

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

[illegible]

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)	Bluetooth Mode	Ch. Frequency (MHz)	Channel Number
2400-2483.5	LE	2402-2480	0-39 [40]

Band	Mode	BWch (MHz)	Nant
2.4-2.4835GHz	BT-LE(1Mbps)	1.0	1TX
2.4-2.4835GHz	BT-LE(2Mbps)	2.0	1TX

Note:

- ♦ Bluetooth LE uses a GFSK (1Mbps/2Mbps) modulation.
- ♦ 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 Gan(dBi)	Antenna Gain(dBi)	Beamforming Gan(dBi)	Antenna Gain(dBi)	
1	4.17	3.01	4.35	3.01	-	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.

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

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) $\geq 1/T$
BT-LE(1Mbps)	1	0	n/a (DC $\geq$ 0.98)	n/a (DC $\geq$ 0.98)
BT-LE(2Mbps)	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
BT-LE(1Mbps)	-
2402MHz	10
2440MHz	8
2480MHz	10
BT-LE(2Mbps)	-
2402MHz	10
2440MHz	10
2480MHz	6

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.

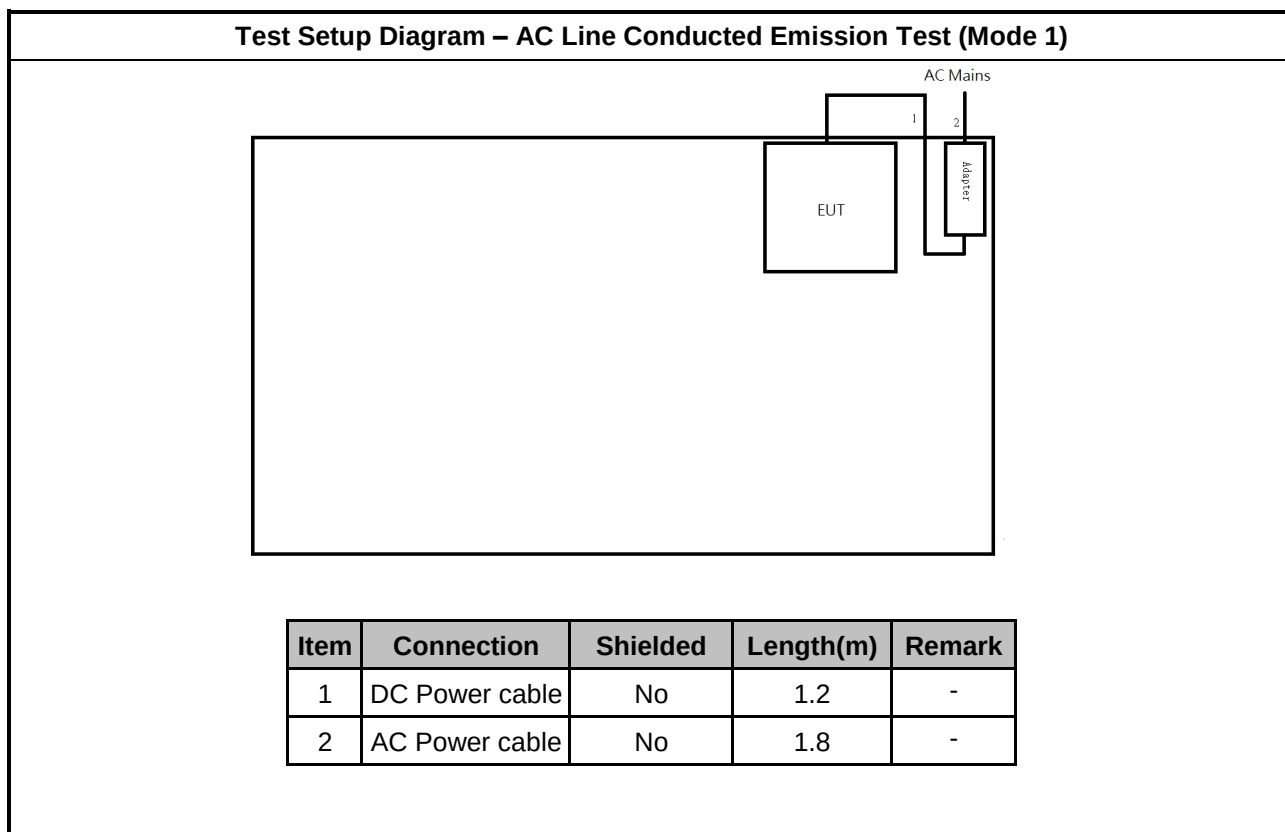
2.5 Support Equipment

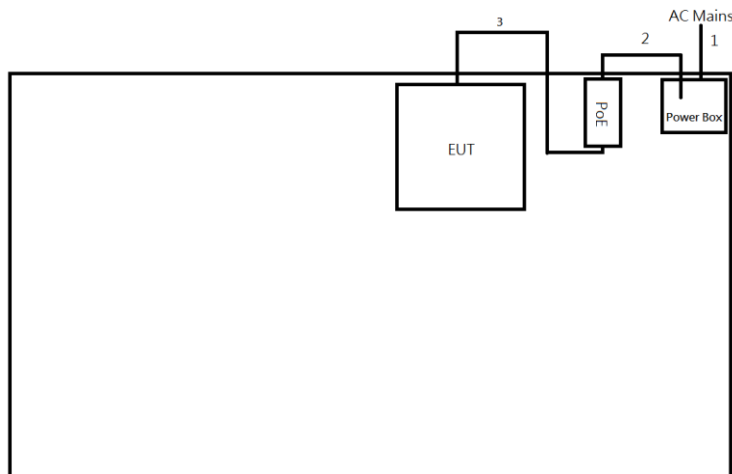
Support Equipment – AC Conduction					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	RJ45 Cable	Power Sync	CAT-6E-10	-	-
2	Adapter	FSP	FSP065-DWAN3	-	Client provided
3	PoE	SENAO	EWS511AP_CE W/O DFS	-	Client provided
4	AC Power Cable	Power Sync	TPCPHN0006	-	-
5	AC Power Cable	Power Sync	PW-GPC180-3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

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	-	-

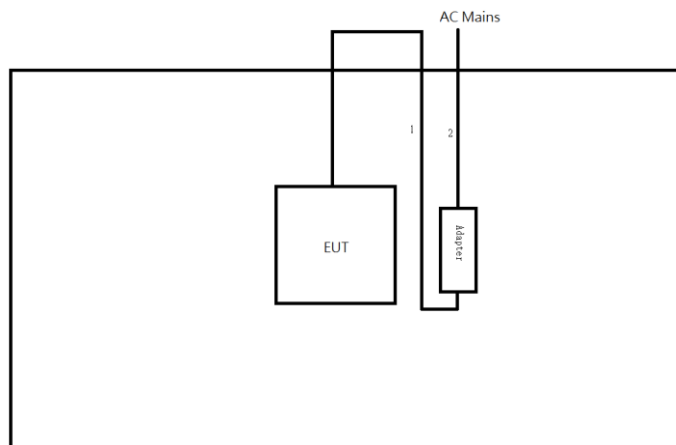
Support Equipment – Conducted					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	Notebook	DELL	E5410	-	-
2	Adapter for NB	DELL	HA65NM130	-	-
3	AC Adapter	FSP	FSP065-DWAN3	-	-

2.6 Test Setup Diagram

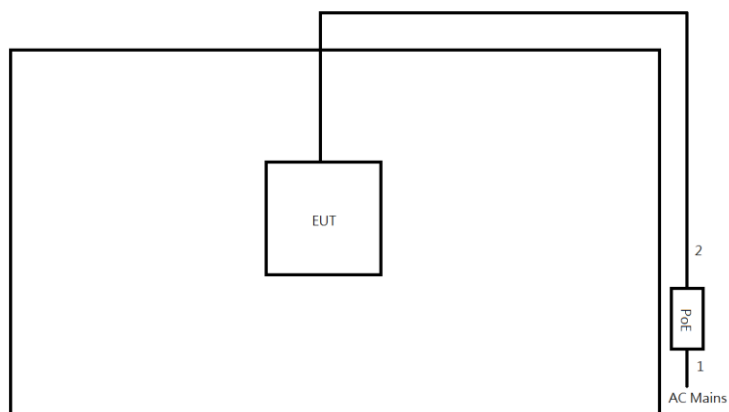


Test Setup Diagram – AC Line Conducted Emission Test (Mode 2)


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

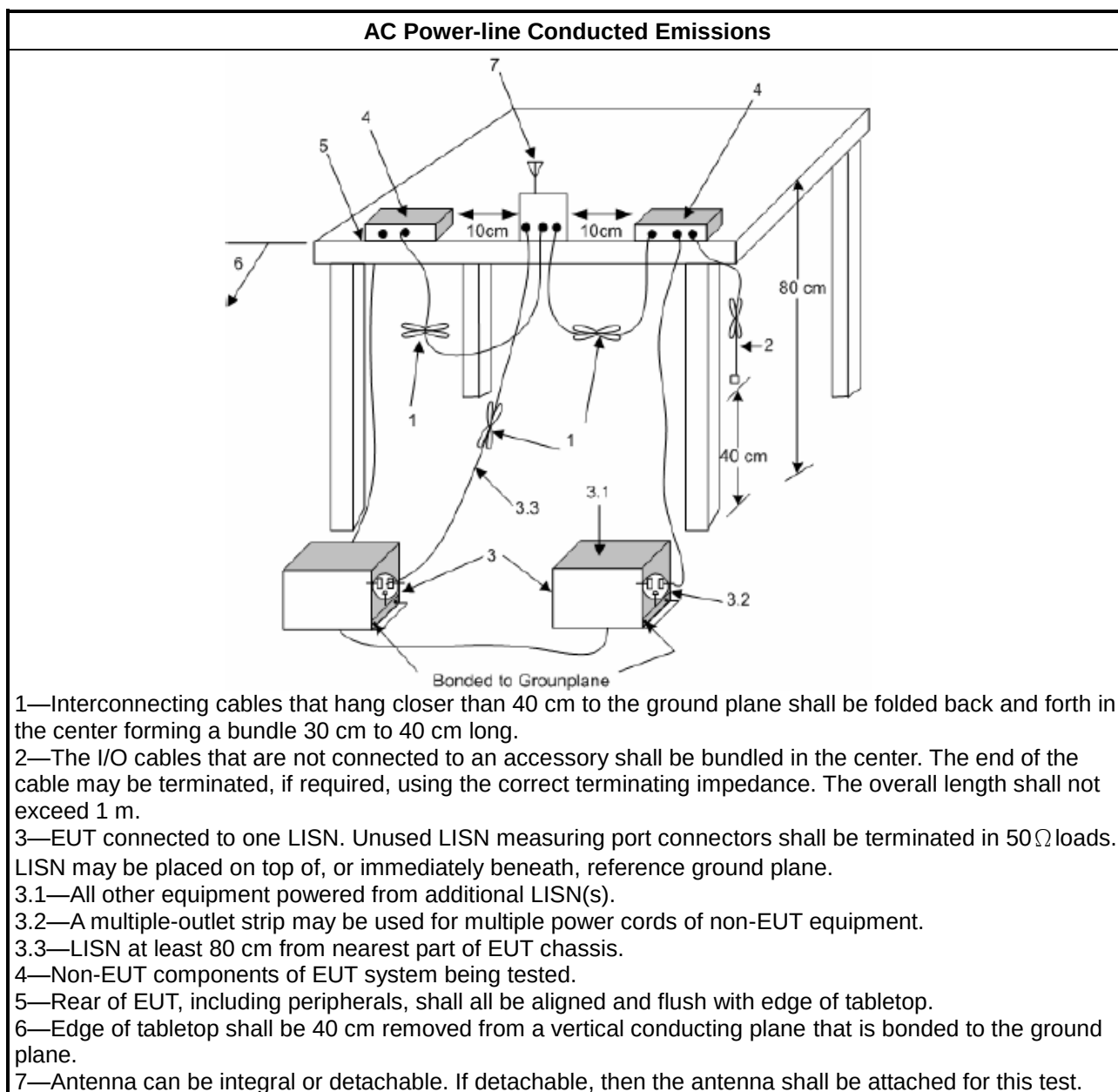
Test Method
▪ Refer as ANSI C63.10-2013, clause 6.2 foray power-line conducted emissions.

3.1.4 Measurement Results Calculation

The measured Level is calculated using:

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

3.1.5 Test Setup



3.1.6 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A

3.2 DTS Bandwidth

3.2.1 6dB Bandwidth Limit

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

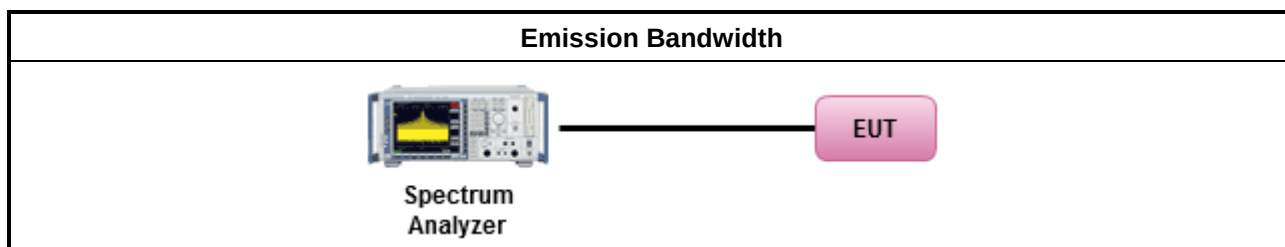
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

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

3.2.4 Test Setup



3.2.5 Test Result of Emission Bandwidth

Refer as Appendix B

3.3 Maximum Conducted Output Power

3.3.1 Maximum Conducted Output Power Limit

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

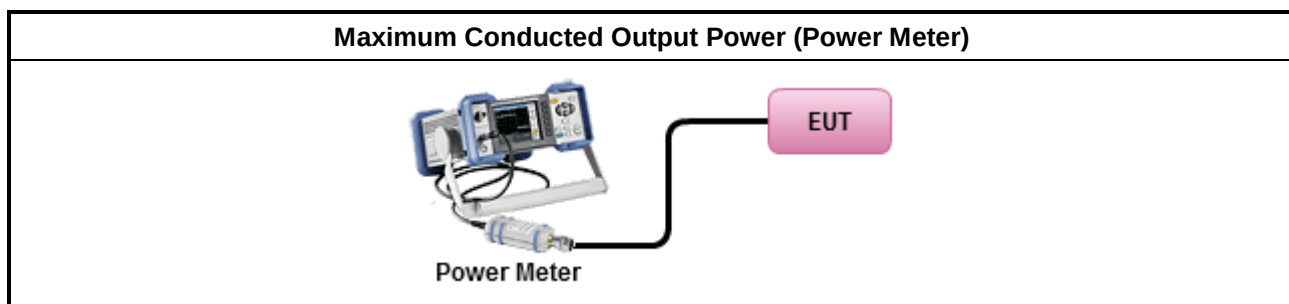
3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

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

3.3.4 Test Setup



3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix C

3.4 Power Spectral Density

3.4.1 Power Spectral Density Limit

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

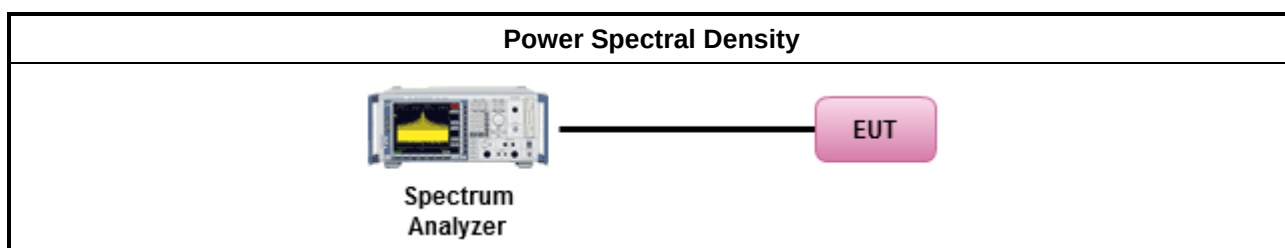
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

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

3.4.4 Test Setup



3.4.5 Test Result of Power Spectral Density

Refer as Appendix D

3.5 Emissions in Non-restricted Frequency Bands

3.5.1 Emissions in Non-restricted Frequency Bands Limit

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

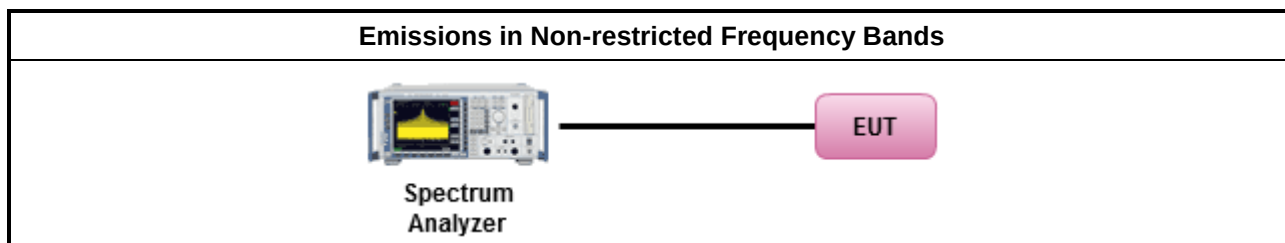
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

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

3.5.4 Test Setup



3.5.5 Test Result of Emissions in Non-restricted Frequency Bands

Refer as Appendix E

3.6 Emissions in Restricted Frequency Bands

3.6.1 Emissions in Restricted Frequency Bands Limit

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

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

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

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

3.6.2 Measuring Instruments

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

3.6.3 Test Procedures

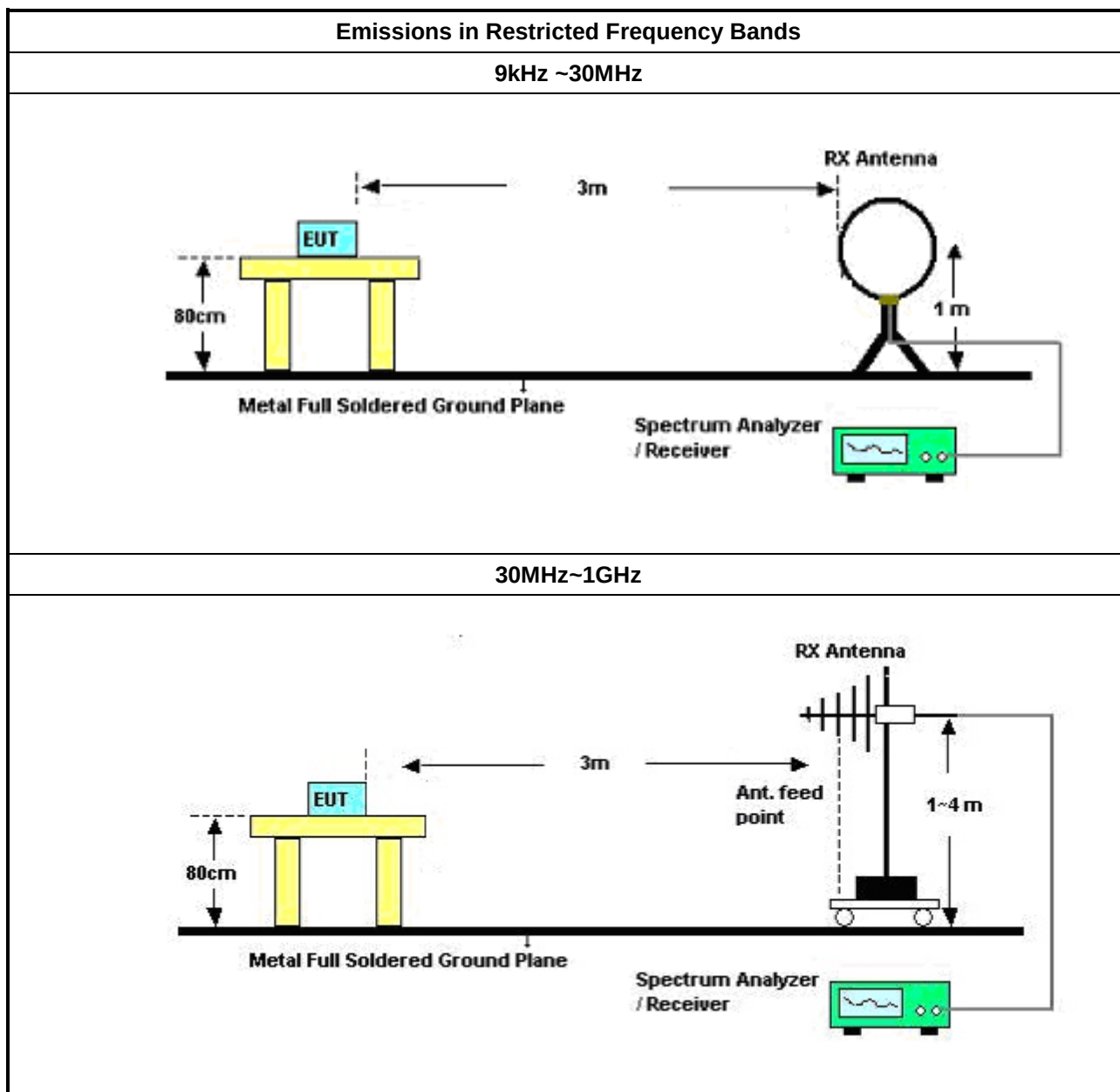
Test Method	
The average emission levels shall be measured in [duty cycle $\geq$ 98 or duty factor].	
Refer as ANSI C63.10, clause 6.10.3 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.	
For the transmitter unwanted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

