FCC Radio Test Report

FCC ID	:	**2BE5ALIVAX3A**
Equipment	:	**Box PC**
Brand Name	:	**LIVA**
Model Name	:	**LIVA X3A**
Applicant	:	**ECS Industrial Computer Co., Ltd. 9F, No. 22,Sec. 3, Zhongshan N. Rd., Zhongshan Dist., Taipei City 104427 , Taiwan (R.O.C)**
Manufacturer	:	**ECS Industrial Computer Co., Ltd. 9F, No. 22,Sec. 3, Zhongshan N. Rd., Zhongshan Dist., Taipei City 104427 , Taiwan (R.O.C)**
Standard	:	**47 CFR FCC Part 15.247**

The product was received on Jan. 30, 2024, and testing was started from Mar. 01, 2024 and completed on Mar. 10, 2024. 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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PHOTOGRAPHS OF EUT V01

History of this test report

Report No.	Version	Description	Issued Date
FR412914AC	01	Initial issue of report	Apr. 19, 2024

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: Ann Hou

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]

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

Beamforming

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

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

1.1.2 Antenna Information

Ant.	Brand	Model Name	Antenna Type	Connector
1	VSO	JC1Q02078	Dipole	SMA FEMALE
2	VSO	JC1Q02078	Dipole	SMA FEMALE

Ant.	Port	Gain (dBi)					
		2.4G	UNII-1	UNII-2A	UNII-2C	UNII-3	BT
1	1	2	3.4	3.6	4.1	4.4	2
2	2	2	3.4	3.6	4.1	4.4	-

Note 1: The EUT has two antennas.

For 2.4GHz function:

For IEEE 802.11 b/g/n/VHT/ax mode (2TX/2RX)

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

For BT function:

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

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

For 5GHz function:

For IEEE 802.11 a/n/ac/ax mode (2TX/2RX)

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

1.1.3 EUT Information

Operational Condition				
EUT Power Type	From AC Adapter			
EUT Function	☒	Point-to-multipoint	☐	Point-to-point
Beamforming Function	☒	With beamforming	☐	Without beamforming
Resource Unit(802.11ax)	☒	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	0.989	0.05	n/a (DC>=0.98)	n/a (DC>=0.98)
802.11g_Nss1,(6Mbps)_2TX	0.933	0.3	1.398m	1k
802.11ax HEW20_Nss1,(MCS0)_2TX	0.911	0.4	1.023m	1k

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	0.911	0.4	1.023m	1k

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

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	Edward Wang	19.5~23.6°C / 50~52%	10/Mar/2024
RF Conducted	TH07-HY	Raven Chien	22.2~23.4°C / 50~57%	07/Mar/2024
Radiated	03CH03-HY	Edward Wang	19.5~23.6°C / 50~52%	01/Mar/2024~10/Mar/2024
☐ Wen 33rd.St. (**TAF:** 3785)	**ADD:** No.14-1, Ln. 19, Wen 33rd St., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.)			
	TEL: 886-3-318-0787		**FAX:** 886-3-318-0287	
Test site Designation No. TW0008 with FCC.				

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	Microsoft Windows V6.1

Non-Beamforming

Mode	Power Setting
802.11b_Nss1,(1Mbps)_2TX	-
2412MHz	65
2417MHz	70
2437MHz	69
2457MHz	66
2462MHz	58
802.11g_Nss1,(6Mbps)_2TX	-
2412MHz	51
2417MHz	59
2437MHz	67
2457MHz	57
2462MHz	52
802.11ax HEW20_Nss1,(MCS0)_2TX	-
2412MHz	49
2417MHz	56
2437MHz	66
2457MHz	55
2462MHz	42

Beamforming

Mode	Power Setting
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	-
2412MHz	49
2417MHz	56
2437MHz	68
2457MHz	55
2462MHz	42

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	Adapter mode		
Operating Mode > 1GHz	CTX		
Orthogonal Planes of EUT	**X Plane**	**Y Plane**	**Z Plane**
Worst Planes of EUT		V	

2.3 Accessories

Accessories				
AC Adapter	**Brand Name**	FSP	**Model Name**	FSP045-RBBN3
	Power Rating	I/P: 100 - 240Vac, 1.5A, O/P: 19Vdc, 2.37A		
	DC Power Cord	1.2 meter, shielded cable, with ferrite core		
	AC Power cord	1.8 meter, non-shielded cable, w/o ferrite core		
mounting bracket	**Brand Name**	LIVA	**Model Name**	20-060-XR1031
DIN rail clip	**Brand Name**	LIVA	**Model Name**	20-060PXR1011
Optional Box 1 (PoE function)	**Brand Name**	LIVA	**Model Name**	RT7670
Optional Box 2 (LTE function) (without module)	**Brand Name**	LIVA	**Model Name**	LTE BOX

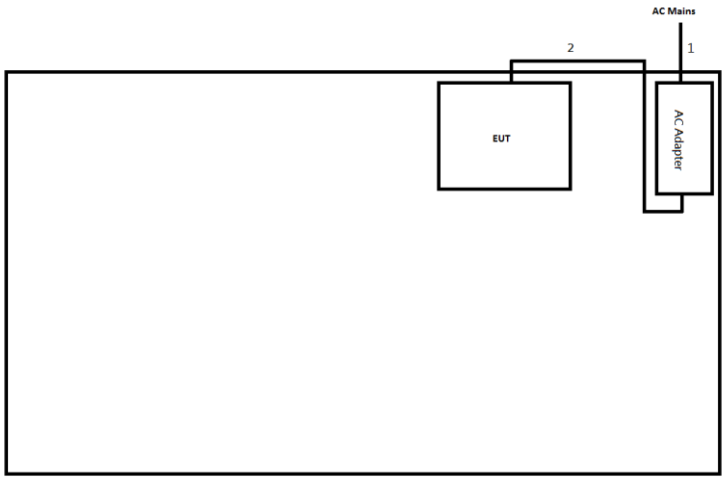
Reminder: Regarding to more detail and other information, please refer to user manual.

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	-	-

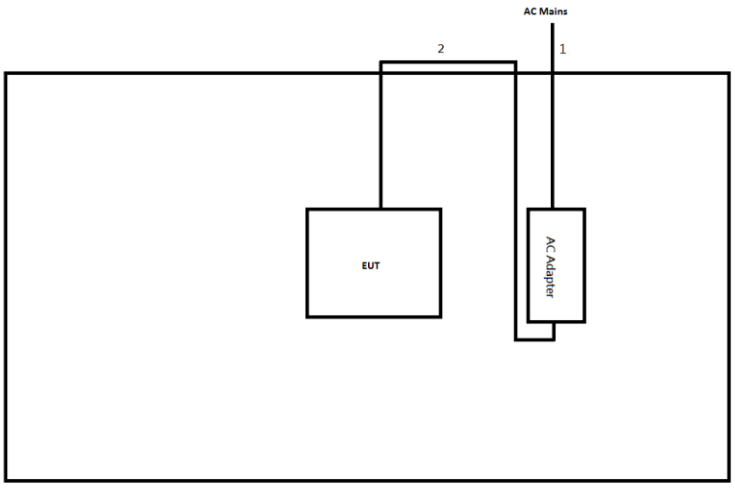
2.5 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test



Item	Connection	Shielded	Length(m)
1	Power cord	No	1.8
2	DC Power Cable	Yes	1.2

Test Setup Diagram - Radiated Test



Item	Connection	Shielded	Length(m)
1	Power cord	No	1.8
2	DC Power Cable	Yes	1.2

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

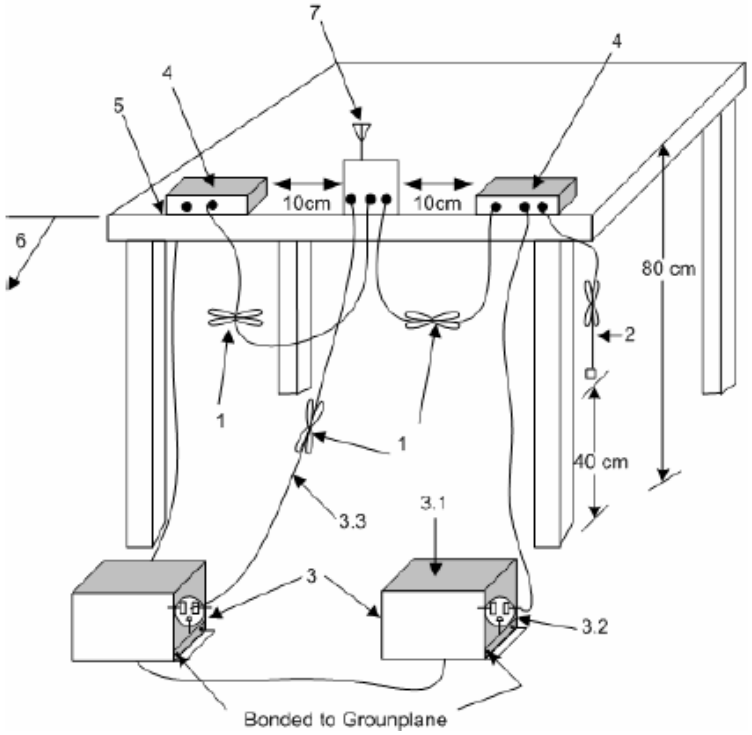
Test Method
☒ Refer as ANSI C63.10-2013, clause 6.2 for AC power-line conducted emissions.

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

AC Power-line Conducted Emissions



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

3.1.6 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A

3.2 DTS Bandwidth

3.2.1 6dB Bandwidth Limit

6dB Bandwidth Limit
Systems using digital modulation techniques:
▪ 6 dB bandwidth ≥ 500 kHz.

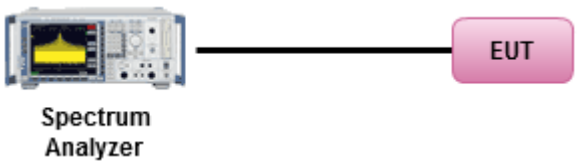
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

Test Method	
▪ For the emission bandwidth shall be measured using one of the options below:	
	☒ Refer as 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

Emission Bandwidth


3.2.5 Test Result of Emission Bandwidth

Refer as Appendix B

3.3 Maximum Conducted Output Power

3.3.1 Maximum Conducted Output Power Limit

Maximum Conducted Output Power Limit			
	▪ If $G_{TX} \leq 6$ dBi, then $P_{Out} \leq 30$ dBm (1 W)		
	▪ Point-to-multipoint systems (P2M): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 – (G_{TX} – 6)$ dBm		
	▪ Point-to-point systems (P2P): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 – (G_{TX} – 6)/3$ dBm		
	▪ Smart antenna system (SAS):		
		- Single beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 – (G_{TX} – 6)/3$ dBm	
		- Overlap beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 – (G_{TX} – 6)/3$ dBm	
		- Aggregate power on all beams: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 – (G_{TX} – 6)/3 + 8$dB dBm	
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): $P_{eirp} \leq MAX(36, [P_{Out} + G_{TX}])$ dBm		
	▪ Smart antenna system (SAS)		
		- Single beam: $P_{eirp} \leq MAX(36, P_{Out} + G_{TX})$ dBm	
		- Overlap beam: $P_{eirp} \leq MAX(36, P_{Out} + G_{TX})$ dBm	
		- Aggregate power on all beams: $P_{eirp} \leq MAX(36, [P_{Out} + G_{TX} + 8])$ 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: $P_{total} = P_1 + P_2 + \ldots + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = P_{total} + DG$

3.3.4 Test Setup

Maximum Conducted Output Power (Power Meter)

3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix C

3.4 Power Spectral Density

3.4.1 Power Spectral Density Limit

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

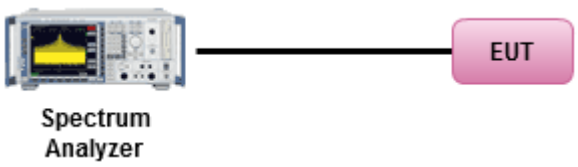
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

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

Power Spectral Density


3.4.5 Test Result of Power Spectral Density

Refer as Appendix D

3.5 Emissions in Non-restricted Frequency Bands

3.5.1 Emissions in Non-restricted Frequency Bands Limit

Un-restricted Band Emissions Limit	
RF output power procedure	**Limit (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

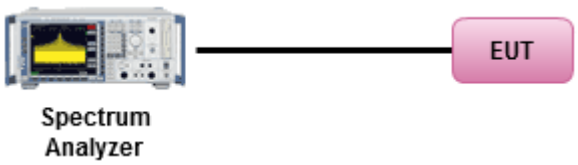
Refer a test equipment and calibration data table in this test report.

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

Emissions in Non-restricted Frequency Bands



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 ≥ 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 ≥ 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.

