Testing Laboratory 3787

RADIO TEST REPORT

FCC ID	:	UDX-600107010
Equipment	:	SMART Camera
Brand Name	:	CISCO
Model Name	:	MV63X-HW, MV63-HW
Applicant	:	Cisco Systems, Inc. 170 West Tasman Drive, San Jose, CA 95134 USA
Manufacturer	:	Cisco Systems, Inc. 170 West Tasman Drive, San Jose, CA 95134 USA
Standard	:	47 CFR FCC Part 15.247

The product was received on Sep. 14, 2022, and testing was started from Sep. 21, 2022 and completed on Oct. 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 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
FR291332AB	01	Initial issue of report	Oct. 31, 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:

1. The test configuration, test mode and test software were written in this test report are declared by the manufacturer.
2. 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: Wendy Pan

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	1TX
2.4-2.4835GHz	BT-LE(500Kb/s)	1	1TX
2.4-2.4835GHz	BT-LE(125Kb/s)	1	1TX
2.4-2.4835GHz	BT-LE(2Mbps)	2	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)					
	WLAN	Bluetooth					WLAN 2.4GHz	WLAN 5GHz				Bluetooth
								UNII 1	UNII 2A	UNII 2C	UNII 3	
1	1	-	SERCOMM	HC910	PIFA Antenna	I-PEX	3.38	5.50	5.50	4.79	5.17	-
2	2	1	SERCOMM	HC910	PIFA Antenna	I-PEX	2.54	5.33	5.33	6.64	5.68	2.54

Note: The above information was declared by manufacturer.

For 2.4GHz function:

For IEEE 802.11b/g/n/VHT mode (1TX/1RX):

The EUT supports the antenna with TX and RX diversity functions.

Both Port 1 and Port 2 support transmit and receive functions, but only one of them will be used at one time.

The Port 1 generated the worst case, so it was selected to test and record in the report.

For 5GHz function:

For IEEE 802.11a/n/ac mode (1TX/1RX):

For UNII 1 and UNII 2A:

The EUT supports the antenna with TX and RX diversity functions.

Both Port 1 and Port 2 support transmit and receive functions, but only one of them will be used at one time.

The Port 1 generated the worst case, so it was selected to test and record in the report.

For UNII2C and UNII 3:

The EUT supports the antenna with TX and RX diversity functions.

Both Port 1 and Port 2 support transmit and receive functions, but only one of them will be used at one time.

The Port 2 generated the worst case, so it was selected to test and record in the report.

For Bluetooth function (1TX/1RX):

Only Port 1 can be used as transmitting/receiving antenna.

1.1.3 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
BT-LE(1Mbps)	0.107	9.71	143u	10k
BT-LE(2Mbps)	0.111	9.55	144u	10k

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

1.1.4 EUT Operational Condition

EUT Power Type	From PoE			
Function	☒	Point-to-multipoint	☐	Point-to-point
Test Software Version	QRCT (Version :4.0.72.1)			
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

The model names in the following table are all refer to the identical product.

Brand Name	Model Name	EUT	Memory Capacities
CISCO	MV63X-HW	EUT 1	1TB
	MV63-HW	EUT 2	256GB

Note 1: From the above EUT 1 for all test items and EUT 2 for Emissions in Restricted Frequency Bands below 1GHz were selected as representative EUT for the test and its data was recorded in this report.
Note 2: 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 15.247
- 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	TH03-CB	Jay Lo	23.4-23.6 / 58-66	Sep. 23, 2022 ~ Sep. 26, 2022
Radiated <1GHz	03CH05-CB	Simmon Cheng	23.4~24.4 / 55~60	Sep. 28, 2022~ Sep. 29, 2022
Radiated >1GHz	03CH01-CB	Simmon Cheng	23~23.5 / 55~60	Sep. 21, 2022~ Sep. 24, 2022
	03CH04-CB	Simmon Cheng	24.4~25.3 / 60~63	Sep. 21, 2022~ Sep. 24, 2022
Radiated Co-location	03CH05-CB	Simmon Cheng	24.9~25.2 / 61~63	Oct. 11, 2022
AC Conduction	CO02-CB	Joe Chu	22~23 / 59~60	Sep. 29, 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)	3.4 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	5.6 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	5.2 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	4.7 dB	Confidence levels of 95%
Conducted Emission	3.2 dB	Confidence levels of 95%
Output Power Measurement	0.8 dB	Confidence levels of 95%
Power Density Measurement	3.2 dB	Confidence levels of 95%
Bandwidth Measurement	2.0 %	Confidence levels of 95%

2 Test Configuration of EUT

2.1 Test Channel Mode

Mode	Power Setting
BT-LE(1Mbps)	-
2402MHz	9
2440MHz	9
2480MHz	8
BT-LE(2Mbps)	-
2402MHz	9
2440MHz	9
2480MHz	8

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	EUT 1 connected via Ethernet - Day mode + PoE 1
2	EUT 1 connected via Ethernet - Night mode + PoE 1
Mode 2 has been evaluated to be the worst case between Mode 1~2, thus measurement for Mode 3 ~ 6 will follow this same test mode.	
3	EUT 1 connected via WLAN 2.4GHz - Night mode + PoE 1
4	EUT 1 connected via WLAN 2.4GHz - Night mode + PoE 2
5	EUT 1 connected via WLAN 5GHz - Night mode + PoE 1
6	EUT 1 connected via WLAN 5GHz - Night mode + PoE 2
For operating mode 2 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
Test Mode	EUT 1

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	EUT 1 at Z axis connected via Ethernet - Day mode + PoE 1
2	EUT 1 at Y axis connected via Ethernet - Day mode + PoE 1
3	EUT 1 at X axis connected via Ethernet - Day mode + PoE 1
Mode 2 has been evaluated to be the worst case among Mode 1~3, thus measurement for Mode 4 will follow this same test mode.	
4	EUT 1 at Y axis connected via Ethernet - Night mode + PoE 1
Mode 4 has been evaluated to be the worst case among Mode 1~4, thus measurement for Mode 5 ~ 8 will follow this same test mode.	
5	EUT 1 at Y axis connected via WLAN 2.4GHz - Night mode + PoE 1
6	EUT 1 at Y axis connected via WLAN 2.4GHz - Night mode + PoE 2
7	EUT 1 at Y axis connected via WLAN 5GHz - Night mode + PoE 1
8	EUT 1 at Y axis connected via WLAN 5GHz - Night mode + PoE 2
Mode 4 has been evaluated to be the worst case among Mode 1~8, thus measurement for Mode 9 will follow this same test mode.	
9	EUT 2 at Y axis connected via Ethernet - Night mode + PoE 1
For operating mode 9 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 Z axis. So the measurement will follow this same test configuration.
1	EUT 1 at Z axis

The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis - Radiated Emission Co-location
Test Condition	Radiated measurement
Operating Mode	Normal Link
1	EUT 1 at Y axis + Bluetooth+WLAN 2.4GHz
2	EUT 1 at Y axis + Bluetooth+WLAN 5GHz
Refer to Appendix G for Radiated Emission Co-location.	

The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation
Operating Mode	
1	EUT 1 + Bluetooth+WLAN 2.4GHz
2	EUT 1 + Bluetooth+WLAN 5GHz
Refer to Sporton Test Report No.: FA291332 for Co-location RF Exposure Evaluation.	

Note: The PoEs are for measurement only, would not be marketed.
PoEs information as below:

Power	Brand	Model
PoE 1	PHIHONG	POEA33U-1ATE
PoE 2	CISCO	MA-PWR-MV-LV

2.3 EUT Operation during Test

For CTX Mode:
The EUT was programmed to be in continuously transmitting mode.

For Normal Link:
During the test, the EUT operation to normal function.

2.4 Accessories

Wall Bracket*4

2.5 Support Equipment

For AC Conduction:

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
A	PoE 1	PHIHONG	POEA33U-1ATE	N/A
B	LAN NB	DELL	E6430	N/A
C	Smart phone	Samsung	Galaxy J2	N/A

For Radiated (below 1GHz):

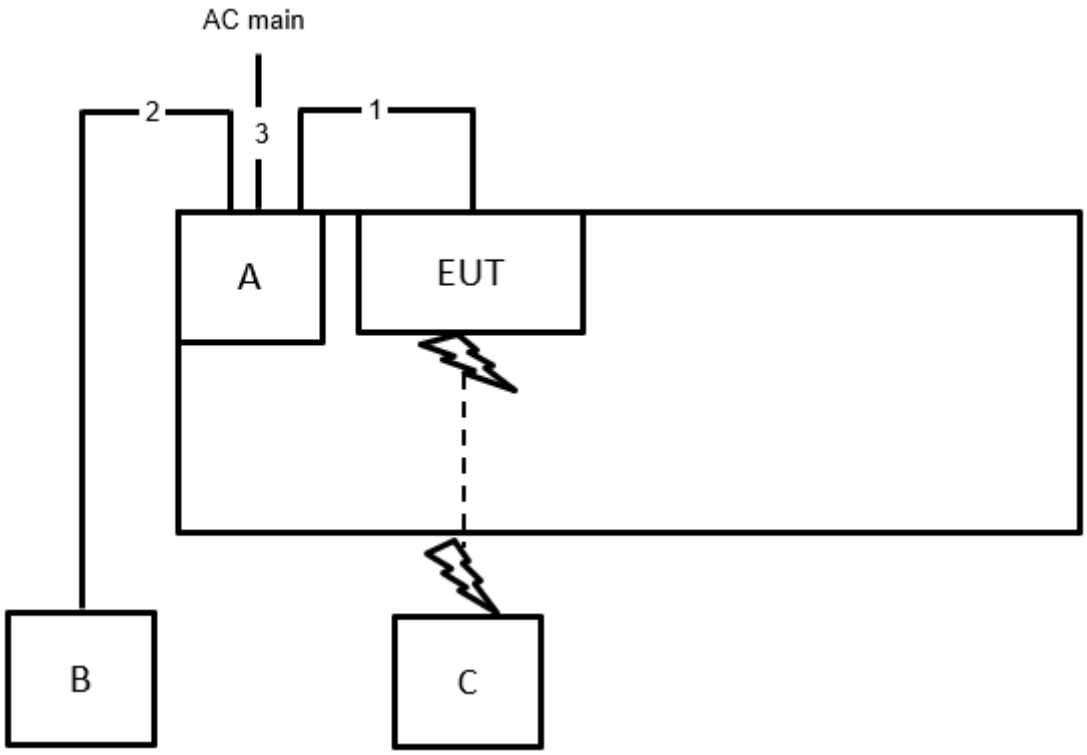
Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
A	PoE 1	PHIHONG	POEA33U-1ATE	N/A
B	Notebook	Lenovo	L440	N/A
C	iPhone 12	Apple	A2403	BCG-E3544A

For Radiated (above 1GHz) and RF Conducted:

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
A	Notebook	Lenovo	L440	N/A
B	PoE 1	PHIHONG	PORA33U-1ATE	N/A

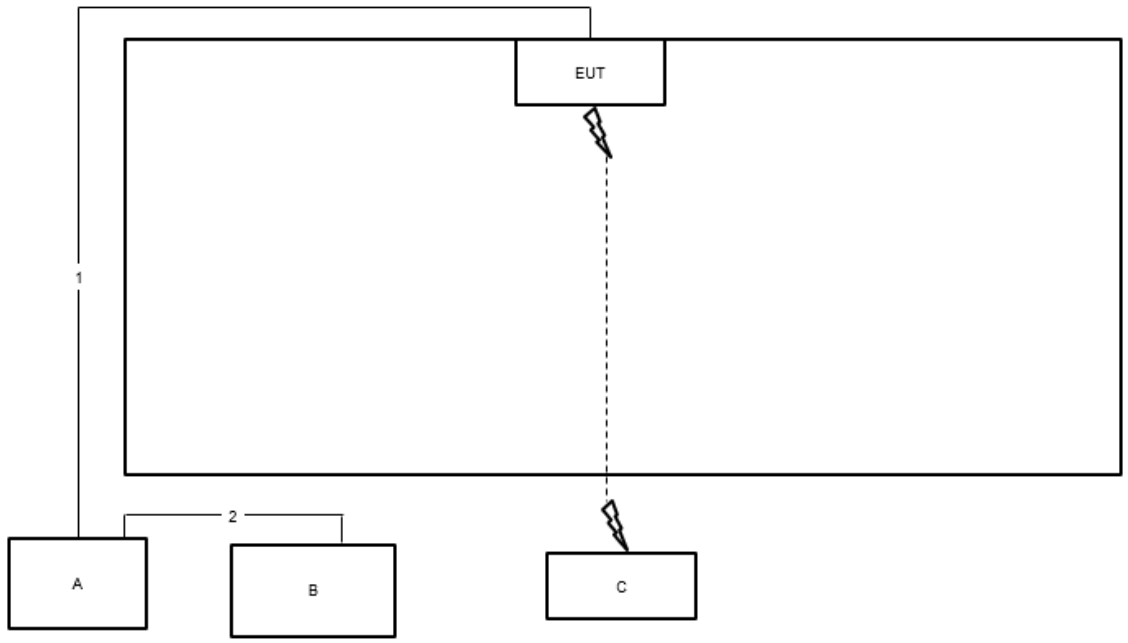
2.6 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test



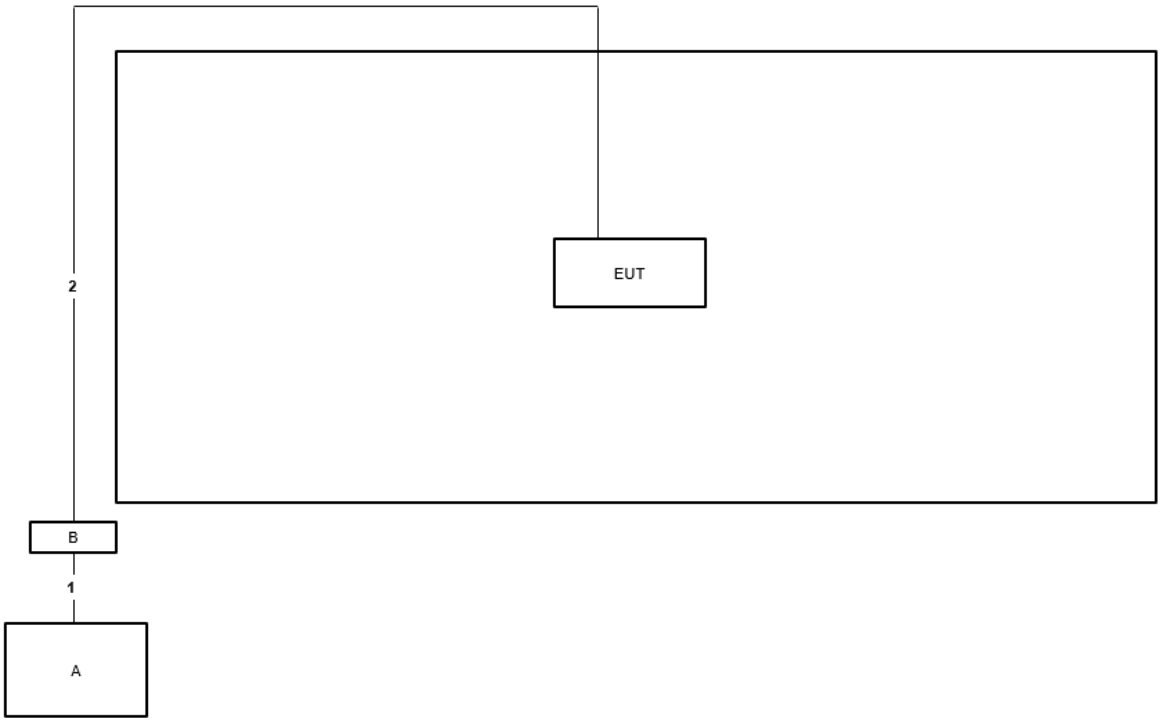
Item	Connection	Shielded	Length
1	RJ-45 cable	No	1.5m
2	RJ-45 cable	No	10m
3	Power cable	No	1m

Test Setup Diagram - Radiated Test < 1GHz



Item	Connection	Shielded	Length
1	RJ-45 cable	No	10m
2	RJ-45 cable	No	1.5m

Test Setup Diagram - Radiated Test > 1GHz



Item	Connection	Shielded	Length
1	RJ-45 cable	No	1m
2	RJ-45 cable	No	10m

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

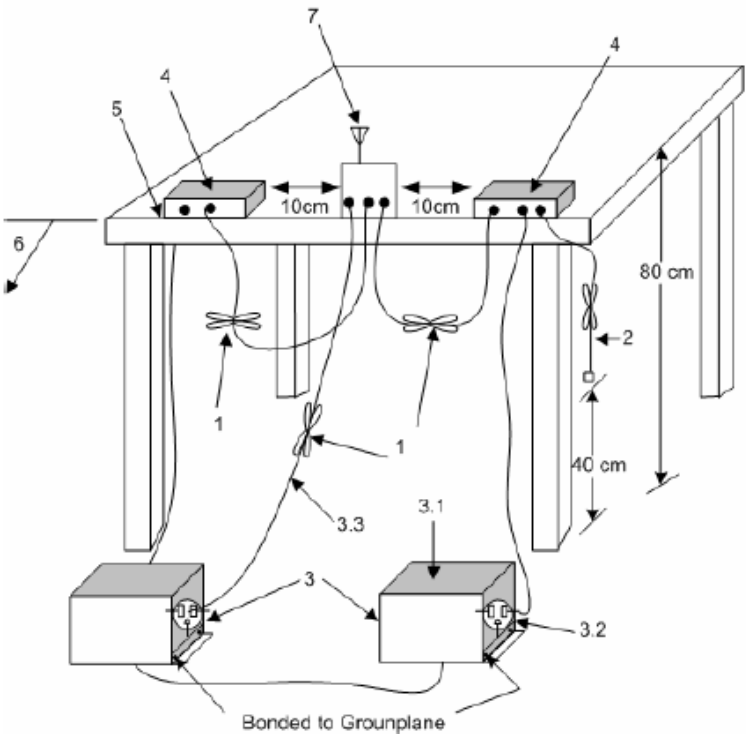
Refer a test equipment and calibration data table in this test report.

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.

