Testing Laboratory 1190

FCC RADIO TEST REPORT

FCC ID	:	MSQ-RTAC8800
Equipment	:	Dual band AC WiFi Router
Brand Name	:	ASUS
Model Name	:	RT-ACRH18, RT-AC67P, RT-AC65, RT-AC1900, RT-AC1750
Applicant	:	ASUSTeK COMPUTER INC. 1F., No. 15, Lide Rd., Beitou, Taipei 112, Taiwan
Manufacturer	:	ASUSTeK COMPUTER INC. 1F., No. 15, Lide Rd., Beitou, Taipei 112, Taiwan
Standard	:	47 CFR FCC Part 15.247

The product was received on Jun. 03, 2020, and testing was started from Jun. 08, 2020 and completed on Jul. 30, 2020. 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 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: Cliff Chang

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)

Table of Contents

History of this test report **3**

Summary of Test Result **4**

1 General Description **5**

1.1 Information 5
1.2 Applicable Standards 8
1.3 Testing Location Information 8
1.4 Measurement Uncertainty 9

2 Test Configuration of EUT **10**

2.1 Test Channel Mode 10
2.2 The Worst Case Measurement Configuration 11
2.3 EUT Operation during Test 12
2.4 Accessories 13
2.5 Support Equipment 13
2.6 Test Setup Diagram 14

3 Transmitter Test Result **17**

3.1 AC Power-line Conducted Emissions 17
3.2 DTS Bandwidth 19
3.3 Maximum Conducted Output Power 20
3.4 Power Spectral Density 23
3.5 Emissions in Non-restricted Frequency Bands 25
3.6 Emissions in Restricted Frequency Bands 26

4 Test Equipment and Calibration Data **30**

Appendix A. Test Results of AC Power-line Conducted Emissions

Appendix B. Test Results of DTS Bandwidth

Appendix C. Test Results of Maximum Conducted Output Power

Appendix D. Test Results of Power Spectral Density

Appendix E. Test Results of Emissions in Non-restricted Frequency Bands

Appendix F. Test Results of Emissions in Restricted Frequency Bands

Appendix G. Test Results of Radiated Emission Co-location

Appendix H. Test Photos

Photographs of EUT v01

History of this test report

Report No.	Version	Description	Issued Date
FR042225AA	01	Initial issue of report	Sep. 16, 2020

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	-

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and Explanations:
The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Reviewed by: Sam Chen
Report Producer: Viola 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), VHT20	2412-2462	1-11 [11]
2400-2483.5	n (HT40), VHT40	2422-2452	3-9 [7]

Band	Mode	BWch (MHz)	Nant
2.4-2.4835GHz	802.11b	20	3
2.4-2.4835GHz	802.11g	20	3
2.4-2.4835GHz	802.11n HT20	20	3
2.4-2.4835GHz	802.11n HT20-BF	20	3
2.4-2.4835GHz	VHT20	20	3
2.4-2.4835GHz	VHT20-BF	20	3
2.4-2.4835GHz	802.11n HT40	40	3
2.4-2.4835GHz	802.11n HT40-BF	40	3
2.4-2.4835GHz	VHT40	40	3
2.4-2.4835GHz	VHT40-BF	40	3

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.

1.1.2 Antenna Information

Ant.	2.4GHz Port	5GHz Port	Brand	P/N	Antenna Type	Connector	Gain (dBi)	
							2.4GHz	5GHz
1	2	2	RFlink	RF21C05448A	Dipole Antenna	I-PEX	1.94	1.83
2	3	1	RFlink	RF21C05449A	Dipole Antenna	I-PEX	1.91	1.97
3	1	3	RFlink	RF21C05450A	Dipole Antenna	I-PEX	1.87	1.99

Note: The above information was declared by manufacturer.

For 2.4GHz function:

IEEE 802.11b/g/n/VHT (3TX/3RX):

Port 1, Port 2 and Port 3 can be used as transmitting/receiving antenna.

Port 1, Port 2 and Port 3 could transmit/receive simultaneously.

For 5GHz function:

IEEE 802.11a/n/ac (3TX/3RX):

Port 1, Port 2 and Port 3 can be used as transmitting/receiving antenna.

Port 1, Port 2 and Port 3 could transmit/receive simultaneously.

1.1.3 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
802.11b	0.991	0.04	n/a (DC>=0.98)	n/a (DC>=0.98)
802.11g	0.959	0.18	1.4m	1k
VHT20-BF	0.979	0.09	4.983m	300
VHT40-BF	0.905	0.43	2.423m	1k

Note:
- DC is Duty Cycle.
- DCF is Duty Cycle Factor.

1.1.4 EUT Operational Condition

EUT Power Type	From Power Adapter			
Beamforming Function	☒	With beamforming	☐	Without beamforming
	The product has beamforming function for 11n/VHT in 2.4GHz and 11n/11ac in 5GHz.			
Function	☒	Point-to-multipoint	☐	Point-to-point
Test Software Version	Non beamforming mode: QATool (ver.0.0.2.8) Beamforming mode: Telnet			

Note: The above information was declared by manufacturer.

1.1.5 Table for Multiple Listing

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

Model Name	Description
RT-ACRH18, RT-AC67P, RT-AC65, RT-AC1900, RT-AC1750	All the models are identical, the different model names served as marketing strategy.

From the above models, model: RT-ACRH18 was selected as representative model for the test and its data was recorded in this report.

1.2 Applicable 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

The following reference test guidance is not within the scope of accreditation of TAF.

- FCC KDB 558074 D01 v05r02
- FCC KDB 662911 D01 v02r01
- FCC KDB 414788 D01 v01r01

1.3 Testing Location Information

Testing Location			
☐	HWA YA	ADD :	No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)
		TEL :	886-3-327-3456 FAX : 886-3-327-0973
☒	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	TH02-CB	Caster Chang	22.7~23.2°C / 54~57%	Jun. 10, 2020~Jul. 30, 2020
Radiated (For below 1GHz and above 1GHz co-location)	03CH03-CB	Eason Chen	25~27.1°C / 57~59%	Jun. 09, 2020~Jun. 10, 2020
Radiated (For above 1GHz)	03CH04-CB	Eason Chen	23.9~25.9°C / 61~63%	Jun. 08, 2020~Jul. 30, 2020
AC Conduction	CO01-CB	Ryo Fan	21~22°C / 63~64%	Jun. 08, 2020

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)	2.0 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	5.6 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	4.9 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	4.6 dB	Confidence levels of 95%
Conducted Emission	2.4 dB	Confidence levels of 95%
Output Power Measurement	1.5 dB	Confidence levels of 95%
Power Density Measurement	2.4 dB	Confidence levels of 95%
Bandwidth Measurement	2%	Confidence levels of 95%

2 Test Configuration of EUT

2.1 Test Channel Mode

Mode	Power Setting
802.11b_Nss1,(1Mbps)_3TX	-
2412MHz	11
2437MHz	11
2462MHz	11
802.11g_Nss1,(6Mbps)_3TX	-
2412MHz	23
2417MHz	26
2437MHz	2C
2457MHz	24
2462MHz	20
VHT20-BF_Nss1,(MCS0)_3TX	-
2412MHz	33
2417MHz	36
2437MHz	44
2457MHz	33
2462MHz	29
VHT40-BF_Nss1,(MCS0)_3TX	-
2422MHz	27
2427MHz	28
2437MHz	31
2447MHz	28
2452MHz	27

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 802.11n/VHT in 2.4GHz and 802.11n/ac in 5GHz. One is beamforming mode, and the other is non-beamforming mode, 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	EUT_2.4GHz + adapter
2	EUT_5GHz + adapter
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_2.4GHz + adapter
2	EUT_5GHz + adapter
For operating mode 2 is the worst case and it was record in this test report.	
Operating Mode > 1GHz	CTX

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
1	WLAN 2.4GHz + WLAN 5GHz
Refer to Appendix G 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.: FA042225 for Co-location RF Exposure Evaluation.	

Note: The EUT can only use Y axis position.

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 Holder**	**Model Name**	**Rating**
Adapter	Shenzhen Gongjin Electronics Co., Ltd.	S24B72-120A200-0K	Input: 100-240V ~ 50/60Hz, Max 0.8A Output: 12V, 2A
Others			
RJ-45 cable*1: Non-shielded, 1m			

2.5 Support Equipment

For AC Conduction:

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
A	LAN NB	DELL	E6430	N/A
B	HDD3.0	Transcend	TS1TSJ25A3K	N/A

For Radiated (below 1GHz):

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
A	Notebook	DELL	E4300	N/A

For Radiated (above 1GHz):
For non-beamforming mode

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
A	Notebook	DELL	E4300	N/A

For beamforming mode

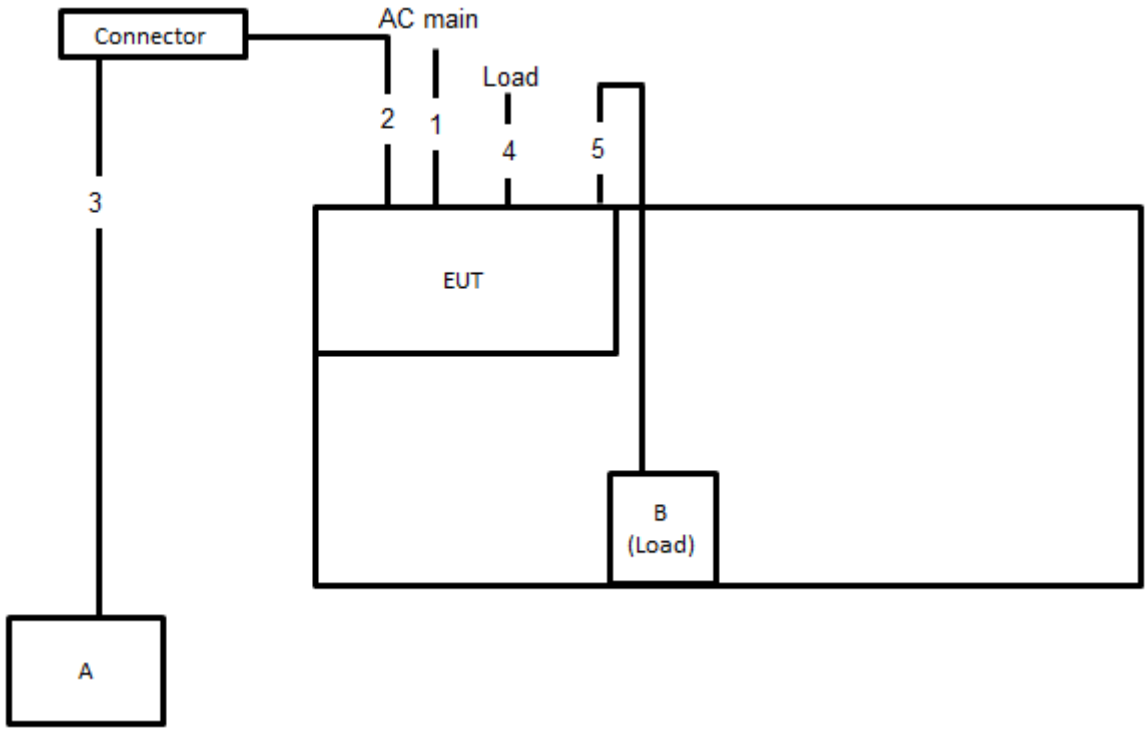
Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
A	Notebook	DELL	E4300	N/A
B	Notebook	DELL	E4300	N/A
C	RX Device	ASUS	RT-ACRH18	MSQ-RTAC8800

For RF Conducted:

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
A	Notebook	DELL	E4300	N/A

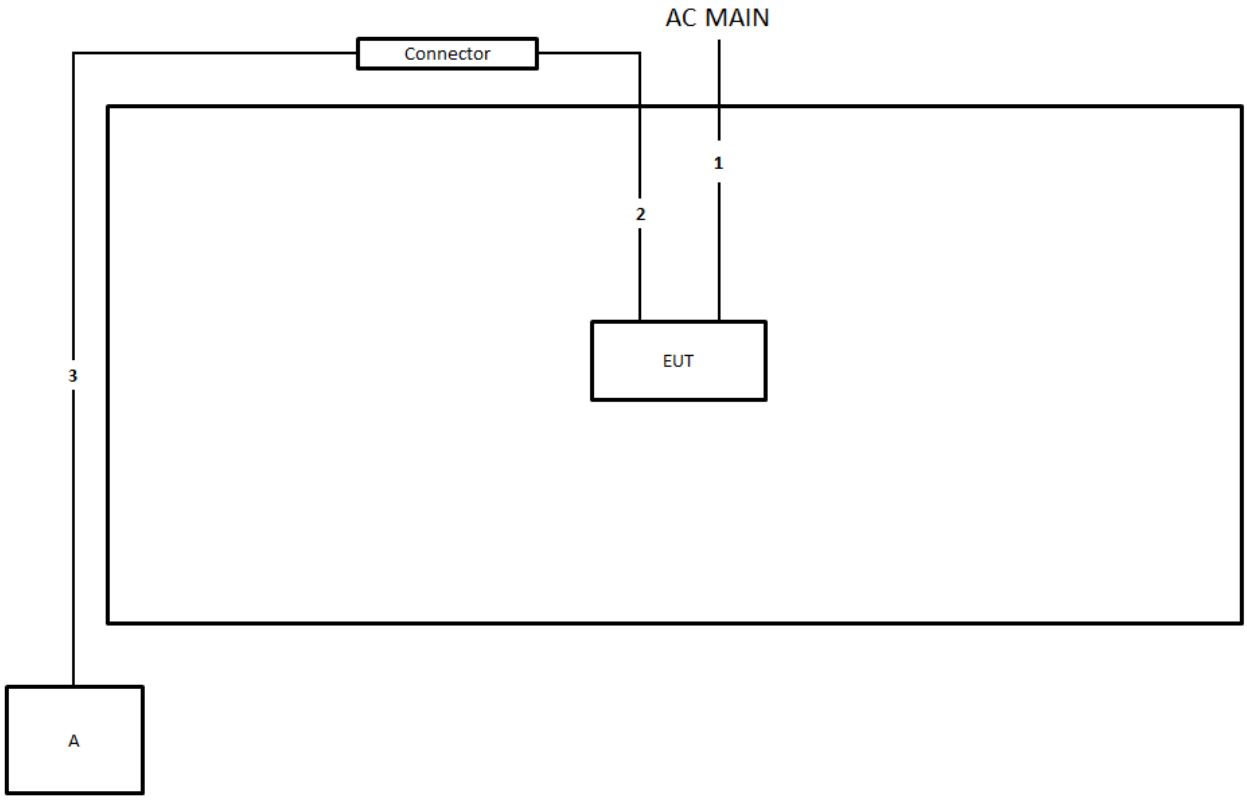
2.6 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test



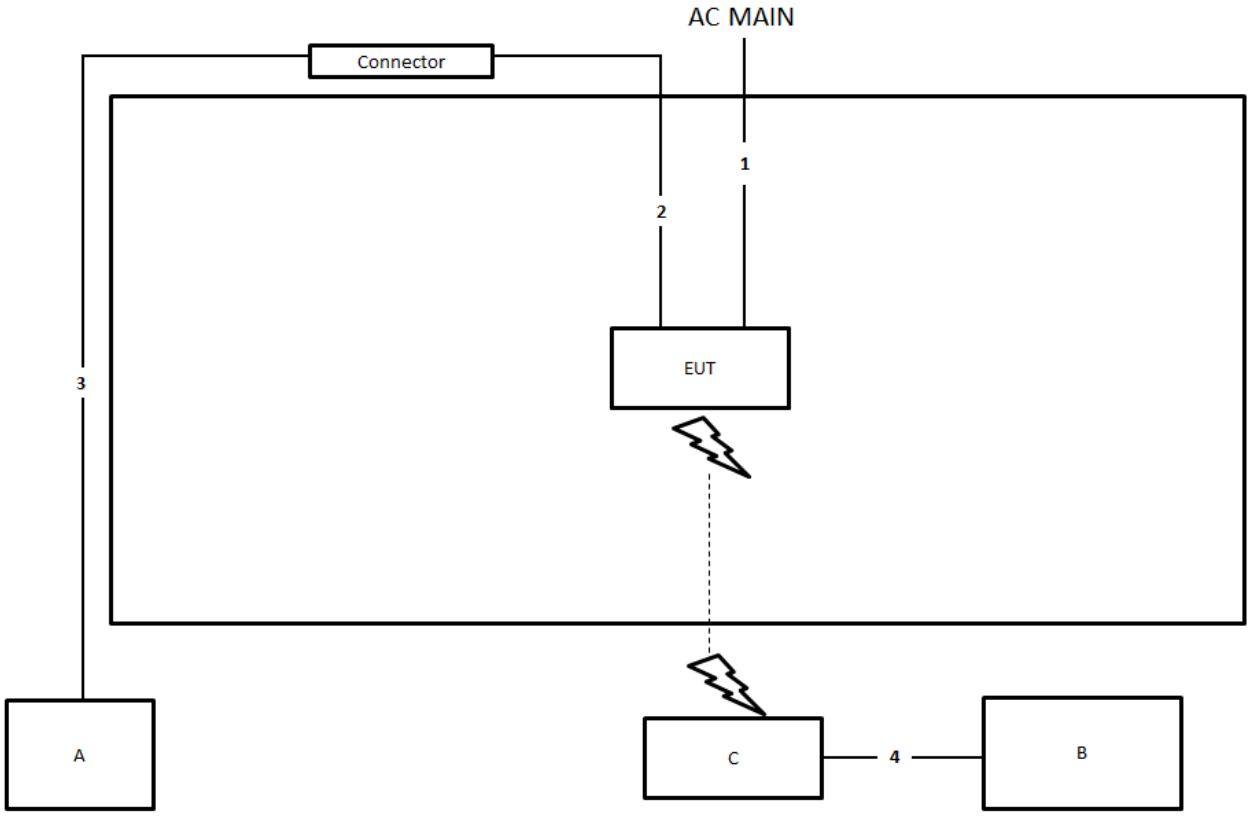
Item	Connection	Shielded	Length
1	Power cable	No	1.5m
2	RJ-45 cable	No	1m
3	RJ-45 cable	No	10m
4	RJ-45 cable*4	No	1.5m
5	USB cable	Yes	1.8m

Test Setup Diagram - Radiated Test < 1GHz and Radiated Test > 1GHz / For non-beamforming mode



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

Test Setup Diagram - Radiated Test > 1GHz / For beamforming mode



Item	Connection	Shielded	Length
1	Power cable	No	1.5m
2	RJ-45 cable	No	1m
3	RJ-45 cable	No	10m
4	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

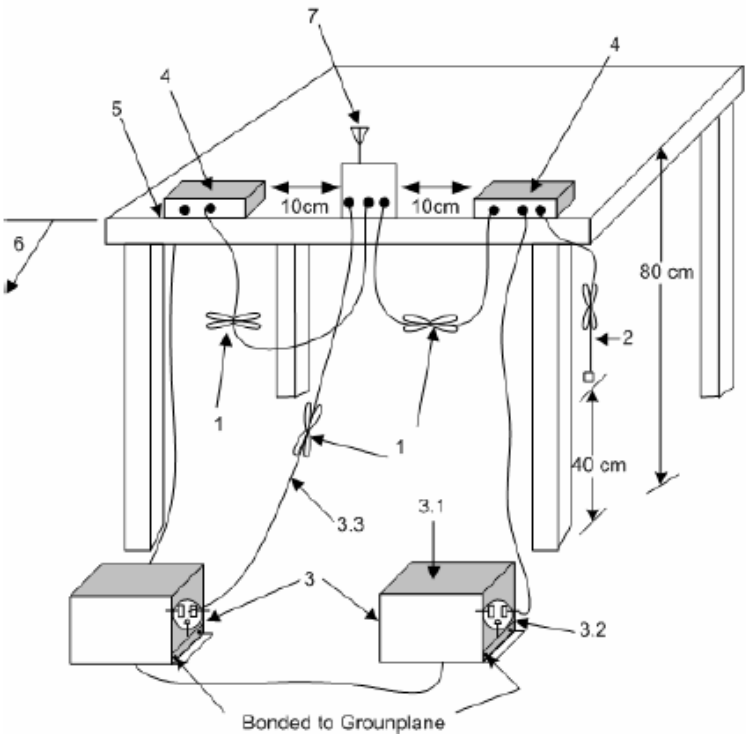
Refer a test equipment and calibration data table in this test report.

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

AC Power-line Conducted Emissions



1—Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 cm to 40 cm long.
2—The I/O cables that are not connected to an accessory shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
3—EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50 Ω loads. LISN may be placed on top of, or immediately beneath, reference ground plane.
3.1—All other equipment powered from additional LISN(s).
3.2—A multiple-outlet strip may be used for multiple power cords of non-EUT equipment.
3.3—LISN at least 80 cm from nearest part of EUT chassis.
4—Non-EUT components of EUT system being tested.
5—Rear of EUT, including peripherals, shall all be aligned and flush with edge of tabletop.
6—Edge of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane.
7—Antenna can be integral or detachable. If detachable, then the antenna shall be attached for this test.

3.1.5 Measurement Results Calculation

The measured Level is calculated using:

a. Corrected Reading: LISN Factor (LISN) + Attenuator (AT/AUX) + Cable Loss (CL) + Read Level (Raw) = Level

b. Margin = -Limit + Level

3.1.6 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 ≥ 500 kHz.

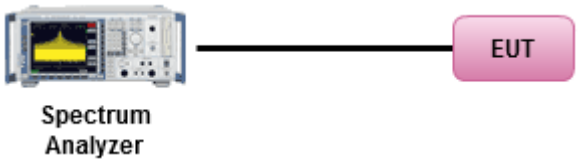
3.2.2 Measuring Instruments

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 8.2 & C63.10 clause 11.8.1 Option 1 for 6 dB bandwidth measurement.
	☐ Refer as FCC KDB 558074, clause 8.2 & C63.10 clause 11.8.2 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

Emission Bandwidth


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 8.3.1.1 & C63.10 clause 11.9.1.1 (RBW ≥ EBW method).
	☐ Refer as FCC KDB 558074, clause 8.3.1.3 & C63.10 clause 11.9.1.3 (peak power meter).
▪ Maximum Conducted Output Power	
	[duty cycle ≥ 98% or external video / power trigger]
	☐ Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.2 Method AVGSA-1.
	☐ Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.3 Method AVGSA-1A. (alternative)
	duty cycle < 98% and average over on/off periods with duty factor
	☐ Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.4 Method AVGSA-2.
	☐ Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.5 Method AVGSA-2A (alternative)
	☐ Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.6 Method AVGSA-3
	☐ Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.7 Method AVGSA-3A (alternative)
	Measurement using a power meter (PM)
	☐ Refer as FCC KDB 558074, clause 8.3.2.3 & C63.10 clause 11.9.2.3.1 Method AVGPM (using an RF average power meter).
	☒ Refer as FCC KDB 558074, clause 8.3.2.3 & C63.10 clause 11.9.2.3.2 Method AVGPM-G (using an gate RF average power meter).
▪ 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: $P_{total} = P_1 + P_2 + \ldots + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = P_{total} + DG$

3.3.4 Test Setup

Maximum Conducted Output Power (Power Meter)

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) ≤ 8 dBm/3kHz

3.4.2 Measuring Instruments

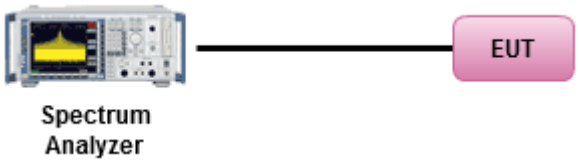
Refer a test equipment and calibration data table in this test report.

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 8.4 & C63.10 clause 11.10 Method Max. PSD.	
▪ 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

Power Spectral Density



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 (dBc)**
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

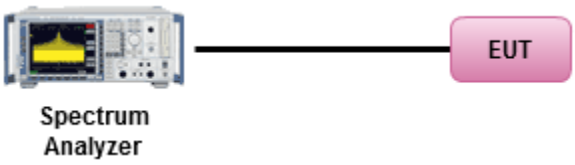
Refer a test equipment and calibration data table in this test report.

3.5.3 Test Procedures

Test Method
▪ Refer as FCC KDB 558074, clause 8.5 for unwanted emissions into non-restricted bands.

3.5.4 Test Setup

Emissions in Non-restricted Frequency Bands



3.5.5 Measurement Results Calculation

The measured Level is calculated using:
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor (if applicable) = Level.

3.5.6 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.

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

3.6.2 Measuring Instruments

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

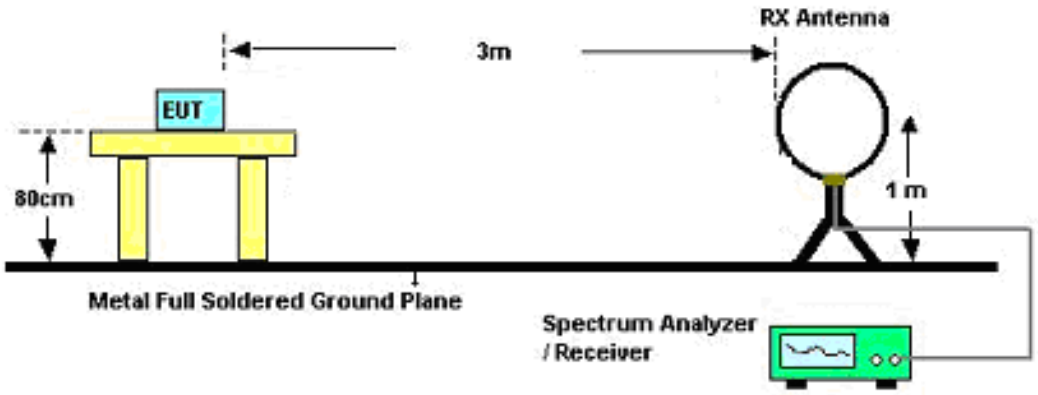
3.6.3 Test Procedures

Test Method			
▪ The average emission levels shall be measured in [duty cycle ≥ 98 or duty factor].			
▪ Refer as ANSI C63.10, clause 6.10.3 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 8.6 for unwanted emissions into restricted bands.		
		☐	Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.5.1(trace averaging for duty cycle ≥98%).
		☐	Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.5.2(trace averaging + duty factor).
		☒	Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.5.3(Reduced VBW≥1/T).
		☐	Refer as ANSI C63.10, clause 11.12.2.5.3 (Reduced VBW). VBW ≥ 1/T, where T is pulse time.
		☐	Refer as ANSI C63.10, clause 7.5 average value of pulsed emissions.
		☒	Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.4 measurement procedure peak limit.
▪ For the transmitter band-edge emissions shall be measured using following options below:			
	▪ Refer as FCC KDB 558074 clause 8.7 & C63.10 clause 11.13.1, 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 8.7 (ANSI C63.10, clause 6.10.6) for marker-delta method for band-edge measurements.		
	▪ Refer as FCC KDB 558074, clause 8.7 for narrower resolution bandwidth (100kHz) using the band power and summing the spectral levels (i.e., 1 MHz).		
	▪ 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.		

