



RADIO TEST REPORT

FCC ID : Z3WAIR4991-41
Equipment : AT&T ALL-Fi Extender
Brand Name : Airties
Model Name : WFEXT4991-41
Applicant : AirTies Wireless Networks
Sehit Mehmet Mikdat Uluunlu Sokagi No:23 Esentepe,
Sisli İstanbul, 34394 Turkey
Manufacturer : AirTies Wireless Networks
Sehit Mehmet Mikdat Uluunlu Sokagi No:23 Esentepe,
Sisli İstanbul, 34394 Turkey
Standard : 47 CFR FCC Part 15.247

The product was received on Jun. 17, 2024, and testing was started from Jul. 26, 2024 and completed on Sep. 12, 2024. We, Sporton International Inc. Hsinchu Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. Hsinchu Laboratory, the test report shall not be reproduced except in full.

Approved by: Sam Chen

Sporton International Inc. Hsinchu Laboratory

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History of this test report

TEL : 886-3-656-9065
FAX : 886-3-656-9085
Report Template No.: CB-A10_9 Ver1.3

Page Number : 3 of 32
Issued Date : Nov. 11, 2024
Report Version : 01



Summary of Test Result

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

Conformity Assessment Condition:

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

Disclaimer:

1. The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.
2. The test configuration, test mode and test software were written in this test report are declared by the manufacturer.

Reviewed by: Sam Chen
Report Producer: Cathy Chiu



1 General Description

1.1 Information

1.1.1 RF General Information

Frequency Range (MHz)	IEEE Std.	Ch. Frequency (MHz)	Channel Number
2400-2483.5	802.15.4	2405-2480	11-26 [16]

Band	Mode	BWch (MHz)	Nant
2.4-2.4835GHz	Zigbee	3	1TX

Note:

- ♦ Zigbee uses a O-QPSK (250kbps) modulation.
- ♦ BWch is the nominal channel bandwidth.

**1.1.2 Antenna Information**

Ant.	Port				Brand	Model Name	Antenna Type	Connector	Gain (dBi)
	WLAN			Bluetooth /Zigbee					
	2.4GHz	5GHz	6GHz						
1	-	-	1	-	Galtronics	60-3744-03-2	PIFA	I-Pex	Note 1
2	-	-	2	-	Galtronics	60-3695-03-1	PIFA	I-Pex	
3	-	-	3	-	Galtronics	60-3695-03-2	PIFA	I-Pex	
4	-	-	4	-	Galtronics	60-3744-03-2	PIFA	I-Pex	
5	1	1	-	-	Galtronics	60-3693-03-2	PIFA	I-Pex	
6	-	2	-	-	Galtronics	60-2917-03	PIFA	I-Pex	
7	2	3	-	-	Galtronics	60-3755-03-2	PIFA	I-Pex	
8	-	4	-	-	Galtronics	60-2917-03	PIFA	I-Pex	
9	-	-	-	1	Airties	Air-BT-01	PCB	I-Pex	
10	-	-	-	2	Airties	Air-BT-02	PCB	I-Pex	
11	-	-	-	-	Galtronics	60-3756-03-2	PCB	I-Pex	

Ant.	Remark
1	6G4 (Mated to Connector J1)
2	6G3 (Mated to Connector J2)
3	6G1 (Mated to Connector J3)
4	6G2 (Mated to Connector J4)
5	DB1 (Mated to Connector J20)
6	5G2 (Mated to Connector J21)
7	DB2 (Mated to Connector J22)
8	5G1 (Mated to Connector J23)
9	N/A
10	N/A
11	GNSS

Note 1:

Ant.	Antenna Gain (dBi)										
	WLAN 2.4GHz	WLAN 5GHz				WLAN 6GHz				Bluetooth /Zigbee	GPS
		UNII 1	UNII 2A	UNII 2C	UNII 3	UNII 5	UNII 6	UNII 7	UNII 8		
1	-	-	-	-	-	5.38	3.86	4.02	2.84	-	-
2	-	-	-	-	-	5.09	4.72	4.61	4.69	-	-
3	-	-	-	-	-	4.88	6.09	5.24	6.46	-	-
4	-	-	-	-	-	6.63	6.7	5.53	6.03	-	-
5	2.16	3.61	2.65	2.56	2.47	-	-	-	-	-	-
6	-	2.73	2.49	3.24	3.3	-	-	-	-	-	-
7	2.15	3.89	3.85	3.62	2.69	-	-	-	-	-	-
8	-	2.31	2.88	3.09	2.63	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	-	4.3	-
10	-	-	-	-	-	-	-	-	-	4.3	-
11	-	-	-	-	-	-	-	-	-	-	4.7



Item	Directional Gain (dBi)								
	WLAN 2.4GHz	WLAN 5GHz				WLAN 6GHz			
		UNII 1	UNII 2A	UNII 2C	UNII 3	UNII 5	UNII 6	UNII 7	UNII 8
2T1S	3.95	-	-	-	-	-	-	-	-
2T2S	2.16	-	-	-	-	-	-	-	-
4T1S	-	3.89	3.85	3.62	3.36	6.63	6.72	5.96	6.72
4T2S	-	3.89	3.85	3.62	3.3	6.63	6.7	5.53	6.46
4T4S	-	3.89	3.85	3.62	3.3	6.63	6.7	5.53	6.46

Note 2: The above information (except gain of Ant. 1~8 and directional gain) was declared by the manufacturer.

Note 3: For 2.4GHz/5GHz/6GHz, the antenna gain and directional gain are measured which follow the procedure of KDB 662911 D03.

Note 4: **For 2.4GHz function:**

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

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

Port 1 and Port 2 could transmit/receive simultaneously.

For 5GHz function:

For IEEE 802.11 a/n/ac/ax/be (4TX/4RX):

Port 1~4 can be used as transmitting/receiving antenna.

Port 1~4 could transmit/receive simultaneously.

For 6GHz function:

For IEEE 802.11 ax/be (4TX/4RX):

Port 1~4 can be used as transmitting/receiving antenna.

Port 1~4 could transmit/receive simultaneously.

For Bluetooth function (1TX/1RX):

The EUT supports the antenna with TX/RX diversity functions.

Port 1~2 can be used as transmitting/receiving antenna, but only one of them will be used at one time.

For Zigbee function (1TX/1RX):

The EUT supports the antenna with TX/RX diversity functions.

Port 1~2 can be used as transmitting/receiving antenna, but only one of them will be used at one time.

For GPS function (1RX):

Only Ant. 11 can be used as receiving antenna.

1.1.3 Mode Test Duty Cycle

Mode	DC	DCF (dB)
Zigbee (ANT9)_Nss 1	0.359	4.45
Zigbee (ANT10)_Nss 1	0.37	4.32

Note:

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

**1.1.4 EUT Operational Condition**

EUT Power Type	From Power Adapter		
Function	☒ Point-to-multipoint	☐ Point-to-point	
HW	HW1.2		
SW	4.193.2.0_wltest		
SN	For AC Power-line Conducted Emissions test: J50VA4HW100120 For Emissions in Restricted Frequency Bands below 1GHz test: J50VA4HW100114 For Other test items: J50VA4HW100124		
Test Software Version	DOS [ver 6.1.7601]		

Note: The above information was declared by manufacturer.

1.1.5 Table for EUT Supports Function

Support Type	Remark
AP Router	Support 2.4GHz / 5GHz UNII 1~3 / 6GHz UNII 5~8
Mesh	Support 5GHz UNII 1~3 / 6GHz UNII 5~8

Note1: For above table list, only AP Router mode was tested and recorded in this test.

Note2: The above information was declared by manufacturer.



1.2 Applicable Standards

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

- ♦ 47 CFR FCC Part 15.247
- ♦ ANSI C63.10-2013

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

- ♦ FCC KDB 558074 D01 v05r02
- ♦ FCC KDB 414788 D01 v01r01

1.3 Testing Location Information

Testing Location Information	
Test Lab. : Sporton International Inc. Hsinchu Laboratory	
Hsinchu (TAF: 3787)	ADD: No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302010, Taiwan (R.O.C.) TEL: 886-3-656-9065 FAX: 886-3-656-9085 Test site Designation No. TW3787 with FCC. Conformity Assessment Body Identifier (CABID) TW3787 with ISED.

Test Condition	Test Site No.	Test Engineer	Test Environment (°C / %)	Test Date
RF Conducted	TH03-CB	Brian Sun	23.4~24.2 / 58~61	Aug. 26, 2024~ Sep. 12, 2024
Radiated (Below 1GHz)	03CH06-CB	Viola Huang	21.9-22.4 / 55-58	Sep. 03, 2024
Radiated (Above 1GHz)	03CH06-CB	Alex Kuo	21.9-22.4 / 55-58	Jul. 26, 2024~ Sep. 12, 2024
AC Conduction	CO01-CB	Ryan Huang	22~23 / 50~51	Sep. 05, 2024



1.4 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor ($k=2$))

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	3.8 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	4.1 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	4.2 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	4.2 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	4.0 dB	Confidence levels of 95%
Conducted Emission	3.1 dB	Confidence levels of 95%
Output Power Measurement	0.8 dB	Confidence levels of 95%
Power Density Measurement	3.1 dB	Confidence levels of 95%
Bandwidth Measurement	2.1 %	Confidence levels of 95%



2 Test Configuration of EUT

2.1 Test Channel Mode

Mode
Zigbee (ANT9)_3MHz_Nss1_1TX(Port1)
2405MHz
2440MHz
2475MHz
2480MHz
Zigbee (ANT10)_3MHz_Nss1_1TX(Port2)
2405MHz
2440MHz
2475MHz
2480MHz

2.2 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral Test Voltage: 120Vac / 60Hz
Operating Mode	Normal Link(WLAN), Idle(Bluetooth), CTX(Zigbee)
1	EUT + WLAN + Bluetooth + GPS with adapter
2	EUT + WLAN + Zigbee + GPS with adapter
For operating mode 1 is the worst case and it was record in this test report.	

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

The Worst Case Mode for Following Conformance Tests	
Tests Item	Emissions in Restricted Frequency Bands
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.
Operating Mode < 1GHz	Normal Link(WLAN), Idle(Bluetooth), CTX(Zigbee)
After evaluating, and the worst case was found at Y axis, so it was selected to perform test and its test result was written in the report.	
1	EUT in Y axis + WLAN + Bluetooth + GPS with adapter
2	EUT in Y axis + WLAN + Zigbee + GPS with adapter
For operating mode 1 is the worst case and it was record in this test report.	
Operating Mode > 1GHz	CTX
After evaluating, and the worst case was found at Y axis, so it was selected to perform test and its test result was written in the report.	
1	EUT in Y axis



The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation
Operating Mode	
1	WLAN 2.4GHz + WLAN 5GHz + WLAN 6GHz + Bluetooth
2	WLAN 2.4GHz + WLAN 5GHz + WLAN 6GHz + Zigbee
Refer to Sporton Test Report No.: FA3D0518-02 for Co-location RF Exposure Evaluation.	

2.3 EUT Operation during Test

For CTX Mode:

The EUT was programmed to be in continuously transmitting mode.

For Normal Link Mode:

During the test, the EUT operation to normal function.

2.4 Accessories

Accessories			
Equipment Name	Brand Name	Model Name	Rating
Adapter	AT&T	EPS26R0-16	INPUT: 120V ~ 0.725A Max 60Hz OUTPUT: 12V, 2.2A, 26.4W
Other			
RJ-45 cable*1: non-shielded, 1.5m			

2.5 Support Equipment

For AC Conduction:

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	2.4G NB	DELL	PP13S	N/A
B	5G NB	DELL	E6220	N/A
C	6E Device	INTEL	BE200	PD9BE200NG
D	6E NB	DELL	E7240	N/A
E	GPS Simulator	WELNAVIGATE	GS-100	N/A
F	LAN1 PC	ASUS	S300TA	TX2-RTL8821CE
G	LAN2 PC	ASUS	S300TA	TX2-RTL8821CE

**For Radiated (below 1GHz):**

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	PC	HP	SGH8190LP1	N/A
B	PC	HP	SGH8190LP1	N/A
C	2.4G NB	DELL	E4300	N/A
D	5G NB	DELL	E4300	N/A
E	6E Device	INTEL	BE200	PD9BE200NG/NA
F	6G NB	DELL	E7240	N/A
G	GPS Simulator	WELNAVIGATE	GS-100	N/A

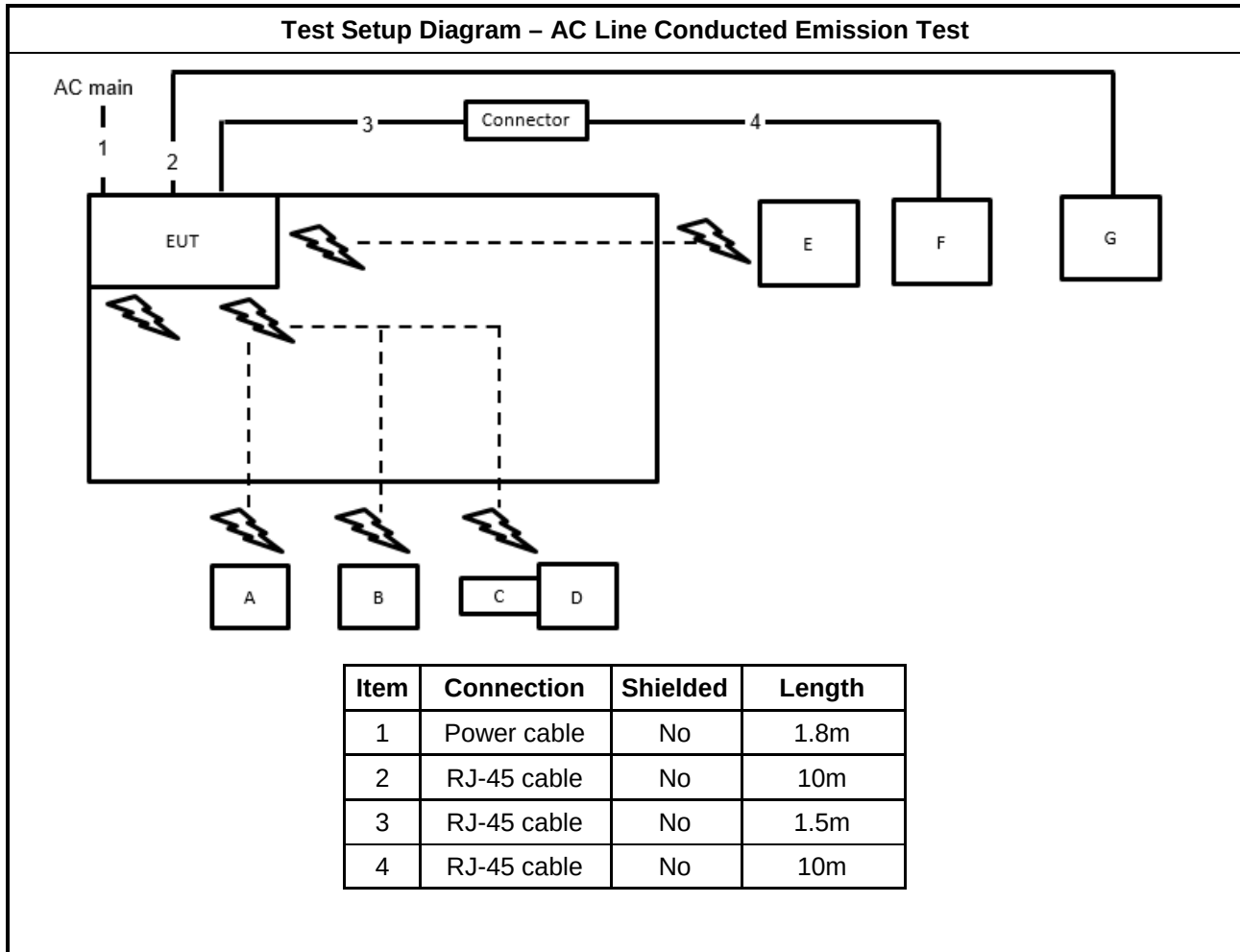
For Radiated (above 1GHz):

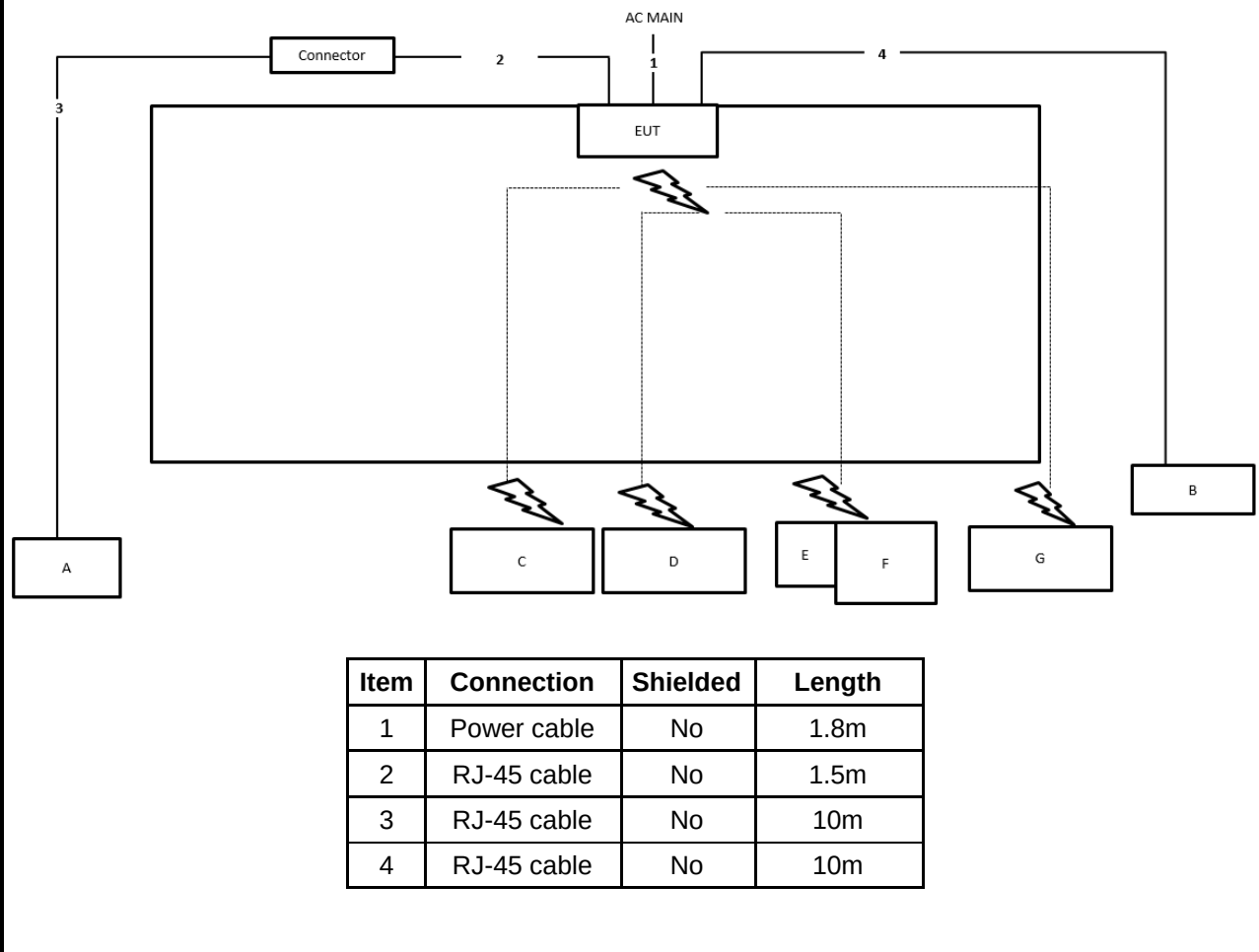
Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	Notebook	DELL	E4300	N/A

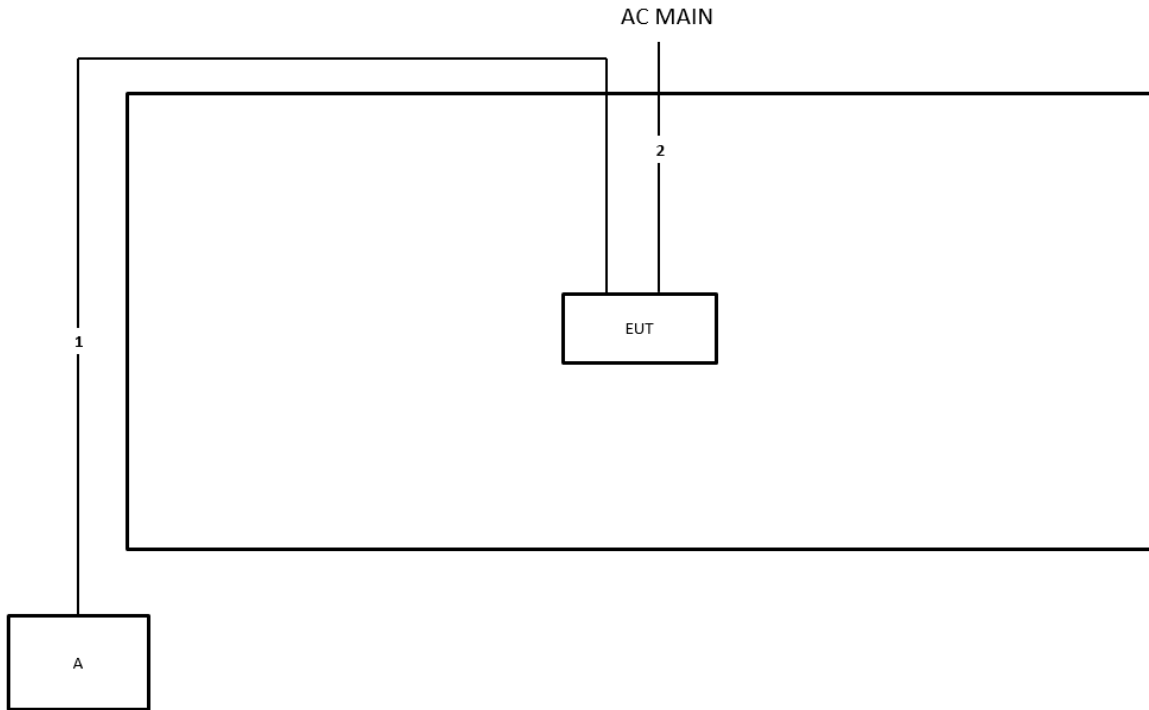
For RF Conducted:

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	Notebook	DELL	E4300	N/A

2.6 Test Setup Diagram



Test Setup Diagram - Radiated Test < 1GHz


Test Setup Diagram - Radiated Test > 1GHz


Item	Connection	Shielded	Length
1	RJ-45 cable	No	10m
2	Power cable	No	1.8m



3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

AC Power-line Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

Note 1: * Decreases with the logarithm of the frequency.

