

FCC Radio Test Report

FCC ID : TVE-241102
Contains FCC ID : RI7FN990A28HP
Equipment : Secured Network Extension Device
Brand Name : FORTINET
Model Name : FortiExtenderVehicle 511Gxxxxxxxxxx,
FORTIEXTENDERVEHICLE-511Gxxxxxxxxxx,
FEV-511Gxxxxxxxxxx
(where "x" can be used as "A-Z", or "0-9", or "-", or blank
for software changes or marketing purposes only)
Applicant : Fortinet, Inc.
909 Kifer Road, Sunnyvale, CA 94086, USA
Manufacturer : Fortinet, Inc.
909 Kifer Road, Sunnyvale, CA 94086, USA
Standard : 47 CFR FCC Part 15.247

The product was received on Nov. 26, 2024, and testing was started from Dec. 22, 2024 and completed on Apr. 02, 2025. We, SPORTON INTERNATIONAL INC. Hsinhua Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

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


Approved by: Jackson Tsai

SPORTON INTERNATIONAL INC. Hsinhua Laboratory

No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333411, Taiwan (R.O.C.)



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History of this test report

Report No.	Version	Description	Issued Date
FR4N2608AC	01	Initial issue of report	Apr. 25, 2025

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 EUT supports beamforming and CDD modes, and the CDD mode is the worst case. Therefore, all test items are evaluated in the report. The beamforming mode only evaluates the output power.

Reviewed by: Barry Hsiao

Report Producer: Amber Chiu

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]

Non-Beamforming

Band	Mode	BWch (MHz)	Nant
2.4-2.4835GHz	802.11b	20	2TX
2.4-2.4835GHz	802.11g	20	2TX
2.4-2.4835GHz	802.11ax HEW20	20	2TX
2.4-2.4835GHz	802.11ax HEW40	40	2TX

Beamforming

Band	Mode	BWch (MHz)	Nant
2.4-2.4835GHz	802.11ax HEW20-BF	20	2TX
2.4-2.4835GHz	802.11ax HEW40-BF	40	2TX

Note:

- ♦ 11b mode uses a combination of DSSS-DBPSK, DQPSK, CCK modulation.
- ♦ 11g, HT20 and HT40 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.
- ♦ VHT20, VHT40 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM modulation.
- ♦ HEW20, HEW40 use a combination of OFDMA-BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM modulation.
- ♦ BWch is the nominal channel bandwidth.
- ♦ Evaluated HEW20/HEW40 mode only due to the similar modulation. The power setting of HT20/HT40/VHT20/VHT40 mode are the same or lower than HEW20/HEW40.

1.1.2 Antenna Information

Ant.	Brand	Model Name	Antenna Type	Connector	Support
1	TAOGLAS	MA1505.AK.001	MIMO	SMA	WWAN
					GPS
2	WHA YU	ANT DIPOLE 2/5/6GHz C496-510189-A BLACK	Dipole	Reverse SMA	Radio 2_2.4G+ Radio 1_5G
3	WHA YU	ANT DIPOLE 2/5/6GHz C496-510189-A BLACK	Dipole	Reverse SMA	Radio 2_2.4G+ Radio 1_5G
4	WHA YU	ANT DIPOLE 2GHz C496-510188-A BLACK	Dipole	Reverse SMA	BT

Note : Antenna 1 Gain See note 2.

Ant.	Port	Gain (dBi)			
		2.4G	5G	BT	GPS
1	1	-	-	-	4.54
2	1	2.08	2.41	-	-
3	2	2.08	2.41	-	-
4	1	-	-	1.8	-

Note 1: The EUT has four antennas.

For WWAN function:

Ant. 1 (port 1) could transmit/receive.

For 2.4GHz function:

For IEEE 802.11 b/g/n/VHT/ax mode (2TX/2RX) < **Radio 2** >

Ant. 2 (port 1) and Ant. 3 (port 2) could receive simultaneously.

For 5GHz function:

For IEEE 802.11 a/n/ac/ax mode(2TX/2RX) < **Radio 1** >

Ant. 2 (port 1) and Ant. 3 (port 2) could receive simultaneously.

For BT function:

For IEEE 802.15.1 Bluetooth mode (1TX/1RX)

Ant. 4 could transmit/receive.

**Note 2**

Operating Band	Freq. (MHz)	Antenna Gain			
		ANT1(Main0)	ANT1(MIMO1)	ANT1(Main2)	ANT1(MIMO3)
☒ WCDMA Band II	1850 - 1910	1.7			
☒ WCDMA Band IV	1710 - 1755	3.8			
☒ WCDMA Band V	824 - 849	1.6			
☒ LTE Band 2	1850 - 1910	1.7			
☒ LTE Band 4	1710 - 1755	3.8			
☒ LTE Band 5	824 - 849	1.6			
☒ LTE Band 7	2500 - 2570	1.9			
☒ LTE Band 12	699 - 716	2.4			
☒ LTE Band 13	777 - 787	1.2			
☒ LTE Band 14	788 - 798	-0.3			
☒ LTE Band 17	704 - 716	2.4			
☒ LTE Band 25	1850 - 1915	1.7			
☒ LTE Band 26	814 - 849	0.3			
☒ LTE Band 30	2305 - 2315	1			
☒ LTE Band 38	2570 - 2620	0.8			
☒ LTE Band 41	2496 - 2690	1.9			
☒ LTE Band 42	3450 - 3550 3550 - 3600	0.4			
☒ LTE Band 43	3600 - 3700	-0.4			
☒ LTE Band 48	3550 - 3700	0.4			
☒ LTE Band 66	1710 - 1780	3.8			
☒ LTE Band 71	663 - 698	1.9			
☒ 5G Band n2	1850 - 1910	1.7			
☒ 5G Band n5	824- 849	1.6			
☒ 5G Band n7	2500 - 2570	1.9			
☒ 5G Band n12	699 - 716	2.4			
☒ 5G Band n13	777 - 787	1.2			
☒ 5G Band n14	788 - 798	-0.3			
☒ 5G Band n25	1850 - 1915	1.7			
☒ 5G Band n26	814 - 849	0.3			
☒ 5G Band n30	2305 - 2315	1			
☒ 5G Band n38	2570 - 2620	0.8			
☒ 5G Band n41	2496 - 2690	1.9			
☒ 5G Band n48	3550 - 3700	0.4			
☒ 5G Band n66	1710 - 1780	3.8			
☒ 5G Band n71	663 - 698	1.9			
☒ 5G Band n77	3450 - 3980	0.9			
☒ 5G Band n78	3450 - 3800	0.9			

Note 3: Directional gain information

	Maximum Output Power	Power Spectral Density
Non-BF	Directional gain = Max.gain + array gain. For power measurements on IEEE 802.11 devices Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$	$DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{BB}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$
BF	$DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{BB}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$	$DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{BB}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$

1.1.3 EUT Information

Operational Condition			
EUT Power Type	From AC Adapter / Battery		
EUT Function	☒ Point-to-multipoint	☐ Point-to-point	
Beamforming Function	☒ With beamforming	☐ Without beamforming	
Resource Unit	☒ Full RU	☐ Partial RU	
Type of EUT			
☒	Stand-alone		
☐	Combined (EUT where the radio part is fully integrated within another device)		
	Combined Equipment - Brand Name / Model No.:		...
☐	Plug-in radio (EUT intended for a variety of host systems)		
	Host System - Brand Name / Model No.:		...
☐	Other:		

1.1.4 Mode Test Duty Cycle

Non-Beamforming

Mode	DC	DCF (dB)	T (s)	VBW (Hz)_1/T
802.11b_Nss1,(1Mbps)_2TX	0.966	0.15	8.628m	200
802.11g_Nss1,(6Mbps)_2TX	0.927	0.33	1.437m	1k
802.11ax HEW20_Nss1,(MCS0)_2TX	0.8	0.97	5.45m	200
802.11ax HEW40_Nss1,(MCS0)_2TX	0.812	0.9	5.45m	200

Note. If DC < 0.98, the DCF was added while measuring Output power and PSD.

Beamforming

Mode	DC	DCF (dB)	T (s)	VBW (Hz)_1/T
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	0.8	0.97	5.45m	200
802.11ax HEW40-BF_Nss1,(MCS0)_2TX	0.812	0.9	5.45m	200

Note. If DC < 0.98, the DCF was added while measuring Output power and PSD.

**1.1.5 Table for Multiple Listing**

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

Model Name	Description
FortiExtenderVehicle 511Gxxxxxxxxx, FORTIEXTENDERVEHICLE-511Gxxxxxxxxx, FEV-511Gxxxxxxxxx (where "x" can be used as "A-Z", or "0-9", or "-", or blank for software changes or marketing purposes only)	All the models are identical, the different model served as marketing strategy.

From the above models, model: FEV-511G was selected as representative model for the test and its data was recorded in this report.

1.2 Testing Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ 47 CFR FCC Part 15
- ♦ ANSI C63.10-2013

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

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

1.3 Testing Location Information

Test Lab. : Sporton International Inc. Hsinhua Laboratory				
☒ Hsinhua (TAF: 3785)	ADD: No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333411, Taiwan (R.O.C.)			
	TEL: 886-3-327-3456		FAX: 886-3-327-0973	
Test site Designation No. TW3785 with FCC.				
Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
AC Conduction	CO04-HY	Simon Cheng	21.7~23.5°C / 53~56%	02/Apr/2025
RF Conducted	TH07-HY	Raven Chien	22.8~23.2°C / 52~56%	28/Dec/2024~08/Jan/2025
Radiated (Co-location)	03CH02-HY	Daniel Lin	20.2~21.1°C / 51~53%	31/Dec/2024
☒ Wenhua 3rd. (TAF: 3785)	ADD: No. 58, Aly. 75, Ln. 564, Wenhua 3rd Rd., Guishan Dist. Taoyuan City 333, Taiwan (R.O.C.)			
	TEL: 886-3-327-0868			
Test site Designation No. TW0036 with FCC.				
Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
Radiated_ Below 1GHz	03CH24-HY	Jack Tang	21.5~21.6°C / 51~52%	27/Dec/2024, 02/Apr/2025
Radiated_ Above 1GHz	03CH24-HY	Billy Wang	22.2~23.4°C / 50~52%	22/Dec/2024~07/Feb/2025

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
AC Power-line Conducted Emissions	4.53 dB	Confidence levels of 95%
Bandwidth	3 MHz	Confidence levels of 95%
Maximum Conducted Output Power	2 dB	Confidence levels of 95%
Power Spectral Density	2 dB	Confidence levels of 95%
Emissions in Non-restricted Frequency Bands	0.14 dB	Confidence levels of 95%
Emissions in Restricted Frequency Bands	4.8 dB	Confidence levels of 95%
Temperature	0.41 °C	Confidence levels of 95%
Humidity	3.4 %	Confidence levels of 95%



2 Test Configuration of EUT

2.1 Test Channel Mode

Test Software Version	qdart_conn.win.1.0_installer_00099
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Non-Beamforming

Mode	Power Setting
802.11b_Nss1,(1Mbps)_2TX	-
2412MHz	19
2437MHz	19
2457MHz	18
2462MHz	17
802.11g_Nss1,(6Mbps)_2TX	-
2412MHz	17
2417MHz	18.5
2437MHz	19
2457MHz	18
2462MHz	16.5
802.11ax HEW20_Nss1,(MCS0)_2TX	-
2412MHz	16.5
2417MHz	19
2437MHz	19
2457MHz	17.5
2462MHz	17.5
802.11ax HEW40_Nss1,(MCS0)_2TX	-
2422MHz	15.5
2427MHz	16.5
2437MHz	17
2447MHz	15
2452MHz	14.5

**Beamforming**

Mode	Power Setting
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	-
2412MHz	16.5
2417MHz	19
2437MHz	19
2457MHz	17.5
2462MHz	17.5
802.11ax HEW40-BF_Nss1,(MCS0)_2TX	-
2422MHz	15.5
2427MHz	16.5
2437MHz	17
2447MHz	15
2452MHz	14.5

2.2 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral Test Voltage: 120Vac / 60Hz
Operating Mode	CTX
1	Adapter mode

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

The Worst Case Mode for Following Conformance Tests			
Tests Item	Emissions in Restricted Frequency Bands		
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.		
Operating Mode < 1GHz	CTX		
1	Car charger mode		
2	Adapter mode		
Operating Mode > 1GHz	CTX		
Orthogonal Planes of EUT	X Plane	Y Plane	Z Plane
			
Worst Planes of EUT			V

The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis - Radiated measurement
Operating Mode	CTX
1	Radio 1_5G + Radio 2_2.4G+ Bluetooth + WWAN
Refer to Sporton Test Report No.: FA4N2608 for Co-location RF Exposure Evaluation and Appendix G for Radiated Emission Co-location.	

2.3 Accessories

Accessories				
AC Adapter	Brand Name	ASIAN	Model Name	WA-36W12R
	Power Rating	I/P: 100- 240Vac 50-60Hz, 0.9A Max, O/P: 12Vdc, 3.0A, 36.0W		
	Power Cord	1.5 meter, non-shielded cable, w/o ferrite core		
Vehicle Power Adapter (Car Charger)	Brand Name	HUAI YANG	Model Name	FEVCBL-2M3-C
	Power Rating	I/P:12 Vdc, 2.0 A or 24 Vdc,1.0 A, O/P:12 Vdc, 2.0 A or 24 Vdc,1.0 A		
	Power Cord	2.3meter, non-shielded cable, w/o ferrite core		
Bluetooth Antenna *1	Brand Name	WHA YU	Model Name	ANT DIPOLE 2GHz C496-510188-A BLACK
Wi-Fi Antenna *2	Brand Name	WHA YU	Model Name	ANT DIPOLE 2/5/6GHz C496-510189-A BLACK

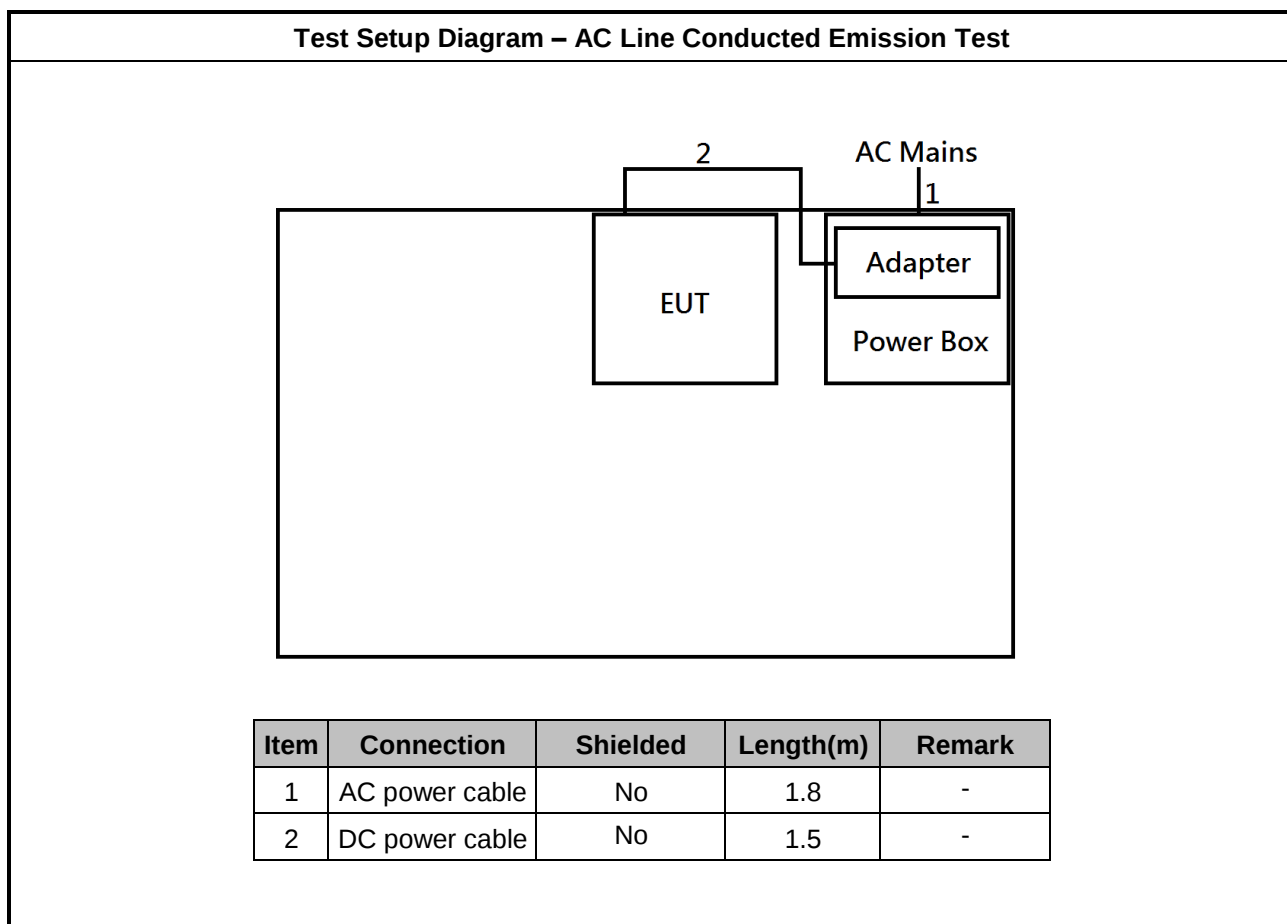
Reminder: Regarding to more detail and other information, please refer to user manual.

