FCC Test Report

FCC ID	:	**TTUBEOPLAYPL**
Equipment	:	**Wireless Gaming Headphones**
Brand Name	:	**Bang & Olufse**
Model Name	:	**Beoplay Portal**
Applicant	:	**Bang & Olufsen A/S** **Bang og Olufsen Allé 1, 7600 Struer, Denmark**
Manufacturer	:	**Bang & Olufsen A/S** **Bang og Olufsen Allé 1, 7600 Struer, Denmark**
Standard	:	**47 CFR FCC Part 15.247**

The product was received on Nov. 06, 2020, and testing was started from Nov. 18, 2020 and completed on Dec. 12, 2020. 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.)

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PHOTOGRAPHS OF EUT V02

History of this test report

Report No.	Version	Description	Issued Date
FR0N0708AL	01	Initial issue of report	Jan. 25, 2021
FR0N0708AL	02	Remove wireless adapter and update photographs of EUT. (This report is the latest version replacing for the report issued on Jan. 25, 2021.)	Feb. 26, 2021

Summary of Test Result

Report Clause	Ref.Std. Clause	Test Items	Result (PASS/FAIL)	Remark
1.1.2	15.203	Antenna Requirement	PASS	-
3.1	15.207	AC Power-line Conducted Emissions	PASS	-
3.2	15.247(a)	DTS Bandwidth	PASS	-
3.3	15.247(b)	Maximum Conducted Output Power	PASS	-
3.4	15.247(e)	Power Spectral Density	PASS	-
3.5	15.247(d)	Emissions in Non-restricted Frequency Bands	PASS	-
3.6	15.247(d)	Emissions in Restricted Frequency Bands	PASS	-

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and explanations:
None

Reviewed by: Sam Tsai

Report Producer: Michelle Tsai

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	SAGE ELEPHANT	S306300001000-A	Couple Chip	N/A
2	SAGE ELEPHANT	S306300001000-A	Couple Chip	N/A

Ant.	Port	Gain (dBi)		
		2.4G	5G	BT
1	1	0.72	0.71	-
2	1	-	-	0.73

Note 1: The EUT has two antennas.

For 2.4GHz function:

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

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

For BT function:

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

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

For 5GHz function:

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

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

1.1.3 EUT Information

Operational Condition					
EUT Power Type	From host system / Adapter				
EUT Function	☒	Point-to-multipoint	☐	Point-to-point	
Type of EUT					
☒	Stand-alone				
☐	Combined (EUT where the radio part is fully integrated within another device)				
	Combined Equipment - Brand Name / Model No.:	…			
☐	Plug-in radio (EUT intended for a variety of host systems)				
	Host System - Brand Name / Model No.:	…			
☐	Other:				

1.1.4 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
BT-LE(1Mbps)	0.636	1.97	397.5u	3k
BT-LE(2Mbps)	0.34	4.69	212.5u	10k

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

1.1.5 Table for Multiple Listing

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

Model Name	Sample	Description
Beoplay Portal	1	There are two samples of EUT, the only difference is the color of appearance.
	2	

Note: Sample 2 configuration was measured during the test.

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 Wang	21.0~22.1°C/56~59%	12/Dec/2020
RF Conducted	TH01-HY	Vivi Jiang	20.1~26.9°C/50~60%	18/Nov/2020~19/Nov/2020
Radiated	03CH02-HY	Daniel Lin	20.4~26.3°C/51~64%	20/Nov/2020~25/Nov/2020

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	3.7V

2.2 Test Channel Mode

Test Software Version	Bluetest3

Mode	Power Setting
BT-LE(1Mbps)	-
2402MHz	Default
2440MHz	Default
2480MHz	Default
BT-LE(2Mbps)	-
2402MHz	Default
2440MHz	Default
2480MHz	Default

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

2.4 Accessories

Accessories				
Battery	Brand Name	Synergy	Model Name	AHB723938PCT
	Power Rating	3.7Vdc,1110mAh	Type	Lithium-ion Polymer Battery Pack
USB Cable(1.8M)	Brand Name	Bang & Olufsen	Model Name	4021XW01907ZEU
	Signal Line	1.8 meter, D-shielded cable, w/o ferrite core		
USB Cable(1.2M)	Brand Name	Bang & Olufsen	Model Name	4021XW01907ZAU
	Signal Line	1.2 meter, D-shielded cable, w/o ferrite core		
Audio Cable	Brand Name	Bang & Olufsen	Model Name	4021XW01906ZAS
	Signal Line	1.2 meter, non-shielded cable, w/o ferrite core		

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

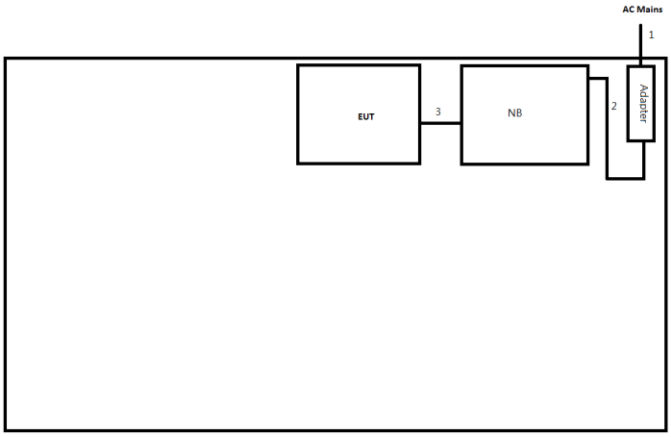
2.5 Support Equipment

Support Equipment – AC Conduction and Radiated					
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**	**Remark**
1	Notebook	Acer	ZQS	-	-
2	Adapter for NB	Liteon	PA-1900-32	-	-

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

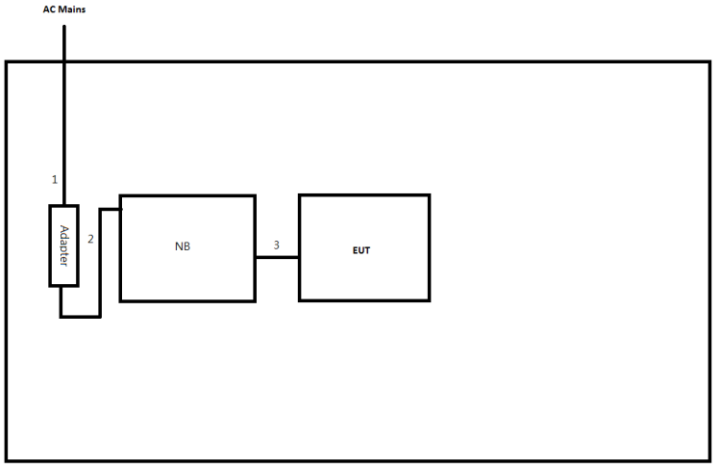
2.6 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test



Item	Connection	Shielded	Length(m)	Remark
1	AC Power cable	No	1.8	-
2	DC Power cable	No	1.5	-
3	USB cable	No	0.1	-

Test Setup Diagram - Radiated Test



Item	Connection	Shielded	Length(m)	Remark
1	AC Power cable	No	1.8	-
2	DC Power cable	No	1.5	-
3	USB cable	No	0.1	-

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

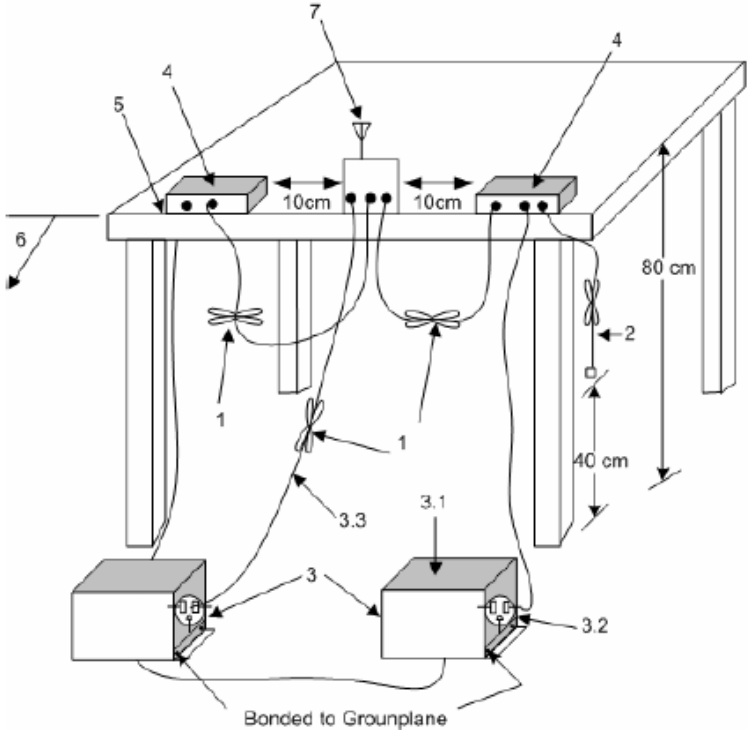
Test Method
▪ Refer as ANSI C63.10-2013, clause 6.2 foray power-line conducted emissions.

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

AC Power-line Conducted Emissions



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

3.1.6 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A

3.2 DTS Bandwidth

3.2.1 6dB Bandwidth Limit

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

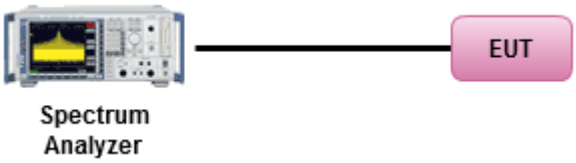
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

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

3.2.4 Test Setup

Emission Bandwidth


3.2.5 Test Result of Emission Bandwidth

Refer as Appendix B

3.3 Maximum Conducted Output Power

3.3.1 Maximum Conducted Output Power Limit

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

3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

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

3.3.4 Test Setup

Maximum Conducted Output Power (Power Meter)

3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix C

3.4 Power Spectral Density

3.4.1 Power Spectral Density Limit

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

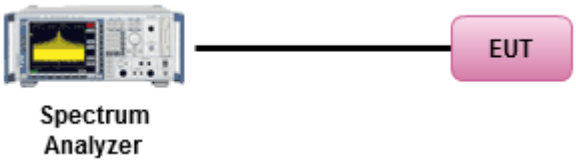
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

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

3.4.4 Test Setup

Power Spectral Density


3.4.5 Test Result of Power Spectral Density

Refer as Appendix D

3.5 Emissions in Non-restricted Frequency Bands

3.5.1 Emissions in Non-restricted Frequency Bands Limit

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

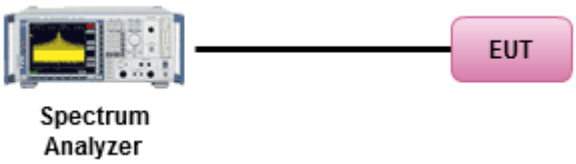
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

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

3.5.4 Test Setup

Emissions in Non-restricted Frequency Bands


3.5.5 Test Result of Emissions in Non-restricted Frequency Bands

Refer as Appendix E

3.6 Emissions in Restricted Frequency Bands

3.6.1 Emissions in Restricted Frequency Bands Limit

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

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

Note 2: Test distance for frequencies at below 30 MHz, measurements may be performed at a distance closer than the EUT limit distance; however, an attempt should be made to avoid making measurements in the near field. When performing measurements below30 MHz at a closer distance than the limit distance, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two or more distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB / decade). The test report shall specify the extrapolation method used to determine compliance of the EUT.

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

3.6.2 Measuring Instruments

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

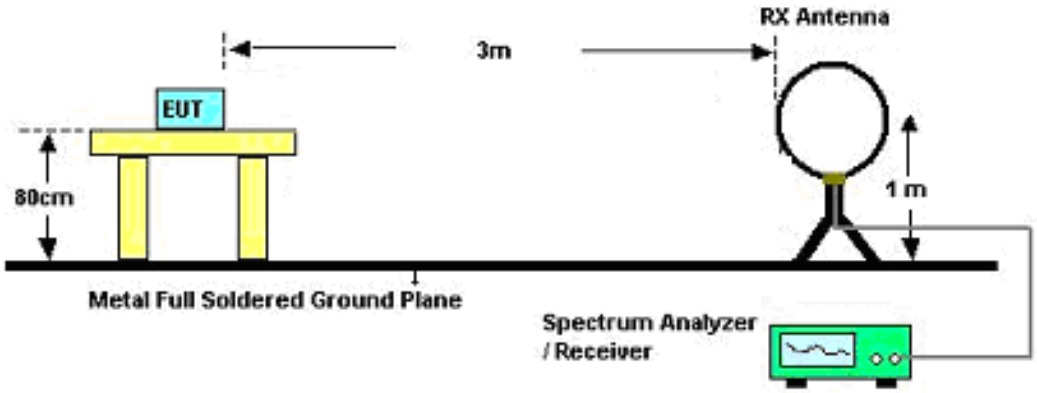
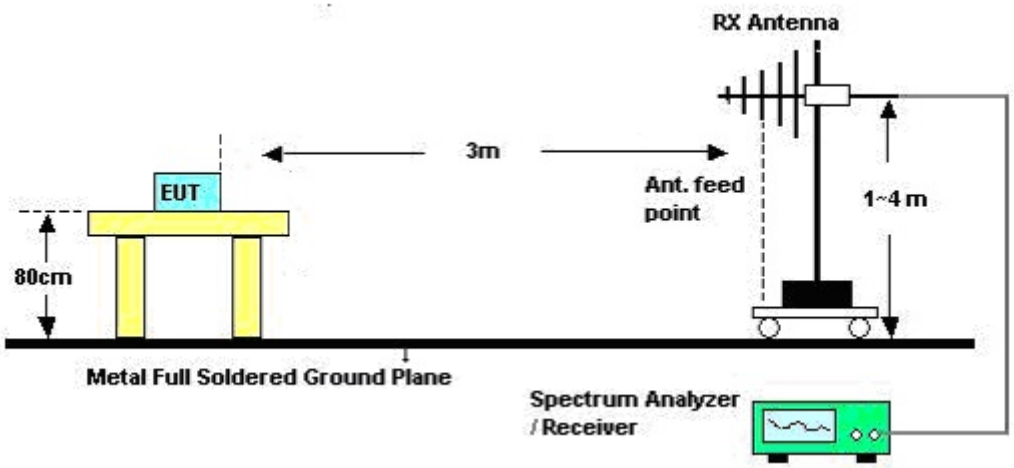
3.6.3 Test Procedures

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

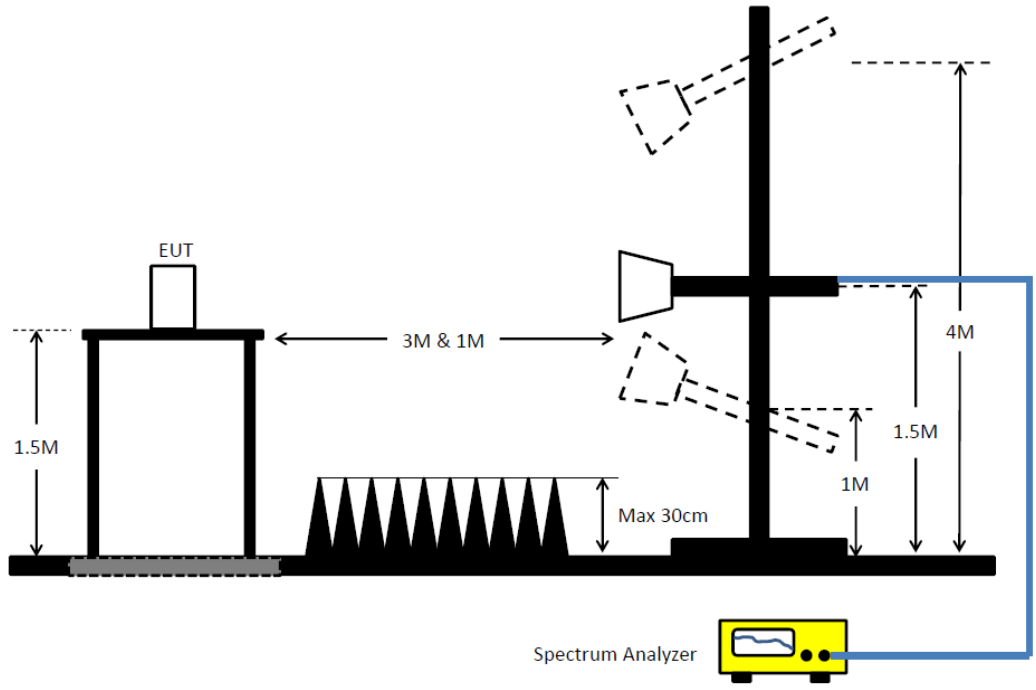
3.6.4 Measurement Results Calculation

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

3.6.5 Test Setup

Emissions in Restricted Frequency Bands
9kHz ~30MHz

30MHz~1GHz


Above 1GHz



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

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

3.6.7 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix F

4 Test Equipment and Calibration Data

Instrument for AC Conduction

Instrument	Manufacturer/ Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
EMI Test Receiver	R&S	ESR3	102051	9kHz ~ 3.6GHz	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 Radiated Test

Instrument	Manufacturer/ Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH02-HY	30MHz~1GHz 3m	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	SUCOFLEX104	805193/4+805192/4	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

Instrument for Conducted Test

Instrument	Manufacturer/ Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Signal Analyzer	R&S	FSV 40	101013	10Hz~40GHz	19/Mar/2020	18/Mar/2021
SMB100A Signal Generator	R&S	SMB100A03	181147	100kHz~40GHz	20/Oct/2020	19/Oct/2022
Pulse Sensor	Anritsu	MA2411B	917017	300MHz~40GHz	17/Feb/2020	16/Feb/2021
Power Meter	Anritsu	ML2495A	949003	300MHz~40GHz	17/Feb/2020	16/Feb/2021

