



FCC Test Report

Equipment : Linksys Tri-Band Wireless-AC Router
Brand Name : Linksys
Model No. : EA8300, EA8250
FCC ID : Q87-EA8300
Standard : 47 CFR FCC Part 15.247
Operating Band : 2400 MHz – 2483.5 MHz
Function : ☒ Point-to-multipoint; ☐ Point-to-point
Applicant : Linksys LLC
121 Theory, Irvine CA 92617, United States

The product sample received on Dec. 07, 2016 and completely tested on Feb. 21, 2017. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

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

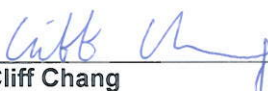

Cliff Chang
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Summary of Test Result

Conformance Test Specifications				
Report Clause	Ref. Std. Clause	Description	Limit	Result
1.1.2	15.203	Antenna Requirement	FCC 15.203	Complied
3.1	15.207	AC Power-line Conducted Emissions	FCC 15.207	Complied
3.2	15.247(a)	DTS Bandwidth	≥500kHz	Complied
3.3	15.247(b)	Maximum Conducted Output Power	Power [dBm]:30	Complied
3.4	15.247(e)	Power Spectral Density	PSD [dBm/3kHz]:8	Complied
3.5	15.247(d)	Emissions in Non-restricted Frequency Bands	Non-Restricted Bands: > 30 dBc	Complied
3.6	15.247(d)	Emissions in Restricted Frequency Bands	Restricted Bands: FCC 15.209	Complied



Report No. : FR710901AA

Revision History

[illegible]

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	802.11g-BF	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.	Brand	P/N	Type	Connector	Gain (dBi)	
					2.4GHz	5GHz Band 4
1	ARISTOTLE	RFA-52-F90S-240-165	Dipole	I-PEX	2.70	3.14
2	ARISTOTLE	RFA-52-F90-195-105	Dipole	I-PEX	2.06	3.47
Ant.	Brand	P/N	Type	Connector	5GHz Band 1	
3	ARISTOTLE	RFA-05-F90-120	Dipole	I-PEX	3.59	
4	ARISTOTLE	RFA-05-F90S-165	Dipole	I-PEX	3.49	
Ant.	Brand	P/N	Type	Connector	Bluetooth	
5	PSA	RFMTA271200NNAB003	PIFA	N/A	2.54	

Note: The EUT has five antennas.

For WLAN 2.4GHz (2TX/2RX):

Ant. 1 (Port 1) and Ant. 2 (Port 2) could transmit/receive simultaneously.

For WLAN 5GHz (2TX/2RX):

For 5GHz Band 4: Ant. 1 (Port 1) and Ant. 2 (Port 2) could transmit/receive simultaneously.

For 5GHz Band 1: Ant. 3 (Port 1) and Ant. 4 (Port 2) could transmit/receive simultaneously.

For Bluetooth (1TX/1RX):

Only Ant. 5 (Port 1) can be used as transmitting/receiving antenna.

1.1.3 Mode Test Duty Cycle

Mode	DC	DCF(dB)
802.11b	0.85	0.706
802.11g-BF	0.962	0.168
802.11ac VHT20-BF	0.869	0.61
802.11ac VHT40.BF	0.782	1.068

1.1.4 EUT Operational Condition

EUT Power Type	From power adapter		
Beamforming Function	☒	With beamforming	☐ Without beamforming
	The product has beamforming function for 802.11a/g/n/ac.		

1.1.5 Table for Multiple Listing

The EUT has two model names which are identical to each other in all aspects except for the following table:

Model No.	Description
EA8300	All models are identical except for the EA8300 supports 256QAM and the EA8250 disable 256QAM.
EA8250	

From the above models, model: EA8300 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 v03r05
- ◆ FCC KDB 662911 D01 v02r01
- ◆ FCC KDB 644545 D01 v01r02
- ◆ 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	Andy Tsai, Peter Lin	20°C / 58 %	Feb. 06, 2017~Feb. 08, 2017
Radiated	03CH01-CB	Jay Luo, Jeff Wu, Steven Liang	25°C / 58%	Dec. 07, 2016~Feb. 21, 2017
AC Conduction	CO01-CB	Da Deng	22°C / 59%	Feb. 20, 2017~Feb. 21, 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	9.74×10^{-8}	Confidence levels of 95%

2 Test Configuration of EUT

2.1 Test Channel Mode

Mode	Power Setting
802.11b_Nss1_2TX	-
2412MHz	24.5
2437MHz	25.5
2462MHz	25.5
802.11g-BF (6Mbps)_2TX	-
2412MHz	21
2437MHz	25.5
2462MHz	20.5
802.11ac VHT20-BF Nss1,(MCS0)_2TX	-
2412MHz	20.5
2437MHz	25.5
2462MHz	20.5
802.11ac VHT40.BF Nss1,(MCS0)_2TX	-
2422MHz	18.5
2437MHz	21
2452MHz	20

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, one is beamforming mode, and the other is non-beamforming mode for 802.11a/g/n/ac, after evaluating, beamforming mode has been evaluated to be the worst case, so it was selected to test and record 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	CTX
1	WLAN 2.4GHz + Adapter 2
2	WLAN 5GHz + Adapter 2
3	Bluetooth + Adapter 2
Mode 2 has been evaluated to be the worst case among Mode 1~3, thus measurement for Mode 4~5 will follow this same test mode.	
4	WLAN 5GHz + Adapter 1
5	WLAN 5GHz + Adapter 3
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	CTX
1	EUT Z axis + WLAN 2.4GHz + Adapter 1
2	EUT Y axis + WLAN 2.4GHz + Adapter 1
Mode 1 has been evaluated to be the worst case among Mode 1~2, thus measurement for Mode 3~4 will follow this same test mode.	
3	EUT Z axis + WLAN 5GHz + Adapter 1
4	EUT Z axis + Bluetooth + Adapter 1
Mode 1 has been evaluated to be the worst case among Mode 1~4, thus measurement for Mode 5~6 will follow this same test mode.	
5	EUT Z axis + WLAN 2.4GHz + Adapter 2
6	EUT Z axis + WLAN 2.4GHz + Adapter 3
For operating mode 1 is the worst case and it was record in this test report.	
Operating Mode > 1GHz	CTX
1	EUT Z axis
2	EUT Y axis
Mode 1 has been evaluated to be the worst case after evaluating. Consequently, measurement will follow this same test mode.	

The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis
Test Condition	Radiated measurement
Operating Mode	Normal Link
1	EUT Z axis + WLAN 2.4GHz + WLAN 5GHz
2	EUT Y axis + WLAN 2.4GHz + WLAN 5GHz
For operating mode 1 is the worst case and it was record in this test report.	
Refer to Appendix G for Radiated Emission Co-location.	

The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis
Operating Mode	
1	WLAN 2.4GHz + WLAN 5GHz
2	WLAN 5GHz + Bluetooth
Refer to Sporton Test Report No.: FA710901 for Co-location RF Exposure Evaluation	

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 98%.

For Normal Link:

During the test, the EUT operation to normal function.

2.4 Accessories

Accessories			
Power	Brand	Model	Rating
Adapter 1 (Fixed plug)	LEI	MU24-Y120200-A1	Input: 100-240Vac, 50/60Hz, 0.7A Output: 12Vdc, 2.0A
Adapter 2 (Fixed plug)	DVE	DSA-24PFM-12 FUS 120200	Input: 100-240Vac, 50/60Hz, 0.8A Output: 12Vdc, 2A
Adapter 3 (Interchangeable plug)	DVE	DSA-24PFM-12 FCA 120200	Input: 100-240Vac, 50/60Hz, 0.8A Output: 12Vdc, 2A
Others			
Plug*1 (for adapter 3 use only)			
RJ-45 cable: Non-shielded, 0.9m			

Note: Adapter does not affect the radio tests, there is only adapter 1 tested and recorded in this report.

2.5 Support Equipment

For Test Site No: CO01-CB

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
1	NB	DELL	E6430	DoC
2	Flash disk3.0	Transcend	JetFlash-700	DoC

For Test Site No: 03CH01-CB (below 1GHz) and TH01-CB

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

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

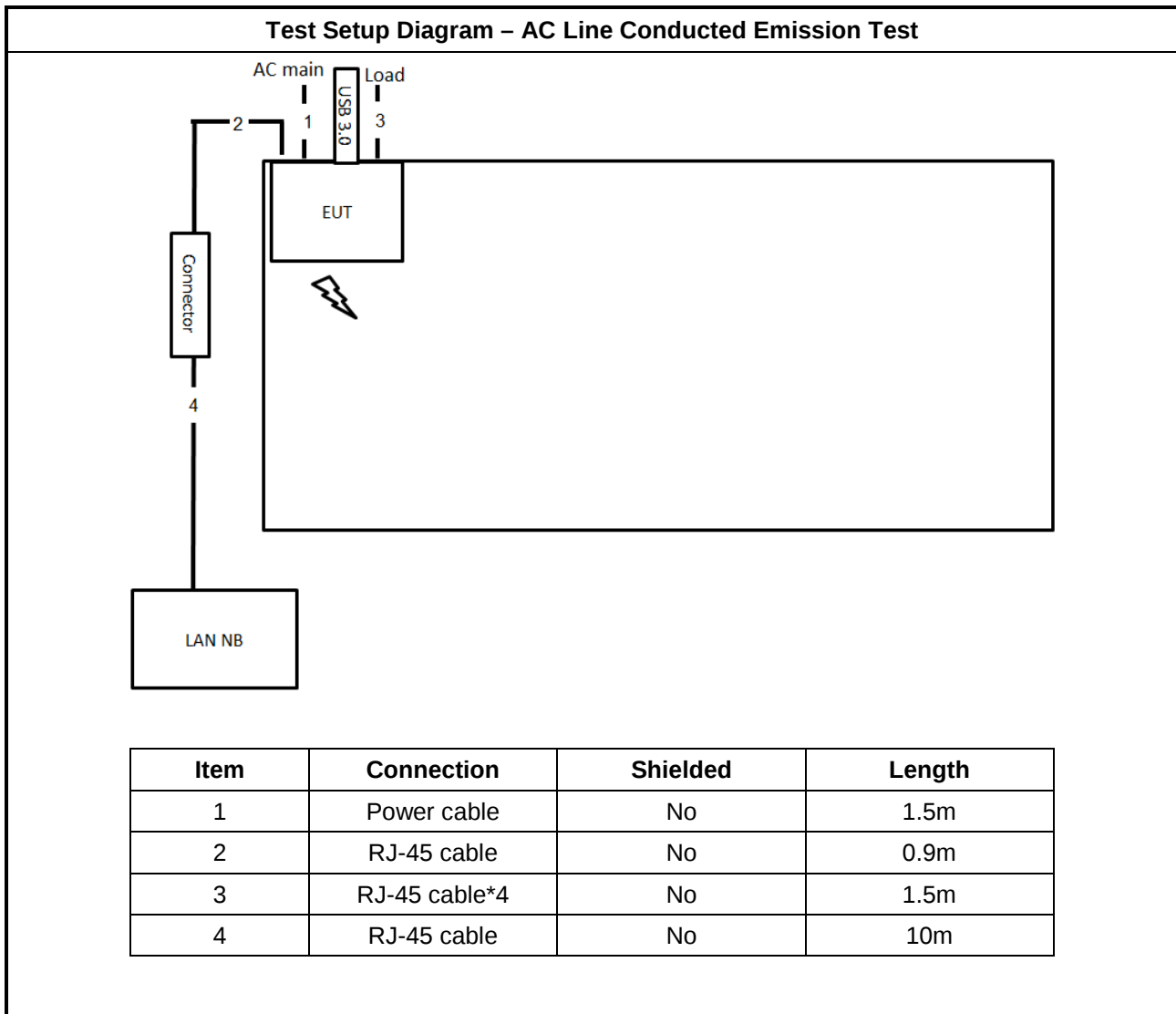
Non-beamforming mode:

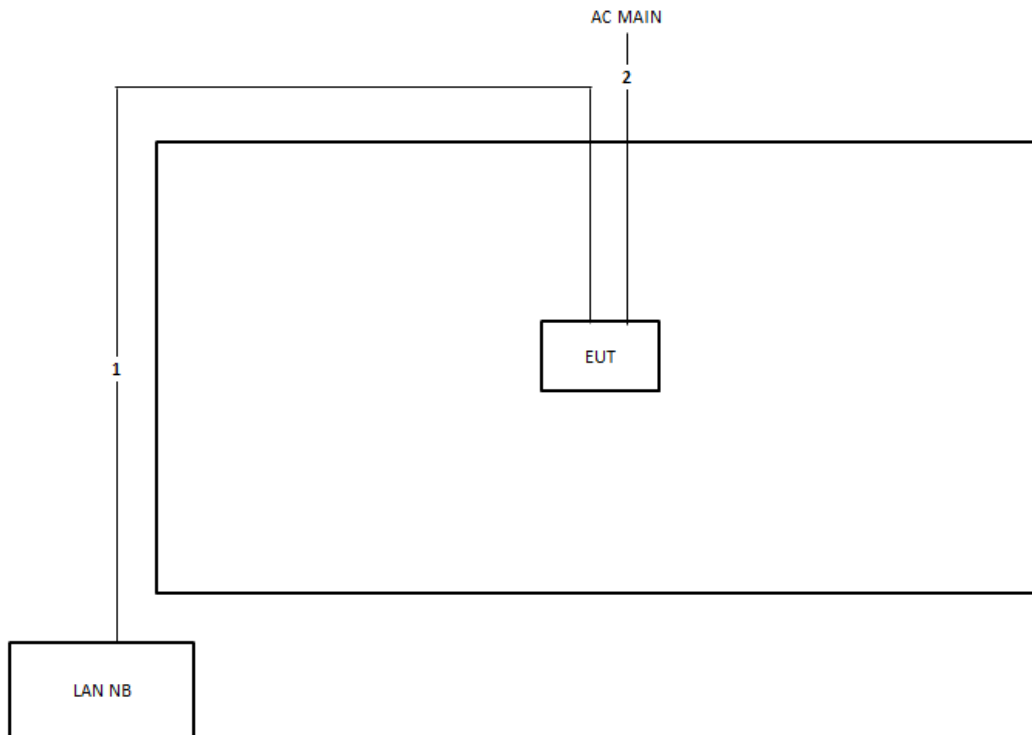
Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
1	NB	DELL	E4300	DoC

Beamforming mode:

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
1	NB*2	DELL	E4300	DoC
2	RX Device (WLAN AP)	LINKSYS	1117-2253	DoC

2.6 Test Setup Diagram

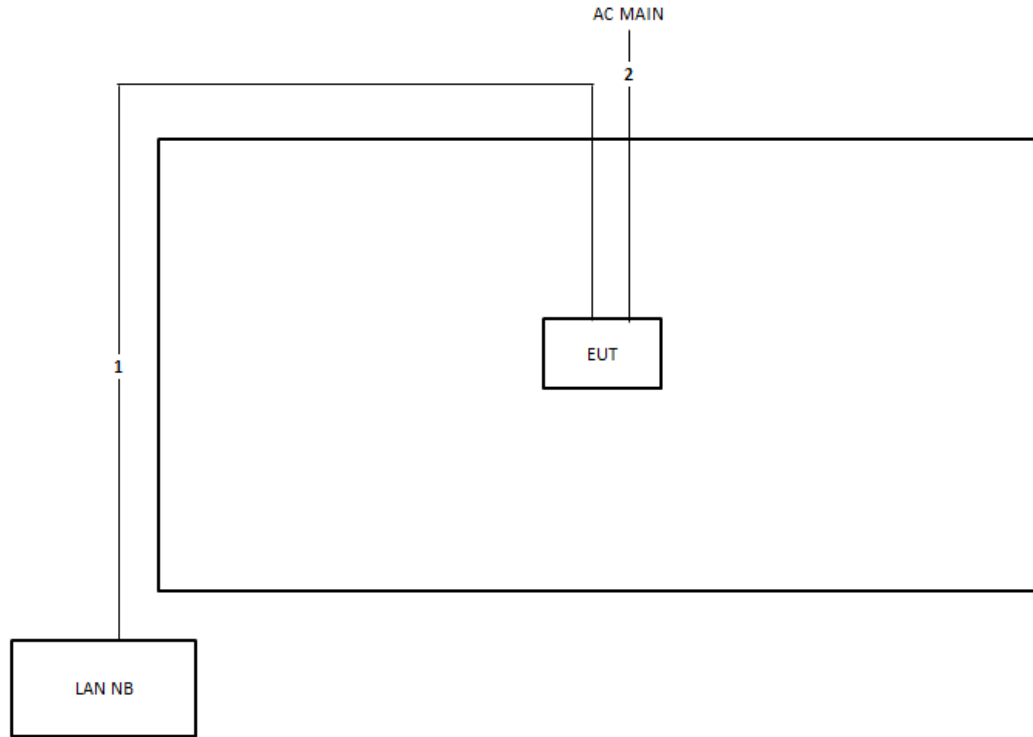


Test Setup Diagram - Radiated Test < 1GHz


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

Test Setup Diagram - Radiated Test > 1GHz

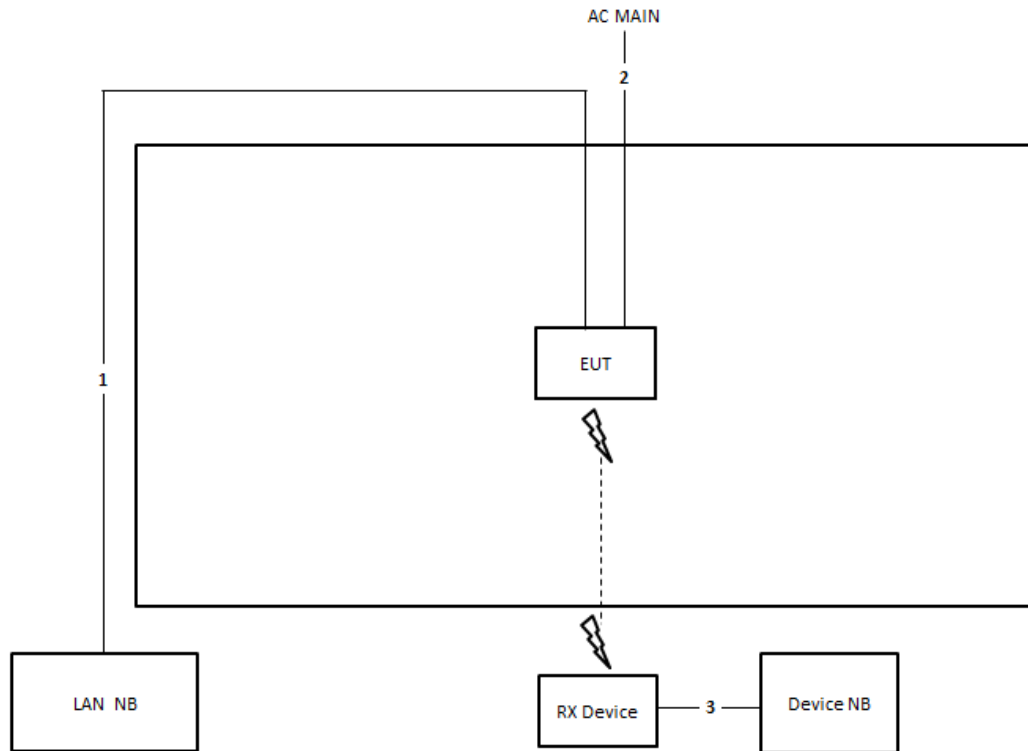
Non-beamforming mode:



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

Test Setup Diagram - Radiated Test > 1GHz

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.

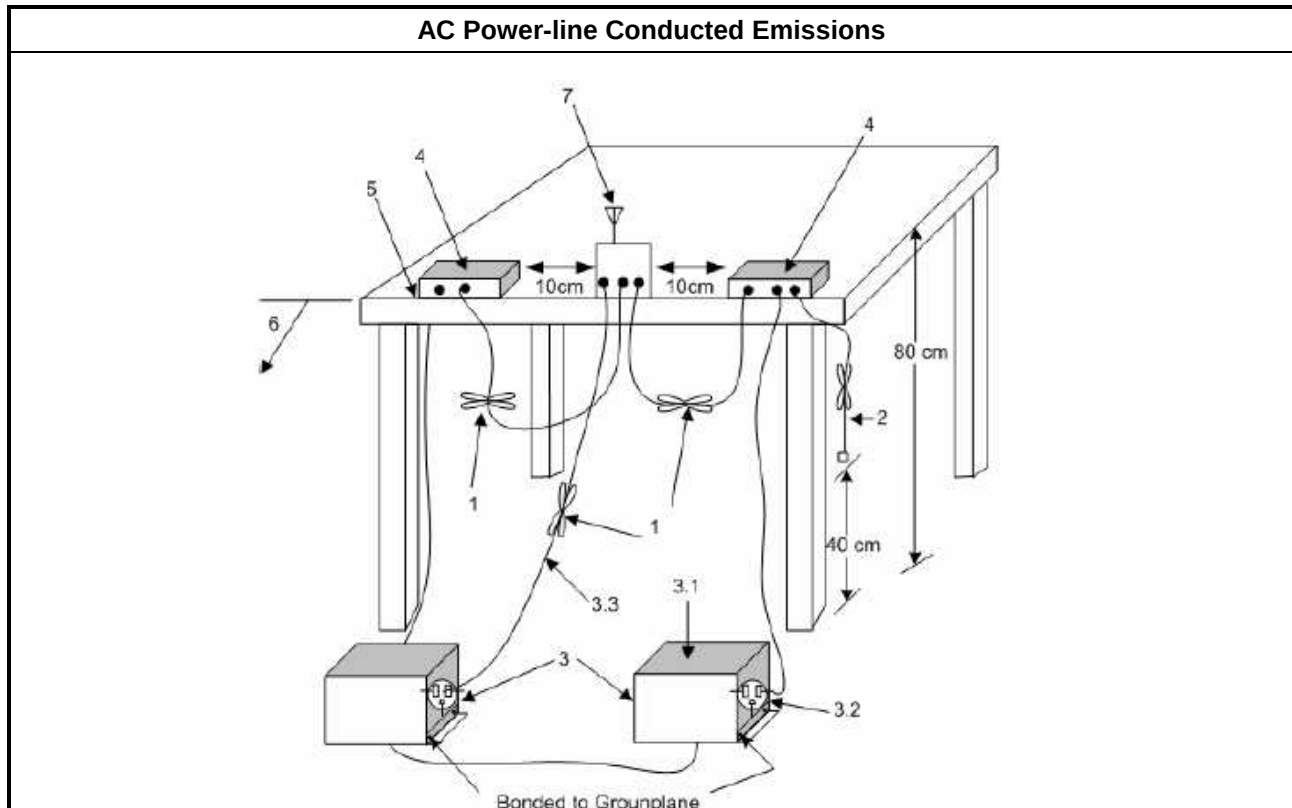
3.1.2 Measuring Instruments

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

Refer as Appendix A

3.2 DTS Bandwidth

3.2.1 6dB Bandwidth Limit

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

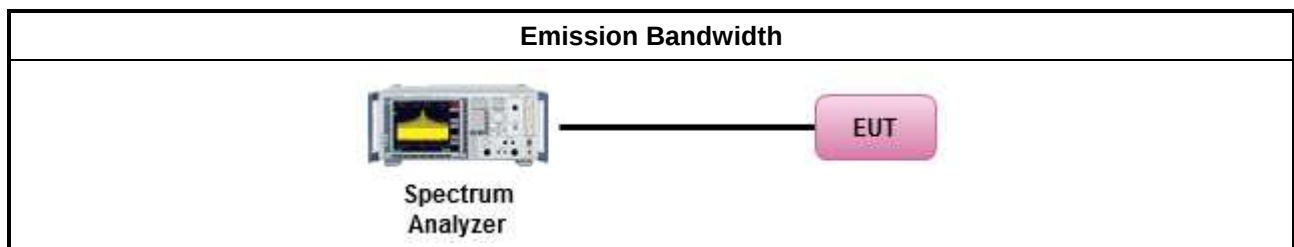
3.2.2 Measuring Instruments

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

Refer as Appendix B

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.	

