



RADIO TEST REPORT

FCC ID : ZQ6-AP6256
Equipment : Wi-Fi/Bluetooth Module
Brand Name : AMPAK Technology Inc.
Model Name : AP6256
Applicant : AMPAK Technology Inc.
3F, No. 1, Jen Ai Road, Hsinchu Industrial
Park, Hsinchu City 30352, Taiwan (R.O.C.)
Manufacturer : Billinton Systems Inc
No. 21, Shuili Rd., East Dist., Hsinchu City 300053,
Taiwan (R.O.C.)
Standard : 47 CFR FCC Part 15.247

The product was received on Feb. 20, 2024, and testing was started from Feb. 20, 2024 and completed on Apr. 26, 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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TEL : 886-3-656-9065
FAX : 886-3-656-9085
Report Template No.: CB-A10_6 Ver1.3



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	-

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: Sophia Shiung**



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.	Port	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	1	PULSE ELECTRONICS PTE LTD	TZ2412W	Dipole	Reversed-SMA	Note 1

Note 1:

Ant.	Gain (dBi)		
	WLAN 2.4GHz	WLAN 5GHz	Bluetooth
1	3.68	4.65	3.68

Note 2: The above information was declared by manufacturer.

Note 3: **For 2.4GHz function:**

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

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

For 5GHz function:

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

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

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)	0.625	2.04	390.625u	3k
BT-LE(2Mbps)	0.33	4.81	206.25u	10k

Note:

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

1.1.4 EUT Operational Condition

EUT Power Type	From host system			
Function	☒	Point-to-multipoint	☐	Point-to-point
Test Software Version	For Emissions in Restricted Frequency Bands < 1GHz: DOS [ver 6.1.7601] For other test items: BlueTool (ver 1.9.7.4)			
Support Mode	☒	LE 1M PHY: 1 Mb/s		
	☐	LE Coded PHY (S=2): 500 Kb/s		
	☐	LE Coded PHY (S=8): 125 Kb/s		
	☒	LE 2M PHY: 2 Mb/s		

Note: The above information was declared by manufacturer.



1.2 Applicable Standards

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

- ♦ 47 CFR FCC Part 15.247
- ♦ 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 ADD: No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302010, Taiwan (R.O.C.)				
(TAF: 3787) TEL: 886-3-656-9065 FAX: 886-3-656-9085				
Test site Designation No. TW3787 with FCC.				
Conformity Assessment Body Identifier (CABID) TW3787 with ISED.				

Test Condition	Test Site No.	Test Engineer	Test Environment (°C / %)	Test Date
RF Conducted	TH03-CB	Nyle Chang	21.5~22.9 / 66~69	Feb. 21, 2024~ Feb. 27, 2024
Radiated < 1GHz	03CH05-CB	Roy Mai	21.9~22.4 / 55~58	Feb. 20, 2024~ Apr. 26, 2024
Radiated > 1GHz	03CH06-CB	Roy Mai	21.4~22.5 / 55~58	Feb. 20, 2024~ Apr. 26, 2024
AC Conduction	CO01-CB	Bob Chang	22~23 / 50~51	Mar. 21, 2024~ Apr. 22, 2024

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)	3.7 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%

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	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral Test Voltage: 120Vac / 60Hz
Operating Mode	CTX
1	EUT_Bluetooth
2	EUT_WLAN 2.4GHz
3	EUT_WLAN 5GHz
For operating, mode 2 is the worst case and it was recorded 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

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
	The EUT was performed at X axis, Y axis and Z axis positions with each function at Radiated measurement > 1GH, and the worst cases were found at Y axis for WLAN 2.4GHz, X axis for Bluetooth, and Z axis for WLAN 5GHz. Thus, the measurement will follow these same test configurations.
1	EUT in X axis_Bluetooth
2	EUT in Y axis_WLAN 2.4GHz
3	EUT in Z axis_WLAN 5GHz
For operating, mode 2 is the worst case and it was recorded in this test report.	
Operating Mode > 1GHz	CTX
	The EUT was performed at X axis, Y axis and Z axis positions, and the worst case was found at X axis. Thus, the measurement will follow this same test configuration.
1	EUT in X axis

2.3 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

2.4 Accessories

N/A



2.5 Support Equipment

For AC Conduction:

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	WIFI Fixture	AMPAK Technology Inc.	A113D_EVB_V01	N/A
B	EUT Fixture	AMPAK Technology Inc.	AP6256	N/A
C	Power Supply	MOTECH	LPS-305	N/A
D	AP Router NB	DELL	E6430	N/A
E	AP Router	TP-LINK	Archer C54	N/A

For Radiated < 1GHz:

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	EUT Fixture	AMPAK Technology Inc.	AP6256	N/A
B	WIFI Fixture	AMPAK Technology Inc.	A113D_EVB_V01	N/A
C	USB adapter	HANG	C6	N/A
D	DC Power Supply	MOTECH	LPS-305	N/A

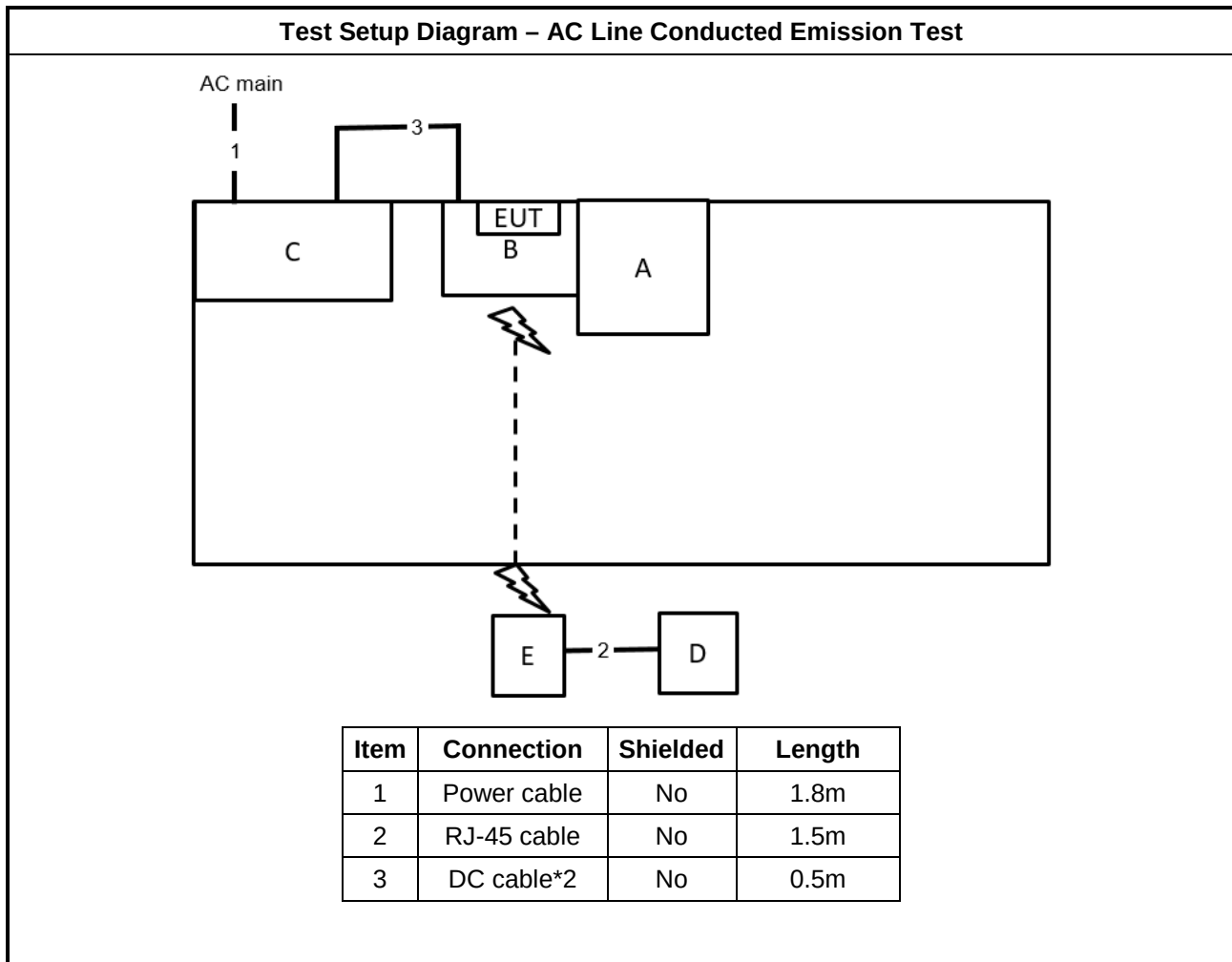
For Radiated > 1GHz:

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	EUT Fixture	AMPAK Technology Inc.	AP6256	N/A
B	BT Fixture	AMPAK Technology Inc.	UART_V07	N/A
C	USB adapter	HANG	C6	N/A

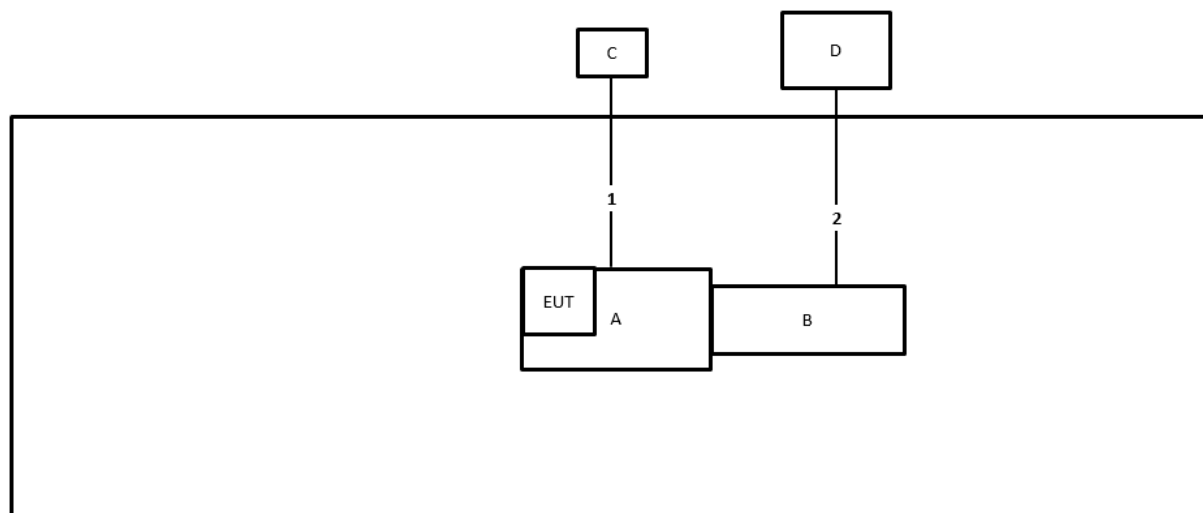
For RF Conducted:

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	EUT Fixture	AMPAK Technology Inc.	AP6256	N/A
B	BT Fixture	AMPAK Technology Inc.	UART_V07	N/A
C	PC	AMPAK Technology Inc.	H81-PLUS	N/A

2.6 Test Setup Diagram

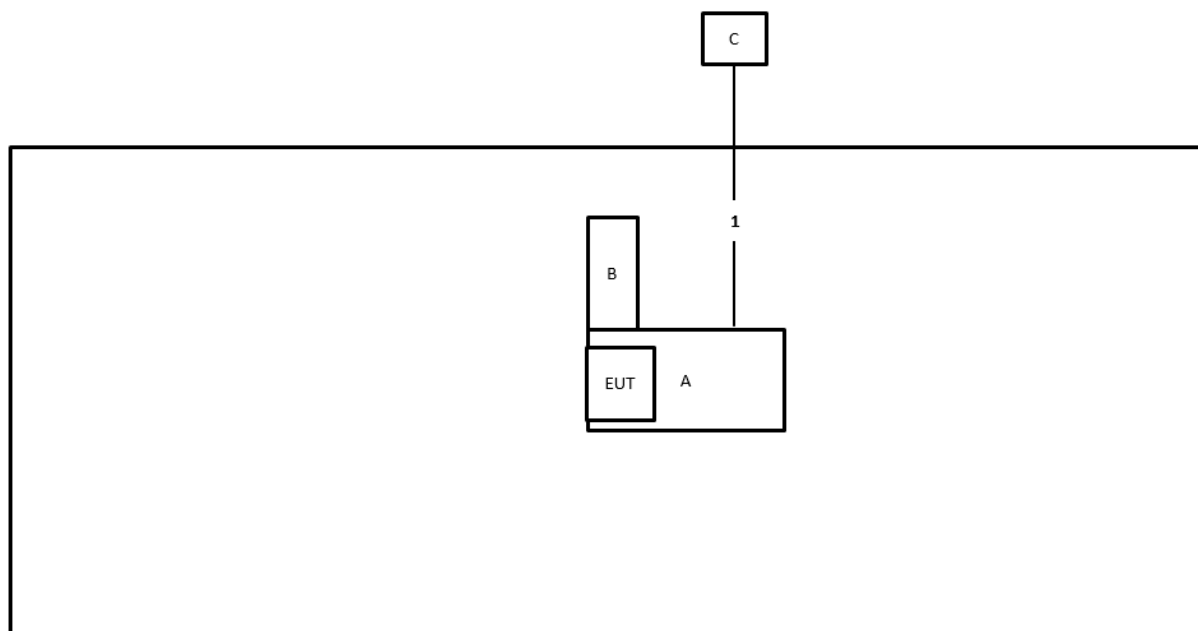


Test Setup Diagram - Radiated Test < 1GHz



Item	Connection	Shielded	Length
1	USB cable	Yes	1.5m
2	DC cable*2	No	0.2m

Test Setup Diagram - Radiated Test > 1GHz



Item	Connection	Shielded	Length
1	USB cable	Yes	1.5m



3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

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

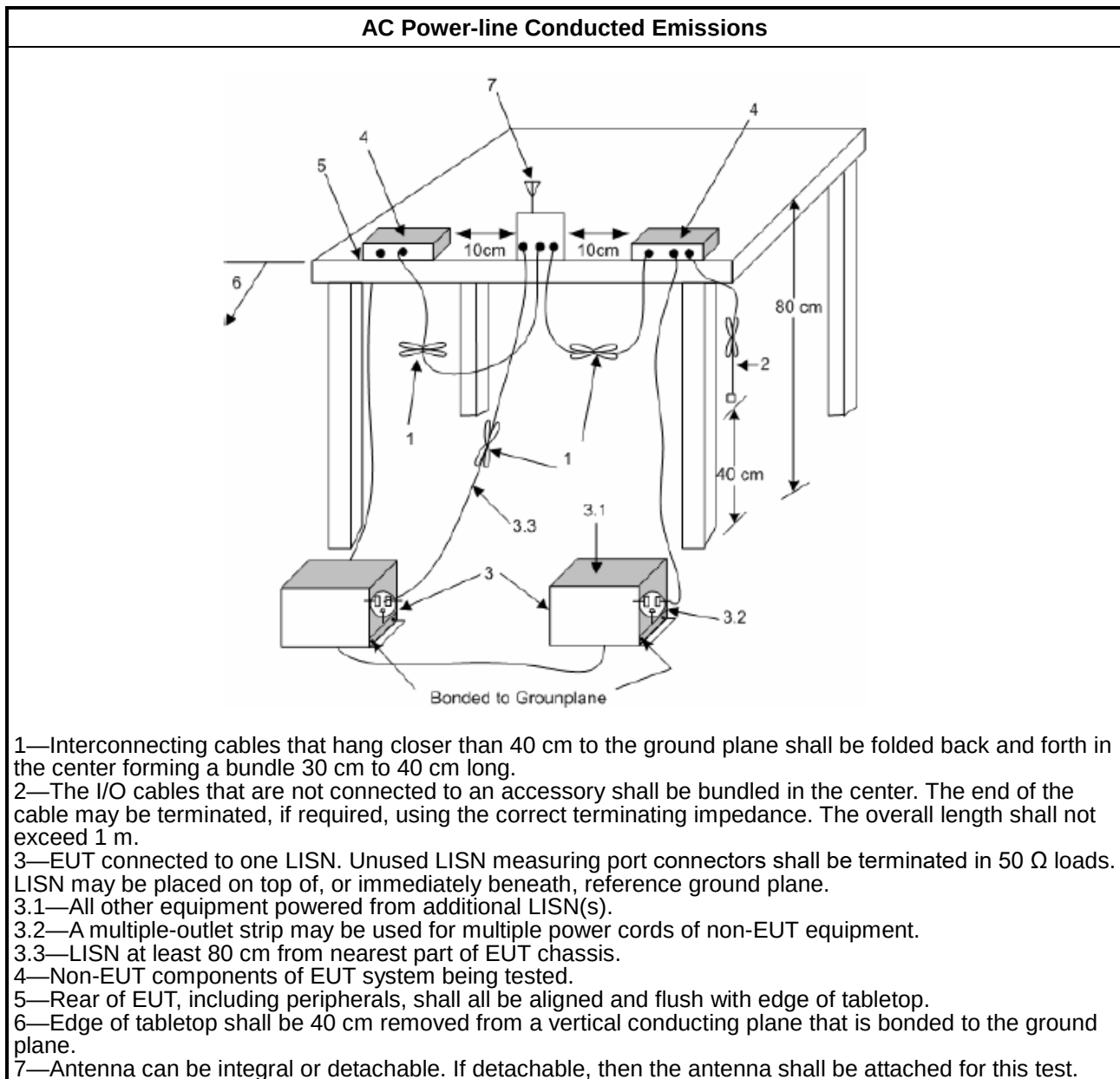
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

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

3.1.4 Test Setup



1.1.1. Measurement Results Calculation

The measured Level is calculated using:

- Corrected Reading: LISN Factor (LISN) + Attenuator (AT/AUX) + Cable Loss (CL) + Read Level (Raw) = Level
- 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 $\geq$ 500 kHz.