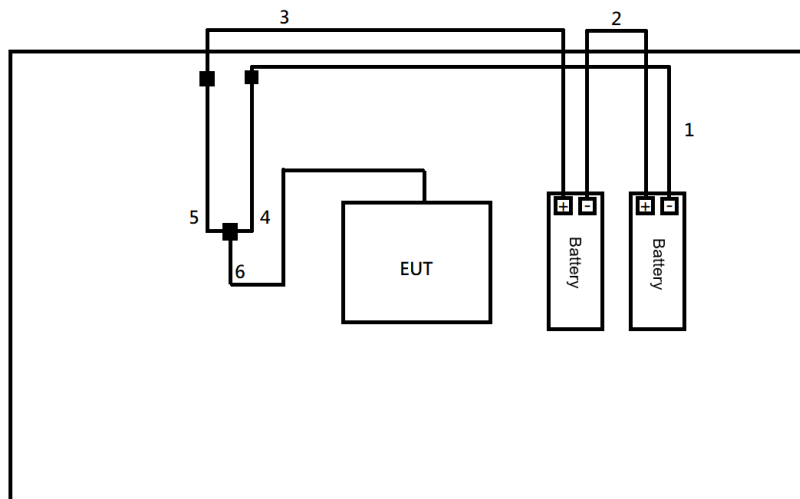
2.4 Support Equipment

Support Equipment – Conducted					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	Notebook	DELL	E5410	-	-
2	Adapter for NB	DELL	HA65NM130	-	-
3	DC Power Supply	GW	GPS-3030DD	-	-
4	DC Power cable	MiSUMi	WTN1223-BLACK	-	-
5	DC Power cable	MiSUMi	WTN1223-RED	-	-
6	Car Charger Switch	Sporton	Sporton	-	Provided by Sporton

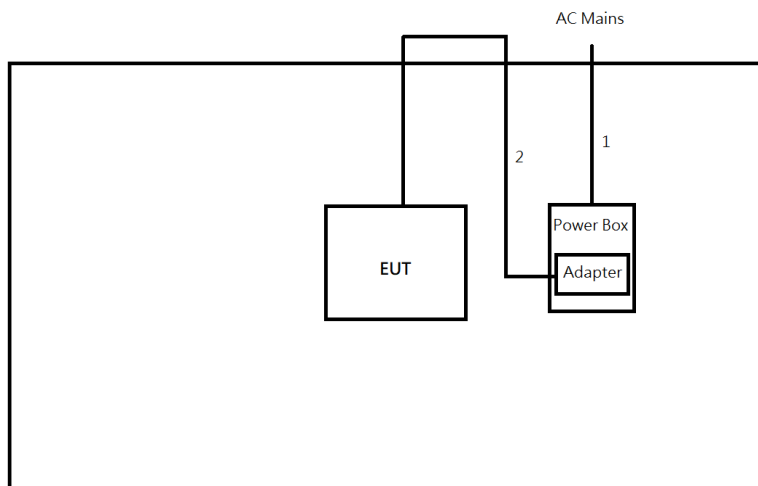
Support Equipment – Radiated					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	Battery	YUASA	145G51	-	-
2	Battery	YUASA	115F51	-	-
3	DC Power cable*2	MiSUMi	WTN1223-BLACK	-	-
4	DC Power cable	MiSUMi	WTN1223-RED	-	-
5	Car Charger Switch	Sporton	Sporton	-	Provided by Sporton

2.5 Test Setup Diagram



Test Setup Diagram - Radiated Test_Car charger mode


Item	Connection	Shielded	Length(m)	Remark
1	DC Power cable	No	1.0	-
2	DC Power cable	No	1.0	-
3	DC Power cable	No	1.0	-
4	DC Power cable(-)	No	0.1	-
5	DC Power cable(+)	No	0.1	-
6	DC Power cable	No	2.3	-

Test Setup Diagram - Radiated Test_Adapter mode


Item	Connection	Shielded	Length(m)	Remark
1	AC power cable	No	1.8	-
2	DC power cable	No	1.5	-

3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

AC Power-line Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50
Note 1: * Decreases with the logarithm of the frequency.		

3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

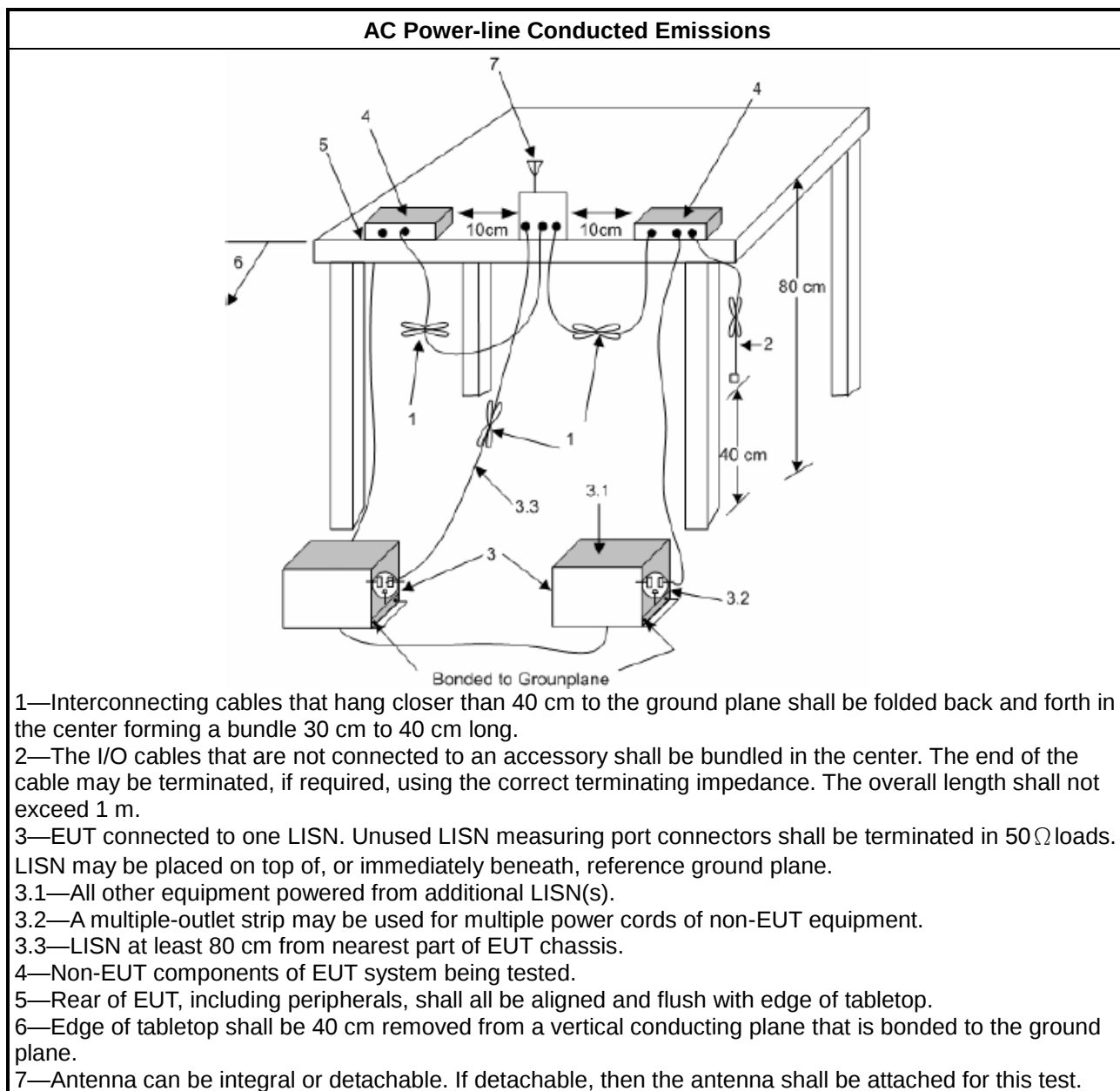
Test Method
☒ Refer as ANSI C63.10-2013, clause 6.2 for AC power-line conducted emissions.

3.1.4 Measurement Results Calculation

The measured Level is calculated using:

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

3.1.5 Test Setup



3.1.6 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A

3.2 DTS Bandwidth

3.2.1 6dB Bandwidth Limit

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

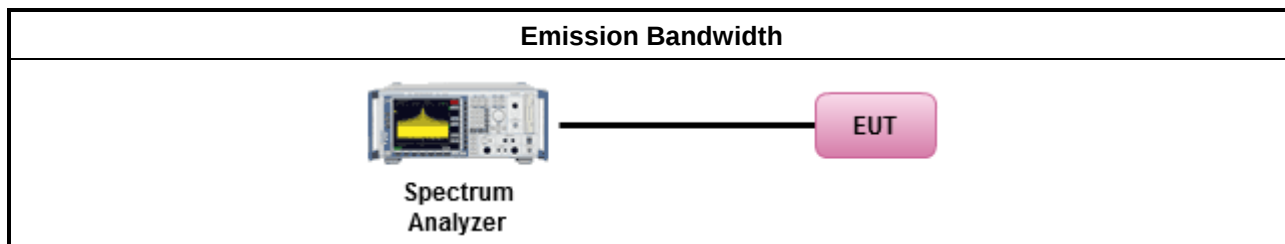
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

Test Method	
▪	For the emission bandwidth shall be measured using one of the options below:
☒	Refer as KDB 558074. clause 8.2 (11.8 of ANSI C63.10) DTS bandwidth measurement.
☐	Refer as RSS-Gen, clause 6.7 for occupied bandwidth testing.
☐	Refer as ANSI C63.10, clause 6.9.3 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
e.i.r.p. Power Limit:	
	2400-2483.5 MHz Band
	Point-to-multipoint systems (P2M): $P_{eirp} \leq 36$ dBm (4 W)
	Point-to-point systems (P2P): $P_{eirp} \leq \text{MAX}(36, [P_{Out} + G_{TX}])$ dBm
	Smart antenna system (SAS)
	- Single beam: $P_{eirp} \leq \text{MAX}(36, P_{Out} + G_{TX})$ dBm
	- Overlap beam: $P_{eirp} \leq \text{MAX}(36, P_{Out} + G_{TX})$ dBm
	- Aggregate power on all beams: $P_{eirp} \leq \text{MAX}(36, [P_{Out} + G_{TX} + 8])$ dBm
P_{Out} = maximum peak conducted output power or maximum conducted output power in dBm, G_{TX} = the maximum transmitting antenna directional gain in dBi.	

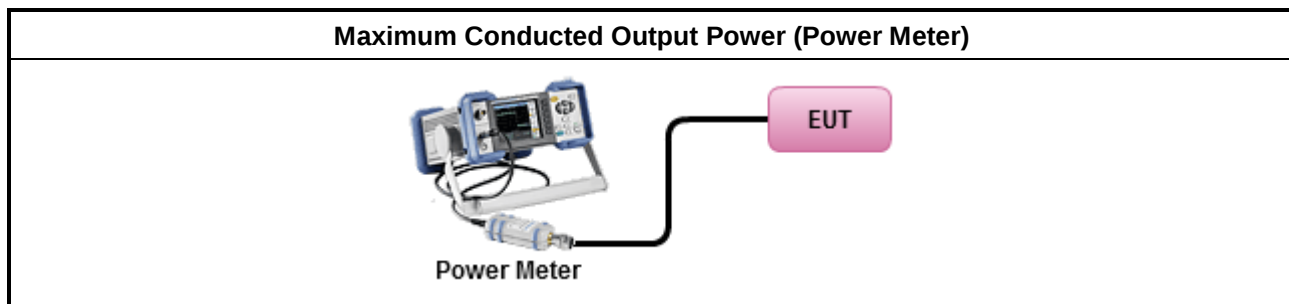
3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

Test Method	
Maximum Peak Conducted Output Power	
☐	Refer as KDB 558074, clause 8.3.1.1 (11.9.1.1 of ANSI C63.10) RBW ≥ EBW method.
☐	Refer as KDB 558074, clause 8.3.1.2 (11.9.1.2 of ANSI C63.10) integrated band power method.
☐	Refer as KDB 558074, clause 8.3.1.3 (11.9.1.3 of ANSI C63.10) peak power meter.
Maximum Average Conducted Output Power	
☐	Refer as KDB 558074, clause 8.3.2.2 (11.9.2.2 of ANSI C63.10) using a spectrum analyzer.
☒	Refer as KDB 558074, clause 8.3.2.3 (11.9.2.3 of ANSI C63.10) using a power meter.
For conducted measurement.	
If the EUT supports multiple transmit chains using options given below: Refer as KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them.	
If multiple transmit chains, EIRP calculation could be following as methods: $P_{total} = P_1 + P_2 + \dots + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = P_{total} + DG$	

3.3.4 Test Setup



3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix C

3.4 Power Spectral Density

3.4.1 Power Spectral Density Limit

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

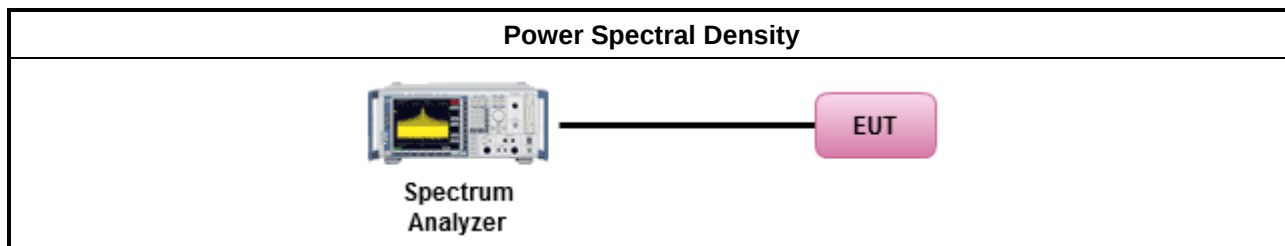
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

Test Method	
▪	Peak power spectral density procedures that the same method as used to determine the conducted output power. If maximum peak conducted output power was measured to demonstrate compliance to the output power limit, then the peak PSD procedure below (Method PKPSD) shall be used. If maximum conducted output power was measured to demonstrate compliance to the output power limit, then one of the average PSD procedures shall be used, as applicable based on the following criteria (the peak PSD procedure is also an acceptable option).
☒	Refer as KDB 558074, clause 8.4 (11.10 of ANSI C63.10) Max. PSD.
▪	For conducted measurement.
▪	If The EUT supports multiple transmit chains using options given below:
▪	Measure and sum the spectra across the outputs. Refer as 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.

3.4.4 Test Setup



3.4.5 Test Result of Power Spectral Density

Refer as Appendix D

3.5 Emissions in Non-restricted Frequency Bands

3.5.1 Emissions in Non-restricted Frequency Bands Limit

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

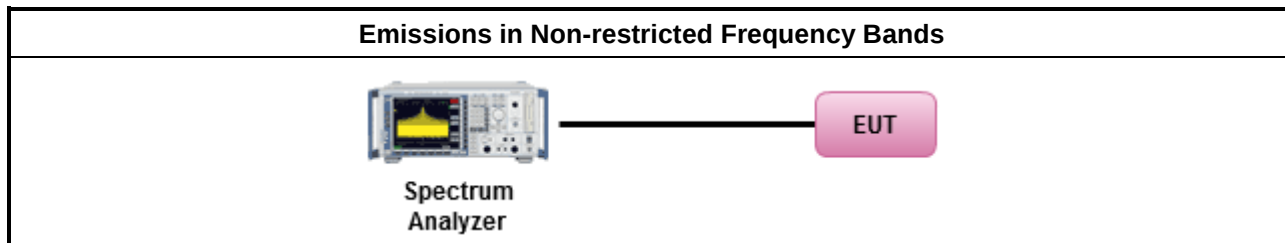
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

Test Method
Refer as KDB 558074, clause 8.5 (11.11 of ANSI C63.10) for non-restricted frequency bands.

