

FCC Radio Test Report

FCC ID : TTUBEOPLAY500
Equipment : Wireless Headphones
Brand Name : Bang & Olufsen
Model Name : Beoplay 500
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. 19, 2021, and testing was started from Dec. 07, 2021 and completed on Dec. 14, 2021. We, SPORTON INTERNATIONAL INC. Hsinhua Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

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



Approved by: Jackson Tsai

SPORTON INTERNATIONAL INC. Hsinhua Laboratory

No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333411, Taiwan (R.O.C.)



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PHOTOGRAPHS OF EUT V01



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: Jenny Yang

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	Gain (dBi)
1	Sage Elephant Tech co., Ltd.	S306300001000-A	Chip	N/A	0.81

Note 1: The EUT has one antenna.

For BT function:

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

Only Ant. 1 can be used as transmitting/receiving.



1.1.3 EUT Information

Operational Condition	
EUT Power Type	From AC Adapter / From Host system / Battery
EUT Function	<input checked="" type="checkbox"/> Point-to-multipoint <input type="checkbox"/> Point-to-point
Type of EUT	
<input checked="" type="checkbox"/> Stand-alone	
<input type="checkbox"/> Combined (EUT where the radio part is fully integrated within another device)	
	Combined Equipment - Brand Name / Model No.: ...
<input type="checkbox"/> Plug-in radio (EUT intended for a variety of host systems)	
	Host System - Brand Name / Model No.: ...
<input type="checkbox"/> Other:	

1.1.4 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
BT-LE(1Mbps)	0.638	1.95	398.75u	3k
BT-LE(2Mbps)	0.342	4.66	213.75u	10k

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

1.2 Testing Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ◆ 47 CFR FCC Part 15
- ◆ ANSI C63.10-2013

The following reference test guidance is not within the scope of accreditation of TAF:

- ◆ KDB 558074 D01 v05r02
- ◆ KDB 414788 D01 v01r01

1.3 Testing Location Information

Test Lab. : Sporton International Inc. Hsinhua Laboratory				
<input checked="" type="checkbox"/>	Hsinhua (TAF: 3785)	ADD: No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333411, Taiwan (R.O.C.)		
		TEL: 886-3-327-3456	FAX: 886-3-327-0973	
Test site Designation No. TW3785 with FCC.				
Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
AC Conduction	CO04-HY	Edward Wang	21.5~22.0°C / 50~54%	14/Dec/2021
RF Conducted	TH07-HY	Johnny Yu	22.5~26.7°C / 47.8~62.4%	07/Dec/2021
<input checked="" type="checkbox"/>	Wen 33rd.St. (TAF: 3785)	ADD: No.14-1, Ln. 19, Wen 33rd St., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.)		
		TEL: 886-3-318-0787	FAX: 886-3-318-0287	
Test site Designation No. TW0008 with FCC.				
Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
Radiated	03CH09-HY	Daniel Hsu	22.9~23.6°C / 48~62%	08/Dec/2021~09/Dec/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 Channel Mode

Test Software Version	BlueTest 3
Mode	Power Setting
BT-LE(1Mbps)	-
2402MHz	Default
2440MHz	Default
2480MHz	Default
BT-LE(2Mbps)	-
2402MHz	Default
2440MHz	Default
2480MHz	Default

2.2 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral Test Voltage: 120Vac / 60Hz
1	USB mode, CTX
2	Adapter mode (Charging)

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			
1	USB mode, CTX		
2	Adapter mode (Charging)		
Operating Mode > 1GHz			
Orthogonal Planes of EUT	X Plane	Y Plane	Z Plane
			
Worst Planes of EUT			V

2.3 Accessories

Accessories				
Battery	Brand Name	Synergy	Model Name	AHB723938PCT
	Power Rating	3.7 Vdc, 1110 mAh	Type	Lithium-ion Polymer Battery Pack
USB Cable	Brand Name	Bang & Olufsen	Model Name	4021XW01810ZCU
	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.



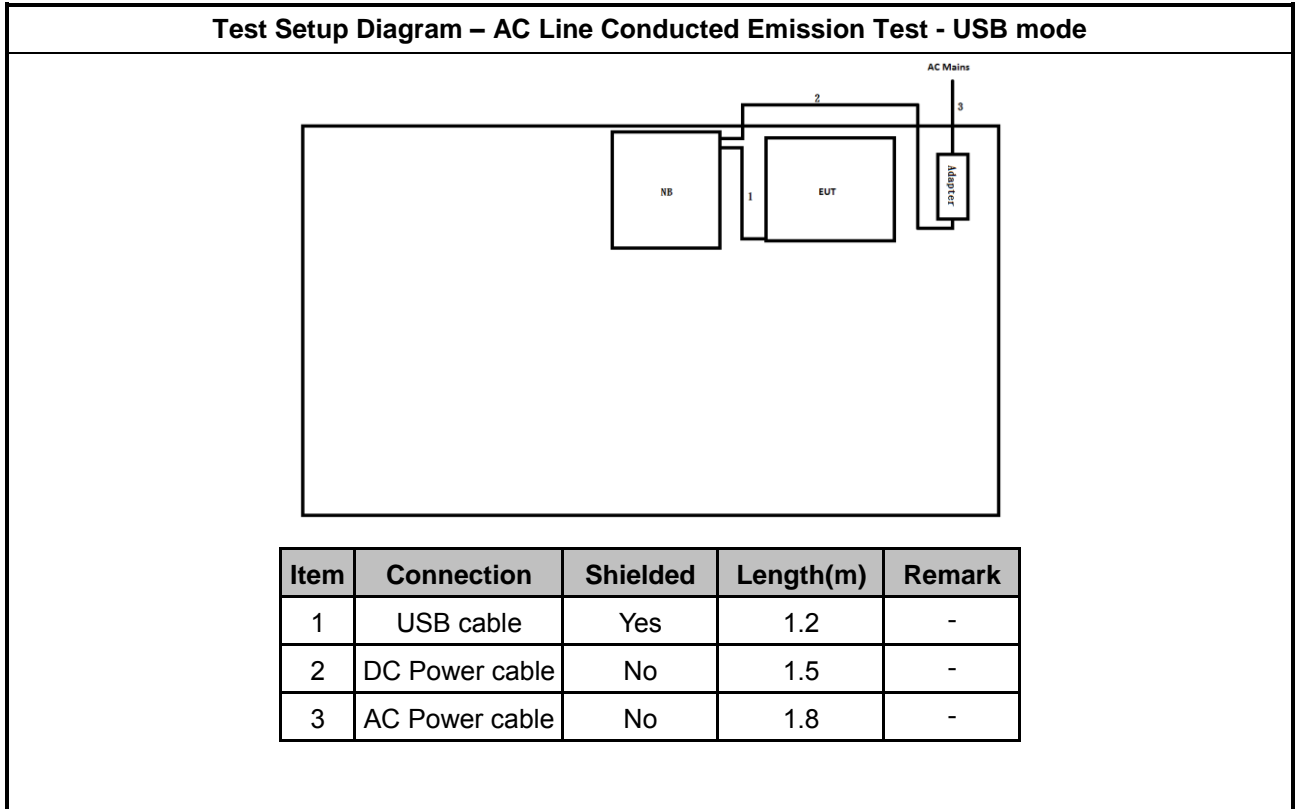
2.4 Support Equipment

Support Equipment – AC Conduction					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	Notebook	HP	E5220	-	-
2	AC Adapter (for NB)	HP	PPP009D	-	-
3	Mouse(USB)	lenovo	MOGOUO	-	-
4	iPod	Apple	A1199	-	-
5	AC power Cable	Power sync	TPCMRN0018	-	-
6	AC adapter	APPLE	A1385	-	-
7	30-pin to USB Original Cable	APPLE	MA591GC	-	-

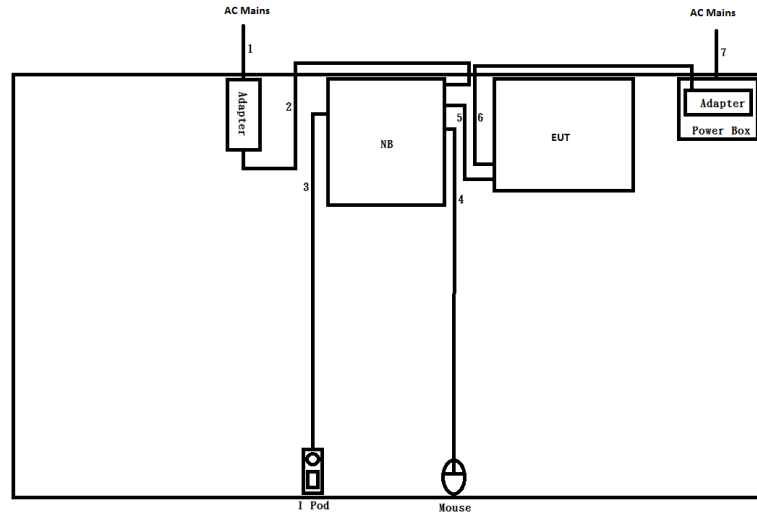
Support Equipment – Conducted					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	Notebook	HP	HSTNN-142C	-	-
2	Adapter for NB	HP	HSTNN-CA40	-	-
3	DC Power Supply	GW	GPS-3030DD	-	-

Support Equipment – Radiated					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	Notebook	HP	E5220	-	-
2	AC Adapter (for NB)	HP	PPP009D	-	-
3	Mouse(USB)	lenovo	MOGOUO	-	-
4	iPod	Apple	A1199	-	-
5	AC power Cable	Power sync	TPCMRN0018	-	-
6	AC adapter	APPLE	A1385	-	-
7	30-pin to USB Original Cable	APPLE	MA591GC	-	-

2.5 Test Setup Diagram

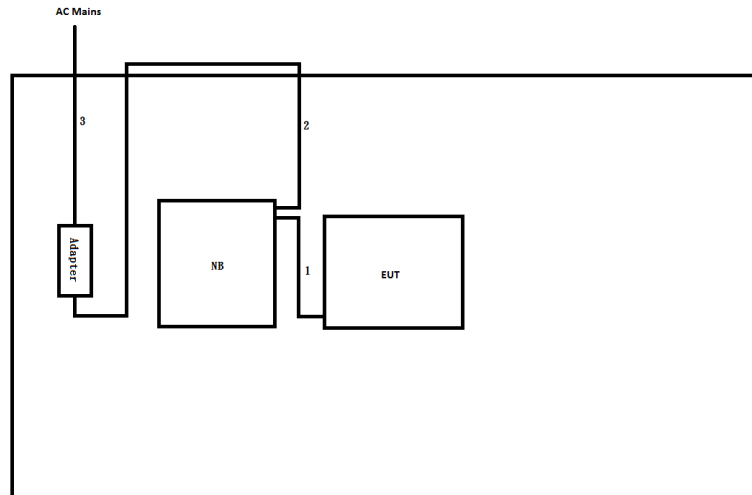


Test Setup Diagram – AC Line Conducted Emission Test - Adapter mode



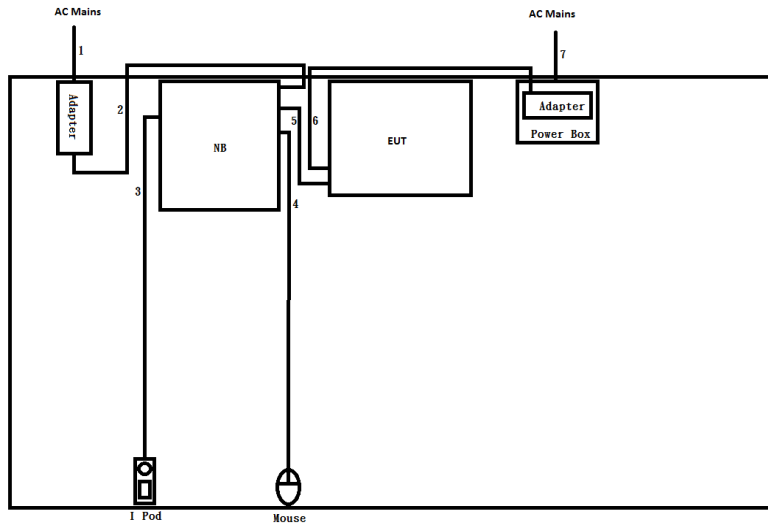
Item	Connection	Shielded	Length(m)	Remark
1	AC Power cable	Yes	1.8	-
2	DC Power cable	No	1.5	-
3	30-pin to USB Original Cable	No	1.0	-
4	USB cable	No	1.2	-
5	Audio cable	No	1.2	-
6	USB cable	Yes	1.2	-
7	AC Power cable	Yes	1.8	-

Test Setup Diagram - Radiated Test - USB mode



Item	Connection	Shielded	Length(m)	Remark
1	USB cable	Yes	1.2	-
2	DC Power cable	No	1.5	-
3	AC Power cable	No	1.8	-

Test Setup Diagram - Radiated Test - Adapter mode



Item	Connection	Shielded	Length(m)	Remark
1	AC Power cable	Yes	1.8	-
2	DC Power cable	No	1.5	-
3	30-pin to USB Original Cable	No	1.0	-
4	USB cable	No	1.2	-
5	Audio cable	No	1.2	-
6	USB cable	Yes	1.2	-
7	AC Power cable	Yes	1.8	-



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

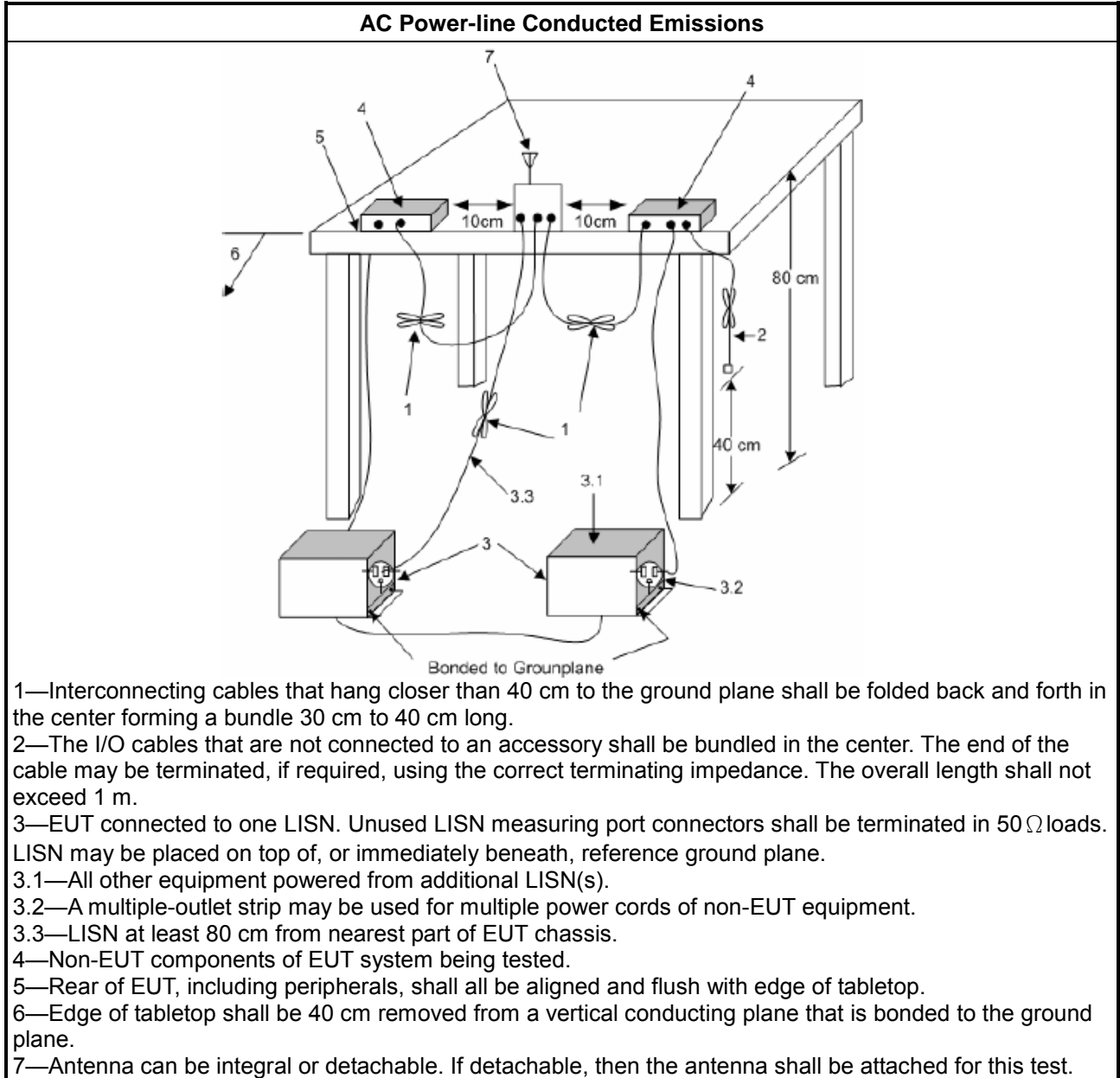
Test Method
▪ Refer as ANSI C63.10-2013, clause 6.2 foray power-line conducted emissions.

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:
<ul style="list-style-type: none"> ▪ 6 dB bandwidth \geq 500 kHz.

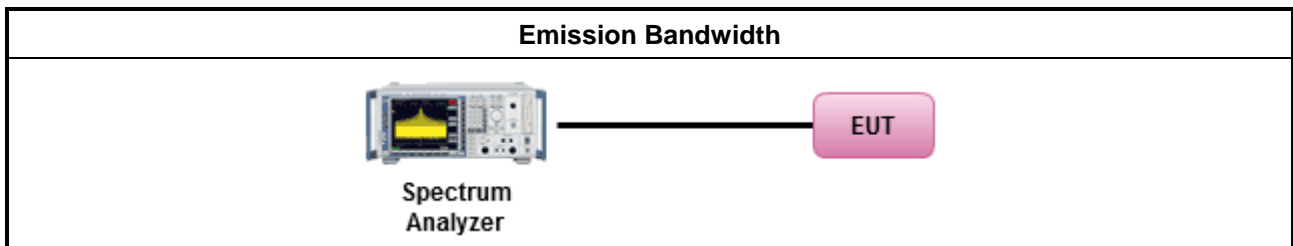
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

Test Method
<ul style="list-style-type: none"> ▪ For the emission bandwidth shall be measured using one of the options below:
<input checked="" type="checkbox"/> Refer as KDB 558074, clause 8.2 (11.8 of ANSI C63.10) DTS bandwidth measurement.
<input type="checkbox"/> Refer as RSS-Gen, clause 6.7 for occupied bandwidth testing.
<input type="checkbox"/> 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	
	<ul style="list-style-type: none"> ▪ If $G_{TX} \leq 6$ dBi, then $P_{Out} \leq 30$ dBm (1 W)
	<ul style="list-style-type: none"> ▪ Point-to-multipoint systems (P2M): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$ dBm
	<ul style="list-style-type: none"> ▪ Point-to-point systems (P2P): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
	<ul style="list-style-type: none"> ▪ Smart antenna system (SAS):
	<ul style="list-style-type: none"> - Single beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
	<ul style="list-style-type: none"> - Overlap beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
	<ul style="list-style-type: none"> - 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:	
	<ul style="list-style-type: none"> ▪ 2400-2483.5 MHz Band
	<ul style="list-style-type: none"> ▪ Point-to-multipoint systems (P2M): $P_{eirp} \leq 36$ dBm (4 W)
	<ul style="list-style-type: none"> ▪ Point-to-point systems (P2P): $P_{eirp} \leq \text{MAX}(36, [P_{Out} + G_{TX}])$ dBm
	<ul style="list-style-type: none"> ▪ Smart antenna system (SAS)
	<ul style="list-style-type: none"> - Single beam: $P_{eirp} \leq \text{MAX}(36, P_{Out} + G_{TX})$ dBm
	<ul style="list-style-type: none"> - Overlap beam: $P_{eirp} \leq \text{MAX}(36, P_{Out} + G_{TX})$ dBm
	<ul style="list-style-type: none"> - 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.	

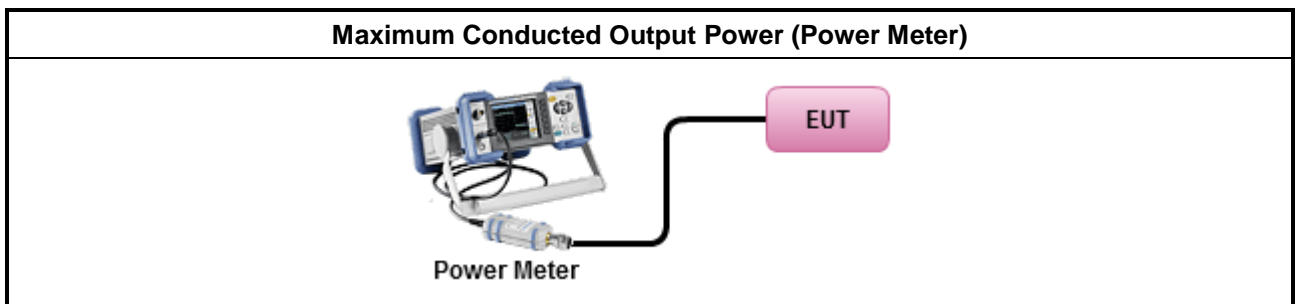
3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

Test Method	
<ul style="list-style-type: none"> ▪ Maximum Peak Conducted Output Power 	
<input type="checkbox"/>	Refer as KDB 558074, clause 8.3.1.1 (11.9.1.1 of ANSI C63.10) RBW ≥ EBW method.
<input type="checkbox"/>	Refer as KDB 558074, clause 8.3.1.2 (11.9.1.2 of ANSI C63.10) integrated band power method.
<input type="checkbox"/>	Refer as KDB 558074, clause 8.3.1.3 (11.9.1.3 of ANSI C63.10) peak power meter.
<ul style="list-style-type: none"> ▪ Maximum Average Conducted Output Power 	
<input type="checkbox"/>	Refer as KDB 558074, clause 8.3.2.2 (11.9.2.2 of ANSI C63.10) using a spectrum analyzer.
<input checked="" type="checkbox"/>	Refer as KDB 558074, clause 8.3.2.3 (11.9.2.3 of ANSI C63.10) using a power meter.
<ul style="list-style-type: none"> ▪ For conducted measurement. 	
<ul style="list-style-type: none"> ▪ 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. 	
<ul style="list-style-type: none"> ▪ 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
<ul style="list-style-type: none"> Power Spectral Density (PSD) ≤ 8 dBm/3kHz

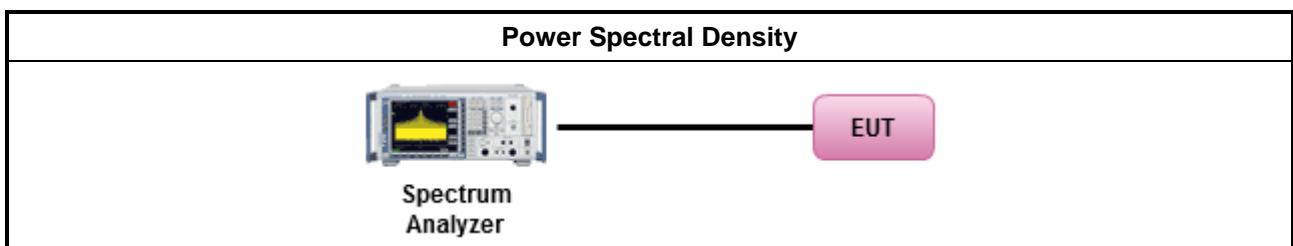
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

Test Method	
	<ul style="list-style-type: none"> 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).
<input checked="" type="checkbox"/>	Refer as KDB 558074, clause 8.4 (11.10 of ANSI C63.10) Max. PSD.
	<ul style="list-style-type: none"> For conducted measurement.
	<ul style="list-style-type: none"> If The EUT supports multiple transmit chains using options given below:
	<ul style="list-style-type: none"> 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.

