RADIO TEST REPORT

FCC ID	:	TLZ-XM9098
Equipment	:	IEEE 802.112X2 WiFi 6 SU and MU-MIMO DBC Wireless LAN + Bluetooth 5.1 Combo Module
Brand Name	:	AzureWave
Model Name	:	AW-XM458, AW-XM369, AW-XM458MA-XXX, AW-XM369MA-XXX
Applicant	:	AzureWave Technologies, Inc. 8F., No.94, Baozhong Rd. , Xindian Dist., New Taipei City , Taiwan 231
Manufacturer	:	AzureWave Technologies (Shanghai) Inc. No. 1355, Jiaxin Road, Malu Twon, Jiading District Shanghai, P.R. China
Standard	:	47 CFR FCC Part 15.247

The product was received on Mar. 17, 2022, and testing was started from Apr. 09, 2022 and completed on May 11, 2022. 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 variant 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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History of this test report

Report No.	Version	Description	Issued Date
FR132339-01AD	01	Initial issue of report	Jun. 15, 2022

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:
1. The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers. It's means measurement values may risk exceeding the limit of regulation standards, if measurement uncertainty is include in test results. 2. The measurement uncertainty please refer to report "Measurement Uncertainty".
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: Sam Chen
Report Producer: Viola Huang

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	1
2.4-2.4835GHz	BT-LE(500Kb/s)	1	1
2.4-2.4835GHz	BT-LE(125Kb/s)	1	1
2.4-2.4835GHz	BT-LE(2Mbps)	2	1

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)
	2.4GHz	5GHz	Bluetooth					
1	1	1	-	MAG. LAYERS	MSA-4008-25GC1-A2	PIFA	I-PEX	Note 1
2	2	2	-	MAG. LAYERS	MSA-4008-25GC1-A2	PIFA	I-PEX	
3	-	-	1	MAG. LAYERS	MSA-4008-25GC1-A2	PIFA	I-PEX	
4	1/2	1/2	1	Inpaq	WA-P-LB-02-587	PCB	I-PEX	
5	1/2	1/2	1	Inpaq	WA-P-LB-03-129	PCB	I-PEX	
6	-	-	-	Inpaq	WA-P-LB-03-130	PCB	I-PEX	
7	-	-	-	Inpaq	WA-F-LB-03-110	PCB	I-PEX	
8	-	-	-	Inpaq	WA-F-LB-02-187	PCB	I-PEX	
9	-	-	-	Inpaq	WA-F-LA-01-015	PCB	I-PEX	

Note1:

Ant.	Port			Antenna Gain (dBi)		
	2.4GHz	5GHz	Bluetooth	WLAN 2.4GHz	WLAN 5GHz	Bluetooth
1	1	1	-	2.98	5.16	-
2	2	2	-	2.98	5.16	-
3	-	-	1	-	-	2.98
4	1/2	1/2	1	4.43	7.52	4.43
5	1/2	1/2	1	6.51	3.2	6.51
6	-	-	-	4.91	5.84	4.91
7	-	-	-	-0.27	2.74	-0.27
8	-	-	-	0.07	2.39	0.07
9	-	-	-	5.66	-	5.66

Note2: The above information was declared by manufacturer.

Note3: There are 9 antennas listed on the antenna table. The EUT has two types of antenna. Only the highest gain antenna was selected to test and record in this report. For PCB antenna, Antenna 4 (for 5GHz) and 5 (for 2.4GHz) were selected to perform the test and recorded in this report.

Note4: Directional gain information.

For ant. 1~ant. 2

Type	Maximum Output Power	Power Spectral Density
Non-BF	Directional gain = Max.gain + array gain. For power measurements on IEEE 802.11 devices Array Gain = 0 dB (i.e., no array gain) for N ANT ≤ 4	$DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left[\sum_{k=1}^{N_{ANT}} g_{j,k}\right]^2}{N_{ANT}}\right]$
BF	$DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left[\sum_{k=1}^{N_{ANT}} g_{j,k}\right]^2}{N_{ANT}}\right]$	$DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left[\sum_{k=1}^{N_{ANT}} g_{j,k}\right]^2}{N_{ANT}}\right]$

Ex.

Directional Gain (NSS1) formula : $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left[\sum_{k=1}^{N_{ANT}} g_{j,k}\right]^2}{N_{ANT}}\right]$

NSS1(g1,1) = $10^{G1/20}$; NSS1(g1,2)= $10^{G2/20}$

gj,k =(Nss1(g1,1) + Nss1(g1,2))^2

DG = 10 log[(Nss1(g1,1) + Nss1(g1,2)))^2 / N_{ANT}] => 10 log[($10^{G1/20}$ + $10^{G2/20}$)^2 / N_{ANT}]

Where ;

2.4G G1 = 2.98 ; G2 = 2.98 ; DG=5.99

5G G1 = 5.16; G2 = 5.16 ; DG=8.17

For ant. 4~ant. 5

Type	Maximum Output Power	Power Spectral Density
Non-BF	Directional gain = Max.gain + array gain. For power measurements on IEEE 802.11 devices Array Gain = 0 dB (i.e., no array gain) for N ANT ≤ 4	$DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left[\sum_{k=1}^{N_{ANT}} g_{j,k}\right]^2}{N_{ANT}}\right]$
BF	$DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left[\sum_{k=1}^{N_{ANT}} g_{j,k}\right]^2}{N_{ANT}}\right]$	$DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left[\sum_{k=1}^{N_{ANT}} g_{j,k}\right]^2}{N_{ANT}}\right]$

Ex.

Directional Gain (NSS1) formula : $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left[\sum_{k=1}^{N_{ANT}} g_{j,k}\right]^2}{N_{ANT}}\right]$

NSS1(g1,1) = $10^{G1/20}$; NSS1(g1,2)= $10^{G2/20}$

gj,k =(Nss1(g1,1) + Nss1(g1,2))^2

DG = 10 log[(Nss1(g1,1) + Nss1(g1,2)))^2 / N_{ANT}] => 10 log[($10^{G1/20}$ + $10^{G2/20}$)^2 / N_{ANT}]

Where ;

For ant. 5

2.4G G1 = 6.51 ; G2 = 6.51 ; DG=9.52

For ant. 4

5G G1 = 7.52 ; G2 = 7.52 ; DG=10.53

<WLAN 2.4GHz Function>

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

Port 1 and Port 2 can be used as transmitting/receiving antenna.

Port 1 and Port 2 could transmit/receive simultaneously.

<WLAN 5GHz Function>

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

Port 1 and Port 2 can be used as transmitting/receiving antenna.

Port 1 and Port 2 could transmit/receive simultaneously.

<Bluetooth Function> (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)	0.649	1.88	420u	3k
BT-LE(2Mbps)	0.334	4.76	208.75u	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	DutApiMimoApApp (Version : 2.0.0.80)			
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.

1.1.5 Table for Multiple Listing

EUT	Model No.	GPIO	Antenna	Description
1	AW-XM458, AW-XM369	Without GPIO	PIFA, PCB	All the model names are identical, the difference model names served as marketing strategy.
2	AW-XM458MA-XXX, AW-XM369MA-XXX	With GPIO	PIFA	1. All the model names are identical, the difference model names served as marketing strategy. 2. The difference between this two EUTs are RF connector trace and RF connector type.
3			PCB	

Note 1: From the above models, model: AW-XM458MA-XXX (EUT 3) was selected as representative model for the test and its data was recorded in this report.

Note 2: The above information was declared by manufacturer.

1.1.6 Table for Permissive Change

This product is an extension of original one reported under Sporton project number: FR132339AD

Below is the table for the change of the product with respect to the original one.

Modifications	Performance Checking
1. Add EUT 3 with GPIO: -Change the RF connectcace -Change RF connector type 2. Add 6 PCB antennas.	All test items

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 15.247
- 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 (TAF: 3787)	ADD: No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302010, Taiwan (R.O.C.) 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	TH01-CB	Lucas Haung	19.5-20.1 / 65-68	Apr. 10, 2022~Apr. 21, 2022
Radiated below 1GHz	03CH05-CB	Ken Yeh	24.2~26.1 / 55~58	Apr. 23, 2022~Apr. 27, 2022
Radiated above 1GHz (for others test)	03CH02-CB	Eason Chen	23.8-24.9 / 55-58	Apr. 09, 2022
AC Conduction	CO01-CB	Bob Chang	22~24 / 57~59	May 11, 2022

1.4 Measurement Uncertainty

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

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	3.4 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	4.2 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	5.5 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	3
2440MHz	3
2480MHz	3
BT-LE(2Mbps)	-
2402MHz	3
2440MHz	3
2480MHz	3

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	Normal Link
1	Normal Link: EUT 3 + WLAN 2.4GHz (Ant. 5) + Bluetooth (Ant. 5)
2	Normal Link: EUT 3 + WLAN 5GHz (Ant. 4) + Bluetooth (Ant. 5)
For operating mode 1 is the worst case and it was record in this test report.	

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
1	EUT 3

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	Normal Link
1	Normal Link: EUT 3 in Z axis + WLAN 2.4GHz (Ant. 5) + Bluetooth (Ant. 5)
2	Normal Link: EUT 3 in Y axis + WLAN 2.4GHz (Ant. 5) + Bluetooth (Ant. 5)
3	Normal Link: EUT 3 in X axis + WLAN 2.4GHz (Ant. 5) + Bluetooth (Ant. 5)
Mode 1 has been evaluated to be the worst case among Mode 1~3, thus measurement for Mode 4 will follow this same test mode.	
4	Normal Link: EUT 3 in Z axis + WLAN 5GHz (Ant. 4) + Bluetooth (Ant. 5)
For operating mode 1 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 was found at X axis. So the measurement will follow this same test configuration.
1	EUT 3 in X axis + Ant. 5

The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation
Operating Mode	
1	WLAN 2.4GHz + WLAN 5GHz + Bluetooth
Refer to Sporton Test Report No.: FA132339-01 for Co-location RF Exposure Evaluation.	

2.3 EUT Operation during Test

For CTX Mode:

The EUT was programmed to be in continuously transmitting mode.

For Normal Link Mode:

During the test, the EUT operation to normal function.

2.4 Accessories

N/A

2.5 Support Equipment

For AC Conduction:

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
A	NB	DELL	E6430	N/A
B	Fixture 3	Azurewave	2460 I2	N/A
C	AP Router	ASUS	RP-N53	MSQ-RPN53
D	Earphone	SHYARO CHI	MIC-04	N/A
E	Mouse	HP	FM100	N/A
F	AP NB	DELL	E6430	N/A
G	Smart phone	Samsung	Galacy J2	N/A

For Radiated (below 1GHz):

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
A	Notebook	DELL	E4300	N/A
B	Notebook	DELL	E4300	N/A
C	Phone	SAMSONG	J2	N/A
D	WLAN AP	NETGEAR	WNDR3300v2	PY309300116
E	Fixture 3	Azurewave	2460 I2	N/A

For Radiated (above 1GHz):

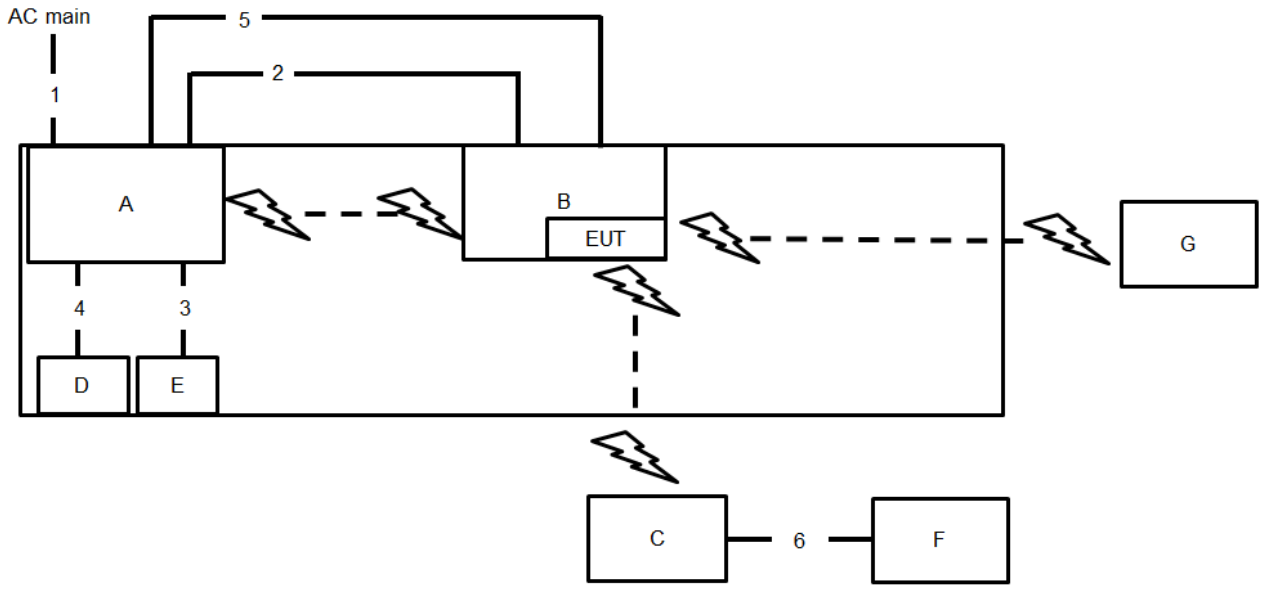
Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
A	Notebook	DELL	E4300	N/A
B	Notebook	DELL	E4300	N/A
C	Fixture 2	Azurewave	AW-CB162NF I3	N/A

For RF Conducted:

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
A	Notebook	DELL	E4300	N/A
B	Notebook	DELL	E4300	N/A
C	Fixture 2	Azurewave	AW-CB162NF I3	N/A
D	Fixture 3	Azurewave	2460 I2	N/A

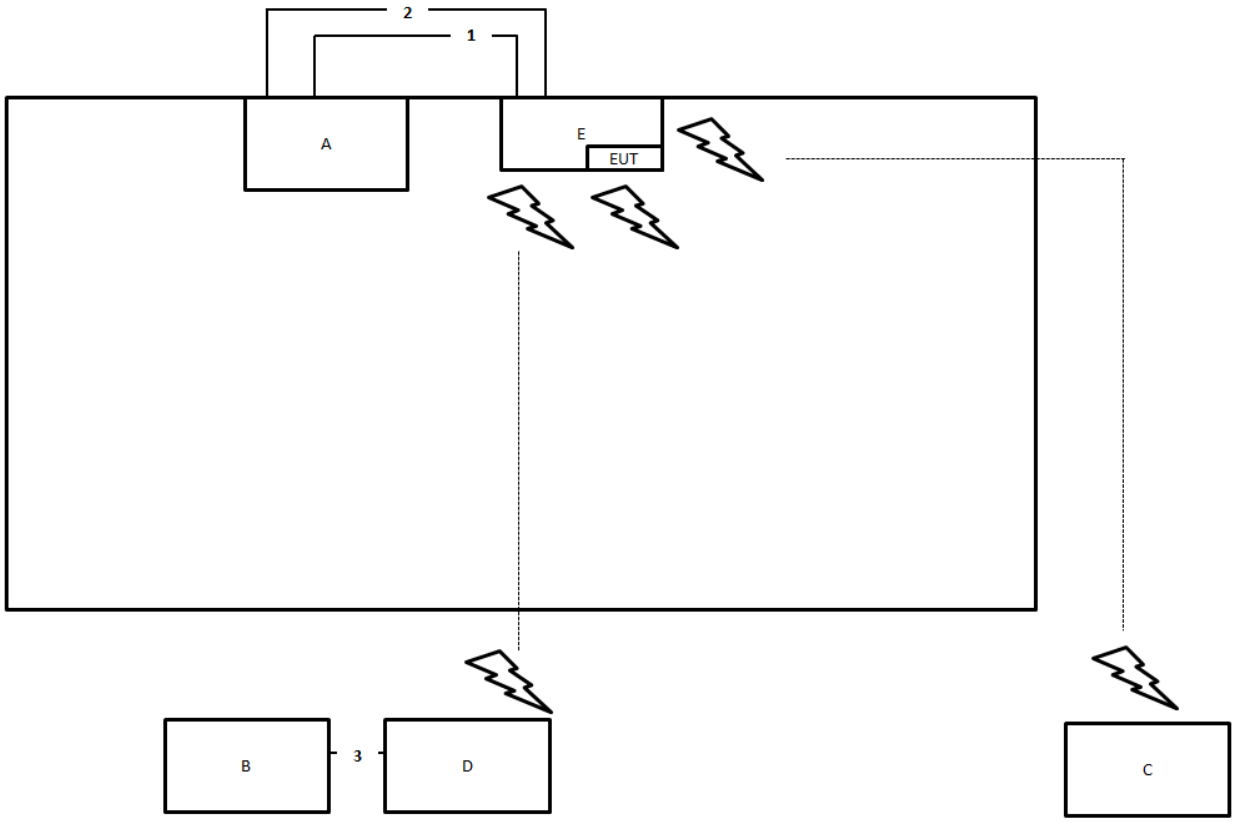
2.6 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test



