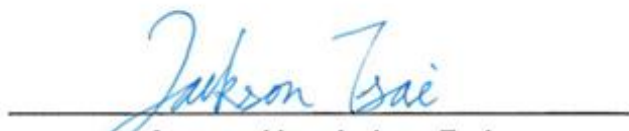


FCC Radio Test Report

FCC ID : 2AMJS-SRX01
Contains FCC ID : XMR201909EG95NAX
Equipment : Occupant Care Device
Brand Name : Robert Bosch LLC
Model Name : RideCare companion
Applicant : Robert Bosch LLC
15000 N Haggerty Rd, Plymouth, Michigan, USA, Zip - 48170
Manufacturer : Chicony Electronics Co., Ltd
36F., No. 69, Sec 2, Guangfu Rd., Sanchong Dist.,
New Taipei City 241, Taiwan
Standard : 47 CFR FCC Part 15.247

The product was received on Aug. 11, 2022, and testing was started from Aug. 22, 2022 and completed on Oct. 08, 2022. We, SPORTON INTERNATIONAL INC. Hsinhua Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

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


Approved by: Jackson Tsai

SPORTON INTERNATIONAL INC. Hsinhua Laboratory

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



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History of this test report

TEL : 886-3-3273456
FAX : 886-3-3270973
Report Template No.: HE1-C10 Ver.4.3
FCC ID: 2AMJS-SRX01

Summary of Test Result

Report Clause	Ref.Std. Clause	Test Items	Result (PASS/FAIL)	Remark
1.1.2	15.203	Antenna Requirement	PASS	-
-	15.207	AC Power-line Conducted Emissions	Not Required	Only employ battery power.
3.1	15.247(a)	DTS Bandwidth	PASS	-
3.2	15.247(b)	Maximum Conducted Output Power	PASS	-
3.3	15.247(e)	Power Spectral Density	PASS	-
3.4	15.247(d)	Emissions in Non-restricted Frequency Bands	PASS	-
3.5	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: Ryan Hsiao

Report Producer: Amber Chiu

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

Note:

- ♦ Bluetooth LE uses a GFSK (1Mbps) modulation.
- ♦ BWch is the nominal channel bandwidth.

1.1.2 Antenna Information

Ant.	Brand	Model Name	Antenna Type	Connector	Support
1	PSA	RFPCA191903IMAB302	PCB antenna	I-PEX	2.4G+BT
2	PSA	RFFPA714105IMTB301	FPC antenna	I-PEX	LTE_Main
3	PSA	RFFPA804609IMTB301	FPC antenna	I-PEX	LTE_AUX
4	PSA	GPSSLONASS63N-S3-00-A	PATCH antenna	I-PEX	GPS

Ant.	Port	Gain (dBi)			
		2.4G	BT	LTE	GPS
1	1	-0.35	-0.35	-	-
2	1	-	-	1.66	-
3	2	-	-	1.55	-
4	1	-	-	-	1.17

Note 1: The EUT has four 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. 1 (port 1) could transmit/receive.

1.1.3 EUT Information

Operational Condition			
EUT Power Type	From Car Charger / Battery		
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)	0.644	1.91	402.813u	3k

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

1.2 Testing Applied Standards

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

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

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

- ♦ KDB 558074 D01 v05r02
- ♦ KDB 414788 D01 v01r01

1.3 Testing Location Information

Test Lab. : Sporton International Inc. Hsinhua Laboratory				
☒ Hsinhua (TAF: 3785)	ADD: No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333411, Taiwan (R.O.C.)			
	TEL: 886-3-327-3456		FAX: 886-3-327-0973	
Test site Designation No. TW3785 with FCC.				
Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
RF Conducted	TH06-HY	XieXun	20~27°C / 50~60%	23/Aug/2022
Radiated (Below 1GHz)	03CH03-HY	Edward Wang	21.4~23.1°C / 57~62%	07/Oct/2022~08/Oct/2022
☒ Wen 33rd.St. (TAF: 3785)	ADD: No.14-1, Ln. 19, Wen 33rd St., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.)			
	TEL: 886-3-318-0787		FAX: 886-3-318-0287	
Test site Designation No. TW0008 with FCC.				
Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
Radiated (Above 1GHz)	03CH09-HY	Lego Lin	23.5~26.2°C / 48~58%	22/Aug/2022
Radiated (Co-Location)	03CH09-HY	Terry Chang	24.4~24.6°C / 57~58%	28/Sep/2022

1.4 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

Test Items	Uncertainty	Remark
Bandwidth	3 MHz	Confidence levels of 95%
Maximum Conducted Output Power	2 dB	Confidence levels of 95%
Power Spectral Density	2 dB	Confidence levels of 95%
Emissions in Non-restricted Frequency Bands	0.14 dB	Confidence levels of 95%
Emissions in Restricted Frequency Bands	4.8 dB	Confidence levels of 95%
Receiver Radiated Unwanted Emissions	4.8 dB	Confidence levels of 95%
Temperature	0.41 °C	Confidence levels of 95%
Humidity	3.4 %	Confidence levels of 95%



2 Test Configuration of EUT

2.1 Test Channel Mode

Test Software Version	Tera Term Version 4.76
------------------------------	------------------------

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

2.2 The Worst Case Measurement Configuration

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	Car Charger mode		
Operating Mode > 1GHz	CTX		
Orthogonal Planes of EUT	X Plane	Y Plane	Z Plane
			
Worst Planes of EUT		V	

The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis
Test Condition	Radiated measurement
Operating Mode	CTX
1	Bluetooth+LTE
Refer to Sporton Test Report No.: FA272002 for Co-location RF Exposure Evaluation and Appendix G for Radiated Emission Co-location.	

The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis
Operating Mode	CTX
1	Bluetooth+LTE
Refer to Sporton Test Report No.: FA272002 for Co-location RF Exposure Evaluation.	

2.3 Accessories

Accessories				
Car Charger	Brand Name	BOSCH	Model Name	SYD1220
	Power Rating	I/P: 8 – 16 Vac, 4 A, O/P: 12.0 / 5.0 Vdc, 1.5 / 2.1 A		
	Power Cord	3.5 meter, non-shielded cable, w/o ferrite core		
Battery	Brand Name	ShenZhen Co., Ltd.	Model Name	683030
	Power Rating	3.8 Vdc, 700 mAh	Type	Li-ion, Yes
Mounting Bracket Asm	Brand Name	NA	Model Name	NA

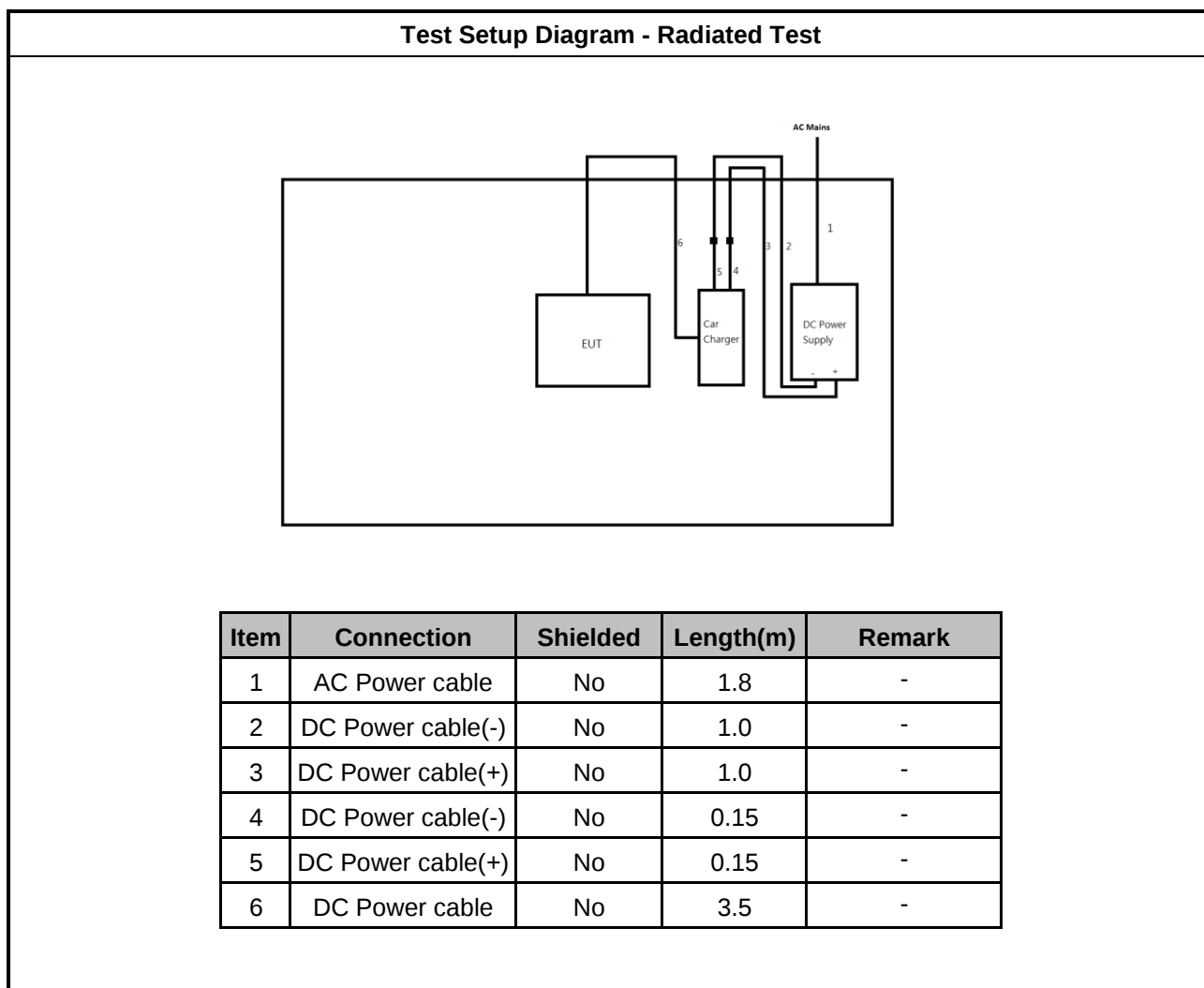
Reminder: Regarding to more detail and other information, please refer to user manual.

