Testing Laboratory 3785

FCC Radio Test Report

FCC ID	:	**TVE-41417T07866**
Equipment	:	**Secured Wireless Access Point**
Brand Name	:	**FORTINET**
Model Name	:	**FortiAP 831Fxxxxxx, FAP-831Fxxxxxx, FORTIAP-831Fxxxxxx (where "x" can be "A-Z", or "0-9", or "-", or blank for software purposes or marketing purposes only)**
Applicant	:	**Fortinet, Inc. 899 Kifer Road, Sunnyvale, CA 94086, USA**
Manufacturer	:	**Fortinet, Inc. 899 Kifer Road, Sunnyvale, CA 94086, USA**
Standard	:	**47 CFR FCC Part 15.247**

The product was received on Aug. 02, 2021, and testing was started from Aug. 09, 2021 and completed on Aug. 20, 2021. 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: Allen Lin

SPORTON INTERNATIONAL INC. Hsinhua Laboratory

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PHOTOGRAPHS OF EUT V01

History of this test report

Report No.	Version	Description	Issued Date
FR111206-03AZ	01	Initial issue of report	Aug. 30, 2021

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:
None

Reviewed by: Sam Tsai
Report Producer: Debby Hung

1 General Description

1.1 Information

1.1.1 RF General Information

Frequency Range (MHz)	IEEE Std.	Ch. Frequency (MHz)	Channel Number
2400-2483.5	802.15.4	2405-2480	11-26 [16]

Band	Mode	BWch (MHz)	Nant
2.4-2.4835GHz	Zigbee	5	1TX

Note:.
- Zigbee uses a O-QPSK (250kbps) modulation for DSSS.
- BWch is the nominal channel bandwidth.

1.1.2 Antenna Information

Ant.	Brand	Model Name	Antenna Type	Connector
1	Senao	5718A0607300	PIFA	I-Pex
2	Senao	5718A0608300	PIFA	I-Pex
3	Senao	5718A0609300	PIFA	I-Pex
4	Senao	5718A0610300	PIFA	I-Pex
5	Senao	5718A0611300	PIFA	I-Pex
6	Senao	5718A0612300	PIFA	I-Pex
7	Senao	5718A0613300	PIFA	I-Pex
8	Senao	5718A0614300	PIFA	I-Pex
9	Senao	5718A0611300	PIFA	I-Pex
10	Senao	5718A0612300	PIFA	I-Pex
11	Senao	5718A0613300	PIFA	I-Pex
12	Senao	5718A0614300	PIFA	I-Pex
13	Senao	5718A0615300	PIFA	I-Pex
14	Senao	5718A0616300	Dipole	I-Pex

Ant.	2.4GHz		5GHz			BT LE Zigbee	Remark	
	Max. Peak Gain(dBi)	Correlated Gain(dBi)	Max. Peak Gain(dBi)	Correlated Gain(dBi)		Antenna Gain(dBi)		
1	4.4	6.7	-	-		-	Radio 2, 4*4	
2	4.49	6.7					Radio 2, 4*4	
3	4.32	6.7					Radio 2, 4*4	
4	4.14	6.7					Radio 2, 4*4	
5	-	-	6.10	Band1:9.52 Band2:9.01 Band3:7.95 Band4:7.84	Band1:7.23 Band2:7.18	-	Radio 1 8*8 mode	Radio 1 4*4 mode Low Band Mode
6			6.21					
7			6.11					
8			6.12					
9			6.24		Band3:6.09 Band4:7.44			Radio 1 4*4 mode Hi Band mode
10			6.20					
11			6.27					
12			6.13					
13	4.69	-	4.60	-		-	Radio 3	
14	-	-	-			5.20	BT+ Zigbee	

For 2.4 GHz function:
Radio 2
For IEEE 802.11b/g/n/VHT/ax mode (4TX/4RX)
Ant.1, Ant.2, Ant.3, and Ant.4 could transmit/receive simultaneously.
Radio 3(Scan radio)
For IEEE 802.11b/g/n mode (1TX/1RX)
Only Ant.13 can be used as transmitting/receiving.
For 5 GHz function:
Radio 1
For IEEE 802.11a/n/ac/ax mode (8TX/8RX)
Ant.5, Ant.6, Ant.7, Ant.8, Ant.9, Ant.10, Ant.11 and Ant.12 could transmit/receive simultaneously.
For IEEE 802.11a/n/ac/ax mode (4TX/4RX) (Low Band mode)
Ant.5, Ant.6, Ant.7, and Ant.8 could transmit/receive simultaneously.
For IEEE 802.11a/n/ac/ax mode (4TX/4RX) (Hi Band mode)
Ant.9, Ant.10, Ant.11 and Ant.12 could transmit/receive simultaneously.
Radio 3(Scan radio)
For IEEE 802.11a/n/ac mode (1TX/1RX)
Only Ant.13 can be used as transmitting/receiving.
For Bluetooth function:
For Bluetooth mode (1TX/1RX)

Only Ant.14 can be used as transmitting/receiving.

For Zigbee function:

For Zigbee mode (1TX/1RX)

Only Ant.14 can be used as transmitting/receiving.

1.1.3 EUT Information

Operational Condition				
EUT Power Type	From AC Adapter / PoE			
EUT Function	☒	Point-to-multipoint	☐	Point-to-point
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

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
Zigbee	0.112	9.51	1.247m	1k

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

1.1.5 Table for Multiple Listing

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

Brand Name	Model Name	Description
FORTINET	FortiAP 831Fxxxxxx, FAP-831Fxxxxxx, FORTIAP-831Fxxxxxx (where “x” can be “A-Z”, or “0-9”, or “-“, or blank for software purposes or marketing purposes only)	All the models are identical, the difference model for difference brand served as marketing strategy.

1.1.6 Table for Permissive Change

This product is an extension of original one reported under Sporton project number: FR111206AC

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

Modifications	Performance Checking
The Zigbee function was added	All RF Test items

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 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	24.9~25.2°C / 58~60%	11/Aug/2021
RF Conducted	TH07-HY	Alan Chien	20.1~26.9°C / 50~60%	20/Aug/2021
Radiated	03CH02-HY	Lego Lin	22.7~23.1°C / 51~53%	09/Aug/2021~17/Aug/2021
☐ 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
Conducted Emission (150kHz ~ 30MHz)	0.9 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	2.4 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	3.7 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.6 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.0 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	SmartRF_Studio_7-2.17.0

Mode	Power Setting
Zigbee	-
2405MHz	10
2440MHz	10
2475MHz	10
2480MHz	4

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
2	PoE 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		
2	PoE 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
Operating Mode	CTX
1	Radio1: WLAN 5G(8*8)+Radio2: WLAN 2.4G+Radio3: WLAN 2.4G+BT
2	Radio1: WLAN 5G(8*8)+Radio2: WLAN 2.4G+Radio3: WLAN 5G+BT
3	Radio1: WLAN 5G(4*4 Hi+4*4 Low)+Radio2: WLAN 2.4G+Radio3: WLAN 2.4G+BT
4	Radio1: WLAN 5G(4*4 Hi+4*4 Low)+Radio2: WLAN 2.4G+Radio3: WLAN 5G+BT
5	Radio1: WLAN 5G(8*8)+Radio2: WLAN 2.4G+Radio3: WLAN 2.4G+ Zigbee
6	Radio1: WLAN 5G(8*8)+Radio2: WLAN 2.4G+Radio3: WLAN 5G+ Zigbee
7	Radio1: WLAN 5G(4*4 Hi+4*4 Low)+Radio2: WLAN 2.4G+Radio3: WLAN 2.4G+ Zigbee
8	Radio1: WLAN 5G(4*4 Hi+4*4 Low)+Radio2: WLAN 2.4G+Radio3: WLAN 5G+ Zigbee
Refer to Sporton Test Report No.: FA111206-03 for Co-location RF Exposure Evaluation.	

2.3 Accessories

Accessories				
Bracket ceiling mount 1	Brand Name	Senao Networks, Inc.	Model Name	CLIP CEILING 9/16 LFP
Bracket ceiling mount 2	Brand Name	Senao Networks, Inc.	Model Name	CLIP CEILING 15/16 LFP

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

2.4 Support Equipment

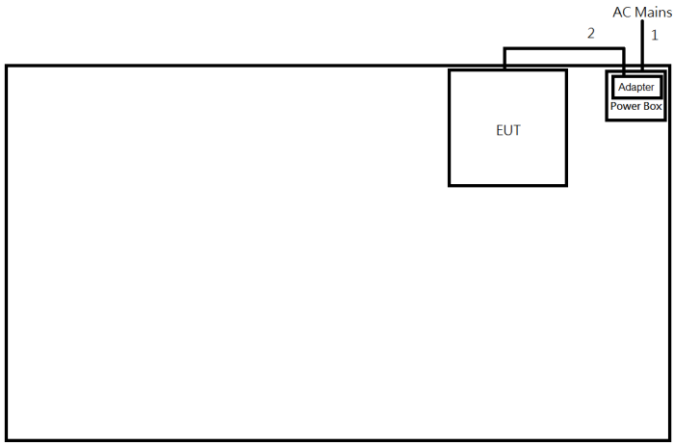
Support Equipment – AC Conduction					
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**	**Remark**
1	PoE	SENAO	EPA5006GPR	-	Provided by Customer
2	AC Power Cable	EnGenius	7003A0051000	-	Provided by Customer
3	Adapter	ASIAN POWER DEVICES INC.	WA-48A12R	-	Provided by Customer
4	RJ45 Cable	Power Sync	CAT-6E-10	-	-

Support Equipment – Conducted					
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**	**Remark**
1	Notebook	DELL	E5410	-	-
2	Adapter for NB	DELL	HA65NM130	-	-

Support Equipment – Radiated					
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**	**Remark**
1	Adatper	Asian Power Devices	WA-48A12R	-	Provided by Customer
2	RJ45 Cable	Power Sync	CAT-6E-10	-	-
3	PoE	SENAO	EPA5006GPR	-	Remote / Provided by Customer
4	AC Power Cable	EnGenius	7003A0051000	-	Remote / Provided by Customer

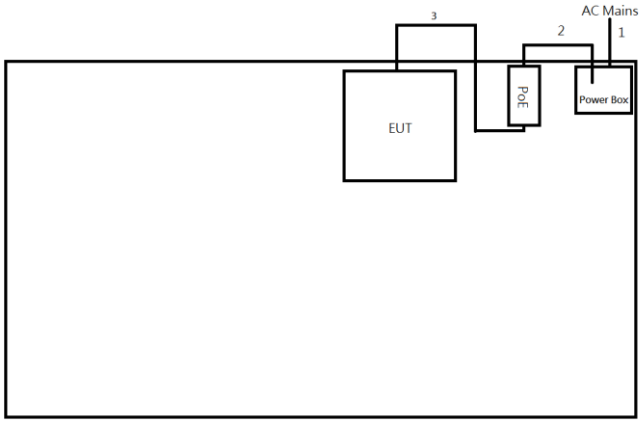
2.5 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test _Adapter mode



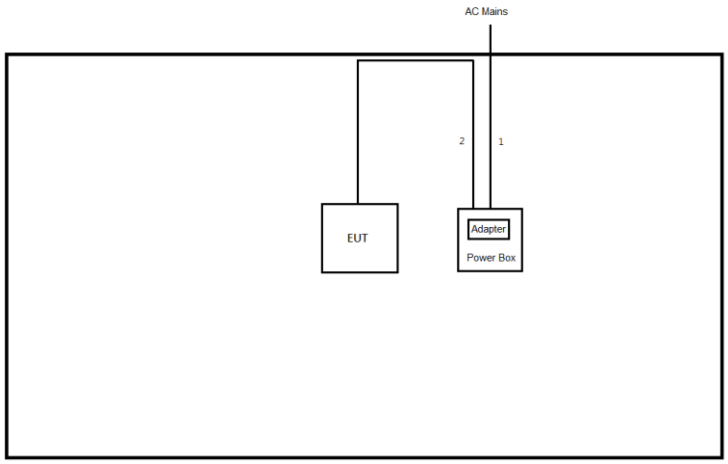
Item	Connection	Shielded	Length(m)	Remark
1	AC Power cable	No	1.2	-
2	DC Power cable	No	1.5	-

Test Setup Diagram – AC Line Conducted Emission Test _PoE mode



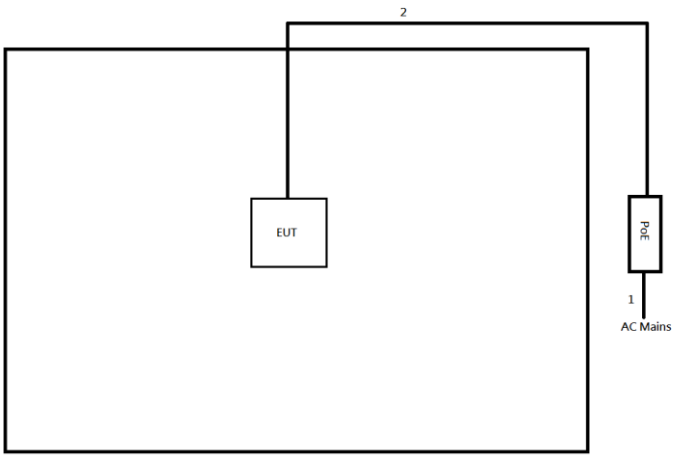
Item	Connection	Shielded	Length(m)	Remark
1	AC Power cable	No	1.2	-
2	AC Power cable	No	0.5	-
3	RJ45 cable	No	10.0	-

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	-

Test Setup Diagram - Radiated Test _PoE mode



Item	Connection	Shielded	Length(m)	Remark
1	AC Power cable	No	0.5	-
2	RJ45 cable	No	10.0	-

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

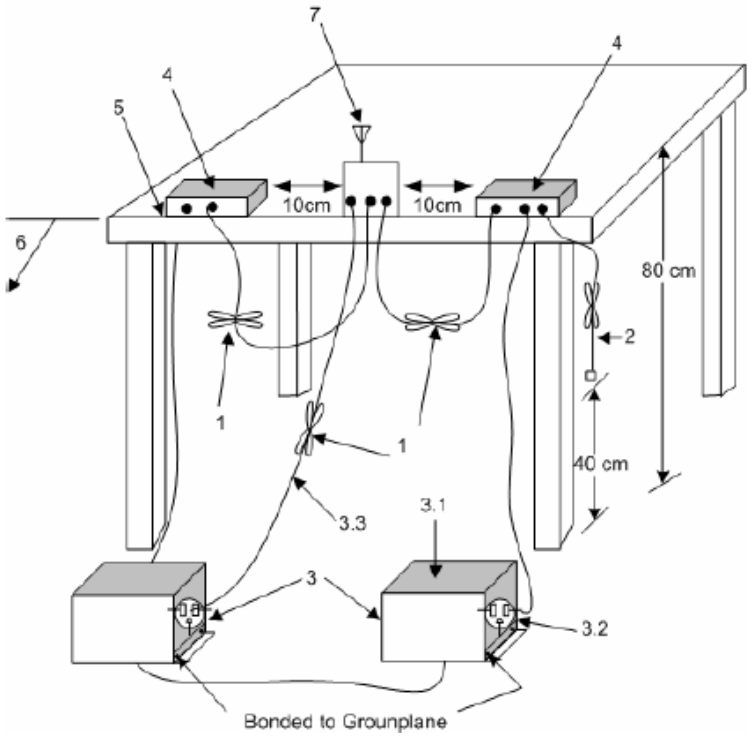
Test Method
☒ Refer as ANSI C63.10-2013, clause 6.2 for AC power-line conducted emissions.