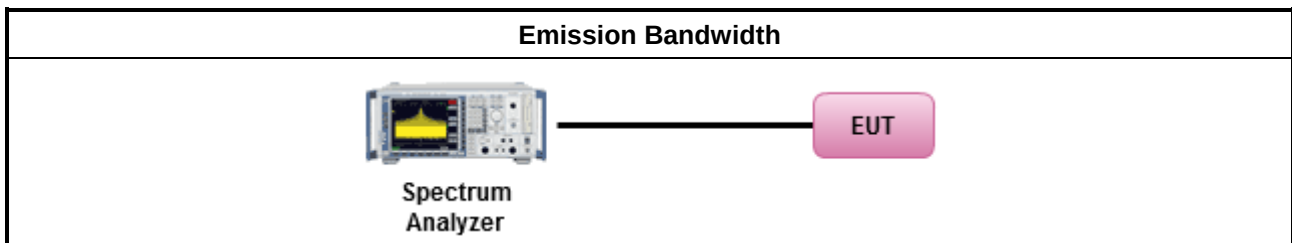
3.2.2 Measuring Instruments

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



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 $\geq$ 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 $\geq 98\%$ 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:

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

$$\text{EIRP}_{\text{total}} = P_{\text{total}} + \text{DG}$$

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

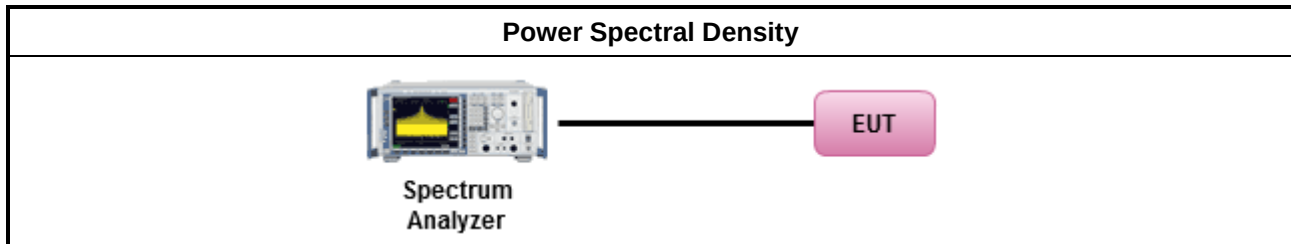
3.4.2 Measuring Instruments

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 $\geq 98\%$ 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.

3.4.4 Test Setup



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.	

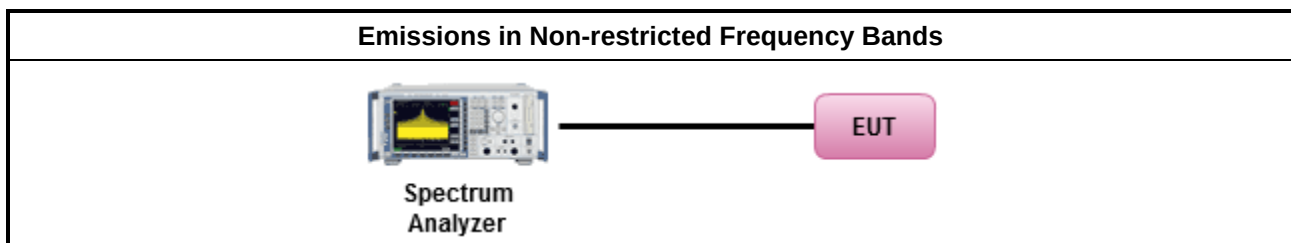
3.5.2 Measuring Instruments

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



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 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.

3.6.2 Measuring Instruments

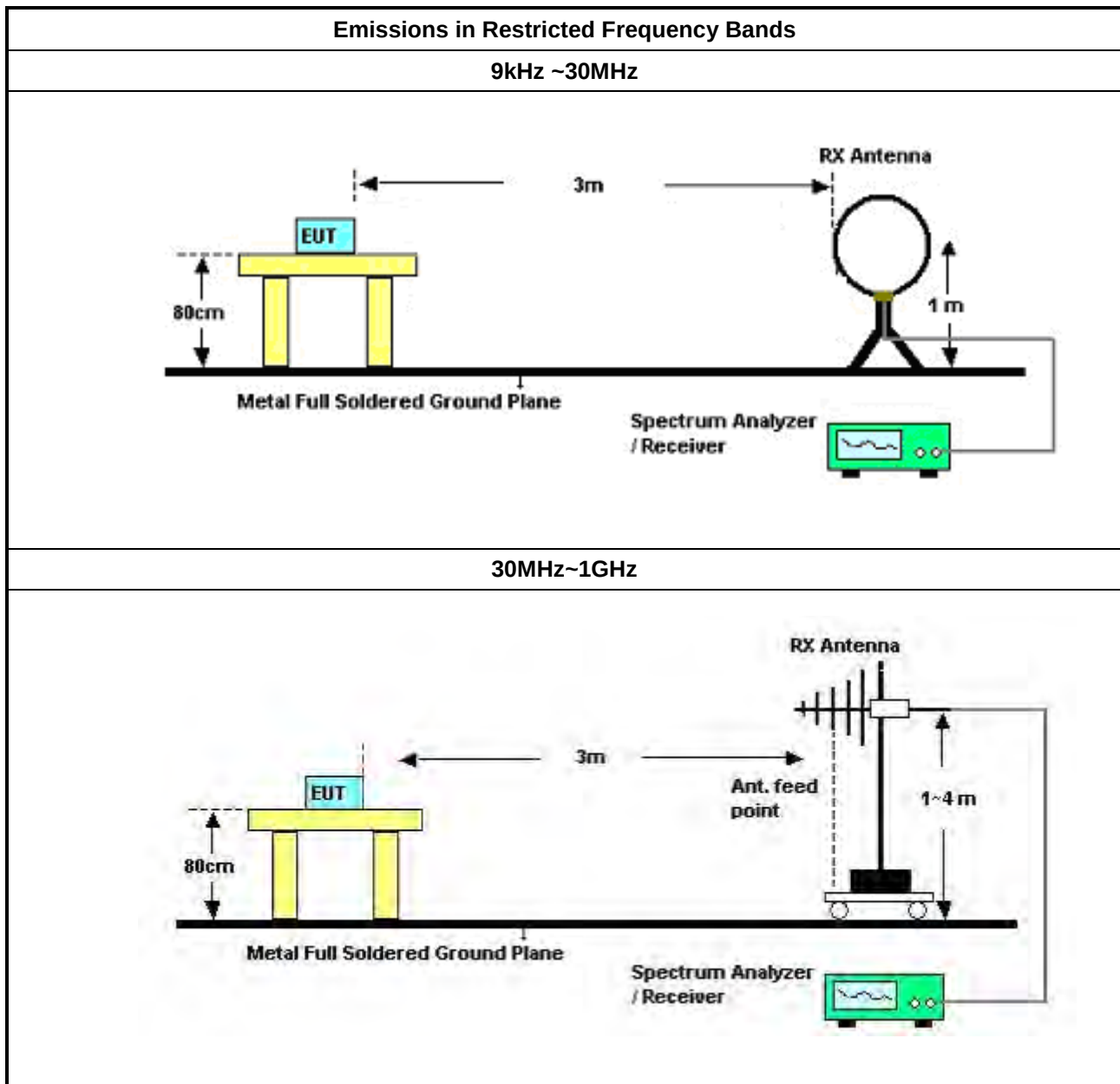
Refer a test equipment and calibration data table in this test report.

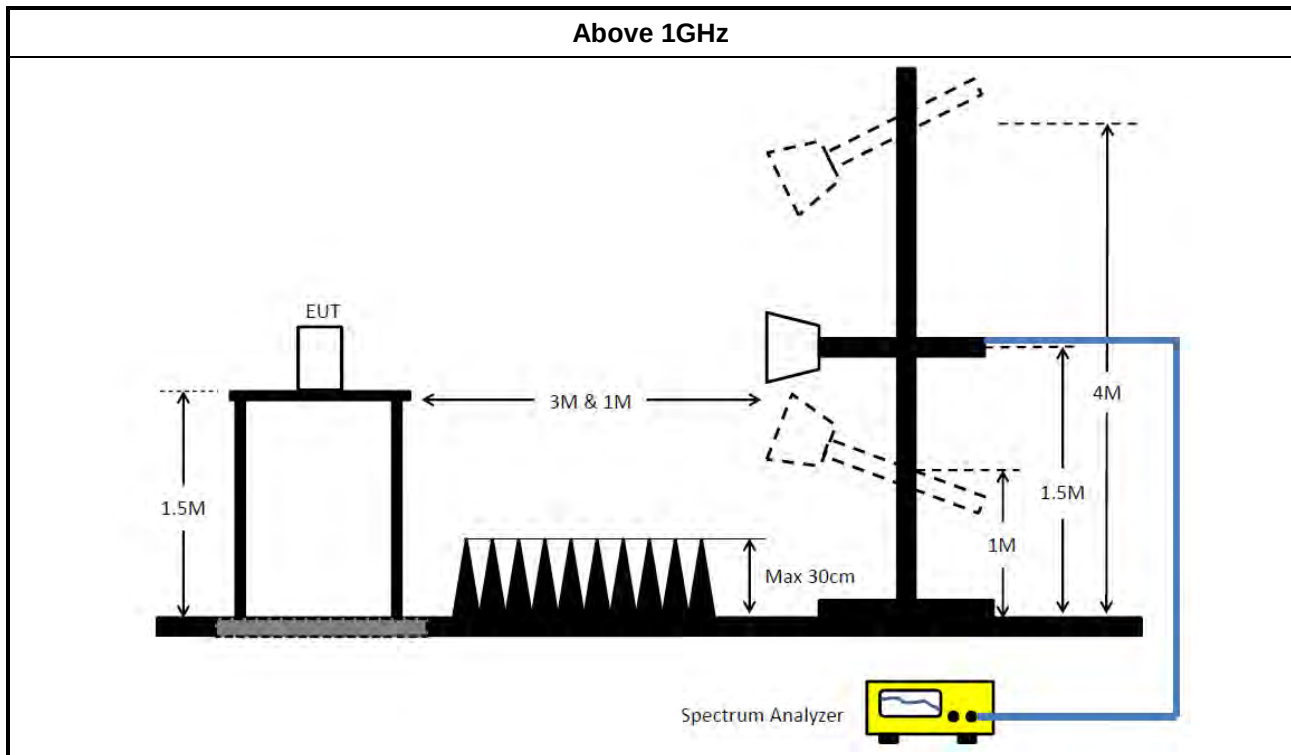


3.6.3 Test Procedures

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 $\geq 98\%$).
	☐ 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.

3.6.4 Test Setup





3.6.5 Measurement Results Calculation

The measured Level is calculated using:

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

3.6.6 Emissions in Restricted Frequency Bands (Below 30MHz)

There is a comparison data of both open-field test site and alternative test site - semi-Anechoic chamber according to KDB414788 Radiated Test Site, and the result came out very similar.

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

The radiated emissions were investigated from 9 kHz or the lowest frequency generated within the device, up to the 10th harmonic or 40 GHz, whichever is appropriate.

3.6.7 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix F



4 Test Equipment and Calibration Data

Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.4GHz	Mar. 01, 2024	Feb. 28, 2025	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Feb. 19, 2024	Feb. 18, 2025	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Apr. 27, 2023	Apr. 26, 2024	Conduction (CO01-CB)
Pulse Limiter	Rohde&Schwarz	ESH3-Z2	100430	9kHz ~ 30MHz	Feb. 08, 2024	Feb. 07, 2025	Conduction (CO01-CB)
COND Cable	Woken	Cable	Low cable-CO01	9kHz ~ 30MHz	Oct. 17, 2023	Oct. 16, 2024	Conduction (CO01-CB)
Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conduction (CO01-CB)
Loop Antenna	Teseq	HLA 6121	65417	9kHz - 30MHz	Oct. 13, 2023	Oct. 12, 2024	Radiation (03CH05-CB)
3m Semi Anechoic Chamber NSA	TDK	SAC-3M	03CH05-CB	30MHz ~ 1GHz	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. 24, 2023	Mar. 23, 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 03, 2023	May 02, 2024	Radiation (03CH05-CB)
Spectrum Analyzer	R&S	FSP40	100304	9kHz ~ 40GHz	Apr. 18, 2023	Apr. 17, 2024	Radiation (03CH05-CB)
Spectrum Analyzer	R&S	FSP40	100304	9kHz ~ 40GHz	Apr. 17, 2024	Apr. 16, 2025	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	03CH06-CB	1GHz ~18GHz 3m	Oct. 02, 2023	Oct. 01, 2024	Radiation (03CH06-CB)
Horn Antenna	SCHWARZBECK	BBHA9120D	BBHA 9120D-1292	1GHz~18GHz	Jul. 31, 2023	Jul. 30, 2024	Radiation (03CH06-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Sep. 04, 2023	Sep. 03, 2024	Radiation (03CH06-CB)
Pre-Amplifier	Agilent	83017A	MY53270064	0.5GHz ~ 26.5GHz	Aug. 01, 2023	Jul. 31, 2024	Radiation (03CH06-CB)



Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
Pre-Amplifier	SGH	SGH184	20221107-3	18GHz ~ 40GHz	Nov. 24, 2023	Nov. 23, 2024	Radiation (03CH06-CB)
Signal Analyzer	R&S	FSV40	101903	9kHz ~ 40GHz	May 29, 2023	May 28, 2024	Radiation (03CH06-CB)
RF Cable-high	Woken	RG402	High Cable-05+68	1GHz~18GHz	Oct. 02, 2023	Oct. 01, 2024	Radiation (03CH06-CB)
High Cable	Woken	WCA0929M	40G#5+6	1GHz ~ 40GHz	Jan. 11, 2024	Jan. 10, 2025	Radiation (03CH06-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH06-CB)
Spectrum analyzer	R&S	FSV40	101028	9kHz~40GHz	Dec. 22, 2023	Dec. 21, 2024	Conducted (TH03-CB)
Power Sensor	Anritsu	MA2411B	1726195	300MHz~40GHz	Sep. 04, 2023	Sep. 03, 2024	Conducted (TH03-CB)
Power Meter	Anritsu	ML2495A	1035008	300MHz~40GHz	Sep. 04, 2023	Sep. 03, 2024	Conducted (TH03-CB)
RF Cable	Woken	RG402	High Cable-11	30MHz ~18GHz	Oct. 02, 2023	Oct. 01, 2024	Conducted (TH03-CB)
RF Cable	Woken	RG402	High Cable-12	30MHz ~18GHz	Oct. 02, 2023	Oct. 01, 2024	Conducted (TH03-CB)
RF Cable	Woken	RG402	High Cable-13	30MHz ~18GHz	Oct. 02, 2023	Oct. 01, 2024	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-14	1GHz ~18GHz	Oct. 02, 2023	Oct. 01, 2024	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-15	1GHz ~18GHz	Oct. 02, 2023	Oct. 01, 2024	Conducted (TH03-CB)
Switch	SPTCB	SP-SWI	SWI-03	1 ~26.5GHz	Oct. 03, 2023	Oct. 02, 2024	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.

