FCC Radio Test Report

FCC ID	:	**2AUIUWF6ETBMRA**
Equipment	:	**Wyze Mesh Router Pro**
Brand Name	:	**WYZE**
Model Name	:	**WF6ETBMR**
Applicant	:	**Wyze Labs, Inc. 5808 Lake Washington Blvd NE Ste 300, Kirkland, WA 98033, USA**
Manufacturer	:	**Wyze Labs, Inc. 5808 Lake Washington Blvd NE Ste 300, Kirkland, WA 98033, USA**
Standard	:	**47 CFR FCC Part 15.247**

The product was received on Mar. 24, 2022, and testing was started from Mar. 28, 2022 and completed on Sep. 12, 2022. 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
FR283128AZ	01	Initial issue of report	Oct. 13, 2022

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	-

Note: From Sporton Project No.:FR232320AZ.

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: Ryan Hsiao

Report Producer: Michelle Tsai

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	LITEON	N/A	PCB	I-PEX
2	LITEON	N/A	PCB	I-PEX
3	LITEON	N/A	PCB	I-PEX
4	LITEON	N/A	PCB	I-PEX
5	LITEON	N/A	PCB	I-PEX
6	LITEON	N/A	PCB	I-PEX

Ant.	Port	Gain (dBi)				
		2.4G	5G	BT	Zigbee	6G
1	1	4.1	4.3	-	-	-
2	2	3.6	2.9	-	-	-
3	1	-	-	4.5	-	-
4	1	-	-	-	3.7	-
5	1	-	-	-	-	3.5
6	2	-	-	-	-	3.4

Note 1: The EUT has six 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 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.

For BT function:
For IEEE 802.15.1 Bluetooth mode (1TX/1RX)
Ant. 3 (port 1) could transmit/receive
For Zigbee function:
For Zigbee mode (1TX/1RX)
Ant. 4 (port 1) could transmit/receive.
For 6GHz function:
For IEEE 802.11 ax mode (2TX/2RX)
Ant. 5 (port 1) and Ant. 6 (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
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	0.895	0.48	3.411m	300

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 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	Wayne Chiu	21.7~22.1°C / 53~56%	27/Apr/2022
RF Conducted	TH06-HY	Yuna Lin	22.8~25.2°C / 49~56%	26/Apr/2022
Radiated	03CH02-HY	Lego Lin	21.5~23.6°C / 56~60%	28/Mar/2022~16/Apr/2022
☒ 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.				
Test Condition	**Test Site No.**	**Test Engineer**	**Test Environment**	**Test Date**
Radiated (Co-location)	03CH09-HY	Edward Wang	22.5~23.5°C / 52~62%	12/Sep/2022

Note：The tested sample of the new test item was received on August 31, 2022.

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 Date: 28/Mar/2022~27/Apr/2022

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%

Test Date: 12/Sep/2022

Test Items	Uncertainty	Remark
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	Dos 6.1

Mode	Power Setting
Zigbee	-
2405MHz	8
2440MHz	8
2480MHz	8

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		

The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis
Test Condition	Radiated measurement
Operating Mode	CTX
1	WLAN 2.4GHz + WLAN 5GHz + WLAN 6GHz + Bluetooth + Zigbee
Refer to Sporton Test Report No.: FA283128 for Co-location RF Exposure Evaluation and Appendix G for Radiated Emission Co-location.	

2.3 Accessories

Accessories				
AC Adapter	Brand Name	ASIAN POWER DEVICES INC.	Model Name	WB-24M12FU
	Power Rating	I/P: 100 - 240 Vac, 0.7 A, O/P: 12.0 Vdc, 2.0 A		
	Power Cord	1.5 meter, non-shielded cable, w/o ferrite core		

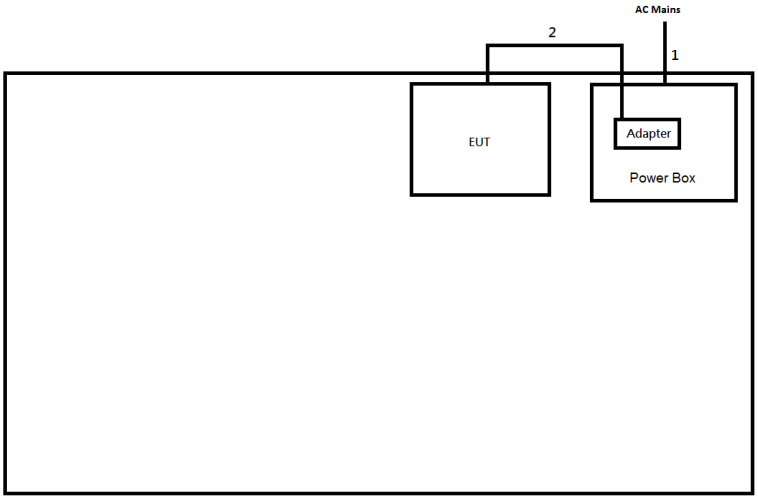
Reminder: Regarding to more detail and other information, please refer to user manual.

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	-	-

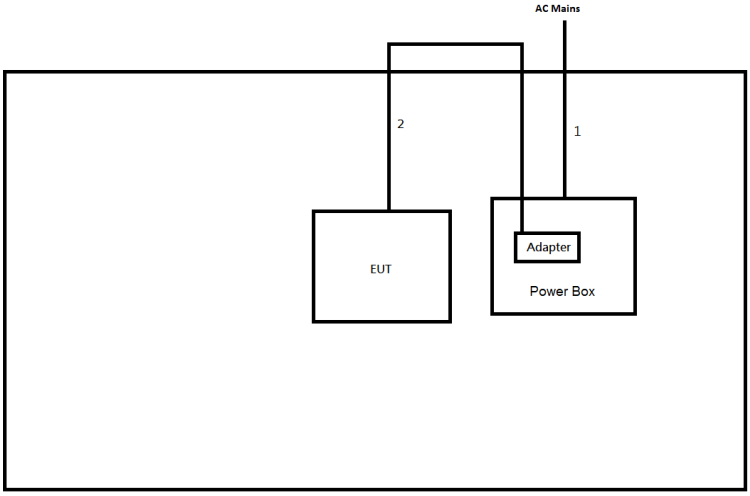
2.5 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test



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

Test Setup Diagram - Radiated Test



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

3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

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

3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

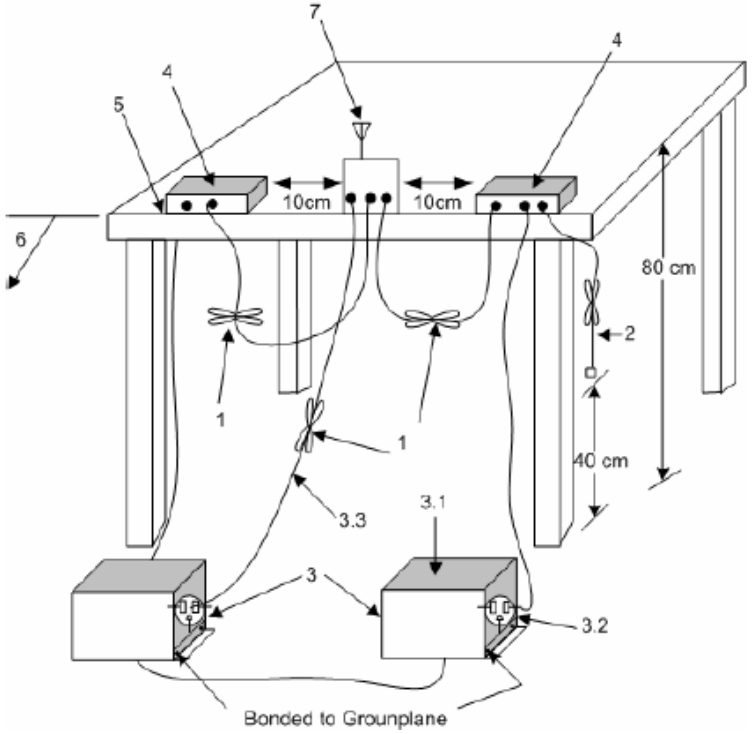
Test Method
☒ Refer as ANSI C63.10-2013, clause 6.2 for AC power-line conducted emissions.

3.1.4 Measurement Results Calculation

The measured Level is calculated using:
Corrected Reading: Raw(Read Level) +LISN(LISN Factor) + CL(Cable Loss) + AT(Attenuator).

3.1.5 Test Setup

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 50Ωloads. 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

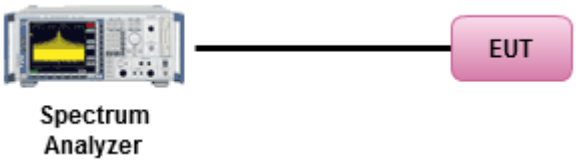
Refer a test equipment and calibration data table in this test report.

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

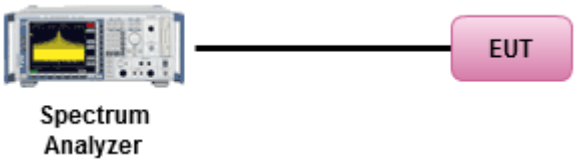
3.4.2 Measuring Instruments

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
 Spectrum Analyzer

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.	

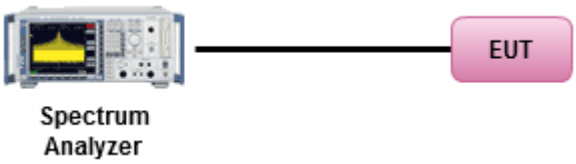
3.5.2 Measuring Instruments

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.

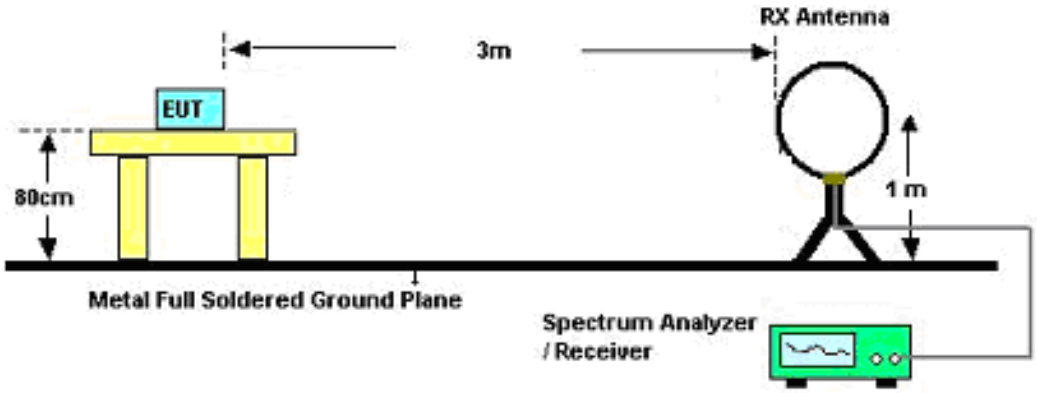
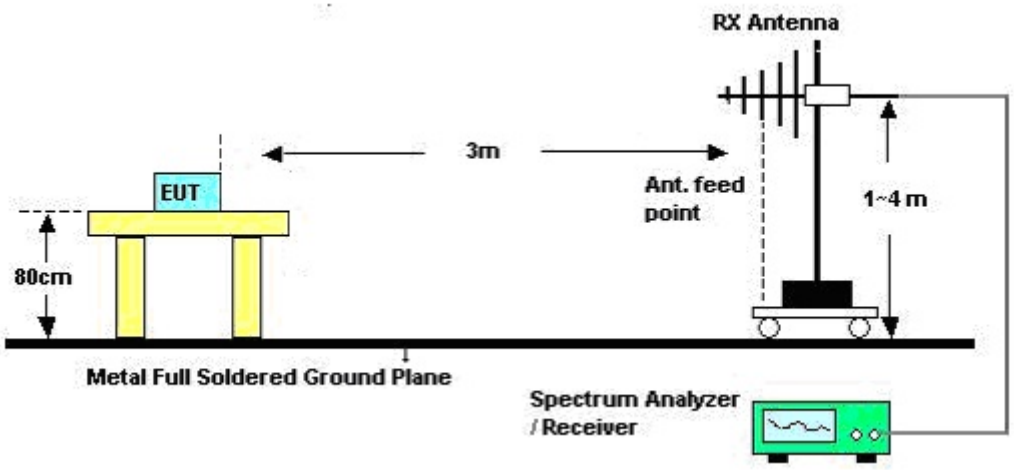
3.6.3 Test Procedures

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.

