

FCC Radio Test Report

FCC ID : XN6-SL512X86
Contains FCC ID : 2AS8LATM210
Equipment : 5.1.2 Soundbar System
Brand Name : VIZIO
Model Name : SL512X-0806
Applicant : Zylux Acoustic Corporation
7F, 70, Rui Guang Road,
Neihu District, Taipei 114, Taiwan
Manufacturer : Zylux Acoustic Corporation
7F, 70, Rui Guang Road,
Neihu District, Taipei 114, Taiwan
Standard : 47 CFR FCC Part 15.247

The product was received on Mar. 19, 2024, and testing was started from Mar. 22, 2024 and completed on Apr. 11, 2024. We, SPORTON INTERNATIONAL INC. Hsinhua 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. Hsinhua Laboratory, the test report shall not be reproduced except in full.



Approved by: Jackson Tsai

SPORTON INTERNATIONAL INC. Hsinhua Laboratory

No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333411, Taiwan (R.O.C.)



Table of Contents

HISTORY OF THIS TEST REPORT3

SUMMARY OF TEST RESULT4

1 GENERAL DESCRIPTION5

1.1 Information.....5

1.2 Testing Applied Standards6

1.3 Testing Location Information6

1.4 Measurement Uncertainty6

2 TEST CONFIGURATION OF EUT.....7

2.1 Test Channel Mode7

2.2 The Worst Case Measurement Configuration.....8

2.3 Accessories9

2.4 Support Equipment.....9

2.5 Test Setup Diagram10

3 TRANSMITTER TEST RESULT11

3.1 AC Power-line Conducted Emissions11

3.2 DTS Bandwidth.....13

3.3 Maximum Conducted Output Power14

3.4 Power Spectral Density16

3.5 Emissions in Non-restricted Frequency Bands17

3.6 Emissions in Restricted Frequency Bands.....18

4 TEST EQUIPMENT AND CALIBRATION DATA.....22

APPENDIX A. TEST RESULTS OF AC POWER-LINE CONDUCTED EMISSIONS

APPENDIX B. TEST RESULTS OF DTS BANDWIDTH

APPENDIX C. TEST RESULTS OF MAXIMUM CONDUCTED OUTPUT POWER

APPENDIX D. TEST RESULTS OF POWER SPECTRAL DENSITY

APPENDIX E. TEST RESULTS OF EMISSIONS IN NON-RESTRICTED FREQUENCY BANDS

APPENDIX F. TEST RESULTS OF EMISSIONS IN RESTRICTED FREQUENCY BANDS

APPENDIX G. TEST RESULTS OF RADIATED EMISSION CO-LOCATION

APPENDIX H. TEST PHOTOS

PHOTOGRAPHS OF EUT V01



Summary of Test Result

Report Clause	Ref.Std. Clause	Test Items	Result (PASS/FAIL)	Remark
1.1.2	15.203	Antenna Requirement	PASS	-
3.1	15.207	AC Power-line Conducted Emissions	PASS	-
3.2	15.247(a)	DTS Bandwidth	PASS	-
3.3	15.247(b)	Maximum Conducted Output Power	PASS	-
3.4	15.247(e)	Power Spectral Density	PASS	-
3.5	15.247(d)	Emissions in Non-restricted Frequency Bands	PASS	-
3.6	15.247(d)	Emissions in Restricted Frequency Bands	PASS	-

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and explanations:
None

Reviewed by: Ben Tseng

Report Producer: Ann Hou



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 (1Mbps/2Mbps) modulation.
- BWch is the nominal channel bandwidth.

1.1.2 Antenna Information

Ant.	Port	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	1	WIESON	ARY196-4044-002-00	Omni directional	MHF 1	3.61

Note 1: The EUT has one antenna.

For BT function:

Ant. 1 (port 1) could transmit/receive.

1.1.3 EUT Information

Operational Condition	
EUT Power Type	From Switching Power Supply
EUT Function	<input checked="" type="checkbox"/> Point-to-multipoint <input type="checkbox"/> Point-to-point
Type of EUT	
<input checked="" type="checkbox"/>	Stand-alone
<input type="checkbox"/>	Combined (EUT where the radio part is fully integrated within another device)
	Combined Equipment - Brand Name / Model No.: ...
<input type="checkbox"/>	Plug-in radio (EUT intended for a variety of host systems)
	Host System - Brand Name / Model No.: ...
<input type="checkbox"/>	Other:

1.1.4 Mode Test Duty Cycle

Mode	DC	DCF (dB)	T (s)	VBW (Hz)_1/T
BT-LE(1Mbps)	0.851	0.7	2.128m	1k
BT-LE(2Mbps)	0.859	0.66	1.074m	1k

Note. If DC < 0.98, the DCF was added while measuring Output power and PSD.

1.2 Testing Applied Standards

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

- 47 CFR FCC Part 15
- ANSI C63.10-2013

The following reference test guidance is not within the scope of accreditation of TAF:

- KDB 558074 D01 v05r02
- KDB 414788 D01 v01r01

1.3 Testing Location Information

Test Lab. : Sporton International Inc. Hsinhua Laboratory				
<input checked="" type="checkbox"/>	Hsinhua (TAF: 3785)	ADD: No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333411, Taiwan (R.O.C.)		
		TEL: 886-3-327-3456	FAX: 886-3-327-0973	
Test site Designation No. TW3785 with FCC.				
Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
AC Conduction	CO04-HY	Edward Wang	21.1~21.4°C / 50~52%	23/Mar/2024
RF Conducted	TH01-HY	Raven Chien	22.5~23.1°C / 55~59%	23/Mar/2024
Radiated	03CH03-HY	Edward Wang	22.2~23.4°C / 50~52%	22/Mar/2024~23/Mar/2024
Radiated (Co-location)	03CH03-HY	Jack Tang	20.1~22.1°C / 51~54%	11/Apr/2024
<input type="checkbox"/>	Wen 33rd.St. (TAF: 3785)	ADD: No.14-1, Ln. 19, Wen 33rd St., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.)		
		TEL: 886-3-318-0787	FAX: 886-3-318-0287	
Test site Designation No. TW0008 with FCC.				

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
AC Power-line Conducted Emissions	4.53 dB	Confidence levels of 95%
Bandwidth	3 MHz	Confidence levels of 95%
Maximum Conducted Output Power	2 dB	Confidence levels of 95%
Power Spectral Density	2 dB	Confidence levels of 95%
Emissions in Non-restricted Frequency Bands	0.14 dB	Confidence levels of 95%
Emissions in Restricted Frequency Bands	4.8 dB	Confidence levels of 95%
Temperature	0.41 °C	Confidence levels of 95%
Humidity	3.4 %	Confidence levels of 95%



2 Test Configuration of EUT

2.1 Test Channel Mode




Test Software Version	FCC_Test_Tools_V2.25
-----------------------	----------------------

Mode	Power Setting
BT-LE(1Mbps)	-
2402MHz	10
2440MHz	10
2480MHz	10
BT-LE(2Mbps)	-
2402MHz	10
2440MHz	10
2480MHz	10

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	Switching Power Supply mode

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

The Worst Case Mode for Following Conformance Tests			
Tests Item	Emissions in Restricted Frequency Bands		
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.		
Operating Mode < 1GHz	CTX		
1	Switching Power Supply mode		
Operating Mode > 1GHz	CTX		
Orthogonal Planes of EUT	X Plane	Y Plane	Z Plane
			
Worst Planes of EUT		V	

The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis
Operating Mode	CTX
1	Bluetooth+WLAN 5GHz
Refer to Sporton Test Report No.: FA420501 for Co-location RF Exposure Evaluation and Appendix G for Radiated Emission Co-location.	

2.3 Accessories

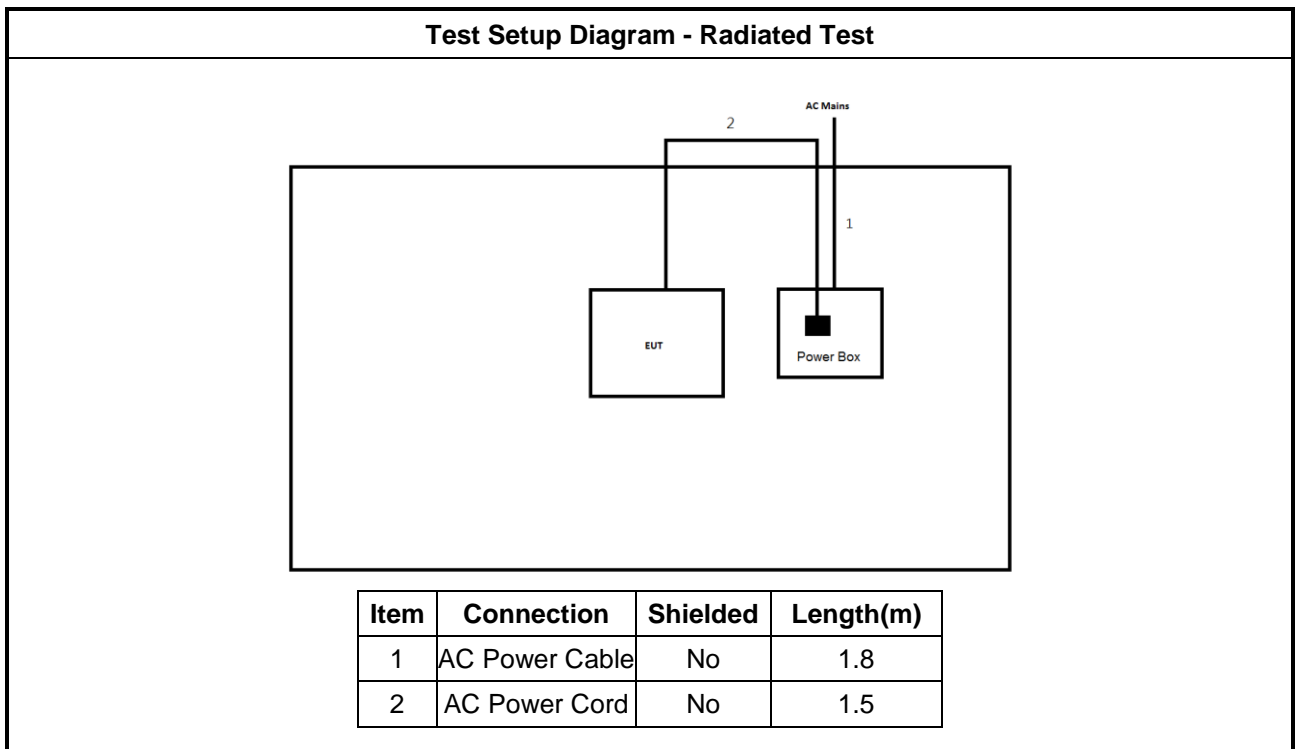
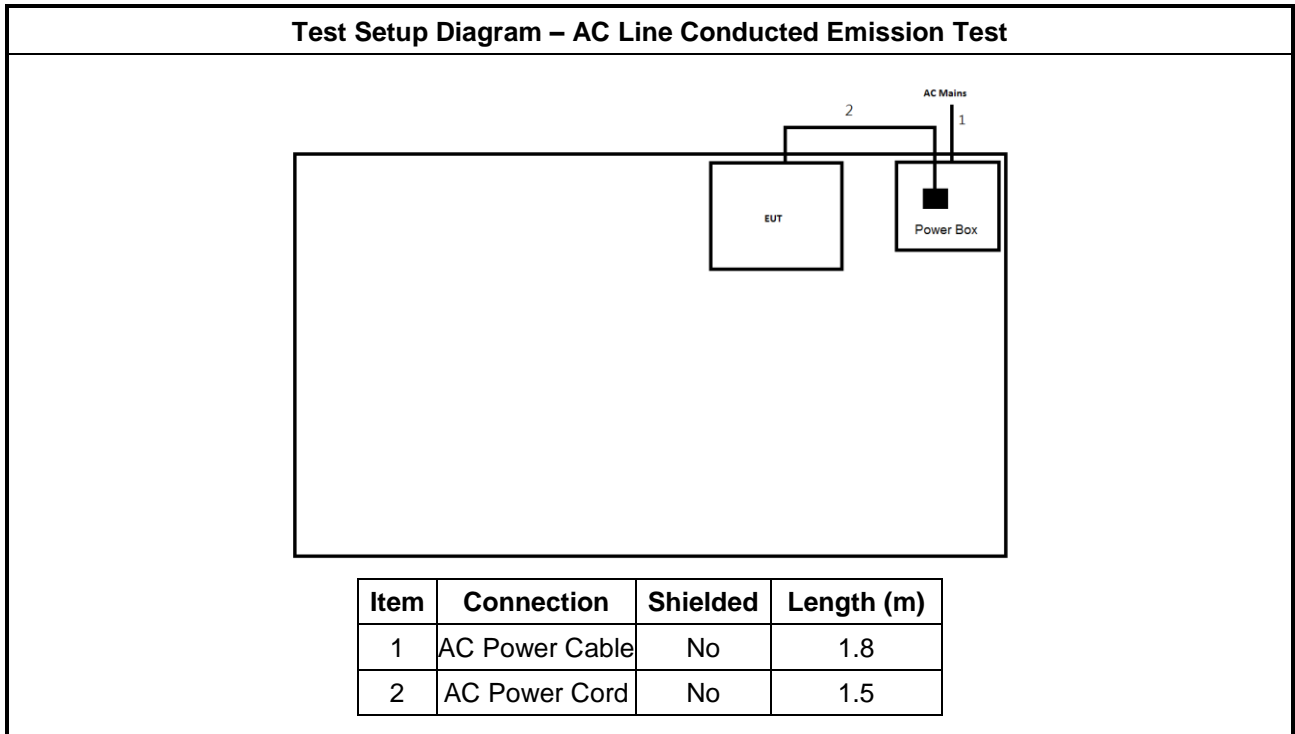
Accessories			
AC Power Cord (* 2 pcs)	Signal Line	1.5 meter, Non-Shielded cable, without ferrite core	
HDMI Cable (X1 PCS)	Signal Line	1.83 meter, Non-Shielded cable, without ferrite core	
Audio Cable (X 2 PCS) (for Surround Speaker)	Signal Line	8 meter, Non-Shielded cable, without ferrite core	
Surround Speaker (X 2 PCS)	Brand Name	VIZIO	Model Name SL512X-0806 Surround
	Manufacturer	Zylux	
Wireless Subwoofer (X1 PCS)	Brand Name	VIZIO	Model Name SL512X-0806 subwoofer
	Manufacturer	Zylux	

Reminder: Regarding to more detail and other information, please refer to user manual.

