



FCC RADIO TEST REPORT

FCC ID : G95-CGA4236
Equipment : Cable Modem DOCSIS 3.1
Trade Name : technicolor
Model Number : CGA4236
Product Code : CGA4236VGW-TCH3;CGA4236DGW-TCH3;
CGA4236-TCH2
(Refer to section 1.1.5 for detail information)
Applicant : Technicolor Connected Home USA LLC
5030 Sugarloaf Parkway, Building 6,
Lawrenceville, Georgia, United States
Manufacturer : Technicolor Connected Home USA LLC
5030 Sugarloaf Parkway, Building 6,
Lawrenceville, Georgia, United States
Standard : 47 CFR FCC Part 15.247

The product was received on Apr. 09, 2020, and testing was started from May 05, 2020 and completed on Jul. 21, 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 variant 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.)



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Photographs of EUT v01



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	15.247(a)	DTS Bandwidth	PASS	-
3.2	15.247(b)	Maximum Conducted Output Power	PASS	-
3.3	15.247(e)	Power Spectral Density	PASS	-
3.4	15.247(d)	Emissions in Non-restricted Frequency Bands	PASS	-
3.5	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: Cindy Peng



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, ax (HEW20)	2412-2462	1-11 [11]
2400-2483.5	n (HT40), VHT40, ax (HEW40)	2422-2452	3-9 [7]

Band	Mode	BWch (MHz)	Nant
2.4-2.4835GHz	11b	20	3TX
2.4-2.4835GHz	11g	20	3TX
2.4-2.4835GHz	n (HT20)	20	3TX
2.4-2.4835GHz	n (HT20)-BF	20	3TX
2.4-2.4835GHz	VHT20	20	3TX
2.4-2.4835GHz	VHT20-BF	20	3TX
2.4-2.4835GHz	ax (HEW20)	20	3TX
2.4-2.4835GHz	ax (HEW20)-BF	20	3TX
2.4-2.4835GHz	n (HT40)	40	3TX
2.4-2.4835GHz	n (HT40)-BF	40	3TX
2.4-2.4835GHz	VHT40	40	3TX
2.4-2.4835GHz	VHT40-BF	40	3TX
2.4-2.4835GHz	ax (HEW40)	40	3TX
2.4-2.4835GHz	ax (HEW40)-BF	40	3TX

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, 1024QAM modulation.
- ♦ HEW20, HEW40 use a combination of OFDMA-BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM modulation.
- ♦ BWch is the nominal channel bandwidth.

**1.1.2 Antenna Information**

Ant.	Port	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	1	TCH	1415-07JS0V8	Dipole Antenna	N/A	Note 1
2	2	TCH	1415-07JT0V8	Dipole Antenna	N/A	
3	3	TCH	1415-07JR0V8	Dipole Antenna	N/A	
4	1	TCH	1415-07JV0V8	Dipole Antenna	N/A	
5	2	TCH	1415-07JU0V8	Dipole Antenna	N/A	
6	3	TCH	1415-07JV0V8	Dipole Antenna	N/A	
7	4	TCH	1415-07JU0V8	Dipole Antenna	N/A	

Note 1:

Ant.	Uncorrelated Gain (dBi)		
	2.4GHz	5GHz Band 1	5GHz Band 4
1	2.35	-	-
2	3.32	-	-
3	2.87	-	-
4	-	2.90	4.64
5	-	3.42	2.20
6	-	2.92	2.48
7	-	2.68	3.51
Correlated Gain (dBi)	6.01	6.63	7.30

Note 2: The above information was declared by manufacturer.

For 2.4GHz function:

For IEEE 802.11b/g/n/VHT/ax mode (3TX/3RX)

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

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

For 5GHz function:

For IEEE 802.11a/n/ac/ax mode (4TX/4RX)

Ant. 4, Ant. 5, Ant. 6 and Ant. 7 can be used as transmitting/receiving antenna.

Ant. 4, Ant. 5, Ant. 6 and Ant. 7 could transmit/receive simultaneously.



1.1.3 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
802.11ax HEW20-BF	0.973	0.12	2.926m	1k
802.11ax HEW40-BF	0.978	0.10	4.539m	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	<input checked="" type="checkbox"/>	With beamforming for 2.4GHz: 802.11n/VHT/ax, 5GHz: 802.11n/ac/ax	<input type="checkbox"/>	Without beamforming
Function	<input checked="" type="checkbox"/>	Point-to-multipoint	<input type="checkbox"/>	Point-to-point
Test Software Version	accessMTool (3.2.0.0)			
Firmware Version	Broadcom BCA: 17.10 RC121.11 wl0: Feb 19 2020 10:51:50 version 17.10.121.11 (r783116 WLTEST)			

Note: The above information was declared by manufacturer.

1.1.5 Table for Multiple Listing

Product Code	Description
CGA4236VGW-TCH3	All the product code are identical, the difference product code as marketing strategy.
CGA4236DGW-TCH3	
CGA4236-TCH2	

From the above list, product code: CGA4236VGW-TCH3 was selected as representative model for the test and its data was recorded in this report.

1.1.6 Table for Class II Change

This product is an extension of original one reported under Sporton project number: FR041508AA

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

Modifications	Performance Checking
Adding beam-forming function for 2.4GHz: 802.11n/VHT/ax, 5GHz: 802.11n/ac/ax.	<ol style="list-style-type: none"> 1. DTS Bandwidth. 2. Maximum Conducted Output Power. 3. Power Spectral Density. 4. Emissions in Non-restricted Frequency Bands. 5. Emissions in Restricted Frequency Bands Above 1GHz



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

1.3 Testing Location Information

Testing Location		
<input type="checkbox"/>	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
<input checked="" type="checkbox"/>	JHUBEI	ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C. TEL : 886-3-656-9065 FAX : 886-3-656-9085

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
RF Conducted	TH01-CB	Paul Chen	21.8~23.2°C / 55~58%	May 05, 2020~Jul. 21, 2020
Radiated	03CH03-CB	Paul Chen	24.9~25.8°C / 58~62%	Jul. 16, 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
Radiated Emission (1GHz ~ 18GHz)	4.9 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	4.6 dB	Confidence levels of 95%
Conducted Emission	2.8 dB	Confidence levels of 95%
Output Power Measurement	1.4 dB	Confidence levels of 95%
Power Density Measurement	2.8 dB	Confidence levels of 95%
Bandwidth Measurement	0.39%	Confidence levels of 95%



2 Test Configuration of EUT

2.1 Test Channel Mode

Mode	Power Setting
802.11ax HEW20-BF_Nss1,(MCS0)_3TX	-
2412MHz	80
2417MHz	91
2437MHz	96
2457MHz	88
2462MHz	78
802.11ax HEW40-BF_Nss1,(MCS0)_3TX	-
2422MHz	70
2437MHz	80
2452MHz	71



2.2 The Worst Case Measurement Configuration

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

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.: FA041508-01 for Co-location RF Exposure Evaluation.	

Note: The EUT can be used at Y axis position only.

2.3 EUT Operation during Test

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 Wireless AP and transmit duty cycle no less than 98%.



2.4 Accessories

Accessories			
Equipment Name	Brand Name	Model Name	Rating
Adapter 1	HOIOTO	ADS-36FKJ-12 12036EPCU	INPUT: 100-240V, 50/60Hz, Max.1.0A OUTPUT: 12V, 3.0A
Adapter 2	AcBel	ADG009 AD:AD0G2	INPUT: 100-240V, 50/60Hz, MAX.1.5A OUTPUT: 12V, 4.5A
Others			
Power cord*1, Non-shielded, 1.8m (For adapter 2 use)			

2.5 Support Equipment

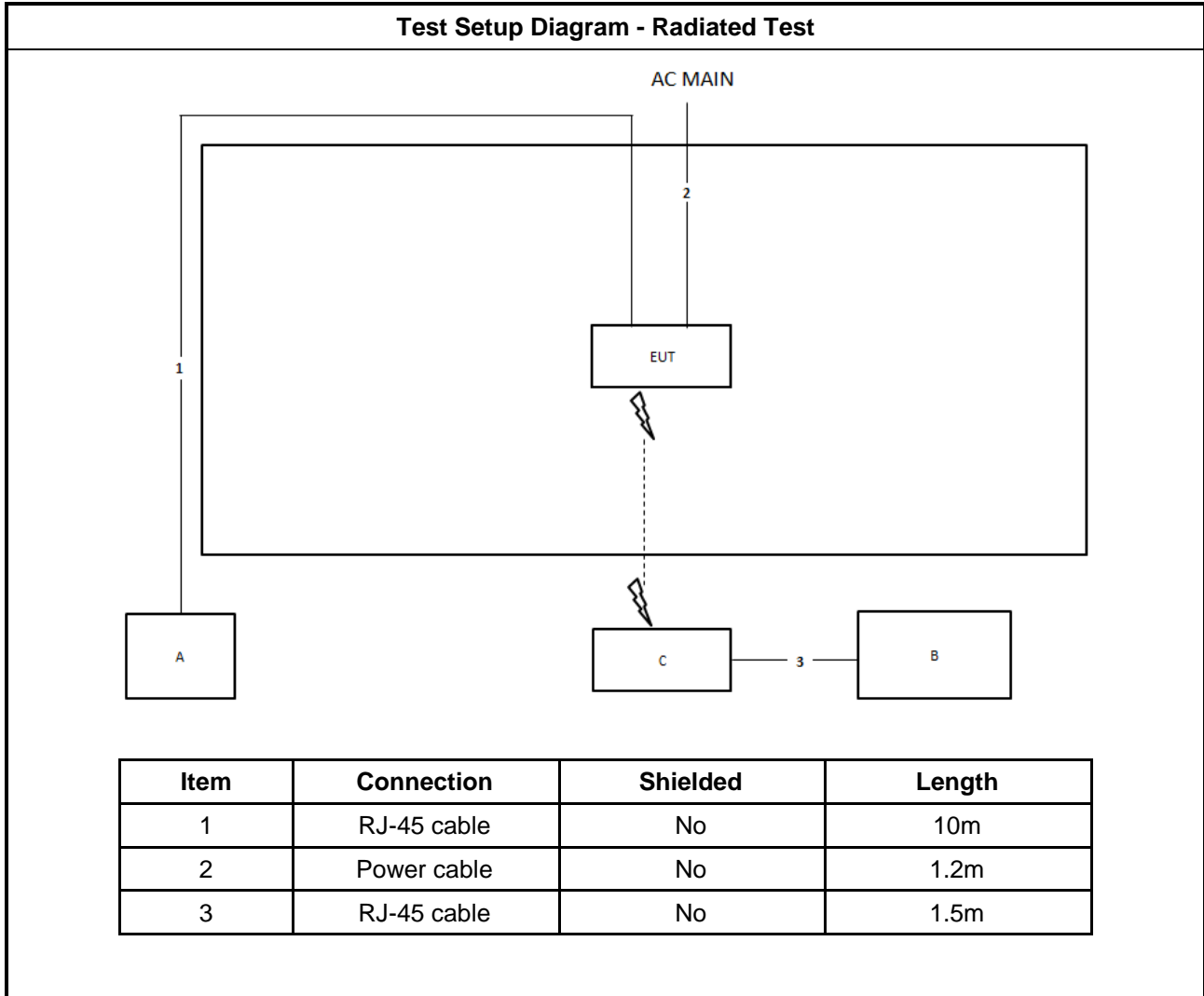
For Radiated:

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	Notebook	DELL	E4300	N/A
B	Notebook	DELL	E4300	N/A
C	WLAN AP	ASUS	RT-AX88U	MSQ-RTAXHP00

For RF Conducted:

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

2.6 Test Setup Diagram



3 Transmitter Test Result

3.1 DTS Bandwidth

3.1.1 6dB Bandwidth Limit

6dB Bandwidth Limit
Systems using digital modulation techniques:
<ul style="list-style-type: none"> ▪ 6 dB bandwidth \geq 500 kHz.

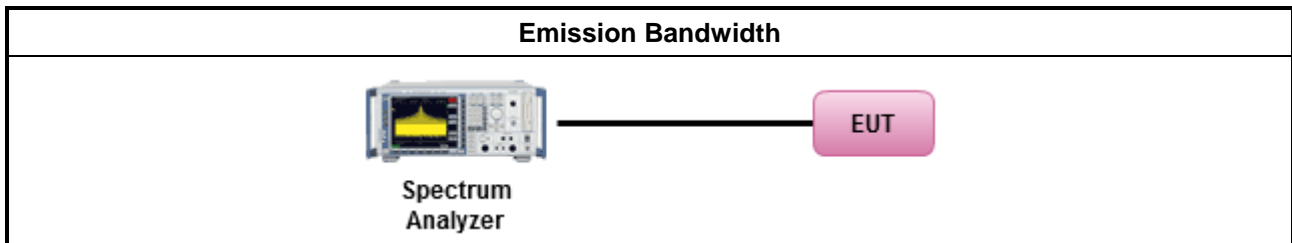
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

Test Method
<ul style="list-style-type: none"> ▪ For the emission bandwidth shall be measured using one of the options below:
<input checked="" type="checkbox"/> Refer as FCC KDB 558074, clause 8.2 & C63.10 clause 11.8.1 Option 1 for 6 dB bandwidth measurement.
<input type="checkbox"/> Refer as FCC KDB 558074, clause 8.2 & C63.10 clause 11.8.2 Option 2 for 6 dB bandwidth measurement.
<input type="checkbox"/> Refer as ANSI C63.10, clause 6.9.1 for occupied bandwidth testing.

3.1.4 Test Setup



3.1.5 Test Result of Emission Bandwidth

Refer as Appendix A



3.2 Maximum Conducted Output Power

3.2.1 Maximum Conducted Output Power Limit

Maximum Conducted Output Power Limit	
	<ul style="list-style-type: none"> ▪ If $G_{TX} \leq 6$ dBi, then $P_{Out} \leq 30$ dBm (1 W)
	<ul style="list-style-type: none"> ▪ Point-to-multipoint systems (P2M): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$ dBm
	<ul style="list-style-type: none"> ▪ Point-to-point systems (P2P): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
	<ul style="list-style-type: none"> ▪ Smart antenna system (SAS):
	<ul style="list-style-type: none"> - Single beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
	<ul style="list-style-type: none"> - Overlap beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
	<ul style="list-style-type: none"> - 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.	

3.2.2 Measuring Instruments

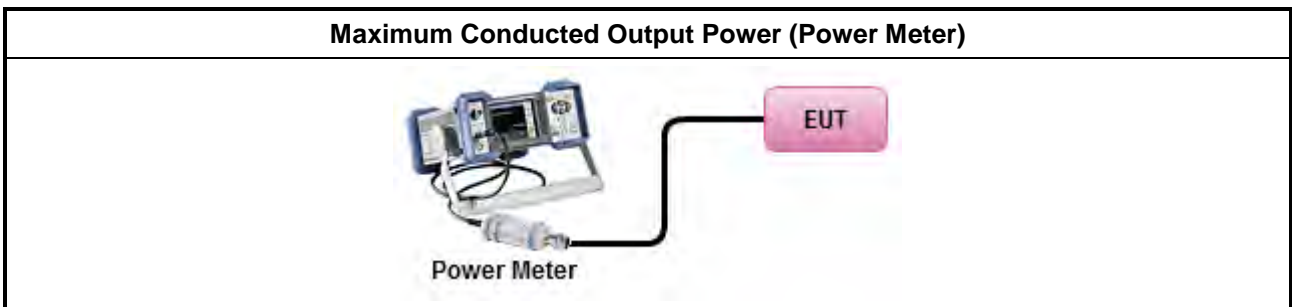
Refer a test equipment and calibration data table in this test report.

3.2.3 Test Procedures

Test Method	
	<ul style="list-style-type: none"> ▪ Maximum Peak Conducted Output Power
	<input type="checkbox"/> Refer as FCC KDB 558074, clause 8.3.1.1 & C63.10 clause 11.9.1.1 (RBW \geq EBW method).
	<input type="checkbox"/> Refer as FCC KDB 558074, clause 8.3.1.3 & C63.10 clause 11.9.1.3 (peak power meter).
	<ul style="list-style-type: none"> ▪ Maximum Conducted Output Power
	[duty cycle \geq 98% or external video / power trigger]
	<input type="checkbox"/> Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.2 Method AVGSA-1.
	<input type="checkbox"/> 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
	<input type="checkbox"/> Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.4 Method AVGSA-2.
	<input type="checkbox"/> Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.5 Method AVGSA-2A (alternative)
	<input type="checkbox"/> Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.6 Method AVGSA-3
	<input type="checkbox"/> 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)
	<input type="checkbox"/> 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).
	<input checked="" type="checkbox"/> 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).