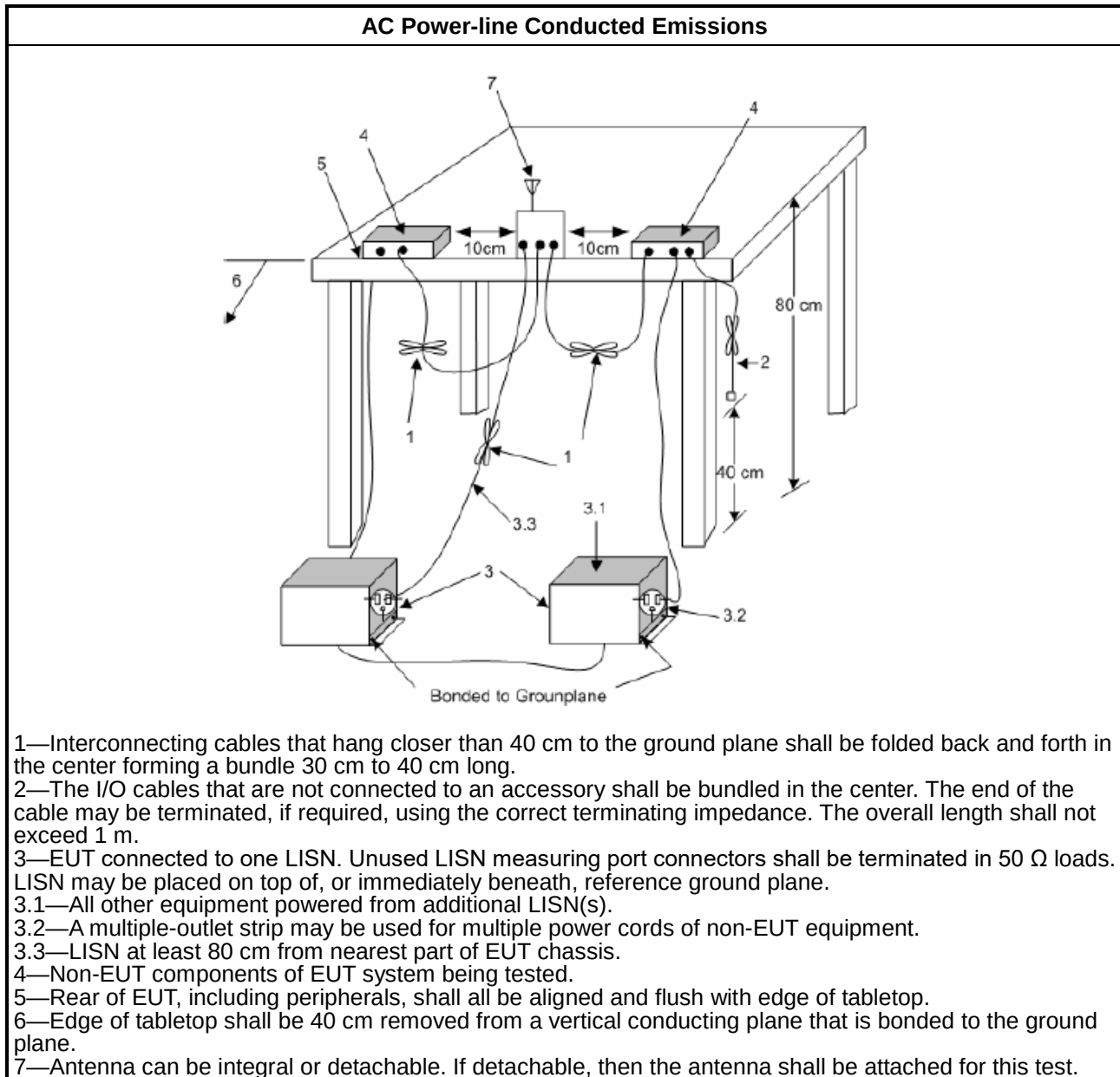
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

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

3.1.4 Test Setup



3.1.5 Measurement Results Calculation

The measured Level is calculated using:

- Corrected Reading: LISN Factor (LISN) + Attenuator (AT/AUX) + Cable Loss (CL) + Read Level (Raw) = Level
- Margin = -Limit + Level

3.1.6 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.

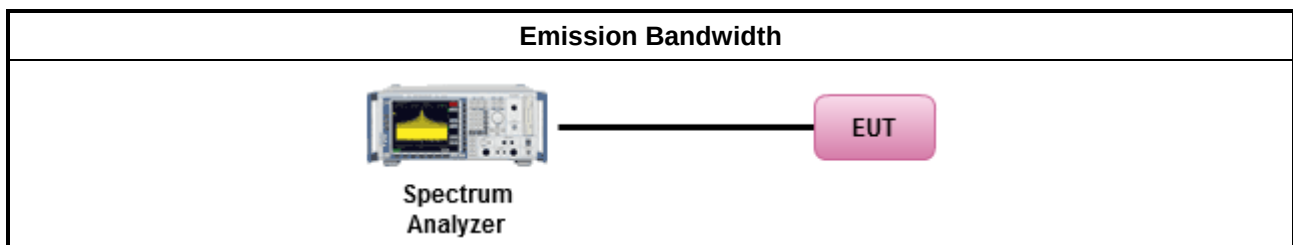
3.2.2 Measuring Instruments

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 FCC KDB 558074, clause 8.2 & C63.10 clause 11.8.1 Option 1 for 6 dB bandwidth measurement.
☐ Refer as FCC KDB 558074, clause 8.2 & C63.10 clause 11.8.2 Option 2 for 6 dB bandwidth measurement.
☐ Refer as ANSI C63.10, clause 6.9.1 for occupied bandwidth testing.

3.2.4 Test Setup



3.2.5 Test Result of Emission Bandwidth

Refer as Appendix B

3.3 Maximum Conducted Output Power

3.3.1 Maximum Conducted Output Power Limit

Maximum Conducted Output Power Limit	
	▪ If $G_{TX} \leq 6$ dBi, then $P_{Out} \leq 30$ dBm (1 W)
	▪ Point-to-multipoint systems (P2M): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$ dBm
	▪ Point-to-point systems (P2P): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
	▪ Smart antenna system (SAS):
	- Single beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
	- Overlap beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
	- Aggregate power on all beams: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3 + 8$ dB dBm
P_{Out} = maximum peak conducted output power or maximum conducted output power in dBm, G_{TX} = the maximum transmitting antenna directional gain in dBi.	

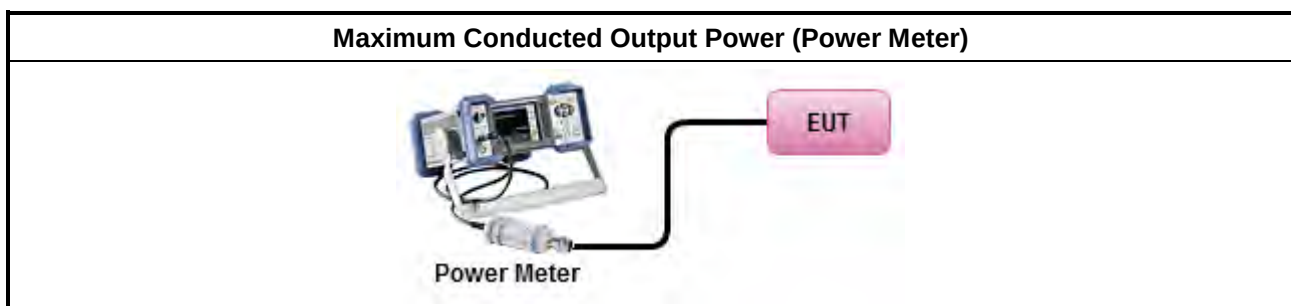
3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

Test Method	
Maximum Peak Conducted Output Power	
☐	Refer as FCC KDB 558074, clause 8.3.1.1 & C63.10 clause 11.9.1.1 (RBW ≥ EBW method).
☐	Refer as FCC KDB 558074, clause 8.3.1.3 & C63.10 clause 11.9.1.3 (peak power meter).
Maximum Conducted Output Power	
[duty cycle ≥ 98% or external video / power trigger]	
☐	Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.2 Method AVGSA-1.
☐	Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.3 Method AVGSA-1A. (alternative)
duty cycle < 98% and average over on/off periods with duty factor	
☐	Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.4 Method AVGSA-2.
☐	Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.5 Method AVGSA-2A (alternative)
☐	Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.6 Method AVGSA-3
☐	Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.7 Method AVGSA-3A (alternative)
Measurement using a power meter (PM)	
☐	Refer as FCC KDB 558074, clause 8.3.2.3 & C63.10 clause 11.9.2.3.1 Method AVGPM (using an RF average power meter).
☒	Refer as FCC KDB 558074, clause 8.3.2.3 & C63.10 clause 11.9.2.3.2 Method AVGPM-G (using an gate RF average power meter).
For conducted measurement.	
If the EUT supports multiple transmit chains using options given below: Refer as FCC KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them.	
If multiple transmit chains, EIRP calculation could be following as methods: $P_{total} = P_1 + P_2 + \dots + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = P_{total} + DG$	

3.3.4 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

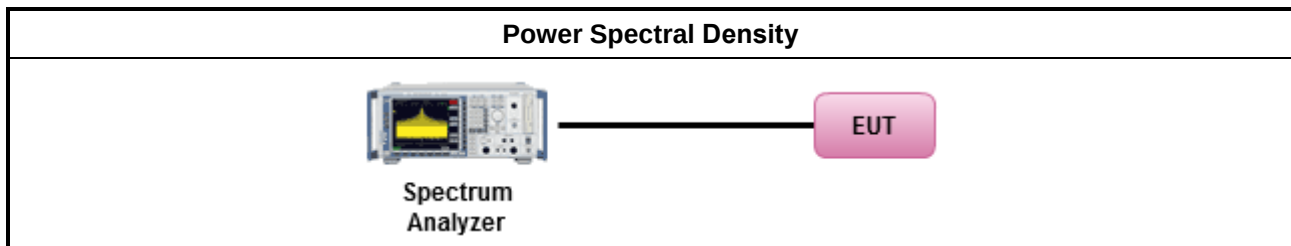
3.4.2 Measuring Instruments

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 FCC KDB 558074, clause 8.4 & C63.10 clause 11.10 Method Max. PSD.
▪ For conducted measurement.	
▪ If The EUT supports multiple transmit chains using options given below:	
☐	Option 1: Measure and sum the spectra across the outputs. Refer as FCC KDB 662911, In-band power spectral density (PSD). Sample all transmit ports simultaneously using a spectrum analyzer for each transmit port. Where the trace bin-by-bin of each transmit port summing can be performed. (i.e., in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3, and so on up to the NTX output to obtain the value for the first frequency bin of the summed spectrum.). Add up the amplitude (power) values for the different transmit chains and use this as the new data trace.
☐	Option 2: Measure and sum spectral maxima across the outputs. With this technique, spectra are measured at each output of the device at the required resolution bandwidth. The maximum value (peak) of each spectrum is determined. These maximum values are then summed mathematically in linear power units across the outputs. These operations shall be performed separately over frequency spans that have different out-of-band or spurious emission limits,
☐	Option 3: Measure and add 10 log(N) dB, where N is the number of transmit chains. Refer as FCC KDB 662911, In-band power spectral density (PSD). Performed at each transmit chains and each transmit chains shall be compared with the limit have been reduced with 10 log(N). Or each transmit chains shall be add 10 log(N) to compared with the limit.

3.4.4 Test Setup



3.4.5 Test Result of Power Spectral Density

Refer as Appendix D

3.5 Emissions in Non-restricted Frequency Bands

3.5.1 Emissions in Non-restricted Frequency Bands Limit

Un-restricted Band Emissions Limit	
RF output power procedure	Limit (dBc)
Peak output power procedure	20
Average output power procedure	30
Note 1: If the peak output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum measured in-band peak PSD level. Note 2: If the average output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the power in any 100 kHz outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum measured in-band average PSD level.	

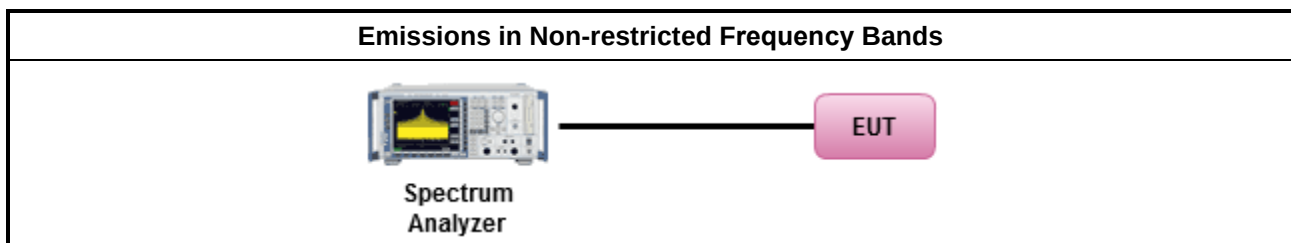
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

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

3.5.4 Test Setup



3.5.5 Test Result of Emissions in Non-restricted Frequency Bands

Refer as Appendix E

3.6 Emissions in Restricted Frequency Bands

3.6.1 Emissions in Restricted Frequency Bands Limit

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

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

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

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

3.6.2 Measuring Instruments

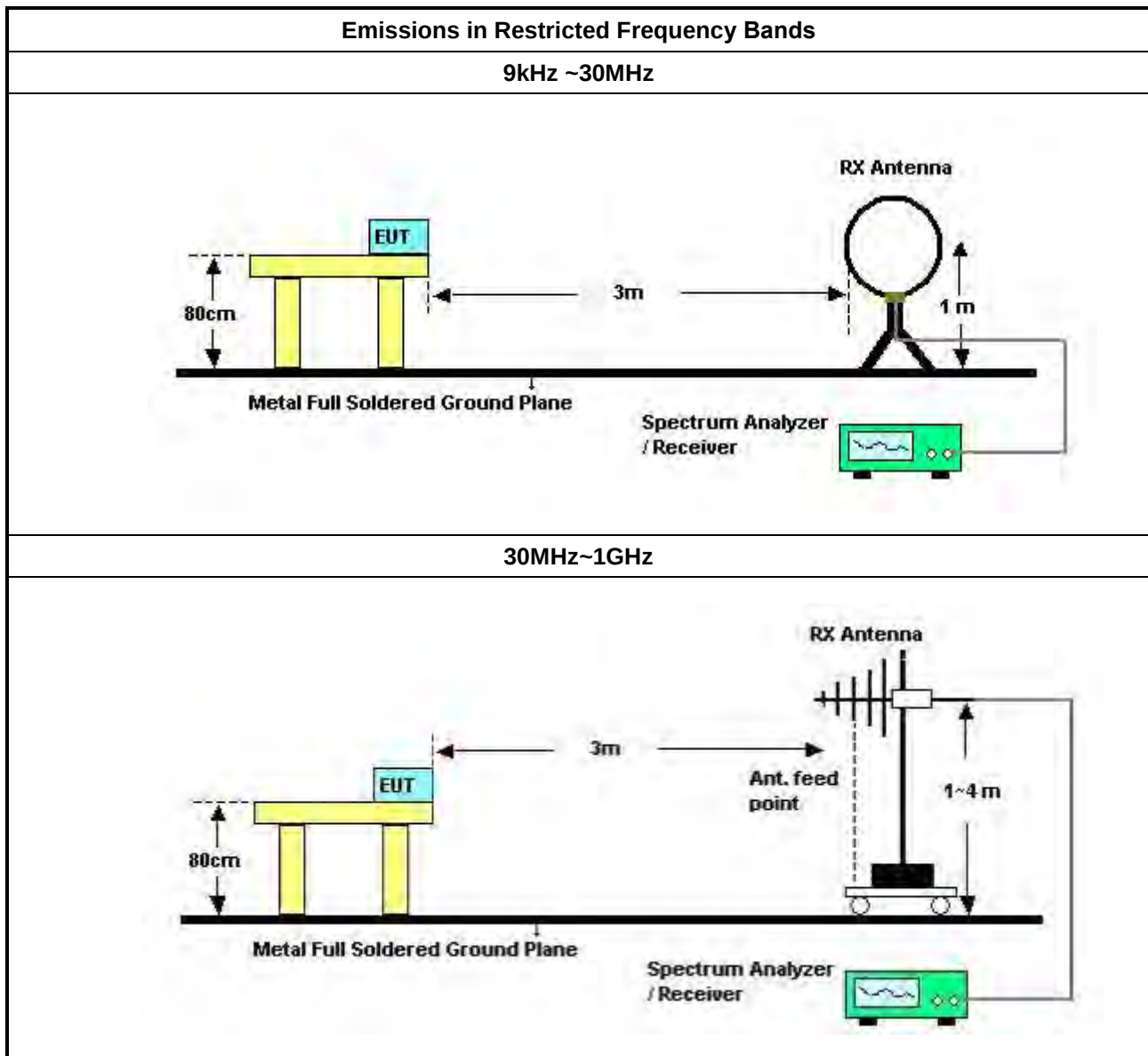
Refer a test equipment and calibration data table in this test report.

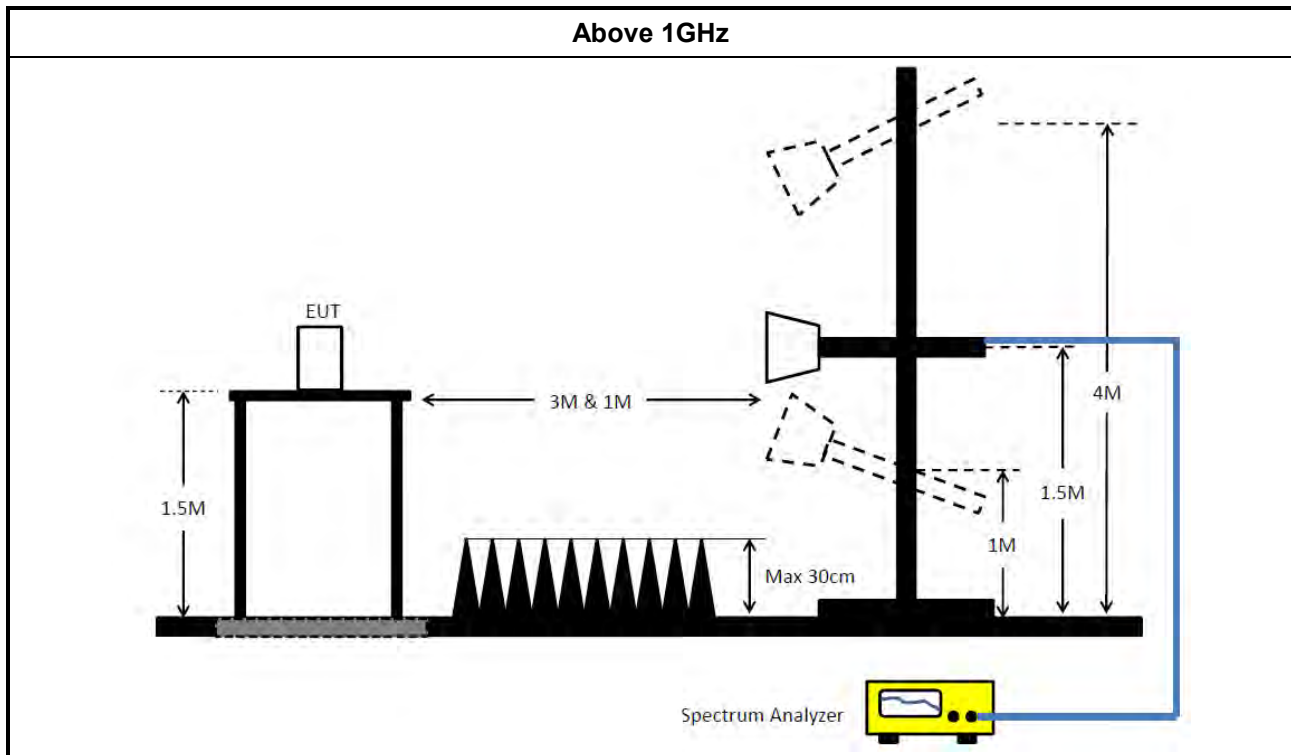


3.6.3 Test Procedures

Test Method	
▪ The average emission levels shall be measured in [duty cycle ≥ 98 or duty factor].	
▪ Refer as ANSI C63.10, clause 6.10.3 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.	
▪ For the transmitter unwanted emissions shall be measured using following options below:	
	▪ Refer as FCC KDB 558074, clause 8.6 for unwanted emissions into restricted bands.
	☐ Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.5.1(trace averaging for duty cycle $\geq 98\%$).
	☐ Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.5.2(trace averaging + duty factor).
	☒ Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.5.3(Reduced VBW $\geq 1/T$).
	☐ Refer as ANSI C63.10, clause 11.12.2.5.3 (Reduced VBW). VBW $\geq 1/T$, where T is pulse time.
	☐ Refer as ANSI C63.10, clause 7.5 average value of pulsed emissions.
	☒ Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.4 measurement procedure peak limit.
▪ For the transmitter band-edge emissions shall be measured using following options below:	
	▪ Refer as FCC KDB 558074 clause 8.7 & c63.10 clause 11.13.1, When the performing peak or average radiated measurements, emissions within 2 MHz of the authorized band edge may be measured using the marker-delta method described below.
	▪ Refer as FCC KDB 558074, clause 8.7 (ANSI C63.10, clause 6.10.6) for marker-delta method for band-edge measurements.
	▪ Refer as FCC KDB 558074, clause 8.7 for narrower resolution bandwidth (100kHz) using the band power and summing the spectral levels (i.e., 1 MHz).
	▪ For conducted unwanted emissions into restricted bands (absolute emission limits). Devices with multiple transmit chains using options given below: (1) Measure and sum the spectra across the outputs or (2) Measure and add 10 log(N) dB
	▪ For FCC KDB 662911 The methodology described here may overestimate array gain, thereby resulting in apparent failures to satisfy the out-of-band limits even if the device is actually compliant. In such cases, compliance may be demonstrated by performing radiated tests around the frequencies at which the apparent failures occurred.