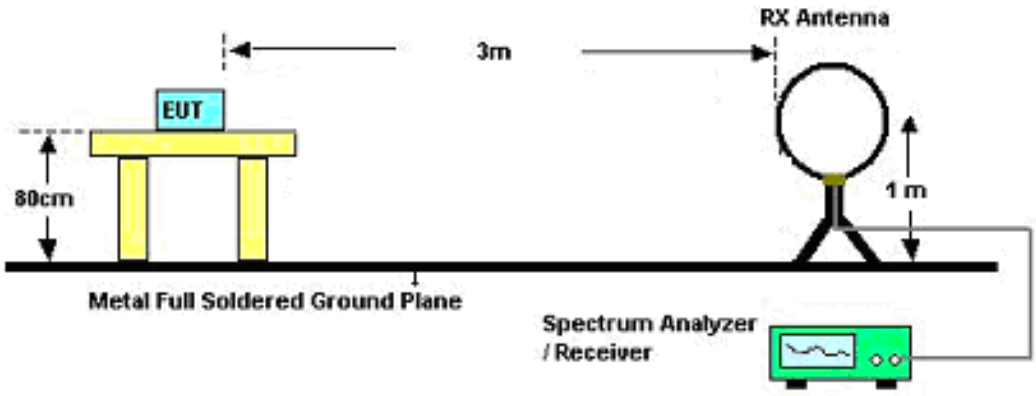
3.6.4 Measurement Results Calculation

The measured Level is calculated using:
Corrected Reading: Raw(Read Level) + AF(Antenna Factor) + CL(Cable Loss) - PA(Preamp Factor)

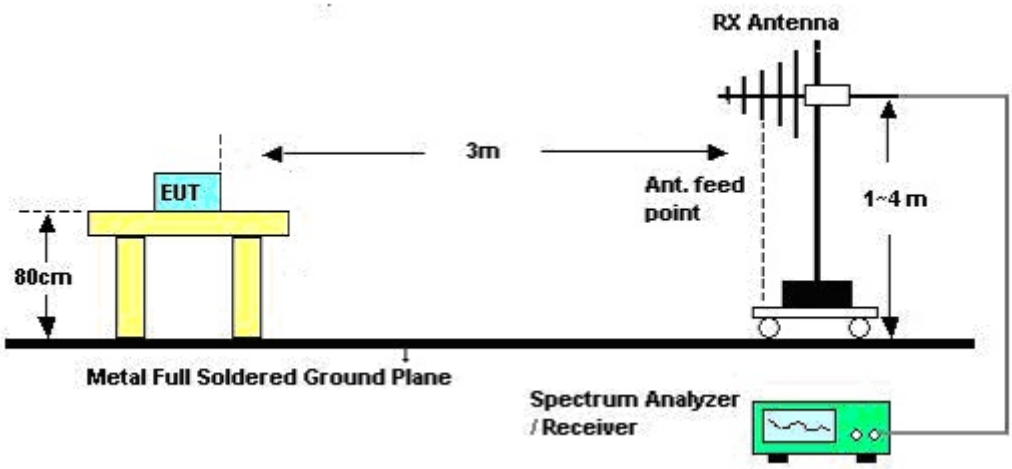
3.6.5 Test Setup

Emissions in Restricted Frequency Bands

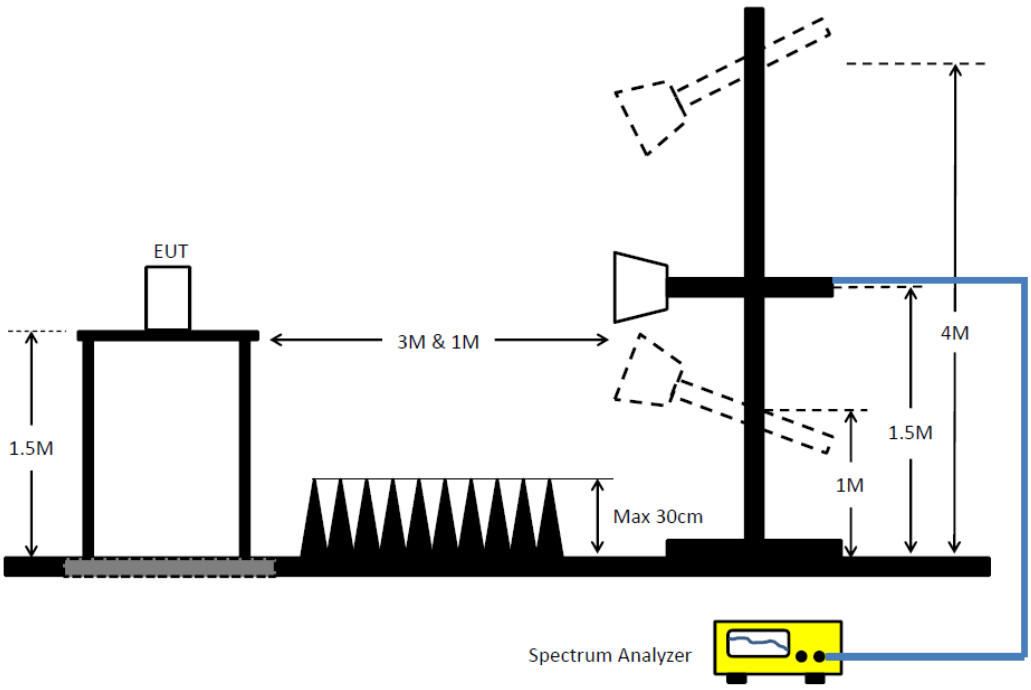
9kHz ~30MHz



30MHz~1GHz



Above 1GHz



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	R&S	ESR	102051	9kHz ~ 3.6GHz	16/May/2023	15/May/2024
Two-Line V-Network	R&S	ENV 216	101295	9kHz ~ 30MHz	05/Feb/2024	04/Feb/2025
RF Cable 5m	TITAN	TITAN	CO04-cable-01	9kHz ~ 200MHz	27/Feb/2024	26/Feb/2025
Impuls Begrenzer Pulse Limiter	SCHWARZBECK	VTSD 9561-F	9561-F041	9kHz ~ 30MHz	18/Oct/2023	17/Oct/2024
Sporton	SENSE-EMI	V5.11.3	NA	NA	NA	NA

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	20/Oct/2023	19/Oct/2024
Power Meter	Anritsu	ML2495A	1517010	300MHz~40GHz	15/Dec/2023	14/Dec/2024
Pulse Sensor	Anritsu	MA2411B	1339407	300MHz~40GHz	15/Dec/2023	14/Dec/2024
SENSE-15247_DTS	Sporton	V5.11.16	N/A	N/A	N/A	N/A

Instrument for Radiated Test

Instrument	Manufacturer /Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	1GHz~18GHz 3m	28/Jul/2023	27/Jul/2024
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30MHz~1GHz 3m	30/Jul/2023	29/Jul/2024
EMI Test Receiver	R&S	ESR3	102051	9kHz~3.6GHz	16/May/2023	15/May/2024
Signal Analyzer	R&S	FSV40	101500	10Hz~40GHz	26/Oct/2023	25/Oct/2024
Loop Antenna	TESEQ	HLA 6120	31244	9kHz~30MHz	23/Mar/2023	22/Mar/2024
Bilog Antenna & 6dB Attenuator	SCHAFFNER / EMCI	CBL6112B / N-6-05	22237 / AT-N-0603	30MHz~1GHz	15/Oct/2023	14/Oct/2024
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	02267	1GHz~18GHz	04/Oct/2023	03/Oct/2024
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	01248	18GHz ~ 40GHz	21/Aug/2023	20/Aug/2024
RF Cable-R03m	Jye Bao	RG142	CB021	9kHz~30MHz	13/Jun/2023	12/Jun/2024
RF Cable-R03m	Jye Bao	RG142	03CH03-cable-02	30MHz~1GHz	13/Jun/2023	12/Jun/2024
RF CABLE 5+8 m	HUBER+SUHNER	SUOFLEX 104	03CH03-cable-03	1GHz~40GHz	20/Feb/2024	19/Feb/2025
Amplifier	Aglient	8447D	2944A08033	100kHz~1.3GHz	14/Sep/2023	13/Sep/2024
Microwave Preamplifier	Agilent	8449B	3008A02326	1GHz~26.5GHz	26/Jul/2023	25/Jul/2024
Microwave Preamplifier	EMC INSTRUMENTS	EM18G40G	060604	18GHz ~ 40GHz	16/Mar/2023	15/Mar/2024
SENSE-15247_DTS	Sporton	V5.11.16	N/A	N/A	N/A	N/A

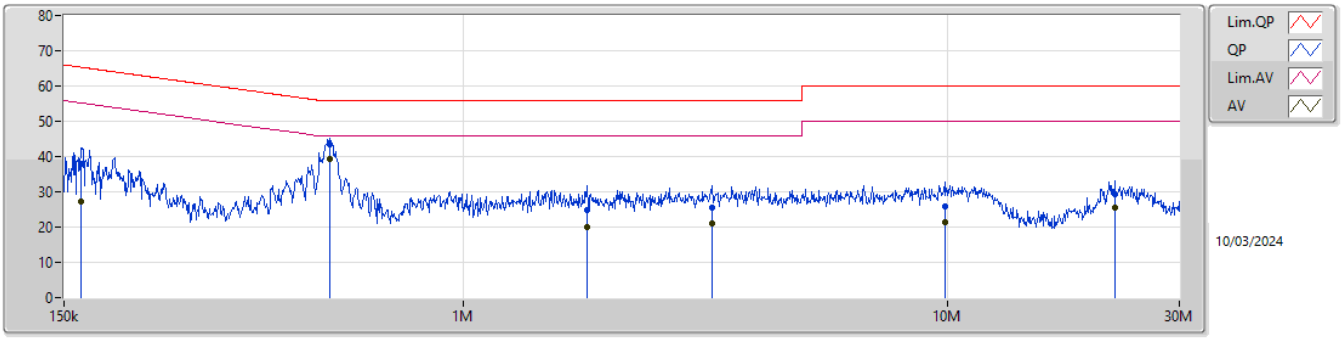
Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	AV	529.596k	39.14	46.00	-6.86	Line

Result

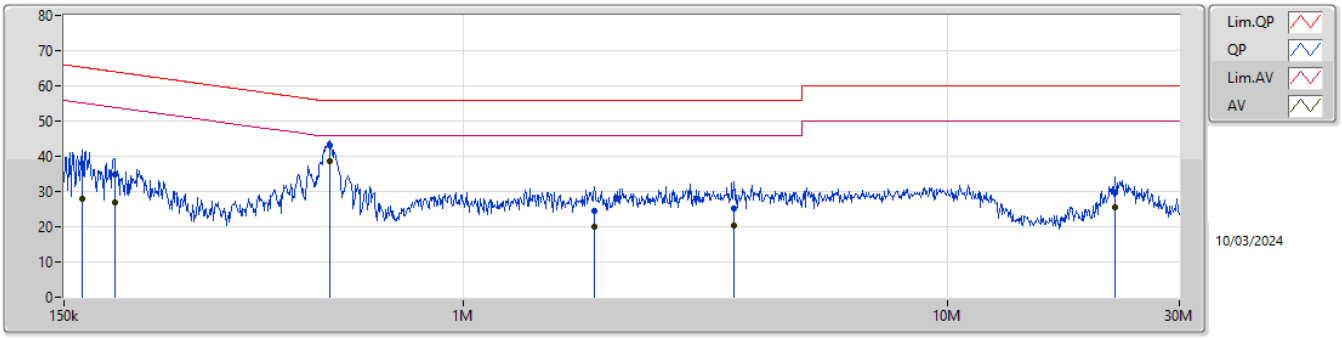
Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	QP	162.467k	37.76	65.33	-27.57	Line
Mode 1	Pass	AV	162.467k	27.39	55.33	-27.94	Line
Mode 1	Pass	QP	529.596k	43.28	56.00	-12.72	Line
Mode 1	Pass	AV	529.596k	39.14	46.00	-6.86	Line
Mode 1	Pass	QP	1.797M	24.67	56.00	-31.33	Line
Mode 1	Pass	AV	1.797M	19.84	46.00	-26.16	Line
Mode 1	Pass	QP	3.257M	25.38	56.00	-30.62	Line
Mode 1	Pass	AV	3.257M	20.87	46.00	-25.13	Line
Mode 1	Pass	QP	9.841M	25.93	60.00	-34.07	Line
Mode 1	Pass	AV	9.841M	21.51	50.00	-28.49	Line
Mode 1	Pass	QP	22.041M	29.48	60.00	-30.52	Line
Mode 1	Pass	AV	22.041M	25.51	50.00	-24.49	Line
Mode 1	Pass	QP	163.117k	37.81	65.31	-27.50	Neutral
Mode 1	Pass	AV	163.117k	27.90	55.31	-27.41	Neutral
Mode 1	Pass	QP	190.596k	34.78	64.01	-29.23	Neutral
Mode 1	Pass	AV	190.596k	26.80	54.01	-27.21	Neutral
Mode 1	Pass	QP	529.596k	43.19	56.00	-12.81	Neutral
Mode 1	Pass	AV	529.596k	38.59	46.00	-7.41	Neutral
Mode 1	Pass	QP	1.862M	24.34	56.00	-31.66	Neutral
Mode 1	Pass	AV	1.862M	20.13	46.00	-25.87	Neutral
Mode 1	Pass	QP	3.613M	25.21	56.00	-30.79	Neutral
Mode 1	Pass	AV	3.613M	20.41	46.00	-25.59	Neutral
Mode 1	Pass	QP	22.041M	29.57	60.00	-30.43	Neutral
Mode 1	Pass	AV	22.041M	25.52	50.00	-24.48	Neutral