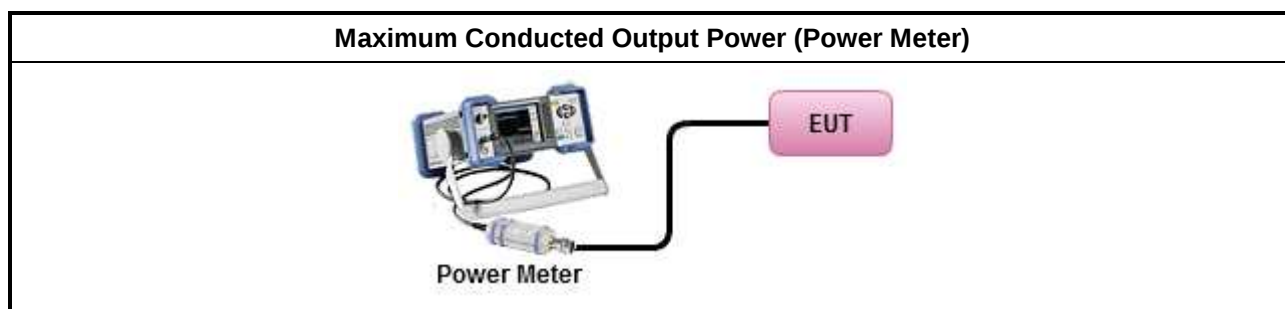
3.3.2 Measuring Instruments

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: $P_{\text{total}} = P_1 + P_2 + \dots + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $\text{EIRP}_{\text{total}} = P_{\text{total}} + \text{DG}$	

3.3.4 Test Setup



3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix C

3.4 Power Spectral Density

3.4.1 Power Spectral Density Limit

Power Spectral Density Limit
Power Spectral Density (PSD) $\leq$ 8 dBm/3kHz

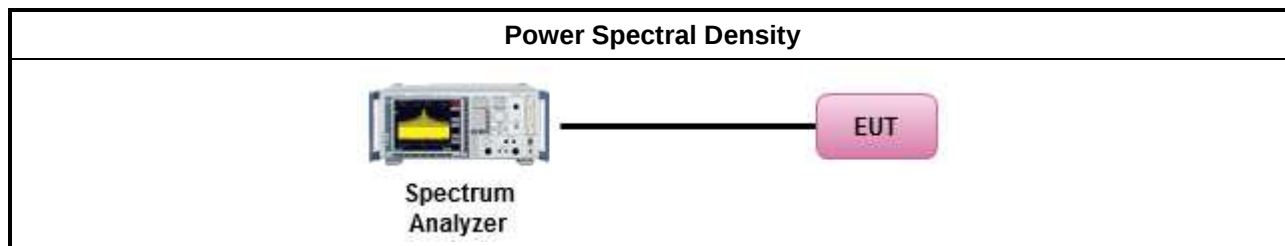
3.4.2 Measuring Instruments

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 AVGPSD-1 (spectral trace averaging).
☐ Refer as FCC KDB 558074, clause 10.4 Method AVGPSD-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 AVGPSD-1 Alt (spectral trace averaging).
☐ Refer as FCC KDB 558074, clause 10.6 Method AVGPSD-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

Refer as Appendix D

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.	

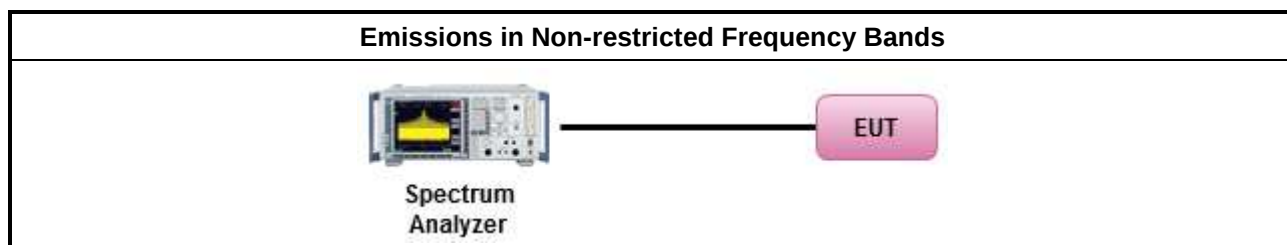
3.5.2 Measuring Instruments

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

Refer as Appendix E

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.

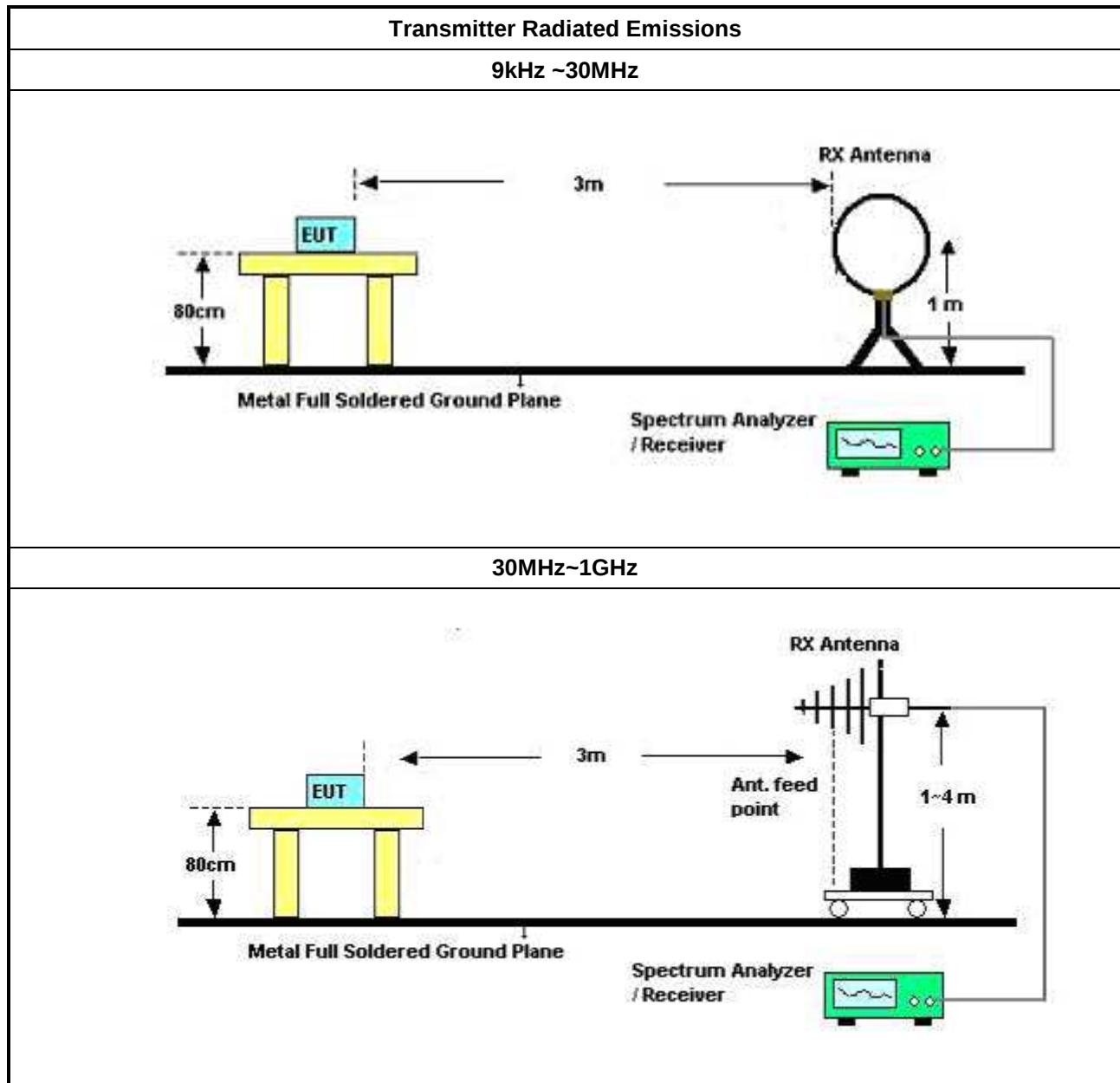
3.6.2 Measuring Instruments

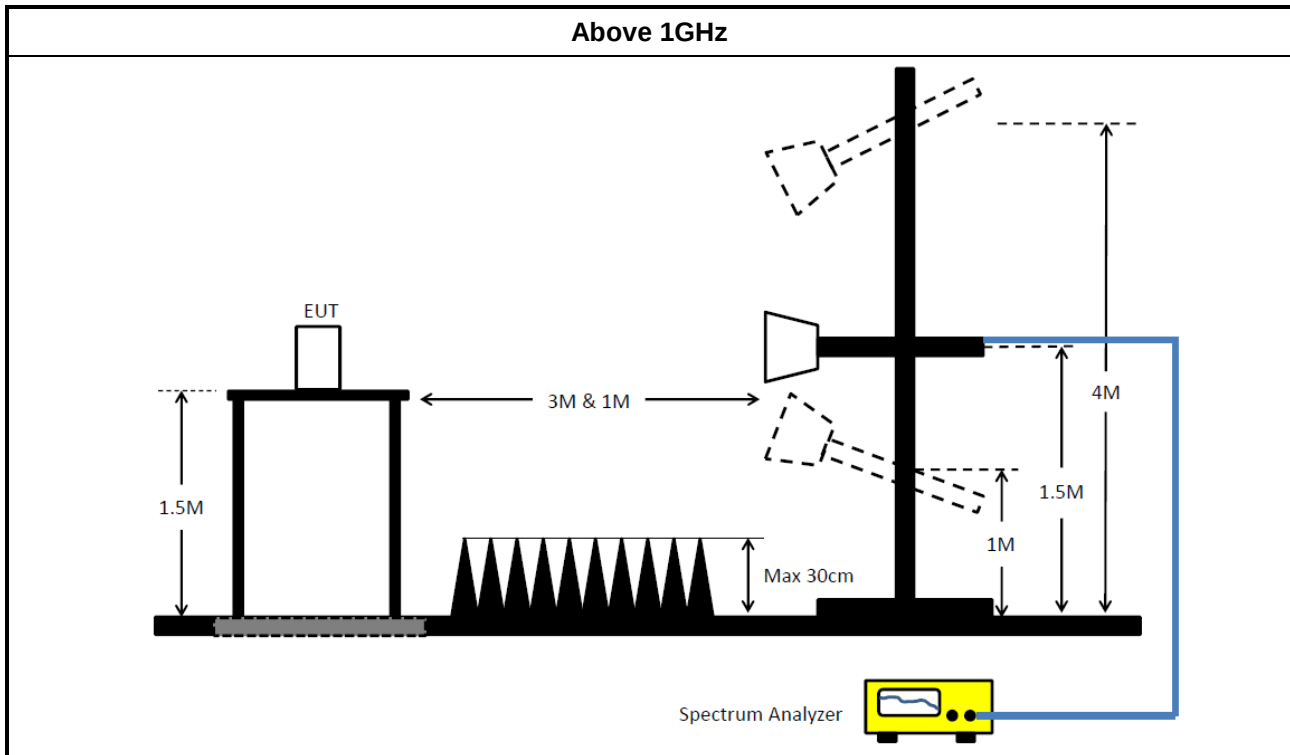
Refer a test equipment and calibration data table in this test report.

3.6.3 Test Procedures

Test Method	
The average emission levels shall be measured in [duty cycle ≥ 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





3.6.5 Transmitter Radiated Unwanted Emissions (Below 30MHz)

All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

3.6.6 Test Result of Transmitter Radiated Unwanted Emissions

Refer as Appendix F

4 Test Equipment and Calibration Data

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.45GHz	Jan. 23, 2017	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Dec. 14, 2016	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Dec. 21, 2016	Conduction (CO01-CB)
COND Cable	Woken	Cable	01	150kHz ~ 30MHz	May 24, 2016	Conduction (CO01-CB)
Software	Audix	E3	6.120210n	-	N.C.R.	Conduction (CO01-CB)
BILOG ANTENNA with 6dB Attenuator	TESEQ & EMCI	CBL6112D & N-6-06	37880 & AT-N0609	20MHz ~ 2GHz	Aug. 30, 2016	Radiation (03CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz ~ 18GHz	Nov. 10, 2016	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jul. 25, 2016	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10991	0.1MHz ~ 1.3GHz	Mar. 15, 2016	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Jan. 18, 2016	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Jan. 16, 2017	Radiation (03CH01-CB)
Pre-Amplifier	MITEQ	TTA1840-35-HG	1864479	18GHz ~ 40GHz	Jun. 28, 2016	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	Nov. 21, 2016	Radiation (03CH01-CB)
EMI Test	R&S	ESCS	100355	9kHz ~ 2.75GHz	May 16, 2016	Radiation (03CH01-CB)
RF Cable-low	Woken	Low Cable-16+17	N/A	30 MHz ~ 1 GHz	Oct. 24, 2016	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16	N/A	1 GHz ~ 18 GHz	Oct. 24, 2016	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16+17	N/A	1 GHz ~ 18 GHz	Oct. 24, 2016	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G#1	N/A	18GHz ~ 40 GHz	Oct. 24, 2016	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G#2	N/A	18GHz ~ 40 GHz	Oct. 24, 2016	Radiation (03CH01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Mar. 16, 2016*	Radiation (03CH01-CB)
Test Software	Audix	E3	6.2009-I0-7	N/A	N/A	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	Dec. 26, 2016	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-6	1 GHz – 26.5 GHz	Oct. 24, 2016	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-7	1 GHz –26.5 GHz	Oct. 24, 2016	Conducted (TH01-CB)



FCC Test Report

Report No. : FR710901AA

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
RF Cable-high	Woken	RG402	High Cable-8	1 GHz –26.5 GHz	Oct. 24, 2016	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-9	1 GHz –26.5 GHz	Oct. 24, 2016	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz –26.5 GHz	Oct. 24, 2016	Conducted (TH01-CB)
Power Sensor	Agilent	U2021XA	MY53410001	50MHz~18GHz	Nov. 22, 2016	Conducted (TH01-CB)

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

“*” Calibration Interval of instruments listed above is two years.

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



AC Power-line Conducted Emissions Result

Appendix A

AC Power-line Conducted Emissions Result																																																																																																																																																					
Operating Mode			2			Power Phase		Neutral																																																																																																																																													
Operating Function			CTX																																																																																																																																																		
Level (dBuV) Date: 2017-02-20 Time: 17:02:57 Frequency (MHz) <table><tr><th></th><th>Freq</th><th>Level</th><th>Over</th><th>Limit</th><th>Read</th><th>LISN</th><th>Cable</th><th>Remark</th><th>Pol/Phase</th></tr><tr><th></th><th>MHz</th><th>dBuV</th><th>Limit</th><th>Line</th><th>Level</th><th>Factor</th><th>Loss</th><th></th><th></th></tr><tr><td>1</td><td>0.1590</td><td>33.36</td><td>-22.16</td><td>55.52</td><td>23.37</td><td>9.95</td><td>0.04</td><td>Average</td><td>NEUTRAL</td></tr><tr><td>2</td><td>0.1590</td><td>40.74</td><td>-24.78</td><td>65.52</td><td>30.75</td><td>9.95</td><td>0.04</td><td>QP</td><td>NEUTRAL</td></tr><tr><td>3</td><td>0.2863</td><td>38.00</td><td>-12.63</td><td>50.63</td><td>27.98</td><td>9.97</td><td>0.05</td><td>Average</td><td>NEUTRAL</td></tr><tr><td>4</td><td>0.2863</td><td>44.97</td><td>-15.66</td><td>60.63</td><td>34.95</td><td>9.97</td><td>0.05</td><td>QP</td><td>NEUTRAL</td></tr><tr><td>5</td><td>0.5265</td><td>28.95</td><td>-17.05</td><td>46.00</td><td>18.94</td><td>9.97</td><td>0.04</td><td>Average</td><td>NEUTRAL</td></tr><tr><td>6</td><td>0.5265</td><td>36.22</td><td>-19.78</td><td>56.00</td><td>26.21</td><td>9.97</td><td>0.04</td><td>QP</td><td>NEUTRAL</td></tr><tr><td>7</td><td>0.8261</td><td>26.67</td><td>-19.33</td><td>46.00</td><td>16.64</td><td>9.98</td><td>0.05</td><td>Average</td><td>NEUTRAL</td></tr><tr><td>8</td><td>0.8261</td><td>33.78</td><td>-22.22</td><td>56.00</td><td>23.75</td><td>9.98</td><td>0.05</td><td>QP</td><td>NEUTRAL</td></tr><tr><td>9</td><td>2.2367</td><td>24.18</td><td>-21.82</td><td>46.00</td><td>14.11</td><td>9.98</td><td>0.09</td><td>Average</td><td>NEUTRAL</td></tr><tr><td>10</td><td>2.2367</td><td>31.38</td><td>-24.62</td><td>56.00</td><td>21.31</td><td>9.98</td><td>0.09</td><td>QP</td><td>NEUTRAL</td></tr><tr><td>11</td><td>12.7161</td><td>20.63</td><td>-29.37</td><td>50.00</td><td>10.22</td><td>10.20</td><td>0.21</td><td>Average</td><td>NEUTRAL</td></tr><tr><td>12</td><td>12.7161</td><td>27.59</td><td>-32.41</td><td>60.00</td><td>17.18</td><td>10.20</td><td>0.21</td><td>QP</td><td>NEUTRAL</td></tr></table>											Freq	Level	Over	Limit	Read	LISN	Cable	Remark	Pol/Phase		MHz	dBuV	Limit	Line	Level	Factor	Loss			1	0.1590	33.36	-22.16	55.52	23.37	9.95	0.04	Average	NEUTRAL	2	0.1590	40.74	-24.78	65.52	30.75	9.95	0.04	QP	NEUTRAL	3	0.2863	38.00	-12.63	50.63	27.98	9.97	0.05	Average	NEUTRAL	4	0.2863	44.97	-15.66	60.63	34.95	9.97	0.05	QP	NEUTRAL	5	0.5265	28.95	-17.05	46.00	18.94	9.97	0.04	Average	NEUTRAL	6	0.5265	36.22	-19.78	56.00	26.21	9.97	0.04	QP	NEUTRAL	7	0.8261	26.67	-19.33	46.00	16.64	9.98	0.05	Average	NEUTRAL	8	0.8261	33.78	-22.22	56.00	23.75	9.98	0.05	QP	NEUTRAL	9	2.2367	24.18	-21.82	46.00	14.11	9.98	0.09	Average	NEUTRAL	10	2.2367	31.38	-24.62	56.00	21.31	9.98	0.09	QP	NEUTRAL	11	12.7161	20.63	-29.37	50.00	10.22	10.20	0.21	Average	NEUTRAL	12	12.7161	27.59	-32.41	60.00	17.18	10.20	0.21	QP	NEUTRAL
	Freq	Level	Over	Limit	Read	LISN	Cable	Remark	Pol/Phase																																																																																																																																												
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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.)																																																																																																																																																					



AC Power-line Conducted Emissions Result

Appendix A

AC Power-line Conducted Emissions Result																																																																																																																																																			
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Level (dBuV) Date: 2017-02-20 Time: 17:01:16 <table><tr><th></th><th>Freq</th><th>Level</th><th>Over</th><th>Limit</th><th>Read</th><th>LISN</th><th>Cable</th><th rowspan="2">Remark</th><th rowspan="2">Pol/Phase</th></tr><tr><th></th><th>MHz</th><th>dBuV</th><th>Limit</th><th>Line</th><th>Level</th><th>Factor</th><th>Loss</th></tr><tr><td>1</td><td>0.2924</td><td>36.88</td><td>-13.58</td><td>50.46</td><td>26.92</td><td>9.91</td><td>0.05</td><td>Average</td><td>LINE</td></tr><tr><td>2</td><td>0.2924</td><td>44.29</td><td>-16.17</td><td>60.46</td><td>34.33</td><td>9.91</td><td>0.05</td><td>QP</td><td>LINE</td></tr><tr><td>3</td><td>0.6826</td><td>27.21</td><td>-18.79</td><td>46.00</td><td>17.22</td><td>9.94</td><td>0.05</td><td>Average</td><td>LINE</td></tr><tr><td>4</td><td>0.6826</td><td>34.38</td><td>-21.62</td><td>56.00</td><td>24.39</td><td>9.94</td><td>0.05</td><td>QP</td><td>LINE</td></tr><tr><td>5</td><td>1.5684</td><td>24.07</td><td>-21.93</td><td>46.00</td><td>14.00</td><td>10.00</td><td>0.07</td><td>Average</td><td>LINE</td></tr><tr><td>6</td><td>1.5684</td><td>30.81</td><td>-25.19</td><td>56.00</td><td>20.74</td><td>10.00</td><td>0.07</td><td>QP</td><td>LINE</td></tr><tr><td>7</td><td>3.4722</td><td>21.37</td><td>-24.63</td><td>46.00</td><td>11.29</td><td>9.96</td><td>0.12</td><td>Average</td><td>LINE</td></tr><tr><td>8</td><td>3.4722</td><td>28.24</td><td>-27.76</td><td>56.00</td><td>18.16</td><td>9.96</td><td>0.12</td><td>QP</td><td>LINE</td></tr><tr><td>9</td><td>9.2532</td><td>20.31</td><td>-29.69</td><td>50.00</td><td>10.08</td><td>10.05</td><td>0.18</td><td>Average</td><td>LINE</td></tr><tr><td>10</td><td>9.2532</td><td>27.21</td><td>-32.79</td><td>60.00</td><td>16.98</td><td>10.05</td><td>0.18</td><td>QP</td><td>LINE</td></tr><tr><td>11</td><td>16.6612</td><td>20.57</td><td>-29.43</td><td>50.00</td><td>10.16</td><td>10.18</td><td>0.23</td><td>Average</td><td>LINE</td></tr><tr><td>12</td><td>16.6612</td><td>27.32</td><td>-32.68</td><td>60.00</td><td>16.91</td><td>10.18</td><td>0.23</td><td>QP</td><td>LINE</td></tr></table>											Freq	Level	Over	Limit	Read	LISN	Cable	Remark	Pol/Phase		MHz	dBuV	Limit	Line	Level	Factor	Loss	1	0.2924	36.88	-13.58	50.46	26.92	9.91	0.05	Average	LINE	2	0.2924	44.29	-16.17	60.46	34.33	9.91	0.05	QP	LINE	3	0.6826	27.21	-18.79	46.00	17.22	9.94	0.05	Average	LINE	4	0.6826	34.38	-21.62	56.00	24.39	9.94	0.05	QP	LINE	5	1.5684	24.07	-21.93	46.00	14.00	10.00	0.07	Average	LINE	6	1.5684	30.81	-25.19	56.00	20.74	10.00	0.07	QP	LINE	7	3.4722	21.37	-24.63	46.00	11.29	9.96	0.12	Average	LINE	8	3.4722	28.24	-27.76	56.00	18.16	9.96	0.12	QP	LINE	9	9.2532	20.31	-29.69	50.00	10.08	10.05	0.18	Average	LINE	10	9.2532	27.21	-32.79	60.00	16.98	10.05	0.18	QP	LINE	11	16.6612	20.57	-29.43	50.00	10.16	10.18	0.23	Average	LINE	12	16.6612	27.32	-32.68	60.00	16.91	10.18	0.23	QP	LINE
	Freq	Level	Over	Limit	Read	LISN	Cable	Remark	Pol/Phase																																																																																																																																										
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Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
802.11b_Nss1_2TX	-	-	-	-	-
2.4-2.4835GHz	9.075M	13.493M	13M5G1D	7.55M	12.219M
802.11g_(6Mbps)_2TX	-	-	-	-	-
2.4-2.4835GHz	16.35M	16.542M	16M5D1D	15.925M	16.342M
802.11ac VHT20-BF_Nss1,(MCS0)_2TX	-	-	-	-	-
2.4-2.4835GHz	17.55M	17.691M	17M7D1D	15.65M	17.516M
VHT40.BF_Nss1,(MCS0)_2TX	-	-	-	-	-
2.4-2.4835GHz	35.9M	36.082M	36M1D1D	20.95M	35.732M