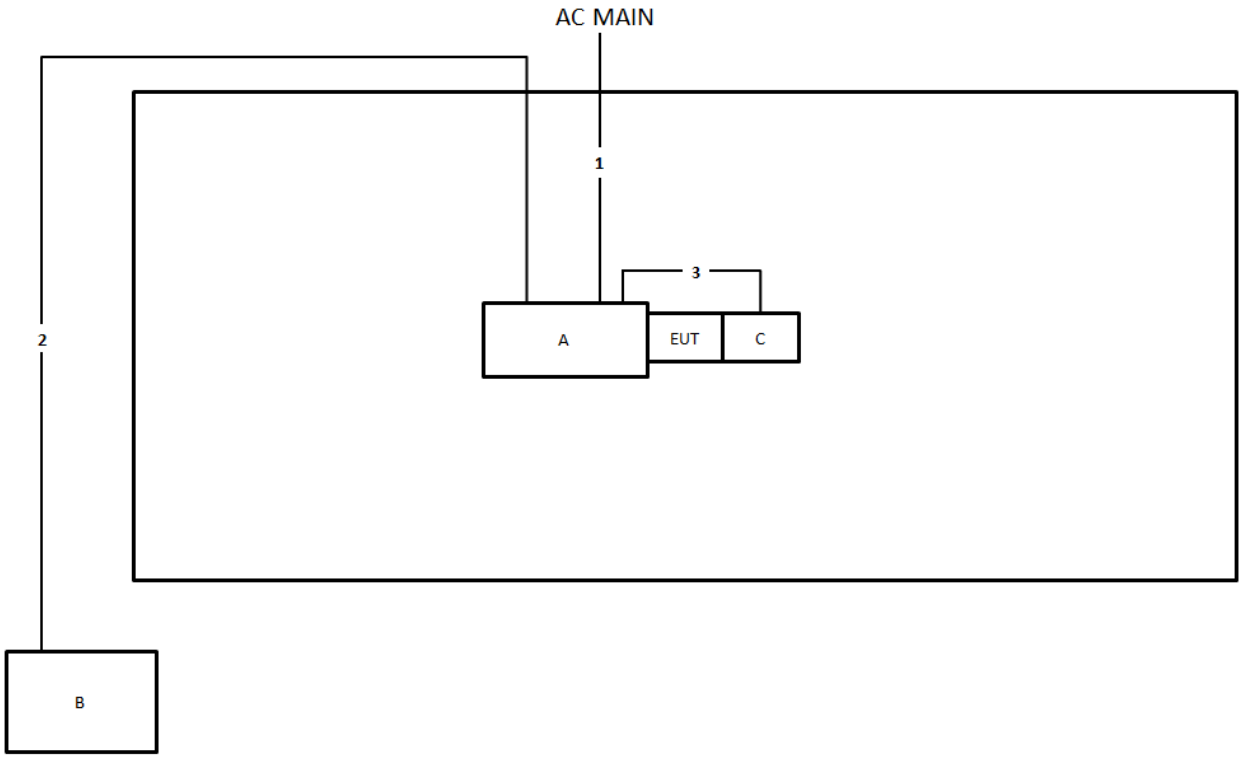
Item	Connection	Shielded	Length
1	Power cable	No	2.6m
2	USB cable	Yes	1m
3	USB cable	Yes	1.5m
4	Audio cable	No	1.5m
5	USB cable	Yes	0.5m
6	RJ-45 cable	No	1.5m

Test Setup Diagram - Radiated Test < 1GHz



Item	Connection	Shielded	Length
1	USB to Type C cable	No	1.5m
2	USB to Micro cable	No	1.5m
3	RJ-45 cable	No	10m

Test Setup Diagram - Radiated Test > 1GHz



Item	Connection	Shielded	Length
1	Power cable	No	1.8m
2	RJ-45 cable	No	10m
3	USB cable	Yes	1.5m

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

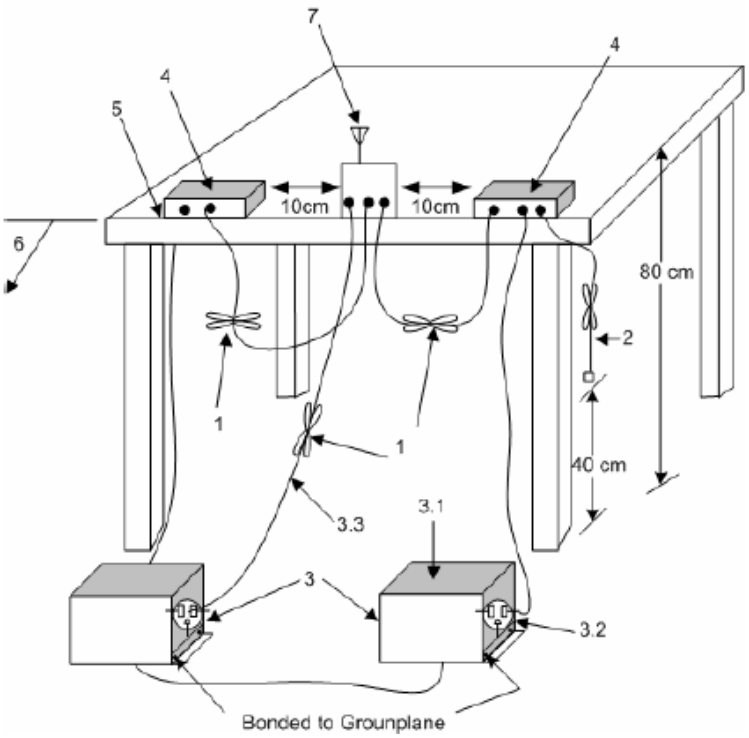
Refer a test equipment and calibration data table in this test report.

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.

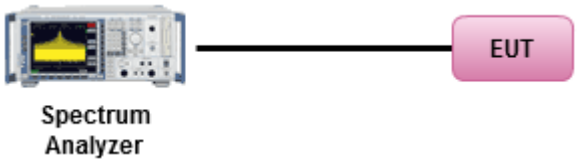
3.2.2 Measuring Instruments

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

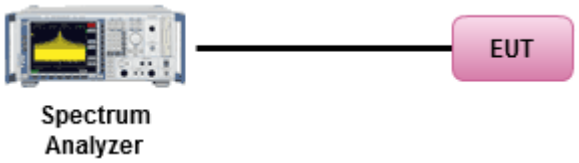
3.4.2 Measuring Instruments

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

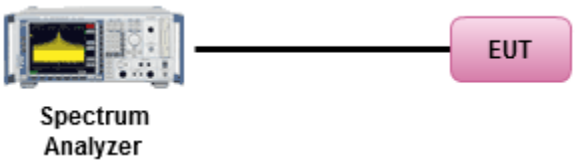
Refer a test equipment and calibration data table in this test report.

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.

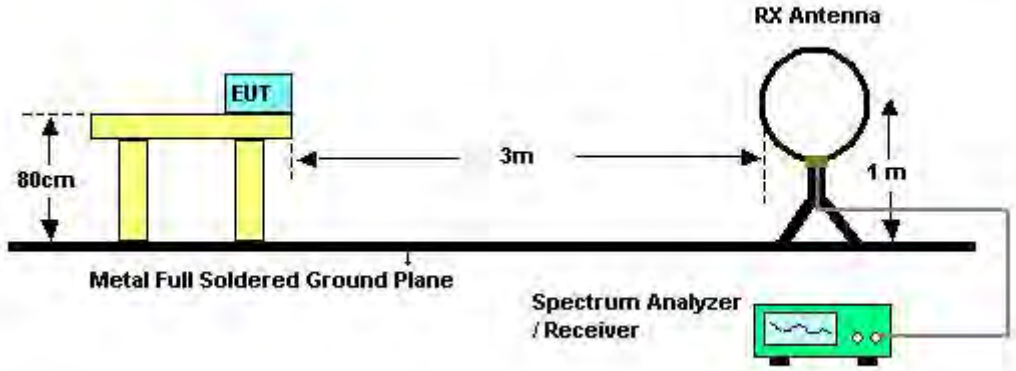
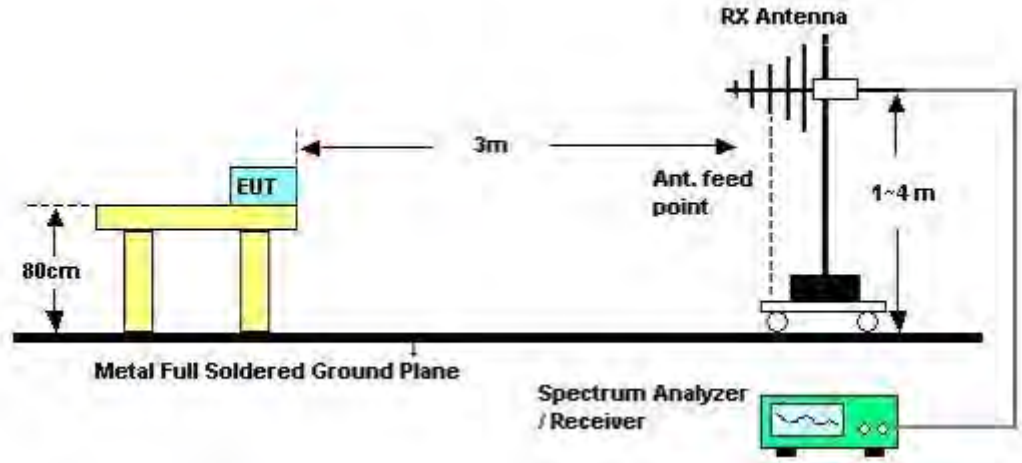
3.6.2 Measuring Instruments

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

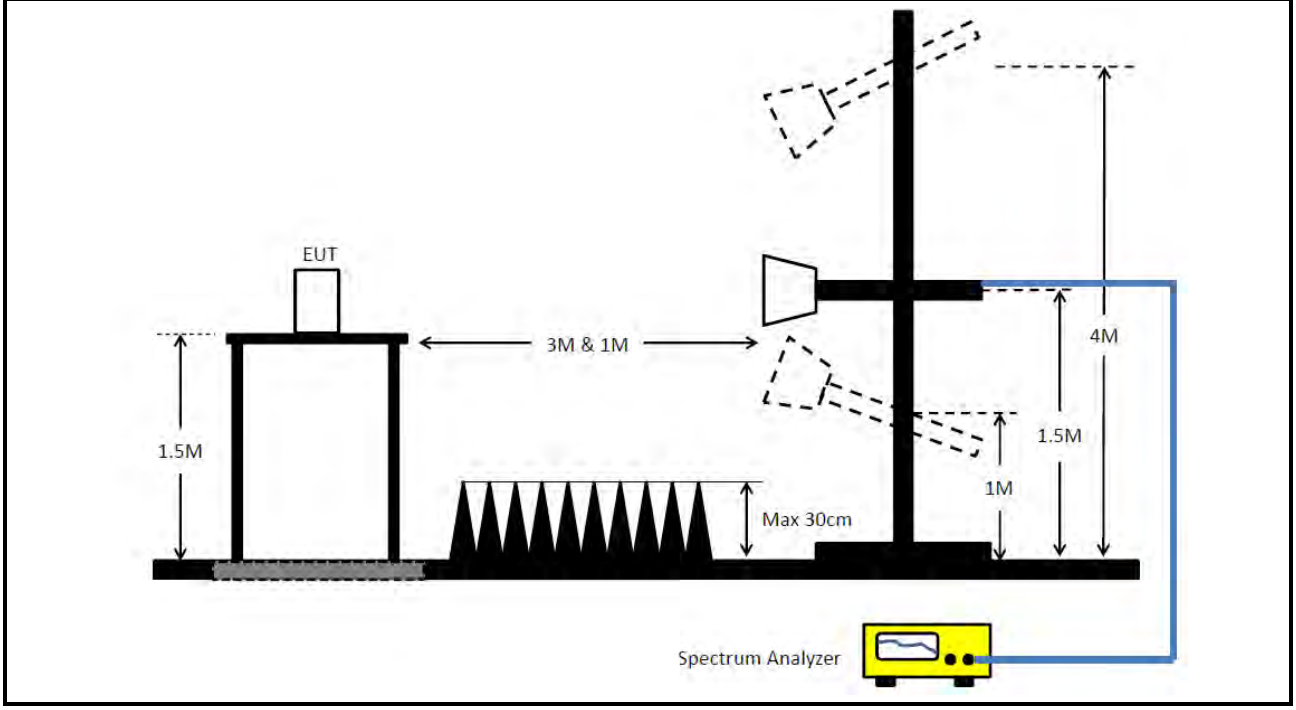
3.6.3 Test Procedures

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	Feb. 22, 2022	Feb. 21, 2023	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Feb. 09, 2022	Feb. 08, 2023	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Apr. 12, 2022	Apr. 11, 2023	Conduction (CO01-CB)
Pulse Limiter	Rohde& Schwarz	ESH3-Z2	100430	9kHz ~ 30MHz	Feb. 10, 2022	Feb. 09, 2023	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	31244	9kHz - 30 MHz	Mar. 18, 2022	Mar. 17, 2023	Radiation (03CH05-CB)
3m Semi Anechoic Chamber NSA	TDK	SAC-3M	03CH05-CB	30 MHz ~ 1 GHz	Aug. 09, 2021	Aug. 08, 2022	Radiation (03CH05-CB)
Bilog Antenna with 6dB Attenuator	TESEQ & EMCI	CBL 6112D & N-6-06	35236 & AT-N0610	30MHz ~ 2GHz	Mar. 25, 2022	Mar. 24, 2023	Radiation (03CH05-CB)
Pre-Amplifier	EMCI	EMC330N	980331	20MHz ~ 3GHz	Apr. 27, 2021	Apr. 26, 2022	Radiation (03CH05-CB)
Pre-Amplifier	EMCI	EMC330N	980331	20MHz ~ 3GHz	Apr. 26, 2022	Apr. 25, 2023	Radiation (03CH05-CB)
Spectrum Analyzer	R&S	FSP40	100304	9kHz ~ 40GHz	Mar. 14, 2022	Mar. 13, 2023	Radiation (03CH05-CB)
EMI Test Receiver	R&S	ESCS	826547/017	9kHz ~ 2.75GHz	Jun. 21, 2021	Jun. 20, 2022	Radiation (03CH05-CB)
RF Cable-low	Woken	RG402	Low Cable-04+23	30MHz~1GHz	Oct. 13, 2021	Oct. 12, 2022	Radiation (03CH05-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH05-CB)
3m Semi Anechoic Chamber VSWR	RIKEN	SAC-3M	03CH02-CB	1GHz ~18GHz	Mar. 26, 2022	Mar. 25, 2023	Radiation (03CH02-CB)
Horn Antenna	EMCO	3115	9610-4976	1GHz ~ 18GHz	May 04, 2021	May 03, 2022	Radiation (03CH02-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Aug. 05, 2021	Aug. 04, 2022	Radiation (03CH02-CB)
Pre-Amplifier	Agilent	83017A	MY39501305	1GHz ~ 26.5GHz	Jul. 12, 2021	Jul. 11, 2022	Radiation (03CH02-CB)
Pre-Amplifier	MITEQ	TTA1840-35-HG	1864479	18GHz ~ 40GHz	Jul. 13, 2021	Jul. 12, 2022	Radiation (03CH02-CB)
Spectrum analyzer	R&S	FSU	100015	9kHz~26GHz	Oct. 25, 2021	Oct. 24, 2022	Radiation (03CH02-CB)

Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
RF Cable-high	Woken	RG402	High Cable-18	1GHz ~ 18GHz	Oct. 04, 2021	Oct. 03, 2022	Radiation (03CH02-CB)
RF Cable-high	Woken	RG402	High Cable-18+19	1GHz ~ 18GHz	Oct. 04, 2021	Oct. 03, 2022	Radiation (03CH02-CB)
High Cable	Woken	WCA0929M	40G#5+7	1GHz ~ 40 GHz	Dec. 14, 2021	Dec. 13, 2022	Radiation (03CH02-CB)
High Cable	Woken	WCA0929M	40G#5	1GHz ~ 40 GHz	Dec. 08, 2021	Dec. 07, 2022	Radiation (03CH02-CB)
High Cable	Woken	WCA0929M	40G#7	1GHz ~ 40 GHz	Dec. 14, 2021	Dec. 13, 2022	Radiation (03CH02-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH02-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	May 21, 2021	May 20, 2022	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-06	1 GHz – 26.5 GHz	Oct. 04, 2021	Oct. 03, 2022	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-07	1 GHz –26.5 GHz	Oct. 04, 2021	Oct. 03, 2022	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-08	1 GHz –26.5 GHz	Oct. 04, 2021	Oct. 03, 2022	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-09	1 GHz –26.5 GHz	Oct. 04, 2021	Oct. 03, 2022	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz –26.5 GHz	Oct. 04, 2021	Oct. 03, 2022	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-30	1 GHz –26.5 GHz	Oct. 04, 2021	Oct. 03, 2022	Conducted (TH01-CB)
Switch	SPTCB	SP-SWI	SWI-01	1 GHz –26.5 GHz	Dec. 13, 2021	Dec. 12, 2022	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	SWI-01-P1	1 GHz –26.5 GHz	Dec. 13, 2021	Dec. 12, 2022	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	SWI-01-P2	1 GHz –26.5 GHz	Dec. 13, 2021	Dec. 12, 2022	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	SWI-01-P3	1 GHz –26.5 GHz	Dec. 13, 2021	Dec. 12, 2022	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	SWI-01-P4	1 GHz –26.5 GHz	Dec. 13, 2021	Dec. 12, 2022	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	SWI-01-P5	1 GHz –26.5 GHz	Dec. 13, 2021	Dec. 12, 2022	Conducted (TH01-CB)
Power Sensor	Agilent	E9327A	US40442088	50MHz~18GHz	Feb. 21, 2022	Feb. 20, 2023	Conducted (TH01-CB)
Power Meter	Agilent	E4416A	GB41291199	50MHz~18GHz	Feb. 21, 2022	Feb. 20, 2023	Conducted (TH01-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conducted (TH01-CB)

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

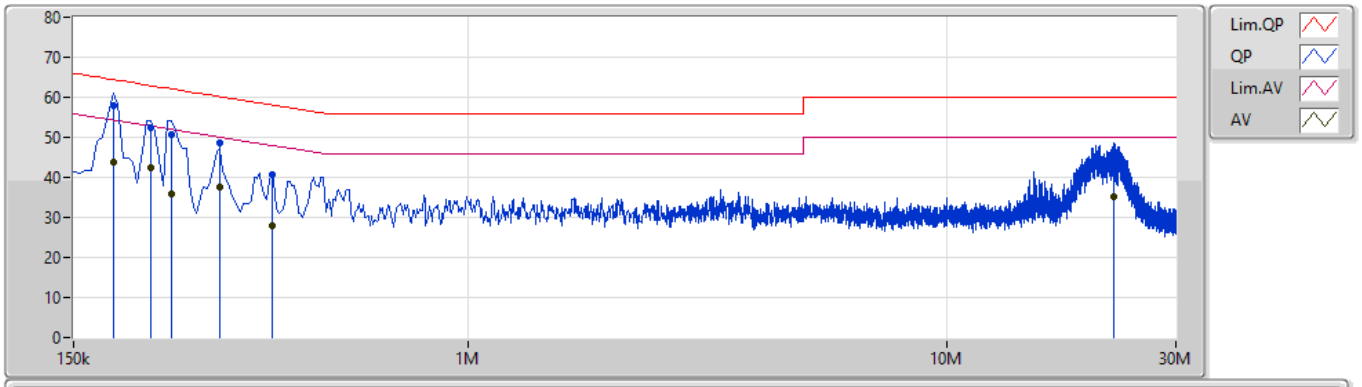
N.C.R. means Non-Calibration required.

Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	QP	181.5k	57.88	64.41	-6.53	Line

Mode 1

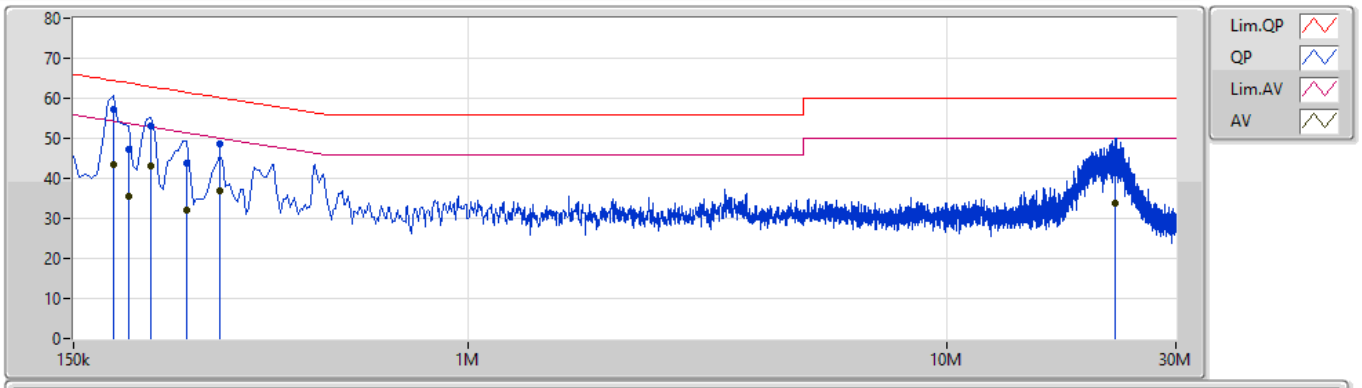
11/05/2022



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	181.5k	57.88	64.41	-6.53	9.97	Line	"Worst"	47.91	0.06	0.02	9.89
AV	181.5k	43.90	54.41	-10.51	9.97	Line	-	33.93	0.06	0.02	9.89
QP	217.5k	52.37	62.92	-10.55	9.97	Line	-	42.40	0.06	0.02	9.89
AV	217.5k	42.36	52.92	-10.56	9.97	Line	-	32.39	0.06	0.02	9.89
QP	240k	50.75	62.10	-11.35	9.97	Line	-	40.78	0.06	0.02	9.89
AV	240k	35.78	52.10	-16.32	9.97	Line	-	25.81	0.06	0.02	9.89
QP	303k	48.50	60.17	-11.67	9.97	Line	-	38.53	0.06	0.02	9.89
AV	303k	37.61	50.17	-12.56	9.97	Line	-	27.64	0.06	0.02	9.89
QP	388.5k	40.81	58.10	-17.29	9.97	Line	-	30.84	0.06	0.02	9.89
AV	388.5k	27.97	48.10	-20.13	9.97	Line	-	18.00	0.06	0.02	9.89
QP	22.295M	44.93	60.00	-15.07	10.45	Line	-	34.48	0.33	0.16	9.96
AV	22.295M	35.10	50.00	-14.90	10.45	Line	-	24.65	0.33	0.16	9.96

Mode 1

11/05/2022



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	181.5k	57.18	64.41	-7.23	9.98	Neutral	"Worst"	47.20	0.07	0.02	9.89
AV	181.5k	43.31	54.41	-11.10	9.98	Neutral	-	33.33	0.07	0.02	9.89
QP	195k	47.14	63.82	-16.68	9.98	Neutral	-	37.16	0.07	0.02	9.89
AV	195k	35.67	53.82	-18.15	9.98	Neutral	-	25.69	0.07	0.02	9.89
QP	217.5k	53.06	62.92	-9.86	9.98	Neutral	-	43.08	0.07	0.02	9.89
AV	217.5k	43.16	52.92	-9.76	9.98	Neutral	-	33.18	0.07	0.02	9.89
QP	258k	43.89	61.49	-17.60	9.98	Neutral	-	33.91	0.07	0.02	9.89
AV	258k	31.99	51.49	-19.50	9.98	Neutral	-	22.01	0.07	0.02	9.89
QP	303k	48.56	60.17	-11.61	9.98	Neutral	-	38.58	0.07	0.02	9.89
AV	303k	36.99	50.17	-13.18	9.98	Neutral	-	27.01	0.07	0.02	9.89
QP	22.403M	43.65	60.00	-16.35	10.43	Neutral	-	33.22	0.30	0.16	9.97
AV	22.403M	33.64	50.00	-16.36	10.43	Neutral	-	23.21	0.30	0.16	9.97

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)	698.75k	1.032M	1M03F1D	683.75k	1.026M
BT-LE(2Mbps)	1.154M	2.029M	2M03F1D	1.154M	2.024M

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

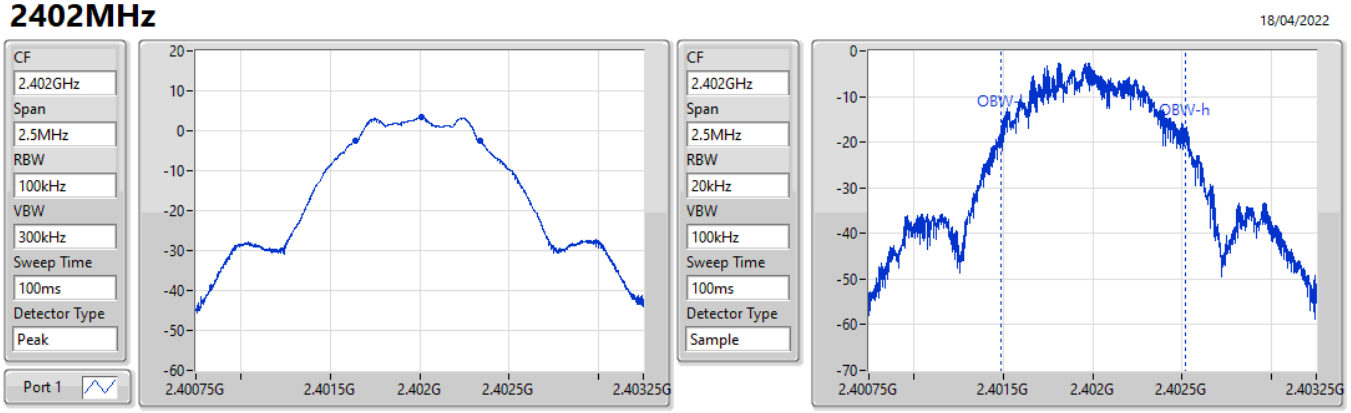
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	698.75k	1.026M
2440MHz	Pass	500k	683.75k	1.026M
2480MHz	Pass	500k	685k	1.032M
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	500k	1.154M	2.029M
2440MHz	Pass	500k	1.154M	2.029M
2480MHz	Pass	500k	1.154M	2.024M

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

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

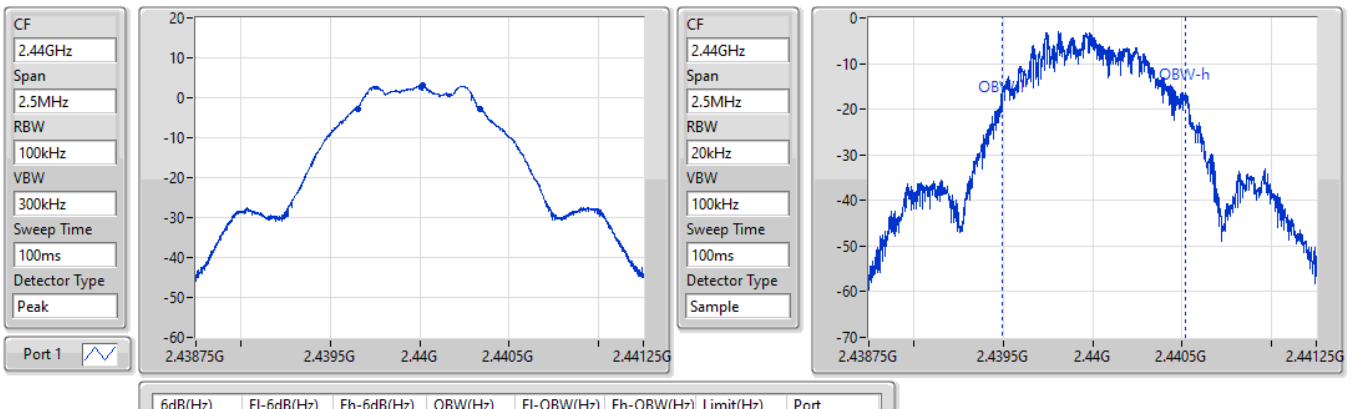
2402MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
698.75k	2.401639G	2.402338G	1.026M	2.40149G	2.402516G	500k	1

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

2440MHz

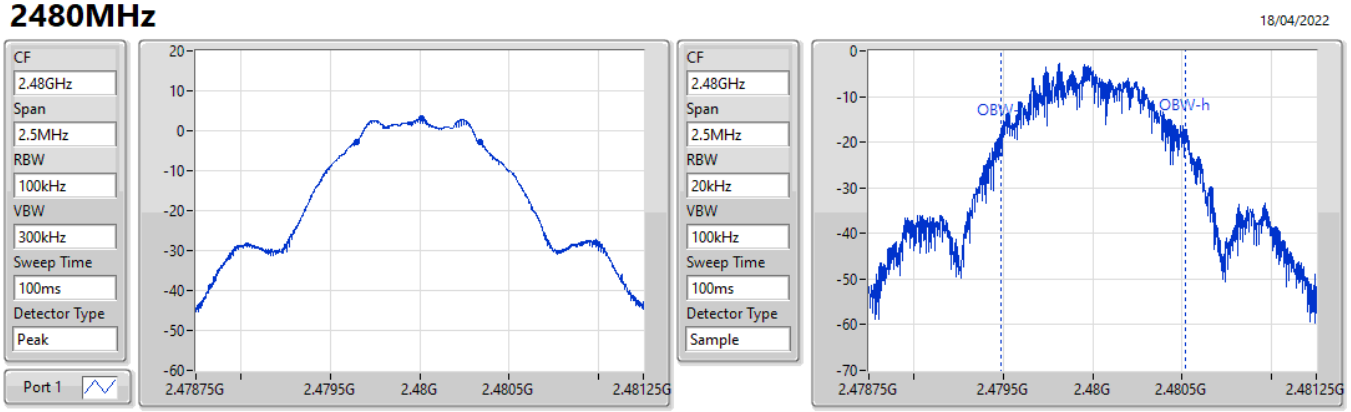


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
683.75k	2.439655G	2.440339G	1.026M	2.439495G	2.440521G	500k	1

BT-LE(1Mbps)

EBW-DTS

2480MHz

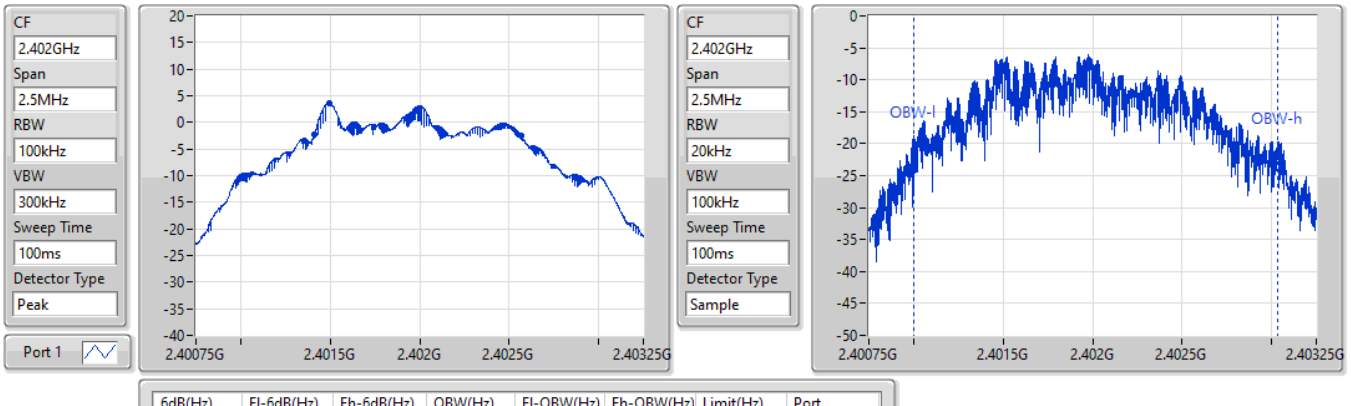


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
685k	2.479651G	2.480336G	1.032M	2.479488G	2.48052G	500k	1

BT-LE(2Mbps)

EBW-DTS

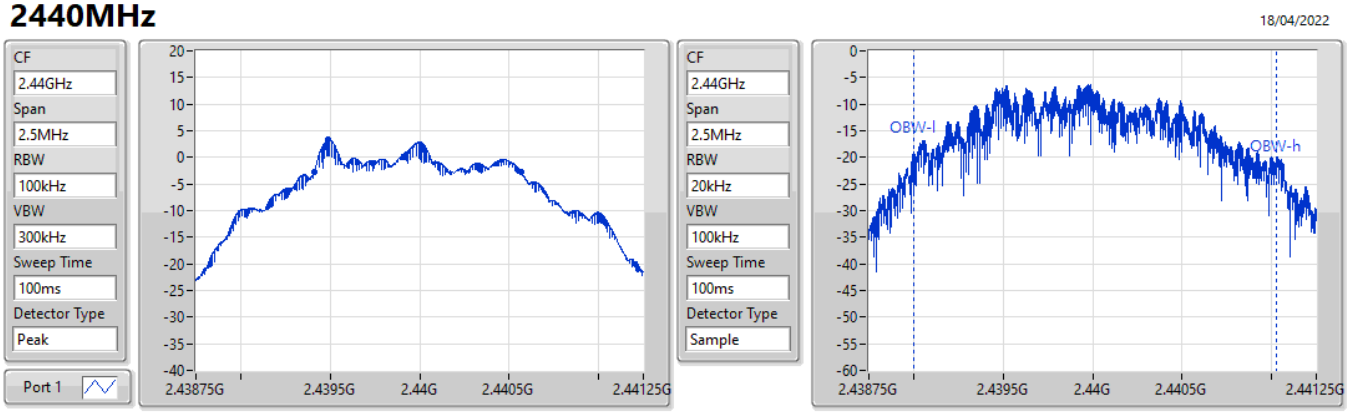
2402MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.154M	2.401414G	2.402568G	2.029M	2.401003G	2.403032G	500k	1

BT-LE(2Mbps) EBW-DTS

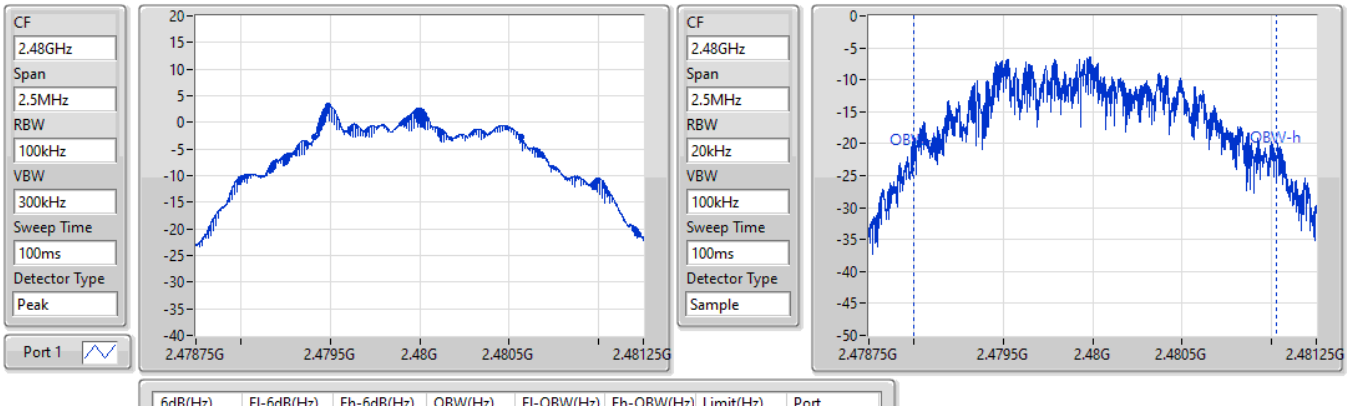
2440MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.154M	2.439413G	2.440566G	2.029M	2.439G	2.441029G	500k	1

BT-LE(2Mbps) EBW-DTS

2480MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.154M	2.479413G	2.480566G	2.024M	2.479G	2.481024G	500k	1

Summary

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	3.62	0.00230
BT-LE(2Mbps)	3.36	0.00217

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	6.51	3.62	29.49
2440MHz	Pass	6.51	3.13	29.49
2480MHz	Pass	6.51	2.96	29.49
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	6.51	3.36	29.49
2440MHz	Pass	6.51	2.99	29.49
2480MHz	Pass	6.51	2.77	29.49

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

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE(1Mbps)	-12.29
BT-LE(2Mbps)	-15.33

RBW = 3kHz;

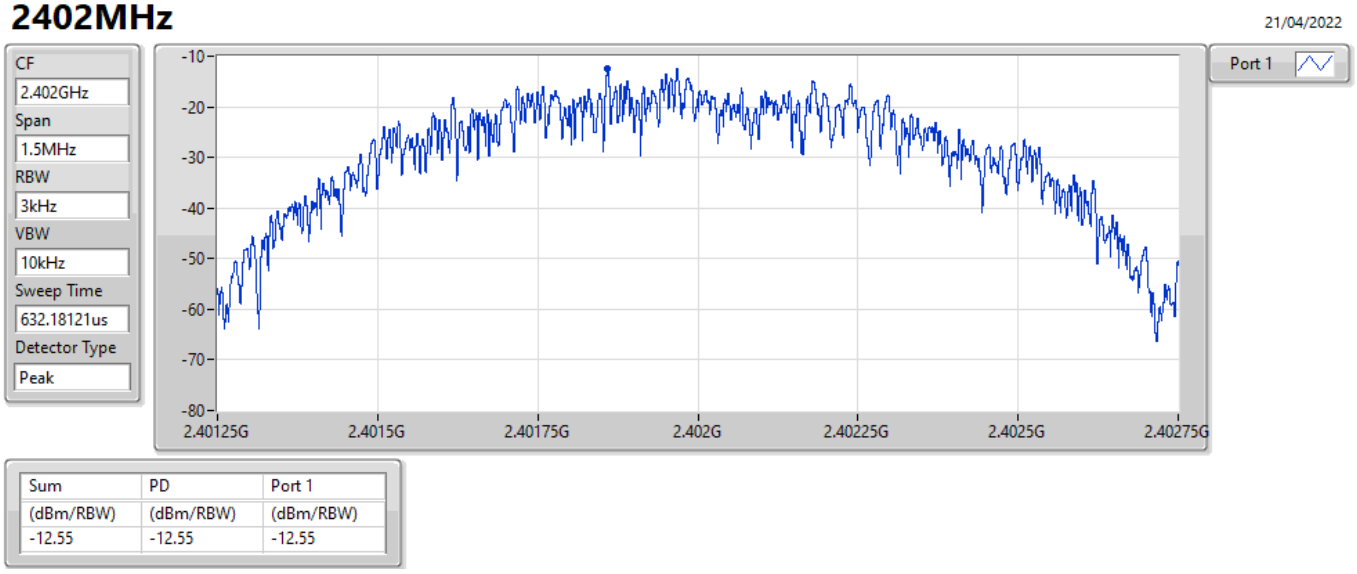
Result

Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	2.98	-12.55	8.00
2440MHz	Pass	2.98	-12.29	8.00
2480MHz	Pass	2.98	-12.92	8.00
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	2.98	-15.33	8.00
2440MHz	Pass	2.98	-15.52	8.00
2480MHz	Pass	2.98	-15.78	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

