RADIO TEST REPORT

FCC ID	:	RUK-BM200
Equipment	:	BM200 BLE Module
Brand Name	:	M.gear
Model Name	:	BM200
Applicant	:	Wha Yu Industrial Co., Ltd No.326, Sec. 2, Kung Tao 5 Road., Hsinchu City 30070, Taiwan (R.O.C.)
Manufacturer	:	Wha Yu Industrial Co., Ltd No.326, Sec. 2, Kung Tao 5 Road., Hsinchu City 30070, Taiwan (R.O.C.)
Standard	:	47 CFR FCC Part 15.247

The product was received on Jul. 05, 2021, and testing was started from Jul. 09, 2021 and completed on Jul. 12, 2021. We, Sporton International Inc. Hsinchu 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. Hsinchu Laboratory, the test report shall not be reproduced except in full.

Approved by: Sam Chen

Sporton International Inc. Hsinchu Laboratory
No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302010, Taiwan (R.O.C.)

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Photographs of EUT v01

History of this test report

Report No.	Version	Description	Issued Date
FR170506	01	Initial issue of report.	Jul. 22, 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:
The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Reviewed by: Sin Chang
Report Producer: Sandy Chuang

1 General Description

1.1 Information

1.1.1 RF General Information

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

Band	Mode	BWch (MHz)	Nant
2.4-2.4835GHz	BT-LE(1Mbps)	1.0	1TX
2.4-2.4835GHz	BT-LE(500Kb/s)	1.0	1TX
2.4-2.4835GHz	BT-LE(125Kb/s)	1.0	1TX
2.4-2.4835GHz	BT-LE(2Mbps)	2.0	1TX

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

1.1.2 Antenna Information

Ant.	Port	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	1	M gear	BM200	PCB	N/A	1.83

Note: The above information was declared by manufacturer.

<For Bluetooth> (1TX/1RX)

Only Port 1 can be used as transmitting/receiving.

1.1.3 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
BT-LE(1Mbps)	0.663	1.78	414.688u	3k
BT-LE(2Mbps)	0.381	4.19	238.438u	10k

Note:
- DC is Duty Cycle.
- DCF is Duty Cycle Factor.

1.1.4 EUT Operational Condition

EUT Power Type	From host system			
Function	☒	Point-to-multipoint	☐	Point-to-point
Test Software Version	RTL8762C_RFTestTool_v1.0.1.5			
Support Mode	☒	LE 1M PHY: 1 Mb/s		
	☒	LE Coded PHY (S=2): 500 Kb/s		
	☒	LE Coded PHY (S=8): 125 Kb/s		
	☒	LE 2M PHY: 2 Mb/s		

Note: The above information was declared by manufacturer.

1.2 Applicable 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.

- FCC KDB 558074 D01 v05r02
- FCC KDB 414788 D01 v01r01

1.3 Testing Location Information

Testing Location Information	
Test Lab.：Sporton International Inc. Hsinchu Laboratory	
Hsinchu	ADD: No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302010, Taiwan (R.O.C.)
(TAF: 3787)	TEL: 886-3-656-9065 FAX: 886-3-656-9085
	Test site Designation No. TW3787 with FCC.
	Conformity Assessment Body Identifier (CABID) TW3787 with ISED.

Test Condition	Test Site No.	Test Engineer	Test Environment (°C / %)	Test Date
RF Conducted	TH02-CB	Paul Chen	25.3~27.6 / 64~68	Jul. 12, 2021
Radiated (Below 1GHz)	10CH01-CB	Zack Kuo	24~26 / 52~24	Jul. 12, 2021
Radiated (Above 1GHz)	03CH05-CB	Eason Chen	26~26.9 / 63~69	Jul. 09, 2021
AC Conduction	CO01-CB	Zack Kuo	24~26 / 24~52	Jul. 12, 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)	2.0 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	1.6 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	4.2 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	4.7 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	4.2 dB	Confidence levels of 95%
Conducted Emission	2.5 dB	Confidence levels of 95%
Output Power Measurement	1.3 dB	Confidence levels of 95%
Power Density Measurement	2.5 dB	Confidence levels of 95%
Bandwidth Measurement	0.9%	Confidence levels of 95%

2 Test Configuration of EUT

2.1 Test Channel Mode

Mode	Power Setting
BT-LE(1Mbps)	-
2402MHz	Default
2440MHz	Default
2480MHz	Default
BT-LE(2Mbps)	-
2402MHz	Default
2440MHz	Default
2480MHz	Default

2.2 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral
Operating Mode	CTX
1	CTX 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	CTX Mode - EUT with X axis
2	CTX Mode - EUT with Y axis
3	CTX Mode - EUT with Z axis
For operating mode 3 is the worst case and it was record in this test report.	
Operating Mode > 1GHz	CTX
The EUT was performed at X axis, Y axis and Z axis position, and the worst case as below:	
1	EUT in X axis

2.3 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

2.4 Accessories

N/A

2.5 Support Equipment

For AC Conduction:

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
A	Power Supply	Advanced	LPS-305	N/A
B	Test fixture	N/A	138138	N/A

For Radiated (Below 1GHz):

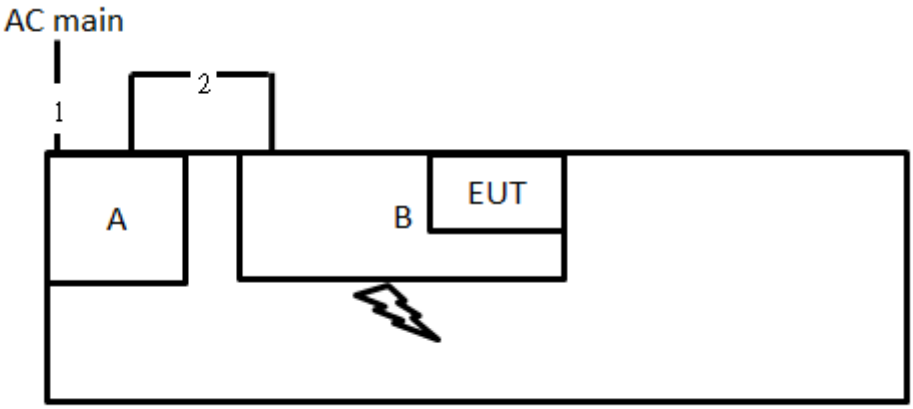
Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
A	Power Supply	Advanced	LPS-305	N/A
B	Test fixture	N/A	138138	N/A

For RF Conducted and Radiated (Above 1GHz):

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
A	Notebook	DELL	E4300	N/A
B	Power Supply	Advanced	LPS-305	N/A
C	Test fixture	N/A	138138	N/A

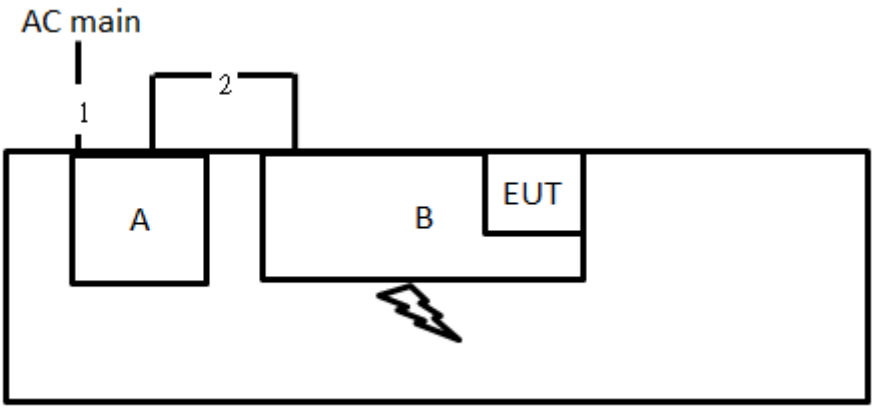
2.6 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test



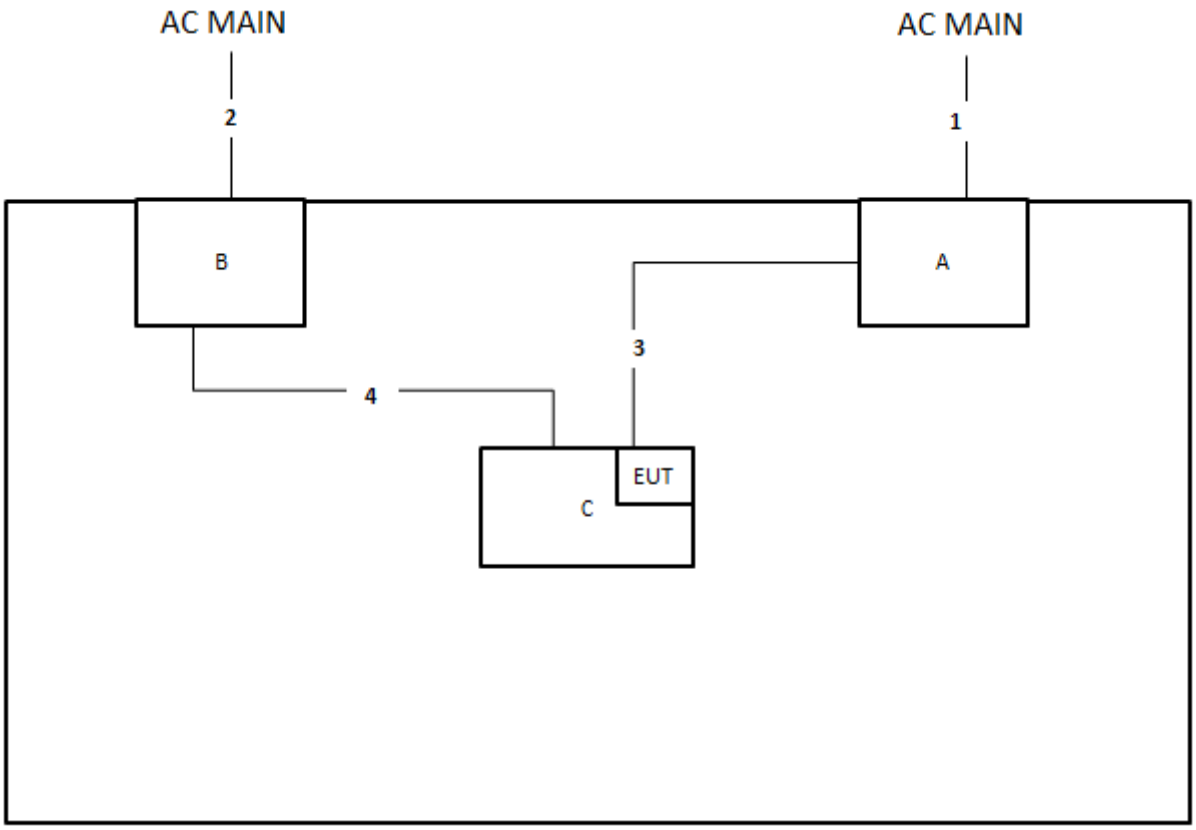
Item	Connection	Shielded	Length
1	AC power cable	No	1.8m
2	DC power cable	No	1.5m

Test Setup Diagram - Radiated Test < 1GHz



Item	Connection	Shielded	Length
1	AC power cable	No	1.8m
2	DC power cable	No	1.5m

Test Setup Diagram - Radiated Test > 1GHz



Item	Connection	Shielded	Length
1	Power cable	No	2.6m
2	Power cable	No	1.5m
3	USB to Micro cable	No	1m
4	crocodile clip	No	1m

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

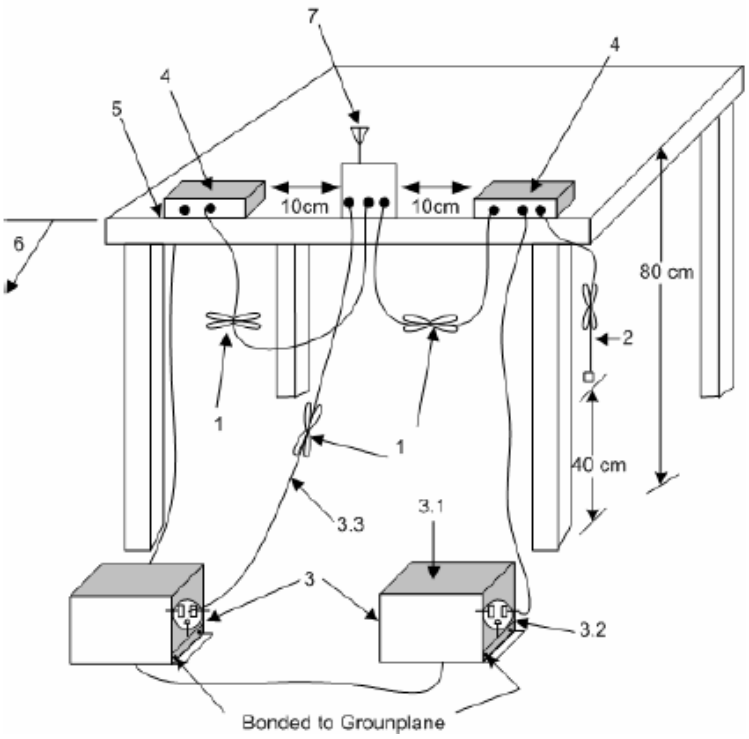
Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

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

3.1.4 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 50 Ω 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.

1.1.1. Measurement Results Calculation

The measured Level is calculated using:

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

b. Margin = -Limit + Level

3.1.5 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.

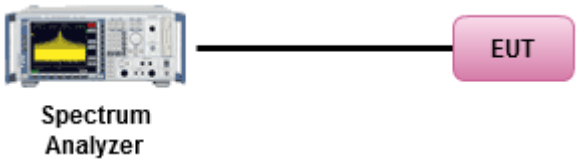
3.2.2 Measuring Instruments

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 FCC KDB 558074, clause 8.2 & C63.10 clause 11.8.1 Option 1 for 6 dB bandwidth measurement.
	☐ Refer as FCC KDB 558074, clause 8.2 & C63.10 clause 11.8.2 Option 2 for 6 dB bandwidth measurement.
	☐ Refer as ANSI C63.10, clause 6.9.1 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 $G_{TX} \leq 6$ dBi, then $P_{Out} \leq 30$ dBm (1 W)	
	▪ Point-to-multipoint systems (P2M): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 – (G_{TX} – 6)$ dBm	
	▪ Point-to-point systems (P2P): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 – (G_{TX} – 6)/3$ dBm	
	▪ Smart antenna system (SAS):	
		- Single beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 – (G_{TX} – 6)/3$ dBm
		- Overlap beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 – (G_{TX} – 6)/3$ dBm
		- Aggregate power on all beams: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 – (G_{TX} – 6)/3 + 8$dB dBm
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 FCC KDB 558074, clause 8.3.1.1 & C63.10 clause 11.9.1.1 (RBW ≥ EBW method).
	☐ Refer as FCC KDB 558074, clause 8.3.1.3 & C63.10 clause 11.9.1.3 (peak power meter).
▪ Maximum Conducted Output Power	
	[duty cycle ≥ 98% or external video / power trigger]
	☐ Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.2 Method AVGSA-1.
	☐ Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.3 Method AVGSA-1A. (alternative)
	duty cycle < 98% and average over on/off periods with duty factor
	☐ Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.4 Method AVGSA-2.
	☐ Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.5 Method AVGSA-2A (alternative)
	☐ Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.6 Method AVGSA-3
	☐ Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.7 Method AVGSA-3A (alternative)
	Measurement using a power meter (PM)
	☐ Refer as FCC KDB 558074, clause 8.3.2.3 & C63.10 clause 11.9.2.3.1 Method AVGPM (using an RF average power meter).
	☒ Refer as FCC KDB 558074, clause 8.3.2.3 & C63.10 clause 11.9.2.3.2 Method AVGPM-G (using an gate RF average power meter).
▪ For conducted measurement.	
	▪ If the EUT supports multiple transmit chains using options given below: Refer as FCC 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

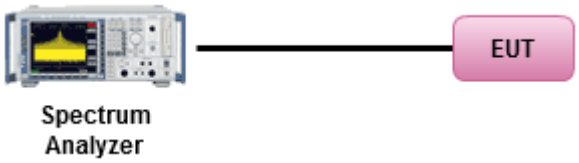
Refer a test equipment and calibration data table in this test report.

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 FCC KDB 558074, clause 8.4 & C63.10 clause 11.10 Method Max. PSD.	
	[duty cycle ≥ 98% or external video / power trigger]	
▪ For conducted measurement.		
	▪ If The EUT supports multiple transmit chains using options given below:	
		☐ Option 1: Measure and sum the spectra across the outputs. Refer as FCC 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.
		☐ Option 2: Measure and sum spectral maxima across the outputs. With this technique, spectra are measured at each output of the device at the required resolution bandwidth. The maximum value (peak) of each spectrum is determined. These maximum values are then summed mathematically in linear power units across the outputs. These operations shall be performed separately over frequency spans that have different out-of-band or spurious emission limits,
		☐ Option 3: Measure and add 10 log(N) dB, where N is the number of transmit chains. Refer as FCC KDB 662911, In-band power spectral density (PSD). Performed at each transmit chains and each transmit chains shall be compared with the limit have been reduced with 10 log(N). Or each transmit chains shall be add 10 log(N) to compared with the limit.

