

# FCC Radio Test Report

**FCC ID** : XNI-ID211008  
**Contain FCC ID** : XMR2020BG95M1  
**Equipment** : Cellular Router Gen2 Telematics Only  
**Brand Name** : LCI  
**Model Name** : 2021015319  
**Applicant** : Lippert Components  
6801 15 Mile Road Sterling Heights Michigan  
United States 48312  
**Manufacturer** : Lippert Components  
6801 15 Mile Road Sterling Heights Michigan  
United States 48312  
**Standard** : 47 CFR FCC Part 15.247

The product was received on Apr. 27, 2021, and testing was started from May 05, 2021 and completed on Jul. 06, 2021. We, SPORTON INTERNATIONAL INC. Hsinhua Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

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



Approved by: Allen Lin

**SPORTON INTERNATIONAL INC. Hsinhua Laboratory**

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



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### Summary of Test Result

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

<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: Sam Tsai  
Report Producer: Ann Hou

# 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	Gain (dBi)
1	-	-	PCB monopole antenna	N/A	1.85

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

### 1.1.4 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
BT-LE(1Mbps)	0.172	7.64	107.5u	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

<b>Test Lab. : Sporton International Inc. Hsinhua Laboratory</b>				
<input checked="" type="checkbox"/> Hsinhua (TAF: 3785)	<b>ADD:</b> No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333411, Taiwan (R.O.C.)			
	<b>TEL:</b> 886-3-327-3456		<b>FAX:</b> 886-3-327-0973	
Test site Designation No. TW3785 with FCC.				
Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
AC Conduction	CO04-HY	Billy	20.1~21.6°C / 60~63%	05/May/2021
RF Conducted	TH06-HY	Johnny	20.1~26.9°C / 50~60%	05/May/2021
Radiated	03CH02-HY	Lego	23.1~25.9°C / 57~60%	05/May/2021~06/Jul/2021

## 1.4 Measurement Uncertainty

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

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	0.9 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	2.4 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	3.7 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.6 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.0 dB	Confidence levels of 95%
Temperature	0.41 °C	Confidence levels of 95%
Humidity	3.4 %	Confidence levels of 95%



## 2 Test Configuration of EUT

### 2.1 Test Channel Mode




<b>Test Software Version</b>	nRF Connect v3.6.1
------------------------------	--------------------

<b>Mode</b>	<b>Power Setting</b>
BT-LE(1Mbps)	-
2402MHz	8
2440MHz	8
2480MHz	8

## 2.2 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
<b>Tests Item</b>	AC power-line conducted emissions
<b>Condition</b>	AC power-line conducted measurement for line and neutral Test Voltage: 120Vac / 60Hz
<b>Operating Mode</b>	CTX
1	Adapter mode

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	Adapter 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





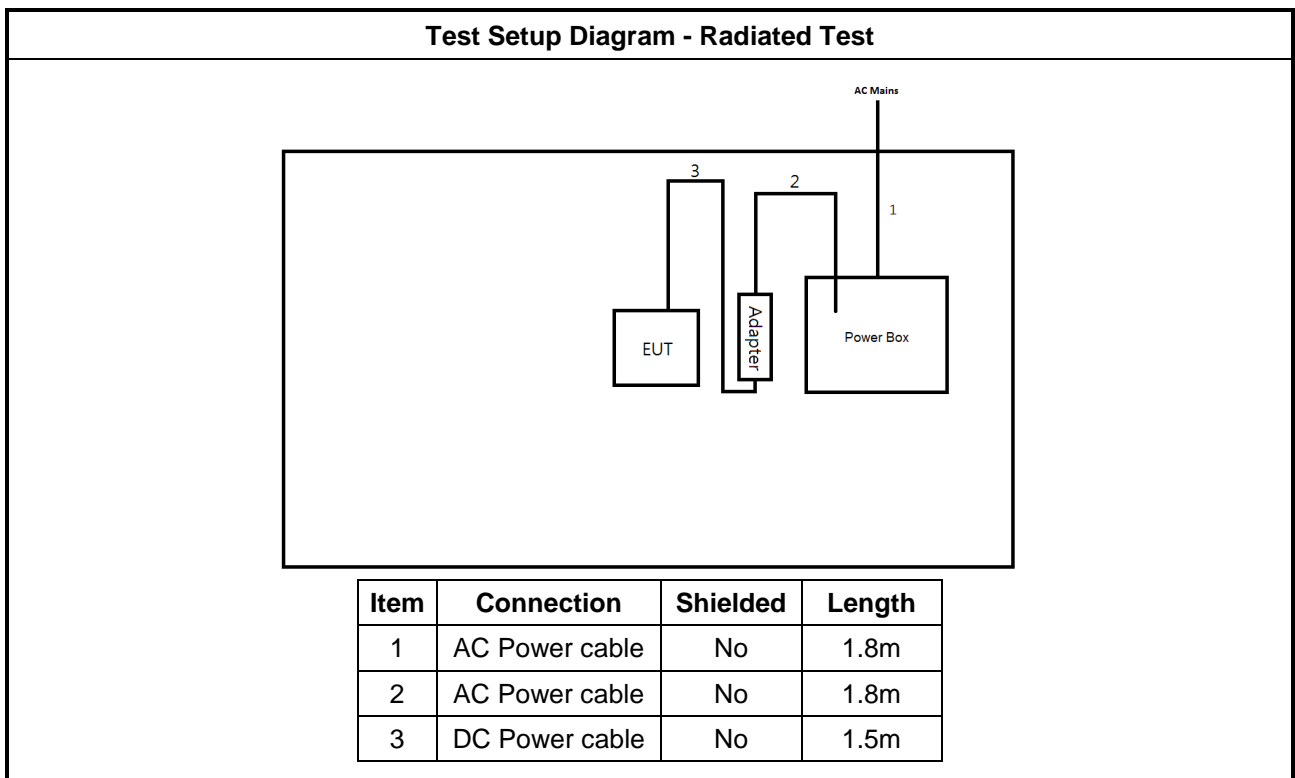
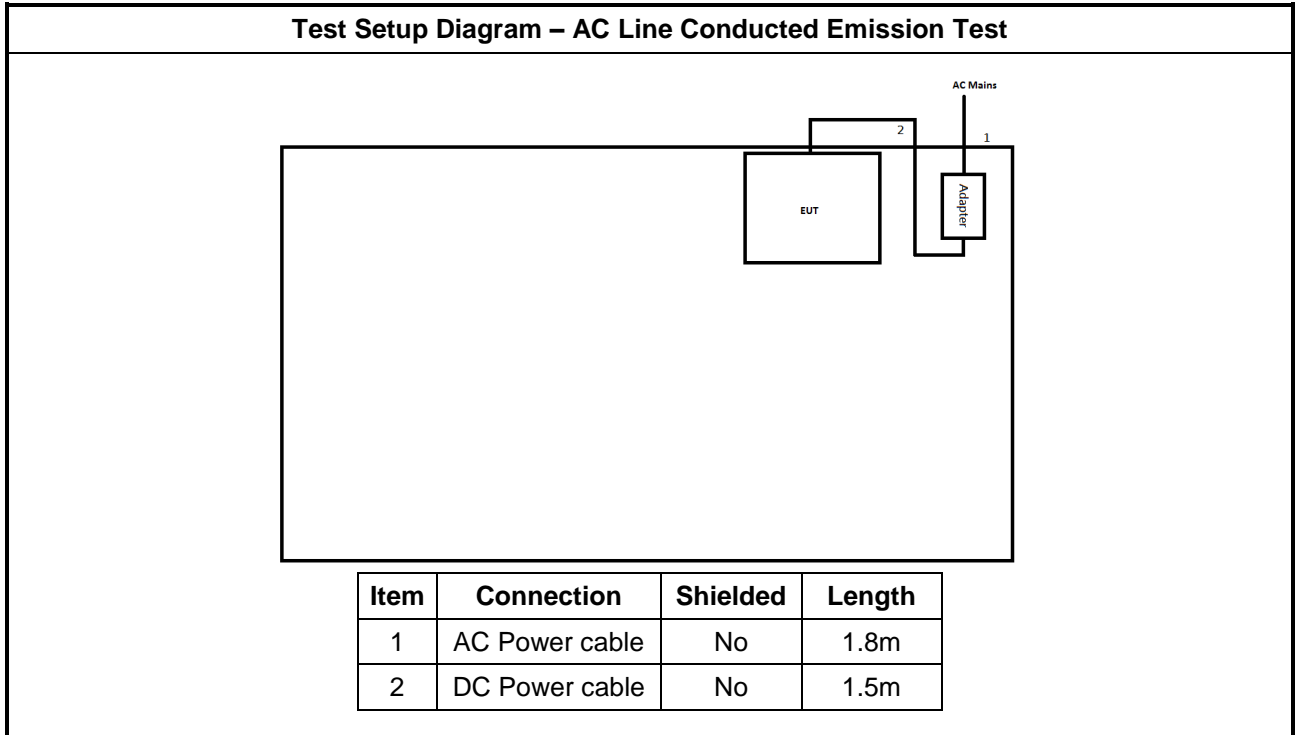
### 2.3 Support Equipment

Support Equipment – AC Conduction					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	AC Adapter	Asian Power Devices inc.	DA-48T12	-	Provided by Customer

Support Equipment – Conducted					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	Notebook	DELL	E5410	-	-
2	Adapter for NB	DELL	HA65NM130	-	-
3	AC Adapter	Asian Power Devices inc.	DA-48T12	-	Provided by Customer

Support Equipment – Radiated					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	AC Adapter	Asian Power Devices inc.	DA-48T12	-	Provided by Customer

## 2.4 Test Setup Diagram





### 3 Transmitter Test Result

#### 3.1 AC Power-line Conducted Emissions

##### 3.1.1 AC Power-line Conducted Emissions Limit

AC Power-line Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

Note 1: \* Decreases with the logarithm of the frequency.

##### 3.1.2 Measuring Instruments

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

##### 3.1.3 Test Procedures

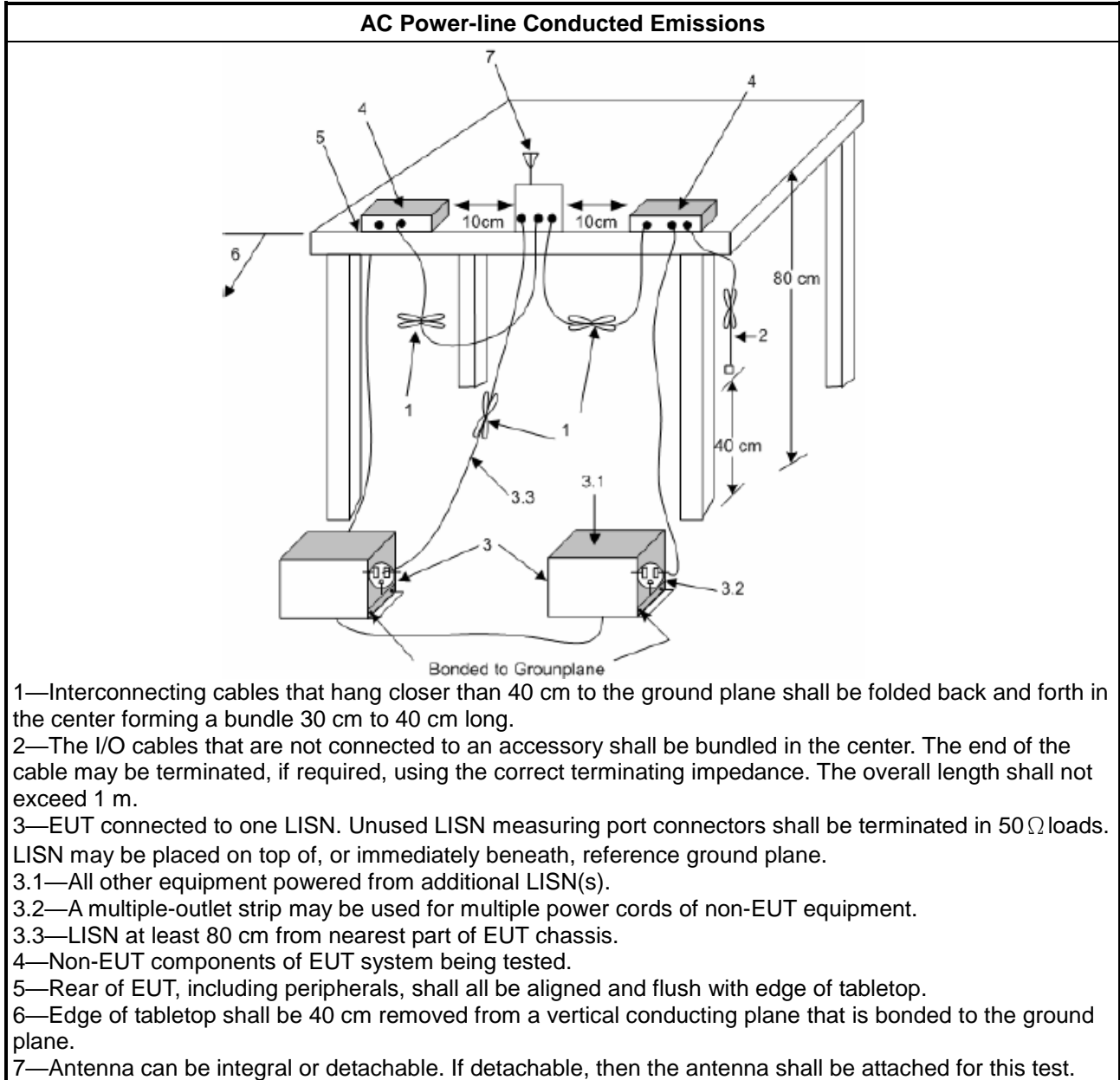
Test Method
▪ Refer as ANSI C63.10-2013, clause 6.2 foray power-line conducted emissions.

