Testing Laboratory 3785

FCC Radio Test Report

FCC ID	:	**Z8H89FT0066**
Equipment	:	**XV2-2T Outdoor Wi-Fi 6 Access point**
Brand Name	:	**Cambium Networks**
Model Name	:	**XV2-2T**
Applicant	:	**Cambium Networks Inc. 3800 Golf Road Suite 360 Rolling Meadows IL United States 60008**
Manufacturer	:	**Lite-On Network Communication (Dongguan) Limited No.30 QingXi-Keji Road, QingXi Town, DongGuan City, Guangdong Province, P.R. China**
Standard	:	**47 CFR FCC Part 15.247**

The product was received on Apr. 09, 2021, and testing was started from Apr. 09, 2021 and completed on Jun. 24, 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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History of this test report

Report No.	Version	Description	Issued Date
FR142329AL	01	Initial issue of report	Sep. 08, 2021

Summary of Test Result

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

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

Reviewed by: Sam Tsai
Report Producer: 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

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

1.1.2 Antenna Information

Ant.	Brand	Model Name	Antenna Type	Connector	Support
1	LYNwave	Snow Leopard	PIFA antenna	I-PEX	2.4G
2	LYNwave	Snow Leopard	PIFA antenna	I-PEX	2.4G
3	LYNwave	Snow Leopard	PIFA antenna	I-PEX	5G
4	LYNwave	Snow Leopard	PIFA antenna	I-PEX	5G
5	LYNwave	Snow Leopard	PIFA antenna	I-PEX	BT

Ant.	Port	Gain (dBi)					
		2.4G	5G				BT
			U-NII-1	U-NII-2A	U-NII-2C	U-NII-3	
1	1	5.2	-	-	-	-	-
2	2	5.3	-	-	-	-	-
3	1	-	8.1	8.1	9.3	9.0	-
4	2	-	8.6	8.6	8.9	8.6	-
5	1	-	-	-	-	-	5.6

Note 1: The EUT has five antennas.

For 2.4GHz function:

For IEEE 802.11 b/g/n/VHT/ax mode (2TX/2RX)

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

For BT function:

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

Ant. 5 (port 1) could transmit/receive.

For 5GHz function:

For IEEE 802.11 a/n/ac/ax mode (2TX/2RX)

Ant. 3 (port 1) and Ant. 4 (port 2) could transmit/receive simultaneously.

1.1.3 Table for Explanation of Flash and 2nd Source

Object/part Description (location)	Main source (Sku 1)	2nd source (Sku 2)
MOSFET (QB5)	Brand: Fairchild	Brand: APEC
	Model: FET N 150V	Model : FET N 150V
MOSFET (QB10,QB13)	Brand: Fairchild	Brand : APEC
	Model: FET N 100V	Model : FET N 100V
MOSFET (QB7)	Brand:TI	Brand : APEC
	Model: FET N 60V	Model : FET N 60V
FLASH MEMORY (U5)	FLASH MEMORY : 2G bit	FLASH MEMORY :2G bit
	Flash Brand: MICRON	Flash Brand: MXIC
	Flash Model: Nand flash	Flash Model: Nand flash

From the above Skus, Main source (Sku 1) was selected as representative model for the test and its data was recorded in this report.

1.1.4 EUT Information

Operational Condition				
EUT Power Type	From PoE			
EUT Function	☒	Point-to-multipoint	☐	Point-to-point
Type of EUT				
☐	Stand-alone			
☐	Combined (EUT where the radio part is fully integrated within another device)			
	Combined Equipment - Brand Name / Model No.:	…		
☒	Plug-in radio (EUT intended for a variety of host systems)			
	Host System - Brand Name:Cambium Networks / Model No.: XV2-2T			
☐	Other:			

1.1.5 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
BT-LE(1Mbps)	0.63	2.01	409.375u	3k

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

1.2 Testing Applied Standards

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

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

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

- KDB 558074 D01 v05r02
- KDB 414788 D01 v01r01

1.3 Testing Location Information

Test Lab.：Sporton International Inc. Hsinhua Laboratory				
☒ Hsinhua	**ADD:** No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333411, Taiwan (R.O.C.)			
(TAF: 3785**)**	**TEL:** 886-3-327-3456		**FAX:** 886-3-327-0973	
Test site Designation No. TW3785 with FCC.				
Test Condition	**Test Site No.**	**Test Engineer**	**Test Environment**	**Test Date**
AC Conduction	CO04-HY	Billy Wang	21.6~22.4°C / 59~60%	24/Jun/2021
RF Conducted	TH07-HY	Alan Chien	20.1~26.9°C / 50~60%	09/Apr/2021~08/Jun/2021
☒ Wen 33rd.St.	**ADD:** No.14-1, Ln. 19, Wen 33rd St., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.)			
(TAF: 3785**)**	**TEL:** 886-3-318-0787		**FAX:** 886-3-318-0287	
Test site Designation No. TW0008 with FCC.				
Test Condition	**Test Site No.**	**Test Engineer**	**Test Environment**	**Test Date**
Radiated	03CH09-HY	Daniel Hsu	21.5~24.3°C / 42~60%	12/Apr/2021~23/Jun/2021

1.4 Measurement Uncertainty

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

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

2 Test Configuration of EUT

2.1 Test Channel Mode

Test Software Version	Dos6.1

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

2.2 The Worst Case Measurement Configuration

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

The Worst Case Mode for Following Conformance Tests	
Tests Item	DTS Bandwidth Maximum Conducted Output Power Power Spectral Density Emissions in Non-restricted Frequency Bands
Test Condition	Conducted measurement at transmit chains

The Worst Case Mode for Following Conformance Tests	
Tests Item	Emissions in Restricted Frequency Bands
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.
Operating Mode < 1GHz	CTX
1	PoE Mode
Operating Mode > 1GHz	CTX
Orthogonal Planes of EUT	**Y Plane**
	
Worst Planes of EUT	V

The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis
Operating Mode	CTX
1	Bluetooth+WLAN 2.4GHz+WLAN 5GHz
Refer to Sporton Test Report No.: FA142329 for Co-location RF Exposure Evaluation.	

2.3 Accessories

Accessories				
Mount kit	Brand Name	-	Model Name	-

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

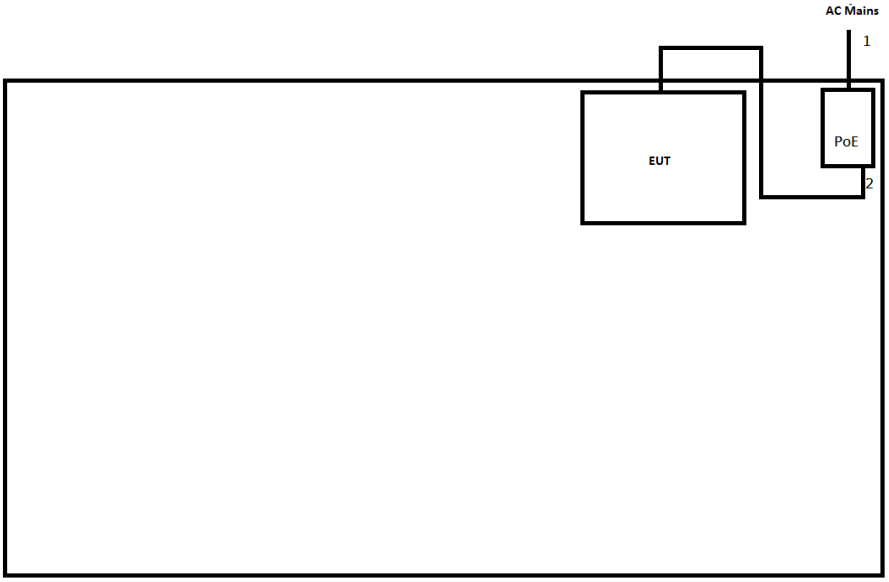
2.4 Support Equipment

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

Support Equipment –AC Conduction and Radiated					
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**	**Remark**
1	Client	-	-	-	Provided by Customer / remote
2	Notebook	HP	E5520	-	remote

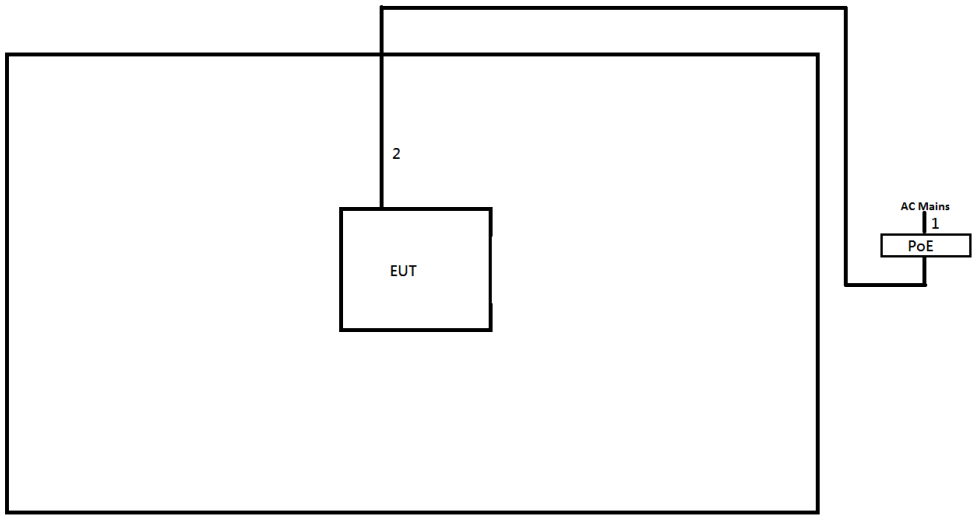
2.5 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test



Item	Connection	Shielded	Length(m)	Remark
1	AC Power cable	No	1.8	-
2	RJ45 cable	No	10.0	-

Test Setup Diagram - Radiated Test



Item	Connection	Shielded	Length(m)	Remark
1	AC Power cable	No	1.8	-
2	RJ45 cable	No	10	-

3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

AC Power-line Conducted Emissions Limit		
Frequency Emission (MHz)	**Quasi-Peak**	**Average**
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50
Note 1: * Decreases with the logarithm of the frequency.		

3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

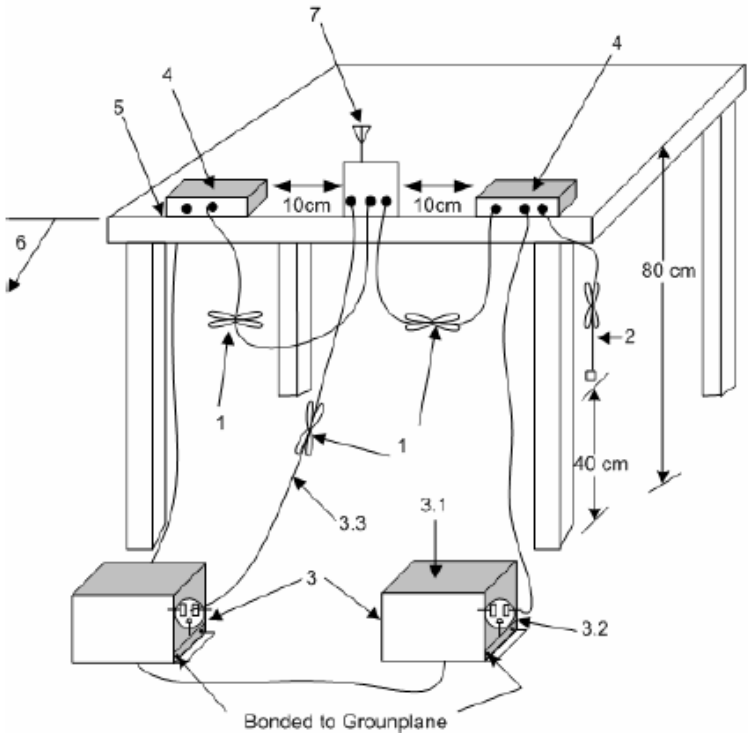
Test Method
▪ Refer as ANSI C63.10-2013, clause 6.2 foray power-line conducted emissions.