Conducted Emissions at Powerline_Mode 1



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	162.467k	37.76	65.33	-27.57	19.42	Line	-	18.34	9.61	0.07	9.74
AV	162.467k	27.39	55.33	-27.94	19.42	Line	-	7.97	9.61	0.07	9.74
QP	529.596k	43.28	56.00	-12.72	19.49	Line	-	23.79	9.61	0.11	9.77
AV	529.596k	39.14	46.00	-6.86	19.49	Line	-	19.65	9.61	0.11	9.77
QP	1.797M	24.67	56.00	-31.33	19.53	Line	-	5.14	9.62	0.11	9.80
AV	1.797M	19.84	46.00	-26.16	19.53	Line	-	0.31	9.62	0.11	9.80
QP	3.257M	25.38	56.00	-30.62	19.50	Line	-	5.88	9.63	0.08	9.79
AV	3.257M	20.87	46.00	-25.13	19.50	Line	-	1.37	9.63	0.08	9.79
QP	9.841M	25.93	60.00	-34.07	19.50	Line	-	6.43	9.66	0.05	9.79
AV	9.841M	21.51	50.00	-28.49	19.50	Line	-	2.01	9.66	0.05	9.79
QP	22.041M	29.48	60.00	-30.52	19.52	Line	-	9.96	9.56	0.12	9.84
AV	22.041M	25.51	50.00	-24.49	19.52	Line	-	5.99	9.56	0.12	9.84

Conducted Emissions at Powerline_Mode 1



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	163.117k	37.81	65.31	-27.50	19.43	Neutral	-	18.38	9.62	0.07	9.74
AV	163.117k	27.90	55.31	-27.41	19.43	Neutral	-	8.47	9.62	0.07	9.74
QP	190.596k	34.78	64.01	-29.23	19.39	Neutral	-	15.39	9.61	0.09	9.69
AV	190.596k	26.80	54.01	-27.21	19.39	Neutral	-	7.41	9.61	0.09	9.69
QP	529.596k	43.19	56.00	-12.81	19.49	Neutral	-	23.70	9.61	0.11	9.77
AV	529.596k	38.59	46.00	-7.41	19.49	Neutral	-	19.10	9.61	0.11	9.77
QP	1.862M	24.34	56.00	-31.66	19.53	Neutral	-	4.81	9.62	0.11	9.80
AV	1.862M	20.13	46.00	-25.87	19.53	Neutral	-	0.60	9.62	0.11	9.80
QP	3.613M	25.21	56.00	-30.79	19.51	Neutral	-	5.70	9.64	0.08	9.79
AV	3.613M	20.41	46.00	-25.59	19.51	Neutral	-	0.90	9.64	0.08	9.79
QP	22.041M	29.57	60.00	-30.43	19.65	Neutral	-	9.92	9.69	0.12	9.84
AV	22.041M	25.52	50.00	-24.48	19.65	Neutral	-	5.87	9.69	0.12	9.84

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
802.11b_Nss1,(1Mbps)_2TX	7.625M	12.784M	12M8G1D	6.325M	11.354M
802.11g_Nss1,(6Mbps)_2TX	16.45M	17.351M	17M4D1D	16.325M	16.564M
802.11ax HEW20_Nss1,(MCS0)_2TX	18.975M	18.969M	19M0D1D	18.2M	18.851M

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

Result

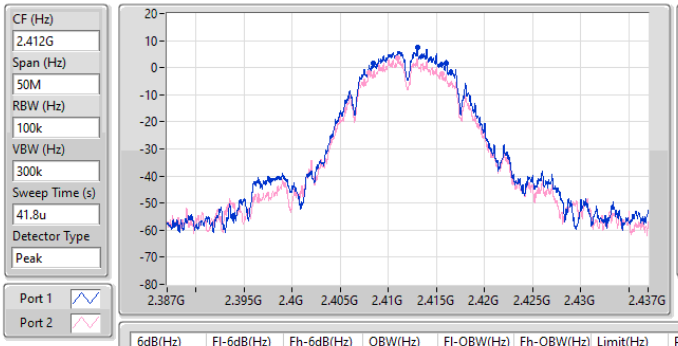
Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)
802.11b_Nss1,(1Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	7.6M	11.354M	7.625M	11.925M
2437MHz	Pass	500k	6.6M	11.975M	6.325M	12.176M
2462MHz	Pass	500k	6.65M	12.108M	6.925M	12.784M
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	16.375M	16.634M	16.35M	16.564M
2437MHz	Pass	500k	16.35M	17.351M	16.425M	16.975M
2462MHz	Pass	500k	16.45M	16.616M	16.325M	16.769M
802.11ax HEW20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	18.725M	18.939M	18.8M	18.899M
2437MHz	Pass	500k	18.65M	18.883M	18.975M	18.969M
2462MHz	Pass	500k	18.45M	18.856M	18.2M	18.851M

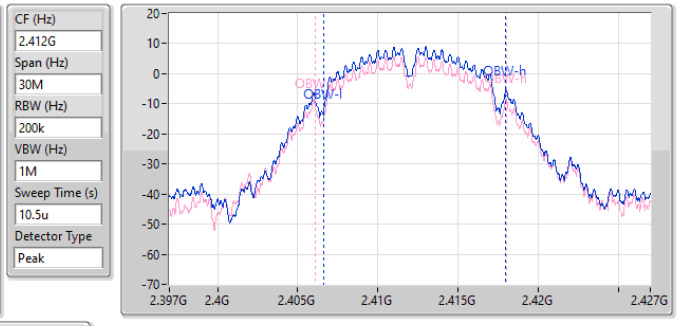
Port X-N dB = Port X 6dB down bandwidth;
Port X-OBW = Port X 99% occupied bandwidth

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

2412MHz

07/03/2024



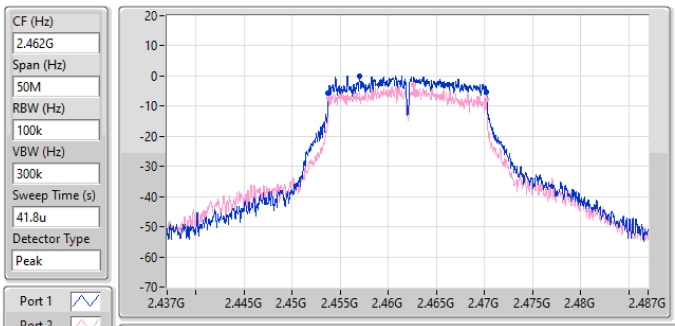


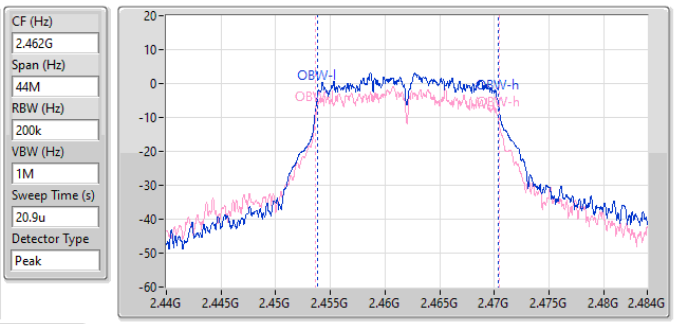
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
7.6M	2.40845G	2.41605G	11.354M	2.406603G	2.417956G	500k	1
7.625M	2.40795G	2.415575G	11.925M	2.406082G	2.418006G	500k	2

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

2462MHz

07/03/2024



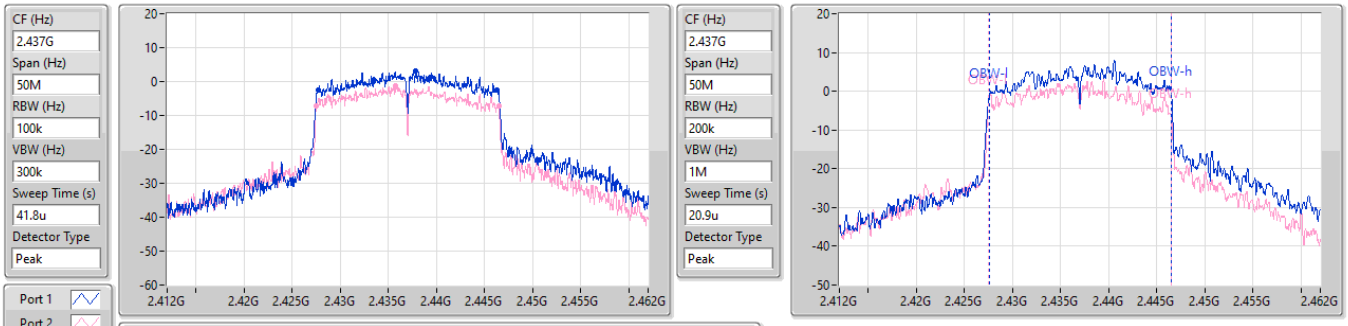


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
16.45M	2.45375G	2.4702G	16.616M	2.453792G	2.470408G	500k	1
16.325M	2.453825G	2.47015G	16.769M	2.45365G	2.47042G	500k	2

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

2437MHz

07/03/2024



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
18.65M	2.427675G	2.446325G	18.883M	2.427635G	2.446519G	500k	1
18.975M	2.4275G	2.446475G	18.969M	2.427486G	2.446455G	500k	2

Summary

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
802.11b_Nss1,(1Mbps)_2TX	19.86	0.09683
802.11g_Nss1,(6Mbps)_2TX	19.36	0.08630
802.11ax HEW20_Nss1,(MCS0)_2TX	19.16	0.08241

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	Power Limit (dBm)
802.11b_Nss1,(1Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	2.00	17.11	13.36	18.64	30.00
2417MHz	Pass	2.00	18.48	14.20	19.86	30.00
2437MHz	Pass	2.00	18.40	13.36	19.58	30.00
2457MHz	Pass	2.00	17.97	12.35	19.02	30.00
2462MHz	Pass	2.00	15.36	10.78	16.66	30.00
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	2.00	13.88	10.91	15.66	30.00
2417MHz	Pass	2.00	15.58	12.67	17.37	30.00
2437MHz	Pass	2.00	17.98	13.72	19.36	30.00
2457MHz	Pass	2.00	15.42	11.69	16.96	30.00
2462MHz	Pass	2.00	14.25	10.38	15.75	30.00
802.11ax HEW20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	2.00	13.65	10.40	15.34	30.00
2417MHz	Pass	2.00	15.17	12.05	16.89	30.00
2437MHz	Pass	2.00	17.71	13.70	19.16	30.00
2457MHz	Pass	2.00	15.07	11.36	16.61	30.00
2462MHz	Pass	2.00	11.93	7.64	13.31	30.00

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_Nss1,(MCS0)_2TX	19.05	0.08035

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	Power Limit (dBm)
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	5.01	13.53	10.25	15.20	30.00
2417MHz	Pass	5.01	15.06	11.93	16.78	30.00
2437MHz	Pass	5.01	17.60	13.58	19.05	30.00
2457MHz	Pass	5.01	14.92	11.22	16.46	30.00
2462MHz	Pass	5.01	11.83	7.49	13.19	30.00

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

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
802.11b_Nss1,(1Mbps)_2TX	-5.06
802.11g_Nss1,(6Mbps)_2TX	-5.60
802.11ax HEW20_Nss1,(MCS0)_2TX	-8.46

RBW = 3kHz;

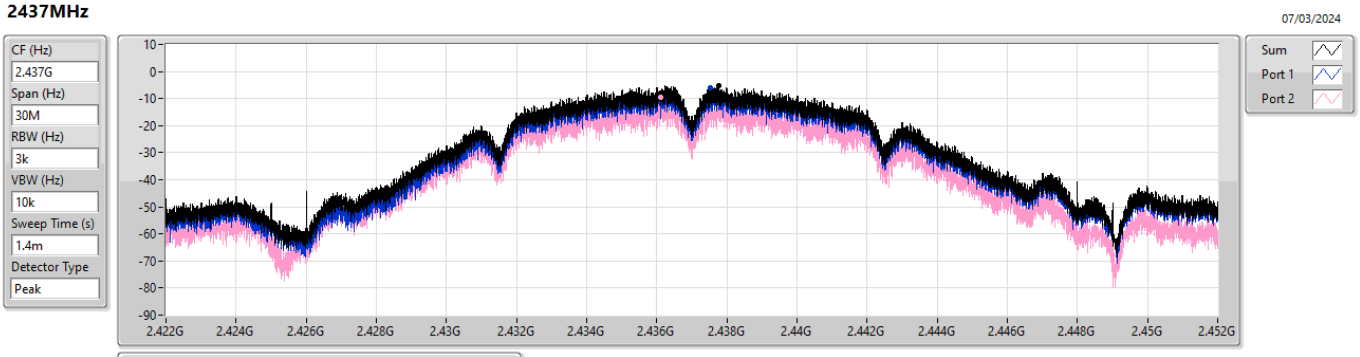
Result

Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
802.11b_Nss1,(1Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	5.01	-6.73	-9.05	-6.03	8.00
2437MHz	Pass	5.01	-5.93	-9.39	-5.06	8.00
2462MHz	Pass	5.01	-8.92	-13.00	-8.10	8.00
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	5.01	-10.25	-15.27	-9.57	8.00
2437MHz	Pass	5.01	-5.75	-11.18	-5.60	8.00
2462MHz	Pass	5.01	-10.55	-15.41	-10.32	8.00
802.11ax HEW20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	5.01	-13.17	-16.78	-12.57	8.00
2437MHz	Pass	5.01	-9.03	-13.36	-8.46	8.00
2462MHz	Pass	5.01	-14.76	-19.81	-14.16	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;

