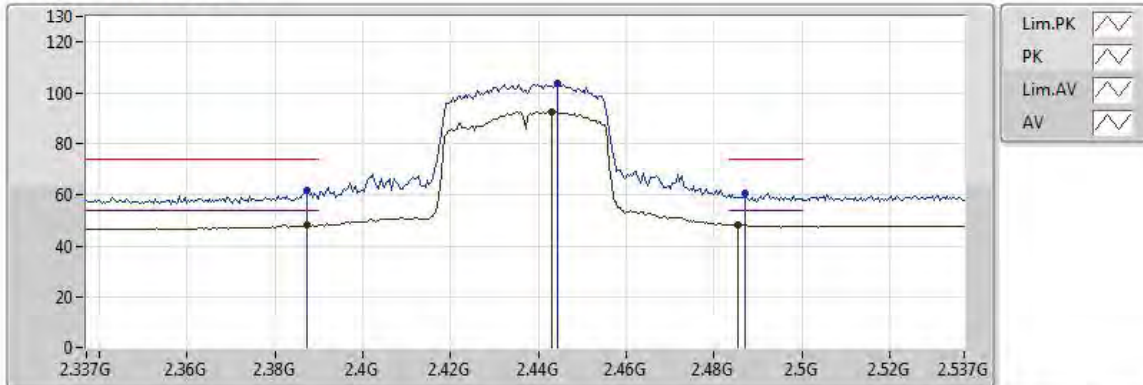


20170831
 EUT Y 2TX
 Setting 20
 02-B-2
 FSU

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.389G	50.53	54.00	-3.47	31.94	3	V	244	1.40	-
AV	2.439G	99.66	Inf	-Inf	32.09	3	V	244	1.40	-
AV	2.483502G	53.56	54.00	-0.44	32.22	3	V	244	1.40	-
PK	2.3862G	63.38	74.00	-10.62	31.93	3	V	244	1.40	-
PK	2.4194G	110.91	Inf	-Inf	32.03	3	V	244	1.40	-
PK	2.4838G	67.83	74.00	-6.17	32.22	3	V	244	1.40	-

802.11ac VHT40-BF_Nss1,(MCS0)_2TX

2437MHz_TX



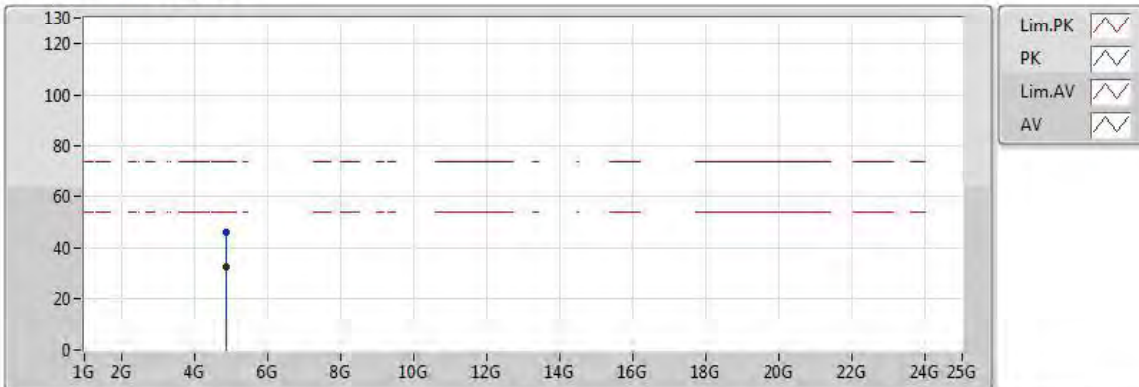
20170831
EUT Y 2TX
Setting 20
02-B-2
FSU

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.3874G	48.29	54.00	-5.71	31.93	3	H	198	1.70	-
AV	2.443G	92.66	Inf	-Inf	32.10	3	H	198	1.70	-
AV	2.4854G	48.17	54.00	-5.83	32.23	3	H	198	1.70	-
PK	2.3874G	61.59	74.00	-12.41	31.93	3	H	198	1.70	-
PK	2.4442G	103.85	Inf	-Inf	32.10	3	H	198	1.70	-
PK	2.487G	60.71	74.00	-13.29	32.23	3	H	198	1.70	-