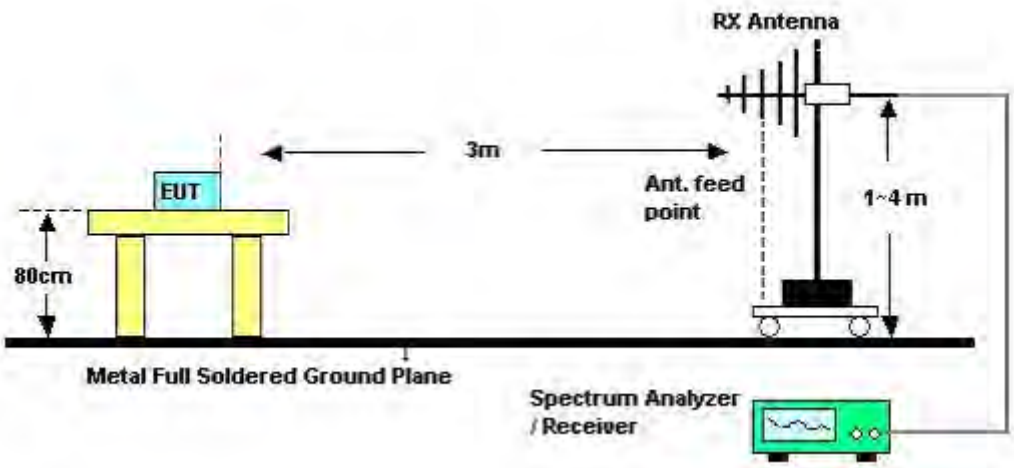
3.6.4 Test Setup

Radiated - Emissions in Restricted Frequency Bands

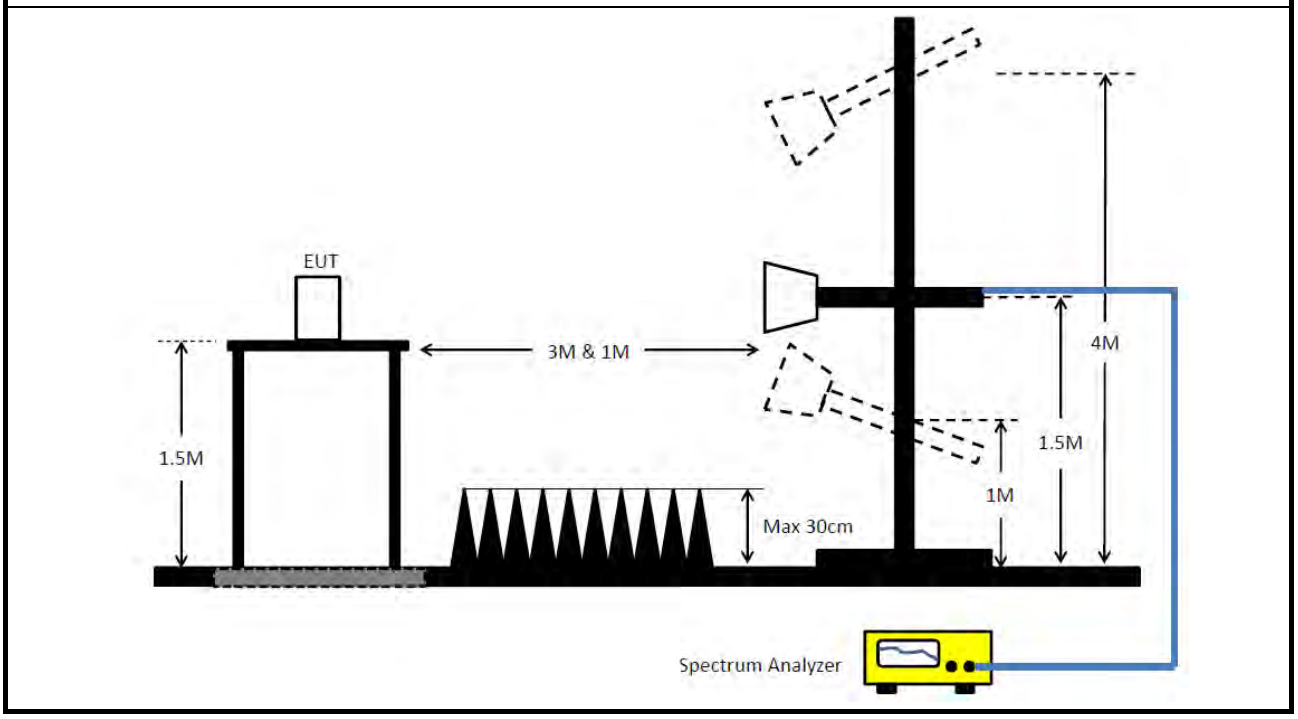
9kHz ~30MHz



30MHz~1GHz



Above 1GHz



3.6.5 Measurement Results Calculation

The measured Level is calculated using:
Corrected Reading: Antenna factor (AF) + Cable loss (CL) + Read level (Raw) - Preamp factor (PA)(if applicable) = Level

3.6.6 Emissions in Restricted Frequency Bands (Below 30MHz)

There is a comparison data of both open-field test site and alternative test site - semi-Anechoic chamber according to KDB414788 Radiated Test Site, and the result came out very similar.
All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.
The radiated emissions were investigated from 9 kHz or the lowest frequency generated within the device, up to the 10th harmonic or 40 GHz, whichever is appropriate.

3.6.7 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix F

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	Feb. 26, 2020	Feb. 25, 2021	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Dec. 25, 2019	Dec. 24, 2020	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Feb. 25, 2020	Feb. 24, 2021	Conduction (CO01-CB)
Pulse Limiter	Rohde& Schwarz	ESH3-Z2	100430	9kHz ~ 30MHz	Jan. 31, 2020	Jan. 30, 2021	Conduction (CO01-CB)
COND Cable	Woken	Cable	Low cable-CO01	9kHz ~ 30MHz	May 20, 2020	May 19, 2021	Conduction (CO01-CB)
Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conduction (CO01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Apr. 13, 2020	Apr. 12, 2021	Radiation (03CH03-CB)
Bilog Antenna with 6 dB attenuator	Schaffner	CBL6112B & N-6-06	2928 & AT-N0607	20MHz ~ 2GHz	Feb. 28, 2020	Feb. 27, 2021	Radiation (03CH03-CB)
Horn Antenna	ETS・Lindgren	3115	6821	750MHz~18GHz	Jan. 20, 2020	Jan. 19, 2021	Radiation (03CH03-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jun. 27, 2019	Jun. 26, 2020	Radiation (03CH03-CB)
Pre-Amplifier	Agilent	8447D	2944A10259	9kHz ~ 1.3GHz	Jan. 15, 2020	Jan. 14, 2021	Radiation (03CH03-CB)
Pre-Amplifier	Agilent	8449B	3008A02097	1GHz ~ 26.5GHz	Dec. 19, 2019	Dec.18, 2020	Radiation (03CH03-CB)
Pre-Amplifier	MITEQ	TTA1840-35-HG	1864479	18GHz ~ 40GHz	Jul. 03, 2019	Jul. 02, 2020	Radiation (03CH03-CB)
Spectrum Analyzer	R&S	FSP40	100019	9kHz ~ 40GHz	Jun. 09, 2020	Jun. 08, 2021	Radiation (03CH03-CB)
EMI Test Receiver	R&S	ESCS	826547/017	9kHz ~ 2.75GHz	May 13, 2020	May 12, 2021	Radiation (03CH03-CB)
RF Cable-low	Woken	RG402	Low Cable-02+27	25MHz ~ 1GHz	Oct. 07, 2019	Oct. 06, 2020	Radiation (03CH03-CB)
RF Cable-high	Woken	RG402	High Cable-20+27	1GHz ~ 18GHz	Oct. 07, 2019	Oct. 06, 2020	Radiation (03CH03-CB)
RF Cable-high	Woken	RG402	High Cable-27	1GHz ~ 18GHz	Oct. 07, 2019	Oct. 06, 2020	Radiation (03CH03-CB)
RF Cable-high	Woken	RG402	High Cable-40G#1	18GHz ~ 40 GHz	Jul. 24, 2019	Jul. 23, 2020	Radiation (03CH03-CB)
RF Cable-high	Woken	RG402	High Cable-40G#2	18GHz ~ 40 GHz	Jul. 24, 2019	Jul. 23, 2020	Radiation (03CH03-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH03-CB)

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
Horn Antenna	ETS・Lindgren	3115	00143147	750MHz~18GHz	Oct. 22, 2019	Oct. 21, 2020	Radiation (03CH04-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jun. 27, 2019	Jun. 26, 2020	Radiation (03CH04-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jul. 21, 2020	Jul. 20, 2021	Radiation (03CH04-CB)
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170507	15GHz ~ 40GHz	Jun. 11, 2020	Jun. 10, 2021	Radiation (03CH04-CB)
Pre-Amplifier	Agilent	83017A	MY53270063	0.5GHz ~ 26.5GHz	Mar. 11, 2020	Mar. 10, 2021	Radiation (03CH04-CB)
Pre-Amplifier	Agilent	83017A	MY53270063	0.5GHz ~ 26.5GHz	Jul. 14, 2020	Jul. 13, 2021	Radiation (03CH04-CB)
Pre-Amplifier	MITEQ	TTA1840-35-HG	1864479	18GHz ~ 40GHz	Jul. 03, 2019	Jul. 02, 2020	Radiation (03CH04-CB)
Pre-Amplifier	MITEQ	TTA1840-35-HG	1864479	18GHz ~ 40GHz	Jul. 08, 2020	Jul. 07, 2021	Radiation (03CH04-CB)
Amplifier	-	-	TF-130N-R1	18GHz ~ 40GHz	Jun. 19, 2020	Jun. 18, 2021	Radiation (03CH04-CB)
Spectrum Analyzer	R&S	FSP40	100142	9kHz~40GHz	Dec. 18, 2019	Dec. 17, 2020	Radiation (03CH04-CB)
RF Cable-high	Woken	RG402	High Cable-21	1GHz - 18GHz	Feb. 01, 2020	Jan. 31, 2021	Radiation (03CH04-CB)
RF Cable-high	Woken	RG402	High Cable-21	1GHz - 18GHz	Jul. 07, 2020	Jul. 06, 2021	Radiation (03CH04-CB)
RF Cable-high	Woken	RG402	High Cable-21+22	1GHz - 18GHz	Feb. 01, 2020	Jan. 31, 2021	Radiation (03CH04-CB)
RF Cable-high	Woken	RG402	High Cable-40G#1	18GHz ~ 40 GHz	Jul. 24, 2019	Jul. 23, 2020	Radiation (03CH04-CB)
RF Cable-high	Woken	RG402	High Cable-40G#1	18GHz ~ 40 GHz	Jul. 16, 2020	Jul. 15, 2021	Radiation (03CH04-CB)
RF Cable-high	Woken	RG402	High Cable-40G#2	18GHz ~ 40 GHz	Jul. 24, 2019	Jul. 23, 2020	Radiation (03CH04-CB)
RF Cable-high	Woken	RG402	High Cable-40G#2	18GHz ~ 40 GHz	Jul. 16, 2020	Jul. 15, 2021	Radiation (03CH04-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH04-CB)
Spectrum analyzer	R&S	FSV40	101027	9kHz~40GHz	Jul. 02, 2019	Jul. 01, 2020	Conducted (TH02-CB)
Signal Analyzer	R&S	FSV40	101904	9kHz ~ 40GHz	May 12, 2020	May 11, 2021	Conducted (TH02-CB)
Power Sensor	Anritsu	MA2411B	1126203	300MHz~40GHz	Sep. 11, 2019	Sep. 10, 2020	Conducted (TH02-CB)
Power Meter	Anritsu	ML2495A	1210004	300MHz~40GHz	Sep. 11, 2019	Sep. 10, 2020	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-01	1 GHz – 26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH02-CB)

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
RF Cable-high	Woken	RG402	High Cable-02	1 GHz – 26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-3	1 GHz – 26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-04	1 GHz – 26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-05	1 GHz – 26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH02-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conducted (TH02-CB)

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

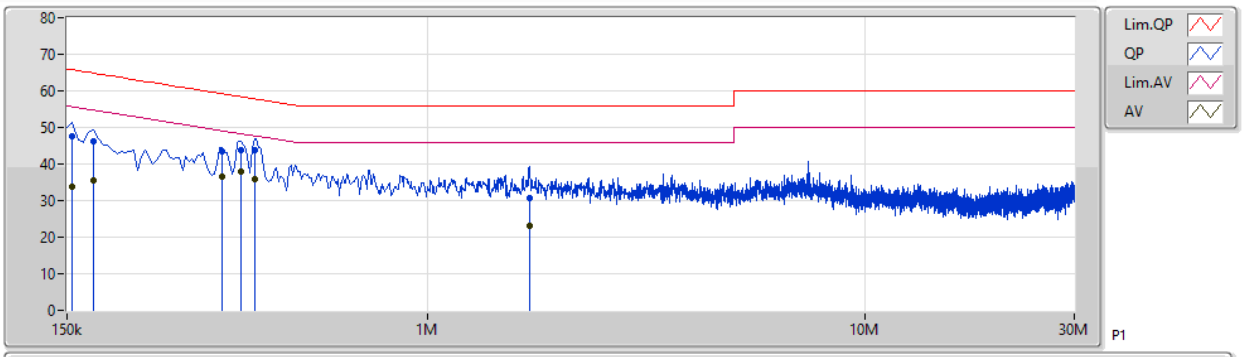
N.C.R. means Non-Calibration required.

Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition
Mode 2	Pass	AV	375k	37.84	48.39	-10.55	9.88	Line

Mode 2

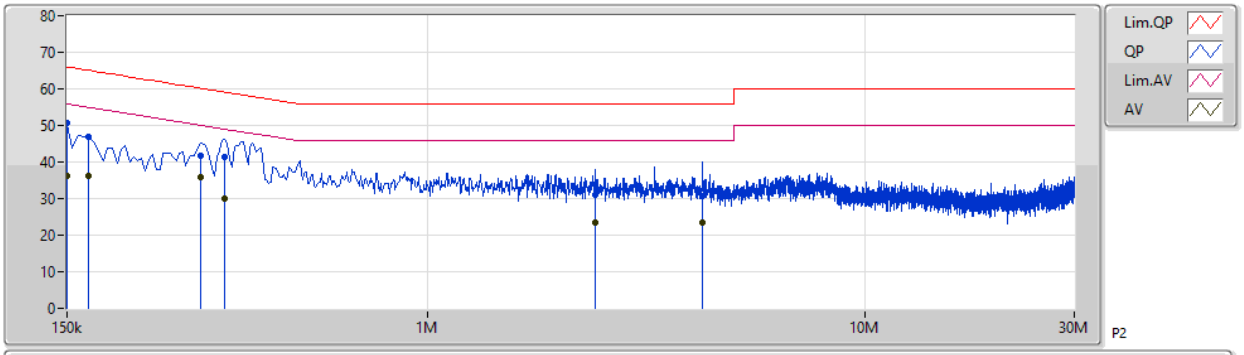
08/06/2020



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	AF	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	154.5k	47.58	65.75	-18.17	9.87	Line	-	37.71	0.05	0.03	9.79
AV	154.5k	33.88	55.75	-21.87	9.87	Line	-	24.01	0.05	0.03	9.79
QP	172.5k	46.23	64.83	-18.60	9.87	Line	-	36.36	0.05	0.03	9.79
AV	172.5k	35.50	54.83	-19.33	9.87	Line	-	25.63	0.05	0.03	9.79
QP	339k	43.33	59.23	-15.90	9.88	Line	-	33.45	0.04	0.03	9.81
AV	339k	36.54	49.23	-12.69	9.88	Line	-	26.66	0.04	0.03	9.81
QP	375k	43.93	58.39	-14.46	9.88	Line	-	34.05	0.04	0.03	9.81
AV	375k	37.84	48.39	-10.55	9.88	Line	"Worst"	27.96	0.04	0.03	9.81
QP	402k	43.73	57.82	-14.09	9.88	Line	-	33.85	0.04	0.03	9.81
AV	402k	35.96	47.82	-11.86	9.88	Line	-	26.08	0.04	0.03	9.81
QP	1.707M	30.81	56.00	-25.19	9.95	Line	-	20.86	0.06	0.06	9.83
AV	1.707M	23.26	46.00	-22.74	9.95	Line	-	13.31	0.06	0.06	9.83

Mode 2

08/06/2020



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	AF	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	150k	50.52	66.00	-15.48	9.86	Neutral	-	40.66	0.04	0.03	9.79
AV	150k	36.11	56.00	-19.89	9.86	Neutral	-	26.25	0.04	0.03	9.79
QP	168k	46.90	65.06	-18.16	9.86	Neutral	-	37.04	0.04	0.03	9.79
AV	168k	36.13	55.06	-18.93	9.86	Neutral	-	26.27	0.04	0.03	9.79
QP	303k	41.74	60.17	-18.43	9.87	Neutral	-	31.87	0.04	0.03	9.80
AV	303k	35.73	50.17	-14.44	9.87	Neutral	"Worst"	25.86	0.04	0.03	9.80
QP	343.5k	41.52	59.12	-17.60	9.88	Neutral	-	31.64	0.04	0.03	9.81
AV	343.5k	29.85	49.12	-19.27	9.88	Neutral	-	19.97	0.04	0.03	9.81
QP	2.418M	30.90	56.00	-25.10	9.99	Neutral	-	20.91	0.08	0.09	9.82
AV	2.418M	23.60	46.00	-22.40	9.99	Neutral	-	13.61	0.08	0.09	9.82
QP	4.241M	30.78	56.00	-25.22	10.05	Neutral	-	20.73	0.10	0.13	9.82
AV	4.241M	23.46	46.00	-22.54	10.05	Neutral	-	13.41	0.10	0.13	9.82

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
802.11b_Nss1,(1Mbps)_3TX	9.025M	13.568M	13M6G1D	8.05M	13.318M
802.11g_Nss1,(6Mbps)_3TX	15.125M	16.492M	16M5D1D	15.05M	16.417M
VHT20-BF_Nss1,(MCS0)_3TX	15.7M	19.64M	19M6D1D	15M	17.566M
VHT40-BF_Nss1,(MCS0)_3TX	35.1M	36.132M	36M1D1D	35.05M	35.982M

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)	Port 3-N dB (Hz)	Port 3-OBW (Hz)
802.11b_Nss1,(1Mbps)_3TX	-	-	-	-	-	-	-	-
2412MHz	Pass	500k	9M	13.418M	9M	13.418M	8.5M	13.318M
2437MHz	Pass	500k	8.525M	13.368M	8.05M	13.393M	8.55M	13.318M
2462MHz	Pass	500k	9.025M	13.493M	8.575M	13.443M	8.5M	13.568M
802.11g_Nss1,(6Mbps)_3TX	-	-	-	-	-	-	-	-
2412MHz	Pass	500k	15.05M	16.492M	15.1M	16.467M	15.1M	16.442M
2437MHz	Pass	500k	15.125M	16.492M	15.075M	16.417M	15.075M	16.442M
2462MHz	Pass	500k	15.075M	16.492M	15.1M	16.467M	15.05M	16.417M
VHT20-BF_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-
2412MHz	Pass	500k	15.1M	17.591M	15.125M	17.566M	15.1M	17.591M
2437MHz	Pass	500k	15.1M	19.015M	15.7M	19.34M	15.05M	19.64M
2462MHz	Pass	500k	15M	17.591M	15.1M	17.566M	15.1M	17.566M
VHT40-BF_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-
2422MHz	Pass	500k	35.1M	36.132M	35.05M	36.032M	35.05M	36.032M
2437MHz	Pass	500k	35.1M	36.132M	35.05M	36.032M	35.1M	35.982M
2452MHz	Pass	500k	35.1M	36.132M	35.05M	36.032M	35.05M	36.032M

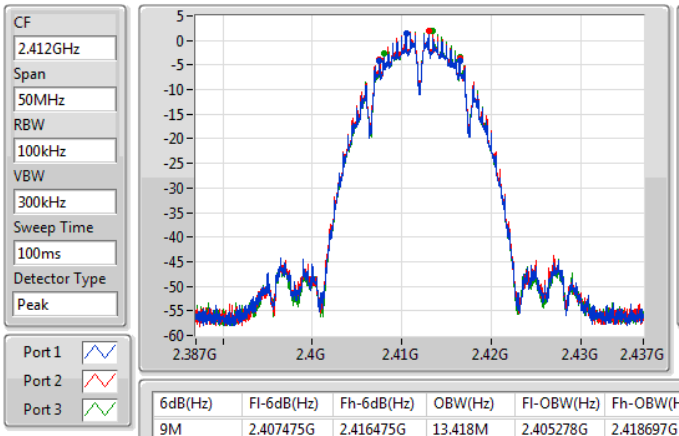
Port X-N dB = Port **X** 6dB down bandwidth; **Port X-OBW** = Port **X** 99% occupied bandwidth;

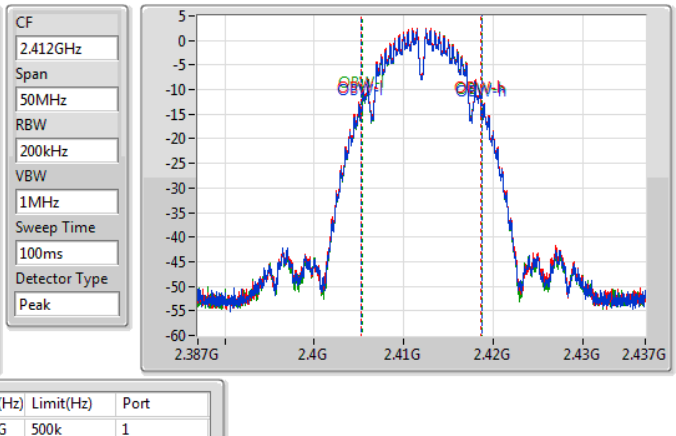
802.11b_Nss1,(1Mbps)_3TX

EBW

2412MHz

24/07/2020





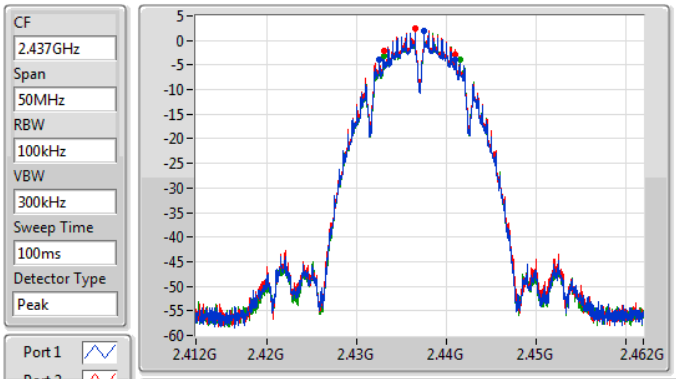
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
9M	2.407475G	2.416475G	13.418M	2.405278G	2.418697G	500k	1
9M	2.4075G	2.4165G	13.418M	2.405253G	2.418672G	500k	2
8.5M	2.408G	2.4165G	13.318M	2.405378G	2.418697G	500k	3

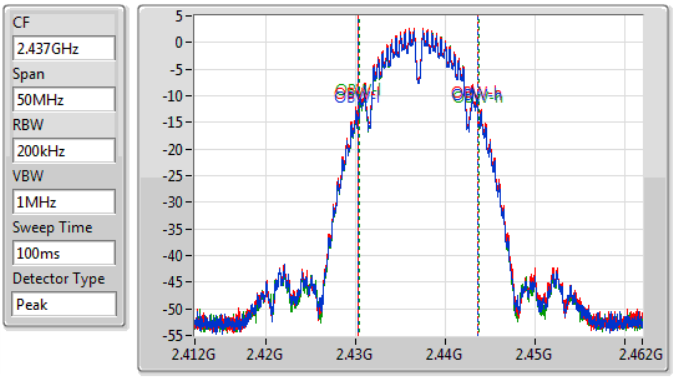
802.11b_Nss1,(1Mbps)_3TX

EBW

2437MHz

24/07/2020





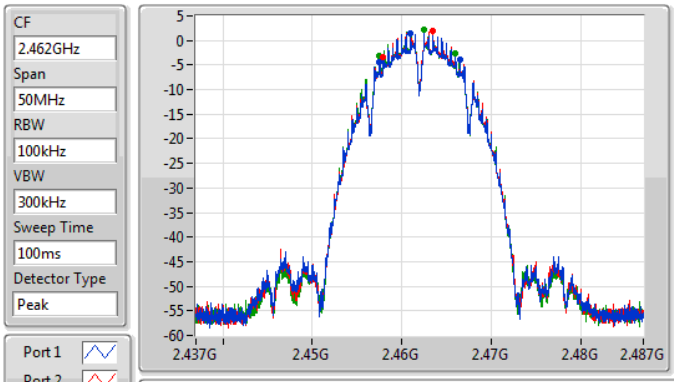
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
8.525M	2.4325G	2.441025G	13.368M	2.430278G	2.443647G	500k	1
8.05M	2.432975G	2.441025G	13.393M	2.430253G	2.443647G	500k	2
8.55M	2.432975G	2.441525G	13.318M	2.430378G	2.443697G	500k	3

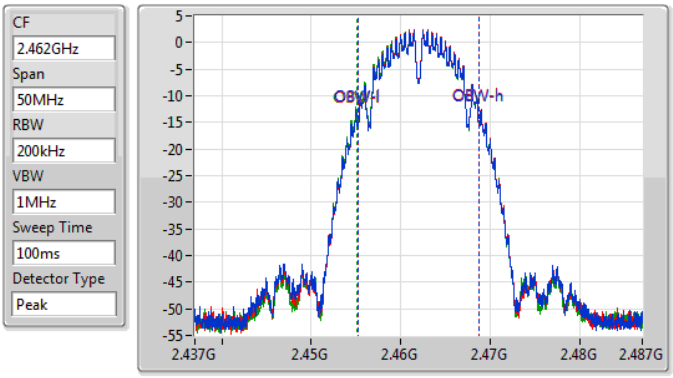
802.11b_Nss1,(1Mbps)_3TX

EBW

2462MHz

24/07/2020





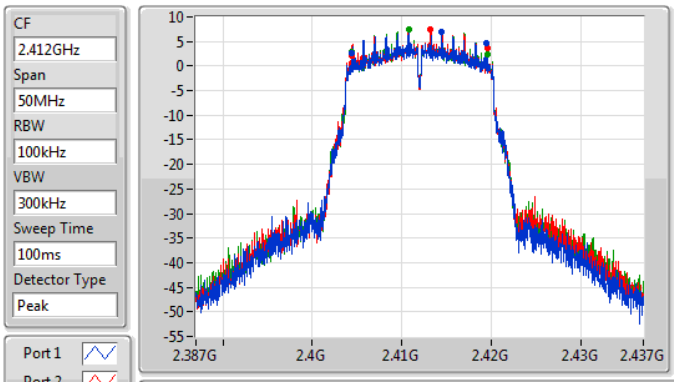
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
9.025M	2.4575G	2.466525G	13.493M	2.455253G	2.468747G	500k	1
8.575M	2.45795G	2.466525G	13.443M	2.455303G	2.468747G	500k	2
8.5M	2.4575G	2.466G	13.568M	2.455153G	2.468722G	500k	3

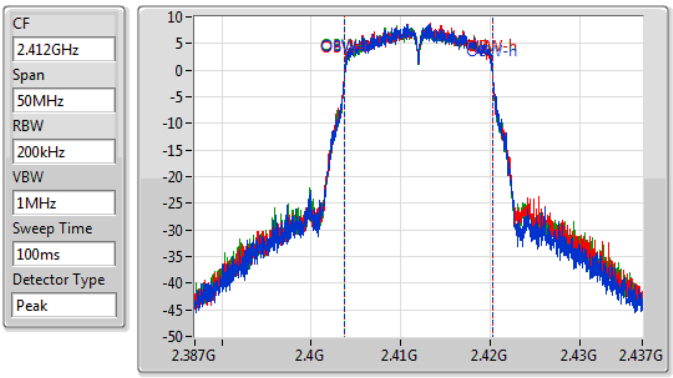
802.11g_Nss1,(6Mbps)_3TX

EBW

2412MHz

24/07/2020





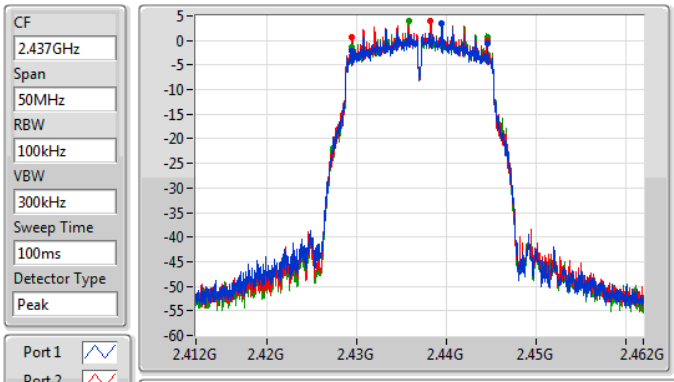
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
15.05M	2.40445G	2.4195G	16.492M	2.403754G	2.420246G	500k	1
15.1M	2.404425G	2.419525G	16.467M	2.403754G	2.420221G	500k	2
15.1M	2.40445G	2.41955G	16.442M	2.403779G	2.420221G	500k	3

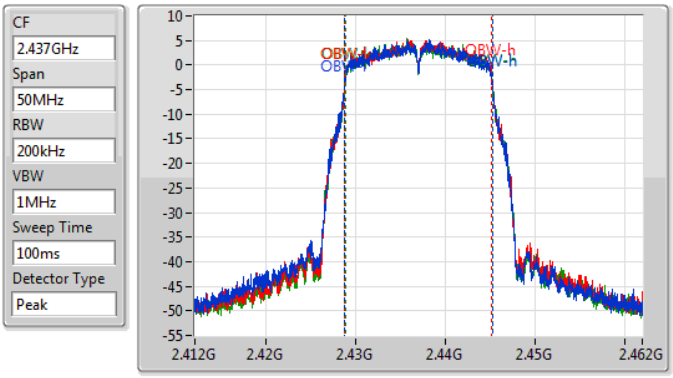
802.11g_Nss1,(6Mbps)_3TX

EBW

2437MHz

24/07/2020





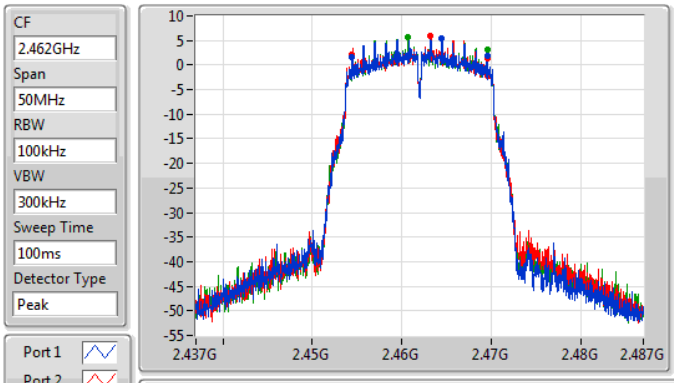
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
15.125M	2.429425G	2.44455G	16.492M	2.428729G	2.445221G	500k	1
15.075M	2.429475G	2.44455G	16.417M	2.428779G	2.445196G	500k	2
15.075M	2.42945G	2.444525G	16.442M	2.428804G	2.445246G	500k	3