NCR means Non-Calibration required.



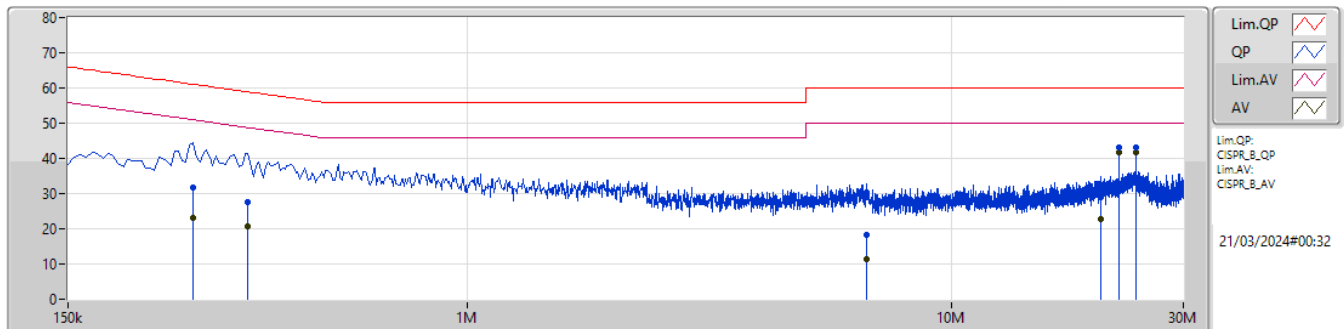
Conducted Emissions at Powerline

Appendix A

Summary

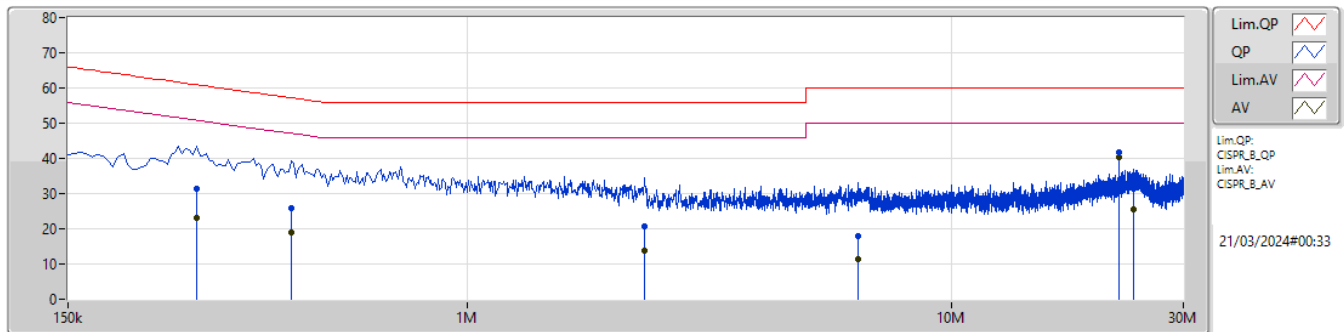
Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 2	Pass	AV	24.009M	41.60	50.00	-8.40	Line

Mode 2



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)						
QP	271.5k	31.56	61.07	-29.51	9.97	Line	-	21.59	0.08	0.02	9.87						
AV	271.5k	23.27	51.07	-27.80	9.97	Line	-	13.30	0.08	0.02	9.87						
QP	352.5k	27.58	58.91	-31.33	9.99	Line	-	17.59	0.09	0.02	9.88						
AV	352.5k	20.74	48.91	-28.17	9.99	Line	-	10.75	0.09	0.02	9.88						
QP	6.662M	18.15	60.00	-41.85	10.26	Line	-	7.89	0.21	0.14	9.91						
AV	6.662M	11.44	50.00	-38.56	10.26	Line	-	1.18	0.21	0.14	9.91						
QP	20.274M	28.90	60.00	-31.10	10.55	Line	-	18.35	0.30	0.23	10.02						
AV	20.274M	22.77	50.00	-27.23	10.55	Line	-	12.22	0.30	0.23	10.02						
QP	22.119M	43.03	60.00	-16.97	10.57	Line	-	32.46	0.31	0.23	10.03						
AV	22.119M	41.59	50.00	-8.41	10.57	Line	-	31.02	0.31	0.23	10.03						
QP	24.009M	42.97	60.00	-17.03	10.59	Line	-	32.38	0.31	0.24	10.04						
AV	24.009M	41.60	50.00	-8.40	10.59	Line	"Worst"	31.01	0.31	0.24	10.04						

Mode 2



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)						
QP	276k	31.40	60.93	-29.53	9.96	Neutral	-	21.44	0.07	0.02	9.87						
AV	276k	23.07	50.93	-27.86	9.96	Neutral	-	13.11	0.07	0.02	9.87						
QP	433.5k	25.94	57.19	-31.25	9.98	Neutral	-	15.96	0.07	0.02	9.89						
AV	433.5k	19.11	47.19	-28.08	9.98	Neutral	-	9.13	0.07	0.02	9.89						
QP	2.324M	20.60	56.00	-35.40	10.09	Neutral	-	10.51	0.11	0.09	9.89						
AV	2.324M	13.94	46.00	-32.06	10.09	Neutral	-	3.85	0.11	0.09	9.89						
QP	6.387M	17.98	60.00	-42.02	10.23	Neutral	-	7.75	0.18	0.14	9.91						
AV	6.387M	11.21	50.00	-38.79	10.23	Neutral	-	0.98	0.18	0.14	9.91						
QP	22.119M	41.74	60.00	-18.26	10.57	Neutral	-	31.17	0.31	0.23	10.03						
AV	22.119M	40.22	50.00	-9.78	10.57	Neutral	"Worst"	29.65	0.31	0.23	10.03						
QP	23.735M	31.44	60.00	-28.56	10.61	Neutral	-	20.83	0.33	0.24	10.04						
AV	23.735M	25.64	50.00	-24.36	10.61	Neutral	-	15.03	0.33	0.24	10.04						

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
BT-LE(1Mbps)	772.5k	1.066M	1M07F1D	620k	1.051M
BT-LE(2Mbps)	1.123M	2.073M	2M07F1D	935k	2.049M

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

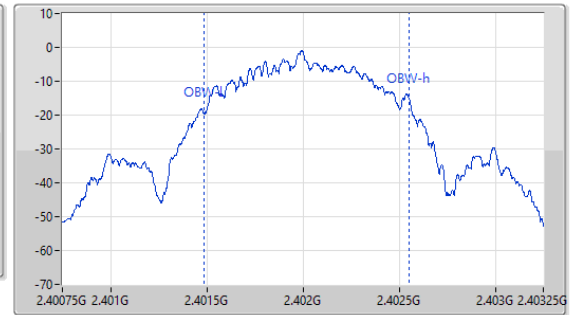
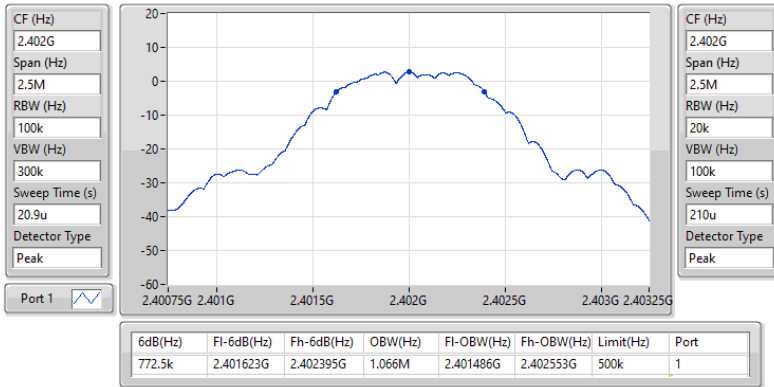
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	772.5k	1.066M
2440MHz	Pass	500k	661.25k	1.053M
2480MHz	Pass	500k	620k	1.051M
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	500k	1.123M	2.05M
2440MHz	Pass	500k	1.065M	2.049M
2480MHz	Pass	500k	935k	2.073M

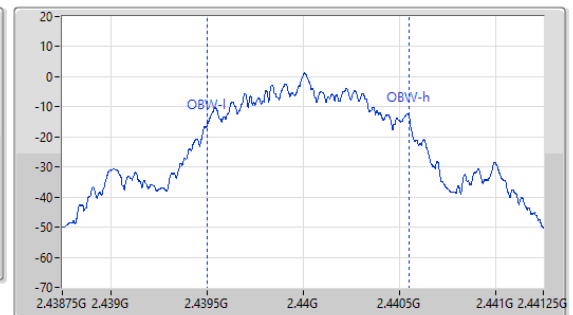
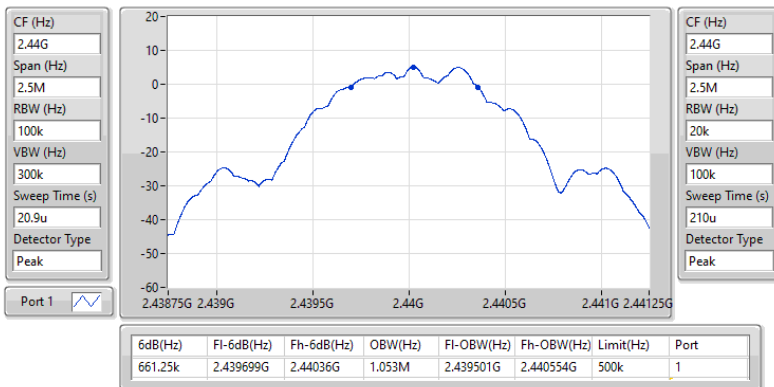
Port X-N dB = Port X 6dB down bandwidth;
Port X-OBW = Port X 99% occupied bandwidth

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

21/02/2024


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

21/02/2024

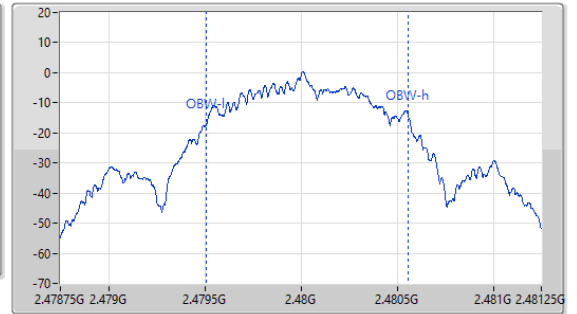
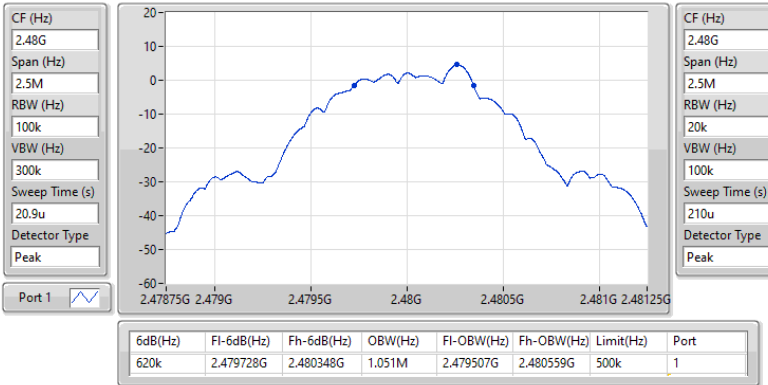


2.4-2.4835GHz_BT-LE(1Mbps)

EBW-DTS

2480MHz

21/02/2024

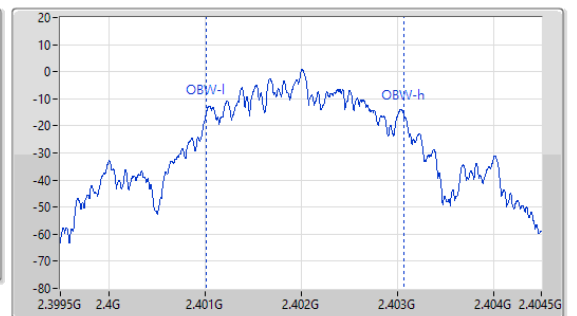
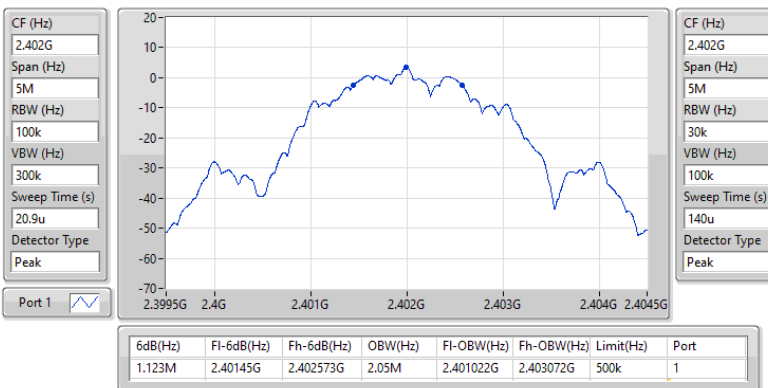


2.4-2.4835GHz_BT-LE(2Mbps)

EBW-DTS

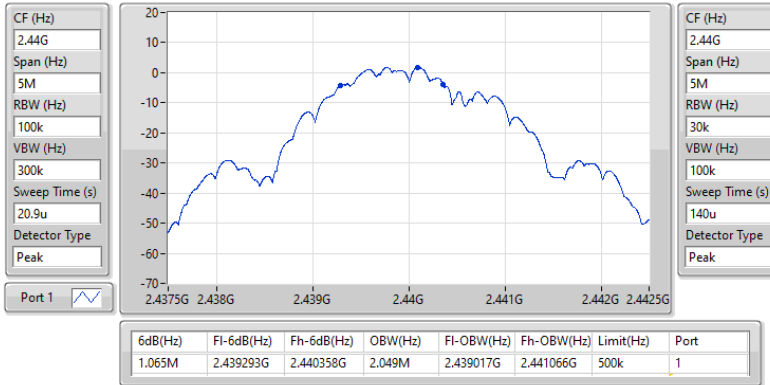
2402MHz

21/02/2024

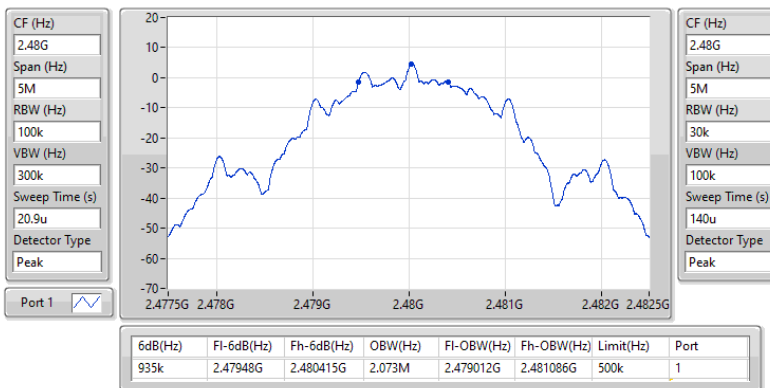


2.4-2.4835GHz_BT-LE(2Mbps)
EBW-DTS
2440MHz

21/02/2024


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

21/02/2024





Average Power-DTS

Appendix C

Summary

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	5.85	0.00385
BT-LE(2Mbps)	5.77	0.00378



Result

Mode	Result	DG (dBi)	Total Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	3.68	5.19	30.00
2440MHz	Pass	3.68	5.85	30.00
2480MHz	Pass	3.68	5.36	30.00
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	3.68	5.01	30.00
2440MHz	Pass	3.68	5.77	30.00
2480MHz	Pass	3.68	5.30	30.00