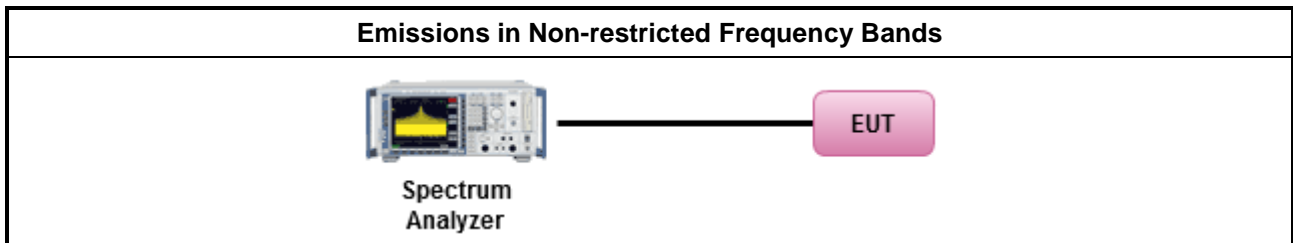
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

Test Method
<ul style="list-style-type: none"> 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

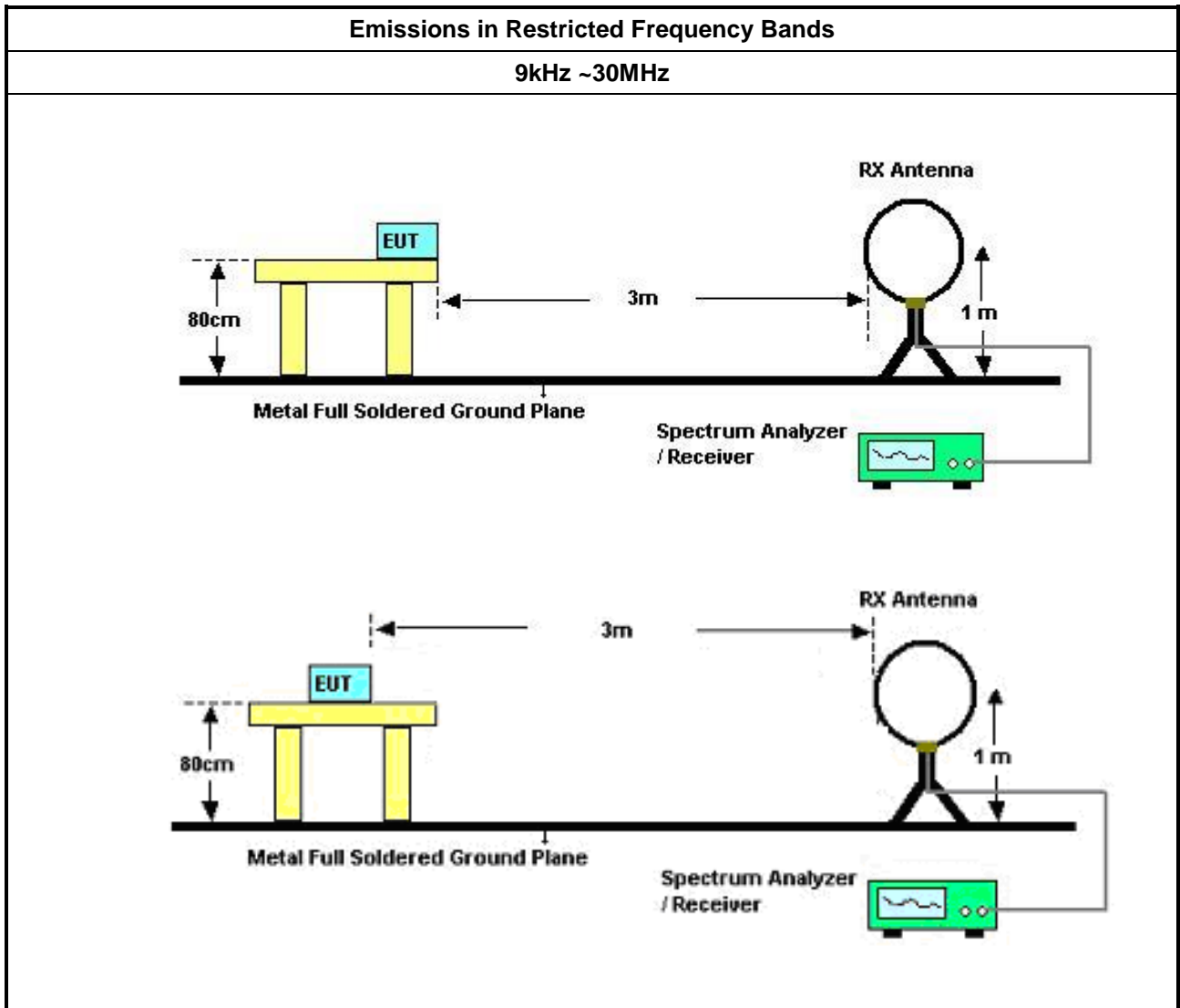
Test Method	
	<ul style="list-style-type: none"> ▪ The average emission levels shall be measured in [duty cycle \geq 98 or duty factor].
	<ul style="list-style-type: none"> ▪ Refer as ANSI C63.10, clause 6.10.3 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.
	<ul style="list-style-type: none"> ▪ For the transmitter unwanted emissions shall be measured using following options below: <ul style="list-style-type: none"> ▪ Refer as KDB 558074, clause 8.6 (11.12 of ANSI C63.10) for restricted frequency bands.
	<ul style="list-style-type: none"> ▪ For the transmitter band-edge emissions shall be measured using following options below: <ul style="list-style-type: none"> ▪ 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.
	<ul style="list-style-type: none"> ▪ Use the following spectrum analyzer settings: <ul style="list-style-type: none"> ▪ 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.
	<ul style="list-style-type: none"> ▪ KDB 414788 Open-Field Test Sites and Chamber Correlation Justification. <ul style="list-style-type: none"> ▪ 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.

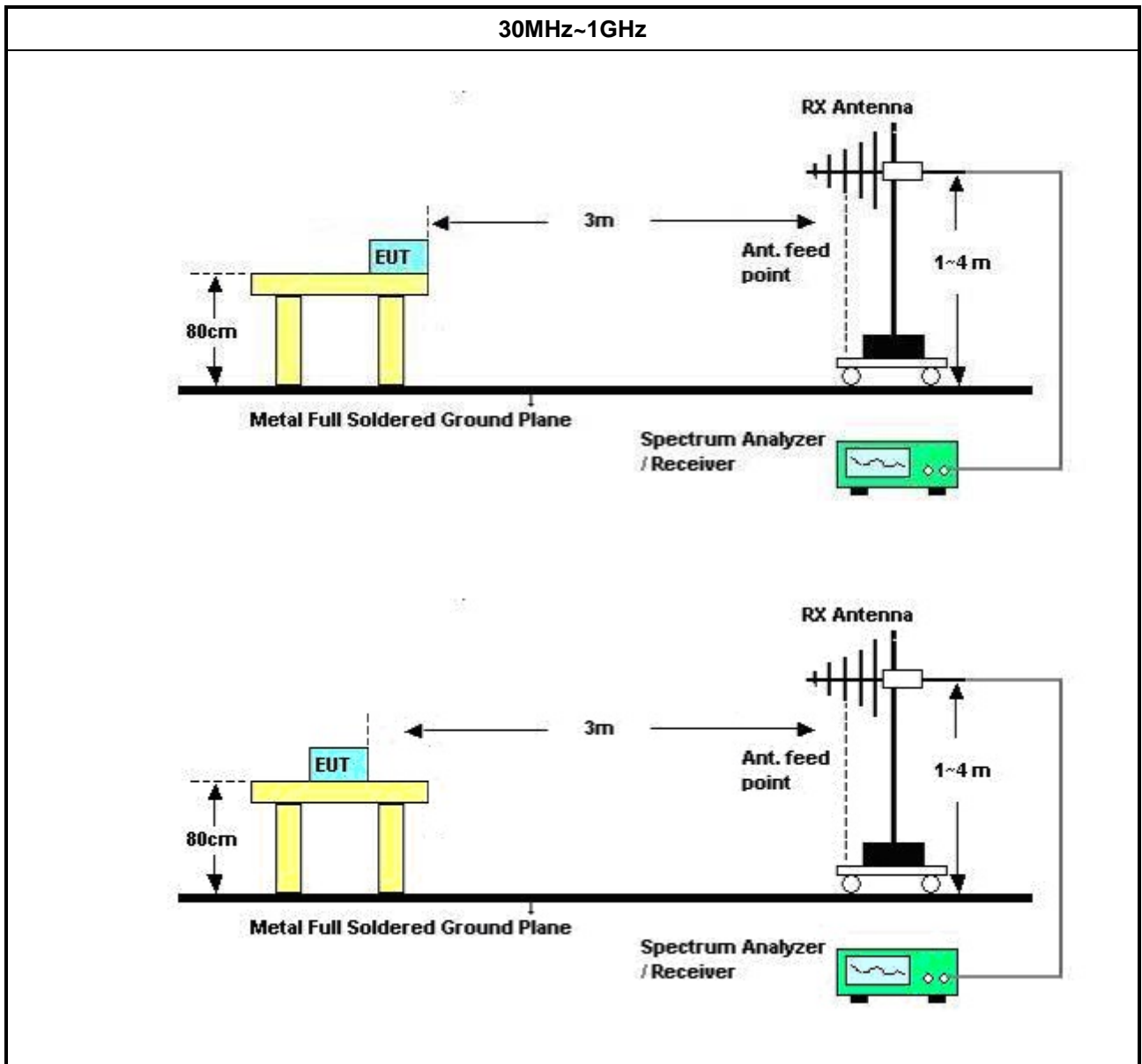
3.6.4 Measurement Results Calculation

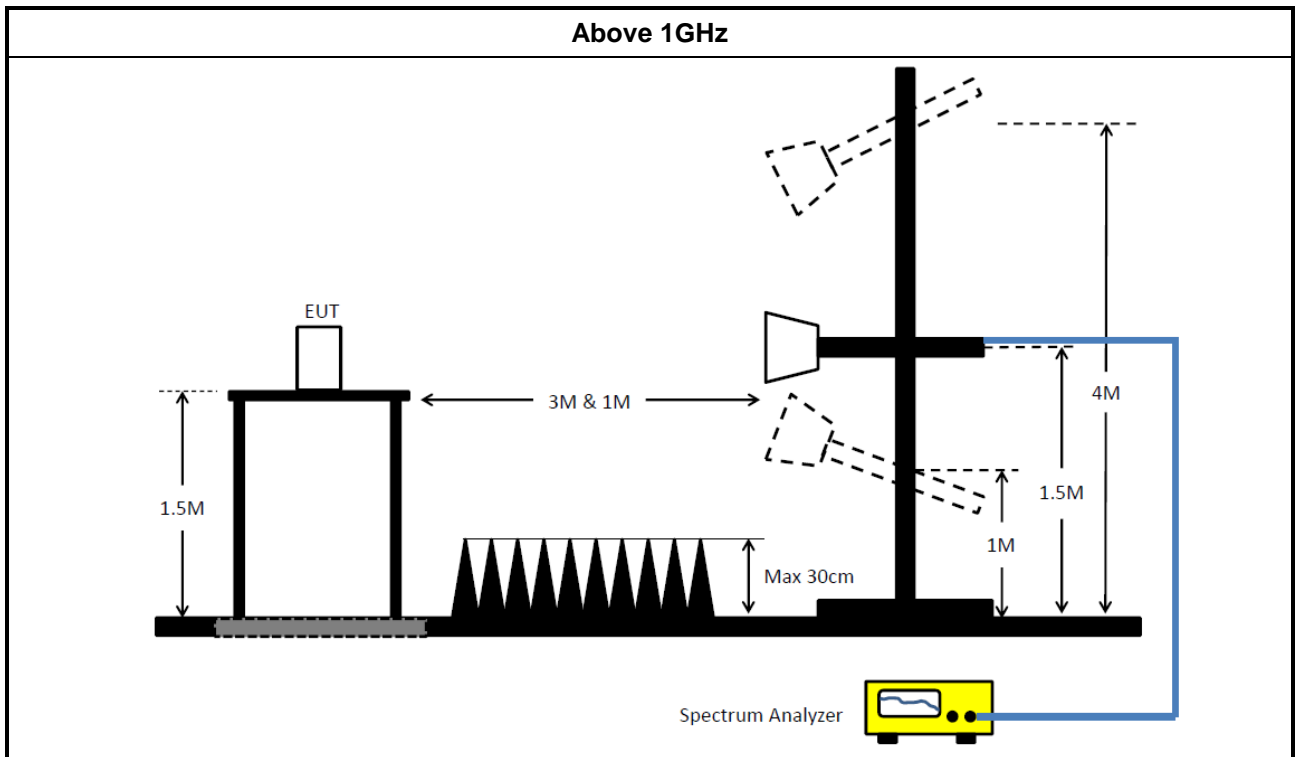
The measured Level is calculated using:

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 /Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
EMI Test Receiver	R&S	ESR3	102051	9kHz ~ 3.6GHz	21/May/2021	20/May/2022
Two-Line V Network (LISN)	R&S	ENV 216	101274	9kHz ~ 30MHz	13/May/2021	12/May/2022
RF Cable 5m	TITAN	TITAN	CO04-cable-01	0.1MHz~200MHz	03/Mar/2021	02/Mar/2022
Impuls Begrenzer Pulse Limiter	SCHWARZBECK	VTSD 9561-F	9561-F041	9kHz ~ 30MHz	26/Oct/2021	25/Oct/2022
LISN (Support Unit)	SCHWARZBECK MESS-ELEKTRO NIK	NSLK 8127	8127477	9kHz ~ 30MHz	25/Feb/2021	24/Feb/2022

Instrument for Conducted Test

Instrument	Manufacturer /Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Signal Analyzer	R&S	FSV 40	101515	10Hz~40GHz	26/Mar/2021	25/Mar/2022
SMB100A Signal Generator	R&S	SMB100A03	181147	100kHz~40GHz	21/Oct/2021	20/Oct/2022
Pulse Sensor	Anritsu	MA2411B	1027452	300MHz~40GHz	25/Mar/2021	24/Mar/2022
Power Meter	Anritsu	ML2495A	1124009	300MHz~40GHz	25/Mar/2021	24/Mar/2022



Instrument for Radiated Test

Instrument	Manufacturer /Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	30MHz~1GHz 3m	26/Mar/2021	25/Mar/2022
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	1GHz~18GHz 3m	18/Mar/2021	17/Mar/2022
EXA Signal Analyzer	KEYSIGHT	N9010A	MY54200885	10Hz~44GHz	13/Aug/2021	12/Aug/2022
Amplifier	EMC	EMC9135	980232	9kHz~1GHz	12/Apr/2021	11/Apr/2022
Microwave Preamplifier	Agilent	8449B	3008A02096	1GHz~26.5GHz	23/Jul/2021	22/Jul/2022
Bilog Antenna & 5dB Attenuator	TESEQ & MTJ	CBL6111D&MT J6102-05	35418 & 3	30MHz~1GHz	04/Sep/2021	03/Sep/2022
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	BBHA9120 D 1534	1GHz~18GHz	18/May/2021	17/May/2022
RF Cable-low	Jye Bao	RG142	CB031+324530/4	9kHz~30MHz	30/Aug/2021	29/Aug/2022
RF Cable-low	Jye Bao	RG142	CB031+324530/4	30MHz~1GHz	09/Feb/2021	08/Feb/2022
RF CABLE 5m+3m+1m	HUBER+SUHNER	SUCOFLEX104	CB009	1GHz~40GHz	13/Aug/2021	12/Aug/2022
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA 9170221	18GHz~40GHz	11/Mar/2021	10/Mar/2022
Microwave Prempifier	EMC INSTRUMENTS	EM18G40G	060604	18GHz ~ 40GHz	09/Mar/2021	08/Mar/2022
Loop Antenna	TESEQ	HLA 6120	31244	9kHz~30MHz	16/Mar/2021	15/Mar/2022
EMI Test Receiver	R&S	ESR3	102052	9kHz~3.6GHz	19/Apr/2021	18/Apr/2022



Summary

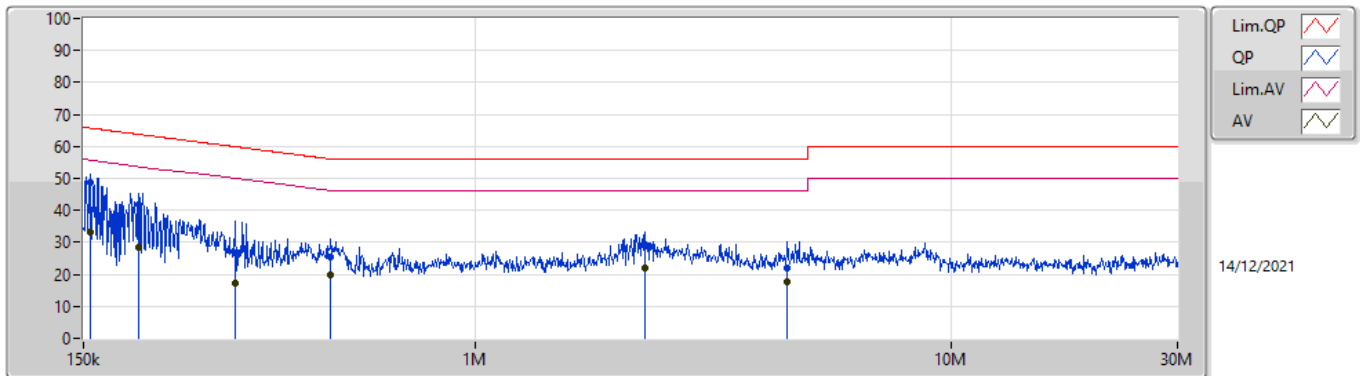
Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	QP	155.487k	48.75	65.69	-16.94	Line



Mode config

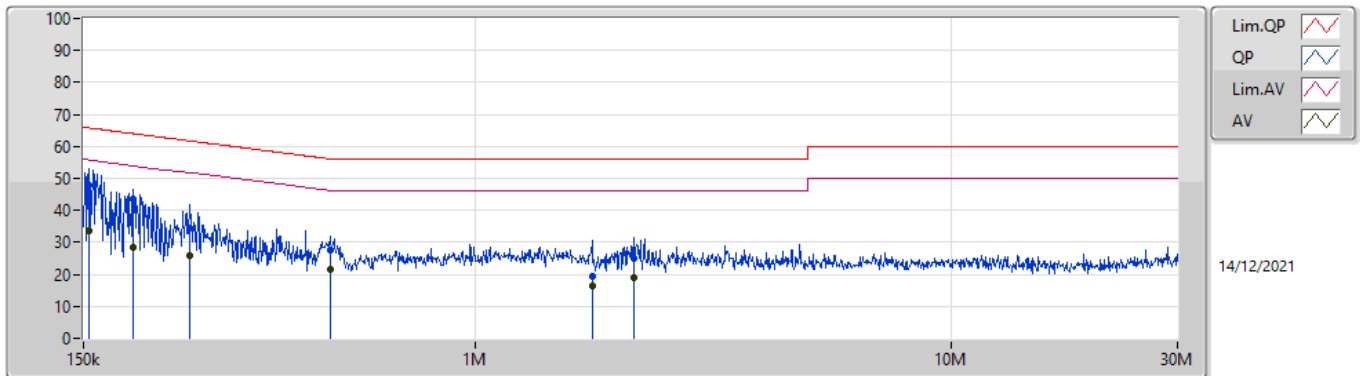
Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition	Comments
Mode 1	Pass	QP	155.487k	48.75	65.69	-16.94	Line	-
Mode 1	Pass	AV	155.487k	33.26	55.69	-22.43	Line	-
Mode 1	Pass	QP	195.997k	41.61	63.78	-22.17	Line	-
Mode 1	Pass	AV	195.997k	28.65	53.78	-25.13	Line	-
Mode 1	Pass	QP	312.676k	26.88	59.90	-33.02	Line	-
Mode 1	Pass	AV	312.676k	17.32	49.90	-32.58	Line	-
Mode 1	Pass	QP	496.827k	25.26	56.06	-30.80	Line	-
Mode 1	Pass	AV	496.827k	19.98	46.06	-26.08	Line	-
Mode 1	Pass	QP	2.274M	29.36	56.00	-26.64	Line	-
Mode 1	Pass	AV	2.274M	22.18	46.00	-23.82	Line	-
Mode 1	Pass	QP	4.536M	21.99	56.00	-34.01	Line	-
Mode 1	Pass	AV	4.536M	17.47	46.00	-28.53	Line	-
Mode 1	Pass	QP	153.636k	47.96	65.81	-17.85	Neutral	-
Mode 1	Pass	AV	153.636k	33.56	55.81	-22.25	Neutral	-
Mode 1	Pass	QP	190.596k	43.33	64.01	-20.68	Neutral	-
Mode 1	Pass	AV	190.596k	28.33	54.01	-25.68	Neutral	-
Mode 1	Pass	QP	251.038k	34.68	61.72	-27.04	Neutral	-
Mode 1	Pass	AV	251.038k	25.83	51.72	-25.89	Neutral	-
Mode 1	Pass	QP	494.848k	27.48	56.10	-28.62	Neutral	-
Mode 1	Pass	AV	494.848k	21.70	46.10	-24.40	Neutral	-
Mode 1	Pass	QP	1.761M	19.56	56.00	-36.44	Neutral	-
Mode 1	Pass	AV	1.761M	16.31	46.00	-29.69	Neutral	-
Mode 1	Pass	QP	2.15M	25.07	56.00	-30.93	Neutral	-
Mode 1	Pass	AV	2.15M	18.84	46.00	-27.16	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	155.487k	48.75	65.69	-16.94	19.64	Line	-	29.11	9.69	0.04	9.91			
AV	155.487k	33.26	55.69	-22.43	19.64	Line	-	13.62	9.69	0.04	9.91			
QP	195.997k	41.61	63.78	-22.17	19.63	Line	-	21.98	9.68	0.04	9.91			
AV	195.997k	28.65	53.78	-25.13	19.63	Line	-	9.02	9.68	0.04	9.91			
QP	312.676k	26.88	59.90	-33.02	19.64	Line	-	7.24	9.68	0.05	9.91			
AV	312.676k	17.32	49.90	-32.58	19.64	Line	-	-2.32	9.68	0.05	9.91			
QP	496.827k	25.26	56.06	-30.80	19.65	Line	-	5.61	9.68	0.06	9.91			
AV	496.827k	19.98	46.06	-26.08	19.65	Line	-	0.33	9.68	0.06	9.91			
QP	2.274M	29.36	56.00	-26.64	19.72	Line	-	9.64	9.69	0.11	9.92			
AV	2.274M	22.18	46.00	-23.82	19.72	Line	-	2.46	9.69	0.11	9.92			
QP	4.536M	21.99	56.00	-34.01	19.77	Line	-	2.22	9.70	0.15	9.92			
AV	4.536M	17.47	46.00	-28.53	19.77	Line	-	-2.30	9.70	0.15	9.92			

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	153.636k	47.96	65.81	-17.85	19.64	Neutral	-	28.32	9.69	0.04	9.91			
AV	153.636k	33.56	55.81	-22.25	19.64	Neutral	-	13.92	9.69	0.04	9.91			
QP	190.596k	43.33	64.01	-20.68	19.62	Neutral	-	23.71	9.67	0.04	9.91			
AV	190.596k	28.33	54.01	-25.68	19.62	Neutral	-	8.71	9.67	0.04	9.91			
QP	251.038k	34.68	61.72	-27.04	19.63	Neutral	-	15.05	9.67	0.05	9.91			
AV	251.038k	25.83	51.72	-25.89	19.63	Neutral	-	6.20	9.67	0.05	9.91			
QP	494.848k	27.48	56.10	-28.62	19.64	Neutral	-	7.84	9.67	0.06	9.91			
AV	494.848k	21.70	46.10	-24.40	19.64	Neutral	-	2.06	9.67	0.06	9.91			
QP	1.761M	19.56	56.00	-36.44	19.70	Neutral	-	-0.14	9.68	0.10	9.92			
AV	1.761M	16.31	46.00	-29.69	19.70	Neutral	-	-3.39	9.68	0.10	9.92			
QP	2.15M	25.07	56.00	-30.93	19.70	Neutral	-	5.37	9.68	0.10	9.92			
AV	2.15M	18.84	46.00	-27.16	19.70	Neutral	-	-0.86	9.68	0.10	9.92			