3.1.4 Measurement Results Calculation

The measured Level is calculated using:
Corrected Reading: Raw(Read Level) +LISN(LISN Factor) + CL(Cable Loss) + AT(Attenuator).

3.1.5 Test Setup

AC Power-line Conducted Emissions



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

3.1.6 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A

3.2 DTS Bandwidth

3.2.1 6dB Bandwidth Limit

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

3.2.2 Measuring Instruments

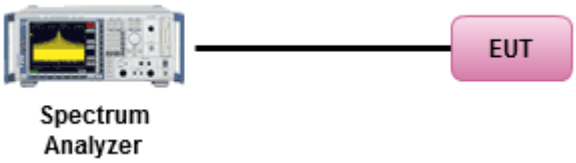
Refer a test equipment and calibration data table in this test report.

3.2.3 Test Procedures

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

3.2.4 Test Setup

Emission Bandwidth



3.2.5 Test Result of Emission Bandwidth

Refer as Appendix B

3.3 Maximum Conducted Output Power

3.3.1 Maximum Conducted Output Power Limit

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

3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

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

3.3.4 Test Setup

Maximum Conducted Output Power (Power Meter)


3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix C

3.4 Power Spectral Density

3.4.1 Power Spectral Density Limit

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

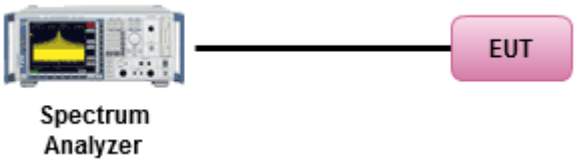
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

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

3.4.4 Test Setup

Power Spectral Density


3.4.5 Test Result of Power Spectral Density

Refer as Appendix D

3.5 Emissions in Non-restricted Frequency Bands

3.5.1 Emissions in Non-restricted Frequency Bands Limit

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

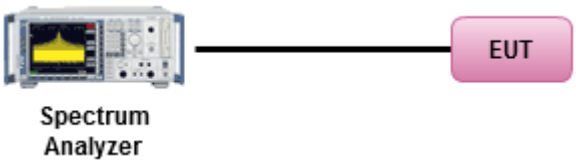
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

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

3.5.4 Test Setup

Emissions in Non-restricted Frequency Bands


3.5.5 Test Result of Emissions in Non-restricted Frequency Bands

Refer as Appendix E

3.6 Emissions in Restricted Frequency Bands

3.6.1 Emissions in Restricted Frequency Bands Limit

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

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

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

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

3.6.2 Measuring Instruments

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

3.6.3 Test Procedures

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

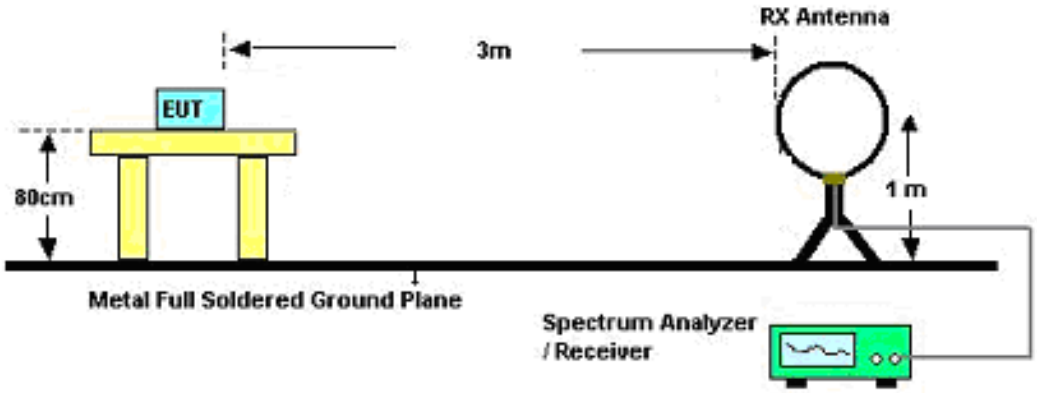
3.6.4 Measurement Results Calculation

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

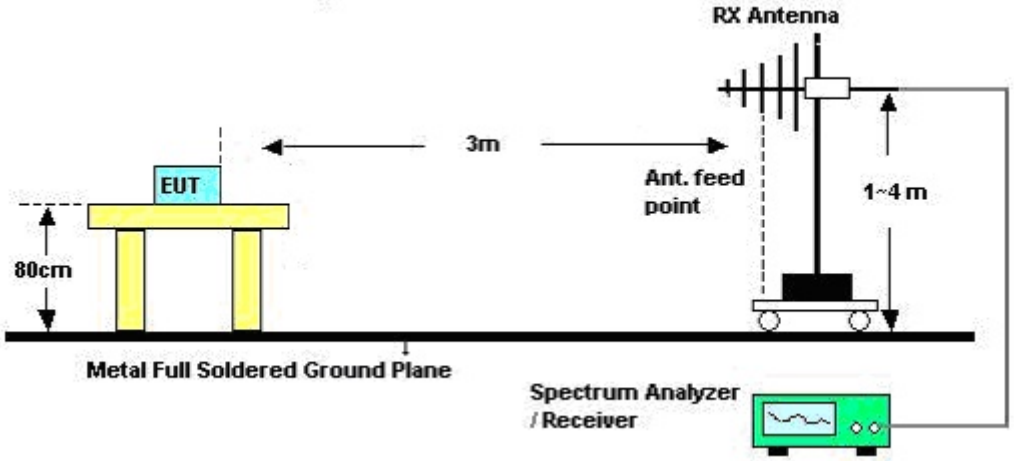
3.6.5 Test Setup

Emissions in Restricted Frequency Bands

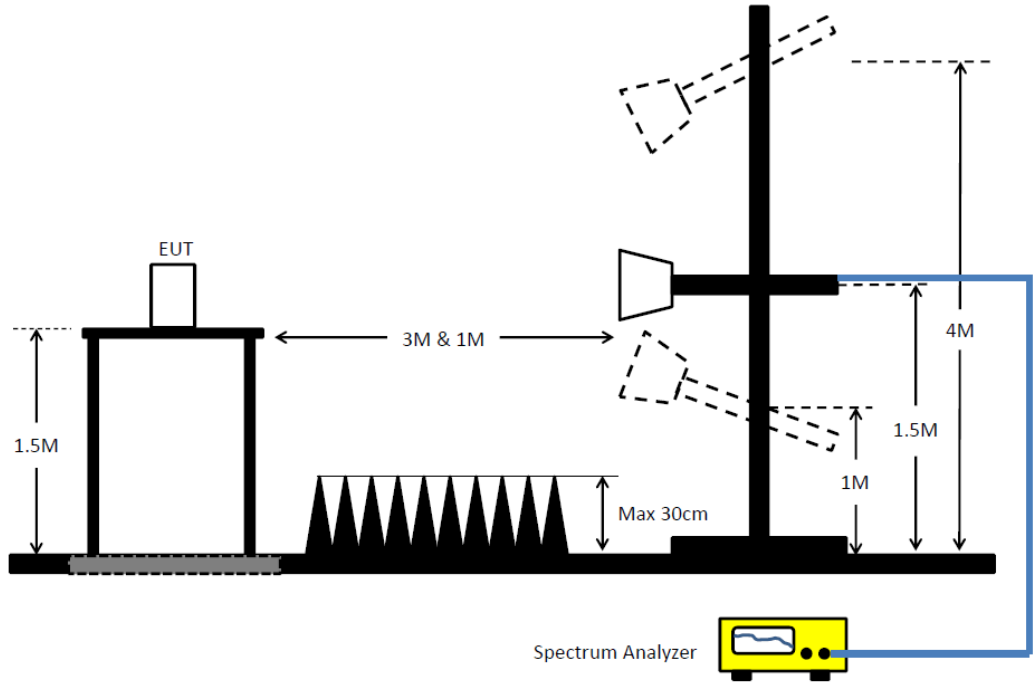
9kHz ~30MHz



30MHz~1GHz



Above 1GHz



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

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

3.6.7 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix F

4 Test Equipment and Calibration Data

Instrument for AC Conduction

Instrument	Manufacturer /Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
EMI Test Receiver	R&S	ESR	102052	9kHz ~ 3.6GHz	19/Apr/2021	18/Apr/2022
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 Puls e Limiter	SCHWARZBEC K	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	101515	10Hz~40GHz	26/Mar/2021	25/Mar/2022
SMB100A Signal Generator	R&S	SMB100A03	181147	100kHz~40GHz	20/Oct/2020	19/Oct/2021
Pulse Sensor	Anritsu	MA2411B	1339407	300MHz~40GHz	27/Nov/2020	26/Nov/2021
Power Meter	Anritsu	ML2495A	1517010	300MHz~40GHz	27/Nov/2020	26/Nov/2021

Instrument for Radiated Test

Instrument	Manufacturer /Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	30MHz~1GHz 3m	26/Mar/2021	25/Mar/2022
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	1GHz~18GHz 3m	18/Mar/2021	17/Mar/2022
EXA Signal Analyzer	KEYSIGHT	N9010A	MY54200885	10Hz~44GHz	11/Aug/2020	10/Aug/2021
Amplifier	EMC	EMC9135	980232	9kHz~1GHz	12/Apr/2021	11/Apr/2022
Microwave Preamplifier	Agilent	8449B	3008A02096	1GHz~26.5GHz	24/Jul/2020	23/Jul/2021
Bilog Antenna & 5dB Attenuator	TESEQ & MTJ	CBL6111D&MTJ 6102-05	35418 & 3	30MHz~1GHz	06/Sep/2020	05/Sep/2021
Double Ridged Guide Horn Antenna	COM-POWER	AH-118	071028	1GHz~18GHz	09/Jun/2020	08/Jun/2021
RF Cable-low	Jye Bao	RG142	CB031+324530/ 4	9kHz~30MHz	03/Sep/2020	02/Sep/2021
RF Cable-low	Jye Bao	RG142	CB031+324530/ 4	30MHz~1GHz	09/Feb/2021	08/Feb/2022
RF CABLE 5m+3m+1m	HUBER+SUHNER	SUCOFLEX104	SN MY25918/4+ SN MY39478/4 + SN 324530/4	1GHz~40GHz	15/Aug/2020	14/Aug/2021
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA 9170221	18GHz~40GHz	11/Mar/2021	10/Mar/2022
Microwave Premplifier	EMC INSTRUMENTS	EM18G40G	060604	18GHz ~ 40GHz	09/Mar/2021	08/Mar/2022
Preamplifier	MITEQ	TTA1840-35-HG	1864481	18GHz~40GHz	18/Mar/2021	17/Mar/2022
Loop Antenna	TESEQ	HLA 6120	31244	9kHz~30MHz	16/Mar/2021	15/Mar/2022
EMI Test Receiver	R&S	ESR3	102052	9kHz~3.6GHz	19/Apr/2021	18/Apr/2022

