Testing Laboratory 3787

RADIO TEST REPORT

FCC ID	:	UDX-600201010
Equipment	:	Cisco Wireless 9176D1 Series Wi-Fi 7 Access Point
Brand Name	:	CISCO
Model Name	:	CW9176D1
Applicant	:	Cisco Systems, Inc. 170 West Tasman Drive, San Jose, CA 95134 USA
Manufacturer	:	Cisco Systems, Inc. 170 West Tasman Drive, San Jose, CA 95134 USA
Standard	:	47 CFR FCC Part 15.247

The product was received on Mar. 07, 2024, and testing was started from Apr. 20, 2024 and completed on Jun. 17, 2024. We, Sporton International Inc. Hsinchu Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

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

Approved by: Sam Chen

Sporton International Inc. Hsinchu Laboratory
No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302010, Taiwan (R.O.C.)

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History of this test report

Report No.	Version	Description	Issued Date
FR430535AG	01	Initial issue of report	Nov. 05, 2024

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/manufacturer who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account. 2. The measurement uncertainty please refer to each test result in the chapter "Measurement Uncertainty".
Disclaimer:
The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.

Reviewed by: Sam Chen
Report Producer: Wendy Pan

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	O-QPSK	3	1

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

1.1.2 Antenna Information

Ant.	RF Port	Brand Name	Model Name	Ant. Type	Connector	Gain (dBi)	Modes of Operation
1	4	WNC	95XPAD15.G20	Dipole	I-PEX	Note 1	2.4GHz, 5GHz UNII 1~2A (Radio 1)
2	3	WNC	95XPAD15.G21	Dipole	I-PEX		
3	1	WNC	95XPAD15.G22	Dipole	I-PEX		
4	2	WNC	95XPAD15.G23	Dipole	I-PEX		
5	1	WNC	95XPAD15.G24	Dipole	I-PEX		5GHz UNII 1~3 or UNII 2C~3 only (Radio 2)
6	2	WNC	95XPAD15.G24	Dipole	I-PEX		
7	3	WNC	95XPAD15.G26	Dipole	I-PEX		
8	4	WNC	95XPAD15.G26	Dipole	I-PEX		
9	1	WNC	95XPAD15.G28	Dipole	I-PEX		6GHz UNII 5~8 (Radio 3)
10	3	WNC	95XPAD15.G30	Dipole	I-PEX		
11	4	WNC	95XPAD15.G31	Dipole	I-PEX		
12	2	WNC	95XPAD15.G29	Dipole	I-PEX		
13	1	WNC	95XPAD15.G34	Dipole	I-PEX		2.4GHz, 5GHz UNII 1~3, 6GHz UNII 5~8 (Radio 4(Pine Scanning radio))
14	2	WNC	95XPAD15.G35	Dipole	I-PEX		
15	1	WNC	95XPAD15.G32	loop	I-PEX		Bluetooth and Zigbee (Radio 5)
16	1	WNC	95XPAD15.G33	PIFA	I-PEX	1.16GHz~1.19GHz: 2.05 1.56GHz~1.59GHz: 1.92	GPS (Radio 6)
17	1	WNC	95XPAD15.G37	Patch	I-PEX	6.5	UWB (Radio 7)
18	2	WNC			I-PEX	7.0	

Note 1:

Ant.	Antenna Gain (dBi)								
	WLAN 2.4GHz (Radio 1)	WLAN 5GHz UNII 1~2A (Radio 1)							
		5.2GHz		5.3GHz					
1	6.7	4.23		4.64					
2	6.96	5.45		5.05					
3	6.72	6.52		5.7					
4	6.96	4.06		4.21					
Ant.	WLAN 5GHz UNII 1~3 (Radio 2)								
	5.2GHz	5.3GHz		5.6GHz		5.785GHz			
5	6.21	5.73		7.11		6.39			
6	4.56	4.46		5.7		6.19			
7	5.8	5.89		7.2		6.62			
8	3.9	4.02		5.38		5.11			
Ant.	WLAN 6GHz UNII 5~8 (Radio 3)								
	6.175GHz	6.475GHz		6.695GHz		6.995GHz			
9	5.86	7.14		6.85		6.41			
10	5.4	6.24		5.99		5.87			
11	5.64	6.22		5.45		6.4			
12	5.54	6.43		5.64		6.44			
Ant.	WLAN 2.4GHz/5GHz UNII 1~3/WLAN 6GHz UNII 5~8 (Radio 4(Pine Scanning radio))								
	2.45GHz	5.2GHz	5.3GHz	5.6GHz	5.785GHz	6.175GHz	6.475GHz	6.695GHz	6.995GHz
13	8.02	3.93	4.57	5.47	5.9	7.71	7.64	6.98	6.54
14	8.15	4.82	4.94	4.26	5.26	6.47	7.73	6.59	6.5
Ant.	Bluetooth/Zigbee (Radio 5)								
15	6.92								