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



Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE(1Mbps)	-9.51
BT-LE(2Mbps)	-11.74

RBW = 3kHz;

Result

Mode	Result	DG (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	3.68	-9.78	8.00
2440MHz	Pass	3.68	-9.83	8.00
2480MHz	Pass	3.68	-9.51	8.00
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	3.68	-12.18	8.00
2440MHz	Pass	3.68	-11.74	8.00
2480MHz	Pass	3.68	-12.52	8.00

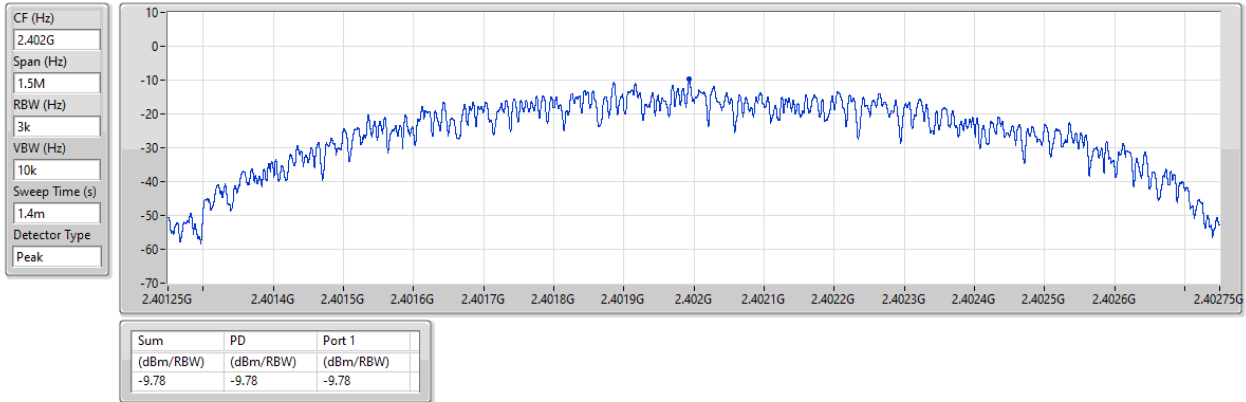
DG = Directional Gain; RBW = 3kHz;
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; Port X = Port X Power Density;

2.4-2.4835GHz_BT-LE(1Mbps)

PSD

2402MHz

21/02/2024

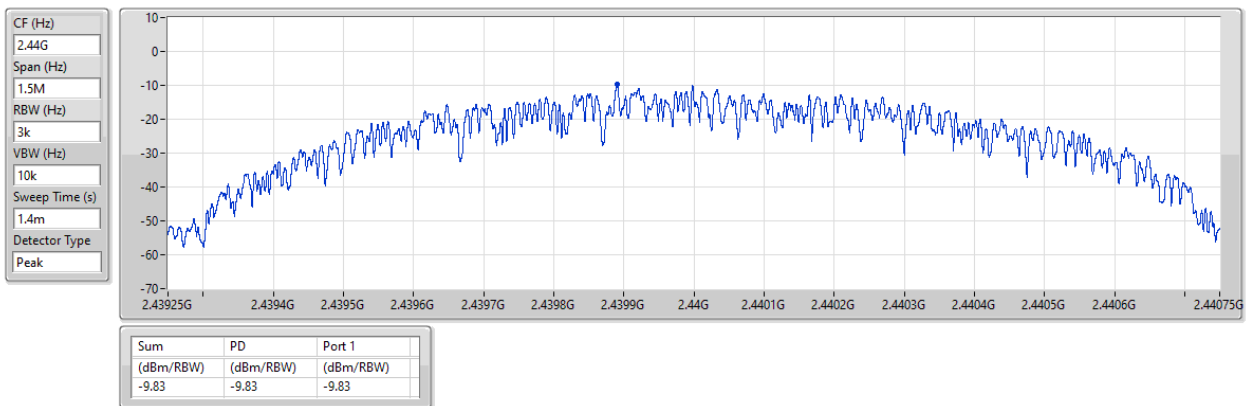


2.4-2.4835GHz_BT-LE(1Mbps)

PSD

2440MHz

21/02/2024

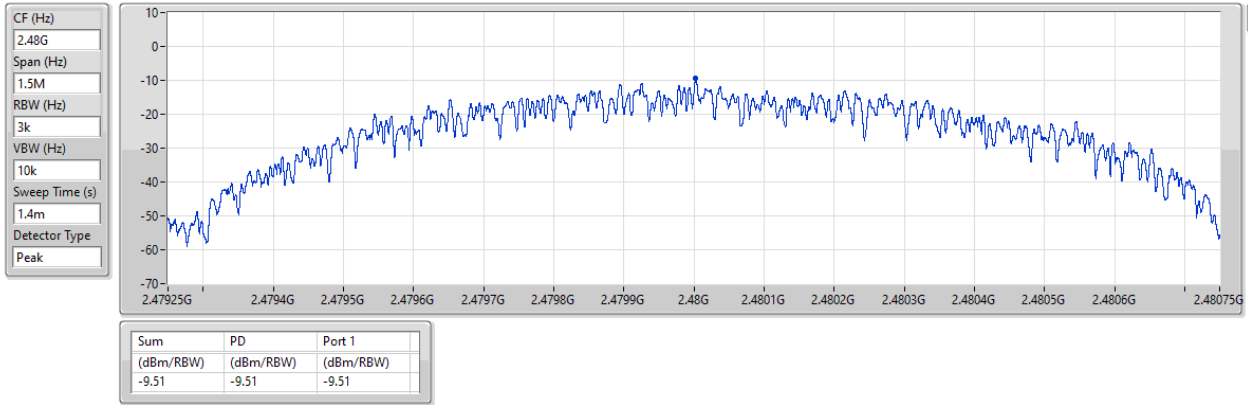


2.4-2.4835GHz_BT-LE(1Mbps)

PSD

2480MHz

21/02/2024

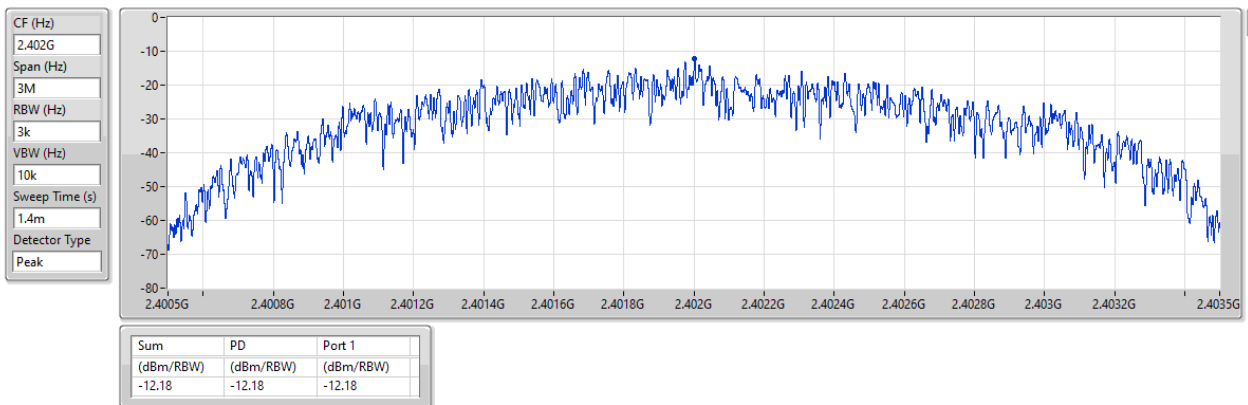


2.4-2.4835GHz_BT-LE(2Mbps)

PSD

2402MHz

21/02/2024

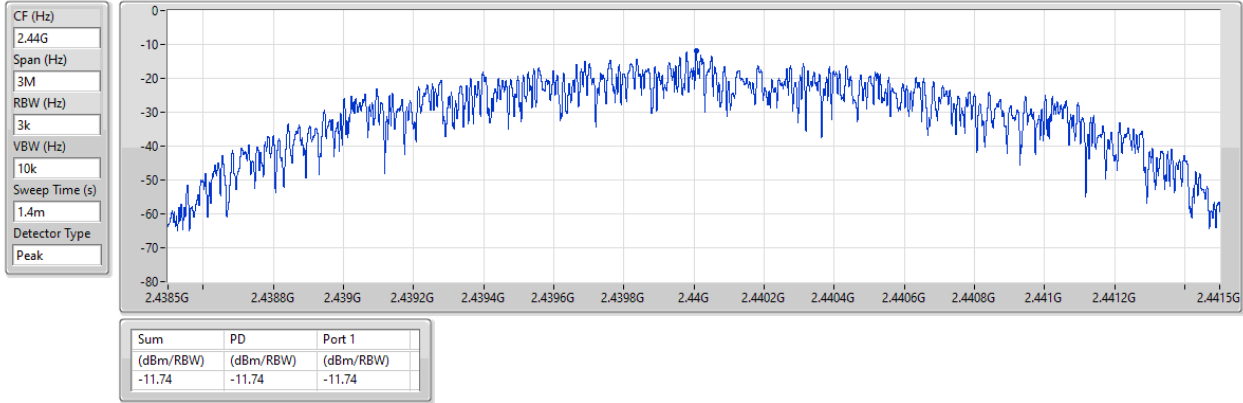


2.4-2.4835GHz_BT-LE(2Mbps)

PSD

2440MHz

21/02/2024

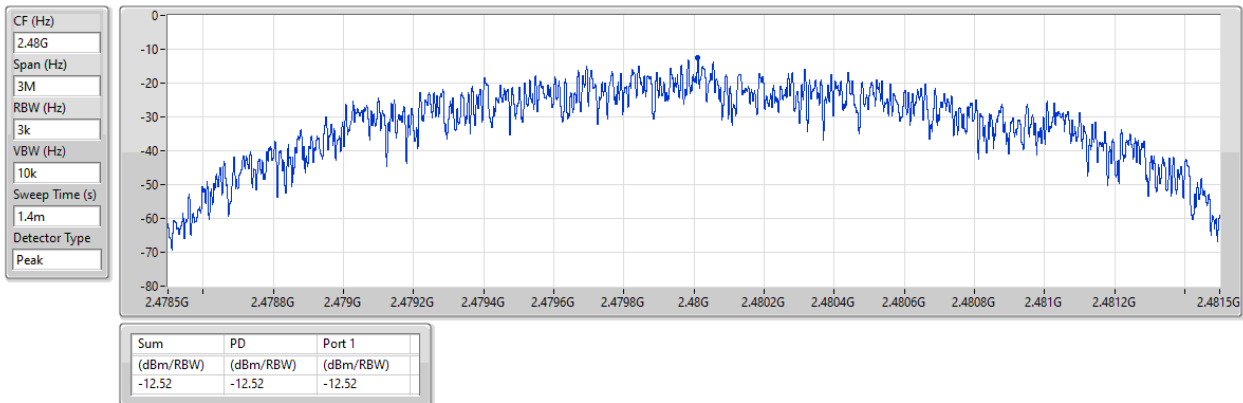


2.4-2.4835GHz_BT-LE(2Mbps)

PSD

2480MHz

21/02/2024



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	2.44008G	5.09	-24.91	1.91G	-54.31	2.39952G	-51.20	2.4G	-50.43	2.50014G	-53.01	6.92969G	-52.34	1
BT-LE(2Mbps)	Pass	2.44008G	5.22	-24.78	1.73963G	-53.91	2.4G	-27.21	2.4G	-26.99	2.50194G	-51.67	6.37852G	-52.15	1

Result

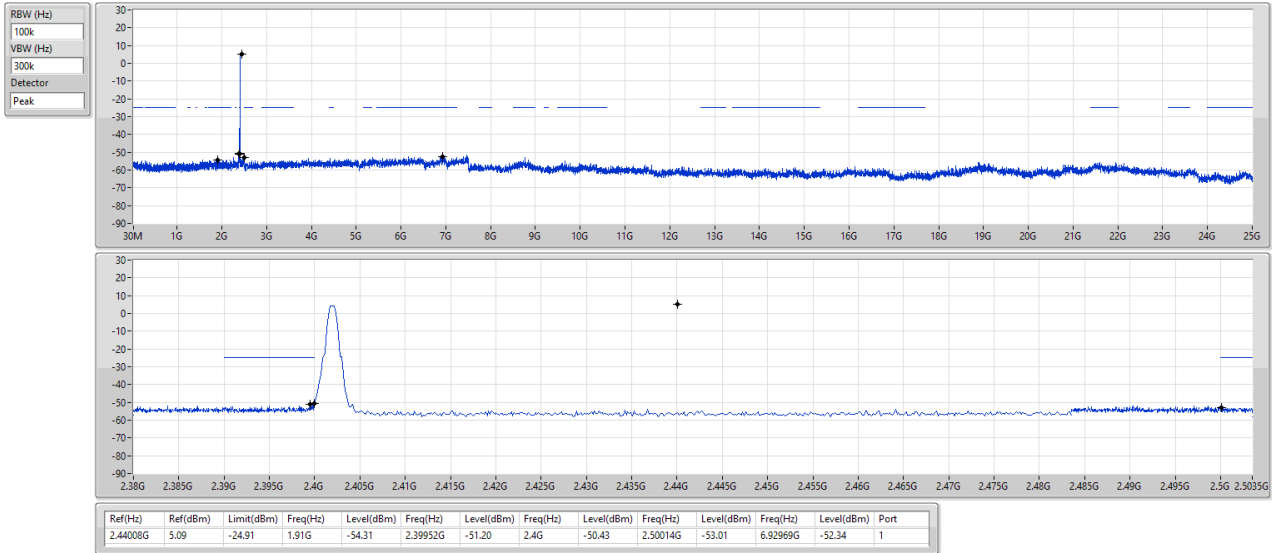
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.44008G	5.09	-24.91	1.91G	-54.31	2.39952G	-51.20	2.4G	-50.43	2.50014G	-53.01	6.92969G	-52.34	1
2440MHz	Pass	2.44008G	5.09	-24.91	2.09448G	-54.11	2.39012G	-52.11	2.4G	-56.45	2.50046G	-52.10	6.44601G	-50.91	1
2480MHz	Pass	2.44008G	5.09	-24.91	1.91588G	-53.68	2.39168G	-51.09	2.4G	-57.55	2.50254G	-52.17	6.4657G	-51.32	1
BT-LE(2Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.44008G	5.22	-24.78	1.73963G	-53.91	2.4G	-27.21	2.4G	-26.99	2.50194G	-51.67	6.37852G	-52.15	1
2440MHz	Pass	2.44008G	5.22	-24.78	2.051G	-53.77	2.39584G	-52.64	2.4G	-57.23	2.50286G	-51.97	3.38086G	-51.60	1
2480MHz	Pass	2.44008G	5.22	-24.78	42.93M	-54.12	2.39876G	-52.19	2.4G	-56.52	2.50234G	-51.61	6.3729G	-51.68	1

2.4-2.4835GHz_BT-LE(1Mbps)