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

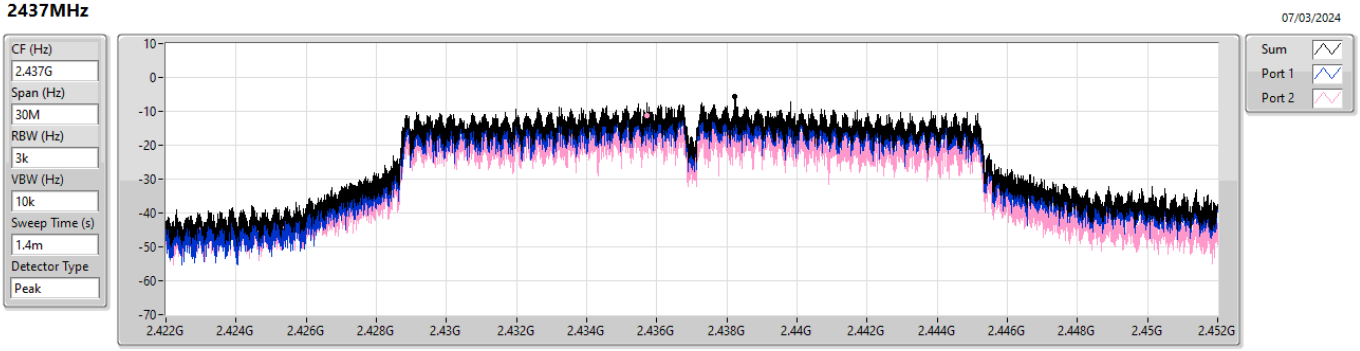
2437MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-5.06	-5.06	-5.93	-9.39

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

2437MHz

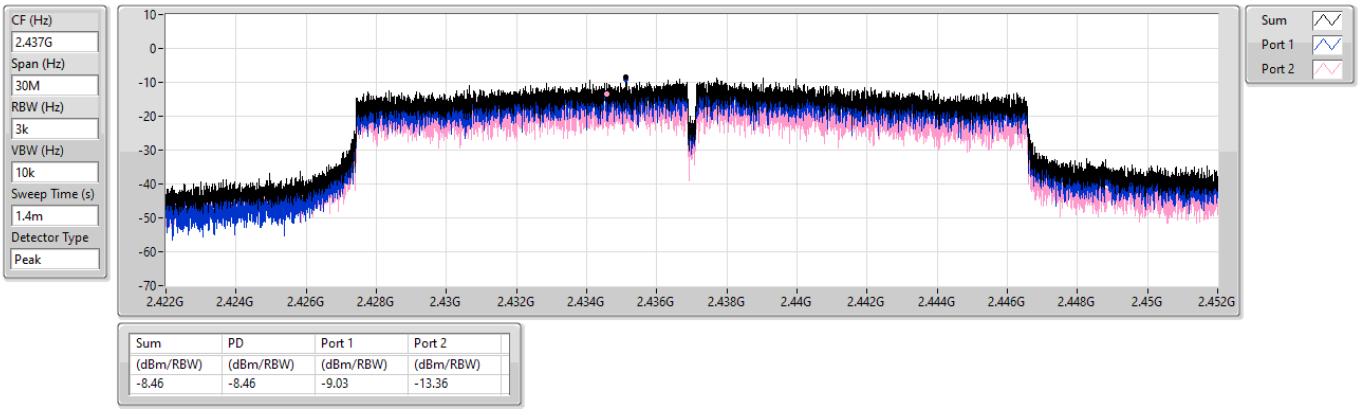


Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-5.60	-5.60	-5.75	-11.18

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

2437MHz

07/03/2024



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-8.46	-8.46	-9.03	-13.36

Summary

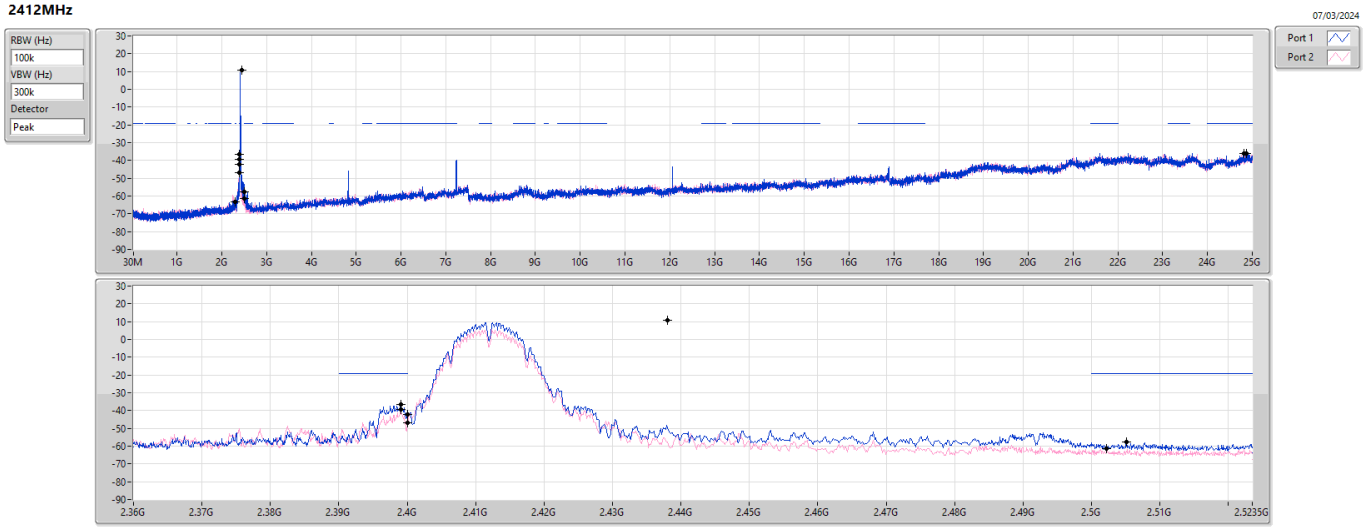
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
802.11b_Nss1,(1Mbps)_2TX	Pass	2.43808G	10.69	-19.31	2.30408G	-63.05	2.39904G	-36.69	2.4G	-42.18	2.5051G	-57.58	24.81738G	-36.00	1
802.11g_Nss1,(6Mbps)_2TX	Pass	2.43824G	5.95	-24.05	2.30525G	-64.67	2.39832G	-30.48	2.4G	-31.42	2.5227G	-61.34	23.52779G	-36.74	2
802.11ax HEW20_Nss1,(MCS0)_2TX	Pass	2.43941G	6.06	-23.94	2.30874G	-63.84	2.39968G	-31.61	2.4G	-32.19	2.5235G	-61.11	24.87076G	-35.92	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	2.43808G	10.69	-19.31	2.30408G	-63.05	2.39904G	-36.69	2.4G	-42.18	2.5051G	-57.58	24.81738G	-36.00	1
2412MHz	Pass	2.43808G	10.69	-19.31	2.30175G	-63.45	2.39904G	-39.29	2.4G	-46.88	2.50222G	-61.22	24.86233G	-36.09	2
2437MHz	Pass	2.43808G	10.69	-19.31	2.30874G	-63.08	2.39352G	-46.71	2.4G	-49.89	2.50406G	-50.47	24.77524G	-35.83	1
2437MHz	Pass	2.43808G	10.69	-19.31	2.30059G	-62.52	2.39904G	-49.55	2.4G	-54.86	2.50102G	-57.86	21.58076G	-35.80	2
2462MHz	Pass	2.43808G	10.69	-19.31	2.30175G	-61.52	2.39888G	-54.02	2.4G	-61.60	2.50774G	-44.94	24.89886G	-36.42	1
2462MHz	Pass	2.43808G	10.69	-19.31	2.30292G	-58.44	2.3904G	-54.96	2.4G	-60.71	2.50862G	-54.59	24.823G	-35.76	2
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	2.43824G	5.95	-24.05	2.30991G	-63.65	2.3996G	-32.57	2.4G	-34.43	2.50014G	-55.66	24.82581G	-34.74	1
2412MHz	Pass	2.43824G	5.95	-24.05	2.30525G	-64.67	2.39832G	-30.48	2.4G	-31.42	2.5227G	-61.34	23.52779G	-36.74	2
2437MHz	Pass	2.43824G	5.95	-24.05	2.30292G	-63.63	2.39928G	-40.57	2.4G	-40.85	2.51454G	-51.17	24.93257G	-36.56	1
2437MHz	Pass	2.43824G	5.95	-24.05	2.30758G	-62.88	2.39552G	-41.89	2.4G	-43.48	2.50286G	-57.54	24.31728G	-36.08	2
2462MHz	Pass	2.43824G	5.95	-24.05	2.30525G	-63.18	2.396G	-57.24	2.4G	-60.21	2.50078G	-52.50	24.92414G	-36.87	1
2462MHz	Pass	2.43824G	5.95	-24.05	2.30175G	-59.61	2.39464G	-55.56	2.4G	-58.82	2.50134G	-56.44	24.78928G	-36.44	2
802.11ax HEW20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	2.43941G	6.06	-23.94	2.30525G	-62.46	2.4G	-34.38	2.4G	-34.55	2.5011G	-56.07	24.96909G	-36.01	1
2412MHz	Pass	2.43941G	6.06	-23.94	2.30874G	-63.84	2.39968G	-31.61	2.4G	-32.19	2.5235G	-61.11	24.87076G	-35.92	2
2437MHz	Pass	2.43941G	6.06	-23.94	2.30525G	-61.31	2.39784G	-42.25	2.4G	-42.04	2.5195G	-50.86	24.93819G	-36.50	1
2437MHz	Pass	2.43941G	6.06	-23.94	2.30059G	-59.97	2.39976G	-41.60	2.4G	-41.62	2.50142G	-56.15	24.95505G	-36.88	2
2462MHz	Pass	2.43941G	6.06	-23.94	2.30874G	-61.93	2.39088G	-59.25	2.4G	-61.83	2.5055G	-55.35	24.82019G	-36.77	1
2462MHz	Pass	2.43941G	6.06	-23.94	2.30525G	-61.27	2.39256G	-58.00	2.4G	-59.33	2.50126G	-60.29	24.90167G	-36.19	2

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

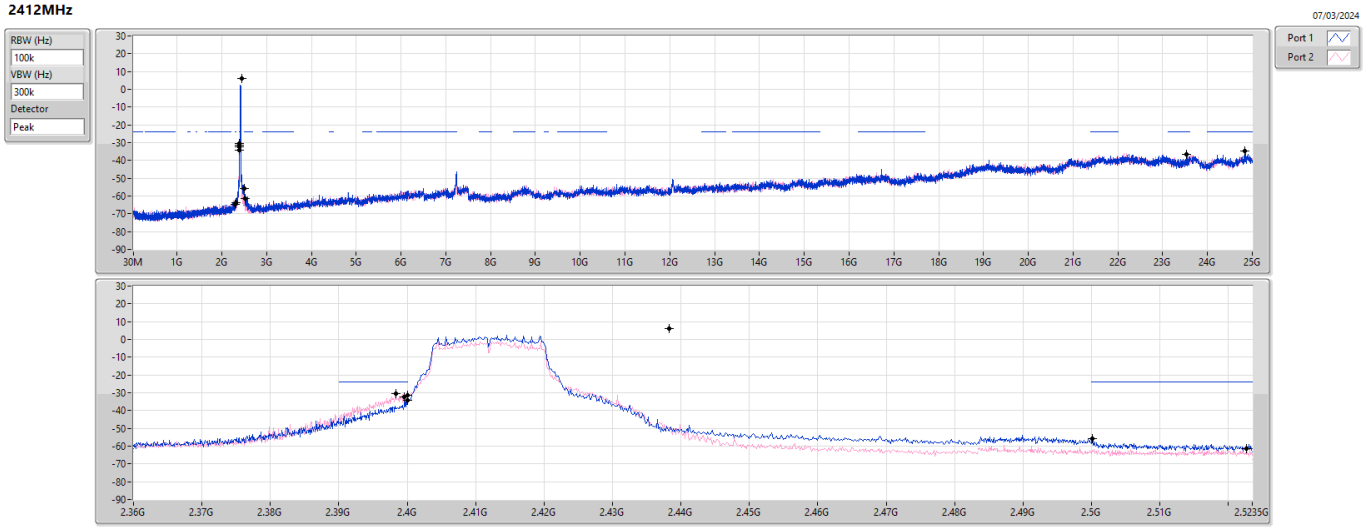
2412MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.43808G	10.69	-19.31	2.30408G	-63.05	2.39904G	-36.69	2.4G	-42.18	2.5051G	-57.58	24.81738G	-36.00	1
2.43808G	10.69	-19.31	2.30175G	-63.45	2.39904G	-39.29	2.4G	-46.88	2.50222G	-61.22	24.86233G	-36.09	2