2.4 Support Equipment

Support Equipment – Conducted					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	Notebook	DELL	E5410	-	-
2	Adapter for NB	DELL	HA65NM130	-	-
3	Test Fixture	ZYLUX	-	-	Provided by Customer

2.5 Test Setup Diagram





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

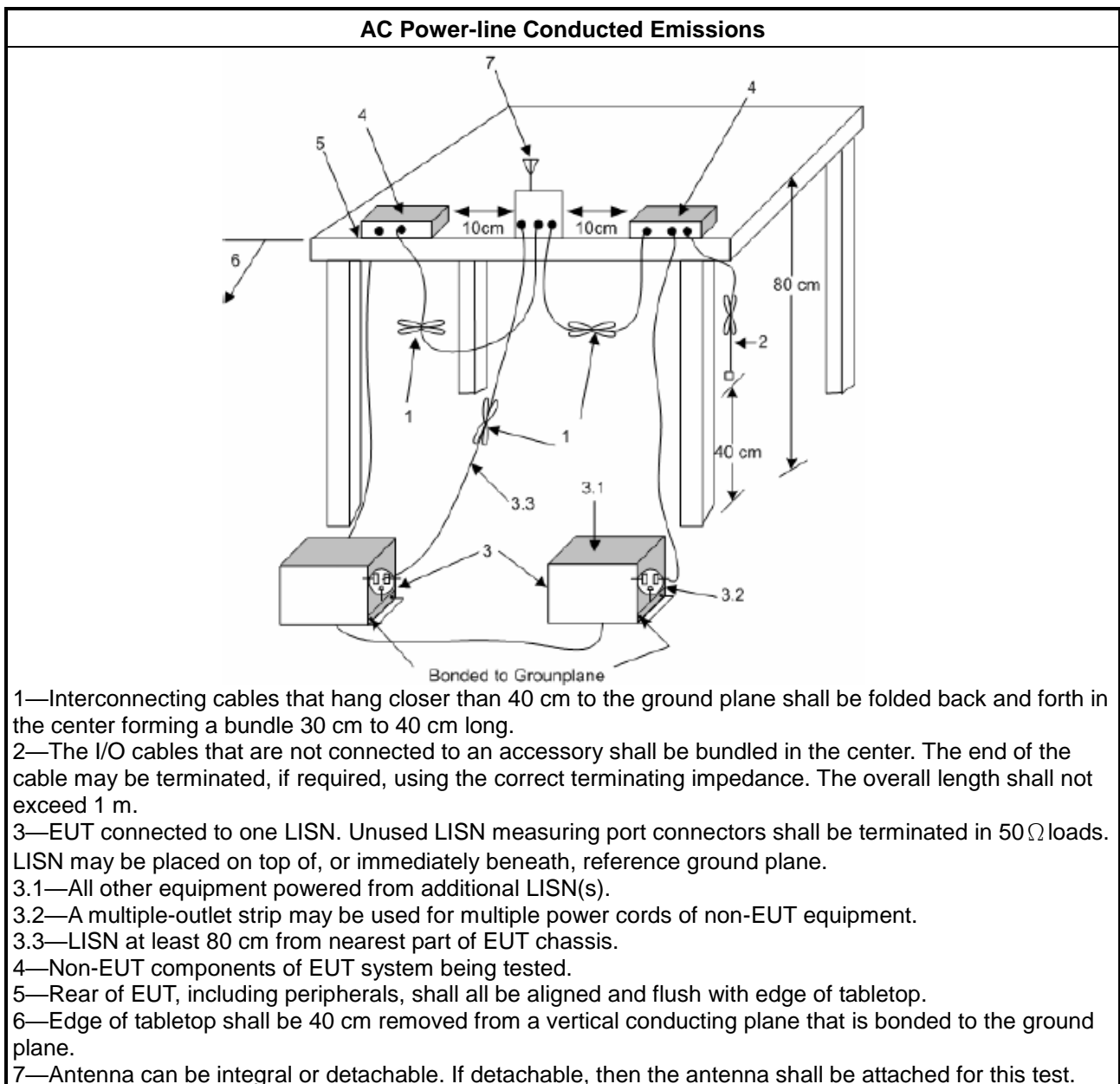
Test Method
<ul style="list-style-type: none"> Refer as ANSI C63.10-2013, clause 6.2 foray power-line conducted emissions.

3.1.4 Measurement Results Calculation

The measured Level is calculated using:

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

3.1.5 Test Setup



3.1.6 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.

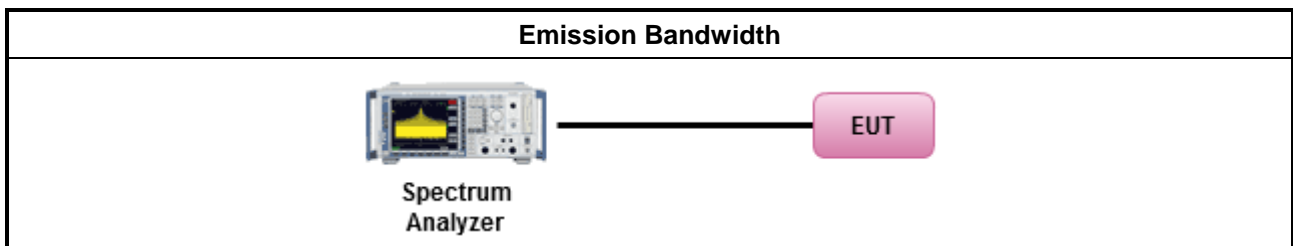
3.2.2 Measuring Instruments

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:
<input checked="" type="checkbox"/>	Refer as KDB 558074, clause 8.2 (11.8 of ANSI C63.10) DTS bandwidth measurement.
<input type="checkbox"/>	Refer as RSS-Gen, clause 6.7 for occupied bandwidth testing.
<input type="checkbox"/>	Refer as ANSI C63.10, clause 6.9.3 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	
	<ul style="list-style-type: none"> ▪ If $G_{TX} \leq 6$ dBi, then $P_{Out} \leq 30$ dBm (1 W)
	<ul style="list-style-type: none"> ▪ Point-to-multipoint systems (P2M): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$ dBm
	<ul style="list-style-type: none"> ▪ Point-to-point systems (P2P): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
	<ul style="list-style-type: none"> ▪ Smart antenna system (SAS):
	<ul style="list-style-type: none"> - Single beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
	<ul style="list-style-type: none"> - Overlap beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
	<ul style="list-style-type: none"> - Aggregate power on all beams: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3 + 8$ dB dBm
e.i.r.p. Power Limit:	
	<ul style="list-style-type: none"> ▪ 2400-2483.5 MHz Band
	<ul style="list-style-type: none"> ▪ Point-to-multipoint systems (P2M): $P_{eirp} \leq 36$ dBm (4 W)
	<ul style="list-style-type: none"> ▪ Point-to-point systems (P2P): $P_{eirp} \leq \text{MAX}(36, [P_{Out} + G_{TX}])$ dBm
	<ul style="list-style-type: none"> ▪ Smart antenna system (SAS)
	<ul style="list-style-type: none"> - Single beam: $P_{eirp} \leq \text{MAX}(36, P_{Out} + G_{TX})$ dBm
	<ul style="list-style-type: none"> - Overlap beam: $P_{eirp} \leq \text{MAX}(36, P_{Out} + G_{TX})$ dBm
	<ul style="list-style-type: none"> - Aggregate power on all beams: $P_{eirp} \leq \text{MAX}(36, [P_{Out} + G_{TX} + 8])$ 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.	

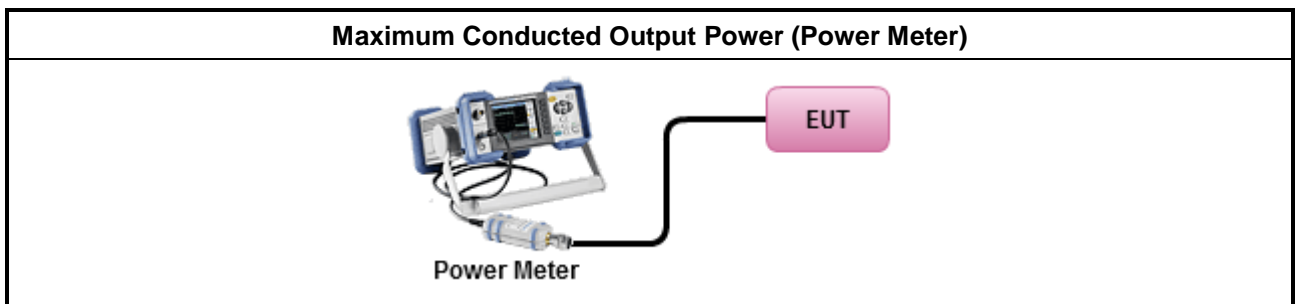
3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

Test Method	
<ul style="list-style-type: none"> ▪ Maximum Peak Conducted Output Power 	
<input type="checkbox"/>	Refer as KDB 558074, clause 8.3.1.1 (11.9.1.1 of ANSI C63.10) RBW ≥ EBW method.
<input type="checkbox"/>	Refer as KDB 558074, clause 8.3.1.2 (11.9.1.2 of ANSI C63.10) integrated band power method.
<input type="checkbox"/>	Refer as KDB 558074, clause 8.3.1.3 (11.9.1.3 of ANSI C63.10) peak power meter.
<ul style="list-style-type: none"> ▪ Maximum Average Conducted Output Power 	
<input type="checkbox"/>	Refer as KDB 558074, clause 8.3.2.2 (11.9.2.2 of ANSI C63.10) using a spectrum analyzer.
<input checked="" type="checkbox"/>	Refer as KDB 558074, clause 8.3.2.3 (11.9.2.3 of ANSI C63.10) using a power meter.
<ul style="list-style-type: none"> ▪ For conducted measurement. 	
<ul style="list-style-type: none"> ▪ If the EUT supports multiple transmit chains using options given below: Refer as 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. 	
<ul style="list-style-type: none"> ▪ 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]) $EIRP_{total} = P_{total} + DG$ 	

3.3.4 Test Setup



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
<ul style="list-style-type: none"> Power Spectral Density (PSD) ≤ 8 dBm/3kHz

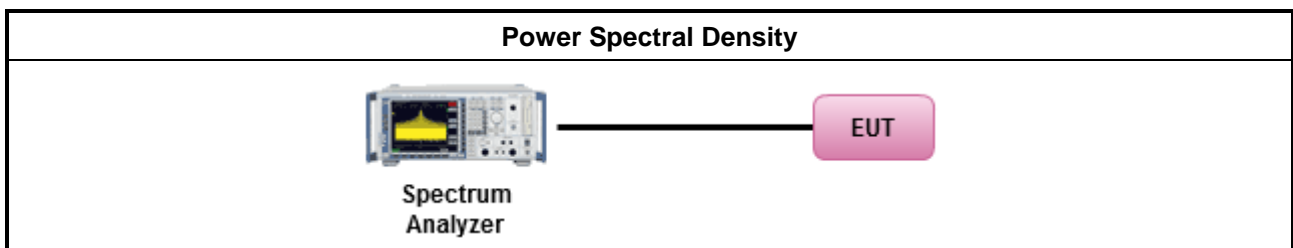
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

Test Method	
<ul style="list-style-type: none"> 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). 	
<input checked="" type="checkbox"/>	Refer as KDB 558074, clause 8.4 (11.10 of ANSI C63.10) Max. PSD.
<ul style="list-style-type: none"> For conducted measurement. 	
<ul style="list-style-type: none"> If The EUT supports multiple transmit chains using options given below: 	
<input type="checkbox"/>	<ul style="list-style-type: none"> Measure and sum the spectra across the outputs. Refer as 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.

