

FCC Radio Test Report

FCC ID : PPQ-WRB8326
Equipment : Wi-Fi 7 Tri-Band Mesh Router
Brand Name : LITEON
Model Name : WRB8326A, WRB8326B, WRB8326C, WRB8326D
Applicant : LITE-ON TECHNOLOGY CORP.
Bldg. C, 90, Chien 1 Road, Chung Ho, New Taipei City
23585, Taiwan, R.O.C.
Manufacturer : LITE-ON TECHNOLOGY CORP.
Bldg. C, 90, Chien 1 Road, Chung Ho, New Taipei City
23585, Taiwan, R.O.C.
Standard : 47 CFR FCC Part 15.247

The product was received on Aug. 29, 2024, and testing was started from Sep. 03, 2024 and completed on Oct. 05, 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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PHOTOGRAPHS OF EUT V01



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: Amber Chiu

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	Remark
1	LITEON	20301-002000A000	PIFA	I-Pex	2.4G+5G	-
2	LITEON	20301-002020A000	PIFA	I-Pex	2.4G+5G	-
3	LITEON	20301-002030A000	Monopole	I-Pex	6G	-
4	LITEON	20301-002040A000	Monopole	I-Pex	6G	-
5	LITEON	20301-002010A000	Dipole	I-Pex	BT/Zigbee/Thread	-

Ant.	Port	Gain (dBi)						
		2.4G	UNII-1	UNII-2A	UNII-2C	UNII-3	UNII-5~8	BT/Zigbee/Thread
1	1	2.35	2.35	2.46	3.44	3.72	-	-
2	2	2.33	2.51	2.18	3.35	3.43	-	-
3	1	-	-	-	-	-	3.19	-
4	2	-	-	-	-	-	3.7	-
5	1	-	-	-	-	-	-	4.67

Composite Gain (dBi)					
	2.4G	UNII-1	UNII-2A	UNII-2C	UNII-3
DG [1SS]	2.69	4.1	4.57	5.27	4.74
DG [2SS]	2.35	2.51	2.46	3.44	3.72

Note 1: The EUT has five antennas.

Note 2: The composite gain is derived as KDB 662911 D03 v01 which was used as directional gain. For more detail information, please refer to the Antenna Pattern Report AP482702.

**For 2.4GHz function:**

For IEEE 802.11 b/g/n/VHT/ax/be mode (2TX/2RX)

Ant. 1 (port 1) and Ant. 2 (port 2) could receive simultaneously.

For 5GHz function:

For IEEE 802.11 a/n/ac/ax/be mode (2TX/2RX)

Ant. 1 (port 1) and Ant. 2 (port 2) could receive simultaneously.

For 6GHz function:

For IEEE 802.11ax/be mode (2TX/2RX)

Ant. 3 (port 1), Ant. 4 (port 2) could transmit/receive simultaneously.

For BT function:

For IEEE 802.15.1 mode (1TX/1RX)

Ant. 5 could transmit/receive.

For Zigbee/Thread function:

For IEEE 802.15.4 mode (1TX/1RX)

Ant. 5 could transmit/receive.

1.1.3 EUT Information

Operational Condition	
EUT Power Type	From AC Adapter
EUT Function	☒ Point-to-multipoint ☐ Point-to-point
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)	0.868	0.61	2.171m	1k
BT-LE(2Mbps)	0.595	2.25	1.116m	1k

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

1.1.5 Table for Multiple Listing

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

Brand Name	Model Name	SKU	5GE	2.5GE	USB 2.0	IoT(2.4G)
LITEON	WRB8326A	SKU 1	V	V	V	V
	WRB8326B	SKU 2	V	V	-	V
	WRB8326C	SKU 3	V	-	-	V
	WRB8326D	SKU 4	-	V	-	V

From the above models, model: WRB8326A was selected as representative model for the test and its data was recorded in this report.

Model name	Max TX Power
EFR32MG21B020F512IM32-D	20dBm
FR32MG21B010F512IM32-D	10dBm

There are two kinds of chip for Bluetooth, Zigbee and Thread, EFR32MG21B020F512IM32-D was selected as representative for the test and its data was recorded in this report. For FR32MG21B010F512IM32-D only TX power was verified.

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	Simon Cheng	22.3~23.5°C / 54~58%	05/Oct/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
RF Conducted	TH06-HY	Johnny Yu	23.3~24.1°C / 55~59%	19/Sep/2024~30/Sep/2024
Radiated_ below 1GHz	03CH25-HY	Lego Lin	20.5~22.1°C / 55~60%	19/Sep/2024
Radiated_ above 1GHz	03CH26-HY	Rian Chung	22.4~24.1°C / 57~61%	03/Sep/2024~16/Sep/2024
Radiated_ Co-location for Mode 1	03CH25-HY	Ivan Chung	23~25°C / 55~56%	25/Sep/2024
Radiated_ Co-location for Mode 2	03CH24-HY	Ivan Chung	21.3~22.1°C / 56~52%	04/Oct/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	PuTTY Release 0.62
-----------------------	--------------------

Mode	Power Setting
BT-LE(1Mbps)	-
2402MHz	20
2440MHz	20
2480MHz	15
BT-LE(2Mbps)	-
2402MHz	20
2440MHz	20
2480MHz	12

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	Adapter 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	Adapter Mode
Operating Mode > 1GHz	CTX
Orthogonal Planes of EUT	Y Plane
	

The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis - Radiated measurement Co-location
Operating Mode	CTX
1	WLAN 2.4G + 5G + 6G + Bluetooth
2	WLAN 2.4G + 5G + 6G + 802.15.4
Refer to Sporton Test Report No.: FA482702 for Co-location RF Exposure Evaluation and Appendix G for Radiated Emission Co-location.	

2.3 Accessories

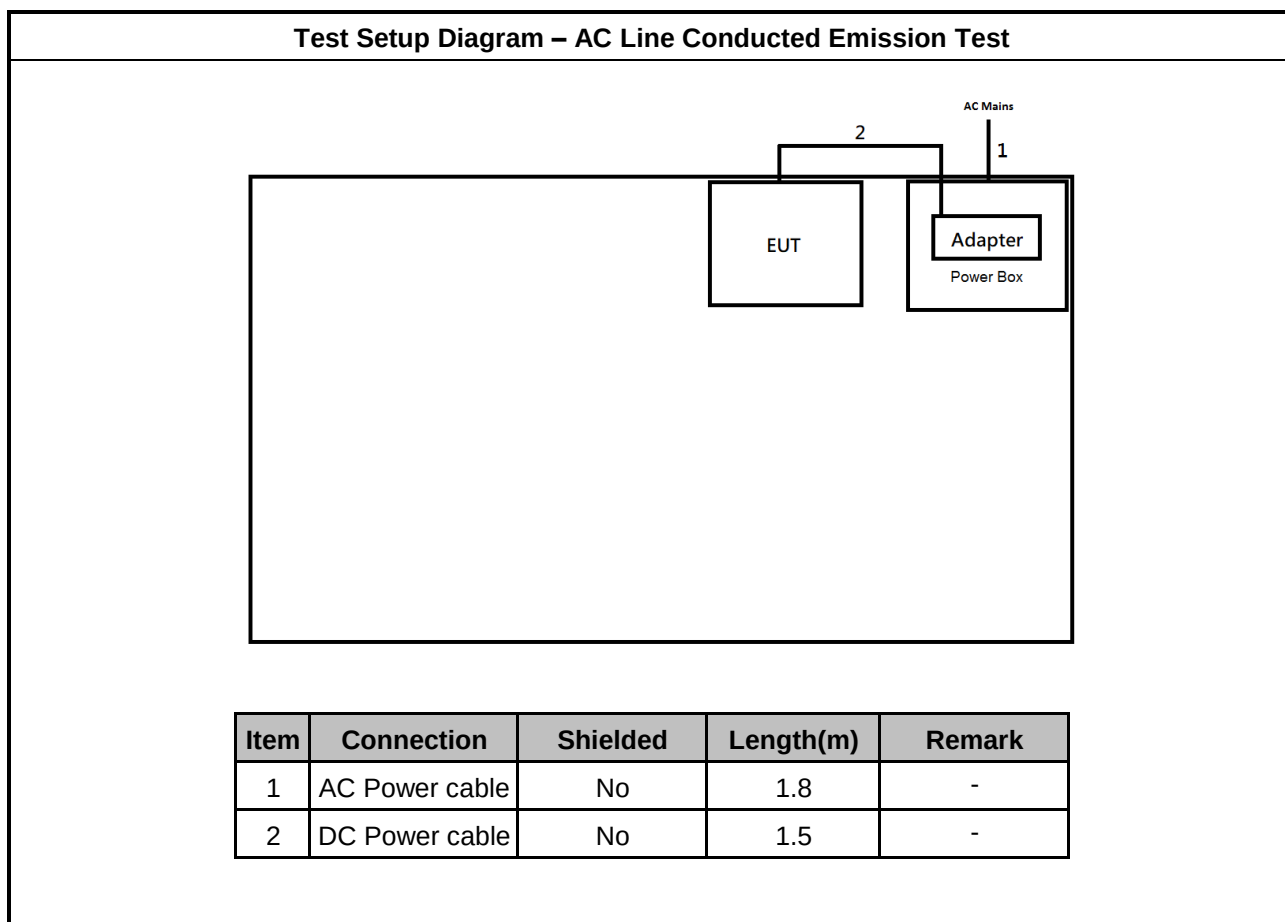
Accessories				
AC Adapter (US)	Brand Name	RISUNIC	Model Name	R0183-1202500US
	Power Rating	I/P: 100 - 240Vac, 1.5A A, O/P:12Vdc, 2.5A		
	Power Cord	1.5 meter, non-shielded cable, with w/o ferrite core		

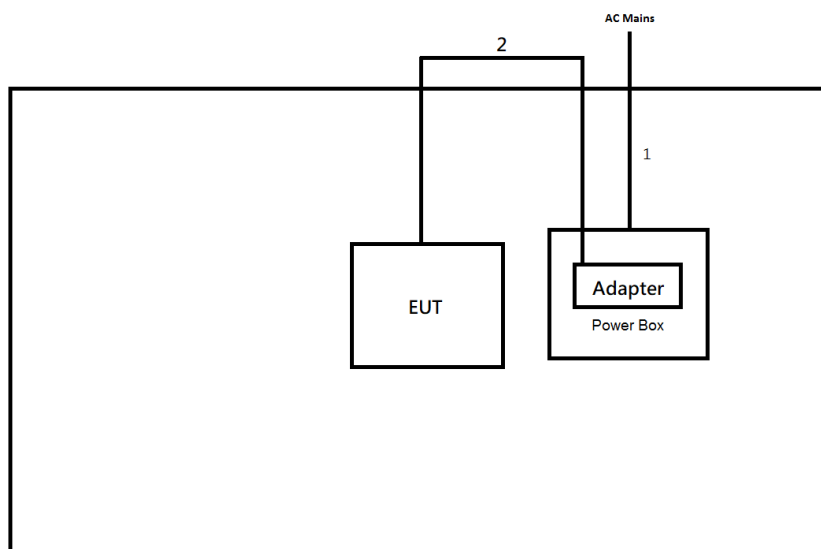
Reminder: Regarding to more detail and other information, please refer to user manual.