CSEndB-DTS

2402MHz

21/02/2024

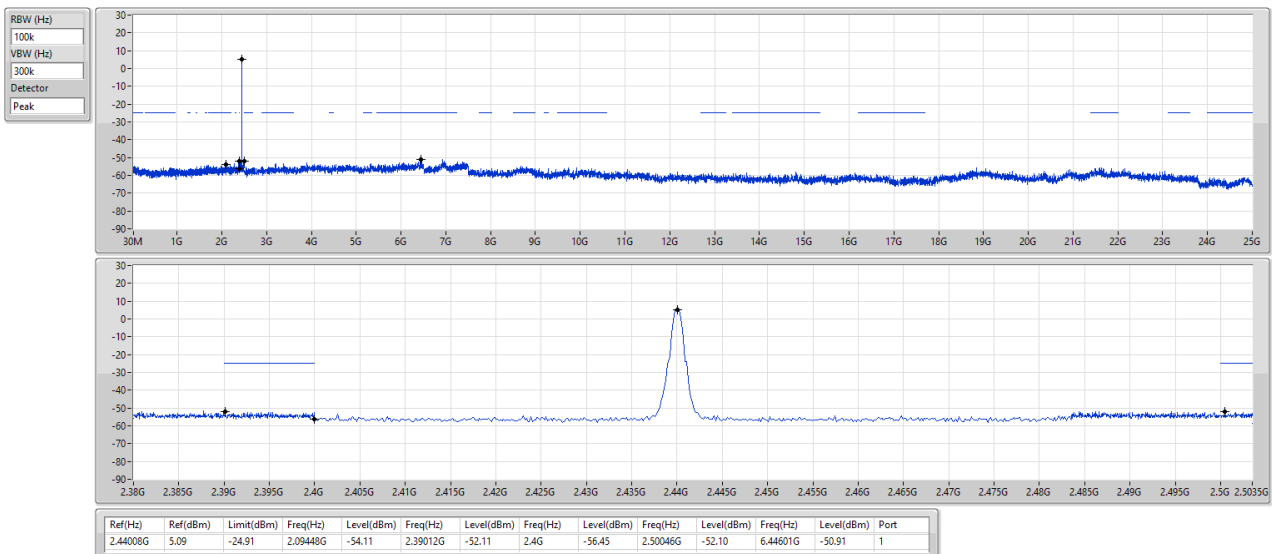


2.4-2.4835GHz_BT-LE(1Mbps)

CSEndB-DTS

2440MHz

21/02/2024



2.4-2.4835GHz_BT-LE(1Mbps)

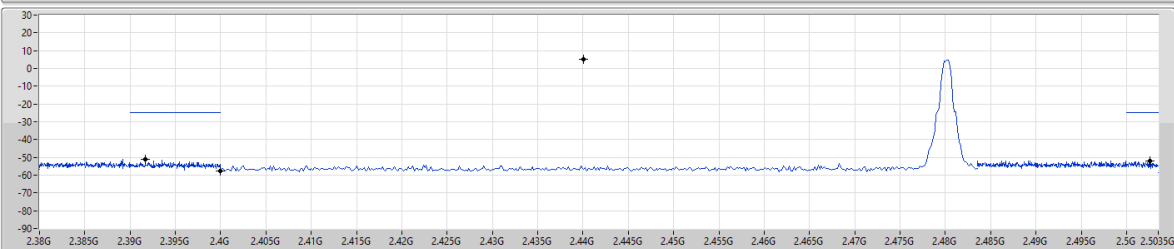
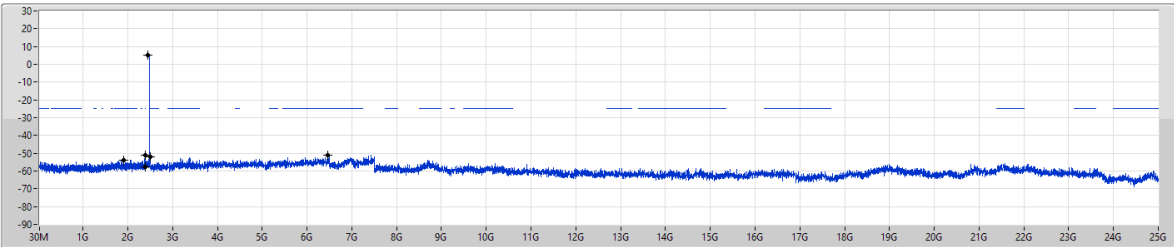
CSEndB-DTS

2480MHz

21/02/2024

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

Port 1



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
2.44008G	5.09	-24.91	1.91388G	-53.68	2.39168G	-51.09	2.4G	-57.55	2.50254G	-52.17	6.4657G	-51.32	1

2.4-2.4835GHz_BT-LE(2Mbps)

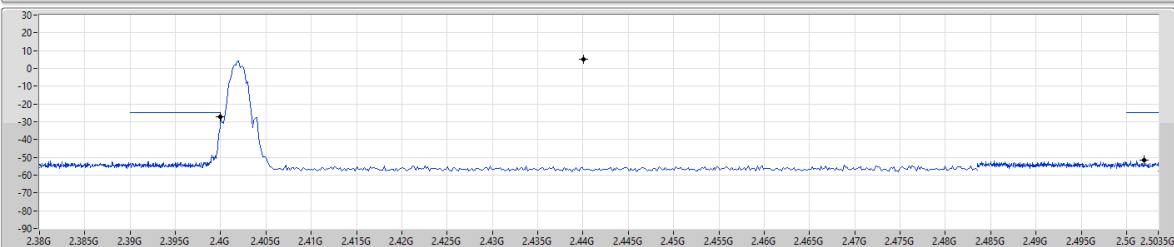
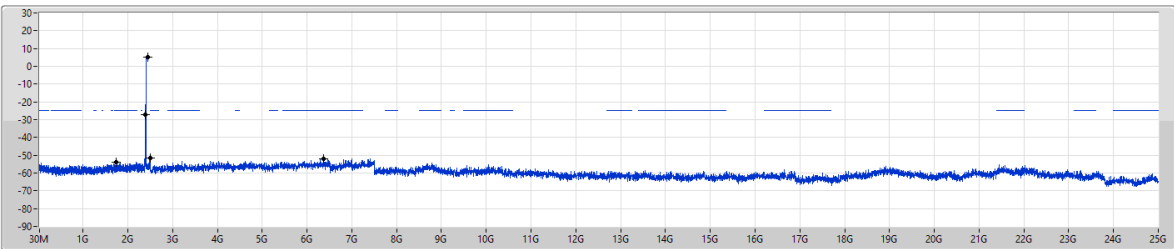
CSEndB-DTS

2402MHz

21/02/2024

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

Port 1

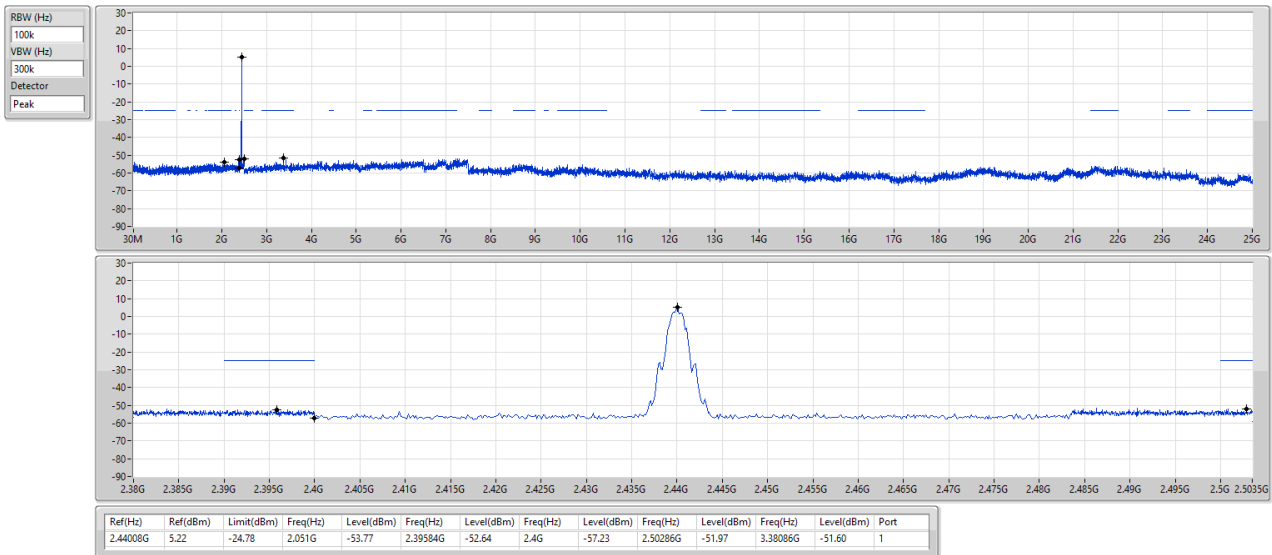


Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44008G	5.22	-24.78	1.73963G	-53.91	2.4G	-27.21	2.4G	-26.99	2.50194G	-51.67	6.37852G	-52.15	1

2.4-2.4835GHz_BT-LE(2Mbps)

CSEndB-DTS

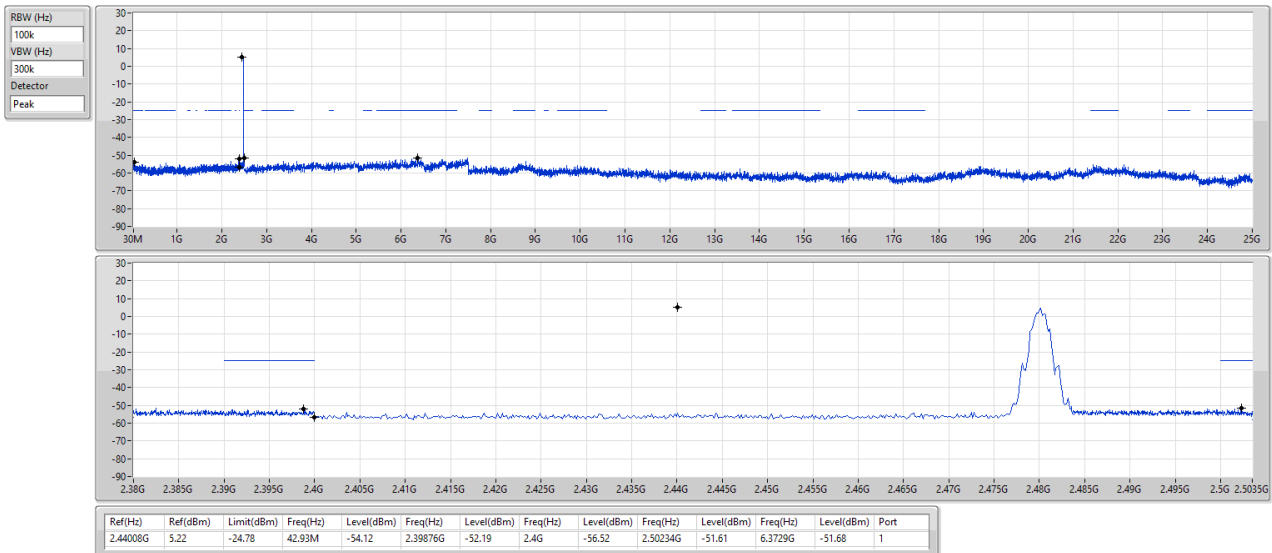
2440MHz



2.4-2.4835GHz_BT-LE(2Mbps)

CSEndB-DTS

2480MHz





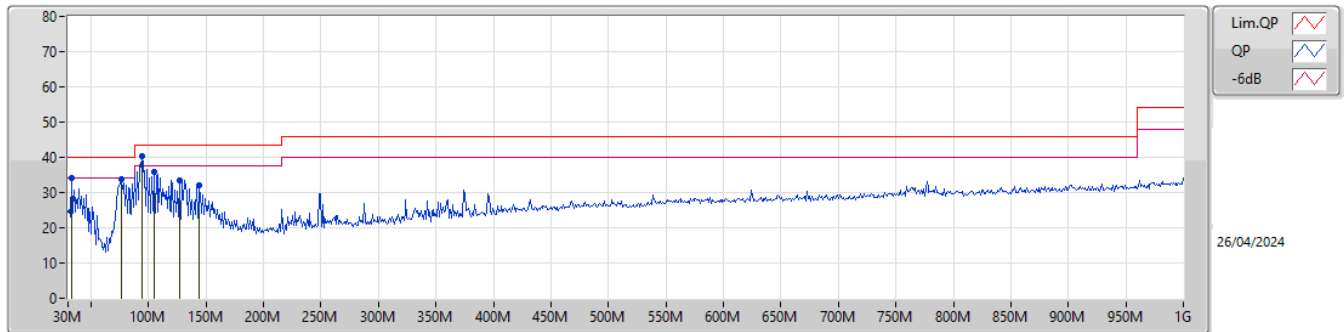
Radiated Emissions below 1GHz

Appendix F.1

Summary

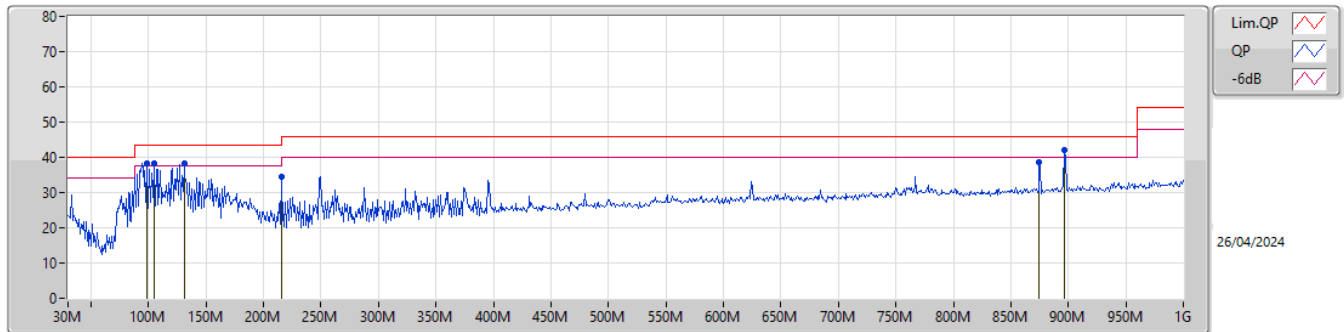
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 2	Pass	PK	94.02M	40.22	43.50	-3.28	Vertical

Mode 2



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	32.91M	34.27	40.00	-5.73	-8.12	3	Vertical	232	1.00	-	42.39	22.55	0.95	31.62		
PK	76.56M	33.77	40.00	-6.23	-17.86	3	Vertical	120	1.50	-	51.63	12.54	1.55	31.95		
PK	94.02M	40.22	43.50	-3.28	-14.47	3	Vertical	58	1.00	"Worst"	54.69	15.82	1.71	32.00		
PK	104.69M	36.00	43.50	-7.50	-12.71	3	Vertical	172	1.00	-	48.71	17.45	1.79	31.95		
PK	127M	33.56	43.50	-9.94	-11.98	3	Vertical	111	1.00	-	45.54	18.02	1.98	31.98		
PK	143.49M	32.19	43.50	-11.31	-12.96	3	Vertical	129	1.00	-	45.15	16.92	2.10	31.98		

Mode 2



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	38.36	43.50	-5.14	-13.65	3	Horizontal	352	3.00	-	52.01	16.56	1.74	31.95		
PK	104.69M	38.16	43.50	-5.34	-12.71	3	Horizontal	345	2.00	-	50.87	17.45	1.79	31.95		
PK	130.88M	38.24	43.50	-5.26	-12.07	3	Horizontal	180	2.00	-	50.31	17.89	2.01	31.97		
PK	215.27M	34.45	43.50	-9.05	-14.43	3	Horizontal	104	2.00	-	48.88	14.99	2.60	32.02		
PK	874.87M	38.68	46.00	-7.32	-0.68	3	Horizontal	0	1.00	-	39.36	26.14	5.72	32.54		
PK	896.21M	42.04	46.00	-3.96	-0.24	3	Horizontal	360	1.50	"Worst"	42.28	26.40	5.82	32.46		

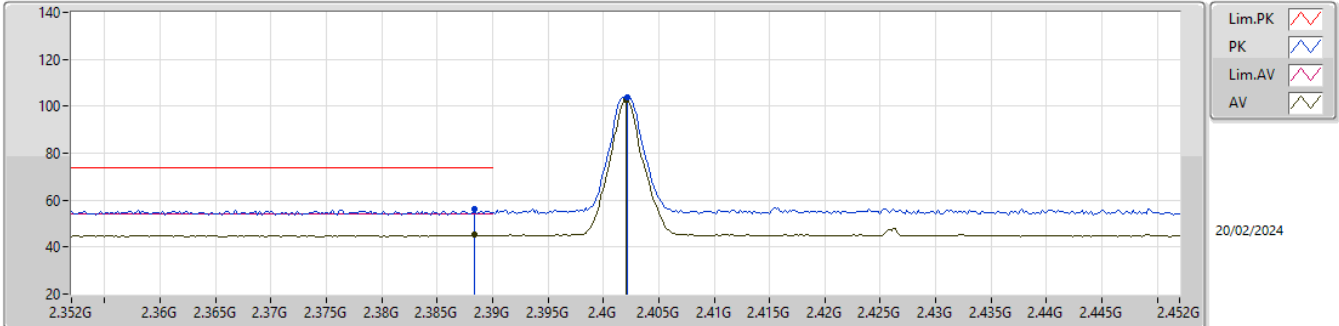


Summary

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	52.24	54.00	-1.76	3	Vertical	265	2.28	-

