

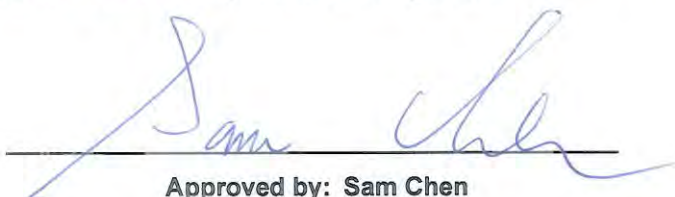


# FCC RADIO TEST REPORT

**FCC ID** : MSQ-RTAXJF00  
**Equipment** : Wireless-AXE11000 Tri-band Gigabit Router,  
ROG Rapture Tri-band Gaming Router,  
ROG Rapture GT-AXE11000 Tri-band Gaming Router,  
Wi-Fi 6E ROG Rapture GT-AXE11000 Tri-band Gaming Router  
**Brand Name** : ASUS  
**Model Name** : GT-AXE11000  
**Applicant** : ASUSTeK COMPUTER INC.  
1F., No. 15, Lide Rd., Beitou, Taipei 112, Taiwan  
**Manufacturer (1)** : ASUSTeK Computer Inc  
1F., No. 15, Lide Rd., Beitou, Taipei 112, Taiwan  
**Manufacturer (2)** : Kentec Inc.  
No. 5, Tzu-Chiang 1st Rd. Chungli Industrial Zone, Taoyuan  
Hsien, Taiwan  
**Manufacturer (3)** : Lukisen Electronic Corp.  
3F., No.236, Boai St., Shulin Dist., New Taipei City 23845, Taiwan  
**Manufacturer (4)** : Lih Rong Electronic Enterprise Co.,Ltd  
No. 486, Sec. 1, Wanshou Rd., Guishan Dist., Taoyuan City  
33350, Taiwan  
**Standard** : 47 CFR FCC Part 15.247

The product was received on Jul. 08, 2020, and testing was started from Jul. 10, 2020 and completed on Oct. 14, 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: Sam Chen

**SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory**

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



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## History of this test report

TEL : 886-3-656-9065  
FAX : 886-3-656-9085  
Report Template No.: CB-A10\_10 Ver1.2

Page Number : 3 of 34  
Issued Date : Oct. 20, 2020  
Report Version : 01



## Summary of Test Result

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

**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: Wendy Pan**



# 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	802.11b	20	4
2.4-2.4835GHz	802.11g	20	4
2.4-2.4835GHz	802.11n HT20	20	4
2.4-2.4835GHz	802.11n HT20-BF	20	4
2.4-2.4835GHz	VHT20	20	4
2.4-2.4835GHz	VHT20-BF	20	4
2.4-2.4835GHz	802.11ax HEW20	20	4
2.4-2.4835GHz	802.11ax HEW20-BF	20	4
2.4-2.4835GHz	802.11n HT40	40	4
2.4-2.4835GHz	802.11n HT40-BF	40	4
2.4-2.4835GHz	VHT40	40	4
2.4-2.4835GHz	VHT40-BF	40	4
2.4-2.4835GHz	802.11ax HEW40	40	4
2.4-2.4835GHz	802.11ax HEW40-BF	40	4

**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**

Set	Ant.	Port	Brand	Model Name	Antenna Type	Connector	Gain (dBi)		
							2.4GHz	5GHz UNII 1~3	6GHz UNII 5~ 8
1	1	1	WHAYU	C660-510515-A	Dipole Antenna	I-PEX MHF	1.99	1.98	-
	2	2	WHAYU	C660-510516-A	Dipole Antenna	I-PEX MHF	1.99	1.99	-
	3	3	WHAYU	C660-510517-A	Dipole Antenna	I-PEX MHF	1.97	1.97	-
	4	4	WHAYU	C660-510518-A	Dipole Antenna	I-PEX MHF	1.98	2.00	-
	5	1	WHAYU	C660-510519-A	Dipole Antenna	I-PEX MHF 4L	-	-	1.98
	6	2	WHAYU	C660-510520-A	Dipole Antenna	I-PEX MHF 4L	-	-	1.98
	7	3	WHAYU	C660-510521-A	Dipole Antenna	I-PEX MHF 4L	-	-	1.97
	8	4	WHAYU	C660-510522-A	Dipole Antenna	I-PEX MHF 4L	-	-	1.98
	9	1	WHAYU	C660-510485-A	PIFA Antenna	I-PEX	-	3.3	-
2	1	1	WALSIN	RFDPA161209IMLB701	Dipole Antenna	I-PEX MHF	1.99	1.98	-
	2	2	WALSIN	RFDPA161209IMLB702	Dipole Antenna	I-PEX MHF	1.99	1.99	-
	3	3	WALSIN	RFDPA161205IMLB701	Dipole Antenna	I-PEX MHF	1.97	1.97	-
	4	4	WALSIN	RFDPA161203IMLB701	Dipole Antenna	I-PEX MHF	1.98	2.00	-
	5	1	WALSIN	RFDPA161211EM6B701	Dipole Antenna	I-PEX MHF 4L	-	-	1.98
	6	2	WALSIN	RFDPA161207EM6B701	Dipole Antenna	I-PEX MHF 4L	-	-	1.98
	7	3	WALSIN	RFDPA161207EM6B702	Dipole Antenna	I-PEX MHF 4L	-	-	1.97
	8	4	WALSIN	RFDPA161209EM6B701	Dipole Antenna	I-PEX MHF 4L	-	-	1.98
	9	1	WHAYU	C660-510485-A	PIFA Antenna	I-PEX	-	3.3	-
3	1	1	WHAYU	C660-510531-A	Dipole Antenna	I-PEX MHF	1.99	1.98	-
	2	2	WHAYU	C660-510532-A	Dipole Antenna	I-PEX MHF	1.99	1.99	-
	3	3	WHAYU	C660-510533-A	Dipole Antenna	I-PEX MHF	1.97	1.97	-
	4	4	WHAYU	C660-510534-A	Dipole Antenna	I-PEX MHF	1.98	2.00	-
	5	1	WHAYU	C660-510535-A	Dipole Antenna	I-PEX MHF 4L	-	-	1.98
	6	2	WHAYU	C660-510536-A	Dipole Antenna	I-PEX MHF 4L	-	-	1.98
	7	3	WHAYU	C660-510537-A	Dipole Antenna	I-PEX MHF 4L	-	-	1.97
	8	4	WHAYU	C660-510538-A	Dipole Antenna	I-PEX MHF 4L	-	-	1.98
	9	1	WHAYU	C660-510485-A	PIFA Antenna	I-PEX	-	3.3	-





Note1: There's only set 1 selected to test and recorded in the report.

Note2: The above information was declared by manufacturer.

**<For 2.4GHz Band>**

**For IEEE 802.11b/g/n/VHT mode (4TX/4RX)**

Port 1, Port 2, Port 3 and Port 4 can be used as transmitting/receiving antenna.

Port 1, Port 2, Port 3 and Port 4 could transmit/receive simultaneously.

**<For 5GHz Band UNII 1~UNII 3>**

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

Port 1, Port 2, Port 3 and Port 4 can be used as transmitting/receiving antenna.

Port 1, Port 2, Port 3 and Port 4 could transmit/receive simultaneously.

**<For 6GHz Band UNII 5~UNII 8>**

**For IEEE 802.11ax mode (4TX/4RX)**

Port 1, Port 2, Port 3 and Port 4 can be used as transmitting/receiving antenna.

Port 1, Port 2, Port 3 and Port 4 could transmit/receive simultaneously.

### 1.1.3 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
802.11ax HEW20-BF	0.946	0.24	2.935m	1k
802.11ax HEW40-BF	0.962	0.17	4.37m	300

Note:

- ◆ DC is Duty Cycle.
- ◆ DCF is Duty Cycle Factor.

**1.1.4 EUT Operational Condition**

<b>EUT Power Type</b>	From Power Adapter			
<b>Beamforming Function</b>	<input checked="" type="checkbox"/>	With beamforming	<input type="checkbox"/>	Without beamforming
	Note: The product has beamforming function for n/ac/VHT in 2.4GHz, n/ac/ax in 5GHz UNII 1~UNII 3, and ax in 6GHz UNII 5~UNII 8.			
<b>Function</b>	<input checked="" type="checkbox"/>	Point-to-multipoint	<input type="checkbox"/>	Point-to-point
<b>Test Software Version</b>	M-Tool V3.2.0.2			

Note: The above information was declared by manufacturer.

**1.1.5 Table for Multiple Listing**

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

<b>Equipment Name</b>	<b>Brand Name</b>	<b>Model Name</b>
Wireless-AXE11000 Tri-band Gigabit Router, ROG Rapture Tri-band Gaming Router, ROG Rapture GT-AXE11000 Tri-band Gaming Router, Wi-Fi 6E ROG Rapture GT-AXE11000 Tri-band Gaming Router	ASUS	GT-AXE11000
<b>Description</b>		
For marketing reason the same product will be covered by different equipment name.		

**1.1.6 The EUT Supports Type**

The EUT supports AP Router, Repeater, Mesh, bridge functions for WLAN 2.4GHz and WLAN 5GHz.



### 1.1.7 Table for Class III Change

This product is an extension of original one reported under Sporton project number: FR070920AA

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

Modifications	Performance Checking
1. Adding TXBF mode for 2.4GHz and 5GHz UNII 1~UNII 3 of the device.	1. DTS Bandwidth 2. Maximum Conducted Output Power 3. Power Spectral Density 4. Emissions in Non-restricted Frequency Bands above 1GHz
2. Remove the LED board on the top cover of the EUT.	Emissions in Restricted Frequency Bands Below 1GHz.
3. Adding U-NII 5, UNII 6, UNII 7 and UNII 8(5925~6425 MHz, 6425~6525 MHz, 6525~6875 MHz, 6875~7125 MHz) for this device.	1. AC power-line conducted emissions 2. Emissions in Restricted Frequency Bands Below 1GHz.
4. Adding two equipment names: ROG Rapture GT-AXE11000 Tri-band Gaming Router, Wi-Fi 6E ROG Rapture GT-AXE11000 Tri-band Gaming Router. 5. Adding bridge, repeater, mesh, zero wait function for this device of WLAN 2.4GHz and 5GHz only. 6. Adding the test results of 4T4S non-TXBF 80MHz mode for UNII 1, UNII 3. 7. Upgrade the power of 4T1S non-TXBF mode for 802.11a UNII 1, UNII 3 for frequency 5180, 5200, 5500, 5700MHz and 4T1S non-TXBF mode for frequency 5210MHz. 8. Adding two sets of antenna with same type and same antenna gain. 9. Adding PIFA antenna with receiving function only, and it supports zero wait function only.	After evaluating, It doesn't influence this test 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			
<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	TH02-CB	Caster Chang	23.4~25.2°C / 53~57%	Jul. 16, 2020 ~ Sep. 29, 2020
Radiated below 1GHz (Test Mode: Mode 1)	03CH06-CB	Stim Sung	25.4-26.5°C / 58-60%	Jul. 10, 2020 ~ Oct. 13, 2020
Radiated below 1GHz (Test Mode: Mode 2)	03CH06-CB	Stim Sung	23.9-25.4°C / 53-56%	Jul. 10, 2020 ~ Oct. 13, 2020
Radiated below 1GHz (Test Mode: Mode 3)	03CH05-CB	Stim Sung	24.1-25.3°C / 54-57%	Jul. 10, 2020 ~ Oct. 13, 2020
Radiated above 1GHz	03CH06-CB	Stim Sung	25.4-26.5°C / 58-60%	Jul. 10, 2020 ~ Oct. 13, 2020
AC Conduction	CO01-CB	Max Lin	25~26°C / 60~62%	Oct. 14, 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	2.8 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)_4TX	-
2412MHz	69
2417MHz	76
2437MHz	85
2457MHz	84
2462MHz	76
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	-
2422MHz	64
2437MHz	74
2452MHz	66
802.11ax HEW20-BF_Nss2,(MCS0)_4TX	-
2437MHz	93

**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.

## 2.2 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
<b>Tests Item</b>	AC power-line conducted emissions
<b>Condition</b>	AC power-line conducted measurement for line and neutral
<b>Operating Mode</b>	CTX
	There are three adapters, after evaluating, Adapter 1 has been evaluated to be the worst case among Adapter 1~3, thus measurement will follow this same test configuration.
1	EUT + Ant. set 1 - 6GHz + Adapter 1

The Worst Case Mode for Following Conformance Tests	
<b>Tests Item</b>	DTS Bandwidth Maximum Conducted Output Power Power Spectral Density Emissions in Non-restricted Frequency Bands
<b>Test Condition</b>	Conducted measurement at transmit chains
1	EUT + Ant. set 1 / 4T1S: beamforming mode
2	EUT + Ant. set 1 / 4T2S: beamforming mode

The Worst Case Mode for Following Conformance Tests	
<b>Tests Item</b>	Emissions in Restricted Frequency Bands
<b>Test Condition</b>	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.
<b>Operating Mode &lt; 1GHz</b>	CTX
	There are three adapters, after evaluating, Adapter 1 has been evaluated to be the worst case among Adapter 1~3, thus measurement will follow this same test configuration.
1	EUT + Ant. set 1 - 2.4GHz + Adapter 1
2	EUT + Ant. set 1 - 5GHz + Adapter 1
3	EUT + Ant. set 1 - 6GHz + Adapter 1
Mode 2 generated the worst test result, so it was recorded in this report.	
<b>Operating Mode &gt; 1GHz</b>	CTX
1	EUT + Ant. set 1 / 4T1S: beamforming mode
2	EUT + Ant. set 1 / 4T2S: beamforming mode



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 UNII 1~3 + WLAN 6GHz UNII 5~8
Refer to Sporton Test Report No.: FA070920-01 for Co-location RF Exposure Evaluation.	

Note: The EUT can only use Z axis position.

## 2.3 EUT Operation during Test

For Normal Link:

During the test, the EUT operation to normal function.

For CTX 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 WLAN AP and transmit duty cycle no less than 98%.

## 2.4 Accessories

Accessories				
Power	Brand Name	Model Name	Rating	Remark
Adapter 1	DELTA	ADP-65DE B	INPUT: 100-240V ~ 1.5A, 50-60Hz OUTPUT: 19.0V, 3.42A, 65.0W	DC power cable Non-shielded, 1.5m
Adapter 2	AcBel	ADD011	INPUT: 100-240V ~ 1.7A, 50-60Hz OUTPUT: 19.5V, 3.33A, 65.0W Max.	DC power cable Non-shielded, 1.5m
Adapter 3	DELTA	ADP-65GD D	INPUT: 100-240V ~ 50-60Hz, 1.5A OUTPUT: 19.0-3.42V, 65.0W	DC power cable Non-shielded, 1.5m
Others				
Power cable*1, Non-Shielded, 0.9m				
RJ-45 cable*1: Shielded, 1.5m				



## 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
C	HDD3.0	Transcend	TS1TSJ25A3K	N/A

For RF Conducted:

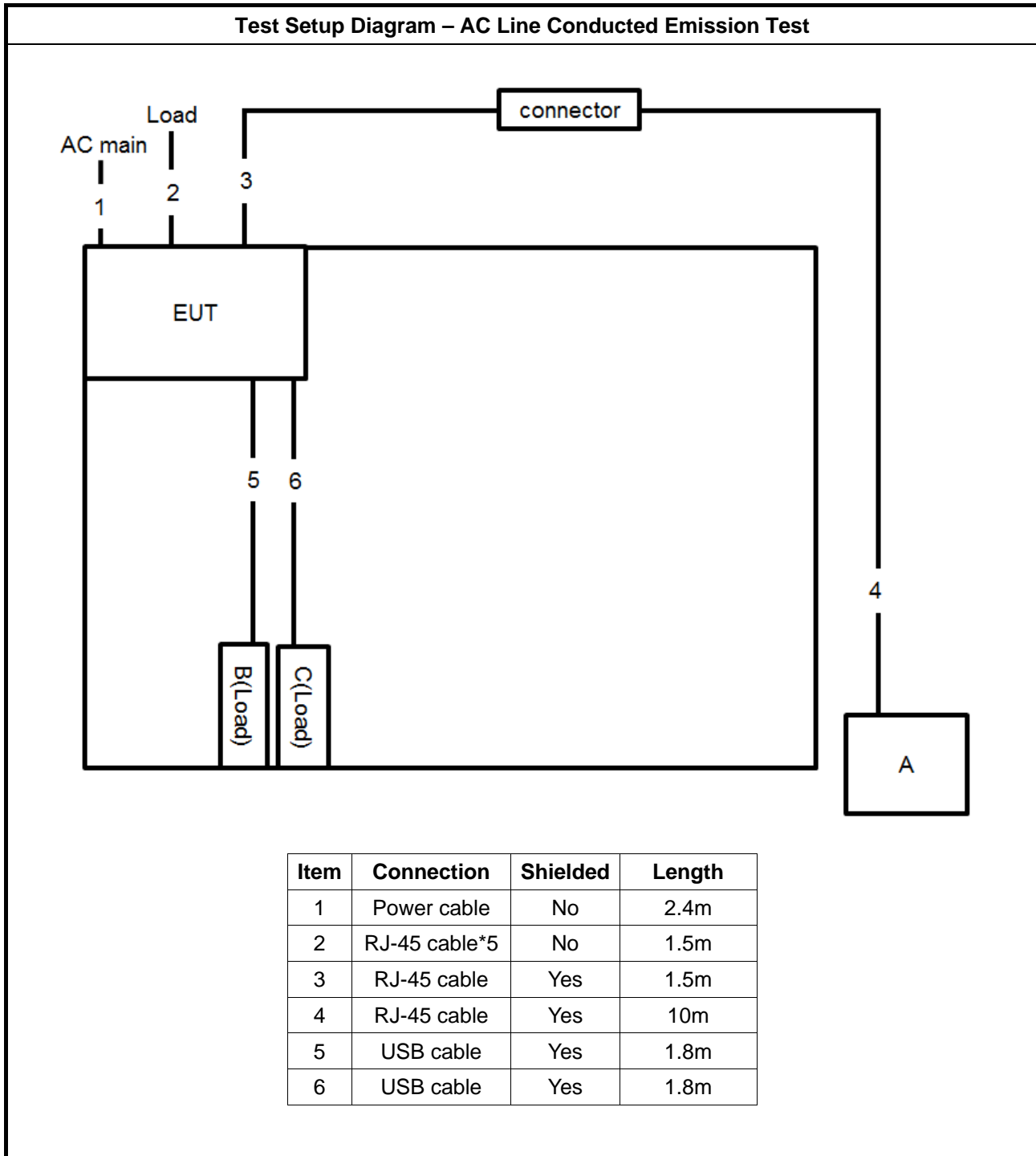
Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	Notebook	DELL	E4300	N/A

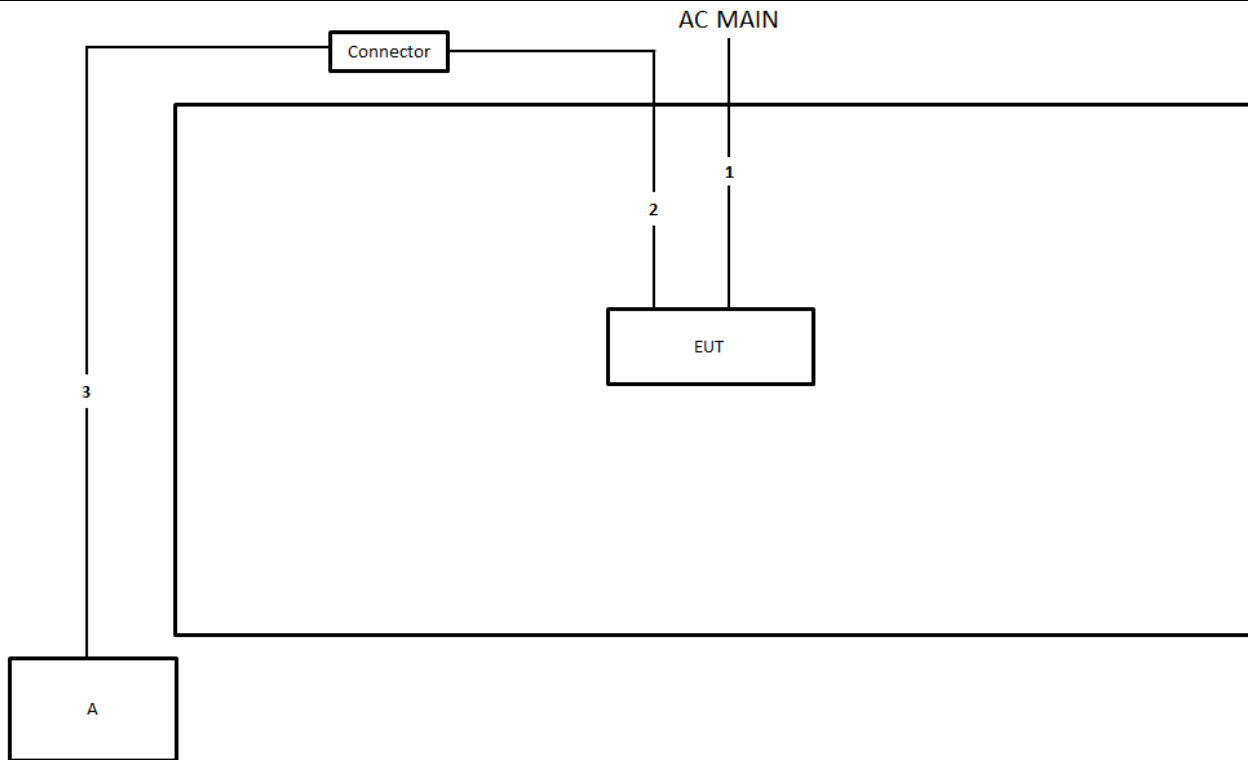
For Radiated:

