



# FCC Radio Test Report

**FCC ID** : AL8-F60R  
**Equipment** : True Wireless In-Ear Headphones  
**Brand Name** : PLANTRONICS  
**Model Name** : F60T  
**Applicant** : Plantronics, Inc.  
345 Encinal Street, Santa Cruz, CA 95060 USA  
**Manufacturer** : Plantronics, Inc.  
345 Encinal Street, Santa Cruz, CA 95060 USA  
**Standard** : 47 CFR FCC Part 15.247

The product was received on May 30, 2022, and testing was started from Oct. 17, 2022 and completed on Oct. 25, 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.)



## Table of Contents

**HISTORY OF THIS TEST REPORT .....3**

**SUMMARY OF TEST RESULT .....4**

**1 GENERAL DESCRIPTION .....5**

1.1 Information.....5

1.2 Testing Applied Standards .....6

1.3 Testing Location Information .....6

1.4 Measurement Uncertainty .....7

**2 TEST CONFIGURATION OF EUT.....8**

2.1 Test Channel Mode .....8

2.2 The Worst Case Measurement Configuration.....8

2.3 Accessories .....9

2.4 Support Equipment.....9

2.5 Test Setup Diagram .....10

**3 TRANSMITTER TEST RESULT .....11**

3.1 DTS Bandwidth.....11

3.2 Maximum Conducted Output Power .....12

3.3 Power Spectral Density .....14

3.4 Emissions in Non-restricted Frequency Bands .....15

3.5 Emissions in Restricted Frequency Bands.....16

**4 TEST EQUIPMENT AND CALIBRATION DATA .....20**

**APPENDIX A. TEST RESULTS OF DTS BANDWIDTH**

**APPENDIX B. TEST RESULTS OF MAXIMUM CONDUCTED OUTPUT POWER**

**APPENDIX C. TEST RESULTS OF POWER SPECTRAL DENSITY**

**APPENDIX D. TEST RESULTS OF EMISSIONS IN NON-RESTRICTED FREQUENCY BANDS**

**APPENDIX E. TEST RESULTS OF EMISSIONS IN RESTRICTED FREQUENCY BANDS**

**APPENDIX F. TEST PHOTOS**

**PHOTOGRAPHS OF EUT V01**



History of this test report

Report No.	Version	Description	Issued Date
FR252602AL	01	Initial issue of report	Dec. 13, 2022



### 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	-

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

Reviewed by: Ben Tseng  
Report Producer: Debby Hung

# 1 General Description

## 1.1 Information

### 1.1.1 RF General Information

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

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

Note:
<ul style="list-style-type: none"> <li>Bluetooth LE uses a GFSK (1Mbps/2Mbps) modulation.</li> <li>BWch is the nominal channel bandwidth.</li> </ul>

### 1.1.2 Antenna Information

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	Toongin	ANT-Earbuds	FPC Antenna	Touch Pad	-5.56

Note 1: The EUT has one antenna.

**For BT function:**

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

Ant. 1 could transmit/receive.

### 1.1.3 EUT Information

Operational Condition	
EUT Power Type	From 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 Table for Multiple Listing

There are two kinds of MFI chip which specification is the same.

SKU	Model Name	Description
1	MFI343S00176	The specification is the same but IC package design and layout location is different
2	MFI343S00177	

From the above models, SKU2 was selected as representative model for the test and its data was recorded in this report.

### 1.1.5 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
BT-LE(1Mbps)	0.672	1.73	420.042u	3k
BT-LE(2Mbps)	0.379	4.21	237.024u	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
RF Conducted	TH06-HY	Jin	22.6~26.4°C / 51~57%	17/Oct/2022~25/Oct/2022
<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	23.7~24.12°C / 55~59%	18/Oct/2022~20/Oct/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%
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	BlueTest3: 3.3.5
<b>Mode</b>	<b>Power Setting</b>
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	
<b>Tests Item</b>	DTS Bandwidth Maximum Conducted Output Power Power Spectral Density Emissions in Non-restricted Frequency Bands
<b>Test Condition</b>	Conducted measurement at transmit chains

The Worst Case Mode for Following Conformance Tests			
<b>Tests Item</b>	Emissions in Restricted Frequency Bands		
<b>Test Condition</b>	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.		
<b>Operating Mode &lt; 1GHz</b>	CTX		
1	Battery mode		
<b>Operating Mode &gt; 1GHz</b>	CTX		
<b>Orthogonal Planes of EUT</b>	<b>X Plane</b>	<b>Y Plane</b>	<b>Z Plane</b>
			
<b>Worst Planes of EUT</b>		V	



### 2.3 Accessories

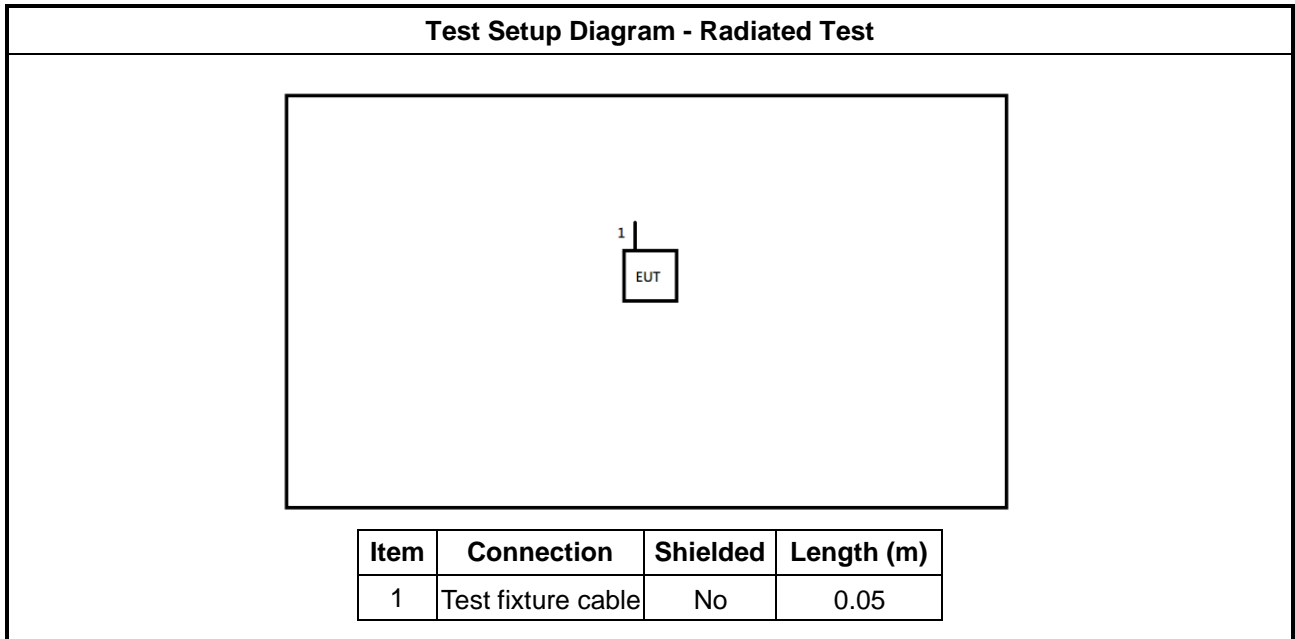
Accessories				
Battery	Brand Name	VDL	Model Name	ZJ1254H
	Power Rating	3.85 Vdc, 70 mAh	Type	Li-ion, Button cell
Wireless Charging case (Optional)	Brand Name	PLANTRONICS	Model Name	CBF60+
USB Cable (Type-C to A) (Optional)	Brand Name	LOT	Model Name	207488-09
	Signal Line	0.3 meter, D-shielded cable, w/o ferrite core		
USB Cable (Type-C to C) (Optional)	Brand Name	LOT	Model Name	207488-10
	Signal Line	0.3 meter, D-shielded cable, w/o ferrite core		
Audio Cable (Type-C to Audio) (Optional)	Brand Name	LOT	Model Name	219266-02
	Signal Line	0.77 meter, non-shielded, w/o ferrite core		
Bluetooth Dongle (Type-C) (Optional)	Brand Name	Poly	Model Name	BT700C
	Interface	USB Type-C		
Bluetooth Dongle (Type-A) (Optional)	Brand Name	Poly	Model Name	BT700
	Interface	USB Type-A		

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	HP	HSTNN-I42C	-	-
2	Adapter for NB	HP	HSTNN-CA40	-	-

## 2.5 Test Setup Diagram



### 3 Transmitter Test Result

#### 3.1 DTS Bandwidth

##### 3.1.1 6dB Bandwidth Limit

6dB Bandwidth Limit
<b>Systems using digital modulation techniques:</b>
<ul style="list-style-type: none"> <li>▪ 6 dB bandwidth <math>\geq</math> 500 kHz.</li> </ul>

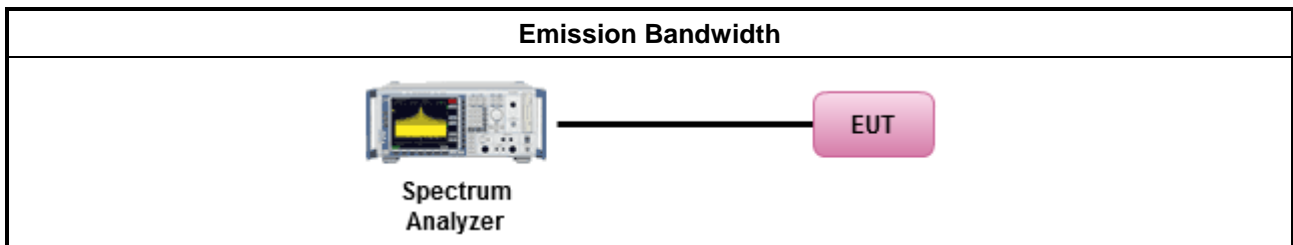
##### 3.1.2 Measuring Instruments

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

##### 3.1.3 Test Procedures

Test Method
<ul style="list-style-type: none"> <li>▪ For the emission bandwidth shall be measured using one of the options below:</li> </ul>
<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.

##### 3.1.4 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	
	<ul style="list-style-type: none"> <li>▪ If <math>G_{TX} \leq 6</math> dBi, then <math>P_{Out} \leq 30</math> dBm (1 W)</li> </ul>
	<ul style="list-style-type: none"> <li>▪ Point-to-multipoint systems (P2M): If <math>G_{TX} &gt; 6</math> dBi, then <math>P_{Out} = 30 - (G_{TX} - 6)</math> dBm</li> </ul>
	<ul style="list-style-type: none"> <li>▪ Point-to-point systems (P2P): If <math>G_{TX} &gt; 6</math> dBi, then <math>P_{Out} = 30 - (G_{TX} - 6)/3</math> dBm</li> </ul>
	<ul style="list-style-type: none"> <li>▪ Smart antenna system (SAS):</li> </ul>
	<ul style="list-style-type: none"> <li>- Single beam: If <math>G_{TX} &gt; 6</math> dBi, then <math>P_{Out} = 30 - (G_{TX} - 6)/3</math> dBm</li> </ul>
	<ul style="list-style-type: none"> <li>- Overlap beam: If <math>G_{TX} &gt; 6</math> dBi, then <math>P_{Out} = 30 - (G_{TX} - 6)/3</math> dBm</li> </ul>
	<ul style="list-style-type: none"> <li>- Aggregate power on all beams: If <math>G_{TX} &gt; 6</math> dBi, then <math>P_{Out} = 30 - (G_{TX} - 6)/3 + 8</math> dB dBm</li> </ul>
e.i.r.p. Power Limit:	
	<ul style="list-style-type: none"> <li>▪ 2400-2483.5 MHz Band</li> </ul>
	<ul style="list-style-type: none"> <li>▪ Point-to-multipoint systems (P2M): <math>P_{eirp} \leq 36</math> dBm (4 W)</li> </ul>
	<ul style="list-style-type: none"> <li>▪ Point-to-point systems (P2P): <math>P_{eirp} \leq \text{MAX}(36, [P_{Out} + G_{TX}])</math> dBm</li> </ul>
	<ul style="list-style-type: none"> <li>▪ Smart antenna system (SAS)</li> </ul>
	<ul style="list-style-type: none"> <li>- Single beam: <math>P_{eirp} \leq \text{MAX}(36, P_{Out} + G_{TX})</math> dBm</li> </ul>
	<ul style="list-style-type: none"> <li>- Overlap beam: <math>P_{eirp} \leq \text{MAX}(36, P_{Out} + G_{TX})</math> dBm</li> </ul>
	<ul style="list-style-type: none"> <li>- Aggregate power on all beams: <math>P_{eirp} \leq \text{MAX}(36, [P_{Out} + G_{TX} + 8])</math> dBm</li> </ul>
<p><math>P_{Out}</math> = maximum peak conducted output power or maximum conducted output power in dBm,  <math>G_{TX}</math> = the maximum transmitting antenna directional gain in dBi.</p>	

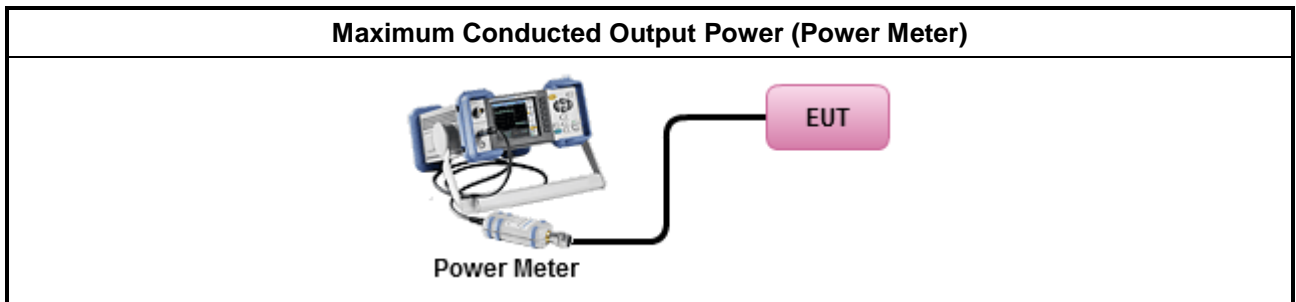
#### 3.2.2 Measuring Instruments

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"> <li>▪ Maximum Peak Conducted Output Power</li> </ul>	
<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"> <li>▪ Maximum Average Conducted Output Power</li> </ul>	
<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"> <li>▪ For conducted measurement.</li> </ul>	
<ul style="list-style-type: none"> <li>▪ 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.</li> </ul>	
<ul style="list-style-type: none"> <li>▪ If multiple transmit chains, EIRP calculation could be following as methods:  <math>P_{total} = P_1 + P_2 + \dots + P_n</math>                      (calculated in linear unit [mW] and transfer to log unit [dBm])  <math>EIRP_{total} = P_{total} + DG</math> </li> </ul>	

### 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
<ul style="list-style-type: none"> <li>Power Spectral Density (PSD) ≤ 8 dBm/3kHz</li> </ul>

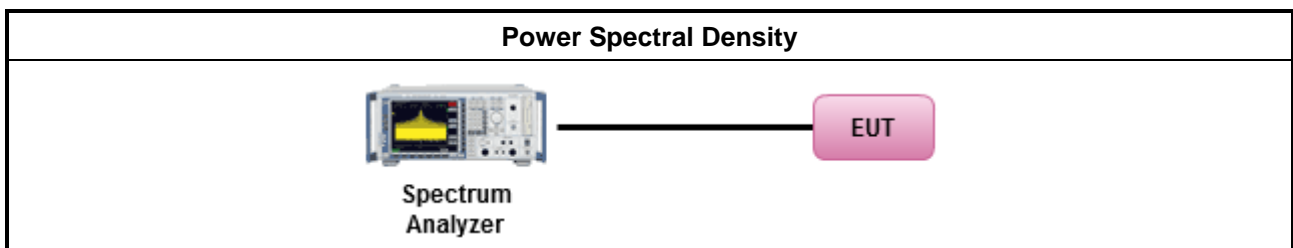
#### 3.3.2 Measuring Instruments

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"> <li>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).</li> </ul>	
<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"> <li>For conducted measurement.             <ul style="list-style-type: none"> <li>If The EUT supports multiple transmit chains using options given below:                 <ul style="list-style-type: none"> <li>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.</li> </ul> </li> </ul> </li> </ul>	

#### 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.

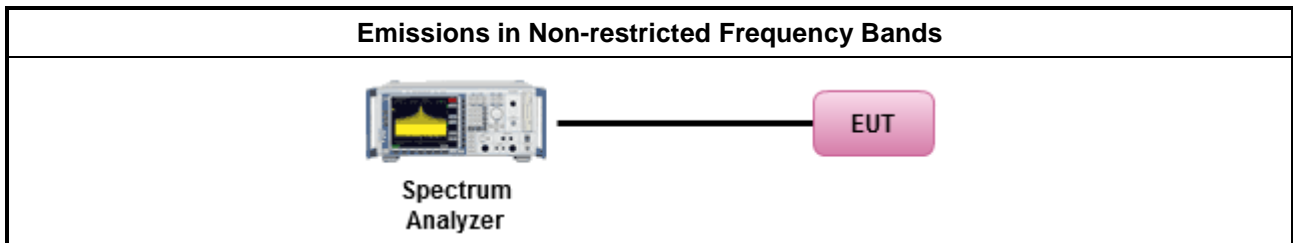
#### 3.4.2 Measuring Instruments

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

#### 3.4.3 Test Procedures

Test Method
<ul style="list-style-type: none"> <li>Refer as KDB 558074, clause 8.5 (11.11 of ANSI C63.10) for non-restricted frequency bands.</li> </ul>