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	-	-

2.5 Test Setup Diagram



Test Setup Diagram - Radiated Test


Item	Connection	Shielded	Length(m)	Remark
1	AC Power cable	No	1.8	-
2	DC Power cable	No	1.5	-

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

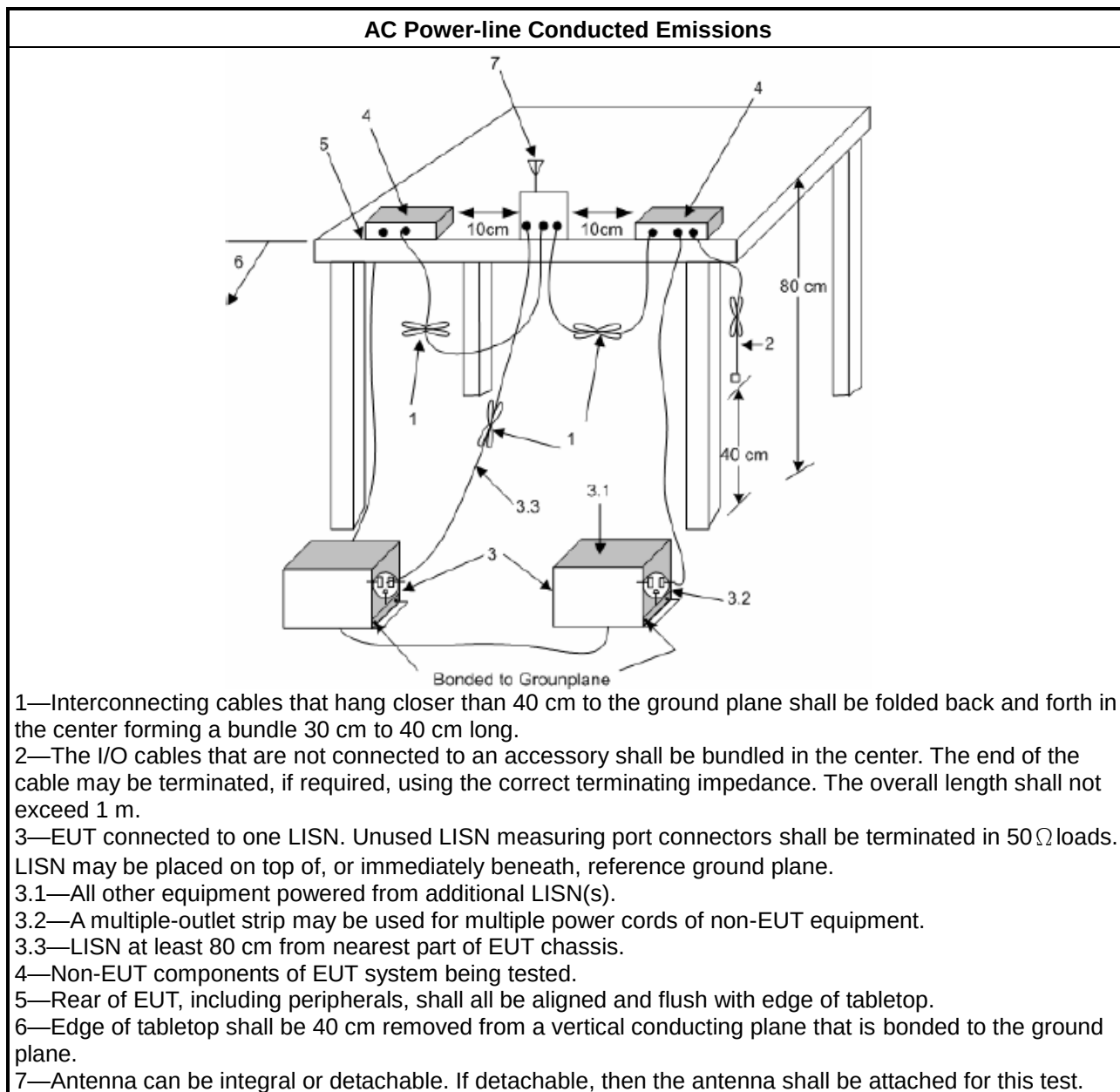
Test Method
▪ Refer as ANSI C63.10-2013, clause 6.2 foray power-line conducted emissions.

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.

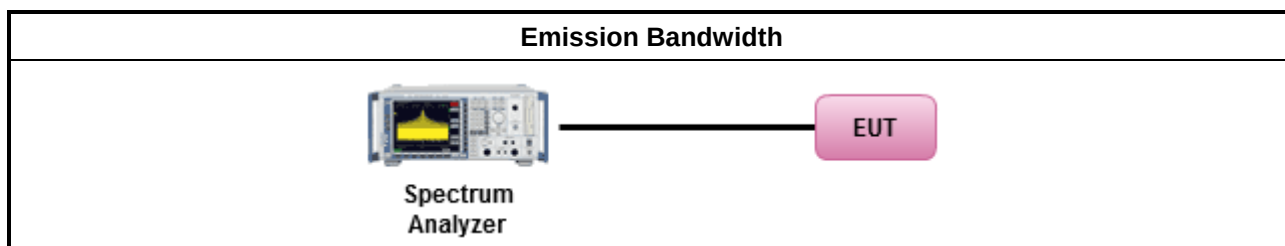
3.2.2 Measuring Instruments

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.	

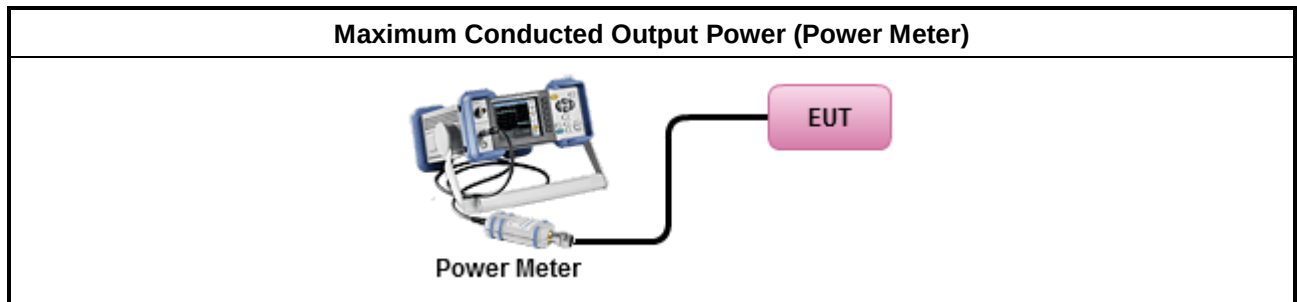
3.3.2 Measuring Instruments

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

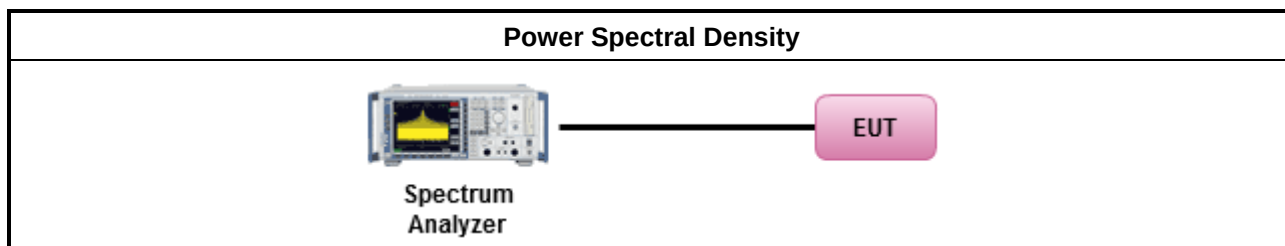
3.4.2 Measuring Instruments

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.	

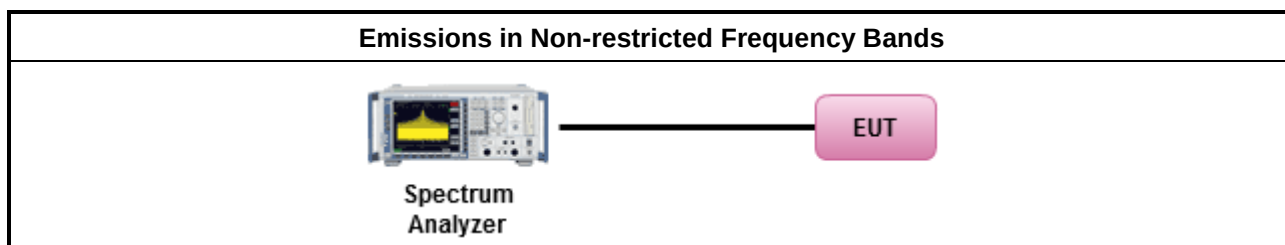
3.5.2 Measuring Instruments

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

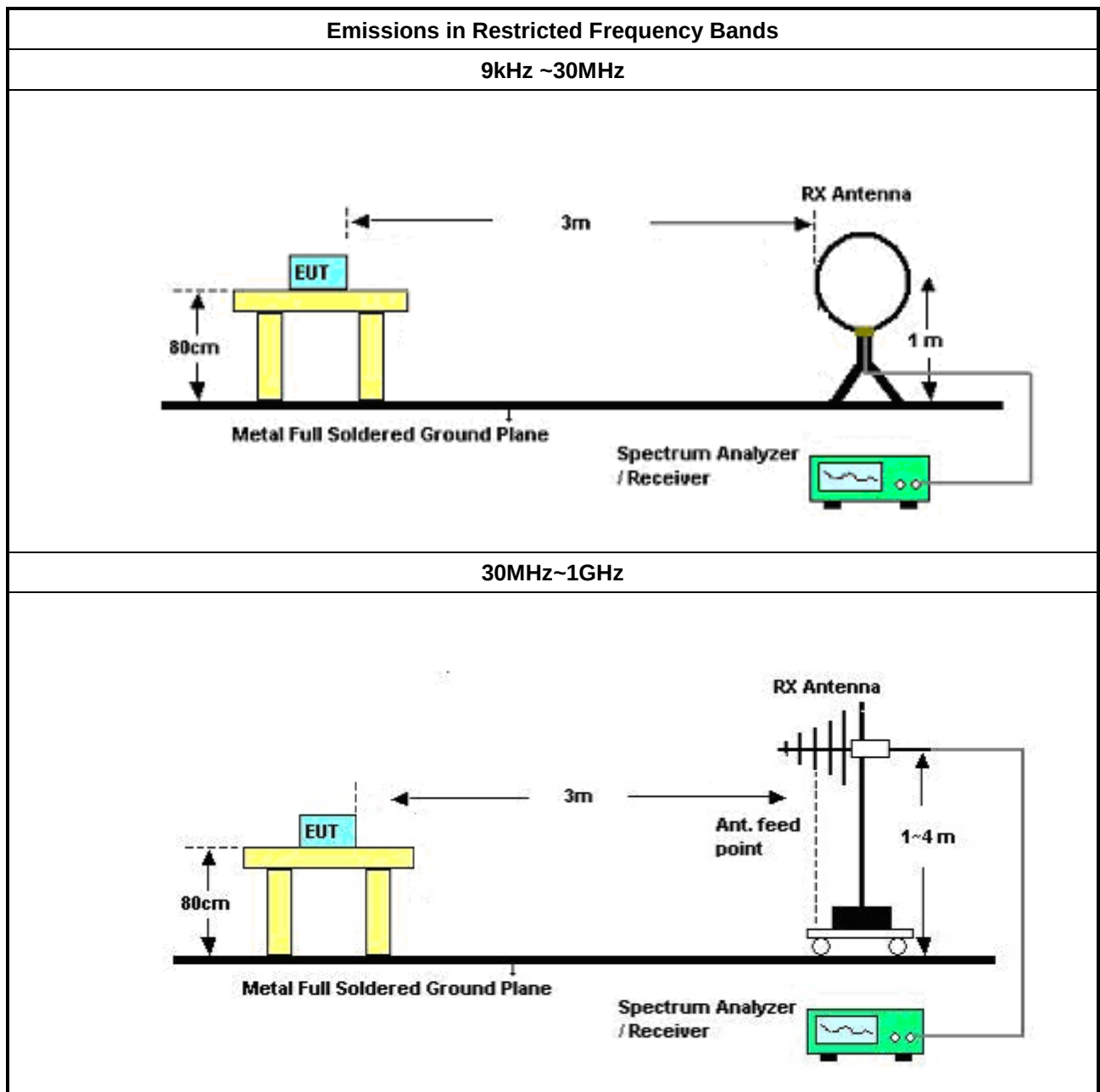
Test Method	
	- The average emission levels shall be measured in [duty cycle $\geq$ 98 or duty factor]. - Refer as ANSI C63.10, clause 6.10.3 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.
	- For the transmitter unwanted 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.