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 (dBc)**
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 PSD 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 PSD level.

3.5.2 Measuring Instruments

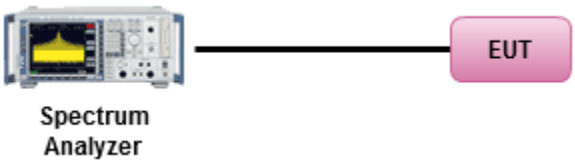
Refer a test equipment and calibration data table in this test report.

3.5.3 Test Procedures

Test Method
▪ Refer as FCC KDB 558074, clause 8.5 for unwanted emissions into non-restricted 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.

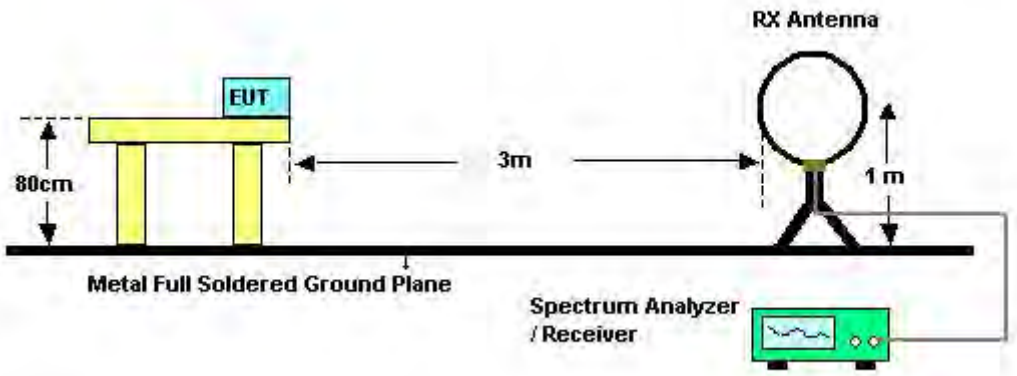
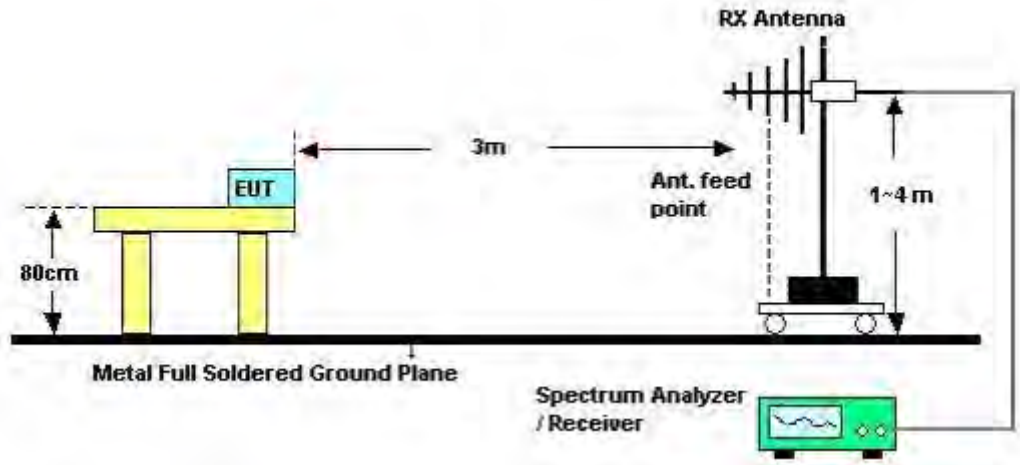
3.6.2 Measuring Instruments

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

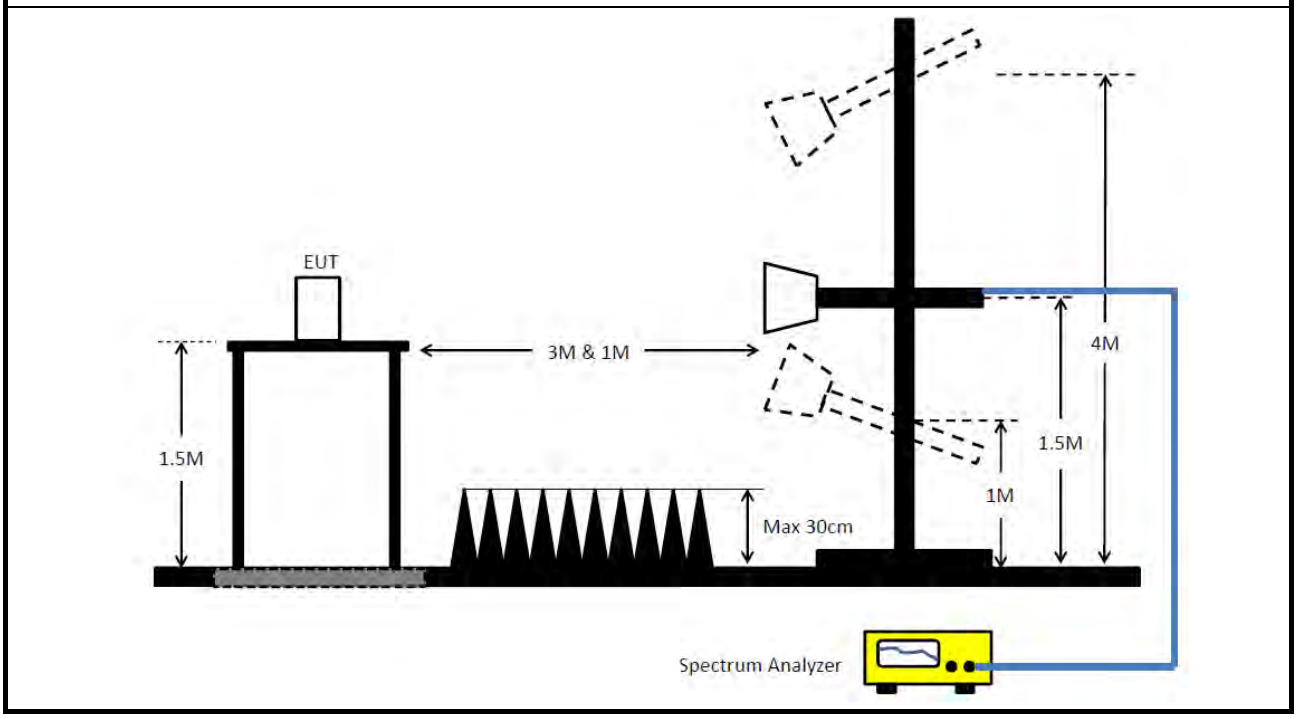
3.6.3 Test Procedures

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 FCC KDB 558074, clause 8.6 for unwanted emissions into restricted bands.		
		☐	Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.5.1(trace averaging for duty cycle ≥98%).
		☐	Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.5.2(trace averaging + duty factor).
		☒	Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.5.3(Reduced VBW≥1/T).
		☐	Refer as ANSI C63.10, clause 11.12.2.5.3 (Reduced VBW). VBW ≥ 1/T, where T is pulse time.
		☐	Refer as ANSI C63.10, clause 7.5 average value of pulsed emissions.
		☒	Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.4 measurement procedure peak limit.
▪ For the transmitter band-edge emissions shall be measured using following options below:			
	▪ Refer as FCC KDB 558074 clause 8.7 & c63.10 clause 11.13.1, 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 FCC KDB 558074, clause 8.7 (ANSI C63.10, clause 6.10.6) for marker-delta method for band-edge measurements.		
	▪ Refer as FCC KDB 558074, clause 8.7 for narrower resolution bandwidth (100kHz) using the band power and summing the spectral levels (i.e., 1 MHz).		
	▪ For conducted unwanted emissions into restricted bands (absolute emission limits). Devices with multiple transmit chains using options given below: (1) Measure and sum the spectra across the outputs or (2) Measure and add 10 log(N) dB		
	▪ For FCC KDB 662911 The methodology described here may overestimate array gain, thereby resulting in apparent failures to satisfy the out-of-band limits even if the device is actually compliant. In such cases, compliance may be demonstrated by performing radiated tests around the frequencies at which the apparent failures occurred.		

3.6.4 Test Setup

Emissions in Restricted Frequency Bands
9kHz ~30MHz

30MHz~1GHz


Above 1GHz



3.6.5 Measurement Results Calculation

The measured Level is calculated using:
Corrected Reading: Antenna factor (AF) + Cable loss (CL) + Read level (Raw) - Preamp factor (PA)(if applicable) = Level.

3.6.6 Emissions in Restricted Frequency Bands (Below 30MHz)

There is a comparison data of both open-field test site and alternative test site - semi-Anechoic chamber according to KDB414788 Radiated Test Site, and the result came out very similar.
All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.
The radiated emissions were investigated from 9 kHz or the lowest frequency generated within the device, up to the 10th harmonic or 40 GHz, whichever is appropriate.

3.6.7 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix F

4 Test Equipment and Calibration Data

Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.4GHz	Mar. 03, 2021	Mar. 02, 2022	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Jan. 06, 2021	Jan. 05, 2022	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Mar. 07, 2021	Mar. 06, 2022	Conduction (CO01-CB)
Pulse Limiter	Rohde&Schwarz	ESH3-Z2	100430	9kHz ~ 30MHz	Jan. 30, 2021	Jan. 29, 2022	Conduction (CO01-CB)
COND Cable	Woken	Cable	Low cable-CO01	9kHz ~ 30MHz	May 19, 2021	May 18, 2022	Conduction (CO01-CB)
Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conduction (CO01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Apr. 14, 2021	Apr. 13, 2022	Radiation (10CH01-CB)
10m Semi Anechoic Chamber NSA	TDK	SAC-10M	10CH01-CB	30MHz~1GHz 10m,3m	Jan. 28, 2021	Jan. 27, 2022	Radiation (10CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10783	9kHz ~ 1.3GHz	Mar. 11, 2021	Mar. 10, 2022	Radiation (10CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10784	9kHz ~ 1.3GHz	Mar. 11, 2021	Mar. 10, 2022	Radiation (10CH01-CB)
Low Cable	Woken	SUCOFLEX 104	low cable-01	25MHz ~ 1GHz	Oct. 20, 2020	Oct. 19, 2021	Radiation (10CH01-CB)
High Cable	Woken	SUCOFLEX 104	low cable-02	25MHz ~ 1GHz	Oct. 20, 2020	Oct. 19, 2021	Radiation (10CH01-CB)
Bilog Antenna with 6dB Attenator	Chase & EMCI	CBL6111A &N-6-06	1543 &AT-N0609	30MHz ~ 1GHz	Jul. 01, 2021	Jun. 30, 2022	Radiation (10CH01-CB)
Log Antenna	Schwarzbeck	VUSLP 9111	247	200MHz ~ 1GHz	May 24, 2021	May 23, 2022	Radiation (10CH01-CB)
Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (10CH01-CB)
3m Semi Anechoic Chamber VSWR	TDK	SAC-3M	03CH05-CB	1GHz ~18GHz 3m	Nov. 08, 2020	Nov. 07, 2021	Radiation (03CH05-CB)
Horn Antenna	SCHWARZBECK	BBHA9120D	BBHA 9120 D-1291	1GHz~18GHz	Sep. 05, 2020	Sep. 04, 2021	Radiation (03CH05-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jul. 21, 2020	Jul. 20, 2021	Radiation (03CH05-CB)

Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100304	9kHz ~ 40GHz	Nov. 10, 2020	Nov. 09, 2021	Radiation (03CH05-CB)
RF Cable-high	Woken	RG402	High Cable-28	1GHz~18GHz	Oct. 05, 2020	Oct. 04, 2021	Radiation (03CH05-CB)
RF Cable-high	Woken	RG402	High Cable-04+28	1GHz~18GHz	Oct. 05, 2020	Oct. 04, 2021	Radiation (03CH05-CB)
RF Cable-high	Woken	RG402	High Cable-40G#1	18GHz ~ 40 GHz	Jul. 16, 2020	Jul. 15, 2021	Radiation (03CH05-CB)
RF Cable-high	Woken	RG402	High Cable-40G#2	18GHz ~ 40 GHz	Jul. 16, 2020	Jul. 15, 2021	Radiation (03CH05-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH05-CB)
Spectrum analyzer	R&S	FSV40	101027	9kHz~40GHz	Jul. 27, 2020	Jul. 26, 2021	Conducted (TH02-CB)
Power Sensor	Anritsu	MA2411B	1126203	300MHz~40GHz	Sep. 17, 2020	Sep. 16, 2021	Conducted (TH02-CB)
Power Meter	Anritsu	ML2495A	1210004	300MHz~40GHz	Sep. 17, 2020	Sep. 16, 2021	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-01	1 GHz – 18 GHz	Oct. 05, 2020	Oct. 04, 2021	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-02	1 GHz – 18 GHz	Oct. 05, 2020	Oct. 04, 2021	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-03	1 GHz – 18 GHz	Oct. 05, 2020	Oct. 04, 2021	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-04	1 GHz – 18 GHz	Oct. 05, 2020	Oct. 04, 2021	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-05	1 GHz – 18 GHz	Oct. 05, 2020	Oct. 04, 2021	Conducted (TH02-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conducted (TH02-CB)

Note: Calibration Interval of instruments listed above is one year.

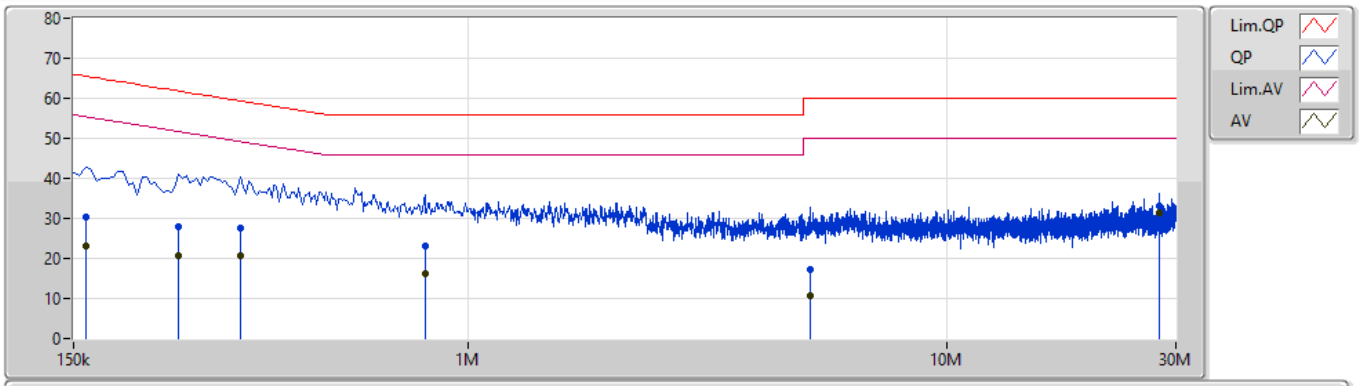
N.C.R. means Non-Calibration required.

Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	AV	27.65M	31.52	50.00	-18.48	Neutral

Mode 1

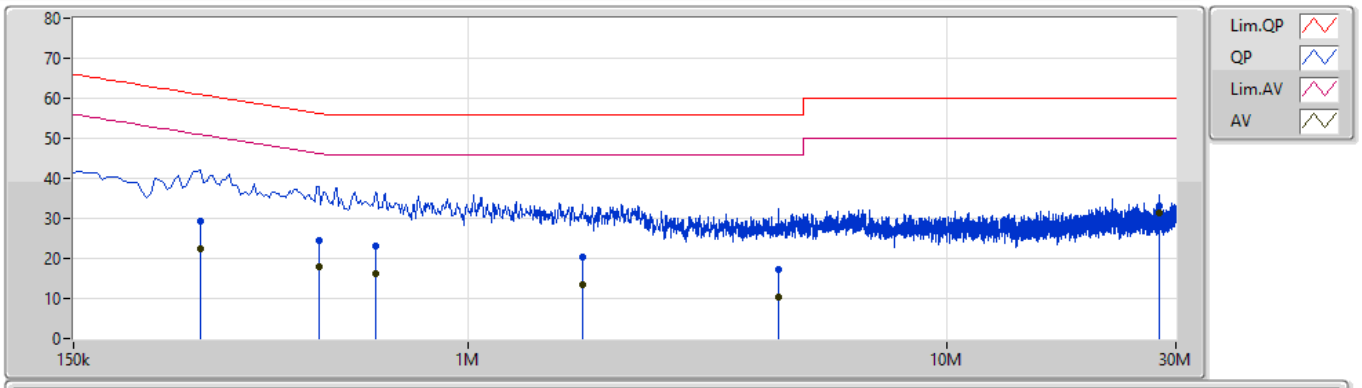
12/07/2021



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	159k	30.50	65.52	-35.02	9.89	Line	-	20.61	0.04	0.04	9.81
AV	159k	23.20	55.52	-32.32	9.89	Line	-	13.31	0.04	0.04	9.81
QP	249k	27.90	61.79	-33.89	9.89	Line	-	18.01	0.04	0.04	9.81
AV	249k	20.67	51.79	-31.12	9.89	Line	-	10.78	0.04	0.04	9.81
QP	334.5k	27.57	59.35	-31.78	9.90	Line	-	17.67	0.04	0.04	9.82
AV	334.5k	20.77	49.35	-28.58	9.90	Line	-	10.87	0.04	0.04	9.82
QP	811.5k	23.06	56.00	-32.94	9.93	Line	-	13.13	0.06	0.04	9.83
AV	811.5k	16.35	46.00	-29.65	9.93	Line	-	6.42	0.06	0.04	9.83
QP	5.168M	17.32	60.00	-42.68	10.17	Line	-	7.15	0.16	0.13	9.88
AV	5.168M	10.56	50.00	-39.44	10.17	Line	-	0.39	0.16	0.13	9.88
QP	27.65M	32.96	60.00	-27.04	10.68	Line	-	22.28	0.37	0.29	10.02
AV	27.65M	31.37	50.00	-18.63	10.68	Line	"Worst"	20.69	0.37	0.29	10.02

Mode 1

12/07/2021



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	276k	29.36	60.93	-31.57	9.88	Neutral	-	19.48	0.03	0.04	9.81
AV	276k	22.34	50.93	-28.59	9.88	Neutral	-	12.46	0.03	0.04	9.81
QP	487.5k	24.60	56.21	-31.61	9.89	Neutral	-	14.71	0.03	0.04	9.82
AV	487.5k	17.83	46.21	-28.38	9.89	Neutral	-	7.94	0.03	0.04	9.82
QP	640.5k	23.06	56.00	-32.94	9.91	Neutral	-	13.15	0.04	0.04	9.83
AV	640.5k	16.30	46.00	-29.70	9.91	Neutral	-	6.39	0.04	0.04	9.83
QP	1.73M	20.36	56.00	-35.64	9.95	Neutral	-	10.41	0.07	0.06	9.82
AV	1.73M	13.62	46.00	-32.38	9.95	Neutral	-	3.67	0.07	0.06	9.82
QP	4.439M	17.07	56.00	-38.93	10.10	Neutral	-	6.97	0.11	0.12	9.87
AV	4.439M	10.23	46.00	-35.77	10.10	Neutral	-	0.13	0.11	0.12	9.87
QP	27.65M	33.03	60.00	-26.97	10.72	Neutral	-	22.31	0.41	0.29	10.02
AV	27.65M	31.52	50.00	-18.48	10.72	Neutral	"Worst"	20.80	0.41	0.29	10.02

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)	772.5k	1.061M	1M06F1D	692.5k	1.049M
BT-LE(2Mbps)	1.135M	2.081M	2M08F1D	985k	2.054M

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

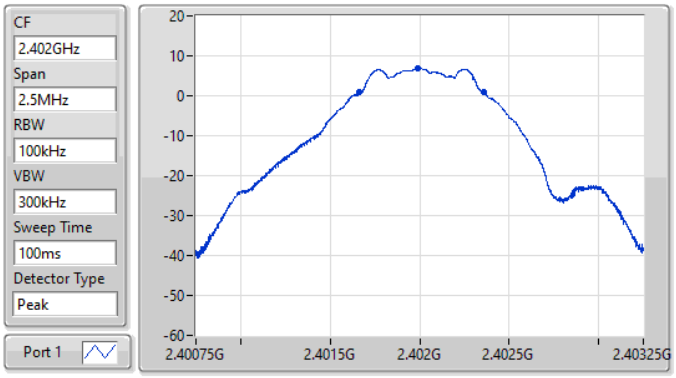
Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	692.5k	1.056M
2440MHz	Pass	500k	695k	1.049M
2480MHz	Pass	500k	772.5k	1.061M
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	500k	1.135M	2.081M
2440MHz	Pass	500k	985k	2.071M
2480MHz	Pass	500k	1.133M	2.054M

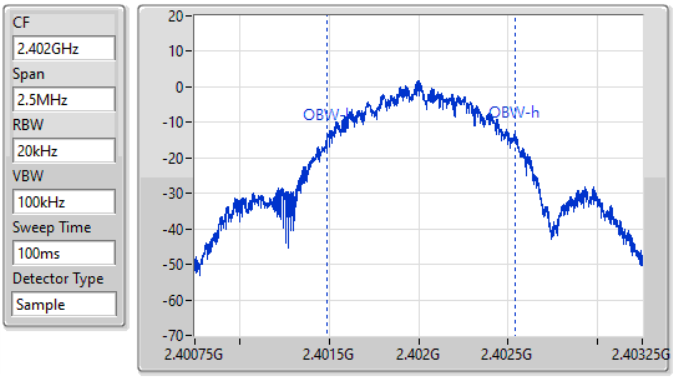
Port X-N dB = Port X 6dB down bandwidth;
Port X-OBW = Port X 99% occupied bandwidth

BT-LE(1Mbps) EBW-DTS

2402MHz

12/07/2021



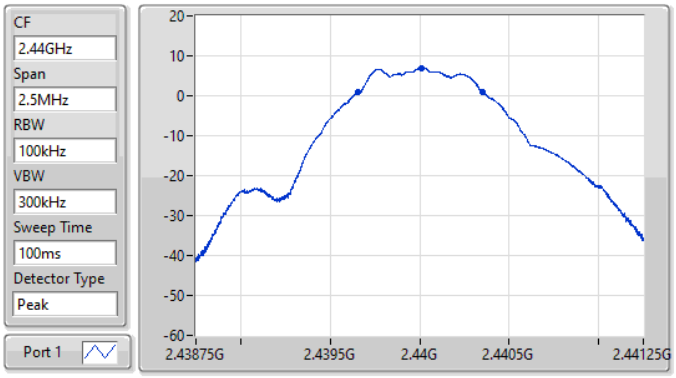


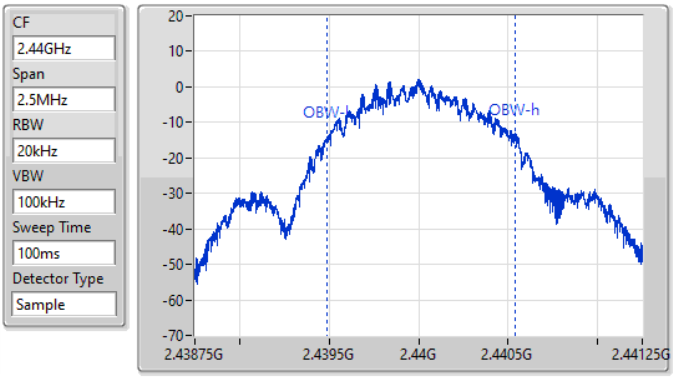
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
692.5k	2.401665G	2.402358G	1.056M	2.401485G	2.402541G	500k	1

BT-LE(1Mbps) EBW-DTS

2440MHz

12/07/2021



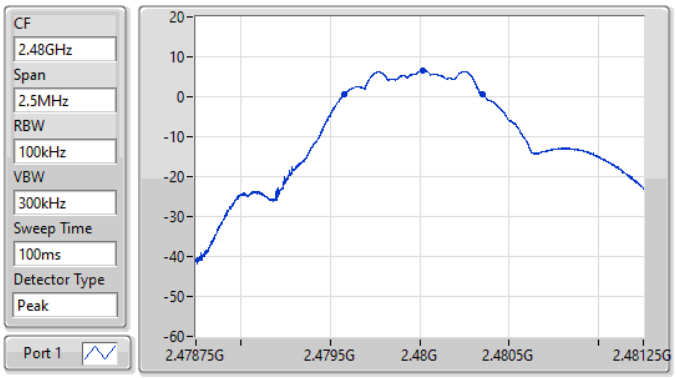


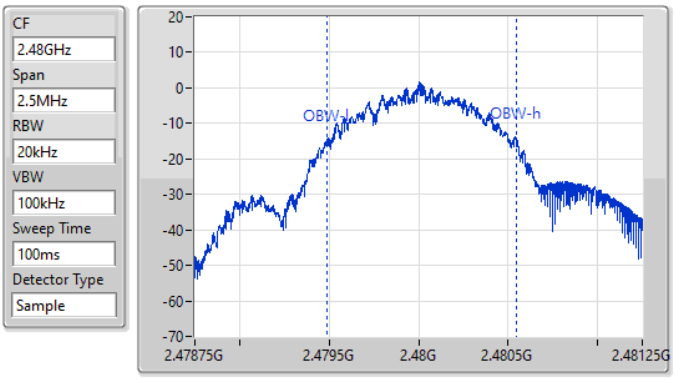
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
695k	2.439656G	2.440351G	1.049M	2.439492G	2.440541G	500k	1

BT-LE(1Mbps) EBW-DTS

2480MHz

12/07/2021



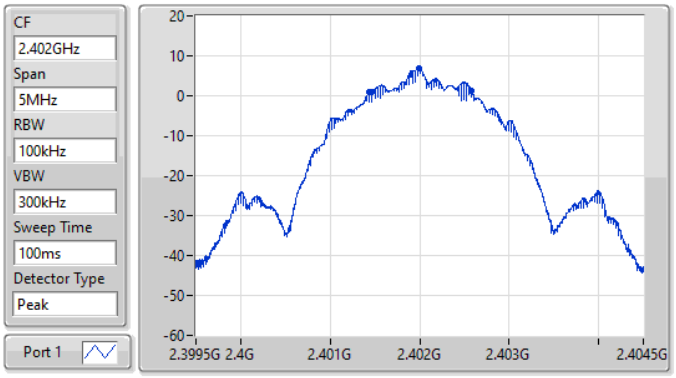


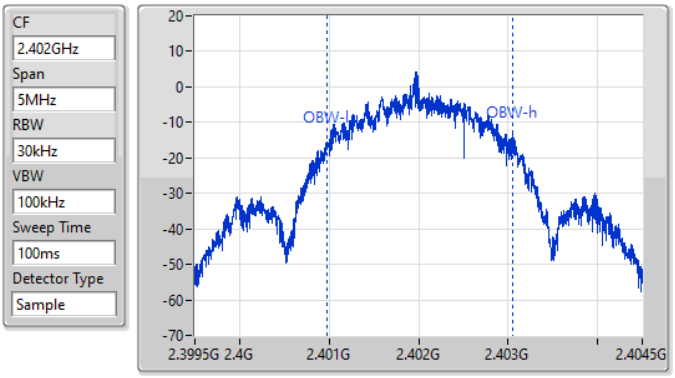
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
772.5k	2.47958G	2.480353G	1.061M	2.4794887G	2.480547G	500k	1

BT-LE(2Mbps) EBW-DTS

2402MHz

12/07/2021



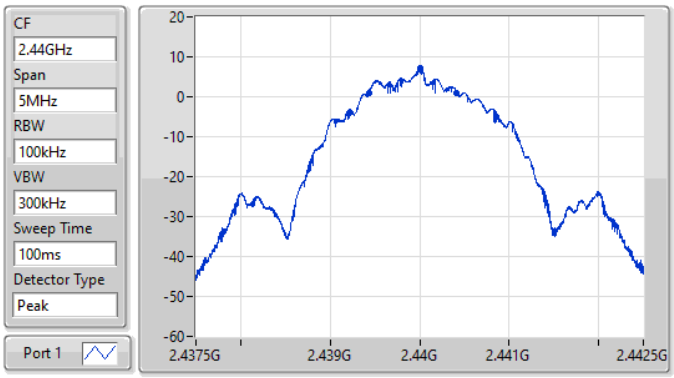


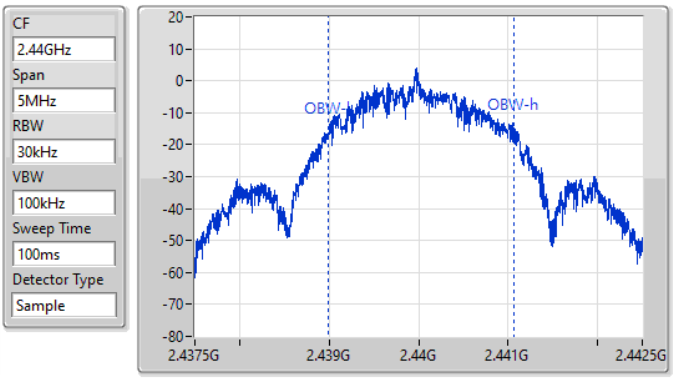
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.135M	2.401443G	2.402578G	2.081M	2.400973G	2.403054G	500k	1

BT-LE(2Mbps) EBW-DTS

2440MHz

12/07/2021



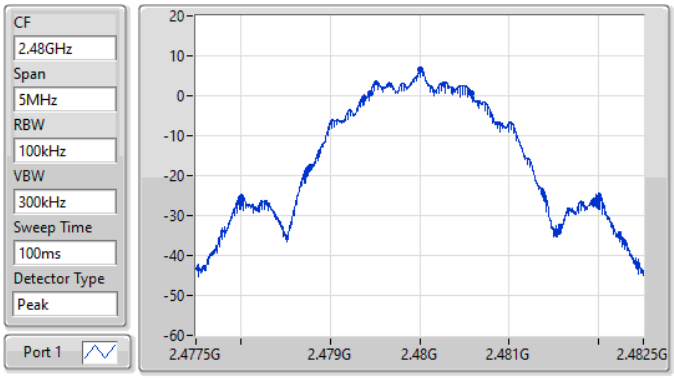


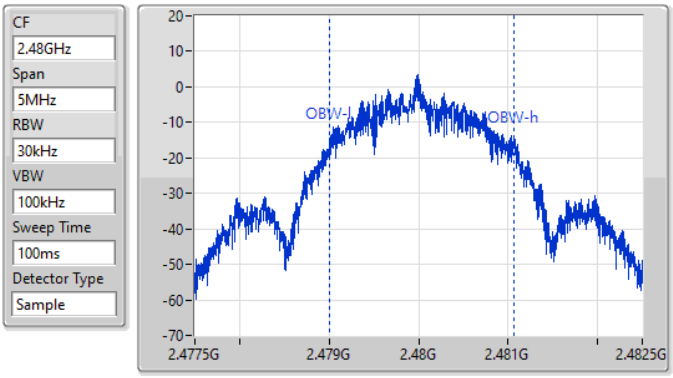
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
985k	2.439433G	2.440418G	2.071M	2.438996G	2.441067G	500k	1

BT-LE(2Mbps) EBW-DTS

2480MHz

12/07/2021





6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.133M	2.479445G	2.480578G	2.054M	2.479008G	2.481062G	500k	1

Summary

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	7.49	0.00561
BT-LE(2Mbps)	7.26	0.00532

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	1.83	7.45	30.00
2440MHz	Pass	1.83	7.49	30.00
2480MHz	Pass	1.83	7.08	30.00
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	1.83	7.26	30.00
2440MHz	Pass	1.83	7.20	30.00
2480MHz	Pass	1.83	6.85	30.00

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

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE(1Mbps)	-7.40
BT-LE(2Mbps)	-9.60

RBW = 3kHz;

Result

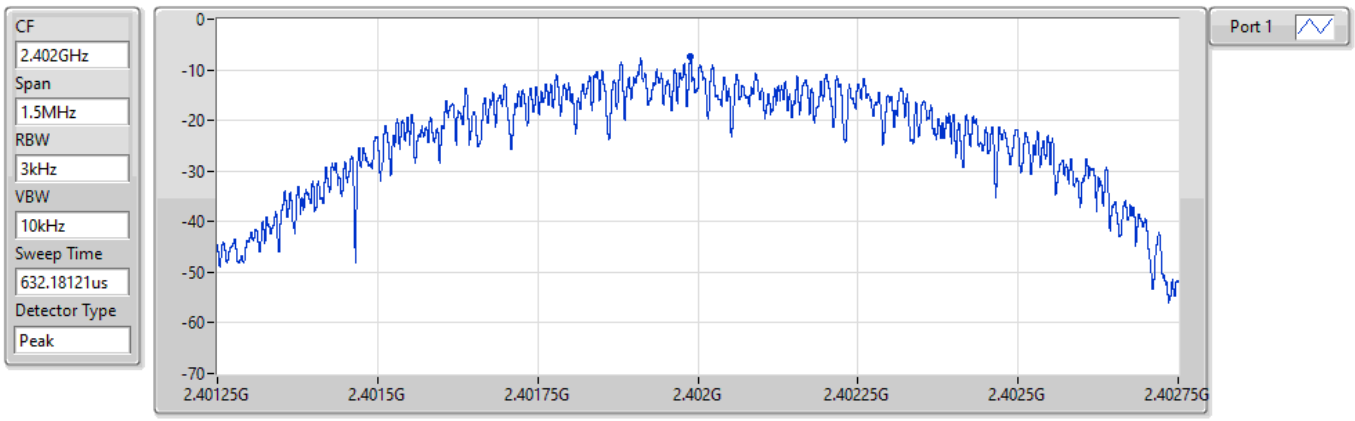
Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	1.83	-7.40	8.00
2440MHz	Pass	1.83	-8.14	8.00
2480MHz	Pass	1.83	-8.76	8.00
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	1.83	-9.79	8.00
2440MHz	Pass	1.83	-9.60	8.00
2480MHz	Pass	1.83	-10.19	8.00