#### 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

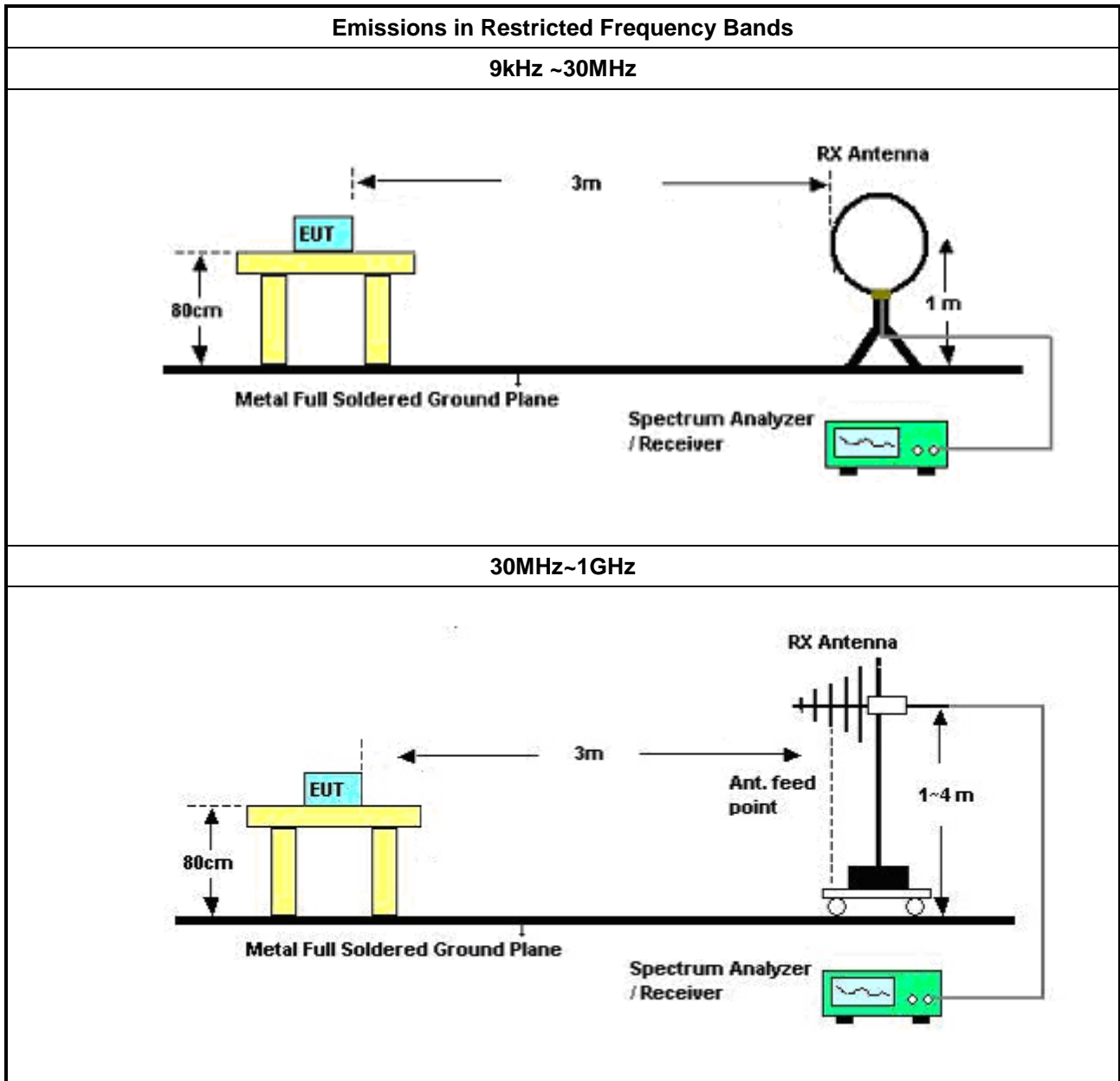
<b>Test Method</b>	
	<ul style="list-style-type: none"> <li>▪ The average emission levels shall be measured in [duty cycle <math>\geq</math> 98 or duty factor].</li> </ul>
	<ul style="list-style-type: none"> <li>▪ Refer as ANSI C63.10, clause 6.10.3 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.</li> </ul>
	<ul style="list-style-type: none"> <li>▪ For the transmitter unwanted emissions shall be measured using following options below:</li> </ul>
	<ul style="list-style-type: none"> <li>▪ Refer as KDB 558074, clause 8.6 (11.12 of ANSI C63.10) for restricted frequency bands.</li> </ul>
	<ul style="list-style-type: none"> <li>▪ For the transmitter band-edge emissions shall be measured using following options below:</li> </ul>
	<ul style="list-style-type: none"> <li>▪ 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.</li> </ul>
	<ul style="list-style-type: none"> <li>▪ Refer as KDB 558074, clause 8.7.2 (6.10.6 of ANSI C63.10) for marker-delta method for band-edge measurements.</li> </ul>
	<ul style="list-style-type: none"> <li>▪ Refer as KDB 558074, clause 8.7.3 for narrower resolution bandwidth (100kHz) using the band power and summing the spectral levels.</li> </ul>
	<ul style="list-style-type: none"> <li>▪ Use the following spectrum analyzer settings:</li> </ul>
	<ul style="list-style-type: none"> <li>▪ Set RBW=100 kHz for <math>f &lt; 1</math> GHz; VBW=3 * RBW; Sweep = auto; Detector function = peak; Trace = max hold.</li> </ul>
	<ul style="list-style-type: none"> <li>▪ Set RBW = 1 MHz, VBW= 3MHz for <math>f \geq 1</math> GHz for peak measurement. For average measurement, refer as 1.1.4.</li> </ul>
	<ul style="list-style-type: none"> <li>▪ KDB 414788 Open-Field Test Sites and Chamber Correlation Justification.</li> </ul>
	<ul style="list-style-type: none"> <li>▪ 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.</li> </ul>
	<ul style="list-style-type: none"> <li>▪ Open-field site and chamber correlation testing had been performed and chamber measured test result is the worst case test result.</li> </ul>

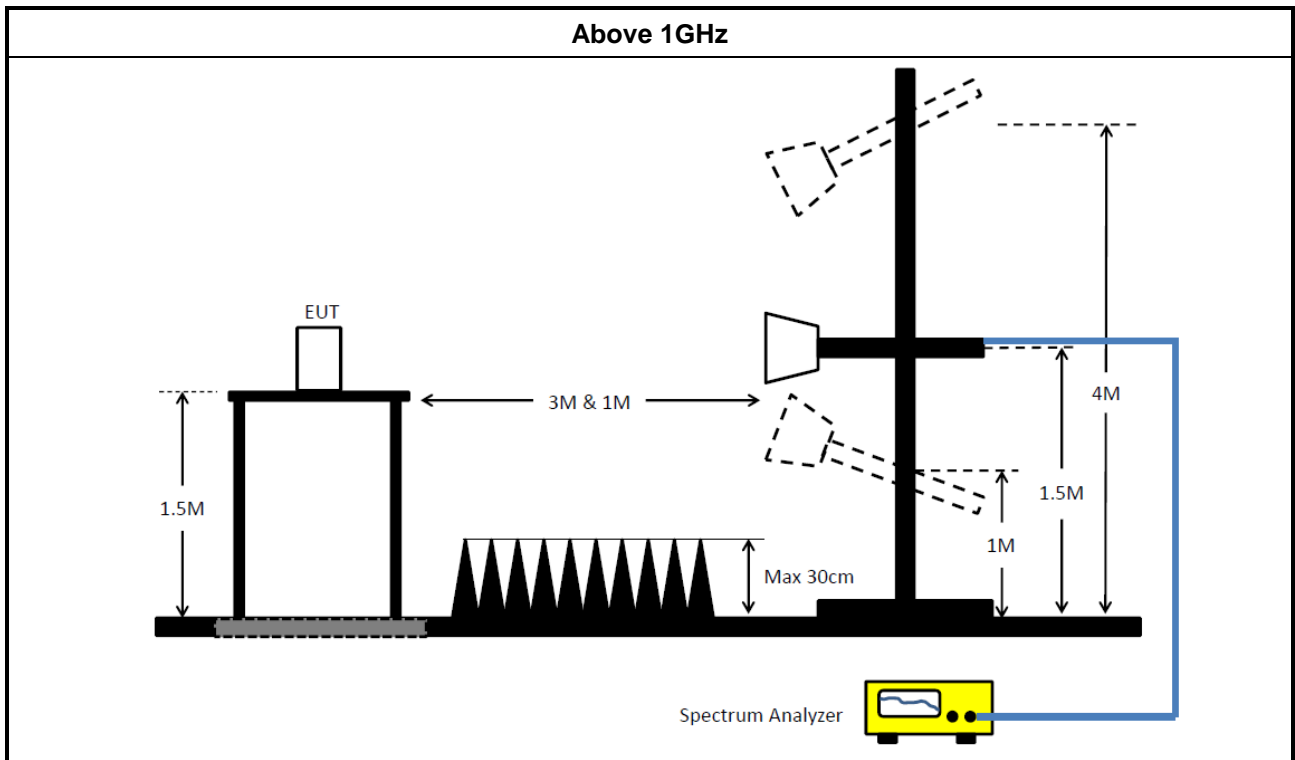
### 3.5.4 Measurement Results Calculation

The measured Level is calculated using:

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

### 3.5.5 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	101013	10Hz~40GHz	01/Apr/2022	31/Mar/2023
Signal Generator	Keysight	N5171B	MY53051240	9kHz~6GHz	24/Nov/2021	23/Nov/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

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	25/Mar/2022	24/Mar/2023
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	1GHz~18GHz 3m	17/Mar/2022	16/Mar/2023
EXA Signal Analyzer	KEYSIGHT	N9010A	MY54200885	10Hz~44GHz	11/Aug/2022	10/Aug/2023
Amplifier	EMC	EMC9135	980232	9kHz~1GHz	08/Apr/2022	07/Apr/2023
Microwave Preamplifier	Agilent	8449B	3008A02096	1GHz~26.5GHz	22/Jul/2022	21/Jul/2023
Bilog Antenna & 5dB Attenuator	TESEQ & MTJ	CBL6111D&MT J6102-05	35418 & 3	30MHz~1GHz	28/Aug/2022	27/Aug/2023
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1531	1GHz~18GHz	27/Dec/2021	26/Dec/2022
RF Cable-low	Jye Bao	RG142	CB031+324530/4	9kHz~30MHz	07/Feb/2022	06/Feb/2023
RF Cable-low	Jye Bao	RG142	03CH09-cable-01	30MHz~1GHz	17/Aug/2022	16/Aug/2023
RF CABLE 5m+3m+1m	HUBER+SUHNE R	SUCOFLEX104	03CH09-cable-02	1GHz~40GHz	17/Aug/2022	16/Aug/2023
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA 9170221	18GHz~40GHz	18/Mar/2022	17/Mar/2023
Microwave Prempplier	EMC INSTRUMENTS	EM18G40G	060604	18GHz ~ 40GHz	08/Mar/2022	07/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	V5.10.7.14	N/A	N/A	N/A	N/A



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)	717.5k	1.04M	1M04F1D	707.5k	1.038M
BT-LE(2Mbps)	1.255M	2.063M	2M06F1D	1.2M	2.059M

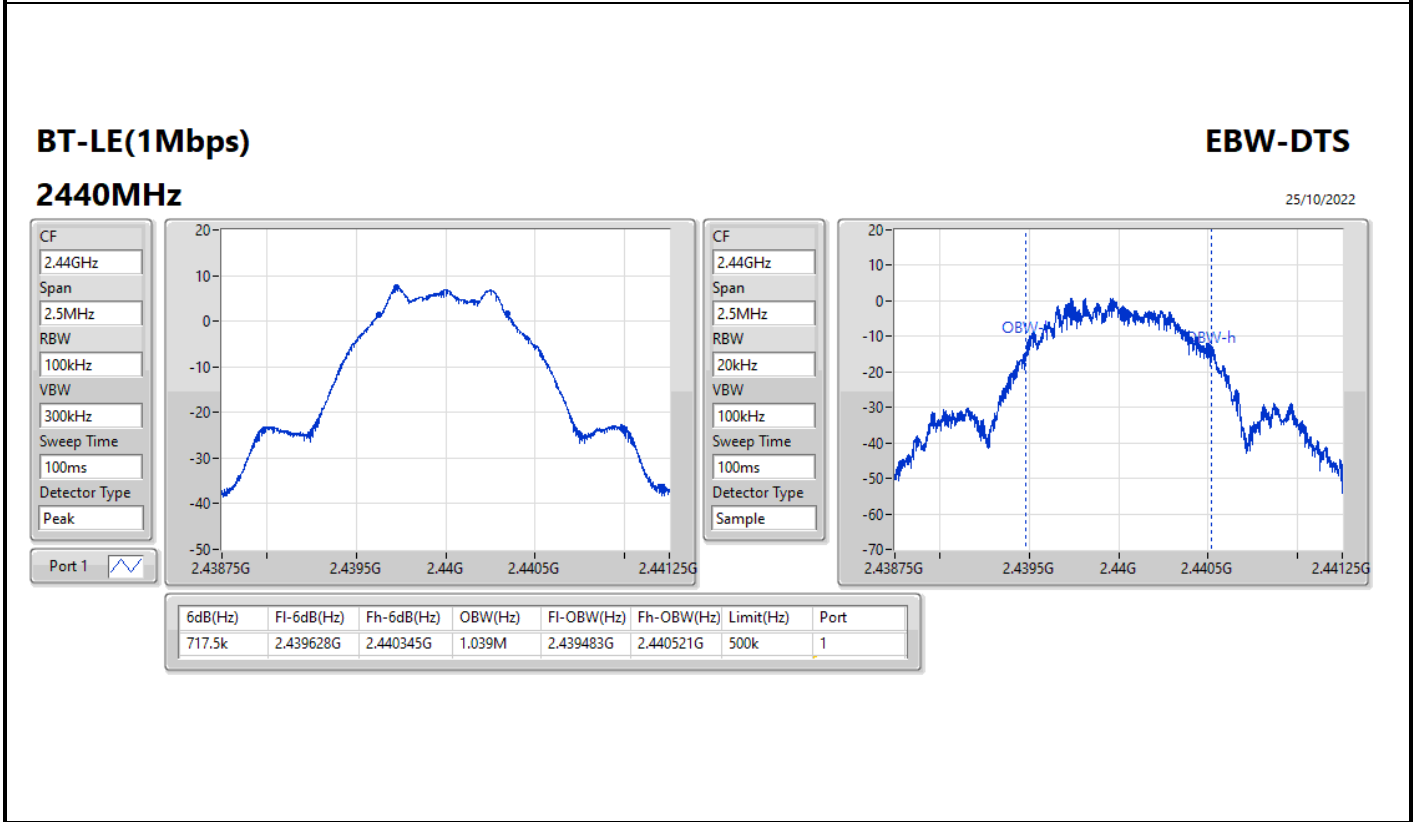
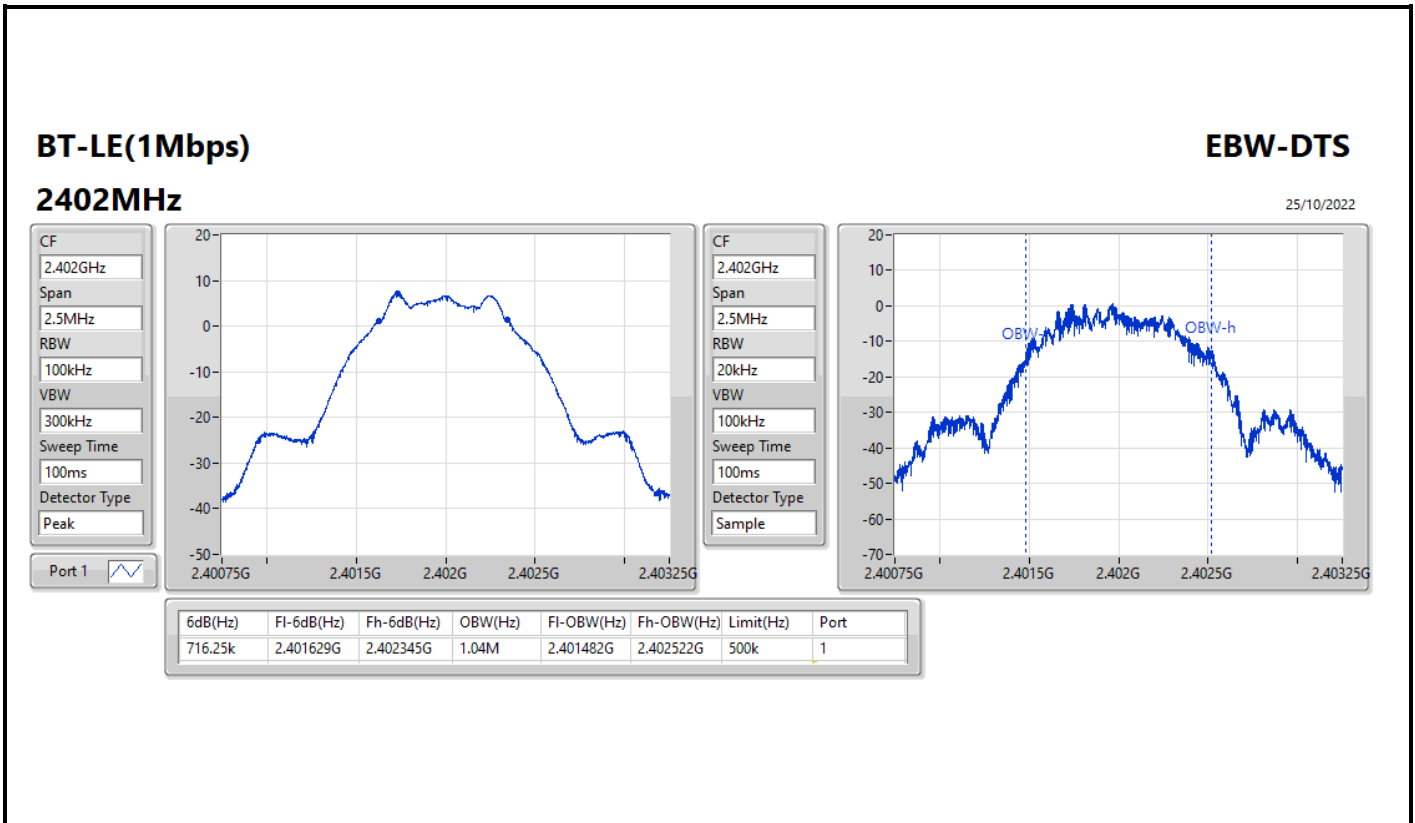
Max-N dB = Maximum 6dB down bandwidth; Max-OBW = Maximum 99% occupied bandwidth;  
Min-N dB = Minimum 6dB down bandwidth; Min-OBW = Minimum 99% occupied bandwidth