<ul style="list-style-type: none"> For conducted measurement. 	
	<ul style="list-style-type: none"> 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.
	<ul style="list-style-type: none"> If multiple transmit chains, EIRP calculation could be following as methods: $P_{total} = P_1 + P_2 + \dots + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = P_{total} + DG$

3.2.4 Test Setup



3.2.5 Test Result of Maximum Conducted Output Power

Refer as Appendix B



3.3 Power Spectral Density

3.3.1 Power Spectral Density Limit

Power Spectral Density Limit
<ul style="list-style-type: none"> Power Spectral Density (PSD) \leq 8 dBm/3kHz

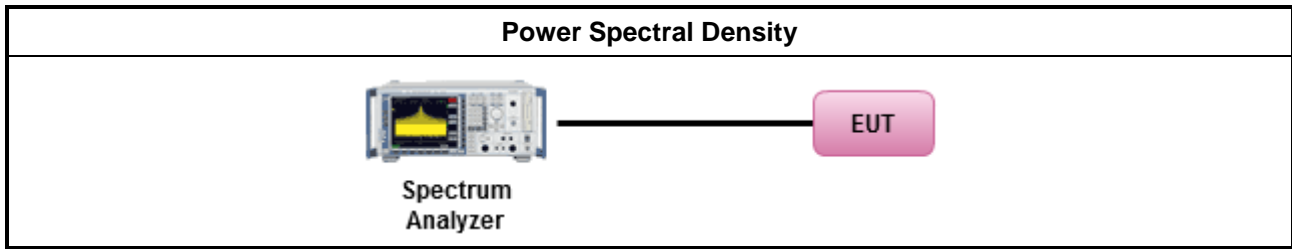
3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

Test Method			
<ul style="list-style-type: none"> 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). 			
<input checked="" type="checkbox"/> Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10 Method Max. PSD.			
<ul style="list-style-type: none"> For conducted measurement. <ul style="list-style-type: none"> If The EUT supports multiple transmit chains using options given below: <table border="1"> <tbody> <tr> <td> <input checked="" type="checkbox"/> 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. </td> </tr> <tr> <td> <input type="checkbox"/> 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, </td> </tr> <tr> <td> <input type="checkbox"/> 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. </td> </tr> </tbody> </table> 	<input checked="" type="checkbox"/> 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.	<input type="checkbox"/> 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,	<input type="checkbox"/> 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.
<input checked="" type="checkbox"/> 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.			
<input type="checkbox"/> 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,			
<input type="checkbox"/> 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.			

3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Refer as Appendix C

3.4 Emissions in Non-restricted Frequency Bands

3.4.1 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.

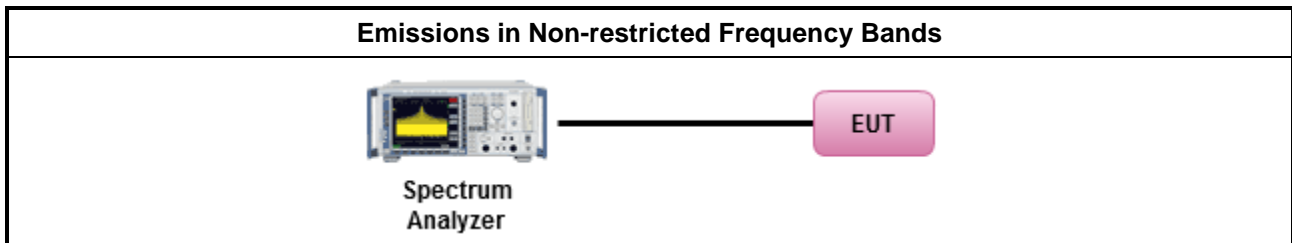
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

Test Method
<ul style="list-style-type: none"> Refer as FCC KDB 558074, clause 8.5 for unwanted emissions into non-restricted bands.

3.4.4 Test Setup



3.4.5 Test Result of Emissions in Non-restricted Frequency Bands

Refer as Appendix D



3.5 Emissions in Restricted Frequency Bands

3.5.1 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.

3.5.2 Measuring Instruments

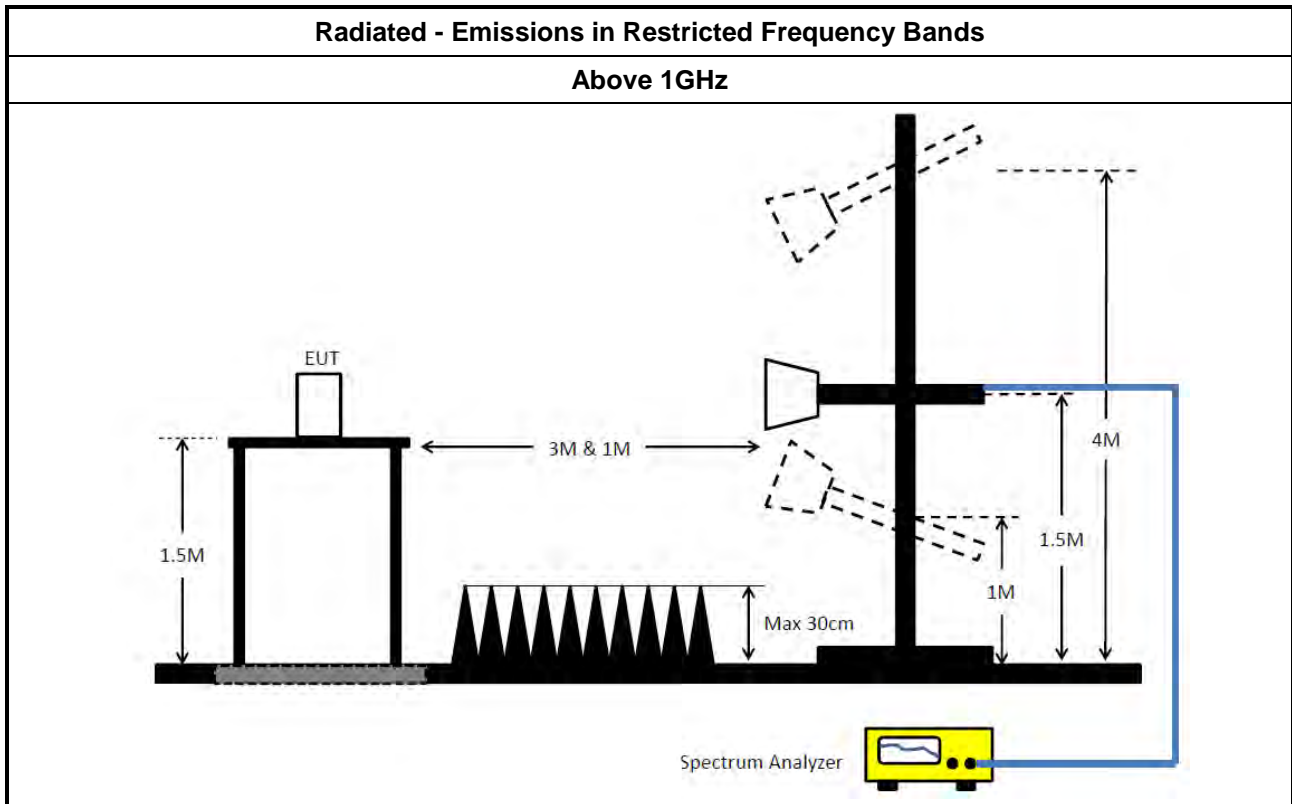
Refer a test equipment and calibration data table in this test report.



3.5.3 Test Procedures

Test Method	
<ul style="list-style-type: none"> ▪ The average emission levels shall be measured in [duty cycle \geq 98 or duty factor]. 	
<ul style="list-style-type: none"> ▪ 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. 	
<ul style="list-style-type: none"> ▪ For the transmitter unwanted emissions shall be measured using following options below: 	
	<ul style="list-style-type: none"> ▪ Refer as FCC KDB 558074, clause 8.6 for unwanted emissions into restricted bands.
	<input type="checkbox"/> Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.5.1(trace averaging for duty cycle \geq 98%).
	<input type="checkbox"/> Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.5.2(trace averaging + duty factor).
	<input checked="" type="checkbox"/> Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.5.3(Reduced VBW \geq 1/T).
	<input type="checkbox"/> Refer as ANSI C63.10, clause 11.12.2.5.3 (Reduced VBW). VBW \geq 1/T, where T is pulse time.
	<input type="checkbox"/> Refer as ANSI C63.10, clause 7.5 average value of pulsed emissions.
	<input checked="" type="checkbox"/> Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.4 measurement procedure peak limit.
<ul style="list-style-type: none"> ▪ For the transmitter band-edge emissions shall be measured using following options below: 	
	<ul style="list-style-type: none"> ▪ 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.
	<ul style="list-style-type: none"> ▪ Refer as FCC KDB 558074, clause 8.7 (ANSI C63.10, clause 6.10.6) for marker-delta method for band-edge measurements.
	<ul style="list-style-type: none"> ▪ 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).
	<ul style="list-style-type: none"> ▪ 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
	<ul style="list-style-type: none"> ▪ 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.

3.5.4 Test Setup



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 Restricted Frequency Bands

Refer as Appendix E



4 Test Equipment and Calibration Data

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
Horn Antenna	ETS • Lindgren	3115	6821	750MHz~18GHz	Jan. 20, 2020	Jan. 19, 2021	Radiation (03CH03-CB)
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170507	15GHz ~ 40GHz	Jun. 11, 2020	Jun. 10, 2021	Radiation (03CH03-CB)
Pre-Amplifier	Agilent	8449B	3008A02097	1GHz ~ 26.5GHz	Jul. 03, 2020	Jun. 02, 2021	Radiation (03CH03-CB)
Pre-Amplifier	EMCI	EMC12630SE	980383	1GHz ~ 26.5GHz	Aug. 02, 2019	Aug. 01, 2020	Radiation (03CH03-CB)
Pre-Amplifier	MITEQ	TTA1840-35-HG	1864479	18GHz ~ 40GHz	Jul. 08, 2020	Jul. 07, 2021	Radiation (03CH03-CB)
Spectrum Analyzer	R&S	FSP40	100019	9kHz ~ 40GHz	Jun. 09, 2020	Jun. 08, 2021	Radiation (03CH03-CB)
RF Cable-high	Woken	RG402	High Cable-20+27(spare)	1GHz ~ 18GHz	Jul. 03, 2020	Jul. 02, 2021	Radiation (03CH03-CB)
RF Cable-high	Woken	RG402	High Cable-27(spare)	1GHz ~ 18GHz	Jul. 03, 2020	Jul. 02, 2021	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)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	May 05, 2020	May 04, 2021	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-06	1 GHz – 26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-07	1 GHz –26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-08	1 GHz –26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-09	1 GHz –26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz –26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-28	1 GHz –26.5 GHz	Nov. 18, 2019	Nov. 17, 2020	Conducted (TH01-CB)
Power Sensor	Agilent	E9327A	US40442088	50MHz~18GHz	Feb. 07, 2020	Feb. 06, 2021	Conducted (TH01-CB)
Power Meter	Agilent	E4416A	GB41291199	50MHz~18GHz	Feb. 07, 2020	Feb. 06, 2021	Conducted (TH01-CB)

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



Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_3TX	18.95M	19.14M	19M1D1D	18.7M	18.991M
802.11ax HEW40-BF_Nss1,(MCS0)_3TX	37.55M	37.531M	37M5D1D	36.85M	37.481M

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)
802.11ax HEW20-BF_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-
2412MHz	Pass	500k	18.925M	19.015M	18.95M	19.04M	18.7M	19.04M
2437MHz	Pass	500k	18.85M	19.09M	18.925M	19.14M	18.875M	19.09M
2462MHz	Pass	500k	18.95M	18.991M	18.95M	19.04M	18.7M	19.04M
802.11ax HEW40-BF_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-
2422MHz	Pass	500k	37.55M	37.481M	37.05M	37.481M	37.55M	37.531M
2437MHz	Pass	500k	37.55M	37.481M	37.15M	37.531M	37.55M	37.531M
2452MHz	Pass	500k	37.55M	37.531M	36.85M	37.481M	37.55M	37.481M

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

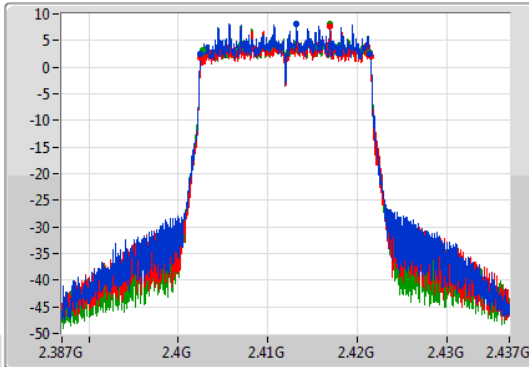
802.11ax HEW20-BF_Nss1,(MCS0)_3TX

EBW

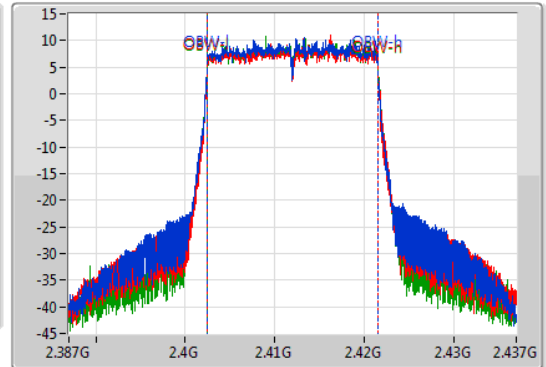
2412MHz

21/07/2020

CF
2.412GHz
Span
50MHz
RBW
100kHz
VBW
300kHz
Sweep Time
100ms
Detector Type
Peak



CF
2.412GHz
Span
50MHz
RBW
200kHz
VBW
1MHz
Sweep Time
100ms
Detector Type
Peak



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
18.925M	2.402525G	2.42145G	19.015M	2.40248G	2.421495G	500k	1
18.95M	2.402525G	2.421475G	19.04M	2.402505G	2.421545G	500k	2
18.7M	2.40275G	2.42145G	19.04M	2.40248G	2.42152G	500k	3

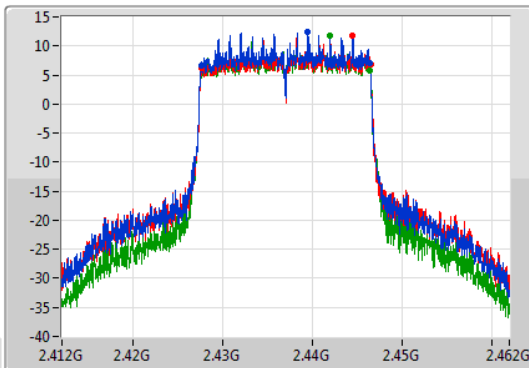
802.11ax HEW20-BF_Nss1,(MCS0)_3TX

EBW

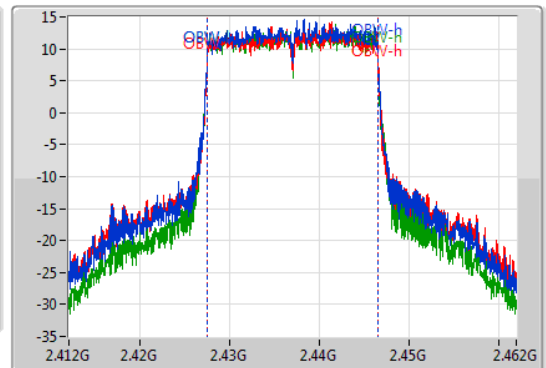
2437MHz

21/07/2020

CF
2.437GHz
Span
50MHz
RBW
100kHz
VBW
300kHz
Sweep Time
100ms
Detector Type
Peak



CF
2.437GHz
Span
50MHz
RBW
200kHz
VBW
1MHz
Sweep Time
100ms
Detector Type
Peak



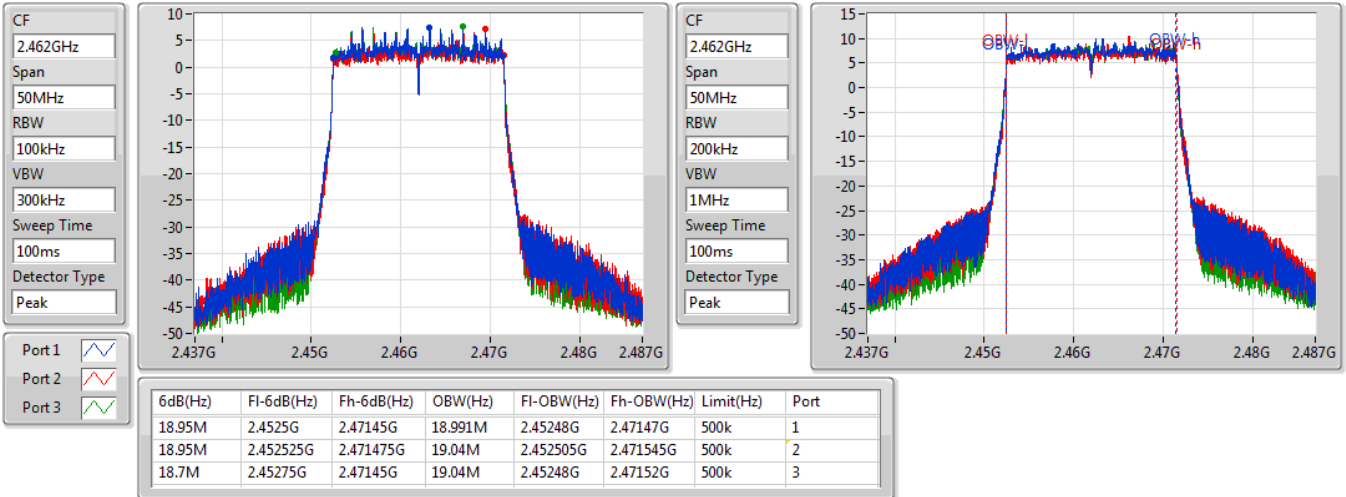
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
18.85M	2.427575G	2.446425G	19.09M	2.427455G	2.446545G	500k	1
18.925M	2.42755G	2.446475G	19.14M	2.427455G	2.446595G	500k	2
18.875M	2.427575G	2.44645G	19.09M	2.42748G	2.44657G	500k	3