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 (dB)
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 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 level.

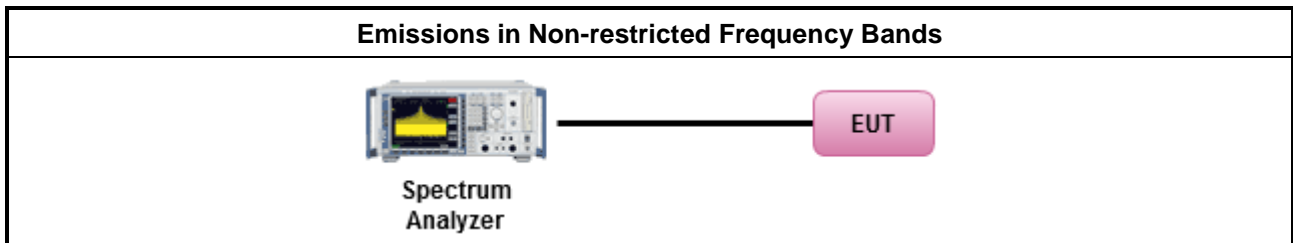
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

Test Method
<ul style="list-style-type: none"> Refer as KDB 558074, clause 8.5 (11.11 of ANSI C63.10) for non-restricted frequency 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

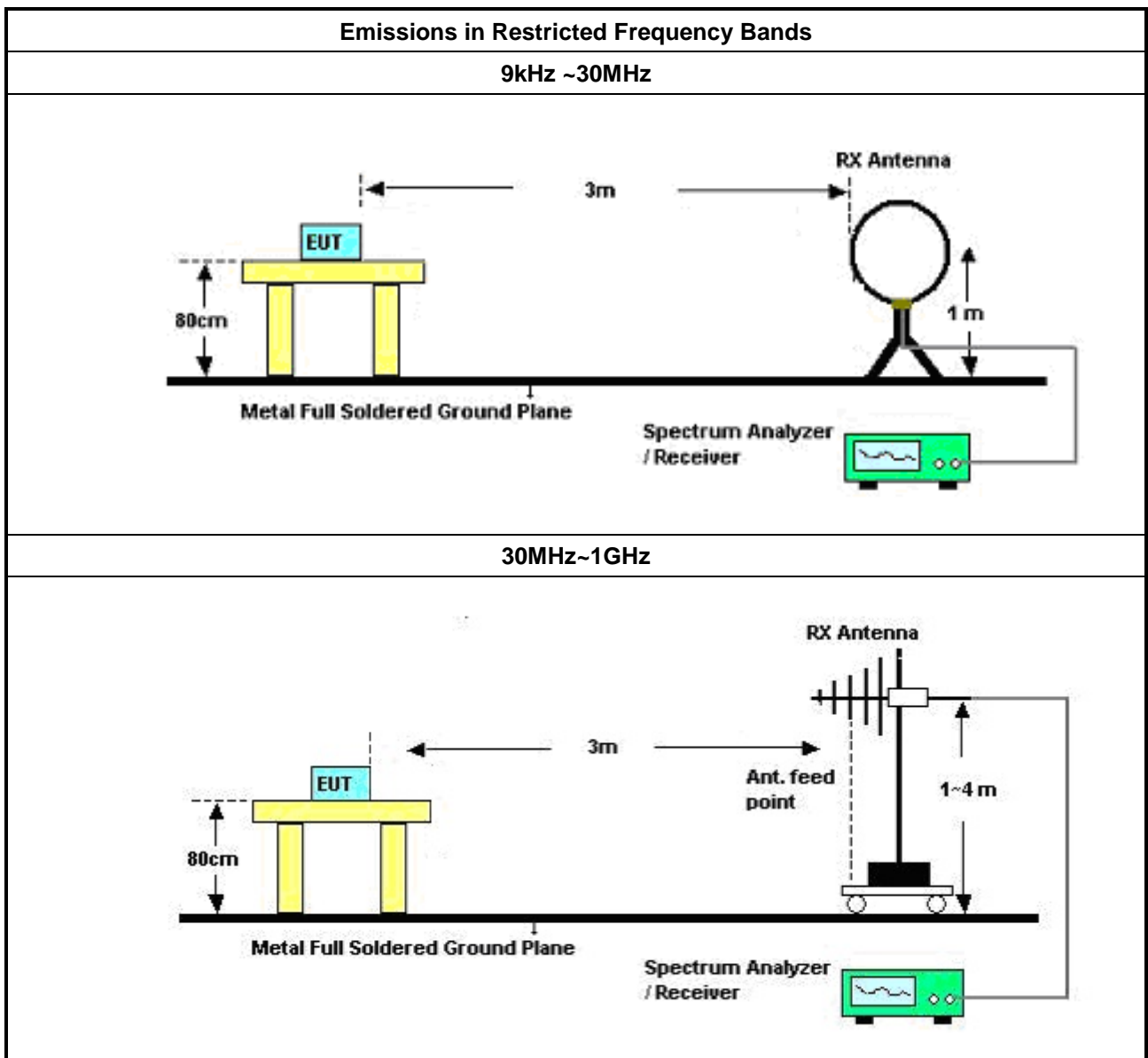
Test Method	
	<ul style="list-style-type: none"> ▪ The average emission levels shall be measured in [duty cycle ≥ 98 or duty factor].
	<ul style="list-style-type: none"> ▪ Refer as ANSI C63.10, clause 6.10.3 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.
	<ul style="list-style-type: none"> ▪ For the transmitter unwanted emissions shall be measured using following options below:
	<ul style="list-style-type: none"> ▪ Refer as KDB 558074, clause 8.6 (11.12 of ANSI C63.10) for restricted frequency bands.
	<ul style="list-style-type: none"> ▪ For the transmitter band-edge emissions shall be measured using following options below:
	<ul style="list-style-type: none"> ▪ Refer as KDB 558074 clause 8.7.1, 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.
	<ul style="list-style-type: none"> ▪ Refer as KDB 558074, clause 8.7.2 (6.10.6 of ANSI C63.10) for marker-delta method for band-edge measurements.
	<ul style="list-style-type: none"> ▪ Refer as KDB 558074, clause 8.7.3 for narrower resolution bandwidth (100kHz) using the band power and summing the spectral levels.
	<ul style="list-style-type: none"> ▪ Use the following spectrum analyzer settings:
	<ul style="list-style-type: none"> ▪ Set RBW=100 kHz for f < 1 GHz; VBW=3 * RBW; Sweep = auto; Detector function = peak; Trace = max hold.
	<ul style="list-style-type: none"> ▪ Set RBW = 1 MHz, VBW= 3MHz for f ≥ 1 GHz for peak measurement. For average measurement, refer as 1.1.4.
	<ul style="list-style-type: none"> ▪ KDB 414788 Open-Field Test Sites and Chamber Correlation Justification.
	<ul style="list-style-type: none"> ▪ Based on FCC 15.31(f)(2): measurements may be performed at a distance closer than that specified in regulations; however, an attempt should be made to avoid making measurements in the near field.
	<ul style="list-style-type: none"> ▪ Open-field site and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

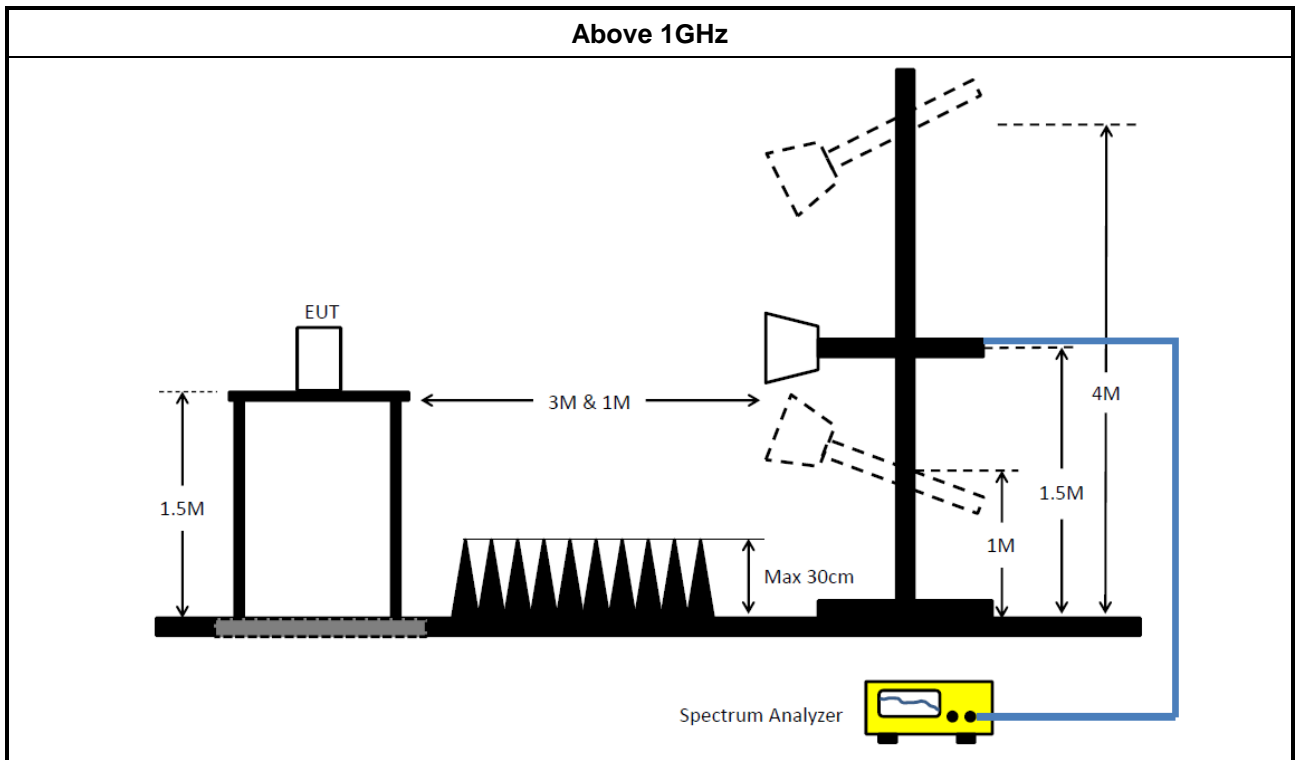
3.6.4 Measurement Results Calculation

The measured Level is calculated using:

Corrected Reading: Raw(Read Level) + AF(Antenna Factor) + CL(Cable Loss) - PA(Preamp Factor)

3.6.5 Test Setup





3.6.6 Test Result of Emissions in Restricted Frequency Bands (Below 30MHz)

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

3.6.7 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix F

4 Test Equipment and Calibration Data

Instrument for AC Conduction

Instrument	Manufacturer /Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
EMI Test Receiver	R&S	ESR	102051	9kHz ~ 3.6GHz	16/May/2023	15/May/2024
Two-Line V-Network	R&S	ENV 216	101295	9kHz ~ 30MHz	05/Feb/2024	04/Feb/2025
RF Cable 5m	TITAN	TITAN	CO04-cable-01	9kHz ~ 200MHz	27/Feb/2024	26/Feb/2025
Impuls Begrenzer Pulse Limiter	SCHWARZBECK	VTSD 9561-F	9561-F041	9kHz ~ 30MHz	18/Oct/2023	17/Oct/2024
Software	Sporton	SENSE-EMI	V5.11.3	-	NCR	NCR

NCR: No Calibration Required

Instrument for Conducted Test

Instrument	Manufacturer /Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Signal Analyzer	R&S	FSV 40	101013	10Hz~40GHz	10/Apr/2023	09/Apr/2024
SMB100A Signal Generator	R&S	SMB100A	181147	100kHz~40GHz	20/Oct/2023	19/Oct/2024
Power Meter	Anritsu	ML2495A	0949003	300MHz~40GHz	17/Feb/2024	26/Feb/2025
Pulse Sensor	Anritsu	MA2411B	0917017	300MHz~40GHz	17/Feb/2024	26/Feb/2025
SENSE-15247_FS	Sporton	V5.11.17	N/A	N/A	N/A	N/A

