

FCC Test Report

FCC ID : TVE-3417T0966

Equipment : Secured Wireless Access Point

Brand Name : FORTINET

Model Name : FortiAP 23JFxxxxxx, FAP-23JFxxxxxx,
FORTIAP-23JFxxxxxx
(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 Oct. 27, 2020, and testing was started from Nov. 03, 2020 and completed on Jan. 21, 2021. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

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



Approved by: Allen Lin

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

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

Table of Contents

HISTORY OF THIS TEST REPORT	3
SUMMARY OF TEST RESULT	4
1 GENERAL DESCRIPTION	5
1.1 Information.....	5
1.2 Testing Applied Standards	8
1.3 Testing Location Information	8
1.4 Measurement Uncertainty	9
2 TEST CONFIGURATION OF EUT.....	10
2.1 Test Condition	10
2.2 Test Channel Mode	10
2.3 The Worst Case Measurement Configuration.....	11
2.4 Accessories	12
2.5 Support Equipment.....	13
2.6 Test Setup Diagram	14
3 TRANSMITTER TEST RESULT	18
3.1 AC Power-line Conducted Emissions	18
3.2 DTS Bandwidth.....	20
3.3 Maximum Conducted Output Power	21
3.4 Power Spectral Density	23
3.5 Emissions in Non-restricted Frequency Bands	24
3.6 Emissions in Restricted Frequency Bands.....	25
4 TEST EQUIPMENT AND CALIBRATION DATA.....	29
APPENDIX A. TEST RESULTS OF AC POWER-LINE CONDUCTED EMISSIONS	
APPENDIX B. TEST RESULTS OF DTS BANDWIDTH	
APPENDIX C. TEST RESULTS OF MAXIMUM CONDUCTED OUTPUT POWER	
APPENDIX D. TEST RESULTS OF POWER SPECTRAL DENSITY	
APPENDIX E. TEST RESULTS OF EMISSIONS IN NON-RESTRICTED FREQUENCY BANDS	
APPENDIX F. TEST RESULTS OF EMISSIONS IN RESTRICTED FREQUENCY BANDS	
APPENDIX G. TEST RESULTS OF RADIATED EMISSION CO-LOCATION	
APPENDIX H. TEST PHOTOS	
PHOTOGRAPHS OF EUT V01	



History of this test report

TEL : 886-3-3273456
FAX : 886-3-3270973
Report Template No.: HE1-C11 Ver2.8
FCC ID: TVE-3417T0966

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	5718A0566300	Dipole	I-PEX
2	Senao	5718A0567300	Dipole	I-PEX
3	Senao	5718A0568300	Dipole	I-PEX
4	Senao	5718A0569300	Dipole	I-PEX

Ant.	2.4GHz		5GHz		BTLE/Zigbee	Remark
	Antenna Gain(dBi)	Beamforming Gain(dBi)	Antenna Gain(dBi)	Beamforming Gain(dBi)	Antenna Gain(dBi)	
1	4.17	2.45	4.35	2.3	-	Radio 0,1
2	3.74		3.84		-	Radio 0,1
3	3.99	-	4.16	-	-	Radio 2
4	-	-	-	-	3.63	Radio 3

For 2.4 GHz function:

Radio 0

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

Ant. 1 and Ant. 2 could transmit/receive simultaneously.

Radio 2

For IEEE 802.11b/g/n mode (1TX/1RX)

Ant. 3 could transmit/receive.

For 5 GHz function:

Radio 1

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

Ant. 1 and Ant. 2 could transmit/receive simultaneously.

Radio 2

For IEEE 802.11a/n/ac mode (1TX/1RX)

Ant. 3 could transmit/receive.

For Bluetooth/Zigbee function:

Radio 3

For Bluetooth/Zigbee mode (1TX/1RX)

Only Ant. 4 can be used as transmitting/receiving.

1.1.3 EUT Information

Operational Condition			
EUT Power Type		From PoE / 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) $\geq 1/T$
Zigbee	1	0	n/a (DC $\geq$ 0.98)	n/a (DC $\geq$ 0.98)

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 23JFxxxxxx	All the models are identical, the difference model for difference brand served as marketing strategy.
	FAP-23JFxxxxxx	
	FORTIAP-23JFxxxxxx	

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

Testing Location			
☒	HWA YA	ADD : No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)	
		TEL : 886-3-327-3456	FAX : 886-3-327-0973
Test site Designation No. TW1190 with FCC.			
☐	JHUBEI	ADD : No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County, Taiwan (R.O.C.)	
		TEL : 886-3-656-9065	FAX : 886-3-656-9085
Test site Designation No. TW0006 with FCC.			
☐	Wen Shan	ADD : No.14-1, Ln. 19, Wen 33rd St., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)	
		TEL : 886-3-318-0787	FAX : 886-3-318-0287
Test site Designation No. TW1097 with FCC.			

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
AC Conduction	CO04-HY	Edward	21.2~23.5°C / 59~63%	21/Nov/2020
RF Conducted	TH06-HY	Alan	20.1~26.9°C / 50~60%	05/Nov/2020~21/Jan/2021
Radiated	03CH02-HY	Daniel	20.7~26.1°C / 51~66%	03/Nov/2020~13/Jan/2021
Radiated (Co-location)	03CH02-HY	Daniel	20.3~25.8°C / 53~68%	18/Jan/2021

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 Condition

RF Conducted	Abbreviation	Remark
TnomVnom	Tnom	20°C
-	Vnom	120V

2.2 Test Channel Mode

Test Software Version	SmartRF Studio 7
-----------------------	------------------

Mode	Power Setting
Zigbee	-
2405MHz	10
2440MHz	10
2475MHz	10
2480MHz	5

2.3 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
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
Test Condition	Radiated measurement
Operating Mode	CTX
1	Radio 0 :2.4G + Radio 1:5G
Refer to Appendix G for Radiated Emission Co-location.	

The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis
Test Condition	Radiated measurement
Operating Mode	CTX
1	Radio 0:2.4G + Radio 1:5G + Radio 2:2.4G + Bluetooth
2	Radio 0:2.4G + Radio 1:5G + Radio 2:5G + Bluetooth
3	Radio 0:2.4G + Radio 1:5G + Radio 2:2.4G + Zigbee
4	Radio 0:2.4G + Radio 1:5G + Radio 2:5G + Zigbee
Refer to Sporton Test Report No.: FA002618 for Co-location RF Exposure Evaluation.	

2.4 Accessories

Accessories				
BRACKET WALL JACK	Brand Name	Enrack	Model Name	6002Ad953000

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

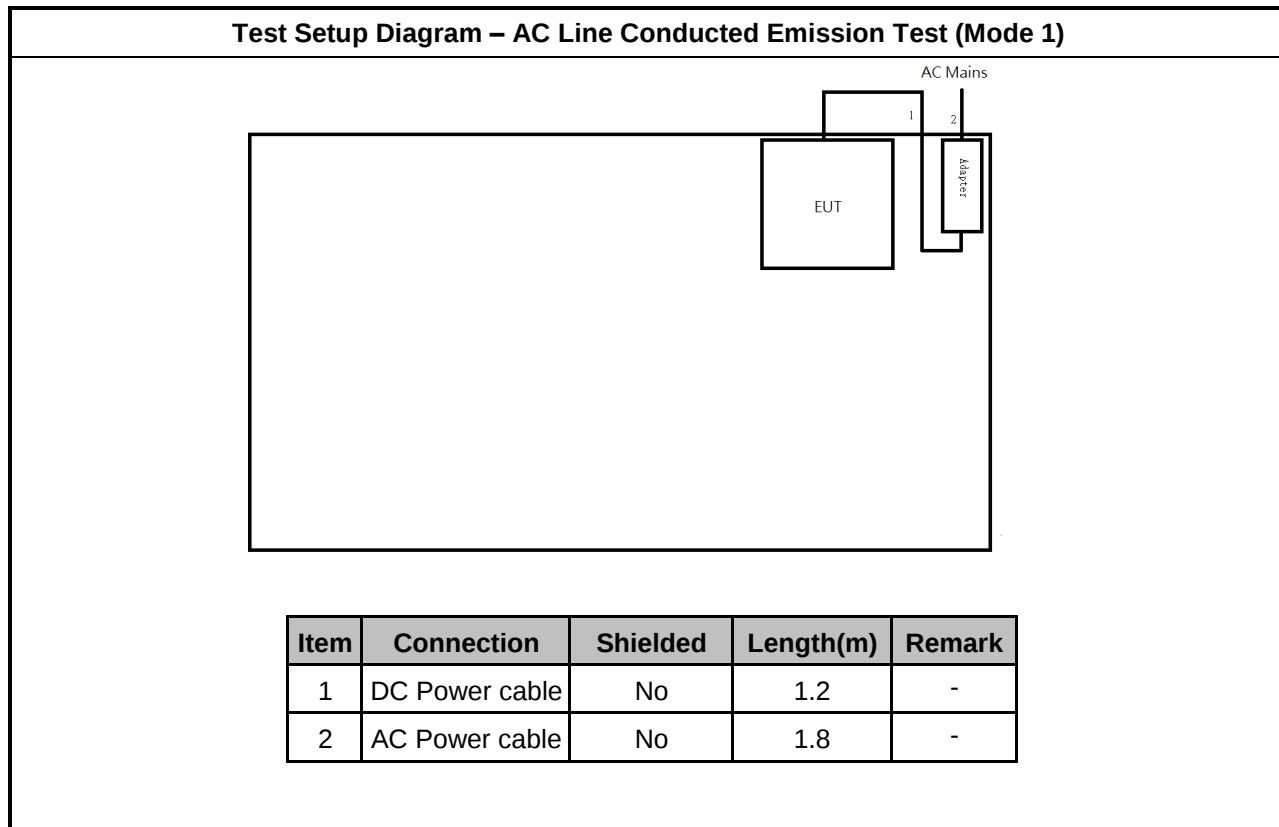
2.5 Support Equipment

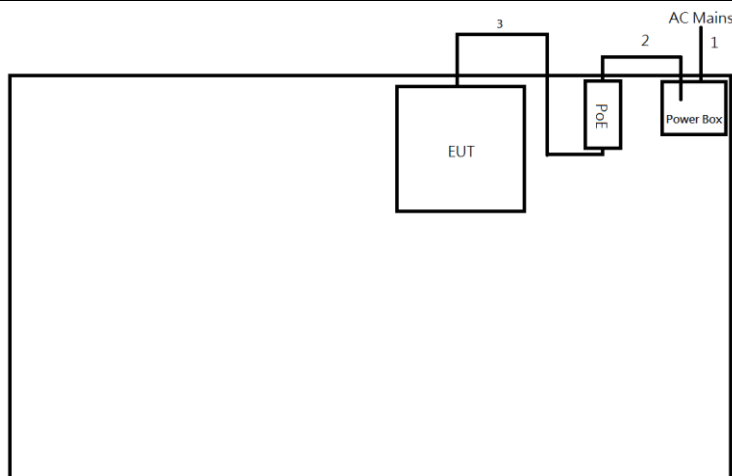
Support Equipment – AC Conduction					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	RJ45 Cable	Power Sync	CAT-6E-10	-	-
2	Adapter	FSP	FSP065-DWAN3	-	Client provided
3	PoE	SENAO	EWS511AP_CE W/O DFS	-	Client provided
4	AC Power Cable	Power Sync	TPCPHN0006	-	-
5	AC Power Cable	Power Sync	PW-GPC180-3	-	-

Support Equipment – Radiated					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	RJ45 Cable	Power Sync	CAT-6E-10	-	-
2	Adapter	FSP	FSP065-DWAN3	-	Client provided
3	PoE	SENAO	EWS511AP_CE W/O DFS	-	Client provided
4	AC Power Cable	Power Sync	TPCPHN0006	-	-
5	AC Power Cable	Power Sync	PW-GPC180-3	-	-

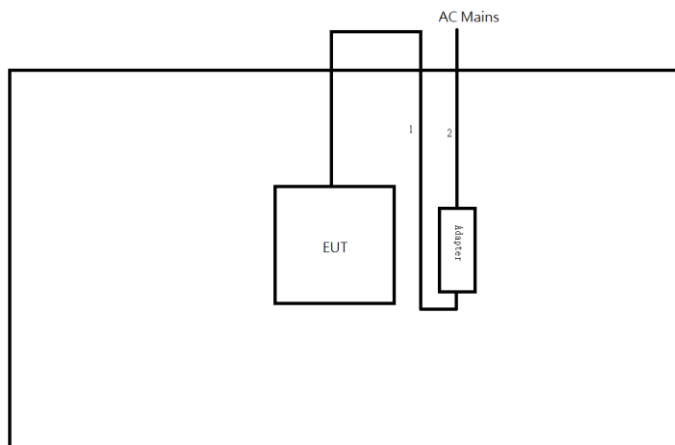
Support Equipment – Conducted					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	Notebook	DELL	E5410	-	-
2	Adapter for NB	DELL	HA65NM130	-	-
3	AC Adapter	FSP	FSP065-DWAN3	-	-

2.6 Test Setup Diagram

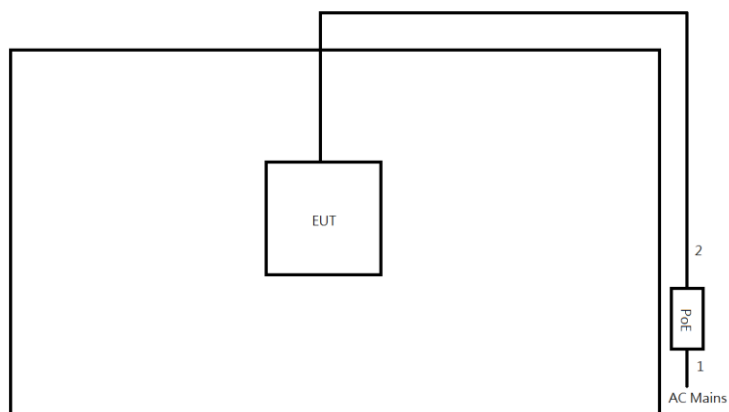


Test Setup Diagram – AC Line Conducted Emission Test (Mode 2)


Item	Connection	Shielded	Length(m)	Remark
1	AC Power cable	No	1.5	-
2	AC Power cable	No	0.63	-
3	RJ45 cable	No	10.0	-

Test Setup Diagram - Radiated Test (Mode 1)


Item	Connection	Shielded	Length(m)	Remark
1	DC Power cable	No	1.2	-
2	AC Power cable	No	1.8	-

Test Setup Diagram - Radiated Test (Mode 2)


Item	Connection	Shielded	Length(m)	Remark
1	AC Power cable	No	0.6	-
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

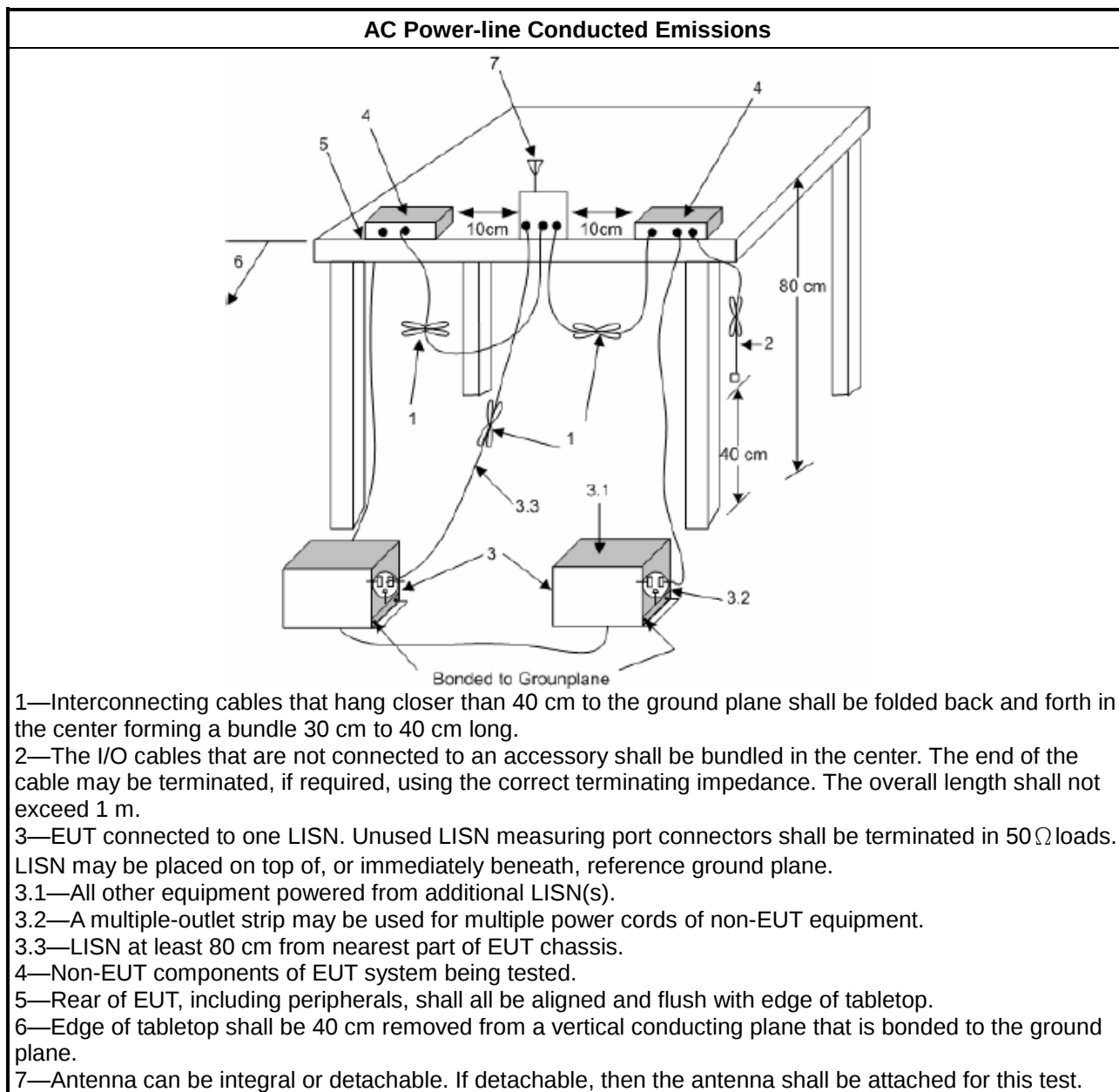
Test Method
☒ Refer as ANSI C63.10-2013, clause 6.2 for AC power-line conducted emissions.