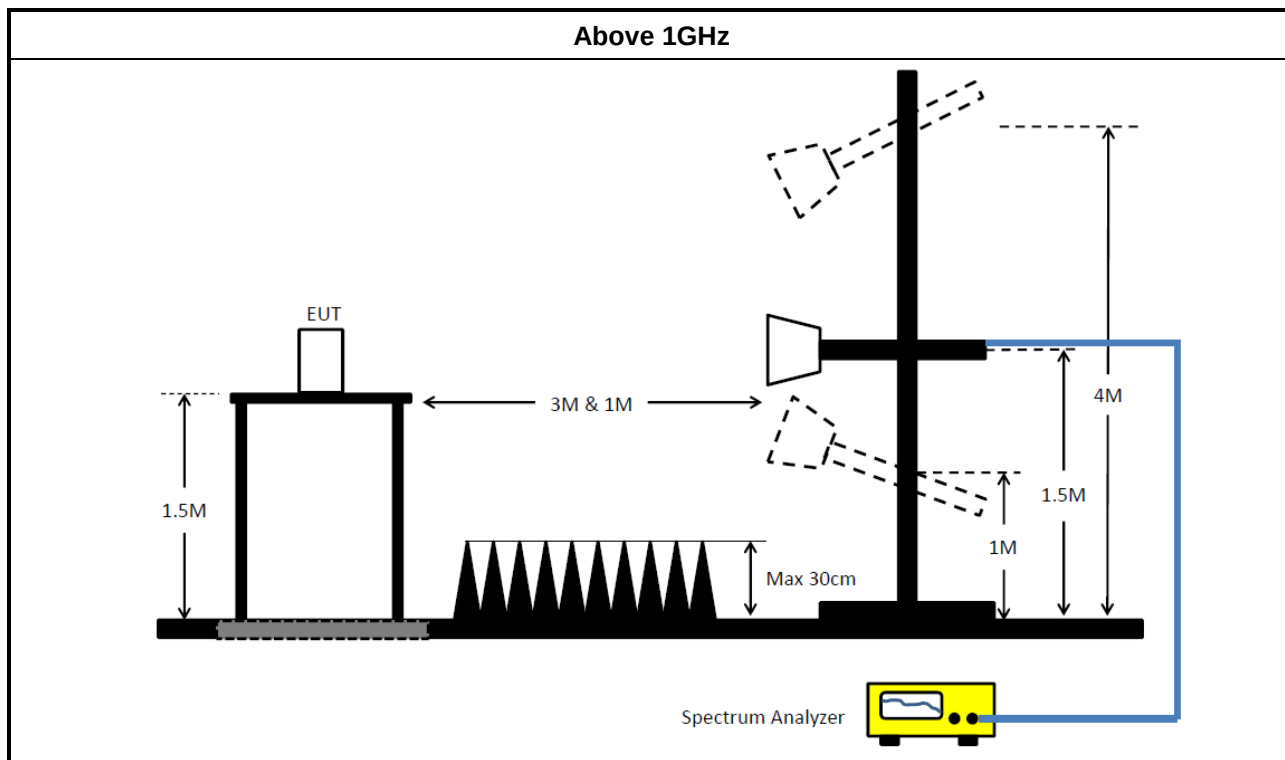
3.6.4 Measurement Results Calculation

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	ROHDE & SCHWARZ	ESR3	102051	9kHz ~ 3.6GHz	17/May/2024	16/May/2025
Two-Line V-Network	ROHDE & SCHWARZ	ENV 216	101274	9kHz ~ 30MHz	18/Jun/2024	17/Jun/2025
RF Cable 5m	TITAN	TITAN	CO04-cable-01	9 kHz~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	101029	10Hz~40GHz	30/Oct/2023	29/Oct/2024
SMB100A Signal Generator	R&S	SMB100A	181147	100kHz~40GHz	20/Oct/2023	19/Oct/2024
Power Meter	Anritsu	ML2495A	1124009	300MHz~40GHz	01/Apr/2024	31/Mar/2025
Pulse Sensor	Anritsu	MA2411B	1027452	300MHz~40GHz	02/Apr/2024	01/Apr/2025
SENSE-15247_FS	Sporton	V5.11.18	N/A	N/A	N/A	N/A

Instrument for Radiated Test (03CH26-HY)

Instrument	Manufacturer /Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH26-HY	1GHz~18GHz 3m	07/Aug/2024	06/Aug/2025
Signal Analyzer	ROHDE&SCHWARZ	FSV3044	101411	10Hz~44GHz	06/Oct/2023	05/Oct/2024
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	02877	1GHz~18GHz	11/Jul/2024	10/Jul/2025
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA 9170154	18GHz~40GHz	04/Jun/2024	03/Jun/2025
RF Cable	HUBER+SUHNER	SUOFLEX 104	CB009	1GHz~40GHz	18/Oct/2023	17/Oct/2024
Preamplifier	SGH	PRAMP 118-H	20230515-4	1GHz ~18GHz	24/May/2024	23/May/2025
Amplifier	EM	EM18G40G	060874	18GHz ~ 40GHz	15/Apr/2024	14/Apr/2025
SENSE-15247-FS	Sporton	V5.11.18	NA	NA	NA	NA

**Instrument for Radiated Test (03CH25-HY)**

Instrument	Manufacturer /Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH25-HY	30MHz~1GHz 3m	08/Aug/2024	07/Aug/2025
EMI Test Receiver	ROHDE & SCHWARZ	ESR	102318	9kHz~3.6GHz	27/Dec/2023	26/Dec/2024
Signal Analyzer	ROHDE&SCHWARZ	FSV3044	101410	10Hz~44GHz	17/Nov/2023	16/Nov/2024
Loop Antenna	TESEQ	HLA 6120	31244	9kHz~30MHz	19/Mar/2024	18/Mar/2025
Bilog Antenna & 6dB Attenuator	TESEQ & VGT	CBL 6111D & VFA 04002-06	63537/001	30MHz~1GHz	30/May/2024	29/May/2025
RF Cable	HUBER+SUHNER	SUOFLEX 104	CB007	9kHz~1GHz	24/Apr/2024	23/Apr/2025
Preamplifier	SGH	PRAMP 903	20230515-1	25MHz~3GHz	24/May/2024	23/May/2025
SENSE-15247-FS	Sporton	V5.11.18	NA	NA	NA	NA

Instrument for Radiated Test Co-location for Mode 1 (03CH25-HY)

Instrument	Manufacturer /Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH25-HY	1GHz~18GHz 3m	08/Aug/2024	07/Aug/2025
Signal Analyzer	ROHDE&SCHWARZ	FSV3044	101410	10Hz~44GHz	17/Nov/2023	16/Nov/2024
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	02876	1GHz~18GHz	11/Jul/2024	10/Jul/2025
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	01248	18GHz~40GHz	20/Aug/2024	19/Aug/2025
RF Cable	HUBER+SUHNER	SUOFLEX 104	CB007	1GHz~40GHz	23/Apr/2024	22/Apr/2025
Preamplifier	SGH	PRAMP 118-H	20230515-3	1GHz ~18GHz	24/May/2024	23/May/2025
Amplifier	EM	EM18G40GA	060874	18GHz ~ 40GHz	15/Apr/2024	14/Apr/2025
SENSE-EMI	Sporton	V5.11.8	NA	NA	NA	NA

Instrument for Radiated Test Co-location for Mode 2 (03CH24-HY)

Instrument	Manufacturer /Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH24-HY	1GHz~18GHz 3m	30/Jul/2024	29/Jul/2025
EXA Signal Analyzer	KEYSIGHT	N9010A	MY54200885	10Hz~44GHz	15/Aug/2024	14/Aug/2025
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	02744	1GHz~18GHz	15/Aug/2024	14/Aug/2025
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA 9170154	18GHz~40GHz	04/Jun/2024	05/Jun/2025
RF Cable	HUBER+SUHNER	SUOFLEX 104	03CH24-CAB LE-01	1GHz~40GHz	01/Oct/2024	30/Sep/2025
Amplifier	EM	EM01G18G	060870	1GHz ~18GHz	12/Aug/2024	11/Aug/2025
SENSE-EMI	Sporton	V5.11.8	NA	NA	NA	NA



Conducted Emissions at Powerline

Appendix A

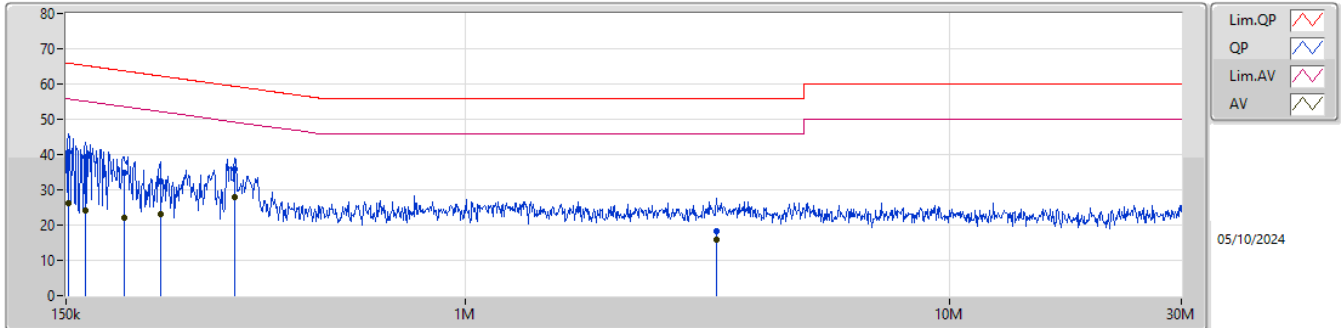
Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	AV	328.019k	32.57	49.50	-16.93	Neutral

Result

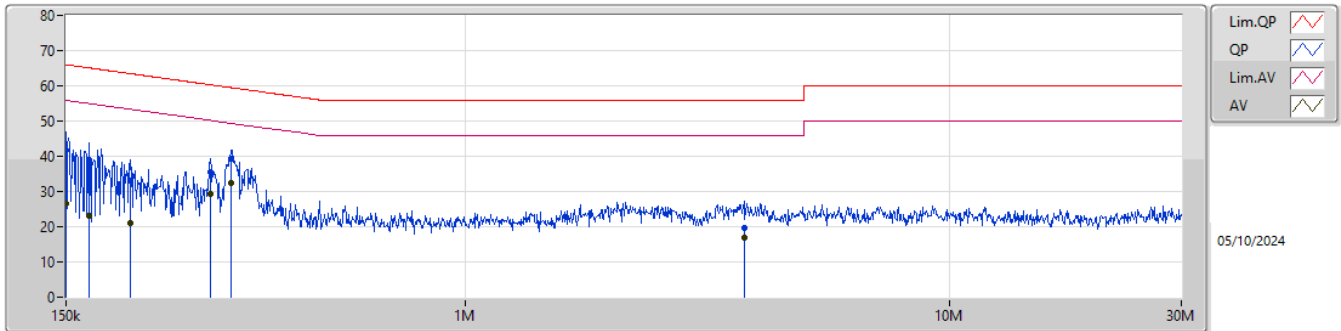
Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	QP	151.807k	40.67	65.90	-25.23	Line
Mode 1	Pass	AV	151.807k	26.08	55.90	-29.82	Line
Mode 1	Pass	QP	164.425k	39.36	65.24	-25.88	Line
Mode 1	Pass	AV	164.425k	23.97	55.24	-31.27	Line
Mode 1	Pass	QP	197.568k	34.97	63.71	-28.74	Line
Mode 1	Pass	AV	197.568k	22.12	53.71	-31.59	Line
Mode 1	Pass	QP	234.567k	32.55	62.29	-29.74	Line
Mode 1	Pass	AV	234.567k	23.24	52.29	-29.05	Line
Mode 1	Pass	QP	334.632k	35.71	59.33	-23.62	Line
Mode 1	Pass	AV	334.632k	27.94	49.33	-21.39	Line
Mode 1	Pass	QP	3.296M	18.44	56.00	-37.56	Line
Mode 1	Pass	AV	3.296M	16.02	46.00	-29.98	Line
Mode 1	Pass	QP	150k	41.64	66.00	-24.36	Neutral
Mode 1	Pass	AV	150k	26.39	56.00	-29.61	Neutral
Mode 1	Pass	QP	167.739k	38.81	65.06	-26.25	Neutral
Mode 1	Pass	AV	167.739k	23.01	55.06	-32.05	Neutral
Mode 1	Pass	QP	203.167k	33.11	63.48	-30.37	Neutral
Mode 1	Pass	AV	203.167k	20.92	53.48	-32.56	Neutral
Mode 1	Pass	QP	298.051k	35.39	60.30	-24.91	Neutral
Mode 1	Pass	AV	298.051k	29.33	50.30	-20.97	Neutral
Mode 1	Pass	QP	328.019k	39.20	59.50	-20.30	Neutral
Mode 1	Pass	AV	328.019k	32.57	49.50	-16.93	Neutral
Mode 1	Pass	QP	3.76M	19.61	56.00	-36.39	Neutral
Mode 1	Pass	AV	3.76M	16.76	46.00	-29.24	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	40.67	65.90	-25.23	19.49	Line	-	21.18	9.66	0.07	9.76						
AV	151.807k	26.08	55.90	-29.82	19.49	Line	-	6.59	9.66	0.07	9.76						
QP	164.425k	39.36	65.24	-25.88	19.46	Line	-	19.90	9.66	0.07	9.73						
AV	164.425k	23.97	55.24	-31.27	19.46	Line	-	4.51	9.66	0.07	9.73						
QP	197.568k	34.97	63.71	-28.74	19.42	Line	-	15.55	9.65	0.09	9.68						
AV	197.568k	22.12	53.71	-31.59	19.42	Line	-	2.70	9.65	0.09	9.68						
QP	234.567k	32.55	62.29	-29.74	19.45	Line	-	13.10	9.65	0.10	9.70						
AV	234.567k	23.24	52.29	-29.05	19.45	Line	-	3.79	9.65	0.10	9.70						
QP	334.632k	35.71	59.33	-23.62	19.50	Line	-	16.21	9.65	0.11	9.74						
AV	334.632k	27.94	49.33	-21.39	19.50	Line	-	8.44	9.65	0.11	9.74						
QP	3.296M	18.44	56.00	-37.56	19.55	Line	-	-1.11	9.68	0.08	9.79						
AV	3.296M	16.02	46.00	-29.98	19.55	Line	-	-3.53	9.68	0.08	9.79						

