



RADIO TEST REPORT

FCC ID : 2AVNXCYAF5G
Equipment : AirgainConnect Fleet
Brand Name : Airgain
Model Name : CY-AF5G-B-NAT
Applicant : Airgain, Inc.
3611 Valley Centre Drive, Ste. 150, San Diego, CA 92130 USA
Manufacturer : MitraStar Technology Corporation
No. 6, Innovation Rd II, Science-Based Industrial, Hsin-Chu, Taiwan
Standard : 47 CFR FCC Part 15.247

The product was received on Apr. 29, 2024, and testing was started from May 02, 2024 and completed on Jun. 04, 2024. 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

TEL : 886-3-656-9065
FAX : 886-3-656-9085
Report Template No.: CB-A10_6 Ver1.3

Page Number : 3 of 26
Issued Date : Jul. 15, 2024
Report Version : 01



Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
1.1.2	15.203	Antenna Requirement	PASS	-
-	15.207	AC Power-line Conducted Emissions	N/A	Note
3.1	15.247(a)	DTS Bandwidth	PASS	-
3.2	15.247(b)	Maximum Conducted Output Power	PASS	-
3.3	15.247(e)	Power Spectral Density	PASS	-
3.4	15.247(d)	Emissions in Non-restricted Frequency Bands	PASS	-
3.5	15.247(d)	Emissions in Restricted Frequency Bands	PASS	-
Note: The EUT was supplied power by vehicle battery (12~24Vdc); it's not necessary to apply to AC Power-line Conducted Emissions tests.				

Conformity Assessment Condition:

1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacture who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
2. The measurement uncertainty please refer to each test result in the chapter "Measurement Uncertainty".

Disclaimer:

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.

Reviewed by: Sam Chen

Report Producer: Muse Chan



1 General Description

1.1 Information

1.1.1 RF General Information

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

Band	Mode	BWch (MHz)	Nant
2.4-2.4835GHz	BT-LE(1Mbps)	1.0	1TX
2.4-2.4835GHz	BT-LE(2Mbps)	2.0	1TX

Note:

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

1.1.2 Antenna Information

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	Airgain	M03AGDKE-LA1X82BU	Monopole	I-PEX	Note 1
2	Airgain	M03AGDKF-LR1X190BU	Monopole	I-PEX	
3	Airgain	M03AGDKG-LK1X137BU	Monopole	I-PEX	
4	Airgain	CH56AGDKZ F56AGDKA-LB1X132BU4LI	Monopole	I-PEX	
5	Airgain	CH56AGDKZ F56AGDKB-LB1X130BU4LI	Monopole	I-PEX	
6	Airgain	N54AGDKC-LY1X255BU4LI	Monopole	I-PEX	
7	Airgain	N54AGDKJ-LE1X272BU4LI	Monopole	I-PEX	



Note 1:

Ant.	Port		Antenna Gain (dBi)				
	WLAN 2.4GHz	WLAN 5GHz	WLAN 2.4GHz	WLAN 5GHz			
				UNII 1	UNII 2A	UNII 2C	UNII 3
1	1	1	2.96	4.26	3.77	4.92	4.62
2	2	2	5.07	4.24	4.38	5.94	4.07

Ant.	Port		Antenna Gain (dBi)		
	Bluetooth		2400MHz	2440MHz	2480MHz
3	1		6.30	6.00	5.30

Item	Directional Gain (dBi)				
	WLAN 2.4GHz	WLAN 5GHz			
		UNII 1	UNII 2A	UNII 2C	UNII 3
2T1S	5.16	5.93	5.87	8.18	7.17
2T2S	5.07	4.26	4.38	5.94	4.62

For Ant. 4~7:

Antenna Gain (dBi)																		
WCDMA			LTE															
B2	B4	B5	B2	B4	B5	B7	B12	B13	B14	B25	B26	B29	B38	B41	B42	B48	B66	B71
5.4	5.9	2.3	5.4	5.9	2.3	5.7	1.6	2.2	2.2	5.4	2.3	2.0	5.8	5.7	4.7	5.9	5.9	1.5

Antenna Gain (dBi)								
5G NR								
n2	n5	n25	n41	n48	n66	n71	n77	n78
5.4	2.3	5.4	5.7	5.9	5.9	1.5	6.7	6.7

Note 2: The above information (except WLAN antenna gain and directional gain) was declared by manufacturer.

Note 3: The antenna gain and directional gain are measured which follow the procedure of KDB 662911 D03.

Note 4: **For 2.4GHz function:****For IEEE 802.11 b/g/n/ax (2TX/2RX):**

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

Port 1~2 could transmit/receive simultaneously.

For 5GHz function:**For IEEE 802.11 a/n/ac/ax (2TX/2RX):**

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

Port 1~2 could transmit/receive simultaneously.

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)	0.652	1.86	407.188u	3k
BT-LE(2Mbps)	0.357	4.47	223.438u	10k

Note:

- ♦ DC is Duty Cycle.
- ♦ DCF is Duty Cycle Factor.

1.1.4 EUT Operational Condition

EUT Power Type	From vehicle battery (12~24Vdc)		
Function	☒ Point-to-multipoint	☐ Point-to-point	
Test Software Version	QRCT V4.0.00203.0		
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 EUT Supports Functions

Function	Support Type	Supports Band
AP Router	Master	2.4GHz and 5GHz UNII 2A~3
Slave	Slave without radar detection	2.4GHz and 5GHz UNII 1~3

Note: The above information was declared by manufacturer.

1.1.6 Table of WWAN Module

The EUT contains WCDMA, LTE, 5G NR modules, the detail information as following.

Brand Name	Model Name	FCC ID	Function
Telit	FN990A28	RI7FN990A28	WCDMA: Band 2/4/5 LTE: Band 2/4/5/7/12/13/14/25/26/29/38/41/42/48/66/71 5G NR: Band n2/n5/n25/n41/n48/n66/n71/n77/n78



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	Richard Pai	22.8~24 / 61~65	May 11, 2024~ May 14, 2024
Radiated Below 1G	03CH05-CB	Jackson Peng	22-23 / 55-58	May 02, 2024~ Jun. 04, 2024
Radiated Above 1G	03CH04-CB		22.7-23.8 / 56-59	



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 Date: Date Before May 28, 2024

Test Items	Uncertainty	Remark
Radiated Emission (9kHz ~ 30MHz)	3.7 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	5.1 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	4.1 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	4.2 dB	Confidence levels of 95%
Conducted Emission	3.1 dB	Confidence levels of 95%
Output Power Measurement	0.8 dB	Confidence levels of 95%
Power Density Measurement	3.1 dB	Confidence levels of 95%
Bandwidth Measurement	2.2%	Confidence levels of 95%

Test Date: After May 27, 2024

Test Items	Uncertainty	Remark
Radiated Emission (9kHz ~ 30MHz)	4.1 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	4.2 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	4.2 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	4.0 dB	Confidence levels of 95%

2 Test Configuration of EUT

2.1 Test Channel Mode

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

2.2 The Worst Case Measurement Configuration

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

The Worst Case Mode for Following Conformance Tests	
Tests Item	Emissions in Restricted Frequency Bands
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.
Operating Mode < 1GHz	CTX After evaluating, EUT in Z axis was the worst case, so the measurement will follow this same test configuration.
1	EUT in Z axis_WLAN 2.4GHz
2	EUT in Z axis_WLAN 5GHz
3	EUT in Z axis_Bluetooth
For operating mode 1 is the worst case and it was record in this test report.	
Operating Mode > 1GHz	CTX After evaluating, EUT in Z axis was the worst case, so the measurement will follow this same test configuration.
1	EUT in Z axis



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 + WWAN
Refer to Sporton Test Report No.: FA441623-01 for Co-location RF Exposure Evaluation.	

2.3 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

2.4 Accessories

Coupler*1

2.5 Support Equipment

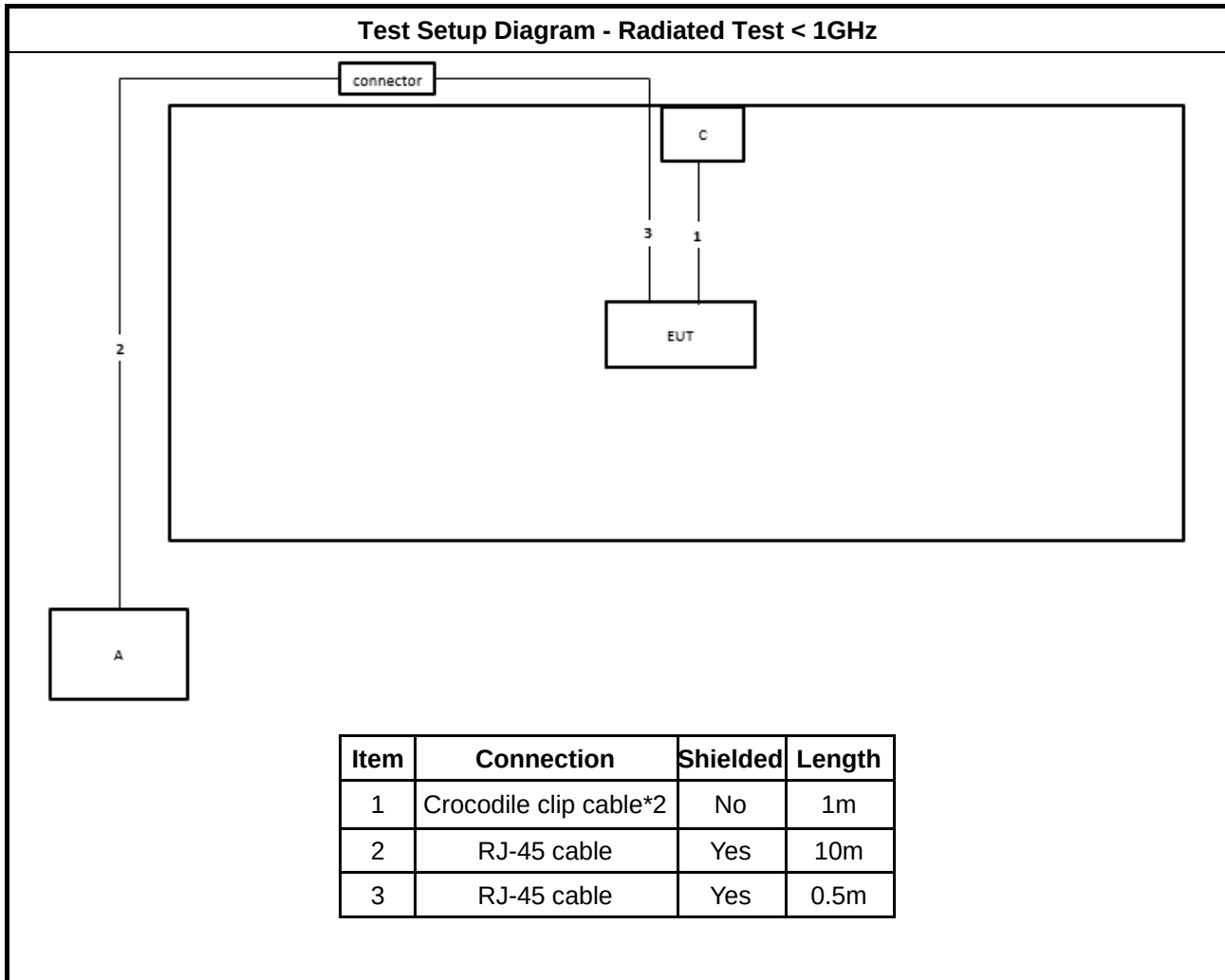
For Radiated (below 1GHz):

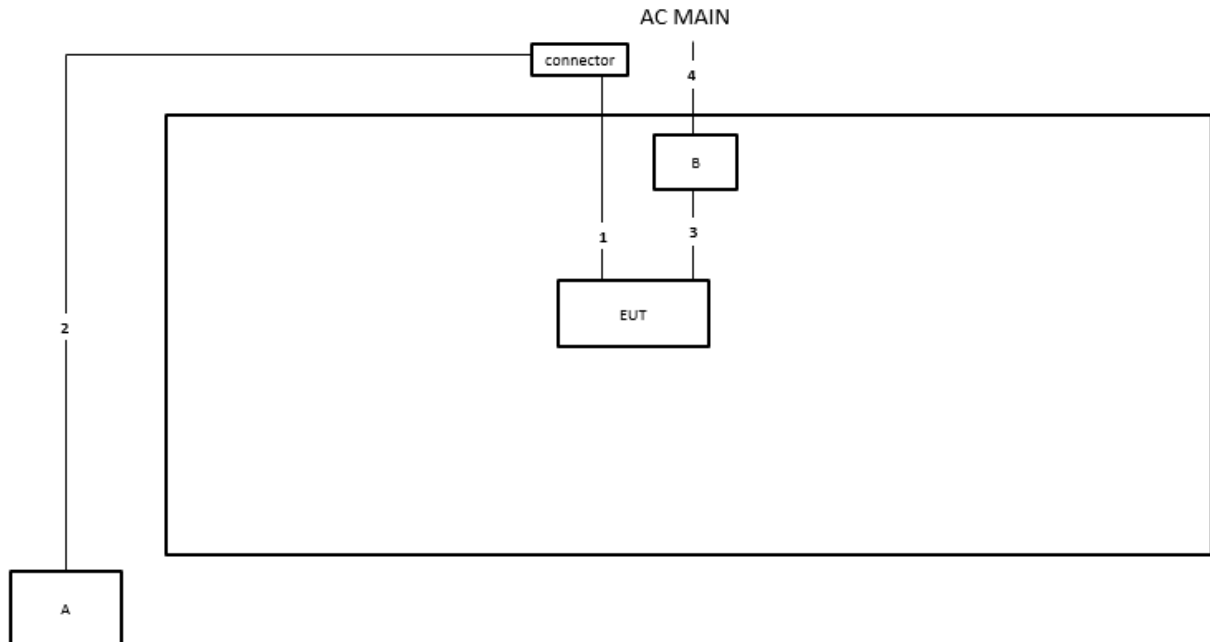
Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	NB	DELL	E4300	N/A
C	Battery	YUASA	38B19L-MF	N/A

For Radiated (above 1GHz) and RF Conducted:

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	NB	DELL	E4300	N/A
B	DC Power Supply	MOTECH	LPS-305	N/A

2.6 Test Setup Diagram



Test Setup Diagram - Radiated Test > 1GHz


Item	Connection	Shielded	Length
1	RJ-45 cable	Yes	0.5m
2	RJ-45 cable	Yes	10m
3	Crocodile clip cable*2	No	1m
4	Power cable	No	1m

3 Transmitter Test Result

3.1 DTS Bandwidth

3.1.1 6dB Bandwidth Limit

6dB Bandwidth Limit
Systems using digital modulation techniques:
6 dB bandwidth $\geq$ 500 kHz.

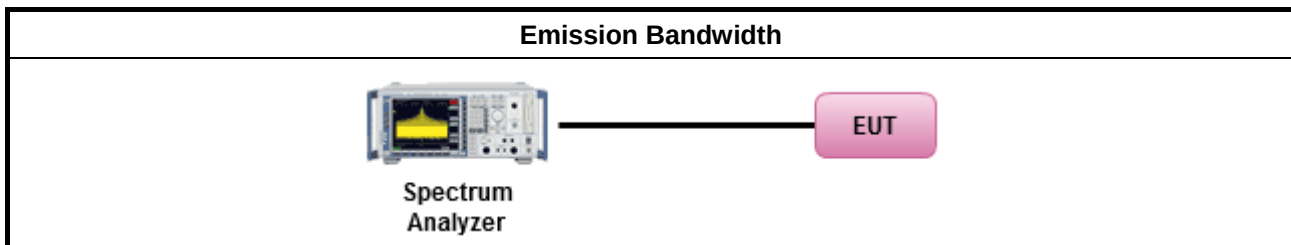
3.1.2 Measuring Instruments

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

3.1.3 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.