##### 3.1.4 Measurement Results Calculation

The measured Level is calculated using:

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

### 3.1.5 Test Setup



### 3.1.6 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A

### 3.2 DTS Bandwidth

#### 3.2.1 6dB Bandwidth Limit

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

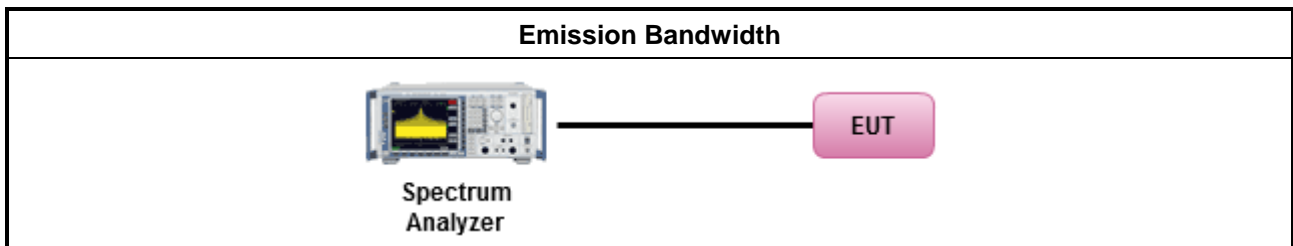
#### 3.2.2 Measuring Instruments

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>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 for occupied bandwidth testing.
<input type="checkbox"/> Refer as ANSI C63.10, clause 6.9.3 for occupied bandwidth testing.

#### 3.2.4 Test Setup



#### 3.2.5 Test Result of Emission Bandwidth

Refer as Appendix B

### 3.3 Maximum Conducted Output Power

#### 3.3.1 Maximum Conducted Output Power Limit

Maximum Conducted Output Power Limit	
	<ul style="list-style-type: none"> <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>
<b>e.i.r.p. Power Limit:</b>	
	<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>
$P_{Out}$ = maximum peak conducted output power or maximum conducted output power in dBm, $G_{TX}$ = the maximum transmitting antenna directional gain in dBi.	

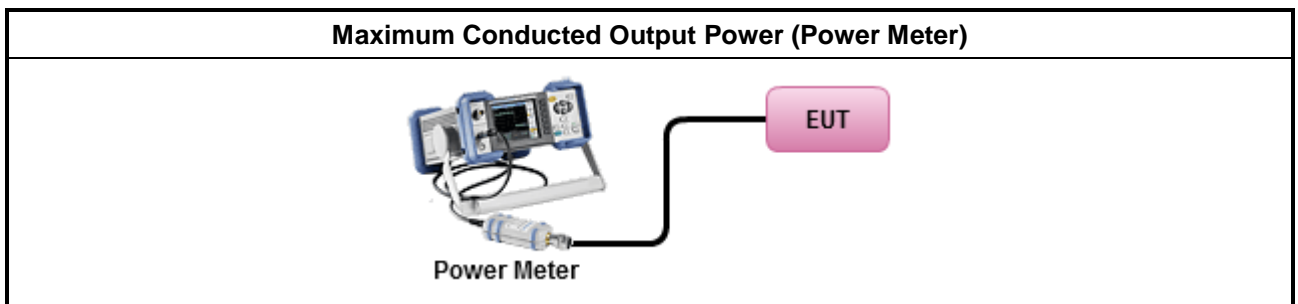
#### 3.3.2 Measuring Instruments

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

### 3.3.3 Test Procedures

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

### 3.3.4 Test Setup



### 3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix C

### 3.4 Power Spectral Density

#### 3.4.1 Power Spectral Density Limit

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

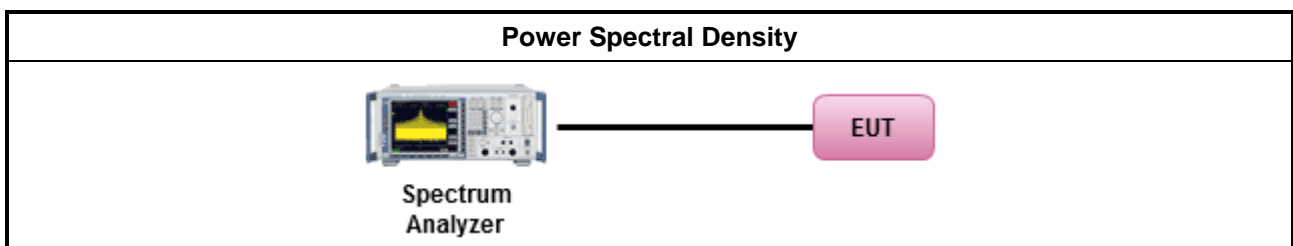
#### 3.4.2 Measuring Instruments

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

#### 3.4.4 Test Setup



#### 3.4.5 Test Result of Power Spectral Density

Refer as Appendix D



### 3.5 Emissions in Non-restricted Frequency Bands

#### 3.5.1 Emissions in Non-restricted Frequency Bands Limit

Un-restricted Band Emissions Limit	
RF output power procedure	Limit (dB)
Peak output power procedure	20
Average output power procedure	30

Note 1: If the peak output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum measured in-band peak level.

Note 2: If the average output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the power in any 100 kHz outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum measured in-band average level.

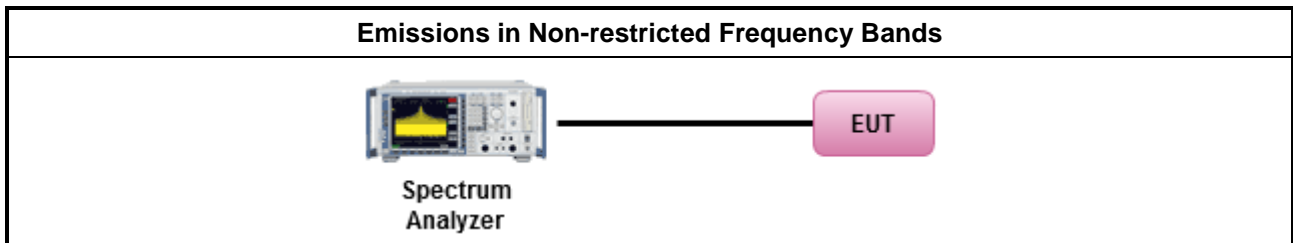
#### 3.5.2 Measuring Instruments

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

#### 3.5.3 Test Procedures

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

#### 3.5.4 Test Setup



#### 3.5.5 Test Result of Emissions in Non-restricted Frequency Bands

Refer as Appendix E

### 3.6 Emissions in Restricted Frequency Bands

#### 3.6.1 Emissions in Restricted Frequency Bands Limit

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

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

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

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

#### 3.6.2 Measuring Instruments

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

### 3.6.3 Test Procedures

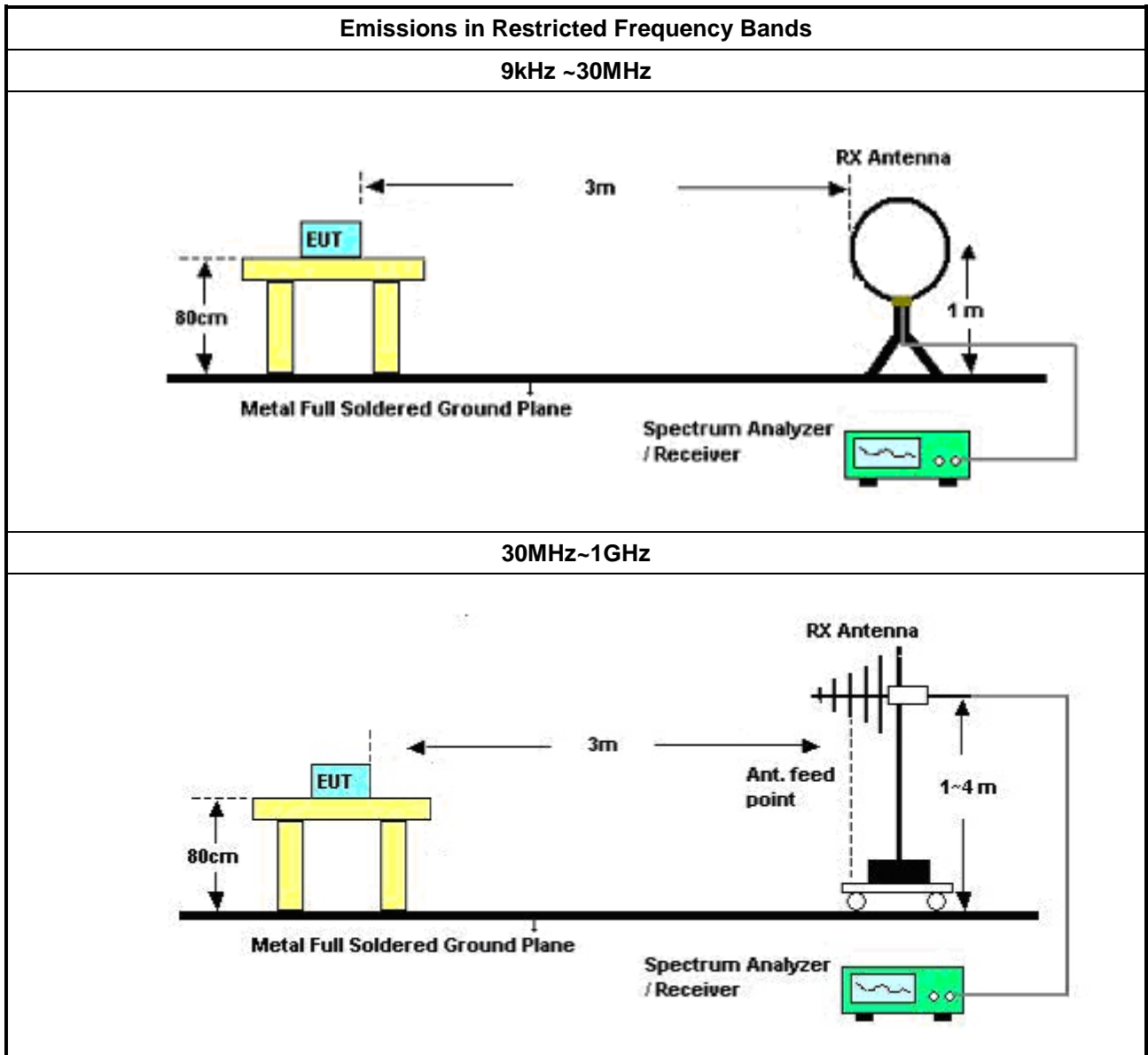
Test Method	
	<ul style="list-style-type: none"> <li>▪ The average emission levels shall be measured in [duty cycle <math>\geq</math> 98 or duty factor].</li> </ul>
	<ul style="list-style-type: none"> <li>▪ Refer as ANSI C63.10, clause 6.10.3 band-edge testing shall be performed at the lowest frequency 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:               <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> </li> </ul>
	<ul style="list-style-type: none"> <li>▪ For the transmitter band-edge emissions shall be measured using following options below:               <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> <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> <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> </li> </ul>
	<ul style="list-style-type: none"> <li>▪ Use the following spectrum analyzer settings:               <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> <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> </li> </ul>
	<ul style="list-style-type: none"> <li>▪ KDB 414788 Open-Field Test Sites and Chamber Correlation Justification.               <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> <li>▪ Open-field site and chamber correlation testing had been performed and chamber measured test result is the worst case test result.</li> </ul> </li> </ul>