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	41.64	66.00	-24.36	19.43	Neutral	-	22.21	9.60	0.07	9.76						
AV	150k	26.39	56.00	-29.61	19.43	Neutral	-	6.96	9.60	0.07	9.76						
QP	167.739k	38.81	65.06	-26.25	19.40	Neutral	-	19.41	9.60	0.07	9.73						
AV	167.739k	23.01	55.06	-32.05	19.40	Neutral	-	3.61	9.60	0.07	9.73						
QP	203.167k	33.11	63.48	-30.37	19.37	Neutral	-	13.74	9.60	0.09	9.68						
AV	203.167k	20.92	53.48	-32.56	19.37	Neutral	-	1.55	9.60	0.09	9.68						
QP	298.051k	35.39	60.30	-24.91	19.44	Neutral	-	15.95	9.60	0.11	9.73						
AV	298.051k	29.33	50.30	-20.97	19.44	Neutral	-	9.89	9.60	0.11	9.73						
QP	328.019k	39.20	59.50	-20.30	19.45	Neutral	-	19.75	9.60	0.11	9.74						
AV	328.019k	32.57	49.50	-16.93	19.45	Neutral	-	13.12	9.60	0.11	9.74						
QP	3.76M	19.61	56.00	-36.39	19.48	Neutral	-	0.13	9.62	0.07	9.79						
AV	3.76M	16.76	46.00	-29.24	19.48	Neutral	-	-2.72	9.62	0.07	9.79						

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)	652.5k	1.039M	1M04F1D	615k	1.037M
BT-LE(2Mbps)	765k	2.114M	2M11F1D	680k	2.066M

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

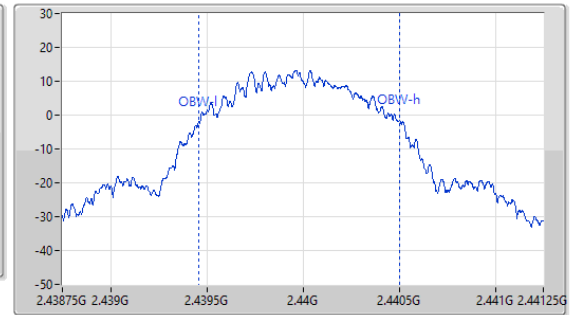
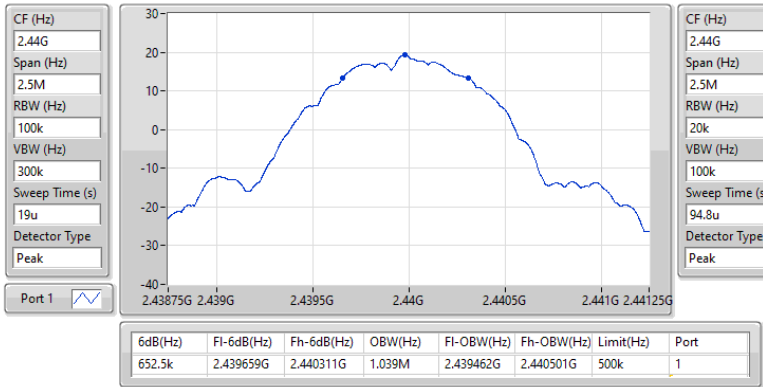
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	625k	1.038M
2440MHz	Pass	500k	652.5k	1.039M
2480MHz	Pass	500k	615k	1.037M
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	500k	717.5k	2.066M
2440MHz	Pass	500k	765k	2.074M
2480MHz	Pass	500k	680k	2.114M

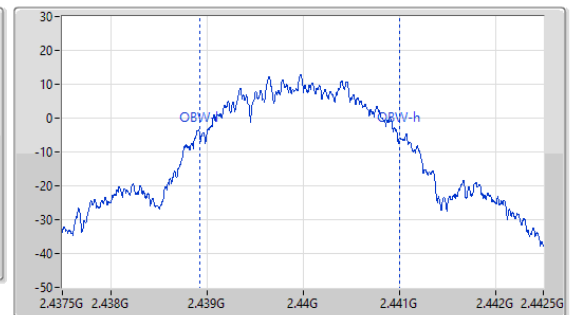
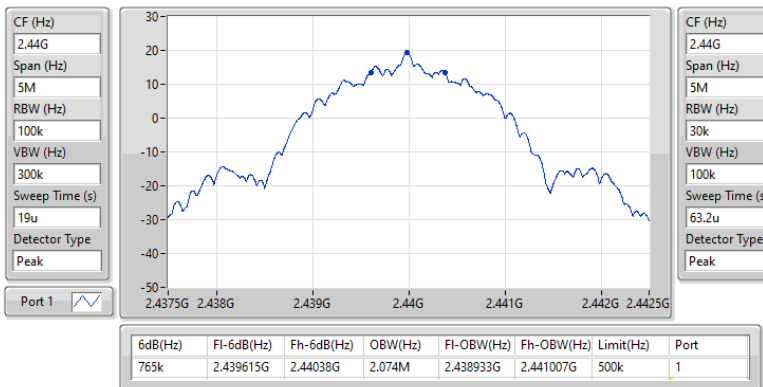
Port X-N dB = Port X 6dB down bandwidth;
Port X-OBW = Port X 99% occupied bandwidth

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

19/09/2024


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

19/09/2024





Summary

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	20.24	0.10568
BT-LE(2Mbps)	20.17	0.10399



Result

Mode	Result	DG (dBi)	Total Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	4.67	20.24	30.00
2440MHz	Pass	4.67	20.01	30.00
2480MHz	Pass	4.67	14.25	30.00
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	4.67	20.17	30.00
2440MHz	Pass	4.67	19.95	30.00
2480MHz	Pass	4.67	10.98	30.00

DG = Directional Gain; Port X = Port X output power;
Inf = There's no restriction for the limit.



Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE(1Mbps)	4.89
BT-LE(2Mbps)	3.83

RBW = 3kHz;



Result

Mode	Result	DG (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	4.67	4.78	8.00
2440MHz	Pass	4.67	4.89	8.00
2480MHz	Pass	4.67	-0.74	8.00
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	4.67	2.95	8.00
2440MHz	Pass	4.67	3.83	8.00
2480MHz	Pass	4.67	-5.64	8.00

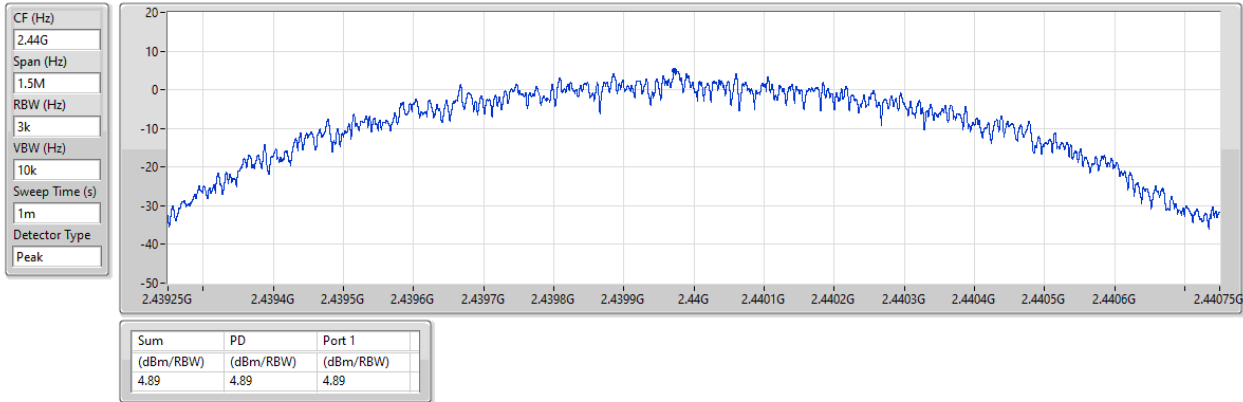
DG = Directional Gain; RBW = 3kHz;
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; Port X = Port X Power Density;
Inf = There's no restriction for the limit.

2.4-2.4835GHz_BT-LE(1Mbps)

PSD

2440MHz

19/09/2024

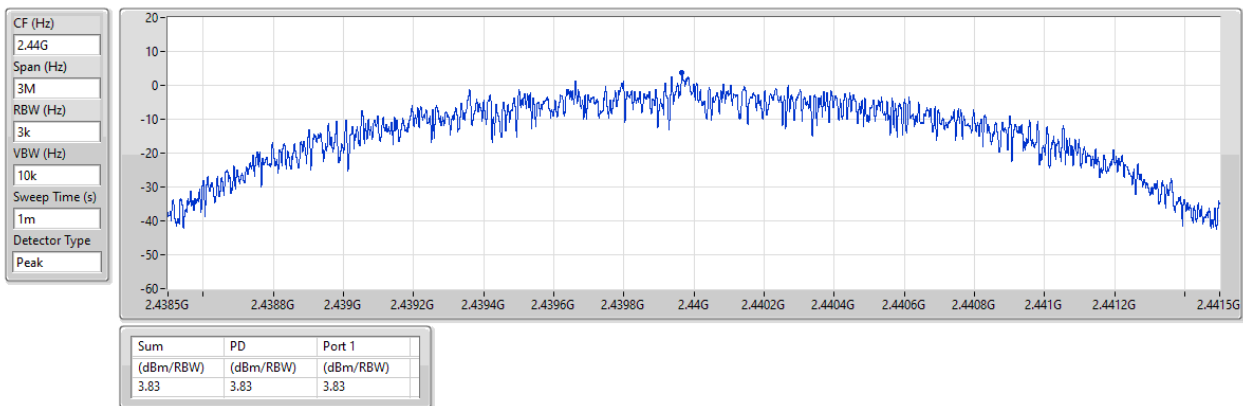


2.4-2.4835GHz_BT-LE(2Mbps)

PSD

2440MHz

19/09/2024



Summary

Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	2.40184G	19.27	-10.73	2.30363G	-54.32	2.39988G	-33.05	2.4G	-29.89	2.50274G	-53.74	16.20387G	-41.40	1
BT-LE(2Mbps)	Pass	2.40184G	19.84	-10.16	719.73M	-55.24	2.4G	-12.34	2.4G	-13.26	2.50038G	-53.32	16.2348G	-41.96	1

Result

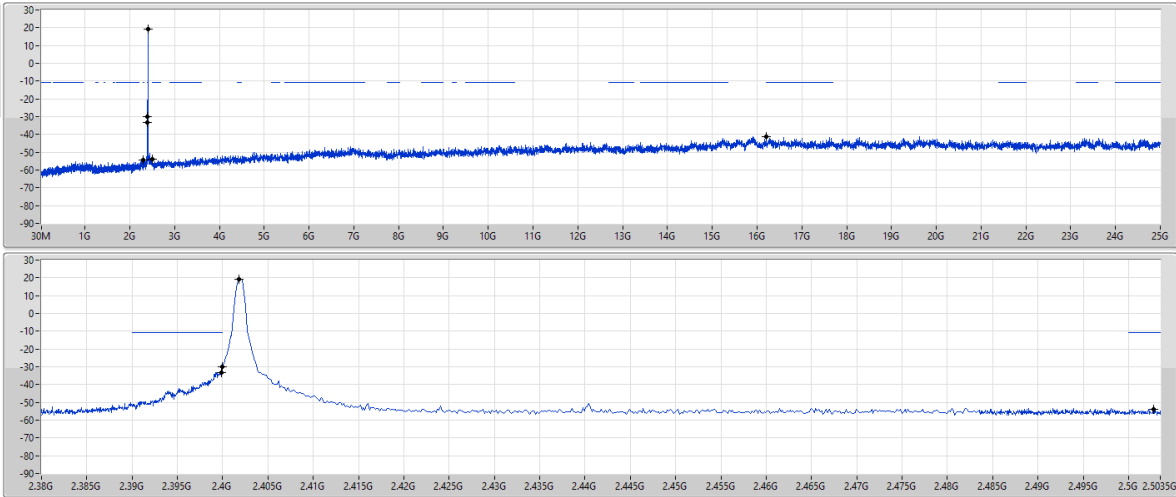
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.40184G	19.27	-10.73	2.30363G	-54.32	2.39988G	-33.05	2.4G	-29.89	2.50274G	-53.74	16.20387G	-41.40	1
2440MHz	Pass	2.40184G	19.27	-10.73	2.01458G	-54.70	2.39376G	-54.10	2.4G	-55.81	2.50106G	-52.63	14.59256G	-42.15	1
2480MHz	Pass	2.40184G	19.27	-10.73	2.30128G	-54.65	2.39712G	-53.60	2.4G	-55.41	2.50306G	-54.11	24.64849G	-41.40	1
BT-LE(2Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.40184G	19.84	-10.16	719.73M	-55.24	2.4G	-12.34	2.4G	-13.26	2.50038G	-53.32	16.2348G	-41.96	1
2440MHz	Pass	2.40184G	19.84	-10.16	2.13795G	-54.94	2.3992G	-52.15	2.4G	-55.51	2.5025G	-51.58	15.22527G	-41.78	1
2480MHz	Pass	2.40184G	19.84	-10.16	2.09683G	-54.20	2.39544G	-53.43	2.4G	-56.12	2.50002G	-53.46	15.25902G	-41.77	1