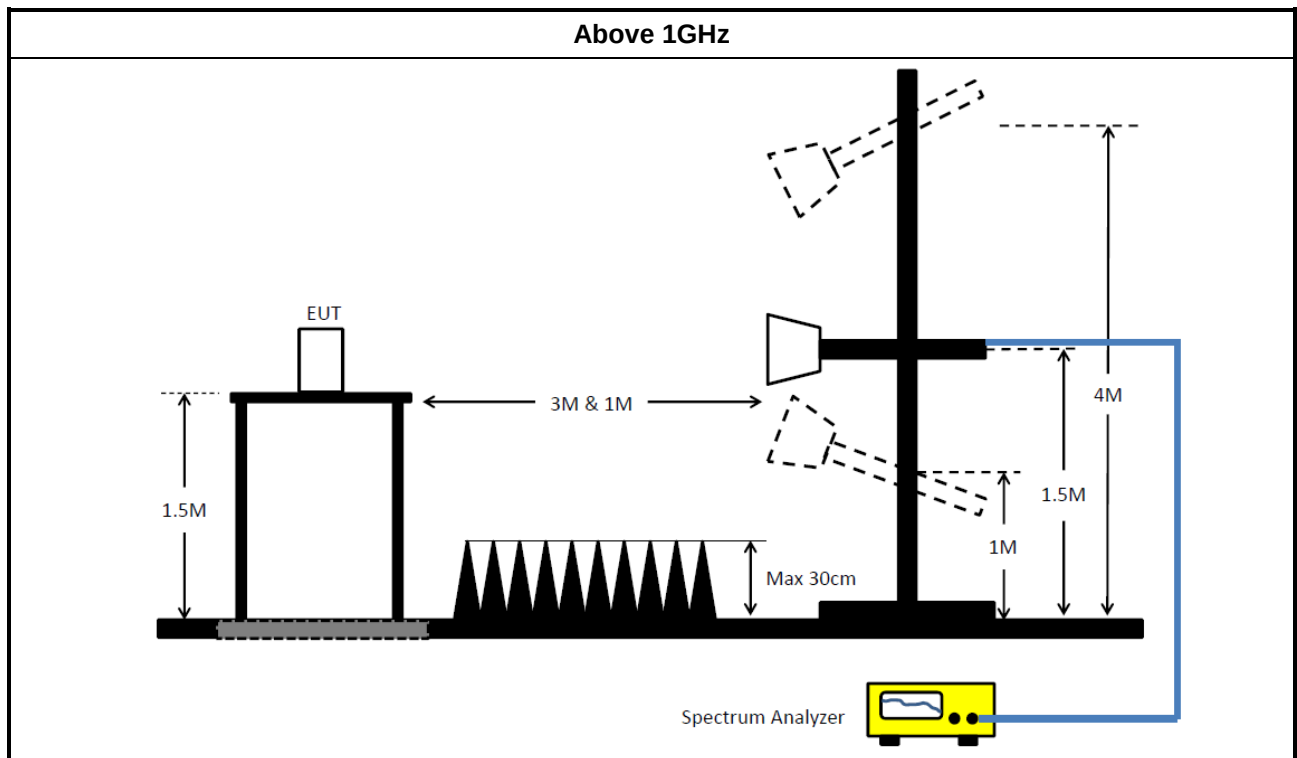
3.6.4 Measurement Results Calculation

The measured Level is calculated using:

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

3.6.5 Test Setup





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

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

3.6.7 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix F

4 Test Equipment and Calibration Data

Instrument for AC Conduction

Instrument	Manufacturer	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	458.702k	34.34	46.71	-12.37	Neutral
Mode 2	Pass	AV	481.211k	38.04	46.33	-8.29	Line

Mode Configure

Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition	Comments
Mode 1	Pass	QP	150.6k	41.31	65.96	-24.65	Line	-
Mode 1	Pass	AV	150.6k	28.51	55.96	-27.45	Line	-
Mode 1	Pass	QP	460.537k	39.86	56.69	-16.83	Line	-
Mode 1	Pass	AV	460.537k	32.82	46.69	-13.87	Line	"Worst"
Mode 1	Pass	QP	675.618k	20.63	56.00	-35.37	Line	-
Mode 1	Pass	AV	675.618k	16.63	46.00	-29.37	Line	-
Mode 1	Pass	QP	2.211M	25.37	56.00	-30.63	Line	-
Mode 1	Pass	AV	2.211M	19.11	46.00	-26.89	Line	-
Mode 1	Pass	QP	14.964M	32.14	60.00	-27.86	Line	-
Mode 1	Pass	AV	14.964M	24.78	50.00	-25.22	Line	-
Mode 1	Pass	QP	25.346M	36.58	60.00	-23.42	Line	-
Mode 1	Pass	AV	25.346M	34.81	50.00	-15.19	Line	-
Mode 1	Pass	QP	154.251k	42.26	65.77	-23.51	Neutral	-
Mode 1	Pass	AV	154.251k	29.55	55.77	-26.22	Neutral	-
Mode 1	Pass	QP	458.702k	41.32	56.71	-15.39	Neutral	-
Mode 1	Pass	AV	458.702k	34.34	46.71	-12.37	Neutral	"Worst"
Mode 1	Pass	QP	708.77k	21.66	56.00	-34.34	Neutral	-
Mode 1	Pass	AV	708.77k	16.55	46.00	-29.45	Neutral	-
Mode 1	Pass	QP	4.155M	20.01	56.00	-35.99	Neutral	-
Mode 1	Pass	AV	4.155M	16.72	46.00	-29.28	Neutral	-
Mode 1	Pass	QP	15.266M	34.76	60.00	-25.24	Neutral	-
Mode 1	Pass	AV	15.266M	27.44	50.00	-22.56	Neutral	-
Mode 1	Pass	QP	23.589M	34.74	60.00	-25.26	Neutral	-
Mode 1	Pass	AV	23.589M	31.44	50.00	-18.56	Neutral	-
Mode 2	Pass	QP	159.893k	49.29	65.46	-16.17	Line	-
Mode 2	Pass	AV	159.893k	34.63	55.46	-20.83	Line	-
Mode 2	Pass	QP	481.211k	43.83	56.33	-12.50	Line	-
Mode 2	Pass	AV	481.211k	38.04	46.33	-8.29	Line	"Worst"
Mode 2	Pass	QP	585.177k	35.86	56.00	-20.14	Line	-
Mode 2	Pass	AV	585.177k	31.43	46.00	-14.57	Line	-
Mode 2	Pass	QP	1.472M	34.50	56.00	-21.50	Line	-
Mode 2	Pass	AV	1.472M	30.27	46.00	-15.73	Line	-
Mode 2	Pass	QP	5.073M	31.90	60.00	-28.10	Line	-
Mode 2	Pass	AV	5.073M	26.71	50.00	-23.29	Line	-
Mode 2	Pass	QP	18.053M	37.28	60.00	-22.72	Line	-
Mode 2	Pass	AV	18.053M	34.29	50.00	-15.71	Line	-
Mode 2	Pass	QP	156.109k	49.99	65.67	-15.68	Neutral	-
Mode 2	Pass	AV	156.109k	35.52	55.67	-20.15	Neutral	-
Mode 2	Pass	QP	492.876k	41.76	56.11	-14.35	Neutral	-
Mode 2	Pass	AV	492.876k	36.77	46.11	-9.34	Neutral	"Worst"
Mode 2	Pass	QP	609.01k	33.63	56.00	-22.37	Neutral	-
Mode 2	Pass	AV	609.01k	29.44	46.00	-16.56	Neutral	-
Mode 2	Pass	QP	971.558k	32.12	56.00	-23.88	Neutral	-

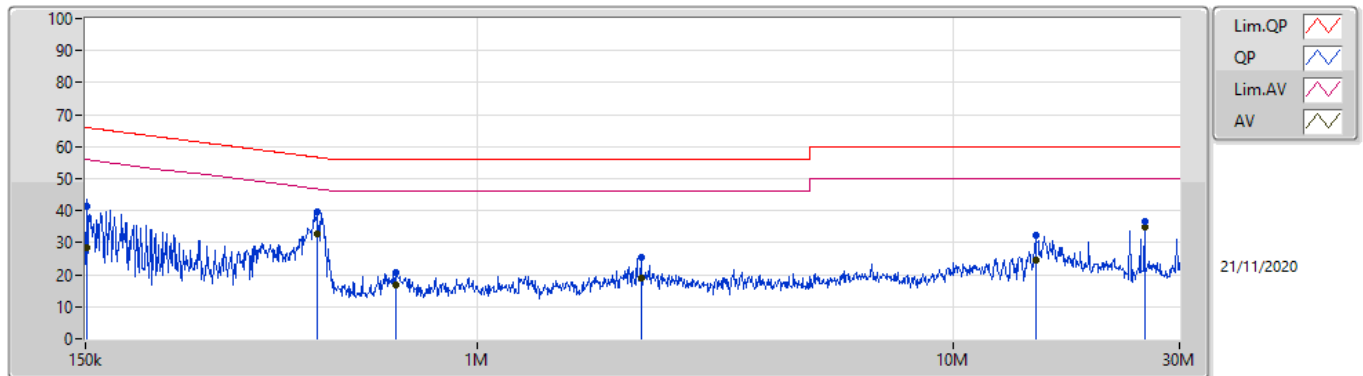


Conducted Emissions at Powerline

Appendix A

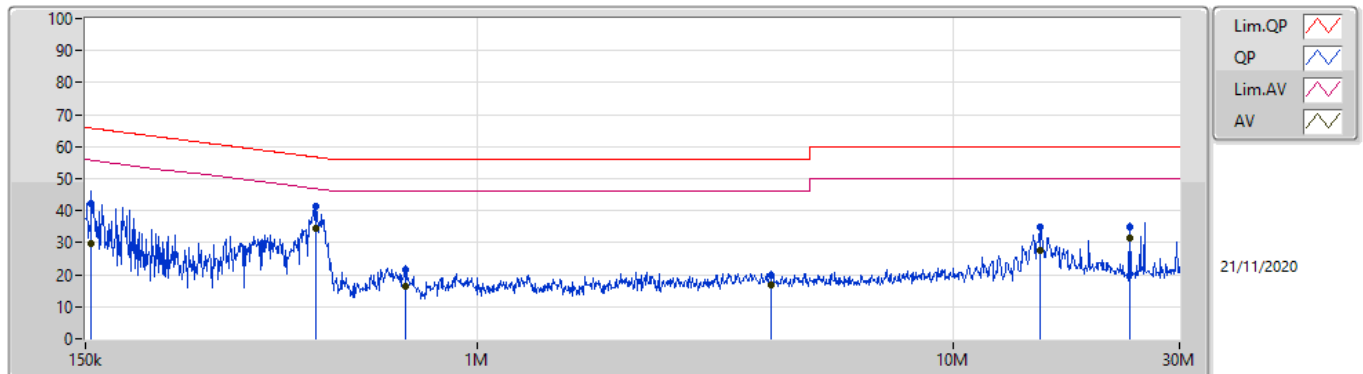
Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition	Comments
Mode 2	Pass	AV	971.558k	27.46	46.00	-18.54	Neutral	-
Mode 2	Pass	QP	3.96M	28.26	56.00	-27.74	Neutral	-
Mode 2	Pass	AV	3.96M	22.97	46.00	-23.03	Neutral	-
Mode 2	Pass	QP	18.053M	37.82	60.00	-22.18	Neutral	-
Mode 2	Pass	AV	18.053M	35.97	50.00	-14.03	Neutral	-

Conducted Emissions at Powerline_Mode 1



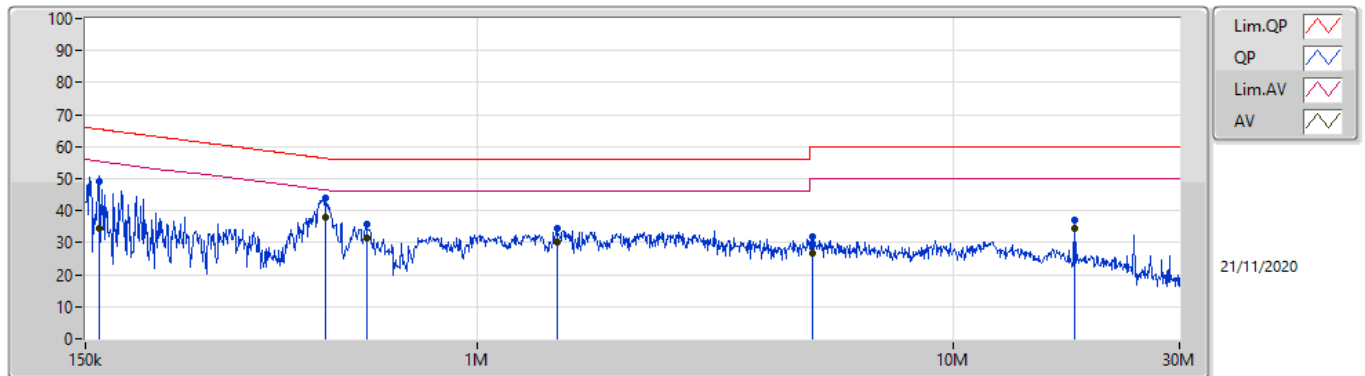
Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	150.6k	41.31	65.96	-24.65	19.60	Line	-	21.71	9.69	0.01	9.90			
AV	150.6k	28.51	55.96	-27.45	19.60	Line	-	8.91	9.69	0.01	9.90			
QP	460.537k	39.86	56.69	-16.83	19.57	Line	-	20.29	9.67	0.02	9.88			
AV	460.537k	32.82	46.69	-13.87	19.57	Line	"Worst"	13.25	9.67	0.02	9.88			
QP	675.618k	20.63	56.00	-35.37	19.55	Line	-	1.08	9.67	0.04	9.84			
AV	675.618k	16.63	46.00	-29.37	19.55	Line	-	-2.92	9.67	0.04	9.84			
QP	2.211M	25.37	56.00	-30.63	19.58	Line	-	5.79	9.68	0.09	9.81			
AV	2.211M	19.11	46.00	-26.89	19.58	Line	-	-0.47	9.68	0.09	9.81			
QP	14.964M	32.14	60.00	-27.86	19.84	Line	-	12.30	9.69	0.25	9.90			
AV	14.964M	24.78	50.00	-25.22	19.84	Line	-	4.94	9.69	0.25	9.90			
QP	25.346M	36.58	60.00	-23.42	19.84	Line	-	16.74	9.59	0.35	9.90			
AV	25.346M	34.81	50.00	-15.19	19.84	Line	-	14.97	9.59	0.35	9.90			

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	154.251k	42.26	65.77	-23.51	19.60	Neutral	-	22.66	9.69	0.01	9.90			
AV	154.251k	29.55	55.77	-26.22	19.60	Neutral	-	9.95	9.69	0.01	9.90			
QP	458.702k	41.32	56.71	-15.39	19.57	Neutral	-	21.75	9.67	0.02	9.88			
AV	458.702k	34.34	46.71	-12.37	19.57	Neutral	"Worst"	14.77	9.67	0.02	9.88			
QP	708.77k	21.66	56.00	-34.34	19.55	Neutral	-	2.11	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	4.155M	20.01	56.00	-35.99	19.71	Neutral	-	0.30	9.69	0.12	9.90			
AV	4.155M	16.72	46.00	-29.28	19.71	Neutral	-	-2.99	9.69	0.12	9.90			
QP	15.266M	34.76	60.00	-25.24	19.89	Neutral	-	14.87	9.74	0.25	9.90			
AV	15.266M	27.44	50.00	-22.56	19.89	Neutral	-	7.55	9.74	0.25	9.90			
QP	23.589M	34.74	60.00	-25.26	19.96	Neutral	-	14.78	9.73	0.33	9.90			
AV	23.589M	31.44	50.00	-18.56	19.96	Neutral	-	11.48	9.73	0.33	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	159.893k	49.29	65.46	-16.17	19.60	Line	-	29.69	9.69	0.01	9.90			
AV	159.893k	34.63	55.46	-20.83	19.60	Line	-	15.03	9.69	0.01	9.90			
QP	481.211k	43.83	56.33	-12.50	19.58	Line	-	24.25	9.67	0.03	9.88			
AV	481.211k	38.04	46.33	-8.29	19.58	Line	"Worst"	18.46	9.67	0.03	9.88			
QP	585.177k	35.86	56.00	-20.14	19.56	Line	-	16.30	9.67	0.03	9.86			
AV	585.177k	31.43	46.00	-14.57	19.56	Line	-	11.87	9.67	0.03	9.86			
QP	1.472M	34.50	56.00	-21.50	19.55	Line	-	14.95	9.68	0.07	9.80			
AV	1.472M	30.27	46.00	-15.73	19.55	Line	-	10.72	9.68	0.07	9.80			
QP	5.073M	31.90	60.00	-28.10	19.74	Line	-	12.16	9.70	0.14	9.90			
AV	5.073M	26.71	50.00	-23.29	19.74	Line	-	6.97	9.70	0.14	9.90			
QP	18.053M	37.28	60.00	-22.72	19.86	Line	-	17.42	9.68	0.28	9.90			
AV	18.053M	34.29	50.00	-15.71	19.86	Line	-	14.43	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	156.109k	49.99	65.67	-15.68	19.60	Neutral	-	30.39	9.69	0.01	9.90			
AV	156.109k	35.52	55.67	-20.15	19.60	Neutral	-	15.92	9.69	0.01	9.90			
QP	492.876k	41.76	56.11	-14.35	19.58	Neutral	-	22.18	9.67	0.03	9.88			
AV	492.876k	36.77	46.11	-9.34	19.58	Neutral	"Worst"	17.19	9.67	0.03	9.88			
QP	609.01k	33.63	56.00	-22.37	19.55	Neutral	-	14.08	9.67	0.03	9.85			
AV	609.01k	29.44	46.00	-16.56	19.55	Neutral	-	9.89	9.67	0.03	9.85			
QP	971.558k	32.12	56.00	-23.88	19.52	Neutral	-	12.60	9.67	0.05	9.80			
AV	971.558k	27.46	46.00	-18.54	19.52	Neutral	-	7.94	9.67	0.05	9.80			
QP	3.96M	28.26	56.00	-27.74	19.71	Neutral	-	8.55	9.69	0.12	9.90			
AV	3.96M	22.97	46.00	-23.03	19.71	Neutral	-	3.26	9.69	0.12	9.90			
QP	18.053M	37.82	60.00	-22.18	19.93	Neutral	-	17.89	9.75	0.28	9.90			
AV	18.053M	35.97	50.00	-14.03	19.93	Neutral	-	16.04	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	-	-	-	-	-
BT-LE(1Mbps)	696.25k	1.063M	1M06F1D	683.75k	1.044M
BT-LE(2Mbps)	1.343M	2.069M	2M07F1D	1.333M	2.051M