Note 2:

Item	Directional Gain (dBi)							
	WLAN 2.4GHz (Radio 1)	WLAN 5GHz UNII 1~2A (Radio 1)						
		5.2GHz		5.3GHz				
2T1S	8.53	6.52		5.7				
2T2S	6.96	6.52		5.7				
4T1S	10.12	8.28		8.25				
4T2S	7.12	6.52		5.7				
4T4S	6.96	6.52		5.7				
Item	WLAN 5GHz UNII 1~3 (Radio 2) / WLAN 6GHz UNII 5~8 (Radio 3)							
	5.2GHz	5.3GHz	5.6GHz	5.785GHz	6.175GHz	6.475GHz	6.695GHz	6.995GHz
2T1S	6.68	6.22	7.11	6.88	6.49	7.14	6.85	6.66
2T2S	6.21	5.73	7.11	6.39	5.86	7.14	6.85	6.44
4T1S	8.67	8.73	9.22	9.47	8.32	9.43	8.69	8.92
4T2S	6.21	5.89	7.2	6.62	5.86	7.14	6.85	6.44
4T4S	6.21	5.89	7.2	6.62	5.86	7.14	6.85	6.44

Note 3: The above information (excepting Ant. 1~15 antenna gain and directional gain) was declared by manufacturer.

Note 4: Radio 1~3: Maximum Directional Gain following KDB662911 D03.

For Radio 1

For 2.4GHz IEEE 802.11b/g/n/VHT/ax/be mode (1TX, 2TX, 4TX/4RX) and

For 5GHz (UNII 1~2A) IEEE 802.11a/n/ac/ax/be mode (1TX, 2TX, 4TX/4RX):

1TX

Only Port 1 can be use as transmitting antenna.

2TX

Port 1, Port 2 can be use as transmitting antenna.

Port 1, Port 2 could transmitting simultaneously.

4TX

Port 1, Port 2, Port 3 and Port 4 can be used as transmitting antenna.

Port 1, Port 2, Port 3 and Port 4 could transmit simultaneously.

4RX

Port 1, Port 2, Port 3, Port 4 can be used as receiving antennas.

Port 1, Port 2, Port 3, Port 4 could receive simultaneously.
For Radio 2
For 5GHz (UNII 1~3 or UNII 2C~3):
For IEEE 802.11a/n/ac/ax/be mode (1TX, 2TX, 4TX/4RX):
1TX
Only Port 1 can be use as transmitting antenna.
2TX
Port 1, Port 2 can be use as transmitting antenna.
Port 1, Port 2 could transmitting simultaneously.
4TX
Port 1, Port 2, Port 3 and Port 4 can be used as transmitting antenna.
Port 1, Port 2, Port 3 and Port 4 could transmit simultaneously.
4RX
Port 1, Port 2, Port 3, Port 4 can be used as receiving antennas.
Port 1, Port 2, Port 3, Port 4 could receive simultaneously.
For Radio 3
For 6GHz (UNII 5~8):
For IEEE 802.11ax/be mode (1TX, 2TX, 4TX/4RX):
1TX
Only Port 1 can be use as transmitting antenna.
2TX
Port 1, Port 2 can be use as transmitting antenna.
Port 1, Port 2 could transmitting simultaneously.
4TX
Port 1, Port 2, Port 3 and Port 4 can be used as transmitting antenna.
Port 1, Port 2, Port 3 and Port 4 could transmit simultaneously.
4RX
Port 1, Port 2, Port 3, Port 4 can be used as receiving antennas.
Port 1, Port 2, Port 3, Port 4 could receive simultaneously.
For Radio 4(Pine Scanning radio)
For 2.4GHz:
For IEEE 802.11b/g/n/VHT/ax mode (1TX/2RX):
Only Port 1 can be used as transmitting/receiving functions.
Port 1~2 could receive simultaneously.
For 5GHz (UNII 1~3):
For IEEE 802.11a/n/ac/ax mode (1TX/2RX):
Only Port 1 can be used as transmitting/receiving functions.
Port 1~2 could receive simultaneously.
For 6GHz (UNII 5~8):
For IEEE 802.11ax mode (1TX/2RX):
Only Port 1 can be used as transmitting/receiving functions.
Port 1~2 could receive simultaneously.
For Radio 5:
For Bluetooth/Zigbee mode (1TX/1RX)
Only Port 1 can be used as transmitting/receiving functions.
For Radio 6:
For GPS (1TX/1RX)
Only Port 1 can be used as transmitting/receiving functions.
For Radio 7:
For UWB (1TX/2RX)
Only Port 1 can be used as transmitting functions.
Port 1~2 can be used as receiving antennas.
Port 1~2 could receive simultaneously.