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

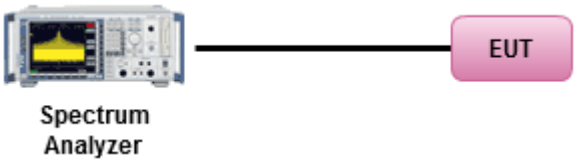
Refer a test equipment and calibration data table in this test report.

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 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} ≤ 6 dBi, then P_{Out} ≤ 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 + 8dB dBm	
e.i.r.p. Power Limit:			
▪ 2400-2483.5 MHz Band			
	▪ Point-to-multipoint systems (P2M): P_{eirp} ≤ 36 dBm (4 W)		
	▪ Point-to-point systems (P2P): P_{eirp} ≤ MAX(36, [P_{Out} + G_{TX}]) dBm		
	▪ Smart antenna system (SAS)		
		- Single beam: P_{eirp} ≤ MAX(36, P_{Out} + G_{TX}) dBm	
		- Overlap beam: P_{eirp} ≤ MAX(36, P_{Out} + G_{TX}) dBm	
		- Aggregate power on all beams: P_{eirp} ≤ 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

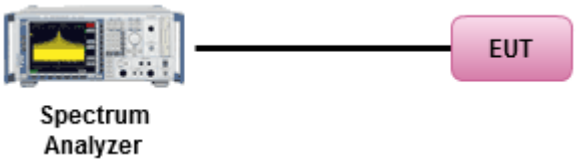
3.4.2 Measuring Instruments

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.	

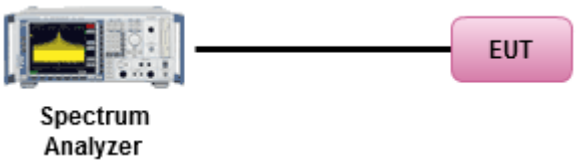
3.5.2 Measuring Instruments

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.

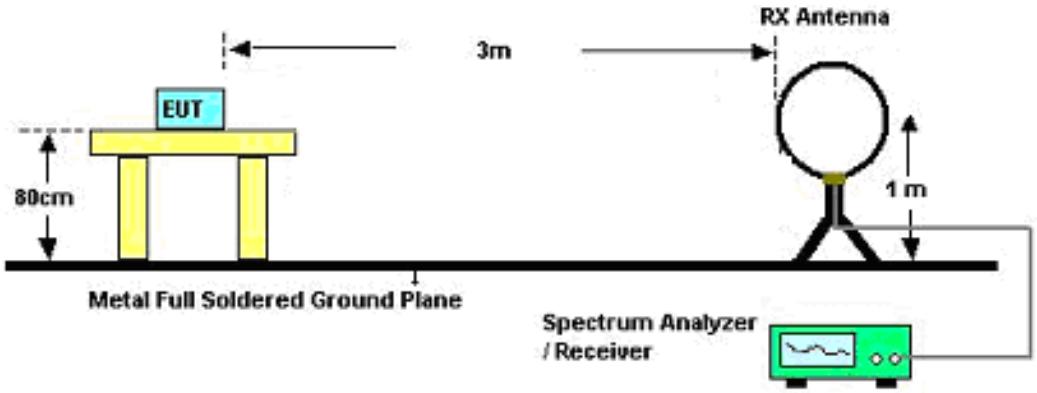
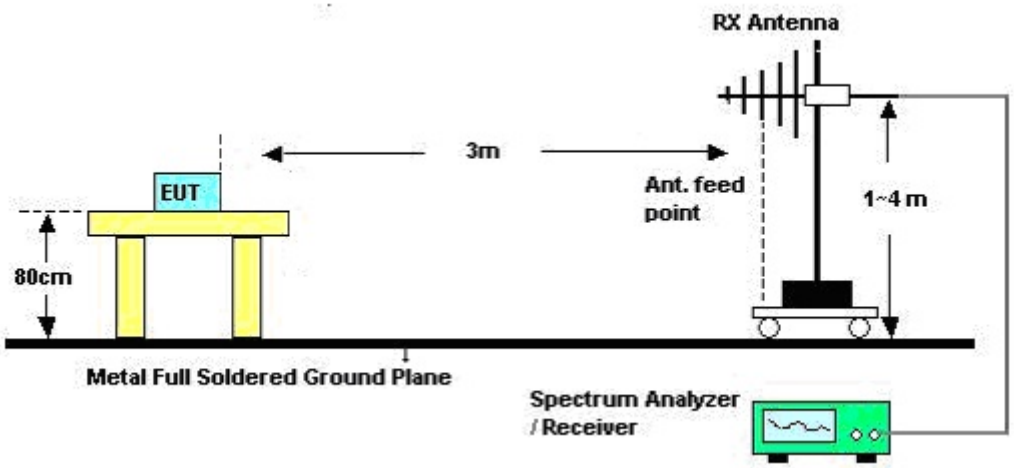
3.6.3 Test Procedures

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 (i.e., 1 MHz).
▪	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.

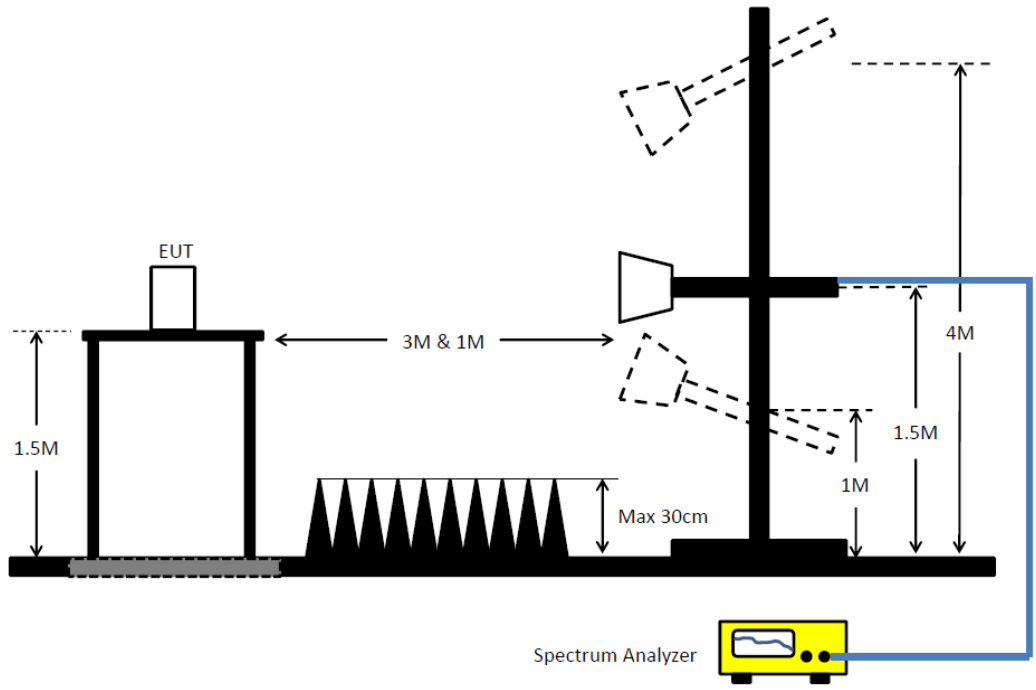
3.6.4 Measurement Results Calculation

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	102052	9kHz ~ 3.6GHz	19/Apr/2021	18/Apr/2022
LISN	R&S	ENV216	101295	9kHz ~ 30MHz	11/Nov/2020	10/Nov/2021
RF Cable 5m	TITAN	TITAN	CO04-cable-01	0.1MHz~200MHz	03/Mar/2021	02/Mar/2022
Impuls Begrenzer Pulse Limiter	SCHWARZBECK	VTSD 9561-F	9561-F041	9kHz ~ 30MHz	21/Sep/2020	20/Sep/2021

Instrument for Conducted Test

Instrument	Manufacturer /Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Signal Analyzer	R&S	FSV 40	101515	10Hz~40GHz	26/Mar/2021	25/Mar/2022
SMB100A Signal Generator	R&S	SMB100A03	181147	100kHz~40GHz	20/Oct/2020	19/Oct/2021
Pulse Sensor	Anritsu	MA2411B	1339407	300MHz~40GHz	27/Nov/2020	26/Nov/2021
Power Meter	Anritsu	ML2495A	1517010	300MHz~40GHz	27/Nov/2020	26/Nov/2021

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	03CH02-HY	30MHz~1GHz 3m	03/Aug/2021	02/Aug/2022
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH02-HY	1GHz~18GHz 3m	01/Aug/2021	31/Jul/2022
Signal Analyzer	R&S	FSP40	100593	9kHz~40GHz	12/Mar/2021	11/Mar/2022
Amplifier	Agilent	8447D	2944A11149	100kHz~1.3GHz	29/Jun/2021	28/Jun/2022
Microwave Preamplifier	Agilent	8449B	3008A02373	1GHz~26.5GHz	23/Oct/2020	22/Oct/2021
Bilog Antenna & 5dB Attenuator	SCHAFFNER / MTJ	CBL 6112B / MTJ6102-05	2723 / 2	30MHz~1GHz	06/Sep/2020	05/Sep/2021
Double Ridged Guide Horn Antenna	SCHWARZBEC	BBHA 9120 D	BBHA 9120 D 01543	1GHz~18GHz	04/Jun/2021	03/Jun/2022
RF Cable	MVE	400LL	MVE-1-0802	9kHz~30MHz	05/May/2021	04/May/2022
RF Cable	MVE	400LL	MVE-1-0802	30MHz~1GHz	05/May/2021	04/May/2022
RF Cable-R03m	HUBER+SUHNER	SUCOFLEX104	805193/4+805192/4	1GHz~40GHz	06/Apr/2021	05/Apr/2022
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA 9170221	15GHz~40GHz	11/Mar/2021	10/Mar/2022
Microwave Premplifier	EMC INSTRUMENTS	EM18G40G	060604	18GHz~40GHz	09/Mar/2021	08/Mar/2022
Loop Antenna	TESEQ	HLA 6120	31244	9kHz~30MHz	16/Mar/2021	15/Mar/2022
EMI Test Receiver	R&S	ESR3	102052	9kHz~3.6GHz	19/Apr/2021	18/Apr/2022

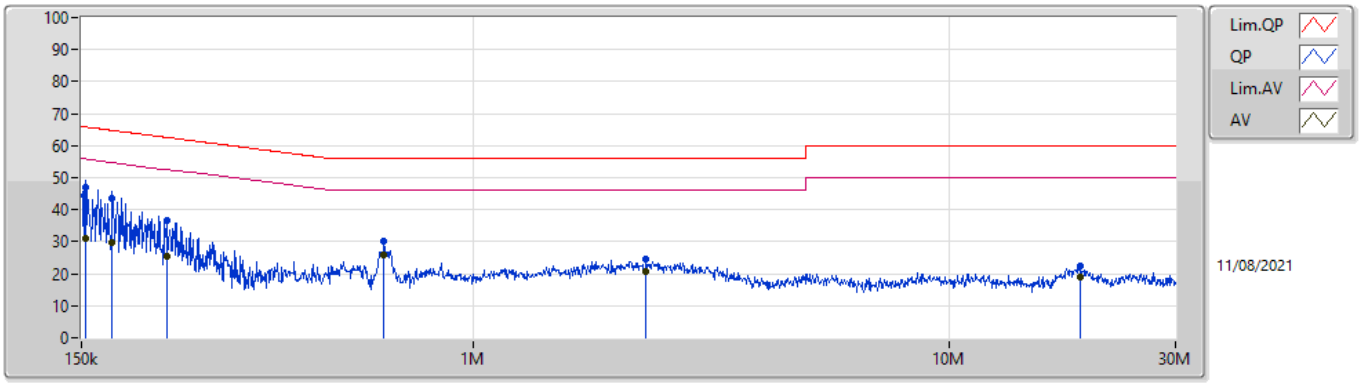
Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	QP	153.024k	46.84	65.83	-18.99	Line
Mode 2	Pass	AV	477.384k	41.12	46.38	-5.26	Neutral

Mode Configure

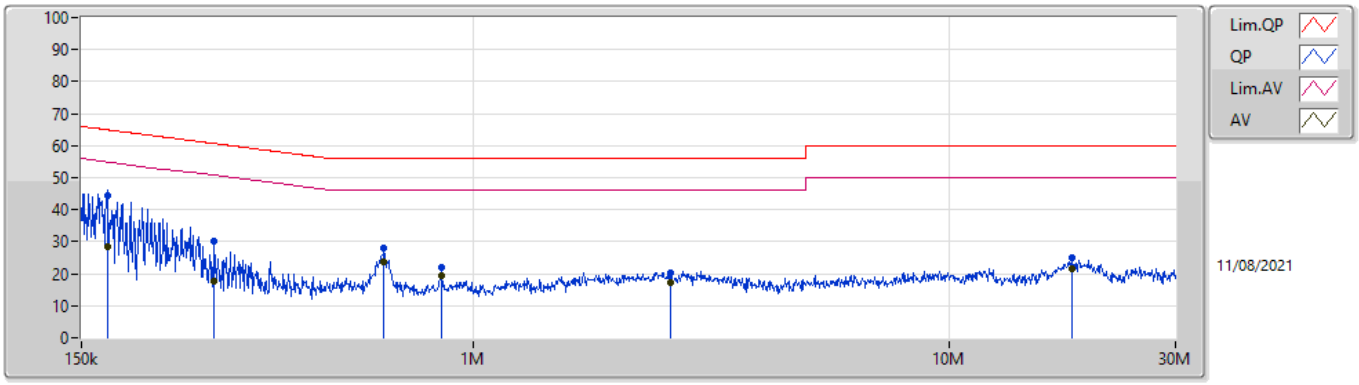
Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition	Comments
Mode 1	Pass	QP	153.024k	46.84	65.83	-18.99	Line	-
Mode 1	Pass	AV	153.024k	30.93	55.83	-24.90	Line	-
Mode 1	Pass	QP	173.876k	43.70	64.78	-21.08	Line	-
Mode 1	Pass	AV	173.876k	29.88	54.78	-24.90	Line	-
Mode 1	Pass	QP	226.289k	36.61	62.58	-25.97	Line	-
Mode 1	Pass	AV	226.289k	25.64	52.58	-26.94	Line	-
Mode 1	Pass	QP	649.178k	30.17	56.00	-25.83	Line	-
Mode 1	Pass	AV	649.178k	25.92	46.00	-20.08	Line	-
Mode 1	Pass	QP	2.31M	24.40	56.00	-31.60	Line	-
Mode 1	Pass	AV	2.31M	20.82	46.00	-25.18	Line	-
Mode 1	Pass	QP	18.939M	22.25	60.00	-37.75	Line	-
Mode 1	Pass	AV	18.939M	19.06	50.00	-30.94	Line	-
Mode 1	Pass	QP	169.76k	44.50	64.97	-20.47	Neutral	-
Mode 1	Pass	AV	169.76k	28.35	54.97	-26.62	Neutral	-
Mode 1	Pass	QP	285.246k	30.03	60.67	-30.64	Neutral	-
Mode 1	Pass	AV	285.246k	17.74	50.67	-32.93	Neutral	-
Mode 1	Pass	QP	649.178k	27.99	56.00	-28.01	Neutral	-
Mode 1	Pass	AV	649.178k	23.65	46.00	-22.35	Neutral	-
Mode 1	Pass	QP	855.047k	21.81	56.00	-34.19	Neutral	-
Mode 1	Pass	AV	855.047k	19.56	46.00	-26.44	Neutral	-
Mode 1	Pass	QP	2.604M	20.23	56.00	-35.77	Neutral	-
Mode 1	Pass	AV	2.604M	17.12	46.00	-28.88	Neutral	-
Mode 1	Pass	QP	18.198M	25.14	60.00	-34.86	Neutral	-
Mode 1	Pass	AV	18.198M	21.50	50.00	-28.50	Neutral	-
Mode 2	Pass	QP	151.202k	54.60	65.92	-11.32	Line	-
Mode 2	Pass	AV	151.202k	37.05	55.92	-18.87	Line	-
Mode 2	Pass	QP	483.136k	45.17	56.29	-11.12	Line	-
Mode 2	Pass	AV	483.136k	39.16	46.29	-7.13	Line	-
Mode 2	Pass	QP	542.434k	36.98	56.00	-19.02	Line	-
Mode 2	Pass	AV	542.434k	31.49	46.00	-14.51	Line	-
Mode 2	Pass	QP	1.007M	34.64	56.00	-21.36	Line	-
Mode 2	Pass	AV	1.007M	31.32	46.00	-14.68	Line	-
Mode 2	Pass	QP	1.747M	36.26	56.00	-19.74	Line	-
Mode 2	Pass	AV	1.747M	31.54	46.00	-14.46	Line	-
Mode 2	Pass	QP	4.721M	32.20	56.00	-23.80	Line	-
Mode 2	Pass	AV	4.721M	26.97	46.00	-19.03	Line	-
Mode 2	Pass	QP	155.487k	52.89	65.69	-12.80	Neutral	-
Mode 2	Pass	AV	155.487k	36.93	55.69	-18.76	Neutral	-
Mode 2	Pass	QP	477.384k	46.10	56.38	-10.28	Neutral	-
Mode 2	Pass	AV	477.384k	41.12	46.38	-5.26	Neutral	-
Mode 2	Pass	QP	562.277k	35.64	56.00	-20.36	Neutral	-
Mode 2	Pass	AV	562.277k	31.31	46.00	-14.69	Neutral	-
Mode 2	Pass	QP	1.011M	33.55	56.00	-22.45	Neutral	-
Mode 2	Pass	AV	1.011M	30.21	46.00	-15.79	Neutral	-
Mode 2	Pass	QP	5.012M	30.13	60.00	-29.87	Neutral	-
Mode 2	Pass	AV	5.012M	24.37	50.00	-25.63	Neutral	-
Mode 2	Pass	QP	11.453M	30.21	60.00	-29.79	Neutral	-
Mode 2	Pass	AV	11.453M	25.64	50.00	-24.36	Neutral	-