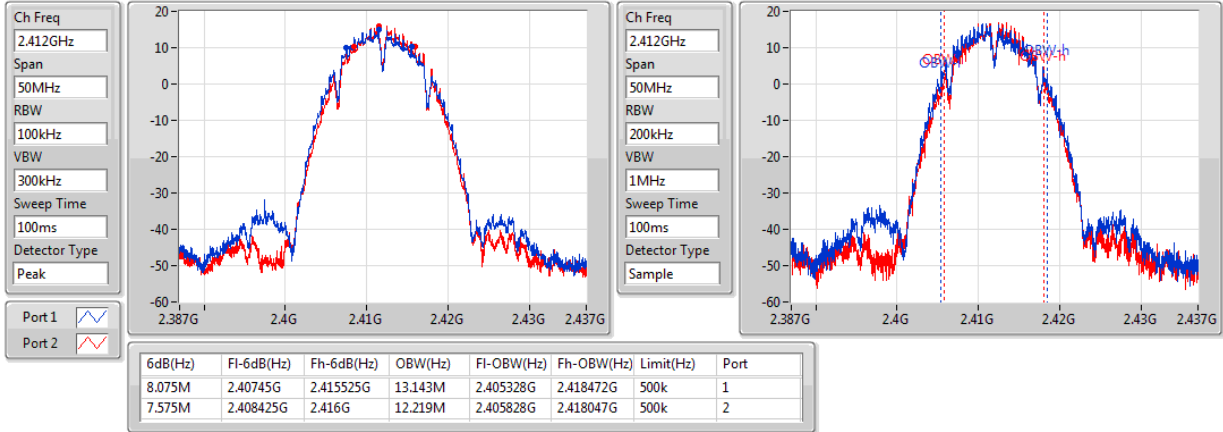
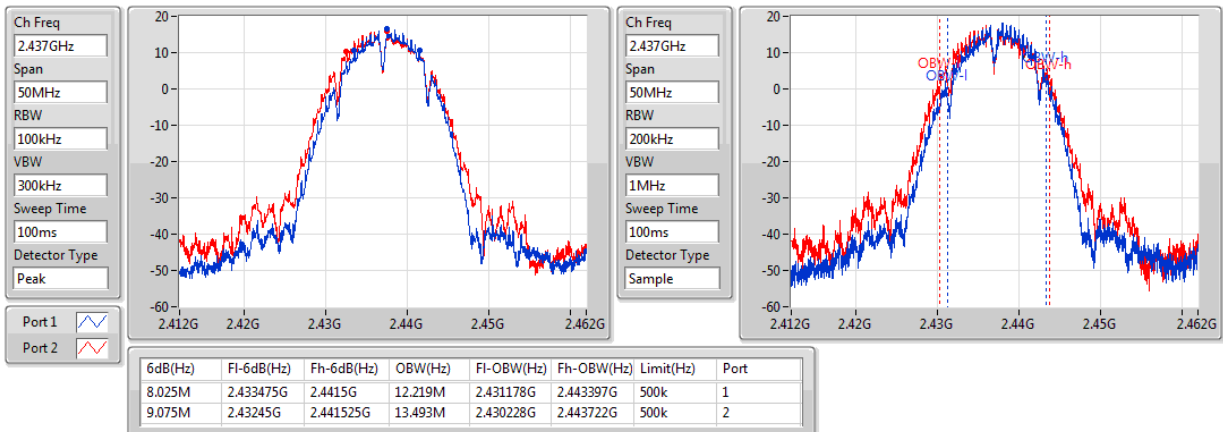
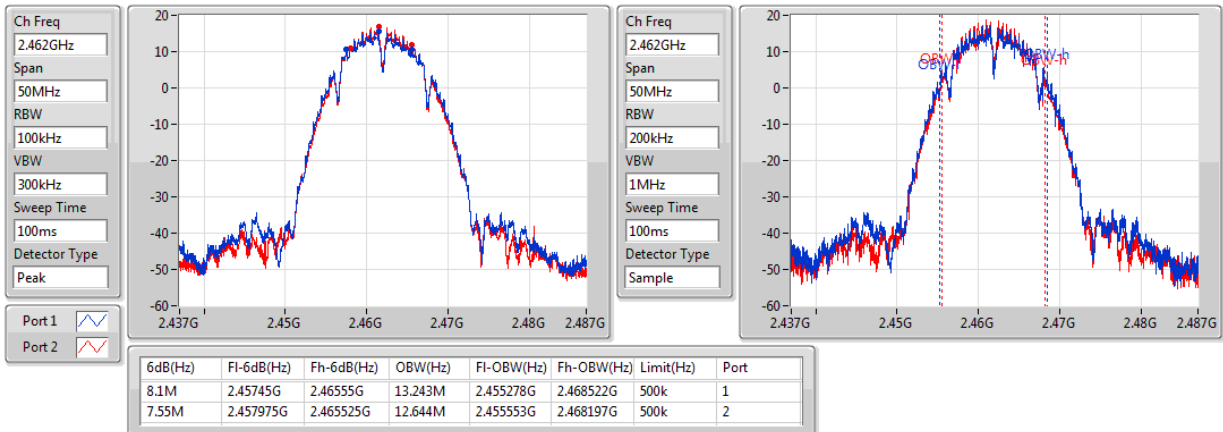
Max-N dB = Maximum 6dB down bandwidth; **Max-OBW** = Maximum 99% occupied bandwidth;

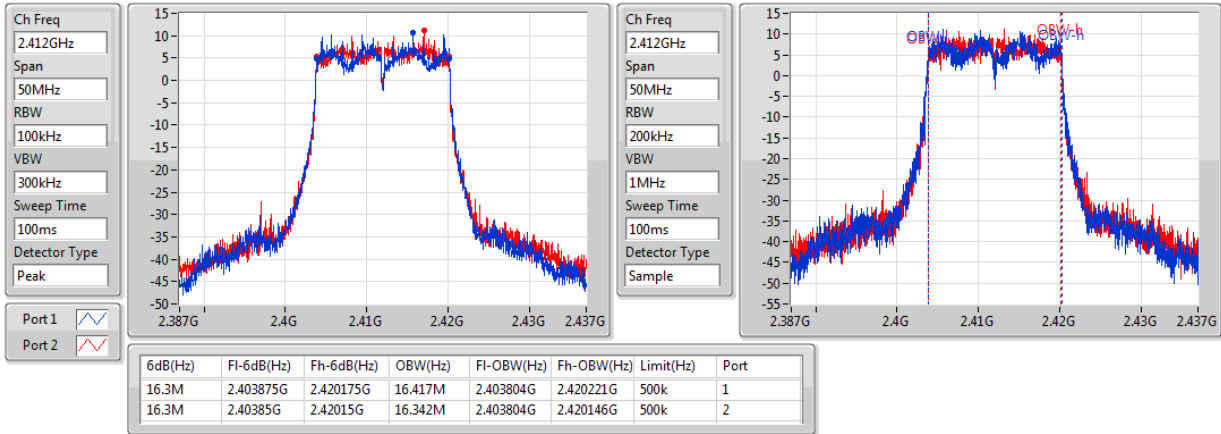
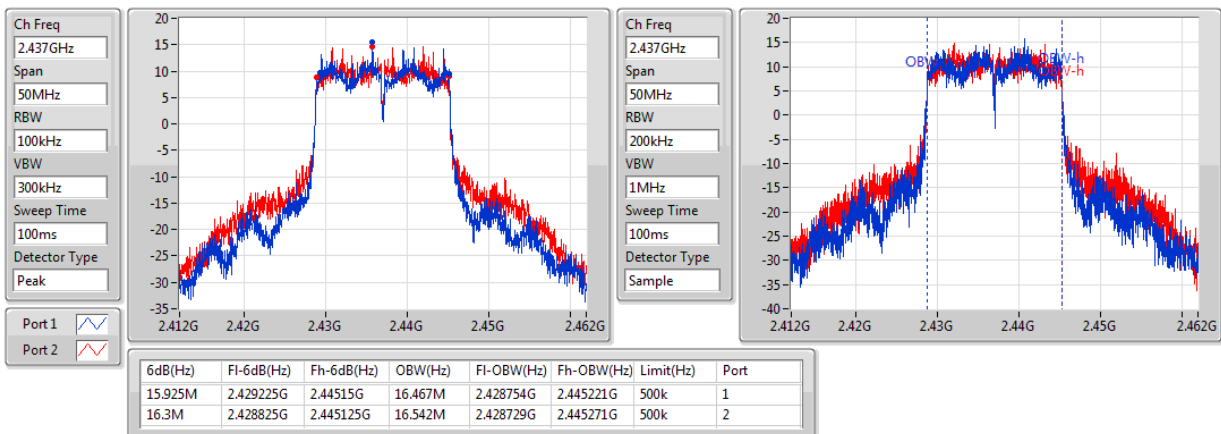
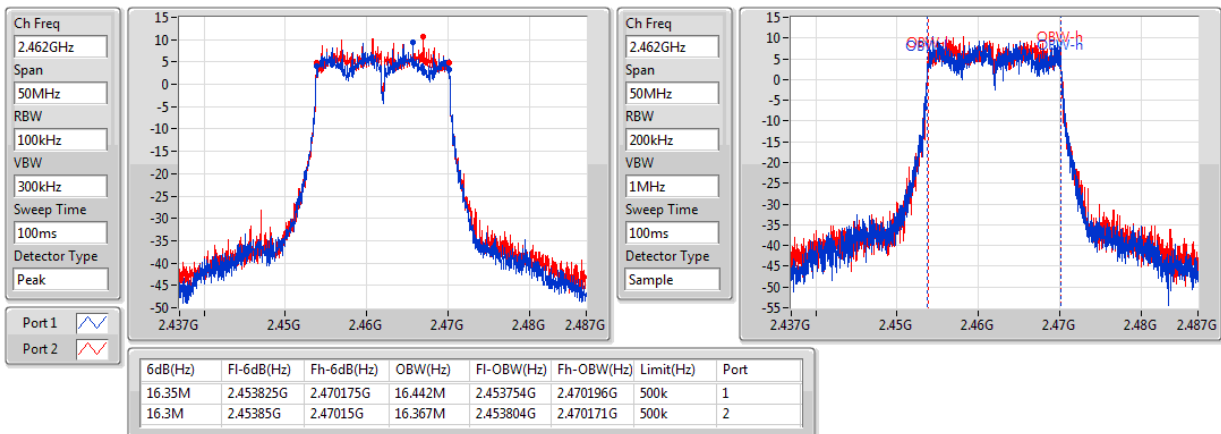
Min-N dB = Minimum 6dB down bandwidth; **Min-OBW** = Minimum 99% occupied bandwidth;

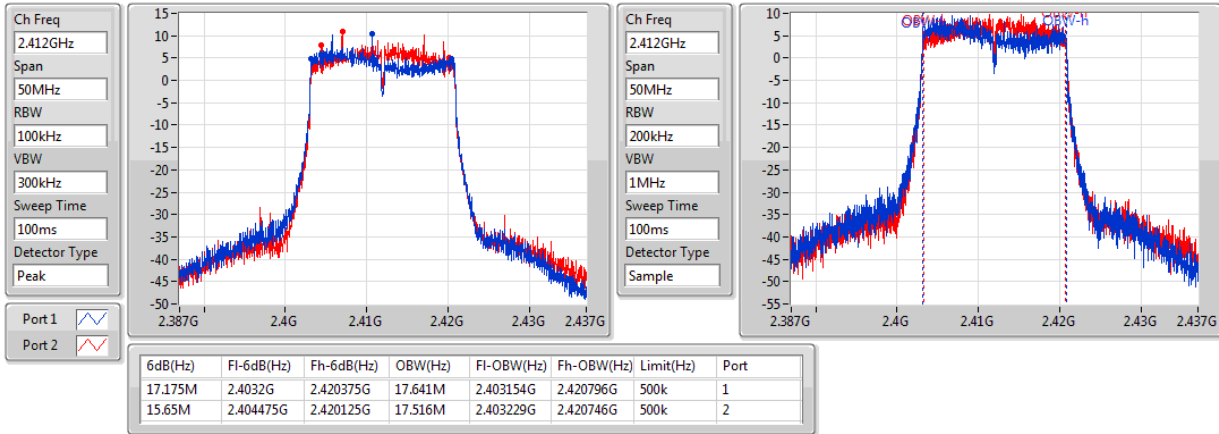
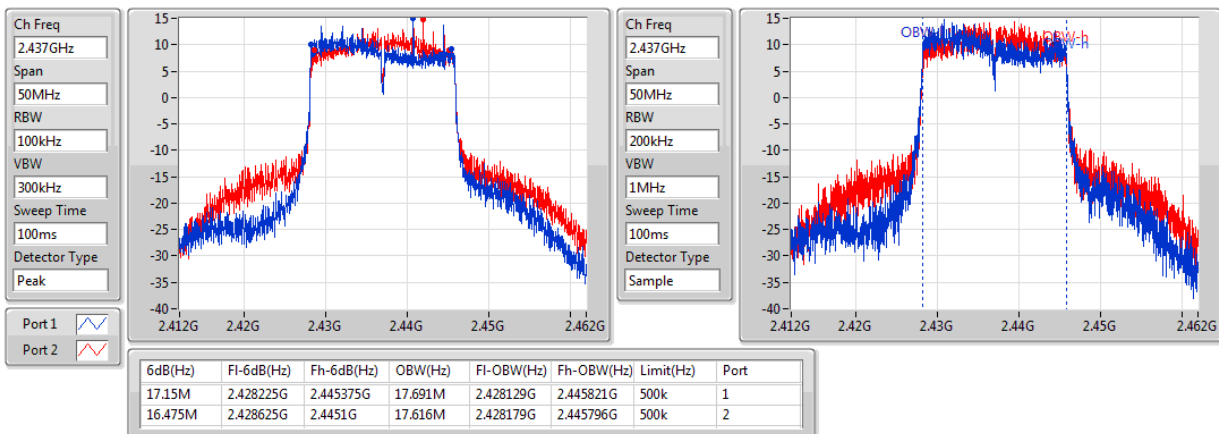
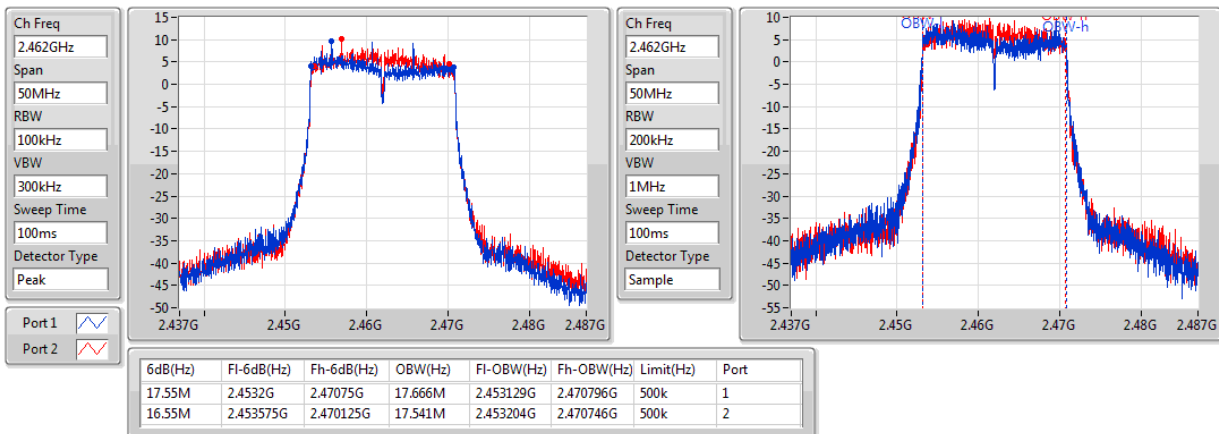
Result

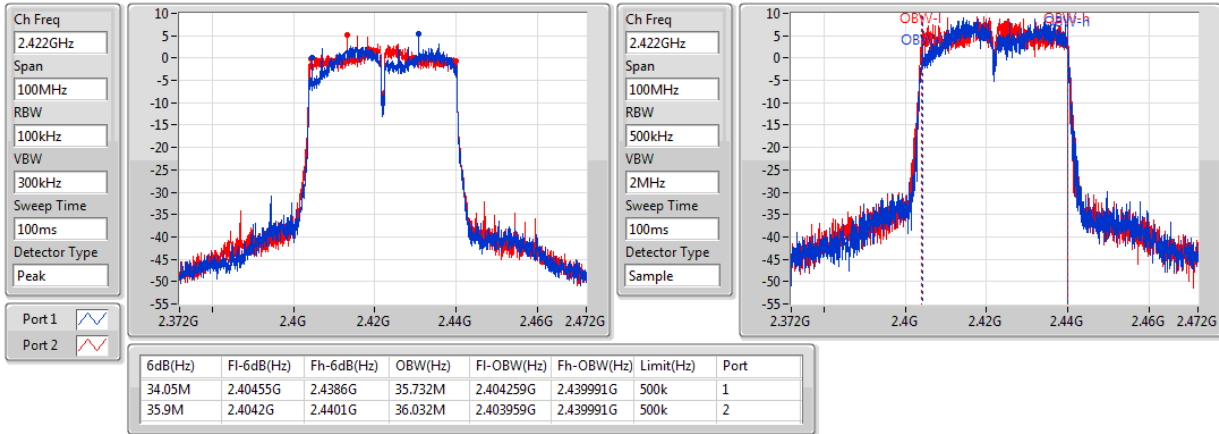
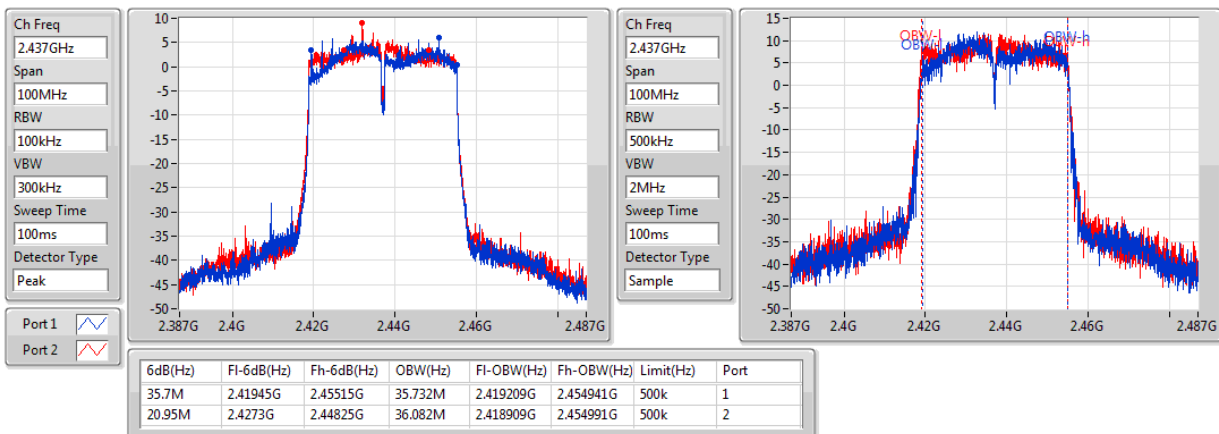
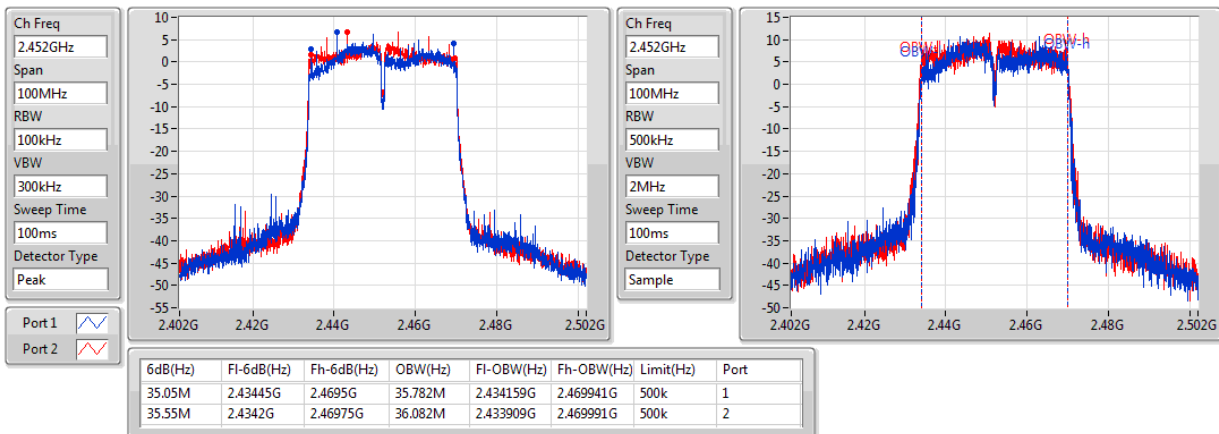
Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)
802.11b_Nss1_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	8.075M	13.143M	7.575M	12.219M
2437MHz	Pass	500k	8.025M	12.219M	9.075M	13.493M
2462MHz	Pass	500k	8.1M	13.243M	7.55M	12.644M
802.11g-BF_(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	16.3M	16.417M	16.3M	16.342M
2437MHz	Pass	500k	15.925M	16.467M	16.3M	16.542M
2462MHz	Pass	500k	16.35M	16.442M	16.3M	16.367M
802.11ac VHT20-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	17.175M	17.641M	15.65M	17.516M
2437MHz	Pass	500k	17.15M	17.691M	16.475M	17.616M
2462MHz	Pass	500k	17.55M	17.666M	16.55M	17.541M
VHT40.BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	500k	34.05M	35.732M	35.9M	36.032M
2437MHz	Pass	500k	35.7M	35.732M	20.95M	36.082M
2452MHz	Pass	500k	35.05M	35.782M	35.55M	36.082M

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

802.11b_Nss1_2TX
EBW
2412MHz

802.11b_Nss1_2TX
EBW
2437MHz

802.11b_Nss1_2TX
EBW
2462MHz


802.11g_(6Mbps)_2TX
EBW
2412MHz

802.11g_(6Mbps)_2TX
EBW
2437MHz

802.11g_(6Mbps)_2TX
EBW
2462MHz


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


VHT40.BF_Nss1,(MCS0)_2TX
EBW
2422MHz

VHT40.BF_Nss1,(MCS0)_2TX
EBW
2437MHz

VHT40.BF_Nss1,(MCS0)_2TX
EBW
2452MHz


Summary

Mode	Sum (dBm)	Total Power (W)
802.11b_Nss1_2TX	-	-
2.4-2.4835GHz	29.53	0.89743
802.11g-BF_(6Mbps)_2TX	-	-
2.4-2.4835GHz	29.08	0.80910
802.11ac VHT20-BF_Nss1,(MCS0)_2TX	-	-
2.4-2.4835GHz	29.30	0.85114
VHT40.BF_Nss1,(MCS0)_2TX	-	-
2.4-2.4835GHz	25.18	0.32961

Result

Mode	Result	DG (dBi)	Sum (dBm)	Sum Lim. (dBm)	EIRP (dBm)	EIRP Lim. (dBm)	P1 (dBm)	P2 (dBm)
802.11b_Nss1_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	2.70	28.98	30.00	31.68	36.00	25.68	26.24
2437MHz	Pass	2.70	29.40	30.00	32.10	36.00	26.08	26.68
2462MHz	Pass	2.70	29.53	30.00	32.23	36.00	26.08	26.92
802.11g-BF_(6Mbps)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	5.40	25.08	30.00	27.78	36.00	21.88	22.25
2437MHz	Pass	5.40	29.08	30.00	31.78	36.00	26.2	25.93
2462MHz	Pass	5.40	25.54	30.00	28.24	36.00	22.76	22.28
802.11ac VHT20-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	5.40	24.61	30.00	30.01	36.00	21.24	21.93
2437MHz	Pass	5.40	29.30	30.00	34.69	36.00	25.98	26.57
2462MHz	Pass	5.40	24.66	30.00	30.05	36.00	21.04	22.18
VHT40.BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
2422MHz	Pass	5.40	22.78	30.00	28.18	36.00	19.63	19.91
2437MHz	Pass	5.40	25.18	30.00	30.57	36.00	22	22.33
2452MHz	Pass	5.40	24.19	30.00	29.59	36.00	20.82	21.52

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

Summary

Mode	PD (dBm/RBW)
802.11b_Nss1_2TX	-
2.4-2.4835GHz	2.07
802.11g_(6Mbps)_2TX	-
2.4-2.4835GHz	0.20
802.11ac VHT20-BF_Nss1,(MCS0)_2TX	-
2.4-2.4835GHz	0.45
VHT40.BF_Nss1,(MCS0)_2TX	-
2.4-2.4835GHz	-5.02

RBW=3kHz.