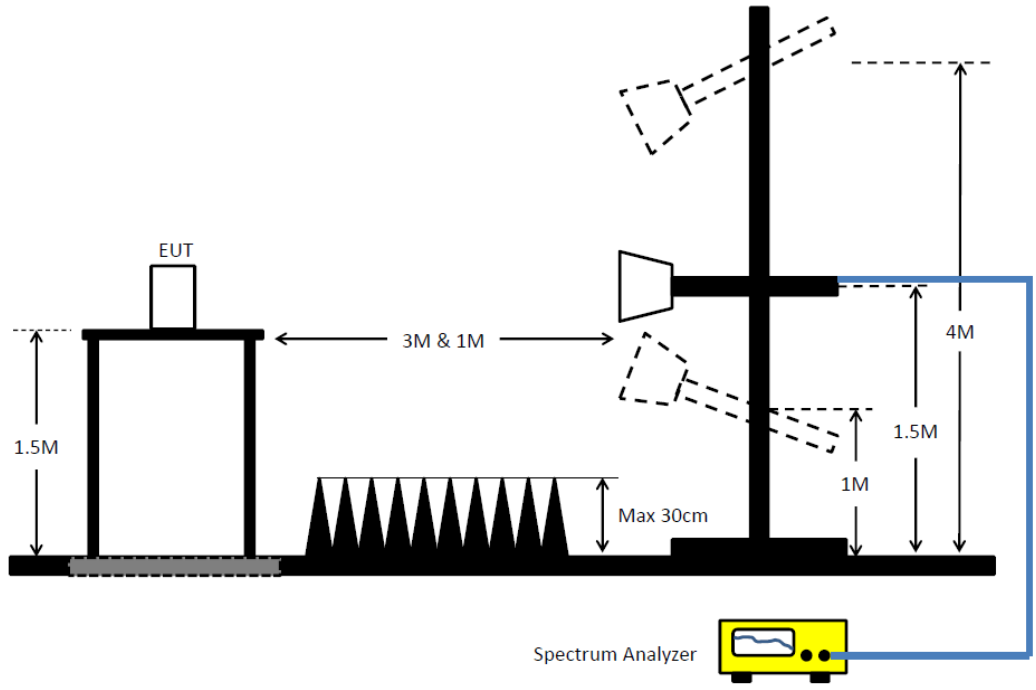
3.6.4 Measurement Results Calculation

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	ESR3	102051	9kHz ~ 3.6GHz	21/May/2021	20/May/2022
Two-Line V-Network	R&S	ENV 216	100003	9kHz ~ 30MHz	18/Feb/2022	17/Feb/2023
RF Cable 5m	TITAN	TITAN	CO04-cable-01	9 kHz~200MHz	01/Mar/2022	28/Feb/2023
Impuls Begrenzer Pulse Limiter	SCHWARZBECK	VTSD 9561-F	9561-F041	9kHz ~ 30MHz	26/Oct/2021	25/Oct/2022
Software	Sporton	SENSE-EMI	V5.10.7	-	NCR	NCR

NCR: No Calibration Required

Instrument for Conducted Test

Instrument	Manufacturer /Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Signal Analyzer	R&S	FSV 40	101029	10Hz~40GHz	20/Oct/2021	19/Oct/2022
SMB100A Signal Generator	R&S	SMB100A	181147	100kHz~40GHz	21/Oct/2021	20/Oct/2022
Pulse Sensor	Anritsu	MA2411B	1027452	300MHz~40GHz	25/Mar/2022	24/Mar/2023
Power Meter	Anritsu	ML2495A	1124009	300MHz~40GHz	25/Mar/2022	24/Mar/2023
SENSE-15247_DTS	Sporton	V5.10.7.17	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	03CH02-HY	30MHz~1GHz 3m	02/Aug/2021	01/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	FSV40	101500	10Hz~40GHz	12/Oct/2021	11/Oct/2022
Amplifier	Agilent	8447D	2944A11149	100kHz~1.3GHz	29/Jun/2021	28/Jun/2022
Microwave Preamplifier	Agilent	8449B	3008A02373	1GHz~26.5GHz	03/Nov/2021	02/Nov/2022
Bilog Antenna & 5dB Attenuator	SCHAFFNER / MTJ	CBL 6112B / MTJ6102-05	2723 / 2	30MHz~1GHz	04/Sep/2021	03/Sep/2022
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	01/Apr/2022	31/Mar/2023
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA 9170221	15GHz~40GHz	18/Mar/2022	17/Mar/2023
Microwave Premplifier	EMC INSTRUMENTS	EM18G40G	060604	18GHz~40GHz	08/Mar/2022	07/Mar/2023
Loop Antenna	TESEQ	HLA 6120	31244	9kHz~30MHz	18/Mar/2022	17/Mar/2023
EMI Test Receiver	R&S	ESR3	102052	9kHz~3.6GHz	19/Apr/2021	18/Apr/2022
SENSE-15247_DTS	Sporton	V5.10.7.15	N/A	N/A	N/A	N/A

Instrument for Radiated Test (Co-location)

Instrument	Manufacturer /Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	1GHz~18GHz 3m	17/Mar/2022	16/Mar/2023
EXA Signal Analyzer	KEYSIGHT	N9010A	MY54200885	10Hz~44GHz	11/Aug/2022	10/Aug/2023
Microwave Preamplifier	Agilent	8449B	3008A02096	1GHz~26.5GHz	22/Jul/2022	21/Jul/2023
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1531	1GHz~18GHz	27/Dec/2021	26/Dec/2022
RF CABLE 5m+3m+1m	HUBER+SUHNER	SUCOFLEX104	03CH09-cable-02	1GHz~40GHz	17/Aug/2022	16/Aug/2023
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA 9170221	18GHz~40GHz	18/Mar/2022	17/Mar/2023
Microwave Premplifier	EMC INSTRUMENTS	EM18G40G	060604	18GHz ~ 40GHz	08/Mar/2022	07/Mar/2023
SENSE-EMI	Sporton	V5.10.8.6	NA	NA	NA	NA

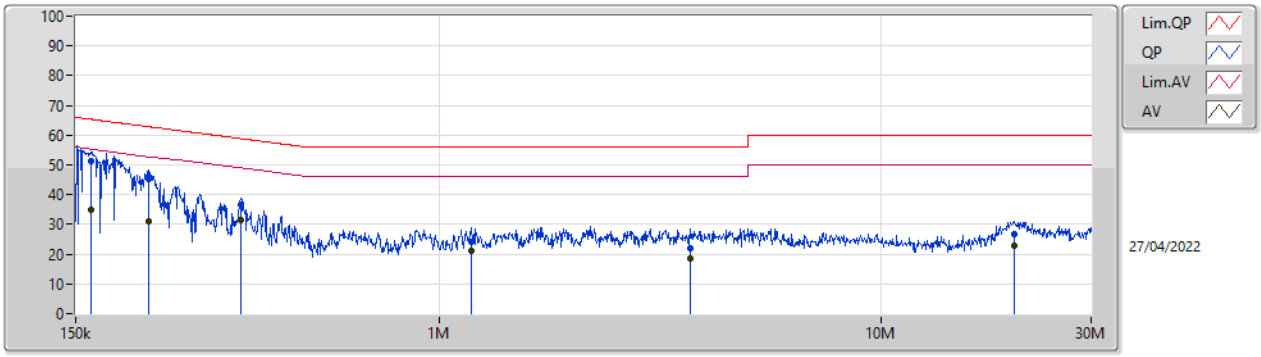
Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	QP	163.769k	51.62	65.27	-13.65	Neutral

Result

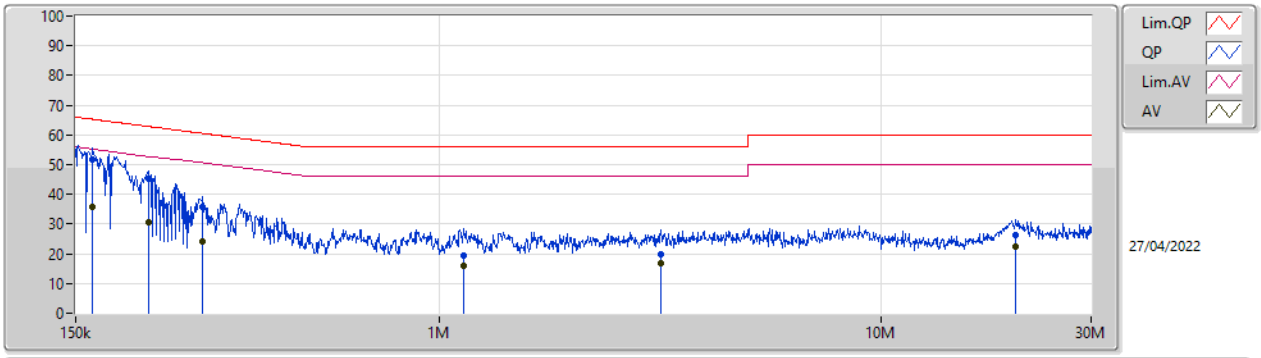
Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition	Comments
Mode 1	Pass	QP	162.467k	51.42	65.33	-13.91	Line	-
Mode 1	Pass	AV	162.467k	35.10	55.33	-20.23	Line	-
Mode 1	Pass	QP	219.176k	45.28	62.85	-17.57	Line	-
Mode 1	Pass	AV	219.176k	30.83	52.85	-22.02	Line	-
Mode 1	Pass	QP	355.282k	36.44	58.83	-22.39	Line	-
Mode 1	Pass	AV	355.282k	31.64	48.83	-17.19	Line	-
Mode 1	Pass	QP	1.181M	23.94	56.00	-32.06	Line	-
Mode 1	Pass	AV	1.181M	21.09	46.00	-24.91	Line	-
Mode 1	Pass	QP	3.715M	22.07	56.00	-33.93	Line	-
Mode 1	Pass	AV	3.715M	18.46	46.00	-27.54	Line	-
Mode 1	Pass	QP	20.027M	26.77	60.00	-33.23	Line	-
Mode 1	Pass	AV	20.027M	22.76	50.00	-27.24	Line	-
Mode 1	Pass	QP	163.769k	51.62	65.27	-13.65	Neutral	-
Mode 1	Pass	AV	163.769k	35.80	55.27	-19.47	Neutral	-
Mode 1	Pass	QP	219.176k	45.31	62.85	-17.54	Neutral	-
Mode 1	Pass	AV	219.176k	30.79	52.85	-22.06	Neutral	-
Mode 1	Pass	QP	290.996k	35.94	60.49	-24.55	Neutral	-
Mode 1	Pass	AV	290.996k	24.28	50.49	-26.21	Neutral	-
Mode 1	Pass	QP	1.135M	19.24	56.00	-36.76	Neutral	-
Mode 1	Pass	AV	1.135M	16.08	46.00	-29.92	Neutral	-
Mode 1	Pass	QP	3.18M	19.98	56.00	-36.02	Neutral	-
Mode 1	Pass	AV	3.18M	17.00	46.00	-29.00	Neutral	-
Mode 1	Pass	QP	20.269M	26.13	60.00	-33.87	Neutral	-
Mode 1	Pass	AV	20.269M	22.32	50.00	-27.68	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	51.42	65.33	-13.91	19.63	Line	-	31.79	9.69	0.03	9.91
AV	162.467k	35.10	55.33	-20.23	19.63	Line	-	15.47	9.69	0.03	9.91
QP	219.176k	45.28	62.85	-17.57	19.63	Line	-	25.65	9.69	0.03	9.91
AV	219.176k	30.83	52.85	-22.02	19.63	Line	-	11.20	9.69	0.03	9.91
QP	355.282k	36.44	58.83	-22.39	19.63	Line	-	16.81	9.68	0.04	9.91
AV	355.282k	31.64	48.83	-17.19	19.63	Line	-	12.01	9.68	0.04	9.91
QP	1.181M	23.94	56.00	-32.06	19.66	Line	-	4.28	9.68	0.06	9.92
AV	1.181M	21.09	46.00	-24.91	19.66	Line	-	1.43	9.68	0.06	9.92
QP	3.715M	22.07	56.00	-33.93	19.75	Line	-	2.32	9.71	0.12	9.92
AV	3.715M	18.46	46.00	-27.54	19.75	Line	-	-1.29	9.71	0.12	9.92
QP	20.027M	26.77	60.00	-33.23	19.99	Line	-	6.78	9.79	0.27	9.93
AV	20.027M	22.76	50.00	-27.24	19.99	Line	-	2.77	9.79	0.27	9.93