Summary

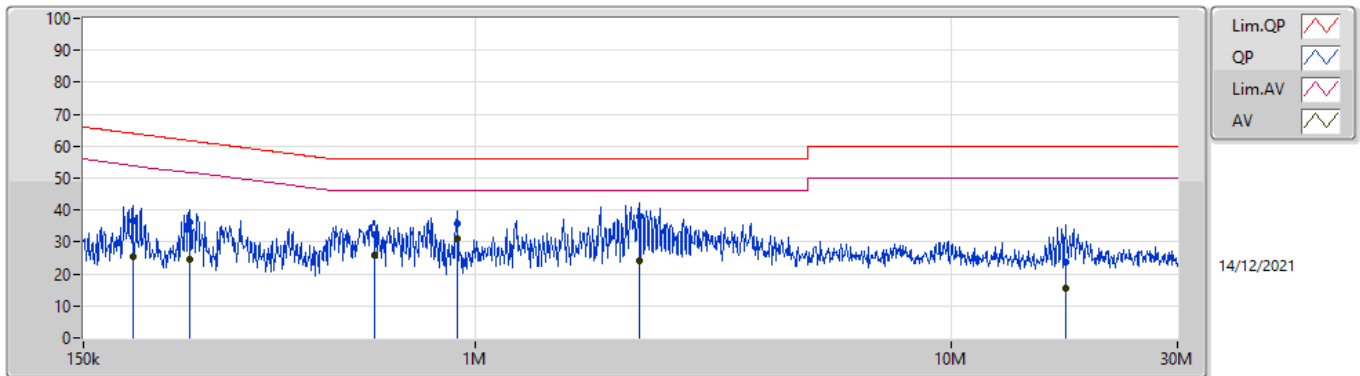
Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 2	Pass	AV	2.15M	31.07	46.00	-14.93	Neutral



Result

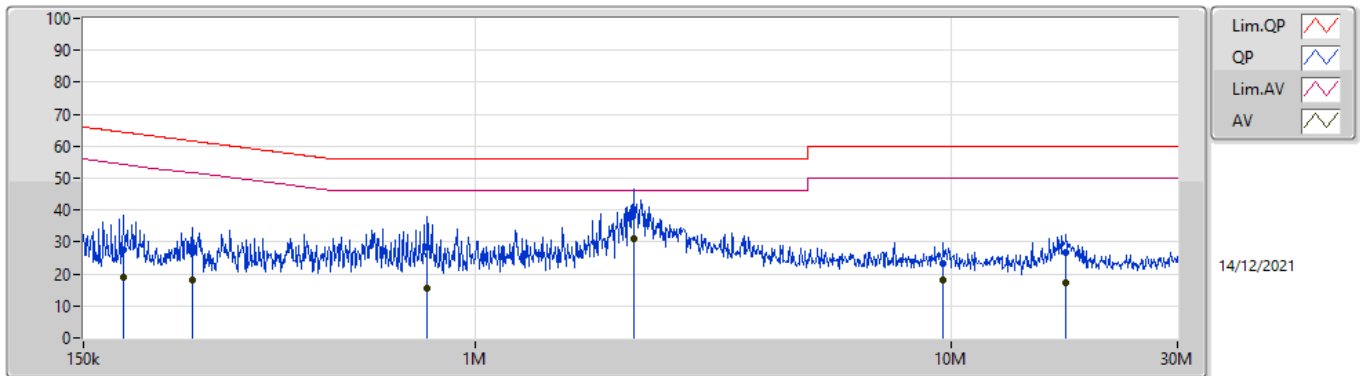
Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition	Comments
Mode 2	Pass	QP	190.596k	36.67	64.01	-27.34	Line	-
Mode 2	Pass	AV	190.596k	25.47	54.01	-28.54	Line	-
Mode 2	Pass	QP	251.038k	36.16	61.72	-25.56	Line	-
Mode 2	Pass	AV	251.038k	24.64	51.72	-27.08	Line	-
Mode 2	Pass	QP	613.892k	32.25	56.00	-23.75	Line	-
Mode 2	Pass	AV	613.892k	25.83	46.00	-20.17	Line	-
Mode 2	Pass	QP	915.089k	35.91	56.00	-20.09	Line	-
Mode 2	Pass	AV	915.089k	31.02	46.00	-14.98	Line	-
Mode 2	Pass	QP	2.211M	37.82	56.00	-18.18	Line	-
Mode 2	Pass	AV	2.211M	24.25	46.00	-21.75	Line	-
Mode 2	Pass	QP	17.416M	23.71	60.00	-36.29	Line	-
Mode 2	Pass	AV	17.416M	15.66	50.00	-34.34	Line	-
Mode 2	Pass	QP	181.681k	27.48	64.41	-36.93	Neutral	-
Mode 2	Pass	AV	181.681k	19.13	54.41	-35.28	Neutral	-
Mode 2	Pass	QP	255.079k	26.69	61.58	-34.89	Neutral	-
Mode 2	Pass	AV	255.079k	17.98	51.58	-33.60	Neutral	-
Mode 2	Pass	QP	792.592k	28.47	56.00	-27.53	Neutral	-
Mode 2	Pass	AV	792.592k	15.57	46.00	-30.43	Neutral	-
Mode 2	Pass	QP	2.15M	40.12	56.00	-15.88	Neutral	-
Mode 2	Pass	AV	2.15M	31.07	46.00	-14.93	Neutral	-
Mode 2	Pass	QP	9.646M	23.20	60.00	-36.80	Neutral	-
Mode 2	Pass	AV	9.646M	17.95	50.00	-32.05	Neutral	-
Mode 2	Pass	QP	17.485M	26.56	60.00	-33.44	Neutral	-
Mode 2	Pass	AV	17.485M	17.19	50.00	-32.81	Neutral	-

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	190.596k	36.67	64.01	-27.34	19.63	Line	-	17.04	9.68	0.04	9.91
AV	190.596k	25.47	54.01	-28.54	19.63	Line	-	5.84	9.68	0.04	9.91
QP	251.038k	36.16	61.72	-25.56	19.64	Line	-	16.52	9.68	0.05	9.91
AV	251.038k	24.64	51.72	-27.08	19.64	Line	-	5.00	9.68	0.05	9.91
QP	613.892k	32.25	56.00	-23.75	19.66	Line	-	12.59	9.68	0.07	9.91
AV	613.892k	25.83	46.00	-20.17	19.66	Line	-	6.17	9.68	0.07	9.91
QP	915.089k	35.91	56.00	-20.09	19.68	Line	-	16.23	9.68	0.08	9.92
AV	915.089k	31.02	46.00	-14.98	19.68	Line	-	11.34	9.68	0.08	9.92
QP	2.211M	37.82	56.00	-18.18	19.72	Line	-	18.10	9.69	0.11	9.92
AV	2.211M	24.25	46.00	-21.75	19.72	Line	-	4.53	9.69	0.11	9.92
QP	17.416M	23.71	60.00	-36.29	19.90	Line	-	3.81	9.69	0.28	9.93
AV	17.416M	15.66	50.00	-34.34	19.90	Line	-	-4.24	9.69	0.28	9.93

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	181.681k	27.48	64.41	-36.93	19.63	Neutral	-	7.85	9.68	0.04	9.91				
AV	181.681k	19.13	54.41	-35.28	19.63	Neutral	-	-0.50	9.68	0.04	9.91				
QP	255.079k	26.69	61.58	-34.89	19.63	Neutral	-	7.06	9.67	0.05	9.91				
AV	255.079k	17.98	51.58	-33.60	19.63	Neutral	-	-1.65	9.67	0.05	9.91				
QP	792.592k	28.47	56.00	-27.53	19.66	Neutral	-	8.81	9.67	0.07	9.92				
AV	792.592k	15.57	46.00	-30.43	19.66	Neutral	-	-4.09	9.67	0.07	9.92				
QP	2.15M	40.12	56.00	-15.88	19.70	Neutral	-	20.42	9.68	0.10	9.92				
AV	2.15M	31.07	46.00	-14.93	19.70	Neutral	-	11.37	9.68	0.10	9.92				
QP	9.646M	23.20	60.00	-36.80	19.87	Neutral	-	3.33	9.74	0.20	9.93				
AV	9.646M	17.95	50.00	-32.05	19.87	Neutral	-	-1.92	9.74	0.20	9.93				
QP	17.485M	26.56	60.00	-33.44	19.95	Neutral	-	6.61	9.74	0.28	9.93				
AV	17.485M	17.19	50.00	-32.81	19.95	Neutral	-	-2.76	9.74	0.28	9.93				



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	1.044M	1M04F1D	713.75k	1.034M
BT-LE(2Mbps)	1.258M	2.056M	2M06F1D	1.253M	2.046M

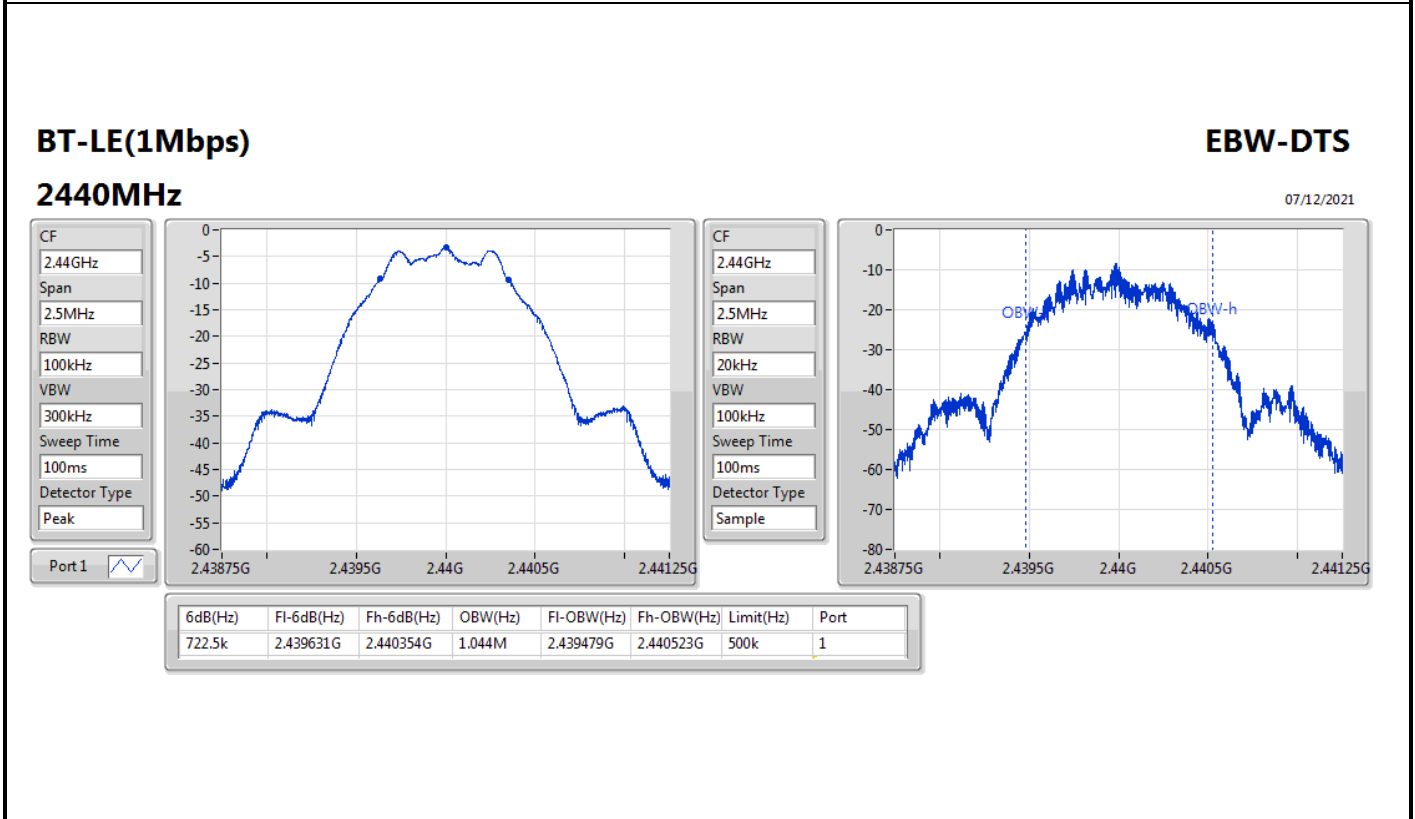
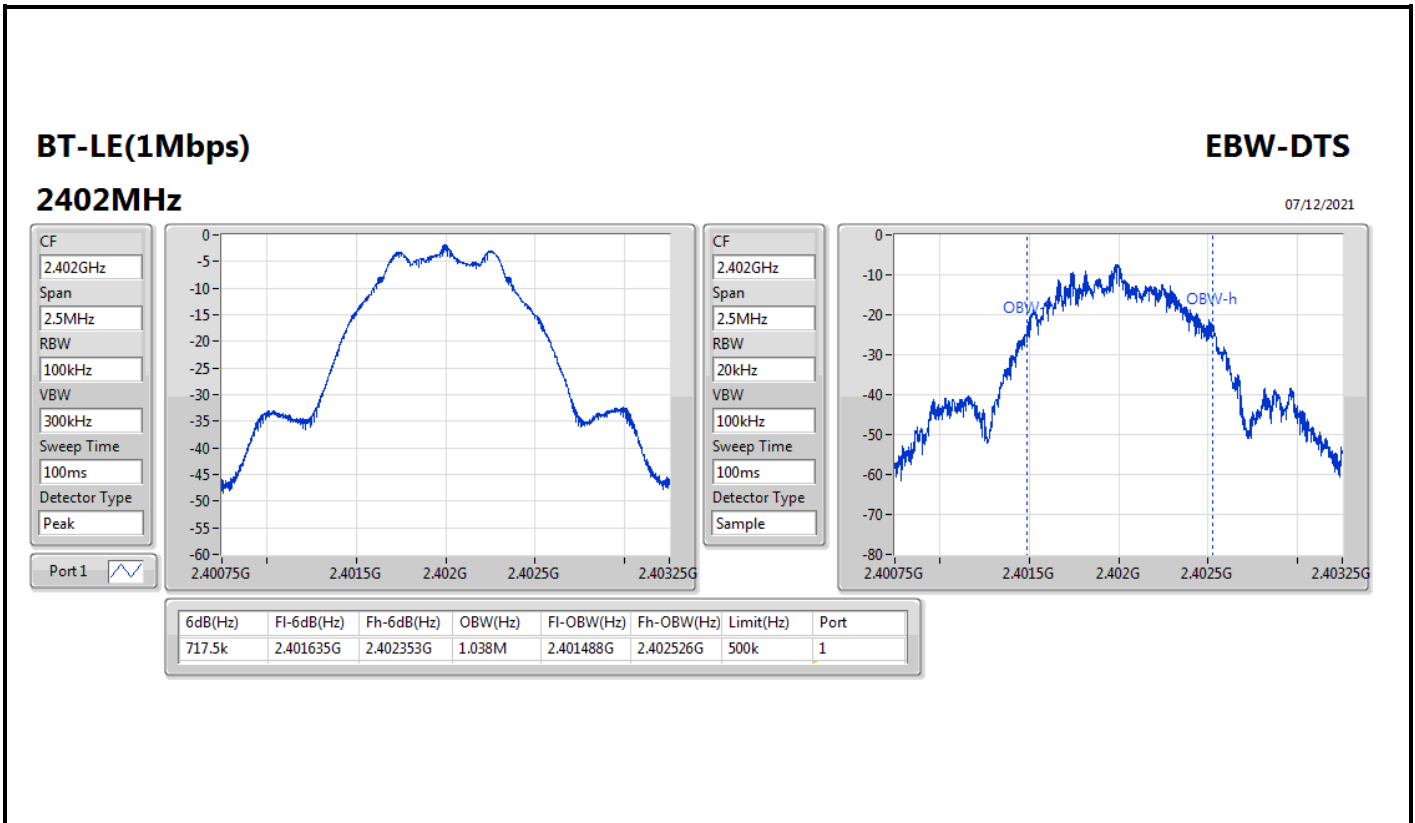
Max-N dB = Maximum 6dB down bandwidth; Max-OBW = Maximum 99% occupied bandwidth;
Min-N dB = Minimum 6dB down bandwidth; Min-OBW = Minimum 99% occupied bandwidth

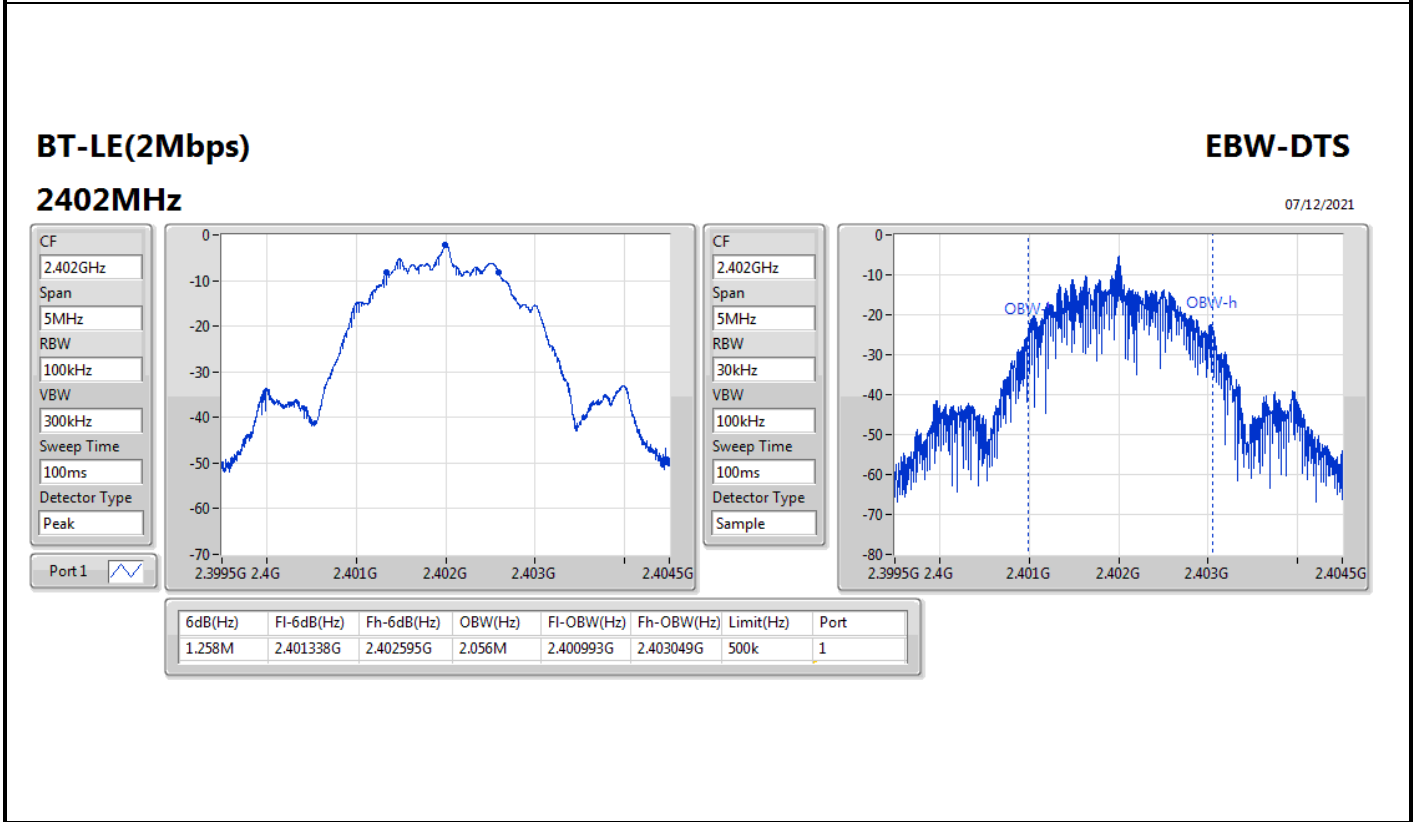
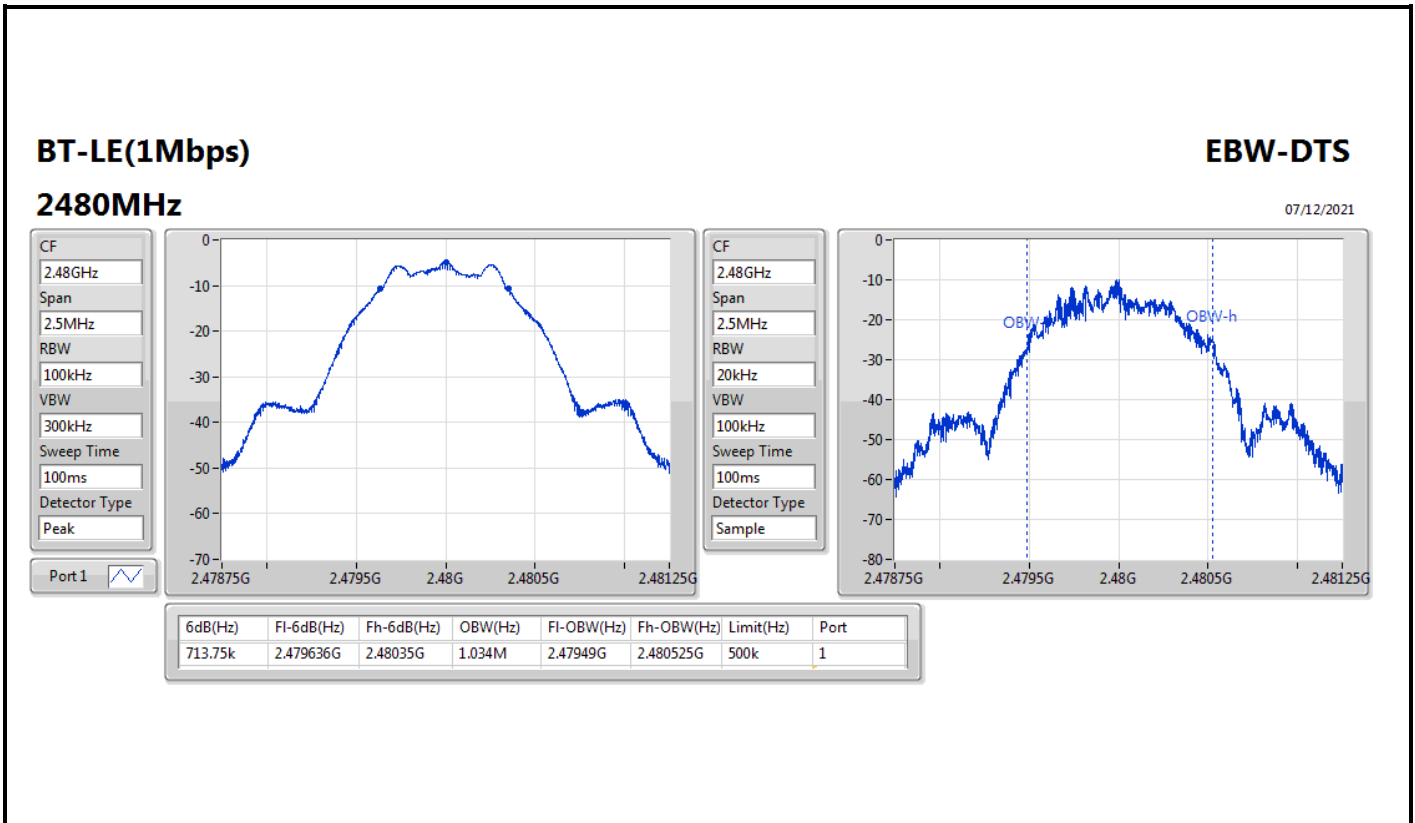