2.4 Support Equipment

Support Equipment – Conducted					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	Notebook	DELL	E5410	-	-
2	Adapter for NB	DELL	HA65NM130	-	-
3	Fixture for BT	-	-	-	Provided by Customer

Support Equipment – Radiated					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	DC Power Supply	GW	GPS-3030DD	-	-
2	DC Power cable(Rad)	MiSUMi	WTN1228-RED	-	-
3	DC Power cable(Black)	MiSUMi	WTN1228-BLACK	-	-

2.5 Test Setup Diagram



3 Transmitter Test Result

3.1 DTS Bandwidth

3.1.1 6dB Bandwidth Limit

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

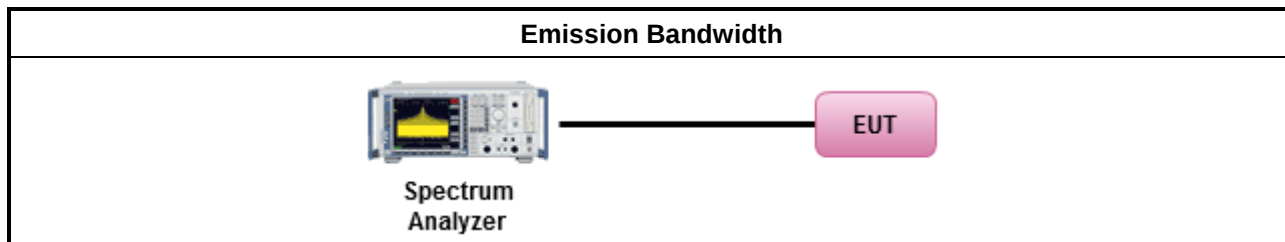
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

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

3.1.4 Test Setup



3.1.5 Test Result of Emission Bandwidth

Refer as Appendix A

3.2 Maximum Conducted Output Power

3.2.1 Maximum Conducted Output Power Limit

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

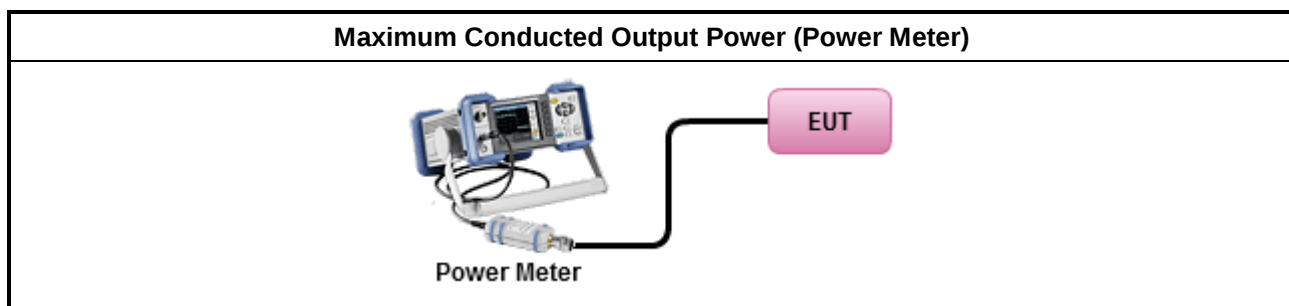
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

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

3.2.4 Test Setup



3.2.5 Test Result of Maximum Conducted Output Power

Refer as Appendix B

3.3 Power Spectral Density

3.3.1 Power Spectral Density Limit

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

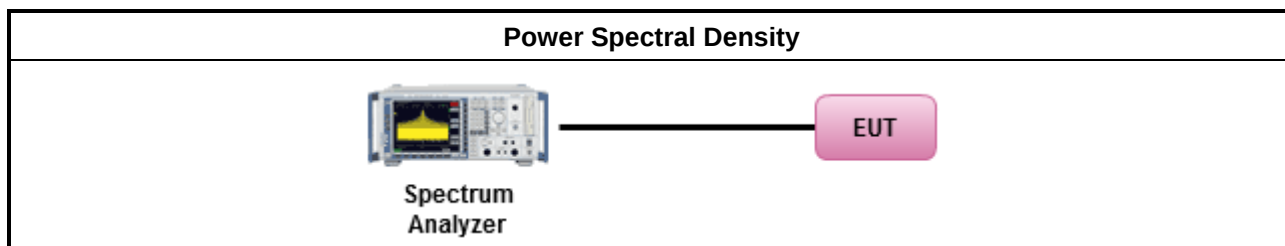
3.3.2 Measuring Instruments

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

3.3.3 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.

3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Refer as Appendix C

3.4 Emissions in Non-restricted Frequency Bands

3.4.1 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.	

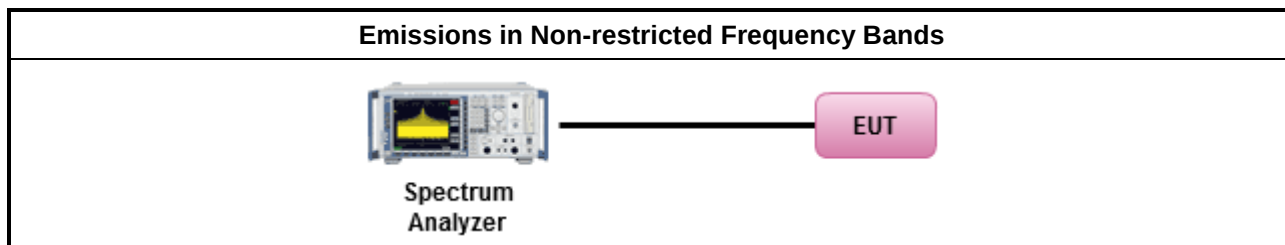
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

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

3.4.4 Test Setup



3.4.5 Test Result of Emissions in Non-restricted Frequency Bands

Refer as Appendix D

3.5 Emissions in Restricted Frequency Bands

3.5.1 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.

3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

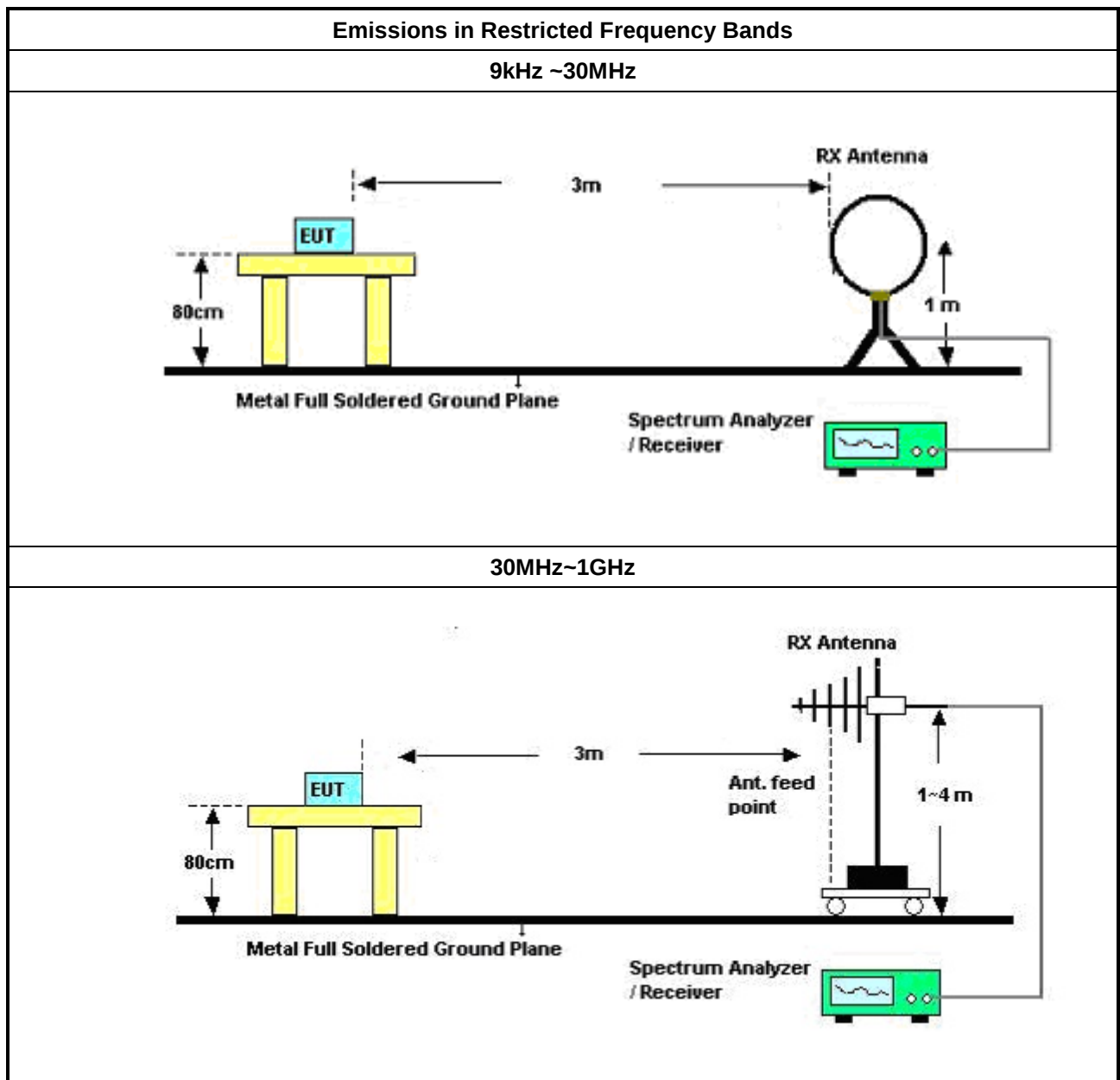
Test Method	
The average emission levels shall be measured in [duty cycle $\geq$ 98 or duty factor].	
Refer as ANSI C63.10, clause 6.10.3 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.	
For the transmitter unwanted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

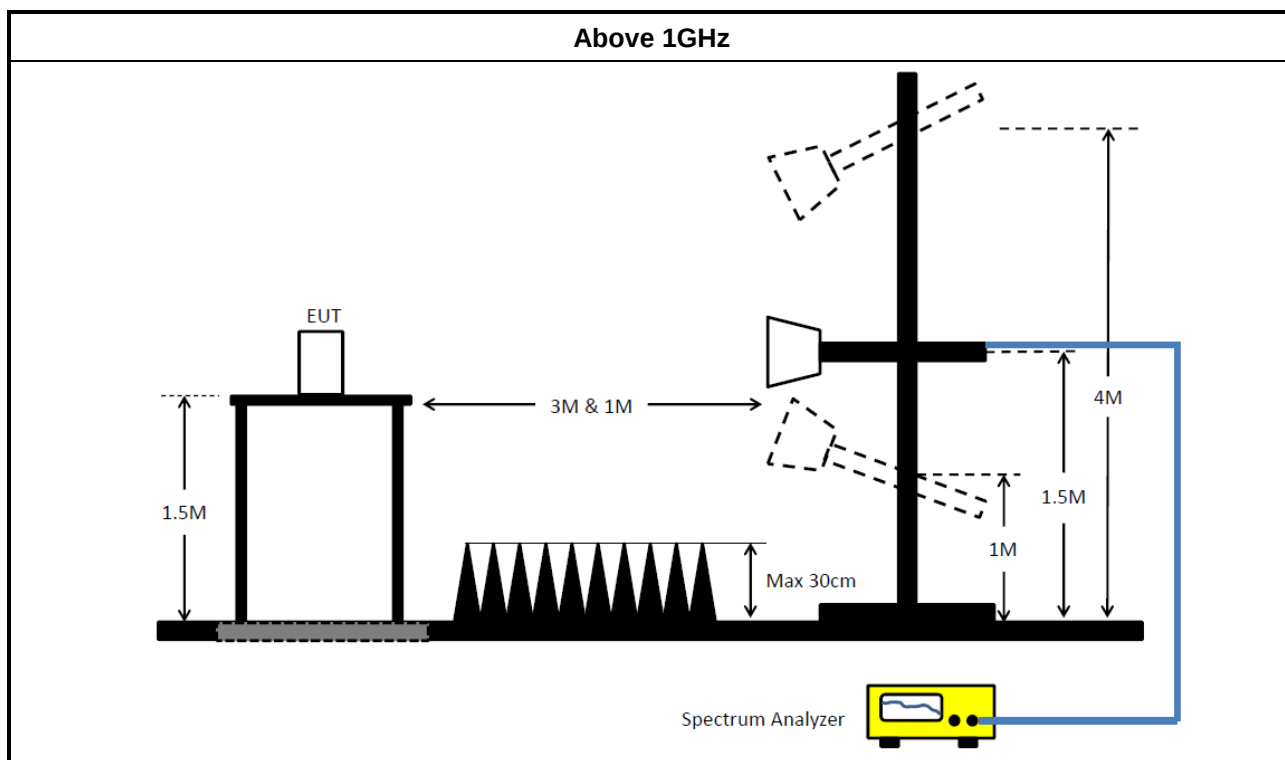
3.5.4 Measurement Results Calculation

The measured Level is calculated using:

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

3.5.5 Test Setup





3.5.6 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.