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	163.769k	51.62	65.27	-13.65	19.67	Neutral	-	31.95	9.73	0.03	9.91
AV	163.769k	35.80	55.27	-19.47	19.67	Neutral	-	16.13	9.73	0.03	9.91
QP	219.176k	45.31	62.85	-17.54	19.66	Neutral	-	25.65	9.72	0.03	9.91
AV	219.176k	30.79	52.85	-22.06	19.66	Neutral	-	11.13	9.72	0.03	9.91
QP	290.996k	35.94	60.49	-24.55	19.67	Neutral	-	16.27	9.72	0.04	9.91
AV	290.996k	24.28	50.49	-26.21	19.67	Neutral	-	4.61	9.72	0.04	9.91
QP	1.135M	19.24	56.00	-36.76	19.71	Neutral	-	-0.47	9.73	0.06	9.92
AV	1.135M	16.08	46.00	-29.92	19.71	Neutral	-	-3.63	9.73	0.06	9.92
QP	3.18M	19.98	56.00	-36.02	19.78	Neutral	-	0.20	9.75	0.11	9.92
AV	3.18M	17.00	46.00	-29.00	19.78	Neutral	-	-2.78	9.75	0.11	9.92
QP	20.269M	26.13	60.00	-33.87	20.20	Neutral	-	5.93	10.00	0.27	9.93
AV	20.269M	22.32	50.00	-27.68	20.20	Neutral	-	2.12	10.00	0.27	9.93

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
Zigbee	1.113M	2.293M	2M29G1D	1.075M	2.261M

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	1.113M	2.261M
2440MHz	Pass	500k	1.088M	2.286M
2480MHz	Pass	500k	1.075M	2.293M

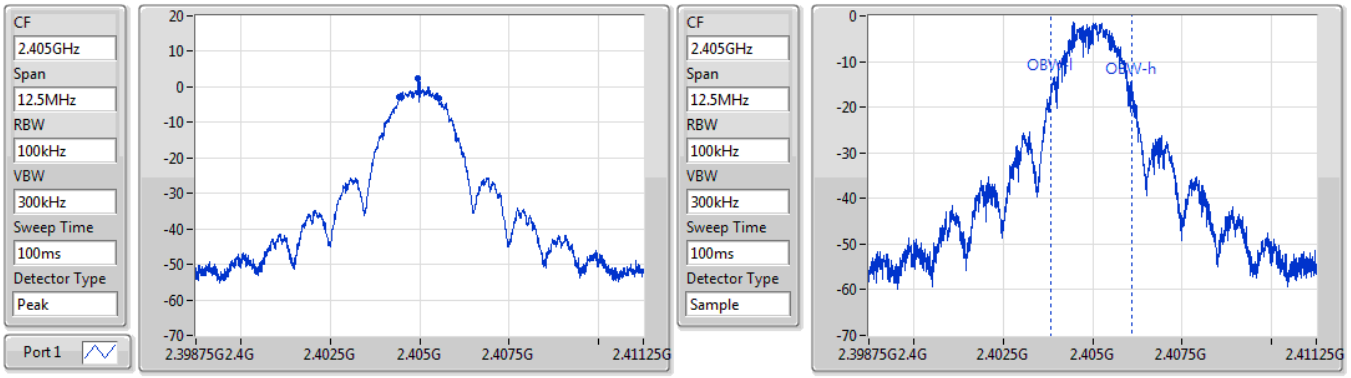
Port X-N dB = Port X 6dB down bandwidth;
Port X-OBW = Port X 99% occupied bandwidth

Zigbee

EBW

2405MHz

26/04/2022



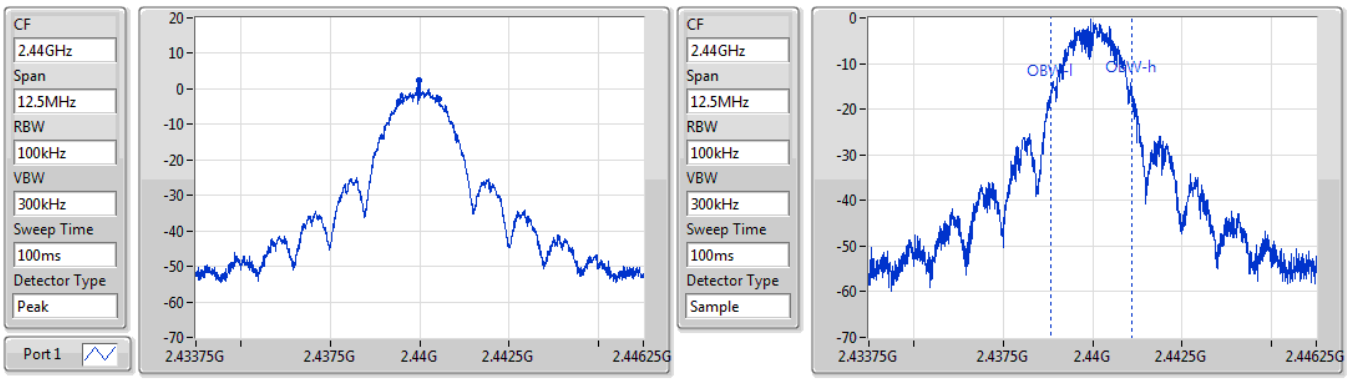
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.113M	2.404425G	2.405538G	2.261M	2.403838G	2.406099G	500k	1

Zigbee

EBW

2440MHz

26/04/2022

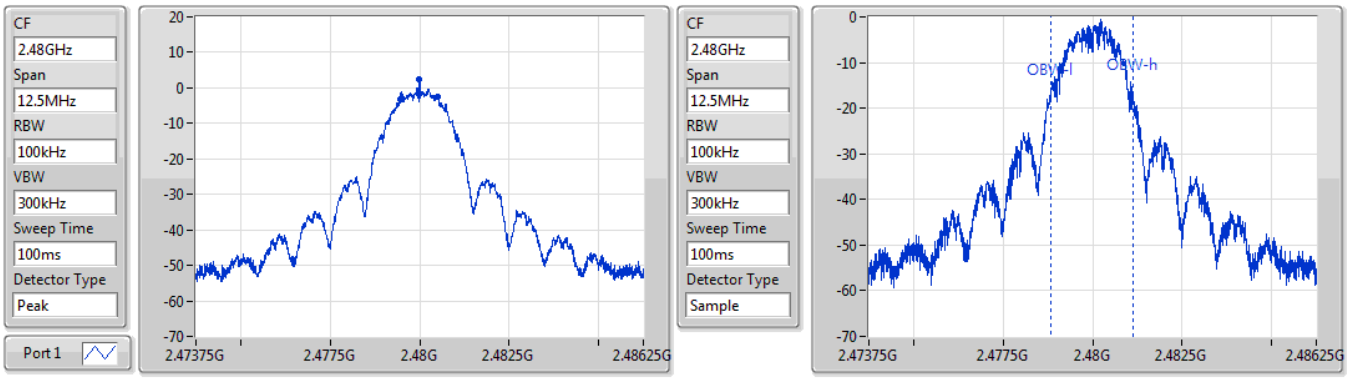


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.088M	2.439438G	2.440525G	2.286M	2.438826G	2.441112G	500k	1

Zigbee **EBW**

2480MHz

26/04/2022



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.075M	2.479444G	2.480519G	2.293M	2.478826G	2.481118G	500k	1

Summary

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
Zigbee	2.93	0.00196

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Total Power (dBm)	Power Limit (dBm)
Zigbee	-	-	-	-	-
2405MHz	Pass	3.70	2.93	2.93	30.00
2440MHz	Pass	3.70	2.80	2.80	30.00
2480MHz	Pass	3.70	2.74	2.74	30.00

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

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
Zigbee	-10.36

RBW = 3kHz;

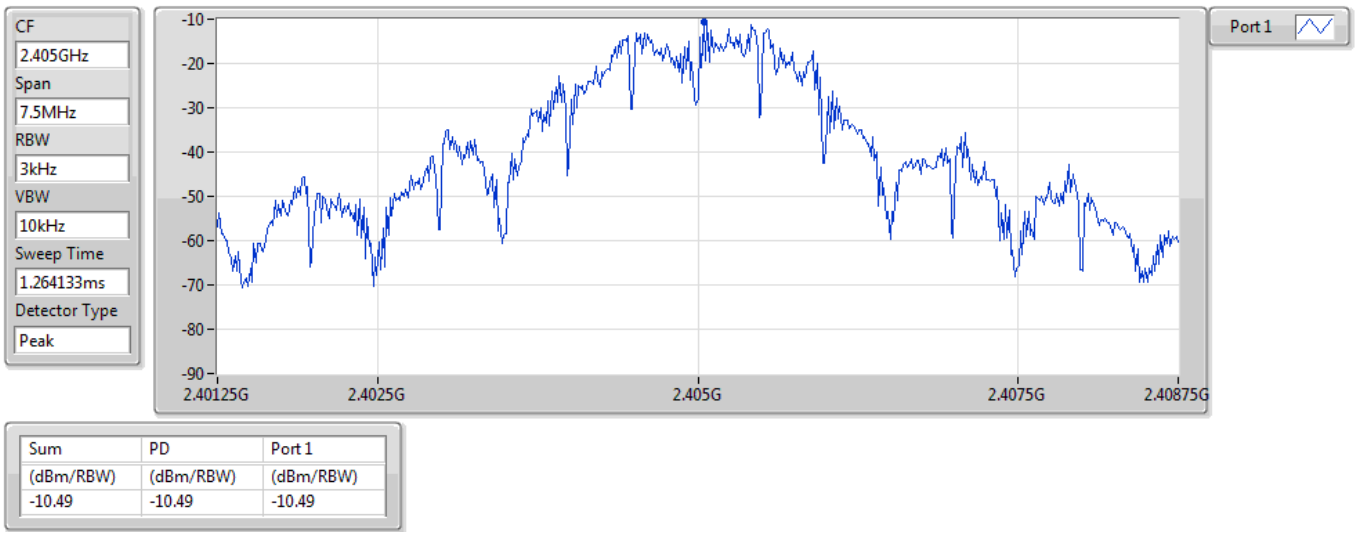
Result

Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
Zigbee	-	-	-	-	-
2405MHz	Pass	3.70	-10.49	-10.49	8.00
2440MHz	Pass	3.70	-10.36	-10.36	8.00
2480MHz	Pass	3.70	-10.65	-10.65	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

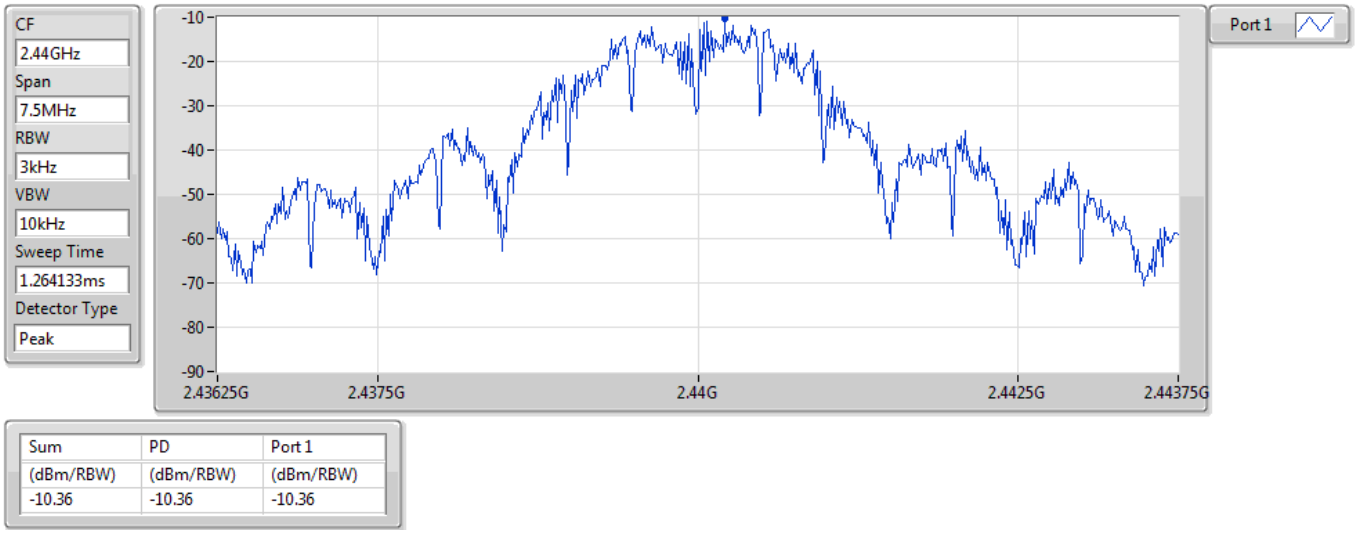
2405MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-10.49	-10.49	-10.49