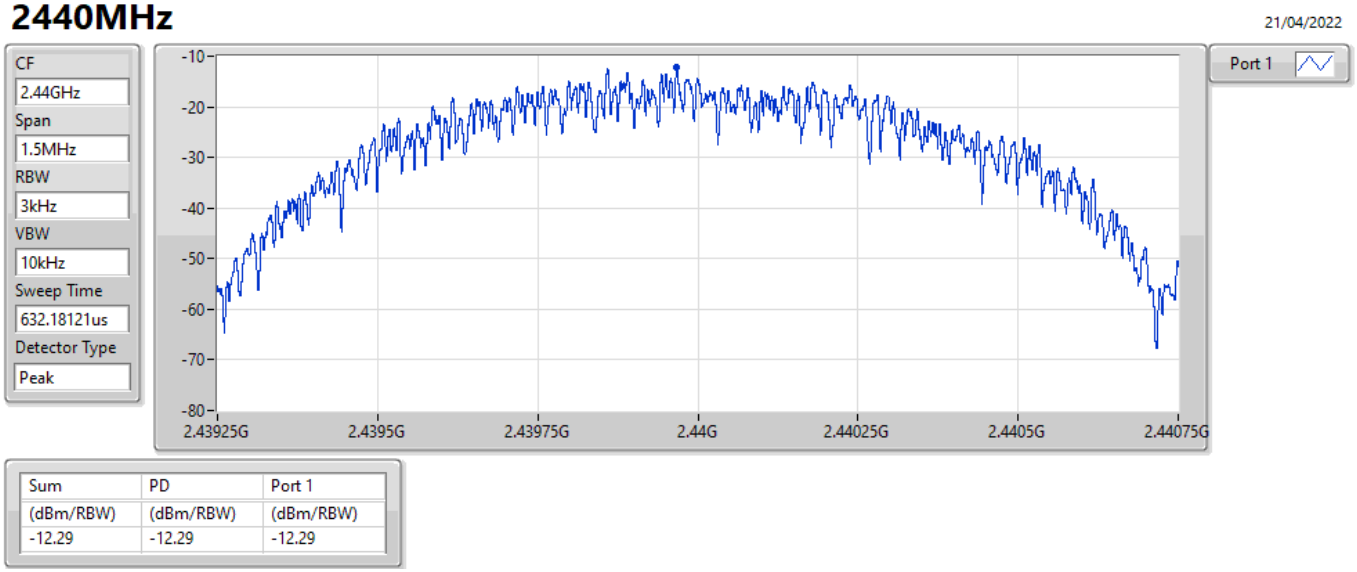
2402MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-12.55	-12.55	-12.55

BT-LE(1Mbps) PSD

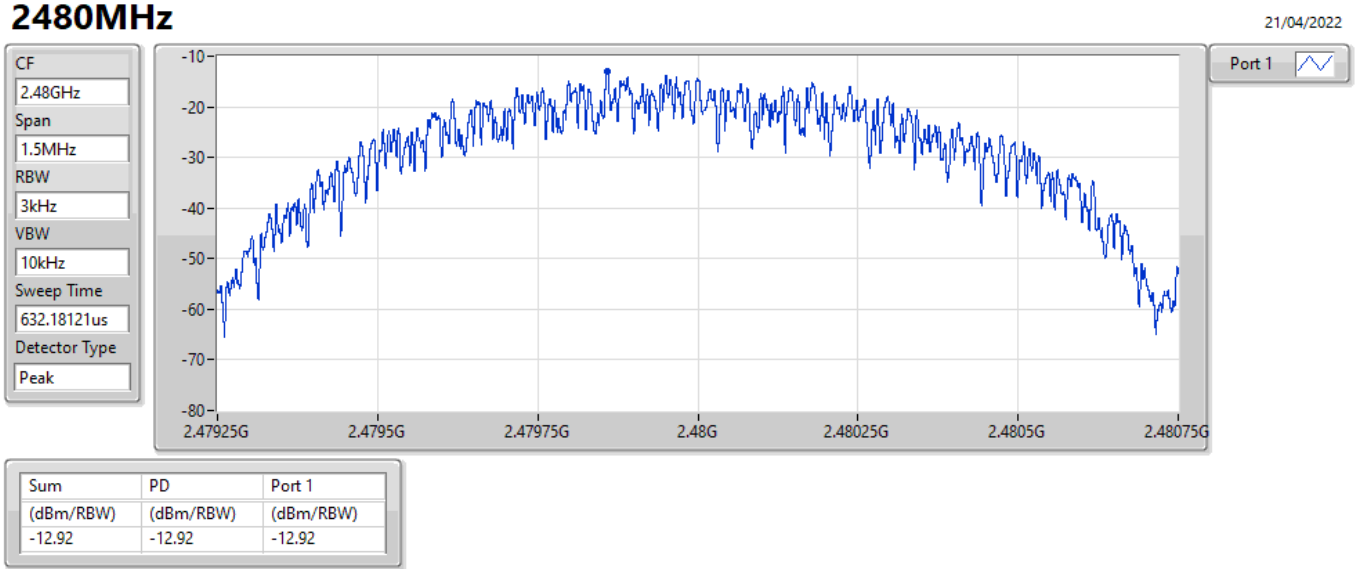
2440MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-12.29	-12.29	-12.29

BT-LE(1Mbps) PSD

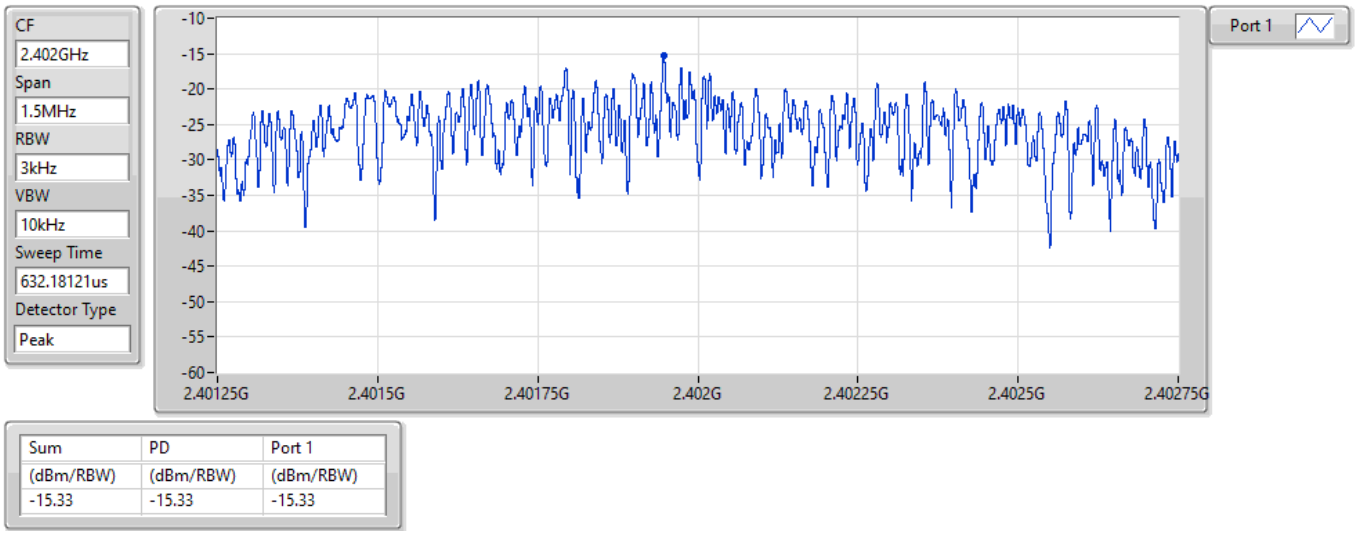
2480MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-12.92	-12.92	-12.92

BT-LE(2Mbps) PSD

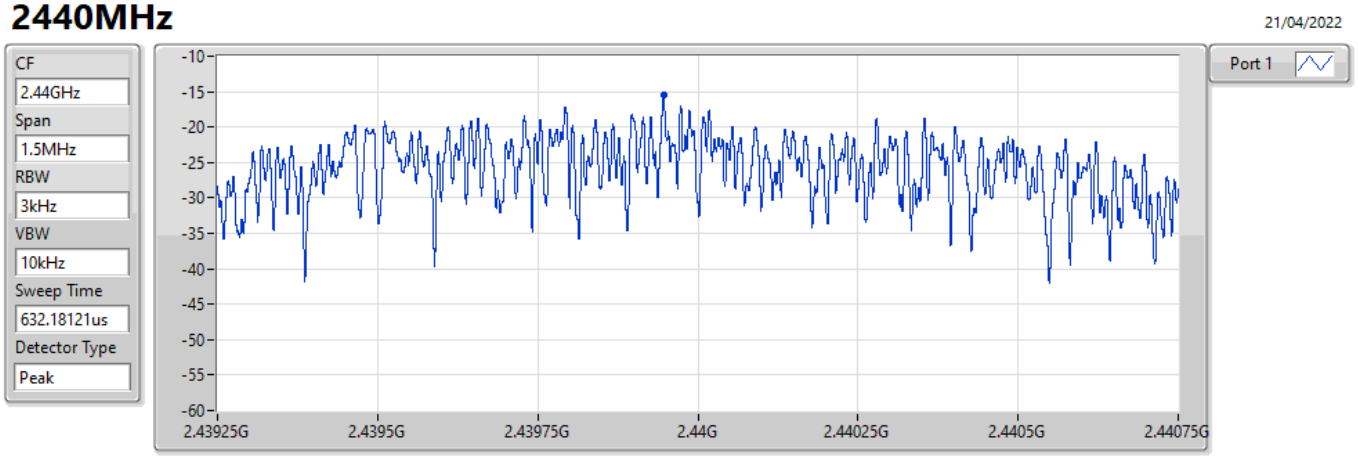
2402MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-15.33	-15.33	-15.33

BT-LE(2Mbps) PSD

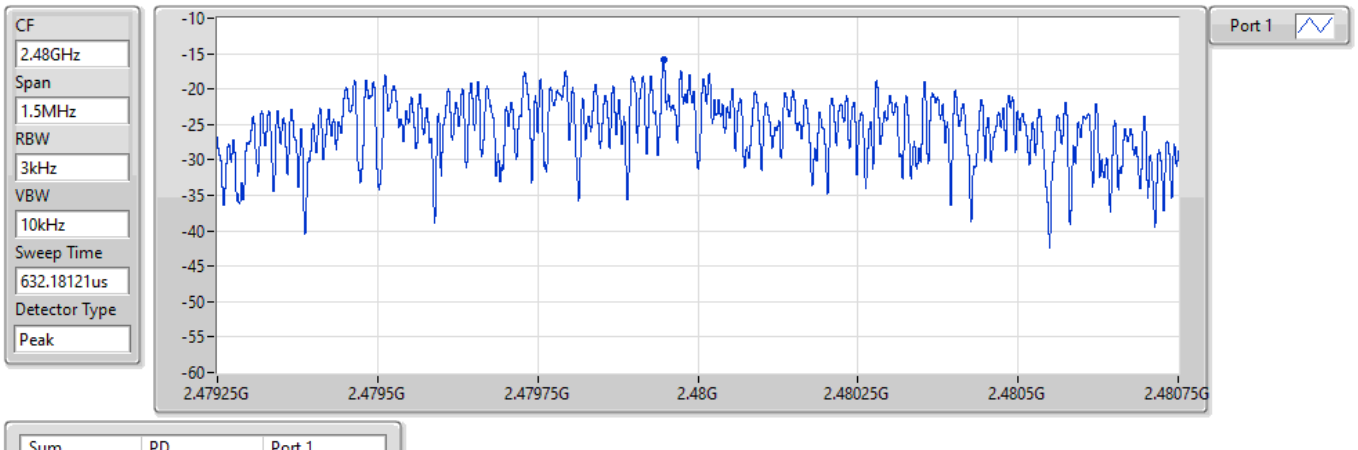
2440MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-15.52	-15.52	-15.52

BT-LE(2Mbps) PSD

2480MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-15.78	-15.78	-15.78

Summary

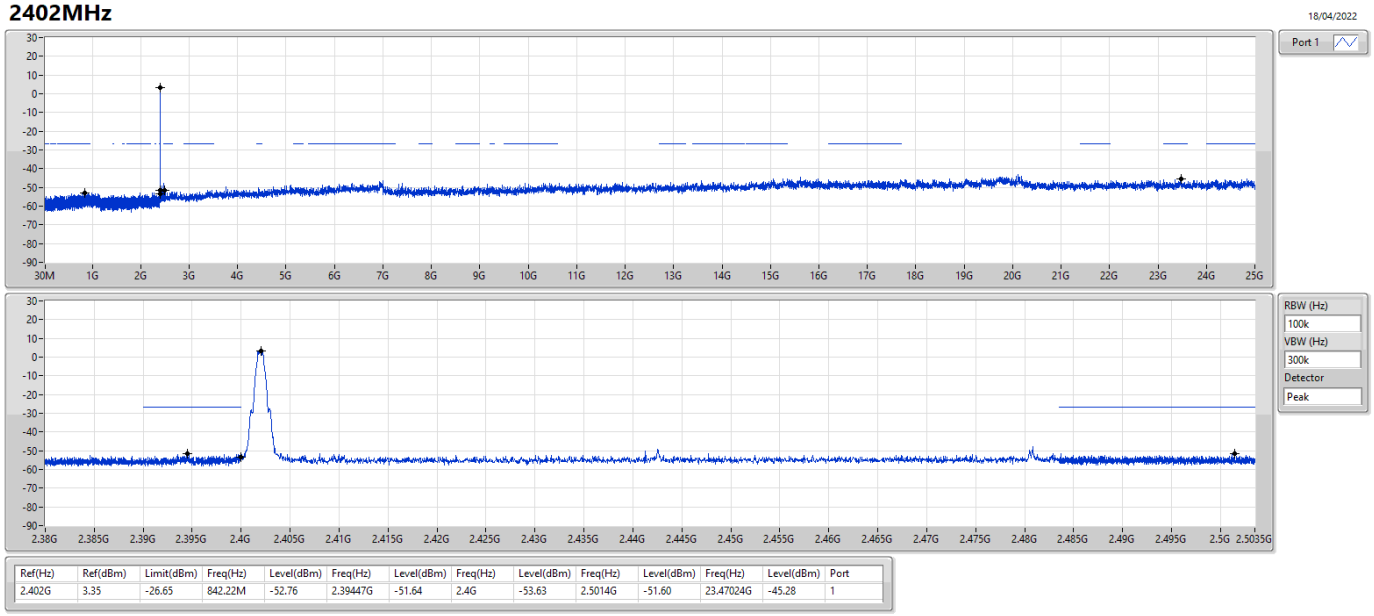
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	2.402G	3.35	-26.65	731.77M	-52.89	2.39495G	-48.10	2.4835G	-54.16	2.48651G	-47.40	15.27026G	-44.96	1
BT-LE(2Mbps)	Pass	2.40146G	3.36	-26.64	571.68M	-52.43	2.4G	-28.48	2.4G	-29.48	2.49672G	-51.89	23.2284G	-44.20	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	2.402G	3.35	-26.65	842.22M	-52.76	2.39447G	-51.64	2.4G	-53.63	2.5014G	-51.60	23.47024G	-45.28	1
2440MHz	Pass	2.402G	3.35	-26.65	731.77M	-52.89	2.39495G	-48.10	2.4835G	-54.16	2.48651G	-47.40	15.27026G	-44.96	1
2480MHz	Pass	2.402G	3.35	-26.65	2.08831G	-53.01	2.39442G	-48.22	2.4G	-53.30	2.4876G	-49.94	24.8144G	-44.98	1
BT-LE(2Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.40146G	3.36	-26.64	571.68M	-52.43	2.4G	-28.48	2.4G	-29.48	2.49672G	-51.89	23.2284G	-44.20	1
2440MHz	Pass	2.40146G	3.36	-26.64	2.11181G	-53.13	2.3981G	-52.18	2.4835G	-55.49	2.5018G	-47.37	15.30401G	-43.76	1
2480MHz	Pass	2.40146G	3.36	-26.64	623.67M	-52.74	2.39918G	-42.56	2.4835G	-54.03	2.48961G	-50.83	15.0453G	-44.86	1