3.5.4 Test Setup



3.5.5 Test Result of Emissions in Non-restricted Frequency Bands

Refer as Appendix E

3.6 Emissions in Restricted Frequency Bands

3.6.1 Emissions in Restricted Frequency Bands Limit

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

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

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

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

3.6.2 Measuring Instruments

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

3.6.3 Test Procedures

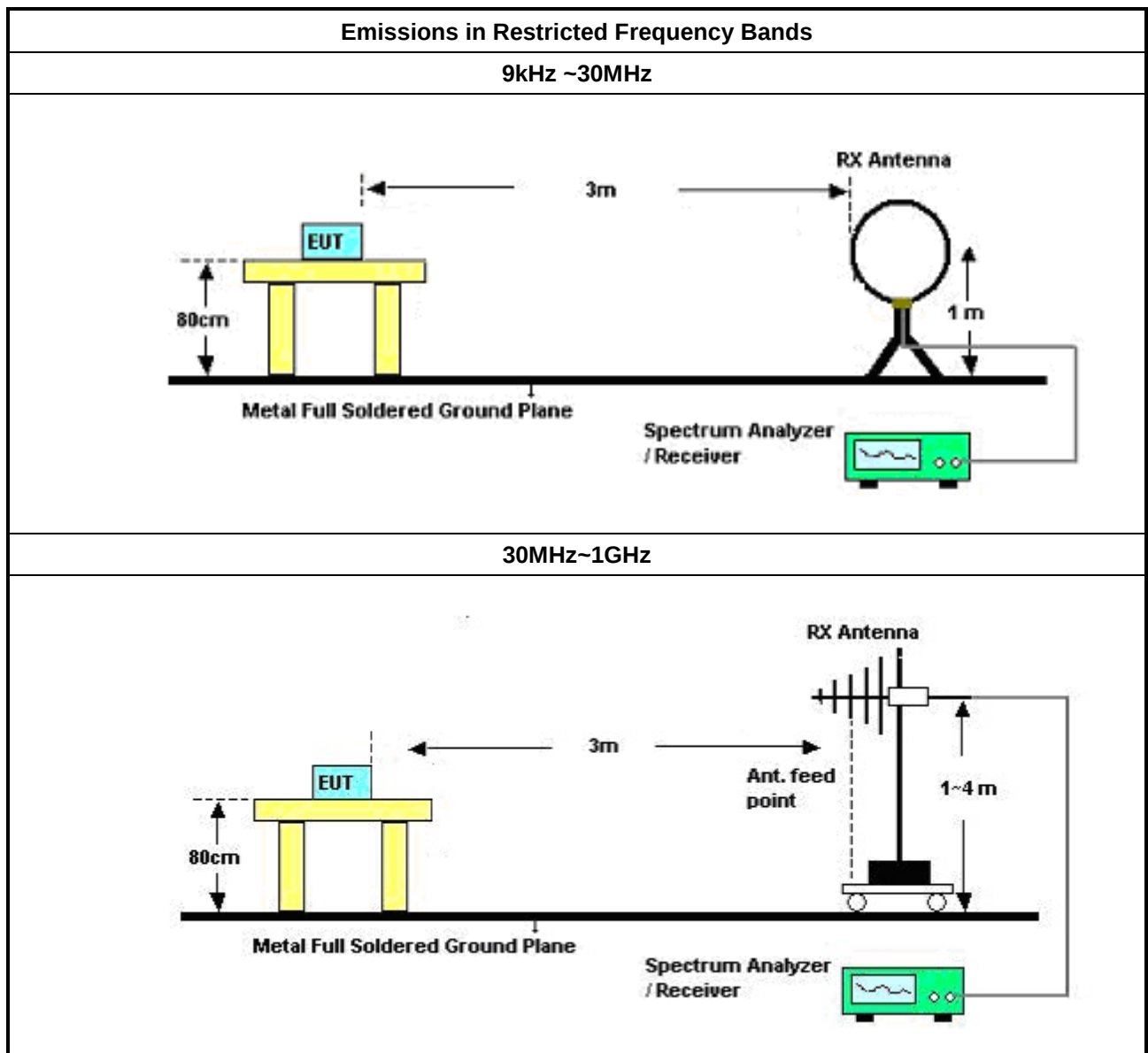
Test Method	
The average emission levels shall be measured in [duty cycle $\geq$ 98 or duty factor].	
Refer as ANSI C63.10, clause 6.10.3 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.	
For the transmitter unwanted emissions shall be measured using following options below:	
	Refer as KDB 558074, clause 8.6 (11.12 of ANSI C63.10) for restricted frequency bands.
For the transmitter band-edge emissions shall be measured using following options below:	
	Refer as KDB 558074 clause 8.7.1, When the performing peak or average radiated measurements, emissions within 2 MHz of the authorized band edge may be measured using the marker-delta method described below.
	Refer as KDB 558074, clause 8.7.2 (6.10.6 of ANSI C63.10) for marker-delta method for band-edge measurements.
	Refer as KDB 558074, clause 8.7.3 for narrower resolution bandwidth (100kHz) using the band power and summing the spectral levels.
Use the following spectrum analyzer settings:	
	Set RBW=100 kHz for $f < 1$ GHz; VBW=3 * RBW; Sweep = auto; Detector function = peak; Trace = max hold.
	Set RBW = 1 MHz, VBW= 3MHz for $f \geq 1$ GHz for peak measurement. For average measurement, refer as 1.1.4.
KDB 414788 Open-Field Test Sites and Chamber Correlation Justification.	
	Based on FCC 15.31(f)(2): measurements may be performed at a distance closer than that specified in regulations; however, an attempt should be made to avoid making measurements in the near field.
	Open-field site and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

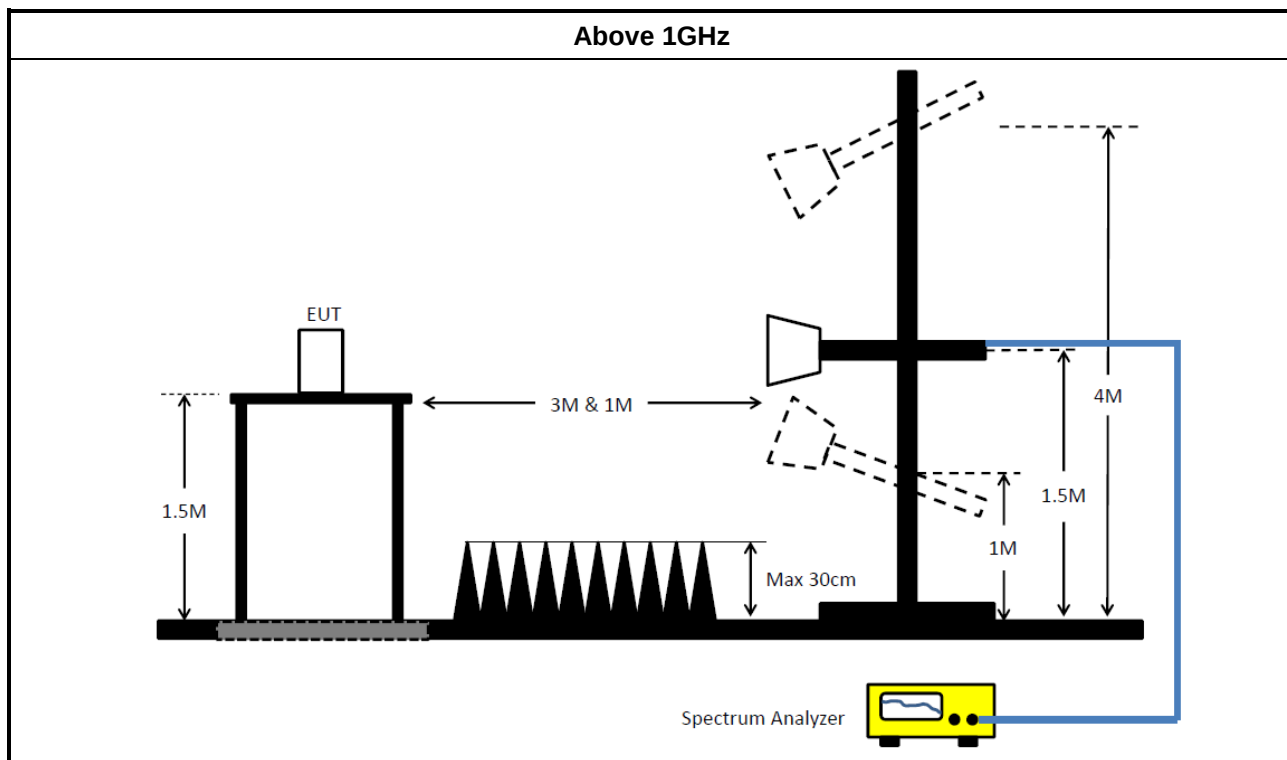
3.6.4 Measurement Results Calculation

The measured Level is calculated using:

Corrected Reading: Raw(Read Level) + AF(Antenna Factor) + CL(Cable Loss) - PA(Preamplifier Factor)

3.6.5 Test Setup





3.6.6 Test Result of Emissions in Restricted Frequency Bands (Below 30MHz)

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

3.6.7 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix F

4 Test Equipment and Calibration Data

Instrument for AC Conduction

Instrument	Manufacturer /Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
EMI Test Receiver	ROHDE & SCHWARZ	ESR3	102051	9kHz ~ 3.6GHz	17/May/2024	16/May/2025
Two-Line V-Network	ROHDE & SCHWARZ	ENV 216	101578	9kHz ~ 30MHz	11/Oct/2024	10/Oct/2025
RF Cable 5m	TITAN	TITAN	CO04-cable-01	9 kHz~200MHz	26/Feb/2025	25/Feb/2026
Impuls Begrenzer Pulse Limiter	SCHWARZBECK	VTSD 9561-F	9561-F041	9kHz ~ 30MHz	17/Oct/2024	16/Oct/2025
Software	Sporton	SENSE-EMI	V5.11.3	-	NCR	NCR

NCR: No Calibration Required

Instrument for Conducted Test

Instrument	Manufacturer /Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Signal Analyzer	R&S	FSV 40	101515	9kHz~40GHz	02/Feb/2024	01/Feb/2025
SMB100A Signal Generator	R&S	SMB100A	181147	100kHz~40GHz	16/Oct/2024	15/Oct/2025
Power Meter	Anritsu	ML2495A	2105003	300MHz~40GHz	13/Sep/2024	12/Sep/2025
Pulse Sensor	Anritsu	MA2411B	1911254	300MHz~40GHz	13/Sep/2024	12/Sep/2025
SENSE-15247_DTS	Sporton	V5.11.21	N/A	N/A	N/A	N/A

**Instrument for Radiated Test (03CH24-HY)**

Instrument	Manufacturer /Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH24-HY	30MHz~1GHz 3m	16/Aug/2024	15/Aug/2025
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH24-HY	1GHz~18GHz 3m	30/Jul/2024	29/Jul/2025
EMI Test Receiver	ROHDE & SCHWARZ	ESR	102318	9kHz~3.6GHz	06/Dec/2024	05/Dec/2025
Signal Analyzer	ROHDE&SCHWARZ	FSV3044	101345	10Hz~44GHz	27/Aug/2024	26/Aug/2025
Loop Antenna	TESEQ	HLA 6120	31244	9kHz~30MHz	19/Mar/2024	18/Mar/2025
Loop Antenna	TESEQ	HLA 6120	31244	9kHz~30MHz	20/Mar/2025	19/Mar/2026
Bilog Antenna & 6dB Attenuator	TESEQ / Woken	CBL 6112D / 00800N1D01N-06	35376 / 02	30MHz~1GHz	14/Apr/2024	13/Apr/2025
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	02744	1GHz~18GHz	15/Aug/2024	14/Aug/2025
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA 9170154	18GHz~40GHz	04/Jun/2024	05/Jun/2025
RF Cable	HUBER+SUHNER	SUOFLEX 104	03CH24-cable-01	9kHz~40GHz	01/Oct/2024	30/Sep/2025
Pre-Amplifier	Aglient	8447D	2944A06292	30MHz~1GHz	18/Apr/2024	17/Apr/2025
Amplifier	EM	EM01G18G	060870	1GHz ~18GHz	12/Aug/2024	11/Aug/2025
Microwave Premplifier	EMC INSTRUMENTS	EM18G40G	060604	18GHz ~ 40GHz	19/Apr/2024	18/Apr/2025
SENSE-15247-DTS	Sporton	V5.11.20	NA	NA	NA	NA

Instrument for Radiated Test (Co-Location)

Instrument	Manufacturer /Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Site V.S.W.R	SIDT FRANKONIA	SAC-3M	03CH02-HY	1GHz~18GHz 3M	14/Jul/2024	13/Jul/2025
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	02268	1GHz~18GHz	23/Sep/2024	22/Sep/2025
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA 9170154	18GHz~40GHz	04/Jun/2024	03/Jun/2025
RF Cable-R03m	HUBER+SUHNER	SUCOFLEX 104	03CH02-cable-01	1GHz~40GHz	15/Feb/2024	14/Feb/2025
Microwave Preamplifier	Agilent	8449B	3008A02373	1GHz~26.5GHz	01/Oct/2024	30/Sep/2025
Microwave Preamplifier	EMC INSTRUMENTS	EM18G40G	060604	18GHz ~40GHz	19/Apr/2024	18/Apr/2025
SENSE-EMI	Sporton	V5.11.9	N/A	N/A	N/A	N/A



Conducted Emissions at Powerline

Appendix A

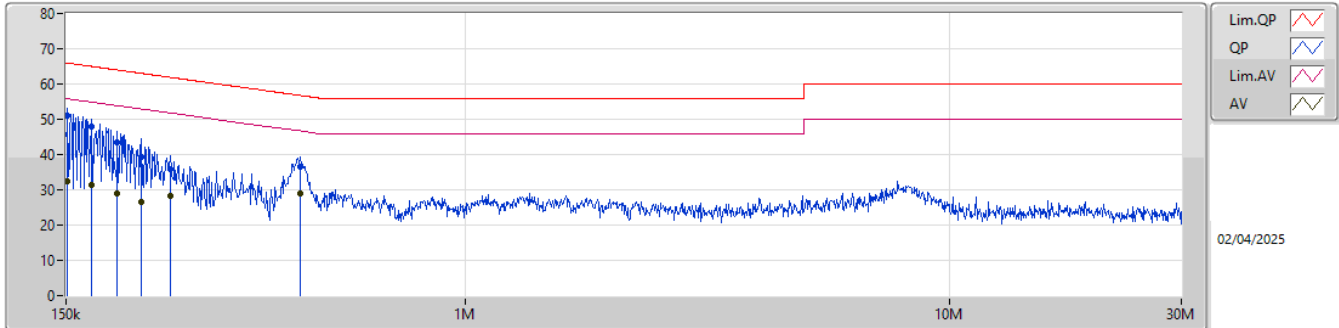
Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	QP	151.202k	51.06	65.92	-14.86	Line

Result

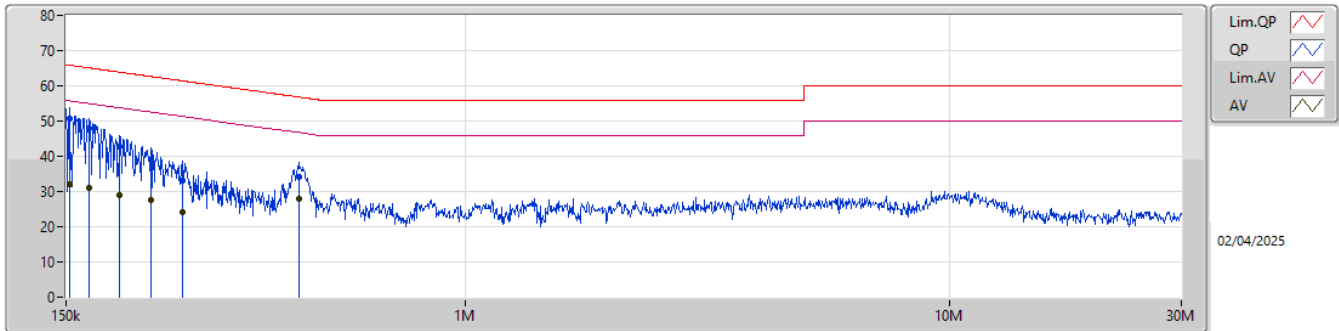
Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	QP	151.202k	51.06	65.92	-14.86	Line
Mode 1	Pass	AV	151.202k	32.54	55.92	-23.38	Line
Mode 1	Pass	QP	169.084k	47.90	65.01	-17.11	Line
Mode 1	Pass	AV	169.084k	31.41	55.01	-23.60	Line
Mode 1	Pass	QP	191.358k	43.30	63.97	-20.67	Line
Mode 1	Pass	AV	191.358k	28.81	53.97	-25.16	Line
Mode 1	Pass	QP	213.989k	39.30	63.06	-23.76	Line
Mode 1	Pass	AV	213.989k	26.40	53.06	-26.66	Line
Mode 1	Pass	QP	246.077k	35.84	61.89	-26.05	Line
Mode 1	Pass	AV	246.077k	28.20	51.89	-23.69	Line
Mode 1	Pass	QP	456.875k	36.50	56.75	-20.25	Line
Mode 1	Pass	AV	456.875k	29.12	46.75	-17.63	Line
Mode 1	Pass	QP	152.414k	50.69	65.87	-15.18	Neutral
Mode 1	Pass	AV	152.414k	32.08	55.87	-23.79	Neutral
Mode 1	Pass	QP	167.739k	47.99	65.06	-17.07	Neutral
Mode 1	Pass	AV	167.739k	31.04	55.06	-24.02	Neutral
Mode 1	Pass	QP	193.664k	42.93	63.88	-20.95	Neutral
Mode 1	Pass	AV	193.664k	28.81	53.88	-25.07	Neutral
Mode 1	Pass	QP	224.49k	38.86	62.65	-23.79	Neutral
Mode 1	Pass	AV	224.49k	27.58	52.65	-25.07	Neutral
Mode 1	Pass	QP	260.222k	32.96	61.43	-28.47	Neutral
Mode 1	Pass	AV	260.222k	24.04	51.43	-27.39	Neutral
Mode 1	Pass	QP	453.242k	34.03	56.82	-22.79	Neutral
Mode 1	Pass	AV	453.242k	27.89	46.82	-18.93	Neutral