3.1.4 Test Setup



3.1.5 Test Result of Emission Bandwidth

Refer as Appendix A



3.2 Maximum Conducted Output Power

3.2.1 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.	

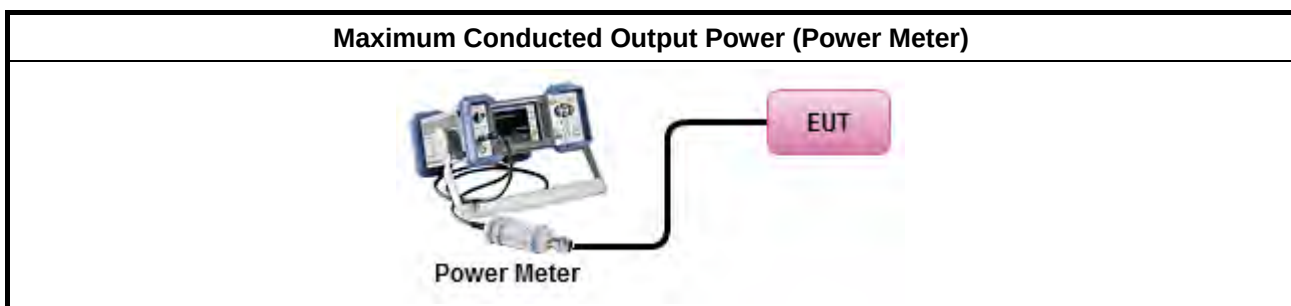
3.2.2 Measuring Instruments

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

3.2.3 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: $P_{total} = P_1 + P_2 + \dots + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = P_{total} + DG$	

3.2.4 Test Setup





3.2.5 Test Result of Maximum Conducted Output Power

Refer as Appendix B



3.3 Power Spectral Density

3.3.1 Power Spectral Density Limit

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

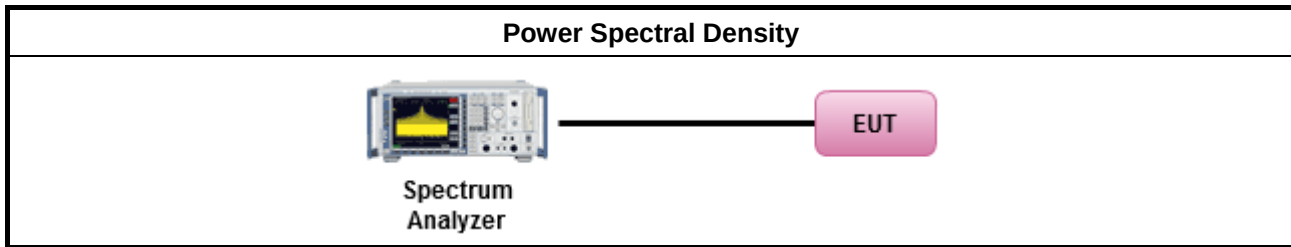
3.3.2 Measuring Instruments

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

3.3.3 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 $\geq 98\%$ 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.

3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Refer as Appendix C

3.4 Emissions in Non-restricted Frequency Bands

3.4.1 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.	

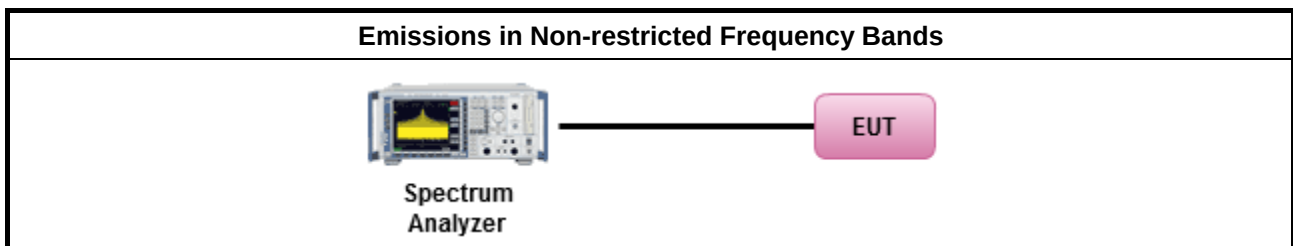
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

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

3.4.4 Test Setup



3.4.5 Test Result of Emissions in Non-restricted Frequency Bands

Refer as Appendix D

3.5 Emissions in Restricted Frequency Bands

3.5.1 Emissions in Restricted Frequency Bands Limit

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

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

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

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

3.5.2 Measuring Instruments

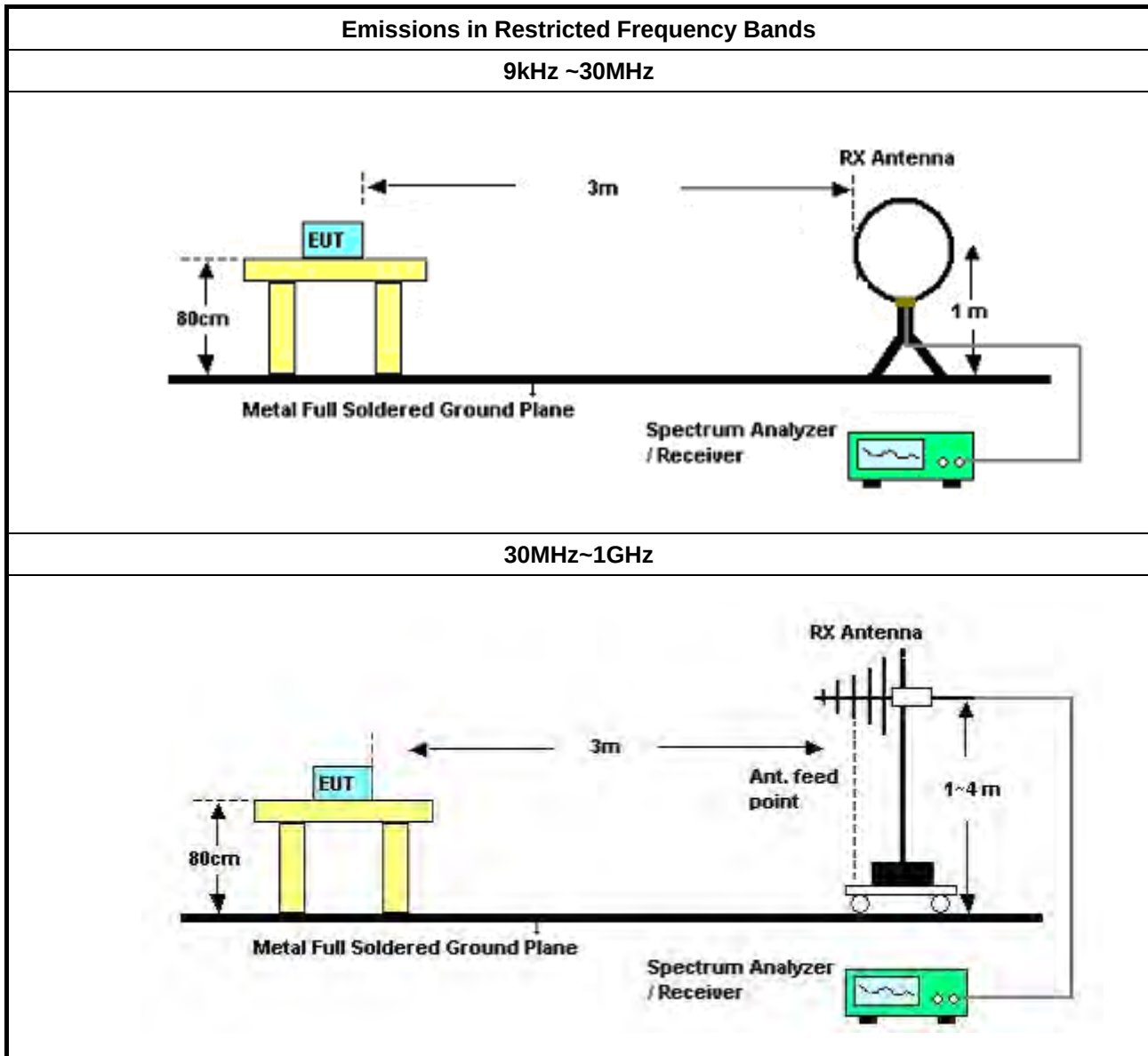
Refer a test equipment and calibration data table in this test report.

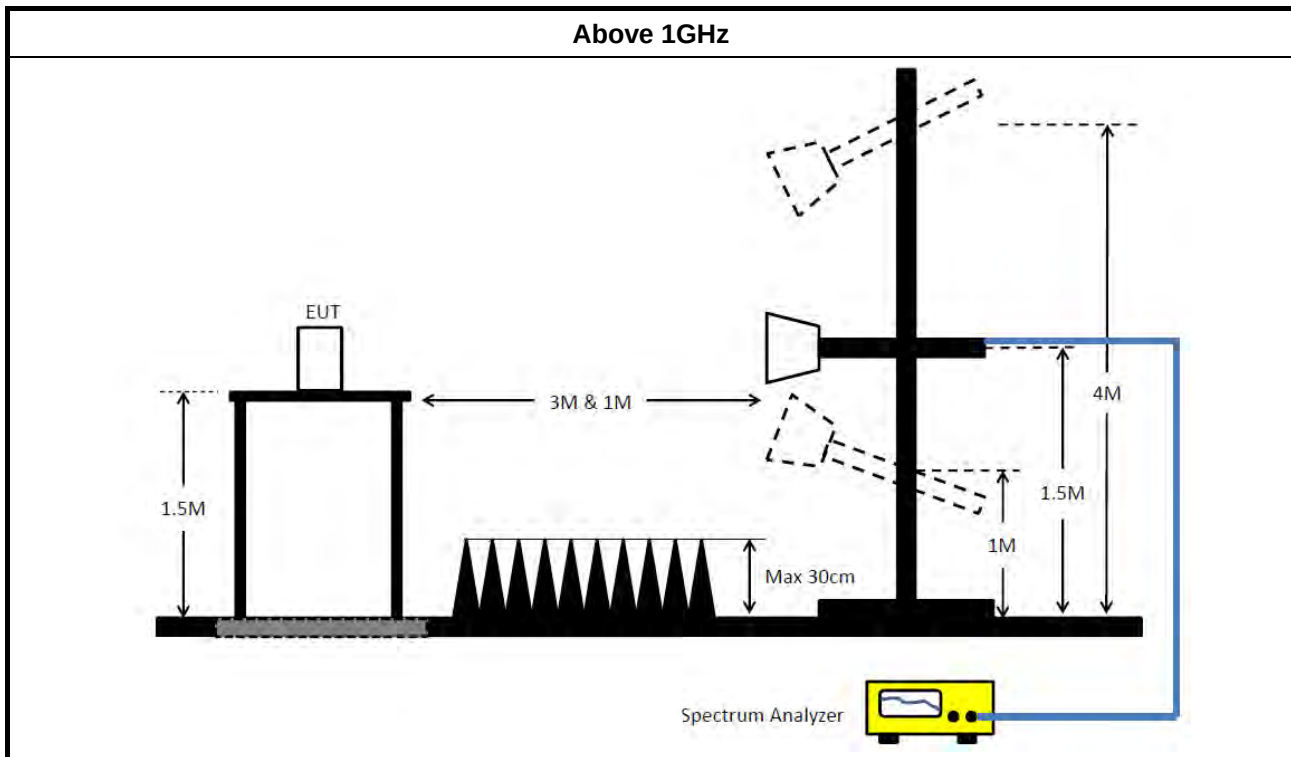


3.5.3 Test Procedures

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 $\geq 98\%$).
	☐ 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 $\geq 1/T$).
	☐ Refer as ANSI C63.10, clause 11.12.2.5.3 (Reduced VBW). VBW $\geq 1/T$, 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.

3.5.4 Test Setup





3.5.5 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.

3.5.6 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.

3.5.7 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix E



4 Test Equipment and Calibration Data

Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
Loop Antenna	Teseq	HLA 6121	65417	9kHz - 30 MHz	Oct. 13, 2023	Oct. 12, 2024	Radiation (03CH05-CB)
3m Semi Anechoic Chamber NSA	TDK	SAC-3M	03CH05-CB	30 MHz ~ 1 GHz	Aug. 02, 2023	Aug. 01, 2024	Radiation (03CH05-CB)
Bilog Antenna with 6dB Attenuator	TESEQ & EMCI	CBL 6112D & N-6-06	35236 & AT-N0610	30MHz ~ 2GHz	Mar. 23, 2024	Mar. 22, 2025	Radiation (03CH05-CB)
Amplifier	EMCI	EMC330N	980331	20MHz ~ 3GHz	May 02, 2024	May 01, 2025	Radiation (03CH05-CB)
Spectrum Analyzer	R&S	FSP40	100304	9kHz ~ 40GHz	Apr. 17, 2024	Apr. 16, 2025	Radiation (03CH05-CB)
EMI Test Receiver	R&S	ESCS	826547/017	9kHz ~ 2.75GHz	Jun. 13, 2023	Jun. 12, 2024	Radiation (03CH05-CB)
RF Cable-low	Woken	RG402	Low Cable-04+23	30MHz~1GHz	Dec. 06, 2023	Dec. 05, 2024	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	03CH04-CB	1GHz ~18GHz 3m	Feb. 22, 2024	Feb. 21, 2025	Radiation (03CH04-CB)
Horn Antenna	ETS-Lindgren	3115	00143147	750MHz~18GHz	Oct. 04, 2023	Oct. 03, 2024	Radiation (03CH04-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Sep. 04, 2023	Sep. 03, 2024	Radiation (03CH04-CB)
Pre-Amplifier	Agilent	83017A	MY53270063	0.5GHz ~ 26.5GHz	Jun. 30, 2023	Jun. 29, 2024	Radiation (03CH04-CB)
Pre-Amplifier	SGH	SGH184	20221107-3	18GHz ~ 40GHz	Nov. 24, 2023	Nov. 23, 2024	Radiation (03CH04-CB)
Spectrum Analyzer	R&S	FSP40	100142	9kHz~40GHz	Mar. 19, 2024	Mar. 18, 2025	Radiation (03CH04-CB)
RF Cable-high	Woken	RG402	High Cable-21	1GHz - 18GHz	Oct. 02, 2023	Oct. 01, 2024	Radiation (03CH04-CB)
RF Cable-high	Woken	RG402	High Cable-21+67	1GHz - 18GHz	Oct. 02, 2023	Oct. 01, 2024	Radiation (03CH04-CB)
High Cable	Woken	WCA0929M	40G#5+6	1GHz ~ 40 GHz	Jan. 11, 2024	Jan. 10, 2025	Radiation (03CH04-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH04-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	May 29, 2023	May 28, 2024	Conducted (TH01-CB)
Switch	SPTCB	SP-SWI	SWI-01	1~26.5 GHz	Oct. 03, 2023	Oct. 02, 2024	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-06	1 GHz – 18 GHz	Oct. 02, 2023	Oct. 01, 2024	Conducted (TH01-CB)

**RADIO TEST REPORT****Report No. : FR441623-01AC**

Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
RF Cable-high	Woken	RG402	High Cable-07	1 GHz – 18 GHz	Oct. 02, 2023	Oct. 01, 2024	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-08	1 GHz – 18 GHz	Oct. 02, 2023	Oct. 01, 2024	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-09	1 GHz – 18 GHz	Oct. 02, 2023	Oct. 01, 2024	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz – 18 GHz	Oct. 02, 2023	Oct. 01, 2024	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-30	1 GHz – 18 GHz	Oct. 02, 2023	Oct. 01, 2024	Conducted (TH01-CB)
Power Sensor	Agilent	E9327A	US40442088	50MHz~18GHz	Mar. 01, 2024	Feb. 28, 2025	Conducted (TH01-CB)
Power Meter	Agilent	E4416A	GB41291199	50MHz~18GHz	Mar. 04, 2024	Mar. 03, 2025	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.
NCR means Non-Calibration required.