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

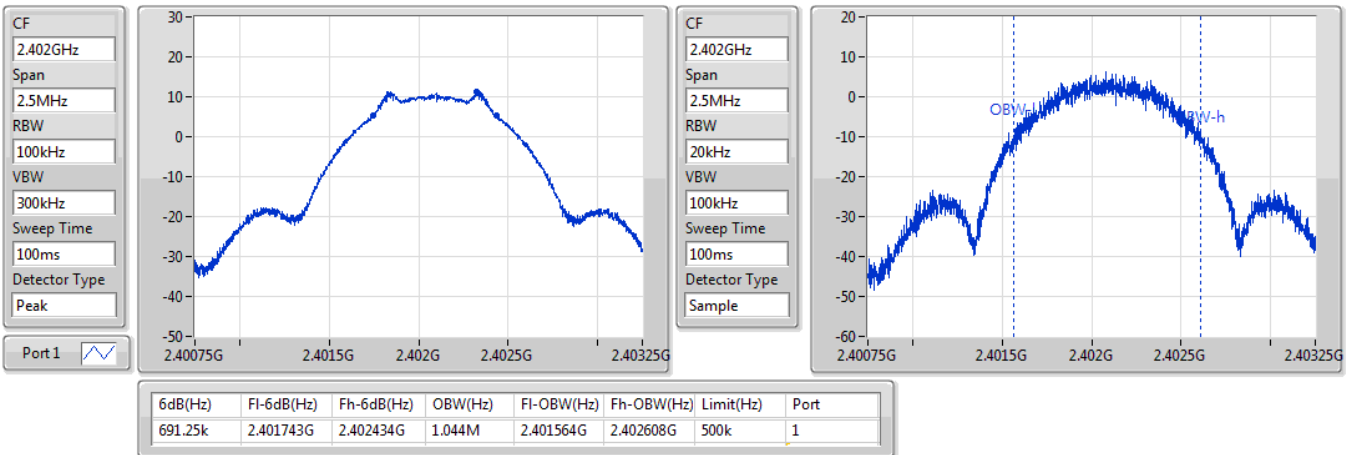
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	691.25k	1.044M
2440MHz	Pass	500k	696.25k	1.063M
2480MHz	Pass	500k	683.75k	1.059M
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	500k	1.338M	2.069M
2440MHz	Pass	500k	1.333M	2.051M
2480MHz	Pass	500k	1.343M	2.056M

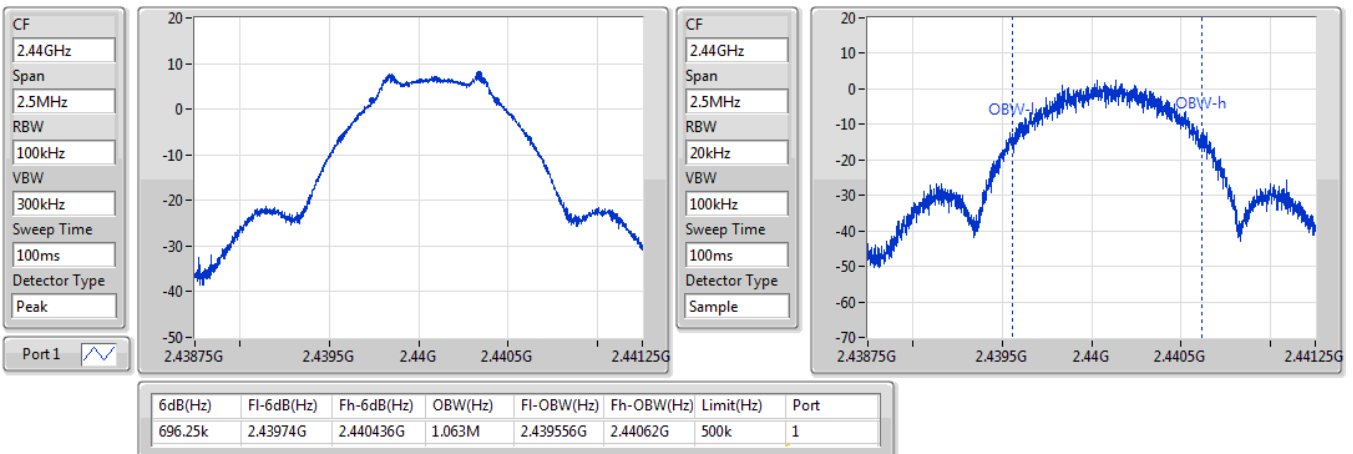
Port X-N dB = Port X 6dB down bandwidth;
Port X-OBW = Port X 99% occupied bandwidth

BT-LE(1Mbps)
2402MHz
EBW-DTS

20/11/2020

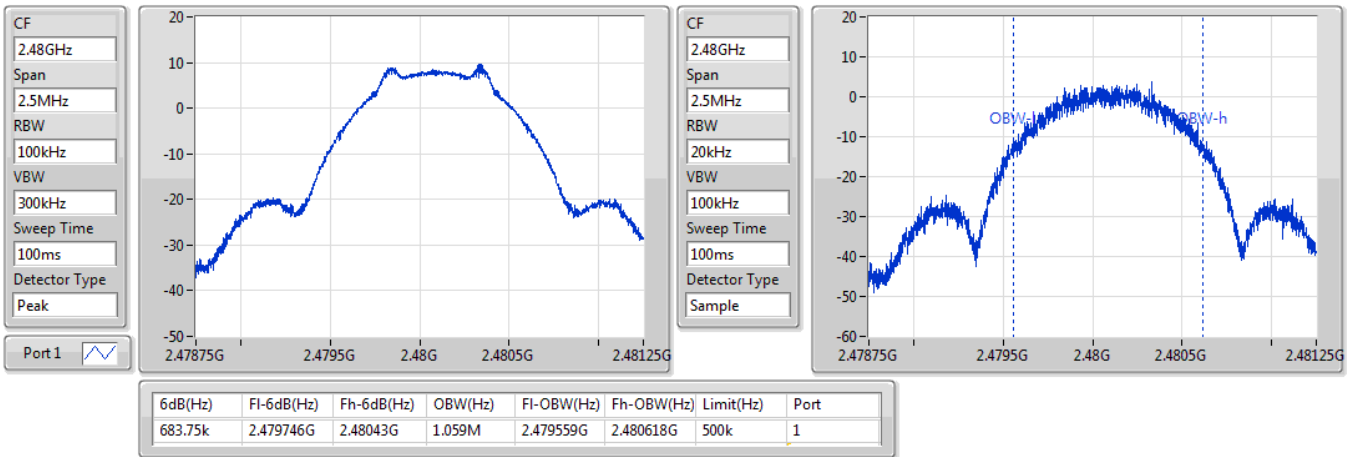

BT-LE(1Mbps)
2440MHz
EBW-DTS

20/11/2020

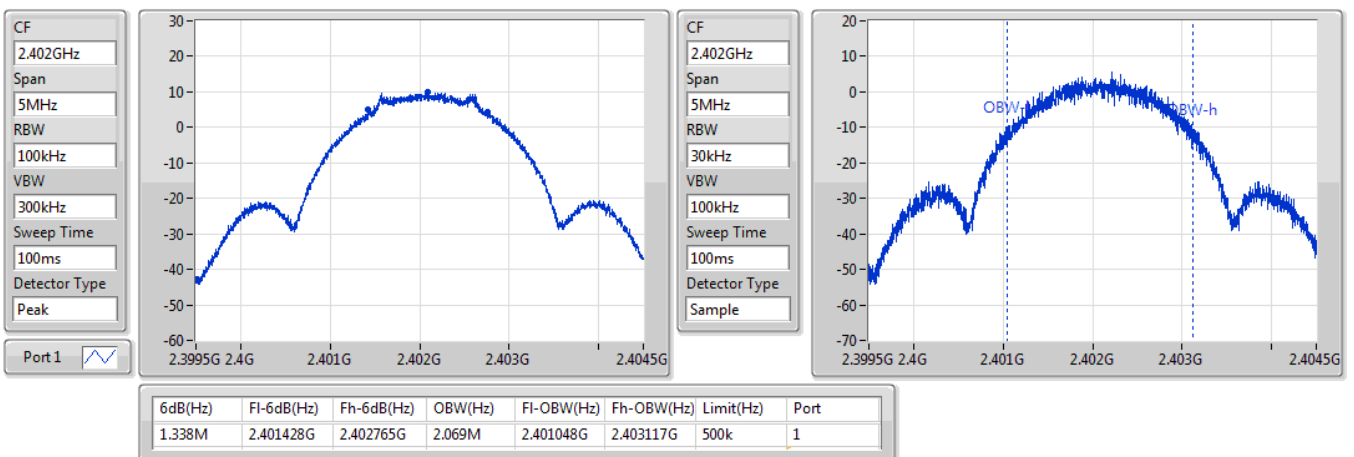


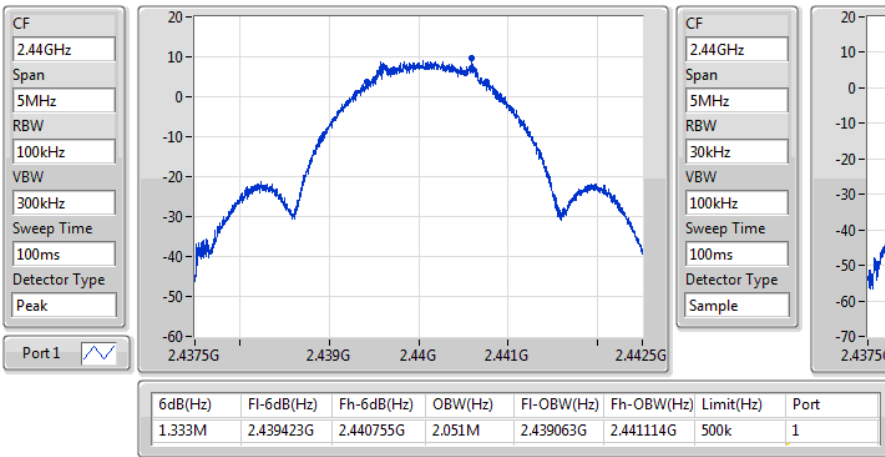
BT-LE(1Mbps)
2480MHz
EBW-DTS

20/11/2020

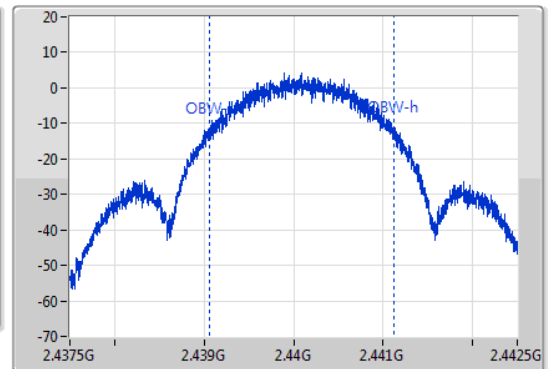
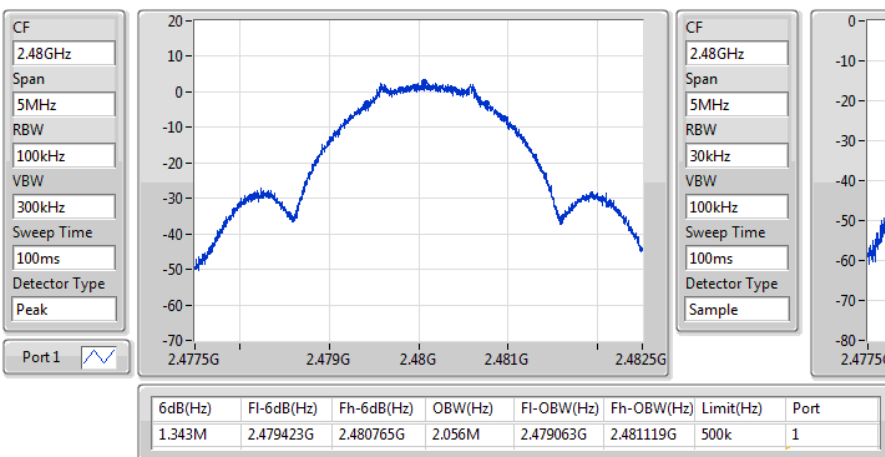

BT-LE(2Mbps)
2402MHz
EBW-DTS

20/11/2020

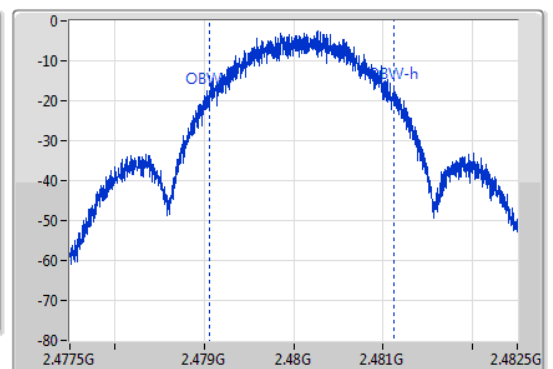


BT-LE(2Mbps)
2440MHz

EBW-DTS

20/11/2020


BT-LE(2Mbps)
2480MHz

EBW-DTS

20/11/2020





Summary

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	11.73	0.01489
BT-LE(2Mbps)	11.79	0.01510



Average Power-DTS

Appendix C

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	3.63	11.73	30.00
2440MHz	Pass	3.63	8.11	30.00
2480MHz	Pass	3.63	9.53	30.00
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	3.63	11.79	30.00
2440MHz	Pass	3.63	10.95	30.00
2480MHz	Pass	3.63	4.44	30.00

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



Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE(1Mbps)	-1.25
BT-LE(2Mbps)	-4.15

RBW = 3kHz;

Result

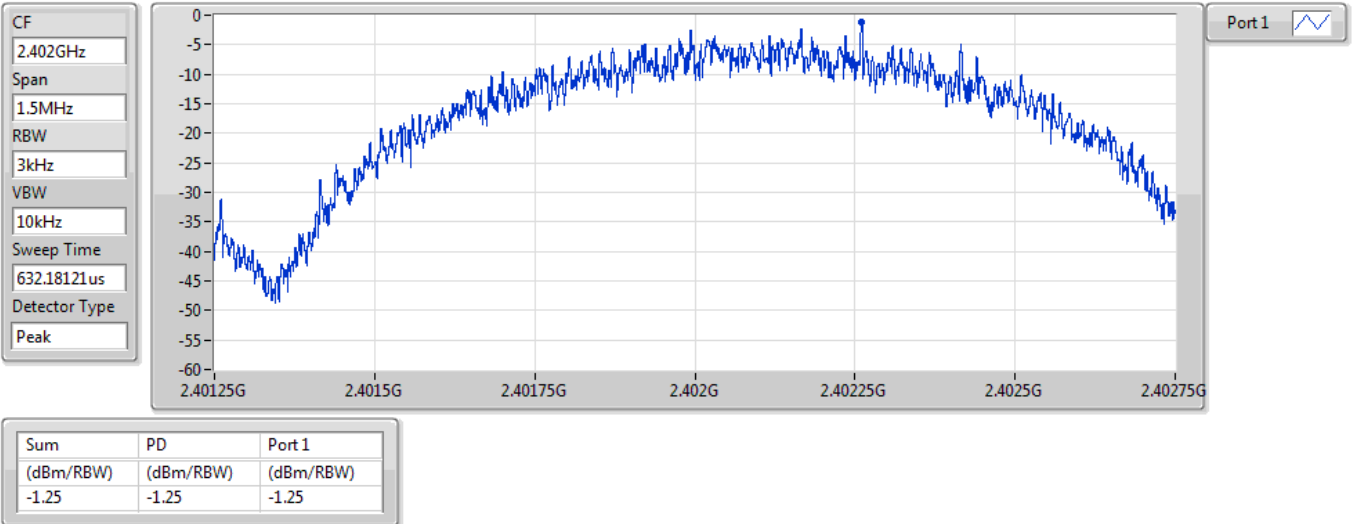
Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	3.63	-1.25	8.00
2440MHz	Pass	3.63	-6.46	8.00
2480MHz	Pass	3.63	-4.45	8.00
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	3.63	-4.15	8.00
2440MHz	Pass	3.63	-4.86	8.00
2480MHz	Pass	3.63	-12.22	8.00

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;

BT-LE(1Mbps)

2402MHz

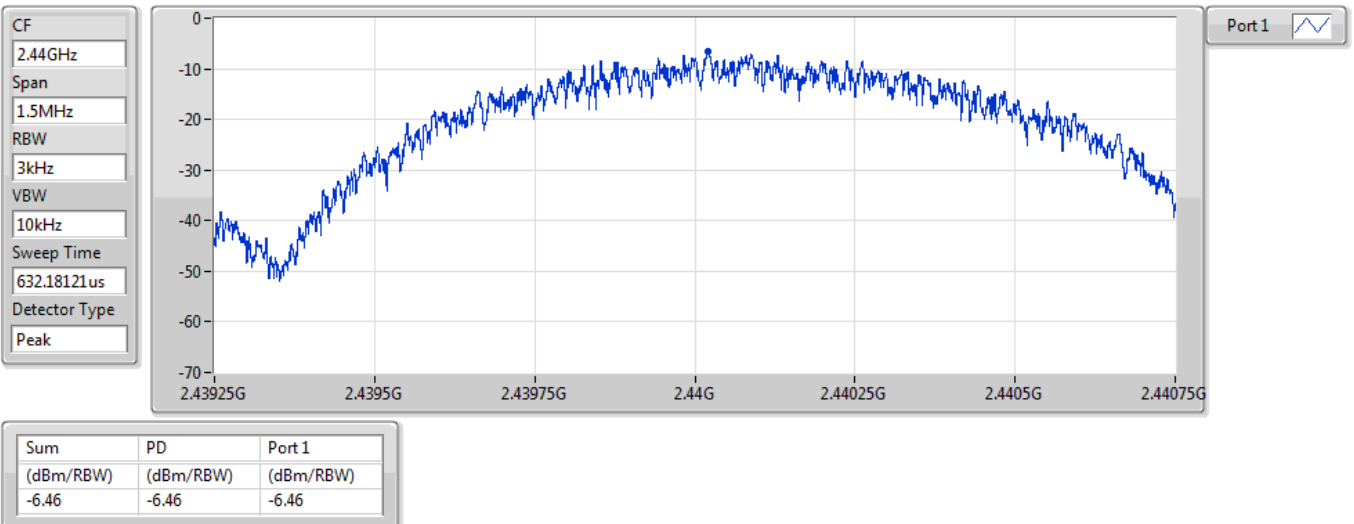
20/11/2020



BT-LE(1Mbps)

2440MHz

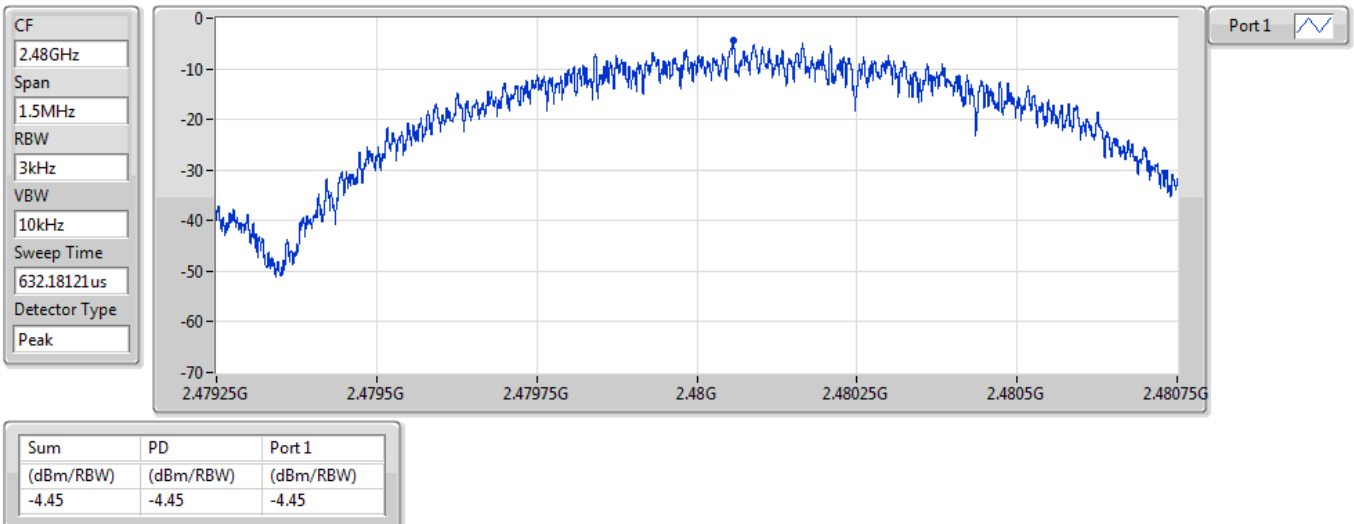
20/11/2020



BT-LE(1Mbps)