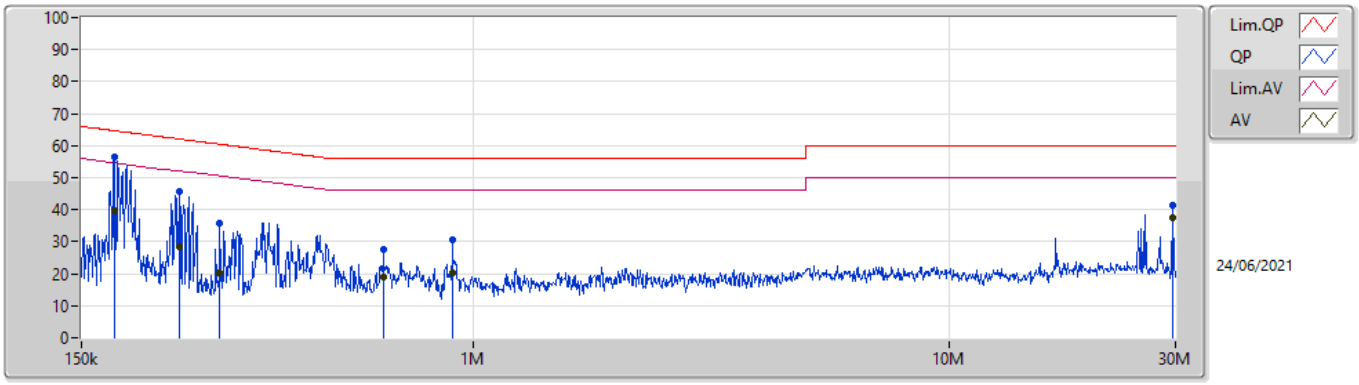
Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	AV	29.616M	43.84	50.00	-6.16	Neutral

Mode config

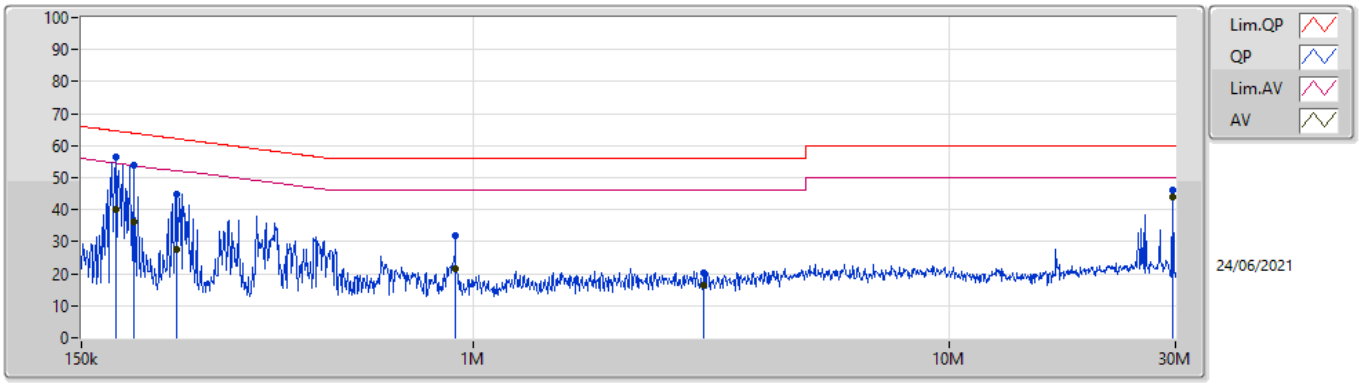
Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition	Comments
Mode 1	Pass	QP	175.97k	56.28	64.68	-8.40	Line	-
Mode 1	Pass	AV	175.97k	39.66	54.68	-15.02	Line	-
Mode 1	Pass	QP	241.214k	45.87	62.06	-16.19	Line	-
Mode 1	Pass	AV	241.214k	28.52	52.06	-23.54	Line	-
Mode 1	Pass	QP	293.329k	35.87	60.44	-24.57	Line	-
Mode 1	Pass	AV	293.329k	20.22	50.44	-30.22	Line	-
Mode 1	Pass	QP	646.592k	27.53	56.00	-28.47	Line	-
Mode 1	Pass	AV	646.592k	18.80	46.00	-27.20	Line	-
Mode 1	Pass	QP	907.812k	30.57	56.00	-25.43	Line	-
Mode 1	Pass	AV	907.812k	20.15	46.00	-25.85	Line	-
Mode 1	Pass	QP	29.616M	41.24	60.00	-18.76	Line	-
Mode 1	Pass	AV	29.616M	37.31	50.00	-12.69	Line	-
Mode 1	Pass	QP	177.381k	56.48	64.60	-8.12	Neutral	-
Mode 1	Pass	AV	177.381k	40.29	54.60	-14.31	Neutral	-
Mode 1	Pass	QP	192.892k	54.06	63.92	-9.86	Neutral	-
Mode 1	Pass	AV	192.892k	36.24	53.92	-17.68	Neutral	-
Mode 1	Pass	QP	238.343k	44.84	62.16	-17.32	Neutral	-
Mode 1	Pass	AV	238.343k	27.61	52.16	-24.55	Neutral	-
Mode 1	Pass	QP	915.089k	31.75	56.00	-24.25	Neutral	-
Mode 1	Pass	AV	915.089k	21.74	46.00	-24.26	Neutral	-
Mode 1	Pass	QP	3.055M	20.42	56.00	-35.58	Neutral	-
Mode 1	Pass	AV	3.055M	16.37	46.00	-29.63	Neutral	-
Mode 1	Pass	QP	29.616M	46.32	60.00	-13.68	Neutral	-
Mode 1	Pass	AV	29.616M	43.84	50.00	-6.16	Neutral	-

Conducted Emissions at Powerline_Mode 1



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	175.97k	56.28	64.68	-8.40	19.62	Line	-	36.66	9.68	0.04	9.90
AV	175.97k	39.66	54.68	-15.02	19.62	Line	-	20.04	9.68	0.04	9.90
QP	241.214k	45.87	62.06	-16.19	19.63	Line	-	26.24	9.68	0.05	9.90
AV	241.214k	28.52	52.06	-23.54	19.63	Line	-	8.89	9.68	0.05	9.90
QP	293.329k	35.87	60.44	-24.57	19.62	Line	-	16.25	9.67	0.05	9.90
AV	293.329k	20.22	50.44	-30.22	19.62	Line	-	0.60	9.67	0.05	9.90
QP	646.592k	27.53	56.00	-28.47	19.59	Line	-	7.94	9.67	0.07	9.85
AV	646.592k	18.80	46.00	-27.20	19.59	Line	-	-0.79	9.67	0.07	9.85
QP	907.812k	30.57	56.00	-25.43	19.56	Line	-	11.01	9.67	0.08	9.81
AV	907.812k	20.15	46.00	-25.85	19.56	Line	-	0.59	9.67	0.08	9.81
QP	29.616M	41.24	60.00	-18.76	19.77	Line	-	21.47	9.53	0.34	9.90
AV	29.616M	37.31	50.00	-12.69	19.77	Line	-	17.54	9.53	0.34	9.90

Conducted Emissions at Powerline_Mode 1



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	177.381k	56.48	64.60	-8.12	19.62	Neutral	-	36.86	9.68	0.04	9.90
AV	177.381k	40.29	54.60	-14.31	19.62	Neutral	-	20.67	9.68	0.04	9.90
QP	192.892k	54.06	63.92	-9.86	19.62	Neutral	-	34.44	9.68	0.04	9.90
AV	192.892k	36.24	53.92	-17.68	19.62	Neutral	-	16.62	9.68	0.04	9.90
QP	238.343k	44.84	62.16	-17.32	19.63	Neutral	-	25.21	9.68	0.05	9.90
AV	238.343k	27.61	52.16	-24.55	19.63	Neutral	-	7.98	9.68	0.05	9.90
QP	915.089k	31.75	56.00	-24.25	19.56	Neutral	-	12.19	9.67	0.08	9.81
AV	915.089k	21.74	46.00	-24.26	19.56	Neutral	-	2.18	9.67	0.08	9.81
QP	3.055M	20.42	56.00	-35.58	19.67	Neutral	-	0.75	9.69	0.12	9.86
AV	3.055M	16.37	46.00	-29.63	19.67	Neutral	-	-3.30	9.69	0.12	9.86
QP	29.616M	46.32	60.00	-13.68	19.94	Neutral	-	26.38	9.70	0.34	9.90
AV	29.616M	43.84	50.00	-6.16	19.94	Neutral	-	23.90	9.70	0.34	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)	710k	1.031M	1M03F1D	697.5k	1.027M

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

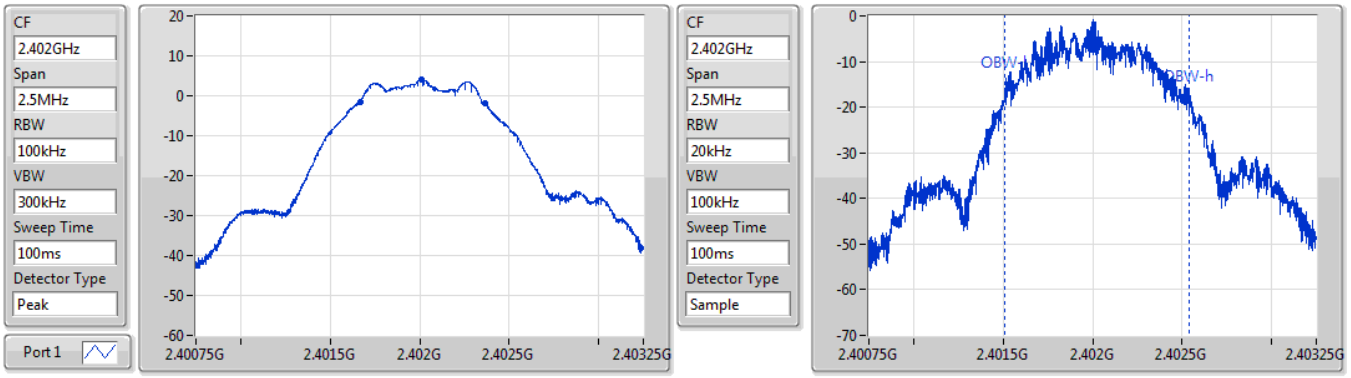
Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	697.5k	1.029M
2440MHz	Pass	500k	702.5k	1.027M
2480MHz	Pass	500k	710k	1.031M

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

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

2402MHz

02/06/2021

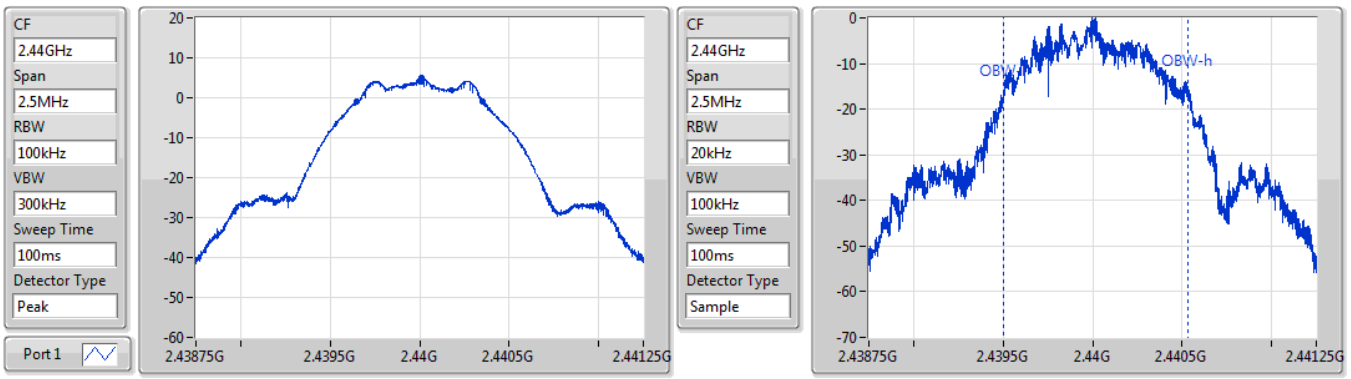


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
697.5k	2.401666G	2.402364G	1.029M	2.40151G	2.40254G	500k	1