Conducted Emissions at Powerline_Mode 1



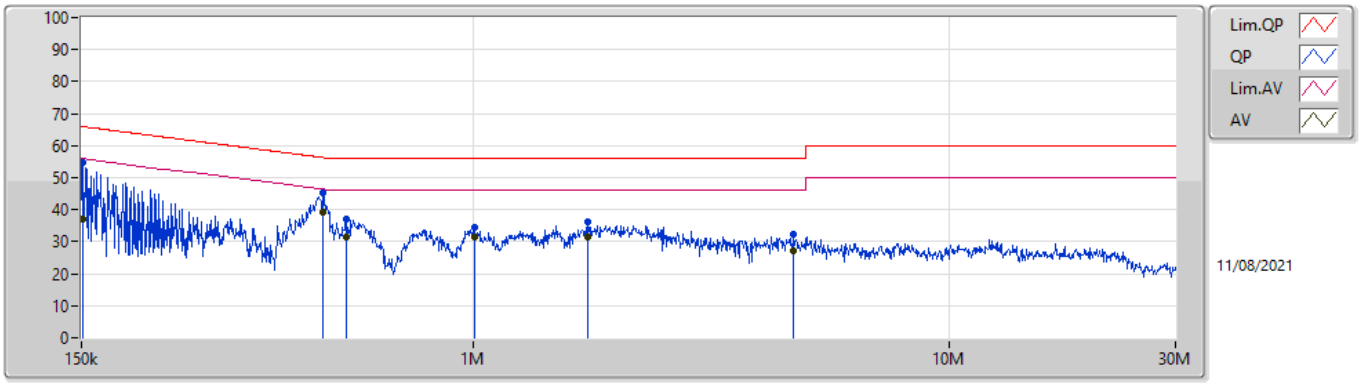
Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	153.024k	46.84	65.83	-18.99	19.63	Line	-	27.21	9.69	0.04	9.90
AV	153.024k	30.93	55.83	-24.90	19.63	Line	-	11.30	9.69	0.04	9.90
QP	173.876k	43.70	64.78	-21.08	19.62	Line	-	24.08	9.68	0.04	9.90
AV	173.876k	29.88	54.78	-24.90	19.62	Line	-	10.26	9.68	0.04	9.90
QP	226.289k	36.61	62.58	-25.97	19.62	Line	-	16.99	9.68	0.04	9.90
AV	226.289k	25.64	52.58	-26.94	19.62	Line	-	6.02	9.68	0.04	9.90
QP	649.178k	30.17	56.00	-25.83	19.59	Line	-	10.58	9.67	0.07	9.85
AV	649.178k	25.92	46.00	-20.08	19.59	Line	-	6.33	9.67	0.07	9.85
QP	2.31M	24.40	56.00	-31.60	19.61	Line	-	4.79	9.68	0.11	9.82
AV	2.31M	20.82	46.00	-25.18	19.61	Line	-	1.21	9.68	0.11	9.82
QP	18.939M	22.25	60.00	-37.75	19.86	Line	-	2.39	9.67	0.29	9.90
AV	18.939M	19.06	50.00	-30.94	19.86	Line	-	-0.80	9.67	0.29	9.90

Conducted Emissions at Powerline_Mode 1



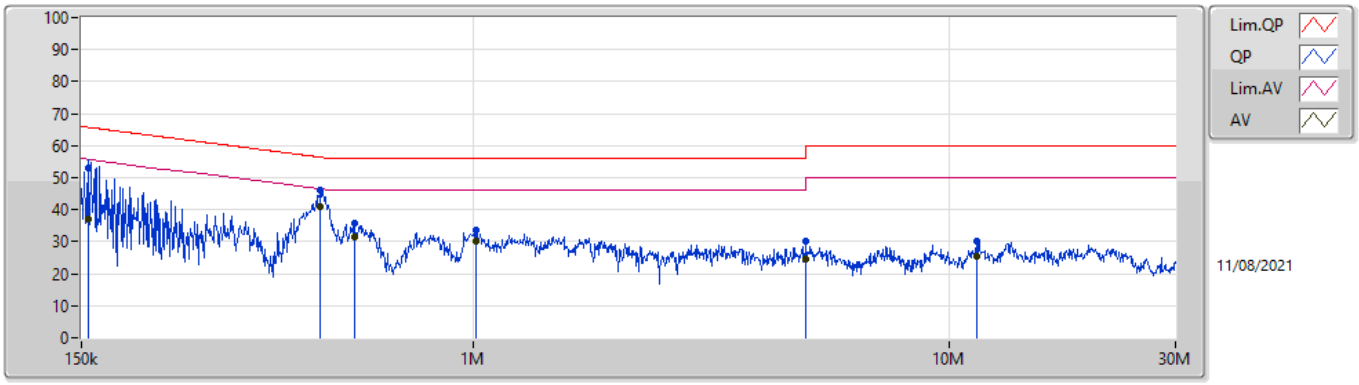
Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	169.76k	44.50	64.97	-20.47	19.63	Neutral	-	24.87	9.69	0.04	9.90
AV	169.76k	28.35	54.97	-26.62	19.63	Neutral	-	8.72	9.69	0.04	9.90
QP	285.246k	30.03	60.67	-30.64	19.62	Neutral	-	10.41	9.67	0.05	9.90
AV	285.246k	17.74	50.67	-32.93	19.62	Neutral	-	-1.88	9.67	0.05	9.90
QP	649.178k	27.99	56.00	-28.01	19.59	Neutral	-	8.40	9.67	0.07	9.85
AV	649.178k	23.65	46.00	-22.35	19.59	Neutral	-	4.06	9.67	0.07	9.85
QP	855.047k	21.81	56.00	-34.19	19.57	Neutral	-	2.24	9.67	0.08	9.82
AV	855.047k	19.56	46.00	-26.44	19.57	Neutral	-	-0.01	9.67	0.08	9.82
QP	2.604M	20.23	56.00	-35.77	19.64	Neutral	-	0.59	9.68	0.12	9.84
AV	2.604M	17.12	46.00	-28.88	19.64	Neutral	-	-2.52	9.68	0.12	9.84
QP	18.198M	25.14	60.00	-34.86	19.93	Neutral	-	5.21	9.75	0.28	9.90
AV	18.198M	21.50	50.00	-28.50	19.93	Neutral	-	1.57	9.75	0.28	9.90

Conducted Emissions at Powerline_Mode 2



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	151.202k	54.60	65.92	-11.32	19.63	Line	-	34.97	9.69	0.04	9.90
AV	151.202k	37.05	55.92	-18.87	19.63	Line	-	17.42	9.69	0.04	9.90
QP	483.136k	45.17	56.29	-11.12	19.61	Line	-	25.56	9.67	0.06	9.88
AV	483.136k	39.16	46.29	-7.13	19.61	Line	-	19.55	9.67	0.06	9.88
QP	542.434k	36.98	56.00	-19.02	19.61	Line	-	17.37	9.67	0.07	9.87
AV	542.434k	31.49	46.00	-14.51	19.61	Line	-	11.88	9.67	0.07	9.87
QP	1.007M	34.64	56.00	-21.36	19.55	Line	-	15.09	9.67	0.08	9.80
AV	1.007M	31.32	46.00	-14.68	19.55	Line	-	11.77	9.67	0.08	9.80
QP	1.747M	36.26	56.00	-19.74	19.58	Line	-	16.68	9.68	0.10	9.80
AV	1.747M	31.54	46.00	-14.46	19.58	Line	-	11.96	9.68	0.10	9.80
QP	4.721M	32.20	56.00	-23.80	19.75	Line	-	12.45	9.70	0.15	9.90
AV	4.721M	26.97	46.00	-19.03	19.75	Line	-	7.22	9.70	0.15	9.90

Conducted Emissions at Powerline_Mode 2



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	155.487k	52.89	65.69	-12.80	19.63	Neutral	-	33.26	9.69	0.04	9.90
AV	155.487k	36.93	55.69	-18.76	19.63	Neutral	-	17.30	9.69	0.04	9.90
QP	477.384k	46.10	56.38	-10.28	19.61	Neutral	-	26.49	9.67	0.06	9.88
AV	477.384k	41.12	46.38	-5.26	19.61	Neutral	-	21.51	9.67	0.06	9.88
QP	562.277k	35.64	56.00	-20.36	19.60	Neutral	-	16.04	9.67	0.07	9.86
AV	562.277k	31.31	46.00	-14.69	19.60	Neutral	-	11.71	9.67	0.07	9.86
QP	1.011M	33.55	56.00	-22.45	19.55	Neutral	-	14.00	9.67	0.08	9.80
AV	1.011M	30.21	46.00	-15.79	19.55	Neutral	-	10.66	9.67	0.08	9.80
QP	5.012M	30.13	60.00	-29.87	19.75	Neutral	-	10.38	9.70	0.15	9.90
AV	5.012M	24.37	50.00	-25.63	19.75	Neutral	-	4.62	9.70	0.15	9.90
QP	11.453M	30.21	60.00	-29.79	19.85	Neutral	-	10.36	9.73	0.22	9.90
AV	11.453M	25.64	50.00	-24.36	19.85	Neutral	-	5.79	9.73	0.22	9.90

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
Zigbee	1.6M	2.611M	2M61G1D	1.544M	2.524M

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

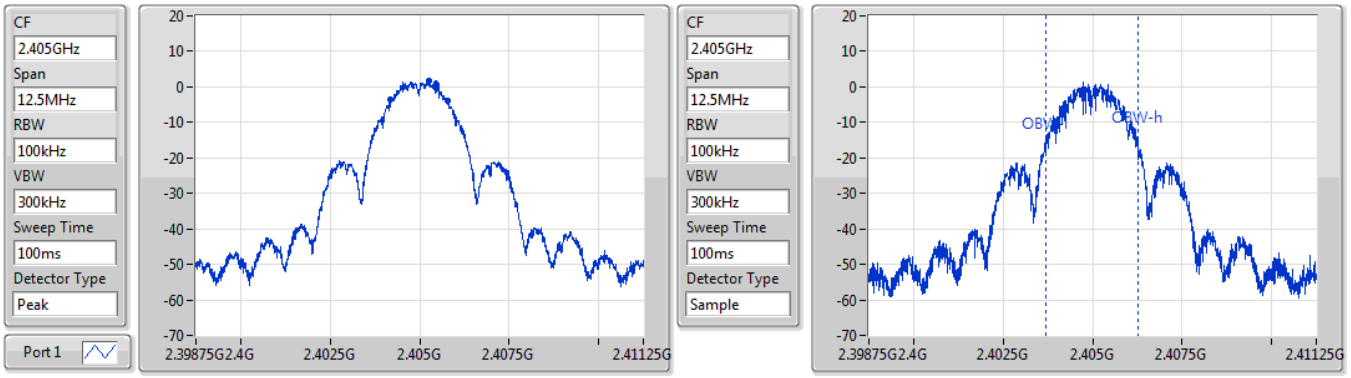
Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
Zigbee	-	-	-	-
2405MHz	Pass	500k	1.6M	2.58M
2440MHz	Pass	500k	1.581M	2.567M
2475MHz	Pass	500k	1.544M	2.524M
2480MHz	Pass	500k	1.594M	2.611M

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

Zigbee EBW

2405MHz

20/08/2021

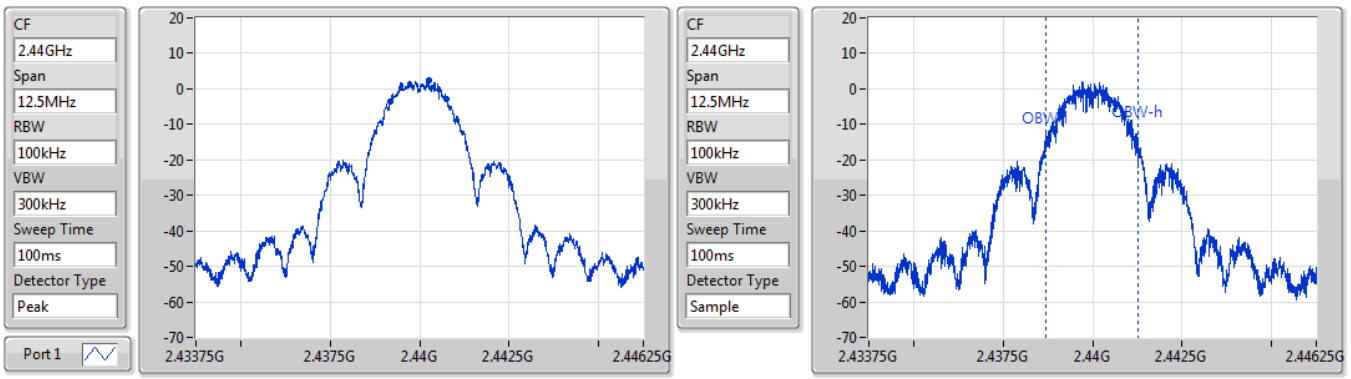


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.6M	2.404181G	2.405781G	2.58M	2.403682G	2.406262G	500k	1