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

12/07/2021

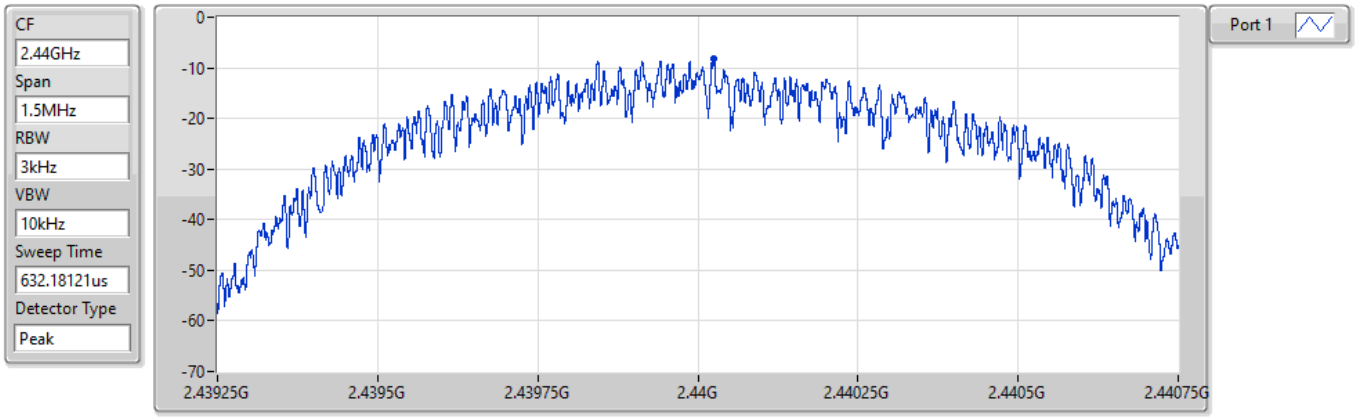


Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-7.40	-7.40	-7.40

BT-LE(1Mbps) PSD

2440MHz

12/07/2021

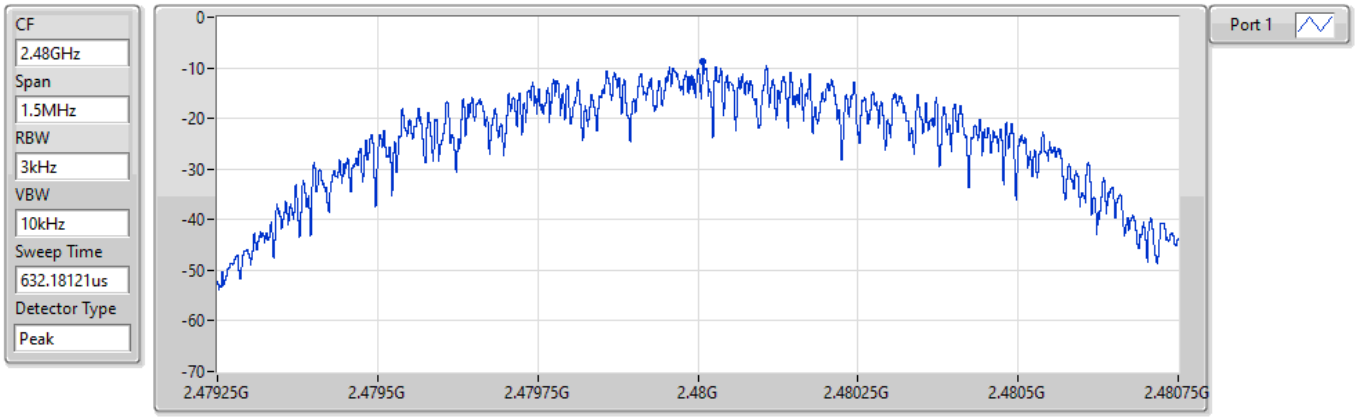


Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-8.14	-8.14	-8.14

BT-LE(1Mbps) PSD

2480MHz

12/07/2021

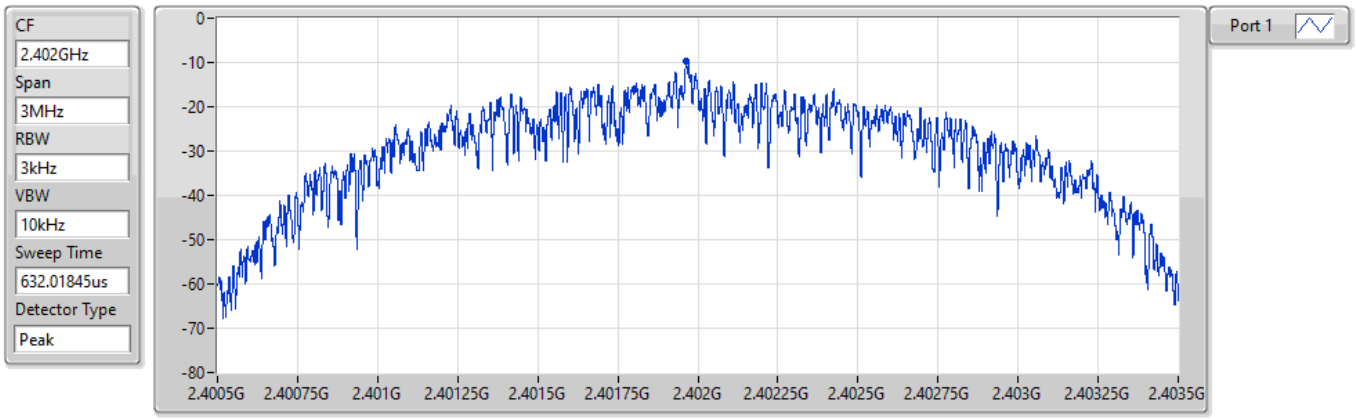


Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-8.76	-8.76	-8.76

BT-LE(2Mbps) PSD

2402MHz

12/07/2021

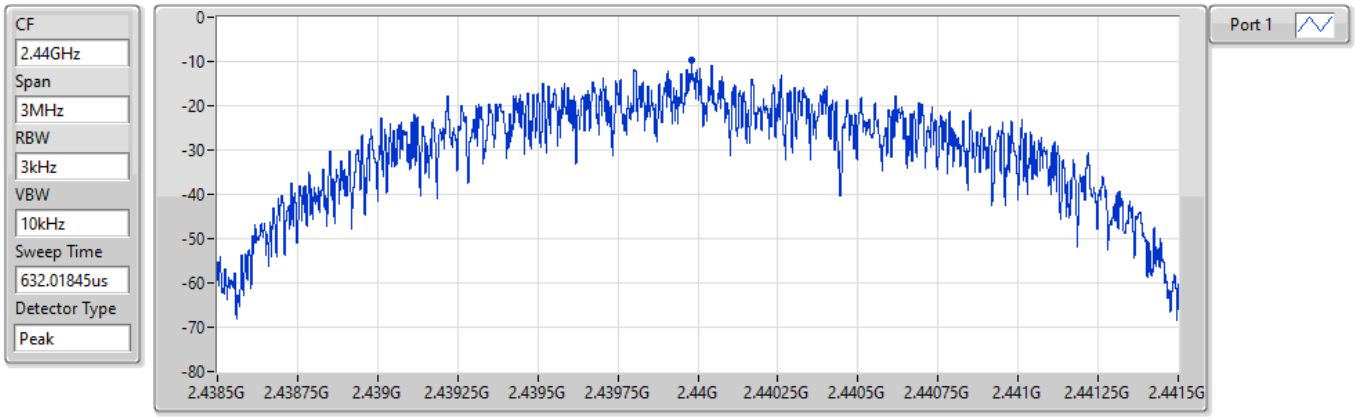


Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-9.79	-9.79	-9.79

BT-LE(2Mbps) PSD

2440MHz

12/07/2021

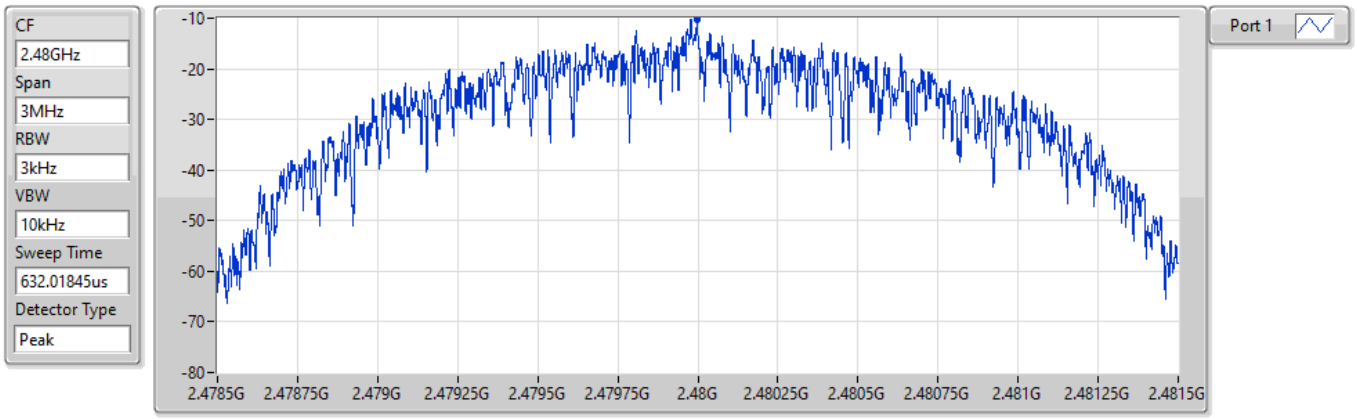


Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-9.60	-9.60	-9.60

BT-LE(2Mbps) PSD

2480MHz

12/07/2021



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-10.19	-10.19	-10.19

Summary

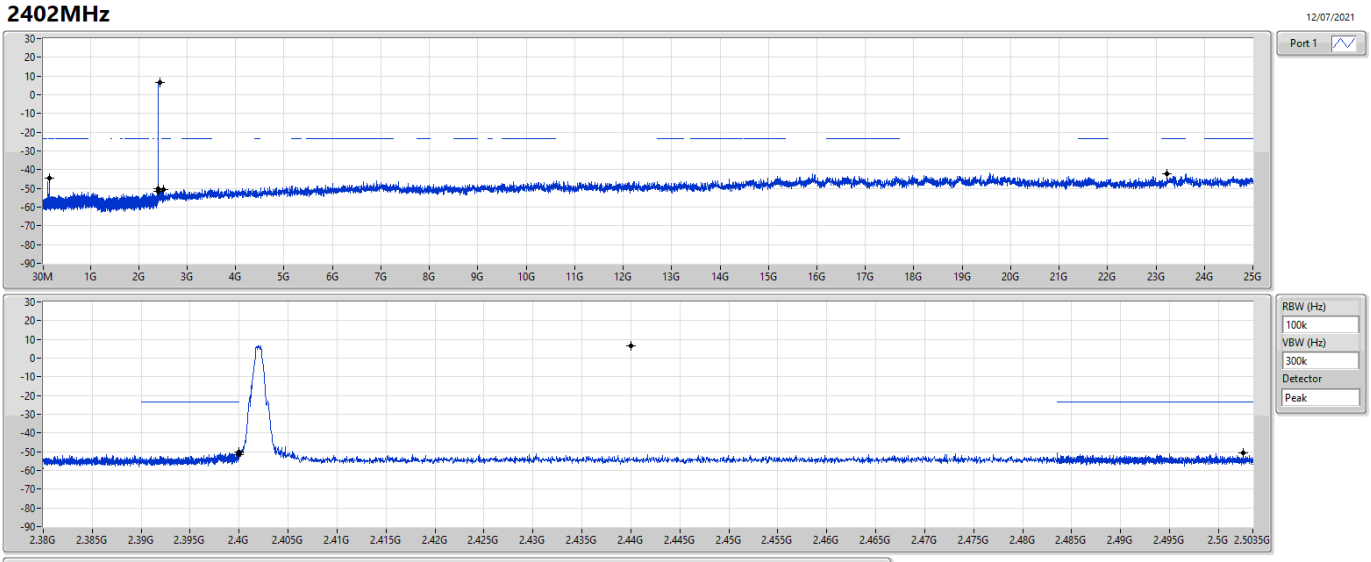
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	2.44004G	6.75	-23.25	159.84M	-43.97	2.39302G	-51.76	2.4835G	-51.30	2.49006G	-50.46	24.67942G	-43.01	1
BT-LE(2Mbps)	Pass	2.40196G	6.94	-23.06	159.84M	-43.16	2.4G	-24.51	2.4G	-24.69	2.49956G	-50.53	16.66505G	-42.74	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	2.44004G	6.75	-23.25	159.84M	-44.55	2.39998G	-50.12	2.4G	-51.48	2.5025G	-50.44	23.22559G	-42.33	1
2440MHz	Pass	2.44004G	6.75	-23.25	159.84M	-44.83	2.39123G	-51.49	2.4835G	-53.68	2.49789G	-50.36	17.62115G	-41.96	1
2480MHz	Pass	2.44004G	6.75	-23.25	159.84M	-43.97	2.39302G	-51.76	2.4835G	-51.30	2.49006G	-50.46	24.67942G	-43.01	1
BT-LE(2Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.40196G	6.94	-23.06	159.84M	-43.16	2.4G	-24.51	2.4G	-24.69	2.49956G	-50.53	16.66505G	-42.74	1
2440MHz	Pass	2.40196G	6.94	-23.06	159.84M	-44.56	2.39946G	-51.08	2.4835G	-53.04	2.49066G	-51.04	17.61552G	-43.01	1
2480MHz	Pass	2.40196G	6.94	-23.06	159.84M	-44.37	2.39491G	-51.89	2.4835G	-51.08	2.48411G	-50.06	24.57257G	-42.03	1

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

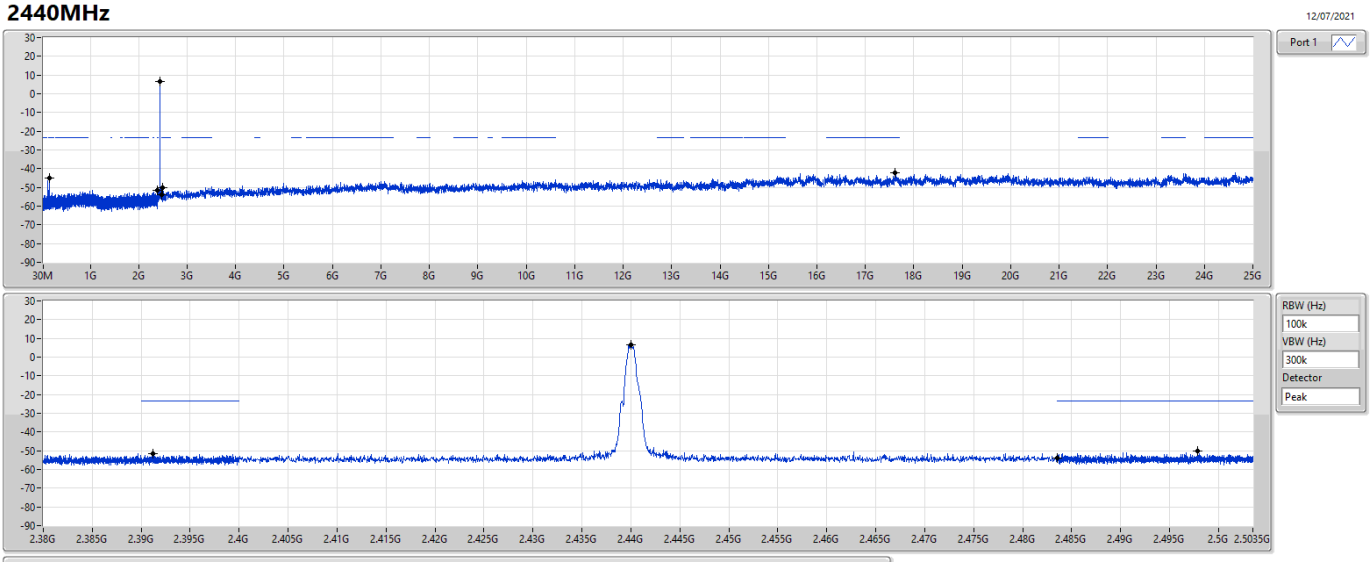
2402MHz



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
2.44004G	6.75	-23.25	159.84M	-44.55	2.39998G	-50.12	2.4G	-51.48	2.5025G	-50.44	23.22559G	-42.33	1