2480MHz

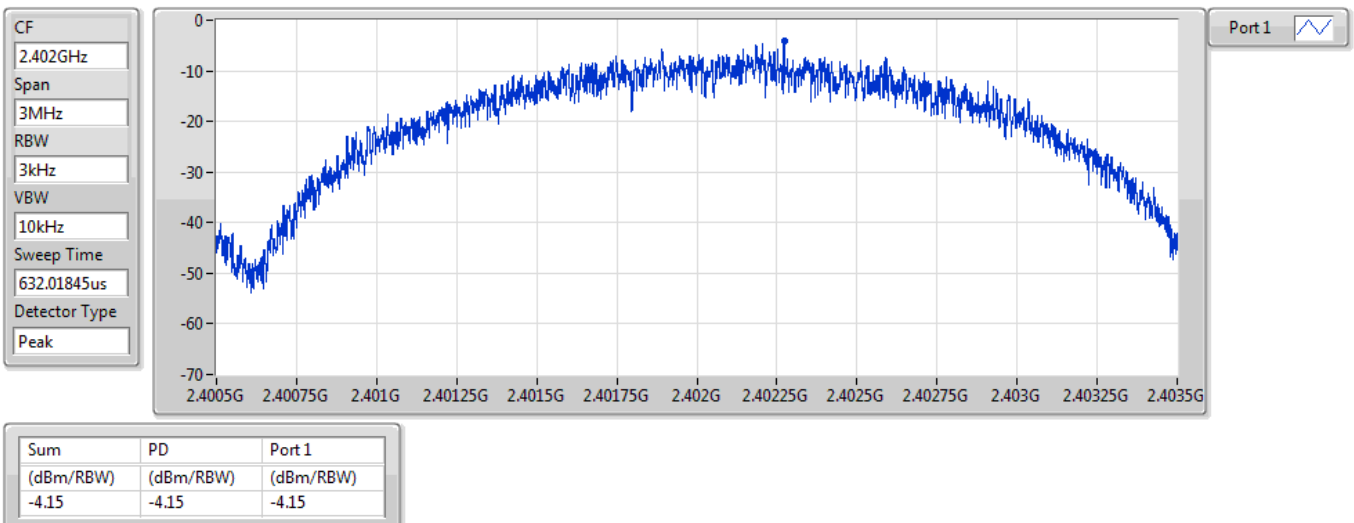
20/11/2020



BT-LE(2Mbps)

2402MHz

20/11/2020

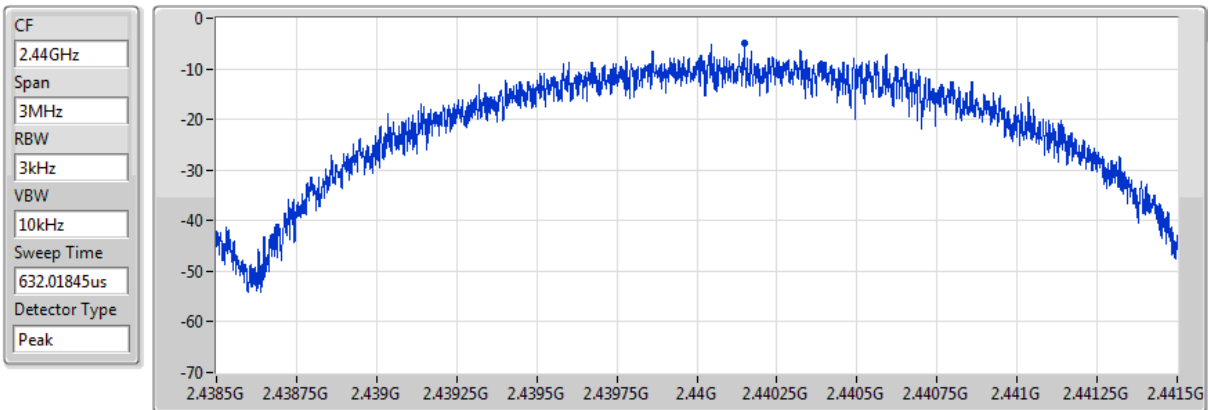


BT-LE(2Mbps)

PSD

2440MHz

20/11/2020



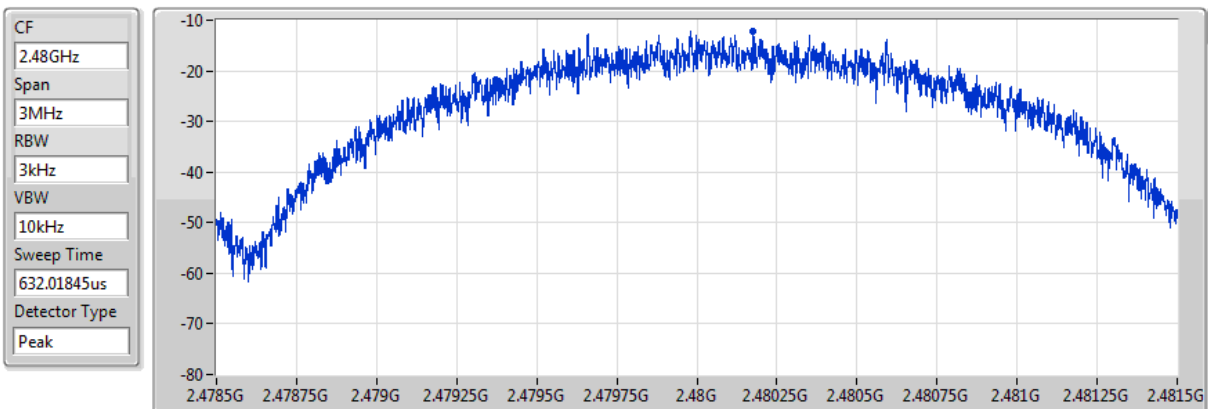
Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-4.86	-4.86	-4.86

BT-LE(2Mbps)

PSD

2480MHz

20/11/2020



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-12.22	-12.22	-12.22

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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	2.4018G	11.01	-18.99	239.74M	-50.79	2.39992G	-41.29	2.4G	-39.63	2.49833G	-50.27	23.18903G	-42.50	1
BT-LE(2Mbps)	Pass	2.40217G	9.93	-20.07	2.30715G	-52.08	2.4G	-24.69	2.4G	-23.77	2.49819G	-50.57	24.80878G	-41.99	1

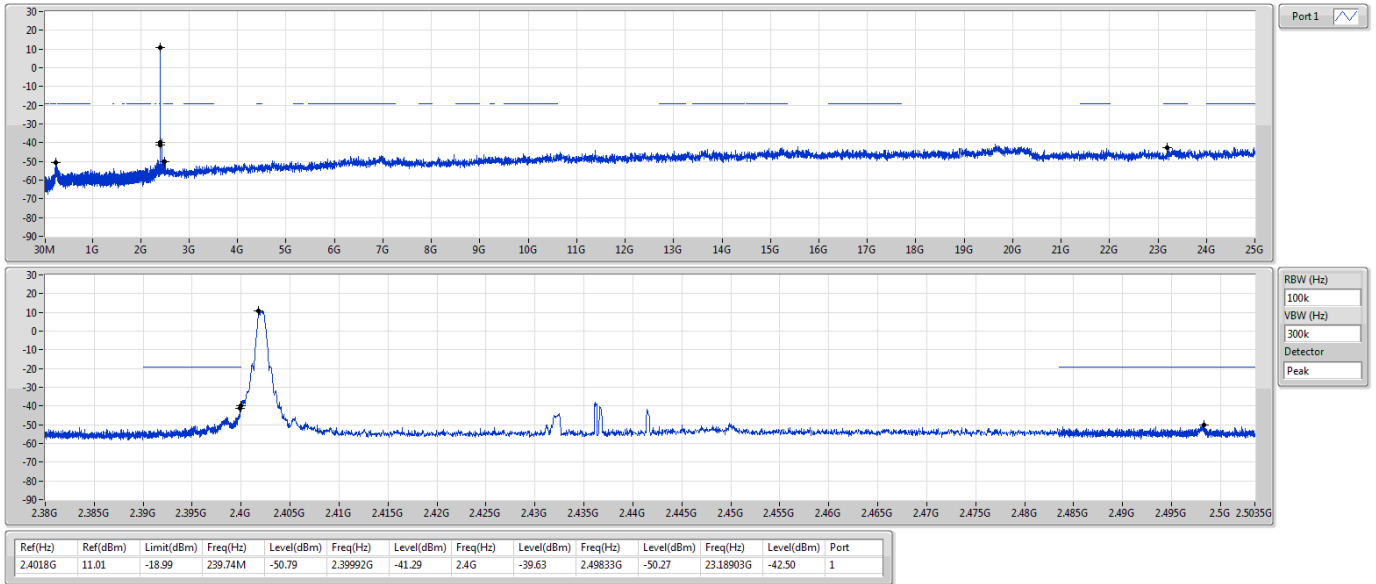
**Result**

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
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.4018G	11.01	-18.99	239.74M	-50.79	2.39992G	-41.29	2.4G	-39.63	2.49833G	-50.27	23.18903G	-42.50	1
2440MHz	Pass	2.4018G	11.01	-18.99	239.74M	-48.75	2.39213G	-47.51	2.4G	-50.33	2.49046G	-49.29	17.30338G	-42.30	1
2480MHz	Pass	2.4018G	11.01	-18.99	239.74M	-50.90	2.39496G	-48.58	2.4835G	-51.84	2.4835G	-50.50	15.16903G	-42.43	1
BT-LE(2Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.40217G	9.93	-20.07	2.30715G	-52.08	2.4G	-24.69	2.4G	-23.77	2.49819G	-50.57	24.80878G	-41.99	1
2440MHz	Pass	2.40217G	9.93	-20.07	239.74M	-51.75	2.39049G	-47.56	2.4G	-50.56	2.50046G	-50.82	15.24214G	-41.64	1
2480MHz	Pass	2.40217G	9.93	-20.07	239.74M	-48.18	2.39621G	-46.66	2.4G	-50.07	2.48511G	-51.09	15.23371G	-42.55	1

BT-LE(1Mbps)

CSEndB-DTS

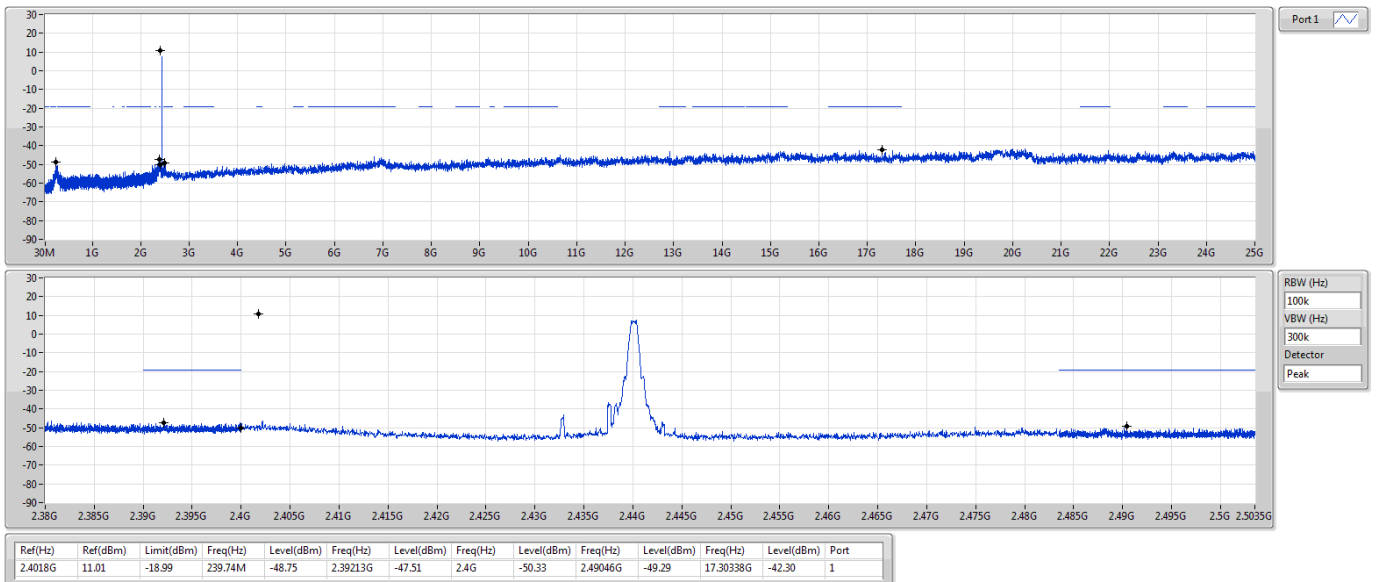
2402MHz



BT-LE(1Mbps)

CSEndB-DTS

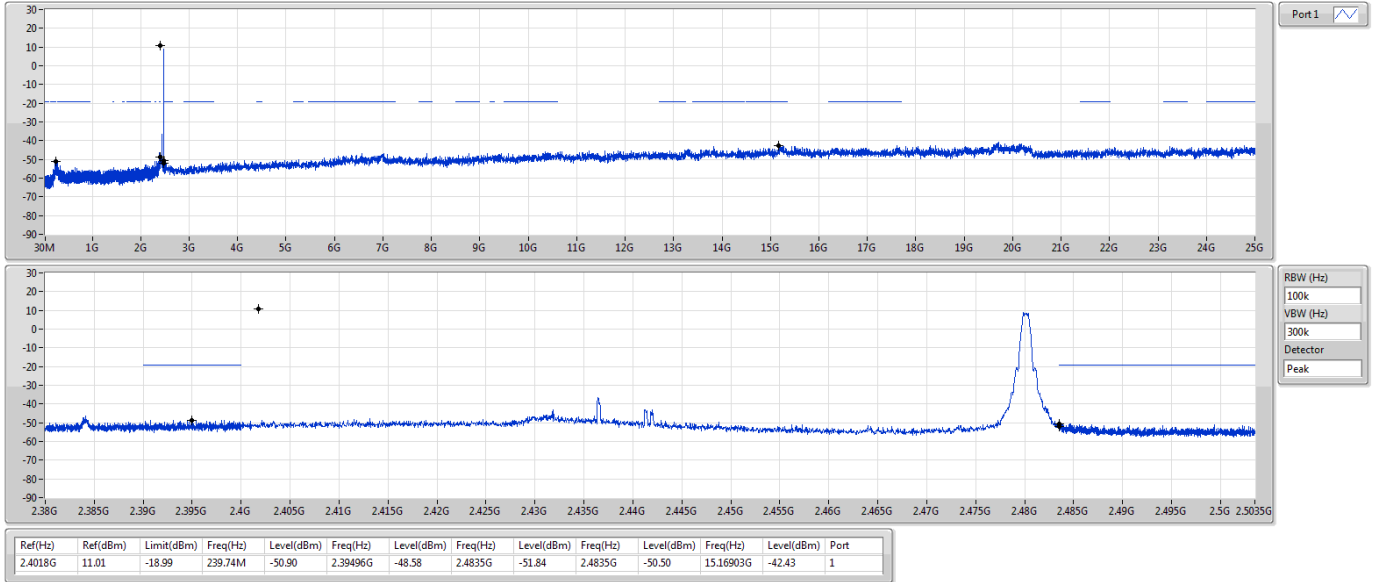
2440MHz



BT-LE(1Mbps)

CSEndB-DTS

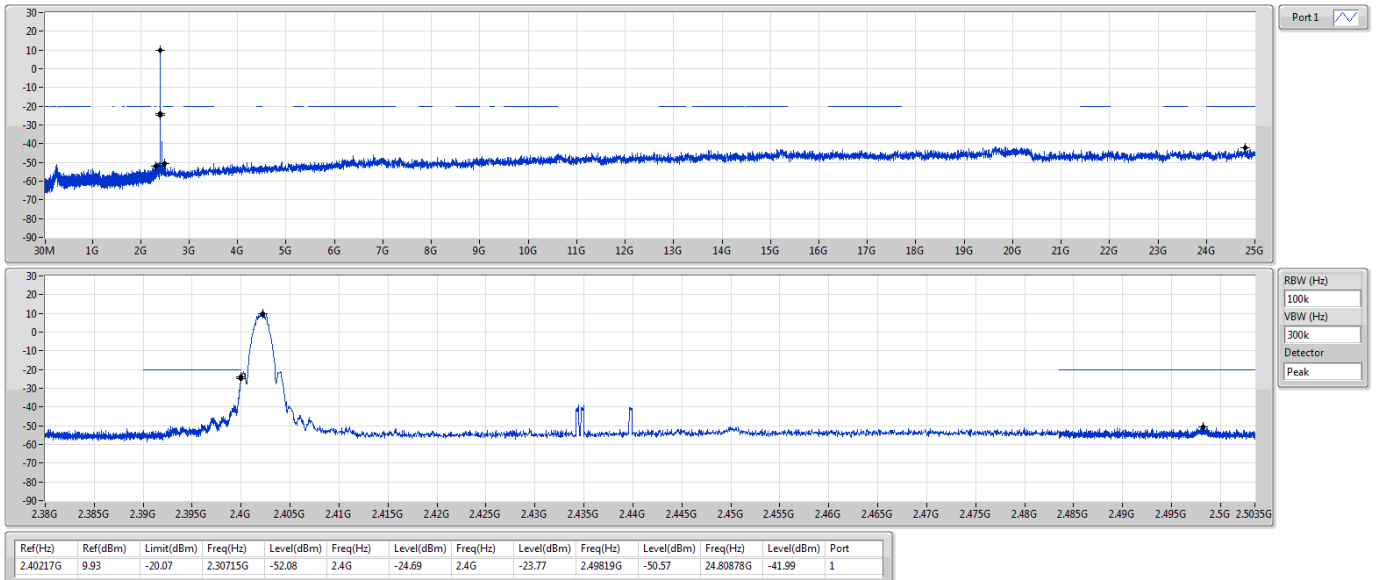
2480MHz



BT-LE(2Mbps)

CSEndB-DTS

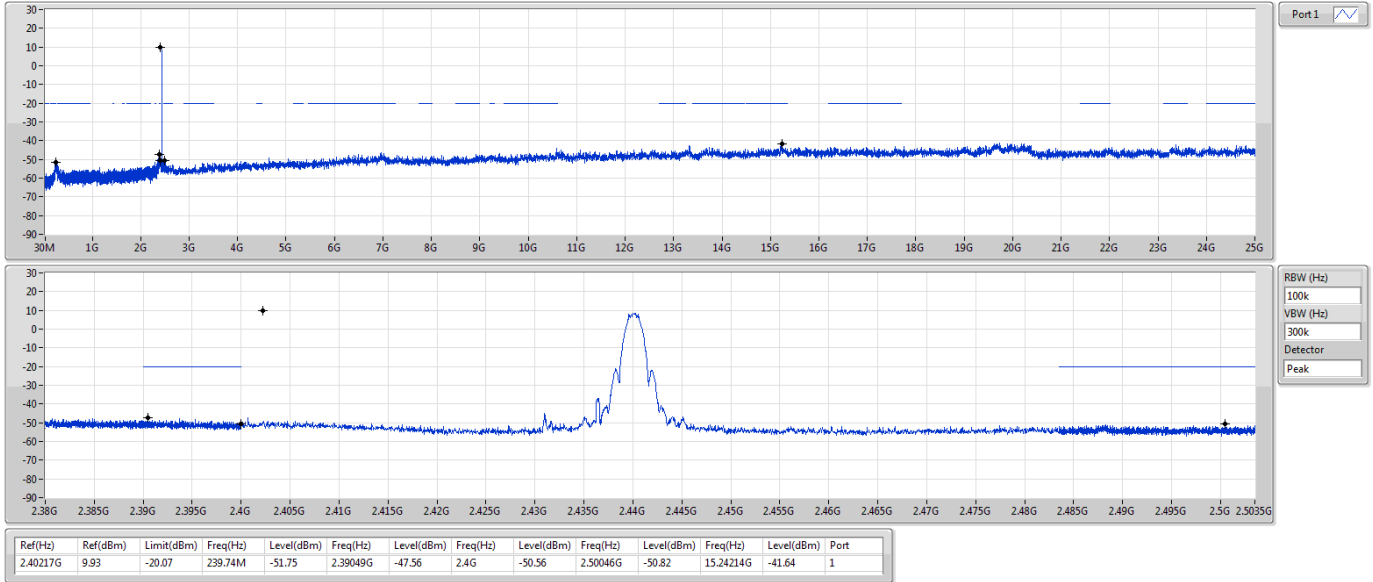
2402MHz



BT-LE(2Mbps)