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

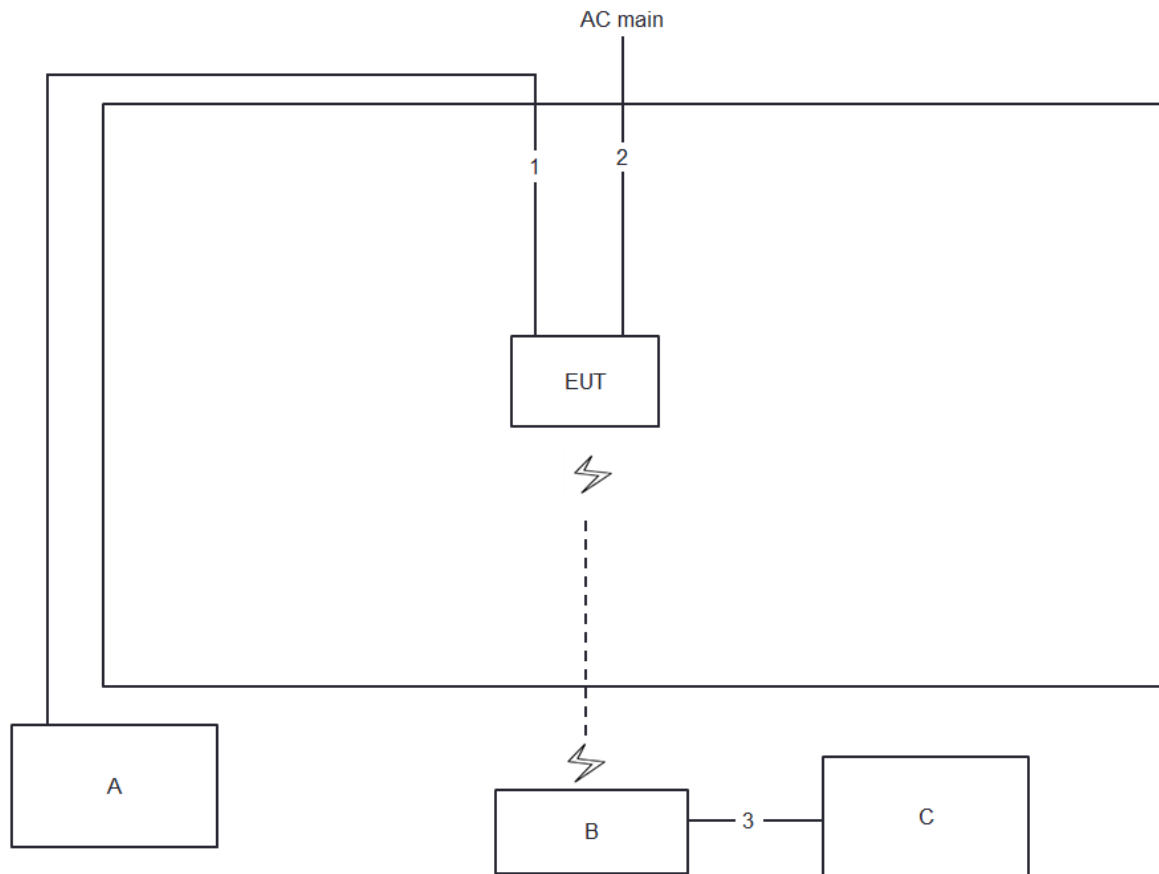


## 2.6 Test Setup Diagram



**Test Setup Diagram - Radiated Test < 1GHz**


Item	Connection	Shielded	Length
1	Power cable	No	2.4m
2	RJ-45 cable	Yes	1.5m
3	RJ-45 cable	No	10m

**Test Setup Diagram - Radiated Test > 1GHz**


Item	Connection	Shielded	Length
1	RJ-45 cable	No	10m
2	Power cable	No	2.4m
3	RJ-45 cable	No	1.5m



### 3 Transmitter Test Result

#### 3.1 AC Power-line Conducted Emissions

##### 3.1.1 AC Power-line Conducted Emissions Limit

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

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

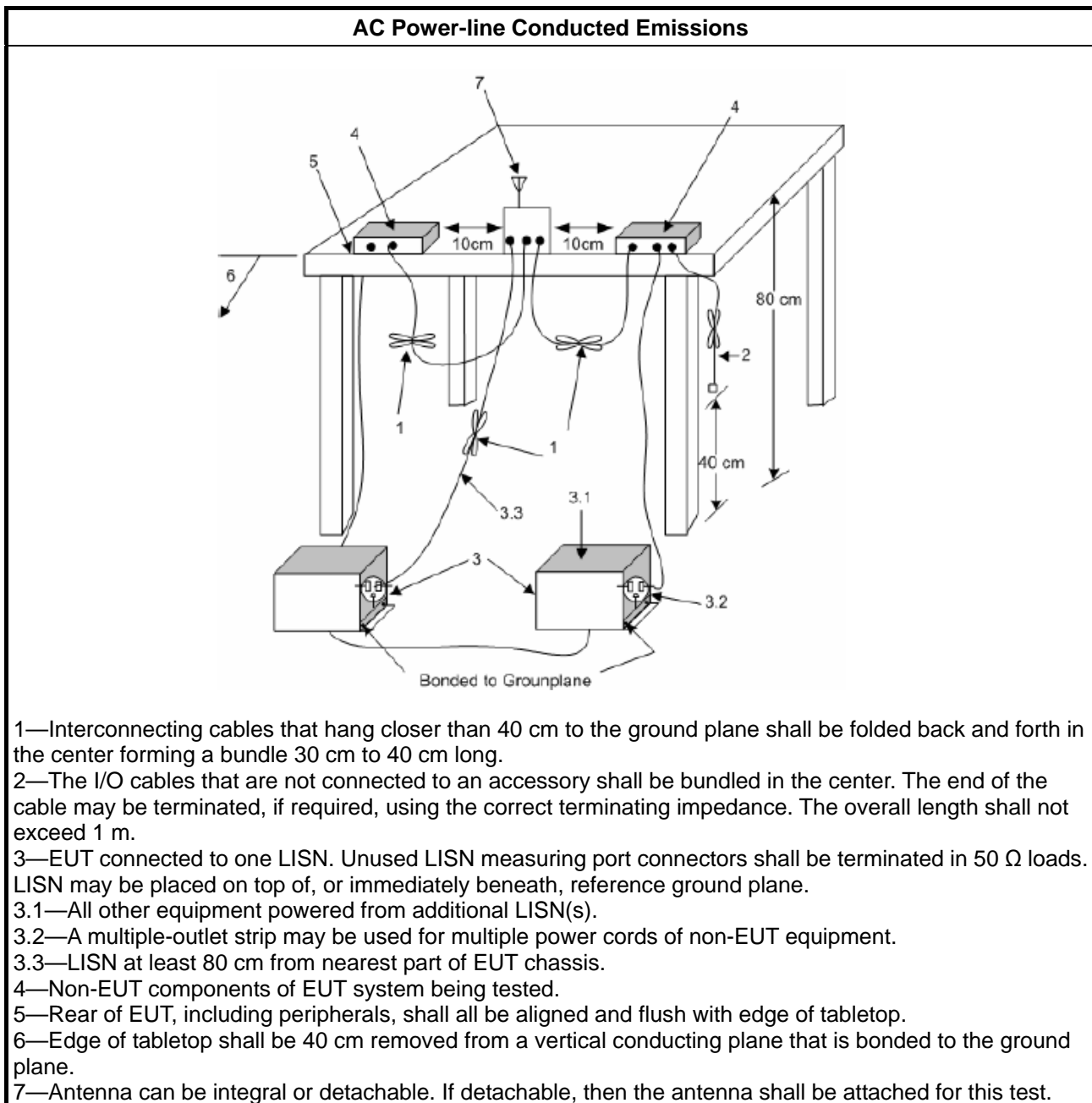
##### 3.1.2 Measuring Instruments

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

##### 3.1.3 Test Procedures

Test Method
<input checked="" type="checkbox"/> Refer as ANSI C63.10-2013, clause 6.2 for AC power-line conducted emissions.

### 3.1.4 Test Setup



### 3.1.5 Measurement Results Calculation

The measured Level is calculated using:

- Corrected Reading: LISN Factor (LISN) + Attenuator (AT/AUX) + Cable Loss (CL) + Read Level (Raw) = Level
- 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	
<b>Systems using digital modulation techniques:</b>	
▪	6 dB bandwidth $\geq$ 500 kHz.

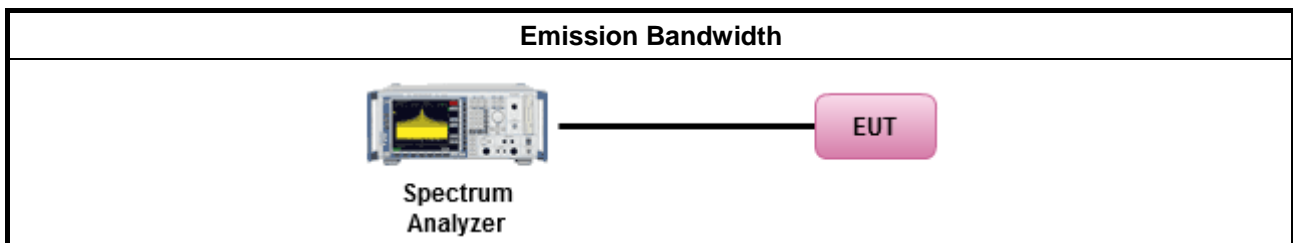
### 3.2.2 Measuring Instruments

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

### 3.2.3 Test Procedures

Test Method	
▪	For the emission bandwidth shall be measured using one of the options below:
<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.

### 3.2.4 Test Setup



### 3.2.5 Test Result of Emission Bandwidth

Refer as Appendix B

### 3.3 Maximum Conducted Output Power

#### 3.3.1 Maximum Conducted Output Power Limit

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

#### 3.3.2 Measuring Instruments

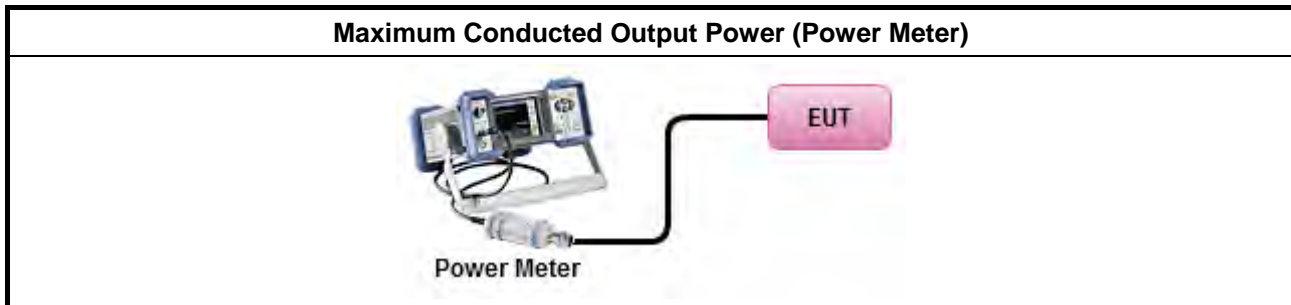
Refer a test equipment and calibration data table in this test report.



### 3.3.3 Test Procedures

Test Method	
<ul style="list-style-type: none"> <li>Maximum Peak Conducted Output Power</li> </ul>	
<input type="checkbox"/>	Refer as FCC KDB 558074, clause 8.3.1.1 & C63.10 clause 11.9.1.1 (RBW ≥ 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"> <li>Maximum Conducted Output Power</li> </ul>	
[duty cycle ≥ 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"> <li>For conducted measurement.</li> </ul>	
<ul style="list-style-type: none"> <li>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.</li> </ul>	
<ul style="list-style-type: none"> <li>If multiple transmit chains, EIRP calculation could be following as methods:  <math display="block">P_{total} = P_1 + P_2 + \dots + P_n</math> (calculated in linear unit [mW] and transfer to log unit [dBm])  <math display="block">EIRP_{total} = P_{total} + DG</math> </li> </ul>	

### 3.3.4 Test Setup



### 3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix C



### 3.4 Power Spectral Density

#### 3.4.1 Power Spectral Density Limit

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

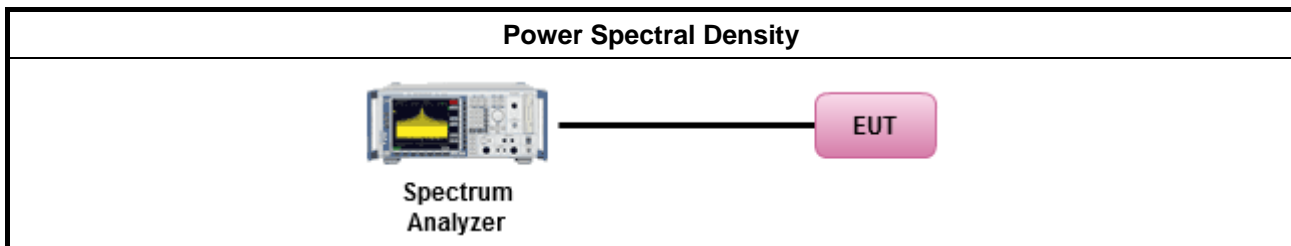
#### 3.4.2 Measuring Instruments

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

#### 3.4.3 Test Procedures

Test Method	
▪ Peak power spectral density procedures that the same method as used to determine the conducted output power. If maximum peak conducted output power was measured to demonstrate compliance to the output power limit, then the peak PSD procedure below (Method PKPSD) shall be used. If maximum conducted output power was measured to demonstrate compliance to the output power limit, then one of the average PSD procedures shall be used, as applicable based on the following criteria (the peak PSD procedure is also an acceptable option).	
<input checked="" type="checkbox"/>	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:	
<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.

### 3.4.4 Test Setup



### 3.4.5 Test Result of Power Spectral Density

Refer as Appendix D

### 3.5 Emissions in Non-restricted Frequency Bands

#### 3.5.1 Emissions in Non-restricted Frequency Bands Limit

Un-restricted Band Emissions Limit	
RF output power procedure	Limit (dBc)
Peak output power procedure	20
Average output power procedure	30
<p>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.</p> <p>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.</p>	

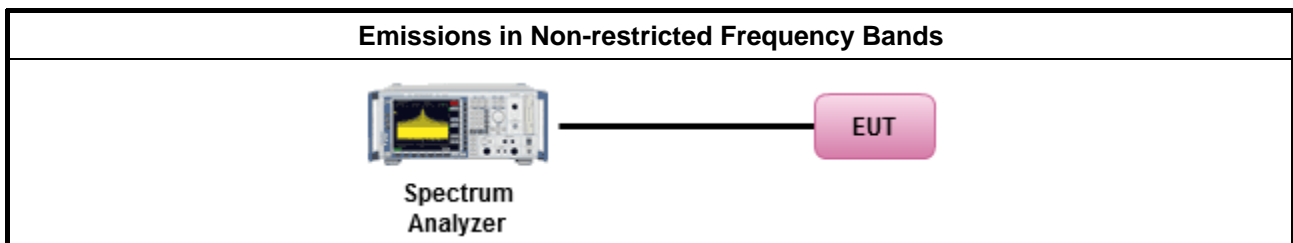
#### 3.5.2 Measuring Instruments

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"> <li>Refer as FCC KDB 558074, clause 8.5 for unwanted emissions into non-restricted bands.</li> </ul>

#### 3.5.4 Test Setup



#### 3.5.5 Test Result of Emissions in Non-restricted Frequency Bands

Refer as Appendix E

### 3.6 Emissions in Restricted Frequency Bands

#### 3.6.1 Emissions in Restricted Frequency Bands Limit

Restricted Band Emissions Limit			
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300
0.490~1.705	24000/F(kHz)	33.8 - 23	30
1.705~30.0	30	29	30
30~88	100	40	3
88~216	150	43.5	3
216~960	200	46	3
Above 960	500	54	3

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

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

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.

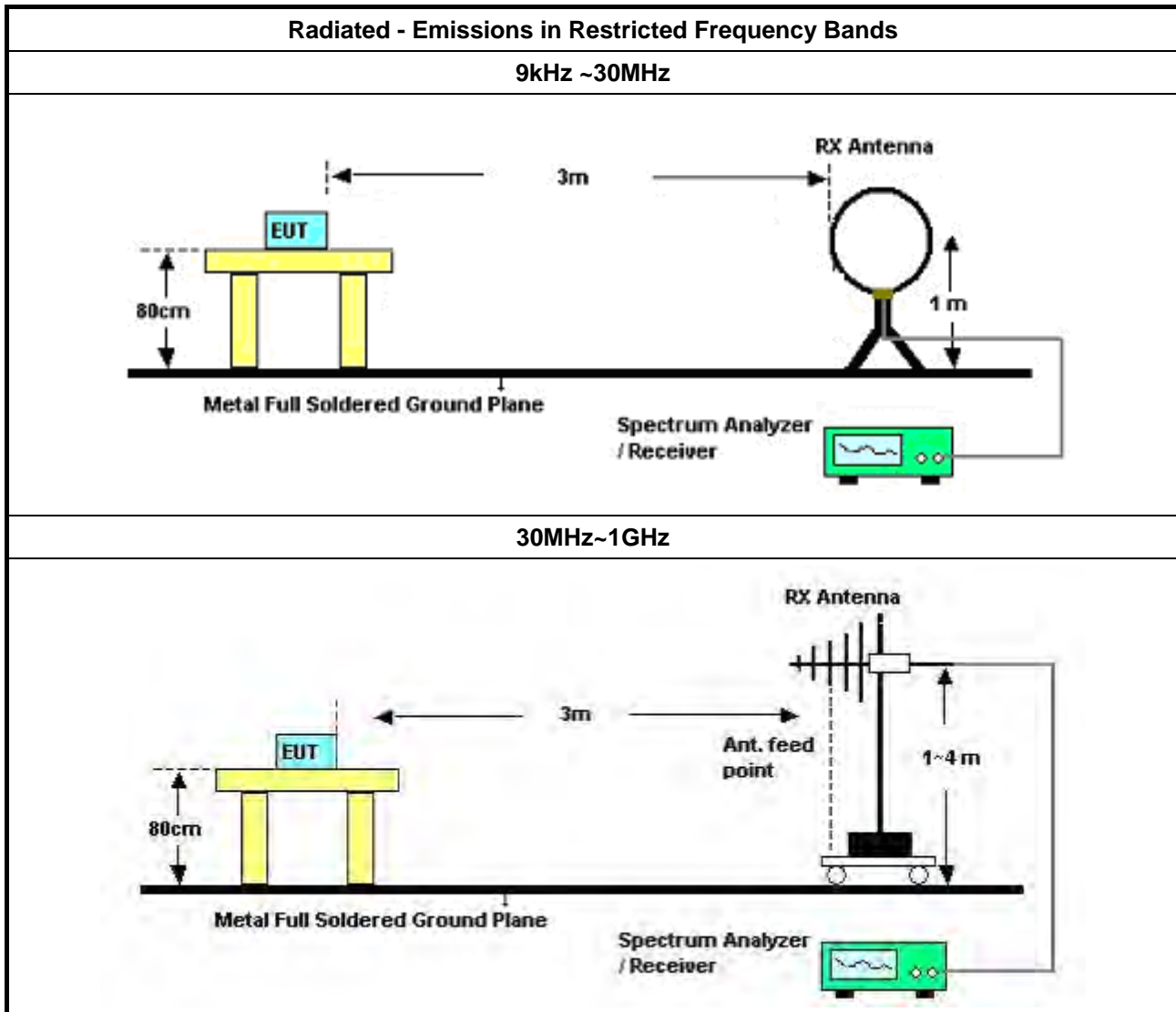


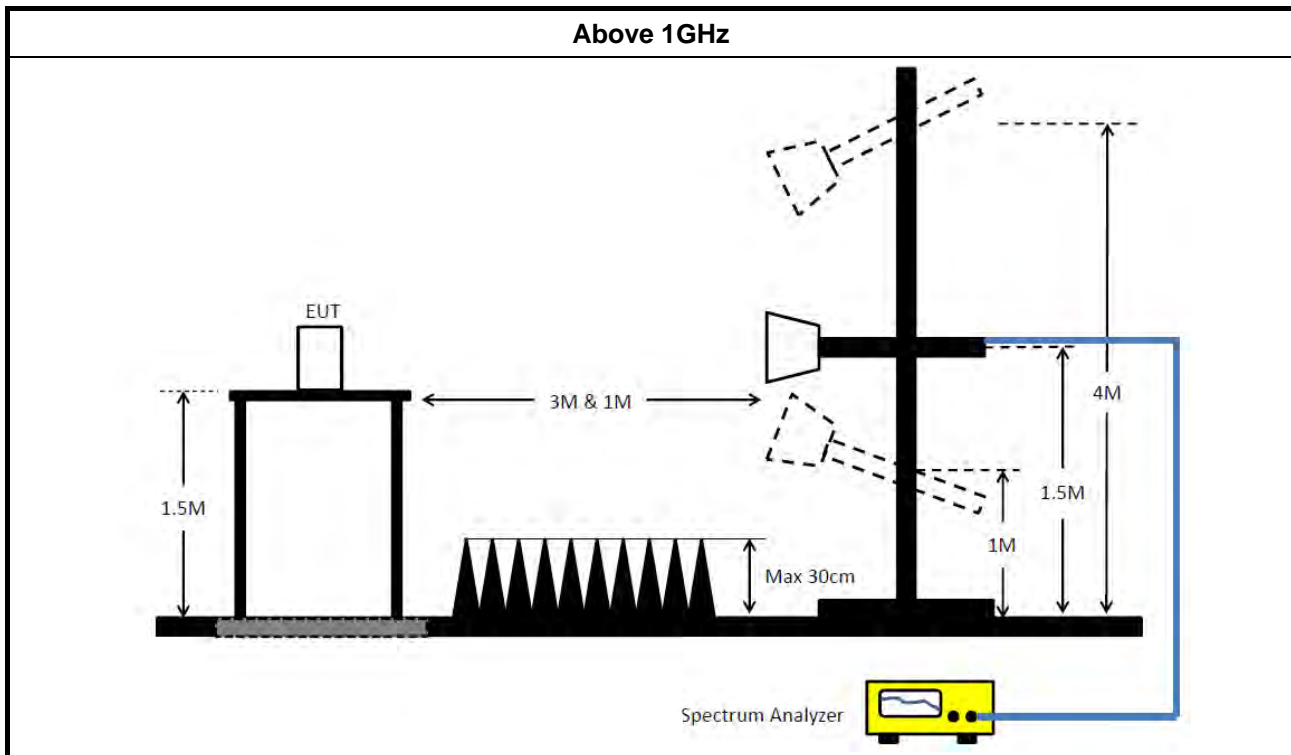
### 3.6.3 Test Procedures

Test Method	
<ul style="list-style-type: none"> <li>The average emission levels shall be measured in [duty cycle <math>\geq 98</math> or duty factor].</li> </ul>	
<ul style="list-style-type: none"> <li>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.</li> </ul>	
<ul style="list-style-type: none"> <li>For the transmitter unwanted emissions shall be measured using following options below:</li> </ul>	
	<ul style="list-style-type: none"> <li>Refer as FCC KDB 558074, clause 8.6 for unwanted emissions into restricted bands.</li> </ul>
<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"> <li>For the transmitter band-edge emissions shall be measured using following options below:</li> </ul>	
	<ul style="list-style-type: none"> <li>Refer as FCC KDB 558074 clause 8.7 &amp; 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.</li> </ul>
	<ul style="list-style-type: none"> <li>Refer as FCC KDB 558074, clause 8.7 (ANSI C63.10, clause 6.10.6) for marker-delta method for band-edge measurements.</li> </ul>
	<ul style="list-style-type: none"> <li>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).</li> </ul>
	<ul style="list-style-type: none"> <li>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</li> </ul>
	<ul style="list-style-type: none"> <li>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.</li> </ul>