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



3.1.6 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A

3.2 DTS Bandwidth

3.2.1 6dB Bandwidth Limit

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

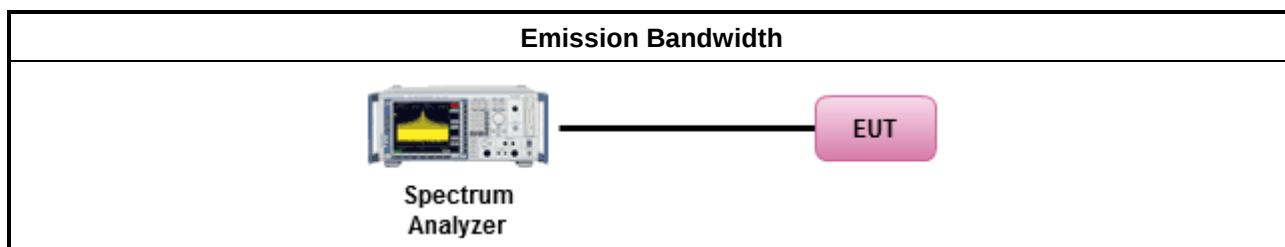
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

Test Method	
▪ For the emission bandwidth shall be measured using one of the options below:	
☒	Refer as KDB 558074, clause 8.2 (11.8 of ANSI C63.10) DTS bandwidth measurement.
☐	Refer as RSS-Gen, clause 6.7 for occupied bandwidth testing.
☐	Refer as ANSI C63.10, clause 6.9.3 for occupied bandwidth testing.

3.2.4 Test Setup



3.2.5 Test Result of Emission Bandwidth

Refer as Appendix B

3.3 Maximum Conducted Output Power

3.3.1 Maximum Conducted Output Power Limit

Maximum Conducted Output Power Limit	
	If $G_{TX} \leq 6$ dBi, then $P_{Out} \leq 30$ dBm (1 W)
	Point-to-multipoint systems (P2M): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$ dBm
	Point-to-point systems (P2P): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
	Smart antenna system (SAS):
	- Single beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
	- Overlap beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
	- Aggregate power on all beams: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3 + 8$ dB dBm
e.i.r.p. Power Limit:	
	2400-2483.5 MHz Band
	Point-to-multipoint systems (P2M): $P_{eirp} \leq 36$ dBm (4 W)
	Point-to-point systems (P2P): $P_{eirp} \leq \text{MAX}(36, [P_{Out} + G_{TX}])$ dBm
	Smart antenna system (SAS)
	- Single beam: $P_{eirp} \leq \text{MAX}(36, P_{Out} + G_{TX})$ dBm
	- Overlap beam: $P_{eirp} \leq \text{MAX}(36, P_{Out} + G_{TX})$ dBm
	- Aggregate power on all beams: $P_{eirp} \leq \text{MAX}(36, [P_{Out} + G_{TX} + 8])$ dBm
P_{Out} = maximum peak conducted output power or maximum conducted output power in dBm, G_{TX} = the maximum transmitting antenna directional gain in dBi.	

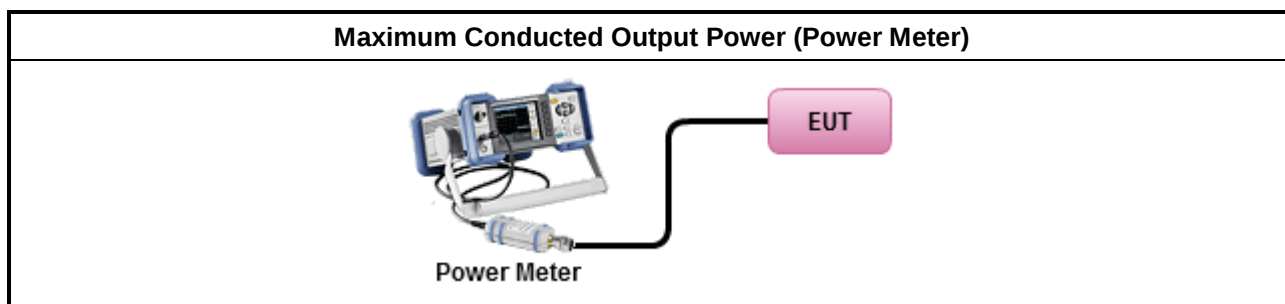
3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

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

3.3.4 Test Setup



3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix C

3.4 Power Spectral Density

3.4.1 Power Spectral Density Limit

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

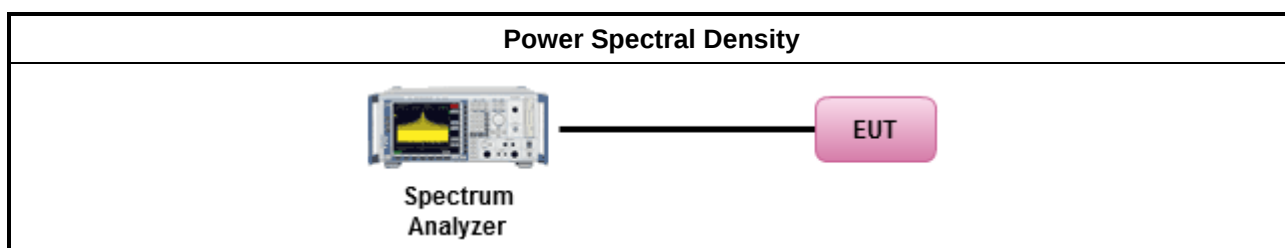
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

Test Method	
▪	Peak power spectral density procedures that the same method as used to determine the conducted output power. If maximum peak conducted output power was measured to demonstrate compliance to the output power limit, then the peak PSD procedure below (Method PKPSD) shall be used. If maximum conducted output power was measured to demonstrate compliance to the output power limit, then one of the average PSD procedures shall be used, as applicable based on the following criteria (the peak PSD procedure is also an acceptable option).
☒	Refer as KDB 558074, clause 8.4 (11.10 of ANSI C63.10) Max. PSD.
▪	For conducted measurement.
▪	If The EUT supports multiple transmit chains using options given below:
▪	Measure and sum the spectra across the outputs. Refer as KDB 662911, In-band power spectral density (PSD). Sample all transmit ports simultaneously using a spectrum analyzer for each transmit port. Where the trace bin-by-bin of each transmit port summing can be performed. (i.e., in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3, and so on up to the NTX output to obtain the value for the first frequency bin of the summed spectrum.). Add up the amplitude (power) values for the different transmit chains and use this as the new data trace.

3.4.4 Test Setup



3.4.5 Test Result of Power Spectral Density

Refer as Appendix D

3.5 Emissions in Non-restricted Frequency Bands

3.5.1 Emissions in Non-restricted Frequency Bands Limit

Un-restricted Band Emissions Limit	
RF output power procedure	Limit (dB)
Peak output power procedure	20
Average output power procedure	30
Note 1: If the peak output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum measured in-band peak level. Note 2: If the average output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the power in any 100 kHz outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum measured in-band average level.	

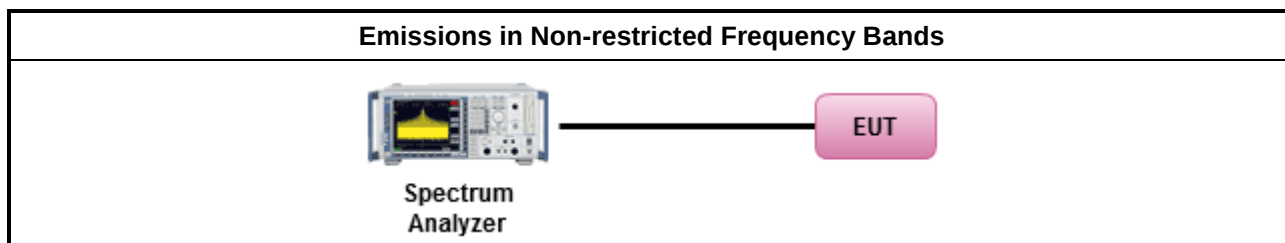
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

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

3.5.4 Test Setup



3.5.5 Test Result of Emissions in Non-restricted Frequency Bands

Refer as Appendix E

3.6 Emissions in Restricted Frequency Bands

3.6.1 Emissions in Restricted Frequency Bands Limit

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

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

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

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

3.6.2 Measuring Instruments

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

3.6.3 Test Procedures

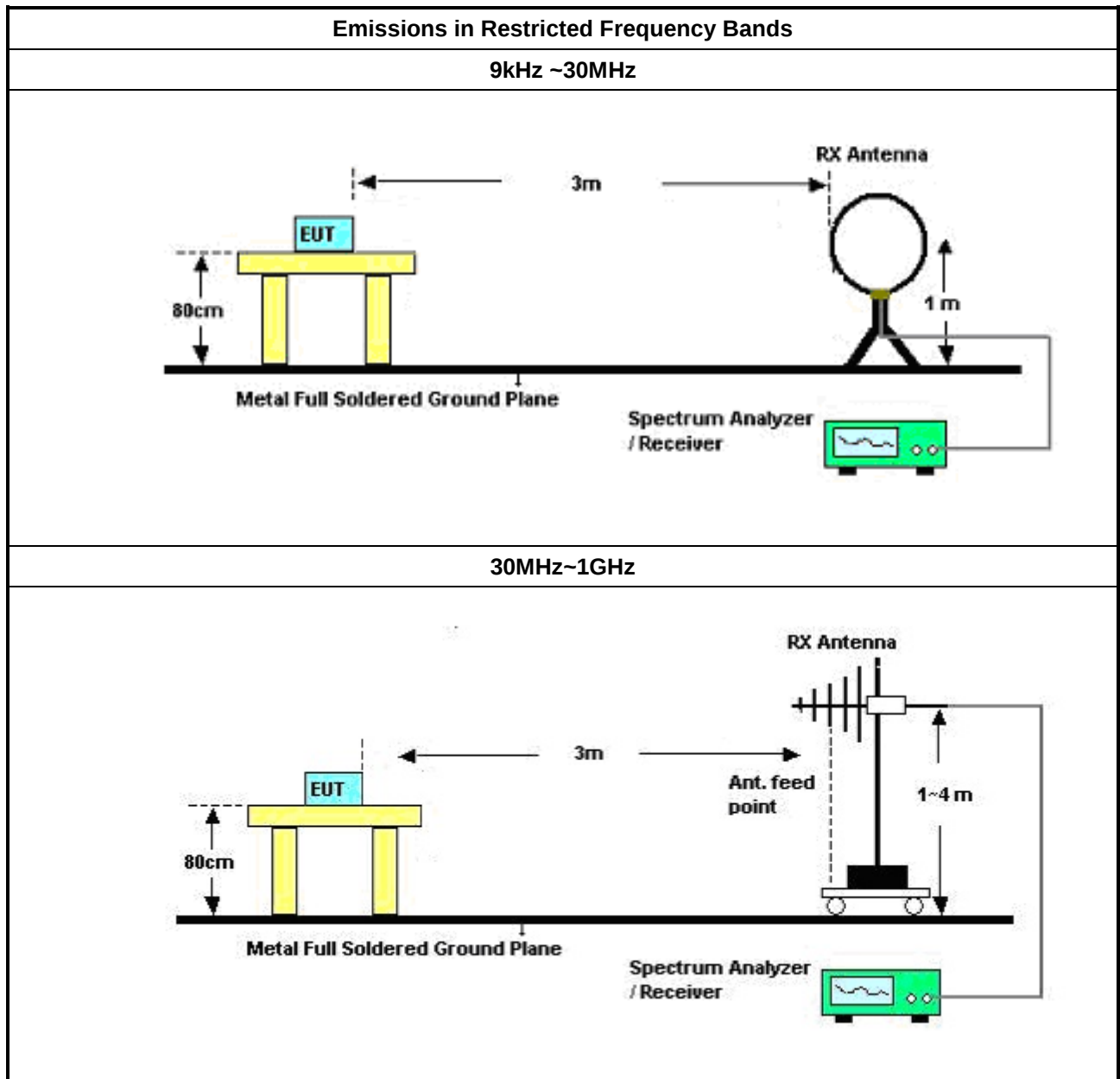
Test Method	
The average emission levels shall be measured in [duty cycle $\geq$ 98 or duty factor].	
Refer as ANSI C63.10, clause 6.10.3 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.	
For the transmitter unwanted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

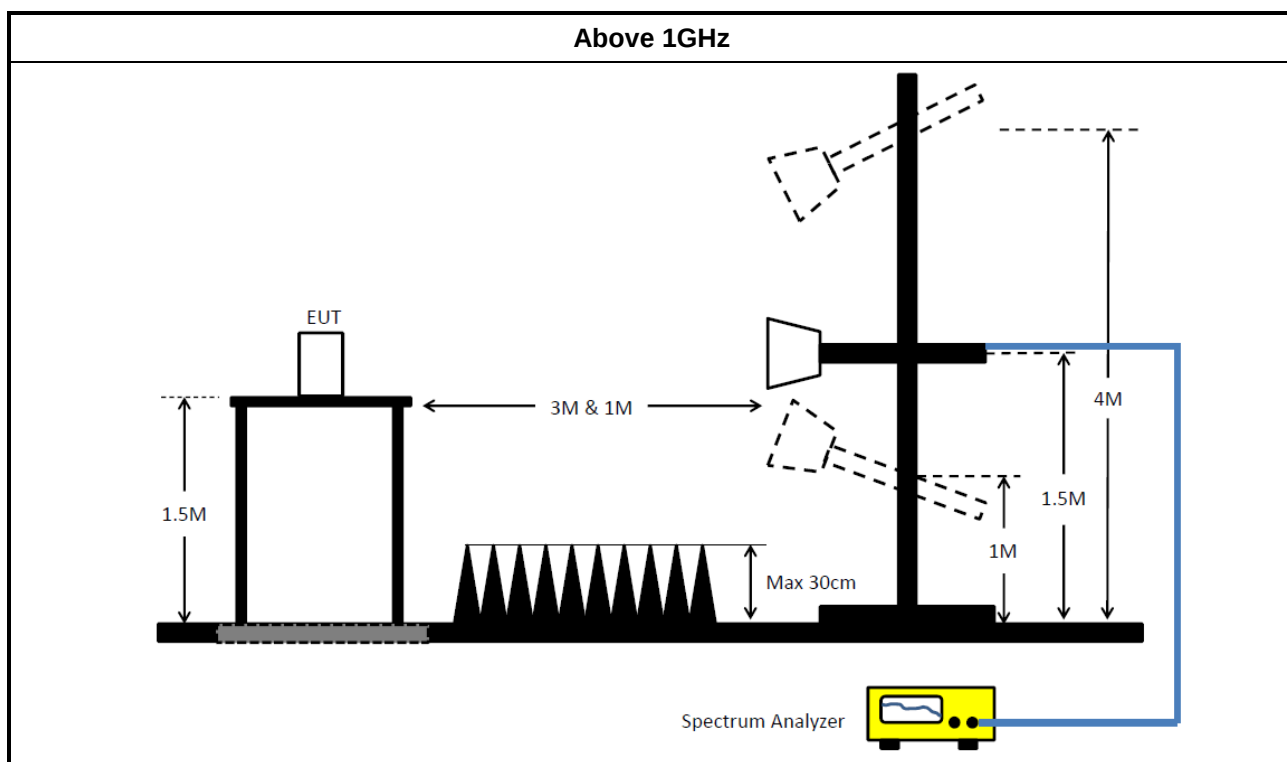
3.6.4 Measurement Results Calculation

The measured Level is calculated using:

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

3.6.5 Test Setup





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

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

3.6.7 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix F

4 Test Equipment and Calibration Data

Instrument for AC Conduction

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
EMI Test Receiver	R&S	ESR3	102051	9kHz ~ 3.6GHz	29/May/2020	28/May/2021
LISN	R&S	ENV216	101295	9kHz ~ 30MHz	11/Nov/2020	10/Nov/2021
RF Cable-CON	MTJ	RG142	CB002-CO	9kHz ~ 200MHz	31/Aug/2020	30/Aug/2021
Impuls Begrenzer Pulse Limiter	SCHWARZBECK	VTSD 9561-F	9561-F041	9kHz ~ 30MHz	21/Sep/2020	20/Sep/2021

Instrument for Conducted Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Signal Analyzer	R&S	FSV 40	101029	10Hz~40GHz	19/Oct/2020	18/Oct/2021
SMB100A Signal Generator	R&S	SMB100A03	181147	100kHz~40GHz	20/Oct/2020	19/Oct/2022
Pulse Sensor	Anritsu	MA2411B	1027452	300MHz~40GHz	18/Mar/2020	17/Mar/2021
Power Meter	Anritsu	ML2495A	1124009	300MHz~40GHz	18/Mar/2020	17/Mar/2021

Instrument for Radiated Test – Co-location

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH02-HY	1GHz~18GHz 3m	02/Aug/2020	01/Aug/2021
Signal Analyzer	R&S	FSP40	100593	9kHz~40GHz	27/Feb/2020	26/Feb/2021
Microwave Preamplifier	Agilent	8449B	3008A02373	1GHz~18GHz	23/Oct/2020	22/Oct/2021
Double Ridged Guide Horn Antenna	SCHWARZBEC	BBHA 9120 D	BBHA 9120 D 01543	1GHz~18GHz	09/Jun/2020	08/Jun/2021
RF Cable-R03m	HUBER+SUHNER	SUCOFLEX104	805193/4+8051 92/4	1GHz~40GHz	08/Apr/2020	07/Apr/2021
Broadband Horn Antenna	SCHWARZBEC K	BBHA 9170	BBHA 9170221	18GHz~40GHz	13/Mar/2020	12/Mar/2021
Preamplifier	MITEQ	TTA1840-35-HG	1864481	18GHz~40GHz	10/Mar/2020	09/Mar/2021