Conducted Emissions at Powerline_Mode 1



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)						
QP	151.202k	51.06	65.92	-14.86	19.91	Line	-	31.15	9.93	0.01	9.97						
AV	151.202k	32.54	55.92	-23.38	19.91	Line	-	12.63	9.93	0.01	9.97						
QP	169.084k	47.90	65.01	-17.11	20.27	Line	-	27.63	10.29	0.01	9.97						
AV	169.084k	31.41	55.01	-23.60	20.27	Line	-	11.14	10.29	0.01	9.97						
QP	191.358k	43.30	63.97	-20.67	20.03	Line	-	23.27	10.05	0.01	9.97						
AV	191.358k	28.81	53.97	-25.16	20.03	Line	-	8.78	10.05	0.01	9.97						
QP	213.989k	39.30	63.06	-23.76	19.84	Line	-	19.46	9.86	0.01	9.97						
AV	213.989k	26.40	53.06	-26.66	19.84	Line	-	6.56	9.86	0.01	9.97						
QP	246.077k	35.84	61.89	-26.05	19.66	Line	-	16.18	9.67	0.02	9.97						
AV	246.077k	28.20	51.89	-23.69	19.66	Line	-	8.54	9.67	0.02	9.97						
QP	456.875k	36.50	56.75	-20.25	20.05	Line	-	16.45	10.04	0.03	9.98						
AV	456.875k	29.12	46.75	-17.63	20.05	Line	-	9.07	10.04	0.03	9.98						

Conducted Emissions at Powerline_Mode 1



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)						
QP	152.414k	50.69	65.87	-15.18	19.94	Neutral	-	30.75	9.96	0.01	9.97						
AV	152.414k	32.08	55.87	-23.79	19.94	Neutral	-	12.14	9.96	0.01	9.97						
QP	167.739k	47.99	65.06	-17.07	20.25	Neutral	-	27.74	10.27	0.01	9.97						
AV	167.739k	31.04	55.06	-24.02	20.25	Neutral	-	10.79	10.27	0.01	9.97						
QP	193.664k	42.93	63.88	-20.95	20.02	Neutral	-	22.91	10.04	0.01	9.97						
AV	193.664k	28.81	53.88	-25.07	20.02	Neutral	-	8.79	10.04	0.01	9.97						
QP	224.49k	38.86	62.65	-23.79	19.80	Neutral	-	19.06	9.82	0.01	9.97						
AV	224.49k	27.58	52.65	-25.07	19.80	Neutral	-	7.78	9.82	0.01	9.97						
QP	260.222k	32.96	61.43	-28.47	19.69	Neutral	-	13.27	9.70	0.02	9.97						
AV	260.222k	24.04	51.43	-27.39	19.69	Neutral	-	4.35	9.70	0.02	9.97						
QP	453.242k	34.03	56.82	-22.79	20.05	Neutral	-	13.98	10.04	0.03	9.98						
AV	453.242k	27.89	46.82	-18.93	20.05	Neutral	-	7.84	10.04	0.03	9.98						

**Summary**

Mode	Max-N dB	Max-OBW	ITU-Code	Min-N dB	Min-OBW
	(Hz)	(Hz)		(Hz)	(Hz)
2.4-2.4835GHz	-	-	-	-	-
802.11b_Nss1,(1Mbps)_2TX	7.95M	13.193M	13M2G1D	6.675M	12.834M
802.11g_Nss1,(6Mbps)_2TX	16.4M	16.69M	16M7D1D	16.325M	16.338M
802.11ax HEW20_Nss1,(MCS0)_2TX	19.125M	19.015M	19M0D1D	14.5M	18.841M
802.11ax HEW40_Nss1,(MCS0)_2TX	38.15M	37.781M	37M8D1D	33.9M	37.631M

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	Port 1-N dB	Port 1-OBW	Port 2-N dB	Port 2-OBW
		(Hz)	(Hz)	(Hz)	(Hz)	(Hz)
802.11b_Nss1,(1Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	7.1M	12.834M	7.1M	13.148M
2437MHz	Pass	500k	6.675M	13.193M	7.95M	12.969M
2462MHz	Pass	500k	7.875M	12.864M	7.825M	12.864M
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	16.325M	16.47M	16.375M	16.382M
2437MHz	Pass	500k	16.325M	16.492M	16.4M	16.69M
2462MHz	Pass	500k	16.35M	16.36M	16.35M	16.338M
802.11ax HEW20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	19.075M	18.916M	19.05M	18.966M
2437MHz	Pass	500k	19.125M	19.015M	14.5M	18.966M
2462MHz	Pass	500k	18.775M	18.941M	18.825M	18.841M
802.11ax HEW40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	500k	37.8M	37.631M	37.6M	37.731M
2437MHz	Pass	500k	38M	37.781M	38.15M	37.631M
2452MHz	Pass	500k	33.9M	37.681M	38M	37.731M

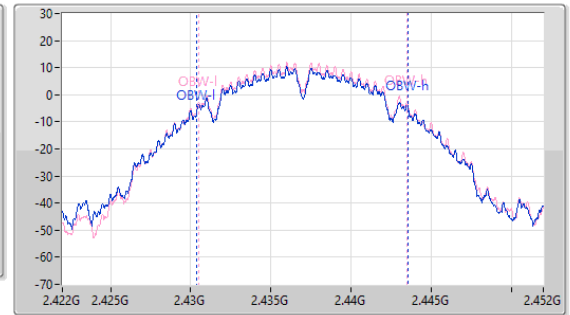
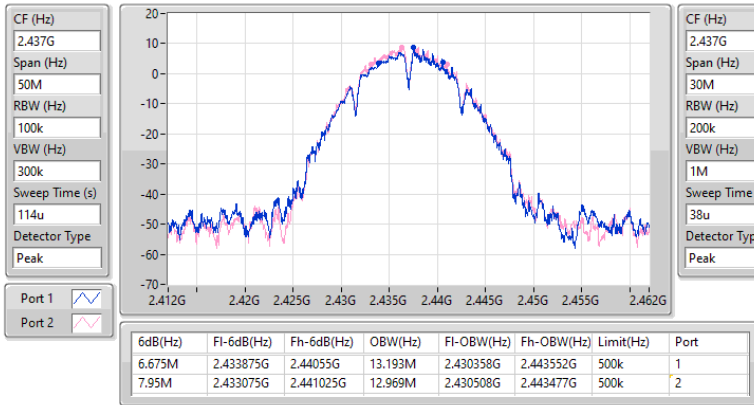
Port X-N dB = Port X 6dB down bandwidth;
Port X-OBW = Port X 99% occupied bandwidth

2.4-2.4835GHz_802.11b_Nss1,(1Mbps)_2TX

EBW

2437MHz

28/12/2024

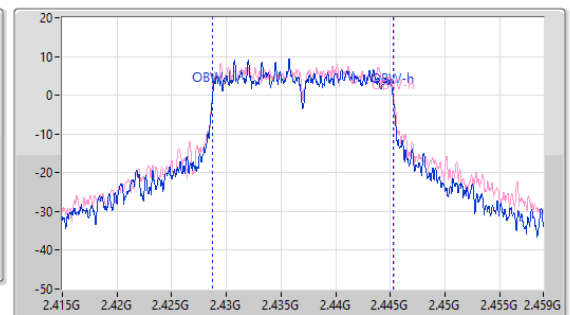
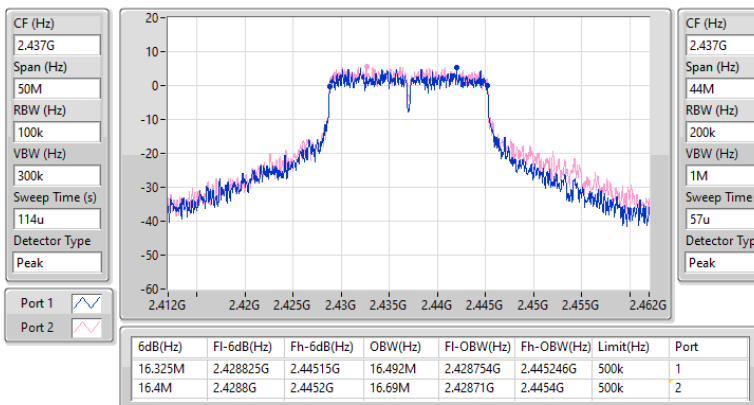


2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_2TX

EBW

2437MHz

29/12/2024

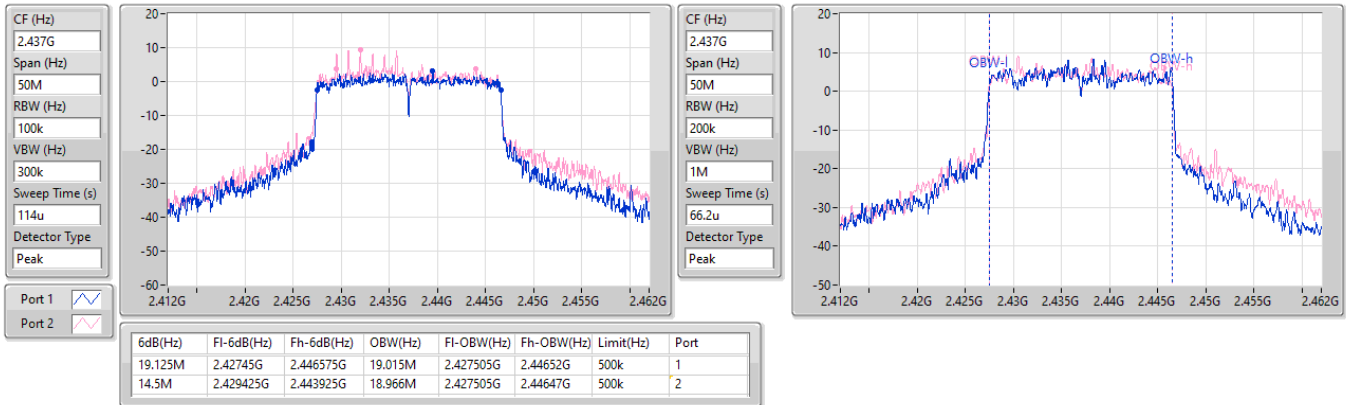


2.4-2.4835GHz_802.11ax HEW20_Nss1,(MCS0)_2TX

EBW

2437MHz

29/12/2024

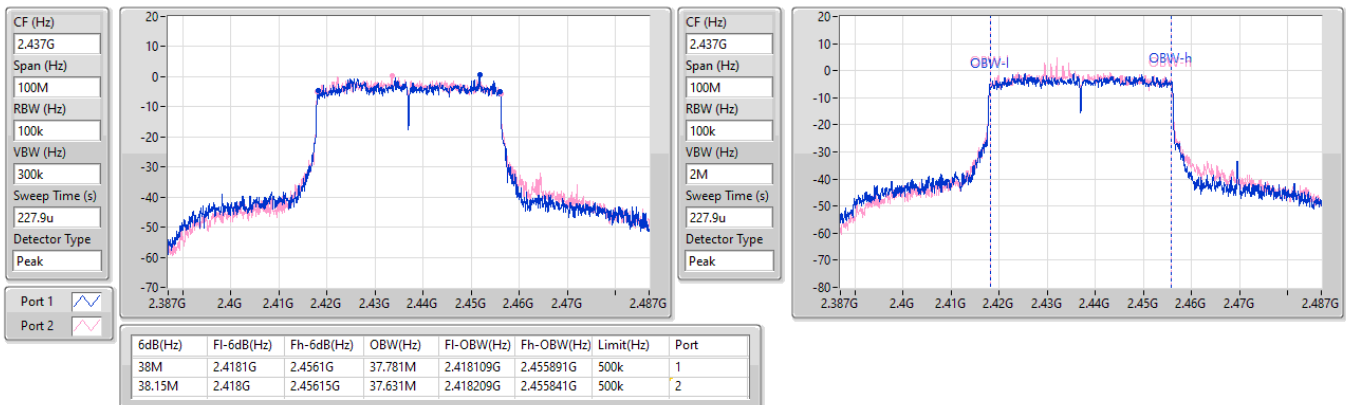


2.4-2.4835GHz_802.11ax HEW40_Nss1,(MCS0)_2TX

EBW

2437MHz

29/12/2024





Average Power_Non-Beamforming

Appendix C.1

Summary

Mode	Total Power	Total Power
	(dBm)	(W)
2.4-2.4835GHz	-	-
802.11b_Nss1,(1Mbps)_2TX	22.22	0.16672
802.11g_Nss1,(6Mbps)_2TX	21.53	0.14223
802.11ax HEW20_Nss1,(MCS0)_2TX	21.89	0.15453
802.11ax HEW40_Nss1,(MCS0)_2TX	19.91	0.09795



Average Power_Non-Beamforming

Appendix C.1

Result

Mode	Result	DG	Port 1	Port 2	Total Power	Power Limit
		(dBi)	(dBm)	(dBm)	(dBm)	(dBm)
802.11b_Nss1,(1Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	2.08	18.01	19.36	21.75	30.00
2437MHz	Pass	2.08	18.48	19.84	22.22	30.00
2457MHz	Pass	2.08	17.85	18.72	21.32	30.00
2462MHz	Pass	2.08	16.68	17.74	20.25	30.00
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	2.08	15.86	16.09	18.99	30.00
2417MHz	Pass	2.08	17.60	18.97	21.35	30.00
2437MHz	Pass	2.08	18.53	18.51	21.53	30.00
2457MHz	Pass	2.08	17.51	18.54	21.07	30.00
2462MHz	Pass	2.08	15.93	16.87	19.44	30.00
802.11ax HEW20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	2.08	15.15	16.54	18.91	30.00
2417MHz	Pass	2.08	17.86	18.98	21.47	30.00
2437MHz	Pass	2.08	18.33	19.36	21.89	30.00
2457MHz	Pass	2.08	16.79	17.79	20.33	30.00
2462MHz	Pass	2.08	16.51	17.56	20.08	30.00
802.11ax HEW40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	2.08	14.62	15.96	18.35	30.00
2427MHz	Pass	2.08	15.79	17.01	19.45	30.00
2437MHz	Pass	2.08	16.80	17.00	19.91	30.00
2447MHz	Pass	2.08	14.79	15.67	18.26	30.00
2452MHz	Pass	2.08	14.07	15.19	17.68	30.00

DG = Directional Gain; Port X = Port X output power;
Inf = There's no restriction for the limit.



Summary

Mode	Total Power	Total Power
	(dBm)	(W)
2.4-2.4835GHz	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	21.89	0.15453
802.11ax HEW40-BF_Nss1,(MCS0)_2TX	19.91	0.09795

**Result**

Mode	Result	DG	Total Power	Power Limit	Port 1	Port 2
		(dBi)	(dBm)	(dBm)	(dBm)	(dBm)
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	5.09	18.91	30.00	15.15	16.54
2417MHz	Pass	5.09	21.47	30.00	17.86	18.98
2437MHz	Pass	5.09	21.89	30.00	18.33	19.36
2457MHz	Pass	5.09	20.33	30.00	16.79	17.79
2462MHz	Pass	5.09	20.08	30.00	16.51	17.56
802.11ax HEW40-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	5.09	18.35	30.00	14.62	15.96
2427MHz	Pass	5.09	19.45	30.00	15.79	17.01
2437MHz	Pass	5.09	19.91	30.00	16.80	17.00
2447MHz	Pass	5.09	18.26	30.00	14.79	15.67
2452MHz	Pass	5.09	17.68	30.00	14.07	15.19

DG = Directional Gain; Port X = Port X output power;
Inf = There's no restriction for the limit.



Summary

Mode	PD
	(dBm/RBW)
2.4-2.4835GHz	-
802.11b_Nss1,(1Mbps)_2TX	-4.61
802.11g_Nss1,(6Mbps)_2TX	-6.52
802.11ax HEW20_Nss1,(MCS0)_2TX	-6.63
802.11ax HEW40_Nss1,(MCS0)_2TX	-9.81

RBW = 3kHz;



Result

Mode	Result	DG	Port 1	Port 2	PD	PD Limit
		(dBi)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
802.11b_Nss1,(1Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	5.09	-9.95	-6.11	-4.61	8.00
2437MHz	Pass	5.09	-9.45	-8.01	-5.66	8.00
2462MHz	Pass	5.09	-11.31	-5.81	-4.76	8.00
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	5.09	-11.02	-9.39	-8.34	8.00
2437MHz	Pass	5.09	-9.49	-8.15	-6.52	8.00
2462MHz	Pass	5.09	-11.56	-10.80	-9.08	8.00
802.11ax HEW20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	5.09	-11.53	-10.49	-9.59	8.00
2437MHz	Pass	5.09	-9.28	-7.40	-6.63	8.00
2462MHz	Pass	5.09	-10.67	-10.02	-8.24	8.00
802.11ax HEW40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	5.09	-15.57	-13.00	-11.79	8.00
2437MHz	Pass	5.09	-12.76	-10.64	-9.81	8.00
2452MHz	Pass	5.09	-15.09	-15.01	-13.46	8.00

DG = Directional Gain; RBW = 3kHz;
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; Port X = Port X Power Density;
Inf = There's no restriction for the limit.