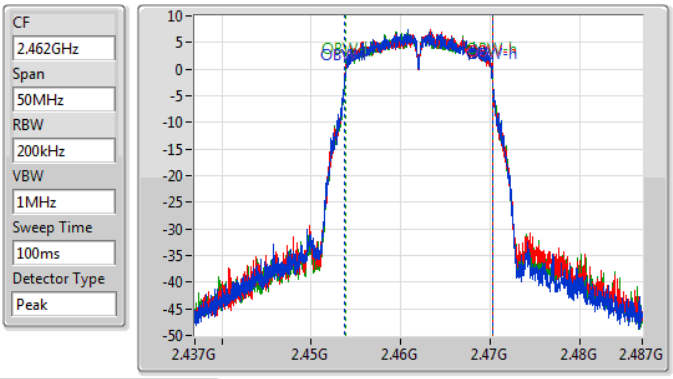
802.11g_Nss1,(6Mbps)_3TX

EBW

2462MHz

24/07/2020





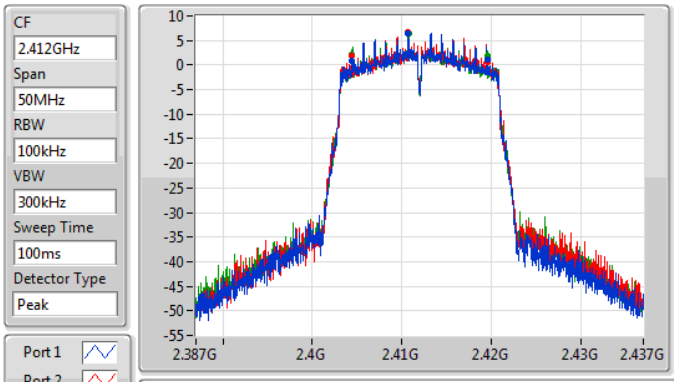
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
15.075M	2.454475G	2.46955G	16.492M	2.453754G	2.470246G	500k	1
15.1M	2.45445G	2.46955G	16.467M	2.453754G	2.470221G	500k	2
15.05M	2.454475G	2.469525G	16.417M	2.453804G	2.470221G	500k	3

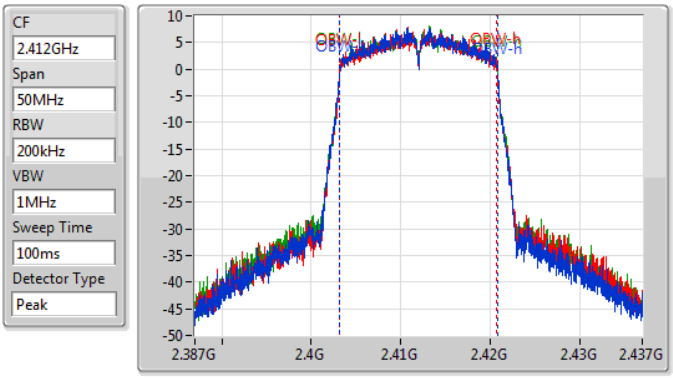
VHT20-BF_Nss1,(MCS0)_3TX

EBW

2412MHz

24/07/2020





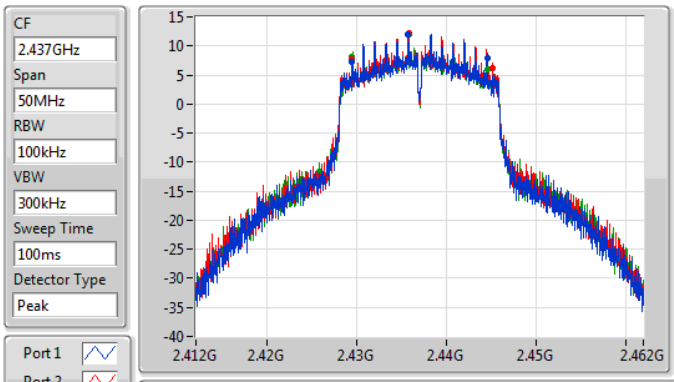
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
15.1M	2.40445G	2.41955G	17.591M	2.403204G	2.420796G	500k	1
15.125M	2.40445G	2.419575G	17.566M	2.403204G	2.420771G	500k	2
15.1M	2.40445G	2.41955G	17.591M	2.403204G	2.420796G	500k	3

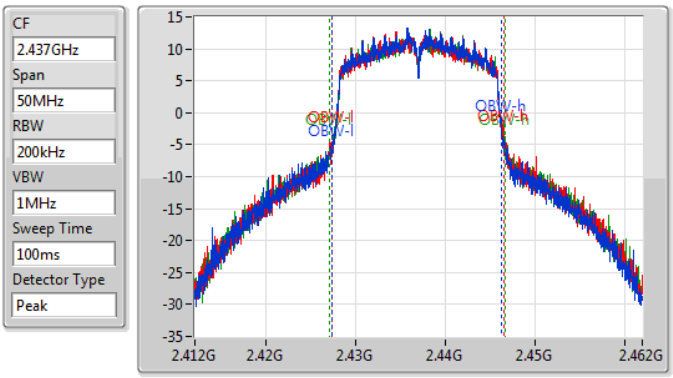
VHT20-BF_Nss1,(MCS0)_3TX

EBW

2437MHz

24/07/2020





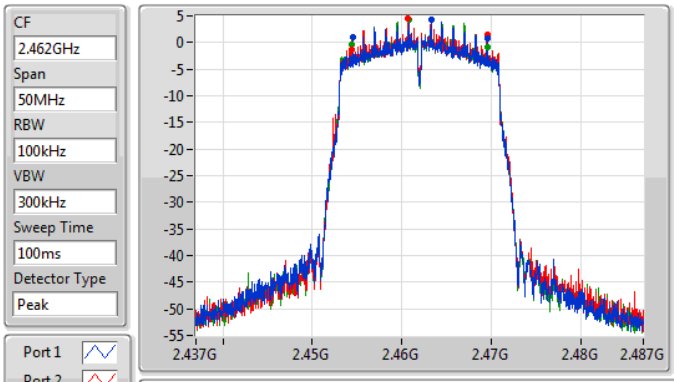
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
15.1M	2.42945G	2.44455G	19.015M	2.427305G	2.44632G	500k	1
15.7M	2.42945G	2.44515G	19.34M	2.427255G	2.446595G	500k	2
15.05M	2.429475G	2.444525G	19.64M	2.427055G	2.446695G	500k	3

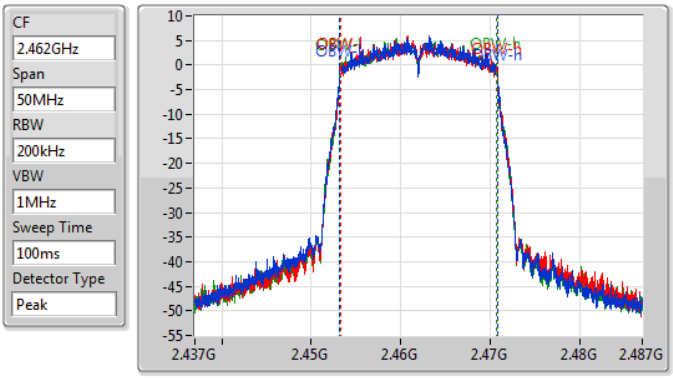
VHT20-BF_Nss1,(MCS0)_3TX

EBW

2462MHz

24/07/2020





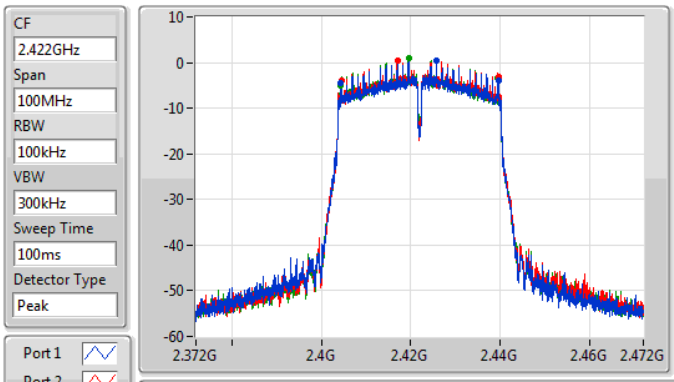
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
15M	2.454525G	2.469525G	17.591M	2.453204G	2.470796G	500k	1
15.1M	2.454425G	2.469525G	17.566M	2.453229G	2.470796G	500k	2
15.1M	2.45445G	2.46955G	17.566M	2.453204G	2.470771G	500k	3

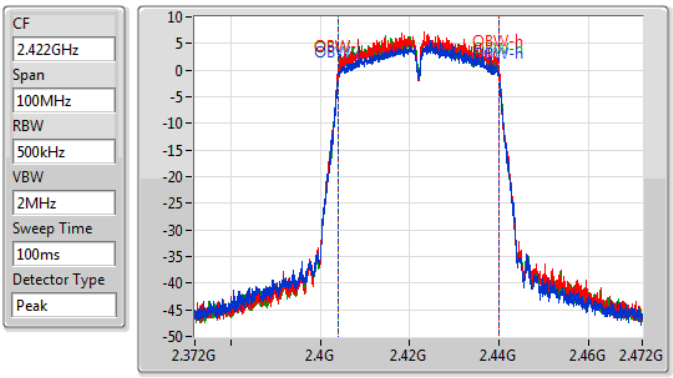
VHT40-BF_Nss1,(MCS0)_3TX

EBW

2422MHz

24/07/2020





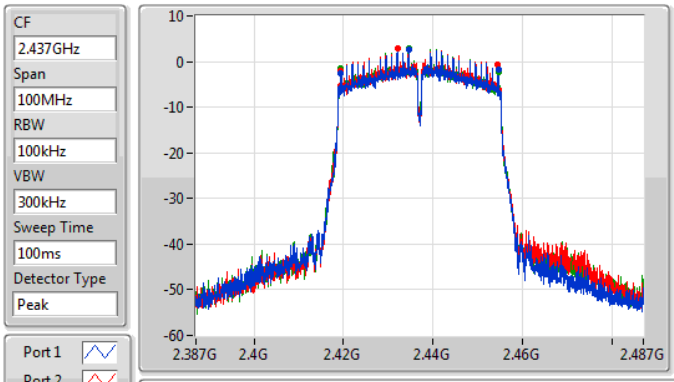
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
35.1M	2.40445G	2.43955G	36.132M	2.403959G	2.440091G	500k	1
35.05M	2.4045G	2.43955G	36.032M	2.404009G	2.440041G	500k	2
35.05M	2.40445G	2.4395G	36.032M	2.404009G	2.440041G	500k	3

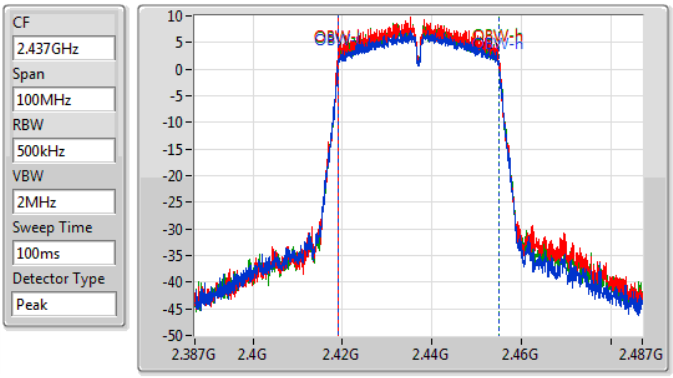
VHT40-BF_Nss1,(MCS0)_3TX

EBW

2437MHz

24/07/2020





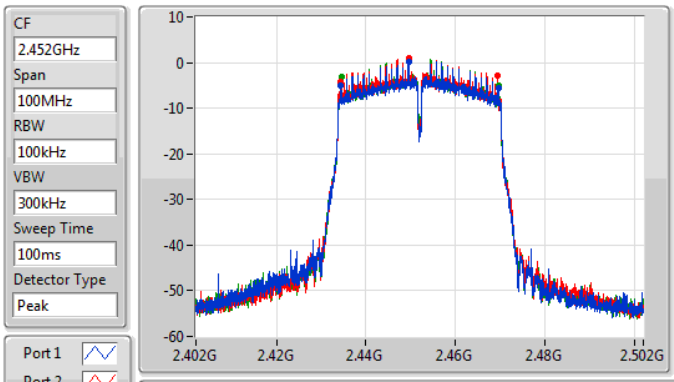
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
35.1M	2.41945G	2.45455G	36.132M	2.418909G	2.455041G	500k	1
35.05M	2.41945G	2.4545G	36.032M	2.418959G	2.454991G	500k	2
35.1M	2.41945G	2.45455G	35.982M	2.419009G	2.454991G	500k	3

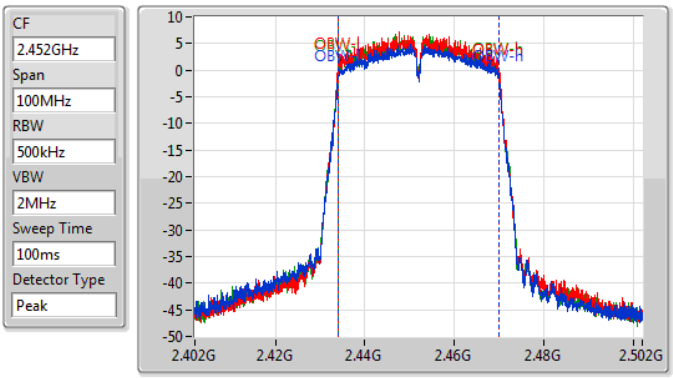
VHT40-BF_Nss1,(MCS0)_3TX

EBW

2452MHz

24/07/2020





6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
35.1M	2.43445G	2.46955G	36.132M	2.433909G	2.470041G	500k	1
35.05M	2.43445G	2.4695G	36.032M	2.433959G	2.469991G	500k	2
35.05M	2.4345G	2.46955G	36.032M	2.433959G	2.469991G	500k	3

Summary

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
802.11b_Nss1,(1Mbps)_3TX	15.90	0.03890
802.11g_Nss1,(6Mbps)_3TX	27.21	0.52602
VHT20-BF_Nss1,(MCS0)_3TX	26.86	0.48529
VHT40-BF_Nss1,(MCS0)_3TX	20.79	0.11995

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Port 3 (dBm)	Total Power (dBm)	Power Limit (dBm)
802.11b_Nss1,(1Mbps)_3TX	-	-	-	-	-	-	-
2412MHz	Pass	1.94	10.86	11.21	11.00	15.80	30.00
2437MHz	Pass	1.94	10.77	11.43	11.17	15.90	30.00
2462MHz	Pass	1.94	10.65	11.06	11.05	15.70	30.00
802.11g_Nss1,(6Mbps)_3TX	-	-	-	-	-	-	-
2412MHz	Pass	1.94	18.18	18.40	18.44	23.11	30.00
2417MHz	Pass	1.94	19.65	19.83	19.77	24.52	30.00
2437MHz	Pass	1.94	22.42	22.48	22.41	27.21	30.00
2457MHz	Pass	1.94	18.58	18.64	18.78	23.44	30.00
2462MHz	Pass	1.94	16.66	16.95	16.74	21.56	30.00
VHT20-BF_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-
2412MHz	Pass	6.68	17.09	17.25	17.31	21.99	29.32
2417MHz	Pass	6.68	18.56	18.69	18.73	23.43	29.32
2437MHz	Pass	6.68	21.44	22.36	22.39	26.86	29.32
2457MHz	Pass	6.68	17.02	17.24	17.23	21.94	29.32
2462MHz	Pass	6.68	14.85	15.09	15.05	19.77	29.32
VHT40-BF_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-
2422MHz	Pass	6.68	13.87	14.07	14.13	18.80	29.32
2427MHz	Pass	6.68	14.45	14.66	14.78	19.40	29.32
2437MHz	Pass	6.68	15.80	16.08	16.16	20.79	29.32
2447MHz	Pass	6.68	14.16	14.48	14.60	19.19	29.32
2452MHz	Pass	6.68	13.72	13.97	14.01	18.67	29.32

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

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
802.11b_Nss1,(1Mbps)_3TX	-9.04
802.11g_Nss1,(6Mbps)_3TX	-3.76
VHT20-BF_Nss1,(MCS0)_3TX	0.17
VHT40-BF_Nss1,(MCS0)_3TX	-9.15

RBW = 500 kHz for 5.725-5.85GHz band / 1MHz for other band;

Result

Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	Port 3 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
802.11b_Nss1,(1Mbps)_3TX	-	-	-	-	-	-	-
2412MHz	Pass	6.68	-12.92	-13.19	-11.75	-9.66	7.32
2437MHz	Pass	6.68	-12.98	-12.90	-13.17	-9.60	7.32
2462MHz	Pass	6.68	-12.36	-12.24	-13.12	-9.04	7.32
802.11g_Nss1,(6Mbps)_3TX	-	-	-	-	-	-	-
2412MHz	Pass	6.68	-7.05	-6.34	-6.14	-3.76	7.32
2437MHz	Pass	6.68	-10.31	-9.98	-10.11	-7.70	7.32
2462MHz	Pass	6.68	-7.07	-7.95	-8.70	-4.10	7.32
VHT20-BF_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-
2412MHz	Pass	6.68	-8.17	-8.19	-7.34	-4.79	7.32
2437MHz	Pass	6.68	-3.68	-2.91	-3.24	0.17	7.32
2462MHz	Pass	6.68	-10.57	-9.87	-10.45	-6.90	7.32
VHT40-BF_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-
2422MHz	Pass	6.68	-14.24	-12.45	-13.51	-10.73	7.32
2437MHz	Pass	6.68	-12.30	-12.20	-10.56	-9.15	7.32
2452MHz	Pass	6.68	-14.54	-13.81	-13.93	-11.30	7.32

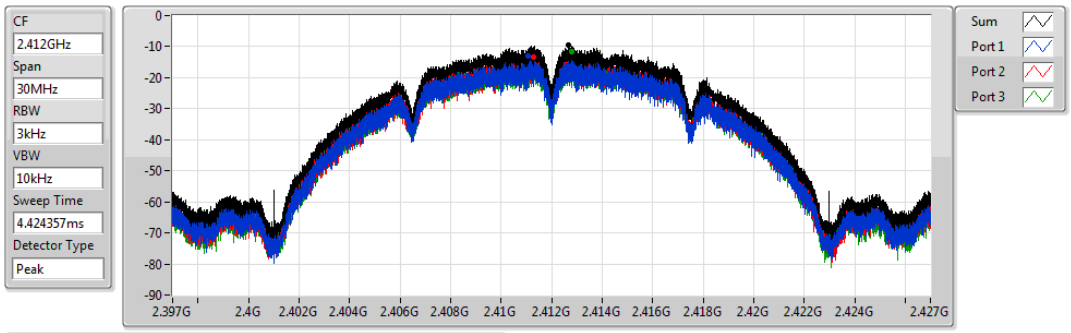
DG = Directional Gain; **RBW** = 500 kHz for 5.725-5.85GHz band / 1MHz for other band;
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

802.11b_Nss1,(1Mbps)_3TX

PSD

2412MHz

24/07/2020



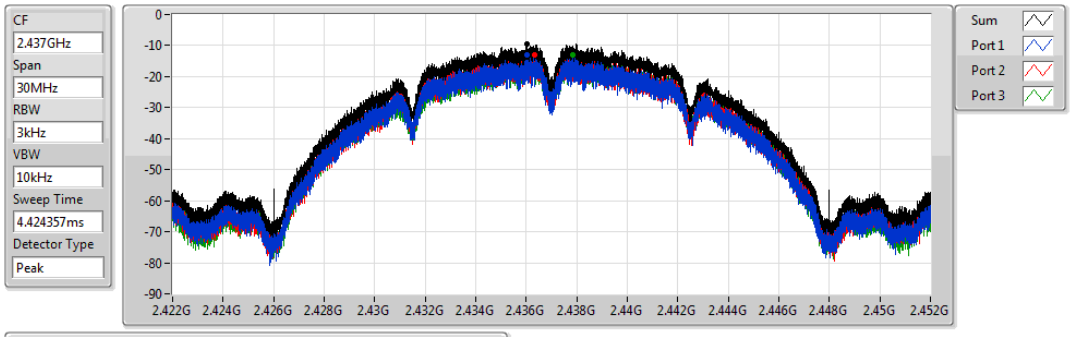
Sum	PD	Port 1	Port 2	Port 3
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-9.66	-9.66	-12.92	-13.19	-11.75

802.11b_Nss1,(1Mbps)_3TX

PSD

2437MHz

24/07/2020



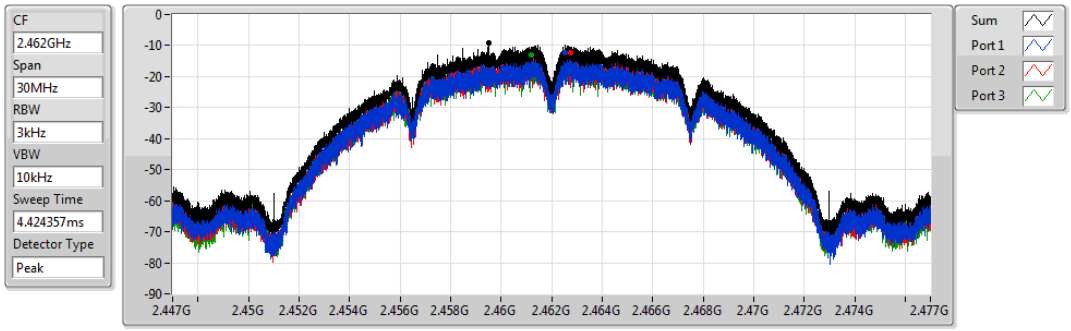
Sum	PD	Port 1	Port 2	Port 3
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-9.60	-9.60	-12.98	-12.90	-13.17

802.11b_Nss1,(1Mbps)_3TX

PSD

2462MHz

24/07/2020

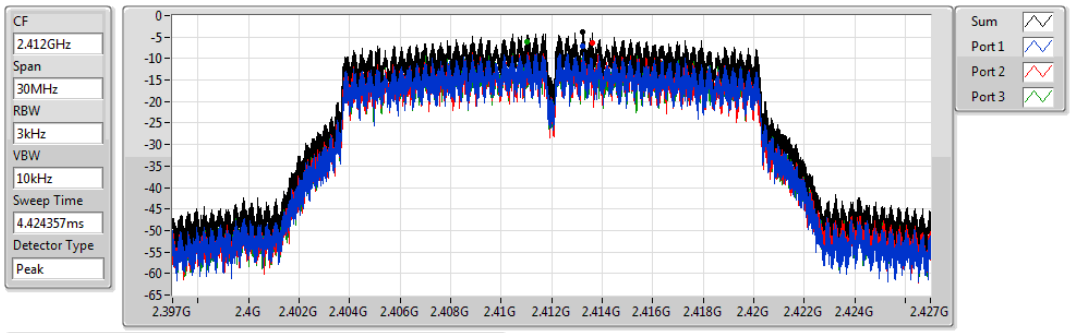


Sum	PD	Port 1	Port 2	Port 3
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-9.04	-9.04	-12.36	-12.24	-13.12

802.11g_Nss1,(6Mbps)_3TX PSD

2412MHz

24/07/2020

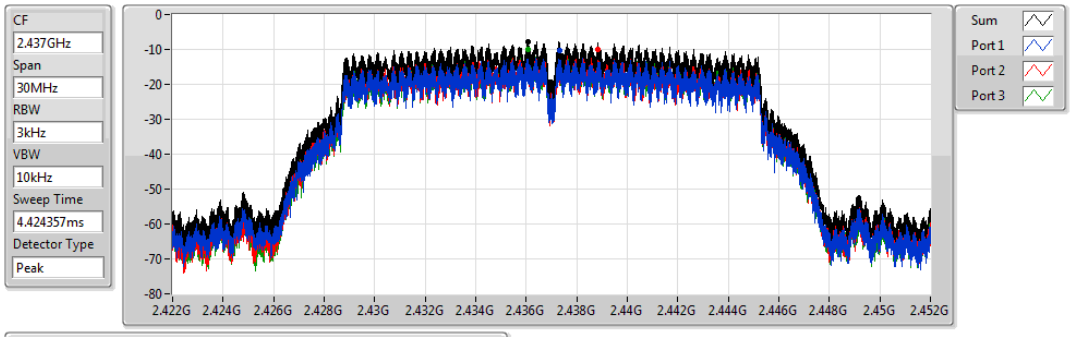


Sum	PD	Port 1	Port 2	Port 3
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-3.76	-3.76	-7.05	-6.34	-6.14

802.11g_Nss1,(6Mbps)_3TX PSD

2437MHz

24/07/2020

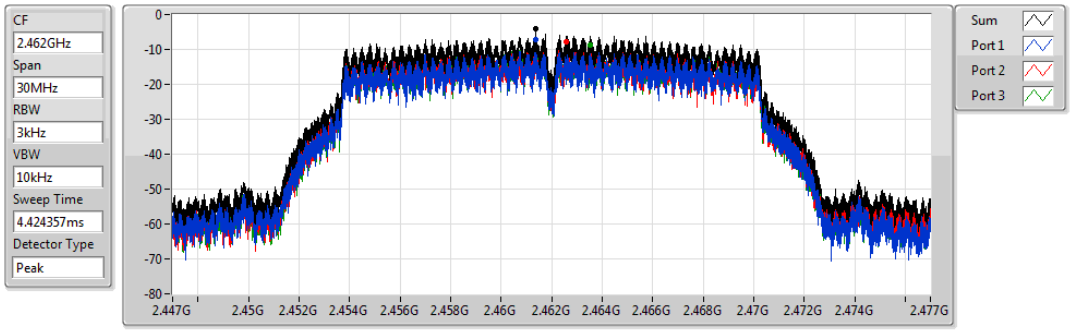


Sum	PD	Port 1	Port 2	Port 3
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-7.70	-7.70	-10.31	-9.98	-10.11

802.11g_Nss1,(6Mbps)_3TX PSD

2462MHz

24/07/2020



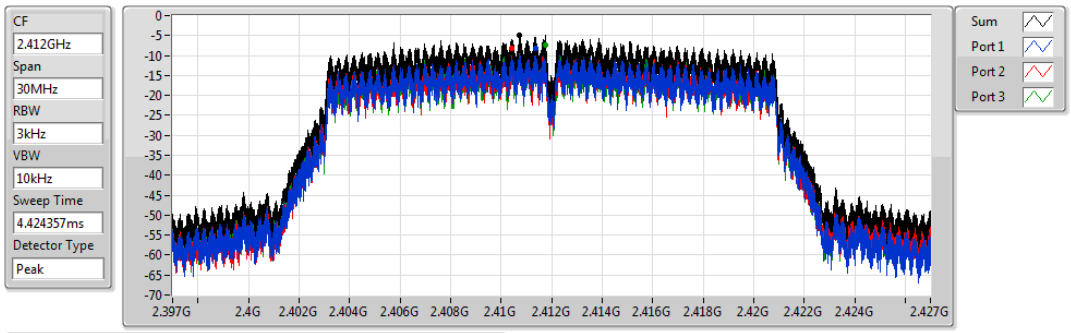
Sum	PD	Port 1	Port 2	Port 3
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-4.10	-4.10	-7.07	-7.95	-8.70

VHT20-BF_Nss1,(MCS0)_3TX

PSD

2412MHz

24/07/2020



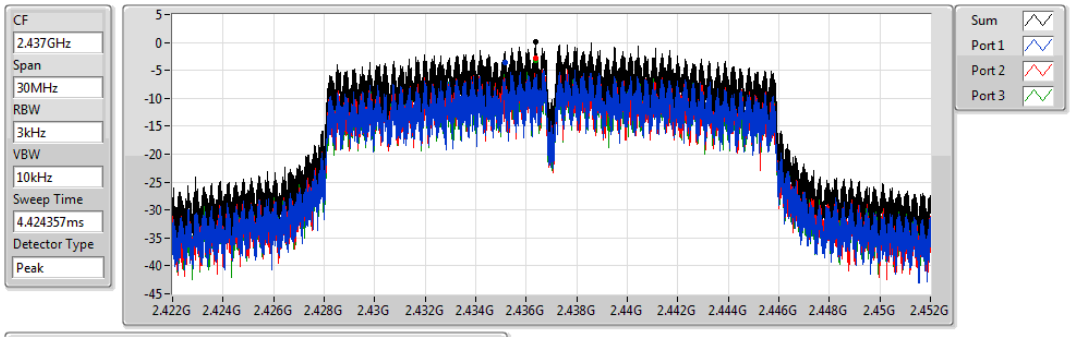
Sum	PD	Port 1	Port 2	Port 3
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-4.79	-4.79	-8.17	-8.19	-7.34