3.5.7 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix E

4 Test Equipment and Calibration Data

Instrument for Conducted Test

Instrument	Manufacturer /Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Signal Analyzer	R&S	FSV 40	101029	10Hz~40GHz	20/Oct/2021	19/Oct/2022
SMB100A Signal Generator	R&S	SMB100A	181147	100kHz~40GHz	21/Oct/2021	20/Oct/2022
Pulse Sensor	Anritsu	MA2411B	1027452	300MHz~40GHz	25/Mar/2022	24/Mar/2023
Power Meter	Anritsu	ML2495A	1124009	300MHz~40GHz	25/Mar/2022	24/Mar/2023
SENSE-15247_FS	Sporton	V5.10.7.16	N/A	N/A	N/A	N/A

Instrument for Radiated Test (03CH03-HY)

Instrument	Manufacturer /Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30MHz~1GHz 3m	01/Aug/2022	31/Jul/2023
Signal Analyzer	R&S	FSV40	101500	10Hz~40GHz	12/Oct/2021	11/Oct/2022
Amplifier	HP	8447D	2944A08033	10kHz~1.3GHz	08/Apr/2022	07/Apr/2023
Bilog Antenna & 6dB Attenuator	SCHAFFNER / EMCI	CBL6112B / N-6-05	22237 / AT-N-0603	30MHz~1GHz	17/Oct/2021	16/Oct/2022
RF Cable-R03m	Jye Bao	RG142	CB021	9kHz~30MHz	13/Jun/2022	12/Jun/2023
RF Cable-R03m	Jye Bao	RG142	MY37335/4+CB021-1+CB021-2	30MHz~1GHz	22/Mar/2022	21/Mar/2023
Loop Antenna	TESEQ	HLA 6120	31244	9kHz~30MHz	18/Mar/2022	17/Mar/2023
EMI Test Receiver	R&S	ESR3	102052	9kHz~3.6GHz	13/May/2022	12/May/2023
SENSE-15247_FS	Sporton	NA	5.10.7.14	NA	NA	NA

Instrument for Radiated Test (03CH09-HY)

Instrument	Manufacturer /Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	1GHz~18GHz 3m	17/Mar/2022	16/Mar/2023
EXA Signal Analyzer	KEYSIGHT	N9010A	SG56070103	10Hz~44GHz	05/Nov/2021	04/Nov/2022
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1531	1GHz~18GHz	27/Dec/2021	26/Dec/2022
Microwave Preamplifier	Agilent	8449B	3008A02096	1GHz~26.5GHz	22/Jul/2022	21/Jul/2023
RF CABLE 5m+3m+1m	HUBER+SUHNER	SUCOFLEX104	03CH09-cable-02	1GHz~40GHz	17/Aug/2022	16/Aug/2023
SENSE-15247_FS	Sporton	NA	5.10.7.14	NA	NA	NA



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)	715k	1.054M	1M05F1D	708.75k	1.052M

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

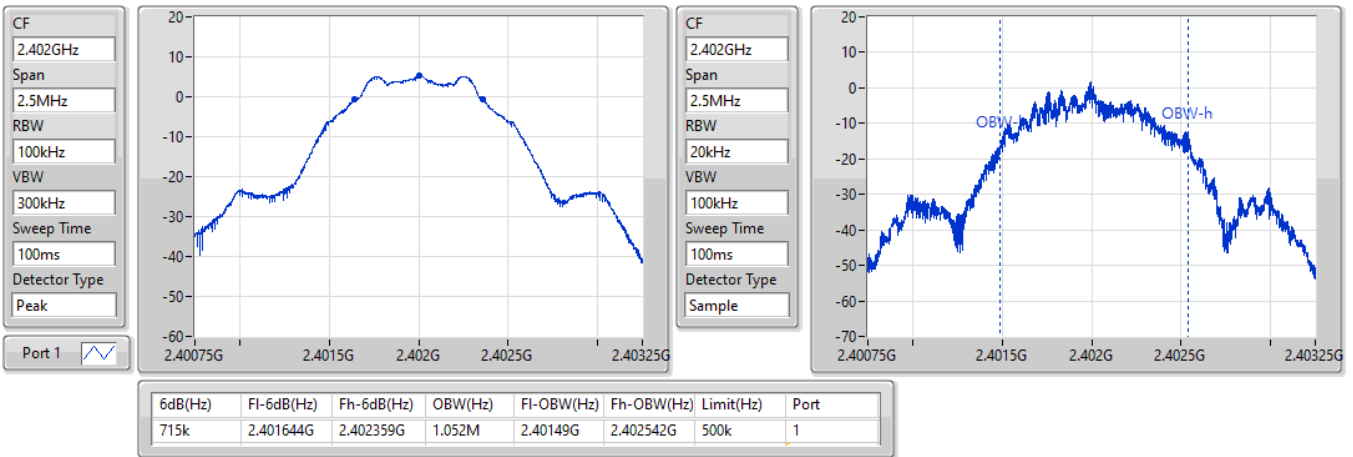
**Result**

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	715k	1.052M
2440MHz	Pass	500k	710k	1.054M
2480MHz	Pass	500k	708.75k	1.053M

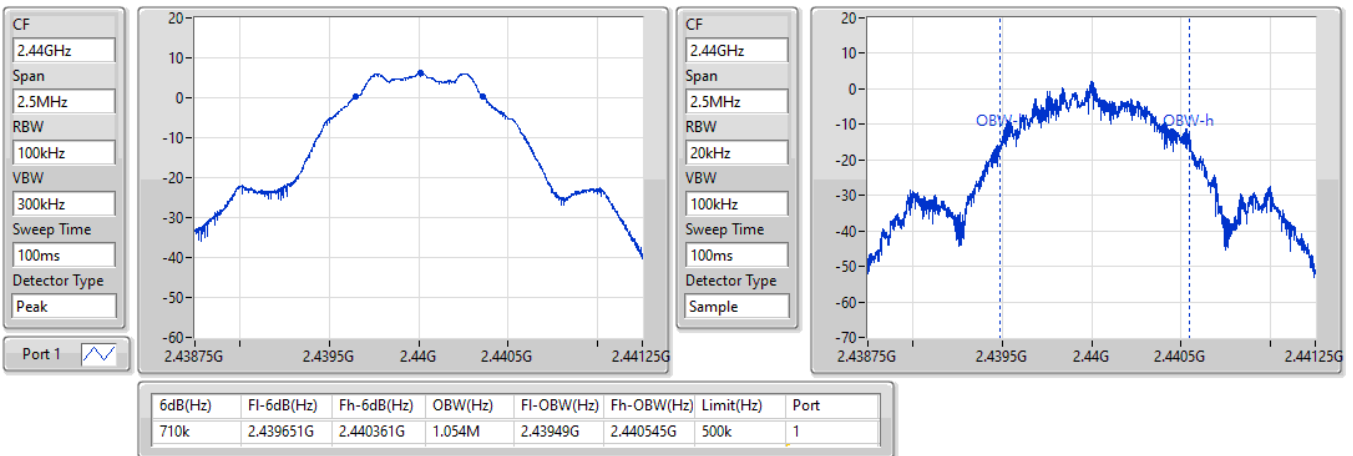
Port X-N dB = Port X 6dB down bandwidth;
Port X-OBW = Port X 99% occupied bandwidth

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

23/08/2022

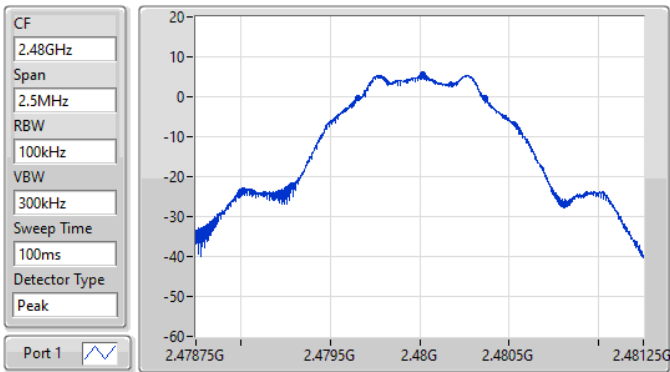

BT-LE(1Mbps)
2440MHz
EBW-DTS

23/08/2022



BT-LE(1Mbps)

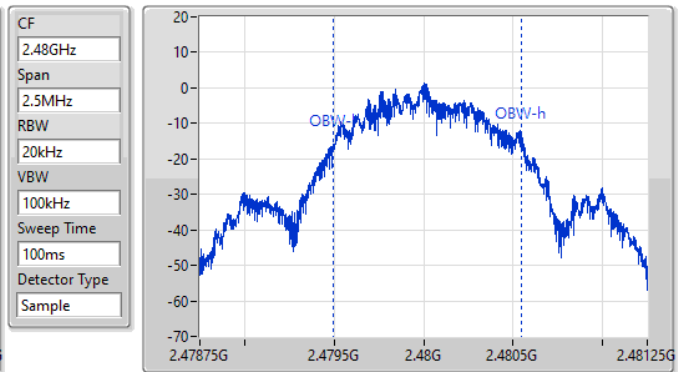
2480MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
708.75k	2.479656G	2.480365G	1.053M	2.479497G	2.48055G	500k	1

EBW-DTS

23/08/2022





Summary

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	6.63	0.00460



Average Power-DTS

Appendix B

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LTE(1Mbps)	-	-	-	-
2402MHz	Pass	-0.35	5.79	30.00
2440MHz	Pass	-0.35	6.63	30.00
2480MHz	Pass	-0.35	5.91	30.00

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



Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE(1Mbps)	-7.68

RBW = 3kHz;



Result

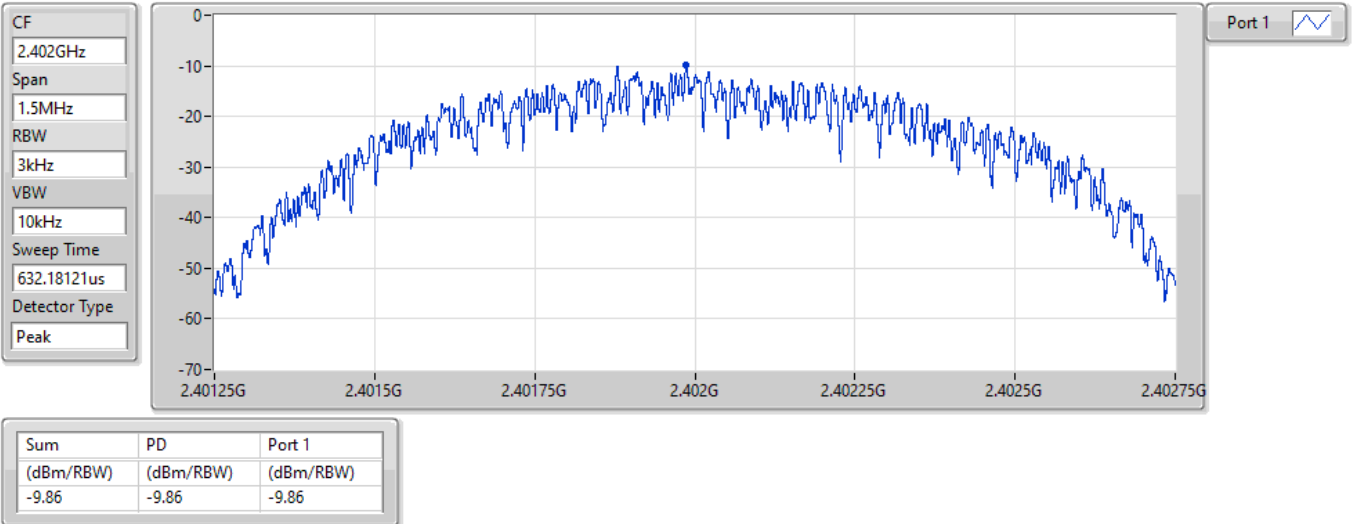
Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	-0.35	-9.86	8.00
2440MHz	Pass	-0.35	-7.68	8.00
2480MHz	Pass	-0.35	-8.99	8.00