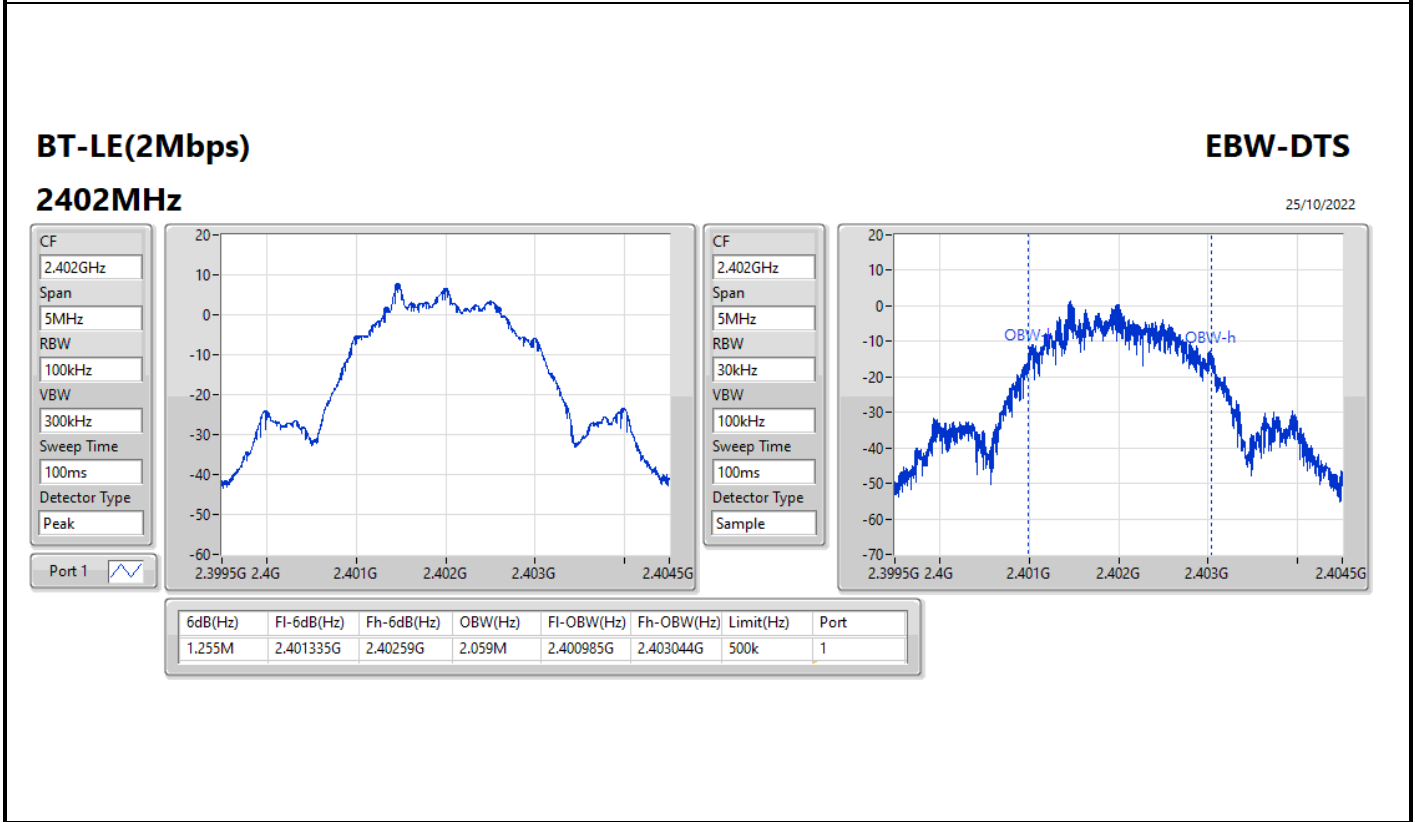
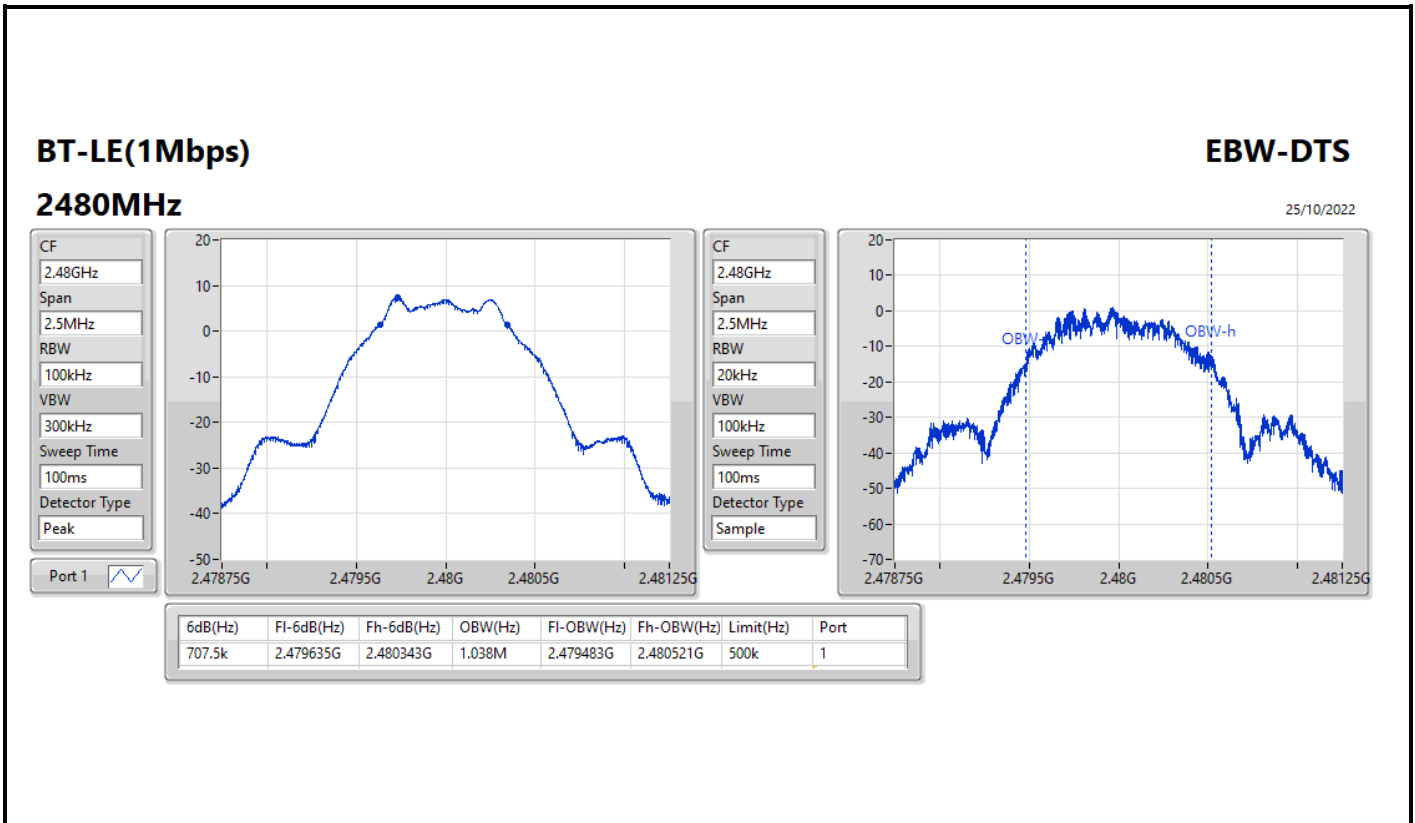


Result

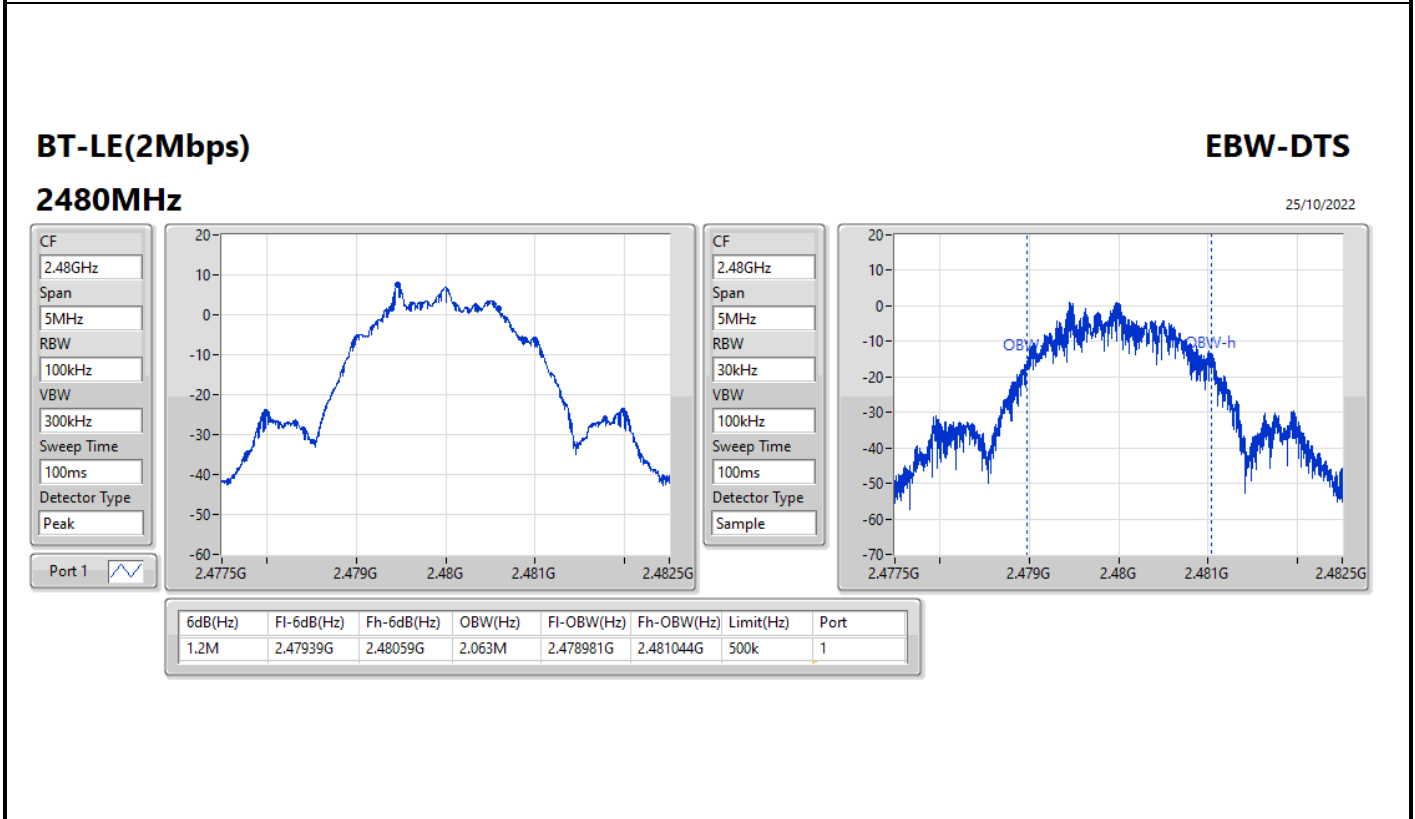
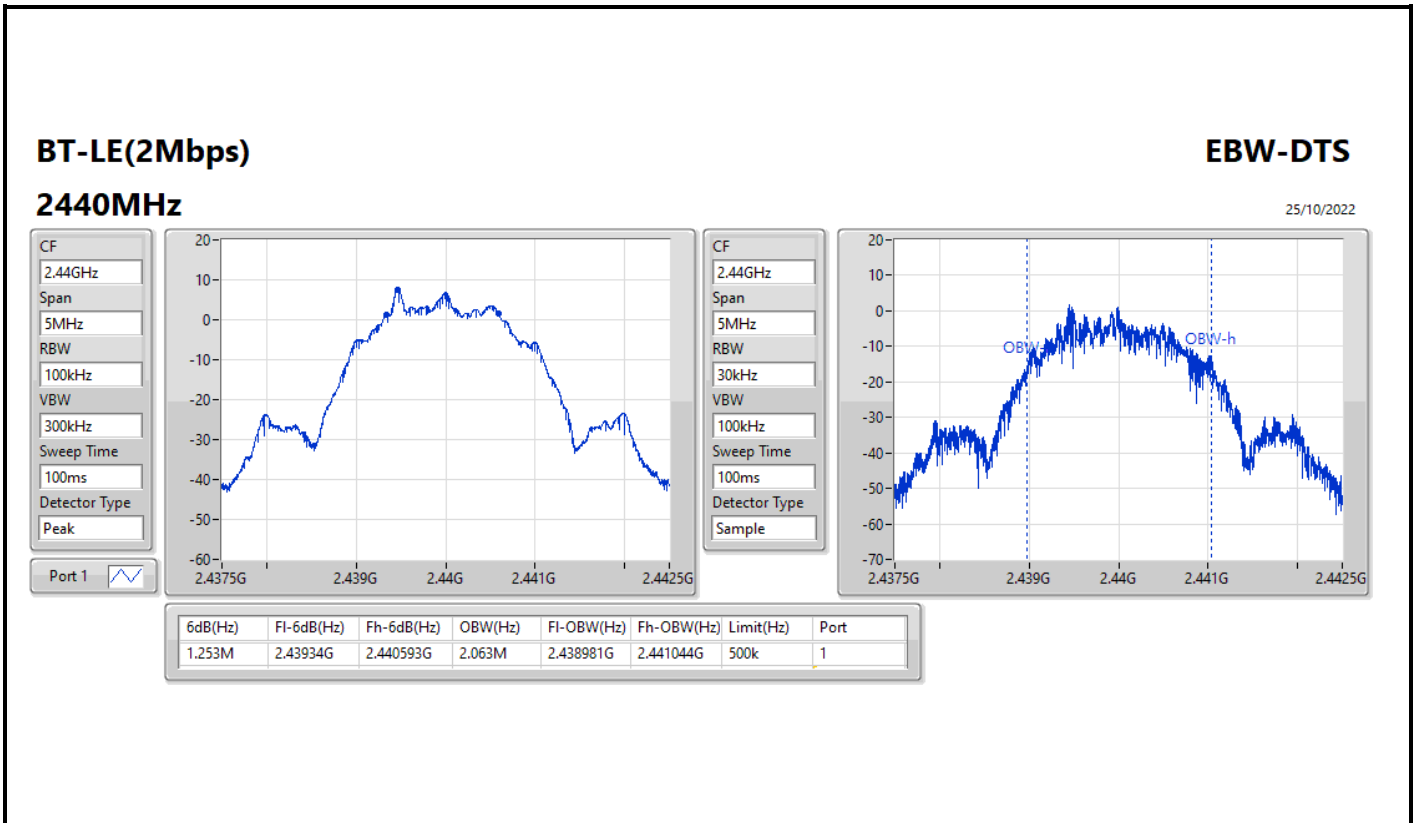
Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	716.25k	1.04M
2440MHz	Pass	500k	717.5k	1.039M
2480MHz	Pass	500k	707.5k	1.038M
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	500k	1.255M	2.059M
2440MHz	Pass	500k	1.253M	2.063M
2480MHz	Pass	500k	1.2M	2.063M

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)	7.42	0.00552
BT-LE(2Mbps)	7.39	0.00548



**Result**

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	-5.56	7.24	30.00
2440MHz	Pass	-5.56	7.39	30.00
2480MHz	Pass	-5.56	7.42	30.00
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	-5.56	7.20	30.00
2440MHz	Pass	-5.56	7.23	30.00
2480MHz	Pass	-5.56	7.39	30.00

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



**Summary**

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE(1Mbps)	-8.27
BT-LE(2Mbps)	-12.41

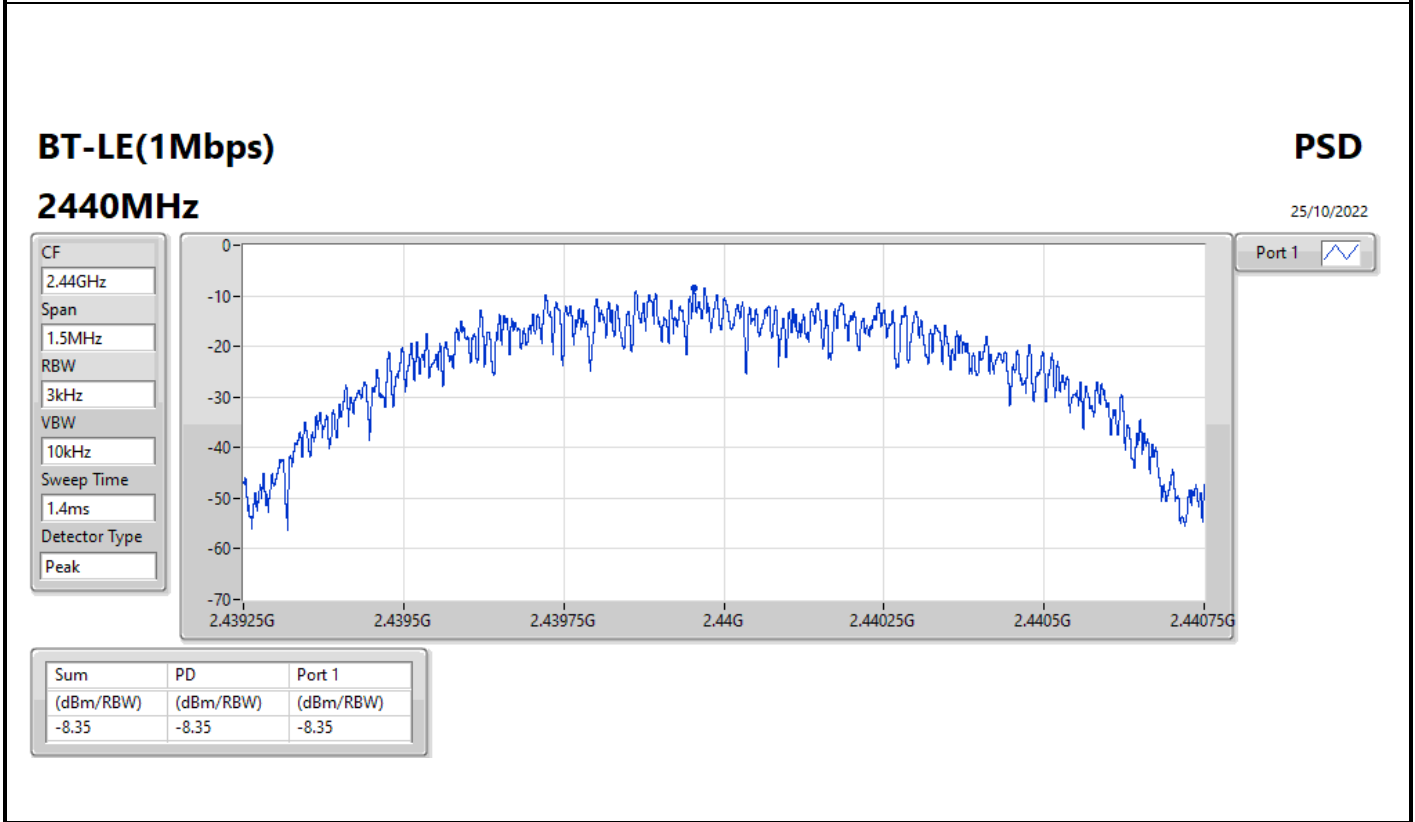
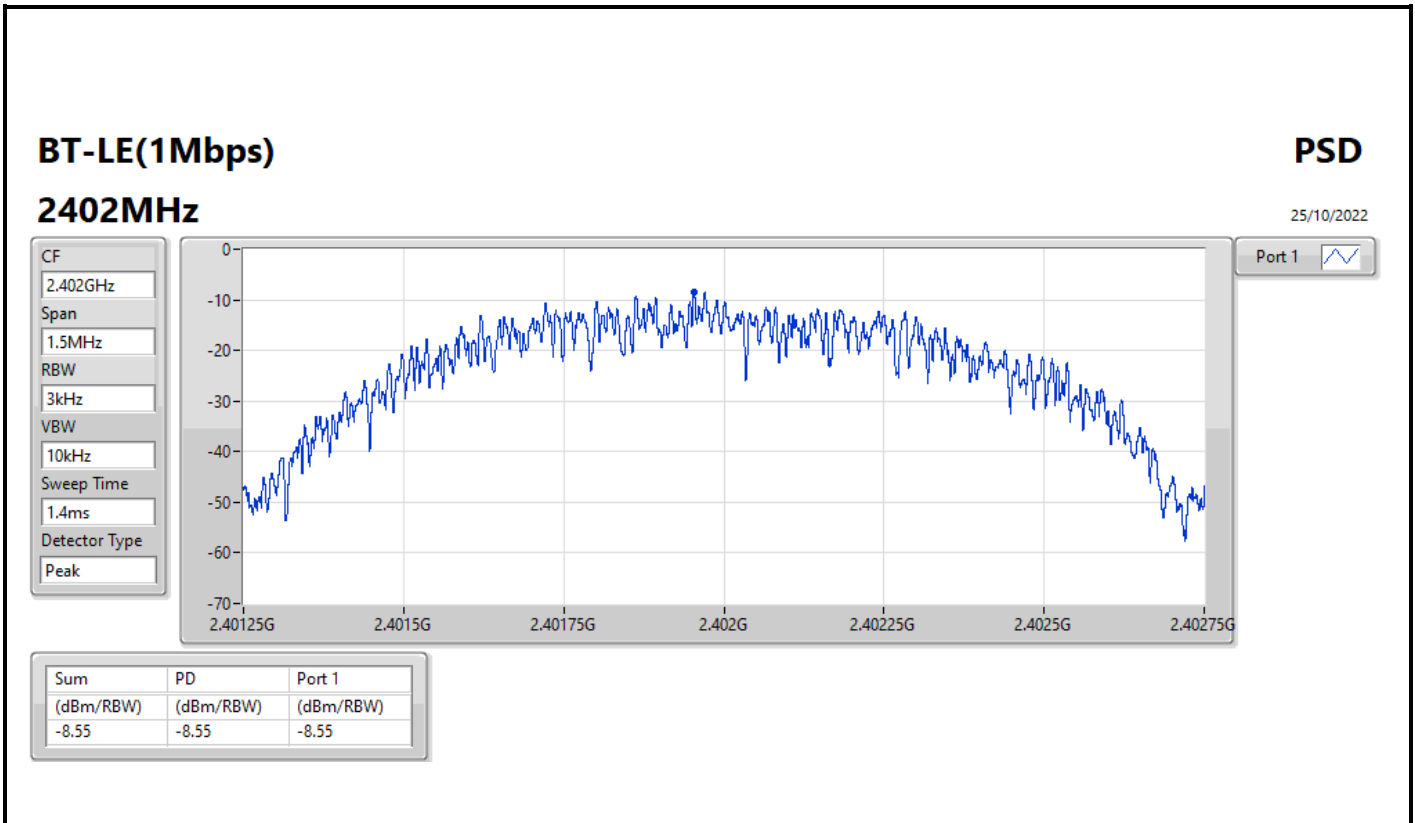
RBW = 3kHz;