VHT20-BF_Nss1,(MCS0)_3TX

PSD

2437MHz

24/07/2020



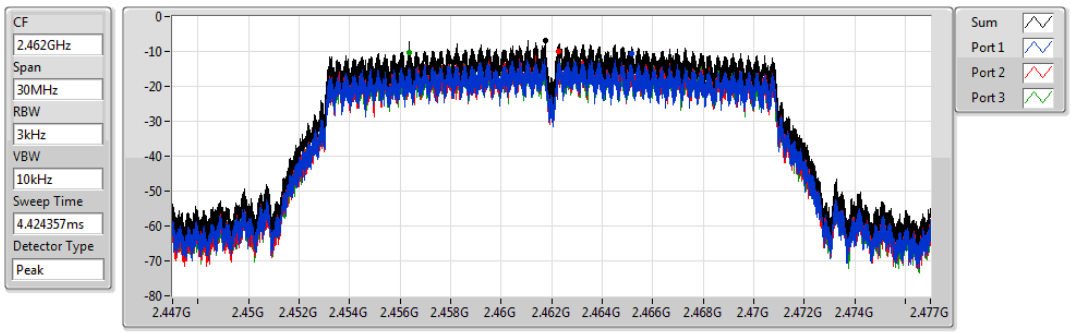
Sum	PD	Port 1	Port 2	Port 3
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
0.17	0.17	-3.68	-2.91	-3.24

VHT20-BF_Nss1,(MCS0)_3TX

PSD

2462MHz

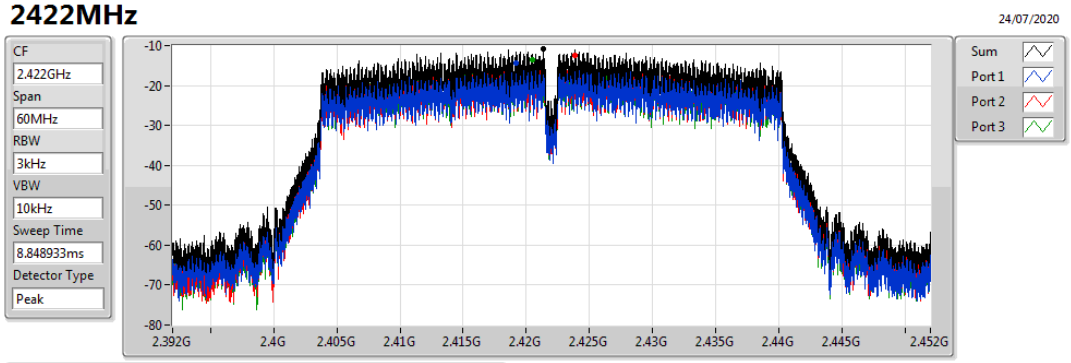
24/07/2020



Sum	PD	Port 1	Port 2	Port 3
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-6.90	-6.90	-10.57	-9.87	-10.45

VHT40-BF_Nss1,(MCS0)_3TX PSD

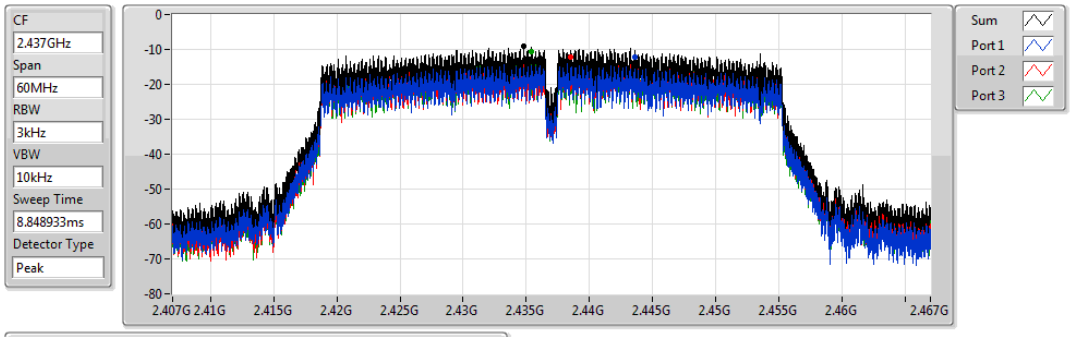
2422MHz



Sum	PD	Port 1	Port 2	Port 3
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-10.73	-10.73	-14.24	-12.45	-13.51

VHT40-BF_Nss1,(MCS0)_3TX PSD

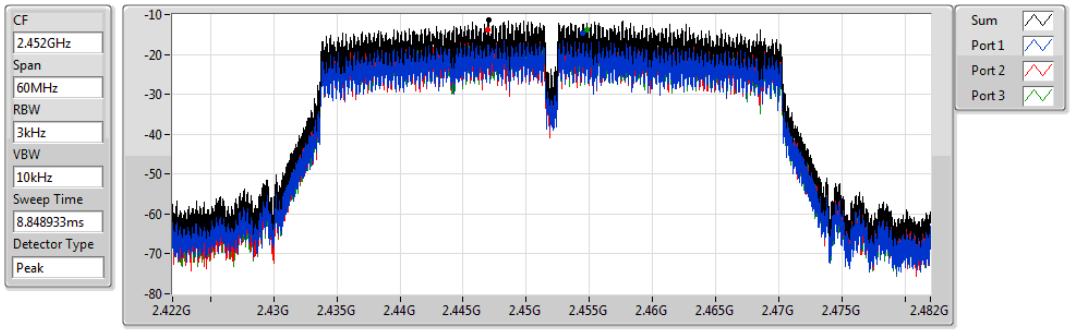
2437MHz



Sum	PD	Port 1	Port 2	Port 3
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-9.15	-9.15	-12.30	-12.20	-10.56

VHT40-BF_Nss1,(MCS0)_3TX PSD

2452MHz



Sum	PD	Port 1	Port 2	Port 3
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-11.30	-11.30	-14.54	-13.81	-13.93

Summary

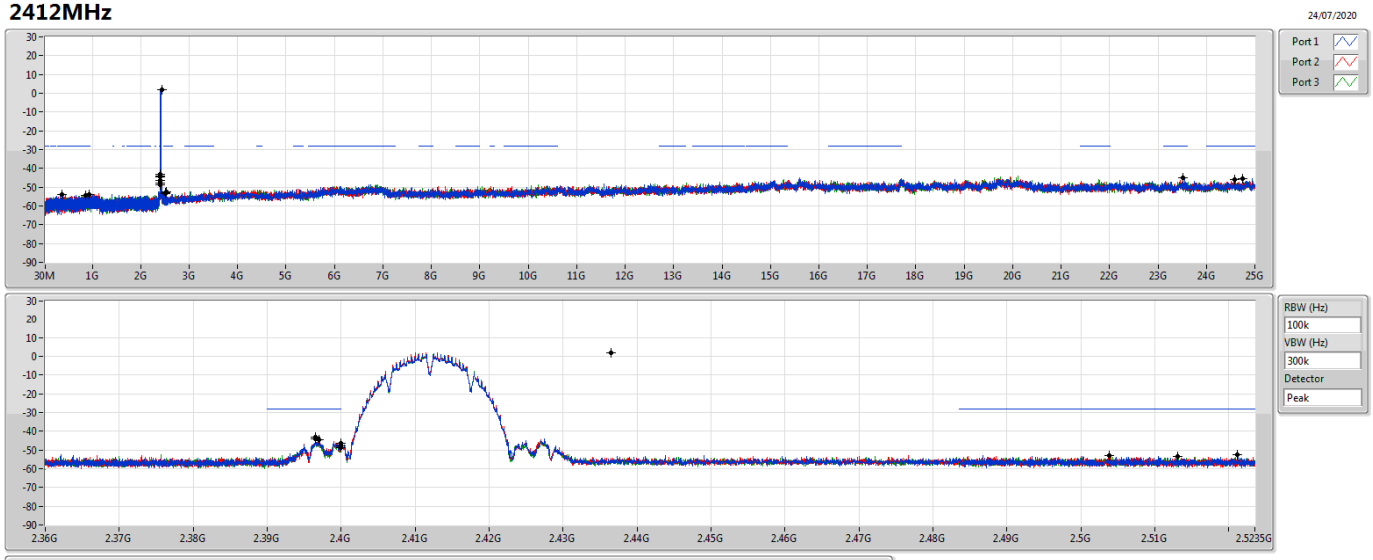
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
802.11b_Nss1,(1Mbps)_3TX	Pass	2.43649G	2.07	-27.93	377.17M	-54.12	2.3965G	-43.26	2.4G	-46.58	2.5038G	-52.97	23.50812G	-45.05	1
802.11g_Nss1,(6Mbps)_3TX	Pass	2.43824G	3.93	-26.07	668.42M	-54.11	2.39976G	-27.25	2.4G	-31.18	2.4924G	-52.40	17.69795G	-45.69	1
VHT20-BF_Nss1,(MCS0)_3TX	Pass	2.43824G	12.02	-17.98	1.92953G	-50.97	2.3992G	-29.49	2.4G	-32.38	2.52184G	-52.08	17.68952G	-43.96	3
VHT40-BF_Nss1,(MCS0)_3TX	Pass	2.43449G	3.06	-26.94	904.21M	-53.08	2.39948G	-40.22	2.4G	-47.10	2.49058G	-52.14	24.71113G	-46.20	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)	Freq (Hz)	Level (dBm)	Port
802.11b_Nss1,(1Mbps)_3TX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	2.43649G	2.07	-27.93	377.17M	-54.12	2.3965G	-43.26	2.4G	-46.58	2.5038G	-52.97	23.50812G	-45.05	1
2412MHz	Pass	2.43649G	2.07	-27.93	859.19M	-54.31	2.39704G	-44.57	2.4G	-47.63	2.5211G	-52.57	24.5898G	-45.85	2
2412MHz	Pass	2.43649G	2.07	-27.93	933.17M	-53.87	2.39654G	-44.29	2.4G	-48.86	2.51308G	-53.54	24.74433G	-45.26	3
2437MHz	Pass	2.43649G	2.07	-27.93	899.96M	-53.89	2.39744G	-53.21	2.4835G	-56.48	2.51918G	-52.56	16.9506G	-45.32	1
2437MHz	Pass	2.43649G	2.07	-27.93	671.92M	-53.86	2.3906G	-53.70	2.4835G	-56.74	2.51292G	-52.84	24.78647G	-45.24	2
2437MHz	Pass	2.43649G	2.07	-27.93	2.15671G	-54.12	2.39482G	-54.19	2.4835G	-55.83	2.49962G	-52.75	15.04291G	-46.05	3
2462MHz	Pass	2.43649G	2.07	-27.93	1.98545G	-54.21	2.39538G	-53.00	2.4835G	-55.83	2.48576G	-53.09	23.24683G	-45.50	1
2462MHz	Pass	2.43649G	2.07	-27.93	2.04429G	-53.93	2.39454G	-54.07	2.4835G	-55.93	2.49G	-52.53	24.94943G	-45.90	2
2462MHz	Pass	2.43649G	2.07	-27.93	756.38M	-53.53	2.39144G	-54.19	2.4835G	-56.22	2.517G	-52.86	15.07663G	-44.23	3
802.11g_Nss1,(6Mbps)_3TX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	2.43824G	3.93	-26.07	668.42M	-54.11	2.39976G	-27.25	2.4G	-31.18	2.4924G	-52.40	17.69795G	-45.69	1
2412MHz	Pass	2.43824G	3.93	-26.07	916.57M	-52.41	2.39992G	-29.86	2.4G	-30.34	2.49904G	-51.32	15.05415G	-45.00	2
2412MHz	Pass	2.43824G	3.93	-26.07	1.92982G	-49.61	2.39826G	-28.73	2.4G	-33.32	2.49654G	-52.53	24.88481G	-44.27	3
2417MHz															
2437MHz	Pass	2.43824G	3.93	-26.07	883.36M	-54.26	2.39732G	-51.68	2.4G	-53.56	2.49376G	-52.14	23.55027G	-45.55	1
2437MHz	Pass	2.43824G	3.93	-26.07	1.93274G	-53.55	2.3998G	-51.56	2.4835G	-54.33	2.50848G	-52.07	15.0401G	-45.65	2
2437MHz	Pass	2.43824G	3.93	-26.07	1.94963G	-52.27	2.39662G	-52.74	2.4835G	-54.97	2.505G	-52.28	17.69514G	-45.99	3
2457MHz															
2462MHz	Pass	2.43824G	3.93	-26.07	2.1471G	-54.28	2.39476G	-52.52	2.4835G	-48.44	2.48636G	-44.89	16.89722G	-45.36	1
2462MHz	Pass	2.43824G	3.93	-26.07	1.96973G	-53.57	2.39888G	-52.45	2.4835G	-47.26	2.48416G	-43.48	21.53019G	-44.52	2
2462MHz	Pass	2.43824G	3.93	-26.07	1.96973G	-50.22	2.39248G	-53.07	2.4835G	-48.27	2.48386G	-43.19	24.92414G	-46.18	3
VHT20-BF_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	2.43824G	12.02	-17.98	955.88M	-54.17	2.39986G	-30.95	2.4G	-35.88	2.49534G	-52.22	15.02324G	-45.87	1
2412MHz	Pass	2.43824G	12.02	-17.98	414.74M	-54.30	2.39992G	-31.50	2.4G	-36.18	2.5026G	-51.66	17.66704G	-45.23	2
2412MHz	Pass	2.43824G	12.02	-17.98	1.92953G	-50.97	2.3992G	-29.49	2.4G	-32.38	2.52184G	-52.08	17.68952G	-43.96	3
2417MHz															
2437MHz	Pass	2.43824G	12.02	-17.98	2.16079G	-53.82	2.39914G	-40.00	2.4G	-41.76	2.48352G	-44.56	23.51655G	-45.62	1
2437MHz	Pass	2.43824G	12.02	-17.98	1.94963G	-50.71	2.3999G	-40.74	2.4G	-45.51	2.48602G	-43.54	15.08224G	-46.04	2
2437MHz	Pass	2.43824G	12.02	-17.98	1.94963G	-47.49	2.39952G	-39.52	2.4G	-41.99	2.48448G	-43.73	13.75332G	-46.34	3
2457MHz															
2462MHz	Pass	2.43824G	12.02	-17.98	908.41M	-53.67	2.3989G	-52.12	2.4835G	-52.23	2.4835G	-49.54	15.06258G	-45.58	1
2462MHz	Pass	2.43824G	12.02	-17.98	704.83M	-54.15	2.39962G	-51.78	2.4835G	-50.31	2.48358G	-48.06	15.06539G	-45.32	2
2462MHz	Pass	2.43824G	12.02	-17.98	1.96973G	-52.67	2.39026G	-52.74	2.4835G	-51.73	2.48366G	-49.30	15.28734G	-45.33	3
VHT40-BF_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2422MHz	Pass	2.43449G	3.06	-26.94	752.21M	-53.85	2.3992G	-41.48	2.4G	-46.44	2.5309G	-52.16	15.24293G	-46.27	1
2422MHz	Pass	2.43449G	3.06	-26.94	904.21M	-53.08	2.39948G	-40.22	2.4G	-47.10	2.49058G	-52.14	24.71113G	-46.20	2
2422MHz	Pass	2.43449G	3.06	-26.94	1.93757G	-52.13	2.39948G	-41.38	2.4G	-45.65	2.48546G	-52.86	17.69692G	-45.40	3
2437MHz	Pass	2.43449G	3.06	-26.94	2.06238G	-53.79	2.39828G	-45.47	2.4G	-48.99	2.4885G	-48.44	24.53444G	-44.84	1
2437MHz	Pass	2.43449G	3.06	-26.94	1.81591G	-54.10	2.39948G	-44.01	2.4G	-49.82	2.48694G	-47.30	24.85136G	-45.95	2
2437MHz	Pass	2.43449G	3.06	-26.94	1.94959G	-50.49	2.39948G	-43.11	2.4G	-48.24	2.48666G	-47.18	17.69972G	-46.20	3
2447MHz															
2452MHz	Pass	2.43449G	3.06	-26.94	1.94043G	-54.17	2.39716G	-52.05	2.4835G	-51.31	2.49822G	-47.91	24.92147G	-45.06	1
2452MHz	Pass	2.43449G	3.06	-26.94	906.78M	-53.34	2.39832G	-51.93	2.4835G	-49.69	2.48698G	-47.37	17.67729G	-45.68	2
2452MHz	Pass	2.43449G	3.06	-26.94	1.96162G	-51.04	2.39624G	-53.13	2.4835G	-48.92	2.48946G	-48.41	23.46871G	-45.03	3

802.11b_Nss1,(1Mbps)_3TX **CSE NdB**

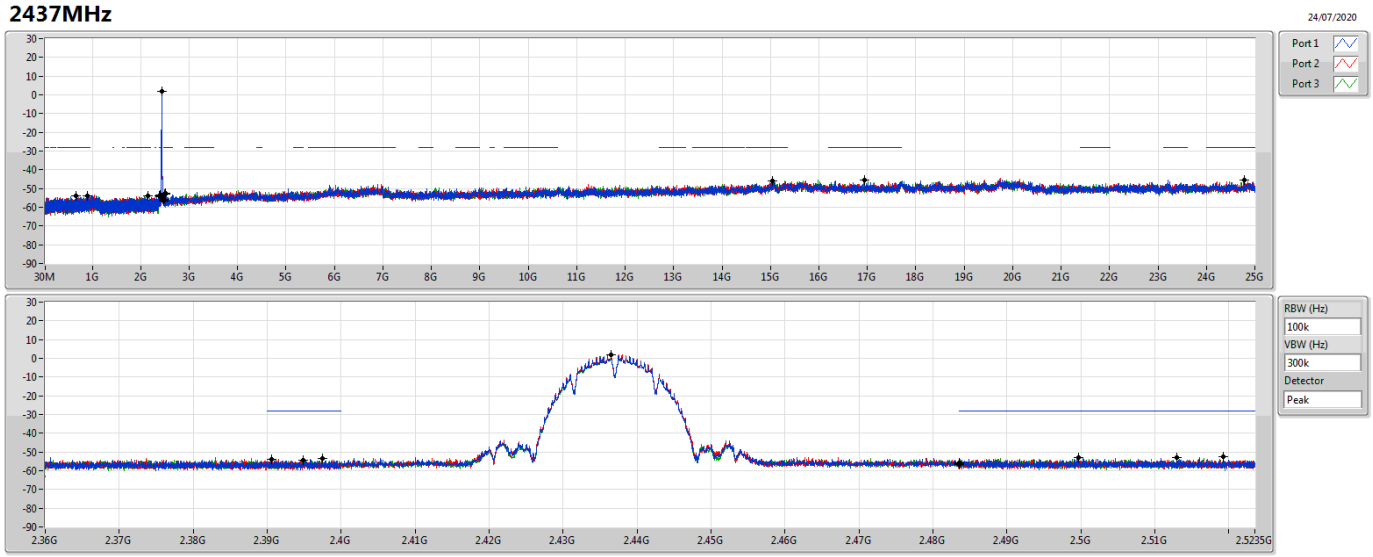
2412MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.43649G	2.07	-27.93	377.17M	-54.12	2.3965G	-43.26	2.4G	-46.58	2.5038G	-52.97	23.50812G	-45.05	1
2.43649G	2.07	-27.93	859.19M	-54.31	2.39704G	-44.57	2.4G	-47.63	2.5211G	-52.57	24.5898G	-45.85	2
2.43649G	2.07	-27.93	933.17M	-53.87	2.39654G	-44.29	2.4G	-48.86	2.51308G	-53.54	24.74433G	-45.26	3

802.11b_Nss1,(1Mbps)_3TX **CSE NdB**

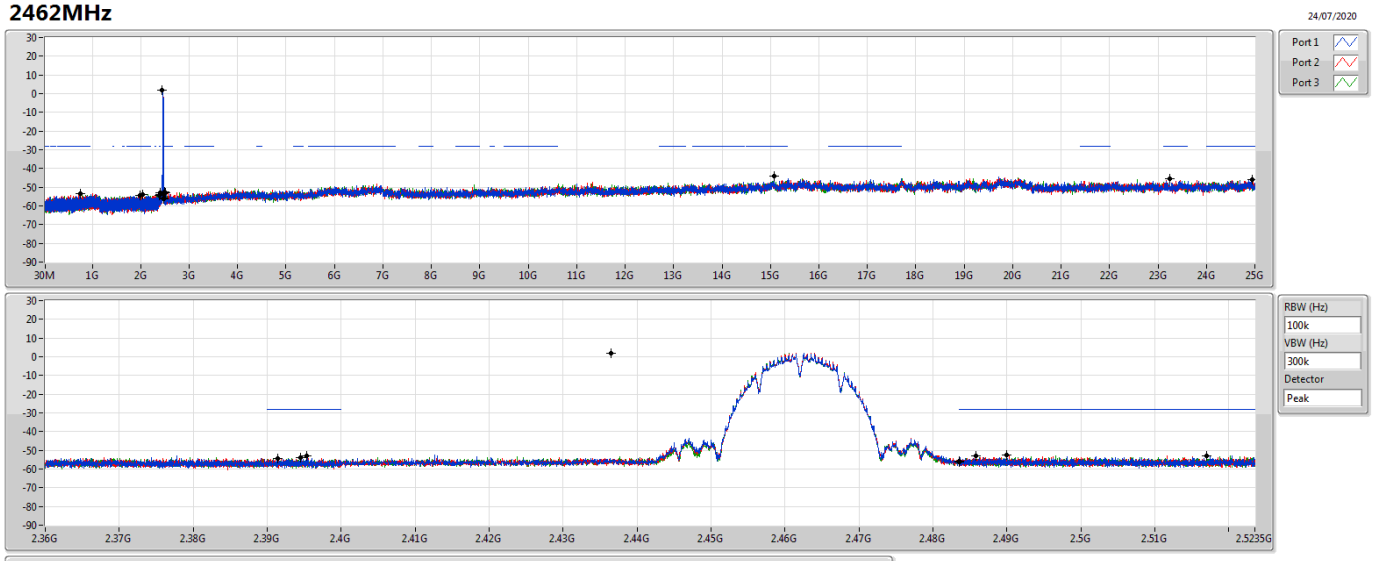
2437MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.43649G	2.07	-27.93	899.96M	-53.89	2.39744G	-53.21	2.4835G	-56.48	2.51918G	-52.56	16.9506G	-45.32	1
2.43649G	2.07	-27.93	671.92M	-53.86	2.3906G	-53.70	2.4835G	-56.74	2.51292G	-52.84	24.78647G	-45.24	2
2.43649G	2.07	-27.93	2.15671G	-54.12	2.39482G	-54.19	2.4835G	-55.83	2.49962G	-52.75	15.04291G	-46.05	3

802.11b_Nss1,(1Mbps)_3TX **CSE NdB**

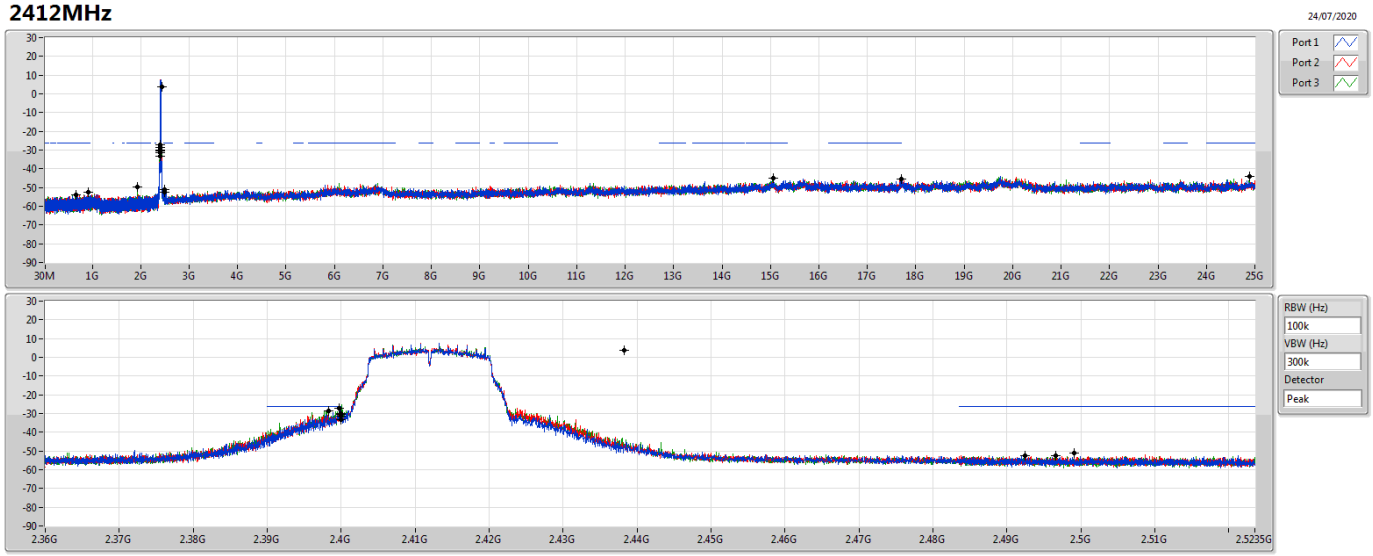
2462MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.43649G	2.07	-27.93	1.98545G	-54.21	2.39538G	-53.00	2.4835G	-55.83	2.48576G	-53.09	23.24683G	-45.50	1
2.43649G	2.07	-27.93	2.04429G	-53.93	2.39454G	-54.07	2.4835G	-55.93	2.49G	-52.53	24.94943G	-45.90	2
2.43649G	2.07	-27.93	756.38M	-53.53	2.39144G	-54.19	2.4835G	-56.22	2.517G	-52.86	15.07663G	-44.23	3

802.11g_Nss1,(6Mbps)_3TX **CSE NdB**

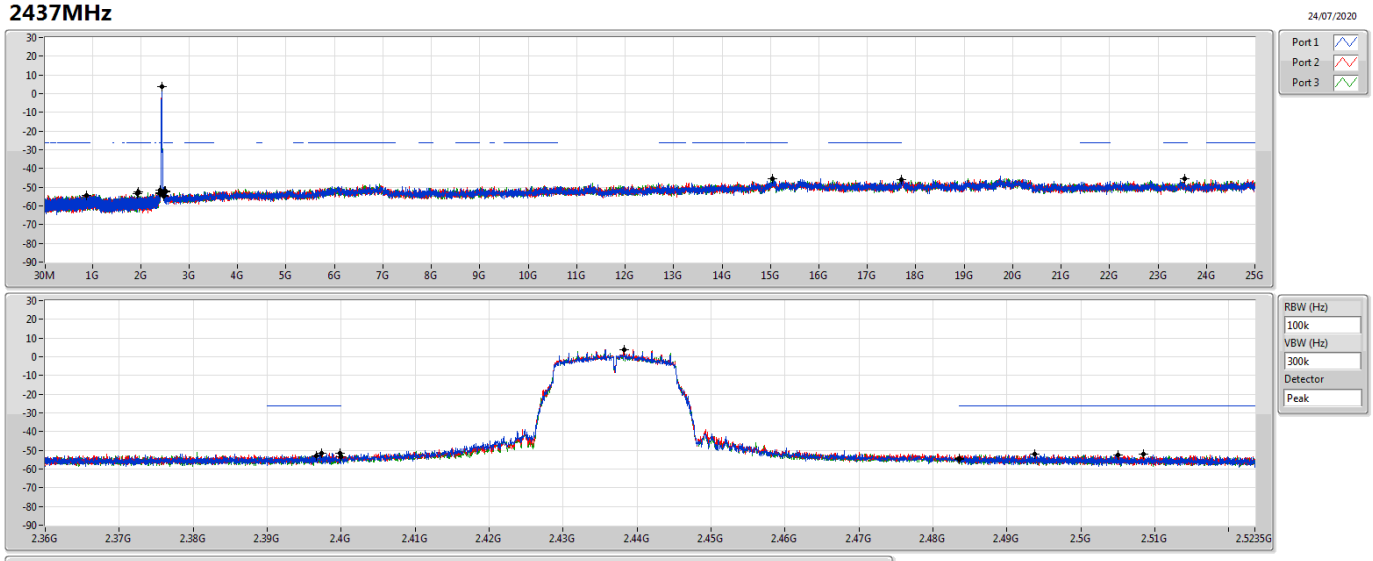
2412MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.43824G	3.93	-26.07	668.42M	-54.11	2.39976G	-27.25	2.4G	-31.18	2.4924G	-52.40	17.69795G	-45.69	1
2.43824G	3.93	-26.07	916.57M	-52.41	2.39992G	-29.86	2.4G	-30.34	2.49904G	-51.32	15.05415G	-45.00	2
2.43824G	3.93	-26.07	1.92982G	-49.61	2.39826G	-28.73	2.4G	-33.32	2.49654G	-52.53	24.88481G	-44.27	3