DG = Directional Gain; RBW = 3kHz;
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; Port X = Port X Power Density;

BT-LE(1Mbps)

2402MHz

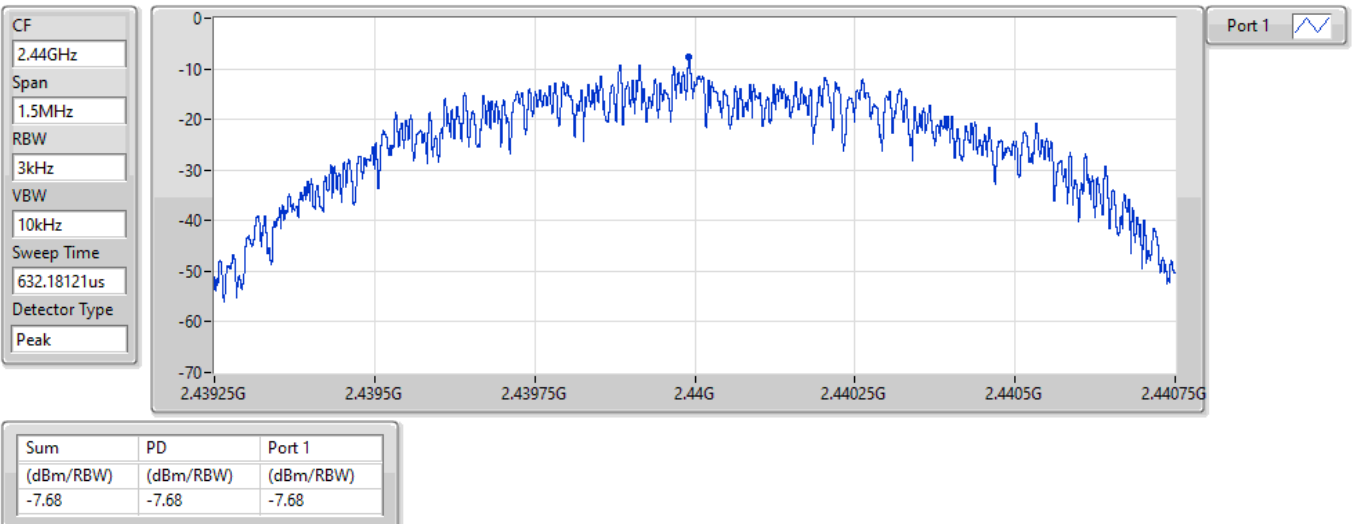
23/08/2022



BT-LE(1Mbps)

2440MHz

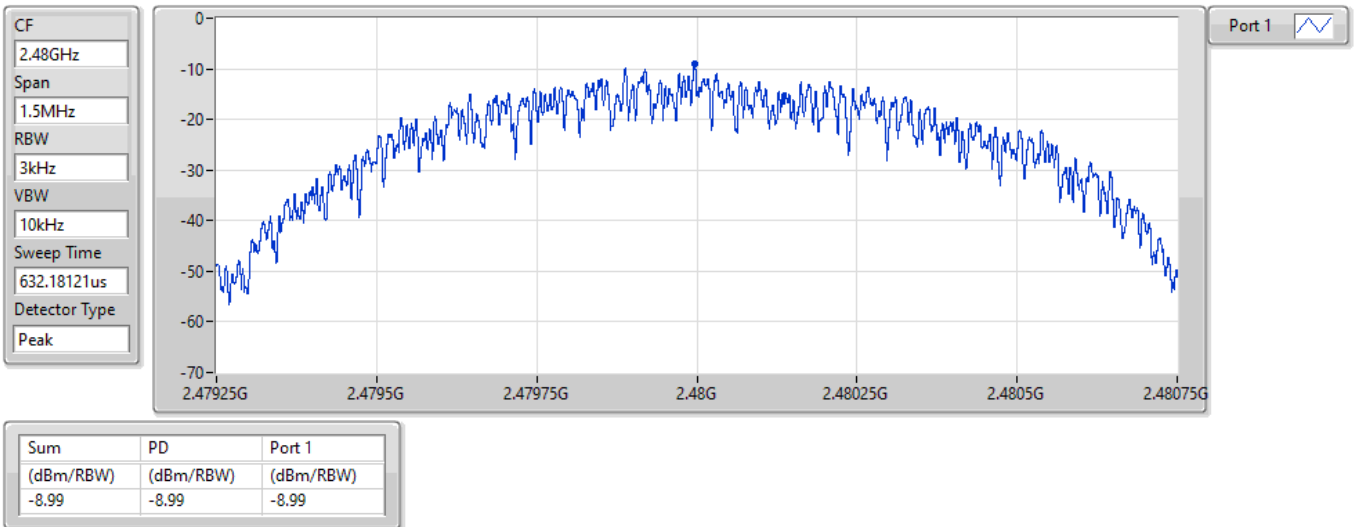
23/08/2022



BT-LE(1Mbps)

2480MHz

23/08/2022





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	2.44008G	6.36	-23.64	2.13678G	-53.65	2.39984G	-52.38	2.4G	-48.57	2.50282G	-52.09	15.21683G	-40.69	1

Result

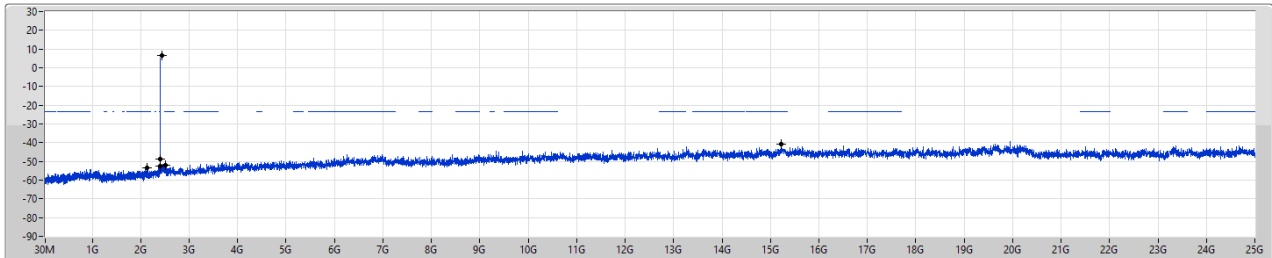
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.44008G	6.36	-23.64	2.13678G	-53.65	2.39984G	-52.38	2.4G	-48.57	2.50282G	-52.09	15.21683G	-40.69	1
2440MHz	Pass	2.44008G	6.36	-23.64	1.84185G	-53.13	2.39256G	-52.50	2.4G	-53.72	2.50346G	-52.48	15.22808G	-41.23	1
2480MHz	Pass	2.44008G	6.36	-23.64	861.9M	-54.59	2.39204G	-53.02	2.4G	-55.78	2.50134G	-51.50	24.80034G	-40.96	1

BT-LE(1Mbps)

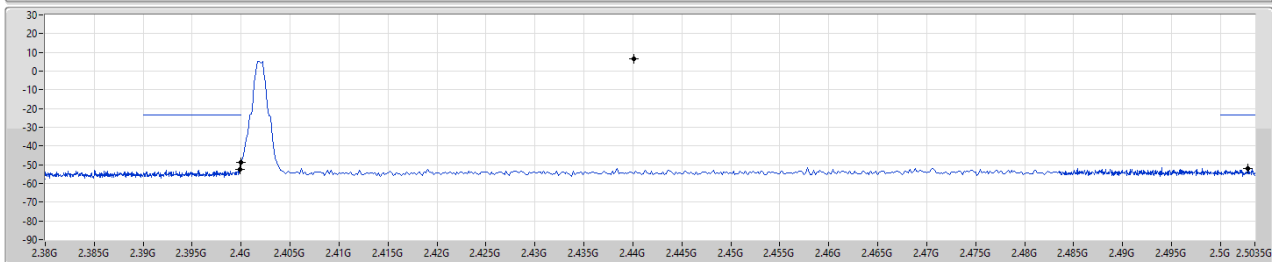
CSEndB-DTS

2402MHz

23/08/2022



Port 1



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

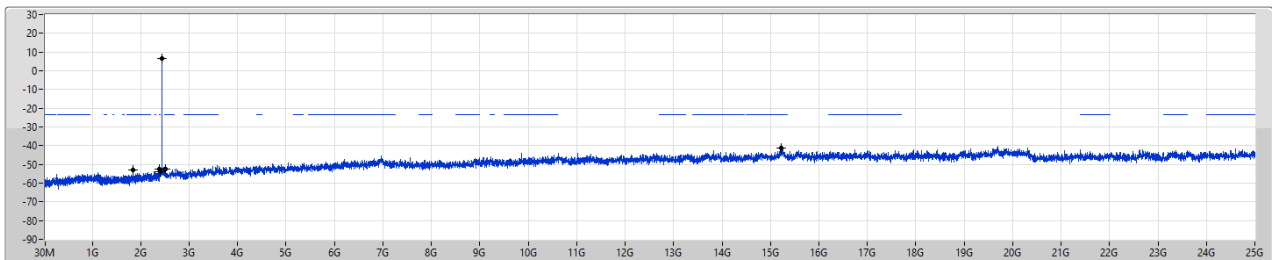
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44008G	6.36	-23.64	2.13678G	-53.65	2.39984G	-52.38	2.4G	-48.57	2.50282G	-52.09	15.21683G	-40.69	1

BT-LE(1Mbps)