2.4-2.4835GHz_BT-LE(1Mbps)

2402MHz_TX

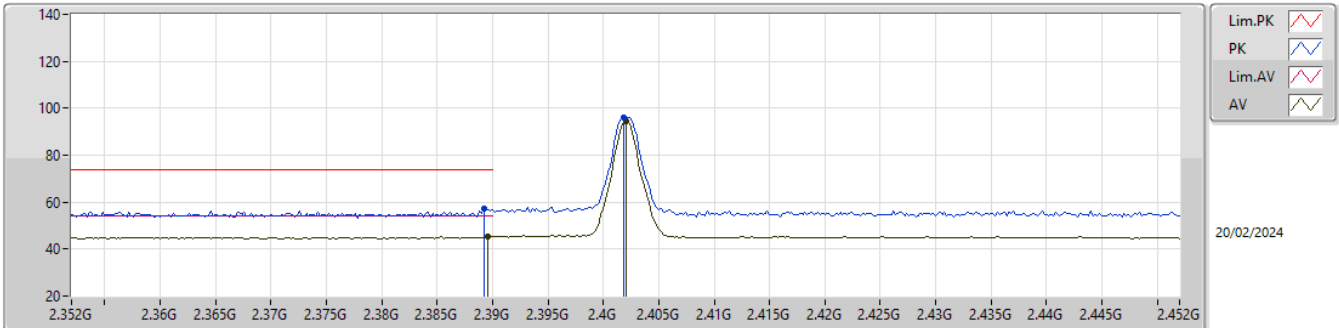


EUT_X_1TX
Setting default
06-E-R-7

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	2.3884G	56.31	74.00	-17.69	23.90	3	Vertical	279	2.40	-	27.70	4.71	-				
AV	2.3884G	45.11	54.00	-8.89	12.70	3	Vertical	279	2.40	-	27.70	4.71	-				
PK	2.4022G	103.91	Inf	-Inf	71.51	3	Vertical	279	2.40	-	27.68	4.72	-				
AV	2.402G	102.53	Inf	-Inf	70.13	3	Vertical	279	2.40	-	27.68	4.72	-				

2.4-2.4835GHz_BT-LE(1Mbps)

2402MHz_TX

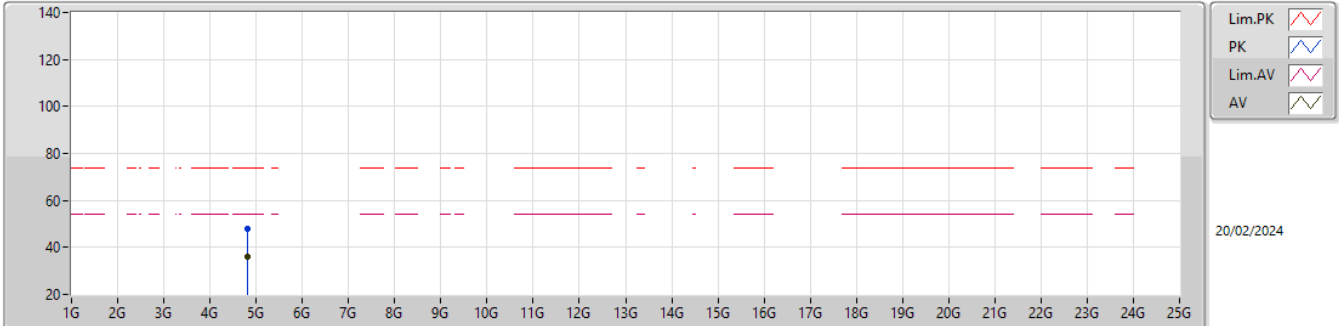


EUT_X_1TX
Setting default
06-E-R-7

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	2.3892G	57.15	74.00	-16.85	24.74	3	Horizontal	203	2.23	-	27.70	4.71	-				
AV	2.3896G	45.32	54.00	-8.68	12.91	3	Horizontal	203	2.23	-	27.70	4.71	-				
PK	2.4018G	96.15	Inf	-Inf	63.75	3	Horizontal	203	2.23	-	27.68	4.72	-				
AV	2.402G	94.69	Inf	-Inf	62.29	3	Horizontal	203	2.23	-	27.68	4.72	-				

2.4-2.4835GHz_BT-LE(1Mbps)

2402MHz_TX

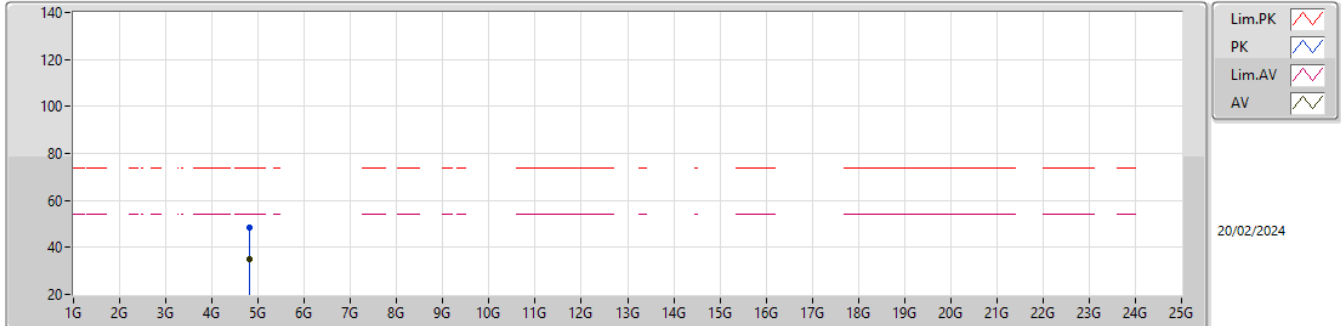


EUT_X_1TX
Setting default
06-E-R-7

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	4.80396G	47.85	74.00	-26.15	41.30	3	Vertical	235	2.94	-	31.30	6.67	31.42			
AV	4.80386G	36.04	54.00	-17.96	29.49	3	Vertical	235	2.94	-	31.30	6.67	31.42			

2.4-2.4835GHz_BT-LE(1Mbps)

2402MHz_TX

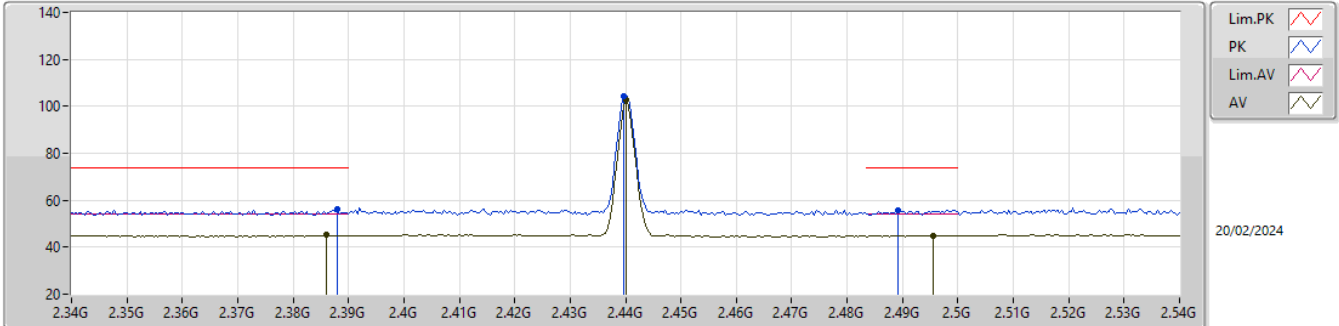


EUT_X_1TX
Setting default
06-E-R-7

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	4.80378G	48.31	74.00	-25.69	41.76	3	Horizontal	212	1.80	-	31.30	6.67	31.42			
AV	4.8038G	35.16	54.00	-18.84	28.61	3	Horizontal	212	1.80	-	31.30	6.67	31.42			

2.4-2.4835GHz_BT-LE(1Mbps)

2440MHz_TX

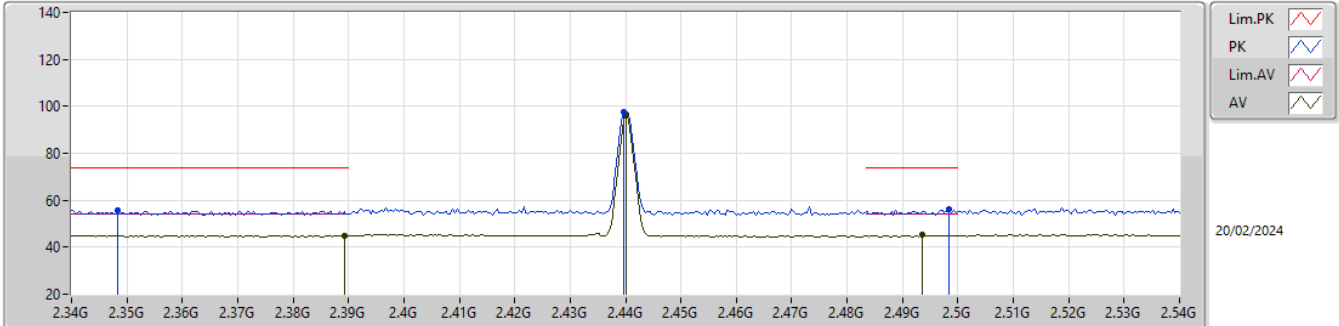


EUT_X_1TX
Setting default
06-E-R-7

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	2.388G	56.04	74.00	-17.96	23.63	3	Vertical	288	2.12	-	27.70	4.71	-			
AV	2.386G	45.18	54.00	-8.82	12.77	3	Vertical	288	2.12	-	27.70	4.71	-			
PK	2.4396G	104.29	Inf	-Inf	72.03	3	Vertical	288	2.12	-	27.50	4.76	-			
AV	2.44G	102.86	Inf	-Inf	70.60	3	Vertical	288	2.12	-	27.50	4.76	-			
PK	2.4892G	55.69	74.00	-18.31	23.49	3	Vertical	288	2.12	-	27.40	4.80	-			
AV	2.4956G	44.97	54.00	-9.03	12.76	3	Vertical	288	2.12	-	27.40	4.81	-			

2.4-2.4835GHz_BT-LE(1Mbps)

2440MHz_TX

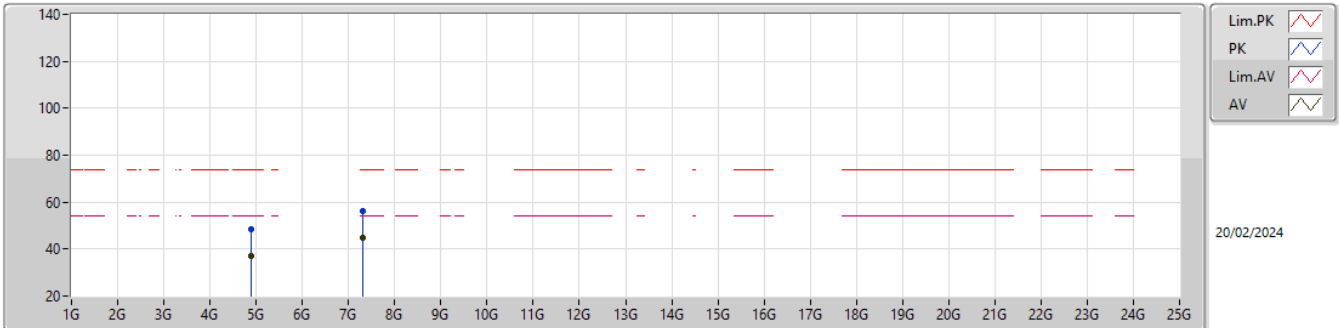


EUT_X_1TX
Setting default
06-E-R-7

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	2.3484G	55.62	74.00	-18.38	23.05	3	Horizontal	232	1.06	-	27.90	4.67	-			
AV	2.3892G	44.97	54.00	-9.03	12.56	3	Horizontal	232	1.06	-	27.70	4.71	-			
PK	2.4396G	97.76	Inf	-Inf	65.50	3	Horizontal	232	1.06	-	27.50	4.76	-			
AV	2.44G	96.33	Inf	-Inf	64.07	3	Horizontal	232	1.06	-	27.50	4.76	-			
PK	2.4984G	56.10	74.00	-17.90	23.89	3	Horizontal	232	1.06	-	27.40	4.81	-			
AV	2.4936G	45.12	54.00	-8.88	12.92	3	Horizontal	232	1.06	-	27.40	4.80	-			

2.4-2.4835GHz_BT-LE(1Mbps)

2440MHz_TX

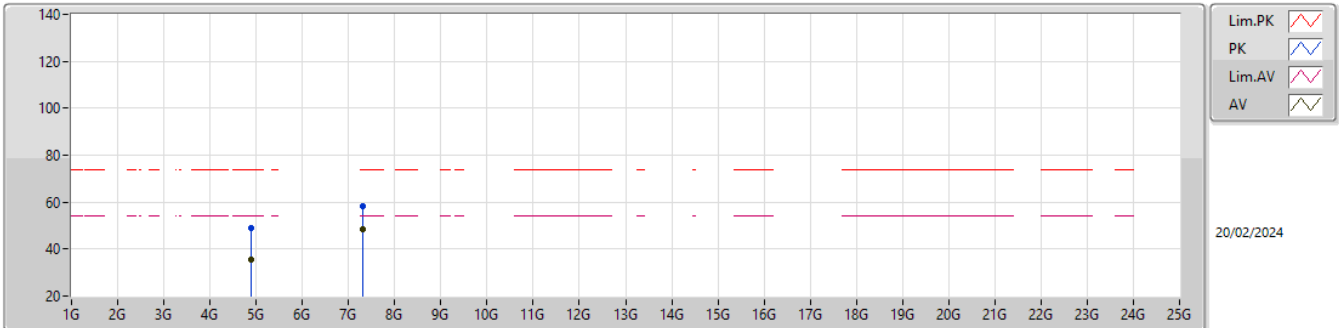


EUT_X_1TX
Setting default
06-E-R-7

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	4.88882G	48.43	74.00	-25.57	41.74	3	Vertical	248	2.99	-	31.30	6.75	31.36			
AV	4.88036G	36.91	54.00	-17.09	30.23	3	Vertical	248	2.99	-	31.30	6.74	31.36			
PK	7.32084G	56.45	74.00	-17.55	44.13	3	Vertical	66	1.85	-	36.60	8.34	32.62			
AV	7.31934G	45.03	54.00	-8.97	32.70	3	Vertical	66	1.85	-	36.60	8.34	32.61			

2.4-2.4835GHz_BT-LE(1Mbps)

2440MHz_TX

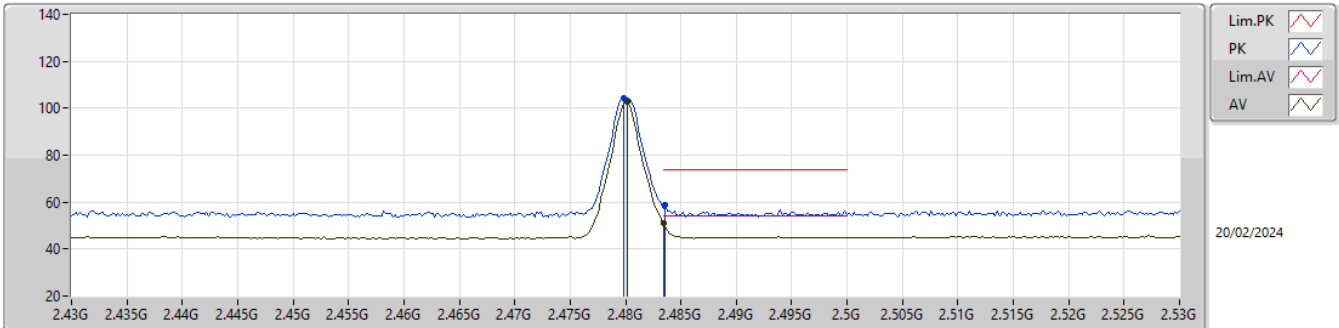


EUT_X_1TX
Setting default
06-E-R-7

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	4.87776G	49.13	74.00	-24.87	42.46	3	Horizontal	186	1.80	-	31.30	6.74	31.37			
AV	4.88354G	35.70	54.00	-18.30	29.02	3	Horizontal	186	1.80	-	31.30	6.74	31.36			
PK	7.31926G	58.12	74.00	-15.88	45.79	3	Horizontal	126	1.97	-	36.60	8.34	32.61			
AV	7.31942G	48.62	54.00	-5.38	36.29	3	Horizontal	126	1.97	-	36.60	8.34	32.61			