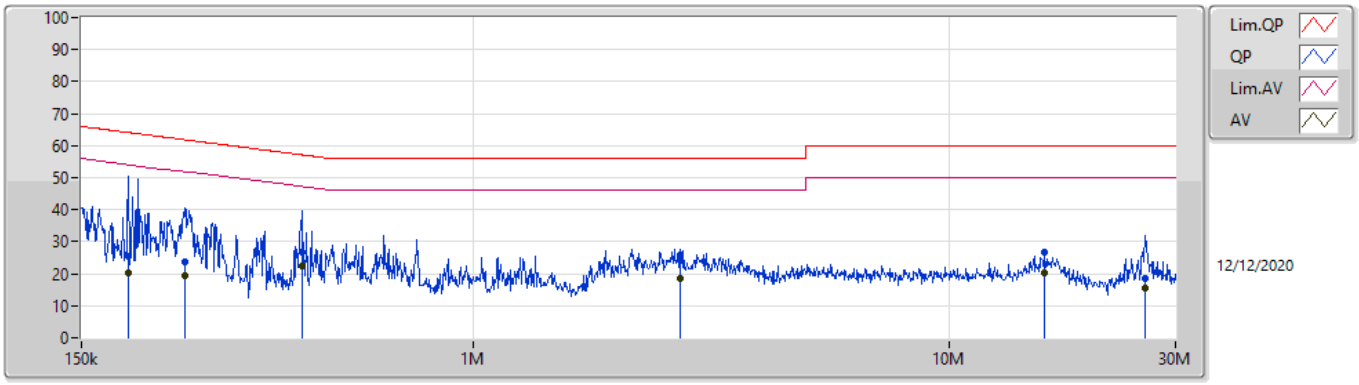
Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	AV	284.109k	32.05	50.70	-18.65	Neutral

Mode Configure

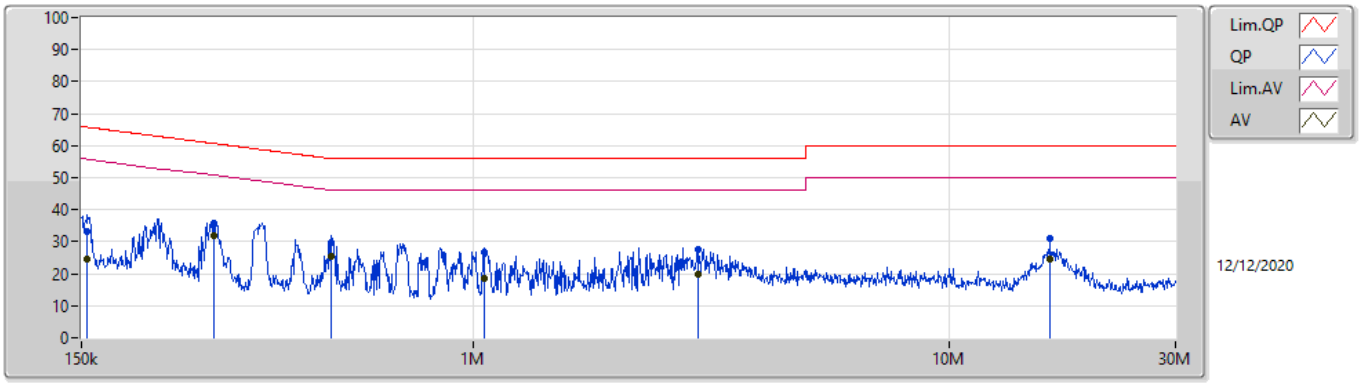
Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition	Comments
Mode 1	Pass	QP	188.327k	25.45	64.11	-38.66	Line	-
Mode 1	Pass	AV	188.327k	20.38	54.11	-33.73	Line	-
Mode 1	Pass	QP	247.062k	23.83	61.85	-38.02	Line	-
Mode 1	Pass	AV	247.062k	19.46	51.85	-32.39	Line	-
Mode 1	Pass	QP	435.504k	26.59	57.15	-30.56	Line	-
Mode 1	Pass	AV	435.504k	22.31	47.15	-24.84	Line	“Worst”
Mode 1	Pass	QP	2.721M	25.80	56.00	-30.20	Line	-
Mode 1	Pass	AV	2.721M	18.46	46.00	-27.54	Line	-
Mode 1	Pass	QP	15.952M	26.88	60.00	-33.12	Line	-
Mode 1	Pass	AV	15.952M	20.44	50.00	-29.56	Line	-
Mode 1	Pass	QP	25.961M	18.69	60.00	-41.31	Line	-
Mode 1	Pass	AV	25.961M	15.49	50.00	-34.51	Line	-
Mode 1	Pass	QP	154.251k	33.10	65.77	-32.67	Neutral	-
Mode 1	Pass	AV	154.251k	24.56	55.77	-31.21	Neutral	-
Mode 1	Pass	QP	284.109k	35.90	60.70	-24.80	Neutral	-
Mode 1	Pass	AV	284.109k	32.05	50.70	-18.65	Neutral	“Worst”
Mode 1	Pass	QP	502.813k	29.59	56.00	-26.41	Neutral	-
Mode 1	Pass	AV	502.813k	25.22	46.00	-20.78	Neutral	-
Mode 1	Pass	QP	1.052M	26.85	56.00	-29.15	Neutral	-
Mode 1	Pass	AV	1.052M	18.35	46.00	-27.65	Neutral	-
Mode 1	Pass	QP	2.971M	27.57	56.00	-28.43	Neutral	-
Mode 1	Pass	AV	2.971M	19.89	46.00	-26.11	Neutral	-
Mode 1	Pass	QP	16.338M	31.25	60.00	-28.75	Neutral	-
Mode 1	Pass	AV	16.338M	24.59	50.00	-25.41	Neutral	-

Conducted Emissions at Powerline_Mode 1



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	188.327k	25.45	64.11	-38.66	19.59	Line	-	5.86	9.68	0.01	9.90
AV	188.327k	20.38	54.11	-33.73	19.59	Line	-	0.79	9.68	0.01	9.90
QP	247.062k	23.83	61.85	-38.02	19.59	Line	-	4.24	9.68	0.01	9.90
AV	247.062k	19.46	51.85	-32.39	19.59	Line	-	-0.13	9.68	0.01	9.90
QP	435.504k	26.59	57.15	-30.56	19.58	Line	-	7.01	9.67	0.02	9.89
AV	435.504k	22.31	47.15	-24.84	19.58	Line	"Worst"	2.73	9.67	0.02	9.89
QP	2.721M	25.80	56.00	-30.20	19.62	Line	-	6.18	9.68	0.10	9.84
AV	2.721M	18.46	46.00	-27.54	19.62	Line	-	-1.16	9.68	0.10	9.84
QP	15.952M	26.88	60.00	-33.12	19.85	Line	-	7.03	9.69	0.26	9.90
AV	15.952M	20.44	50.00	-29.56	19.85	Line	-	0.59	9.69	0.26	9.90
QP	25.961M	18.69	60.00	-41.31	19.84	Line	-	-1.15	9.58	0.36	9.90
AV	25.961M	15.49	50.00	-34.51	19.84	Line	-	-4.35	9.58	0.36	9.90

Conducted Emissions at Powerline_Mode 1



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	154.251k	33.10	65.77	-32.67	19.60	Neutral	-	13.50	9.69	0.01	9.90
AV	154.251k	24.56	55.77	-31.21	19.60	Neutral	-	4.96	9.69	0.01	9.90
QP	284.109k	35.90	60.70	-24.80	19.59	Neutral	-	16.31	9.67	0.02	9.90
AV	284.109k	32.05	50.70	-18.65	19.59	Neutral	"Worst"	12.46	9.67	0.02	9.90
QP	502.813k	29.59	56.00	-26.41	19.58	Neutral	-	10.01	9.67	0.03	9.88
AV	502.813k	25.22	46.00	-20.78	19.58	Neutral	-	5.64	9.67	0.03	9.88
QP	1.052M	26.85	56.00	-29.15	19.52	Neutral	-	7.33	9.67	0.05	9.80
AV	1.052M	18.35	46.00	-27.65	19.52	Neutral	-	-1.17	9.67	0.05	9.80
QP	2.971M	27.57	56.00	-28.43	19.65	Neutral	-	7.92	9.69	0.10	9.86
AV	2.971M	19.89	46.00	-26.11	19.65	Neutral	-	0.24	9.69	0.10	9.86
QP	16.338M	31.25	60.00	-28.75	19.90	Neutral	-	11.35	9.74	0.26	9.90
AV	16.338M	24.59	50.00	-25.41	19.90	Neutral	-	4.69	9.74	0.26	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)	722.5k	1.038M	1M04F1D	713.75k	1.036M
BT-LE(2Mbps)	1.263M	2.056M	2M06F1D	1.255M	2.049M

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

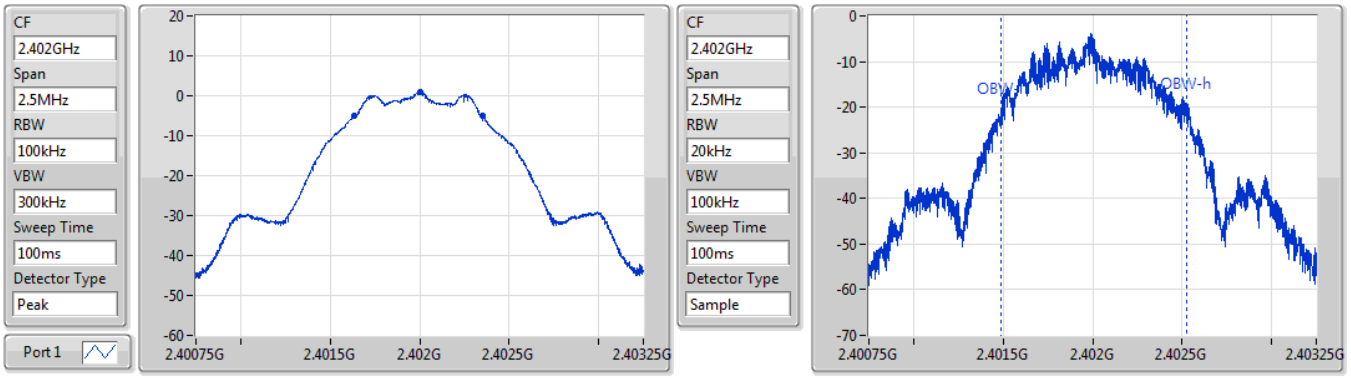
Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	715k	1.038M
2440MHz	Pass	500k	722.5k	1.037M
2480MHz	Pass	500k	713.75k	1.036M
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	500k	1.258M	2.056M
2440MHz	Pass	500k	1.263M	2.049M
2480MHz	Pass	500k	1.255M	2.049M

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

BT-LE(1Mbps) EBW-DTS

2402MHz

18/11/2020

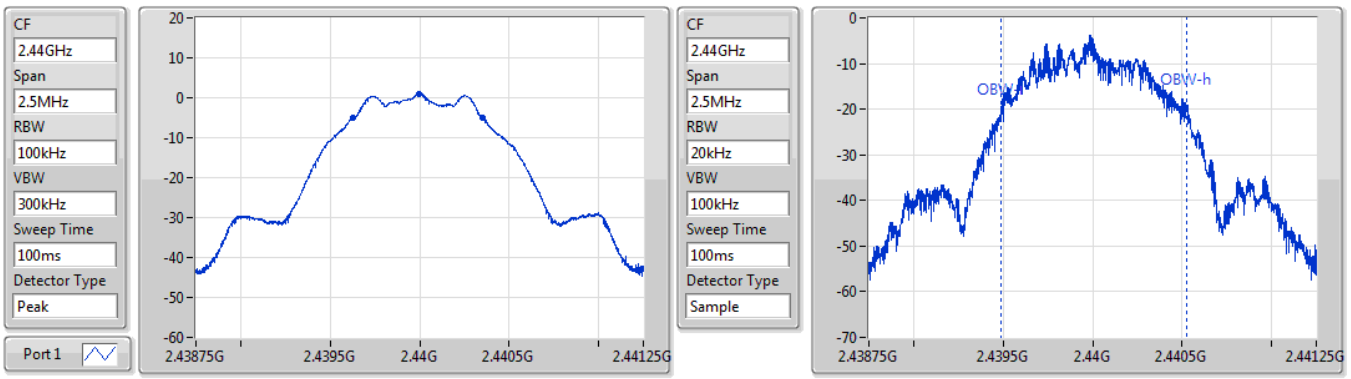


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
715k	2.401636G	2.402351G	1.038M	2.401488G	2.402526G	500k	1

BT-LE(1Mbps) EBW-DTS

2440MHz

18/11/2020



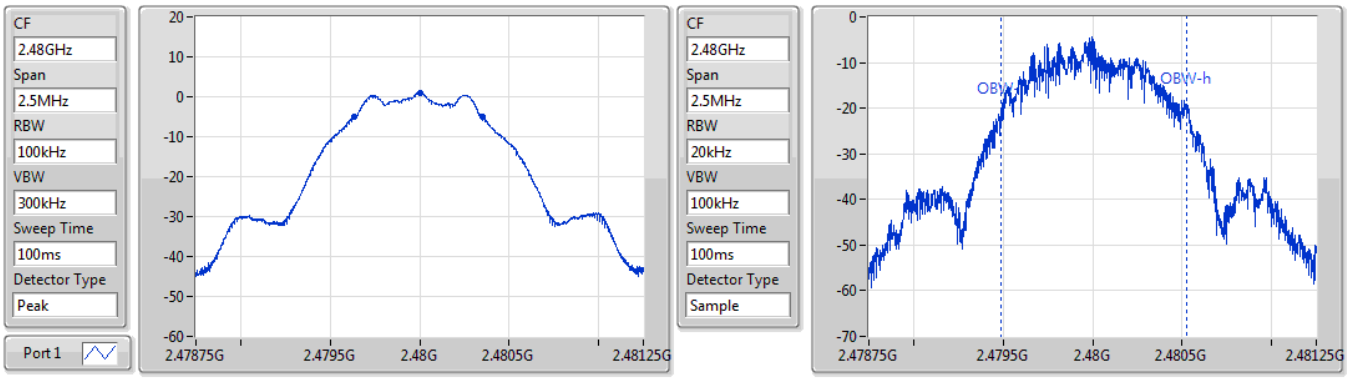
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
722.5k	2.43963G	2.440353G	1.037M	2.439489G	2.440526G	500k	1

BT-LE(1Mbps)

EBW-DTS

2480MHz

18/11/2020



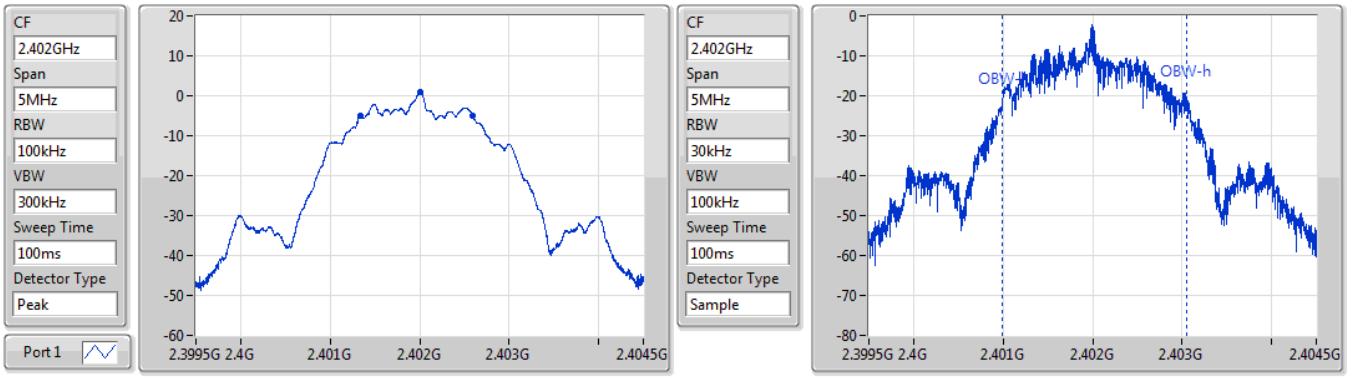
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
713.75k	2.479636G	2.48035G	1.036M	2.479492G	2.480527G	500k	1

BT-LE(2Mbps)

EBW-DTS

2402MHz

18/11/2020

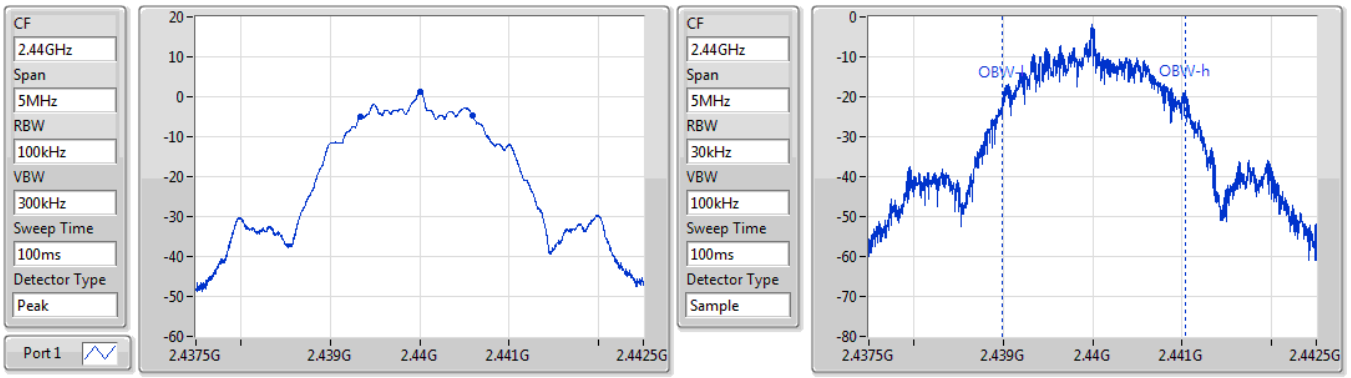


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.258M	2.401338G	2.402595G	2.056M	2.400993G	2.403049G	500k	1