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

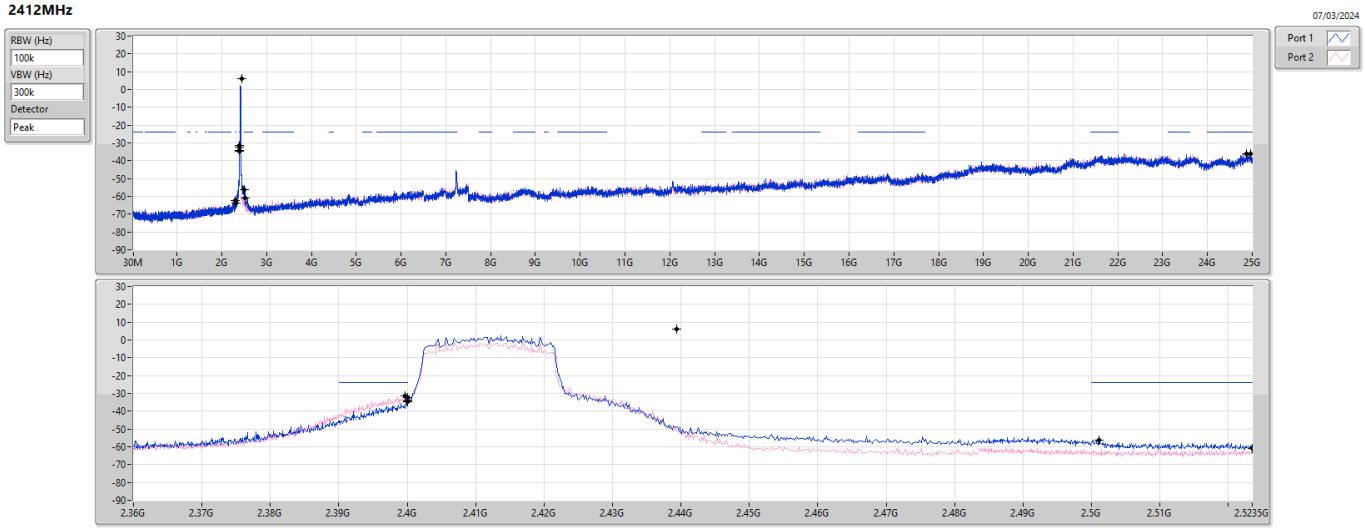
2412MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.43824G	5.95	-24.05	2.30991G	-63.65	2.3996G	-32.57	2.4G	-34.43	2.50014G	-55.66	24.82581G	-34.74	1
2.43824G	5.95	-24.05	2.30525G	-64.67	2.39832G	-30.48	2.4G	-31.42	2.5227G	-61.34	23.52779G	-36.74	2

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

2412MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.43941G	6.06	-23.94	2.30525G	-62.46	2.4G	-34.38	2.4G	-34.55	2.5011G	-56.07	24.96909G	-36.01	1
2.43941G	6.06	-23.94	2.30874G	-63.84	2.39968G	-31.61	2.4G	-32.19	2.5235G	-61.11	24.87076G	-35.92	2

Summary

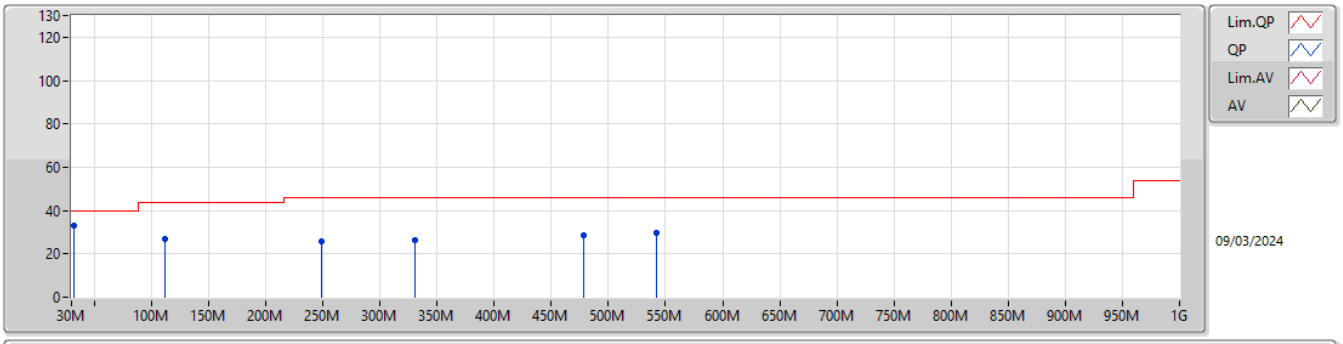
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-
802.11ax HEW20_Nss1,(MCS0)_2TX	Pass	PK	31.94M	33.21	40.00	-6.79	3	Vertical	0	1.00

Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
802.11ax HEW20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-
2437MHz	Pass	PK	31.94M	33.21	40.00	-6.79	3	Vertical	0	1.00
2437MHz	Pass	PK	111.48M	26.63	43.50	-16.87	3	Vertical	0	1.00
2437MHz	Pass	PK	249.22M	26.01	46.00	-19.99	3	Vertical	0	1.00
2437MHz	Pass	PK	330.7M	26.06	46.00	-19.94	3	Vertical	0	1.00
2437MHz	Pass	PK	478.14M	28.36	46.00	-17.64	3	Vertical	0	1.00
2437MHz	Pass	PK	542.16M	29.44	46.00	-16.56	3	Vertical	0	1.00
2437MHz	Pass	PK	30M	23.09	40.00	-16.91	3	Horizontal	360	1.00
2437MHz	Pass	PK	152.22M	21.53	43.50	-21.97	3	Horizontal	360	1.00
2437MHz	Pass	PK	225.94M	30.58	46.00	-15.42	3	Horizontal	360	1.00
2437MHz	Pass	PK	322.94M	30.64	46.00	-15.36	3	Horizontal	360	1.00
2437MHz	Pass	PK	385.02M	28.81	46.00	-17.19	3	Horizontal	360	1.00
2437MHz	Pass	PK	559.62M	29.47	46.00	-16.53	3	Horizontal	360	1.00

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

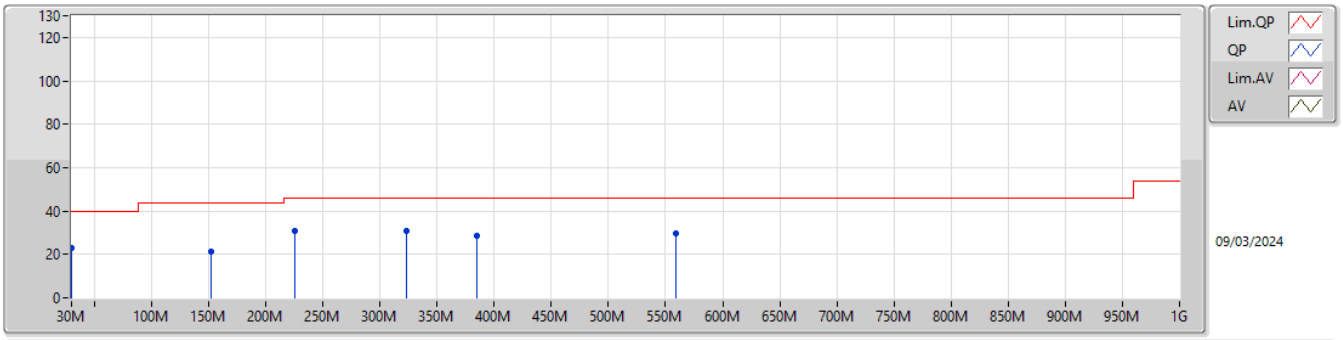
2437MHz_Adapter



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	(dBuV)	(dB)	(dB)	(dB)
PK	31.94M	33.21	40.00	-6.79	-4.03	3	Vertical	0	1.00	37.24	22.60	0.95	27.58
PK	111.48M	26.63	43.50	-16.87	-8.35	3	Vertical	0	1.00	34.98	17.31	1.74	27.40
PK	249.22M	26.01	46.00	-19.99	-6.91	3	Vertical	0	1.00	32.92	17.51	2.63	27.05
PK	330.7M	26.06	46.00	-19.94	-5.04	3	Vertical	0	1.00	31.10	18.93	3.07	27.04
PK	478.14M	28.36	46.00	-17.64	-1.44	3	Vertical	0	1.00	29.80	22.71	3.75	27.90
PK	542.16M	29.44	46.00	-16.56	0.46	3	Vertical	0	1.00	28.98	24.70	3.97	28.21

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

2437MHz_Adapter



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	(dBuV)	(dB)	(dB)	(dB)
PK	30M	23.09	40.00	-16.91	-3.18	3	Horizontal	360	1.00	26.27	23.49	0.92	27.59
PK	152.22M	21.53	43.50	-21.97	-9.85	3	Horizontal	360	1.00	31.38	15.36	2.04	27.25
PK	225.94M	30.58	46.00	-15.42	-9.72	3	Horizontal	360	1.00	40.30	14.85	2.50	27.07
PK	322.94M	30.64	46.00	-15.36	-5.24	3	Horizontal	360	1.00	35.88	18.75	3.03	27.02
PK	385.02M	28.81	46.00	-17.19	-3.72	3	Horizontal	360	1.00	32.53	20.28	3.31	27.31
PK	559.62M	29.47	46.00	-16.53	0.13	3	Horizontal	360	1.00	29.34	24.31	4.06	28.24

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	2.4835G	52.09	54.00	-1.91	3	Vertical	308	2.20
802.11g_Nss1,(6Mbps)_2TX	Pass	AV	2.4835G	52.68	54.00	-1.32	3	Vertical	222	2.06
802.11ax HEW20_Nss1,(MCS0)_2TX	Pass	AV	2.484G	52.64	54.00	-1.36	3	Vertical	14	2.09