Zigbee EBW

2440MHz

20/08/2021

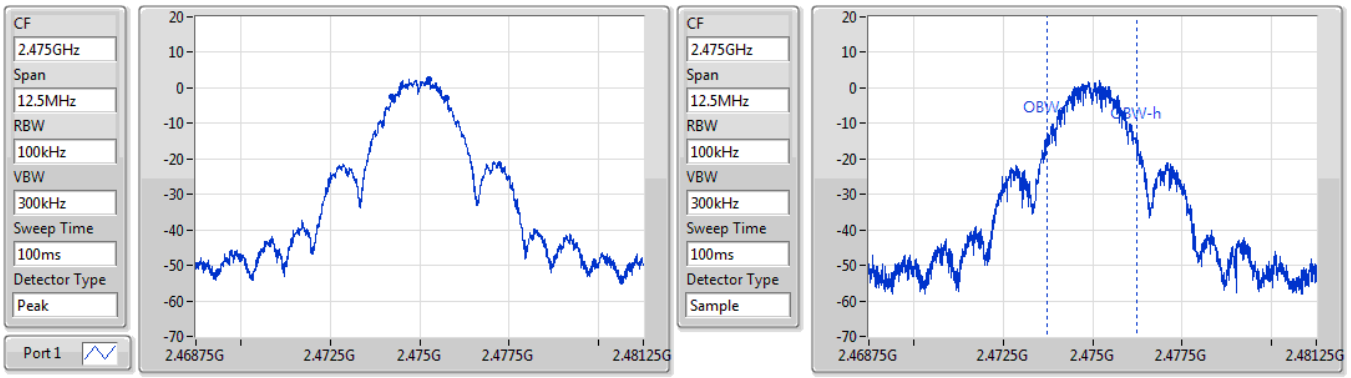


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.581M	2.439181G	2.440763G	2.567M	2.438688G	2.441256G	500k	1

Zigbee EBW

2475MHz

20/08/2021

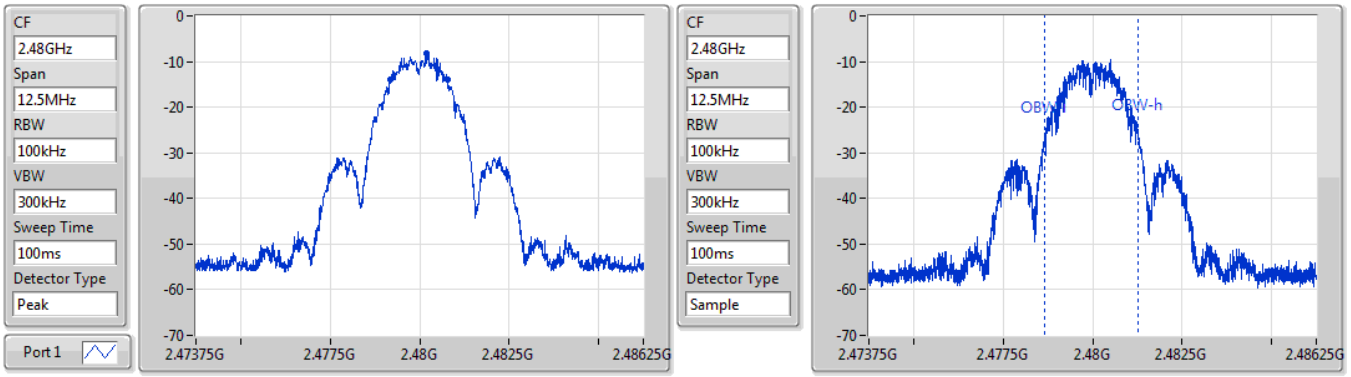


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.544M	2.474219G	2.475763G	2.524M	2.473713G	2.476237G	500k	1

Zigbee EBW

2480MHz

20/08/2021



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.594M	2.479181G	2.480775G	2.611M	2.478676G	2.481287G	500k	1

Summary

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
Zigbee	5.54	0.00358

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Total Power (dBm)	Power Limit (dBm)
Zigbee	-	-	-	-	-
2405MHz	Pass	5.20	5.26	5.26	30.00
2440MHz	Pass	5.20	5.54	5.54	30.00
2475MHz	Pass	5.20	5.37	5.37	30.00
2480MHz	Pass	5.20	-5.41	-5.41	30.00

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

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
Zigbee	-7.95

RBW = 3kHz;

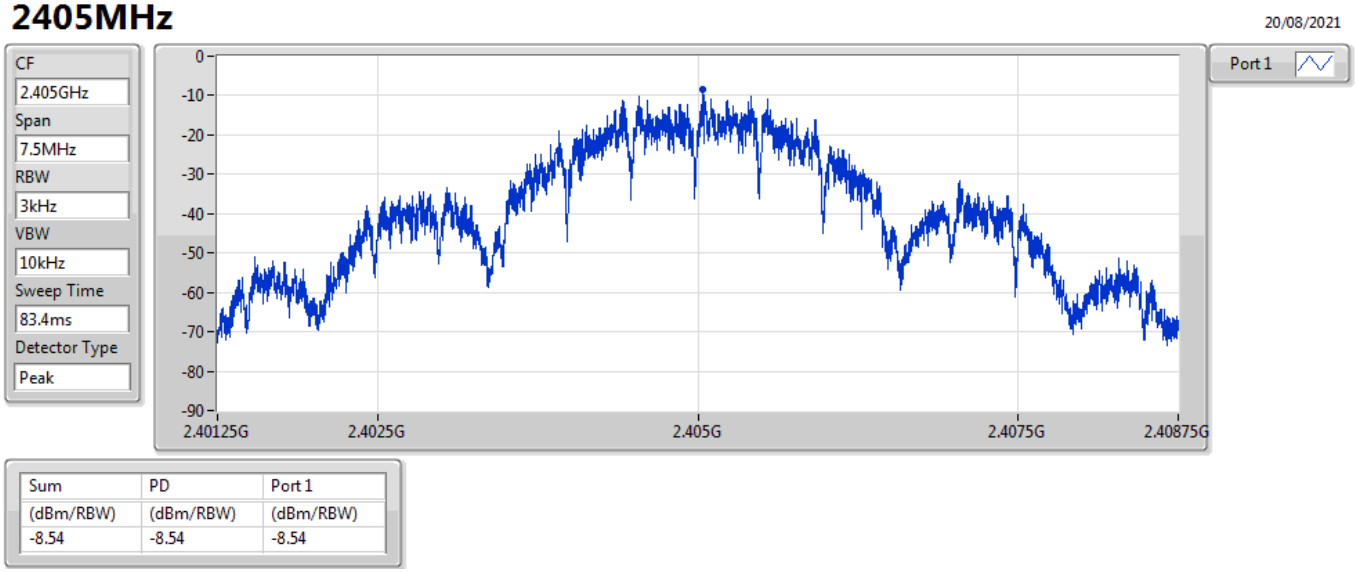
Result

Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
Zigbee	-	-	-	-	-
2405MHz	Pass	5.20	-8.54	-8.54	8.00
2440MHz	Pass	5.20	-9.79	-9.79	8.00
2475MHz	Pass	5.20	-7.95	-7.95	8.00
2480MHz	Pass	5.20	-18.46	-18.46	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;

Zigbee PSD

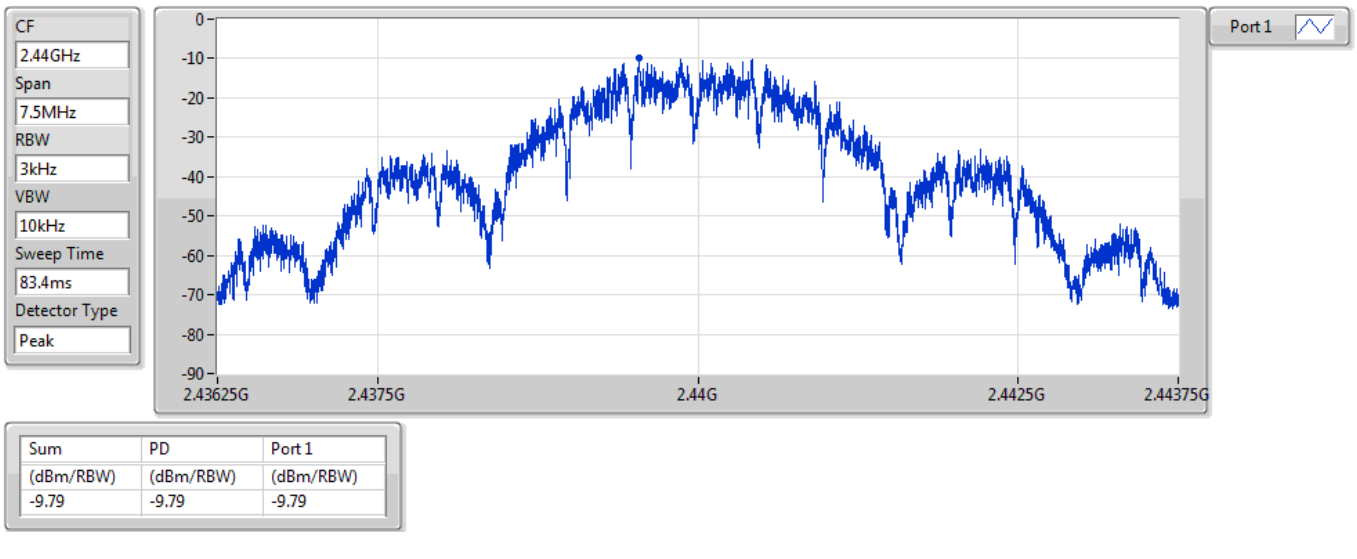
2405MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-8.54	-8.54	-8.54

Zigbee PSD

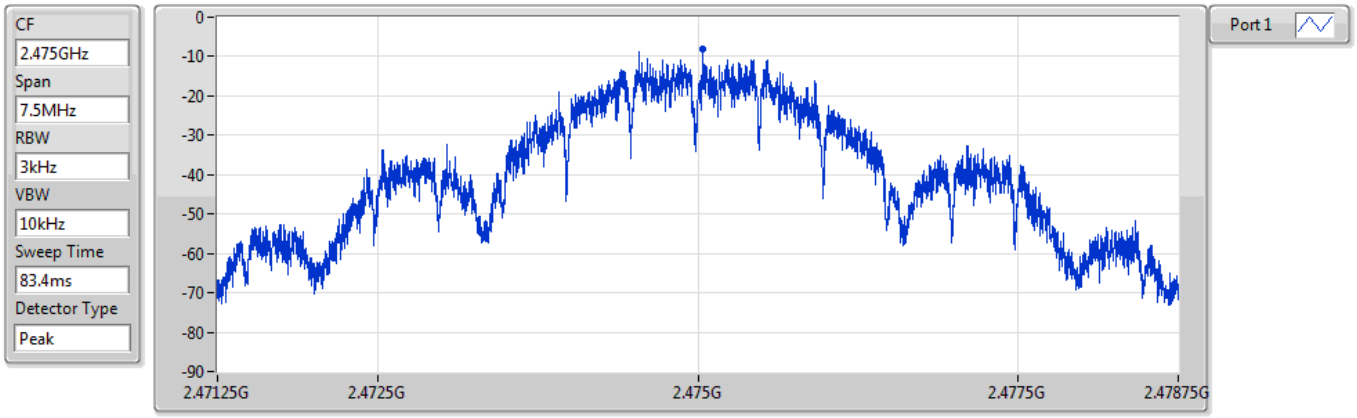
2440MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-9.79	-9.79	-9.79

Zigbee PSD

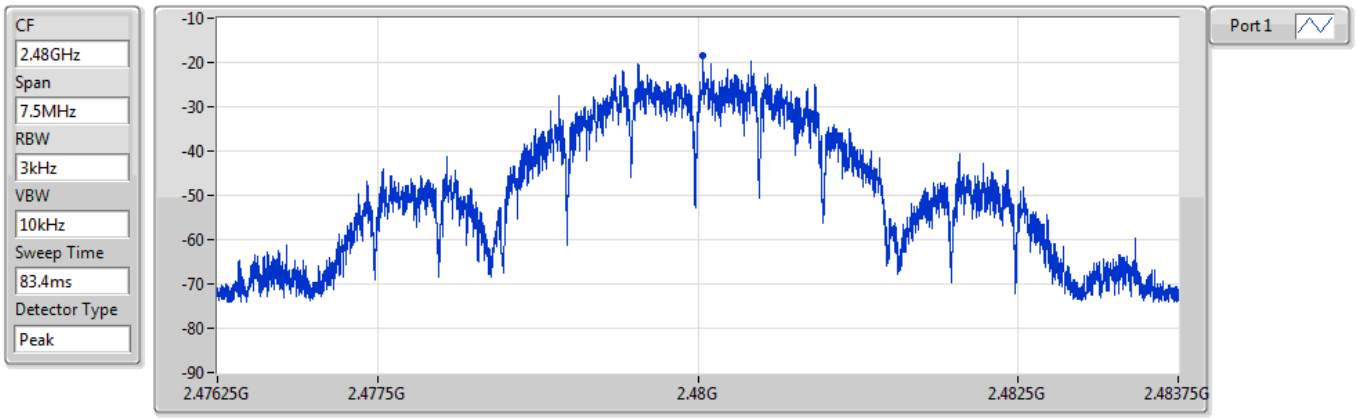
2475MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-7.95	-7.95	-7.95

Zigbee PSD

2480MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-18.46	-18.46	-18.46

Summary

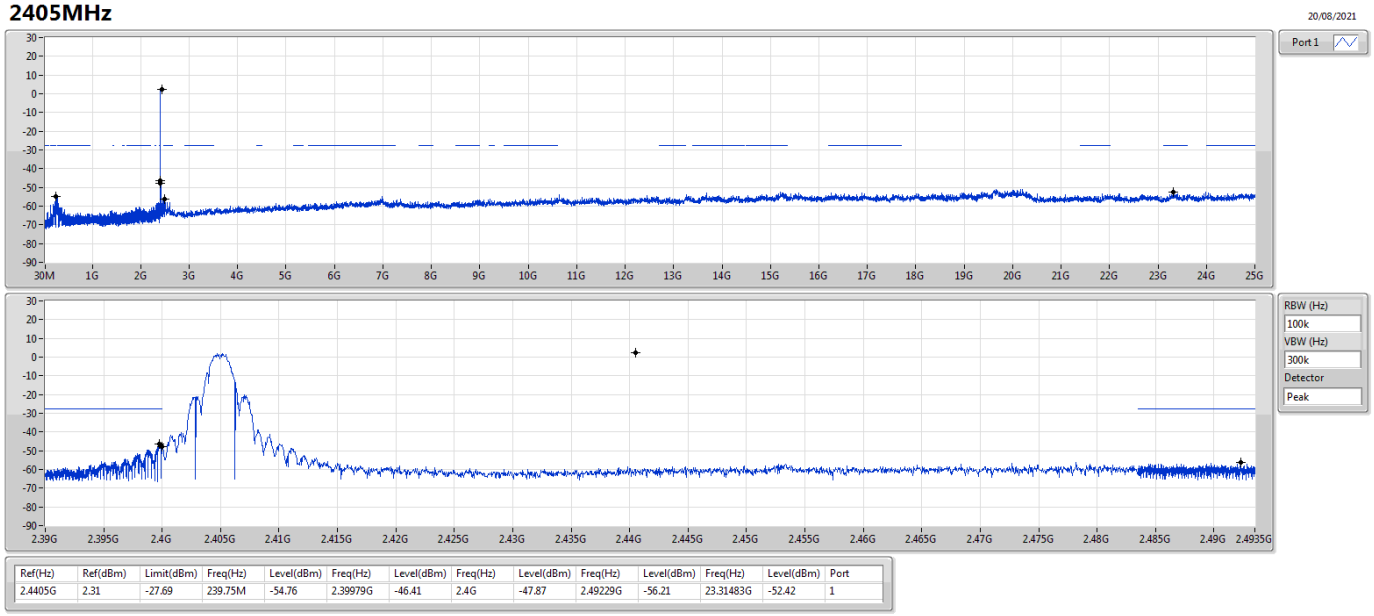
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zigbee	Pass	2.4405G	2.31	-27.69	239.75M	-54.76	2.39979G	-46.41	2.4G	-47.87	2.49229G	-56.21	23.31483G	-52.42	1