Zigbee PSD

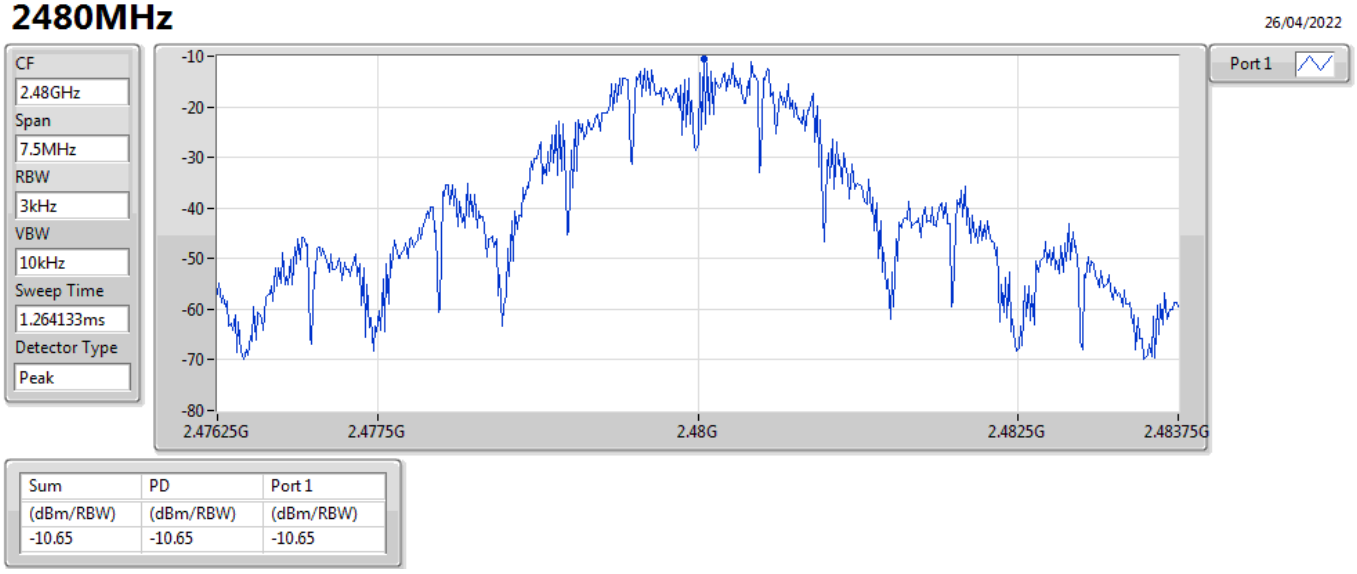
2440MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-10.36	-10.36	-10.36

Zigbee **PSD**

2480MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-10.65	-10.65	-10.65

Summary

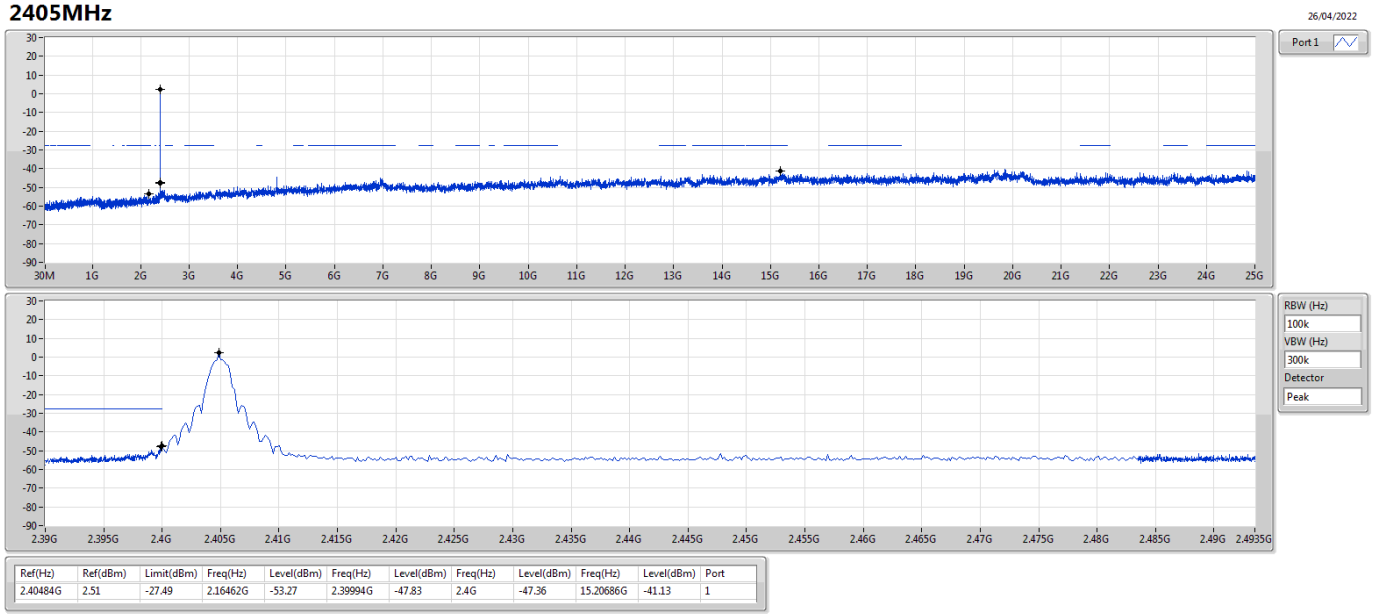
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-
Zigbee	Pass	2.40484G	2.51	-27.49	2.16462G	-53.27	2.39994G	-47.83	2.4G	-47.36	15.20686G	-41.13	1

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)	Port
Zigbee	-	-	-	-	-	-	-	-	-	-	-	-	-
2405MHz	Pass	2.40484G	2.51	-27.49	2.16462G	-53.27	2.39994G	-47.83	2.4G	-47.36	15.20686G	-41.13	1
2440MHz	Pass	2.40484G	2.51	-27.49	2.18468G	-53.95	2.3916G	-52.43	2.4G	-53.60	15.24062G	-41.69	1
2480MHz	Pass	2.40484G	2.51	-27.49	2.07258G	-53.92	2.39614G	-52.53	2.4G	-54.77	15.21811G	-41.27	1

Zigbee **CSENdB**

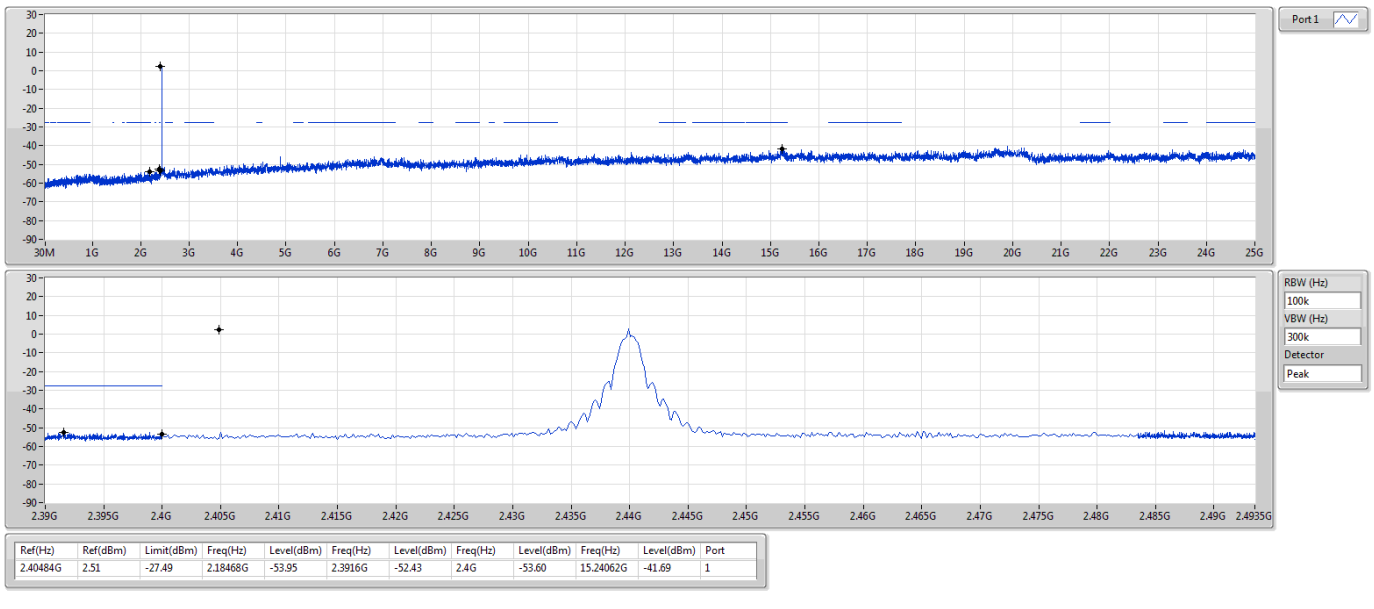
2405MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.40484G	2.51	-27.49	2.16462G	-53.27	2.39994G	-47.83	2.4G	-47.36	15.20686G	-41.13	1

Zigbee **CSENdB**

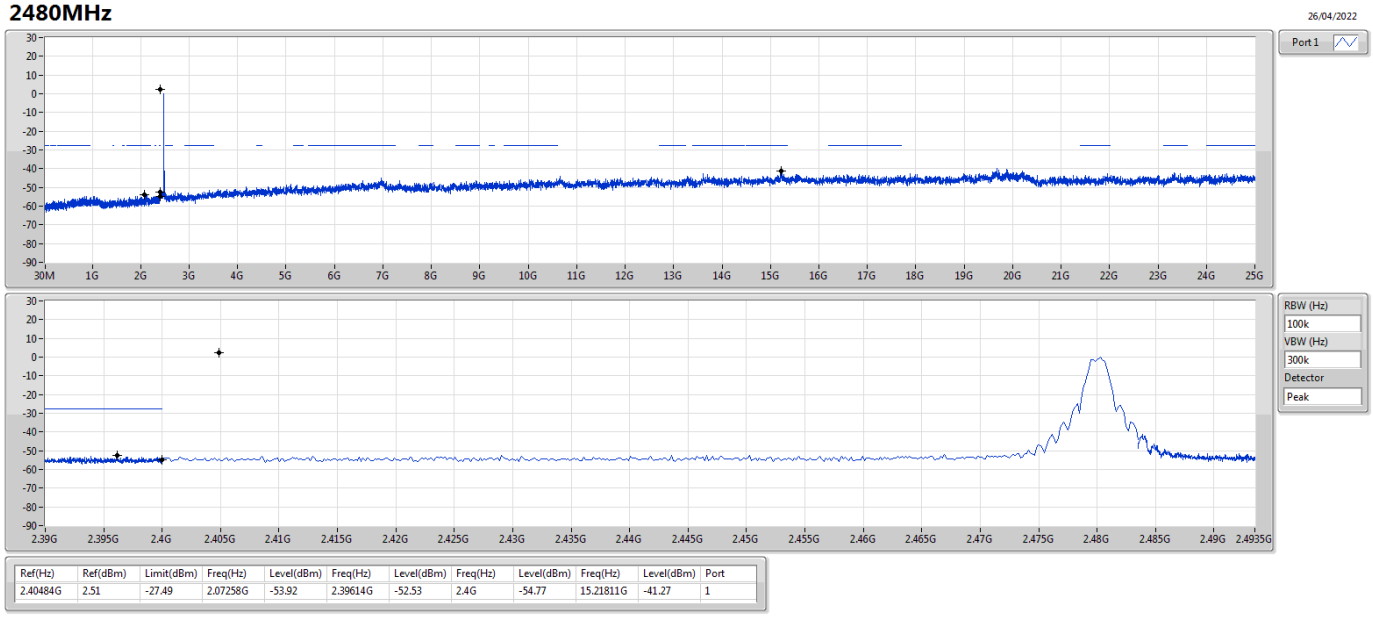
2440MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.40484G	2.51	-27.49	2.18468G	-53.95	2.3916G	-52.43	2.4G	-53.60	15.24062G	-41.69	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)	Port
2.40484G	2.51	-27.49	2.07258G	-53.92	2.39614G	-52.53	2.4G	-54.77	15.21811G	-41.27	1