Result

Mode	Result	DG (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)
802.11b_Nss1_2TX	-	-	-	-	-	-
2412MHz	Pass	5.40	0.92	8.00	-1.00	-0.61
2437MHz	Pass	5.40	2.07	8.00	0.39	-0.57
2462MHz	Pass	5.40	1.72	8.00	-1.19	-0.40
802.11g_(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	5.40	-3.49	8.00	-5.59	-5.68
2437MHz	Pass	5.40	0.20	8.00	-1.76	-0.99
2462MHz	Pass	5.40	-4.81	8.00	-6.74	-6.71
802.11ac VHT20-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	5.40	-3.59	8.00	-4.88	-5.52
2437MHz	Pass	5.40	0.45	8.00	-2.08	-1.22
2462MHz	Pass	5.40	-4.18	8.00	-6.14	-5.19
VHT40.BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	5.40	-6.65	8.00	-10.03	-9.16
2437MHz	Pass	5.40	-5.02	8.00	-7.44	-6.89
2452MHz	Pass	5.40	-5.11	8.00	-8.46	-7.27

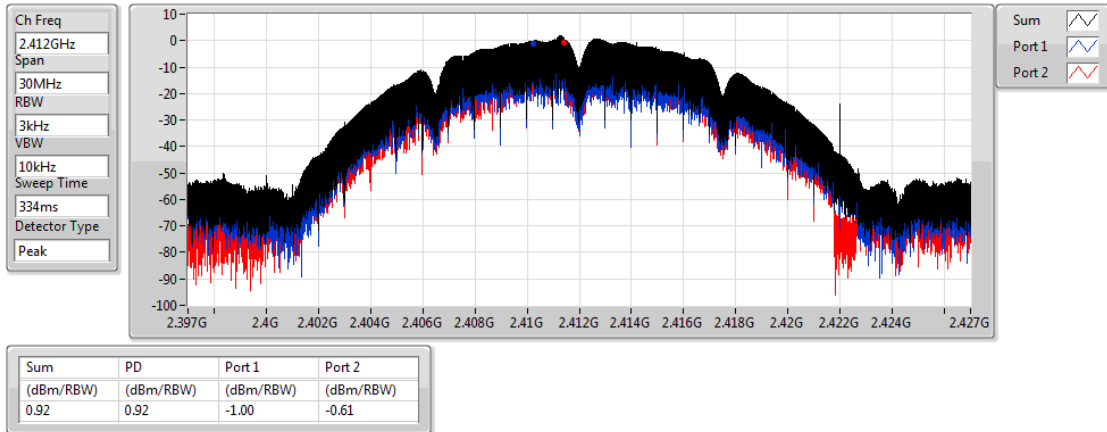
DG = Directional Gain; RBW=3kHz;

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

802.11b_Nss1_2TX

PSD

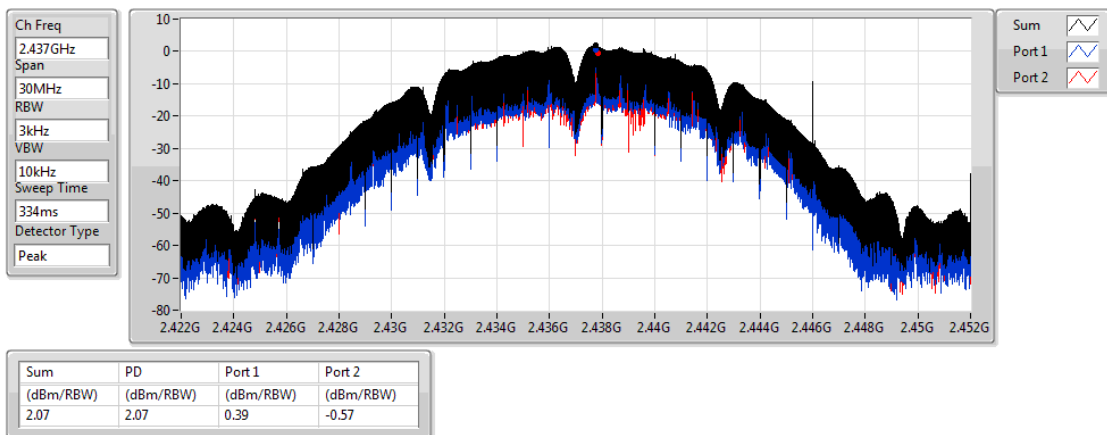
2412MHz



802.11b_Nss1_2TX

PSD

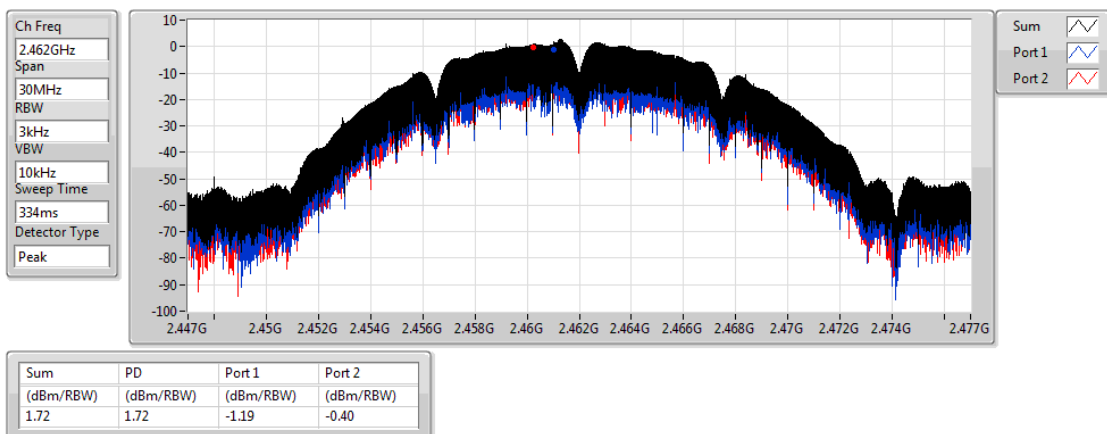
2437MHz



802.11b_Nss1_2TX

PSD

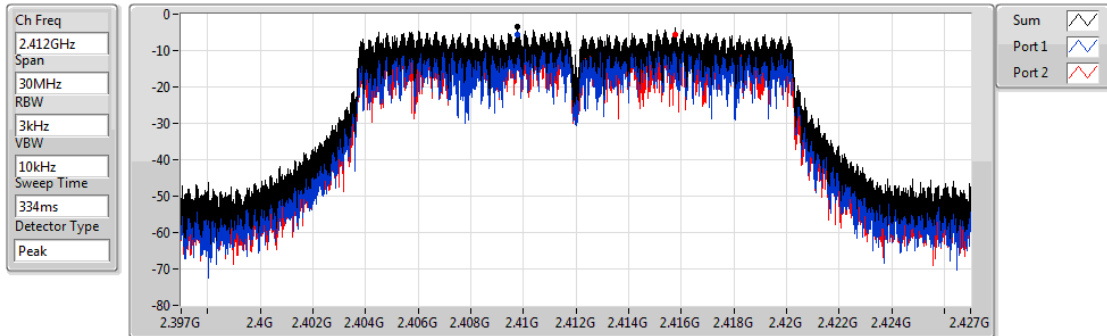
2462MHz



802.11g_(6Mbps)_2TX

PSD

2412MHz

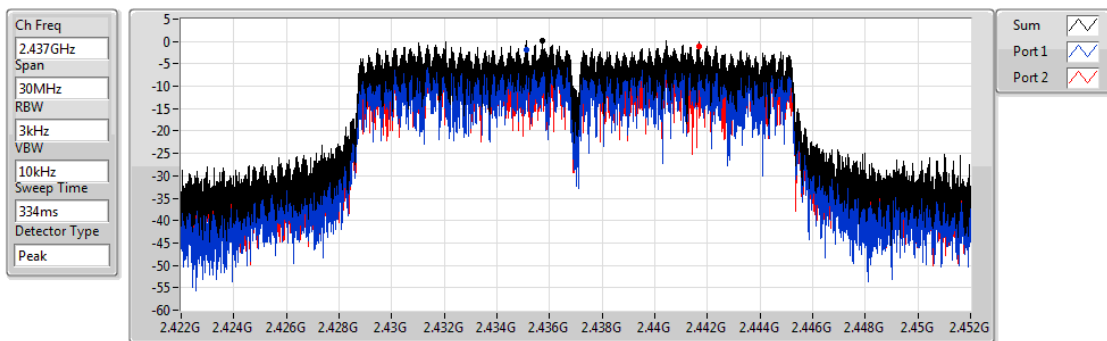


Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-3.49	-3.49	-5.59	-5.68

802.11g_(6Mbps)_2TX

PSD

2437MHz

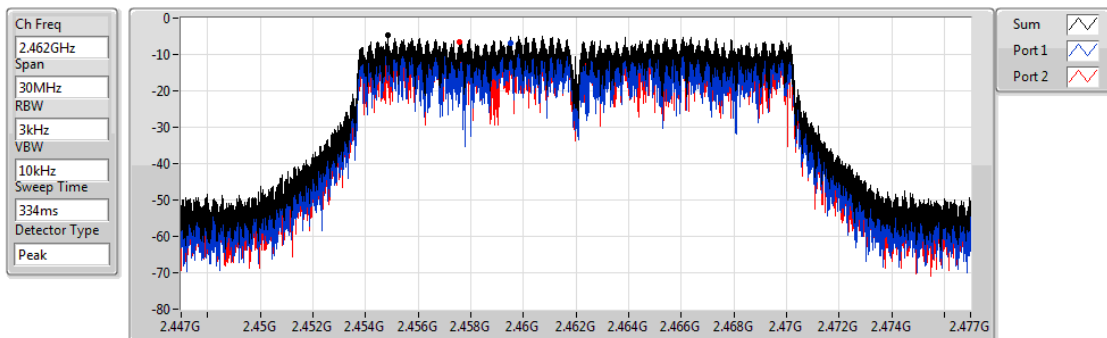


Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
0.20	0.20	-1.76	-0.99

802.11g_(6Mbps)_2TX

PSD

2462MHz

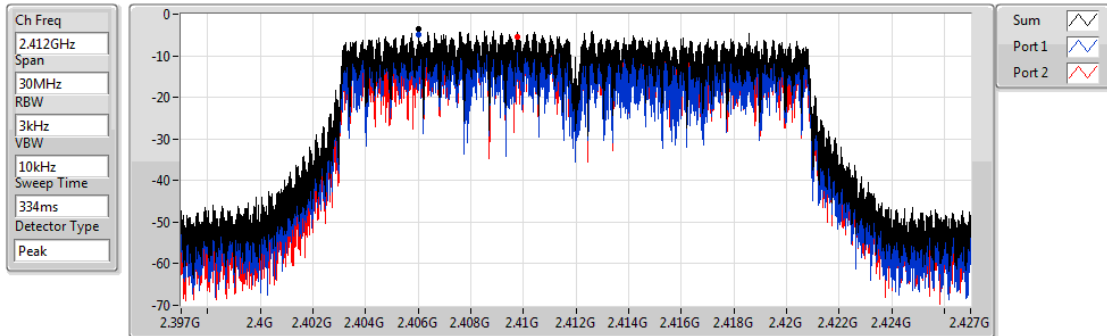


Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-4.81	-4.81	-6.74	-6.71

802.11ac VHT20-BF_Nss1,(MCS0)_2TX

PSD

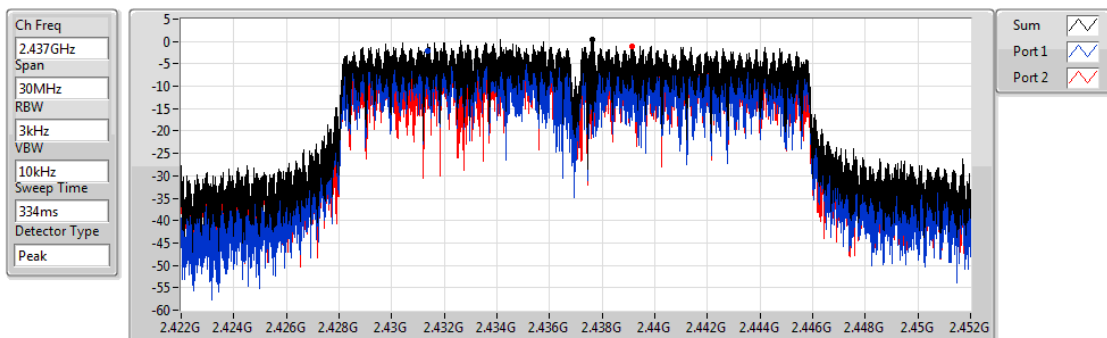
2412MHz



802.11ac VHT20-BF_Nss1,(MCS0)_2TX

PSD

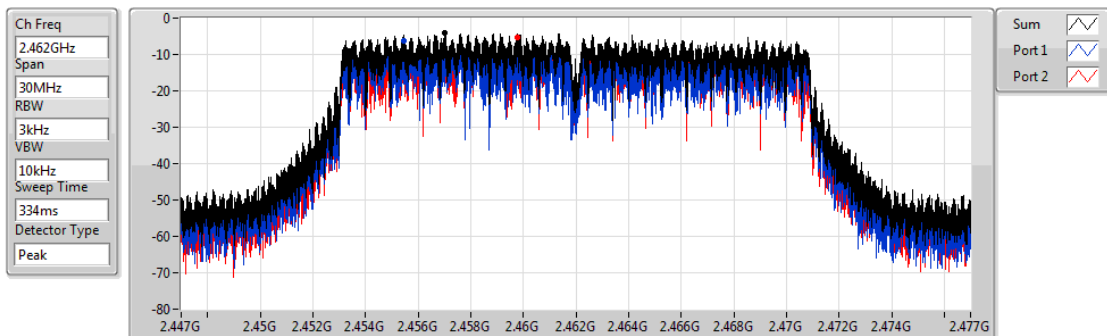
2437MHz



802.11ac VHT20-BF_Nss1,(MCS0)_2TX

PSD

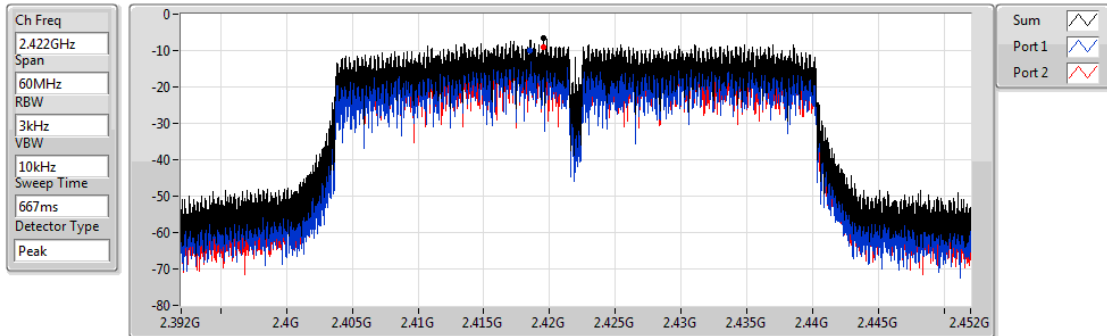
2462MHz



VHT40.BF_Nss1,(MCS0)_2TX

PSD

2422MHz

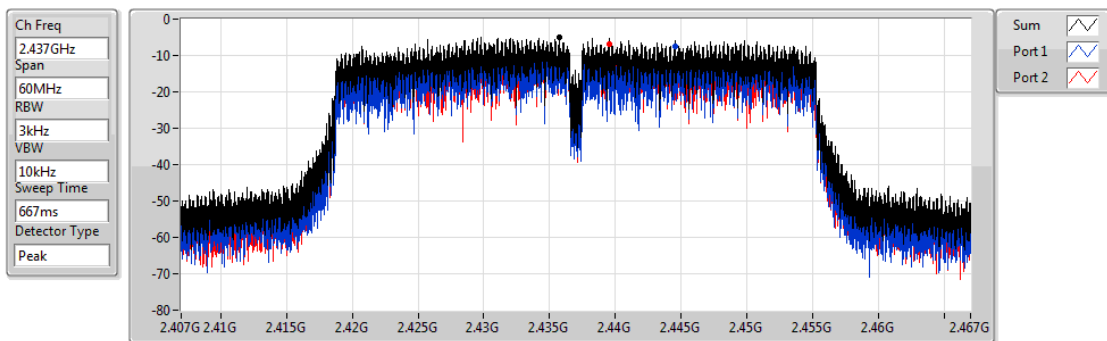


Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-6.65	-6.65	-10.03	-9.16

VHT40.BF_Nss1,(MCS0)_2TX

PSD

2437MHz

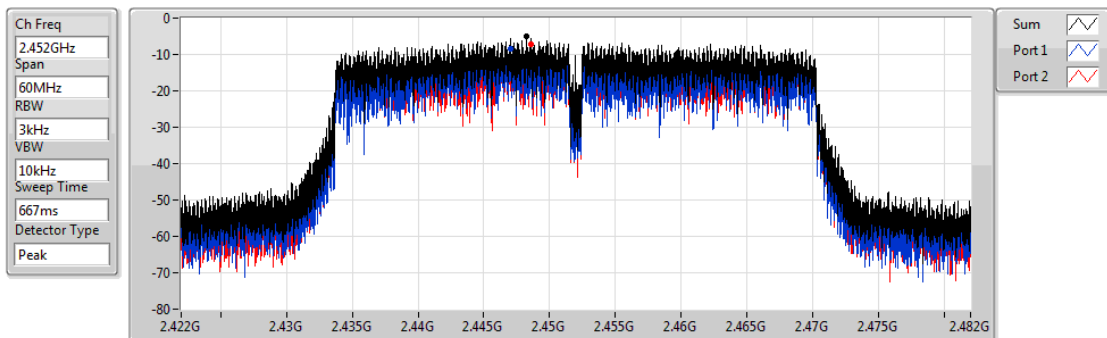


Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-5.02	-5.02	-7.44	-6.89

VHT40.BF_Nss1,(MCS0)_2TX

PSD

2452MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-5.11	-5.11	-8.46	-7.27

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
802.11g_(6Mbps)_2TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2.4-2.4835GHz	Pass	2.443253G	12.45	-17.55	1.61673G	-56.79	2.39704G	-28.54	2.49598G	-53.60	7.240755G	-49.70	2

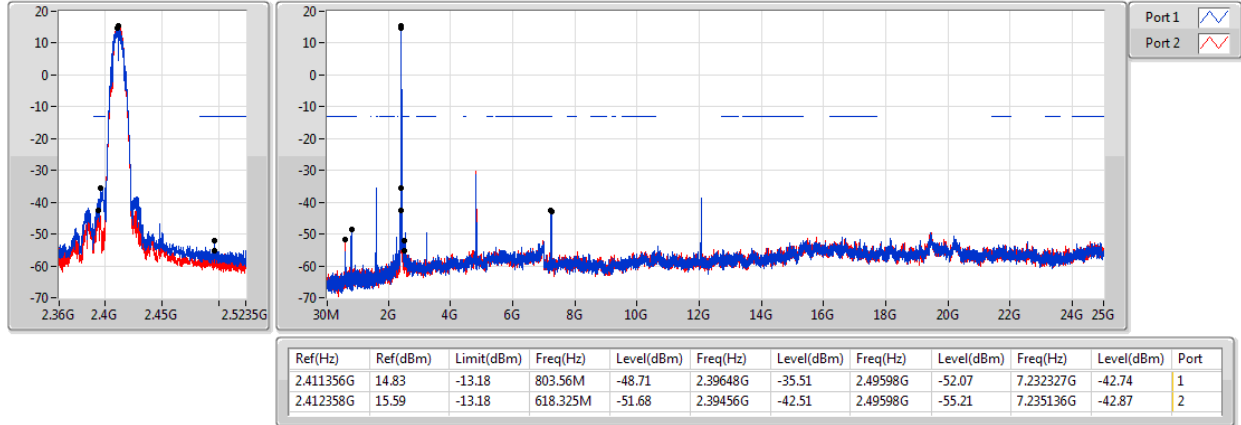
Result

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_Nss1_2TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	2.411356G	14.83	-13.18	803.56M	-48.71	2.39648G	-35.51	2.49598G	-52.07	7.232327G	-42.74	1
2412MHz	Pass	2.412358G	15.59	-13.18	618.325M	-51.68	2.39456G	-42.51	2.49598G	-55.21	7.235136G	-42.87	2
2437MHz	Pass	2.437408G	16.12	-13.18	1.624885G	-36.61	2.39904G	-49.67	2.49598G	-51.32	2.557215G	-49.48	1
2437MHz	Pass	2.437408G	15.97	-13.18	1.624885G	-46.99	2.398G	-49.33	2.48382G	-52.99	24.640376G	-51.88	2
2462MHz	Pass	2.461456G	16.82	-13.18	1.641195G	-34.95	2.39992G	-52.58	2.48734G	-50.02	2.557215G	-49.37	1
2462MHz	Pass	2.461456G	16.82	-13.18	718.515M	-48.05	2.3964G	-56.25	2.4995G	-50.18	16.225736G	-51.95	2
802.11g-BF_(6Mbps)_2TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	2.443253G	12.45	-17.55	801.23M	-50.14	2.39512G	-32.50	2.49598G	-52.07	3.214652G	-47.93	1
2412MHz	Pass	2.443253G	12.45	-17.55	1.61673G	-56.79	2.39704G	-28.54	2.49598G	-53.60	7.240755G	-49.70	2
2437MHz	Pass	2.443253G	12.45	-17.55	1.63071G	-48.22	2.39968G	-38.32	2.48454G	-45.13	2.557215G	-49.30	1
2437MHz	Pass	2.443253G	12.45	-17.55	1.6377G	-54.30	2.39872G	-35.34	2.48414G	-43.45	24.511136G	-51.17	2
2462MHz	Pass	2.443253G	12.45	-17.55	1.64003G	-48.60	2.39992G	-52.11	2.48422G	-43.45	2.557215G	-48.43	1
2462MHz	Pass	2.443253G	12.45	-17.55	1.64003G	-55.86	2.396G	-53.03	2.48382G	-40.23	24.780854G	-52.12	2
802.11ac VHT20-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	2.441917G	13.79	-16.21	808.22M	-50.92	2.39992G	-30.68	2.49598G	-51.69	3.214652G	-48.13	1
2412MHz	Pass	2.441917G	13.79	-16.21	2.30874G	-55.77	2.39696G	-28.90	2.48422G	-53.24	7.240755G	-48.57	2
2437MHz	Pass	2.441917G	13.79	-16.21	1.62139G	-49.21	2.39608G	-37.72	2.48414G	-47.16	2.557215G	-48.76	1
2437MHz	Pass	2.441917G	13.79	-16.21	666.09M	-55.48	2.39952G	-34.22	2.48358G	-43.75	16.683695G	-51.98	2
2462MHz	Pass	2.441917G	13.79	-16.21	1.6377G	-47.78	2.39488G	-52.93	2.48406G	-43.78	2.557215G	-48.17	1
2462MHz	Pass	2.441917G	13.79	-16.21	1.636535G	-55.12	2.39592G	-54.07	2.48382G	-40.41	16.352167G	-51.20	2
VHT40.BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2422MHz	Pass	2.443253G	7.44	-22.56	1.61697G	-52.39	2.39952G	-34.08	2.56014G	-48.12	3.228181G	-48.71	1
2422MHz	Pass	2.443253G	7.44	-22.56	2.305115G	-55.84	2.39696G	-35.89	2.49438G	-50.90	16.370361G	-50.36	2
2437MHz	Pass	2.443253G	7.44	-22.56	1.624985G	-51.90	2.39968G	-39.67	2.48366G	-45.40	3.247813G	-50.19	1
2437MHz	Pass	2.443253G	7.44	-22.56	2.30397G	-55.35	2.3992G	-37.92	2.48558G	-40.79	16.687277G	-51.57	2
2452MHz	Pass	2.443253G	7.44	-22.56	808.6M	-52.43	2.39712G	-43.71	2.48574G	-34.65	16.378775G	-51.14	1
2452MHz	Pass	2.443253G	7.44	-22.56	2.30397G	-57.33	2.39712G	-44.50	2.48814G	-39.79	16.684472G	-50.85	2