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)	765k	1.033M	1M03F1D	692.5k	1.017M
BT-LE(2Mbps)	1.21M	2.009M	2M01F1D	905k	2.004M

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

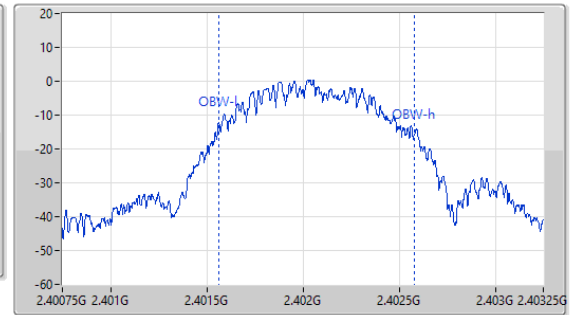
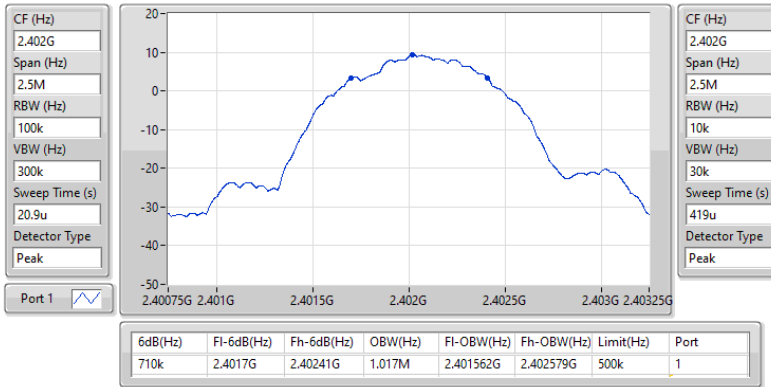
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	710k	1.017M
2440MHz	Pass	500k	692.5k	1.028M
2480MHz	Pass	500k	765k	1.033M
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	500k	1.21M	2.007M
2440MHz	Pass	500k	905k	2.004M
2480MHz	Pass	500k	925k	2.009M

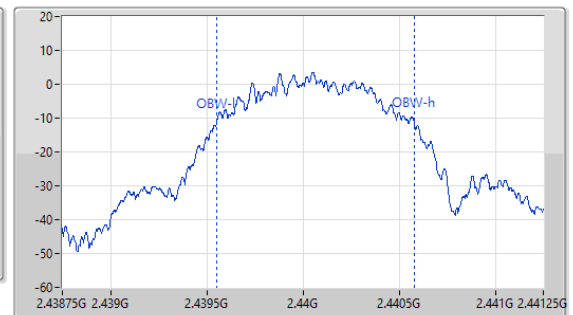
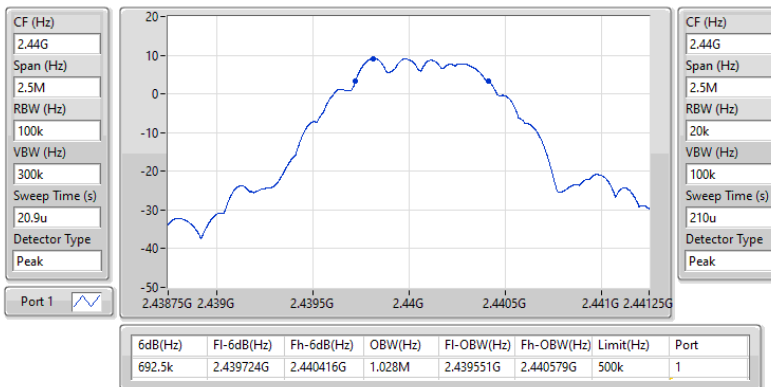
Port X-N dB = Port X 6dB down bandwidth;
Port X-OBW = Port X 99% occupied bandwidth

2.4-2.4835GHz_BT-LE(1Mbps)
EBW-DTS
2402MHz

10/05/2024


2.4-2.4835GHz_BT-LE(1Mbps)
EBW-DTS
2440MHz

10/05/2024

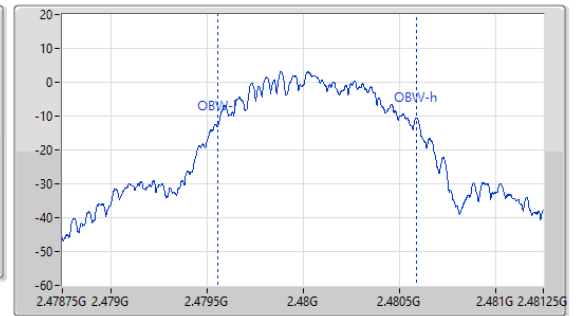
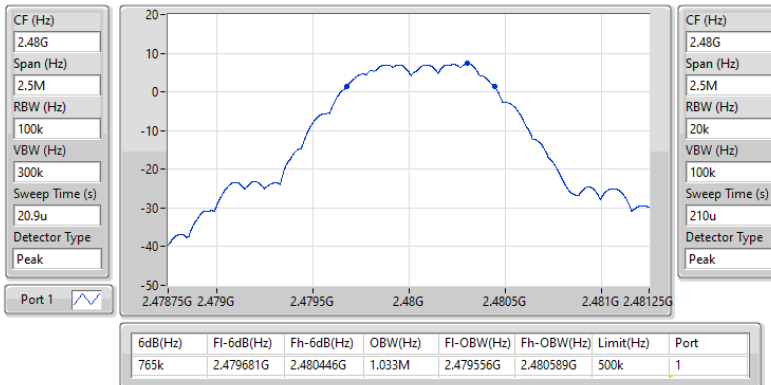


2.4-2.4835GHz_BT-LE(1Mbps)

EBW-DTS

2480MHz

10/05/2024

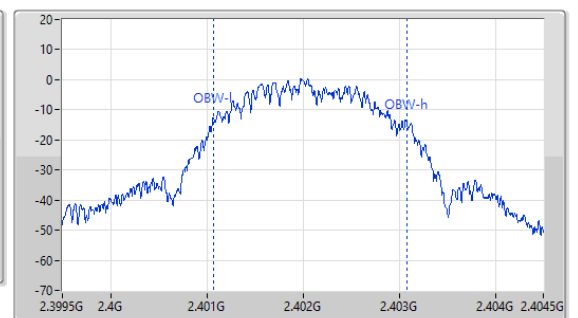
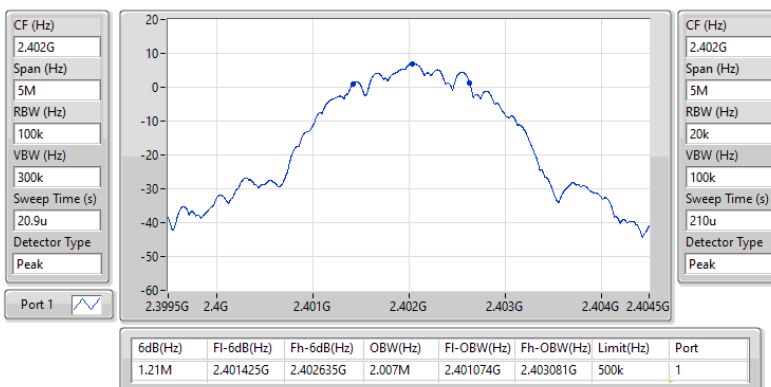


2.4-2.4835GHz_BT-LE(2Mbps)

EBW-DTS

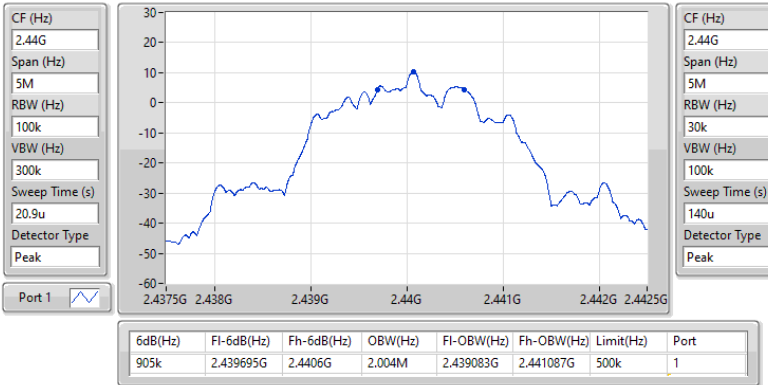
2402MHz

10/05/2024

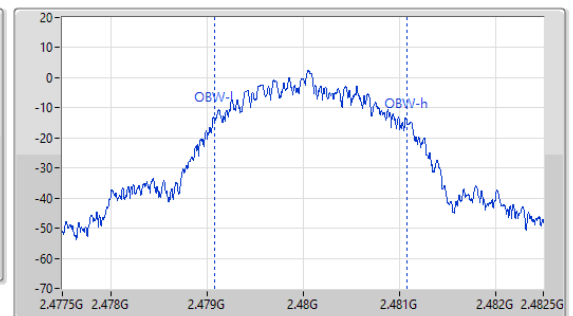
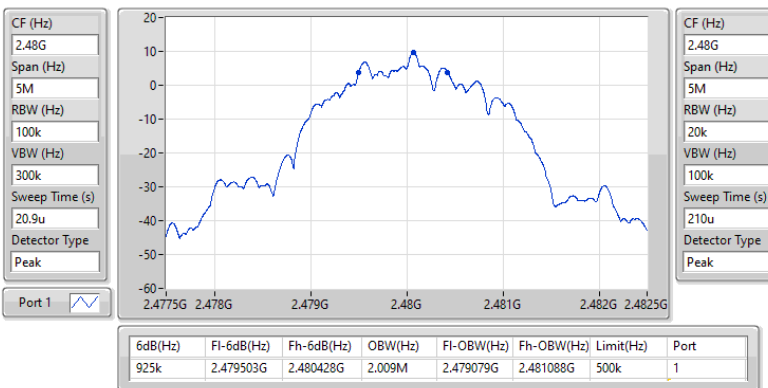


2.4-2.4835GHz_BT-LE(2Mbps)
EBW-DTS
2440MHz

10/05/2024


2.4-2.4835GHz_BT-LE(2Mbps)
EBW-DTS
2480MHz

10/05/2024





Average Power-DTS

Appendix B

Summary

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	10.59	0.01146
BT-LE(2Mbps)	10.39	0.01094

**Result**

Mode	Result	DG (dBi)	Total Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	6.30	10.59	29.70
2440MHz	Pass	6.00	10.32	30.00
2480MHz	Pass	5.30	9.76	30.00
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	6.30	10.39	29.70
2440MHz	Pass	6.00	10.24	30.00
2480MHz	Pass	5.30	9.71	30.00

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



Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LF(1Mbps)	-4.29
BT-LF(2Mbps)	-7.14

RBW = 3kHz;

Result

Mode	Result	DG (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	6.30	-4.29	7.70
2440MHz	Pass	6.00	-4.44	8.00
2480MHz	Pass	5.30	-5.81	8.00
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	6.30	-7.14	7.70
2440MHz	Pass	6.00	-7.30	8.00
2480MHz	Pass	5.30	-7.98	8.00

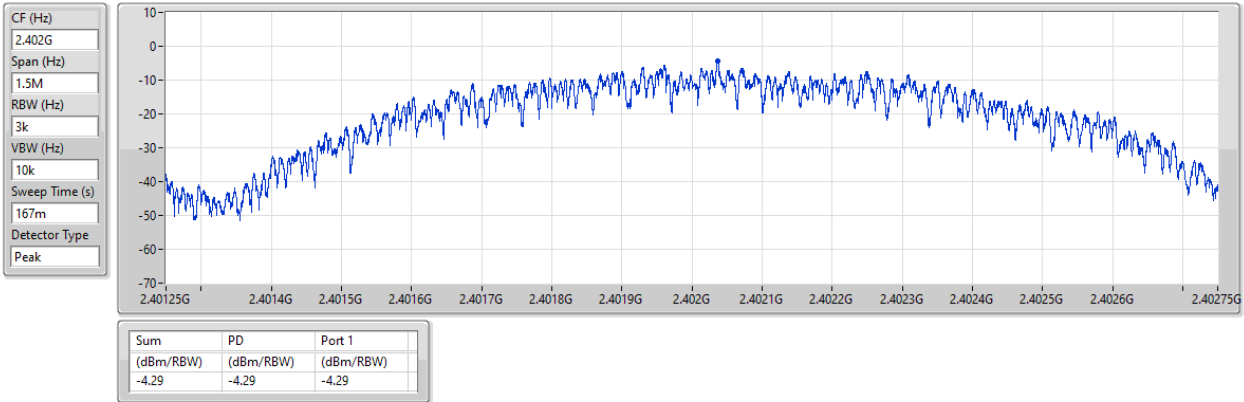
DG = Directional Gain; RBW = 3kHz;
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; Port X = Port X Power Density;

2.4-2.4835GHz_BT-LE(1Mbps)

PSD

2402MHz

10/05/2024

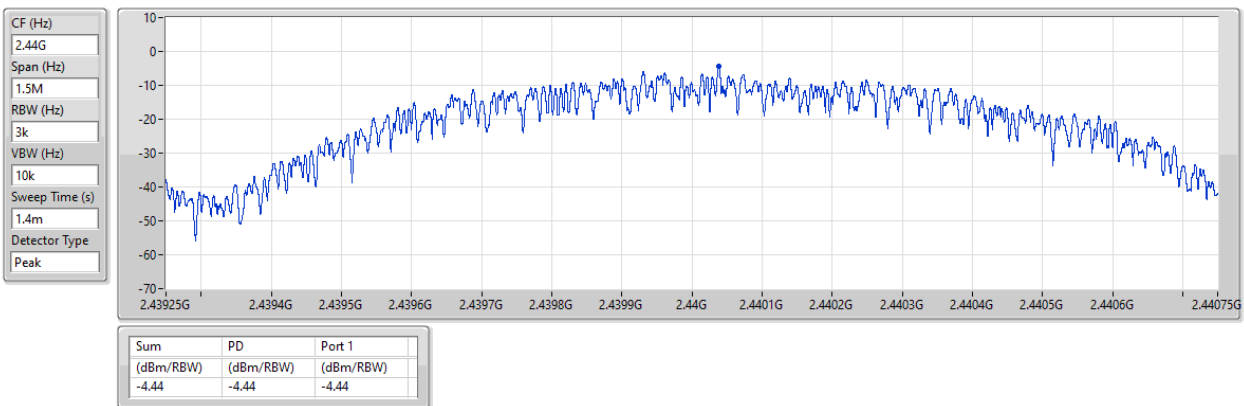


2.4-2.4835GHz_BT-LE(1Mbps)