BT-LE(2Mbps) EBW-DTS

2440MHz

18/11/2020

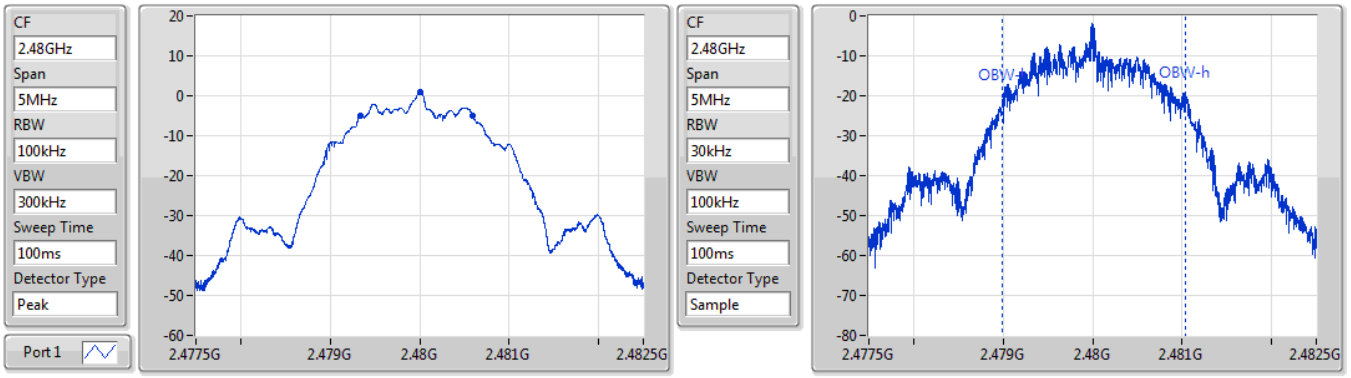


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.263M	2.439333G	2.440595G	2.049M	2.438996G	2.441044G	500k	1

BT-LE(2Mbps) EBW-DTS

2480MHz

18/11/2020



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.255M	2.479338G	2.480593G	2.049M	2.478996G	2.481044G	500k	1

Summary

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	1.23	0.00133
BT-LE(2Mbps)	1.13	0.00130

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	0.73	1.02	30.00
2440MHz	Pass	0.73	1.22	30.00
2480MHz	Pass	0.73	1.23	30.00
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	0.73	0.87	30.00
2440MHz	Pass	0.73	1.13	30.00
2480MHz	Pass	0.73	1.09	30.00

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

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE(1Mbps)	-14.10
BT-LE(2Mbps)	-16.89

RBW = 3kHz;

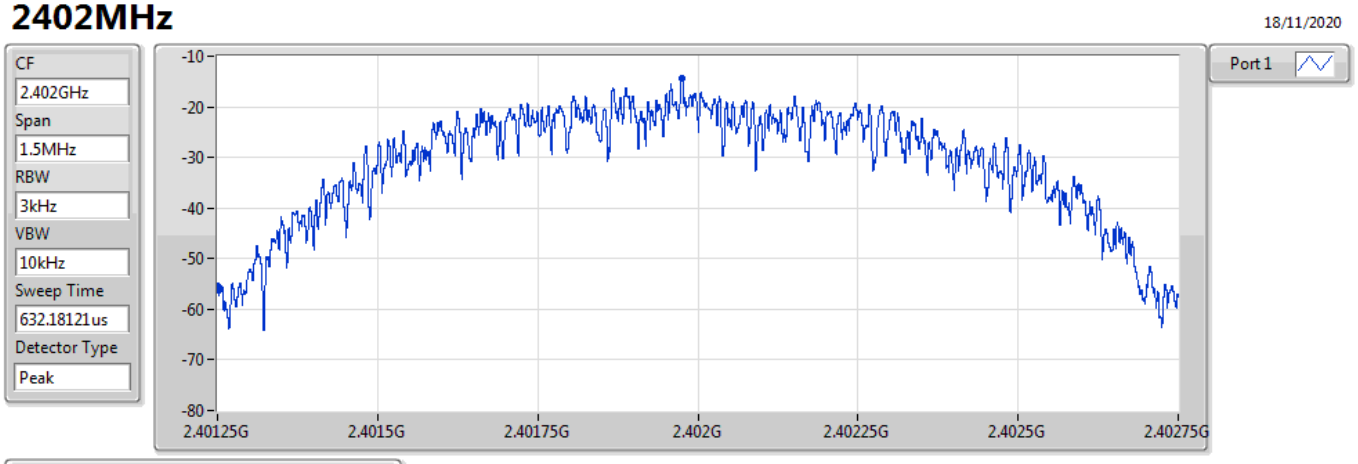
Result

Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	0.73	-14.39	8.00
2440MHz	Pass	0.73	-14.17	8.00
2480MHz	Pass	0.73	-14.10	8.00
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	0.73	-17.28	8.00
2440MHz	Pass	0.73	-16.89	8.00
2480MHz	Pass	0.73	-17.04	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) PSD

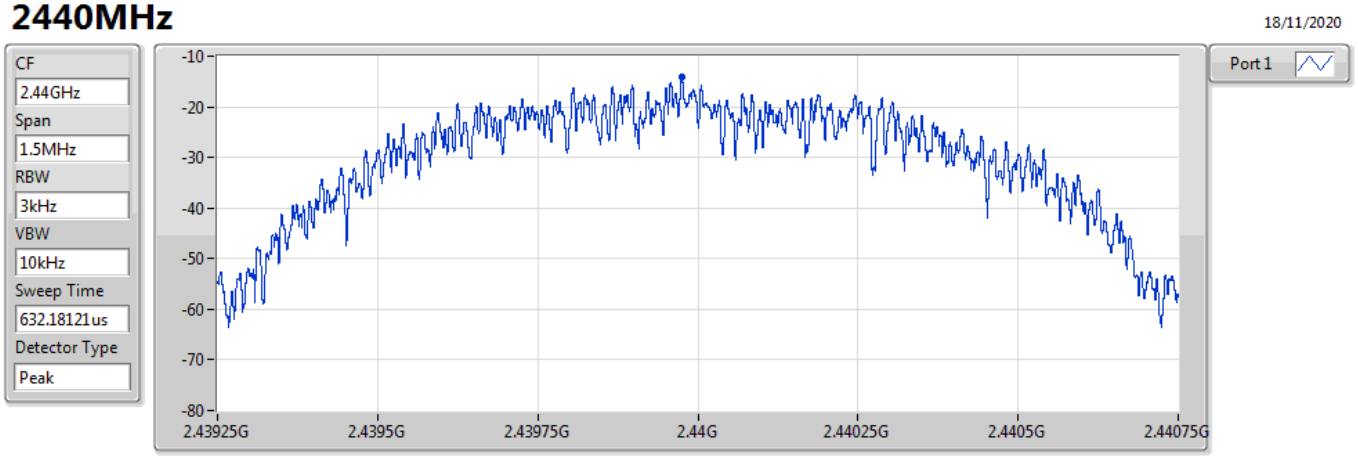
2402MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-14.39	-14.39	-14.39

BT-LE(1Mbps) PSD

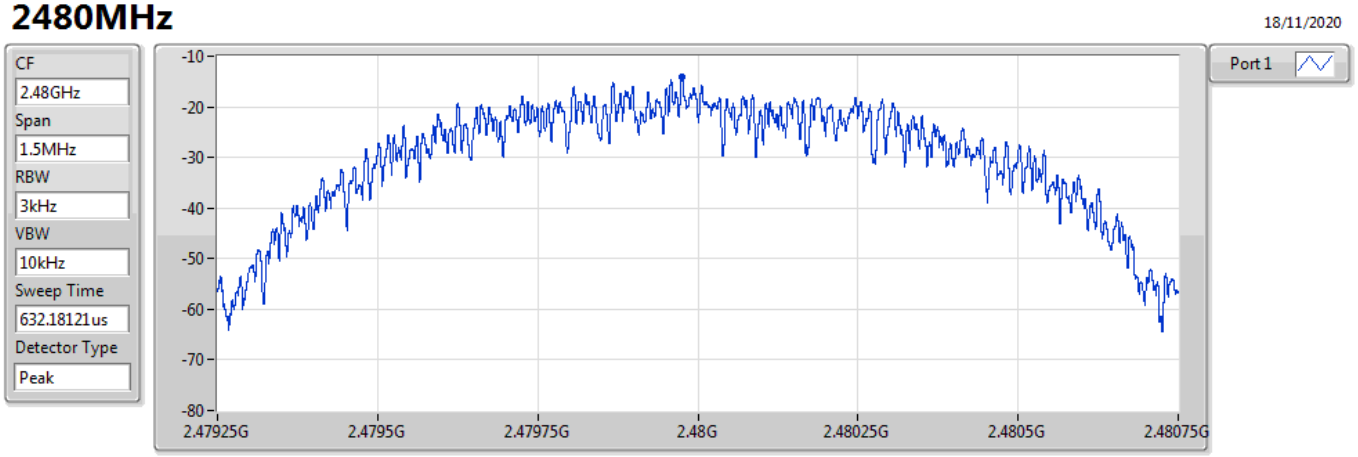
2440MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-14.17	-14.17	-14.17

BT-LE(1Mbps) PSD

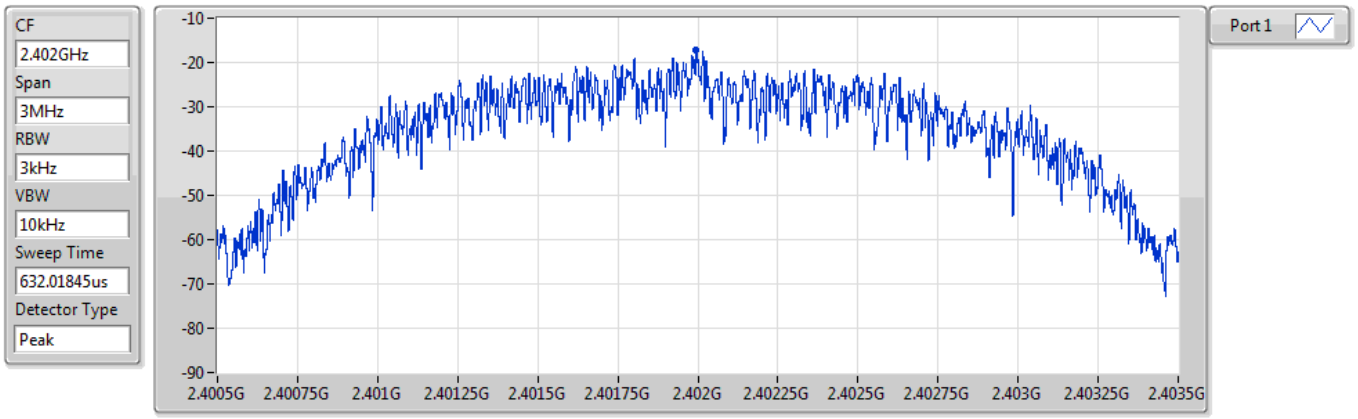
2480MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-14.10	-14.10	-14.10

BT-LE(2Mbps) PSD

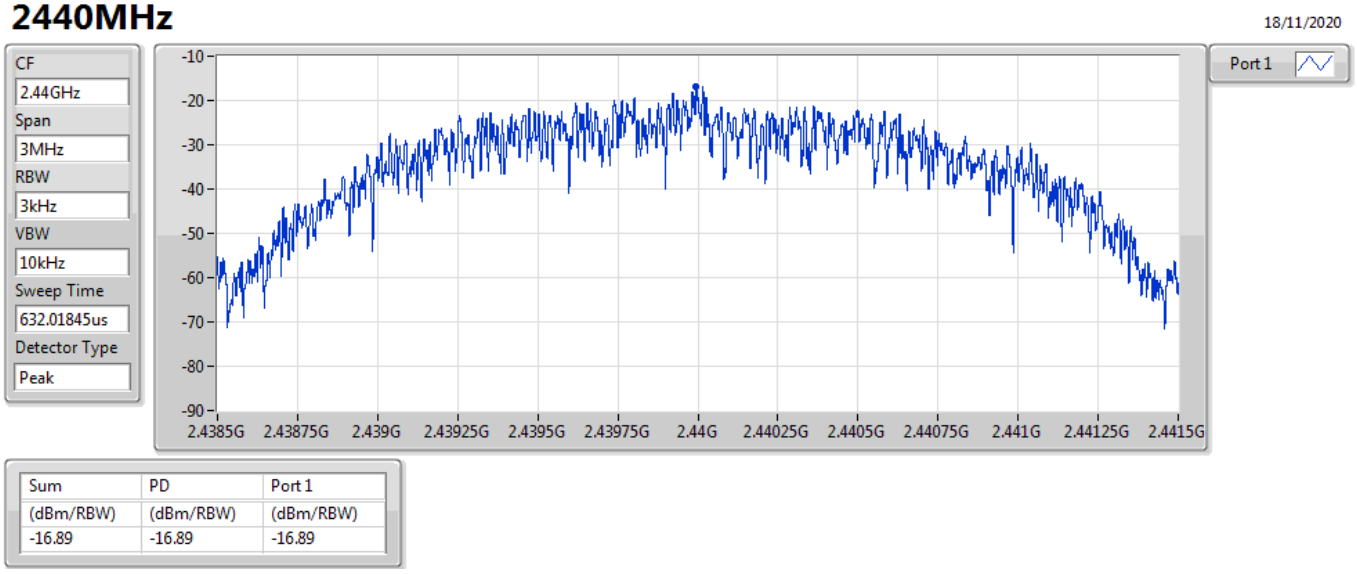
2402MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-17.28	-17.28	-17.28

BT-LE(2Mbps) PSD

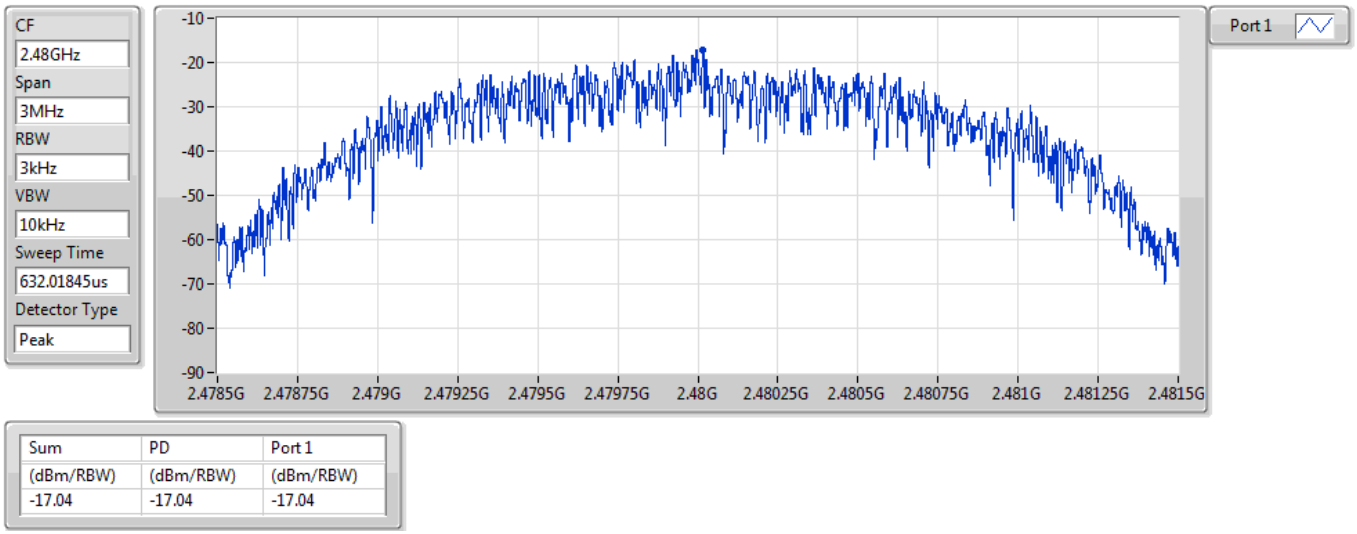
2440MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-16.89	-16.89	-16.89