CSEndB-DTS

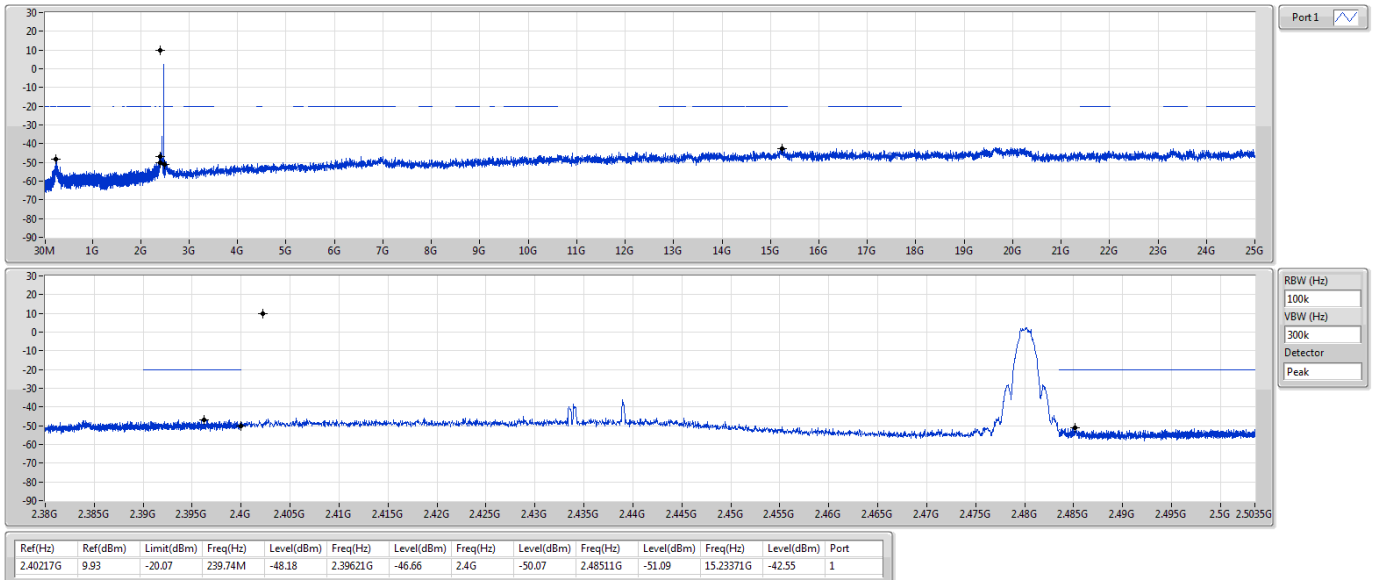
2440MHz



BT-LE(2Mbps)

CSEndB-DTS

2480MHz





Summary

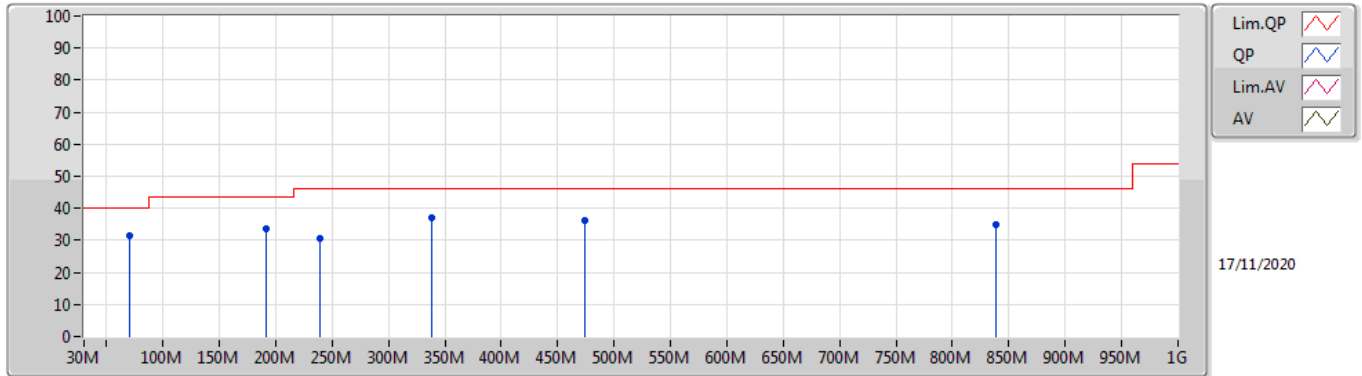
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
BT-LE(2Mbps)	Pass	PK	57.16M	35.97	40.00	-4.03	3	Vertical	0	1.00	-

Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
BT-LE(2Mbps)	-	-	-	-	-	-	-	-	-	-	-
2440MHz	Pass	PK	70.74M	31.58	40.00	-8.42	3	Vertical	0	1.00	-
2440MHz	Pass	PK	191.02M	33.60	43.50	-9.90	3	Vertical	0	1.00	-
2440MHz	Pass	PK	239.52M	30.79	46.00	-15.21	3	Vertical	0	1.00	-
2440MHz	Pass	PK	338.46M	37.04	46.00	-8.96	3	Vertical	0	1.00	-
2440MHz	Pass	PK	474.26M	36.42	46.00	-9.58	3	Vertical	0	1.00	-
2440MHz	Pass	PK	838.98M	34.96	46.00	-11.04	3	Vertical	0	1.00	-
2440MHz	Pass	PK	30M	28.50	40.00	-11.50	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	119.24M	26.59	43.50	-16.91	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	256.98M	30.13	46.00	-15.87	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	311.3M	31.57	46.00	-14.43	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	474.26M	35.04	46.00	-10.96	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	860.32M	37.58	46.00	-8.42	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	51.34M	35.59	40.00	-4.41	3	Vertical	0	1.00	-
2440MHz	Pass	PK	57.16M	35.97	40.00	-4.03	3	Vertical	0	1.00	-
2440MHz	Pass	PK	425.76M	30.76	46.00	-15.24	3	Vertical	0	1.00	-
2440MHz	Pass	PK	474.26M	34.59	46.00	-11.41	3	Vertical	0	1.00	-
2440MHz	Pass	PK	982.54M	37.04	54.00	-16.96	3	Vertical	0	1.00	-
2440MHz	Pass	QP	33.88M	31.20	40.00	-8.80	3	Vertical	45	1.31	-
2440MHz	Pass	PK	47.46M	28.53	40.00	-11.47	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	222.06M	29.05	46.00	-16.95	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	262.8M	28.23	46.00	-17.77	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	774.96M	37.77	46.00	-8.23	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	897.18M	37.97	46.00	-8.03	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	960M	38.75	46.00	-7.25	3	Horizontal	360	1.00	-

BT-LE(2Mbps)

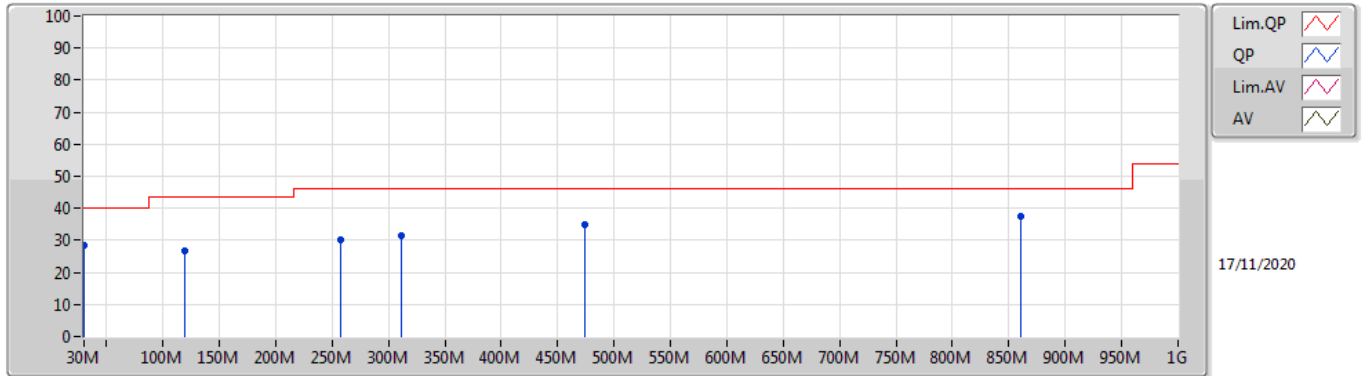
2440MHz_PoE



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	70.74M	31.58	40.00	-8.42	-15.18	3	Vertical	0	1.00	-	46.76	11.46	1.20	27.84
PK	191.02M	33.60	43.50	-9.90	-11.02	3	Vertical	0	1.00	-	44.62	14.28	2.06	27.36
PK	239.52M	30.79	46.00	-15.21	-8.34	3	Vertical	0	1.00	-	39.13	16.42	2.34	27.10
PK	338.46M	37.04	46.00	-8.96	-5.44	3	Vertical	0	1.00	-	42.48	19.07	2.75	27.26
PK	474.26M	36.42	46.00	-9.58	-2.12	3	Vertical	0	1.00	-	38.54	22.70	3.35	28.17
PK	838.98M	34.96	46.00	-11.04	2.39	3	Vertical	0	1.00	-	32.57	25.46	4.58	27.65

BT-LE(2Mbps)

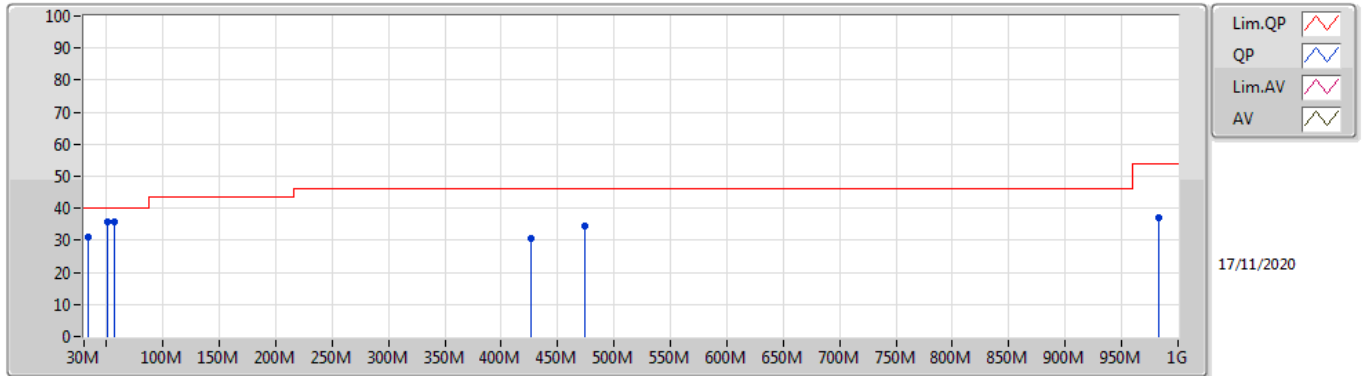
2440MHz_PoE



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	30M	28.50	40.00	-11.50	-3.19	3	Horizontal	360	1.00	-	31.69	23.32	0.70	27.21
PK	119.24M	26.59	43.50	-16.91	-8.71	3	Horizontal	360	1.00	-	35.30	17.41	1.59	27.71
PK	256.98M	30.13	46.00	-15.87	-6.25	3	Horizontal	360	1.00	-	36.38	18.37	2.43	27.05
PK	311.3M	31.57	46.00	-14.43	-5.69	3	Horizontal	360	1.00	-	37.26	18.76	2.65	27.10
PK	474.26M	35.04	46.00	-10.96	-2.12	3	Horizontal	360	1.00	-	37.16	22.70	3.35	28.17
PK	860.32M	37.58	46.00	-8.42	2.60	3	Horizontal	360	1.00	-	34.98	25.53	4.64	27.57

BT-LE(2Mbps)

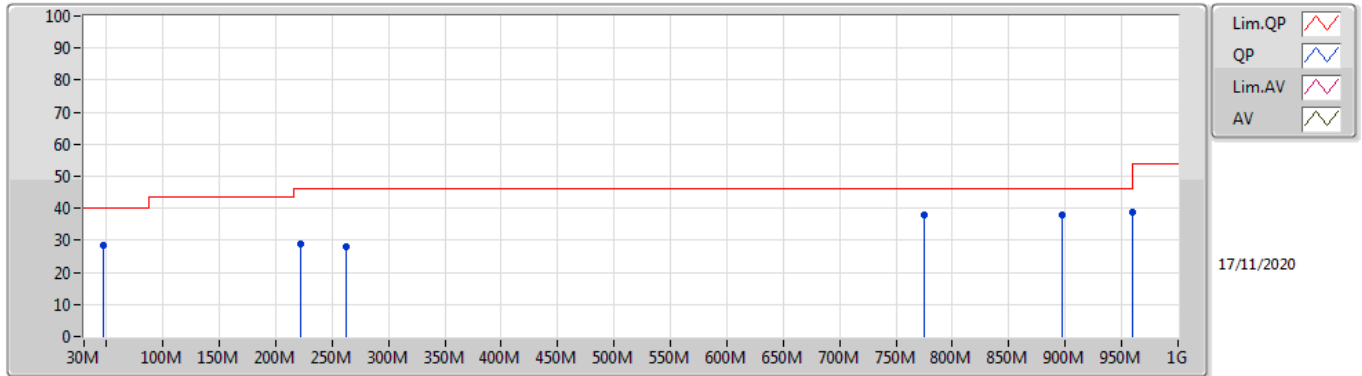
2440MHz_Adapter



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	51.34M	35.59	40.00	-4.41	-13.89	3	Vertical	0	1.00	-	49.48	12.83	1.00	27.72
PK	57.16M	35.97	40.00	-4.03	-14.91	3	Vertical	0	1.00	-	50.88	11.84	1.04	27.79
PK	425.76M	30.76	46.00	-15.24	-2.86	3	Vertical	0	1.00	-	33.62	21.95	3.10	27.91
PK	474.26M	34.59	46.00	-11.41	-2.12	3	Vertical	0	1.00	-	36.71	22.70	3.35	28.17
PK	982.54M	37.04	54.00	-16.96	4.14	3	Vertical	0	1.00	-	32.90	26.30	4.97	27.13
QP	33.88M	31.20	40.00	-8.80	-4.92	3	Vertical	45	1.31	-	36.12	21.26	0.78	26.96

BT-LE(2Mbps)

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	28.53	40.00	-11.47	-12.65	3	Horizontal	360	1.00	-	41.18	14.05	0.95	27.65
PK	222.06M	29.05	46.00	-16.95	-10.40	3	Horizontal	360	1.00	-	39.45	14.55	2.23	27.18
PK	262.8M	28.23	46.00	-17.77	-5.93	3	Horizontal	360	1.00	-	34.16	18.67	2.45	27.05
PK	774.96M	37.77	46.00	-8.23	1.55	3	Horizontal	360	1.00	-	36.22	25.04	4.40	27.89
PK	897.18M	37.97	46.00	-8.03	3.02	3	Horizontal	360	1.00	-	34.95	25.64	4.79	27.41
PK	960M	38.75	46.00	-7.25	3.84	3	Horizontal	360	1.00	-	34.91	26.13	4.92	27.21

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	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	AV	4.96021G	53.15	54.00	-0.85	3	Vertical	178	1.28	-
BT-LE(2Mbps)	Pass	AV	2.4835G	52.89	54.00	-1.11	3	Vertical	34	1.46	-



Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	AV	2.3544G	47.03	54.00	-6.97	3	Vertical	38	1.08	-
2402MHz	Pass	AV	2.402G	106.21	Inf	-Inf	3	Vertical	38	1.08	-
2402MHz	Pass	PK	2.364G	59.02	74.00	-14.98	3	Vertical	38	1.08	-
2402MHz	Pass	PK	2.4018G	107.90	Inf	-Inf	3	Vertical	38	1.08	-
2402MHz	Pass	AV	2.354G	46.26	54.00	-7.74	3	Horizontal	165	1.06	-
2402MHz	Pass	AV	2.402G	99.87	Inf	-Inf	3	Horizontal	165	1.06	-
2402MHz	Pass	PK	2.3632G	58.49	74.00	-15.51	3	Horizontal	165	1.06	-
2402MHz	Pass	PK	2.4018G	101.58	Inf	-Inf	3	Horizontal	165	1.06	-
2402MHz	Pass	AV	4.80416G	50.10	54.00	-3.90	3	Vertical	329	1.70	-
2402MHz	Pass	PK	4.80379G	56.03	74.00	-17.97	3	Vertical	329	1.70	-
2402MHz	Pass	AV	4.80418G	50.05	54.00	-3.95	3	Horizontal	77	2.05	-
2402MHz	Pass	PK	4.80362G	56.61	74.00	-17.39	3	Horizontal	77	2.05	-
2440MHz	Pass	AV	2.3808G	47.48	54.00	-6.52	3	Vertical	38	1.10	-
2440MHz	Pass	AV	2.44G	104.32	Inf	-Inf	3	Vertical	38	1.10	-
2440MHz	Pass	AV	2.4884G	46.76	54.00	-7.24	3	Vertical	38	1.10	-
2440MHz	Pass	PK	2.3824G	59.42	74.00	-14.58	3	Vertical	38	1.10	-
2440MHz	Pass	PK	2.44G	105.84	Inf	-Inf	3	Vertical	38	1.10	-
2440MHz	Pass	PK	2.4928G	57.95	74.00	-16.05	3	Vertical	38	1.10	-
2440MHz	Pass	AV	2.3416G	45.91	54.00	-8.09	3	Horizontal	114	2.63	-
2440MHz	Pass	AV	2.44G	93.01	Inf	-Inf	3	Horizontal	114	2.63	-
2440MHz	Pass	AV	2.5G	45.68	54.00	-8.32	3	Horizontal	114	2.63	-
2440MHz	Pass	PK	2.3856G	57.86	74.00	-16.14	3	Horizontal	114	2.63	-
2440MHz	Pass	PK	2.44G	94.58	Inf	-Inf	3	Horizontal	114	2.63	-
2440MHz	Pass	PK	2.4888G	57.17	74.00	-16.83	3	Horizontal	114	2.63	-
2440MHz	Pass	AV	4.88016G	51.00	54.00	-3.00	3	Vertical	201	1.39	-
2440MHz	Pass	PK	4.87961G	56.71	74.00	-17.29	3	Vertical	201	1.39	-
2440MHz	Pass	AV	4.88018G	51.19	54.00	-2.81	3	Horizontal	59	1.95	-
2440MHz	Pass	PK	4.8797G	56.91	74.00	-17.09	3	Horizontal	59	1.95	-
2480MHz	Pass	AV	2.48G	104.92	Inf	-Inf	3	Vertical	32	1.47	-
2480MHz	Pass	AV	2.4835G	52.54	54.00	-1.46	3	Vertical	32	1.47	-
2480MHz	Pass	PK	2.4804G	106.48	Inf	-Inf	3	Vertical	32	1.47	-
2480MHz	Pass	PK	2.4835G	60.35	74.00	-13.65	3	Vertical	32	1.47	-
2480MHz	Pass	AV	2.48G	98.77	Inf	-Inf	3	Horizontal	185	1.24	-
2480MHz	Pass	AV	2.4835G	48.37	54.00	-5.63	3	Horizontal	185	1.24	-
2480MHz	Pass	PK	2.4798G	100.34	Inf	-Inf	3	Horizontal	185	1.24	-
2480MHz	Pass	PK	2.4835G	57.66	74.00	-16.34	3	Horizontal	185	1.24	-
2480MHz	Pass	AV	4.96021G	53.15	54.00	-0.85	3	Vertical	178	1.28	-
2480MHz	Pass	PK	4.96063G	58.50	74.00	-15.50	3	Vertical	178	1.28	-
2480MHz	Pass	AV	4.96018G	52.44	54.00	-1.56	3	Horizontal	206	1.19	-
2480MHz	Pass	PK	4.95967G	58.06	74.00	-15.94	3	Horizontal	206	1.19	-
BT-LE(2Mbps)	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	AV	2.356G	46.78	54.00	-7.22	3	Vertical	13	1.36	-
2402MHz	Pass	AV	2.402G	104.14	Inf	-Inf	3	Vertical	13	1.36	-
2402MHz	Pass	PK	2.3546G	59.62	74.00	-14.38	3	Vertical	13	1.36	-
2402MHz	Pass	PK	2.4016G	107.61	Inf	-Inf	3	Vertical	13	1.36	-
2402MHz	Pass	AV	2.3578G	46.12	54.00	-7.88	3	Horizontal	329	2.90	-
2402MHz	Pass	AV	2.402G	98.25	Inf	-Inf	3	Horizontal	329	2.90	-
2402MHz	Pass	PK	2.3604G	58.20	74.00	-15.80	3	Horizontal	329	2.90	-
2402MHz	Pass	PK	2.4016G	101.89	Inf	-Inf	3	Horizontal	329	2.90	-
2402MHz	Pass	AV	4.8051G	51.51	54.00	-2.49	3	Vertical	232	1.01	-
2402MHz	Pass	PK	4.80517G	61.05	74.00	-12.95	3	Vertical	232	1.01	-
2402MHz	Pass	AV	4.80329G	52.72	54.00	-1.28	3	Horizontal	201	1.04	-
2402MHz	Pass	PK	4.80316G	62.14	74.00	-11.86	3	Horizontal	201	1.04	-
2440MHz	Pass	AV	2.344G	47.38	54.00	-6.62	3	Vertical	84	2.65	-
2440MHz	Pass	AV	2.44G	105.06	Inf	-Inf	3	Vertical	84	2.65	-
2440MHz	Pass	AV	2.4884G	46.20	54.00	-7.80	3	Vertical	84	2.65	-
2440MHz	Pass	PK	2.3816G	59.62	74.00	-14.38	3	Vertical	84	2.65	-
2440MHz	Pass	PK	2.4396G	108.54	Inf	-Inf	3	Vertical	84	2.65	-
2440MHz	Pass	PK	2.4972G	57.85	74.00	-16.15	3	Vertical	84	2.65	-
2440MHz	Pass	AV	2.3436G	45.89	54.00	-8.11	3	Horizontal	49	3.00	-