2.4-2.4835GHz_802.11b_Nss1,(1Mbps)_2TX

PSD

2412MHz

28/12/2024

CF (Hz)
2.412G

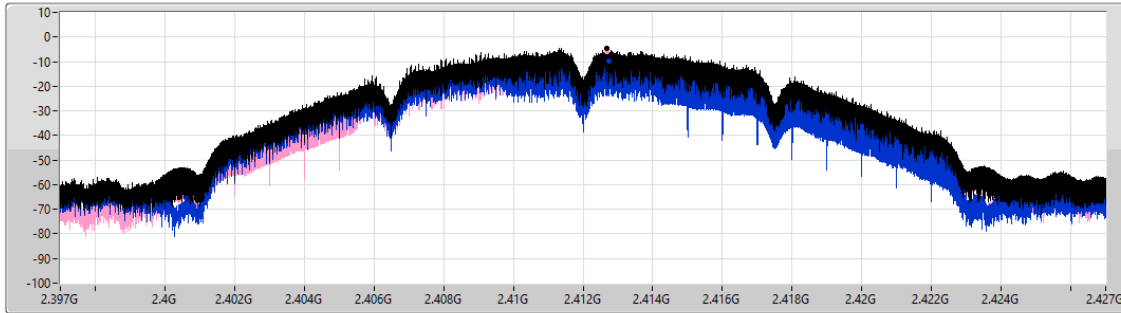
Span (Hz)
30M

RBW (Hz)
3k

VBW (Hz)
10k

Sweep Time (s)
4.424m

Detector Type
Peak



Sum ☒

Port 1 ☒

Port 2 ☒

Sum	PD	Port 1	Port 2
(dBm/100kHz)	(dBm/100kHz)	(dBm/100kHz)	(dBm/100kHz)
-4.61	-4.61	-9.95	-6.11

2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_2TX

PSD

2437MHz

29/12/2024

CF (Hz)
2.437G

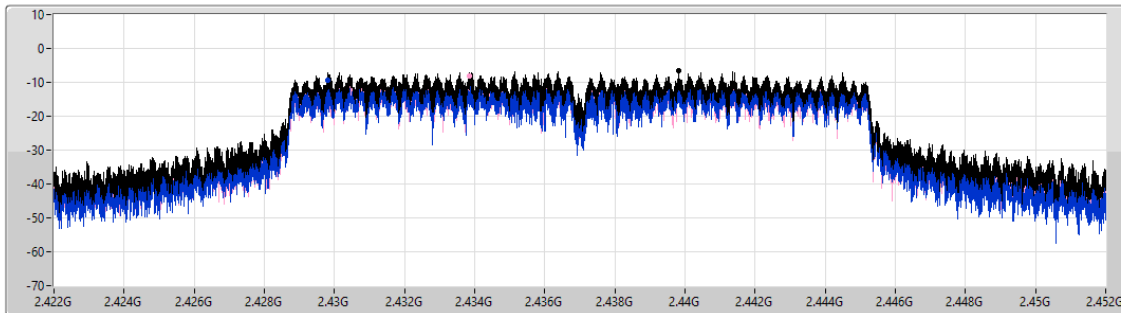
Span (Hz)
30M

RBW (Hz)
3k

VBW (Hz)
10k

Sweep Time (s)
4.424m

Detector Type
Peak



Sum ☒

Port 1 ☒

Port 2 ☒

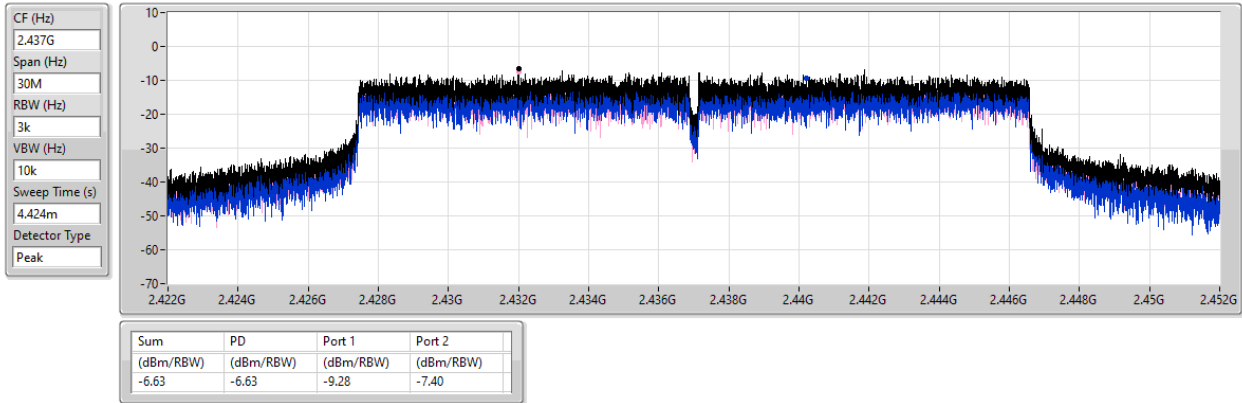
Sum	PD	Port 1	Port 2
(dBm/100kHz)	(dBm/100kHz)	(dBm/100kHz)	(dBm/100kHz)
-6.52	-6.52	-9.49	-8.15

2.4-2.4835GHz_802.11ax HEW20_Nss1,(MCS0)_2TX

PSD

2437MHz

29/12/2024

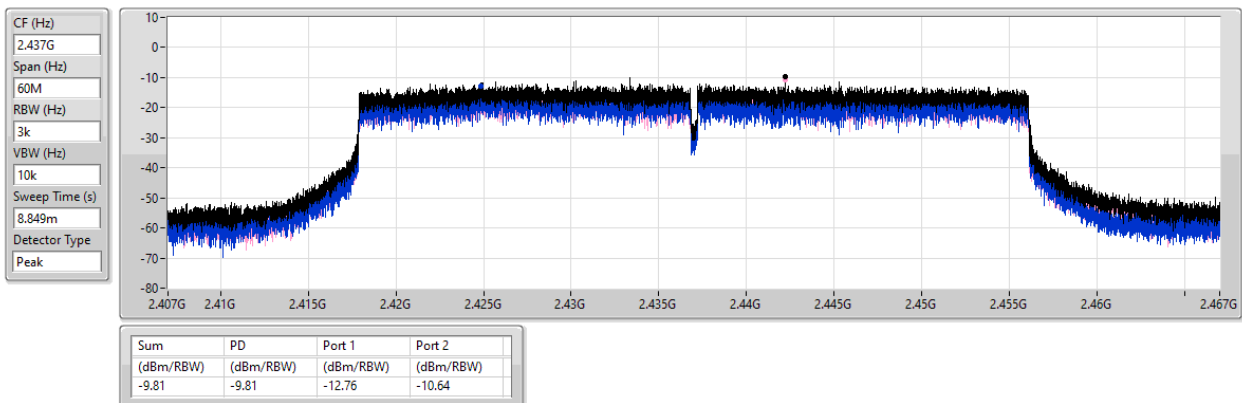


2.4-2.4835GHz_802.11ax HEW40_Nss1,(MCS0)_2TX

PSD

2437MHz

29/12/2024



**Summary**

Mode	Result	Ref	Ref	Limit	Freq	Level	Freq	Level	Freq	Level	Freq	Level	Freq	Level	Port
		(Hz)	(dBm)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
802.11b_Nss1,(1Mbps)_2TX	Pass	2.43741G	10.79	-19.21	2.30991G	-55.39	2.4G	-39.07	2.4G	-38.88	2.5031G	-52.64	16.7427G	-42.33	2
802.11g_Nss1,(6Mbps)_2TX	Pass	2.43574G	9.83	-20.17	2.30641G	-54.83	2.39928G	-29.48	2.4G	-29.52	2.51382G	-53.09	23.24964G	-41.11	2
802.11ax HEW20_Nss1,(MCS0)_2TX	Pass	2.4319G	9.72	-20.28	1.97439G	-55.83	2.39992G	-29.49	2.4G	-28.38	2.50878G	-54.03	16.97589G	-42.62	1
802.11ax HEW40_Nss1,(MCS0)_2TX	Pass	2.42572G	4.33	-25.67	2.1723G	-55.24	2.4G	-32.86	2.4G	-31.49	2.5379G	-53.85	16.97054G	-42.30	2

Result

Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
802.11b_Nss1,(1Mbps)_2TX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	2.43741G	10.79	-19.21	2.13632G	-55.61	2.39808G	-42.53	2.4G	-47.60	2.50606G	-53.36	15.03729G	-42.99	1
2412MHz	Pass	2.43741G	10.79	-19.21	2.30991G	-55.39	2.4G	-39.07	2.4G	-38.88	2.5031G	-52.64	16.7427G	-42.33	2
2437MHz	Pass	2.43741G	10.79	-19.21	2.30641G	-54.97	2.39816G	-50.83	2.4G	-54.71	2.5079G	-52.78	16.67527G	-41.42	1
2437MHz	Pass	2.43741G	10.79	-19.21	2.1969G	-55.32	2.39936G	-52.34	2.4G	-53.55	2.52166G	-53.67	16.71179G	-42.45	2
2462MHz	Pass	2.43741G	10.79	-19.21	2.14914G	-55.18	2.39936G	-54.36	2.4G	-53.88	2.51902G	-53.62	16.55726G	-42.52	1
2462MHz	Pass	2.43741G	10.79	-19.21	1.98371G	-54.65	2.39744G	-54.38	2.4G	-55.65	2.50318G	-53.57	16.87194G	-41.74	2
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	2.43574G	9.83	-20.17	2.19224G	-55.08	2.39952G	-31.74	2.4G	-31.26	2.51134G	-53.83	16.39993G	-42.26	1
2412MHz	Pass	2.43574G	9.83	-20.17	2.30641G	-54.83	2.39928G	-29.48	2.4G	-29.52	2.51382G	-53.09	23.24964G	-41.11	2
2437MHz	Pass	2.43574G	9.83	-20.17	2.14215G	-55.40	2.39952G	-44.59	2.4G	-45.10	2.5111G	-53.85	16.8607G	-42.85	1
2437MHz	Pass	2.43574G	9.83	-20.17	1.78216G	-55.34	2.39952G	-39.89	2.4G	-39.63	2.50462G	-53.04	16.22855G	-42.11	2
2462MHz	Pass	2.43574G	9.83	-20.17	2.15613G	-55.21	2.39952G	-54.17	2.4G	-54.78	2.5063G	-52.59	16.88036G	-42.39	1
2462MHz	Pass	2.43574G	9.83	-20.17	1.63071G	-55.49	2.39984G	-53.92	2.4G	-55.40	2.51638G	-52.91	16.67808G	-42.49	2
802.11ax HEW20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	2.4319G	9.72	-20.28	1.97439G	-55.83	2.39992G	-29.49	2.4G	-28.38	2.50878G	-54.03	16.97589G	-42.62	1
2412MHz	Pass	2.4319G	9.72	-20.28	2.30292G	-55.77	2.39992G	-29.82	2.4G	-28.59	2.51158G	-53.27	15.05415G	-41.42	2
2437MHz	Pass	2.4319G	9.72	-20.28	2.1969G	-54.73	2.3996G	-43.64	2.4G	-44.24	2.51678G	-53.51	23.26369G	-42.73	1
2437MHz	Pass	2.4319G	9.72	-20.28	2.05244G	-55.63	2.3996G	-40.73	2.4G	-42.34	2.50542G	-53.30	17.0096G	-42.29	2
2462MHz	Pass	2.4319G	9.72	-20.28	1.95342G	-55.35	2.39344G	-52.59	2.4G	-55.73	2.50158G	-53.21	16.84665G	-42.27	1
2462MHz	Pass	2.4319G	9.72	-20.28	2.17711G	-55.43	2.39816G	-53.27	2.4G	-53.06	2.51982G	-53.73	24.54766G	-41.98	2
802.11ax HEW40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2422MHz	Pass	2.42572G	4.33	-25.67	2.16085G	-55.70	2.39968G	-35.58	2.4G	-33.98	2.52734G	-53.72	24.92428G	-41.69	1
2422MHz	Pass	2.42572G	4.33	-25.67	2.1723G	-55.24	2.4G	-32.86	2.4G	-31.49	2.5379G	-53.85	16.97054G	-42.30	2
2437MHz	Pass	2.42572G	4.33	-25.67	2.12077G	-55.34	2.39936G	-39.26	2.4G	-41.62	2.50366G	-53.69	23.55565G	-42.37	1
2437MHz	Pass	2.42572G	4.33	-25.67	2.30855G	-55.55	2.4G	-39.50	2.4G	-41.11	2.50238G	-53.12	17.45012G	-41.70	2
2452MHz	Pass	2.42572G	4.33	-25.67	2.09673G	-55.44	2.39536G	-54.25	2.4G	-53.30	2.52414G	-53.49	23.28641G	-41.72	1
2452MHz	Pass	2.42572G	4.33	-25.67	2.14825G	-54.63	2.39456G	-52.49	2.4G	-53.07	2.5403G	-53.58	24.98037G	-42.52	2

2.4-2.4835GHz_802.11b_Nss1,(1Mbps)_2TX

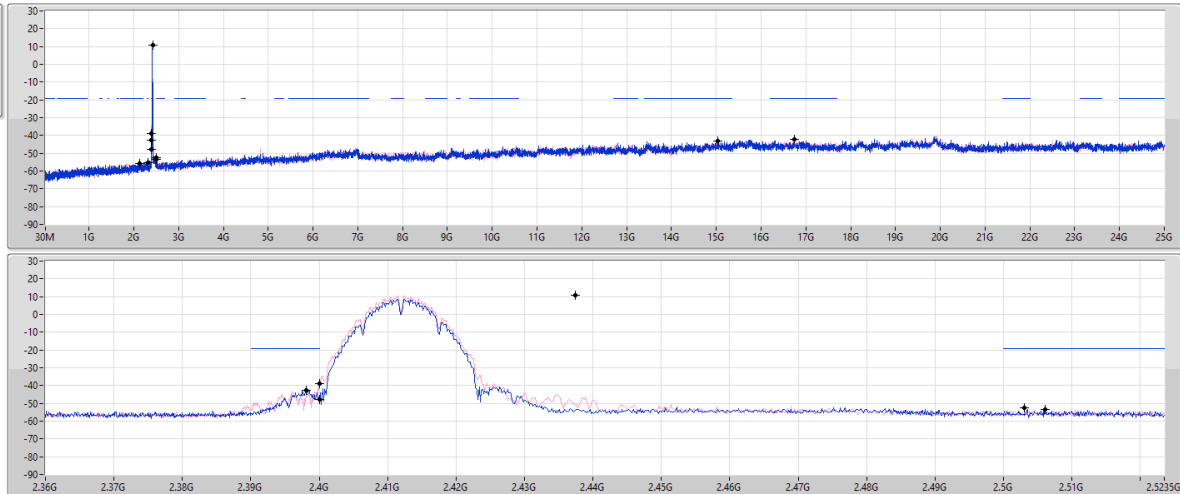
CSEndB

2412MHz

28/12/2024

RBW (Hz)
100k
VBW (Hz)
300k
Detector
Peak

Port 1
Port 2



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
2.43741G	10.79	-19.21	2.13632G	-55.61	2.39808G	-42.53	2.4G	-47.60	2.50606G	-53.36	15.03729G	-42.99	1
2.43741G	10.79	-19.21	2.30991G	-55.39	2.4G	-39.07	2.4G	-38.88	2.5031G	-52.64	16.7427G	-42.33	2

2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_2TX

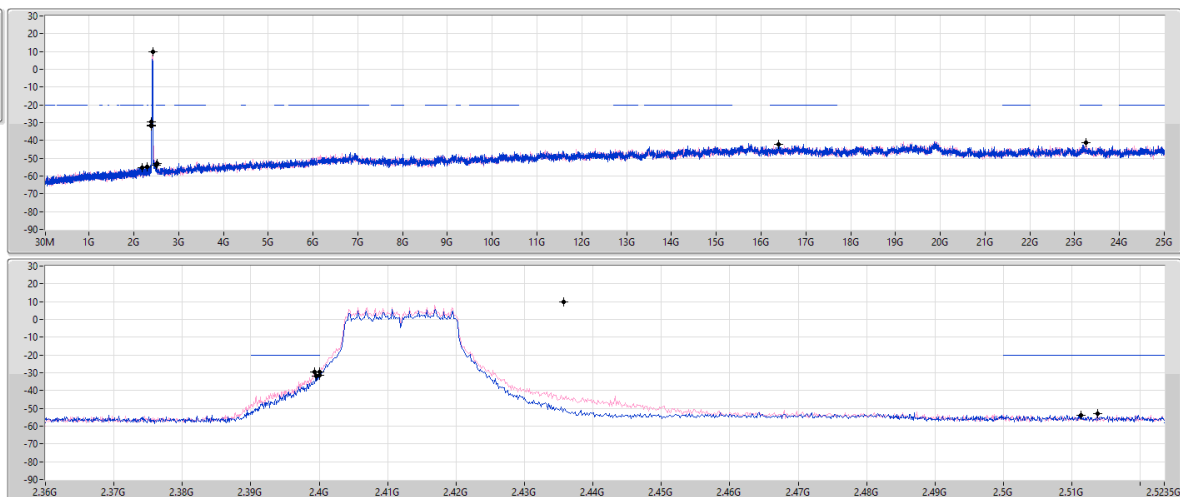
CSEndB

2412MHz

29/12/2024

RBW (Hz)
100k
VBW (Hz)
300k
Detector
Peak

Port 1
Port 2



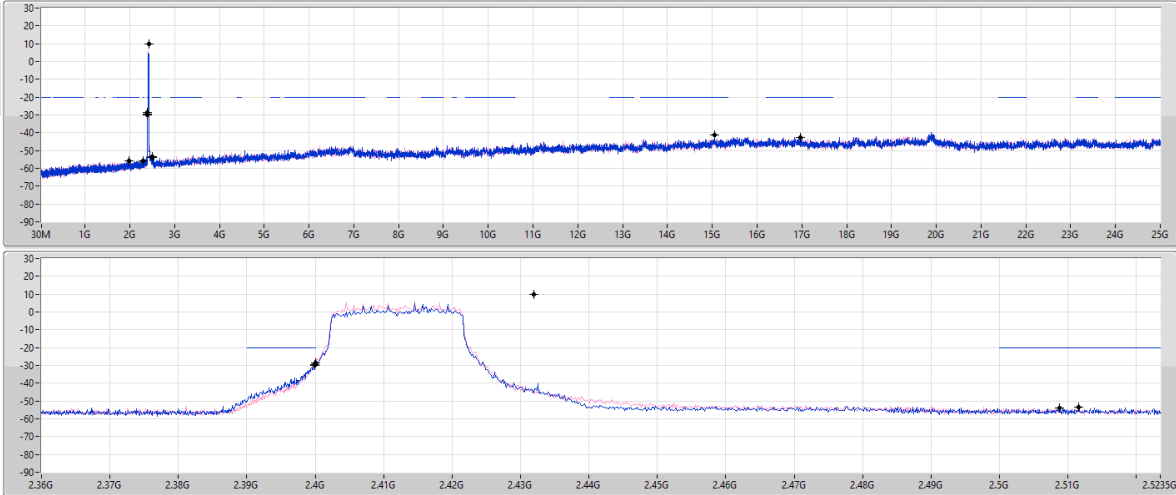
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.43574G	9.83	-20.17	2.19224G	-55.08	2.39952G	-31.74	2.4G	-31.26	2.51134G	-53.83	16.39993G	-42.26	1
2.43574G	9.83	-20.17	2.30641G	-54.83	2.39928G	-29.48	2.4G	-29.52	2.51382G	-53.09	23.24964G	-41.11	2