Result

Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
Zigbee	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2405MHz	Pass	2.4405G	2.31	-27.69	239.75M	-54.76	2.39979G	-46.41	2.4G	-47.87	2.49229G	-56.21	23.31483G	-52.42	1
2440MHz	Pass	2.4405G	2.31	-27.69	239.75M	-54.98	2.39237G	-54.10	2.4835G	-58.09	2.4879G	-55.87	23.28669G	-52.16	1
2475MHz	Pass	2.47511G	2.96	-27.04	239.75M	-53.81	2.39717G	-55.92	2.4G	-59.59	2.48408G	-54.46	15.20405G	-52.64	1
2480MHz	Pass	2.47511G	2.96	-27.04	2.11919G	-64.16	2.39395G	-62.46	2.4835G	-53.72	2.48422G	-51.03	23.43017G	-52.64	1

Zigbee **CSENdB**

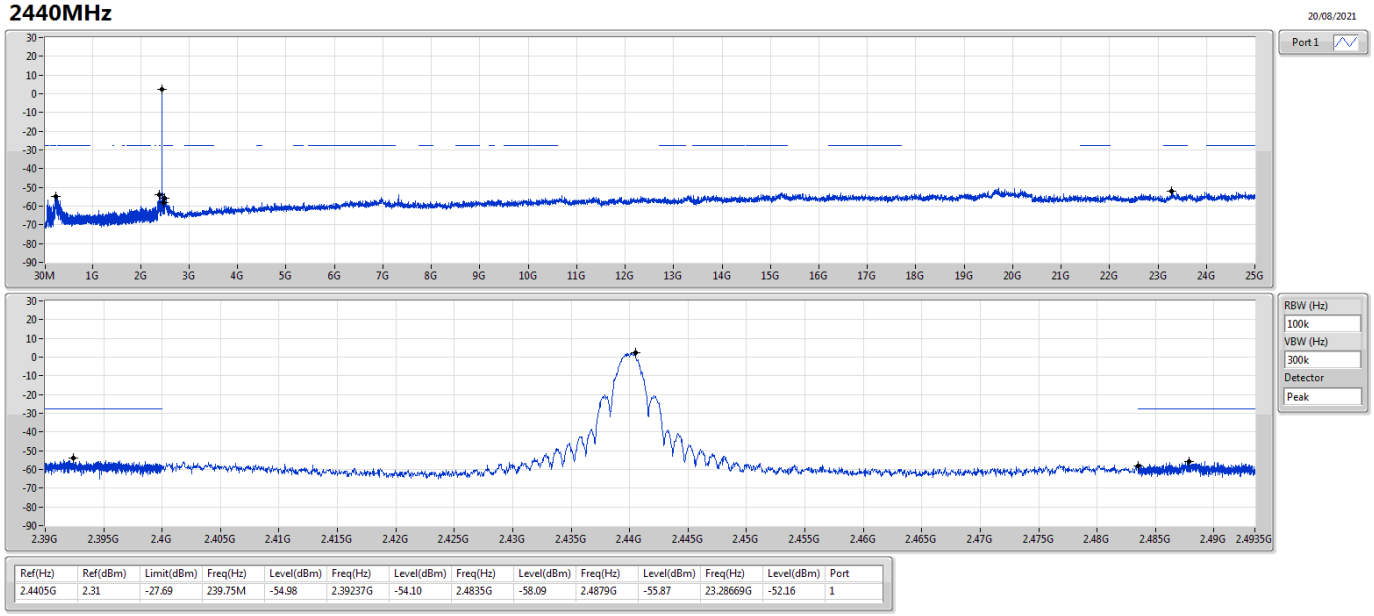
2405MHz



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
2.4405G	2.31	-27.69	239.75M	-54.76	2.39979G	-46.41	2.4G	-47.87	2.49229G	-56.21	23.31483G	-52.42	1

Zigbee **CSENdB**

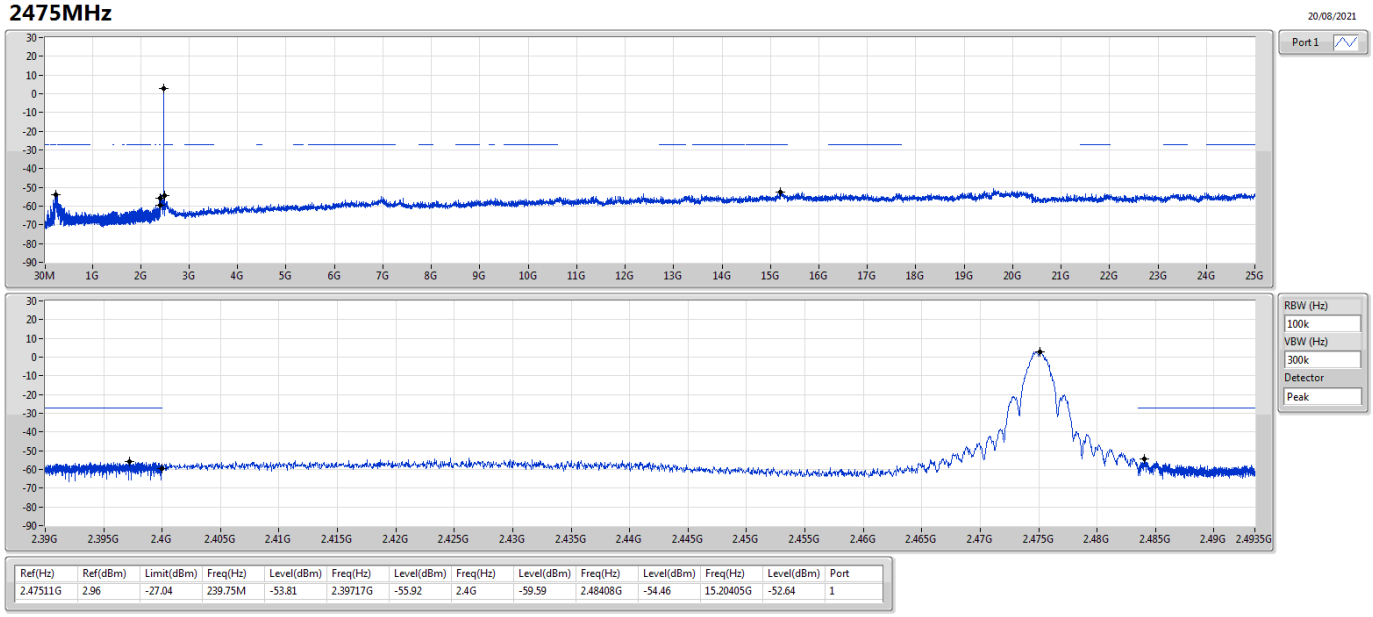
2440MHz



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
2.4405G	2.31	-27.69	239.75M	-54.98	2.39237G	-54.10	2.4835G	-58.09	2.4879G	-55.87	23.28669G	-52.16	1

Zigbee **CSENdB**

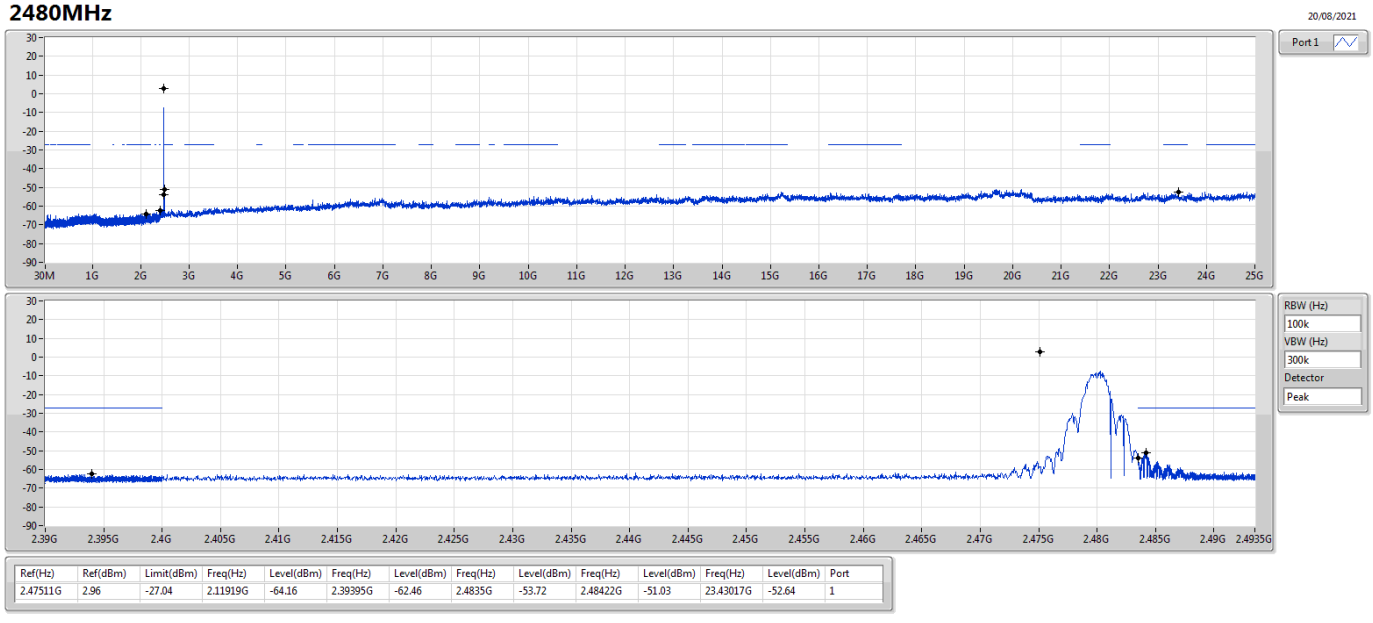
2475MHz



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
2.47511G	2.96	-27.04	239.75M	-53.81	2.39717G	-55.92	2.4G	-59.59	2.48408G	-54.46	15.20405G	-52.64	1

Zigbee **CSENdB**

2480MHz



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
2.47511G	2.96	-27.04	2.11919G	-64.16	2.39395G	-62.46	2.4835G	-53.72	2.48422G	-51.03	23.43017G	-52.64	1

Summary

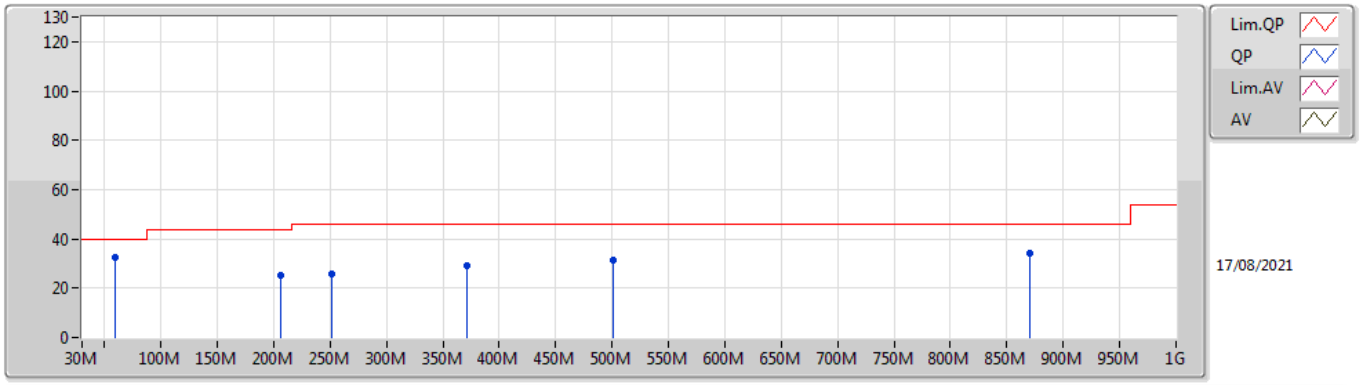
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
Zigbee	Pass	PK	59.1M	32.67	40.00	-7.33	3	Vertical	0	1.00	-

Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
Zigbee	-	-	-	-	-	-	-	-	-	-	-
2440MHz	Pass	PK	59.1M	32.22	40.00	-7.78	3	Vertical	360	1.00	-
2440MHz	Pass	PK	206.54M	25.40	43.50	-18.10	3	Vertical	360	1.00	-
2440MHz	Pass	PK	251.16M	25.98	46.00	-20.02	3	Vertical	360	1.00	-
2440MHz	Pass	PK	371.44M	28.99	46.00	-17.01	3	Vertical	360	1.00	-
2440MHz	Pass	PK	501.42M	31.17	46.00	-14.83	3	Vertical	360	1.00	-
2440MHz	Pass	PK	870.02M	34.42	46.00	-11.58	3	Vertical	360	1.00	-
2440MHz	Pass	PK	59.1M	27.63	40.00	-12.37	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	146.4M	29.68	43.50	-13.82	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	229.82M	28.71	46.00	-17.29	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	371.44M	27.64	46.00	-18.36	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	553.8M	31.06	46.00	-14.94	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	935.98M	36.31	46.00	-9.69	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	59.1M	32.67	40.00	-7.33	3	Vertical	0	1.00	-
2440MHz	Pass	PK	311.3M	28.82	46.00	-17.18	3	Vertical	0	1.00	-
2440MHz	Pass	PK	371.44M	30.45	46.00	-15.55	3	Vertical	0	1.00	-
2440MHz	Pass	PK	629.46M	31.19	46.00	-14.81	3	Vertical	0	1.00	-
2440MHz	Pass	PK	904.94M	36.85	46.00	-9.15	3	Vertical	0	1.00	-
2440MHz	Pass	PK	960M	36.31	46.00	-9.69	3	Vertical	0	1.00	-
2440MHz	Pass	PK	309.36M	28.28	46.00	-17.72	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	371.44M	28.49	46.00	-17.51	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	606.18M	30.84	46.00	-15.16	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	681.84M	34.06	46.00	-11.94	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	901.06M	36.94	46.00	-9.06	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	960M	36.86	46.00	-9.14	3	Horizontal	360	1.00	-

Zigbee

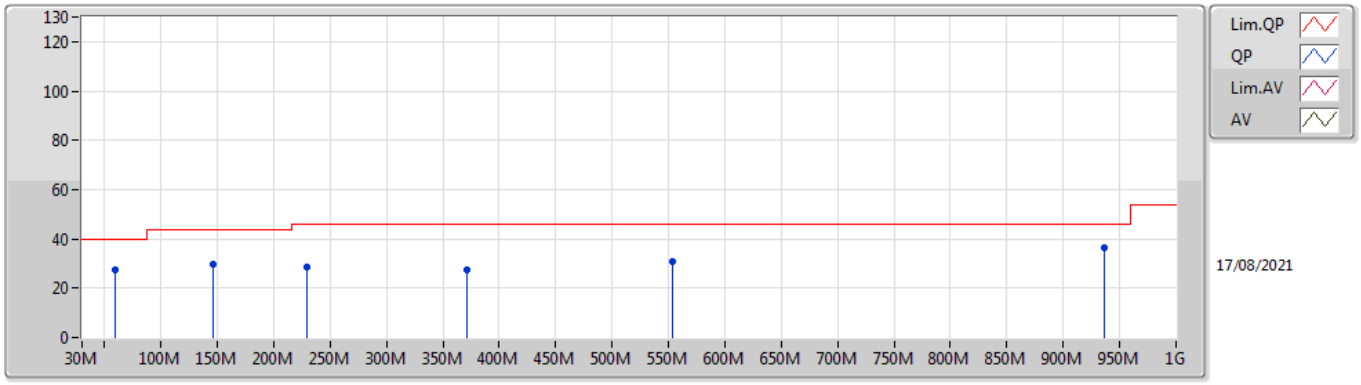
2440MHz_Adapter



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
PK	59.1M	32.22	40.00	-7.78	-14.96	3	Vertical	360	1.00	-	47.18	11.67	1.13	27.76
PK	206.54M	25.40	43.50	-18.10	-10.83	3	Vertical	360	1.00	-	36.23	14.47	1.98	27.28
PK	251.16M	25.98	46.00	-20.02	-7.21	3	Vertical	360	1.00	-	33.19	17.66	2.15	27.02
PK	371.44M	28.99	46.00	-17.01	-4.86	3	Vertical	360	1.00	-	33.85	20.03	2.63	27.52
PK	501.42M	31.17	46.00	-14.83	-2.49	3	Vertical	360	1.00	-	33.66	22.78	3.08	28.35
PK	870.02M	34.42	46.00	-11.58	1.91	3	Vertical	360	1.00	-	32.51	25.50	4.04	27.63