PSD

2440MHz

10/05/2024

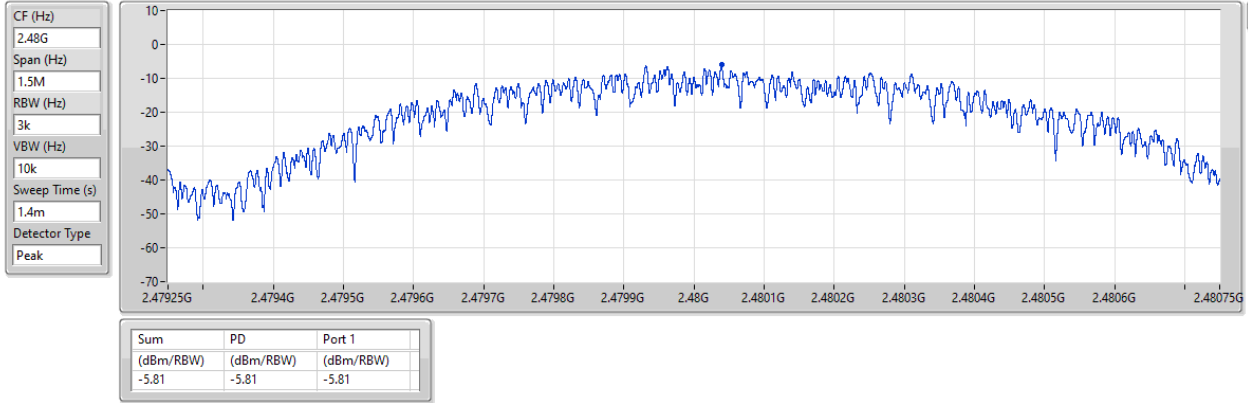


2.4-2.4835GHz_BT-LE(1Mbps)

PSD

2480MHz

10/05/2024

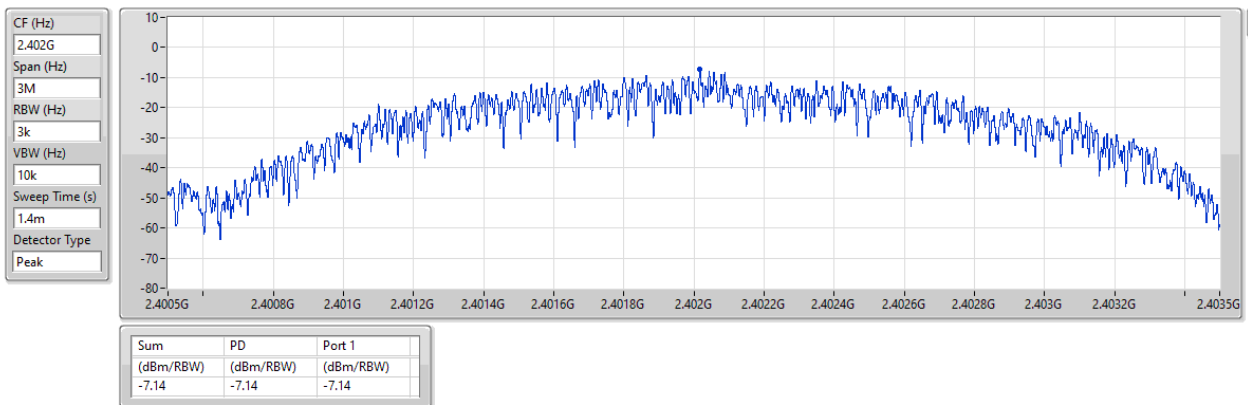


2.4-2.4835GHz_BT-LE(2Mbps)

PSD

2402MHz

10/05/2024

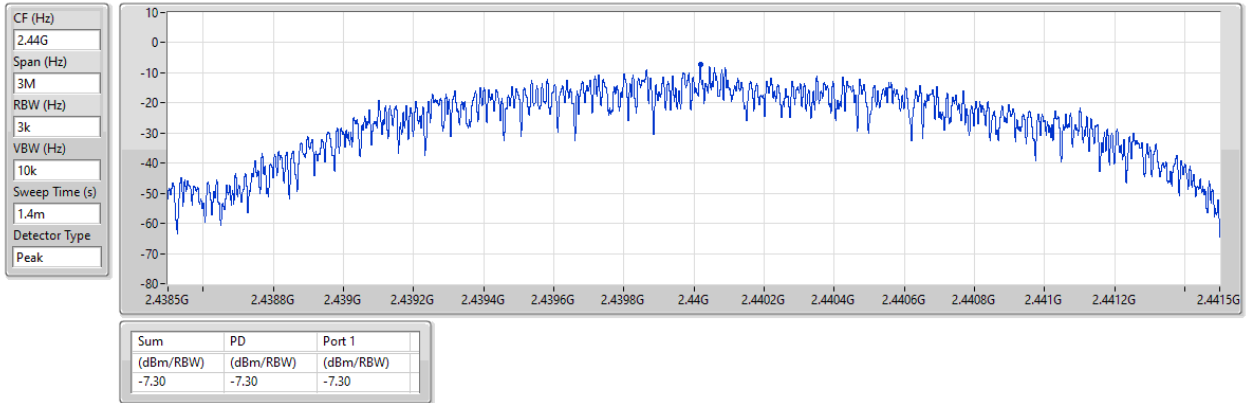


2.4-2.4835GHz_BT-LE(2Mbps)

PSD

2440MHz

10/05/2024

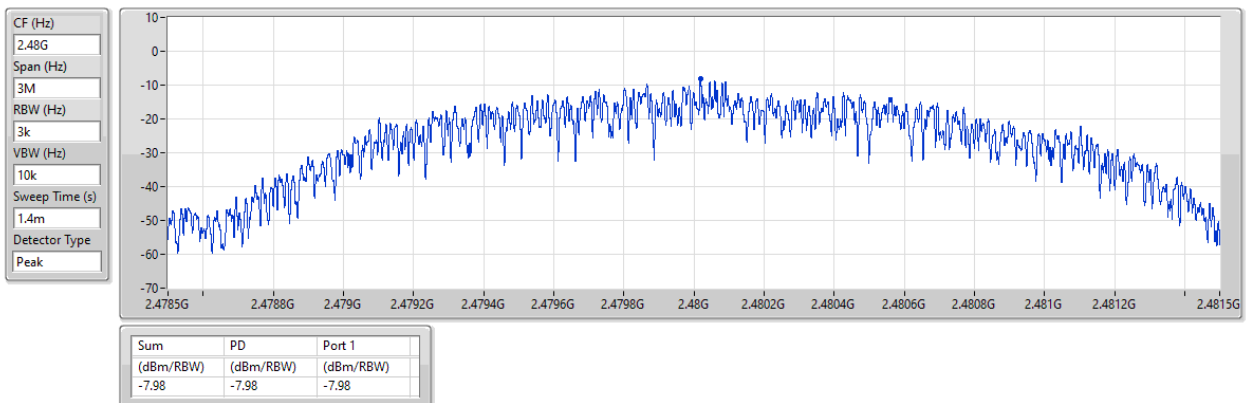


2.4-2.4835GHz_BT-LE(2Mbps)

PSD

2480MHz

10/05/2024



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	10.52	-19.48	1.89003G	-50.02	2.39996G	-45.59	2.4G	-44.33	2.5007G	-53.52	21.70145G	-47.69	1
BT-LE(2Mbps)	Pass	2.402G	10.56	-19.44	1.89003G	-50.22	2.4G	-28.37	2.4G	-26.37	2.50014G	-54.92	21.91236G	-48.08	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	10.52	-19.48	1.89003G	-50.02	2.39996G	-45.59	2.4G	-44.33	2.5007G	-53.52	21.70145G	-47.69	1
2440MHz	Pass	2.402G	10.52	-19.48	1.9288G	-48.71	2.39272G	-53.18	2.4G	-55.95	2.50278G	-55.29	21.55804G	-48.66	1
2480MHz	Pass	2.402G	10.52	-19.48	1.96875G	-49.17	2.39244G	-54.45	2.4G	-55.87	2.50094G	-54.28	21.64521G	-48.87	1
BT-LE(2Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.402G	10.56	-19.44	1.89003G	-50.22	2.4G	-28.37	2.4G	-26.37	2.50014G	-54.92	21.91236G	-48.08	1
2440MHz	Pass	2.402G	10.56	-19.44	1.92763G	-52.03	2.39036G	-53.97	2.4G	-57.51	2.50314G	-54.38	21.99391G	-48.25	1
2480MHz	Pass	2.402G	10.56	-19.44	2.10623G	-53.03	2.39624G	-53.55	2.4G	-56.60	2.50066G	-54.15	21.44837G	-48.95	1

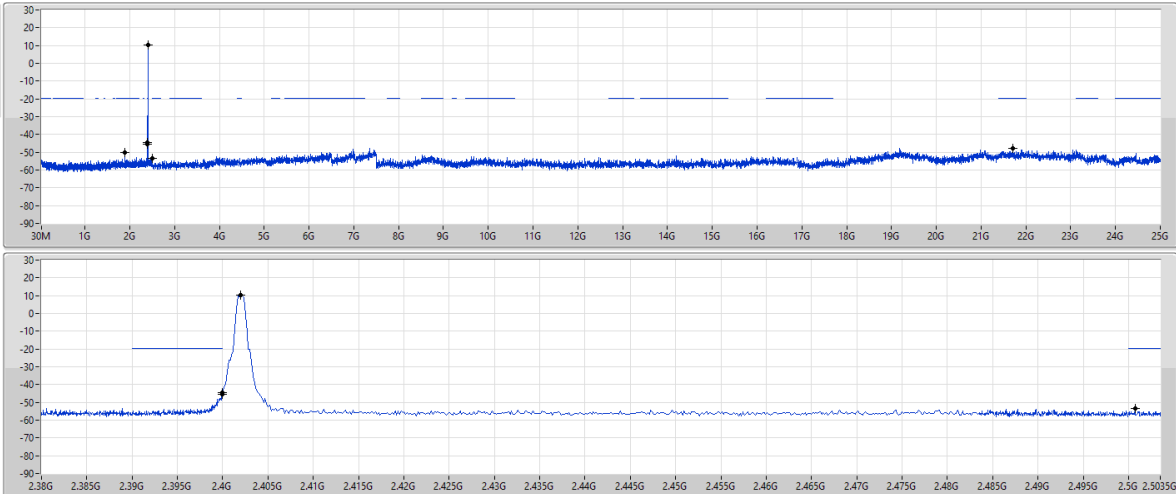
2.4-2.4835GHz_BT-LE(1Mbps)

CSEndB-DTS

2402MHz

10/05/2024

RBW (Hz)
100k
VBW (Hz)
300k
Detector
Peak



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	10.52	-19.48	1.89003G	-50.02	2.39996G	-45.59	2.4G	-44.33	2.5007G	-53.52	21.70145G	-47.69	1

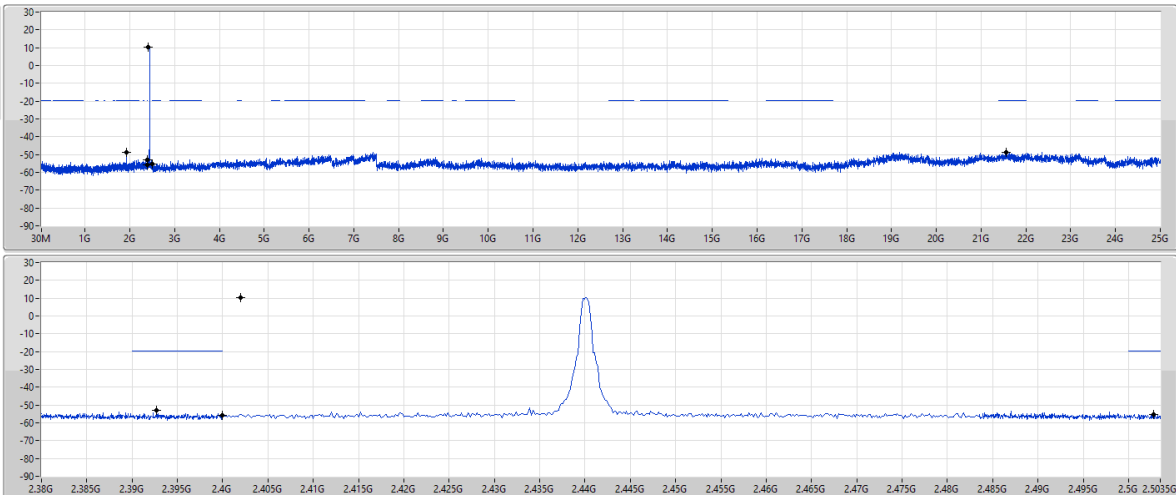
2.4-2.4835GHz_BT-LE(1Mbps)

CSEndB-DTS

2440MHz

10/05/2024

RBW (Hz)
100k
VBW (Hz)
300k
Detector
Peak



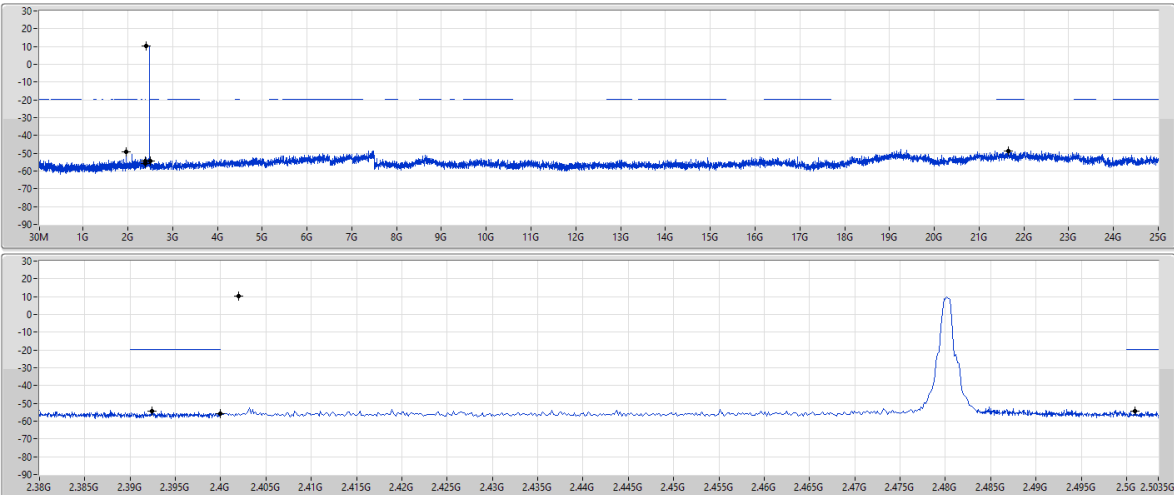
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.402G	10.52	-19.48	1.9288G	-48.71	2.39272G	-53.18	2.4G	-55.95	2.50278G	-55.29	21.55804G	-48.66	1

2.4-2.4835GHz_BT-LE(1Mbps)