802.11ac VHT40-BF_Nss1,(MCS0)_2TX

2437MHz_TX



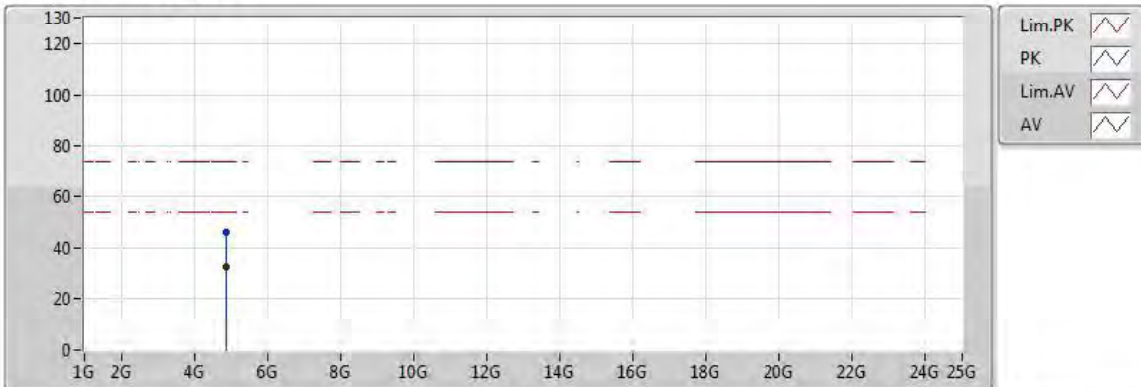
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EUT Y 2TX
Setting 20
02-B-2
FSU

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.874816G	32.40	54.00	-21.60	8.24	3	V	45	1.65	-
PK	4.87412G	45.91	74.00	-28.09	8.24	3	V	45	1.65	-



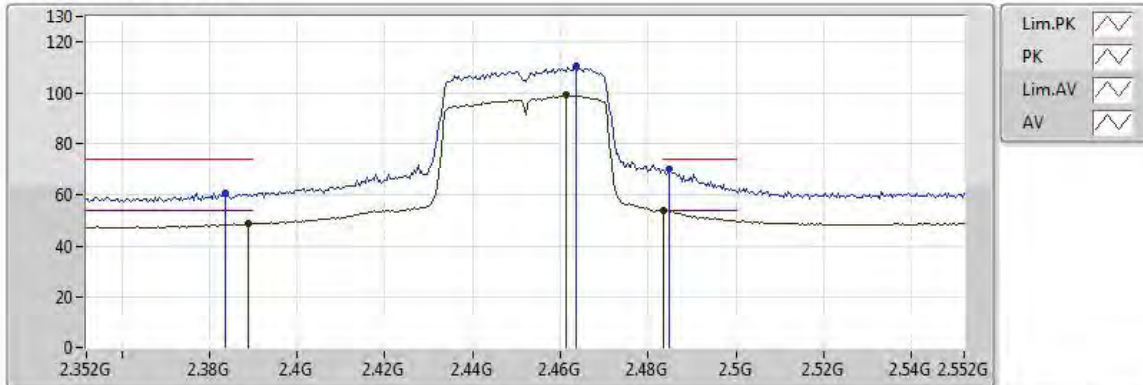
802.11ac VHT40-BF_Nss1,(MCS0)_2TX

2437MHz_TX



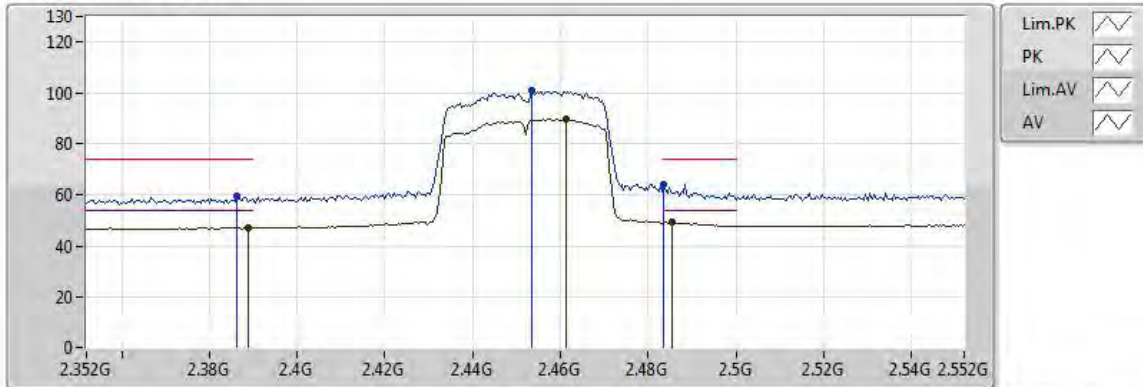
20170831
EUT Y 2TX
Setting 20
02-B-2
FSU