802.11g_Nss1,(6Mbps)_3TX **CSE NdB**

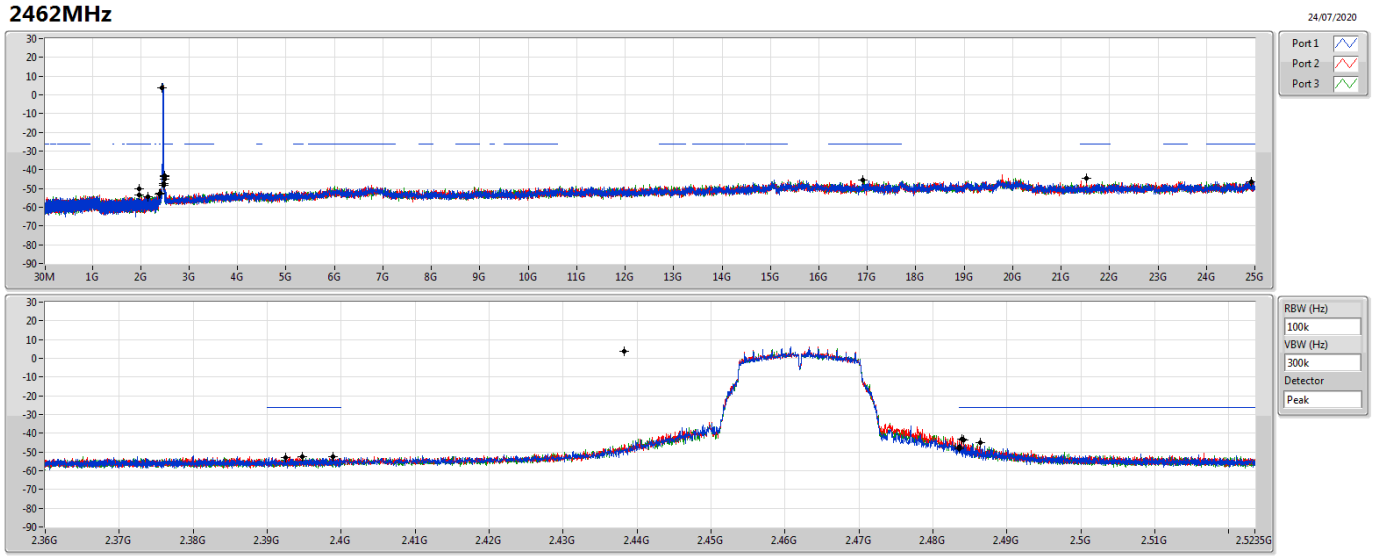
2437MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.43824G	3.93	-26.07	883.36M	-54.26	2.39732G	-51.68	2.4G	-53.56	2.49376G	-52.14	23.55027G	-45.55	1
2.43824G	3.93	-26.07	1.93274G	-53.55	2.3998G	-51.56	2.4835G	-54.33	2.50848G	-52.07	15.0401G	-45.65	2
2.43824G	3.93	-26.07	1.94963G	-52.27	2.39662G	-52.74	2.4835G	-54.97	2.505G	-52.28	17.69514G	-45.99	3

802.11g_Nss1,(6Mbps)_3TX **CSE NdB**

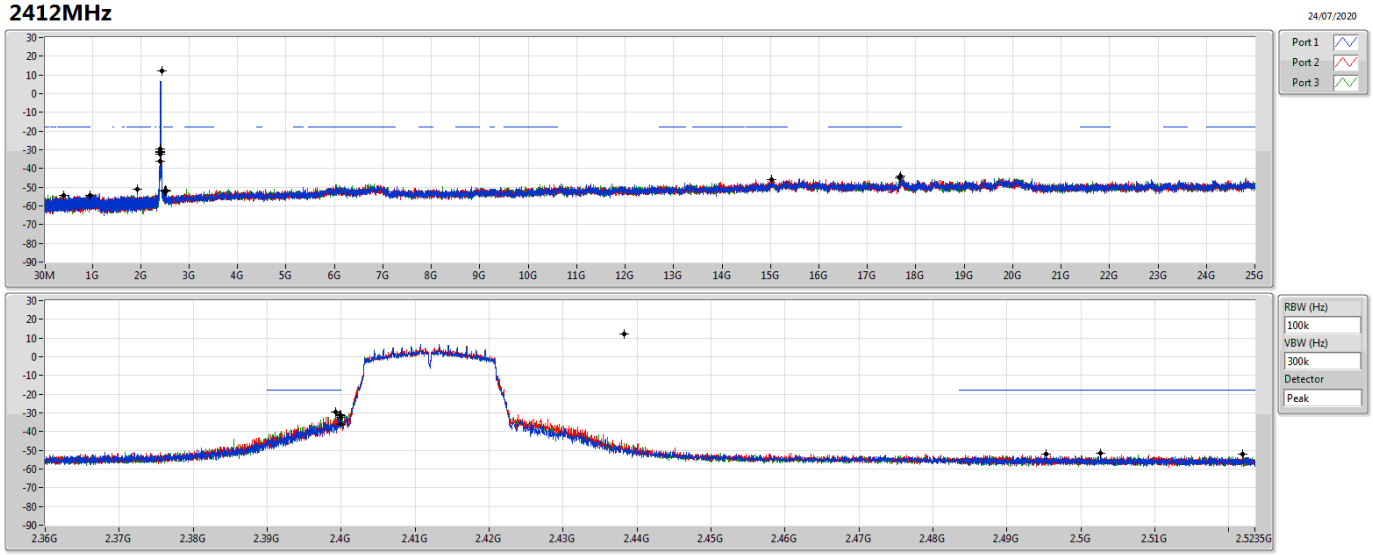
2462MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.43824G	3.93	-26.07	2.1471G	-54.28	2.39476G	-52.52	2.4835G	-48.44	2.48636G	-44.89	16.89722G	-45.36	1
2.43824G	3.93	-26.07	1.96973G	-53.57	2.39888G	-52.45	2.4835G	-47.26	2.48416G	-43.48	21.53019G	-44.52	2
2.43824G	3.93	-26.07	1.96973G	-50.22	2.39248G	-53.07	2.4835G	-48.27	2.48386G	-43.19	24.92414G	-46.18	3

VHT20-BF_Nss1,(MCS0)_3TX **CSE NdB**

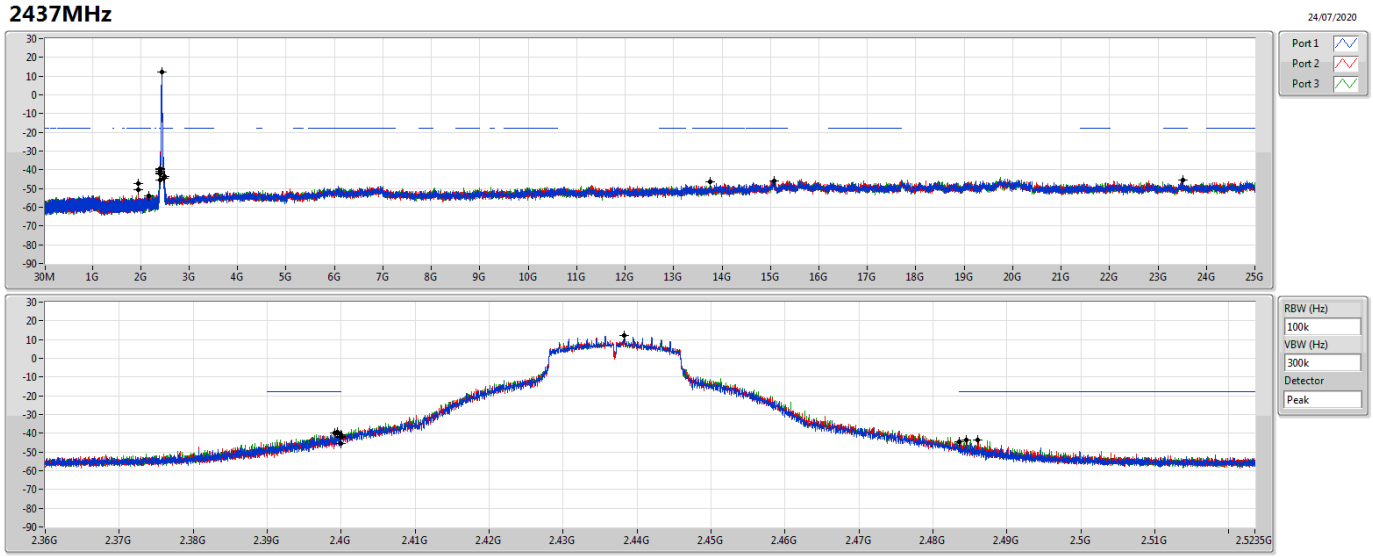
2412MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.43824G	12.02	-17.98	955.88M	-54.17	2.39986G	-30.95	2.4G	-35.88	2.49534G	-52.22	15.02324G	-45.87	1
2.43824G	12.02	-17.98	414.74M	-54.30	2.39992G	-31.50	2.4G	-36.18	2.5026G	-51.66	17.66704G	-45.23	2
2.43824G	12.02	-17.98	1.92953G	-50.97	2.3992G	-29.49	2.4G	-32.38	2.52184G	-52.08	17.68952G	-43.96	3

VHT20-BF_Nss1,(MCS0)_3TX **CSE NdB**

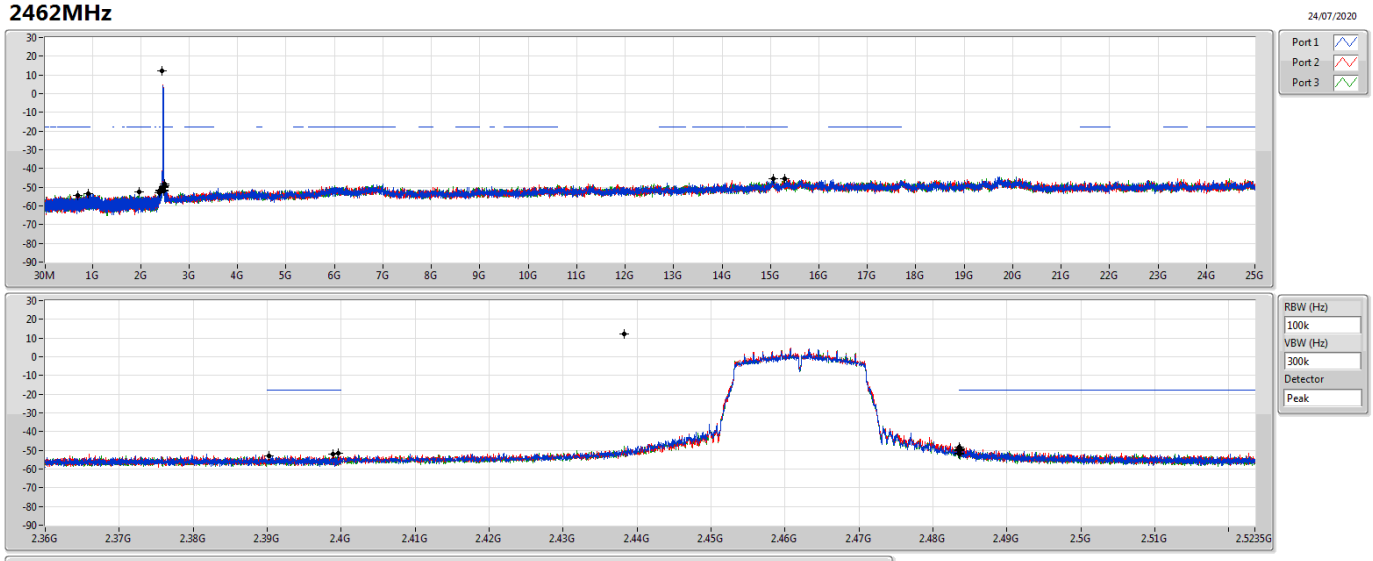
2437MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.43824G	12.02	-17.98	2.16079G	-53.82	2.39914G	-40.00	2.4G	-41.76	2.48352G	-44.56	23.51655G	-45.62	1
2.43824G	12.02	-17.98	1.94963G	-50.71	2.3999G	-40.74	2.4G	-45.51	2.48602G	-43.54	15.08224G	-46.04	2
2.43824G	12.02	-17.98	1.94963G	-47.49	2.39952G	-39.52	2.4G	-41.99	2.48448G	-43.73	13.75332G	-46.34	3

VHT20-BF_Nss1,(MCS0)_3TX **CSE NdB**

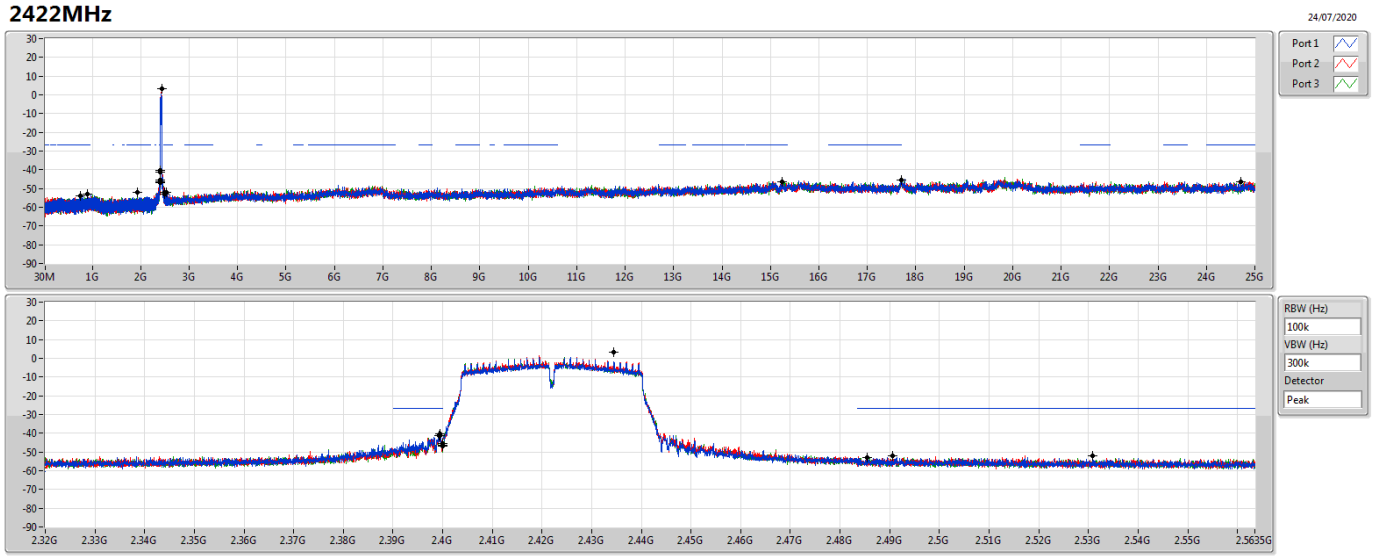
2462MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.43824G	12.02	-17.98	908.41M	-53.67	2.3989G	-52.12	2.4835G	-52.23	2.4835G	-49.54	15.06258G	-45.58	1
2.43824G	12.02	-17.98	704.83M	-54.15	2.39962G	-51.78	2.4835G	-50.31	2.48358G	-48.06	15.06539G	-45.32	2
2.43824G	12.02	-17.98	1.96973G	-52.67	2.39026G	-52.74	2.4835G	-51.73	2.48366G	-49.30	15.28734G	-45.33	3

VHT40-BF_Nss1,(MCS0)_3TX **CSE NdB**

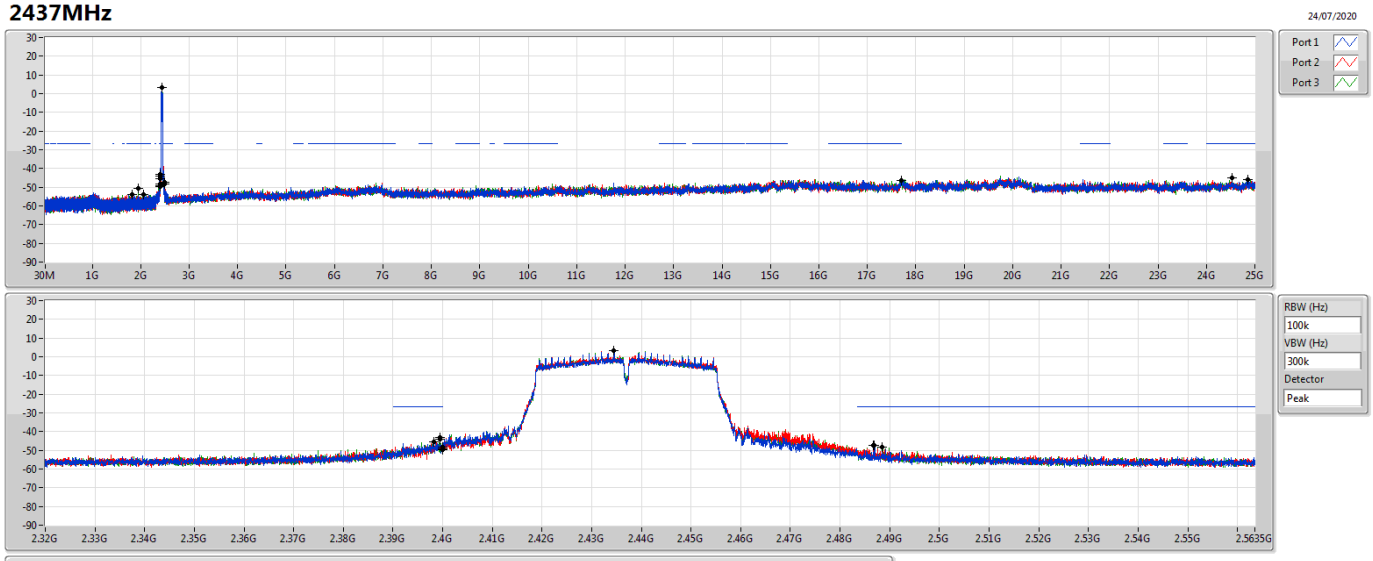
2422MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.43449G	3.06	-26.94	752.21M	-53.85	2.3992G	-41.48	2.4G	-46.44	2.5309G	-52.16	15.24293G	-46.27	1
2.43449G	3.06	-26.94	904.21M	-53.08	2.39948G	-40.22	2.4G	-47.10	2.49058G	-52.14	24.71113G	-46.20	2
2.43449G	3.06	-26.94	1.93757G	-52.13	2.39948G	-41.38	2.4G	-45.65	2.48546G	-52.86	17.69692G	-45.40	3

VHT40-BF_Nss1,(MCS0)_3TX **CSE NdB**

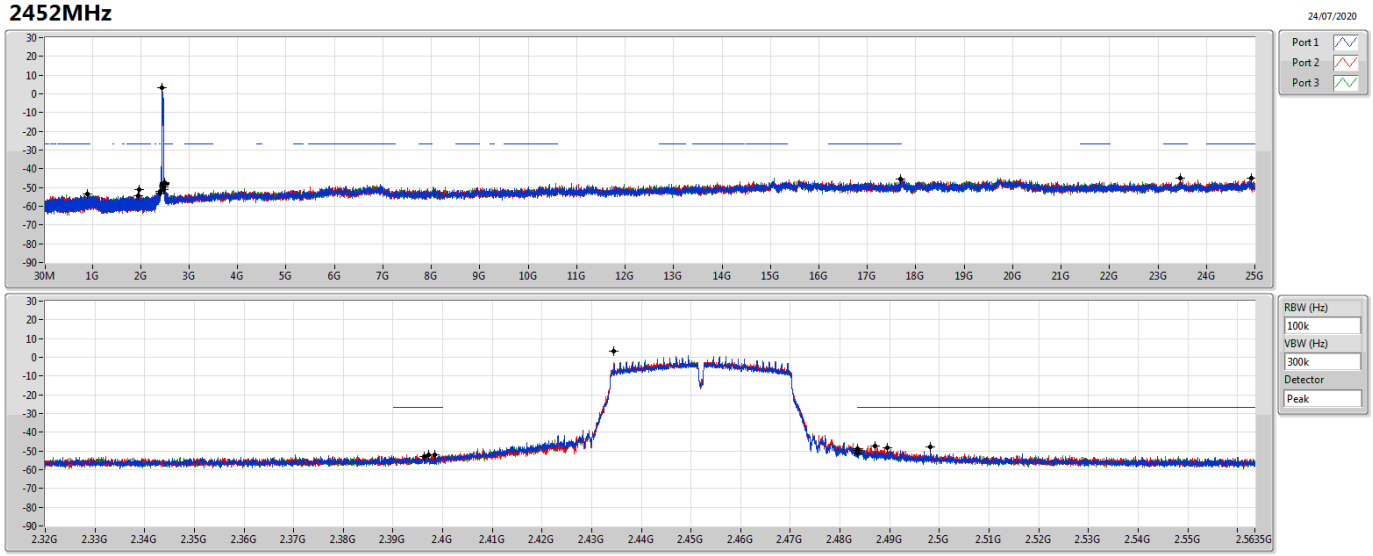
2437MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.43449G	3.06	-26.94	2.06238G	-53.79	2.39828G	-45.47	2.4G	-48.99	2.4885G	-48.44	24.53444G	-44.84	1
2.43449G	3.06	-26.94	1.81591G	-54.10	2.39948G	-44.01	2.4G	-49.82	2.48694G	-47.30	24.85136G	-45.95	2
2.43449G	3.06	-26.94	1.94959G	-50.49	2.39948G	-43.11	2.4G	-48.24	2.48666G	-47.18	17.69972G	-46.20	3

VHT40-BF_Nss1,(MCS0)_3TX **CSE NdB**

2452MHz



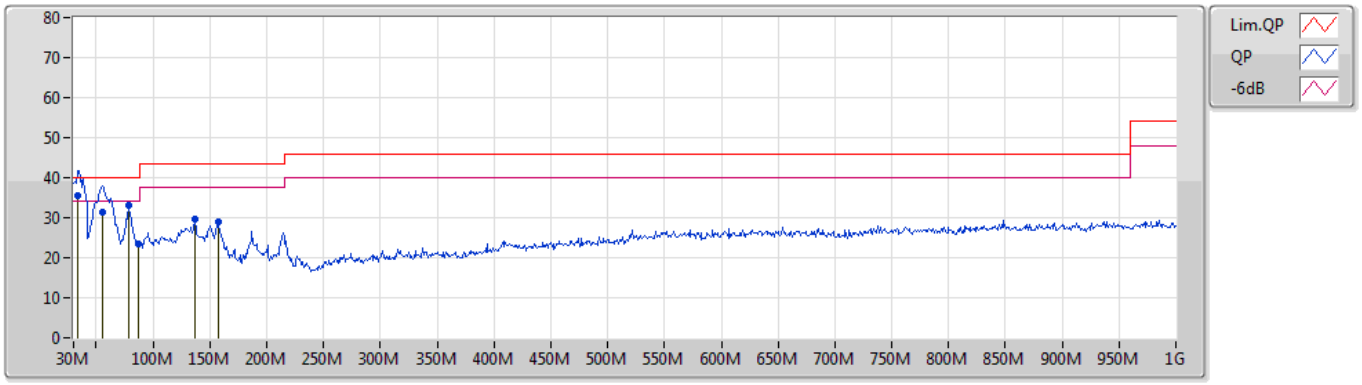
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.43449G	3.06	-26.94	1.94043G	-54.17	2.39716G	-52.05	2.4835G	-51.31	2.49822G	-47.91	24.92147G	-45.06	1
2.43449G	3.06	-26.94	906.78M	-53.34	2.39832G	-51.93	2.4835G	-49.69	2.48698G	-47.37	17.67729G	-45.68	2
2.43449G	3.06	-26.94	1.96162G	-51.04	2.39624G	-53.13	2.4835G	-48.92	2.48946G	-48.41	23.46871G	-45.03	3

Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 2	Pass	QP	33.88M	35.57	40.00	-4.43	Vertical

Mode 2

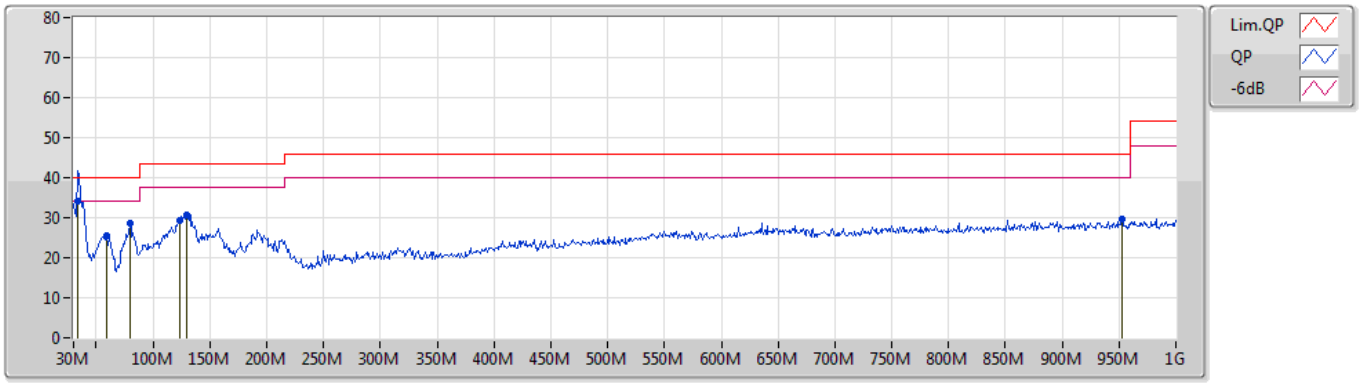
09/06/2020



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV/m)	(dB/m)	(dB)	(dB)
QP	33.88M	35.57	40.00	-4.43	-5.43	3	Vertical	32	1.25	"Worst"	41.00	22.54	0.60	28.57
QP	55.22M	31.36	40.00	-8.64	-15.14	3	Vertical	281	1.00	-	46.50	12.91	0.50	28.55
PK	78.5M	33.02	40.00	-6.98	-14.91	3	Vertical	159	1.50	-	47.93	12.89	0.70	28.50
PK	87.23M	23.44	40.00	-16.56	-13.59	3	Vertical	112	1.25	-	37.03	14.19	0.70	28.48
PK	136.7M	29.54	43.50	-13.96	-10.04	3	Vertical	242	1.00	-	39.58	17.29	0.98	28.31
PK	157.07M	28.90	43.50	-14.60	-11.05	3	Vertical	121	1.00	-	39.95	16.08	1.09	28.22

Mode 2

09/06/2020



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV/m)	(dB/m)	(dB)	(dB)
QP	33.88M	33.97	40.00	-6.03	-5.43	3	Horizontal	6	1.25	"Worst"	39.40	22.54	0.60	28.57
PK	59.1M	25.48	40.00	-14.52	-15.37	3	Horizontal	289	1.50	-	40.85	12.67	0.50	28.54
PK	79.47M	28.57	40.00	-11.43	-14.74	3	Horizontal	148	2.00	-	43.31	13.06	0.70	28.50
PK	123.12M	29.31	43.50	-14.19	-9.56	3	Horizontal	0	3.00	-	38.87	17.88	0.92	28.36
PK	129.91M	30.73	43.50	-12.77	-9.61	3	Horizontal	360	3.00	-	40.34	17.77	0.95	28.33
PK	952.47M	29.63	46.00	-16.37	1.48	3	Horizontal	11	1.50	-	28.15	26.80	3.60	28.92

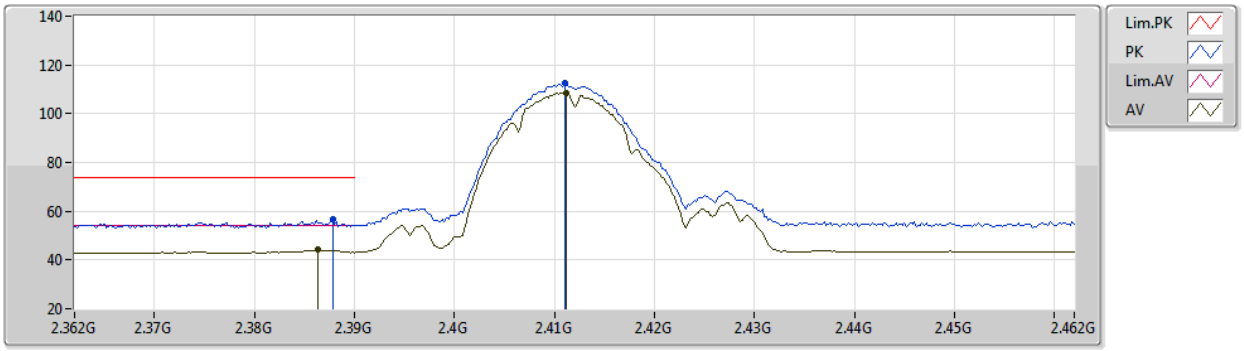
Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
802.11g_Nss1,(6Mbps)_3TX	Pass	AV	2.4878G	53.99	54.00	-0.01	3	Vertical	173	2.26	-