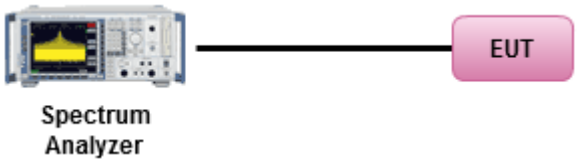
3.2.2 Measuring Instruments

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

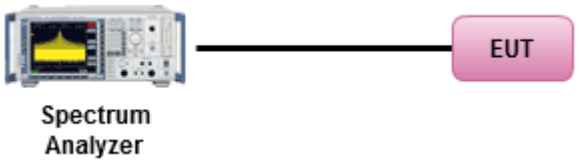
3.4.2 Measuring Instruments

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

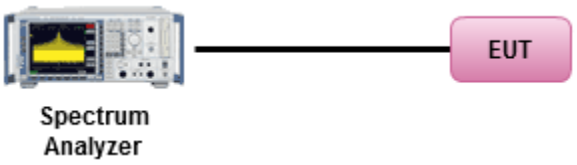
Refer a test equipment and calibration data table in this test report.

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.

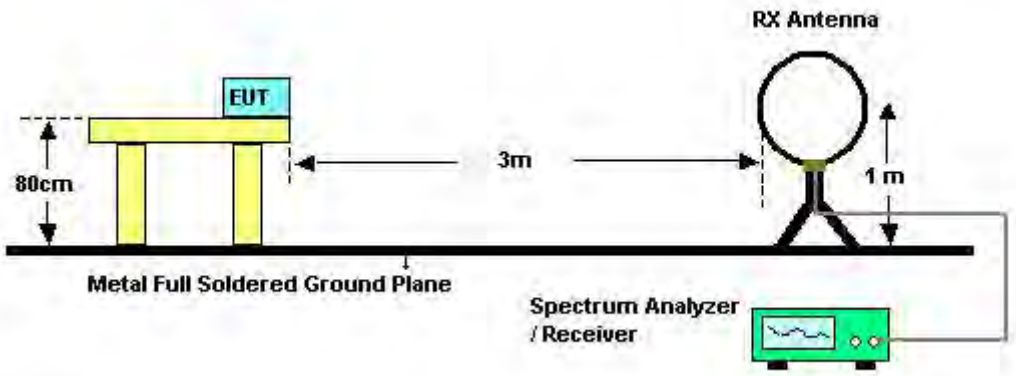
3.6.3 Test Procedures

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.

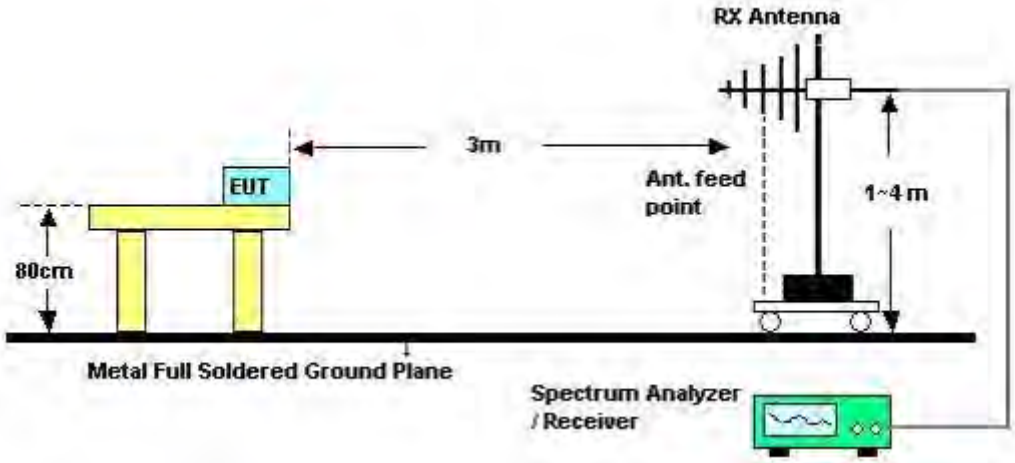
3.6.4 Test Setup

Emissions in Restricted Frequency Bands

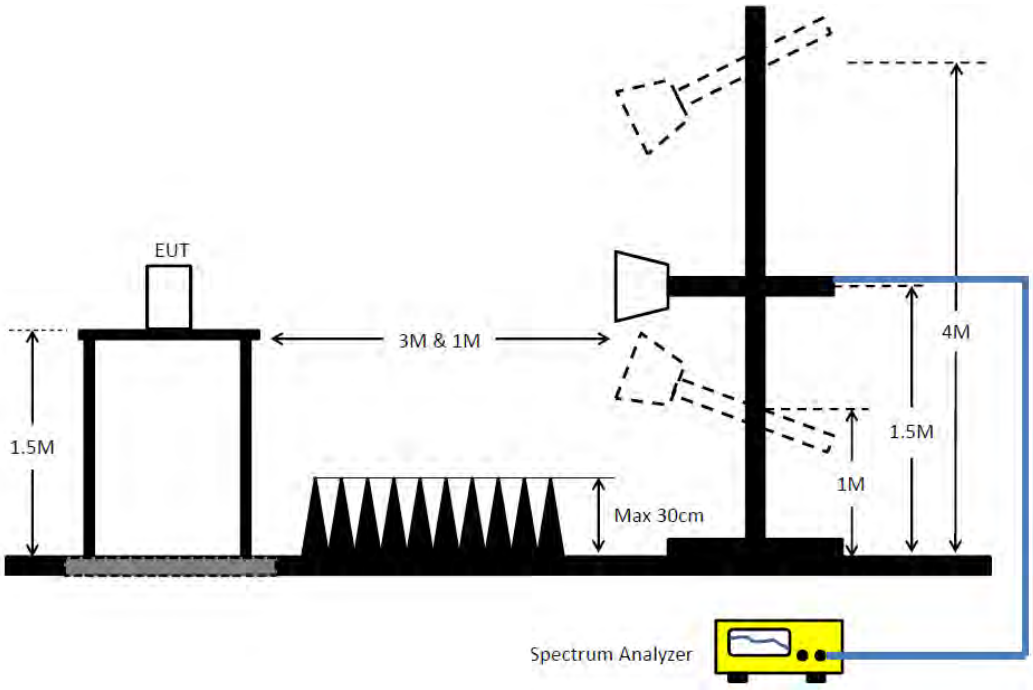
9kHz ~30MHz



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
LISN	Schwarzbeck	NSLK 8127	8127650	9kHz ~ 30MHz	Jan. 07, 2022	Jan. 06, 2023	Conduction (CO02-CB)
LISN	Schwarzbeck	NSLK 8127	8127478	9kHz ~ 30MHz	Dec. 22, 2021	Dec. 21, 2022	Conduction (CO02-CB)
EMI Receiver	Agilent	N9038A	MY52260140	9kHz ~ 8.4GHz	May 06, 2022	May 05, 2023	Conduction (CO02-CB)
Pulse Limiter	Schwarzbeck	VTSD 9561F-N	00378	9kHz ~ 30MHz	Mar. 18, 2022	Mar. 17, 2023	Conduction (CO02-CB)
COND Cable	Woken	Cable	2	0.15MHz ~ 30MHz	Oct. 19, 2021	Oct. 18, 2022	Conduction (CO02-CB)
Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conduction (CO02-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	May 14, 2022	May 13, 2023	Radiation (03CH05-CB)
3m Semi Anechoic Chamber NSA	TDK	SAC-3M	03CH05-CB	30 MHz ~ 1 GHz	Aug. 03, 2022	Aug. 02, 2023	Radiation (03CH05-CB)
3m Semi Anechoic Chamber VSWR	TDK	SAC-3M	03CH05-CB	1GHz ~18GHz 3m	Nov. 07, 2021	Nov. 06, 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)
Horn Antenna	SCHWARZBECK	BBHA9120D	BBHA 9120 D-1291	1GHz~18GHz	Jun. 23, 2022	Jun. 22, 2023	Radiation (03CH05-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Aug. 22, 2022	Aug. 21, 2023	Radiation (03CH05-CB)
Pre-Amplifier	EMCI	EMC330N	980331	20MHz ~ 3GHz	Apr. 26, 2022	Apr. 25, 2023	Radiation (03CH05-CB)
Pre-Amplifier	EMCI	EMC12630SE	980287	1GHz – 26.5GHz	Jul. 01, 2022	Jun. 30, 2023	Radiation (03CH05-CB)
Pre-Amplifier	MITEQ	TTA1840-35-HG	1864479	18GHz ~ 40GHz	Jul. 20, 2022	Jul. 19, 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. 17, 2022	Jun. 16, 2023	Radiation (03CH05-CB)
RF Cable-low	Woken	RG402	Low Cable-04+23	30MHz~1GHz	Oct. 13, 2021	Oct. 12, 2022	Radiation (03CH05-CB)
RF Cable-high	Woken	RG402	High Cable-28	1GHz~18GHz	Oct. 13, 2021	Oct. 12, 2022	Radiation (03CH05-CB)
RF Cable-high	Woken	RG402	High Cable-04+28	1GHz~18GHz	Oct. 13, 2021	Oct. 12, 2022	Radiation (03CH05-CB)
High Cable	Woken	WCA0929M	40G#5+7	1GHz ~ 40 GHz	Dec. 14, 2021	Dec. 13, 2022	Radiation (03CH05-CB)

Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
High Cable	Woken	WCA0929M	40G#5	1GHz ~ 40 GHz	Dec. 08, 2021	Dec. 07, 2022	Radiation (03CH05-CB)
High Cable	Woken	WCA0929M	40G#7	1GHz ~ 40 GHz	Dec. 14, 2021	Dec. 13, 2022	Radiation (03CH05-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH05-CB)
3m Semi Anechoic Chamber VSWR	TDK	SAC-3M	03CH01-CB	1GHz ~18GHz 3m	May 06, 2022	May 05, 2023	Radiation (03CH01-CB)
Horn Antenna	ETS-LINDGREN	3115	00075790	750MHz ~ 18GHz	Nov. 06, 2021	Nov. 05, 2022	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Aug. 22, 2022	Aug. 21, 2023	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02121	1GHz ~ 26.5GHz	May 19, 2022	May 18, 2023	Radiation (03CH01-CB)
Pre-Amplifier	MITEQ	TTA1840-35-HG	1864479	18GHz ~ 40GHz	Jul. 20, 2022	Jul. 19, 2023	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	May 06, 2022	May 05, 2023	Radiation (03CH01-CB)
RF Cable-high	Woken	RG402	High Cable-16	1 GHz ~ 18 GHz	Oct. 04, 2021	Oct. 03, 2022	Radiation (03CH01-CB)
RF Cable-high	Woken	RG402	High Cable-16+17	1 GHz ~ 18 GHz	Oct. 04, 2021	Oct. 03, 2022	Radiation (03CH01-CB)
High Cable	Woken	WCA0929M	40G#5+7	1GHz ~ 40 GHz	Dec. 14, 2021	Dec. 13, 2022	Radiation (03CH01-CB)
High Cable	Woken	WCA0929M	40G#5	1GHz ~ 40 GHz	Dec. 08, 2021	Dec. 07, 2022	Radiation (03CH01-CB)
High Cable	Woken	WCA0929M	40G#7	1GHz ~ 40 GHz	Dec. 14, 2021	Dec. 13, 2022	Radiation (03CH01-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH01-CB)
3m Semi Anechoic Chamber VSWR	TDK	SAC-3M	03CH04-CB	1GHz ~18GHz 3m	Feb. 24, 2022	Feb. 23, 2023	Radiation (03CH04-CB)
Horn Antenna	ETS・Lindgren	3115	00143147	750MHz~18GHz	Oct. 25, 2021	Oct. 24, 2022	Radiation (03CH04-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Aug. 22, 2022	Aug. 21, 2023	Radiation (03CH04-CB)
Pre-Amplifier	Agilent	83017A	MY53270063	0.5GHz ~ 26.5GHz	Jul. 01, 2022	Jun. 30, 2023	Radiation (03CH04-CB)
Pre-Amplifier	MITEQ	TTA1840-35-HG	1864479	18GHz ~ 40GHz	Jul. 20, 2022	Jul. 19, 2023	Radiation (03CH04-CB)
Spectrum Analyzer	R&S	FSP40	100142	9kHz~40GHz	Mar. 28, 2022	Mar. 27, 2023	Radiation (03CH04-CB
RF Cable-high	Woken	RG402	High Cable-21	1GHz - 18GHz	Oct. 04, 2021	Oct. 03, 2022	Radiation (03CH04-CB)

Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
RF Cable-high	Woken	RG402	High Cable-21+67	1GHz - 18GHz	Oct. 04, 2021	Oct. 03, 2022	Radiation (03CH04-CB)
High Cable	Woken	WCA0929M	40G#5+7	1GHz ~ 40 GHz	Dec. 14, 2021	Dec. 13, 2022	Radiation (03CH04-CB)
High Cable	Woken	WCA0929M	40G#5	1GHz ~ 40 GHz	Dec. 08, 2021	Dec. 07, 2022	Radiation (03CH04-CB)
High Cable	Woken	WCA0929M	40G#7	1GHz ~ 40 GHz	Dec. 14, 2021	Dec. 13, 2022	Radiation (03CH04-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH04-CB)
Spectrum analyzer	R&S	FSV40	101028	9kHz~40GHz	Jan. 07, 2022	Jan. 06, 2023	Conducted (TH03-CB)
Power Sensor	Anritsu	MA2411B	1531344	300MHz~40GHz	Jul. 31, 2022	Jul. 30, 2023	Conducted (TH03-CB)
Power Meter	Anritsu	ML2495A	1728002	300MHz~40GHz	Jul. 31, 2022	Jul. 30, 2023	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-11	1 GHz –18 GHz	Oct. 04, 2021	Oct. 03, 2022	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-12	1 GHz –18 GHz	Oct. 04, 2021	Oct. 03, 2022	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-13	1 GHz –18 GHz	Oct. 04, 2021	Oct. 03, 2022	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-14	1 GHz –18 GHz	Oct. 04, 2021	Oct. 03, 2022	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-15	1 GHz –18 GHz	Oct. 04, 2021	Oct. 03, 2022	Conducted (TH03-CB)
Switch	SPTCB	SP-SWI	SWI-03	1 GHz –26.5 GHz	Dec. 13, 2021	Dec. 12, 2022	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	SWI-03-P1	1 GHz –26.5 GHz	Dec. 13, 2021	Dec. 12, 2022	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	SWI-03-P2	1 GHz –26.5 GHz	Dec. 13, 2021	Dec. 12, 2022	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	SWI-03-P3	1 GHz –26.5 GHz	Dec. 13, 2021	Dec. 12, 2022	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	SWI-03-P4	1 GHz –26.5 GHz	Dec. 13, 2021	Dec. 12, 2022	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	SWI-03-P5	1 GHz –26.5 GHz	Dec. 13, 2021	Dec. 12, 2022	Conducted (TH03-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conducted (TH03-CB)

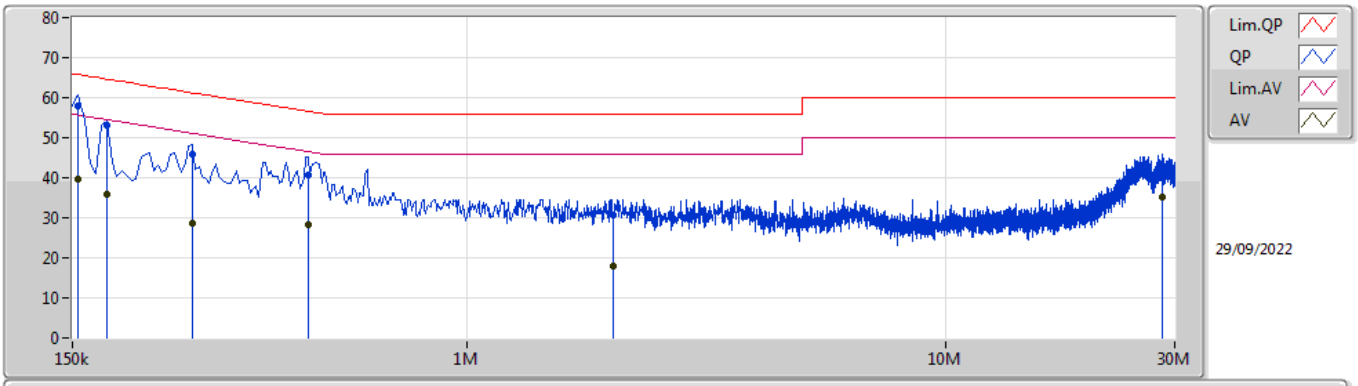
Note: Calibration Interval of instruments listed above is one year.