802.11ax HEW20-BF_Nss1,(MCS0)_3TX

EBW

2462MHz

21/07/2020

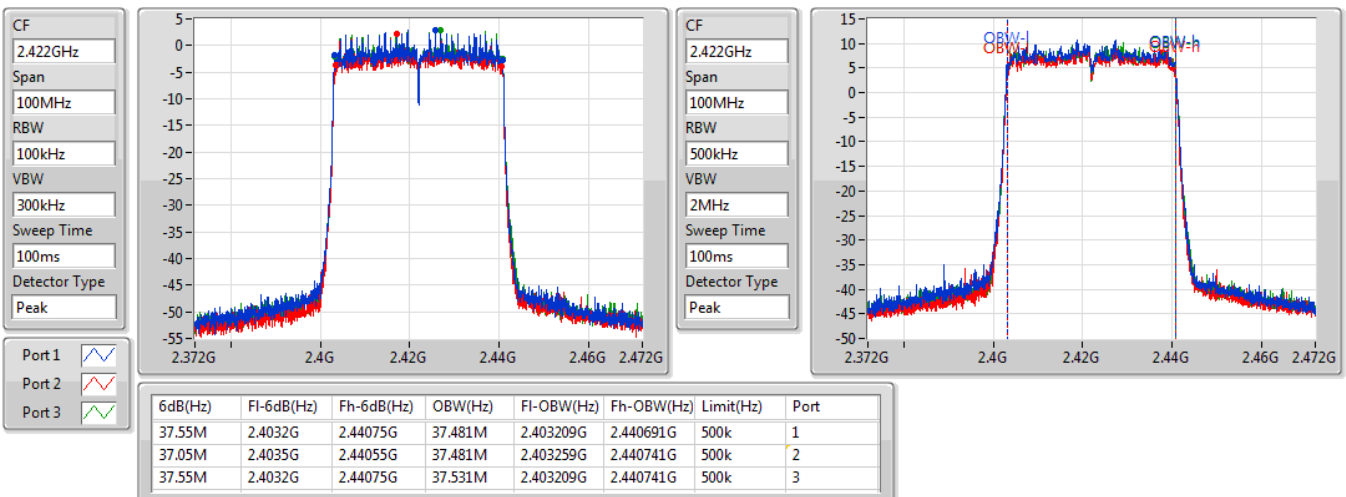


802.11ax HEW40-BF_Nss1,(MCS0)_3TX

EBW

2422MHz

21/07/2020

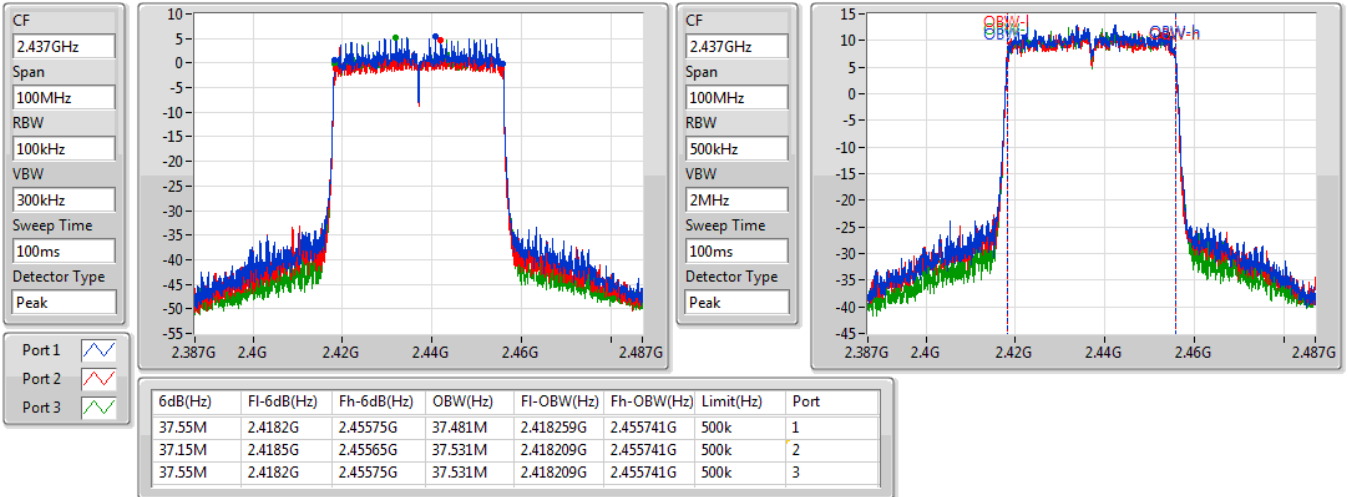


802.11ax HEW40-BF_Nss1,(MCS0)_3TX

EBW

2437MHz

21/07/2020

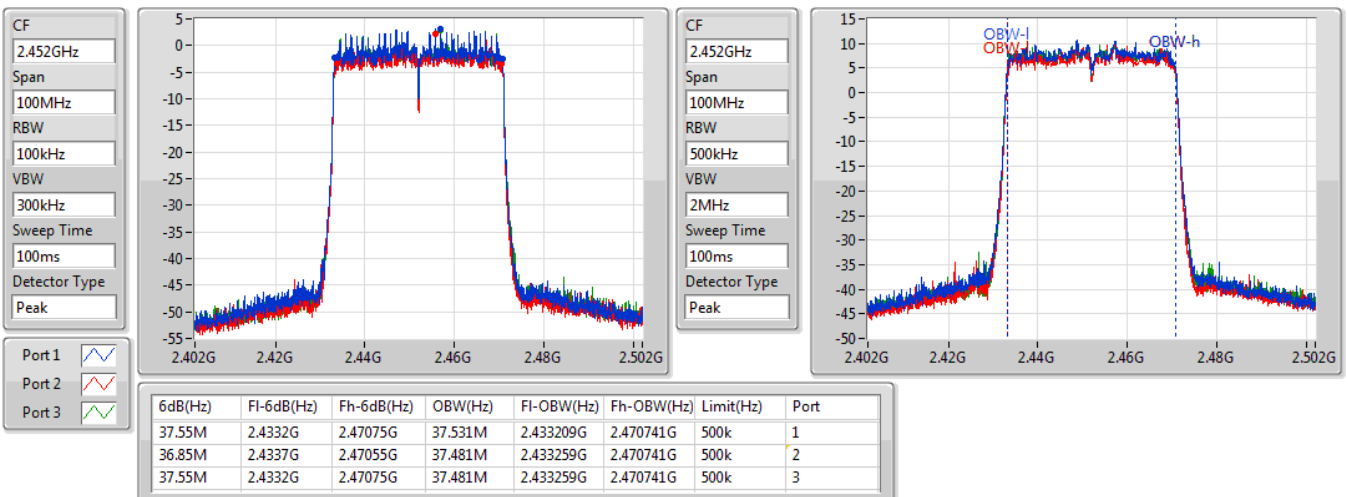


802.11ax HEW40-BF_Nss1,(MCS0)_3TX

EBW

2452MHz

21/07/2020





Average Power Result

Appendix B

Summary

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_3TX	28.53	0.71285
802.11ax HEW40-BF_Nss1,(MCS0)_3TX	24.57	0.28642



Average Power Result

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Port 3 (dBm)	Total Power (dBm)	Power Limit (dBm)
802.11ax HEW20-BF_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-
2412MHz	Pass	6.01	20.38	19.63	20.02	24.79	29.99
2417MHz	Pass	6.01	23.04	22.47	22.30	27.39	29.99
2437MHz	Pass	6.01	24.14	23.65	23.45	28.53	29.99
2457MHz	Pass	6.01	21.93	21.73	21.90	26.63	29.99
2462MHz	Pass	6.01	19.43	19.02	19.34	24.04	29.99
802.11ax HEW40-BF_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-
2422MHz	Pass	6.01	17.55	16.81	17.68	22.13	29.99
2437MHz	Pass	6.01	20.12	19.56	19.70	24.57	29.99
2452MHz	Pass	6.01	18.02	16.99	17.63	22.34	29.99

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



Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
802.11ax HEW20-BF_Nss1,(MCS0)_3TX	1.57
802.11ax HEW40-BF_Nss1,(MCS0)_3TX	-5.02

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

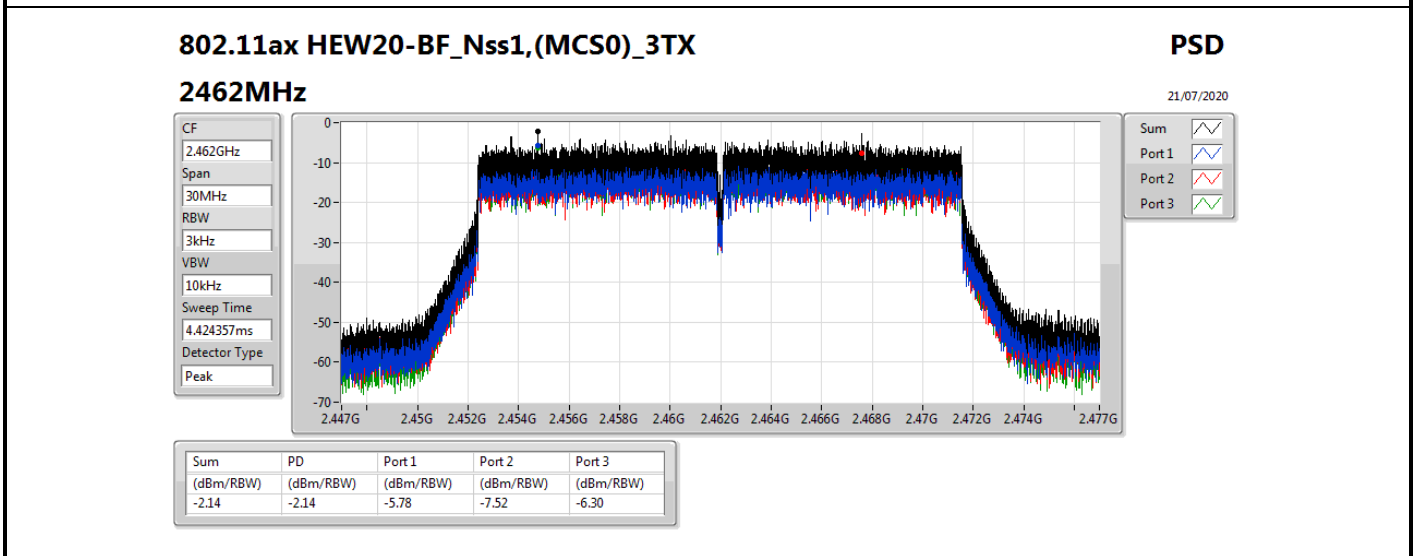
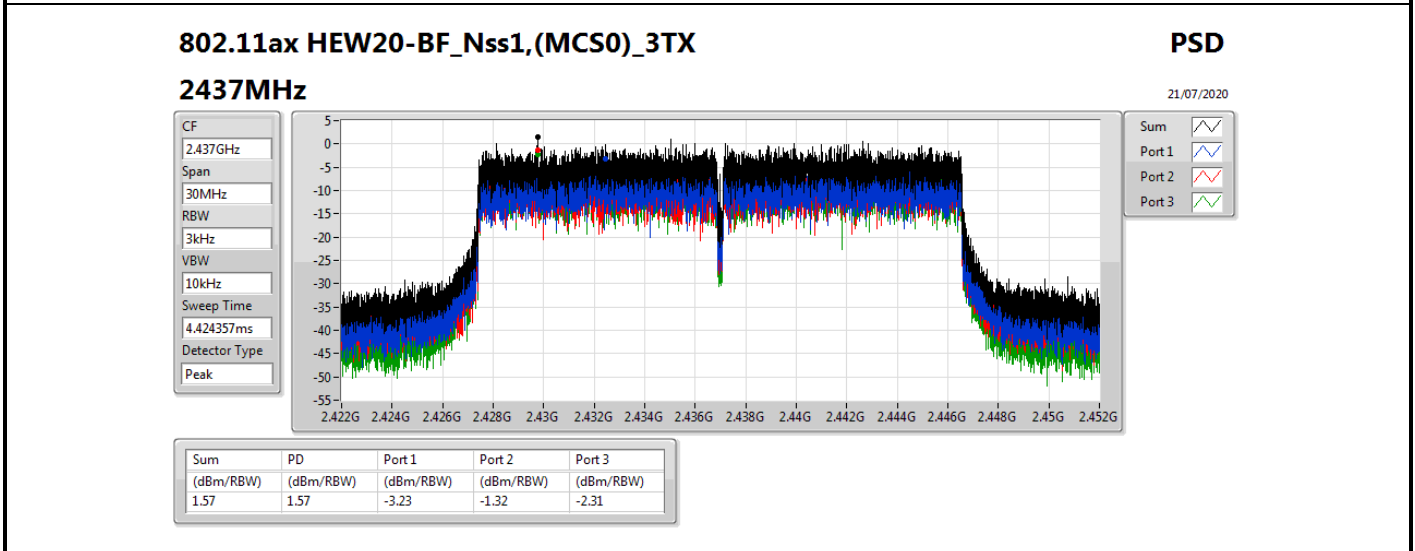
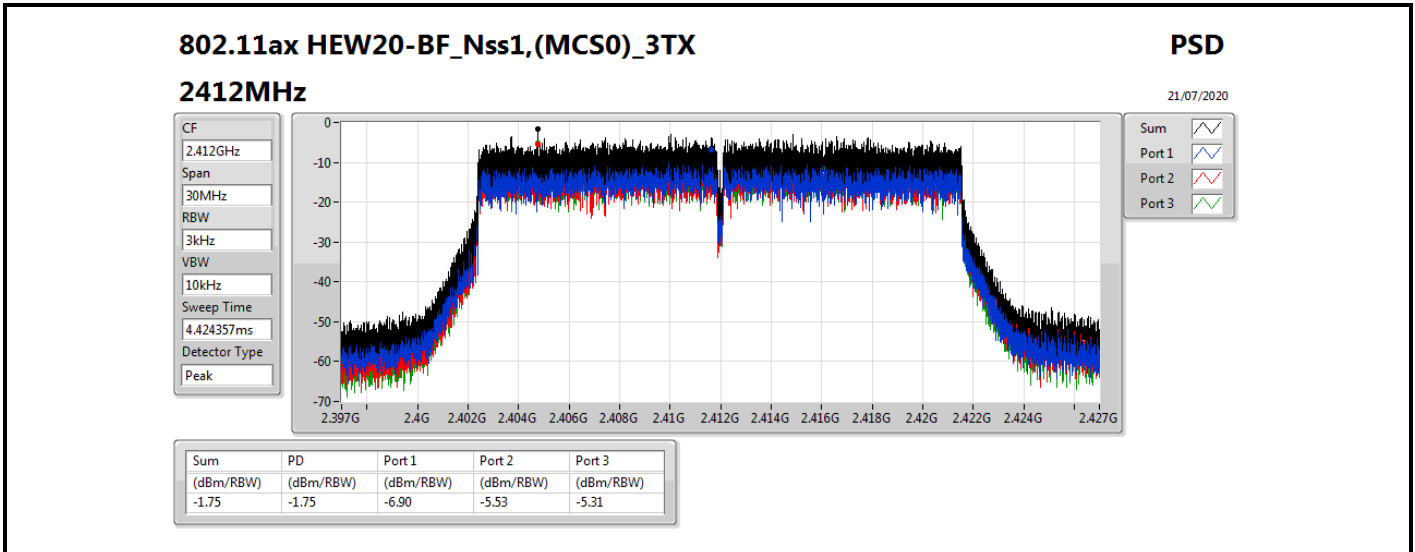