Instrument for Radiated Test

Instrument	Manufacturer /Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	1GHz~18GHz 3m	28/Jul/2023	27/Jul/2024
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30MHz~1GHz 3m	30/Jul/2023	29/Jul/2024
EMI Test Receiver	R&S	ESR3	102051	9kHz~3.6GHz	16/May/2023	15/May/2024
Signal Analyzer	R&S	FSV40	101500	10Hz~40GHz	26/Oct/2023	25/Oct/2024
Loop Antenna	TESEQ	HLA 6121	65417	9kHz~30MHz	13/Oct/2023	12/Oct/2024
Bilog Antenna & 6dB Attenuator	SCHAFFNER / EMCI	CBL6112B / N-6-05	22237 / AT-N-0603	30MHz~1GHz	15/Oct/2023	14/Oct/2024
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	2267	1GHz~18GHz	04/Oct/2023	03/Oct/2024
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	1248	18GHz ~ 40GHz	21/Aug/2023	20/Aug/2024
RF Cable-R03m	Jye Bao	RG142	CB021	9kHz~30MHz	13/Jun/2023	12/Jun/2024
RF Cable-R03m	Jye Bao	RG142	03CH03-cable-02	30MHz~1GHz	13/Jun/2023	12/Jun/2024
RF CABLE 5+8 m	HUBER+SUHNER	SUOFLEX 104	03CH03-cable-03	1GHz~40GHz	20/Feb/2024	19/Feb/2025
Amplifier	Agilent	8447D	2944A08033	100kHz~1.3GHz	14/Sep/2023	13/Sep/2024
Microwave Preamp	Agilent	8449B	3008A02326	1GHz~26.5GHz	26/Jul/2023	25/Jul/2024
Amplifier	EM	EM18G40GA	60874	18GHz ~ 40GHz	18/Aug/2023	17/Aug/2024
SENSE-15247_FS	Sporton	V5.11.16	N/A	N/A	N/A	N/A



Instrument for Radiated Test (Co-location)

Instrument	Manufacturer /Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	1GHz~18GHz 3m	28/Jul/2023	27/Jul/2024
Signal Analyzer	R&S	FSV40	101500	10Hz~40GHz	26/Oct/2023	25/Oct/2024
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	02267	1GHz~18GHz	04/Oct/2023	03/Oct/2024
RF CABLE 5+6m	HUBER+SUHNE R	SUOFLEX 104	03CH03-cable-01	1GHz~40GHz	29/Jun/2023	28/Jun/2024
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA 9170154	18GHz~40GHz	01/Jun/2023	31/May/2024
Microwave Prempplier	Agilent	8449B	3008A02326	1GHz~26.5GHz	14/Jul/2023	13/Jul/2024
Preamplifier	EMEC	EM18G40GA	060887	18GHz ~ 40GHz	05/Oct/2023	04/Oct/2024
Software	Sporton	SENSE-EMI	V5.11.6	-	-	-



Summary

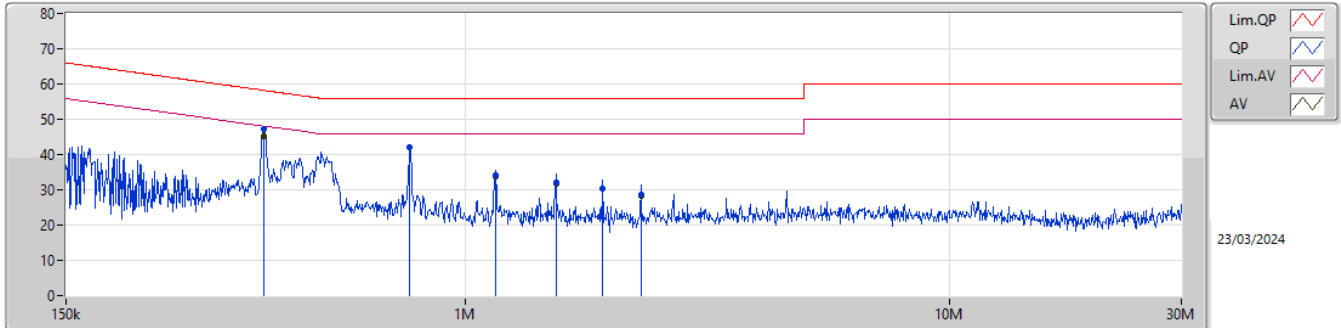
Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	AV	384.811k	45.14	48.18	-3.04	Neutral



Result

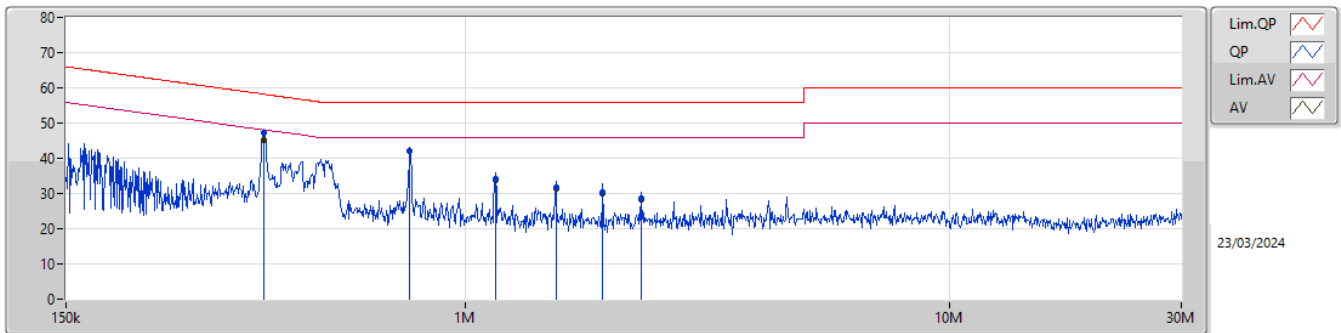
Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	QP	383.278k	47.15	58.20	-11.05	Line
Mode 1	Pass	AV	383.278k	45.12	48.20	-3.08	Line
Mode 1	Pass	QP	767.679k	42.14	56.00	-13.86	Line
Mode 1	Pass	AV	767.679k	41.90	46.00	-4.10	Line
Mode 1	Pass	QP	1.154M	34.00	56.00	-22.00	Line
Mode 1	Pass	AV	1.154M	33.83	46.00	-12.17	Line
Mode 1	Pass	QP	1.538M	31.94	56.00	-24.06	Line
Mode 1	Pass	AV	1.538M	31.58	46.00	-14.42	Line
Mode 1	Pass	QP	1.923M	30.47	56.00	-25.53	Line
Mode 1	Pass	AV	1.923M	30.25	46.00	-15.75	Line
Mode 1	Pass	QP	2.301M	28.68	56.00	-27.32	Line
Mode 1	Pass	AV	2.301M	28.38	46.00	-17.62	Line
Mode 1	Pass	QP	384.811k	47.18	58.18	-11.00	Neutral
Mode 1	Pass	AV	384.811k	45.14	48.18	-3.04	Neutral
Mode 1	Pass	QP	767.679k	42.23	56.00	-13.77	Neutral
Mode 1	Pass	AV	767.679k	42.00	46.00	-4.00	Neutral
Mode 1	Pass	QP	1.154M	34.03	56.00	-21.97	Neutral
Mode 1	Pass	AV	1.154M	33.87	46.00	-12.13	Neutral
Mode 1	Pass	QP	1.538M	31.77	56.00	-24.23	Neutral
Mode 1	Pass	AV	1.538M	31.40	46.00	-14.60	Neutral
Mode 1	Pass	QP	1.923M	30.36	56.00	-25.64	Neutral
Mode 1	Pass	AV	1.923M	30.14	46.00	-15.86	Neutral
Mode 1	Pass	QP	2.301M	28.63	56.00	-27.37	Neutral
Mode 1	Pass	AV	2.301M	28.31	46.00	-17.69	Neutral

Conducted Emissions at Powerline_Mode 1



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)
QP	383.278k	47.15	58.20	-11.05	19.49	Line	-	27.66	9.61	0.12	9.76
AV	383.278k	45.12	48.20	-3.08	19.49	Line	-	25.63	9.61	0.12	9.76
QP	767.679k	42.14	56.00	-13.86	19.50	Line	-	22.64	9.61	0.10	9.79
AV	767.679k	41.90	46.00	-4.10	19.50	Line	-	22.40	9.61	0.10	9.79
QP	1.154M	34.00	56.00	-22.00	19.50	Line	-	14.50	9.61	0.09	9.80
AV	1.154M	33.83	46.00	-12.17	19.50	Line	-	14.33	9.61	0.09	9.80
QP	1.538M	31.94	56.00	-24.06	19.52	Line	-	12.42	9.62	0.10	9.80
AV	1.538M	31.58	46.00	-14.42	19.52	Line	-	12.06	9.62	0.10	9.80
QP	1.923M	30.47	56.00	-25.53	19.53	Line	-	10.94	9.62	0.11	9.80
AV	1.923M	30.25	46.00	-15.75	19.53	Line	-	10.72	9.62	0.11	9.80
QP	2.301M	28.68	56.00	-27.32	19.52	Line	-	9.16	9.62	0.10	9.80
AV	2.301M	28.38	46.00	-17.62	19.52	Line	-	8.86	9.62	0.10	9.80

Conducted Emissions at Powerline_Mode 1



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)
QP	384.811k	47.18	58.18	-11.00	19.49	Neutral	-	27.69	9.61	0.12	9.76
AV	384.811k	45.14	48.18	-3.04	19.49	Neutral	-	25.65	9.61	0.12	9.76
QP	767.679k	42.23	56.00	-13.77	19.50	Neutral	-	22.73	9.61	0.10	9.79
AV	767.679k	42.00	46.00	-4.00	19.50	Neutral	-	22.50	9.61	0.10	9.79
QP	1.154M	34.03	56.00	-21.97	19.50	Neutral	-	14.53	9.61	0.09	9.80
AV	1.154M	33.87	46.00	-12.13	19.50	Neutral	-	14.37	9.61	0.09	9.80
QP	1.538M	31.77	56.00	-24.23	19.52	Neutral	-	12.25	9.62	0.10	9.80
AV	1.538M	31.40	46.00	-14.60	19.52	Neutral	-	11.88	9.62	0.10	9.80
QP	1.923M	30.36	56.00	-25.64	19.53	Neutral	-	10.83	9.62	0.11	9.80
AV	1.923M	30.14	46.00	-15.86	19.53	Neutral	-	10.61	9.62	0.11	9.80
QP	2.301M	28.63	56.00	-27.37	19.52	Neutral	-	9.11	9.62	0.10	9.80
AV	2.301M	28.31	46.00	-17.69	19.52	Neutral	-	8.79	9.62	0.10	9.80



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)	707.5k	1.022M	1M02F1D	686.25k	1.018M
BT-LE(2Mbps)	1.225M	1.954M	1M95F1D	1.105M	1.924M

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	702.5k	1.018M
2440MHz	Pass	500k	686.25k	1.022M
2480MHz	Pass	500k	707.5k	1.019M
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	500k	1.225M	1.942M
2440MHz	Pass	500k	1.143M	1.954M
2480MHz	Pass	500k	1.105M	1.924M

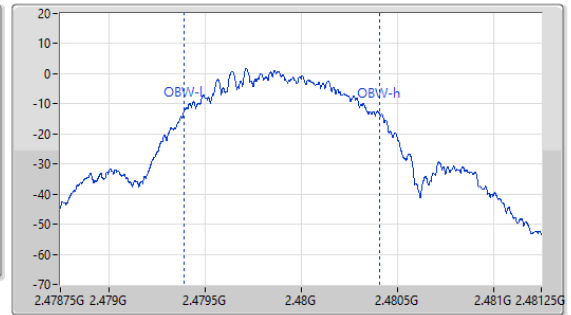
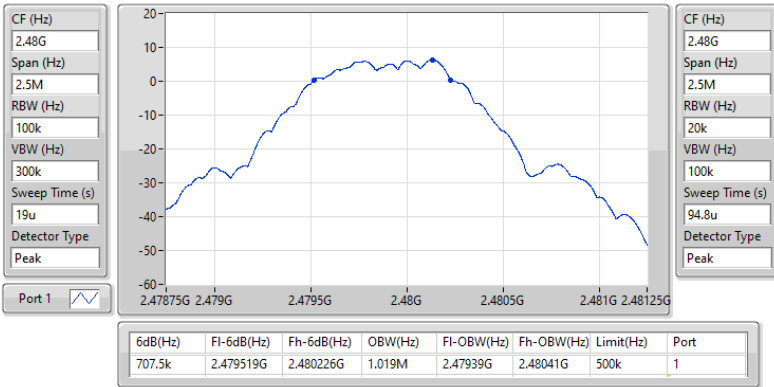
Port X-N dB = Port X 6dB down bandwidth;
Port X-OBW = Port X 99% occupied bandwidth

2.4-2.4835GHz_BT-LE(1Mbps)