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

2440MHz

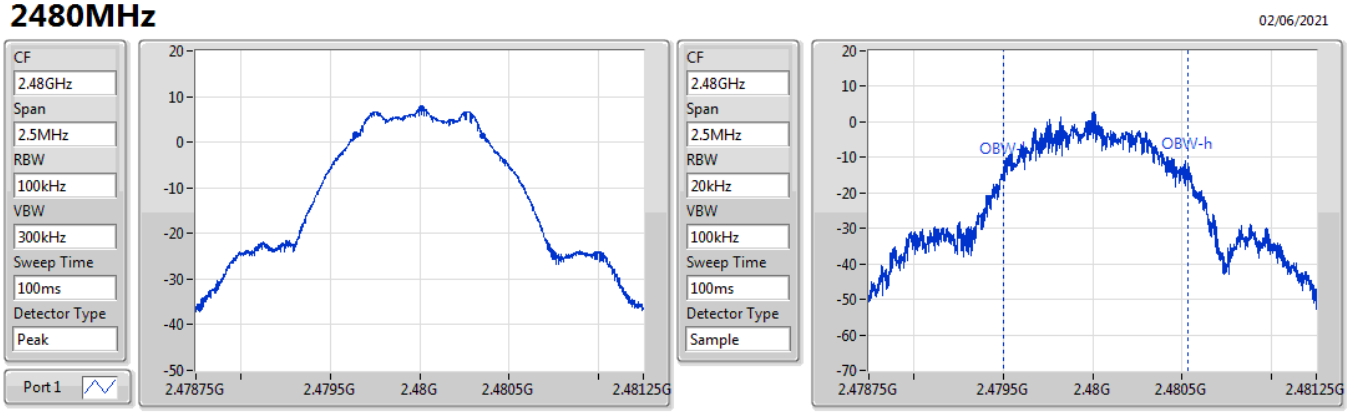
02/06/2021



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
702.5k	2.439648G	2.44035G	1.027M	2.439504G	2.440531G	500k	1

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

2480MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
710k	2.479641G	2.480351G	1.031M	2.479501G	2.480532G	500k	1

Summary

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	7.71	0.00590

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	5.60	4.25	30.00
2440MHz	Pass	5.60	5.13	30.00
2480MHz	Pass	5.60	7.71	30.00

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

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE(1Mbps)	-8.37

RBW = 3kHz;

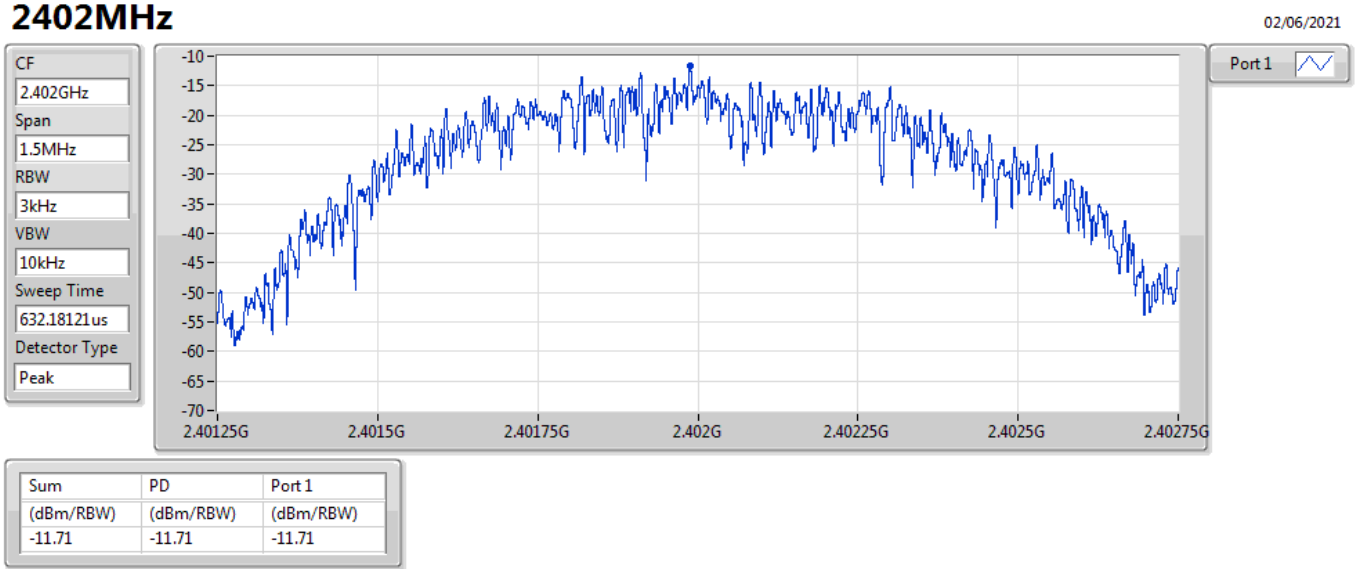
Result

Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	5.60	-11.71	8.00
2440MHz	Pass	5.60	-10.80	8.00
2480MHz	Pass	5.60	-8.37	8.00

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

BT-LE(1Mbps) PSD

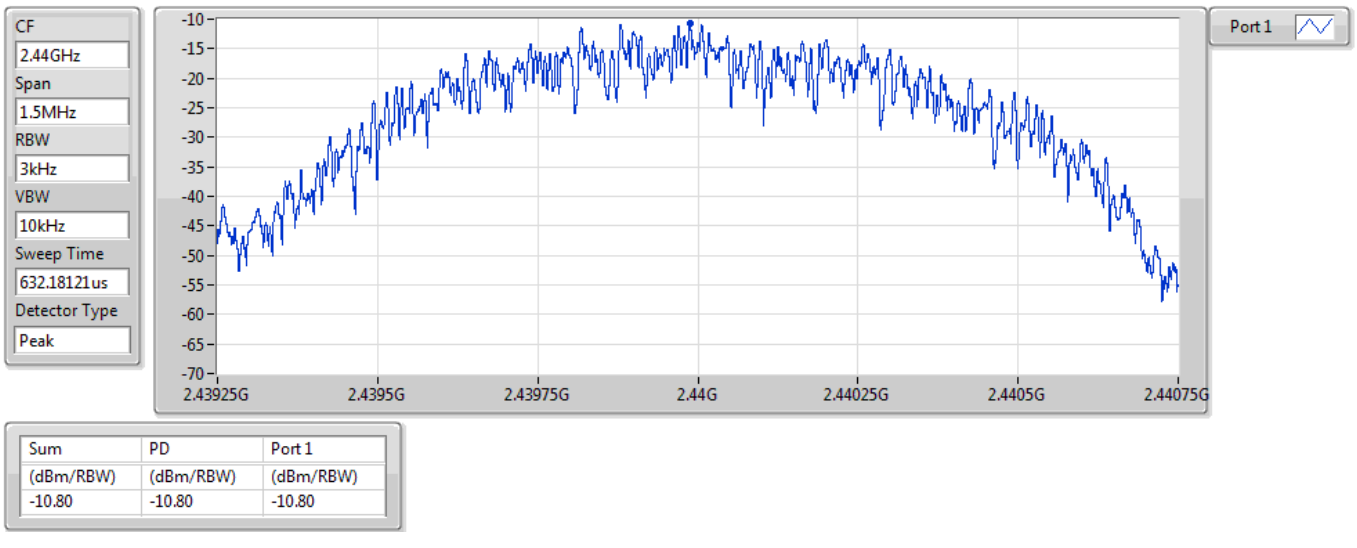
2402MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-11.71	-11.71	-11.71

BT-LE(1Mbps) PSD

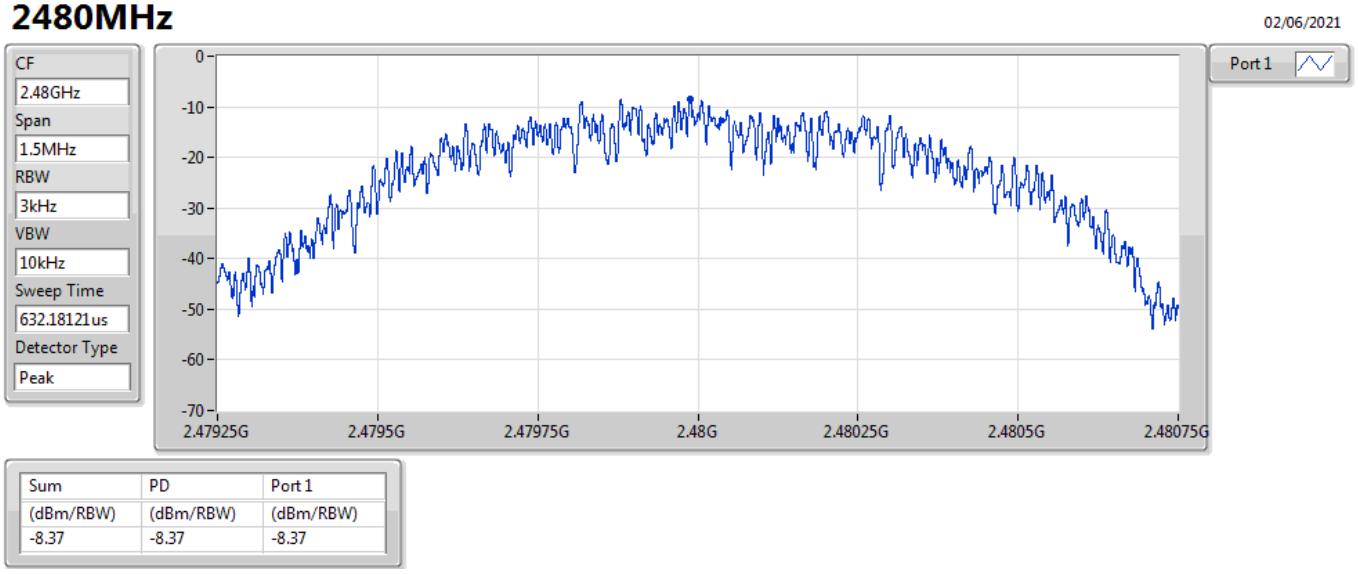
2440MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-10.80	-10.80	-10.80

BT-LE(1Mbps) **PSD**

2480MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-8.37	-8.37	-8.37

Summary

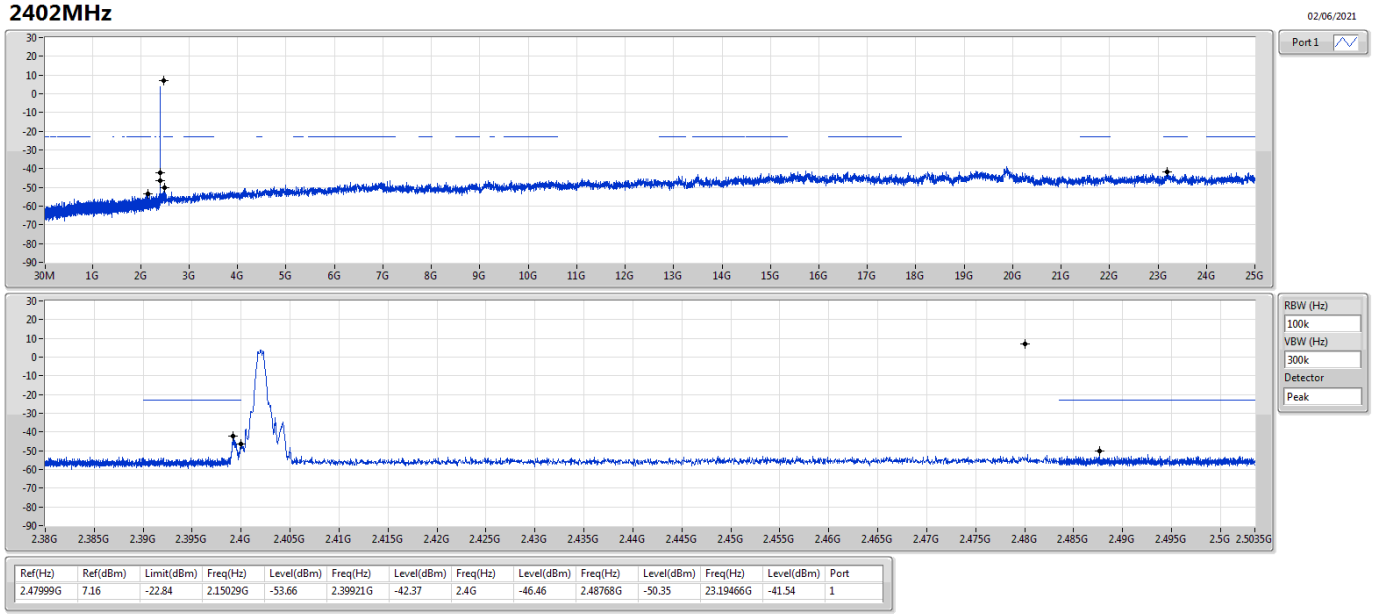
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	2.47999G	7.16	-22.84	2.15029G	-53.66	2.39921G	-42.37	2.4G	-46.46	2.48768G	-50.35	23.19466G	-41.54	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	7.16	-22.84	2.15029G	-53.66	2.39921G	-42.37	2.4G	-46.46	2.48768G	-50.35	23.19466G	-41.54	1
2440MHz	Pass	2.47999G	7.16	-22.84	2.30039G	-54.15	2.39913G	-52.91	2.4835G	-55.91	2.49497G	-51.84	16.77753G	-41.06	1
2480MHz	Pass	2.47999G	7.16	-22.84	1.96053G	-54.18	2.39942G	-53.34	2.4835G	-54.97	2.48537G	-49.65	16.40352G	-41.09	1