3.6.4 Test Setup





3.6.5 Measurement Results Calculation

The measured Level is calculated using:

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

3.6.6 Emissions in Restricted Frequency Bands (Below 30MHz)

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

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

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

3.6.7 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix F



4 Test Equipment and Calibration Data

Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.4GHz	Mar. 01, 2024	Feb. 28, 2025	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Feb. 19, 2024	Feb. 18, 2025	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Apr. 24, 2024	Apr. 23, 2025	Conduction (CO01-CB)
Pulse Limiter	Rohde&Schwarz	ESH3-Z2	100430	9kHz ~ 30MHz	Feb. 08, 2024	Feb. 07, 2025	Conduction (CO01-CB)
COND Cable	Woken	Cable	Low cable-CO01	9kHz ~ 30MHz	Oct. 17, 2023	Oct. 16, 2024	Conduction (CO01-CB)
Test Software	SPORTON	SENSE-EMI	V5.11	150kHz-30MHz	N.C.R.	N.C.R.	Conduction (CO01-CB)
Loop Antenna	Teseq	HLA 6121	65417	9kHz - 30 MHz	Oct. 13, 2023	Oct. 12, 2024	Radiation (03CH06-CB)
3m Semi Anechoic Chamber NSA	TDK	SAC-3M	03CH06-CB	30 MHz ~ 1 GHz	Aug. 02, 2024	Aug. 01, 2025	Radiation (03CH06-CB)
3m Semi Anechoic Chamber VSWR	TDK	SAC-3M	03CH06-CB	1GHz ~18GHz 3m	Oct. 09, 2023	Oct. 08, 2024	Radiation (03CH06-CB)
Bilog Antenna with 6 dB attenuator	TESEQ & EMCi	CBL6112D & N-6-06	37878 & AT-N0606	20MHz ~ 2GHz	Jul. 29, 2024	Jul. 28, 2025	Radiation (03CH06-CB)
Horn Antenna	SCHWARZBECK	BBHA9120D	BBHA 9120D-1292	1GHz~18GHz	Jul. 29, 2024	Jul. 28, 2025	Radiation (03CH06-CB)
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170507	15GHz ~ 40GHz	Jul. 09, 2024	Jul. 08, 2025	Radiation (03CH06-CB)
Pre-Amplifier	Agilent	310N	187290	0.1MHz ~ 1GHz	Nov. 03, 2023	Nov. 02, 2024	Radiation (03CH06-CB)
Pre-Amplifier	Agilent	83017A	MY53270064	0.5GHz ~ 26.5GHz	Jul. 31, 2024	Jul. 30, 2025	Radiation (03CH06-CB)
Signal Analyzer	R&S	FSV40	101904	9kHz ~ 40GHz	Apr. 26, 2024	Apr. 25, 2025	Radiation (03CH06-CB)
EMI Test Receiver	R&S	ESR7	102172	9kHz ~ 7GHz	Oct. 20, 2023	Oct. 19, 2024	Radiation (03CH06-CB)
RF Cable-low	Woken	RG402	Low Cable-24+68	30MHz~1GHz	Oct. 02, 2023	Oct. 01, 2024	Radiation (03CH06-CB)
RF Cable-high	Woken	RG402	High Cable-05+68	1GHz~18GHz	Oct. 02, 2023	Oct. 01, 2024	Radiation (03CH06-CB)
High Cable	Woken	WCA0929M	40G#5+6	1GHz ~ 40 GHz	Jan. 11, 2024	Jan. 10, 2025	Radiation (03CH06-CB)
Test Software	SPORTON	SENSE-EMI	V5.11.8	30MHz-40GHz	N.C.R.	N.C.R.	Radiation (03CH06-CB)
Test Software	SPORTON	SENSE-15247_DTS	V5.11.18	2.4GHz-2.4835GHz	N.C.R.	N.C.R.	Radiation (03CH06-CB)
Spectrum analyzer	R&S	FSV40	101028	9kHz~40GHz	Dec. 22, 2023	Dec. 21, 2024	Conducted (TH03-CB)



Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
Power Sensor	Anritsu	MA2411B	1531344	300MHz~40GHz	Jul. 30, 2024	Jul. 31, 2025	Conducted (TH03-CB)
Power Meter	Anritsu	ML2495A	1728002	300MHz~40GHz	Jul. 30, 2024	Jul. 31, 2025	Conducted (TH03-CB)
RF Cable	Woken	RG402	High Cable-11	30MHz ~18 GHz	Oct. 02, 2023	Oct. 01, 2024	Conducted (TH03-CB)
RF Cable	Woken	RG402	High Cable-12	30MHz ~18 GHz	Oct. 02, 2023	Oct. 01, 2024	Conducted (TH03-CB)
RF Cable	Woken	RG402	High Cable-13	30MHz ~18 GHz	Oct. 02, 2023	Oct. 01, 2024	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-14	1 GHz ~18 GHz	Oct. 02, 2023	Oct. 01, 2024	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-15	1 GHz ~18 GHz	Oct. 02, 2023	Oct. 01, 2024	Conducted (TH03-CB)
Switch	SPTCB	SP-SWI	SWI-03	1 ~26.5 GHz	Oct. 03, 2023	Oct. 02, 2024	Conducted (TH03-CB)
Test Software	SPORTON	SENSE-15247_DTS	V5.11.18	2.4GHz-2.4835GHz	N.C.R.	N.C.R.	Conducted (TH03-CB)

Note: Calibration Interval of instruments listed above is one year.

NCR means Non-Calibration required.



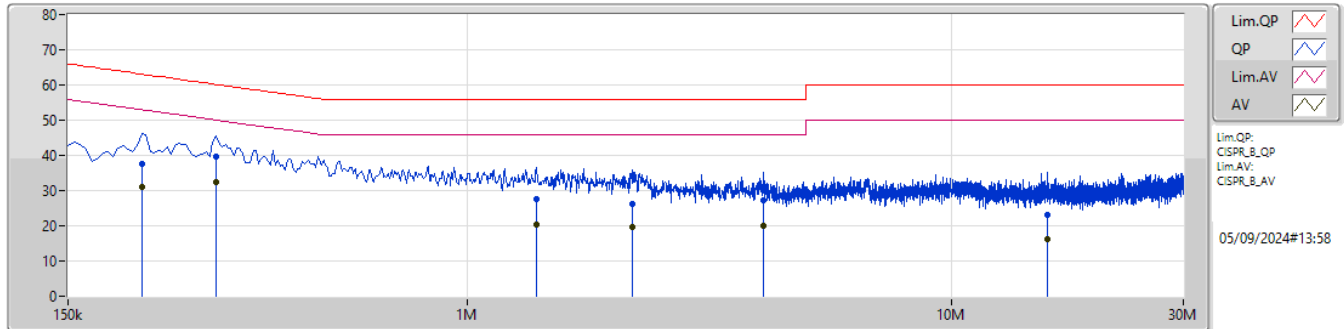
Conducted Emissions at Powerline

Appendix A

Summary

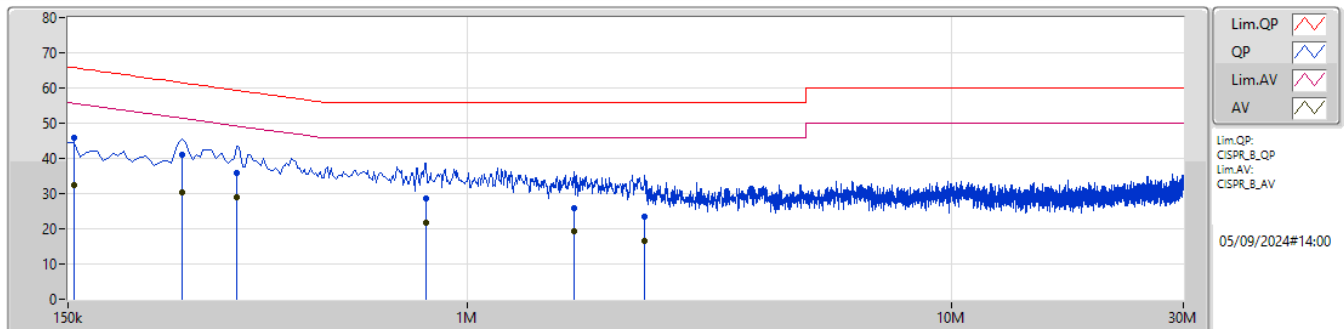
Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	AV	303k	32.31	50.17	-17.86	Line

Mode 1



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)						
QP	213k	37.63	63.09	-25.46	9.91	Line	-	27.72	0.04	0.02	9.85						
AV	213k	31.06	53.09	-22.03	9.91	Line	-	21.15	0.04	0.02	9.85						
QP	303k	39.54	60.17	-20.63	9.94	Line	-	29.60	0.05	0.02	9.87						
AV	303k	32.31	50.17	-17.86	9.94	Line	"Worst"	22.37	0.05	0.02	9.87						
QP	1.388M	27.50	56.00	-28.50	10.02	Line	-	17.48	0.08	0.04	9.90						
AV	1.388M	20.41	46.00	-25.59	10.02	Line	-	10.39	0.08	0.04	9.90						
QP	2.193M	26.25	56.00	-29.75	10.07	Line	-	16.18	0.10	0.08	9.89						
AV	2.193M	19.60	46.00	-26.40	10.07	Line	-	9.53	0.10	0.08	9.89						
QP	4.092M	27.09	56.00	-28.91	10.17	Line	-	16.92	0.13	0.14	9.90						
AV	4.092M	20.03	46.00	-25.97	10.17	Line	-	9.86	0.13	0.14	9.90						
QP	15.698M	22.95	60.00	-37.05	10.43	Line	-	12.52	0.28	0.19	9.96						
AV	15.698M	16.24	50.00	-33.76	10.43	Line	-	5.81	0.28	0.19	9.96						

Mode 1



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)						
QP	154.5k	45.91	65.75	-19.84	9.94	Neutral	"Worst"	35.97	0.06	0.02	9.86						
AV	154.5k	32.39	55.75	-23.36	9.94	Neutral	-	22.45	0.06	0.02	9.86						
QP	258k	41.05	61.49	-20.44	9.94	Neutral	-	31.11	0.06	0.02	9.86						
AV	258k	30.51	51.49	-20.98	9.94	Neutral	-	20.57	0.06	0.02	9.86						
QP	334.5k	35.87	59.35	-23.48	9.96	Neutral	-	25.91	0.06	0.02	9.88						
AV	334.5k	29.01	49.35	-20.34	9.96	Neutral	-	19.05	0.06	0.02	9.88						
QP	820.5k	28.53	56.00	-27.47	10.00	Neutral	-	18.53	0.08	0.01	9.91						
AV	820.5k	21.70	46.00	-24.30	10.00	Neutral	-	11.70	0.08	0.01	9.91						
QP	1.662M	25.92	56.00	-30.08	10.04	Neutral	-	15.88	0.09	0.05	9.90						
AV	1.662M	19.48	46.00	-26.52	10.04	Neutral	-	9.44	0.09	0.05	9.90						
QP	2.324M	23.57	56.00	-32.43	10.09	Neutral	-	13.48	0.11	0.09	9.89						
AV	2.324M	16.58	46.00	-29.42	10.09	Neutral	-	6.49	0.11	0.09	9.89						

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
Zigbee (ANT10)_3MHz_Nss1_1TX(Port2)	1.151M	2.2M	2M20G1D	1.099M	2.185M
Zigbee (ANT9)_3MHz_Nss1_1TX(Port1)	1.159M	2.2M	2M20G1D	1.151M	2.189M

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

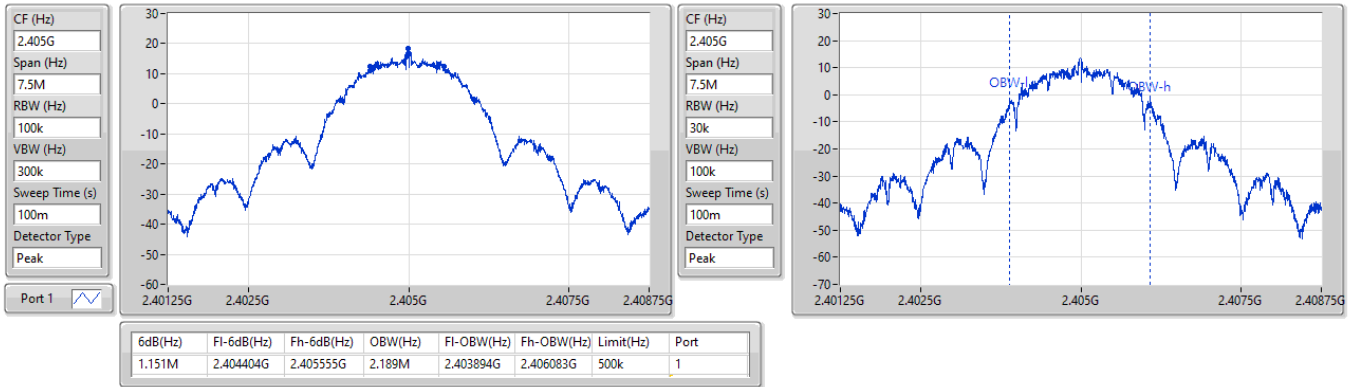
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)
Zigbee (ANT9)_3MHz_Nss1_1TX(Port1)	-	-	-	-	-	-
2405MHz	Pass	500k	1.151M	2.189M		
2440MHz	Pass	500k	1.159M	2.193M		
2480MHz	Pass	500k	1.159M	2.2M		
Zigbee (ANT10)_3MHz_Nss1_1TX(Port2)	-	-	-	-	-	-
2405MHz	Pass	500k			1.144M	2.185M
2440MHz	Pass	500k			1.099M	2.185M
2480MHz	Pass	500k			1.151M	2.2M

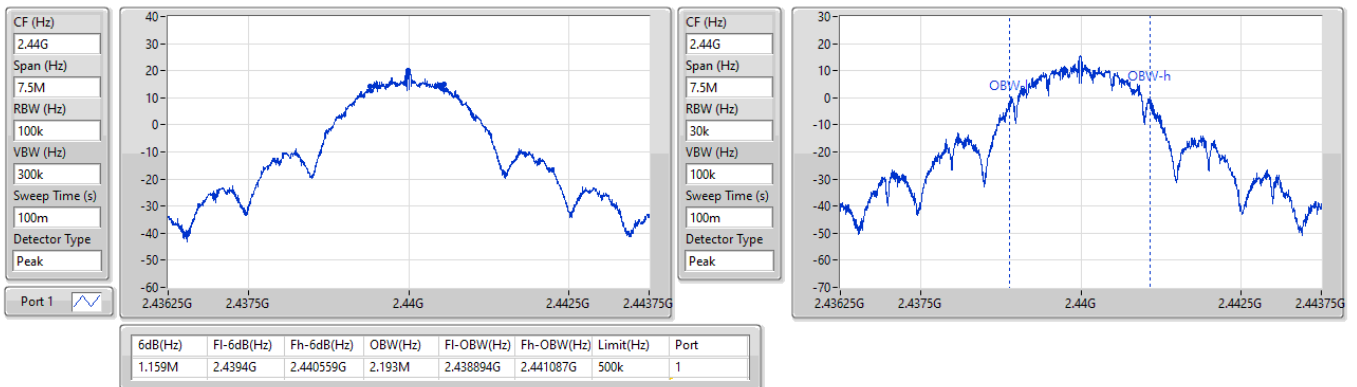
Port X-N dB = Port X 6dB down bandwidth;
Port X-OBW = Port X 99% occupied bandwidth

2.4-2.4835GHz_Zigbee (ANT9)_3MHz_Nss1_1TX(Port1)
EBW
2405MHz

27/08/2024

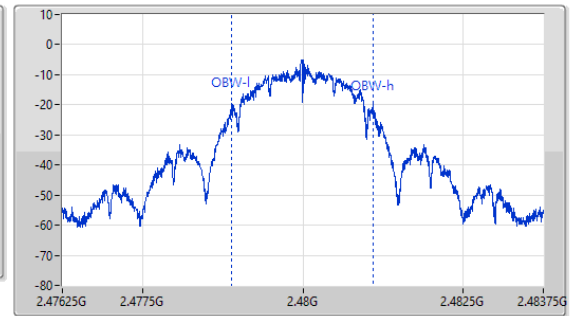
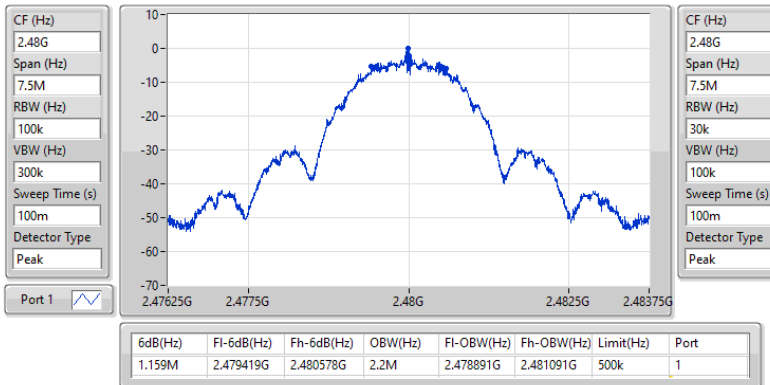

2.4-2.4835GHz_Zigbee (ANT9)_3MHz_Nss1_1TX(Port1)
EBW
2440MHz

27/08/2024

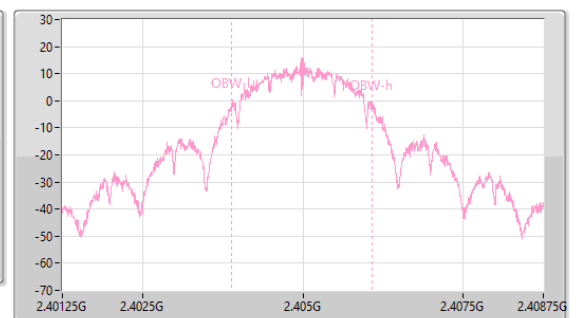
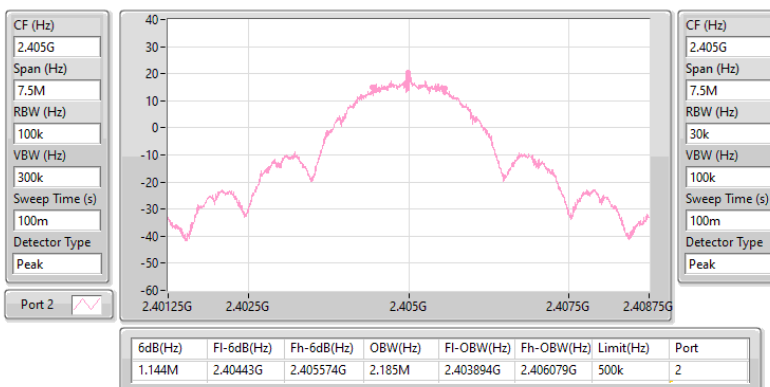


2.4-2.4835GHz_Zigbee (ANT9)_3MHz_Nss1_1TX(Port1)
EBW
2480MHz

27/08/2024

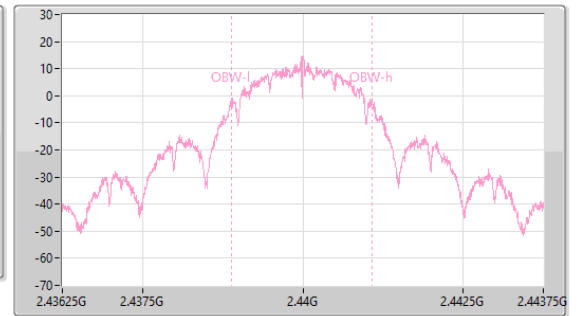
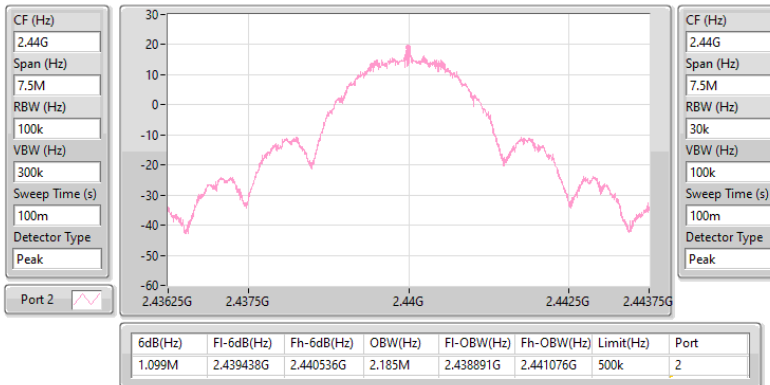