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

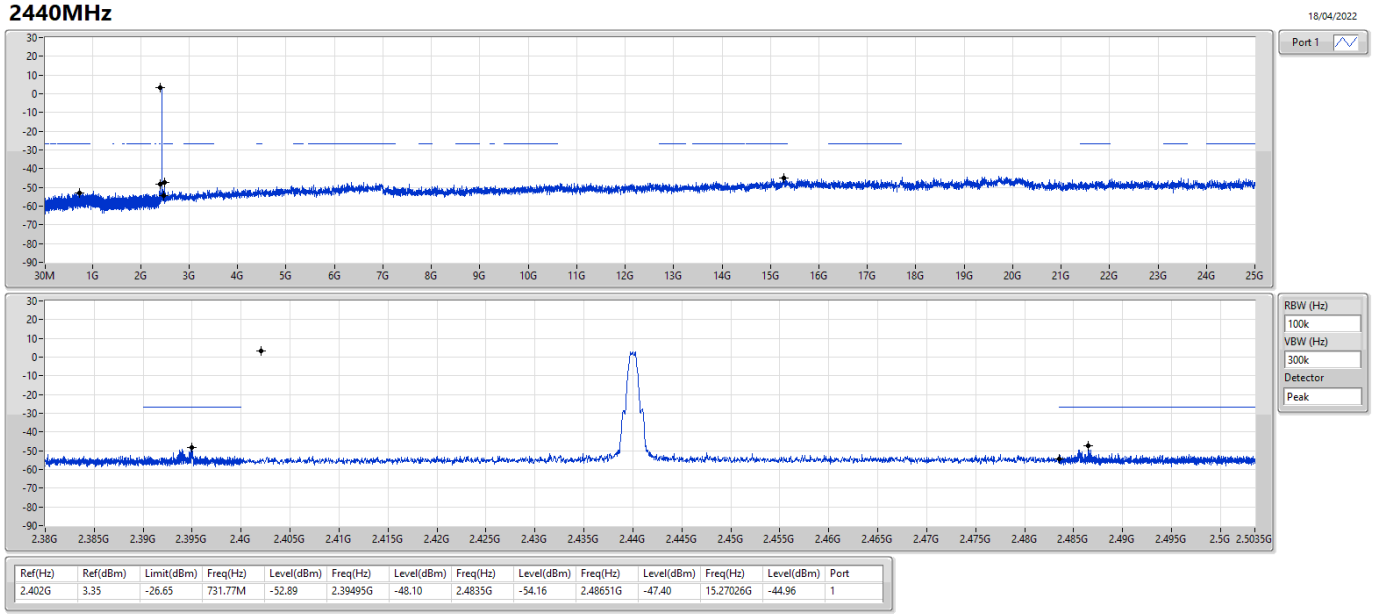
2402MHz



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
2.402G	3.35	-26.65	842.22M	-52.76	2.39447G	-51.64	2.4G	-53.63	2.5014G	-51.60	23.47024G	-45.28	1

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

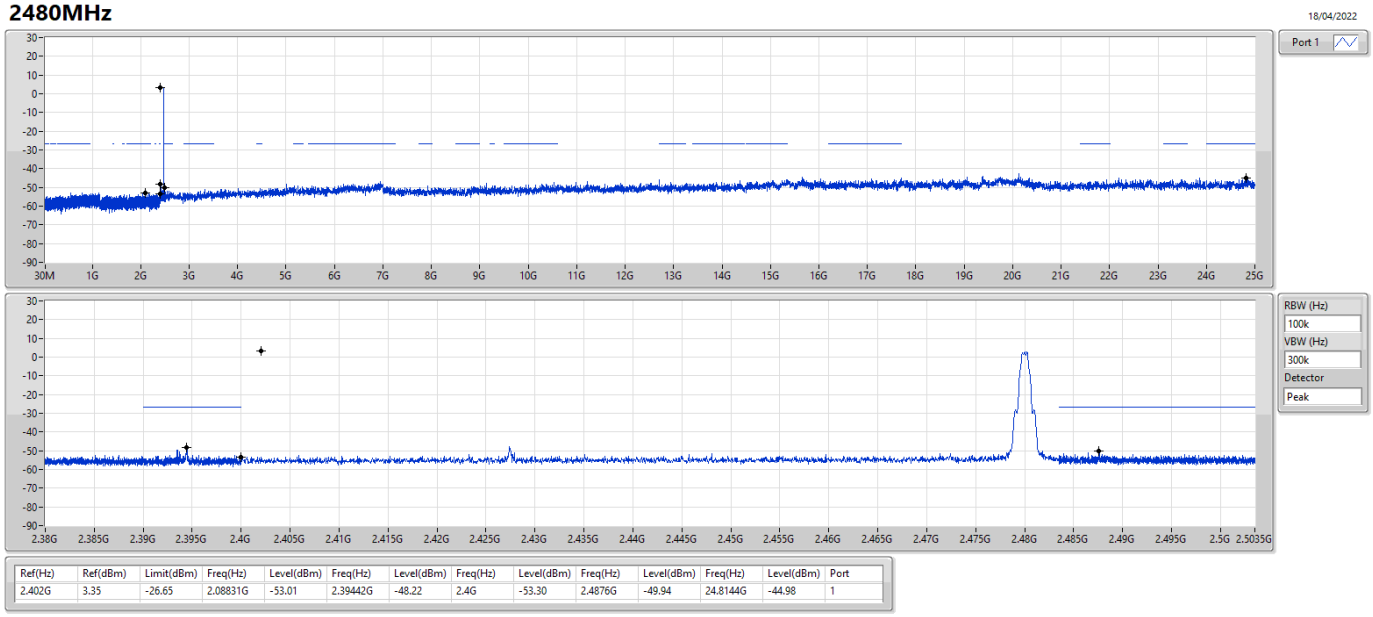
2440MHz



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
2.402G	3.35	-26.65	731.77M	-52.89	2.39495G	-48.10	2.4835G	-54.16	2.48651G	-47.40	15.27026G	-44.96	1

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

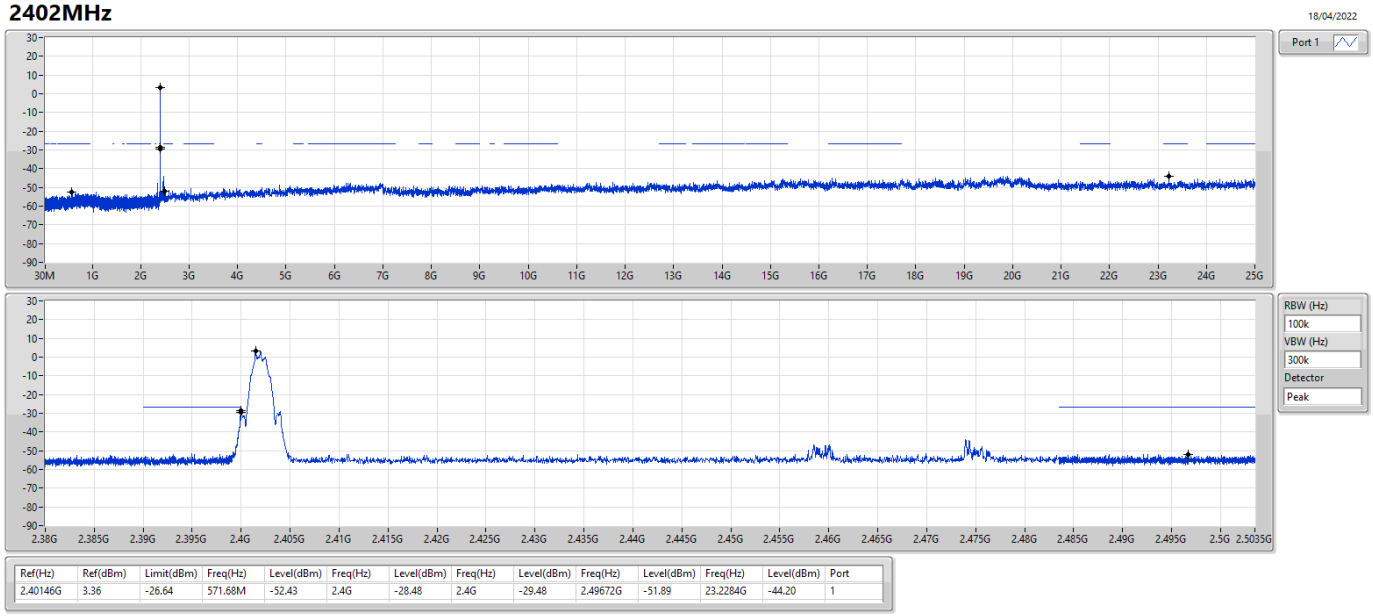
2480MHz



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
2.402G	3.35	-26.65	2.08831G	-53.01	2.39442G	-48.22	2.4G	-53.30	2.4876G	-49.94	24.8144G	-44.98	1

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

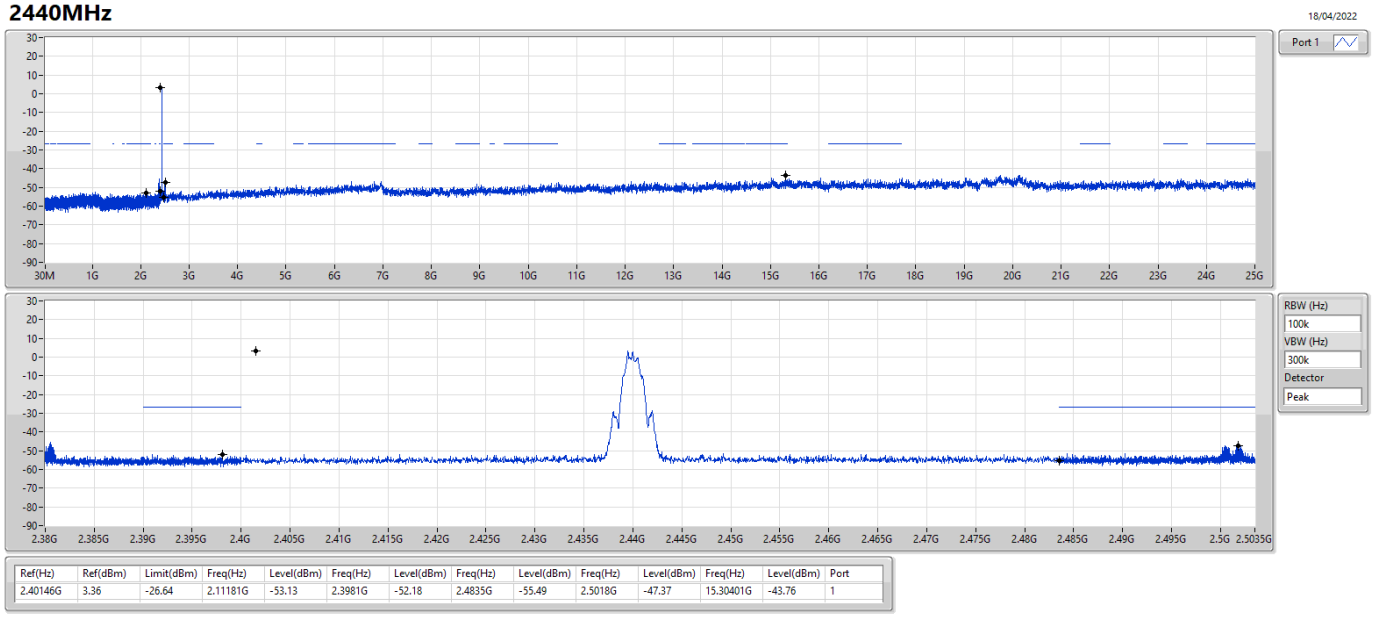
2402MHz



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
2.40146G	3.36	-26.64	571.68M	-52.43	2.4G	-28.48	2.4G	-29.48	2.49672G	-51.89	23.2284G	-44.20	1

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

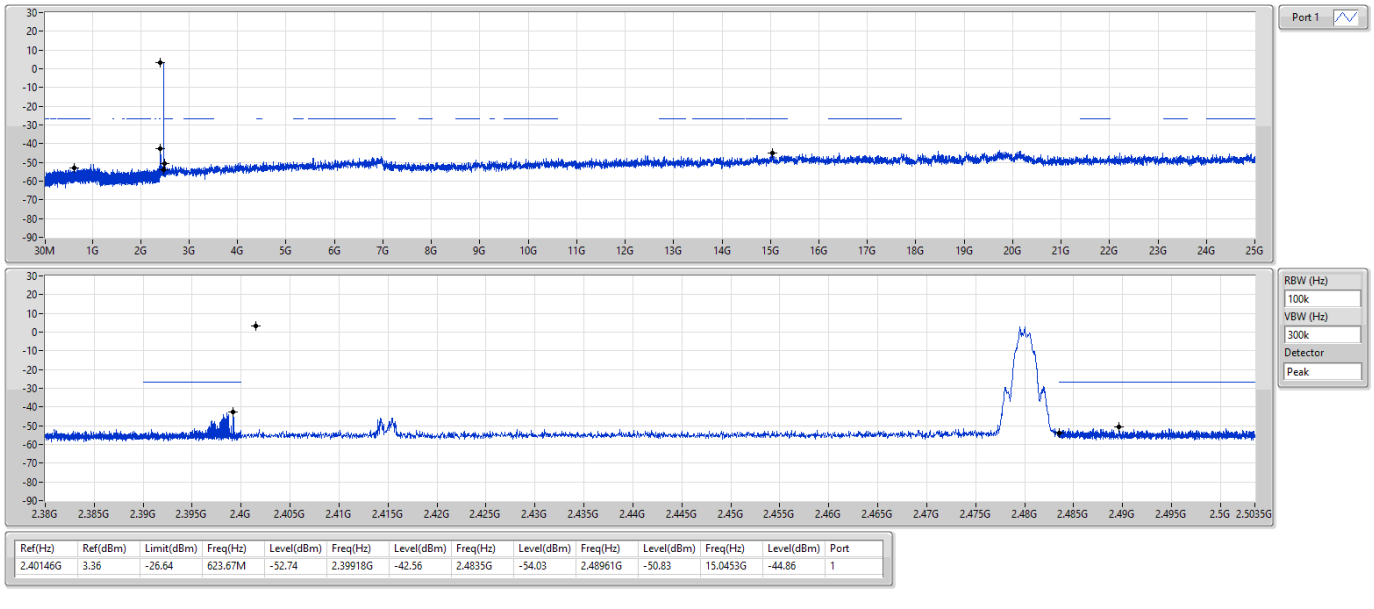
2440MHz



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
2.40146G	3.36	-26.64	2.11181G	-53.13	2.3981G	-52.18	2.4835G	-55.49	2.5018G	-47.37	15.30401G	-43.76	1

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

2480MHz

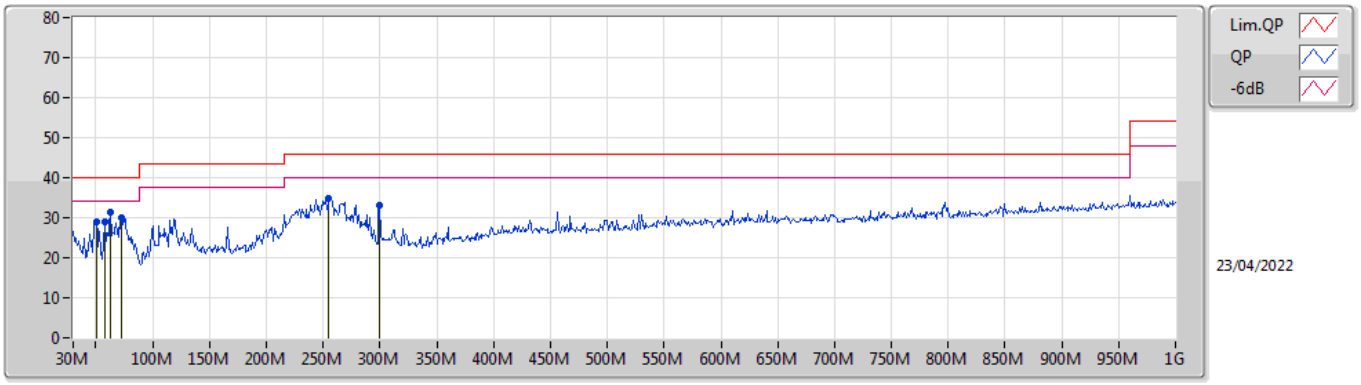


Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.40146G	3.36	-26.64	623.67M	-52.74	2.39918G	-42.56	2.4835G	-54.03	2.48961G	-50.83	15.0453G	-44.86	1

Summary

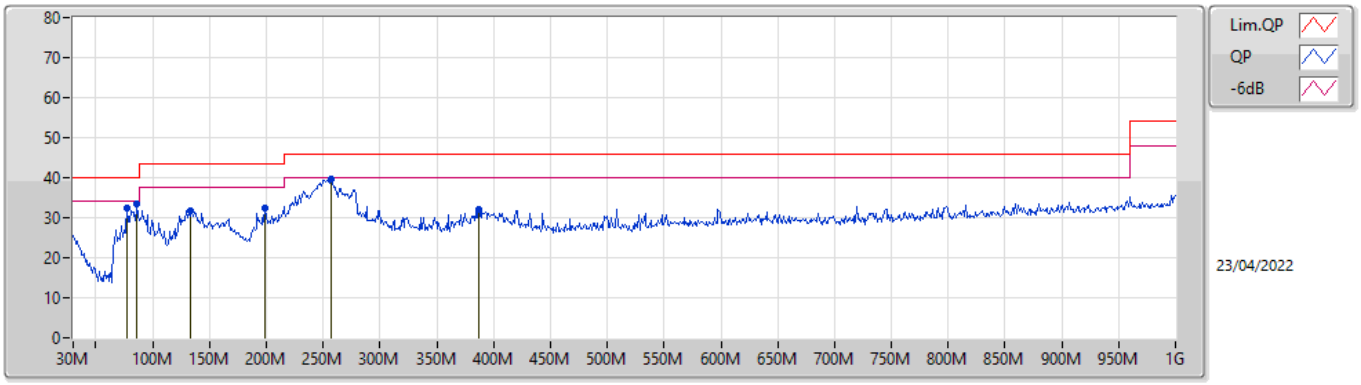
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 1	Pass	PK	256.98M	39.72	46.00	-6.28	Horizontal

Mode 1



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	50.37M	28.85	40.00	-11.15	-16.74	3	Vertical	299	1.00	-	45.59	13.92	1.10	31.76
PK	58.13M	28.92	40.00	-11.08	-18.35	3	Vertical	136	1.00	-	47.27	12.32	1.16	31.83
PK	62.98M	31.45	40.00	-8.55	-18.44	3	Vertical	103	1.50	"Worst"	49.89	12.22	1.20	31.86
PK	72.68M	30.05	40.00	-9.95	-18.43	3	Vertical	106	1.25	-	48.48	12.17	1.30	31.90
PK	255.04M	34.89	46.00	-11.11	-10.68	3	Vertical	43	1.50	-	45.57	18.82	2.52	32.02
PK	299.66M	33.10	46.00	-12.90	-10.30	3	Vertical	56	2.00	-	43.40	19.08	2.70	32.08