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

Summary

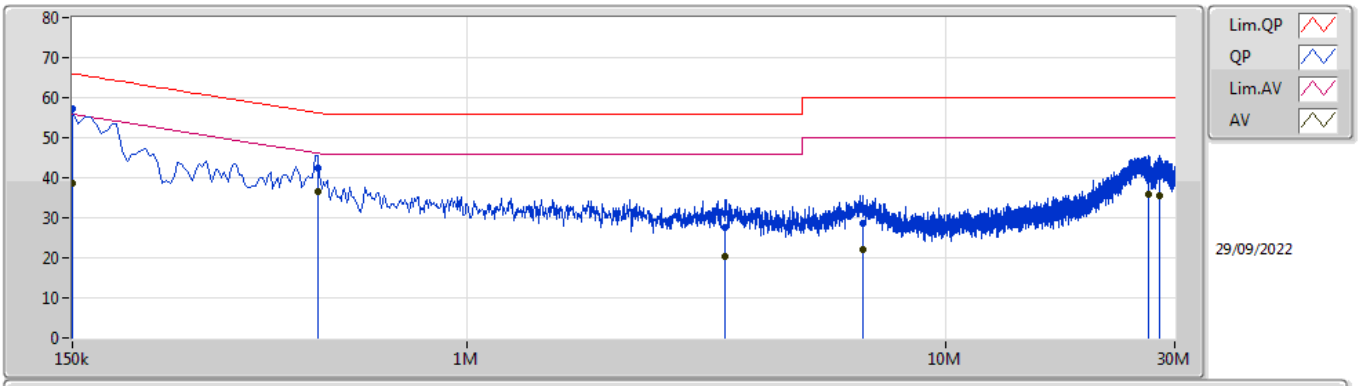
Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 2	Pass	QP	154.5k	58.02	65.75	-7.73	Line

Mode 2



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	154.5k	58.02	65.75	-7.73	10.24	Line	"Worst"	47.78	0.12	0.02	10.10
AV	154.5k	39.67	55.75	-16.08	10.24	Line	-	29.43	0.12	0.02	10.10
QP	177k	53.12	64.62	-11.50	10.22	Line	-	42.90	0.12	0.02	10.08
AV	177k	35.98	54.62	-18.64	10.22	Line	-	25.76	0.12	0.02	10.08
QP	267k	45.81	61.20	-15.39	10.22	Line	-	35.59	0.12	0.02	10.08
AV	267k	28.78	51.20	-22.42	10.22	Line	-	18.56	0.12	0.02	10.08
QP	465k	40.60	56.61	-16.01	10.25	Line	-	30.35	0.12	0.02	10.11
AV	465k	28.21	46.61	-18.40	10.25	Line	-	17.96	0.12	0.02	10.11
QP	2.018M	30.67	56.00	-25.33	10.37	Line	-	20.30	0.17	0.05	10.15
AV	2.018M	17.89	46.00	-28.11	10.37	Line	-	7.52	0.17	0.05	10.15
QP	28.266M	41.71	60.00	-18.29	10.87	Line	-	30.84	0.41	0.23	10.23
AV	28.266M	35.21	50.00	-14.79	10.87	Line	-	24.34	0.41	0.23	10.23

Mode 2



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	150k	57.25	66.00	-8.75	10.29	Neutral	"Worst"	46.96	0.16	0.02	10.11
AV	150k	38.74	56.00	-17.26	10.29	Neutral	-	28.45	0.16	0.02	10.11
QP	487.5k	42.53	56.21	-13.68	10.30	Neutral	-	32.23	0.16	0.02	10.12
AV	487.5k	36.61	46.21	-9.60	10.30	Neutral	-	26.31	0.16	0.02	10.12
QP	3.462M	27.55	56.00	-28.45	10.46	Neutral	-	17.09	0.21	0.07	10.18
AV	3.462M	20.49	46.00	-25.51	10.46	Neutral	-	10.03	0.21	0.07	10.18
QP	6.707M	28.69	60.00	-31.31	10.52	Neutral	-	18.17	0.26	0.07	10.19
AV	6.707M	22.15	50.00	-27.85	10.52	Neutral	-	11.63	0.26	0.07	10.19
QP	26.48M	42.06	60.00	-17.94	10.80	Neutral	-	31.26	0.36	0.21	10.23
AV	26.48M	35.76	50.00	-14.24	10.80	Neutral	-	24.96	0.36	0.21	10.23
QP	27.951M	41.81	60.00	-18.19	10.82	Neutral	-	30.99	0.37	0.22	10.23
AV	27.951M	35.45	50.00	-14.55	10.82	Neutral	-	24.63	0.37	0.22	10.23

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)	662.5k	1.029M	1M03F1D	658.75k	1.027M
BT-LE(2Mbps)	1.138M	2.039M	2M04F1D	1.135M	2.034M

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

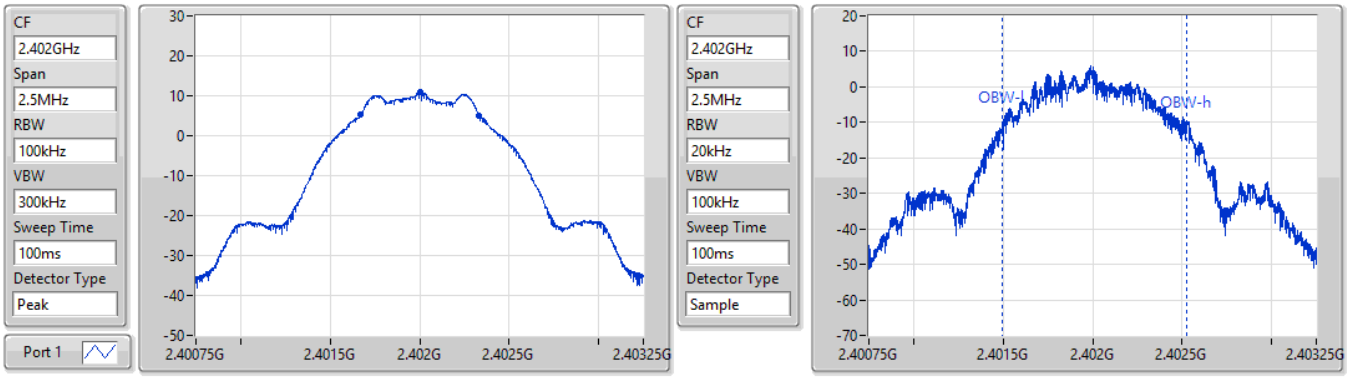
Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	658.75k	1.029M
2440MHz	Pass	500k	662.5k	1.027M
2480MHz	Pass	500k	662.5k	1.029M
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	500k	1.138M	2.037M
2440MHz	Pass	500k	1.138M	2.039M
2480MHz	Pass	500k	1.135M	2.034M

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

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

2402MHz

26/09/2022

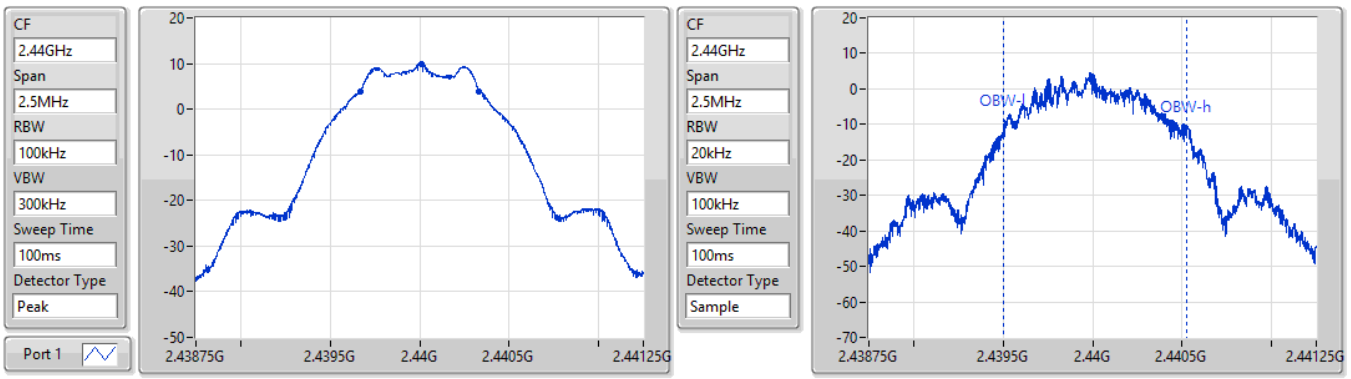


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
658.75k	2.401673G	2.402331G	1.029M	2.401498G	2.402528G	500k	1

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

2440MHz

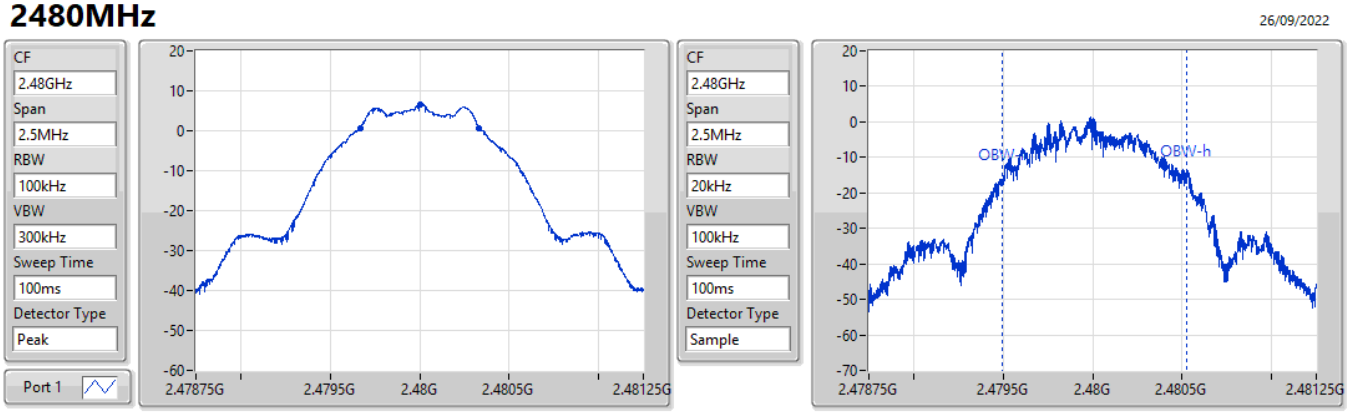
26/09/2022



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
662.5k	2.439669G	2.440331G	1.027M	2.439501G	2.440528G	500k	1

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

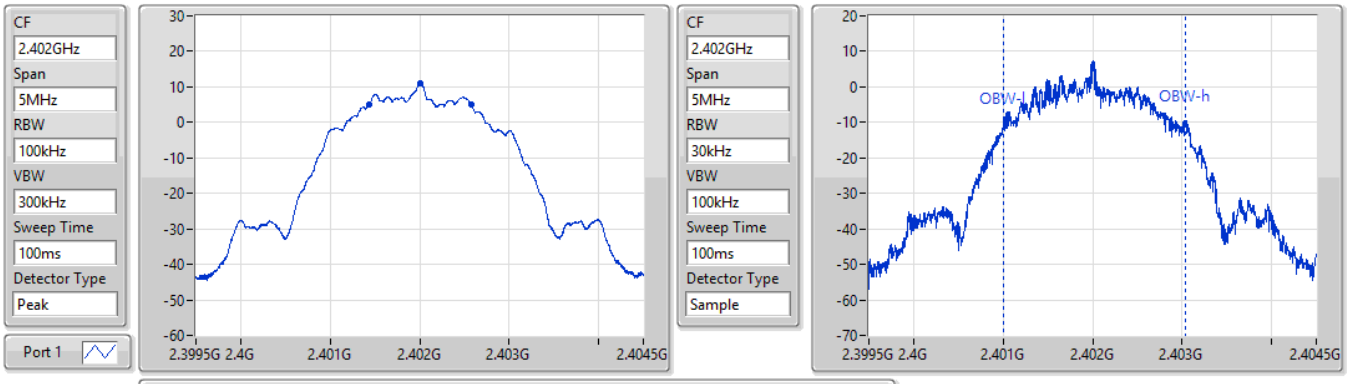
2480MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
662.5k	2.479669G	2.480331G	1.029M	2.479498G	2.480527G	500k	1

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

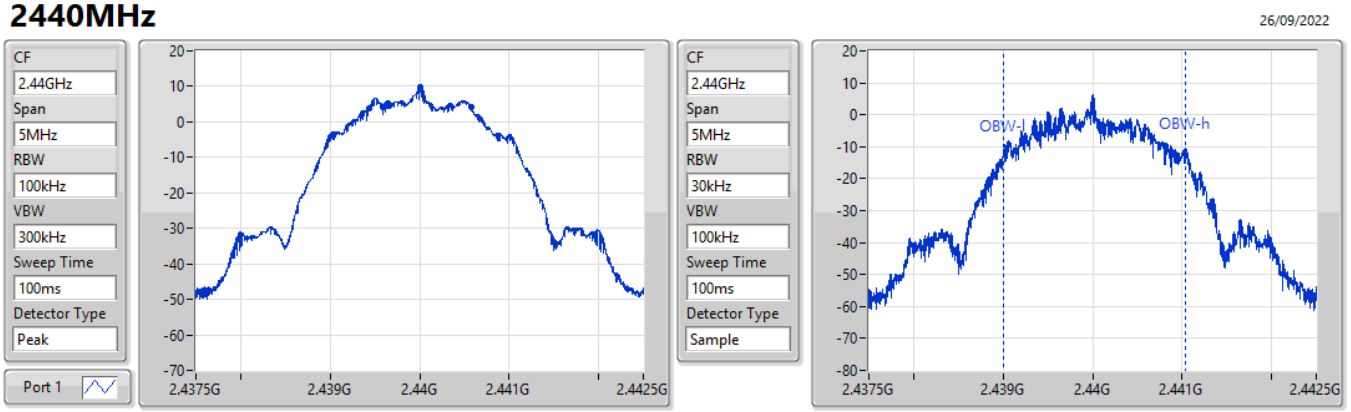
2402MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.138M	2.401438G	2.402575G	2.037M	2.401004G	2.403041G	500k	1

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

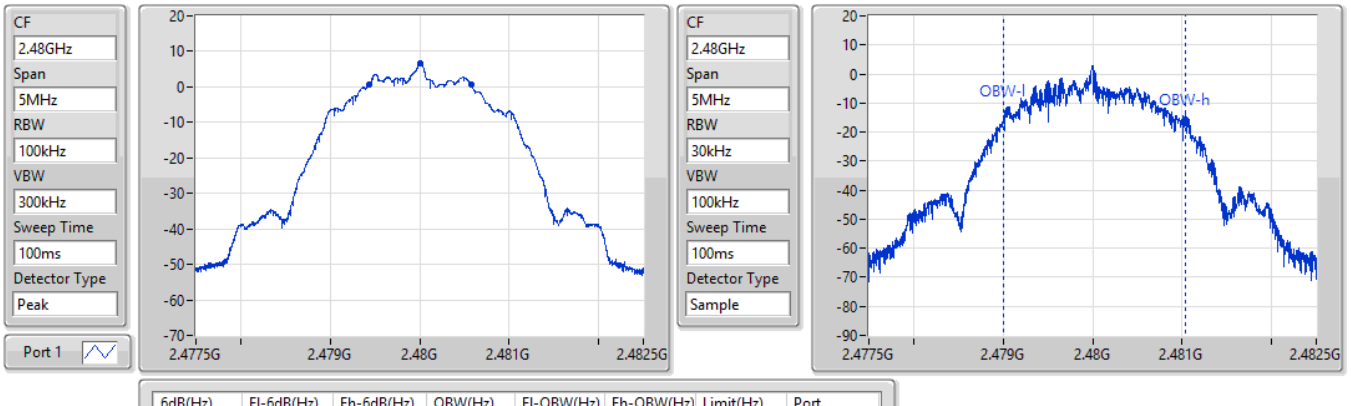
2440MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.138M	2.439438G	2.440575G	2.039M	2.439004G	2.441043G	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
1.135M	2.479443G	2.480578G	2.034M	2.479005G	2.481039G	500k	1

Summary

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	10.62	0.01153
BT-LE(2Mbps)	10.43	0.01104

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	2.54	10.62	30.00
2440MHz	Pass	2.54	9.51	30.00
2480MHz	Pass	2.54	6.19	30.00
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	2.54	10.43	30.00
2440MHz	Pass	2.54	9.36	30.00
2480MHz	Pass	2.54	5.92	30.00

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

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE(1Mbps)	-4.11
BT-LE(2Mbps)	-7.73

RBW = 3kHz;

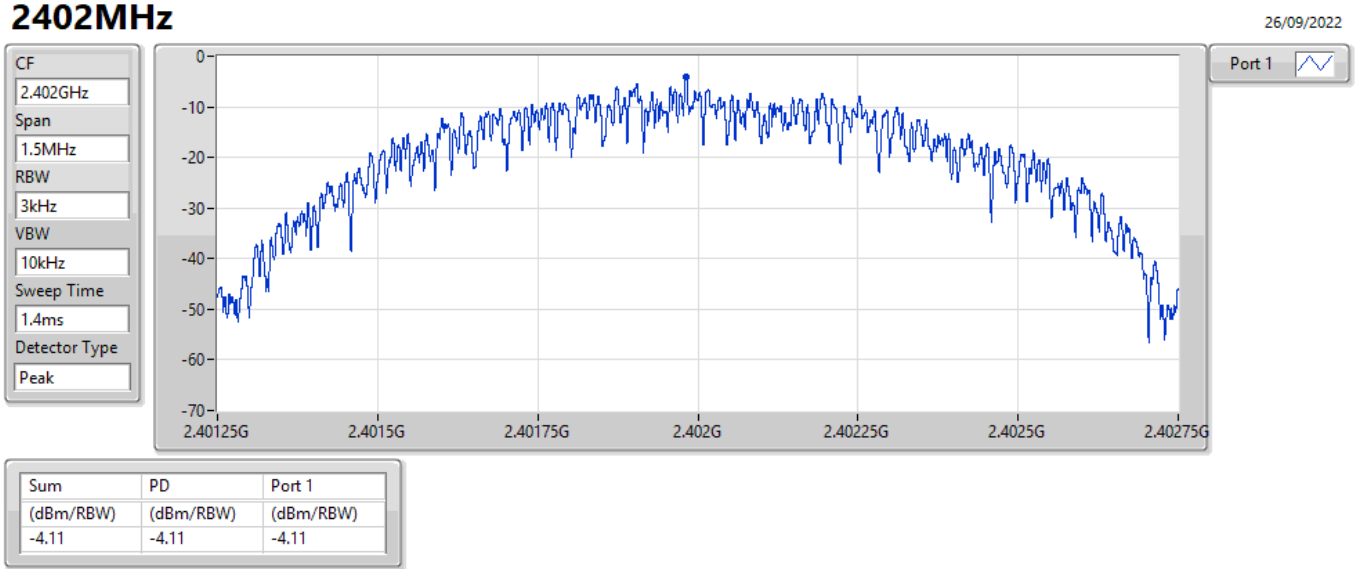
Result

Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	2.54	-4.11	8.00
2440MHz	Pass	2.54	-5.39	8.00
2480MHz	Pass	2.54	-8.24	8.00
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	2.54	-7.73	8.00
2440MHz	Pass	2.54	-8.46	8.00
2480MHz	Pass	2.54	-13.31	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

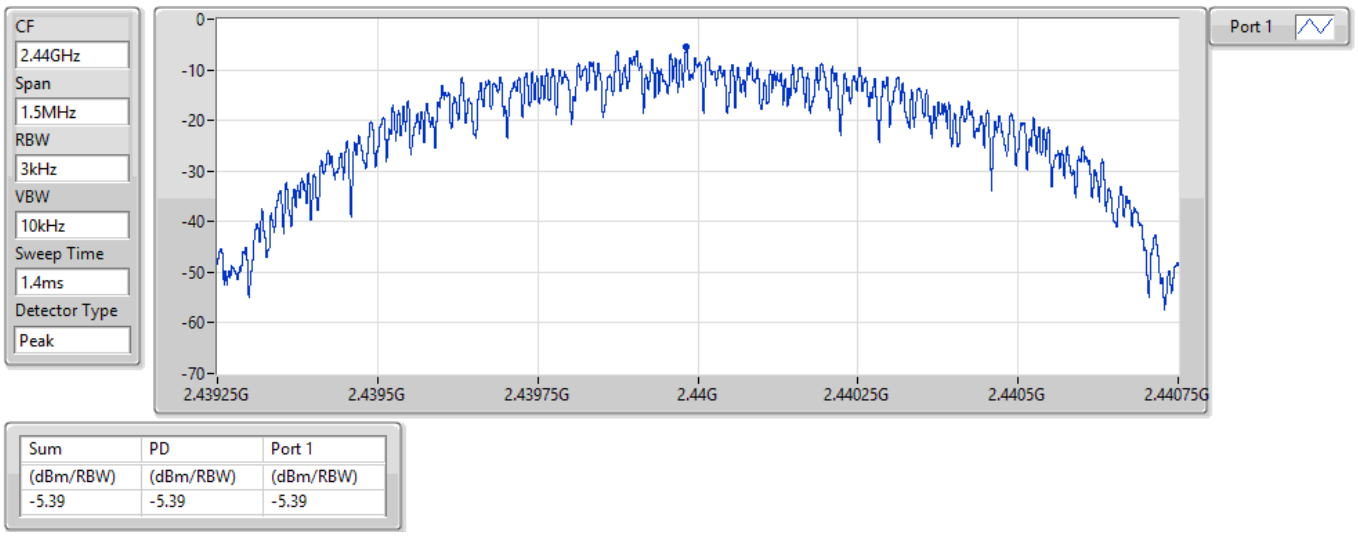
2402MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-4.11	-4.11	-4.11