1.1.3 Mode Test Duty Cycle

Mode	DC	DCF (dB)	T (s)	VBW (Hz)_1/T
2.4-2.4835GHz_Zigbee	1	0	30.004m	10

Note:
- DC is Duty Cycle.
- DCF is Duty Cycle Factor.

1.1.4 EUT Operational Condition

EUT Power Type	From PoE			
Function	☒	Point-to-multipoint	☐	Point-to-point
Test Software Version	Tera Term 4.75			

Note: The above information was declared by manufacturer.

1.1.5 Table for Radio function

Function / Radio	WLAN 2.4GHz	WLAN 5GHz	WLAN 6GHz	Bluetooth	Zigbee	GPS	UWB
1	V	V (UNII 1~2A)	-	-	-	-	-
2	-	V (UNII 2C~3/ UNII 1~3)	-	-	-	-	-
3	-	-	V	-	-	-	-
4 (Pine Scanning radio)	V	V (UNII 1~3)	V	-	-	-	-
5	-	-	-	V	V	-	-
6	-	-	-	-	-	V	-
7	-	-	-	-	-	-	V

Note1: The above information was declared by manufacturer.
Note2: For WLAN 2.4GHz: The Radio 1 and Radio 4(Pine Scanning radio) can't operate at the same frequency.
For WLAN 5GHz: The Radio 1, 2 and Radio 4(Pine Scanning radio) can't operate at the same frequency.
For WLAN 6GHz: The Radio 3 and Radio 4(Pine Scanning radio) can't operate at the same frequency simultaneously.

1.1.6 Table for Multiple Listing

Equipment Name	Model Name	SW	Frequencies supported by 320MHz
Cisco Wireless 9176D1 Series Wi-Fi 7 Access Point	CW9176D1	Cisco	6105, 6265, 6425, 6745 MHz
		Meraki	6105, 6265, 6425, 6585, 6745, 6905 MHz

Note: The above information was declared by manufacturer.

1.1.7 Table for EUT Support Function

Function	Supports Band
AP Router	2.4GHz, 5GHz UNII 1~3, 6GHz UNII 5~8, Bluetooth, Zigbee, UWB and GPS
Mesh	6GHz UNII 5~8

Note: The above information was declared by manufacturer.