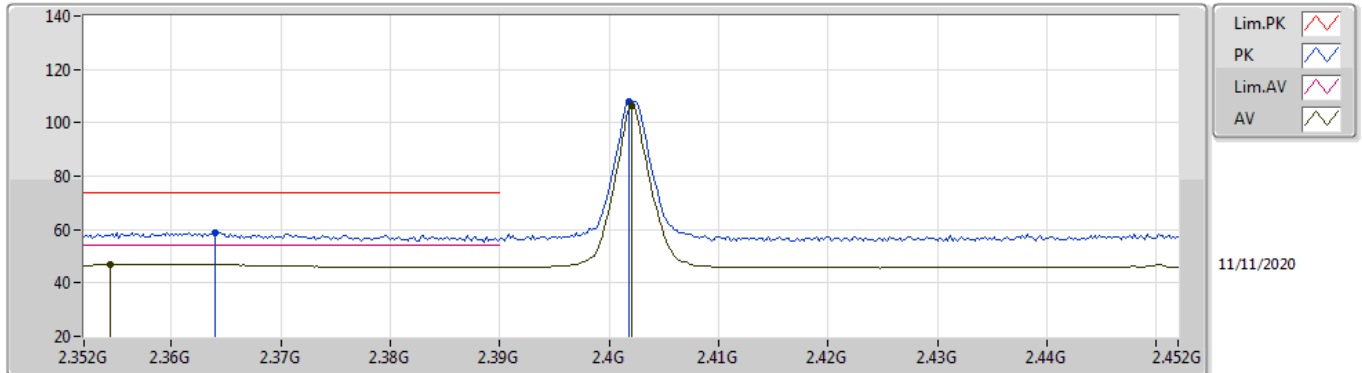
RSE TX above 1GHz

Appendix F.2

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2440MHz	Pass	AV	2.44G	96.17	Inf	-Inf	3	Horizontal	49	3.00	-
2440MHz	Pass	AV	2.5G	45.51	54.00	-8.49	3	Horizontal	49	3.00	-
2440MHz	Pass	PK	2.3468G	58.07	74.00	-15.93	3	Horizontal	49	3.00	-
2440MHz	Pass	PK	2.4404G	99.58	Inf	-Inf	3	Horizontal	49	3.00	-
2440MHz	Pass	PK	2.4876G	56.70	74.00	-17.30	3	Horizontal	49	3.00	-
2440MHz	Pass	AV	4.87989G	51.37	54.00	-2.63	3	Vertical	265	1.21	-
2440MHz	Pass	PK	4.87923G	60.79	74.00	-13.21	3	Vertical	265	1.21	-
2440MHz	Pass	AV	4.8806G	51.75	54.00	-2.25	3	Horizontal	191	1.64	-
2440MHz	Pass	PK	4.88119G	61.10	74.00	-12.90	3	Horizontal	191	1.64	-
2480MHz	Pass	AV	2.48G	99.45	Inf	-Inf	3	Vertical	34	1.46	-
2480MHz	Pass	AV	2.4835G	52.89	54.00	-1.11	3	Vertical	34	1.46	-
2480MHz	Pass	PK	2.4796G	103.03	Inf	-Inf	3	Vertical	34	1.46	-
2480MHz	Pass	PK	2.4835G	62.91	74.00	-11.09	3	Vertical	34	1.46	-
2480MHz	Pass	AV	2.48G	93.52	Inf	-Inf	3	Horizontal	184	1.05	-
2480MHz	Pass	AV	2.4835G	48.60	54.00	-5.40	3	Horizontal	184	1.05	-
2480MHz	Pass	PK	2.4796G	97.05	Inf	-Inf	3	Horizontal	184	1.05	-
2480MHz	Pass	PK	2.4835G	58.75	74.00	-15.25	3	Horizontal	184	1.05	-
2480MHz	Pass	AV	4.96057G	47.93	54.00	-6.07	3	Vertical	172	2.92	-
2480MHz	Pass	PK	4.96111G	57.66	74.00	-16.34	3	Vertical	172	2.92	-
2480MHz	Pass	AV	4.96061G	46.67	54.00	-7.33	3	Horizontal	71	1.46	-
2480MHz	Pass	PK	4.96118G	56.43	74.00	-17.57	3	Horizontal	71	1.46	-

BT-LE(1Mbps)

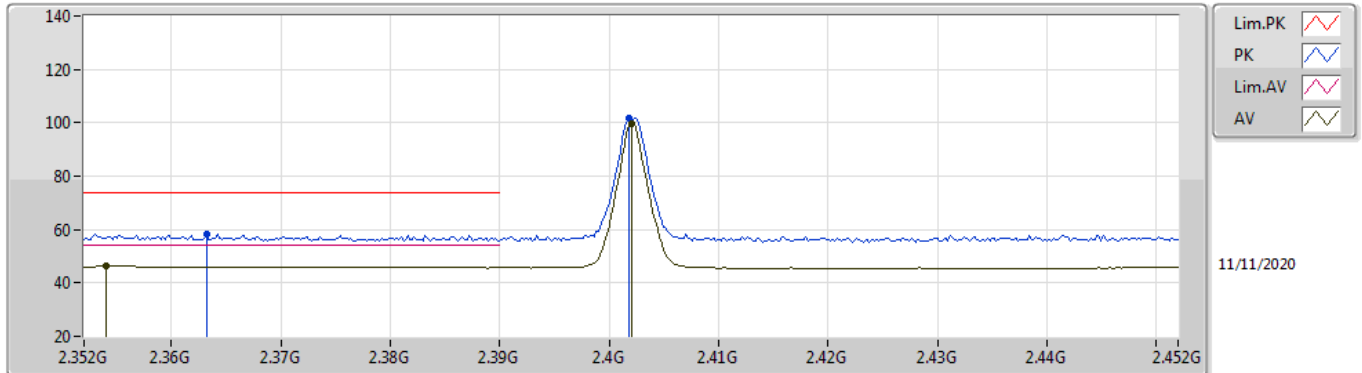
2402MHz_TX



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	2.3544G	47.03	54.00	-6.97	33.62	3	Vertical	38	1.08	-	13.41	27.69	5.93	-
AV	2.402G	106.21	Inf	-Inf	33.55	3	Vertical	38	1.08	-	72.66	27.59	5.96	-
PK	2.364G	59.02	74.00	-14.98	33.60	3	Vertical	38	1.08	-	25.42	27.67	5.93	-
PK	2.4018G	107.90	Inf	-Inf	33.55	3	Vertical	38	1.08	-	74.35	27.59	5.96	-

BT-LE(1Mbps)

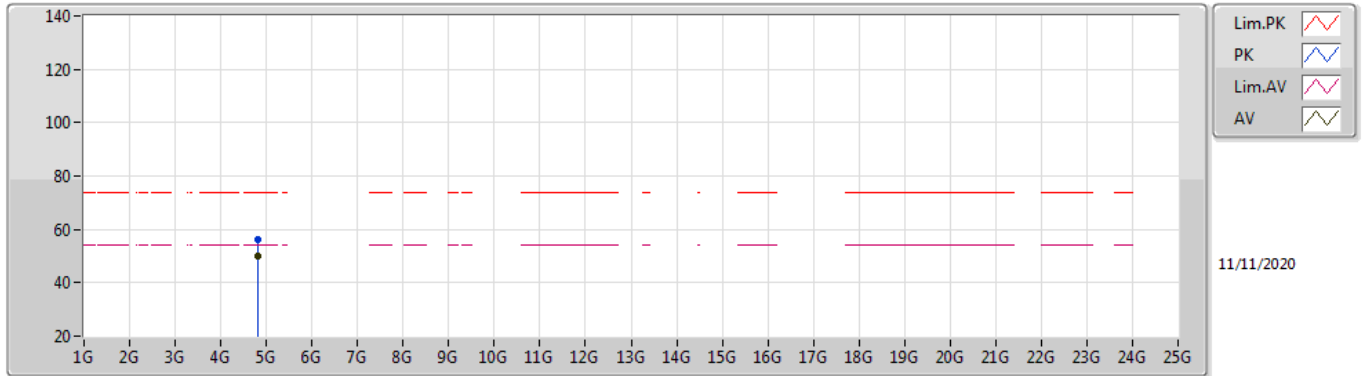
2402MHz_TX



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	2.354G	46.26	54.00	-7.74	33.62	3	Horizontal	165	1.06	-	12.64	27.69	5.93	-
AV	2.402G	99.87	Inf	-Inf	33.55	3	Horizontal	165	1.06	-	66.32	27.59	5.96	-
PK	2.3632G	58.49	74.00	-15.51	33.60	3	Horizontal	165	1.06	-	24.89	27.67	5.93	-
PK	2.4018G	101.58	Inf	-Inf	33.55	3	Horizontal	165	1.06	-	68.03	27.59	5.96	-

BT-LE(1Mbps)

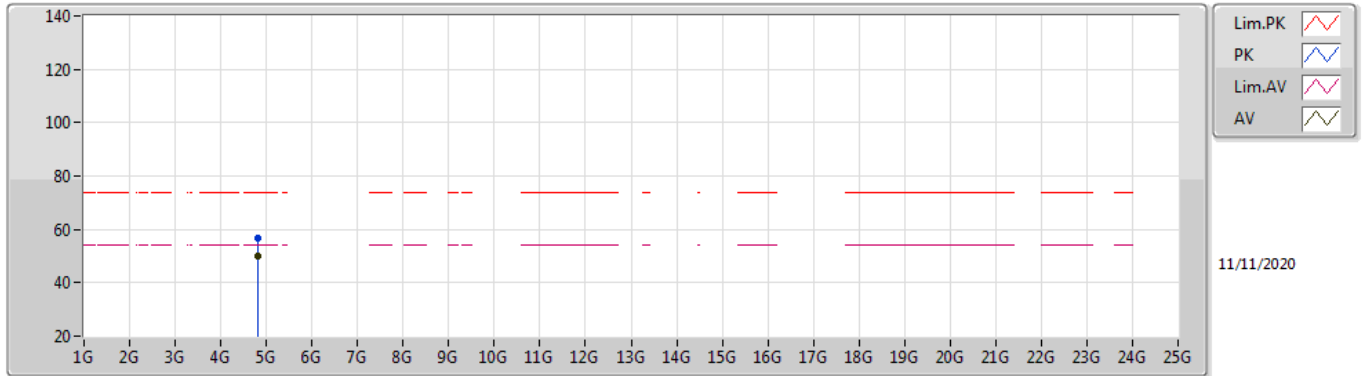
2402MHz_TX



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	4.80416G	50.10	54.00	-3.90	4.88	3	Vertical	329	1.70	-	45.22	30.92	8.25	34.29
PK	4.80379G	56.03	74.00	-17.97	4.88	3	Vertical	329	1.70	-	51.15	30.92	8.25	34.29

BT-LE(1Mbps)

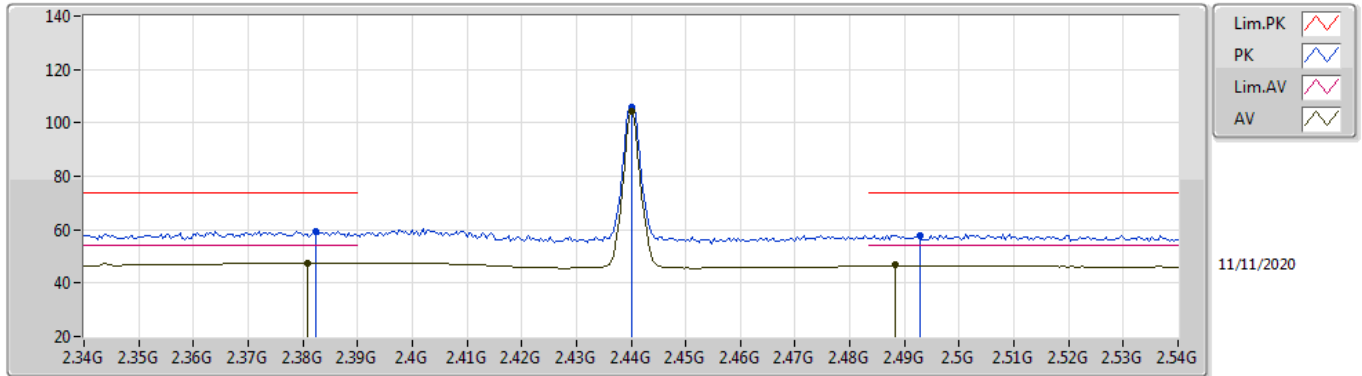
2402MHz_TX



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	4.80418G	50.05	54.00	-3.95	4.88	3	Horizontal	77	2.05	-	45.17	30.92	8.25	34.29
PK	4.80362G	56.61	74.00	-17.39	4.87	3	Horizontal	77	2.05	-	51.74	30.91	8.25	34.29

BT-LE(1Mbps)

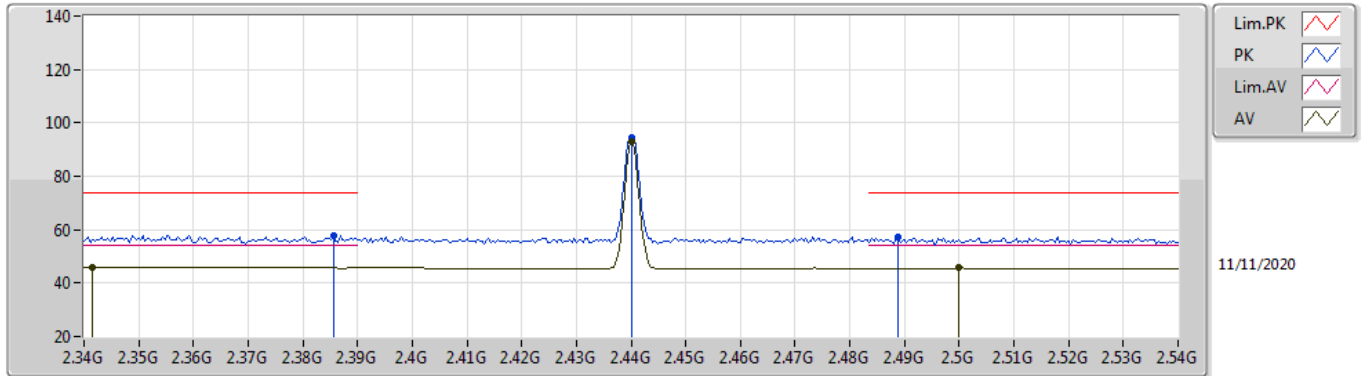
2440MHz_TX



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	2.3808G	47.48	54.00	-6.52	33.59	3	Vertical	38	1.10	-	13.89	27.64	5.95	-
AV	2.44G	104.32	Inf	-Inf	33.45	3	Vertical	38	1.10	-	70.87	27.44	6.01	-
AV	2.4884G	46.76	54.00	-7.24	33.47	3	Vertical	38	1.10	-	13.29	27.40	6.07	-
PK	2.3824G	59.42	74.00	-14.58	33.59	3	Vertical	38	1.10	-	25.83	27.64	5.95	-
PK	2.44G	105.84	Inf	-Inf	33.45	3	Vertical	38	1.10	-	72.39	27.44	6.01	-
PK	2.4928G	57.95	74.00	-16.05	33.47	3	Vertical	38	1.10	-	24.48	27.40	6.07	-

BT-LE(1Mbps)

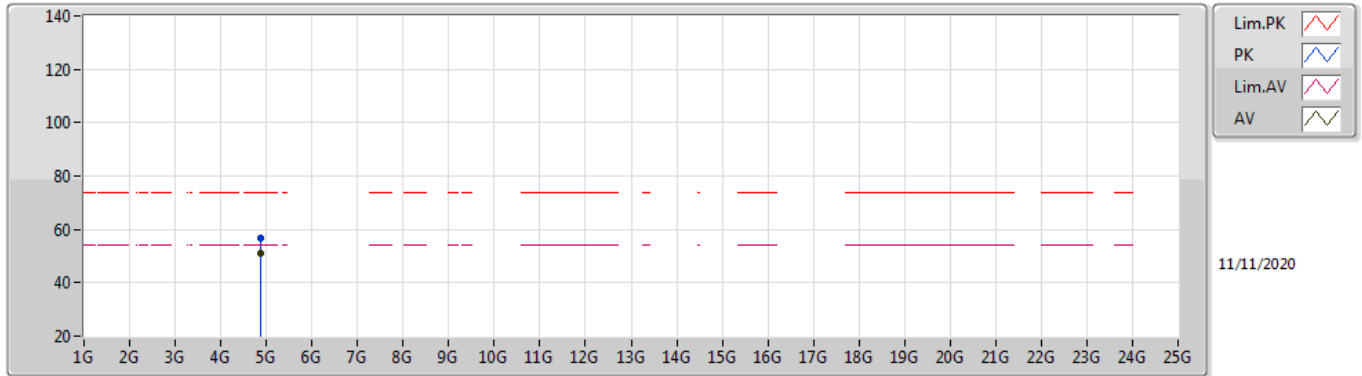
2440MHz_TX



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	2.3416G	45.91	54.00	-8.09	33.65	3	Horizontal	114	2.63	-	12.26	27.73	5.92	-
AV	2.44G	93.01	Inf	-Inf	33.45	3	Horizontal	114	2.63	-	59.56	27.44	6.01	-
AV	2.5G	45.68	54.00	-8.32	33.48	3	Horizontal	114	2.63	-	12.20	27.40	6.08	-
PK	2.3856G	57.86	74.00	-16.14	33.58	3	Horizontal	114	2.63	-	24.28	27.63	5.95	-
PK	2.44G	94.58	Inf	-Inf	33.45	3	Horizontal	114	2.63	-	61.13	27.44	6.01	-
PK	2.4888G	57.17	74.00	-16.83	33.47	3	Horizontal	114	2.63	-	23.70	27.40	6.07	-