2.4-2.4835GHz_BT-LE(1Mbps)

CSEndB-DTS

2402MHz

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

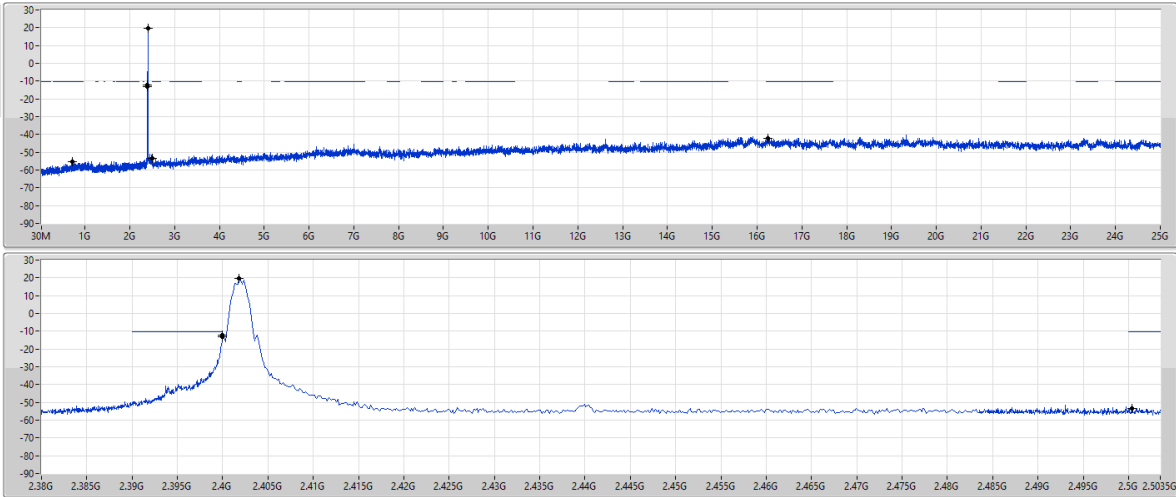


2.4-2.4835GHz_BT-LE(2Mbps)

CSEndB-DTS

2402MHz

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





Summary

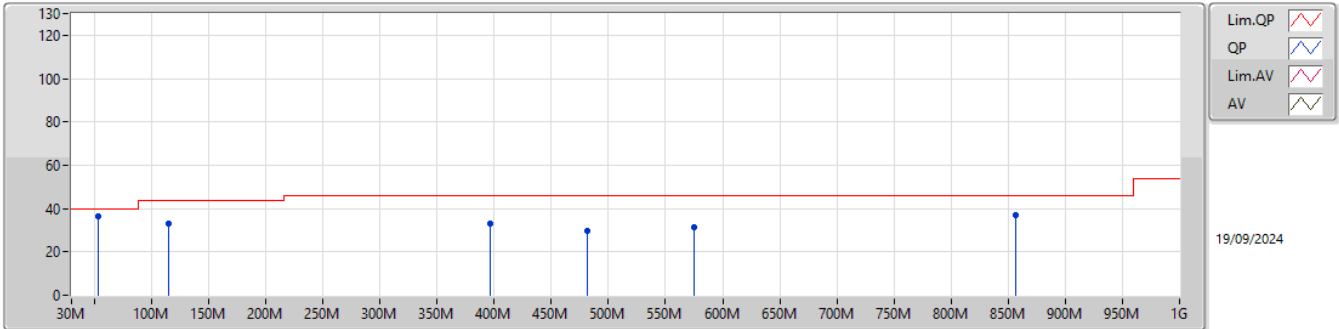
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-
BT-LE(2Mbps)	Pass	PK	53.28M	36.22	40.00	-3.78	3	Vertical	0	1.00

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	53.28M	36.22	40.00	-3.78	3	Vertical	0	1.00
2440MHz	Pass	PK	115.36M	32.88	43.50	-10.62	3	Vertical	0	1.00
2440MHz	Pass	PK	396.66M	33.28	46.00	-12.72	3	Vertical	0	1.00
2440MHz	Pass	PK	482.02M	29.87	46.00	-16.13	3	Vertical	0	1.00
2440MHz	Pass	PK	575.14M	31.29	46.00	-14.71	3	Vertical	0	1.00
2440MHz	Pass	PK	856.44M	36.87	46.00	-9.13	3	Vertical	0	1.00
2440MHz	Pass	PK	117.3M	34.63	43.50	-8.87	3	Horizontal	360	1.00
2440MHz	Pass	PK	235.64M	26.51	46.00	-19.49	3	Horizontal	360	1.00
2440MHz	Pass	PK	357.86M	34.67	46.00	-11.33	3	Horizontal	360	1.00
2440MHz	Pass	PK	396.66M	35.59	46.00	-10.41	3	Horizontal	360	1.00
2440MHz	Pass	PK	480.08M	32.70	46.00	-13.30	3	Horizontal	360	1.00
2440MHz	Pass	PK	778.84M	31.50	46.00	-14.50	3	Horizontal	360	1.00

2.4-2.4835GHz_BT-LE(2Mbps)

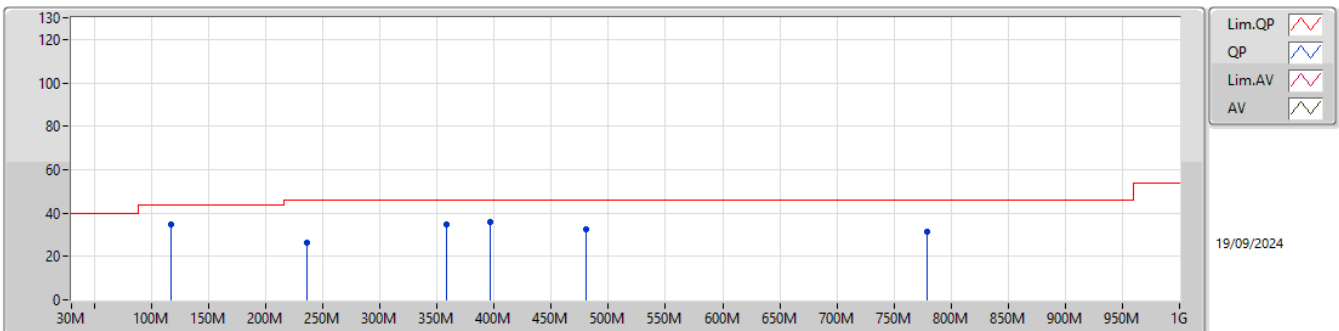
2440MHz_Adapter



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	53.28M	36.22	40.00	-3.78	-31.10	3	Vertical	0	1.00	67.32	13.03	0.48	44.61
PK	115.36M	32.88	43.50	-10.62	-26.45	3	Vertical	0	1.00	59.33	17.27	0.83	44.55
PK	396.66M	33.28	46.00	-12.72	-20.74	3	Vertical	0	1.00	54.02	21.85	1.44	44.03
PK	482.02M	29.87	46.00	-16.13	-18.57	3	Vertical	0	1.00	48.44	23.73	1.60	43.90
PK	575.14M	31.29	46.00	-14.71	-15.80	3	Vertical	0	1.00	47.09	26.38	1.68	43.86
PK	856.44M	36.87	46.00	-9.13	-12.33	3	Vertical	0	1.00	49.20	29.29	2.11	43.73

2.4-2.4835GHz_BT-LE(2Mbps)

2440MHz_Adapter



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	117.3M	34.63	43.50	-8.87	-26.38	3	Horizontal	360	1.00	61.01	17.34	0.83	44.55
PK	235.64M	26.51	46.00	-19.49	-26.37	3	Horizontal	360	1.00	52.88	16.89	1.14	44.40
PK	357.86M	34.67	46.00	-11.33	-21.95	3	Horizontal	360	1.00	56.62	20.85	1.32	44.12
PK	396.66M	35.59	46.00	-10.41	-20.74	3	Horizontal	360	1.00	56.33	21.85	1.44	44.03
PK	480.08M	32.70	46.00	-13.30	-18.60	3	Horizontal	360	1.00	51.30	23.71	1.59	43.90
PK	778.84M	31.50	46.00	-14.50	-13.54	3	Horizontal	360	1.00	45.04	28.14	2.06	43.74



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	53.25	54.00	-0.75	3	Horizontal	98	2.37
BT-LE(2Mbps)	Pass	AV	4.80298G	53.64	54.00	-0.36	3	Vertical	83	2.86

