

FCC Radio Test Report

FCC ID : UDX-600127010
Equipment : SMART Camera
Brand Name : CISCO
Model Name : MV73X-HW, MV73M-HW
Applicant : Cisco Systems, Inc.
170 West Tasman Drive, San Jose,
CA 95134 USA
Manufacturer : Cisco Systems, Inc.
170 West Tasman Drive, San Jose,
CA 95134 USA
Standard : 47 CFR FCC Part 15.247

The product was received on Nov. 14, 2023, and testing was started from Dec. 08, 2023 and completed on Mar. 22, 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.)



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History of this test report

[illegible]

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.	Brand	Model Name	Antenna Type	Connector	Support
1	Aristotle	JP600	PCB	I-Pex	2.4G+5G+BT
2	Aristotle	JP599	PCB	I-Pex	2.4G+5G

Ant.	Port	Gain (dBi)					
		2.4G	BT	5G			
				U-NII-1	U-NII-2A	U-NII-3C	U-NII-3
1	1	1.72	1.72	4.52	4.71	3.91	3.86
2	2	3.70	-	3.39	3.64	3.35	3.37

Note 1: The EUT has two antennas.

For 2.4GHz function:

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

Ant. 1 (port 1) or Ant. 2 (port 2) could transmit/receive.

Support diversity function and pre-tested on each single chain, the worst case was Ant. 2(port 2) and it was recorded in this test report.

For 5GHz function:

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

Ant. 1 (port 1) or Ant. 2 (port 2) could transmit/receive.

Support diversity function and pre-tested on each single chain, the worst case was Ant. 1(port 1) and it was recorded in this test report.

For BT function:

Only Ant. 1 (port 1) can be used as transmitting/receiving antenna.

1.1.3 EUT Information

Operational Condition	
EUT Power Type	From AC Adapter / PoE
Type of EUT	
☒	Stand-alone
☐	Combined (EUT where the radio part is fully integrated within another device)
	Combined Equipment - Brand Name / Model No.: ...
☐	Plug-in radio (EUT intended for a variety of host systems)
	Host System - Brand Name / Model No.: ...
☐	Other:

1.1.4 Mode Test Duty Cycle

Mode	DC	DCF (dB)	T (s)	VBW (Hz)_1/T
BT-LE(1Mbps)	0.629	2.01	393.75u	3k
BT-LE(2Mbps)	0.333	4.78	208.906u	10k

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

1.1.5 Table for Multiple Listing

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

Model Name	Memory Capacity	Description
MV73X-HW	1TB	All the models are identical, only the memory capacity is different.
MV73M-HW	256GB	

From the above models, model: MV73X-HW was selected as representative model for the test and its data was recorded in this report.

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				
☒ 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	Daniel Lin	22.8~24.4°C / 52~56%	05/Jan/2024
RF Conducted	TH06-HY	Johnny Yu	21.6~22.1°C / 55~60%	08/Dec/2023~09/Dec/2023
Radiated (Co-location)	03CH03-HY	Edward Wang	21.3~22.0°C / 54~55%	22/Mar/2024
☒ Wenhua 3rd. (TAF: 3785)	ADD: No. 58, Aly. 75, Ln. 564, Wenhua 3rd Rd., Guishan Dist. Taoyuan City 333, Taiwan (R.O.C.)			
	TEL: 886-3-327-0868			
Test site Designation No. TW0036 with FCC.				
Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
Radiated	03CH24-HY	Lego Lin	22.9~23.4°C / 45~57%	10/Jan/2024~12/Jan/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
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	QDART-Connectivity1.0-00095
-----------------------	-----------------------------

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

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	PoE 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	PoE 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
Test Condition	Radiated measurement
Operating Mode	CTX
1	WLAN 2.4GHz + Bluetooth
2	WLAN 5GHz + Bluetooth
Refer to Sporton Test Report No.: FA3N1320 for Co-location RF Exposure Evaluation and Appendix G for Radiated Emission Co-location.	

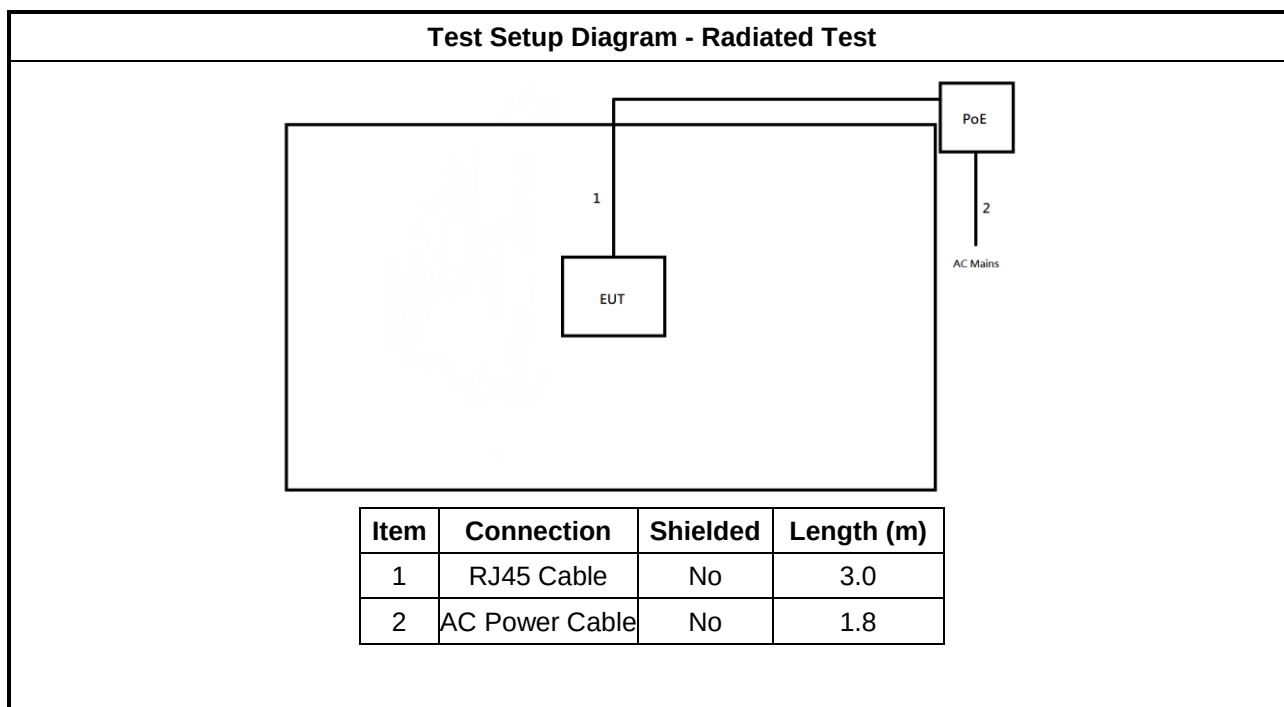
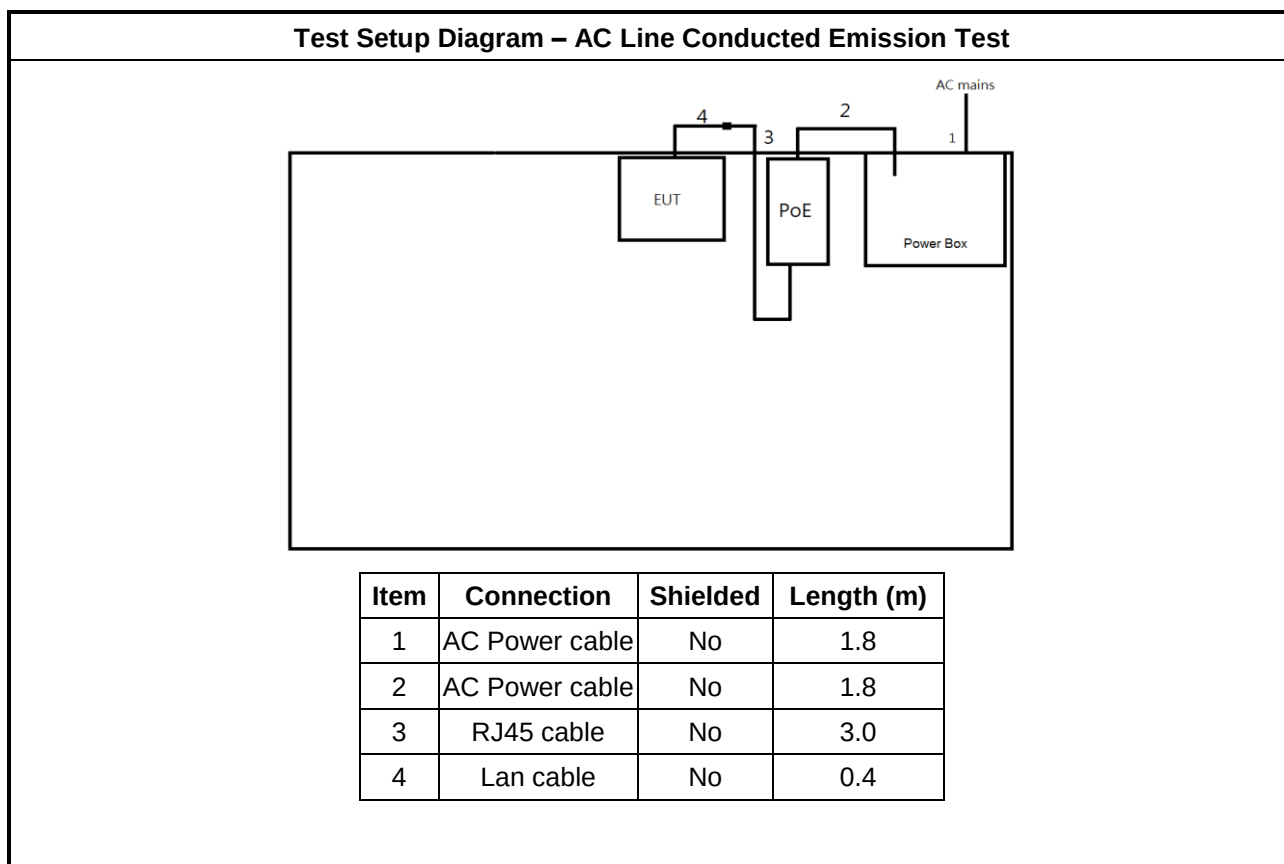
2.3 Support Equipment

Support Equipment – AC Conduction					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	AC Power Cable	Power sync	PW-GPC180-3	-	-
2	PoE Adapter	CISCO	MA-INJ-4	-	Provided by Customer
3	RJ45 cable	Power sync	CAT-6E-03	-	-

Support Equipment – Conducted					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	Notebook	DELL	Latitude 7290	-	-
2	Adapter for NB	DELL	HA65NM130	-	-
3	Micro USB	DUDAO	L7X	-	-

Support Equipment – Radiated					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	AC Power Cable	Power sync	PW-GPC180-3	-	-
2	PoE Adapter	CISCO	MA-INJ-4	-	Provided by Customer
3	RJ45 cable	Power sync	CAT-6E-03	-	-

2.4 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

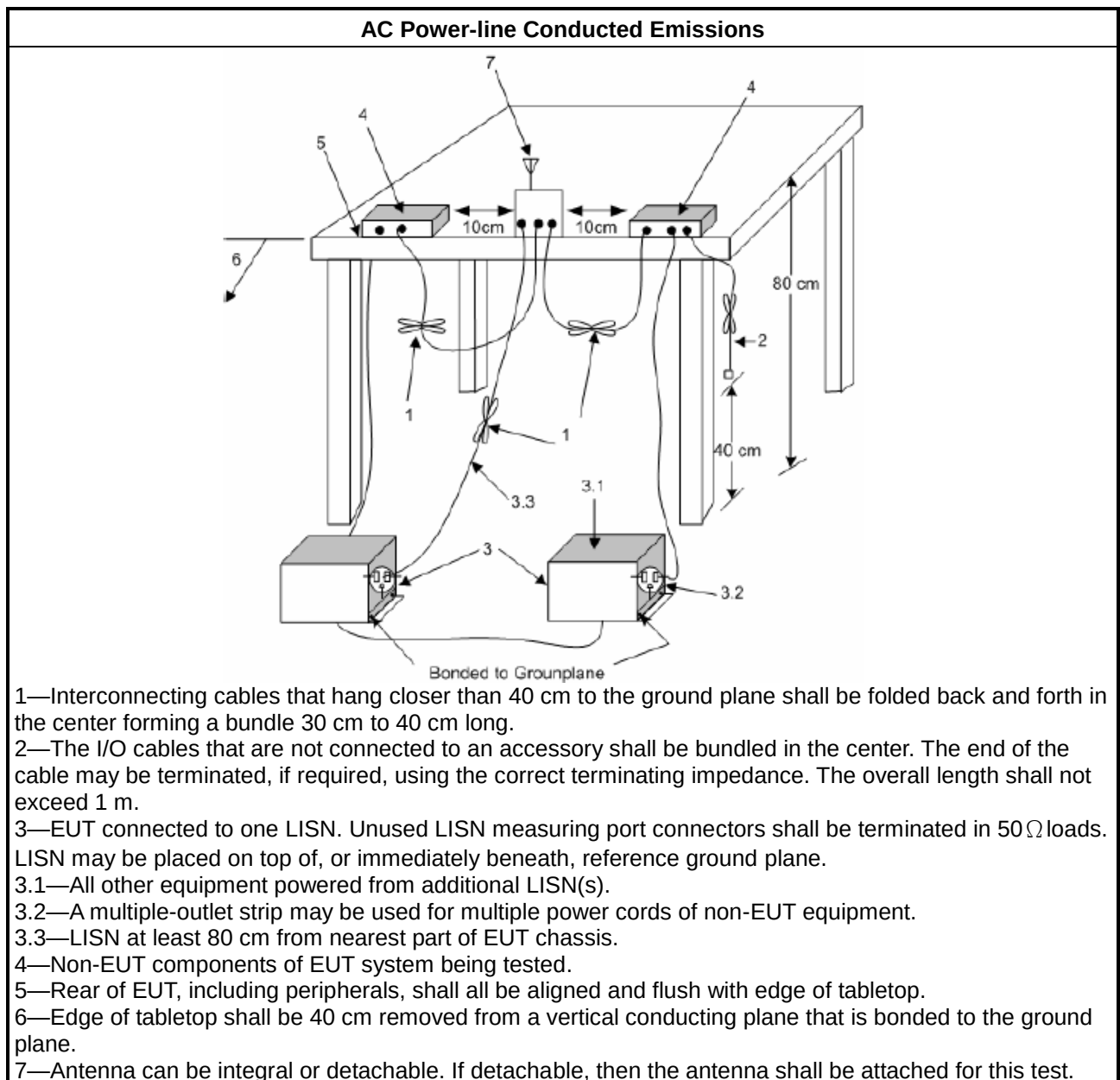
Test Method
▪ Refer as ANSI C63.10-2013, clause 6.2 foray power-line conducted emissions.

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.

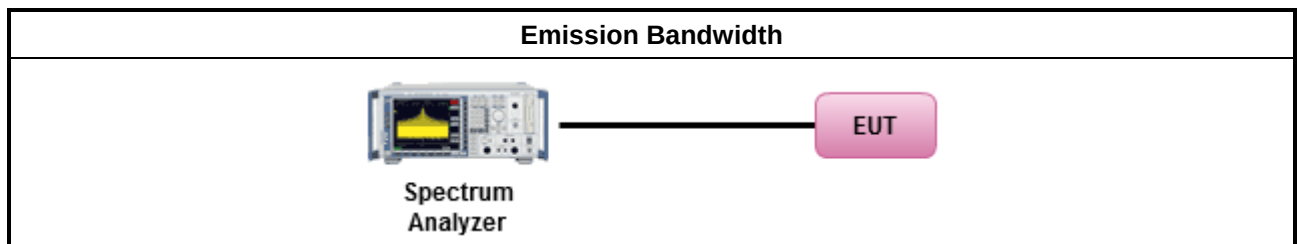
3.2.2 Measuring Instruments

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:
☒	Refer as KDB 558074, clause 8.2 (11.8 of ANSI C63.10) DTS bandwidth measurement.
☐	Refer as RSS-Gen, clause 6.7 for occupied bandwidth testing.
☐	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	
	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
e.i.r.p. Power Limit:	
	2400-2483.5 MHz Band
	Point-to-multipoint systems (P2M): $P_{eirp} \leq 36$ dBm (4 W)
	Point-to-point systems (P2P): $P_{eirp} \leq \text{MAX}(36, [P_{Out} + G_{TX}])$ dBm
	Smart antenna system (SAS)
	- Single beam: $P_{eirp} \leq \text{MAX}(36, P_{Out} + G_{TX})$ dBm
	- Overlap beam: $P_{eirp} \leq \text{MAX}(36, P_{Out} + G_{TX})$ dBm
	- 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.	

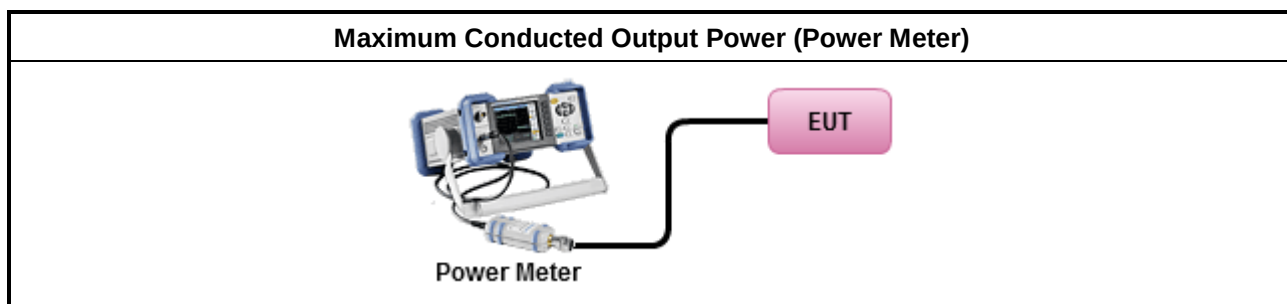
3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

Test Method	
Maximum Peak Conducted Output Power	
☐	Refer as KDB 558074, clause 8.3.1.1 (11.9.1.1 of ANSI C63.10) RBW ≥ EBW method.
☐	Refer as KDB 558074, clause 8.3.1.2 (11.9.1.2 of ANSI C63.10) integrated band power method.
☐	Refer as KDB 558074, clause 8.3.1.3 (11.9.1.3 of ANSI C63.10) peak power meter.
Maximum Average Conducted Output Power	
☐	Refer as KDB 558074, clause 8.3.2.2 (11.9.2.2 of ANSI C63.10) using a spectrum analyzer.
☒	Refer as KDB 558074, clause 8.3.2.3 (11.9.2.3 of ANSI C63.10) using a power meter.
For conducted measurement.	
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.	
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
Power Spectral Density (PSD) ≤ 8 dBm/3kHz

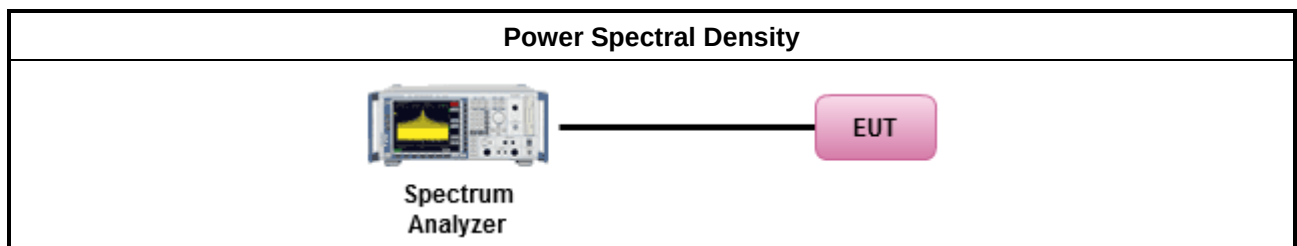
3.4.2 Measuring Instruments

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 KDB 558074, clause 8.4 (11.10 of ANSI C63.10) Max. PSD.
For conducted measurement.
If The EUT supports multiple transmit chains using options given below:
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.	