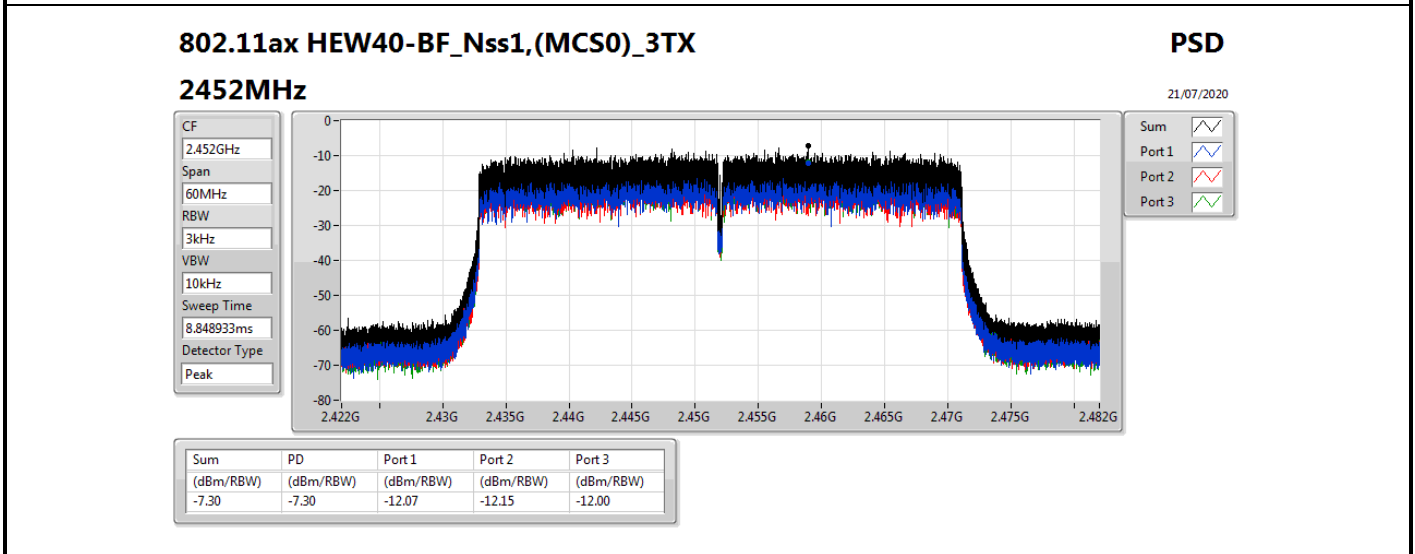
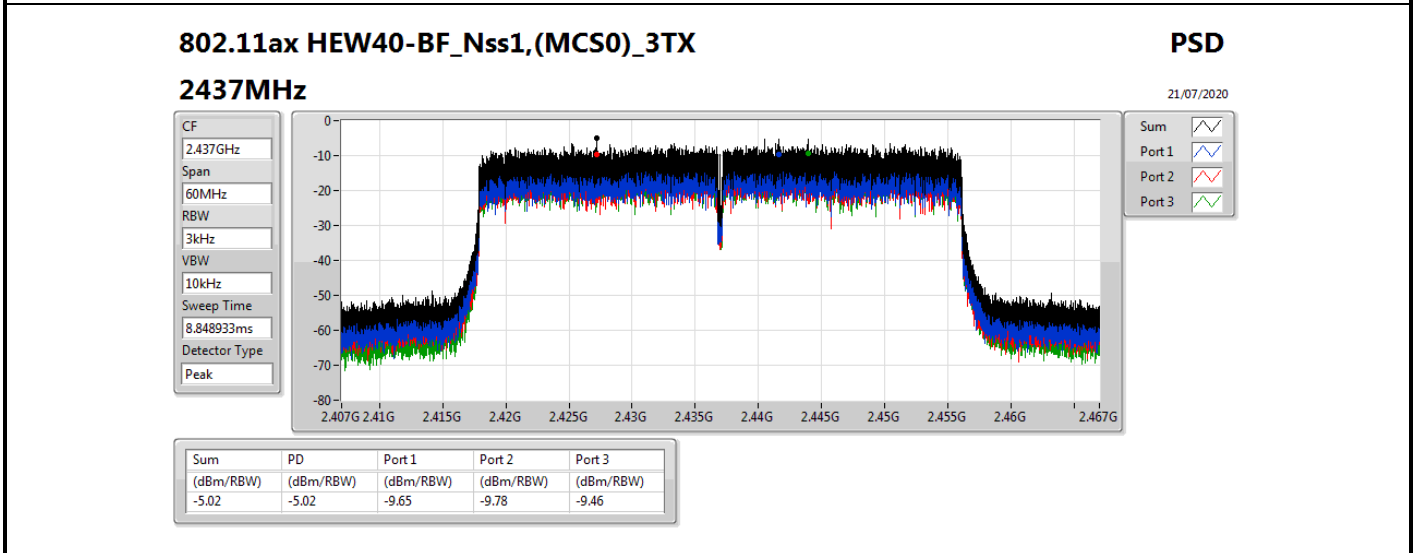
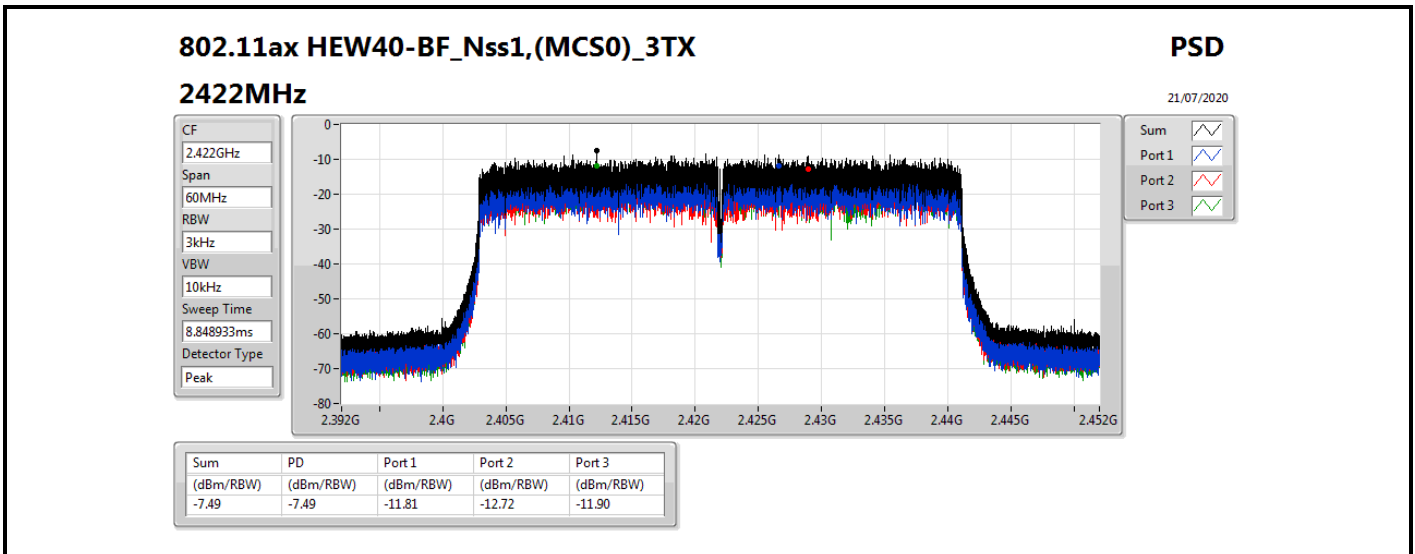
Result

Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	Port 3 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
802.11ax HEW20-BF_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-
2412MHz	Pass	6.01	-6.90	-5.53	-5.31	-1.75	7.99
2437MHz	Pass	6.01	-3.23	-1.32	-2.31	1.57	7.99
2462MHz	Pass	6.01	-5.78	-7.52	-6.30	-2.14	7.99
802.11ax HEW40-BF_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-
2422MHz	Pass	6.01	-11.81	-12.72	-11.90	-7.49	7.99
2437MHz	Pass	6.01	-9.65	-9.78	-9.46	-5.02	7.99
2452MHz	Pass	6.01	-12.07	-12.15	-12.00	-7.30	7.99

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;







CSE(Non-restricted Band) Result

Appendix D

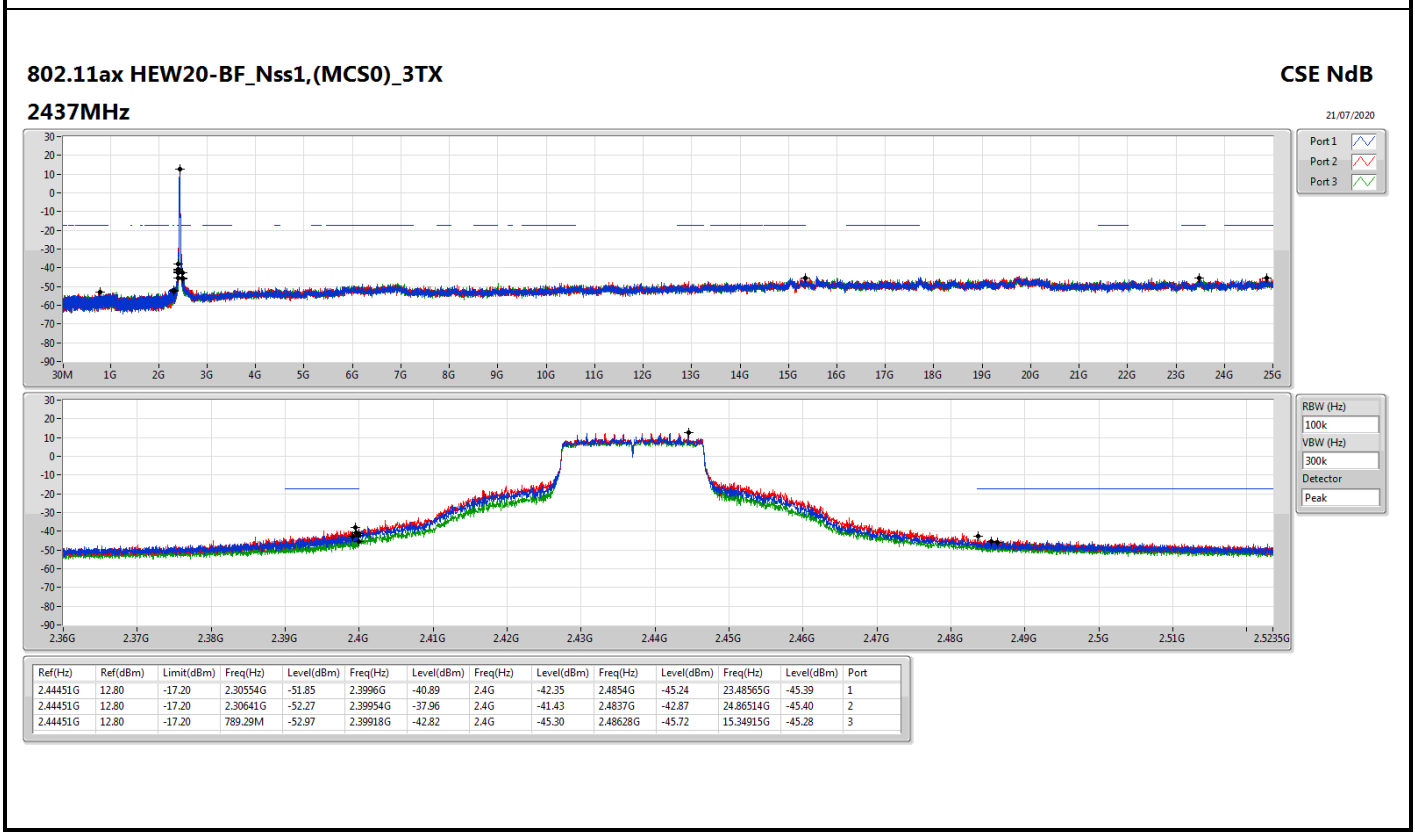
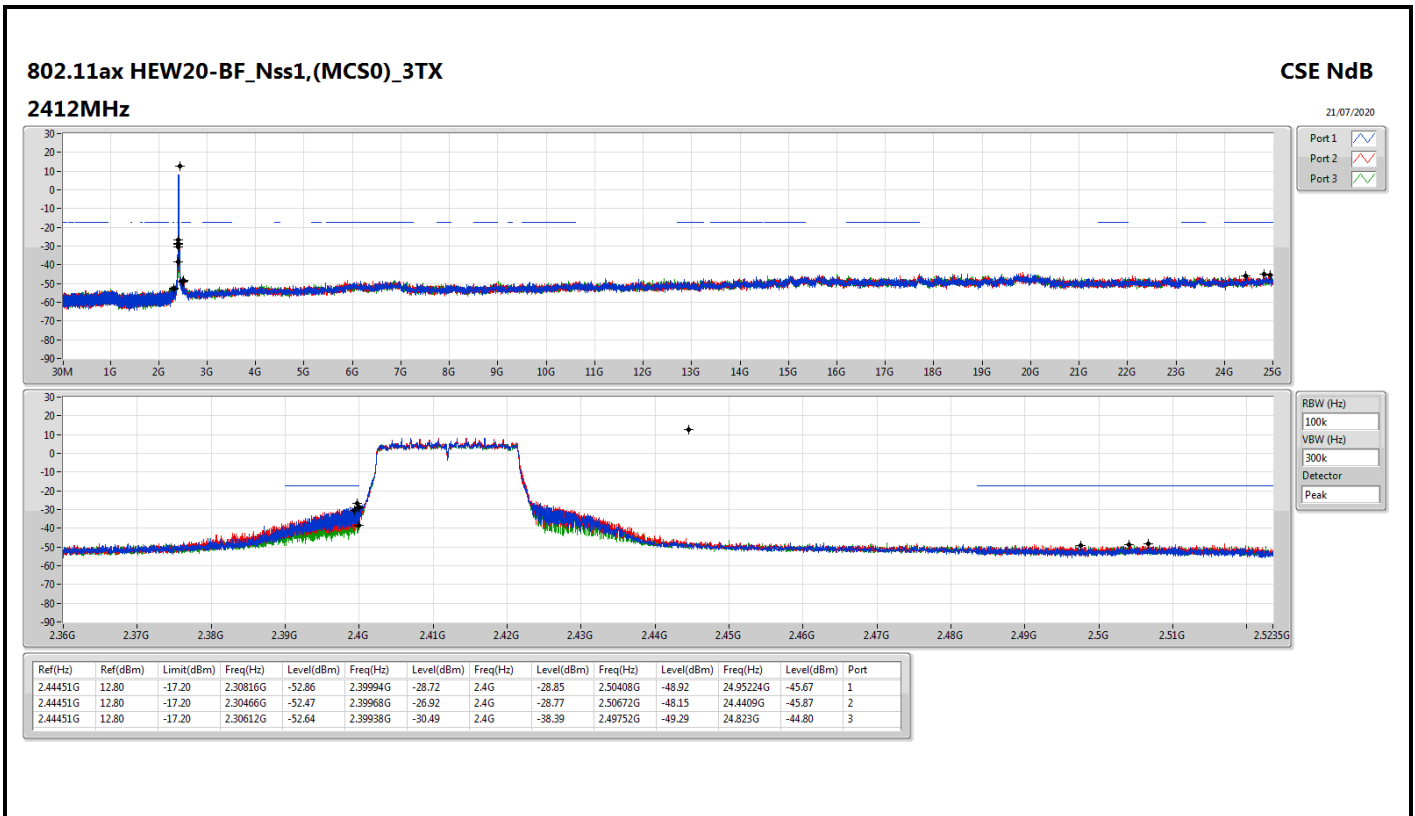
Summary

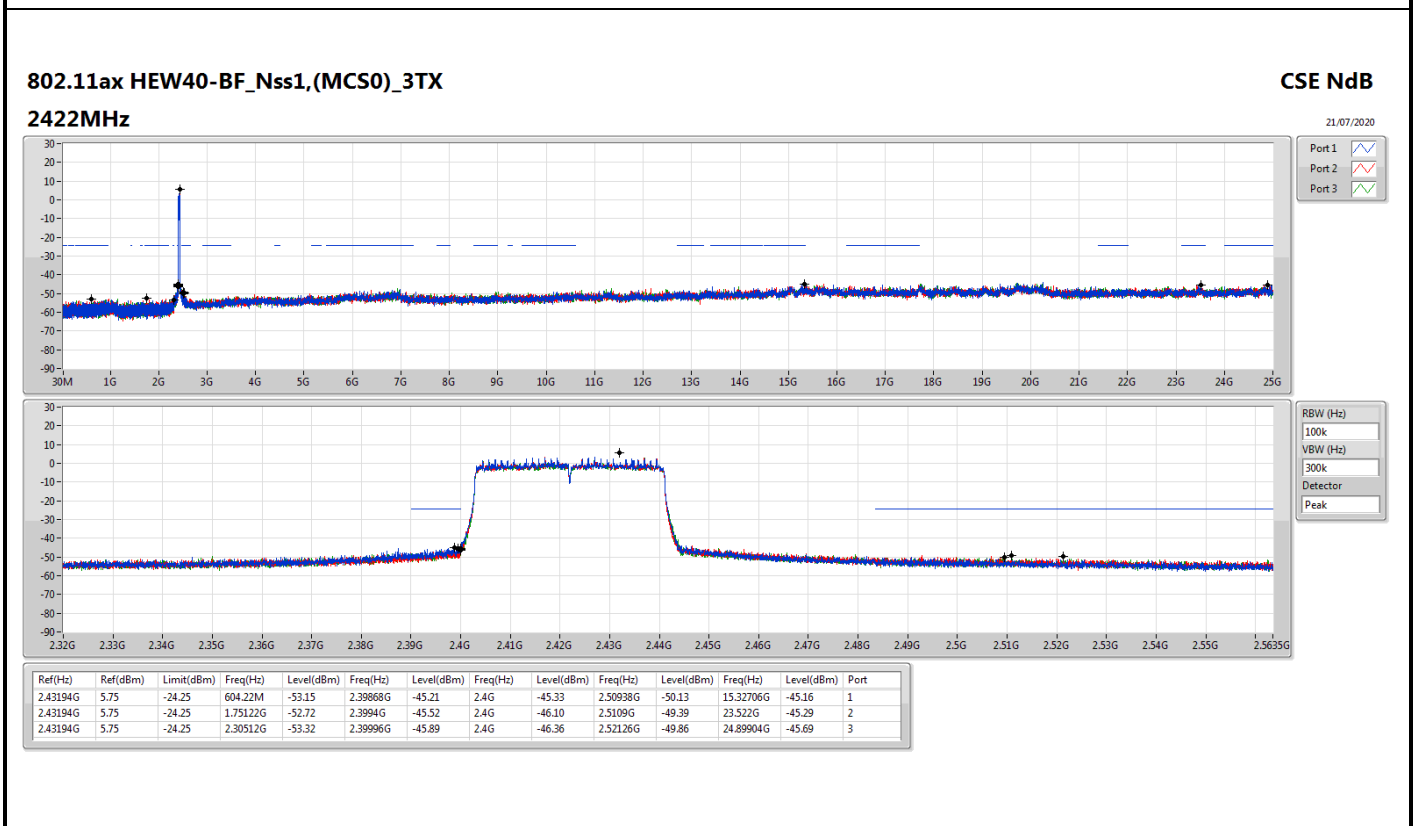
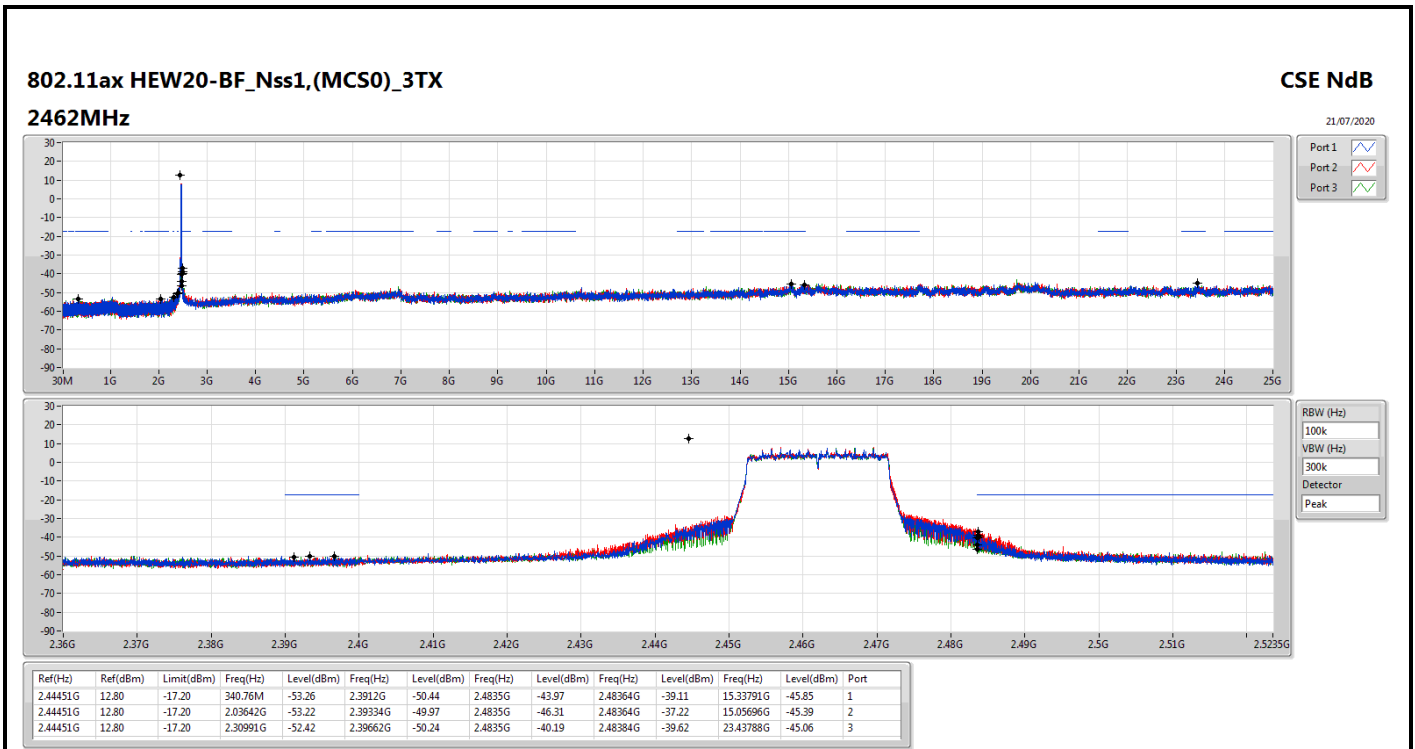
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_3TX	Pass	2.44451G	12.80	-17.20	2.30466G	-52.47	2.39968G	-26.92	2.4G	-28.77	2.50672G	-48.15	24.4409G	-45.87	2
802.11ax HEW40-BF_Nss1,(MCS0)_3TX	Pass	2.43194G	5.75	-24.25	2.30855G	-52.59	2.3992G	-37.00	2.4G	-40.92	2.4845G	-42.98	15.03539G	-44.97	1