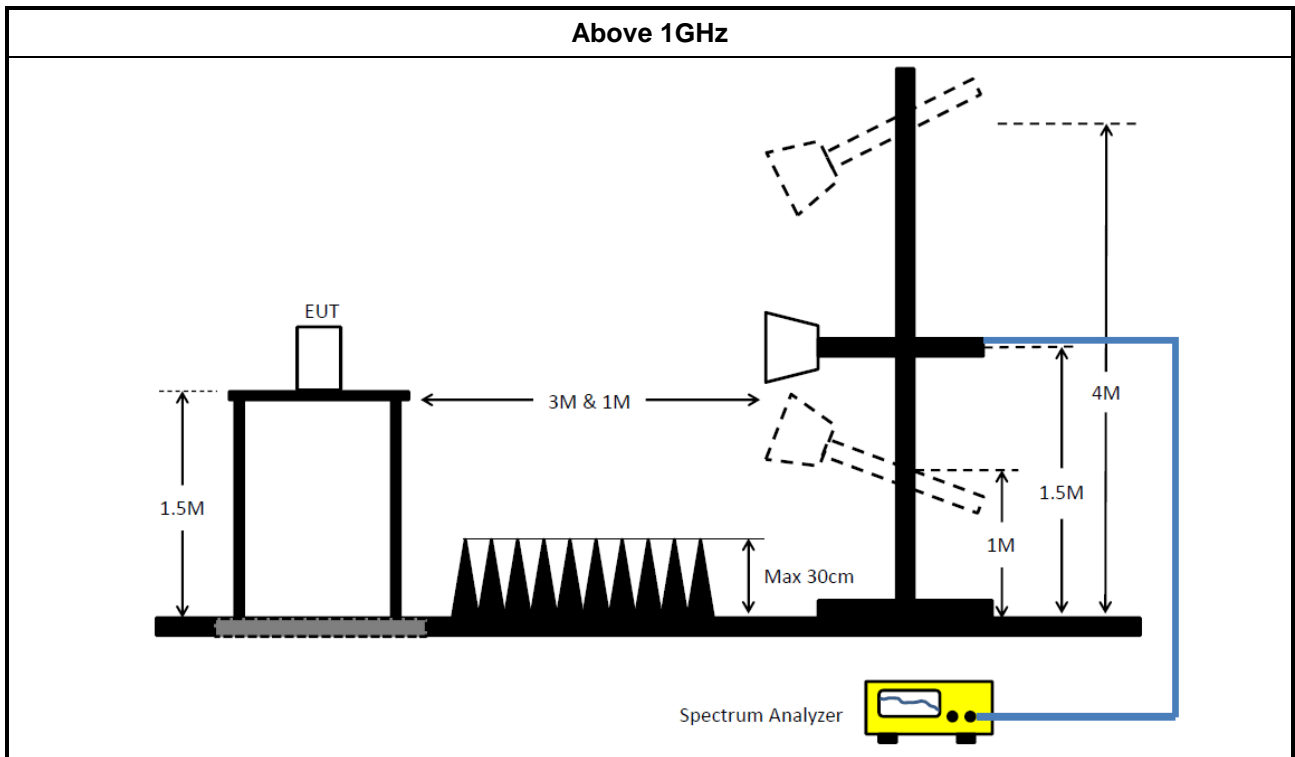
### 3.6.4 Measurement Results Calculation

The measured Level is calculated using:

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

### 3.6.5 Test Setup





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

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

### 3.6.7 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix F

## 4 Test Equipment and Calibration Data

### Instrument for AC Conduction

Instrument	Manufacturer /Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
EMI Test Receiver	R&S	ESR3	102051	9kHz ~ 3.6GHz	29/May/2020	28/May/2021
LISN	R&S	ENV216	101295	9kHz ~ 30MHz	11/Nov/2020	10/Nov/2021
RF Cable 5m	TITAN	TITAN	CO04-cable-01	0.1MHz~200MHz	03/Mar/2021	02/Mar/2022
Impuls Begrenzer Pulse Limiter	SCHWARZBECK	VTSD 9561-F	9561-F041	9kHz ~ 30MHz	21/Sep/2020	20/Sep/2021

### 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	19/Oct/2020	18/Oct/2021
SMB100A Signal Generator	R&S	SMB100A03	181147	100kHz~40GHz	20/Oct/2020	19/Oct/2021
Pulse Sensor	Anritsu	MA2411B	1027452	300MHz~40GHz	25/Mar/2021	24/Mar/2022
Power Meter	Anritsu	ML2495A	1124009	300MHz~40GHz	25/Mar/2021	24/Mar/2022

### Instrument for Radiated Test

Instrument	Manufacturer /Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH02-HY	30MHz~1GHz 3m	04/Aug/2020	03/Aug/2021
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH02-HY	1GHz~18GHz 3m	02/Aug/2020	01/Aug/2021
Signal Analyzer	R&S	FSP40	100593	9kHz~40GHz	12/Mar/2021	11/Mar/2022
Amplifier	Agilent	8447D	2944A11149	100kHz~1.3GHz	29/Jun/2021	28/Jun/2022
Microwave Preamplifier	Agilent	8449B	3008A02373	1GHz~18GHz	23/Oct/2020	22/Oct/2021
Bilog Antenna & 5dB Attenuator	SCHAFFNER / MTJ	CBL 6112B / MTJ6102-05	2723 / 2	30MHz~1GHz	06/Sep/2020	05/Sep/2021
Double Ridged Guide Horn Antenna	SCHWARZBEC	BBHA 9120 D	BBHA 9120 D 01543	1GHz~18GHz	09/Jun/2020	08/Jun/2021
RF Cable-R03m	MVE	400LL	MVE-1-0802	9kHz~30MHz	05/May/2021	04/May/2022
RF Cable-R03m	MVE	400LL	MVE-1-0802	30MHz~1GHz	05/May/2021	04/May/2022
RF Cable-R03m	HUBER+SUHNER	SUCOFLEX104	805193/4+8051 92/4	1GHz~40GHz	06/Apr/2021	05/Apr/2022
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA 9170221	15GHz~40GHz	11/Mar/2021	10/Mar/2022
Loop Antenna	TESEQ	HLA 6120	31244	9kHz~30MHz	16/Mar/2021	15/Mar/2022
EMI Test Receiver	R&S	ESR3	102051	9kHz~3.6GHz	21/May/2021	20/May/2022



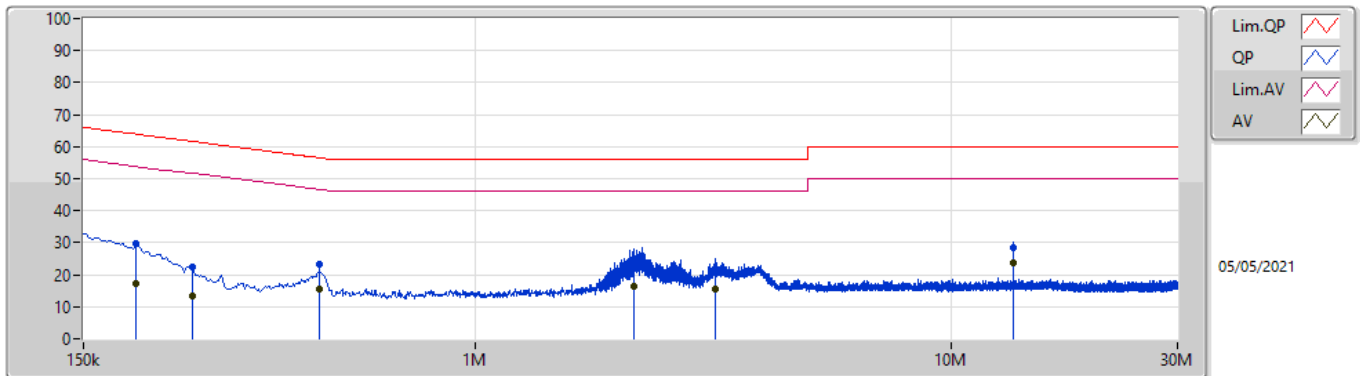
Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	AV	13.56M	23.86	50.00	-26.14	Line

Mode Configure

Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comments
Mode 1	Pass	QP	192.75k	29.95	63.92	-33.97	19.62	Line	-
Mode 1	Pass	AV	192.75k	17.26	53.92	-36.66	19.62	Line	-
Mode 1	Pass	QP	253.5k	22.39	61.64	-39.25	19.63	Line	-
Mode 1	Pass	AV	253.5k	13.15	51.64	-38.49	19.63	Line	-
Mode 1	Pass	QP	469.5k	23.38	56.52	-33.14	19.61	Line	-
Mode 1	Pass	AV	469.5k	15.66	46.52	-30.86	19.61	Line	-
Mode 1	Pass	QP	2.15M	24.46	56.00	-31.54	19.59	Line	-
Mode 1	Pass	AV	2.15M	16.49	46.00	-29.51	19.59	Line	-
Mode 1	Pass	QP	3.21M	21.66	56.00	-34.34	19.69	Line	-
Mode 1	Pass	AV	3.21M	15.46	46.00	-30.54	19.69	Line	-
Mode 1	Pass	QP	13.56M	28.38	60.00	-31.62	19.84	Line	-
Mode 1	Pass	AV	13.56M	23.86	50.00	-26.14	19.84	Line	-
Mode 1	Pass	QP	150k	35.35	66.00	-30.65	19.63	Neutral	-
Mode 1	Pass	AV	150k	18.38	56.00	-37.62	19.63	Neutral	-
Mode 1	Pass	QP	226.5k	26.17	62.58	-36.41	19.62	Neutral	-
Mode 1	Pass	AV	226.5k	15.35	52.58	-37.23	19.62	Neutral	-
Mode 1	Pass	QP	480.75k	22.80	56.33	-33.53	19.61	Neutral	-
Mode 1	Pass	AV	480.75k	15.71	46.33	-30.62	19.61	Neutral	-
Mode 1	Pass	QP	2.243M	28.34	56.00	-27.66	19.61	Neutral	-
Mode 1	Pass	AV	2.243M	18.14	46.00	-27.86	19.61	Neutral	-
Mode 1	Pass	QP	3.885M	21.34	56.00	-34.66	19.73	Neutral	-
Mode 1	Pass	AV	3.885M	14.96	46.00	-31.04	19.73	Neutral	-
Mode 1	Pass	QP	13.56M	28.26	60.00	-31.74	19.88	Neutral	-
Mode 1	Pass	AV	13.56M	23.66	50.00	-26.34	19.88	Neutral	-

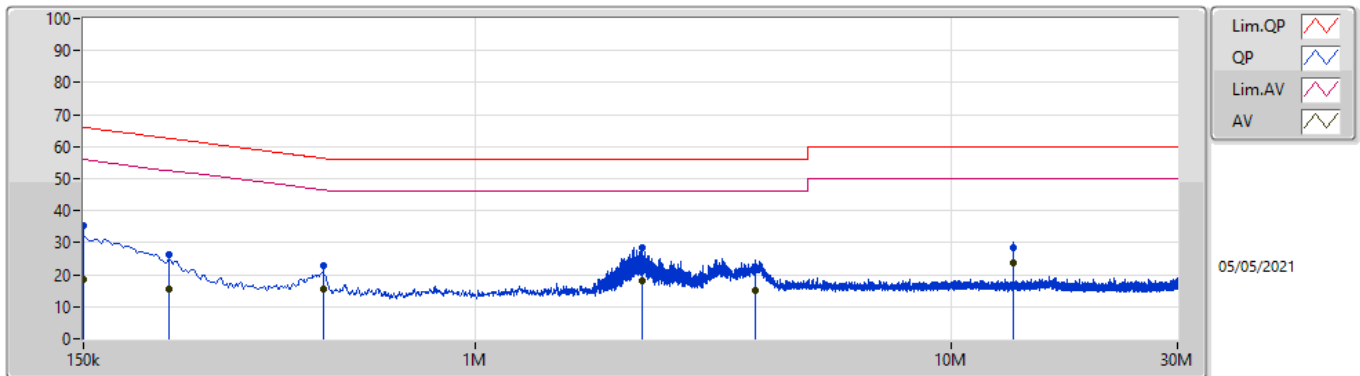
### Conducted Emissions at Powerline\_Mode 1



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)
QP	192.75k	29.95	63.92	-33.97	19.62	Line	-	10.33	9.68	0.04	9.90
AV	192.75k	17.26	53.92	-36.66	19.62	Line	-	-2.36	9.68	0.04	9.90
QP	253.5k	22.39	61.64	-39.25	19.63	Line	-	2.76	9.68	0.05	9.90
AV	253.5k	13.15	51.64	-38.49	19.63	Line	-	-6.48	9.68	0.05	9.90
QP	469.5k	23.38	56.52	-33.14	19.61	Line	-	3.77	9.67	0.06	9.88
AV	469.5k	15.66	46.52	-30.86	19.61	Line	-	-3.95	9.67	0.06	9.88
QP	2.15M	24.46	56.00	-31.54	19.59	Line	-	4.87	9.68	0.10	9.81
AV	2.15M	16.49	46.00	-29.51	19.59	Line	-	-3.10	9.68	0.10	9.81
QP	3.21M	21.66	56.00	-34.34	19.69	Line	-	1.97	9.69	0.13	9.87
AV	3.21M	15.46	46.00	-30.54	19.69	Line	-	-4.23	9.69	0.13	9.87
QP	13.56M	28.38	60.00	-31.62	19.84	Line	-	8.54	9.70	0.24	9.90
AV	13.56M	23.86	50.00	-26.14	19.84	Line	-	4.02	9.70	0.24	9.90