### 3.6.4 Test Setup





### 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 10 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 (03CH05-CB)
Bilog Antenna with 6dB Attenuator	TESEQ & EMCI	CBL 6112D & N-6-06	35236 & AT-N0610	30MHz ~ 2GHz	Mar. 27, 2020	Mar. 26, 2021	Radiation (03CH05-CB)
Pre-Amplifier	EMCI	EMC330N	980331	20MHz ~ 3GHz	Apr. 28, 2020	Apr. 27, 2021	Radiation (03CH05-CB)
Signal Analyzer	R&S	FSV40	101904	9kHz ~ 40GHz	May 12, 2020	May 11, 2021	Radiation (03CH05-CB)
EMI Test Receiver	R&S	ESCS	826547/017	9kHz ~ 2.75GHz	May 13, 2020	May 12, 2021	Radiation (03CH05-CB)
RF Cable-low	Woken	RG402	Low Cable-04+23	30MHz~1GHz	Oct. 05, 2020	Oct. 04, 2021	Radiation (03CH05-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH05-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Apr. 13, 2020	Apr. 12, 2021	Radiation (03CH06-CB)
Bilog Antenna with 6 dB attenuator	TESEQ & EMCI	CBL6112D & N-6-06	37878 & AT-N0606	20MHz ~ 2GHz	Aug. 03, 2019	Aug. 02, 2020	Radiation (03CH06-CB)
Bilog Antenna with 6 dB attenuator	TESEQ & EMCI	CBL6112D & N-6-06	37878 & AT-N0606	20MHz ~ 2GHz	Aug. 02, 2020	Aug. 01, 2021	Radiation (03CH06-CB)
Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-1292	1GHz~18GHz	Jul. 17, 2019	Jul. 16, 2020	Radiation (03CH06-CB)
Horn Antenna	SCHWARZBECK	BBHA9120D	BBHA 9120D-1291	1GHz~18GHz	Oct. 05, 2019	Oct. 04, 2020	Radiation (03CH06-CB)
Horn Antenna	COM-POWER	AH-118	071028	1GHz ~ 18GHz	Jun. 09, 2020	Jun. 08, 2021	Radiation (03CH06-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jul. 21, 2020	Jul. 20, 2021	Radiation (03CH06-CB)



Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170507	15GHz ~ 40GHz	Jun. 11, 2020	Jun. 10, 2021	Radiation (03CH06-CB)
Pre-Amplifier	EMCI	EMC330N	980391	20MHz ~ 3GHz	May 21, 2020	May 20, 2021	Radiation (03CH06-CB)
Pre-Amplifier	Agilent	83017A	MY53270064	0.5GHz ~ 26.5GHz	May 07, 2020	May 06, 2021	Radiation (03CH06-CB)
Pre-Amplifier	MITEQ	TTA1840-35-HG	1864479	18GHz ~ 40GHz	Jul. 08, 2020	Jul. 07, 2021	Radiation (03CH06-CB)
Amplifier	-	-	TF-130N-R1	18GHz ~ 40GHz	Jun. 19, 2020	Jun. 18, 2021	Radiation (03CH06-CB)
Spectrum analyzer	R&S	FSP40	100080	9kHz~40GHz	Oct. 21, 2019	Oct. 20, 2020	Radiation (03CH06-CB)
EMI Test Receiver	R&S	ESCS	826547/017	9kHz ~ 2.75GHz	May 13, 2020	May 12, 2021	Radiation (03CH06-CB)
RF Cable-low	HUBER+SUHNER	RG402	Low Cable-05+24	30MHz~1GHz	Oct. 07, 2019	Oct. 06, 2020	Radiation (03CH06-CB)
RF Cable-high	HUBER+SUHNER	RG402	High Cable-05	1GHz~18GHz	Oct. 07, 2019	Oct. 06, 2020	Radiation (03CH06-CB)
RF Cable-high	HUBER+SUHNER	RG402	High Cable-05+24	1GHz~18GHz	Oct. 07, 2019	Oct. 06, 2020	Radiation (03CH06-CB)
RF Cable-high	Woken	RG402	High Cable-40G#1	18GHz ~ 40 GHz	Jul. 24, 2019	Jul. 23, 2020	Radiation (03CH06-CB)
RF Cable-high	Woken	RG402	High Cable-40G#1	18GHz ~ 40 GHz	Jul. 16, 2020	Jul. 15, 2021	Radiation (03CH06-CB)
RF Cable-high	Woken	RG402	High Cable-40G#2	18GHz ~ 40 GHz	Jul. 24, 2019	Jul. 23, 2020	Radiation (03CH06-CB)
RF Cable-high	Woken	RG402	High Cable-40G#2	18GHz ~ 40 GHz	Jul. 16, 2020	Jul. 15, 2021	Radiation (03CH06-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH06-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 Sensor	Anritsu	MA2411B	1531343	300MHz~40GHz	Aug. 04, 2020	Aug. 03, 2021	Conducted (TH02-CB)
Power Meter	Anritsu	ML2495A	1210004	300MHz~40GHz	Sep. 11, 2019	Sep. 10, 2020	Conducted (TH02-CB)
Power Meter	Anritsu	ML2495A	1728001	300MHz~40GHz	Aug. 04, 2020	Aug. 03, 2021	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)
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)



## FCC RADIO TEST REPORT

Report No. : FR070920-01AA

Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conducted (TH02-CB)
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Note: Calibration Interval of instruments listed above is one year.

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



## Conducted Emissions at Powerline

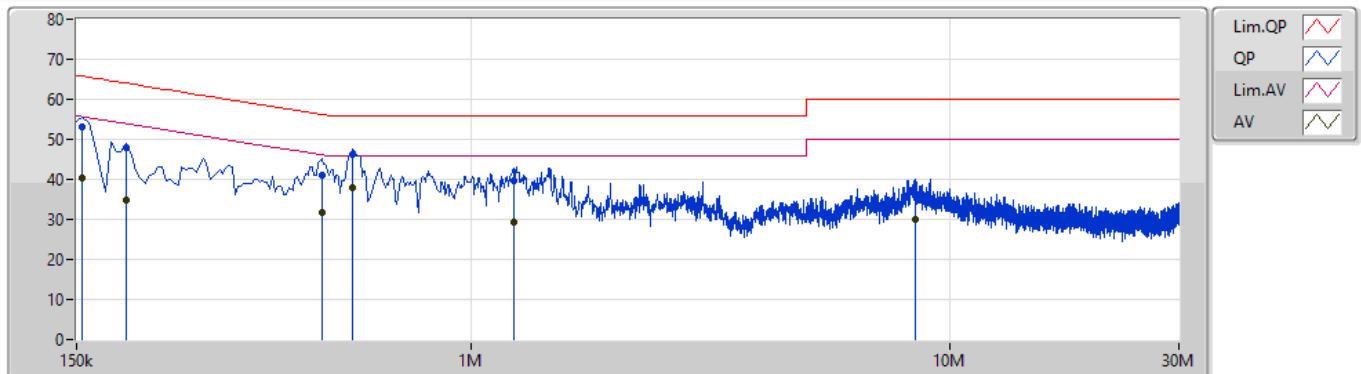
## Appendix A

### Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	AV	564k	37.78	46.00	-8.22	Line

## Mode 1

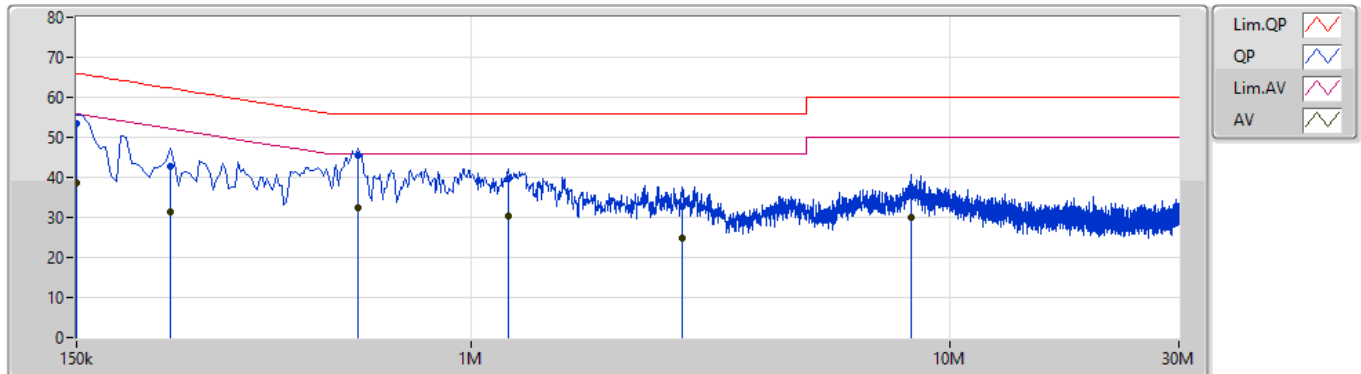
14/10/2020



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	AF (dB)	CL (dB)	AT (dB)			
QP	154.5k	53.22	65.75	-12.53	9.87	Line	-	43.35	0.05	0.03	9.79			
AV	154.5k	40.37	55.75	-15.38	9.87	Line	-	30.50	0.05	0.03	9.79			
QP	190.5k	47.80	64.01	-16.21	9.86	Line	-	37.94	0.04	0.03	9.79			
AV	190.5k	34.97	54.01	-19.04	9.86	Line	-	25.11	0.04	0.03	9.79			
QP	487.5k	41.12	56.21	-15.09	9.88	Line	-	31.24	0.04	0.03	9.81			
AV	487.5k	31.85	46.21	-14.36	9.88	Line	-	21.97	0.04	0.03	9.81			
QP	564k	46.04	56.00	-9.96	9.88	Line	-	36.16	0.04	0.03	9.81			
AV	564k	37.78	46.00	-8.22	9.88	Line	"Worst"	27.90	0.04	0.03	9.81			
QP	1.226M	39.52	56.00	-16.48	9.92	Line	-	29.60	0.05	0.05	9.82			
AV	1.226M	29.32	46.00	-16.68	9.92	Line	-	19.40	0.05	0.05	9.82			
QP	8.435M	35.83	60.00	-24.17	10.21	Line	-	25.62	0.16	0.15	9.90			
AV	8.435M	29.83	50.00	-20.17	10.21	Line	-	19.62	0.16	0.15	9.90			

### Mode 1

14/10/2020



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	AF (dB)	CL (dB)	AT (dB)			
QP	150k	53.53	66.00	-12.47	9.86	Neutral	-	43.67	0.04	0.03	9.79			
AV	150k	38.77	56.00	-17.23	9.86	Neutral	-	28.91	0.04	0.03	9.79			
QP	235.5k	42.62	62.25	-19.63	9.86	Neutral	-	32.76	0.04	0.03	9.79			
AV	235.5k	31.29	52.25	-20.96	9.86	Neutral	-	21.43	0.04	0.03	9.79			
QP	582k	45.53	56.00	-10.47	9.89	Neutral	"Worst"	35.64	0.05	0.03	9.81			
AV	582k	32.40	46.00	-13.60	9.89	Neutral	-	22.51	0.05	0.03	9.81			
QP	1.199M	39.78	56.00	-16.22	9.93	Neutral	-	29.85	0.06	0.05	9.82			
AV	1.199M	30.23	46.00	-15.77	9.93	Neutral	-	20.30	0.06	0.05	9.82			
QP	2.76M	32.68	56.00	-23.32	10.00	Neutral	-	22.68	0.08	0.10	9.82			
AV	2.76M	24.88	46.00	-21.12	10.00	Neutral	-	14.88	0.08	0.10	9.82			
QP	8.273M	35.68	60.00	-24.32	10.20	Neutral	-	25.48	0.15	0.15	9.90			
AV	8.273M	29.91	50.00	-20.09	10.20	Neutral	-	19.71	0.15	0.15	9.90			



**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)_4TX	19.025M	19.115M	19M1D1D	18.95M	19.04M
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	37.6M	37.531M	37M5D1D	37M	37.431M

**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;

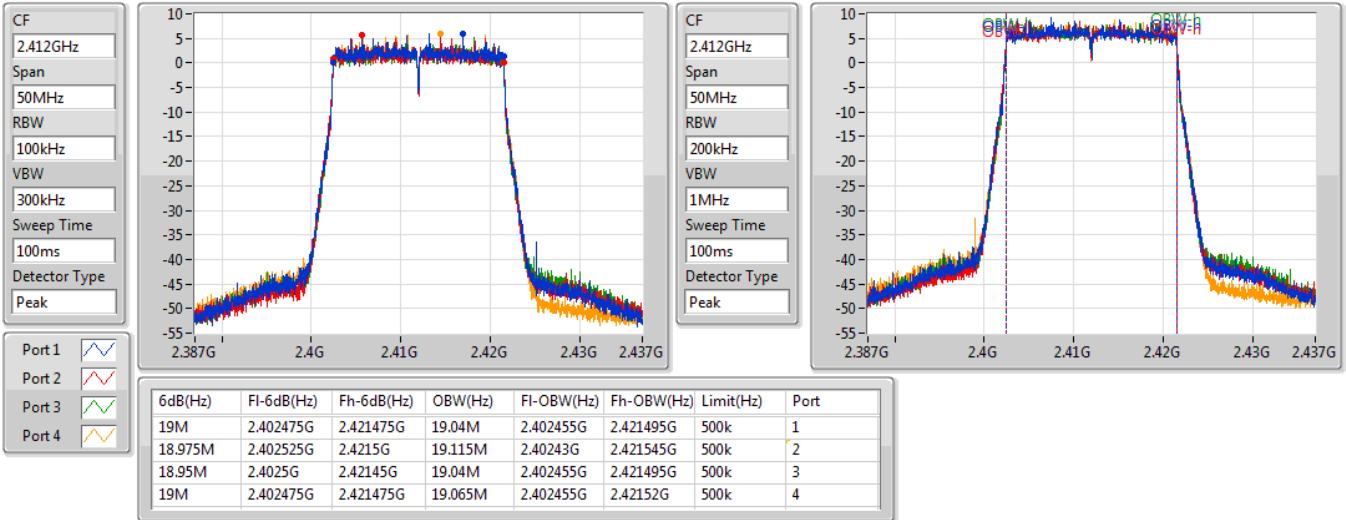
**Result**

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)	Port 4-N dB (Hz)	Port 4-OBW (Hz)
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	500k	19M	19.04M	18.975M	19.115M	18.95M	19.04M	19M	19.065M
2437MHz	Pass	500k	19M	19.065M	19M	19.115M	19.025M	19.04M	18.95M	19.09M
2462MHz	Pass	500k	19.025M	19.065M	18.975M	19.09M	19M	19.04M	18.975M	19.065M
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
2422MHz	Pass	500k	37.45M	37.531M	37.25M	37.481M	37.6M	37.531M	37M	37.531M
2437MHz	Pass	500k	37.45M	37.481M	37.45M	37.531M	37.05M	37.481M	37.5M	37.531M
2452MHz	Pass	500k	37.1M	37.481M	37.25M	37.481M	37.6M	37.431M	37.4M	37.481M

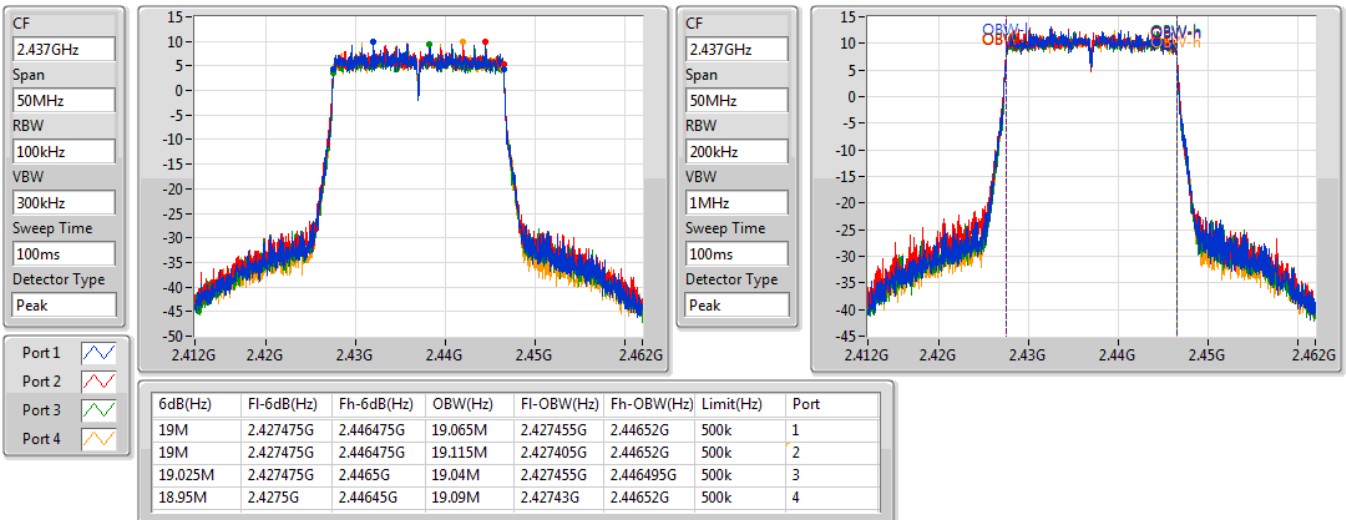
**Port X-N dB** = Port X 6dB down bandwidth; **Port X-OBW** = Port X 99% occupied bandwidth;