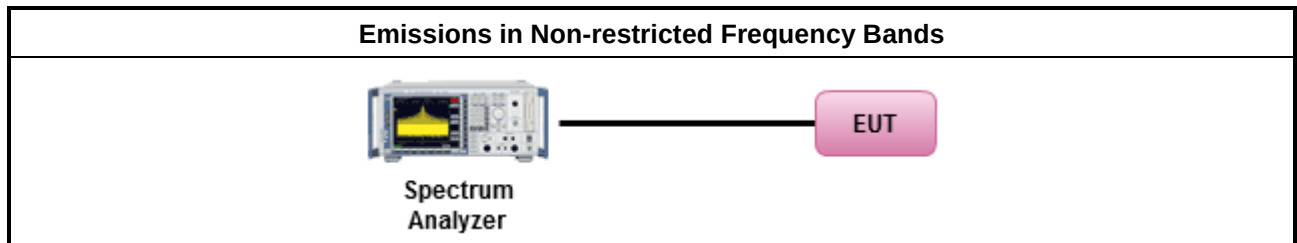
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

Test Method
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

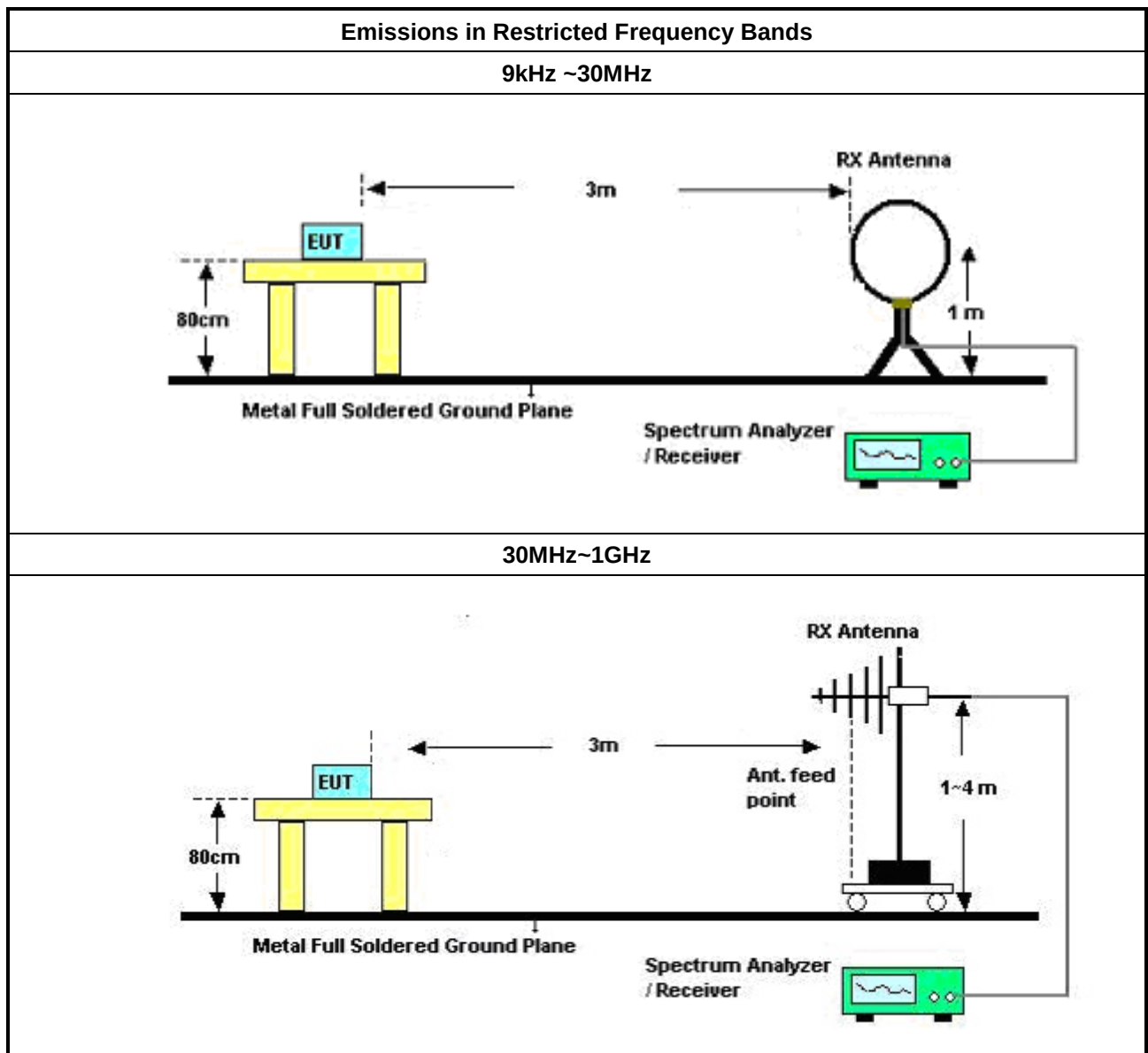
Test Method	
▪	The average emission levels shall be measured in [duty cycle $\geq$ 98 or duty factor].
	Refer as ANSI C63.10, clause 6.10.3 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.
▪	For the transmitter unwanted emissions shall be measured using following options below:
	Refer as KDB 558074, clause 8.6 (11.12 of ANSI C63.10) for restricted frequency bands.
▪	For the transmitter band-edge emissions shall be measured using following options below:
	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.
▪	Refer as KDB 558074, clause 8.7.2 (6.10.6 of ANSI C63.10) for marker-delta method for band-edge measurements.
	Refer as KDB 558074, clause 8.7.3 for narrower resolution bandwidth (100kHz) using the band power and summing the spectral levels.
▪	Use the following spectrum analyzer settings:
	Set RBW=100 kHz for $f < 1$ GHz; VBW=3 * RBW; Sweep = auto; Detector function = peak; Trace = max hold.
▪	Set RBW = 1 MHz, VBW= 3MHz for $f \geq 1$ GHz for peak measurement. For average measurement, refer as 1.1.4.
	KDB 414788 Open-Field Test Sites and Chamber Correlation Justification.
▪	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.
	Open-field site and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

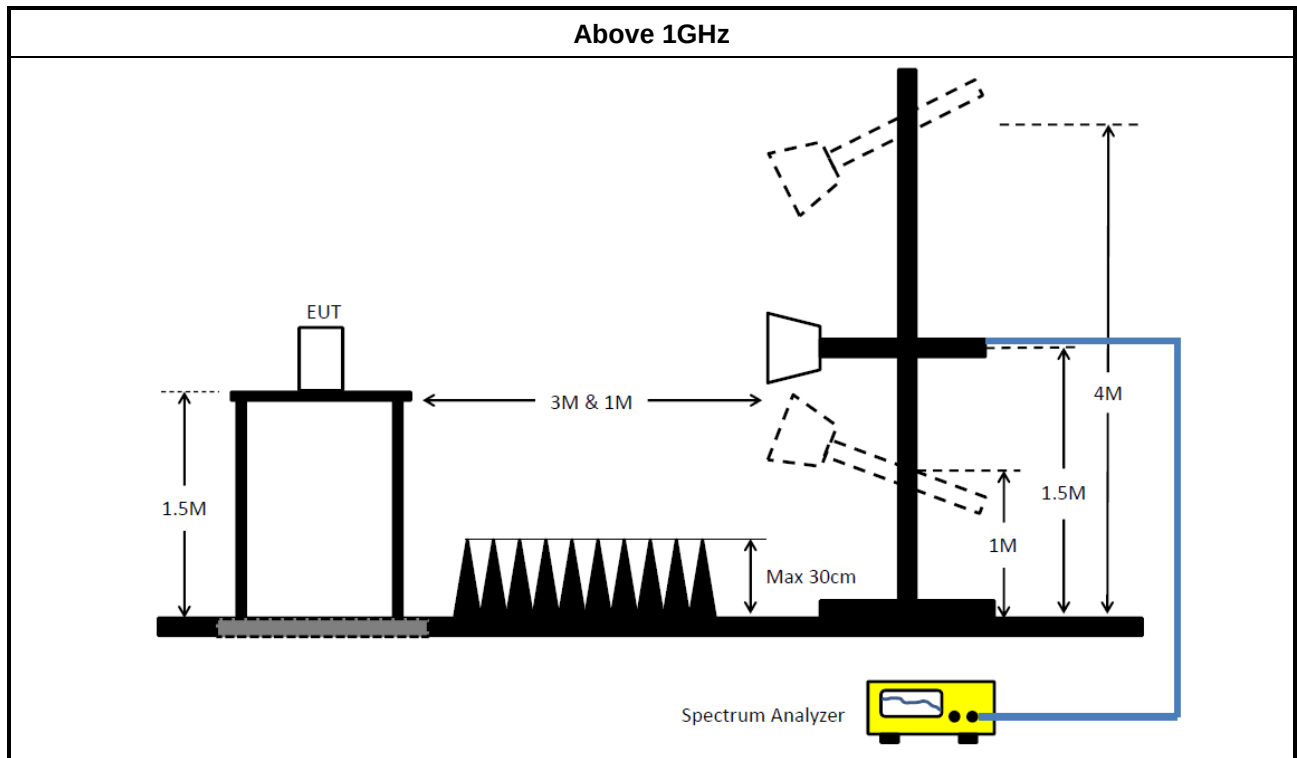
3.6.4 Measurement Results Calculation

The measured Level is calculated using:

Corrected Reading: Raw(Read Level) + AF(Antenna Factor) + CL(Cable Loss) - PA(Preamplifier 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	31/Jan/2023	30/Jan/2024
RF Cable 5m	TITAN	TITAN	CO04-cable-01	9 kHz~200MHz	28/Feb/2023	27/Feb/2024
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	101029	10Hz~40GHz	30/Oct/2023	29/Oct/2024
SMB100A Signal Generator	R&S	SMB100A	181147	100kHz~40GHz	20/Oct/2023	19/Oct/2024
Pulse Sensor	Anritsu	MA2411B	1027452	300MHz~40GHz	29/Mar/2023	28/Mar/2024
Power Meter	Anritsu	ML2495A	1124009	300MHz~40GHz	29/Mar/2023	28/Mar/2024
SENSE-15247_FS	Sporton	V5.11.15	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	TDK	SAC-3M	03CH24-HY	30MHz~1GHz 3m	17/Aug/2023	16/Aug/2024
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH24-HY	1GHz~18GHz 3m	03/Aug/2023	02/Aug/2024
Signal Analyzer	ROHDE&SCHWARZ	FSV3044	101345	10Hz~44GHz	10/Aug/2023	09/Aug/2024
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	2744	1GHz~18GHz	17/Aug/2023	16/Aug/2024
Bilog Antenna & 6dB Attenuator	TESEQ / Woken	CBL 6112D / 00800N1D01N-06	35376 / 02	30MHz~1GHz	17/Apr/2023	16/Apr/2024
Pre-Amplifier	Aglient	8447D	2944A06292	30MHz~1GHz	26/Apr/2023	25/Apr/2024
Amplifier	EM	EM01G18G	60870	1GHz ~18GHz	10/Aug/2023	09/Aug/2024
RF Cable	HUBER+SUHNER	SUOFLEX 102	CB001	1GHz~40GHz	21/Jul/2023	20/Jul/2024
RF Cable	HUBER+SUHNER	SUOFLEX 104	CB002	30MHz~40GHz	21/Jul/2023	20/Jul/2024
RF Cable	HUBER+SUHNER	SUOFLEX 104	CB002	30MHz~40GHz	21/Jul/2023	20/Jul/2024
Amplifier	EM	EM18G40G	60604	18GHz ~ 40GHz	16/Mar/2023	15/Mar/2024
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	1248	18GHz~40GHz	21/Aug/2023	20/Aug/2024
EMI Test Receiver	ROHDE & SCHWARZ	ESR	102318	9kHz~3.6GHz	27/Dec/2023	26/Dec/2024
Loop Antenna	TESEQ	HLA 6120	31244	9kHz~30MHz	23/Mar/2023	22/Mar/2024
SENSE-15247-FS	Sporton	V5.11	NA	NA	NA	NA

**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
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	01248	18GHz ~ 40GHz	21/Aug/2023	20/Aug/2024
RF CABLE 5+8 m	HUBER+SUHNER	SUOFLEX 104	03CH03-cable-03	1GHz~40GHz	20/Feb/2024	19/Feb/2025
Microwave Preamplifier	Agilent	8449B	3008A02326	1GHz~26.5GHz	26/Jul/2023	25/Jul/2024
Amplifier	EM	EM18G40GA	060874	18GHz ~ 40GHz	18/Aug/2023	17/Aug/2024
SENSE-EMI	Sporton	V5.11.6	N/A	N/A	N/A	N/A



Conducted Emissions at Powerline

Appendix A

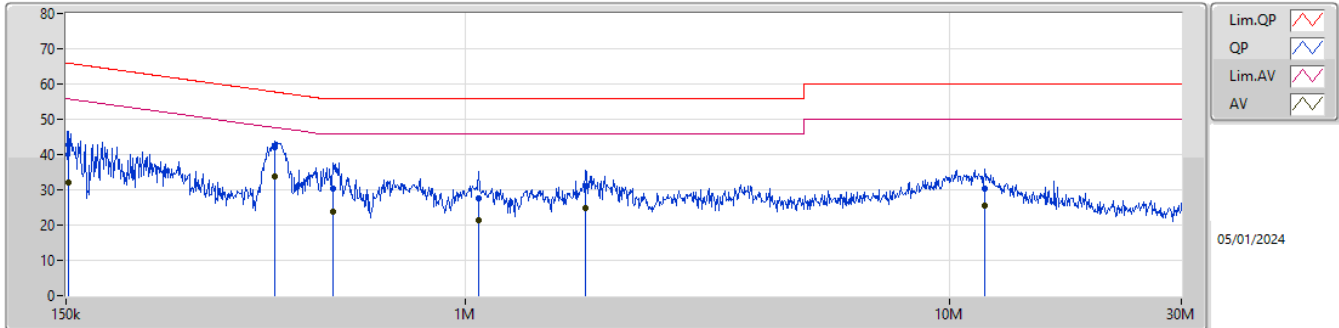
Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	AV	403.694k	33.85	47.78	-13.93	Line

Result

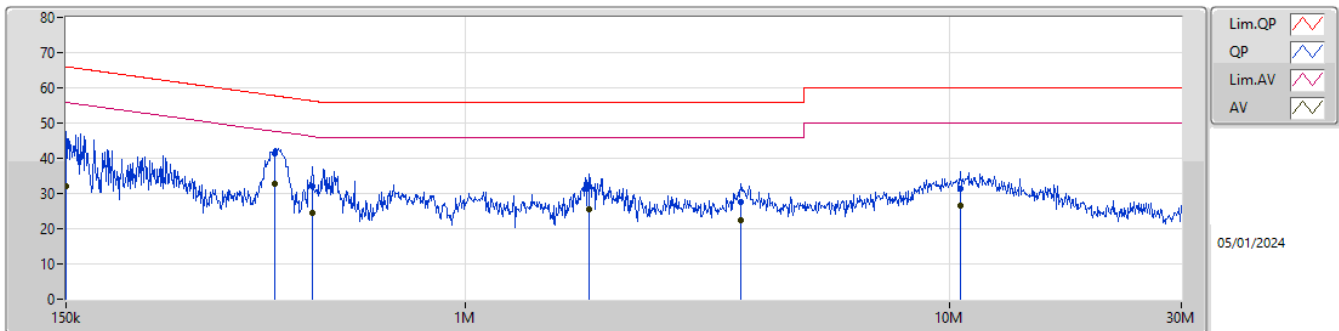
Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	QP	151.807k	42.69	65.90	-23.21	Line
Mode 1	Pass	AV	151.807k	32.24	55.90	-23.66	Line
Mode 1	Pass	QP	403.694k	42.23	57.78	-15.55	Line
Mode 1	Pass	AV	403.694k	33.85	47.78	-13.93	Line
Mode 1	Pass	QP	533.841k	30.43	56.00	-25.57	Line
Mode 1	Pass	AV	533.841k	23.87	46.00	-22.13	Line
Mode 1	Pass	QP	1.065M	27.74	56.00	-28.26	Line
Mode 1	Pass	AV	1.065M	21.34	46.00	-24.66	Line
Mode 1	Pass	QP	1.768M	31.16	56.00	-24.84	Line
Mode 1	Pass	AV	1.768M	24.68	46.00	-21.32	Line
Mode 1	Pass	QP	11.777M	30.36	60.00	-29.64	Line
Mode 1	Pass	AV	11.777M	25.68	50.00	-24.32	Line
Mode 1	Pass	QP	150k	44.31	66.00	-21.69	Neutral
Mode 1	Pass	AV	150k	32.12	56.00	-23.88	Neutral
Mode 1	Pass	QP	403.694k	41.33	57.78	-16.45	Neutral
Mode 1	Pass	AV	403.694k	32.64	47.78	-15.14	Neutral
Mode 1	Pass	QP	483.136k	32.16	56.29	-24.13	Neutral
Mode 1	Pass	AV	483.136k	24.48	46.29	-21.81	Neutral
Mode 1	Pass	QP	1.797M	32.23	56.00	-23.77	Neutral
Mode 1	Pass	AV	1.797M	25.46	46.00	-20.54	Neutral
Mode 1	Pass	QP	3.701M	27.62	56.00	-28.38	Neutral
Mode 1	Pass	AV	3.701M	22.34	46.00	-23.66	Neutral
Mode 1	Pass	QP	10.532M	31.31	60.00	-28.69	Neutral
Mode 1	Pass	AV	10.532M	26.43	50.00	-23.57	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	151.807k	42.69	65.90	-23.21	19.38	Line	-	23.31	9.59	0.03	9.76						
AV	151.807k	32.24	55.90	-23.66	19.38	Line	-	12.86	9.59	0.03	9.76						
QP	403.694k	42.23	57.78	-15.55	19.40	Line	-	22.83	9.60	0.04	9.76						
AV	403.694k	33.85	47.78	-13.93	19.40	Line	-	14.45	9.60	0.04	9.76						
QP	533.841k	30.43	56.00	-25.57	19.41	Line	-	11.02	9.60	0.04	9.77						
AV	533.841k	23.87	46.00	-22.13	19.41	Line	-	4.46	9.60	0.04	9.77						
QP	1.065M	27.74	56.00	-28.26	19.46	Line	-	8.28	9.61	0.05	9.80						
AV	1.065M	21.34	46.00	-24.66	19.46	Line	-	1.88	9.61	0.05	9.80						
QP	1.768M	31.16	56.00	-24.84	19.50	Line	-	11.66	9.63	0.07	9.80						
AV	1.768M	24.68	46.00	-21.32	19.50	Line	-	5.18	9.63	0.07	9.80						
QP	11.777M	30.36	60.00	-29.64	19.73	Line	-	10.63	9.72	0.20	9.81						
AV	11.777M	25.68	50.00	-24.32	19.73	Line	-	5.95	9.72	0.20	9.81						