CSEndB-DTS

2480MHz

RBW (Hz)
100k
VBW (Hz)
300k
Detector
Peak

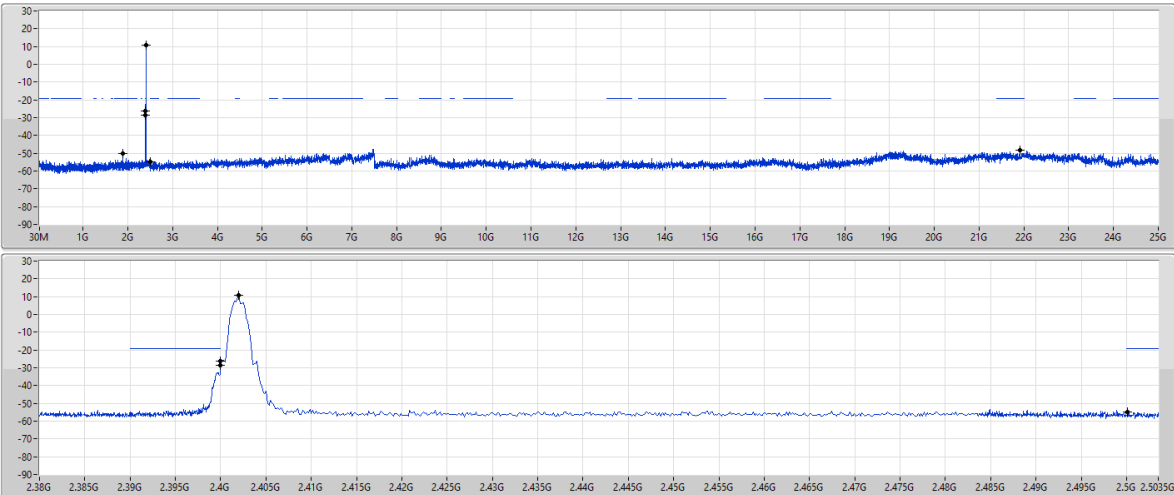


2.4-2.4835GHz_BT-LE(2Mbps)

CSEndB-DTS

2402MHz

RBW (Hz)
100k
VBW (Hz)
300k
Detector
Peak

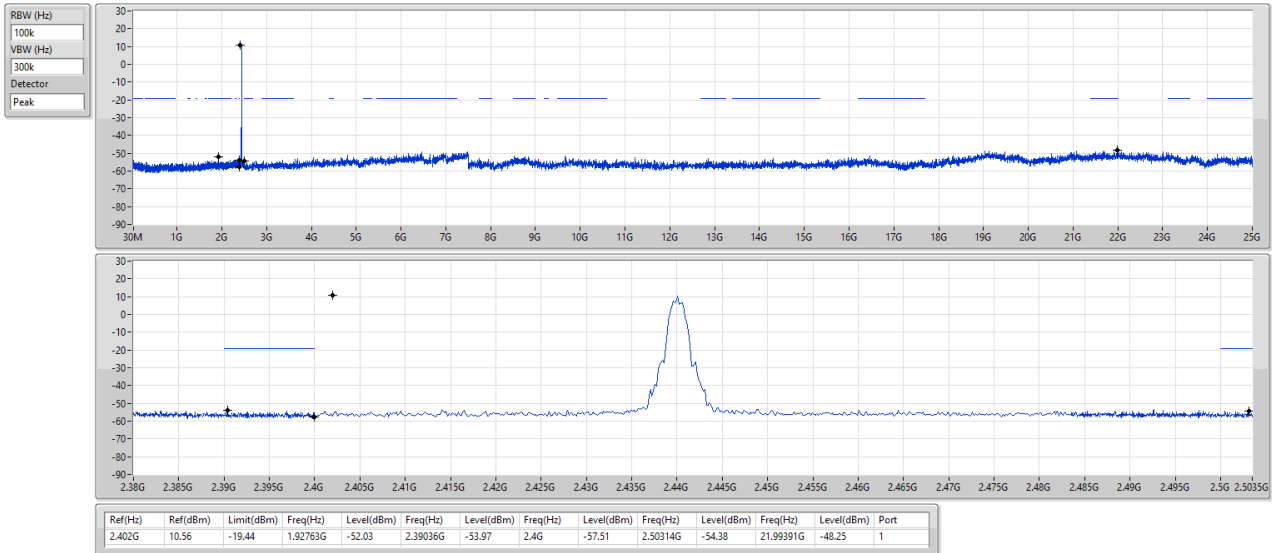


2.4-2.4835GHz_BT-LE(2Mbps)

CSEndB-DTS

2440MHz

10/05/2024

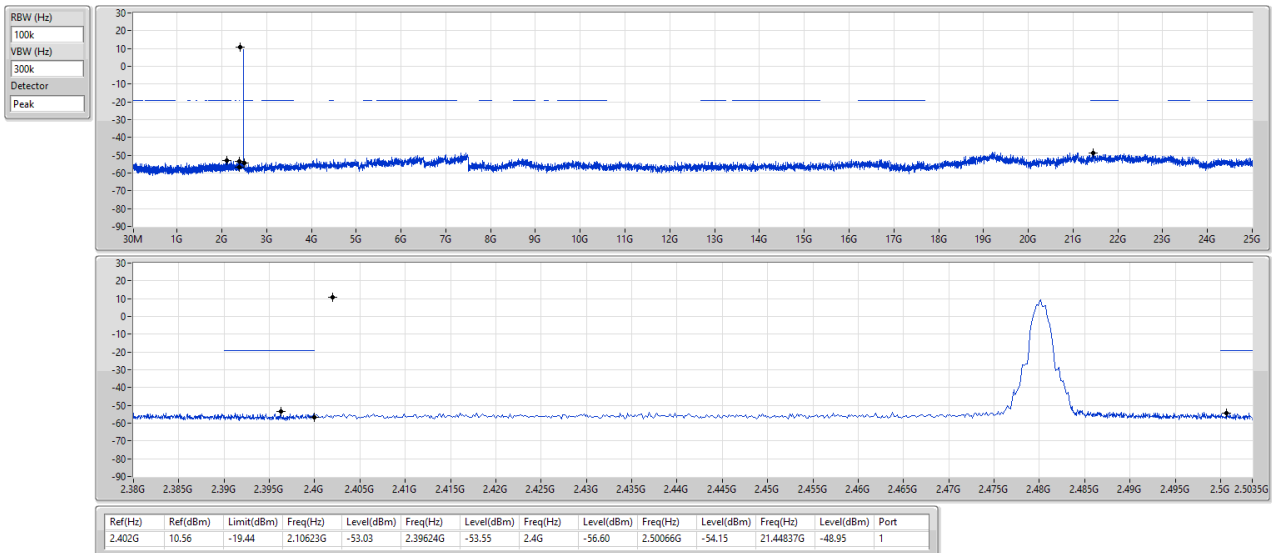


2.4-2.4835GHz_BT-LE(2Mbps)

CSEndB-DTS

2480MHz

10/05/2024





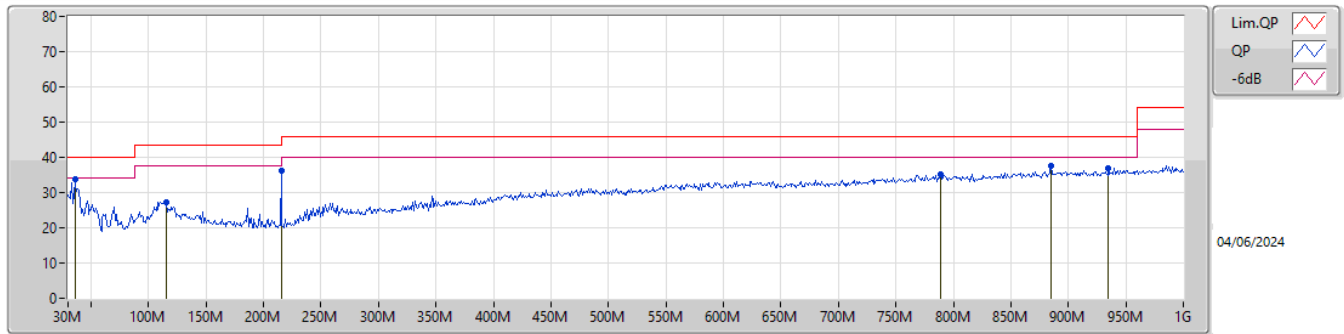
Radiated Emissions below 1GHz

Appendix E.1

Summary

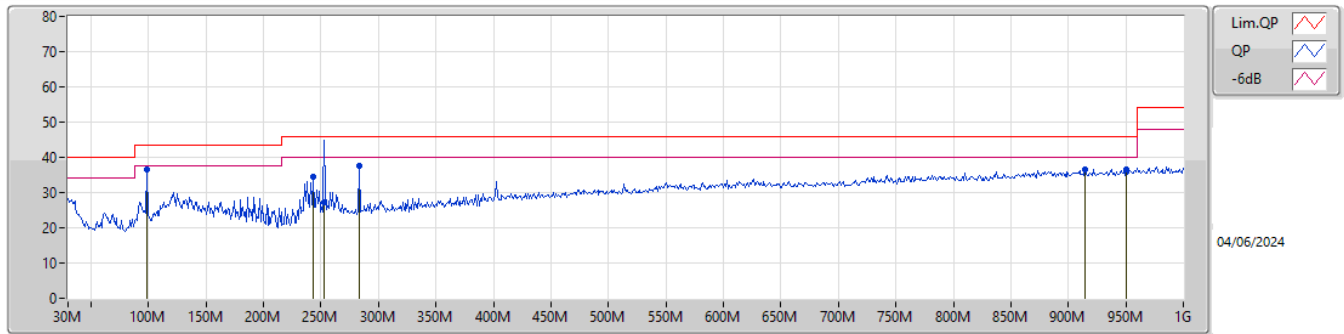
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 1	Pass	PK	35.82M	33.68	40.00	-6.32	Vertical

Mode 1



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB/m)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV/m)	AF (dB/m)	CL (dB)	PA (dB)		
PK	35.82M	33.68	40.00	-6.32	-9.13	3	Vertical	197	1.50	"Worst"	42.81	21.27	1.10	31.50		
PK	115.36M	27.25	43.50	-16.25	-11.82	3	Vertical	0	1.25	-	39.07	18.04	1.89	31.75		
PK	215.27M	36.23	43.50	-7.27	-14.31	3	Vertical	77	1.00	-	50.54	14.88	2.60	31.79		
PK	788.54M	35.06	46.00	-10.94	-1.16	3	Vertical	80	1.00	-	36.22	25.81	5.38	32.35		
PK	884.57M	37.73	46.00	-8.27	-0.22	3	Vertical	191	1.50	-	37.95	26.36	5.77	32.35		
PK	935.01M	36.88	46.00	-9.12	0.04	3	Vertical	358	3.00	-	36.84	26.42	5.94	32.32		

Mode 1



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB/m)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV/m)	AF (dB/m)	CL (dB)	PA (dB)		
PK	98.87M	36.42	43.50	-7.08	-13.37	3	Horizontal	360	3.00	"Worst"	49.79	16.63	1.74	31.74		
PK	243.4M	34.49	46.00	-11.51	-11.50	3	Horizontal	255	1.25	-	45.99	17.52	2.79	31.81		
QP	253.1M	27.35	46.00	-18.65	-10.35	3	Horizontal	111	3.00	-	37.70	18.62	2.85	31.82		
PK	283.17M	37.64	46.00	-8.36	-9.99	3	Horizontal	138	3.00	-	47.63	18.81	3.03	31.83		
PK	915M	36.58	46.00	-9.42	-0.08	3	Horizontal	110	3.00	-	36.66	26.39	5.88	32.35		
PK	950.53M	36.60	46.00	-9.40	0.30	3	Horizontal	322	1.25	-	36.30	26.62	5.98	32.30		

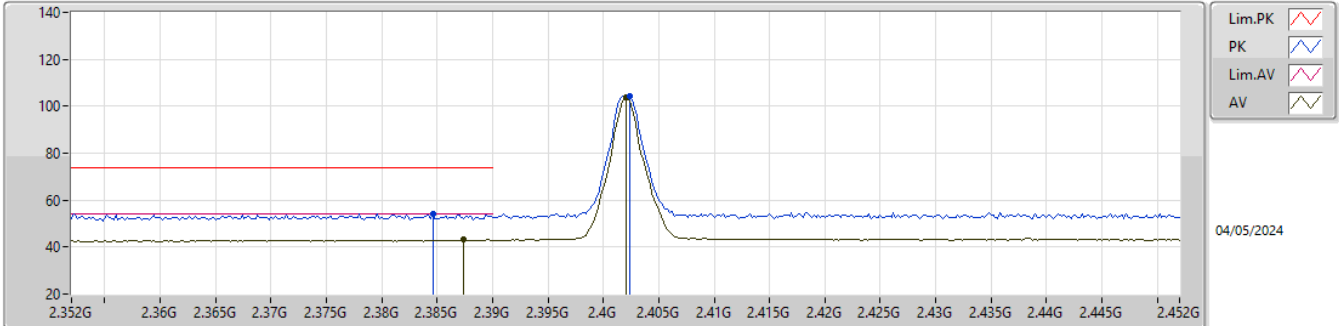


Summary

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	2.4835G	50.69	54.00	-3.31	3	Vertical	71	2.95	-

2.4-2.4835GHz_BT-LE(1Mbps)

2402MHz_TX

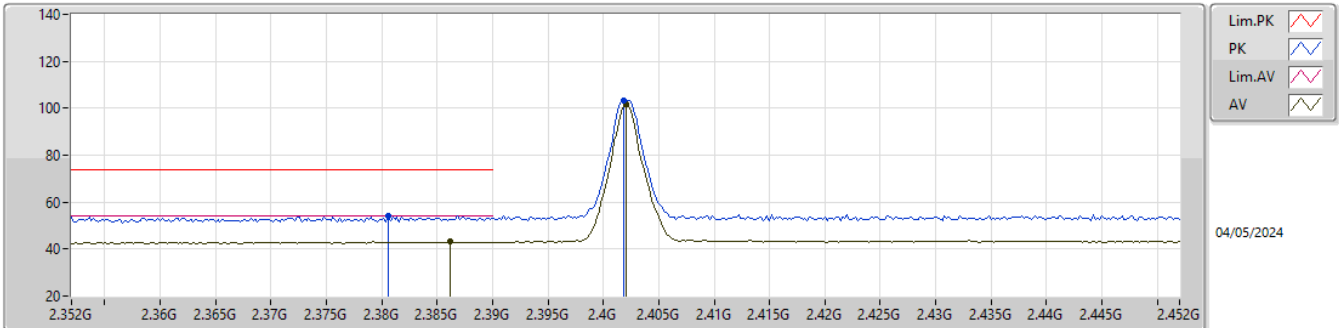


EUT_Z_1TX
Setting Default
04-E-E-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)				
PK	2.3846G	54.34	74.00	-19.66	23.60	3	Vertical	82	2.97	-	27.40	3.34	-				
AV	2.3874G	43.06	54.00	-10.94	12.32	3	Vertical	82	2.97	-	27.40	3.34	-				
PK	2.4024G	104.48	Inf	-Inf	73.63	3	Vertical	82	2.97	-	27.50	3.35	-				
AV	2.402G	103.68	Inf	-Inf	72.83	3	Vertical	82	2.97	-	27.50	3.35	-				

2.4-2.4835GHz_BT-LE(1Mbps)