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	2.39G	50.14	54.00	-3.86	3	Vertical	0	1.97
2412MHz	Pass	AV	2.4112G	110.61	Inf	-Inf	3	Vertical	0	1.97
2412MHz	Pass	PK	2.386G	61.42	74.00	-12.58	3	Vertical	0	1.97
2412MHz	Pass	PK	2.411G	113.39	Inf	-Inf	3	Vertical	0	1.97
2412MHz	Pass	AV	2.3872G	45.62	54.00	-8.38	3	Horizontal	25	1.49
2412MHz	Pass	AV	2.4112G	100.97	Inf	-Inf	3	Horizontal	25	1.49
2412MHz	Pass	PK	2.3704G	58.87	74.00	-15.13	3	Horizontal	25	1.49
2412MHz	Pass	PK	2.411G	103.79	Inf	-Inf	3	Horizontal	25	1.49
2412MHz	Pass	AV	4.82392G	51.51	54.00	-2.49	3	Vertical	4	1.50
2412MHz	Pass	PK	4.824G	54.77	74.00	-19.23	3	Vertical	4	1.50
2412MHz	Pass	AV	4.824G	38.95	54.00	-15.05	3	Horizontal	230	1.84
2412MHz	Pass	PK	4.82408G	47.66	74.00	-26.34	3	Horizontal	230	1.84
2417MHz	Pass	AV	2.3874G	50.86	54.00	-3.14	3	Vertical	342	1.71
2417MHz	Pass	AV	2.4176G	112.59	Inf	-Inf	3	Vertical	342	1.71
2417MHz	Pass	PK	2.3808G	62.21	74.00	-11.79	3	Vertical	342	1.71
2417MHz	Pass	PK	2.4162G	115.36	Inf	-Inf	3	Vertical	342	1.71
2417MHz	Pass	AV	2.3876G	49.97	54.00	-4.03	3	Horizontal	179	2.08
2417MHz	Pass	AV	2.4162G	105.21	Inf	-Inf	3	Horizontal	179	2.08
2417MHz	Pass	PK	2.3876G	61.13	74.00	-12.87	3	Horizontal	179	2.08
2417MHz	Pass	PK	2.416G	107.79	Inf	-Inf	3	Horizontal	179	2.08
2437MHz	Pass	PK	2.3882G	61.62	74.00	-12.38	3	Vertical	202	1.93
2437MHz	Pass	PK	2.4362G	117.78	Inf	-Inf	3	Vertical	202	1.93
2437MHz	Pass	PK	2.4862G	61.73	74.00	-12.27	3	Vertical	202	1.93
2437MHz	Pass	AV	2.4362G	115.02	Inf	-Inf	3	Vertical	202	1.93
2437MHz	Pass	AV	2.3878G	50.05	54.00	-3.95	3	Vertical	202	1.93
2437MHz	Pass	AV	2.4858G	51.82	54.00	-2.18	3	Vertical	202	1.93
2437MHz	Pass	AV	2.389G	46.38	54.00	-7.62	3	Horizontal	181	1.89
2437MHz	Pass	AV	2.4362G	106.48	Inf	-Inf	3	Horizontal	181	1.89
2437MHz	Pass	AV	2.4835G	46.36	54.00	-7.64	3	Horizontal	181	1.89
2437MHz	Pass	PK	2.3582G	58.92	74.00	-15.08	3	Horizontal	181	1.89
2437MHz	Pass	PK	2.4362G	109.35	Inf	-Inf	3	Horizontal	181	1.89
2437MHz	Pass	PK	2.4918G	58.87	74.00	-15.13	3	Horizontal	181	1.89
2437MHz	Pass	AV	4.87396G	48.73	54.00	-5.27	3	Vertical	163	2.30
2437MHz	Pass	AV	7.30986G	39.79	54.00	-14.21	3	Vertical	329	2.87
2437MHz	Pass	PK	4.87384G	53.38	74.00	-20.62	3	Vertical	163	2.30
2437MHz	Pass	PK	7.30992G	52.38	74.00	-21.62	3	Vertical	329	2.87
2437MHz	Pass	AV	4.874G	38.26	54.00	-15.74	3	Horizontal	203	1.50
2437MHz	Pass	AV	7.30488G	38.26	54.00	-15.74	3	Horizontal	93	1.50
2437MHz	Pass	PK	4.8736G	47.82	74.00	-26.18	3	Horizontal	203	1.50
2437MHz	Pass	PK	7.31348G	52.10	74.00	-21.90	3	Horizontal	93	1.50
2457MHz	Pass	AV	2.4562G	112.79	Inf	-Inf	3	Vertical	344	2.14
2457MHz	Pass	AV	2.4835G	51.86	54.00	-2.14	3	Vertical	344	2.14
2457MHz	Pass	PK	2.4562G	115.68	Inf	-Inf	3	Vertical	344	2.14
2457MHz	Pass	PK	2.4836G	63.24	74.00	-10.76	3	Vertical	344	2.14
2457MHz	Pass	AV	2.4562G	104.33	Inf	-Inf	3	Horizontal	176	2.12
2457MHz	Pass	AV	2.4835G	46.60	54.00	-7.40	3	Horizontal	176	2.12
2457MHz	Pass	PK	2.4562G	107.17	Inf	-Inf	3	Horizontal	176	2.12
2457MHz	Pass	PK	2.488G	58.76	74.00	-15.24	3	Horizontal	176	2.12
2462MHz	Pass	AV	2.4626G	109.14	Inf	-Inf	3	Vertical	308	2.20
2462MHz	Pass	AV	2.4835G	52.09	54.00	-1.91	3	Vertical	308	2.20
2462MHz	Pass	PK	2.463G	111.84	Inf	-Inf	3	Vertical	308	2.20
2462MHz	Pass	PK	2.4852G	71.99	74.00	-2.01	3	Vertical	308	2.20
2462MHz	Pass	AV	2.4628G	98.00	Inf	-Inf	3	Horizontal	197	1.86
2462MHz	Pass	AV	2.4835G	46.12	54.00	-7.88	3	Horizontal	197	1.86
2462MHz	Pass	PK	2.463G	100.67	Inf	-Inf	3	Horizontal	197	1.86
2462MHz	Pass	PK	2.4866G	60.86	74.00	-13.14	3	Horizontal	197	1.86
2462MHz	Pass	AV	4.924G	49.50	54.00	-4.50	3	Vertical	3	2.14
2462MHz	Pass	AV	7.38504G	38.89	54.00	-15.11	3	Vertical	198	2.64
2462MHz	Pass	PK	4.92392G	53.59	74.00	-20.41	3	Vertical	3	2.14
2462MHz	Pass	PK	7.38552G	53.17	74.00	-20.83	3	Vertical	198	2.64

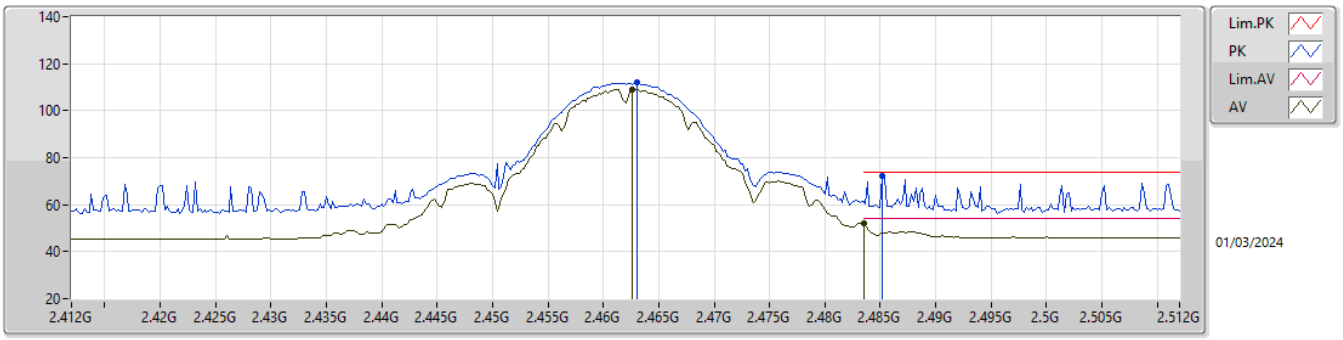
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
2462MHz	Pass	AV	4.92392G	36.40	54.00	-17.60	3	Horizontal	349	1.98
2462MHz	Pass	AV	7.38672G	38.55	54.00	-15.45	3	Horizontal	303	1.50
2462MHz	Pass	PK	4.92392G	47.61	74.00	-26.39	3	Horizontal	349	1.98
2462MHz	Pass	PK	7.38664G	51.88	74.00	-22.12	3	Horizontal	303	1.50
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	AV	2.3886G	51.81	54.00	-2.19	3	Vertical	333	2.54
2412MHz	Pass	AV	2.4128G	103.86	Inf	-Inf	3	Vertical	333	2.54
2412MHz	Pass	PK	2.388G	70.56	74.00	-3.44	3	Vertical	333	2.54
2412MHz	Pass	PK	2.413G	112.73	Inf	-Inf	3	Vertical	333	2.54
2412MHz	Pass	AV	2.3874G	46.97	54.00	-7.03	3	Horizontal	172	2.97
2412MHz	Pass	AV	2.4124G	94.87	Inf	-Inf	3	Horizontal	172	2.97
2412MHz	Pass	PK	2.388G	62.26	74.00	-11.74	3	Horizontal	172	2.97
2412MHz	Pass	PK	2.4124G	104.12	Inf	-Inf	3	Horizontal	172	2.97
2412MHz	Pass	AV	4.82424G	38.34	54.00	-15.66	3	Vertical	360	1.46
2412MHz	Pass	PK	4.82412G	51.54	74.00	-22.46	3	Vertical	360	1.46
2412MHz	Pass	AV	4.82644G	33.59	54.00	-20.41	3	Horizontal	187	1.68
2412MHz	Pass	PK	4.8222G	47.09	74.00	-26.91	3	Horizontal	187	1.68
2417MHz	Pass	AV	2.3882G	52.52	54.00	-1.48	3	Vertical	20	1.58
2417MHz	Pass	AV	2.4176G	105.02	Inf	-Inf	3	Vertical	20	1.58
2417MHz	Pass	PK	2.3874G	71.78	74.00	-2.22	3	Vertical	20	1.58
2417MHz	Pass	PK	2.4182G	114.28	Inf	-Inf	3	Vertical	20	1.58
2417MHz	Pass	AV	2.3886G	48.41	54.00	-5.59	3	Horizontal	188	2.95
2417MHz	Pass	AV	2.418G	97.21	Inf	-Inf	3	Horizontal	188	2.95
2417MHz	Pass	PK	2.3882G	64.78	74.00	-9.22	3	Horizontal	188	2.95
2417MHz	Pass	PK	2.4182G	106.07	Inf	-Inf	3	Horizontal	188	2.95
2437MHz	Pass	AV	2.3878G	52.35	54.00	-1.65	3	Vertical	203	1.50
2437MHz	Pass	AV	2.4374G	107.90	Inf	-Inf	3	Vertical	203	1.50
2437MHz	Pass	AV	2.4835G	52.33	54.00	-1.67	3	Vertical	203	1.50
2437MHz	Pass	PK	2.3878G	69.75	74.00	-4.25	3	Vertical	203	1.50
2437MHz	Pass	PK	2.4378G	117.42	Inf	-Inf	3	Vertical	203	1.50
2437MHz	Pass	PK	2.4842G	68.60	74.00	-5.40	3	Vertical	203	1.50
2437MHz	Pass	AV	2.389G	47.95	54.00	-6.05	3	Horizontal	174	2.81
2437MHz	Pass	AV	2.4374G	99.33	Inf	-Inf	3	Horizontal	174	2.81
2437MHz	Pass	AV	2.4838G	47.81	54.00	-6.19	3	Horizontal	174	2.81
2437MHz	Pass	PK	2.3882G	63.77	74.00	-10.23	3	Horizontal	174	2.81
2437MHz	Pass	PK	2.4378G	108.27	Inf	-Inf	3	Horizontal	174	2.81
2437MHz	Pass	PK	2.487G	63.64	74.00	-10.36	3	Horizontal	174	2.81
2437MHz	Pass	AV	4.8744G	37.75	54.00	-16.25	3	Vertical	0	1.80
2437MHz	Pass	AV	7.30945G	39.90	54.00	-14.10	3	Vertical	104	2.74
2437MHz	Pass	PK	4.86908G	51.79	74.00	-22.21	3	Vertical	0	1.80
2437MHz	Pass	PK	7.3085G	52.55	74.00	-21.45	3	Vertical	104	2.74
2437MHz	Pass	AV	4.88368G	33.82	54.00	-20.18	3	Horizontal	138	1.28
2437MHz	Pass	AV	7.3044G	39.24	54.00	-14.76	3	Horizontal	207	1.50
2437MHz	Pass	PK	4.87164G	47.16	74.00	-26.84	3	Horizontal	138	1.28
2437MHz	Pass	PK	7.30288G	52.70	74.00	-21.30	3	Horizontal	207	1.50
2457MHz	Pass	AV	2.4582G	104.49	Inf	-Inf	3	Vertical	322	2.45
2457MHz	Pass	AV	2.4836G	52.01	54.00	-1.99	3	Vertical	322	2.45
2457MHz	Pass	PK	2.4588G	114.63	Inf	-Inf	3	Vertical	322	2.45
2457MHz	Pass	PK	2.4836G	69.34	74.00	-4.66	3	Vertical	322	2.45
2457MHz	Pass	AV	2.4586G	97.15	Inf	-Inf	3	Horizontal	198	2.85
2457MHz	Pass	AV	2.484G	47.26	54.00	-6.74	3	Horizontal	198	2.85
2457MHz	Pass	PK	2.4584G	106.20	Inf	-Inf	3	Horizontal	198	2.85
2457MHz	Pass	PK	2.4838G	62.34	74.00	-11.66	3	Horizontal	198	2.85
2462MHz	Pass	AV	2.4612G	103.75	Inf	-Inf	3	Vertical	222	2.06
2462MHz	Pass	AV	2.4835G	52.68	54.00	-1.32	3	Vertical	222	2.06
2462MHz	Pass	PK	2.4614G	113.00	Inf	-Inf	3	Vertical	222	2.06
2462MHz	Pass	PK	2.4836G	70.13	74.00	-3.87	3	Vertical	222	2.06
2462MHz	Pass	AV	2.4612G	95.77	Inf	-Inf	3	Horizontal	198	2.85
2462MHz	Pass	AV	2.4835G	47.34	54.00	-6.66	3	Horizontal	198	2.85
2462MHz	Pass	PK	2.4612G	105.34	Inf	-Inf	3	Horizontal	198	2.85
2462MHz	Pass	PK	2.4835G	61.91	74.00	-12.09	3	Horizontal	198	2.85
2462MHz	Pass	AV	4.92088G	34.58	54.00	-19.42	3	Vertical	0	1.72