1.1.8 Table for EUT Operation Function

Mode	Operation Function
1	Radio 1 WLAN 2.4GHz + Radio 2 WLAN 5GHz (UNII 2C~3) + Radio 3 WLAN 6GHz + Radio 4(Pine Scanning radio) WLAN 2.4GHz + Radio 5 Bluetooth + Radio 7 UWB
2	Radio 1 WLAN 2.4GHz + Radio 2 WLAN 5GHz (UNII 2C~3)+ Radio 3 WLAN 6GHz + Radio 4(Pine Scanning radio) WLAN 5GHz + Radio 5 Bluetooth + Radio 7 UWB
3	Radio 1 WLAN 2.4GHz + Radio 2 WLAN 5GHz (UNII 2C~3) + Radio 3 WLAN 6GHz + Radio 4(Pine Scanning radio) WLAN 6GHz + Radio 5 Bluetooth + Radio 7 UWB
4	Radio 1 WLAN 2.4GHz + Radio 2 WLAN 5GHz (UNII 2C~3) + Radio 3 WLAN 6GHz + Radio 4(Pine Scanning radio) WLAN 2.4GHz + Radio 5 Zigbee + Radio 7 UWB
5	Radio 1 WLAN 2.4GHz + Radio 2 WLAN 5GHz (UNII 2C~3) + Radio 3 WLAN 6GHz + Radio 4(Pine Scanning radio) WLAN 5GHz + Radio 5 Zigbee + Radio 7 UWB
6	Radio 1 WLAN 2.4GHz + Radio 2 WLAN 5GHz (UNII 2C~3) + Radio 3 WLAN 6GHz + Radio 4(Pine Scanning radio) WLAN 6GHz + Radio 5 Zigbee + Radio 7 UWB
7	Radio 1 WLAN 2.4GHz + Radio 2 WLAN 5GHz (UNII 1~3) + Radio 3 WLAN 6GHz + Radio 4(Pine Scanning radio) WLAN 2.4GHz + Radio 5 Bluetooth + Radio 7 UWB
8	Radio 1 WLAN 2.4GHz + Radio 2 WLAN 5GHz (UNII 1~3) + Radio 3 WLAN 6GHz + Radio 4(Pine Scanning radio) WLAN 5GHz + Radio 5 Bluetooth + Radio 7 UWB
9	Radio 1 WLAN 2.4GHz + Radio 2 WLAN 5GHz (UNII 1~3) + Radio 3 WLAN 6GHz + Radio 4(Pine Scanning radio) WLAN 6GHz + Radio 5 Bluetooth + Radio 7 UWB
10	Radio 1 WLAN 2.4GHz + Radio 2 WLAN 5GHz (UNII 1~3) + Radio 3 WLAN 6GHz + Radio 4(Pine Scanning radio) WLAN 2.4GHz + Radio 5 Zigbee + Radio 7 UWB
11	Radio 1 WLAN 2.4GHz + Radio 2 WLAN 5GHz (UNII 1~3) + Radio 3 WLAN 6GHz + Radio 4(Pine Scanning radio) WLAN 5GHz + Radio 5 Zigbee + Radio 7 UWB
12	Radio 1 WLAN 2.4GHz + Radio 2 WLAN 5GHz (UNII 1~3) + Radio 3 WLAN 6GHz + Radio 4(Pine Scanning radio) WLAN 6GHz + Radio 5 Zigbee + Radio 7 UWB
13	Radio 1 WLAN 5GHz (UNII 1~2A) + Radio 2 WLAN 5GHz (UNII 2C~3) + Radio 3 WLAN 6GHz + Radio 4(Pine Scanning radio) WLAN 2.4GHz + Radio 5 Bluetooth + Radio 7 UWB
14	Radio 1 WLAN 5GHz (UNII 1~2A) + Radio 2 WLAN 5GHz (UNII 2C~3)+ Radio 3 WLAN 6GHz + Radio 4(Pine Scanning radio) WLAN 5GHz + Radio 5 Bluetooth + Radio 7 UWB
15	Radio 1 WLAN 5GHz (UNII 1~2A) + Radio 2 WLAN 5GHz (UNII 2C~3) + Radio 3 WLAN 6GHz + Radio 4(Pine Scanning radio) WLAN 6GHz + Radio 5 Bluetooth + Radio 7 UWB
16	Radio 1 WLAN 5GHz (UNII 1~2A) + Radio 2 WLAN 5GHz (UNII 2C~3) + Radio 3 WLAN 6GHz + Radio 4(Pine Scanning radio) WLAN 2.4GHz + Radio 5 Zigbee + Radio 7 UWB
17	Radio 1 WLAN 5GHz (UNII 1~2A) + Radio 2 WLAN 5GHz (UNII 2C~3) + Radio 3 WLAN 6GHz + Radio 4(Pine Scanning radio) WLAN 5GHz + Radio 5 Zigbee + Radio 7 UWB
18	Radio 1 WLAN 5GHz (UNII 1~2A) + Radio 2 WLAN 5GHz (UNII 2C~3) + Radio 3 WLAN 6GHz + Radio 4(Pine Scanning radio) WLAN 6GHz + Radio 5 Zigbee + Radio 7 UWB
19	Radio 1 WLAN 5GHz (UNII 1~2A) + Radio 2 WLAN 5GHz (UNII 1~3) + Radio 3 WLAN 6GHz + Radio 4(Pine Scanning radio) WLAN 2.4GHz + Radio 5 Bluetooth + Radio 7 UWB
20	Radio 1 WLAN 5GHz (UNII 1~2A) + Radio 2 WLAN 5GHz (UNII 1~3) + Radio 3 WLAN 6GHz + Radio 4(Pine Scanning radio) WLAN 5GHz + Radio 5 Bluetooth + Radio 7 UWB
21	Radio 1 WLAN 5GHz (UNII 1~2A) + Radio 2 WLAN 5GHz (UNII 1~3) + Radio 3 WLAN 6GHz + Radio 4(Pine Scanning radio) WLAN 6GHz + Radio 5 Bluetooth + Radio 7 UWB
22	Radio 1 WLAN 5GHz (UNII 1~2A) + Radio 2 WLAN 5GHz (UNII 1~3) + Radio 3 WLAN 6GHz + Radio 4(Pine Scanning radio) WLAN 2.4GHz + Radio 5 Zigbee + Radio 7 UWB
23	Radio 1 WLAN 5GHz (UNII 1~2A) + Radio 2 WLAN 5GHz (UNII 1~3) + Radio 3 WLAN 6GHz + Radio 4(Pine Scanning radio) WLAN 5GHz + Radio 5 Zigbee + Radio 7 UWB
24	Radio 1 WLAN 5GHz (UNII 1~2A) + Radio 2 WLAN 5GHz (UNII 1~3) + Radio 3 WLAN 6GHz + Radio 4(Pine Scanning radio) WLAN 6GHz + Radio 5 Zigbee + Radio 7 UWB