2.4-2.4835GHz_Zigbee (ANT10)_3MHz_Nss1_1TX(Port2)
EBW
2405MHz

27/08/2024

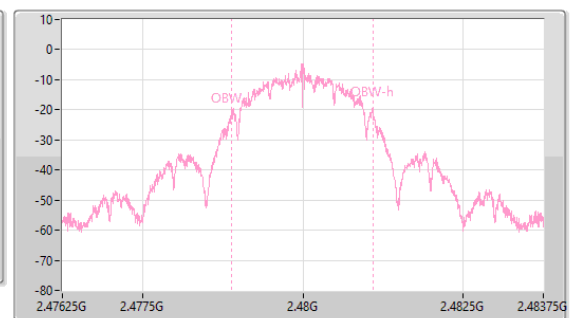
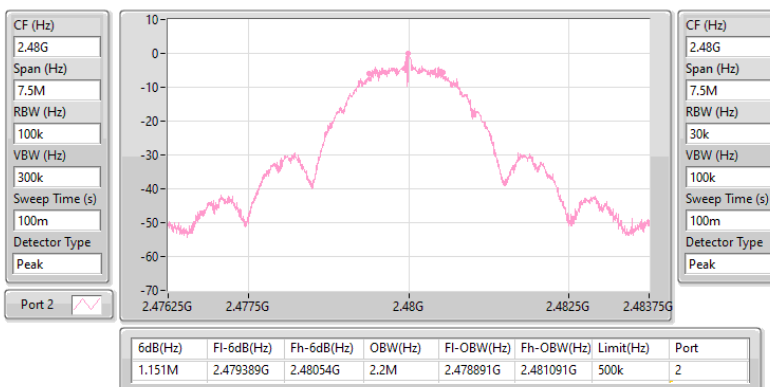


2.4-2.4835GHz_Zigbee (ANT10)_3MHz_Nss1_1TX(Port2)
EBW
2440MHz

27/08/2024


2.4-2.4835GHz_Zigbee (ANT10)_3MHz_Nss1_1TX(Port2)
EBW
2480MHz

27/08/2024





Average Power

Appendix C

Summary

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
Zigbee (ANT10)_3MHz_Nss1_1TX(Port2)	19.90	0.09772
Zigbee (ANT9)_3MHz_Nss1_1TX(Port1)	19.60	0.09120



Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	Power Limit (dBm)
Zigbee (ANT9)_3MHz_Nss1_1TX(Port1)	-	-	-	-	-	-
2405MHz	Pass	4.30	17.86		17.86	30.00
2440MHz	Pass	4.30	19.60		19.60	30.00
2475MHz	Pass	4.30	16.70		16.70	30.00
2480MHz	Pass	4.30	-0.57		-0.57	30.00
Zigbee (ANT10)_3MHz_Nss1_1TX(Port2)	-	-	-	-	-	-
2405MHz	Pass	4.30	-	19.90	19.90	30.00
2440MHz	Pass	4.30	-	18.73	18.73	30.00
2475MHz	Pass	4.30	-	15.45	15.45	30.00
2480MHz	Pass	4.30	-	-0.48	-0.48	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	-
Zigbee (ANT10)_3MHz_Nss1_1TX(Port2)	7.84
Zigbee (ANT9)_3MHz_Nss1_1TX(Port1)	6.76

RBW = 3kHz;

Result

Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
Zigbee (ANT9)_3MHz_Nss1_1TX(Port1)	-	-	-	-	-	-
2405MHz	Pass	4.30	6.44		6.44	8.00
2440MHz	Pass	4.30	6.76		6.76	8.00
2480MHz	Pass	4.30	-12.70		-12.70	8.00
Zigbee (ANT10)_3MHz_Nss1_1TX(Port2)	-	-	-	-	-	-
2405MHz	Pass	4.30	-	7.84	7.84	8.00
2440MHz	Pass	4.30	-	7.30	7.30	8.00
2480MHz	Pass	4.30	-	-13.76	-13.76	8.00

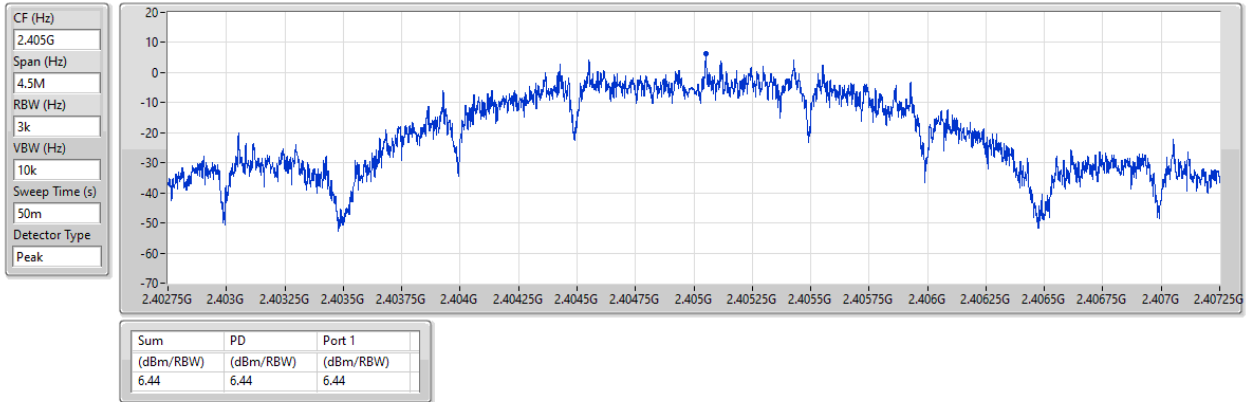
DG = Directional Gain; RBW = 3kHz;
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; Port X = Port X Power Density;
Inf = There's no restriction for the limit.

2.4-2.4835GHz_Zigbee (ANT9)_3MHz_Nss1_1TX(Port1)

PSD

2405MHz

27/08/2024

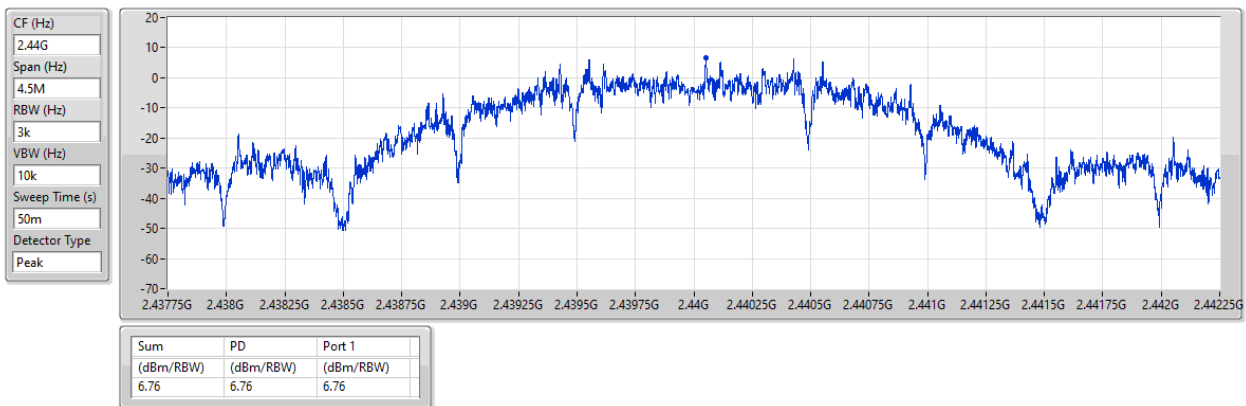


2.4-2.4835GHz_Zigbee (ANT9)_3MHz_Nss1_1TX(Port1)

PSD

2440MHz

27/08/2024

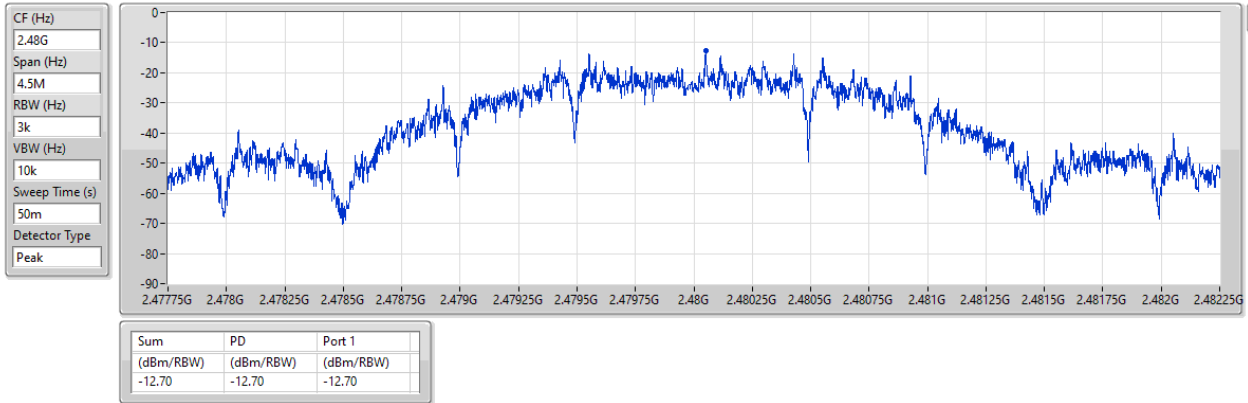


2.4-2.4835GHz_Zigbee (ANT9)_3MHz_Nss1_1TX(Port1)

PSD

2480MHz

27/08/2024

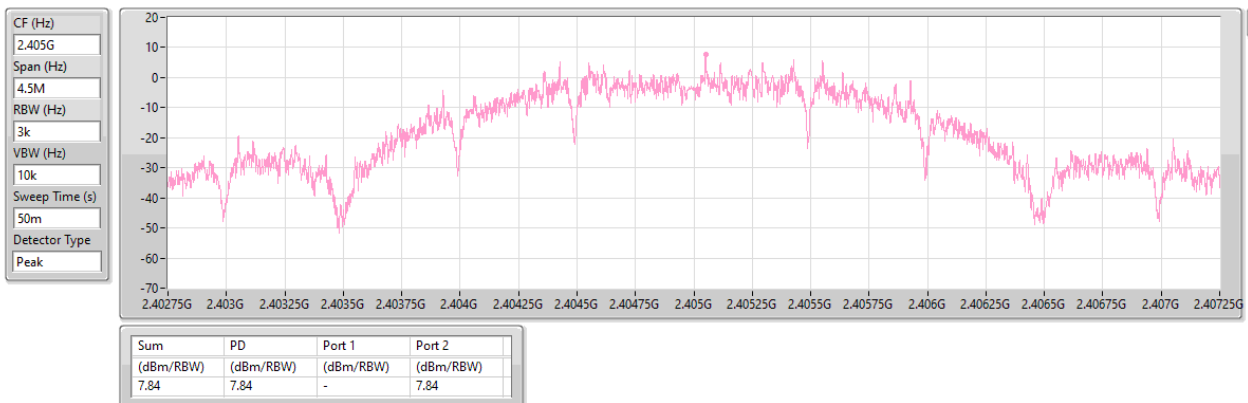


2.4-2.4835GHz_Zigbee (ANT10)_3MHz_Nss1_1TX(Port2)

PSD

2405MHz

27/08/2024

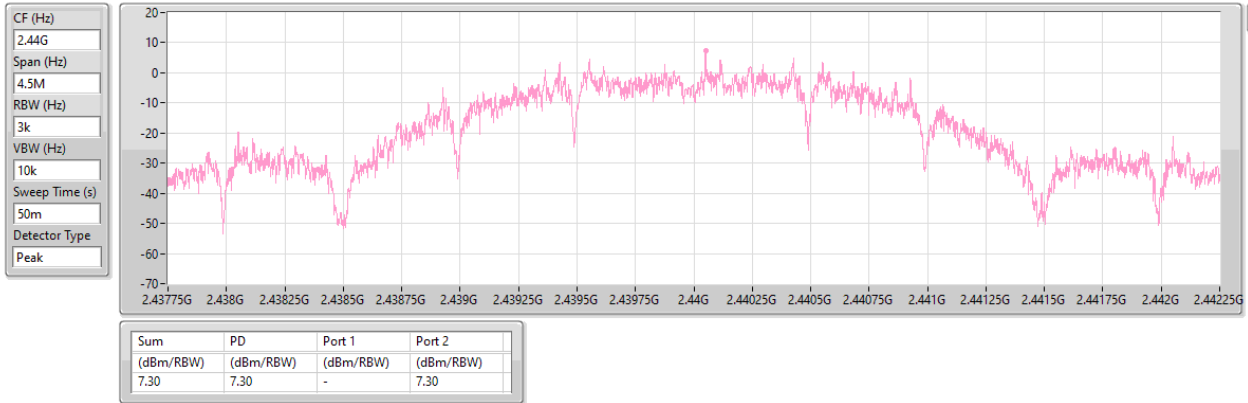


2.4-2.4835GHz_Zigbee (ANT10)_3MHz_Nss1_1TX(Port2)

PSD

2440MHz

27/08/2024

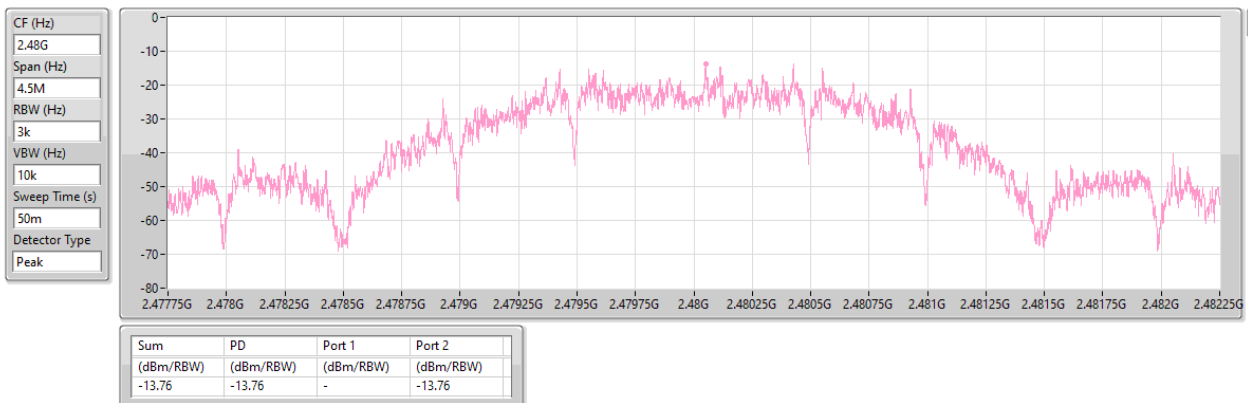


2.4-2.4835GHz_Zigbee (ANT10)_3MHz_Nss1_1TX(Port2)

PSD

2480MHz

27/08/2024





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)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-
Zigbee (ANT10)_3MHz_Nss1_1TX(Port2)	Pass	2.40484G	17.21	-12.79	2.39282G	-46.83	2.39698G	-41.86	2.4G	-42.95	16.4235G	-43.27	2
Zigbee (ANT9)_3MHz_Nss1_1TX(Port1)	Pass	2.43991G	15.58	-14.42	375.14M	-51.40	2.39693G	-43.19	2.4G	-44.78	16.40099G	-44.52	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)	Port
Zigbee (ANT9)_3MHz_Nss1_1TX(Port1)	-	-	-	-	-	-	-	-	-	-	-	-	-
2405MHz	Pass	2.43991G	15.58	-14.42	375.14M	-51.40	2.39693G	-43.19	2.4G	-44.78	16.40099G	-44.52	1
2440MHz	Pass	2.43991G	15.58	-14.42	2.03704G	-50.97	2.39982G	-44.20	2.4G	-45.02	24.56386G	-44.19	1
2480MHz	Pass	2.43991G	15.58	-14.42	868.04M	-51.20	2.39965G	-50.79	2.4G	-53.62	6.72147G	-44.84	1
Zigbee (ANT10)_3MHz_Nss1_1TX(Port2)	-	-	-	-	-	-	-	-	-	-	-	-	-
2405MHz	Pass	2.40484G	17.21	-12.79	2.39282G	-46.83	2.39698G	-41.86	2.4G	-42.95	16.4235G	-43.27	2
2440MHz	Pass	2.40484G	17.21	-12.79	2.39282G	-49.69	2.39605G	-45.91	2.4G	-46.51	16.47696G	-44.49	2
2480MHz	Pass	2.40484G	17.21	-12.79	949.6M	-51.69	2.3955G	-50.52	2.4G	-52.68	23.24418G	-44.80	2

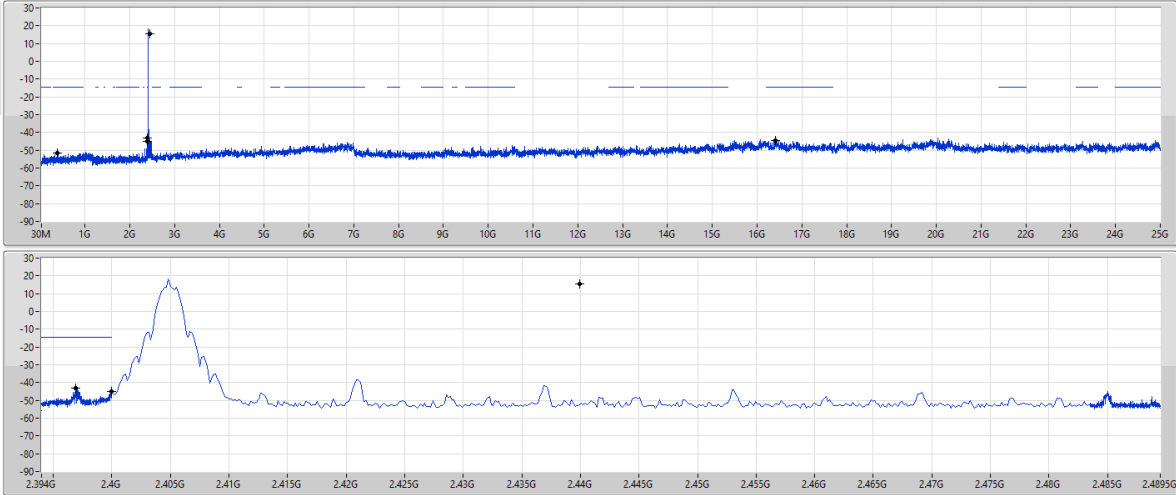
2.4-2.4835GHz Zigbee (ANT9)_3MHz_Nss1_1TX(Port1)

CSEndB

2405MHz

27/08/2024

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



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.43991G	15.58	-14.42	375.14M	-51.40	2.39693G	-43.19	2.4G	-44.78	16.40099G	-44.52	1

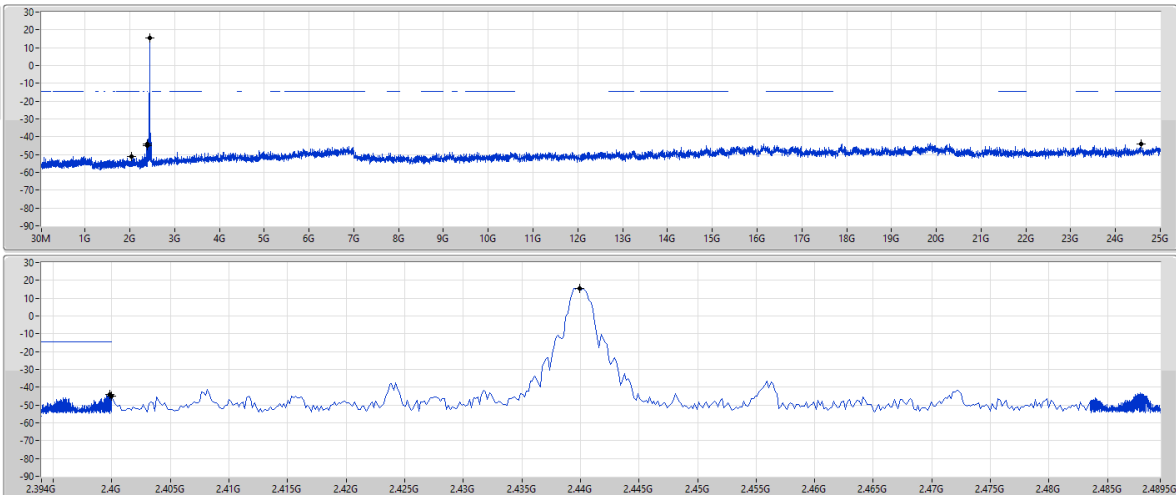
2.4-2.4835GHz Zigbee (ANT9)_3MHz_Nss1_1TX(Port1)

CSEndB

2440MHz

27/08/2024

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

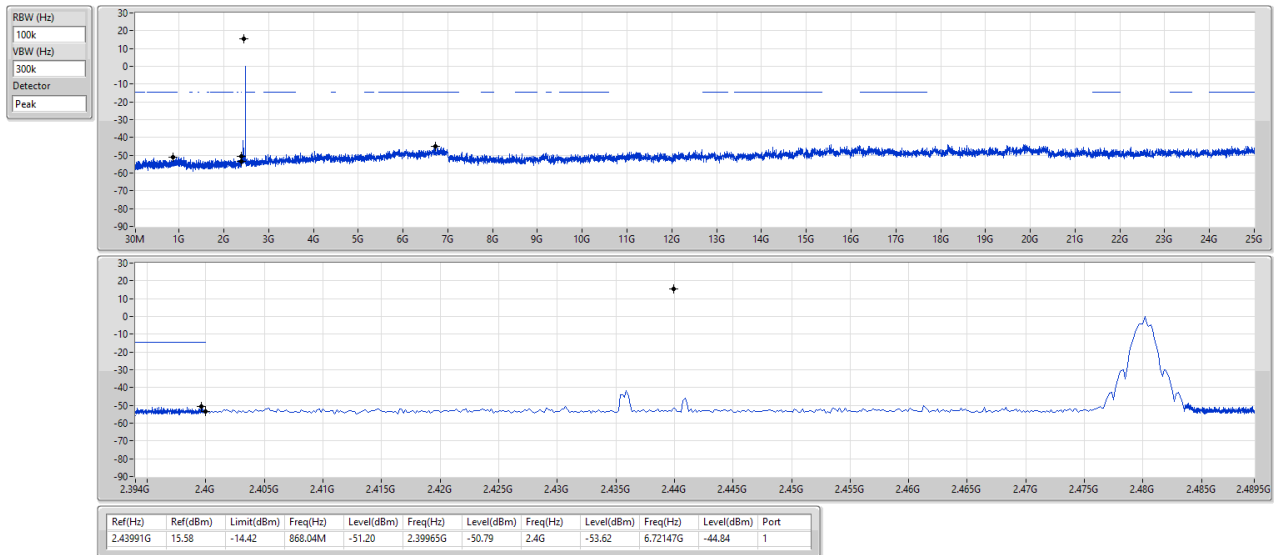


Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.43991G	15.58	-14.42	2.03704G	-50.97	2.39982G	-44.20	2.4G	-45.02	24.56386G	-44.19	1