BT-LE(1Mbps) PSD

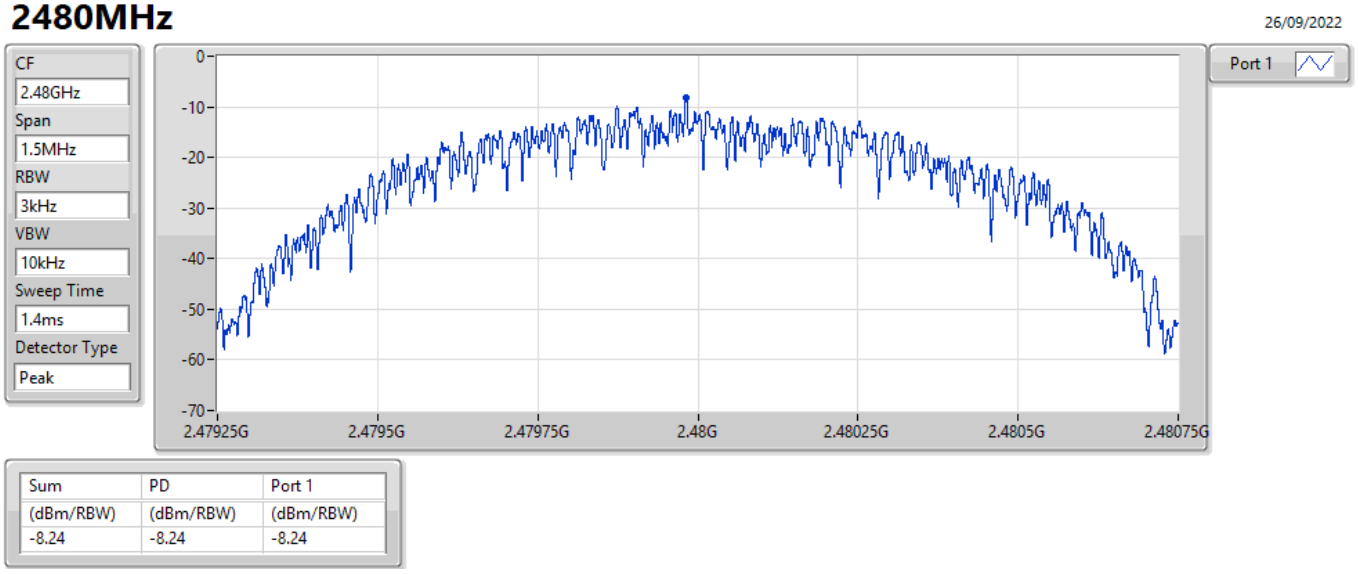
2440MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-5.39	-5.39	-5.39

BT-LE(1Mbps) PSD

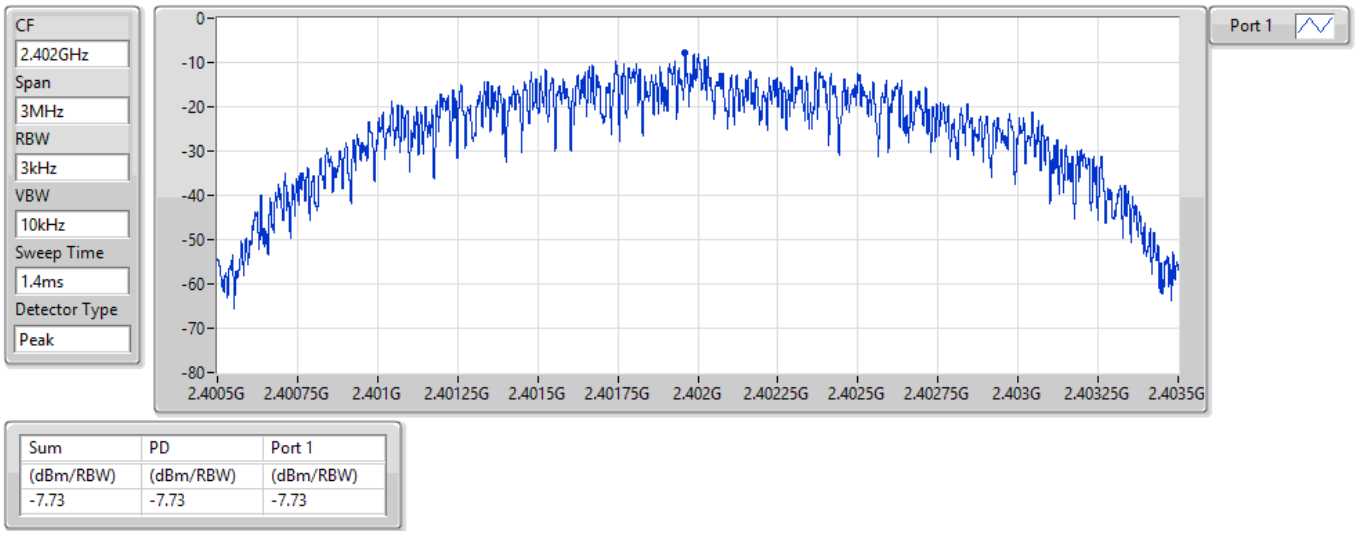
2480MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-8.24	-8.24	-8.24

BT-LE(2Mbps) PSD

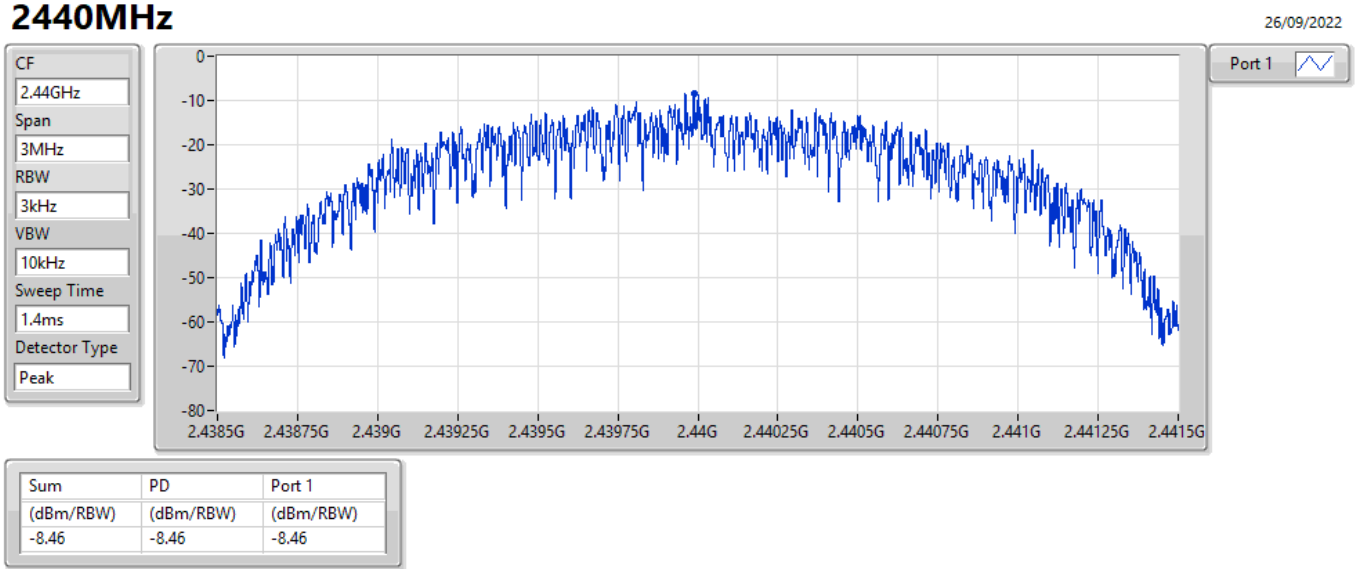
2402MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-7.73	-7.73	-7.73

BT-LE(2Mbps) PSD

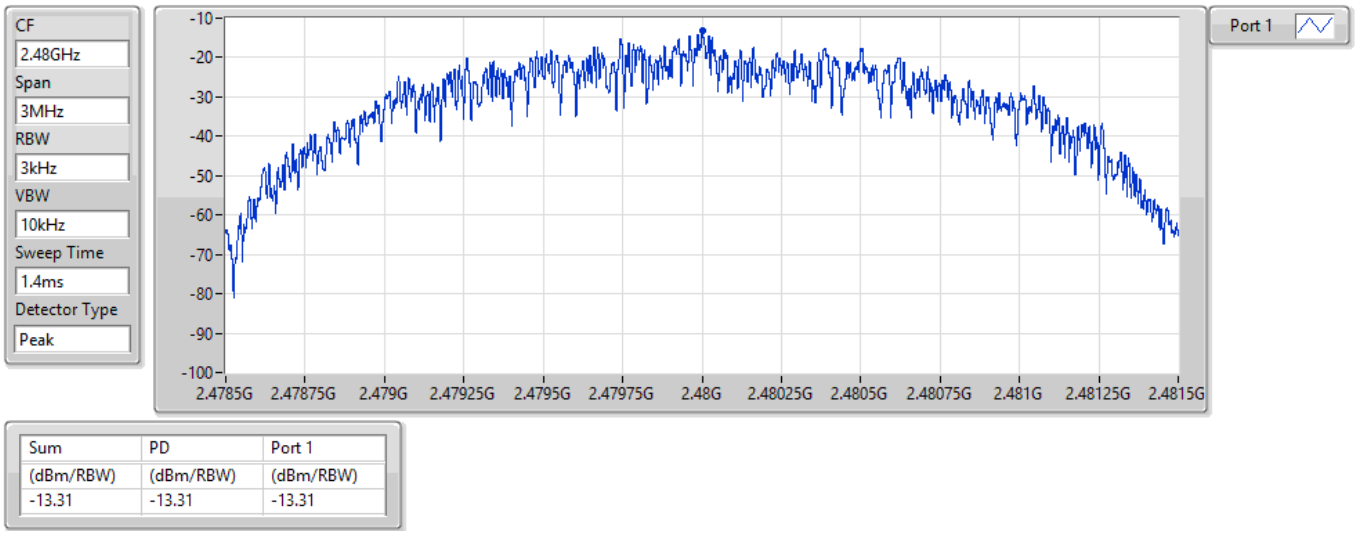
2440MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-8.46	-8.46	-8.46

BT-LE(2Mbps) PSD

2480MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-13.31	-13.31	-13.31

Summary

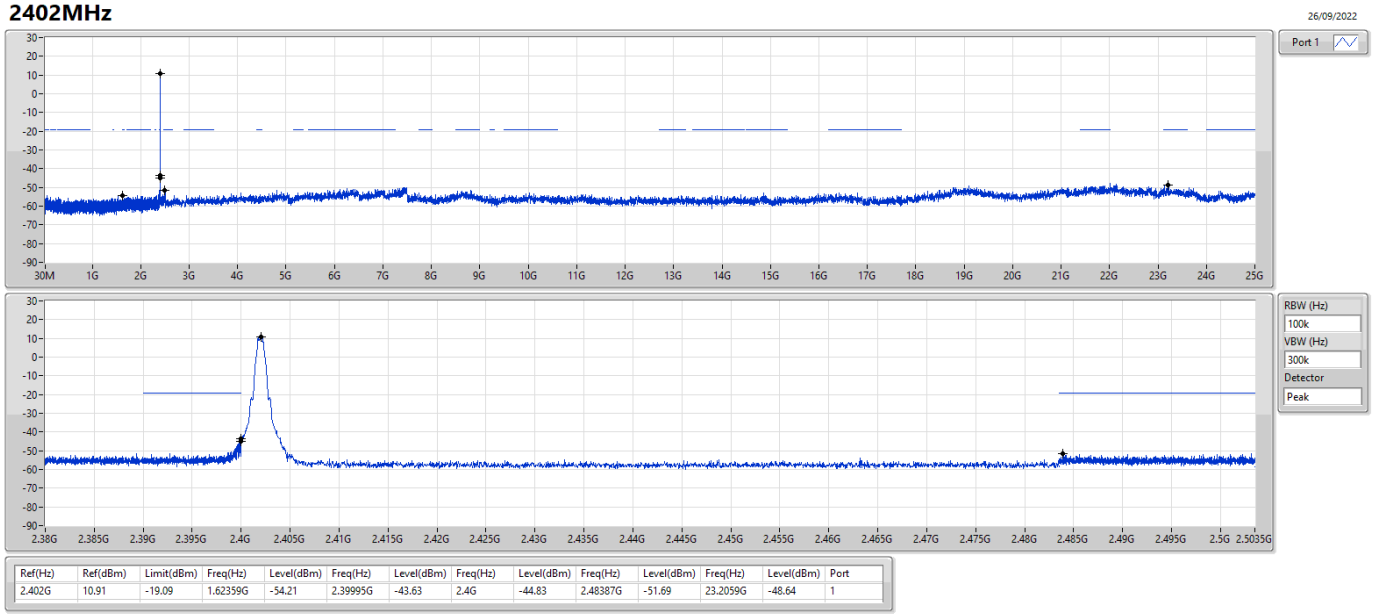
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	2.402G	10.91	-19.09	1.62359G	-54.21	2.39995G	-43.63	2.4G	-44.83	2.48387G	-51.69	23.2059G	-48.64	1
BT-LE(2Mbps)	Pass	2.402G	10.74	-19.26	1.89825G	-54.35	2.4G	-27.96	2.4G	-28.07	2.49415G	-51.55	21.67333G	-48.51	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	10.91	-19.09	1.62359G	-54.21	2.39995G	-43.63	2.4G	-44.83	2.48387G	-51.69	23.2059G	-48.64	1
2440MHz	Pass	2.402G	10.91	-19.09	2.10916G	-54.51	2.39094G	-52.25	2.4835G	-57.54	2.49208G	-51.58	21.71551G	-48.06	1
2480MHz	Pass	2.402G	10.91	-19.09	60.55M	-54.22	2.39338G	-51.84	2.4835G	-55.60	2.49491G	-51.79	21.75207G	-48.56	1
BT-LE(2Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.402G	10.74	-19.26	1.89825G	-54.35	2.4G	-27.96	2.4G	-28.07	2.49415G	-51.55	21.67333G	-48.51	1
2440MHz	Pass	2.402G	10.74	-19.26	55.56M	-54.49	2.39334G	-52.49	2.4835G	-57.57	2.48468G	-51.70	21.93485G	-48.72	1
2480MHz	Pass	2.402G	10.74	-19.26	153.38M	-54.28	2.3957G	-52.31	2.4835G	-55.51	2.49014G	-51.18	22.00234G	-47.98	1

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

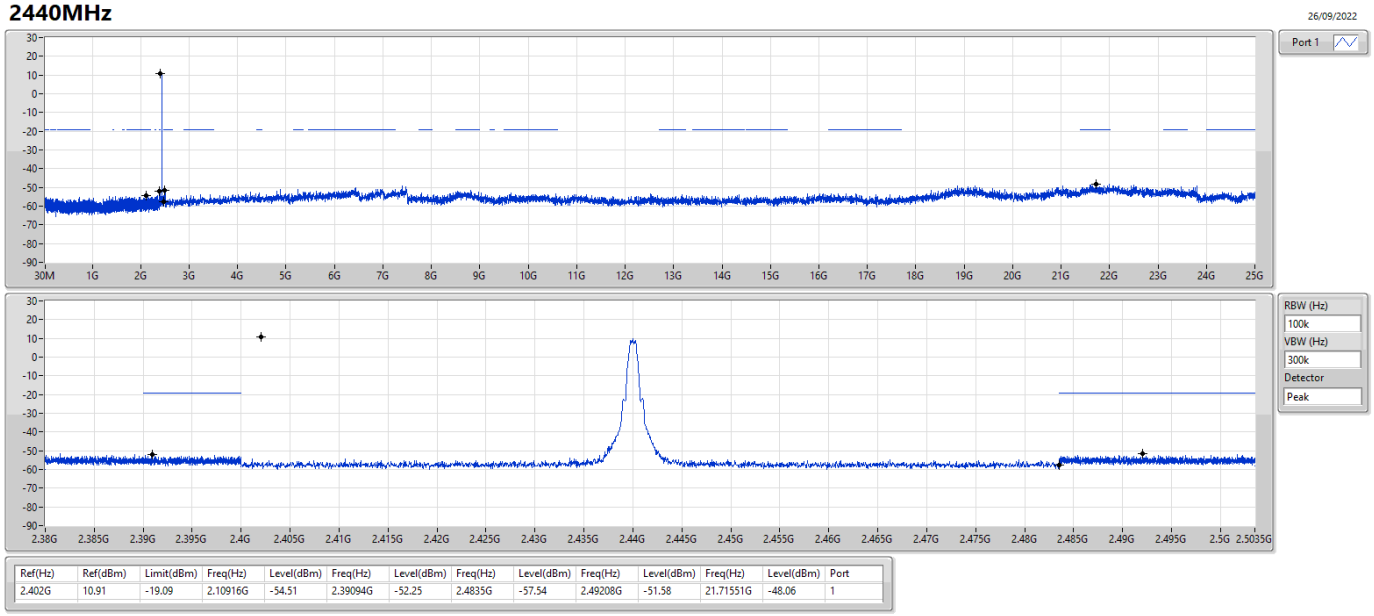
2402MHz



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	10.91	-19.09	1.62359G	-54.21	2.39995G	-43.63	2.4G	-44.83	2.48387G	-51.69	23.2059G	-48.64	1