EBW-DTS

2480MHz

23/03/2024

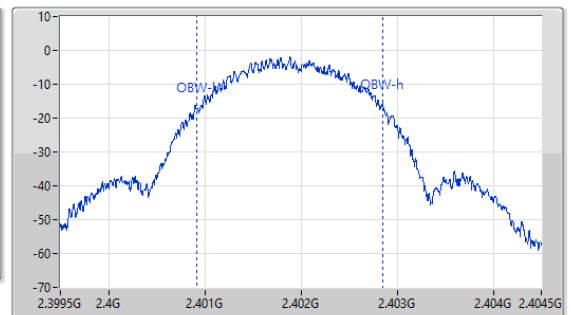
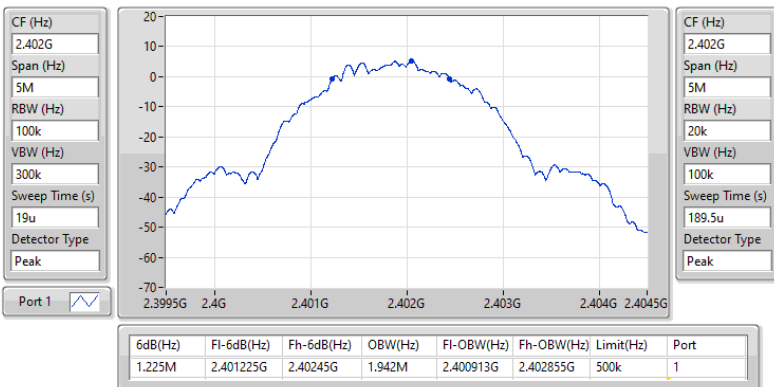


2.4-2.4835GHz_BT-LE(2Mbps)

EBW-DTS

2402MHz

23/03/2024





Summary

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	8.23	0.00665
BT-LE(2Mbps)	7.92	0.00619



Result

Mode	Result	DG (dBi)	Total Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	3.61	8.23	30.00
2440MHz	Pass	3.61	7.97	30.00
2480MHz	Pass	3.61	7.73	30.00
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	3.61	7.92	30.00
2440MHz	Pass	3.61	7.62	30.00
2480MHz	Pass	3.61	7.36	30.00

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



Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE(1Mbps)	-7.15
BT-LE(2Mbps)	-11.13

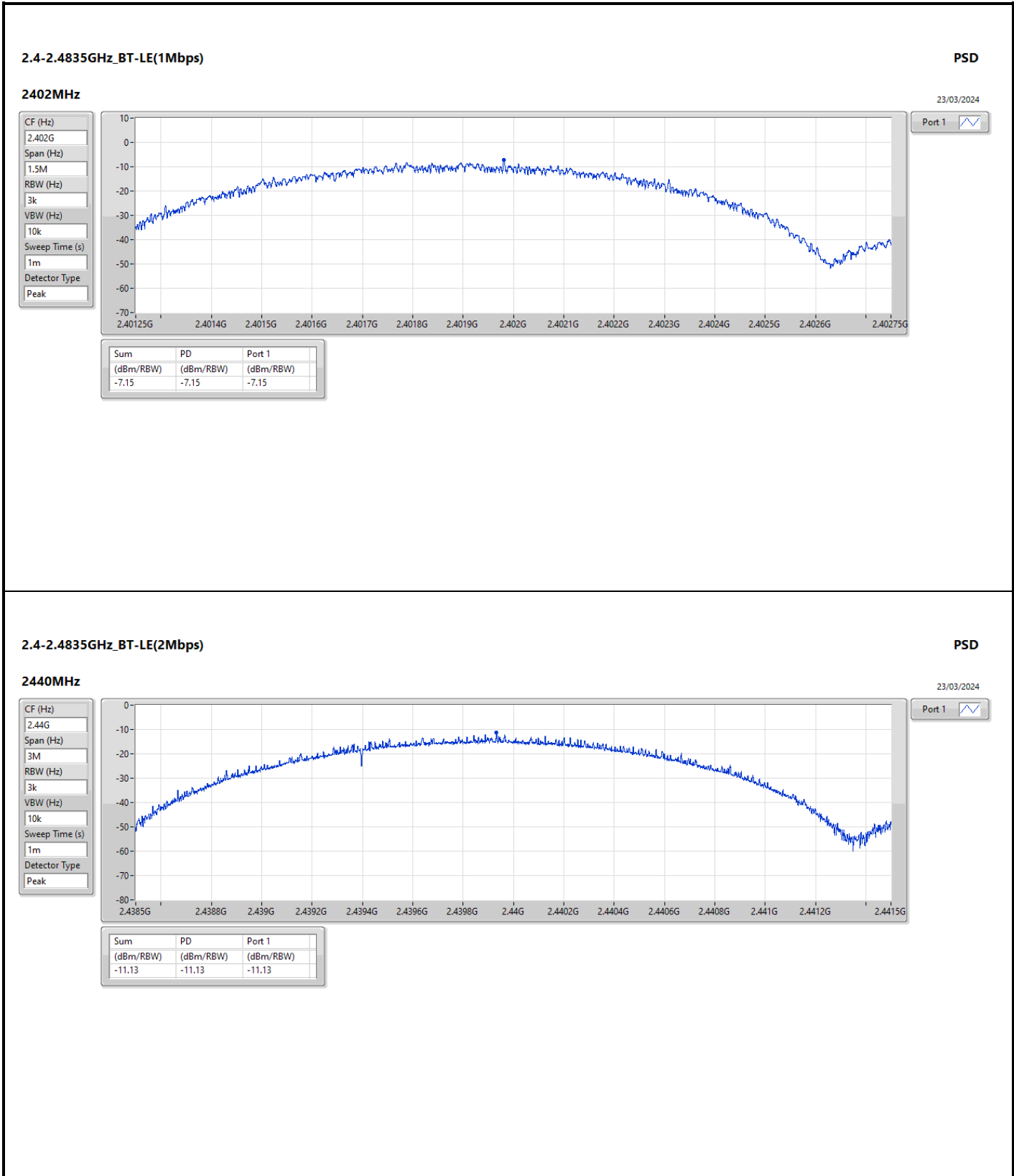
RBW = 3kHz;



Result

Mode	Result	DG (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	3.61	-7.15	8.00
2440MHz	Pass	3.61	-7.27	8.00
2480MHz	Pass	3.61	-7.88	8.00
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	3.61	-11.84	8.00
2440MHz	Pass	3.61	-11.13	8.00
2480MHz	Pass	3.61	-11.28	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;





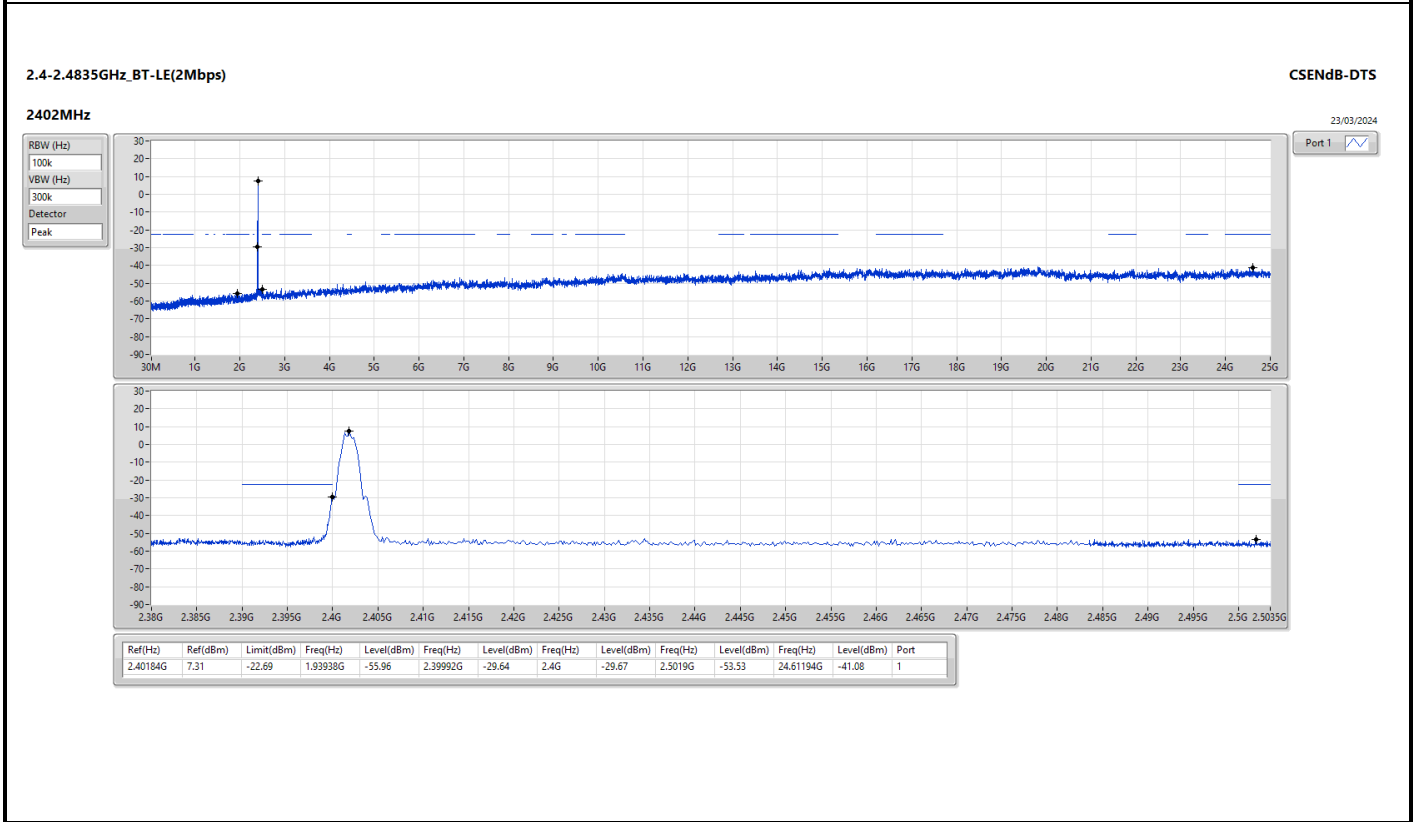
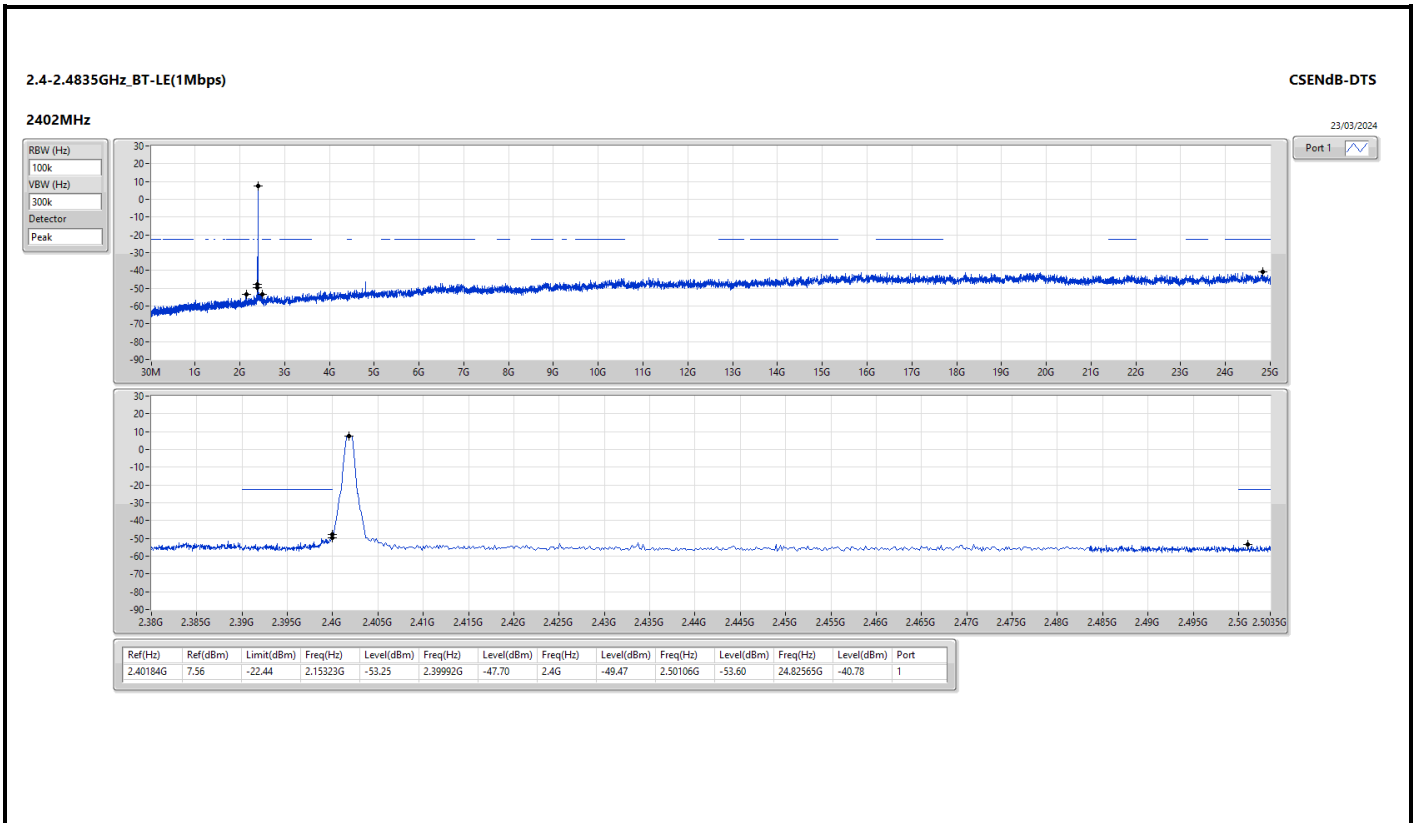
Summary