2402MHz_TX

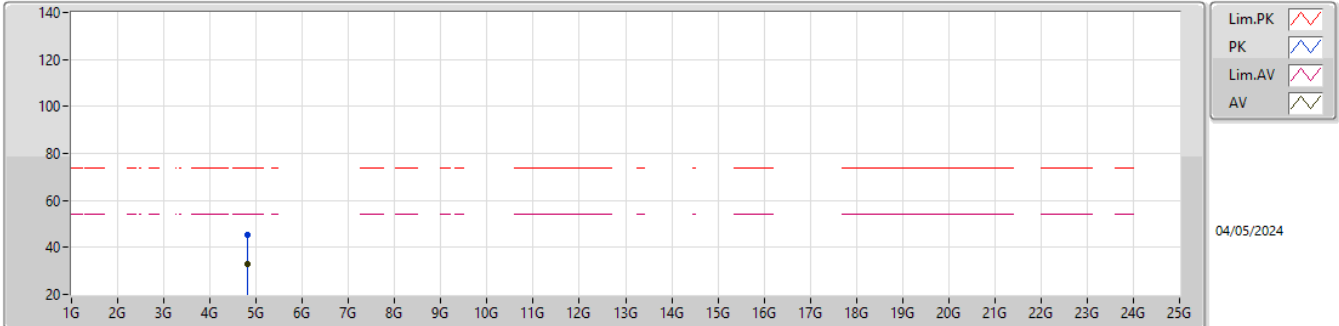


EUT_Z_1TX
Setting Default
04-E-E-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)				
PK	2.3806G	54.31	74.00	-19.69	23.57	3	Horizontal	45	2.52	-	27.40	3.34	-				
AV	2.3862G	43.06	54.00	-10.94	12.32	3	Horizontal	45	2.52	-	27.40	3.34	-				
PK	2.4018G	103.22	Inf	-Inf	72.37	3	Horizontal	45	2.52	-	27.50	3.35	-				
AV	2.402G	101.55	Inf	-Inf	70.70	3	Horizontal	45	2.52	-	27.50	3.35	-				

2.4-2.4835GHz_BT-LE(1Mbps)

2402MHz_TX

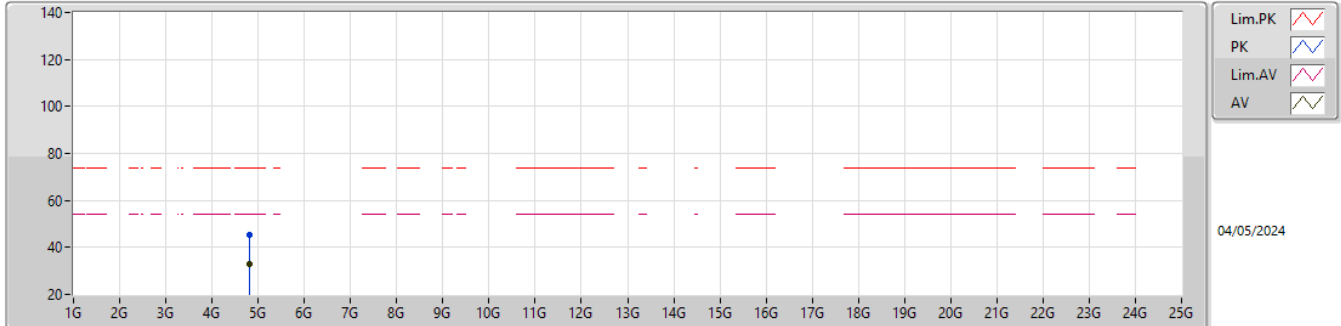


EUT_Z_1TX
Setting Default
04-E-E-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	4.81444G	45.47	74.00	-28.53	40.76	3	Vertical	55	1.26	-	32.33	5.66	33.28			
AV	4.81474G	32.96	54.00	-21.04	28.25	3	Vertical	55	1.26	-	32.33	5.66	33.28			

2.4-2.4835GHz_BT-LE(1Mbps)

2402MHz_TX

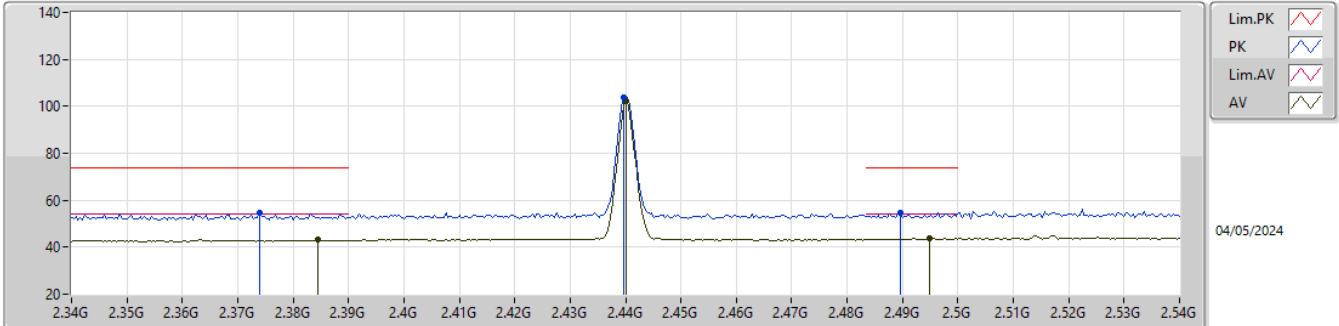


EUT_Z_1TX
Setting Default
04-E-E-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	4.80946G	45.50	74.00	-28.50	40.80	3	Horizontal	71	1.62	-	32.32	5.66	33.28			
AV	4.81504G	32.89	54.00	-21.11	28.18	3	Horizontal	71	1.62	-	32.33	5.66	33.28			

2.4-2.4835GHz_BT-LE(1Mbps)

2440MHz_TX

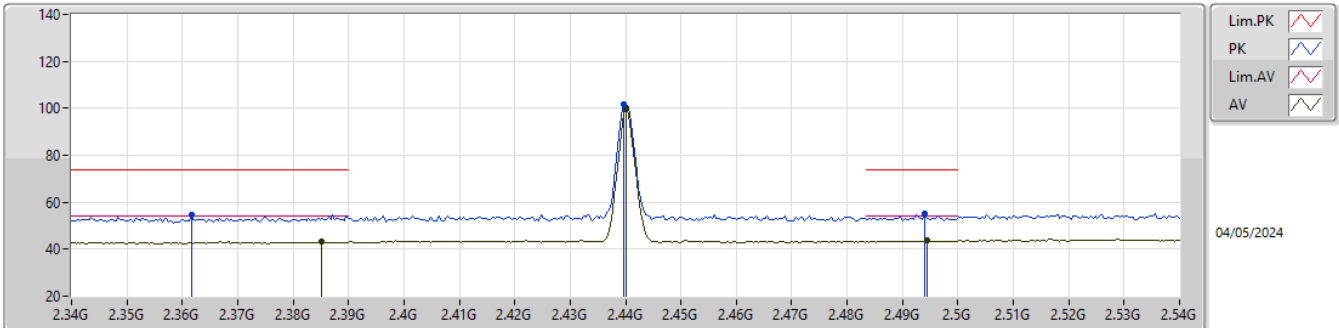


EUT_Z_1TX
Setting Default
04-E-E-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)				
PK	2.374G	54.66	74.00	-19.34	23.86	3	Vertical	-0	2.07	-	27.46	3.34	-				
AV	2.3844G	43.04	54.00	-10.96	12.30	3	Vertical	-0	2.07	-	27.40	3.34	-				
PK	2.4396G	104.01	Inf	-Inf	73.04	3	Vertical	-0	2.07	-	27.60	3.37	-				
AV	2.44G	102.27	Inf	-Inf	71.30	3	Vertical	-0	2.07	-	27.60	3.37	-				
PK	2.4896G	54.53	74.00	-19.47	23.43	3	Vertical	-0	2.07	-	27.70	3.40	-				
AV	2.4948G	43.72	54.00	-10.28	12.62	3	Vertical	-0	2.07	-	27.70	3.40	-				

2.4-2.4835GHz_BT-LE(1Mbps)

2440MHz_TX

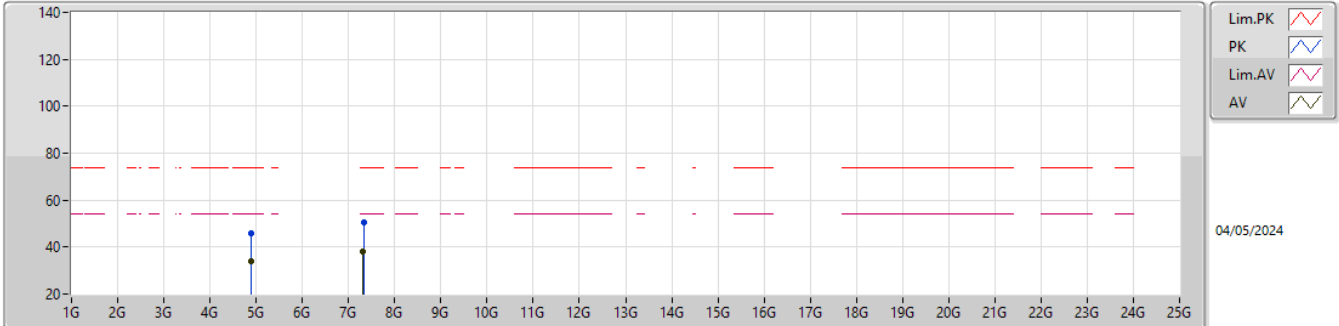


EUT_Z_1TX
Setting Default
04-E-E-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	2.3616G	54.71	74.00	-19.29	23.96	3	Horizontal	46	2.73	-	27.42	3.33	-			
AV	2.3852G	43.13	54.00	-10.87	12.39	3	Horizontal	46	2.73	-	27.40	3.34	-			
PK	2.4396G	101.51	Inf	-Inf	70.54	3	Horizontal	46	2.73	-	27.60	3.37	-			
AV	2.44G	100.05	Inf	-Inf	69.08	3	Horizontal	46	2.73	-	27.60	3.37	-			
PK	2.494G	54.93	74.00	-19.07	23.83	3	Horizontal	46	2.73	-	27.70	3.40	-			
AV	2.4944G	43.58	54.00	-10.42	12.48	3	Horizontal	46	2.73	-	27.70	3.40	-			

2.4-2.4835GHz_BT-LE(1Mbps)

2440MHz_TX

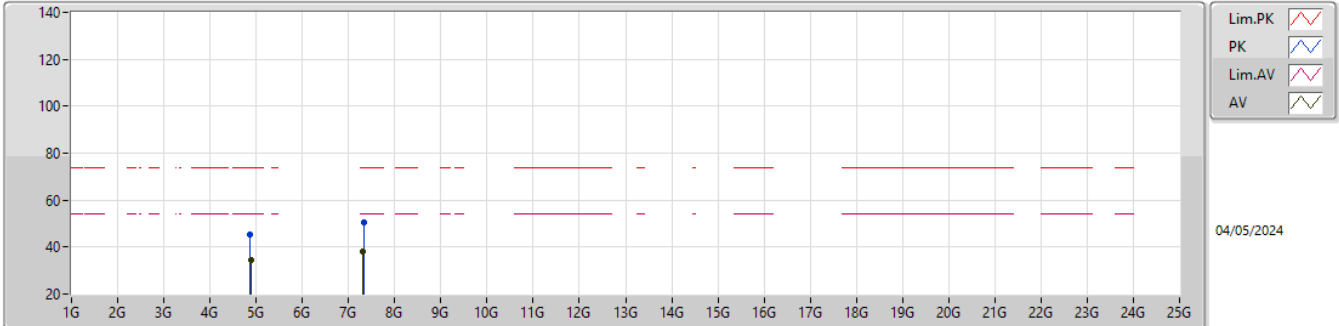


EUT_Z_1TX
Setting Default
04-E-E-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	4.87958G	45.65	74.00	-28.35	40.66	3	Vertical	343	2.22	-	32.52	5.72	33.25			
AV	4.88006G	34.04	54.00	-19.96	29.05	3	Vertical	343	2.22	-	32.52	5.72	33.25			
PK	7.3311G	50.48	74.00	-23.52	40.25	3	Vertical	-0	1.80	-	37.20	7.13	34.10			
AV	7.30908G	38.27	54.00	-15.73	28.04	3	Vertical	-0	1.80	-	37.20	7.12	34.09			

2.4-2.4835GHz_BT-LE(1Mbps)

2440MHz_TX

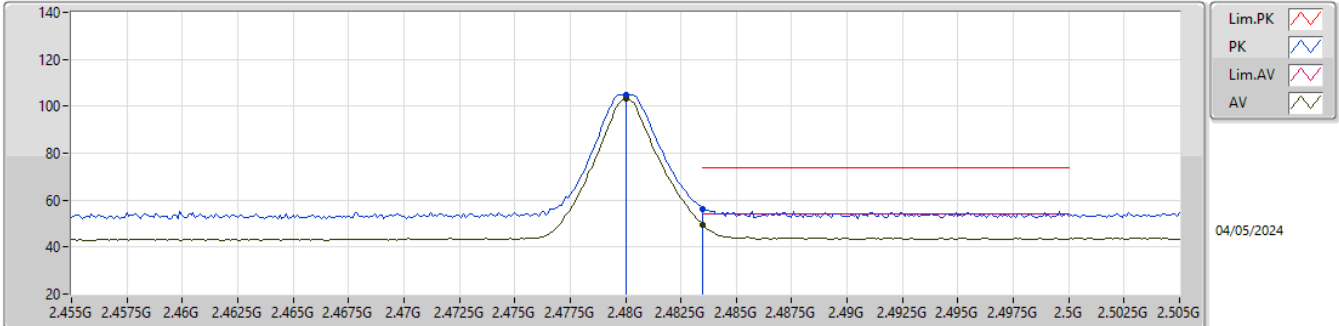


EUT_Z_1TX
Setting Default
04-E-E-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	4.8764G	45.50	74.00	-28.50	40.52	3	Horizontal	342	2.06	-	32.51	5.72	33.25			
AV	4.87958G	34.29	54.00	-19.71	29.30	3	Horizontal	342	2.06	-	32.52	5.72	33.25			
PK	7.33164G	50.43	74.00	-23.57	40.20	3	Horizontal	200	2.68	-	37.20	7.13	34.10			
AV	7.31046G	38.24	54.00	-15.76	28.01	3	Horizontal	200	2.68	-	37.20	7.12	34.09			

2.4-2.4835GHz_BT-LE(1Mbps)