Result

Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	-5.56	-8.55	8.00
2440MHz	Pass	-5.56	-8.35	8.00
2480MHz	Pass	-5.56	-8.27	8.00
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	-5.56	-12.66	8.00
2440MHz	Pass	-5.56	-12.41	8.00
2480MHz	Pass	-5.56	-12.43	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

2480MHz

25/10/2022

CF  
2.48GHz

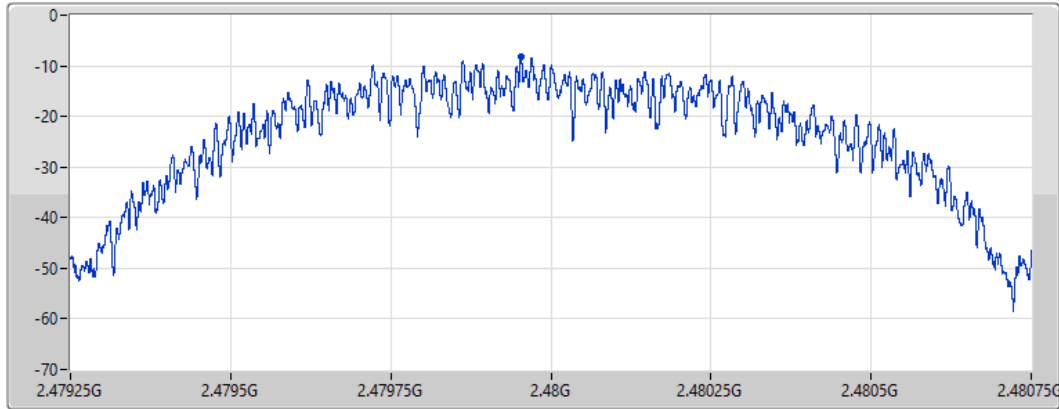
Span  
1.5MHz


RBW  
3kHz

VBW  
10kHz

Sweep Time  
1.4ms

Detector Type  
Peak



Port 1 

Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-8.27	-8.27	-8.27

### BT-LE(2Mbps)

### PSD

2402MHz

25/10/2022

CF  
2.402GHz

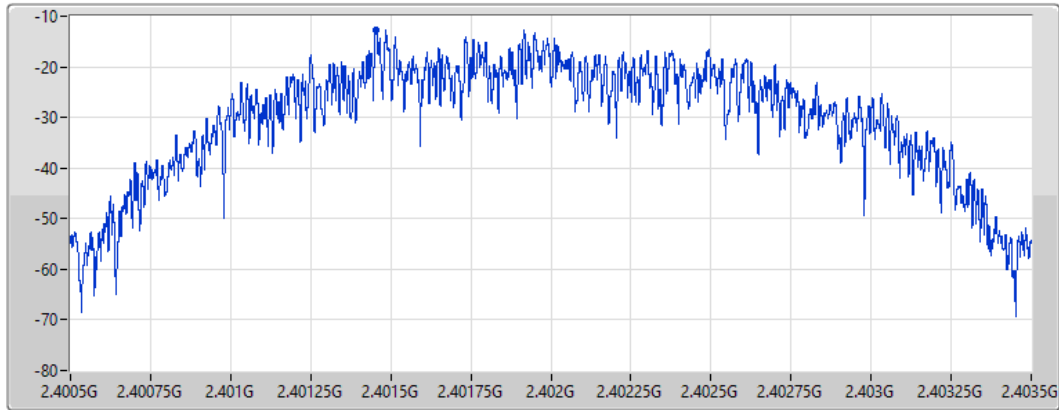
Span  
3MHz

RBW  
3kHz

VBW  
10kHz

Sweep Time  
1.4ms

Detector Type  
Peak



Port 1 

Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-12.66	-12.66	-12.66

**BT-LE(2Mbps)**

**PSD**

**2440MHz**

25/10/2022

CF  
2.44GHz

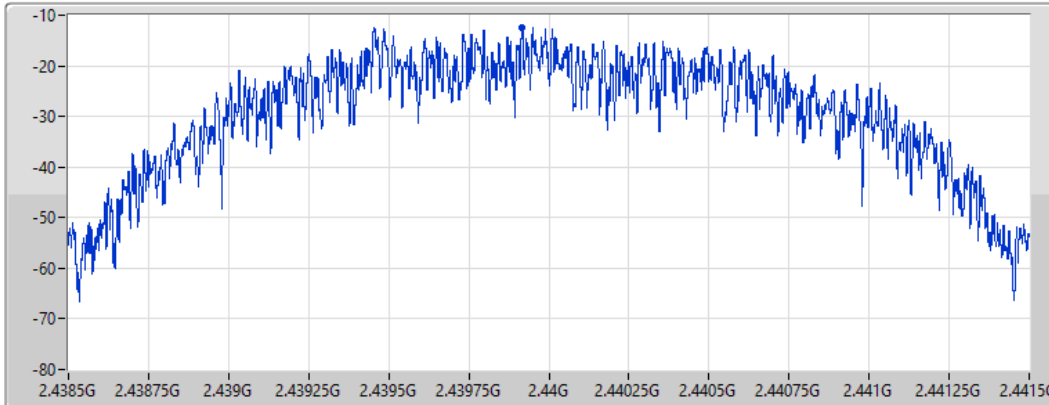
Span  
3MHz


RBW  
3kHz

VBW  
10kHz

Sweep Time  
1.4ms

Detector Type  
Peak



Port 1 

Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-12.41	-12.41	-12.41

**BT-LE(2Mbps)**

**PSD**

**2480MHz**

25/10/2022

CF  
2.48GHz

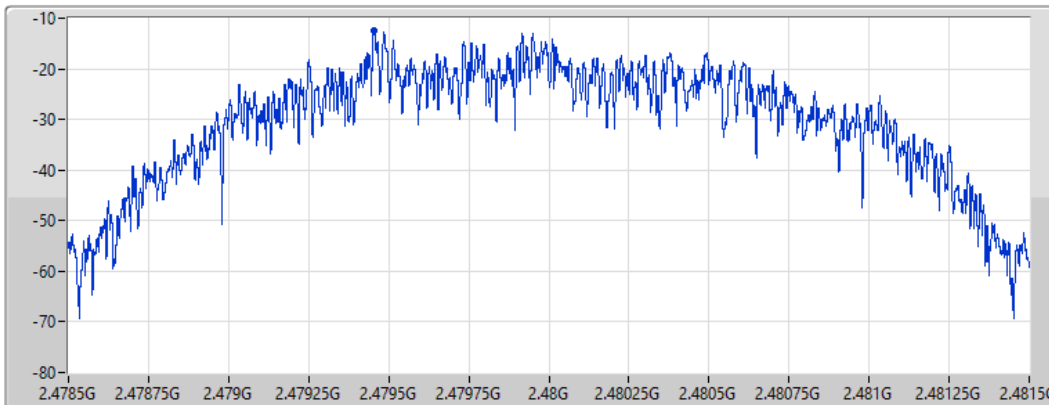
Span  
3MHz


RBW  
3kHz

VBW  
10kHz

Sweep Time  
1.4ms

Detector Type  
Peak



Port 1 

Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-12.43	-12.43	-12.43





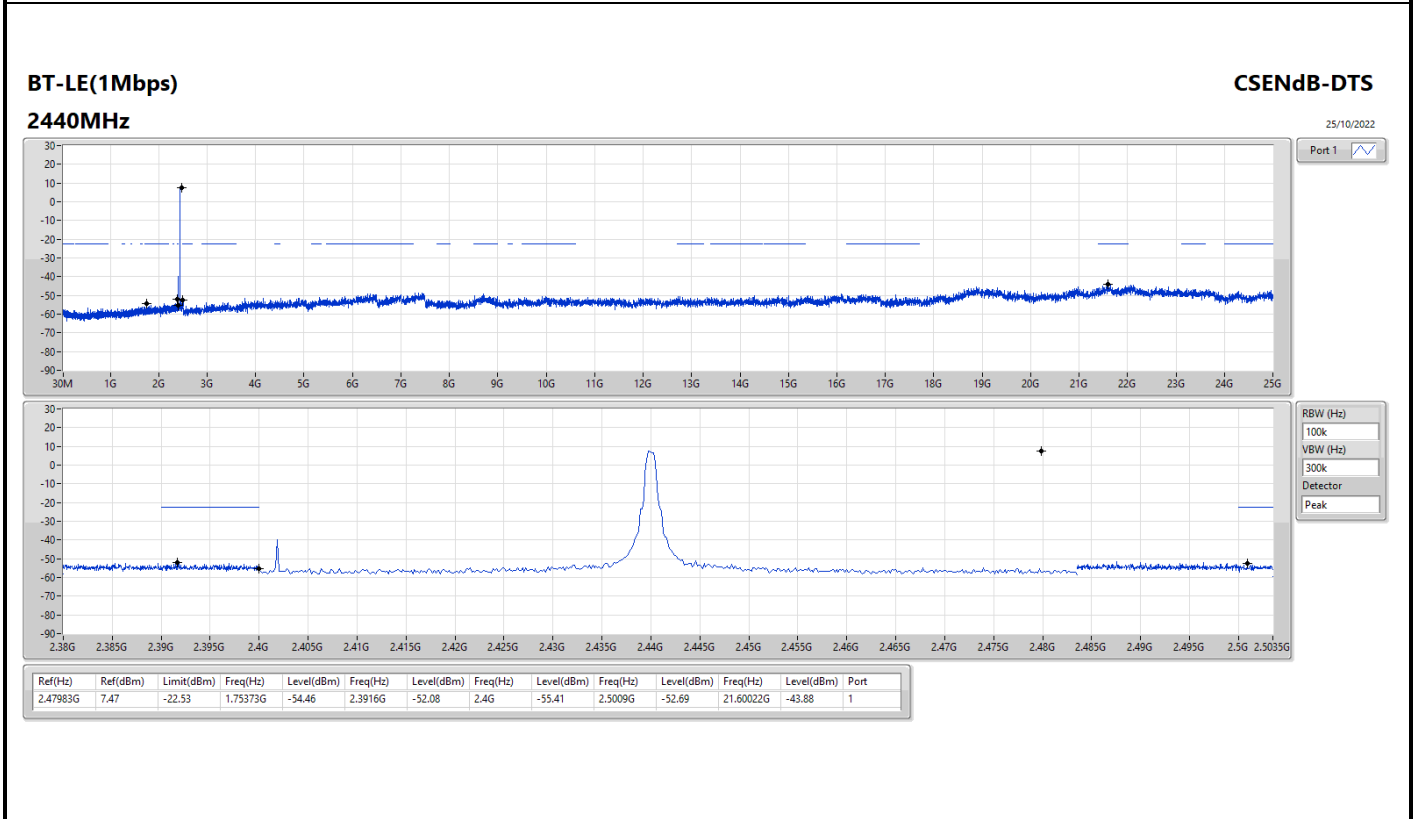
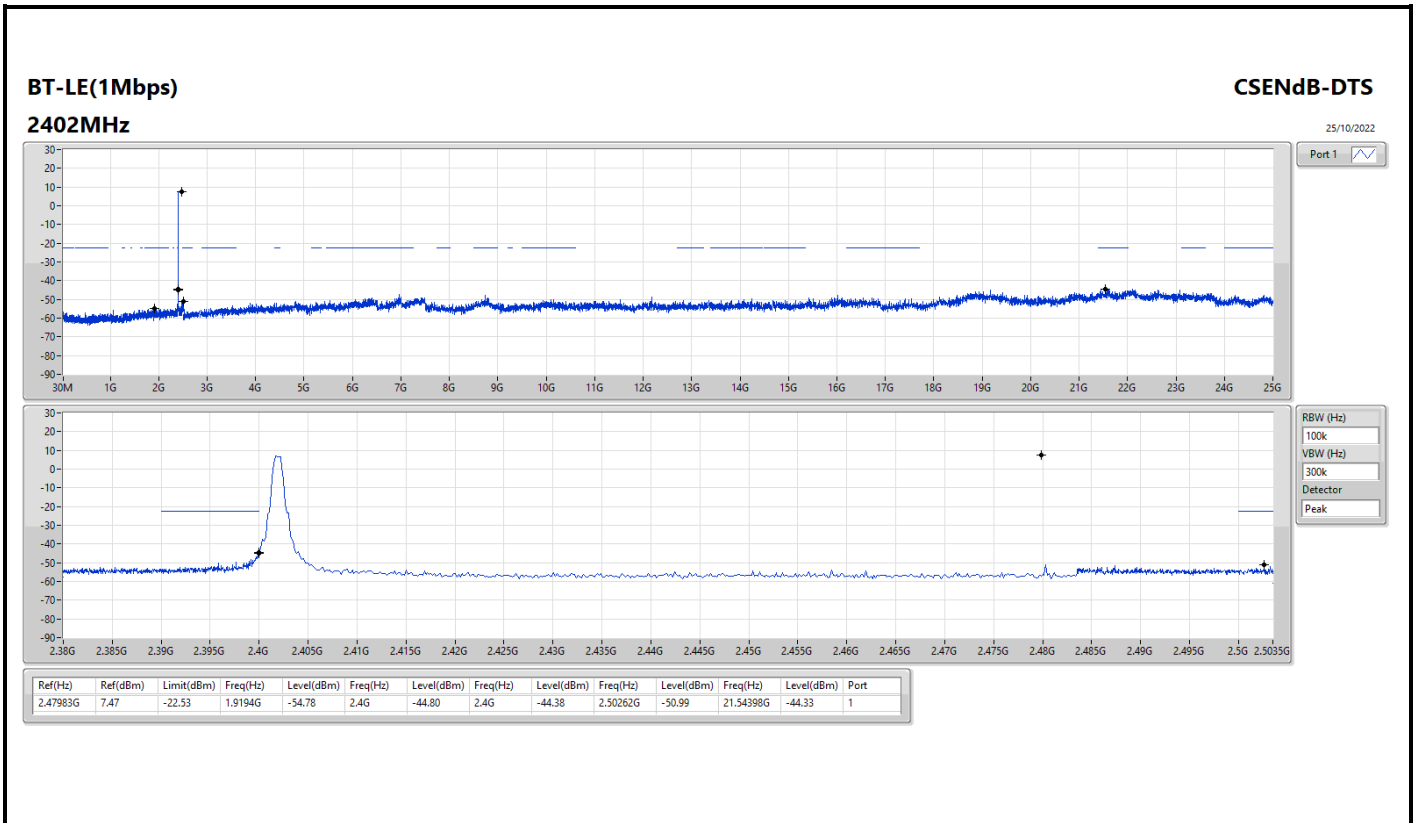
Summary

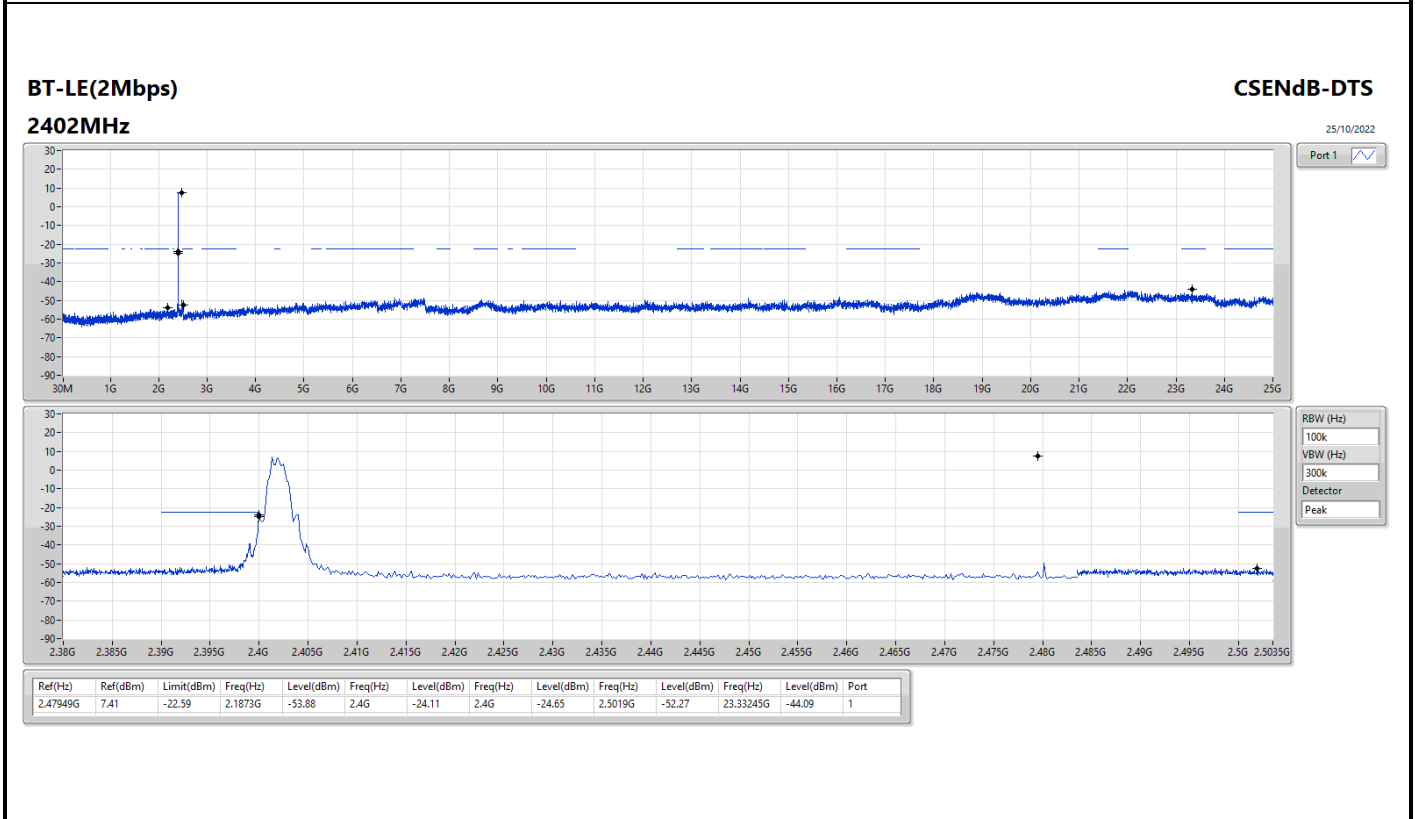
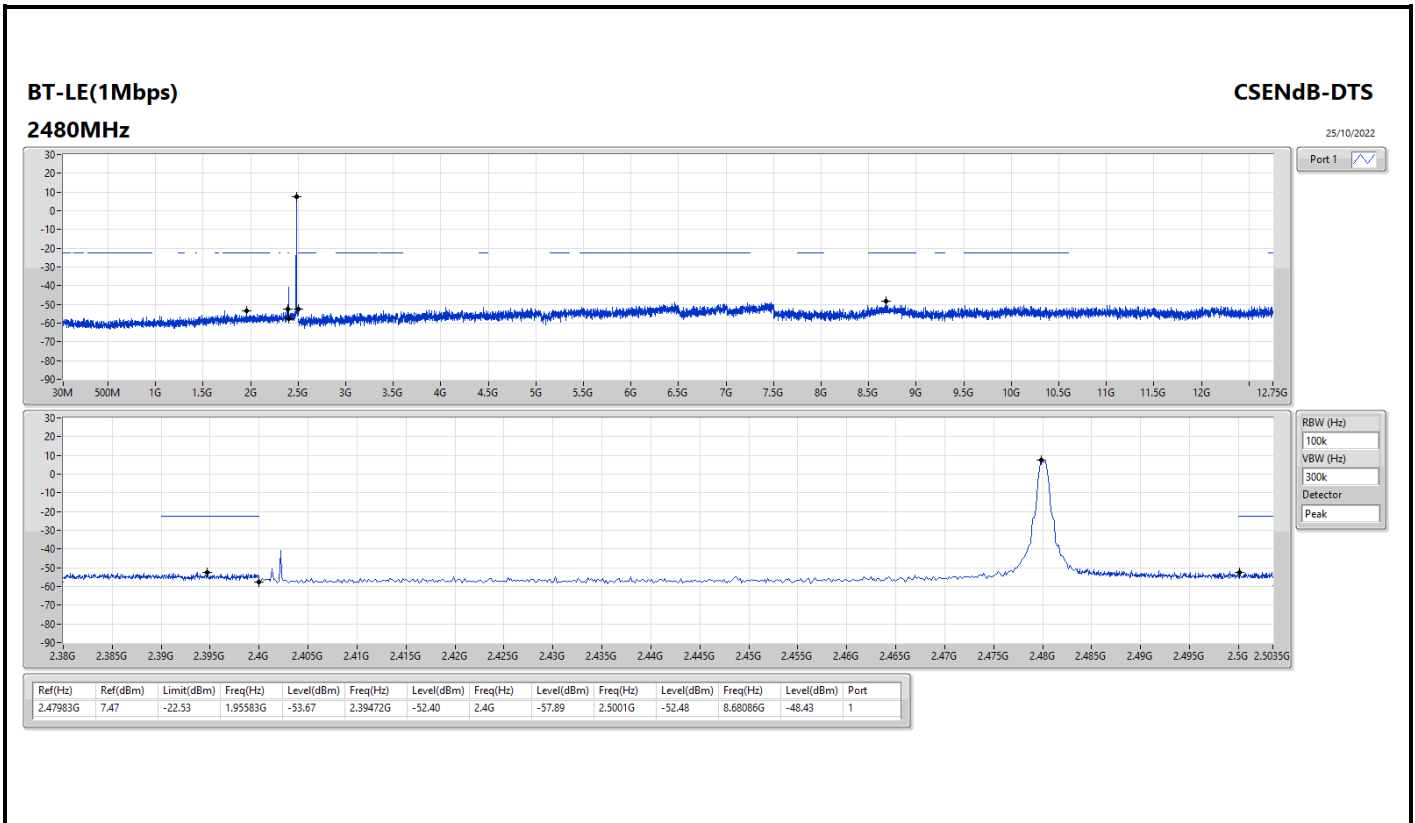
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	2.47983G	7.47	-22.53	1.9194G	-54.78	2.4G	-44.80	2.4G	-44.38	2.50262G	-50.99	21.54398G	-44.33	1
BT-LE(2Mbps)	Pass	2.47949G	7.41	-22.59	2.1873G	-53.88	2.4G	-24.11	2.4G	-24.65	2.5019G	-52.27	23.33245G	-44.09	1