BT-LE(2Mbps) PSD

2480MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-17.04	-17.04	-17.04

Summary

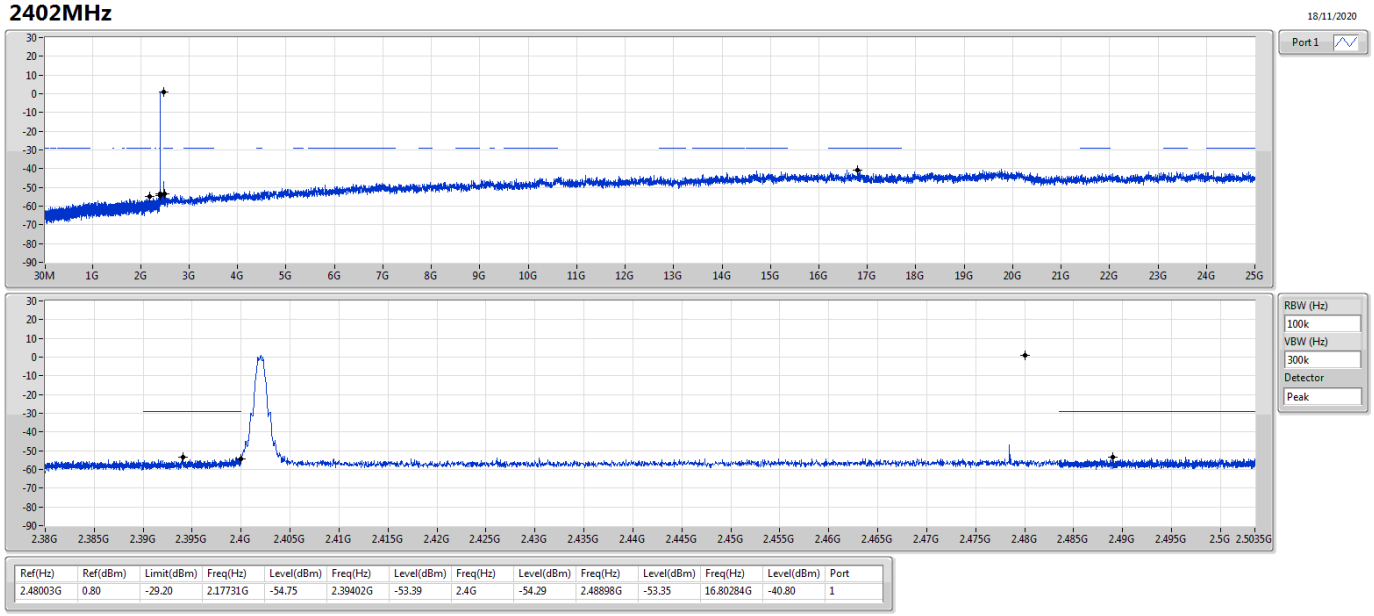
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	2.48003G	0.80	-29.20	2.14471G	-55.93	2.39944G	-53.79	2.4835G	-56.89	2.48801G	-52.07	14.975G	-41.12	1
BT-LE(2Mbps)	Pass	2.44G	1.06	-28.94	2.13237G	-55.07	2.39999G	-30.26	2.4G	-30.91	2.49413G	-52.22	16.41477G	-41.18	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	2.48003G	0.80	-29.20	2.17731G	-54.75	2.39402G	-53.39	2.4G	-54.29	2.48898G	-53.35	16.80284G	-40.80	1
2440MHz	Pass	2.48003G	0.80	-29.20	2.02603G	-56.32	2.3907G	-54.15	2.4835G	-55.80	2.49055G	-53.29	23.39712G	-40.96	1
2480MHz	Pass	2.48003G	0.80	-29.20	2.14471G	-55.93	2.39944G	-53.79	2.4835G	-56.89	2.48801G	-52.07	14.975G	-41.12	1
BT-LE(2Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.44G	1.06	-28.94	2.13237G	-55.07	2.39999G	-30.26	2.4G	-30.91	2.49413G	-52.22	16.41477G	-41.18	1
2440MHz	Pass	2.44G	1.06	-28.94	1.79279G	-56.43	2.39332G	-53.78	2.4835G	-56.37	2.49494G	-53.42	23.44774G	-40.14	1
2480MHz	Pass	2.44G	1.06	-28.94	2.1262G	-56.29	2.39135G	-54.13	2.4835G	-54.40	2.48797G	-52.13	23.43649G	-40.95	1

BT-LE(1Mbps) **CSENdB-DTS**

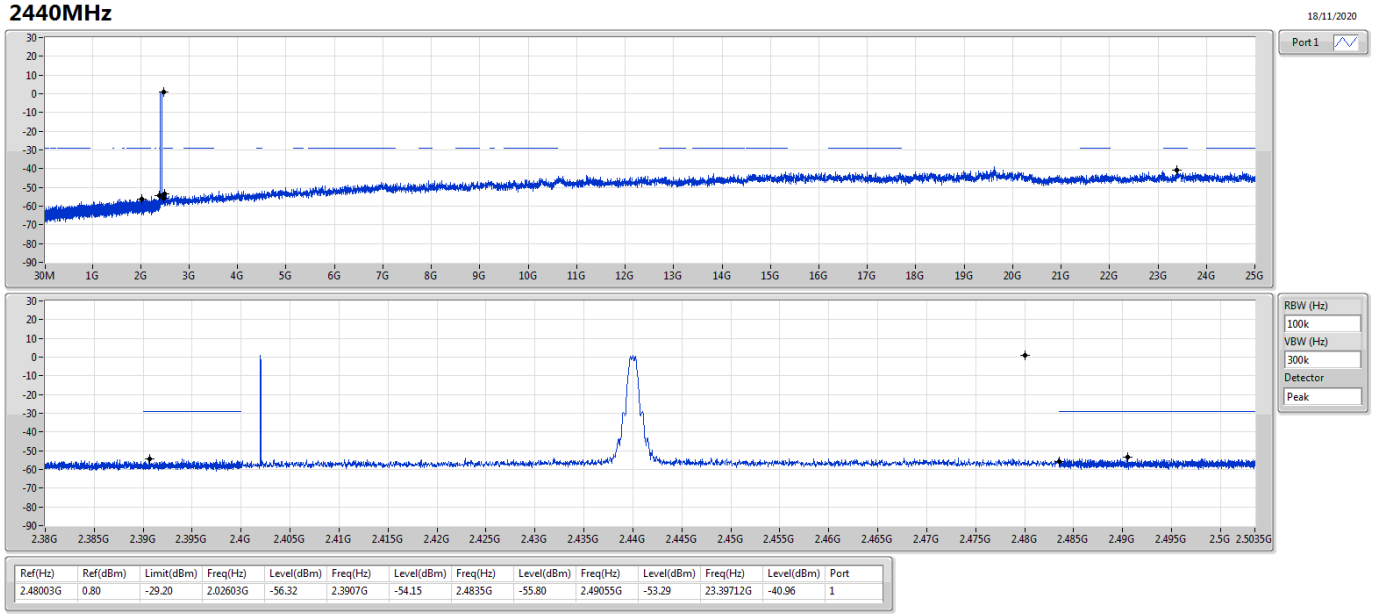
2402MHz



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
2.48003G	0.80	-29.20	2.17731G	-54.75	2.39402G	-53.39	2.4G	-54.29	2.48898G	-53.35	16.80284G	-40.80	1

BT-LE(1Mbps) **CSENdB-DTS**

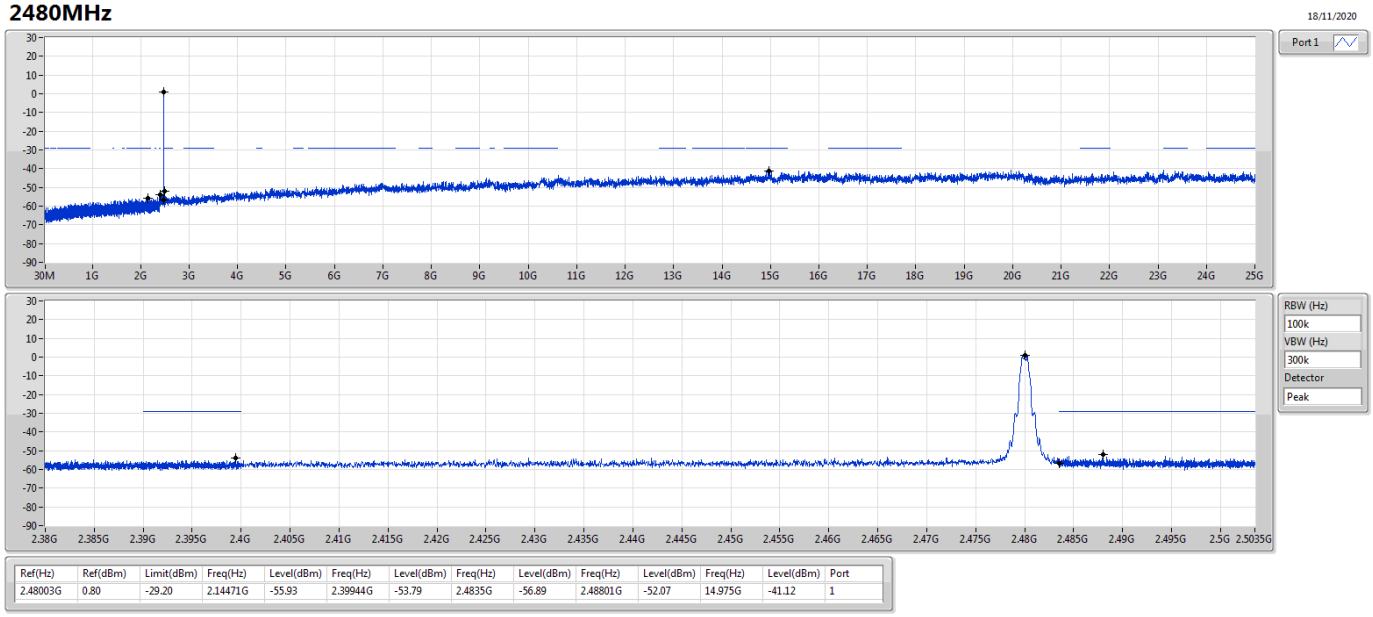
2440MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.48003G	0.80	-29.20	2.02603G	-56.32	2.3907G	-54.15	2.4835G	-55.80	2.49055G	-53.29	23.39712G	-40.96	1

BT-LE(1Mbps) **CSENdB-DTS**

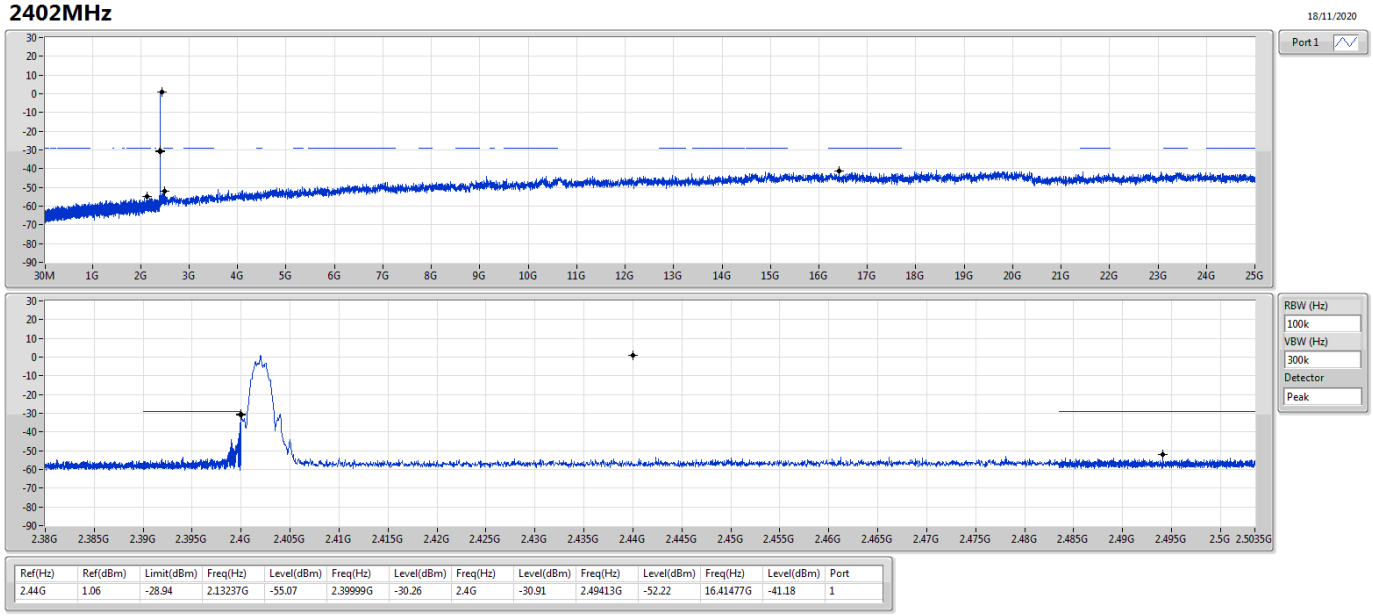
2480MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.48003G	0.80	-29.20	2.14471G	-55.93	2.39944G	-53.79	2.4835G	-56.89	2.48801G	-52.07	14.975G	-41.12	1

BT-LE(2Mbps) **CSENdB-DTS**

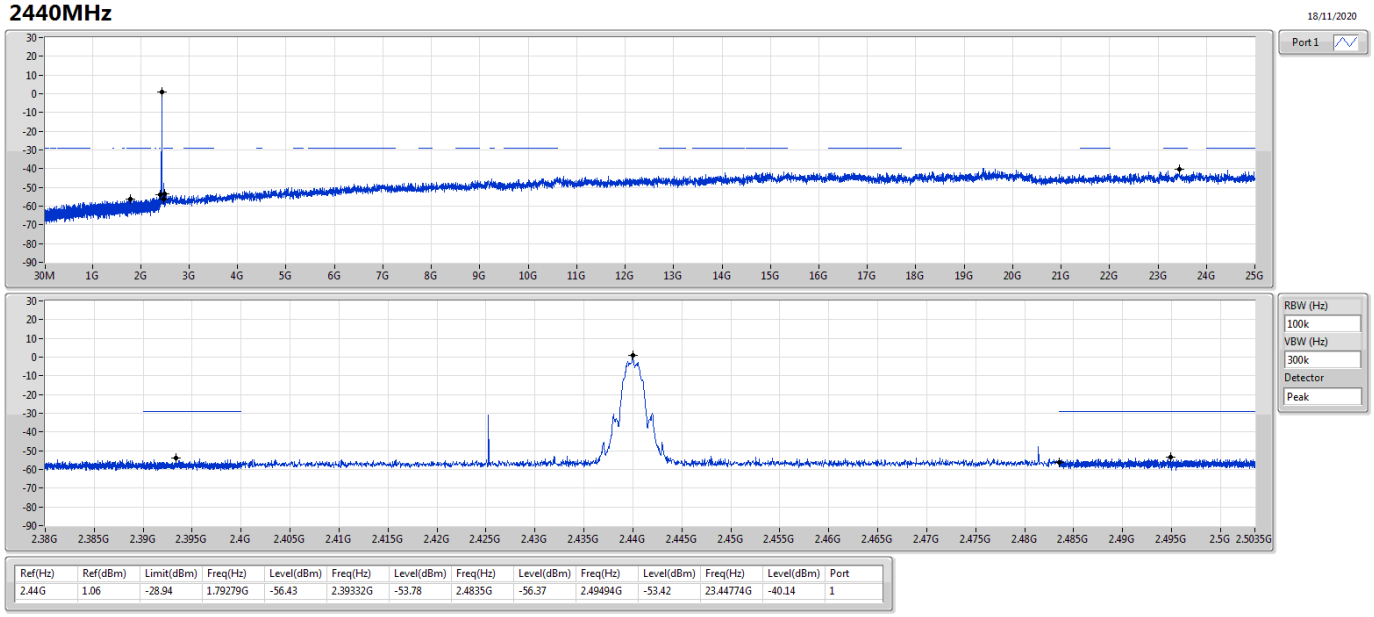
2402MHz



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
2.44G	1.06	-28.94	2.13237G	-55.07	2.39999G	-30.26	2.4G	-30.91	2.49413G	-52.22	16.41477G	-41.18	1

BT-LE(2Mbps) **CSENdB-DTS**

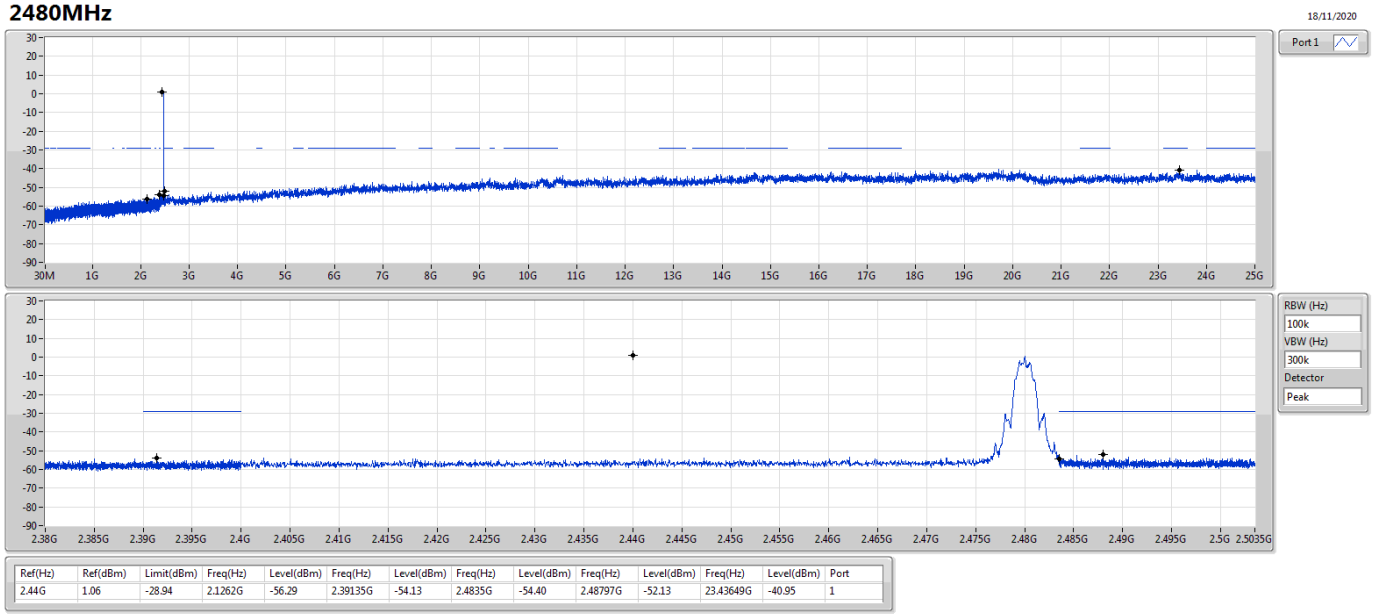
2440MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44G	1.06	-28.94	1.79279G	-56.43	2.39332G	-53.78	2.4835G	-56.37	2.49494G	-53.42	23.44774G	-40.14	1

BT-LE(2Mbps) **CSENdB-DTS**

2480MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44G	1.06	-28.94	2.1262G	-56.29	2.39135G	-54.13	2.4835G	-54.40	2.48797G	-52.13	23.43649G	-40.95	1