Instrument for Radiated Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH02-HY	30MHz~1GHz 3m	04/Aug/2020	03/Aug/2021
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH02-HY	1GHz~18GHz 3m	02/Aug/2020	01/Aug/2021
Signal Analyzer	R&S	FSP40	100593	9kHz~40GHz	27/Feb/2020	26/Feb/2021
Amplifier	Agilent	8447D	2944A11149	100kHz~1.3GHz	30/Jun/2020	29/Jun/2021
Microwave Preamplifier	Agilent	8449B	3008A02373	1GHz~18GHz	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	09/Jun/2020	08/Jun/2021
RF Cable-R03m	Jye Bao	RG142	CB017	9kHz~30MHz	20/Jun/2020	19/Jun/2021
RF Cable-R03m	Jye Bao	RG142	CB017	30MHz~1GHz	25/Mar/2020	24/Mar/2021
RF Cable-R03m	HUBER+SUHNER	SUCOFLEX1 04	805193/4+8051 92/4	1GHz~40GHz	08/Apr/2020	07/Apr/2021
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA 9170221	18GHz~40GHz	13/Mar/2020	12/Mar/2021
Preamplifier	MITEQ	TTA1840-35-HG	1864481	18GHz~40GHz	10/Mar/2020	09/Mar/2021
Loop Antenna	TESEQ	HLA 6120	31244	9kHz~30MHz	16/Mar/2020	15/Mar/2021
EMI Test Receiver	R&S	ESR3	102051	9kHz~3.6GHz	29/May/2020	28/May/2021



Conducted Emissions at Powerline

Appendix A

Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	AV	451.436k	33.52	46.84	-13.32	Neutral
Mode 2	Pass	AV	488.957k	38.05	46.19	-8.14	Neutral

Mode Configure

Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition	Comments
Mode 1	Pass	QP	151.807k	41.36	65.90	-24.54	Line	-
Mode 1	Pass	AV	151.807k	28.79	55.90	-27.11	Line	-
Mode 1	Pass	QP	455.055k	39.49	56.78	-17.29	Line	-
Mode 1	Pass	AV	455.055k	32.85	46.78	-13.93	Line	"Worst"
Mode 1	Pass	QP	654.382k	19.73	56.00	-36.27	Line	-
Mode 1	Pass	AV	654.382k	15.93	46.00	-30.07	Line	-
Mode 1	Pass	QP	2.074M	23.27	56.00	-32.73	Line	-
Mode 1	Pass	AV	2.074M	18.59	46.00	-27.41	Line	-
Mode 1	Pass	QP	15.636M	32.56	60.00	-27.44	Line	-
Mode 1	Pass	AV	15.636M	25.88	50.00	-24.12	Line	-
Mode 1	Pass	QP	25.346M	36.76	60.00	-23.24	Line	-
Mode 1	Pass	AV	25.346M	34.89	50.00	-15.11	Line	-
Mode 1	Pass	QP	163.117k	40.74	65.31	-24.57	Neutral	-
Mode 1	Pass	AV	163.117k	27.98	55.31	-27.33	Neutral	-
Mode 1	Pass	QP	451.436k	40.20	56.84	-16.64	Neutral	-
Mode 1	Pass	AV	451.436k	33.52	46.84	-13.32	Neutral	"Worst"
Mode 1	Pass	QP	708.77k	21.68	56.00	-34.32	Neutral	-
Mode 1	Pass	AV	708.77k	16.55	46.00	-29.45	Neutral	-
Mode 1	Pass	QP	3.686M	21.47	56.00	-34.53	Neutral	-
Mode 1	Pass	AV	3.686M	17.64	46.00	-28.36	Neutral	-
Mode 1	Pass	QP	15.327M	34.60	60.00	-25.40	Neutral	-
Mode 1	Pass	AV	15.327M	27.45	50.00	-22.55	Neutral	-
Mode 1	Pass	QP	25.346M	36.92	60.00	-23.08	Neutral	-
Mode 1	Pass	AV	25.346M	34.69	50.00	-15.31	Neutral	-
Mode 2	Pass	QP	154.251k	50.34	65.77	-15.43	Line	-
Mode 2	Pass	AV	154.251k	35.93	55.77	-19.84	Line	-
Mode 2	Pass	QP	481.211k	43.81	56.33	-12.52	Line	-
Mode 2	Pass	AV	481.211k	38.12	46.33	-8.21	Line	"Worst"
Mode 2	Pass	QP	571.327k	35.87	56.00	-20.13	Line	-
Mode 2	Pass	AV	571.327k	31.43	46.00	-14.57	Line	-
Mode 2	Pass	QP	2.202M	35.14	56.00	-20.86	Line	-
Mode 2	Pass	AV	2.202M	30.70	46.00	-15.30	Line	-
Mode 2	Pass	QP	5.032M	31.81	60.00	-28.19	Line	-
Mode 2	Pass	AV	5.032M	26.62	50.00	-23.38	Line	-
Mode 2	Pass	QP	18.053M	38.25	60.00	-21.75	Line	-
Mode 2	Pass	AV	18.053M	36.09	50.00	-13.91	Line	-
Mode 2	Pass	QP	158.622k	49.48	65.54	-16.06	Neutral	-
Mode 2	Pass	AV	158.622k	34.92	55.54	-20.62	Neutral	-
Mode 2	Pass	QP	488.957k	42.79	56.19	-13.40	Neutral	-
Mode 2	Pass	AV	488.957k	38.05	46.19	-8.14	Neutral	"Worst"
Mode 2	Pass	QP	573.613k	34.11	56.00	-21.89	Neutral	-
Mode 2	Pass	AV	573.613k	29.37	46.00	-16.63	Neutral	-
Mode 2	Pass	QP	1.342M	30.86	56.00	-25.14	Neutral	-

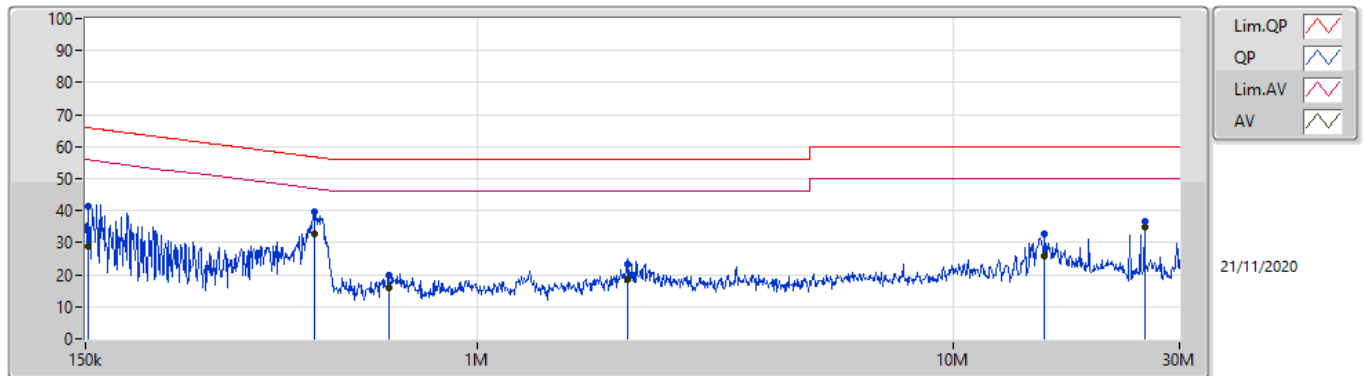


Conducted Emissions at Powerline

Appendix A

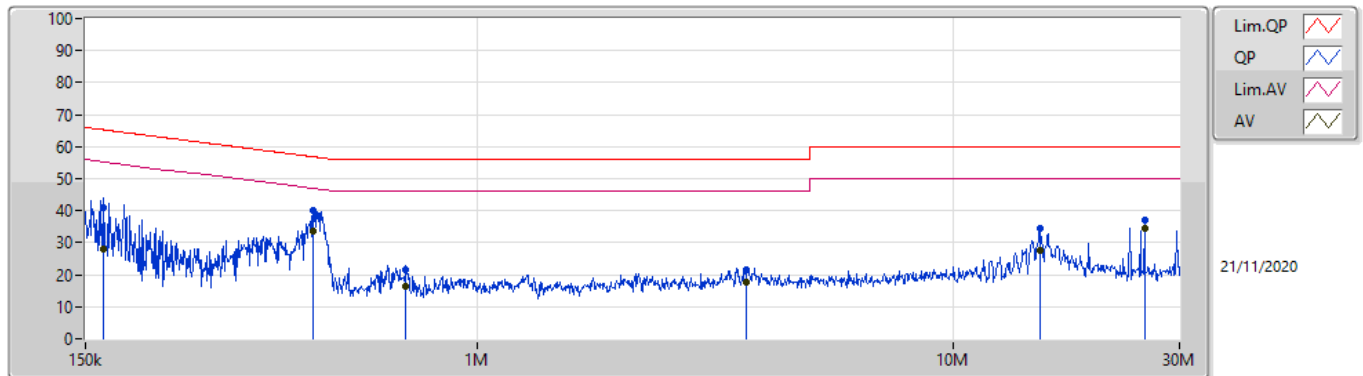
Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition	Comments
Mode 2	Pass	AV	1.342M	27.00	46.00	-19.00	Neutral	-
Mode 2	Pass	QP	10.282M	28.93	60.00	-31.07	Neutral	-
Mode 2	Pass	AV	10.282M	24.41	50.00	-25.59	Neutral	-
Mode 2	Pass	QP	18.053M	36.47	60.00	-23.53	Neutral	-
Mode 2	Pass	AV	18.053M	33.33	50.00	-16.67	Neutral	-

Conducted Emissions at Powerline_Mode 1



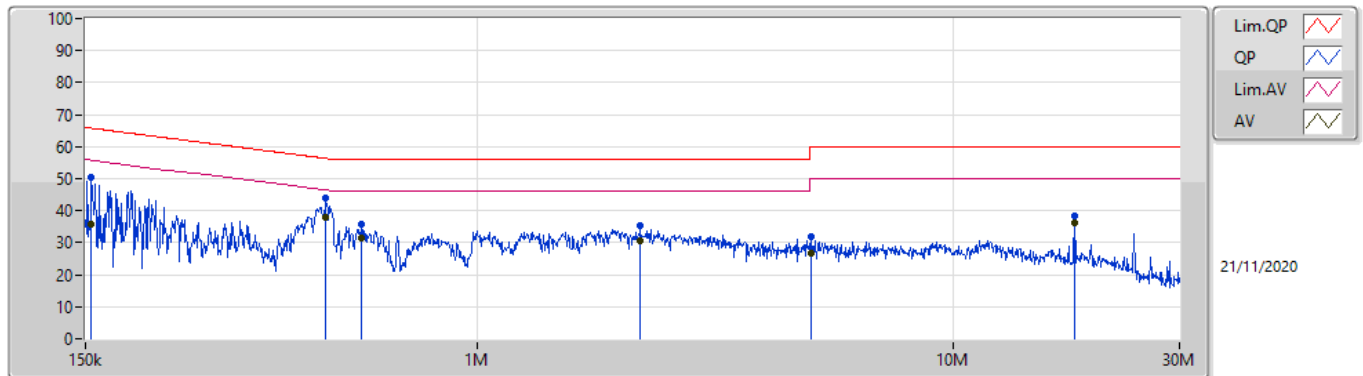
Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	151.807k	41.36	65.90	-24.54	19.60	Line	-	21.76	9.69	0.01	9.90			
AV	151.807k	28.79	55.90	-27.11	19.60	Line	-	9.19	9.69	0.01	9.90			
QP	455.055k	39.49	56.78	-17.29	19.58	Line	-	19.91	9.67	0.02	9.89			
AV	455.055k	32.85	46.78	-13.93	19.58	Line	"Worst"	13.27	9.67	0.02	9.89			
QP	654.382k	19.73	56.00	-36.27	19.56	Line	-	0.17	9.67	0.04	9.85			
AV	654.382k	15.93	46.00	-30.07	19.56	Line	-	-3.63	9.67	0.04	9.85			
QP	2.074M	23.27	56.00	-32.73	19.57	Line	-	3.70	9.68	0.08	9.81			
AV	2.074M	18.59	46.00	-27.41	19.57	Line	-	-0.98	9.68	0.08	9.81			
QP	15.636M	32.56	60.00	-27.44	19.85	Line	-	12.71	9.69	0.26	9.90			
AV	15.636M	25.88	50.00	-24.12	19.85	Line	-	6.03	9.69	0.26	9.90			
QP	25.346M	36.76	60.00	-23.24	19.84	Line	-	16.92	9.59	0.35	9.90			
AV	25.346M	34.89	50.00	-15.11	19.84	Line	-	15.05	9.59	0.35	9.90			

Conducted Emissions at Powerline_Mode 1



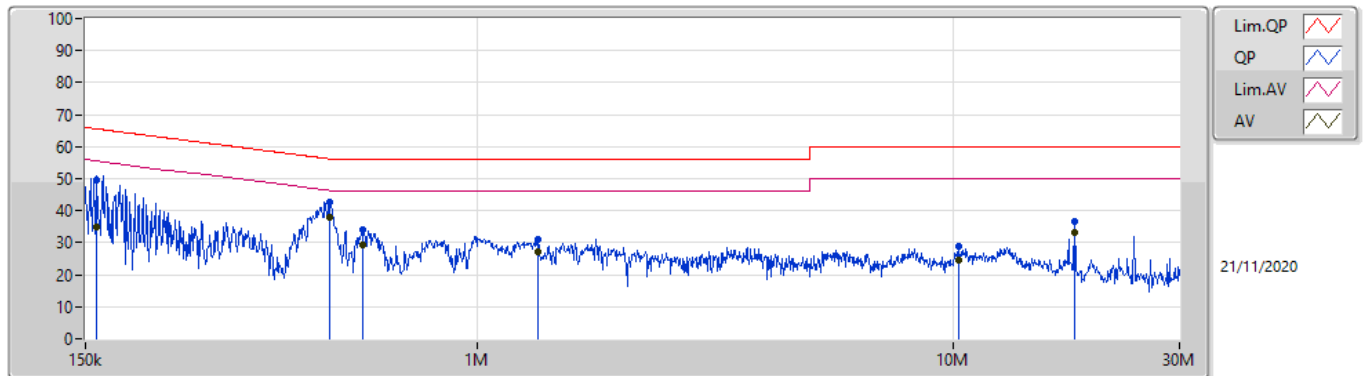
Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	163.117k	40.74	65.31	-24.57	19.60	Neutral	-	21.14	9.69	0.01	9.90			
AV	163.117k	27.98	55.31	-27.33	19.60	Neutral	-	8.38	9.69	0.01	9.90			
QP	451.436k	40.20	56.84	-16.64	19.58	Neutral	-	20.62	9.67	0.02	9.89			
AV	451.436k	33.52	46.84	-13.32	19.58	Neutral	"Worst"	13.94	9.67	0.02	9.89			
QP	708.77k	21.68	56.00	-34.32	19.55	Neutral	-	2.13	9.67	0.04	9.84			
AV	708.77k	16.55	46.00	-29.45	19.55	Neutral	-	-3.00	9.67	0.04	9.84			
QP	3.686M	21.47	56.00	-34.53	19.70	Neutral	-	1.77	9.69	0.12	9.89			
AV	3.686M	17.64	46.00	-28.36	19.70	Neutral	-	-2.06	9.69	0.12	9.89			
QP	15.327M	34.60	60.00	-25.40	19.89	Neutral	-	14.71	9.74	0.25	9.90			
AV	15.327M	27.45	50.00	-22.55	19.89	Neutral	-	7.56	9.74	0.25	9.90			
QP	25.346M	36.92	60.00	-23.08	19.97	Neutral	-	16.95	9.72	0.35	9.90			
AV	25.346M	34.69	50.00	-15.31	19.97	Neutral	-	14.72	9.72	0.35	9.90			

Conducted Emissions at Powerline_Mode 2



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	154.251k	50.34	65.77	-15.43	19.60	Line	-	30.74	9.69	0.01	9.90			
AV	154.251k	35.93	55.77	-19.84	19.60	Line	-	16.33	9.69	0.01	9.90			
QP	481.211k	43.81	56.33	-12.52	19.58	Line	-	24.23	9.67	0.03	9.88			
AV	481.211k	38.12	46.33	-8.21	19.58	Line	"Worst"	18.54	9.67	0.03	9.88			
QP	571.327k	35.87	56.00	-20.13	19.56	Line	-	16.31	9.67	0.03	9.86			
AV	571.327k	31.43	46.00	-14.57	19.56	Line	-	11.87	9.67	0.03	9.86			
QP	2.202M	35.14	56.00	-20.86	19.58	Line	-	15.56	9.68	0.09	9.81			
AV	2.202M	30.70	46.00	-15.30	19.58	Line	-	11.12	9.68	0.09	9.81			
QP	5.032M	31.81	60.00	-28.19	19.74	Line	-	12.07	9.70	0.14	9.90			
AV	5.032M	26.62	50.00	-23.38	19.74	Line	-	6.88	9.70	0.14	9.90			
QP	18.053M	38.25	60.00	-21.75	19.86	Line	-	18.39	9.68	0.28	9.90			
AV	18.053M	36.09	50.00	-13.91	19.86	Line	-	16.23	9.68	0.28	9.90			

Conducted Emissions at Powerline_Mode 2



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	158.622k	49.48	65.54	-16.06	19.60	Neutral	-	29.88	9.69	0.01	9.90			
AV	158.622k	34.92	55.54	-20.62	19.60	Neutral	-	15.32	9.69	0.01	9.90			
QP	488.957k	42.79	56.19	-13.40	19.58	Neutral	-	23.21	9.67	0.03	9.88			
AV	488.957k	38.05	46.19	-8.14	19.58	Neutral	"Worst"	18.47	9.67	0.03	9.88			
QP	573.613k	34.11	56.00	-21.89	19.56	Neutral	-	14.55	9.67	0.03	9.86			
AV	573.613k	29.37	46.00	-16.63	19.56	Neutral	-	9.81	9.67	0.03	9.86			
QP	1.342M	30.86	56.00	-25.14	19.53	Neutral	-	11.33	9.67	0.06	9.80			
AV	1.342M	27.00	46.00	-19.00	19.53	Neutral	-	7.47	9.67	0.06	9.80			
QP	10.282M	28.93	60.00	-31.07	19.84	Neutral	-	9.09	9.73	0.21	9.90			
AV	10.282M	24.41	50.00	-25.59	19.84	Neutral	-	4.57	9.73	0.21	9.90			
QP	18.053M	36.47	60.00	-23.53	19.93	Neutral	-	16.54	9.75	0.28	9.90			
AV	18.053M	33.33	50.00	-16.67	19.93	Neutral	-	13.40	9.75	0.28	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	1.663M	2.592M	2M59G1D	1.563M	2.574M