**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**2412MHz**

27/07/2020

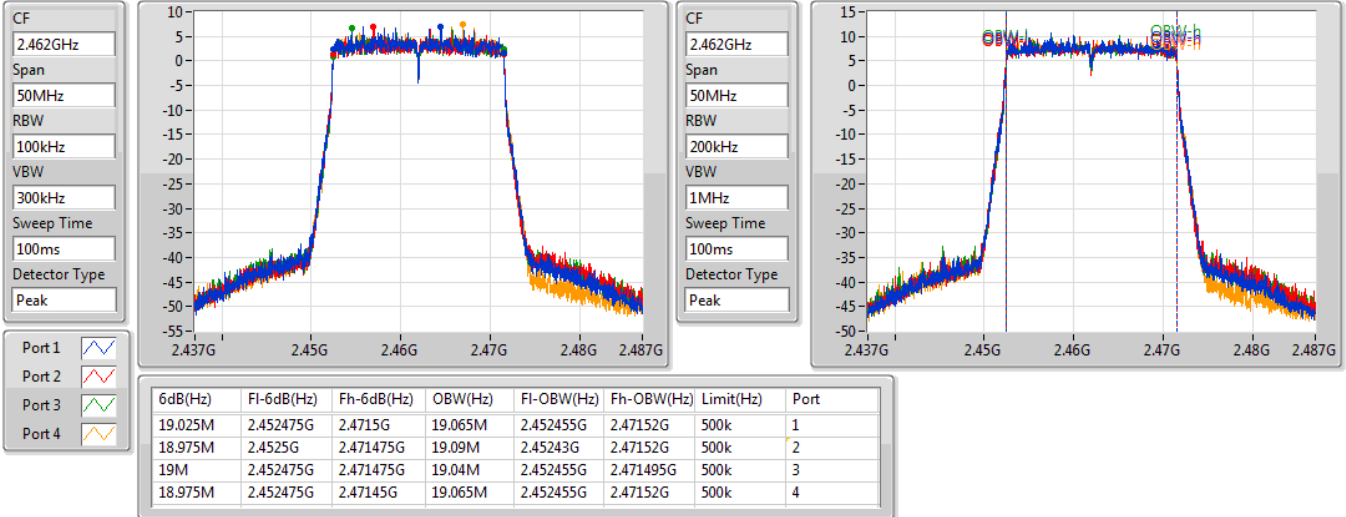

**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**2437MHz**

27/07/2020

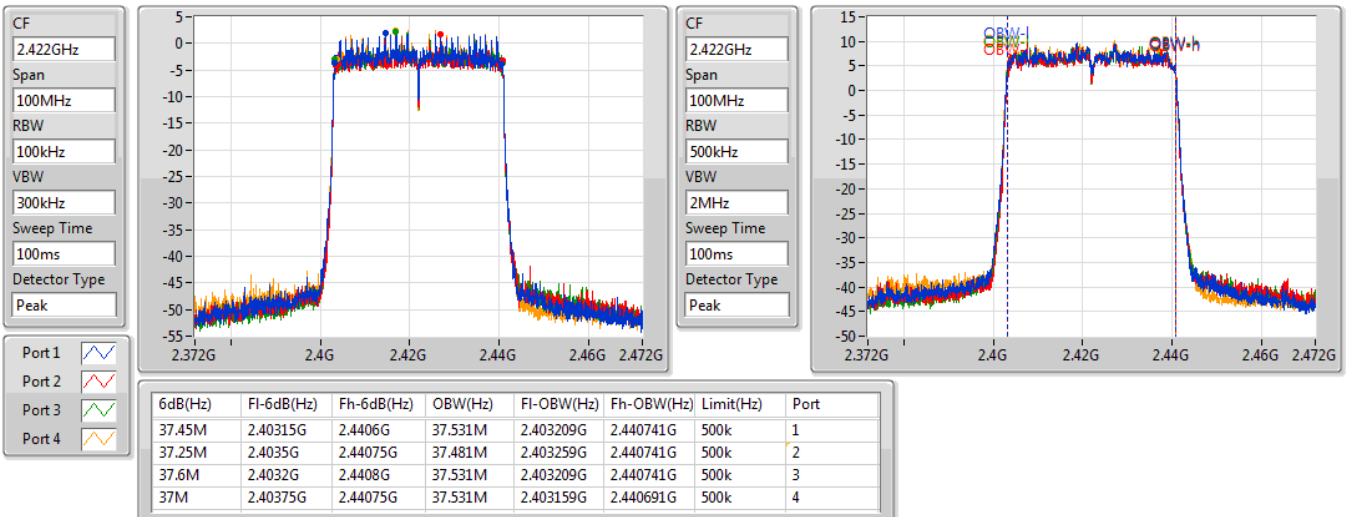


**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**2462MHz**

27/07/2020

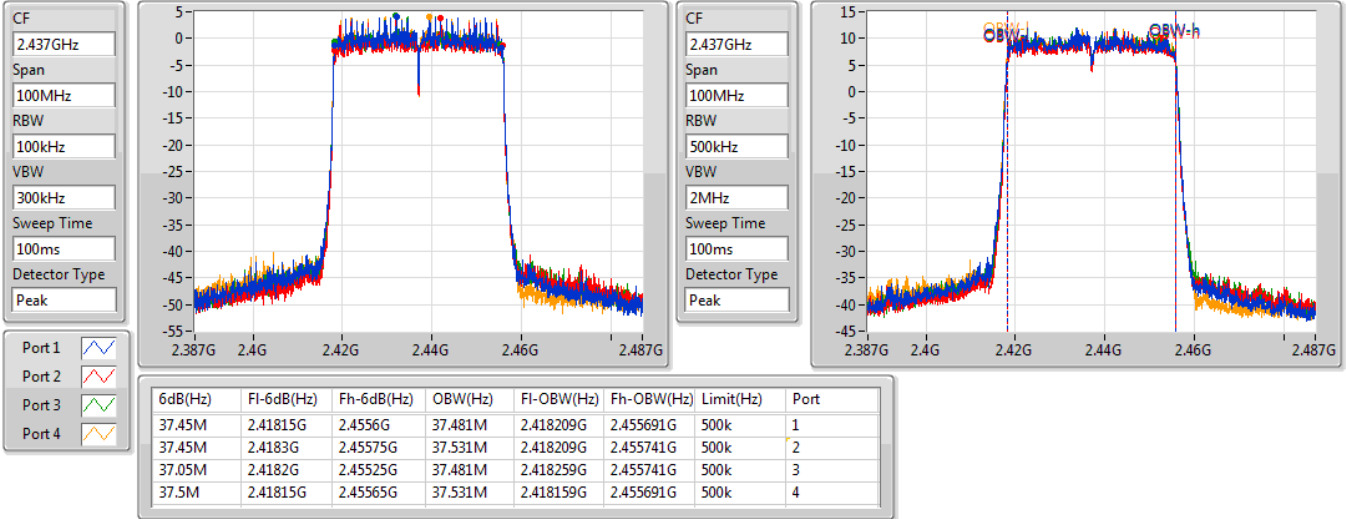

**802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**2422MHz**

27/07/2020

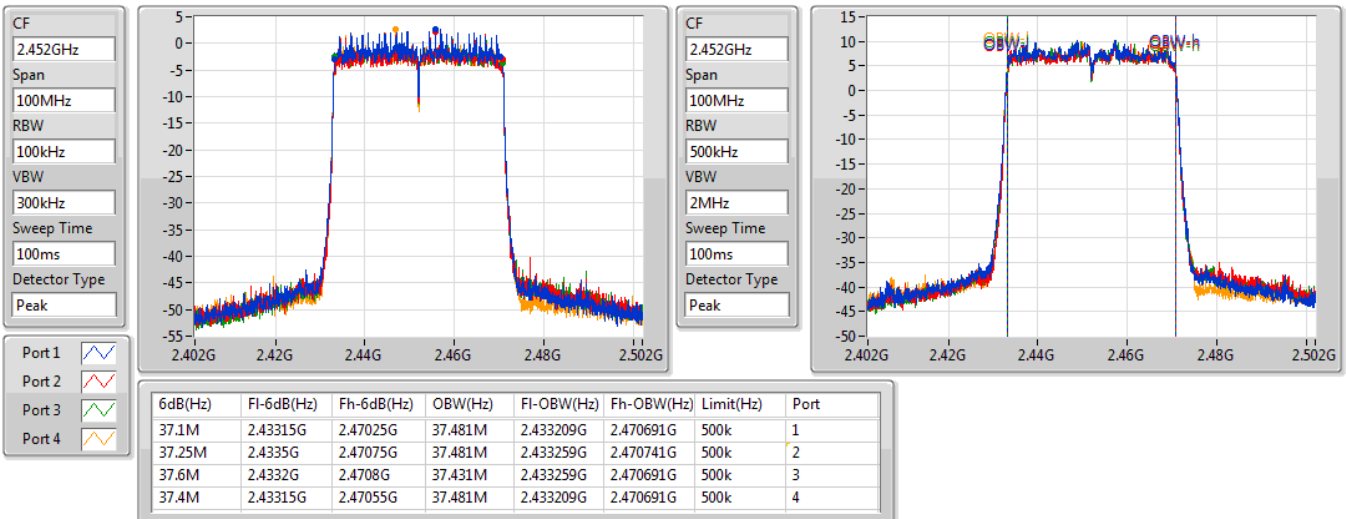


**802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**2437MHz**

27/07/2020


**802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**2452MHz**

27/07/2020



**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_Nss2,(MCS0)_4TX	19.025M	19.14M	19M1D1D	18.9M	19.065M

**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)	Port 4-N dB (Hz)	Port 4-OBW (Hz)
802.11ax HEW20-BF_Nss2,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
2437MHz	Pass	500k	19.025M	19.065M	18.95M	19.14M	18.95M	19.065M	18.9M	19.09M

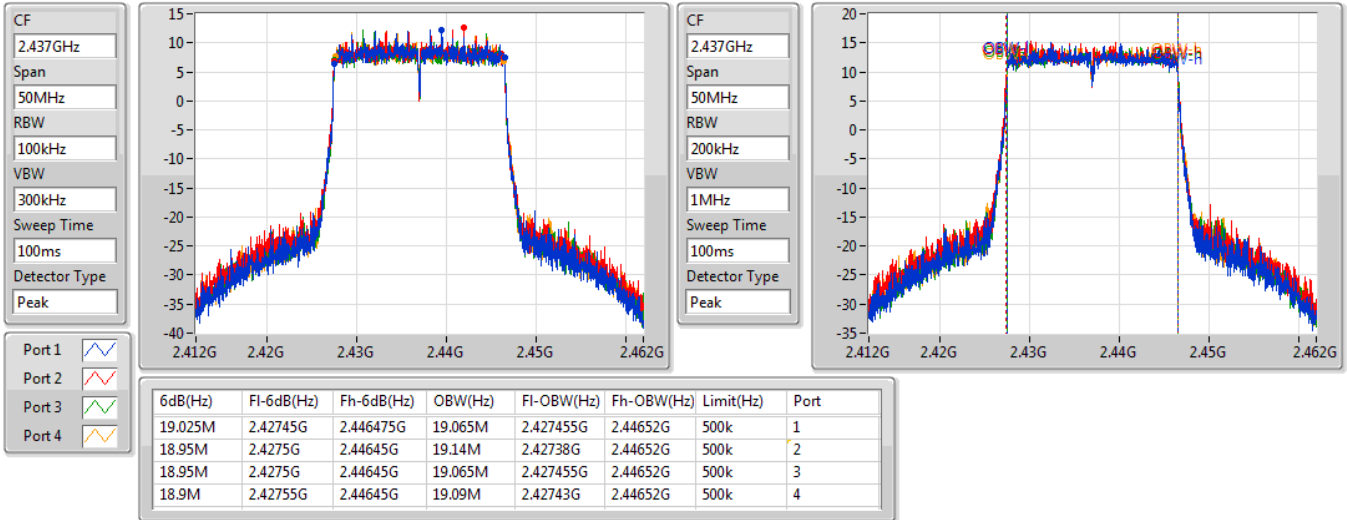
**Port X-N dB** = Port X 6dB down bandwidth; **Port X-OBW** = Port X 99% occupied bandwidth;

## 802.11ax HEW20-BF\_Nss2,(MCS0)\_4TX

EBW

2437MHz

01/08/2020





**Summary**

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	27.95	0.62373
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	25.17	0.32885



**Result**

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Port 3 (dBm)	Port 4 (dBm)	Total Power (dBm)	Power Limit (dBm)
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
2412MHz	Pass	8.00	17.86	17.84	17.88	18.11	23.94	28.00
2417MHz	Pass	8.00	19.71	20.12	19.68	19.65	25.81	28.00
2437MHz	Pass	8.00	21.84	22.00	21.87	22.01	27.95	28.00
2457MHz	Pass	8.00	21.41	21.48	21.32	21.63	27.48	28.00
2462MHz	Pass	8.00	19.17	19.31	19.19	19.18	25.23	28.00
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
2422MHz	Pass	8.00	16.59	16.25	16.52	16.83	22.57	28.00
2437MHz	Pass	8.00	19.24	19.01	19.03	19.32	25.17	28.00
2452MHz	Pass	8.00	17.29	16.66	16.91	17.09	23.01	28.00

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



**Summary**

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
802.11ax HEW20-BF_Nss2,(MCS0)_4TX	29.99	0.99770

**Result**

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Port 3 (dBm)	Port 4 (dBm)	Total Power (dBm)	Power Limit (dBm)
802.11ax HEW20-BF_Nss2,(MCS0)_4TX	-	-	-	-	-	-	-	-
2437MHz	Pass	4.99	23.78	24.11	23.91	24.08	29.99	30.00

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

**Summary**

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	-0.46
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	-4.24

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)	Port 4 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
2412MHz	Pass	8.00	-9.26	-8.53	-9.19	-8.89	-4.49	6.00
2437MHz	Pass	8.00	-4.60	-4.61	-5.06	-5.07	-0.46	6.00
2462MHz	Pass	8.00	-7.51	-7.67	-7.18	-7.23	-2.33	6.00
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
2422MHz	Pass	8.00	-12.94	-12.66	-12.14	-12.16	-6.57	6.00
2437MHz	Pass	8.00	-10.15	-9.39	-9.61	-10.85	-4.24	6.00
2452MHz	Pass	8.00	-11.97	-13.11	-12.29	-12.10	-6.39	6.00

**DG** = Directional Gain; **RBW** = 500 kHz for 5.725-5.85GHz band / 1MHz for other band;

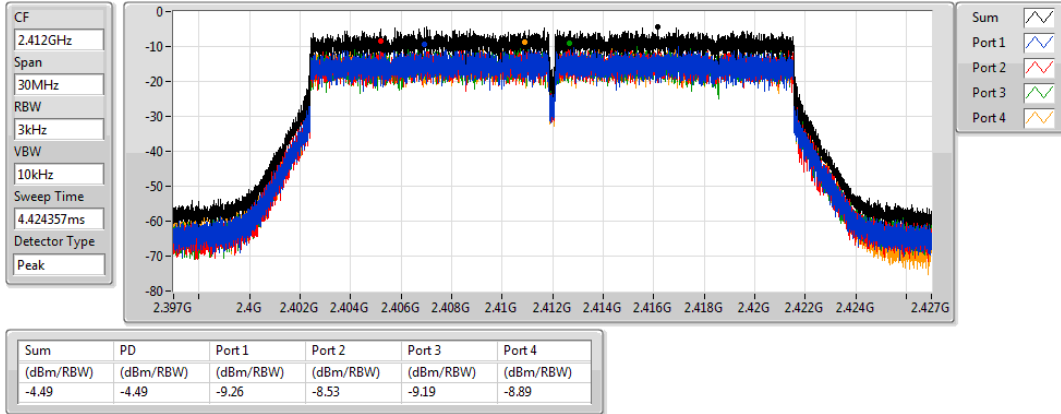
**PD** = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

### 802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX

PSD

2412MHz

27/07/2020

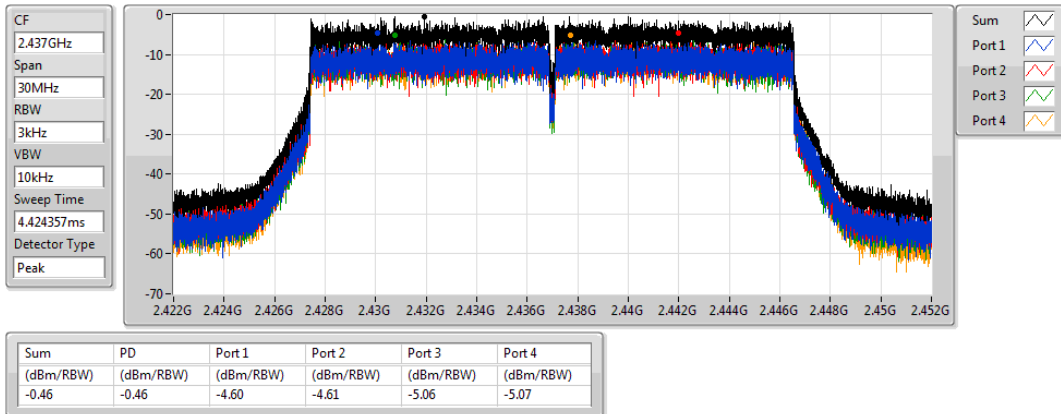


### 802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX

PSD

2437MHz

27/07/2020

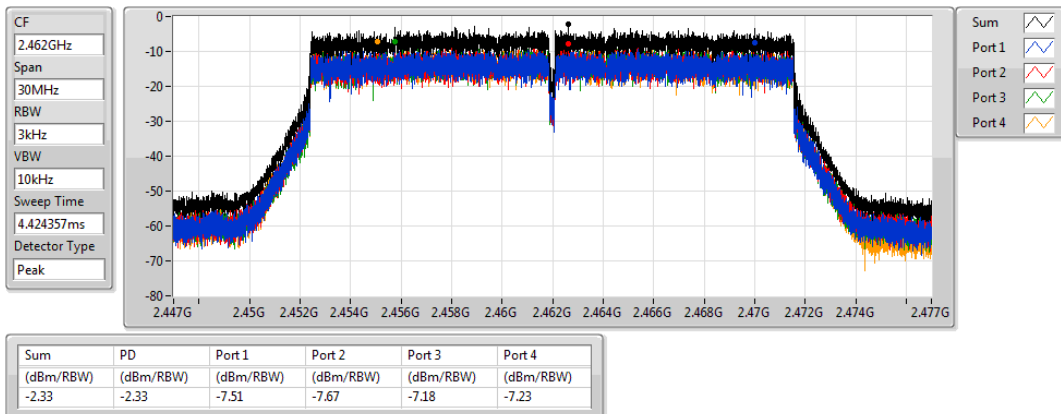


### 802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX

PSD

2462MHz

27/07/2020

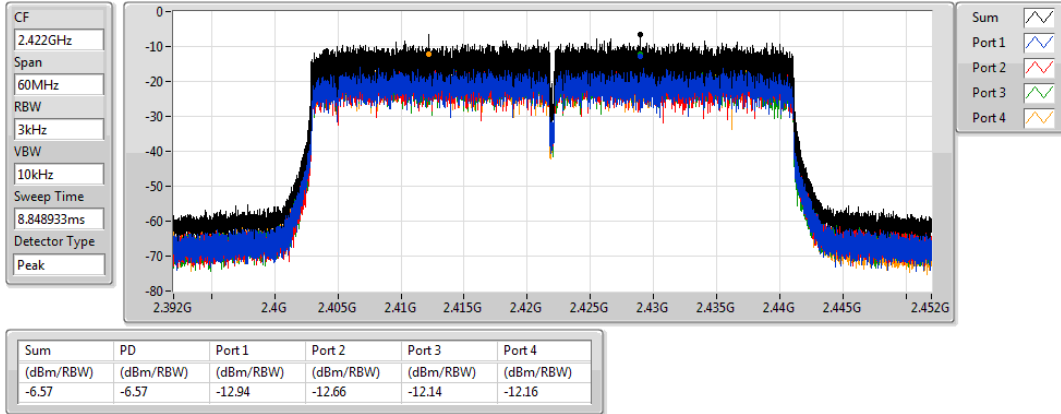


## 802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX

PSD

2422MHz

27/07/2020

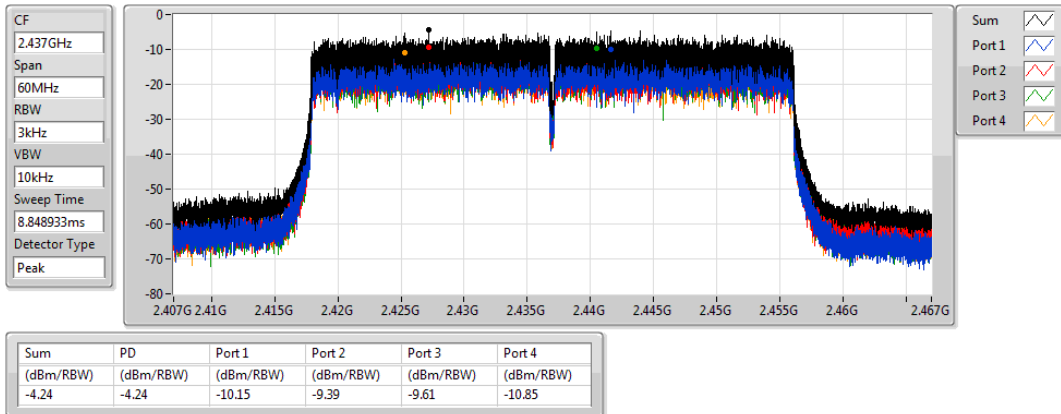


## 802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX

PSD

2437MHz

29/09/2020

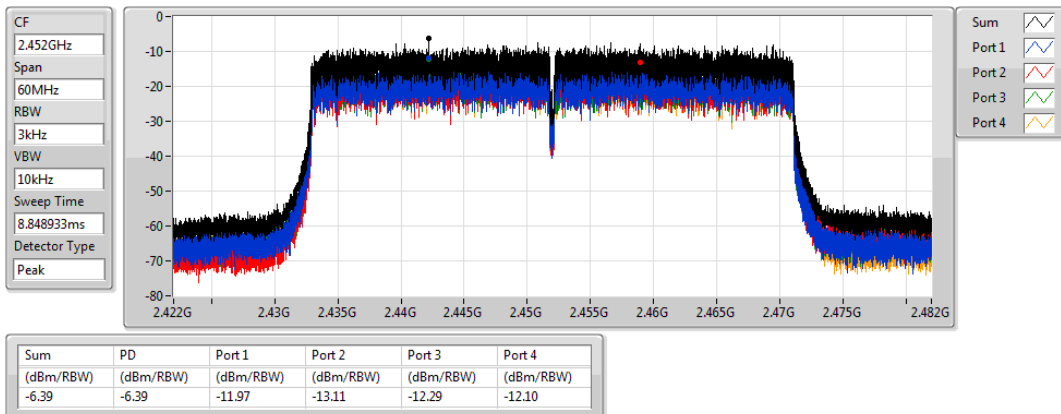


## 802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX

PSD

2452MHz

27/07/2020



**Summary**

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
802.11ax HEW20-BF_Nss2,(MCS0)_4TX	1.78

**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)	Port 4 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
802.11ax HEW20-BF_Nss2,(MCS0)_4TX	-	-	-	-	-	-	-	-
2437MHz	Pass	4.99	-2.68	-1.66	-2.69	-2.04	1.78	8.00