Summary

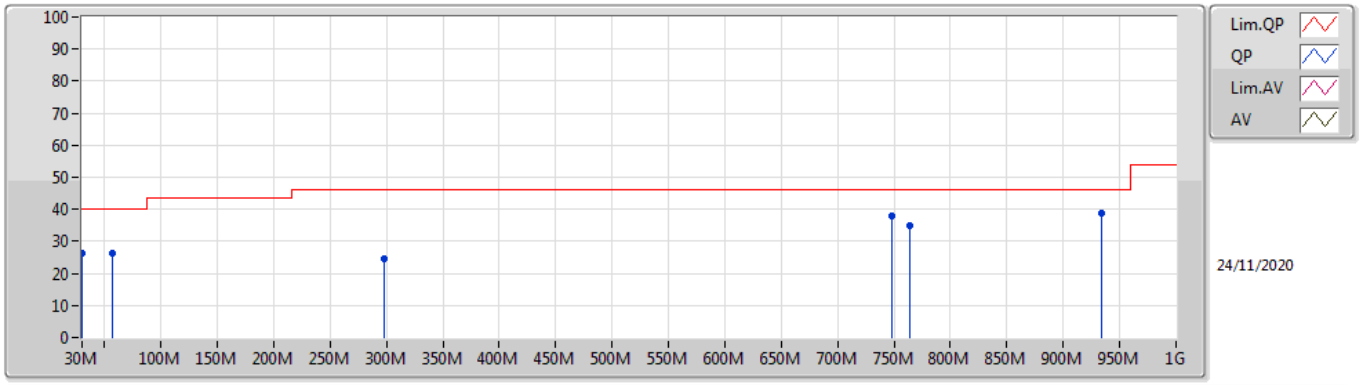
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
BT-LE(2Mbps)	Pass	PK	730.34M	40.03	46.00	-5.97	3	Horizontal	360	1.00	-

Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
BT-LE(2Mbps)	-	-	-	-	-	-	-	-	-	-	-
2440MHz	Pass	PK	30M	26.29	40.00	-13.71	3	Vertical	0	1.00	-
2440MHz	Pass	PK	57.16M	26.41	40.00	-13.59	3	Vertical	0	1.00	-
2440MHz	Pass	PK	297.72M	24.49	46.00	-21.51	3	Vertical	0	1.00	-
2440MHz	Pass	PK	747.8M	38.08	46.00	-7.92	3	Vertical	0	1.00	-
2440MHz	Pass	PK	763.32M	35.03	46.00	-10.97	3	Vertical	0	1.00	-
2440MHz	Pass	PK	934.04M	38.85	46.00	-7.15	3	Vertical	0	1.00	-
2440MHz	Pass	PK	171.62M	26.12	43.50	-17.38	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	258.92M	29.41	46.00	-16.59	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	280.26M	33.01	46.00	-12.99	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	301.6M	34.74	46.00	-11.26	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	730.34M	40.03	46.00	-5.97	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	934.04M	37.26	46.00	-8.74	3	Horizontal	360	1.00	-

BT-LE(2Mbps)

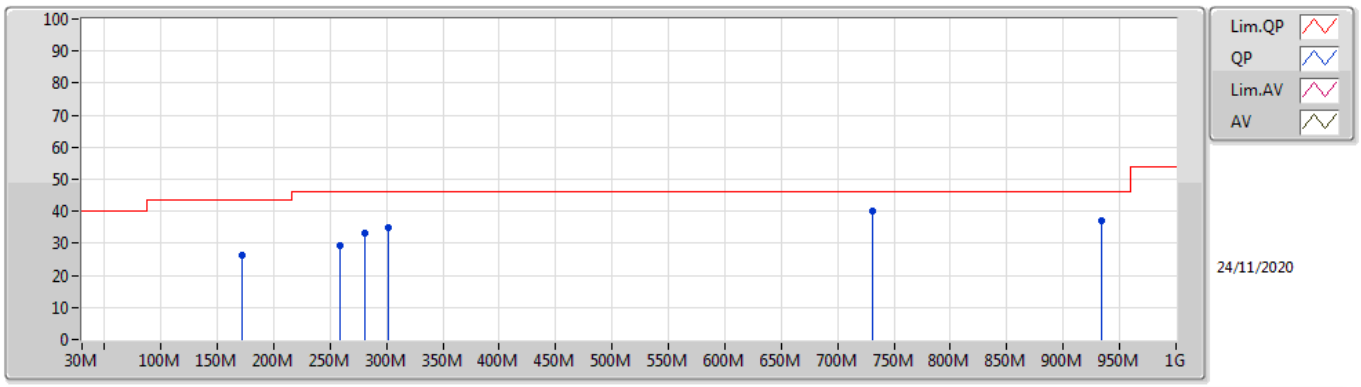
2440MHz_USB



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
PK	30M	26.29	40.00	-13.71	-3.19	3	Vertical	0	1.00	-	29.48	23.32	0.70	27.21
PK	57.16M	26.41	40.00	-13.59	-14.91	3	Vertical	0	1.00	-	41.32	11.84	1.04	27.79
PK	297.72M	24.49	46.00	-21.51	-6.09	3	Vertical	0	1.00	-	30.58	18.36	2.59	27.04
PK	747.8M	38.08	46.00	-7.92	1.19	3	Vertical	0	1.00	-	36.89	24.89	4.30	28.00
PK	763.32M	35.03	46.00	-10.97	1.41	3	Vertical	0	1.00	-	33.62	25.00	4.35	27.94
PK	934.04M	38.85	46.00	-7.15	3.41	3	Vertical	0	1.00	-	35.44	25.84	4.87	27.30

BT-LE(2Mbps)

2440MHz_USB



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
PK	171.62M	26.12	43.50	-17.38	-10.73	3	Horizontal	360	1.00	-	36.85	14.83	1.92	27.48
PK	258.92M	29.41	46.00	-16.59	-5.97	3	Horizontal	360	1.00	-	35.38	18.64	2.44	27.05
PK	280.26M	33.01	46.00	-12.99	-6.44	3	Horizontal	360	1.00	-	39.45	18.08	2.52	27.04
PK	301.6M	34.74	46.00	-11.26	-5.97	3	Horizontal	360	1.00	-	40.71	18.47	2.61	27.05
PK	730.34M	40.03	46.00	-5.97	0.88	3	Horizontal	360	1.00	-	39.15	24.66	4.26	28.04
PK	934.04M	37.26	46.00	-8.74	3.41	3	Horizontal	360	1.00	-	33.85	25.84	4.87	27.30

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	2.4838G	46.78	54.00	-7.22	3	Horizontal	43	1.48	-
BT-LE(2Mbps)	Pass	AV	2.4835G	48.92	54.00	-5.08	3	Horizontal	40	1.48	-

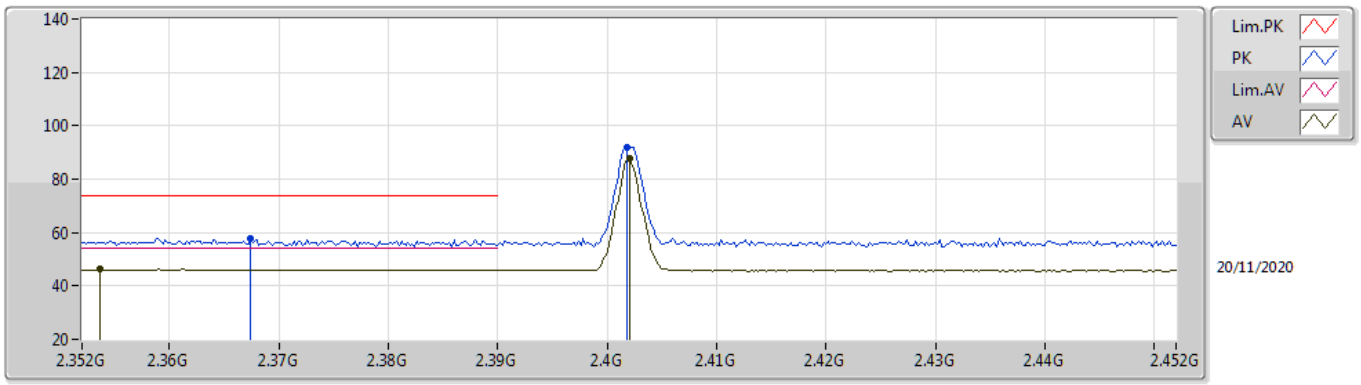
Result

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	2.3536G	46.18	54.00	-7.82	3	Vertical	180	1.43	-
2402MHz	Pass	AV	2.402G	87.72	Inf	-Inf	3	Vertical	180	1.43	-
2402MHz	Pass	PK	2.3674G	57.54	74.00	-16.46	3	Vertical	180	1.43	-
2402MHz	Pass	PK	2.4018G	92.08	Inf	-Inf	3	Vertical	180	1.43	-
2402MHz	Pass	AV	2.3534G	46.26	54.00	-7.74	3	Horizontal	77	1.11	-
2402MHz	Pass	AV	2.402G	90.93	Inf	-Inf	3	Horizontal	77	1.11	-
2402MHz	Pass	PK	2.3544G	57.80	74.00	-16.20	3	Horizontal	77	1.11	-
2402MHz	Pass	PK	2.4018G	95.48	Inf	-Inf	3	Horizontal	77	1.11	-
2402MHz	Pass	AV	4.80384G	32.64	54.00	-21.36	3	Vertical	198	1.55	-
2402MHz	Pass	PK	4.80462G	44.13	74.00	-29.87	3	Vertical	198	1.55	-
2402MHz	Pass	AV	4.80382G	36.42	54.00	-17.58	3	Horizontal	103	1.00	-
2402MHz	Pass	PK	4.80342G	46.83	74.00	-27.17	3	Horizontal	103	1.00	-
2440MHz	Pass	AV	2.3436G	46.62	54.00	-7.38	3	Vertical	192	1.27	-
2440MHz	Pass	AV	2.44G	91.53	Inf	-Inf	3	Vertical	192	1.27	-
2440MHz	Pass	AV	2.4924G	46.28	54.00	-7.72	3	Vertical	192	1.27	-
2440MHz	Pass	PK	2.3504G	57.25	74.00	-16.75	3	Vertical	192	1.27	-
2440MHz	Pass	PK	2.4396G	93.03	Inf	-Inf	3	Vertical	192	1.27	-
2440MHz	Pass	PK	2.4908G	57.77	74.00	-16.23	3	Vertical	192	1.27	-
2440MHz	Pass	AV	2.3776G	46.55	54.00	-7.45	3	Horizontal	77	1.00	-
2440MHz	Pass	AV	2.44G	92.72	Inf	-Inf	3	Horizontal	77	1.00	-
2440MHz	Pass	AV	2.4964G	46.31	54.00	-7.69	3	Horizontal	77	1.00	-
2440MHz	Pass	PK	2.37G	57.78	74.00	-16.22	3	Horizontal	77	1.00	-
2440MHz	Pass	PK	2.4404G	94.26	Inf	-Inf	3	Horizontal	77	1.00	-
2440MHz	Pass	PK	2.4972G	57.07	74.00	-16.93	3	Horizontal	77	1.00	-
2440MHz	Pass	AV	4.88041G	32.53	54.00	-21.47	3	Vertical	101	1.26	-
2440MHz	Pass	AV	7.31934G	42.03	54.00	-11.97	3	Vertical	91	2.75	-
2440MHz	Pass	PK	4.88038G	44.01	74.00	-29.99	3	Vertical	101	1.26	-
2440MHz	Pass	PK	7.32065G	52.04	74.00	-21.96	3	Vertical	91	2.75	-
2440MHz	Pass	AV	4.87949G	35.13	54.00	-18.87	3	Horizontal	104	1.00	-
2440MHz	Pass	AV	7.31907G	38.86	54.00	-15.14	3	Horizontal	121	2.07	-
2440MHz	Pass	PK	4.87939G	45.26	74.00	-28.74	3	Horizontal	104	1.00	-
2440MHz	Pass	PK	7.31935G	50.42	74.00	-23.58	3	Horizontal	121	2.07	-
2480MHz	Pass	AV	2.48G	91.38	Inf	-Inf	3	Vertical	255	1.00	-
2480MHz	Pass	AV	2.4835G	46.32	54.00	-7.68	3	Vertical	255	1.00	-
2480MHz	Pass	PK	2.4798G	92.83	Inf	-Inf	3	Vertical	255	1.00	-
2480MHz	Pass	PK	2.493G	57.47	74.00	-16.53	3	Vertical	255	1.00	-
2480MHz	Pass	AV	2.48G	93.76	Inf	-Inf	3	Horizontal	43	1.48	-
2480MHz	Pass	AV	2.4838G	46.78	54.00	-7.22	3	Horizontal	43	1.48	-
2480MHz	Pass	PK	2.48G	95.17	Inf	-Inf	3	Horizontal	43	1.48	-
2480MHz	Pass	PK	2.487G	57.00	74.00	-17.00	3	Horizontal	43	1.48	-
2480MHz	Pass	AV	4.95954G	34.37	54.00	-19.63	3	Vertical	277	1.23	-
2480MHz	Pass	AV	7.43934G	42.84	54.00	-11.16	3	Vertical	102	2.86	-
2480MHz	Pass	PK	4.96049G	45.10	74.00	-28.90	3	Vertical	277	1.23	-
2480MHz	Pass	PK	7.44079G	52.70	74.00	-21.30	3	Vertical	102	2.86	-
2480MHz	Pass	AV	4.95981G	34.81	54.00	-19.19	3	Horizontal	156	1.02	-
2480MHz	Pass	AV	7.43928G	38.94	54.00	-15.06	3	Horizontal	125	1.00	-
2480MHz	Pass	PK	4.9603G	45.57	74.00	-28.43	3	Horizontal	156	1.02	-
2480MHz	Pass	PK	7.43907G	50.51	74.00	-23.49	3	Horizontal	125	1.00	-
BT-LE(2Mbps)	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	AV	2.3834G	47.71	54.00	-6.29	3	Vertical	194	1.38	-
2402MHz	Pass	AV	2.402G	89.21	Inf	-Inf	3	Vertical	194	1.38	-
2402MHz	Pass	PK	2.3526G	57.49	74.00	-16.51	3	Vertical	194	1.38	-
2402MHz	Pass	PK	2.4024G	92.56	Inf	-Inf	3	Vertical	194	1.38	-
2402MHz	Pass	AV	2.372G	47.51	54.00	-6.49	3	Horizontal	75	1.11	-
2402MHz	Pass	AV	2.402G	91.35	Inf	-Inf	3	Horizontal	75	1.11	-
2402MHz	Pass	PK	2.3728G	57.61	74.00	-16.39	3	Horizontal	75	1.11	-
2402MHz	Pass	PK	2.4014G	94.24	Inf	-Inf	3	Horizontal	75	1.11	-
2402MHz	Pass	AV	4.80306G	34.43	54.00	-19.57	3	Vertical	197	1.46	-
2402MHz	Pass	PK	4.80405G	43.68	74.00	-30.32	3	Vertical	197	1.46	-
2402MHz	Pass	AV	4.80298G	37.16	54.00	-16.84	3	Horizontal	98	1.01	-

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2402MHz	Pass	PK	4.80286G	44.98	74.00	-29.02	3	Horizontal	98	1.01	-
2440MHz	Pass	AV	2.348G	47.92	54.00	-6.08	3	Vertical	188	1.25	-
2440MHz	Pass	AV	2.44G	90.73	Inf	-Inf	3	Vertical	188	1.25	-
2440MHz	Pass	AV	2.4988G	47.37	54.00	-6.63	3	Vertical	188	1.25	-
2440MHz	Pass	PK	2.3444G	57.28	74.00	-16.72	3	Vertical	188	1.25	-
2440MHz	Pass	PK	2.4404G	93.76	Inf	-Inf	3	Vertical	188	1.25	-
2440MHz	Pass	PK	2.4892G	57.18	74.00	-16.82	3	Vertical	188	1.25	-
2440MHz	Pass	AV	2.344G	47.57	54.00	-6.43	3	Horizontal	78	1.00	-
2440MHz	Pass	AV	2.44G	92.85	Inf	-Inf	3	Horizontal	78	1.00	-
2440MHz	Pass	AV	2.5G	47.08	54.00	-6.92	3	Horizontal	78	1.00	-
2440MHz	Pass	PK	2.3704G	57.68	74.00	-16.32	3	Horizontal	78	1.00	-
2440MHz	Pass	PK	2.4404G	95.83	Inf	-Inf	3	Horizontal	78	1.00	-
2440MHz	Pass	PK	2.4884G	56.50	74.00	-17.50	3	Horizontal	78	1.00	-
2440MHz	Pass	AV	4.87904G	33.55	54.00	-20.45	3	Vertical	189	1.00	-
2440MHz	Pass	AV	7.31868G	42.69	54.00	-11.31	3	Vertical	103	2.93	-
2440MHz	Pass	PK	4.88128G	43.37	74.00	-30.63	3	Vertical	189	1.00	-
2440MHz	Pass	PK	7.32G	51.83	74.00	-22.17	3	Vertical	103	2.93	-
2440MHz	Pass	AV	4.87902G	35.21	54.00	-18.79	3	Horizontal	104	1.02	-
2440MHz	Pass	AV	7.3188G	39.02	54.00	-14.98	3	Horizontal	48	2.03	-
2440MHz	Pass	PK	4.8807G	44.35	74.00	-29.65	3	Horizontal	104	1.02	-
2440MHz	Pass	PK	7.31862G	49.65	74.00	-24.35	3	Horizontal	48	2.03	-
2480MHz	Pass	AV	2.48G	90.32	Inf	-Inf	3	Vertical	253	1.00	-
2480MHz	Pass	AV	2.4984G	47.53	54.00	-6.47	3	Vertical	253	1.00	-
2480MHz	Pass	PK	2.48G	93.48	Inf	-Inf	3	Vertical	253	1.00	-
2480MHz	Pass	PK	2.4835G	57.45	74.00	-16.55	3	Vertical	253	1.00	-
2480MHz	Pass	AV	2.48G	92.53	Inf	-Inf	3	Horizontal	40	1.48	-
2480MHz	Pass	AV	2.4835G	48.92	54.00	-5.08	3	Horizontal	40	1.48	-
2480MHz	Pass	PK	2.4804G	95.48	Inf	-Inf	3	Horizontal	40	1.48	-
2480MHz	Pass	PK	2.4974G	57.05	74.00	-16.95	3	Horizontal	40	1.48	-
2480MHz	Pass	AV	4.95992G	34.83	54.00	-19.17	3	Vertical	277	1.24	-
2480MHz	Pass	AV	7.43872G	42.97	54.00	-11.03	3	Vertical	97	2.79	-
2480MHz	Pass	PK	4.95892G	44.60	74.00	-29.40	3	Vertical	277	1.24	-
2480MHz	Pass	PK	7.43846G	51.89	74.00	-22.11	3	Vertical	97	2.79	-
2480MHz	Pass	AV	4.96002G	35.58	54.00	-18.42	3	Horizontal	154	1.00	-
2480MHz	Pass	AV	7.44408G	38.45	54.00	-15.55	3	Horizontal	199	1.49	-
2480MHz	Pass	PK	4.95892G	44.49	74.00	-29.51	3	Horizontal	154	1.00	-
2480MHz	Pass	PK	7.44082G	49.26	74.00	-24.74	3	Horizontal	199	1.49	-