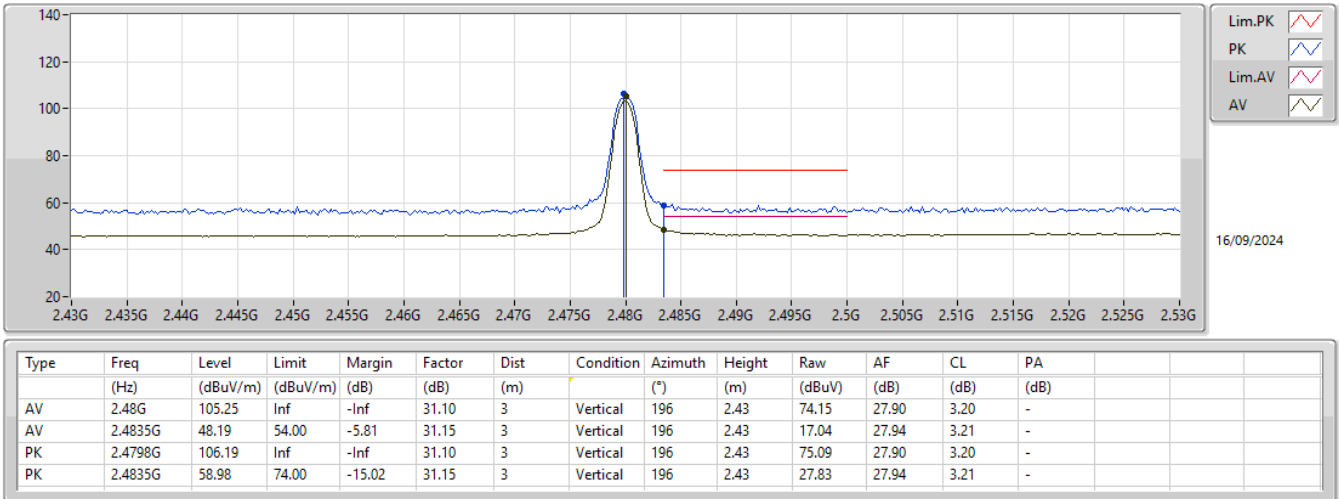
Result

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	2.37G	43.81	54.00	-10.19	3	Vertical	99	1.29
2402MHz	Pass	AV	2.402G	106.59	Inf	-Inf	3	Vertical	99	1.29
2402MHz	Pass	PK	2.3666G	56.37	74.00	-17.63	3	Vertical	99	1.29
2402MHz	Pass	PK	2.4018G	107.51	Inf	-Inf	3	Vertical	99	1.29
2402MHz	Pass	AV	2.3634G	45.58	54.00	-8.42	3	Horizontal	94	2.47
2402MHz	Pass	AV	2.402G	117.47	Inf	-Inf	3	Horizontal	94	2.47
2402MHz	Pass	PK	2.3854G	57.90	74.00	-16.10	3	Horizontal	94	2.47
2402MHz	Pass	PK	2.4018G	118.42	Inf	-Inf	3	Horizontal	94	2.47
2402MHz	Pass	AV	4.80468G	39.33	54.00	-14.67	3	Vertical	115	2.15
2402MHz	Pass	PK	4.80468G	50.90	74.00	-23.10	3	Vertical	115	2.15
2402MHz	Pass	AV	4.81338G	42.32	54.00	-11.68	3	Horizontal	223	2.35
2402MHz	Pass	PK	4.81468G	51.28	74.00	-22.72	3	Horizontal	223	2.35
2402MHz	Pass	AV	2.3596G	45.70	54.00	-8.30	3	Vertical	187	2.87
2440MHz	Pass	AV	2.44G	109.85	Inf	-Inf	3	Vertical	187	2.87
2440MHz	Pass	AV	2.4872G	46.48	54.00	-7.52	3	Vertical	187	2.87
2440MHz	Pass	PK	2.3588G	56.94	74.00	-17.06	3	Vertical	187	2.87
2440MHz	Pass	PK	2.44G	110.82	Inf	-Inf	3	Vertical	187	2.87
2440MHz	Pass	PK	2.4936G	58.76	74.00	-15.24	3	Vertical	187	2.87
2440MHz	Pass	AV	2.3628G	45.82	54.00	-8.18	3	Horizontal	89	2.89
2440MHz	Pass	AV	2.44G	116.50	Inf	-Inf	3	Horizontal	89	2.89
2440MHz	Pass	AV	2.4908G	46.48	54.00	-7.52	3	Horizontal	89	2.89
2440MHz	Pass	PK	2.368G	57.05	74.00	-16.95	3	Horizontal	89	2.89
2440MHz	Pass	PK	2.4396G	117.36	Inf	-Inf	3	Horizontal	89	2.89
2440MHz	Pass	PK	2.498G	57.91	74.00	-16.09	3	Horizontal	89	2.89
2440MHz	Pass	AV	4.88024G	28.27	54.00	-25.73	3	Vertical	198	2.13
2440MHz	Pass	AV	7.31934G	38.14	54.00	-15.86	3	Vertical	309	2.82
2440MHz	Pass	PK	4.87346G	40.95	74.00	-33.05	3	Vertical	198	2.13
2440MHz	Pass	PK	7.31928G	49.45	74.00	-24.55	3	Vertical	309	2.82
2440MHz	Pass	AV	4.87994G	28.77	54.00	-25.23	3	Horizontal	202	2.31
2440MHz	Pass	AV	7.32054G	41.92	54.00	-12.08	3	Horizontal	150	1.50
2440MHz	Pass	PK	4.88024G	41.94	74.00	-32.06	3	Horizontal	202	2.31
2440MHz	Pass	PK	7.31922G	52.19	74.00	-21.81	3	Horizontal	150	1.50
2480MHz	Pass	AV	2.48G	105.25	Inf	-Inf	3	Vertical	196	2.43
2480MHz	Pass	AV	2.4835G	48.19	54.00	-5.81	3	Vertical	196	2.43
2480MHz	Pass	PK	2.4798G	106.19	Inf	-Inf	3	Vertical	196	2.43
2480MHz	Pass	PK	2.4835G	58.98	74.00	-15.02	3	Vertical	196	2.43
2480MHz	Pass	AV	2.48G	112.00	Inf	-Inf	3	Horizontal	98	2.37
2480MHz	Pass	AV	2.4835G	53.25	54.00	-0.75	3	Horizontal	98	2.37
2480MHz	Pass	PK	2.4798G	112.95	Inf	-Inf	3	Horizontal	98	2.37
2480MHz	Pass	PK	2.4835G	64.65	74.00	-9.35	3	Horizontal	98	2.37
2480MHz	Pass	AV	4.96036G	40.75	54.00	-13.25	3	Vertical	62	2.71
2480MHz	Pass	PK	4.96012G	50.79	74.00	-23.21	3	Vertical	62	2.71
2480MHz	Pass	AV	4.95988G	47.77	54.00	-6.23	3	Horizontal	141	2.09
2480MHz	Pass	PK	4.95964G	56.83	74.00	-17.17	3	Horizontal	141	2.09
BT-LE(2Mbps)	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	AV	2.39G	44.30	54.00	-9.70	3	Vertical	194	3.00
2402MHz	Pass	AV	2.402G	109.80	Inf	-Inf	3	Vertical	194	3.00
2402MHz	Pass	PK	2.3622G	56.94	74.00	-17.06	3	Vertical	194	3.00
2402MHz	Pass	PK	2.4014G	112.56	Inf	-Inf	3	Vertical	194	3.00
2402MHz	Pass	AV	2.3896G	46.19	54.00	-7.81	3	Horizontal	105	3.00
2402MHz	Pass	AV	2.402G	114.46	Inf	-Inf	3	Horizontal	105	3.00
2402MHz	Pass	PK	2.389G	57.98	74.00	-16.02	3	Horizontal	105	3.00
2402MHz	Pass	PK	2.4024G	117.18	Inf	-Inf	3	Horizontal	105	3.00
2402MHz	Pass	AV	4.80298G	53.64	54.00	-0.36	3	Vertical	83	2.86
2402MHz	Pass	PK	4.80388G	61.16	74.00	-12.84	3	Vertical	83	2.86
2402MHz	Pass	AV	4.80306G	50.34	54.00	-3.66	3	Horizontal	350	1.50
2402MHz	Pass	PK	4.80394G	57.74	74.00	-16.26	3	Horizontal	350	1.50
2440MHz	Pass	AV	2.3568G	45.68	54.00	-8.32	3	Vertical	189	2.86
2440MHz	Pass	AV	2.44G	107.98	Inf	-Inf	3	Vertical	189	2.86
2440MHz	Pass	AV	2.484G	46.38	54.00	-7.62	3	Vertical	189	2.86

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
2440MHz	Pass	PK	2.3764G	57.96	74.00	-16.04	3	Vertical	189	2.86
2440MHz	Pass	PK	2.4404G	110.53	Inf	-Inf	3	Vertical	189	2.86
2440MHz	Pass	PK	2.4932G	58.79	74.00	-15.21	3	Vertical	189	2.86
2440MHz	Pass	AV	2.3572G	45.75	54.00	-8.25	3	Horizontal	88	2.88
2440MHz	Pass	AV	2.44G	114.56	Inf	-Inf	3	Horizontal	88	2.88
2440MHz	Pass	AV	2.4976G	46.43	54.00	-7.57	3	Horizontal	88	2.88
2440MHz	Pass	PK	2.38G	57.45	74.00	-16.55	3	Horizontal	88	2.88
2440MHz	Pass	PK	2.4396G	117.14	Inf	-Inf	3	Horizontal	88	2.88
2440MHz	Pass	PK	2.4928G	58.31	74.00	-15.69	3	Horizontal	88	2.88
2440MHz	Pass	AV	4.87882G	46.31	54.00	-7.69	3	Vertical	213	1.88
2440MHz	Pass	PK	4.87898G	55.00	74.00	-19.00	3	Vertical	213	1.88
2440MHz	Pass	AV	4.8801G	43.43	54.00	-10.57	3	Horizontal	95	3.00
2440MHz	Pass	PK	4.87908G	57.72	74.00	-16.28	3	Horizontal	95	3.00
2480MHz	Pass	AV	2.48G	100.21	Inf	-Inf	3	Vertical	197	2.43
2480MHz	Pass	AV	2.4835G	48.62	54.00	-5.38	3	Vertical	197	2.43
2480MHz	Pass	PK	2.4796G	102.93	Inf	-Inf	3	Vertical	197	2.43
2480MHz	Pass	PK	2.4838G	59.67	74.00	-14.33	3	Vertical	197	2.43
2480MHz	Pass	AV	2.48G	106.64	Inf	-Inf	3	Horizontal	99	2.70
2480MHz	Pass	AV	2.4835G	53.39	54.00	-0.61	3	Horizontal	99	2.70
2480MHz	Pass	PK	2.4796G	109.39	Inf	-Inf	3	Horizontal	99	2.70
2480MHz	Pass	PK	2.4835G	64.68	74.00	-9.32	3	Horizontal	99	2.70
2480MHz	Pass	AV	4.9599G	35.22	54.00	-18.78	3	Vertical	131	1.19
2480MHz	Pass	PK	4.95894G	46.50	74.00	-27.50	3	Vertical	131	1.19
2480MHz	Pass	AV	4.95984G	35.12	54.00	-18.88	3	Horizontal	220	1.49
2480MHz	Pass	PK	4.96112G	46.12	74.00	-27.88	3	Horizontal	220	1.49

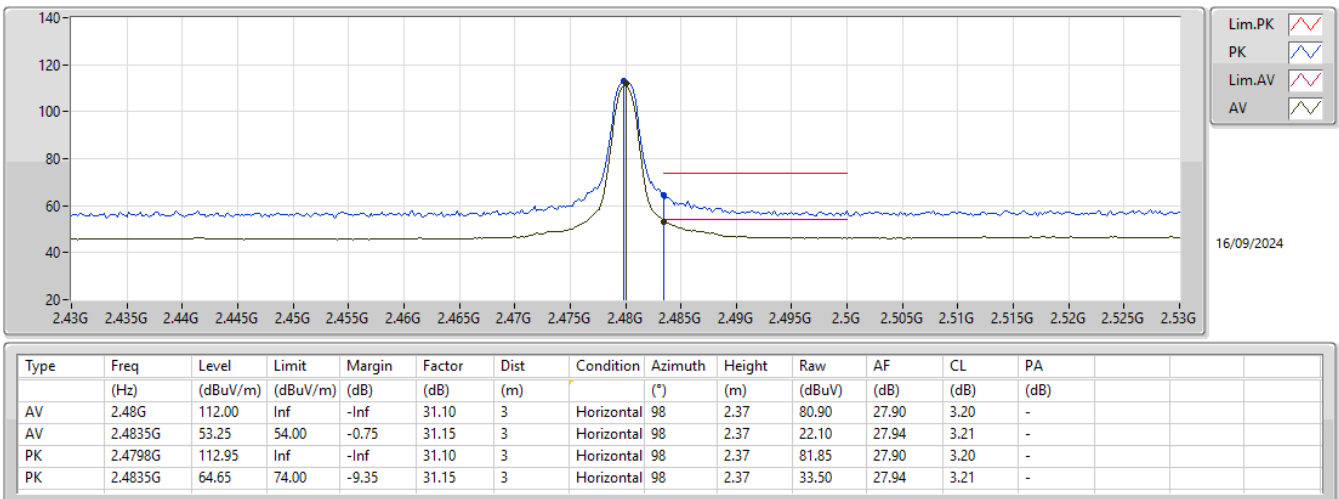
2.4-2.4835GHz_BT-LE(1Mbps)

2480MHz_TX



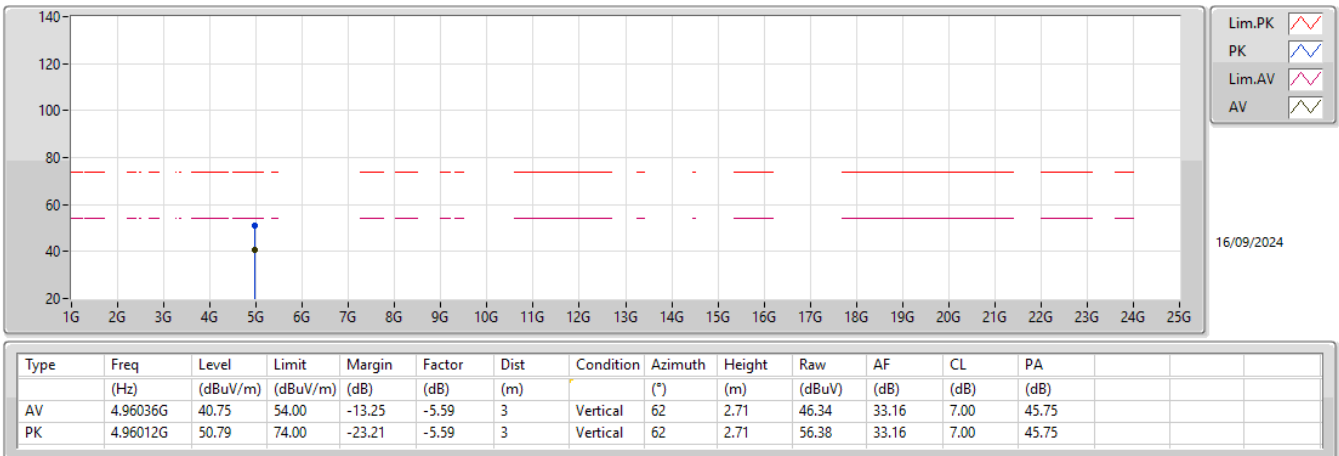
2.4-2.4835GHz_BT-LE(1Mbps)