BT-LE(1Mbps)

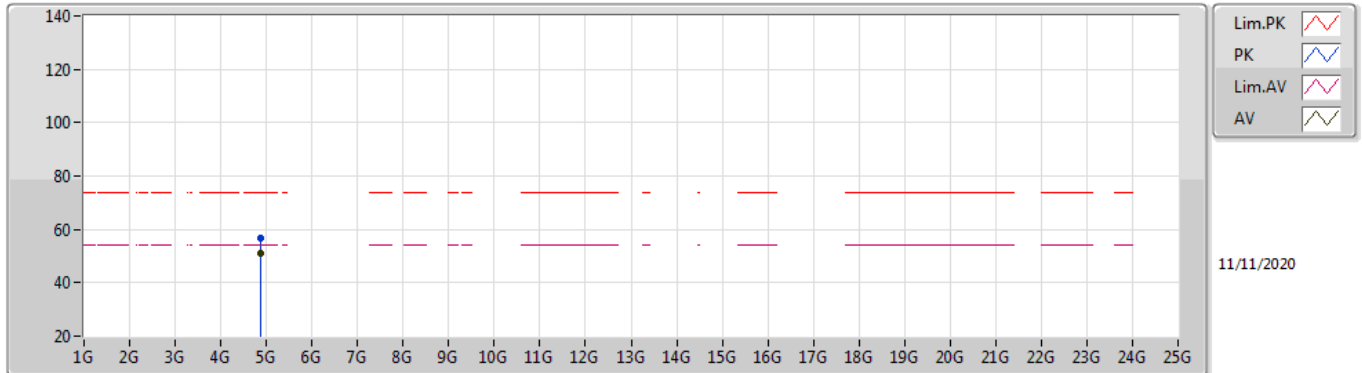
2440MHz_TX



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	4.88016G	51.00	54.00	-3.00	5.08	3	Vertical	201	1.39	-	45.92	31.04	8.30	34.26
PK	4.87961G	56.71	74.00	-17.29	5.08	3	Vertical	201	1.39	-	51.63	31.04	8.30	34.26

BT-LE(1Mbps)

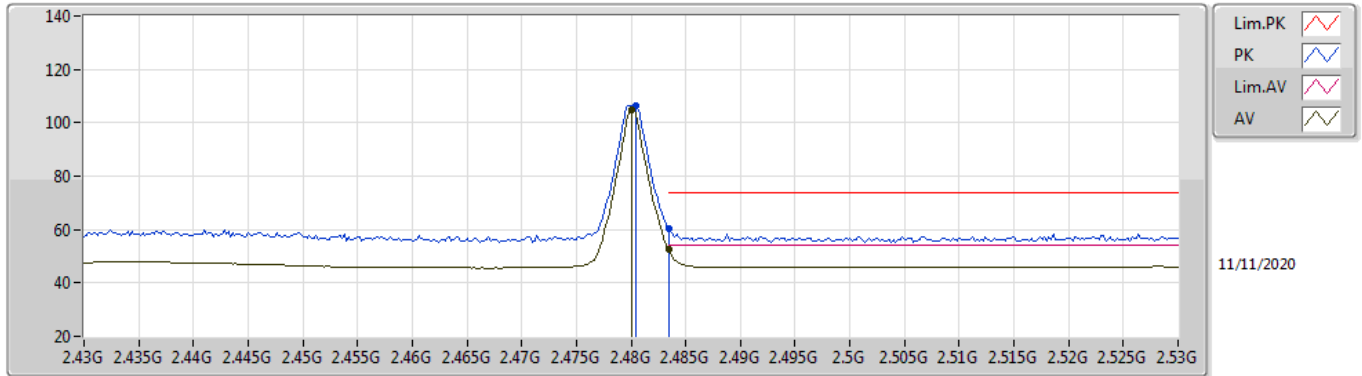
2440MHz_TX



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	4.88018G	51.19	54.00	-2.81	5.08	3	Horizontal	59	1.95	-	46.11	31.04	8.30	34.26
PK	4.8797G	56.91	74.00	-17.09	5.08	3	Horizontal	59	1.95	-	51.83	31.04	8.30	34.26

BT-LE(1Mbps)

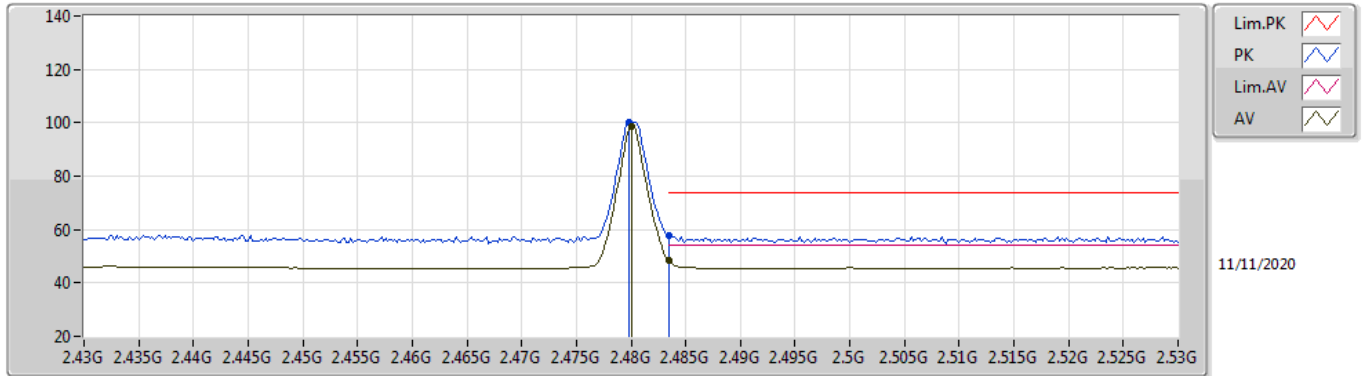
2480MHz_TX



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	104.92	Inf	-Inf	33.46	3	Vertical	32	1.47	-	71.46	27.40	6.06	-
AV	2.4835G	52.54	54.00	-1.46	33.46	3	Vertical	32	1.47	-	19.08	27.40	6.06	-
PK	2.4804G	106.48	Inf	-Inf	33.46	3	Vertical	32	1.47	-	73.02	27.40	6.06	-
PK	2.4835G	60.35	74.00	-13.65	33.46	3	Vertical	32	1.47	-	26.89	27.40	6.06	-

BT-LE(1Mbps)

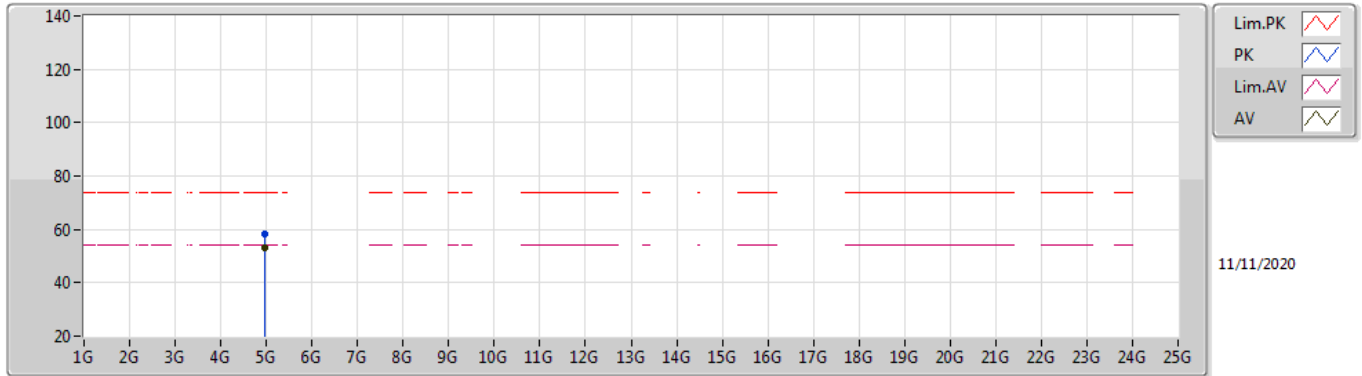
2480MHz_TX



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	98.77	Inf	-Inf	33.46	3	Horizontal	185	1.24	-	65.31	27.40	6.06	-
AV	2.4835G	48.37	54.00	-5.63	33.46	3	Horizontal	185	1.24	-	14.91	27.40	6.06	-
PK	2.4798G	100.34	Inf	-Inf	33.46	3	Horizontal	185	1.24	-	66.88	27.40	6.06	-
PK	2.4835G	57.66	74.00	-16.34	33.46	3	Horizontal	185	1.24	-	24.20	27.40	6.06	-

BT-LE(1Mbps)

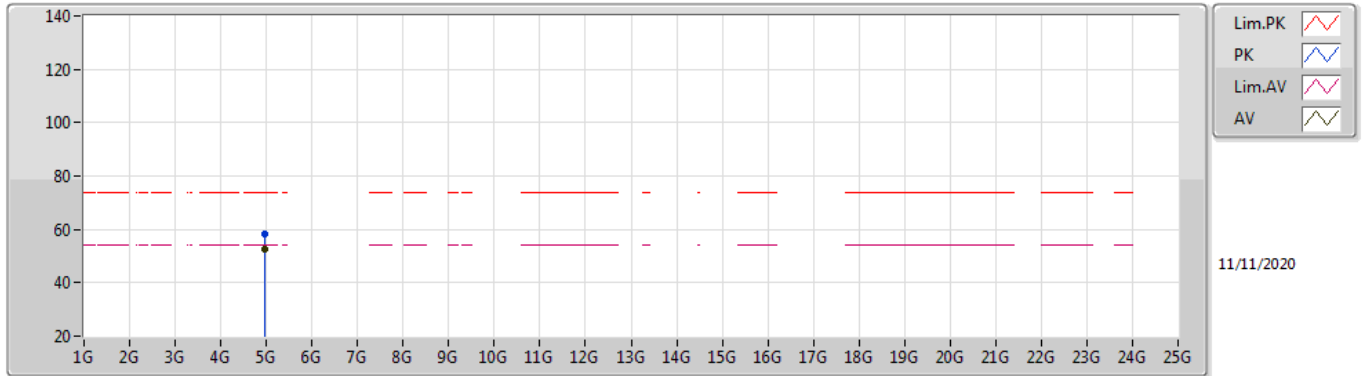
2480MHz_TX



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	4.96021G	53.15	54.00	-0.85	5.34	3	Vertical	178	1.28	-	47.81	31.22	8.35	34.23
PK	4.96063G	58.50	74.00	-15.50	5.34	3	Vertical	178	1.28	-	53.16	31.22	8.35	34.23

BT-LE(1Mbps)

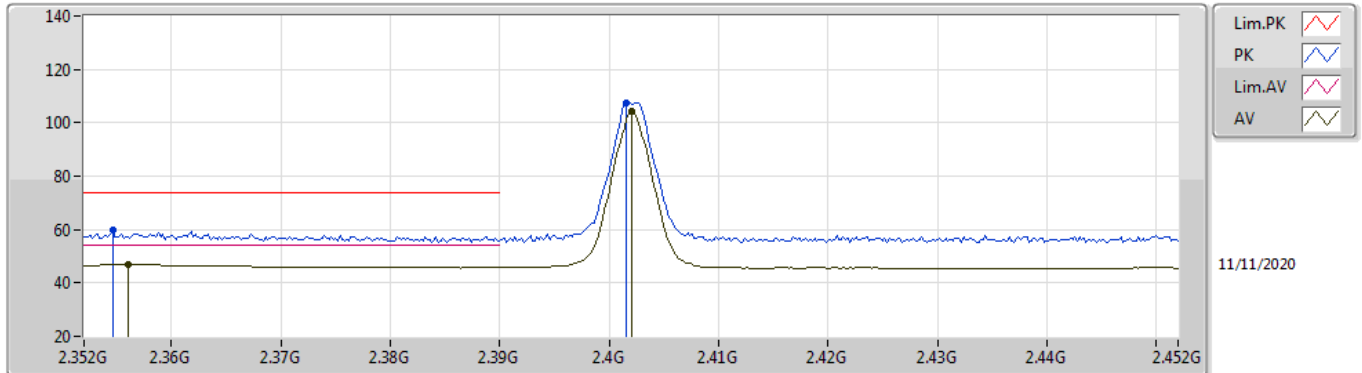
2480MHz_TX



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	4.96018G	52.44	54.00	-1.56	5.34	3	Horizontal	206	1.19	-	47.10	31.22	8.35	34.23
PK	4.95967G	58.06	74.00	-15.94	5.34	3	Horizontal	206	1.19	-	52.72	31.22	8.35	34.23

BT-LE(2Mbps)

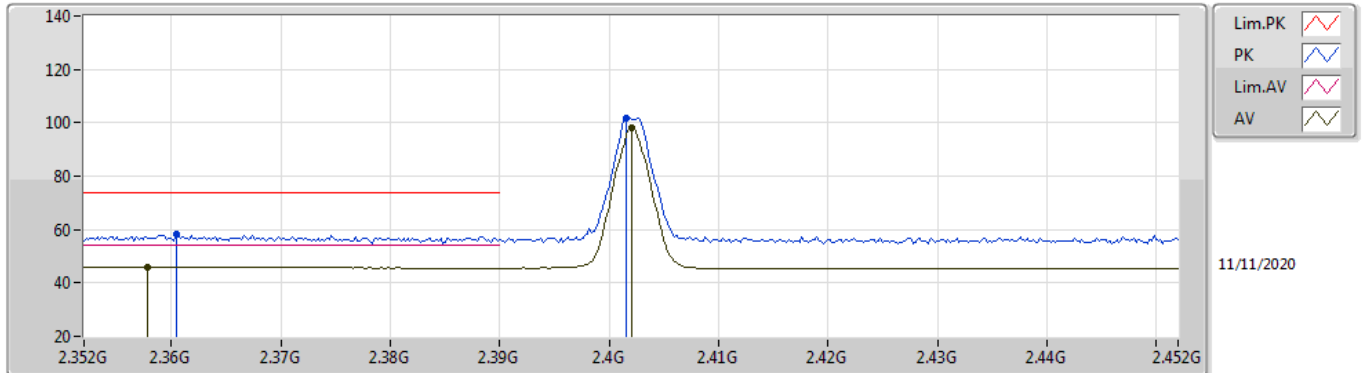
2402MHz_TX



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	2.356G	46.78	54.00	-7.22	33.62	3	Vertical	13	1.36	-	13.16	27.69	5.93	-
AV	2.402G	104.14	Inf	-Inf	33.55	3	Vertical	13	1.36	-	70.59	27.59	5.96	-
PK	2.3546G	59.62	74.00	-14.38	33.62	3	Vertical	13	1.36	-	26.00	27.69	5.93	-
PK	2.4016G	107.61	Inf	-Inf	33.55	3	Vertical	13	1.36	-	74.06	27.59	5.96	-

BT-LE(2Mbps)

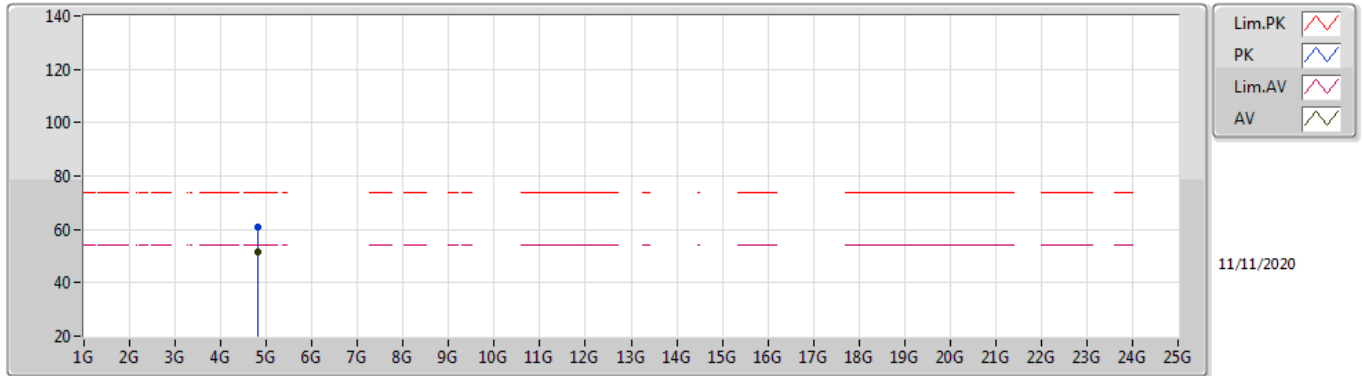
2402MHz_TX



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	2.3578G	46.12	54.00	-7.88	33.61	3	Horizontal	329	2.90	-	12.51	27.68	5.93	-
AV	2.402G	98.25	Inf	-Inf	33.55	3	Horizontal	329	2.90	-	64.70	27.59	5.96	-
PK	2.3604G	58.20	74.00	-15.80	33.61	3	Horizontal	329	2.90	-	24.59	27.68	5.93	-
PK	2.4016G	101.89	Inf	-Inf	33.55	3	Horizontal	329	2.90	-	68.34	27.59	5.96	-

BT-LE(2Mbps)

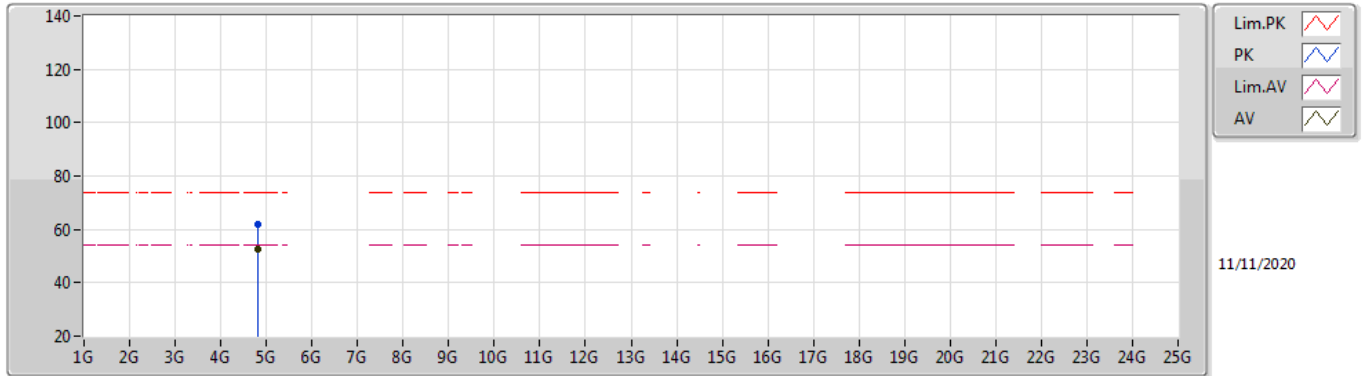
2402MHz_TX



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	4.8051G	51.51	54.00	-2.49	4.88	3	Vertical	232	1.01	-	46.63	30.92	8.25	34.29
PK	4.80517G	61.05	74.00	-12.95	4.88	3	Vertical	232	1.01	-	56.17	30.92	8.25	34.29

BT-LE(2Mbps)