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

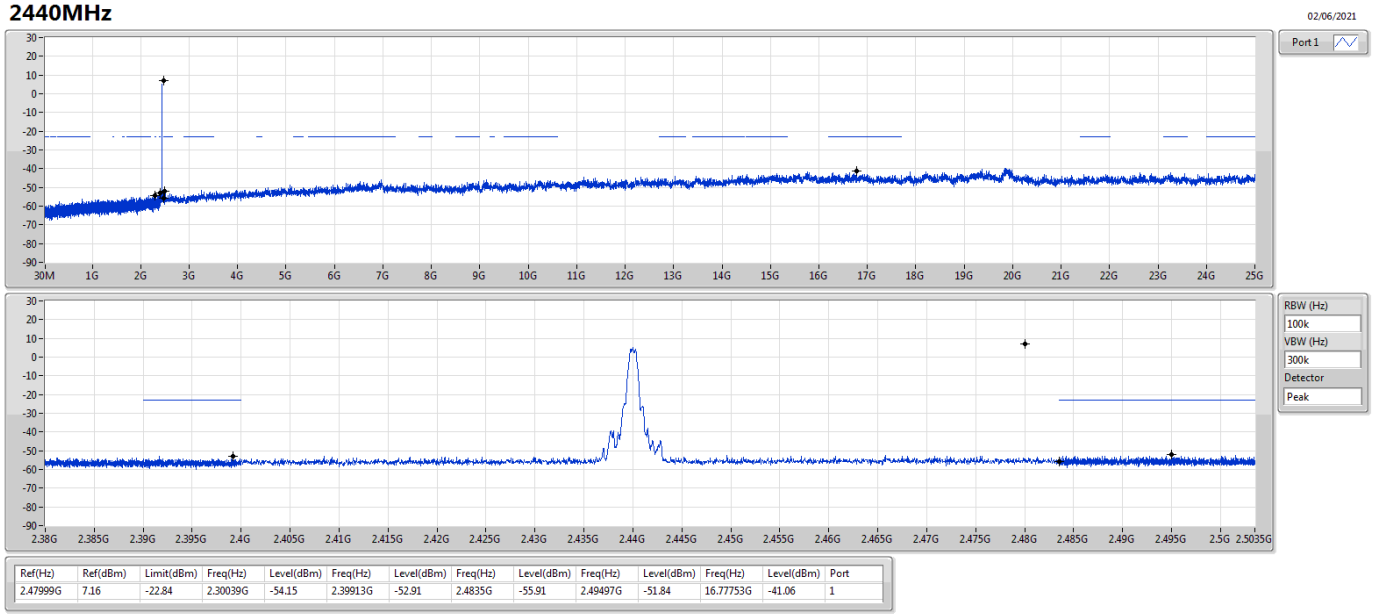
2402MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.47999G	7.16	-22.84	2.15029G	-53.66	2.39921G	-42.37	2.4G	-46.46	2.48768G	-50.35	23.19466G	-41.54	1

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

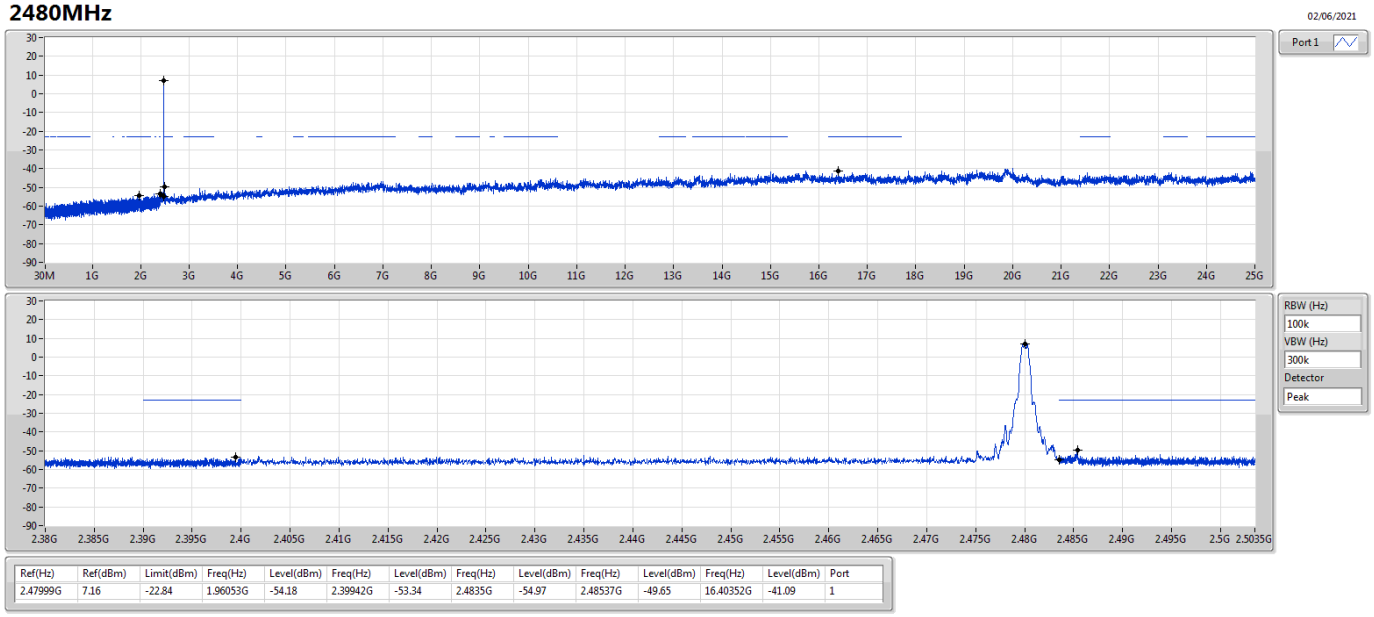
2440MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.47999G	7.16	-22.84	2.30039G	-54.15	2.39913G	-52.91	2.4835G	-55.91	2.49497G	-51.84	16.77753G	-41.06	1

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

2480MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.47999G	7.16	-22.84	1.96053G	-54.18	2.39942G	-53.34	2.4835G	-54.97	2.48537G	-49.65	16.40352G	-41.09	1

Summary

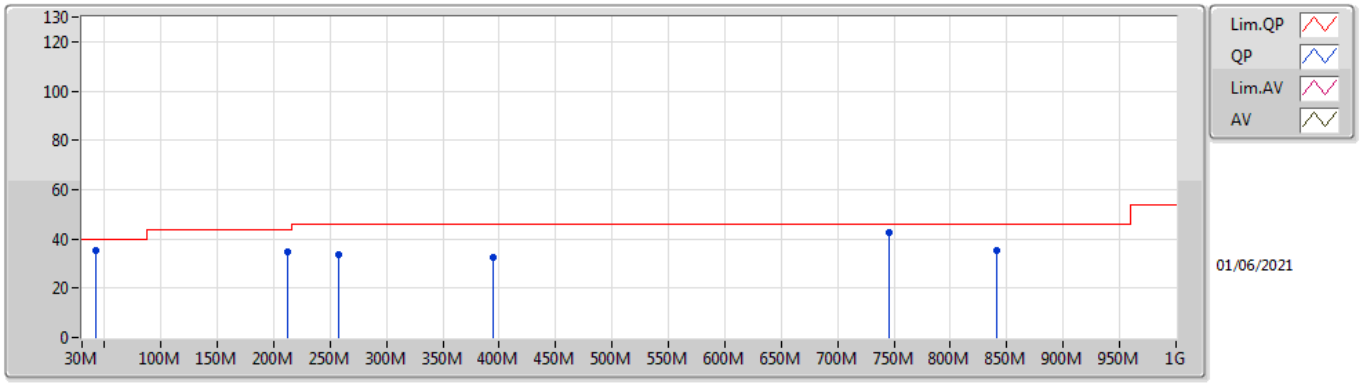
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	PK	745.86M	42.59	46.00	-3.41	3	Vertical	360	1.00	-

Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-
2440MHz	Pass	PK	41.64M	35.05	40.00	-4.95	3	Vertical	360	1.00	-
2440MHz	Pass	PK	212.36M	34.67	43.50	-8.83	3	Vertical	360	1.00	-
2440MHz	Pass	PK	256.98M	33.50	46.00	-12.50	3	Vertical	360	1.00	-
2440MHz	Pass	PK	394.72M	32.45	46.00	-13.55	3	Vertical	360	1.00	-
2440MHz	Pass	PK	745.86M	42.59	46.00	-3.41	3	Vertical	360	1.00	-
2440MHz	Pass	PK	840.92M	35.24	46.00	-10.76	3	Vertical	360	1.00	-
2440MHz	Pass	PK	86.26M	29.78	40.00	-10.22	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	204.6M	34.14	43.50	-9.36	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	328.76M	31.41	46.00	-14.59	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	677.96M	37.08	46.00	-8.92	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	734.22M	42.39	46.00	-3.61	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	957.32M	33.40	46.00	-12.60	3	Horizontal	0	1.00	-

BT-LE(1Mbps)