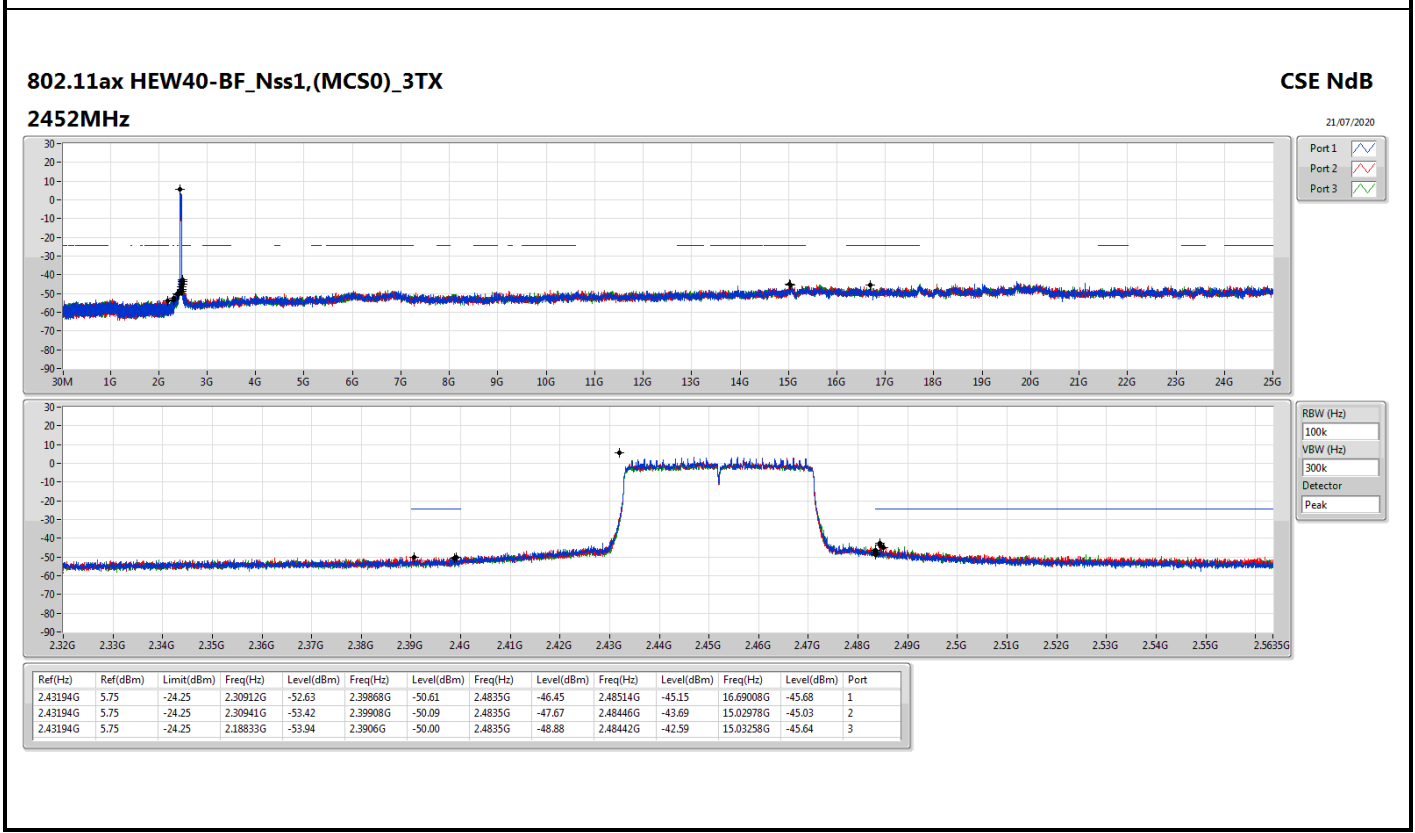
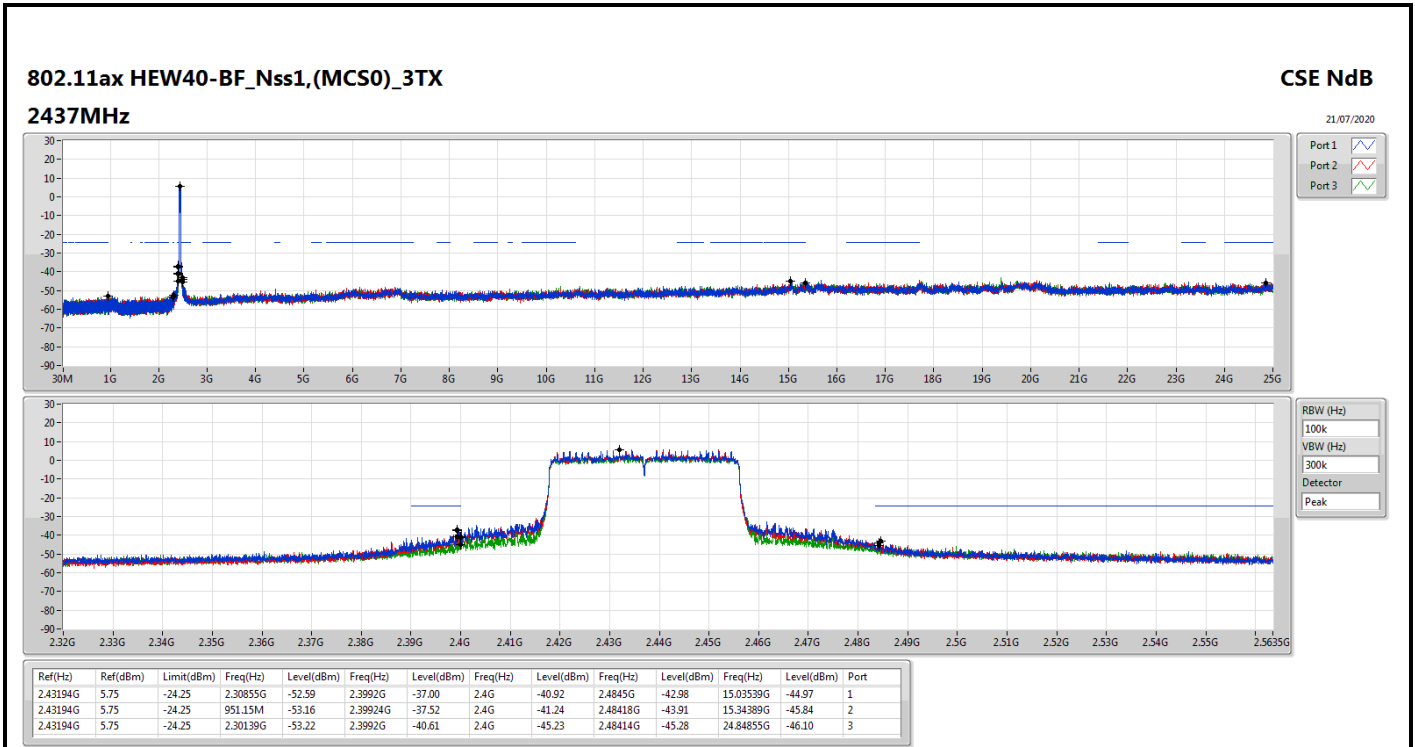


Result

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
802.11ax HEW20-BF_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	2.44451G	12.80	-17.20	2.30816G	-52.86	2.39994G	-28.72	2.4G	-28.85	2.50408G	-48.92	24.95224G	-45.67	1
2412MHz	Pass	2.44451G	12.80	-17.20	2.30466G	-52.47	2.39968G	-26.92	2.4G	-28.77	2.50672G	-48.15	24.4409G	-45.87	2
2412MHz	Pass	2.44451G	12.80	-17.20	2.30612G	-52.64	2.39938G	-30.49	2.4G	-38.39	2.49752G	-49.29	24.823G	-44.80	3
2437MHz	Pass	2.44451G	12.80	-17.20	2.30554G	-51.85	2.3996G	-40.89	2.4G	-42.35	2.4854G	-45.24	23.48565G	-45.39	1
2437MHz	Pass	2.44451G	12.80	-17.20	2.30641G	-52.27	2.39954G	-37.96	2.4G	-41.43	2.4837G	-42.87	24.86514G	-45.40	2
2437MHz	Pass	2.44451G	12.80	-17.20	789.29M	-52.97	2.39918G	-42.82	2.4G	-45.30	2.48628G	-45.72	15.34915G	-45.28	3
2462MHz	Pass	2.44451G	12.80	-17.20	340.76M	-53.26	2.3912G	-50.44	2.4835G	-43.97	2.48364G	-39.11	15.33791G	-45.85	1
2462MHz	Pass	2.44451G	12.80	-17.20	2.03642G	-53.22	2.39334G	-49.97	2.4835G	-46.31	2.48364G	-37.22	15.05696G	-45.39	2
2462MHz	Pass	2.44451G	12.80	-17.20	2.30991G	-52.42	2.39662G	-50.24	2.4835G	-40.19	2.48384G	-39.62	23.43788G	-45.06	3
802.11ax HEW40-BF_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2422MHz	Pass	2.43194G	5.75	-24.25	604.22M	-53.15	2.39868G	-45.21	2.4G	-45.33	2.50938G	-50.13	15.32706G	-45.16	1
2422MHz	Pass	2.43194G	5.75	-24.25	1.75122G	-52.72	2.3994G	-45.52	2.4G	-46.10	2.5109G	-49.39	23.522G	-45.29	2
2422MHz	Pass	2.43194G	5.75	-24.25	2.30512G	-53.32	2.39996G	-45.89	2.4G	-46.36	2.52126G	-49.86	24.89904G	-45.69	3
2437MHz	Pass	2.43194G	5.75	-24.25	2.30855G	-52.59	2.3992G	-37.00	2.4G	-40.92	2.4845G	-42.98	15.03539G	-44.97	1
2437MHz	Pass	2.43194G	5.75	-24.25	951.15M	-53.16	2.39924G	-37.52	2.4G	-41.24	2.48418G	-43.91	15.34389G	-45.84	2
2437MHz	Pass	2.43194G	5.75	-24.25	2.30139G	-53.22	2.3992G	-40.61	2.4G	-45.23	2.48414G	-45.28	24.84855G	-46.10	3
2452MHz	Pass	2.43194G	5.75	-24.25	2.30912G	-52.63	2.39868G	-50.61	2.4835G	-46.45	2.48514G	-45.15	16.69008G	-45.68	1
2452MHz	Pass	2.43194G	5.75	-24.25	2.30941G	-53.42	2.39908G	-50.09	2.4835G	-47.67	2.48446G	-43.69	15.02978G	-45.03	2
2452MHz	Pass	2.43194G	5.75	-24.25	2.18833G	-53.94	2.3906G	-50.00	2.4835G	-48.88	2.48442G	-42.59	15.03258G	-45.64	3









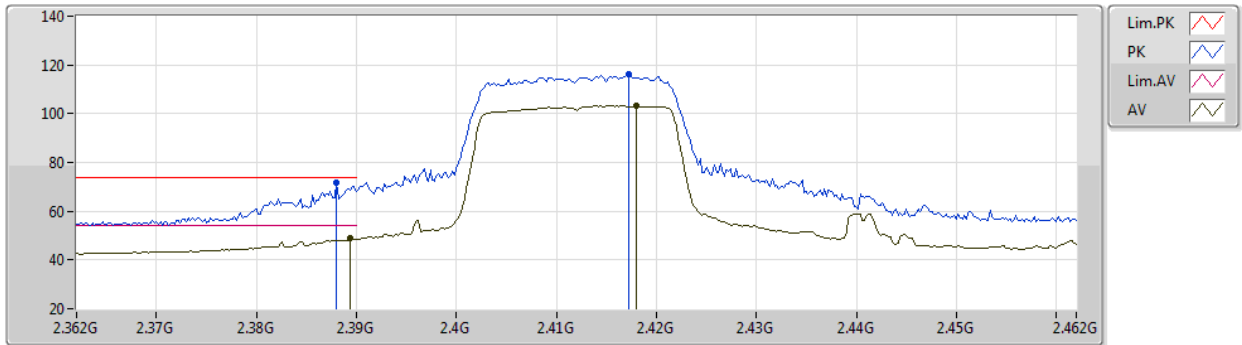
Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
802.11ax HEW40-BF_Nss1,(MCS0)_3TX	Pass	PK	2.3836G	73.93	74.00	-0.07	3	Vertical	55	1.80	-

802.11ax HEW20-BF_Nss1,(MCS0)_3TX

16/07/2020

2412MHz_TX



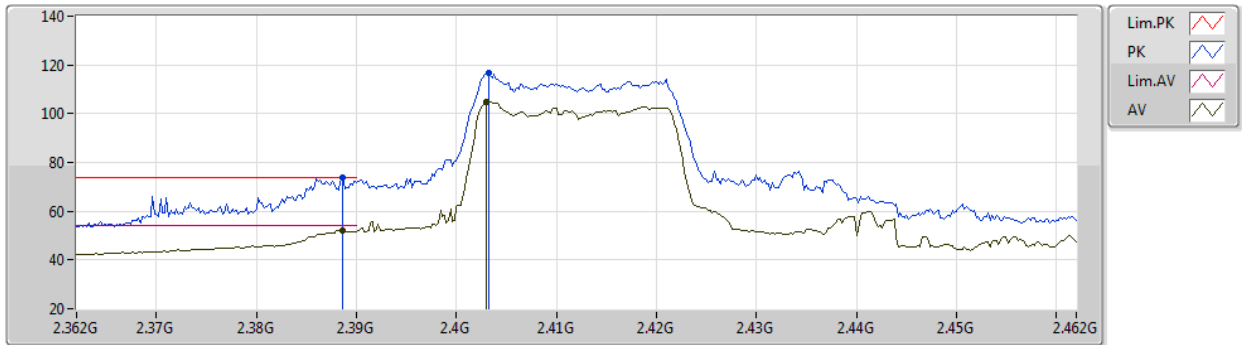
EUT Y_3TX
Setting 80
03-A-J-7

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.388G	71.56	74.00	-2.44	42.99	3	Vertical	87	1.93	-	28.08	0.49	-
AV	2.3894G	48.90	54.00	-5.10	20.33	3	Vertical	87	1.93	-	28.08	0.49	-
PK	2.4172G	116.05	Inf	-Inf	87.38	3	Vertical	87	1.93	-	28.17	0.50	-
AV	2.418G	103.36	Inf	-Inf	74.69	3	Vertical	87	1.93	-	28.17	0.50	-