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

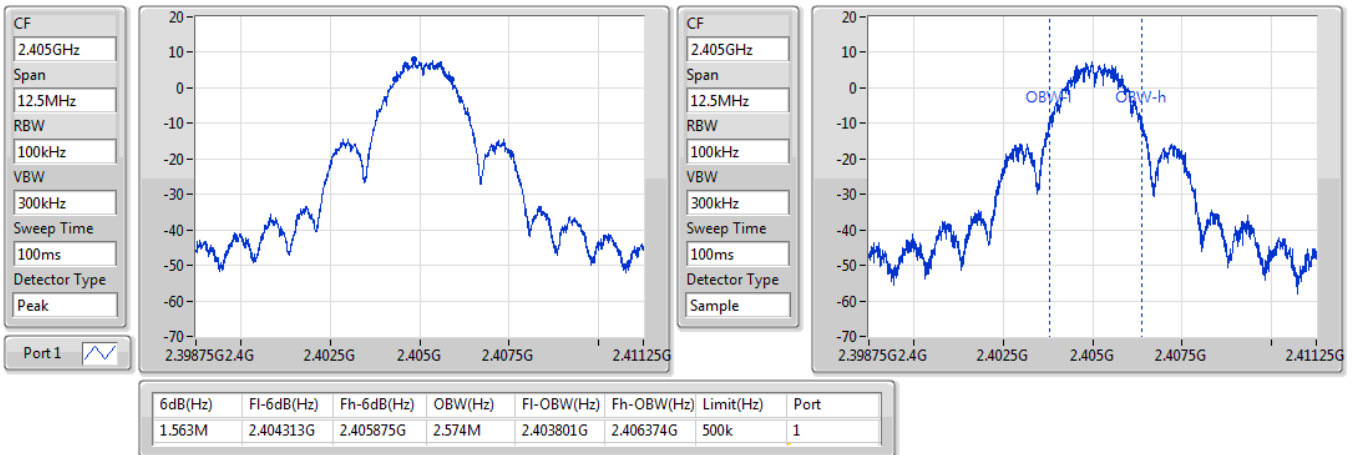
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
Zigbee	-	-	-	-
2405MHz	Pass	500k	1.563M	2.574M
2440MHz	Pass	500k	1.581M	2.574M
2475MHz	Pass	500k	1.663M	2.592M
2480MHz	Pass	500k	1.594M	2.586M

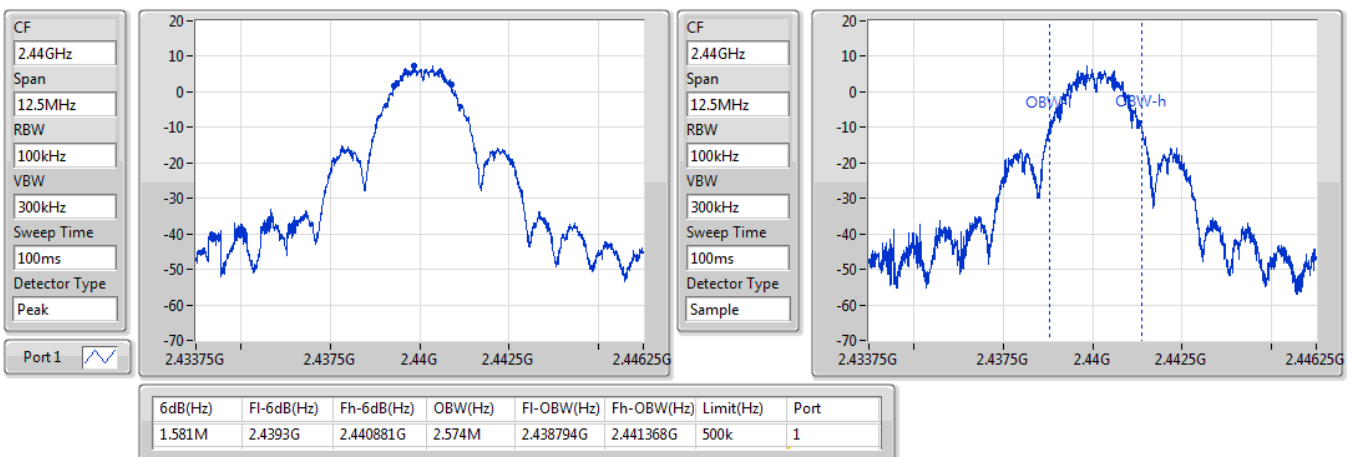
Port X-N dB = Port X 6dB down bandwidth;
Port X-OBW = Port X 99% occupied bandwidth

Zigbee
2405MHz
EBW

20/11/2020

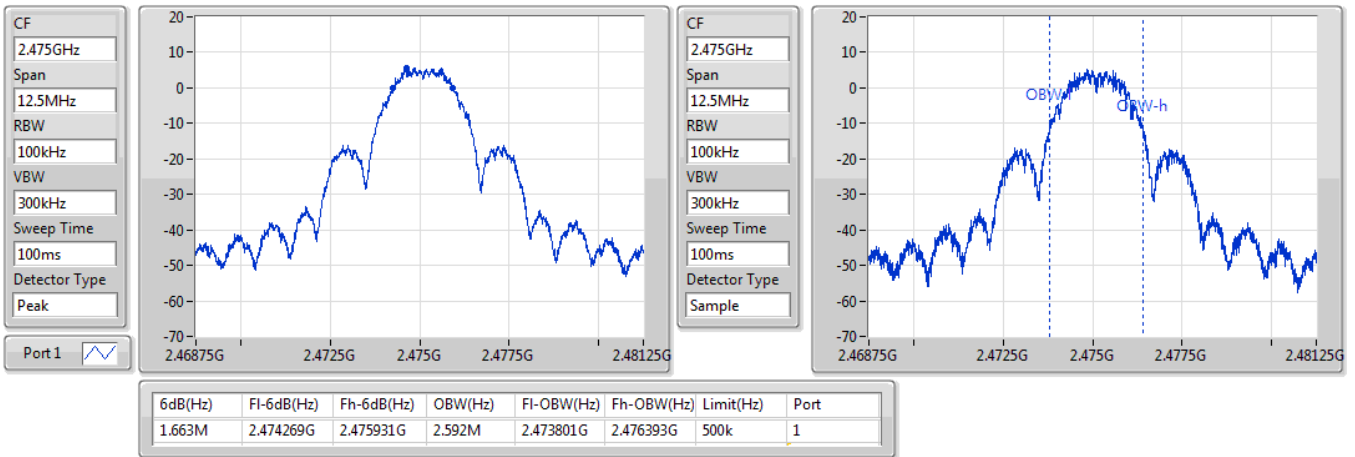

Zigbee
2440MHz
EBW

20/11/2020

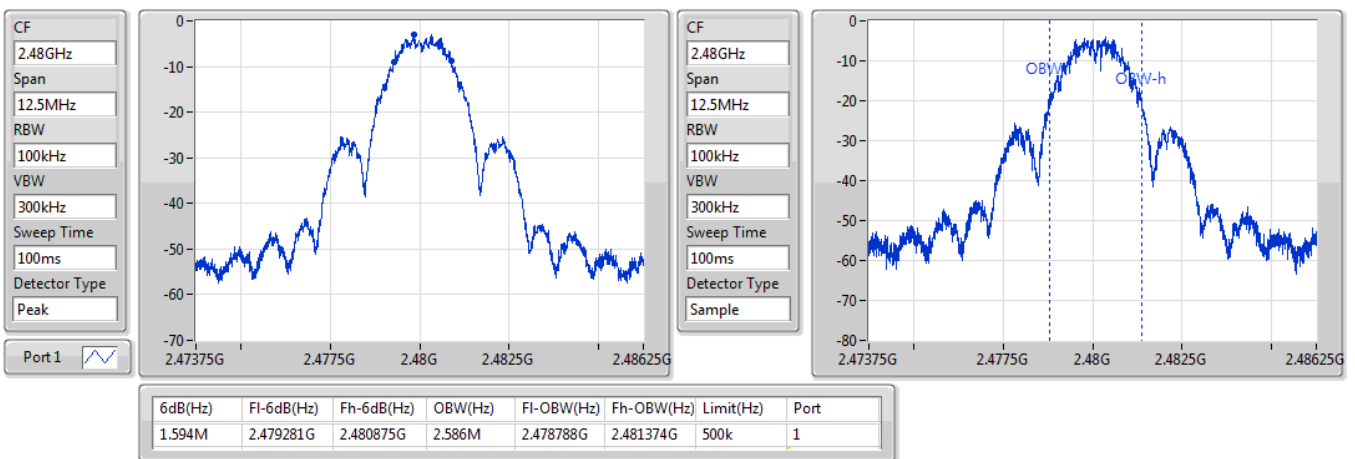


Zigbee
2475MHz
EBW

19/11/2020


Zigbee
2480MHz
EBW

21/01/2021





Average Power

Appendix C

Summary

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
Zigbee	11.65	0.01462



Average Power

Appendix C

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Total Power (dBm)	Power Limit (dBm)
Zigbee	-	-	-	-	-
2405MHz	Pass	3.63	11.65	11.65	30.00
2440MHz	Pass	3.63	10.86	10.86	30.00
2475MHz	Pass	3.63	9.75	9.75	30.00
2480MHz	Pass	3.63	1.67	1.67	30.00

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

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
Zigbee	-5.85

RBW = 3kHz;

Result

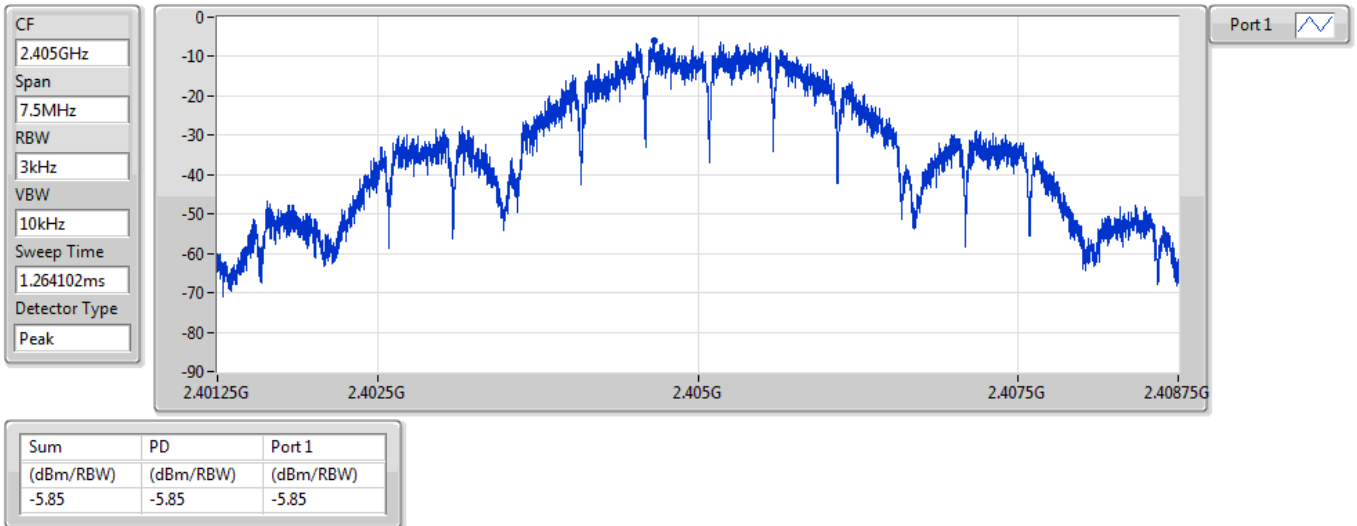
Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
Zigbee	-	-	-	-	-
2405MHz	Pass	3.63	-5.85	-5.85	8.00
2440MHz	Pass	3.63	-6.77	-6.77	8.00
2475MHz	Pass	3.63	-7.21	-7.21	8.00
2480MHz	Pass	3.63	-15.51	-15.51	8.00

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

2405MHz

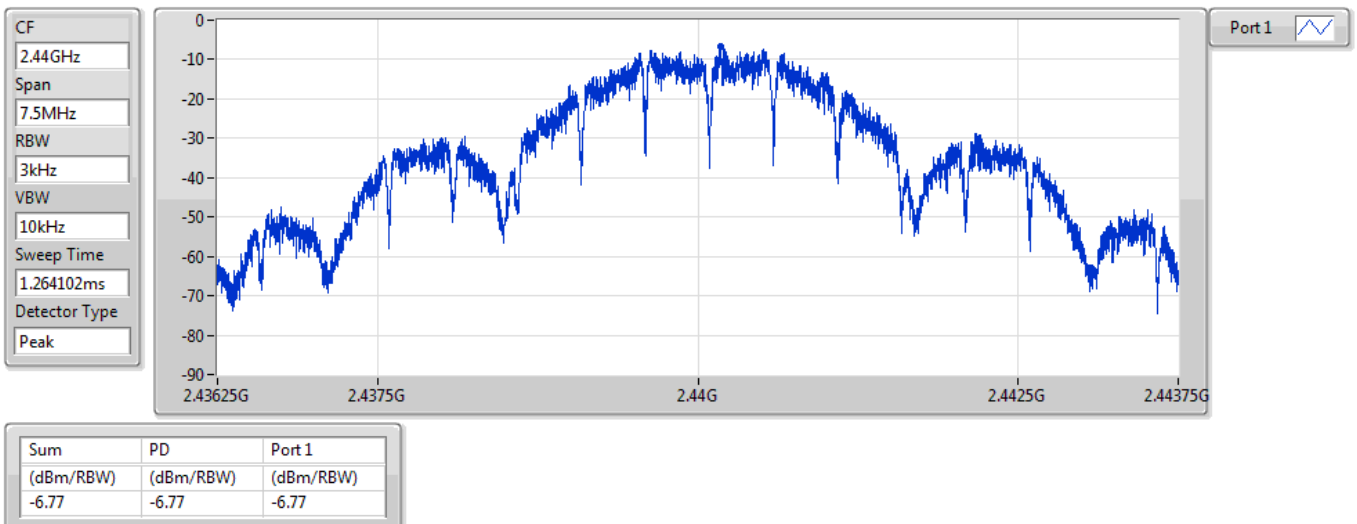
20/11/2020



Zigbee

2440MHz

20/11/2020

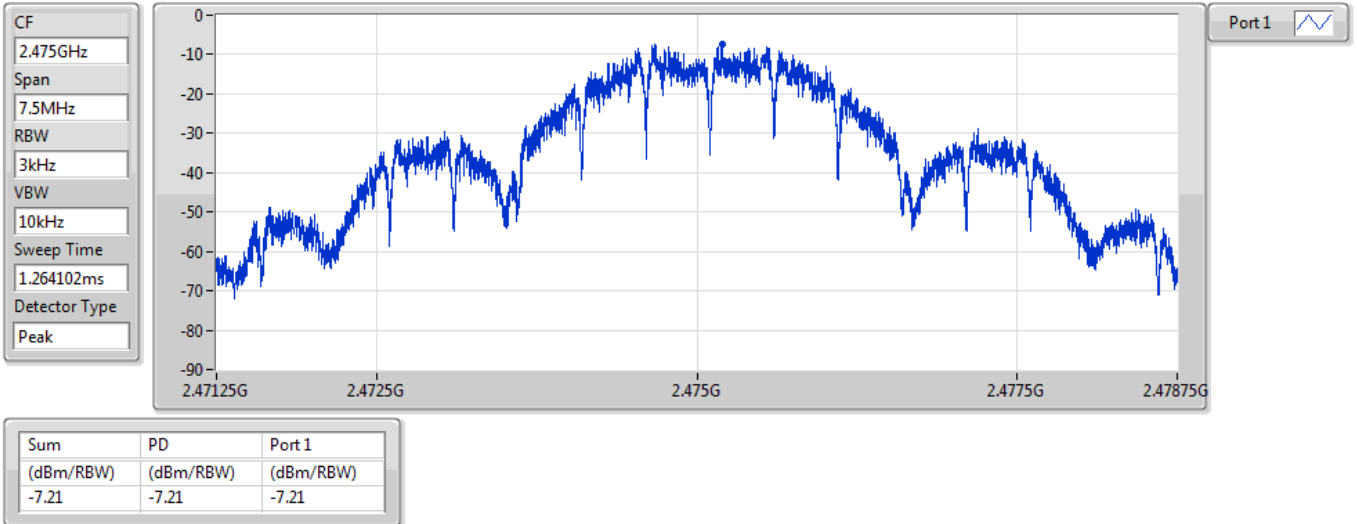


Zigbee

2475MHz

PSD

19/11/2020

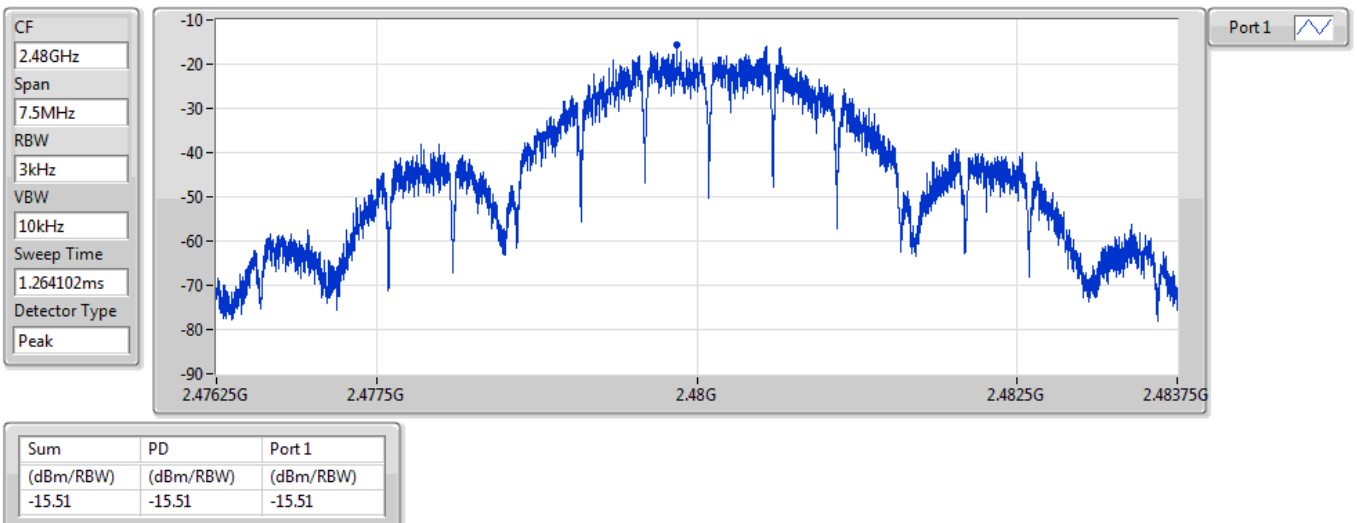


Zigbee

2480MHz

PSD

12/11/2020



Summary

Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zigbee	Pass	2.40484G	7.13	-22.87	239.75M	-49.34	2.39984G	-40.83	2.4G	-41.90	2.48553G	-51.10	15.19561G	-43.07	1