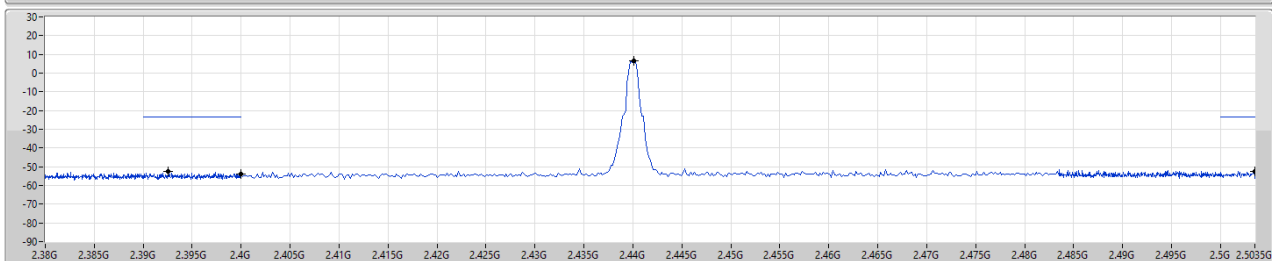
CSEndB-DTS

2440MHz

23/08/2022



Port 1



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

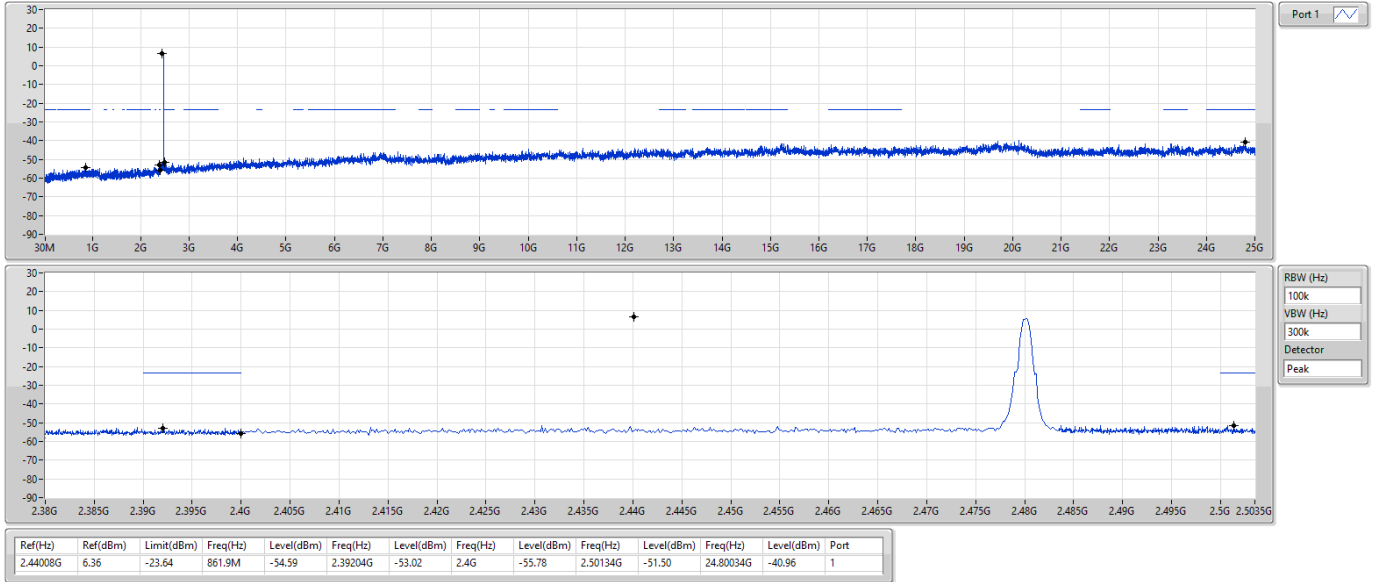
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44008G	6.36	-23.64	1.84185G	-53.13	2.39256G	-52.50	2.4G	-53.72	2.50346G	-52.48	15.22808G	-41.23	1

BT-LE(1Mbps)

CSEndB-DTS

2480MHz

23/08/2022





Summary

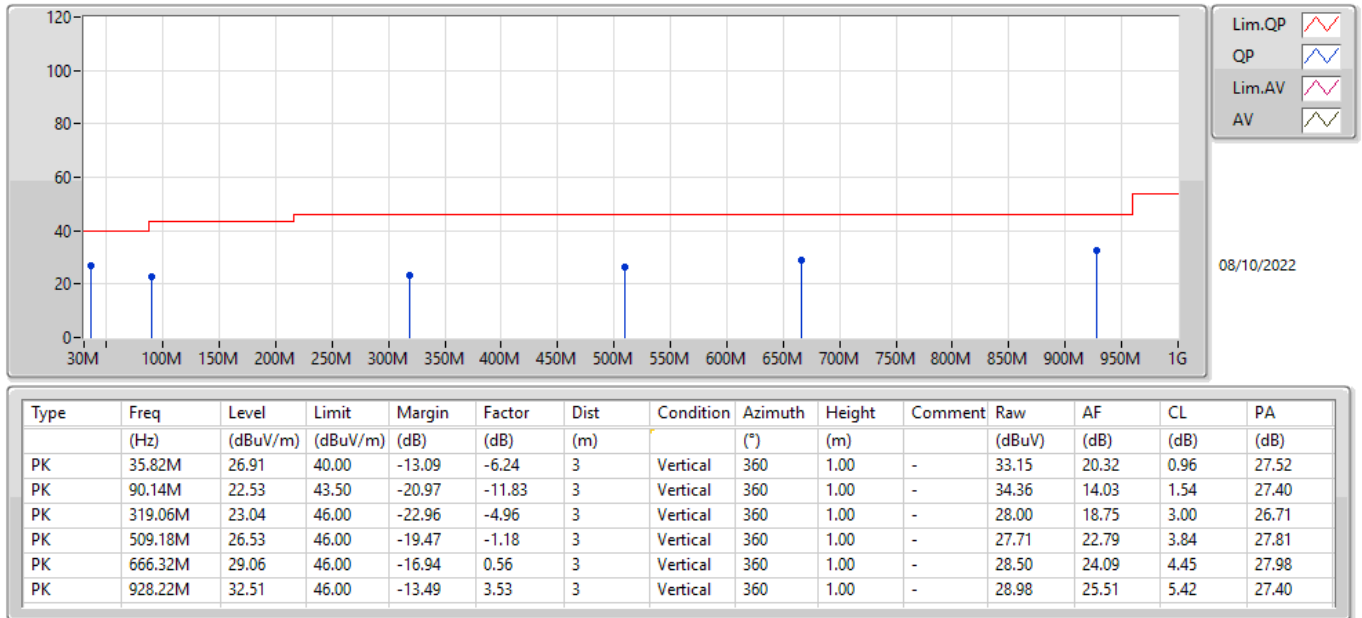
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	PK	31.94M	32.35	40.00	-7.65	3	Horizontal	0	1.00	-

Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-
2440MHz	Pass	PK	35.82M	26.91	40.00	-13.09	3	Vertical	360	1.00	-
2440MHz	Pass	PK	90.14M	22.53	43.50	-20.97	3	Vertical	360	1.00	-
2440MHz	Pass	PK	319.06M	23.04	46.00	-22.96	3	Vertical	360	1.00	-
2440MHz	Pass	PK	509.18M	26.53	46.00	-19.47	3	Vertical	360	1.00	-
2440MHz	Pass	PK	666.32M	29.06	46.00	-16.94	3	Vertical	360	1.00	-
2440MHz	Pass	PK	928.22M	32.51	46.00	-13.49	3	Vertical	360	1.00	-
2440MHz	Pass	PK	31.94M	32.35	40.00	-7.65	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	171.62M	23.17	43.50	-20.33	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	192.96M	24.97	43.50	-18.53	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	460.68M	26.36	46.00	-19.64	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	615.88M	28.19	46.00	-17.81	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	901.06M	36.02	46.00	-9.98	3	Horizontal	0	1.00	-

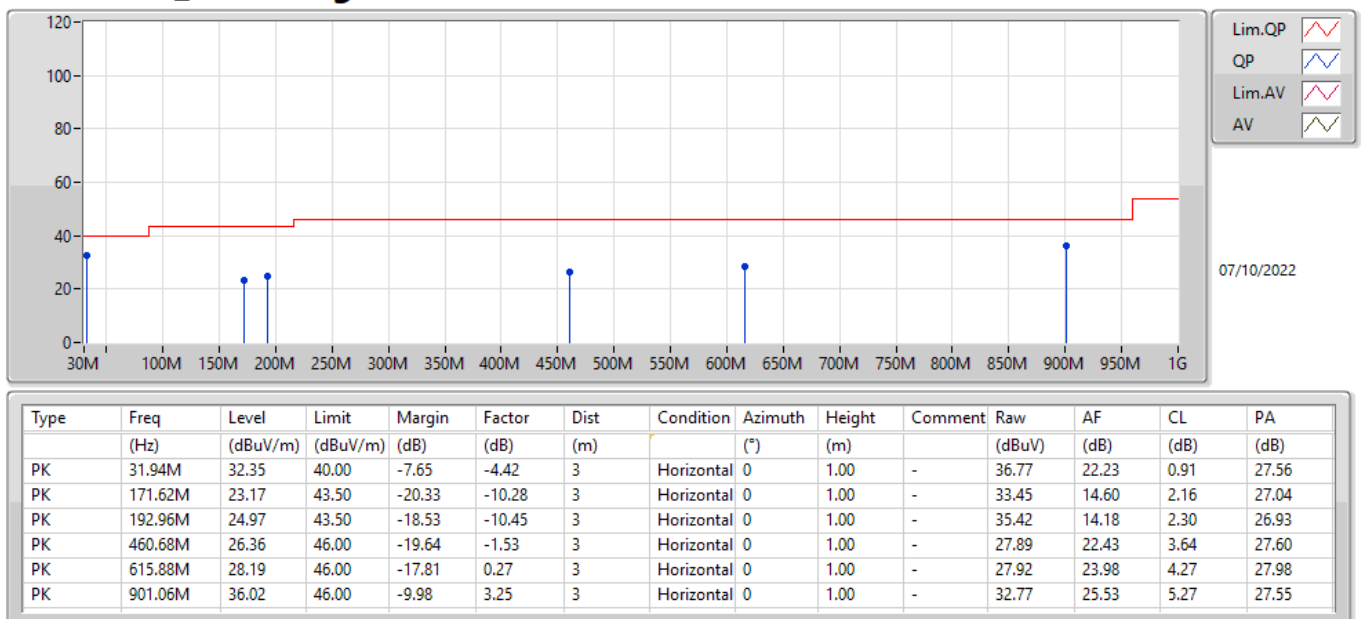
BT-LE(1Mbps)

2440MHz_Car Charger



BT-LE(1Mbps)

2440MHz_Car Charger





Summary

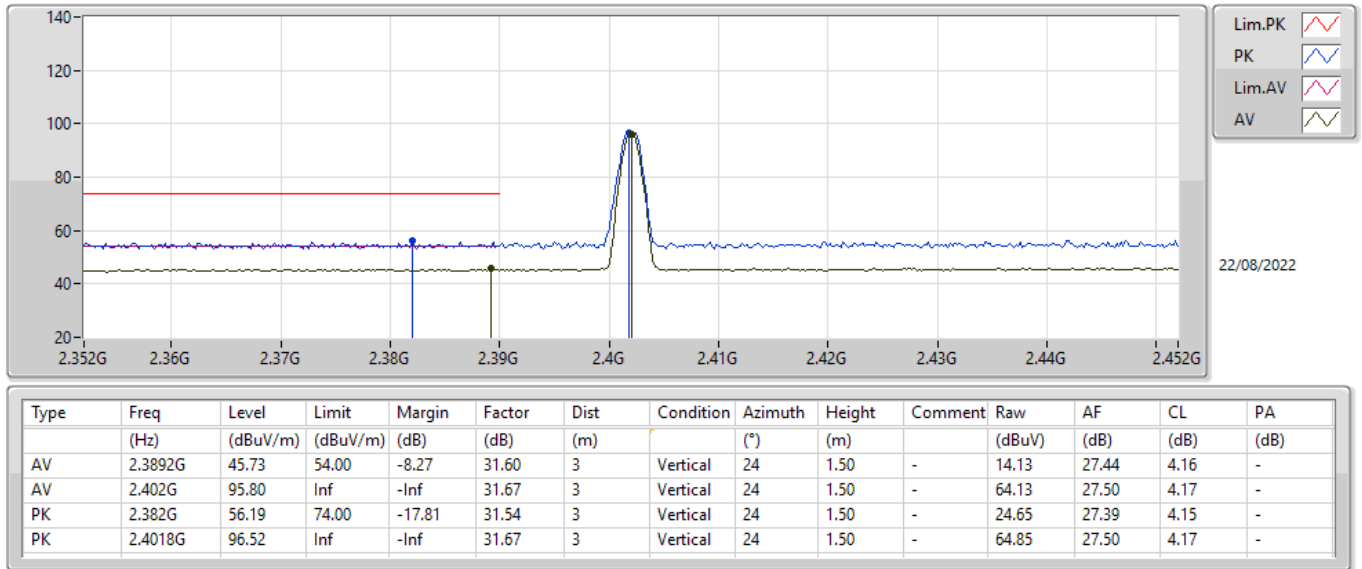
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	AV	2.4848G	46.50	54.00	-7.50	3	Vertical	344	1.45	-