802.11b_Nss1_2TX

CSE NdB

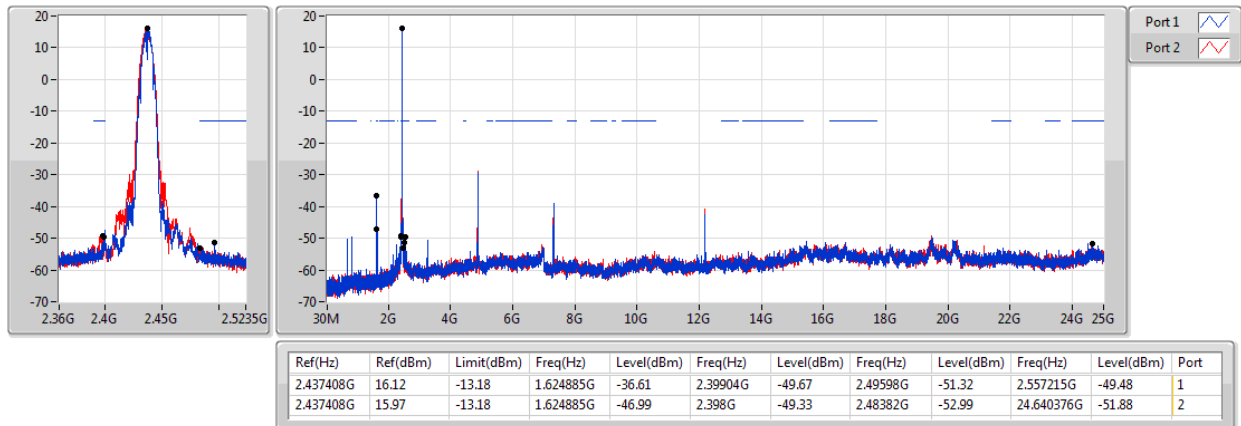
2412MHz



802.11b_Nss1_2TX

CSE NdB

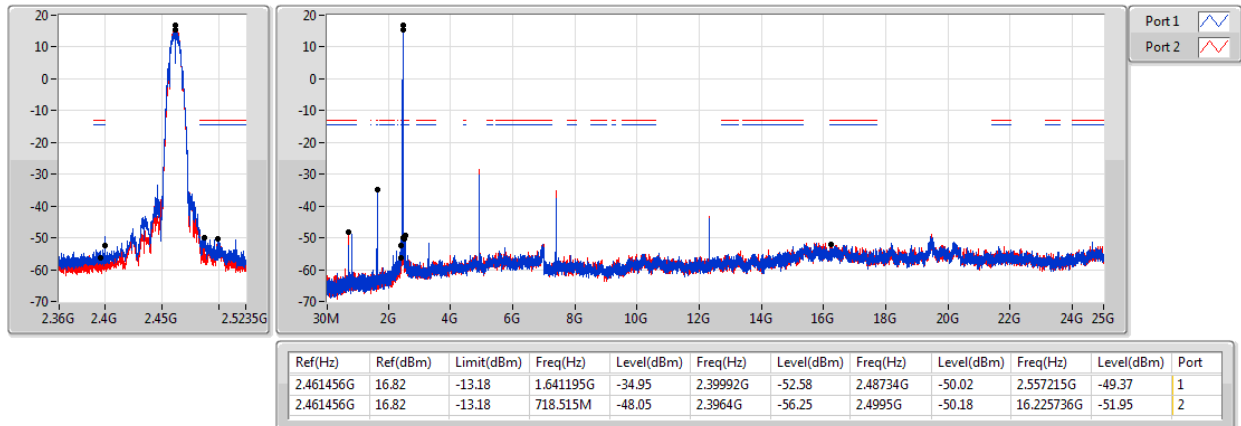
2437MHz



802.11b_Nss1_2TX

CSE NdB

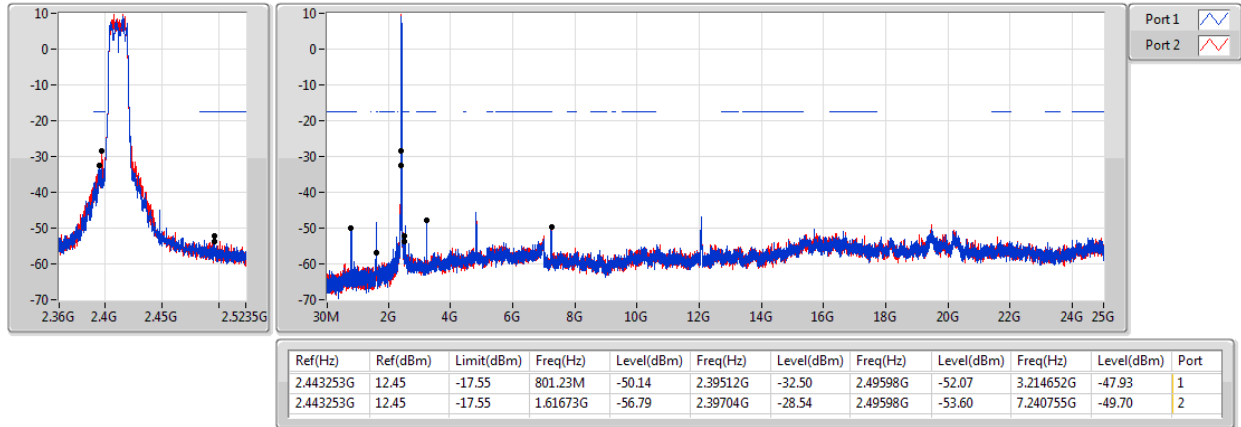
2462MHz



802.11g_(6Mbps)_2TX

CSE NdB

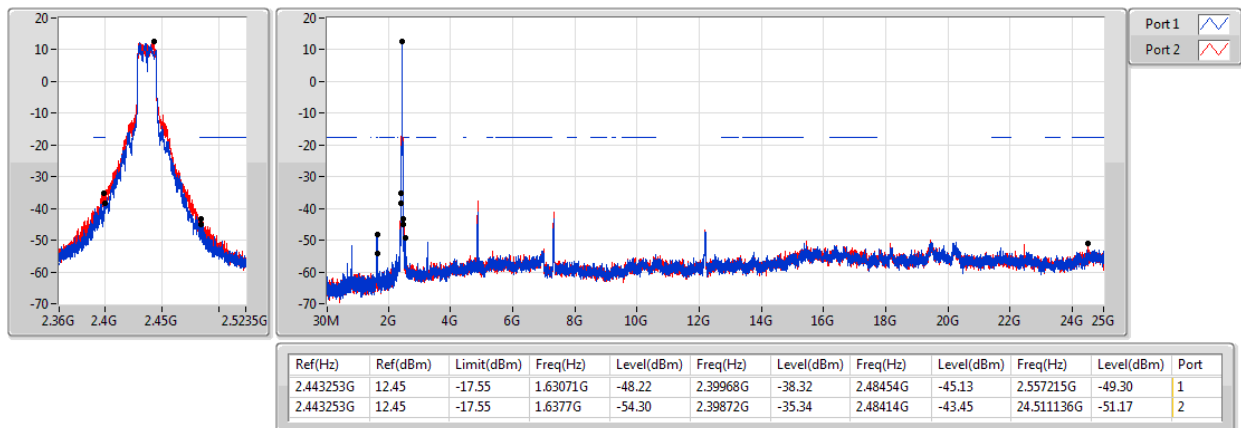
2412MHz



802.11g_(6Mbps)_2TX

CSE NdB

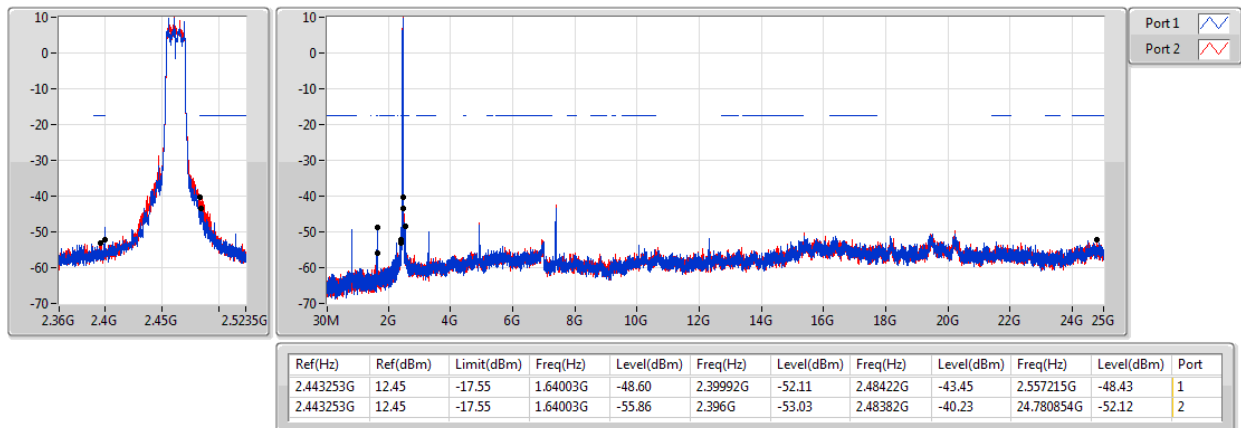
2437MHz



802.11g_(6Mbps)_2TX

CSE NdB

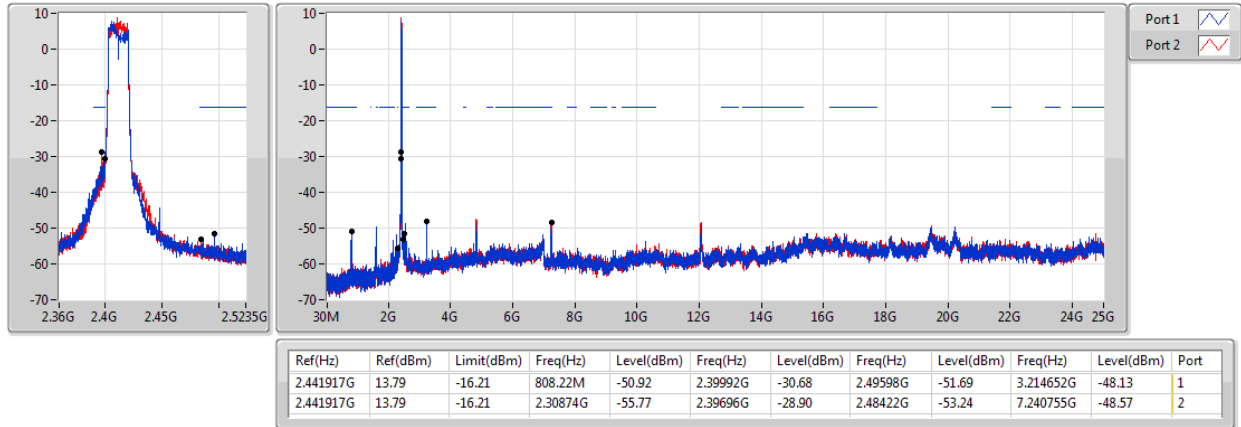
2462MHz



802.11ac VHT20-BF_Nss1,(MCS0)_2TX

CSE NdB

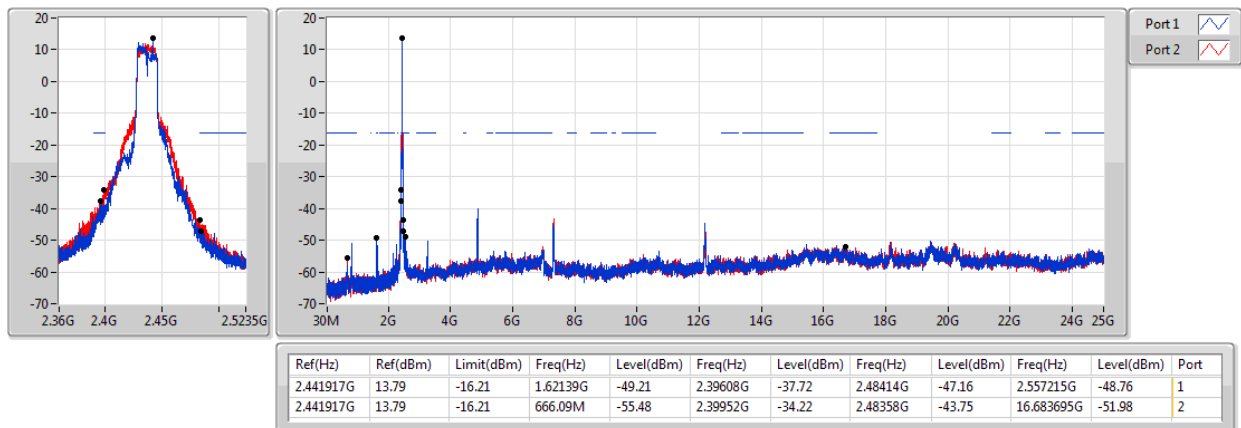
2412MHz



802.11ac VHT20-BF_Nss1,(MCS0)_2TX

CSE NdB

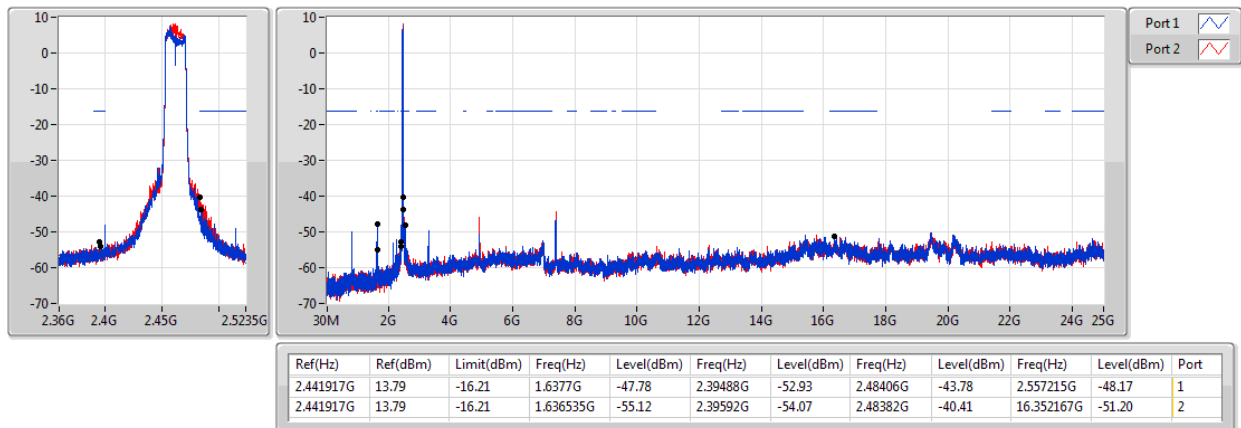
2437MHz



802.11ac VHT20-BF_Nss1,(MCS0)_2TX

CSE NdB

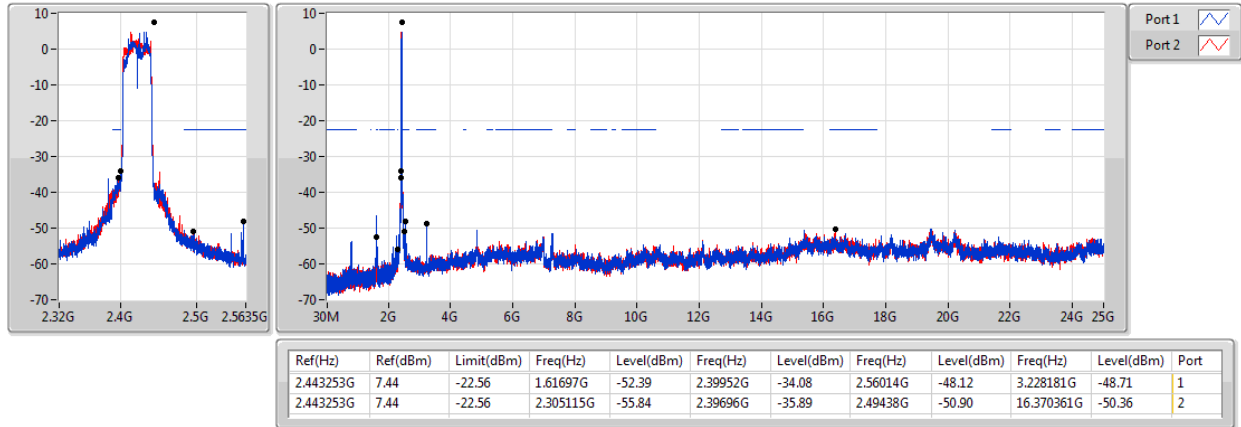
2462MHz



VHT40.BF_Nss1,(MCS0)_2TX

CSE NdB

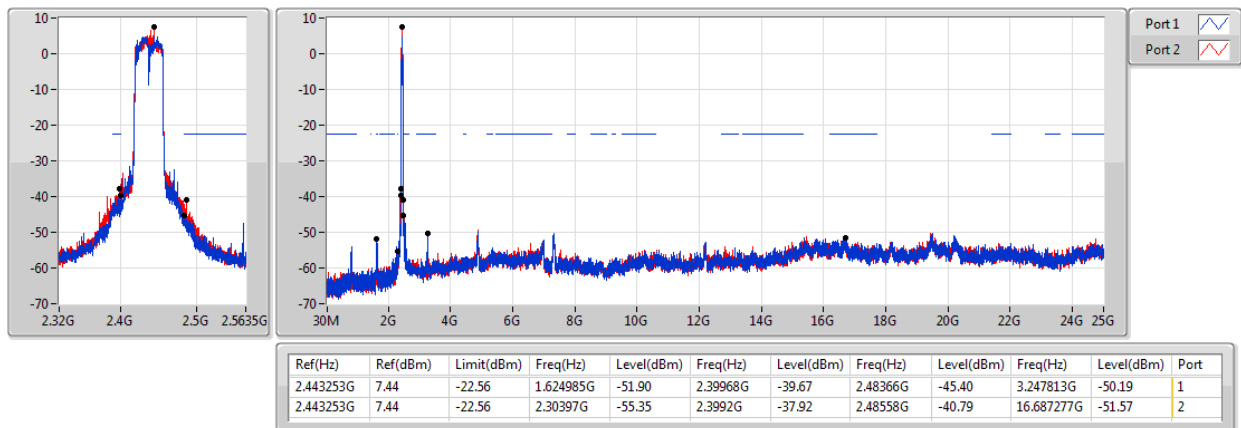
2422MHz



VHT40.BF_Nss1,(MCS0)_2TX

CSE NdB

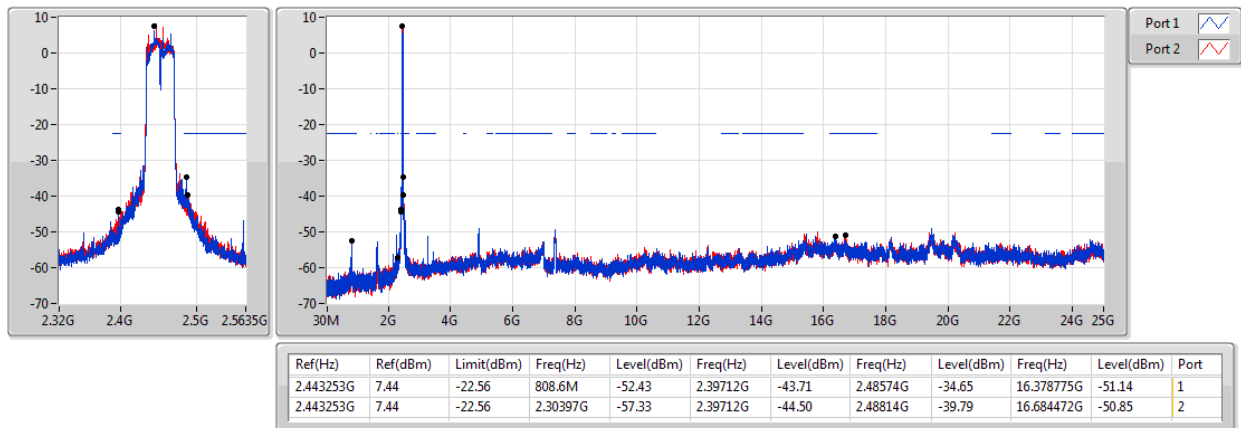
2437MHz

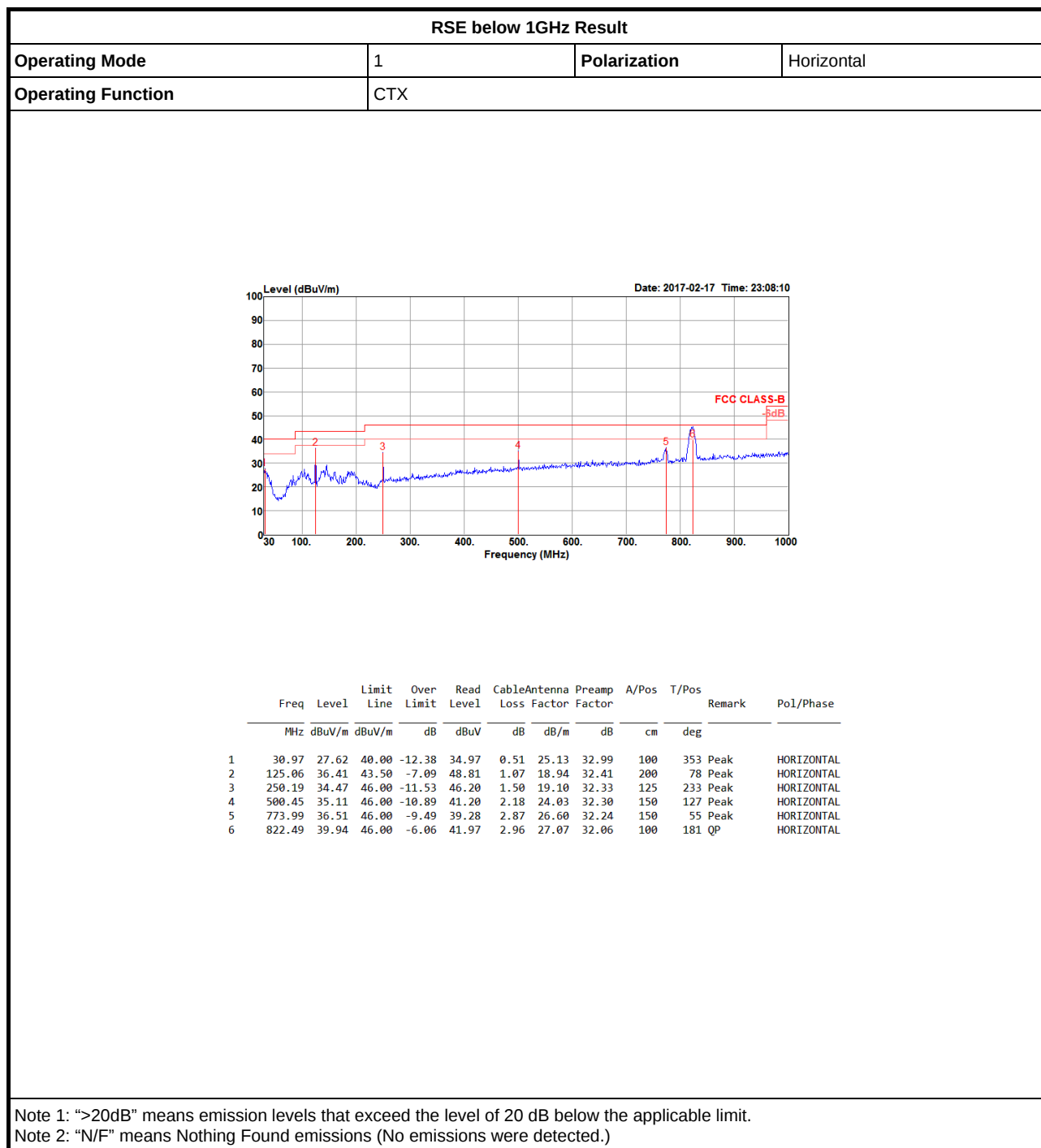


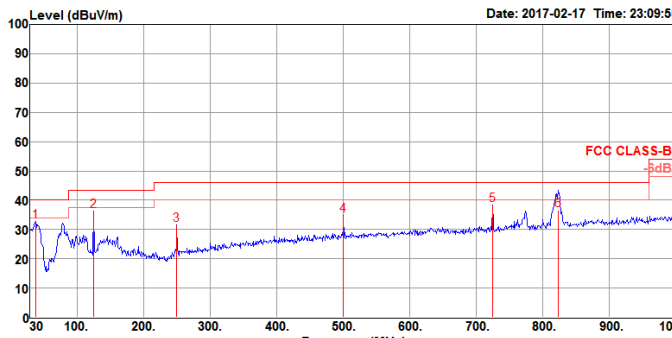
VHT40.BF_Nss1,(MCS0)_2TX

CSE NdB

2452MHz





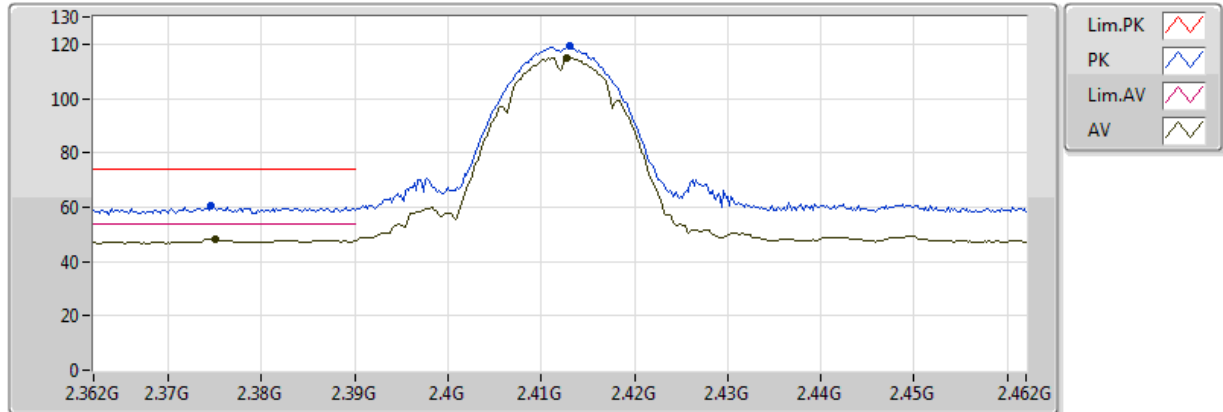
RSE below 1GHz Result																																																																																																										
Operating Mode	1				Polarization			Vertical																																																																																																		
Operating Function	CTX																																																																																																									
Level (dBuV/m) 100 90 80 70 60 50 40 30 20 10 0 Date: 2017-02-17 Time: 23:09:55 FCC CLASS-B 5dB  <table><tr><th></th><th>Freq</th><th>Level</th><th>Limit</th><th>Over</th><th>Read</th><th>CableAntenna</th><th>Preamp</th><th>A/Pos</th><th>T/Pos</th><th>Remark</th><th>Pol/Phase</th></tr><tr><th></th><th>MHz</th><th>dBuV/m</th><th>dBuV/m</th><th>dB</th><th>dBuV</th><th>dB</th><th>dB/m</th><th>dB</th><th>cm</th><th>deg</th><th></th></tr><tr><td>1</td><td>37.76</td><td>32.80</td><td>40.00</td><td>-7.20</td><td>43.44</td><td>0.58</td><td>21.51</td><td>32.73</td><td>100</td><td>7 Peak</td><td>VERTICAL</td></tr><tr><td>2</td><td>125.06</td><td>36.25</td><td>43.50</td><td>-7.25</td><td>48.65</td><td>1.07</td><td>18.94</td><td>32.41</td><td>100</td><td>354 Peak</td><td>VERTICAL</td></tr><tr><td>3</td><td>250.19</td><td>31.67</td><td>46.00</td><td>-14.33</td><td>43.40</td><td>1.50</td><td>19.10</td><td>32.33</td><td>100</td><td>0 Peak</td><td>VERTICAL</td></tr><tr><td>4</td><td>500.45</td><td>34.85</td><td>46.00</td><td>-11.15</td><td>40.94</td><td>2.18</td><td>24.03</td><td>32.30</td><td>125</td><td>114 Peak</td><td>VERTICAL</td></tr><tr><td>5</td><td>724.52</td><td>38.46</td><td>46.00</td><td>-7.54</td><td>42.00</td><td>2.64</td><td>26.15</td><td>32.33</td><td>100</td><td>300 Peak</td><td>VERTICAL</td></tr><tr><td>6</td><td>822.49</td><td>36.63</td><td>46.00</td><td>-9.37</td><td>38.66</td><td>2.96</td><td>27.07</td><td>32.06</td><td>125</td><td>1 QP</td><td>VERTICAL</td></tr></table>												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	37.76	32.80	40.00	-7.20	43.44	0.58	21.51	32.73	100	7 Peak	VERTICAL	2	125.06	36.25	43.50	-7.25	48.65	1.07	18.94	32.41	100	354 Peak	VERTICAL	3	250.19	31.67	46.00	-14.33	43.40	1.50	19.10	32.33	100	0 Peak	VERTICAL	4	500.45	34.85	46.00	-11.15	40.94	2.18	24.03	32.30	125	114 Peak	VERTICAL	5	724.52	38.46	46.00	-7.54	42.00	2.64	26.15	32.33	100	300 Peak	VERTICAL	6	822.49	36.63	46.00	-9.37	38.66	2.96	27.07	32.06	125	1 QP	VERTICAL
	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	37.76	32.80	40.00	-7.20	43.44	0.58	21.51	32.73	100	7 Peak	VERTICAL																																																																																															
2	125.06	36.25	43.50	-7.25	48.65	1.07	18.94	32.41	100	354 Peak	VERTICAL																																																																																															
3	250.19	31.67	46.00	-14.33	43.40	1.50	19.10	32.33	100	0 Peak	VERTICAL																																																																																															
4	500.45	34.85	46.00	-11.15	40.94	2.18	24.03	32.30	125	114 Peak	VERTICAL																																																																																															
5	724.52	38.46	46.00	-7.54	42.00	2.64	26.15	32.33	100	300 Peak	VERTICAL																																																																																															
6	822.49	36.63	46.00	-9.37	38.66	2.96	27.07	32.06	125	1 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.)																																																																																																										