Result

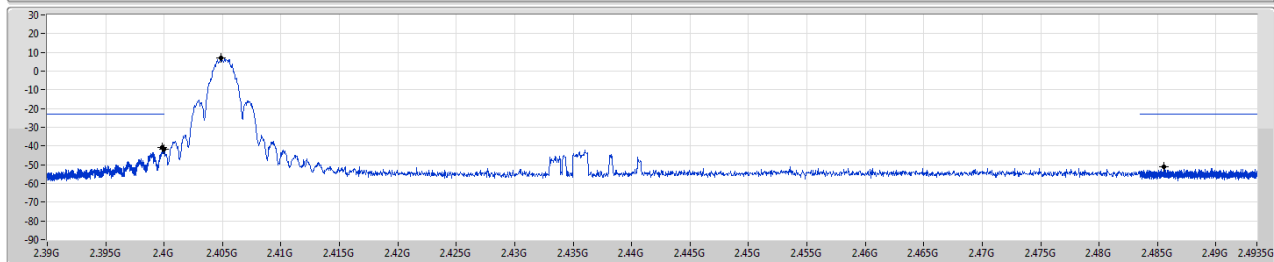
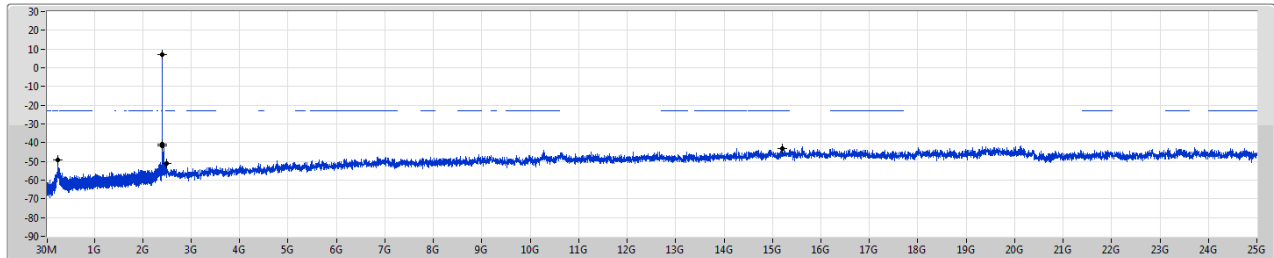
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
Zigbee	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2405MHz	Pass	2.40484G	7.13	-22.87	239.75M	-49.34	2.39984G	-40.83	2.4G	-41.90	2.48553G	-51.10	15.19561G	-43.07	1
2440MHz	Pass	2.40484G	7.13	-22.87	239.75M	-49.77	2.39219G	-48.92	2.4G	-51.38	2.48544G	-51.16	24.78337G	-42.21	1
2475MHz	Pass	2.40484G	7.13	-22.87	239.75M	-49.18	2.39534G	-48.99	2.4G	-52.05	2.48617G	-49.27	24.14194G	-42.93	1
2480MHz	Pass	2.40484G	7.13	-22.87	2.12922G	-55.20	2.39583G	-54.43	2.4835G	-44.90	2.48356G	-45.45	17.10585G	-42.70	1

Zigbee 2405MHz

CSENdB

21/01/2021

Port1



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

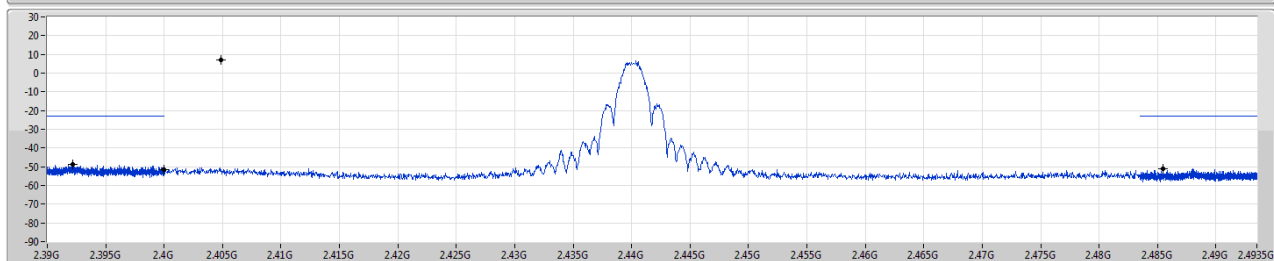
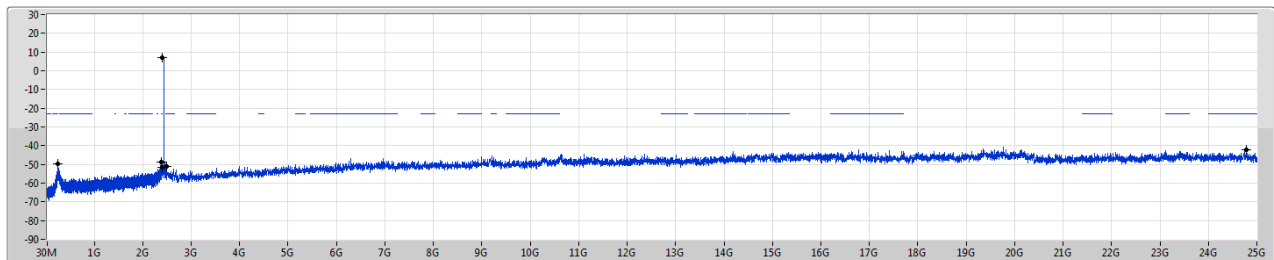
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.40484G	7.13	-22.87	239.75M	-49.34	2.39984G	-40.83	2.4G	-41.90	2.48553G	-51.10	15.19561G	-43.07	1

Zigbee 2440MHz

CSENdB

21/01/2021

Port1



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

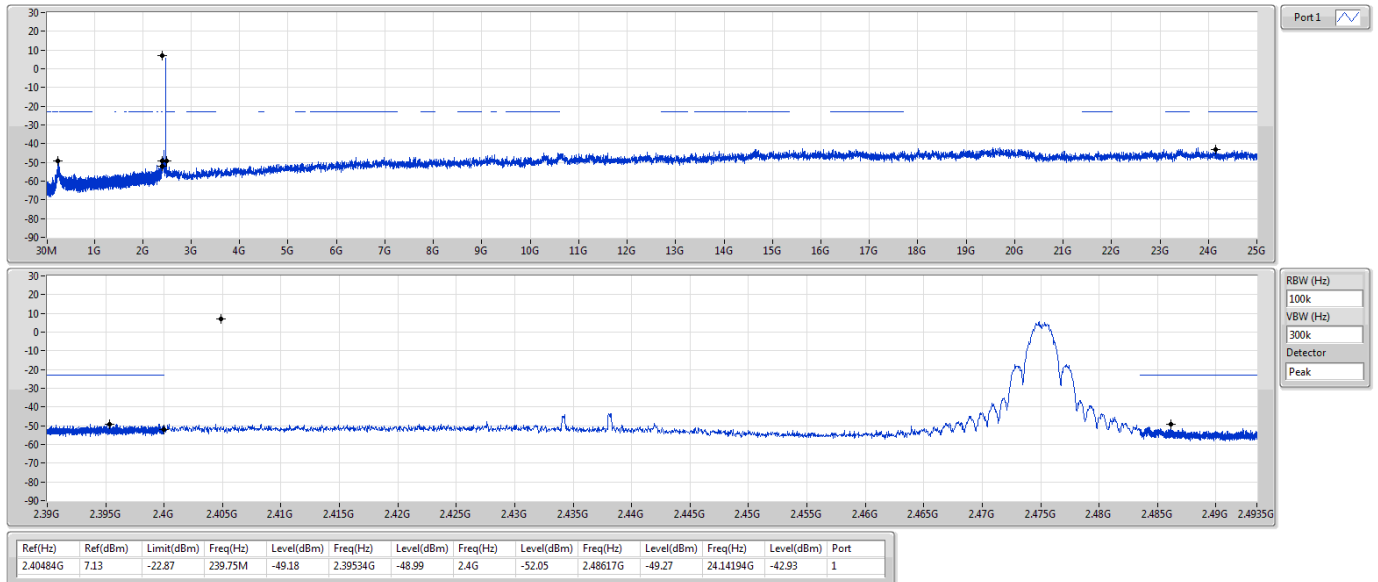
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.40484G	7.13	-22.87	239.75M	-49.77	2.39219G	-48.92	2.4G	-51.38	2.48544G	-51.16	24.78337G	-42.21	1

Zigbee

2475MHz

CSENdB

21/01/2021

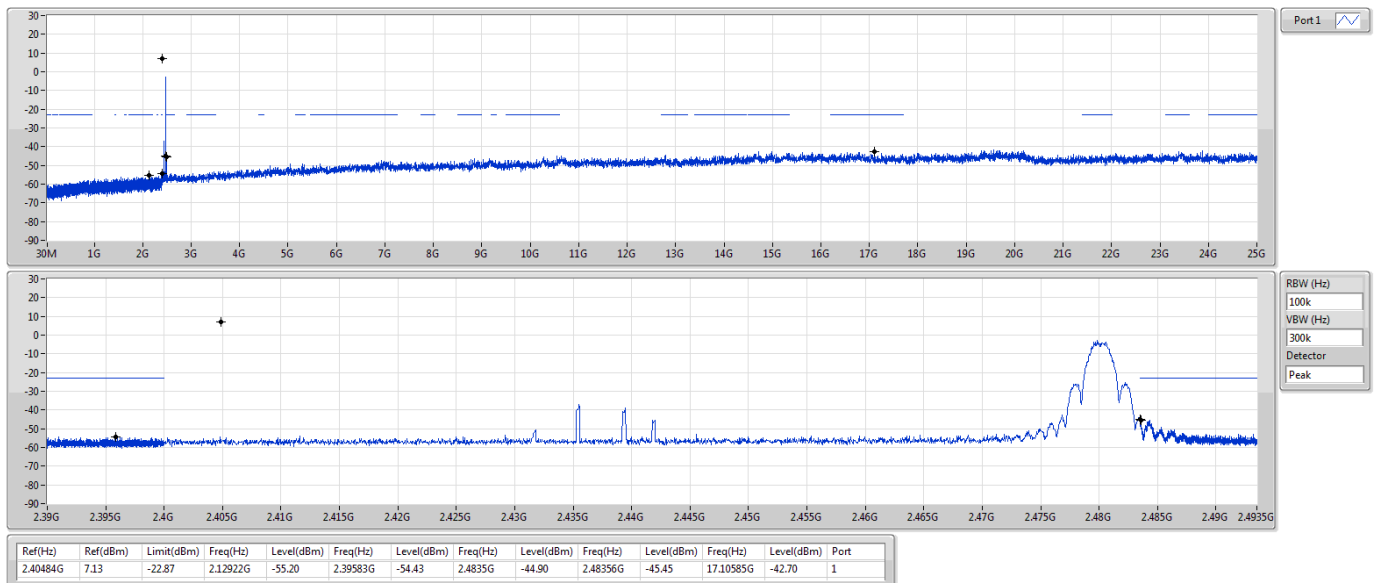


Zigbee

2480MHz

CSENdB

21/01/2021





Summary

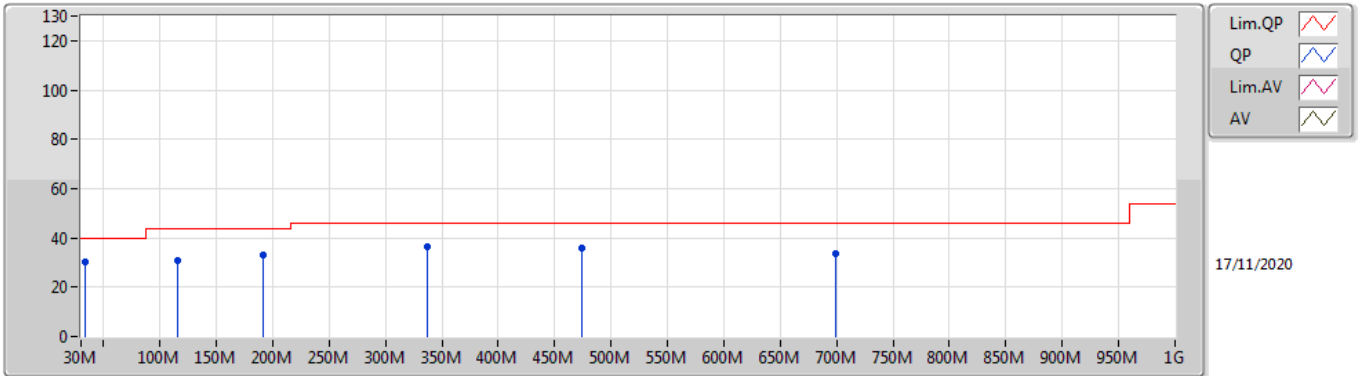
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
Zigbee	Pass	AV	4.87916G	52.81	54.00	-1.19	3	Vertical	104	2.05	-

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	33.88M	30.35	40.00	-9.65	3	Vertical	0	1.00	-
2440MHz	Pass	PK	115.36M	30.72	43.50	-12.78	3	Vertical	0	1.00	-
2440MHz	Pass	PK	191.02M	33.26	43.50	-10.24	3	Vertical	0	1.00	-
2440MHz	Pass	PK	336.52M	36.51	46.00	-9.49	3	Vertical	0	1.00	-
2440MHz	Pass	PK	474.26M	36.07	46.00	-9.93	3	Vertical	0	1.00	-
2440MHz	Pass	PK	699.3M	33.71	46.00	-12.29	3	Vertical	0	1.00	-
2440MHz	Pass	PK	49.4M	34.42	40.00	-5.58	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	191.02M	25.43	43.50	-18.07	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	299.66M	32.32	46.00	-13.68	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	342.34M	29.29	46.00	-16.71	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	474.26M	34.94	46.00	-11.06	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	953.44M	39.35	46.00	-6.65	3	Horizontal	360	1.00	-
2440MHz	Pass	AV	2.3868G	47.18	54.00	-6.82	3	Vertical	49	0.99	-
2440MHz	Pass	AV	2.44G	98.95	Inf	-Inf	3	Vertical	49	0.99	-
2440MHz	Pass	AV	2.4884G	46.19	54.00	-7.81	3	Vertical	49	0.99	-
2440MHz	Pass	PK	2.3712G	59.91	74.00	-14.09	3	Vertical	49	0.99	-
2440MHz	Pass	PK	2.4396G	103.38	Inf	-Inf	3	Vertical	49	0.99	-
2440MHz	Pass	PK	2.4936G	58.10	74.00	-15.90	3	Vertical	49	0.99	-
2440MHz	Pass	AV	2.3412G	45.91	54.00	-8.09	3	Horizontal	29	1.50	-
2440MHz	Pass	AV	2.44G	90.88	Inf	-Inf	3	Horizontal	29	1.50	-
2440MHz	Pass	AV	2.5G	45.61	54.00	-8.39	3	Horizontal	29	1.50	-
2440MHz	Pass	PK	2.346G	58.46	74.00	-15.54	3	Horizontal	29	1.50	-
2440MHz	Pass	PK	2.4396G	95.23	Inf	-Inf	3	Horizontal	29	1.50	-
2440MHz	Pass	PK	2.4896G	57.26	74.00	-16.74	3	Horizontal	29	1.50	-
2440MHz	Pass	AV	4.87916G	52.81	54.00	-1.19	3	Vertical	104	2.05	-
2440MHz	Pass	PK	4.87916G	60.35	74.00	-13.65	3	Vertical	104	2.05	-
2440MHz	Pass	AV	4.87922G	52.60	54.00	-1.40	3	Horizontal	137	3.00	-
2440MHz	Pass	PK	4.87922G	59.96	74.00	-14.04	3	Horizontal	137	3.00	-