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

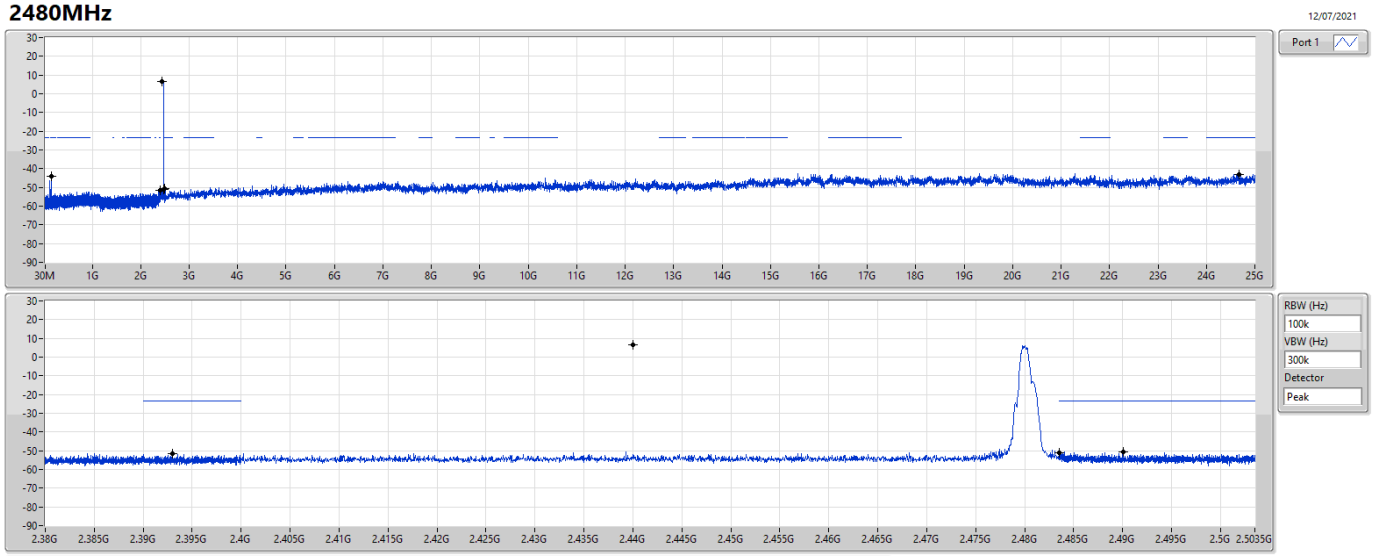
2440MHz



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
2.44004G	6.75	-23.25	159.84M	-44.83	2.39123G	-51.49	2.4835G	-53.68	2.49789G	-50.36	17.62115G	-41.96	1

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

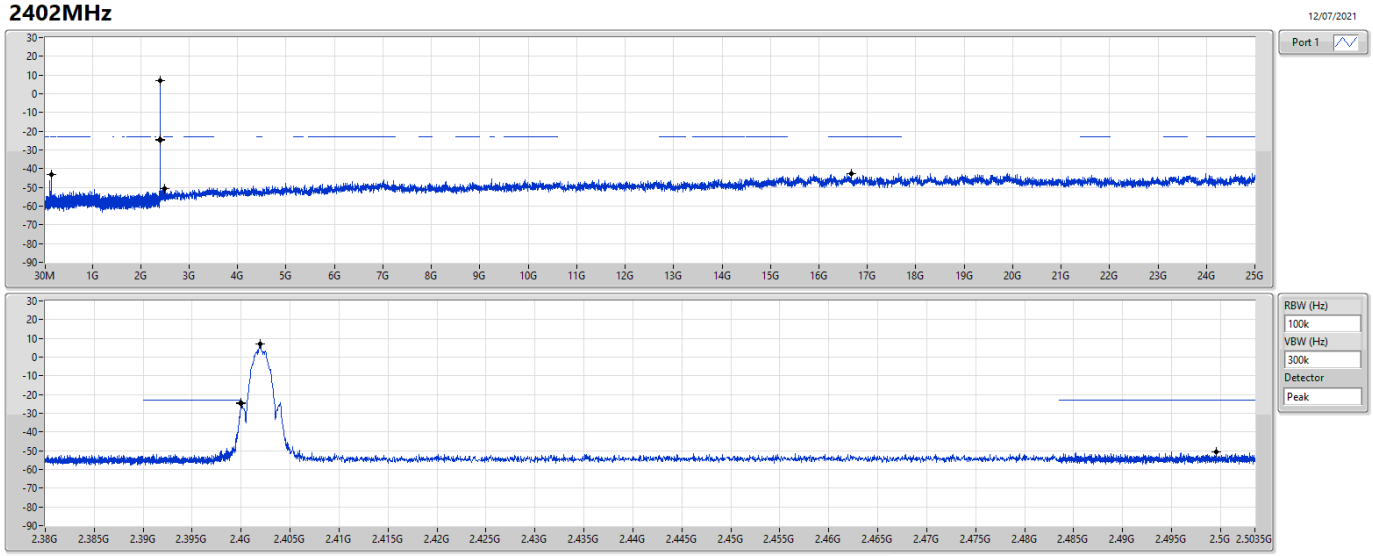
2480MHz



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
2.44004G	6.75	-23.25	159.84M	-43.97	2.39302G	-51.76	2.4835G	-51.30	2.49006G	-50.46	24.67942G	-43.01	1

BT-LE(2Mbps) **CSENdB-DTS**

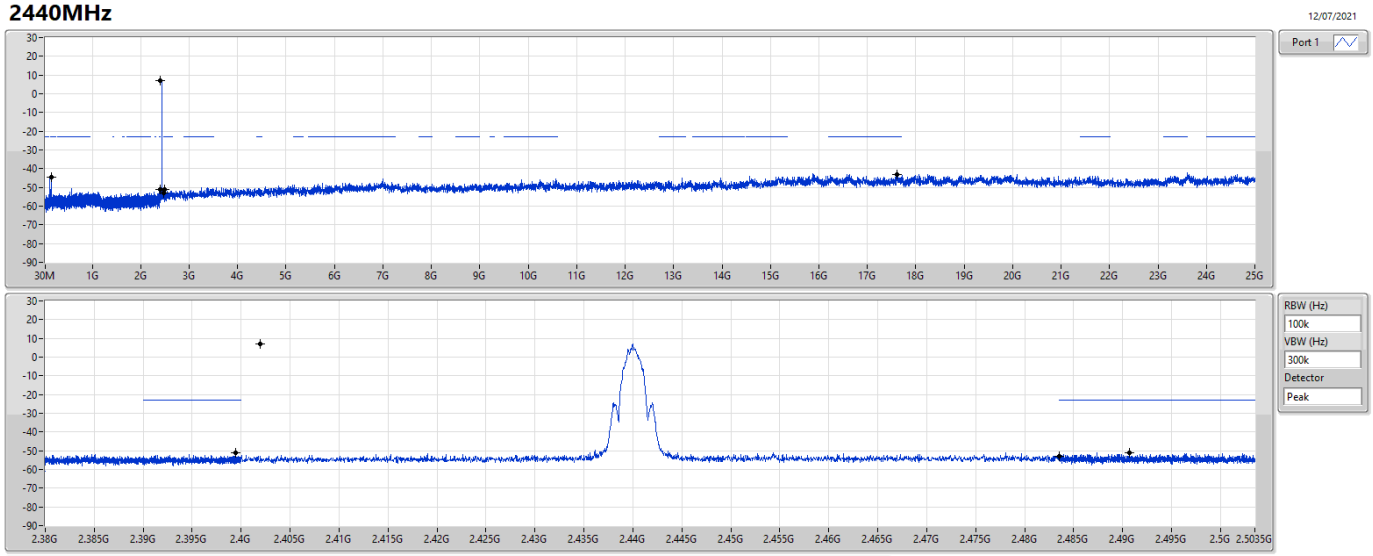
2402MHz



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
2.40196G	6.94	-23.06	159.84M	-43.16	2.4G	-24.51	2.4G	-24.69	2.49956G	-50.53	16.66505G	-42.74	1

BT-LE(2Mbps) **CSENdB-DTS**

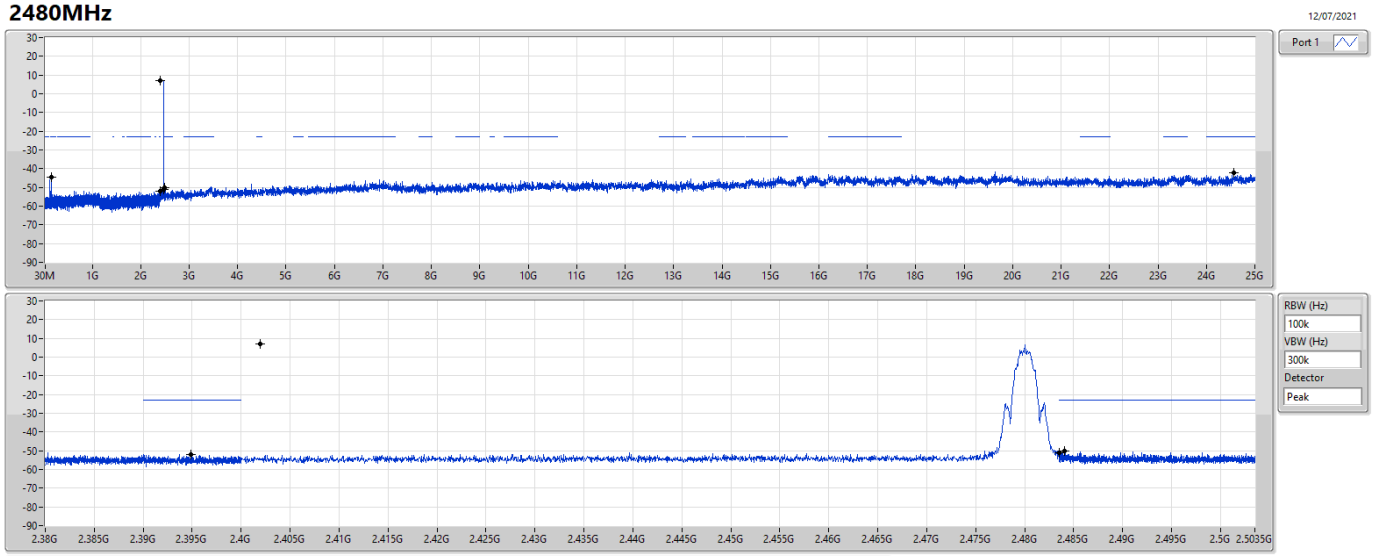
2440MHz



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
2.40196G	6.94	-23.06	159.84M	-44.56	2.39946G	-51.08	2.4835G	-53.04	2.49066G	-51.04	17.61552G	-43.01	1

BT-LE(2Mbps) **CSENdB-DTS**

2480MHz



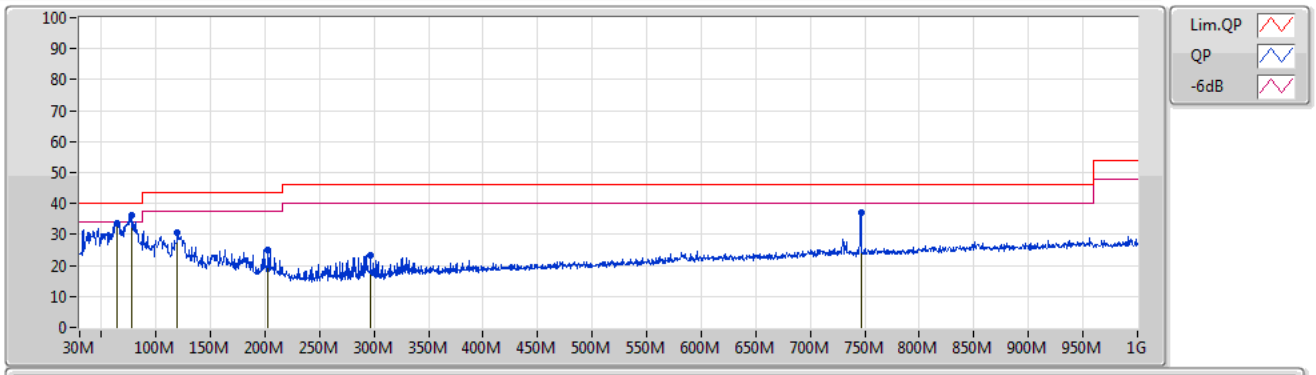
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.40196G	6.94	-23.06	159.84M	-44.37	2.39491G	-51.89	2.4835G	-51.08	2.48411G	-50.06	24.57257G	-42.03	1

Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 3	Pass	PK	77.53M	36.26	40.00	-3.74	Vertical

Mode 3

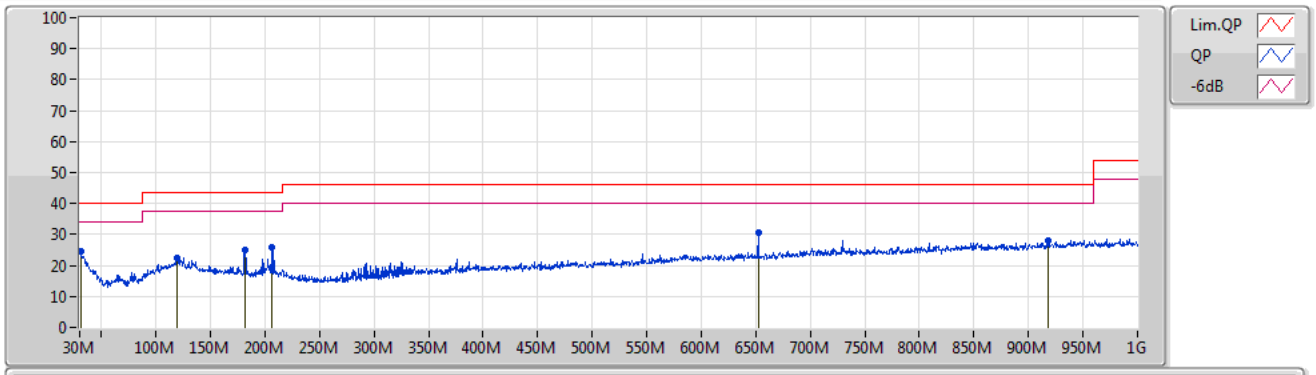
12/07/2021



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	64.44M	33.56	40.00	-6.44	-13.77	3	Vertical	53	1.00	-	47.33	12.32	1.79	27.88
PK	77.53M	36.26	40.00	-3.74	-13.27	3	Vertical	72	1.00	"Worst"	49.53	12.51	2.05	27.83
PK	119.73M	30.74	43.50	-12.76	-6.61	3	Vertical	86	3.00	-	37.35	18.33	2.70	27.64
PK	202.66M	25.00	43.50	-18.50	-7.45	3	Vertical	153	2.00	-	32.45	16.10	3.02	26.57
PK	296.75M	23.35	46.00	-22.65	-9.39	3	Vertical	156	2.00	-	32.74	13.21	3.77	26.37
PK	746.35M	37.08	46.00	-8.92	-1.20	3	Vertical	228	1.00	-	38.28	20.41	5.99	27.60

Mode 3

12/07/2021



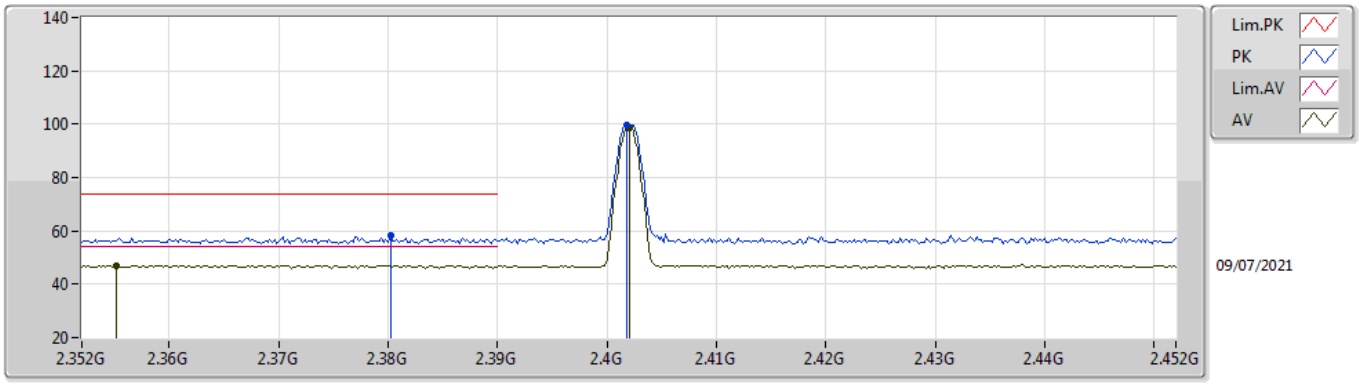
Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
PK	30.97M	24.40	40.00	-15.60	-3.33	3	Horizontal	331	1.00	-	27.73	23.52	1.04	27.89
PK	119.24M	22.55	43.50	-20.95	-6.65	3	Horizontal	149	1.00	-	29.20	18.31	2.69	27.65
PK	181.81M	25.13	43.50	-18.37	-8.60	3	Horizontal	329	2.00	-	33.73	15.24	3.52	27.36
PK	206.54M	25.79	43.50	-17.71	-8.04	3	Horizontal	124	4.00	-	33.83	15.46	3.05	26.55
PK	652.26M	30.63	46.00	-15.37	-2.93	3	Horizontal	64	2.00	"Worst"	33.56	19.20	5.61	27.74
PK	917.55M	27.84	46.00	-18.16	2.08	3	Horizontal	26	3.00	-	25.76	21.87	6.74	26.53

Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
BT-LE(2Mbps)	Pass	AV	4.804G	51.05	54.00	-2.95	3	Horizontal	171	2.14	-

BT-LE(1Mbps)

2402MHz_TX

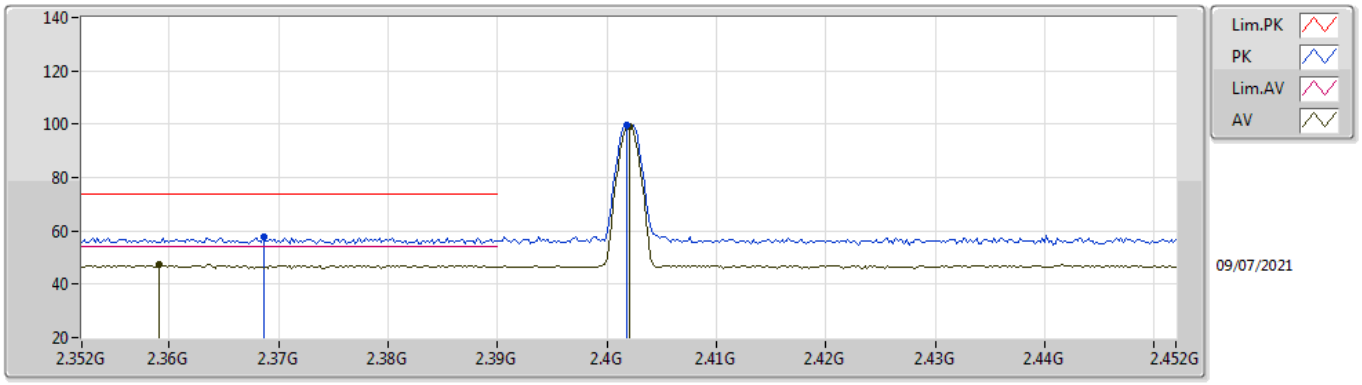


EUT X_1TX
Setting Default
05-G-E-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.3802G	58.52	74.00	-15.48	28.32	3	Vertical	84	3.00	-	27.62	2.58	-
AV	2.3552G	46.95	54.00	-7.05	16.62	3	Vertical	84	3.00	-	27.77	2.56	-
PK	2.4018G	99.54	Inf	-Inf	69.44	3	Vertical	84	3.00	-	27.50	2.60	-
AV	2.402G	98.73	Inf	-Inf	68.63	3	Vertical	84	3.00	-	27.50	2.60	-

BT-LE(1Mbps)

2402MHz_TX

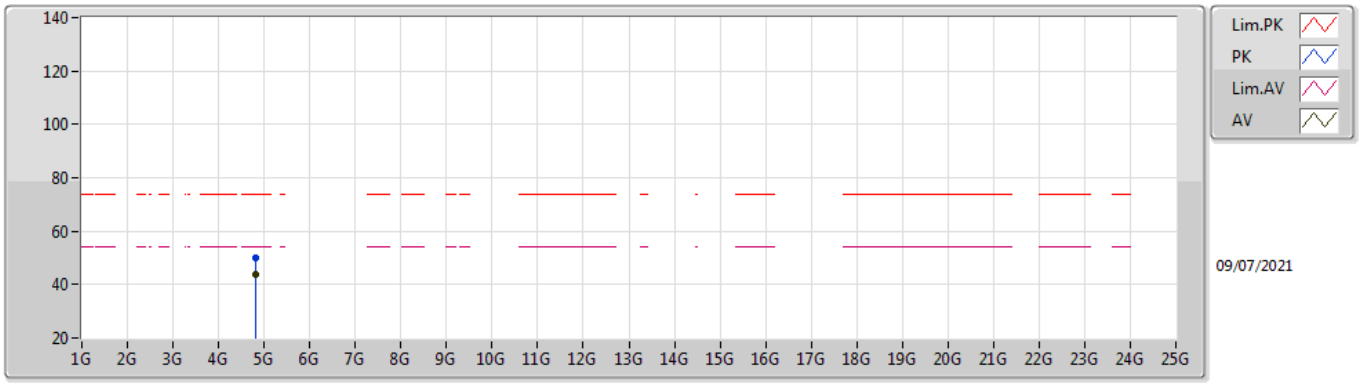


EUT X_1TX
Setting Default
05-G-E-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.3686G	57.54	74.00	-16.46	27.28	3	Horizontal	343	2.77	-	27.69	2.57	-
AV	2.359G	47.19	54.00	-6.81	16.88	3	Horizontal	343	2.77	-	27.75	2.56	-
PK	2.4018G	99.79	Inf	-Inf	69.69	3	Horizontal	343	2.77	-	27.50	2.60	-
AV	2.402G	98.97	Inf	-Inf	68.87	3	Horizontal	343	2.77	-	27.50	2.60	-

BT-LE(1Mbps)

2402MHz_TX

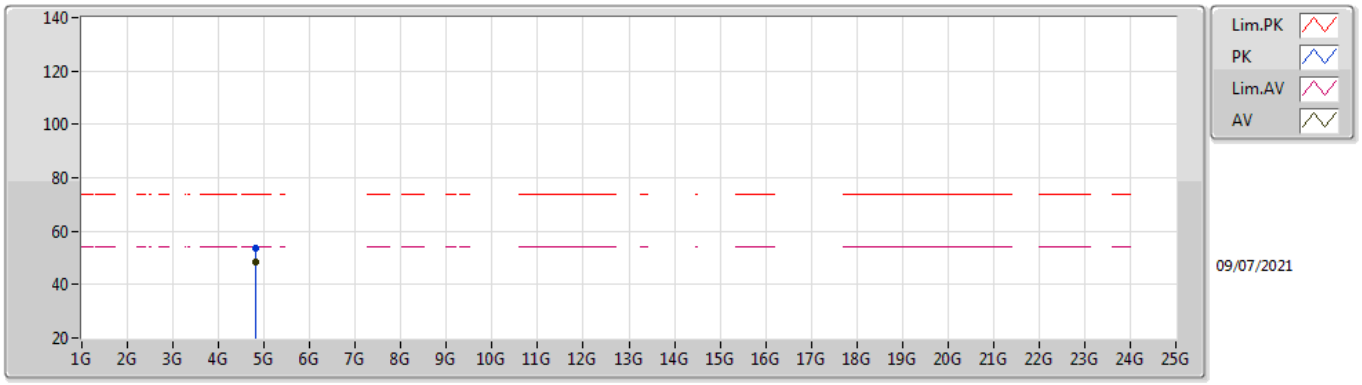


EUT X_1TX
Setting Default
05-G-E-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.80454G	50.00	74.00	-24.00	48.57	3	Vertical	216	1.81	-	31.31	6.01	35.89
AV	4.8039G	43.62	54.00	-10.38	42.19	3	Vertical	216	1.81	-	31.31	6.01	35.89

BT-LE(1Mbps)

2402MHz_TX

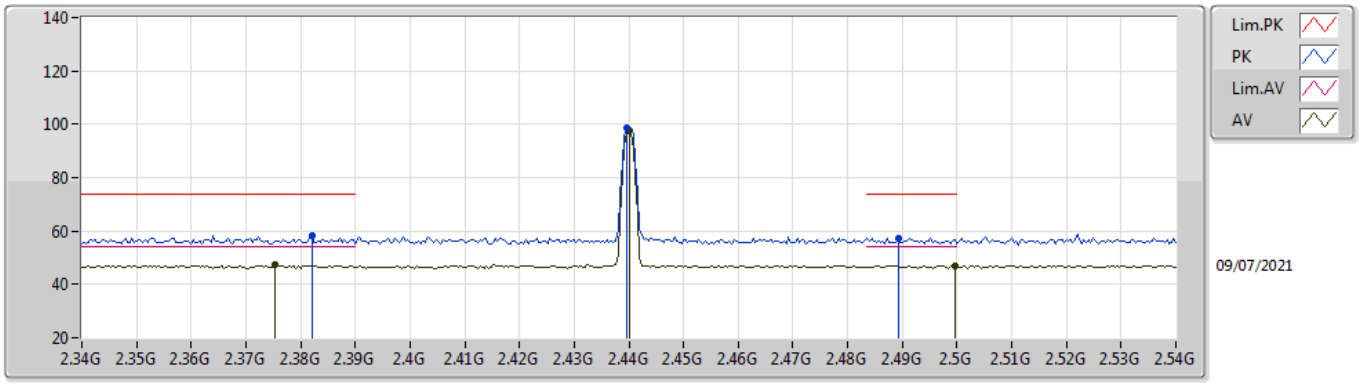


EUT X_1TX
Setting Default
05-G-E-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.80388G	53.47	74.00	-20.53	52.04	3	Horizontal	171	2.40	-	31.31	6.01	35.89
AV	4.80398G	48.65	54.00	-5.35	47.22	3	Horizontal	171	2.40	-	31.31	6.01	35.89

BT-LE(1Mbps)

2440MHz_TX

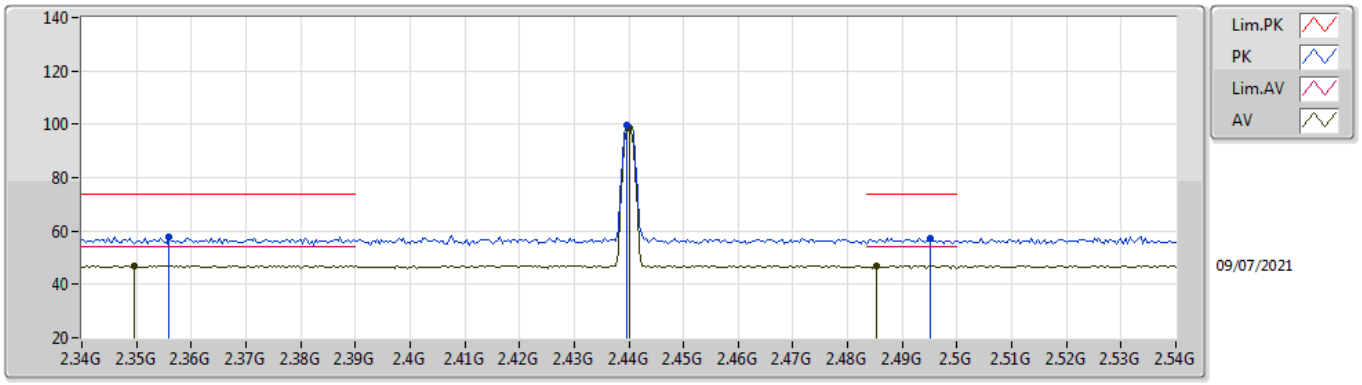


EUT X_1TX
Setting Default
05-G-E-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.382G	58.45	74.00	-15.55	28.26	3	Vertical	126	2.31	-	27.61	2.58	-
AV	2.3752G	47.17	54.00	-6.83	16.94	3	Vertical	126	2.31	-	27.65	2.58	-
PK	2.4396G	98.71	Inf	-Inf	68.65	3	Vertical	126	2.31	-	27.42	2.64	-
AV	2.44G	97.77	Inf	-Inf	67.71	3	Vertical	126	2.31	-	27.42	2.64	-
PK	2.4892G	57.47	74.00	-16.53	27.46	3	Vertical	126	2.31	-	27.32	2.69	-
AV	2.4996G	46.91	54.00	-7.09	16.91	3	Vertical	126	2.31	-	27.30	2.70	-

BT-LE(1Mbps)

2440MHz_TX

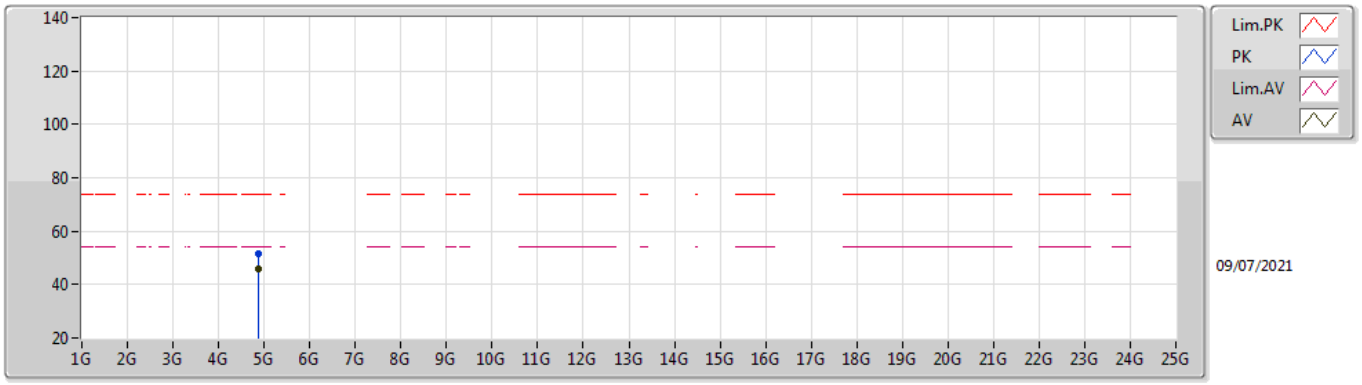


EUT X_1TX
Setting Default
05-G-E-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.356G	57.86	74.00	-16.14	27.54	3	Horizontal	211	1.29	-	27.76	2.56	-
AV	2.3496G	46.95	54.00	-7.05	16.60	3	Horizontal	211	1.29	-	27.80	2.55	-
PK	2.4396G	99.60	Inf	-Inf	69.54	3	Horizontal	211	1.29	-	27.42	2.64	-
AV	2.44G	98.77	Inf	-Inf	68.71	3	Horizontal	211	1.29	-	27.42	2.64	-
PK	2.4952G	57.32	74.00	-16.68	27.31	3	Horizontal	211	1.29	-	27.31	2.70	-
AV	2.4852G	46.93	54.00	-7.07	16.91	3	Horizontal	211	1.29	-	27.33	2.69	-

BT-LE(1Mbps)

2440MHz_TX

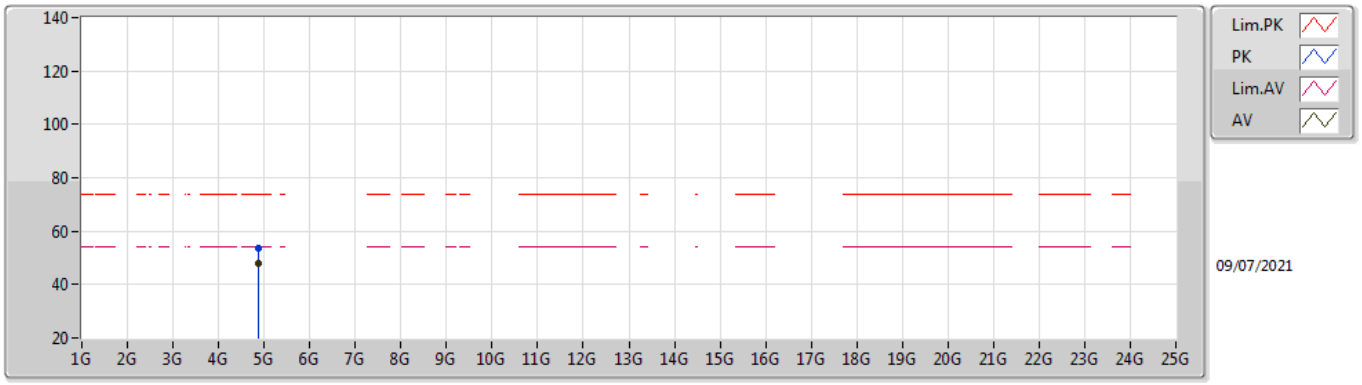


EUT X_1TX
Setting Default
05-G-E-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.87962G	51.36	74.00	-22.64	49.82	3	Vertical	215	1.04	-	31.28	6.12	35.86
AV	4.87998G	45.92	54.00	-8.08	44.38	3	Vertical	215	1.04	-	31.28	6.12	35.86

BT-LE(1Mbps)

2440MHz_TX

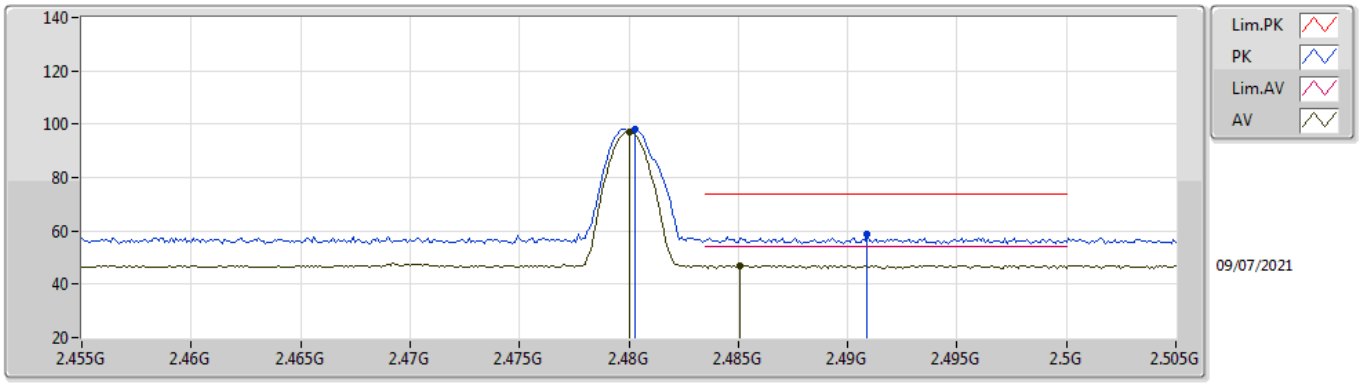


EUT X_1TX
Setting Default
05-G-E-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.8797G	53.82	74.00	-20.18	52.28	3	Horizontal	176	1.08	-	31.28	6.12	35.86
AV	4.87992G	48.18	54.00	-5.82	46.64	3	Horizontal	176	1.08	-	31.28	6.12	35.86