2.4-2.4835GHz_BT-LE(1Mbps)

2480MHz_TX

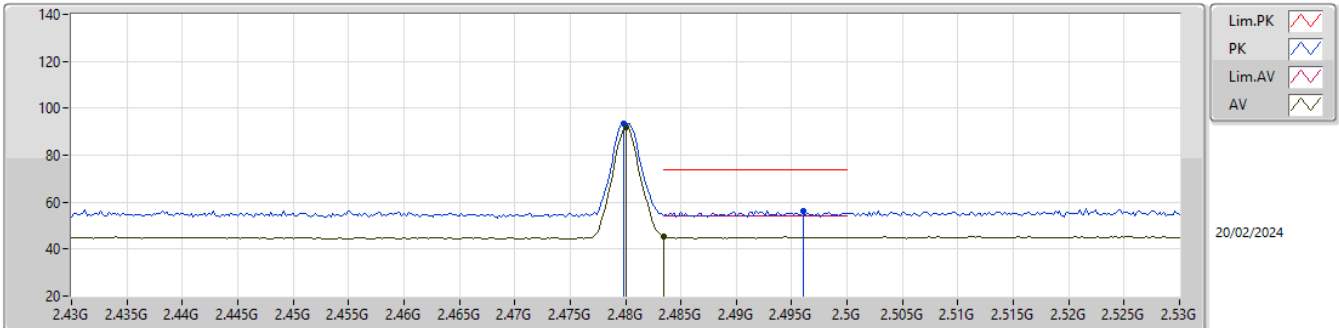


EUT_X_1TX
Setting default
06-E-R-7

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	2.4798G	104.08	Inf	-Inf	71.89	3	Vertical	270	2.26	-	27.40	4.79	-				
AV	2.4802G	102.58	Inf	-Inf	70.39	3	Vertical	270	2.26	-	27.40	4.79	-				
PK	2.4836G	58.55	74.00	-15.45	26.35	3	Vertical	270	2.26	-	27.40	4.80	-				
AV	2.4835G	50.79	54.00	-3.21	18.59	3	Vertical	270	2.26	-	27.40	4.80	-				

2.4-2.4835GHz_BT-LE(1Mbps)

2480MHz_TX

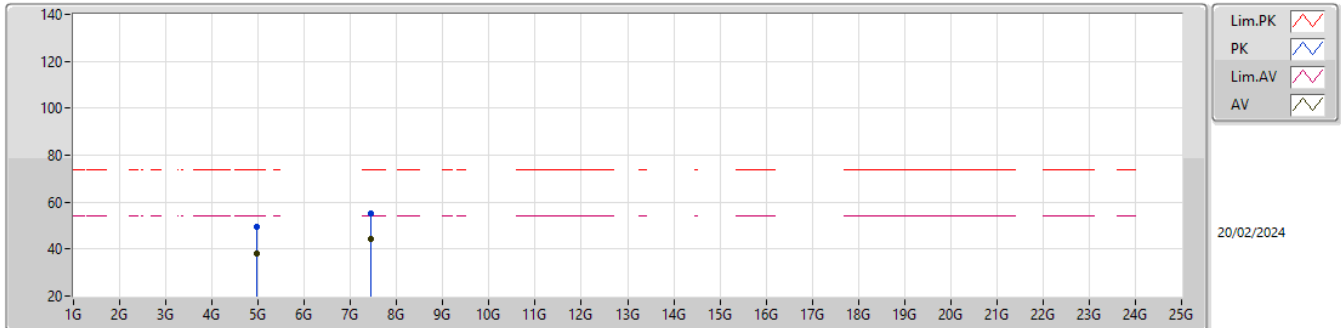


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Setting default
06-E-R-7

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	2.4798G	93.26	Inf	-Inf	61.07	3	Horizontal	201	1.49	-	27.40	4.79	-			
AV	2.48G	91.84	Inf	-Inf	59.65	3	Horizontal	201	1.49	-	27.40	4.79	-			
PK	2.496G	56.28	74.00	-17.72	24.07	3	Horizontal	201	1.49	-	27.40	4.81	-			
AV	2.4835G	45.31	54.00	-8.69	13.11	3	Horizontal	201	1.49	-	27.40	4.80	-			

2.4-2.4835GHz_BT-LE(1Mbps)

2480MHz_TX

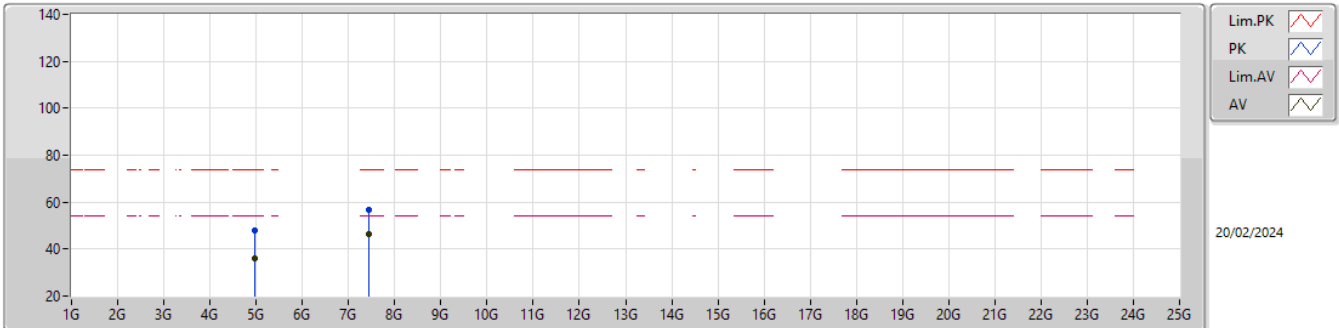


EUT_X_1TX
Setting default
06-E-R-7

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	4.96534G	49.57	74.00	-24.43	42.50	3	Vertical	20	2.90	-	31.56	6.81	31.30			
AV	4.9597G	37.93	54.00	-16.07	30.89	3	Vertical	20	2.90	-	31.54	6.81	31.31			
PK	7.4412G	55.30	74.00	-18.70	43.03	3	Vertical	117	2.16	-	36.68	8.38	32.79			
AV	7.43946G	44.11	54.00	-9.89	31.83	3	Vertical	117	2.16	-	36.68	8.38	32.78			

2.4-2.4835GHz_BT-LE(1Mbps)

2480MHz_TX

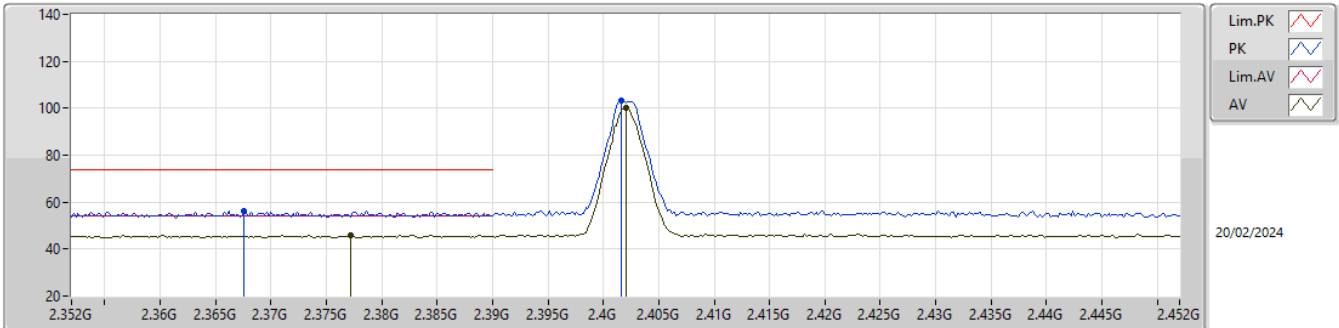


EUT_X_1TX
Setting default
06-E-R-7

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	4.97434G	48.12	74.00	-25.88	41.00	3	Horizontal	2	1.66	-	31.60	6.82	31.30			
AV	4.96996G	35.80	54.00	-18.20	28.71	3	Horizontal	2	1.66	-	31.58	6.81	31.30			
PK	7.43952G	56.69	74.00	-17.31	44.41	3	Horizontal	131	1.88	-	36.68	8.38	32.78			
AV	7.43946G	46.43	54.00	-7.57	34.15	3	Horizontal	131	1.88	-	36.68	8.38	32.78			

2.4-2.4835GHz_BT-LE(2Mbps)

2402MHz_TX

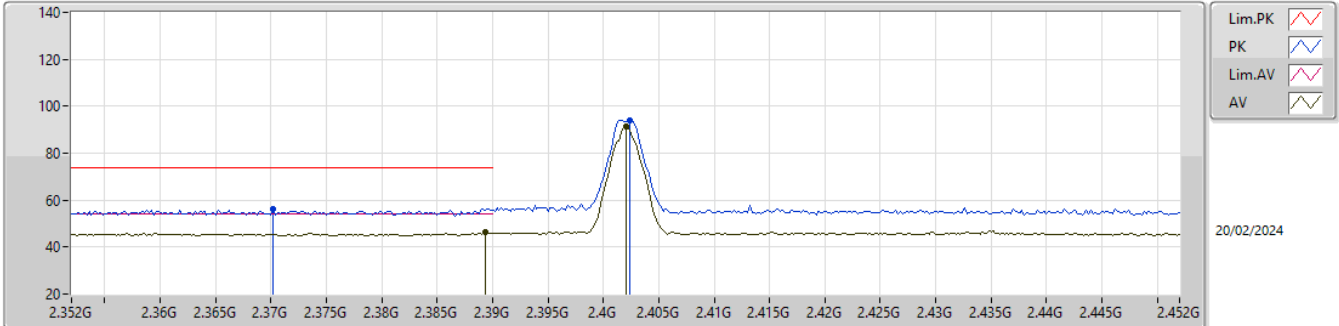


EUT_X_1TX
Setting default
06-E-R-7

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	2.3676G	56.11	74.00	-17.89	23.60	3	Vertical	278	2.52	-	27.82	4.69	-			
AV	2.3772G	46.09	54.00	-7.91	13.66	3	Vertical	278	2.52	-	27.73	4.70	-			
PK	2.4016G	103.06	Inf	-Inf	70.66	3	Vertical	278	2.52	-	27.68	4.72	-			
AV	2.402G	100.41	Inf	-Inf	68.01	3	Vertical	278	2.52	-	27.68	4.72	-			

2.4-2.4835GHz_BT-LE(2Mbps)

2402MHz_TX

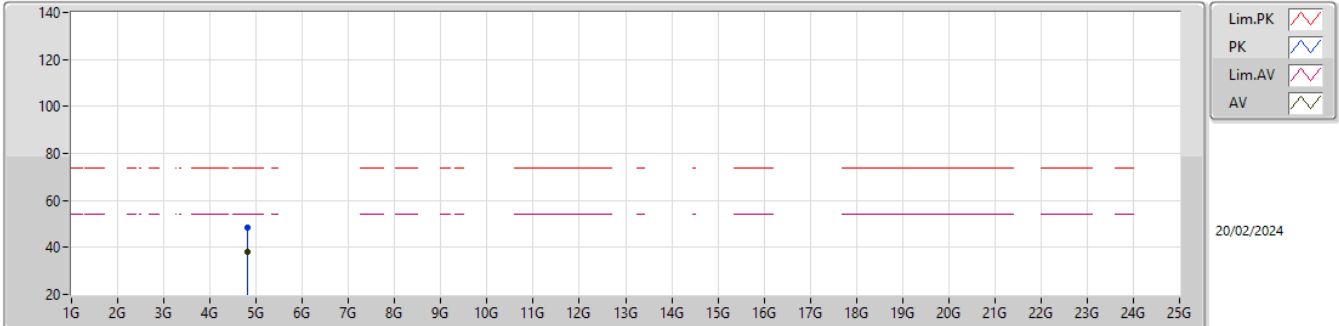


EUT_X_1TX
Setting default
06-E-R-7

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	2.3702G	56.12	74.00	-17.88	23.63	3	Horizontal	231	1.80	-	27.80	4.69	-			
AV	2.3894G	46.27	54.00	-7.73	13.86	3	Horizontal	231	1.80	-	27.70	4.71	-			
PK	2.4024G	93.90	Inf	-Inf	61.50	3	Horizontal	231	1.80	-	27.68	4.72	-			
AV	2.402G	91.31	Inf	-Inf	58.91	3	Horizontal	231	1.80	-	27.68	4.72	-			

2.4-2.4835GHz_BT-LE(2Mbps)

2402MHz_TX

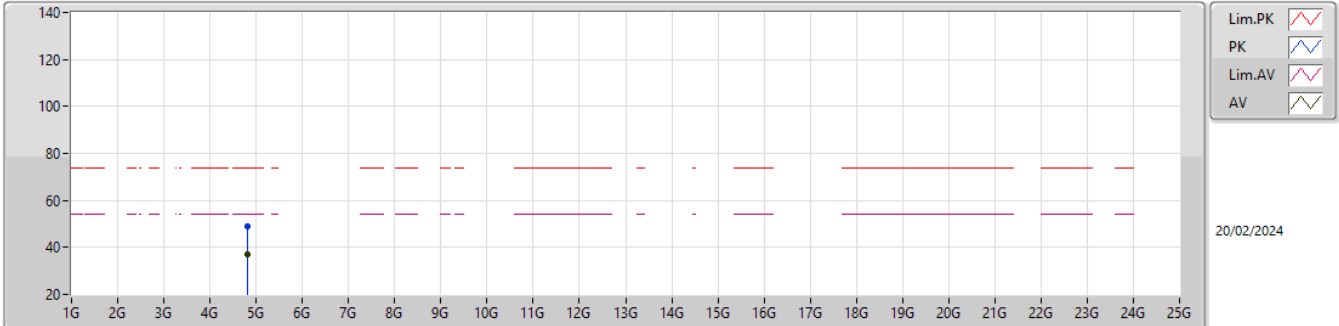


EUT_X_1TX
Setting default
06-E-R-7

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	4.81228G	48.54	74.00	-25.46	41.97	3	Vertical	170	2.72	-	31.30	6.68	31.41			
AV	4.80504G	38.27	54.00	-15.73	31.72	3	Vertical	170	2.72	-	31.30	6.67	31.42			

2.4-2.4835GHz_BT-LE(2Mbps)

2402MHz_TX

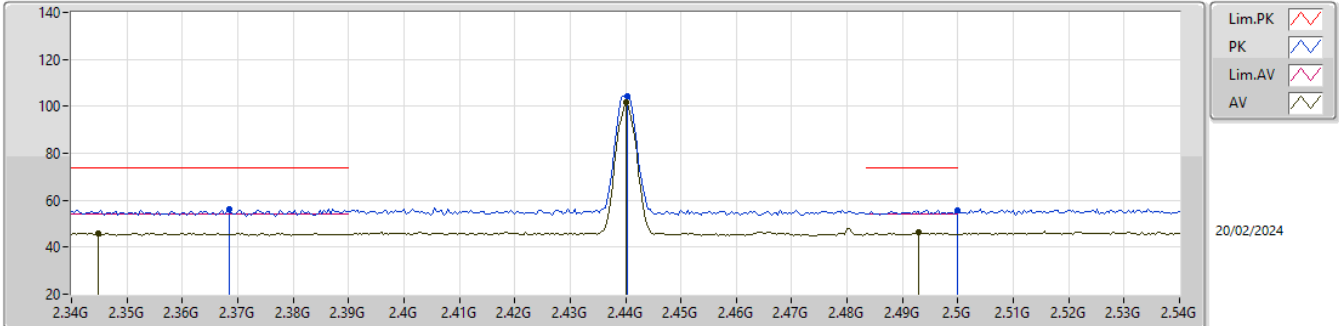


EUT_X_1TX
Setting default
06-E-R-7

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	4.81196G	48.89	74.00	-25.11	42.32	3	Horizontal	214	1.80	-	31.30	6.68	31.41			
AV	4.81156G	37.20	54.00	-16.80	30.63	3	Horizontal	214	1.80	-	31.30	6.68	31.41			