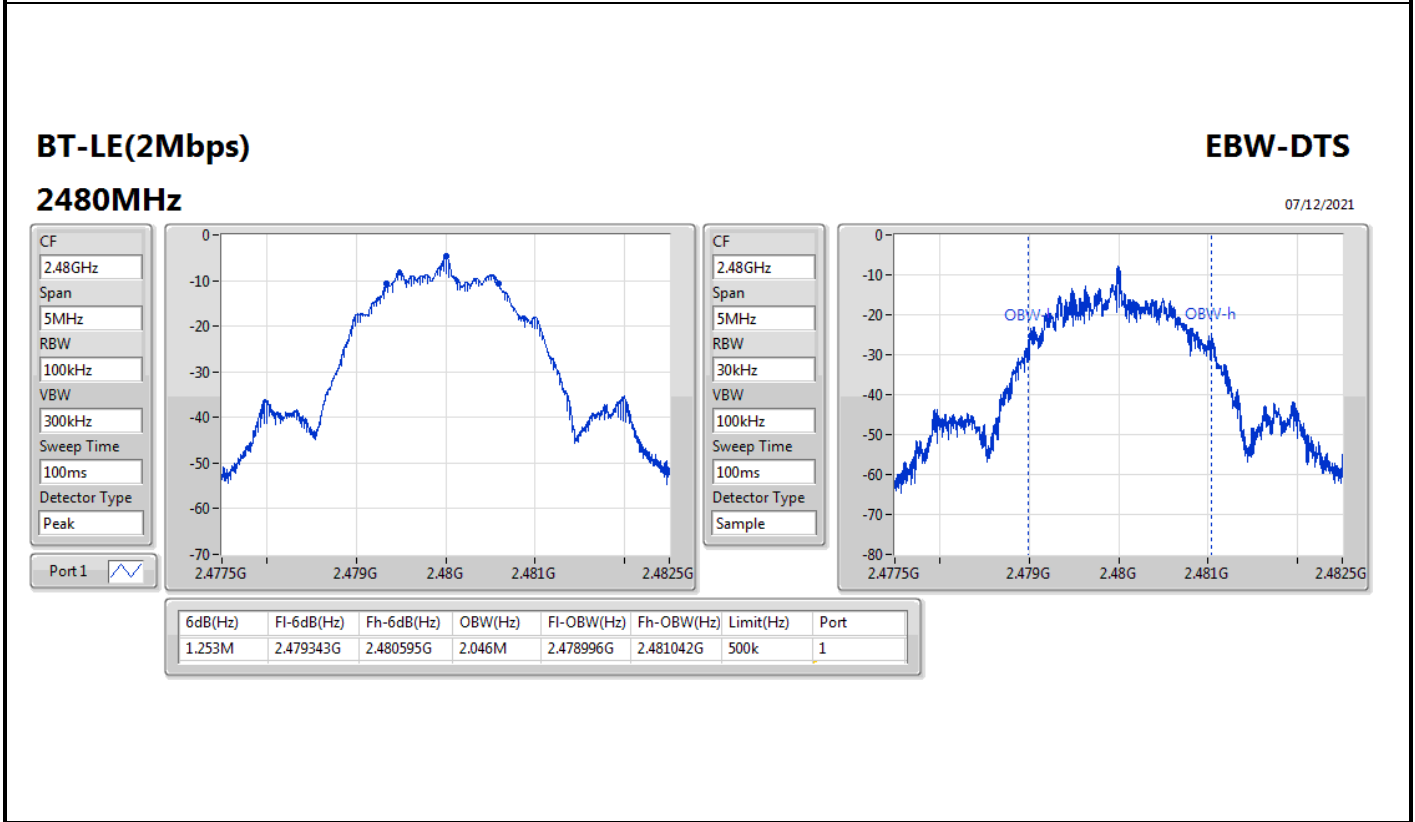
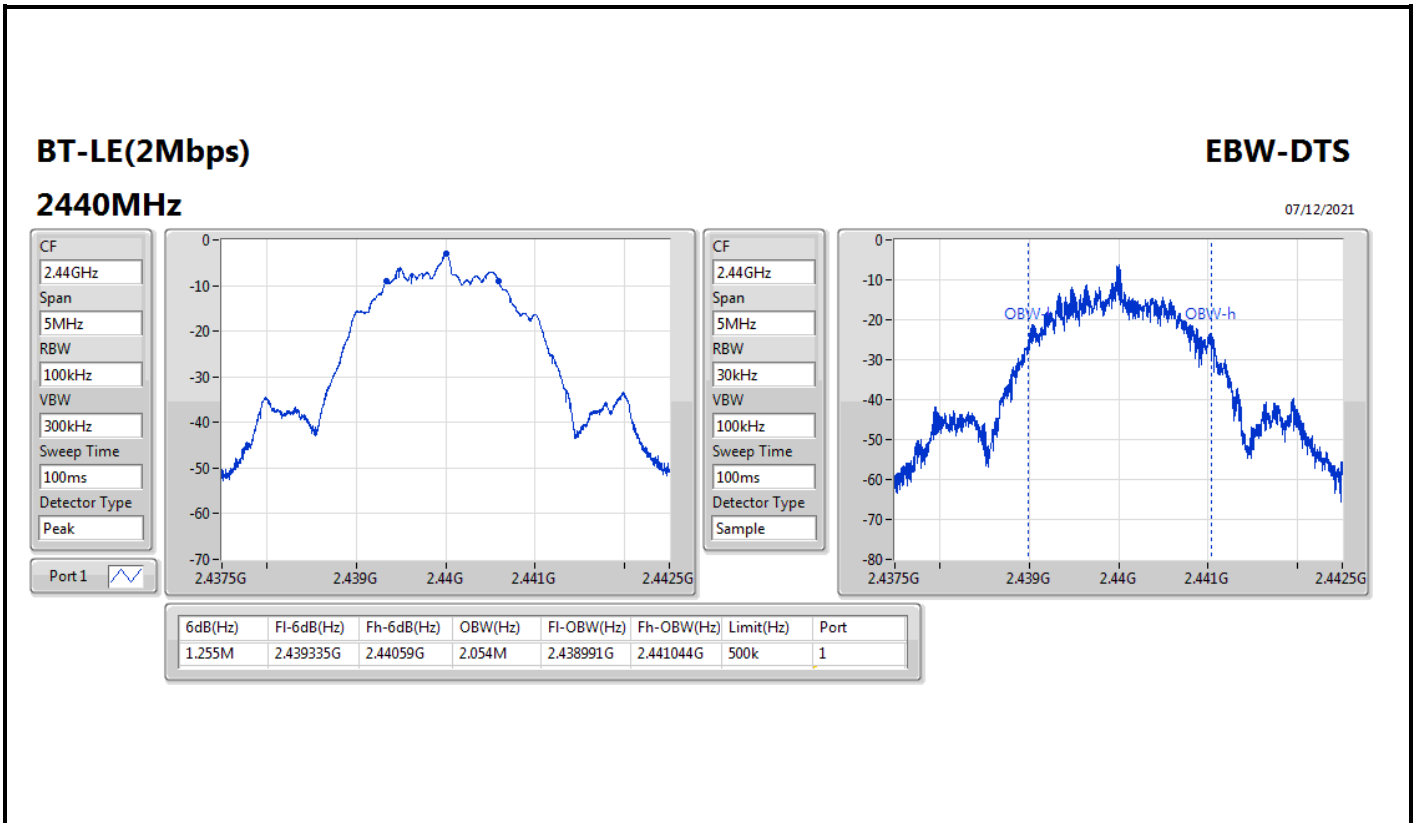
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	717.5k	1.038M
2440MHz	Pass	500k	722.5k	1.044M
2480MHz	Pass	500k	713.75k	1.034M
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	500k	1.258M	2.056M
2440MHz	Pass	500k	1.255M	2.054M
2480MHz	Pass	500k	1.253M	2.046M

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









Summary

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	-0.39	0.00091
BT-LE(2Mbps)	-0.11	0.00097



Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	0.81	-0.39	30.00
2440MHz	Pass	0.81	-1.16	30.00
2480MHz	Pass	0.81	-2.87	30.00
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	0.81	-0.11	30.00
2440MHz	Pass	0.81	-0.93	30.00
2480MHz	Pass	0.81	-2.71	30.00

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



Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE(1Mbps)	-17.82
BT-LE(2Mbps)	-20.17

RBW = 3kHz;



Result

Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	0.81	-17.82	8.00
2440MHz	Pass	0.81	-18.78	8.00
2480MHz	Pass	0.81	-20.54	8.00
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	0.81	-20.17	8.00
2440MHz	Pass	0.81	-21.11	8.00
2480MHz	Pass	0.81	-22.74	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

07/12/2021

CF
2.402GHz

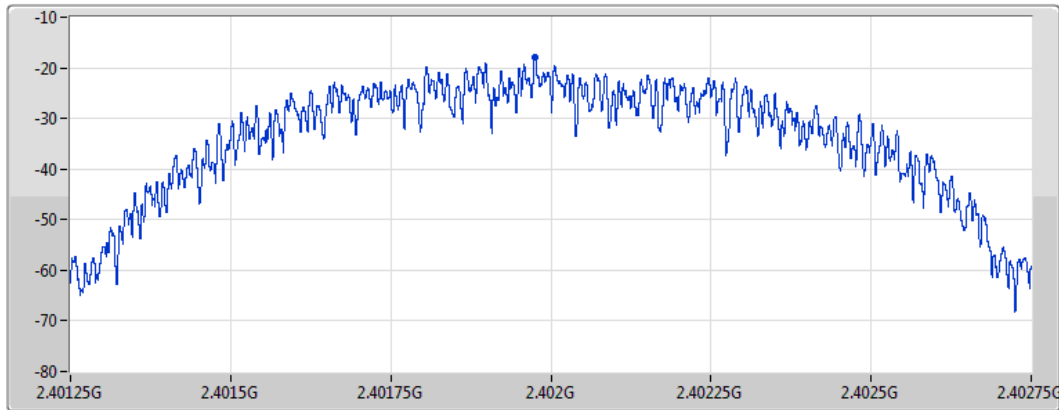
Span
1.5MHz

RBW
3kHz

VBW
10kHz

Sweep Time
632.18121us

Detector Type
Peak



Port 1 

Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-17.82	-17.82	-17.82

BT-LE(1Mbps)

PSD

2440MHz

07/12/2021

CF
2.44GHz

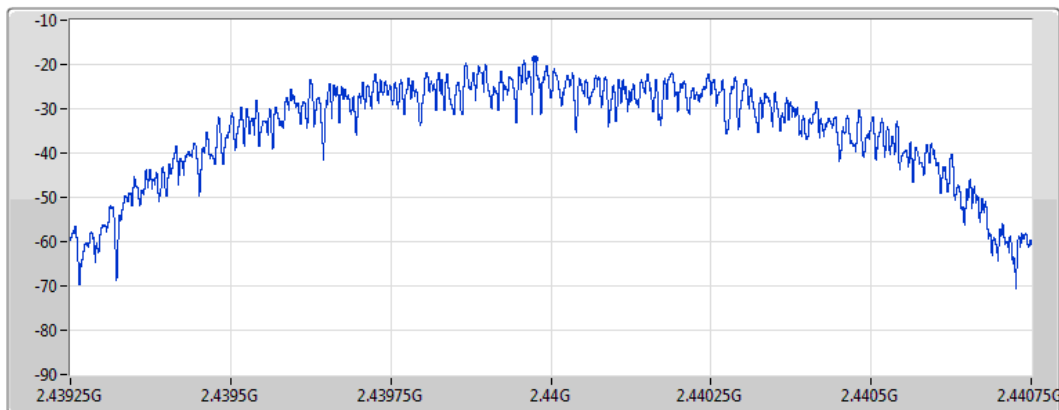
Span
1.5MHz


RBW
3kHz

VBW
10kHz

Sweep Time
632.18121us

Detector Type
Peak



Port 1 

Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-18.78	-18.78	-18.78

BT-LE(1Mbps)

PSD

2480MHz

07/12/2021

CF
2.48GHz

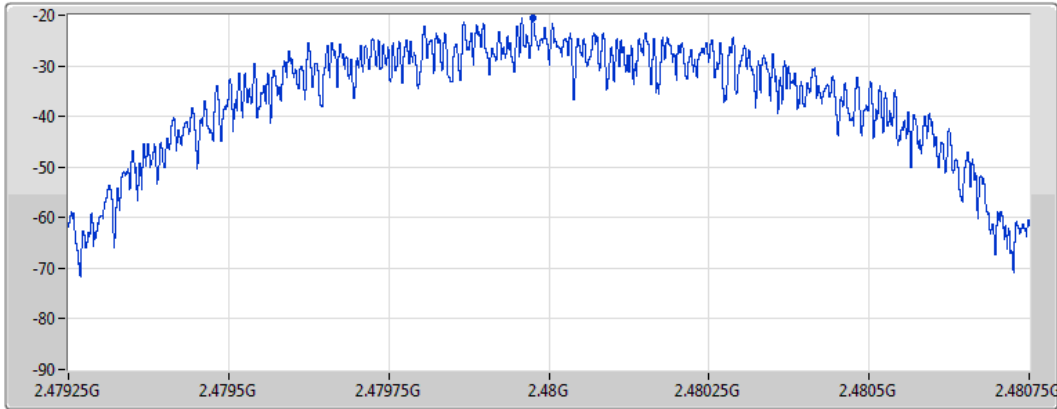
Span
1.5MHz


RBW
3kHz

VBW
10kHz

Sweep Time
632.18121us

Detector Type
Peak



Port 1 

Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-20.54	-20.54	-20.54

BT-LE(2Mbps)

PSD

2402MHz

07/12/2021

CF
2.402GHz

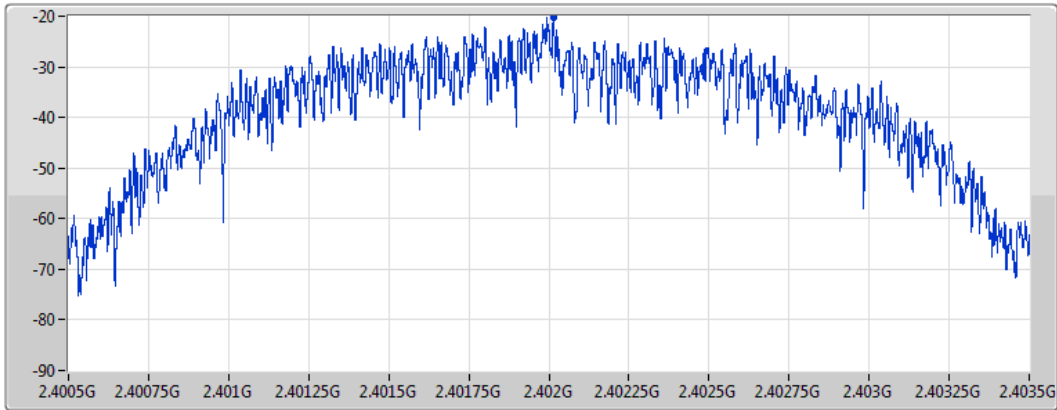
Span
3MHz


RBW
3kHz

VBW
10kHz

Sweep Time
632.01845us

Detector Type
Peak



Port 1 

Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-20.17	-20.17	-20.17

BT-LE(2Mbps)

PSD

2440MHz

07/12/2021

CF
2.44GHz

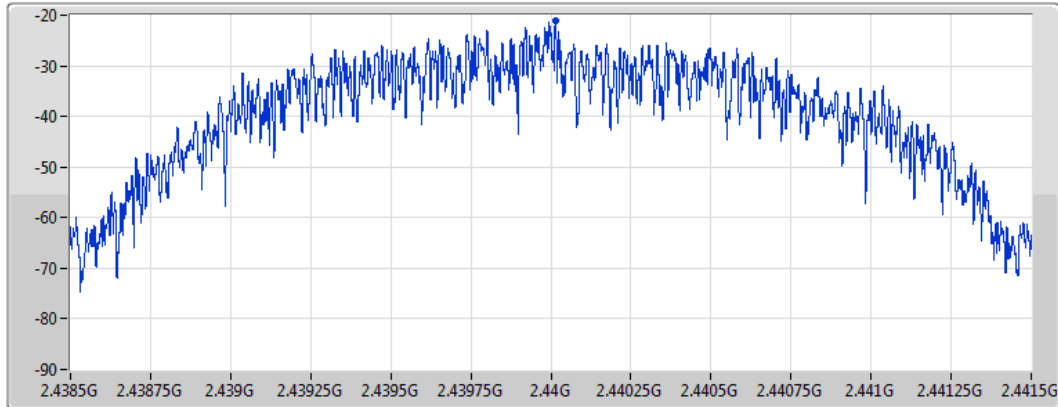
Span
3MHz

RBW
3kHz

VBW
10kHz

Sweep Time
632.01845us

Detector Type
Peak



Port 1 

Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-21.11	-21.11	-21.11

BT-LE(2Mbps)

PSD

2480MHz

07/12/2021

CF
2.48GHz

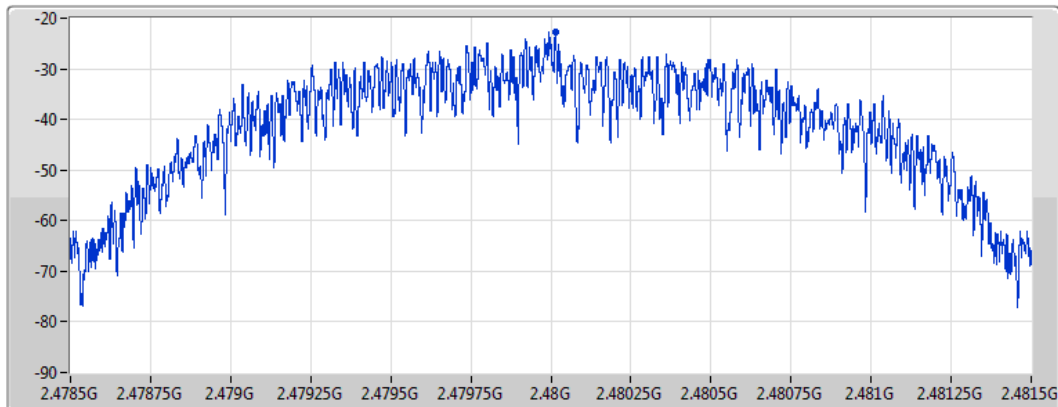
Span
3MHz


RBW
3kHz

VBW
10kHz

Sweep Time
632.01845us

Detector Type
Peak



Port 1 

Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-22.74	-22.74	-22.74



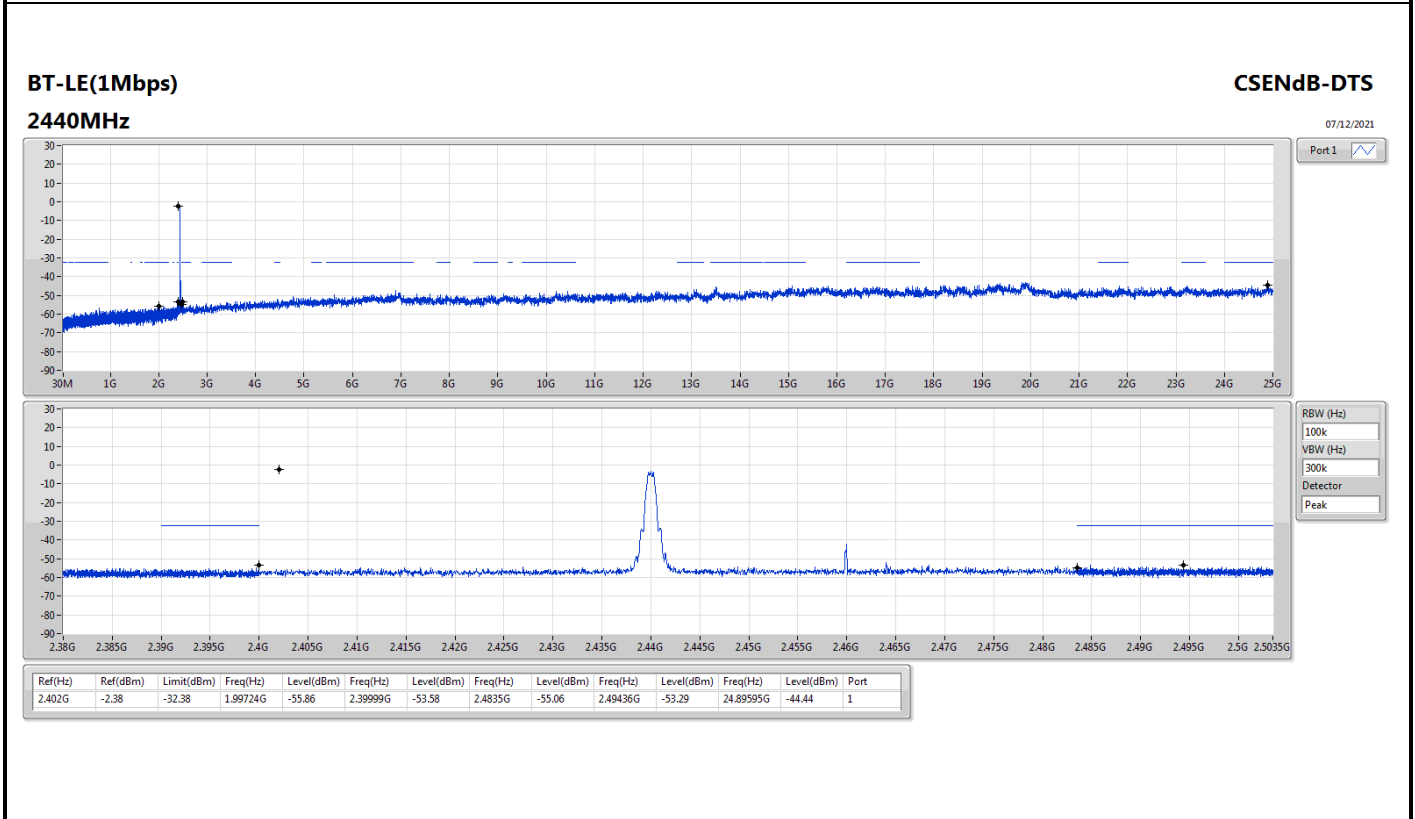
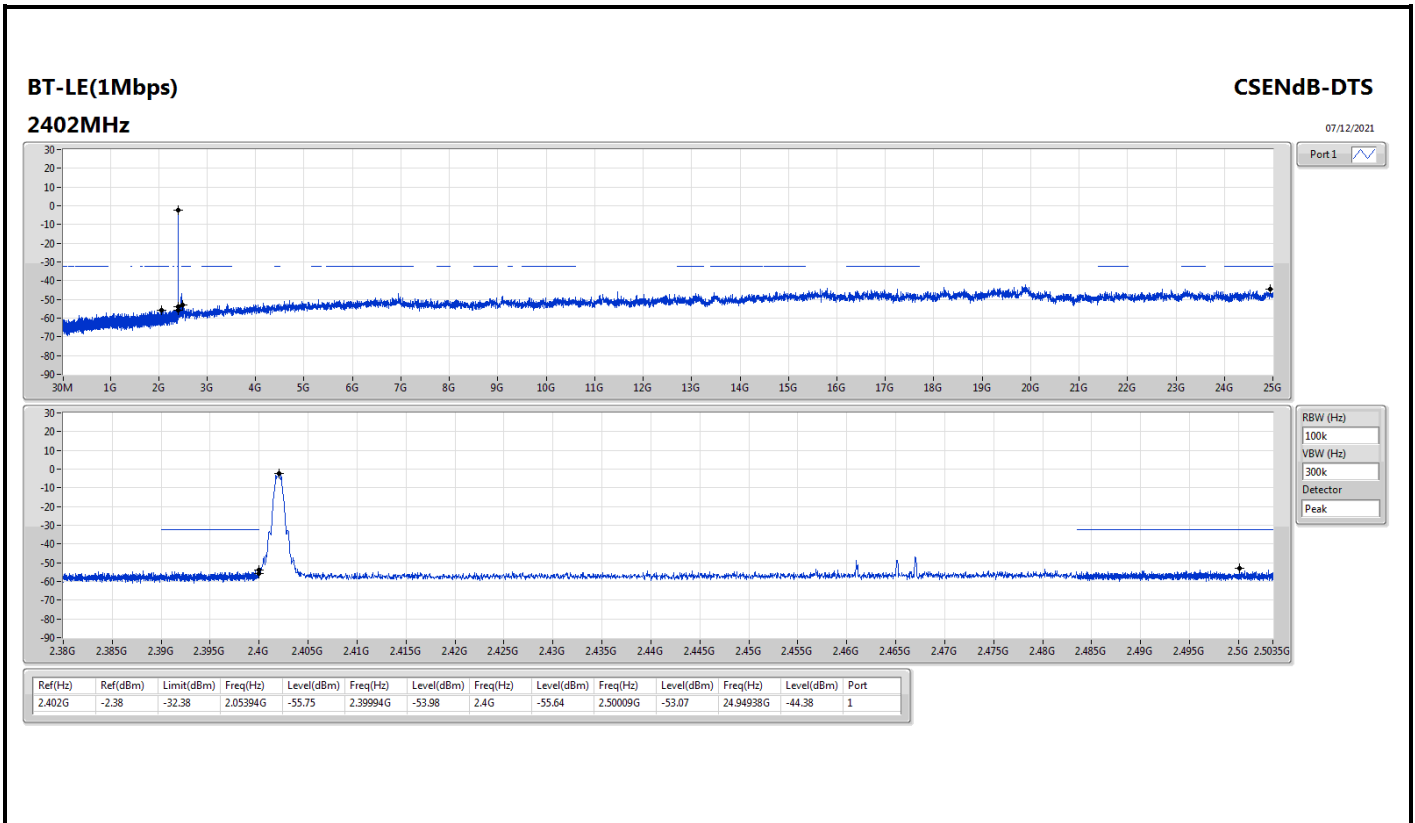
Summary