Summary

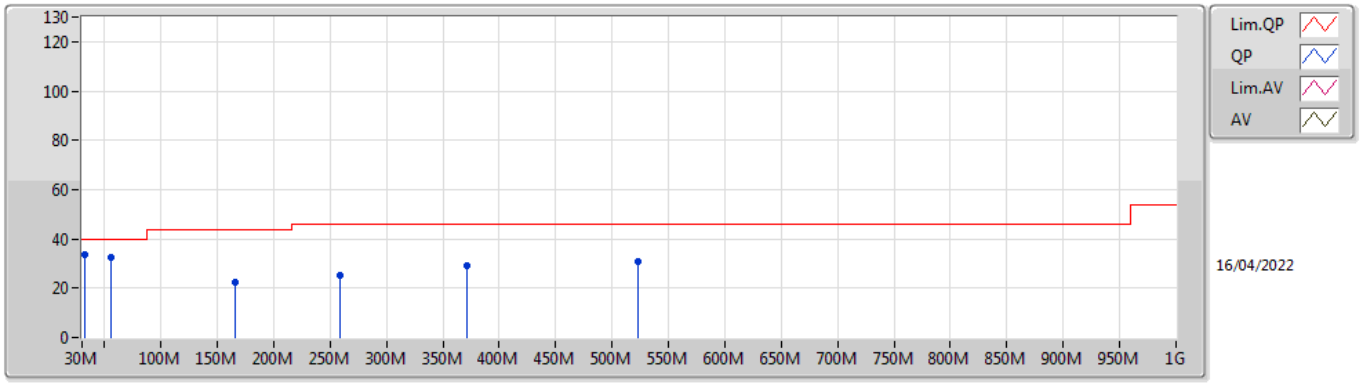
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
Zigbee	Pass	PK	31.94M	34.76	40.00	-5.24	3	Horizontal	360	1.00	-

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	31.94M	33.82	40.00	-6.18	3	Vertical	0	1.00	-
2440MHz	Pass	PK	55.22M	32.50	40.00	-7.50	3	Vertical	0	1.00	-
2440MHz	Pass	PK	165.8M	22.58	43.50	-20.92	3	Vertical	0	1.00	-
2440MHz	Pass	PK	258.92M	25.15	46.00	-20.85	3	Vertical	0	1.00	-
2440MHz	Pass	PK	371.44M	28.89	46.00	-17.11	3	Vertical	0	1.00	-
2440MHz	Pass	PK	522.76M	30.63	46.00	-15.37	3	Vertical	0	1.00	-
2440MHz	Pass	PK	31.94M	34.76	40.00	-5.24	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	115.36M	24.47	43.50	-19.03	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	183.26M	23.99	43.50	-19.51	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	208.48M	26.11	43.50	-17.39	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	258.92M	24.29	46.00	-21.71	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	371.44M	28.39	46.00	-17.61	3	Horizontal	360	1.00	-

Zigbee

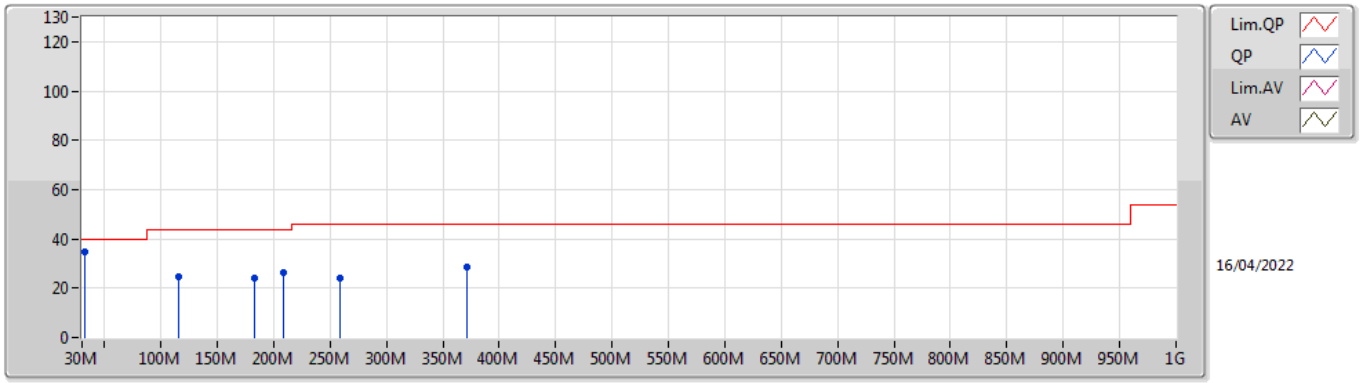
2440MHz_Adapter



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	31.94M	33.82	40.00	-6.18	-3.99	3	Vertical	0	1.00	-	37.81	22.18	0.88	27.05
PK	55.22M	32.50	40.00	-7.50	-14.62	3	Vertical	0	1.00	-	47.12	12.01	1.10	27.73
PK	165.8M	22.58	43.50	-20.92	-10.62	3	Vertical	0	1.00	-	33.20	15.08	1.80	27.50
PK	258.92M	25.15	46.00	-20.85	-6.20	3	Vertical	0	1.00	-	31.35	18.64	2.19	27.03
PK	371.44M	28.89	46.00	-17.11	-4.88	3	Vertical	0	1.00	-	33.77	20.01	2.63	27.52
PK	522.76M	30.63	46.00	-15.37	-2.54	3	Vertical	0	1.00	-	33.17	22.67	3.13	28.34

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	31.94M	34.76	40.00	-5.24	-3.99	3	Horizontal	360	1.00	-	38.75	22.18	0.88	27.05
PK	115.36M	24.47	43.50	-19.03	-8.92	3	Horizontal	360	1.00	-	33.39	17.36	1.51	27.79
PK	183.26M	23.99	43.50	-19.51	-11.18	3	Horizontal	360	1.00	-	35.17	14.38	1.88	27.44
PK	208.48M	26.11	43.50	-17.39	-10.91	3	Horizontal	360	1.00	-	37.02	14.37	1.99	27.27
PK	258.92M	24.29	46.00	-21.71	-6.20	3	Horizontal	360	1.00	-	30.49	18.64	2.19	27.03
PK	371.44M	28.39	46.00	-17.61	-4.88	3	Horizontal	360	1.00	-	33.27	20.01	2.63	27.52

Summary

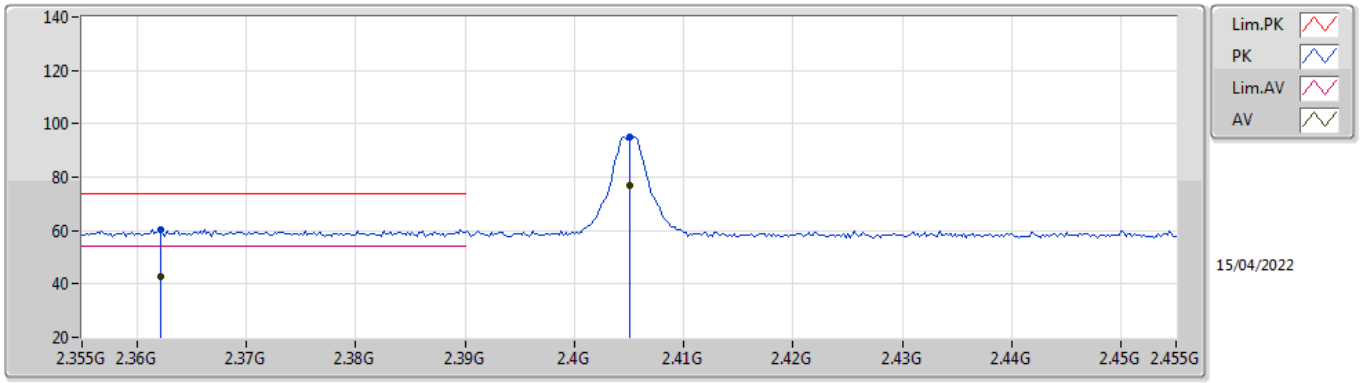
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
Zigbee	Pass	AV	2.4835G	45.31	54.00	-8.69	3	Vertical	56	2.20	-

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	2.3622G	42.55	54.00	-11.45	3	Vertical	71	1.64	-
2405MHz	Pass	AV	2.405G	77.03	Inf	-Inf	3	Vertical	71	1.64	-
2405MHz	Pass	PK	2.3622G	60.41	74.00	-13.59	3	Vertical	71	1.64	-
2405MHz	Pass	PK	2.405G	94.89	Inf	-Inf	3	Vertical	71	1.64	-
2405MHz	Pass	AV	2.3834G	42.99	54.00	-11.01	3	Horizontal	132	3.00	-
2405MHz	Pass	AV	2.4046G	76.46	Inf	-Inf	3	Horizontal	132	3.00	-
2405MHz	Pass	PK	2.3834G	60.85	74.00	-13.15	3	Horizontal	132	3.00	-
2405MHz	Pass	PK	2.4046G	94.32	Inf	-Inf	3	Horizontal	132	3.00	-
2405MHz	Pass	AV	4.80902G	36.31	54.00	-17.69	3	Vertical	308	1.15	-
2405MHz	Pass	PK	4.80902G	54.17	74.00	-19.83	3	Vertical	308	1.15	-
2405MHz	Pass	AV	4.81095G	36.72	54.00	-17.28	3	Horizontal	166	1.24	-
2405MHz	Pass	PK	4.81095G	54.58	74.00	-19.42	3	Horizontal	166	1.24	-
2440MHz	Pass	AV	2.3788G	42.81	54.00	-11.19	3	Vertical	43	2.51	-
2440MHz	Pass	AV	2.4396G	79.24	Inf	-Inf	3	Vertical	43	2.51	-
2440MHz	Pass	AV	2.488G	41.40	54.00	-12.60	3	Vertical	43	2.51	-
2440MHz	Pass	PK	2.3788G	60.67	74.00	-13.33	3	Vertical	43	2.51	-
2440MHz	Pass	PK	2.4396G	97.10	Inf	-Inf	3	Vertical	43	2.51	-
2440MHz	Pass	PK	2.488G	59.26	74.00	-14.74	3	Vertical	43	2.51	-
2440MHz	Pass	AV	2.3852G	42.95	54.00	-11.05	3	Horizontal	64	2.76	-
2440MHz	Pass	AV	2.4396G	80.75	Inf	-Inf	3	Horizontal	64	2.76	-
2440MHz	Pass	AV	2.4844G	41.74	54.00	-12.26	3	Horizontal	64	2.76	-
2440MHz	Pass	PK	2.3852G	60.81	74.00	-13.19	3	Horizontal	64	2.76	-
2440MHz	Pass	PK	2.4396G	98.61	Inf	-Inf	3	Horizontal	64	2.76	-
2440MHz	Pass	PK	2.4844G	59.60	74.00	-14.40	3	Horizontal	64	2.76	-
2440MHz	Pass	AV	4.88101G	31.90	54.00	-22.10	3	Vertical	310	1.12	-
2440MHz	Pass	AV	7.32132G	32.84	54.00	-21.16	3	Vertical	16	1.62	-
2440MHz	Pass	PK	4.88101G	49.76	74.00	-24.24	3	Vertical	310	1.12	-
2440MHz	Pass	PK	7.32132G	50.70	74.00	-23.30	3	Vertical	16	1.62	-
2440MHz	Pass	AV	4.88008G	32.90	54.00	-21.10	3	Horizontal	164	1.50	-
2440MHz	Pass	AV	7.31839G	34.81	54.00	-19.19	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	4.88008G	50.76	74.00	-23.24	3	Horizontal	164	1.50	-
2440MHz	Pass	PK	7.31839G	52.67	74.00	-21.33	3	Horizontal	360	1.00	-
2480MHz	Pass	AV	2.4796G	76.98	Inf	-Inf	3	Vertical	56	2.20	-
2480MHz	Pass	AV	2.4835G	45.31	54.00	-8.69	3	Vertical	56	2.20	-
2480MHz	Pass	PK	2.4796G	94.84	Inf	-Inf	3	Vertical	56	2.20	-
2480MHz	Pass	PK	2.4835G	63.17	74.00	-10.83	3	Vertical	56	2.20	-
2480MHz	Pass	AV	2.4796G	73.81	Inf	-Inf	3	Horizontal	66	2.67	-
2480MHz	Pass	AV	2.4836G	43.57	54.00	-10.43	3	Horizontal	66	2.67	-
2480MHz	Pass	PK	2.4796G	91.67	Inf	-Inf	3	Horizontal	66	2.67	-
2480MHz	Pass	PK	2.4836G	61.43	74.00	-12.57	3	Horizontal	66	2.67	-
2480MHz	Pass	AV	4.96102G	28.94	54.00	-25.06	3	Vertical	78	1.29	-
2480MHz	Pass	AV	7.44179G	34.56	54.00	-19.44	3	Vertical	81	1.66	-
2480MHz	Pass	PK	4.96102G	46.80	74.00	-27.20	3	Vertical	78	1.29	-
2480MHz	Pass	PK	7.44179G	52.42	74.00	-21.58	3	Vertical	81	1.66	-
2480MHz	Pass	AV	4.961G	30.42	54.00	-23.58	3	Horizontal	271	2.24	-
2480MHz	Pass	AV	7.43878G	35.62	54.00	-18.38	3	Horizontal	32	2.90	-
2480MHz	Pass	PK	4.961G	48.28	74.00	-25.72	3	Horizontal	271	2.24	-
2480MHz	Pass	PK	7.43878G	53.48	74.00	-20.52	3	Horizontal	32	2.90	-