802.11b_Nss1,(1Mbps)_3TX

2412MHz_TX

08/06/2020



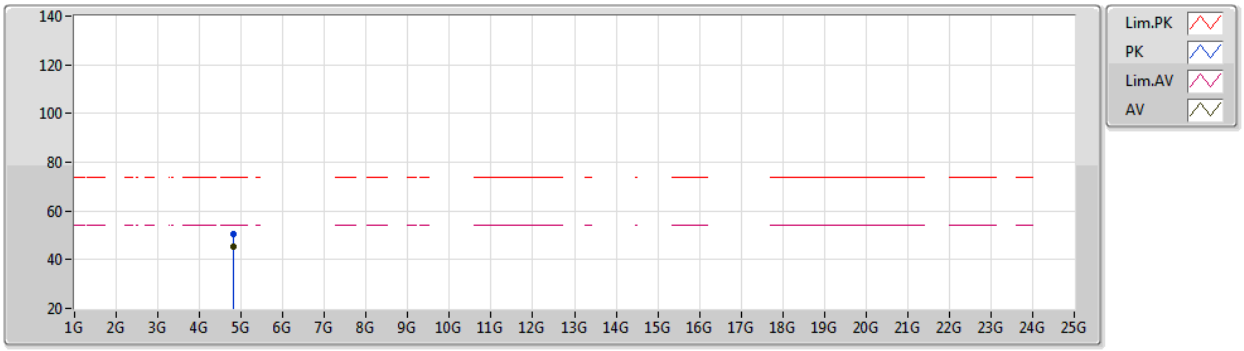
EUT Y_3TX
Setting 11
04-E-N-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.3878G	56.75	74.00	-17.25	26.39	3	Vertical	165	2.08	-	27.51	2.85	-
AV	2.3864G	44.15	54.00	-9.85	13.79	3	Vertical	165	2.08	-	27.51	2.85	-
PK	2.411G	112.34	Inf	-Inf	81.93	3	Vertical	165	2.08	-	27.54	2.87	-
AV	2.4112G	108.44	Inf	-Inf	78.03	3	Vertical	165	2.08	-	27.54	2.87	-

802.11b_Nss1,(1Mbps)_3TX

2412MHz_TX

08/06/2020



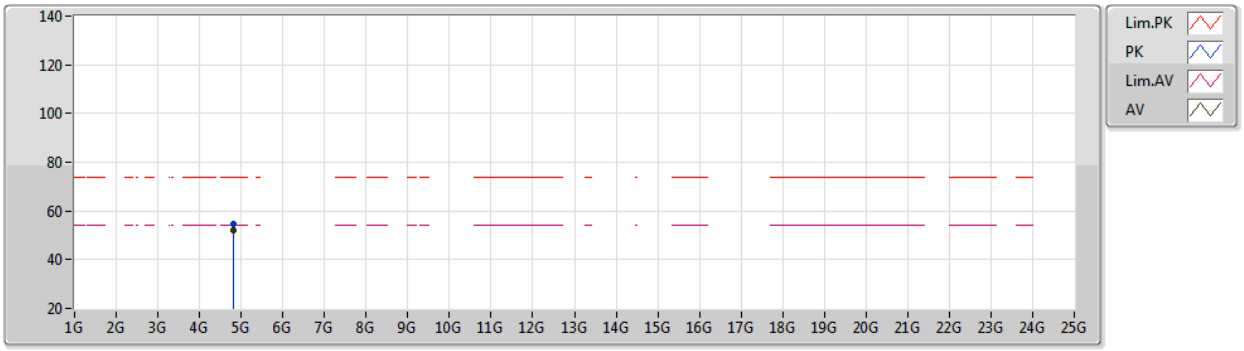
EUT Y_3TX
Setting 11
04-E-N-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.824G	50.44	74.00	-23.56	45.79	3	Vertical	298	1.65	-	32.60	4.93	32.88
AV	4.82398G	45.27	54.00	-8.73	40.62	3	Vertical	298	1.65	-	32.60	4.93	32.88

802.11b_Nss1,(1Mbps)_3TX

2412MHz_TX

08/06/2020



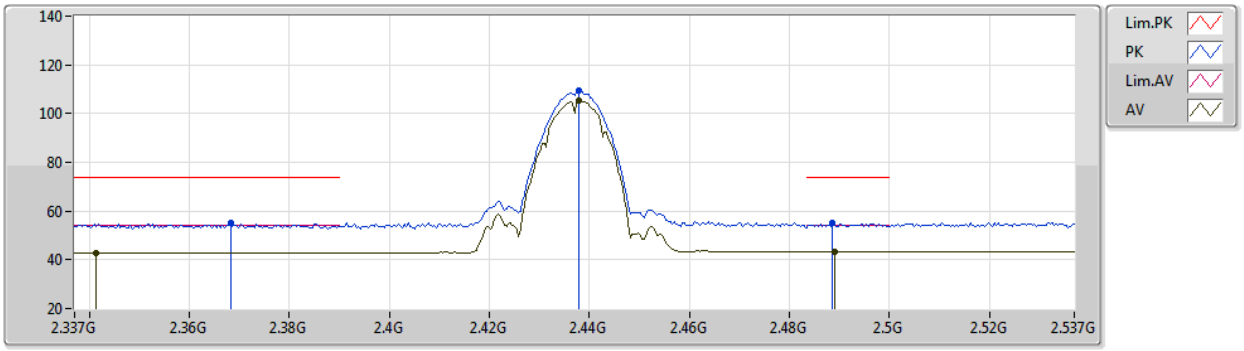
EUT Y_3TX
Setting 11
04-E-N-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.82394G	54.68	74.00	-19.32	50.03	3	Horizontal	357	1.85	-	32.60	4.93	32.88
AV	4.82398G	51.82	54.00	-2.18	47.17	3	Horizontal	357	1.85	-	32.60	4.93	32.88

802.11b_Nss1,(1Mbps)_3TX

2437MHz_TX

08/06/2020



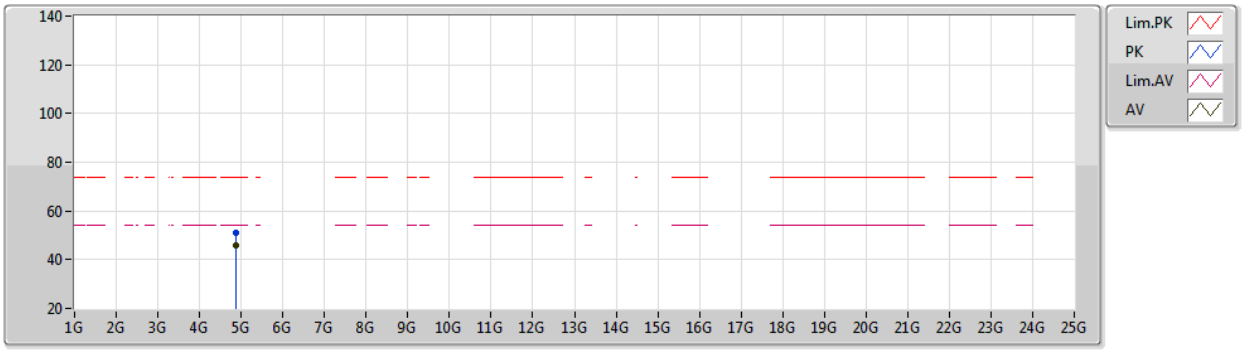
EUT Y_3TX
Setting 11
04-E-N-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.3682G	54.96	74.00	-19.04	24.59	3	Vertical	33	1.68	-	27.53	2.84	-
AV	2.3414G	42.82	54.00	-11.18	12.44	3	Vertical	33	1.68	-	27.56	2.82	-
PK	2.4378G	109.26	Inf	-Inf	78.73	3	Vertical	33	1.68	-	27.65	2.88	-
AV	2.4378G	105.15	Inf	-Inf	74.62	3	Vertical	33	1.68	-	27.65	2.88	-
PK	2.4886G	55.00	74.00	-19.00	24.24	3	Vertical	33	1.68	-	27.85	2.91	-
AV	2.489G	43.36	54.00	-10.64	12.59	3	Vertical	33	1.68	-	27.86	2.91	-

802.11b_Nss1,(1Mbps)_3TX

2437MHz_TX

08/06/2020



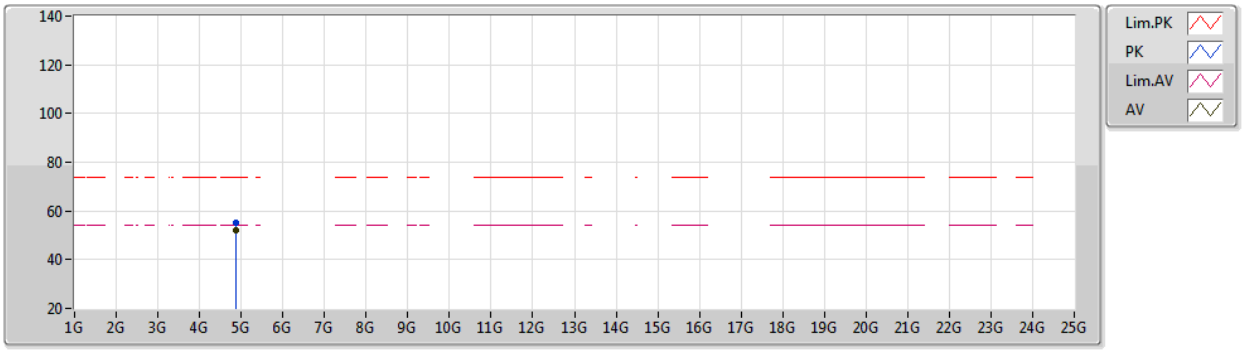
EUT Y_3TX
Setting 11
04-E-N-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.87404G	51.25	74.00	-22.75	46.36	3	Vertical	8	2.38	-	32.80	4.96	32.87
AV	4.87396G	45.65	54.00	-8.35	40.76	3	Vertical	8	2.38	-	32.80	4.96	32.87

802.11b_Nss1,(1Mbps)_3TX

2437MHz_TX

08/06/2020



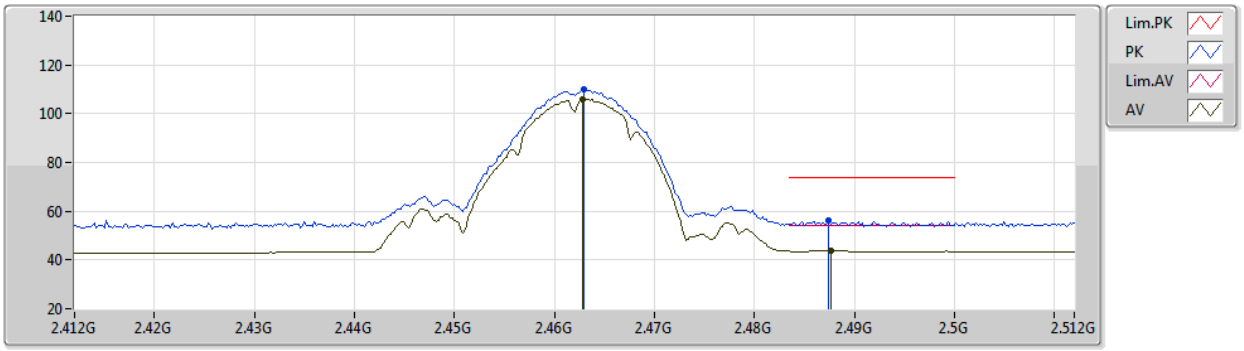
EUT Y_3TX
Setting 11
04-E-N-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.87398G	54.96	74.00	-19.04	50.07	3	Horizontal	0	1.89	-	32.80	4.96	32.87
AV	4.87402G	51.85	54.00	-2.15	46.96	3	Horizontal	0	1.89	-	32.80	4.96	32.87

802.11b_Nss1,(1Mbps)_3TX

2462MHz_TX

08/06/2020



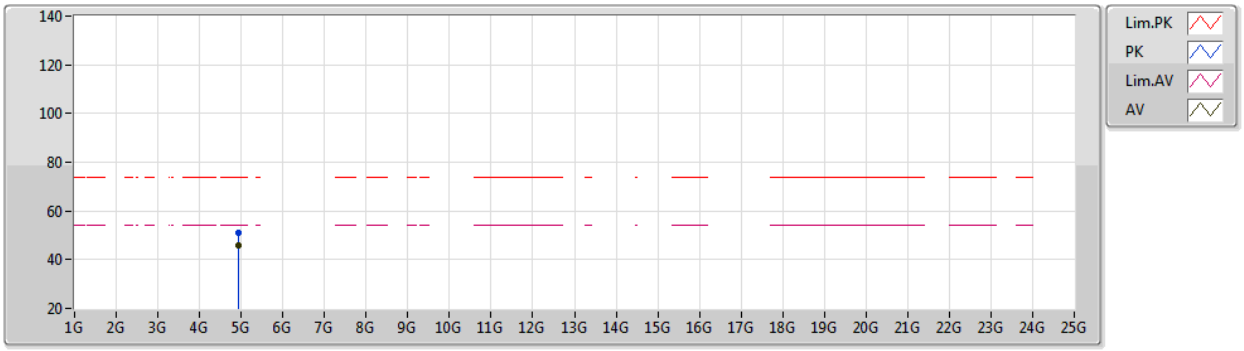
EUT Y_3TX
Setting 11
04-E-N-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.463G	109.83	Inf	-Inf	79.18	3	Vertical	237	1.90	-	27.75	2.90	-
AV	2.4628G	105.79	Inf	-Inf	75.14	3	Vertical	237	1.90	-	27.75	2.90	-
PK	2.4874G	56.14	74.00	-17.86	25.38	3	Vertical	237	1.90	-	27.85	2.91	-
AV	2.4876G	44.00	54.00	-10.00	13.24	3	Vertical	237	1.90	-	27.85	2.91	-

802.11b_Nss1,(1Mbps)_3TX

2462MHz_TX

08/06/2020



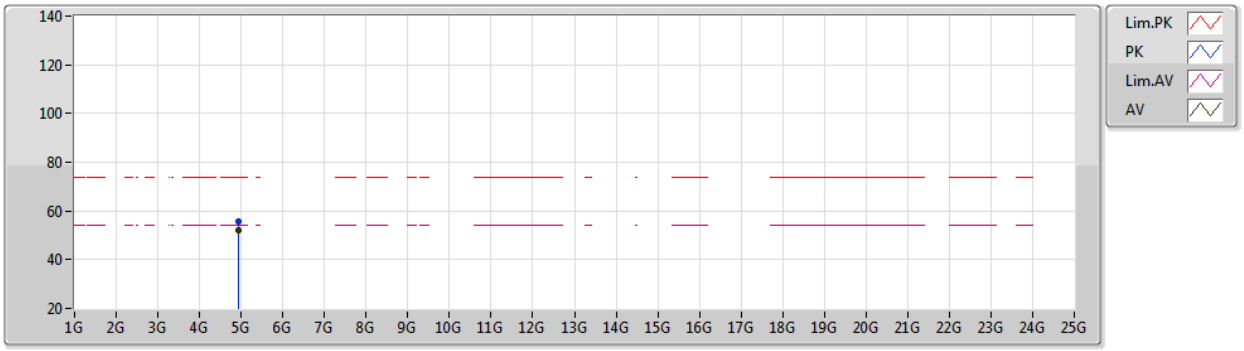
EUT Y_3TX
Setting 11
04-E-N-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.92396G	50.81	74.00	-23.19	45.75	3	Vertical	8	2.34	-	32.95	4.98	32.87
AV	4.924G	46.10	54.00	-7.90	41.04	3	Vertical	8	2.34	-	32.95	4.98	32.87

802.11b_Nss1,(1Mbps)_3TX

2462MHz_TX

08/06/2020



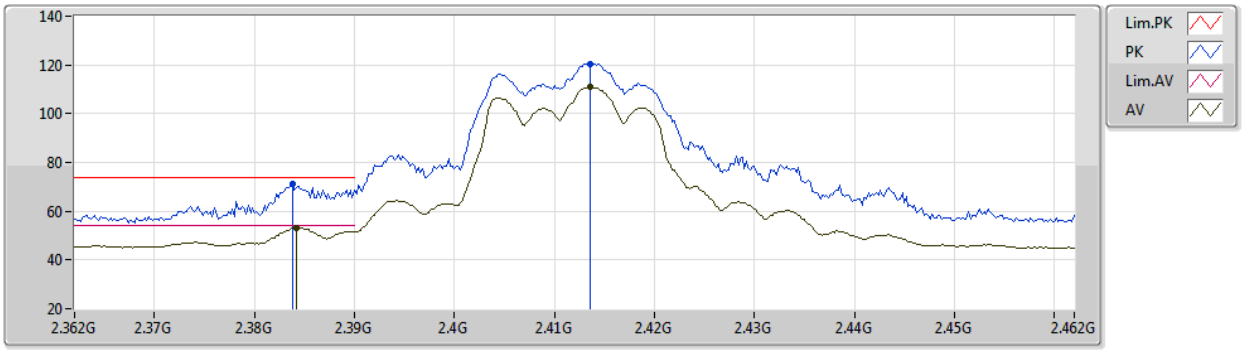
EUT Y_3TX
Setting 11
04-E-N-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.92404G	55.46	74.00	-18.54	50.40	3	Horizontal	7	1.83	-	32.95	4.98	32.87
AV	4.92398G	51.88	54.00	-2.12	46.82	3	Horizontal	7	1.83	-	32.95	4.98	32.87

802.11g_Nss1,(6Mbps)_3TX

2412MHz_TX

08/06/2020



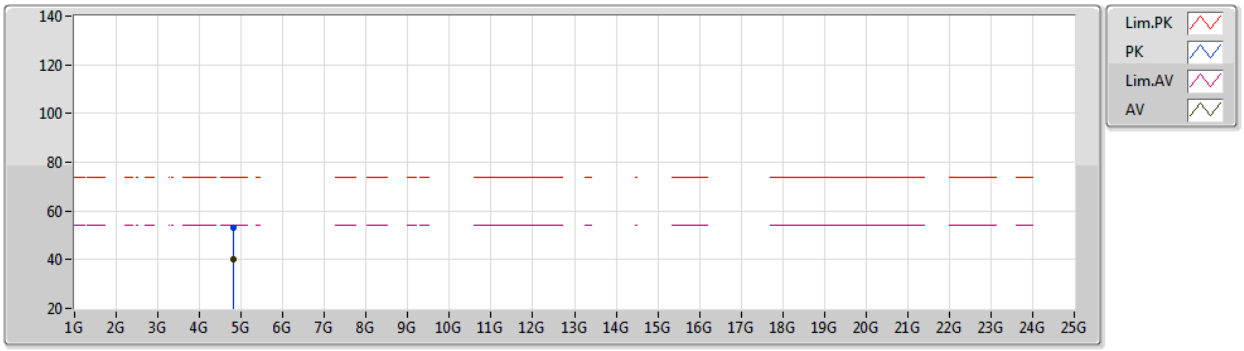
EUT Y_3TX
Setting 23
04-E-N-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.3838G	71.13	74.00	-2.87	40.76	3	Vertical	156	2.16	-	27.52	2.85	-
AV	2.3842G	53.18	54.00	-0.82	22.81	3	Vertical	156	2.16	-	27.52	2.85	-
PK	2.4136G	120.54	Inf	-Inf	90.12	3	Vertical	156	2.16	-	27.55	2.87	-
AV	2.4136G	110.81	Inf	-Inf	80.39	3	Vertical	156	2.16	-	27.55	2.87	-

802.11g_Nss1,(6Mbps)_3TX

2412MHz_TX

08/06/2020



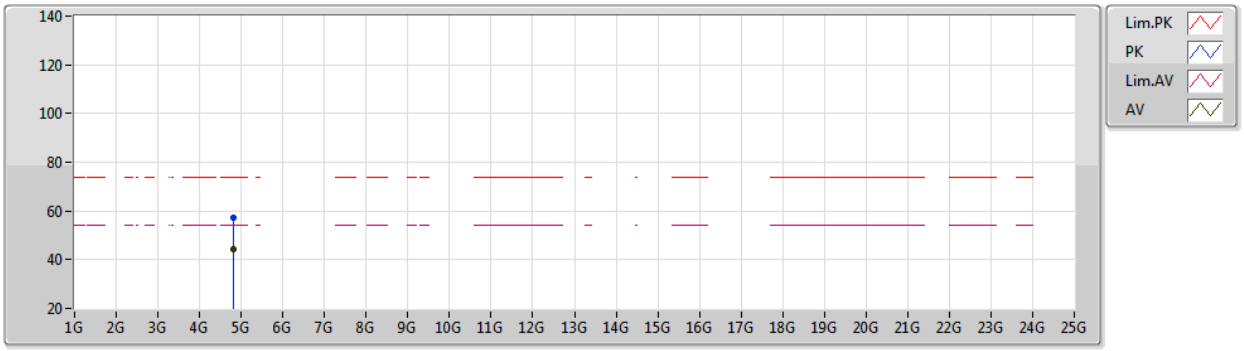
EUT Y_3TX
Setting 23
04-E-N-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.8251G	53.22	74.00	-20.78	48.57	3	Vertical	40	1.42	-	32.60	4.93	32.88
AV	4.8255G	40.28	54.00	-13.72	35.63	3	Vertical	40	1.42	-	32.60	4.93	32.88

802.11g_Nss1,(6Mbps)_3TX

2412MHz_TX

08/06/2020



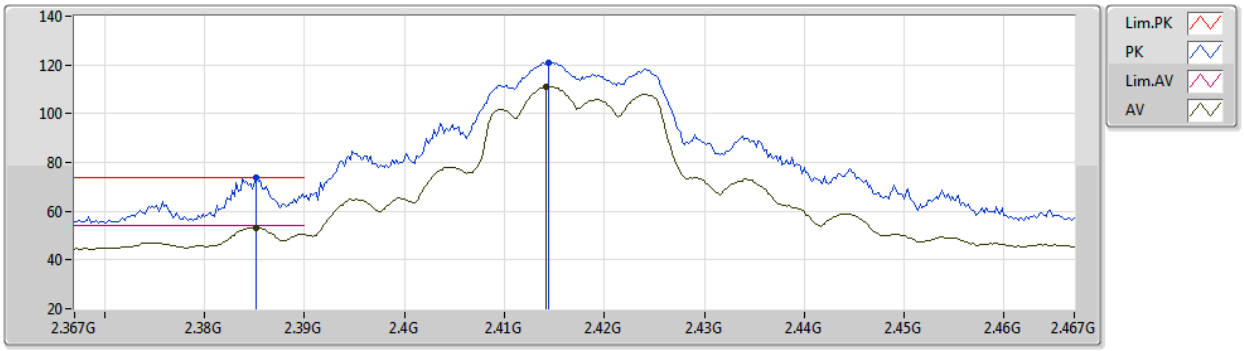
EUT Y_3TX
Setting 23
04-E-N-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.8249G	57.04	74.00	-16.96	52.39	3	Horizontal	356	1.84	-	32.60	4.93	32.88
AV	4.8244G	44.43	54.00	-9.57	39.78	3	Horizontal	356	1.84	-	32.60	4.93	32.88

802.11g_Nss1,(6Mbps)_3TX

2417MHz_TX

08/06/2020



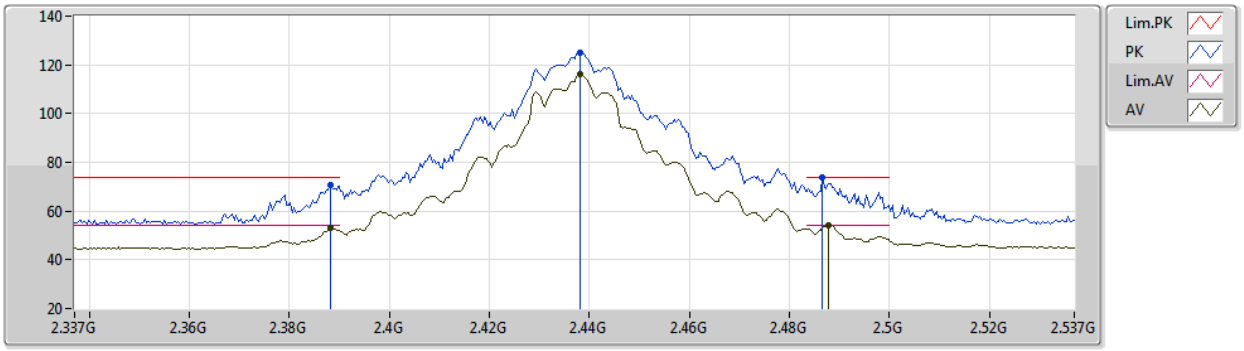
EUT Y_3TX
Setting 26
04-E-N-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.3852G	73.81	74.00	-0.19	43.45	3	Vertical	162	1.80	-	27.51	2.85	-
AV	2.3852G	53.36	54.00	-0.64	23.00	3	Vertical	162	1.80	-	27.51	2.85	-
PK	2.4144G	120.97	Inf	-Inf	90.54	3	Vertical	162	1.80	-	27.56	2.87	-
AV	2.4142G	111.16	Inf	-Inf	80.73	3	Vertical	162	1.80	-	27.56	2.87	-

802.11g_Nss1,(6Mbps)_3TX

2437MHz_TX

08/06/2020



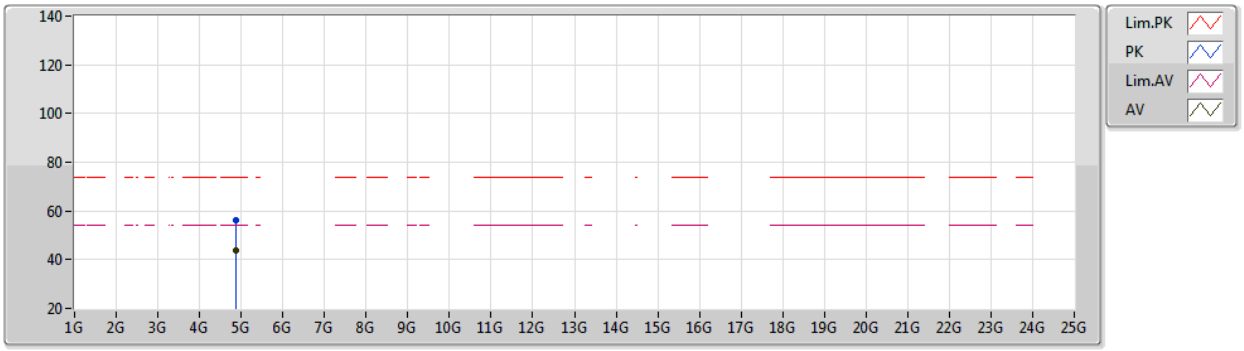
EUT Y_3TX
Setting 2C
04-E-N-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.3882G	70.72	74.00	-3.28	40.36	3	Vertical	173	2.26	-	27.51	2.85	-
AV	2.3882G	52.99	54.00	-1.01	22.63	3	Vertical	173	2.26	-	27.51	2.85	-
PK	2.4382G	125.19	Inf	-Inf	94.66	3	Vertical	173	2.26	-	27.65	2.88	-
AV	2.4382G	116.21	Inf	-Inf	85.68	3	Vertical	173	2.26	-	27.65	2.88	-
PK	2.4866G	73.68	74.00	-0.32	42.92	3	Vertical	173	2.26	-	27.85	2.91	-
AV	2.4878G	53.99	54.00	-0.01	23.23	3	Vertical	173	2.26	-	27.85	2.91	-

802.11g_Nss1,(6Mbps)_3TX

2437MHz_TX

08/06/2020



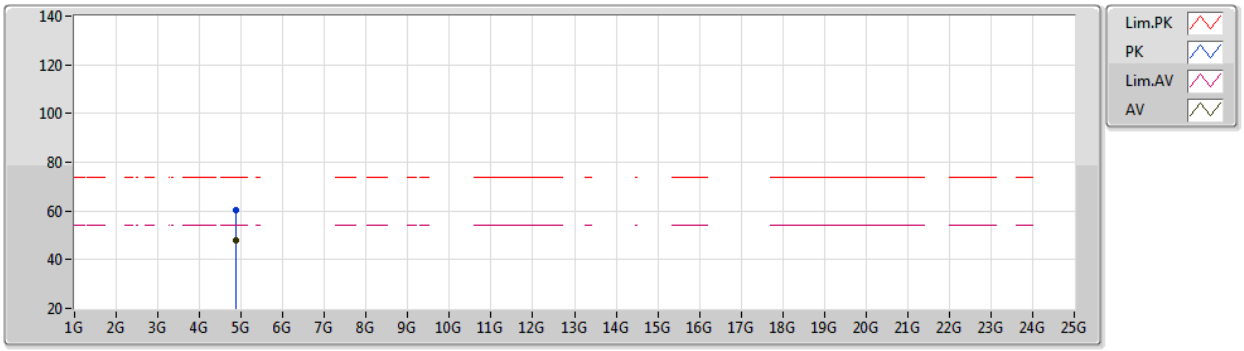
EUT Y_3TX
Setting 2C
04-E-N-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.87492G	55.97	74.00	-18.03	51.08	3	Vertical	37	1.32	-	32.80	4.96	32.87
AV	4.87536G	43.91	54.00	-10.09	39.02	3	Vertical	37	1.32	-	32.80	4.96	32.87