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	2.40184G	7.56	-22.44	2.15323G	-53.25	2.39992G	-47.70	2.4G	-49.47	2.50106G	-53.60	24.82565G	-40.78	1
BT-LE(2Mbps)	Pass	2.40184G	7.31	-22.69	1.93938G	-55.96	2.39992G	-29.64	2.4G	-29.67	2.5019G	-53.53	24.61194G	-41.08	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	2.40184G	7.56	-22.44	2.15323G	-53.25	2.39992G	-47.70	2.4G	-49.47	2.50106G	-53.60	24.82565G	-40.78	1
2440MHz	Pass	2.40184G	7.56	-22.44	2.18848G	-55.42	2.39184G	-51.13	2.4G	-55.15	2.50318G	-54.00	24.51633G	-41.23	1
2480MHz	Pass	2.40184G	7.56	-22.44	2.12385G	-55.15	2.39604G	-53.38	2.4G	-56.44	2.5025G	-52.56	24.55851G	-41.08	1
BT-LE(2Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.40184G	7.31	-22.69	1.93938G	-55.96	2.39992G	-29.64	2.4G	-29.67	2.5019G	-53.53	24.61194G	-41.08	1
2440MHz	Pass	2.40184G	7.31	-22.69	2.30598G	-56.33	2.39376G	-53.77	2.4G	-55.92	2.50082G	-54.47	24.96063G	-41.07	1
2480MHz	Pass	2.40184G	7.31	-22.69	2.3095G	-54.74	2.39532G	-53.64	2.4G	-55.63	2.50014G	-52.91	24.19575G	-41.16	1





Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-
BT-LE(2Mbps)	Pass	PK	334.58M	34.93	46.00	-11.07	3	Horizontal	0	1.00

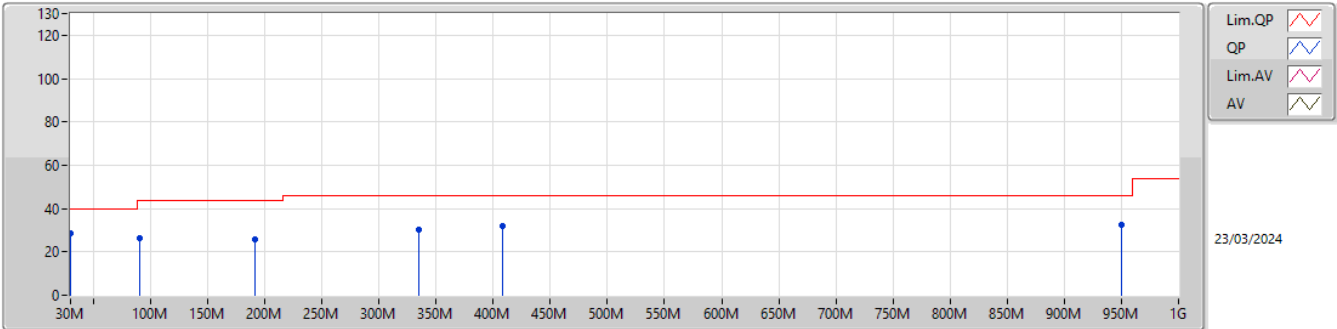


Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
BT-LE(2Mbps)	-	-	-	-	-	-	-	-	-	-
2440MHz	Pass	PK	30M	28.51	40.00	-11.49	3	Vertical	360	1.00
2440MHz	Pass	PK	90.14M	26.07	43.50	-17.43	3	Vertical	360	1.00
2440MHz	Pass	PK	191.02M	25.66	43.50	-17.84	3	Vertical	360	1.00
2440MHz	Pass	PK	334.58M	30.09	46.00	-15.91	3	Vertical	360	1.00
2440MHz	Pass	PK	408.3M	31.84	46.00	-14.16	3	Vertical	360	1.00
2440MHz	Pass	PK	949.56M	32.65	46.00	-13.35	3	Vertical	360	1.00
2440MHz	Pass	PK	158.04M	31.22	43.50	-12.28	3	Horizontal	0	1.00
2440MHz	Pass	PK	191.02M	29.73	43.50	-13.77	3	Horizontal	0	1.00
2440MHz	Pass	PK	278.32M	32.95	46.00	-13.05	3	Horizontal	0	1.00
2440MHz	Pass	PK	334.58M	34.93	46.00	-11.07	3	Horizontal	0	1.00
2440MHz	Pass	PK	414.12M	34.57	46.00	-11.43	3	Horizontal	0	1.00
2440MHz	Pass	PK	627.52M	29.81	46.00	-16.19	3	Horizontal	0	1.00

2.4-2.4835GHz_BT-LE(2Mbps)

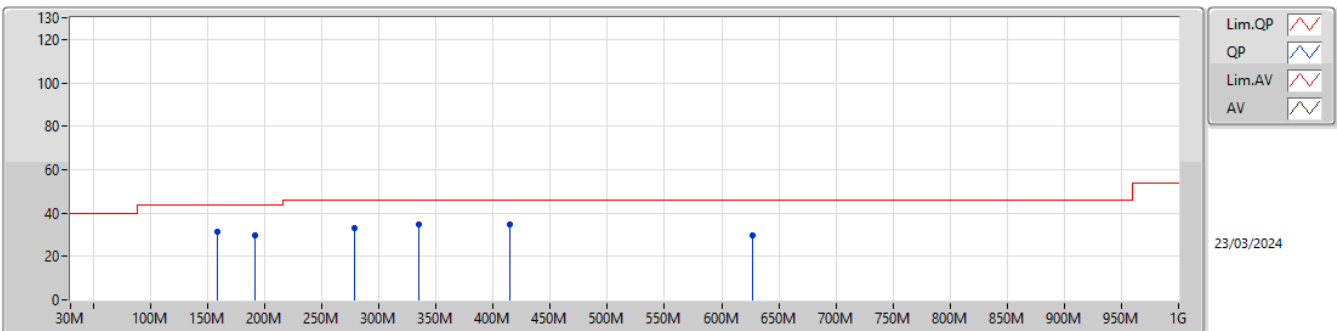
2440MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	30M	28.51	40.00	-11.49	-3.18	3	Vertical	360	1.00	31.69	23.49	0.92	27.59
PK	90.14M	26.07	43.50	-17.43	-11.54	3	Vertical	360	1.00	37.61	14.35	1.56	27.45
PK	191.02M	25.66	43.50	-17.84	-10.57	3	Vertical	360	1.00	36.23	14.25	2.30	27.12
PK	334.58M	30.09	46.00	-15.91	-4.98	3	Vertical	360	1.00	35.07	18.98	3.09	27.05
PK	408.3M	31.84	46.00	-14.16	-2.63	3	Vertical	360	1.00	34.47	21.43	3.41	27.47
PK	949.56M	32.65	46.00	-13.35	3.99	3	Vertical	360	1.00	28.66	26.10	5.57	27.68

2.4-2.4835GHz_BT-LE(2Mbps)

2440MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	158.04M	31.22	43.50	-12.28	-10.10	3	Horizontal	0	1.00	41.32	15.05	2.08	27.23
PK	191.02M	29.73	43.50	-13.77	-10.57	3	Horizontal	0	1.00	40.30	14.25	2.30	27.12
PK	278.32M	32.95	46.00	-13.05	-6.25	3	Horizontal	0	1.00	39.20	17.96	2.79	27.00
PK	334.58M	34.93	46.00	-11.07	-4.98	3	Horizontal	0	1.00	39.91	18.98	3.09	27.05
PK	414.12M	34.57	46.00	-11.43	-2.33	3	Horizontal	0	1.00	36.90	21.74	3.44	27.51
PK	627.52M	29.81	46.00	-16.19	0.51	3	Horizontal	0	1.00	29.30	24.27	4.41	28.17



Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	AV	2.4835G	49.32	54.00	-4.68	3	Vertical	340	2.23
BT-LE(2Mbps)	Pass	AV	2.4835G	49.09	54.00	-4.91	3	Vertical	340	2.23



Result

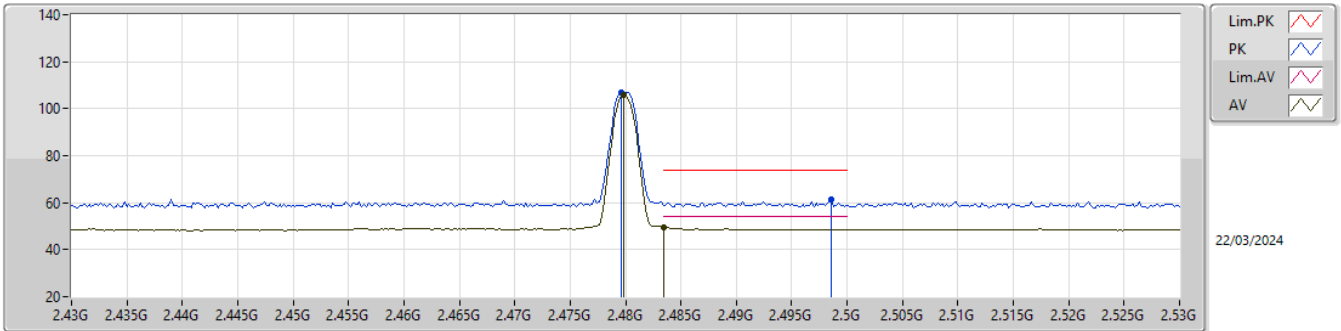
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	AV	2.3866G	48.19	54.00	-5.81	3	Vertical	0	2.60
2402MHz	Pass	AV	2.4018G	106.36	Inf	-Inf	3	Vertical	0	2.60
2402MHz	Pass	PK	2.375G	61.28	74.00	-12.72	3	Vertical	0	2.60
2402MHz	Pass	PK	2.4016G	107.34	Inf	-Inf	3	Vertical	0	2.60
2402MHz	Pass	AV	2.3816G	48.12	54.00	-5.88	3	Horizontal	297	2.23
2402MHz	Pass	AV	2.402G	103.16	Inf	-Inf	3	Horizontal	297	2.23
2402MHz	Pass	PK	2.3868G	60.08	74.00	-13.92	3	Horizontal	297	2.23
2402MHz	Pass	PK	2.4016G	104.14	Inf	-Inf	3	Horizontal	297	2.23
2402MHz	Pass	AV	4.80413G	36.59	54.00	-17.41	3	Vertical	0	1.79
2402MHz	Pass	PK	4.80402G	47.46	74.00	-26.54	3	Vertical	0	1.79
2402MHz	Pass	AV	4.80354G	35.35	54.00	-18.65	3	Horizontal	164	1.50
2402MHz	Pass	PK	4.80332G	47.55	74.00	-26.45	3	Horizontal	164	1.50
2440MHz	Pass	AV	2.3884G	47.74	54.00	-6.26	3	Vertical	341	2.34
2440MHz	Pass	AV	2.44G	106.77	Inf	-Inf	3	Vertical	341	2.34
2440MHz	Pass	AV	2.4924G	48.65	54.00	-5.35	3	Vertical	341	2.34
2440MHz	Pass	PK	2.3888G	59.13	74.00	-14.87	3	Vertical	341	2.34
2440MHz	Pass	PK	2.4396G	107.72	Inf	-Inf	3	Vertical	341	2.34
2440MHz	Pass	PK	2.4952G	61.69	74.00	-12.31	3	Vertical	341	2.34
2440MHz	Pass	AV	2.3536G	47.70	54.00	-6.30	3	Horizontal	296	2.51
2440MHz	Pass	AV	2.44G	102.07	Inf	-Inf	3	Horizontal	296	2.51
2440MHz	Pass	AV	2.4928G	48.65	54.00	-5.35	3	Horizontal	296	2.51
2440MHz	Pass	PK	2.3576G	59.54	74.00	-14.46	3	Horizontal	296	2.51
2440MHz	Pass	PK	2.4396G	103.03	Inf	-Inf	3	Horizontal	296	2.51
2440MHz	Pass	PK	2.4932G	60.33	74.00	-13.67	3	Horizontal	296	2.51
2440MHz	Pass	AV	4.87988G	37.84	54.00	-16.16	3	Vertical	192	1.00
2440MHz	Pass	PK	4.88005G	49.12	74.00	-24.88	3	Vertical	192	1.00
2440MHz	Pass	AV	4.8802G	36.44	54.00	-17.56	3	Horizontal	164	1.67
2440MHz	Pass	PK	4.87989G	48.55	74.00	-25.45	3	Horizontal	164	1.67
2480MHz	Pass	AV	2.4798G	105.86	Inf	-Inf	3	Vertical	340	2.23
2480MHz	Pass	AV	2.4835G	49.32	54.00	-4.68	3	Vertical	340	2.23
2480MHz	Pass	PK	2.4796G	106.78	Inf	-Inf	3	Vertical	340	2.23
2480MHz	Pass	PK	2.4986G	61.28	74.00	-12.72	3	Vertical	340	2.23
2480MHz	Pass	AV	2.4798G	99.75	Inf	-Inf	3	Horizontal	294	2.69
2480MHz	Pass	AV	2.4836G	48.85	54.00	-5.15	3	Horizontal	294	2.69
2480MHz	Pass	PK	2.4802G	100.74	Inf	-Inf	3	Horizontal	294	2.69
2480MHz	Pass	PK	2.4858G	60.19	74.00	-13.81	3	Horizontal	294	2.69
2480MHz	Pass	AV	4.95965G	39.30	54.00	-14.70	3	Vertical	189	1.26
2480MHz	Pass	PK	4.96024G	50.10	74.00	-23.90	3	Vertical	189	1.26
2480MHz	Pass	AV	4.95993G	35.80	54.00	-18.20	3	Horizontal	121	1.23
2480MHz	Pass	PK	4.95871G	47.71	74.00	-26.29	3	Horizontal	121	1.23
BT-LE(2Mbps)	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	AV	2.3834G	48.35	54.00	-5.65	3	Vertical	0	2.60
2402MHz	Pass	AV	2.4018G	104.54	Inf	-Inf	3	Vertical	0	2.60
2402MHz	Pass	PK	2.3816G	59.65	74.00	-14.35	3	Vertical	0	2.60
2402MHz	Pass	PK	2.4018G	106.84	Inf	-Inf	3	Vertical	0	2.60
2402MHz	Pass	AV	2.3896G	47.77	54.00	-6.23	3	Horizontal	298	2.37
2402MHz	Pass	AV	2.4018G	101.21	Inf	-Inf	3	Horizontal	298	2.37
2402MHz	Pass	PK	2.3658G	60.15	74.00	-13.85	3	Horizontal	298	2.37
2402MHz	Pass	PK	2.4018G	103.48	Inf	-Inf	3	Horizontal	298	2.37
2402MHz	Pass	AV	4.80274G	35.48	54.00	-18.52	3	Vertical	357	1.00
2402MHz	Pass	PK	4.80435G	47.30	74.00	-26.70	3	Vertical	357	1.00
2402MHz	Pass	AV	4.80295G	34.73	54.00	-19.27	3	Horizontal	303	1.50
2402MHz	Pass	PK	4.80261G	46.96	74.00	-27.04	3	Horizontal	303	1.50
2440MHz	Pass	AV	2.3892G	47.76	54.00	-6.24	3	Vertical	342	2.34
2440MHz	Pass	AV	2.44G	104.88	Inf	-Inf	3	Vertical	342	2.34
2440MHz	Pass	AV	2.4852G	48.86	54.00	-5.14	3	Vertical	342	2.34
2440MHz	Pass	PK	2.374G	59.58	74.00	-14.42	3	Vertical	342	2.34
2440MHz	Pass	PK	2.44G	107.19	Inf	-Inf	3	Vertical	342	2.34
2440MHz	Pass	PK	2.4835G	60.55	74.00	-13.45	3	Vertical	342	2.34
2440MHz	Pass	AV	2.3876G	47.74	54.00	-6.26	3	Horizontal	296	2.51



Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
2440MHz	Pass	AV	2.44G	100.30	Inf	-Inf	3	Horizontal	296	2.51
2440MHz	Pass	AV	2.49G	48.65	54.00	-5.35	3	Horizontal	296	2.51
2440MHz	Pass	PK	2.3488G	59.04	74.00	-14.96	3	Horizontal	296	2.51
2440MHz	Pass	PK	2.44G	102.56	Inf	-Inf	3	Horizontal	296	2.51
2440MHz	Pass	PK	2.4884G	60.13	74.00	-13.87	3	Horizontal	296	2.51
2440MHz	Pass	AV	4.87875G	37.11	54.00	-16.89	3	Vertical	191	1.05
2440MHz	Pass	PK	4.87969G	48.50	74.00	-25.50	3	Vertical	191	1.05
2440MHz	Pass	AV	4.88067G	35.67	54.00	-18.33	3	Horizontal	165	1.66
2440MHz	Pass	PK	4.88017G	47.73	74.00	-26.27	3	Horizontal	165	1.66
2480MHz	Pass	AV	2.4798G	104.10	Inf	-Inf	3	Vertical	340	2.23
2480MHz	Pass	AV	2.4835G	49.09	54.00	-4.91	3	Vertical	340	2.23
2480MHz	Pass	PK	2.4798G	106.35	Inf	-Inf	3	Vertical	340	2.23
2480MHz	Pass	PK	2.4894G	61.13	74.00	-12.87	3	Vertical	340	2.23
2480MHz	Pass	AV	2.48G	97.99	Inf	-Inf	3	Horizontal	296	2.47
2480MHz	Pass	AV	2.4888G	48.89	54.00	-5.11	3	Horizontal	296	2.47
2480MHz	Pass	PK	2.48G	100.27	Inf	-Inf	3	Horizontal	296	2.47
2480MHz	Pass	PK	2.4866G	60.58	74.00	-13.42	3	Horizontal	296	2.47
2480MHz	Pass	AV	4.95955G	37.72	54.00	-16.28	3	Vertical	189	1.25
2480MHz	Pass	PK	4.95978G	48.99	74.00	-25.01	3	Vertical	189	1.25
2480MHz	Pass	AV	4.959G	35.28	54.00	-18.72	3	Horizontal	281	2.28
2480MHz	Pass	PK	4.9595G	47.18	74.00	-26.82	3	Horizontal	281	2.28

2.4-2.4835GHz_BT-LE(1Mbps)

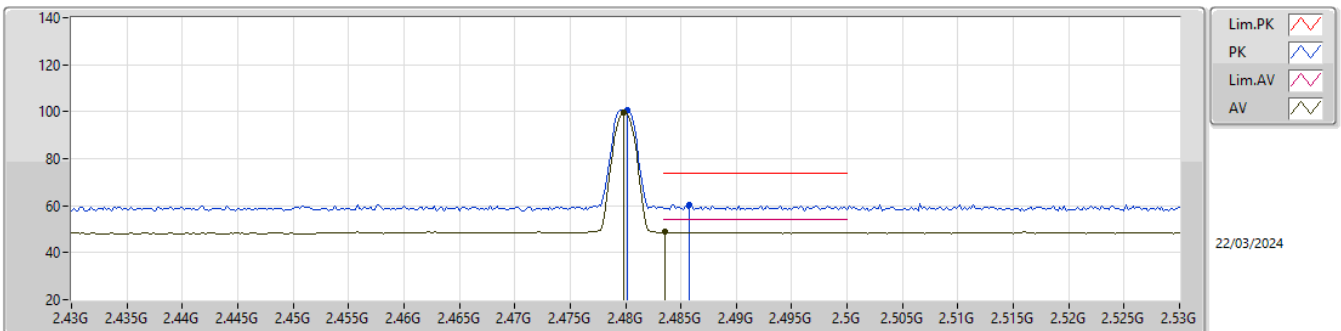
2480MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.4798G	105.86	Inf	-Inf	33.21	3	Vertical	340	2.23	72.65	27.70	5.51	-
AV	2.4835G	49.32	54.00	-4.68	33.25	3	Vertical	340	2.23	16.07	27.74	5.51	-
PK	2.4796G	106.78	Inf	-Inf	33.21	3	Vertical	340	2.23	73.57	27.70	5.51	-
PK	2.4986G	61.28	74.00	-12.72	33.33	3	Vertical	340	2.23	27.95	27.80	5.53	-

2.4-2.4835GHz_BT-LE(1Mbps)

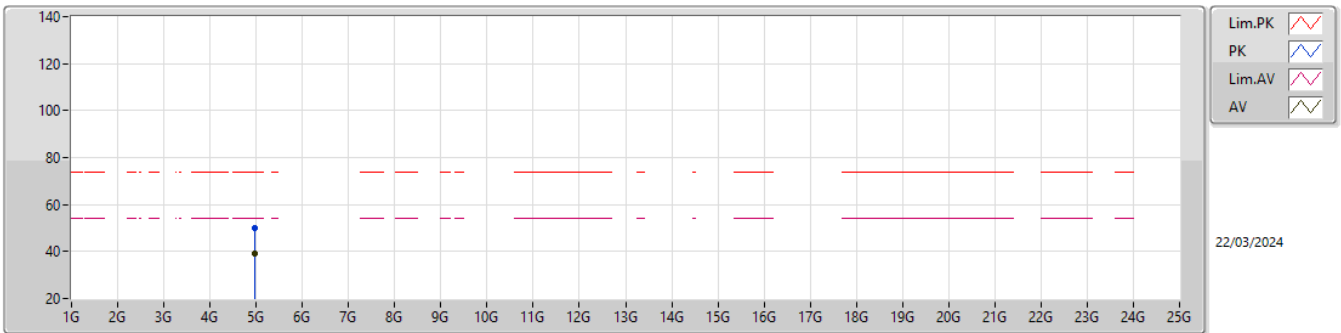
2480MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.4798G	99.75	Inf	-Inf	33.21	3	Horizontal	294	2.69	66.54	27.70	5.51	-
AV	2.4836G	48.85	54.00	-5.15	33.25	3	Horizontal	294	2.69	15.60	27.74	5.51	-
PK	2.4802G	100.74	Inf	-Inf	33.21	3	Horizontal	294	2.69	67.53	27.70	5.51	-
PK	2.4858G	60.19	74.00	-13.81	33.28	3	Horizontal	294	2.69	26.91	27.76	5.52	-

2.4-2.4835GHz_BT-LE(1Mbps)

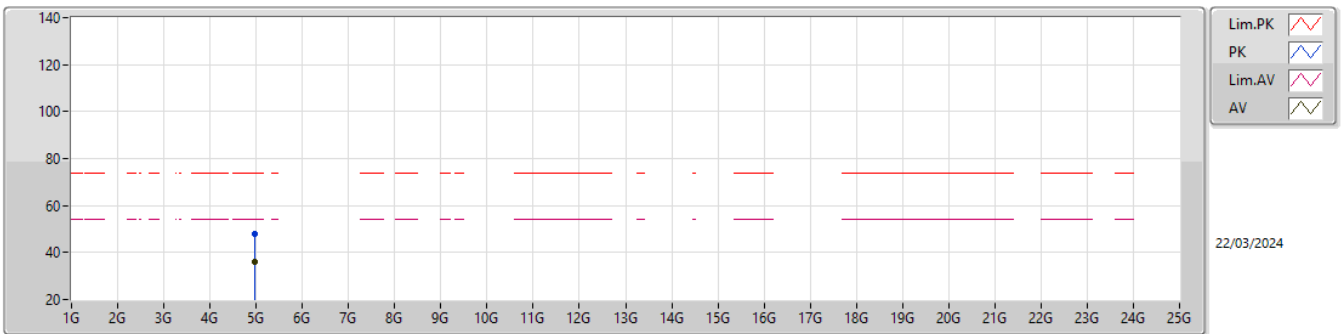
2480MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.95965G	39.30	54.00	-14.70	6.85	3	Vertical	189	1.26	32.45	32.86	7.98	33.99
PK	4.96024G	50.10	74.00	-23.90	6.85	3	Vertical	189	1.26	43.25	32.86	7.98	33.99

2.4-2.4835GHz_BT-LE(1Mbps)

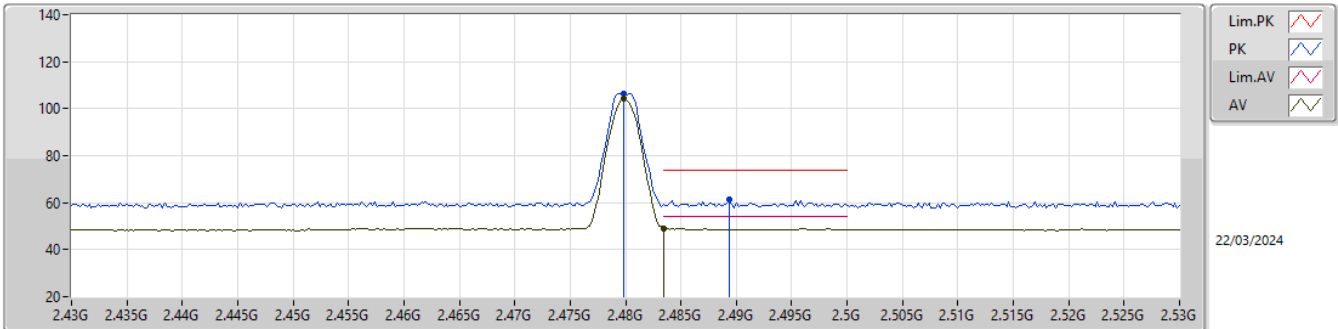
2480MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.95993G	35.80	54.00	-18.20	6.85	3	Horizontal	121	1.23	28.95	32.86	7.98	33.99
PK	4.95871G	47.71	74.00	-26.29	6.84	3	Horizontal	121	1.23	40.87	32.85	7.98	33.99