Conducted Emissions at Powerline\_Mode 1



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)
QP	150k	35.35	66.00	-30.65	19.63	Neutral	-	15.72	9.69	0.04	9.90
AV	150k	18.38	56.00	-37.62	19.63	Neutral	-	-1.25	9.69	0.04	9.90
QP	226.5k	26.17	62.58	-36.41	19.62	Neutral	-	6.55	9.68	0.04	9.90
AV	226.5k	15.35	52.58	-37.23	19.62	Neutral	-	-4.27	9.68	0.04	9.90
QP	480.75k	22.80	56.33	-33.53	19.61	Neutral	-	3.19	9.67	0.06	9.88
AV	480.75k	15.71	46.33	-30.62	19.61	Neutral	-	-3.90	9.67	0.06	9.88
QP	2.243M	28.34	56.00	-27.66	19.61	Neutral	-	8.73	9.68	0.11	9.82
AV	2.243M	18.14	46.00	-27.86	19.61	Neutral	-	-1.47	9.68	0.11	9.82
QP	3.885M	21.34	56.00	-34.66	19.73	Neutral	-	1.61	9.69	0.14	9.90
AV	3.885M	14.96	46.00	-31.04	19.73	Neutral	-	-4.77	9.69	0.14	9.90
QP	13.56M	28.26	60.00	-31.74	19.88	Neutral	-	8.38	9.74	0.24	9.90
AV	13.56M	23.66	50.00	-26.34	19.88	Neutral	-	3.78	9.74	0.24	9.90



**Summary**

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
BT-LE(1Mbps)	688.75k	1.035M	1M04F1D	687.5k	1.03M

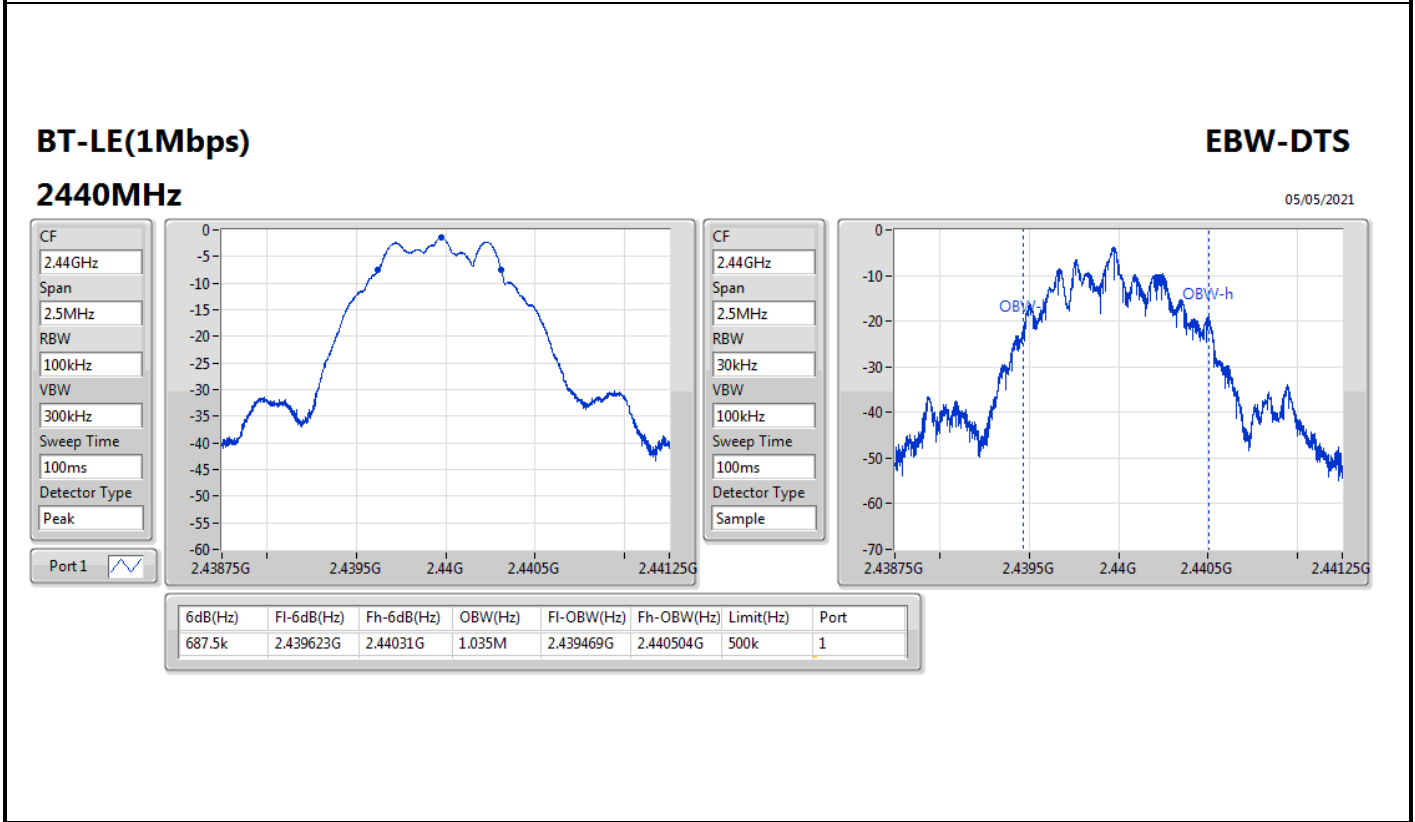
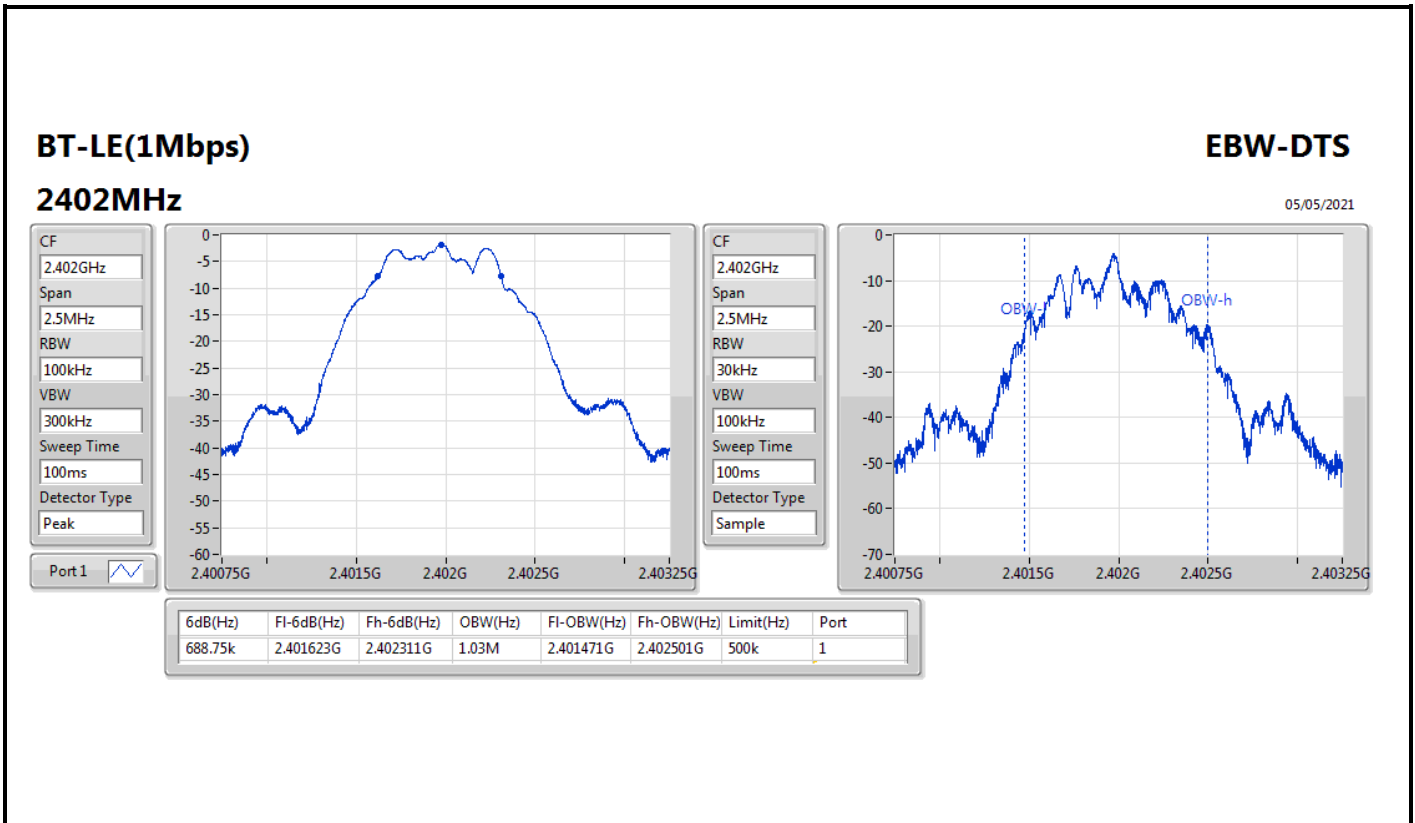
Max-N dB = Maximum 6dB down bandwidth; Max-OBW = Maximum 99% occupied bandwidth;  
Min-N dB = Minimum 6dB down bandwidth; Min-OBW = Minimum 99% occupied bandwidth



Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	688.75k	1.03M
2440MHz	Pass	500k	687.5k	1.035M
2480MHz	Pass	500k	687.5k	1.035M

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



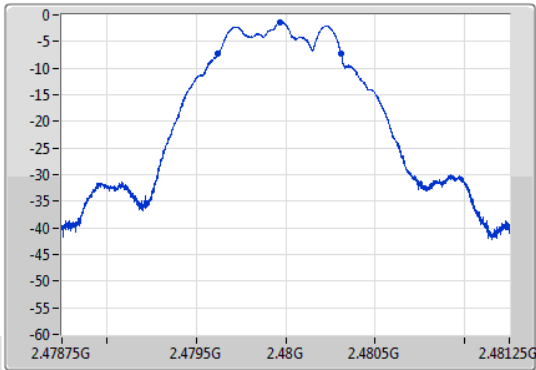
**BT-LE(1Mbps)**

**EBW-DTS**

2480MHz

05/05/2021

CF  
2.48GHz  
Span  
2.5MHz  
RBW  
100kHz  
VBW  
300kHz  
Sweep Time  
100ms  
Detector Type  
Peak



CF  
2.48GHz  
Span  
2.5MHz  
RBW  
30kHz  
VBW  
100kHz  
Sweep Time  
100ms  
Detector Type  
Sample



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
687.5k	2.479624G	2.480311G	1.035M	2.479466G	2.480501G	500k	1



**Summary**

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	-1.83	0.00066



**Result**

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	1.85	-2.36	30.00
2440MHz	Pass	1.85	-2.13	30.00
2480MHz	Pass	1.85	-1.83	30.00

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



**Summary**

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE(1Mbps)	-19.65

RBW = 3kHz;





Result

Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	1.85	-20.16	8.00
2440MHz	Pass	1.85	-19.73	8.00
2480MHz	Pass	1.85	-19.65	8.00

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

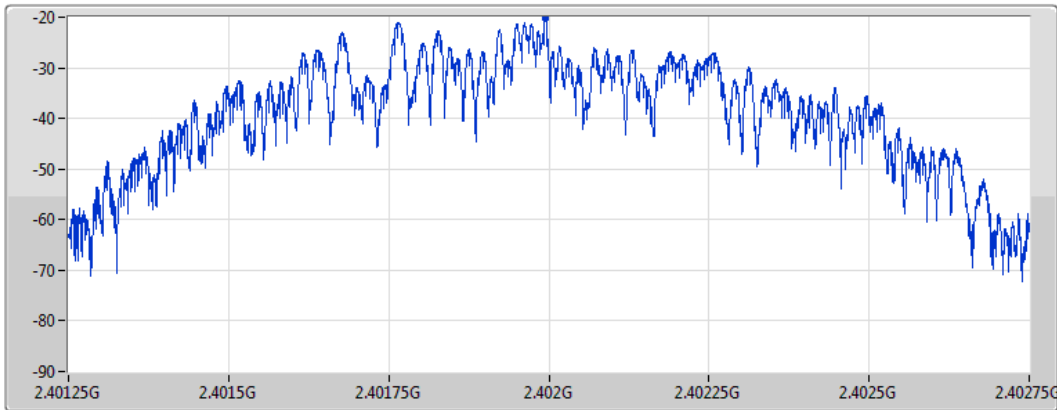
### BT-LE(1Mbps)


### PSD

#### 2402MHz

05/05/2021

CF  
2.402GHz  
Span  
1.5MHz  
RBW  
3kHz  
VBW  
10kHz  
Sweep Time  
170ms  
Detector Type  
Peak