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
2462MHz	Pass	AV	7.37632G	38.99	54.00	-15.01	3	Vertical	210	1.37
2462MHz	Pass	PK	4.92432G	50.10	74.00	-23.90	3	Vertical	0	1.72
2462MHz	Pass	PK	7.39144G	51.69	74.00	-22.31	3	Vertical	210	1.37
2462MHz	Pass	AV	4.915G	34.08	54.00	-19.92	3	Horizontal	275	2.73
2462MHz	Pass	AV	7.39024G	38.89	54.00	-15.11	3	Horizontal	258	1.86
2462MHz	Pass	PK	4.9186G	47.09	74.00	-26.91	3	Horizontal	275	2.73
2462MHz	Pass	PK	7.38984G	52.36	74.00	-21.64	3	Horizontal	258	1.86
802.11ax HEW20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	AV	2.3886G	52.46	54.00	-1.54	3	Vertical	162	1.60
2412MHz	Pass	AV	2.4112G	102.35	Inf	-Inf	3	Vertical	162	1.60
2412MHz	Pass	PK	2.386G	66.96	74.00	-7.04	3	Vertical	162	1.60
2412MHz	Pass	PK	2.4114G	113.08	Inf	-Inf	3	Vertical	162	1.60
2412MHz	Pass	AV	2.389G	48.18	54.00	-5.82	3	Horizontal	343	2.63
2412MHz	Pass	AV	2.4116G	94.61	Inf	-Inf	3	Horizontal	343	2.63
2412MHz	Pass	PK	2.3894G	61.93	74.00	-12.07	3	Horizontal	343	2.63
2412MHz	Pass	PK	2.4114G	105.41	Inf	-Inf	3	Horizontal	343	2.63
2412MHz	Pass	AV	4.82428G	37.64	54.00	-16.36	3	Vertical	360	1.61
2412MHz	Pass	PK	4.82408G	50.68	74.00	-23.32	3	Vertical	360	1.61
2412MHz	Pass	AV	4.83228G	33.60	54.00	-20.40	3	Horizontal	244	1.19
2412MHz	Pass	PK	4.82084G	47.16	74.00	-26.84	3	Horizontal	244	1.19
2417MHz	Pass	AV	2.3884G	52.42	54.00	-1.58	3	Vertical	154	2.58
2417MHz	Pass	AV	2.416G	103.47	Inf	-Inf	3	Vertical	154	2.58
2417MHz	Pass	PK	2.3888G	67.89	74.00	-6.11	3	Vertical	154	2.58
2417MHz	Pass	PK	2.4162G	116.83	Inf	-Inf	3	Vertical	154	2.58
2417MHz	Pass	AV	2.39G	47.87	54.00	-6.13	3	Horizontal	328	2.61
2417MHz	Pass	AV	2.4194G	94.95	Inf	-Inf	3	Horizontal	328	2.61
2417MHz	Pass	PK	2.3896G	61.58	74.00	-12.42	3	Horizontal	328	2.61
2417MHz	Pass	PK	2.4148G	106.81	Inf	-Inf	3	Horizontal	328	2.61
2437MHz	Pass	AV	2.3882G	52.60	54.00	-1.40	3	Vertical	344	2.32
2437MHz	Pass	AV	2.4378G	107.46	Inf	-Inf	3	Vertical	344	2.32
2437MHz	Pass	AV	2.4835G	52.59	54.00	-1.41	3	Vertical	344	2.32
2437MHz	Pass	PK	2.3886G	68.93	74.00	-5.07	3	Vertical	344	2.32
2437MHz	Pass	PK	2.4358G	120.19	Inf	-Inf	3	Vertical	344	2.32
2437MHz	Pass	PK	2.4854G	71.31	74.00	-2.69	3	Vertical	344	2.32
2437MHz	Pass	AV	2.3894G	47.41	54.00	-6.59	3	Horizontal	200	1.87
2437MHz	Pass	AV	2.4366G	98.82	Inf	-Inf	3	Horizontal	200	1.87
2437MHz	Pass	AV	2.4835G	47.23	54.00	-6.77	3	Horizontal	200	1.87
2437MHz	Pass	PK	2.387G	62.70	74.00	-11.30	3	Horizontal	200	1.87
2437MHz	Pass	PK	2.4342G	109.74	Inf	-Inf	3	Horizontal	200	1.87
2437MHz	Pass	PK	2.4886G	61.05	74.00	-12.95	3	Horizontal	200	1.87
2437MHz	Pass	AV	4.8692G	36.82	54.00	-17.18	3	Vertical	360	1.56
2437MHz	Pass	AV	7.30592G	39.04	54.00	-14.96	3	Vertical	217	2.70
2437MHz	Pass	PK	4.86956G	49.27	74.00	-24.73	3	Vertical	360	1.56
2437MHz	Pass	PK	7.31084G	51.97	74.00	-22.03	3	Vertical	217	2.70
2437MHz	Pass	AV	4.88036G	33.69	54.00	-20.31	3	Horizontal	0	1.63
2437MHz	Pass	AV	7.30884G	39.06	54.00	-14.94	3	Horizontal	318	2.48
2437MHz	Pass	PK	4.86496G	47.12	74.00	-26.88	3	Horizontal	0	1.63
2437MHz	Pass	PK	7.30416G	51.74	74.00	-22.26	3	Horizontal	318	2.48
2457MHz	Pass	AV	2.4564G	104.20	Inf	-Inf	3	Vertical	14	2.09
2457MHz	Pass	AV	2.484G	52.64	54.00	-1.36	3	Vertical	14	2.09
2457MHz	Pass	PK	2.4592G	116.63	Inf	-Inf	3	Vertical	14	2.09
2457MHz	Pass	PK	2.4838G	69.41	74.00	-4.59	3	Vertical	14	2.09
2457MHz	Pass	AV	2.4562G	96.17	Inf	-Inf	3	Horizontal	357	2.23
2457MHz	Pass	AV	2.4835G	48.32	54.00	-5.68	3	Horizontal	357	2.23
2457MHz	Pass	PK	2.456G	108.20	Inf	-Inf	3	Horizontal	357	2.23
2457MHz	Pass	PK	2.4838G	63.81	74.00	-10.19	3	Horizontal	357	2.23
2462MHz	Pass	AV	2.4612G	101.08	Inf	-Inf	3	Vertical	161	2.00
2462MHz	Pass	AV	2.4835G	52.33	54.00	-1.67	3	Vertical	161	2.00
2462MHz	Pass	PK	2.4638G	113.35	Inf	-Inf	3	Vertical	161	2.00
2462MHz	Pass	PK	2.4836G	69.52	74.00	-4.48	3	Vertical	161	2.00
2462MHz	Pass	AV	2.4616G	91.75	Inf	-Inf	3	Horizontal	345	2.86
2462MHz	Pass	AV	2.484G	47.10	54.00	-6.90	3	Horizontal	345	2.86

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
2462MHz	Pass	PK	2.464G	105.34	Inf	-Inf	3	Horizontal	345	2.86
2462MHz	Pass	PK	2.484G	60.74	74.00	-13.26	3	Horizontal	345	2.86
2462MHz	Pass	AV	4.9242G	35.97	54.00	-18.03	3	Vertical	360	1.79
2462MHz	Pass	AV	7.38924G	38.84	54.00	-15.16	3	Vertical	319	2.88
2462MHz	Pass	PK	4.92684G	48.81	74.00	-25.19	3	Vertical	360	1.79
2462MHz	Pass	PK	7.38312G	51.38	74.00	-22.62	3	Vertical	319	2.88
2462MHz	Pass	AV	4.91708G	33.98	54.00	-20.02	3	Horizontal	50	1.50
2462MHz	Pass	AV	7.37656G	38.72	54.00	-15.28	3	Horizontal	205	1.40
2462MHz	Pass	PK	4.92212G	47.12	74.00	-26.88	3	Horizontal	50	1.50
2462MHz	Pass	PK	7.3828G	51.38	74.00	-22.62	3	Horizontal	205	1.40

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

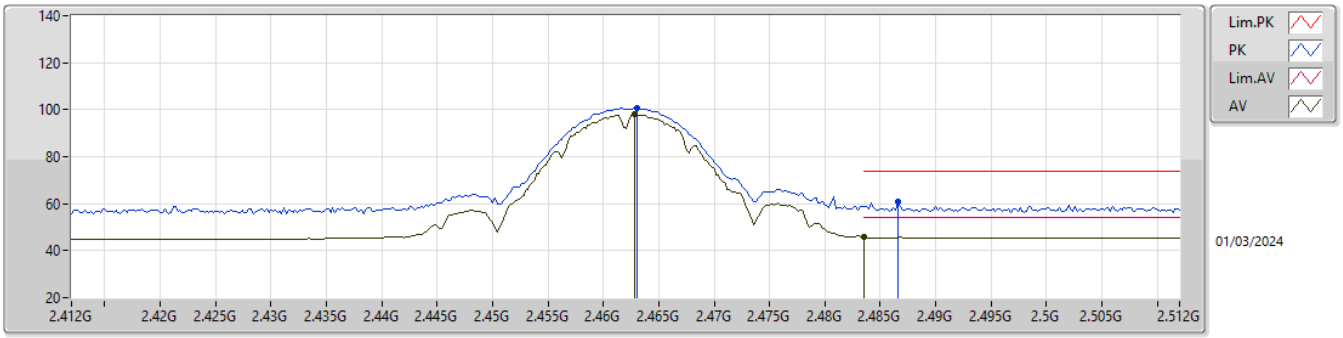
2462MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	(dBuV)	(dB)	(dB)	(dB)
AV	2.4626G	109.14	Inf	-Inf	33.09	3	Vertical	308	2.20	76.05	27.60	5.49	-
AV	2.4835G	52.09	54.00	-1.91	33.25	3	Vertical	308	2.20	18.84	27.74	5.51	-
PK	2.463G	111.84	Inf	-Inf	33.09	3	Vertical	308	2.20	78.75	27.60	5.49	-
PK	2.4852G	71.99	74.00	-2.01	33.27	3	Vertical	308	2.20	38.72	27.75	5.52	-

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

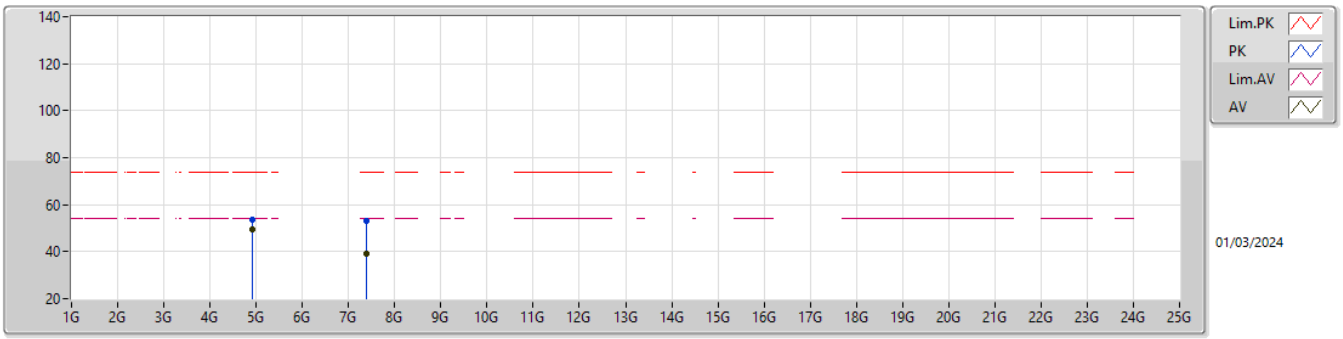
2462MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	(dBuV)	(dB)	(dB)	(dB)
AV	2.4628G	98.00	Inf	-Inf	33.09	3	Horizontal	197	1.86	64.91	27.60	5.49	-
AV	2.4835G	46.12	54.00	-7.88	33.25	3	Horizontal	197	1.86	12.87	27.74	5.51	-
PK	2.463G	100.67	Inf	-Inf	33.09	3	Horizontal	197	1.86	67.58	27.60	5.49	-
PK	2.4866G	60.86	74.00	-13.14	33.29	3	Horizontal	197	1.86	27.57	27.77	5.52	-

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

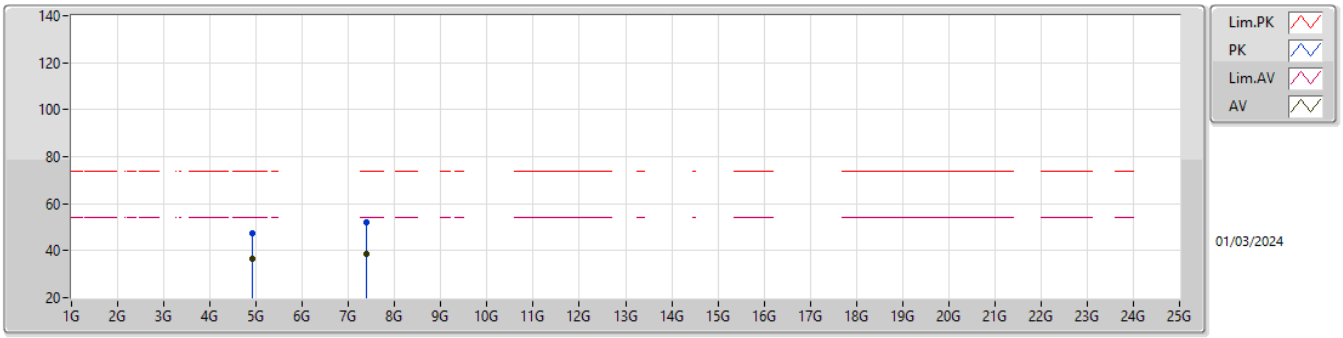
2462MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	(dBuV)	(dB)	(dB)	(dB)
AV	4.924G	49.50	54.00	-4.50	6.67	3	Vertical	3	2.14	42.83	32.70	7.97	34.00
AV	7.38504G	38.89	54.00	-15.11	11.64	3	Vertical	198	2.64	27.25	36.46	9.53	34.35
PK	4.92392G	53.59	74.00	-20.41	6.67	3	Vertical	3	2.14	46.92	32.70	7.97	34.00
PK	7.38552G	53.17	74.00	-20.83	11.64	3	Vertical	198	2.64	41.53	36.46	9.53	34.35