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	150k	44.31	66.00	-21.69	19.39	Neutral	-	24.92	9.60	0.03	9.76						
AV	150k	32.12	56.00	-23.88	19.39	Neutral	-	12.73	9.60	0.03	9.76						
QP	403.694k	41.33	57.78	-16.45	19.40	Neutral	-	21.93	9.60	0.04	9.76						
AV	403.694k	32.64	47.78	-15.14	19.40	Neutral	-	13.24	9.60	0.04	9.76						
QP	483.136k	32.16	56.29	-24.13	19.41	Neutral	-	12.75	9.60	0.04	9.77						
AV	483.136k	24.48	46.29	-21.81	19.41	Neutral	-	5.07	9.60	0.04	9.77						
QP	1.797M	32.23	56.00	-23.77	19.50	Neutral	-	12.73	9.62	0.08	9.80						
AV	1.797M	25.46	46.00	-20.54	19.50	Neutral	-	5.96	9.62	0.08	9.80						
QP	3.701M	27.62	56.00	-28.38	19.55	Neutral	-	8.07	9.64	0.12	9.79						
AV	3.701M	22.34	46.00	-23.66	19.55	Neutral	-	2.79	9.64	0.12	9.79						
QP	10.532M	31.31	60.00	-28.69	19.69	Neutral	-	11.62	9.70	0.19	9.80						
AV	10.532M	26.43	50.00	-23.57	19.69	Neutral	-	6.74	9.70	0.19	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)	681.25k	1.029M	1M03F1D	630k	1.023M
BT-LE(2Mbps)	1.403M	2.066M	2M07F1D	1.33M	2.034M

Max-N dB = Maximum 6dB down bandwidth; Max-OBW = Maximum 99% occupied bandwidth;
Min-N dB = Minimum 6dB down bandwidth; Min-OBW = Minimum 99% occupied bandwidth

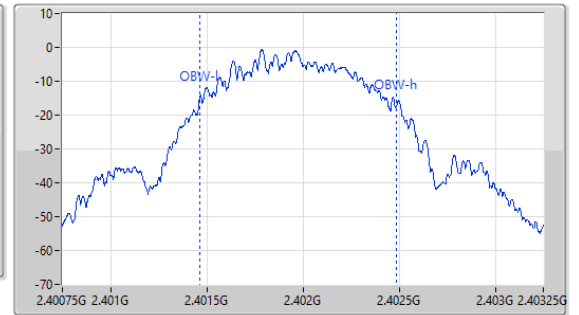
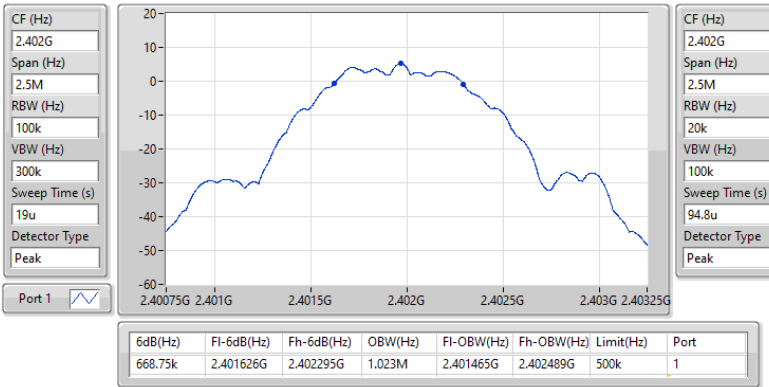
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	668.75k	1.023M
2440MHz	Pass	500k	681.25k	1.023M
2480MHz	Pass	500k	630k	1.029M
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	500k	1.403M	2.034M
2440MHz	Pass	500k	1.33M	2.066M
2480MHz	Pass	500k	1.338M	2.036M

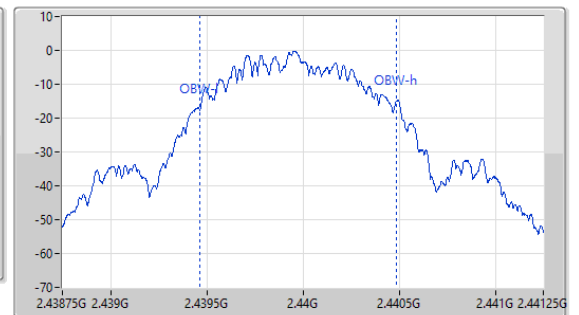
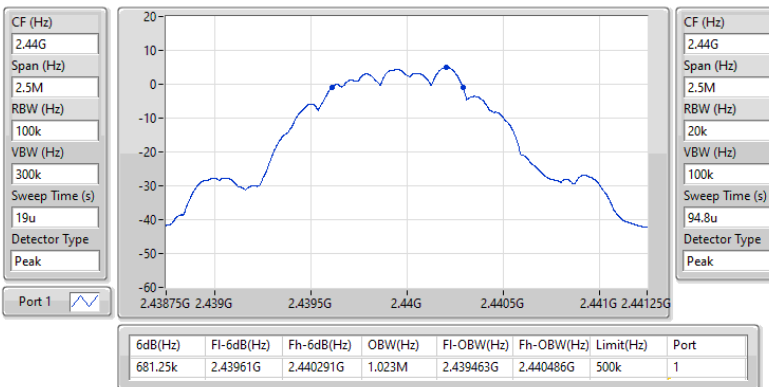
Port X-N dB = Port X 6dB down bandwidth;
Port X-OBW = Port X 99% occupied bandwidth

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

09/12/2023


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

09/12/2023

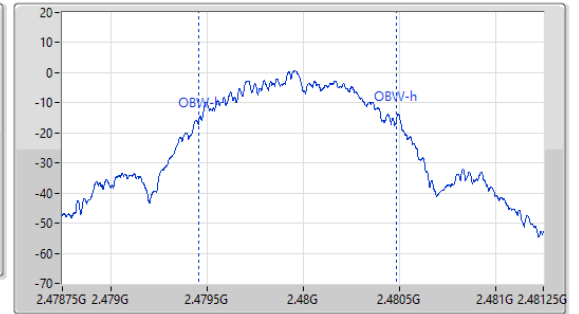
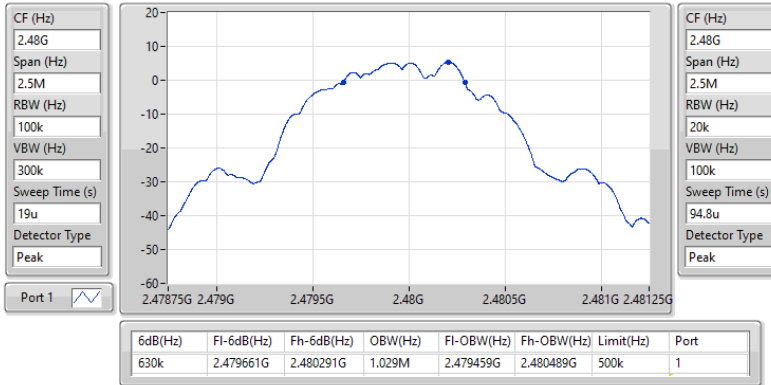


2.4-2.4835GHz_BT-LE(1Mbps)

EBW-DTS

2480MHz

09/12/2023

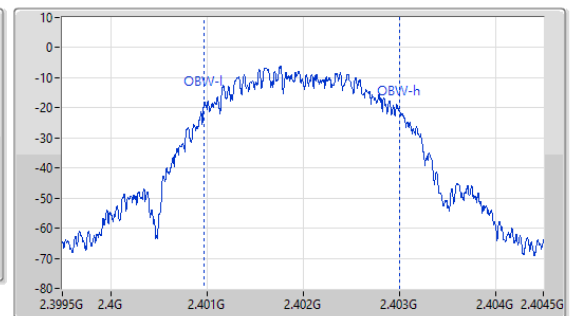
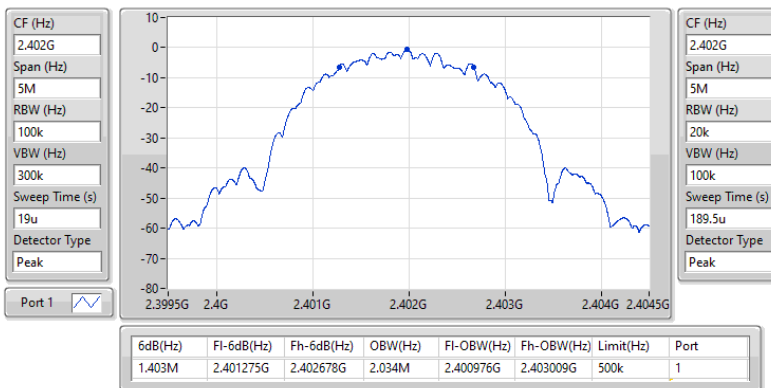


2.4-2.4835GHz_BT-LE(2Mbps)

EBW-DTS

2402MHz

08/12/2023

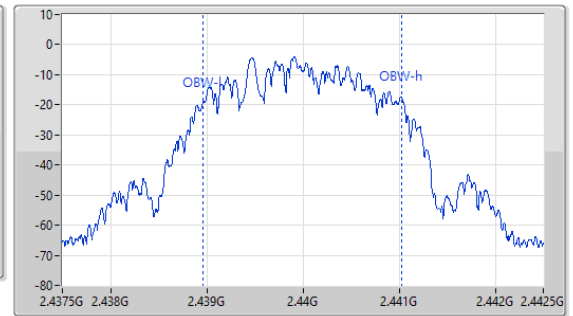
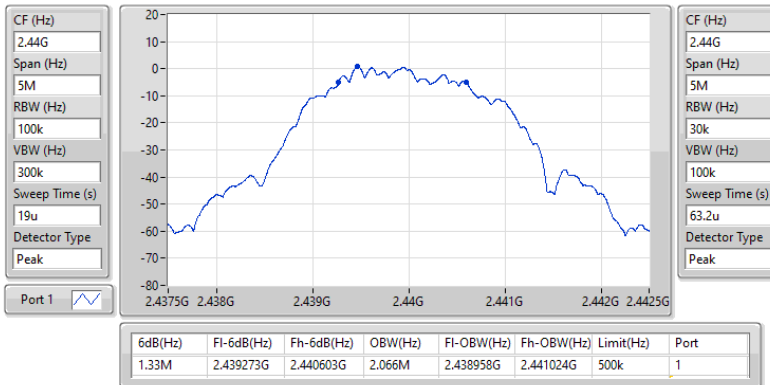


2.4-2.4835GHz_BT-LE(2Mbps)

EBW-DTS

2440MHz

08/12/2023

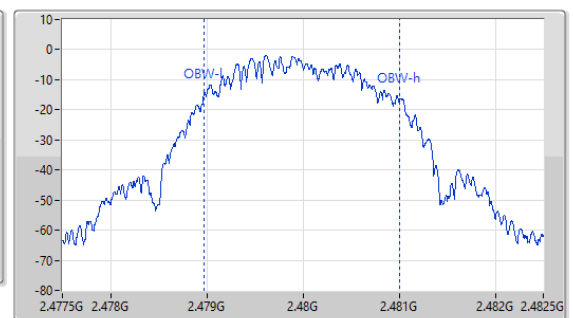
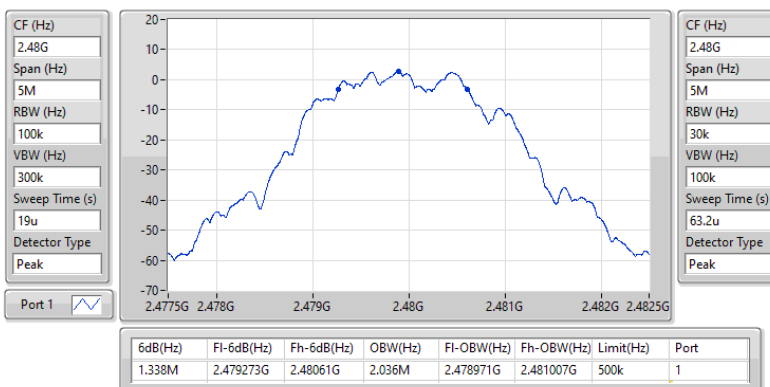


2.4-2.4835GHz_BT-LE(2Mbps)

EBW-DTS

2480MHz

08/12/2023





Summary

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	6.71	0.00469
BT-LE(2Mbps)	6.54	0.00451



Result

Mode	Result	DG (dBi)	Total Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	1.72	5.44	30.00
2440MHz	Pass	1.72	5.66	30.00
2480MHz	Pass	1.72	6.71	30.00
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	1.72	5.16	30.00
2440MHz	Pass	1.72	5.40	30.00
2480MHz	Pass	1.72	6.54	30.00

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



Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE(1Mbps)	-7.90
BT-LE(2Mbps)	-11.55

RBW = 3kHz;



Result

Mode	Result	DG (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	1.72	-9.22	8.00
2440MHz	Pass	1.72	-8.96	8.00
2480MHz	Pass	1.72	-7.90	8.00
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	1.72	-12.78	8.00
2440MHz	Pass	1.72	-12.44	8.00
2480MHz	Pass	1.72	-11.55	8.00

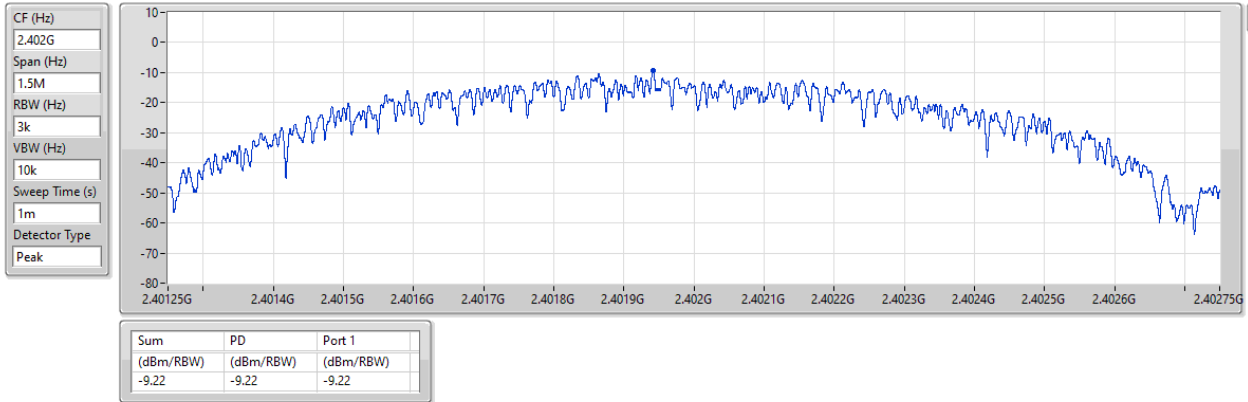
DG = Directional Gain; RBW = 3kHz;
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; Port X = Port X Power Density;

2.4-2.4835GHz_BT-LE(1Mbps)

PSD

2402MHz

09/12/2023

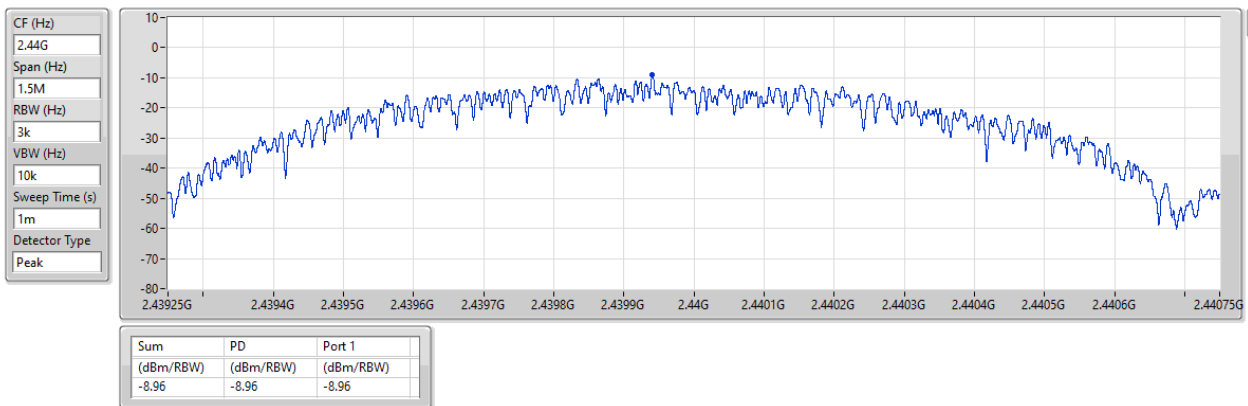


2.4-2.4835GHz_BT-LE(1Mbps)

PSD

2440MHz

09/12/2023

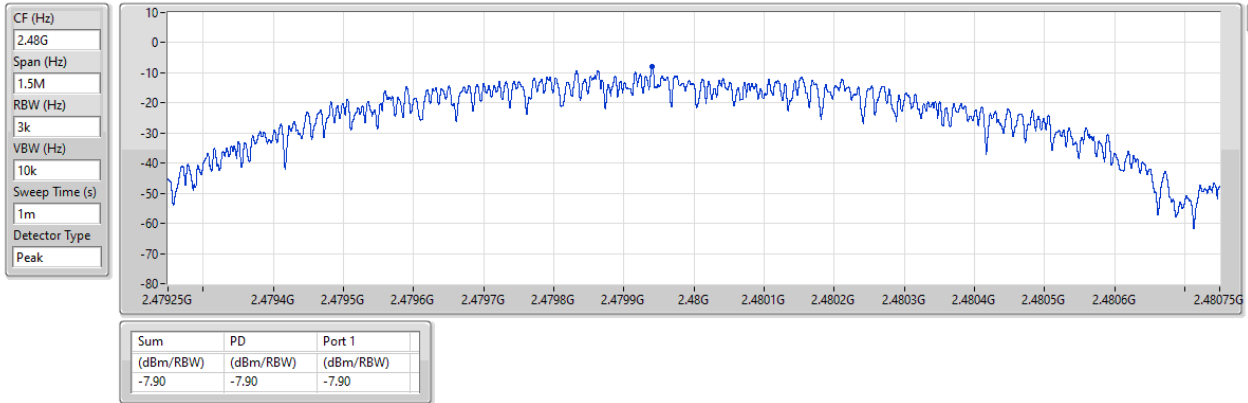


2.4-2.4835GHz_BT-LE(1Mbps)

PSD

2480MHz

09/12/2023

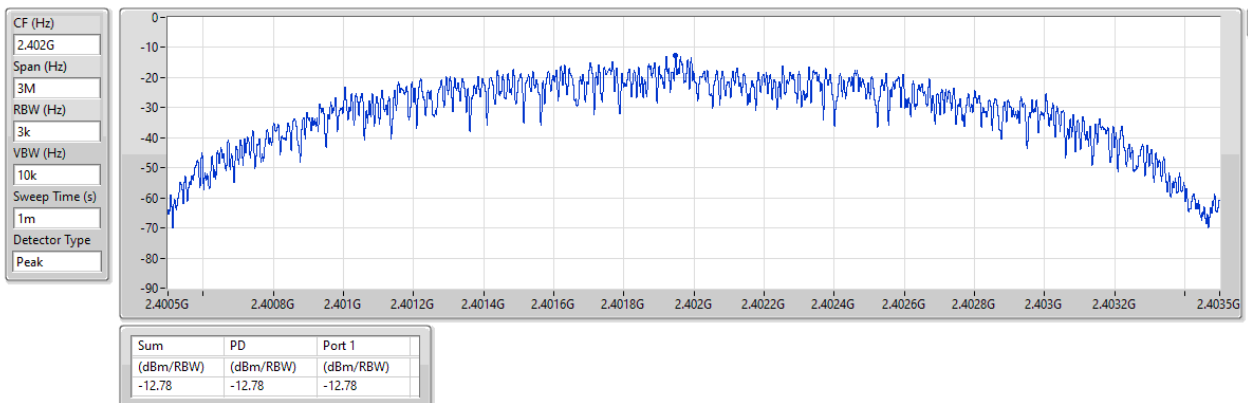


2.4-2.4835GHz_BT-LE(2Mbps)