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	2.3892G	45.73	54.00	-8.27	3	Vertical	24	1.50	-
2402MHz	Pass	AV	2.402G	95.80	Inf	-Inf	3	Vertical	24	1.50	-
2402MHz	Pass	PK	2.382G	56.19	74.00	-17.81	3	Vertical	24	1.50	-
2402MHz	Pass	PK	2.4018G	96.52	Inf	-Inf	3	Vertical	24	1.50	-
2402MHz	Pass	AV	2.3724G	45.88	54.00	-8.12	3	Horizontal	149	2.70	-
2402MHz	Pass	AV	2.402G	98.83	Inf	-Inf	3	Horizontal	149	2.70	-
2402MHz	Pass	PK	2.358G	55.96	74.00	-18.04	3	Horizontal	149	2.70	-
2402MHz	Pass	PK	2.4018G	99.54	Inf	-Inf	3	Horizontal	149	2.70	-
2402MHz	Pass	AV	4.80625G	34.45	54.00	-19.55	3	Vertical	226	2.46	-
2402MHz	Pass	PK	4.8058G	45.78	74.00	-28.22	3	Vertical	226	2.46	-
2402MHz	Pass	AV	4.80605G	34.61	54.00	-19.39	3	Horizontal	58	1.61	-
2402MHz	Pass	PK	4.80614G	44.97	74.00	-29.03	3	Horizontal	58	1.61	-
2440MHz	Pass	AV	2.3704G	45.74	54.00	-8.26	3	Vertical	344	1.45	-
2440MHz	Pass	AV	2.44G	100.54	Inf	-Inf	3	Vertical	344	1.45	-
2440MHz	Pass	AV	2.4848G	46.50	54.00	-7.50	3	Vertical	344	1.45	-
2440MHz	Pass	PK	2.376G	55.95	74.00	-18.05	3	Vertical	344	1.45	-
2440MHz	Pass	PK	2.4396G	101.35	Inf	-Inf	3	Vertical	344	1.45	-
2440MHz	Pass	PK	2.4992G	56.63	74.00	-17.37	3	Vertical	344	1.45	-
2440MHz	Pass	AV	2.3868G	45.76	54.00	-8.24	3	Horizontal	107	2.70	-
2440MHz	Pass	AV	2.44G	101.89	Inf	-Inf	3	Horizontal	107	2.70	-
2440MHz	Pass	AV	2.4936G	46.45	54.00	-7.55	3	Horizontal	107	2.70	-
2440MHz	Pass	PK	2.3808G	56.08	74.00	-17.92	3	Horizontal	107	2.70	-
2440MHz	Pass	PK	2.4396G	102.55	Inf	-Inf	3	Horizontal	107	2.70	-
2440MHz	Pass	PK	2.4976G	55.92	74.00	-18.08	3	Horizontal	107	2.70	-
2440MHz	Pass	AV	4.87828G	34.25	54.00	-19.75	3	Vertical	56	2.05	-
2440MHz	Pass	PK	4.87874G	45.24	74.00	-28.76	3	Vertical	56	2.05	-
2440MHz	Pass	AV	4.87768G	34.64	54.00	-19.36	3	Horizontal	315	2.66	-
2440MHz	Pass	PK	4.87841G	45.27	74.00	-28.73	3	Horizontal	315	2.66	-
2480MHz	Pass	AV	2.48G	95.53	Inf	-Inf	3	Vertical	344	1.31	-
2480MHz	Pass	AV	2.4884G	46.39	54.00	-7.61	3	Vertical	344	1.31	-
2480MHz	Pass	PK	2.4802G	95.29	Inf	-Inf	3	Vertical	344	1.31	-
2480MHz	Pass	PK	2.4856G	57.80	74.00	-16.20	3	Vertical	344	1.31	-
2480MHz	Pass	AV	2.48G	98.24	Inf	-Inf	3	Horizontal	108	2.58	-
2480MHz	Pass	AV	2.489G	46.48	54.00	-7.52	3	Horizontal	108	2.58	-
2480MHz	Pass	PK	2.4798G	99.07	Inf	-Inf	3	Horizontal	108	2.58	-
2480MHz	Pass	PK	2.494G	56.74	74.00	-17.26	3	Horizontal	108	2.58	-
2480MHz	Pass	AV	4.95783G	34.75	54.00	-19.25	3	Vertical	106	1.78	-
2480MHz	Pass	PK	4.95829G	45.95	74.00	-28.05	3	Vertical	106	1.78	-
2480MHz	Pass	AV	4.95825G	35.18	54.00	-18.82	3	Horizontal	258	1.50	-
2480MHz	Pass	PK	4.96207G	45.39	74.00	-28.61	3	Horizontal	258	1.50	-

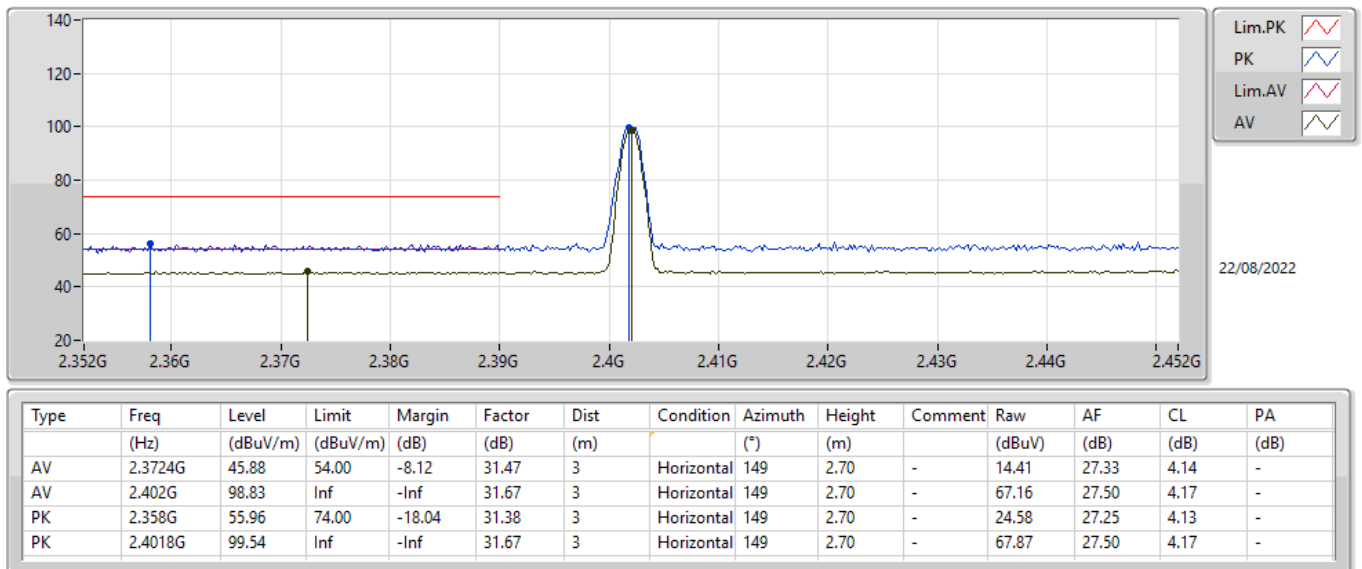
BT-LE(1Mbps)

2402MHz_TX



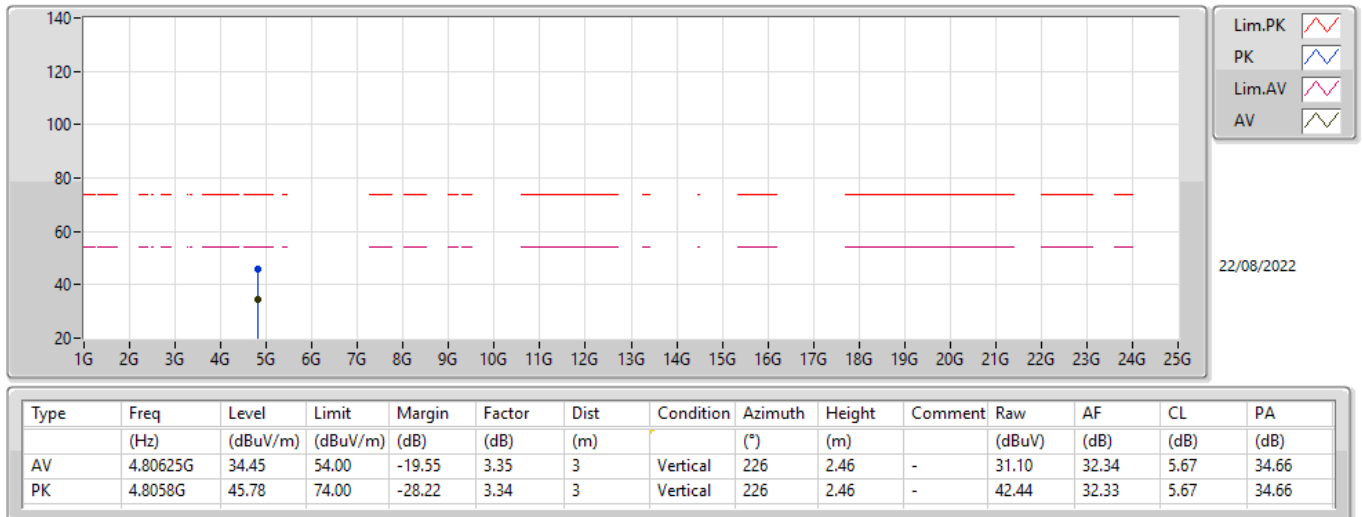
BT-LE(1Mbps)