2480MHz_TX



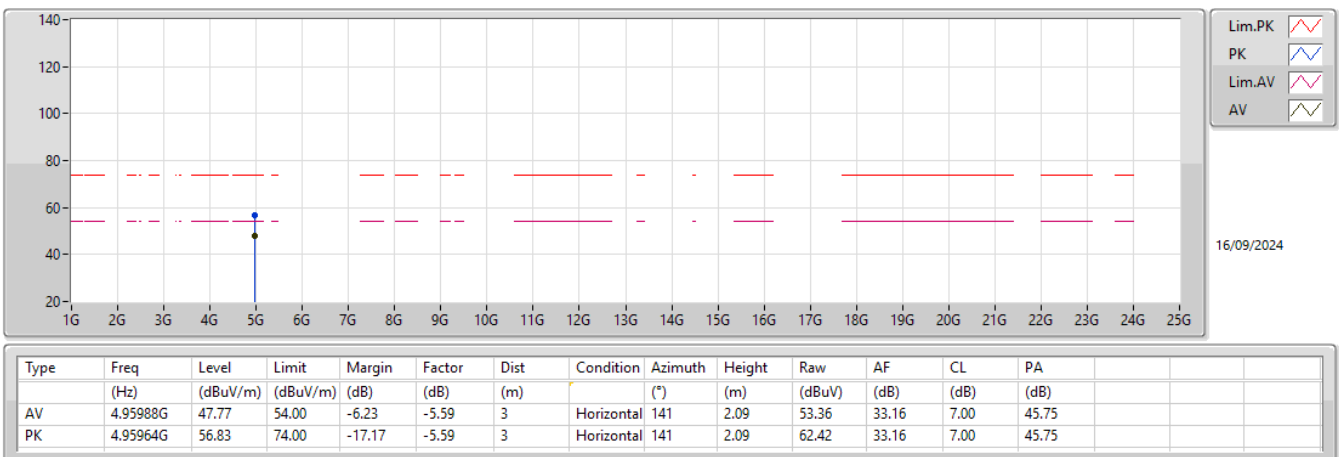
2.4-2.4835GHz_BT-LE(1Mbps)

2480MHz_TX



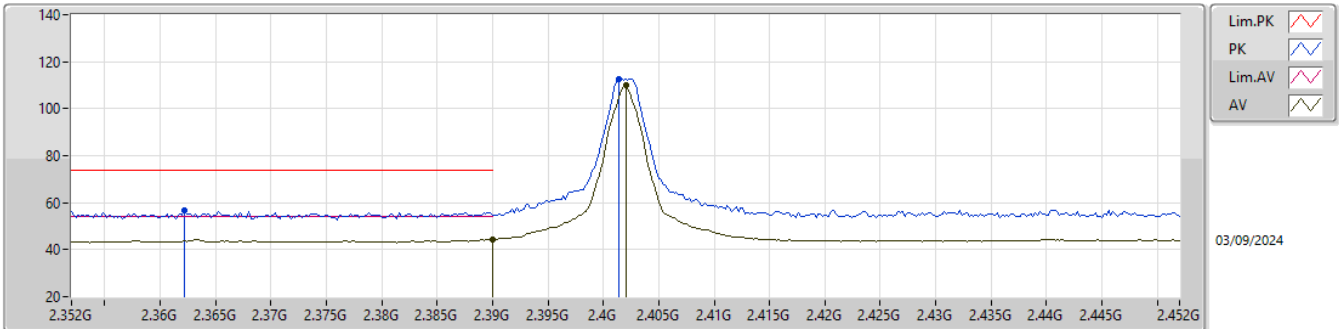
2.4-2.4835GHz_BT-LE(1Mbps)

2480MHz_TX



2.4-2.4835GHz_BT-LE(2Mbps)

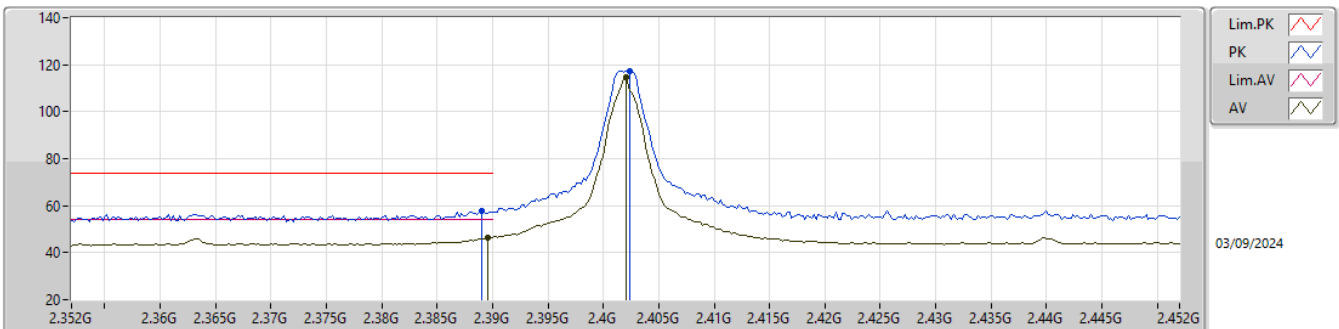
2402MHz_TX



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	2.39G	44.30	54.00	-9.70	30.55	3	Vertical	194	3.00	13.75	27.40	3.15	-
AV	2.402G	109.80	Inf	-Inf	30.76	3	Vertical	194	3.00	79.04	27.60	3.16	-
PK	2.3622G	56.94	74.00	-17.06	30.54	3	Vertical	194	3.00	26.40	27.40	3.14	-
PK	2.4014G	112.56	Inf	-Inf	30.76	3	Vertical	194	3.00	81.80	27.60	3.16	-

2.4-2.4835GHz_BT-LE(2Mbps)

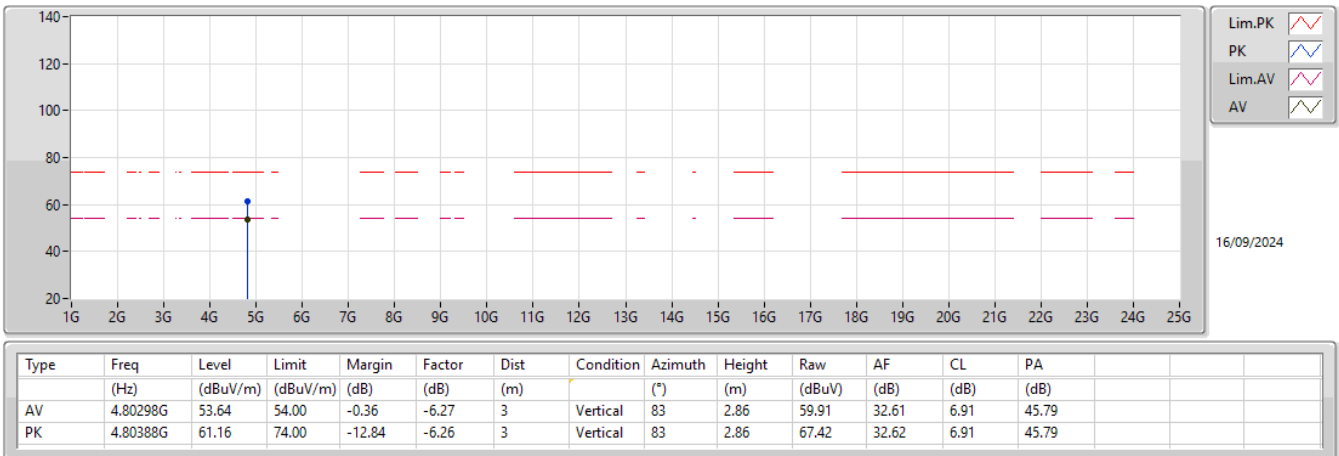
2402MHz_TX



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	2.3896G	46.19	54.00	-7.81	30.55	3	Horizontal	105	3.00	15.64	27.40	3.15	-
AV	2.402G	114.46	Inf	-Inf	30.76	3	Horizontal	105	3.00	83.70	27.60	3.16	-
PK	2.389G	57.98	74.00	-16.02	30.54	3	Horizontal	105	3.00	27.44	27.39	3.15	-
PK	2.4024G	117.18	Inf	-Inf	30.76	3	Horizontal	105	3.00	86.42	27.60	3.16	-

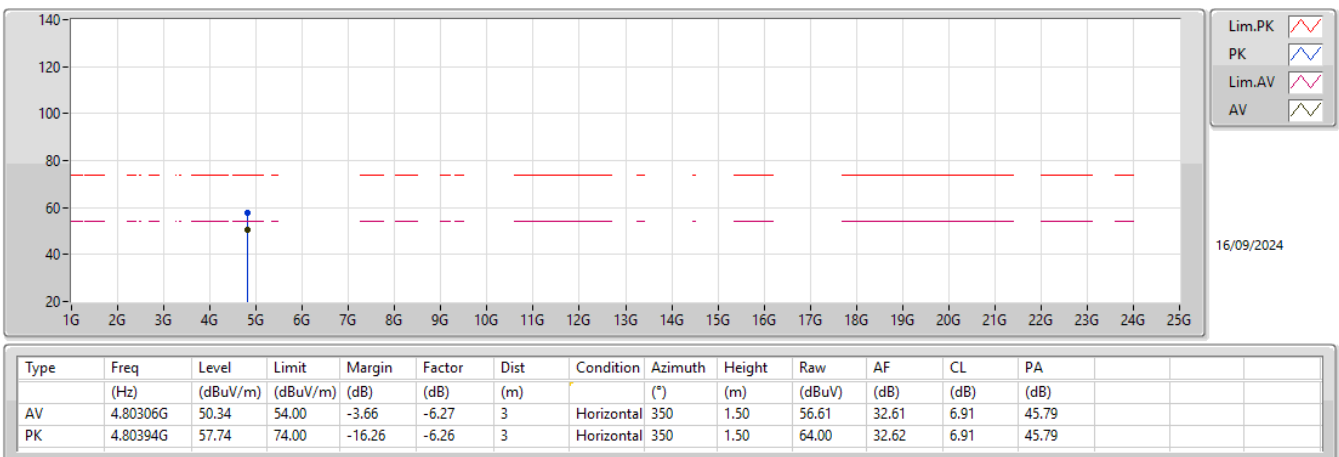
2.4-2.4835GHz_BT-LE(2Mbps)

2402MHz_TX



2.4-2.4835GHz_BT-LE(2Mbps)

2402MHz_TX





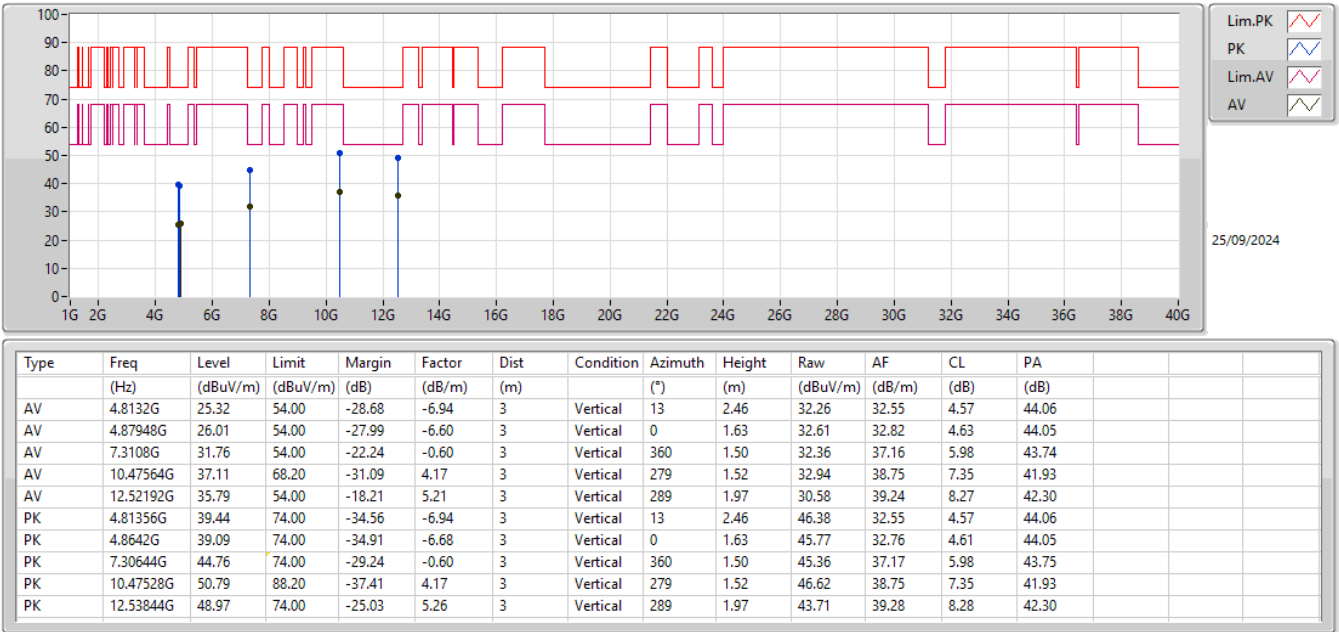
Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 1	Pass	AV	12.53192G	35.81	54.00	-18.19	Horizontal
Mode 2	Pass	AV	7.31156G	53.71	54.00	-0.29	Vertical