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.873064G	32.54	54.00	-21.46	8.24	3	H	55	2.45	-
PK	4.874504G	46.12	74.00	-27.88	8.24	3	H	55	2.45	-

**802.11ac VHT40-BF_Nss1,(MCS0)_2TX****2452MHz_TX**

20170831
EUT Y 2TX
Setting 18
02-B-2
FSU

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.3888G	48.54	54.00	-5.46	31.94	3	V	265	1.60	-
AV	2.4612G	98.97	Inf	-Inf	32.15	3	V	265	1.60	-
AV	2.4836G	53.87	54.00	-0.13	32.22	3	V	265	1.60	-
PK	2.3836G	60.47	74.00	-13.53	31.92	3	V	265	1.60	-
PK	2.4636G	110.60	Inf	-Inf	32.16	3	V	265	1.60	-
PK	2.4848G	70.04	74.00	-3.96	32.22	3	V	265	1.60	-

**802.11ac VHT40-BF_Nss1,(MCS0)_2TX****2452MHz_TX**

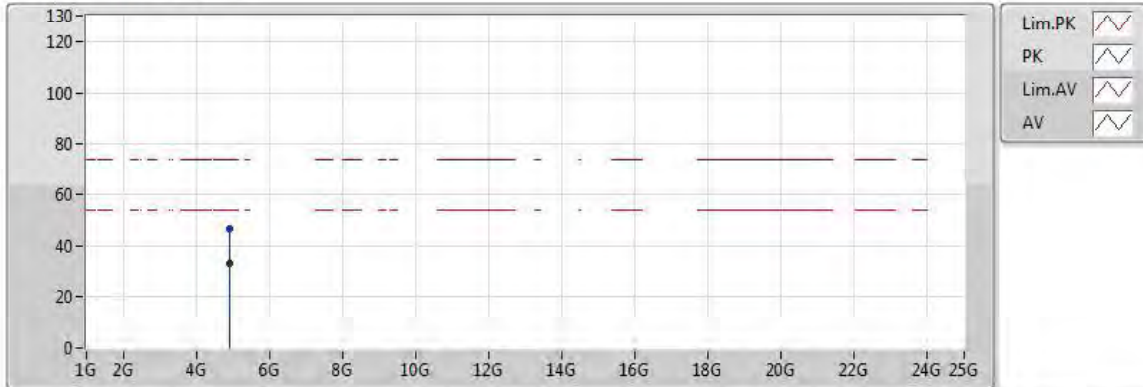
20170831
EUT Y 2TX
Setting 18
02-B-2
FSU

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.3888G	47.18	54.00	-6.82	31.94	3	H	297	2.07	-
AV	2.4612G	89.50	Inf	-Inf	32.15	3	H	297	2.07	-
AV	2.4856G	49.13	54.00	-4.87	32.23	3	H	297	2.07	-
PK	2.3864G	59.12	74.00	-14.88	31.93	3	H	297	2.07	-
PK	2.4536G	100.97	Inf	-Inf	32.13	3	H	297	2.07	-
PK	2.4836G	64.14	74.00	-9.86	32.22	3	H	297	2.07	-



802.11ac VHT40-BF_Nss1,(MCS0)_2TX

2452MHz_TX



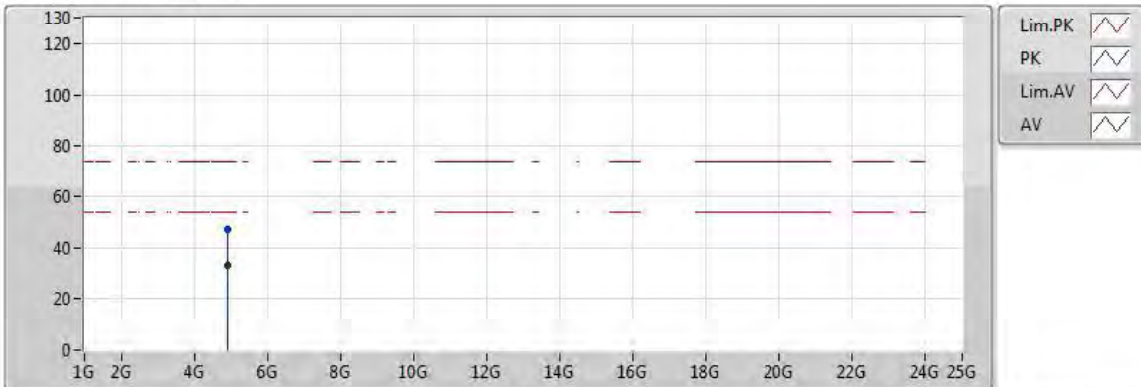
20170831
EUT Y 2TX
Setting 18
02-B-2
FSU