2480MHz_TX

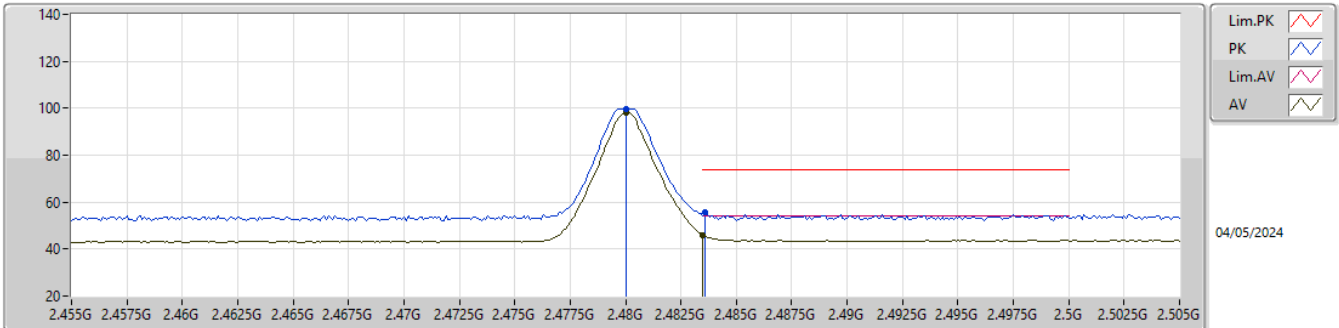


EUT_Z_1TX
Setting Default
04-E-E-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	2.48G	104.89	Inf	-Inf	73.90	3	Vertical	70	2.86	-	27.60	3.39	-			
AV	2.48G	103.40	Inf	-Inf	72.41	3	Vertical	70	2.86	-	27.60	3.39	-			
PK	2.4835G	56.36	74.00	-17.64	25.32	3	Vertical	70	2.86	-	27.64	3.40	-			
AV	2.4835G	49.23	54.00	-4.77	18.19	3	Vertical	70	2.86	-	27.64	3.40	-			

2.4-2.4835GHz_BT-LE(1Mbps)

2480MHz_TX

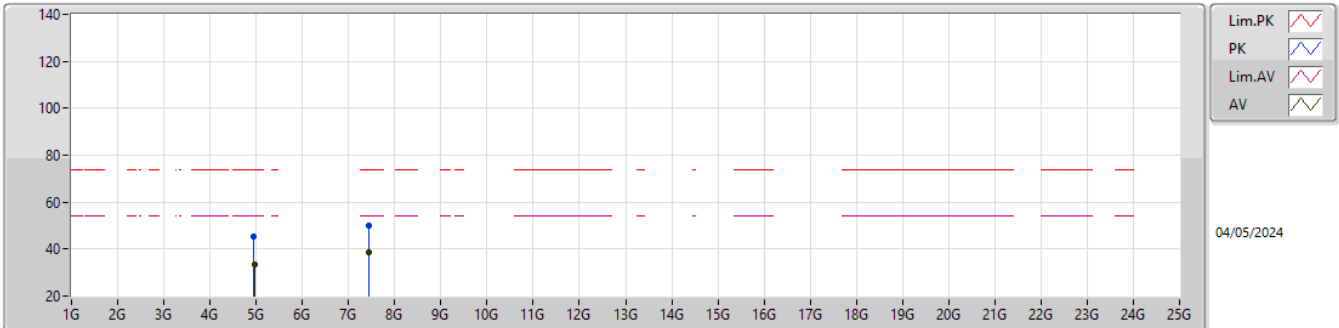


EUT_Z_1TX
Setting Default
04-E-E-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)				
PK	2.48G	99.83	Inf	-Inf	68.84	3	Horizontal	44	2.42	-	27.60	3.39	-				
AV	2.48G	98.35	Inf	-Inf	67.36	3	Horizontal	44	2.42	-	27.60	3.39	-				
PK	2.4836G	55.52	74.00	-18.48	24.48	3	Horizontal	44	2.42	-	27.64	3.40	-				
AV	2.4835G	45.77	54.00	-8.23	14.73	3	Horizontal	44	2.42	-	27.64	3.40	-				

2.4-2.4835GHz_BT-LE(1Mbps)

2480MHz_TX

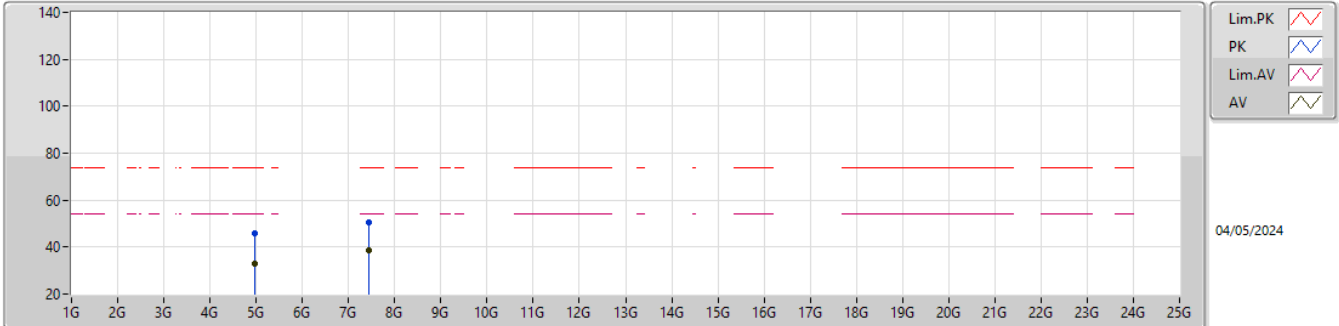


EUT_Z_1TX
Setting Default
04-E-E-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	4.94872G	45.19	74.00	-28.81	39.94	3	Vertical	45	1.88	-	32.70	5.78	33.23			
AV	4.97044G	33.20	54.00	-20.80	27.92	3	Vertical	45	1.88	-	32.70	5.80	33.22			
PK	7.43538G	50.23	74.00	-23.77	39.96	3	Vertical	6	2.49	-	37.20	7.21	34.14			
AV	7.44762G	38.63	54.00	-15.37	28.36	3	Vertical	6	2.49	-	37.20	7.22	34.15			

2.4-2.4835GHz_BT-LE(1Mbps)

2480MHz_TX

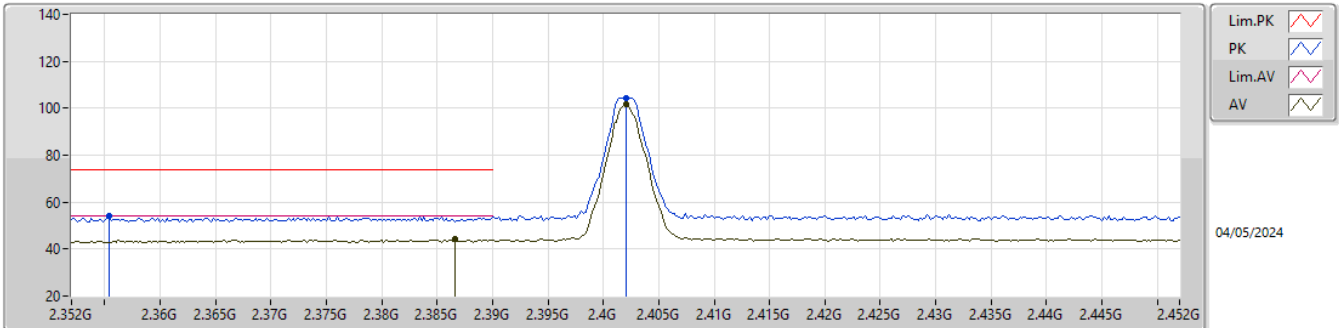


EUT_Z_1TX
Setting Default
04-E-E-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	4.96744G	45.78	74.00	-28.22	40.50	3	Horizontal	117	1.14	-	32.70	5.80	33.22			
AV	4.96354G	33.14	54.00	-20.86	27.86	3	Horizontal	117	1.14	-	32.70	5.80	33.22			
PK	7.4289G	50.64	74.00	-23.36	40.38	3	Horizontal	225	2.40	-	37.20	7.20	34.14			
AV	7.44522G	38.40	54.00	-15.60	28.13	3	Horizontal	225	2.40	-	37.20	7.22	34.15			

2.4-2.4835GHz_BT-LE(2Mbps)

2402MHz_TX

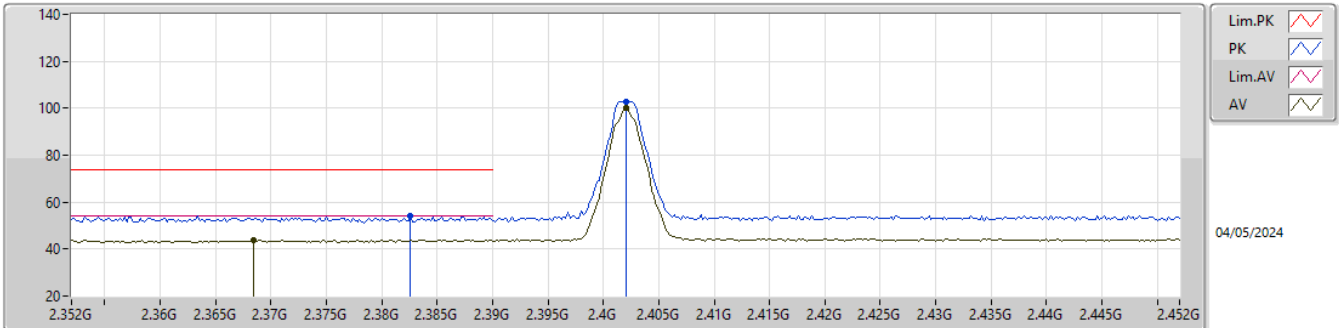


EUT_Z_1TX
Setting Default
04-E-E-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)				
PK	2.3554G	54.21	74.00	-19.79	23.48	3	Vertical	84	2.96	-	27.40	3.33	-				
AV	2.3866G	44.15	54.00	-9.85	13.41	3	Vertical	84	2.96	-	27.40	3.34	-				
PK	2.402G	104.54	Inf	-Inf	73.69	3	Vertical	84	2.96	-	27.50	3.35	-				
AV	2.402G	101.65	Inf	-Inf	70.80	3	Vertical	84	2.96	-	27.50	3.35	-				

2.4-2.4835GHz_BT-LE(2Mbps)

2402MHz_TX

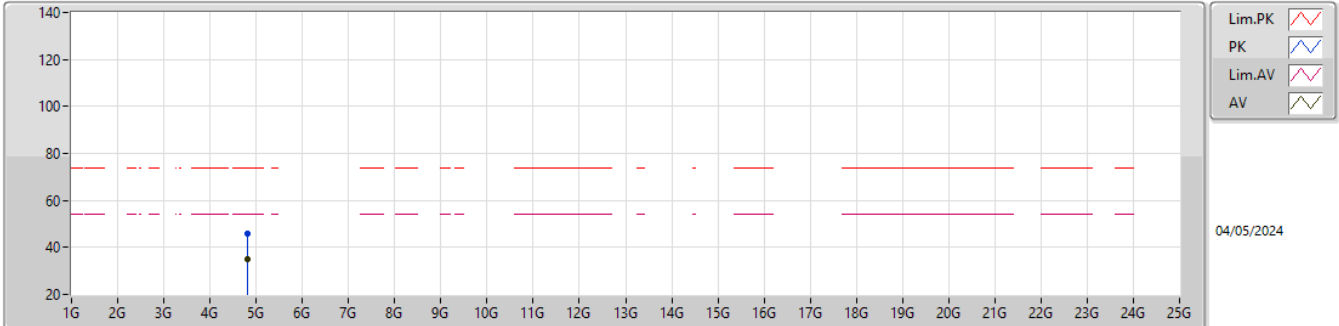


EUT_Z_1TX
Setting Default
04-E-E-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)				
PK	2.3826G	54.05	74.00	-19.95	23.31	3	Horizontal	39	2.80	-	27.40	3.34	-				
AV	2.3684G	44.02	54.00	-9.98	13.20	3	Horizontal	39	2.80	-	27.48	3.34	-				
PK	2.402G	102.82	Inf	-Inf	71.97	3	Horizontal	39	2.80	-	27.50	3.35	-				
AV	2.402G	100.00	Inf	-Inf	69.15	3	Horizontal	39	2.80	-	27.50	3.35	-				

2.4-2.4835GHz_BT-LE(2Mbps)

2402MHz_TX

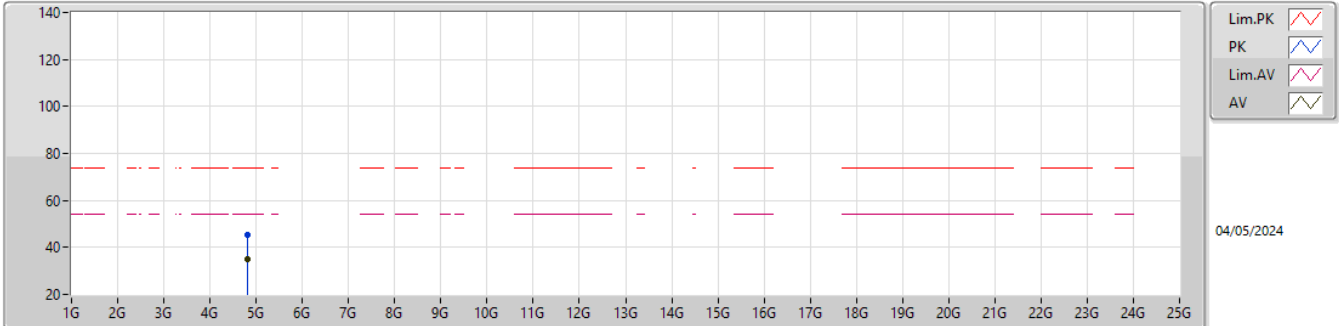


EUT_Z_1TX
Setting Default
04-E-E-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	4.81744G	45.78	74.00	-28.22	41.06	3	Vertical	151	2.14	-	32.33	5.67	33.28			
AV	4.8145G	34.75	54.00	-19.25	30.04	3	Vertical	151	2.14	-	32.33	5.66	33.28			

2.4-2.4835GHz_BT-LE(2Mbps)

2402MHz_TX

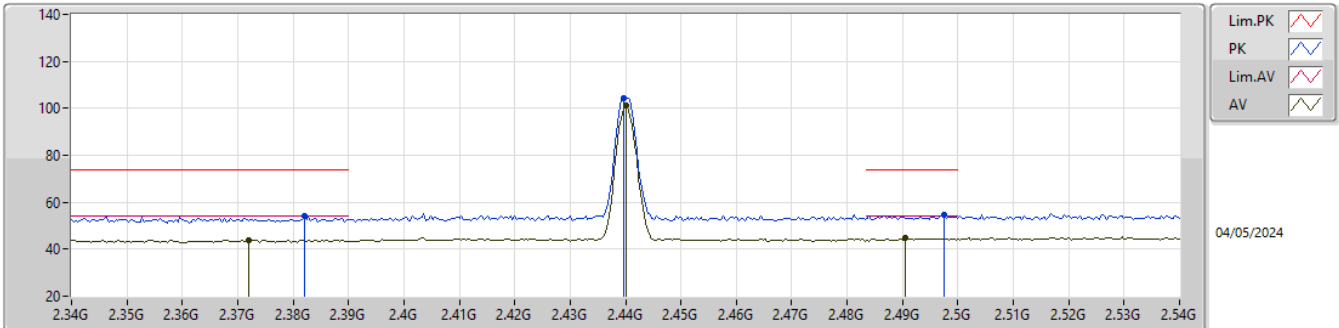


EUT_Z_1TX
Setting Default
04-E-E-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	4.81678G	45.47	74.00	-28.53	40.75	3	Horizontal	324	1.40	-	32.33	5.67	33.28			
AV	4.81618G	34.91	54.00	-19.09	30.20	3	Horizontal	324	1.40	-	32.33	5.66	33.28			

2.4-2.4835GHz_BT-LE(2Mbps)