802.11ax HEW20-BF_Nss1,(MCS0)_3TX

16/07/2020

2412MHz_TX



EUT Y_3TX
Setting 80
03-A-J-7

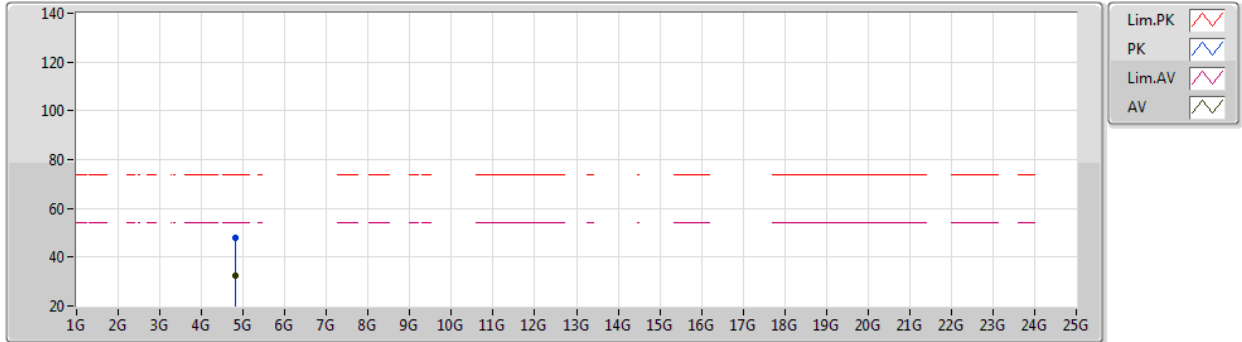
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.3886G	73.72	74.00	-0.28	45.15	3	Horizontal	187	3.00	-	28.08	0.49	-
AV	2.3886G	52.08	54.00	-1.92	23.51	3	Horizontal	187	3.00	-	28.08	0.49	-
PK	2.4032G	116.74	Inf	-Inf	88.13	3	Horizontal	187	3.00	-	28.11	0.50	-
AV	2.403G	104.73	Inf	-Inf	76.12	3	Horizontal	187	3.00	-	28.11	0.50	-



802.11ax HEW20-BF_Nss1,(MCS0)_3TX

16/07/2020

2412MHz_TX



EUT Y_3TX
Setting 80
03-A-J-7

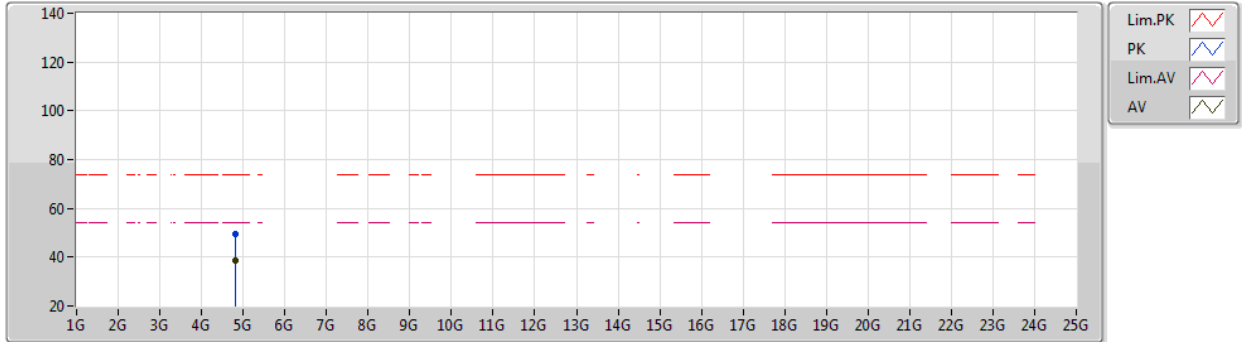
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	4.82305G	47.70	74.00	-26.30	43.92	3	Vertical	110	2.25	-	33.29	5.80	35.31
AV	4.82404G	32.44	54.00	-21.56	28.65	3	Vertical	110	2.25	-	33.30	5.80	35.31



802.11ax HEW20-BF_Nss1,(MCS0)_3TX

16/07/2020

2412MHz_TX



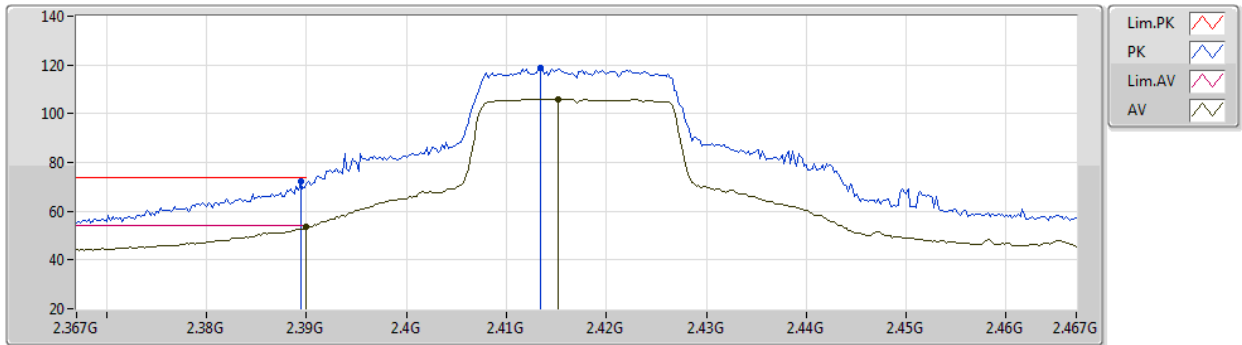
EUT Y_3TX
Setting 80
03-A-J-7

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	4.8268G	49.26	74.00	-24.74	45.47	3	Horizontal	78	1.57	-	33.31	5.80	35.32
AV	4.8203G	38.43	54.00	-15.57	34.66	3	Horizontal	78	1.57	-	33.28	5.80	35.31

802.11ax HEW20-BF_Nss1,(MCS0)_3TX

16/07/2020

2417MHz_TX



EUT Y_3TX
Setting 91
03-A-J-7

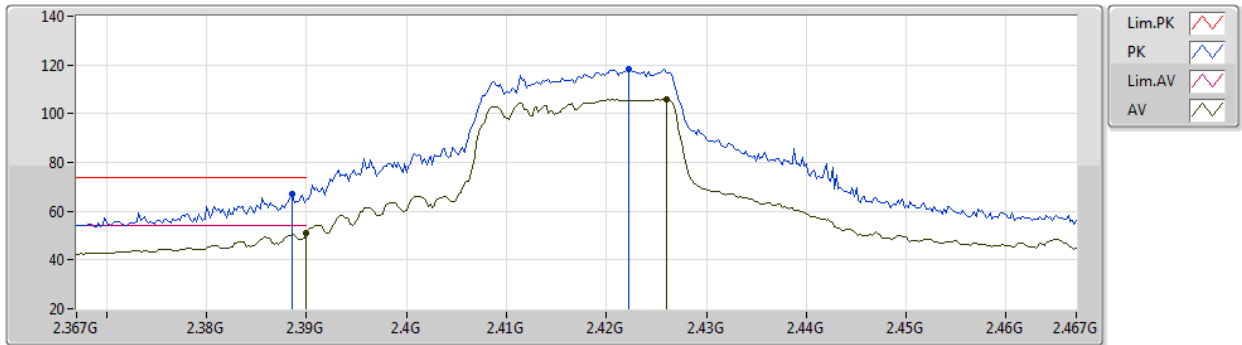
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.3894G	72.43	74.00	-1.57	43.86	3	Vertical	62	1.80	-	28.08	0.49	-
AV	2.39G	53.69	54.00	-0.31	25.12	3	Vertical	62	1.80	-	28.08	0.49	-
PK	2.4134G	118.69	Inf	-Inf	90.04	3	Vertical	62	1.80	-	28.15	0.50	-
AV	2.4152G	106.08	Inf	-Inf	77.42	3	Vertical	62	1.80	-	28.16	0.50	-



802.11ax HEW20-BF_Nss1,(MCS0)_3TX

16/07/2020

2417MHz_TX



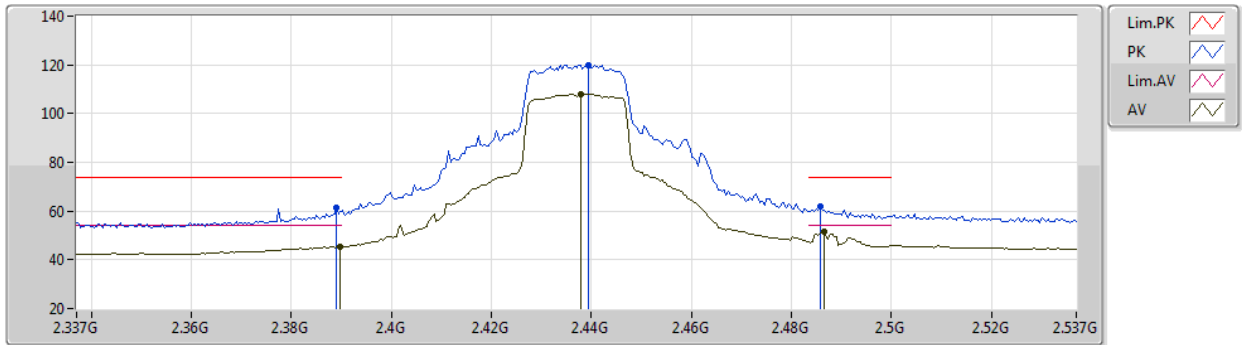
EUT Y_3TX
Setting 91
03-A-J-7

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.3886G	67.29	74.00	-6.71	38.72	3	Horizontal	187	2.96	-	28.08	0.49	-
AV	2.39G	50.92	54.00	-3.08	22.35	3	Horizontal	187	2.96	-	28.08	0.49	-
PK	2.4222G	118.33	Inf	-Inf	89.64	3	Horizontal	187	2.96	-	28.19	0.50	-
AV	2.426G	105.88	Inf	-Inf	77.18	3	Horizontal	187	2.96	-	28.20	0.50	-

802.11ax HEW20-BF_Nss1,(MCS0)_3TX

16/07/2020

2437MHz_TX



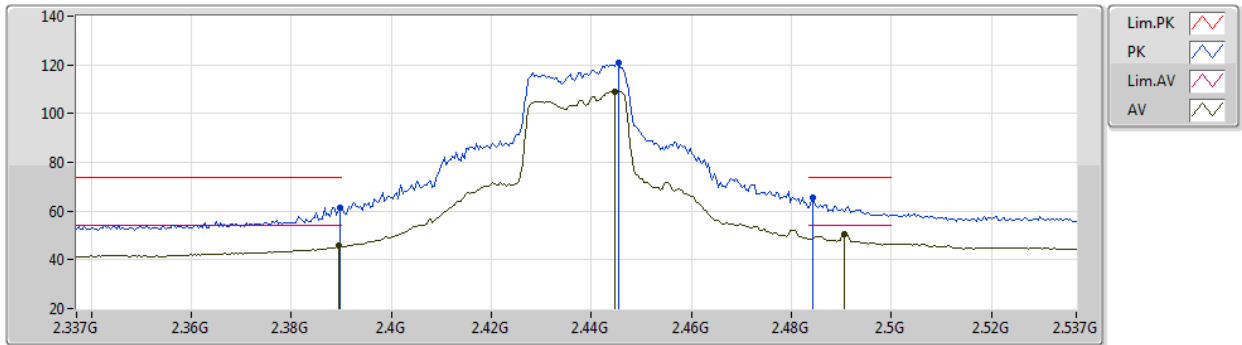
EUT Y_3TX
Setting 96
03-A-J-7

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.389G	61.24	74.00	-12.76	32.67	3	Vertical	71	1.73	-	28.08	0.49	-
AV	2.3898G	45.44	54.00	-8.56	16.87	3	Vertical	71	1.73	-	28.08	0.49	-
PK	2.4394G	120.03	Inf	-Inf	91.27	3	Vertical	71	1.73	-	28.26	0.50	-
AV	2.4378G	108.13	Inf	-Inf	79.38	3	Vertical	71	1.73	-	28.25	0.50	-
PK	2.4858G	61.73	74.00	-12.27	32.79	3	Vertical	71	1.73	-	28.44	0.50	-
AV	2.4866G	51.48	54.00	-2.52	22.53	3	Vertical	71	1.73	-	28.45	0.50	-

802.11ax HEW20-BF_Nss1,(MCS0)_3TX

16/07/2020

2437MHz_TX



EUT Y_3TX
Setting 96
03-A-J-7

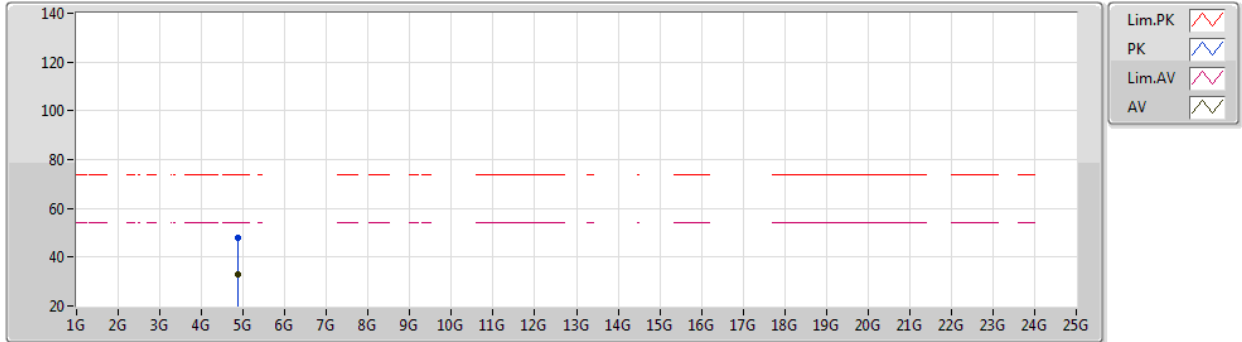
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.3898G	61.57	74.00	-12.43	33.00	3	Horizontal	180	2.14	-	28.08	0.49	-
AV	2.3894G	45.62	54.00	-8.38	17.05	3	Horizontal	180	2.14	-	28.08	0.49	-
PK	2.4454G	120.73	Inf	-Inf	91.95	3	Horizontal	180	2.14	-	28.28	0.50	-
AV	2.4446G	109.11	Inf	-Inf	80.33	3	Horizontal	180	2.14	-	28.28	0.50	-
PK	2.4842G	65.32	74.00	-8.68	36.38	3	Horizontal	180	2.14	-	28.44	0.50	-
AV	2.4906G	50.55	54.00	-3.45	21.59	3	Horizontal	180	2.14	-	28.46	0.50	-



802.11ax HEW20-BF_Nss1,(MCS0)_3TX

16/07/2020

2437MHz_TX



EUT Y_3TX
Setting 96
03-A-J-7

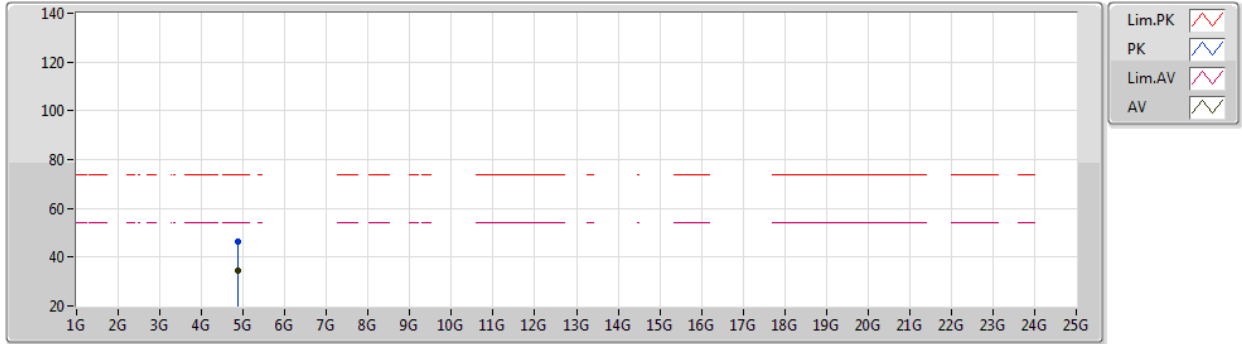
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	4.87482G	47.72	74.00	-26.28	43.78	3	Vertical	205	2.74	-	33.50	5.80	35.36
AV	4.87472G	33.14	54.00	-20.86	29.20	3	Vertical	205	2.74	-	33.50	5.80	35.36



802.11ax HEW20-BF_Nss1,(MCS0)_3TX

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2437MHz_TX



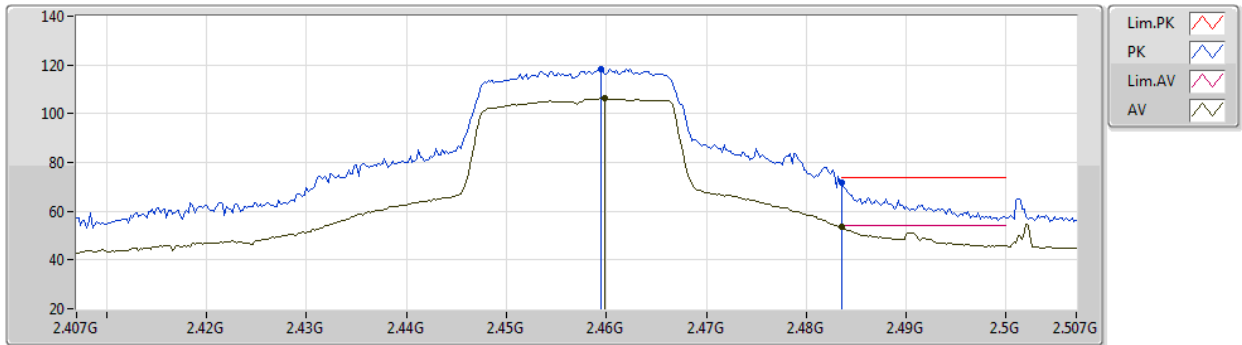
EUT Y_3TX
Setting 96
03-A-J-7

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	4.87184G	46.27	74.00	-27.73	42.34	3	Horizontal	224	2.82	-	33.49	5.80	35.36
AV	4.8719G	34.44	54.00	-19.56	30.51	3	Horizontal	224	2.82	-	33.49	5.80	35.36