Mode 1



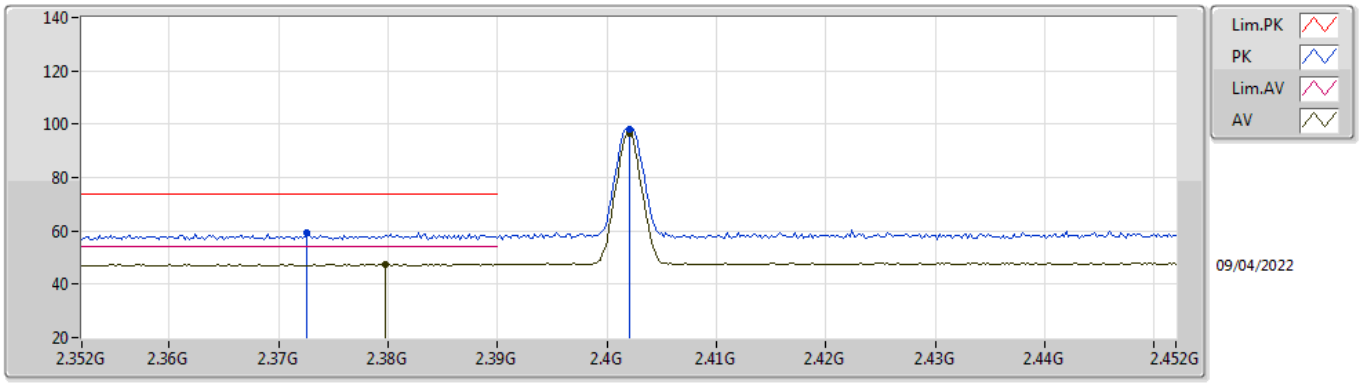
Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
PK	77.53M	32.54	40.00	-7.46	-18.12	3	Horizontal	194	2.00	-	50.66	12.49	1.30	31.91
PK	86.26M	33.37	40.00	-6.63	-16.59	3	Horizontal	168	2.00	-	49.96	13.89	1.43	31.91
PK	132.82M	31.85	43.50	-11.65	-12.73	3	Horizontal	172	1.50	-	44.58	17.49	1.73	31.95
PK	198.78M	32.51	43.50	-10.99	-14.76	3	Horizontal	173	2.00	-	47.27	15.04	2.19	31.99
PK	256.98M	39.72	46.00	-6.28	-10.43	3	Horizontal	159	1.50	"Worst"	50.15	19.06	2.53	32.02
PK	386.96M	32.19	46.00	-13.81	-7.97	3	Horizontal	135	1.00	-	40.16	21.05	3.15	32.17

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	2.4922G	49.45	54.00	-4.55	3	Vertical	81	1.28	-

BT-LE(1Mbps)

2402MHz_TX

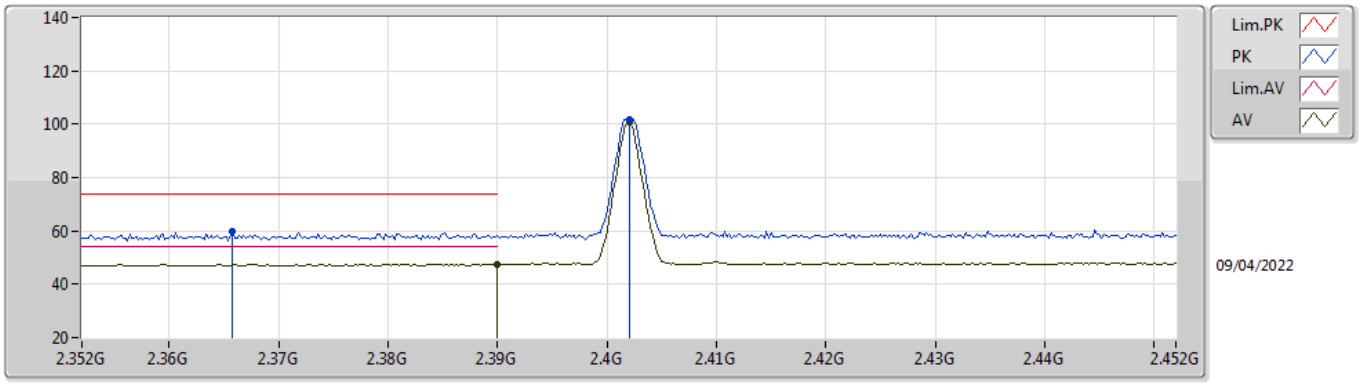


EUT X_1TX
Setting 4
02-B-E-2

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	2.3726G	59.56	74.00	-14.44	28.42	3	Vertical	266	2.53	-	28.35	2.79	-
AV	2.3798G	47.57	54.00	-6.43	16.42	3	Vertical	266	2.53	-	28.36	2.79	-
PK	2.402G	98.15	Inf	-Inf	66.95	3	Vertical	266	2.53	-	28.40	2.80	-
AV	2.402G	96.62	Inf	-Inf	65.42	3	Vertical	266	2.53	-	28.40	2.80	-

BT-LE(1Mbps)

2402MHz_TX

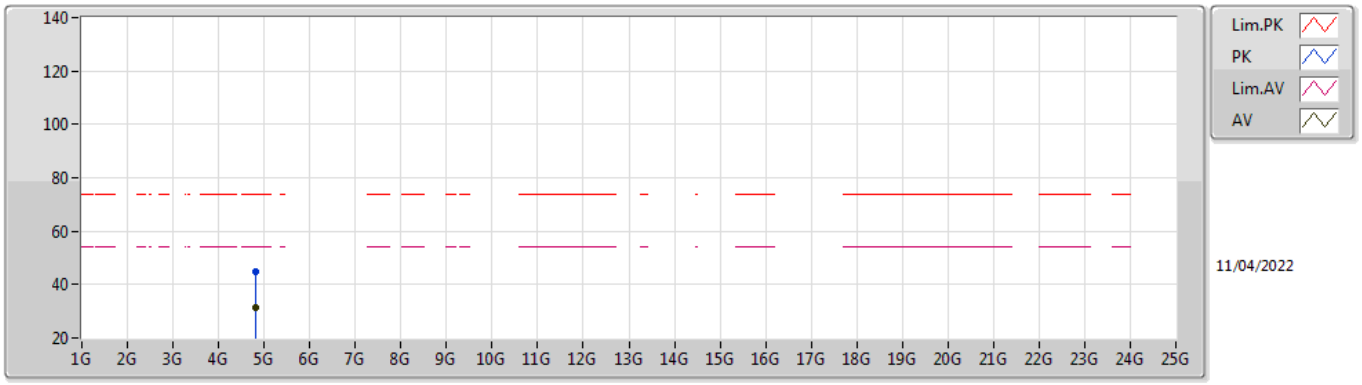


EUT X_1TX
Setting 4
02-B-E-2

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	2.3658G	59.87	74.00	-14.13	28.76	3	Horizontal	231	1.12	-	28.33	2.78	-
AV	2.39G	47.58	54.00	-6.42	16.41	3	Horizontal	231	1.12	-	28.38	2.79	-
PK	2.402G	101.92	Inf	-Inf	70.72	3	Horizontal	231	1.12	-	28.40	2.80	-
AV	2.402G	100.50	Inf	-Inf	69.30	3	Horizontal	231	1.12	-	28.40	2.80	-

BT-LE(1Mbps)

2402MHz_TX

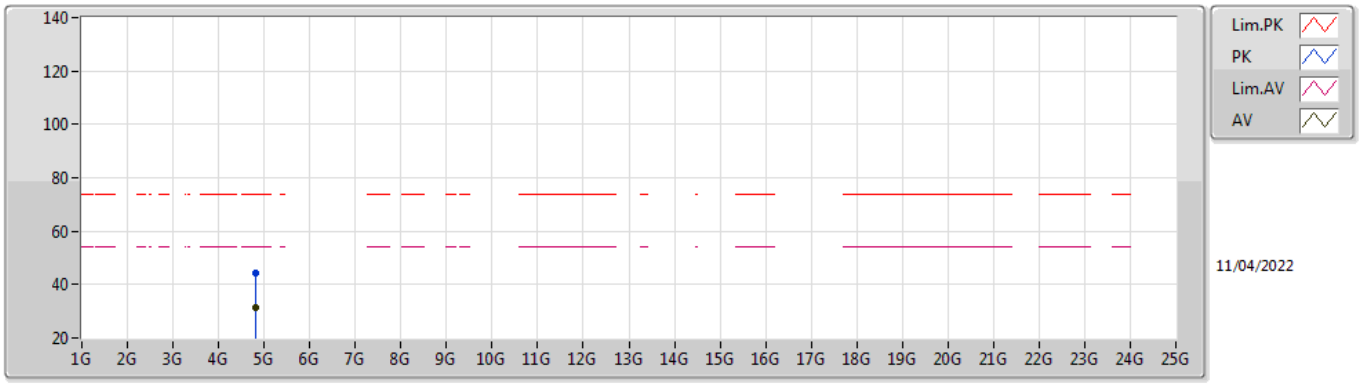


EUT X_1TX
Setting 4
02-B-R-5

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	4.80832G	44.87	74.00	-29.13	39.27	3	Vertical	245	2.65	-	32.73	5.10	32.23
AV	4.80796G	31.62	54.00	-22.38	26.02	3	Vertical	245	2.65	-	32.73	5.10	32.23

BT-LE(1Mbps)

2402MHz_TX

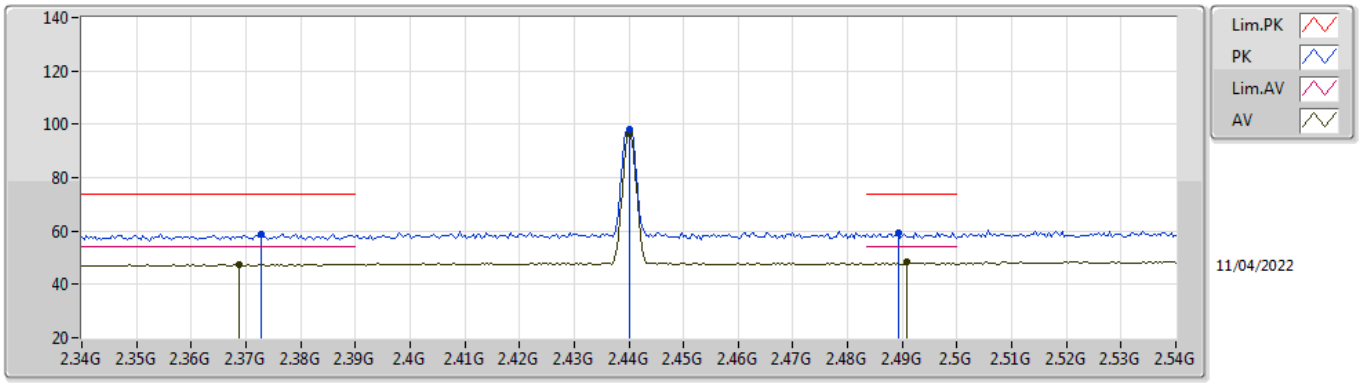


EUT X_1TX
Setting 4
02-B-R-5

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	4.81008G	44.34	74.00	-29.66	38.73	3	Horizontal	247	1.61	-	32.74	5.10	32.23
AV	4.80188G	31.63	54.00	-22.37	26.05	3	Horizontal	247	1.61	-	32.71	5.10	32.23

BT-LE(1Mbps)

2440MHz_TX

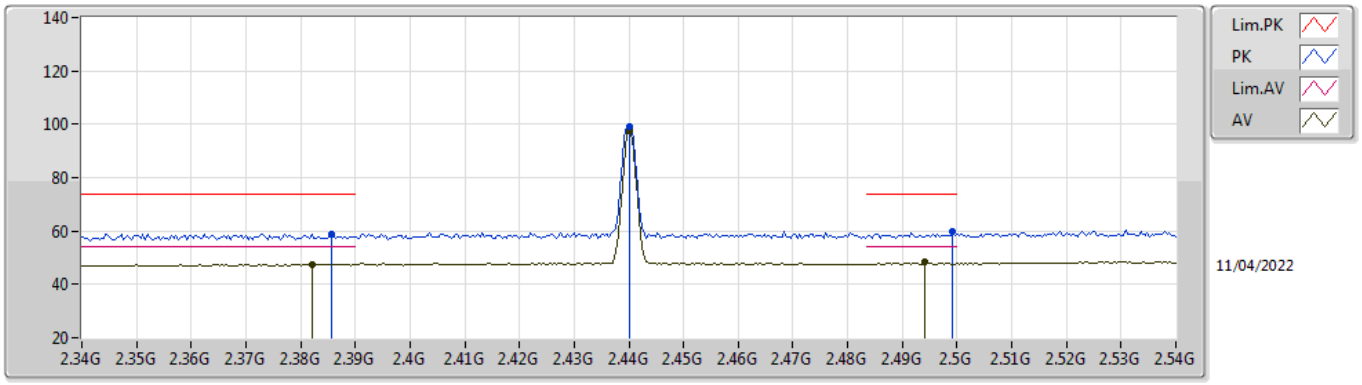


EUT X_1TX
Setting 4
02-B-R-5

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	2.3728G	58.84	74.00	-15.16	27.70	3	Vertical	89	1.66	-	28.35	2.79	-
AV	2.3688G	47.54	54.00	-6.46	16.42	3	Vertical	89	1.66	-	28.34	2.78	-
PK	2.44G	98.16	Inf	-Inf	66.92	3	Vertical	89	1.66	-	28.40	2.84	-
AV	2.44G	96.68	Inf	-Inf	65.44	3	Vertical	89	1.66	-	28.40	2.84	-
PK	2.4892G	59.46	74.00	-14.54	28.01	3	Vertical	89	1.66	-	28.56	2.89	-
AV	2.4908G	48.22	54.00	-5.78	16.77	3	Vertical	89	1.66	-	28.56	2.89	-

BT-LE(1Mbps)

2440MHz_TX

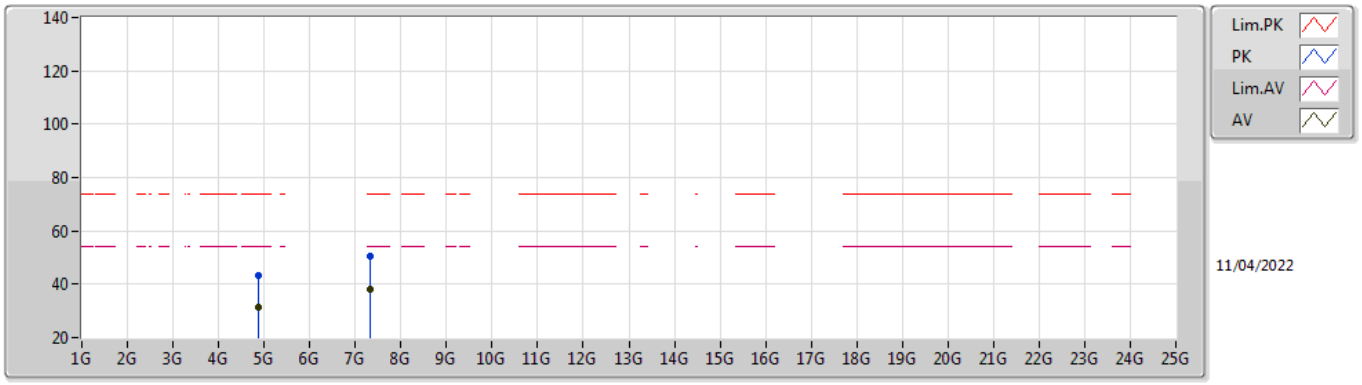


EUT X_1TX
Setting 4
02-B-R-5

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	2.3856G	58.91	74.00	-15.09	27.75	3	Horizontal	162	2.21	-	28.37	2.79	-
AV	2.382G	47.67	54.00	-6.33	16.52	3	Horizontal	162	2.21	-	28.36	2.79	-
PK	2.44G	99.09	Inf	-Inf	67.85	3	Horizontal	162	2.21	-	28.40	2.84	-
AV	2.44G	97.65	Inf	-Inf	66.41	3	Horizontal	162	2.21	-	28.40	2.84	-
PK	2.4992G	59.60	74.00	-14.40	28.10	3	Horizontal	162	2.21	-	28.60	2.90	-
AV	2.494G	48.24	54.00	-5.76	16.77	3	Horizontal	162	2.21	-	28.58	2.89	-

BT-LE(1Mbps)

2440MHz_TX

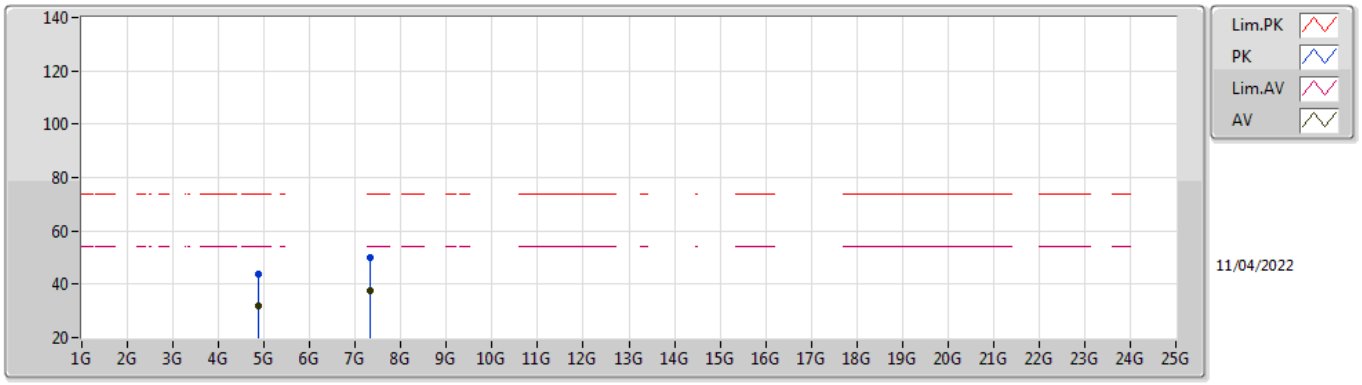


EUT X_1TX
Setting 4
02-B-R-5

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	4.87388G	43.25	74.00	-30.75	37.41	3	Vertical	137	1.54	-	32.95	5.10	32.21
AV	4.87892G	31.45	54.00	-22.55	25.59	3	Vertical	137	1.54	-	32.96	5.10	32.20
PK	7.3274G	50.26	74.00	-23.74	40.50	3	Vertical	4	1.20	-	36.45	6.16	32.85
AV	7.32204G	37.87	54.00	-16.13	28.11	3	Vertical	4	1.20	-	36.44	6.16	32.84

BT-LE(1Mbps)