2.4-2.4835GHz_Zigbee (ANT9)_3MHz_Nss1_1TX(Port1)

CSEndB

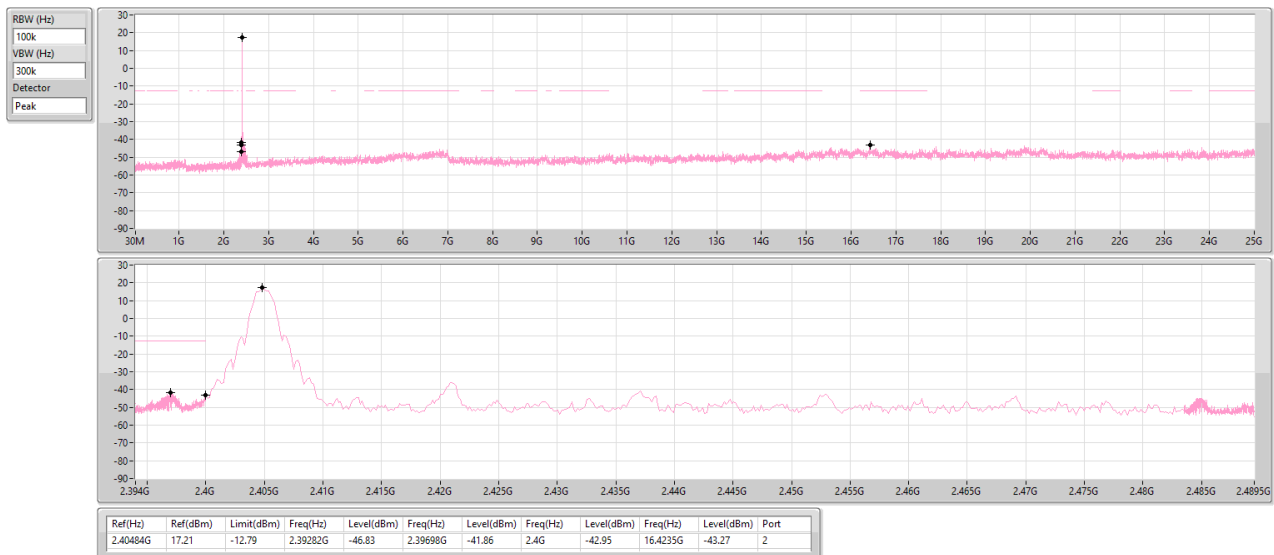
2480MHz



2.4-2.4835GHz_Zigbee (ANT10)_3MHz_Nss1_1TX(Port2)

CSEndB

2405MHz



2.4-2.4835GHz_Zigbee (ANT10)_3MHz_Nss1_1TX(Port2)

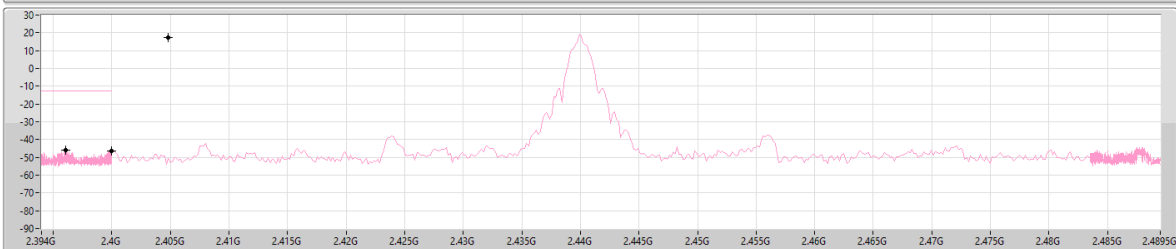
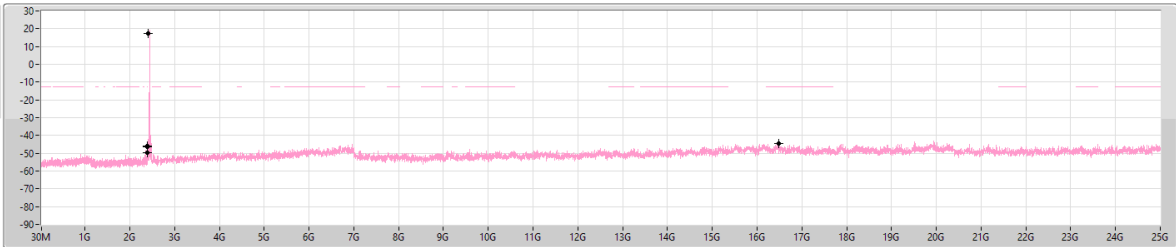
CSEndB

2440MHz

27/08/2024

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

Port 2



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.40484G	17.21	-12.79	2.39282G	-49.69	2.39605G	-45.91	2.4G	-46.51	2.447696G	-44.49	2

2.4-2.4835GHz_Zigbee (ANT10)_3MHz_Nss1_1TX(Port2)

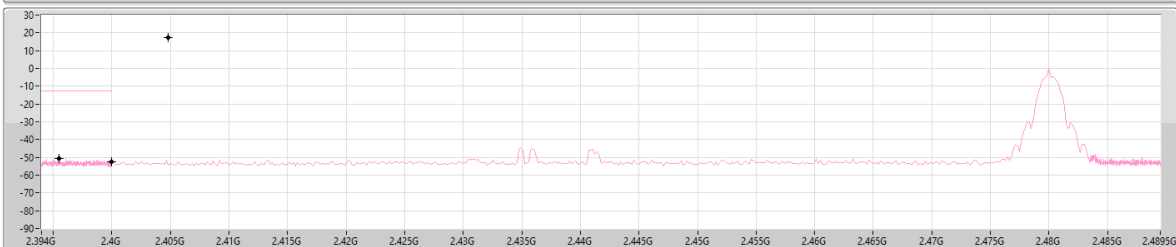
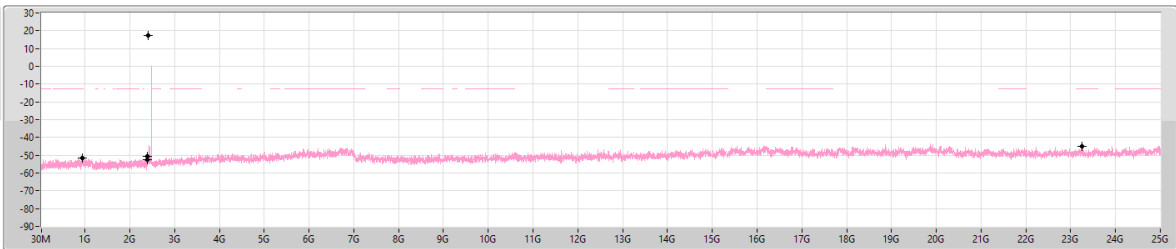
CSEndB

2480MHz

27/08/2024

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

Port 2



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.40484G	17.21	-12.79	949.6M	-51.69	2.3955G	-50.52	2.4G	-52.68	2.44118G	-44.80	2



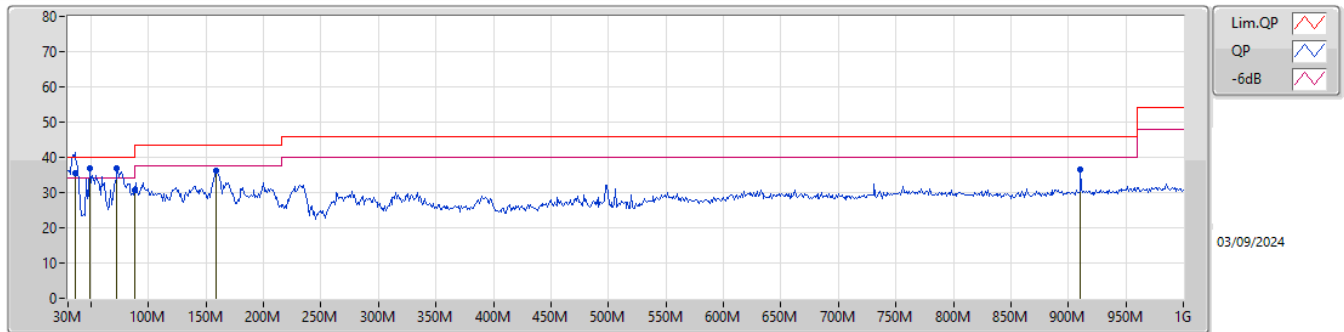
Radiated Emissions below 1GHz

Appendix F.1

Summary

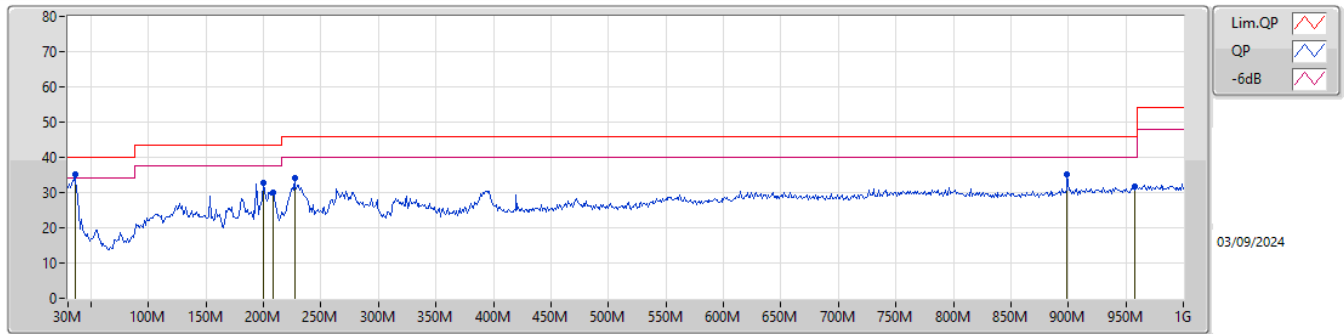
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 1	Pass	PK	49.4M	36.88	40.00	-3.12	Vertical

Mode 1



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB/m)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB/m)	CL (dB)	PA (dB)		
QP	35.82M	35.67	40.00	-4.33	-10.08	3	Vertical	5	1.00	-	45.75	21.12	1.21	32.41		
PK	49.4M	36.88	40.00	-3.12	-16.67	3	Vertical	0	1.25	"Worst"	53.55	14.34	1.32	32.33		
PK	72.68M	36.83	40.00	-3.17	-18.57	3	Vertical	246	2.00	-	55.40	12.24	1.50	32.31		
PK	88M	30.65	43.50	-12.85	-16.42	3	Vertical	102	1.25	-	47.07	14.35	1.61	32.38		
PK	159.01M	36.09	43.50	-7.41	-14.30	3	Vertical	161	1.25	-	50.39	15.98	1.98	32.26		
PK	910.76M	36.71	46.00	-9.29	-0.58	3	Vertical	5	1.50	-	37.29	26.39	4.34	31.31		

Mode 1



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB/m)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB/m)	CL (dB)	PA (dB)		
PK	35.82M	35.23	40.00	-4.77	-10.08	3	Horizontal	10	1.50	"Worst"	45.31	21.12	1.21	32.41		
PK	199.75M	32.75	43.50	-10.75	-14.92	3	Horizontal	136	1.00	-	47.67	15.12	2.19	32.23		
PK	208.48M	30.12	43.50	-13.38	-14.86	3	Horizontal	106	2.00	-	44.98	15.16	2.23	32.25		
PK	226.91M	33.98	46.00	-12.02	-14.32	3	Horizontal	83	1.50	-	48.30	15.66	2.31	32.29		
PK	899.12M	35.04	46.00	-10.96	-0.86	3	Horizontal	0	1.50	-	35.90	26.37	4.32	31.55		
PK	958.29M	31.65	46.00	-14.35	0.66	3	Horizontal	245	1.50	-	30.99	26.66	4.42	30.42		



Summary

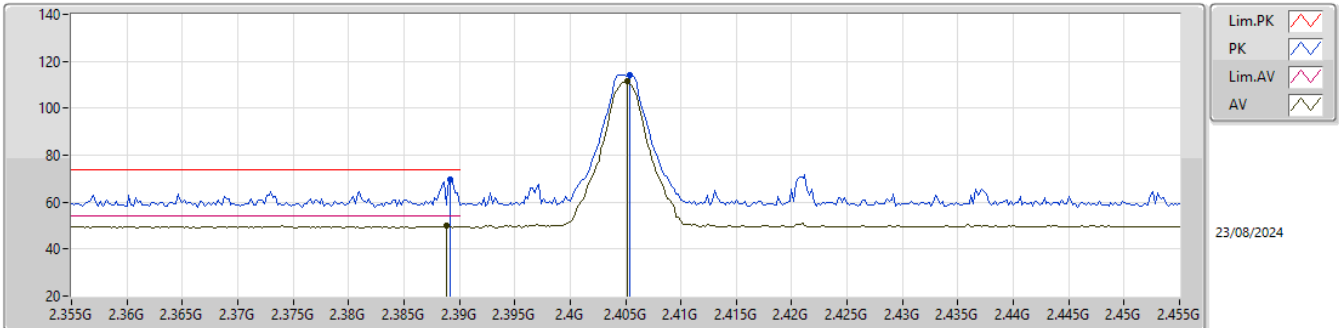
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
Zigbee	Pass	PK	2.4908G	72.89	74.00	-1.11	3	Horizontal	342	2.78	-

Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
Zigbee	-	-	-	-	-	-	-	-	-	-	-
2405MHz	Pass	PK	2.3892G	69.83	74.00	-4.17	3	Vertical	31	2.72	-
2405MHz	Pass	AV	2.3888G	50.00	54.00	-4.00	3	Vertical	31	2.72	-
2405MHz	Pass	PK	2.4054G	114.35	Inf	-Inf	3	Vertical	31	2.72	-
2405MHz	Pass	AV	2.4052G	111.35	Inf	-Inf	3	Vertical	31	2.72	-
2405MHz	Pass	PK	2.3888G	70.34	74.00	-3.66	3	Horizontal	345	2.92	-
2405MHz	Pass	AV	2.3886G	51.02	54.00	-2.98	3	Horizontal	345	2.92	-
2405MHz	Pass	PK	2.4056G	116.96	Inf	-Inf	3	Horizontal	345	2.92	-
2405MHz	Pass	AV	2.405G	114.11	Inf	-Inf	3	Horizontal	345	2.92	-
2405MHz	Pass	PK	4.79506G	47.13	74.00	-26.87	3	Vertical	45	1.86	-
2405MHz	Pass	AV	4.81096G	35.95	54.00	-18.05	3	Vertical	45	1.86	-
2405MHz	Pass	PK	4.80928G	47.78	74.00	-26.22	3	Horizontal	44	2.01	-
2405MHz	Pass	AV	4.81096G	36.42	54.00	-17.58	3	Horizontal	44	2.01	-
2440MHz	Pass	PK	2.384G	63.35	74.00	-10.65	3	Vertical	15	2.92	-
2440MHz	Pass	AV	2.3764G	49.96	54.00	-4.04	3	Vertical	15	2.92	-
2440MHz	Pass	PK	2.4404G	116.00	Inf	-Inf	3	Vertical	15	2.92	-
2440MHz	Pass	AV	2.44G	113.08	Inf	-Inf	3	Vertical	15	2.92	-
2440MHz	Pass	PK	2.488G	65.95	74.00	-8.05	3	Vertical	15	2.92	-
2440MHz	Pass	AV	2.4924G	50.12	54.00	-3.88	3	Vertical	15	2.92	-
2440MHz	Pass	PK	2.3836G	69.79	74.00	-4.21	3	Horizontal	341	2.90	-
2440MHz	Pass	AV	2.376G	51.66	54.00	-2.34	3	Horizontal	341	2.90	-
2440MHz	Pass	PK	2.44G	119.65	Inf	-Inf	3	Horizontal	341	2.90	-
2440MHz	Pass	AV	2.44G	116.97	Inf	-Inf	3	Horizontal	341	2.90	-
2440MHz	Pass	PK	2.4876G	67.51	74.00	-6.49	3	Horizontal	341	2.90	-
2440MHz	Pass	AV	2.4884G	50.65	54.00	-3.35	3	Horizontal	341	2.90	-
2440MHz	Pass	PK	4.8791G	48.73	74.00	-25.27	3	Vertical	46	2.18	-
2440MHz	Pass	AV	4.8809G	37.87	54.00	-16.13	3	Vertical	46	2.18	-
2440MHz	Pass	PK	7.31868G	58.09	74.00	-15.91	3	Vertical	2	2.90	-
2440MHz	Pass	AV	7.3212G	48.03	54.00	-5.97	3	Vertical	2	2.90	-
2440MHz	Pass	PK	4.88132G	48.02	74.00	-25.98	3	Horizontal	39	2.44	-
2440MHz	Pass	AV	4.88102G	37.57	54.00	-16.43	3	Horizontal	39	2.44	-
2440MHz	Pass	PK	7.31814G	55.59	74.00	-18.41	3	Horizontal	332	2.01	-
2440MHz	Pass	AV	7.32126G	45.79	54.00	-8.21	3	Horizontal	332	2.01	-
2475MHz	Pass	PK	2.4744G	113.92	Inf	-Inf	3	Vertical	359.9	1.00	-
2475MHz	Pass	AV	2.475G	111.08	Inf	-Inf	3	Vertical	359.9	1.00	-
2475MHz	Pass	PK	2.491G	71.53	74.00	-2.47	3	Vertical	359.9	1.00	-
2475MHz	Pass	AV	2.4914G	51.66	54.00	-2.34	3	Vertical	359.9	1.00	-
2475MHz	Pass	PK	2.4754G	117.30	Inf	-Inf	3	Horizontal	342	2.78	-
2475MHz	Pass	AV	2.475G	114.45	Inf	-Inf	3	Horizontal	342	2.78	-
2475MHz	Pass	PK	2.4908G	72.89	74.00	-1.11	3	Horizontal	342	2.78	-
2475MHz	Pass	AV	2.4908G	52.12	54.00	-1.88	3	Horizontal	342	2.78	-
2480MHz	Pass	PK	2.4794G	95.64	Inf	-Inf	3	Vertical	353	2.88	-
2480MHz	Pass	AV	2.48G	92.82	Inf	-Inf	3	Vertical	353	2.88	-
2480MHz	Pass	PK	2.4836G	61.55	74.00	-12.45	3	Vertical	353	2.88	-
2480MHz	Pass	AV	2.4835G	51.59	54.00	-2.41	3	Vertical	353	2.88	-
2480MHz	Pass	PK	2.4794G	98.70	Inf	-Inf	3	Horizontal	340	2.76	-
2480MHz	Pass	AV	2.48G	95.69	Inf	-Inf	3	Horizontal	340	2.76	-
2480MHz	Pass	PK	2.4856G	60.80	74.00	-13.20	3	Horizontal	340	2.76	-
2480MHz	Pass	AV	2.4835G	52.69	54.00	-1.31	3	Horizontal	340	2.76	-
2480MHz	Pass	PK	4.95694G	46.87	74.00	-27.13	3	Vertical	222	2.62	-
2480MHz	Pass	AV	4.96594G	35.20	54.00	-18.80	3	Vertical	222	2.62	-
2480MHz	Pass	PK	7.44514G	53.81	74.00	-20.19	3	Vertical	191	2.20	-
2480MHz	Pass	AV	7.44072G	41.56	54.00	-12.44	3	Vertical	191	2.20	-
2480MHz	Pass	PK	4.9723G	47.27	74.00	-26.73	3	Horizontal	162	1.01	-
2480MHz	Pass	AV	4.96096G	35.13	54.00	-18.87	3	Horizontal	162	1.01	-
2480MHz	Pass	PK	7.45182G	53.87	74.00	-20.13	3	Horizontal	293	2.94	-
2480MHz	Pass	AV	7.4427G	41.63	54.00	-12.37	3	Horizontal	293	2.94	-

2.4-2.4835GHz_Zigbee

2405MHz_TX

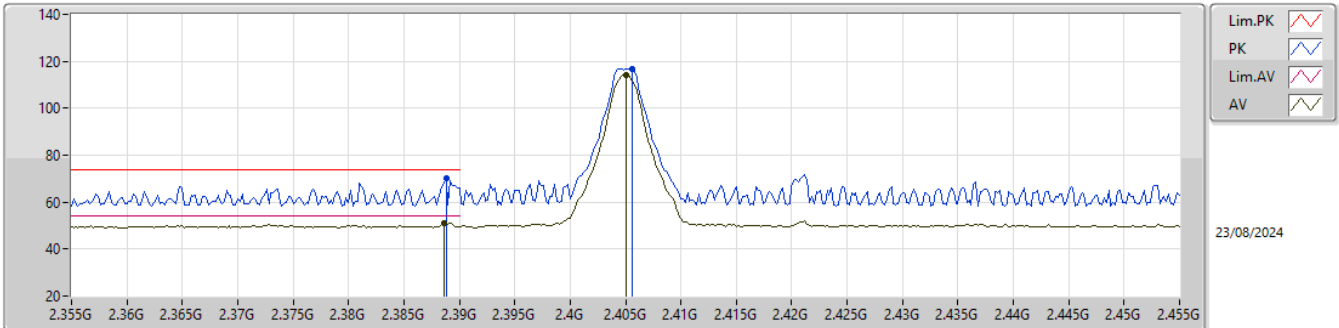


EUT_Y_1TX
Setting 18
06-P-G-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	2.3892G	69.83	74.00	-4.17	37.52	3	Vertical	31	2.72	-	27.60	4.71	-			
AV	2.3888G	50.00	54.00	-4.00	17.69	3	Vertical	31	2.72	-	27.60	4.71	-			
PK	2.4054G	114.35	Inf	-Inf	82.03	3	Vertical	31	2.72	-	27.60	4.72	-			
AV	2.4052G	111.35	Inf	-Inf	79.03	3	Vertical	31	2.72	-	27.60	4.72	-			