PSD

2402MHz

09/12/2023

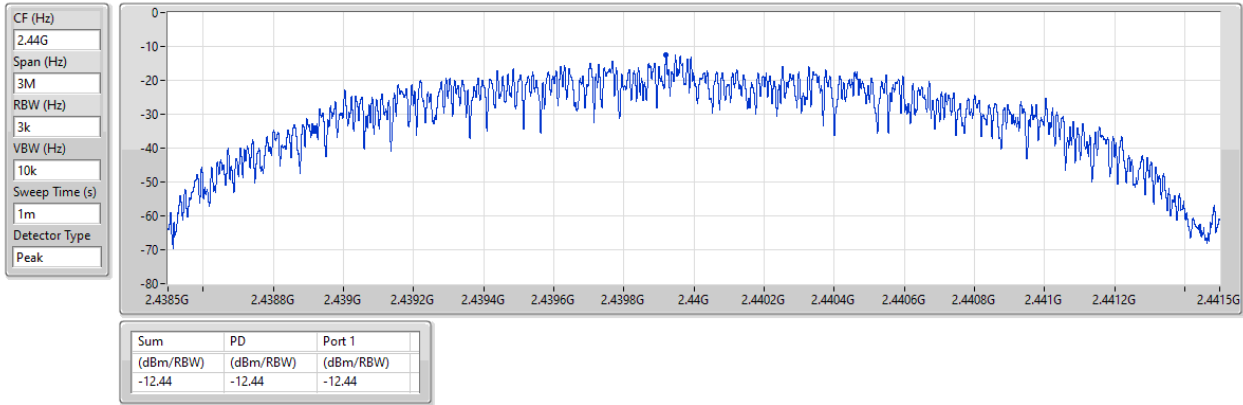


2.4-2.4835GHz_BT-LE(2Mbps)

PSD

2440MHz

09/12/2023

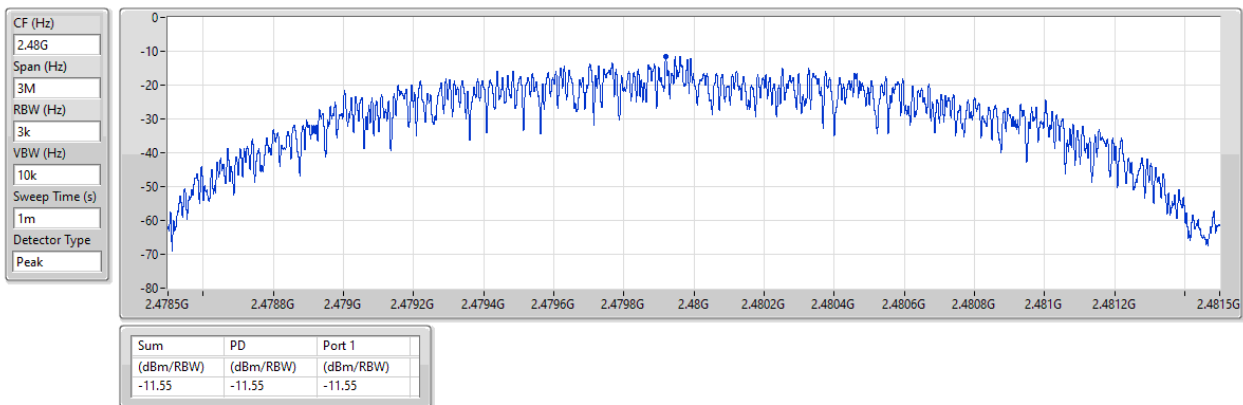


2.4-2.4835GHz_BT-LE(2Mbps)

PSD

2480MHz

09/12/2023



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	2.47999G	6.78	-23.22	1.76078G	-56.05	2.39996G	-50.61	2.4G	-50.26	2.5021G	-52.52	23.29589G	-41.90	1
BT-LE(2Mbps)	Pass	2.47999G	6.31	-23.69	924.18M	-55.56	2.4G	-43.47	2.4G	-41.94	2.5019G	-54.34	16.57506G	-41.43	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	2.47999G	6.78	-23.22	1.76078G	-56.05	2.39996G	-50.61	2.4G	-50.26	2.5021G	-52.52	23.29589G	-41.90	1
2440MHz	Pass	2.47999G	6.78	-23.22	1.9899G	-55.00	2.3972G	-54.27	2.4G	-56.18	2.50094G	-53.92	15.23371G	-42.87	1
2480MHz	Pass	2.47999G	6.78	-23.22	2.11563G	-55.73	2.39152G	-54.55	2.4G	-57.20	2.50202G	-53.79	17.62958G	-42.50	1
BT-LE(2Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.47999G	6.31	-23.69	924.18M	-55.56	2.4G	-43.47	2.4G	-41.94	2.5019G	-54.34	16.57506G	-41.43	1
2440MHz	Pass	2.47999G	6.31	-23.69	1.98755G	-55.56	2.39612G	-54.43	2.4G	-56.42	2.50018G	-54.64	16.59193G	-42.58	1
2480MHz	Pass	2.47999G	6.31	-23.69	2.16145G	-56.04	2.39828G	-54.42	2.4G	-54.36	2.50006G	-53.95	16.63411G	-42.01	1

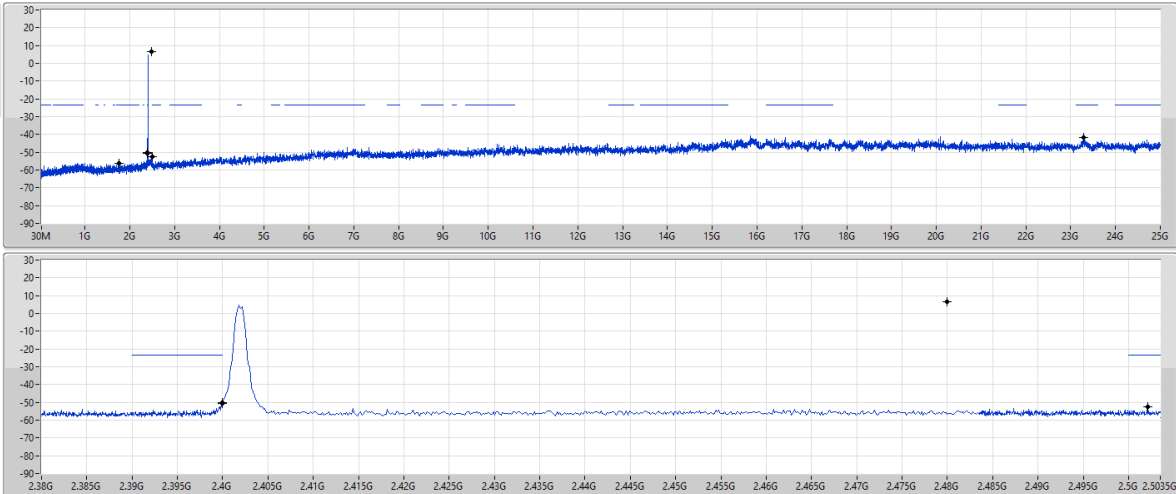
2.4-2.4835GHz_BT-LE(1Mbps)

CSEndB-DTS

2402MHz

09/12/2023

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



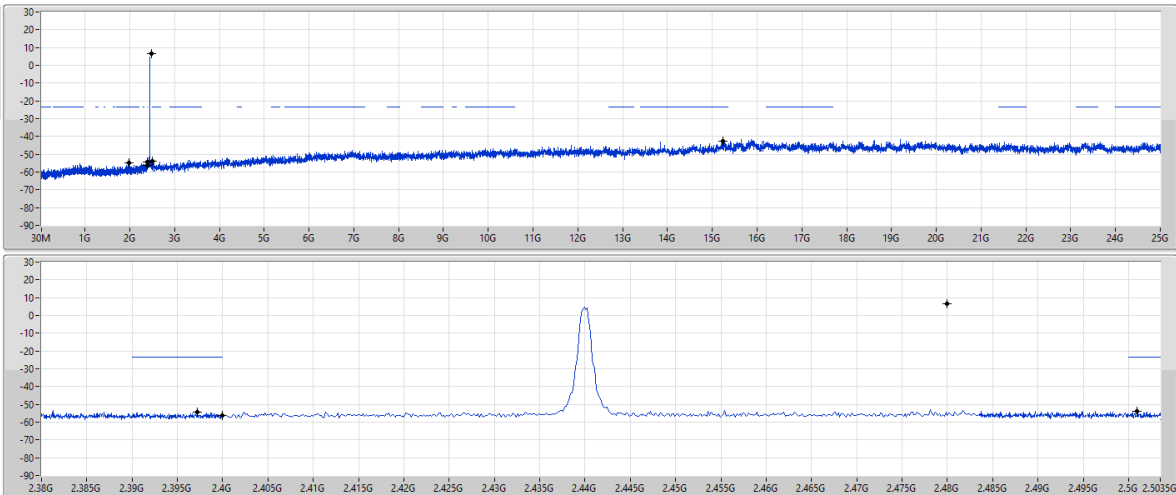
2.4-2.4835GHz_BT-LE(1Mbps)

CSEndB-DTS

2440MHz

09/12/2023

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

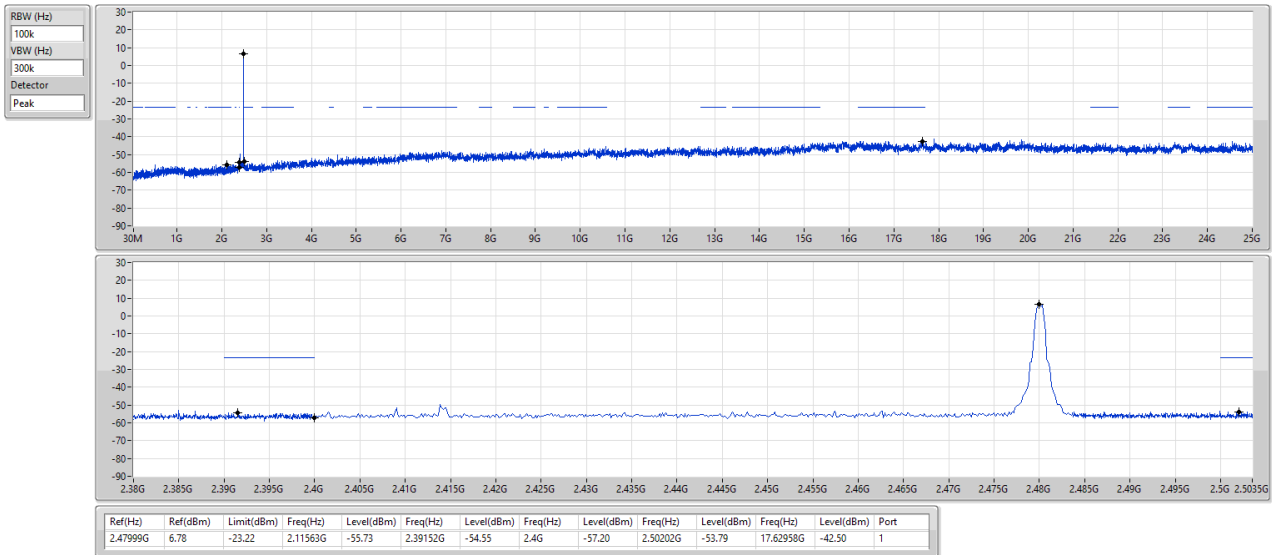


2.4-2.4835GHz_BT-LE(1Mbps)

CSEndB-DTS

2480MHz

09/12/2023

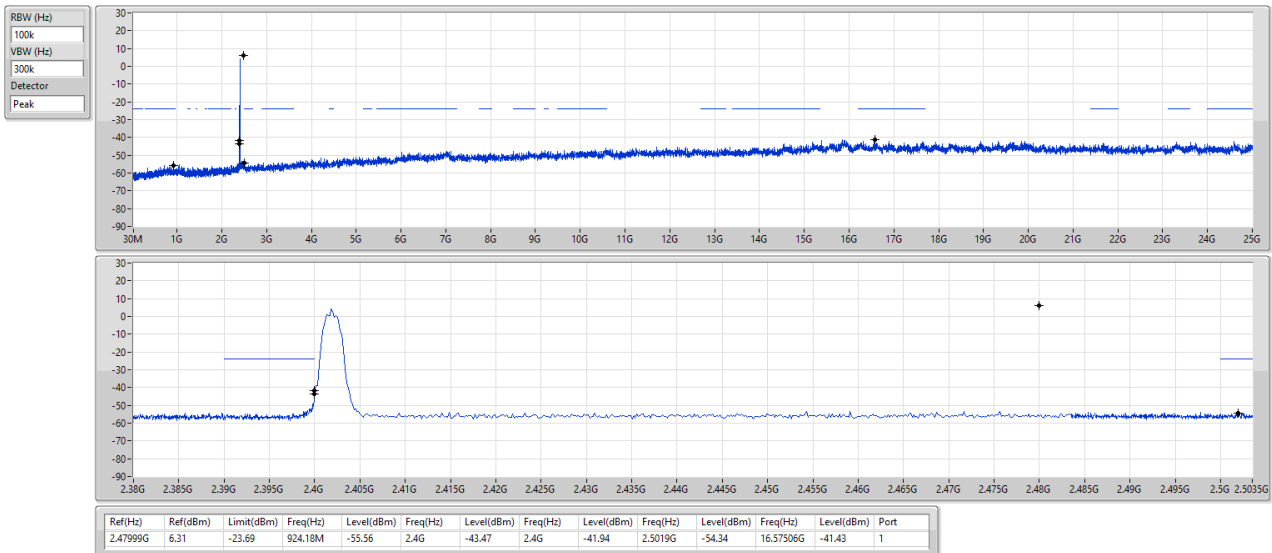


2.4-2.4835GHz_BT-LE(2Mbps)

CSEndB-DTS

2402MHz

09/12/2023

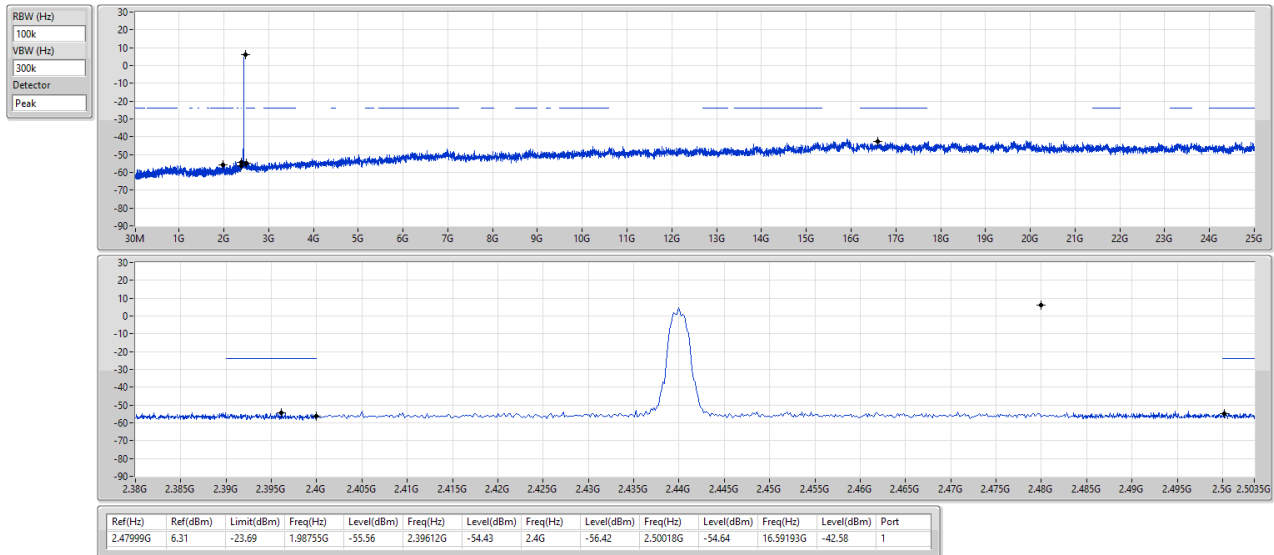


2.4-2.4835GHz_BT-LE(2Mbps)

CSEndB-DTS

2440MHz

09/12/2023

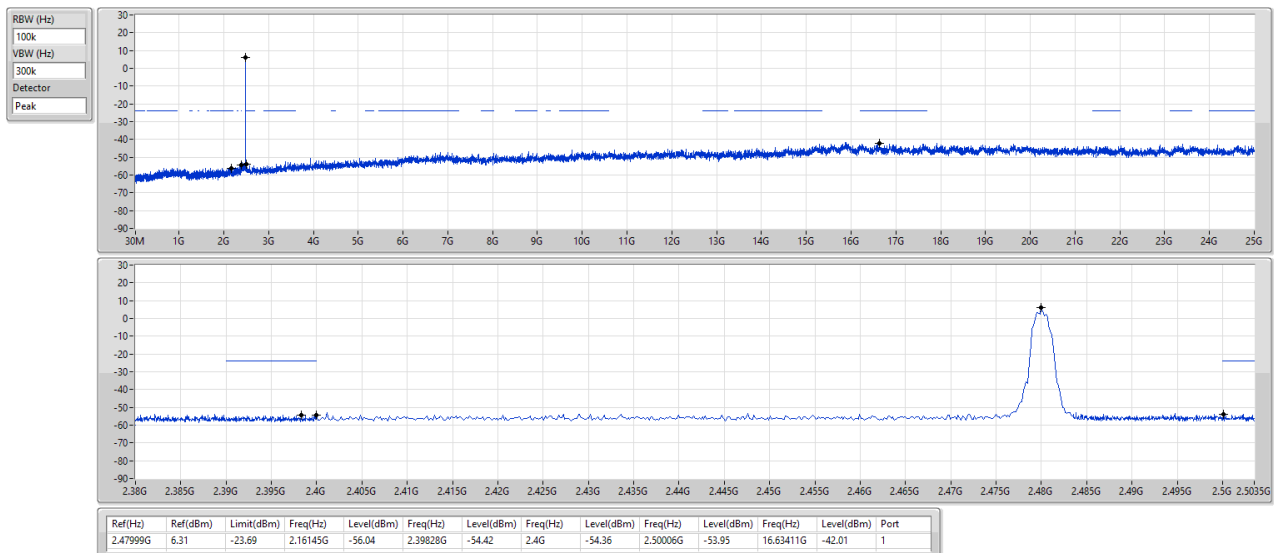


2.4-2.4835GHz_BT-LE(2Mbps)