BT-LE(1Mbps)

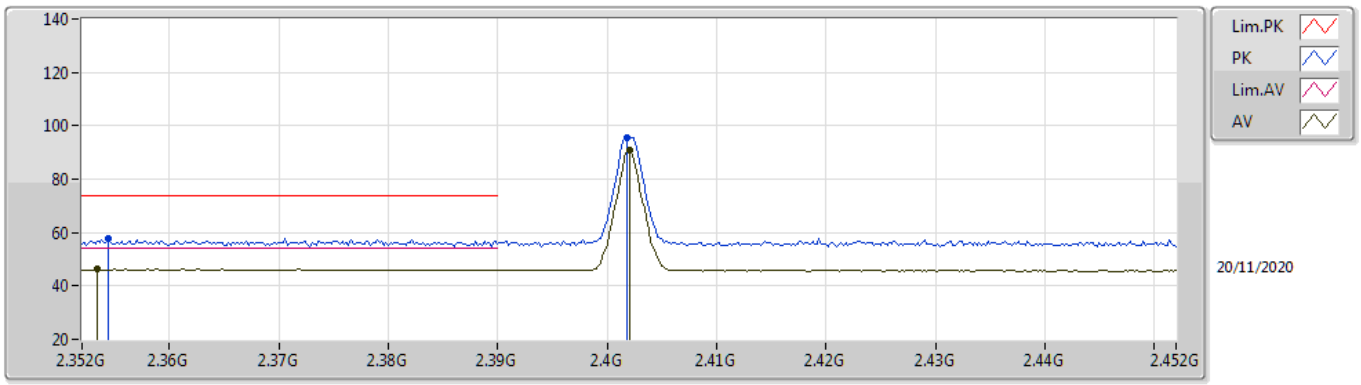
2402MHz_TX



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	2.3536G	46.18	54.00	-7.82	33.62	3	Vertical	180	1.43	-	12.56	27.69	5.93	-
AV	2.402G	87.72	Inf	-Inf	33.55	3	Vertical	180	1.43	-	54.17	27.59	5.96	-
PK	2.3674G	57.54	74.00	-16.46	33.61	3	Vertical	180	1.43	-	23.93	27.67	5.94	-
PK	2.4018G	92.08	Inf	-Inf	33.55	3	Vertical	180	1.43	-	58.53	27.59	5.96	-

BT-LE(1Mbps)

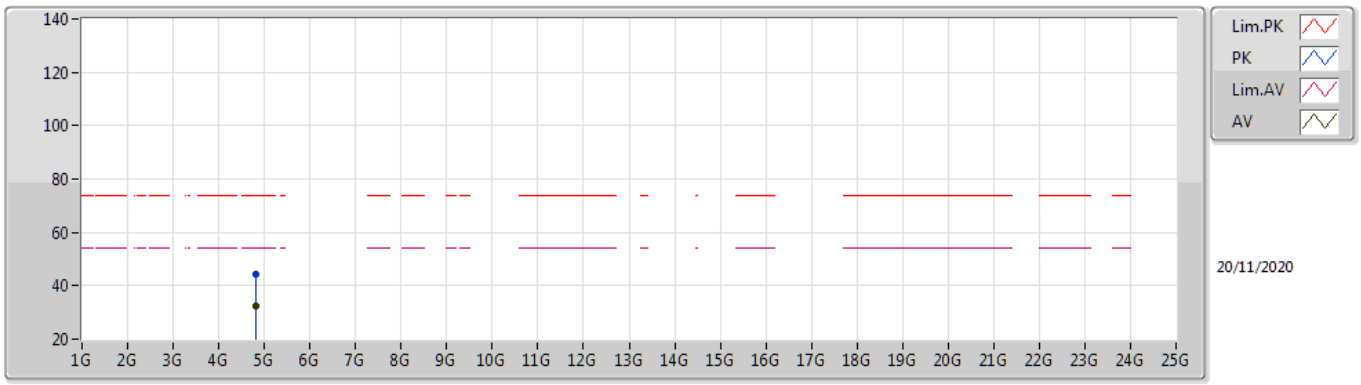
2402MHz_TX



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	2.3534G	46.26	54.00	-7.74	33.62	3	Horizontal	77	1.11	-	12.64	27.69	5.93	-
AV	2.402G	90.93	Inf	-Inf	33.55	3	Horizontal	77	1.11	-	57.38	27.59	5.96	-
PK	2.3544G	57.80	74.00	-16.20	33.62	3	Horizontal	77	1.11	-	24.18	27.69	5.93	-
PK	2.4018G	95.48	Inf	-Inf	33.55	3	Horizontal	77	1.11	-	61.93	27.59	5.96	-

BT-LE(1Mbps)

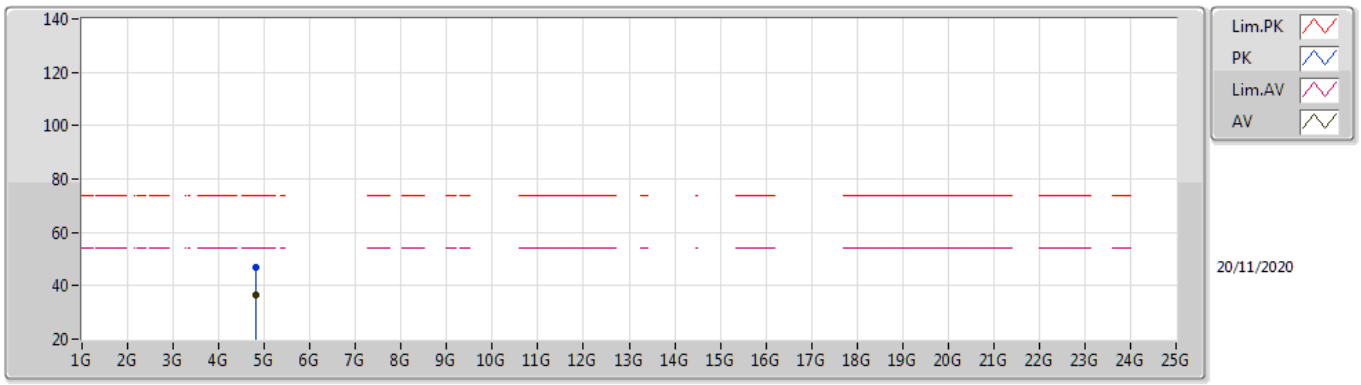
2402MHz_TX



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	4.80384G	32.64	54.00	-21.36	4.88	3	Vertical	198	1.55	-	27.76	30.92	8.25	34.29
PK	4.80462G	44.13	74.00	-29.87	4.88	3	Vertical	198	1.55	-	39.25	30.92	8.25	34.29

BT-LE(1Mbps)

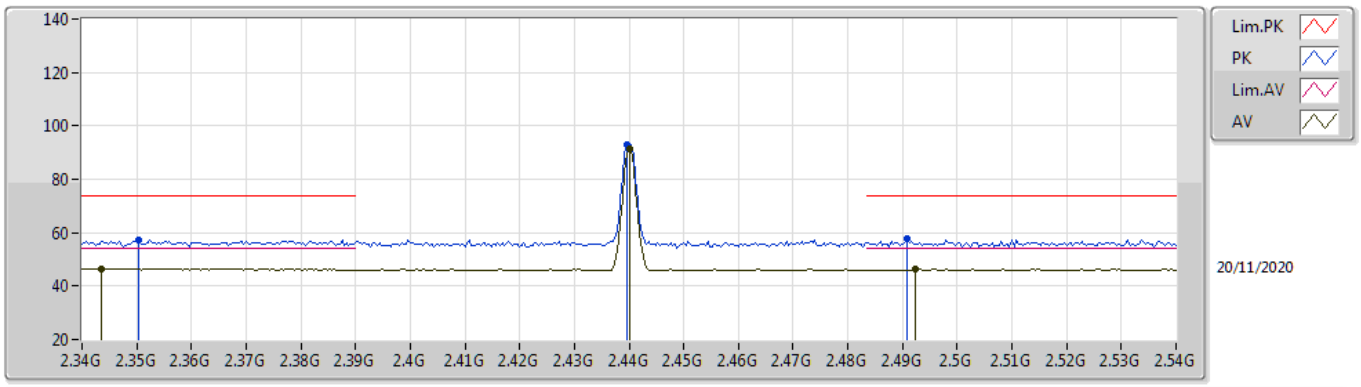
2402MHz_TX



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	4.80382G	36.42	54.00	-17.58	4.88	3	Horizontal	103	1.00	-	31.54	30.92	8.25	34.29
PK	4.80342G	46.83	74.00	-27.17	4.87	3	Horizontal	103	1.00	-	41.96	30.91	8.25	34.29

BT-LE(1Mbps)

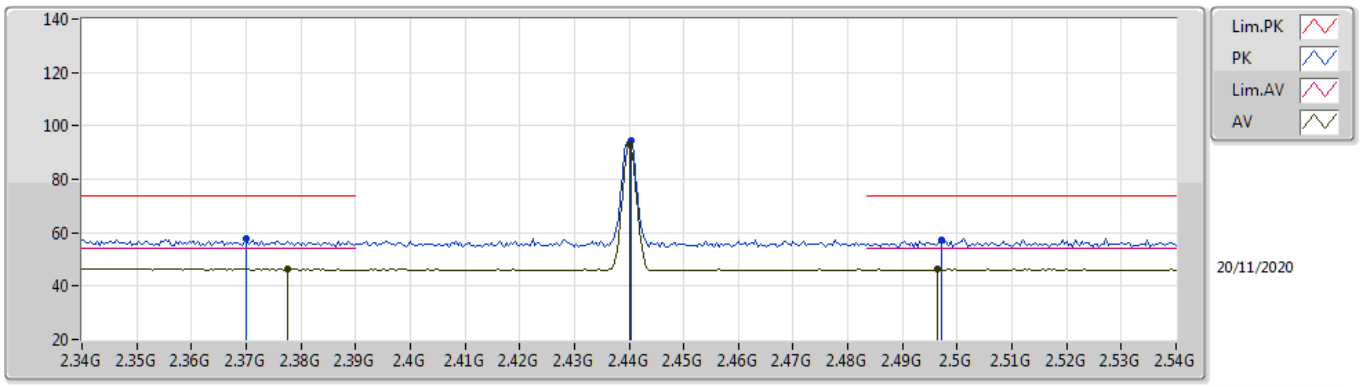
2440MHz_TX



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	2.3436G	46.62	54.00	-7.38	33.65	3	Vertical	192	1.27	-	12.97	27.73	5.92	-
AV	2.44G	91.53	Inf	-Inf	33.45	3	Vertical	192	1.27	-	58.08	27.44	6.01	-
AV	2.4924G	46.28	54.00	-7.72	33.47	3	Vertical	192	1.27	-	12.81	27.40	6.07	-
PK	2.3504G	57.25	74.00	-16.75	33.62	3	Vertical	192	1.27	-	23.63	27.70	5.92	-
PK	2.4396G	93.03	Inf	-Inf	33.45	3	Vertical	192	1.27	-	59.58	27.44	6.01	-
PK	2.4908G	57.77	74.00	-16.23	33.47	3	Vertical	192	1.27	-	24.30	27.40	6.07	-

BT-LE(1Mbps)

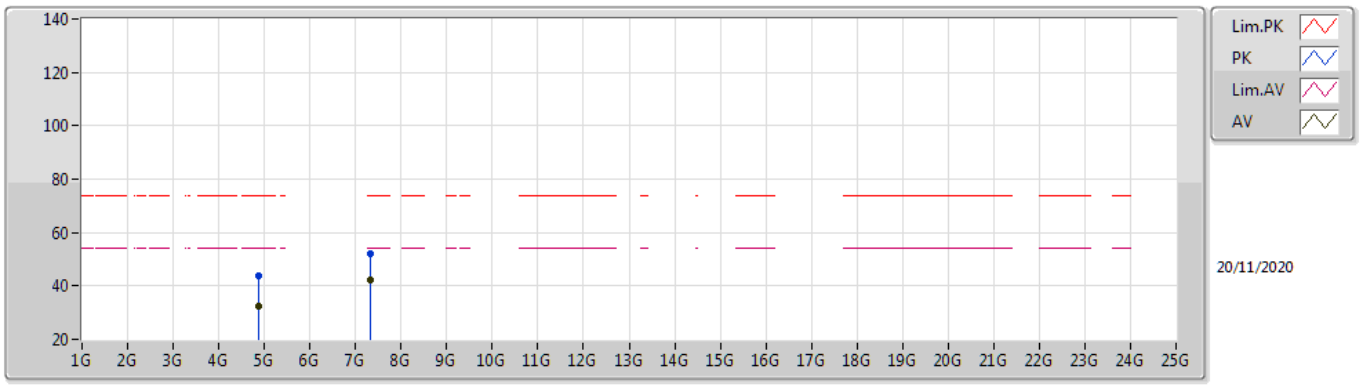
2440MHz_TX



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	2.3776G	46.55	54.00	-7.45	33.58	3	Horizontal	77	1.00	-	12.97	27.64	5.94	-
AV	2.44G	92.72	Inf	-Inf	33.45	3	Horizontal	77	1.00	-	59.27	27.44	6.01	-
AV	2.4964G	46.31	54.00	-7.69	33.48	3	Horizontal	77	1.00	-	12.83	27.40	6.08	-
PK	2.37G	57.78	74.00	-16.22	33.60	3	Horizontal	77	1.00	-	24.18	27.66	5.94	-
PK	2.4404G	94.26	Inf	-Inf	33.45	3	Horizontal	77	1.00	-	60.81	27.44	6.01	-
PK	2.4972G	57.07	74.00	-16.93	33.48	3	Horizontal	77	1.00	-	23.59	27.40	6.08	-

BT-LE(1Mbps)

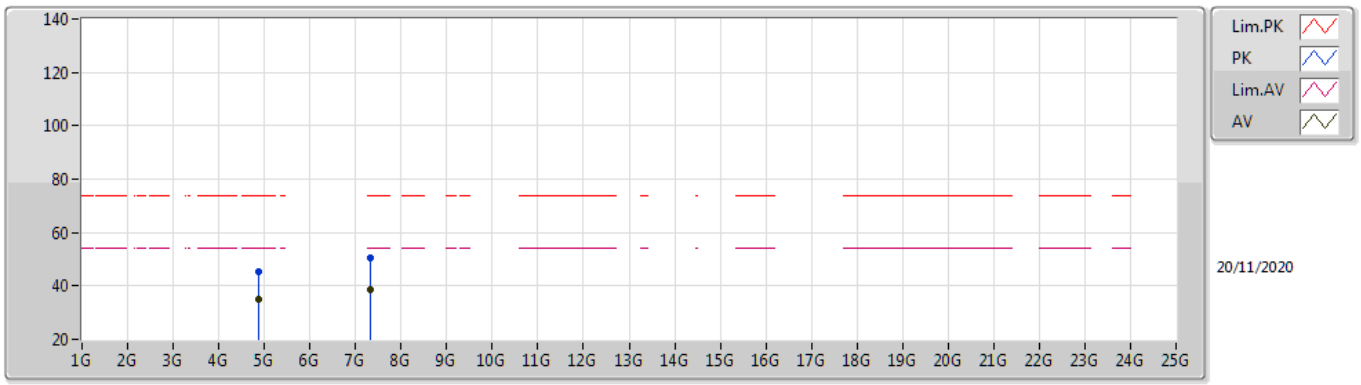
2440MHz_TX



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	4.88041G	32.53	54.00	-21.47	5.08	3	Vertical	101	1.26	-	27.45	31.04	8.30	34.26
AV	7.31934G	42.03	54.00	-11.97	11.78	3	Vertical	91	2.75	-	30.25	36.32	10.03	34.57
PK	4.88038G	44.01	74.00	-29.99	5.08	3	Vertical	101	1.26	-	38.93	31.04	8.30	34.26
PK	7.32065G	52.04	74.00	-21.96	11.78	3	Vertical	91	2.75	-	40.26	36.32	10.03	34.57

BT-LE(1Mbps)