2.4-2.4835GHz_802.11ax_HEW20_Nss1,(MCS0)_2TX

CSEndB

2412MHz

RBW (Hz)
100k
VBW (Hz)
300k
Detector
Peak



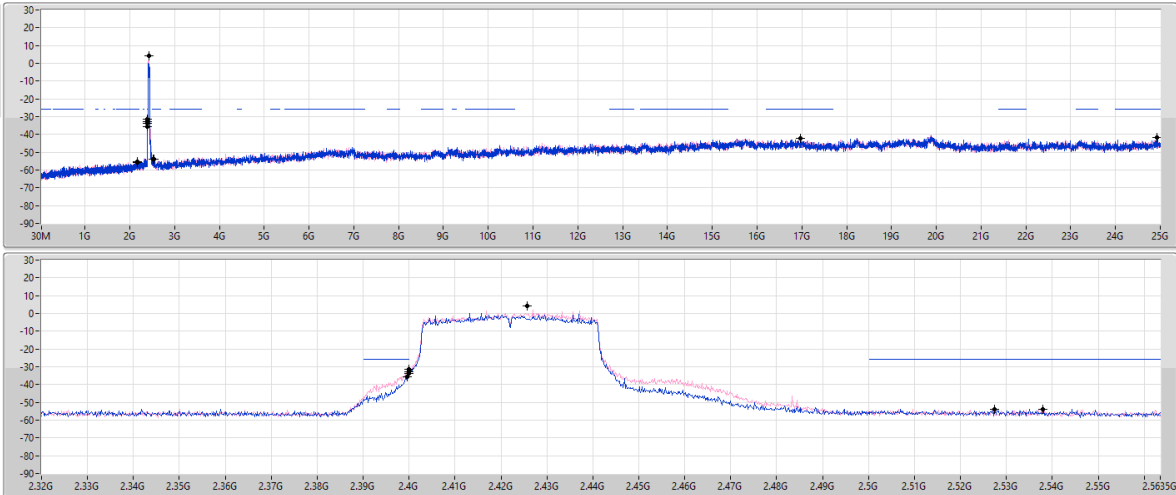
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.4319G	9.72	-20.28	1.97439G	-55.83	2.39992G	-29.49	2.4G	-28.38	2.50878G	-54.03	16.97589G	-42.62	1
2.4319G	9.72	-20.28	2.30292G	-55.77	2.39992G	-29.82	2.4G	-28.59	2.51158G	-53.27	15.05415G	-41.42	2

2.4-2.4835GHz_802.11ax_HEW40_Nss1,(MCS0)_2TX

CSEndB

2422MHz

RBW (Hz)
100k
VBW (Hz)
300k
Detector
Peak



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
2.42572G	4.33	-25.67	2.16085G	-55.70	2.39968G	-35.58	2.4G	-33.98	2.52734G	-53.72	24.92428G	-41.69	1
2.42572G	4.33	-25.67	2.1723G	-55.24	2.4G	-32.86	2.4G	-31.49	2.5379G	-53.85	16.97054G	-42.30	2



Summary

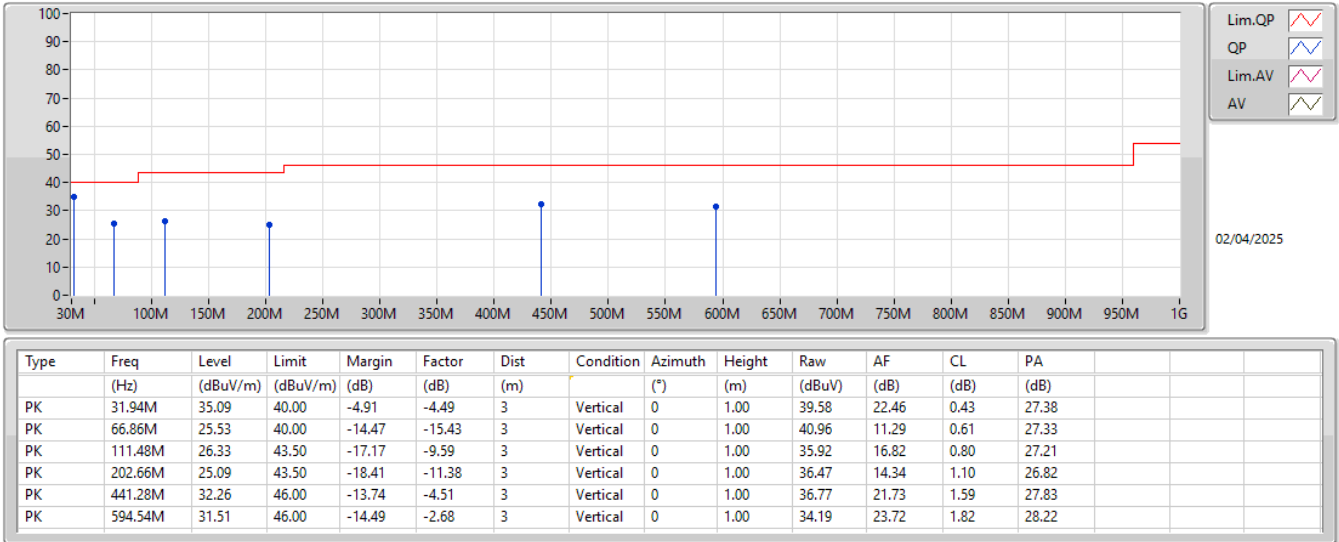
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-
802.11ax HEW40_Nss1,(MCS0)_2TX	Pass	PK	31.94M	35.09	40.00	-4.91	3	Vertical	0	1.00

Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
802.11ax HEW40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-
2437MHz;Car charger	Pass	PK	30M	33.14	40.00	-6.86	3	Vertical	360	1.00
2437MHz;Car charger	Pass	PK	229.82M	38.48	46.00	-7.52	3	Vertical	360	1.00
2437MHz;Car charger	Pass	PK	315.18M	29.70	46.00	-16.30	3	Vertical	360	1.00
2437MHz;Car charger	Pass	PK	383.08M	30.49	46.00	-15.51	3	Vertical	360	1.00
2437MHz;Car charger	Pass	PK	441.28M	36.18	46.00	-9.82	3	Vertical	360	1.00
2437MHz;Car charger	Pass	PK	712.88M	30.85	46.00	-15.15	3	Vertical	360	1.00
2437MHz;Car charger	Pass	PK	59.1M	26.63	40.00	-13.37	3	Horizontal	0	1.00
2437MHz;Car charger	Pass	PK	90.14M	28.12	43.50	-15.38	3	Horizontal	0	1.00
2437MHz;Car charger	Pass	PK	227.88M	30.62	46.00	-15.38	3	Horizontal	0	1.00
2437MHz;Car charger	Pass	PK	353.98M	29.17	46.00	-16.83	3	Horizontal	0	1.00
2437MHz;Car charger	Pass	PK	433.52M	35.69	46.00	-10.31	3	Horizontal	0	1.00
2437MHz;Car charger	Pass	PK	738.1M	33.71	46.00	-12.29	3	Horizontal	0	1.00
2437MHz;Adapter	Pass	PK	31.94M	35.09	40.00	-4.91	3	Vertical	0	1.00
2437MHz;Adapter	Pass	PK	66.86M	25.53	40.00	-14.47	3	Vertical	0	1.00
2437MHz;Adapter	Pass	PK	111.48M	26.33	43.50	-17.17	3	Vertical	0	1.00
2437MHz;Adapter	Pass	PK	202.66M	25.09	43.50	-18.41	3	Vertical	0	1.00
2437MHz;Adapter	Pass	PK	441.28M	32.26	46.00	-13.74	3	Vertical	0	1.00
2437MHz;Adapter	Pass	PK	594.54M	31.51	46.00	-14.49	3	Vertical	0	1.00
2437MHz;Adapter	Pass	PK	31.94M	26.97	40.00	-13.03	3	Horizontal	360	1.00
2437MHz;Adapter	Pass	PK	107.6M	28.57	43.50	-14.93	3	Horizontal	360	1.00
2437MHz;Adapter	Pass	PK	216M	33.88	43.50	-9.62	3	Horizontal	360	1.00
2437MHz;Adapter	Pass	PK	332.64M	28.35	46.00	-17.65	3	Horizontal	360	1.00
2437MHz;Adapter	Pass	PK	443.22M	33.49	46.00	-12.51	3	Horizontal	360	1.00
2437MHz;Adapter	Pass	PK	644.98M	29.29	46.00	-16.71	3	Horizontal	360	1.00

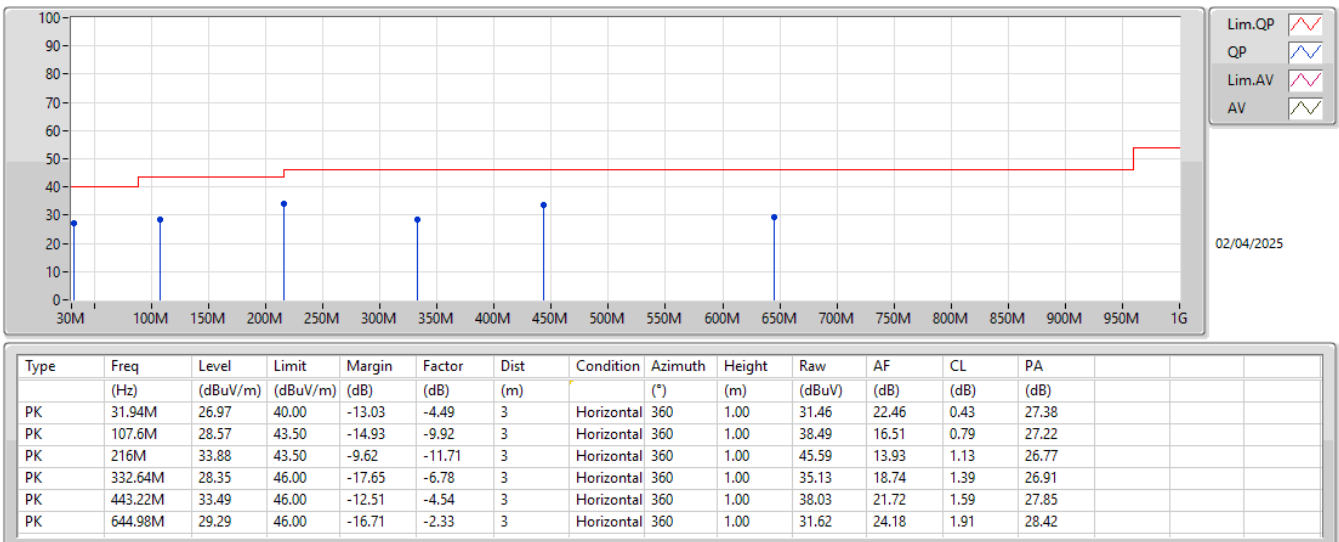
2.4-2.4835GHz_802.11ax HEW40_Nss1,(MCS0)_2TX

2437MHz_Adapter



2.4-2.4835GHz_802.11ax HEW40_Nss1,(MCS0)_2TX

2437MHz_Adapter



**Summary**

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-
802.11b_Nss1,(1Mbps)_2TX	Pass	AV	2.4838G	52.81	54.00	-1.19	3	Vertical	185	1.27
802.11g_Nss1,(6Mbps)_2TX	Pass	AV	2.39G	53.91	54.00	-0.09	3	Vertical	163	1.34
802.11ax HEW20_Nss1,(MCS0)_2TX	Pass	AV	2.39G	53.86	54.00	-0.14	3	Vertical	165	1.60
802.11ax HEW40_Nss1,(MCS0)_2TX	Pass	AV	2.3898G	53.87	54.00	-0.13	3	Vertical	146	1.88