**DG** = Directional Gain; **RBW** = 500 kHz for 5.725-5.85GHz band / 1MHz for other band;

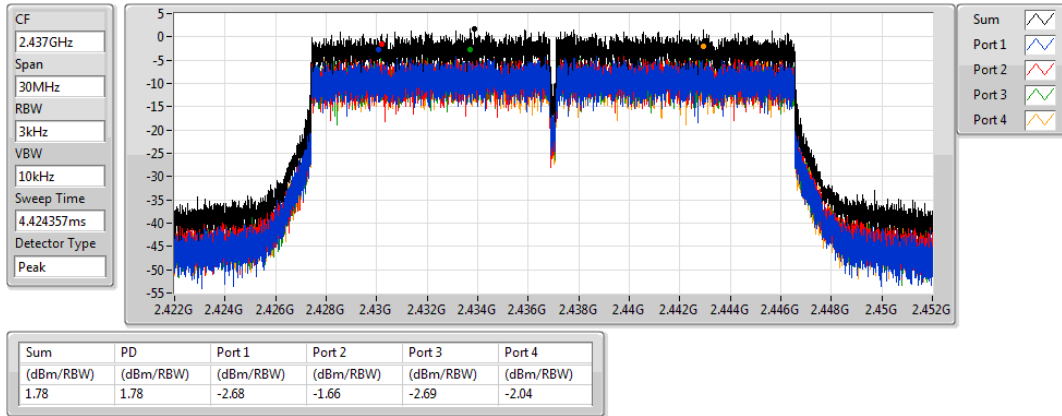
**PD** = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

## 802.11ax HEW20-BF\_Nss2,(MCS0)\_4TX

2437MHz

PSD

01/08/2020







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)_4TX	Pass	2.44075G	9.63	-20.37	49.81M	-49.06	2.4G	-38.93	2.4G	-39.66	2.48494G	-50.67	15.33791G	-45.39	4
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	Pass	2.43198G	4.59	-25.41	49.75M	-49.86	2.397G	-42.05	2.4G	-45.90	2.4963G	-50.88	24.11937G	-44.58	4

**Result**

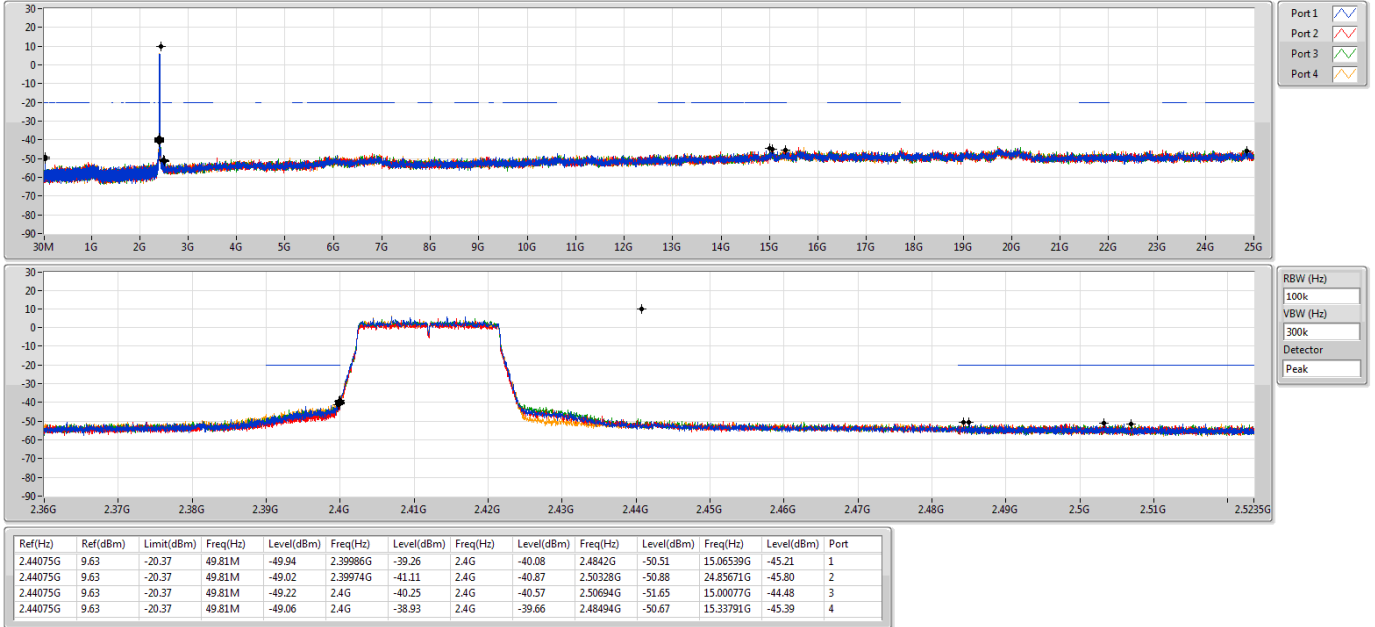
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	2.44075G	9.63	-20.37	49.81M	-49.94	2.39986G	-39.26	2.4G	-40.08	2.4842G	-50.51	15.06539G	-45.21	1
2412MHz	Pass	2.44075G	9.63	-20.37	49.81M	-49.02	2.39974G	-41.11	2.4G	-40.87	2.50328G	-50.88	24.85671G	-45.80	2
2412MHz	Pass	2.44075G	9.63	-20.37	49.81M	-49.22	2.4G	-40.25	2.4G	-40.57	2.50694G	-51.65	15.00077G	-44.48	3
2412MHz	Pass	2.44075G	9.63	-20.37	49.81M	-49.06	2.4G	-38.93	2.4G	-39.66	2.48494G	-50.67	15.33791G	-45.39	4
2437MHz	Pass	2.44075G	9.63	-20.37	49.81M	-49.54	2.39866G	-47.62	2.4835G	-50.73	2.48386G	-48.10	15.04853G	-44.62	1
2437MHz	Pass	2.44075G	9.63	-20.37	49.81M	-50.86	2.3905G	-49.16	2.4G	-51.37	2.48506G	-48.98	15.2761G	-46.01	2
2437MHz	Pass	2.44075G	9.63	-20.37	49.81M	-48.72	2.39278G	-48.65	2.4G	-51.40	2.48952G	-48.50	15.08505G	-45.80	3
2437MHz	Pass	2.44075G	9.63	-20.37	49.81M	-48.79	2.39996G	-48.28	2.4G	-50.08	2.48366G	-48.07	16.26788G	-45.59	4
2462MHz	Pass	2.44075G	9.63	-20.37	49.81M	-48.21	2.394G	-49.98	2.4835G	-47.36	2.48396G	-45.56	15.06539G	-45.31	1
2462MHz	Pass	2.44075G	9.63	-20.37	49.81M	-49.38	2.39444G	-49.44	2.4835G	-45.61	2.48374G	-44.69	15.32387G	-44.75	2
2462MHz	Pass	2.44075G	9.63	-20.37	49.81M	-48.07	2.3988G	-51.26	2.4835G	-47.21	2.48372G	-43.55	17.66704G	-45.59	3
2462MHz	Pass	2.44075G	9.63	-20.37	49.81M	-49.95	2.3974G	-49.92	2.4835G	-48.39	2.48494G	-46.42	15.29577G	-44.99	4
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2422MHz	Pass	2.43198G	4.59	-25.41	49.75M	-49.87	2.39696G	-44.34	2.4G	-46.59	2.48654G	-50.81	15.11392G	-45.18	1
2422MHz	Pass	2.43198G	4.59	-25.41	49.75M	-49.31	2.39728G	-46.94	2.4G	-48.67	2.49538G	-50.37	24.48396G	-44.71	2
2422MHz	Pass	2.43198G	4.59	-25.41	49.75M	-48.97	2.3988G	-45.45	2.4G	-46.89	2.48846G	-50.48	24.88221G	-45.23	3
2422MHz	Pass	2.43198G	4.59	-25.41	49.75M	-49.86	2.397G	-42.05	2.4G	-45.90	2.4963G	-50.88	24.11937G	-44.58	4
2437MHz	Pass	2.43198G	4.59	-25.41	49.75M	-50.68	2.3982G	-43.11	2.4G	-46.00	2.49454G	-47.71	15.0438G	-45.08	1
2437MHz	Pass	2.43198G	4.59	-25.41	49.75M	-49.30	2.39964G	-45.97	2.4835G	-47.07	2.49446G	-44.56	15.06904G	-45.39	2
2437MHz	Pass	2.43198G	4.59	-25.41	49.75M	-48.75	2.39812G	-44.52	2.4G	-45.85	2.49318G	-45.91	23.44066G	-44.81	3
2437MHz	Pass	2.43198G	4.59	-25.41	49.75M	-50.08	2.39944G	-42.46	2.4G	-43.88	2.48702G	-47.07	24.89904G	-44.72	4
2452MHz	Pass	2.43198G	4.59	-25.41	49.75M	-50.35	2.39328G	-51.12	2.4835G	-50.39	2.4883G	-45.82	15.02417G	-45.19	1
2452MHz	Pass	2.43198G	4.59	-25.41	49.75M	-49.05	2.3908G	-51.17	2.4835G	-47.25	2.4895G	-42.93	15.30743G	-45.03	2
2452MHz	Pass	2.43198G	4.59	-25.41	49.75M	-49.55	2.39292G	-49.88	2.4835G	-48.97	2.48446G	-43.79	21.40736G	-45.32	3
2452MHz	Pass	2.43198G	4.59	-25.41	49.75M	-48.84	2.39936G	-49.85	2.4835G	-48.37	2.48946G	-44.77	23.44627G	-45.43	4

## 802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX

CSE NdB

2412MHz

27/07/2020

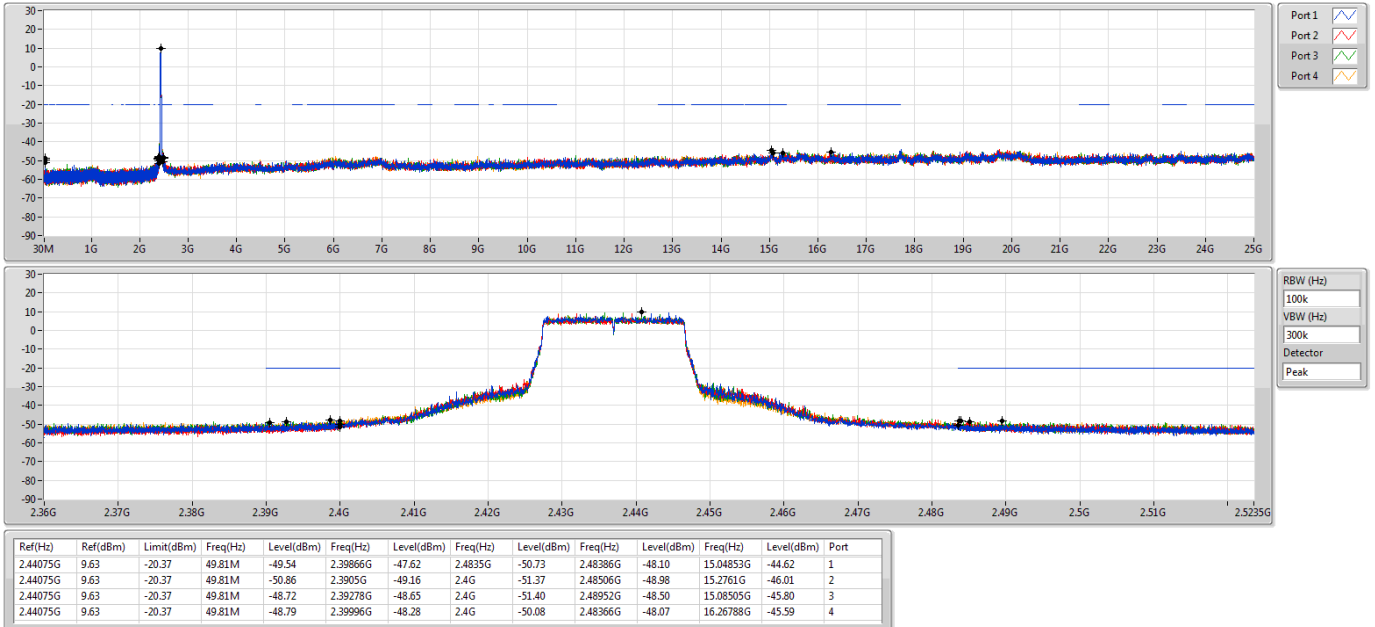


## 802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX

CSE NdB

2437MHz

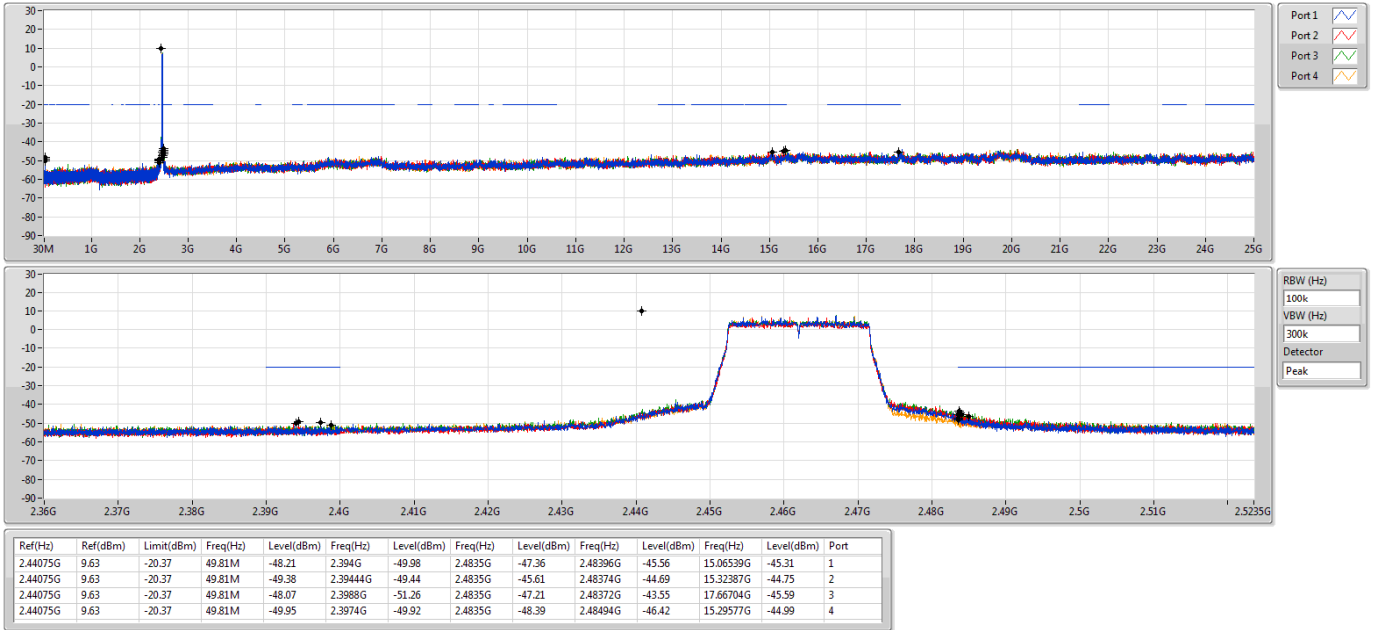
27/07/2020



## 802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX

CSE NdB

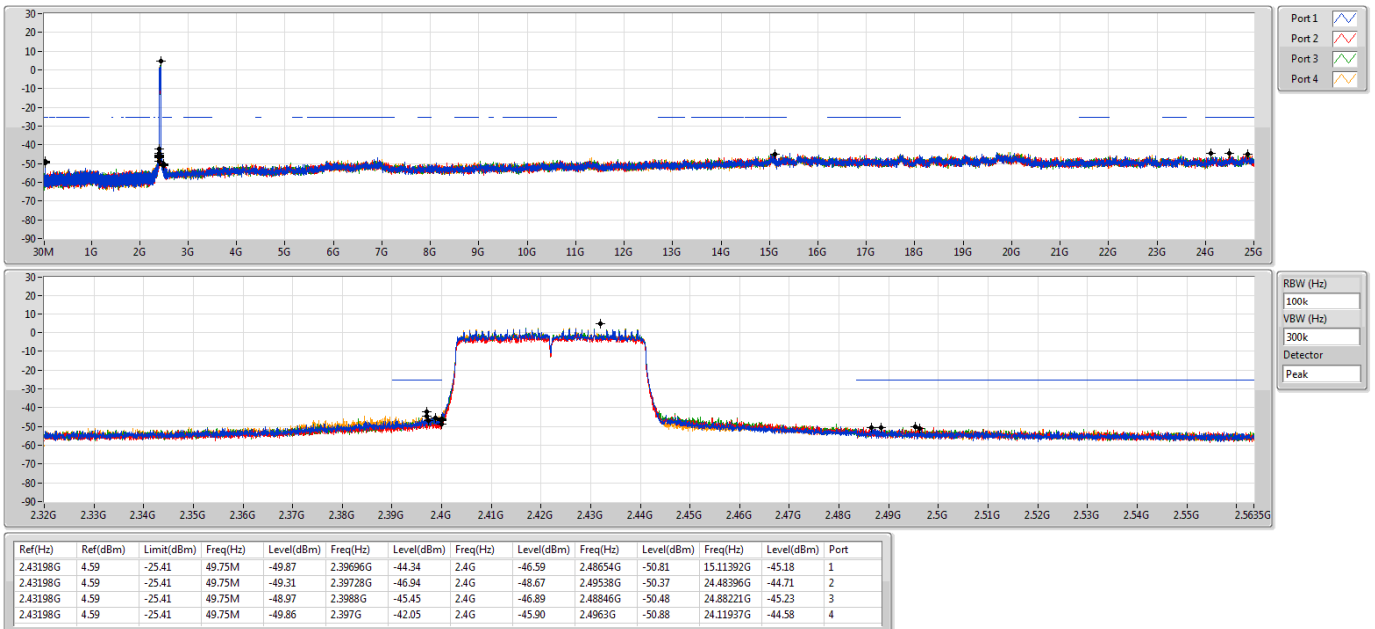
2462MHz



## 802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX

CSE NdB

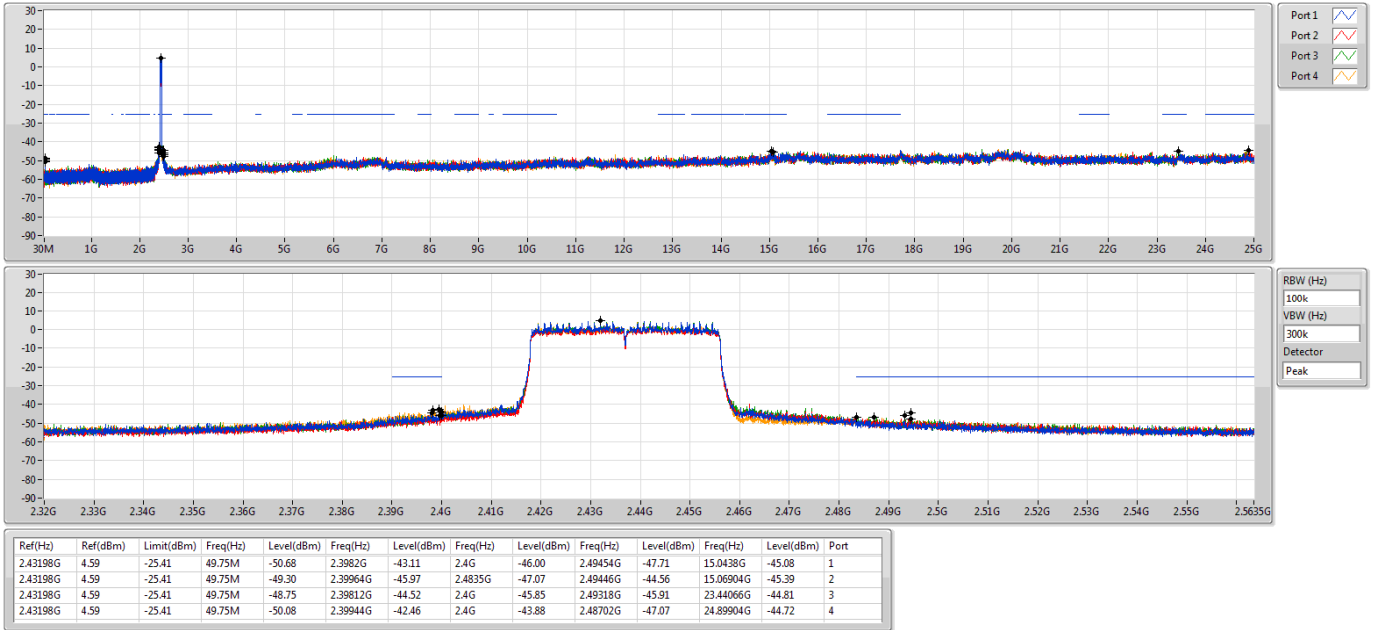
2422MHz



## 802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX

CSE NdB

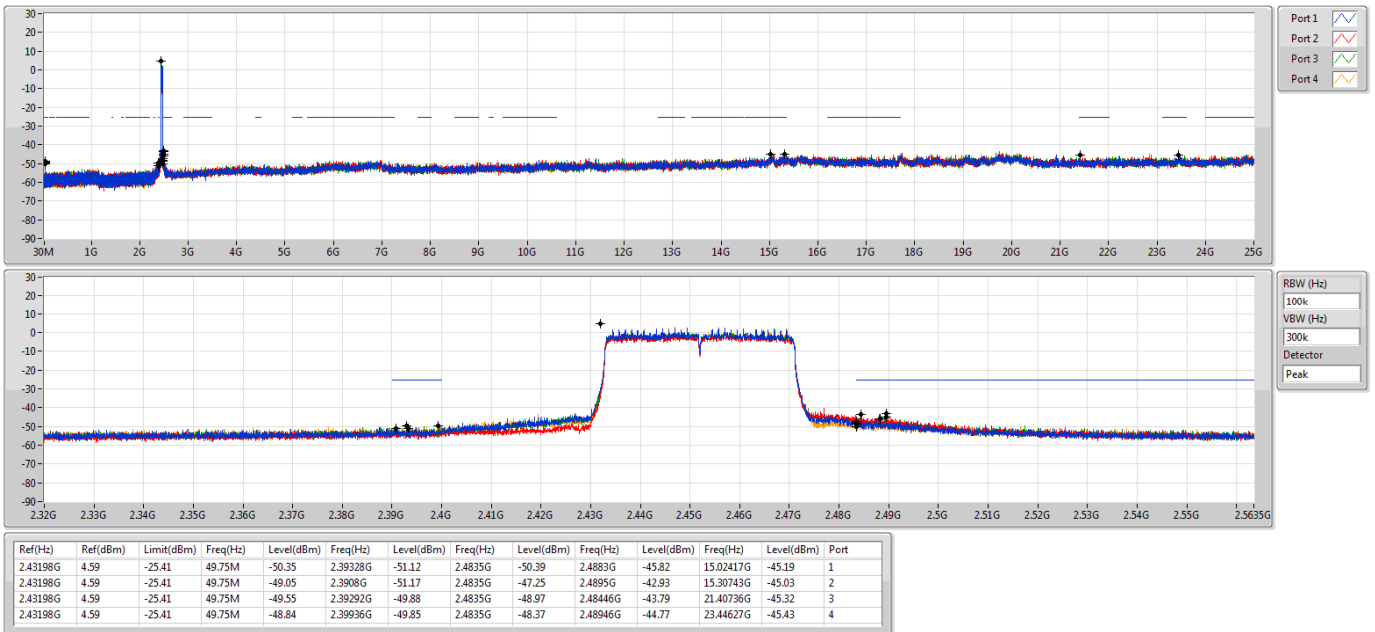
2437MHz



## 802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX

CSE NdB

2452MHz





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_Nss2,(MCS0)_4TX	Pass	2.44446G	12.49	-17.51	2.03089G	-51.54	2.39782G	-43.25	2.4G	-45.90	2.49428G	-46.39	6.95137G	-47.98	4