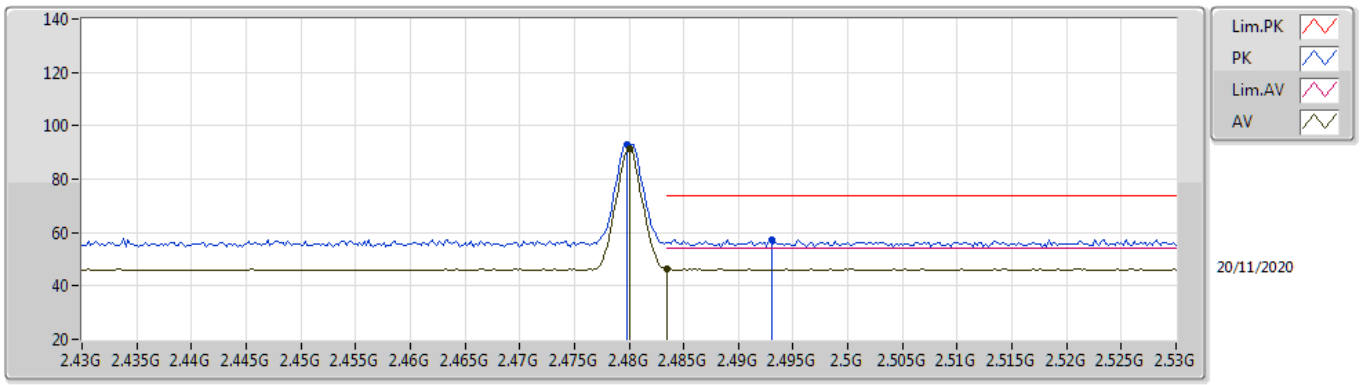
2440MHz_TX



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	4.87949G	35.13	54.00	-18.87	5.08	3	Horizontal	104	1.00	-	30.05	31.04	8.30	34.26
AV	7.31907G	38.86	54.00	-15.14	11.78	3	Horizontal	121	2.07	-	27.08	36.32	10.03	34.57
PK	4.87939G	45.26	74.00	-28.74	5.08	3	Horizontal	104	1.00	-	40.18	31.04	8.30	34.26
PK	7.31935G	50.42	74.00	-23.58	11.78	3	Horizontal	121	2.07	-	38.64	36.32	10.03	34.57

BT-LE(1Mbps)

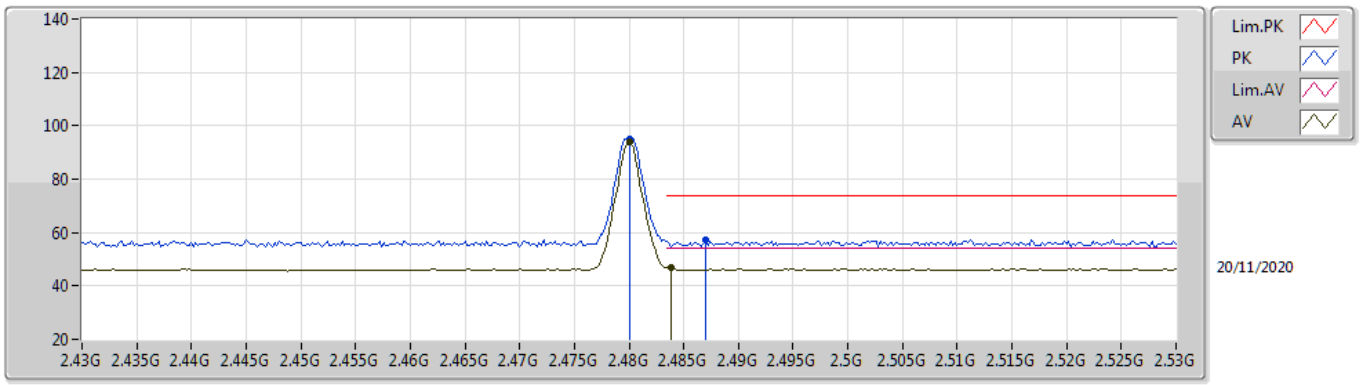
2480MHz_TX



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	91.38	Inf	-Inf	33.46	3	Vertical	255	1.00	-	57.92	27.40	6.06	-
AV	2.4835G	46.32	54.00	-7.68	33.46	3	Vertical	255	1.00	-	12.86	27.40	6.06	-
PK	2.4798G	92.83	Inf	-Inf	33.46	3	Vertical	255	1.00	-	59.37	27.40	6.06	-
PK	2.493G	57.47	74.00	-16.53	33.47	3	Vertical	255	1.00	-	24.00	27.40	6.07	-

BT-LE(1Mbps)

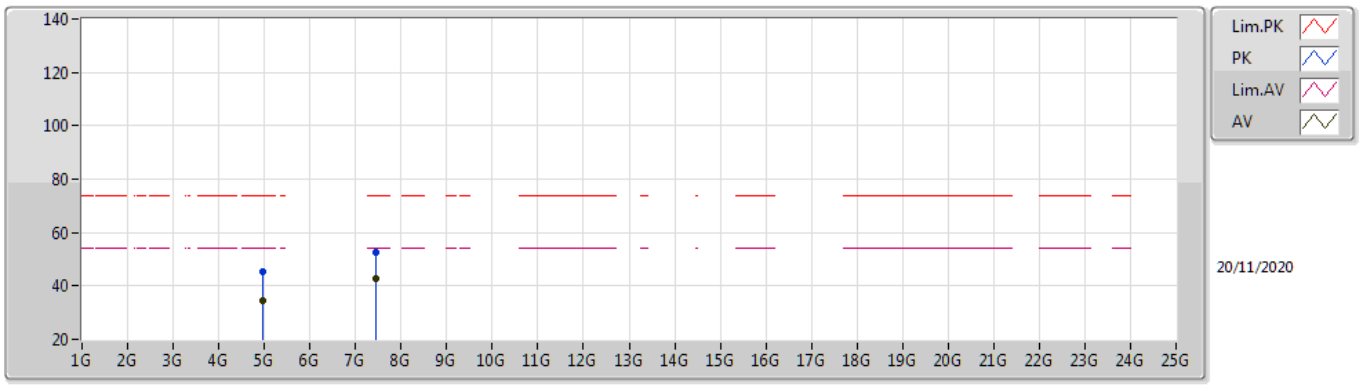
2480MHz_TX



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	93.76	Inf	-Inf	33.46	3	Horizontal	43	1.48	-	60.30	27.40	6.06	-
AV	2.4838G	46.78	54.00	-7.22	33.46	3	Horizontal	43	1.48	-	13.32	27.40	6.06	-
PK	2.48G	95.17	Inf	-Inf	33.46	3	Horizontal	43	1.48	-	61.71	27.40	6.06	-
PK	2.487G	57.00	74.00	-17.00	33.46	3	Horizontal	43	1.48	-	23.54	27.40	6.06	-

BT-LE(1Mbps)

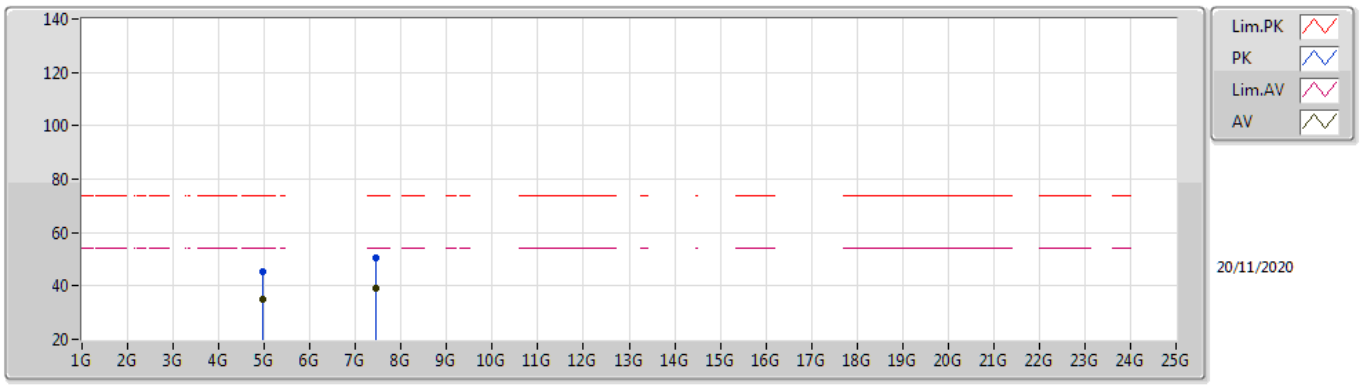
2480MHz_TX



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	4.95954G	34.37	54.00	-19.63	5.34	3	Vertical	277	1.23	-	29.03	31.22	8.35	34.23
AV	7.43934G	42.84	54.00	-11.16	11.69	3	Vertical	102	2.86	-	31.15	36.18	10.10	34.59
PK	4.96049G	45.10	74.00	-28.90	5.34	3	Vertical	277	1.23	-	39.76	31.22	8.35	34.23
PK	7.44079G	52.70	74.00	-21.30	11.69	3	Vertical	102	2.86	-	41.01	36.18	10.10	34.59

BT-LE(1Mbps)

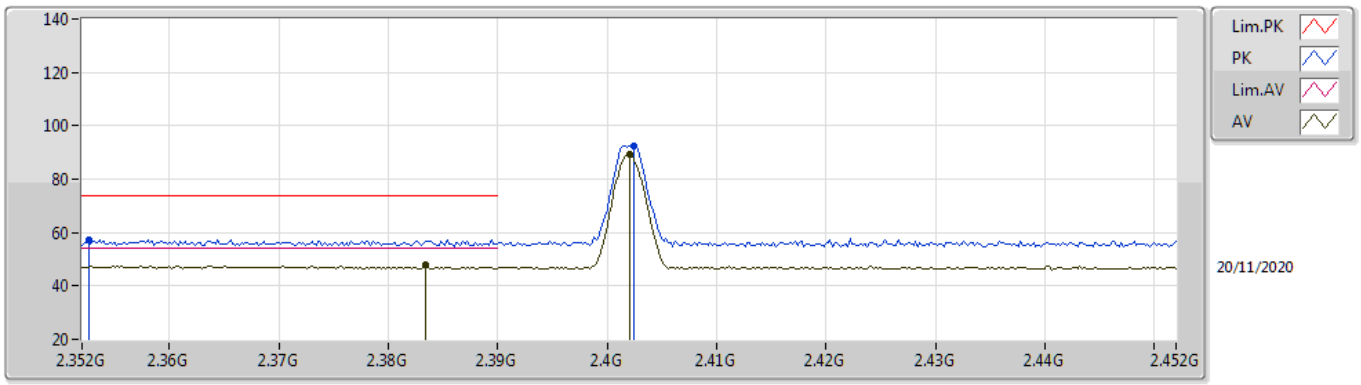
2480MHz_TX



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	4.95981G	34.81	54.00	-19.19	5.34	3	Horizontal	156	1.02	-	29.47	31.22	8.35	34.23
AV	7.43928G	38.94	54.00	-15.06	11.69	3	Horizontal	125	1.00	-	27.25	36.18	10.10	34.59
PK	4.9603G	45.57	74.00	-28.43	5.34	3	Horizontal	156	1.02	-	40.23	31.22	8.35	34.23
PK	7.43907G	50.51	74.00	-23.49	11.69	3	Horizontal	125	1.00	-	38.82	36.18	10.10	34.59

BT-LE(2Mbps)

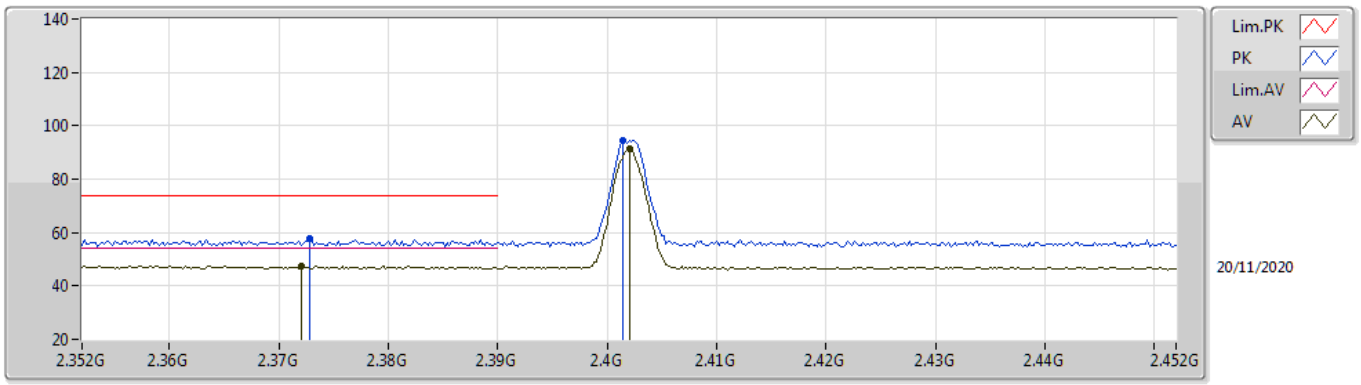
2402MHz_TX



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	2.3834G	47.71	54.00	-6.29	33.58	3	Vertical	194	1.38	-	14.13	27.63	5.95	-
AV	2.402G	89.21	Inf	-Inf	33.55	3	Vertical	194	1.38	-	55.66	27.59	5.96	-
PK	2.3526G	57.49	74.00	-16.51	33.61	3	Vertical	194	1.38	-	23.88	27.69	5.92	-
PK	2.4024G	92.56	Inf	-Inf	33.55	3	Vertical	194	1.38	-	59.01	27.59	5.96	-

BT-LE(2Mbps)

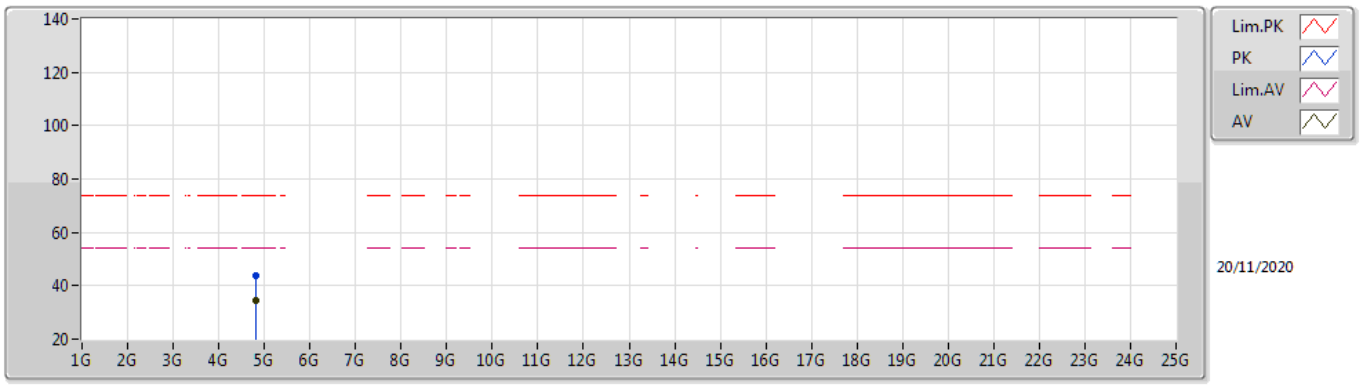
2402MHz_TX



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	2.372G	47.51	54.00	-6.49	33.60	3	Horizontal	75	1.11	-	13.91	27.66	5.94	-
AV	2.402G	91.35	Inf	-Inf	33.55	3	Horizontal	75	1.11	-	57.80	27.59	5.96	-
PK	2.3728G	57.61	74.00	-16.39	33.59	3	Horizontal	75	1.11	-	24.02	27.65	5.94	-
PK	2.4014G	94.24	Inf	-Inf	33.55	3	Horizontal	75	1.11	-	60.69	27.59	5.96	-

BT-LE(2Mbps)

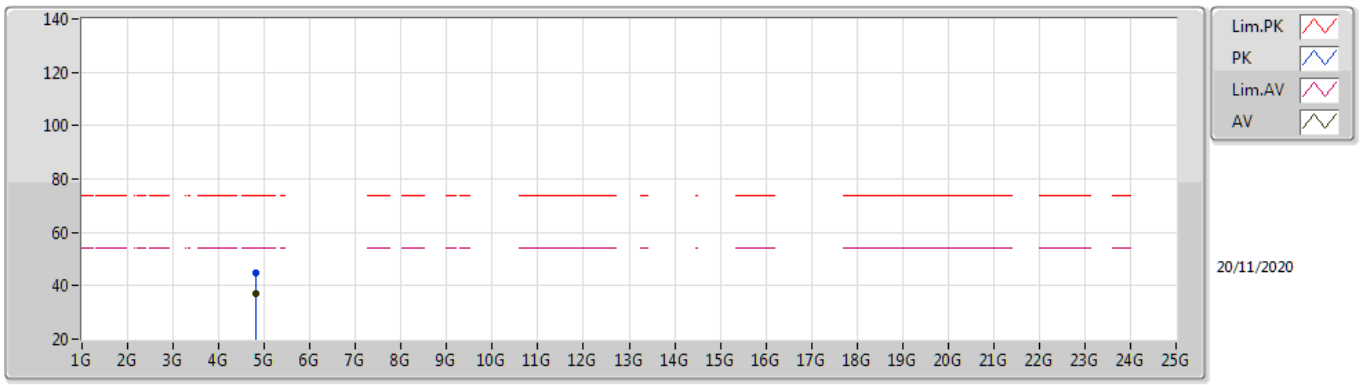
2402MHz_TX



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	4.80306G	34.43	54.00	-19.57	4.87	3	Vertical	197	1.46	-	29.56	30.91	8.25	34.29
PK	4.80405G	43.68	74.00	-30.32	4.88	3	Vertical	197	1.46	-	38.80	30.92	8.25	34.29

BT-LE(2Mbps)

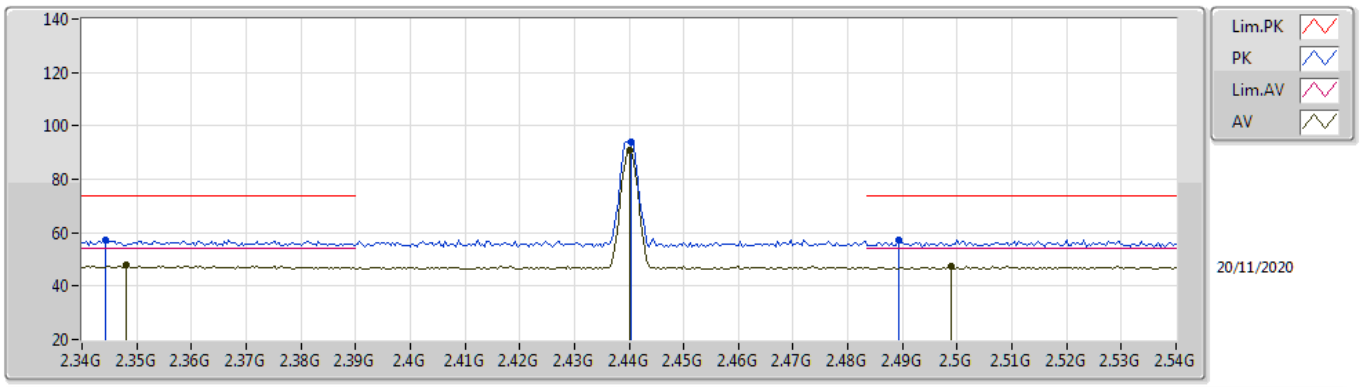
2402MHz_TX



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	4.80298G	37.16	54.00	-16.84	4.87	3	Horizontal	98	1.01	-	32.29	30.91	8.25	34.29
PK	4.80286G	44.98	74.00	-29.02	4.87	3	Horizontal	98	1.01	-	40.11	30.91	8.25	34.29