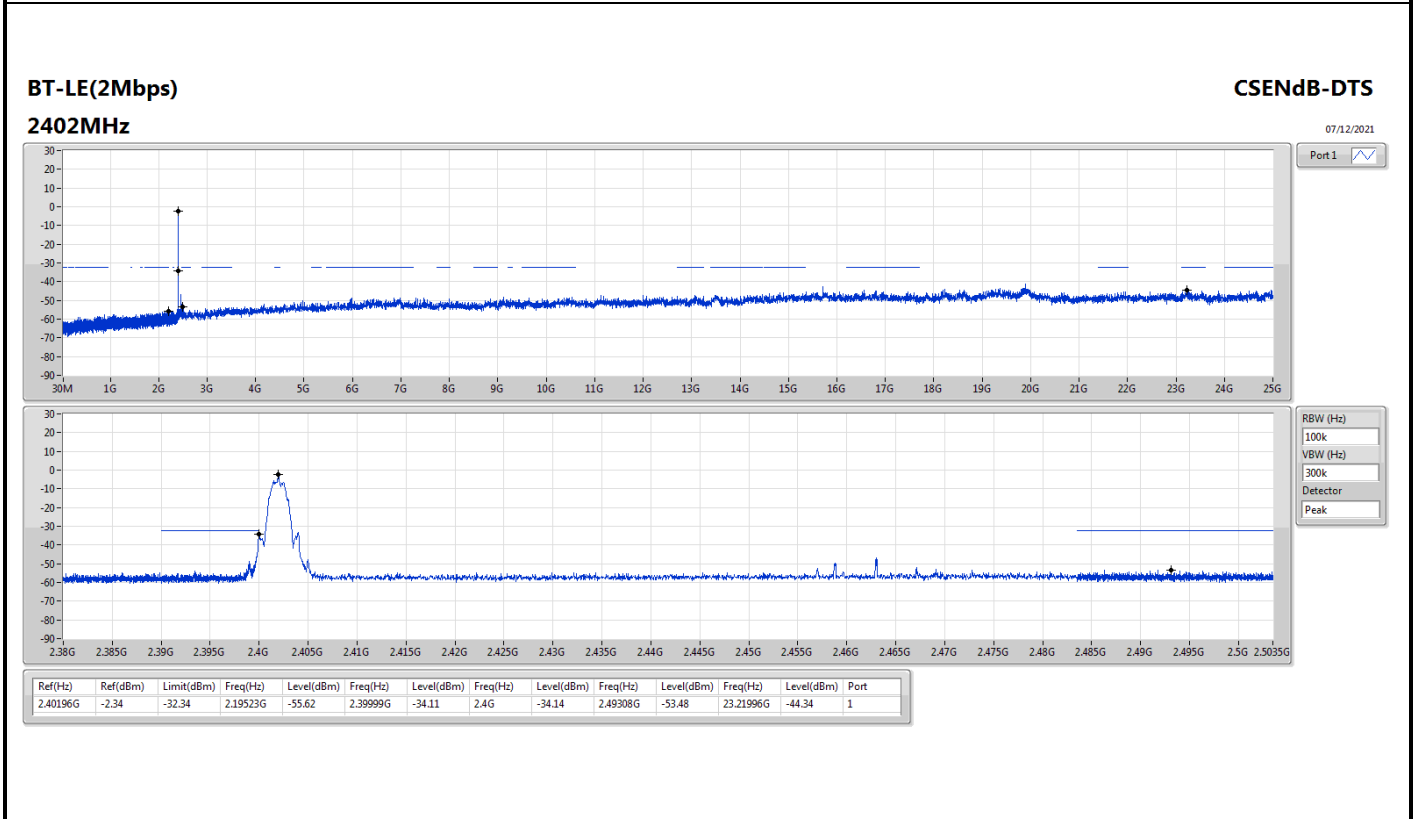
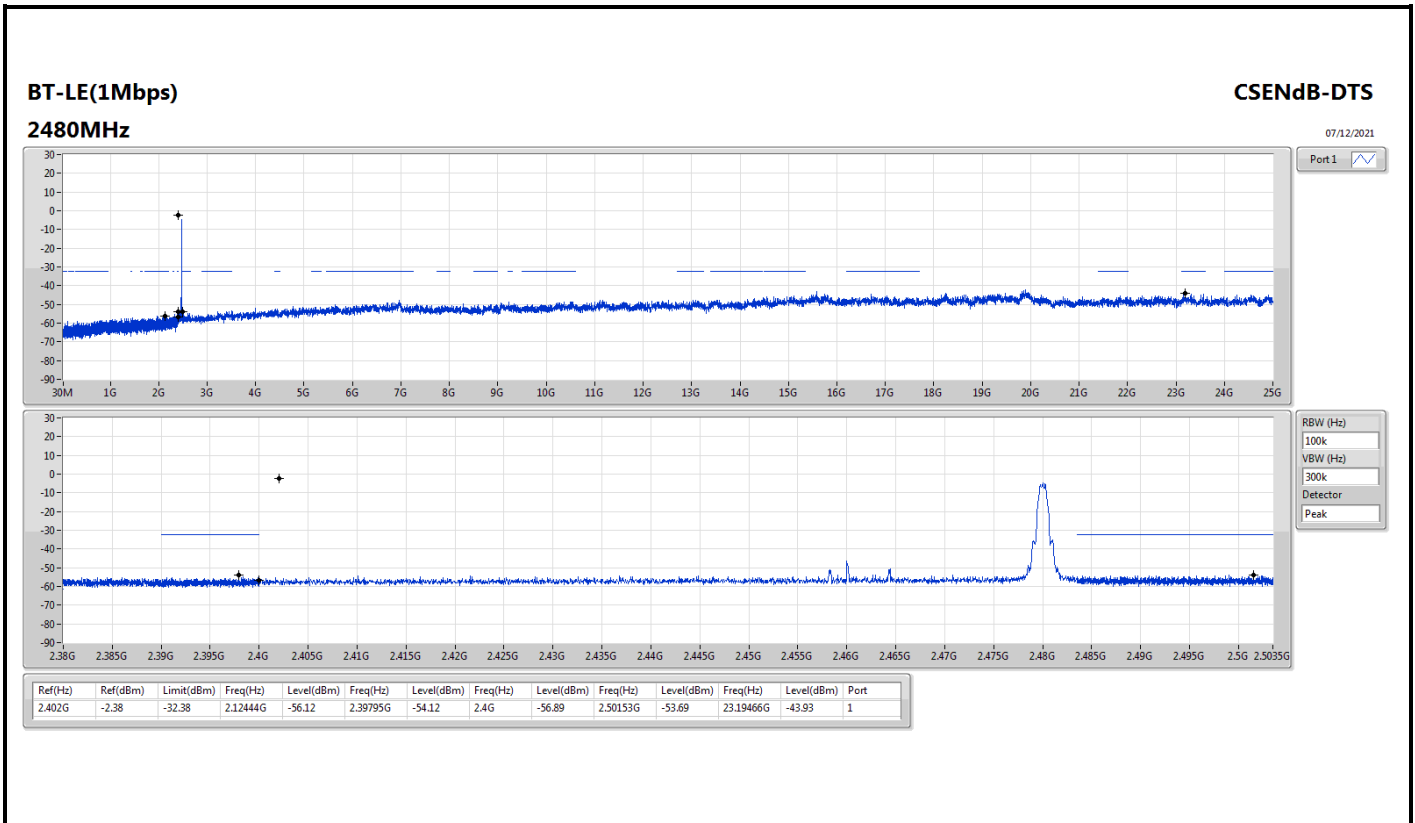
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	2.402G	-2.38	-32.38	2.05394G	-55.75	2.39994G	-53.98	2.4G	-55.64	2.50009G	-53.07	24.94938G	-44.38	1
BT-LE(2Mbps)	Pass	2.40196G	-2.34	-32.34	2.19523G	-55.62	2.39999G	-34.11	2.4G	-34.14	2.49308G	-53.48	23.21996G	-44.34	1

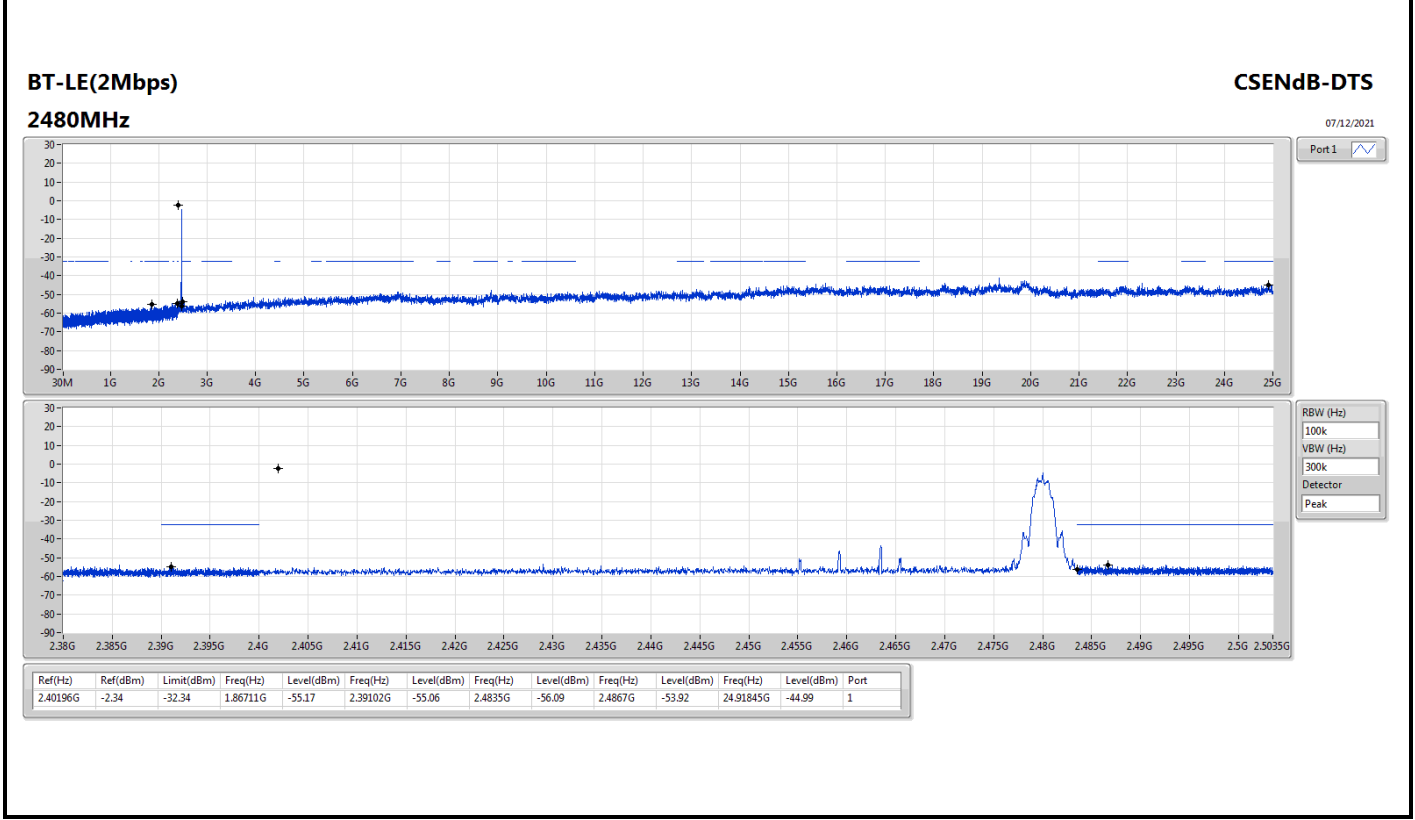
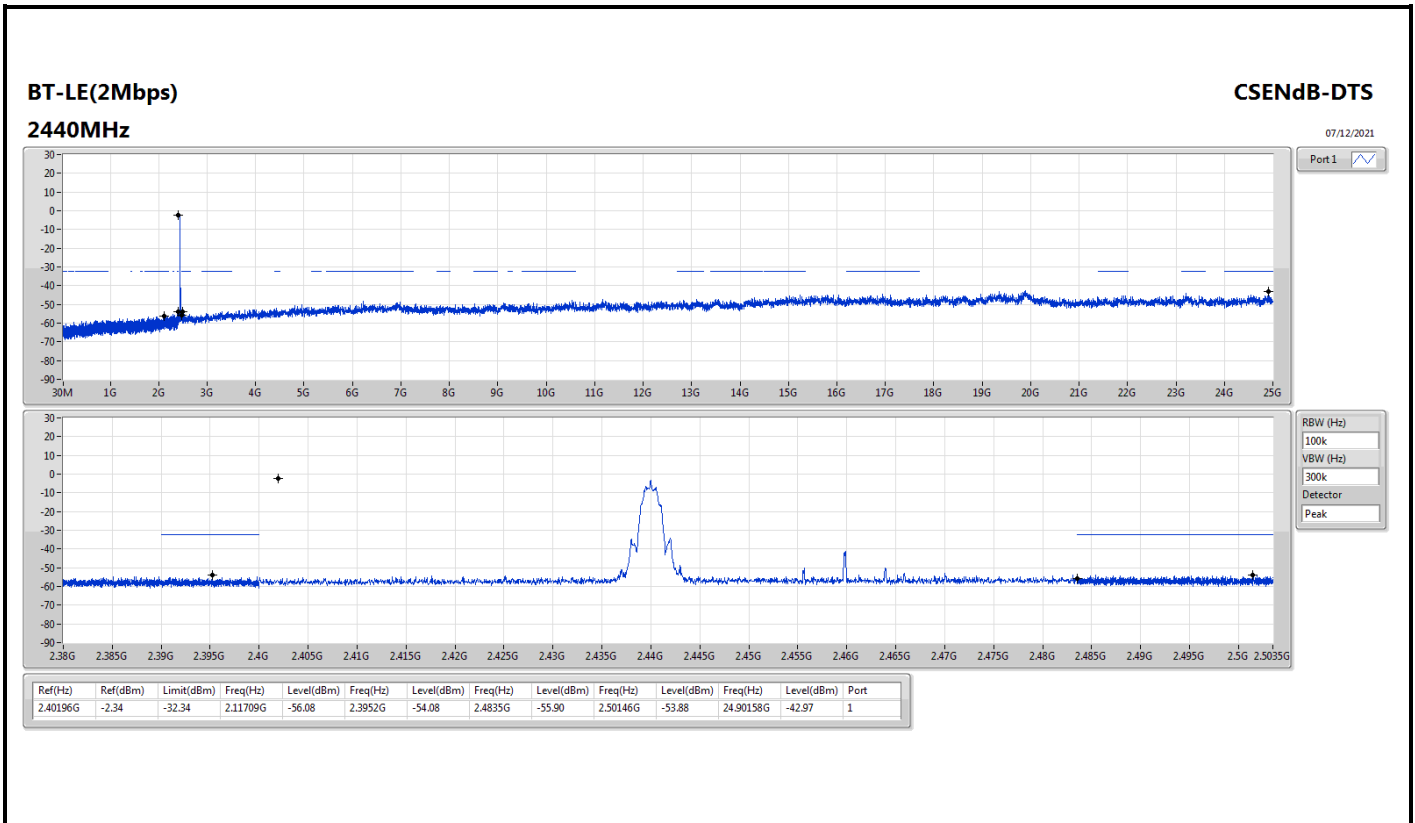


Result

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	2.402G	-2.38	-32.38	2.05394G	-55.75	2.39994G	-53.98	2.4G	-55.64	2.50009G	-53.07	24.94938G	-44.38	1
2440MHz	Pass	2.402G	-2.38	-32.38	1.99724G	-55.86	2.39999G	-53.58	2.4835G	-55.06	2.49436G	-53.29	24.89595G	-44.44	1
2480MHz	Pass	2.402G	-2.38	-32.38	2.12444G	-56.12	2.39795G	-54.12	2.4G	-56.89	2.50153G	-53.69	23.19466G	-43.93	1
BT-LE(2Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.40196G	-2.34	-32.34	2.19523G	-55.62	2.39999G	-34.11	2.4G	-34.14	2.49308G	-53.48	23.21996G	-44.34	1
2440MHz	Pass	2.40196G	-2.34	-32.34	2.11709G	-56.08	2.3952G	-54.08	2.4835G	-55.90	2.50146G	-53.88	24.90158G	-42.97	1
2480MHz	Pass	2.40196G	-2.34	-32.34	1.86711G	-55.17	2.39102G	-55.06	2.4835G	-56.09	2.4867G	-53.92	24.91845G	-44.99	1









Summary

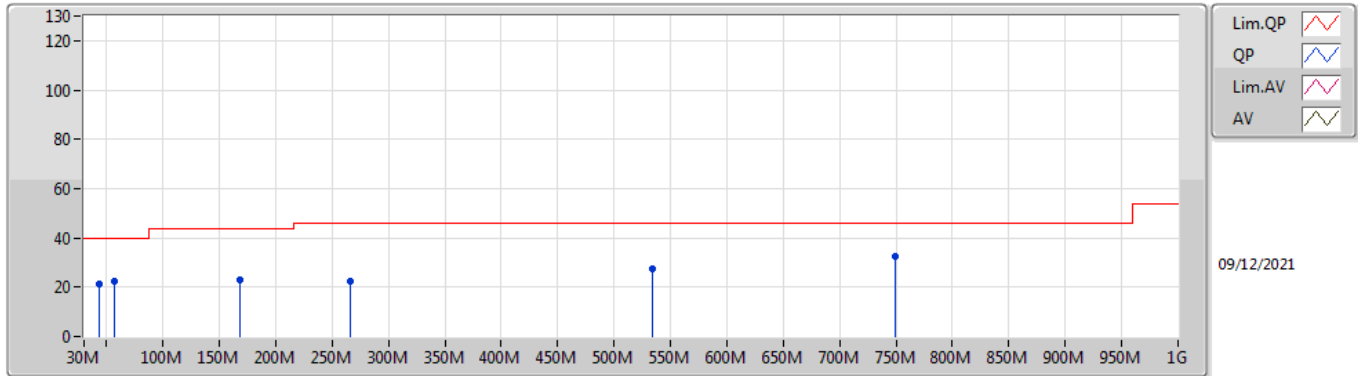
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
BT-LE(2Mbps)	Pass	PK	749.74M	33.64	46.00	-12.36	3	Horizontal	0	1.00	-



Result

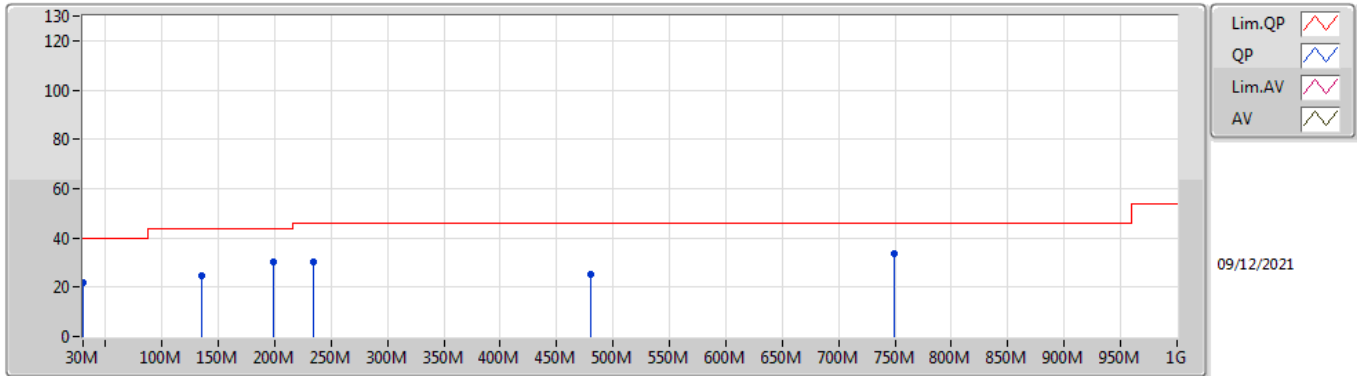
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
BT-LE(2Mbps)	-	-	-	-	-	-	-	-	-	-	-
2440MHz	Pass	PK	43.58M	21.28	40.00	-18.72	3	Vertical	360	1.00	-
2440MHz	Pass	PK	57.16M	22.58	40.00	-17.42	3	Vertical	360	1.00	-
2440MHz	Pass	PK	167.74M	22.72	43.50	-20.78	3	Vertical	360	1.00	-
2440MHz	Pass	PK	266.68M	22.21	46.00	-23.79	3	Vertical	360	1.00	-
2440MHz	Pass	PK	534.4M	27.40	46.00	-18.60	3	Vertical	360	1.00	-
2440MHz	Pass	PK	749.74M	32.22	46.00	-13.78	3	Vertical	360	1.00	-
2440MHz	Pass	PK	30M	21.72	40.00	-18.28	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	134.76M	24.73	43.50	-18.77	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	198.78M	30.28	43.50	-13.22	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	233.7M	30.40	46.00	-15.60	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	480.08M	25.13	46.00	-20.87	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	749.74M	33.64	46.00	-12.36	3	Horizontal	0	1.00	-

BT-LE(2Mbps)
2440MHz_USB



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	43.58M	21.28	40.00	-18.72	-19.55	3	Vertical	360	1.00	-	40.83	16.75	0.77	37.07
PK	57.16M	22.58	40.00	-17.42	-24.97	3	Vertical	360	1.00	-	47.55	11.29	0.83	37.09
PK	167.74M	22.72	43.50	-20.78	-20.08	3	Vertical	360	1.00	-	42.80	15.06	1.25	36.39
PK	266.68M	22.21	46.00	-23.79	-15.96	3	Vertical	360	1.00	-	38.17	18.89	1.56	36.41
PK	534.4M	27.40	46.00	-18.60	-11.64	3	Vertical	360	1.00	-	39.04	23.08	2.33	37.05
PK	749.74M	32.22	46.00	-13.78	-7.58	3	Vertical	360	1.00	-	39.80	27.24	2.79	37.61

BT-LE(2Mbps)
2440MHz_USB



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	21.72	40.00	-18.28	-12.86	3	Horizontal	0	1.00	-	34.58	23.73	0.56	37.15
PK	134.76M	24.73	43.50	-18.77	-18.61	3	Horizontal	0	1.00	-	43.34	16.72	1.15	36.48
PK	198.78M	30.28	43.50	-13.22	-20.69	3	Horizontal	0	1.00	-	50.97	14.27	1.32	36.28
PK	233.7M	30.40	46.00	-15.60	-19.21	3	Horizontal	0	1.00	-	49.61	15.70	1.44	36.35
PK	480.08M	25.13	46.00	-20.87	-11.84	3	Horizontal	0	1.00	-	36.97	22.82	2.18	36.84
PK	749.74M	33.64	46.00	-12.36	-7.58	3	Horizontal	0	1.00	-	41.22	27.24	2.79	37.61