Result

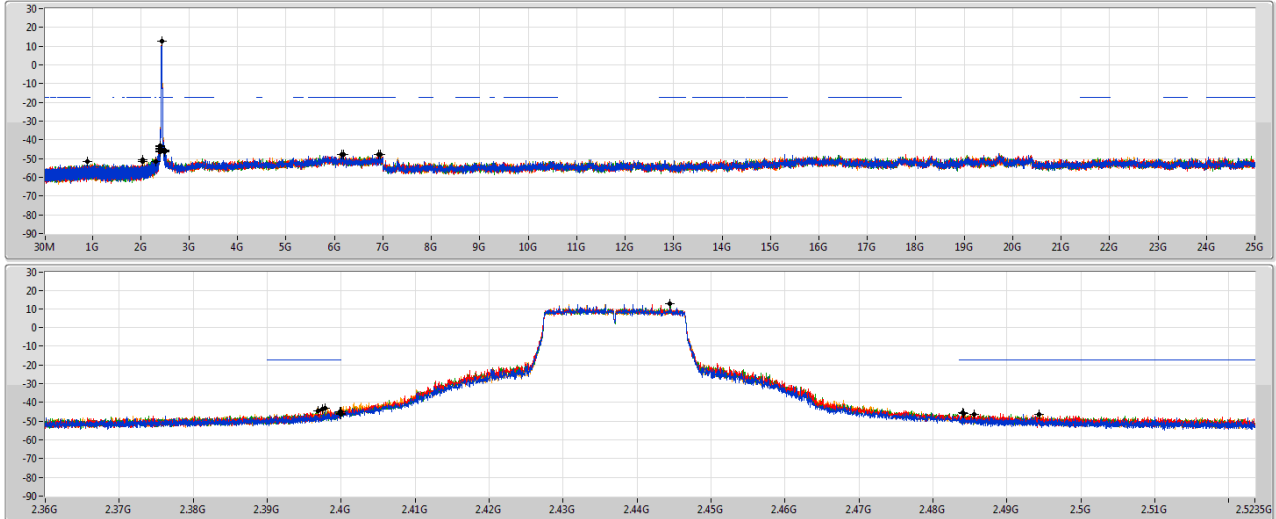
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
802.11ax HEW20-BF_Nss2,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2437MHz	Pass	2.44446G	12.49	-17.51	2.03089G	-50.59	2.39986G	-44.83	2.4G	-44.85	2.48558G	-46.41	6.18155G	-47.65	1
2437MHz	Pass	2.44446G	12.49	-17.51	2.30495G	-51.78	2.39748G	-43.47	2.4G	-46.32	2.48404G	-45.68	6.14222G	-47.95	2
2437MHz	Pass	2.44446G	12.49	-17.51	896.18M	-51.66	2.39688G	-44.54	2.4G	-45.05	2.48416G	-45.78	6.90642G	-47.74	3
2437MHz	Pass	2.44446G	12.49	-17.51	2.03089G	-51.54	2.39782G	-43.25	2.4G	-45.90	2.49428G	-46.39	6.95137G	-47.98	4

802.11ax HEW20-BF\_Nss2,(MCS0)\_4TX

CSE NdB

2437MHz

01/08/2020



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
2.44446G	12.49	-17.51	2.03089G	-50.59	2.39986G	-44.83	2.4G	-44.85	2.48558G	-46.41	6.18155G	-47.65	1
2.44446G	12.49	-17.51	2.30495G	-51.78	2.39748G	-43.47	2.4G	-46.32	2.48404G	-45.68	6.14222G	-47.95	2
2.44446G	12.49	-17.51	896.18M	-51.66	2.39688G	-44.54	2.4G	-45.05	2.48416G	-45.78	6.90642G	-47.74	3
2.44446G	12.49	-17.51	2.03089G	-51.54	2.39782G	-43.25	2.4G	-45.90	2.49428G	-46.39	6.95137G	-47.98	4



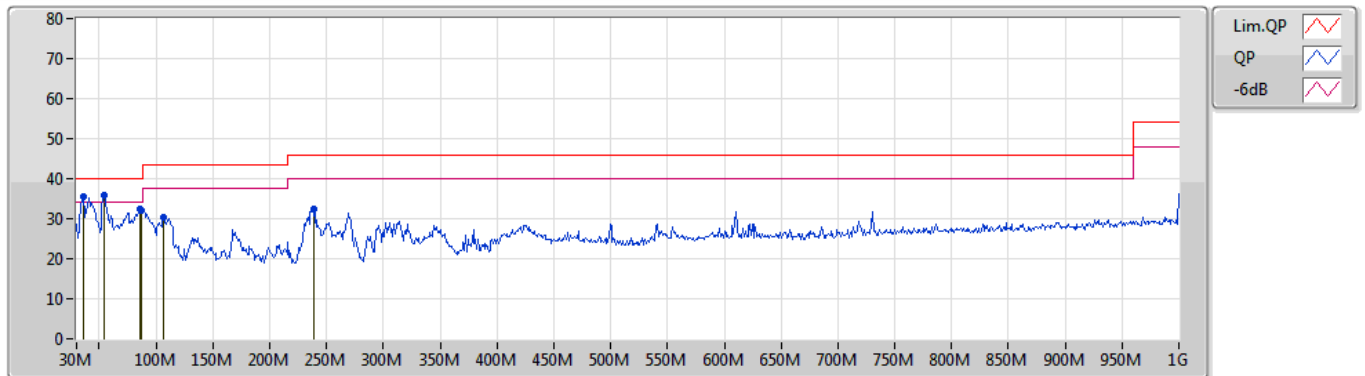
**Summary**

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 2	Pass	PK	54.25M	35.93	40.00	-4.07	Vertical



### Mode 2

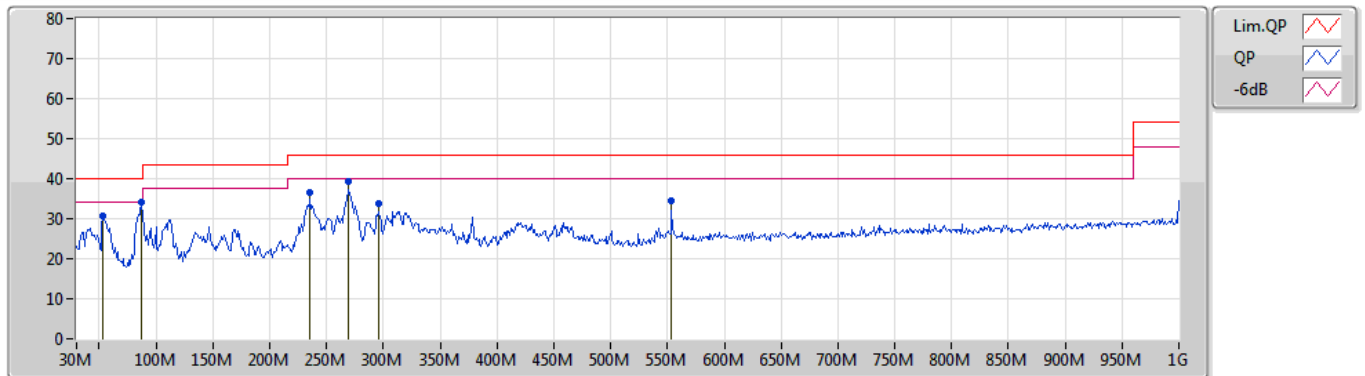
02/10/2020



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV/m)	AF (dB/m)	CL (dB)	PA (dB)
PK	35.82M	35.57	40.00	-4.43	-9.70	3	Vertical	102	1.00	-	45.27	21.25	0.52	31.47
PK	54.25M	35.93	40.00	-4.07	-17.77	3	Vertical	360	1.25	"Worst"	53.70	13.28	0.68	31.73
PK	86.26M	32.50	40.00	-7.50	-16.89	3	Vertical	69	1.50	-	49.39	13.91	1.00	31.80
PK	87.23M	32.24	40.00	-7.76	-16.69	3	Vertical	102	1.00	-	48.93	14.12	1.00	31.81
PK	106.63M	30.38	43.50	-13.12	-13.06	3	Vertical	207	1.00	-	43.44	17.59	1.17	31.82
PK	238.55M	32.53	46.00	-13.47	-13.54	3	Vertical	158	2.00	-	46.07	16.52	1.85	31.91

### Mode 2

02/10/2020



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV/m)	AF (dB/m)	CL (dB)	PA (dB)
PK	53.28M	30.85	40.00	-9.15	-17.26	3	Horizontal	147	1.00	-	48.11	12.86	1.47	31.59
PK	87.23M	34.26	40.00	-5.74	-15.57	3	Horizontal	256	1.00	"Worst"	49.83	14.21	1.94	31.72
PK	235.64M	36.70	46.00	-9.30	-11.98	3	Horizontal	52	1.25	-	48.68	16.71	3.11	31.80
PK	268.62M	39.17	46.00	-6.83	-9.78	3	Horizontal	242	1.00	-	48.95	18.67	3.35	31.80
PK	295.78M	33.96	46.00	-12.04	-9.20	3	Horizontal	167	1.50	-	43.16	19.06	3.57	31.83
PK	553.8M	34.32	46.00	-11.68	-2.76	3	Horizontal	183	1.00	-	37.08	24.62	4.92	32.30



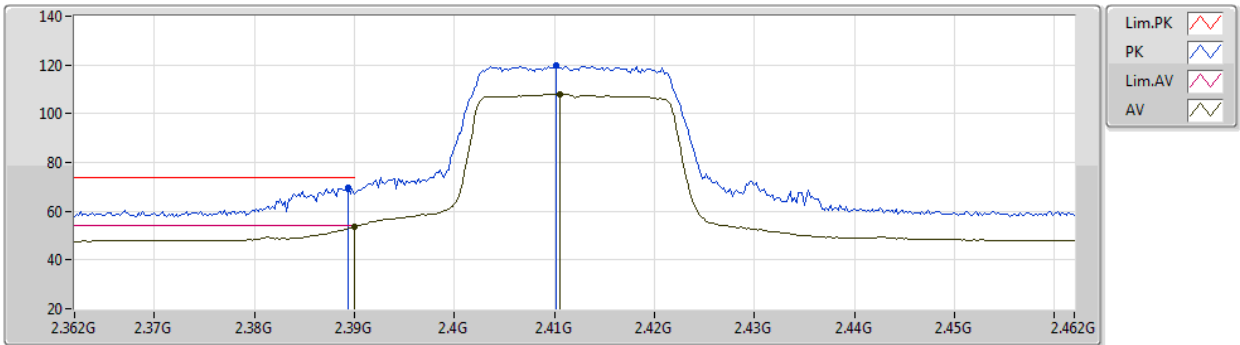
**Summary**

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)_4TX	Pass	AV	2.3886G	53.92	54.00	-0.08	3	Vertical	333	1.76	-

# 802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX

10/07/2020

## 2412MHz\_TX



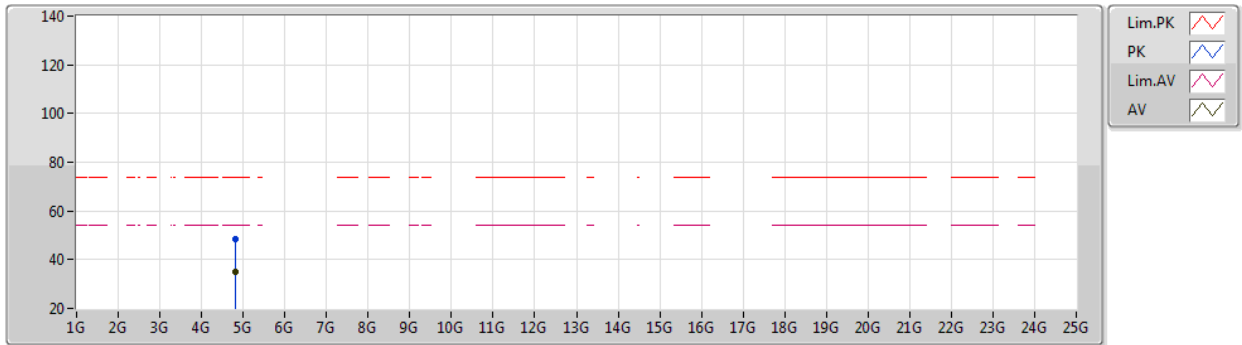
EUT Z\_4TX  
Setting 69  
06-F-S-5

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	69.89	74.00	-4.11	36.51	3	Vertical	113	2.30	-	29.39	3.99	-
AV	2.39G	53.56	54.00	-0.44	20.17	3	Vertical	113	2.30	-	29.39	4.00	-
PK	2.4102G	119.57	Inf	-Inf	86.08	3	Vertical	113	2.30	-	29.48	4.01	-
AV	2.4106G	108.08	Inf	-Inf	74.59	3	Vertical	113	2.30	-	29.48	4.01	-

# 802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX

10/07/2020

## 2412MHz\_TX



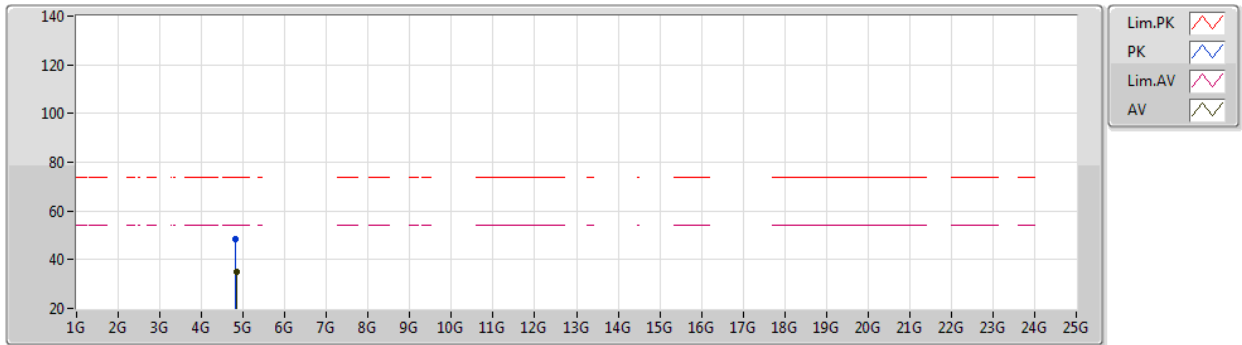
EUT\_Z\_4TX  
Setting 69  
06-F-G-2

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	4.82836G	48.32	74.00	-25.68	41.17	3	Vertical	307	1.32	-	33.54	5.34	31.73
AV	4.8277G	35.03	54.00	-18.97	27.88	3	Vertical	307	1.32	-	33.54	5.34	31.73

# 802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX

10/07/2020

## 2412MHz\_TX



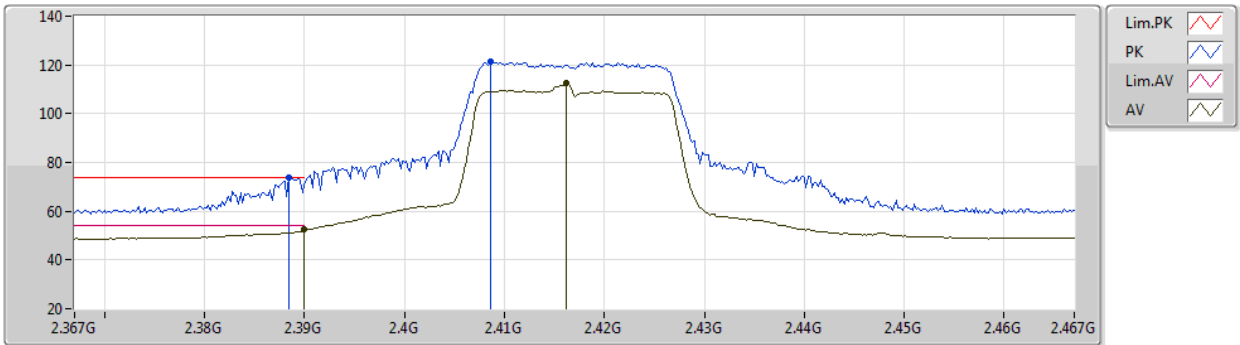
EUT Z\_4TX  
Setting 69  
06-F-G-2

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	4.82666G	48.37	74.00	-25.63	41.23	3	Horizontal	344	1.30	-	33.53	5.34	31.73
AV	4.82664G	35.11	54.00	-18.89	27.96	3	Horizontal	344	1.30	-	33.54	5.34	31.73

# 802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX

10/07/2020

## 2417MHz\_TX



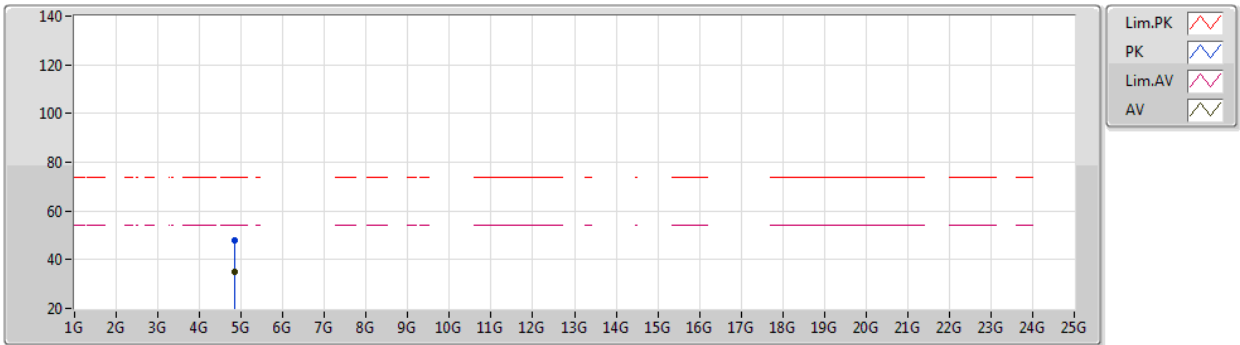
EUT Z\_4TX  
Setting 76  
06-F-S-5

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	2.3884G	73.79	74.00	-0.21	40.41	3	Vertical	354	1.80	-	29.39	3.99	-
AV	2.39G	52.33	54.00	-1.67	18.94	3	Vertical	354	1.80	-	29.39	4.00	-
PK	2.4086G	121.15	Inf	-Inf	87.68	3	Vertical	354	1.80	-	29.47	4.00	-
AV	2.4162G	112.42	Inf	-Inf	78.88	3	Vertical	354	1.80	-	29.53	4.01	-

# 802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX

10/07/2020

## 2417MHz\_TX



EUT\_Z\_4TX  
Setting 76  
06-F-G-2

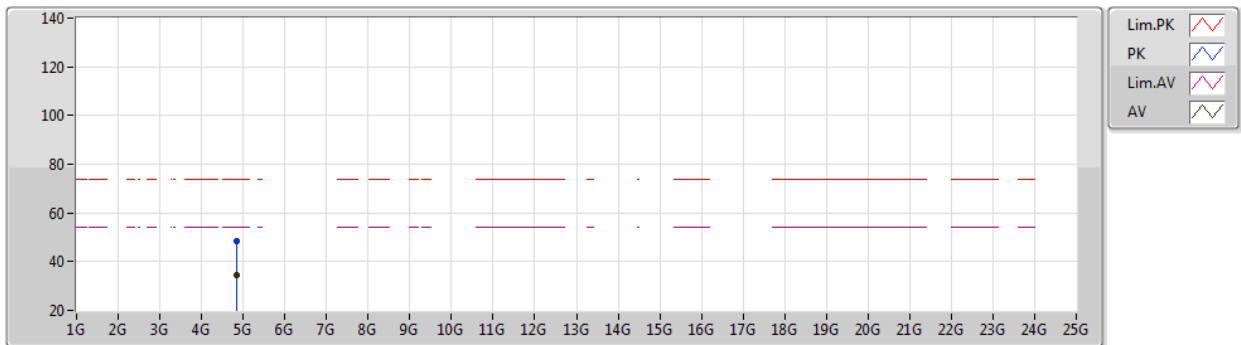
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	4.83022G	48.07	74.00	-25.93	40.90	3	Vertical	10	1.14	-	33.55	5.34	31.72
AV	4.829G	34.91	54.00	-19.09	27.75	3	Vertical	10	1.14	-	33.55	5.34	31.73