2.4-2.4835GHz_Zigbee

2405MHz_TX

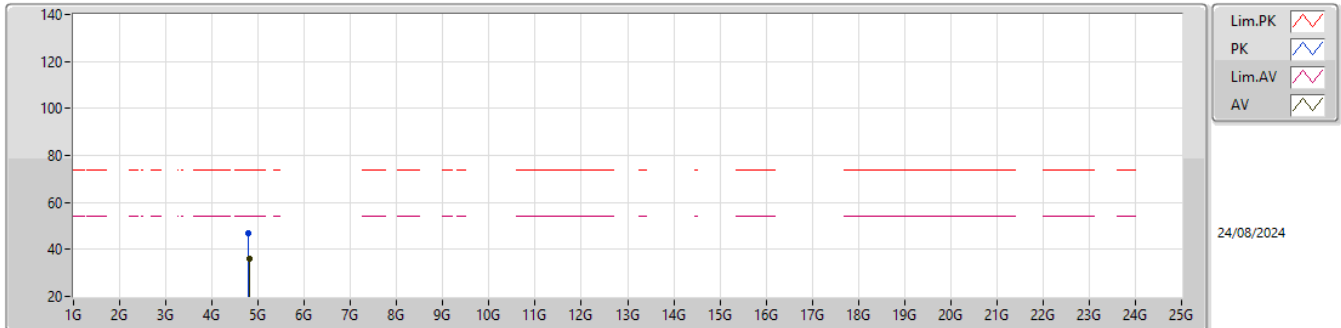


EUT_Y_1TX
Setting 18
06-P-G-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	2.3888G	70.34	74.00	-3.66	38.03	3	Horizontal	345	2.92	-	27.60	4.71	-			
AV	2.3886G	51.02	54.00	-2.98	18.71	3	Horizontal	345	2.92	-	27.60	4.71	-			
PK	2.4056G	116.96	Inf	-Inf	84.63	3	Horizontal	345	2.92	-	27.60	4.73	-			
AV	2.405G	114.11	Inf	-Inf	81.79	3	Horizontal	345	2.92	-	27.60	4.72	-			

2.4-2.4835GHz_Zigbee

2405MHz_TX

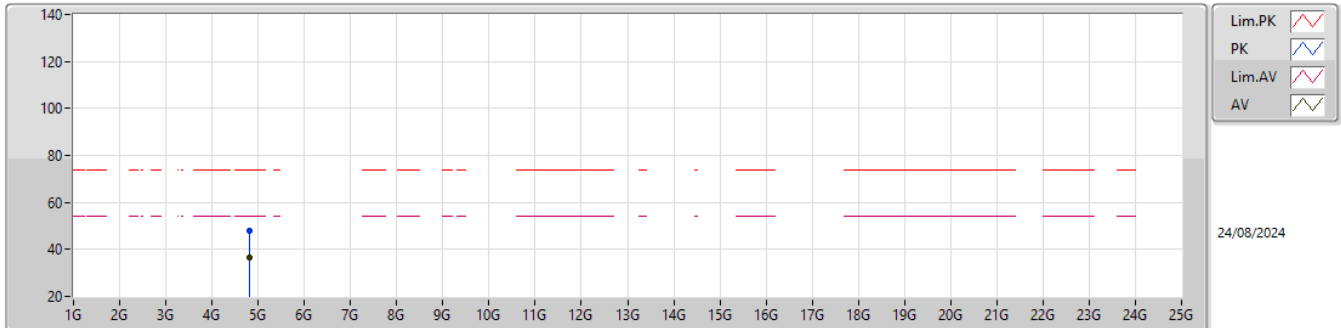


EUT_Y_1TX
Setting 18
06-P-Y-1

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	4.79506G	47.13	74.00	-26.87	41.12	3	Vertical	45	1.86	-	31.39	6.67	32.05			
AV	4.81096G	35.95	54.00	-18.05	29.94	3	Vertical	45	1.86	-	31.38	6.68	32.05			

2.4-2.4835GHz_Zigbee

2405MHz_TX

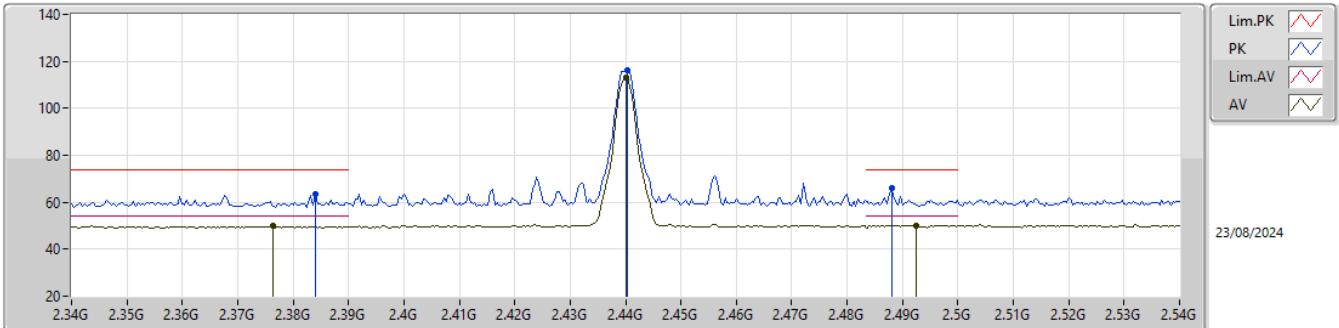


EUT_Y_1TX
Setting 18
06-P-Y-1

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	4.80928G	47.78	74.00	-26.22	41.77	3	Horizontal	44	2.01	-	31.38	6.68	32.05			
AV	4.81096G	36.42	54.00	-17.58	30.41	3	Horizontal	44	2.01	-	31.38	6.68	32.05			

2.4-2.4835GHz_Zigbee

2440MHz_TX

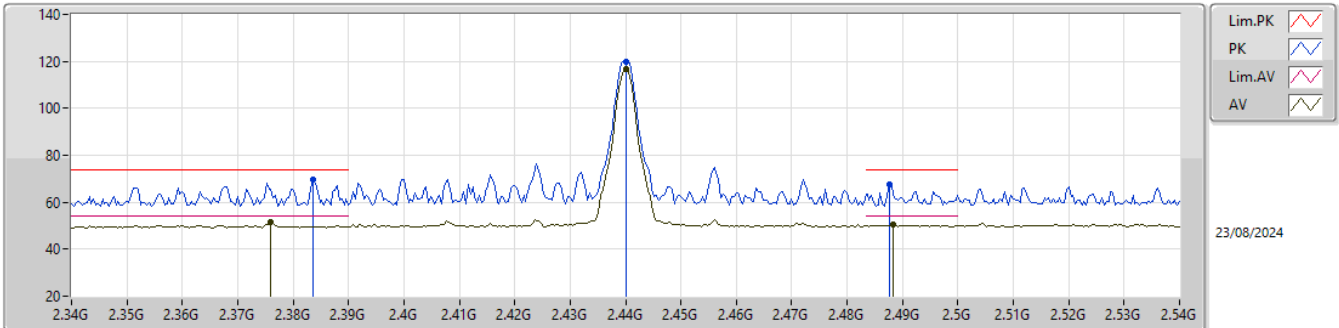


EUT_Y_1TX
Setting 20
06-P-G-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	2.384G	63.35	74.00	-10.65	31.05	3	Vertical	15	2.92	-	27.60	4.70	-			
AV	2.3764G	49.96	54.00	-4.04	17.62	3	Vertical	15	2.92	-	27.64	4.70	-			
PK	2.4404G	116.00	Inf	-Inf	83.84	3	Vertical	15	2.92	-	27.40	4.76	-			
AV	2.44G	113.08	Inf	-Inf	80.92	3	Vertical	15	2.92	-	27.40	4.76	-			
PK	2.488G	65.95	74.00	-8.05	33.67	3	Vertical	15	2.92	-	27.48	4.80	-			
AV	2.4924G	50.12	54.00	-3.88	17.84	3	Vertical	15	2.92	-	27.48	4.80	-			

2.4-2.4835GHz_Zigbee

2440MHz_TX

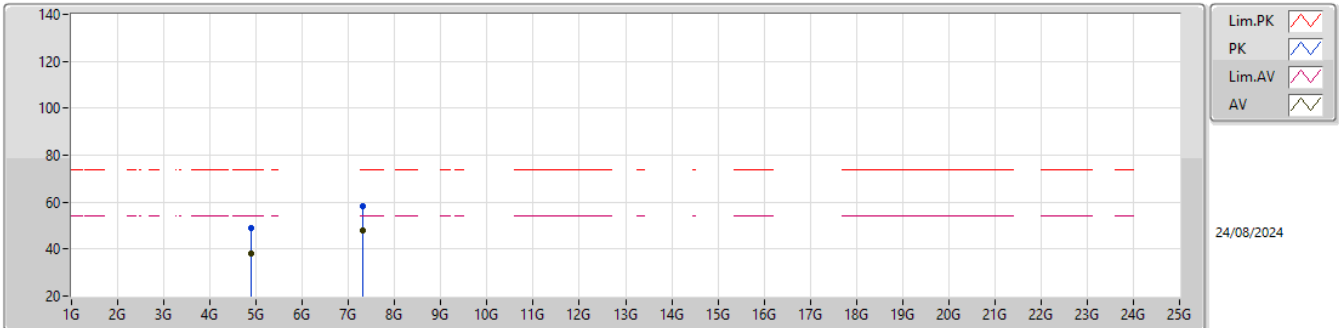


EUT_Y_1TX
Setting 20
06-P-G-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	2.3836G	69.79	74.00	-4.21	37.49	3	Horizontal	341	2.90	-	27.60	4.70	-			
AV	2.376G	51.66	54.00	-2.34	19.33	3	Horizontal	341	2.90	-	27.64	4.69	-			
PK	2.44G	119.65	Inf	-Inf	87.49	3	Horizontal	341	2.90	-	27.40	4.76	-			
AV	2.44G	116.97	Inf	-Inf	84.81	3	Horizontal	341	2.90	-	27.40	4.76	-			
PK	2.4876G	67.51	74.00	-6.49	35.23	3	Horizontal	341	2.90	-	27.48	4.80	-			
AV	2.4884G	50.65	54.00	-3.35	18.37	3	Horizontal	341	2.90	-	27.48	4.80	-			

2.4-2.4835GHz_Zigbee

2440MHz_TX

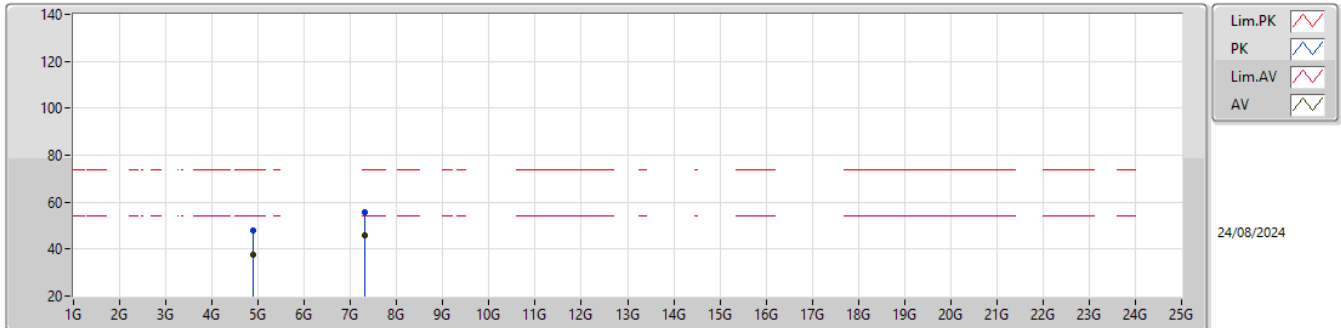


EUT_Y_1TX
Setting 20
06-P-Y-1

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	4.8791G	48.73	74.00	-25.27	42.70	3	Vertical	46	2.18	-	31.30	6.74	32.01			
AV	4.8809G	37.87	54.00	-16.13	31.84	3	Vertical	46	2.18	-	31.30	6.74	32.01			
PK	7.31868G	58.09	74.00	-15.91	46.34	3	Vertical	2	2.90	-	36.60	8.34	33.19			
AV	7.3212G	48.03	54.00	-5.97	36.28	3	Vertical	2	2.90	-	36.60	8.34	33.19			

2.4-2.4835GHz_Zigbee

2440MHz_TX

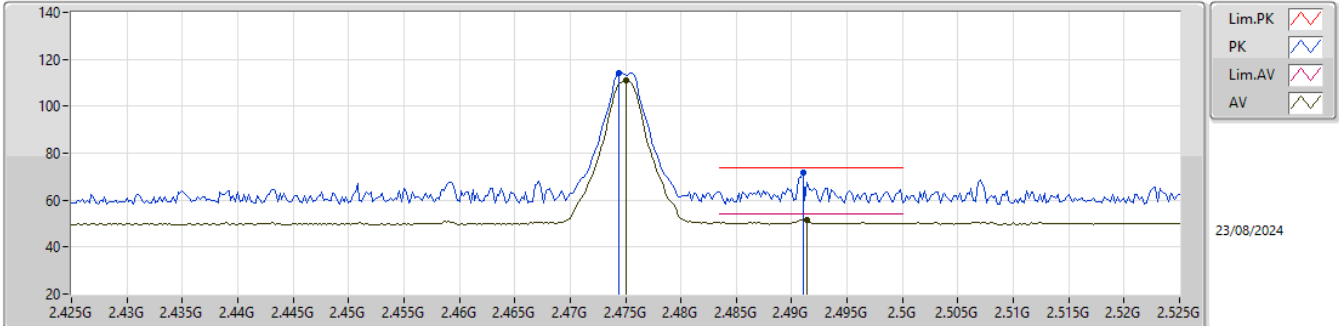


EUT_Y_1TX
Setting 20
06-P-Y-1

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	4.88132G	48.02	74.00	-25.98	41.99	3	Horizontal	39	2.44	-	31.30	6.74	32.01			
AV	4.88102G	37.57	54.00	-16.43	31.54	3	Horizontal	39	2.44	-	31.30	6.74	32.01			
PK	7.31814G	55.59	74.00	-18.41	43.84	3	Horizontal	332	2.01	-	36.60	8.34	33.19			
AV	7.32126G	45.79	54.00	-8.21	34.04	3	Horizontal	332	2.01	-	36.60	8.34	33.19			

2.4-2.4835GHz_Zigbee

2475MHz_TX

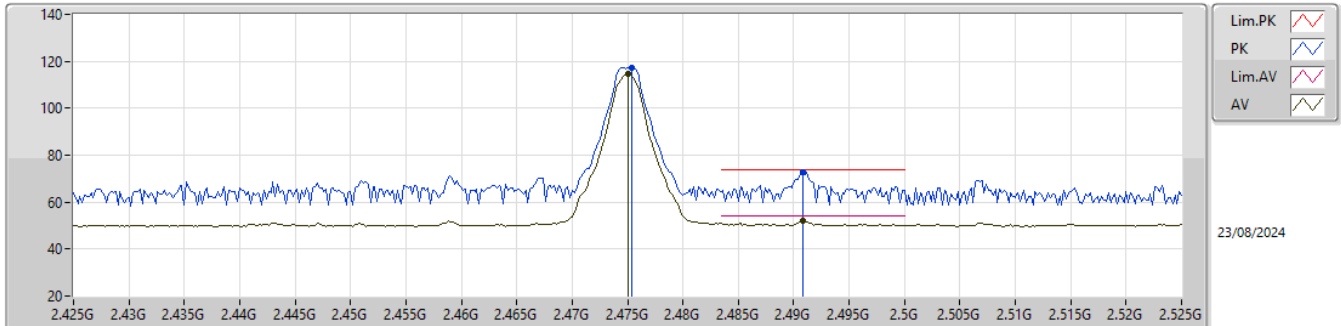


EUT_Y_1TX
Setting 17
06-P-G-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	2.4744G	113.92	Inf	-Inf	81.79	3	Vertical	359.9	1.00	-	27.34	4.79	-			
AV	2.475G	111.08	Inf	-Inf	78.94	3	Vertical	359.9	1.00	-	27.35	4.79	-			
PK	2.491G	71.53	74.00	-2.47	39.24	3	Vertical	359.9	1.00	-	27.49	4.80	-			
AV	2.4914G	51.66	54.00	-2.34	19.37	3	Vertical	359.9	1.00	-	27.49	4.80	-			

2.4-2.4835GHz_Zigbee

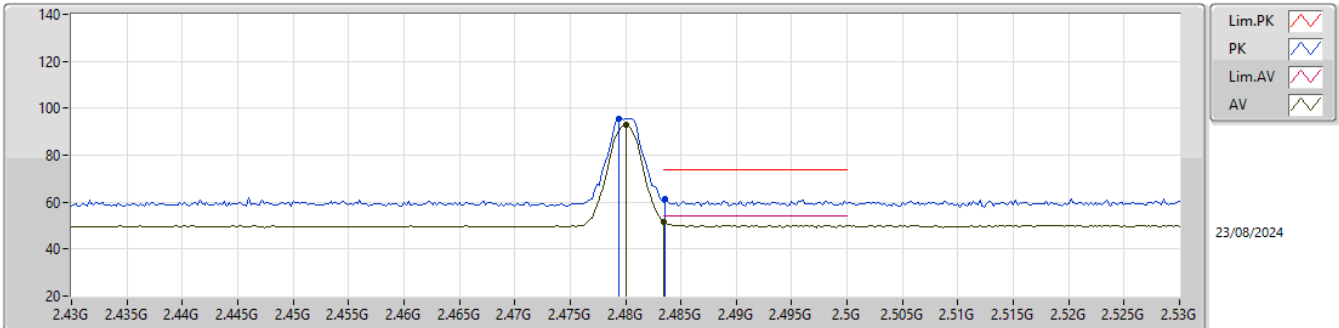
2475MHz_TX


EUT_Y_1TX
Setting 17
06-P-G-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	2.4754G	117.30	Inf	-Inf	85.16	3	Horizontal	342	2.78	-	27.35	4.79	-			
AV	2.475G	114.45	Inf	-Inf	82.31	3	Horizontal	342	2.78	-	27.35	4.79	-			
PK	2.4908G	72.89	74.00	-1.11	40.60	3	Horizontal	342	2.78	-	27.49	4.80	-			
AV	2.4908G	52.12	54.00	-1.88	19.83	3	Horizontal	342	2.78	-	27.49	4.80	-			

2.4-2.4835GHz_Zigbee

2480MHz_TX

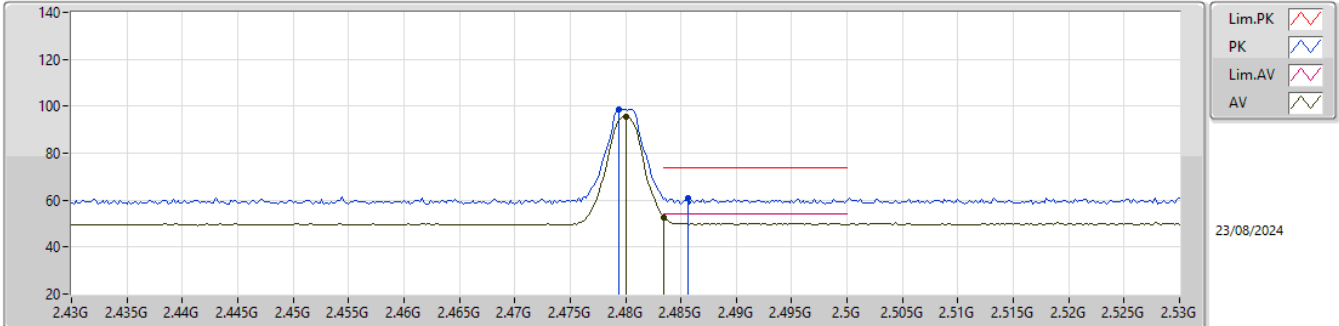


EUT_Y_1TX
Setting 0
06-P-G-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	2.4794G	95.64	Inf	-Inf	63.46	3	Vertical	353	2.88	-	27.39	4.79	-			
AV	2.48G	92.82	Inf	-Inf	60.63	3	Vertical	353	2.88	-	27.40	4.79	-			
PK	2.4836G	61.55	74.00	-12.45	29.31	3	Vertical	353	2.88	-	27.44	4.80	-			
AV	2.4835G	51.59	54.00	-2.41	19.36	3	Vertical	353	2.88	-	27.43	4.80	-			

2.4-2.4835GHz_Zigbee

2480MHz_TX

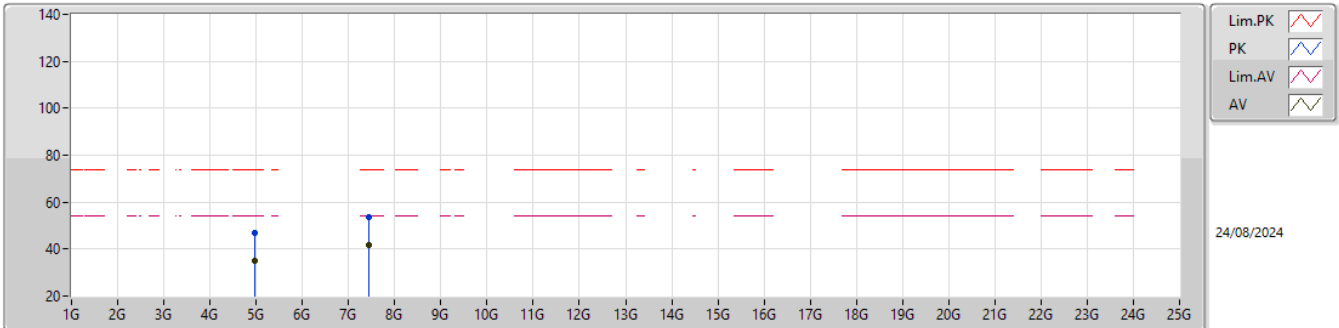


EUT_Y_1TX
Setting 0
06-P-G-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)				
PK	2.4794G	98.70	Inf	-Inf	66.52	3	Horizontal	340	2.76	-	27.39	4.79	-				
AV	2.48G	95.69	Inf	-Inf	63.50	3	Horizontal	340	2.76	-	27.40	4.79	-				
PK	2.4856G	60.80	74.00	-13.20	28.54	3	Horizontal	340	2.76	-	27.46	4.80	-				
AV	2.4835G	52.69	54.00	-1.31	20.46	3	Horizontal	340	2.76	-	27.43	4.80	-				