2.4-2.4835GHz_BT-LE(2Mbps)

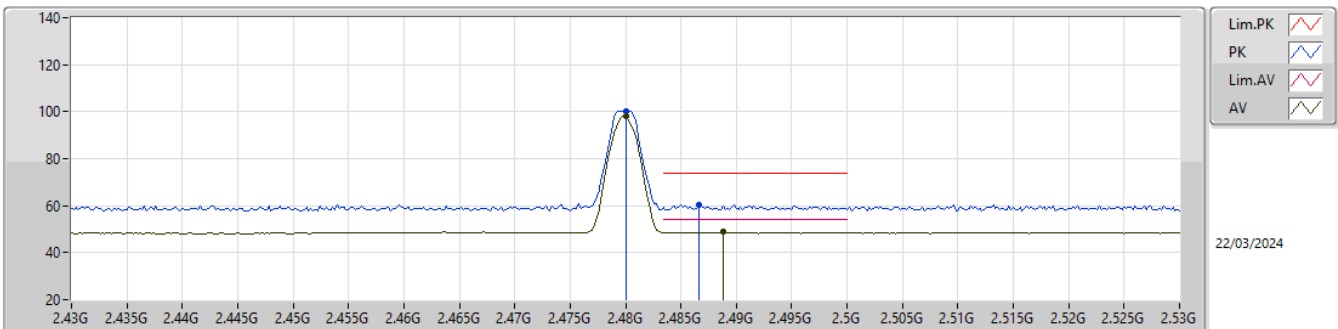
2480MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.4798G	104.10	Inf	-Inf	33.21	3	Vertical	340	2.23	70.89	27.70	5.51	-
AV	2.4835G	49.09	54.00	-4.91	33.25	3	Vertical	340	2.23	15.84	27.74	5.51	-
PK	2.4798G	106.35	Inf	-Inf	33.21	3	Vertical	340	2.23	73.14	27.70	5.51	-
PK	2.4894G	61.13	74.00	-12.87	33.31	3	Vertical	340	2.23	27.82	27.79	5.52	-

2.4-2.4835GHz_BT-LE(2Mbps)

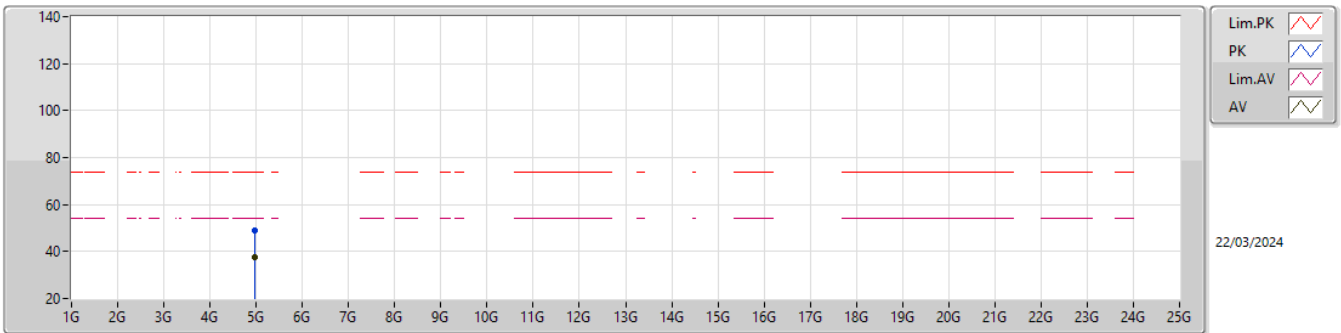
2480MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.48G	97.99	Inf	-Inf	33.21	3	Horizontal	296	2.47	64.78	27.70	5.51	-
AV	2.4888G	48.89	54.00	-5.11	33.31	3	Horizontal	296	2.47	15.58	27.79	5.52	-
PK	2.48G	100.27	Inf	-Inf	33.21	3	Horizontal	296	2.47	67.06	27.70	5.51	-
PK	2.4866G	60.58	74.00	-13.42	33.29	3	Horizontal	296	2.47	27.29	27.77	5.52	-

2.4-2.4835GHz_BT-LE(2Mbps)

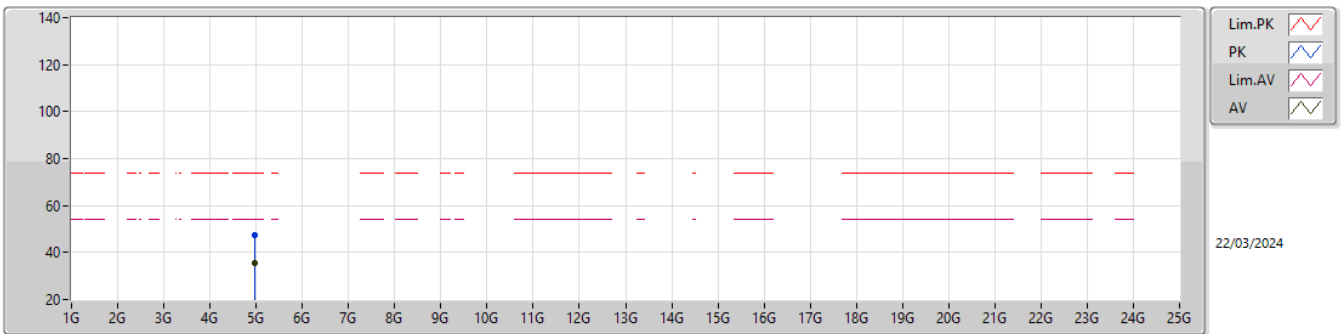
2480MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.95955G	37.72	54.00	-16.28	6.85	3	Vertical	189	1.25	30.87	32.86	7.98	33.99
PK	4.95978G	48.99	74.00	-25.01	6.85	3	Vertical	189	1.25	42.14	32.86	7.98	33.99

2.4-2.4835GHz_BT-LE(2Mbps)

2480MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.959G	35.28	54.00	-18.72	6.84	3	Horizontal	281	2.28	28.44	32.85	7.98	33.99
PK	4.959G	47.18	74.00	-26.82	6.85	3	Horizontal	281	2.28	40.33	32.86	7.98	33.99



Summary

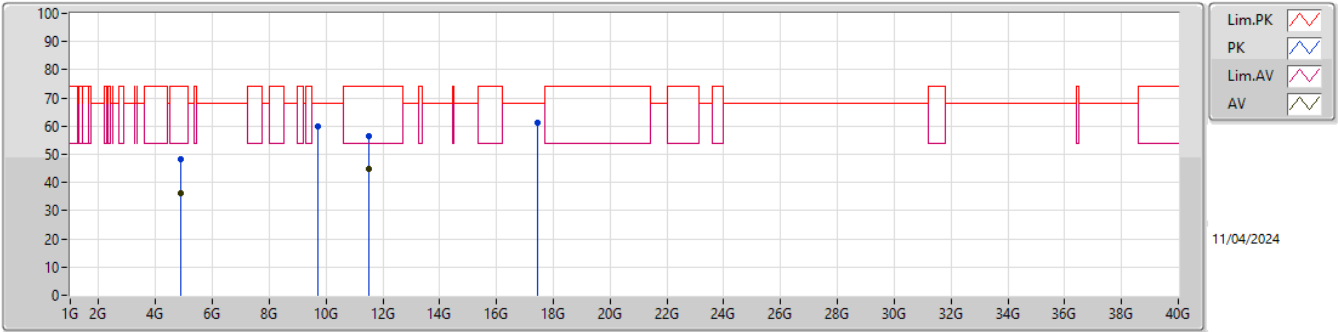
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 1	Pass	PK	17.467G	61.32	68.20	-6.88	Horizontal



Result

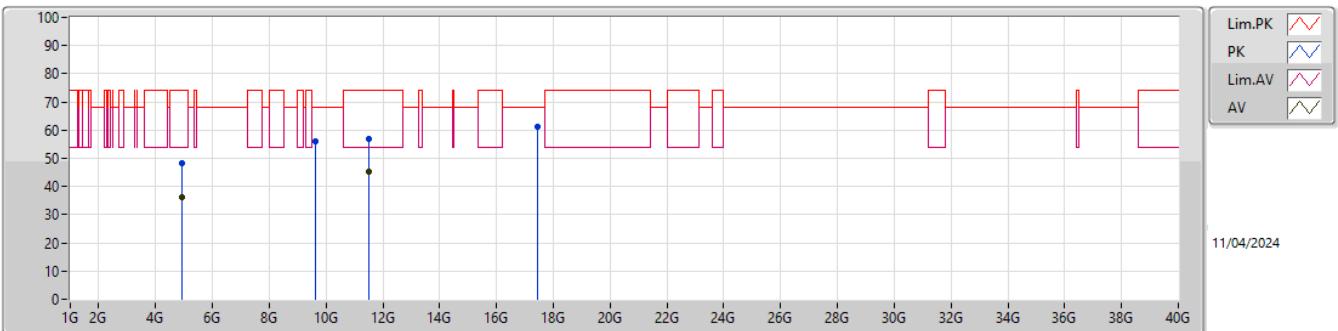
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
Mode 1	Pass	AV	4.889G	36.29	54.00	-17.71	3	Vertical	3	1.50
Mode 1	Pass	AV	11.527G	45.03	54.00	-8.97	3	Vertical	72	1.68
Mode 1	Pass	PK	4.889G	48.08	74.00	-25.92	3	Vertical	3	1.50
Mode 1	Pass	PK	9.704G	59.74	68.20	-8.46	3	Vertical	34	2.17
Mode 1	Pass	PK	11.527G	56.53	74.00	-17.47	3	Vertical	72	1.68
Mode 1	Pass	PK	17.44G	61.12	68.20	-7.08	3	Vertical	128	1.23
Mode 1	Pass	AV	4.93G	36.26	54.00	-17.74	3	Horizontal	0	1.50
Mode 1	Pass	AV	11.5G	45.34	54.00	-8.66	3	Horizontal	214	1.86
Mode 1	Pass	PK	4.93G	48.46	74.00	-25.54	3	Horizontal	0	1.50
Mode 1	Pass	PK	9.609G	56.10	68.20	-12.10	3	Horizontal	177	2.56
Mode 1	Pass	PK	11.5G	56.71	74.00	-17.29	3	Horizontal	214	1.86
Mode 1	Pass	PK	17.467G	61.32	68.20	-6.88	3	Horizontal	235	1.62

Radiated Emissions above 1GHz_Mode 1



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB/m)	Dist (m)	Condition	Azimuth (°)	Height (m)	Raw (dBuV/m)	AF (dB/m)	CL (dB)	PA (dB)
AV	4.889G	36.29	54.00	-17.71	6.50	3	Vertical	3	1.50	29.79	32.53	7.97	34.00
AV	11.527G	45.03	54.00	-8.97	16.57	3	Vertical	72	1.68	28.46	38.75	11.84	34.02
PK	4.889G	48.08	74.00	-25.92	6.50	3	Vertical	3	1.50	41.58	32.53	7.97	34.00
PK	9.704G	59.74	68.20	-8.46	14.62	3	Vertical	34	2.17	45.12	37.91	11.40	34.69
PK	11.527G	56.53	74.00	-17.47	16.57	3	Vertical	72	1.68	39.96	38.75	11.84	34.02
PK	17.44G	61.12	68.20	-7.08	20.08	3	Vertical	128	1.23	41.04	38.70	14.87	33.49

Radiated Emissions above 1GHz_Mode 1



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB/m)	Dist (m)	Condition	Azimuth (°)	Height (m)	Raw (dBuV/m)	AF (dB/m)	CL (dB)	PA (dB)
AV	4.93G	36.26	54.00	-17.74	6.69	3	Horizontal	0	1.50	29.57	32.72	7.97	34.00
AV	11.5G	45.34	54.00	-8.66	16.61	3	Horizontal	214	1.86	28.73	38.80	11.83	34.02
PK	4.93G	48.46	74.00	-25.54	6.69	3	Horizontal	0	1.50	41.77	32.72	7.97	34.00
PK	9.609G	56.10	68.20	-12.10	15.03	3	Horizontal	177	2.56	41.07	38.06	11.66	34.69
PK	11.5G	56.71	74.00	-17.29	16.61	3	Horizontal	214	1.86	40.10	38.80	11.83	34.02
PK	17.467G	61.32	68.20	-6.88	20.16	3	Horizontal	235	1.62	41.16	38.77	14.87	33.48