CSEndB-DTS

2480MHz

08/12/2023





Summary

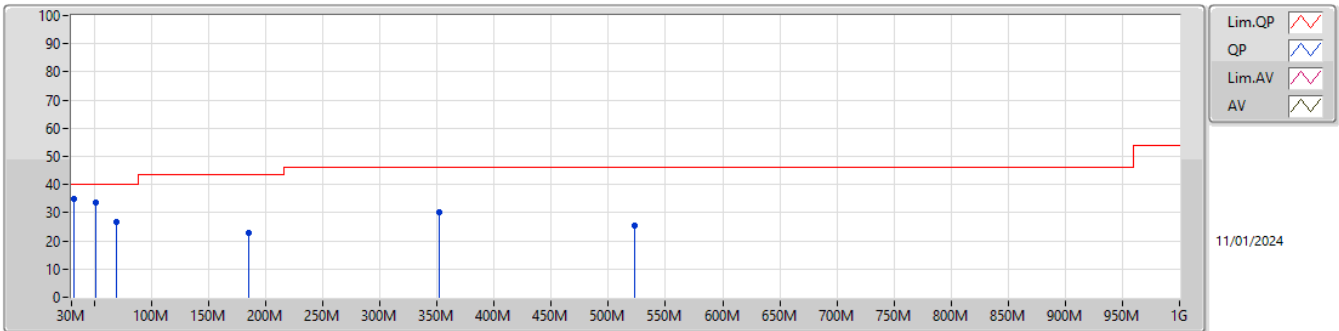
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-
BT-LE(2Mbps)	Pass	QP	32.34M	34.99	40.00	-5.01	3	Vertical	120	1.00

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	51.34M	33.75	40.00	-6.25	3	Vertical	360	1.00
2440MHz	Pass	PK	68.8M	26.75	40.00	-13.25	3	Vertical	360	1.00
2440MHz	Pass	PK	185.2M	22.64	43.50	-20.86	3	Vertical	360	1.00
2440MHz	Pass	PK	352.04M	30.00	46.00	-16.00	3	Vertical	360	1.00
2440MHz	Pass	PK	522.76M	25.23	46.00	-20.77	3	Vertical	360	1.00
2440MHz	Pass	QP	32.34M	34.99	40.00	-5.01	3	Vertical	120	1.00
2440MHz	Pass	PK	30M	24.93	40.00	-15.07	3	Horizontal	0	1.00
2440MHz	Pass	PK	51.34M	23.48	40.00	-16.52	3	Horizontal	0	1.00
2440MHz	Pass	PK	181.32M	20.53	43.50	-22.97	3	Horizontal	0	1.00
2440MHz	Pass	PK	289.96M	27.88	46.00	-18.12	3	Horizontal	0	1.00
2440MHz	Pass	PK	359.8M	31.67	46.00	-14.33	3	Horizontal	0	1.00
2440MHz	Pass	PK	429.64M	28.40	46.00	-17.60	3	Horizontal	0	1.00

2.4-2.4835GHz_BT-LE(2Mbps)

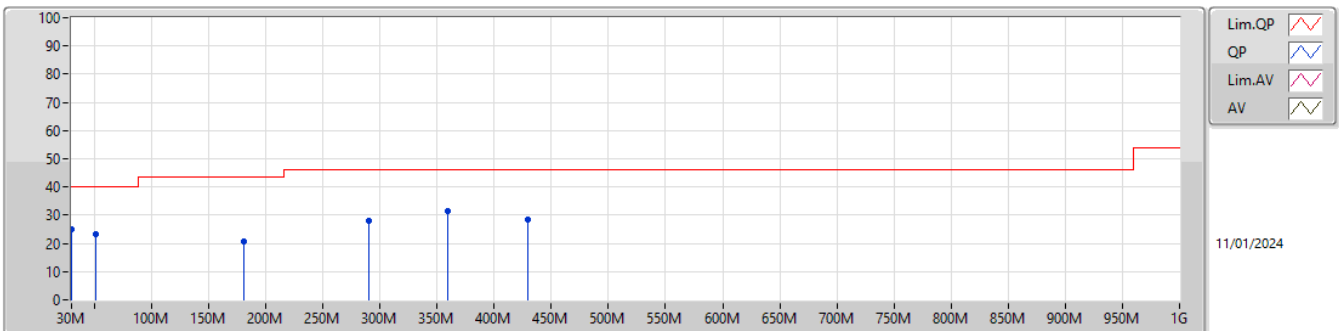
2440MHz_PoE



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	51.34M	33.75	40.00	-6.25	-14.12	3	Vertical	360	1.00	47.87	12.74	0.55	27.41
PK	68.8M	26.75	40.00	-13.25	-15.27	3	Vertical	360	1.00	42.02	11.49	0.63	27.39
PK	185.2M	22.64	43.50	-20.86	-11.76	3	Vertical	360	1.00	34.40	14.20	1.01	26.97
PK	352.04M	30.00	46.00	-16.00	-6.17	3	Vertical	360	1.00	36.17	19.53	1.38	27.08
PK	522.76M	25.23	46.00	-20.77	-3.96	3	Vertical	360	1.00	29.19	22.61	1.68	28.25
QP	32.34M	34.99	40.00	-5.01	-4.61	3	Vertical	120	1.00	39.60	22.38	0.43	27.42

2.4-2.4835GHz_BT-LE(2Mbps)

2440MHz_PoE



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	24.93	40.00	-15.07	-3.34	3	Horizontal	0	1.00	28.27	23.66	0.42	27.42
PK	51.34M	23.48	40.00	-16.52	-14.12	3	Horizontal	0	1.00	37.60	12.74	0.55	27.41
PK	181.32M	20.53	43.50	-22.97	-11.71	3	Horizontal	0	1.00	32.24	14.30	0.99	27.00
PK	289.96M	27.88	46.00	-18.12	-7.39	3	Horizontal	0	1.00	35.27	18.09	1.26	26.74
PK	359.8M	31.67	46.00	-14.33	-6.04	3	Horizontal	0	1.00	37.71	19.71	1.40	27.15
PK	429.64M	28.40	46.00	-17.60	-4.56	3	Horizontal	0	1.00	32.96	21.71	1.53	27.80



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	2.4976G	48.23	54.00	-5.77	3	Vertical	14	2.86
BT-LE(2Mbps)	Pass	AV	2.4956G	49.60	54.00	-4.40	3	Horizontal	86	1.62

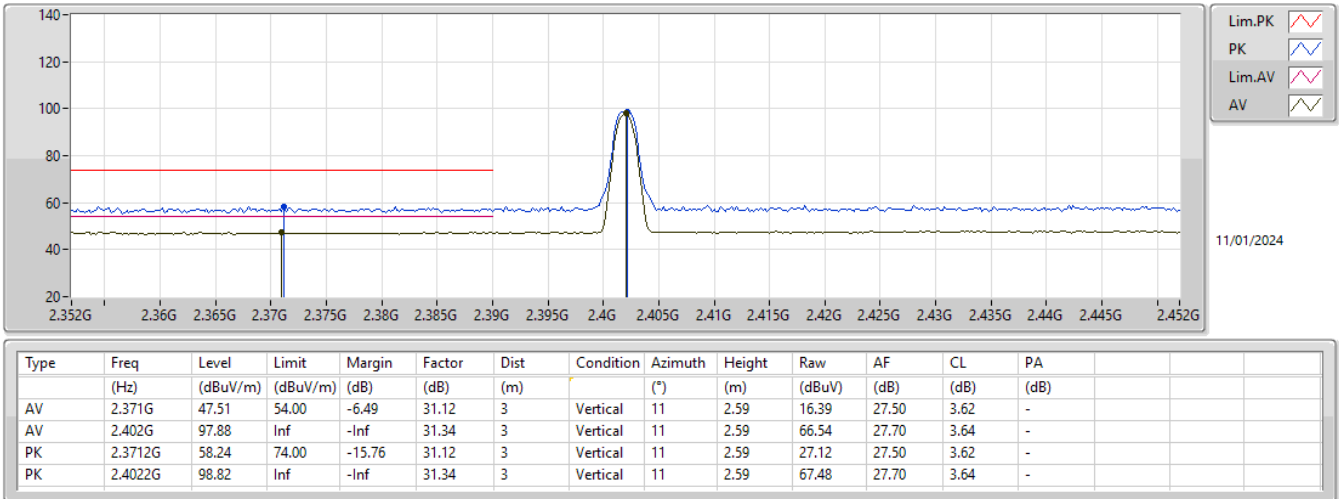
Result

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	2.371G	47.51	54.00	-6.49	3	Vertical	11	2.59
2402MHz	Pass	AV	2.402G	97.88	Inf	-Inf	3	Vertical	11	2.59
2402MHz	Pass	PK	2.3712G	58.24	74.00	-15.76	3	Vertical	11	2.59
2402MHz	Pass	PK	2.4022G	98.82	Inf	-Inf	3	Vertical	11	2.59
2402MHz	Pass	AV	2.3648G	47.46	54.00	-6.54	3	Horizontal	56	2.63
2402MHz	Pass	AV	2.402G	95.78	Inf	-Inf	3	Horizontal	56	2.63
2402MHz	Pass	PK	2.3898G	58.06	74.00	-15.94	3	Horizontal	56	2.63
2402MHz	Pass	PK	2.4022G	96.72	Inf	-Inf	3	Horizontal	56	2.63
2402MHz	Pass	AV	4.80362G	31.53	54.00	-22.47	3	Vertical	9	1.79
2402MHz	Pass	PK	4.80361G	42.97	74.00	-31.03	3	Vertical	9	1.79
2402MHz	Pass	AV	4.80342G	31.88	54.00	-22.12	3	Horizontal	304	1.00
2402MHz	Pass	PK	4.80346G	43.33	74.00	-30.67	3	Horizontal	304	1.00
2402MHz	Pass	AV	2.3484G	47.42	54.00	-6.58	3	Vertical	14	2.86
2440MHz	Pass	AV	2.44G	96.87	Inf	-Inf	3	Vertical	14	2.86
2440MHz	Pass	AV	2.4976G	48.23	54.00	-5.77	3	Vertical	14	2.86
2440MHz	Pass	PK	2.354G	58.57	74.00	-15.43	3	Vertical	14	2.86
2440MHz	Pass	PK	2.4396G	97.78	Inf	-Inf	3	Vertical	14	2.86
2440MHz	Pass	PK	2.4904G	58.85	74.00	-15.15	3	Vertical	14	2.86
2440MHz	Pass	AV	2.3784G	47.51	54.00	-6.49	3	Horizontal	41	3.00
2440MHz	Pass	AV	2.44G	95.79	Inf	-Inf	3	Horizontal	41	3.00
2440MHz	Pass	AV	2.4952G	48.23	54.00	-5.77	3	Horizontal	41	3.00
2440MHz	Pass	PK	2.35G	58.46	74.00	-15.54	3	Horizontal	41	3.00
2440MHz	Pass	PK	2.4396G	96.69	Inf	-Inf	3	Horizontal	41	3.00
2440MHz	Pass	PK	2.4912G	59.15	74.00	-14.85	3	Horizontal	41	3.00
2440MHz	Pass	AV	4.88053G	31.53	54.00	-22.47	3	Vertical	138	2.18
2440MHz	Pass	AV	7.32085G	37.19	54.00	-16.81	3	Vertical	328	2.13
2440MHz	Pass	PK	4.87934G	43.55	74.00	-30.45	3	Vertical	138	2.18
2440MHz	Pass	PK	7.31991G	48.12	74.00	-25.88	3	Vertical	328	2.13
2440MHz	Pass	AV	4.87952G	32.62	54.00	-21.38	3	Horizontal	328	1.66
2440MHz	Pass	AV	7.31825G	37.17	54.00	-16.83	3	Horizontal	330	1.63
2440MHz	Pass	PK	4.8802G	43.19	74.00	-30.81	3	Horizontal	328	1.66
2440MHz	Pass	PK	7.32039G	48.33	74.00	-25.67	3	Horizontal	330	1.63
2480MHz	Pass	AV	2.48G	95.66	Inf	-Inf	3	Vertical	316	1.28
2480MHz	Pass	AV	2.4938G	48.23	54.00	-5.77	3	Vertical	316	1.28
2480MHz	Pass	PK	2.4798G	96.61	Inf	-Inf	3	Vertical	316	1.28
2480MHz	Pass	PK	2.4948G	59.57	74.00	-14.43	3	Vertical	316	1.28
2480MHz	Pass	AV	2.48G	98.47	Inf	-Inf	3	Horizontal	52	2.69
2480MHz	Pass	AV	2.4966G	48.23	54.00	-5.77	3	Horizontal	52	2.69
2480MHz	Pass	PK	2.4798G	99.44	Inf	-Inf	3	Horizontal	52	2.69
2480MHz	Pass	PK	2.4874G	59.21	74.00	-14.79	3	Horizontal	52	2.69
2480MHz	Pass	AV	4.95994G	35.21	54.00	-18.79	3	Vertical	344	1.93
2480MHz	Pass	AV	7.43871G	36.23	54.00	-17.77	3	Vertical	133	1.71
2480MHz	Pass	PK	4.95971G	44.74	74.00	-29.26	3	Vertical	344	1.93
2480MHz	Pass	PK	7.44042G	47.63	74.00	-26.37	3	Vertical	133	1.71
2480MHz	Pass	AV	4.95966G	36.81	54.00	-17.19	3	Horizontal	329	1.41
2480MHz	Pass	AV	7.43984G	36.24	54.00	-17.76	3	Horizontal	153	2.03
2480MHz	Pass	PK	4.95986G	45.79	74.00	-28.21	3	Horizontal	329	1.41
2480MHz	Pass	PK	7.43877G	48.01	74.00	-25.99	3	Horizontal	153	2.03
BT-LE(2Mbps)	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	AV	2.3898G	48.40	54.00	-5.60	3	Vertical	23	2.20
2402MHz	Pass	AV	2.402G	93.14	Inf	-Inf	3	Vertical	23	2.20
2402MHz	Pass	PK	2.365G	58.70	74.00	-15.30	3	Vertical	23	2.20
2402MHz	Pass	PK	2.402G	95.42	Inf	-Inf	3	Vertical	23	2.20
2402MHz	Pass	AV	2.3634G	48.89	54.00	-5.11	3	Horizontal	30	1.54
2402MHz	Pass	AV	2.402G	93.71	Inf	-Inf	3	Horizontal	30	1.54
2402MHz	Pass	PK	2.3894G	58.01	74.00	-15.99	3	Horizontal	30	1.54
2402MHz	Pass	PK	2.402G	96.00	Inf	-Inf	3	Horizontal	30	1.54
2402MHz	Pass	AV	4.80445G	32.64	54.00	-21.36	3	Vertical	155	2.20
2402MHz	Pass	PK	4.80453G	41.78	74.00	-32.22	3	Vertical	155	2.20
2402MHz	Pass	AV	4.80496G	32.99	54.00	-21.01	3	Horizontal	325	1.27

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
2402MHz	Pass	PK	4.80455G	42.29	74.00	-31.71	3	Horizontal	325	1.27
2440MHz	Pass	AV	2.3624G	48.41	54.00	-5.59	3	Vertical	346	1.79
2440MHz	Pass	AV	2.44G	95.99	Inf	-Inf	3	Vertical	346	1.79
2440MHz	Pass	AV	2.4952G	49.25	54.00	-4.75	3	Vertical	346	1.79
2440MHz	Pass	PK	2.3712G	57.88	74.00	-16.12	3	Vertical	346	1.79
2440MHz	Pass	PK	2.4396G	96.76	Inf	-Inf	3	Vertical	346	1.79
2440MHz	Pass	PK	2.492G	58.62	74.00	-15.38	3	Vertical	346	1.79
2440MHz	Pass	AV	2.3672G	48.64	54.00	-5.36	3	Horizontal	86	1.62
2440MHz	Pass	AV	2.44G	94.24	Inf	-Inf	3	Horizontal	86	1.62
2440MHz	Pass	AV	2.4956G	49.60	54.00	-4.40	3	Horizontal	86	1.62
2440MHz	Pass	PK	2.376G	58.00	74.00	-16.00	3	Horizontal	86	1.62
2440MHz	Pass	PK	2.4404G	95.04	Inf	-Inf	3	Horizontal	86	1.62
2440MHz	Pass	PK	2.484G	59.20	74.00	-14.80	3	Horizontal	86	1.62
2440MHz	Pass	AV	4.87884G	33.41	54.00	-20.59	3	Vertical	360	1.94
2440MHz	Pass	AV	7.31929G	38.91	54.00	-15.09	3	Vertical	247	2.62
2440MHz	Pass	PK	4.88055G	42.73	74.00	-31.27	3	Vertical	360	1.94
2440MHz	Pass	PK	7.31937G	48.27	74.00	-25.73	3	Vertical	247	2.62
2440MHz	Pass	AV	4.87995G	33.71	54.00	-20.29	3	Horizontal	328	2.08
2440MHz	Pass	AV	7.32167G	38.59	54.00	-15.41	3	Horizontal	301	2.79
2440MHz	Pass	PK	4.88062G	43.07	74.00	-30.93	3	Horizontal	328	2.08
2440MHz	Pass	PK	7.3206G	48.26	74.00	-25.74	3	Horizontal	301	2.79
2480MHz	Pass	AV	2.48G	99.76	Inf	-Inf	3	Vertical	334	1.66
2480MHz	Pass	AV	2.489G	49.41	54.00	-4.59	3	Vertical	334	1.66
2480MHz	Pass	PK	2.4798G	100.53	Inf	-Inf	3	Vertical	334	1.66
2480MHz	Pass	PK	2.4992G	58.57	74.00	-15.43	3	Vertical	334	1.66
2480MHz	Pass	AV	2.48G	97.06	Inf	-Inf	3	Horizontal	84	1.28
2480MHz	Pass	AV	2.4838G	49.40	54.00	-4.60	3	Horizontal	84	1.28
2480MHz	Pass	PK	2.4798G	97.86	Inf	-Inf	3	Horizontal	84	1.28
2480MHz	Pass	PK	2.4962G	58.63	74.00	-15.37	3	Horizontal	84	1.28
2480MHz	Pass	AV	4.96036G	36.48	54.00	-17.52	3	Vertical	341	1.92
2480MHz	Pass	AV	7.43248G	38.17	54.00	-15.83	3	Vertical	244	1.50
2480MHz	Pass	PK	4.96068G	44.66	74.00	-29.34	3	Vertical	341	1.92
2480MHz	Pass	PK	7.43924G	48.00	74.00	-26.00	3	Vertical	244	1.50
2480MHz	Pass	AV	4.96004G	38.03	54.00	-15.97	3	Horizontal	328	1.68
2480MHz	Pass	AV	7.43788G	37.84	54.00	-16.16	3	Horizontal	57	1.29
2480MHz	Pass	PK	4.96012G	45.30	74.00	-28.70	3	Horizontal	328	1.68
2480MHz	Pass	PK	7.443G	46.99	74.00	-27.01	3	Horizontal	57	1.29