2.4-2.4835GHz_Zigbee

2480MHz_TX

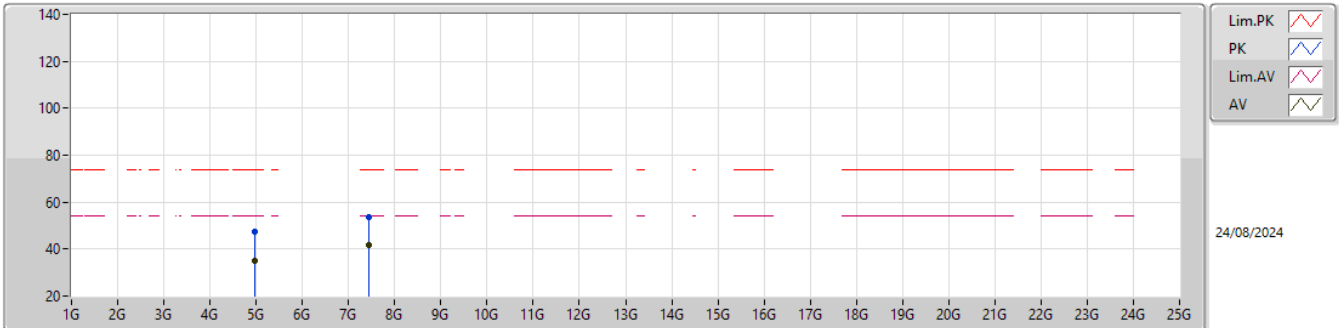


EUT_Y_1TX
Setting 0
06-P-Y-1

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	4.95694G	46.87	74.00	-27.13	40.52	3	Vertical	222	2.62	-	31.51	6.80	31.96			
AV	4.96594G	35.20	54.00	-18.80	28.82	3	Vertical	222	2.62	-	31.53	6.81	31.96			
PK	7.44514G	53.81	74.00	-20.19	42.29	3	Vertical	191	2.20	-	36.49	8.38	33.35			
AV	7.44072G	41.56	54.00	-12.44	30.04	3	Vertical	191	2.20	-	36.48	8.38	33.34			

2.4-2.4835GHz_Zigbee

2480MHz_TX



EUT_Y_1TX
Setting 0
06-P-Y-1

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	4.9723G	47.27	74.00	-26.73	40.87	3	Horizontal	162	1.01	-	31.54	6.82	31.96			
AV	4.96096G	35.13	54.00	-18.87	28.76	3	Horizontal	162	1.01	-	31.52	6.81	31.96			
PK	7.45182G	53.87	74.00	-20.13	42.34	3	Horizontal	293	2.94	-	36.50	8.39	33.36			
AV	7.4427G	41.63	54.00	-12.37	30.11	3	Horizontal	293	2.94	-	36.49	8.38	33.35			



Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
Zigbee	Pass	AV	2.4835G	53.29	54.00	-0.71	3	Horizontal	0	2.64	-

Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
Zigbee	-	-	-	-	-	-	-	-	-	-	-
2405MHz	Pass	PK	2.389G	69.72	74.00	-4.28	3	Vertical	304	1.08	-
2405MHz	Pass	AV	2.3886G	50.27	54.00	-3.73	3	Vertical	304	1.08	-
2405MHz	Pass	PK	2.4044G	112.59	Inf	-Inf	3	Vertical	304	1.08	-
2405MHz	Pass	AV	2.4052G	109.67	Inf	-Inf	3	Vertical	304	1.08	-
2405MHz	Pass	PK	2.3894G	72.25	74.00	-1.75	3	Horizontal	359	1.00	-
2405MHz	Pass	AV	2.3886G	51.49	54.00	-2.51	3	Horizontal	359	1.00	-
2405MHz	Pass	PK	2.4056G	117.74	Inf	-Inf	3	Horizontal	359	1.00	-
2405MHz	Pass	AV	2.405G	114.89	Inf	-Inf	3	Horizontal	359	1.00	-
2405MHz	Pass	PK	4.81084G	56.38	74.00	-17.62	3	Vertical	114	1.93	-
2405MHz	Pass	AV	4.8109G	47.89	54.00	-6.11	3	Vertical	114	1.93	-
2405MHz	Pass	PK	4.81102G	55.46	74.00	-18.54	3	Horizontal	151	2.95	-
2405MHz	Pass	AV	4.81096G	48.70	54.00	-5.30	3	Horizontal	151	2.95	-
2440MHz	Pass	PK	2.3696G	61.12	74.00	-12.88	3	Vertical	298	1.00	-
2440MHz	Pass	AV	2.3596G	49.72	54.00	-4.28	3	Vertical	298	1.00	-
2440MHz	Pass	PK	2.4404G	113.56	Inf	-Inf	3	Vertical	298	1.00	-
2440MHz	Pass	AV	2.44G	110.75	Inf	-Inf	3	Vertical	298	1.00	-
2440MHz	Pass	PK	2.4872G	64.15	74.00	-9.85	3	Vertical	298	1.00	-
2440MHz	Pass	AV	2.49G	50.13	54.00	-3.87	3	Vertical	298	1.00	-
2440MHz	Pass	PK	2.3672G	64.90	74.00	-9.10	3	Horizontal	3	1.00	-
2440MHz	Pass	AV	2.3764G	50.23	54.00	-3.77	3	Horizontal	3	1.00	-
2440MHz	Pass	PK	2.4404G	119.03	Inf	-Inf	3	Horizontal	3	1.00	-
2440MHz	Pass	AV	2.44G	116.13	Inf	-Inf	3	Horizontal	3	1.00	-
2440MHz	Pass	PK	2.488G	69.19	74.00	-4.81	3	Horizontal	3	1.00	-
2440MHz	Pass	AV	2.488G	51.16	54.00	-2.84	3	Horizontal	3	1.00	-
2440MHz	Pass	PK	4.87898G	55.02	74.00	-18.98	3	Vertical	359	2.33	-
2440MHz	Pass	AV	4.88096G	47.00	54.00	-7.00	3	Vertical	359	2.33	-
2440MHz	Pass	PK	7.3215G	60.00	74.00	-14.00	3	Vertical	18	2.15	-
2440MHz	Pass	AV	7.3212G	52.03	54.00	-1.97	3	Vertical	18	2.15	-
2440MHz	Pass	PK	4.87928G	51.98	74.00	-22.02	3	Horizontal	279	2.44	-
2440MHz	Pass	AV	4.88096G	43.67	54.00	-10.33	3	Horizontal	279	2.44	-
2440MHz	Pass	PK	7.31844G	60.35	74.00	-13.65	3	Horizontal	352	1.80	-
2440MHz	Pass	AV	7.32126G	52.03	54.00	-1.97	3	Horizontal	352	1.80	-
2475MHz	Pass	PK	2.4756G	111.89	Inf	-Inf	3	Vertical	305	1.37	-
2475MHz	Pass	AV	2.4748G	108.70	Inf	-Inf	3	Vertical	305	1.37	-
2475MHz	Pass	PK	2.491G	67.42	74.00	-6.58	3	Vertical	305	1.37	-
2475MHz	Pass	AV	2.491G	51.18	54.00	-2.82	3	Vertical	305	1.37	-
2475MHz	Pass	PK	2.4754G	117.36	Inf	-Inf	3	Horizontal	0	2.93	-
2475MHz	Pass	AV	2.475G	114.43	Inf	-Inf	3	Horizontal	0	2.93	-
2475MHz	Pass	PK	2.491G	72.19	74.00	-1.81	3	Horizontal	0	2.93	-
2475MHz	Pass	AV	2.4908G	52.34	54.00	-1.66	3	Horizontal	0	2.93	-
2475MHz	Pass	PK	4.94892G	50.93	74.00	-23.07	3	Vertical	0	2.10	-
2475MHz	Pass	AV	4.95102G	43.68	54.00	-10.32	3	Vertical	0	2.10	-
2475MHz	Pass	PK	7.42638G	61.13	74.00	-12.87	3	Vertical	17	2.16	-
2475MHz	Pass	AV	7.4262G	52.97	54.00	-1.03	3	Vertical	17	2.16	-
2475MHz	Pass	PK	4.94892G	49.58	74.00	-24.42	3	Horizontal	251	2.69	-
2475MHz	Pass	AV	4.95084G	41.90	54.00	-12.10	3	Horizontal	251	2.69	-
2475MHz	Pass	PK	7.42338G	59.86	74.00	-14.14	3	Horizontal	352	1.79	-
2475MHz	Pass	AV	7.42632G	52.36	54.00	-1.64	3	Horizontal	352	1.79	-
2480MHz	Pass	PK	2.4794G	93.85	Inf	-Inf	3	Vertical	307	1.35	-
2480MHz	Pass	AV	2.48G	91.01	Inf	-Inf	3	Vertical	307	1.35	-
2480MHz	Pass	PK	2.4936G	61.06	74.00	-12.94	3	Vertical	307	1.35	-
2480MHz	Pass	AV	2.4835G	50.86	54.00	-3.14	3	Vertical	307	1.35	-
2480MHz	Pass	PK	2.4804G	99.73	Inf	-Inf	3	Horizontal	0	2.64	-
2480MHz	Pass	AV	2.48G	96.83	Inf	-Inf	3	Horizontal	0	2.64	-
2480MHz	Pass	PK	2.4836G	61.92	74.00	-12.08	3	Horizontal	0	2.64	-
2480MHz	Pass	AV	2.4835G	53.29	54.00	-0.71	3	Horizontal	0	2.64	-
2480MHz	Pass	PK	4.9672G	49.43	74.00	-24.57	3	Vertical	68	2.43	-
2480MHz	Pass	AV	4.97296G	38.09	54.00	-15.91	3	Vertical	68	2.43	-
2480MHz	Pass	PK	7.4332G	55.69	74.00	-18.31	3	Vertical	27	1.88	-
2480MHz	Pass	AV	7.43316G	45.04	54.00	-8.96	3	Vertical	27	1.88	-



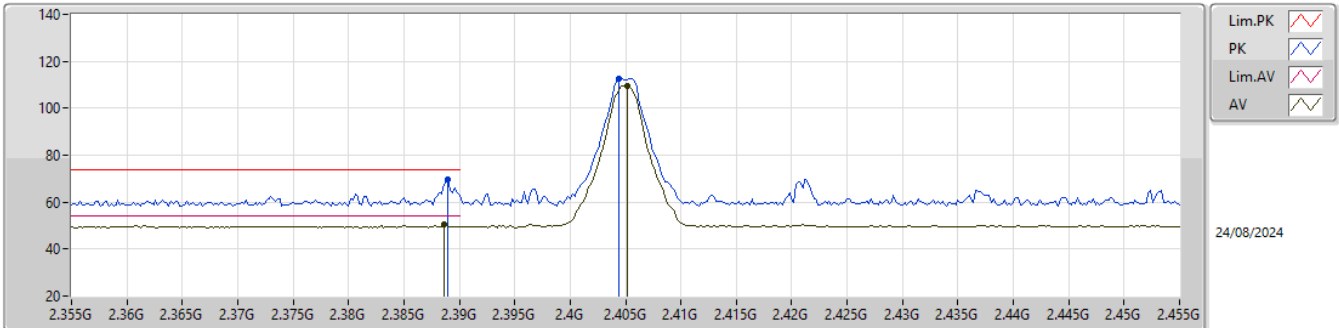
RSE TX above 1GHz_Ant. 10

Appendix F.3

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2480MHz	Pass	PK	4.95874G	47.94	74.00	-26.06	3	Horizontal	63	2.84	-
2480MHz	Pass	AV	4.97326G	39.37	54.00	-14.63	3	Horizontal	63	2.84	-
2480MHz	Pass	PK	7.44186G	56.20	74.00	-17.80	3	Horizontal	126	2.16	-
2480MHz	Pass	AV	7.4453G	43.99	54.00	-10.01	3	Horizontal	126	2.16	-

2.4-2.4835GHz_Zigbee

2405MHz_TX

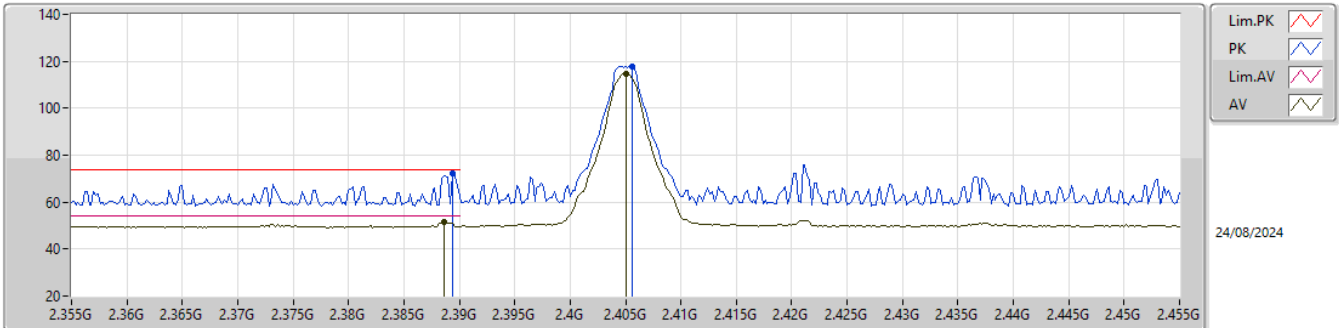


EUT_Y_1TX
Setting 20
06-P-Y-1

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	2.389G	69.72	74.00	-4.28	37.41	3	Vertical	304	1.08	-	27.60	4.71	-			
AV	2.3886G	50.27	54.00	-3.73	17.96	3	Vertical	304	1.08	-	27.60	4.71	-			
PK	2.4044G	112.59	Inf	-Inf	80.27	3	Vertical	304	1.08	-	27.60	4.72	-			
AV	2.4052G	109.67	Inf	-Inf	77.35	3	Vertical	304	1.08	-	27.60	4.72	-			

2.4-2.4835GHz_Zigbee

2405MHz_TX

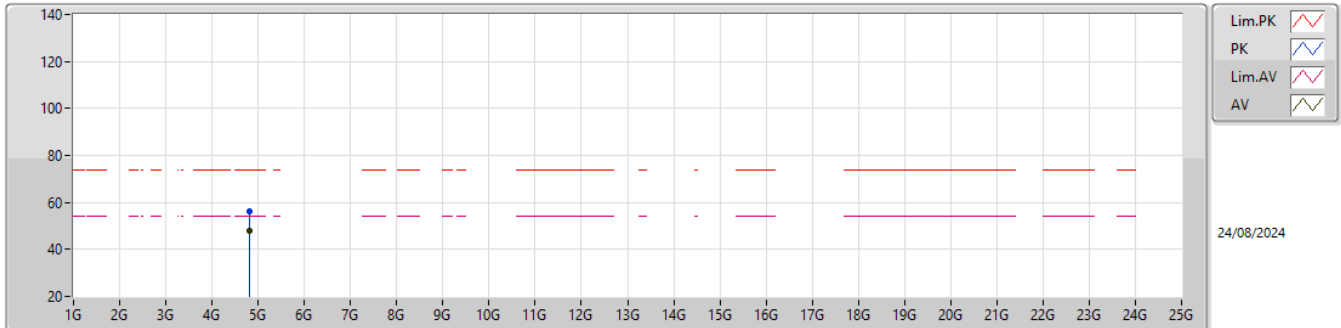


EUT_Y_1TX
Setting 20
06-P-Y-1

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)				
PK	2.3894G	72.25	74.00	-1.75	39.94	3	Horizontal	359	1.00	-	27.60	4.71	-				
AV	2.3886G	51.49	54.00	-2.51	19.18	3	Horizontal	359	1.00	-	27.60	4.71	-				
PK	2.4056G	117.74	Inf	-Inf	85.41	3	Horizontal	359	1.00	-	27.60	4.73	-				
AV	2.405G	114.89	Inf	-Inf	82.57	3	Horizontal	359	1.00	-	27.60	4.72	-				

2.4-2.4835GHz_Zigbee

2405MHz_TX

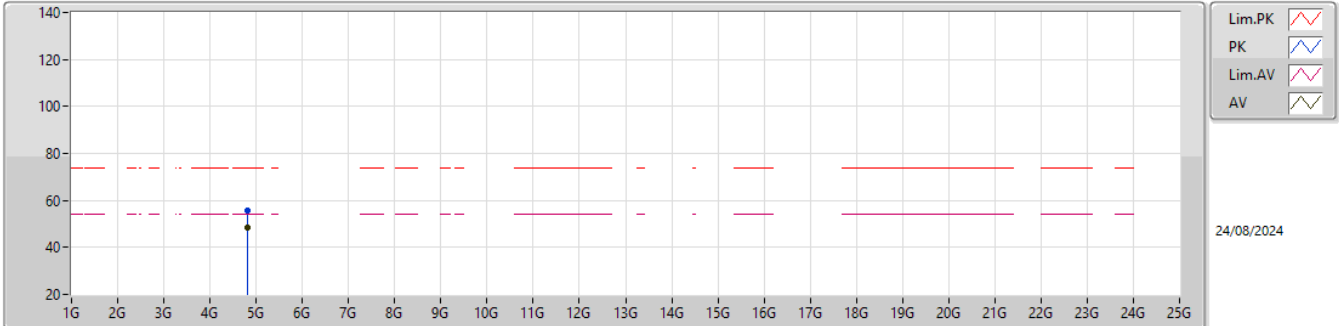


EUT_Y_1TX
Setting 20
06-P-Y-1

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	4.81084G	56.38	74.00	-17.62	50.37	3	Vertical	114	1.93	-	31.38	6.68	32.05			
AV	4.8109G	47.89	54.00	-6.11	41.88	3	Vertical	114	1.93	-	31.38	6.68	32.05			

2.4-2.4835GHz_Zigbee

2405MHz_TX

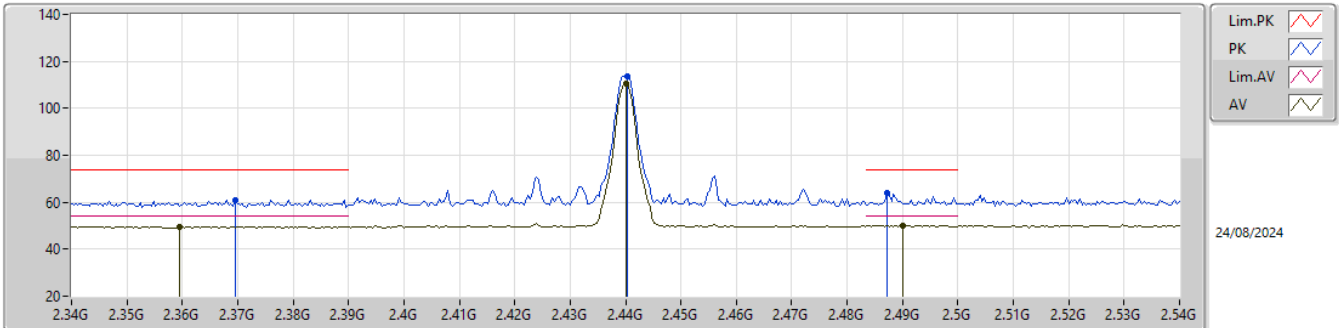


EUT_Y_1TX
Setting 20
06-P-Y-1

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	4.81102G	55.46	74.00	-18.54	49.45	3	Horizontal	151	2.95	-	31.38	6.68	32.05			
AV	4.81096G	48.70	54.00	-5.30	42.69	3	Horizontal	151	2.95	-	31.38	6.68	32.05			

2.4-2.4835GHz_Zigbee

2440MHz_TX

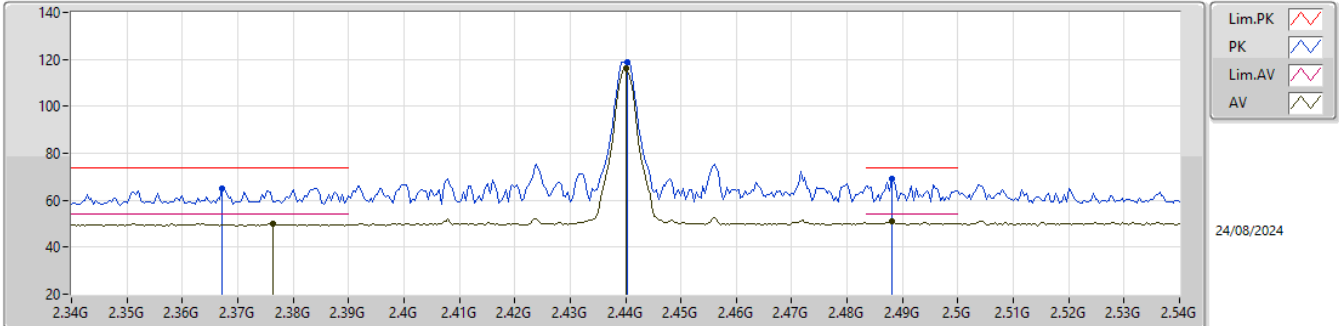


EUT_Y_1TX
Setting 19
06-P-Y-1

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	2.3696G	61.12	74.00	-12.88	28.73	3	Vertical	298	1.00	-	27.70	4.69	-			
AV	2.3596G	49.72	54.00	-4.28	17.24	3	Vertical	298	1.00	-	27.80	4.68	-			
PK	2.4404G	113.56	Inf	-Inf	81.40	3	Vertical	298	1.00	-	27.40	4.76	-			
AV	2.44G	110.75	Inf	-Inf	78.59	3	Vertical	298	1.00	-	27.40	4.76	-			
PK	2.4872G	64.15	74.00	-9.85	31.88	3	Vertical	298	1.00	-	27.47	4.80	-			
AV	2.49G	50.13	54.00	-3.87	17.83	3	Vertical	298	1.00	-	27.50	4.80	-			