802.11g_Nss1,(6Mbps)_3TX

2437MHz_TX

08/06/2020



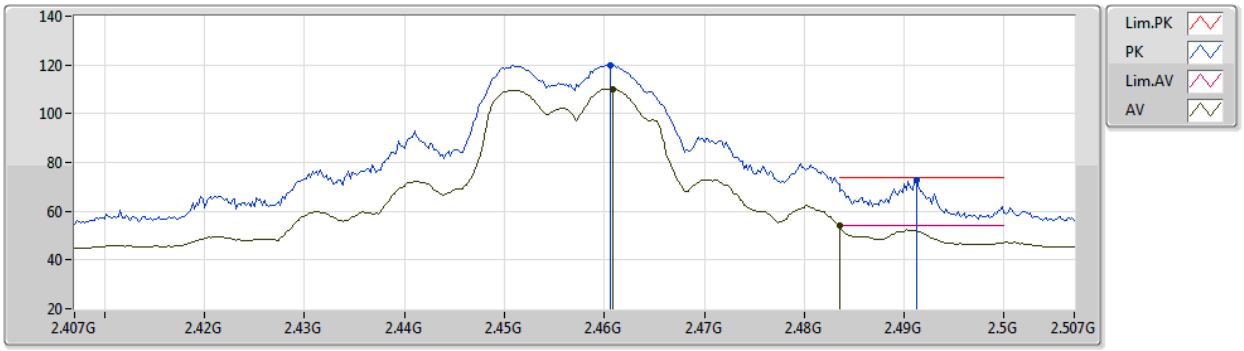
EUT Y_3TX
Setting 2C
04-E-N-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
AV	4.87468G	48.07	54.00	-5.93	43.18	3	Horizontal	356	1.80	-	32.80	4.96	32.87
PK	4.8744G	60.15	74.00	-13.85	55.26	3	Horizontal	356	1.80	-	32.80	4.96	32.87

802.11g_Nss1,(6Mbps)_3TX

2457MHz_TX

08/06/2020



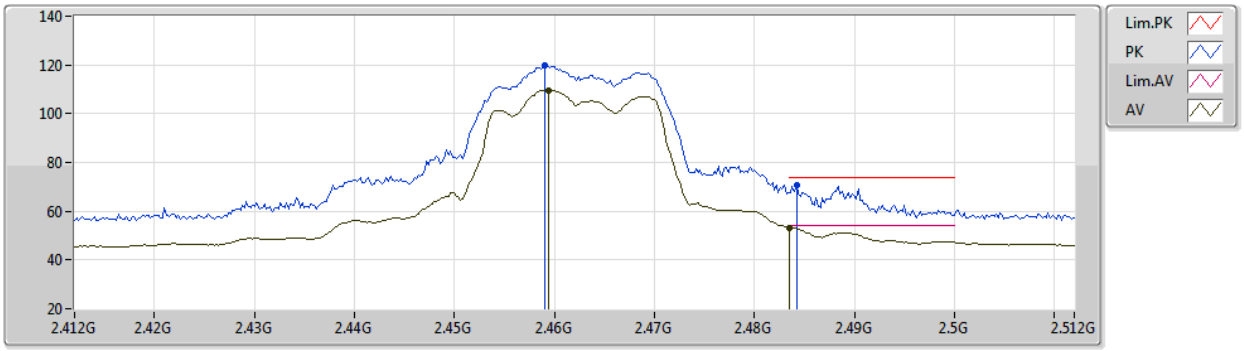
EUT Y_3TX
Setting 24
04-E-N-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.4606G	119.85	Inf	-Inf	89.21	3	Vertical	0	2.54	-	27.74	2.90	-
AV	2.4608G	110.24	Inf	-Inf	79.60	3	Vertical	0	2.54	-	27.74	2.90	-
PK	2.4912G	72.82	74.00	-1.18	42.05	3	Vertical	0	2.54	-	27.86	2.91	-
AV	2.4835G	53.97	54.00	-0.03	23.23	3	Vertical	0	2.54	-	27.83	2.91	-

802.11g_Nss1,(6Mbps)_3TX

2462MHz_TX

08/06/2020



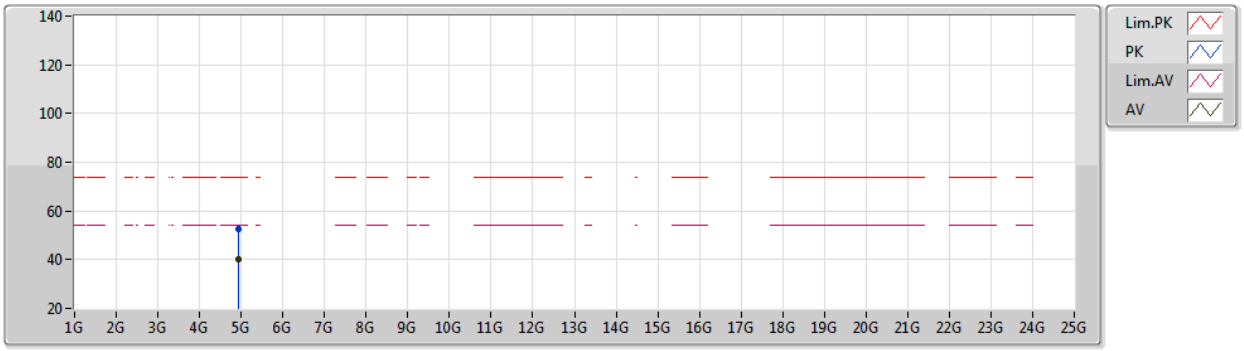
EUT Y_3TX
Setting 20
04-E-N-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.459G	119.79	Inf	-Inf	89.15	3	Vertical	185	2.09	-	27.74	2.90	-
AV	2.4594G	109.67	Inf	-Inf	79.03	3	Vertical	185	2.09	-	27.74	2.90	-
PK	2.4842G	70.69	74.00	-3.31	39.94	3	Vertical	185	2.09	-	27.84	2.91	-
AV	2.4835G	53.27	54.00	-0.73	22.53	3	Vertical	185	2.09	-	27.83	2.91	-

802.11g_Nss1,(6Mbps)_3TX

2462MHz_TX

08/06/2020



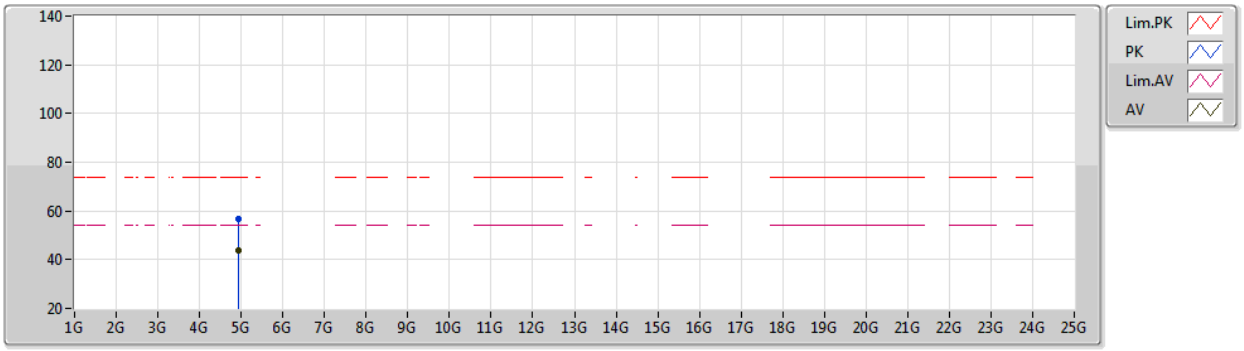
EUT Y_3TX
Setting 20
04-E-N-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.92528G	52.64	74.00	-21.36	47.57	3	Vertical	335	2.36	-	32.95	4.98	32.86
AV	4.92544G	40.13	54.00	-13.87	35.06	3	Vertical	335	2.36	-	32.95	4.98	32.86

802.11g_Nss1,(6Mbps)_3TX

2462MHz_TX

08/06/2020



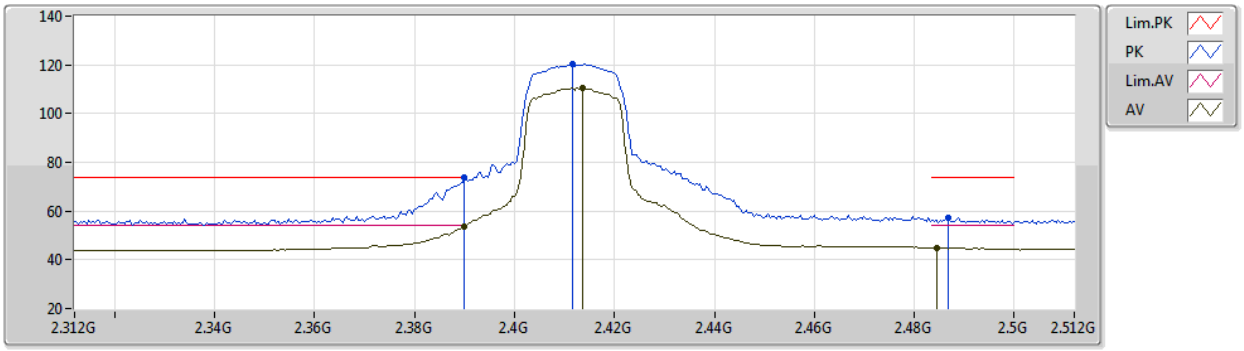
EUT Y_3TX
Setting 20
04-E-N-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.92424G	56.90	74.00	-17.10	51.84	3	Horizontal	359	1.80	-	32.95	4.98	32.87
AV	4.92526G	43.88	54.00	-10.12	38.81	3	Horizontal	359	1.80	-	32.95	4.98	32.86

VHT20-BF_Nss1,(MCS0)_3TX

2412MHz_TX

08/06/2020



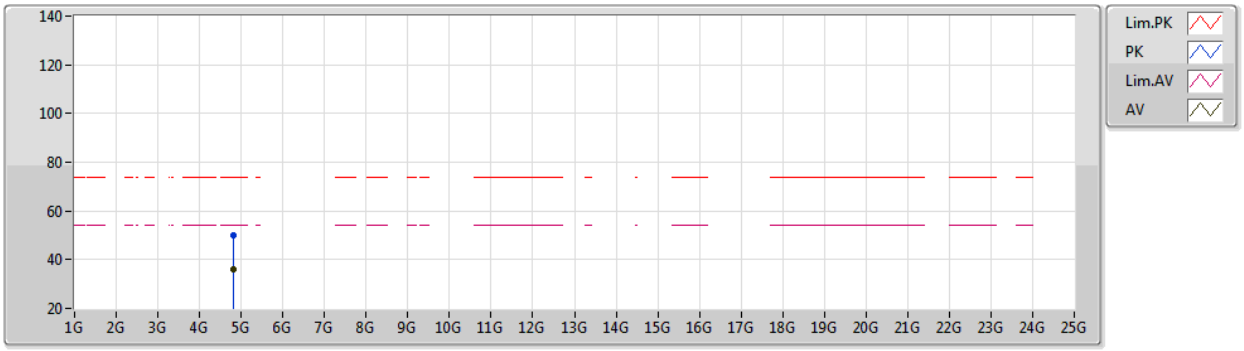
EUT Y_3TX
Setting 33
04-E-P-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.39G	73.82	74.00	-0.18	43.46	3	Vertical	184	2.56	-	27.51	2.85	-
AV	2.39G	53.80	54.00	-0.20	23.44	3	Vertical	184	2.56	-	27.51	2.85	-
PK	2.4116G	120.22	Inf	-Inf	89.80	3	Vertical	184	2.56	-	27.55	2.87	-
AV	2.4136G	110.40	Inf	-Inf	79.98	3	Vertical	184	2.56	-	27.55	2.87	-
PK	2.4868G	57.09	74.00	-16.91	26.33	3	Vertical	184	2.56	-	27.85	2.91	-
AV	2.4844G	44.85	54.00	-9.15	14.10	3	Vertical	184	2.56	-	27.84	2.91	-

VHT20-BF_Nss1,(MCS0)_3TX

2412MHz_TX

08/06/2020



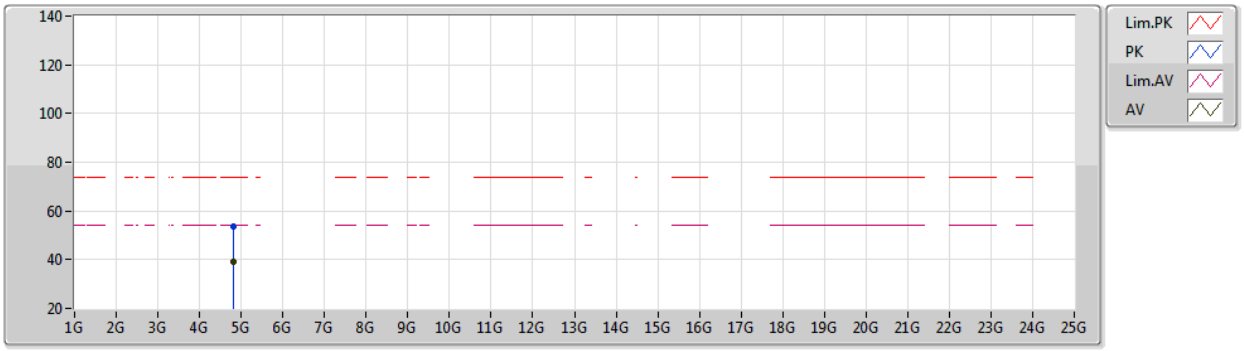
EUT Y_3TX
Setting 33
04-E-P-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.8248G	49.97	74.00	-24.03	45.32	3	Vertical	310	1.80	-	32.60	4.93	32.88
AV	4.8217G	35.91	54.00	-18.09	31.27	3	Vertical	310	1.80	-	32.59	4.93	32.88

VHT20-BF_Nss1,(MCS0)_3TX

2412MHz_TX

08/06/2020



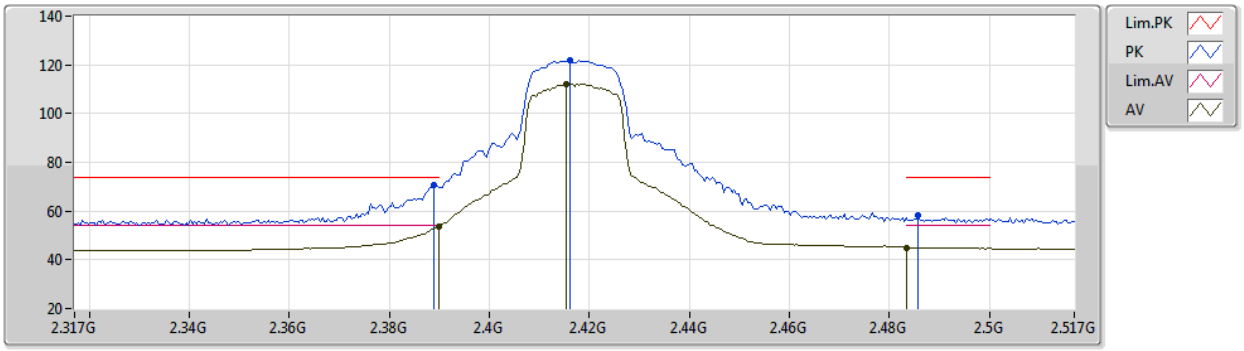
EUT Y_3TX
Setting 33
04-E-P-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.82724G	53.37	74.00	-20.63	48.71	3	Horizontal	360	1.93	-	32.61	4.93	32.88
AV	4.82844G	39.22	54.00	-14.78	34.56	3	Horizontal	360	1.93	-	32.61	4.93	32.88

VHT20-BF_Nss1,(MCS0)_3TX

2417MHz_TX

08/06/2020



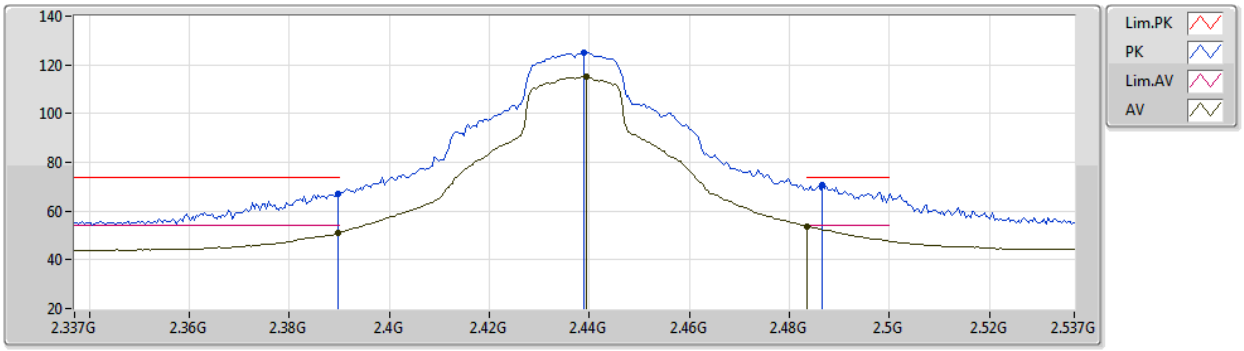
EUT Y_3TX
Setting 36
04-E-P-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.389G	70.63	74.00	-3.37	40.27	3	Vertical	180	2.57	-	27.51	2.85	-
AV	2.3898G	53.55	54.00	-0.45	23.19	3	Vertical	180	2.57	-	27.51	2.85	-
PK	2.4162G	121.88	Inf	-Inf	91.45	3	Vertical	180	2.57	-	27.56	2.87	-
AV	2.4154G	112.15	Inf	-Inf	81.72	3	Vertical	180	2.57	-	27.56	2.87	-
PK	2.4858G	58.07	74.00	-15.93	27.32	3	Vertical	180	2.57	-	27.84	2.91	-
AV	2.4835G	45.06	54.00	-8.94	14.32	3	Vertical	180	2.57	-	27.83	2.91	-

VHT20-BF_Nss1,(MCS0)_3TX

2437MHz_TX

08/06/2020



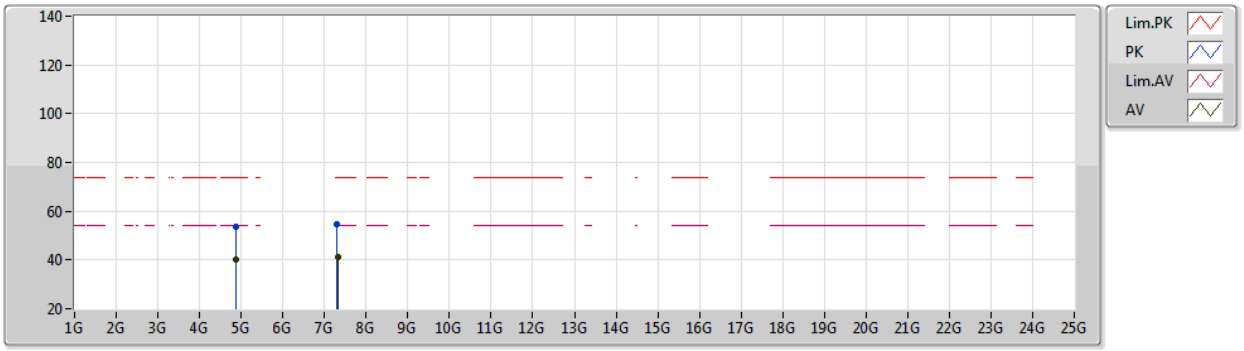
EUT Y_3TX
Setting 44
04-E-P-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.3898G	67.16	74.00	-6.84	36.80	3	Vertical	193	2.28	-	27.51	2.85	-
AV	2.3898G	51.00	54.00	-3.00	20.64	3	Vertical	193	2.28	-	27.51	2.85	-
PK	2.439G	125.14	Inf	-Inf	94.60	3	Vertical	193	2.28	-	27.66	2.88	-
AV	2.4394G	114.99	Inf	-Inf	84.45	3	Vertical	193	2.28	-	27.66	2.88	-
PK	2.4866G	70.68	74.00	-3.32	39.92	3	Vertical	193	2.28	-	27.85	2.91	-
AV	2.4835G	53.77	54.00	-0.23	23.03	3	Vertical	193	2.28	-	27.83	2.91	-

VHT20-BF_Nss1,(MCS0)_3TX

2437MHz_TX

08/06/2020



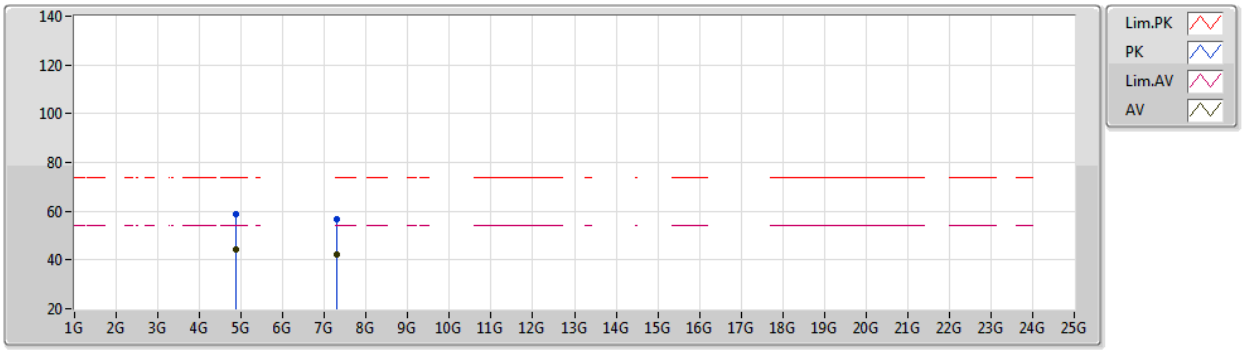
EUT Y_3TX
Setting 44
04-E-P-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.8748G	53.76	74.00	-20.24	48.87	3	Vertical	341	1.91	-	32.80	4.96	32.87
AV	4.8741G	40.07	54.00	-13.93	35.18	3	Vertical	341	1.91	-	32.80	4.96	32.87
PK	7.3099G	54.69	74.00	-19.31	44.31	3	Vertical	197	1.80	-	37.51	6.22	33.35
AV	7.3107G	41.11	54.00	-12.89	30.73	3	Vertical	197	1.80	-	37.51	6.22	33.35

VHT20-BF_Nss1,(MCS0)_3TX

2437MHz_TX

08/06/2020



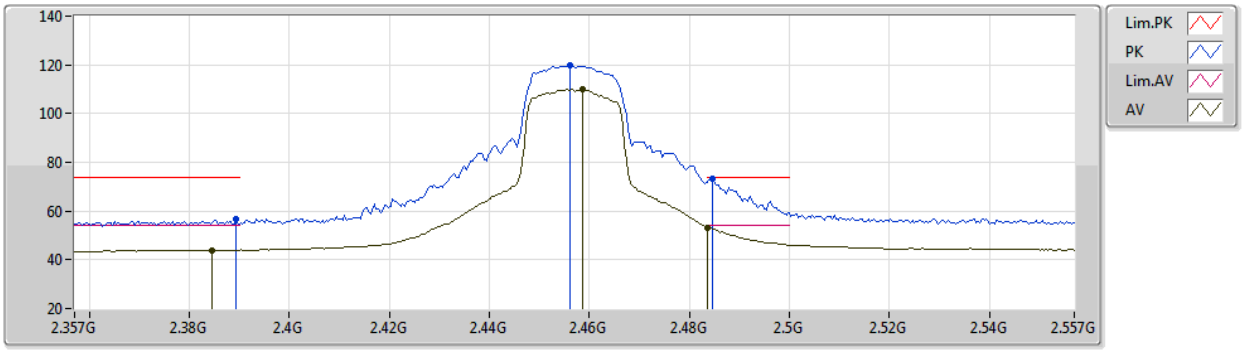
EUT Y_3TX
Setting 44
04-E-P-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.8722G	59.04	74.00	-14.96	54.16	3	Horizontal	347	1.86	-	32.79	4.96	32.87
AV	4.872G	44.54	54.00	-9.46	39.66	3	Horizontal	347	1.86	-	32.79	4.96	32.87
PK	7.307G	56.71	74.00	-17.29	46.32	3	Horizontal	329	1.84	-	37.51	6.22	33.34
AV	7.3092G	42.37	54.00	-11.63	31.99	3	Horizontal	329	1.84	-	37.51	6.22	33.35

VHT20-BF_Nss1,(MCS0)_3TX

2457MHz_TX

08/06/2020



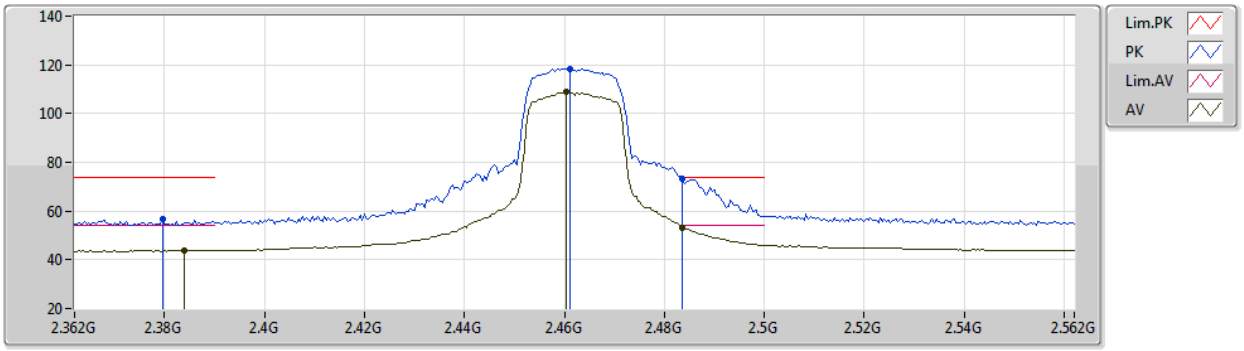
EUT Y_3TX
Setting 33
04-E-P-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.3894G	56.60	74.00	-17.40	26.24	3	Vertical	186	1.80	-	27.51	2.85	-
AV	2.3846G	43.99	54.00	-10.01	13.62	3	Vertical	186	1.80	-	27.52	2.85	-
PK	2.4562G	119.81	Inf	-Inf	89.20	3	Vertical	186	1.80	-	27.72	2.89	-
AV	2.4586G	109.89	Inf	-Inf	79.26	3	Vertical	186	1.80	-	27.73	2.90	-
PK	2.4846G	73.03	74.00	-0.97	42.28	3	Vertical	186	1.80	-	27.84	2.91	-
AV	2.4835G	53.35	54.00	-0.65	22.61	3	Vertical	186	1.80	-	27.83	2.91	-

VHT20-BF_Nss1,(MCS0)_3TX

2462MHz_TX

08/06/2020



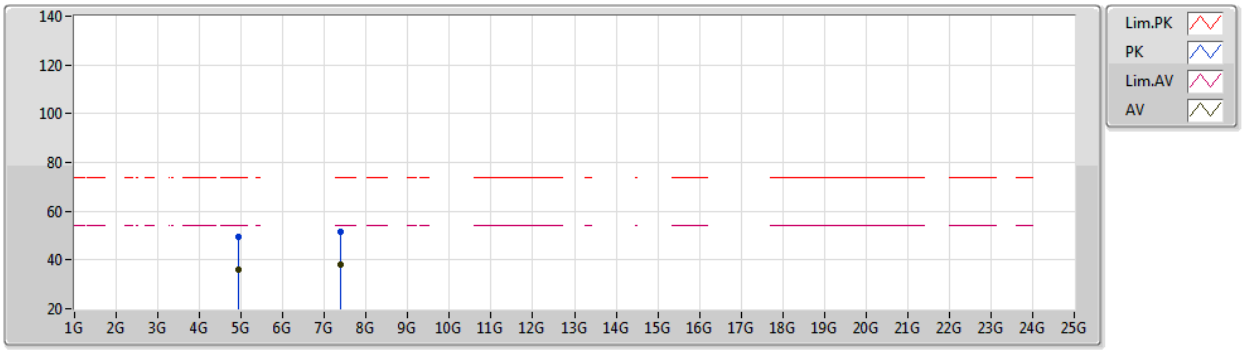
EUT Y_3TX
Setting 29
04-E-P-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.3796G	56.77	74.00	-17.23	26.40	3	Vertical	186	2.46	-	27.52	2.85	-
AV	2.384G	43.80	54.00	-10.20	13.43	3	Vertical	186	2.46	-	27.52	2.85	-
PK	2.4612G	118.53	Inf	-Inf	87.89	3	Vertical	186	2.46	-	27.74	2.90	-
AV	2.4604G	108.72	Inf	-Inf	78.08	3	Vertical	186	2.46	-	27.74	2.90	-
PK	2.4835G	73.15	74.00	-0.85	42.41	3	Vertical	186	2.46	-	27.83	2.91	-
AV	2.4835G	53.32	54.00	-0.68	22.58	3	Vertical	186	2.46	-	27.83	2.91	-