2440MHz_TX

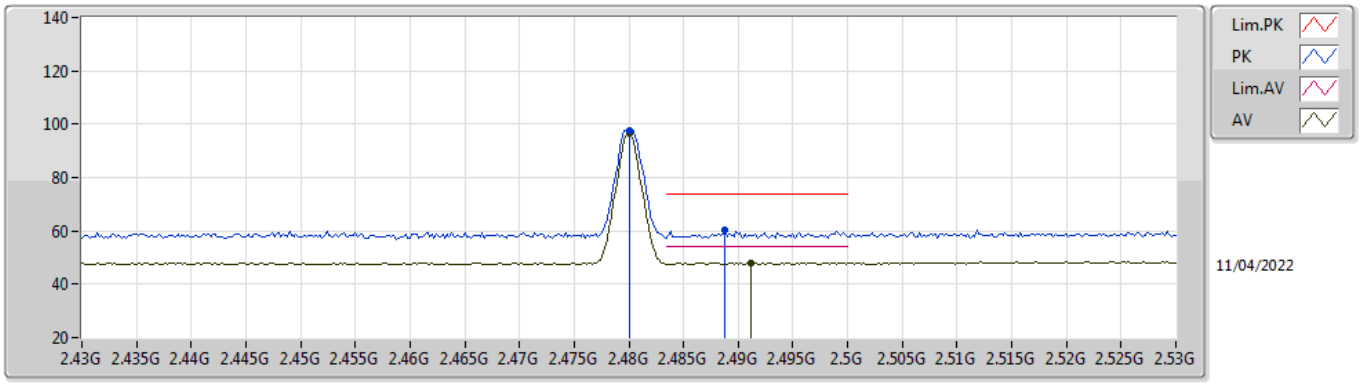


EUT X_1TX
Setting 4
02-B-R-5

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	4.87908G	43.98	74.00	-30.02	38.12	3	Horizontal	244	2.03	-	32.96	5.10	32.20
AV	4.87976G	31.76	54.00	-22.24	25.90	3	Horizontal	244	2.03	-	32.96	5.10	32.20
PK	7.31764G	49.83	74.00	-24.17	40.06	3	Horizontal	72	1.20	-	36.44	6.16	32.83
AV	7.3162G	37.43	54.00	-16.57	27.67	3	Horizontal	72	1.20	-	36.43	6.16	32.83

BT-LE(1Mbps)

2480MHz_TX

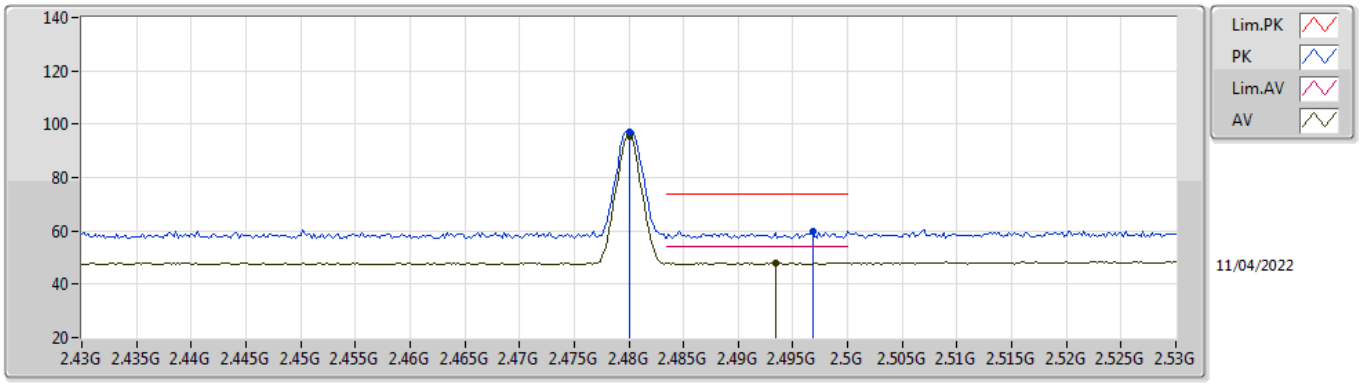


EUT X_1TX
Setting 4
02-B-R-5

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	2.48G	97.78	Inf	-Inf	66.38	3	Vertical	89	1.67	-	28.52	2.88	-
AV	2.48G	96.36	Inf	-Inf	64.96	3	Vertical	89	1.67	-	28.52	2.88	-
PK	2.4888G	60.51	74.00	-13.49	29.06	3	Vertical	89	1.67	-	28.56	2.89	-
AV	2.4912G	48.10	54.00	-5.90	16.65	3	Vertical	89	1.67	-	28.56	2.89	-

BT-LE(1Mbps)

2480MHz_TX

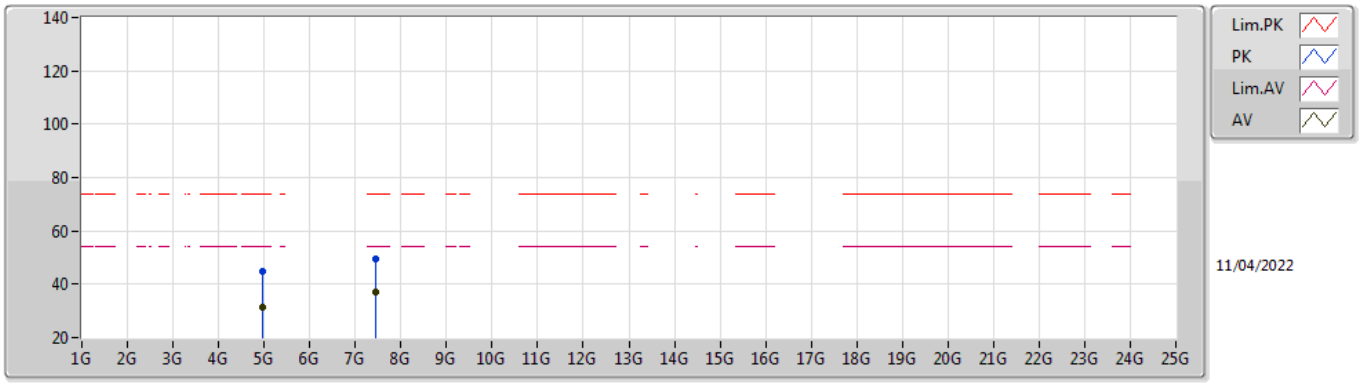


EUT X_1TX
Setting 4
02-B-R-5

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	2.48G	96.95	Inf	-Inf	65.55	3	Horizontal	351	1.20	-	28.52	2.88	-
AV	2.48G	95.57	Inf	-Inf	64.17	3	Horizontal	351	1.20	-	28.52	2.88	-
PK	2.4968G	59.97	74.00	-14.03	28.48	3	Horizontal	351	1.20	-	28.59	2.90	-
AV	2.4934G	47.96	54.00	-6.04	16.50	3	Horizontal	351	1.20	-	28.57	2.89	-

BT-LE(1Mbps)

2480MHz_TX

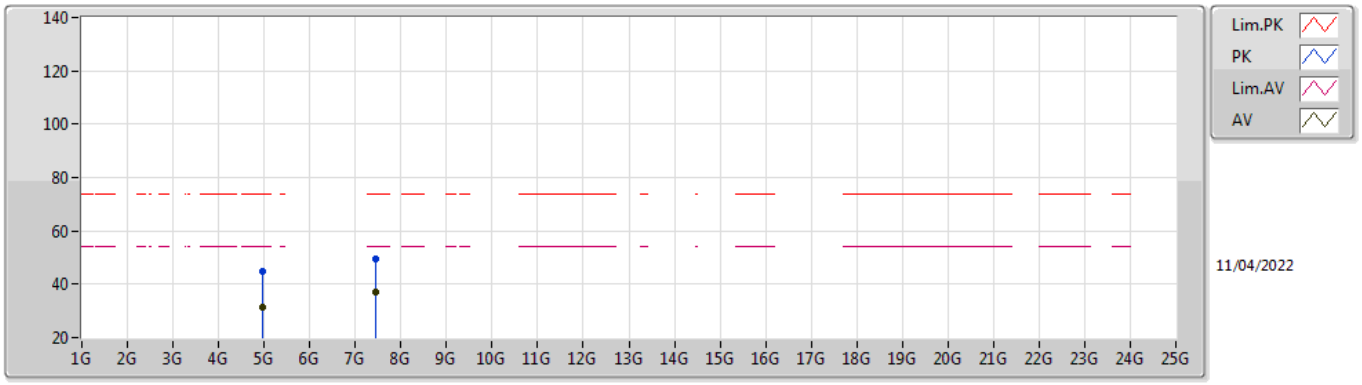


EUT X_1TX
Setting 4
02-B-R-5

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	4.95056G	44.70	74.00	-29.30	38.48	3	Vertical	211	2.13	-	33.30	5.10	32.18
AV	4.9562G	31.55	54.00	-22.45	25.34	3	Vertical	211	2.13	-	33.29	5.10	32.18
PK	7.43152G	49.42	74.00	-24.58	39.71	3	Vertical	299	2.58	-	36.54	6.20	33.03
AV	7.43588G	37.20	54.00	-16.80	27.51	3	Vertical	299	2.58	-	36.53	6.20	33.04

BT-LE(1Mbps)

2480MHz_TX

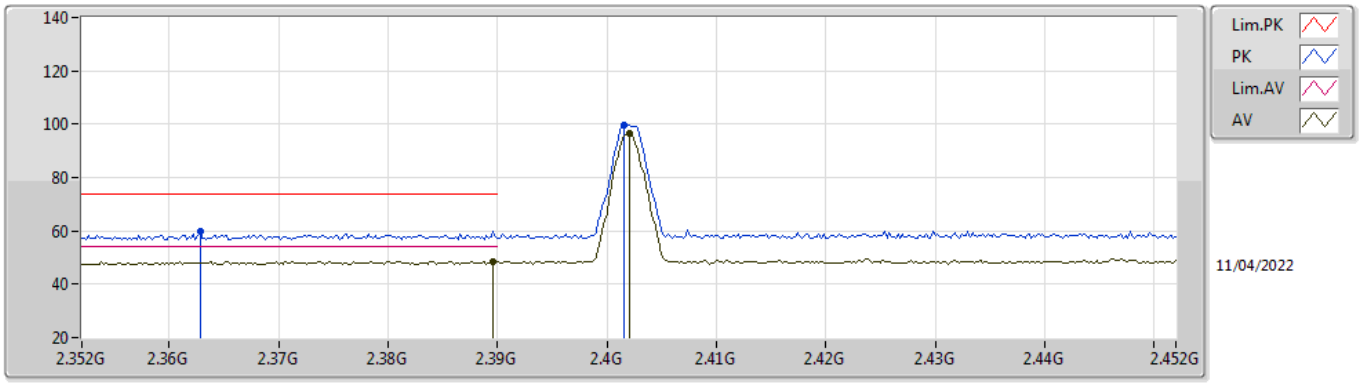


EUT X_1TX
Setting 4
02-B-R-5

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	4.96828G	44.82	74.00	-29.18	38.63	3	Horizontal	230	1.86	-	33.26	5.10	32.17
AV	4.95652G	31.44	54.00	-22.56	25.23	3	Horizontal	230	1.86	-	33.29	5.10	32.18
PK	7.4412G	49.68	74.00	-24.32	40.01	3	Horizontal	69	3.00	-	36.52	6.20	33.05
AV	7.4436G	37.16	54.00	-16.84	27.50	3	Horizontal	69	3.00	-	36.51	6.20	33.05

BT-LE(2Mbps)

2402MHz_TX

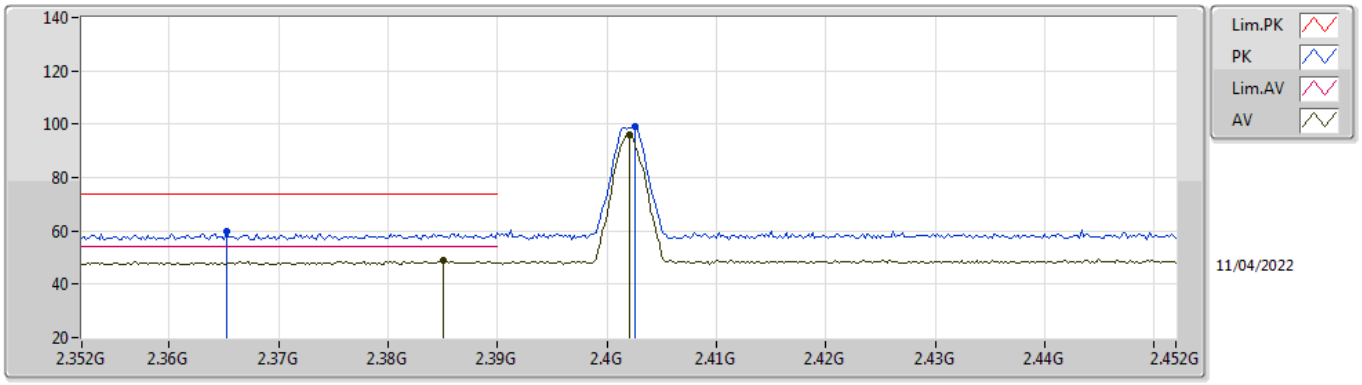


EUT X_1TX
Setting 4
02-B-R-5

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	2.3628G	59.94	74.00	-14.06	28.83	3	Vertical	83	2.33	-	28.33	2.78	-
AV	2.3896G	48.66	54.00	-5.34	17.49	3	Vertical	83	2.33	-	28.38	2.79	-
PK	2.4016G	99.53	Inf	-Inf	68.33	3	Vertical	83	2.33	-	28.40	2.80	-
AV	2.402G	96.62	Inf	-Inf	65.42	3	Vertical	83	2.33	-	28.40	2.80	-

BT-LE(2Mbps)

2402MHz_TX

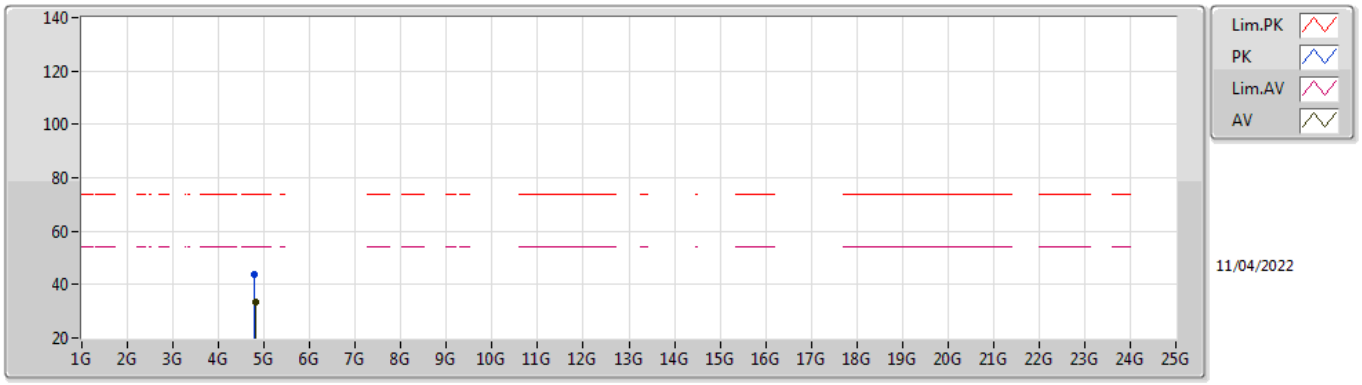


EUT X_1TX
Setting 4
02-B-R-5

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	2.3652G	59.87	74.00	-14.13	28.76	3	Horizontal	55	1.46	-	28.33	2.78	-
AV	2.385G	48.76	54.00	-5.24	17.60	3	Horizontal	55	1.46	-	28.37	2.79	-
PK	2.4026G	99.02	Inf	-Inf	67.82	3	Horizontal	55	1.46	-	28.40	2.80	-
AV	2.402G	96.07	Inf	-Inf	64.87	3	Horizontal	55	1.46	-	28.40	2.80	-

BT-LE(2Mbps)

2402MHz_TX

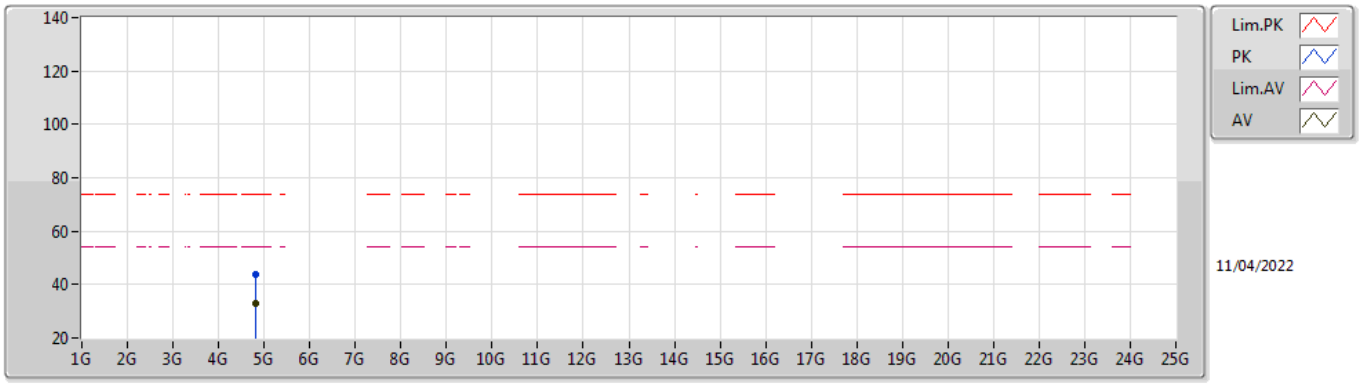


EUT X_1TX
Setting 4
02-B-R-5

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	4.796G	44.01	74.00	-29.99	38.45	3	Vertical	76	2.98	-	32.69	5.10	32.23
AV	4.81164G	33.40	54.00	-20.60	27.78	3	Vertical	76	2.98	-	32.75	5.10	32.23

BT-LE(2Mbps)