2402MHz_TX



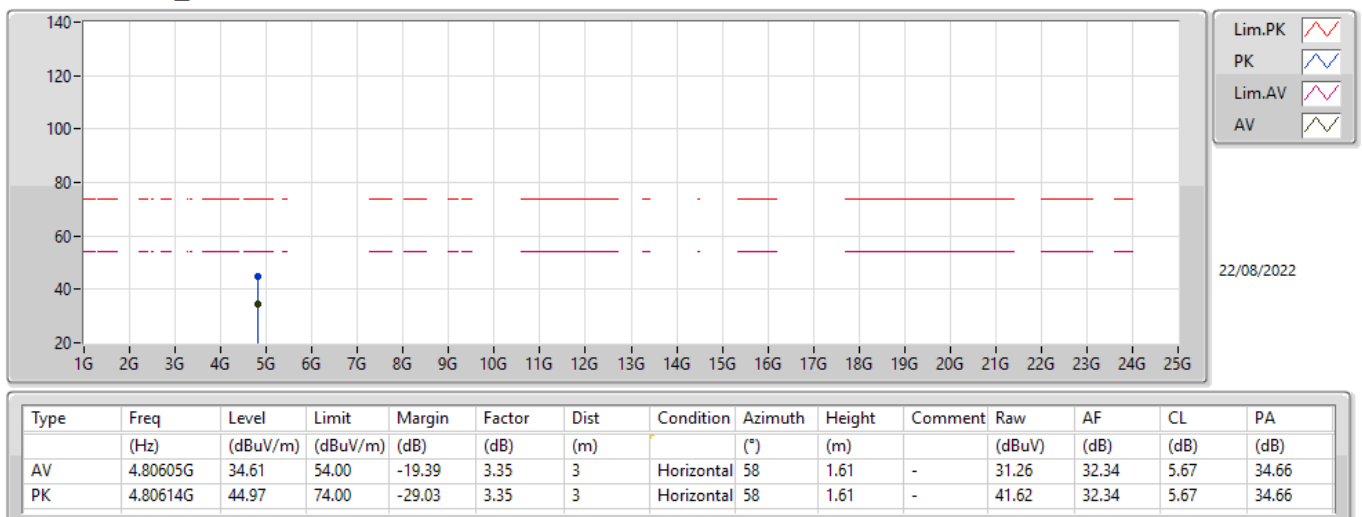
BT-LE(1Mbps)

2402MHz_TX



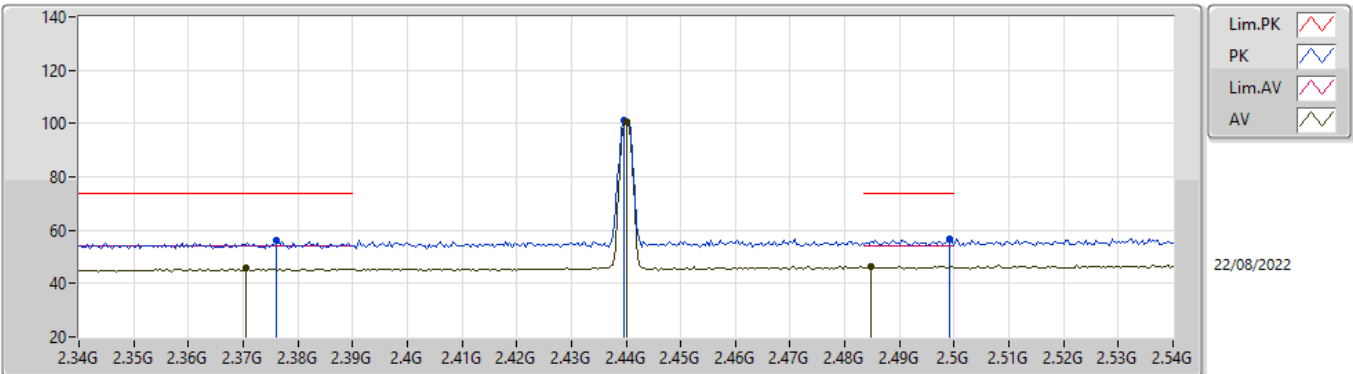
BT-LE(1Mbps)

2402MHz_TX



BT-LE(1Mbps)

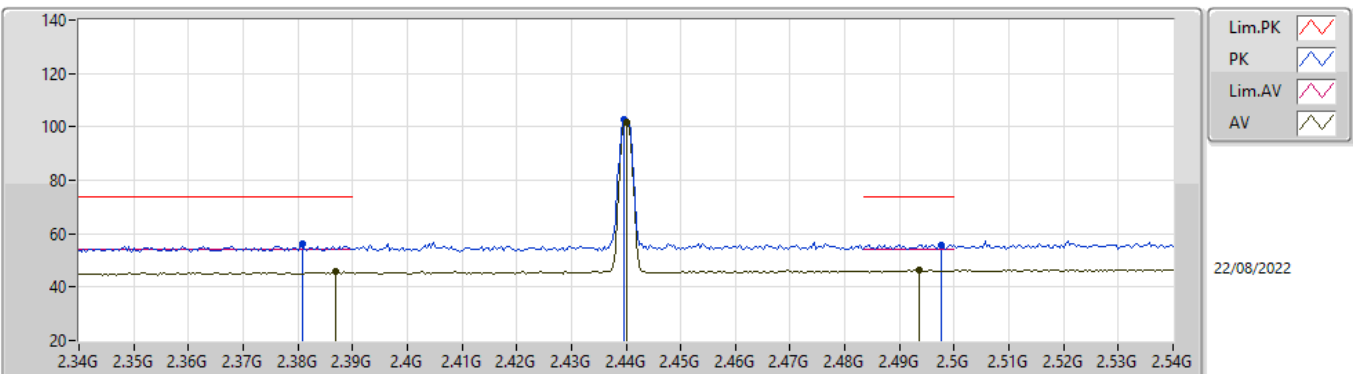
2440MHz_TX



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	2.3704G	45.74	54.00	-8.26	31.46	3	Vertical	344	1.45	-	14.28	27.32	4.14	-
AV	2.44G	100.54	Inf	-Inf	31.77	3	Vertical	344	1.45	-	68.77	27.58	4.19	-
AV	2.4848G	46.50	54.00	-7.50	32.03	3	Vertical	344	1.45	-	14.47	27.81	4.22	-
PK	2.376G	55.95	74.00	-18.05	31.51	3	Vertical	344	1.45	-	24.44	27.36	4.15	-
PK	2.4396G	101.35	Inf	-Inf	31.77	3	Vertical	344	1.45	-	69.58	27.58	4.19	-
PK	2.4992G	56.63	74.00	-17.37	32.13	3	Vertical	344	1.45	-	24.50	27.90	4.23	-

BT-LE(1Mbps)

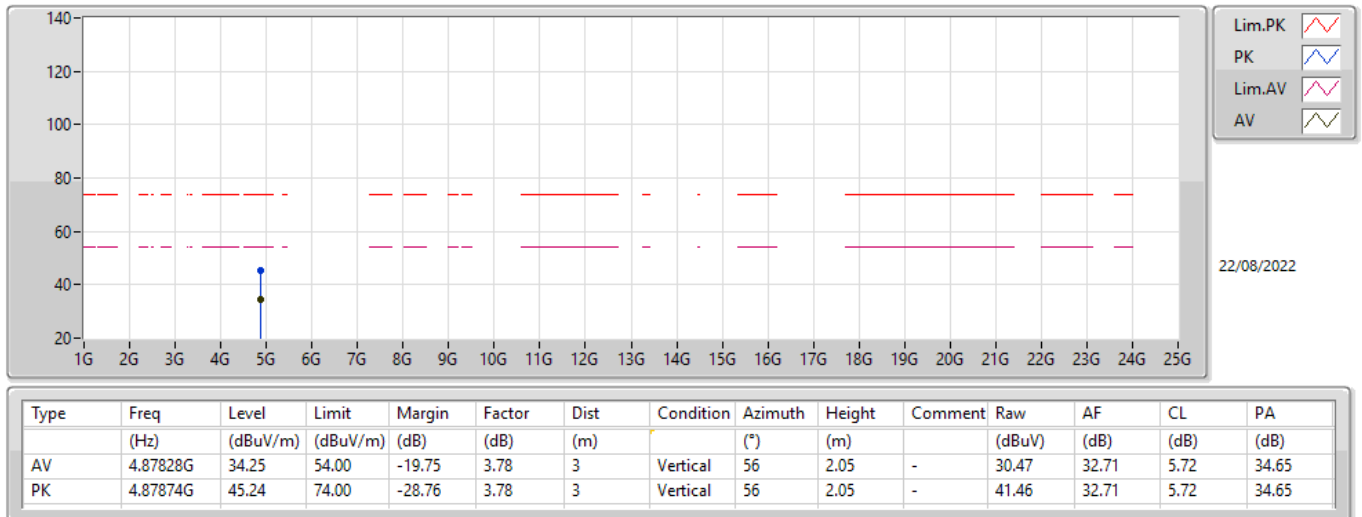
2440MHz_TX



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	2.3868G	45.76	54.00	-8.24	31.58	3	Horizontal	107	2.70	-	14.18	27.42	4.16	-
AV	2.44G	101.89	Inf	-Inf	31.77	3	Horizontal	107	2.70	-	70.12	27.58	4.19	-
AV	2.4936G	46.45	54.00	-7.55	32.09	3	Horizontal	107	2.70	-	14.36	27.86	4.23	-
PK	2.3808G	56.08	74.00	-17.92	31.53	3	Horizontal	107	2.70	-	24.55	27.38	4.15	-
PK	2.4396G	102.55	Inf	-Inf	31.77	3	Horizontal	107	2.70	-	70.78	27.58	4.19	-
PK	2.4976G	55.92	74.00	-18.08	32.12	3	Horizontal	107	2.70	-	23.80	27.89	4.23	-

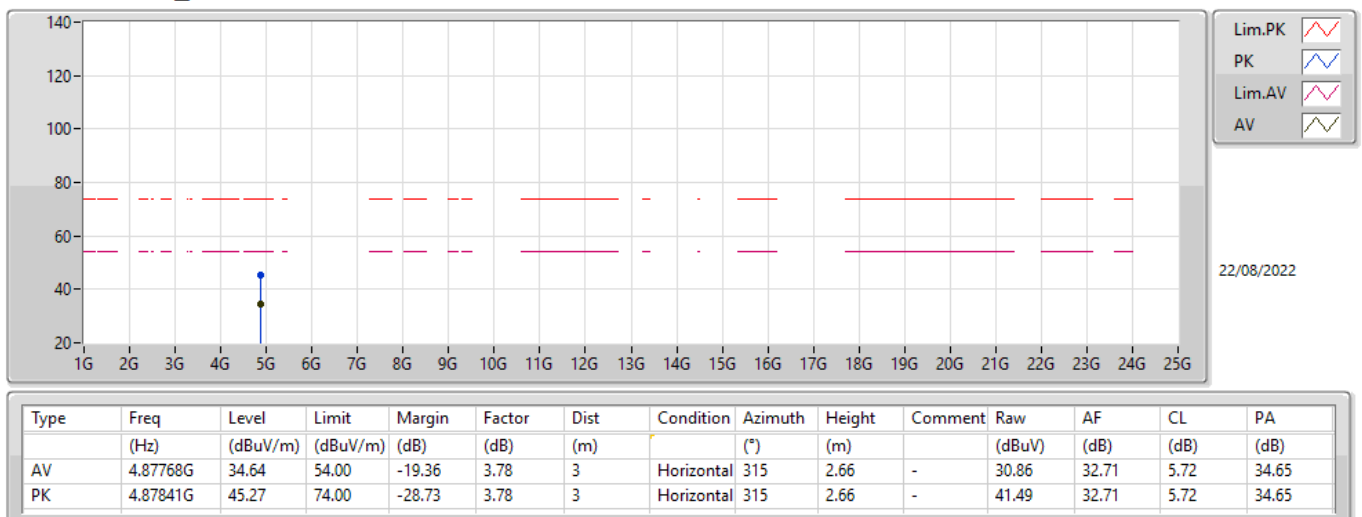
BT-LE(1Mbps)