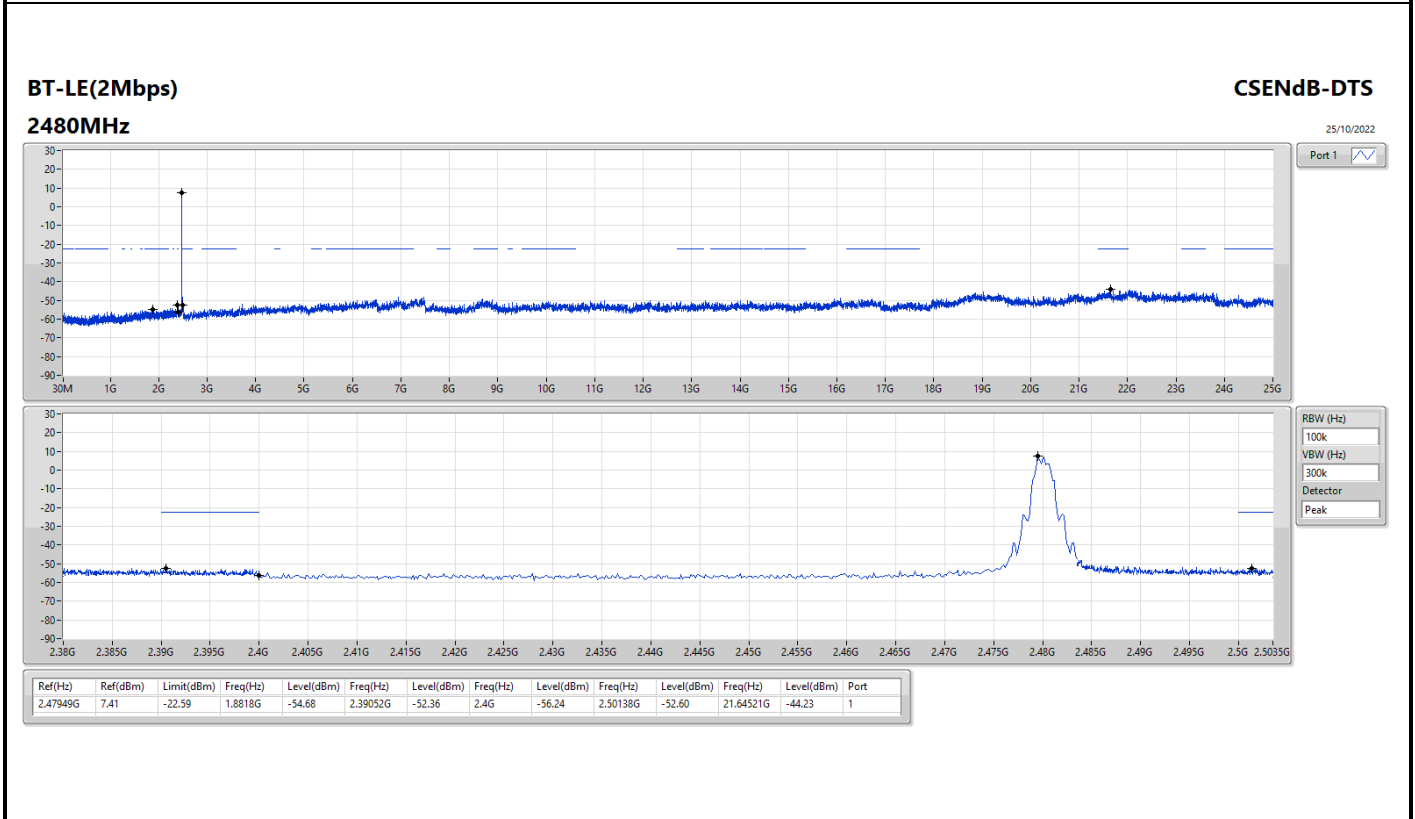
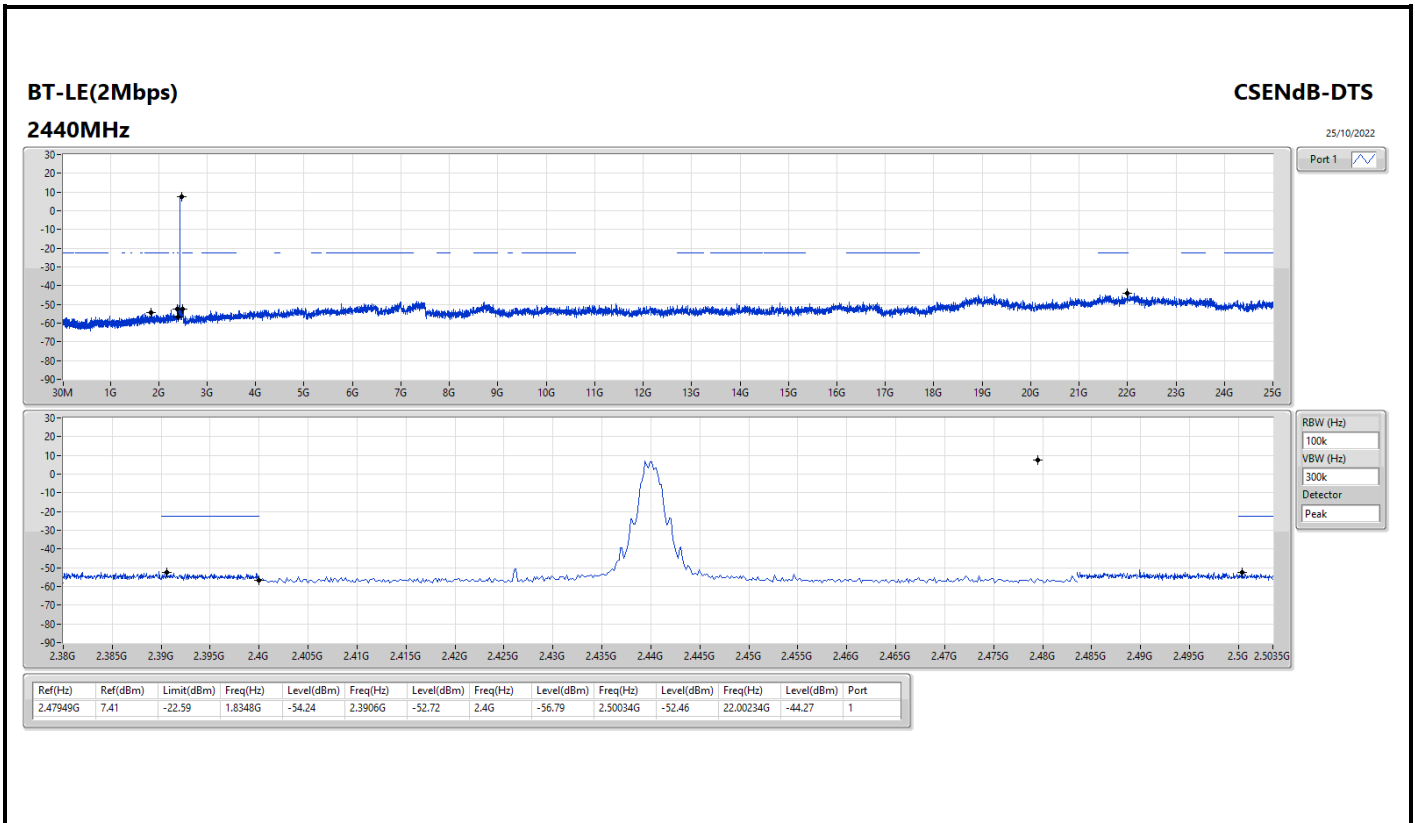


Result

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	2.47983G	7.47	-22.53	1.9194G	-54.78	2.4G	-44.80	2.4G	-44.38	2.50262G	-50.99	21.54398G	-44.33	1
2440MHz	Pass	2.47983G	7.47	-22.53	1.75373G	-54.46	2.3916G	-52.08	2.4G	-55.41	2.5009G	-52.69	21.60022G	-43.88	1
2480MHz	Pass	2.47983G	7.47	-22.53	1.95583G	-53.67	2.39472G	-52.40	2.4G	-57.89	2.5001G	-52.48	8.68086G	-48.43	1
BT-LE(2Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.47949G	7.41	-22.59	2.1873G	-53.88	2.4G	-24.11	2.4G	-24.65	2.5019G	-52.27	23.33245G	-44.09	1
2440MHz	Pass	2.47949G	7.41	-22.59	1.8348G	-54.24	2.3906G	-52.72	2.4G	-56.79	2.50034G	-52.46	22.00234G	-44.27	1
2480MHz	Pass	2.47949G	7.41	-22.59	1.8818G	-54.68	2.39052G	-52.36	2.4G	-56.24	2.50138G	-52.60	21.64521G	-44.23	1









Summary

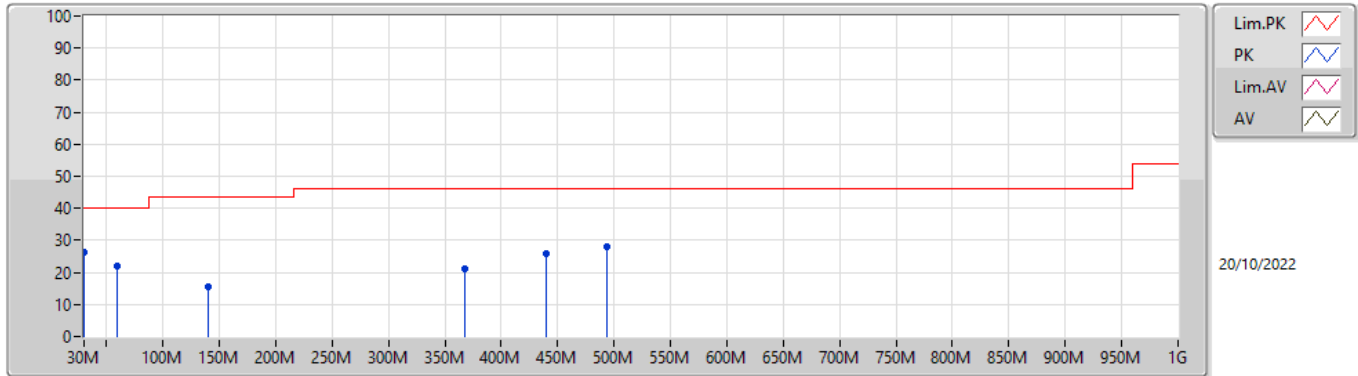
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
BT-LE(2Mbps)	Pass	PK	30M	26.21	40.00	-13.79	3	Vertical	360	1.00	-



Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
BT-LE(2Mbps)	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	PK	30M	26.21	40.00	-13.79	3	Vertical	360	1.00	-
2402MHz	Pass	PK	59.1M	21.84	40.00	-18.16	3	Vertical	360	1.00	-
2402MHz	Pass	PK	140.58M	15.71	43.50	-27.79	3	Vertical	360	1.00	-
2402MHz	Pass	PK	367.56M	21.07	46.00	-24.93	3	Vertical	360	1.00	-
2402MHz	Pass	PK	439.34M	25.76	46.00	-20.24	3	Vertical	360	1.00	-
2402MHz	Pass	PK	493.66M	28.15	46.00	-17.85	3	Vertical	360	1.00	-
2402MHz	Pass	PK	30M	23.12	40.00	-16.88	3	Horizontal	0	1.00	-
2402MHz	Pass	PK	134.76M	14.86	43.50	-28.64	3	Horizontal	0	1.00	-
2402MHz	Pass	PK	262.8M	17.57	46.00	-28.43	3	Horizontal	0	1.00	-
2402MHz	Pass	PK	439.34M	25.07	46.00	-20.93	3	Horizontal	0	1.00	-
2402MHz	Pass	PK	491.72M	27.51	46.00	-18.49	3	Horizontal	0	1.00	-
2402MHz	Pass	PK	516.94M	27.55	46.00	-18.45	3	Horizontal	0	1.00	-

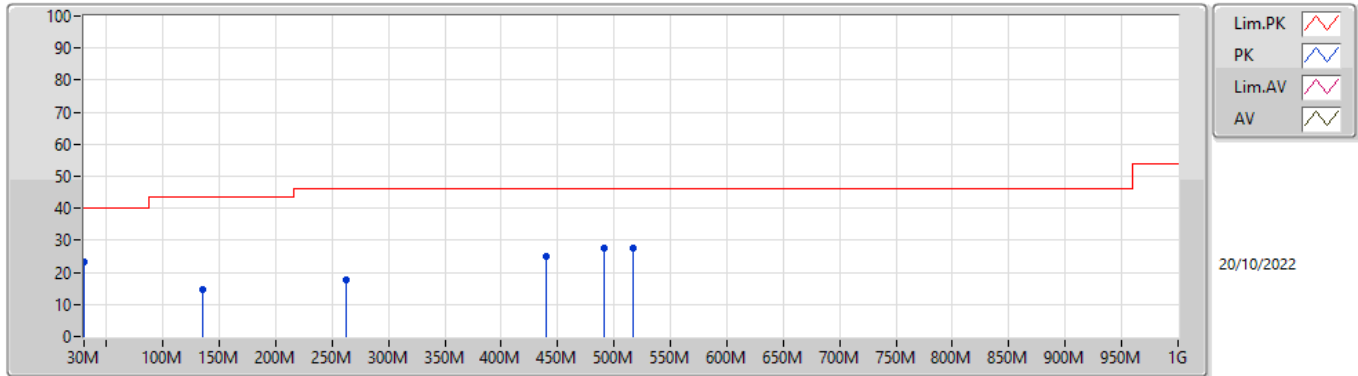
**BT-LE(2Mbps)**  
**2402MHz\_Battery**



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	26.21	40.00	-13.79	-12.95	3	Vertical	360	1.00	-	39.16	23.71	0.54	37.20
PK	59.1M	21.84	40.00	-18.16	-25.30	3	Vertical	360	1.00	-	47.14	11.02	0.76	37.08
PK	140.58M	15.71	43.50	-27.79	-18.53	3	Vertical	360	1.00	-	34.24	16.70	1.22	36.45
PK	367.56M	21.07	46.00	-24.93	-14.64	3	Vertical	360	1.00	-	35.71	19.85	2.03	36.52
PK	439.34M	25.76	46.00	-20.24	-12.38	3	Vertical	360	1.00	-	38.14	22.02	2.22	36.62
PK	493.66M	28.15	46.00	-17.85	-11.52	3	Vertical	360	1.00	-	39.67	23.03	2.39	36.94



**BT-LE(2Mbps)**  
**2402MHz\_Battery**



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	23.12	40.00	-16.88	-12.95	3	Horizontal	0	1.00	-	36.07	23.71	0.54	37.20
PK	134.76M	14.86	43.50	-28.64	-18.57	3	Horizontal	0	1.00	-	33.43	16.73	1.19	36.49
PK	262.8M	17.57	46.00	-28.43	-15.63	3	Horizontal	0	1.00	-	33.20	19.16	1.67	36.46
PK	439.34M	25.07	46.00	-20.93	-12.38	3	Horizontal	0	1.00	-	37.45	22.02	2.22	36.62
PK	491.72M	27.51	46.00	-18.49	-11.55	3	Horizontal	0	1.00	-	39.06	23.00	2.38	36.93
PK	516.94M	27.55	46.00	-18.45	-11.46	3	Horizontal	0	1.00	-	39.01	23.12	2.45	37.03



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	2.4835G	47.27	54.00	-6.73	3	Horizontal	211	1.99	-
BT-LE(2Mbps)	Pass	AV	2.4948G	48.97	54.00	-5.03	3	Vertical	238	2.35	-