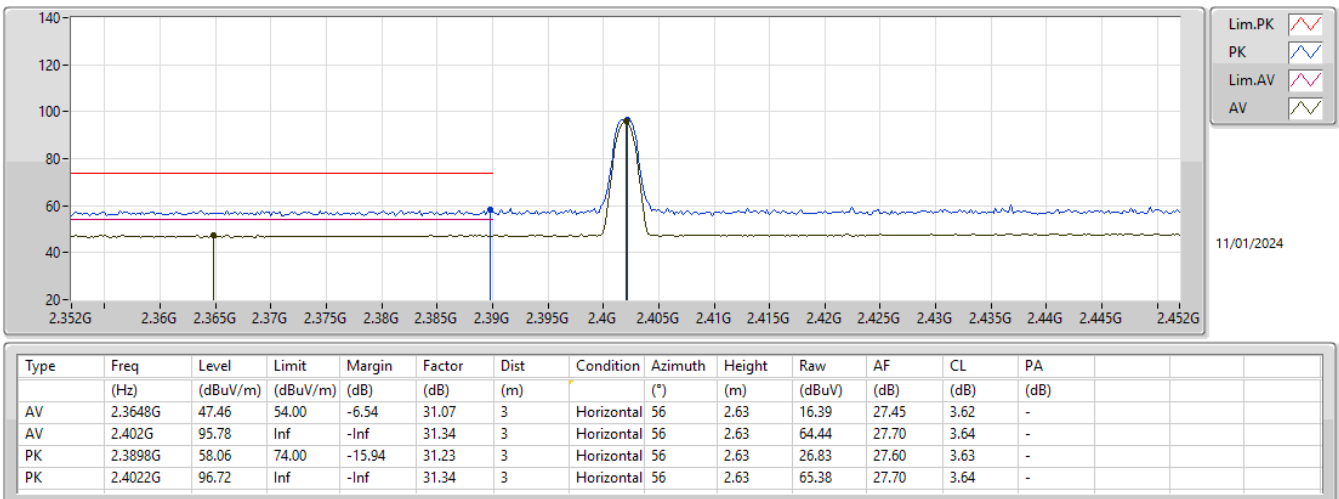
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2402MHz_TX



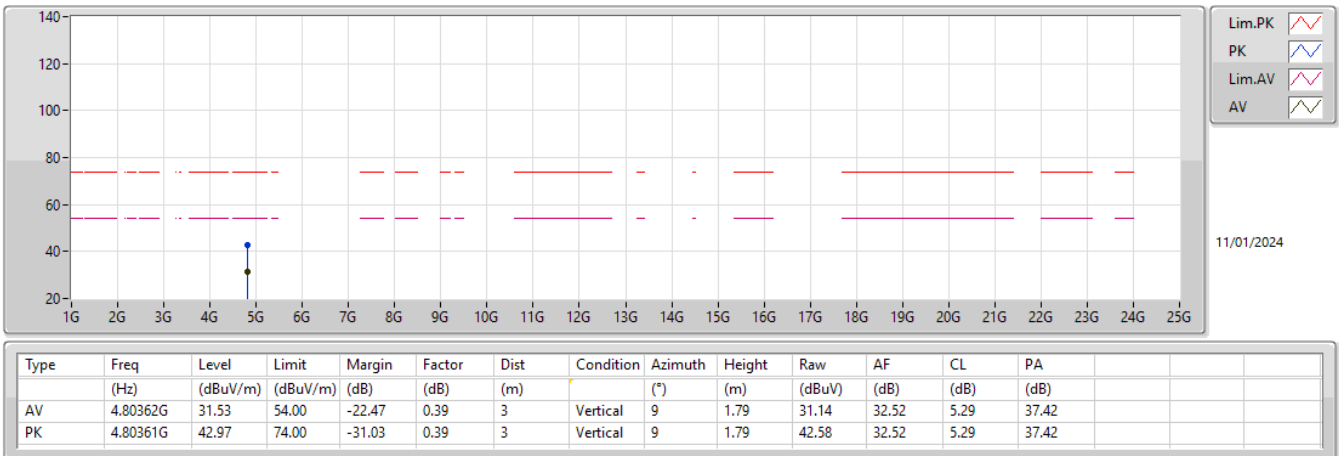
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2402MHz_TX



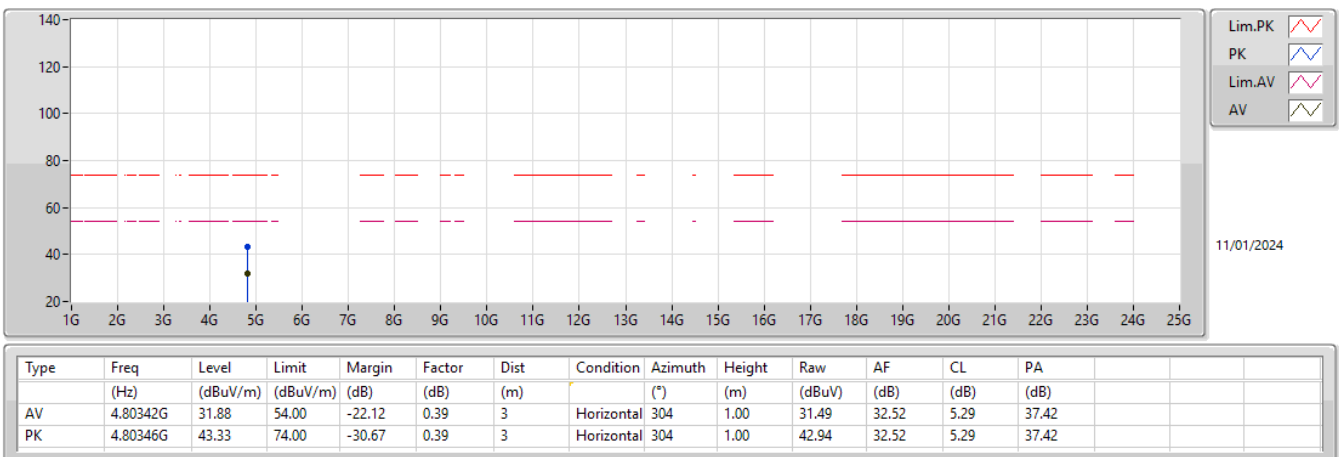
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2402MHz_TX



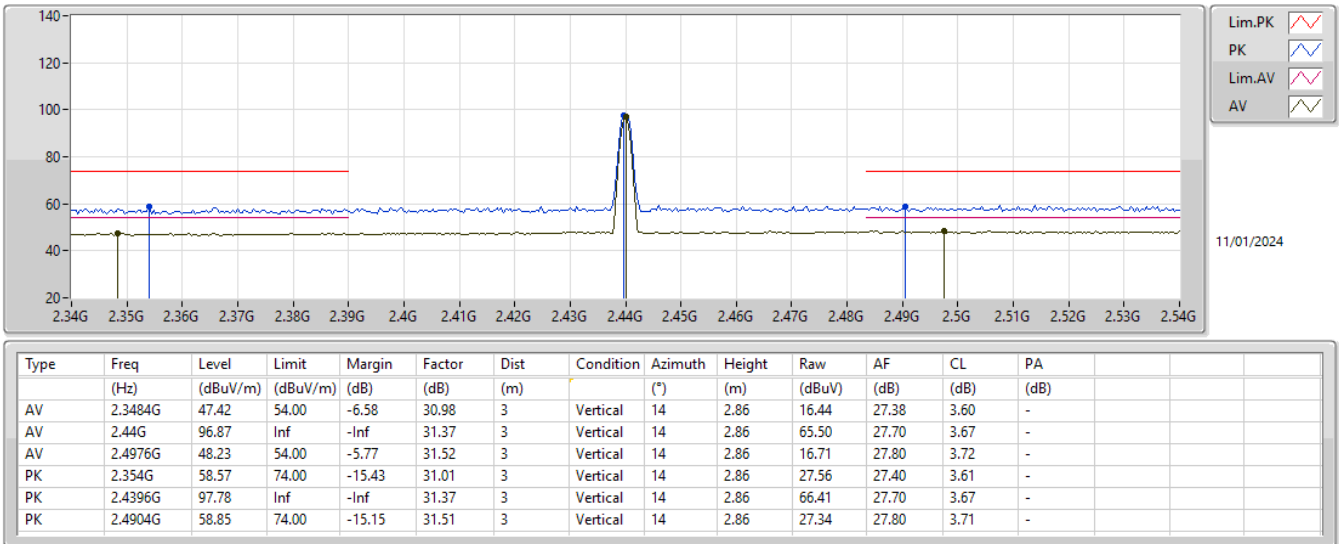
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2402MHz_TX



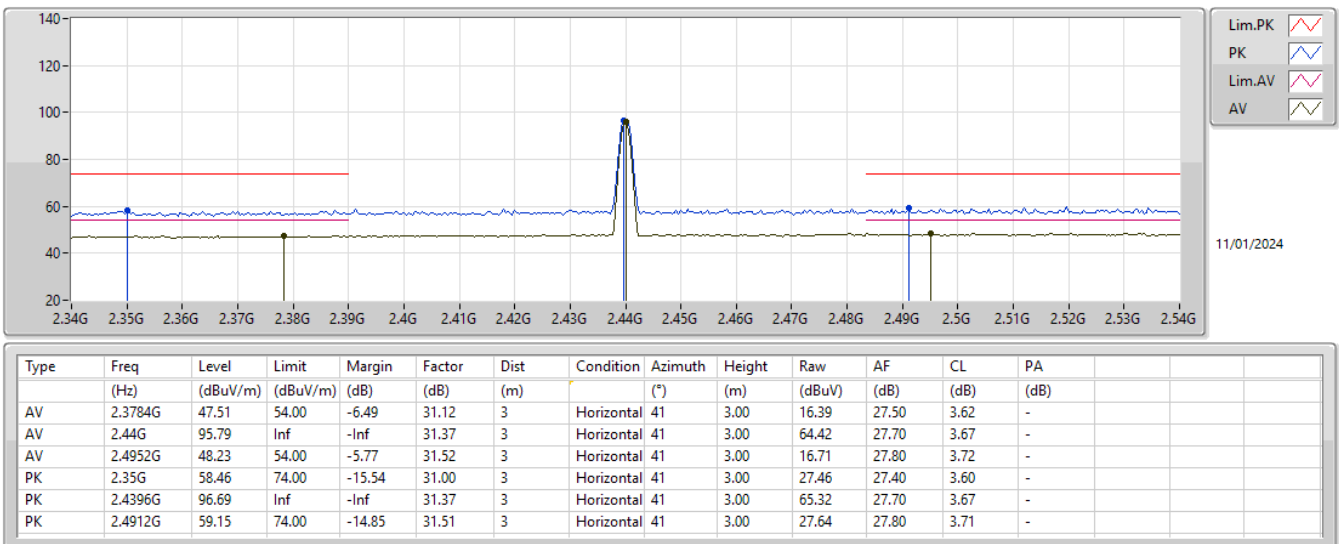
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2440MHz_TX



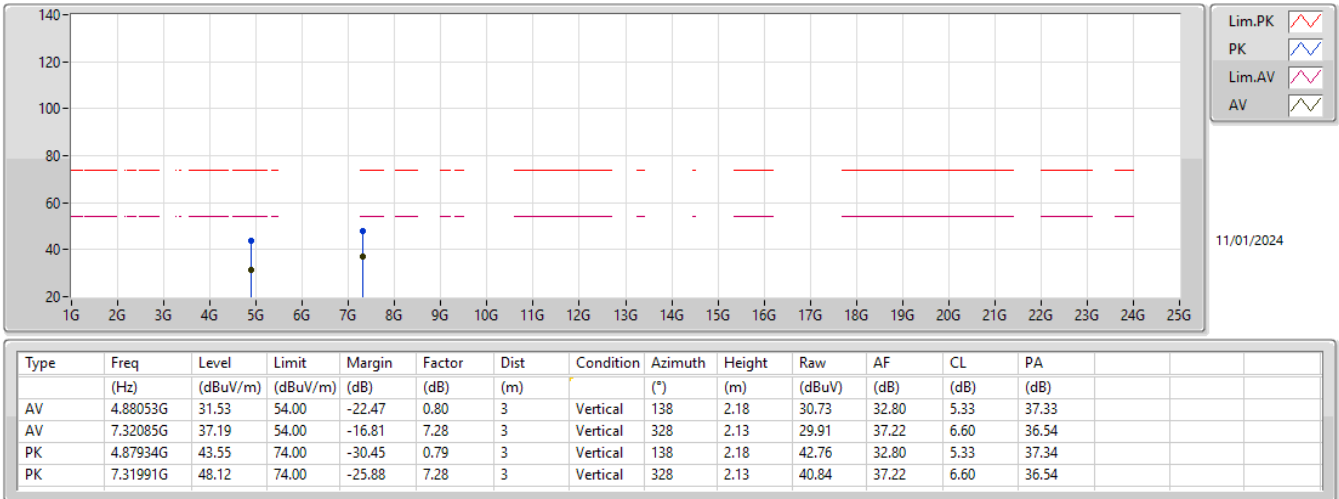
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2440MHz_TX



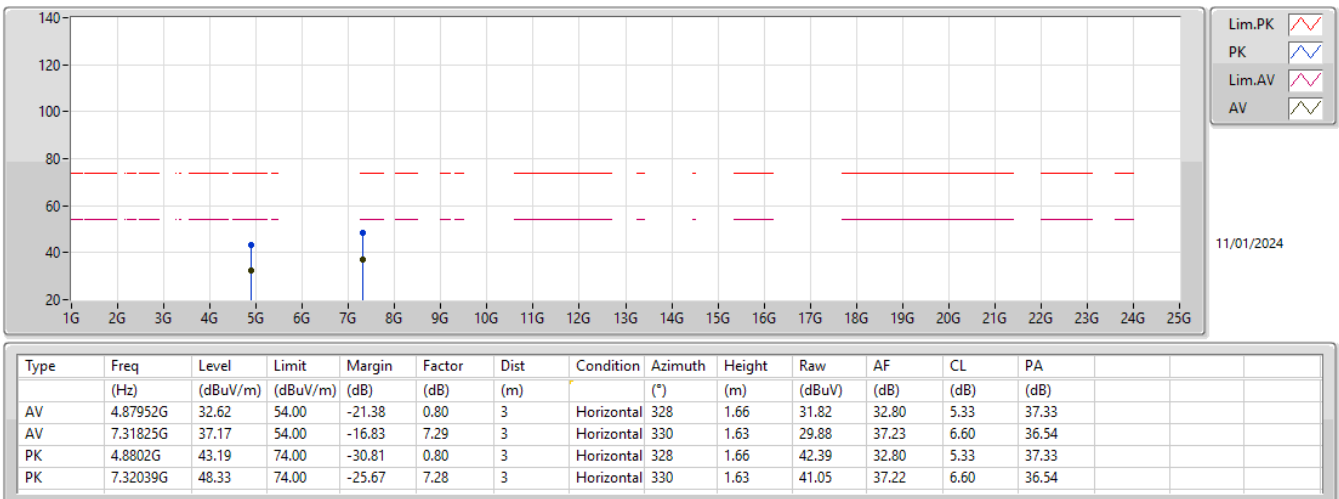
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2440MHz_TX



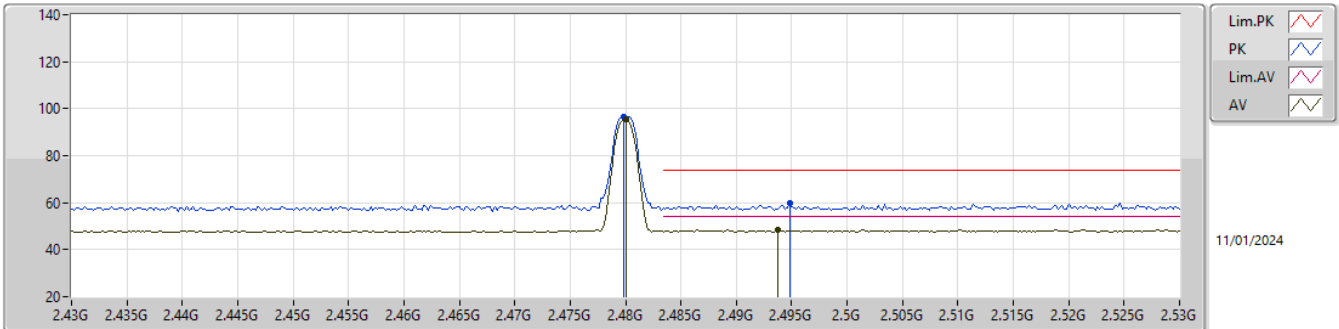
2.4-2.4835GHz_BT-LE(1Mbps)

2440MHz_TX



2.4-2.4835GHz_BT-LE(1Mbps)

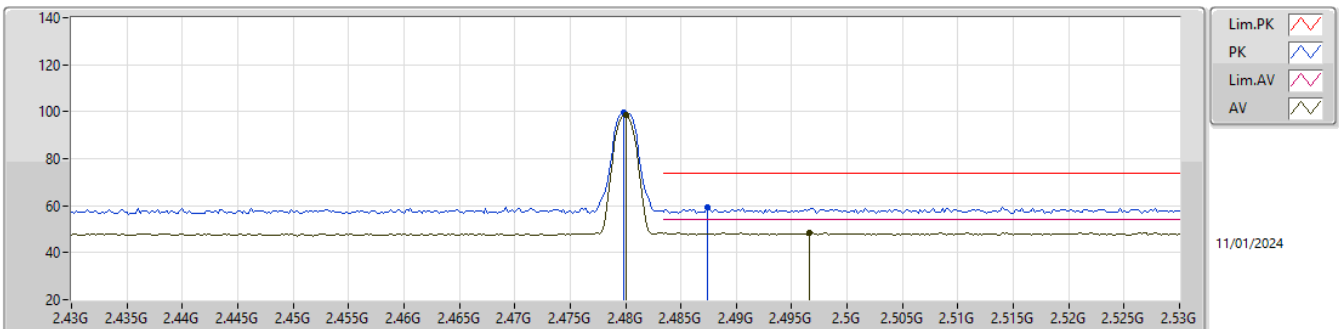
2480MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	(dBuV)	(dB)	(dB)	(dB)
AV	2.48G	95.66	Inf	-Inf	31.50	3	Vertical	316	1.28	64.16	27.80	3.70	-
AV	2.4938G	48.23	54.00	-5.77	31.52	3	Vertical	316	1.28	16.71	27.80	3.72	-
PK	2.4798G	96.61	Inf	-Inf	31.50	3	Vertical	316	1.28	65.11	27.80	3.70	-
PK	2.4948G	59.57	74.00	-14.43	31.52	3	Vertical	316	1.28	28.05	27.80	3.72	-

2.4-2.4835GHz_BT-LE(1Mbps)

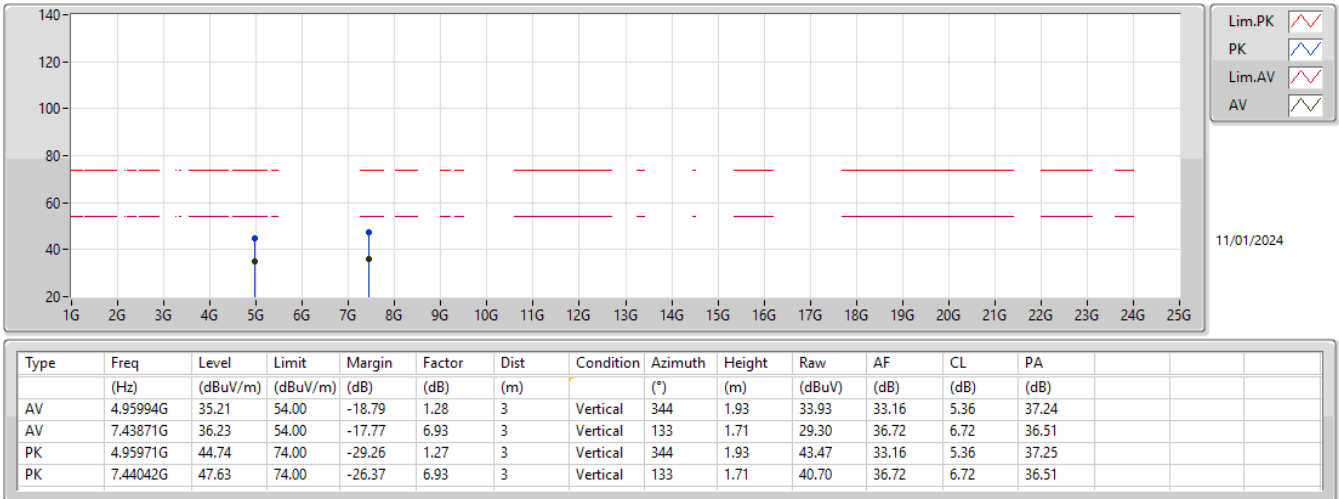
2480MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	(dBuV)	(dB)	(dB)	(dB)
AV	2.48G	98.47	Inf	-Inf	31.50	3	Horizontal	52	2.69	66.97	27.80	3.70	-
AV	2.4966G	48.23	54.00	-5.77	31.52	3	Horizontal	52	2.69	16.71	27.80	3.72	-
PK	2.4798G	99.44	Inf	-Inf	31.50	3	Horizontal	52	2.69	67.94	27.80	3.70	-
PK	2.4874G	59.21	74.00	-14.79	31.51	3	Horizontal	52	2.69	27.70	27.80	3.71	-