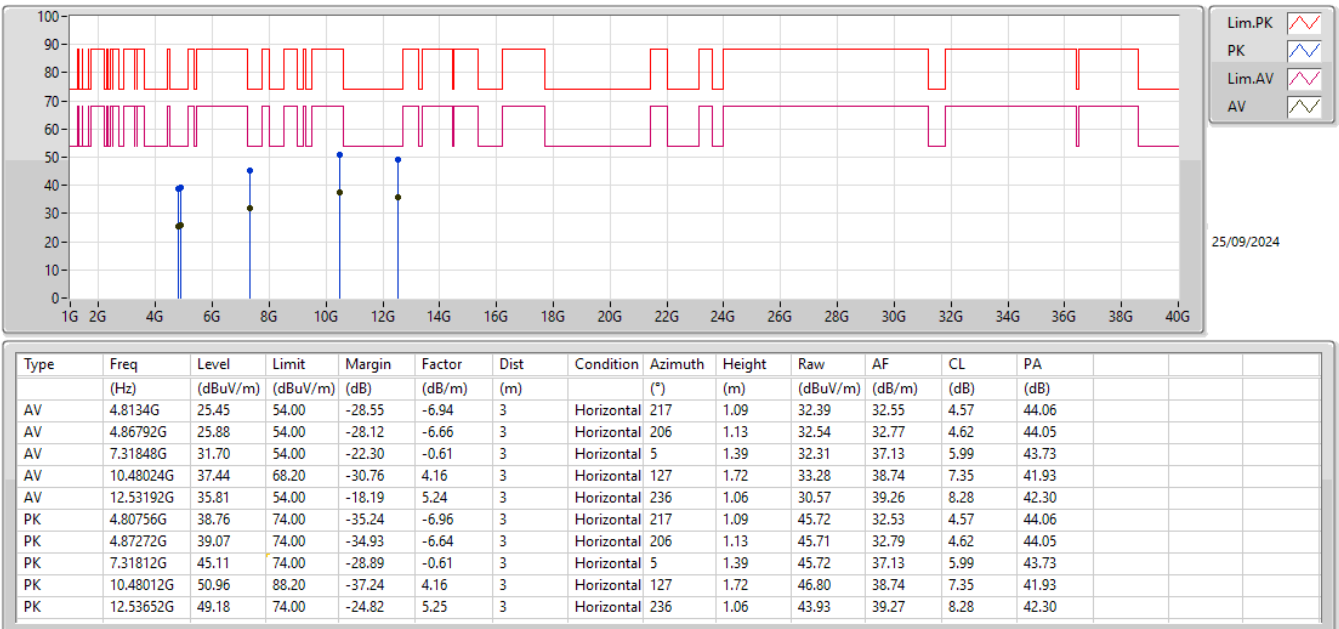
Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
Mode 1	Pass	AV	4.8132G	25.32	54.00	-28.68	3	Vertical	13	2.46
Mode 1	Pass	AV	4.87948G	26.01	54.00	-27.99	3	Vertical	0	1.63
Mode 1	Pass	AV	7.3108G	31.76	54.00	-22.24	3	Vertical	360	1.50
Mode 1	Pass	AV	10.47564G	37.11	68.20	-31.09	3	Vertical	279	1.52
Mode 1	Pass	AV	12.52192G	35.79	54.00	-18.21	3	Vertical	289	1.97
Mode 1	Pass	PK	4.81356G	39.44	74.00	-34.56	3	Vertical	13	2.46
Mode 1	Pass	PK	4.8642G	39.09	74.00	-34.91	3	Vertical	0	1.63
Mode 1	Pass	PK	7.30644G	44.76	74.00	-29.24	3	Vertical	360	1.50
Mode 1	Pass	PK	10.47528G	50.79	88.20	-37.41	3	Vertical	279	1.52
Mode 1	Pass	PK	12.53844G	48.97	74.00	-25.03	3	Vertical	289	1.97
Mode 1	Pass	AV	4.8134G	25.45	54.00	-28.55	3	Horizontal	217	1.09
Mode 1	Pass	AV	4.86792G	25.88	54.00	-28.12	3	Horizontal	206	1.13
Mode 1	Pass	AV	7.31848G	31.70	54.00	-22.30	3	Horizontal	5	1.39
Mode 1	Pass	AV	10.48024G	37.44	68.20	-30.76	3	Horizontal	127	1.72
Mode 1	Pass	AV	12.53192G	35.81	54.00	-18.19	3	Horizontal	236	1.06
Mode 1	Pass	PK	4.80756G	38.76	74.00	-35.24	3	Horizontal	217	1.09
Mode 1	Pass	PK	4.87272G	39.07	74.00	-34.93	3	Horizontal	206	1.13
Mode 1	Pass	PK	7.31812G	45.11	74.00	-28.89	3	Horizontal	5	1.39
Mode 1	Pass	PK	10.48012G	50.96	88.20	-37.24	3	Horizontal	127	1.72
Mode 1	Pass	PK	12.53652G	49.18	74.00	-24.82	3	Horizontal	236	1.06
Mode 2	Pass	AV	4.81104G	30.60	54.00	-23.40	3	Vertical	262	1.79
Mode 2	Pass	AV	4.87392G	41.93	54.00	-12.07	3	Vertical	98	2.89
Mode 2	Pass	AV	7.31156G	53.71	54.00	-0.29	3	Vertical	272	3.00
Mode 2	Pass	AV	10.482G	40.03	68.20	-28.17	3	Vertical	39	1.61
Mode 2	Pass	AV	12.508G	39.06	54.00	-14.94	3	Vertical	286	2.92
Mode 2	Pass	PK	4.8108G	40.07	74.00	-33.93	3	Vertical	263	1.98
Mode 2	Pass	PK	4.87408G	51.96	74.00	-22.04	3	Vertical	98	2.89
Mode 2	Pass	PK	7.30596G	65.18	74.00	-8.82	3	Vertical	267	3.00
Mode 2	Pass	PK	10.482G	50.32	88.20	-37.88	3	Vertical	39	1.61
Mode 2	Pass	PK	12.5712G	50.11	74.00	-23.89	3	Vertical	286	1.37
Mode 2	Pass	AV	4.81284G	34.30	54.00	-19.70	3	Horizontal	158	2.10
Mode 2	Pass	AV	4.87384G	43.83	54.00	-10.17	3	Horizontal	120	2.18
Mode 2	Pass	AV	7.31028G	52.37	54.00	-1.63	3	Horizontal	205	1.00
Mode 2	Pass	AV	10.4817G	39.46	68.20	-28.74	3	Horizontal	54	1.83
Mode 2	Pass	AV	12.53G	39.71	54.00	-14.29	3	Horizontal	253	1.55
Mode 2	Pass	PK	4.81016G	41.44	74.00	-32.56	3	Horizontal	158	2.02
Mode 2	Pass	PK	4.87424G	54.41	74.00	-19.59	3	Horizontal	120	2.18
Mode 2	Pass	PK	7.30588G	64.26	74.00	-9.74	3	Horizontal	205	1.00
Mode 2	Pass	PK	10.4565G	50.44	88.20	-37.76	3	Horizontal	54	2.43
Mode 2	Pass	PK	12.5288G	51.10	74.00	-22.90	3	Horizontal	253	1.50

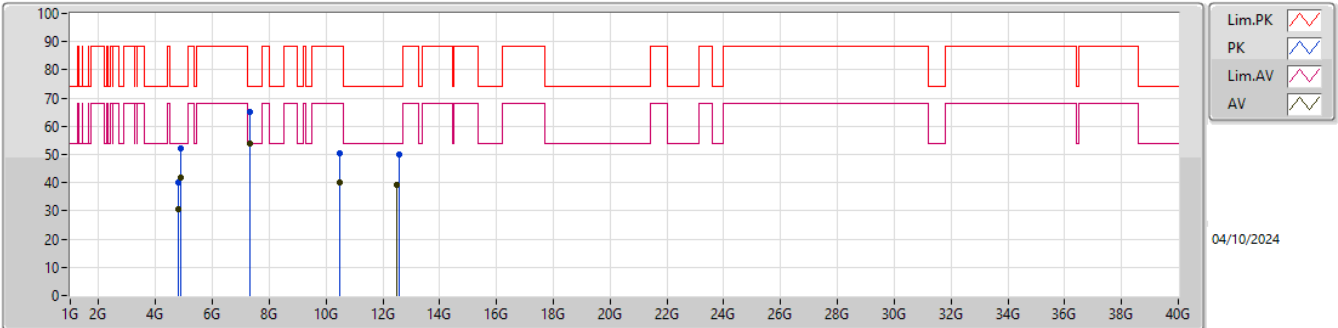
Radiated Emissions above 1GHz_Mode 1



Radiated Emissions above 1GHz_Mode 1

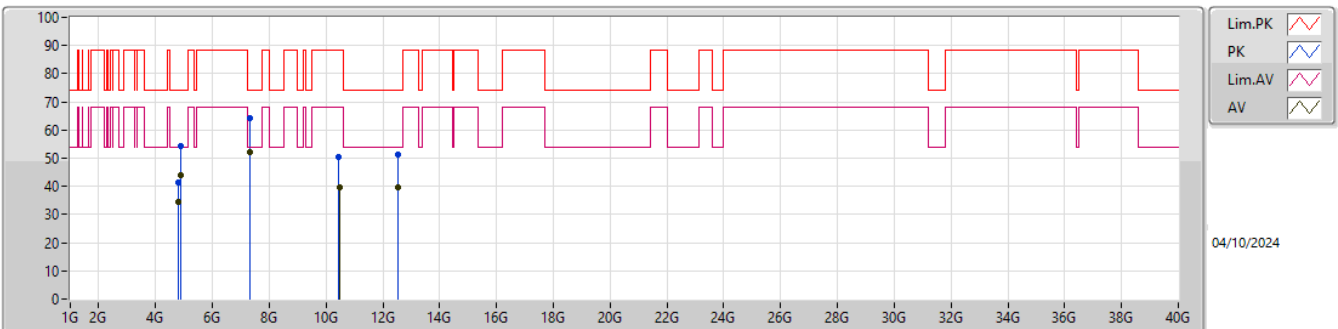


Radiated Emissions above 1GHz_Mode 2



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB/m)	Dist (m)	Condition	Azimuth (°)	Height (m)	Raw (dBuV)	AF (dB/m)	CL (dB)	PA (dB)
AV	4.81104G	30.60	54.00	-23.40	-1.45	3	Vertical	262	1.79	32.05	32.57	4.21	38.23
AV	4.87392G	41.93	54.00	-12.07	-1.17	3	Vertical	98	2.89	43.10	32.80	4.24	38.21
AV	7.31156G	53.71	54.00	-0.29	6.28	3	Vertical	272	3.00	47.43	37.25	6.00	36.97
AV	10.482G	40.03	68.20	-28.17	9.11	3	Vertical	39	1.61	30.92	39.04	7.63	37.56
AV	12.508G	39.06	54.00	-14.94	9.70	3	Vertical	286	2.92	29.36	39.22	8.68	38.20
PK	4.8108G	40.07	74.00	-33.93	-1.46	3	Vertical	263	1.98	41.53	32.56	4.21	38.23
PK	4.87408G	51.96	74.00	-22.04	-1.17	3	Vertical	98	2.89	53.13	32.80	4.24	38.21
PK	7.30596G	65.18	74.00	-8.82	6.29	3	Vertical	267	3.00	58.89	37.28	5.99	36.98
PK	10.482G	50.32	88.20	-37.88	9.11	3	Vertical	39	1.61	41.21	39.04	7.63	37.56
PK	12.5712G	50.11	74.00	-23.89	9.81	3	Vertical	286	1.37	40.30	39.34	8.72	38.25

Radiated Emissions above 1GHz_Mode 2



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB/m)	Dist (m)	Condition	Azimuth (°)	Height (m)	Raw (dBuV)	AF (dB/m)	CL (dB)	PA (dB)
AV	4.81284G	34.30	54.00	-19.70	-1.43	3	Horizontal	158	2.10	35.73	32.58	4.22	38.23
AV	4.87384G	43.83	54.00	-10.17	-1.17	3	Horizontal	120	2.18	45.00	32.80	4.24	38.21
AV	7.31028G	52.37	54.00	-1.63	6.29	3	Horizontal	205	1.00	46.08	37.26	6.00	36.97
AV	10.4817G	39.46	68.20	-28.74	9.11	3	Horizontal	54	1.83	30.35	39.04	7.63	37.56
AV	12.53G	39.71	54.00	-14.29	9.74	3	Horizontal	253	1.55	29.97	39.26	8.70	38.22
PK	4.81016G	41.44	74.00	-32.56	-1.46	3	Horizontal	158	2.02	42.90	32.56	4.21	38.23
PK	4.87424G	54.41	74.00	-19.59	-1.17	3	Horizontal	120	2.18	55.58	32.80	4.24	38.21
PK	7.30588G	64.26	74.00	-9.74	6.29	3	Horizontal	205	1.00	57.97	37.28	5.99	36.98
PK	10.4565G	50.44	88.20	-37.76	9.13	3	Horizontal	54	2.43	41.31	39.09	7.61	37.57
PK	12.5288G	51.10	74.00	-22.90	9.74	3	Horizontal	253	1.50	41.36	39.26	8.70	38.22