Note: The above information was declared by manufacturer.

1.2 Applicable Standards

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

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

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

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

1.3 Testing Location Information

Testing Location Information	
Test Lab.：Sporton International Inc. Hsinchu Laboratory	
Hsinchu (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	TH02-CB	KJ Chang	22.7~23.6 / 64~66	Apr. 30, 2024~ May 22, 2024
Radiated below 1GHz	03CH04-CB	Mark Hsu	22.7-23.8 / 56-59	Jun. 07, 2024
Radiated above 1GHz	03CH02-CB	Mark Hsu	21.8-22.9 / 55-58	Apr. 20, 2024~ May 14, 2024
AC Conduction	CO02-CB	Gray Lee	20~21 / 61~62	Jun. 17, 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)

Before test date: May 28, 2024

Test Items	Uncertainty	Remark
Radiated Emission (1GHz ~ 18GHz)	4.1 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	4.2 dB	Confidence levels of 95%
Conducted Emission	3.1 dB	Confidence levels of 95%
Output Power Measurement	0.8 dB	Confidence levels of 95%
Power Density Measurement	3.1 dB	Confidence levels of 95%
Bandwidth Measurement	2.2%	Confidence levels of 95%

After test date: May 27, 2024

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	3.4 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
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	CTX
1	EUT + Radio 1 WLAN 2.4GHz + PoE 1
2	EUT + Radio 1 WLAN 2.4GHz + PoE 2
3	EUT + Radio 1 WLAN 2.4GHz + PoE 3
4	EUT + Radio 1 WLAN 2.4GHz + PoE 4
5	EUT + Radio 1 WLAN 2.4GHz + PoE 5
6	EUT + Radio 1 WLAN 2.4GHz + PoE 6
7	EUT + Radio 1 WLAN 2.4GHz + PoE 7
8	EUT + Radio 1 WLAN 2.4GHz + PoE 8
Mode 4 has been evaluated to be the worst case among Mode 1~8, thus measurement for Mode 9~16 will follow this same test mode.	
9	EUT + Radio 1 WLAN 5GHz (Low Band) + PoE 4
10	EUT + Radio 2 WLAN 5GHz + PoE 4
11	EUT + Radio 3 WLAN 6GHz + PoE 4
12	EUT + Radio 4(Pine Scanning radio) WLAN 2.4GHz + PoE 4
13	EUT + Radio 4(Pine Scanning radio) WLAN 5GHz + PoE 4
14	EUT + Radio 4(Pine Scanning radio) WLAN 6GHz + PoE 4
15	EUT + Radio 5 Bluetooth + PoE 4
16	EUT + Radio 5 Zigbee + PoE 4
For operating mode 9 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
Test Mode	EUT + Radio 5