BT-LE(1Mbps)

2480MHz_TX

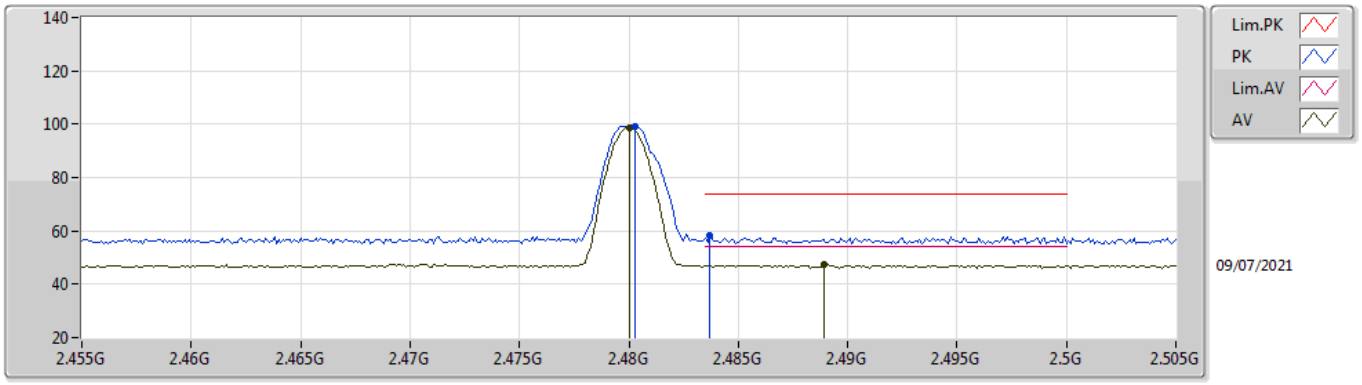


EUT X_1TX
Setting Default
05-G-E-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.4803G	97.92	Inf	-Inf	67.90	3	Vertical	114	1.80	-	27.34	2.68	-
AV	2.48G	97.06	Inf	-Inf	67.04	3	Vertical	114	1.80	-	27.34	2.68	-
PK	2.4909G	59.05	74.00	-14.95	29.04	3	Vertical	114	1.80	-	27.32	2.69	-
AV	2.4851G	46.93	54.00	-7.07	16.91	3	Vertical	114	1.80	-	27.33	2.69	-

BT-LE(1Mbps)

2480MHz_TX

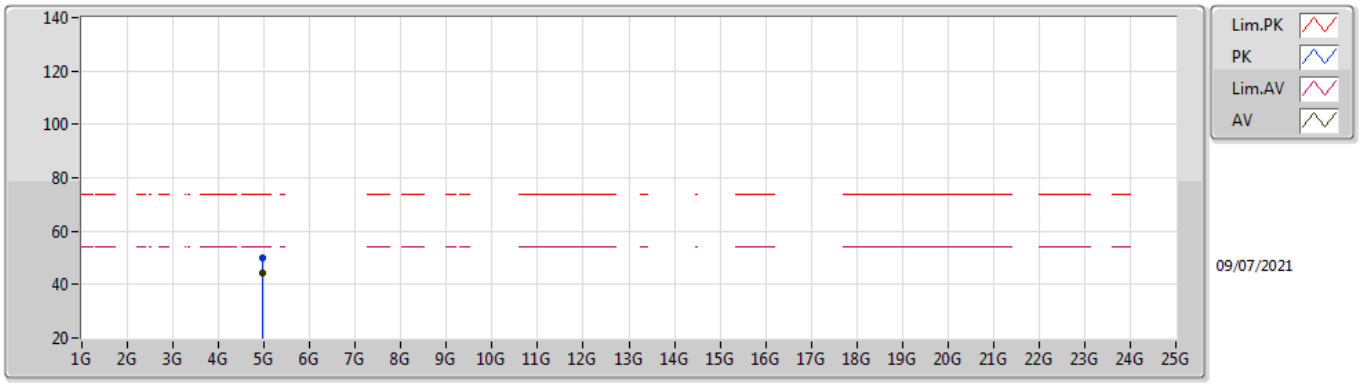


EUT X_1TX
Setting Default
05-G-E-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.4803G	99.38	Inf	-Inf	69.36	3	Horizontal	217	1.41	-	27.34	2.68	-
AV	2.48G	98.53	Inf	-Inf	68.51	3	Horizontal	217	1.41	-	27.34	2.68	-
PK	2.4837G	58.40	74.00	-15.60	28.39	3	Horizontal	217	1.41	-	27.33	2.68	-
AV	2.4889G	47.17	54.00	-6.83	17.16	3	Horizontal	217	1.41	-	27.32	2.69	-

BT-LE(1Mbps)

2480MHz_TX

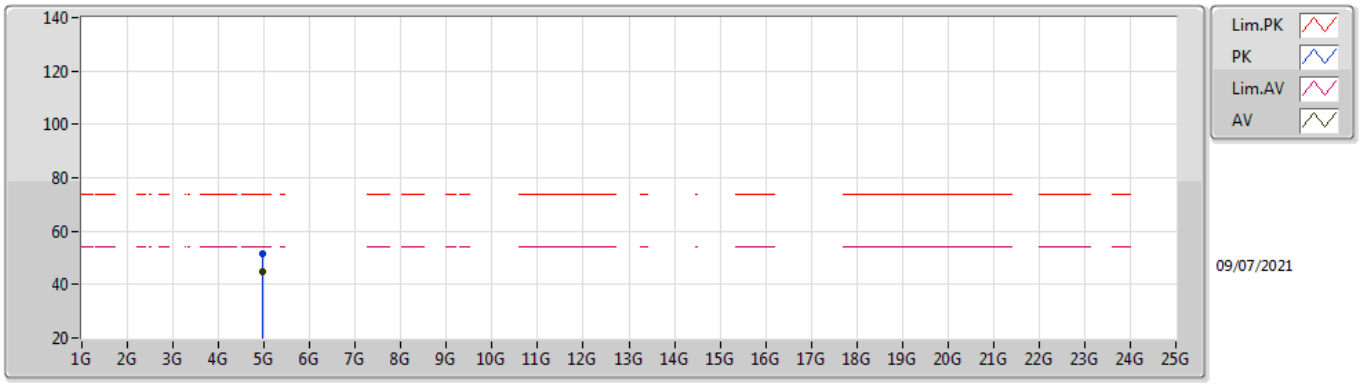


EUT X_1TX
Setting Default
05-G-E-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.95956G	49.86	74.00	-24.14	48.01	3	Vertical	331	1.11	-	31.44	6.24	35.83
AV	4.95994G	44.25	54.00	-9.75	42.40	3	Vertical	331	1.11	-	31.44	6.24	35.83

BT-LE(1Mbps)

2480MHz_TX

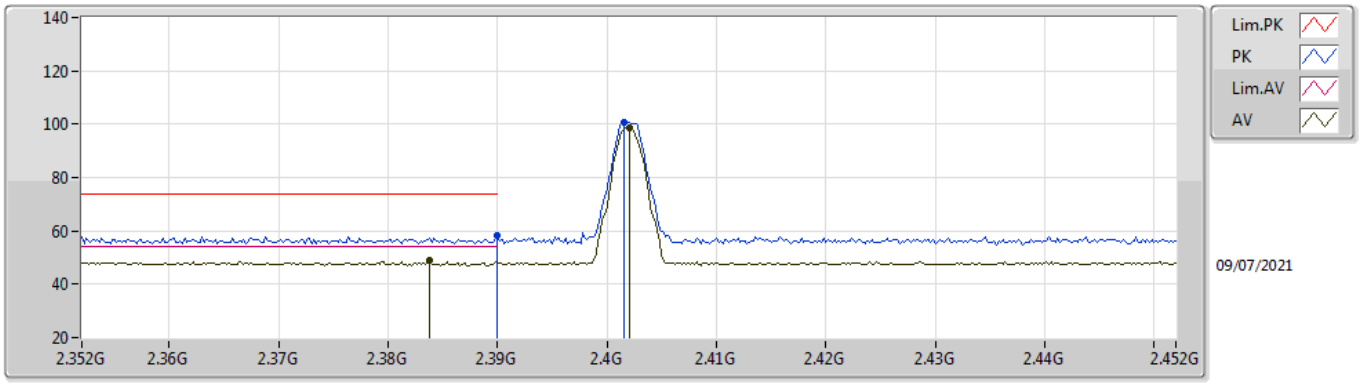


EUT X_1TX
Setting Default
05-G-E-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.95932G	51.45	74.00	-22.55	49.60	3	Horizontal	205	2.52	-	31.44	6.24	35.83
AV	4.95994G	44.77	54.00	-9.23	42.92	3	Horizontal	205	2.52	-	31.44	6.24	35.83

BT-LE(2Mbps)

2402MHz_TX

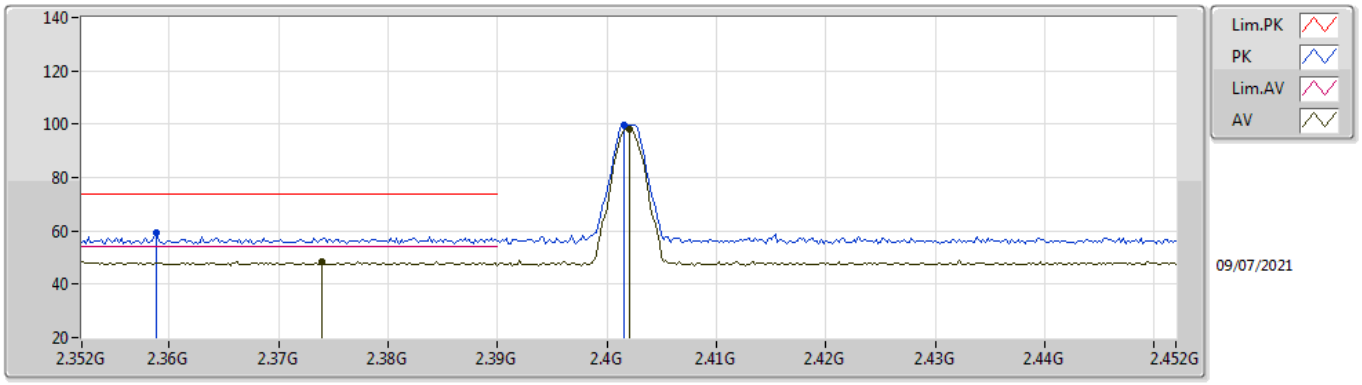


EUT X_1TX
Setting Default
05-G-E-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.39G	58.02	74.00	-15.98	27.87	3	Vertical	112	3.00	-	27.56	2.59	-
AV	2.3838G	48.73	54.00	-5.27	18.55	3	Vertical	112	3.00	-	27.60	2.58	-
PK	2.4016G	100.52	Inf	-Inf	70.42	3	Vertical	112	3.00	-	27.50	2.60	-
AV	2.402G	98.83	Inf	-Inf	68.73	3	Vertical	112	3.00	-	27.50	2.60	-

BT-LE(2Mbps)

2402MHz_TX

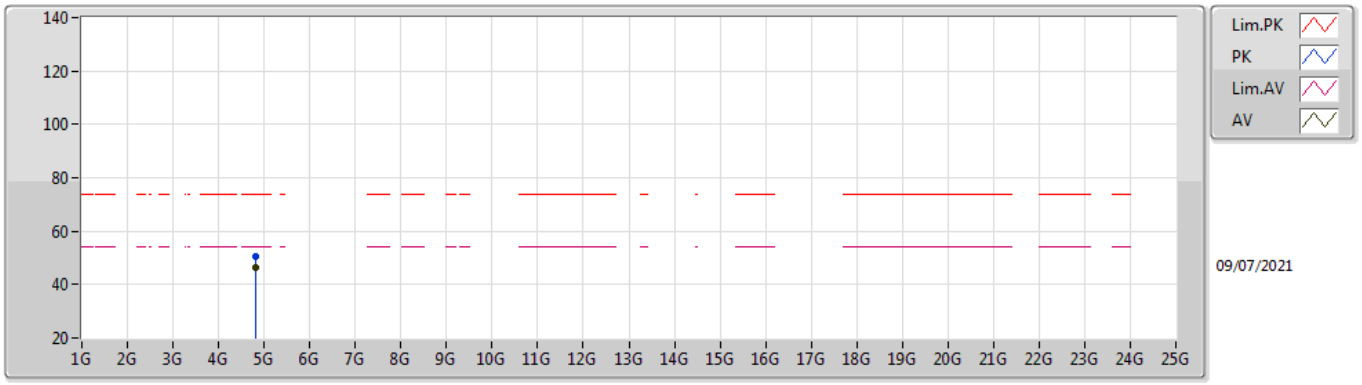


EUT X_1TX
Setting Default
05-G-E-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.3588G	59.50	74.00	-14.50	29.19	3	Horizontal	344	2.77	-	27.75	2.56	-
AV	2.374G	48.54	54.00	-5.46	18.31	3	Horizontal	344	2.77	-	27.66	2.57	-
PK	2.4016G	99.83	Inf	-Inf	69.73	3	Horizontal	344	2.77	-	27.50	2.60	-
AV	2.402G	98.14	Inf	-Inf	68.04	3	Horizontal	344	2.77	-	27.50	2.60	-

BT-LE(2Mbps)

2402MHz_TX

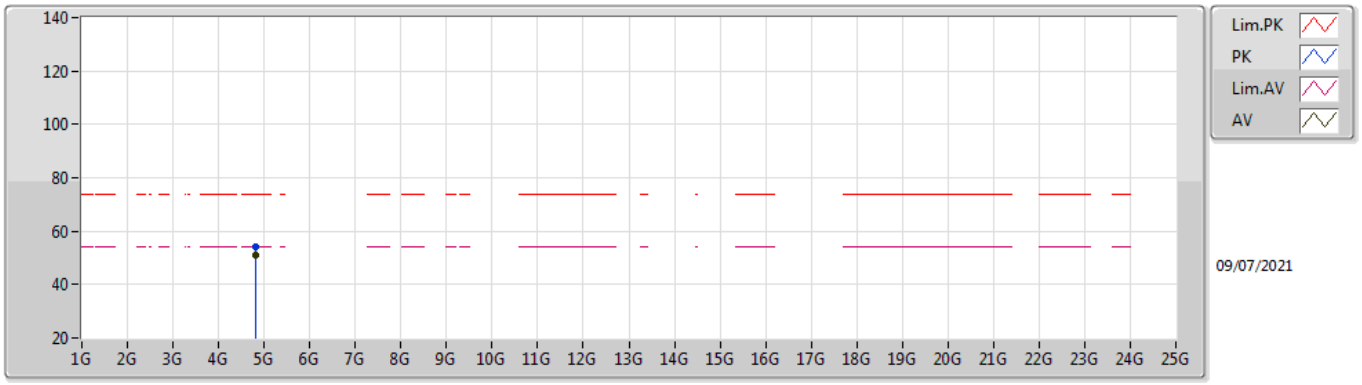


EUT X_1TX
Setting Default
05-G-E-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.80388G	50.65	74.00	-23.35	49.22	3	Vertical	219	2.04	-	31.31	6.01	35.89
AV	4.80392G	46.46	54.00	-7.54	45.03	3	Vertical	219	2.04	-	31.31	6.01	35.89

BT-LE(2Mbps)

2402MHz_TX

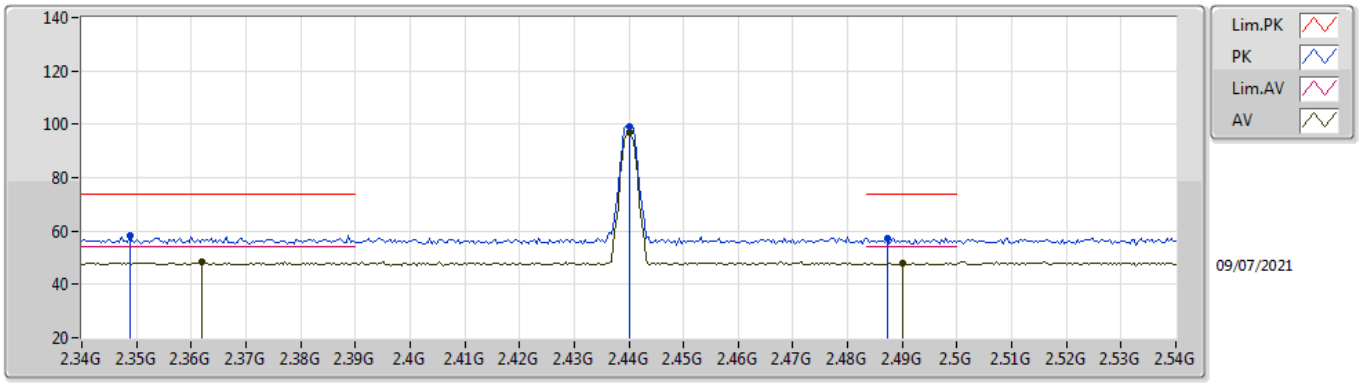


EUT X_1TX
Setting Default
05-G-E-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.804G	54.08	74.00	-19.92	52.65	3	Horizontal	171	2.14	-	31.31	6.01	35.89
AV	4.804G	51.05	54.00	-2.95	49.62	3	Horizontal	171	2.14	-	31.31	6.01	35.89