802.11ax HEW20-BF_Nss1,(MCS0)_3TX

16/07/2020

2457MHz_TX



EUT Y_3TX
Setting 88
03-A-J-7

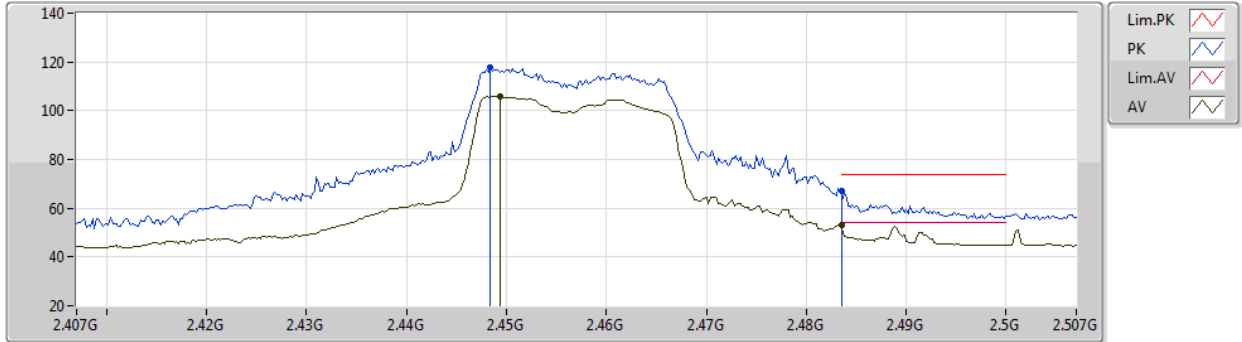
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.4594G	118.49	Inf	-Inf	89.65	3	Vertical	69	1.99	-	28.34	0.50	-
AV	2.4598G	106.27	Inf	-Inf	77.43	3	Vertical	69	1.99	-	28.34	0.50	-
PK	2.4835G	71.79	74.00	-2.21	42.86	3	Vertical	69	1.99	-	28.43	0.50	-
AV	2.4835G	53.56	54.00	-0.44	24.63	3	Vertical	69	1.99	-	28.43	0.50	-



802.11ax HEW20-BF_Nss1,(MCS0)_3TX

16/07/2020

2457MHz_TX



EUT Y_3TX
Setting 88
03-A-J-7

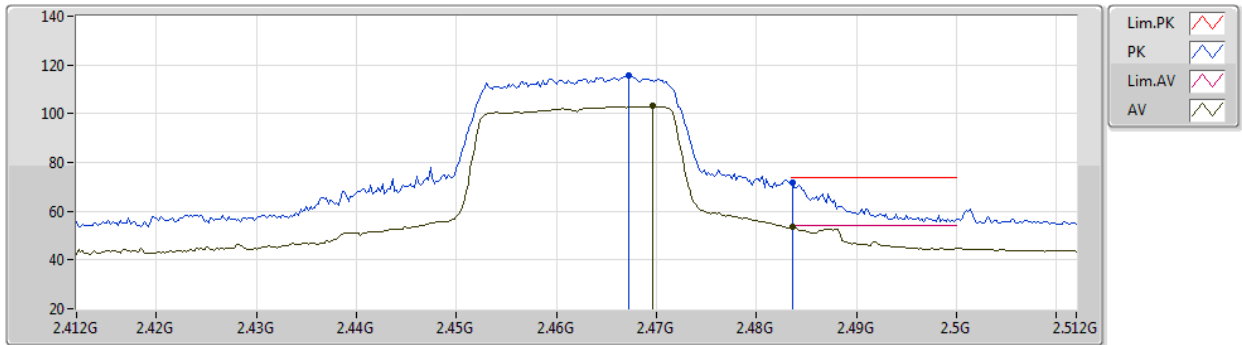
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.4484G	117.59	Inf	-Inf	88.80	3	Horizontal	4	1.07	-	28.29	0.50	-
AV	2.4494G	105.85	Inf	-Inf	77.05	3	Horizontal	4	1.07	-	28.30	0.50	-
PK	2.4835G	66.98	74.00	-7.02	38.05	3	Horizontal	4	1.07	-	28.43	0.50	-
AV	2.4835G	53.07	54.00	-0.93	24.14	3	Horizontal	4	1.07	-	28.43	0.50	-



802.11ax HEW20-BF_Nss1,(MCS0)_3TX

16/07/2020

2462MHz_TX



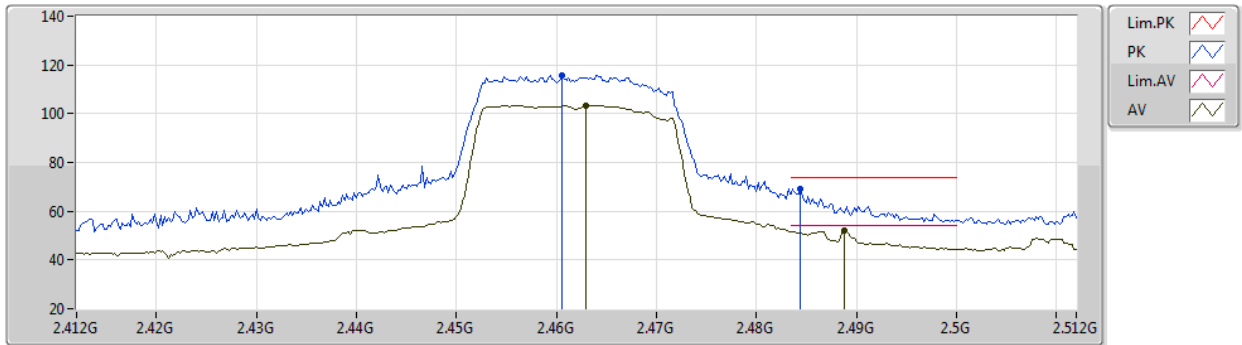
EUT Y_3TX
Setting 78
03-A-J-7

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.4672G	115.81	Inf	-Inf	86.94	3	Vertical	286	1.76	-	28.37	0.50	-
AV	2.4696G	103.03	Inf	-Inf	74.15	3	Vertical	286	1.76	-	28.38	0.50	-
PK	2.4836G	71.93	74.00	-2.07	43.00	3	Vertical	286	1.76	-	28.43	0.50	-
AV	2.4836G	53.51	54.00	-0.49	24.58	3	Vertical	286	1.76	-	28.43	0.50	-

802.11ax HEW20-BF_Nss1,(MCS0)_3TX

16/07/2020

2462MHz_TX



EUT Y_3TX
Setting 78
03-A-J-7

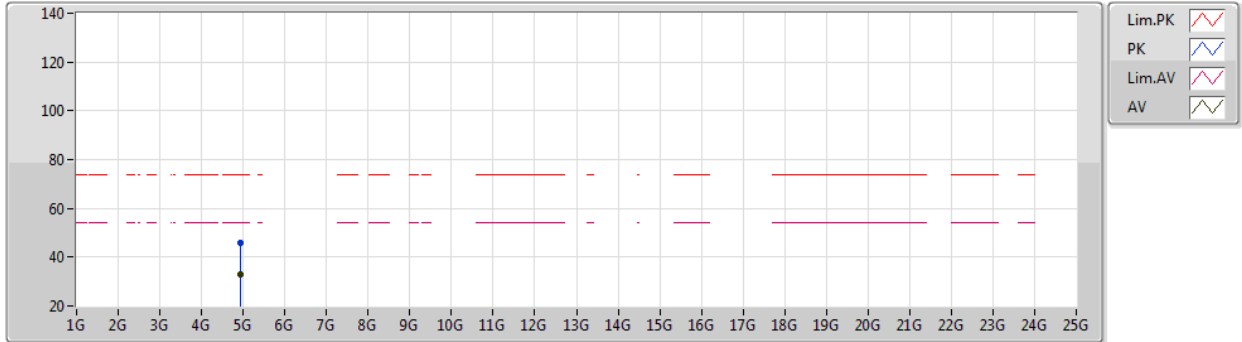
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.4606G	115.74	Inf	-Inf	86.90	3	Horizontal	180	1.76	-	28.34	0.50	-
AV	2.463G	103.40	Inf	-Inf	74.55	3	Horizontal	180	1.76	-	28.35	0.50	-
PK	2.4844G	69.31	74.00	-4.69	40.37	3	Horizontal	180	1.76	-	28.44	0.50	-
AV	2.4888G	51.89	54.00	-2.11	22.93	3	Horizontal	180	1.76	-	28.46	0.50	-



802.11ax HEW20-BF_Nss1,(MCS0)_3TX

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2462MHz_TX



EUT Y_3TX
Setting 78
03-A-J-7

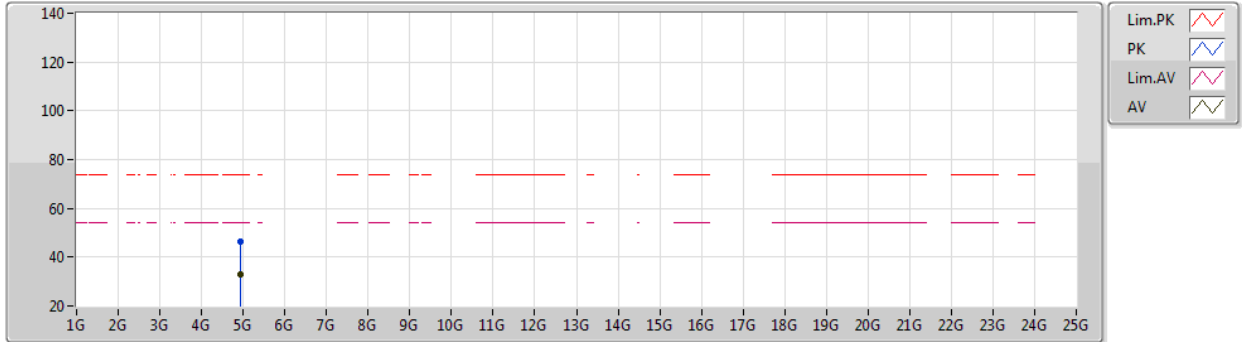
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	4.9199G	45.99	74.00	-28.01	41.98	3	Vertical	167	2.86	-	33.62	5.80	35.41
AV	4.92362G	33.10	54.00	-20.90	29.09	3	Vertical	167	2.86	-	33.62	5.80	35.41



802.11ax HEW20-BF_Nss1,(MCS0)_3TX

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EUT Y_3TX
Setting 78
03-A-J-7

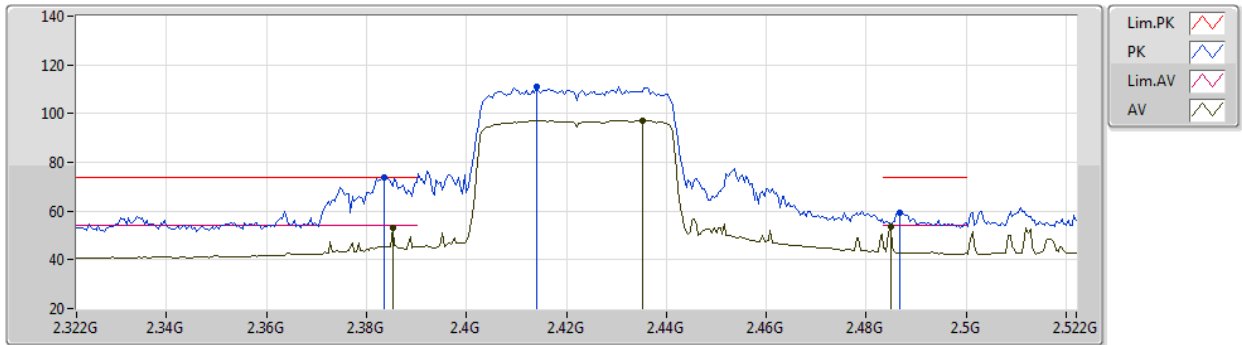
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	4.92512G	46.28	74.00	-27.72	42.27	3	Horizontal	141	2.06	-	33.63	5.80	35.42
AV	4.92676G	33.17	54.00	-20.83	29.16	3	Horizontal	141	2.06	-	33.63	5.80	35.42



802.11ax HEW40-BF_Nss1,(MCS0)_3TX

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2422MHz_TX



EUT Y_3TX
Setting 70
03-A-J-7

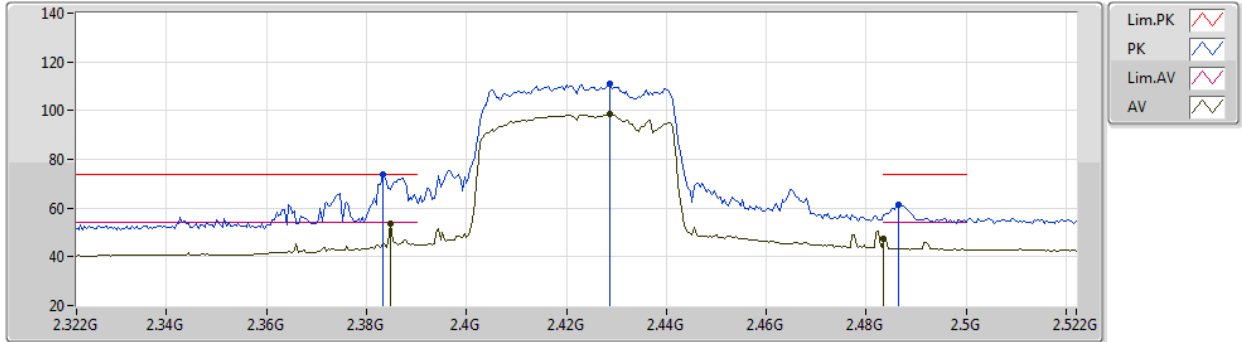
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.3836G	73.93	74.00	-0.07	45.37	3	Vertical	55	1.80	-	28.07	0.49	-
AV	2.3852G	53.00	54.00	-1.00	24.44	3	Vertical	55	1.80	-	28.07	0.49	-
PK	2.414G	110.87	Inf	-Inf	82.21	3	Vertical	55	1.80	-	28.16	0.50	-
AV	2.4352G	97.25	Inf	-Inf	68.51	3	Vertical	55	1.80	-	28.24	0.50	-
PK	2.4868G	59.31	74.00	-14.69	30.36	3	Vertical	55	1.80	-	28.45	0.50	-
AV	2.4848G	53.77	54.00	-0.23	24.83	3	Vertical	55	1.80	-	28.44	0.50	-



802.11ax HEW40-BF_Nss1,(MCS0)_3TX

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2422MHz_TX



EUT Y_3TX
Setting 70
03-A-J-7

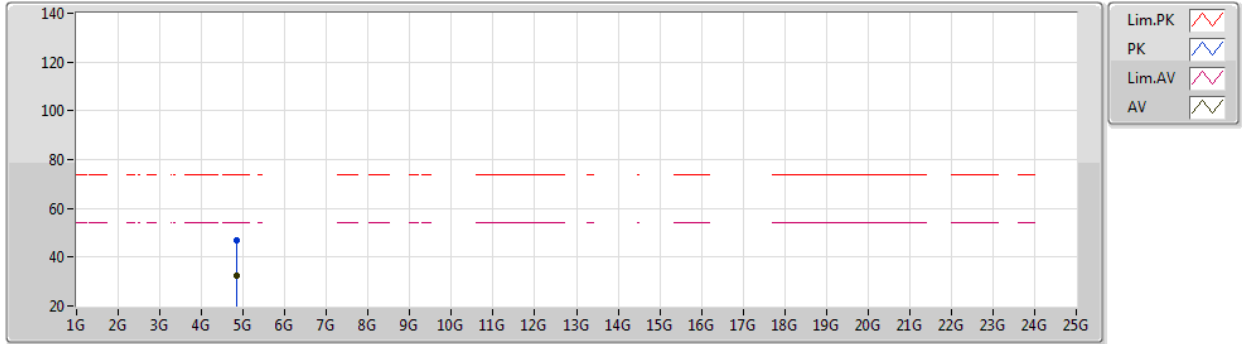
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.3832G	73.83	74.00	-0.17	45.27	3	Horizontal	181	1.80	-	28.07	0.49	-
AV	2.3848G	53.47	54.00	-0.53	24.91	3	Horizontal	181	1.80	-	28.07	0.49	-
PK	2.4288G	110.88	Inf	-Inf	82.16	3	Horizontal	181	1.80	-	28.22	0.50	-
AV	2.4288G	98.50	Inf	-Inf	69.78	3	Horizontal	181	1.80	-	28.22	0.50	-
PK	2.4864G	61.39	74.00	-12.61	32.44	3	Horizontal	181	1.80	-	28.45	0.50	-
AV	2.4835G	47.36	54.00	-6.64	18.43	3	Horizontal	181	1.80	-	28.43	0.50	-