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
VHT40.BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-	-	-
2422MHz	Pass	AV	2.3896G	53.50	54.00	-0.50	31.90	3	V	312	1.06	-

802.11b_Nss1_2TX

2412MHz_TX

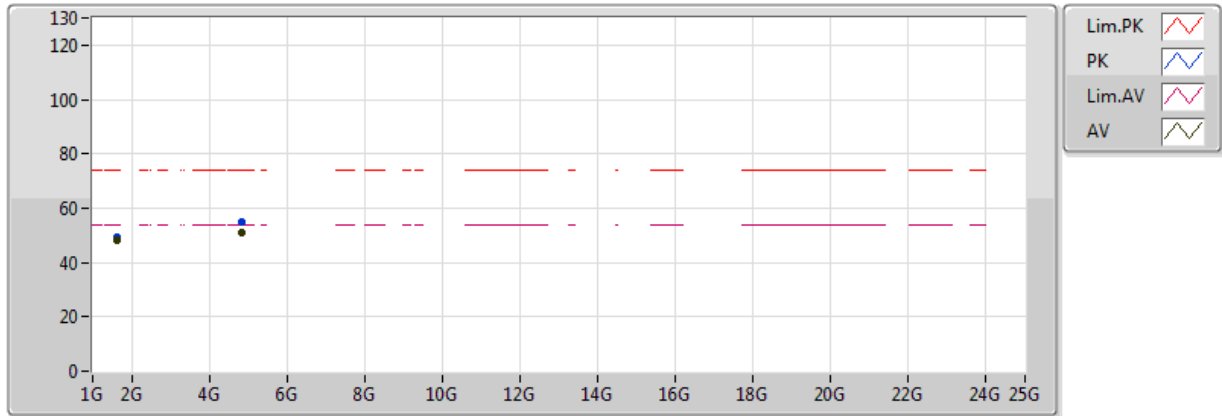


20161227
EUT Z 2TX_Non-TXBF
Setting 24.5
02-M-1

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.375G	48.35	54.00	-5.65	31.87	3	V	176	1.49	-
AV	2.4128G	115.09	Inf	-Inf	31.96	3	V	176	1.49	-
PK	2.3746G	60.30	74.00	-13.70	31.86	3	V	176	1.49	-
PK	2.413G	119.09	Inf	-Inf	31.96	3	V	176	1.49	-

802.11b_Nss1_2TX

2412MHz_TX

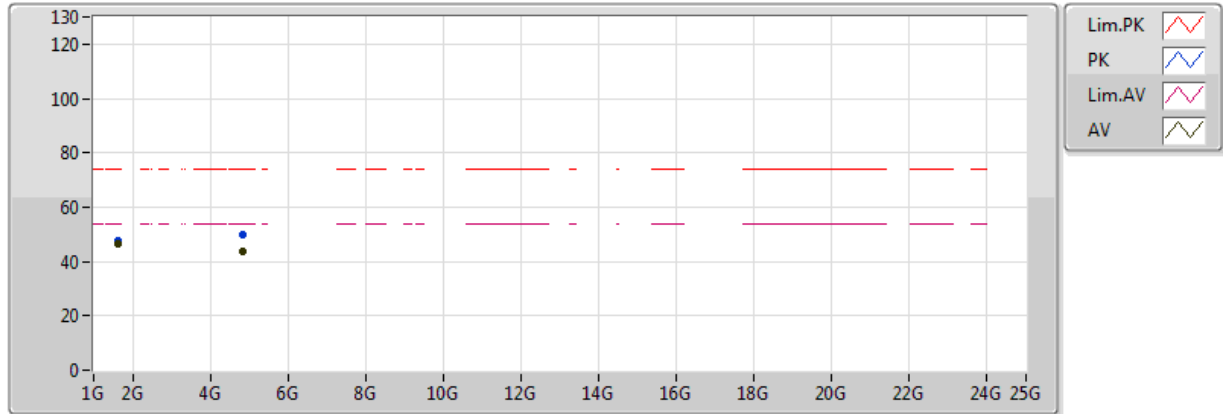


20161227
EUT Z 2TX_Non-TXBF
Setting 24.5
02-M-1

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	1.608G	48.12	54.00	-5.88	-5.50	3	V	232	1.50	-
AV	4.824G	50.92	54.00	-3.08	6.28	3	V	359	1.18	-
PK	1.60804G	49.32	74.00	-24.68	-5.50	3	V	232	1.50	-
PK	4.82398G	54.74	74.00	-19.26	6.28	3	V	359	1.18	-

802.11b_Nss1_2TX

2412MHz_TX

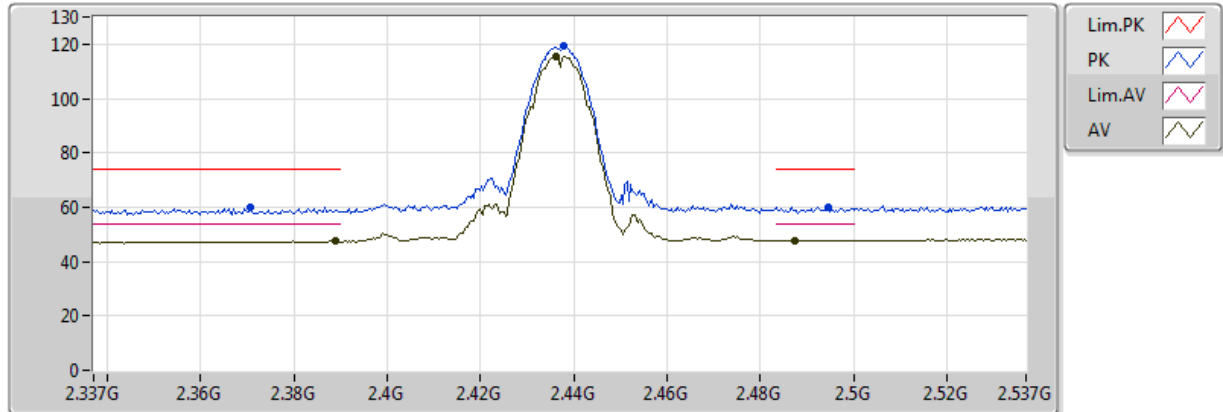


20161227
EUT Z 2TX_Non-TXBF
Setting 24.5
02-M-1

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	1.608G	46.39	54.00	-7.61	-5.50	3	H	281	1.61	-
AV	4.82398G	43.98	54.00	-10.02	6.28	3	H	258	2.76	-
PK	1.60796G	47.64	74.00	-26.36	-5.51	3	H	281	1.61	-
PK	4.82396G	49.77	74.00	-24.23	6.28	3	H	258	2.76	-

802.11b_Nss1_2TX

2437MHz_TX

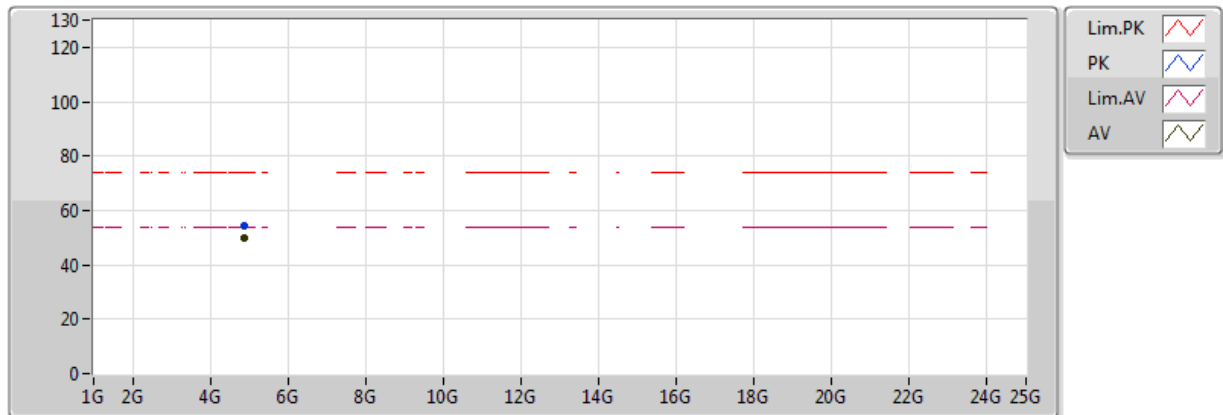


20161227
EUT Z 2TX_Non-TXBF
Setting 25.5
02-M-1

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	47.60	54.00	-6.40	31.90	3	V	180	1.24	-
AV	2.4362G	115.66	Inf	-Inf	32.02	3	V	180	1.24	-
AV	2.4874G	47.90	54.00	-6.10	32.14	3	V	180	1.24	-
PK	2.3706G	60.00	74.00	-14.00	31.85	3	V	180	1.24	-
PK	2.4378G	119.45	Inf	-Inf	32.02	3	V	180	1.24	-
PK	2.4946G	60.11	74.00	-13.89	32.16	3	V	180	1.24	-

802.11b_Nss1_2TX

2437MHz_TX

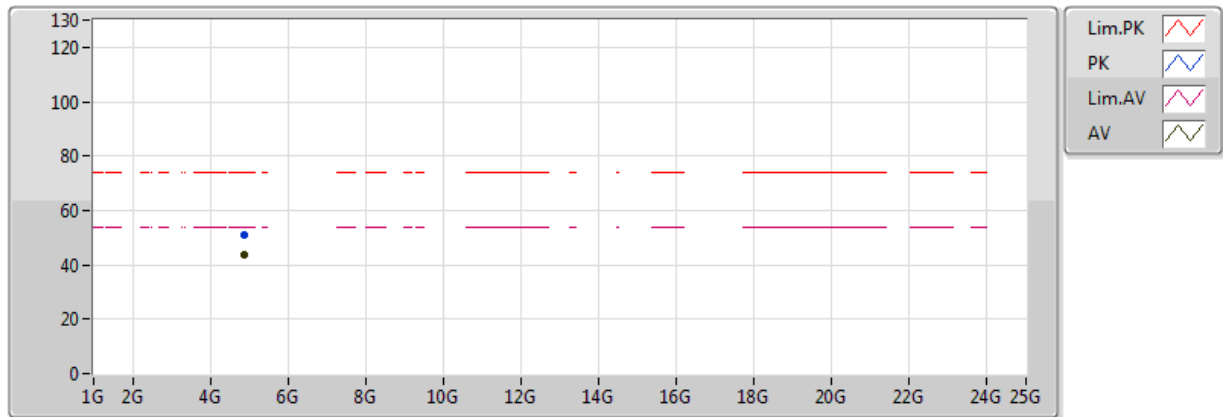


20161227
EUT Z 2TX_Non-TXBF
Setting 25.5
02-M-1

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.874G	50.05	54.00	-3.95	6.44	3	V	-5	1.20	-
PK	4.87398G	54.10	74.00	-19.90	6.44	3	V	-5	1.20	-

802.11b_Nss1_2TX

2437MHz_TX

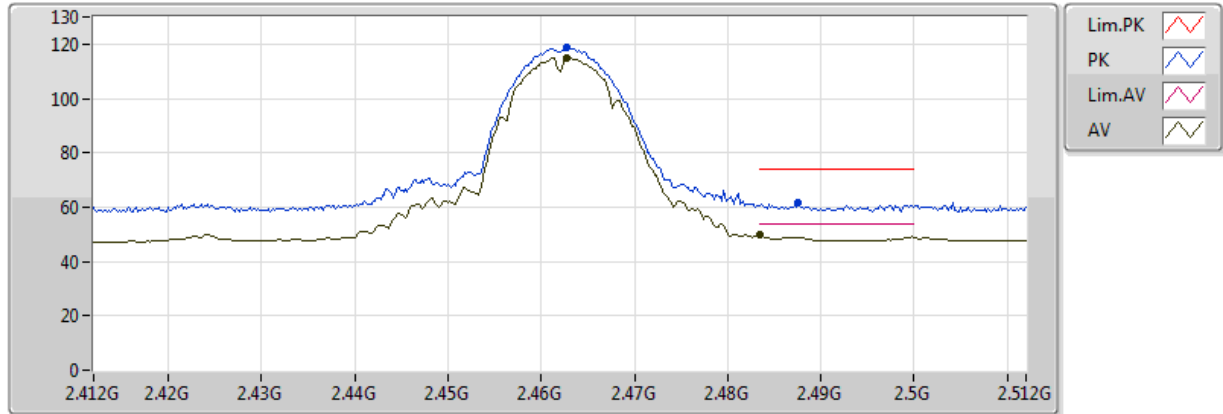


20161227
EUT Z 2TX_Non-TXBF
Setting 25.5
02-M-1

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.874G	43.82	54.00	-10.18	6.44	3	H	251	1.50	-
PK	4.8739G	50.76	74.00	-23.24	6.44	3	H	251	1.50	-

802.11b_Nss1_2TX

2462MHz_TX

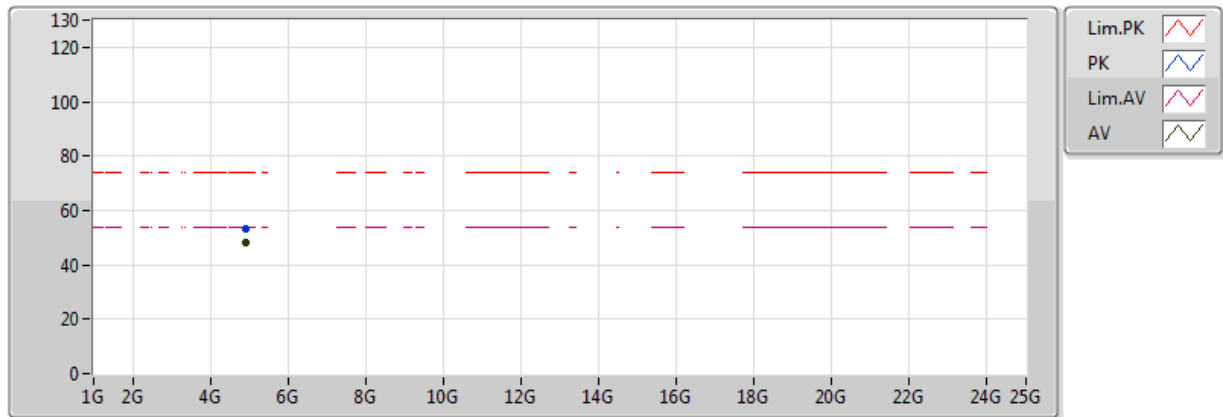


20161227
EUT Z 2TX_Non-TXBF
Setting 25.5
02-M-1

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.4628G	114.96	Inf	-Inf	32.08	3	V	92	1.20	-
AV	2.483502G	49.75	54.00	-4.25	32.13	3	V	92	1.20	-
PK	2.4628G	118.95	Inf	-Inf	32.08	3	V	92	1.20	-
PK	2.4876G	61.54	74.00	-12.46	32.14	3	V	92	1.20	-

802.11b_Nss1_2TX

2462MHz_TX

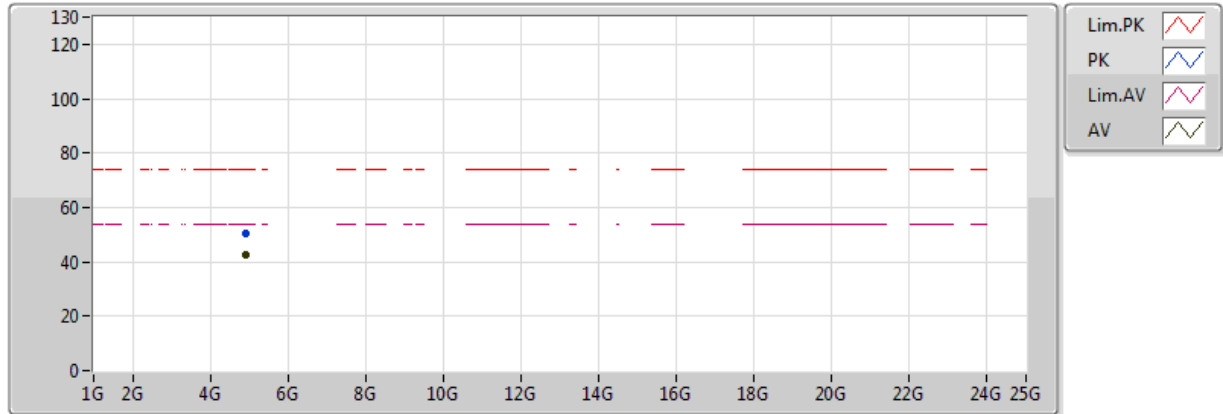


20161227
EUT Z 2TX_Non-TXBF
Setting 25.5
02-M-1

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.924G	48.26	54.00	-5.74	6.59	3	V	16	1.50	-
PK	4.92408G	53.07	74.00	-20.93	6.59	3	V	16	1.50	-

802.11b_Nss1_2TX

2462MHz_TX

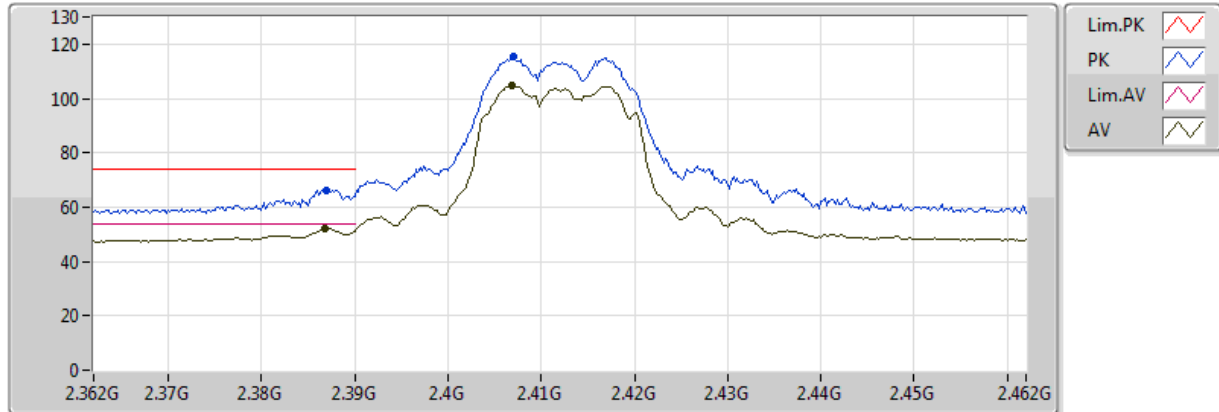


20161227
EUT Z 2TX_Non-TXBF
Setting 25.5
02-M-1

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.924G	42.74	54.00	-11.26	6.59	3	H	243	2.55	-
PK	4.92388G	50.41	74.00	-23.59	6.59	3	H	243	2.55	-

802.11g_(6Mbps)_2TX

2412MHz_TX

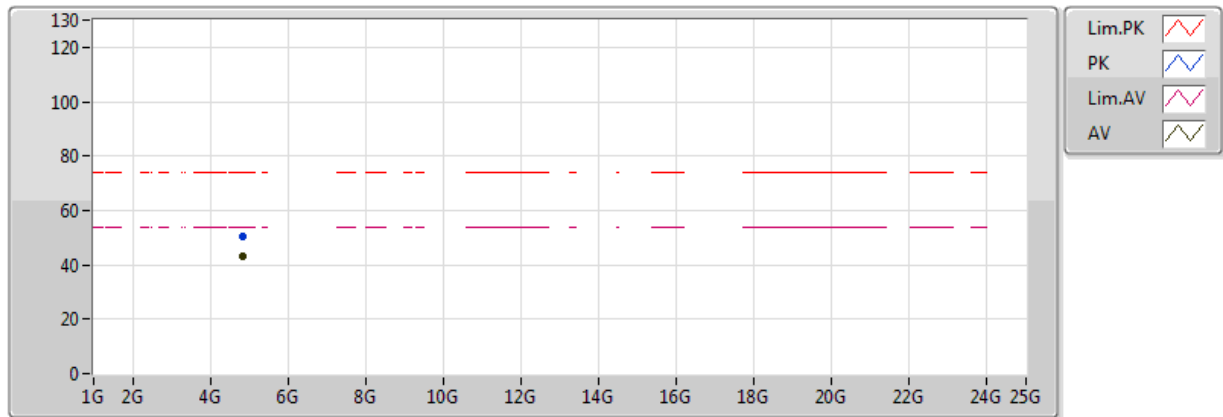


20161227
EUT Z 2TX_Non-TXBF
Setting 21
02-M-1

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.3868G	52.34	54.00	-1.66	31.90	3	V	291	2.97	-
AV	2.4068G	104.61	Inf	-Inf	31.95	3	V	291	2.97	-
PK	2.387G	66.39	74.00	-7.61	31.90	3	V	291	2.97	-
PK	2.407G	115.26	Inf	-Inf	31.95	3	V	291	2.97	-

802.11g_(6Mbps)_2TX

2412MHz_TX

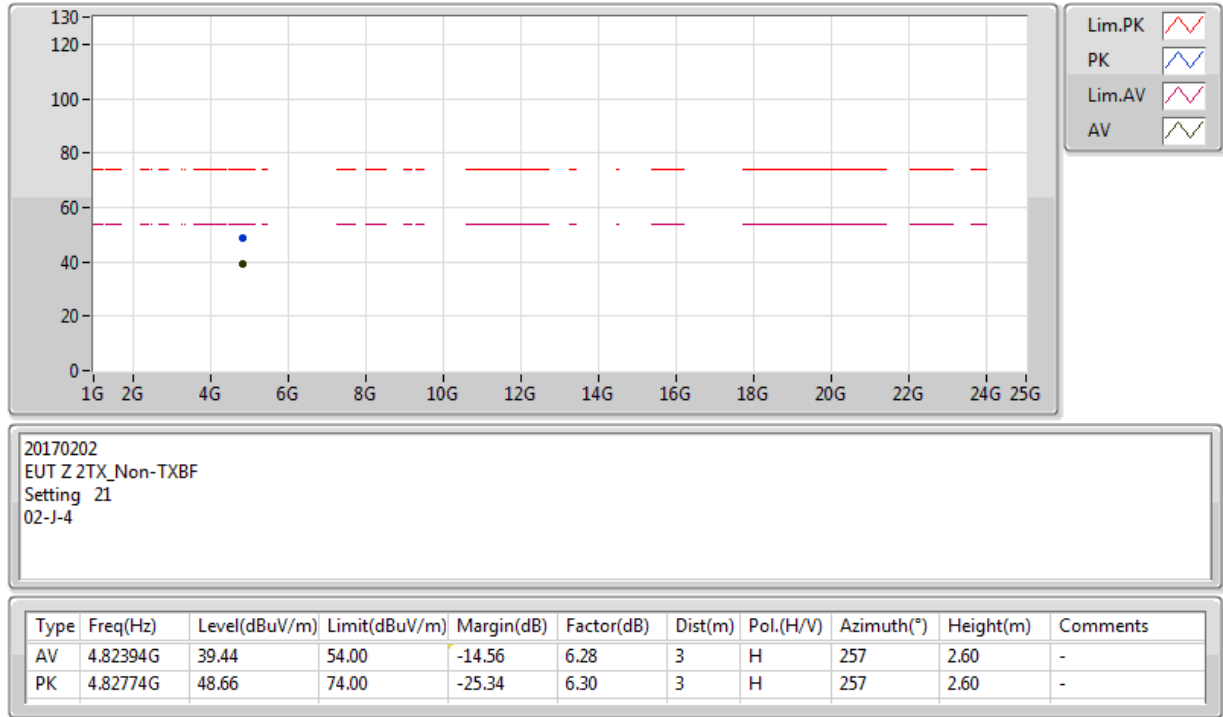


20170202
EUT Z 2TX_Non-TXBF
Setting 21
02-J-4

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.824G	43.26	54.00	-10.74	6.11	3	V	54	1.17	-
PK	4.8239G	50.65	74.00	-23.35	6.11	3	V	54	1.17	-