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

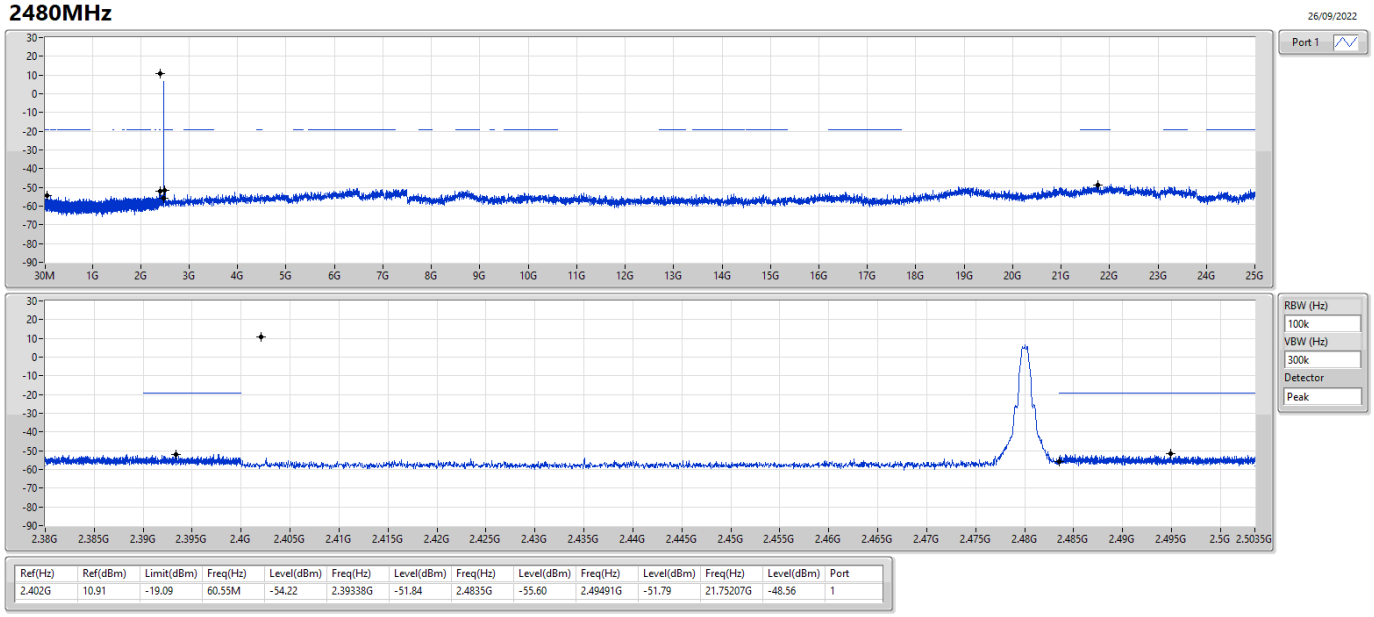
2440MHz



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	10.91	-19.09	2.10916G	-54.51	2.39094G	-52.25	2.4835G	-57.54	2.49208G	-51.58	21.71551G	-48.06	1

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

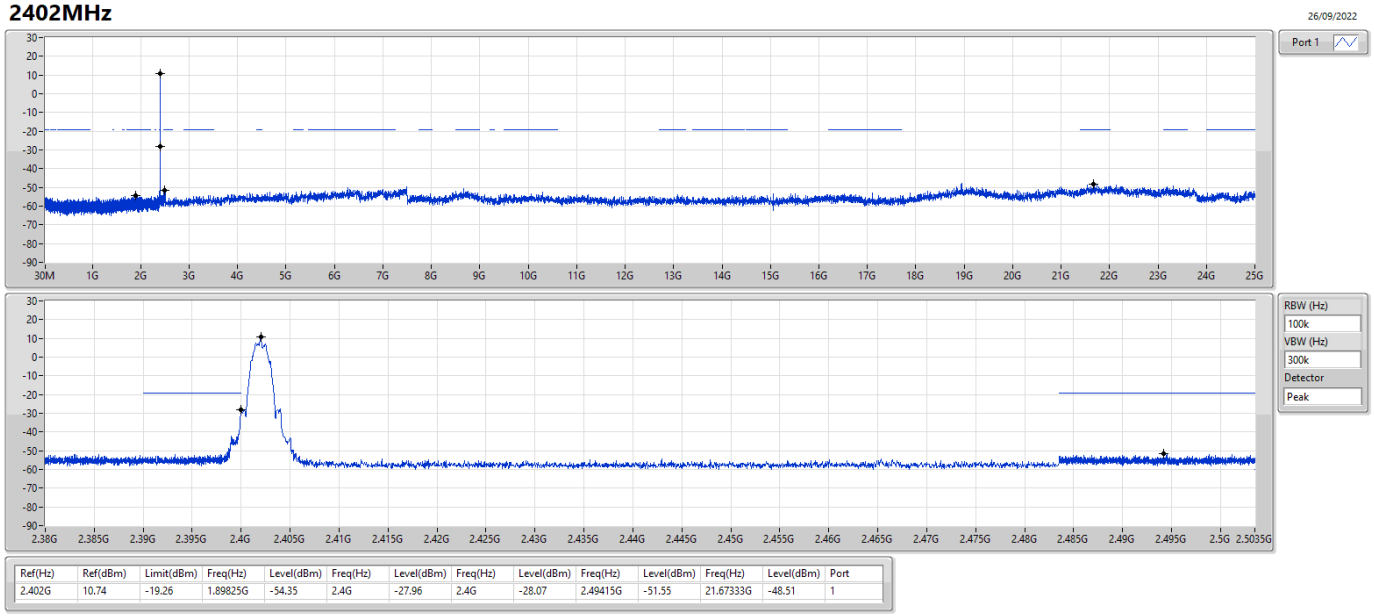
2480MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.402G	10.91	-19.09	60.55M	-54.22	2.39338G	-51.84	2.4835G	-55.60	2.49491G	-51.79	21.75207G	-48.56	1

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

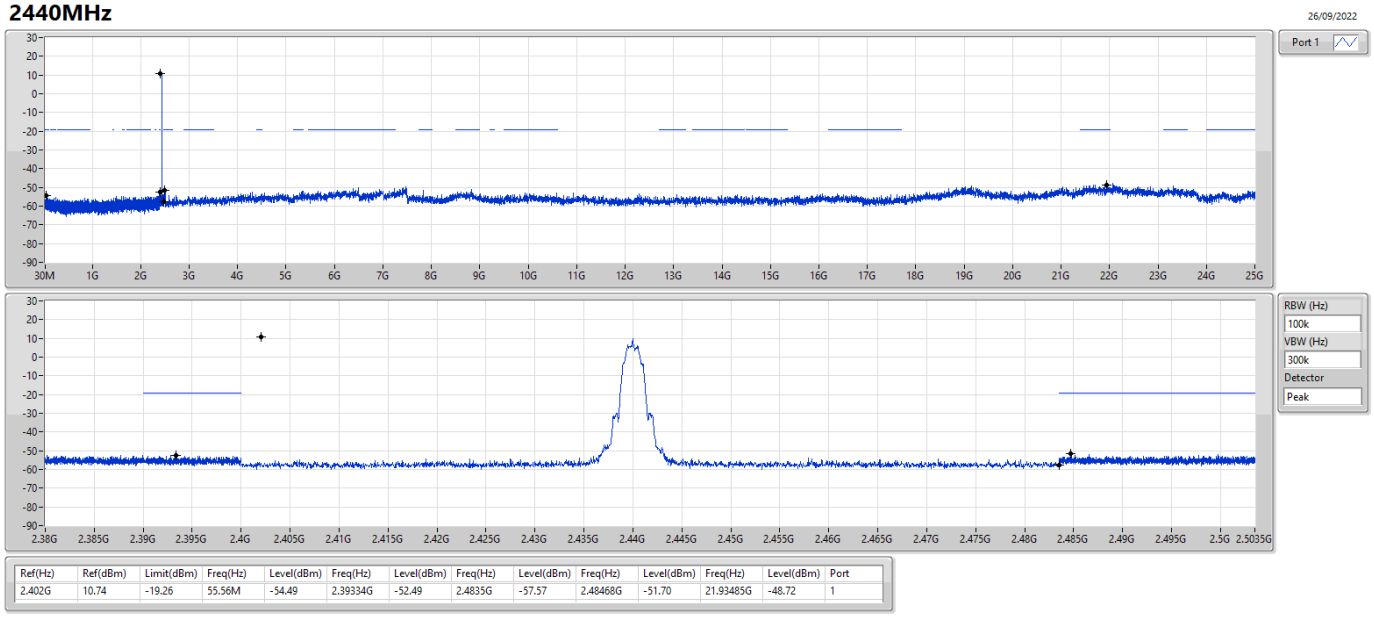
2402MHz



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
2.402G	10.74	-19.26	1.89825G	-54.35	2.4G	-27.96	2.4G	-28.07	2.49415G	-51.55	21.67333G	-48.51	1

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

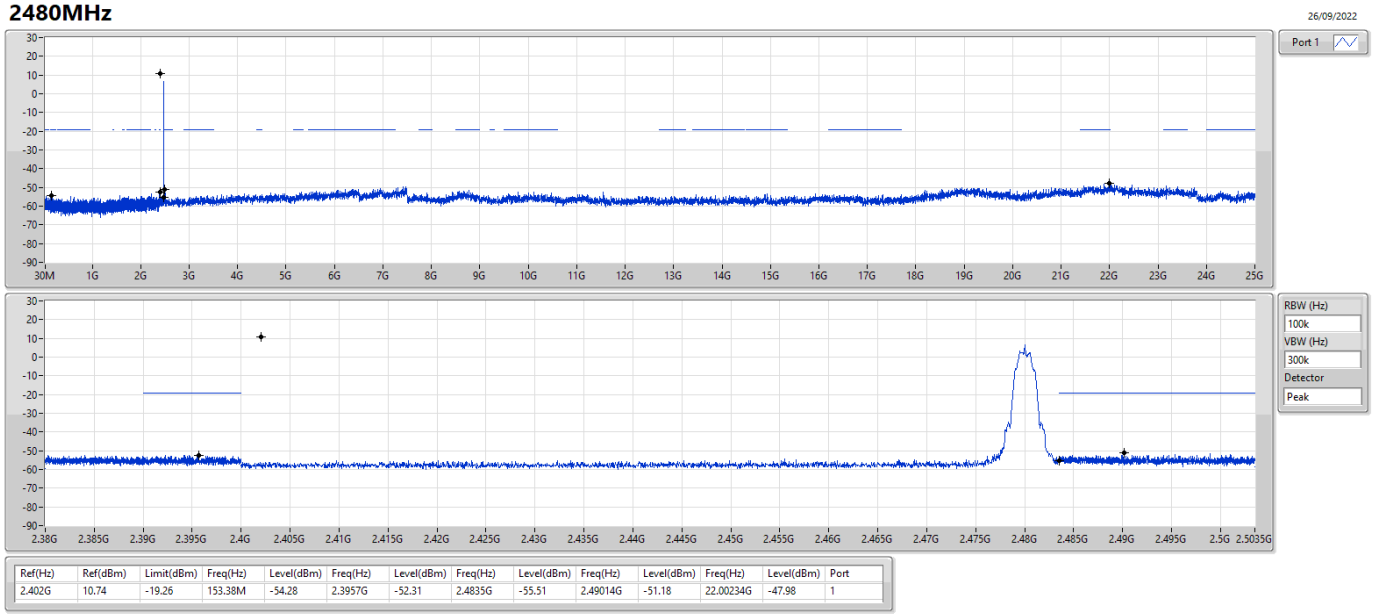
2440MHz



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
2.402G	10.74	-19.26	55.56M	-54.49	2.39334G	-52.49	2.4835G	-57.57	2.48468G	-51.70	21.93485G	-48.72	1

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

2480MHz

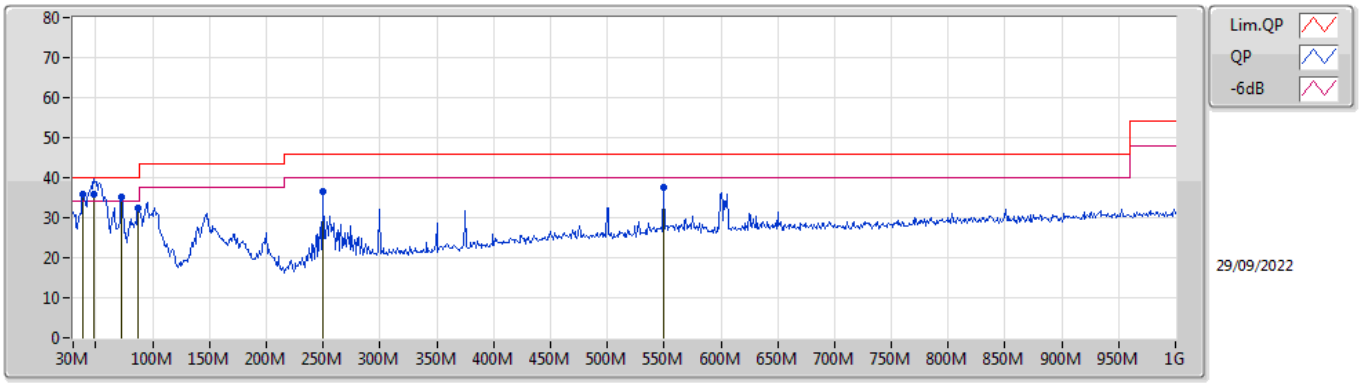


Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.402G	10.74	-19.26	153.38M	-54.28	2.3957G	-52.31	2.4835G	-55.51	2.49014G	-51.18	22.00234G	-47.98	1

Summary

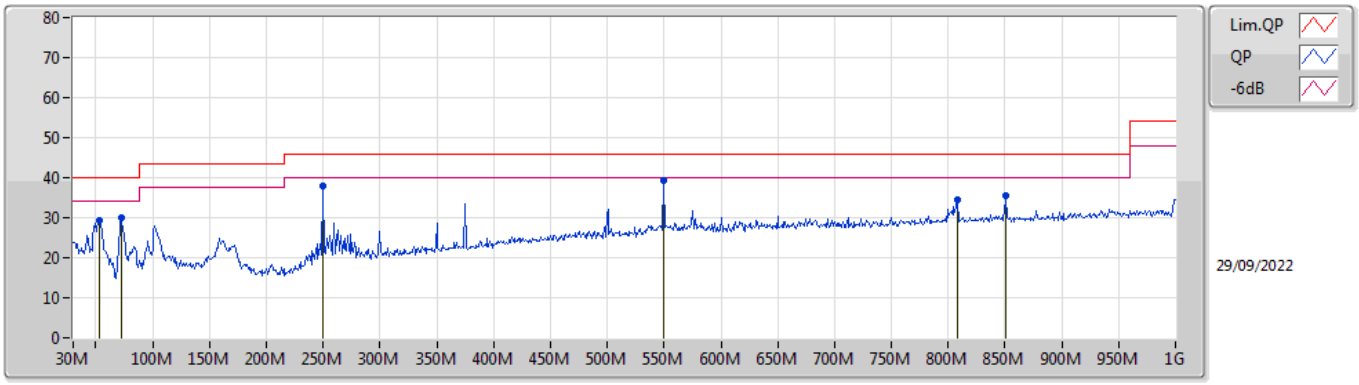
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 9	Pass	QP	48.43M	35.98	40.00	-4.02	Vertical

Mode 9



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB/m)	(m)		(°)	(m)		(dBuV/m)	(dB/m)	(dB)	(dB)
PK	38.73M	35.92	40.00	-4.08	-11.48	3	Vertical	306	1.00	-	47.40	19.35	0.90	31.73
QP	48.43M	35.98	40.00	-4.02	-16.19	3	Vertical	314	1.00	"Worst"	52.17	14.59	1.07	31.85
PK	72.68M	35.08	40.00	-4.92	-18.50	3	Vertical	72	2.00	-	53.58	12.17	1.30	31.97
PK	87.23M	32.46	40.00	-7.54	-16.49	3	Vertical	331	1.00	-	48.95	14.02	1.44	31.95
PK	250.19M	36.49	46.00	-9.51	-11.28	3	Vertical	0	1.25	-	47.77	18.22	2.50	32.00
PK	549.92M	37.75	46.00	-8.25	-4.10	3	Vertical	170	1.00	-	41.85	24.48	3.80	32.38

Mode 9



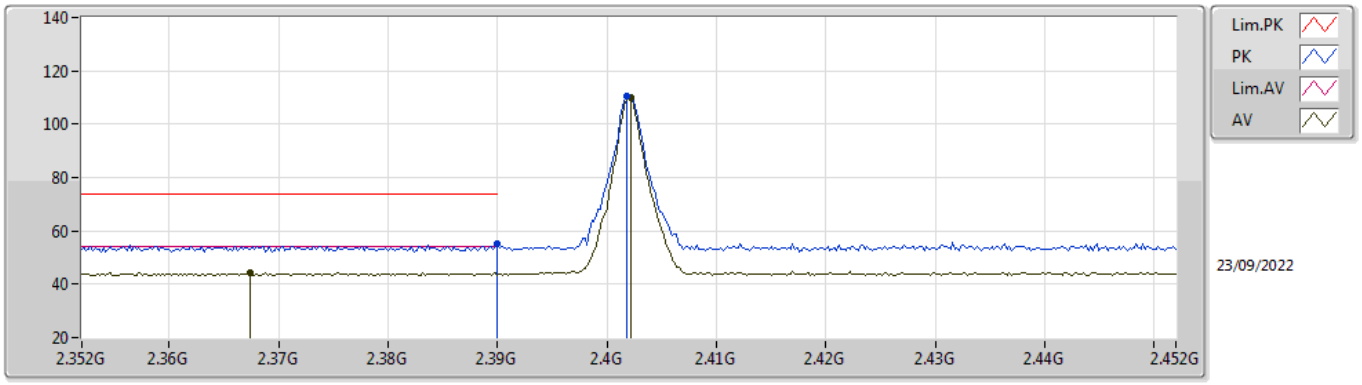
Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB/m)	(m)		(°)	(m)		(dBuV/m)	(dB/m)	(dB)	(dB)
PK	53.28M	29.39	40.00	-10.61	-17.82	3	Horizontal	89	1.25	-	47.21	12.96	1.10	31.88
PK	72.68M	29.91	40.00	-10.09	-18.50	3	Horizontal	359	1.00	-	48.41	12.17	1.30	31.97
PK	250.19M	37.99	46.00	-8.01	-11.28	3	Horizontal	49	1.50	-	49.27	18.22	2.50	32.00
PK	549.92M	39.19	46.00	-6.81	-4.10	3	Horizontal	85	2.00	"Worst"	43.29	24.48	3.80	32.38
PK	807.94M	34.42	46.00	-11.58	-2.03	3	Horizontal	141	1.00	-	36.45	25.55	4.93	32.51
PK	850.62M	35.53	46.00	-10.47	-1.51	3	Horizontal	87	2.00	-	37.04	25.88	5.10	32.49

Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	AV	2.4835G	53.17	54.00	-0.83	3	Vertical	70	2.73	-

BT-LE(1Mbps)