Zigbee

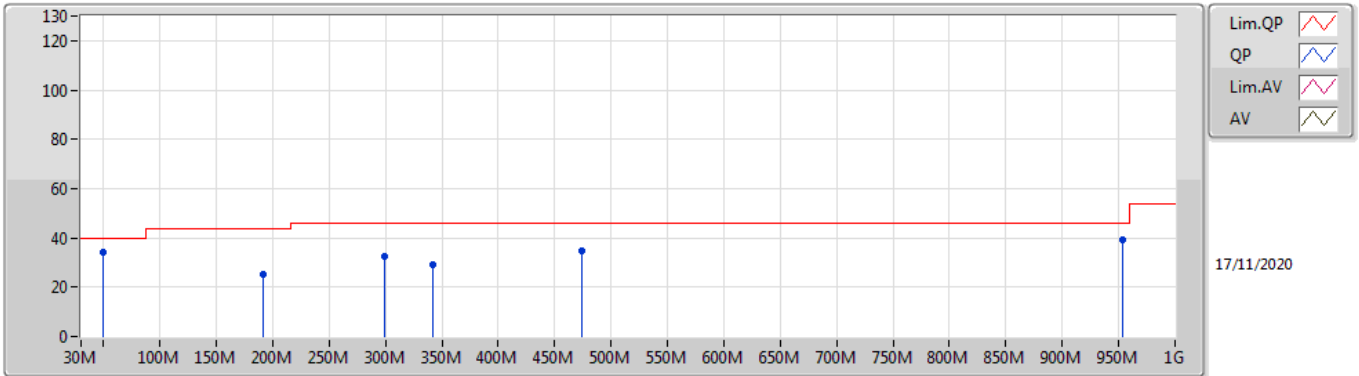
2440MHz_PoE



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	33.88M	30.35	40.00	-9.65	-4.92	3	Vertical	0	1.00	-	35.27	21.26	0.78	26.96
PK	115.36M	30.72	43.50	-12.78	-8.74	3	Vertical	0	1.00	-	39.46	17.43	1.55	27.72
PK	191.02M	33.26	43.50	-10.24	-11.02	3	Vertical	0	1.00	-	44.28	14.28	2.06	27.36
PK	336.52M	36.51	46.00	-9.49	-5.47	3	Vertical	0	1.00	-	41.98	19.02	2.75	27.24
PK	474.26M	36.07	46.00	-9.93	-2.12	3	Vertical	0	1.00	-	38.19	22.70	3.35	28.17
PK	699.3M	33.71	46.00	-12.29	0.27	3	Vertical	0	1.00	-	33.44	24.18	4.20	28.11

Zigbee

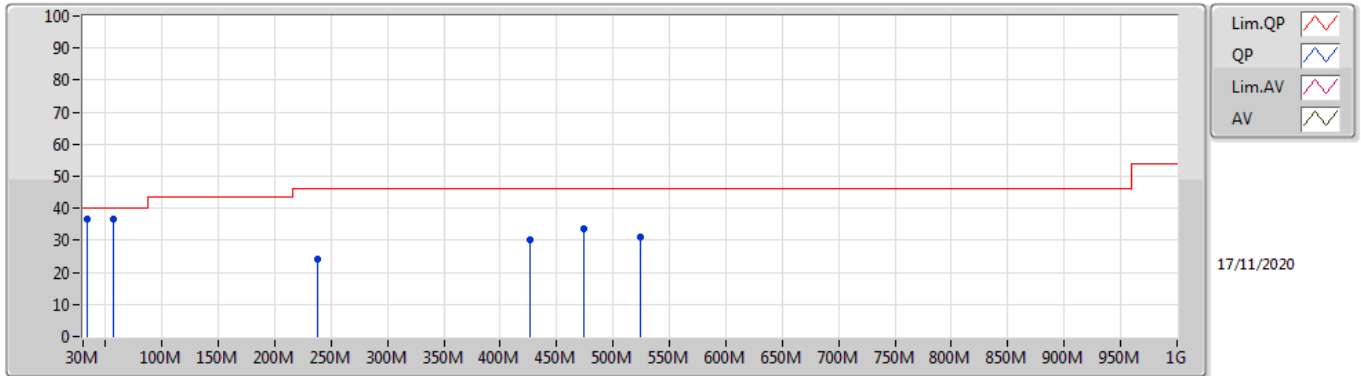
2440MHz_PoE



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	49.4M	34.42	40.00	-5.58	-13.30	3	Horizontal	360	1.00	-	47.72	13.40	0.99	27.69
PK	191.02M	25.43	43.50	-18.07	-11.02	3	Horizontal	360	1.00	-	36.45	14.28	2.06	27.36
PK	299.66M	32.32	46.00	-13.68	-6.04	3	Horizontal	360	1.00	-	38.36	18.40	2.60	27.04
PK	342.34M	29.29	46.00	-16.71	-5.30	3	Horizontal	360	1.00	-	34.59	19.21	2.77	27.28
PK	474.26M	34.94	46.00	-11.06	-2.12	3	Horizontal	360	1.00	-	37.06	22.70	3.35	28.17
PK	953.44M	39.35	46.00	-6.65	3.72	3	Horizontal	360	1.00	-	35.63	26.05	4.91	27.24

Zigbee

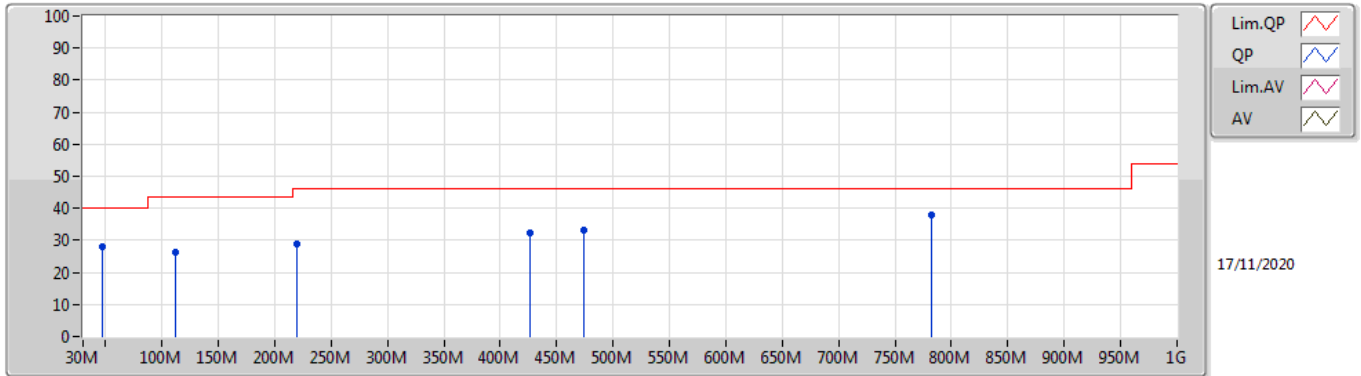
2440MHz_Adapter



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	33.88M	36.70	40.00	-3.30	-4.92	3	Vertical	0	1.00	-	41.62	21.26	0.78	26.96
PK	57.16M	36.47	40.00	-3.53	-14.91	3	Vertical	0	1.00	-	51.38	11.84	1.04	27.79
PK	237.58M	24.11	46.00	-21.89	-8.59	3	Vertical	0	1.00	-	32.70	16.19	2.33	27.11
PK	425.76M	30.26	46.00	-15.74	-2.86	3	Vertical	0	1.00	-	33.12	21.95	3.10	27.91
PK	474.26M	33.59	46.00	-12.41	-2.12	3	Vertical	0	1.00	-	35.71	22.70	3.35	28.17
PK	524.7M	30.92	46.00	-15.08	-1.90	3	Vertical	0	1.00	-	32.82	22.87	3.55	28.32

Zigbee

2440MHz_Adapter



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	47.46M	28.03	40.00	-11.97	-12.65	3	Horizontal	360	1.00	-	40.68	14.05	0.95	27.65
PK	111.48M	26.39	43.50	-17.11	-9.04	3	Horizontal	360	1.00	-	35.43	17.19	1.51	27.74
PK	220.12M	28.98	46.00	-17.02	-10.59	3	Horizontal	360	1.00	-	39.57	14.38	2.22	27.19
PK	425.76M	32.40	46.00	-13.60	-2.86	3	Horizontal	360	1.00	-	35.26	21.95	3.10	27.91
PK	474.26M	33.38	46.00	-12.62	-2.12	3	Horizontal	360	1.00	-	35.50	22.70	3.35	28.17
PK	782.72M	37.73	46.00	-8.27	1.64	3	Horizontal	360	1.00	-	36.09	25.07	4.43	27.86



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	53.97	54.00	-0.03	3	Vertical	360	1.50	-

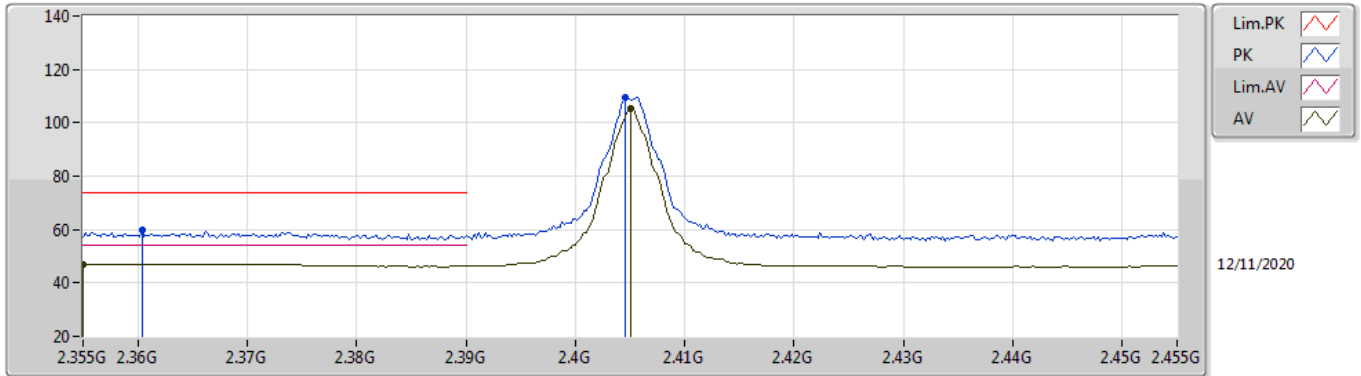


Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
Zigbee	-	-	-	-	-	-	-	-	-	-	-
2405MHz	Pass	AV	2.355G	47.12	54.00	-6.88	3	Vertical	25	1.22	-
2405MHz	Pass	AV	2.405G	105.11	Inf	-Inf	3	Vertical	25	1.22	-
2405MHz	Pass	PK	2.3604G	59.87	74.00	-14.13	3	Vertical	25	1.22	-
2405MHz	Pass	PK	2.4046G	109.33	Inf	-Inf	3	Vertical	25	1.22	-
2405MHz	Pass	AV	2.3554G	45.95	54.00	-8.05	3	Horizontal	228	3.00	-
2405MHz	Pass	AV	2.405G	93.87	Inf	-Inf	3	Horizontal	228	3.00	-
2405MHz	Pass	PK	2.3686G	57.94	74.00	-16.06	3	Horizontal	228	3.00	-
2405MHz	Pass	PK	2.4046G	98.12	Inf	-Inf	3	Horizontal	228	3.00	-
2405MHz	Pass	AV	4.8092G	52.00	54.00	-2.00	3	Vertical	181	1.87	-
2405MHz	Pass	PK	4.80918G	59.34	74.00	-14.66	3	Vertical	181	1.87	-
2405MHz	Pass	AV	4.80916G	52.43	54.00	-1.57	3	Horizontal	14	1.74	-
2405MHz	Pass	PK	4.80918G	59.70	74.00	-14.30	3	Horizontal	14	1.74	-
2440MHz	Pass	AV	2.3896G	47.65	54.00	-6.35	3	Vertical	38	1.05	-
2440MHz	Pass	AV	2.44G	104.66	Inf	-Inf	3	Vertical	38	1.05	-
2440MHz	Pass	AV	2.488G	46.61	54.00	-7.39	3	Vertical	38	1.05	-
2440MHz	Pass	PK	2.3808G	60.29	74.00	-13.71	3	Vertical	38	1.05	-
2440MHz	Pass	PK	2.4396G	108.94	Inf	-Inf	3	Vertical	38	1.05	-
2440MHz	Pass	PK	2.4924G	58.55	74.00	-15.45	3	Vertical	38	1.05	-
2440MHz	Pass	AV	2.3436G	46.06	54.00	-7.94	3	Horizontal	99	2.66	-
2440MHz	Pass	AV	2.44G	95.14	Inf	-Inf	3	Horizontal	99	2.66	-
2440MHz	Pass	AV	2.5G	45.68	54.00	-8.32	3	Horizontal	99	2.66	-
2440MHz	Pass	PK	2.3764G	57.85	74.00	-16.15	3	Horizontal	99	2.66	-
2440MHz	Pass	PK	2.4396G	99.47	Inf	-Inf	3	Horizontal	99	2.66	-
2440MHz	Pass	PK	2.4844G	57.31	74.00	-16.69	3	Horizontal	99	2.66	-
2440MHz	Pass	AV	4.87919G	52.06	54.00	-1.94	3	Vertical	186	1.47	-
2440MHz	Pass	PK	4.87919G	59.41	74.00	-14.59	3	Vertical	186	1.47	-
2440MHz	Pass	AV	4.87918G	50.38	54.00	-3.62	3	Horizontal	16	1.76	-
2440MHz	Pass	PK	4.87922G	58.01	74.00	-15.99	3	Horizontal	16	1.76	-
2475MHz	Pass	AV	2.4752G	103.69	Inf	-Inf	3	Vertical	21	1.58	-
2475MHz	Pass	AV	2.5188G	52.83	54.00	-1.17	3	Vertical	21	1.58	-
2475MHz	Pass	PK	2.4746G	108.66	Inf	-Inf	3	Vertical	21	1.58	-
2475MHz	Pass	PK	2.4852G	59.10	74.00	-14.90	3	Vertical	21	1.58	-
2475MHz	Pass	AV	2.4752G	95.99	Inf	-Inf	3	Horizontal	184	1.05	-
2475MHz	Pass	AV	2.4838G	46.27	54.00	-7.73	3	Horizontal	184	1.05	-
2475MHz	Pass	PK	2.4756G	100.37	Inf	-Inf	3	Horizontal	184	1.05	-
2475MHz	Pass	PK	2.495G	58.39	74.00	-15.61	3	Horizontal	184	1.05	-
2475MHz	Pass	AV	4.95124G	52.01	54.00	-1.99	3	Vertical	178	1.48	-
2475MHz	Pass	PK	4.94916G	59.04	74.00	-14.96	3	Vertical	178	1.48	-
2475MHz	Pass	AV	4.95124G	52.80	54.00	-1.20	3	Horizontal	74	2.08	-
2475MHz	Pass	PK	4.9492G	59.80	74.00	-14.20	3	Horizontal	74	2.08	-
2480MHz	Pass	AV	2.48G	91.90	Inf	-Inf	3	Vertical	360	1.50	-
2480MHz	Pass	AV	2.4835G	53.97	54.00	-0.03	3	Vertical	360	1.50	-
2480MHz	Pass	PK	2.4796G	96.52	Inf	-Inf	3	Vertical	360	1.50	-
2480MHz	Pass	PK	2.4835G	64.09	74.00	-9.91	3	Vertical	360	1.50	-
2480MHz	Pass	AV	2.48G	87.04	Inf	-Inf	3	Horizontal	27	2.70	-
2480MHz	Pass	AV	2.4835G	50.67	54.00	-3.33	3	Horizontal	27	2.70	-
2480MHz	Pass	PK	2.4796G	91.44	Inf	-Inf	3	Horizontal	27	2.70	-
2480MHz	Pass	PK	2.4835G	61.46	74.00	-12.54	3	Horizontal	27	2.70	-
2480MHz	Pass	AV	4.9612G	33.47	54.00	-20.53	3	Vertical	185	2.30	-
2480MHz	Pass	PK	4.95928G	45.30	74.00	-28.70	3	Vertical	185	2.30	-
2480MHz	Pass	AV	4.9612G	30.92	54.00	-23.08	3	Horizontal	331	1.76	-
2480MHz	Pass	PK	4.9591G	43.33	74.00	-30.67	3	Horizontal	331	1.76	-

Zigbee

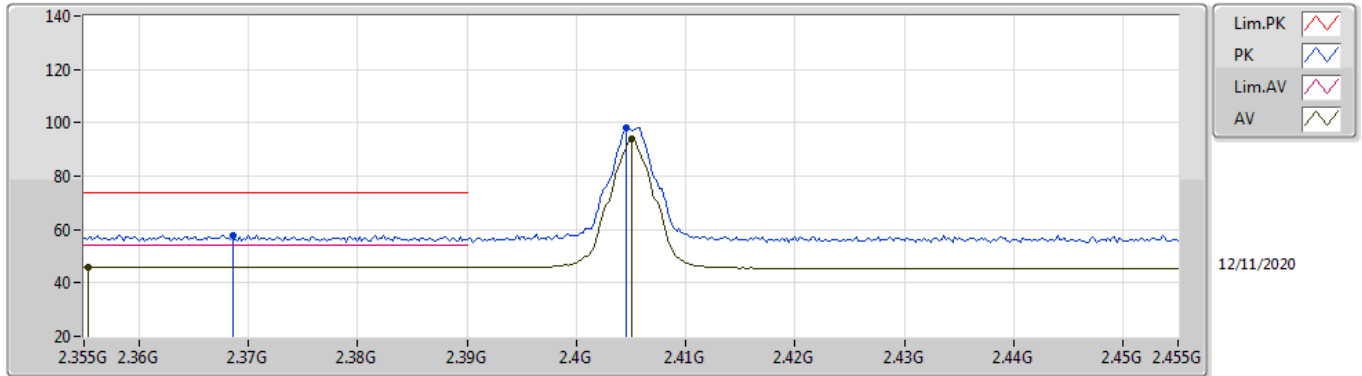
2405MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.355G	47.12	54.00	-6.88	33.62	3	Vertical	25	1.22	-	13.50	27.69	5.93	-
AV	2.405G	105.11	Inf	-Inf	33.55	3	Vertical	25	1.22	-	71.56	27.58	5.97	-
PK	2.3604G	59.87	74.00	-14.13	33.61	3	Vertical	25	1.22	-	26.26	27.68	5.93	-
PK	2.4046G	109.33	Inf	-Inf	33.55	3	Vertical	25	1.22	-	75.78	27.58	5.97	-