2440MHz_TX

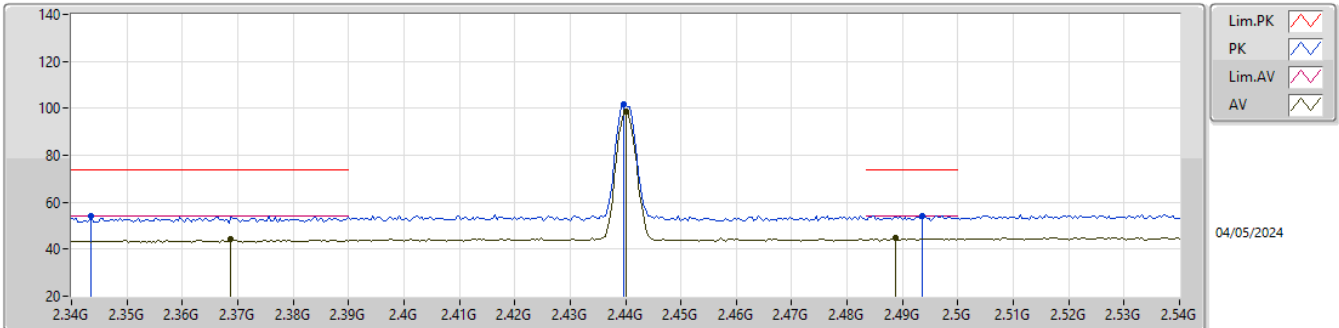


EUT_Z_1TX
Setting Default
04-E-E-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	2.382G	54.18	74.00	-19.82	23.44	3	Vertical	2	1.31	-	27.40	3.34	-			
AV	2.372G	43.92	54.00	-10.08	13.10	3	Vertical	2	1.31	-	27.48	3.34	-			
PK	2.4396G	104.34	Inf	-Inf	73.37	3	Vertical	2	1.31	-	27.60	3.37	-			
AV	2.44G	101.35	Inf	-Inf	70.38	3	Vertical	2	1.31	-	27.60	3.37	-			
PK	2.4976G	54.49	74.00	-19.51	23.39	3	Vertical	2	1.31	-	27.70	3.40	-			
AV	2.4904G	44.66	54.00	-9.34	13.56	3	Vertical	2	1.31	-	27.70	3.40	-			

2.4-2.4835GHz_BT-LE(2Mbps)

2440MHz_TX

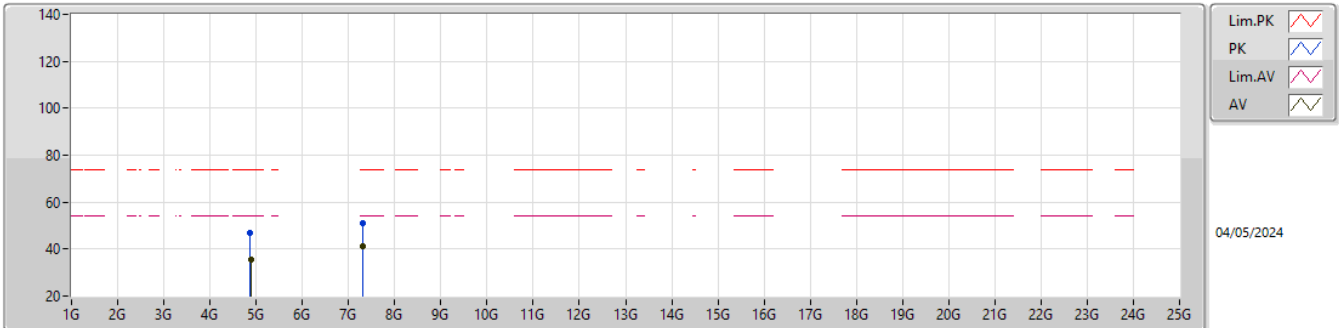


EUT_Z_1TX
Setting Default
04-E-E-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	2.3436G	54.21	74.00	-19.79	23.48	3	Horizontal	47	2.72	-	27.40	3.33	-			
AV	2.3688G	44.12	54.00	-9.88	13.29	3	Horizontal	47	2.72	-	27.49	3.34	-			
PK	2.4396G	101.65	Inf	-Inf	70.68	3	Horizontal	47	2.72	-	27.60	3.37	-			
AV	2.44G	98.74	Inf	-Inf	67.77	3	Horizontal	47	2.72	-	27.60	3.37	-			
PK	2.4936G	54.34	74.00	-19.66	23.24	3	Horizontal	47	2.72	-	27.70	3.40	-			
AV	2.4888G	44.93	54.00	-9.07	13.84	3	Horizontal	47	2.72	-	27.69	3.40	-			

2.4-2.4835GHz_BT-LE(2Mbps)

2440MHz_TX

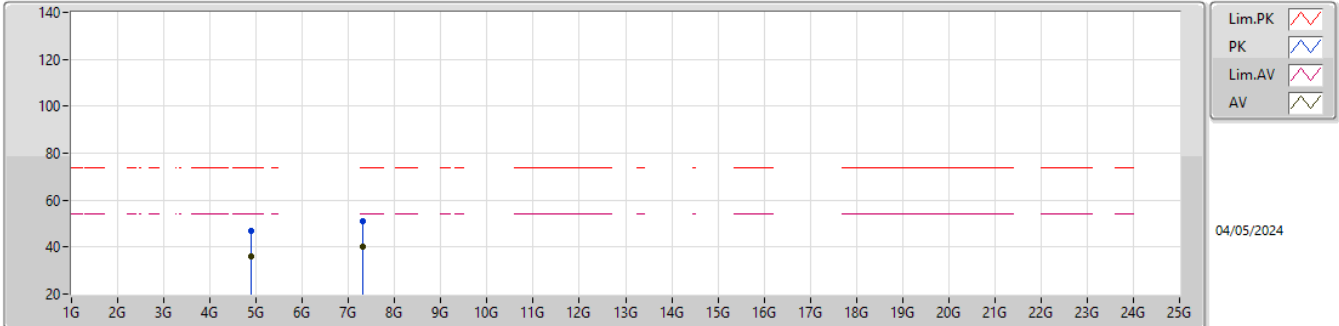


EUT_Z_1TX
Setting Default
04-E-E-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	4.8704G	46.77	74.00	-27.23	41.84	3	Vertical	86	1.80	-	32.48	5.71	33.26			
AV	4.88228G	35.71	54.00	-18.29	30.71	3	Vertical	86	1.80	-	32.53	5.72	33.25			
PK	7.3149G	51.23	74.00	-22.77	41.01	3	Vertical	68	1.80	-	37.20	7.12	34.10			
AV	7.305G	41.18	54.00	-12.82	30.95	3	Vertical	68	1.80	-	37.20	7.12	34.09			

2.4-2.4835GHz_BT-LE(2Mbps)

2440MHz_TX

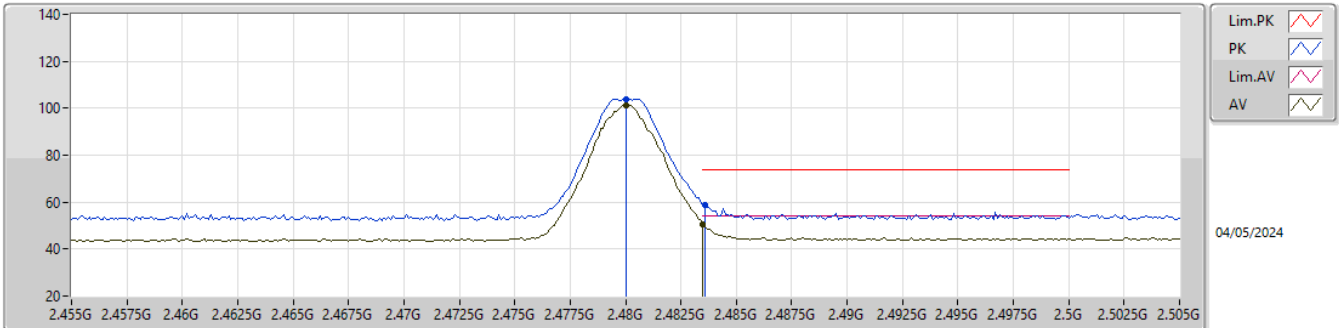


EUT_Z_1TX
Setting Default
04-E-E-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	4.89134G	46.85	74.00	-27.15	41.80	3	Horizontal	-0	1.03	-	32.57	5.73	33.25			
AV	4.88846G	35.95	54.00	-18.05	30.92	3	Horizontal	-0	1.03	-	32.55	5.73	33.25			
PK	7.30806G	50.94	74.00	-23.06	40.71	3	Horizontal	213	1.80	-	37.20	7.12	34.09			
AV	7.30524G	40.01	54.00	-13.99	29.78	3	Horizontal	213	1.80	-	37.20	7.12	34.09			

2.4-2.4835GHz_BT-LE(2Mbps)

2480MHz_TX

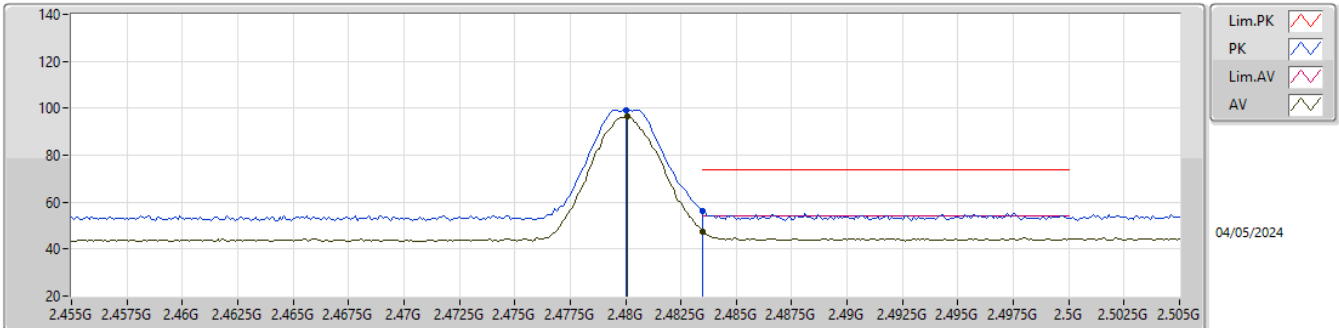


EUT_Z_1TX
Setting Default
04-E-E-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	2.48G	103.97	Inf	-Inf	72.98	3	Vertical	71	2.95	-	27.60	3.39	-			
AV	2.48G	101.38	Inf	-Inf	70.39	3	Vertical	71	2.95	-	27.60	3.39	-			
PK	2.4836G	58.62	74.00	-15.38	27.58	3	Vertical	71	2.95	-	27.64	3.40	-			
AV	2.4835G	50.69	54.00	-3.31	19.65	3	Vertical	71	2.95	-	27.64	3.40	-			

2.4-2.4835GHz_BT-LE(2Mbps)

2480MHz_TX

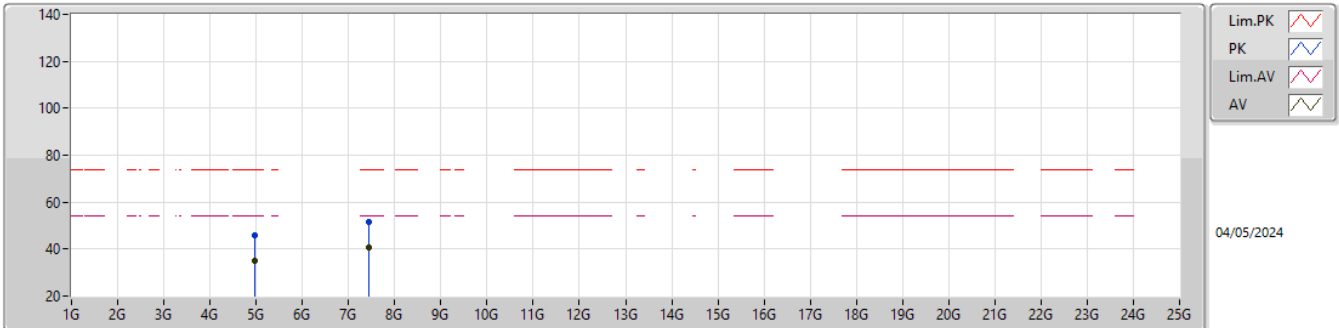


EUT_Z_1TX
Setting Default
04-E-E-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)				
PK	2.48G	99.29	Inf	-Inf	68.30	3	Horizontal	46	3.00	-	27.60	3.39	-				
AV	2.4801G	96.38	Inf	-Inf	65.39	3	Horizontal	46	3.00	-	27.60	3.39	-				
PK	2.4835G	56.22	74.00	-17.78	25.18	3	Horizontal	46	3.00	-	27.64	3.40	-				
AV	2.4835G	47.33	54.00	-6.67	16.29	3	Horizontal	46	3.00	-	27.64	3.40	-				

2.4-2.4835GHz_BT-LE(2Mbps)

2480MHz_TX

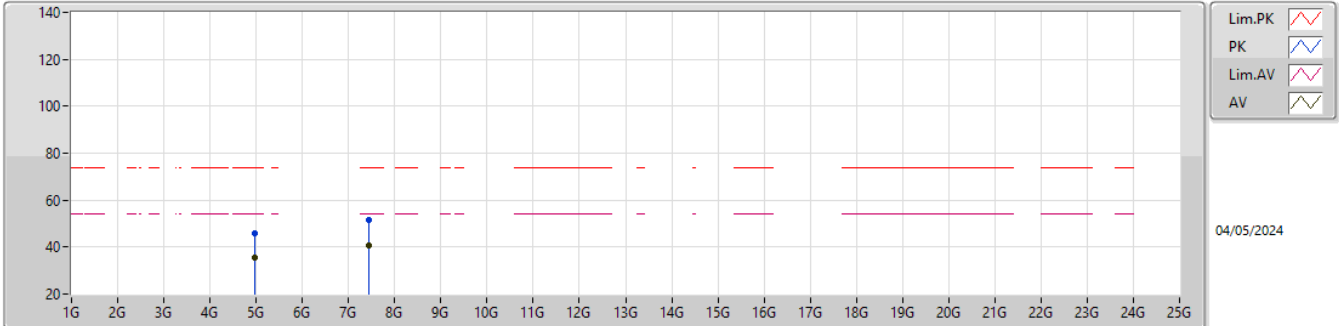


EUT_Z_1TX
Setting Default
04-E-E-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	4.972G	45.71	74.00	-28.29	40.43	3	Vertical	35	1.55	-	32.70	5.80	33.22			
AV	4.97338G	35.25	54.00	-18.75	29.96	3	Vertical	35	1.55	-	32.70	5.81	33.22			
PK	7.4391G	51.53	74.00	-22.47	41.27	3	Vertical	75	1.27	-	37.20	7.21	34.15			
AV	7.428G	40.64	54.00	-13.36	30.38	3	Vertical	75	1.27	-	37.20	7.20	34.14			

2.4-2.4835GHz_BT-LE(2Mbps)

2480MHz_TX



EUT_Z_1TX
Setting Default
04-E-E-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	4.96372G	45.62	74.00	-28.38	40.34	3	Horizontal	258	1.04	-	32.70	5.80	33.22			
AV	4.96288G	35.46	54.00	-18.54	30.18	3	Horizontal	258	1.04	-	32.70	5.80	33.22			
PK	7.45074G	51.31	74.00	-22.69	41.04	3	Horizontal	283	1.99	-	37.20	7.22	34.15			
AV	7.43184G	40.54	54.00	-13.46	30.28	3	Horizontal	283	1.99	-	37.20	7.20	34.14			