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

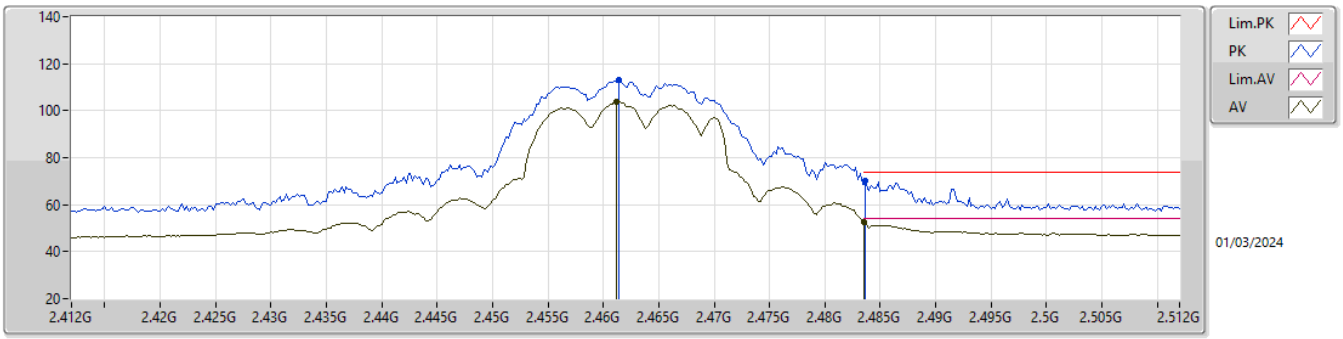
2462MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	(dBuV)	(dB)	(dB)	(dB)
AV	4.92392G	36.40	54.00	-17.60	6.67	3	Horizontal	349	1.98	29.73	32.70	7.97	34.00
AV	7.38672G	38.55	54.00	-15.45	11.63	3	Horizontal	303	1.50	26.92	36.45	9.53	34.35
PK	4.92392G	47.61	74.00	-26.39	6.67	3	Horizontal	349	1.98	40.94	32.70	7.97	34.00
PK	7.38664G	51.88	74.00	-22.12	11.63	3	Horizontal	303	1.50	40.25	36.45	9.53	34.35

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

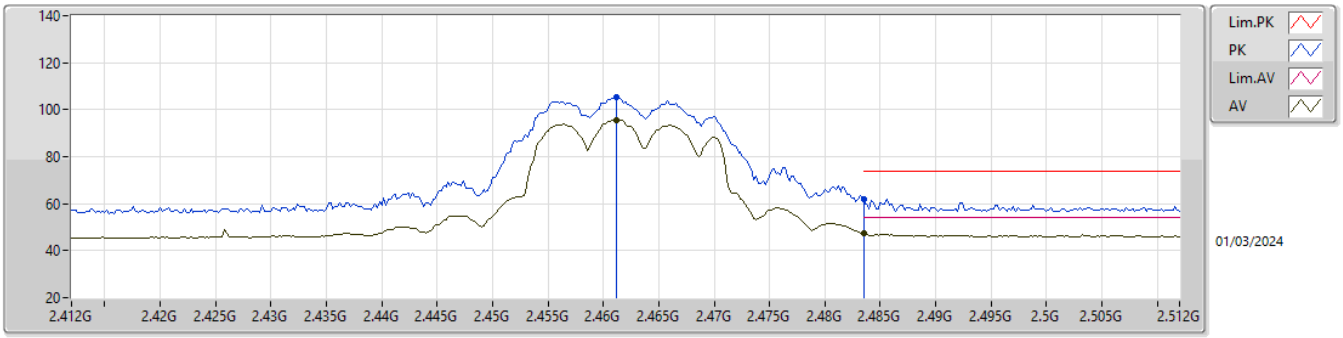
2462MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	(dBuV)	(dB)	(dB)	(dB)
AV	2.4612G	103.75	Inf	-Inf	33.09	3	Vertical	222	2.06	70.66	27.60	5.49	-
AV	2.4835G	52.68	54.00	-1.32	33.25	3	Vertical	222	2.06	19.43	27.74	5.51	-
PK	2.4614G	113.00	Inf	-Inf	33.09	3	Vertical	222	2.06	79.91	27.60	5.49	-
PK	2.4836G	70.13	74.00	-3.87	33.25	3	Vertical	222	2.06	36.88	27.74	5.51	-

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

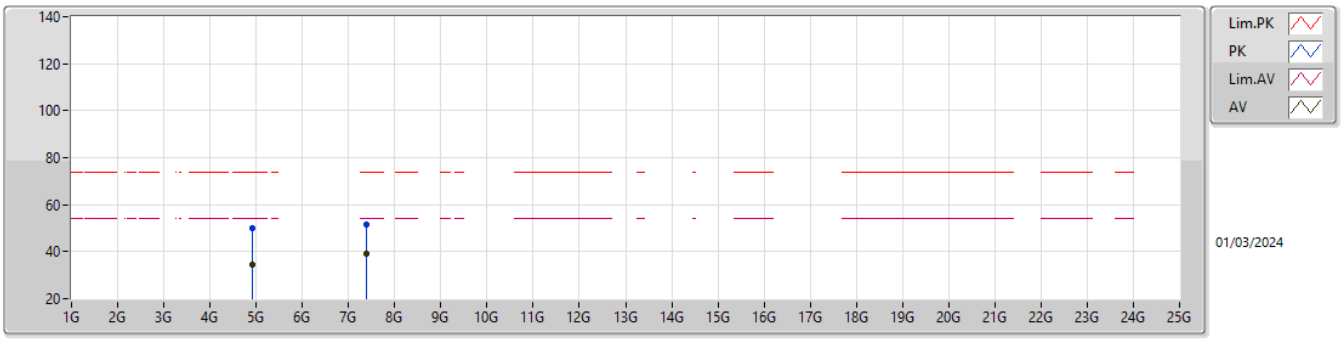
2462MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	(dBuV)	(dB)	(dB)	(dB)
AV	2.4612G	95.77	Inf	-Inf	33.09	3	Horizontal	198	2.85	62.68	27.60	5.49	-
AV	2.4835G	47.34	54.00	-6.66	33.25	3	Horizontal	198	2.85	14.09	27.74	5.51	-
PK	2.4612G	105.34	Inf	-Inf	33.09	3	Horizontal	198	2.85	72.25	27.60	5.49	-
PK	2.4835G	61.91	74.00	-12.09	33.25	3	Horizontal	198	2.85	28.66	27.74	5.51	-

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

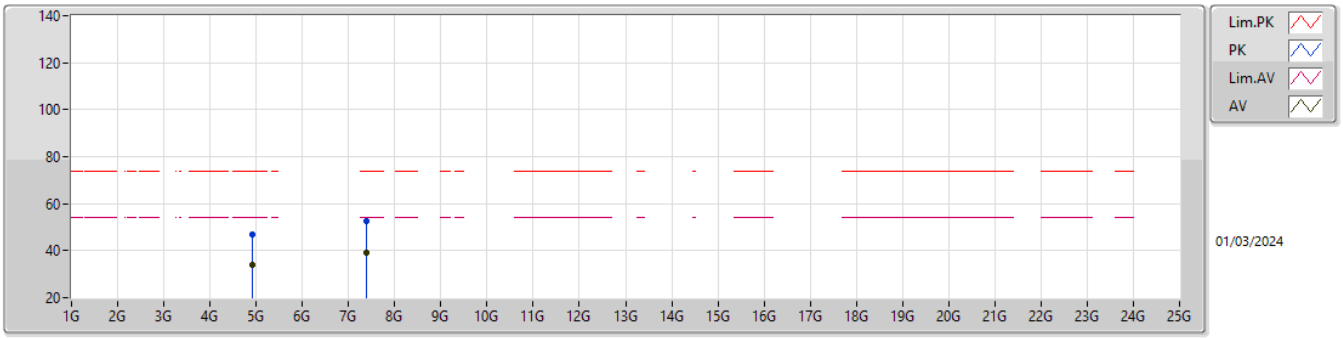
2462MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	(dBuV)	(dB)	(dB)	(dB)
AV	4.92088G	34.58	54.00	-19.42	6.65	3	Vertical	0	1.72	27.93	32.68	7.97	34.00
AV	7.37632G	38.99	54.00	-15.01	11.67	3	Vertical	210	1.37	27.32	36.49	9.53	34.35
PK	4.92432G	50.10	74.00	-23.90	6.67	3	Vertical	0	1.72	43.43	32.70	7.97	34.00
PK	7.39144G	51.69	74.00	-22.31	11.61	3	Vertical	210	1.37	40.08	36.43	9.53	34.35

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

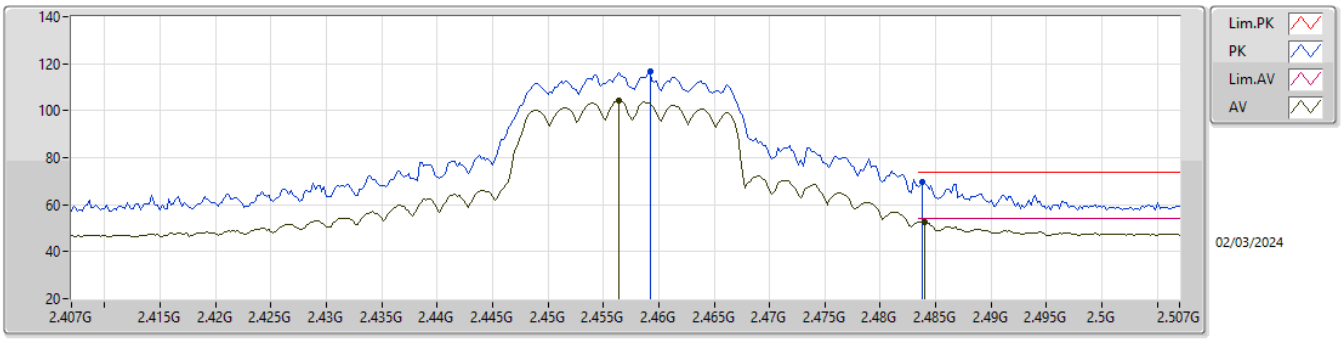
2462MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	(dBuV)	(dB)	(dB)	(dB)
AV	4.915G	34.08	54.00	-19.92	6.63	3	Horizontal	275	2.73	27.45	32.66	7.97	34.00
AV	7.39024G	38.89	54.00	-15.11	11.62	3	Horizontal	258	1.86	27.27	36.44	9.53	34.35
PK	4.9186G	47.09	74.00	-26.91	6.64	3	Horizontal	275	2.73	40.45	32.67	7.97	34.00
PK	7.38984G	52.36	74.00	-21.64	11.62	3	Horizontal	258	1.86	40.74	36.44	9.53	34.35

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

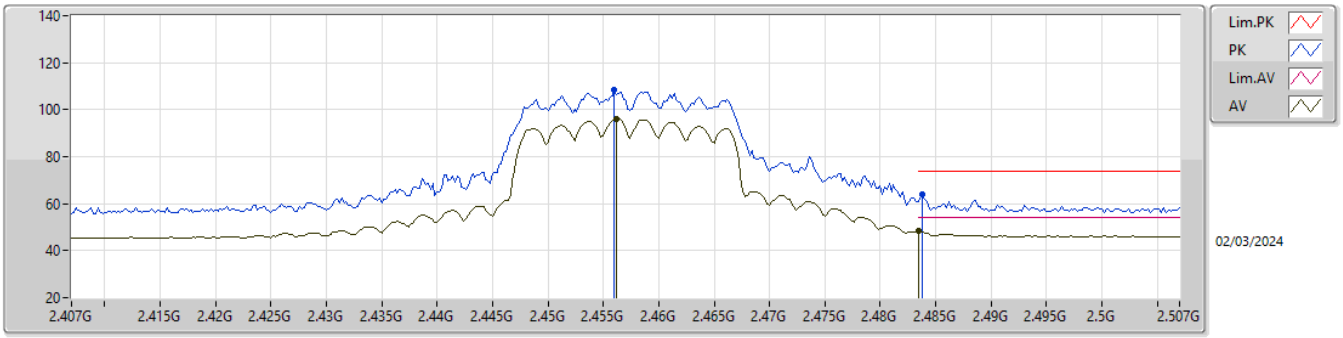
2457MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	(dBuV)	(dB)	(dB)	(dB)
AV	2.4564G	104.20	Inf	-Inf	33.08	3	Vertical	14	2.09	71.12	27.60	5.48	-
AV	2.484G	52.64	54.00	-1.36	33.26	3	Vertical	14	2.09	19.38	27.74	5.52	-
PK	2.4592G	116.63	Inf	-Inf	33.08	3	Vertical	14	2.09	83.55	27.60	5.48	-
PK	2.4838G	69.41	74.00	-4.59	33.25	3	Vertical	14	2.09	36.16	27.74	5.51	-

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

2457MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	(dBuV)	(dB)	(dB)	(dB)
AV	2.4562G	96.17	Inf	-Inf	33.08	3	Horizontal	357	2.23	63.09	27.60	5.48	-
AV	2.4835G	48.32	54.00	-5.68	33.25	3	Horizontal	357	2.23	15.07	27.74	5.51	-
PK	2.456G	108.20	Inf	-Inf	33.08	3	Horizontal	357	2.23	75.12	27.60	5.48	-
PK	2.4838G	63.81	74.00	-10.19	33.25	3	Horizontal	357	2.23	30.56	27.74	5.51	-