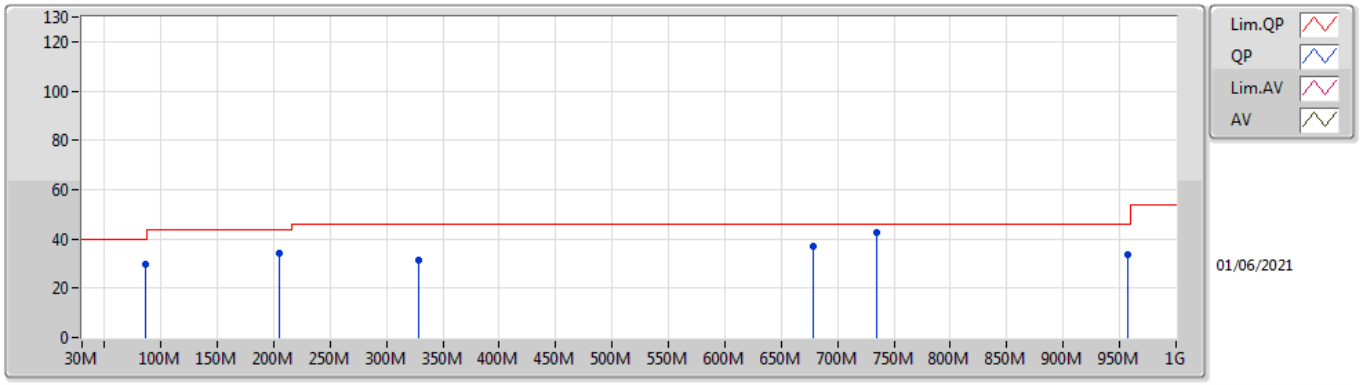
2440MHz_PoE



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
PK	41.64M	35.05	40.00	-4.95	-18.63	3	Vertical	360	1.00	-	53.68	17.69	0.75	37.07
PK	212.36M	34.67	43.50	-8.83	-20.77	3	Vertical	360	1.00	-	55.44	14.17	1.36	36.30
PK	256.98M	33.50	46.00	-12.50	-16.19	3	Vertical	360	1.00	-	49.69	18.69	1.52	36.40
PK	394.72M	32.45	46.00	-13.55	-13.78	3	Vertical	360	1.00	-	46.23	20.89	1.90	36.57
PK	745.86M	42.59	46.00	-3.41	-7.59	3	Vertical	360	1.00	-	50.18	27.21	2.78	37.58
PK	840.92M	35.24	46.00	-10.76	-6.49	3	Vertical	360	1.00	-	41.73	28.20	2.91	37.60

BT-LE(1Mbps)

2440MHz_PoE



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
PK	86.26M	29.78	40.00	-10.22	-22.50	3	Horizontal	0	1.00	-	52.28	13.36	0.92	36.78
PK	204.6M	34.14	43.50	-9.36	-20.61	3	Horizontal	0	1.00	-	54.75	14.33	1.34	36.28
PK	328.76M	31.41	46.00	-14.59	-15.79	3	Horizontal	0	1.00	-	47.20	18.97	1.73	36.49
PK	677.96M	37.08	46.00	-8.92	-9.01	3	Horizontal	0	1.00	-	46.09	25.61	2.65	37.27
PK	734.22M	42.39	46.00	-3.61	-7.75	3	Horizontal	0	1.00	-	50.14	27.00	2.76	37.51
PK	957.32M	33.40	46.00	-12.60	-4.19	3	Horizontal	0	1.00	-	37.59	30.20	3.11	37.50

Summary

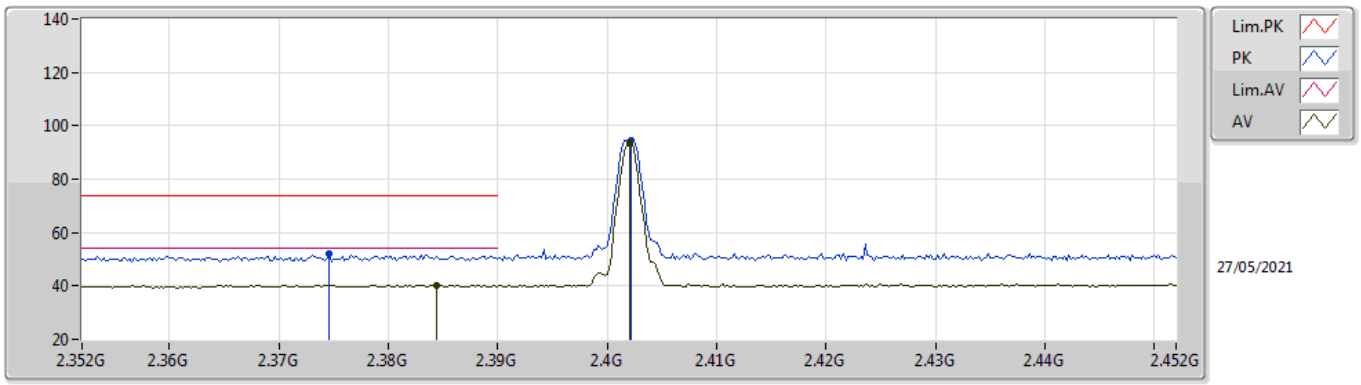
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	AV	2.4835G	51.88	54.00	-2.12	3	Horizontal	356	1.09	-

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	2.3844G	40.42	54.00	-13.58	3	Vertical	273	1.48	-
2402MHz	Pass	AV	2.402G	93.37	Inf	-Inf	3	Vertical	273	1.48	-
2402MHz	Pass	PK	2.3746G	52.12	74.00	-21.88	3	Vertical	273	1.48	-
2402MHz	Pass	PK	2.4022G	94.38	Inf	-Inf	3	Vertical	273	1.48	-
2402MHz	Pass	AV	2.358G	40.27	54.00	-13.73	3	Horizontal	355	2.91	-
2402MHz	Pass	AV	2.402G	104.12	Inf	-Inf	3	Horizontal	355	2.91	-
2402MHz	Pass	PK	2.379G	52.67	74.00	-21.33	3	Horizontal	355	2.91	-
2402MHz	Pass	PK	2.4022G	105.16	Inf	-Inf	3	Horizontal	355	2.91	-
2402MHz	Pass	AV	4.80398G	40.70	54.00	-13.30	3	Vertical	325	2.03	-
2402MHz	Pass	PK	4.80404G	49.96	74.00	-24.04	3	Vertical	325	2.03	-
2402MHz	Pass	AV	4.80392G	43.73	54.00	-10.27	3	Horizontal	334	1.46	-
2402MHz	Pass	PK	4.8035G	51.83	74.00	-22.17	3	Horizontal	334	1.46	-
2440MHz	Pass	AV	2.3856G	40.22	54.00	-13.78	3	Vertical	293	1.10	-
2440MHz	Pass	AV	2.44G	94.26	Inf	-Inf	3	Vertical	293	1.10	-
2440MHz	Pass	AV	2.4988G	41.15	54.00	-12.85	3	Vertical	293	1.10	-
2440MHz	Pass	PK	2.3404G	51.97	74.00	-22.03	3	Vertical	293	1.10	-
2440MHz	Pass	PK	2.4396G	95.30	Inf	-Inf	3	Vertical	293	1.10	-
2440MHz	Pass	PK	2.498G	53.57	74.00	-20.43	3	Vertical	293	1.10	-
2440MHz	Pass	AV	2.3692G	40.26	54.00	-13.74	3	Horizontal	352	1.03	-
2440MHz	Pass	AV	2.44G	103.92	Inf	-Inf	3	Horizontal	352	1.03	-
2440MHz	Pass	AV	2.4984G	40.97	54.00	-13.03	3	Horizontal	352	1.03	-
2440MHz	Pass	PK	2.388G	52.65	74.00	-21.35	3	Horizontal	352	1.03	-
2440MHz	Pass	PK	2.4396G	104.98	Inf	-Inf	3	Horizontal	352	1.03	-
2440MHz	Pass	PK	2.488G	52.99	74.00	-21.01	3	Horizontal	352	1.03	-
2440MHz	Pass	AV	4.87973G	39.37	54.00	-14.63	3	Vertical	324	2.22	-
2440MHz	Pass	AV	7.3193G	42.47	54.00	-11.53	3	Vertical	342	1.96	-
2440MHz	Pass	PK	4.87975G	49.23	74.00	-24.77	3	Vertical	324	2.22	-
2440MHz	Pass	PK	7.32091G	54.06	74.00	-19.94	3	Vertical	342	1.96	-
2440MHz	Pass	AV	4.88011G	42.92	54.00	-11.08	3	Horizontal	330	1.50	-
2440MHz	Pass	AV	7.31941G	43.15	54.00	-10.85	3	Horizontal	326	1.98	-
2440MHz	Pass	PK	4.87958G	50.97	74.00	-23.03	3	Horizontal	330	1.50	-
2440MHz	Pass	PK	7.3193G	54.67	74.00	-19.33	3	Horizontal	326	1.98	-
2480MHz	Pass	AV	2.48G	96.97	Inf	-Inf	3	Vertical	298	1.16	-
2480MHz	Pass	AV	2.4835G	44.81	54.00	-9.19	3	Vertical	298	1.16	-
2480MHz	Pass	PK	2.4802G	97.97	Inf	-Inf	3	Vertical	298	1.16	-
2480MHz	Pass	PK	2.4835G	55.22	74.00	-18.78	3	Vertical	298	1.16	-
2480MHz	Pass	AV	2.48G	107.25	Inf	-Inf	3	Horizontal	356	1.09	-
2480MHz	Pass	AV	2.4835G	51.88	54.00	-2.12	3	Horizontal	356	1.09	-
2480MHz	Pass	PK	2.4802G	108.21	Inf	-Inf	3	Horizontal	356	1.09	-
2480MHz	Pass	PK	2.4835G	62.89	74.00	-11.11	3	Horizontal	356	1.09	-
2480MHz	Pass	AV	4.96024G	34.82	54.00	-19.18	3	Vertical	306	1.50	-
2480MHz	Pass	AV	7.43943G	41.72	54.00	-12.28	3	Vertical	317	1.94	-
2480MHz	Pass	PK	4.96068G	46.44	74.00	-27.56	3	Vertical	306	1.50	-
2480MHz	Pass	PK	7.43919G	53.66	74.00	-20.34	3	Vertical	317	1.94	-
2480MHz	Pass	AV	4.95994G	39.16	54.00	-14.84	3	Horizontal	358	1.74	-
2480MHz	Pass	AV	7.43931G	43.63	54.00	-10.37	3	Horizontal	324	2.03	-
2480MHz	Pass	PK	4.95958G	49.14	74.00	-24.86	3	Horizontal	358	1.74	-
2480MHz	Pass	PK	7.44072G	54.73	74.00	-19.27	3	Horizontal	324	2.03	-

BT-LE(1Mbps)

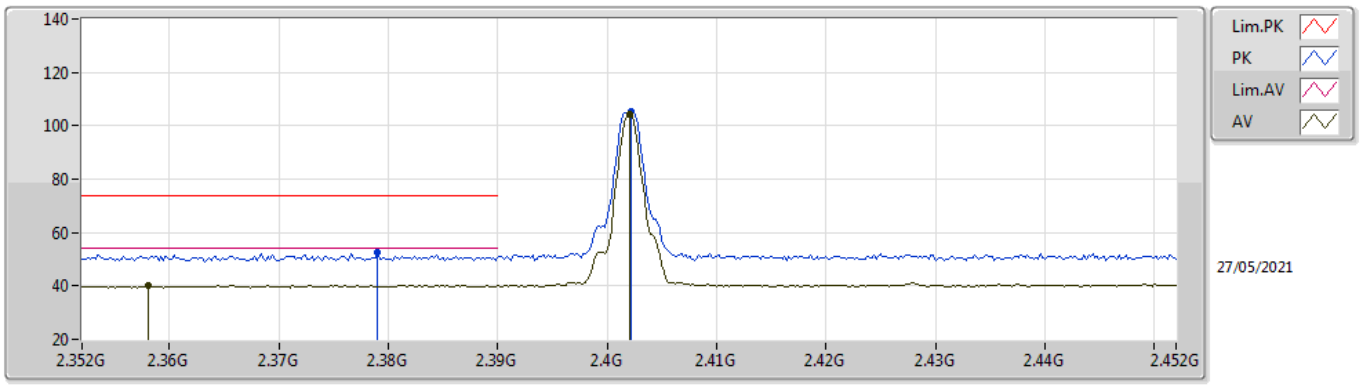
2402MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.3844G	40.42	54.00	-13.58	-1.64	3	Vertical	273	1.48	-	42.06	29.34	3.88	34.86
AV	2.402G	93.37	Inf	-Inf	-1.57	3	Vertical	273	1.48	-	94.94	29.40	3.90	34.87
PK	2.3746G	52.12	74.00	-21.88	-1.70	3	Vertical	273	1.48	-	53.82	29.30	3.86	34.86
PK	2.4022G	94.38	Inf	-Inf	-1.57	3	Vertical	273	1.48	-	95.95	29.40	3.90	34.87