2440MHz_TX



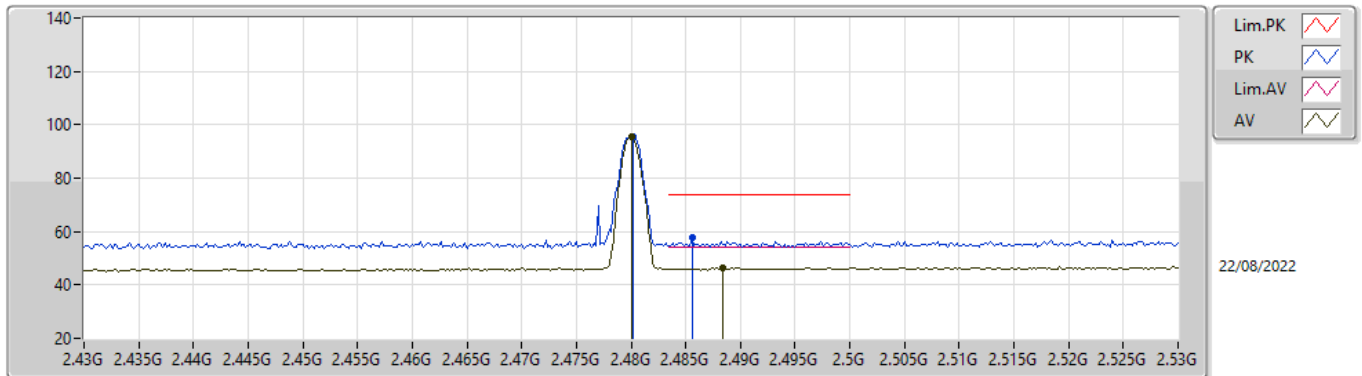
BT-LE(1Mbps)

2440MHz_TX



BT-LE(1Mbps)

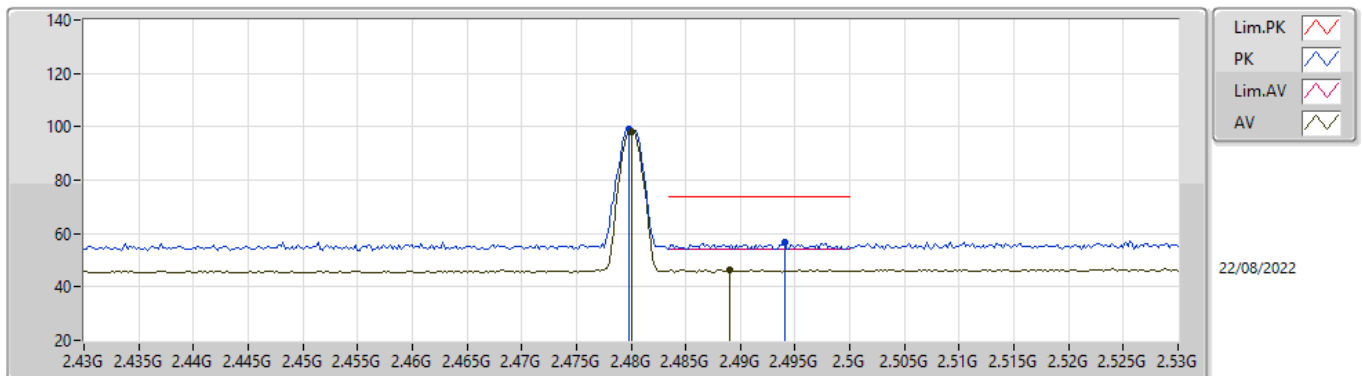
2480MHz_TX



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	95.53	Inf	-Inf	32.00	3	Vertical	344	1.31	-	63.53	27.78	4.22	-
AV	2.4884G	46.39	54.00	-7.61	32.05	3	Vertical	344	1.31	-	14.34	27.83	4.22	-
PK	2.4802G	95.29	Inf	-Inf	32.00	3	Vertical	344	1.31	-	63.29	27.78	4.22	-
PK	2.4856G	57.80	74.00	-16.20	32.03	3	Vertical	344	1.31	-	25.77	27.81	4.22	-

BT-LE(1Mbps)

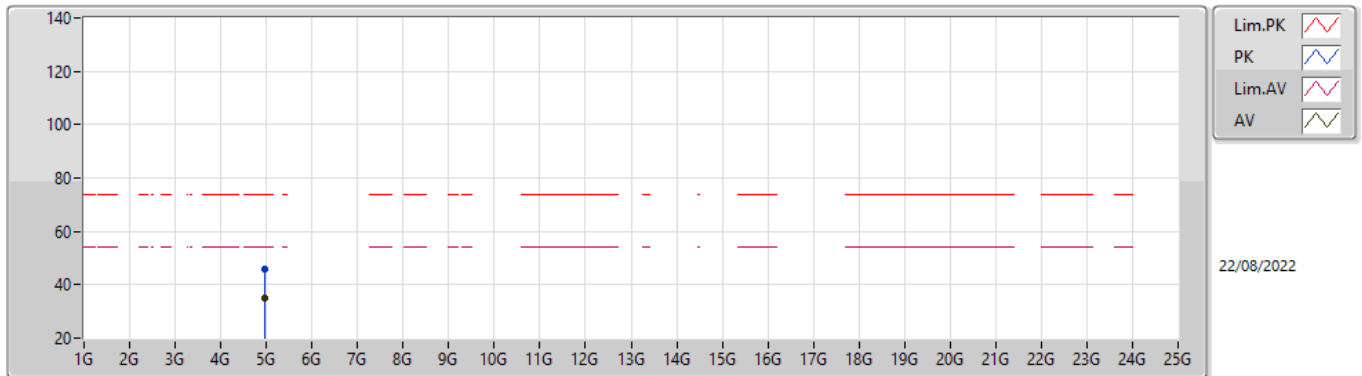
2480MHz_TX



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	98.24	Inf	-Inf	32.00	3	Horizontal	108	2.58	-	66.24	27.78	4.22	-
AV	2.489G	46.48	54.00	-7.52	32.05	3	Horizontal	108	2.58	-	14.43	27.83	4.22	-
PK	2.4798G	99.07	Inf	-Inf	32.00	3	Horizontal	108	2.58	-	67.07	27.78	4.22	-
PK	2.494G	56.74	74.00	-17.26	32.09	3	Horizontal	108	2.58	-	24.65	27.86	4.23	-

BT-LE(1Mbps)

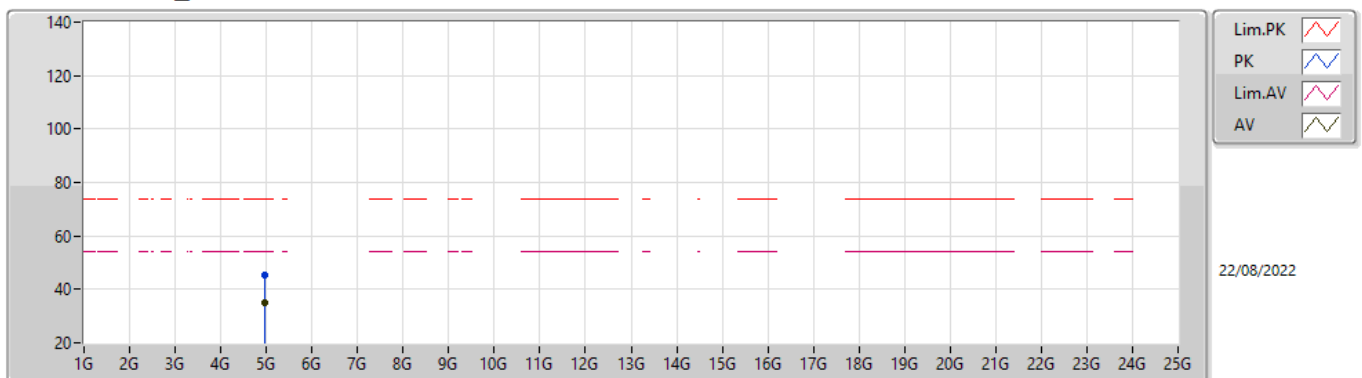
2480MHz_TX



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	4.95783G	34.75	54.00	-19.25	4.14	3	Vertical	106	1.78	-	30.61	33.02	5.76	34.64
PK	4.95829G	45.95	74.00	-28.05	4.14	3	Vertical	106	1.78	-	41.81	33.02	5.76	34.64

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	4.95825G	35.18	54.00	-18.82	4.14	3	Horizontal	258	1.50	-	31.04	33.02	5.76	34.64
PK	4.96207G	45.39	74.00	-28.61	4.15	3	Horizontal	258	1.50	-	41.24	33.02	5.77	34.64



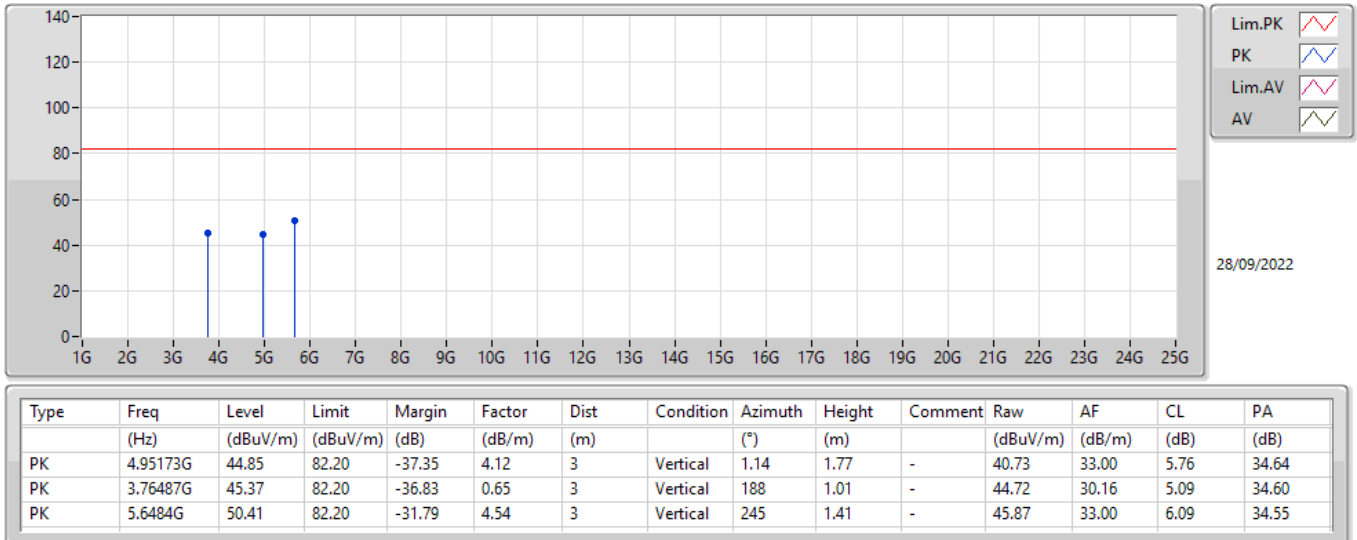
Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 1	Pass	PK	5.64731G	51.38	82.20	-30.82	Horizontal

Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
Mode 1	Pass	PK	4.95173G	44.85	82.20	-37.35	3	Vertical	1.14	1.77	-
Mode 1	Pass	PK	3.76487G	45.37	82.20	-36.83	3	Vertical	188	1.01	-
Mode 1	Pass	PK	5.6484G	50.41	82.20	-31.79	3	Vertical	245	1.41	-
Mode 1	Pass	PK	3.77847G	48.95	82.20	-33.25	3	Horizontal	312	1.07	-
Mode 1	Pass	PK	4.82373G	48.40	82.20	-33.80	3	Horizontal	62	2.44	-
Mode 1	Pass	PK	5.64731G	51.38	82.20	-30.82	3	Horizontal	235	1.21	-

Radiated Emissions above 1GHz_Mode 1



Radiated Emissions above 1GHz_Mode 1