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.905G	33.05	54.00	-20.95	8.34	3	V	39	1.59	-
PK	4.904732G	46.64	74.00	-27.36	8.33	3	V	39	1.59	-



802.11ac VHT40-BF_Nss1,(MCS0)_2TX

2452MHz_TX



20170831
EUT Y 2TX
Setting 18
02-B-2
FSU

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.903576G	33.08	54.00	-20.92	8.33	3	H	217	1.67	-
PK	4.90364G	47.24	74.00	-26.76	8.33	3	H	217	1.67	-



4 Test Equipment and Calibration Data

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.45GHz	Jan. 23, 2017	Jan. 22, 2018	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-1 6-2	04083	150kHz~100MHz	Dec. 14, 2016	Dec. 13, 2017	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Dec. 21, 2016	Dec. 20, 2017	Conduction (CO01-CB)
COND Cable	Woken	Cable	01	150kHz ~ 30MHz	May 23, 2017	May 22, 2018	Conduction (CO01-CB)
Software	Audix	E3	6.120210n	-	N.C.R.	N.C.R.	Conduction (CO01-CB)
BILOG ANTENNA with 6dB Attenuator	TESEQ & EMCI	CBL6112D & N-6-06	37880 & AT-N0609	20MHz ~ 2GHz	Aug. 30, 2017	Aug. 29, 2018	Radiation (03CH01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Mar. 16, 2016*	Mar. 15, 2018*	Radiation (03CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz~18GHz	Nov. 10, 2016	Nov. 09, 2017	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jul. 05, 2017	Jul. 04, 2018	Radiation (03CH01-CB)
Pre-Amplifier	EMCI	EMC330N	980332	20MHz ~ 3GHz	May 02, 2017	May 01, 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. 22, 2016	Nov. 21, 2017	Radiation (03CH01-CB)
EMI Test	R&S	ESCS	100355	9kHz ~ 2.75GHz	May 06, 2017	May 05, 2018	Radiation (03CH01-CB)
RF Cable-low	Woken	Low Cable-16+17	N/A	30 MHz ~ 1 GHz	Oct. 24, 2016	Oct. 23, 2017	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16	N/A	1 GHz ~ 18 GHz	Oct. 24, 2016	Oct. 23, 2017	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16+17	N/A	1 GHz ~ 18 GHz	Oct. 24, 2016	Oct. 23, 2017	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G#1	N/A	18GHz ~ 40 GHz	Oct. 24, 2016	Oct. 23, 2017	Radiation (03CH01-CB)



Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
RF Cable-high	Woken	High Cable-40G#2	N/A	18GHz ~ 40 GHz	Oct. 24, 2016	Oct. 23, 2017	Radiation (03CH01-CB)
Test Software	Audix	E3	6.2009-I0-7	N/A	N/A	N/A	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	Dec. 26, 2016	Dec. 25, 2017	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-6	1 GHz ~26.5 GHz	Oct. 24, 2016	Oct. 23, 2017	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-7	1 GHz ~26.5 GHz	Oct. 24, 2016	Oct. 23, 2017	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-8	1 GHz ~26.5 GHz	Oct. 24, 2016	Oct. 23, 2017	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-9	1 GHz ~26.5 GHz	Oct. 24, 2016	Oct. 23, 2017	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz ~26.5 GHz	Oct. 24, 2016	Oct. 23, 2017	Conducted (TH01-CB)
Power Sensor	Agilent	U2021XA	MY53410001	50MHz~18GHz	Nov. 22, 2016	Nov. 21, 2017	Conducted (TH01-CB)
Power Sensor	Agilent	U2021XA	MY53410002	50MHz~18GHz	Nov. 22, 2016	Nov. 21, 2017	Conducted (TH01-CB)

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

*Calibration Interval of instruments listed above is two year.

N.C.R. means Non-Calibration required.