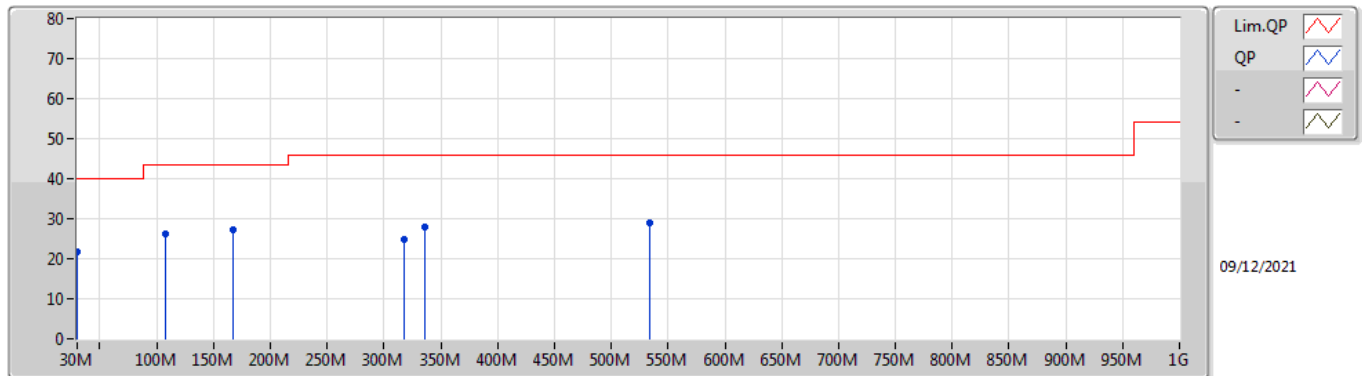
Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 2	Pass	PK	303.54M	33.18	46.00	-12.82	Horizontal

Mode Configure

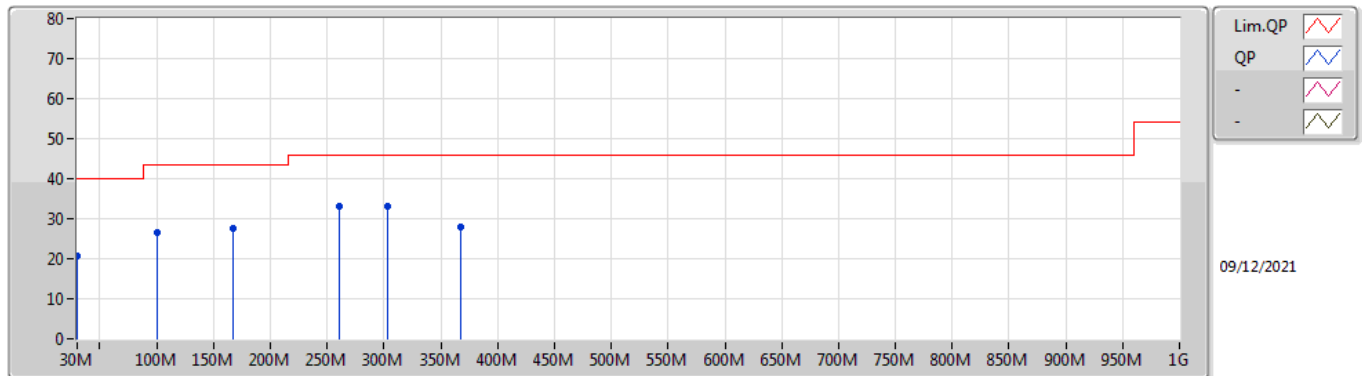
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
Mode 2	Pass	PK	30M	21.71	40.00	-18.29	3	Vertical	360	1.00	-
Mode 2	Pass	PK	107.6M	26.23	43.50	-17.27	3	Vertical	360	1.00	-
Mode 2	Pass	PK	167.74M	27.17	43.50	-16.33	3	Vertical	360	1.00	-
Mode 2	Pass	PK	317.12M	24.98	46.00	-21.02	3	Vertical	360	1.00	-
Mode 2	Pass	PK	336.52M	27.86	46.00	-18.14	3	Vertical	360	1.00	-
Mode 2	Pass	PK	534.4M	28.87	46.00	-17.13	3	Vertical	360	1.00	-
Mode 2	Pass	PK	30M	20.55	40.00	-19.45	3	Horizontal	0	1.00	-
Mode 2	Pass	PK	99.84M	26.40	43.50	-17.10	3	Horizontal	0	1.00	-
Mode 2	Pass	PK	167.74M	27.47	43.50	-16.03	3	Horizontal	0	1.00	-
Mode 2	Pass	PK	260.86M	33.10	46.00	-12.90	3	Horizontal	0	1.00	-
Mode 2	Pass	PK	303.54M	33.18	46.00	-12.82	3	Horizontal	0	1.00	-
Mode 2	Pass	PK	367.56M	27.99	46.00	-18.01	3	Horizontal	0	1.00	-

Radiated Emissions below 1GHz_Mode 2



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV/m)	AF (dB/m)	CL (dB)	PA (dB)
PK	30M	21.71	40.00	-18.29	-12.86	3	Vertical	360	1.00	-	34.57	23.73	0.56	37.15
PK	107.6M	26.23	43.50	-17.27	-19.63	3	Vertical	360	1.00	-	45.86	16.00	1.01	36.64
PK	167.74M	27.17	43.50	-16.33	-20.08	3	Vertical	360	1.00	-	47.25	15.06	1.25	36.39
PK	317.12M	24.98	46.00	-21.02	-16.22	3	Vertical	360	1.00	-	41.20	18.55	1.70	36.47
PK	336.52M	27.86	46.00	-18.14	-15.65	3	Vertical	360	1.00	-	43.51	19.12	1.74	36.51
PK	534.4M	28.87	46.00	-17.13	-11.64	3	Vertical	360	1.00	-	40.51	23.08	2.33	37.05

Radiated Emissions below 1GHz_Mode 2



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV/m)	AF (dB/m)	CL (dB)	PA (dB)
PK	30M	20.55	40.00	-19.45	-12.86	3	Horizontal	0	1.00	-	33.41	23.73	0.56	37.15
PK	99.84M	26.40	43.50	-17.10	-20.52	3	Horizontal	0	1.00	-	46.92	15.13	0.97	36.62
PK	167.74M	27.47	43.50	-16.03	-20.08	3	Horizontal	0	1.00	-	47.55	15.06	1.25	36.39
PK	260.86M	33.10	46.00	-12.90	-15.47	3	Horizontal	0	1.00	-	48.57	19.39	1.54	36.40
PK	303.54M	33.18	46.00	-12.82	-16.39	3	Horizontal	0	1.00	-	49.57	18.38	1.68	36.45
PK	367.56M	27.99	46.00	-18.01	-14.78	3	Horizontal	0	1.00	-	42.77	19.94	1.82	36.54



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	2.4908G	48.32	54.00	-5.68	3	Vertical	263	1.09	-
BT-LE(2Mbps)	Pass	AV	2.4835G	50.13	54.00	-3.87	3	Horizontal	304	1.06	-



Result

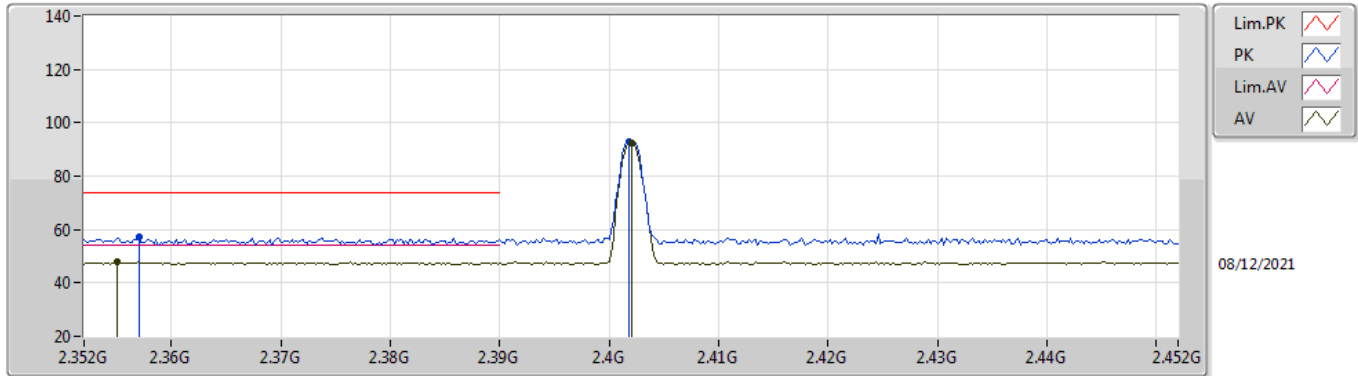
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	AV	2.355G	47.75	54.00	-6.25	3	Vertical	226	1.19	-
2402MHz	Pass	AV	2.402G	92.16	Inf	-Inf	3	Vertical	226	1.19	-
2402MHz	Pass	PK	2.357G	57.16	74.00	-16.84	3	Vertical	226	1.19	-
2402MHz	Pass	PK	2.4018G	92.77	Inf	-Inf	3	Vertical	226	1.19	-
2402MHz	Pass	AV	2.3644G	47.78	54.00	-6.22	3	Horizontal	260	1.18	-
2402MHz	Pass	AV	2.402G	88.89	Inf	-Inf	3	Horizontal	260	1.18	-
2402MHz	Pass	PK	2.3814G	57.21	74.00	-16.79	3	Horizontal	260	1.18	-
2402MHz	Pass	PK	2.4018G	89.54	Inf	-Inf	3	Horizontal	260	1.18	-
2402MHz	Pass	AV	4.8037G	38.71	54.00	-15.29	3	Vertical	32	1.00	-
2402MHz	Pass	PK	4.80447G	47.27	74.00	-26.73	3	Vertical	32	1.00	-
2402MHz	Pass	AV	4.80421G	37.32	54.00	-16.68	3	Horizontal	35	1.43	-
2402MHz	Pass	PK	4.80442G	46.27	74.00	-27.73	3	Horizontal	35	1.43	-
2440MHz	Pass	AV	2.3592G	47.89	54.00	-6.11	3	Vertical	360	2.29	-
2440MHz	Pass	AV	2.44G	92.91	Inf	-Inf	3	Vertical	360	2.29	-
2440MHz	Pass	AV	2.4924G	48.09	54.00	-5.91	3	Vertical	360	2.29	-
2440MHz	Pass	PK	2.3488G	56.80	74.00	-17.20	3	Vertical	360	2.29	-
2440MHz	Pass	PK	2.4396G	93.49	Inf	-Inf	3	Vertical	360	2.29	-
2440MHz	Pass	PK	2.4956G	56.83	74.00	-17.17	3	Vertical	360	2.29	-
2440MHz	Pass	AV	2.3576G	47.79	54.00	-6.21	3	Horizontal	268	1.58	-
2440MHz	Pass	AV	2.44G	92.85	Inf	-Inf	3	Horizontal	268	1.58	-
2440MHz	Pass	AV	2.494G	47.80	54.00	-6.20	3	Horizontal	268	1.58	-
2440MHz	Pass	PK	2.3668G	57.28	74.00	-16.72	3	Horizontal	268	1.58	-
2440MHz	Pass	PK	2.44G	93.49	Inf	-Inf	3	Horizontal	268	1.58	-
2440MHz	Pass	PK	2.488G	57.16	74.00	-16.84	3	Horizontal	268	1.58	-
2440MHz	Pass	AV	4.88033G	35.48	54.00	-18.52	3	Vertical	169	2.34	-
2440MHz	Pass	AV	7.32062G	42.06	54.00	-11.94	3	Vertical	153	1.00	-
2440MHz	Pass	PK	4.88056G	45.15	74.00	-28.85	3	Vertical	169	2.34	-
2440MHz	Pass	PK	7.3204G	51.07	74.00	-22.93	3	Vertical	153	1.00	-
2440MHz	Pass	AV	4.87939G	35.87	54.00	-18.13	3	Horizontal	34	1.01	-
2440MHz	Pass	AV	7.3194G	41.82	54.00	-12.18	3	Horizontal	112	1.74	-
2440MHz	Pass	PK	4.88042G	45.27	74.00	-28.73	3	Horizontal	34	1.01	-
2440MHz	Pass	PK	7.31919G	49.95	74.00	-24.05	3	Horizontal	112	1.74	-
2480MHz	Pass	AV	2.48G	93.20	Inf	-Inf	3	Vertical	263	1.09	-
2480MHz	Pass	AV	2.4908G	48.32	54.00	-5.68	3	Vertical	263	1.09	-
2480MHz	Pass	PK	2.4798G	93.85	Inf	-Inf	3	Vertical	263	1.09	-
2480MHz	Pass	PK	2.4848G	57.56	74.00	-16.44	3	Vertical	263	1.09	-
2480MHz	Pass	AV	2.48G	95.69	Inf	-Inf	3	Horizontal	305	1.05	-
2480MHz	Pass	AV	2.4835G	48.04	54.00	-5.96	3	Horizontal	305	1.05	-
2480MHz	Pass	PK	2.4802G	96.32	Inf	-Inf	3	Horizontal	305	1.05	-
2480MHz	Pass	PK	2.4835G	57.65	74.00	-16.35	3	Horizontal	305	1.05	-
2480MHz	Pass	AV	4.95986G	36.00	54.00	-18.00	3	Vertical	190	1.50	-
2480MHz	Pass	AV	7.43934G	44.67	54.00	-9.33	3	Vertical	88	2.59	-
2480MHz	Pass	PK	4.96056G	45.72	74.00	-28.28	3	Vertical	190	1.50	-
2480MHz	Pass	PK	7.44074G	51.56	74.00	-22.44	3	Vertical	88	2.59	-
2480MHz	Pass	AV	4.96032G	37.95	54.00	-16.05	3	Horizontal	137	2.53	-
2480MHz	Pass	AV	7.44051G	42.38	54.00	-11.62	3	Horizontal	122	1.00	-
2480MHz	Pass	PK	4.95951G	46.71	74.00	-27.29	3	Horizontal	137	2.53	-
2480MHz	Pass	PK	7.44032G	50.85	74.00	-23.15	3	Horizontal	122	1.00	-
BT-LE(2Mbps)	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	AV	2.3526G	49.33	54.00	-4.67	3	Vertical	207	1.18	-
2402MHz	Pass	AV	2.402G	93.10	Inf	-Inf	3	Vertical	207	1.18	-
2402MHz	Pass	PK	2.3618G	57.34	74.00	-16.66	3	Vertical	207	1.18	-
2402MHz	Pass	PK	2.4014G	94.67	Inf	-Inf	3	Vertical	207	1.18	-
2402MHz	Pass	AV	2.3574G	49.29	54.00	-4.71	3	Horizontal	243	1.31	-
2402MHz	Pass	AV	2.402G	92.87	Inf	-Inf	3	Horizontal	243	1.31	-
2402MHz	Pass	PK	2.3882G	57.17	74.00	-16.83	3	Horizontal	243	1.31	-
2402MHz	Pass	PK	2.4026G	94.38	Inf	-Inf	3	Horizontal	243	1.31	-
2402MHz	Pass	AV	4.80295G	38.60	54.00	-15.40	3	Vertical	28	1.07	-
2402MHz	Pass	PK	4.80302G	46.03	74.00	-27.97	3	Vertical	28	1.07	-
2402MHz	Pass	AV	4.80325G	37.27	54.00	-16.73	3	Horizontal	38	1.49	-



Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2402MHz	Pass	PK	4.8025G	46.05	74.00	-27.95	3	Horizontal	38	1.49	-
2440MHz	Pass	AV	2.3748G	49.41	54.00	-4.59	3	Vertical	220	2.28	-
2440MHz	Pass	AV	2.44G	93.90	Inf	-Inf	3	Vertical	220	2.28	-
2440MHz	Pass	AV	2.49G	49.58	54.00	-4.42	3	Vertical	220	2.28	-
2440MHz	Pass	PK	2.3744G	57.62	74.00	-16.38	3	Vertical	220	2.28	-
2440MHz	Pass	PK	2.4404G	95.45	Inf	-Inf	3	Vertical	220	2.28	-
2440MHz	Pass	PK	2.484G	57.39	74.00	-16.61	3	Vertical	220	2.28	-
2440MHz	Pass	AV	2.354G	49.25	54.00	-4.75	3	Horizontal	251	1.20	-
2440MHz	Pass	AV	2.44G	94.28	Inf	-Inf	3	Horizontal	251	1.20	-
2440MHz	Pass	AV	2.4948G	49.16	54.00	-4.84	3	Horizontal	251	1.20	-
2440MHz	Pass	PK	2.386G	56.83	74.00	-17.17	3	Horizontal	251	1.20	-
2440MHz	Pass	PK	2.44G	95.77	Inf	-Inf	3	Horizontal	251	1.20	-
2440MHz	Pass	PK	2.4896G	56.58	74.00	-17.42	3	Horizontal	251	1.20	-
2440MHz	Pass	AV	4.87724G	35.58	54.00	-18.42	3	Vertical	230	1.00	-
2440MHz	Pass	AV	7.3215G	42.78	54.00	-11.22	3	Vertical	97	3.05	-
2440MHz	Pass	PK	4.88404G	44.40	74.00	-29.60	3	Vertical	230	1.00	-
2440MHz	Pass	PK	7.31984G	52.25	74.00	-21.75	3	Vertical	97	3.05	-
2440MHz	Pass	AV	4.87914G	35.56	54.00	-18.44	3	Horizontal	149	1.50	-
2440MHz	Pass	AV	7.31838G	42.37	54.00	-11.63	3	Horizontal	30	2.09	-
2440MHz	Pass	PK	4.8778G	44.62	74.00	-29.38	3	Horizontal	149	1.50	-
2440MHz	Pass	PK	7.31826G	51.19	74.00	-22.81	3	Horizontal	30	2.09	-
2480MHz	Pass	AV	2.4798G	91.83	Inf	-Inf	3	Vertical	263	1.17	-
2480MHz	Pass	AV	2.4982G	49.56	54.00	-4.44	3	Vertical	263	1.17	-
2480MHz	Pass	PK	2.4804G	93.49	Inf	-Inf	3	Vertical	263	1.17	-
2480MHz	Pass	PK	2.493G	57.33	74.00	-16.67	3	Vertical	263	1.17	-
2480MHz	Pass	AV	2.48G	94.61	Inf	-Inf	3	Horizontal	304	1.06	-
2480MHz	Pass	AV	2.4835G	50.13	54.00	-3.87	3	Horizontal	304	1.06	-
2480MHz	Pass	PK	2.4804G	96.16	Inf	-Inf	3	Horizontal	304	1.06	-
2480MHz	Pass	PK	2.4835G	57.35	74.00	-16.65	3	Horizontal	304	1.06	-
2480MHz	Pass	AV	4.96112G	37.37	54.00	-16.63	3	Vertical	27	1.15	-
2480MHz	Pass	AV	7.43874G	42.97	54.00	-11.03	3	Vertical	107	2.83	-
2480MHz	Pass	PK	4.96005G	45.84	74.00	-28.16	3	Vertical	27	1.15	-
2480MHz	Pass	PK	7.44128G	51.46	74.00	-22.54	3	Vertical	107	2.83	-
2480MHz	Pass	AV	4.95888G	38.37	54.00	-15.63	3	Horizontal	133	2.51	-
2480MHz	Pass	AV	7.4388G	42.80	54.00	-11.20	3	Horizontal	77	1.50	-
2480MHz	Pass	PK	4.96032G	45.59	74.00	-28.41	3	Horizontal	133	2.51	-
2480MHz	Pass	PK	7.446G	50.76	74.00	-23.24	3	Horizontal	77	1.50	-

BT-LE(1Mbps)

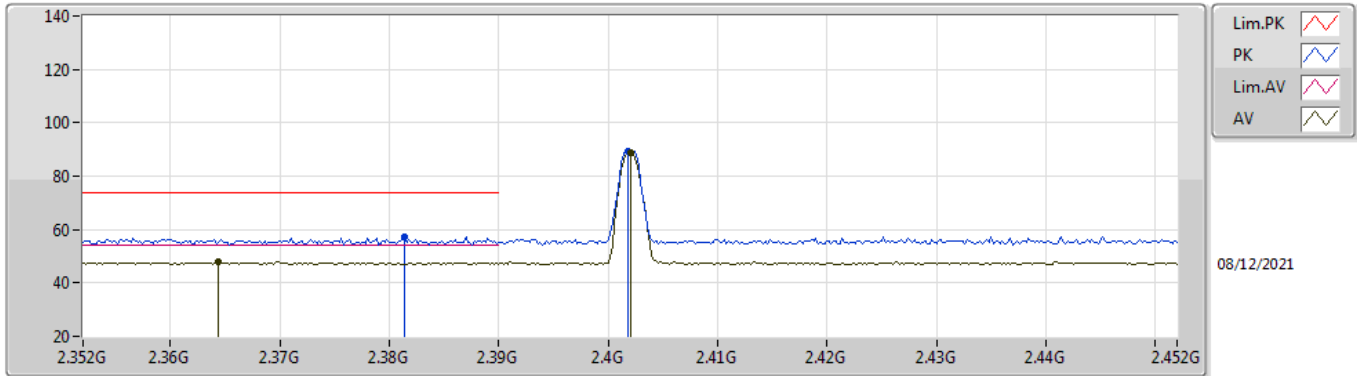
2402MHz_TX



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	2.355G	47.75	54.00	-6.25	32.32	3	Vertical	226	1.19	-	15.43	27.78	4.54	-
AV	2.402G	92.16	Inf	-Inf	32.18	3	Vertical	226	1.19	-	59.98	27.60	4.58	-
PK	2.357G	57.16	74.00	-16.84	32.31	3	Vertical	226	1.19	-	24.85	27.77	4.54	-
PK	2.4018G	92.77	Inf	-Inf	32.18	3	Vertical	226	1.19	-	60.59	27.60	4.58	-

BT-LE(1Mbps)

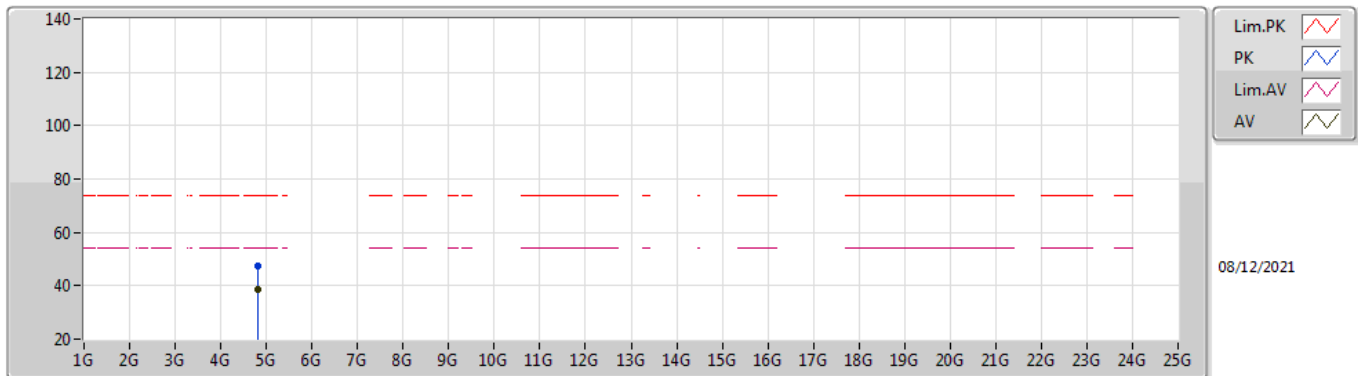
2402MHz_TX



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	2.3644G	47.78	54.00	-6.22	32.29	3	Horizontal	260	1.18	-	15.49	27.74	4.55	-
AV	2.402G	88.89	Inf	-Inf	32.18	3	Horizontal	260	1.18	-	56.71	27.60	4.58	-
PK	2.3814G	57.21	74.00	-16.79	32.23	3	Horizontal	260	1.18	-	24.98	27.67	4.56	-
PK	2.4018G	89.54	Inf	-Inf	32.18	3	Horizontal	260	1.18	-	57.36	27.60	4.58	-