BT-LE(2Mbps)

2440MHz_TX

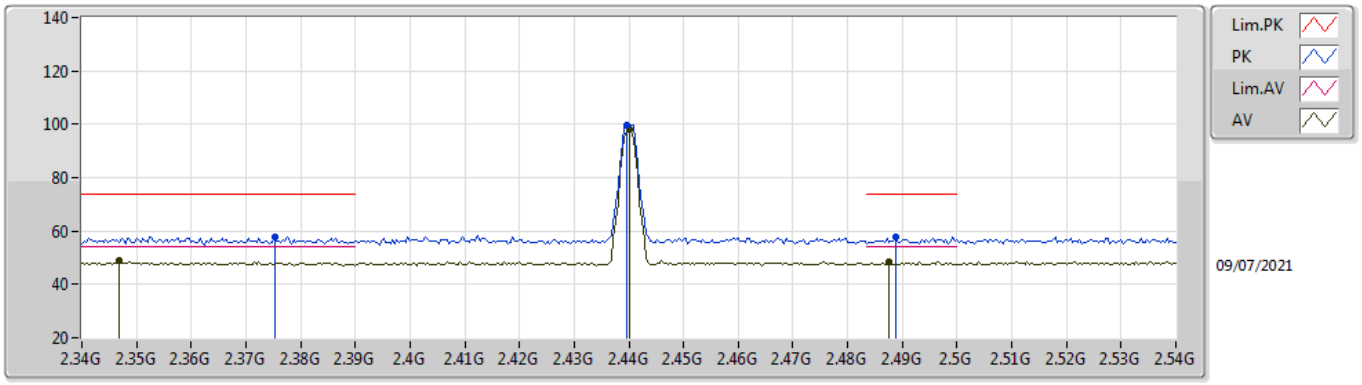


EUT X_1TX
Setting Default
05-G-E-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.3488G	58.22	74.00	-15.78	27.87	3	Vertical	126	1.79	-	27.80	2.55	-
AV	2.362G	48.34	54.00	-5.66	18.05	3	Vertical	126	1.79	-	27.73	2.56	-
PK	2.44G	98.96	Inf	-Inf	68.90	3	Vertical	126	1.79	-	27.42	2.64	-
AV	2.44G	97.11	Inf	-Inf	67.05	3	Vertical	126	1.79	-	27.42	2.64	-
PK	2.4872G	57.40	74.00	-16.60	27.38	3	Vertical	126	1.79	-	27.33	2.69	-
AV	2.49G	48.11	54.00	-5.89	18.10	3	Vertical	126	1.79	-	27.32	2.69	-

BT-LE(2Mbps)

2440MHz_TX

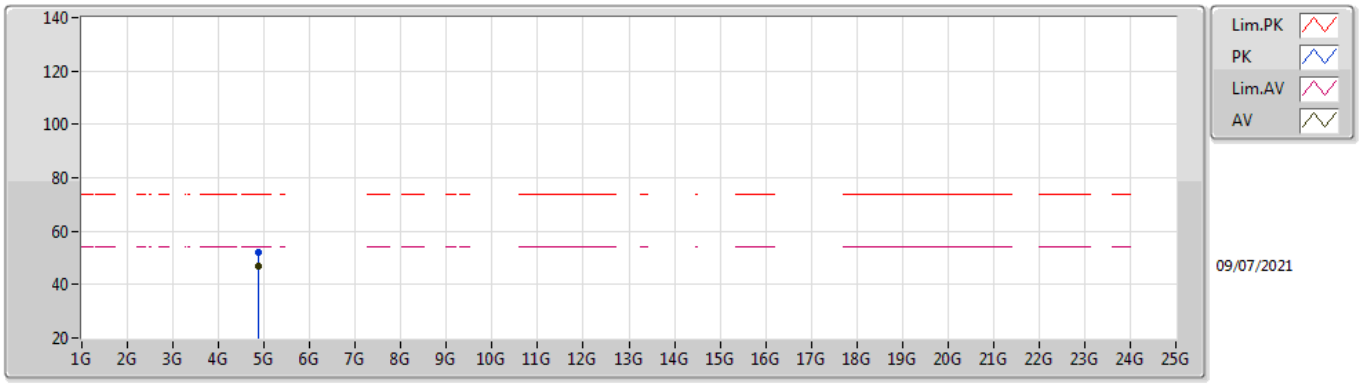


EUT X_1TX
Setting Default
05-G-E-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.3752G	57.83	74.00	-16.17	27.60	3	Horizontal	212	1.24	-	27.65	2.58	-
AV	2.3468G	48.79	54.00	-5.21	18.43	3	Horizontal	212	1.24	-	27.81	2.55	-
PK	2.4396G	99.79	Inf	-Inf	69.73	3	Horizontal	212	1.24	-	27.42	2.64	-
AV	2.44G	98.13	Inf	-Inf	68.07	3	Horizontal	212	1.24	-	27.42	2.64	-
PK	2.4888G	57.77	74.00	-16.23	27.76	3	Horizontal	212	1.24	-	27.32	2.69	-
AV	2.4876G	48.33	54.00	-5.67	18.32	3	Horizontal	212	1.24	-	27.32	2.69	-

BT-LE(2Mbps)

2440MHz_TX

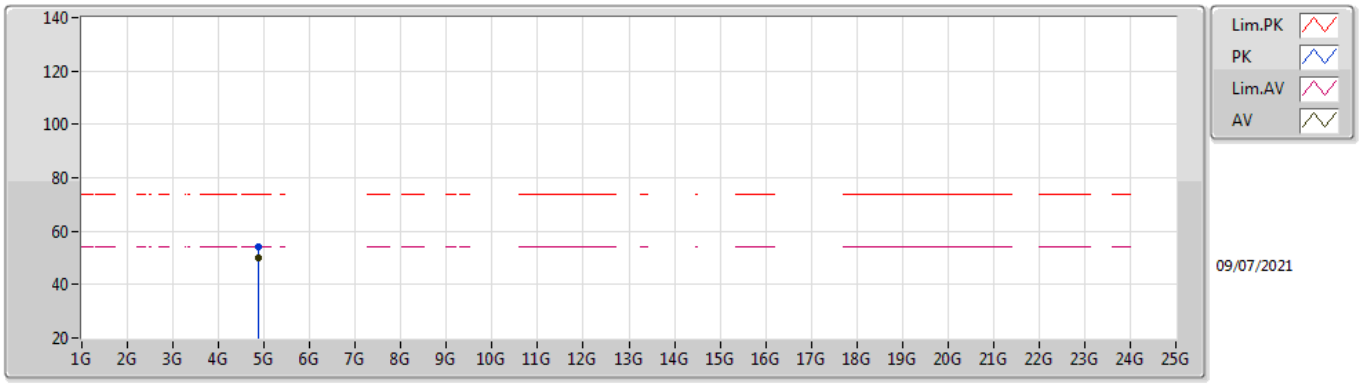


EUT X_1TX
Setting Default
05-G-E-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.87942G	51.82	74.00	-22.18	50.28	3	Vertical	214	1.21	-	31.28	6.12	35.86
AV	4.87998G	47.05	54.00	-6.95	45.51	3	Vertical	214	1.21	-	31.28	6.12	35.86

BT-LE(2Mbps)

2440MHz_TX

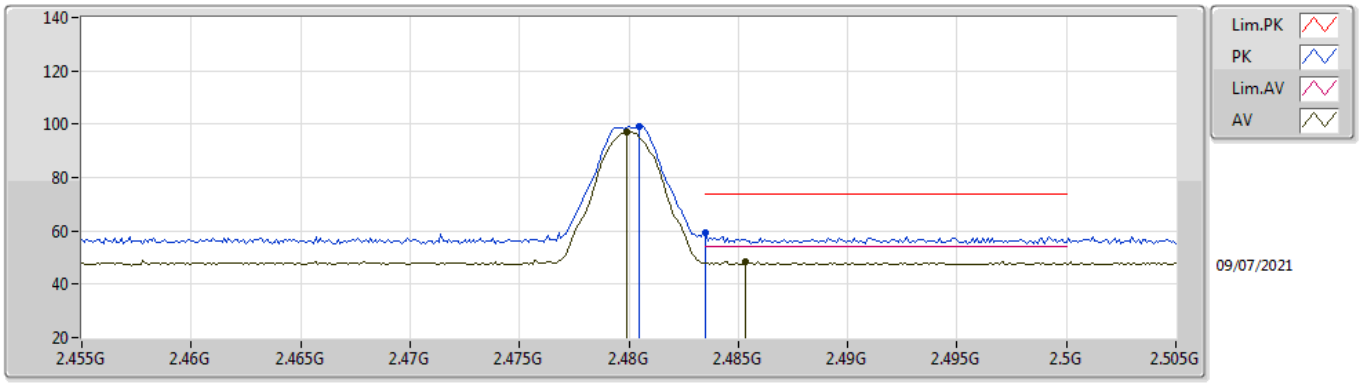


EUT X_1TX
Setting Default
05-G-E-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.87974G	53.98	74.00	-20.02	52.44	3	Horizontal	174	1.00	-	31.28	6.12	35.86
AV	4.87996G	50.16	54.00	-3.84	48.62	3	Horizontal	174	1.00	-	31.28	6.12	35.86

BT-LE(2Mbps)

2480MHz_TX

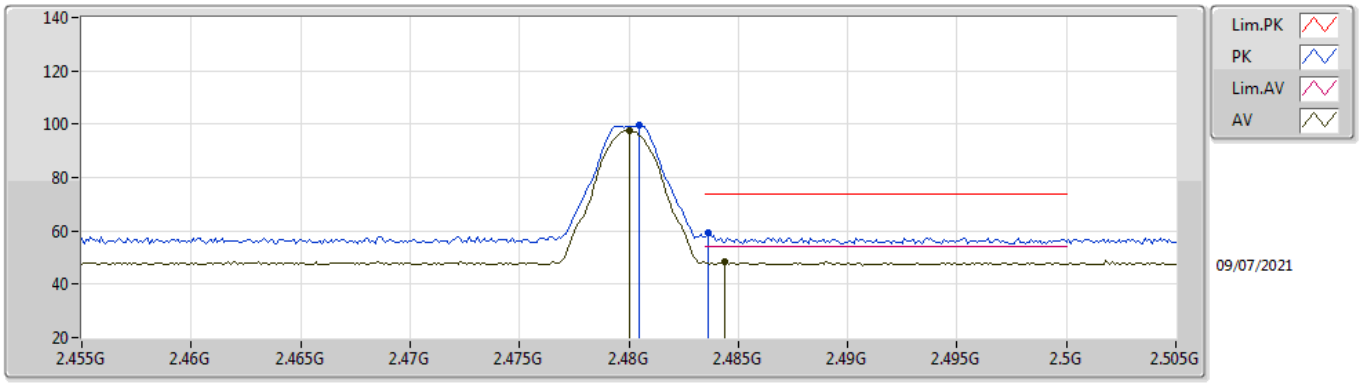


EUT X_1TX
Setting Default
05-G-E-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.4805G	98.95	Inf	-Inf	68.93	3	Vertical	130	2.03	-	27.34	2.68	-
AV	2.4799G	97.18	Inf	-Inf	67.16	3	Vertical	130	2.03	-	27.34	2.68	-
PK	2.4835G	59.18	74.00	-14.82	29.17	3	Vertical	130	2.03	-	27.33	2.68	-
AV	2.4853G	48.34	54.00	-5.66	18.32	3	Vertical	130	2.03	-	27.33	2.69	-

BT-LE(2Mbps)

2480MHz_TX

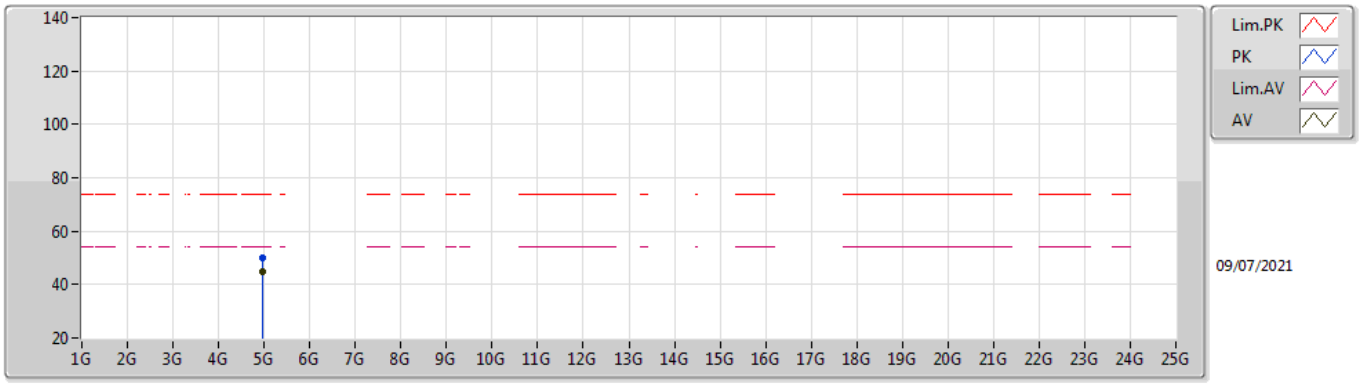


EUT X_1TX
Setting Default
05-G-E-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.4805G	99.41	Inf	-Inf	69.39	3	Horizontal	216	1.41	-	27.34	2.68	-
AV	2.48G	97.69	Inf	-Inf	67.67	3	Horizontal	216	1.41	-	27.34	2.68	-
PK	2.4836G	59.48	74.00	-14.52	29.47	3	Horizontal	216	1.41	-	27.33	2.68	-
AV	2.4844G	48.55	54.00	-5.45	18.54	3	Horizontal	216	1.41	-	27.33	2.68	-

BT-LE(2Mbps)

2480MHz_TX

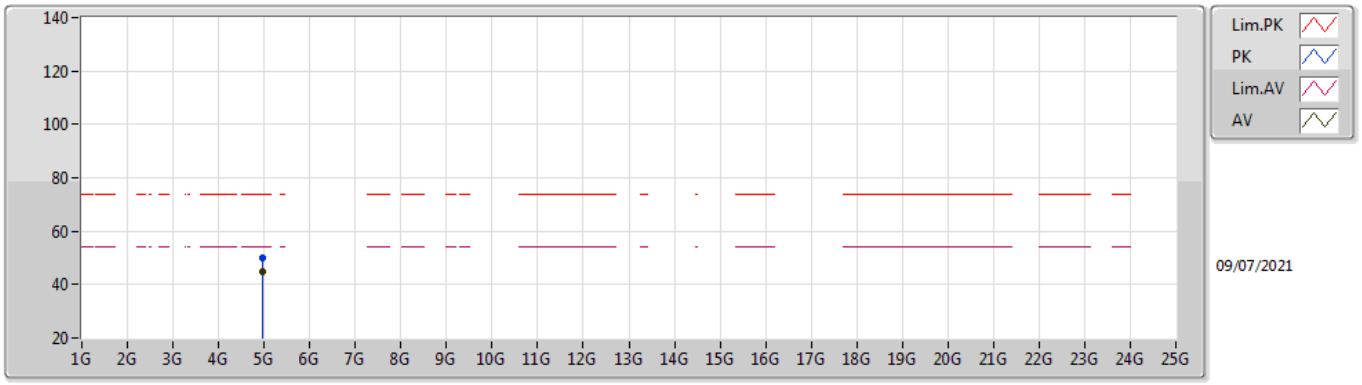


EUT X_1TX
Setting Default
05-G-E-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.95938G	50.20	74.00	-23.80	48.35	3	Vertical	-0	1.12	-	31.44	6.24	35.83
AV	4.95994G	44.80	54.00	-9.20	42.95	3	Vertical	-0	1.12	-	31.44	6.24	35.83

BT-LE(2Mbps)

2480MHz_TX



EUT X_1TX
Setting Default
05-G-E-2

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.95944G	50.17	74.00	-23.83	48.32	3	Horizontal	356	1.07	-	31.44	6.24	35.83
AV	4.96006G	44.66	54.00	-9.34	42.81	3	Horizontal	356	1.07	-	31.44	6.24	35.83