2402MHz_TX

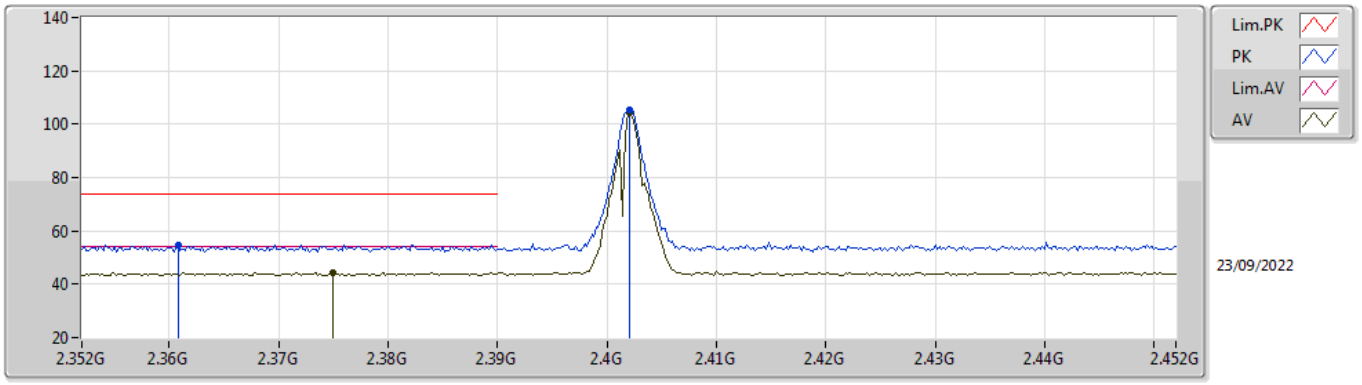


EUT Z_1TX
Setting 9
01-A-B-5

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	2.39G	55.11	74.00	-18.89	23.76	3	Vertical	65	2.95	-	27.56	3.79	-
AV	2.3674G	44.34	54.00	-9.66	13.10	3	Vertical	65	2.95	-	27.47	3.77	-
PK	2.4018G	110.57	Inf	-Inf	79.17	3	Vertical	65	2.95	-	27.60	3.80	-
AV	2.4022G	109.82	Inf	-Inf	78.42	3	Vertical	65	2.95	-	27.60	3.80	-

BT-LE(1Mbps)

2402MHz_TX

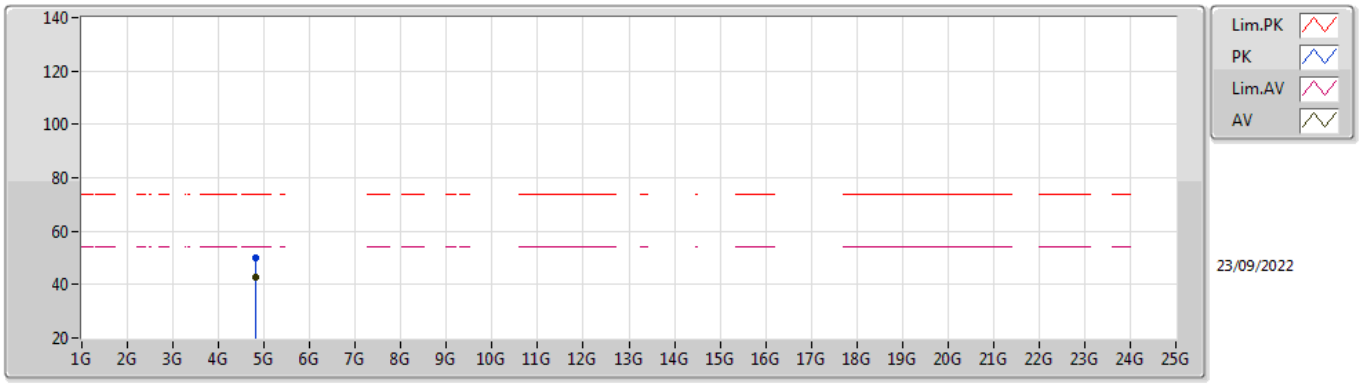


EUT Z_1TX
Setting 9
01-A-B-5

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	2.3608G	54.63	74.00	-19.37	23.43	3	Horizontal	260	2.98	-	27.44	3.76	-
AV	2.375G	44.32	54.00	-9.68	13.05	3	Horizontal	260	2.98	-	27.50	3.77	-
PK	2.402G	105.24	Inf	-Inf	73.84	3	Horizontal	260	2.98	-	27.60	3.80	-
AV	2.402G	104.32	Inf	-Inf	72.92	3	Horizontal	260	2.98	-	27.60	3.80	-

BT-LE(1Mbps)

2402MHz_TX

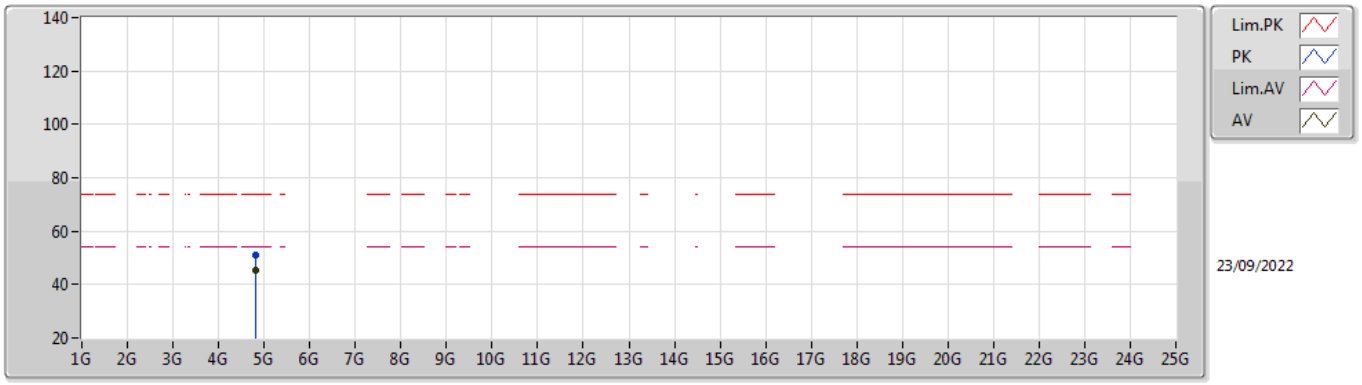


EUT Z_1TX
Setting 9
01-A-B-5

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	4.80398G	49.89	74.00	-24.11	44.17	3	Vertical	75	2.74	-	32.41	6.20	32.89
AV	4.80399G	42.88	54.00	-11.12	37.16	3	Vertical	75	2.74	-	32.41	6.20	32.89

BT-LE(1Mbps)

2402MHz_TX

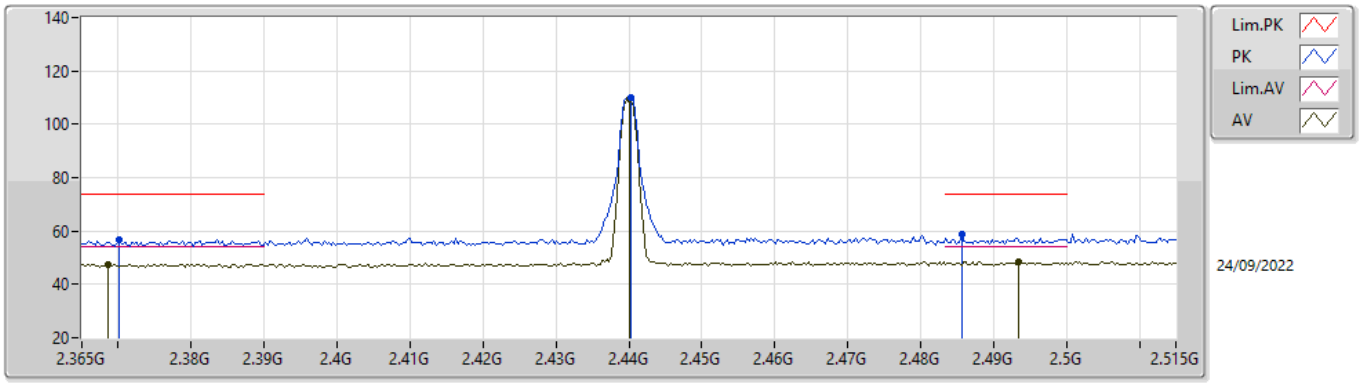


EUT Z_1TX
Setting 9
01-A-B-5

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	4.80425G	51.08	74.00	-22.92	45.36	3	Horizontal	28	2.91	-	32.41	6.20	32.89
AV	4.80382G	45.45	54.00	-8.55	39.73	3	Horizontal	28	2.91	-	32.41	6.20	32.89

BT-LE(1Mbps)

2440MHz_TX

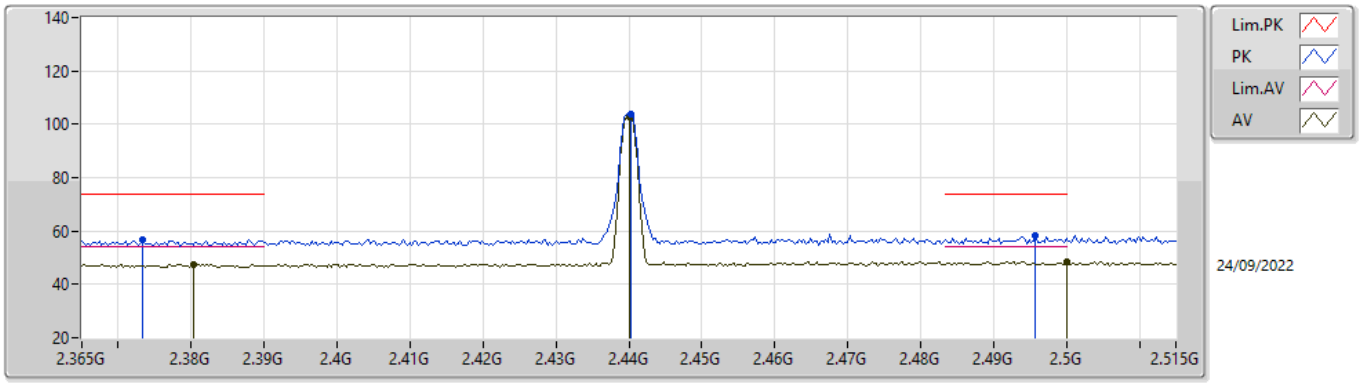


EUT Z_1TX
Setting 9
04-A-S-5

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	2.3701G	56.86	74.00	-17.14	26.63	3	Vertical	92	2.63	-	27.44	2.79	-
AV	2.3686G	47.62	54.00	-6.38	17.40	3	Vertical	92	2.63	-	27.44	2.78	-
PK	2.4403G	109.99	Inf	-Inf	79.59	3	Vertical	92	2.63	-	27.58	2.82	-
AV	2.44G	109.28	Inf	-Inf	78.88	3	Vertical	92	2.63	-	27.58	2.82	-
PK	2.4856G	58.75	74.00	-15.25	28.10	3	Vertical	92	2.63	-	27.81	2.84	-
AV	2.4934G	48.26	54.00	-5.74	17.55	3	Vertical	92	2.63	-	27.86	2.85	-

BT-LE(1Mbps)

2440MHz_TX

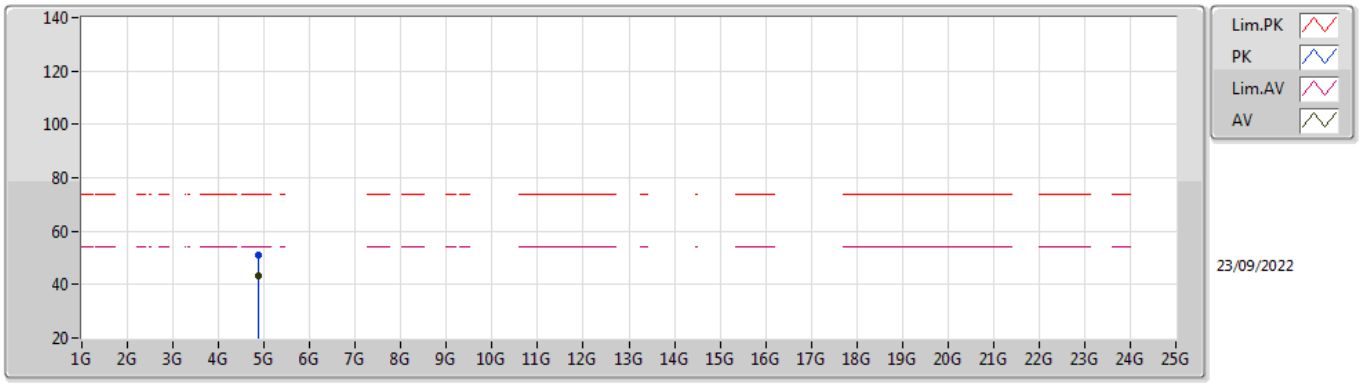


EUT Z_1TX
Setting 9
04-A-S-5

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	2.3734G	56.79	74.00	-17.21	26.55	3	Horizontal	312	2.96	-	27.45	2.79	-
AV	2.3803G	47.40	54.00	-6.60	17.15	3	Horizontal	312	2.96	-	27.46	2.79	-
PK	2.4403G	103.66	Inf	-Inf	73.26	3	Horizontal	312	2.96	-	27.58	2.82	-
AV	2.44G	102.93	Inf	-Inf	72.53	3	Horizontal	312	2.96	-	27.58	2.82	-
PK	2.4958G	58.35	74.00	-15.65	27.63	3	Horizontal	312	2.96	-	27.87	2.85	-
AV	2.5G	48.27	54.00	-5.73	17.52	3	Horizontal	312	2.96	-	27.90	2.85	-

BT-LE(1Mbps)

2440MHz_TX

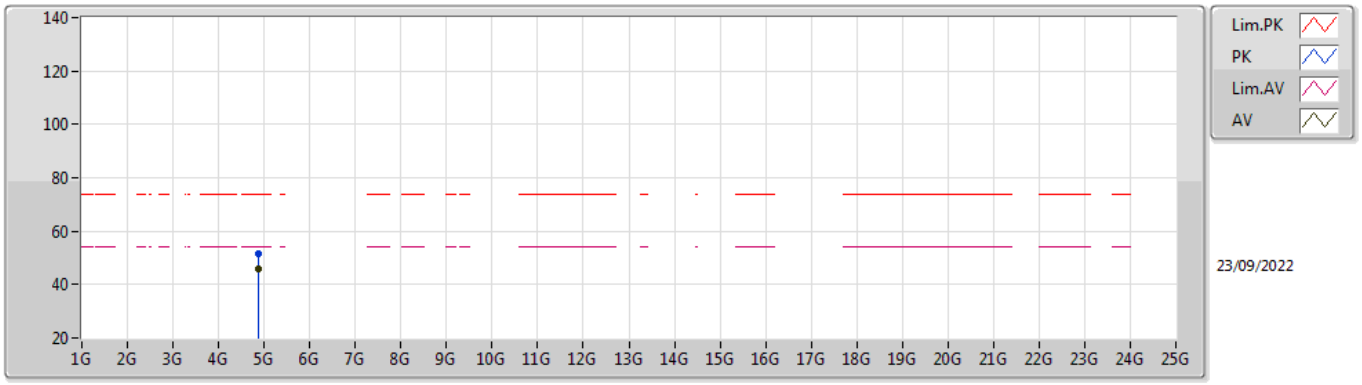


EUT Z_1TX
Setting 9
01-A-B-5

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	4.88022G	51.02	74.00	-22.98	45.05	3	Vertical	56	2.59	-	32.56	6.28	32.87
AV	4.88009G	43.44	54.00	-10.56	37.47	3	Vertical	56	2.59	-	32.56	6.28	32.87

BT-LE(1Mbps)

2440MHz_TX

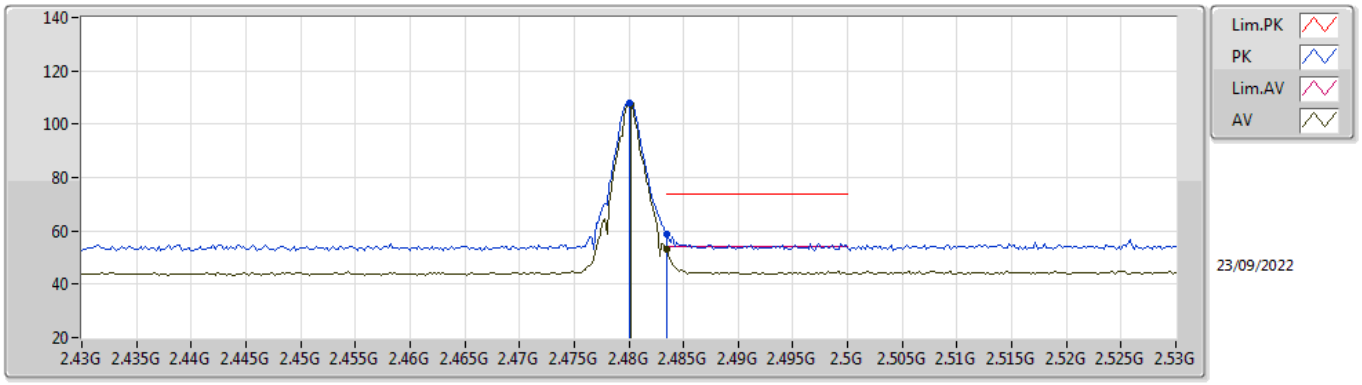


EUT Z_1TX
Setting 9
01-A-B-5

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	4.88009G	51.75	74.00	-22.25	45.78	3	Horizontal	30	2.80	-	32.56	6.28	32.87
AV	4.8797G	45.83	54.00	-8.17	39.86	3	Horizontal	30	2.80	-	32.56	6.28	32.87

BT-LE(1Mbps)