BT-LE(1Mbps)

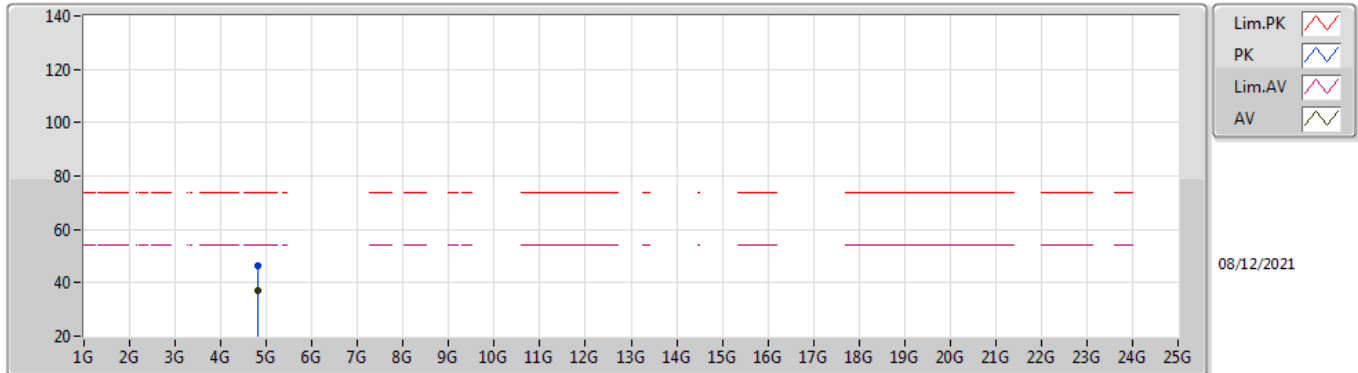
2402MHz_TX



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	4.8037G	38.71	54.00	-15.29	2.95	3	Vertical	32	1.00	-	35.76	31.10	6.66	34.81
PK	4.80447G	47.27	74.00	-26.73	2.95	3	Vertical	32	1.00	-	44.32	31.10	6.66	34.81

BT-LE(1Mbps)

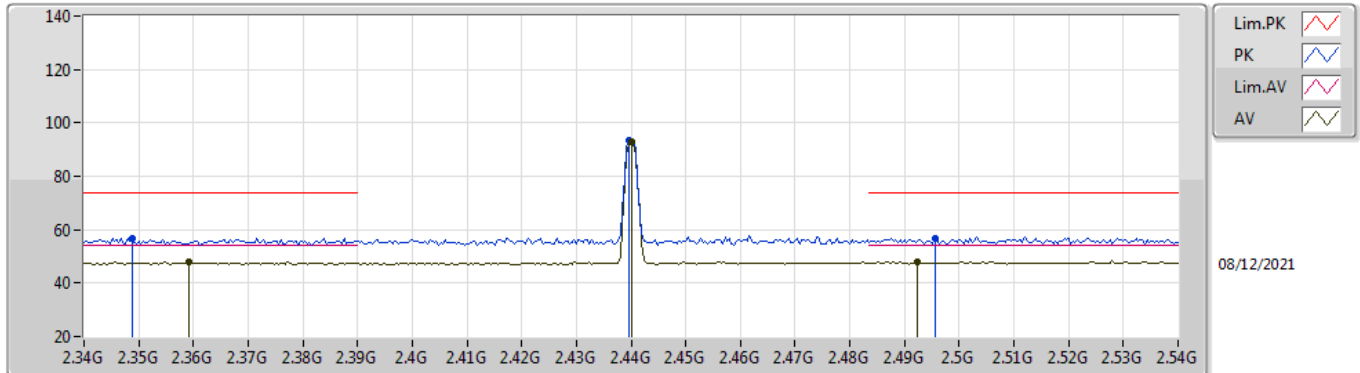
2402MHz_TX



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	4.80421G	37.32	54.00	-16.68	2.95	3	Horizontal	35	1.43	-	34.37	31.10	6.66	34.81
PK	4.80442G	46.27	74.00	-27.73	2.95	3	Horizontal	35	1.43	-	43.32	31.10	6.66	34.81

BT-LE(1Mbps)

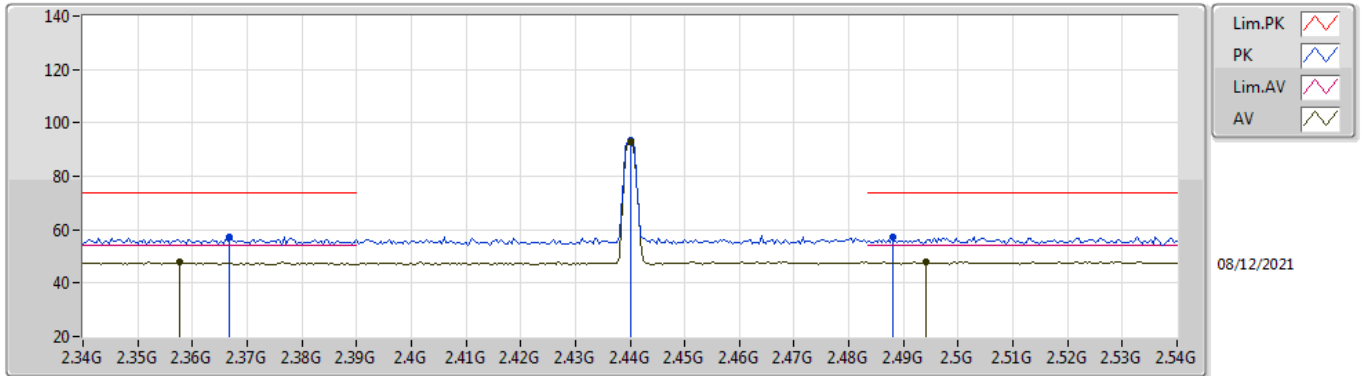
2440MHz_TX



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	2.3592G	47.89	54.00	-6.11	32.30	3	Vertical	360	2.29	-	15.59	27.76	4.54	-
AV	2.44G	92.91	Inf	-Inf	32.12	3	Vertical	360	2.29	-	60.79	27.52	4.60	-
AV	2.4924G	48.09	54.00	-5.91	32.12	3	Vertical	360	2.29	-	15.97	27.50	4.62	-
PK	2.3488G	56.80	74.00	-17.20	32.33	3	Vertical	360	2.29	-	24.47	27.80	4.53	-
PK	2.4396G	93.49	Inf	-Inf	32.12	3	Vertical	360	2.29	-	61.37	27.52	4.60	-
PK	2.4956G	56.83	74.00	-17.17	32.12	3	Vertical	360	2.29	-	24.71	27.50	4.62	-

BT-LE(1Mbps)

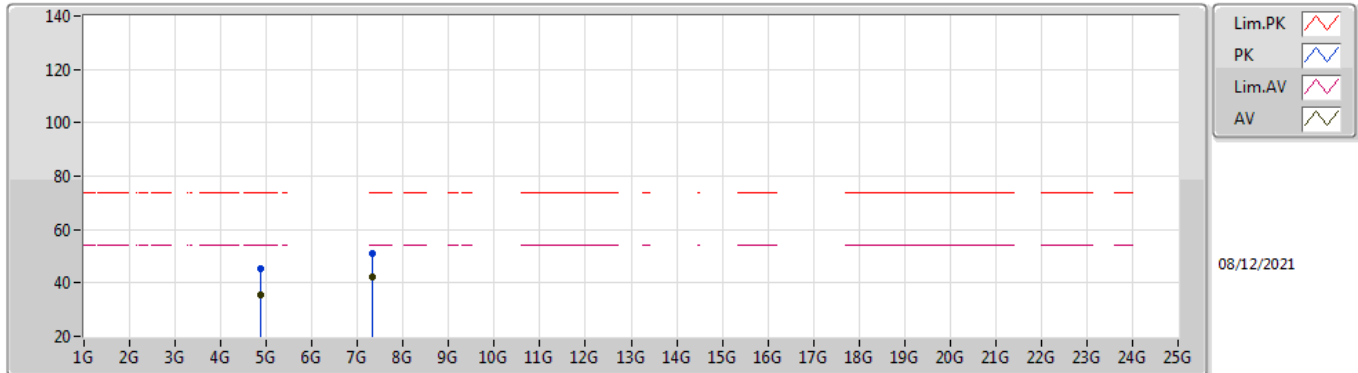
2440MHz_TX



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	2.3576G	47.79	54.00	-6.21	32.31	3	Horizontal	268	1.58	-	15.48	27.77	4.54	-
AV	2.44G	92.85	Inf	-Inf	32.12	3	Horizontal	268	1.58	-	60.73	27.52	4.60	-
AV	2.494G	47.80	54.00	-6.20	32.12	3	Horizontal	268	1.58	-	15.68	27.50	4.62	-
PK	2.3668G	57.28	74.00	-16.72	32.28	3	Horizontal	268	1.58	-	25.00	27.73	4.55	-
PK	2.44G	93.49	Inf	-Inf	32.12	3	Horizontal	268	1.58	-	61.37	27.52	4.60	-
PK	2.488G	57.16	74.00	-16.84	32.12	3	Horizontal	268	1.58	-	25.04	27.50	4.62	-

BT-LE(1Mbps)

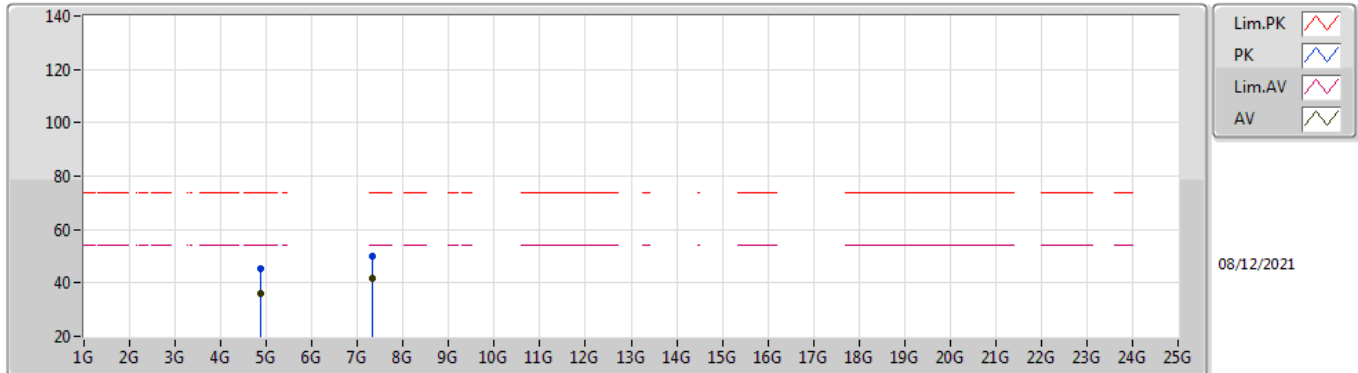
2440MHz_TX



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	4.88033G	35.48	54.00	-18.52	3.03	3	Vertical	169	2.34	-	32.45	31.10	6.72	34.79
AV	7.32062G	42.06	54.00	-11.94	9.41	3	Vertical	153	1.00	-	32.65	36.36	7.87	34.82
PK	4.88056G	45.15	74.00	-28.85	3.03	3	Vertical	169	2.34	-	42.12	31.10	6.72	34.79
PK	7.3204G	51.07	74.00	-22.93	9.41	3	Vertical	153	1.00	-	41.66	36.36	7.87	34.82

BT-LE(1Mbps)

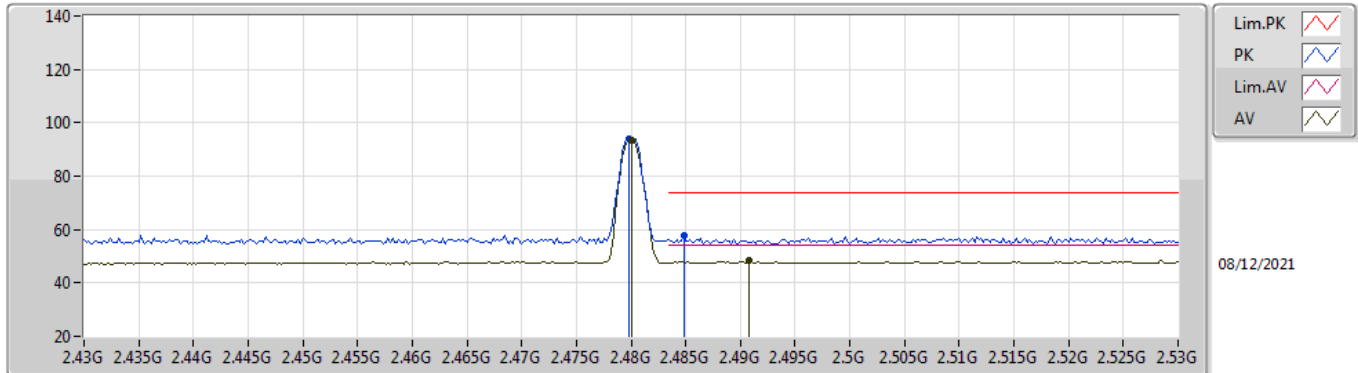
2440MHz_TX



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	4.87939G	35.87	54.00	-18.13	3.03	3	Horizontal	34	1.01	-	32.84	31.10	6.72	34.79
AV	7.3194G	41.82	54.00	-12.18	9.41	3	Horizontal	112	1.74	-	32.41	36.36	7.87	34.82
PK	4.88042G	45.27	74.00	-28.73	3.03	3	Horizontal	34	1.01	-	42.24	31.10	6.72	34.79
PK	7.31919G	49.95	74.00	-24.05	9.41	3	Horizontal	112	1.74	-	40.54	36.36	7.87	34.82

BT-LE(1Mbps)

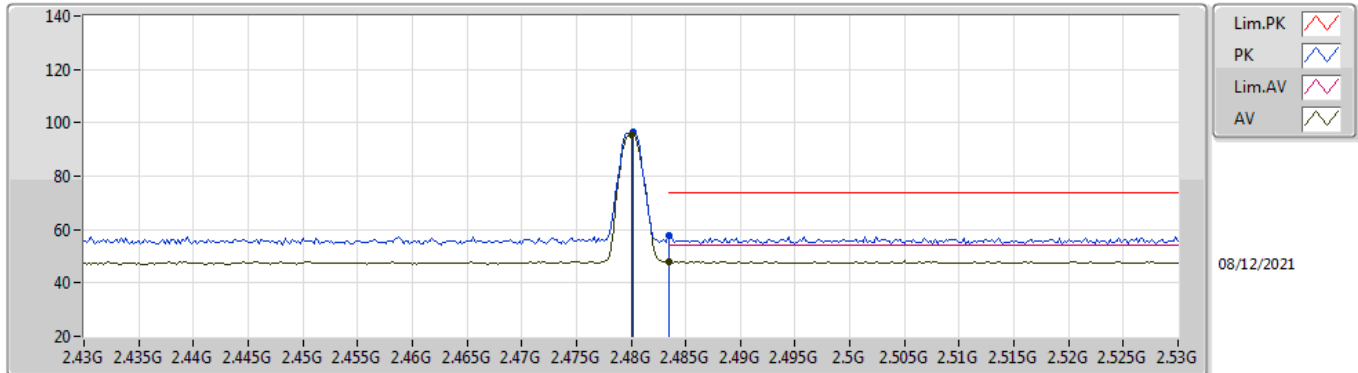
2480MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.48G	93.20	Inf	-Inf	32.11	3	Vertical	263	1.09	-	61.09	27.50	4.61	-
AV	2.4908G	48.32	54.00	-5.68	32.12	3	Vertical	263	1.09	-	16.20	27.50	4.62	-
PK	2.4798G	93.85	Inf	-Inf	32.11	3	Vertical	263	1.09	-	61.74	27.50	4.61	-
PK	2.4848G	57.56	74.00	-16.44	32.11	3	Vertical	263	1.09	-	25.45	27.50	4.61	-

BT-LE(1Mbps)

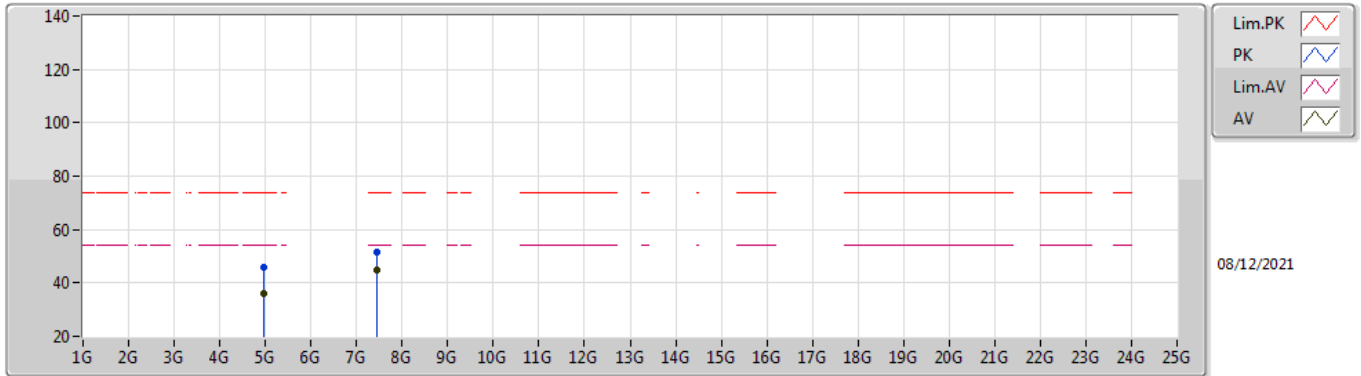
2480MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.48G	95.69	Inf	-Inf	32.11	3	Horizontal	305	1.05	-	63.58	27.50	4.61	-
AV	2.4835G	48.04	54.00	-5.96	32.11	3	Horizontal	305	1.05	-	15.93	27.50	4.61	-
PK	2.4802G	96.32	Inf	-Inf	32.11	3	Horizontal	305	1.05	-	64.21	27.50	4.61	-
PK	2.4835G	57.65	74.00	-16.35	32.11	3	Horizontal	305	1.05	-	25.54	27.50	4.61	-

BT-LE(1Mbps)

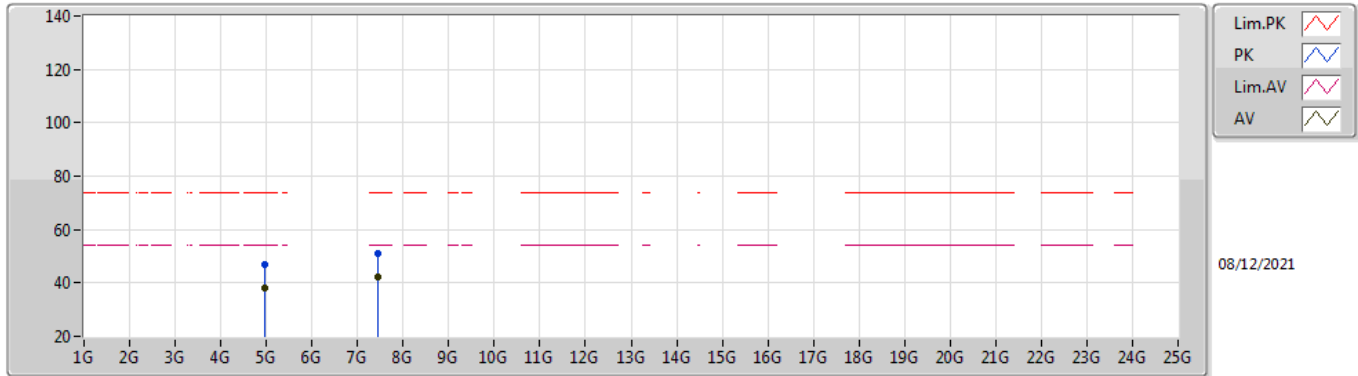
2480MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.95986G	36.00	54.00	-18.00	3.35	3	Vertical	190	1.50	-	32.65	31.34	6.78	34.77
AV	7.43934G	44.67	54.00	-9.33	9.49	3	Vertical	88	2.59	-	35.18	36.28	8.05	34.84
PK	4.96056G	45.72	74.00	-28.28	3.35	3	Vertical	190	1.50	-	42.37	31.34	6.78	34.77
PK	7.44074G	51.56	74.00	-22.44	9.50	3	Vertical	88	2.59	-	42.06	36.28	8.06	34.84

BT-LE(1Mbps)

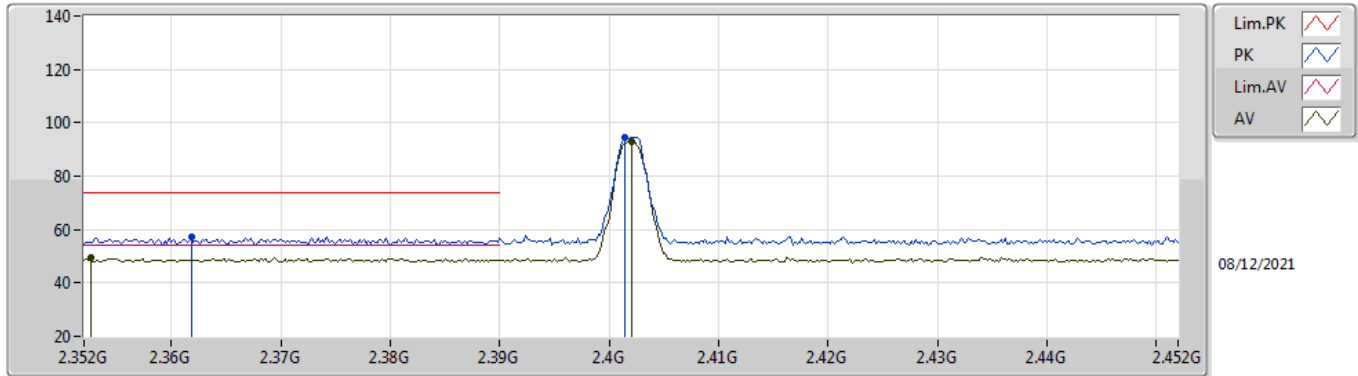
2480MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.96032G	37.95	54.00	-16.05	3.35	3	Horizontal	137	2.53	-	34.60	31.34	6.78	34.77
AV	7.44051G	42.38	54.00	-11.62	9.50	3	Horizontal	122	1.00	-	32.88	36.28	8.06	34.84
PK	4.95951G	46.71	74.00	-27.29	3.35	3	Horizontal	137	2.53	-	43.36	31.34	6.78	34.77
PK	7.44032G	50.85	74.00	-23.15	9.50	3	Horizontal	122	1.00	-	41.35	36.28	8.06	34.84

BT-LE(2Mbps)

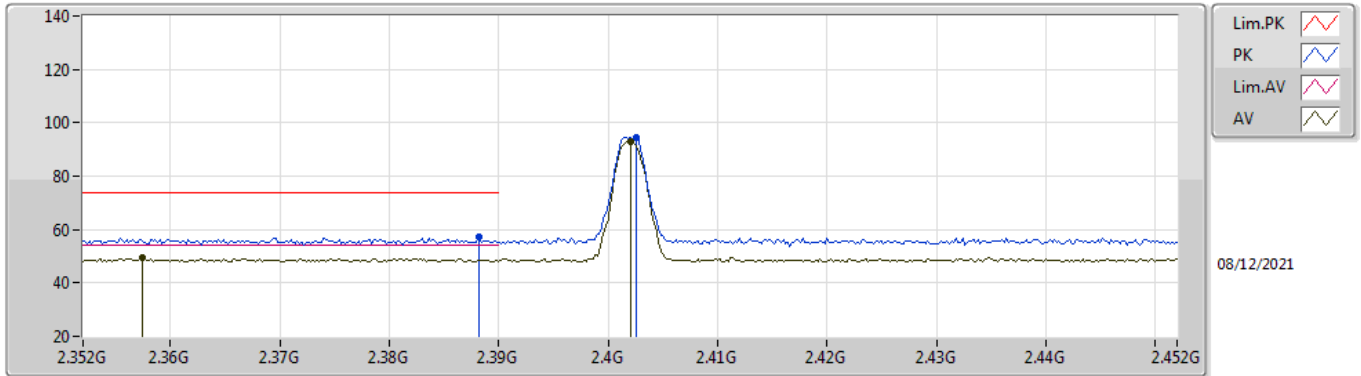
2402MHz_TX



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	2.3526G	49.33	54.00	-4.67	32.32	3	Vertical	207	1.18	-	17.01	27.79	4.53	-
AV	2.402G	93.10	Inf	-Inf	32.18	3	Vertical	207	1.18	-	60.92	27.60	4.58	-
PK	2.3618G	57.34	74.00	-16.66	32.29	3	Vertical	207	1.18	-	25.05	27.75	4.54	-
PK	2.4014G	94.67	Inf	-Inf	32.18	3	Vertical	207	1.18	-	62.49	27.60	4.58	-