Zigbee

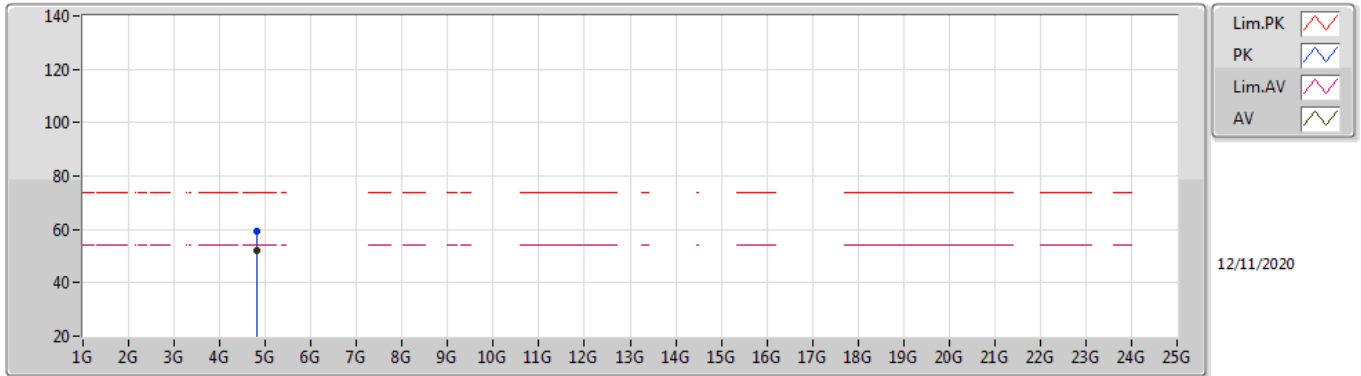
2405MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.3554G	45.95	54.00	-8.05	33.62	3	Horizontal	228	3.00	-	12.33	27.69	5.93	-
AV	2.405G	93.87	Inf	-Inf	33.55	3	Horizontal	228	3.00	-	60.32	27.58	5.97	-
PK	2.3686G	57.94	74.00	-16.06	33.60	3	Horizontal	228	3.00	-	24.34	27.66	5.94	-
PK	2.4046G	98.12	Inf	-Inf	33.55	3	Horizontal	228	3.00	-	64.57	27.58	5.97	-

Zigbee

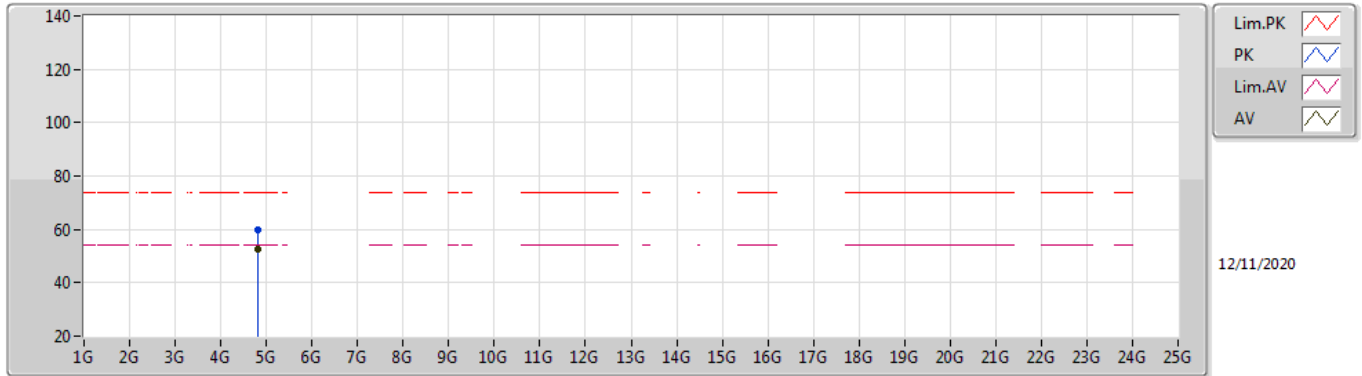
2405MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.8092G	52.00	54.00	-2.00	4.92	3	Vertical	181	1.87	-	47.08	30.94	8.26	34.28
PK	4.80918G	59.34	74.00	-14.66	4.92	3	Vertical	181	1.87	-	54.42	30.94	8.26	34.28

Zigbee

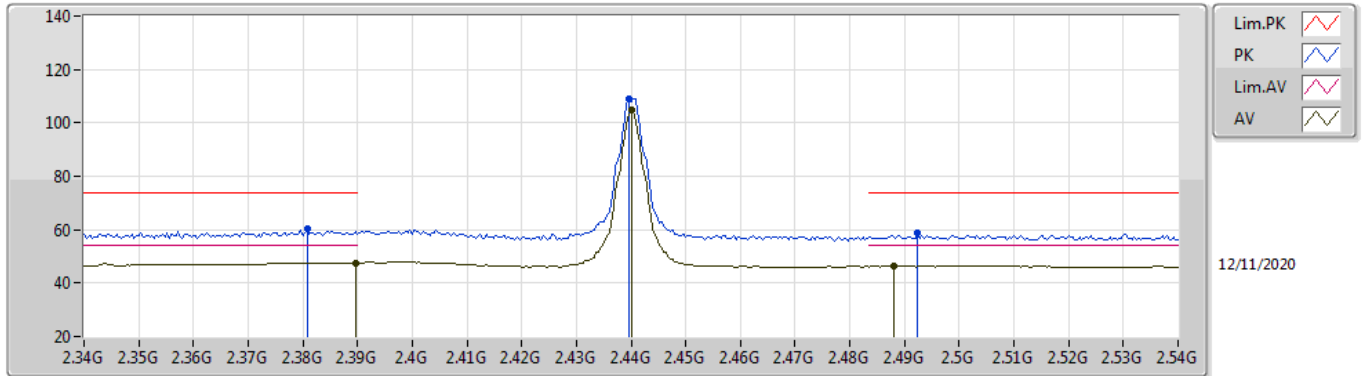
2405MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.80916G	52.43	54.00	-1.57	4.92	3	Horizontal	14	1.74	-	47.51	30.94	8.26	34.28
PK	4.80918G	59.70	74.00	-14.30	4.92	3	Horizontal	14	1.74	-	54.78	30.94	8.26	34.28

Zigbee

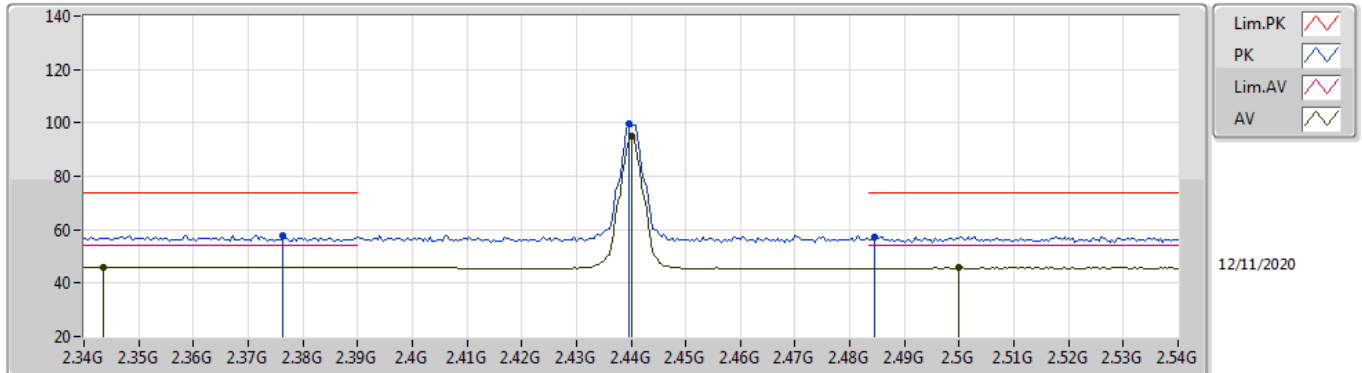
2440MHz_TX



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	2.3896G	47.65	54.00	-6.35	33.57	3	Vertical	38	1.05	-	14.08	27.62	5.95	-
AV	2.44G	104.66	Inf	-Inf	33.45	3	Vertical	38	1.05	-	71.21	27.44	6.01	-
AV	2.488G	46.61	54.00	-7.39	33.47	3	Vertical	38	1.05	-	13.14	27.40	6.07	-
PK	2.3808G	60.29	74.00	-13.71	33.59	3	Vertical	38	1.05	-	26.70	27.64	5.95	-
PK	2.4396G	108.94	Inf	-Inf	33.45	3	Vertical	38	1.05	-	75.49	27.44	6.01	-
PK	2.4924G	58.55	74.00	-15.45	33.47	3	Vertical	38	1.05	-	25.08	27.40	6.07	-

Zigbee

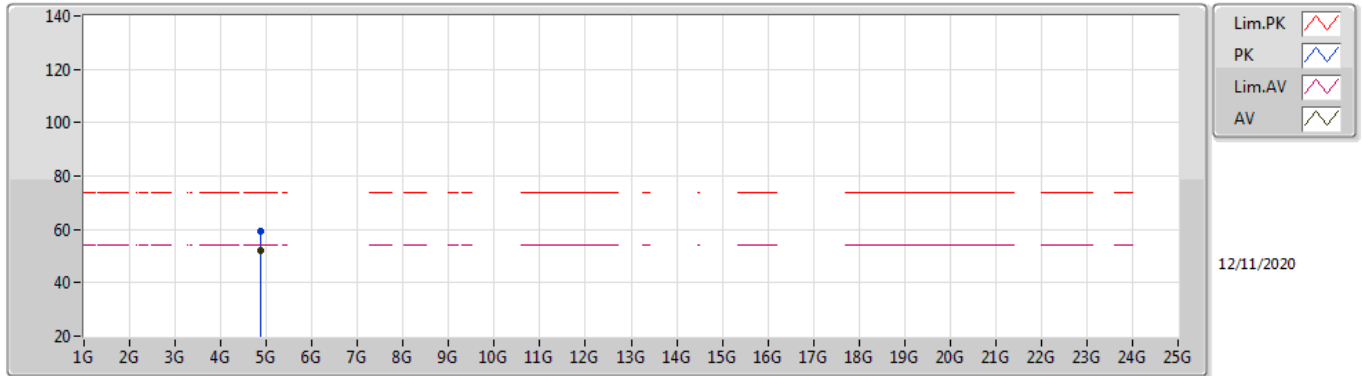
2440MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.3436G	46.06	54.00	-7.94	33.65	3	Horizontal	99	2.66	-	12.41	27.73	5.92	-
AV	2.44G	95.14	Inf	-Inf	33.45	3	Horizontal	99	2.66	-	61.69	27.44	6.01	-
AV	2.5G	45.68	54.00	-8.32	33.48	3	Horizontal	99	2.66	-	12.20	27.40	6.08	-
PK	2.3764G	57.85	74.00	-16.15	33.59	3	Horizontal	99	2.66	-	24.26	27.65	5.94	-
PK	2.4396G	99.47	Inf	-Inf	33.45	3	Horizontal	99	2.66	-	66.02	27.44	6.01	-
PK	2.4844G	57.31	74.00	-16.69	33.46	3	Horizontal	99	2.66	-	23.85	27.40	6.06	-

Zigbee

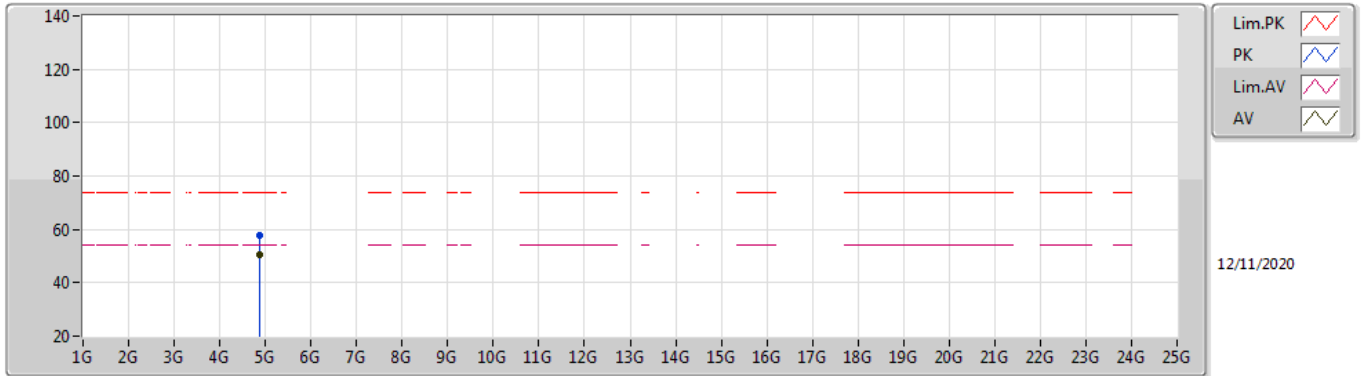
2440MHz_TX



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	4.87919G	52.06	54.00	-1.94	5.08	3	Vertical	186	1.47	-	46.98	31.04	8.30	34.26
PK	4.87919G	59.41	74.00	-14.59	5.08	3	Vertical	186	1.47	-	54.33	31.04	8.30	34.26

Zigbee

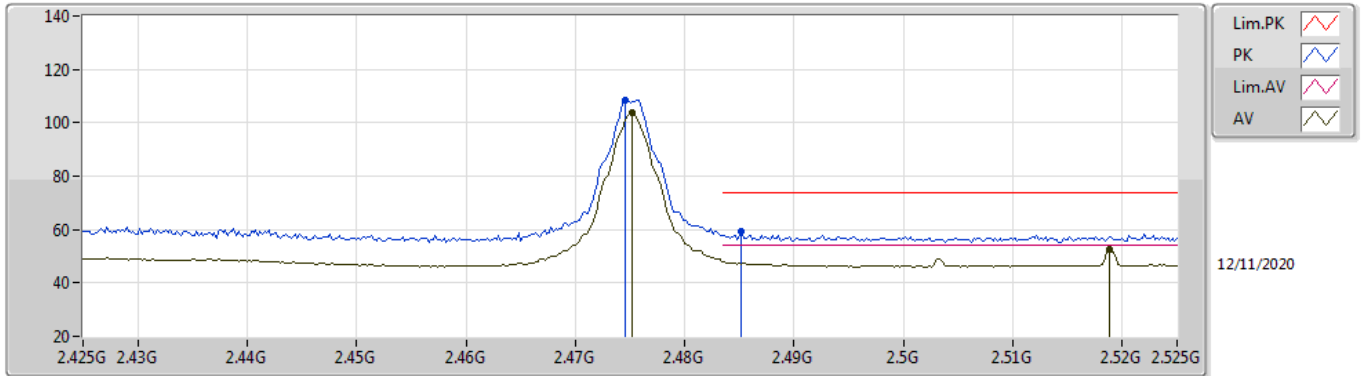
2440MHz_TX



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	4.87918G	50.38	54.00	-3.62	5.08	3	Horizontal	16	1.76	-	45.30	31.04	8.30	34.26
PK	4.87922G	58.01	74.00	-15.99	5.08	3	Horizontal	16	1.76	-	52.93	31.04	8.30	34.26

Zigbee

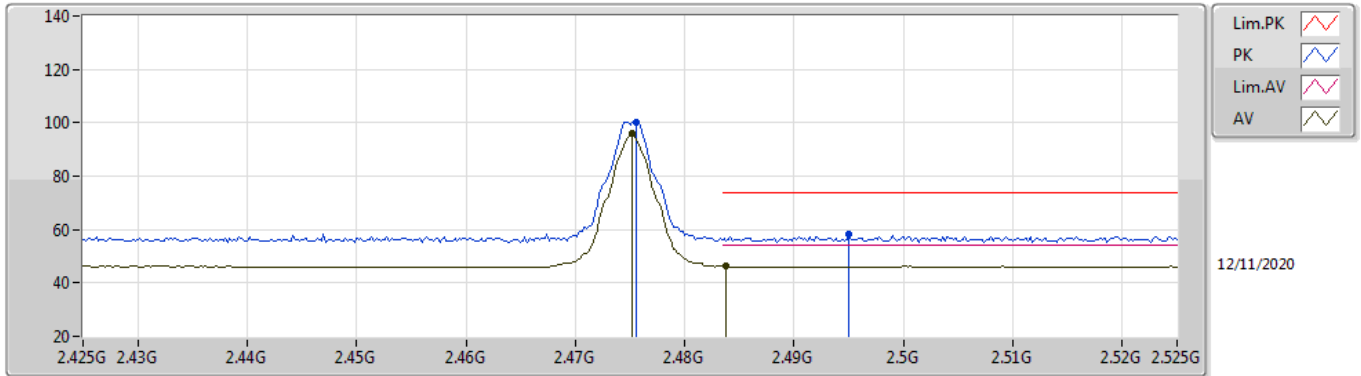
2475MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.4752G	103.69	Inf	-Inf	33.45	3	Vertical	21	1.58	-	70.24	27.40	6.05	-
AV	2.5188G	52.83	54.00	-1.17	33.50	3	Vertical	21	1.58	-	19.33	27.40	6.10	-
PK	2.4746G	108.66	Inf	-Inf	33.45	3	Vertical	21	1.58	-	75.21	27.40	6.05	-
PK	2.4852G	59.10	74.00	-14.90	33.46	3	Vertical	21	1.58	-	25.64	27.40	6.06	-