# 802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX

10/07/2020

## 2417MHz\_TX



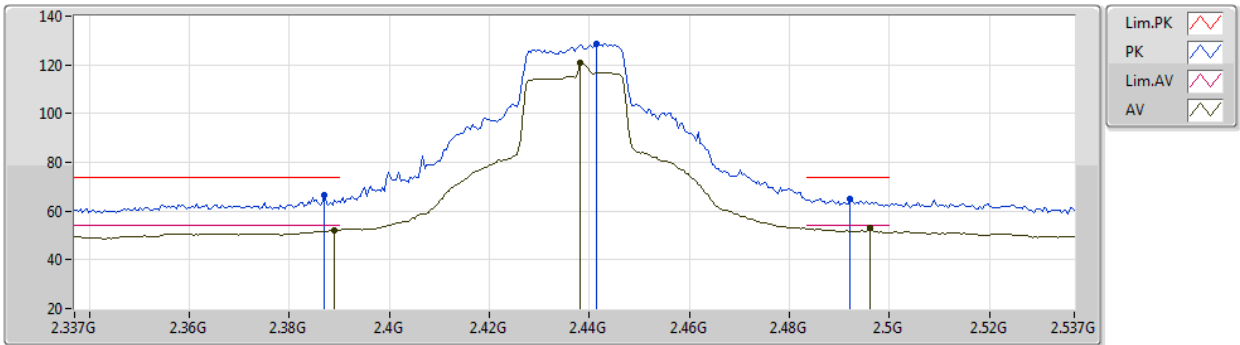
EUT\_Z\_4TX  
Setting 76  
06-F-G-2

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	4.83708G	48.37	74.00	-25.63	41.15	3	Horizontal	188	1.80	-	33.59	5.35	31.72
AV	4.8299G	34.70	54.00	-19.30	27.53	3	Horizontal	188	1.80	-	33.55	5.34	31.72

# 802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX

10/07/2020

## 2437MHz\_TX



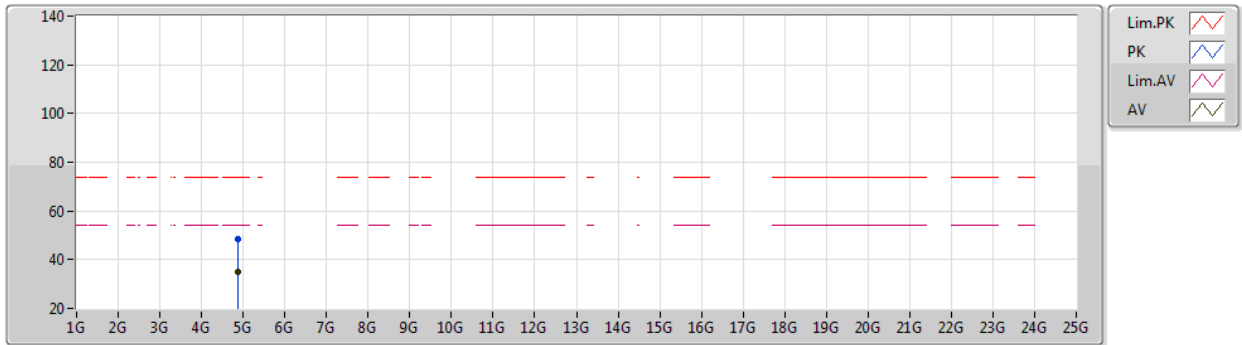
EUT\_Z\_4TX  
Setting 100  
06-F-S-5

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	2.387G	66.42	74.00	-7.58	33.04	3	Vertical	131	1.39	-	29.39	3.99	-
AV	2.389G	52.18	54.00	-1.82	18.80	3	Vertical	131	1.39	-	29.39	3.99	-
PK	2.4414G	128.71	Inf	-Inf	94.96	3	Vertical	131	1.39	-	29.73	4.02	-
AV	2.4382G	120.80	Inf	-Inf	87.07	3	Vertical	131	1.39	-	29.71	4.02	-
PK	2.4922G	64.78	74.00	-9.22	30.59	3	Vertical	131	1.39	-	30.14	4.05	-
AV	2.4962G	52.98	54.00	-1.02	18.76	3	Vertical	131	1.39	-	30.17	4.05	-

# 802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX

10/07/2020

## 2437MHz\_TX



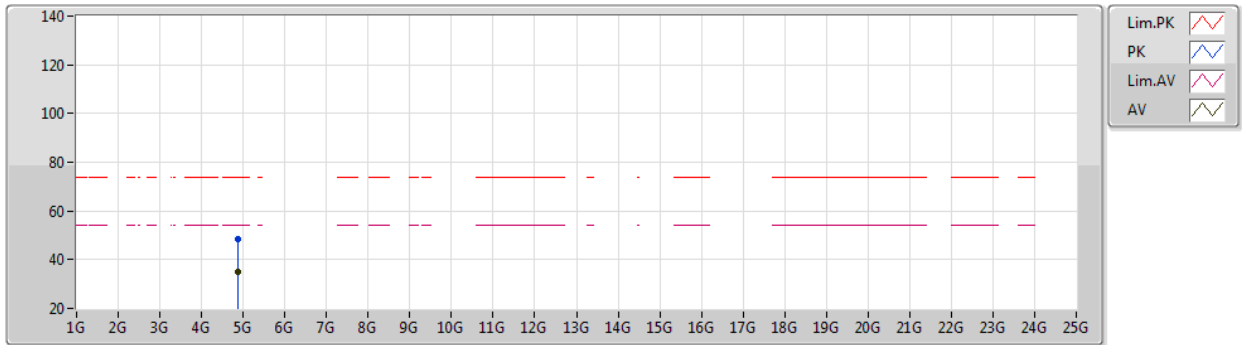
EUT\_Z\_4TX  
Setting 100  
06-F-G-2

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	4.87778G	48.45	74.00	-25.55	40.92	3	Vertical	166	2.93	-	33.79	5.41	31.67
AV	4.87886G	35.09	54.00	-18.91	27.56	3	Vertical	166	2.93	-	33.79	5.41	31.67

# 802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX

10/07/2020

## 2437MHz\_TX



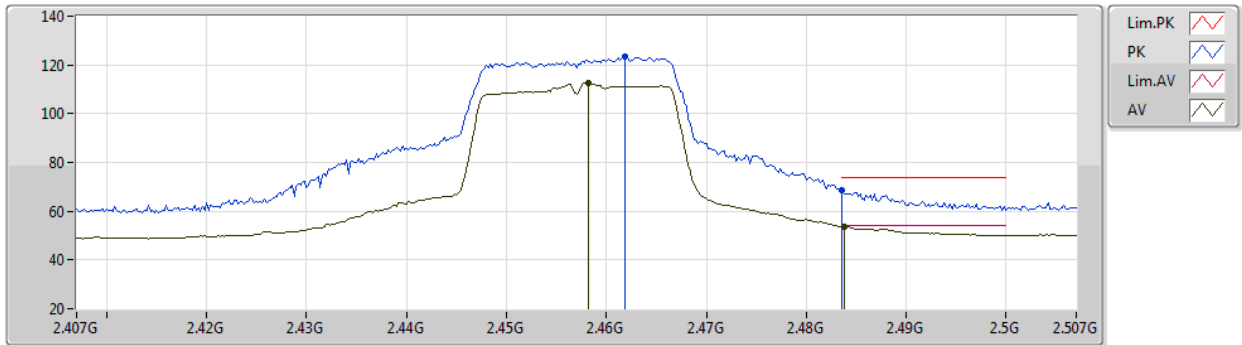
EUT Z\_4TX  
Setting 100  
06-F-G-2

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	4.87542G	48.42	74.00	-25.58	40.90	3	Horizontal	170	1.11	-	33.78	5.41	31.67
AV	4.86946G	35.24	54.00	-18.76	27.77	3	Horizontal	170	1.11	-	33.75	5.40	31.68

# 802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX

10/07/2020

## 2457MHz\_TX



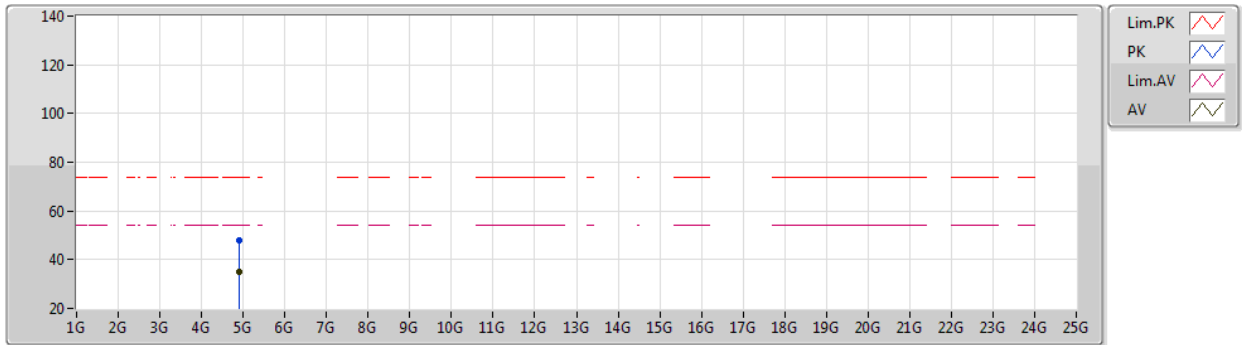
EUT Z\_4TX  
Setting 84  
06-F-S-5

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	2.4618G	123.55	Inf	-Inf	89.63	3	Vertical	23	1.36	-	29.89	4.03	-
AV	2.4582G	112.50	Inf	-Inf	78.60	3	Vertical	23	1.36	-	29.87	4.03	-
PK	2.4835G	68.51	74.00	-5.49	34.40	3	Vertical	23	1.36	-	30.07	4.04	-
AV	2.4838G	53.81	54.00	-0.19	19.70	3	Vertical	23	1.36	-	30.07	4.04	-

# 802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX

10/07/2020

## 2457MHz\_TX



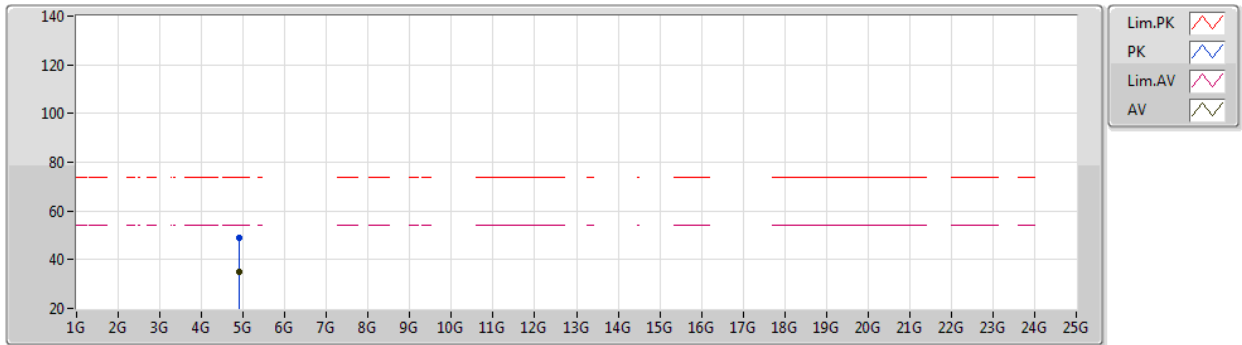
EUT Z\_4TX  
Setting 84  
06-F-G-2

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	4.91144G	48.17	74.00	-25.83	40.43	3	Vertical	190	1.97	-	33.91	5.46	31.63
AV	4.90968G	35.09	54.00	-18.91	27.35	3	Vertical	190	1.97	-	33.91	5.46	31.63

# 802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX

10/07/2020

## 2457MHz\_TX



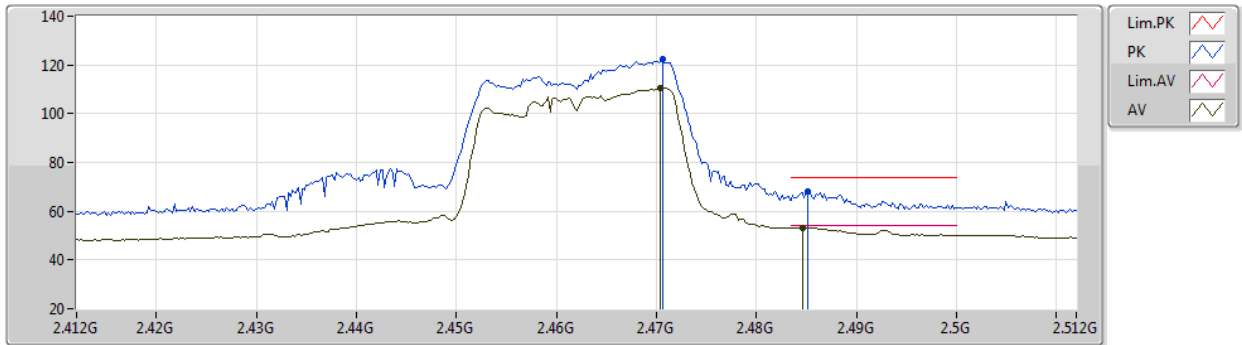
EUT Z\_4TX  
Setting 84  
06-F-G-2

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	4.90946G	48.72	74.00	-25.28	40.98	3	Horizontal	289	1.65	-	33.91	5.46	31.63
AV	4.90972G	35.07	54.00	-18.93	27.33	3	Horizontal	289	1.65	-	33.91	5.46	31.63

# 802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX

10/07/2020

## 2462MHz\_TX



EUT Z\_4TX  
Setting 76  
06-F-S-5

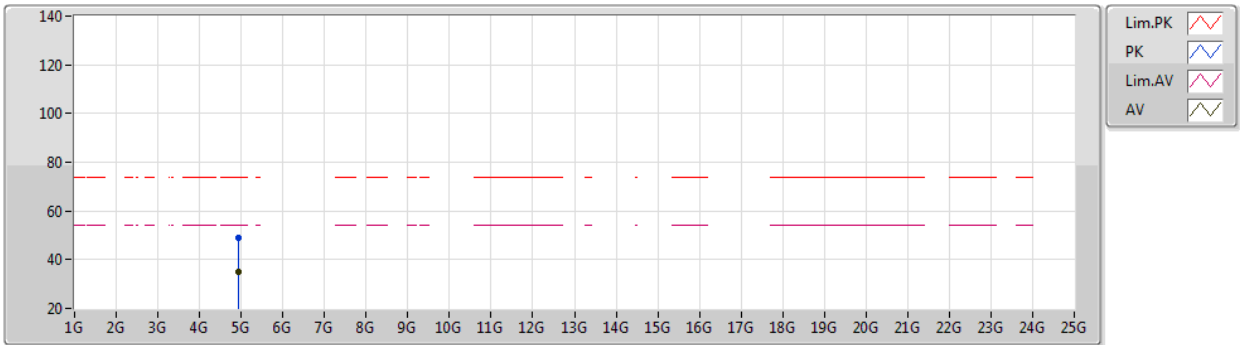
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.4706G	122.28	Inf	-Inf	88.28	3	Vertical	201	1.80	-	29.96	4.04	-
AV	2.4704G	110.36	Inf	-Inf	76.36	3	Vertical	201	1.80	-	29.96	4.04	-
PK	2.4852G	68.20	74.00	-5.80	34.08	3	Vertical	201	1.80	-	30.08	4.04	-
AV	2.4846G	53.17	54.00	-0.83	19.05	3	Vertical	201	1.80	-	30.08	4.04	-



# 802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX

10/07/2020

## 2462MHz\_TX



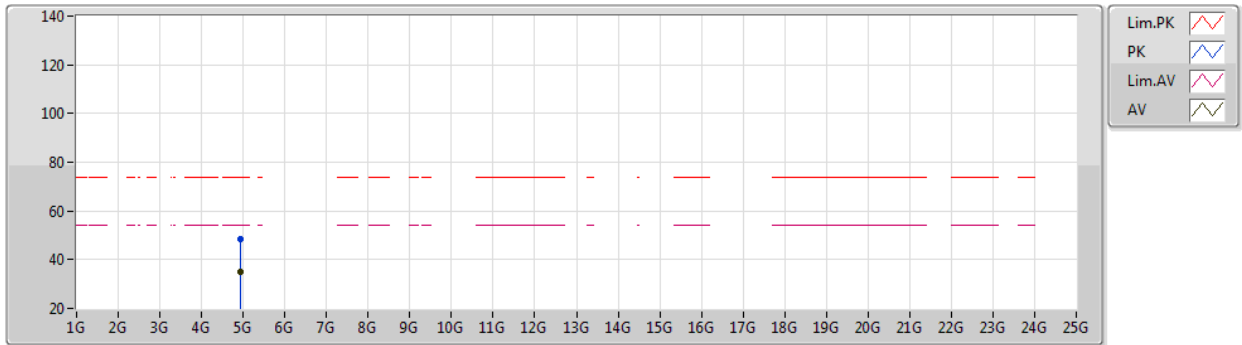
EUT Z\_4TX  
Setting 76  
06-F-G-2

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	4.91982G	48.96	74.00	-25.04	41.19	3	Vertical	44	1.80	-	33.92	5.47	31.62
AV	4.9209G	35.10	54.00	-18.90	27.33	3	Vertical	44	1.80	-	33.92	5.47	31.62

# 802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX

10/07/2020

## 2462MHz\_TX



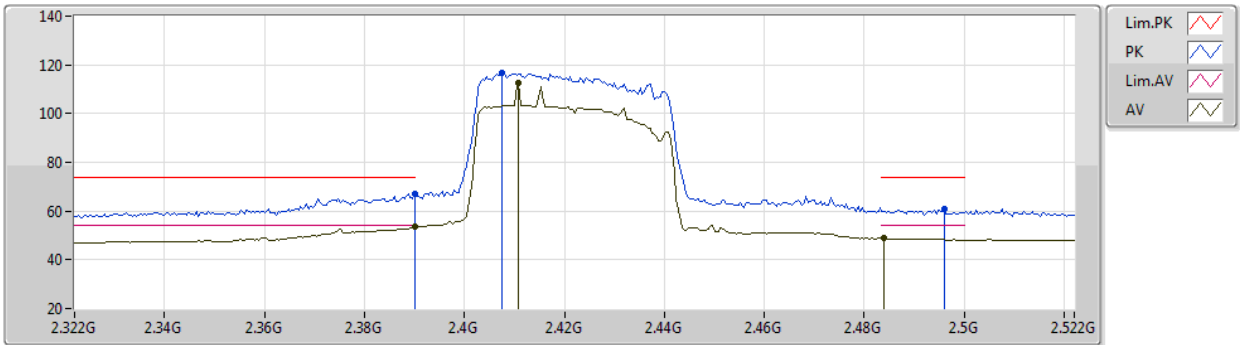
EUT\_Z\_4TX  
Setting 76  
06-F-G-2

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	4.92352G	48.29	74.00	-25.71	40.50	3	Horizontal	143	1.53	-	33.92	5.48	31.61
AV	4.92058G	34.99	54.00	-19.01	27.22	3	Horizontal	143	1.53	-	33.92	5.47	31.62

# 802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX

10/07/2020

## 2422MHz\_TX



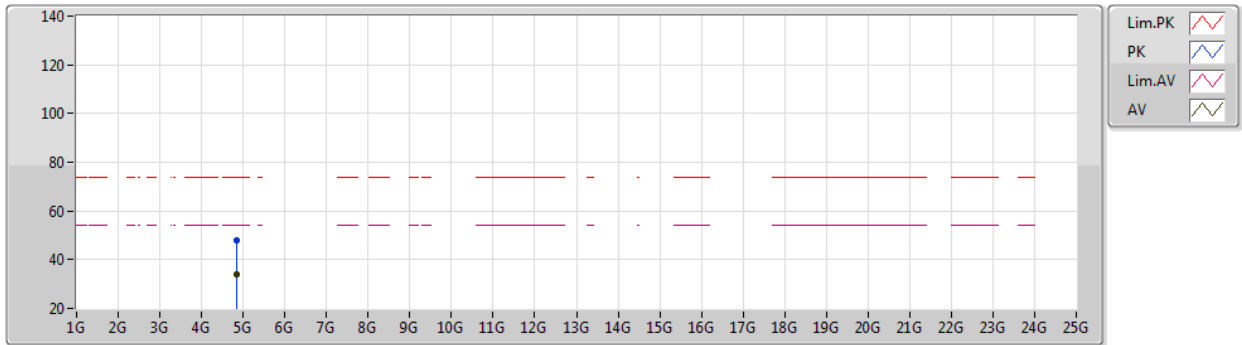
EUT Z\_4TX  
Setting 64  
06-F-S-5

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	2.39G	67.27	74.00	-6.73	33.88	3	Vertical	125	1.00	-	29.39	4.00	-
AV	2.39G	53.84	54.00	-0.16	20.45	3	Vertical	125	1.00	-	29.39	4.00	-
PK	2.4076G	116.67	Inf	-Inf	83.21	3	Vertical	125	1.00	-	29.46	4.00	-
AV	2.4108G	112.47	Inf	-Inf	78.97	3	Vertical	125	1.00	-	29.49	4.01	-
PK	2.496G	60.79	74.00	-13.21	26.57	3	Vertical	125	1.00	-	30.17	4.05	-
AV	2.484G	49.02	54.00	-4.98	14.91	3	Vertical	125	1.00	-	30.07	4.04	-