Zigbee

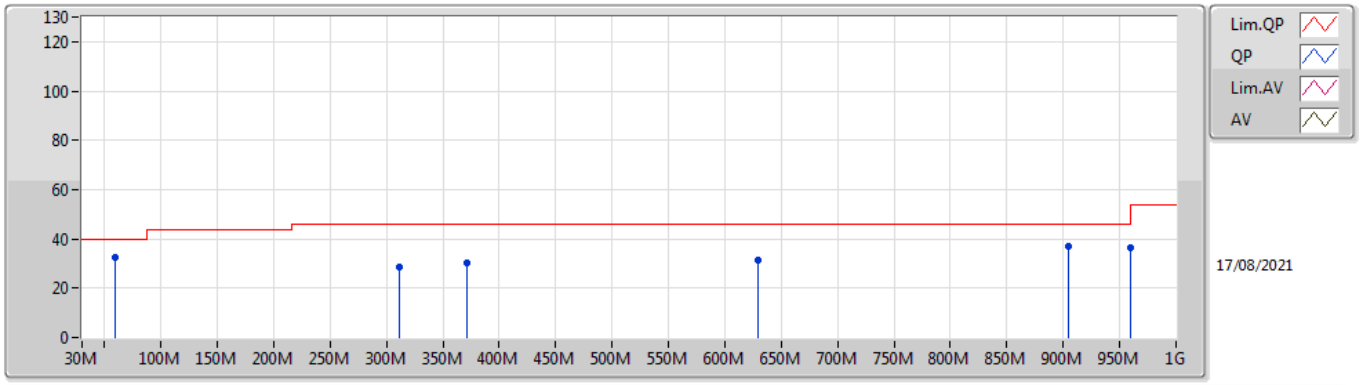
2440MHz_Adapter



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
PK	59.1M	27.63	40.00	-12.37	-14.96	3	Horizontal	0	1.00	-	42.59	11.67	1.13	27.76
PK	146.4M	29.68	43.50	-13.82	-10.12	3	Horizontal	0	1.00	-	39.80	15.77	1.68	27.57
PK	229.82M	28.71	46.00	-17.29	-9.79	3	Horizontal	0	1.00	-	38.50	15.28	2.07	27.14
PK	371.44M	27.64	46.00	-18.36	-4.86	3	Horizontal	0	1.00	-	32.50	20.03	2.63	27.52
PK	553.8M	31.06	46.00	-14.94	-1.02	3	Horizontal	0	1.00	-	32.08	24.11	3.20	28.33
PK	935.98M	36.31	46.00	-9.69	2.67	3	Horizontal	0	1.00	-	33.64	25.85	4.16	27.34

Zigbee

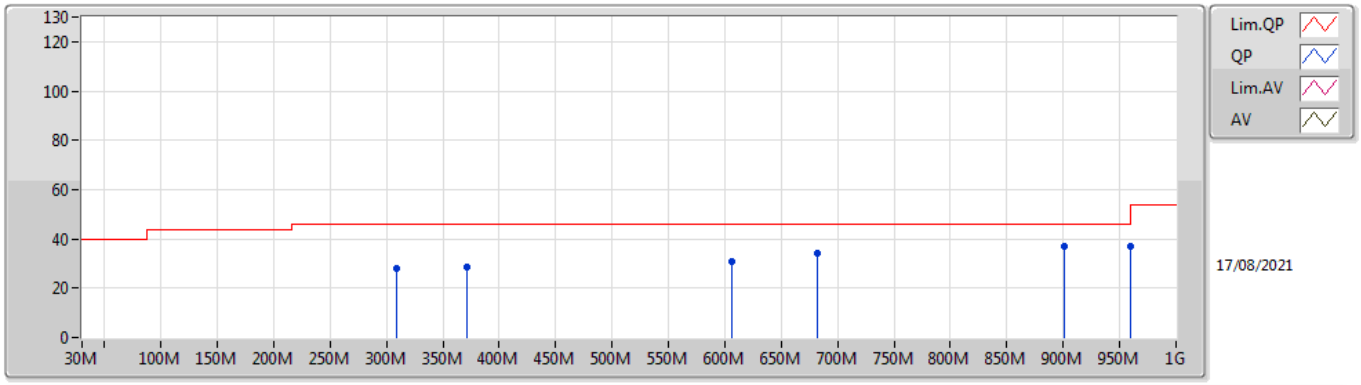
2440MHz_PoE



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
PK	59.1M	32.67	40.00	-7.33	-14.96	3	Vertical	0	1.00	-	47.63	11.67	1.13	27.76
PK	311.3M	28.82	46.00	-17.18	-5.96	3	Vertical	0	1.00	-	34.78	18.76	2.40	27.12
PK	371.44M	30.45	46.00	-15.55	-4.86	3	Vertical	0	1.00	-	35.31	20.03	2.63	27.52
PK	629.46M	31.19	46.00	-14.81	-0.50	3	Vertical	0	1.00	-	31.69	24.37	3.42	28.29
PK	904.94M	36.85	46.00	-9.15	2.32	3	Vertical	0	1.00	-	34.53	25.68	4.12	27.48
PK	960M	36.31	46.00	-9.69	3.09	3	Vertical	0	1.00	-	33.22	26.13	4.21	27.25

Zigbee

2440MHz_PoE



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
PK	309.36M	28.28	46.00	-17.72	-5.98	3	Horizontal	360	1.00	-	34.26	18.73	2.40	27.11
PK	371.44M	28.49	46.00	-17.51	-4.86	3	Horizontal	360	1.00	-	33.35	20.03	2.63	27.52
PK	606.18M	30.84	46.00	-15.16	-0.99	3	Horizontal	360	1.00	-	31.83	24.03	3.38	28.40
PK	681.84M	34.06	46.00	-11.94	-0.52	3	Horizontal	360	1.00	-	34.58	24.16	3.55	28.23
PK	901.06M	36.94	46.00	-9.06	2.25	3	Horizontal	360	1.00	-	34.69	25.64	4.11	27.50
PK	960M	36.86	46.00	-9.14	3.09	3	Horizontal	360	1.00	-	33.77	26.13	4.21	27.25

Summary

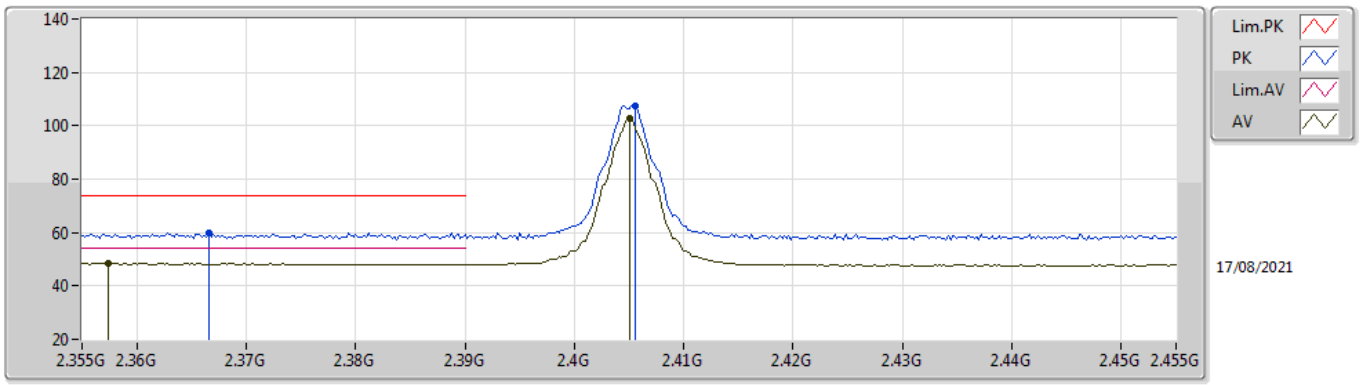
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
Zigbee	Pass	AV	2.4835G	53.15	54.00	-0.85	3	Vertical	6	2.23	-

Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
Zigbee	-	-	-	-	-	-	-	-	-	-	-
2405MHz	Pass	AV	2.3574G	48.48	54.00	-5.52	3	Vertical	352	2.62	-
2405MHz	Pass	AV	2.405G	102.82	Inf	-Inf	3	Vertical	352	2.62	-
2405MHz	Pass	PK	2.3666G	59.78	74.00	-14.22	3	Vertical	352	2.62	-
2405MHz	Pass	PK	2.4056G	107.30	Inf	-Inf	3	Vertical	352	2.62	-
2405MHz	Pass	AV	2.36G	48.24	54.00	-5.76	3	Horizontal	30	2.62	-
2405MHz	Pass	AV	2.405G	92.53	Inf	-Inf	3	Horizontal	30	2.62	-
2405MHz	Pass	PK	2.3844G	59.96	74.00	-14.04	3	Horizontal	30	2.62	-
2405MHz	Pass	PK	2.4046G	96.57	Inf	-Inf	3	Horizontal	30	2.62	-
2405MHz	Pass	AV	4.80892G	41.12	54.00	-12.88	3	Vertical	222	2.37	-
2405MHz	Pass	PK	4.81091G	50.33	74.00	-23.67	3	Vertical	222	2.37	-
2405MHz	Pass	AV	4.80893G	42.70	54.00	-11.30	3	Horizontal	226	1.01	-
2405MHz	Pass	PK	4.80908G	51.32	74.00	-22.68	3	Horizontal	226	1.01	-
2440MHz	Pass	AV	2.3436G	48.44	54.00	-5.56	3	Vertical	34	1.50	-
2440MHz	Pass	AV	2.44G	101.61	Inf	-Inf	3	Vertical	34	1.50	-
2440MHz	Pass	AV	2.492G	48.02	54.00	-5.98	3	Vertical	34	1.50	-
2440MHz	Pass	PK	2.3736G	60.12	74.00	-13.88	3	Vertical	34	1.50	-
2440MHz	Pass	PK	2.4396G	105.91	Inf	-Inf	3	Vertical	34	1.50	-
2440MHz	Pass	PK	2.4996G	59.24	74.00	-14.76	3	Vertical	34	1.50	-
2440MHz	Pass	AV	2.342G	48.31	54.00	-5.69	3	Horizontal	48	1.00	-
2440MHz	Pass	AV	2.44G	91.78	Inf	-Inf	3	Horizontal	48	1.00	-
2440MHz	Pass	AV	2.486G	47.77	54.00	-6.23	3	Horizontal	48	1.00	-
2440MHz	Pass	PK	2.3692G	59.81	74.00	-14.19	3	Horizontal	48	1.00	-
2440MHz	Pass	PK	2.4404G	96.05	Inf	-Inf	3	Horizontal	48	1.00	-
2440MHz	Pass	PK	2.4896G	59.29	74.00	-14.71	3	Horizontal	48	1.00	-
2440MHz	Pass	AV	4.88103G	40.87	54.00	-13.13	3	Vertical	159	1.14	-
2440MHz	Pass	PK	4.87902G	50.12	74.00	-23.88	3	Vertical	159	1.14	-
2440MHz	Pass	AV	4.88094G	42.19	54.00	-11.81	3	Horizontal	225	1.34	-
2440MHz	Pass	PK	4.88098G	51.27	74.00	-22.73	3	Horizontal	225	1.34	-
2475MHz	Pass	AV	2.475G	99.69	Inf	-Inf	3	Vertical	0	2.01	-
2475MHz	Pass	AV	2.4835G	48.23	54.00	-5.77	3	Vertical	0	2.01	-
2475MHz	Pass	PK	2.4754G	104.17	Inf	-Inf	3	Vertical	0	2.01	-
2475MHz	Pass	PK	2.4938G	59.33	74.00	-14.67	3	Vertical	0	2.01	-
2475MHz	Pass	AV	2.4752G	95.24	Inf	-Inf	3	Horizontal	295	1.10	-
2475MHz	Pass	AV	2.4892G	47.75	54.00	-6.25	3	Horizontal	295	1.10	-
2475MHz	Pass	PK	2.4756G	99.48	Inf	-Inf	3	Horizontal	295	1.10	-
2475MHz	Pass	PK	2.4932G	59.63	74.00	-14.37	3	Horizontal	295	1.10	-
2475MHz	Pass	AV	4.95097G	43.45	54.00	-10.55	3	Vertical	224	1.44	-
2475MHz	Pass	PK	4.94898G	52.42	74.00	-21.58	3	Vertical	224	1.44	-
2475MHz	Pass	AV	4.95101G	40.89	54.00	-13.11	3	Horizontal	179	1.02	-
2475MHz	Pass	PK	4.94882G	50.60	74.00	-23.40	3	Horizontal	179	1.02	-
2480MHz	Pass	AV	2.48G	90.41	Inf	-Inf	3	Vertical	6	2.23	-
2480MHz	Pass	AV	2.4835G	53.15	54.00	-0.85	3	Vertical	6	2.23	-
2480MHz	Pass	PK	2.4806G	94.67	Inf	-Inf	3	Vertical	6	2.23	-
2480MHz	Pass	PK	2.4835G	62.94	74.00	-11.06	3	Vertical	6	2.23	-
2480MHz	Pass	AV	2.48G	85.16	Inf	-Inf	3	Horizontal	300	1.34	-
2480MHz	Pass	AV	2.4835G	49.90	54.00	-4.10	3	Horizontal	300	1.34	-
2480MHz	Pass	PK	2.4794G	89.44	Inf	-Inf	3	Horizontal	300	1.34	-
2480MHz	Pass	PK	2.4878G	59.76	74.00	-14.24	3	Horizontal	300	1.34	-
2480MHz	Pass	AV	4.95896G	32.32	54.00	-21.68	3	Vertical	61	1.50	-
2480MHz	Pass	PK	4.95868G	45.70	74.00	-28.30	3	Vertical	91.2	1.50	-
2480MHz	Pass	AV	4.95918G	32.32	54.00	-21.68	3	Horizontal	277	1.50	-
2480MHz	Pass	PK	4.96076G	45.60	74.00	-28.40	3	Horizontal	277	1.50	-

Zigbee

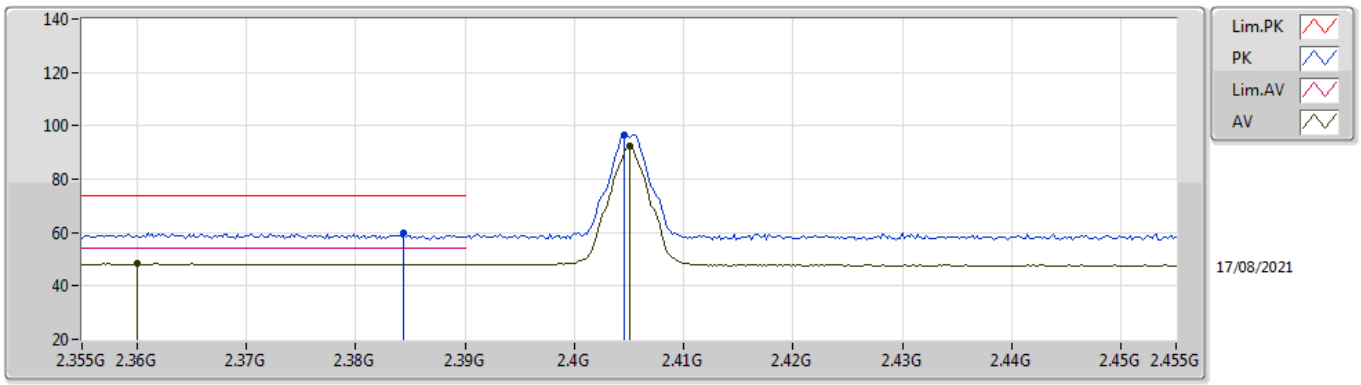
2405MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.3574G	48.48	54.00	-5.52	35.03	3	Vertical	352	2.62	-	13.45	27.79	7.24	-
AV	2.405G	102.82	Inf	-Inf	34.93	3	Vertical	352	2.62	-	67.89	27.67	7.26	-
PK	2.3666G	59.78	74.00	-14.22	35.01	3	Vertical	352	2.62	-	24.77	27.77	7.24	-
PK	2.4056G	107.30	Inf	-Inf	34.93	3	Vertical	352	2.62	-	72.37	27.67	7.26	-