Result

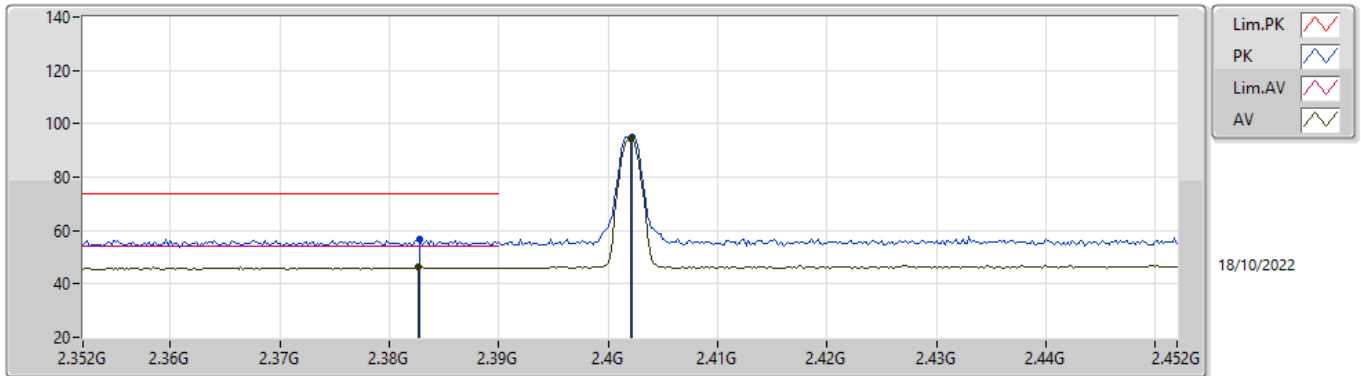
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	AV	2.3826G	46.35	54.00	-7.65	3	Vertical	240	1.12	-
2402MHz	Pass	AV	2.402G	94.37	Inf	-Inf	3	Vertical	240	1.12	-
2402MHz	Pass	PK	2.3828G	56.83	74.00	-17.17	3	Vertical	240	1.12	-
2402MHz	Pass	PK	2.4022G	95.09	Inf	-Inf	3	Vertical	240	1.12	-
2402MHz	Pass	AV	2.389G	46.46	54.00	-7.54	3	Horizontal	214	1.50	-
2402MHz	Pass	AV	2.402G	86.61	Inf	-Inf	3	Horizontal	214	1.50	-
2402MHz	Pass	PK	2.3644G	56.99	74.00	-17.01	3	Horizontal	214	1.50	-
2402MHz	Pass	PK	2.4022G	87.41	Inf	-Inf	3	Horizontal	214	1.50	-
2402MHz	Pass	AV	4.80432G	40.94	54.00	-13.06	3	Vertical	215	1.94	-
2402MHz	Pass	PK	4.80352G	49.85	74.00	-24.15	3	Vertical	215	1.94	-
2402MHz	Pass	AV	4.80428G	39.77	54.00	-14.23	3	Horizontal	160	1.92	-
2402MHz	Pass	PK	4.80392G	48.89	74.00	-25.11	3	Horizontal	160	1.92	-
2440MHz	Pass	AV	2.3824G	46.21	54.00	-7.79	3	Vertical	240	2.30	-
2440MHz	Pass	AV	2.44G	93.39	Inf	-Inf	3	Vertical	240	2.30	-
2440MHz	Pass	AV	2.4924G	47.24	54.00	-6.76	3	Vertical	240	2.30	-
2440MHz	Pass	PK	2.3484G	56.86	74.00	-17.14	3	Vertical	240	2.30	-
2440MHz	Pass	PK	2.4404G	94.12	Inf	-Inf	3	Vertical	240	2.30	-
2440MHz	Pass	PK	2.4884G	57.50	74.00	-16.50	3	Vertical	240	2.30	-
2440MHz	Pass	AV	2.3796G	46.47	54.00	-7.53	3	Horizontal	211	1.99	-
2440MHz	Pass	AV	2.44G	86.17	Inf	-Inf	3	Horizontal	211	1.99	-
2440MHz	Pass	AV	2.4835G	47.27	54.00	-6.73	3	Horizontal	211	1.99	-
2440MHz	Pass	PK	2.3604G	56.38	74.00	-17.62	3	Horizontal	211	1.99	-
2440MHz	Pass	PK	2.4396G	86.92	Inf	-Inf	3	Horizontal	211	1.99	-
2440MHz	Pass	PK	2.496G	57.28	74.00	-16.72	3	Horizontal	211	1.99	-
2440MHz	Pass	AV	4.88009G	41.51	54.00	-12.49	3	Vertical	217	2.02	-
2440MHz	Pass	PK	4.87937G	50.10	74.00	-23.90	3	Vertical	217	2.02	-
2440MHz	Pass	AV	4.87968G	39.25	54.00	-14.75	3	Horizontal	164	1.25	-
2440MHz	Pass	PK	4.88008G	48.54	74.00	-25.46	3	Horizontal	164	1.25	-
2480MHz	Pass	AV	2.48G	92.55	Inf	-Inf	3	Vertical	240	1.07	-
2480MHz	Pass	AV	2.4952G	47.12	54.00	-6.88	3	Vertical	240	1.07	-
2480MHz	Pass	PK	2.4798G	93.30	Inf	-Inf	3	Vertical	240	1.07	-
2480MHz	Pass	PK	2.4952G	57.14	74.00	-16.86	3	Vertical	240	1.07	-
2480MHz	Pass	AV	2.48G	86.69	Inf	-Inf	3	Horizontal	228	1.12	-
2480MHz	Pass	AV	2.497G	47.27	54.00	-6.73	3	Horizontal	228	1.12	-
2480MHz	Pass	PK	2.4802G	87.54	Inf	-Inf	3	Horizontal	228	1.12	-
2480MHz	Pass	PK	2.4926G	57.73	74.00	-16.27	3	Horizontal	228	1.12	-
2480MHz	Pass	AV	4.95962G	41.07	54.00	-12.93	3	Vertical	181	1.73	-
2480MHz	Pass	PK	4.96062G	49.59	74.00	-24.41	3	Vertical	181	1.73	-
2480MHz	Pass	AV	4.96016G	39.50	54.00	-14.50	3	Horizontal	162	1.15	-
2480MHz	Pass	PK	4.9604G	49.38	74.00	-24.62	3	Horizontal	162	1.15	-
BT-LE(2Mbps)	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	AV	2.3894G	47.99	54.00	-6.01	3	Vertical	241	1.10	-
2402MHz	Pass	AV	2.402G	92.90	Inf	-Inf	3	Vertical	241	1.10	-
2402MHz	Pass	PK	2.38G	56.86	74.00	-17.14	3	Vertical	241	1.10	-
2402MHz	Pass	PK	2.4026G	95.03	Inf	-Inf	3	Vertical	241	1.10	-
2402MHz	Pass	AV	2.3878G	47.91	54.00	-6.09	3	Horizontal	214	1.50	-
2402MHz	Pass	AV	2.402G	84.96	Inf	-Inf	3	Horizontal	214	1.50	-
2402MHz	Pass	PK	2.385G	56.32	74.00	-17.68	3	Horizontal	214	1.50	-
2402MHz	Pass	PK	2.4026G	87.07	Inf	-Inf	3	Horizontal	214	1.50	-
2402MHz	Pass	AV	4.80294G	40.75	54.00	-13.25	3	Vertical	218	1.68	-
2402MHz	Pass	PK	4.80494G	49.86	74.00	-24.14	3	Vertical	218	1.68	-
2402MHz	Pass	AV	4.80282G	39.23	54.00	-14.77	3	Horizontal	164	1.62	-
2402MHz	Pass	PK	4.80302G	48.23	74.00	-25.77	3	Horizontal	164	1.62	-
2440MHz	Pass	AV	2.3892G	47.80	54.00	-6.20	3	Vertical	238	2.35	-
2440MHz	Pass	AV	2.44G	92.23	Inf	-Inf	3	Vertical	238	2.35	-
2440MHz	Pass	AV	2.4948G	48.97	54.00	-5.03	3	Vertical	238	2.35	-
2440MHz	Pass	PK	2.3632G	56.25	74.00	-17.75	3	Vertical	238	2.35	-
2440MHz	Pass	PK	2.4396G	94.26	Inf	-Inf	3	Vertical	238	2.35	-
2440MHz	Pass	PK	2.4916G	57.31	74.00	-16.69	3	Vertical	238	2.35	-
2440MHz	Pass	AV	2.3712G	48.02	54.00	-5.98	3	Horizontal	210	2.00	-



Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2440MHz	Pass	AV	2.44G	84.89	Inf	-Inf	3	Horizontal	210	2.00	-
2440MHz	Pass	AV	2.4904G	48.59	54.00	-5.41	3	Horizontal	210	2.00	-
2440MHz	Pass	PK	2.3892G	56.86	74.00	-17.14	3	Horizontal	210	2.00	-
2440MHz	Pass	PK	2.4396G	86.99	Inf	-Inf	3	Horizontal	210	2.00	-
2440MHz	Pass	PK	2.4884G	57.44	74.00	-16.56	3	Horizontal	210	2.00	-
2440MHz	Pass	AV	4.87876G	41.97	54.00	-12.03	3	Vertical	213	2.08	-
2440MHz	Pass	PK	4.879G	49.95	74.00	-24.05	3	Vertical	213	2.08	-
2440MHz	Pass	AV	4.88091G	39.13	54.00	-14.87	3	Horizontal	161	1.44	-
2440MHz	Pass	PK	4.87899G	47.88	74.00	-26.12	3	Horizontal	161	1.44	-
2480MHz	Pass	AV	2.48G	91.27	Inf	-Inf	3	Vertical	240	1.06	-
2480MHz	Pass	AV	2.491G	48.93	54.00	-5.07	3	Vertical	240	1.06	-
2480MHz	Pass	PK	2.4794G	93.32	Inf	-Inf	3	Vertical	240	1.06	-
2480MHz	Pass	PK	2.4974G	57.98	74.00	-16.02	3	Vertical	240	1.06	-
2480MHz	Pass	AV	2.48G	85.60	Inf	-Inf	3	Horizontal	226	1.12	-
2480MHz	Pass	AV	2.5G	48.76	54.00	-5.24	3	Horizontal	226	1.12	-
2480MHz	Pass	PK	2.4804G	87.72	Inf	-Inf	3	Horizontal	226	1.12	-
2480MHz	Pass	PK	2.4952G	58.36	74.00	-15.64	3	Horizontal	226	1.12	-
2480MHz	Pass	AV	4.95879G	41.25	54.00	-12.75	3	Vertical	214	2.23	-
2480MHz	Pass	PK	4.95891G	50.27	74.00	-23.73	3	Vertical	214	2.23	-
2480MHz	Pass	AV	4.96096G	39.07	54.00	-14.93	3	Horizontal	163	1.03	-
2480MHz	Pass	PK	4.96124G	48.47	74.00	-25.53	3	Horizontal	163	1.03	-

**BT-LE(1Mbps)**

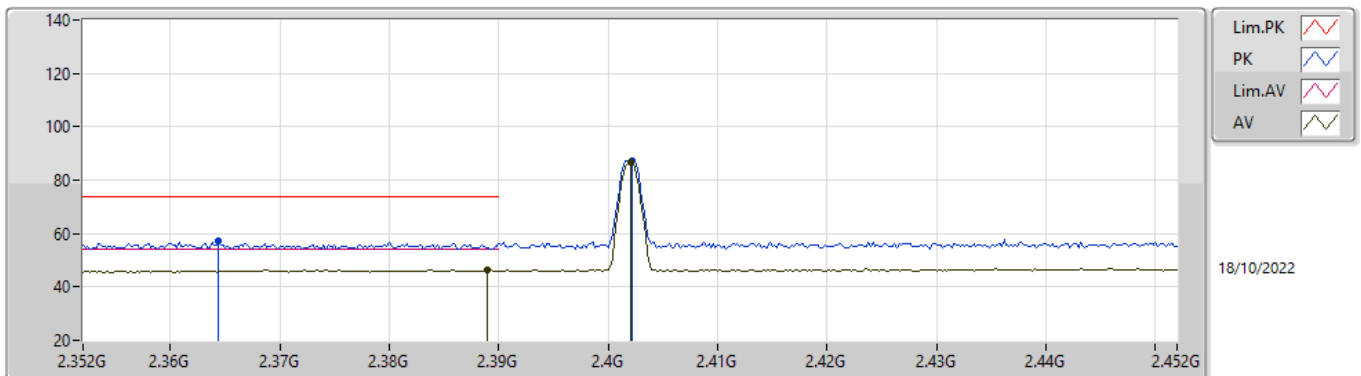
**2402MHz\_TX**



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	2.3826G	46.35	54.00	-7.65	31.55	3	Vertical	240	1.12	-	14.80	27.40	4.15	-
AV	2.402G	94.37	Inf	-Inf	31.67	3	Vertical	240	1.12	-	62.70	27.50	4.17	-
PK	2.3828G	56.83	74.00	-17.17	31.55	3	Vertical	240	1.12	-	25.28	27.40	4.15	-
PK	2.4022G	95.09	Inf	-Inf	31.67	3	Vertical	240	1.12	-	63.42	27.50	4.17	-

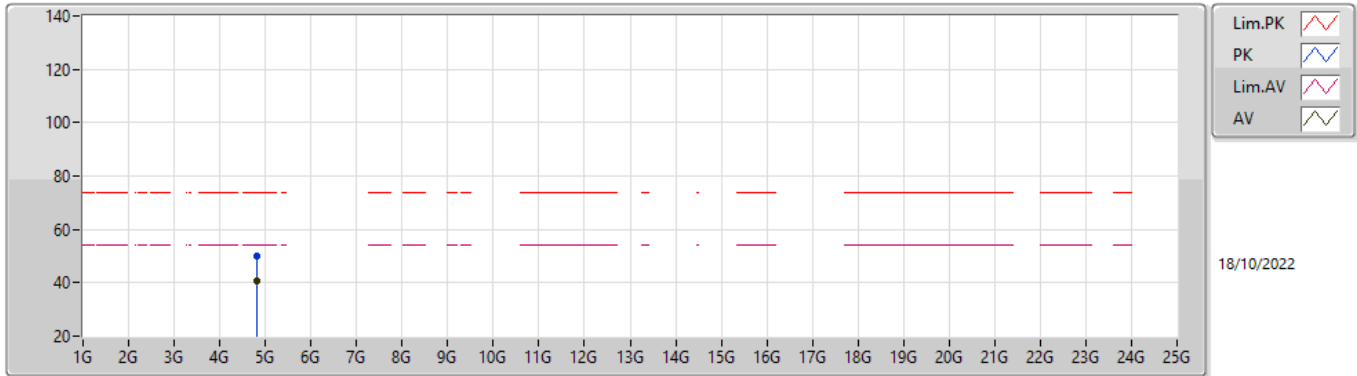
**BT-LE(1Mbps)**

**2402MHz\_TX**



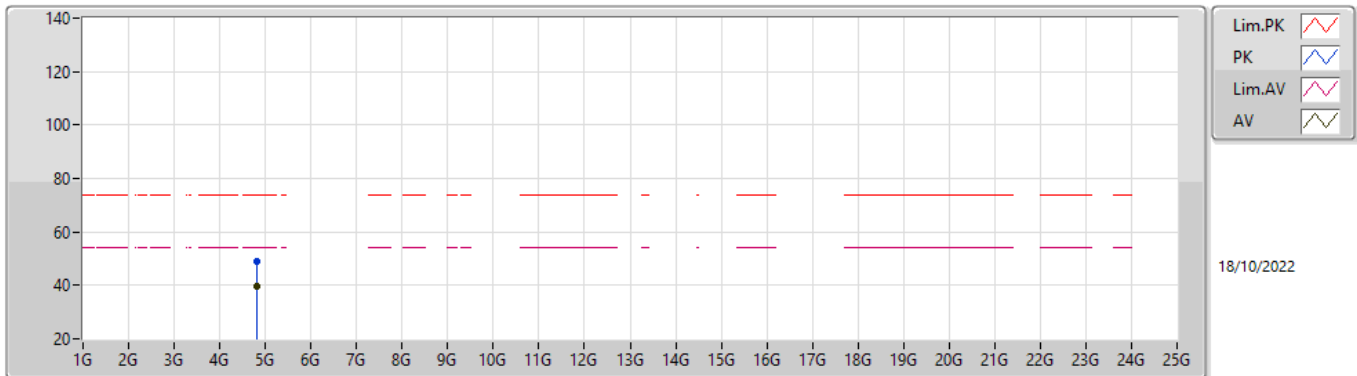
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.389G	46.46	54.00	-7.54	31.59	3	Horizontal	214	1.50	-	14.87	27.43	4.16	-
AV	2.402G	86.61	Inf	-Inf	31.67	3	Horizontal	214	1.50	-	54.94	27.50	4.17	-
PK	2.3644G	56.99	74.00	-17.01	31.43	3	Horizontal	214	1.50	-	25.56	27.29	4.14	-
PK	2.4022G	87.41	Inf	-Inf	31.67	3	Horizontal	214	1.50	-	55.74	27.50	4.17	-

**BT-LE(1Mbps)**  
**2402MHz\_TX**



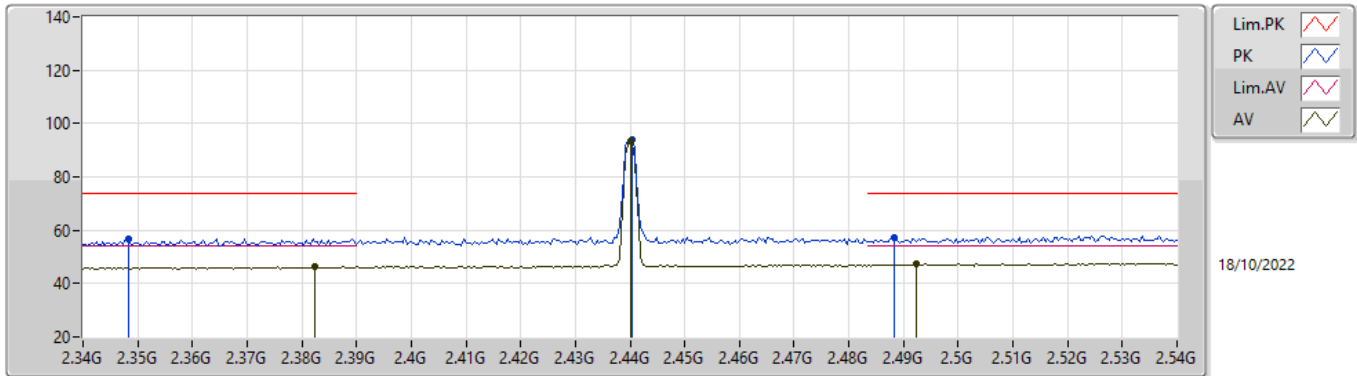
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.80432G	40.94	54.00	-13.06	3.34	3	Vertical	215	1.94	-	37.60	32.33	5.67	34.66
PK	4.80352G	49.85	74.00	-24.15	3.33	3	Vertical	215	1.94	-	46.52	32.32	5.67	34.66

**BT-LE(1Mbps)**  
**2402MHz\_TX**



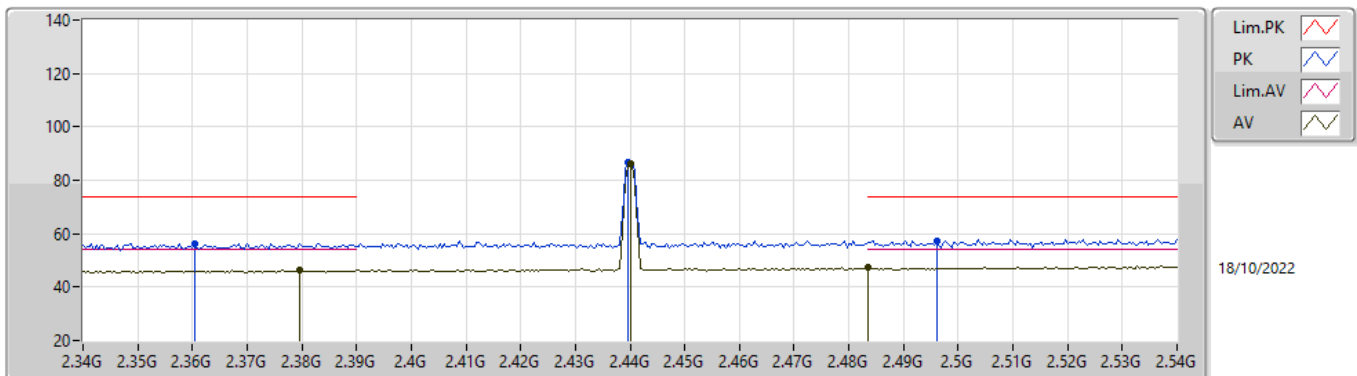
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.80428G	39.77	54.00	-14.23	3.34	3	Horizontal	160	1.92	-	36.43	32.33	5.67	34.66
PK	4.80392G	48.89	74.00	-25.11	3.33	3	Horizontal	160	1.92	-	45.56	32.32	5.67	34.66