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
After evaluating, the worst case was found at as below for Emissions in Restricted Frequency Bands above 1GHz. Thus, the measurement will follow this same test configuration.	
1	EUT in X axis + Radio 1 WLAN 2.4GHz + PoE 1
2	EUT in X axis + Radio 1 WLAN 2.4GHz + PoE 2
3	EUT in X axis + Radio 1 WLAN 2.4GHz + PoE 3
4	EUT in X axis + Radio 1 WLAN 2.4GHz + PoE 4
5	EUT in X axis + Radio 1 WLAN 2.4GHz + PoE 5
6	EUT in X axis + Radio 1 WLAN 2.4GHz + PoE 6
7	EUT in X axis + Radio 1 WLAN 2.4GHz + PoE 7
8	EUT in X axis + Radio 1 WLAN 2.4GHz + PoE 8
Mode 1 has been evaluated to be the worst case among Mode 1~8, thus measurement for Mode 9~16 will follow this same test mode.	
9	EUT in X axis + Radio 1 WLAN 5GHz (Low Band) + PoE 1
10	EUT in X axis + Radio 2 WLAN 5GHz + PoE 1
11	EUT in X axis + Radio 3 WLAN 6GHz + PoE 1
12	EUT in X axis + Radio 4(Pine Scanning radio) WLAN 2.4GHz + PoE 1
13	EUT in Y axis + Radio 4(Pine Scanning radio) WLAN 5GHz + PoE 1
14	EUT in Y axis + Radio 4(Pine Scanning radio) WLAN 6GHz + PoE 1
15	EUT in Z axis + Radio 5 Bluetooth + PoE 1
16	EUT in X axis + Radio 5 Zigbee + PoE 1
For operating mode 10 is the worst case and it was record in this test report.	
Operating Mode > 1GHz	CTX
After evaluating, the worst case was found at X axis. So the measurement will follow this same test configuration.	
1	EUT in X axis + Radio 5

The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation
Operating Mode	
1	Radio 1 WLAN 2.4GHz + Radio 2 WLAN 5GHz (UNII 2C~3) + Radio 3 WLAN 6GHz + Radio 4(Pine Scanning radio) WLAN 2.4GHz + Radio 5 Bluetooth + Radio 7 UWB
2	Radio 1 WLAN 2.4GHz + Radio 2 WLAN 5GHz (UNII 2C~3)+ Radio 3 WLAN 6GHz + Radio 4(Pine Scanning radio) WLAN 5GHz + Radio 5 Bluetooth + Radio 7 UWB
3	Radio 1 WLAN 2.4GHz + Radio 2 WLAN 5GHz (UNII 2C~3) + Radio 3 WLAN 6GHz + Radio 4(Pine Scanning radio) WLAN 6GHz + Radio 5 Bluetooth + Radio 7 UWB
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10	Radio 1 WLAN 2.4GHz + Radio 2 WLAN 5GHz (UNII 1~3) + Radio 3 WLAN 6GHz + Radio 4(Pine Scanning radio) WLAN 2.4GHz + Radio 5 Zigbee + Radio 7 UWB
11	Radio 1 WLAN 2.4GHz + Radio 2 WLAN 5GHz (UNII 1~3) + Radio 3 WLAN 6GHz + Radio 4(Pine Scanning radio) WLAN 5GHz + Radio 5 Zigbee + Radio 7 UWB
12	Radio 1 WLAN 2.4GHz + Radio 2 WLAN 5GHz (UNII 1~3) + Radio 3 WLAN 6GHz + Radio 4(Pine Scanning radio) WLAN 6GHz + Radio 5 Zigbee + Radio 7 UWB
13	Radio 1 WLAN 5GHz (UNII 1~2A) + Radio 2 WLAN 5GHz (UNII 2C~3) + Radio 3 WLAN 6GHz + Radio 4(Pine Scanning radio) WLAN 2.4GHz + Radio 5 Bluetooth + Radio 7 UWB
14	Radio 1 WLAN 5GHz (UNII 1~2A) + Radio 2 WLAN 5GHz (UNII 2C~3)+ Radio 3 WLAN 6GHz + Radio 4(Pine Scanning radio) WLAN 5GHz + Radio 5 Bluetooth + Radio 7 UWB
15	Radio 1 WLAN 5GHz (UNII 1~2A) + Radio 2 WLAN 5GHz (UNII 2C~3) + Radio 3 WLAN 6GHz + Radio 4(Pine Scanning radio) WLAN 6GHz + Radio 5 Bluetooth + Radio 7 UWB
16	Radio 1 WLAN 5GHz (UNII 1~2A) + Radio 2 WLAN 5GHz (UNII 2C~3) + Radio 3 WLAN 6GHz + Radio 4(Pine Scanning radio) WLAN 2.4GHz + Radio 5 Zigbee + Radio 7 UWB
17	Radio 1 WLAN 5GHz (UNII 1~2A) + Radio 2 WLAN 5GHz (UNII 2C~3) + Radio 3 WLAN 6GHz + Radio 4(Pine Scanning radio) WLAN 5GHz + Radio 5 Zigbee + Radio 7 UWB
18	Radio 1 WLAN 5GHz (UNII 1~2A) + Radio 2 WLAN 5GHz (UNII 2C~3) + Radio 3 WLAN 6GHz + Radio 4(Pine Scanning radio) WLAN 6GHz + Radio 5 Zigbee + Radio 7 UWB
19	Radio 1 WLAN 5GHz (UNII 1~2A) + Radio 2 WLAN 5GHz (UNII 1~3) + Radio 3 WLAN 6GHz + Radio 4(Pine Scanning radio) WLAN 2.4GHz + Radio 5 Bluetooth + Radio 7 UWB