2.4-2.4835GHz_Zigbee

2440MHz_TX

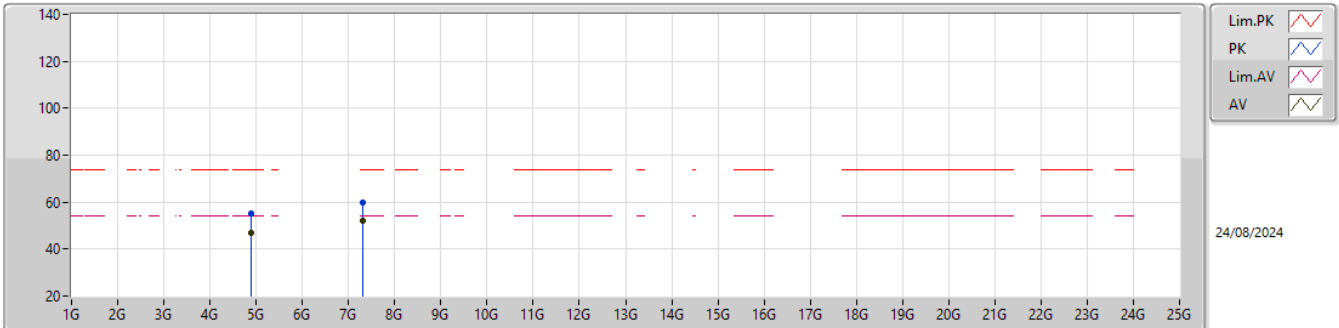


EUT_Y_1TX
Setting 19
06-P-Y-1

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	2.3672G	64.90	74.00	-9.10	32.48	3	Horizontal	3	1.00	-	27.73	4.69	-			
AV	2.3764G	50.23	54.00	-3.77	17.89	3	Horizontal	3	1.00	-	27.64	4.70	-			
PK	2.4404G	119.03	Inf	-Inf	86.87	3	Horizontal	3	1.00	-	27.40	4.76	-			
AV	2.44G	116.13	Inf	-Inf	83.97	3	Horizontal	3	1.00	-	27.40	4.76	-			
PK	2.488G	69.19	74.00	-4.81	36.91	3	Horizontal	3	1.00	-	27.48	4.80	-			
AV	2.488G	51.16	54.00	-2.84	18.88	3	Horizontal	3	1.00	-	27.48	4.80	-			

2.4-2.4835GHz_Zigbee

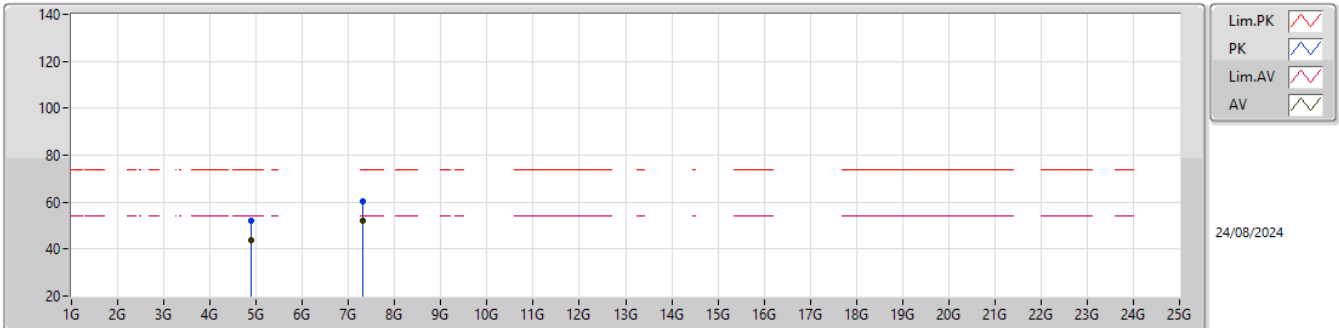
2440MHz_TX


EUT_Y_1TX
Setting 19
06-P-Y-1

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	4.87898G	55.02	74.00	-18.98	48.99	3	Vertical	359	2.33	-	31.30	6.74	32.01			
AV	4.88096G	47.00	54.00	-7.00	40.97	3	Vertical	359	2.33	-	31.30	6.74	32.01			
PK	7.3215G	60.00	74.00	-14.00	48.25	3	Vertical	18	2.15	-	36.60	8.34	33.19			
AV	7.3212G	52.03	54.00	-1.97	40.28	3	Vertical	18	2.15	-	36.60	8.34	33.19			

2.4-2.4835GHz_Zigbee

2440MHz_TX

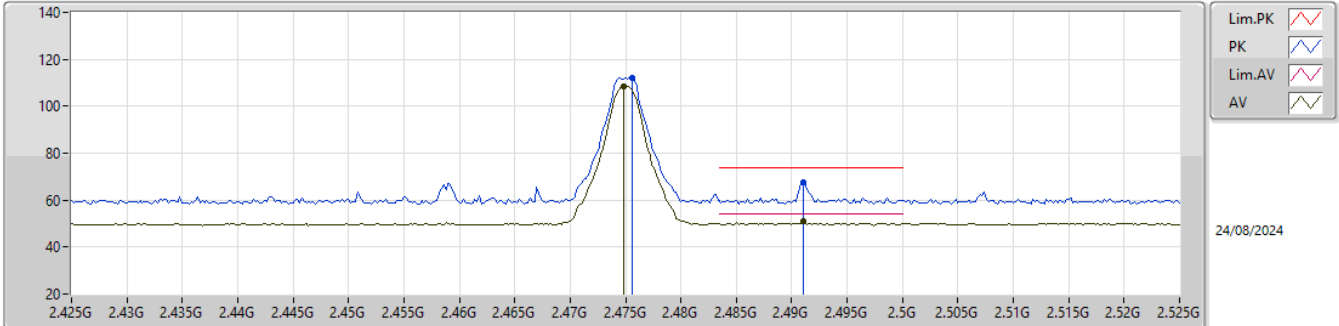


EUT_Y_1TX
Setting 19
06-P-Y-1

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	4.87928G	51.98	74.00	-22.02	45.95	3	Horizontal	279	2.44	-	31.30	6.74	32.01			
AV	4.88096G	43.67	54.00	-10.33	37.64	3	Horizontal	279	2.44	-	31.30	6.74	32.01			
PK	7.31844G	60.35	74.00	-13.65	48.60	3	Horizontal	352	1.80	-	36.60	8.34	33.19			
AV	7.32126G	52.03	54.00	-1.97	40.28	3	Horizontal	352	1.80	-	36.60	8.34	33.19			

2.4-2.4835GHz_Zigbee

2475MHz_TX

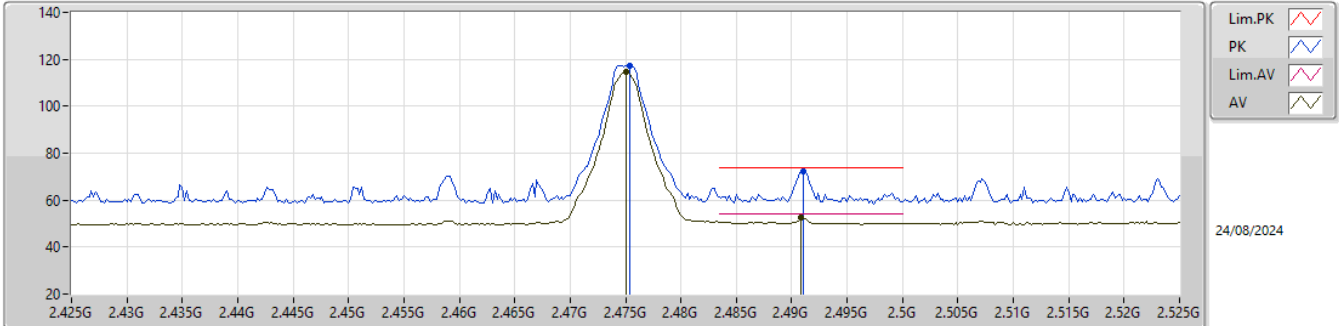


EUT_Y_1TX
Setting 16
06-P-Y-1

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	2.4756G	111.89	Inf	-Inf	79.74	3	Vertical	305	1.37	-	27.36	4.79	-			
AV	2.4748G	108.70	Inf	-Inf	76.56	3	Vertical	305	1.37	-	27.35	4.79	-			
PK	2.491G	67.42	74.00	-6.58	35.13	3	Vertical	305	1.37	-	27.49	4.80	-			
AV	2.491G	51.18	54.00	-2.82	18.89	3	Vertical	305	1.37	-	27.49	4.80	-			

2.4-2.4835GHz_Zigbee

2475MHz_TX

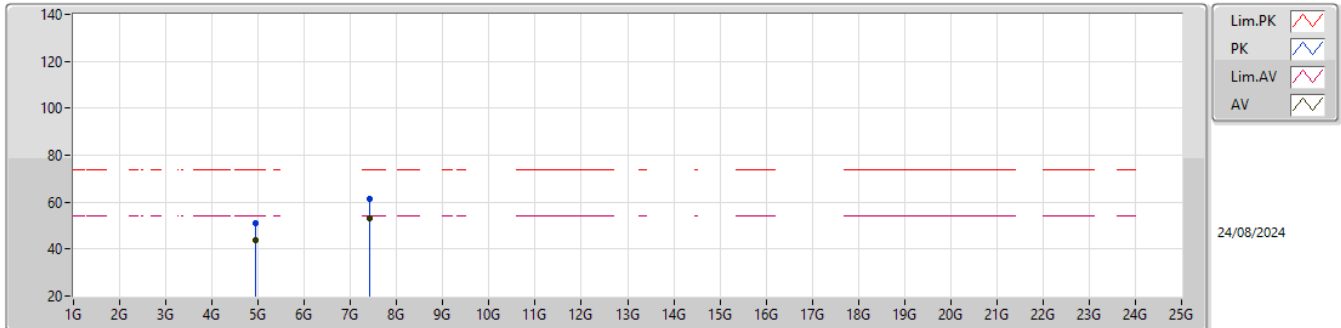


EUT_Y_1TX
Setting 16
06-P-Y-1

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	2.4754G	117.36	Inf	-Inf	85.22	3	Horizontal	0	2.93	-	27.35	4.79	-			
AV	2.475G	114.43	Inf	-Inf	82.29	3	Horizontal	0	2.93	-	27.35	4.79	-			
PK	2.491G	72.19	74.00	-1.81	39.90	3	Horizontal	0	2.93	-	27.49	4.80	-			
AV	2.4908G	52.34	54.00	-1.66	20.05	3	Horizontal	0	2.93	-	27.49	4.80	-			

2.4-2.4835GHz_Zigbee

2475MHz_TX

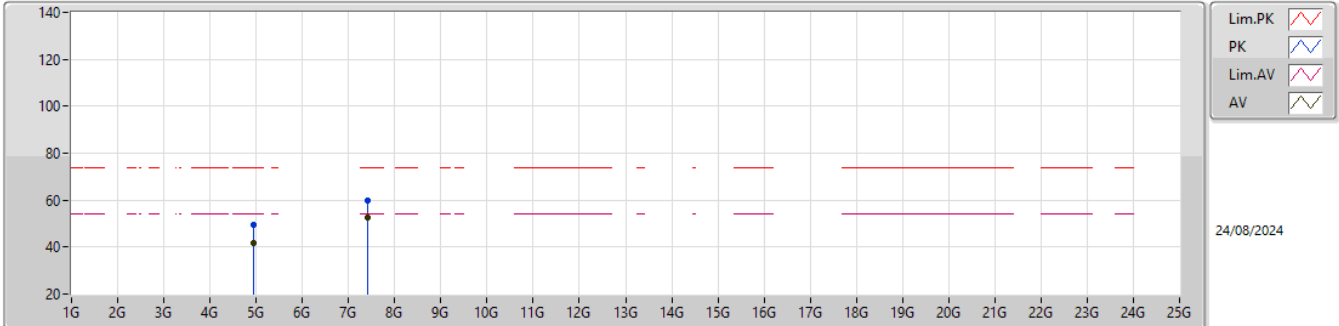


EUT_Y_1TX
Setting 16
06-P-Y-1

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	4.94892G	50.93	74.00	-23.07	44.60	3	Vertical	0	2.10	-	31.50	6.80	31.97			
AV	4.95102G	43.68	54.00	-10.32	37.35	3	Vertical	0	2.10	-	31.50	6.80	31.97			
PK	7.42638G	61.13	74.00	-12.87	49.65	3	Vertical	17	2.16	-	36.45	8.36	33.33			
AV	7.4262G	52.97	54.00	-1.03	41.49	3	Vertical	17	2.16	-	36.45	8.36	33.33			

2.4-2.4835GHz_Zigbee

2475MHz_TX

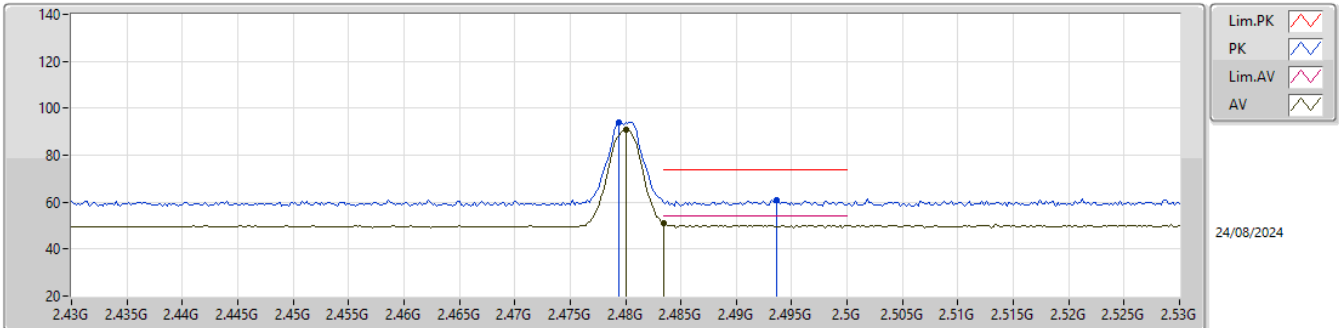


EUT_Y_1TX
Setting 16
06-P-Y-1

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	4.94892G	49.58	74.00	-24.42	43.25	3	Horizontal	251	2.69	-	31.50	6.80	31.97			
AV	4.95084G	41.90	54.00	-12.10	35.57	3	Horizontal	251	2.69	-	31.50	6.80	31.97			
PK	7.42338G	59.86	74.00	-14.14	48.37	3	Horizontal	352	1.79	-	36.45	8.36	33.32			
AV	7.42632G	52.36	54.00	-1.64	40.88	3	Horizontal	352	1.79	-	36.45	8.36	33.33			

2.4-2.4835GHz_Zigbee

2480MHz_TX

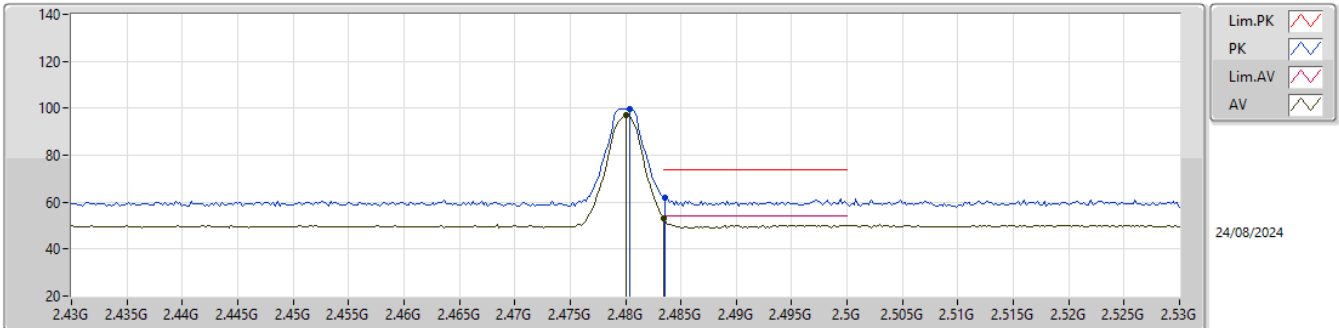


EUT_Y_1TX
Setting 0
06-P-Y-1

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	2.4794G	93.85	Inf	-Inf	61.67	3	Vertical	307	1.35	-	27.39	4.79	-			
AV	2.48G	91.01	Inf	-Inf	58.82	3	Vertical	307	1.35	-	27.40	4.79	-			
PK	2.4936G	61.06	74.00	-12.94	28.80	3	Vertical	307	1.35	-	27.46	4.80	-			
AV	2.4835G	50.86	54.00	-3.14	18.62	3	Vertical	307	1.35	-	27.44	4.80	-			

2.4-2.4835GHz_Zigbee

2480MHz_TX

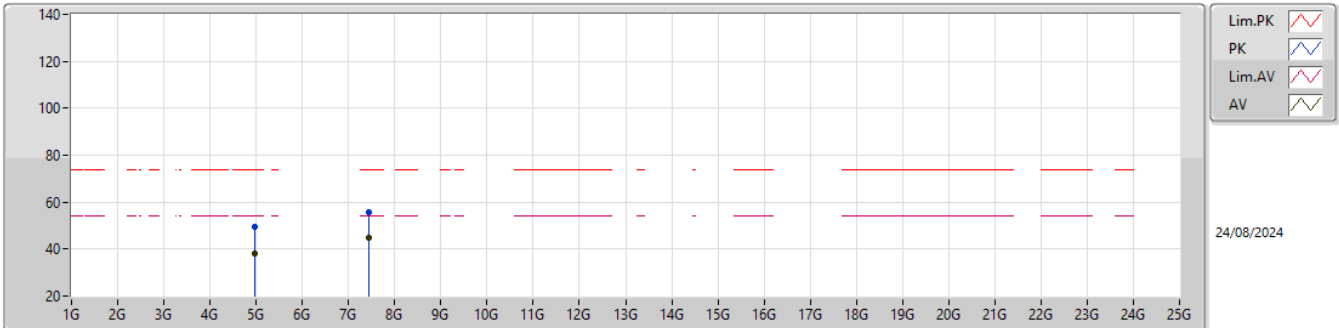


EUT_Y_1TX
Setting 0
06-P-Y-1

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	2.4804G	99.73	Inf	-Inf	67.54	3	Horizontal	0	2.64	-	27.40	4.79	-			
AV	2.48G	96.83	Inf	-Inf	64.64	3	Horizontal	0	2.64	-	27.40	4.79	-			
PK	2.4836G	61.92	74.00	-12.08	29.68	3	Horizontal	0	2.64	-	27.44	4.80	-			
AV	2.4835G	52.92	54.00	-1.08	20.68	3	Horizontal	0	2.64	-	27.44	4.80	-			

2.4-2.4835GHz_Zigbee

2480MHz_TX

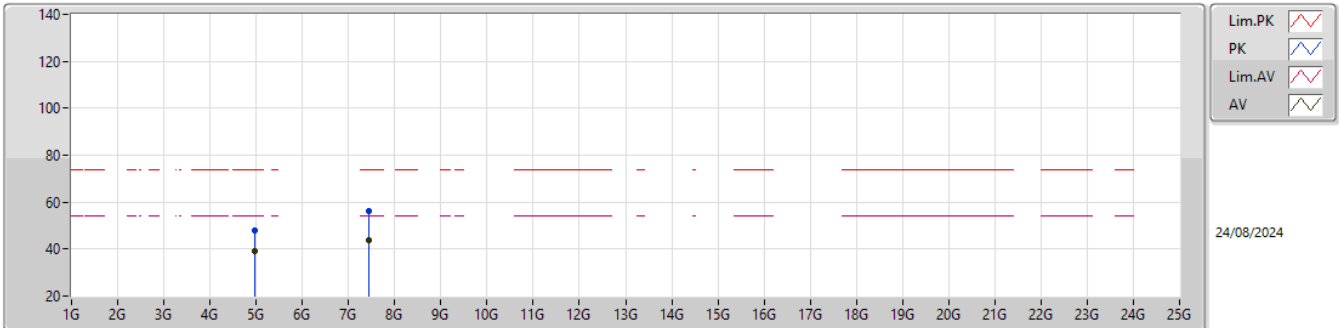


EUT_Y_1TX
Setting 0
06-P-Y-1

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	4.9672G	49.43	74.00	-24.57	43.05	3	Vertical	68	2.43	-	31.53	6.81	31.96			
AV	4.97296G	38.09	54.00	-15.91	31.68	3	Vertical	68	2.43	-	31.55	6.82	31.96			
PK	7.4332G	55.69	74.00	-18.31	44.18	3	Vertical	27	1.88	-	36.47	8.37	33.33			
AV	7.43316G	45.04	54.00	-8.96	33.53	3	Vertical	27	1.88	-	36.47	8.37	33.33			

2.4-2.4835GHz_Zigbee

2480MHz_TX



EUT_Y_1TX
Setting 0
06-P-Y-1

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	4.95874G	47.94	74.00	-26.06	41.58	3	Horizontal	63	2.84	-	31.52	6.80	31.96			
AV	4.97326G	39.37	54.00	-14.63	32.95	3	Horizontal	63	2.84	-	31.55	6.82	31.95			
PK	7.44186G	56.20	74.00	-17.80	44.69	3	Horizontal	126	2.16	-	36.48	8.38	33.35			
AV	7.4453G	43.99	54.00	-10.01	32.47	3	Horizontal	126	2.16	-	36.49	8.38	33.35			