Port 1 

Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-20.16	-20.16	-20.16

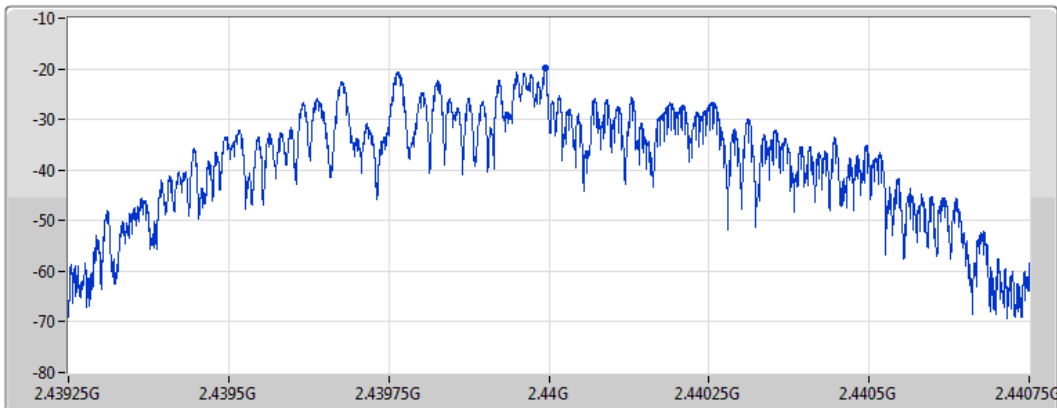
### BT-LE(1Mbps)

### PSD

#### 2440MHz

05/05/2021

CF  
2.44GHz  
Span  
1.5MHz  
RBW  
3kHz  
VBW  
10kHz  
Sweep Time  
170ms  
Detector Type  
Peak



Port 1 

Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-19.73	-19.73	-19.73

**BT-LE(1Mbps)**

**PSD**

**2480MHz**

05/05/2021

CF  
2.48GHz

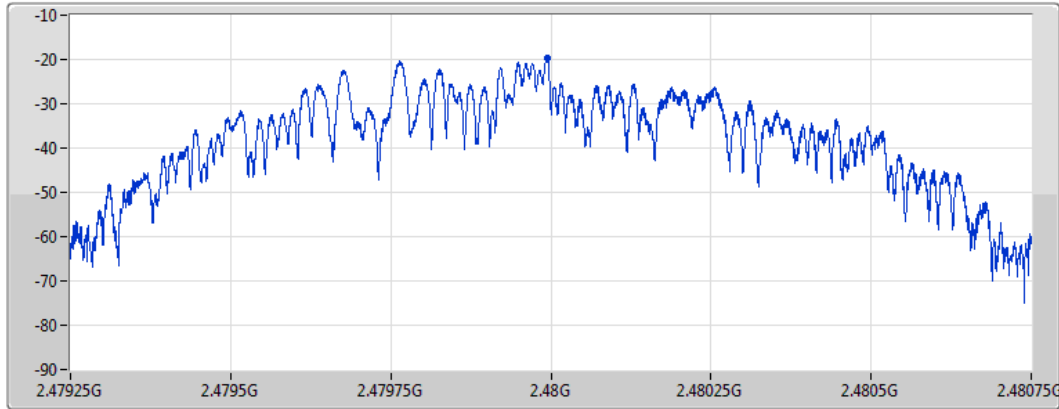
Span  
1.5MHz


RBW  
3kHz

VBW  
10kHz

Sweep Time  
170ms

Detector Type  
Peak



Port 1 

Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-19.65	-19.65	-19.65



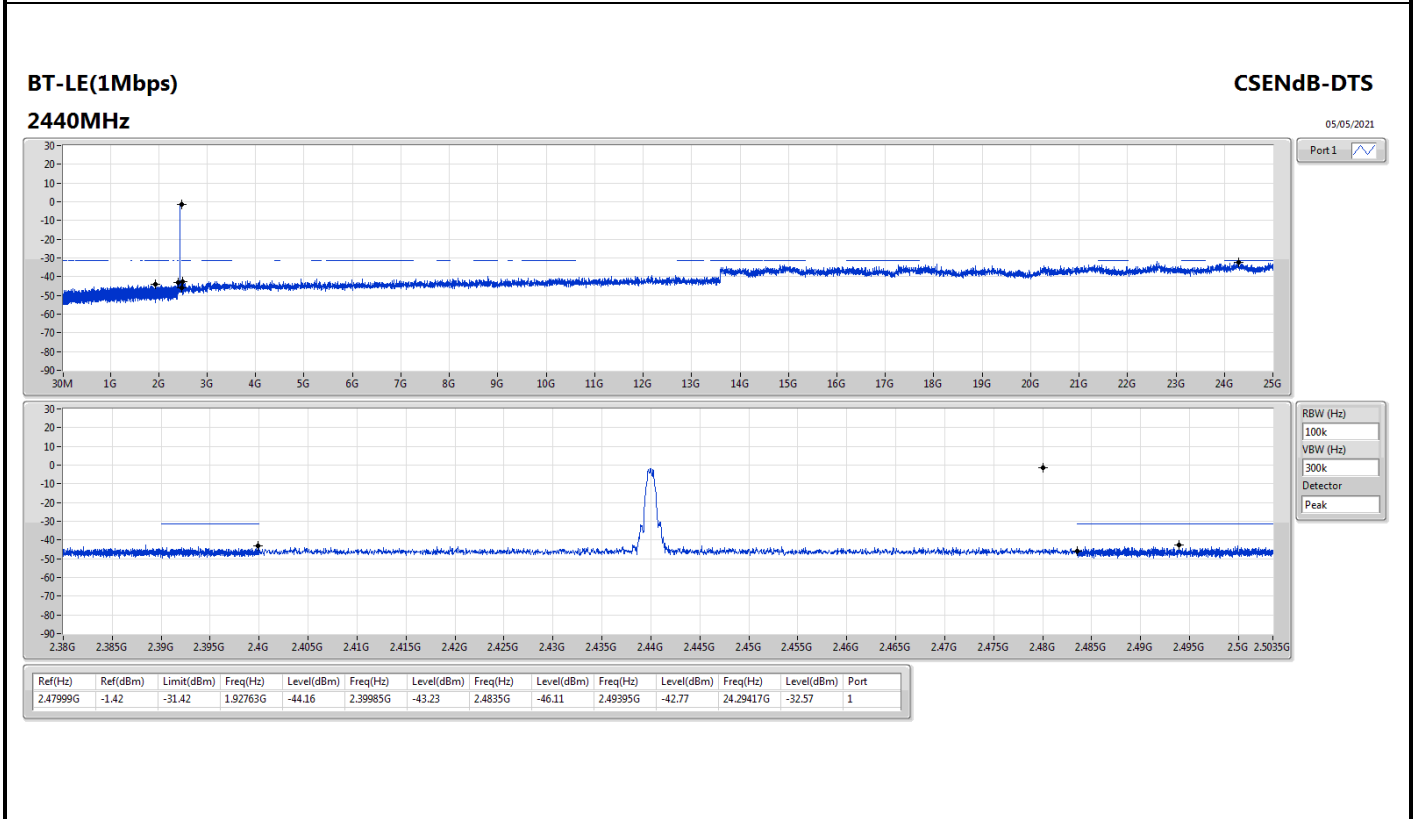
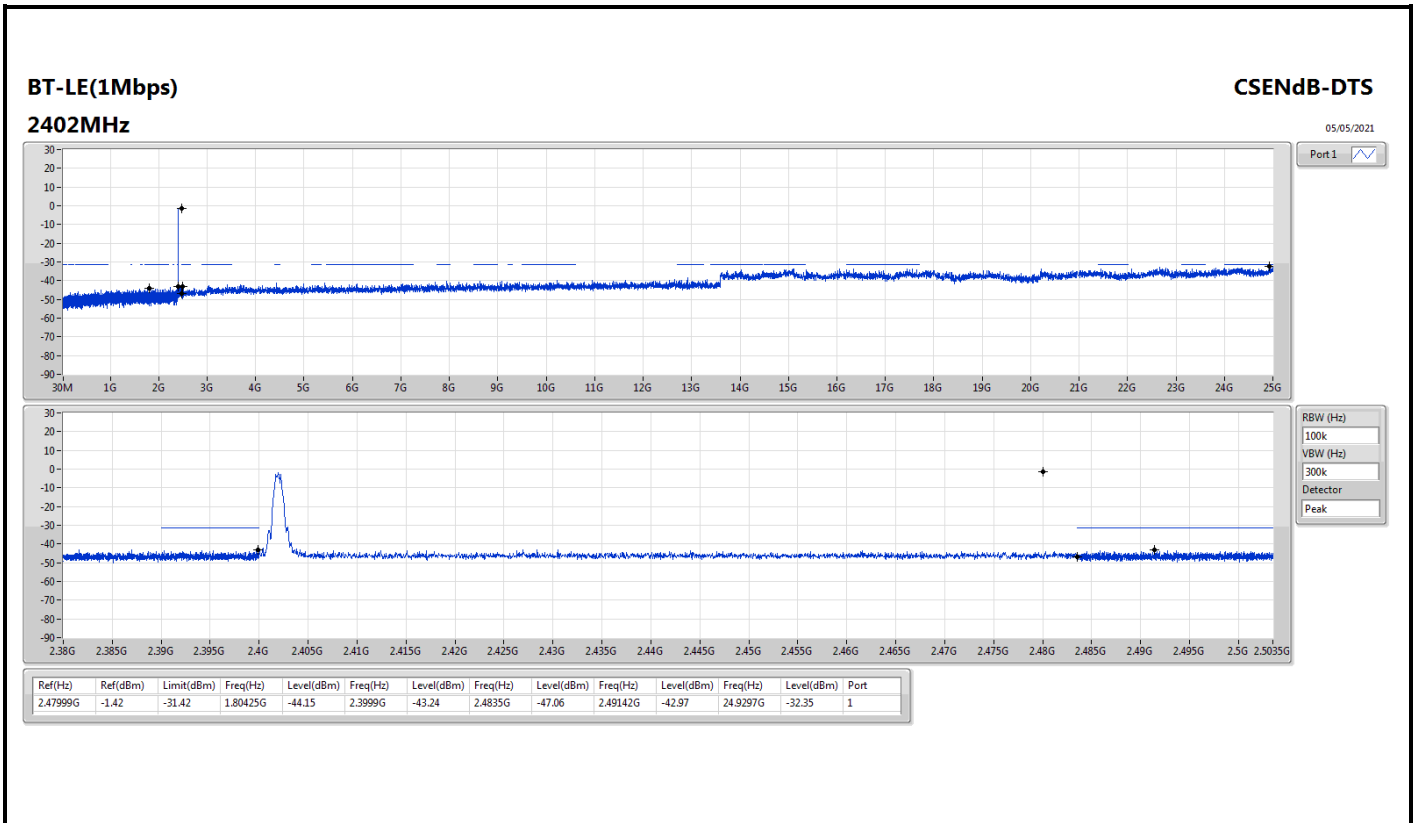
Summary

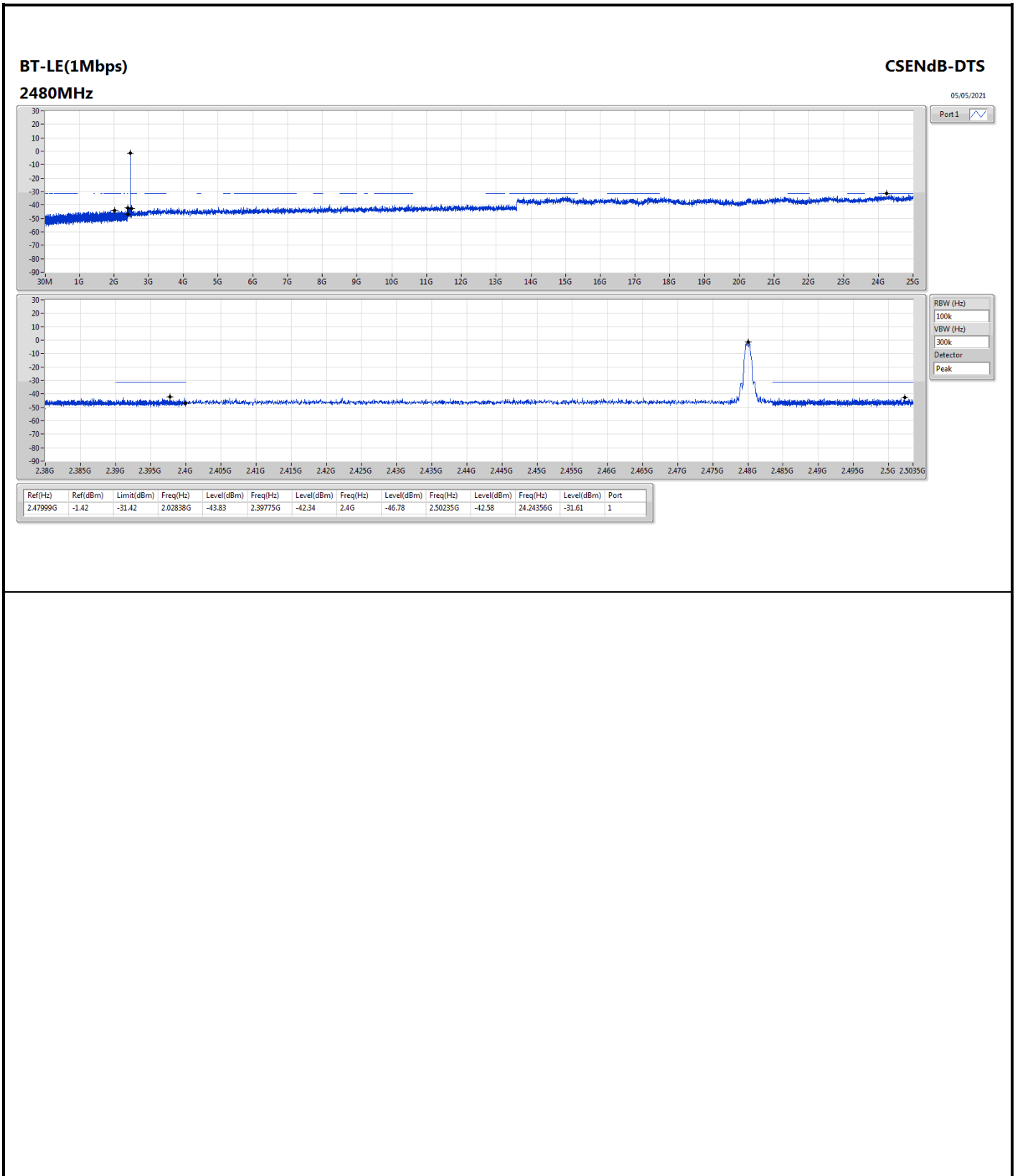
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	2.47999G	-1.42	-31.42	2.02838G	-43.83	2.39775G	-42.34	2.4G	-46.78	2.50235G	-42.58	24.24356G	-31.61	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	2.47999G	-1.42	-31.42	1.80425G	-44.15	2.3999G	-43.24	2.4835G	-47.06	2.49142G	-42.97	24.9297G	-32.35	1
2440MHz	Pass	2.47999G	-1.42	-31.42	1.92763G	-44.16	2.39985G	-43.23	2.4835G	-46.11	2.49395G	-42.77	24.29417G	-32.57	1
2480MHz	Pass	2.47999G	-1.42	-31.42	2.02838G	-43.83	2.39775G	-42.34	2.4G	-46.78	2.50235G	-42.58	24.24356G	-31.61	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(1Mbps)	Pass	PK	49.4M	32.39	40.00	-7.61	3	Horizontal	0	1.00	-