BT-LE(2Mbps)

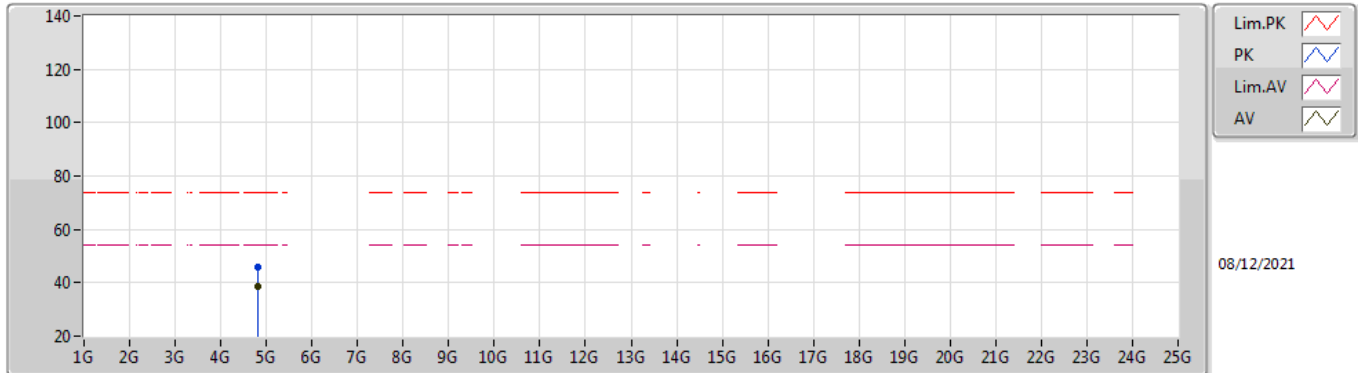
2402MHz_TX



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	2.3574G	49.29	54.00	-4.71	32.31	3	Horizontal	243	1.31	-	16.98	27.77	4.54	-
AV	2.402G	92.87	Inf	-Inf	32.18	3	Horizontal	243	1.31	-	60.69	27.60	4.58	-
PK	2.3882G	57.17	74.00	-16.83	32.22	3	Horizontal	243	1.31	-	24.95	27.65	4.57	-
PK	2.4026G	94.38	Inf	-Inf	32.17	3	Horizontal	243	1.31	-	62.21	27.59	4.58	-

BT-LE(2Mbps)

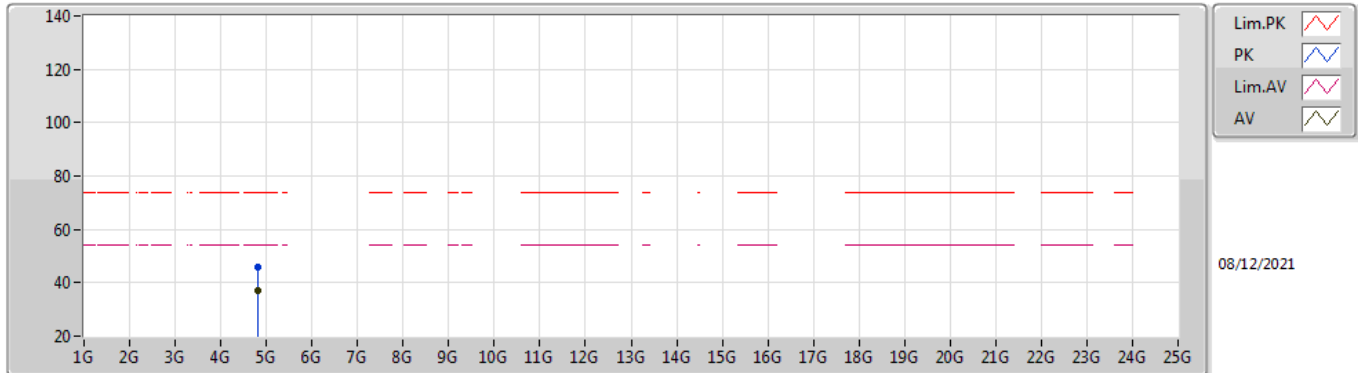
2402MHz_TX



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	4.80295G	38.60	54.00	-15.40	2.95	3	Vertical	28	1.07	-	35.65	31.10	6.66	34.81
PK	4.80302G	46.03	74.00	-27.97	2.95	3	Vertical	28	1.07	-	43.08	31.10	6.66	34.81

BT-LE(2Mbps)

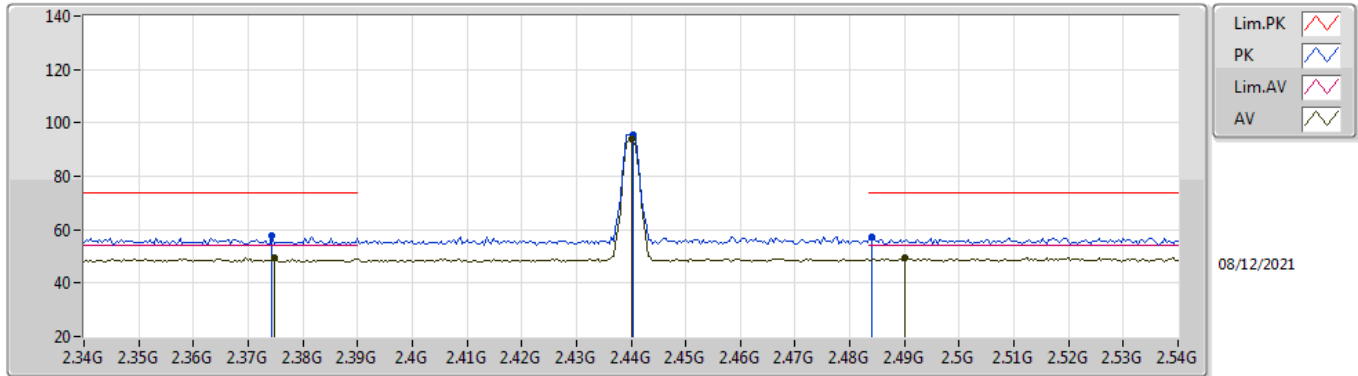
2402MHz_TX



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	4.80325G	37.27	54.00	-16.73	2.95	3	Horizontal	38	1.49	-	34.32	31.10	6.66	34.81
PK	4.8025G	46.05	74.00	-27.95	2.95	3	Horizontal	38	1.49	-	43.10	31.10	6.66	34.81

BT-LE(2Mbps)

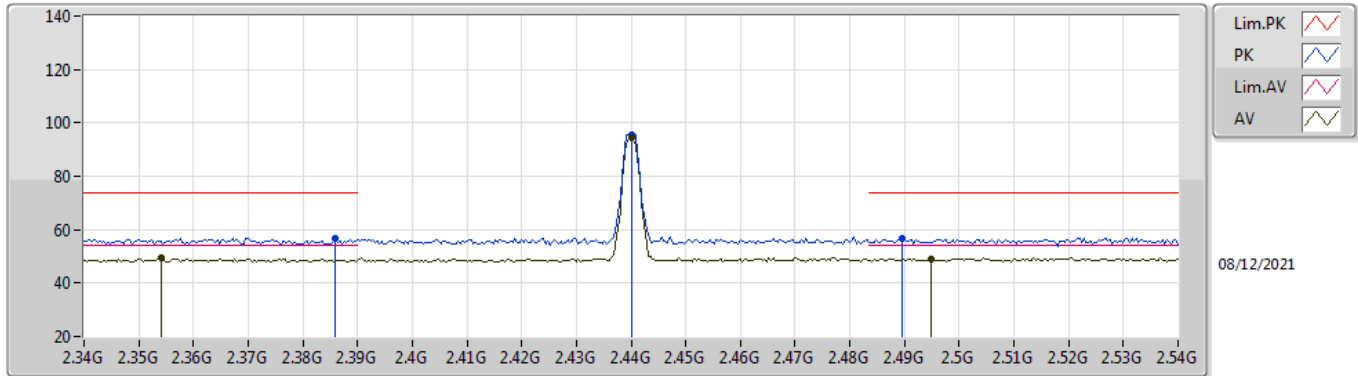
2440MHz_TX



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	2.3748G	49.41	54.00	-4.59	32.26	3	Vertical	220	2.28	-	17.15	27.70	4.56	-
AV	2.44G	93.90	Inf	-Inf	32.12	3	Vertical	220	2.28	-	61.78	27.52	4.60	-
AV	2.49G	49.58	54.00	-4.42	32.12	3	Vertical	220	2.28	-	17.46	27.50	4.62	-
PK	2.3744G	57.62	74.00	-16.38	32.26	3	Vertical	220	2.28	-	25.36	27.70	4.56	-
PK	2.4404G	95.45	Inf	-Inf	32.12	3	Vertical	220	2.28	-	63.33	27.52	4.60	-
PK	2.484G	57.39	74.00	-16.61	32.11	3	Vertical	220	2.28	-	25.28	27.50	4.61	-

BT-LE(2Mbps)

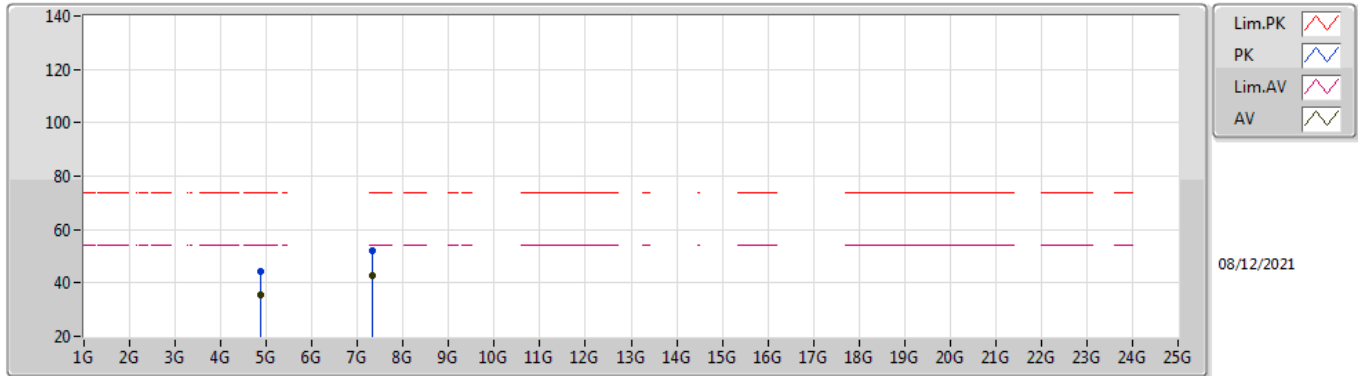
2440MHz_TX



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	2.354G	49.25	54.00	-4.75	32.32	3	Horizontal	251	1.20	-	16.93	27.78	4.54	-
AV	2.44G	95.77	Inf	-Inf	32.12	3	Horizontal	251	1.20	-	63.65	27.52	4.60	-
AV	2.4948G	49.16	54.00	-4.84	32.12	3	Horizontal	251	1.20	-	17.04	27.50	4.62	-
PK	2.386G	56.83	74.00	-17.17	32.23	3	Horizontal	251	1.20	-	24.60	27.66	4.57	-
PK	2.44G	95.77	Inf	-Inf	32.12	3	Horizontal	251	1.20	-	63.65	27.52	4.60	-
PK	2.4896G	56.58	74.00	-17.42	32.12	3	Horizontal	251	1.20	-	24.46	27.50	4.62	-

BT-LE(2Mbps)

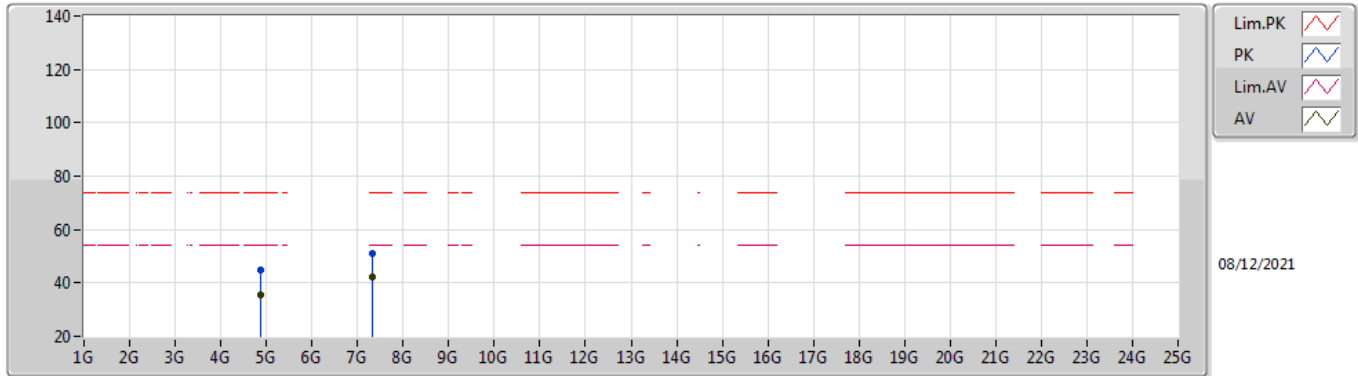
2440MHz_TX



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	4.87724G	35.58	54.00	-18.42	3.03	3	Vertical	230	1.00	-	32.55	31.10	6.72	34.79
AV	7.3215G	42.78	54.00	-11.22	9.41	3	Vertical	97	3.05	-	33.37	36.36	7.88	34.83
PK	4.88404G	44.40	74.00	-29.60	3.03	3	Vertical	230	1.00	-	41.37	31.10	6.72	34.79
PK	7.31984G	52.25	74.00	-21.75	9.41	3	Vertical	97	3.05	-	42.84	36.36	7.87	34.82

BT-LE(2Mbps)

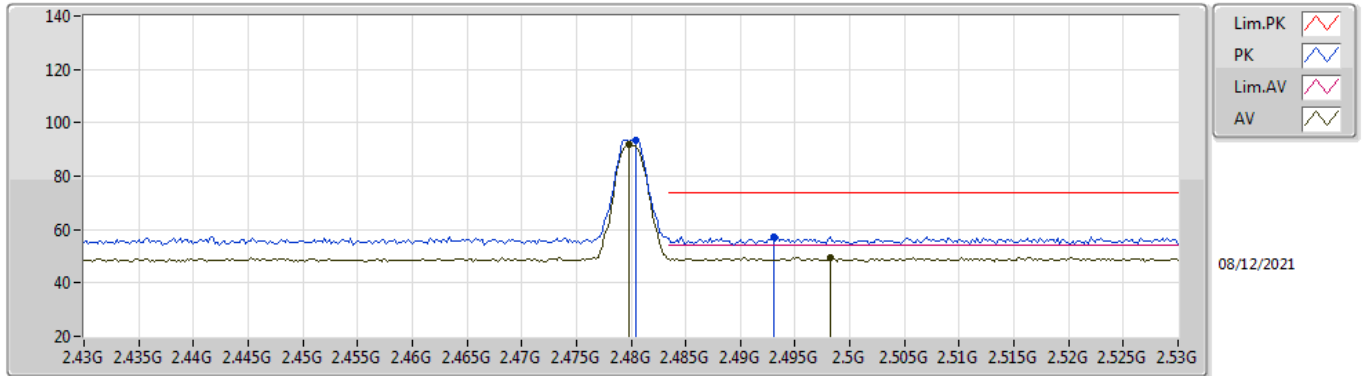
2440MHz_TX



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	4.87914G	35.56	54.00	-18.44	3.03	3	Horizontal	149	1.50	-	32.53	31.10	6.72	34.79
AV	7.31838G	42.37	54.00	-11.63	9.41	3	Horizontal	30	2.09	-	32.96	36.36	7.87	34.82
PK	4.8778G	44.62	74.00	-29.38	3.03	3	Horizontal	149	1.50	-	41.59	31.10	6.72	34.79
PK	7.31826G	51.19	74.00	-22.81	9.41	3	Horizontal	30	2.09	-	41.78	36.36	7.87	34.82

BT-LE(2Mbps)

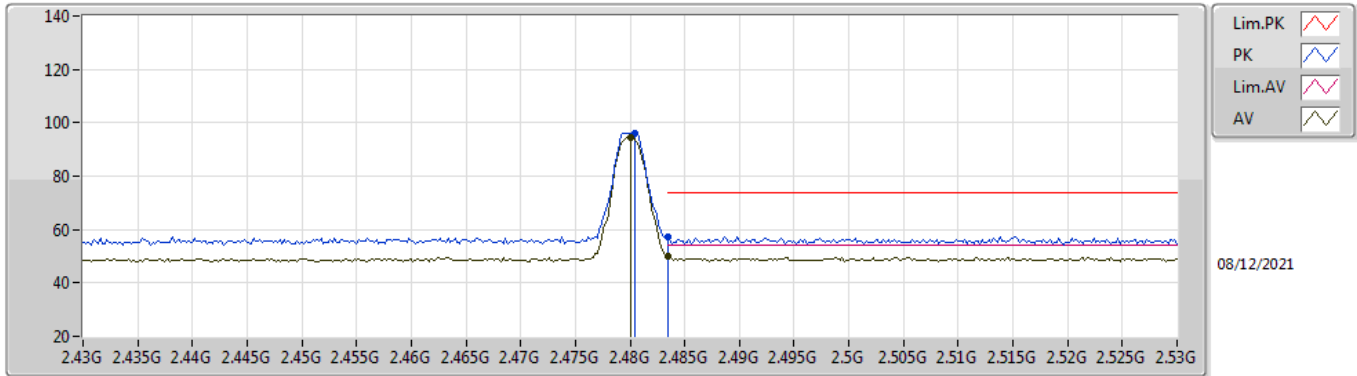
2480MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.4798G	91.83	Inf	-Inf	32.11	3	Vertical	263	1.17	-	59.72	27.50	4.61	-
AV	2.4982G	49.56	54.00	-4.44	32.12	3	Vertical	263	1.17	-	17.44	27.50	4.62	-
PK	2.4804G	93.49	Inf	-Inf	32.11	3	Vertical	263	1.17	-	61.38	27.50	4.61	-
PK	2.493G	57.33	74.00	-16.67	32.12	3	Vertical	263	1.17	-	25.21	27.50	4.62	-

BT-LE(2Mbps)

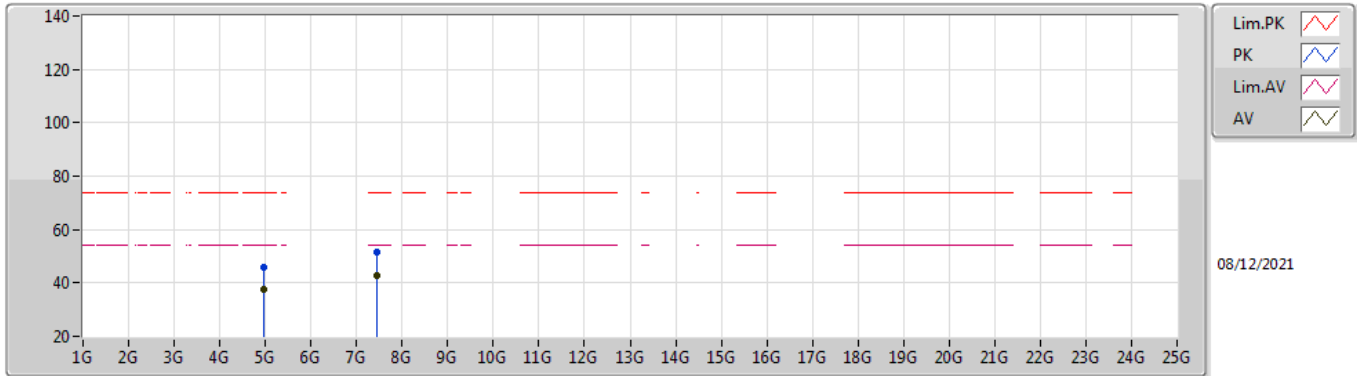
2480MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.48G	94.61	Inf	-Inf	32.11	3	Horizontal	304	1.06	-	62.50	27.50	4.61	-
AV	2.4835G	50.13	54.00	-3.87	32.11	3	Horizontal	304	1.06	-	18.02	27.50	4.61	-
PK	2.4804G	96.16	Inf	-Inf	32.11	3	Horizontal	304	1.06	-	64.05	27.50	4.61	-
PK	2.4835G	57.35	74.00	-16.65	32.11	3	Horizontal	304	1.06	-	25.24	27.50	4.61	-

BT-LE(2Mbps)

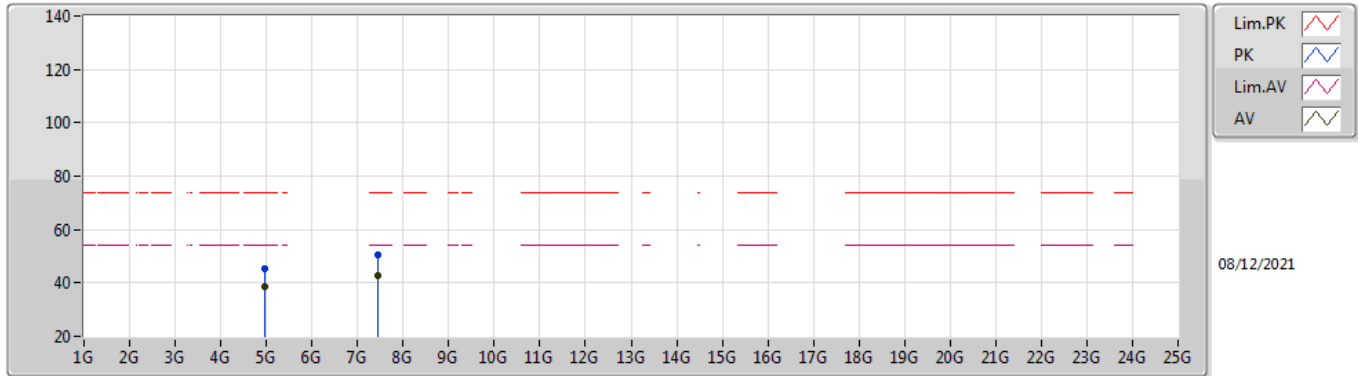
2480MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.96112G	37.37	54.00	-16.63	3.35	3	Vertical	27	1.15	-	34.02	31.34	6.78	34.77
AV	7.43874G	42.97	54.00	-11.03	9.49	3	Vertical	107	2.83	-	33.48	36.28	8.05	34.84
PK	4.96005G	45.84	74.00	-28.16	3.35	3	Vertical	27	1.15	-	42.49	31.34	6.78	34.77
PK	7.44128G	51.46	74.00	-22.54	9.50	3	Vertical	107	2.83	-	41.96	36.28	8.06	34.84

BT-LE(2Mbps)

2480MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.95888G	38.37	54.00	-15.63	3.35	3	Horizontal	133	2.51	-	35.02	31.34	6.78	34.77
AV	7.4388G	42.80	54.00	-11.20	9.49	3	Horizontal	77	1.50	-	33.31	36.28	8.05	34.84
PK	4.96032G	45.59	74.00	-28.41	3.35	3	Horizontal	133	2.51	-	42.24	31.34	6.78	34.77
PK	7.446G	50.76	74.00	-23.24	9.52	3	Horizontal	77	1.50	-	41.24	36.29	8.07	34.84