Zigbee

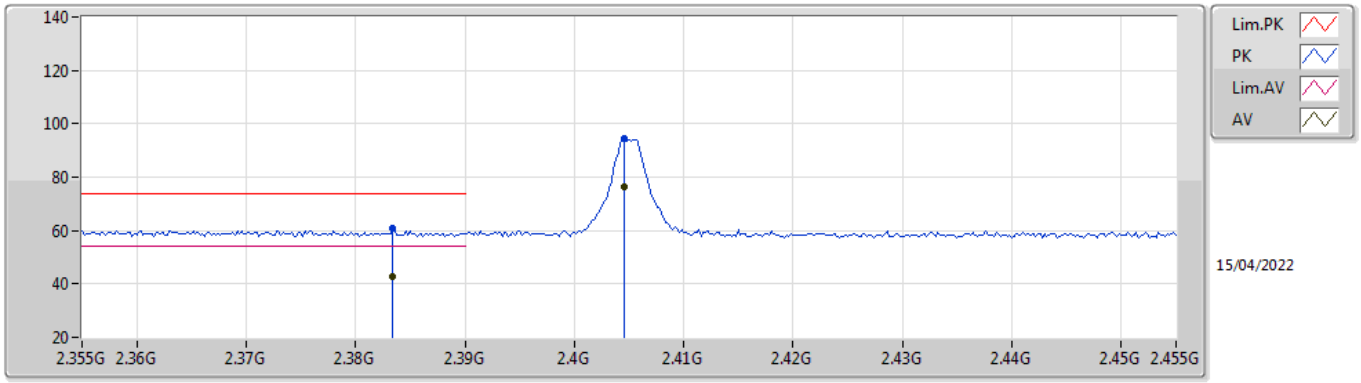
2405MHz_TX



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	2.3622G	42.55	54.00	-11.45	36.04	3	Vertical	71	1.64	-	6.51	27.78	8.26	-
AV	2.405G	77.03	Inf	-Inf	35.96	3	Vertical	71	1.64	-	41.07	27.67	8.29	-
PK	2.3622G	60.41	74.00	-13.59	36.04	3	Vertical	71	1.64	-	24.37	27.78	8.26	-
PK	2.405G	94.89	Inf	-Inf	35.96	3	Vertical	71	1.64	-	58.93	27.67	8.29	-

Zigbee

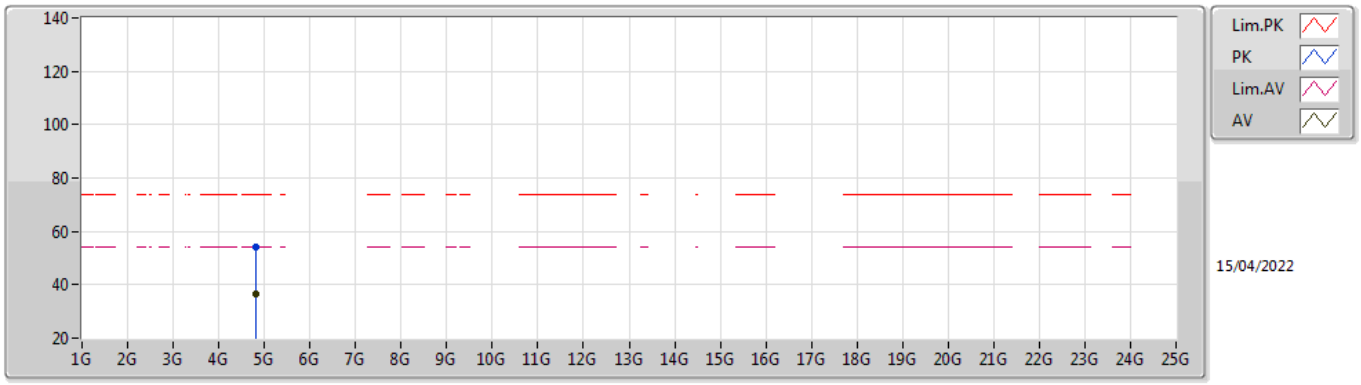
2405MHz_TX



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	2.3834G	42.99	54.00	-11.01	36.01	3	Horizontal	132	3.00	-	6.98	27.73	8.28	-
AV	2.4046G	76.46	Inf	-Inf	35.96	3	Horizontal	132	3.00	-	40.50	27.67	8.29	-
PK	2.3834G	60.85	74.00	-13.15	36.01	3	Horizontal	132	3.00	-	24.84	27.73	8.28	-
PK	2.4046G	94.32	Inf	-Inf	35.96	3	Horizontal	132	3.00	-	58.36	27.67	8.29	-

Zigbee

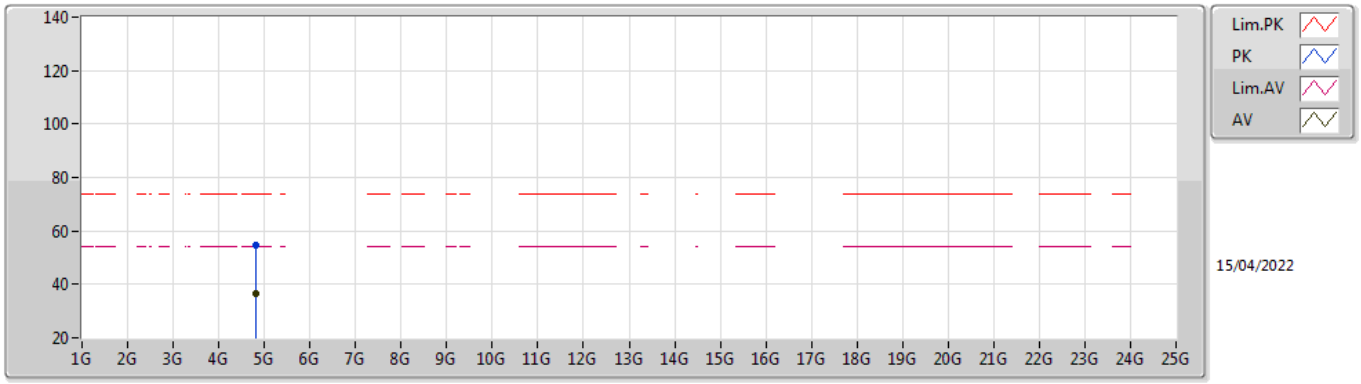
2405MHz_TX



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	4.80902G	36.31	54.00	-17.69	6.60	3	Vertical	308	1.15	-	29.71	31.12	9.67	34.19
PK	4.80902G	54.17	74.00	-19.83	6.60	3	Vertical	308	1.15	-	47.57	31.12	9.67	34.19

Zigbee

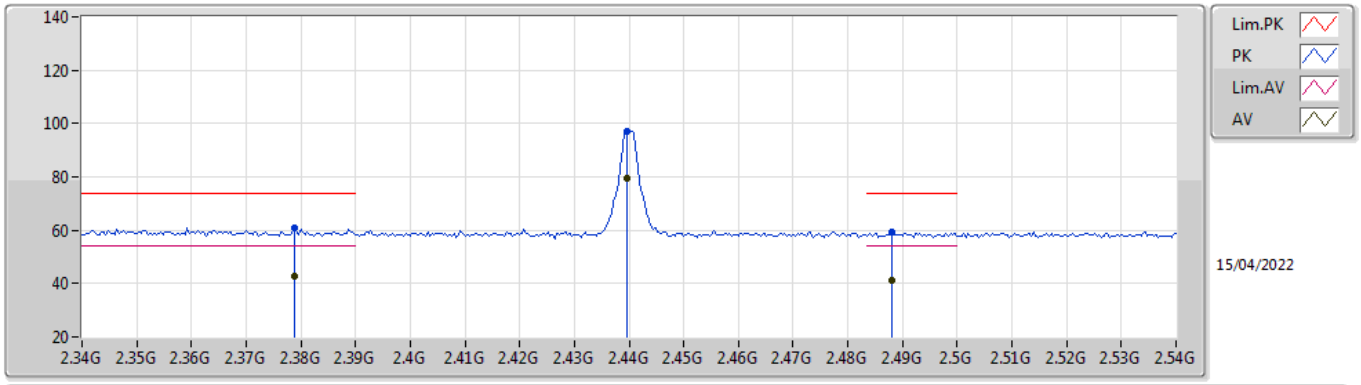
2405MHz_TX



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	4.81095G	36.72	54.00	-17.28	6.60	3	Horizontal	166	1.24	-	30.12	31.12	9.67	34.19
PK	4.81095G	54.58	74.00	-19.42	6.60	3	Horizontal	166	1.24	-	47.98	31.12	9.67	34.19