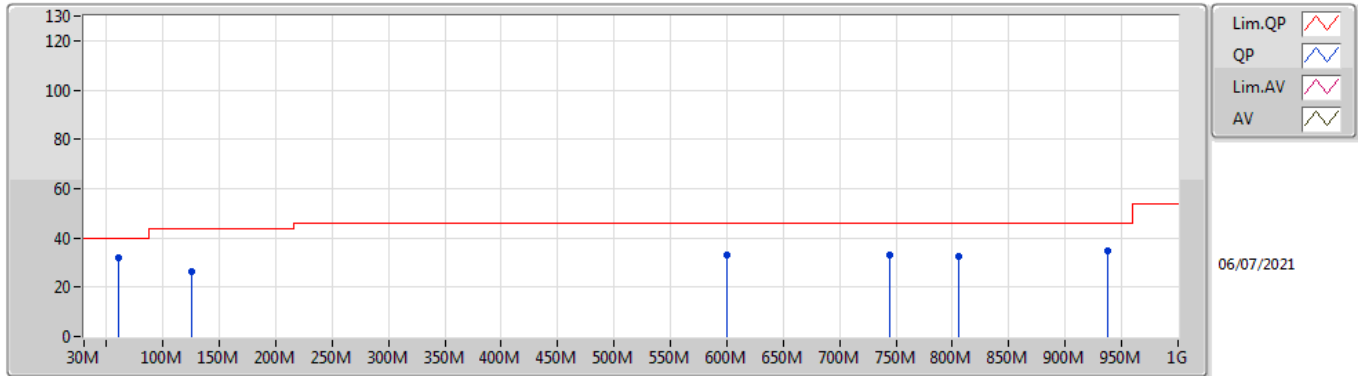




Result

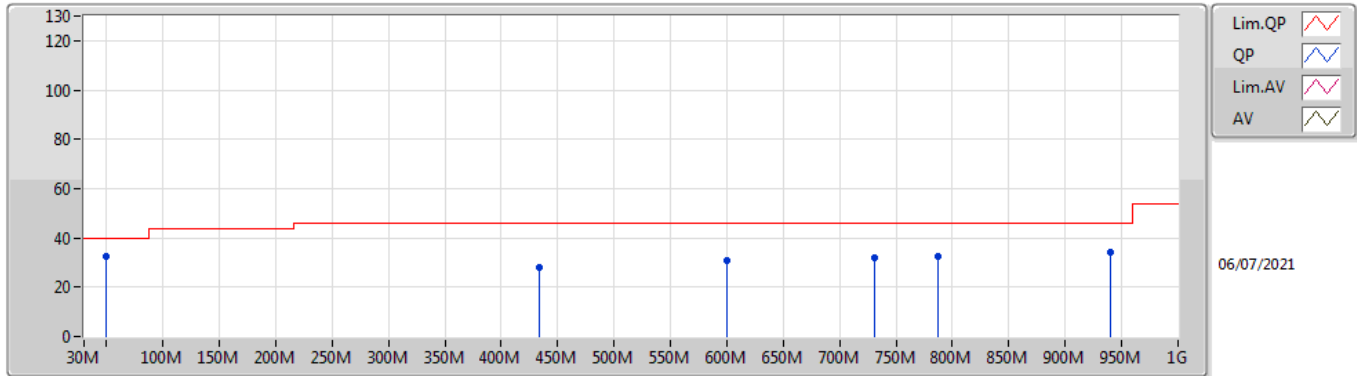
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-
2440MHz	Pass	PK	61.04M	32.19	40.00	-7.81	3	Vertical	360	1.00	-
2440MHz	Pass	PK	125.06M	26.17	43.50	-17.33	3	Vertical	360	1.00	-
2440MHz	Pass	PK	600.36M	32.87	46.00	-13.13	3	Vertical	360	1.00	-
2440MHz	Pass	PK	743.92M	32.97	46.00	-13.03	3	Vertical	360	1.00	-
2440MHz	Pass	PK	806M	32.36	46.00	-13.64	3	Vertical	360	1.00	-
2440MHz	Pass	PK	937.92M	34.81	46.00	-11.19	3	Vertical	360	1.00	-
2440MHz	Pass	PK	49.4M	32.39	40.00	-7.61	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	433.52M	27.81	46.00	-18.19	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	600.36M	31.03	46.00	-14.97	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	730.34M	32.00	46.00	-14.00	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	786.6M	32.54	46.00	-13.46	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	939.86M	34.39	46.00	-11.61	3	Horizontal	0	1.00	-

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



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	61.04M	32.19	40.00	-7.81	-15.09	3	Vertical	360	1.00	-	47.28	11.54	1.15	27.78
PK	125.06M	26.17	43.50	-17.33	-8.87	3	Vertical	360	1.00	-	35.04	17.31	1.57	27.75
PK	600.36M	32.87	46.00	-13.13	-1.09	3	Vertical	360	1.00	-	33.96	23.97	3.37	28.43
PK	743.92M	32.97	46.00	-13.03	0.49	3	Vertical	360	1.00	-	32.48	24.89	3.69	28.09
PK	806M	32.36	46.00	-13.64	1.07	3	Vertical	360	1.00	-	31.29	25.04	3.89	27.86
PK	937.92M	34.81	46.00	-11.19	2.68	3	Vertical	360	1.00	-	32.13	25.85	4.16	27.33

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



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	49.4M	32.39	40.00	-7.61	-13.24	3	Horizontal	0	1.00	-	45.63	13.40	1.06	27.70
PK	433.52M	27.81	46.00	-18.19	-3.32	3	Horizontal	0	1.00	-	31.13	21.80	2.85	27.97
PK	600.36M	31.03	46.00	-14.97	-1.09	3	Horizontal	0	1.00	-	32.12	23.97	3.37	28.43
PK	730.34M	32.00	46.00	-14.00	0.18	3	Horizontal	0	1.00	-	31.82	24.66	3.66	28.14
PK	786.6M	32.54	46.00	-13.46	0.99	3	Horizontal	0	1.00	-	31.55	25.09	3.83	27.93
PK	939.86M	34.39	46.00	-11.61	2.70	3	Horizontal	0	1.00	-	31.69	25.85	4.17	27.32



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	2.354G	49.29	54.00	-4.71	3	Vertical	228	2.65	-

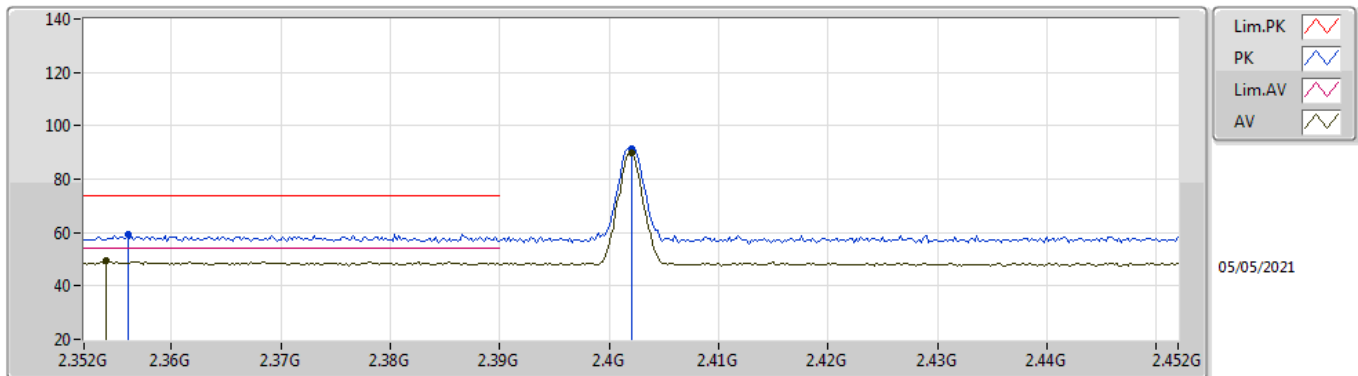


Result

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	2.354G	49.29	54.00	-4.71	3	Vertical	228	2.65	-
2402MHz	Pass	AV	2.402G	89.80	Inf	-Inf	3	Vertical	228	2.65	-
2402MHz	Pass	PK	2.356G	59.18	74.00	-14.82	3	Vertical	228	2.65	-
2402MHz	Pass	PK	2.402G	91.31	Inf	-Inf	3	Vertical	228	2.65	-
2402MHz	Pass	AV	2.3558G	49.15	54.00	-4.85	3	Horizontal	308	2.60	-
2402MHz	Pass	AV	2.402G	87.31	Inf	-Inf	3	Horizontal	308	2.60	-
2402MHz	Pass	PK	2.3626G	59.68	74.00	-14.32	3	Horizontal	308	2.60	-
2402MHz	Pass	PK	2.402G	88.76	Inf	-Inf	3	Horizontal	308	2.60	-
2402MHz	Pass	AV	4.80398G	43.69	54.00	-10.31	3	Vertical	318	1.00	-
2402MHz	Pass	PK	4.80379G	52.79	74.00	-21.21	3	Vertical	318	1.00	-
2402MHz	Pass	AV	4.80336G	43.17	54.00	-10.83	3	Horizontal	308	1.03	-
2402MHz	Pass	PK	4.8039G	50.44	74.00	-23.56	3	Horizontal	308	1.03	-
2440MHz	Pass	AV	2.3444G	49.09	54.00	-4.91	3	Vertical	229	2.92	-
2440MHz	Pass	AV	2.44G	88.67	Inf	-Inf	3	Vertical	229	2.92	-
2440MHz	Pass	AV	2.494G	48.68	54.00	-5.32	3	Vertical	229	2.92	-
2440MHz	Pass	PK	2.3764G	59.45	74.00	-14.55	3	Vertical	229	2.92	-
2440MHz	Pass	PK	2.44G	90.50	Inf	-Inf	3	Vertical	229	2.92	-
2440MHz	Pass	PK	2.4896G	58.89	74.00	-15.11	3	Vertical	229	2.92	-
2440MHz	Pass	AV	2.3572G	49.18	54.00	-4.82	3	Horizontal	305	2.79	-
2440MHz	Pass	AV	2.4404G	79.62	Inf	-Inf	3	Horizontal	305	2.79	-
2440MHz	Pass	AV	2.4868G	48.67	54.00	-5.33	3	Horizontal	305	2.79	-
2440MHz	Pass	PK	2.3588G	58.80	74.00	-15.20	3	Horizontal	305	2.79	-
2440MHz	Pass	PK	2.4396G	89.31	Inf	-Inf	3	Horizontal	305	2.79	-
2440MHz	Pass	PK	2.4844G	58.44	74.00	-15.56	3	Horizontal	305	2.79	-
2440MHz	Pass	AV	4.87993G	43.43	54.00	-10.57	3	Vertical	14	2.72	-
2440MHz	Pass	PK	4.87971G	52.07	74.00	-21.93	3	Vertical	14	2.72	-
2440MHz	Pass	AV	4.88004G	39.70	54.00	-14.30	3	Horizontal	274	2.74	-
2440MHz	Pass	PK	4.87982G	49.24	74.00	-24.76	3	Horizontal	274	2.74	-
2480MHz	Pass	AV	2.48G	87.95	Inf	-Inf	3	Vertical	229	2.80	-
2480MHz	Pass	AV	2.4892G	49.05	54.00	-4.95	3	Vertical	229	2.80	-
2480MHz	Pass	PK	2.48G	89.48	Inf	-Inf	3	Vertical	229	2.80	-
2480MHz	Pass	PK	2.485G	59.13	74.00	-14.87	3	Vertical	229	2.80	-
2480MHz	Pass	AV	2.48G	86.21	Inf	-Inf	3	Horizontal	298	3.00	-
2480MHz	Pass	AV	2.492G	48.90	54.00	-5.10	3	Horizontal	298	3.00	-
2480MHz	Pass	PK	2.48G	87.94	Inf	-Inf	3	Horizontal	298	3.00	-
2480MHz	Pass	PK	2.4888G	59.05	74.00	-14.95	3	Horizontal	298	3.00	-
2480MHz	Pass	AV	4.95996G	47.55	54.00	-6.45	3	Vertical	13	2.77	-
2480MHz	Pass	PK	4.95982G	54.05	74.00	-19.95	3	Vertical	13	2.77	-
2480MHz	Pass	AV	4.95991G	42.78	54.00	-11.22	3	Horizontal	291	2.18	-
2480MHz	Pass	PK	4.95988G	51.45	74.00	-22.55	3	Horizontal	291	2.18	-