**BT-LE(1Mbps)**  
**2440MHz\_TX**



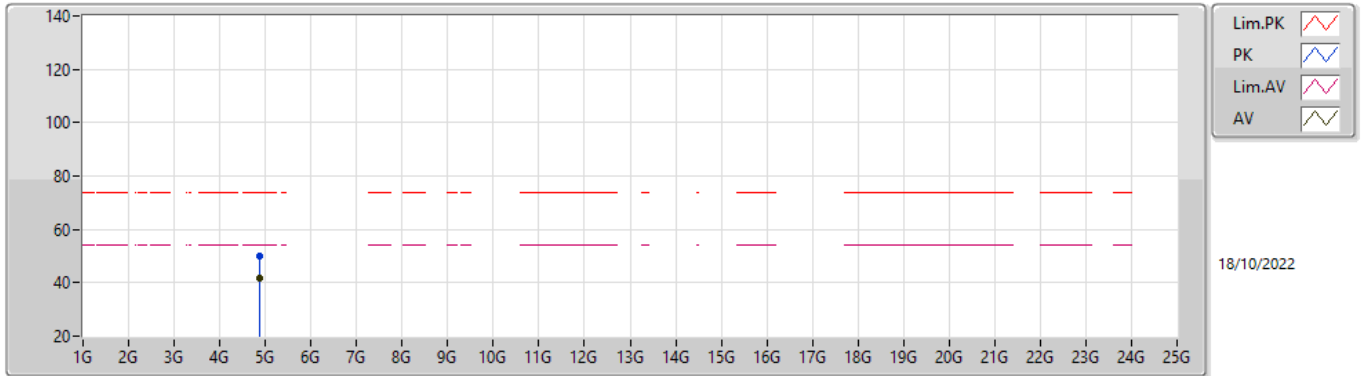
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.3824G	46.21	54.00	-7.79	31.54	3	Vertical	240	2.30	-	14.67	27.39	4.15	-
AV	2.44G	93.39	Inf	-Inf	31.77	3	Vertical	240	2.30	-	61.62	27.58	4.19	-
AV	2.4924G	47.24	54.00	-6.76	32.08	3	Vertical	240	2.30	-	15.16	27.85	4.23	-
PK	2.3484G	56.86	74.00	-17.14	31.31	3	Vertical	240	2.30	-	25.55	27.19	4.12	-
PK	2.4404G	94.12	Inf	-Inf	31.77	3	Vertical	240	2.30	-	62.35	27.58	4.19	-
PK	2.4884G	57.50	74.00	-16.50	32.05	3	Vertical	240	2.30	-	25.45	27.83	4.22	-

**BT-LE(1Mbps)**  
**2440MHz\_TX**



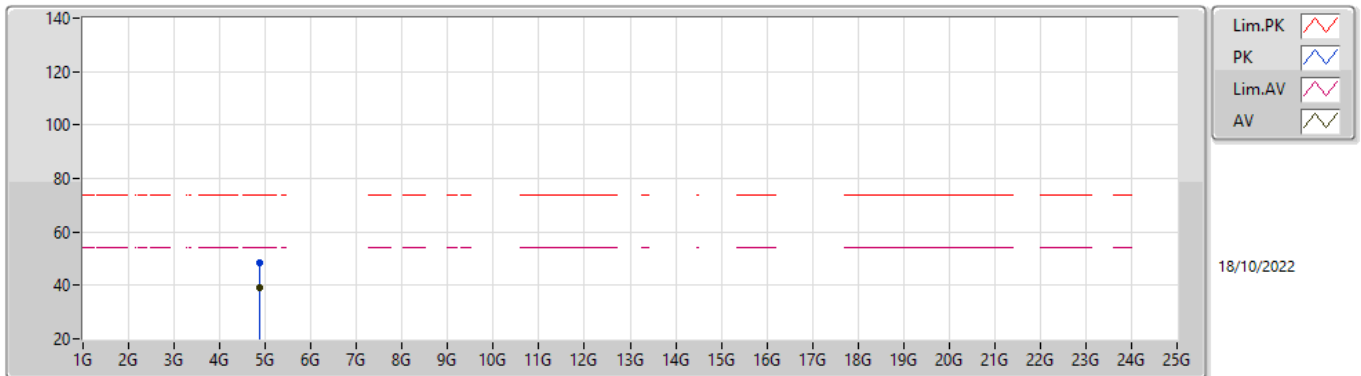
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.3796G	46.47	54.00	-7.53	31.53	3	Horizontal	211	1.99	-	14.94	27.38	4.15	-
AV	2.44G	86.17	Inf	-Inf	31.77	3	Horizontal	211	1.99	-	54.40	27.58	4.19	-
AV	2.4835G	47.27	54.00	-6.73	32.02	3	Horizontal	211	1.99	-	15.25	27.80	4.22	-
PK	2.3604G	56.38	74.00	-17.62	31.39	3	Horizontal	211	1.99	-	24.99	27.26	4.13	-
PK	2.4396G	86.92	Inf	-Inf	31.77	3	Horizontal	211	1.99	-	55.15	27.58	4.19	-
PK	2.496G	57.28	74.00	-16.72	32.11	3	Horizontal	211	1.99	-	25.17	27.88	4.23	-

**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	4.88009G	41.51	54.00	-12.49	3.79	3	Vertical	217	2.02	-	37.72	32.72	5.72	34.65
PK	4.87937G	50.10	74.00	-23.90	3.79	3	Vertical	217	2.02	-	46.31	32.72	5.72	34.65

**BT-LE(1Mbps)**  
**2440MHz\_TX**

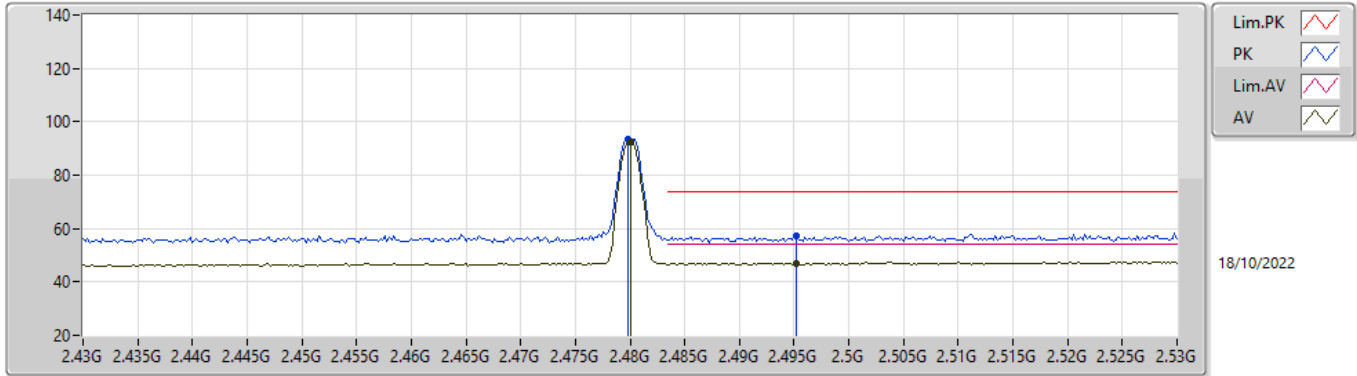


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.87968G	39.25	54.00	-14.75	3.79	3	Horizontal	164	1.25	-	35.46	32.72	5.72	34.65
PK	4.88008G	48.54	74.00	-25.46	3.79	3	Horizontal	164	1.25	-	44.75	32.72	5.72	34.65



**BT-LE(1Mbps)**

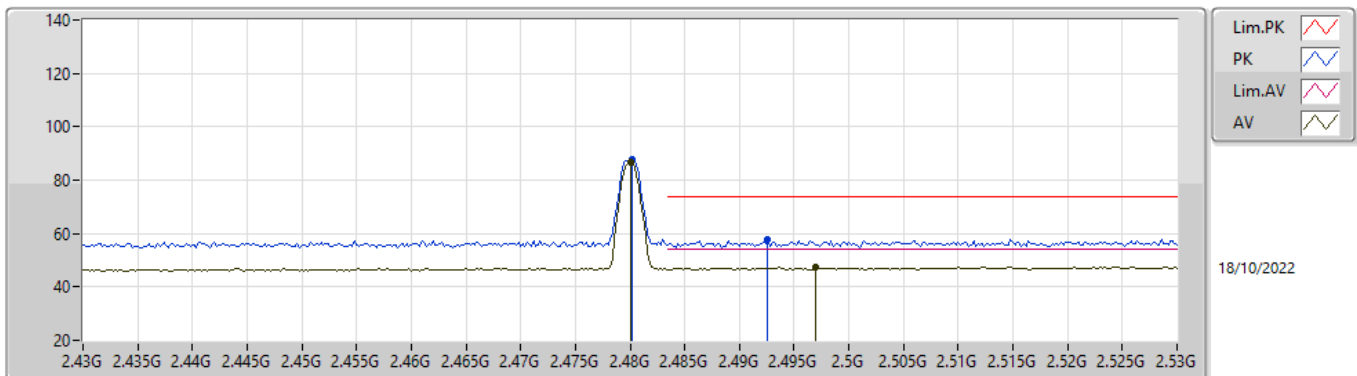
**2480MHz\_TX**



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	92.55	Inf	-Inf	32.00	3	Vertical	240	1.07	-	60.55	27.78	4.22	-
AV	2.4952G	47.12	54.00	-6.88	32.10	3	Vertical	240	1.07	-	15.02	27.87	4.23	-
PK	2.4798G	93.30	Inf	-Inf	32.00	3	Vertical	240	1.07	-	61.30	27.78	4.22	-
PK	2.4952G	57.14	74.00	-16.86	32.10	3	Vertical	240	1.07	-	25.04	27.87	4.23	-

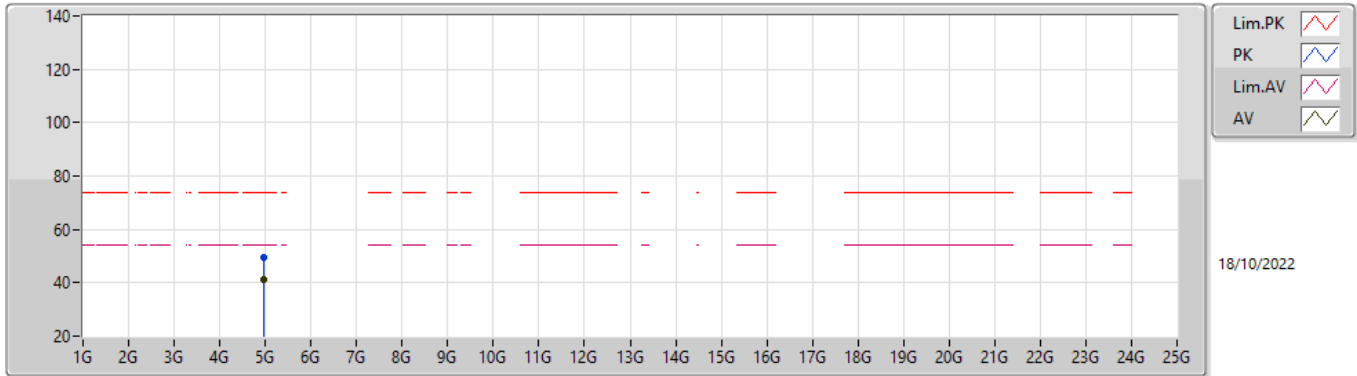
**BT-LE(1Mbps)**

**2480MHz\_TX**



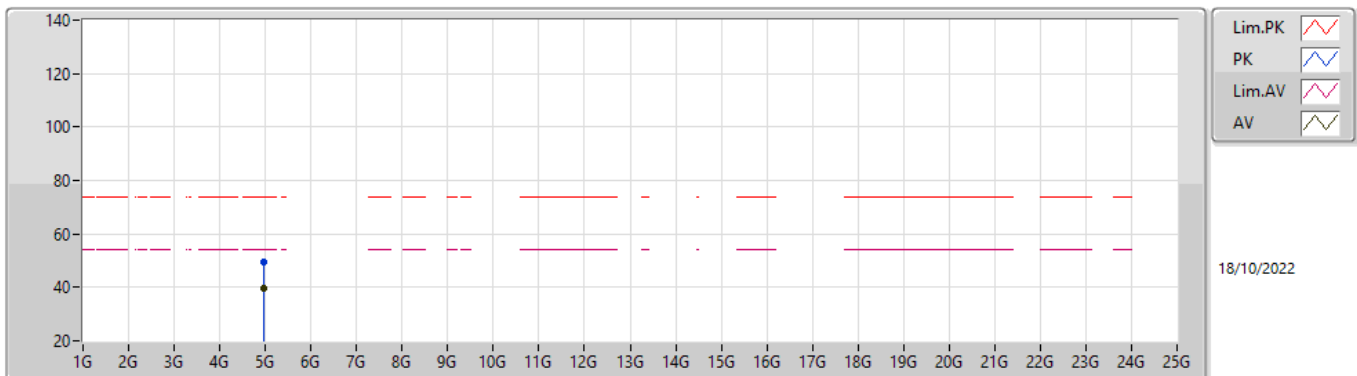
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.48G	86.69	Inf	-Inf	32.00	3	Horizontal	228	1.12	-	54.69	27.78	4.22	-
AV	2.497G	47.27	54.00	-6.73	32.11	3	Horizontal	228	1.12	-	15.16	27.88	4.23	-
PK	2.4802G	87.54	Inf	-Inf	32.00	3	Horizontal	228	1.12	-	55.54	27.78	4.22	-
PK	2.4926G	57.73	74.00	-16.27	32.09	3	Horizontal	228	1.12	-	25.64	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	4.95962G	41.07	54.00	-12.93	4.15	3	Vertical	181	1.73	-	36.92	33.02	5.77	34.64
PK	4.96062G	49.59	74.00	-24.41	4.15	3	Vertical	181	1.73	-	45.44	33.02	5.77	34.64

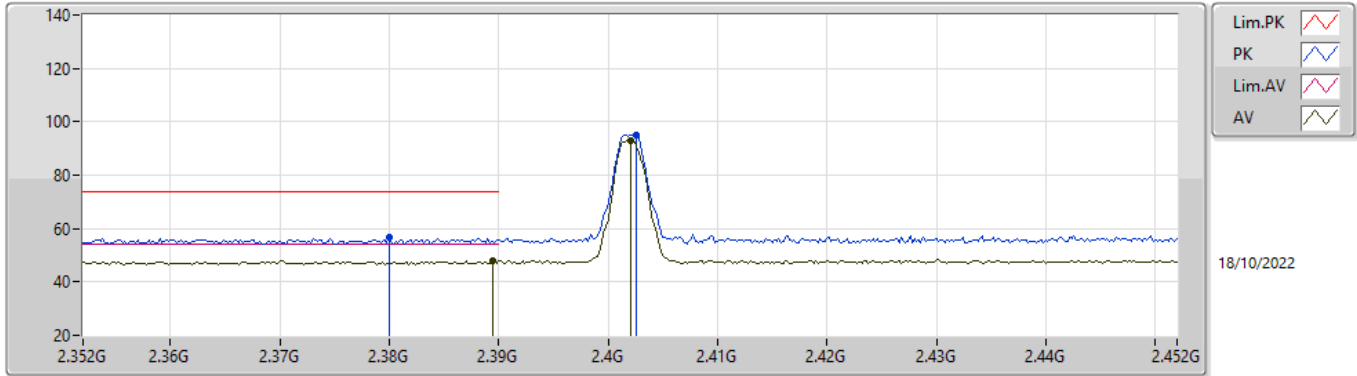
**BT-LE(1Mbps)**  
**2480MHz\_TX**



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	4.96016G	39.50	54.00	-14.50	4.15	3	Horizontal	162	1.15	-	35.35	33.02	5.77	34.64
PK	4.9604G	49.38	74.00	-24.62	4.15	3	Horizontal	162	1.15	-	45.23	33.02	5.77	34.64

**BT-LE(2Mbps)**

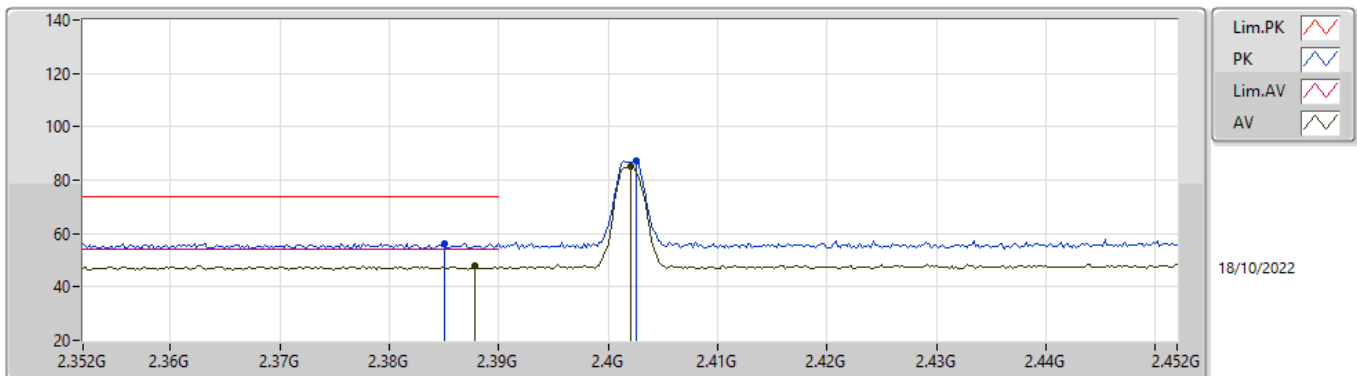
**2402MHz\_TX**



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	2.3894G	47.99	54.00	-6.01	31.60	3	Vertical	241	1.10	-	16.39	27.44	4.16	-
AV	2.402G	92.90	Inf	-Inf	31.67	3	Vertical	241	1.10	-	61.23	27.50	4.17	-
PK	2.38G	56.86	74.00	-17.14	31.53	3	Vertical	241	1.10	-	25.33	27.38	4.15	-
PK	2.4026G	95.03	Inf	-Inf	31.68	3	Vertical	241	1.10	-	63.35	27.51	4.17	-

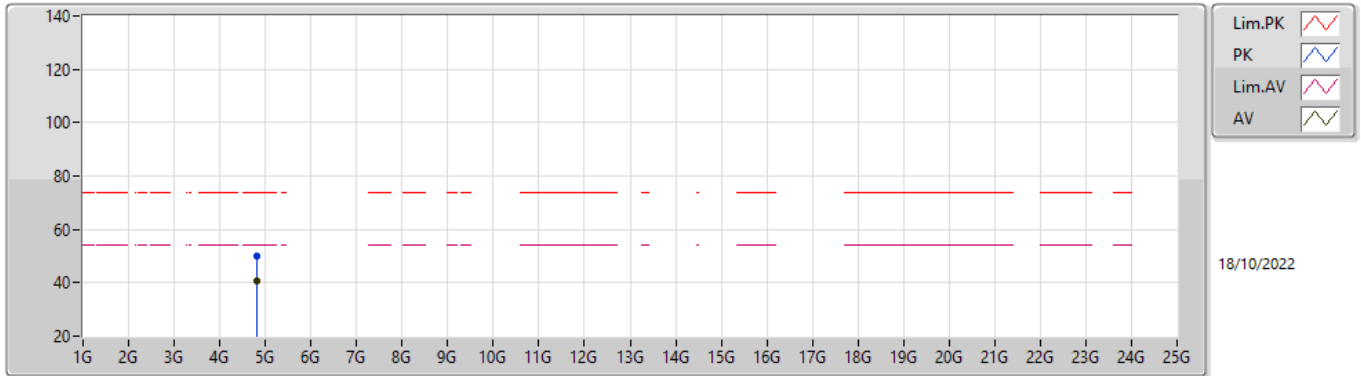
**BT-LE(2Mbps)**

**2402MHz\_TX**



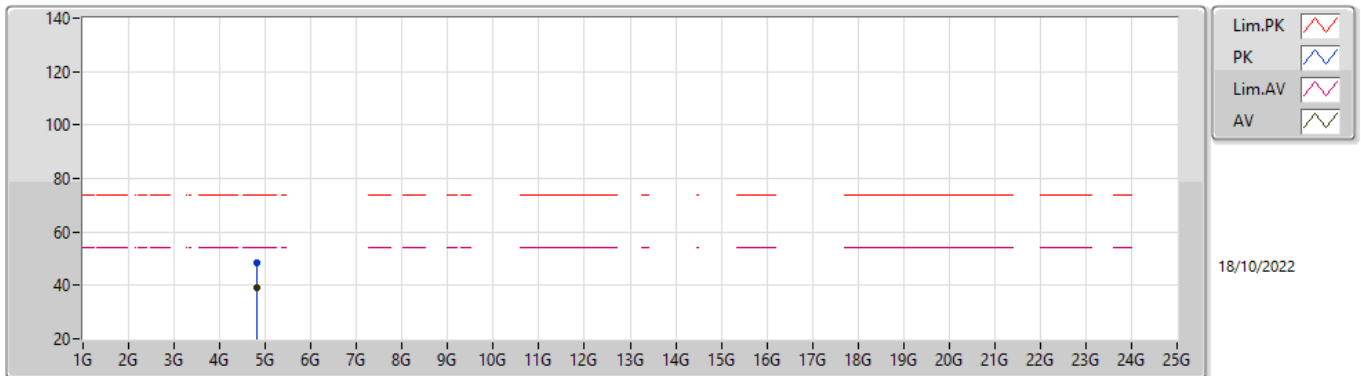
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.3878G	47.91	54.00	-6.09	31.59	3	Horizontal	214	1.50	-	16.32	27.43	4.16	-
AV	2.402G	84.96	Inf	-Inf	31.67	3	Horizontal	214	1.50	-	53.29	27.50	4.17	-
PK	2.385G	56.32	74.00	-17.68	31.57	3	Horizontal	214	1.50	-	24.75	27.41	4.16	-
PK	2.4026G	87.07	Inf	-Inf	31.68	3	Horizontal	214	1.50	-	55.39	27.51	4.17	-