Result

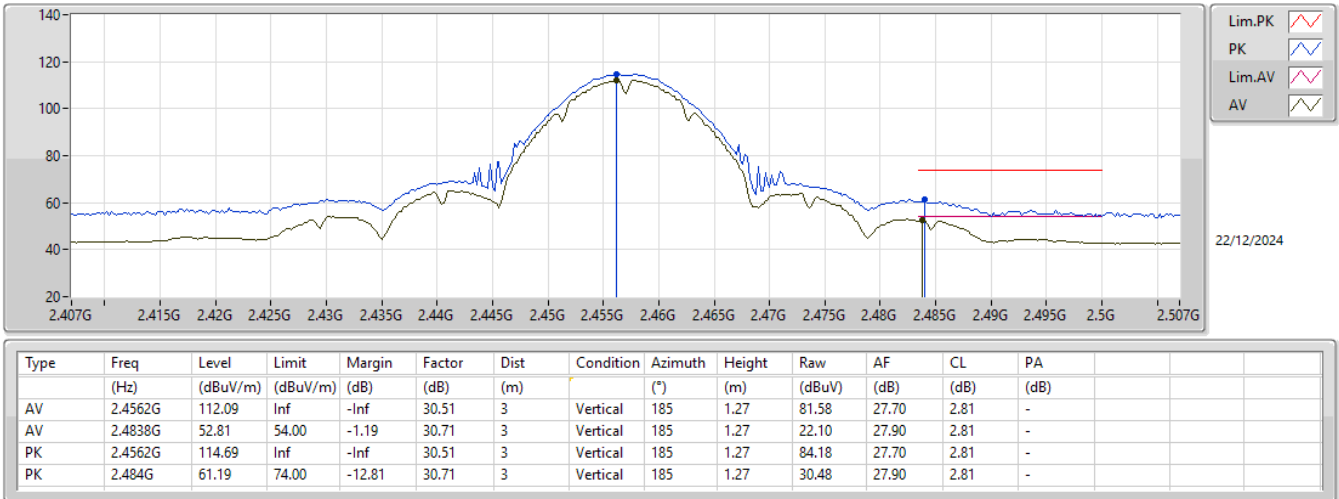
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
802.11b_Nss1,(1Mbps)_2TX	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	AV	2.3852G	51.12	54.00	-2.88	3	Vertical	190	1.69
2412MHz	Pass	AV	2.4128G	112.70	Inf	-Inf	3	Vertical	190	1.69
2412MHz	Pass	PK	2.3846G	59.21	74.00	-14.79	3	Vertical	190	1.69
2412MHz	Pass	PK	2.4128G	115.31	Inf	-Inf	3	Vertical	190	1.69
2412MHz	Pass	AV	4.824G	44.85	54.00	-9.15	3	Vertical	354	1.54
2412MHz	Pass	PK	4.82396G	48.07	74.00	-25.93	3	Vertical	354	1.54
2412MHz	Pass	AV	4.82408G	35.90	54.00	-18.10	3	Horizontal	329	1.65
2412MHz	Pass	PK	4.8238G	42.56	74.00	-31.44	3	Horizontal	329	1.65
2437MHz	Pass	AV	2.3898G	43.07	54.00	-10.93	3	Vertical	185	1.14
2437MHz	Pass	AV	2.4362G	112.29	Inf	-Inf	3	Vertical	185	1.14
2437MHz	Pass	AV	2.4858G	43.58	54.00	-10.42	3	Vertical	185	1.14
2437MHz	Pass	PK	2.3674G	55.85	74.00	-18.15	3	Vertical	185	1.14
2437MHz	Pass	PK	2.4362G	114.86	Inf	-Inf	3	Vertical	185	1.14
2437MHz	Pass	PK	2.4874G	56.51	74.00	-17.49	3	Vertical	185	1.14
2437MHz	Pass	AV	4.87408G	46.02	54.00	-7.98	3	Vertical	357	1.50
2437MHz	Pass	PK	4.87398G	49.83	74.00	-24.17	3	Vertical	357	1.50
2437MHz	Pass	AV	4.87408G	38.69	54.00	-15.31	3	Horizontal	123	2.14
2437MHz	Pass	PK	4.8738G	44.26	74.00	-29.74	3	Horizontal	123	2.14
2457MHz	Pass	AV	2.4562G	112.09	Inf	-Inf	3	Vertical	185	1.27
2457MHz	Pass	AV	2.4838G	52.81	54.00	-1.19	3	Vertical	185	1.27
2457MHz	Pass	PK	2.4562G	114.69	Inf	-Inf	3	Vertical	185	1.27
2457MHz	Pass	PK	2.484G	61.19	74.00	-12.81	3	Vertical	185	1.27
2462MHz	Pass	AV	2.4612G	110.58	Inf	-Inf	3	Vertical	186	1.11
2462MHz	Pass	AV	2.4888G	52.72	54.00	-1.28	3	Vertical	186	1.11
2462MHz	Pass	PK	2.4612G	113.28	Inf	-Inf	3	Vertical	186	1.11
2462MHz	Pass	PK	2.4886G	60.80	74.00	-13.20	3	Vertical	186	1.11
2462MHz	Pass	AV	4.924G	41.93	54.00	-12.07	3	Vertical	360	1.50
2462MHz	Pass	PK	4.92404G	46.55	74.00	-27.45	3	Vertical	360	1.50
2462MHz	Pass	AV	4.92402G	36.13	54.00	-17.87	3	Horizontal	126	2.00
2462MHz	Pass	PK	4.9242G	43.37	74.00	-30.63	3	Horizontal	126	2.00
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	AV	2.39G	53.91	54.00	-0.09	3	Vertical	163	1.34
2412MHz	Pass	AV	2.4146G	105.73	Inf	-Inf	3	Vertical	163	1.34
2412MHz	Pass	PK	2.3898G	66.15	74.00	-7.85	3	Vertical	163	1.34
2412MHz	Pass	PK	2.4146G	116.54	Inf	-Inf	3	Vertical	163	1.34
2412MHz	Pass	AV	4.82622G	28.95	54.00	-25.05	3	Vertical	30	1.29
2412MHz	Pass	PK	4.82568G	43.15	74.00	-30.85	3	Vertical	30	1.29
2412MHz	Pass	AV	4.82466G	27.27	54.00	-26.73	3	Horizontal	203	1.87
2412MHz	Pass	PK	4.82634G	40.30	74.00	-33.70	3	Horizontal	203	1.87
2417MHz	Pass	AV	2.39G	53.18	54.00	-0.82	3	Vertical	144	1.45
2417MHz	Pass	AV	2.416G	107.23	Inf	-Inf	3	Vertical	144	1.45
2417MHz	Pass	PK	2.39G	65.21	74.00	-8.79	3	Vertical	144	1.45
2417MHz	Pass	PK	2.421G	117.49	Inf	-Inf	3	Vertical	144	1.45
2437MHz	Pass	AV	2.3898G	45.02	54.00	-8.98	3	Vertical	144	1.13
2437MHz	Pass	AV	2.4362G	107.48	Inf	-Inf	3	Vertical	144	1.13
2437MHz	Pass	AV	2.4835G	46.63	54.00	-7.37	3	Vertical	144	1.13
2437MHz	Pass	PK	2.3898G	57.63	74.00	-16.37	3	Vertical	144	1.13
2437MHz	Pass	PK	2.4358G	117.65	Inf	-Inf	3	Vertical	144	1.13
2437MHz	Pass	PK	2.4862G	59.97	74.00	-14.03	3	Vertical	144	1.13
2437MHz	Pass	AV	4.87226G	30.78	54.00	-23.22	3	Vertical	349	1.50
2437MHz	Pass	PK	4.8725G	43.62	74.00	-30.38	3	Vertical	349	1.50
2437MHz	Pass	AV	4.8761G	27.35	54.00	-26.65	3	Horizontal	324	1.48
2437MHz	Pass	PK	4.86134G	41.26	74.00	-32.74	3	Horizontal	324	1.48
2457MHz	Pass	AV	2.456G	106.59	Inf	-Inf	3	Vertical	145	1.42
2457MHz	Pass	AV	2.4854G	52.06	54.00	-1.94	3	Vertical	145	1.42
2457MHz	Pass	PK	2.456G	116.82	Inf	-Inf	3	Vertical	145	1.42
2457MHz	Pass	PK	2.4854G	65.41	74.00	-8.59	3	Vertical	145	1.42
2462MHz	Pass	AV	2.4588G	104.42	Inf	-Inf	3	Vertical	166	1.75
2462MHz	Pass	AV	2.4835G	53.90	54.00	-0.10	3	Vertical	166	1.75
2462MHz	Pass	PK	2.4588G	114.80	Inf	-Inf	3	Vertical	166	1.75

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
2462MHz	Pass	PK	2.4836G	68.25	74.00	-5.75	3	Vertical	166	1.75
2462MHz	Pass	AV	4.9264G	29.76	54.00	-24.24	3	Vertical	346	1.49
2462MHz	Pass	PK	4.92124G	43.02	74.00	-30.98	3	Vertical	346	1.49
2462MHz	Pass	AV	4.9351G	27.48	54.00	-26.52	3	Horizontal	116	1.50
2462MHz	Pass	PK	4.9339G	40.91	74.00	-33.09	3	Horizontal	116	1.50
802.11ax HEW20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	AV	2.39G	53.86	54.00	-0.14	3	Vertical	165	1.60
2412MHz	Pass	AV	2.4164G	103.64	Inf	-Inf	3	Vertical	165	1.60
2412MHz	Pass	PK	2.39G	69.37	74.00	-4.63	3	Vertical	165	1.60
2412MHz	Pass	PK	2.4168G	117.61	Inf	-Inf	3	Vertical	165	1.60
2412MHz	Pass	AV	4.8234G	27.26	54.00	-26.74	3	Vertical	353	1.53
2412MHz	Pass	PK	4.8222G	41.73	74.00	-32.27	3	Vertical	353	1.53
2412MHz	Pass	AV	4.82724G	26.24	54.00	-27.76	3	Horizontal	195	2.99
2412MHz	Pass	PK	4.81308G	40.10	74.00	-33.90	3	Horizontal	195	2.99
2417MHz	Pass	AV	2.39G	52.68	54.00	-1.32	3	Vertical	144	1.45
2417MHz	Pass	AV	2.4154G	106.40	Inf	-Inf	3	Vertical	144	1.45
2417MHz	Pass	PK	2.39G	67.54	74.00	-6.46	3	Vertical	144	1.45
2417MHz	Pass	PK	2.415G	120.19	Inf	-Inf	3	Vertical	144	1.45
2437MHz	Pass	AV	2.3898G	44.62	54.00	-9.38	3	Vertical	143	1.13
2437MHz	Pass	AV	2.4354G	106.32	Inf	-Inf	3	Vertical	143	1.13
2437MHz	Pass	AV	2.4838G	46.90	54.00	-7.10	3	Vertical	143	1.13
2437MHz	Pass	PK	2.389G	59.92	74.00	-14.08	3	Vertical	143	1.13
2437MHz	Pass	PK	2.4342G	119.68	Inf	-Inf	3	Vertical	143	1.13
2437MHz	Pass	PK	2.4835G	61.23	74.00	-12.77	3	Vertical	143	1.13
2437MHz	Pass	AV	4.87088G	29.47	54.00	-24.53	3	Vertical	350	1.49
2437MHz	Pass	PK	4.87088G	43.75	74.00	-30.25	3	Vertical	350	1.49
2437MHz	Pass	AV	4.8869G	26.58	54.00	-27.42	3	Horizontal	322	1.43
2437MHz	Pass	PK	4.8881G	40.80	74.00	-33.20	3	Horizontal	322	1.43
2457MHz	Pass	AV	2.4544G	104.90	Inf	-Inf	3	Vertical	146	1.42
2457MHz	Pass	AV	2.4835G	51.74	54.00	-2.26	3	Vertical	146	1.42
2457MHz	Pass	PK	2.4548G	118.57	Inf	-Inf	3	Vertical	146	1.42
2457MHz	Pass	PK	2.4836G	66.68	74.00	-7.32	3	Vertical	146	1.42
2462MHz	Pass	AV	2.4598G	104.13	Inf	-Inf	3	Vertical	147	1.46
2462MHz	Pass	AV	2.4835G	52.89	54.00	-1.11	3	Vertical	147	1.46
2462MHz	Pass	PK	2.4592G	118.40	Inf	-Inf	3	Vertical	147	1.46
2462MHz	Pass	PK	2.4854G	67.39	74.00	-6.61	3	Vertical	147	1.46
2462MHz	Pass	AV	4.91956G	28.84	54.00	-25.16	3	Vertical	347	1.53
2462MHz	Pass	PK	4.91884G	43.82	74.00	-30.18	3	Vertical	347	1.53
2462MHz	Pass	AV	4.92352G	27.01	54.00	-26.99	3	Horizontal	127	1.05
2462MHz	Pass	PK	4.93156G	41.14	74.00	-32.86	3	Horizontal	127	1.05
802.11ax HEW40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-
2422MHz	Pass	AV	2.39G	52.98	54.00	-1.02	3	Vertical	144	1.89
2422MHz	Pass	AV	2.42G	100.75	Inf	-Inf	3	Vertical	144	1.89
2422MHz	Pass	AV	2.4835G	43.73	54.00	-10.27	3	Vertical	144	1.89
2422MHz	Pass	PK	2.39G	67.10	74.00	-6.90	3	Vertical	144	1.89
2422MHz	Pass	PK	2.4204G	114.07	Inf	-Inf	3	Vertical	144	1.89
2422MHz	Pass	PK	2.4888G	57.36	74.00	-16.64	3	Vertical	144	1.89
2422MHz	Pass	AV	4.84112G	26.51	54.00	-27.49	3	Vertical	348	1.72
2422MHz	Pass	PK	4.8692G	40.91	74.00	-33.09	3	Vertical	348	1.72
2422MHz	Pass	AV	4.87172G	26.33	54.00	-27.67	3	Horizontal	245	1.56
2422MHz	Pass	PK	4.84016G	40.35	74.00	-33.65	3	Horizontal	245	1.56
2427MHz	Pass	AV	2.3898G	53.87	54.00	-0.13	3	Vertical	146	1.88
2427MHz	Pass	AV	2.4246G	101.81	Inf	-Inf	3	Vertical	146	1.88
2427MHz	Pass	AV	2.4835G	48.71	54.00	-5.29	3	Vertical	146	1.88
2427MHz	Pass	PK	2.3898G	68.20	74.00	-5.80	3	Vertical	146	1.88
2427MHz	Pass	PK	2.4246G	115.50	Inf	-Inf	3	Vertical	146	1.88
2427MHz	Pass	PK	2.4842G	67.04	74.00	-6.96	3	Vertical	146	1.88
2437MHz	Pass	AV	2.389G	51.24	54.00	-2.76	3	Vertical	143	1.00
2437MHz	Pass	AV	2.425G	101.99	Inf	-Inf	3	Vertical	143	1.00
2437MHz	Pass	AV	2.4838G	53.78	54.00	-0.22	3	Vertical	143	1.00
2437MHz	Pass	PK	2.3894G	67.05	74.00	-6.95	3	Vertical	143	1.00
2437MHz	Pass	PK	2.425G	116.39	Inf	-Inf	3	Vertical	143	1.00

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
2437MHz	Pass	PK	2.4835G	68.44	74.00	-5.56	3	Vertical	143	1.00
2437MHz	Pass	AV	4.87196G	27.40	54.00	-26.60	3	Vertical	350	1.49
2437MHz	Pass	PK	4.88984G	40.73	74.00	-33.27	3	Vertical	350	1.49
2437MHz	Pass	AV	4.90364G	26.59	54.00	-27.41	3	Horizontal	195	1.75
2437MHz	Pass	PK	4.89008G	40.39	74.00	-33.61	3	Horizontal	195	1.75
2447MHz	Pass	AV	2.3886G	45.16	54.00	-8.84	3	Vertical	145	1.37
2447MHz	Pass	AV	2.4546G	100.10	Inf	-Inf	3	Vertical	145	1.37
2447MHz	Pass	AV	2.4835G	52.94	54.00	-1.06	3	Vertical	145	1.37
2447MHz	Pass	PK	2.389G	60.11	74.00	-13.89	3	Vertical	145	1.37
2447MHz	Pass	PK	2.455G	113.72	Inf	-Inf	3	Vertical	145	1.37
2447MHz	Pass	PK	2.4854G	69.66	74.00	-4.34	3	Vertical	145	1.37
2452MHz	Pass	AV	2.39G	44.60	54.00	-9.40	3	Vertical	164	1.50
2452MHz	Pass	AV	2.4568G	99.22	Inf	-Inf	3	Vertical	164	1.50
2452MHz	Pass	AV	2.4848G	53.19	54.00	-0.81	3	Vertical	164	1.50
2452MHz	Pass	PK	2.3876G	58.72	74.00	-15.28	3	Vertical	164	1.50
2452MHz	Pass	PK	2.456G	112.87	Inf	-Inf	3	Vertical	164	1.50
2452MHz	Pass	PK	2.4844G	68.52	74.00	-5.48	3	Vertical	164	1.50
2452MHz	Pass	AV	4.90328G	26.87	54.00	-27.13	3	Vertical	360	1.50
2452MHz	Pass	PK	4.92044G	40.51	74.00	-33.49	3	Vertical	360	1.50
2452MHz	Pass	AV	4.93352G	26.99	54.00	-27.01	3	Horizontal	4	2.82
2452MHz	Pass	PK	4.88864G	41.22	74.00	-32.78	3	Horizontal	4	2.82

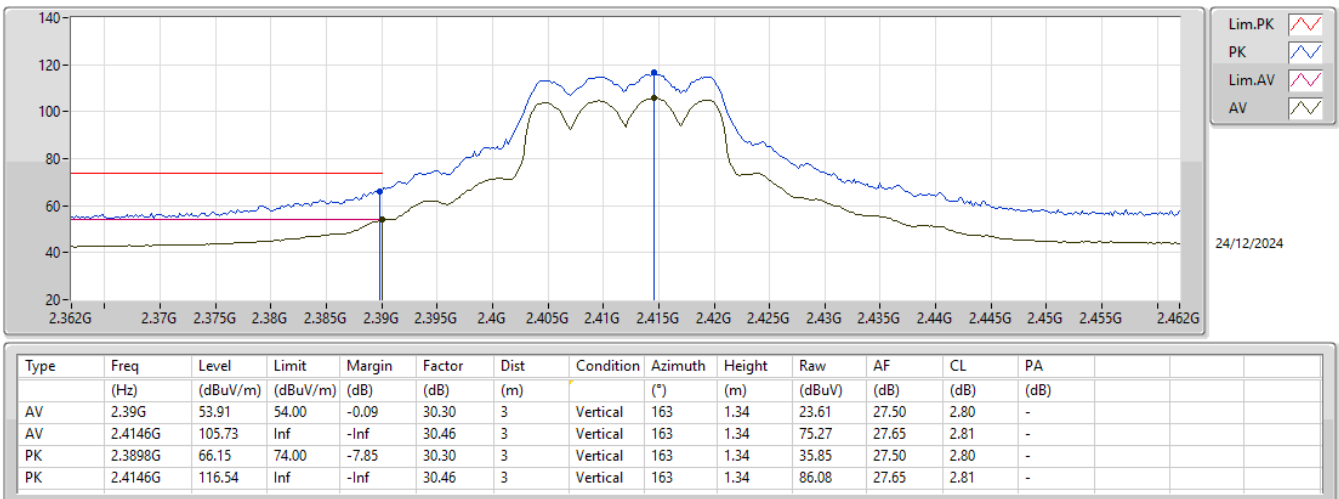
2.4-2.4835GHz_802.11b_Nss1,(1Mbps)_2TX

2457MHz_TX



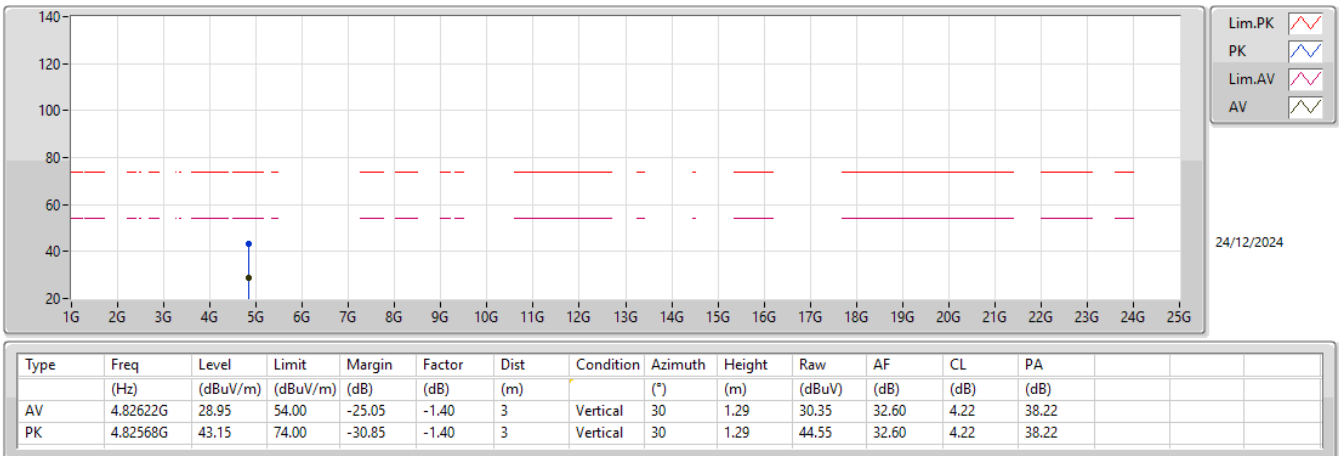
2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_2TX