**BT-LE(1Mbps)**

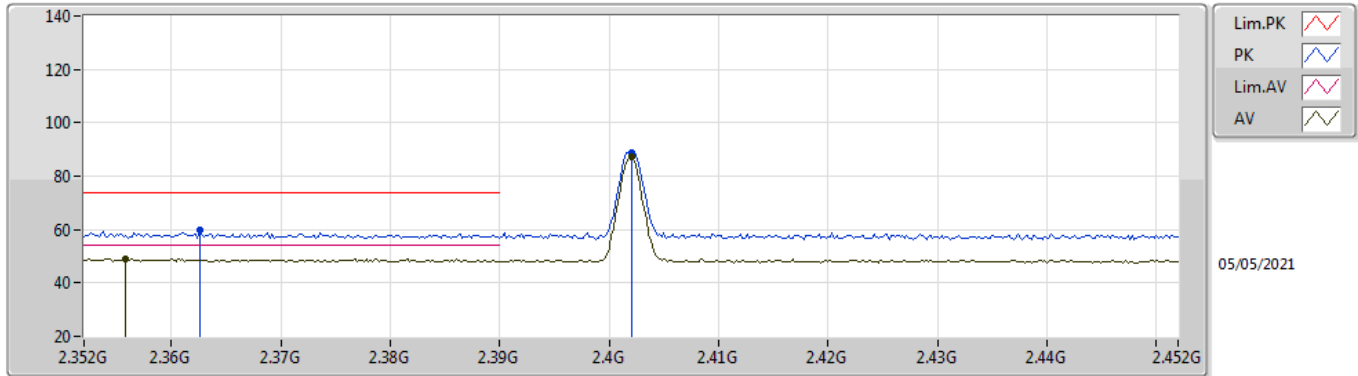
**2402MHz\_TX**



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.354G	49.29	54.00	-4.71	34.93	3	Vertical	228	2.65	-	14.36	27.69	7.24	-
AV	2.402G	89.80	Inf	-Inf	34.85	3	Vertical	228	2.65	-	54.95	27.59	7.26	-
PK	2.356G	59.18	74.00	-14.82	34.93	3	Vertical	228	2.65	-	24.25	27.69	7.24	-
PK	2.402G	91.31	Inf	-Inf	34.85	3	Vertical	228	2.65	-	56.46	27.59	7.26	-

**BT-LE(1Mbps)**

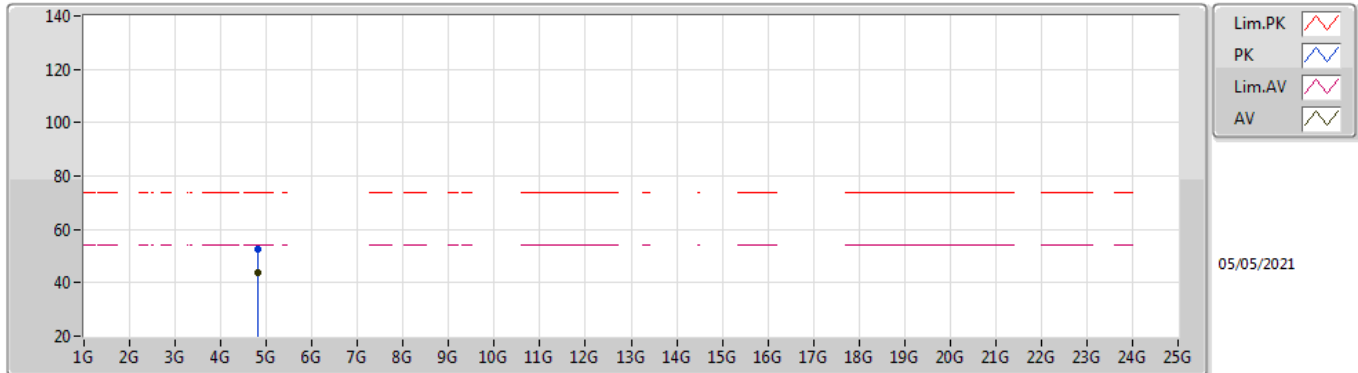
**2402MHz\_TX**



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	2.3558G	49.15	54.00	-4.85	34.93	3	Horizontal	308	2.60	-	14.22	27.69	7.24	-
AV	2.402G	87.31	Inf	-Inf	34.85	3	Horizontal	308	2.60	-	52.46	27.59	7.26	-
PK	2.3626G	59.68	74.00	-14.32	34.91	3	Horizontal	308	2.60	-	24.77	27.67	7.24	-
PK	2.402G	88.76	Inf	-Inf	34.85	3	Horizontal	308	2.60	-	53.91	27.59	7.26	-

### BT-LE(1Mbps)

### 2402MHz\_TX

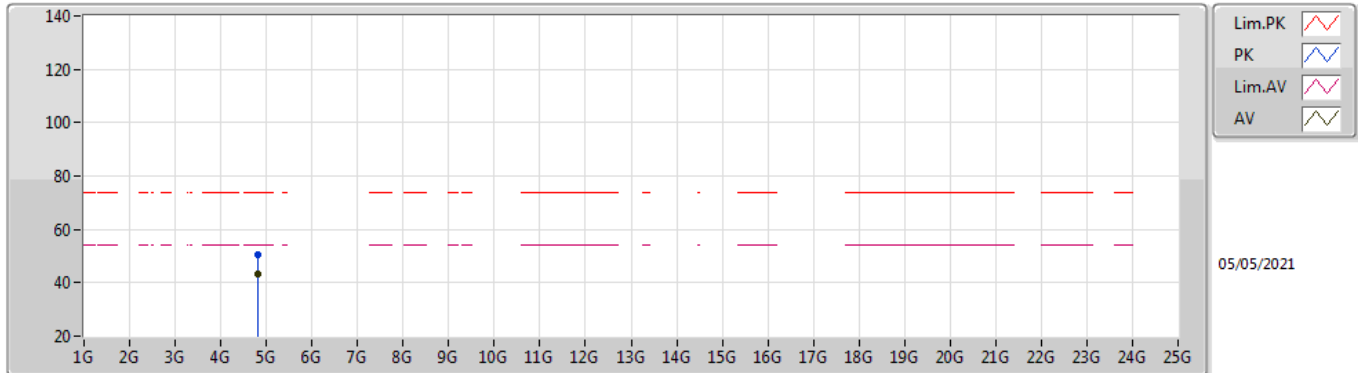


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.80398G	43.69	54.00	-10.31	5.53	3	Vertical	318	1.00	-	38.16	30.92	8.90	34.29
PK	4.80379G	52.79	74.00	-21.21	5.53	3	Vertical	318	1.00	-	47.26	30.92	8.90	34.29



### BT-LE(1Mbps)

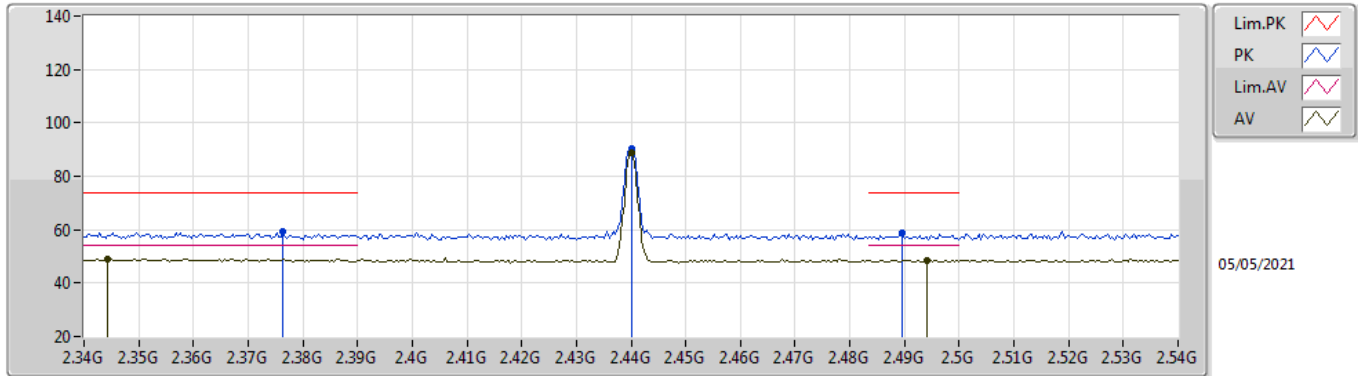
### 2402MHz\_TX



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	4.80336G	43.17	54.00	-10.83	5.52	3	Horizontal	308	1.03	-	37.65	30.91	8.90	34.29
PK	4.8039G	50.44	74.00	-23.56	5.53	3	Horizontal	308	1.03	-	44.91	30.92	8.90	34.29

**BT-LE(1Mbps)**

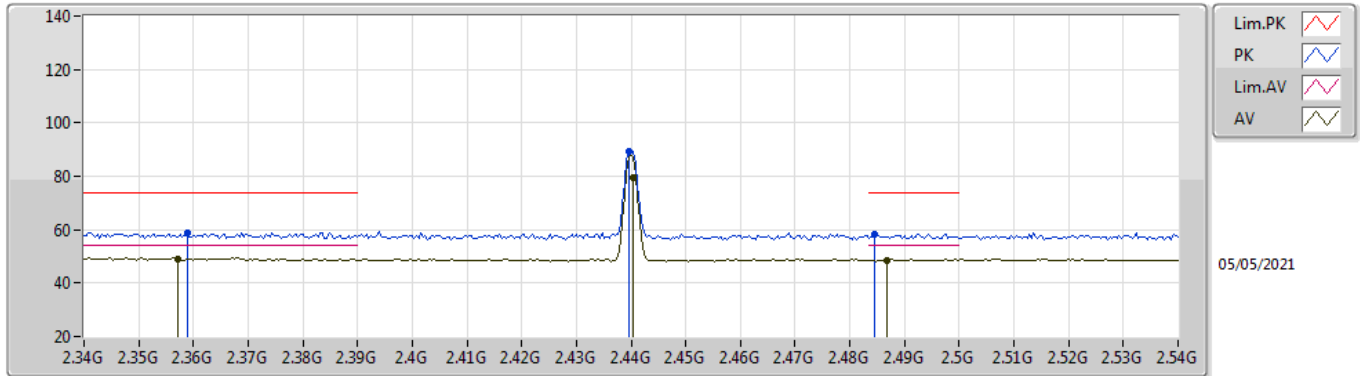
**2440MHz\_TX**



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	2.3444G	49.09	54.00	-4.91	34.95	3	Vertical	229	2.92	-	14.14	27.72	7.23	-
AV	2.44G	88.67	Inf	-Inf	34.73	3	Vertical	229	2.92	-	53.94	27.44	7.29	-
AV	2.494G	48.68	54.00	-5.32	34.74	3	Vertical	229	2.92	-	13.94	27.40	7.34	-
PK	2.3764G	59.45	74.00	-14.55	34.90	3	Vertical	229	2.92	-	24.55	27.65	7.25	-
PK	2.44G	90.50	Inf	-Inf	34.73	3	Vertical	229	2.92	-	55.77	27.44	7.29	-
PK	2.4896G	58.89	74.00	-15.11	34.73	3	Vertical	229	2.92	-	24.16	27.40	7.33	-