2480MHz_TX

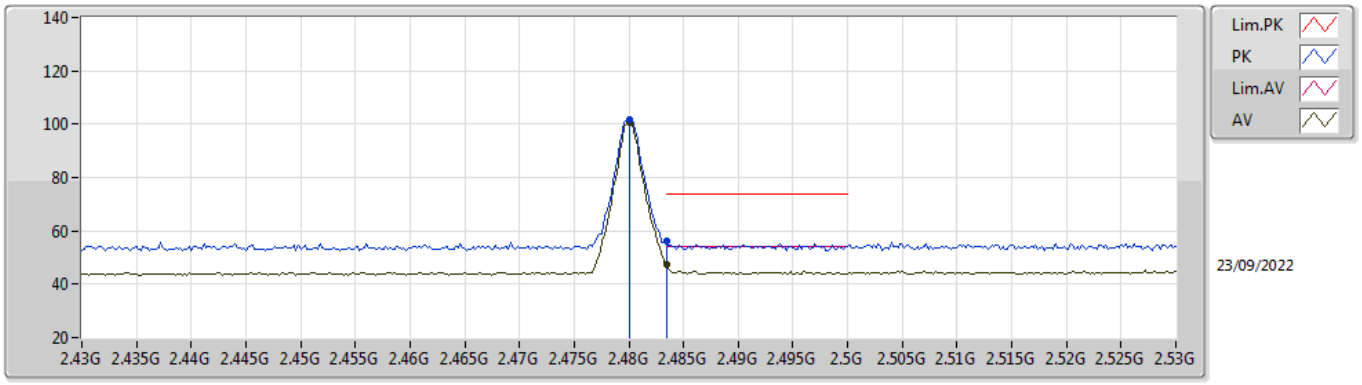


EUT Z_1TX
Setting 8
01-A-B-5

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	107.99	Inf	-Inf	76.47	3	Vertical	70	2.73	-	27.68	3.84	-
AV	2.4802G	107.24	Inf	-Inf	75.72	3	Vertical	70	2.73	-	27.68	3.84	-
PK	2.4835G	58.91	74.00	-15.09	27.37	3	Vertical	70	2.73	-	27.70	3.84	-
AV	2.4835G	53.17	54.00	-0.83	21.63	3	Vertical	70	2.73	-	27.70	3.84	-

BT-LE(1Mbps)

2480MHz_TX

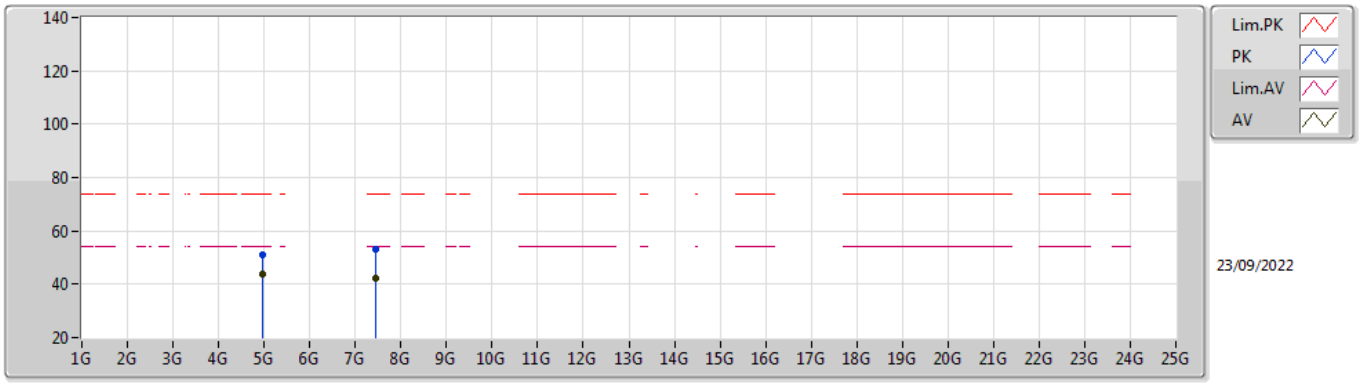


EUT Z_1TX
Setting 8
01-A-B-5

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	101.63	Inf	-Inf	70.11	3	Horizontal	266	2.87	-	27.68	3.84	-
AV	2.48G	100.58	Inf	-Inf	69.06	3	Horizontal	266	2.87	-	27.68	3.84	-
PK	2.4835G	56.21	74.00	-17.79	24.67	3	Horizontal	266	2.87	-	27.70	3.84	-
AV	2.4835G	47.52	54.00	-6.48	15.98	3	Horizontal	266	2.87	-	27.70	3.84	-

BT-LE(1Mbps)

2480MHz_TX

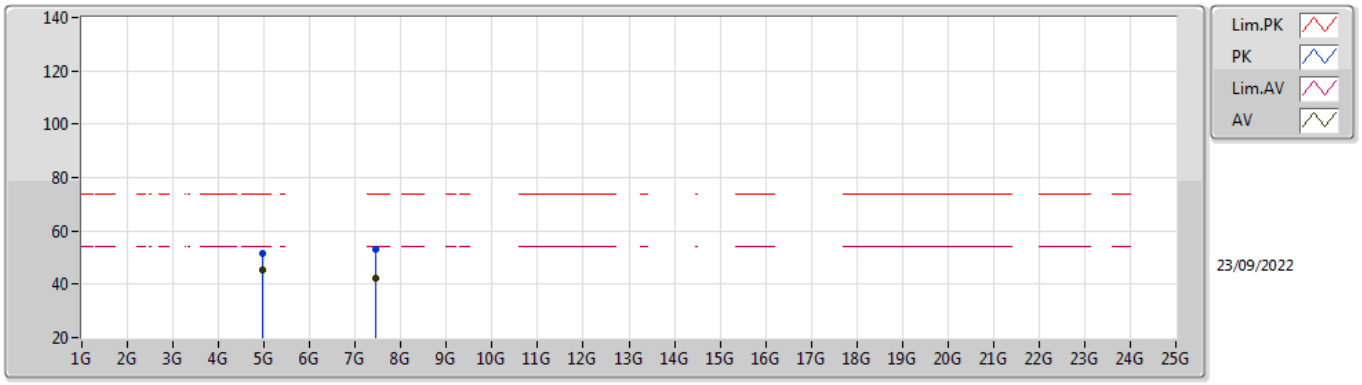


EUT Z_1TX
Setting 8
01-A-B-5

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	4.9597G	50.84	74.00	-23.16	44.58	3	Vertical	59	2.32	-	32.76	6.36	32.86
AV	4.95975G	43.69	54.00	-10.31	37.43	3	Vertical	59	2.32	-	32.76	6.36	32.86
PK	7.44119G	53.01	74.00	-20.99	41.32	3	Vertical	234	2.30	-	37.20	7.74	33.25
AV	7.44043G	42.23	54.00	-11.77	30.54	3	Vertical	234	2.30	-	37.20	7.74	33.25

BT-LE(1Mbps)

2480MHz_TX

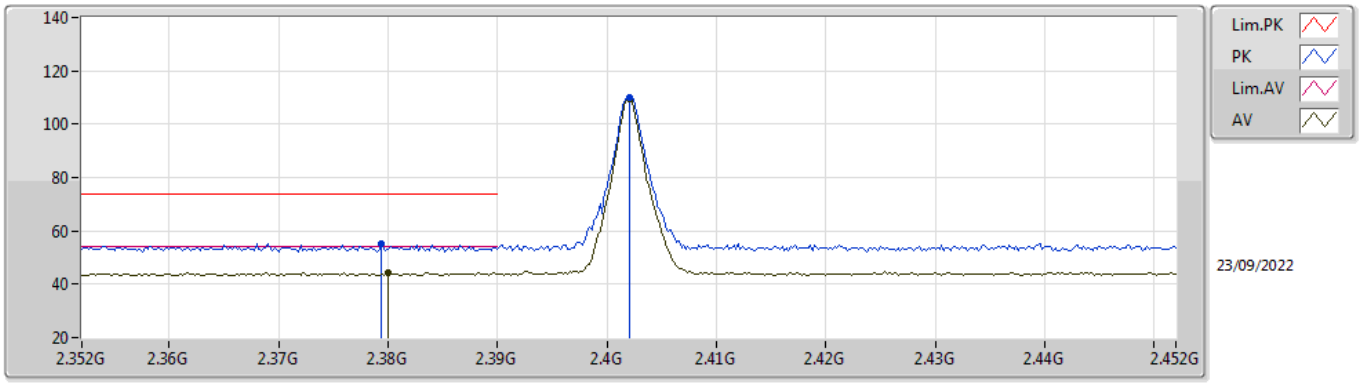


EUT Z_1TX
Setting 8
01-A-B-5

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	4.9602G	51.53	74.00	-22.47	45.27	3	Horizontal	22	2.40	-	32.76	6.36	32.86
AV	4.95972G	45.15	54.00	-8.85	38.89	3	Horizontal	22	2.40	-	32.76	6.36	32.86
PK	7.43932G	53.04	74.00	-20.96	41.35	3	Horizontal	214	1.30	-	37.20	7.74	33.25
AV	7.43926G	42.47	54.00	-11.53	30.78	3	Horizontal	214	1.30	-	37.20	7.74	33.25

BT-LE(2Mbps)

2402MHz_TX

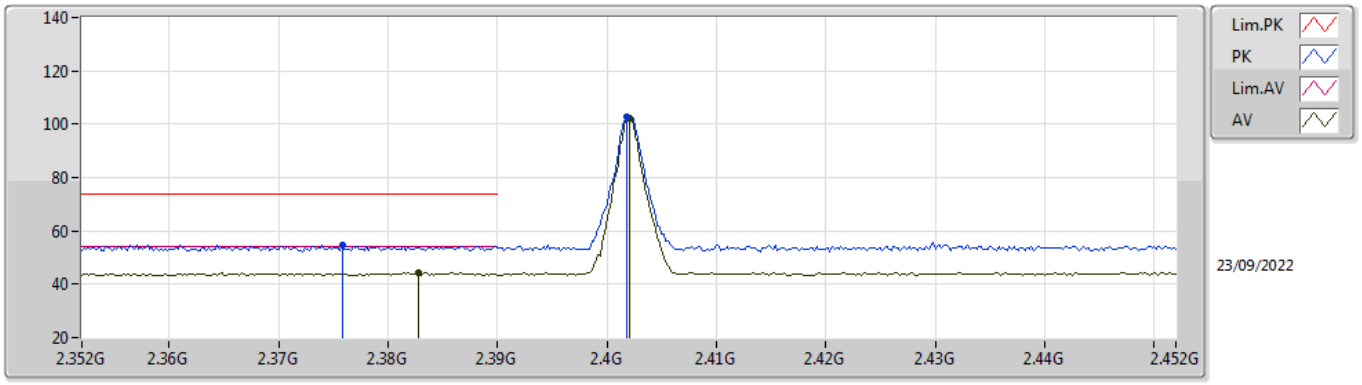


EUT Z_1TX
Setting 9
01-A-B-5

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	2.3794G	55.32	74.00	-18.68	24.02	3	Vertical	61	2.87	-	27.52	3.78	-
AV	2.38G	44.31	54.00	-9.69	13.01	3	Vertical	61	2.87	-	27.52	3.78	-
PK	2.402G	110.12	Inf	-Inf	78.72	3	Vertical	61	2.87	-	27.60	3.80	-
AV	2.402G	109.53	Inf	-Inf	78.13	3	Vertical	61	2.87	-	27.60	3.80	-

BT-LE(2Mbps)

2402MHz_TX

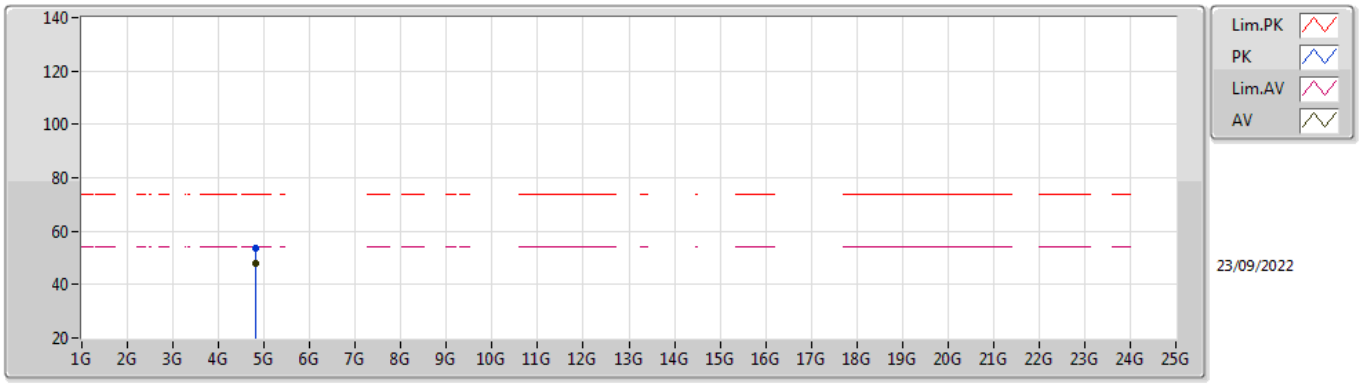


EUT Z_1TX
Setting 9
01-A-B-5

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	2.3758G	54.88	74.00	-19.12	23.60	3	Horizontal	262	2.79	-	27.50	3.78	-
AV	2.3828G	44.22	54.00	-9.78	12.91	3	Horizontal	262	2.79	-	27.53	3.78	-
PK	2.4018G	102.99	Inf	-Inf	71.59	3	Horizontal	262	2.79	-	27.60	3.80	-
AV	2.402G	102.41	Inf	-Inf	71.01	3	Horizontal	262	2.79	-	27.60	3.80	-

BT-LE(2Mbps)

2402MHz_TX

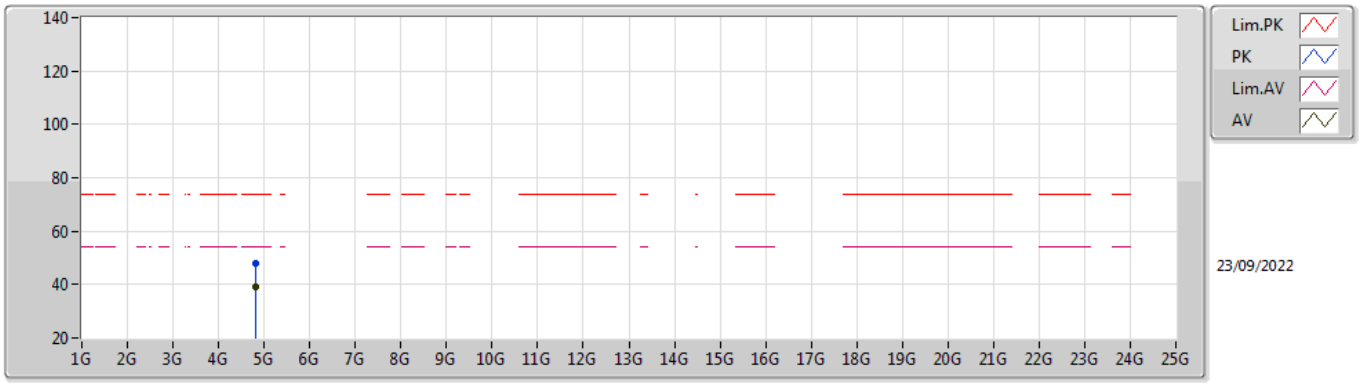


EUT Z_1TX
Setting 9
01-A-B-5

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	4.80372G	53.59	74.00	-20.41	47.87	3	Vertical	90	2.56	-	32.41	6.20	32.89
AV	4.80337G	47.97	54.00	-6.03	42.25	3	Vertical	90	2.56	-	32.41	6.20	32.89

BT-LE(2Mbps)

2402MHz_TX

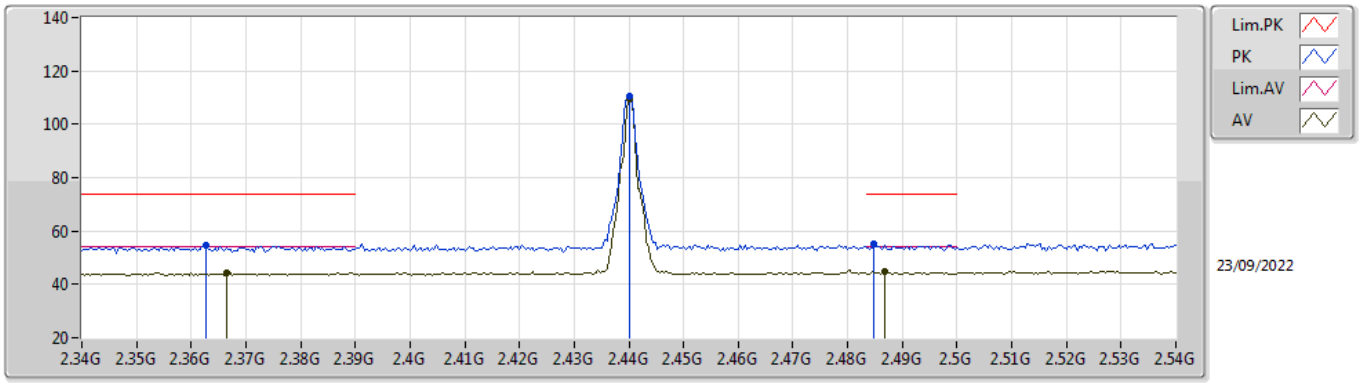


EUT Z_1TX
Setting 9
01-A-B-5

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	4.80378G	47.83	74.00	-26.17	42.11	3	Horizontal	84	2.93	-	32.41	6.20	32.89
AV	4.80306G	38.90	54.00	-15.10	33.18	3	Horizontal	84	2.93	-	32.41	6.20	32.89

BT-LE(2Mbps)

2440MHz_TX

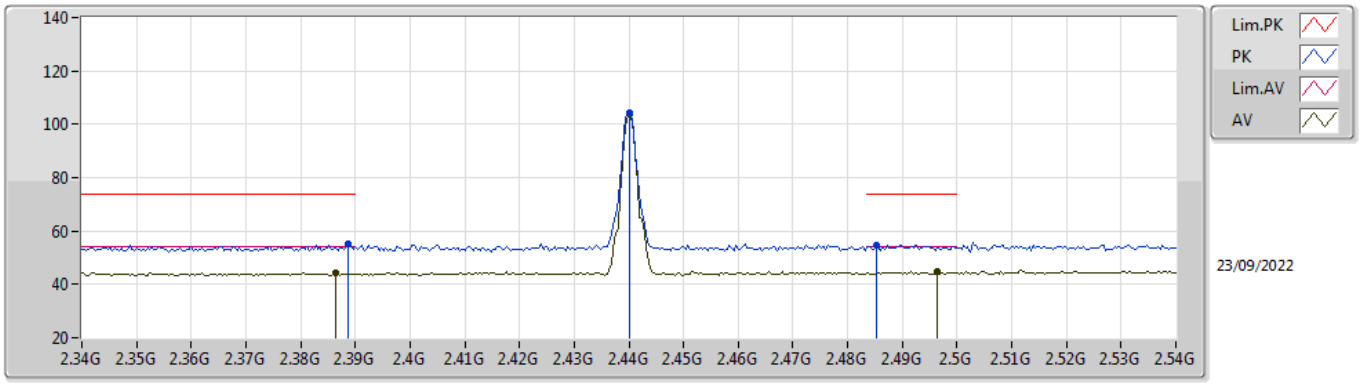


EUT Z_1TX
Setting 9
01-A-B-5

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	54.43	74.00	-19.57	23.22	3	Vertical	59	2.88	-	27.45	3.76	-
AV	2.3664G	44.33	54.00	-9.67	13.09	3	Vertical	59	2.88	-	27.47	3.77	-
PK	2.44G	110.52	Inf	-Inf	79.18	3	Vertical	59	2.88	-	27.52	3.82	-
AV	2.44G	109.49	Inf	-Inf	78.15	3	Vertical	59	2.88	-	27.52	3.82	-
PK	2.4848G	55.20	74.00	-18.80	23.65	3	Vertical	59	2.88	-	27.71	3.84	-
AV	2.4868G	44.63	54.00	-9.37	13.07	3	Vertical	59	2.88	-	27.72	3.84	-