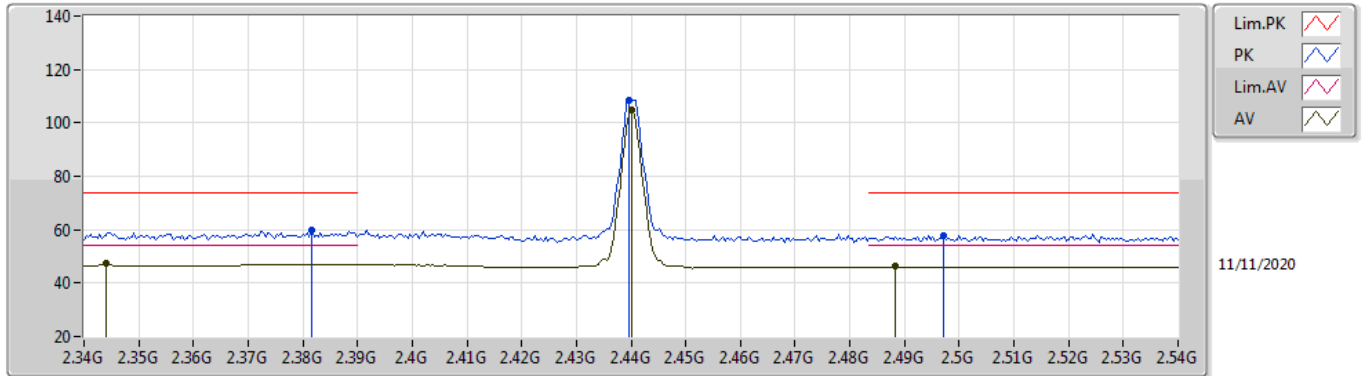
2402MHz_TX



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	4.80329G	52.72	54.00	-1.28	4.87	3	Horizontal	201	1.04	-	47.85	30.91	8.25	34.29
PK	4.80316G	62.14	74.00	-11.86	4.87	3	Horizontal	201	1.04	-	57.27	30.91	8.25	34.29

BT-LE(2Mbps)

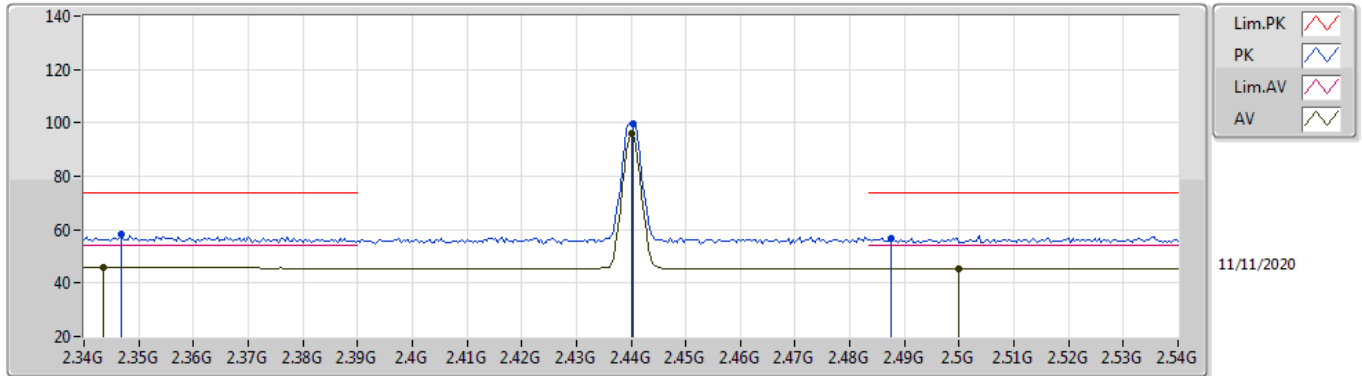
2440MHz_TX



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	2.344G	47.38	54.00	-6.62	33.64	3	Vertical	84	2.65	-	13.74	27.72	5.92	-
AV	2.44G	105.06	Inf	-Inf	33.45	3	Vertical	84	2.65	-	71.61	27.44	6.01	-
AV	2.4884G	46.20	54.00	-7.80	33.47	3	Vertical	84	2.65	-	12.73	27.40	6.07	-
PK	2.3816G	59.62	74.00	-14.38	33.59	3	Vertical	84	2.65	-	26.03	27.64	5.95	-
PK	2.4396G	108.54	Inf	-Inf	33.45	3	Vertical	84	2.65	-	75.09	27.44	6.01	-
PK	2.4972G	57.85	74.00	-16.15	33.48	3	Vertical	84	2.65	-	24.37	27.40	6.08	-

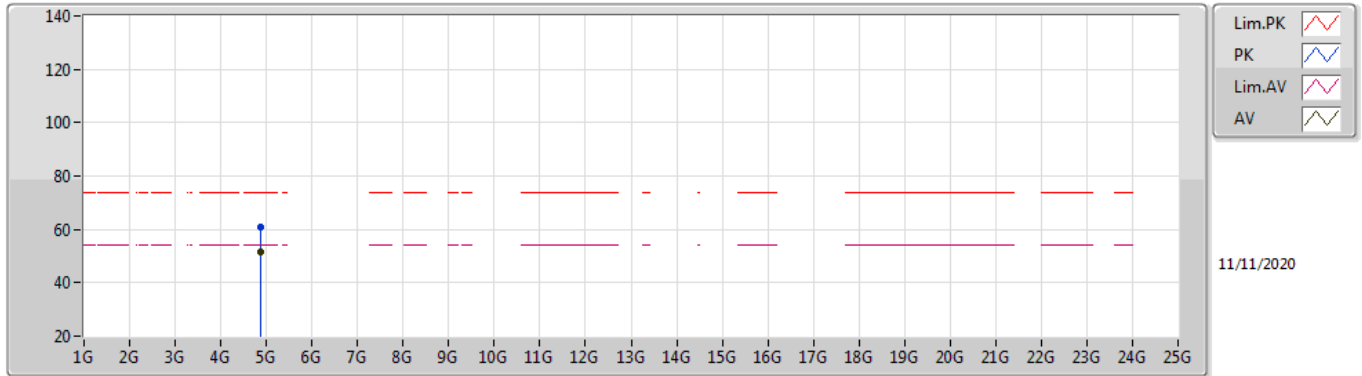
BT-LE(2Mbps)

2440MHz_TX



BT-LE(2Mbps)

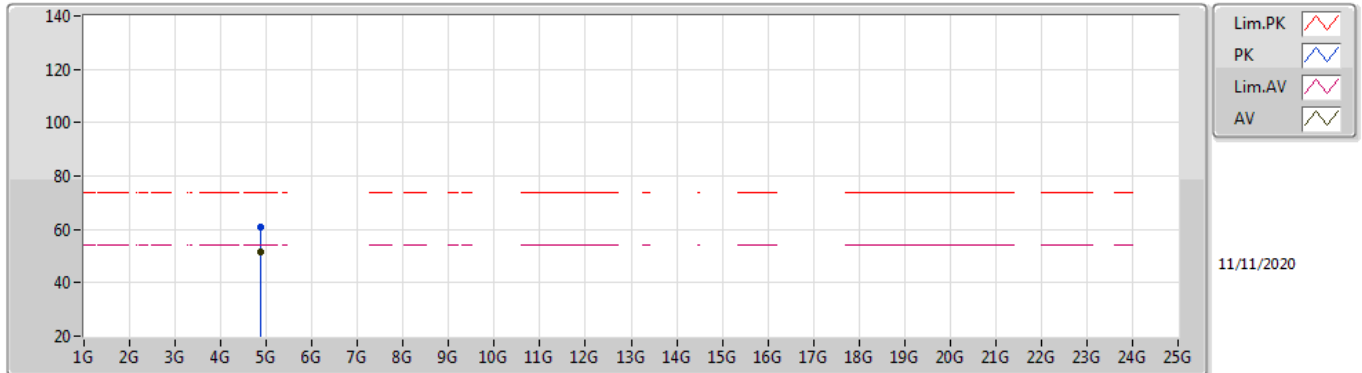
2440MHz_TX



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	4.87989G	51.37	54.00	-2.63	5.08	3	Vertical	265	1.21	-	46.29	31.04	8.30	34.26
PK	4.87923G	60.79	74.00	-13.21	5.08	3	Vertical	265	1.21	-	55.71	31.04	8.30	34.26

BT-LE(2Mbps)

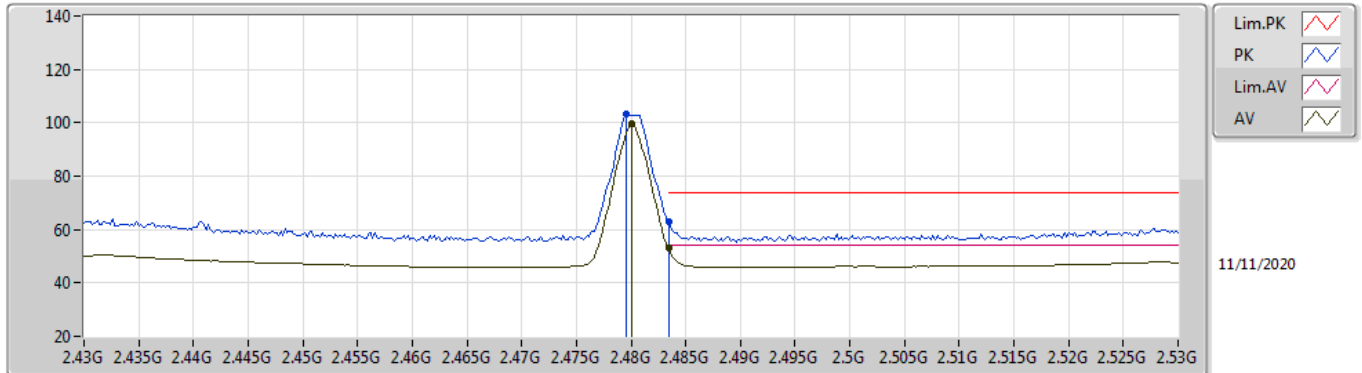
2440MHz_TX



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	4.8806G	51.75	54.00	-2.25	5.08	3	Horizontal	191	1.64	-	46.67	31.04	8.30	34.26
PK	4.88119G	61.10	74.00	-12.90	5.08	3	Horizontal	191	1.64	-	56.02	31.04	8.30	34.26

BT-LE(2Mbps)

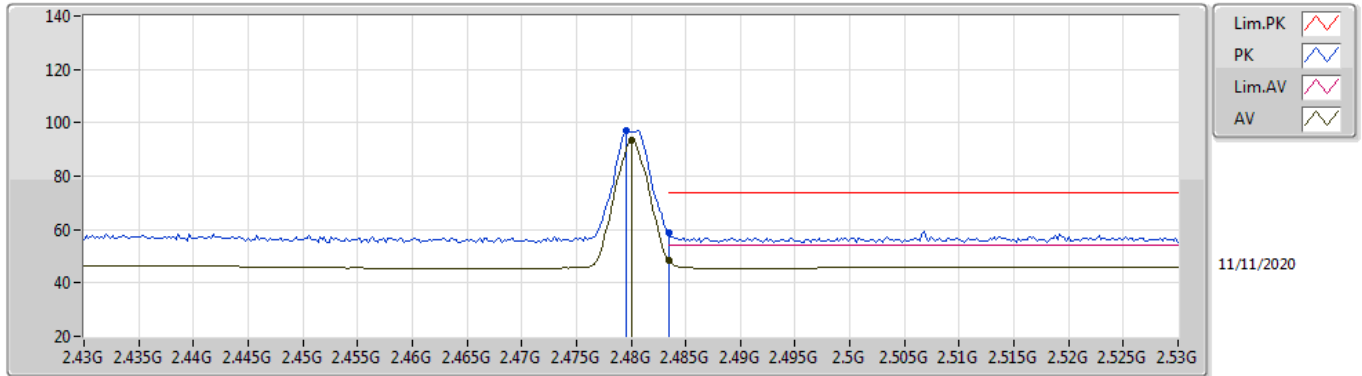
2480MHz_TX



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	99.45	Inf	-Inf	33.46	3	Vertical	34	1.46	-	65.99	27.40	6.06	-
AV	2.4835G	52.89	54.00	-1.11	33.46	3	Vertical	34	1.46	-	19.43	27.40	6.06	-
PK	2.4796G	103.03	Inf	-Inf	33.46	3	Vertical	34	1.46	-	69.57	27.40	6.06	-
PK	2.4835G	62.91	74.00	-11.09	33.46	3	Vertical	34	1.46	-	29.45	27.40	6.06	-

BT-LE(2Mbps)

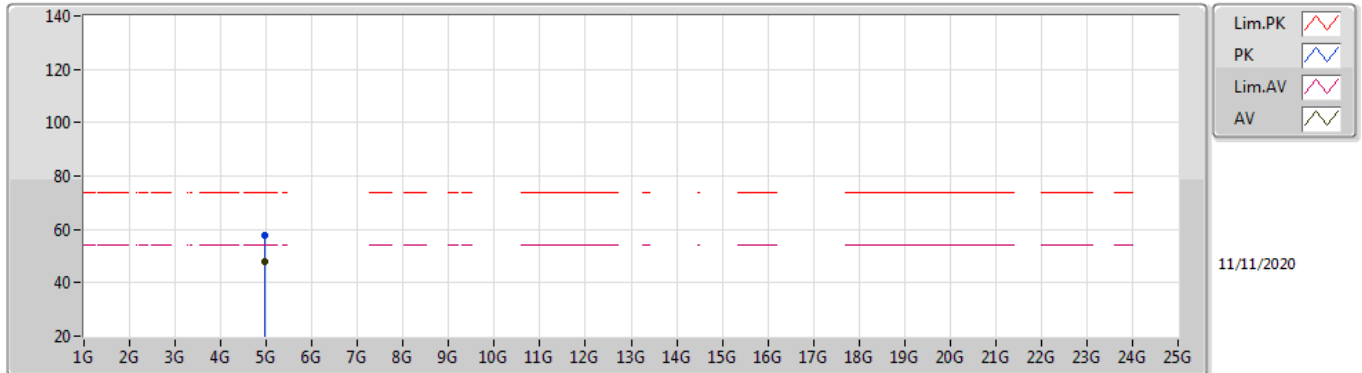
2480MHz_TX



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	93.52	Inf	-Inf	33.46	3	Horizontal	184	1.05	-	60.06	27.40	6.06	-
AV	2.4835G	48.60	54.00	-5.40	33.46	3	Horizontal	184	1.05	-	15.14	27.40	6.06	-
PK	2.4796G	97.05	Inf	-Inf	33.46	3	Horizontal	184	1.05	-	63.59	27.40	6.06	-
PK	2.4835G	58.75	74.00	-15.25	33.46	3	Horizontal	184	1.05	-	25.29	27.40	6.06	-

BT-LE(2Mbps)

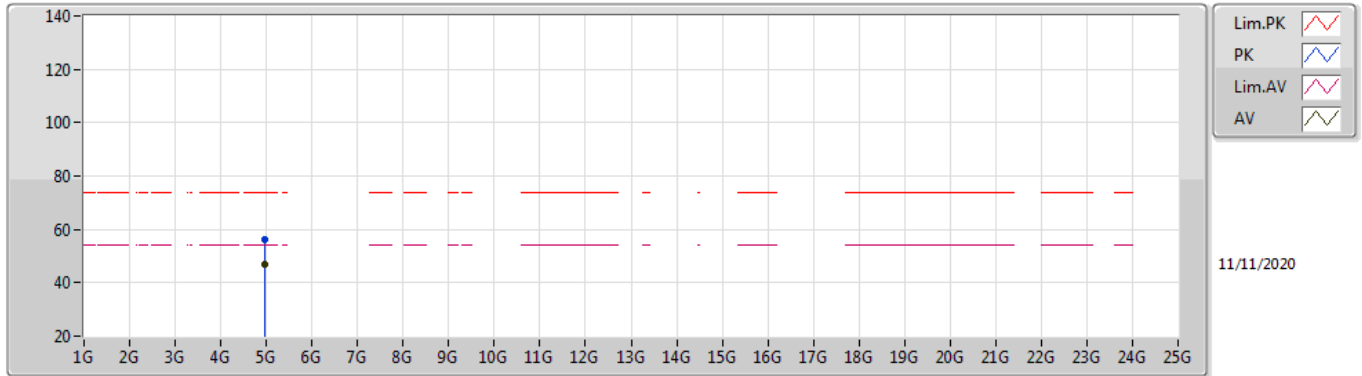
2480MHz_TX



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	4.96057G	47.93	54.00	-6.07	5.34	3	Vertical	172	2.92	-	42.59	31.22	8.35	34.23
PK	4.96111G	57.66	74.00	-16.34	5.34	3	Vertical	172	2.92	-	52.32	31.22	8.35	34.23

BT-LE(2Mbps)

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	4.96061G	46.67	54.00	-7.33	5.34	3	Horizontal	71	1.46	-	41.33	31.22	8.35	34.23
PK	4.96118G	56.43	74.00	-17.57	5.34	3	Horizontal	71	1.46	-	51.09	31.22	8.35	34.23

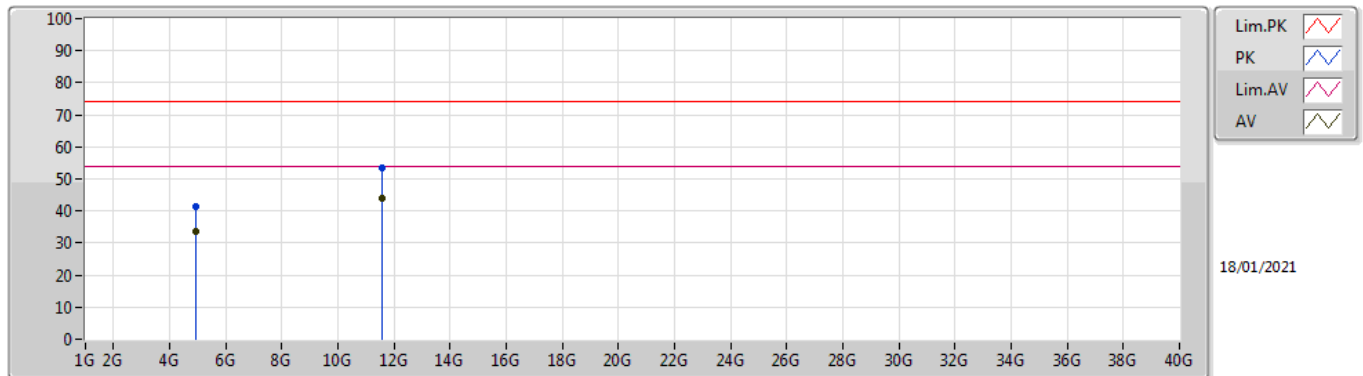
**Summary**

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

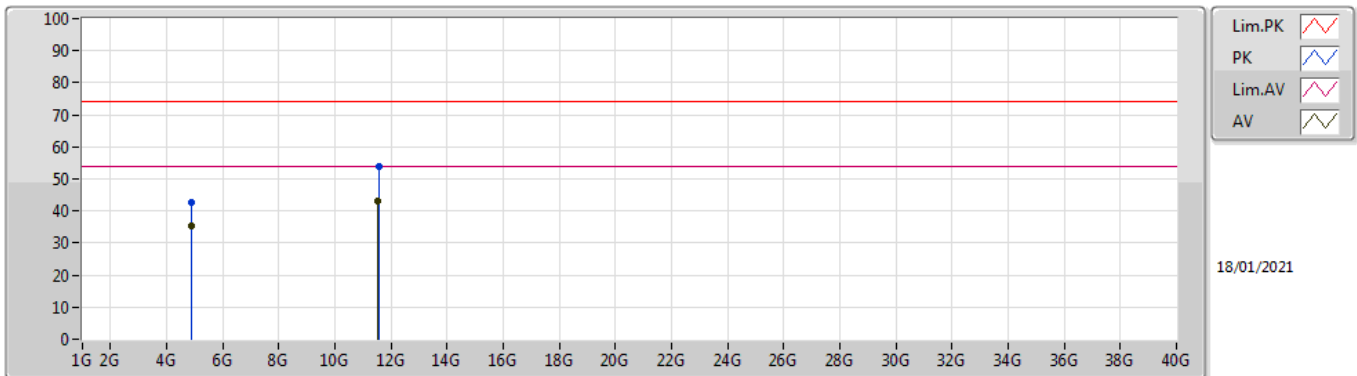
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB/m)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
Mode 1	Pass	AV	4.92412G	33.74	54.00	-20.26	5.18	3	Vertical	5	1.53	-
Mode 1	Pass	AV	11.55218G	43.88	54.00	-10.12	18.54	3	Vertical	263	1.42	-
Mode 1	Pass	PK	4.92436G	41.50	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