**BT-LE(1Mbps)**

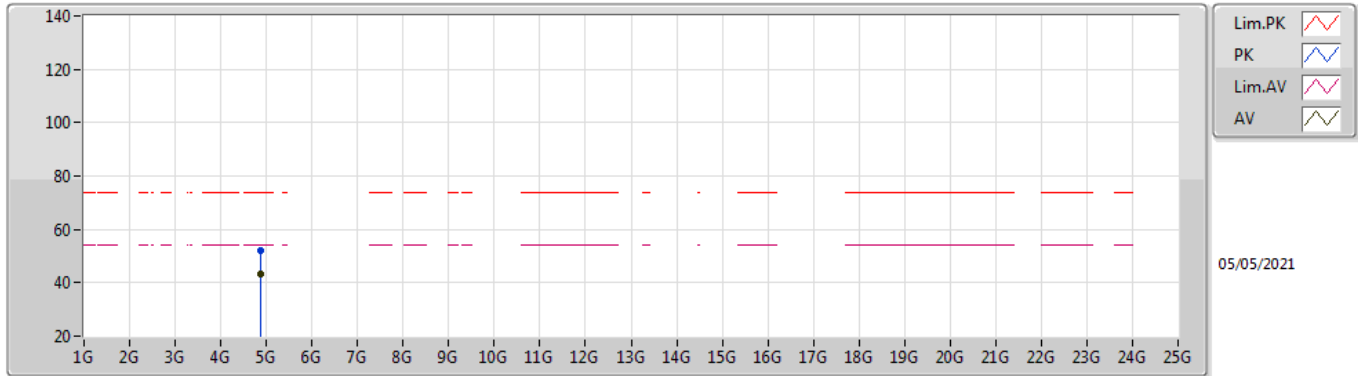
**2440MHz\_TX**



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	2.3572G	49.18	54.00	-4.82	34.93	3	Horizontal	305	2.79	-	14.25	27.69	7.24	-
AV	2.4404G	79.62	Inf	-Inf	34.73	3	Horizontal	305	2.79	-	44.89	27.44	7.29	-
AV	2.4868G	48.67	54.00	-5.33	34.73	3	Horizontal	305	2.79	-	13.94	27.40	7.33	-
PK	2.3588G	58.80	74.00	-15.20	34.92	3	Horizontal	305	2.79	-	23.88	27.68	7.24	-
PK	2.4396G	89.31	Inf	-Inf	34.73	3	Horizontal	305	2.79	-	54.58	27.44	7.29	-
PK	2.4844G	58.44	74.00	-15.56	34.73	3	Horizontal	305	2.79	-	23.71	27.40	7.33	-

### BT-LE(1Mbps)

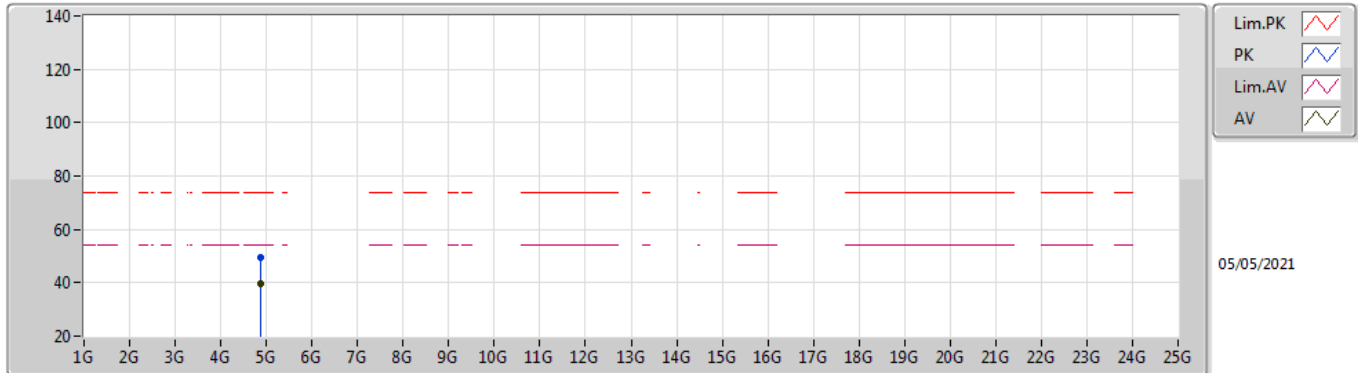
### 2440MHz\_TX



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	4.87993G	43.43	54.00	-10.57	5.74	3	Vertical	14	2.72	-	37.69	31.04	8.96	34.26
PK	4.87971G	52.07	74.00	-21.93	5.74	3	Vertical	14	2.72	-	46.33	31.04	8.96	34.26

### BT-LE(1Mbps)

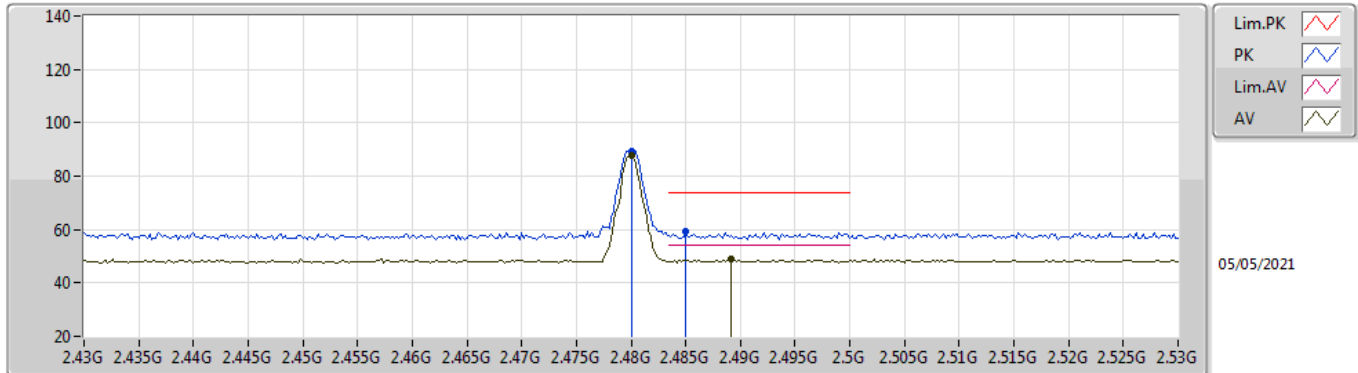
### 2440MHz\_TX



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	4.88004G	39.70	54.00	-14.30	5.74	3	Horizontal	274	2.74	-	33.96	31.04	8.96	34.26
PK	4.87982G	49.24	74.00	-24.76	5.74	3	Horizontal	274	2.74	-	43.50	31.04	8.96	34.26

**BT-LE(1Mbps)**

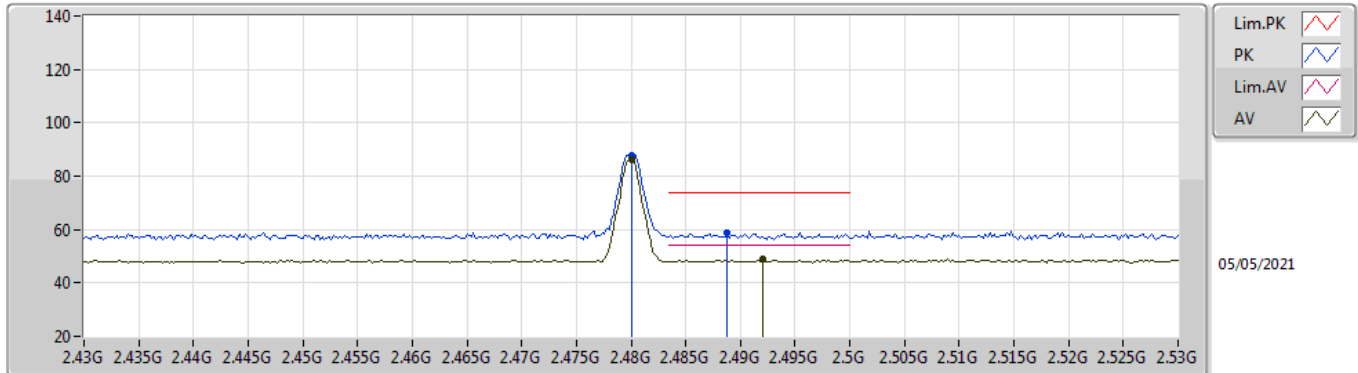
**2480MHz\_TX**



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	87.95	Inf	-Inf	34.72	3	Vertical	229	2.80	-	53.23	27.40	7.32	-
AV	2.4892G	49.05	54.00	-4.95	34.73	3	Vertical	229	2.80	-	14.32	27.40	7.33	-
PK	2.48G	89.48	Inf	-Inf	34.72	3	Vertical	229	2.80	-	54.76	27.40	7.32	-
PK	2.485G	59.13	74.00	-14.87	34.73	3	Vertical	229	2.80	-	24.40	27.40	7.33	-

**BT-LE(1Mbps)**

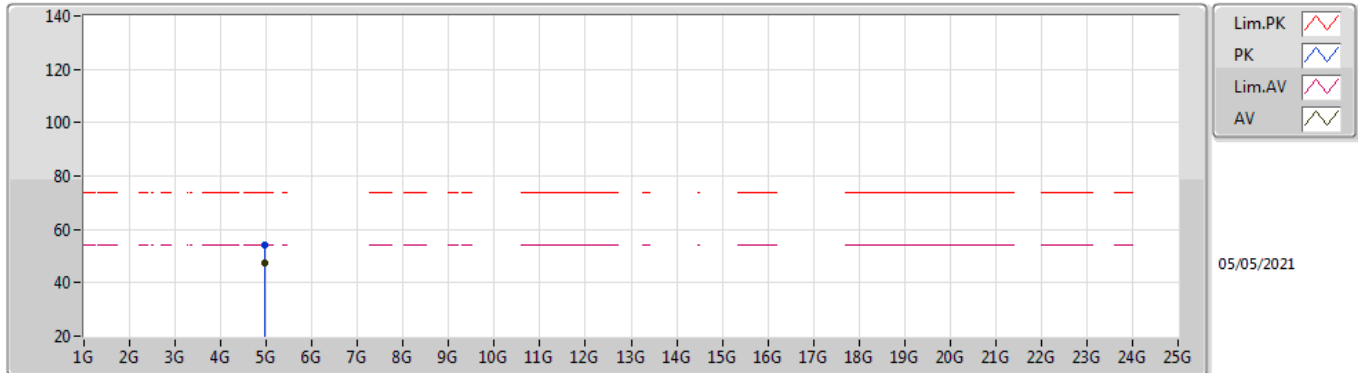
**2480MHz\_TX**



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	86.21	Inf	-Inf	34.72	3	Horizontal	298	3.00	-	51.49	27.40	7.32	-
AV	2.492G	48.90	54.00	-5.10	34.73	3	Horizontal	298	3.00	-	14.17	27.40	7.33	-
PK	2.48G	87.94	Inf	-Inf	34.72	3	Horizontal	298	3.00	-	53.22	27.40	7.32	-
PK	2.4888G	59.05	74.00	-14.95	34.73	3	Horizontal	298	3.00	-	24.32	27.40	7.33	-

### BT-LE(1Mbps)

### 2480MHz\_TX

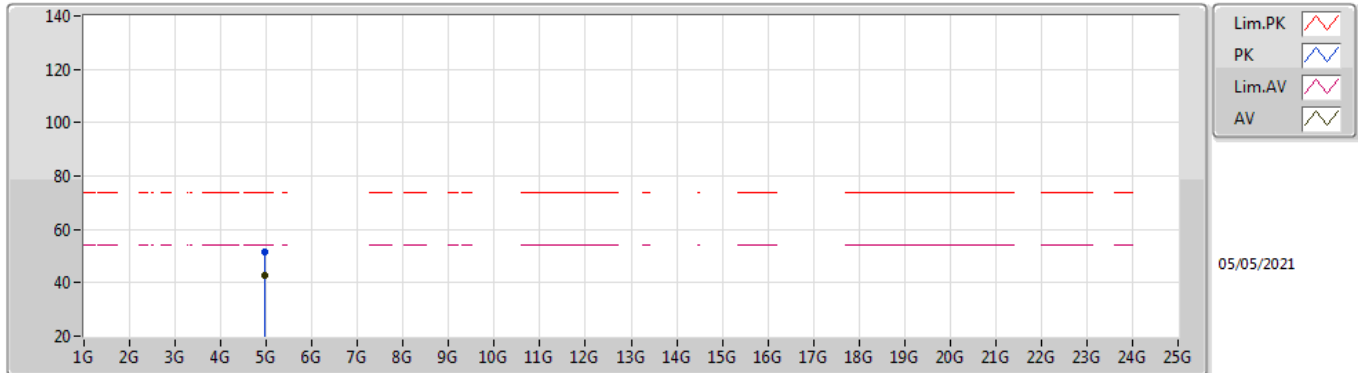


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.95996G	47.55	54.00	-6.45	6.01	3	Vertical	13	2.77	-	41.54	31.22	9.02	34.23
PK	4.95982G	54.05	74.00	-19.95	6.01	3	Vertical	13	2.77	-	48.04	31.22	9.02	34.23



### 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	4.95991G	42.78	54.00	-11.22	6.01	3	Horizontal	291	2.18	-	36.77	31.22	9.02	34.23
PK	4.95988G	51.45	74.00	-22.55	6.01	3	Horizontal	291	2.18	-	45.44	31.22	9.02	34.23