BT-LE(1Mbps)

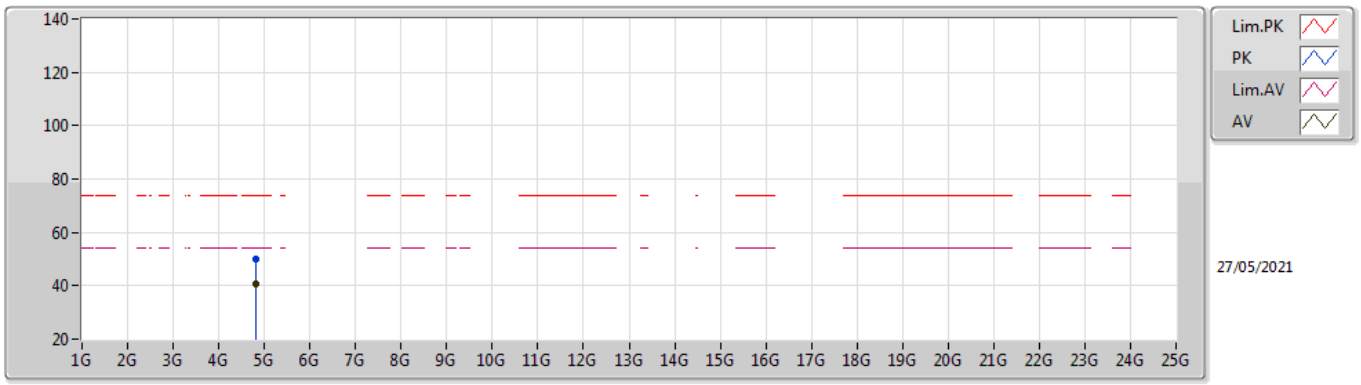
2402MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.358G	40.27	54.00	-13.73	-1.78	3	Horizontal	355	2.91	-	42.05	29.23	3.84	34.85
AV	2.402G	104.12	Inf	-Inf	-1.57	3	Horizontal	355	2.91	-	105.69	29.40	3.90	34.87
PK	2.379G	52.67	74.00	-21.33	-1.67	3	Horizontal	355	2.91	-	54.34	29.32	3.87	34.86
PK	2.4022G	105.16	Inf	-Inf	-1.57	3	Horizontal	355	2.91	-	106.73	29.40	3.90	34.87

BT-LE(1Mbps)

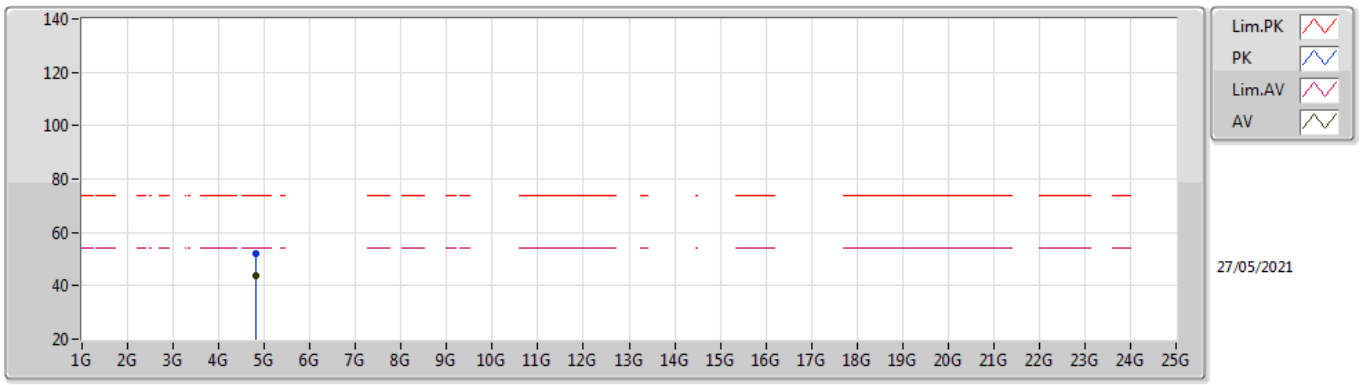
2402MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.80398G	40.70	54.00	-13.30	3.79	3	Vertical	325	2.03	-	36.91	33.42	5.30	34.93
PK	4.80404G	49.96	74.00	-24.04	3.79	3	Vertical	325	2.03	-	46.17	33.42	5.30	34.93

BT-LE(1Mbps)

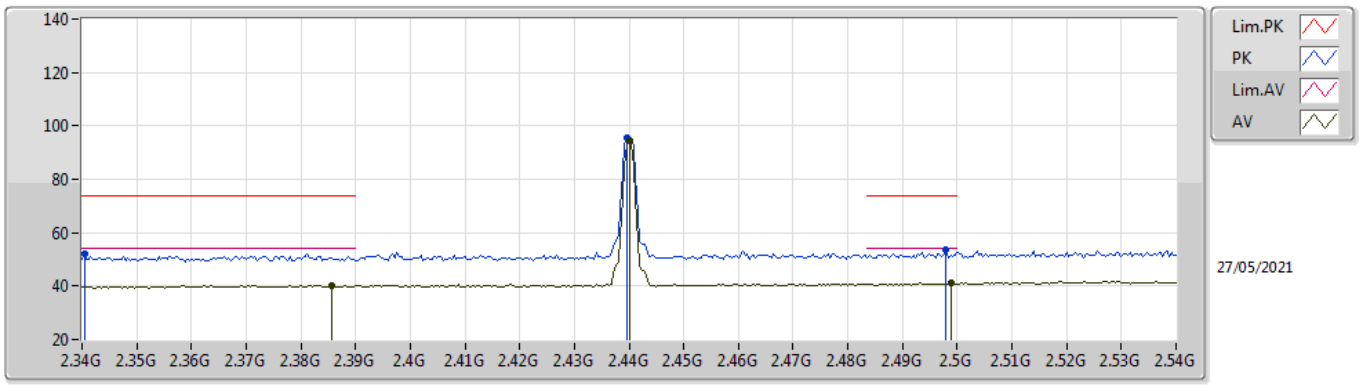
2402MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.80392G	43.73	54.00	-10.27	3.79	3	Horizontal	334	1.46	-	39.94	33.42	5.30	34.93
PK	4.8035G	51.83	74.00	-22.17	3.79	3	Horizontal	334	1.46	-	48.04	33.42	5.30	34.93

BT-LE(1Mbps)

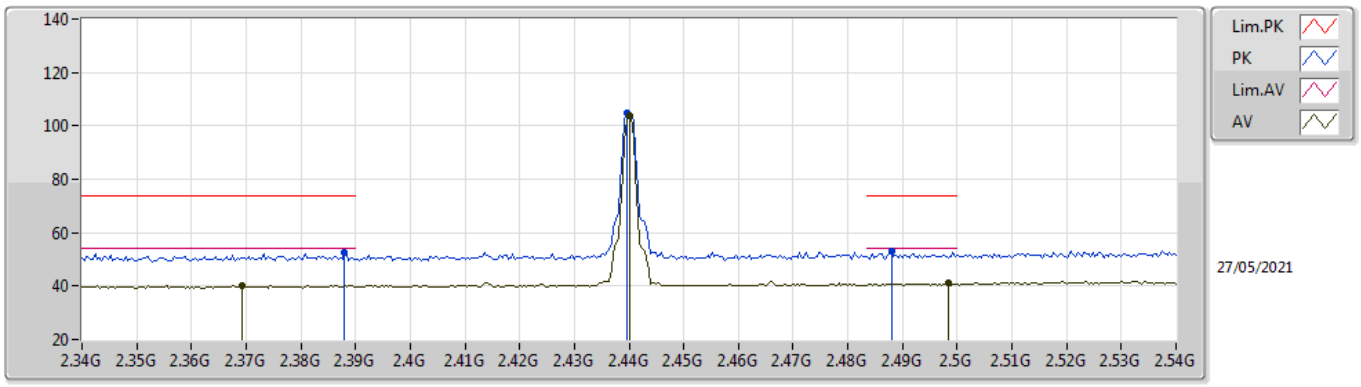
2440MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.3856G	40.22	54.00	-13.78	-1.64	3	Vertical	293	1.10	-	41.86	29.34	3.88	34.86
AV	2.44G	94.26	Inf	-Inf	-1.45	3	Vertical	293	1.10	-	95.71	29.48	3.96	34.89
AV	2.4988G	41.15	54.00	-12.85	-0.69	3	Vertical	293	1.10	-	41.84	30.18	4.05	34.92
PK	2.3404G	51.97	74.00	-22.03	-1.81	3	Vertical	293	1.10	-	53.78	29.22	3.81	34.84
PK	2.4396G	95.30	Inf	-Inf	-1.45	3	Vertical	293	1.10	-	96.75	29.48	3.96	34.89
PK	2.498G	53.57	74.00	-20.43	-0.70	3	Vertical	293	1.10	-	54.27	30.17	4.05	34.92

BT-LE(1Mbps)

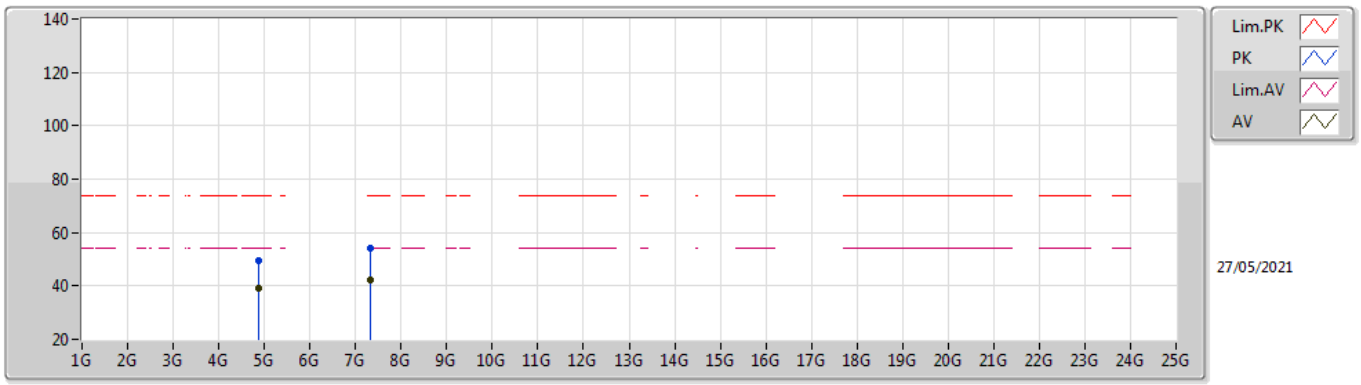
2440MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.3692G	40.26	54.00	-13.74	-1.72	3	Horizontal	352	1.03	-	41.98	29.28	3.85	34.85
AV	2.44G	103.92	Inf	-Inf	-1.45	3	Horizontal	352	1.03	-	105.37	29.48	3.96	34.89
AV	2.4984G	40.97	54.00	-13.03	-0.69	3	Horizontal	352	1.03	-	41.66	30.18	4.05	34.92
PK	2.388G	52.65	74.00	-21.35	-1.63	3	Horizontal	352	1.03	-	54.28	29.35	3.88	34.86
PK	2.4396G	104.98	Inf	-Inf	-1.45	3	Horizontal	352	1.03	-	106.43	29.48	3.96	34.89
PK	2.488G	52.99	74.00	-21.01	-0.85	3	Horizontal	352	1.03	-	53.84	30.03	4.03	34.91

BT-LE(1Mbps)