802.11ax HEW40-BF_Nss1,(MCS0)_3TX

16/07/2020

2422MHz_TX



EUT Y_3TX
Setting 70
03-A-J-7

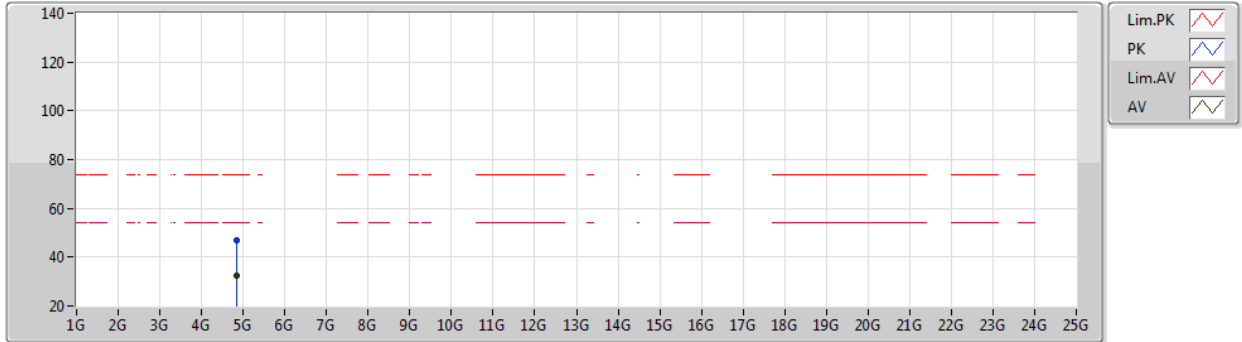
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	4.84412G	46.73	74.00	-27.27	42.88	3	Vertical	201	2.86	-	33.38	5.80	35.33
AV	4.84378G	32.40	54.00	-21.60	28.55	3	Vertical	201	2.86	-	33.38	5.80	35.33



802.11ax HEW40-BF_Nss1,(MCS0)_3TX

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2422MHz_TX



EUT Y_3TX
Setting 70
03-A-J-7

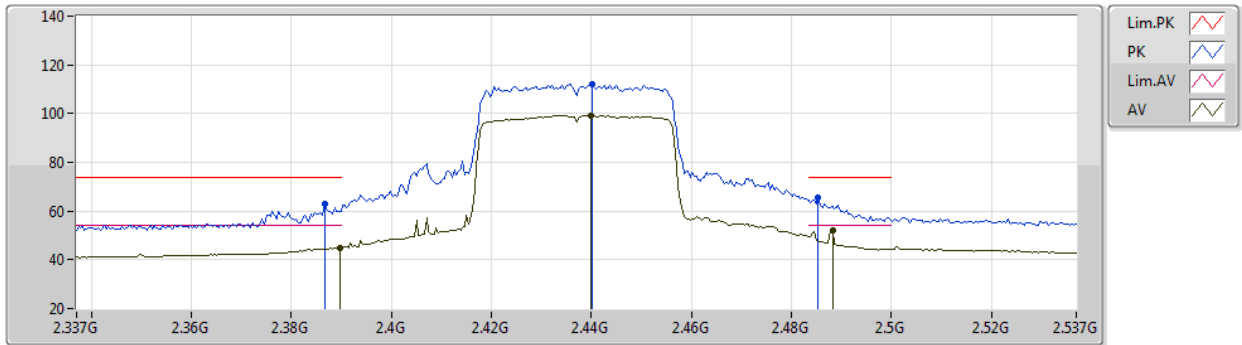
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	4.84342G	47.06	74.00	-26.94	43.22	3	Horizontal	24	2.97	-	33.37	5.80	35.33
AV	4.84357G	32.33	54.00	-21.67	28.49	3	Horizontal	24	2.97	-	33.37	5.80	35.33



802.11ax HEW40-BF_Nss1,(MCS0)_3TX

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2437MHz_TX



EUT Y_3TX
Setting 80
03-A-J-7

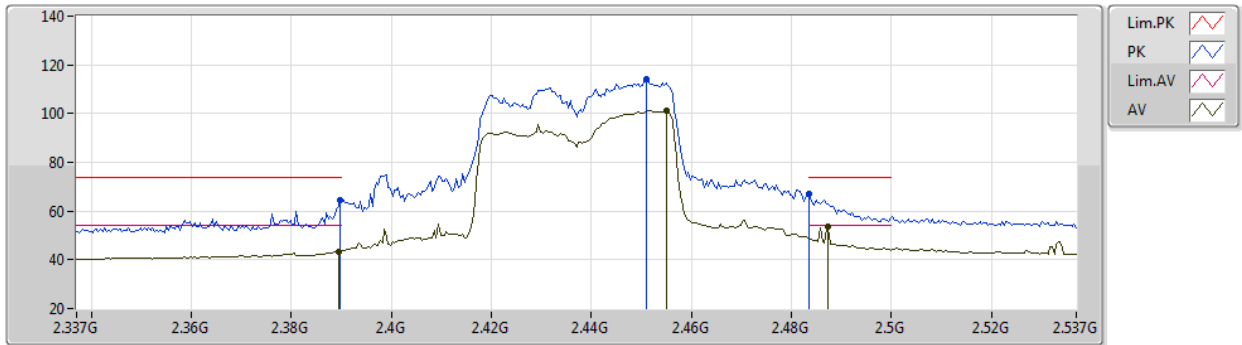
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.3866G	62.84	74.00	-11.16	34.28	3	Vertical	38	1.80	-	28.07	0.49	-
AV	2.3898G	44.93	54.00	-9.07	16.36	3	Vertical	38	1.80	-	28.08	0.49	-
PK	2.4402G	112.24	Inf	-Inf	83.48	3	Vertical	38	1.80	-	28.26	0.50	-
AV	2.4398G	99.30	Inf	-Inf	70.54	3	Vertical	38	1.80	-	28.26	0.50	-
PK	2.4854G	65.77	74.00	-8.23	36.83	3	Vertical	38	1.80	-	28.44	0.50	-
AV	2.4882G	51.86	54.00	-2.14	22.91	3	Vertical	38	1.80	-	28.45	0.50	-



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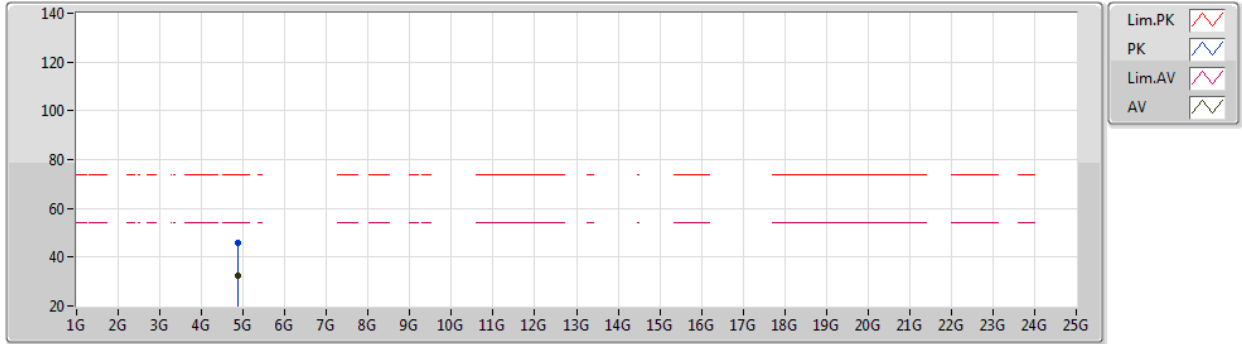
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PK	2.3898G	64.74	74.00	-9.26	36.17	3	Horizontal	193	2.12	-	28.08	0.49	-
AV	2.3894G	43.39	54.00	-10.61	14.82	3	Horizontal	193	2.12	-	28.08	0.49	-
PK	2.451G	113.95	Inf	-Inf	85.15	3	Horizontal	193	2.12	-	28.30	0.50	-
AV	2.455G	101.01	Inf	-Inf	72.19	3	Horizontal	193	2.12	-	28.32	0.50	-
PK	2.4835G	67.05	74.00	-6.95	38.12	3	Horizontal	193	2.12	-	28.43	0.50	-
AV	2.4874G	53.58	54.00	-0.42	24.63	3	Horizontal	193	2.12	-	28.45	0.50	-



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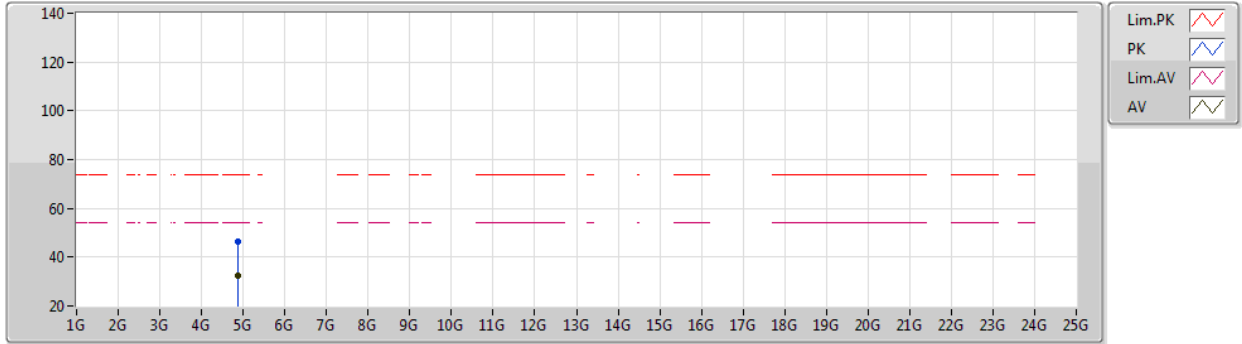
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	4.8746G	45.77	74.00	-28.23	41.83	3	Vertical	71	2.17	-	33.50	5.80	35.36
AV	4.87471G	32.45	54.00	-21.55	28.51	3	Vertical	71	2.17	-	33.50	5.80	35.36



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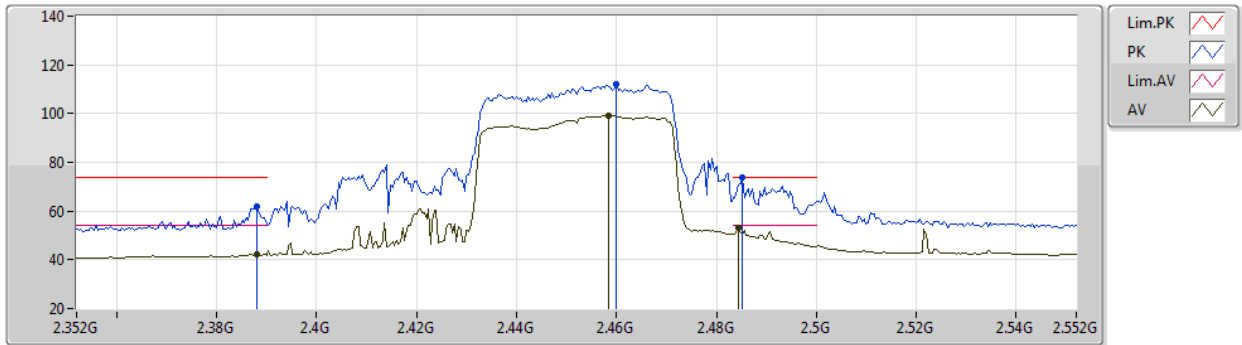


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Setting 80
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Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	4.87347G	46.20	74.00	-27.80	42.27	3	Horizontal	285	2.45	-	33.49	5.80	35.36
AV	4.87378G	32.54	54.00	-21.46	28.60	3	Horizontal	285	2.45	-	33.50	5.80	35.36

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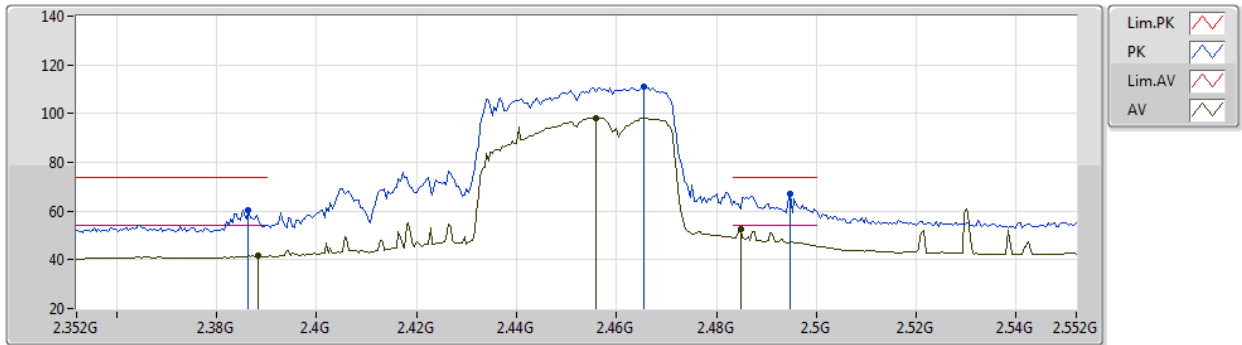


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Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.388G	61.79	74.00	-12.21	33.22	3	Vertical	47	2.01	-	28.08	0.49	-
AV	2.388G	42.32	54.00	-11.68	13.75	3	Vertical	47	2.01	-	28.08	0.49	-
PK	2.46G	112.22	Inf	-Inf	83.38	3	Vertical	47	2.01	-	28.34	0.50	-
AV	2.4584G	99.17	Inf	-Inf	70.34	3	Vertical	47	2.01	-	28.33	0.50	-
PK	2.4852G	73.72	74.00	-0.28	44.78	3	Vertical	47	2.01	-	28.44	0.50	-
AV	2.4844G	52.88	54.00	-1.12	23.94	3	Vertical	47	2.01	-	28.44	0.50	-

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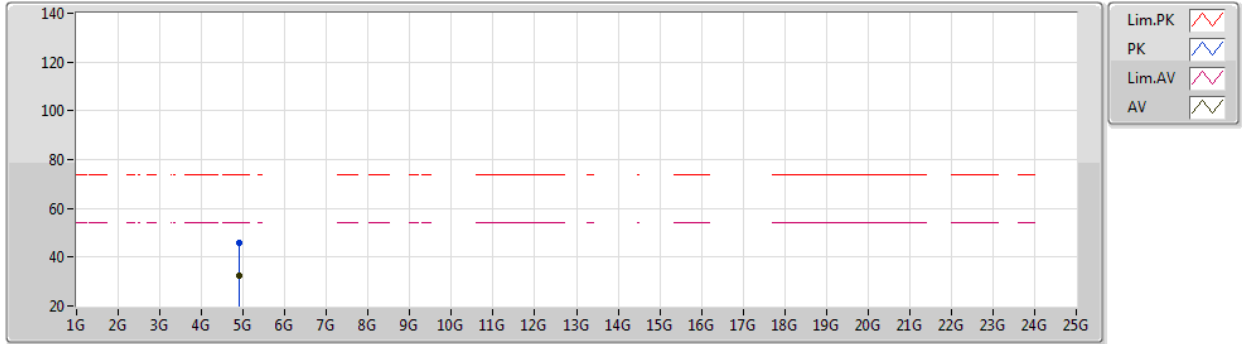
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.3864G	60.57	74.00	-13.43	32.01	3	Horizontal	180	1.98	-	28.07	0.49	-
AV	2.3884G	41.81	54.00	-12.19	13.24	3	Horizontal	180	1.98	-	28.08	0.49	-
PK	2.4656G	111.05	Inf	-Inf	82.19	3	Horizontal	180	1.98	-	28.36	0.50	-
AV	2.456G	98.22	Inf	-Inf	69.40	3	Horizontal	180	1.98	-	28.32	0.50	-
PK	2.4948G	67.20	74.00	-6.80	38.22	3	Horizontal	180	1.98	-	28.48	0.50	-
AV	2.4848G	52.45	54.00	-1.55	23.51	3	Horizontal	180	1.98	-	28.44	0.50	-



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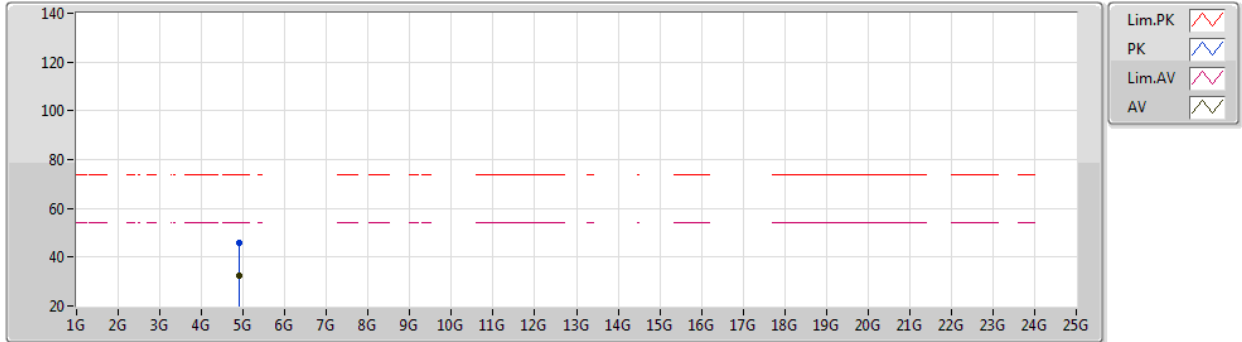
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	4.90474G	45.62	74.00	-28.38	41.61	3	Vertical	114	2.54	-	33.60	5.80	35.39
AV	4.90326G	32.26	54.00	-21.74	28.25	3	Vertical	114	2.54	-	33.60	5.80	35.39



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Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	4.90433G	45.94	74.00	-28.06	41.93	3	Horizontal	78	2.90	-	33.60	5.80	35.39
AV	4.90326G	32.22	54.00	-21.78	28.21	3	Horizontal	78	2.90	-	33.60	5.80	35.39