# 802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX

10/07/2020

## 2422MHz\_TX



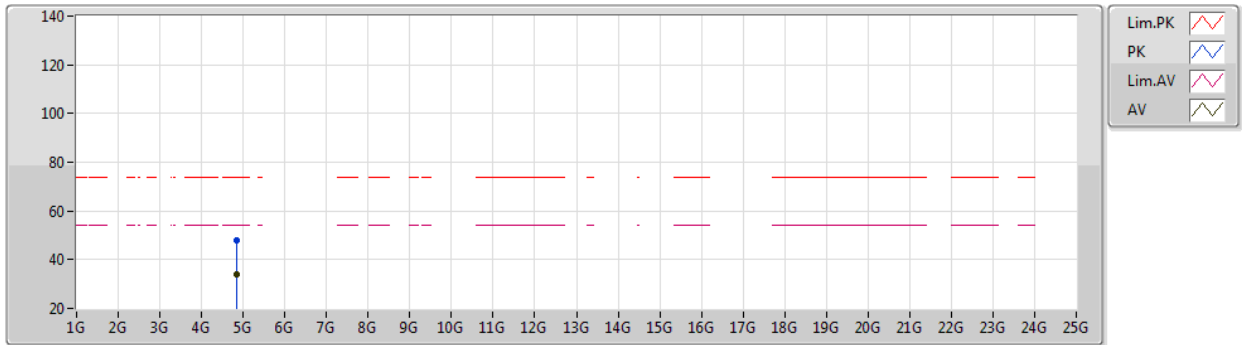
EUT Z\_4TX  
Setting 64  
06-F-G-2

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	4.84736G	48.10	74.00	-25.90	40.79	3	Vertical	231	1.80	-	33.64	5.37	31.70
AV	4.83914G	34.03	54.00	-19.97	26.79	3	Vertical	231	1.80	-	33.60	5.35	31.71

# 802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX

10/07/2020

## 2422MHz\_TX



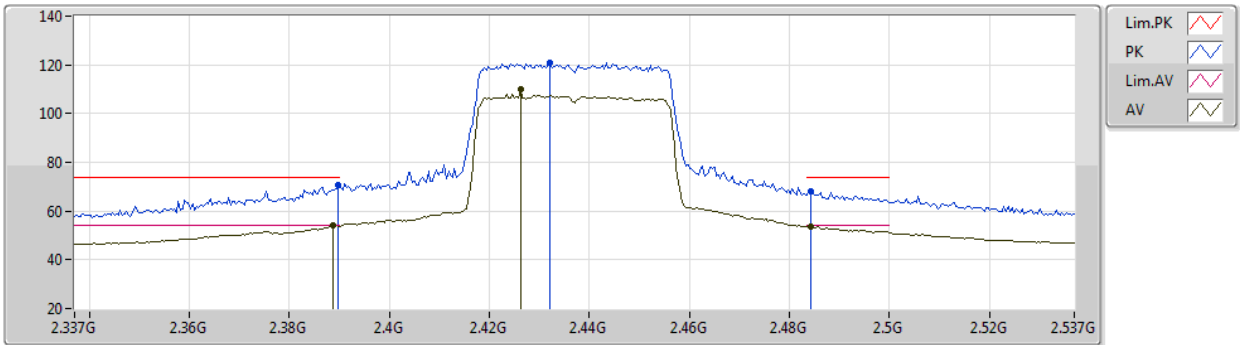
EUT\_Z\_4TX  
Setting 64  
06-F-G-2

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	4.84702G	48.11	74.00	-25.89	40.80	3	Horizontal	218	1.80	-	33.64	5.37	31.70
AV	4.84852G	34.06	54.00	-19.94	26.75	3	Horizontal	218	1.80	-	33.64	5.37	31.70

# 802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX

10/07/2020

## 2437MHz\_TX



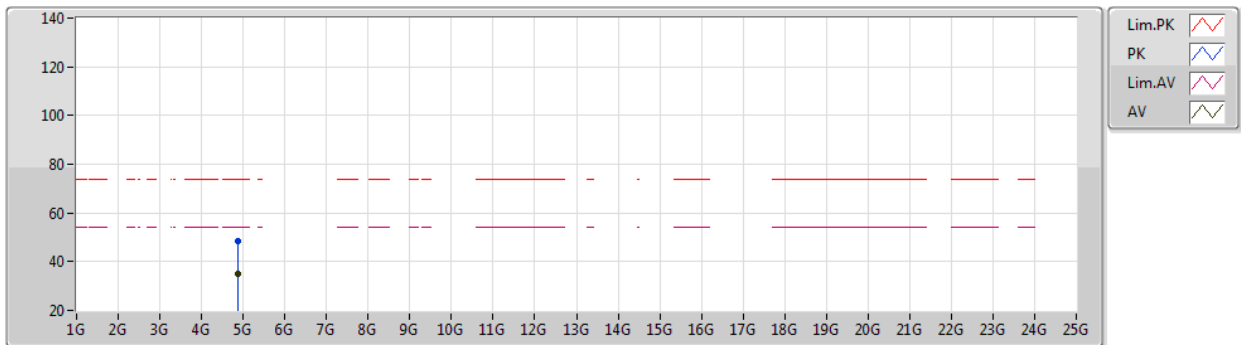
EUT Z\_4TX  
Setting 74  
06-F-S-5

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	70.51	74.00	-3.49	38.92	3	Vertical	333	1.76	-	27.60	3.99	-
AV	2.3886G	53.92	54.00	-0.08	22.33	3	Vertical	333	1.76	-	27.60	3.99	-
PK	2.4322G	120.85	Inf	-Inf	89.36	3	Vertical	333	1.76	-	27.47	4.02	-
AV	2.4262G	109.90	Inf	-Inf	78.39	3	Vertical	333	1.76	-	27.50	4.01	-
PK	2.4842G	68.21	74.00	-5.79	36.77	3	Vertical	333	1.76	-	27.40	4.04	-
AV	2.4842G	53.72	54.00	-0.28	22.28	3	Vertical	333	1.76	-	27.40	4.04	-

# 802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX

10/07/2020

## 2437MHz\_TX



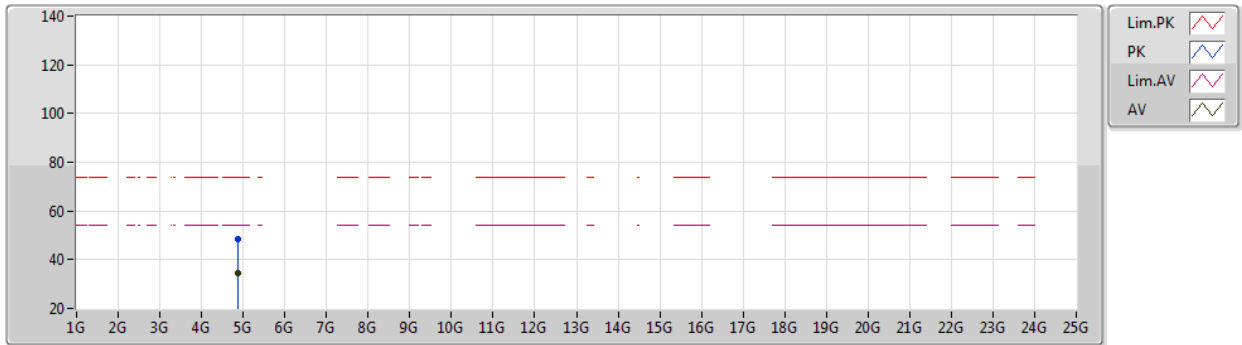
EUT\_Z\_4TX  
Setting 73  
06-F-G-2

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	4.87496G	48.69	74.00	-25.31	41.19	3	Vertical	192	2.74	-	33.77	5.40	31.67
AV	4.87878G	35.19	54.00	-18.81	27.66	3	Vertical	192	2.74	-	33.79	5.41	31.67

# 802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX

10/07/2020

## 2437MHz\_TX



EUT\_Z\_4TX  
Setting 73  
06-F-G-2

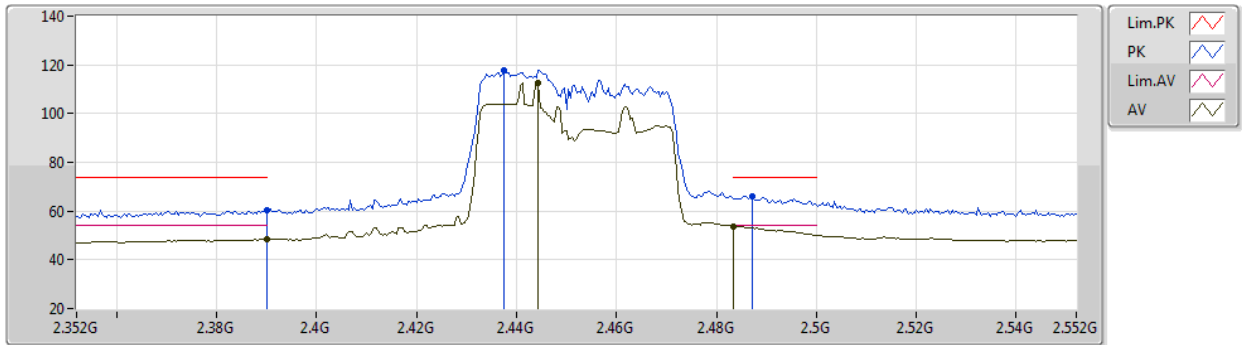
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	4.87808G	48.27	74.00	-25.73	40.74	3	Horizontal	11	1.80	-	33.79	5.41	31.67
AV	4.87886G	34.58	54.00	-19.42	27.05	3	Horizontal	11	1.80	-	33.79	5.41	31.67



# 802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX

10/07/2020

## 2452MHz\_TX



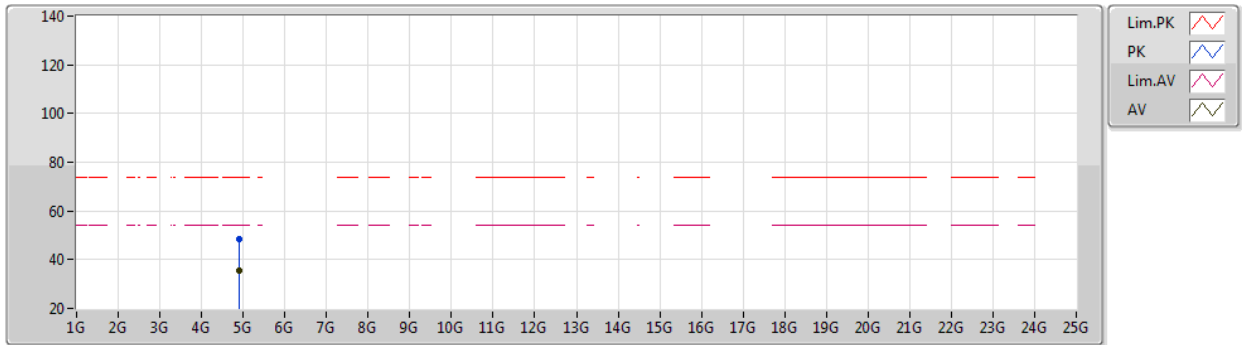
EUT\_Z\_4TX  
Setting 66  
06-F-S-5

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	2.39G	60.58	74.00	-13.42	27.19	3	Vertical	35	1.85	-	29.39	4.00	-
AV	2.39G	48.51	54.00	-5.49	15.12	3	Vertical	35	1.85	-	29.39	4.00	-
PK	2.4376G	117.76	Inf	-Inf	84.04	3	Vertical	35	1.85	-	29.70	4.02	-
AV	2.4444G	112.57	Inf	-Inf	78.79	3	Vertical	35	1.85	-	29.76	4.02	-
PK	2.4872G	66.21	74.00	-7.79	32.07	3	Vertical	35	1.85	-	30.10	4.04	-
AV	2.4835G	53.62	54.00	-0.38	19.51	3	Vertical	35	1.85	-	30.07	4.04	-

# 802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX

10/07/2020

## 2452MHz\_TX



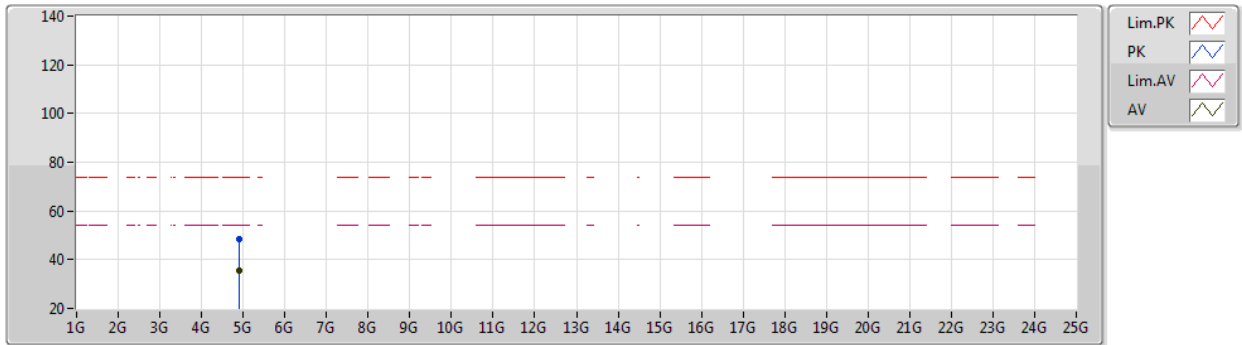
EUT Z\_4TX  
Setting 66  
06-F-G-2

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	4.89956G	48.66	74.00	-25.34	40.96	3	Vertical	179	1.29	-	33.90	5.44	31.64
AV	4.89966G	35.34	54.00	-18.66	27.64	3	Vertical	179	1.29	-	33.90	5.44	31.64

# 802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX

10/07/2020

## 2452MHz\_TX



EUT\_Z\_4TX  
Setting 66  
06-F-G-2

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	4.90132G	48.25	74.00	-25.75	40.55	3	Horizontal	139	2.91	-	33.90	5.44	31.64
AV	4.89918G	35.27	54.00	-18.73	27.57	3	Horizontal	139	2.91	-	33.90	5.44	31.64



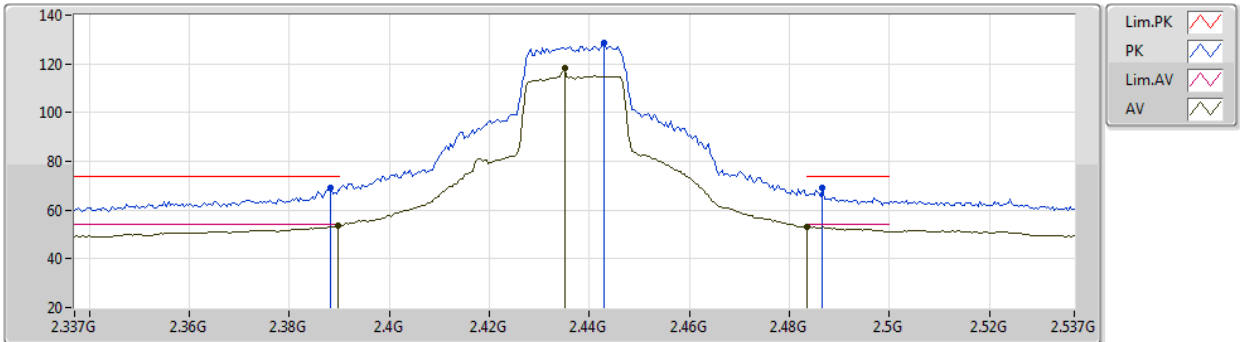
**Summary**

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 HEW20-BF_Nss2,(MCS0)_4TX	Pass	AV	2.3898G	53.82	54.00	-0.18	3	Vertical	78	1.00	-

# 802.11ax HEW20-BF\_Nss2,(MCS0)\_4TX

31/07/2020

## 2437MHz\_TX



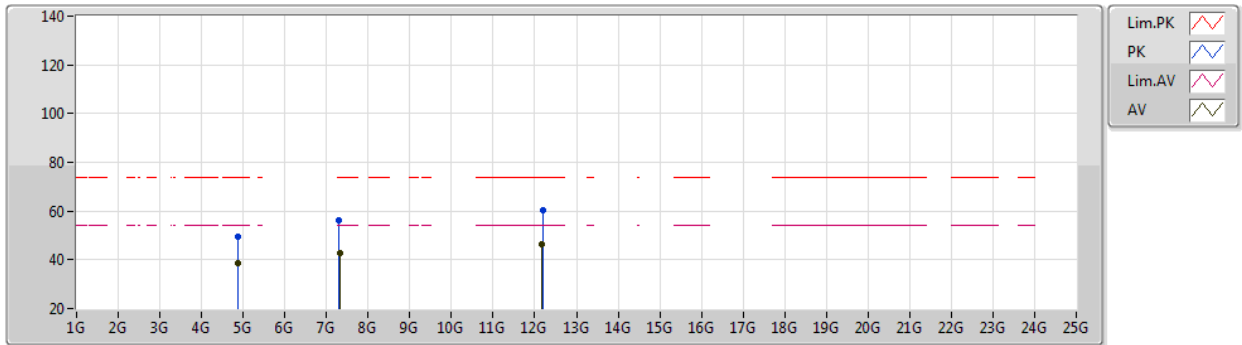
EUT\_Z\_4TX  
Setting 100  
06-F-S-5

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	2.3882G	68.91	74.00	-5.09	35.53	3	Vertical	78	1.00	-	29.39	3.99	-
AV	2.3898G	53.82	54.00	-0.18	20.44	3	Vertical	78	1.00	-	29.39	3.99	-
PK	2.443G	128.43	Inf	-Inf	94.67	3	Vertical	78	1.00	-	29.74	4.02	-
AV	2.435G	118.04	Inf	-Inf	84.34	3	Vertical	78	1.00	-	29.68	4.02	-
PK	2.4866G	69.04	74.00	-4.96	34.91	3	Vertical	78	1.00	-	30.09	4.04	-
AV	2.4835G	53.13	54.00	-0.87	19.02	3	Vertical	78	1.00	-	30.07	4.04	-

# 802.11ax HEW20-BF\_Nss2,(MCS0)\_4TX

31/07/2020

## 2437MHz\_TX



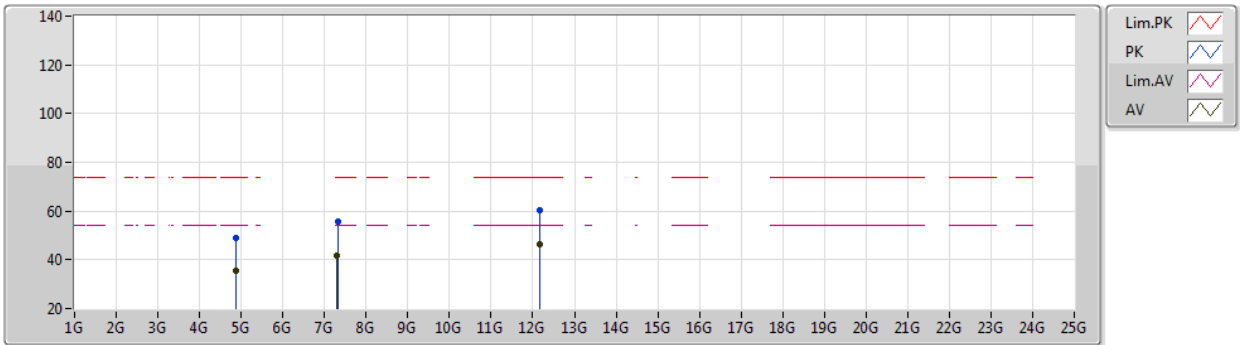
EUT\_Z\_4TX  
Setting 100  
06-F-S-5

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	4.87916G	49.44	74.00	-24.56	41.90	3	Vertical	62	1.00	-	33.80	5.41	31.67
AV	4.8738G	38.81	54.00	-15.19	31.31	3	Vertical	62	1.00	-	33.77	5.40	31.67
PK	7.30812G	56.29	74.00	-17.71	42.88	3	Vertical	309	1.00	-	39.62	6.95	33.16
AV	7.31088G	42.77	54.00	-11.23	29.35	3	Vertical	309	1.00	-	39.62	6.96	33.16
PK	12.18716G	60.52	74.00	-13.48	43.79	3	Vertical	360	1.00	-	42.53	8.36	34.16
AV	12.18252G	46.33	54.00	-7.67	29.60	3	Vertical	360	1.00	-	42.54	8.35	34.16

# 802.11ax HEW20-BF\_Nss2,(MCS0)\_4TX

31/07/2020

## 2437MHz\_TX



EUT\_Z\_4TX  
Setting 100  
06-F-S-5

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	4.8682G	48.94	74.00	-25.06	41.48	3	Horizontal	85	1.53	-	33.74	5.40	31.68
AV	4.87404G	35.34	54.00	-18.66	27.84	3	Horizontal	85	1.53	-	33.77	5.40	31.67
PK	7.31104G	55.58	74.00	-18.42	42.16	3	Horizontal	111	1.88	-	39.62	6.96	33.16
AV	7.30892G	41.62	54.00	-12.38	28.21	3	Horizontal	111	1.88	-	39.62	6.95	33.16
PK	12.18148G	60.31	74.00	-13.69	43.58	3	Horizontal	74	2.34	-	42.54	8.35	34.16
AV	12.18096G	46.20	54.00	-7.80	29.47	3	Horizontal	74	2.34	-	42.54	8.35	34.16