2.4-2.4835GHz_BT-LE(2Mbps)

2440MHz_TX

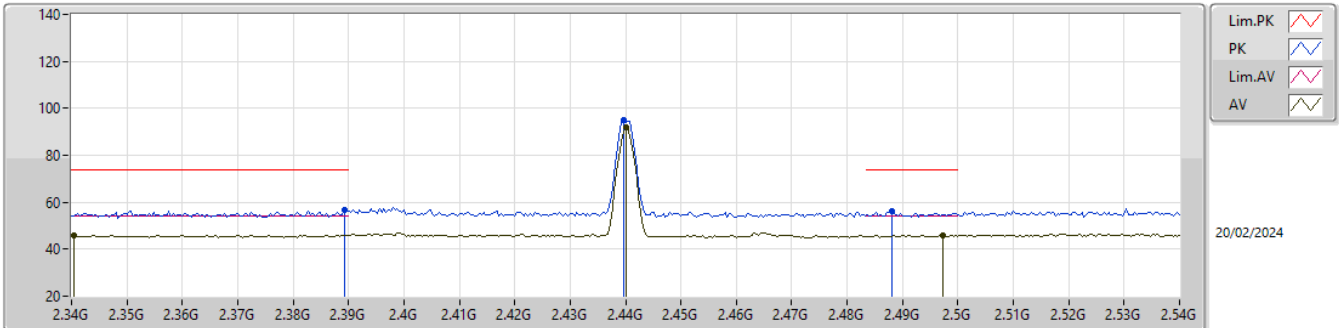


EUT_X_1TX
Setting default
06-E-R-7

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	2.3684G	56.41	74.00	-17.59	23.90	3	Vertical	251	2.10	-	27.82	4.69	-				
AV	2.3448G	46.10	54.00	-7.90	13.54	3	Vertical	251	2.10	-	27.90	4.66	-				
PK	2.4404G	104.46	Inf	-Inf	72.20	3	Vertical	251	2.10	-	27.50	4.76	-				
AV	2.44G	101.75	Inf	-Inf	69.49	3	Vertical	251	2.10	-	27.50	4.76	-				
PK	2.5G	55.76	74.00	-18.24	23.55	3	Vertical	251	2.10	-	27.40	4.81	-				
AV	2.4928G	46.30	54.00	-7.70	14.10	3	Vertical	251	2.10	-	27.40	4.80	-				

2.4-2.4835GHz_BT-LE(2Mbps)

2440MHz_TX

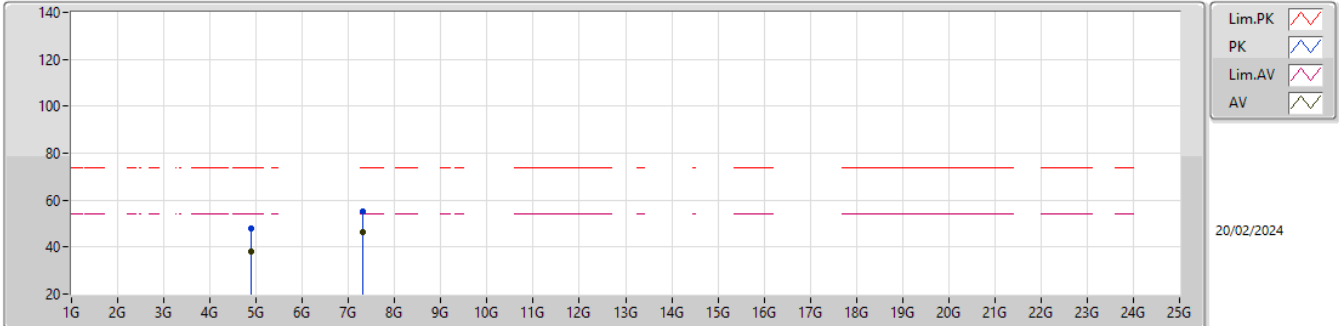


EUT_X_1TX
Setting default
06-E-R-7

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	2.3892G	56.85	74.00	-17.15	24.44	3	Horizontal	200	2.26	-	27.70	4.71	-				
AV	2.3404G	46.02	54.00	-7.98	13.46	3	Horizontal	200	2.26	-	27.90	4.66	-				
PK	2.4396G	94.77	Inf	-Inf	62.51	3	Horizontal	200	2.26	-	27.50	4.76	-				
AV	2.44G	92.13	Inf	-Inf	59.87	3	Horizontal	200	2.26	-	27.50	4.76	-				
PK	2.488G	56.28	74.00	-17.72	24.08	3	Horizontal	200	2.26	-	27.40	4.80	-				
AV	2.4972G	45.94	54.00	-8.06	13.73	3	Horizontal	200	2.26	-	27.40	4.81	-				

2.4-2.4835GHz_BT-LE(2Mbps)

2440MHz_TX

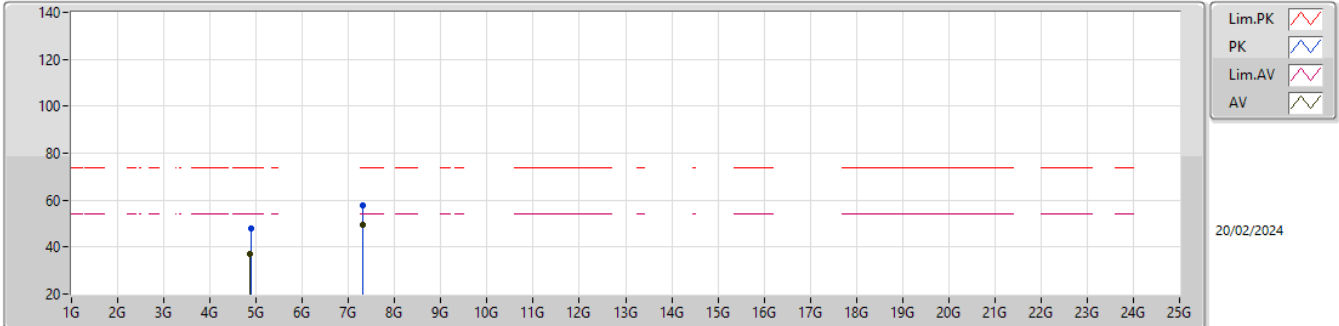


EUT_X_1TX
Setting default
06-E-R-7

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	4.88064G	48.10	74.00	-25.90	41.42	3	Vertical	40	3.00	-	31.30	6.74	31.36			
AV	4.87916G	37.91	54.00	-16.09	31.23	3	Vertical	40	3.00	-	31.30	6.74	31.36			
PK	7.3186G	55.36	74.00	-18.64	43.03	3	Vertical	111	1.97	-	36.60	8.34	32.61			
AV	7.31888G	46.17	54.00	-7.83	33.84	3	Vertical	111	1.97	-	36.60	8.34	32.61			

2.4-2.4835GHz_BT-LE(2Mbps)

2440MHz_TX

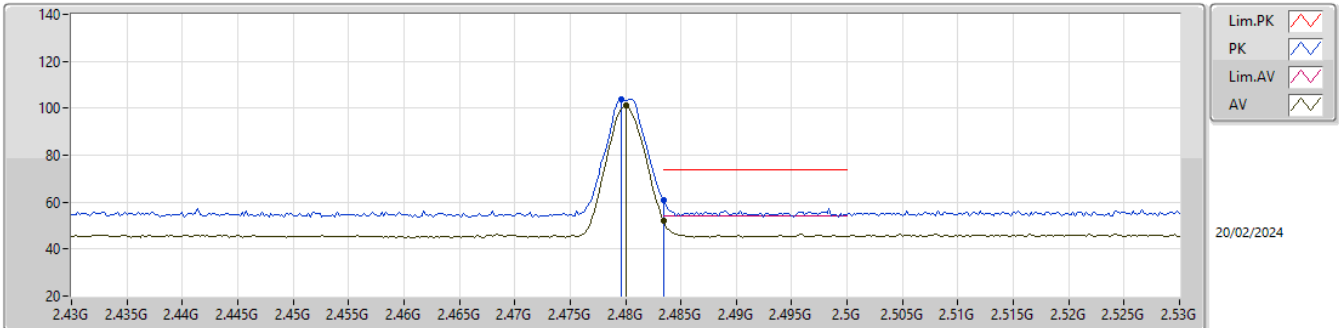


EUT_X_1TX
Setting default
06-E-R-7

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	4.88276G	47.84	74.00	-26.16	41.16	3	Horizontal	313	1.80	-	31.30	6.74	31.36			
AV	4.8718G	37.19	54.00	-16.81	30.53	3	Horizontal	313	1.80	-	31.30	6.73	31.37			
PK	7.31868G	57.57	74.00	-16.43	45.24	3	Horizontal	130	1.99	-	36.60	8.34	32.61			
AV	7.3188G	49.25	54.00	-4.75	36.92	3	Horizontal	130	1.99	-	36.60	8.34	32.61			

2.4-2.4835GHz_BT-LE(2Mbps)

2480MHz_TX

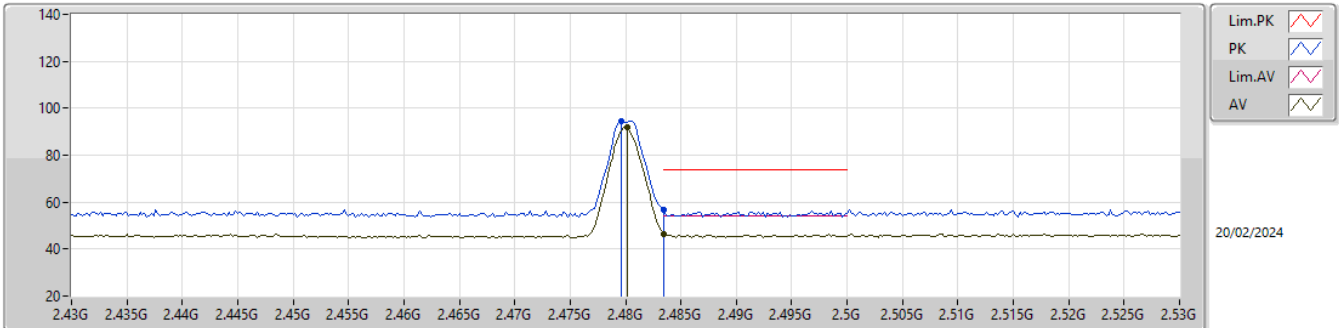


EUT_X_1TX
Setting default
06-E-R-7

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	2.4796G	103.78	Inf	-Inf	71.59	3	Vertical	265	2.28	-	27.40	4.79	-			
AV	2.48G	101.12	Inf	-Inf	68.93	3	Vertical	265	2.28	-	27.40	4.79	-			
PK	2.4835G	60.80	74.00	-13.20	28.60	3	Vertical	265	2.28	-	27.40	4.80	-			
AV	2.4835G	52.24	54.00	-1.76	20.04	3	Vertical	265	2.28	-	27.40	4.80	-			

2.4-2.4835GHz_BT-LE(2Mbps)

2480MHz_TX

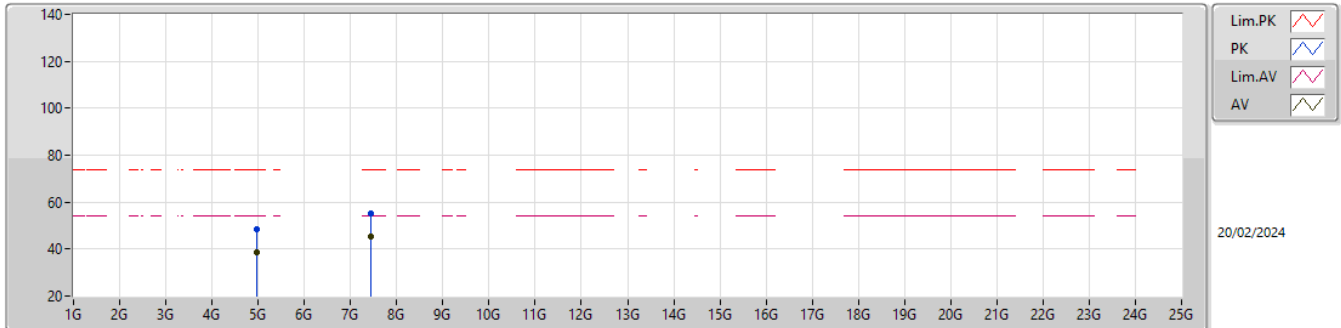


EUT_X_1TX
Setting default
06-E-R-7

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	2.4796G	94.62	Inf	-Inf	62.43	3	Horizontal	202	1.80	-	27.40	4.79	-				
AV	2.4802G	92.08	Inf	-Inf	59.89	3	Horizontal	202	1.80	-	27.40	4.79	-				
PK	2.4835G	56.71	74.00	-17.29	24.51	3	Horizontal	202	1.80	-	27.40	4.80	-				
AV	2.4835G	46.53	54.00	-7.47	14.33	3	Horizontal	202	1.80	-	27.40	4.80	-				

2.4-2.4835GHz_BT-LE(2Mbps)

2480MHz_TX

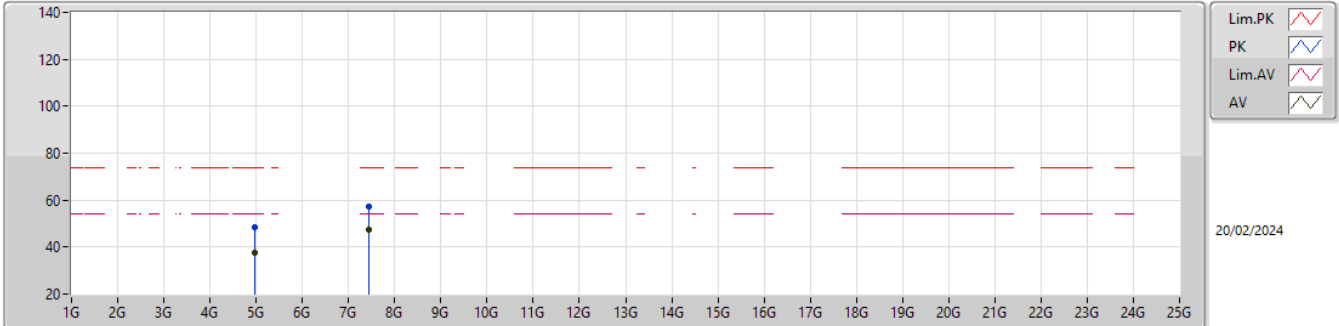


EUT_X_1TX
Setting default
06-E-R-7

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	4.9589G	48.64	74.00	-25.36	41.60	3	Vertical	249	2.81	-	31.54	6.81	31.31				
AV	4.9595G	38.60	54.00	-15.40	31.56	3	Vertical	249	2.81	-	31.54	6.81	31.31				
PK	7.44236G	55.30	74.00	-18.70	43.03	3	Vertical	118	2.83	-	36.68	8.38	32.79				
AV	7.43886G	45.18	54.00	-8.82	32.91	3	Vertical	118	2.83	-	36.68	8.37	32.78				

2.4-2.4835GHz_BT-LE(2Mbps)

2480MHz_TX



EUT_X_1TX
Setting default
06-E-R-7

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	4.96366G	48.19	74.00	-25.81	41.14	3	Horizontal	192	1.47	-	31.55	6.81	31.31			
AV	4.96026G	37.72	54.00	-16.28	30.68	3	Horizontal	192	1.47	-	31.54	6.81	31.31			
PK	7.44136G	57.02	74.00	-16.98	44.75	3	Horizontal	126	1.98	-	36.68	8.38	32.79			
AV	7.43878G	47.65	54.00	-6.35	35.38	3	Horizontal	126	1.98	-	36.68	8.37	32.78			