**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	4.80294G	40.75	54.00	-13.25	3.33	3	Vertical	218	1.68	-	37.42	32.32	5.67	34.66
PK	4.80494G	49.86	74.00	-24.14	3.34	3	Vertical	218	1.68	-	46.52	32.33	5.67	34.66

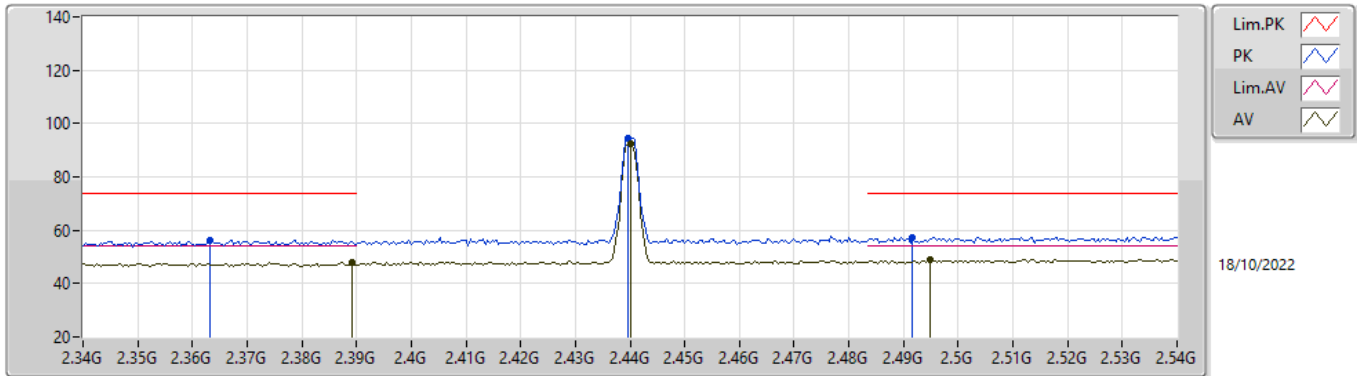
**BT-LE(2Mbps)**  
**2402MHz\_TX**



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	4.80282G	39.23	54.00	-14.77	3.33	3	Horizontal	164	1.62	-	35.90	32.32	5.67	34.66
PK	4.80302G	48.23	74.00	-25.77	3.33	3	Horizontal	164	1.62	-	44.90	32.32	5.67	34.66

**BT-LE(2Mbps)**

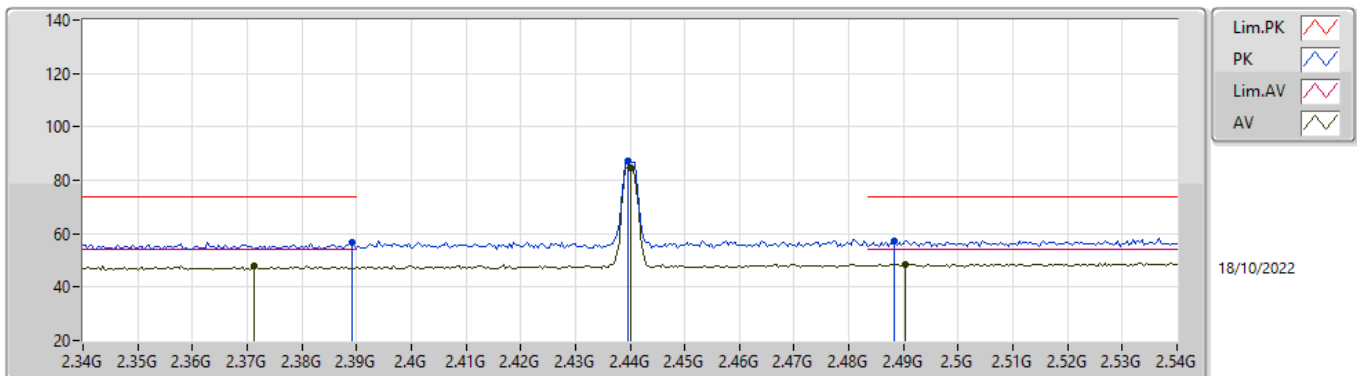
**2440MHz\_TX**



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	2.3892G	47.80	54.00	-6.20	31.60	3	Vertical	238	2.35	-	16.20	27.44	4.16	-
AV	2.44G	92.23	Inf	-Inf	31.77	3	Vertical	238	2.35	-	60.46	27.58	4.19	-
AV	2.4948G	48.97	54.00	-5.03	32.10	3	Vertical	238	2.35	-	16.87	27.87	4.23	-
PK	2.3632G	56.25	74.00	-17.75	31.42	3	Vertical	238	2.35	-	24.83	27.28	4.14	-
PK	2.4396G	94.26	Inf	-Inf	31.77	3	Vertical	238	2.35	-	62.49	27.58	4.19	-
PK	2.4916G	57.31	74.00	-16.69	32.07	3	Vertical	238	2.35	-	25.24	27.85	4.22	-

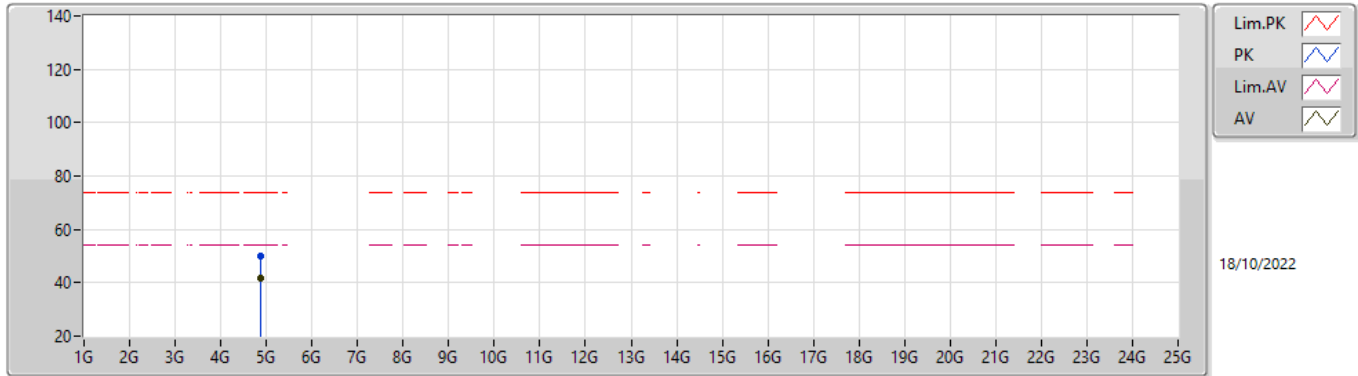
**BT-LE(2Mbps)**

**2440MHz\_TX**



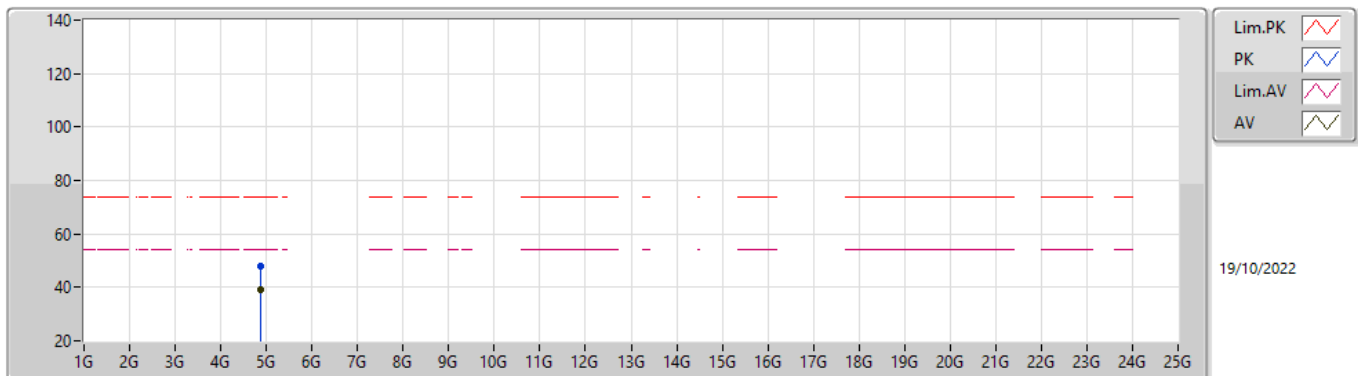
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.3712G	48.02	54.00	-5.98	31.47	3	Horizontal	210	2.00	-	16.55	27.33	4.14	-
AV	2.44G	84.89	Inf	-Inf	31.77	3	Horizontal	210	2.00	-	53.12	27.58	4.19	-
AV	2.4904G	48.59	54.00	-5.41	32.06	3	Horizontal	210	2.00	-	16.53	27.84	4.22	-
PK	2.3892G	56.86	74.00	-17.14	31.60	3	Horizontal	210	2.00	-	25.26	27.44	4.16	-
PK	2.4396G	86.99	Inf	-Inf	31.77	3	Horizontal	210	2.00	-	55.22	27.58	4.19	-
PK	2.4884G	57.44	74.00	-16.56	32.05	3	Horizontal	210	2.00	-	25.39	27.83	4.22	-

**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	4.87876G	41.97	54.00	-12.03	3.79	3	Vertical	213	2.08	-	38.18	32.72	5.72	34.65
PK	4.879G	49.95	74.00	-24.05	3.79	3	Vertical	213	2.08	-	46.16	32.72	5.72	34.65

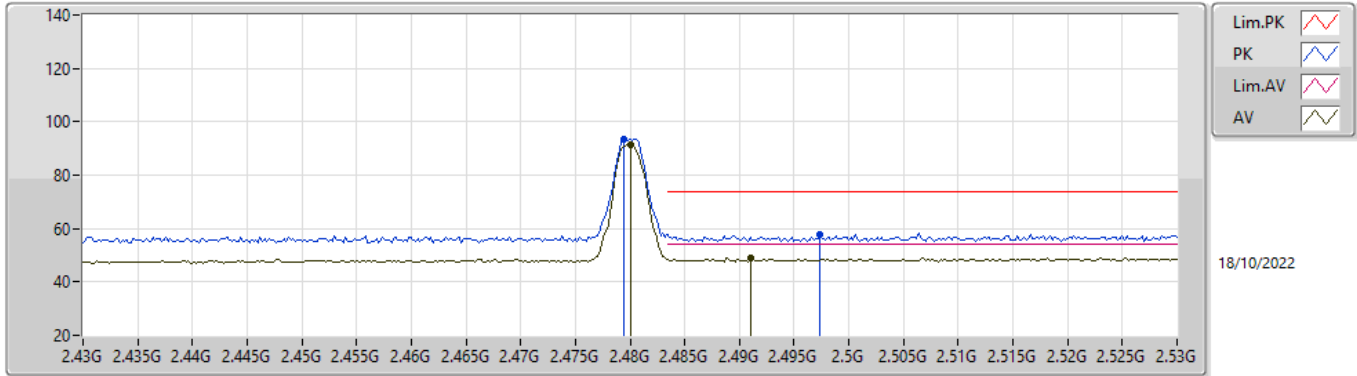
**BT-LE(2Mbps)**  
**2440MHz\_TX**



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	4.88091G	39.13	54.00	-14.87	3.79	3	Horizontal	161	1.44	-	35.34	32.72	5.72	34.65
PK	4.87899G	47.88	74.00	-26.12	3.79	3	Horizontal	161	1.44	-	44.09	32.72	5.72	34.65

**BT-LE(2Mbps)**

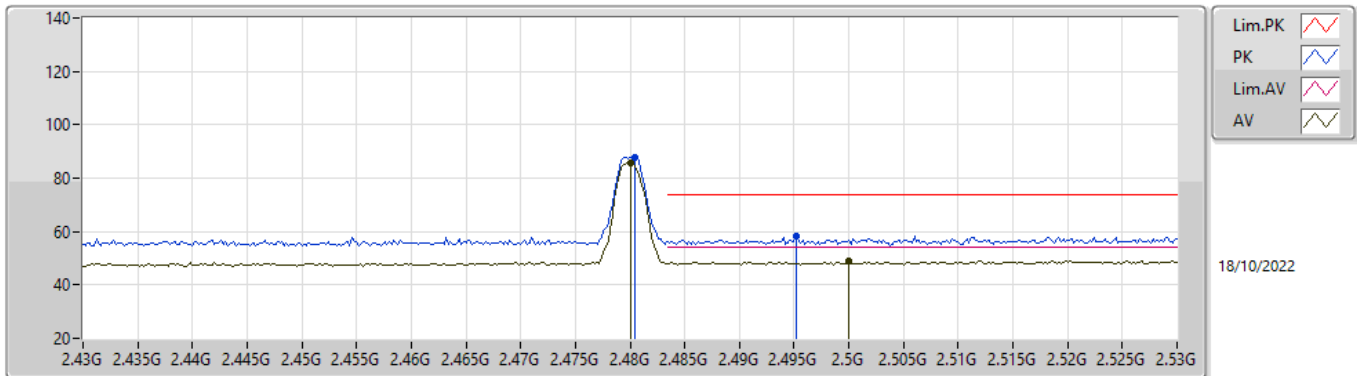
**2480MHz\_TX**



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	91.27	Inf	-Inf	32.00	3	Vertical	240	1.06	-	59.27	27.78	4.22	-
AV	2.491G	48.93	54.00	-5.07	32.07	3	Vertical	240	1.06	-	16.86	27.85	4.22	-
PK	2.4794G	93.32	Inf	-Inf	32.00	3	Vertical	240	1.06	-	61.32	27.78	4.22	-
PK	2.4974G	57.98	74.00	-16.02	32.11	3	Vertical	240	1.06	-	25.87	27.88	4.23	-

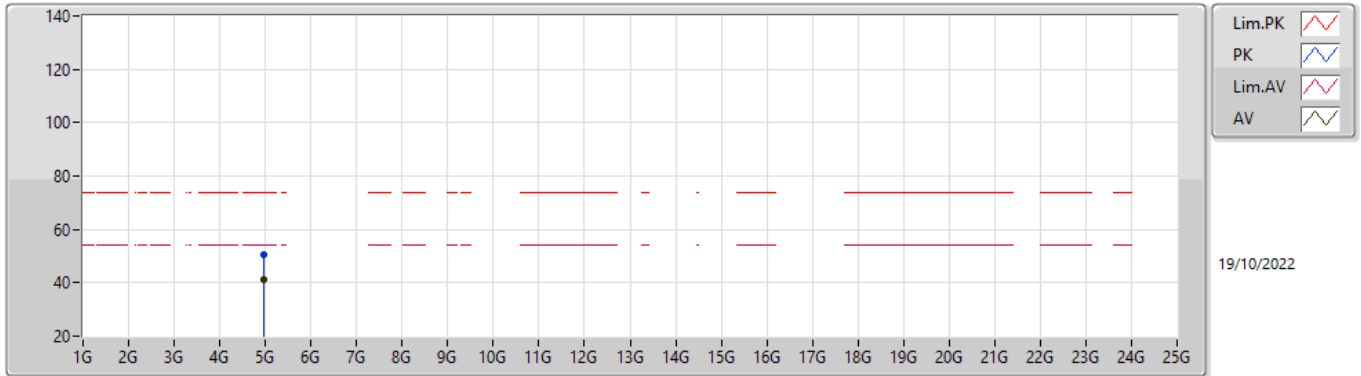
**BT-LE(2Mbps)**

**2480MHz\_TX**



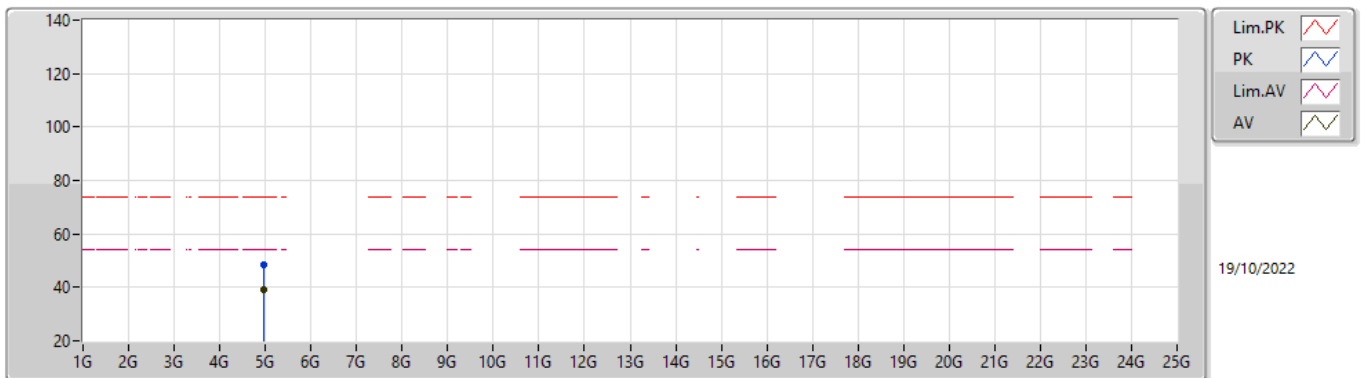
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.48G	85.60	Inf	-Inf	32.00	3	Horizontal	226	1.12	-	53.60	27.78	4.22	-
AV	2.5G	48.76	54.00	-5.24	32.13	3	Horizontal	226	1.12	-	16.63	27.90	4.23	-
PK	2.4804G	87.72	Inf	-Inf	32.00	3	Horizontal	226	1.12	-	55.72	27.78	4.22	-
PK	2.4952G	58.36	74.00	-15.64	32.10	3	Horizontal	226	1.12	-	26.26	27.87	4.23	-

**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	4.95879G	41.25	54.00	-12.75	4.15	3	Vertical	214	2.23	-	37.10	33.02	5.77	34.64
PK	4.95891G	50.27	74.00	-23.73	4.15	3	Vertical	214	2.23	-	46.12	33.02	5.77	34.64

**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	4.96096G	39.07	54.00	-14.93	4.15	3	Horizontal	163	1.03	-	34.92	33.02	5.77	34.64
PK	4.96124G	48.47	74.00	-25.53	4.15	3	Horizontal	163	1.03	-	44.32	33.02	5.77	34.64