VHT20-BF_Nss1,(MCS0)_3TX

2462MHz_TX

08/06/2020



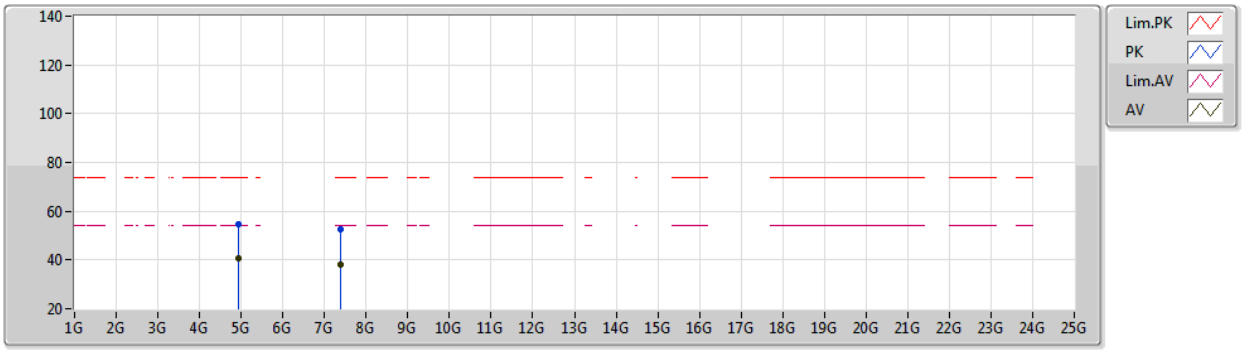
EUT Y_3TX
Setting 29
04-E-P-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.9222G	49.25	74.00	-24.75	44.20	3	Vertical	311	2.47	-	32.94	4.98	32.87
AV	4.9242G	35.88	54.00	-18.12	30.82	3	Vertical	311	2.47	-	32.95	4.98	32.87
PK	7.38612G	51.76	74.00	-22.24	41.32	3	Vertical	170	1.80	-	37.59	6.25	33.40
AV	7.38884G	38.01	54.00	-15.99	27.56	3	Vertical	170	1.80	-	37.59	6.26	33.40

VHT20-BF_Nss1,(MCS0)_3TX

2462MHz_TX

08/06/2020



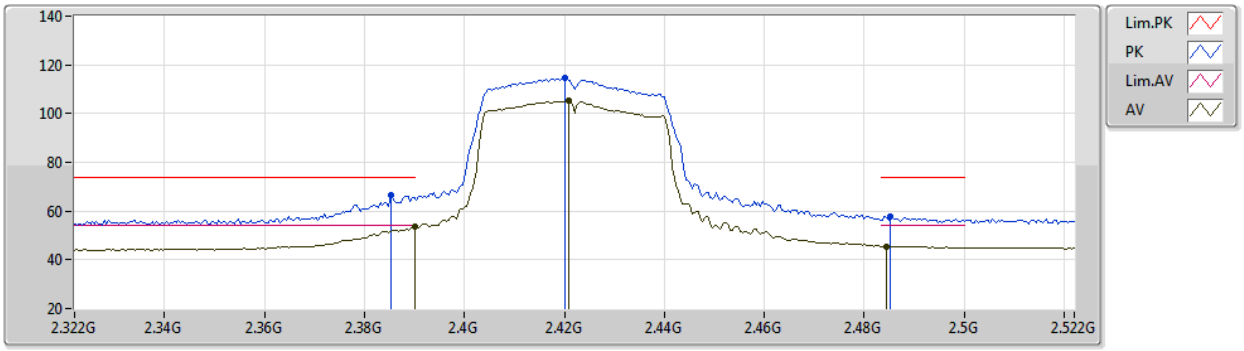
EUT Y_3TX
Setting 29
04-E-P-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.9246G	54.76	74.00	-19.24	49.70	3	Horizontal	4	1.83	-	32.95	4.98	32.87
AV	4.9241G	40.68	54.00	-13.32	35.62	3	Horizontal	4	1.83	-	32.95	4.98	32.87
PK	7.39058G	52.37	74.00	-21.63	41.92	3	Horizontal	322	1.80	-	37.59	6.26	33.40
AV	7.39084G	38.07	54.00	-15.93	27.62	3	Horizontal	322	1.80	-	37.59	6.26	33.40

VHT40-BF_Nss1,(MCS0)_3TX

2422MHz_TX

08/06/2020



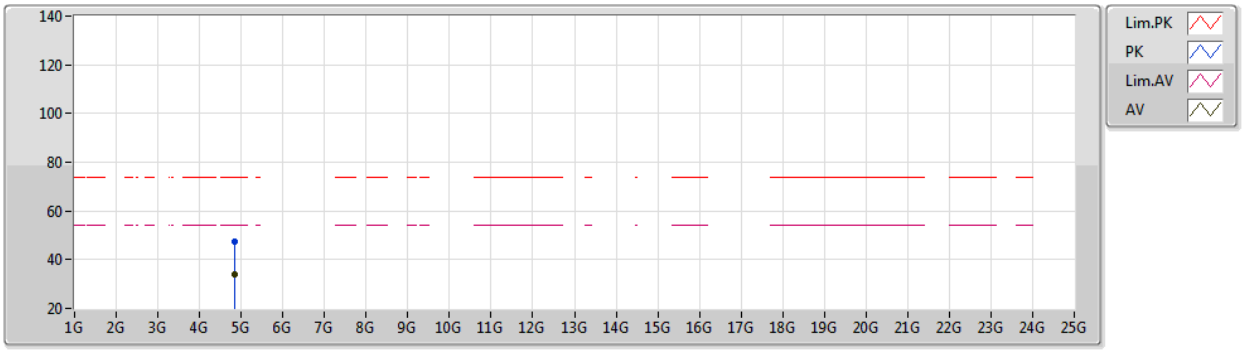
EUT Y_3TX
Setting 27
04-E-P-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.3852G	66.61	74.00	-7.39	36.25	3	Vertical	178	2.51	-	27.51	2.85	-
AV	2.39G	53.64	54.00	-0.36	23.28	3	Vertical	178	2.51	-	27.51	2.85	-
PK	2.42G	114.61	Inf	-Inf	84.16	3	Vertical	178	2.51	-	27.58	2.87	-
AV	2.4208G	105.31	Inf	-Inf	74.86	3	Vertical	178	2.51	-	27.58	2.87	-
PK	2.4852G	57.52	74.00	-16.48	26.77	3	Vertical	178	2.51	-	27.84	2.91	-
AV	2.4844G	45.54	54.00	-8.46	14.79	3	Vertical	178	2.51	-	27.84	2.91	-

VHT40-BF_Nss1,(MCS0)_3TX

2422MHz_TX

08/06/2020



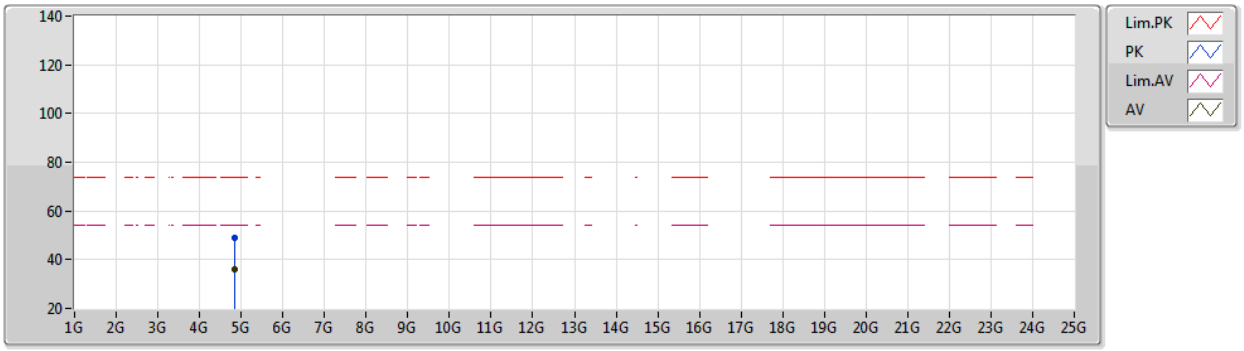
EUT Y_3TX
Setting 27
04-E-P-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.8488G	47.54	74.00	-26.46	42.78	3	Vertical	316	2.39	-	32.70	4.94	32.88
AV	4.85G	34.13	54.00	-19.87	29.35	3	Vertical	316	2.39	-	32.70	4.95	32.87

VHT40-BF_Nss1,(MCS0)_3TX

2422MHz_TX

08/06/2020



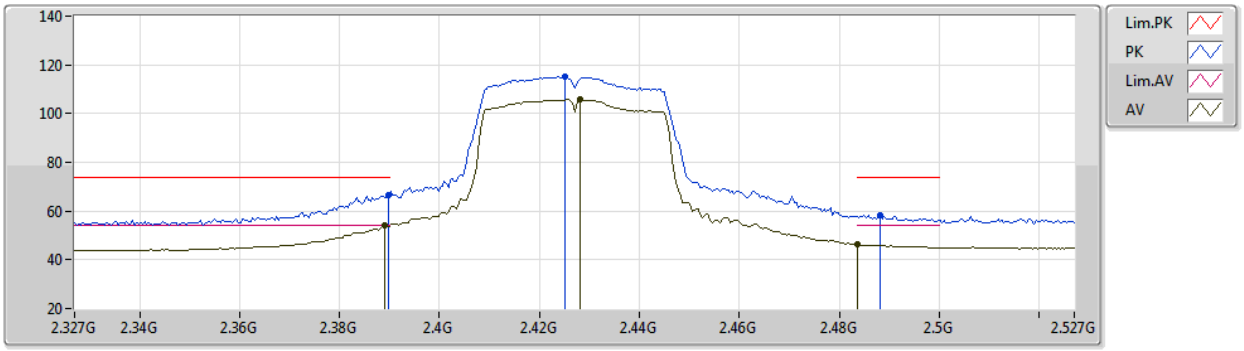
EUT Y_3TX
Setting 27
04-E-P-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.8436G	49.12	74.00	-24.88	44.39	3	Horizontal	0	1.80	-	32.67	4.94	32.88
AV	4.844G	36.13	54.00	-17.87	31.39	3	Horizontal	0	1.80	-	32.68	4.94	32.88

VHT40-BF_Nss1,(MCS0)_3TX

2427MHz_TX

08/06/2020



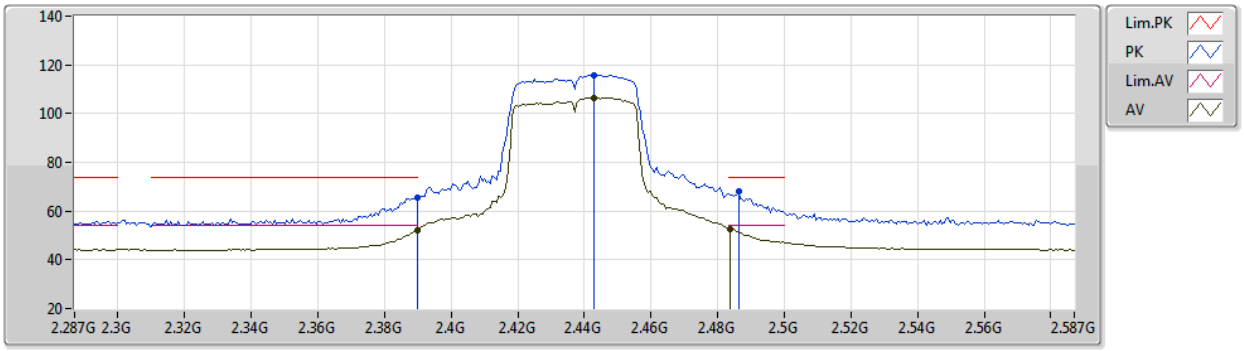
EUT Y_3TX
Setting 28
04-E-P-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.3898G	66.76	74.00	-7.24	36.40	3	Vertical	183	2.56	-	27.51	2.85	-
AV	2.389G	53.91	54.00	-0.09	23.55	3	Vertical	183	2.56	-	27.51	2.85	-
PK	2.425G	115.40	Inf	-Inf	84.93	3	Vertical	183	2.56	-	27.60	2.87	-
AV	2.4282G	106.04	Inf	-Inf	75.55	3	Vertical	183	2.56	-	27.61	2.88	-
PK	2.4882G	58.19	74.00	-15.81	27.43	3	Vertical	183	2.56	-	27.85	2.91	-
AV	2.4835G	46.24	54.00	-7.76	15.50	3	Vertical	183	2.56	-	27.83	2.91	-

VHT40-BF_Nss1,(MCS0)_3TX

2437MHz_TX

08/06/2020



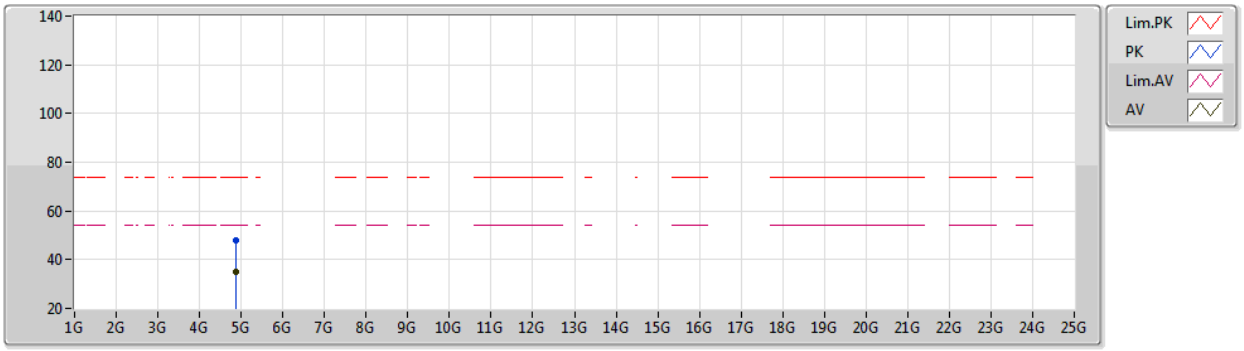
EUT Y_3TX
Setting 31
04-E-P-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.39G	65.58	74.00	-8.42	35.22	3	Vertical	186	2.27	-	27.51	2.85	-
AV	2.39G	52.27	54.00	-1.73	21.91	3	Vertical	186	2.27	-	27.51	2.85	-
PK	2.443G	115.84	Inf	-Inf	85.28	3	Vertical	186	2.27	-	27.67	2.89	-
AV	2.443G	106.63	Inf	-Inf	76.07	3	Vertical	186	2.27	-	27.67	2.89	-
PK	2.4862G	68.12	74.00	-5.88	37.37	3	Vertical	186	2.27	-	27.84	2.91	-
AV	2.4838G	52.65	54.00	-1.35	21.90	3	Vertical	186	2.27	-	27.84	2.91	-

VHT40-BF_Nss1,(MCS0)_3TX

2437MHz_TX

08/06/2020



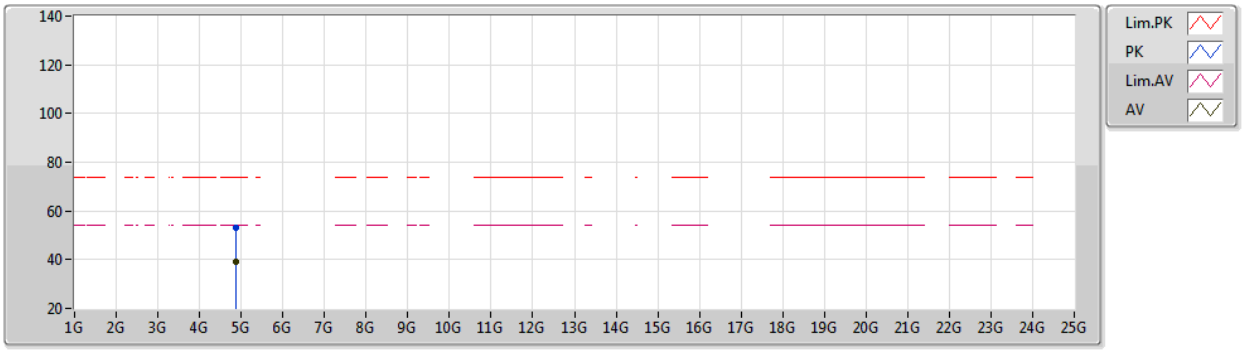
EUT Y_3TX
Setting 31
04-E-P-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.885G	48.06	74.00	-25.94	43.13	3	Vertical	332	1.80	-	32.84	4.96	32.87
AV	4.8808G	35.24	54.00	-18.76	30.33	3	Vertical	332	1.80	-	32.82	4.96	32.87

VHT40-BF_Nss1,(MCS0)_3TX

2437MHz_TX

08/06/2020



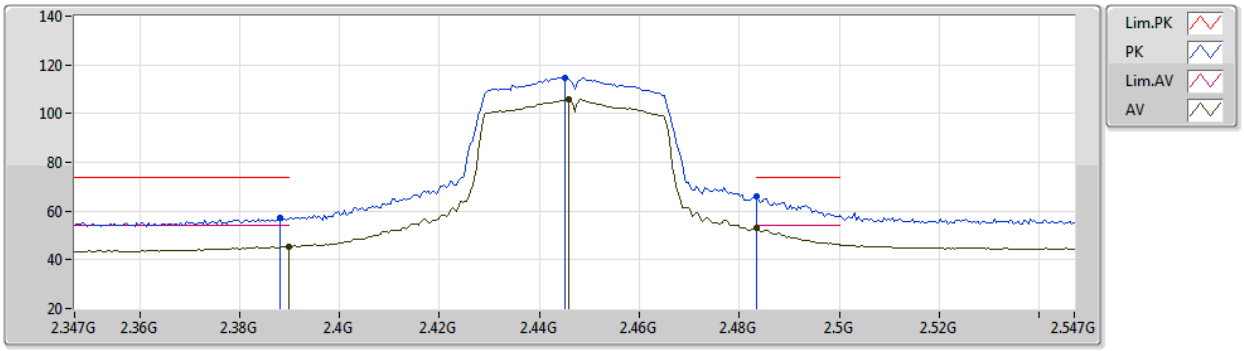
EUT Y_3TX
Setting 31
04-E-P-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.8722G	53.20	74.00	-20.80	48.32	3	Horizontal	348	1.80	-	32.79	4.96	32.87
AV	4.8752G	39.14	54.00	-14.86	34.25	3	Horizontal	348	1.80	-	32.80	4.96	32.87

VHT40-BF_Nss1,(MCS0)_3TX

2447MHz_TX

08/06/2020



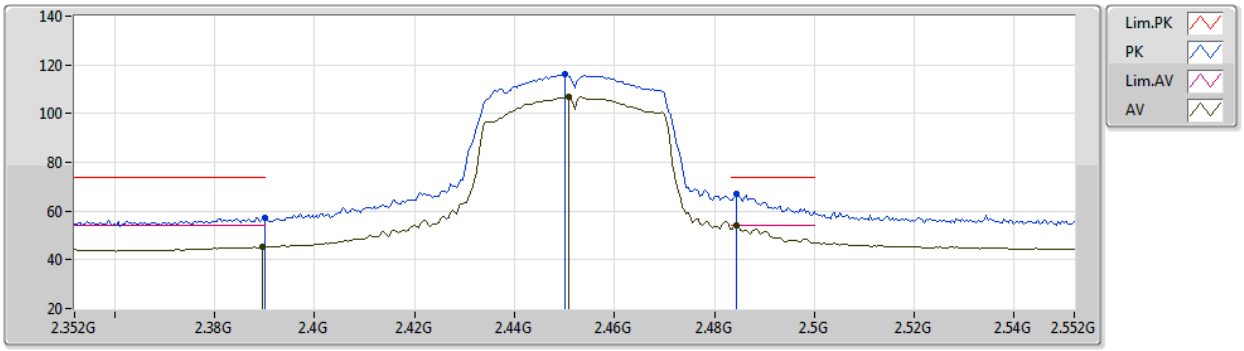
EUT Y_3TX
Setting 28
04-E-P-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.3882G	57.31	74.00	-16.69	26.95	3	Vertical	360	2.54	-	27.51	2.85	-
AV	2.3898G	45.45	54.00	-8.55	15.09	3	Vertical	360	2.54	-	27.51	2.85	-
PK	2.445G	114.91	Inf	-Inf	84.34	3	Vertical	360	2.54	-	27.68	2.89	-
AV	2.4458G	105.75	Inf	-Inf	75.18	3	Vertical	360	2.54	-	27.68	2.89	-
PK	2.4835G	65.91	74.00	-8.09	35.17	3	Vertical	360	2.54	-	27.83	2.91	-
AV	2.4835G	53.21	54.00	-0.79	22.47	3	Vertical	360	2.54	-	27.83	2.91	-

VHT40-BF_Nss1,(MCS0)_3TX

2452MHz_TX

08/06/2020



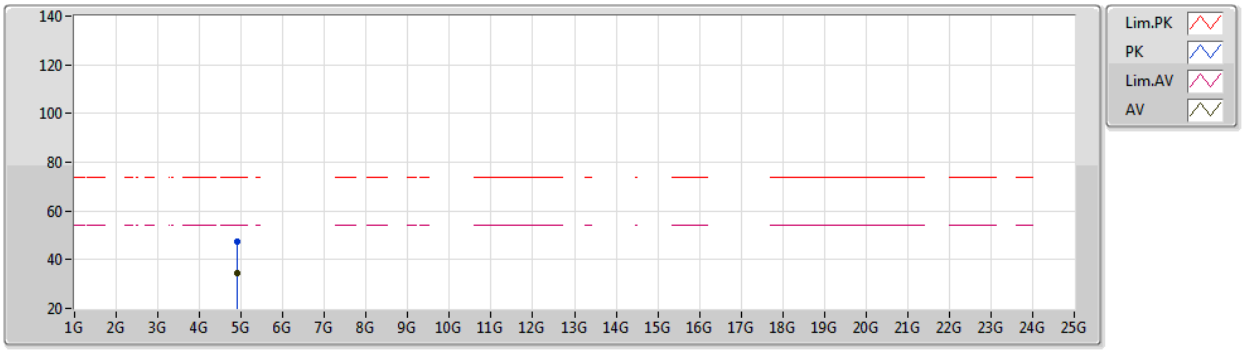
EUT Y_3TX
Setting 27
04-E-P-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.39G	57.23	74.00	-16.77	26.87	3	Vertical	185	2.29	-	27.51	2.85	-
AV	2.3896G	45.18	54.00	-8.82	14.82	3	Vertical	185	2.29	-	27.51	2.85	-
PK	2.45G	115.97	Inf	-Inf	85.38	3	Vertical	185	2.29	-	27.70	2.89	-
AV	2.4508G	106.94	Inf	-Inf	76.35	3	Vertical	185	2.29	-	27.70	2.89	-
PK	2.4844G	67.22	74.00	-6.78	36.47	3	Vertical	185	2.29	-	27.84	2.91	-
AV	2.4844G	53.89	54.00	-0.11	23.14	3	Vertical	185	2.29	-	27.84	2.91	-

VHT40-BF_Nss1,(MCS0)_3TX

2452MHz_TX

08/06/2020



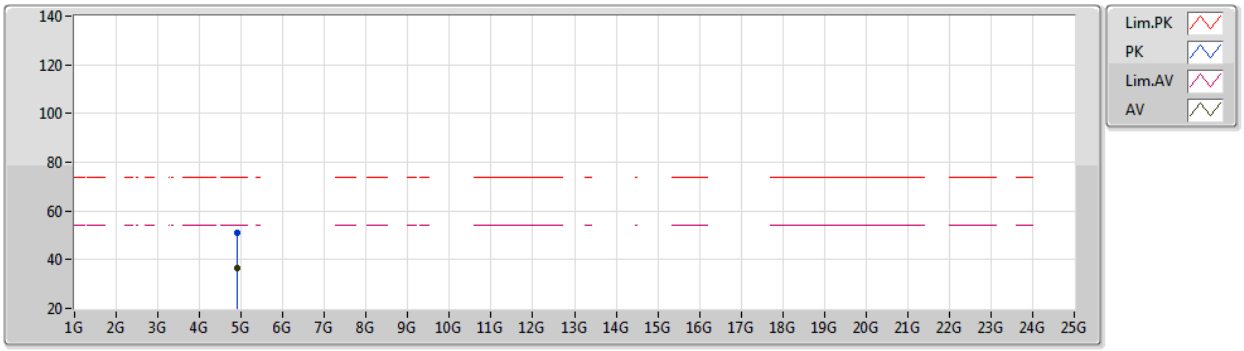
EUT Y_3TX
Setting 27
04-E-P-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.9102G	47.58	74.00	-26.42	42.55	3	Vertical	322	2.58	-	32.92	4.98	32.87
AV	4.9083G	34.69	54.00	-19.31	29.67	3	Vertical	322	2.58	-	32.92	4.97	32.87

VHT40-BF_Nss1,(MCS0)_3TX

2452MHz_TX

08/06/2020



EUT Y_3TX
Setting 27
04-E-P-2

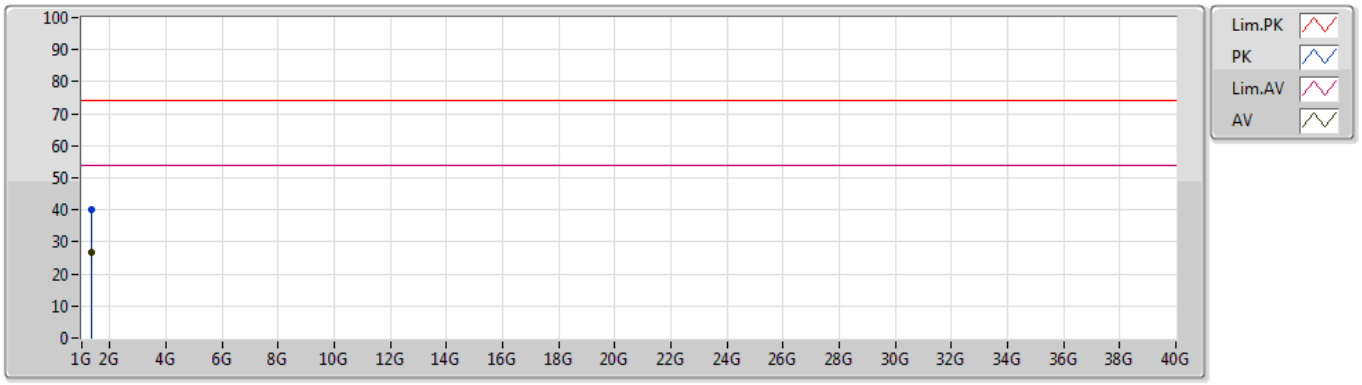
Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.9034G	50.91	74.00	-23.09	45.90	3	Horizontal	5	1.80	-	32.91	4.97	32.87
AV	4.904G	36.44	54.00	-17.56	31.43	3	Horizontal	5	1.80	-	32.91	4.97	32.87

Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 1	Pass	AV	1.34013G	26.68	54.00	-27.32	Vertical

Mode 1

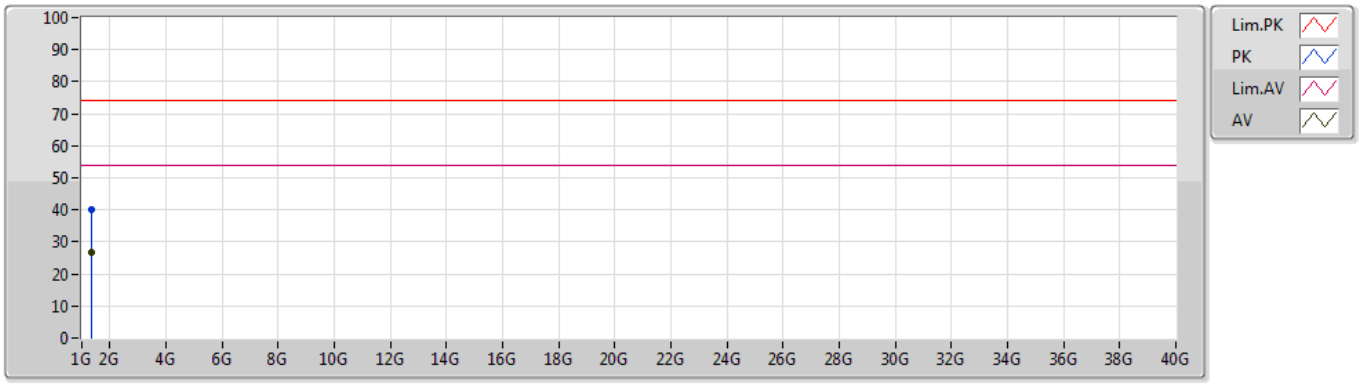
10/06/2020



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
PK	1.33886G	39.99	74.00	-34.01	-5.97	3	Vertical	358	1.00	-	45.96	25.04	3.45	34.46
AV	1.34013G	26.68	54.00	-27.32	-5.97	3	Vertical	358	1.00	"Worst"	32.65	25.04	3.45	34.46

Mode 1

10/06/2020



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
PK	1.33895G	40.18	74.00	-33.82	-5.97	3	Horizontal	51	1.03	-	46.15	25.04	3.45	34.46
AV	1.34037G	26.68	54.00	-27.32	-5.97	3	Horizontal	51	1.03	"Worst"	32.65	25.04	3.45	34.46