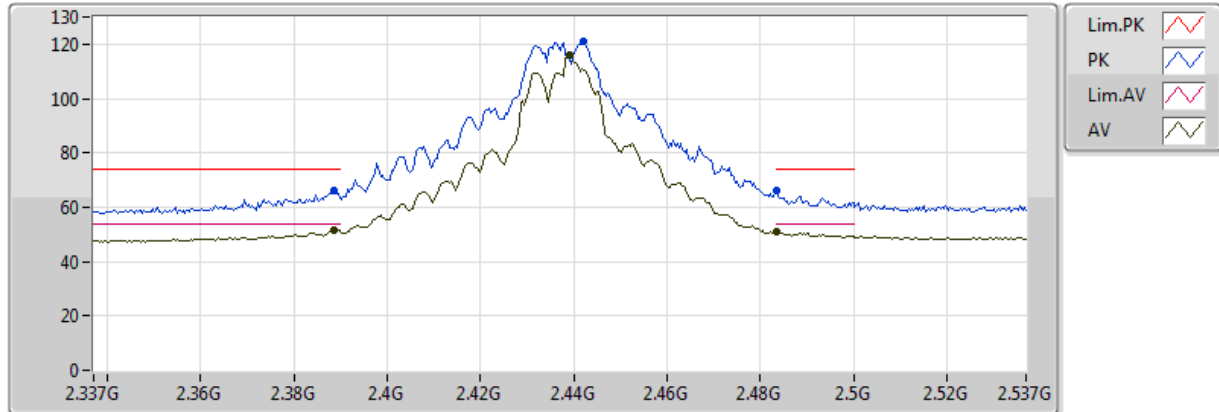
802.11g_(6Mbps)_2TX

2412MHz_TX



802.11g_(6Mbps)_2TX

2437MHz_TX

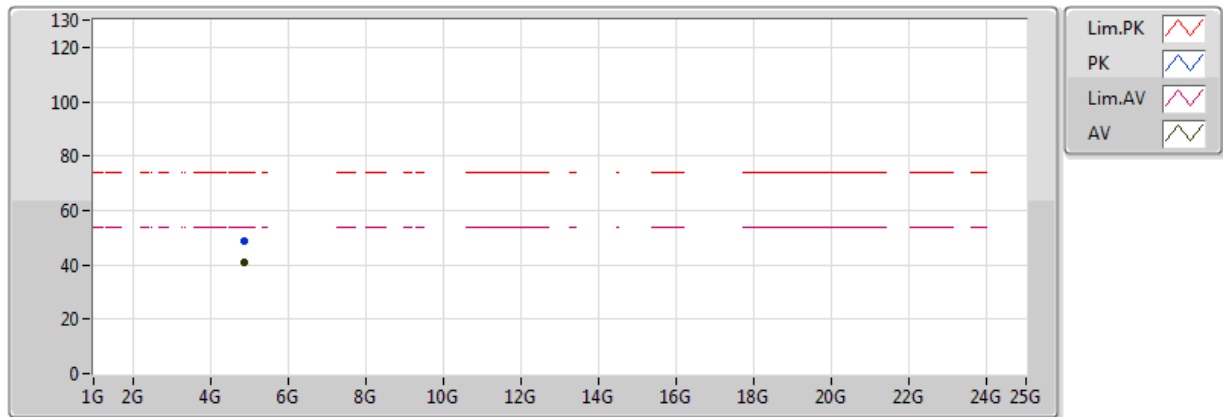


20161227
EUT Z 2TX_Non-TXBF
Setting 25.5
02-M-1

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	51.45	54.00	-2.55	31.90	3	V	292	1.12	-
AV	2.439G	116.12	Inf	-Inf	32.02	3	V	292	1.12	-
AV	2.483502G	51.07	54.00	-2.93	32.13	3	V	292	1.12	-
PK	2.3886G	66.32	74.00	-7.68	31.90	3	V	292	1.12	-
PK	2.4422G	121.18	Inf	-Inf	32.03	3	V	292	1.12	-
PK	2.483502G	66.21	74.00	-7.79	32.13	3	V	292	1.12	-

802.11g_(6Mbps)_2TX

2437MHz_TX

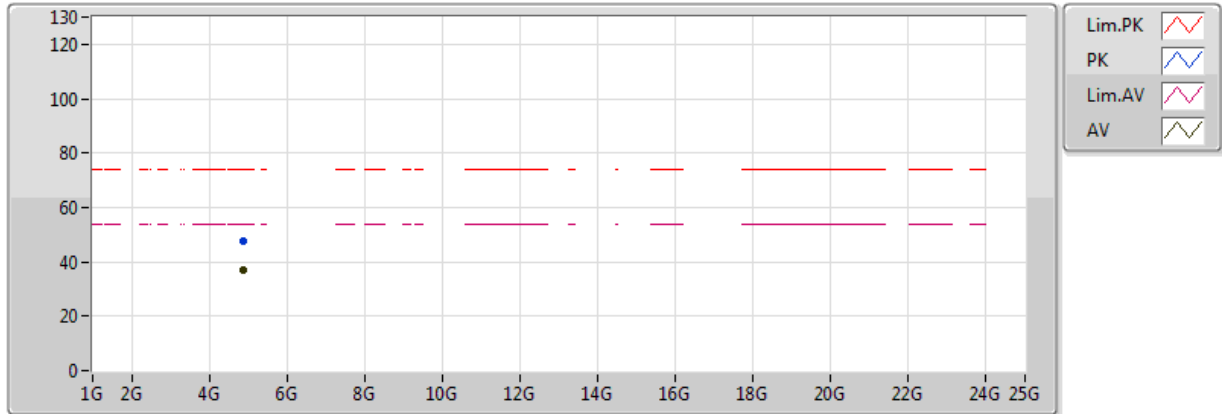


20170202
EUT Z 2TX_Non-TXBF
Setting 25.5
02-J-4

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.87392G	40.88	54.00	-13.12	6.44	3	V	55	2.89	-
PK	4.874G	48.89	74.00	-25.11	6.44	3	V	55	2.89	-

802.11g_(6Mbps)_2TX

2437MHz_TX

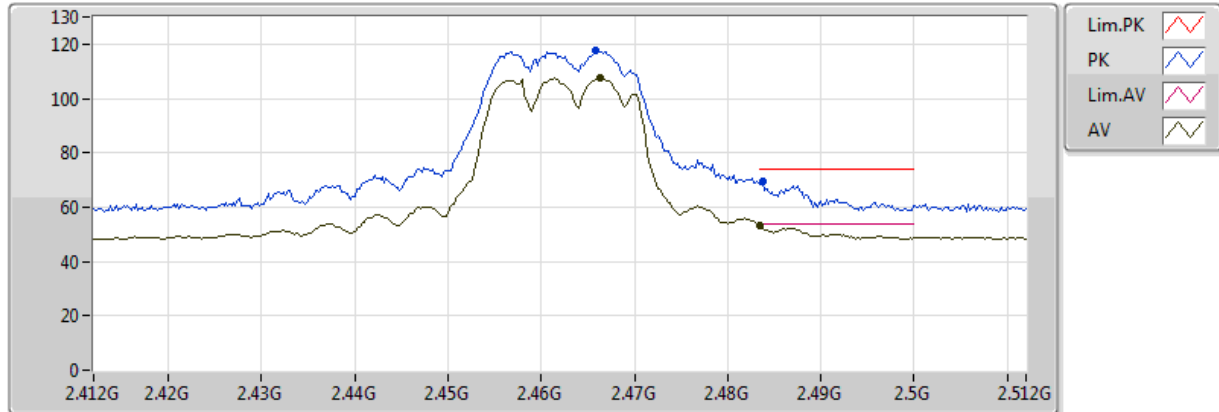


20170202
EUT Z 2TX_Non-TXBF
Setting 25.5
02-J-4

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.87396G	37.19	54.00	-16.81	6.44	3	H	253	2.56	-
PK	4.8736G	47.75	74.00	-26.25	6.44	3	H	253	2.56	-

802.11g_(6Mbps)_2TX

2462MHz_TX

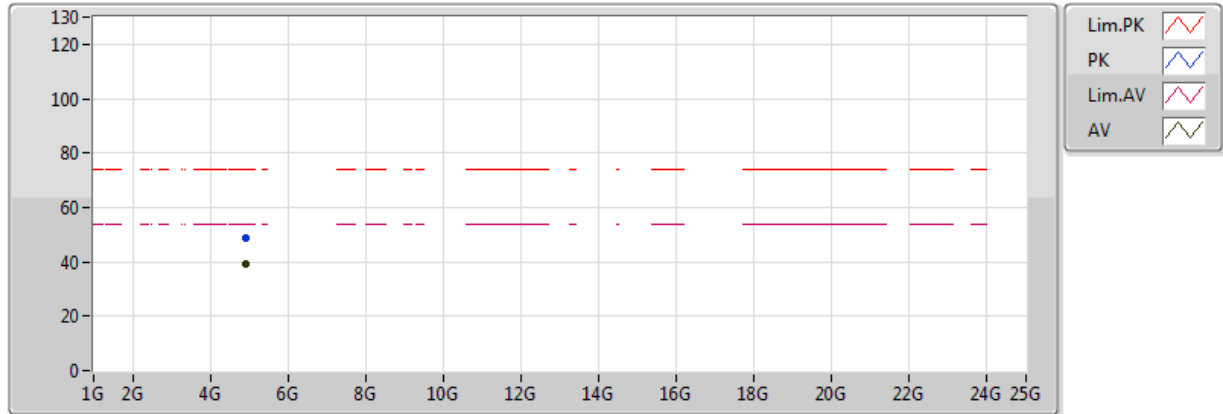


20161227
EUT Z 2TX_Non-TXBF
Setting 20.5
02-M-1

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.4664G	107.44	Inf	-Inf	32.09	3	V	299	1.05	-
AV	2.483502G	53.15	54.00	-0.85	32.13	3	V	299	1.05	-
PK	2.4658G	117.41	Inf	-Inf	32.09	3	V	299	1.05	-
PK	2.4838G	69.36	74.00	-4.64	32.13	3	V	299	1.05	-

802.11g_(6Mbps)_2TX

2462MHz_TX

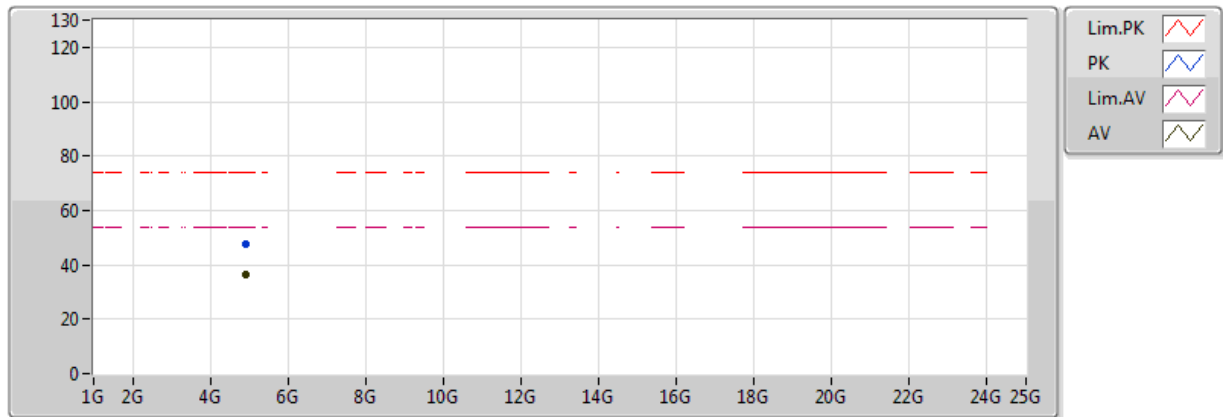


20170202
EUT Z 2TX_Non-TXBF
Setting 20.5
02-J-4

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.92398G	39.16	54.00	-14.84	6.39	3	V	330	1.72	-
PK	4.92564G	48.67	74.00	-25.33	6.40	3	V	330	1.72	-

802.11g_(6Mbps)_2TX

2462MHz_TX

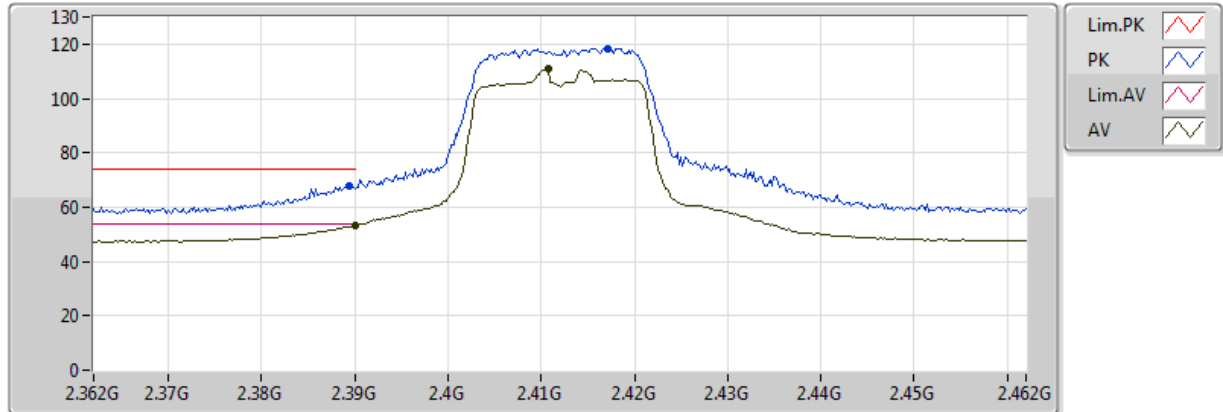


20170202
EUT Z 2TX_Non-TXBF
Setting 20.5
02-J-4

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.92402G	36.61	54.00	-17.39	6.39	3	H	88	2.65	-
PK	4.92406G	47.56	74.00	-26.44	6.39	3	H	88	2.65	-

802.11ac VHT20-BF_Nss1,(MCS0)_2TX

2412MHz_TX

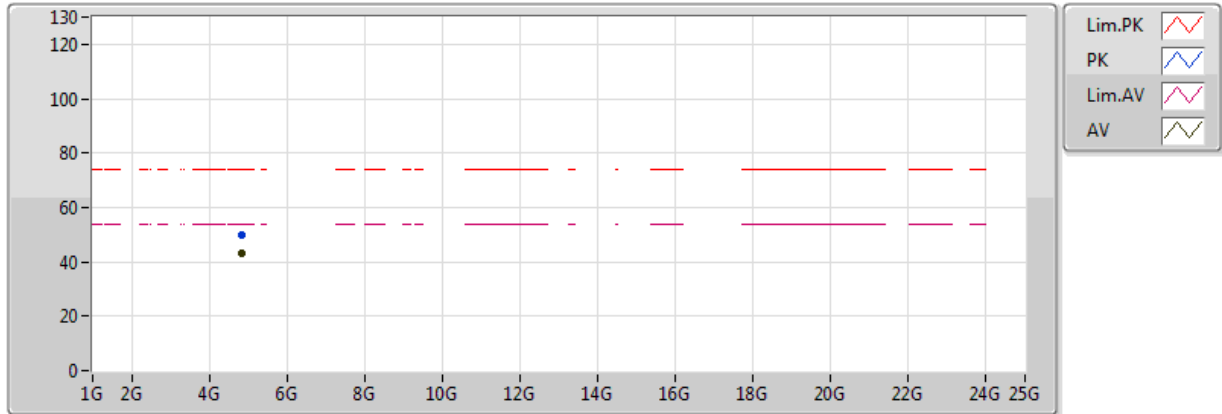


20161227
EUT Z 2TX_TXBF
Setting 20.5
02-M-1

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	53.28	54.00	-0.72	31.90	3	V	182	1.14	-
AV	2.4108G	110.83	Inf	-Inf	31.96	3	V	182	1.14	-
PK	2.3894G	68.00	74.00	-6.00	31.90	3	V	182	1.14	-
PK	2.4172G	118.45	Inf	-Inf	31.97	3	V	182	1.14	-

802.11ac VHT20-BF_Nss1,(MCS0)_2TX

2412MHz_TX

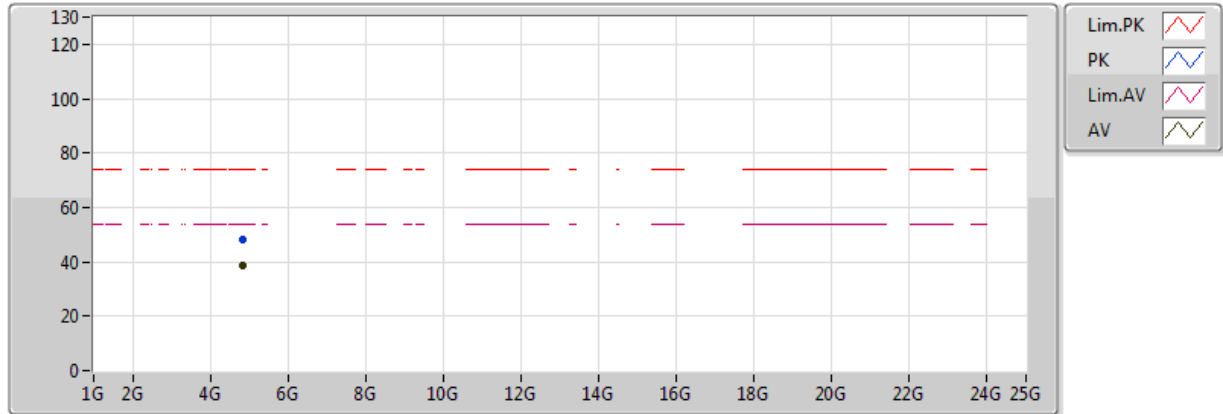


20170202
EUT Z 2TX_TXBF
Setting 20.5
02-J-4

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.82398G	43.32	54.00	-10.68	6.11	3	V	83	2.80	-
PK	4.8242G	49.93	74.00	-24.07	6.12	3	V	83	2.80	-

802.11ac VHT20-BF_Nss1,(MCS0)_2TX

2412MHz_TX

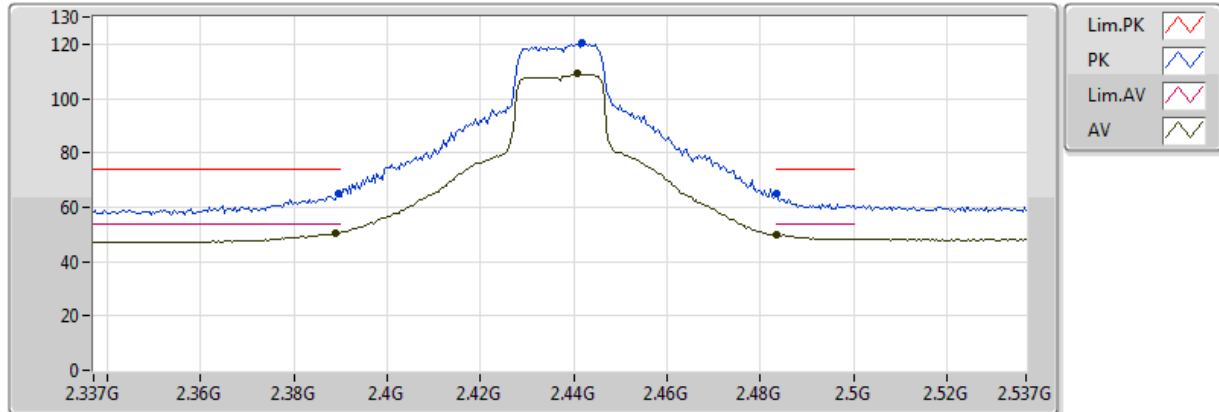


20170202
EUT Z 2TX_TXBF
Setting 20.5
02-J-4

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.82404G	38.42	54.00	-15.58	6.28	3	H	254	2.73	-
PK	4.8241G	48.43	74.00	-25.57	6.28	3	H	254	2.73	-

802.11ac VHT20-BF_Nss1,(MCS0)_2TX

2437MHz_TX

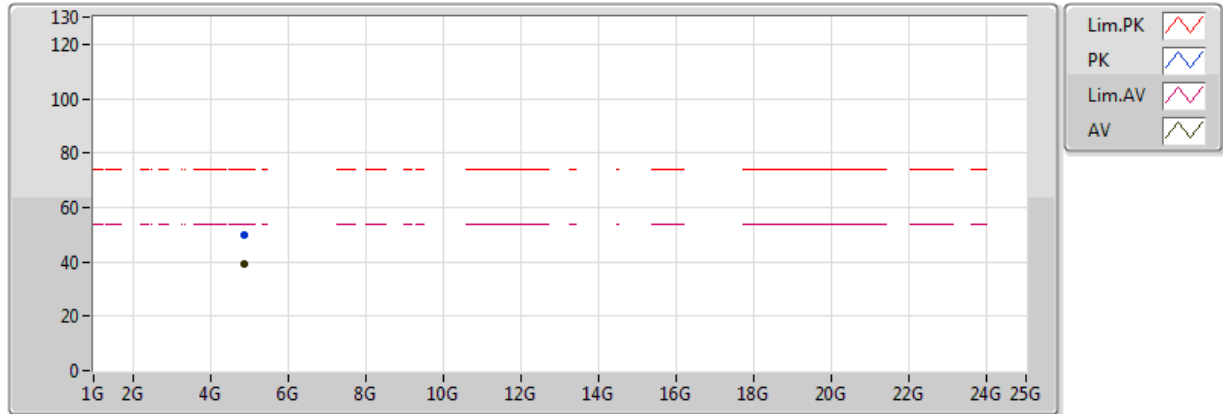


20161227
EUT Z 2TX_TXBF
Setting 25.5
02-M-1

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	50.56	54.00	-3.44	31.90	3	V	166	1.55	-
AV	2.4406G	109.06	Inf	-Inf	32.03	3	V	166	1.55	-
AV	2.483502G	49.71	54.00	-4.29	32.13	3	V	166	1.55	-
PK	2.3894G	64.85	74.00	-9.15	31.90	3	V	166	1.55	-
PK	2.4418G	120.36	Inf	-Inf	32.03	3	V	166	1.55	-
PK	2.483502G	64.81	74.00	-9.19	32.13	3	V	166	1.55	-

802.11ac VHT20-BF_Nss1,(MCS0)_2TX

2437MHz_TX

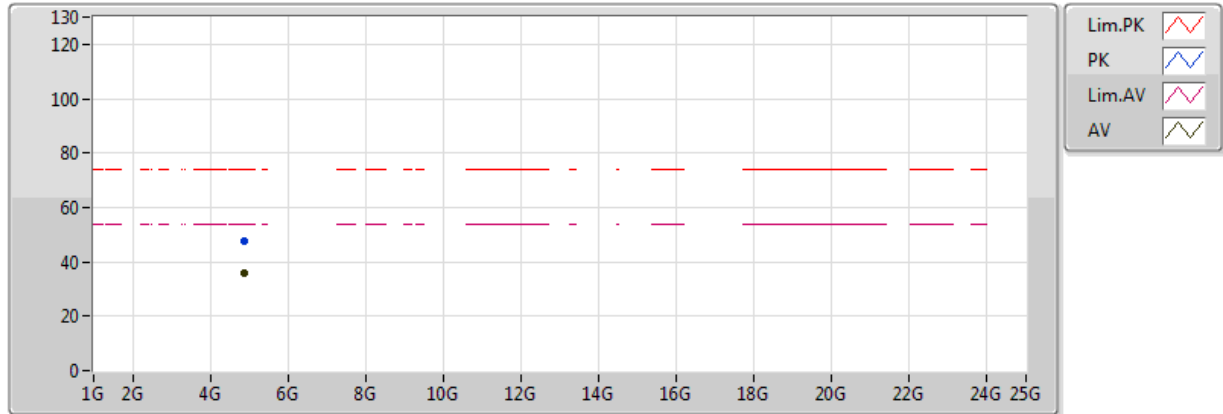


20170202
EUT Z 2TX_TXBF
Setting 25.5
02-J-4

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.87394G	38.97	54.00	-15.03	6.44	3	V	335	1.37	-
PK	4.87768G	50.04	74.00	-23.96	6.45	3	V	335	1.37	-