2412MHz_TX



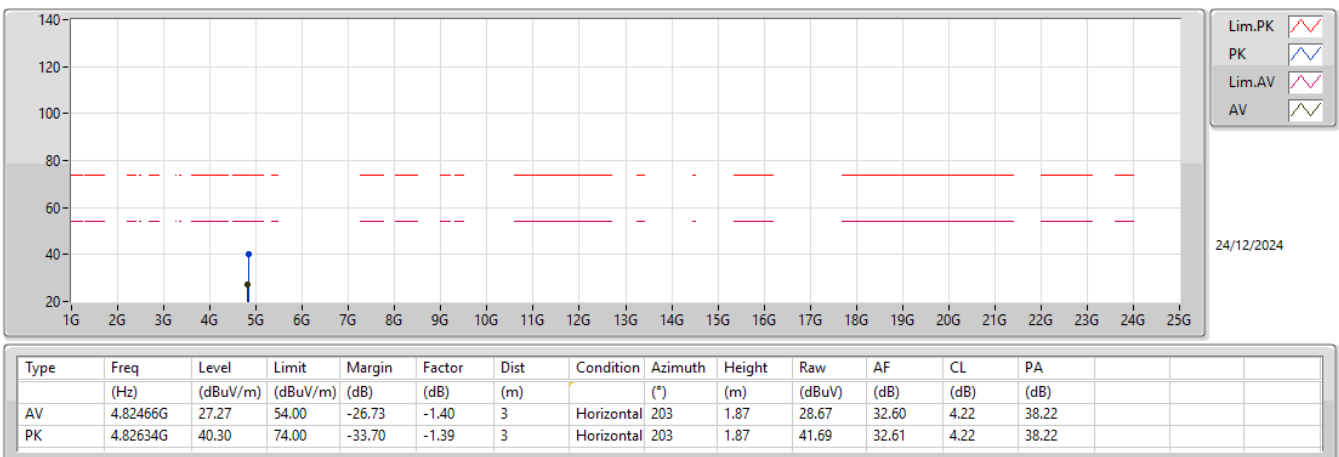
2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_2TX

2412MHz_TX



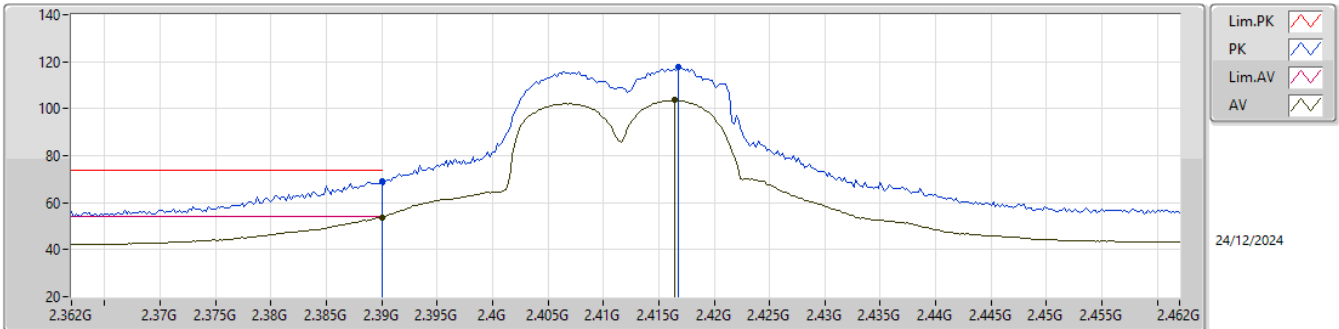
2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_2TX

2412MHz_TX



2.4-2.4835GHz_802.11ax_HEW20_Nss1,(MCS0)_2TX

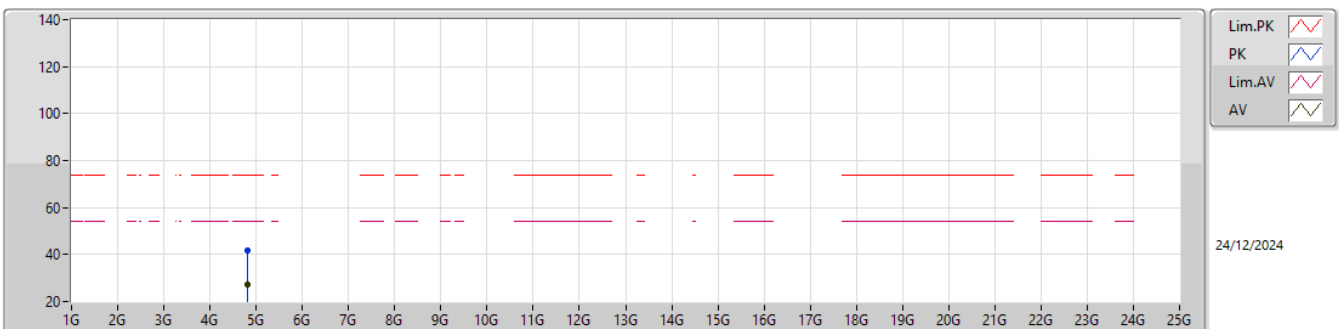
2412MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.39G	53.86	54.00	-0.14	30.30	3	Vertical	165	1.60	23.56	27.50	2.80	-
AV	2.4164G	103.64	Inf	-Inf	30.47	3	Vertical	165	1.60	73.17	27.66	2.81	-
PK	2.39G	69.37	74.00	-4.63	30.30	3	Vertical	165	1.60	39.07	27.50	2.80	-
PK	2.4168G	117.61	Inf	-Inf	30.48	3	Vertical	165	1.60	87.13	27.67	2.81	-

2.4-2.4835GHz_802.11ax_HEW20_Nss1,(MCS0)_2TX

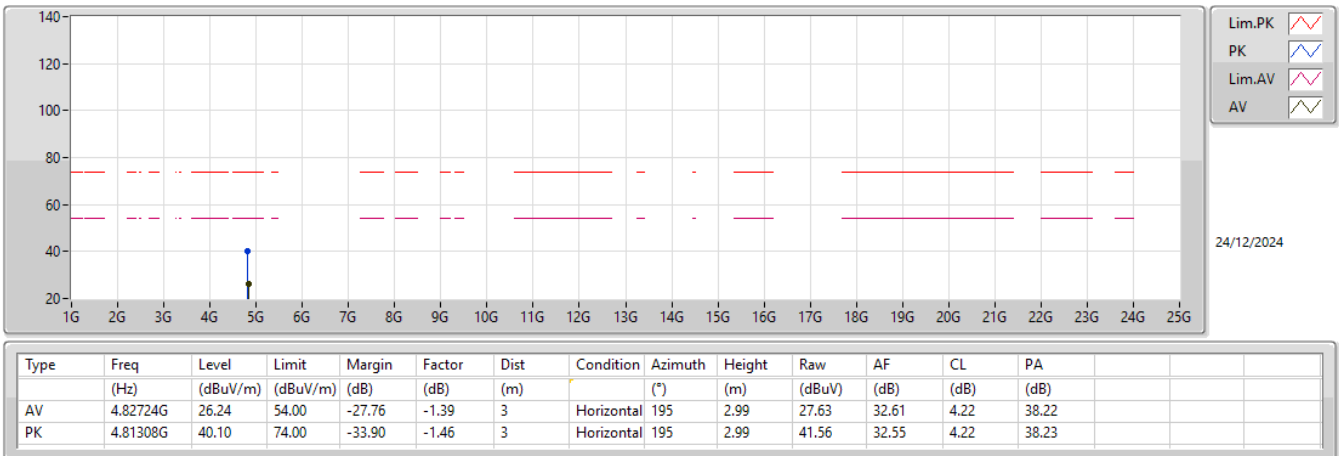
2412MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.8234G	27.26	54.00	-26.74	-1.41	3	Vertical	353	1.53	28.67	32.59	4.22	38.22
PK	4.8222G	41.73	74.00	-32.27	-1.41	3	Vertical	353	1.53	43.14	32.59	4.22	38.22

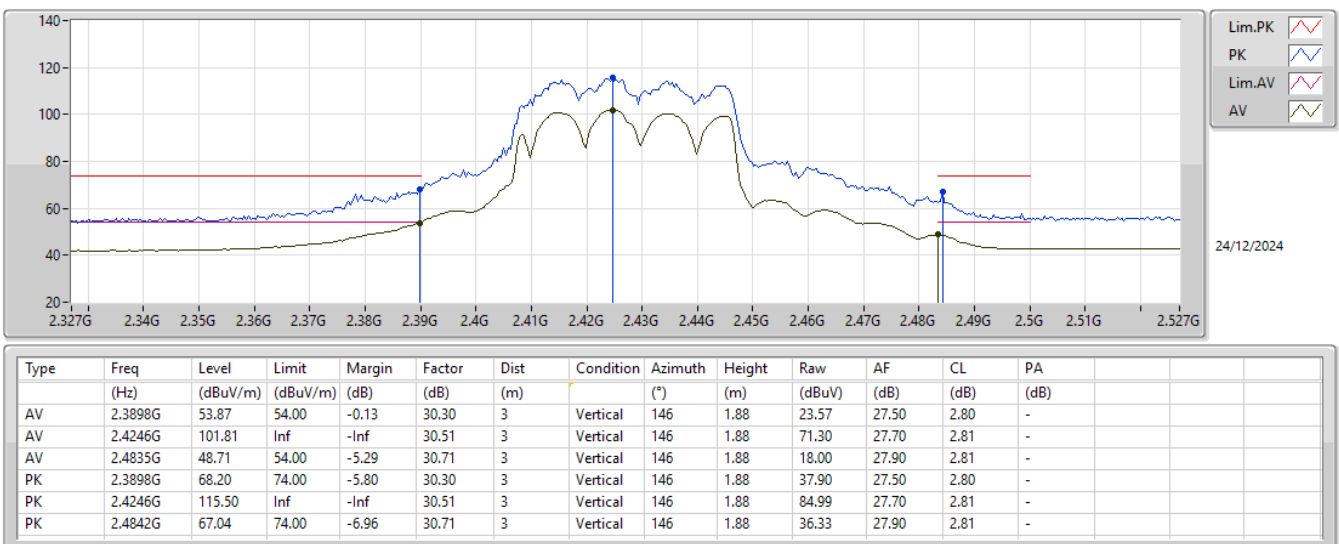
2.4-2.4835GHz_802.11ax HEW20_Nss1,(MCS0)_2TX

2412MHz_TX



2.4-2.4835GHz_802.11ax HEW40_Nss1,(MCS0)_2TX

2427MHz_TX





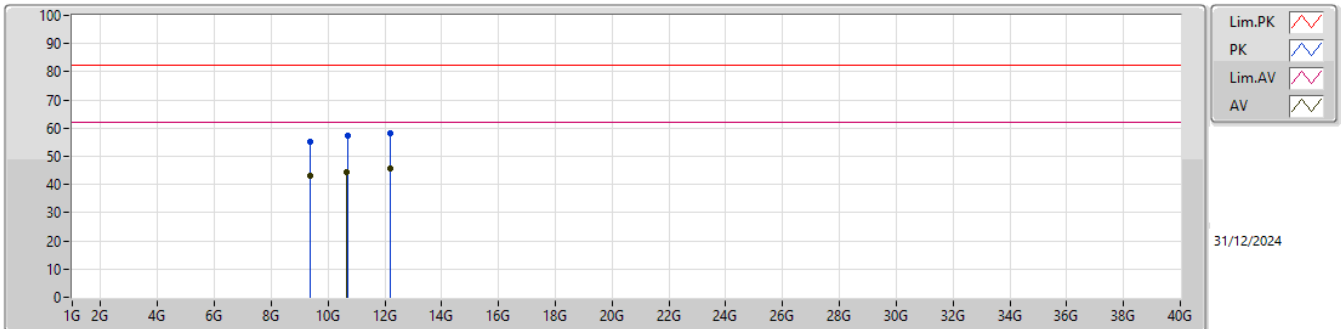
Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 1	Pass	AV	13.388G	47.35	62.20	-14.85	Horizontal

Result

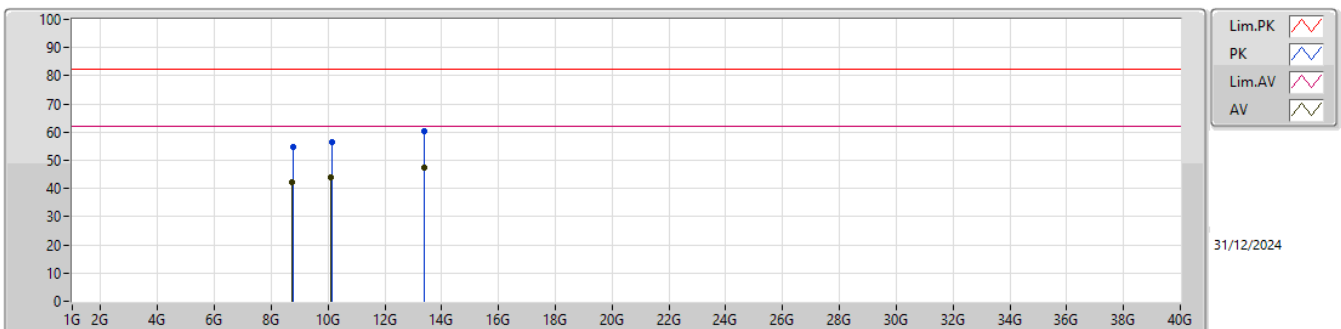
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
Mode 1	Pass	AV	9.377G	43.16	62.20	-19.04	3	Vertical	360	1.01
Mode 1	Pass	AV	10.675G	44.47	62.20	-17.73	3	Vertical	42	3.00
Mode 1	Pass	AV	12.183G	45.49	62.20	-16.71	3	Vertical	360	2.42
Mode 1	Pass	PK	9.362G	55.21	82.20	-26.99	3	Vertical	360	1.01
Mode 1	Pass	PK	10.69G	57.34	82.20	-24.86	3	Vertical	42	3.00
Mode 1	Pass	PK	12.198G	58.34	82.20	-23.86	3	Vertical	360	2.42
Mode 1	Pass	AV	8.75021G	42.16	62.20	-20.04	3	Horizontal	360	1.50
Mode 1	Pass	AV	10.117G	43.88	62.20	-18.32	3	Horizontal	240	3.00
Mode 1	Pass	AV	13.388G	47.35	62.20	-14.85	3	Horizontal	65	2.00
Mode 1	Pass	PK	8.755G	54.54	82.20	-27.66	3	Horizontal	360	1.50
Mode 1	Pass	PK	10.132G	56.61	82.20	-25.59	3	Horizontal	240	3.00
Mode 1	Pass	PK	13.403G	60.34	82.20	-21.86	3	Horizontal	65	2.00

Radiated Emissions above 1GHz_Mode 1



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB/m)	Dist (m)	Condition	Azimuth (°)	Height (m)	Raw (dBuV)	AF (dB/m)	CL (dB)	PA (dB)
AV	9.377G	43.16	62.20	-19.04	13.16	3	Vertical	360	1.01	30.00	38.41	9.57	34.82
AV	10.675G	44.47	62.20	-17.73	14.93	3	Vertical	42	3.00	29.54	38.95	10.41	34.43
AV	12.183G	45.49	62.20	-16.71	16.18	3	Vertical	360	2.42	29.31	39.20	10.82	33.84
PK	9.362G	55.21	82.20	-26.99	13.08	3	Vertical	360	1.01	42.13	38.35	9.54	34.81
PK	10.69G	57.34	82.20	-24.86	14.91	3	Vertical	42	3.00	42.43	38.92	10.41	34.42
PK	12.198G	58.34	82.20	-23.86	16.20	3	Vertical	360	2.42	42.14	39.20	10.83	33.83

Radiated Emissions above 1GHz_Mode 1



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB/m)	Dist (m)	Condition	Azimuth (°)	Height (m)	Raw (dBuV)	AF (dB/m)	CL (dB)	PA (dB)
AV	8.75021G	42.16	62.20	-20.04	11.86	3	Horizontal	360	1.50	30.30	37.70	8.98	34.82
AV	10.117G	43.88	62.20	-18.32	13.85	3	Horizontal	240	3.00	30.03	38.53	10.28	34.96
AV	13.388G	47.35	62.20	-14.85	19.49	3	Horizontal	65	2.00	27.86	40.10	11.53	32.14
PK	8.755G	54.54	82.20	-27.66	11.87	3	Horizontal	360	1.50	42.67	37.71	8.98	34.82
PK	10.132G	56.61	82.20	-25.59	13.89	3	Horizontal	240	3.00	42.72	38.56	10.28	34.95
PK	13.403G	60.34	82.20	-21.86	19.53	3	Horizontal	65	2.00	40.81	40.11	11.54	32.12