BT-LE(2Mbps)

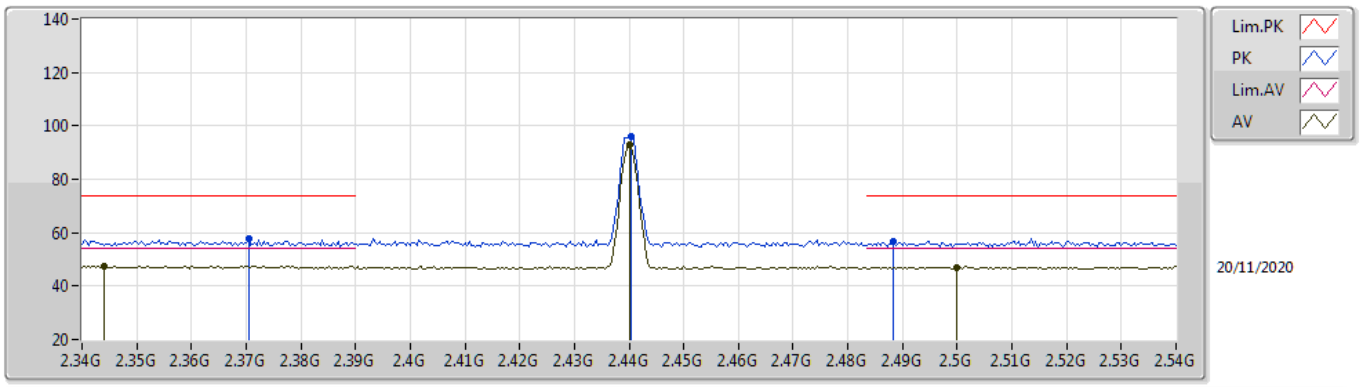
2440MHz_TX



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	2.348G	47.92	54.00	-6.08	33.63	3	Vertical	188	1.25	-	14.29	27.71	5.92	-
AV	2.44G	90.73	Inf	-Inf	33.45	3	Vertical	188	1.25	-	57.28	27.44	6.01	-
AV	2.4988G	47.37	54.00	-6.63	33.48	3	Vertical	188	1.25	-	13.89	27.40	6.08	-
PK	2.3444G	57.28	74.00	-16.72	33.64	3	Vertical	188	1.25	-	23.64	27.72	5.92	-
PK	2.4404G	93.76	Inf	-Inf	33.45	3	Vertical	188	1.25	-	60.31	27.44	6.01	-
PK	2.4892G	57.18	74.00	-16.82	33.47	3	Vertical	188	1.25	-	23.71	27.40	6.07	-

BT-LE(2Mbps)

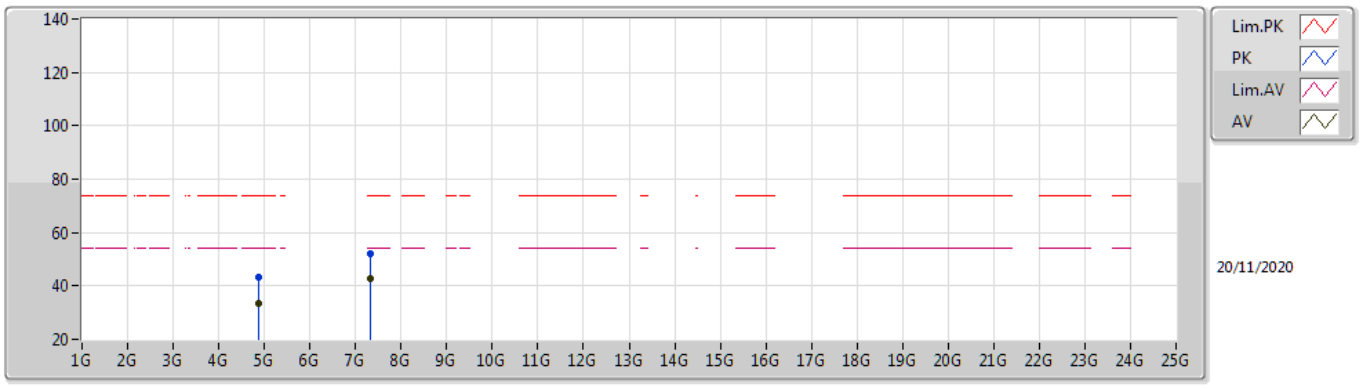
2440MHz_TX



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	47.57	54.00	-6.43	33.64	3	Horizontal	78	1.00	-	13.93	27.72	5.92	-
AV	2.44G	92.85	Inf	-Inf	33.45	3	Horizontal	78	1.00	-	59.40	27.44	6.01	-
AV	2.5G	47.08	54.00	-6.92	33.48	3	Horizontal	78	1.00	-	13.60	27.40	6.08	-
PK	2.3704G	57.68	74.00	-16.32	33.60	3	Horizontal	78	1.00	-	24.08	27.66	5.94	-
PK	2.4404G	95.83	Inf	-Inf	33.45	3	Horizontal	78	1.00	-	62.38	27.44	6.01	-
PK	2.4884G	56.50	74.00	-17.50	33.47	3	Horizontal	78	1.00	-	23.03	27.40	6.07	-

BT-LE(2Mbps)

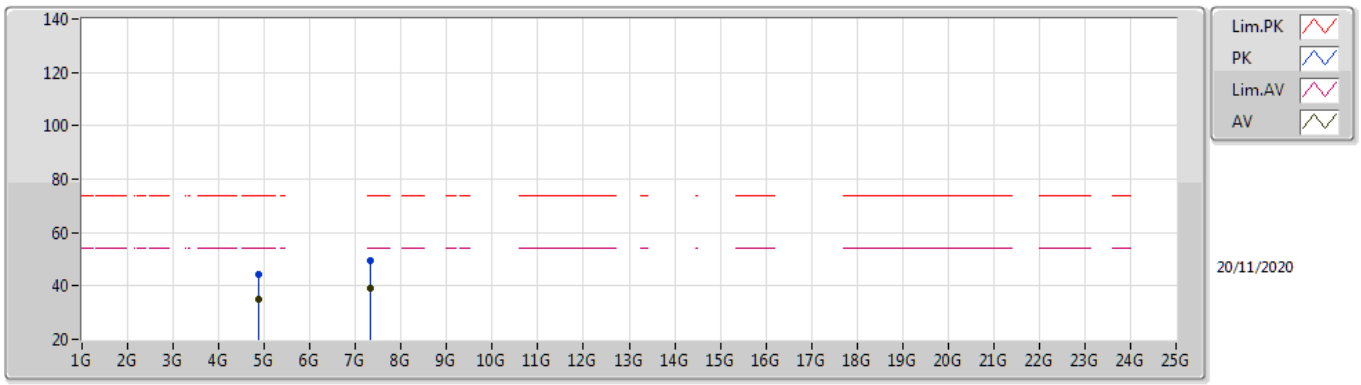
2440MHz_TX



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	4.87904G	33.55	54.00	-20.45	5.08	3	Vertical	189	1.00	-	28.47	31.04	8.30	34.26
AV	7.31868G	42.69	54.00	-11.31	11.79	3	Vertical	103	2.93	-	30.90	36.33	10.03	34.57
PK	4.88128G	43.37	74.00	-30.63	5.08	3	Vertical	189	1.00	-	38.29	31.04	8.30	34.26
PK	7.32G	51.83	74.00	-22.17	11.78	3	Vertical	103	2.93	-	40.05	36.32	10.03	34.57

BT-LE(2Mbps)

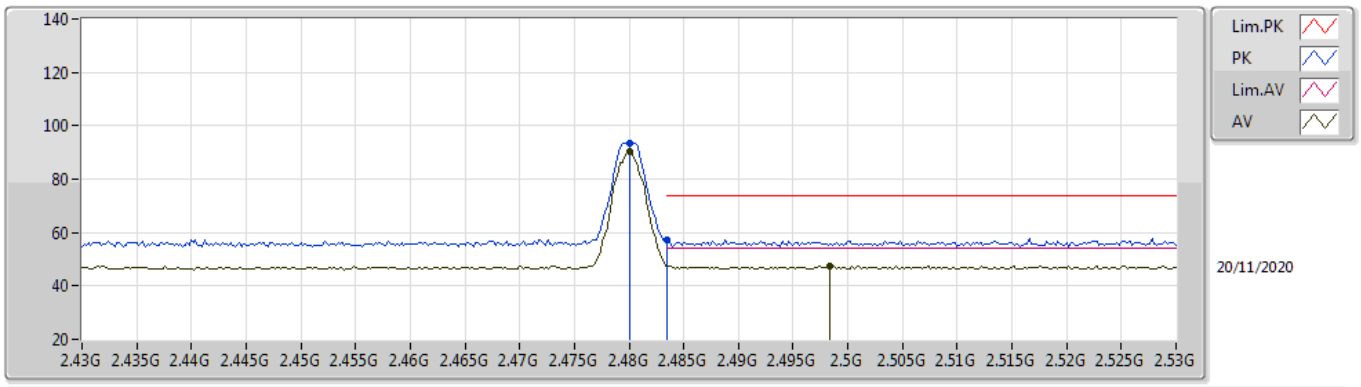
2440MHz_TX



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	4.87902G	35.21	54.00	-18.79	5.08	3	Horizontal	104	1.02	-	30.13	31.04	8.30	34.26
AV	7.3188G	39.02	54.00	-14.98	11.78	3	Horizontal	48	2.03	-	27.24	36.32	10.03	34.57
PK	4.8807G	44.35	74.00	-29.65	5.08	3	Horizontal	104	1.02	-	39.27	31.04	8.30	34.26
PK	7.31862G	49.65	74.00	-24.35	11.79	3	Horizontal	48	2.03	-	37.86	36.33	10.03	34.57

BT-LE(2Mbps)

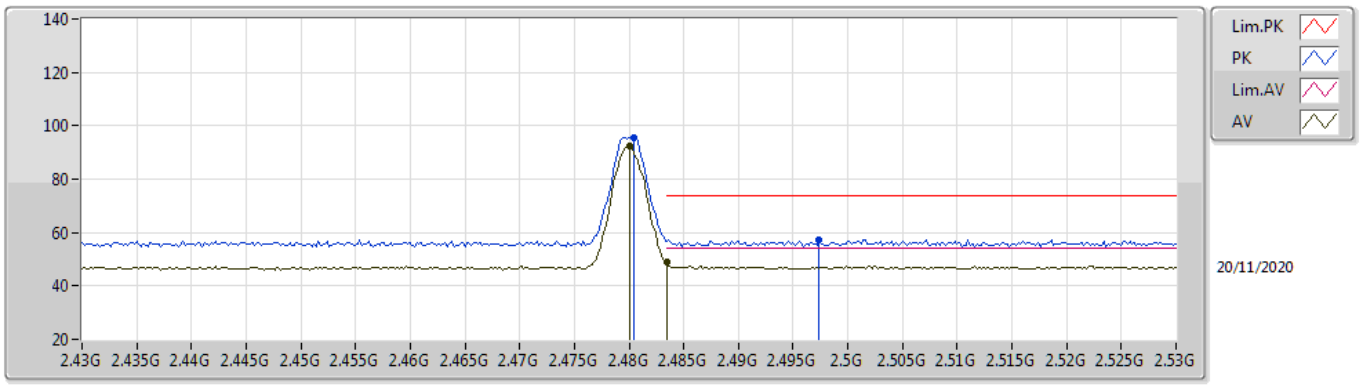
2480MHz_TX



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	90.32	Inf	-Inf	33.46	3	Vertical	253	1.00	-	56.86	27.40	6.06	-
AV	2.4984G	47.53	54.00	-6.47	33.48	3	Vertical	253	1.00	-	14.05	27.40	6.08	-
PK	2.48G	93.48	Inf	-Inf	33.46	3	Vertical	253	1.00	-	60.02	27.40	6.06	-
PK	2.4835G	57.45	74.00	-16.55	33.46	3	Vertical	253	1.00	-	23.99	27.40	6.06	-

BT-LE(2Mbps)

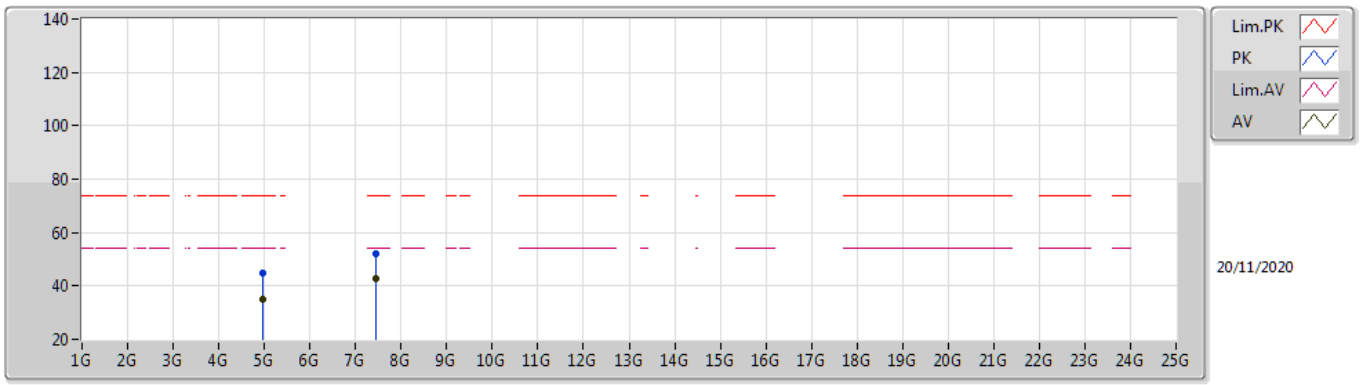
2480MHz_TX



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	92.53	Inf	-Inf	33.46	3	Horizontal	40	1.48	-	59.07	27.40	6.06	-
AV	2.4835G	48.92	54.00	-5.08	33.46	3	Horizontal	40	1.48	-	15.46	27.40	6.06	-
PK	2.4804G	95.48	Inf	-Inf	33.46	3	Horizontal	40	1.48	-	62.02	27.40	6.06	-
PK	2.4974G	57.05	74.00	-16.95	33.48	3	Horizontal	40	1.48	-	23.57	27.40	6.08	-

BT-LE(2Mbps)

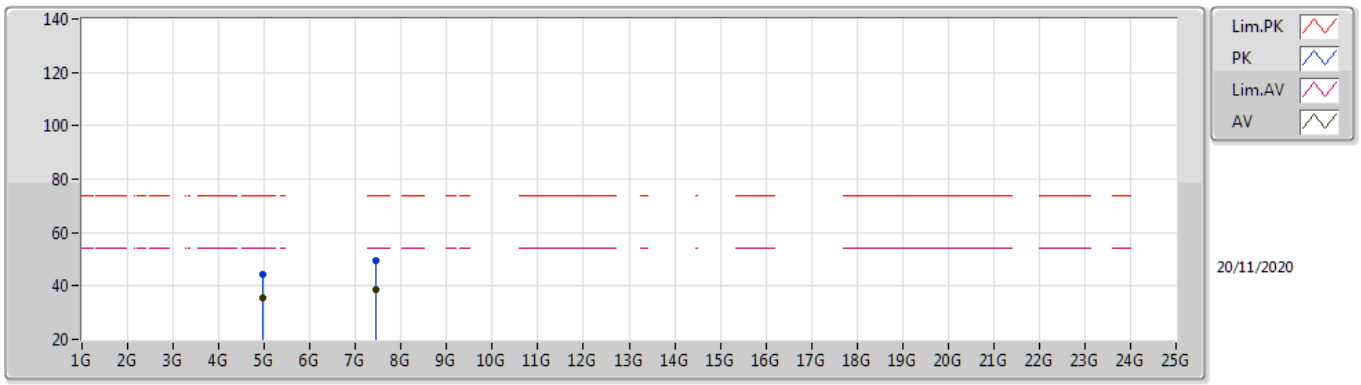
2480MHz_TX



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	4.95992G	34.83	54.00	-19.17	5.34	3	Vertical	277	1.24	-	29.49	31.22	8.35	34.23
AV	7.43872G	42.97	54.00	-11.03	11.69	3	Vertical	97	2.79	-	31.28	36.18	10.10	34.59
PK	4.95892G	44.60	74.00	-29.40	5.34	3	Vertical	277	1.24	-	39.26	31.22	8.35	34.23
PK	7.43846G	51.89	74.00	-22.11	11.69	3	Vertical	97	2.79	-	40.20	36.18	10.10	34.59

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	4.96002G	35.58	54.00	-18.42	5.34	3	Horizontal	154	1.00	-	30.24	31.22	8.35	34.23
AV	7.44408G	38.45	54.00	-15.55	11.71	3	Horizontal	199	1.49	-	26.74	36.19	10.11	34.59
PK	4.95892G	44.49	74.00	-29.51	5.34	3	Horizontal	154	1.00	-	39.15	31.22	8.35	34.23
PK	7.44082G	49.26	74.00	-24.74	11.69	3	Horizontal	199	1.49	-	37.57	36.18	10.10	34.59