802.11ac VHT20-BF_Nss1,(MCS0)_2TX

2437MHz_TX

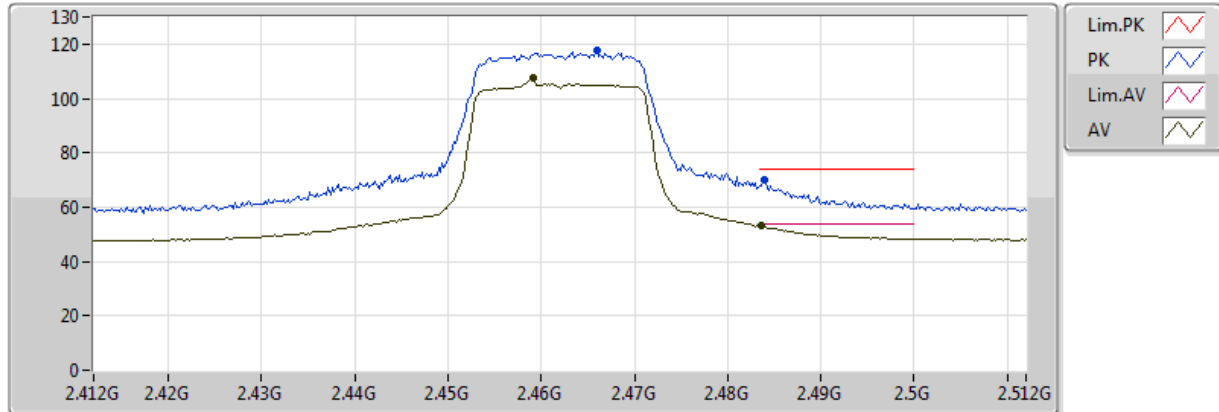


20170202
EUT Z 2TX_TXBF
Setting 25.5
02-J-4

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.87406G	35.77	54.00	-18.23	6.44	3	H	106	1.59	-
PK	4.87666G	47.40	74.00	-26.60	6.45	3	H	106	1.59	-

802.11ac VHT20-BF_Nss1,(MCS0)_2TX

2462MHz_TX

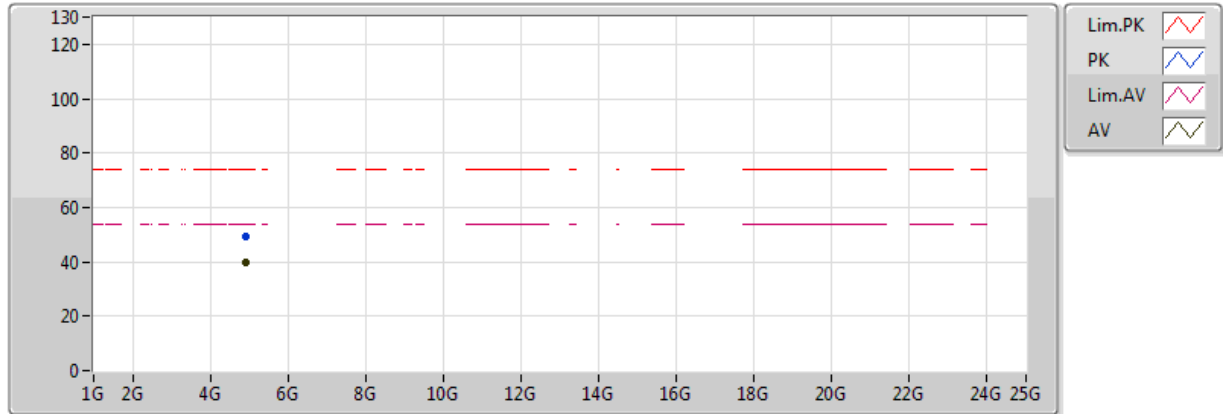


20161227
EUT Z 2TX_TXBF
Setting 20.5
02-M-1

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.4592G	107.62	Inf	-Inf	32.07	3	V	157	1.50	-
AV	2.4836G	53.20	54.00	-0.80	32.13	3	V	157	1.50	-
PK	2.466G	117.73	Inf	-Inf	32.09	3	V	157	1.50	-
PK	2.484G	70.11	74.00	-3.89	32.13	3	V	157	1.50	-

802.11ac VHT20-BF_Nss1,(MCS0)_2TX

2462MHz_TX

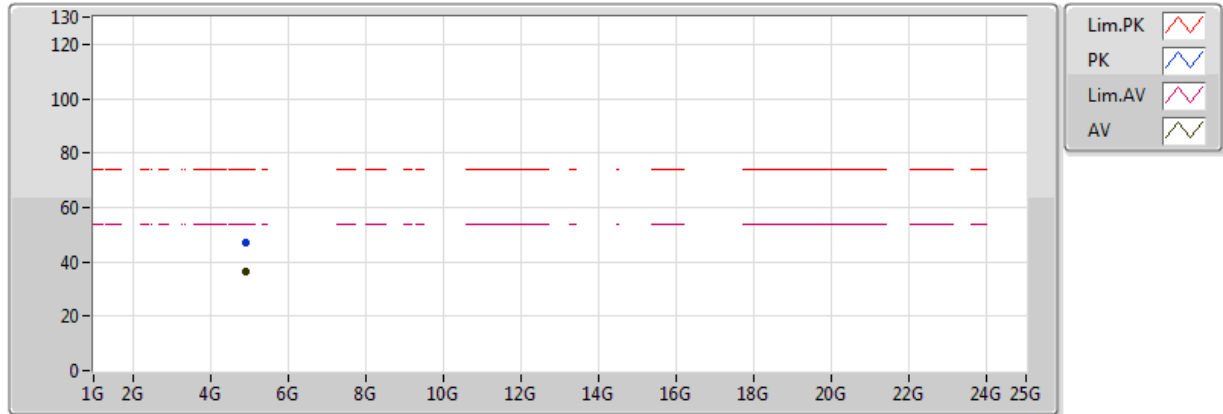


20170202
EUT Z 2TX_TXBF
Setting 20.5
02-J-4

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.924G	40.05	54.00	-13.95	6.59	3	V	331	1.59	-
PK	4.924G	49.52	74.00	-24.48	6.59	3	V	331	1.59	-

802.11ac VHT20-BF_Nss1,(MCS0)_2TX

2462MHz_TX

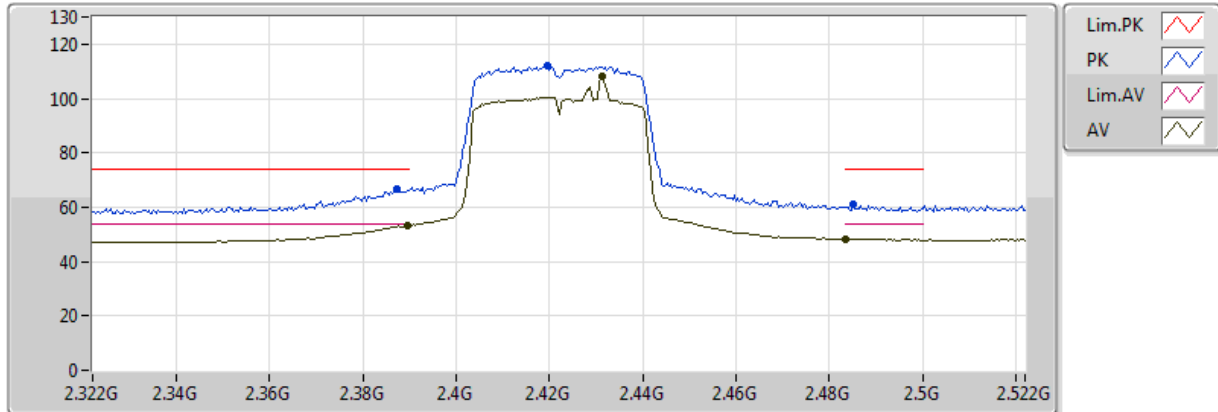


20170202
EUT Z 2TX_TXBF
Setting 20.5
02-J-4

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.92394G	36.16	54.00	-17.84	6.59	3	H	0	2.72	-
PK	4.924G	47.15	74.00	-26.85	6.59	3	H	0	2.72	-

VHT40.BF_Nss1,(MCS0)_2TX

2422MHz_TX

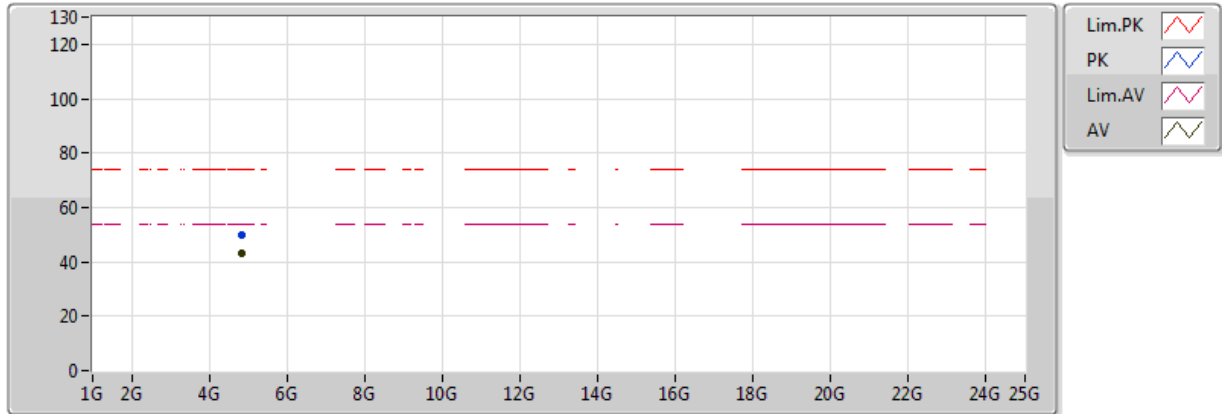


20161227
EUT Z 2TX_TXBF
Setting 18.5
02-M-1

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	53.50	54.00	-0.50	31.90	3	V	312	1.06	-
AV	2.4312G	107.95	Inf	-Inf	32.00	3	V	312	1.06	-
AV	2.4836G	48.34	54.00	-5.66	32.13	3	V	312	1.06	-
PK	2.3872G	66.70	74.00	-7.30	31.90	3	V	312	1.06	-
PK	2.4196G	111.94	Inf	-Inf	31.98	3	V	312	1.06	-
PK	2.4852G	61.02	74.00	-12.98	32.13	3	V	312	1.06	-

VHT40.BF_Nss1,(MCS0)_2TX

2422MHz_TX

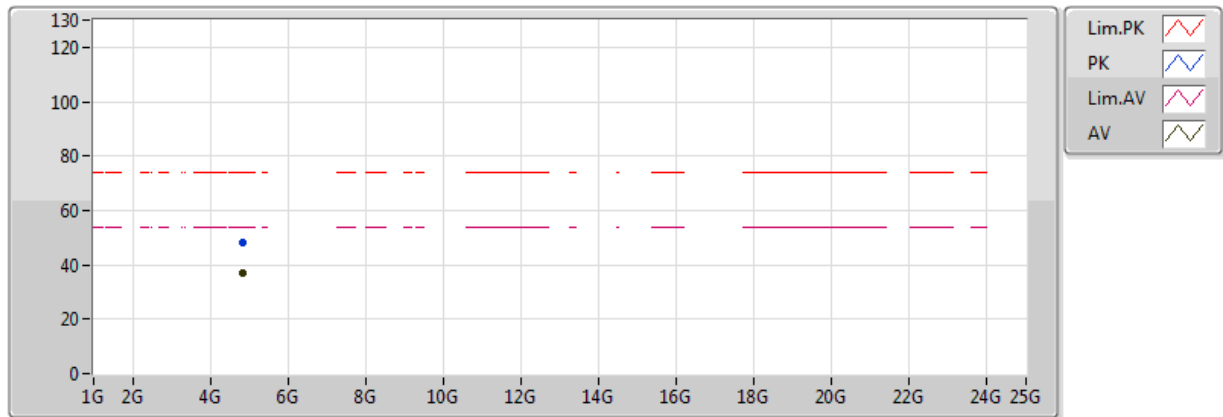


20170202
EUT Z 2TX_TXBF
Setting 18.5
02-J-4

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.844G	42.98	54.00	-11.02	6.35	3	V	67	2.90	-
PK	4.84394G	50.09	74.00	-23.91	6.35	3	V	67	2.90	-

VHT40.BF_Nss1,(MCS0)_2TX

2422MHz_TX

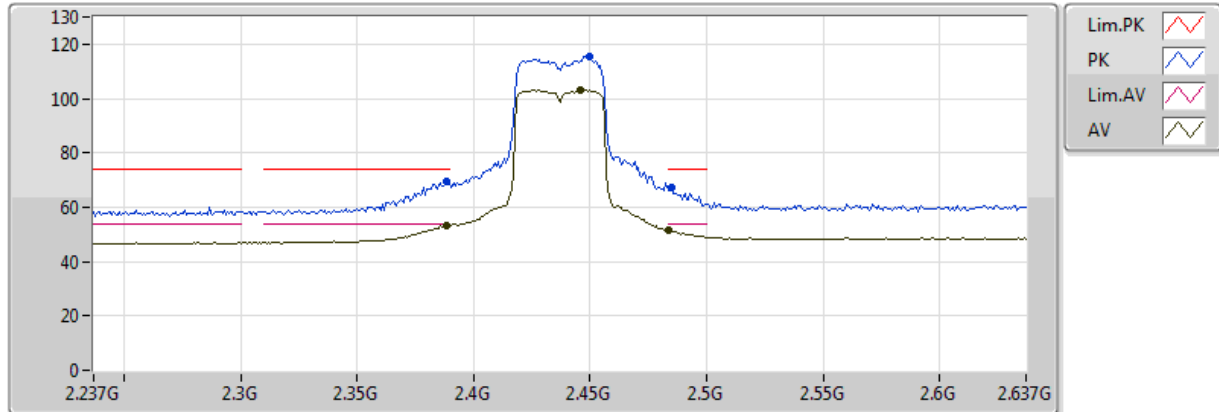


20170202
EUT Z 2TX_TXBF
Setting 18.5
02-J-4

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.84394G	37.22	54.00	-16.78	6.17	3	H	264	1.87	-
PK	4.84372G	48.22	74.00	-25.78	6.17	3	H	264	1.87	-

VHT40.BF_Nss1,(MCS0)_2TX

2437MHz_TX

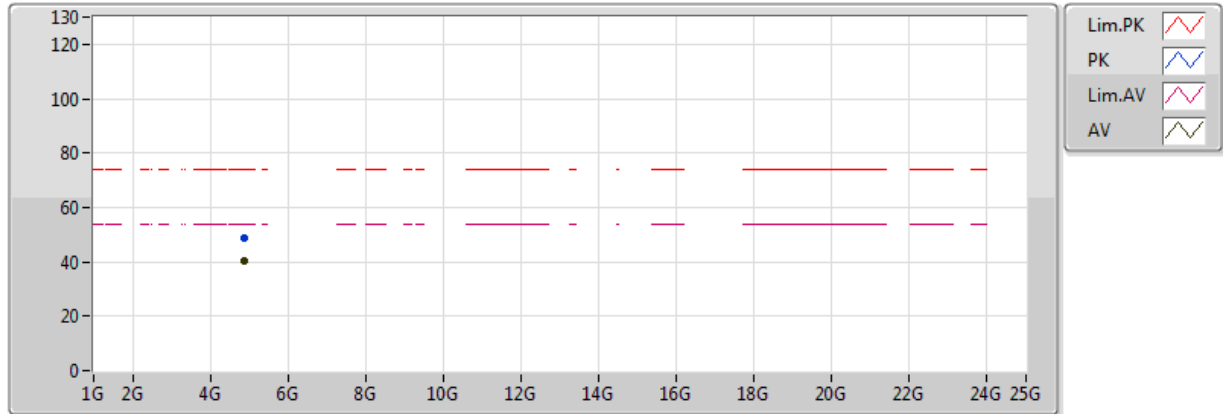


20161227
EUT Z 2TX_TXBF
Setting 21
02-M-1

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	53.24	54.00	-0.76	31.90	3	V	302	1.20	-
AV	2.4458G	103.21	Inf	-Inf	32.04	3	V	302	1.20	-
AV	2.483502G	51.46	54.00	-2.54	32.13	3	V	302	1.20	-
PK	2.3882G	69.30	74.00	-4.70	31.90	3	V	302	1.20	-
PK	2.4498G	115.31	Inf	-Inf	32.05	3	V	302	1.20	-
PK	2.485G	67.13	74.00	-6.87	32.13	3	V	302	1.20	-

VHT40.BF_Nss1,(MCS0)_2TX

2437MHz_TX

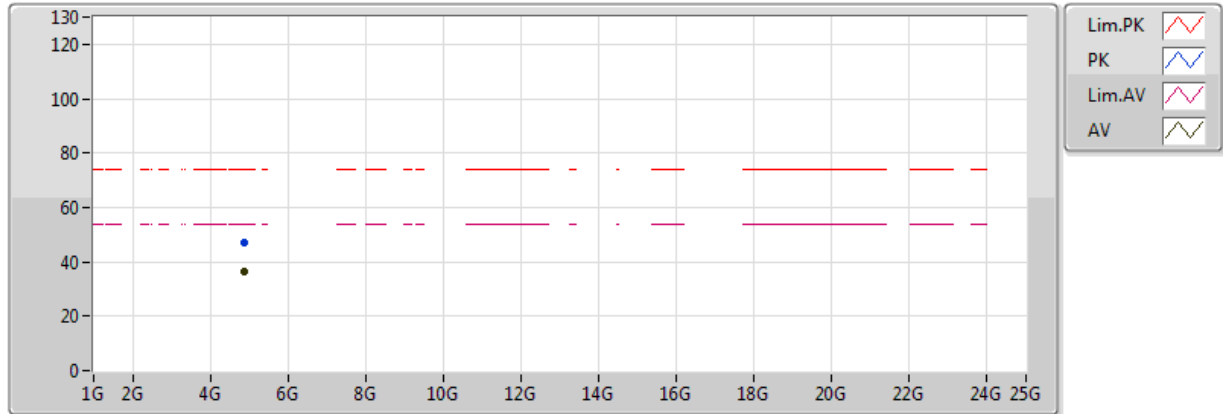


20170202
EUT Z 2TX_TXBF
Setting 21
02-J-4

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.87398G	40.60	54.00	-13.40	6.25	3	V	59	2.71	-
PK	4.87404G	48.48	74.00	-25.52	6.25	3	V	59	2.71	-

VHT40.BF_Nss1,(MCS0)_2TX

2437MHz_TX

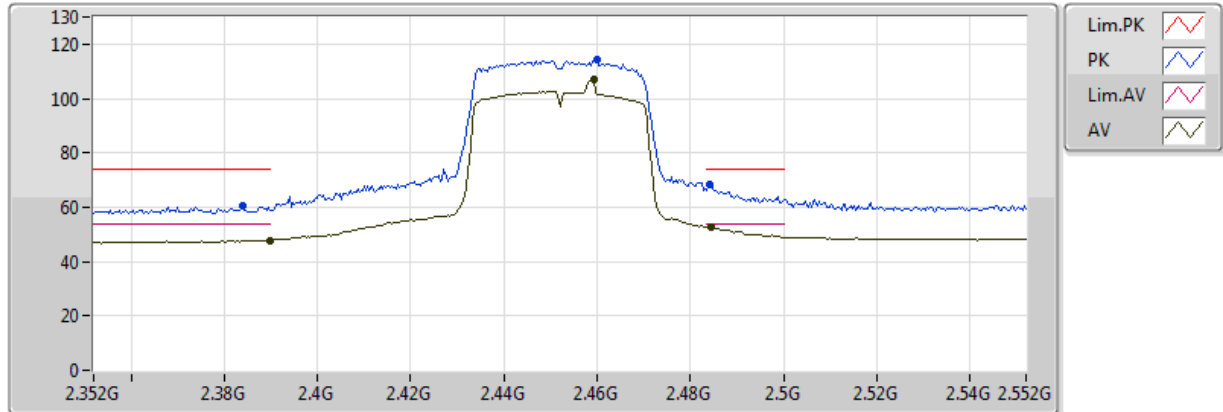


20170202
EUT Z 2TX_TXBF
Setting 21
02-J-4

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.87398G	36.31	54.00	-17.69	6.25	3	H	253	2.44	-
PK	4.8737G	47.19	74.00	-26.81	6.25	3	H	253	2.44	-

VHT40.BF_Nss1,(MCS0)_2TX

2452MHz_TX

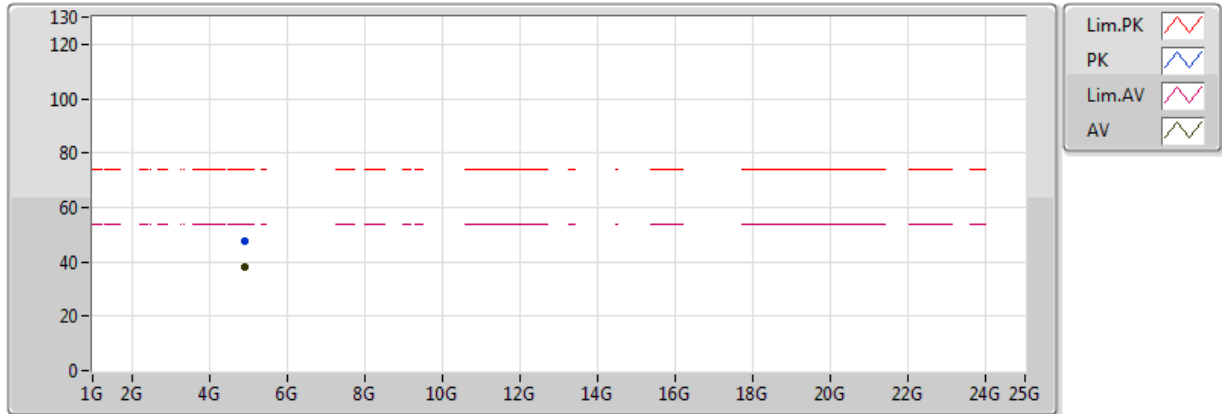


20161227
EUT Z 2TX_TXBF
Setting 20
02-M-1

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	47.78	54.00	-6.22	31.90	3	V	169	1.50	-
AV	2.4592G	107.07	Inf	-Inf	32.07	3	V	169	1.50	-
AV	2.4844G	52.72	54.00	-1.28	32.13	3	V	169	1.50	-
PK	2.384G	60.32	74.00	-13.68	31.89	3	V	169	1.50	-
PK	2.46G	114.51	Inf	-Inf	32.07	3	V	169	1.50	-
PK	2.484G	68.15	74.00	-5.85	32.13	3	V	169	1.50	-

VHT40.BF_Nss1,(MCS0)_2TX

2452MHz_TX

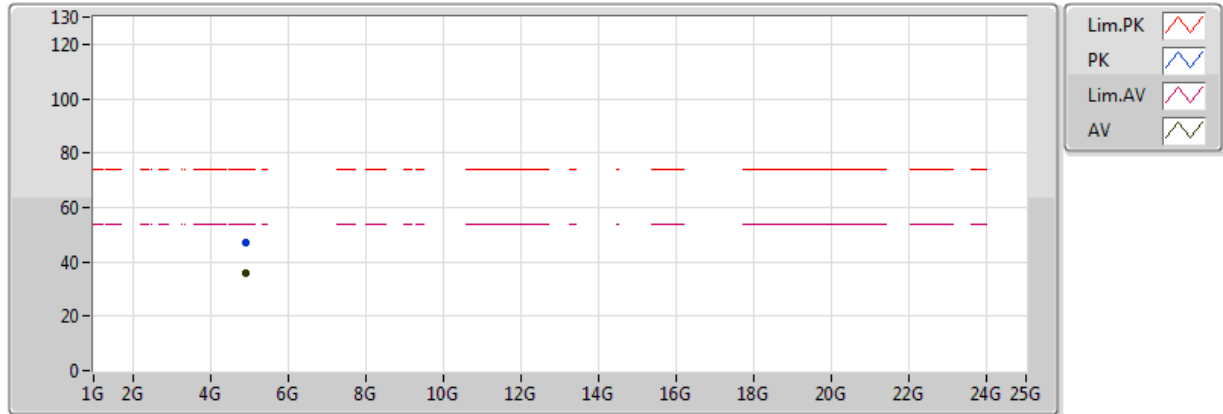


20170202
EUT Z 2TX_TXBF
Setting 20
02-J-4

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.90404G	38.16	54.00	-15.84	6.53	3	V	122	2.70	-
PK	4.90402G	47.67	74.00	-26.33	6.53	3	V	122	2.70	-

VHT40.BF_Nss1,(MCS0)_2TX

2452MHz_TX



20170202
EUT Z 2TX_TXBF
Setting 20
02-J-4

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.90394G	36.06	54.00	-17.94	6.53	3	H	252	2.67	-
PK	4.9039G	47.32	74.00	-26.68	6.53	3	H	252	2.67	-