Zigbee

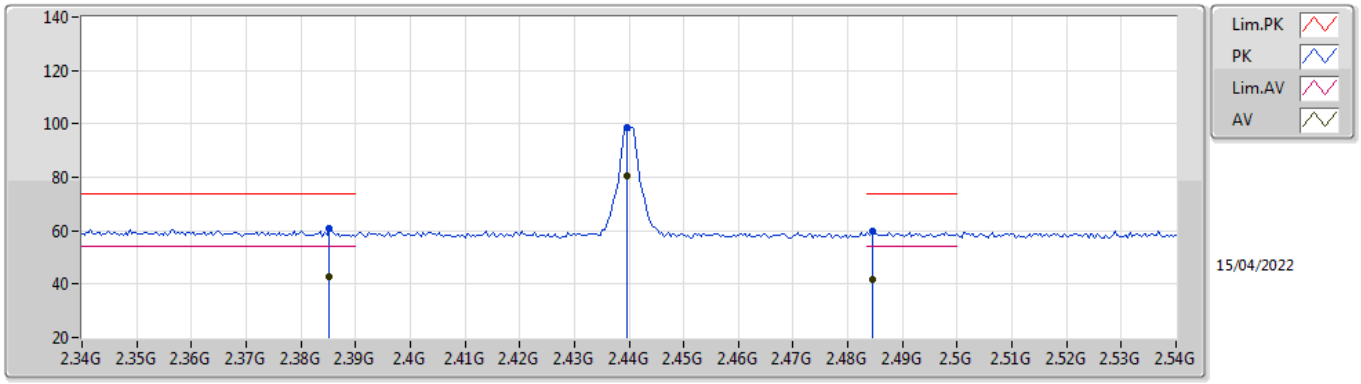
2440MHz_TX



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	2.3788G	42.81	54.00	-11.19	36.01	3	Vertical	43	2.51	-	6.80	27.74	8.27	-
AV	2.4396G	79.24	Inf	-Inf	35.78	3	Vertical	43	2.51	-	43.46	27.46	8.32	-
AV	2.488G	41.40	54.00	-12.60	35.75	3	Vertical	43	2.51	-	5.65	27.40	8.35	-
PK	2.3788G	60.67	74.00	-13.33	36.01	3	Vertical	43	2.51	-	24.66	27.74	8.27	-
PK	2.4396G	97.10	Inf	-Inf	35.78	3	Vertical	43	2.51	-	61.32	27.46	8.32	-
PK	2.488G	59.26	74.00	-14.74	35.75	3	Vertical	43	2.51	-	23.51	27.40	8.35	-

Zigbee

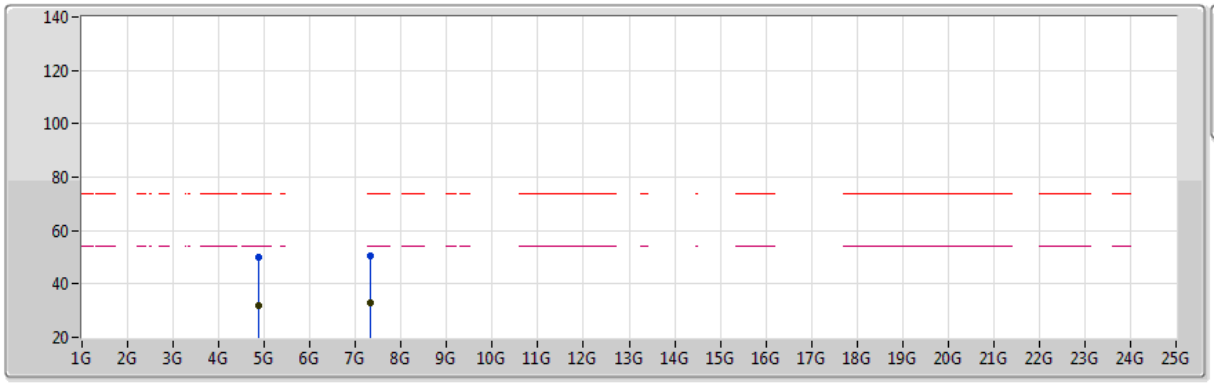
2440MHz_TX



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	2.3852G	42.95	54.00	-11.05	36.01	3	Horizontal	64	2.76	-	6.94	27.73	8.28	-
AV	2.4396G	80.75	Inf	-Inf	35.78	3	Horizontal	64	2.76	-	44.97	27.46	8.32	-
AV	2.4844G	41.74	54.00	-12.26	35.74	3	Horizontal	64	2.76	-	6.00	27.40	8.34	-
PK	2.3852G	60.81	74.00	-13.19	36.01	3	Horizontal	64	2.76	-	24.80	27.73	8.28	-
PK	2.4396G	98.61	Inf	-Inf	35.78	3	Horizontal	64	2.76	-	62.83	27.46	8.32	-
PK	2.4844G	59.60	74.00	-14.40	35.74	3	Horizontal	64	2.76	-	23.86	27.40	8.34	-

Zigbee

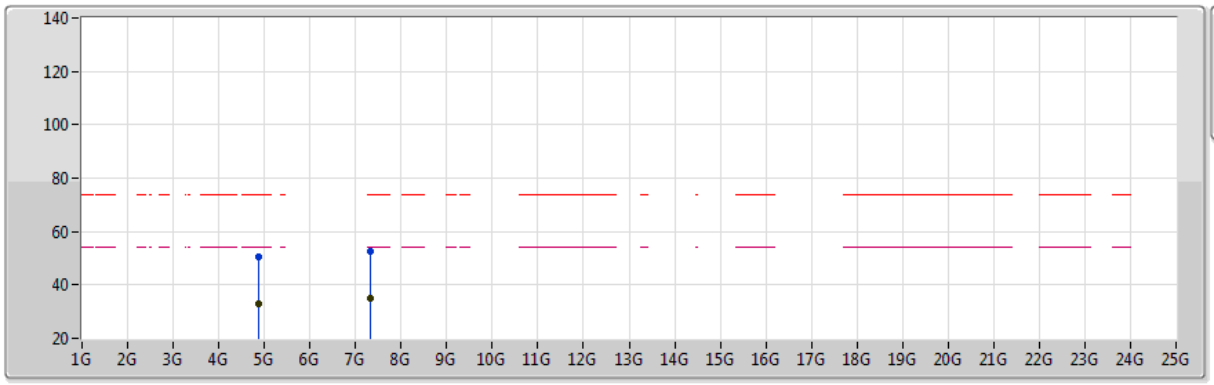
2440MHz_TX



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	4.88101G	31.90	54.00	-22.10	6.74	3	Vertical	310	1.12	-	25.16	31.20	9.70	34.16
AV	7.32132G	32.84	54.00	-21.16	13.18	3	Vertical	16	1.62	-	19.66	36.36	11.32	34.50
PK	4.88101G	49.76	74.00	-24.24	6.74	3	Vertical	310	1.12	-	43.02	31.20	9.70	34.16
PK	7.32132G	50.70	74.00	-23.30	13.18	3	Vertical	16	1.62	-	37.52	36.36	11.32	34.50

Zigbee

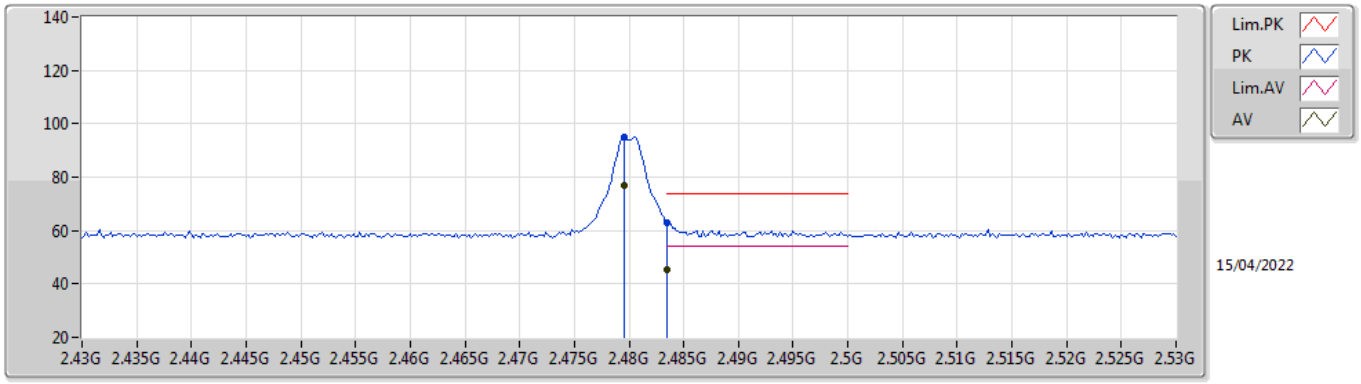
2440MHz_TX



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	4.88008G	32.90	54.00	-21.10	6.74	3	Horizontal	164	1.50	-	26.16	31.20	9.70	34.16
AV	7.31839G	34.81	54.00	-19.19	13.18	3	Horizontal	360	1.00	-	21.63	36.36	11.32	34.50
PK	4.88008G	50.76	74.00	-23.24	6.74	3	Horizontal	164	1.50	-	44.02	31.20	9.70	34.16
PK	7.31839G	52.67	74.00	-21.33	13.18	3	Horizontal	360	1.00	-	39.49	36.36	11.32	34.50

Zigbee

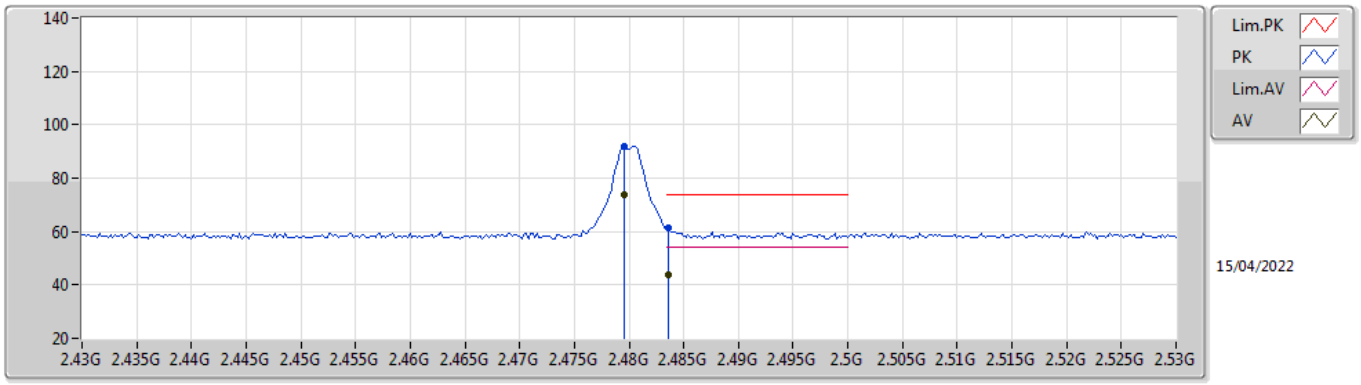
2480MHz_TX



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	2.4796G	76.98	Inf	-Inf	35.74	3	Vertical	56	2.20	-	41.24	27.40	8.34	-
AV	2.4835G	45.31	54.00	-8.69	35.74	3	Vertical	56	2.20	-	9.57	27.40	8.34	-
PK	2.4796G	94.84	Inf	-Inf	35.74	3	Vertical	56	2.20	-	59.10	27.40	8.34	-
PK	2.4835G	63.17	74.00	-10.83	35.74	3	Vertical	56	2.20	-	27.43	27.40	8.34	-

Zigbee

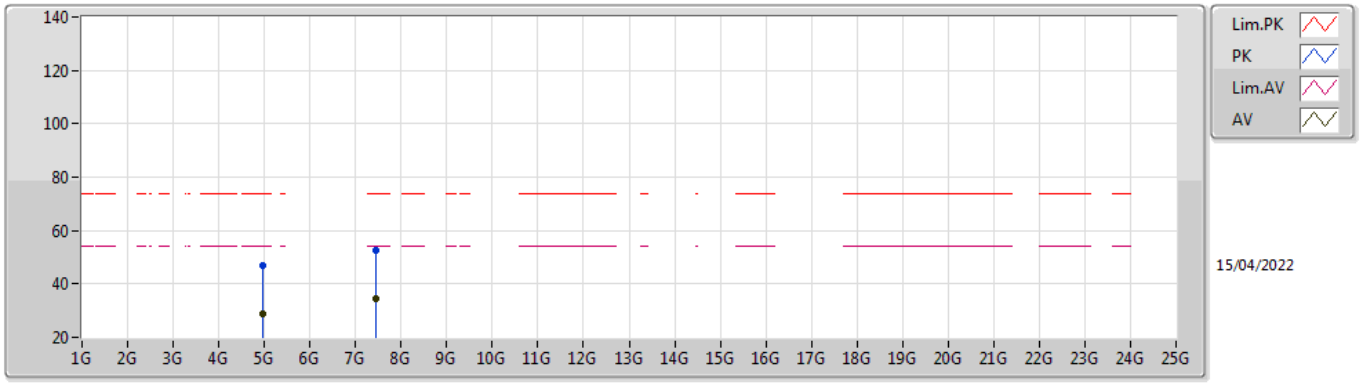
2480MHz_TX



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	2.4796G	73.81	Inf	-Inf	35.74	3	Horizontal	66	2.67	-	38.07	27.40	8.34	-
AV	2.4836G	43.57	54.00	-10.43	35.74	3	Horizontal	66	2.67	-	7.83	27.40	8.34	-
PK	2.4796G	91.67	Inf	-Inf	35.74	3	Horizontal	66	2.67	-	55.93	27.40	8.34	-
PK	2.4836G	61.43	74.00	-12.57	35.74	3	Horizontal	66	2.67	-	25.69	27.40	8.34	-