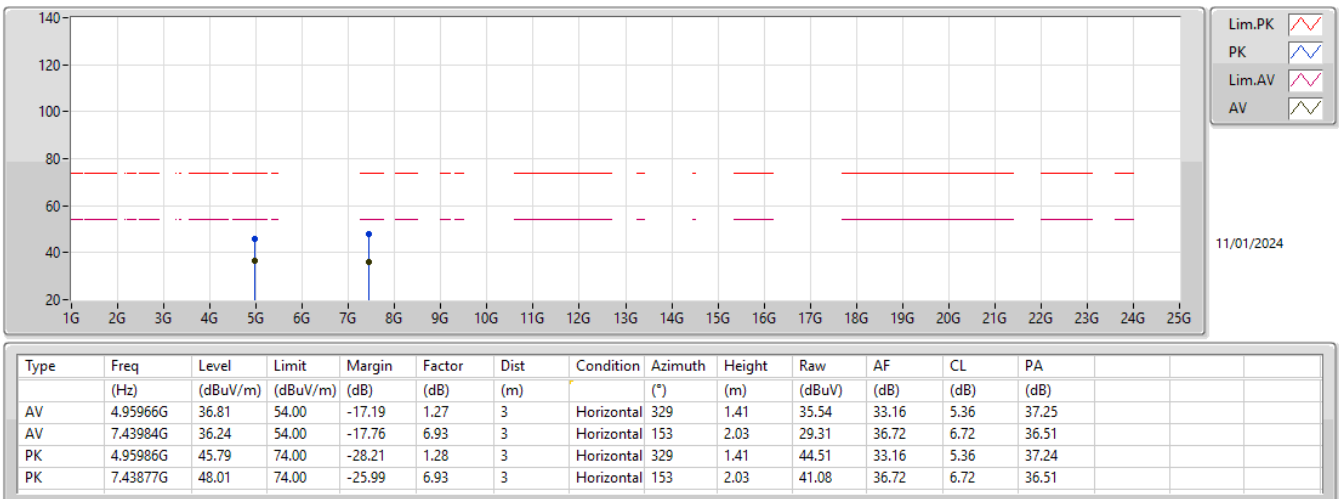
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2480MHz_TX



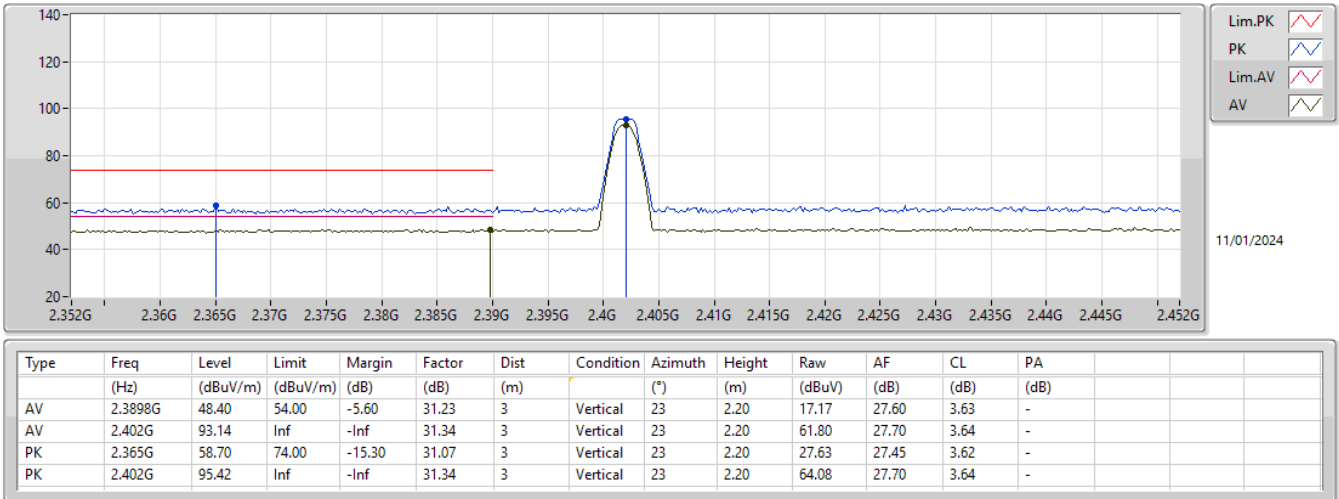
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2480MHz_TX



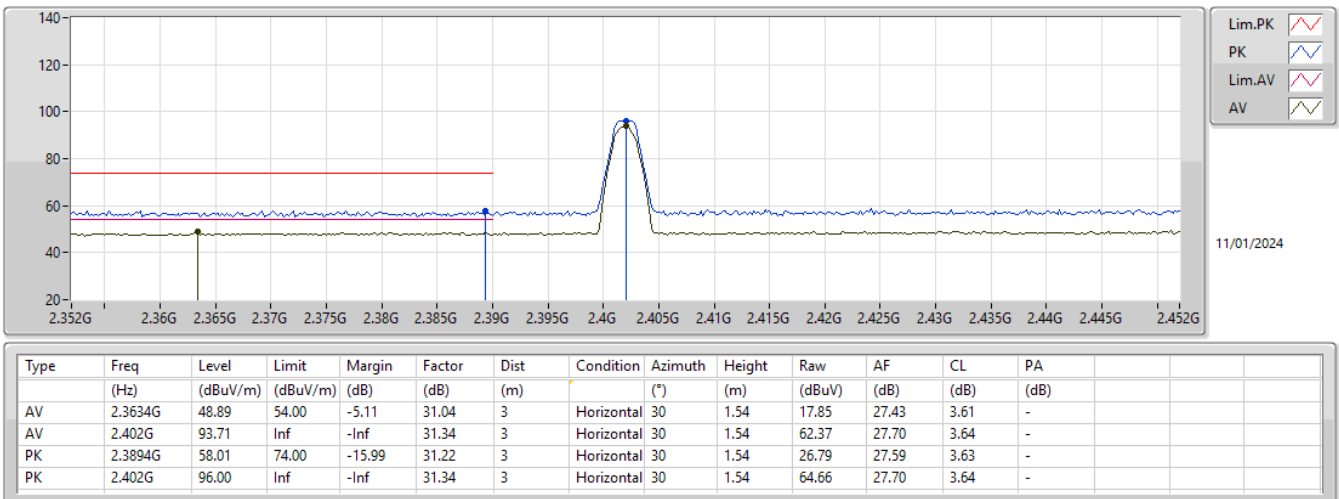
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2402MHz_TX



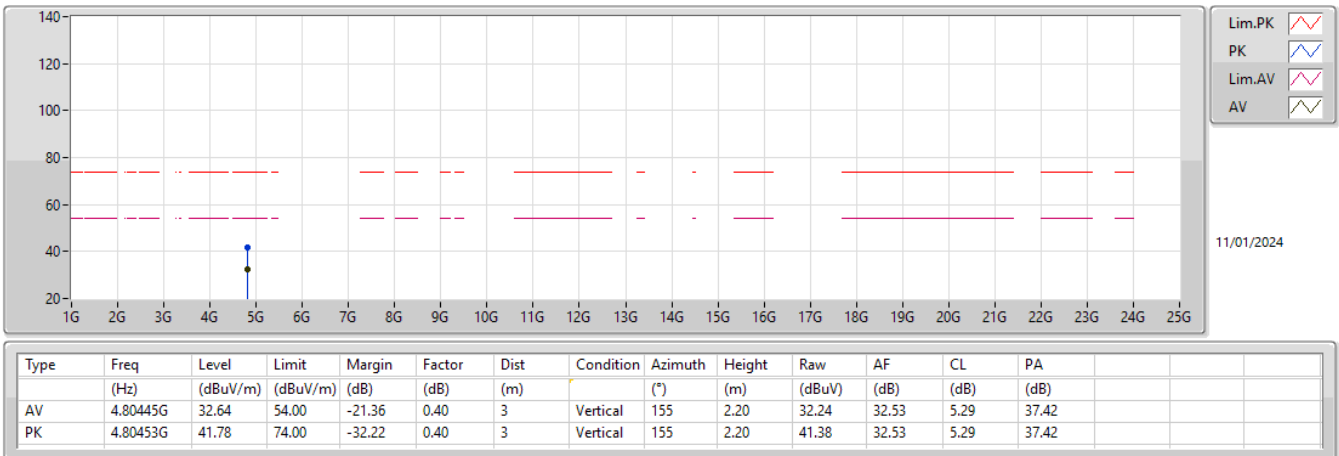
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2402MHz_TX



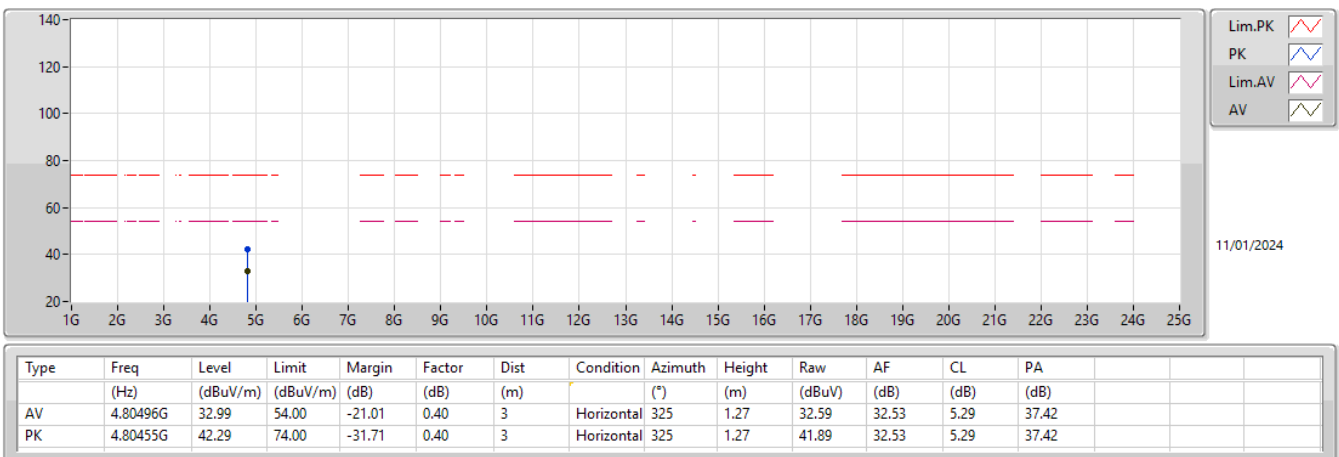
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2402MHz_TX



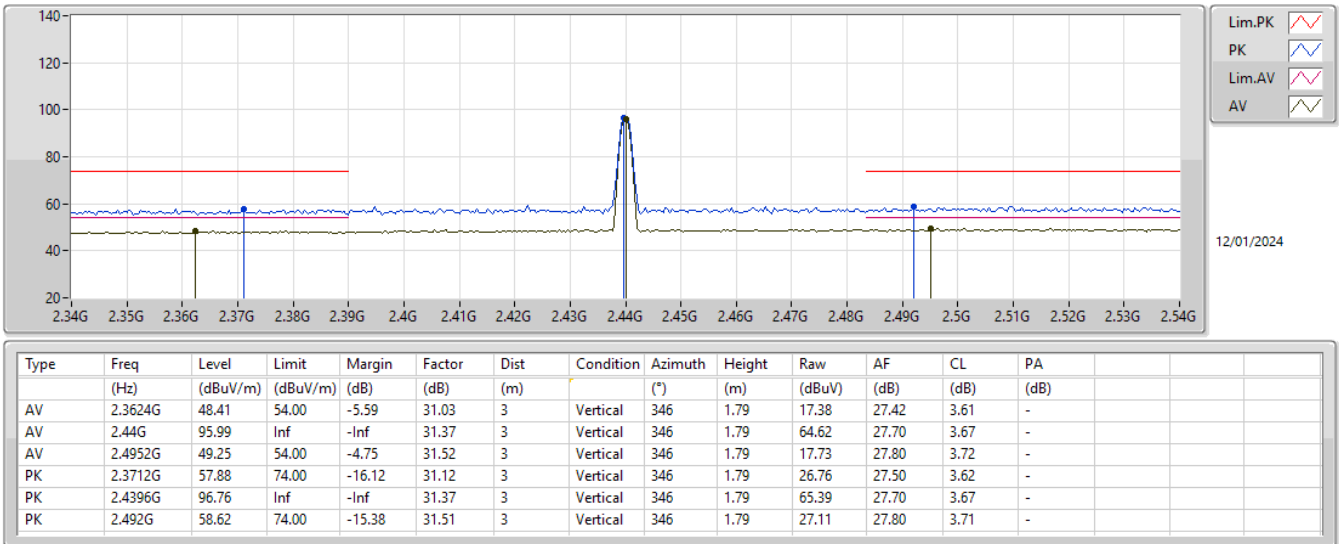
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2402MHz_TX



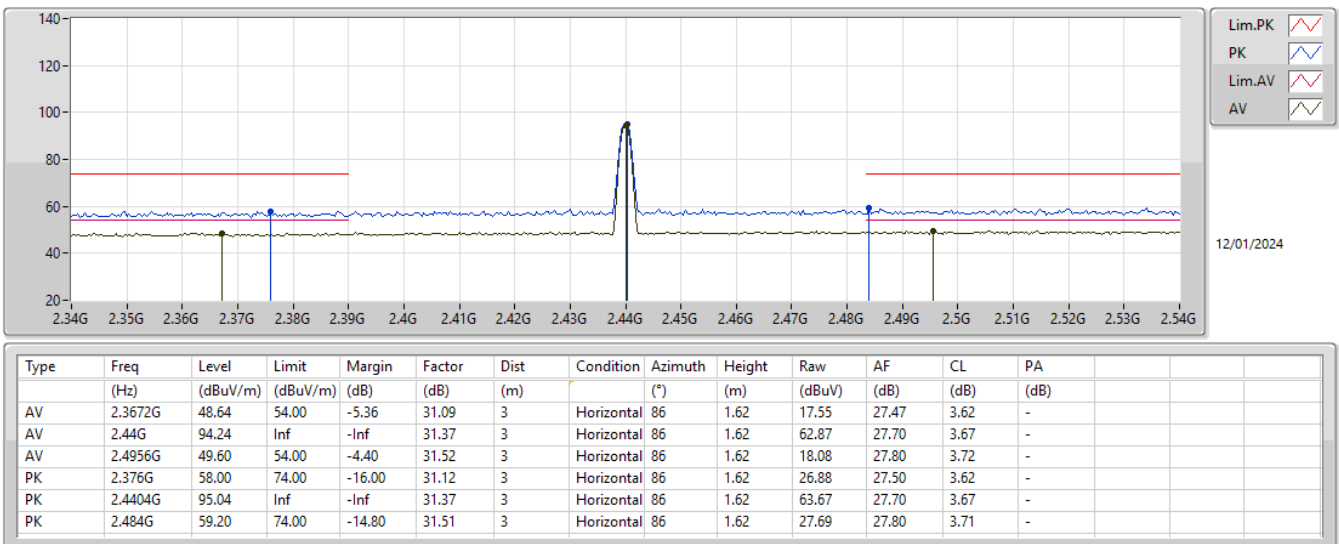
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2440MHz_TX



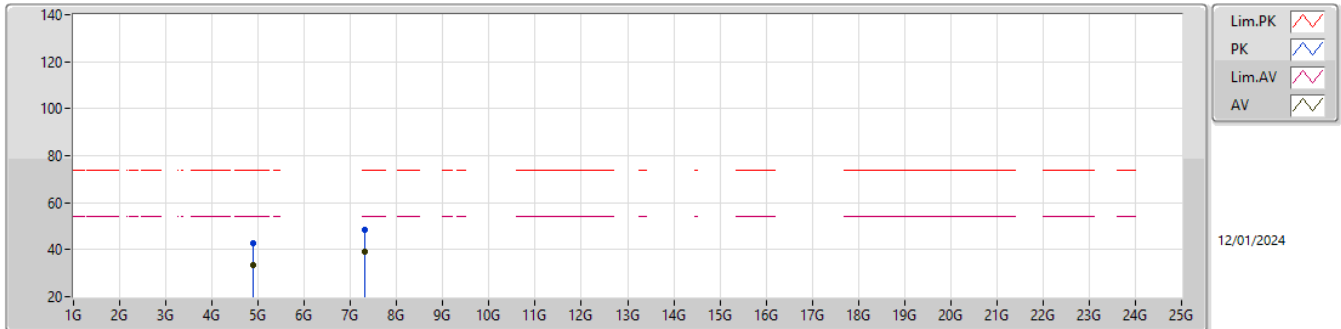
2.4-2.4835GHz_BT-LE(2Mbps)

2440MHz_TX



2.4-2.4835GHz_BT-LE(2Mbps)

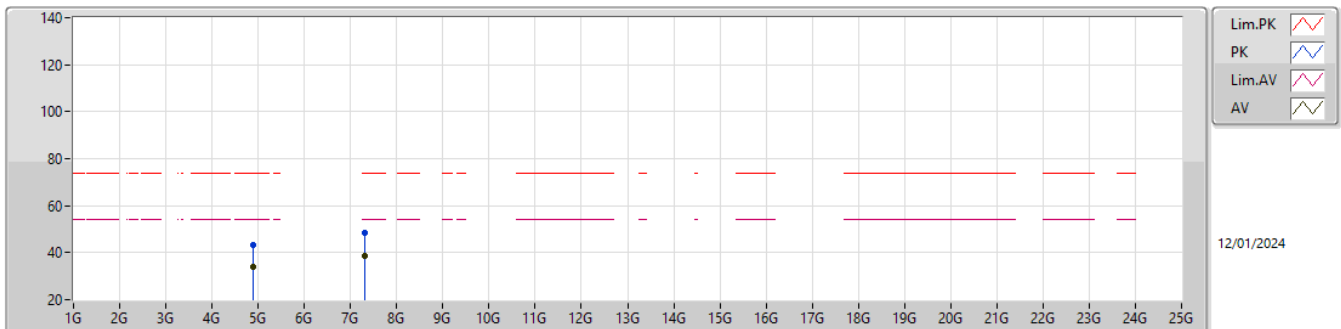
2440MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	(dBuV)	(dB)	(dB)	(dB)
AV	4.87884G	33.41	54.00	-20.59	0.79	3	Vertical	360	1.94	32.62	32.80	5.33	37.34
AV	7.31929G	38.91	54.00	-15.09	7.28	3	Vertical	247	2.62	31.63	37.22	6.60	36.54
PK	4.88055G	42.73	74.00	-31.27	0.80	3	Vertical	360	1.94	41.93	32.80	5.33	37.33
PK	7.31937G	48.27	74.00	-25.73	7.28	3	Vertical	247	2.62	40.99	37.22	6.60	36.54