BT-LE(2Mbps)

2440MHz_TX

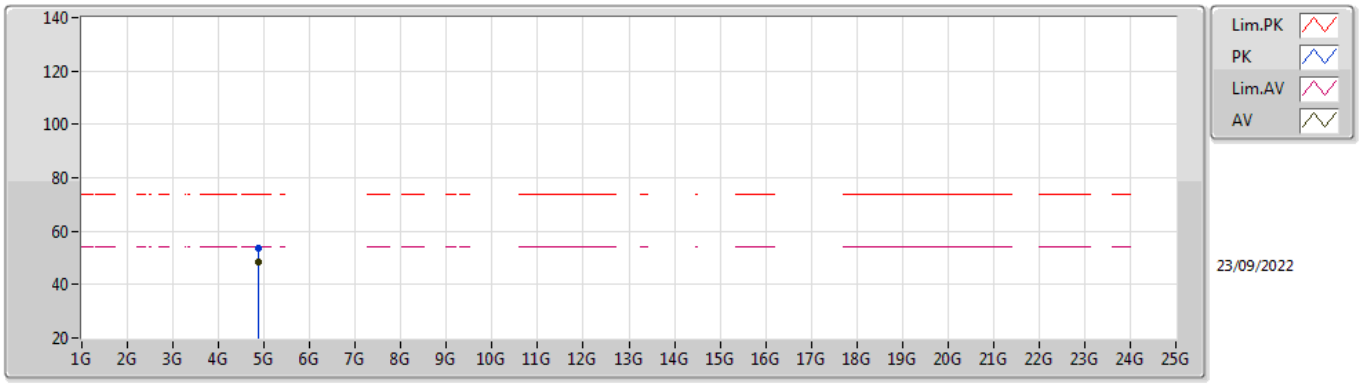


EUT Z_1TX
Setting 9
01-A-B-5

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	2.3888G	54.97	74.00	-19.03	23.62	3	Horizontal	260	2.91	-	27.56	3.79	-
AV	2.3864G	44.34	54.00	-9.66	13.00	3	Horizontal	260	2.91	-	27.55	3.79	-
PK	2.44G	104.29	Inf	-Inf	72.95	3	Horizontal	260	2.91	-	27.52	3.82	-
AV	2.44G	103.59	Inf	-Inf	72.25	3	Horizontal	260	2.91	-	27.52	3.82	-
PK	2.4852G	54.66	74.00	-19.34	23.11	3	Horizontal	260	2.91	-	27.71	3.84	-
AV	2.4964G	44.70	54.00	-9.30	13.07	3	Horizontal	260	2.91	-	27.78	3.85	-

BT-LE(2Mbps)

2440MHz_TX

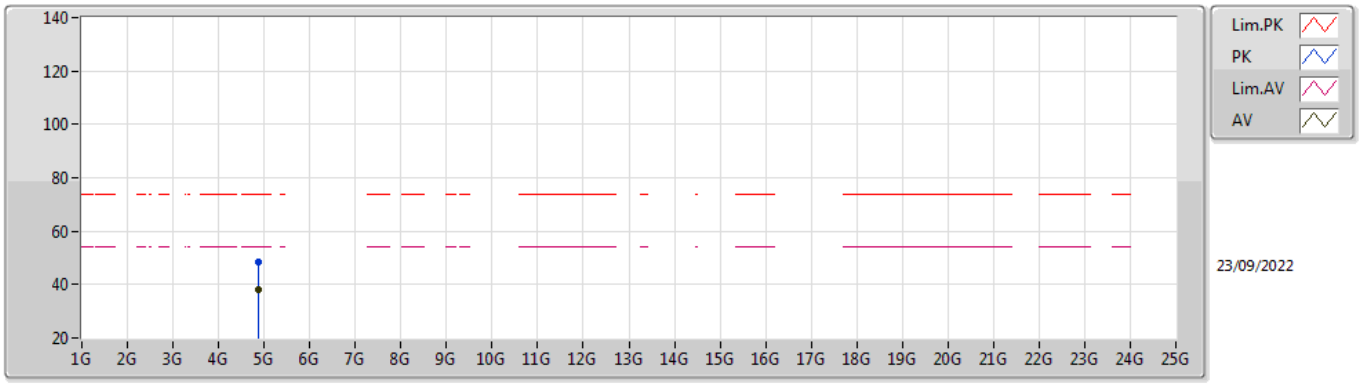


EUT Z_1TX
Setting 9
01-A-B-5

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	4.87962G	53.55	74.00	-20.45	47.58	3	Vertical	340	1.96	-	32.56	6.28	32.87
AV	4.87938G	48.19	54.00	-5.81	42.22	3	Vertical	340	1.96	-	32.56	6.28	32.87

BT-LE(2Mbps)

2440MHz_TX

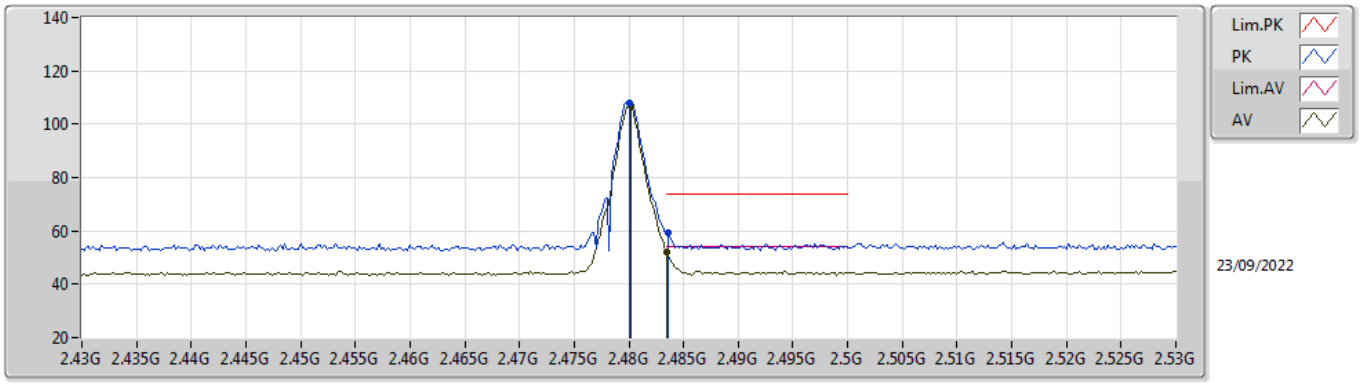


EUT Z_1TX
Setting 9
01-A-B-5

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	4.88018G	48.52	74.00	-25.48	42.55	3	Horizontal	193	1.17	-	32.56	6.28	32.87
AV	4.8796G	38.33	54.00	-15.67	32.36	3	Horizontal	193	1.17	-	32.56	6.28	32.87

BT-LE(2Mbps)

2480MHz_TX

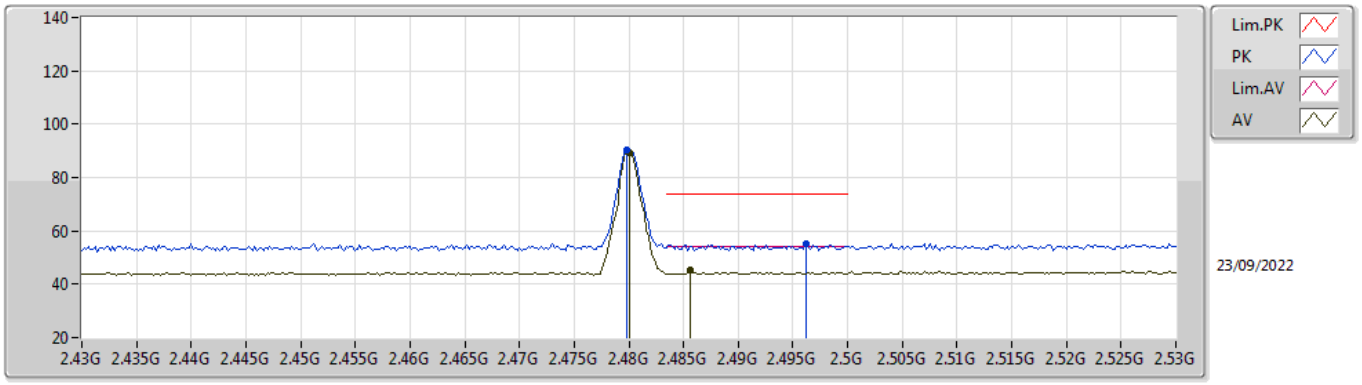


EUT Z_1TX
Setting 8
01-A-B-5

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	108.06	Inf	-Inf	76.54	3	Vertical	64	2.79	-	27.68	3.84	-
AV	2.4802G	106.94	Inf	-Inf	75.42	3	Vertical	64	2.79	-	27.68	3.84	-
PK	2.4836G	59.37	74.00	-14.63	27.83	3	Vertical	64	2.79	-	27.70	3.84	-
AV	2.4835G	52.06	54.00	-1.94	20.52	3	Vertical	64	2.79	-	27.70	3.84	-

BT-LE(2Mbps)

2480MHz_TX

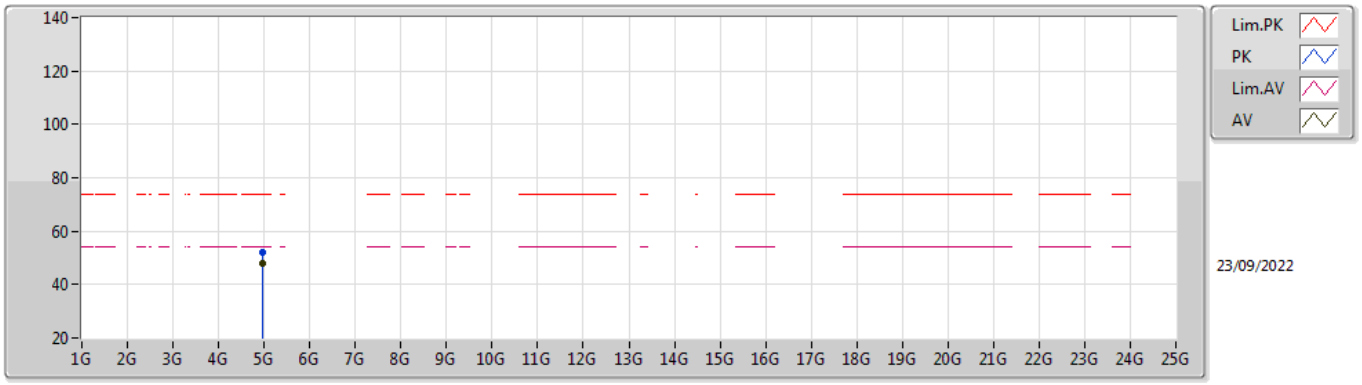


EUT Z_1TX
Setting 8
01-A-B-5

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	2.4798G	90.46	Inf	-Inf	58.94	3	Horizontal	263	2.80	-	27.68	3.84	-
AV	2.48G	89.51	Inf	-Inf	57.99	3	Horizontal	263	2.80	-	27.68	3.84	-
PK	2.4962G	55.17	74.00	-18.83	23.54	3	Horizontal	263	2.80	-	27.78	3.85	-
AV	2.4856G	45.25	54.00	-8.75	13.70	3	Horizontal	263	2.80	-	27.71	3.84	-

BT-LE(2Mbps)

2480MHz_TX

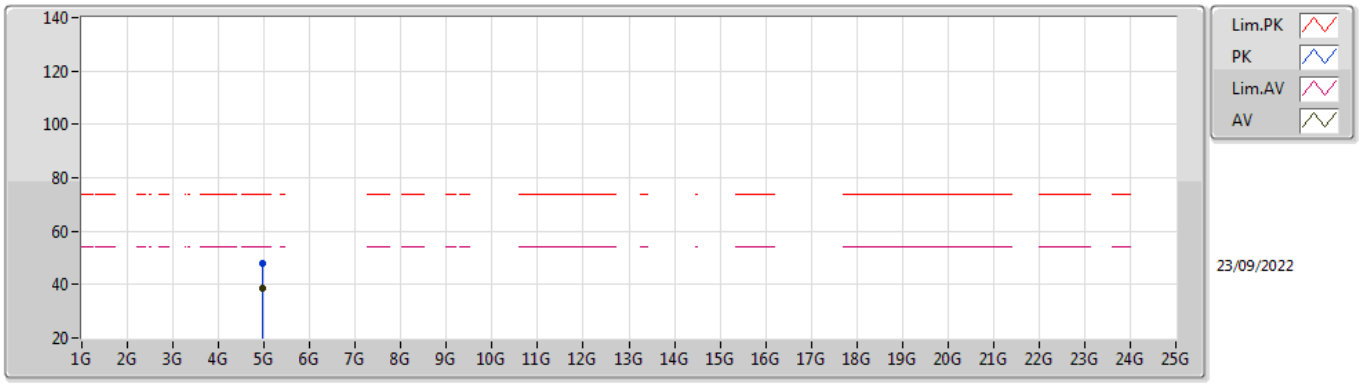


EUT Z_1TX
Setting 8
01-A-B-5

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	4.96148G	52.28	74.00	-21.72	46.01	3	Vertical	5	1.82	-	32.77	6.36	32.86
AV	4.95834G	48.11	54.00	-5.89	41.86	3	Vertical	5	1.82	-	32.75	6.36	32.86

BT-LE(2Mbps)

2480MHz_TX



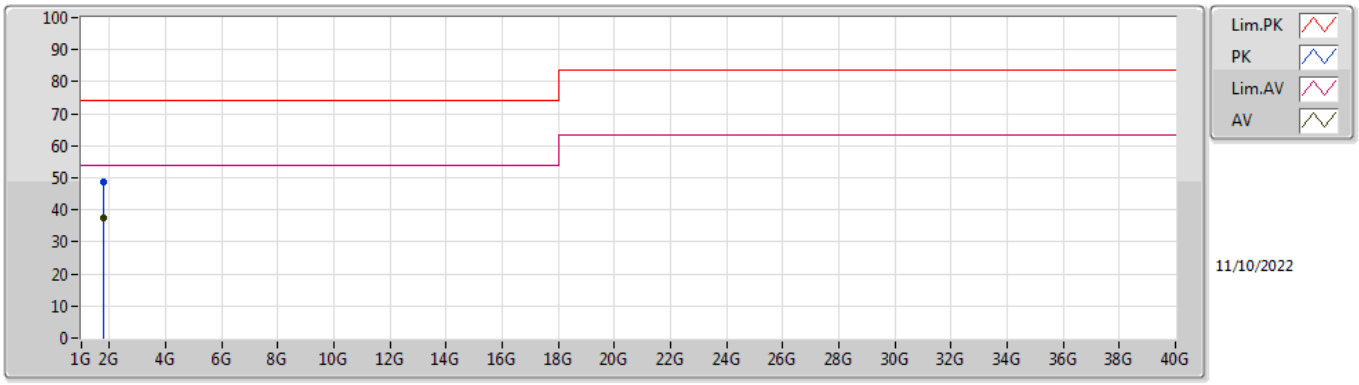
EUT Z_1TX
Setting 8
01-A-B-5

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	4.95919G	48.02	74.00	-25.98	41.76	3	Horizontal	204	2.81	-	32.76	6.36	32.86
AV	4.96089G	38.58	54.00	-15.42	32.31	3	Horizontal	204	2.81	-	32.77	6.36	32.86

Summary

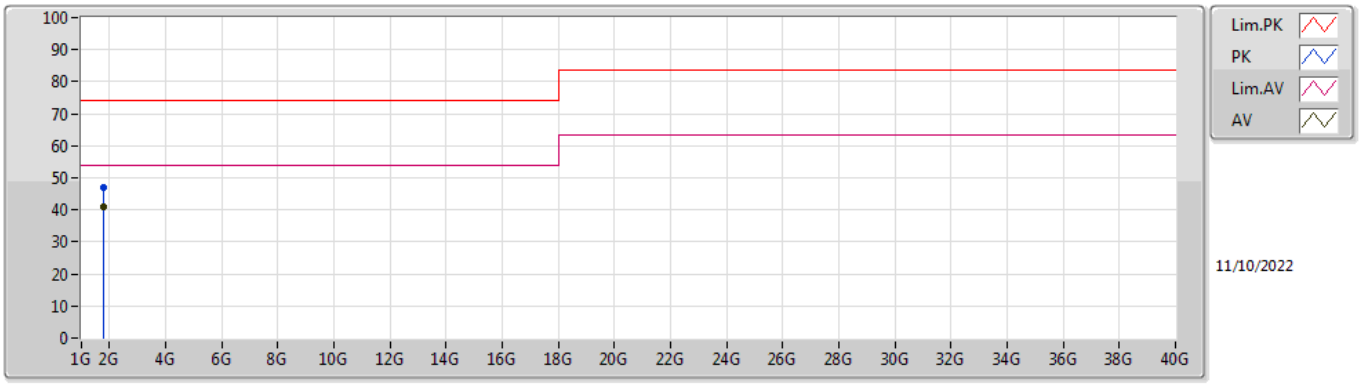
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 1	Pass	AV	1.77765G	41.14	54.00	-12.86	Horizontal

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)		(°)	(m)		(dBuV/m)	(dB/m)	(dB)	(dB)
PK	1.78035G	48.78	74.00	-25.22	-7.43	3	Vertical	164	2.15	-	56.21	25.20	3.78	36.41
AV	1.77779G	37.34	54.00	-16.66	-7.43	3	Vertical	164	2.15	"Worst"	44.77	25.20	3.78	36.41

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)		(°)	(m)		(dBuV/m)	(dB/m)	(dB)	(dB)
PK	1.78027G	46.83	74.00	-27.17	-7.43	3	Horizontal	178	1.58	-	54.26	25.20	3.78	36.41
AV	1.77765G	41.14	54.00	-12.86	-7.43	3	Horizontal	178	1.58	"Worst"	48.57	25.20	3.78	36.41