Zigbee

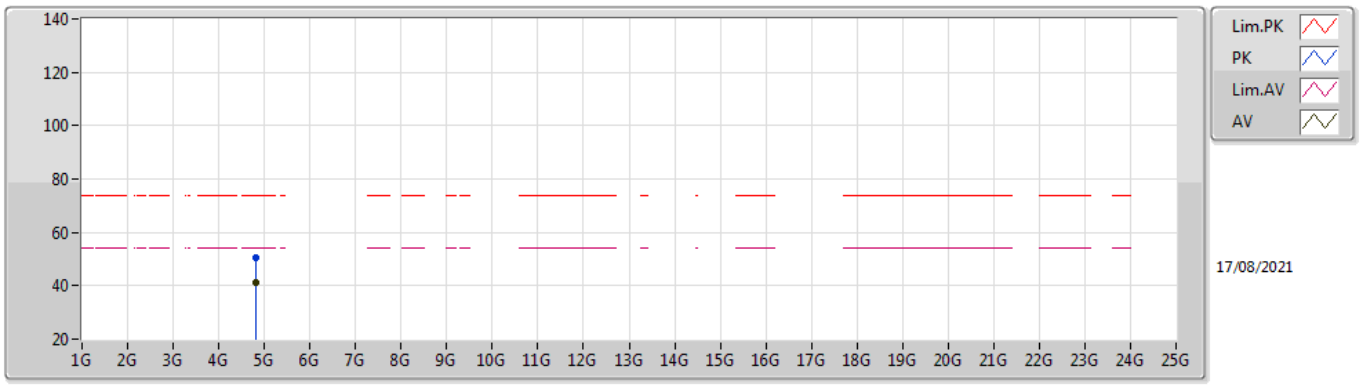
2405MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.36G	48.24	54.00	-5.76	35.02	3	Horizontal	30	2.62	-	13.22	27.78	7.24	-
AV	2.405G	92.53	Inf	-Inf	34.93	3	Horizontal	30	2.62	-	57.60	27.67	7.26	-
PK	2.3844G	59.96	74.00	-14.04	34.98	3	Horizontal	30	2.62	-	24.98	27.73	7.25	-
PK	2.4046G	96.57	Inf	-Inf	34.93	3	Horizontal	30	2.62	-	61.64	27.67	7.26	-

Zigbee

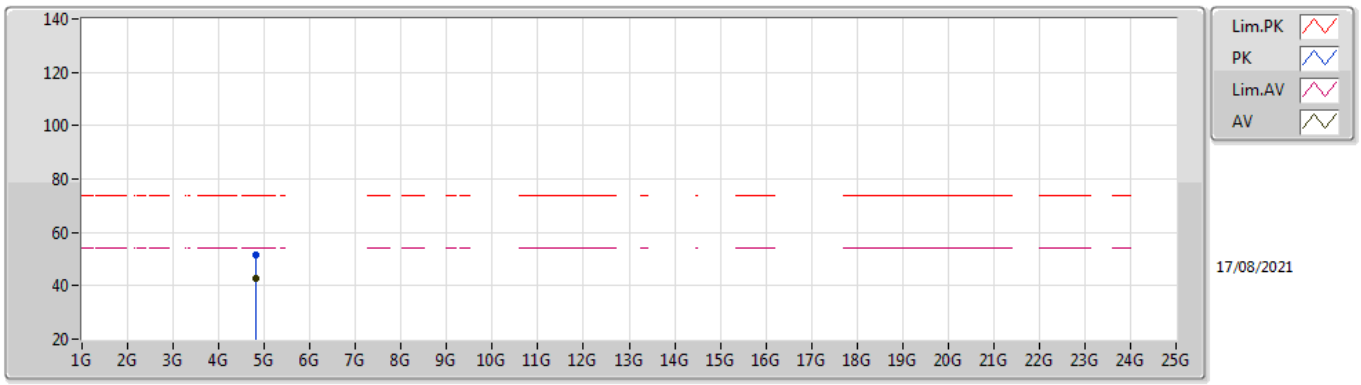
2405MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.80892G	41.12	54.00	-12.88	5.75	3	Vertical	222	2.37	-	35.37	31.12	8.91	34.28
PK	4.81091G	50.33	74.00	-23.67	5.75	3	Vertical	222	2.37	-	44.58	31.12	8.91	34.28

Zigbee

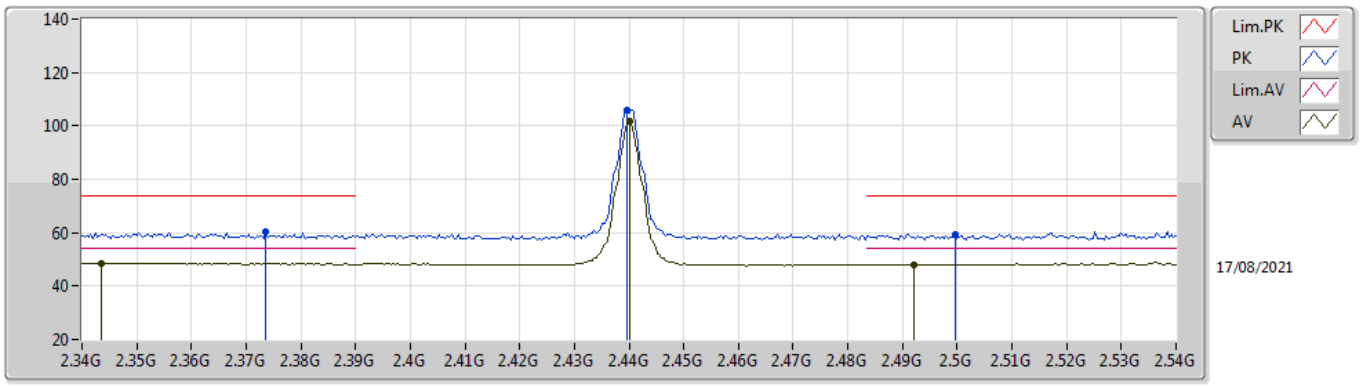
2405MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.80893G	42.70	54.00	-11.30	5.75	3	Horizontal	226	1.01	-	36.95	31.12	8.91	34.28
PK	4.80908G	51.32	74.00	-22.68	5.75	3	Horizontal	226	1.01	-	45.57	31.12	8.91	34.28

Zigbee

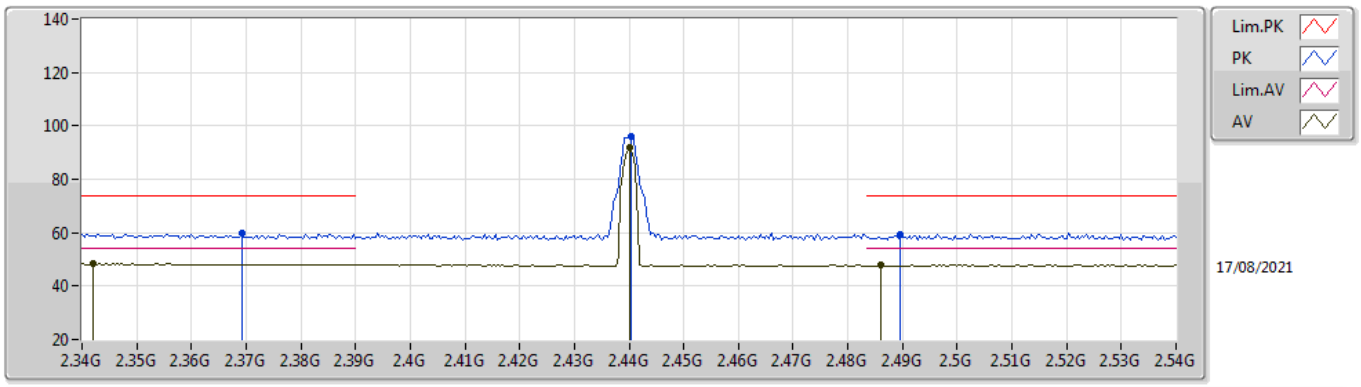
2440MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.3436G	48.44	54.00	-5.56	35.04	3	Vertical	34	1.50	-	13.40	27.81	7.23	-
AV	2.44G	101.61	Inf	-Inf	34.75	3	Vertical	34	1.50	-	66.86	27.46	7.29	-
AV	2.492G	48.02	54.00	-5.98	34.73	3	Vertical	34	1.50	-	13.29	27.40	7.33	-
PK	2.3736G	60.12	74.00	-13.88	35.00	3	Vertical	34	1.50	-	25.12	27.75	7.25	-
PK	2.4396G	105.91	Inf	-Inf	34.75	3	Vertical	34	1.50	-	71.16	27.46	7.29	-
PK	2.4996G	59.24	74.00	-14.76	34.74	3	Vertical	34	1.50	-	24.50	27.40	7.34	-

Zigbee

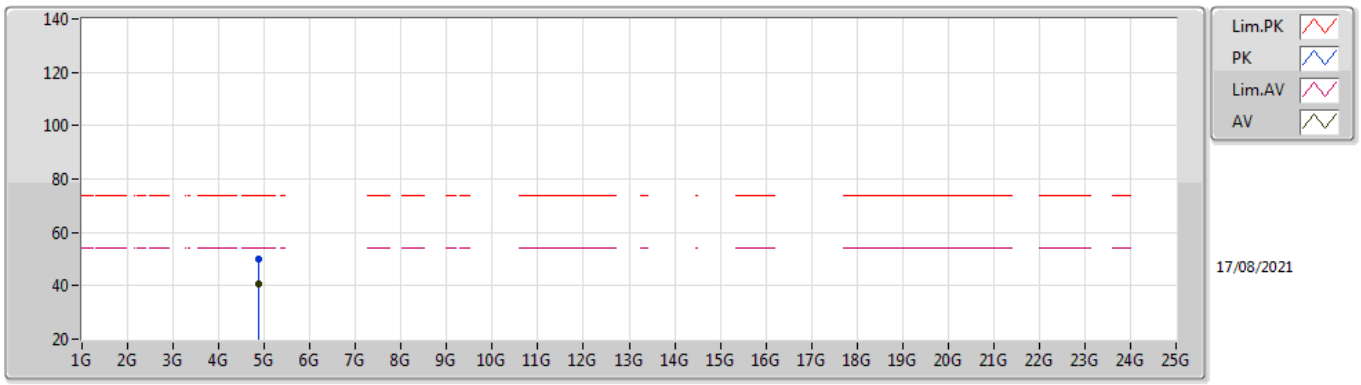
2440MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.342G	48.31	54.00	-5.69	35.05	3	Horizontal	48	1.00	-	13.26	27.82	7.23	-
AV	2.44G	91.78	Inf	-Inf	34.75	3	Horizontal	48	1.00	-	57.03	27.46	7.29	-
AV	2.486G	47.77	54.00	-6.23	34.73	3	Horizontal	48	1.00	-	13.04	27.40	7.33	-
PK	2.3692G	59.81	74.00	-14.19	35.01	3	Horizontal	48	1.00	-	24.80	27.76	7.25	-
PK	2.4404G	96.05	Inf	-Inf	34.75	3	Horizontal	48	1.00	-	61.30	27.46	7.29	-
PK	2.4896G	59.29	74.00	-14.71	34.73	3	Horizontal	48	1.00	-	24.56	27.40	7.33	-

Zigbee

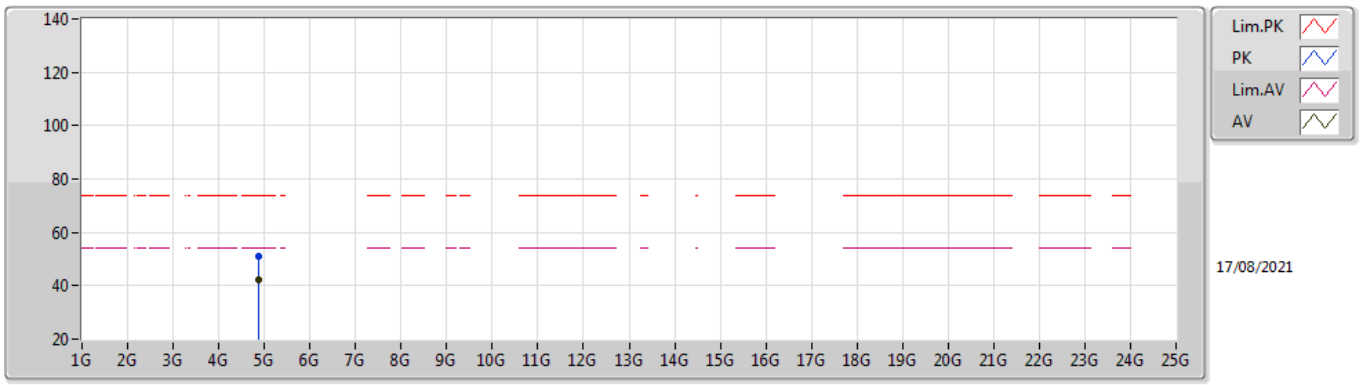
2440MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.88103G	40.87	54.00	-13.13	5.90	3	Vertical	159	1.14	-	34.97	31.20	8.96	34.26
PK	4.87902G	50.12	74.00	-23.88	5.90	3	Vertical	159	1.14	-	44.22	31.20	8.96	34.26

Zigbee

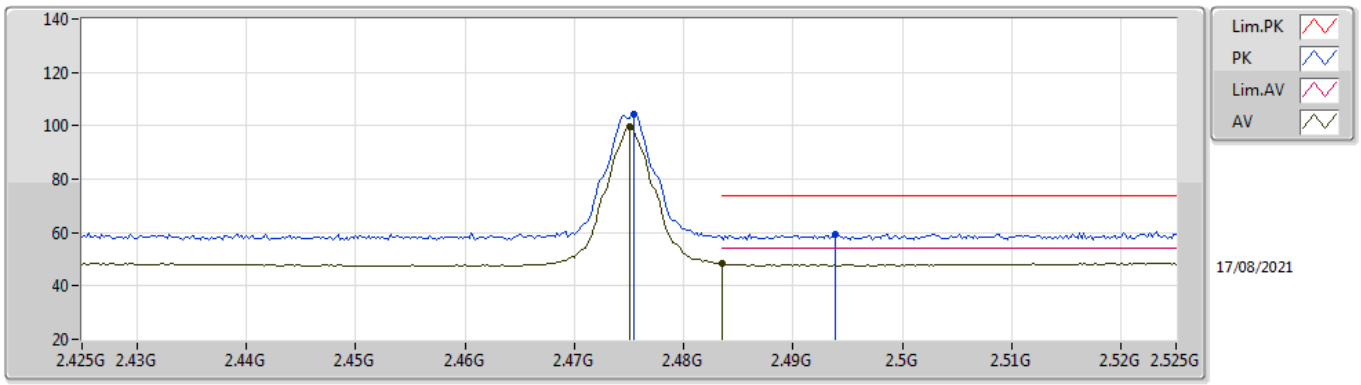
2440MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.88094G	42.19	54.00	-11.81	5.90	3	Horizontal	225	1.34	-	36.29	31.20	8.96	34.26
PK	4.88098G	51.27	74.00	-22.73	5.90	3	Horizontal	225	1.34	-	45.37	31.20	8.96	34.26