2402MHz_TX

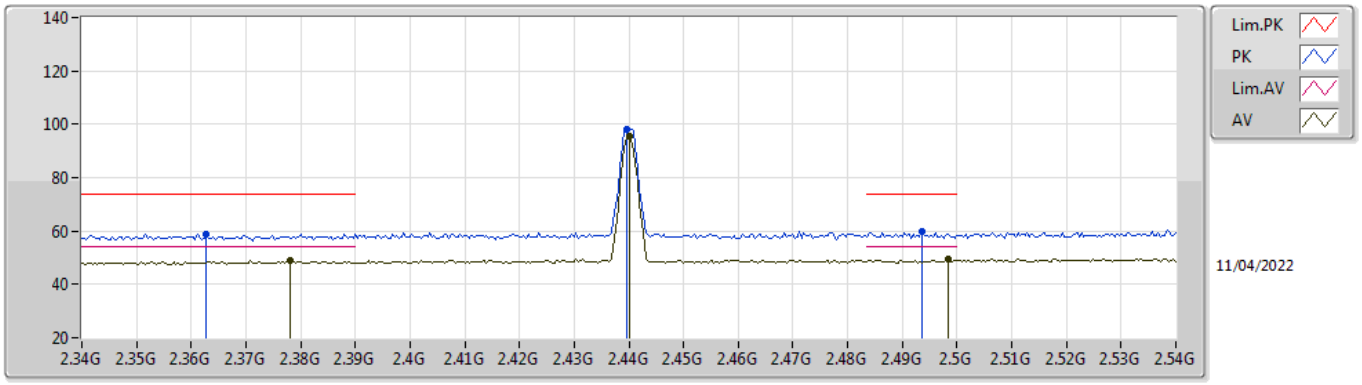


EUT X_1TX
Setting 4
02-B-R-5

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	4.80484G	44.00	74.00	-30.00	38.41	3	Horizontal	217	2.33	-	32.72	5.10	32.23
AV	4.80572G	33.07	54.00	-20.93	27.48	3	Horizontal	217	2.33	-	32.72	5.10	32.23

BT-LE(2Mbps)

2440MHz_TX

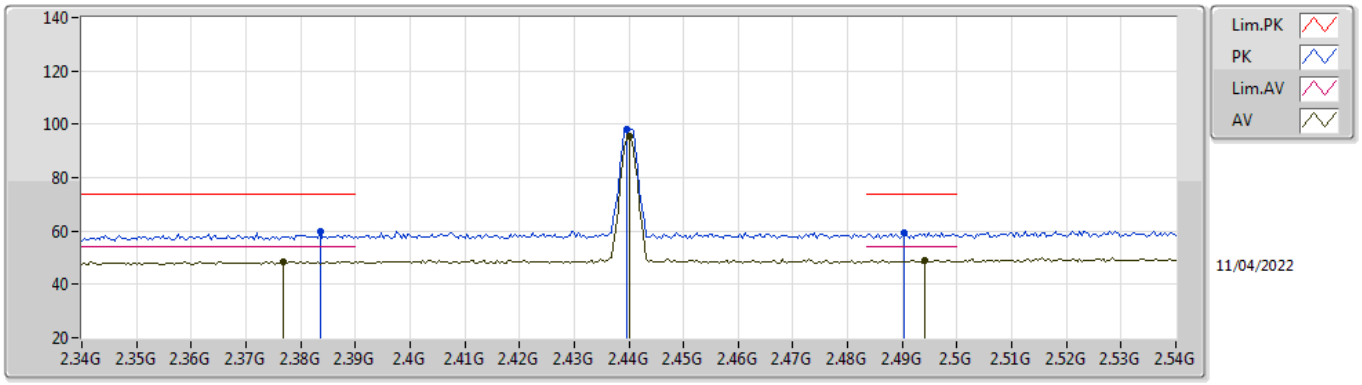


EUT X_1TX
Setting 4
02-B-R-5

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	2.3628G	59.02	74.00	-14.98	27.91	3	Vertical	84	2.34	-	28.33	2.78	-
AV	2.378G	48.78	54.00	-5.22	17.63	3	Vertical	84	2.34	-	28.36	2.79	-
PK	2.4396G	98.35	Inf	-Inf	67.11	3	Vertical	84	2.34	-	28.40	2.84	-
AV	2.44G	95.47	Inf	-Inf	64.23	3	Vertical	84	2.34	-	28.40	2.84	-
PK	2.4936G	59.59	74.00	-14.41	28.13	3	Vertical	84	2.34	-	28.57	2.89	-
AV	2.4984G	49.23	54.00	-4.77	17.74	3	Vertical	84	2.34	-	28.59	2.90	-

BT-LE(2Mbps)

2440MHz_TX

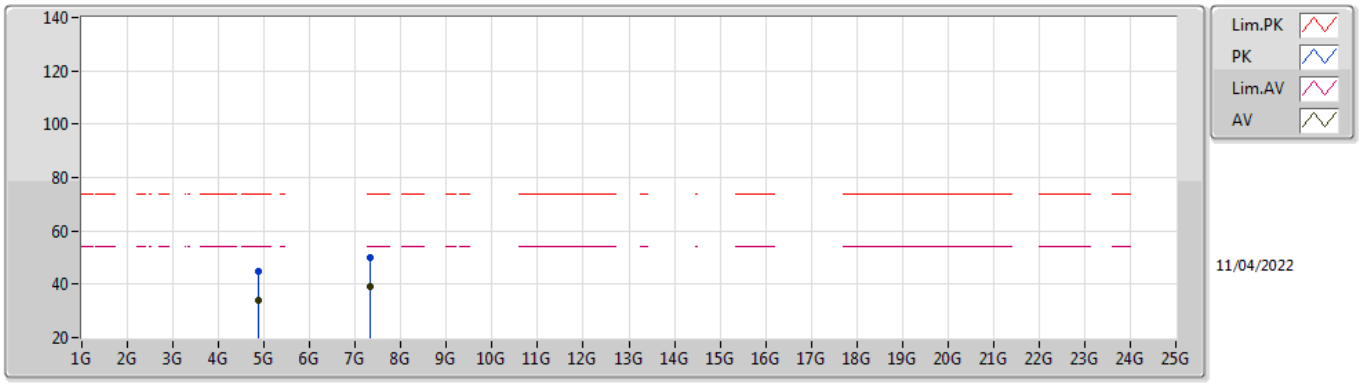


EUT X_1TX
Setting 4
02-B-R-5

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	2.3836G	59.81	74.00	-14.19	28.65	3	Horizontal	180	2.48	-	28.37	2.79	-
AV	2.3768G	48.58	54.00	-5.42	17.44	3	Horizontal	180	2.48	-	28.35	2.79	-
PK	2.4396G	98.24	Inf	-Inf	67.00	3	Horizontal	180	2.48	-	28.40	2.84	-
AV	2.44G	95.29	Inf	-Inf	64.05	3	Horizontal	180	2.48	-	28.40	2.84	-
PK	2.4904G	59.55	74.00	-14.45	28.10	3	Horizontal	180	2.48	-	28.56	2.89	-
AV	2.494G	49.11	54.00	-4.89	17.64	3	Horizontal	180	2.48	-	28.58	2.89	-

BT-LE(2Mbps)

2440MHz_TX

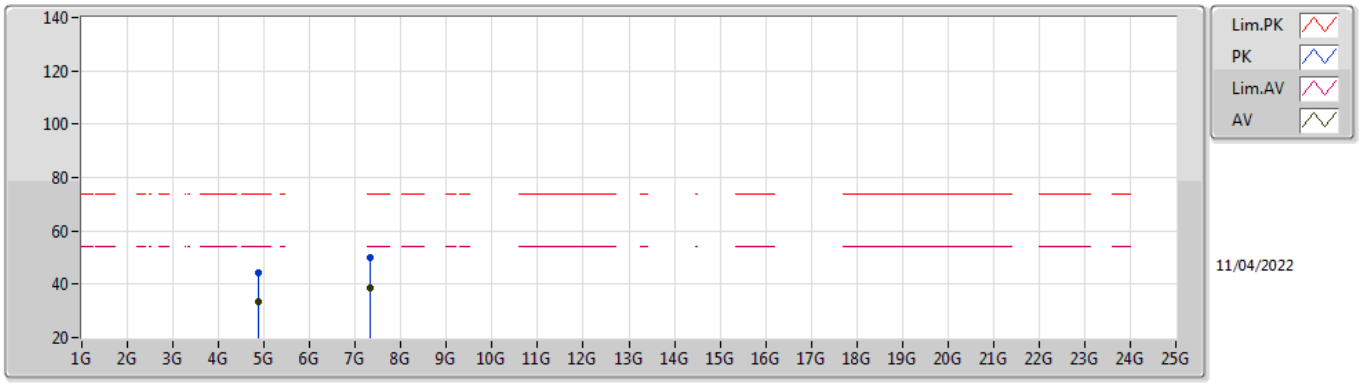


EUT X_1TX
Setting 4
02-B-R-5

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	4.87476G	44.80	74.00	-29.20	38.96	3	Vertical	52	1.94	-	32.95	5.10	32.21
AV	4.88616G	34.02	54.00	-19.98	28.15	3	Vertical	52	1.94	-	32.97	5.10	32.20
PK	7.31232G	49.83	74.00	-24.17	40.07	3	Vertical	329	2.17	-	36.42	6.16	32.82
AV	7.3174G	39.29	54.00	-14.71	29.53	3	Vertical	329	2.17	-	36.43	6.16	32.83

BT-LE(2Mbps)

2440MHz_TX

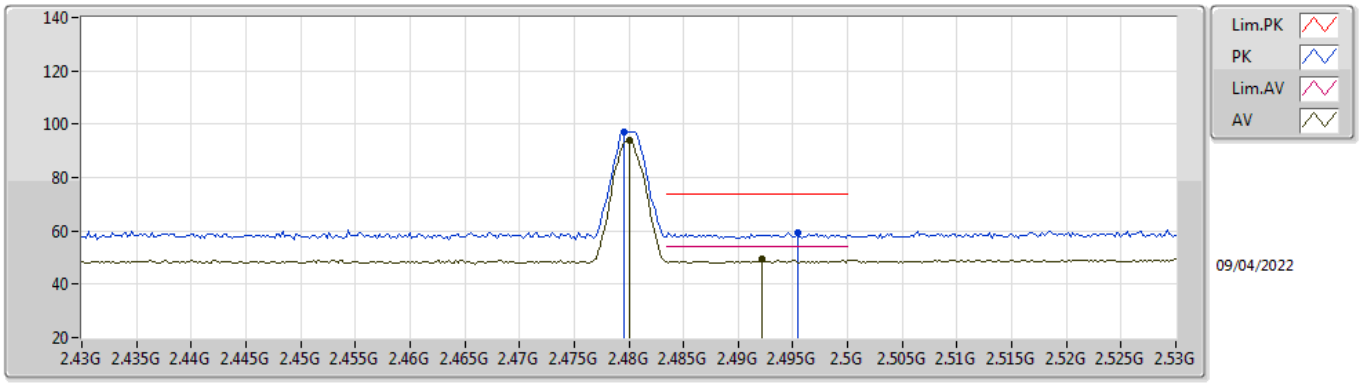


EUT X_1TX
Setting 4
02-B-R-5

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	4.87872G	44.36	74.00	-29.64	38.50	3	Horizontal	298	2.73	-	32.96	5.10	32.20
AV	4.87992G	33.51	54.00	-20.49	27.65	3	Horizontal	298	2.73	-	32.96	5.10	32.20
PK	7.32128G	49.85	74.00	-24.15	40.09	3	Horizontal	241	2.62	-	36.44	6.16	32.84
AV	7.31656G	38.77	54.00	-15.23	29.01	3	Horizontal	241	2.62	-	36.43	6.16	32.83

BT-LE(2Mbps)

2480MHz_TX

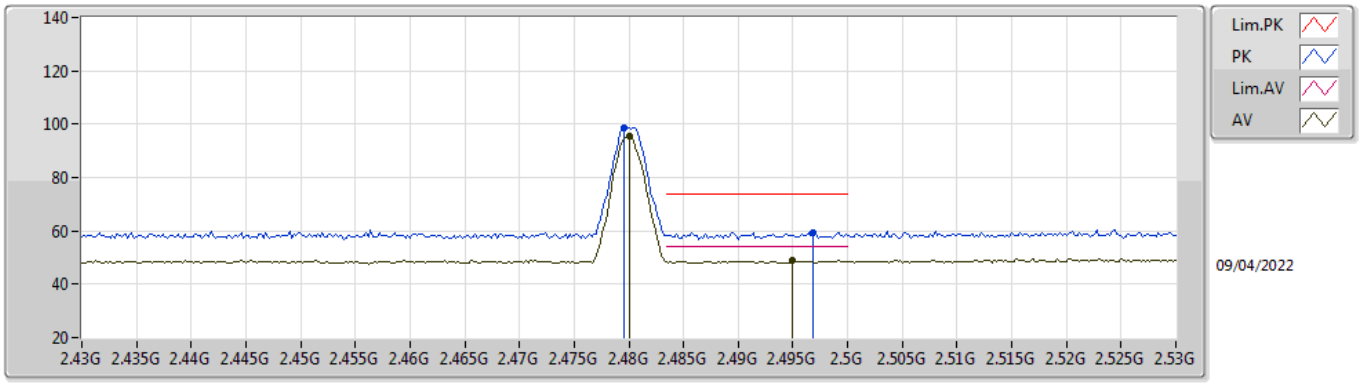


EUT X_1TX
Setting 4
02-B-R-5

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	2.4796G	97.00	Inf	-Inf	65.60	3	Vertical	81	1.28	-	28.52	2.88	-
AV	2.48G	94.19	Inf	-Inf	62.79	3	Vertical	81	1.28	-	28.52	2.88	-
PK	2.4954G	59.25	74.00	-14.75	27.77	3	Vertical	81	1.28	-	28.58	2.90	-
AV	2.4922G	49.45	54.00	-4.55	17.99	3	Vertical	81	1.28	-	28.57	2.89	-

BT-LE(2Mbps)

2480MHz_TX

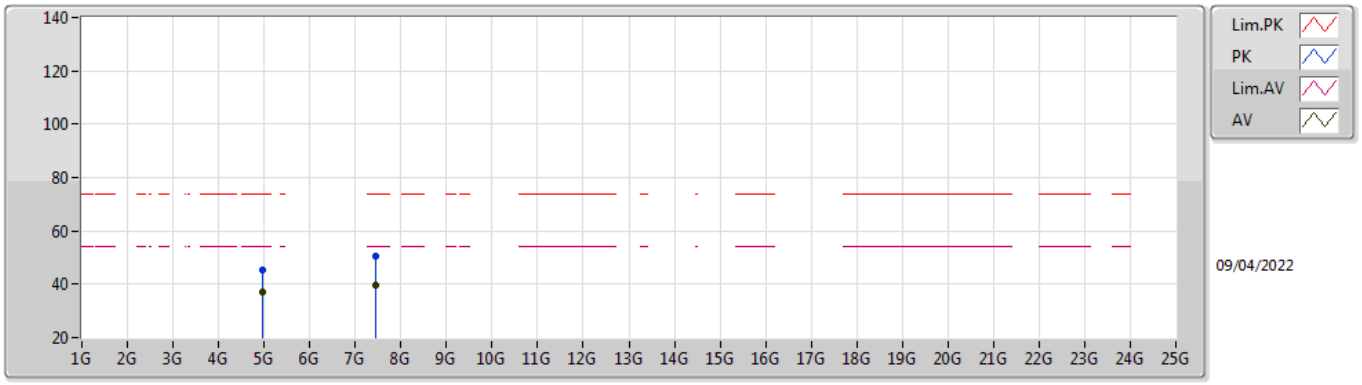


EUT X_1TX
Setting 4
02-B-R-5

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	2.4796G	98.51	Inf	-Inf	67.11	3	Horizontal	20	1.58	-	28.52	2.88	-
AV	2.48G	95.62	Inf	-Inf	64.22	3	Horizontal	20	1.58	-	28.52	2.88	-
PK	2.4968G	59.51	74.00	-14.49	28.02	3	Horizontal	20	1.58	-	28.59	2.90	-
AV	2.495G	48.84	54.00	-5.16	17.36	3	Horizontal	20	1.58	-	28.58	2.90	-

BT-LE(2Mbps)

2480MHz_TX

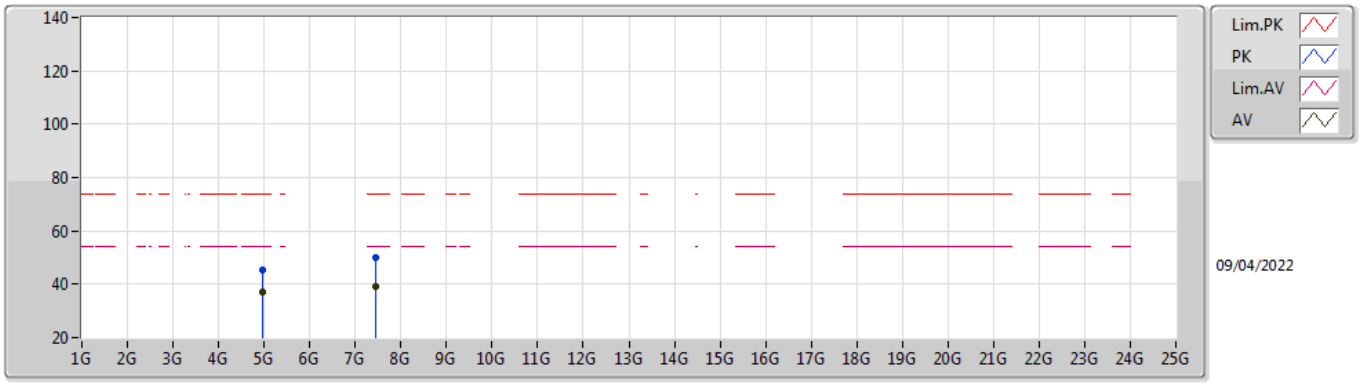


EUT X_1TX
Setting 4
02-B-R-5

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	4.95896G	45.29	74.00	-28.71	39.08	3	Vertical	186	1.33	-	33.28	5.10	32.17
AV	4.9592G	36.84	54.00	-17.16	30.63	3	Vertical	186	1.33	-	33.28	5.10	32.17
PK	7.4374G	50.62	74.00	-23.38	40.93	3	Vertical	326	1.80	-	36.53	6.20	33.04
AV	7.44244G	39.73	54.00	-14.27	30.06	3	Vertical	326	1.80	-	36.52	6.20	33.05

BT-LE(2Mbps)

2480MHz_TX



EUT X_1TX
Setting 4
02-B-R-5

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	4.96046G	45.46	74.00	-28.54	39.25	3	Horizontal	49	1.22	-	33.28	5.10	32.17
AV	4.9589G	36.99	54.00	-17.01	30.78	3	Horizontal	49	1.22	-	33.28	5.10	32.17
PK	7.44366G	50.19	74.00	-23.81	40.53	3	Horizontal	319	1.80	-	36.51	6.20	33.05
AV	7.43872G	39.22	54.00	-14.78	29.54	3	Horizontal	319	1.80	-	36.52	6.20	33.04