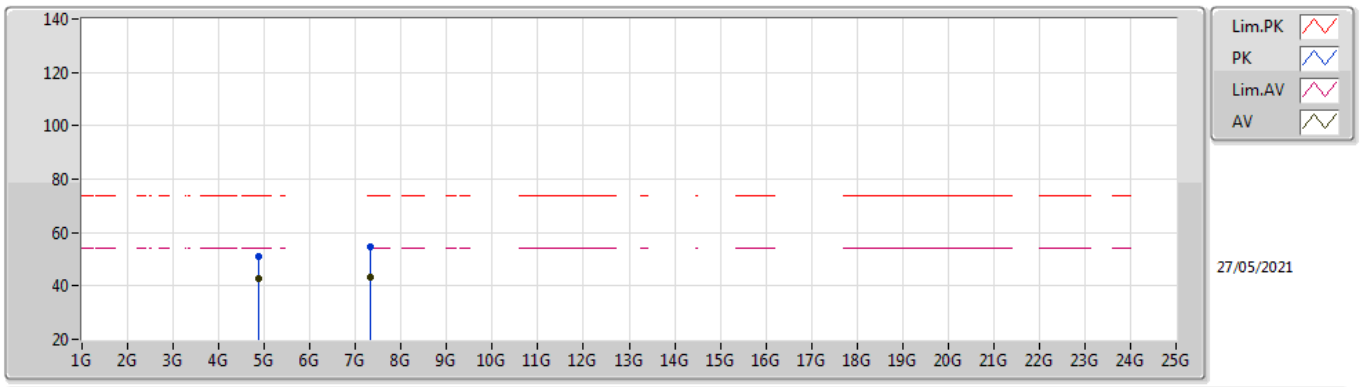
2440MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.87973G	39.37	54.00	-14.63	4.23	3	Vertical	324	2.22	-	35.14	33.82	5.34	34.93
AV	7.3193G	42.47	54.00	-11.53	11.26	3	Vertical	342	1.96	-	31.21	39.64	6.80	35.18
PK	4.87975G	49.23	74.00	-24.77	4.23	3	Vertical	324	2.22	-	45.00	33.82	5.34	34.93
PK	7.32091G	54.06	74.00	-19.94	11.26	3	Vertical	342	1.96	-	42.80	39.64	6.80	35.18

BT-LE(1Mbps)

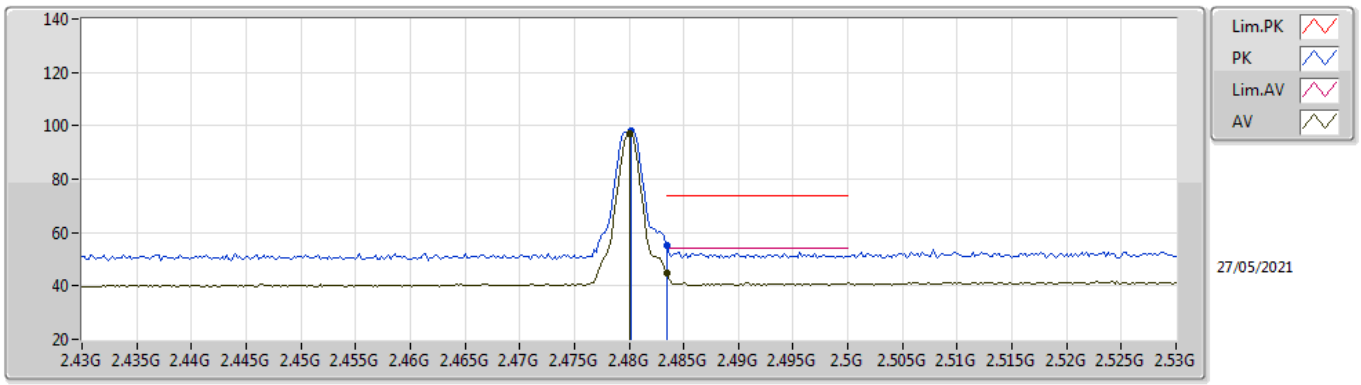
2440MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.88011G	42.92	54.00	-11.08	4.23	3	Horizontal	330	1.50	-	38.69	33.82	5.34	34.93
AV	7.31941G	43.15	54.00	-10.85	11.26	3	Horizontal	326	1.98	-	31.89	39.64	6.80	35.18
PK	4.87958G	50.97	74.00	-23.03	4.23	3	Horizontal	330	1.50	-	46.74	33.82	5.34	34.93
PK	7.3193G	54.67	74.00	-19.33	11.26	3	Horizontal	326	1.98	-	43.41	39.64	6.80	35.18

BT-LE(1Mbps)

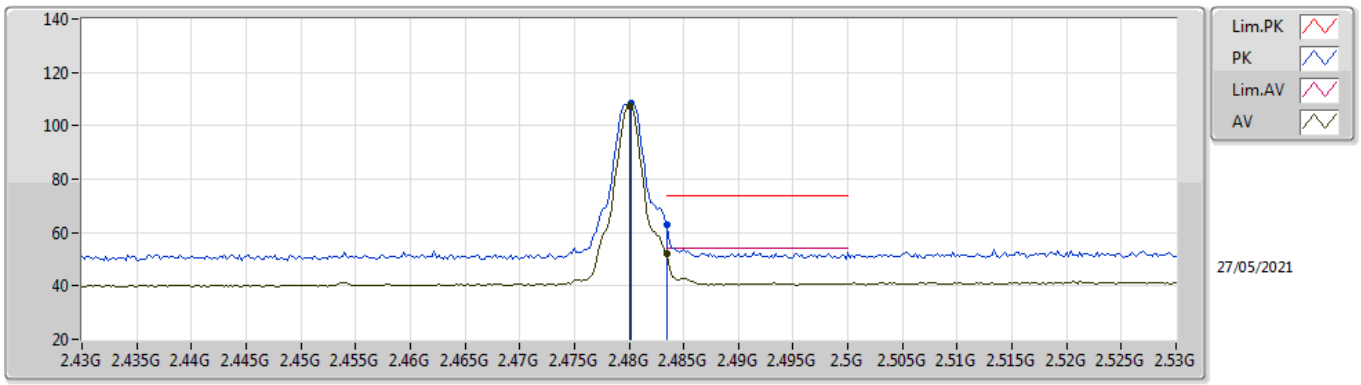
2480MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.48G	96.97	Inf	-Inf	-0.97	3	Vertical	298	1.16	-	97.94	29.92	4.02	34.91
AV	2.4835G	44.81	54.00	-9.19	-0.91	3	Vertical	298	1.16	-	45.72	29.97	4.03	34.91
PK	2.4802G	97.97	Inf	-Inf	-0.97	3	Vertical	298	1.16	-	98.94	29.92	4.02	34.91
PK	2.4835G	55.22	74.00	-18.78	-0.91	3	Vertical	298	1.16	-	56.13	29.97	4.03	34.91

BT-LE(1Mbps)

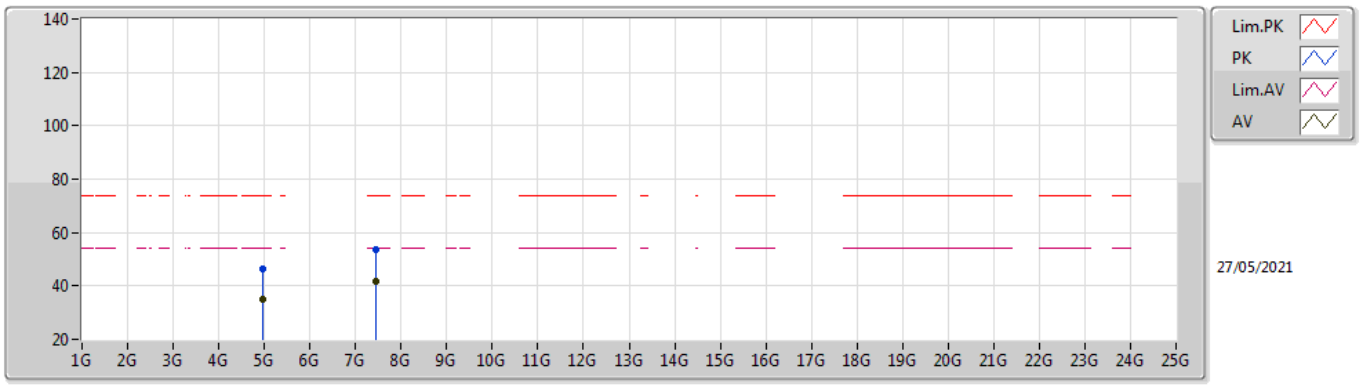
2480MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.48G	107.25	Inf	-Inf	-0.97	3	Horizontal	356	1.09	-	108.22	29.92	4.02	34.91
AV	2.4835G	51.88	54.00	-2.12	-0.91	3	Horizontal	356	1.09	-	52.79	29.97	4.03	34.91
PK	2.4802G	108.21	Inf	-Inf	-0.97	3	Horizontal	356	1.09	-	109.18	29.92	4.02	34.91
PK	2.4835G	62.89	74.00	-11.11	-0.91	3	Horizontal	356	1.09	-	63.80	29.97	4.03	34.91

BT-LE(1Mbps)

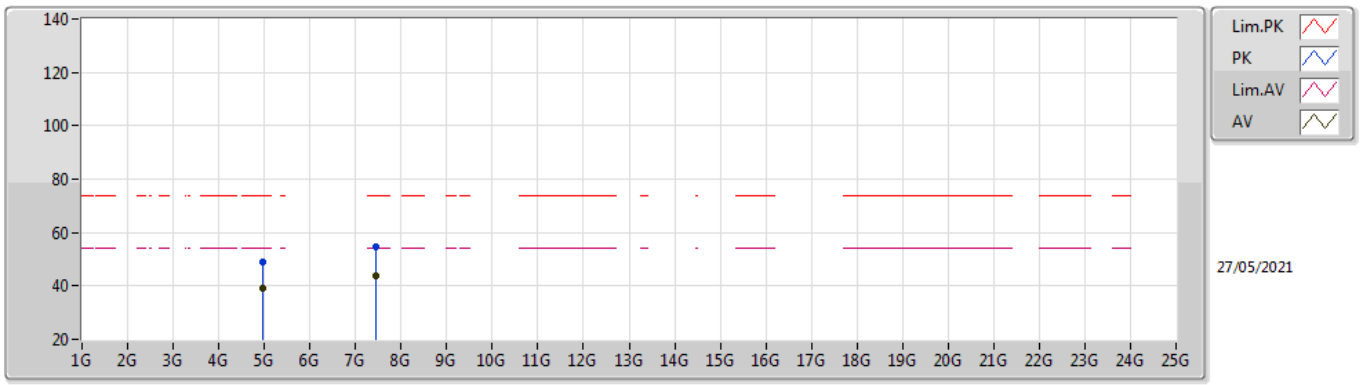
2480MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.96024G	34.82	54.00	-19.18	4.44	3	Vertical	306	1.50	-	30.38	34.00	5.38	34.94
AV	7.43943G	41.72	54.00	-12.28	11.69	3	Vertical	317	1.94	-	30.03	40.04	6.82	35.17
PK	4.96068G	46.44	74.00	-27.56	4.44	3	Vertical	306	1.50	-	42.00	34.00	5.38	34.94
PK	7.43919G	53.66	74.00	-20.34	11.69	3	Vertical	317	1.94	-	41.97	40.04	6.82	35.17

BT-LE(1Mbps)

2480MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.95994G	39.16	54.00	-14.84	4.44	3	Horizontal	358	1.74	-	34.72	34.00	5.38	34.94
AV	7.43931G	43.63	54.00	-10.37	11.69	3	Horizontal	324	2.03	-	31.94	40.04	6.82	35.17
PK	4.95958G	49.14	74.00	-24.86	4.44	3	Horizontal	358	1.74	-	44.70	34.00	5.38	34.94
PK	7.44072G	54.73	74.00	-19.27	11.69	3	Horizontal	324	2.03	-	43.04	40.04	6.82	35.17