Zigbee

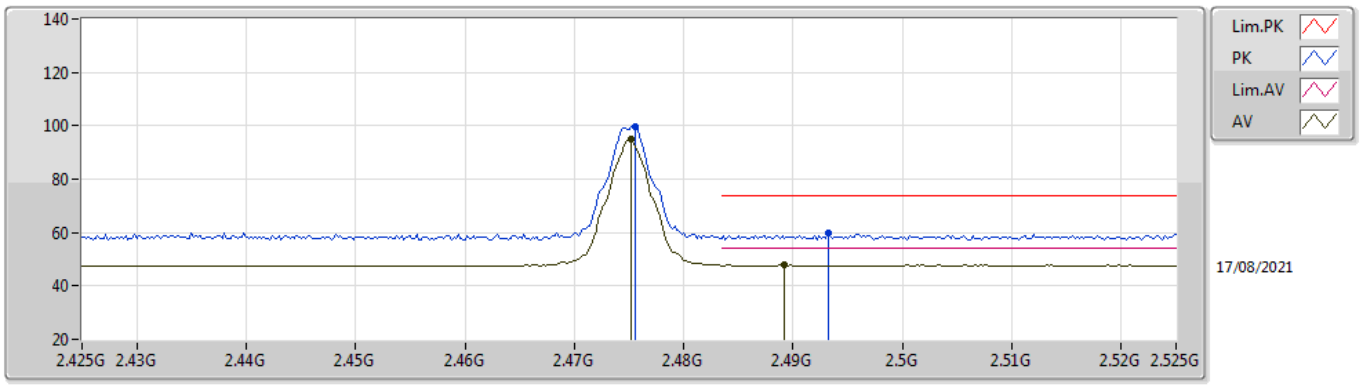
2475MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.475G	99.69	Inf	-Inf	34.72	3	Vertical	0	2.01	-	64.97	27.40	7.32	-
AV	2.4835G	48.23	54.00	-5.77	34.73	3	Vertical	0	2.01	-	13.50	27.40	7.33	-
PK	2.4754G	104.17	Inf	-Inf	34.72	3	Vertical	0	2.01	-	69.45	27.40	7.32	-
PK	2.4938G	59.33	74.00	-14.67	34.74	3	Vertical	0	2.01	-	24.59	27.40	7.34	-

Zigbee

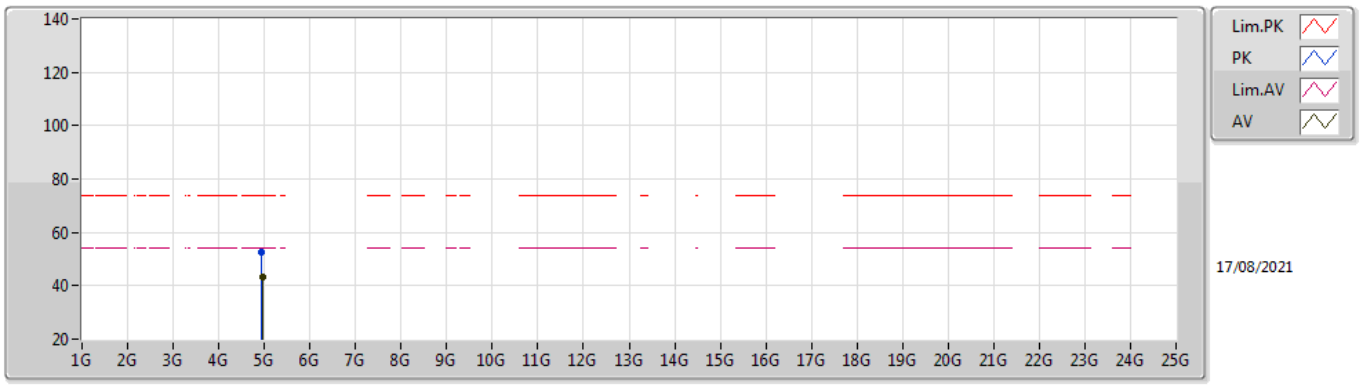
2475MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.4752G	95.24	Inf	-Inf	34.72	3	Horizontal	295	1.10	-	60.52	27.40	7.32	-
AV	2.4892G	47.75	54.00	-6.25	34.73	3	Horizontal	295	1.10	-	13.02	27.40	7.33	-
PK	2.4756G	99.48	Inf	-Inf	34.72	3	Horizontal	295	1.10	-	64.76	27.40	7.32	-
PK	2.4932G	59.63	74.00	-14.37	34.73	3	Horizontal	295	1.10	-	24.90	27.40	7.33	-

Zigbee

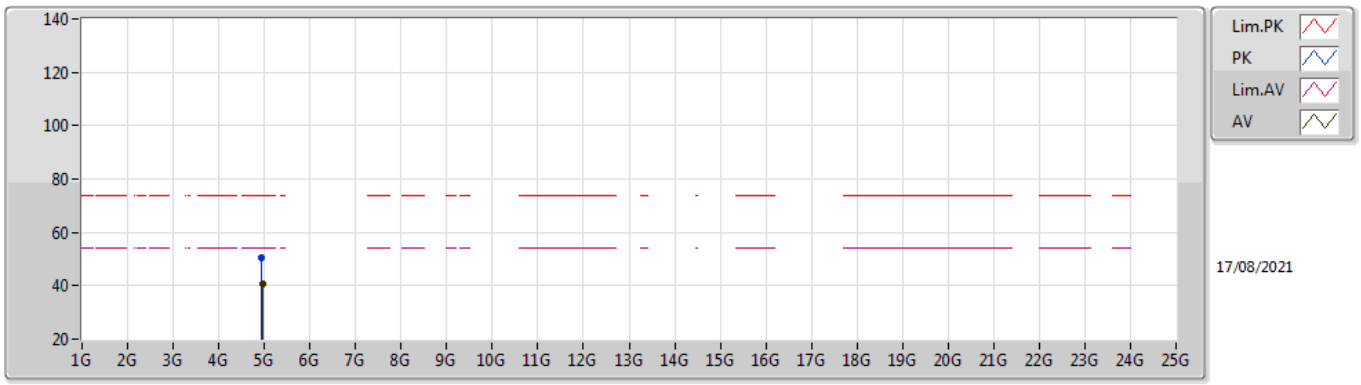
2475MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.95097G	43.45	54.00	-10.55	6.17	3	Vertical	224	1.44	-	37.28	31.40	9.01	34.24
PK	4.94898G	52.42	74.00	-21.58	6.17	3	Vertical	224	1.44	-	46.25	31.40	9.01	34.24

Zigbee

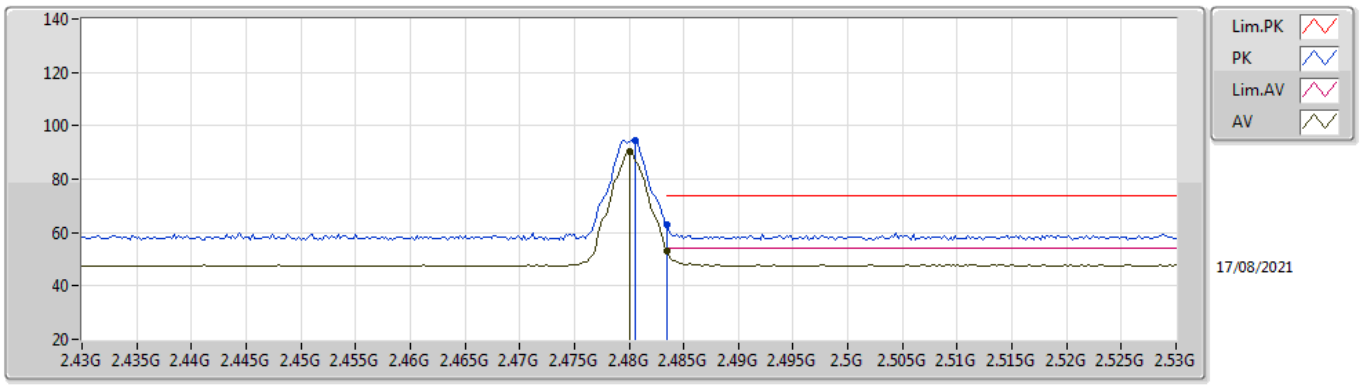
2475MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.95101G	40.89	54.00	-13.11	6.17	3	Horizontal	179	1.02	-	34.72	31.40	9.01	34.24
PK	4.94882G	50.60	74.00	-23.40	6.17	3	Horizontal	179	1.02	-	44.43	31.40	9.01	34.24

Zigbee

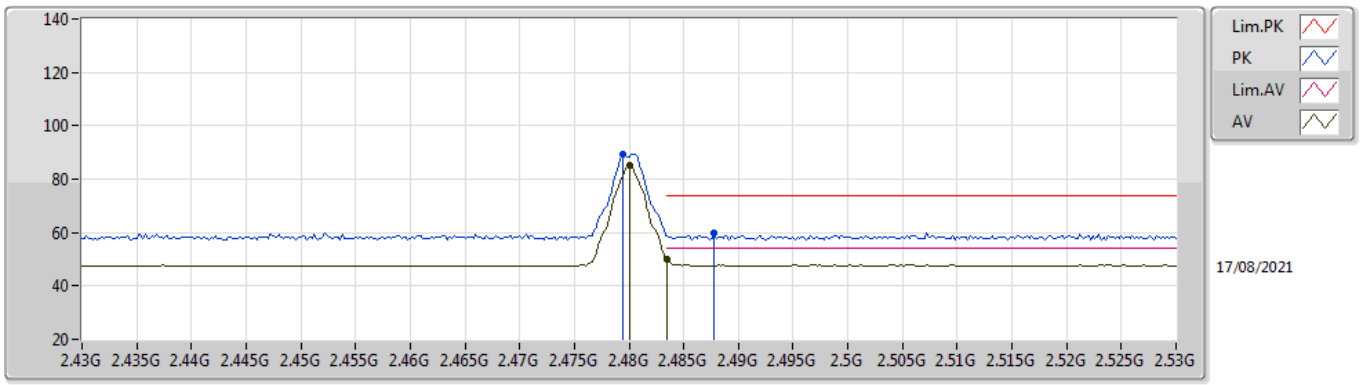
2480MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.48G	90.41	Inf	-Inf	34.72	3	Vertical	6	2.23	-	55.69	27.40	7.32	-
AV	2.4835G	53.15	54.00	-0.85	34.73	3	Vertical	6	2.23	-	18.42	27.40	7.33	-
PK	2.4806G	94.67	Inf	-Inf	34.72	3	Vertical	6	2.23	-	59.95	27.40	7.32	-
PK	2.4835G	62.94	74.00	-11.06	34.73	3	Vertical	6	2.23	-	28.21	27.40	7.33	-

Zigbee

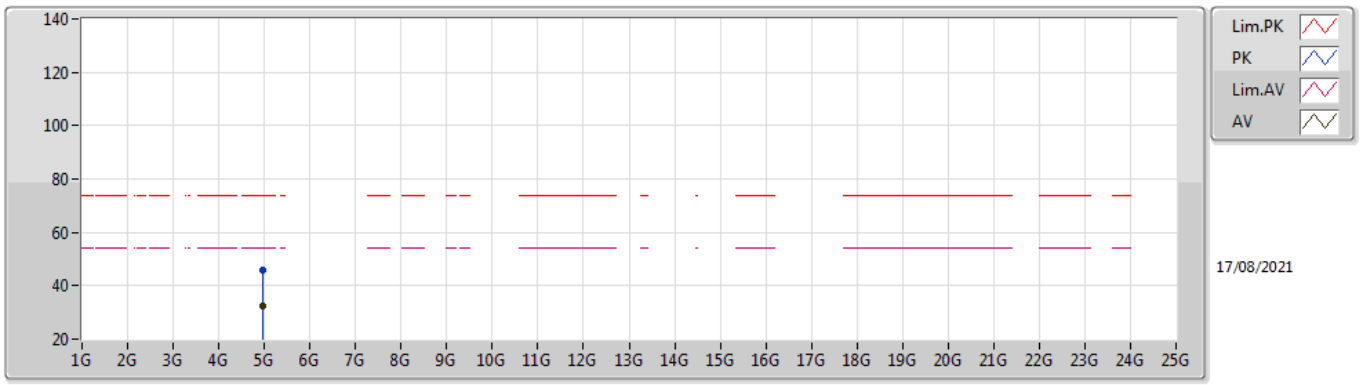
2480MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.48G	85.16	Inf	-Inf	34.72	3	Horizontal	300	1.34	-	50.44	27.40	7.32	-
AV	2.4835G	49.90	54.00	-4.10	34.73	3	Horizontal	300	1.34	-	15.17	27.40	7.33	-
PK	2.4794G	89.44	Inf	-Inf	34.72	3	Horizontal	300	1.34	-	54.72	27.40	7.32	-
PK	2.4878G	59.76	74.00	-14.24	34.73	3	Horizontal	300	1.34	-	25.03	27.40	7.33	-

Zigbee

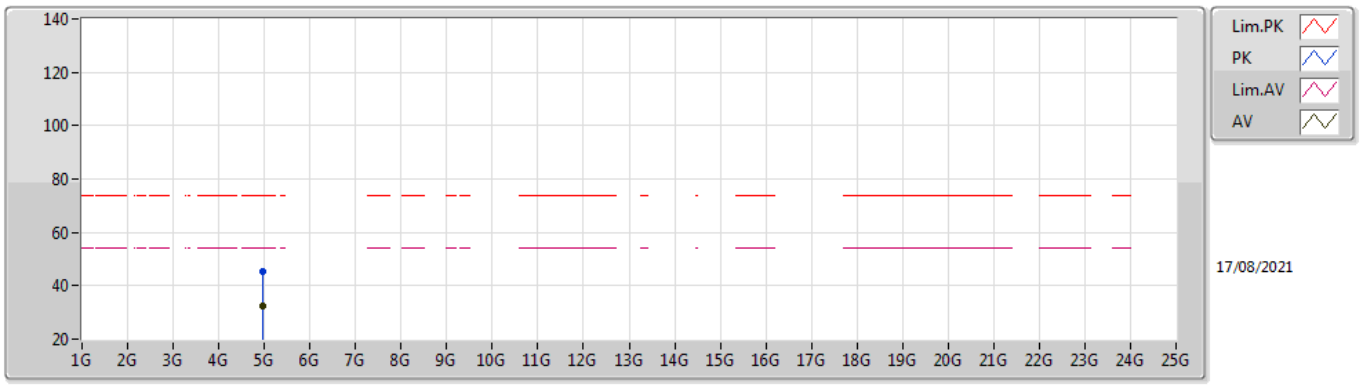
2480MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.95896G	32.32	54.00	-21.68	6.21	3	Vertical	61	1.50	-	26.11	31.42	9.02	34.23
PK	4.95868G	45.70	74.00	-28.30	6.21	3	Vertical	91.2	1.50	-	39.49	31.42	9.02	34.23

Zigbee

2480MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.95918G	32.32	54.00	-21.68	6.21	3	Horizontal	277	1.50	-	26.11	31.42	9.02	34.23
PK	4.96076G	45.60	74.00	-28.40	6.21	3	Horizontal	277	1.50	-	39.39	31.42	9.02	34.23