Zigbee

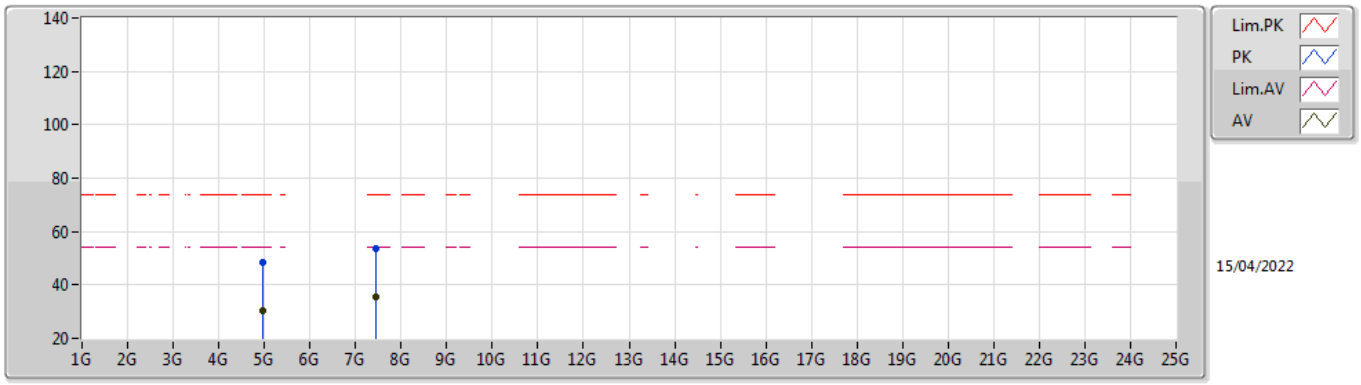
2480MHz_TX



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	4.96102G	28.94	54.00	-25.06	7.03	3	Vertical	78	1.29	-	21.91	31.42	9.73	34.12
AV	7.44179G	34.56	54.00	-19.44	13.09	3	Vertical	81	1.66	-	21.47	36.28	11.30	34.49
PK	4.96102G	46.80	74.00	-27.20	7.03	3	Vertical	78	1.29	-	39.77	31.42	9.73	34.12
PK	7.44179G	52.42	74.00	-21.58	13.09	3	Vertical	81	1.66	-	39.33	36.28	11.30	34.49

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	4.961G	30.42	54.00	-23.58	7.03	3	Horizontal	271	2.24	-	23.39	31.42	9.73	34.12
AV	7.43878G	35.62	54.00	-18.38	13.09	3	Horizontal	32	2.90	-	22.53	36.28	11.30	34.49
PK	4.961G	48.28	74.00	-25.72	7.03	3	Horizontal	271	2.24	-	41.25	31.42	9.73	34.12
PK	7.43878G	53.48	74.00	-20.52	13.09	3	Horizontal	32	2.90	-	40.39	36.28	11.30	34.49

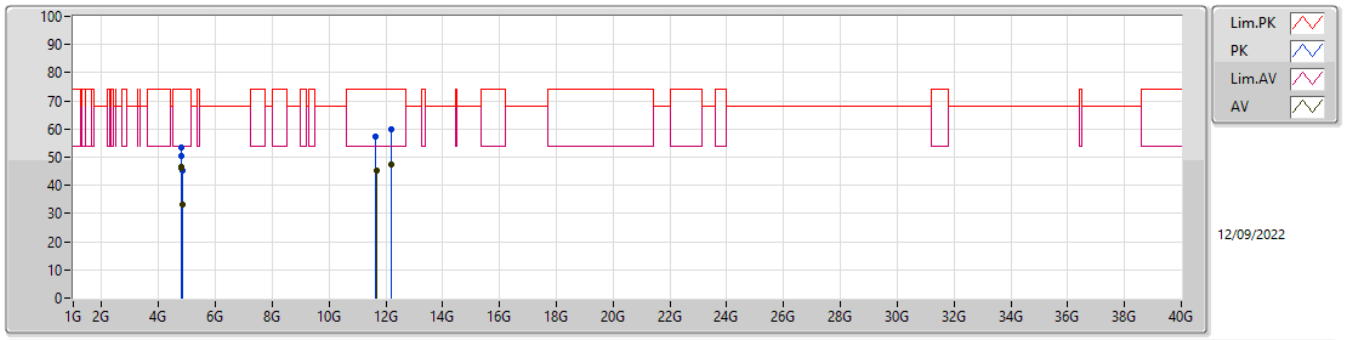
Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 1	Pass	AV	4.81092G	48.16	54.00	-5.84	Horizontal

Result

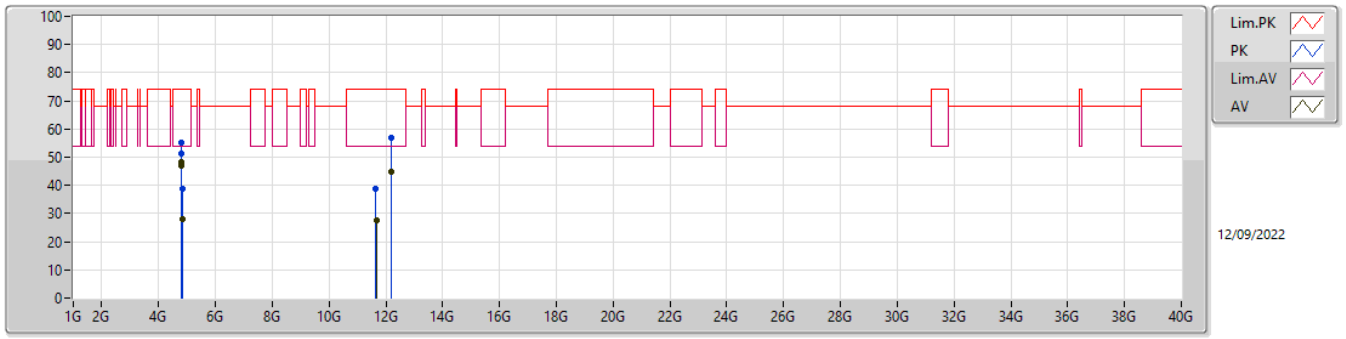
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
Mode 1	Pass	AV	4.80396G	45.95	54.00	-8.05	3	Vertical	19	1.83	-
Mode 1	Pass	AV	4.81087G	46.39	54.00	-7.61	3	Vertical	308	2.24	-
Mode 1	Pass	AV	4.82401G	33.28	54.00	-20.72	3	Vertical	70	1.30	-
Mode 1	Pass	AV	11.65912G	45.35	54.00	-8.65	3	Vertical	16	1.50	-
Mode 1	Pass	AV	12.187G	47.49	54.00	-6.51	3	Vertical	360	2.17	-
Mode 1	Pass	PK	4.80438G	50.36	74.00	-23.64	3	Vertical	19	1.83	-
Mode 1	Pass	PK	4.80899G	53.25	74.00	-20.75	3	Vertical	308	2.24	-
Mode 1	Pass	PK	4.82399G	45.35	74.00	-28.65	3	Vertical	70	1.30	-
Mode 1	Pass	PK	11.64562G	57.34	74.00	-16.66	3	Vertical	16	1.50	-
Mode 1	Pass	PK	12.196G	60.08	74.00	-13.92	3	Vertical	360	2.17	-
Mode 1	Pass	AV	4.80399G	46.87	54.00	-7.13	3	Horizontal	25	1.69	-
Mode 1	Pass	AV	4.81092G	48.16	54.00	-5.84	3	Horizontal	56	1.00	-
Mode 1	Pass	AV	4.82398G	27.82	54.00	-26.18	3	Horizontal	152	1.51	-
Mode 1	Pass	AV	11.65874G	27.68	54.00	-26.32	3	Horizontal	48	2.80	-
Mode 1	Pass	AV	12.1888G	44.96	54.00	-9.04	3	Horizontal	336	2.18	-
Mode 1	Pass	PK	4.80421G	51.10	74.00	-22.90	3	Horizontal	25	1.69	-
Mode 1	Pass	PK	4.80912G	55.09	74.00	-18.91	3	Horizontal	56	1.00	-
Mode 1	Pass	PK	4.82402G	38.75	74.00	-35.25	3	Horizontal	152	1.51	-
Mode 1	Pass	PK	11.63532G	38.73	74.00	-35.27	3	Horizontal	48	2.80	-
Mode 1	Pass	PK	12.1934G	56.78	74.00	-17.22	3	Horizontal	336	2.18	

Radiated Emissions above 1GHz_Mode 1



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB/m)	(m)		(°)	(m)		(dBuV/m)	(dB/m)	(dB)	(dB)
AV	4.80396G	45.95	54.00	-8.05	3.33	3	Vertical	19	1.83	-	42.62	32.32	5.67	34.66
AV	4.81087G	46.39	54.00	-7.61	3.39	3	Vertical	308	2.24	-	43.00	32.37	5.68	34.66
AV	4.82401G	33.28	54.00	-20.72	3.47	3	Vertical	70	1.30	-	29.81	32.44	5.68	34.65
AV	11.65912G	45.35	54.00	-8.65	12.39	3	Vertical	16	1.50	-	32.96	38.44	8.57	34.62
AV	12.187G	47.49	54.00	-6.51	13.26	3	Vertical	360	2.17	-	34.23	39.09	8.77	34.60
PK	4.80438G	50.36	74.00	-23.64	3.34	3	Vertical	19	1.83	-	47.02	32.33	5.67	34.66
PK	4.80899G	53.25	74.00	-20.75	3.37	3	Vertical	308	2.24	-	49.88	32.35	5.68	34.66
PK	4.82399G	45.35	74.00	-28.65	3.47	3	Vertical	70	1.30	-	41.88	32.44	5.68	34.65
PK	11.64562G	57.34	74.00	-16.66	12.39	3	Vertical	16	1.50	-	44.95	38.45	8.56	34.62
PK	12.196G	60.08	74.00	-13.92	13.28	3	Vertical	360	2.17	-	46.80	39.10	8.77	34.59

Radiated Emissions above 1GHz_Mode 1



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB/m)	(m)		(°)	(m)		(dBuV/m)	(dB/m)	(dB)	(dB)
AV	4.80399G	46.87	54.00	-7.13	3.33	3	Horizontal	25	1.69	-	43.54	32.32	5.67	34.66
AV	4.81092G	48.16	54.00	-5.84	3.39	3	Horizontal	56	1.00	-	44.77	32.37	5.68	34.66
AV	4.82398G	27.82	54.00	-26.18	3.47	3	Horizontal	152	1.51	-	24.35	32.44	5.68	34.65
AV	11.65874G	27.68	54.00	-26.32	12.39	3	Horizontal	48	2.80	-	15.29	38.44	8.57	34.62
AV	12.1888G	44.96	54.00	-9.04	13.26	3	Horizontal	336	2.18	-	31.70	39.09	8.77	34.60
PK	4.80421G	51.10	74.00	-22.90	3.34	3	Horizontal	25	1.69	-	47.76	32.33	5.67	34.66
PK	4.80912G	55.09	74.00	-18.91	3.37	3	Horizontal	56	1.00	-	51.72	32.35	5.68	34.66
PK	4.82402G	38.75	74.00	-35.25	3.47	3	Horizontal	152	1.51	-	35.28	32.44	5.68	34.65
PK	11.63532G	38.73	74.00	-35.27	12.41	3	Horizontal	48	2.80	-	26.32	38.46	8.56	34.61
PK	12.1934G	56.78	74.00	-17.22	13.27	3	Horizontal	336	2.18	-	43.51	39.09	8.77	34.59