Zigbee

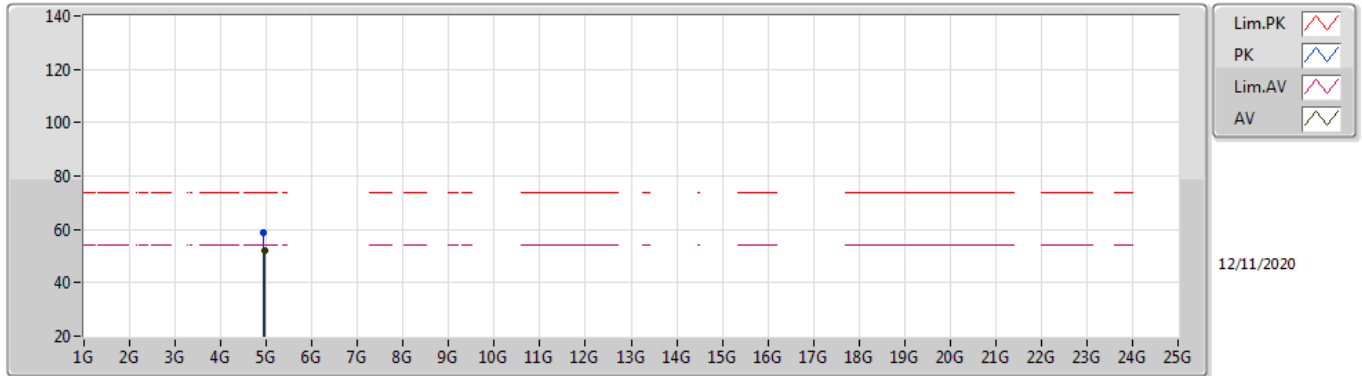
2475MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.4752G	95.99	Inf	-Inf	33.45	3	Horizontal	184	1.05	-	62.54	27.40	6.05	-
AV	2.4838G	46.27	54.00	-7.73	33.46	3	Horizontal	184	1.05	-	12.81	27.40	6.06	-
PK	2.4756G	100.37	Inf	-Inf	33.45	3	Horizontal	184	1.05	-	66.92	27.40	6.05	-
PK	2.495G	58.39	74.00	-15.61	33.47	3	Horizontal	184	1.05	-	24.92	27.40	6.07	-

Zigbee

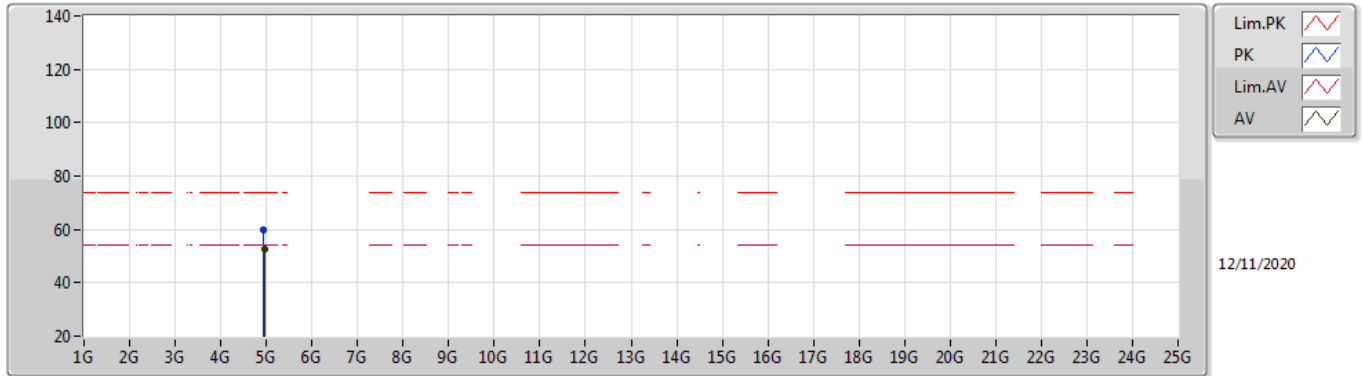
2475MHz_TX



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	4.95124G	52.01	54.00	-1.99	5.31	3	Vertical	178	1.48	-	46.70	31.20	8.35	34.24
PK	4.94916G	59.04	74.00	-14.96	5.31	3	Vertical	178	1.48	-	53.73	31.20	8.35	34.24

Zigbee

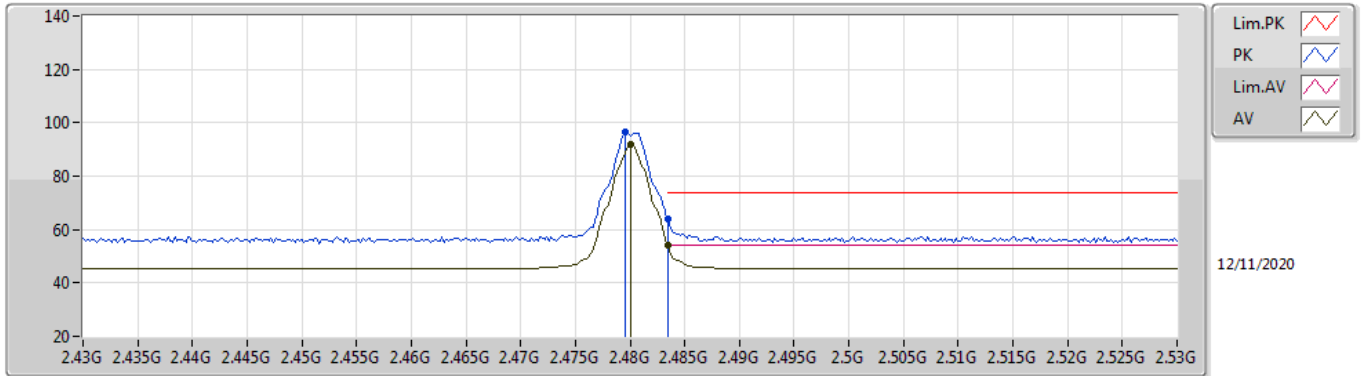
2475MHz_TX



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	4.95124G	52.80	54.00	-1.20	5.31	3	Horizontal	74	2.08	-	47.49	31.20	8.35	34.24
PK	4.9492G	59.80	74.00	-14.20	5.31	3	Horizontal	74	2.08	-	54.49	31.20	8.35	34.24

Zigbee

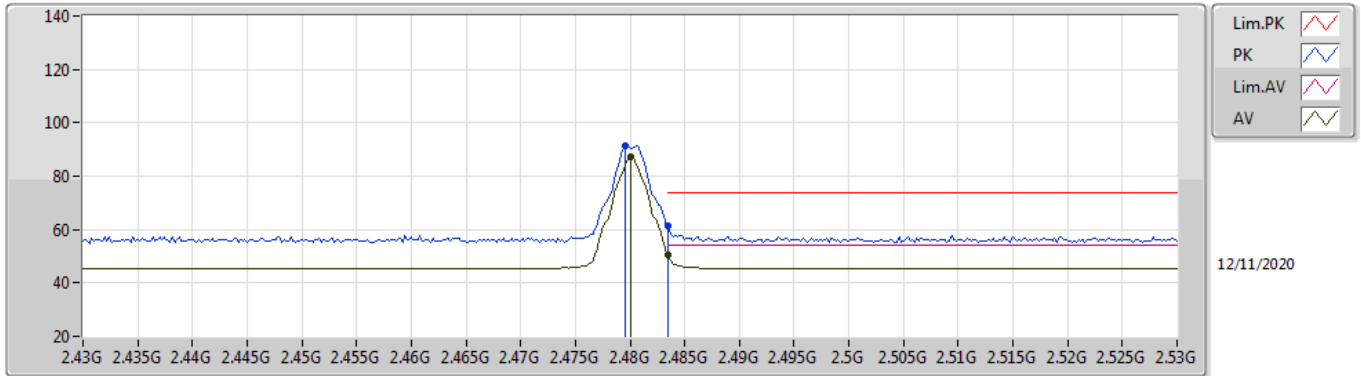
2480MHz_TX



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	91.90	Inf	-Inf	33.46	3	Vertical	360	1.50	-	58.44	27.40	6.06	-
AV	2.4835G	53.97	54.00	-0.03	33.46	3	Vertical	360	1.50	-	20.51	27.40	6.06	-
PK	2.4796G	96.52	Inf	-Inf	33.46	3	Vertical	360	1.50	-	63.06	27.40	6.06	-
PK	2.4835G	64.09	74.00	-9.91	33.46	3	Vertical	360	1.50	-	30.63	27.40	6.06	-

Zigbee

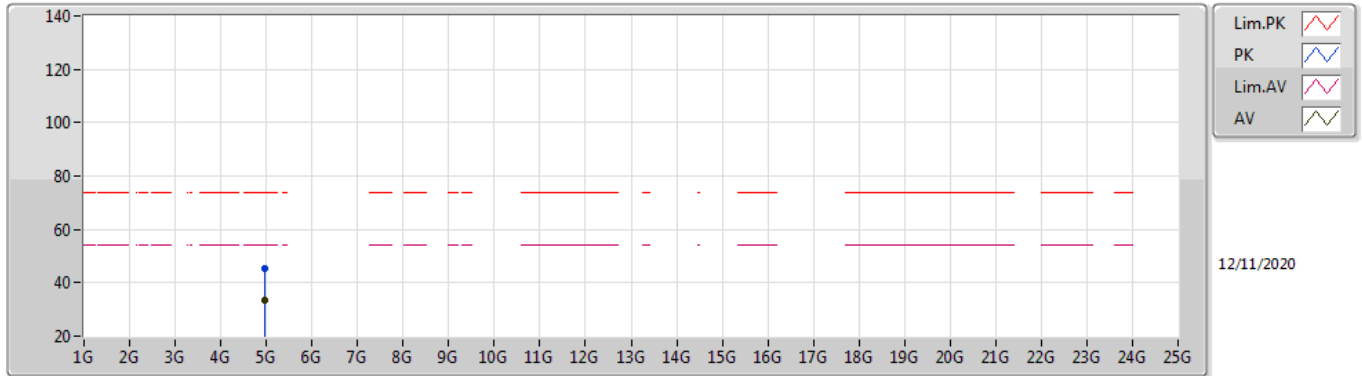
2480MHz_TX



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	87.04	Inf	-Inf	33.46	3	Horizontal	27	2.70	-	53.58	27.40	6.06	-
AV	2.4835G	50.67	54.00	-3.33	33.46	3	Horizontal	27	2.70	-	17.21	27.40	6.06	-
PK	2.4796G	91.44	Inf	-Inf	33.46	3	Horizontal	27	2.70	-	57.98	27.40	6.06	-
PK	2.4835G	61.46	74.00	-12.54	33.46	3	Horizontal	27	2.70	-	28.00	27.40	6.06	-

Zigbee

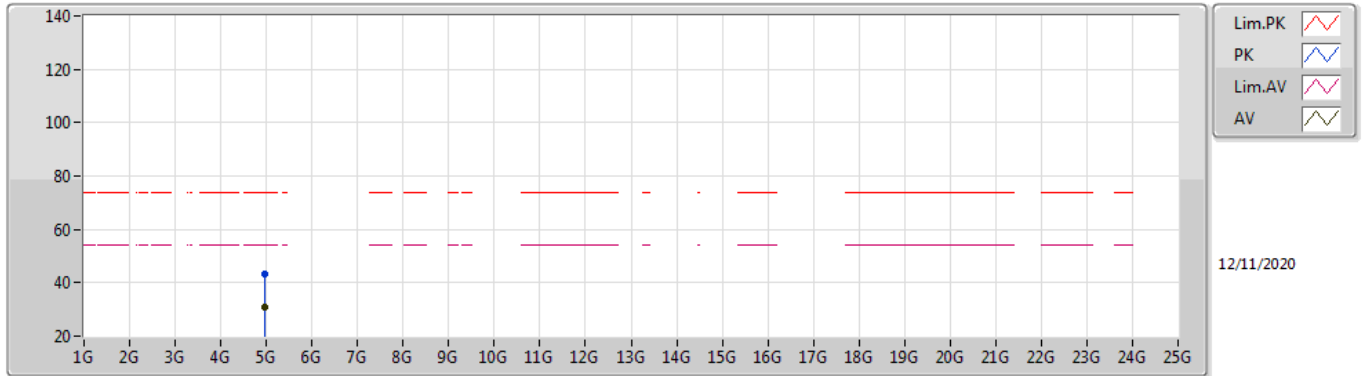
2480MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.9612G	33.47	54.00	-20.53	5.34	3	Vertical	185	2.30	-	28.13	31.22	8.35	34.23
PK	4.95928G	45.30	74.00	-28.70	5.34	3	Vertical	185	2.30	-	39.96	31.22	8.35	34.23

Zigbee

2480MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.9612G	30.92	54.00	-23.08	5.34	3	Horizontal	331	1.76	-	25.58	31.22	8.35	34.23
PK	4.9591G	43.33	74.00	-30.67	5.34	3	Horizontal	331	1.76	-	37.99	31.22	8.35	34.23

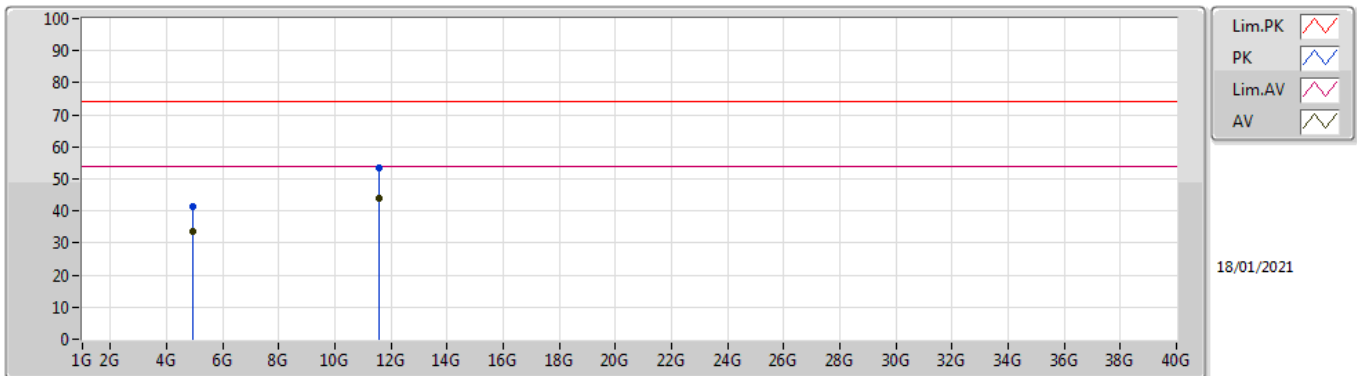
**Summary**

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB/m)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
Mode 1	Pass	AV	11.55218G	43.88	54.00	-10.12	18.54	3	Vertical	263	1.42	-

Mode Configure

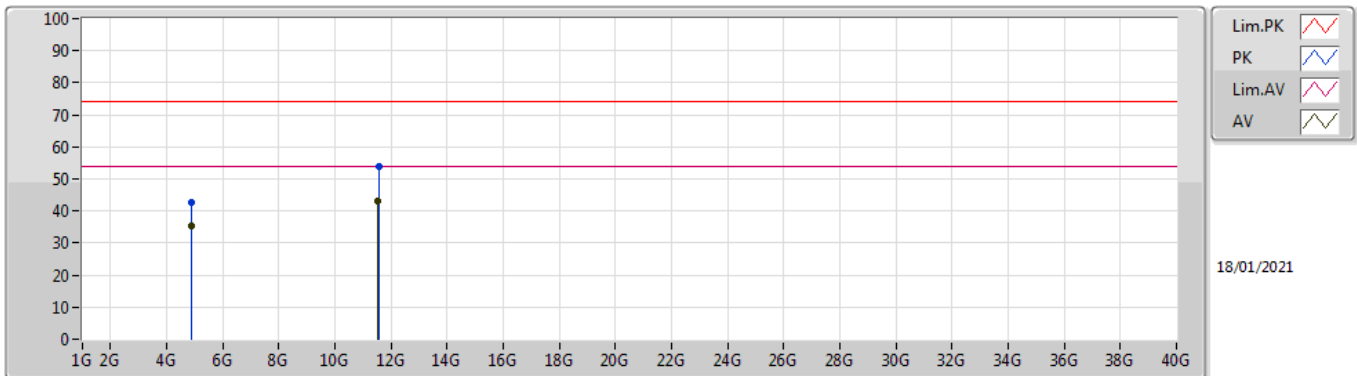
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB/m)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
Mode 1	Pass	AV	4.92412G	33.74	54.00	-20.26	5.18	3	Vertical	5	1.53	-
Mode 1	Pass	AV	11.55218G	43.88	54.00	-10.12	18.54	3	Vertical	263	1.42	-
Mode 1	Pass	PK	4.92436G	41.50	74.00	-32.50	4.90	3	Vertical	5	1.53	-
Mode 1	Pass	PK	11.55218G	53.27	74.00	-20.73	18.54	3	Vertical	263	1.42	-
Mode 1	Pass	AV	4.90715G	35.33	54.00	-18.67	5.10	3	Horizontal	26	1.89	-
Mode 1	Pass	AV	11.52365G	43.27	54.00	-10.73	18.58	3	Horizontal	70	1.57	-
Mode 1	Pass	PK	4.90726G	42.84	74.00	-31.16	5.10	3	Horizontal	26	1.89	-
Mode 1	Pass	PK	11.55325G	54.04	74.00	-19.96	18.54	3	Horizontal	70	1.57	-

Radiated Emissions above 1GHz_Mode 1



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB/m)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV/m)	AF (dB/m)	CL (dB)	PA (dB)
AV	4.92412G	33.74	54.00	-20.26	5.18	3	Vertical	5	1.53	-	28.56	31.10	8.33	34.25
AV	11.55218G	43.88	54.00	-10.12	18.54	3	Vertical	263	1.42	-	25.34	39.95	12.78	34.19
PK	4.92436G	41.50	74.00	-32.50	4.90	3	Vertical	5	1.53	-	36.60	30.93	8.26	34.29
PK	11.55218G	53.27	74.00	-20.73	18.54	3	Vertical	263	1.42	-	34.73	39.94	12.79	34.19

Radiated Emissions above 1GHz_Mode 1



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB/m)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV/m)	AF (dB/m)	CL (dB)	PA (dB)
AV	4.90715G	35.33	54.00	-18.67	5.10	3	Horizontal	26	1.89	-	30.23	31.03	8.32	34.25
AV	11.52365G	43.27	54.00	-10.73	18.58	3	Horizontal	70	1.57	-	24.69	39.98	12.77	34.17
PK	4.90726G	42.84	74.00	-31.16	5.10	3	Horizontal	26	1.89	-	37.74	31.03	8.32	34.25
PK	11.55325G	54.04	74.00	-19.96	18.54	3	Horizontal	70	1.57	-	35.50	39.95	12.78	34.19