2.4-2.4835GHz_BT-LE(2Mbps)

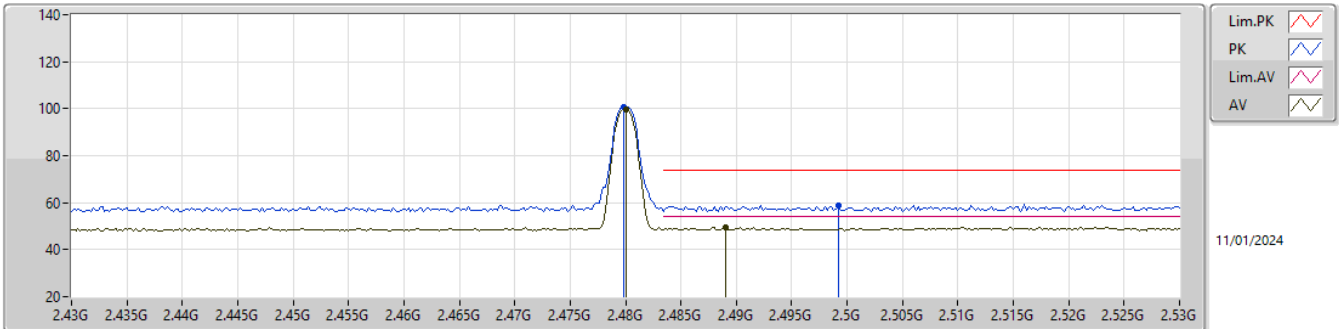
2440MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	(dBuV)	(dB)	(dB)	(dB)
AV	4.87995G	33.71	54.00	-20.29	0.80	3	Horizontal	328	2.08	32.91	32.80	5.33	37.33
AV	7.32167G	38.59	54.00	-15.41	7.27	3	Horizontal	301	2.79	31.32	37.21	6.60	36.54
PK	4.88062G	43.07	74.00	-30.93	0.80	3	Horizontal	328	2.08	42.27	32.80	5.33	37.33
PK	7.3206G	48.26	74.00	-25.74	7.28	3	Horizontal	301	2.79	40.98	37.22	6.60	36.54

2.4-2.4835GHz_BT-LE(2Mbps)

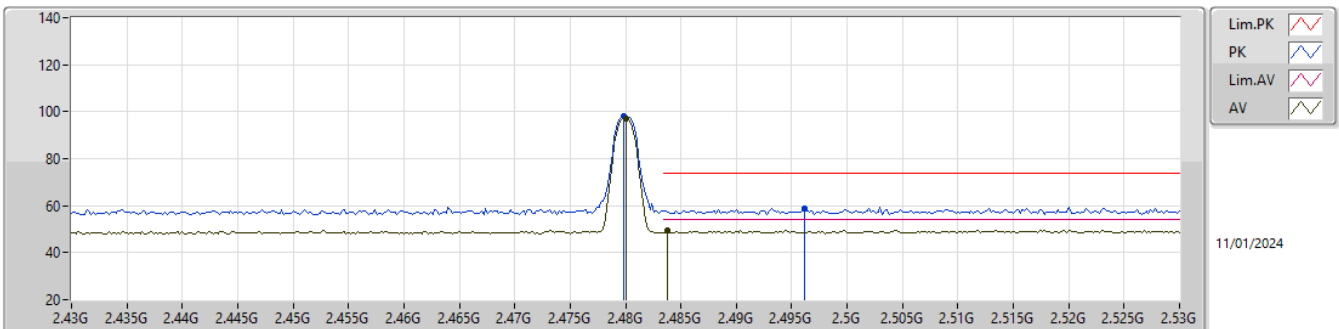
2480MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Raw	AF	CL	PA
(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(dB)	(m)		(°)	(m)	(dBuV)	(dB)	(dB)	(dB)
AV	2.48G	99.76	Inf	-Inf	31.50	3	Vertical	334	1.66	68.26	27.80	3.70	-
AV	2.489G	49.41	54.00	-4.59	31.51	3	Vertical	334	1.66	17.90	27.80	3.71	-
PK	2.4798G	100.53	Inf	-Inf	31.50	3	Vertical	334	1.66	69.03	27.80	3.70	-
PK	2.4992G	58.57	74.00	-15.43	31.52	3	Vertical	334	1.66	27.05	27.80	3.72	-

2.4-2.4835GHz_BT-LE(2Mbps)

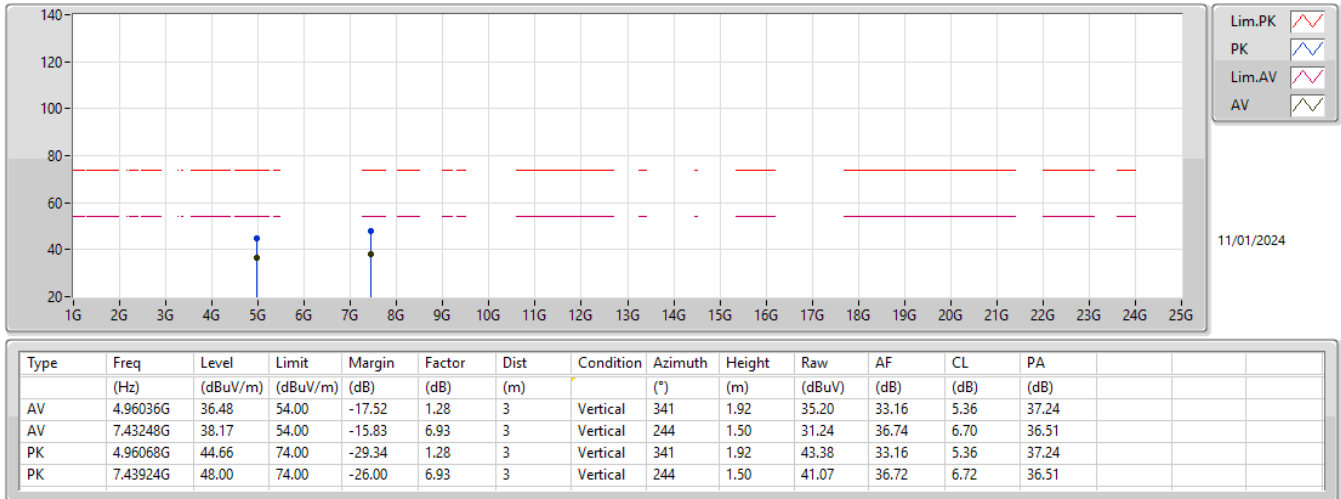
2480MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Raw	AF	CL	PA
(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(dB)	(m)		(°)	(m)	(dBuV)	(dB)	(dB)	(dB)
AV	2.48G	97.06	Inf	-Inf	31.50	3	Horizontal	84	1.28	65.56	27.80	3.70	-
AV	2.4838G	49.40	54.00	-4.60	31.51	3	Horizontal	84	1.28	17.89	27.80	3.71	-
PK	2.4798G	97.86	Inf	-Inf	31.50	3	Horizontal	84	1.28	66.36	27.80	3.70	-
PK	2.4962G	58.63	74.00	-15.37	31.52	3	Horizontal	84	1.28	27.11	27.80	3.72	-

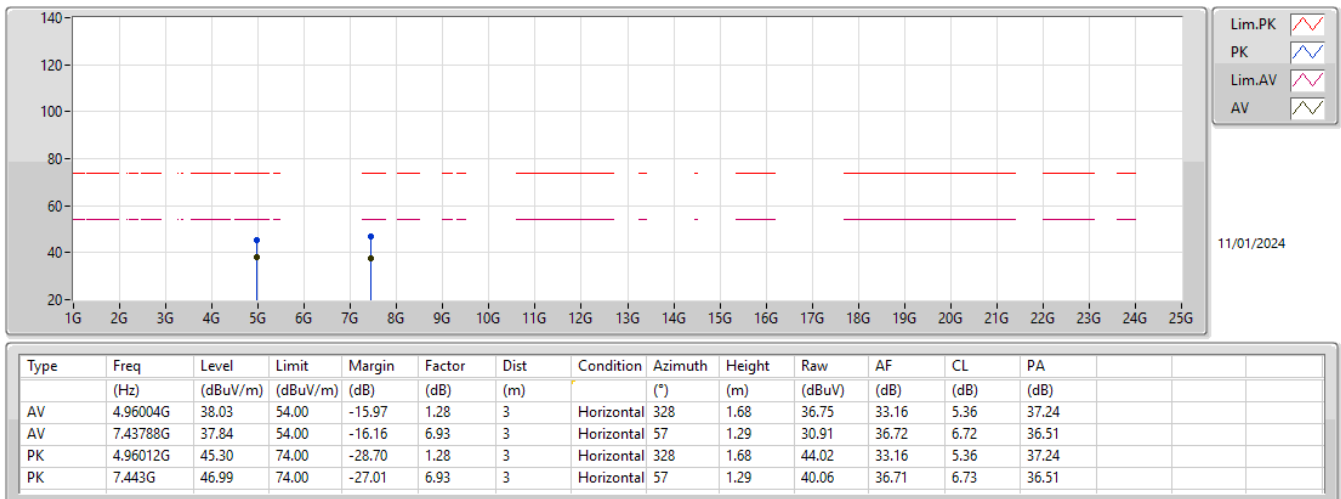
2.4-2.4835GHz_BT-LE(2Mbps)

2480MHz_TX



2.4-2.4835GHz_BT-LE(2Mbps)

2480MHz_TX





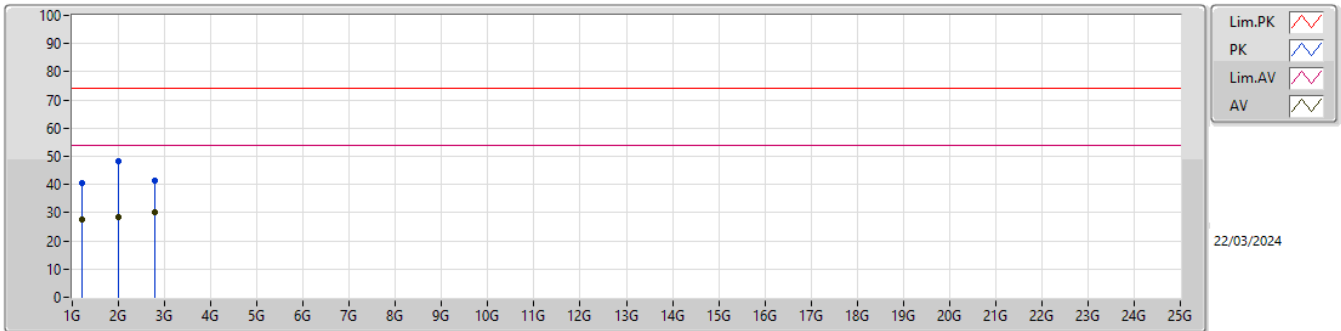
Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 1	Pass	AV	4.82319G	35.43	54.00	-18.57	Horizontal
Mode 2	Pass	PK	7.21462G	51.55	68.20	-16.65	Horizontal

Result

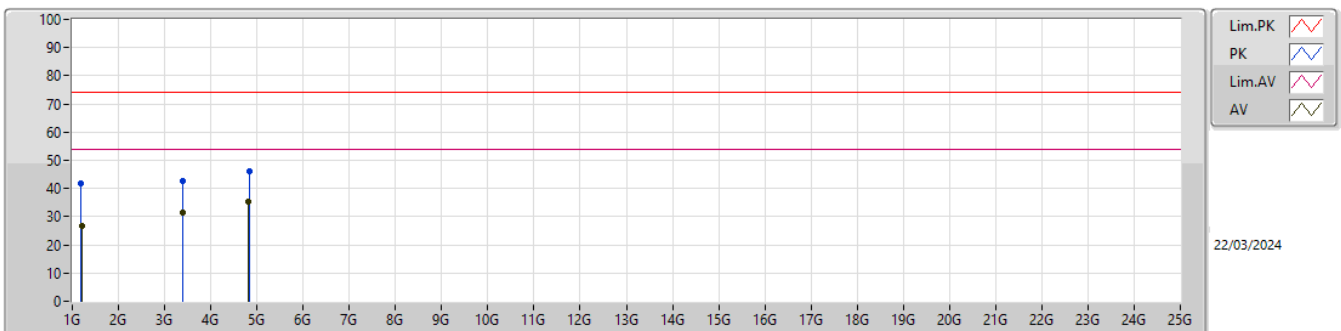
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
Mode 1	Pass	AV	1.19933G	27.38	54.00	-26.62	3	Vertical	104	2.66
Mode 1	Pass	AV	2.00145G	28.43	54.00	-25.57	3	Vertical	345	2.81
Mode 1	Pass	AV	2.79181G	30.14	54.00	-23.86	3	Vertical	274	2.19
Mode 1	Pass	PK	1.19788G	40.42	74.00	-33.58	3	Vertical	104	2.66
Mode 1	Pass	PK	1.99941G	48.35	74.00	-25.65	3	Vertical	345	2.81
Mode 1	Pass	PK	2.79144G	41.45	74.00	-32.55	3	Vertical	274	2.19
Mode 1	Pass	AV	1.19893G	26.66	54.00	-27.34	3	Horizontal	59	1.26
Mode 1	Pass	AV	3.39464G	31.44	54.00	-22.56	3	Horizontal	320	2.35
Mode 1	Pass	AV	4.82319G	35.43	54.00	-18.57	3	Horizontal	159	1.43
Mode 1	Pass	PK	1.19546G	41.63	74.00	-32.37	3	Horizontal	59	1.26
Mode 1	Pass	PK	3.39675G	42.79	74.00	-31.21	3	Horizontal	320	2.35
Mode 1	Pass	PK	4.82806G	46.22	74.00	-27.78	3	Horizontal	159	1.43
Mode 2	Pass	AV	1.19544G	28.00	54.00	-26.00	3	Vertical	89	1.83
Mode 2	Pass	AV	1.7957G	28.18	68.20	-40.02	3	Vertical	31	1.36
Mode 2	Pass	AV	4.79012G	34.62	54.00	-19.38	3	Vertical	348	1.78
Mode 2	Pass	PK	1.19673G	41.38	74.00	-32.62	3	Vertical	89	1.83
Mode 2	Pass	PK	1.79626G	44.56	68.20	-23.64	3	Vertical	31	1.36
Mode 2	Pass	PK	4.78826G	51.58	74.00	-22.42	3	Vertical	348	1.78
Mode 2	Pass	AV	1.19469G	27.61	54.00	-26.39	3	Horizontal	303	1.35
Mode 2	Pass	AV	1.32978G	27.27	54.00	-26.73	3	Horizontal	313	1.91
Mode 2	Pass	AV	7.21428G	40.20	68.20	-28.00	3	Horizontal	203	2.96
Mode 2	Pass	PK	1.19466G	42.01	74.00	-31.99	3	Horizontal	303	1.35
Mode 2	Pass	PK	1.32794G	38.81	74.00	-35.19	3	Horizontal	313	1.91
Mode 2	Pass	PK	7.21462G	51.55	68.20	-16.65	3	Horizontal	203	2.96

Radiated Emissions above 1GHz_Mode 1



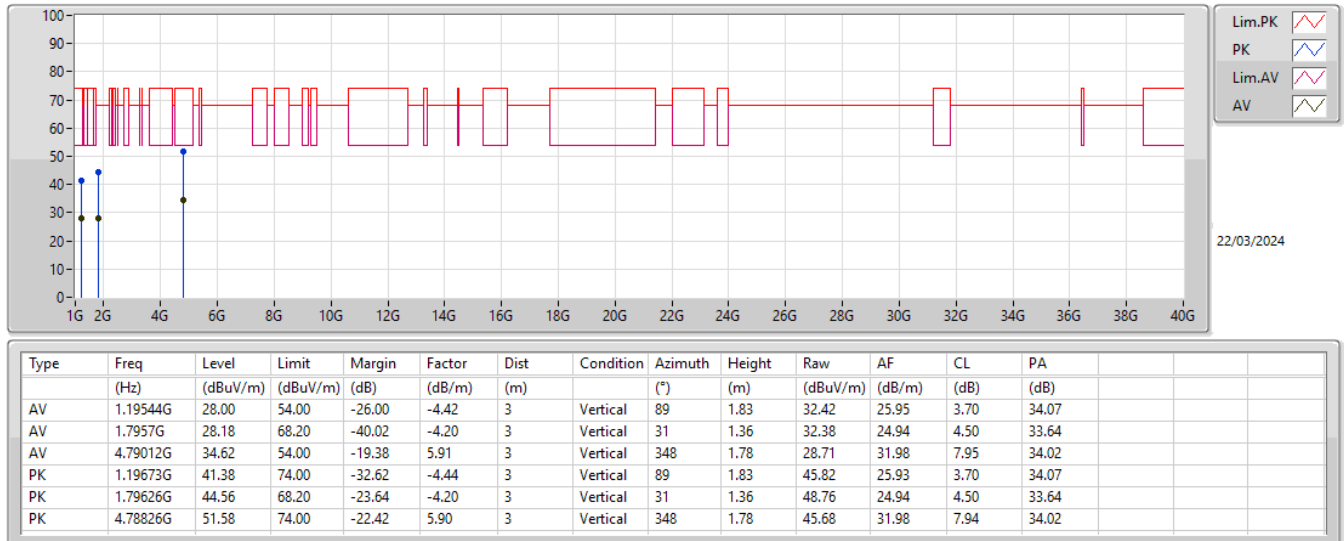
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB/m)	Dist (m)	Condition	Azimuth (°)	Height (m)	Raw (dBuV/m)	AF (dB/m)	CL (dB)	PA (dB)
AV	1.19933G	27.38	54.00	-26.62	-4.44	3	Vertical	104	2.66	31.82	25.91	3.71	34.06
AV	2.00145G	28.43	54.00	-25.57	-2.14	3	Vertical	345	2.81	30.57	26.66	4.85	33.65
AV	2.79181G	30.14	54.00	-23.86	0.34	3	Vertical	274	2.19	29.80	28.30	5.91	33.87
PK	1.19788G	40.42	74.00	-33.58	-4.44	3	Vertical	104	2.66	44.86	25.92	3.71	34.07
PK	1.99941G	48.35	74.00	-25.65	-2.21	3	Vertical	345	2.81	50.56	26.59	4.85	33.65
PK	2.79144G	41.45	74.00	-32.55	0.34	3	Vertical	274	2.19	41.11	28.30	5.91	33.87

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	1.19893G	26.66	54.00	-27.34	-4.44	3	Horizontal	59	1.26	31.10	25.91	3.71	34.06
AV	3.39464G	31.44	54.00	-22.56	1.97	3	Horizontal	320	2.35	29.47	29.49	6.56	34.08
AV	4.82319G	35.43	54.00	-18.57	6.09	3	Horizontal	159	1.43	29.34	32.14	7.96	34.01
PK	1.19546G	41.63	74.00	-32.37	-4.42	3	Horizontal	59	1.26	46.05	25.95	3.70	34.07
PK	3.39675G	42.79	74.00	-31.21	1.97	3	Horizontal	320	2.35	40.82	29.49	6.56	34.08
PK	4.82806G	46.22	74.00	-27.78	6.12	3	Horizontal	159	1.43	40.10	32.17	7.96	34.01

Radiated Emissions above 1GHz_Mode 2



Radiated Emissions above 1GHz_Mode 2