20	Radio 1 WLAN 5GHz (UNII 1~2A) + Radio 2 WLAN 5GHz (UNII 1~3) + Radio 3 WLAN 6GHz + Radio 4(Pine Scanning radio) WLAN 5GHz + Radio 5 Bluetooth + Radio 7 UWB
21	Radio 1 WLAN 5GHz (UNII 1~2A) + Radio 2 WLAN 5GHz (UNII 1~3) + Radio 3 WLAN 6GHz + Radio 4(Pine Scanning radio) WLAN 6GHz + Radio 5 Bluetooth + Radio 7 UWB
22	Radio 1 WLAN 5GHz (UNII 1~2A) + Radio 2 WLAN 5GHz (UNII 1~3) + Radio 3 WLAN 6GHz + Radio 4(Pine Scanning radio) WLAN 2.4GHz + Radio 5 Zigbee + Radio 7 UWB
23	Radio 1 WLAN 5GHz (UNII 1~2A) + Radio 2 WLAN 5GHz (UNII 1~3) + Radio 3 WLAN 6GHz + Radio 4(Pine Scanning radio) WLAN 5GHz + Radio 5 Zigbee + Radio 7 UWB
24	Radio 1 WLAN 5GHz (UNII 1~2A) + Radio 2 WLAN 5GHz (UNII 1~3) + Radio 3 WLAN 6GHz + Radio 4(Pine Scanning radio) WLAN 6GHz + Radio 5 Zigbee + Radio 7 UWB
Refer to Sporton Test Report No.: FA430535AB for Co-location RF Exposure Evaluation.	

Note 1: The PoE is for measurement only, would not be marketed.

Their information as below:

Power	Brand	Model
PoE 1	Microsemi	PD-9001GR/AT/AC
PoE 2	PHIHONG	POE29U-1AT(PL)
PoE 3	DELTA	ADH-65AR B
PoE 4	PHIHONG	POEA33U-1ATE
PoE 5	PHIHONG	POE60U-1BT-X
PoE 6	PHIHONG	POE60U-BTA(X66M-R)
PoE 7	PHIHONG	POE60U-BTA(X664-R)
PoE 8	DELTA	ADH-65AR P

2.3 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

2.4 Accessories

Bracket*1

2.5 Support Equipment

For AC Conduction:

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
A	PoE 4	PHIHONG	POEA33U-1ATE	N/A
B	PC	ASUS	S300TA	N/A
C	Flash disk3.0	Transcend	JetFlash-703	N/A

For Radiated:

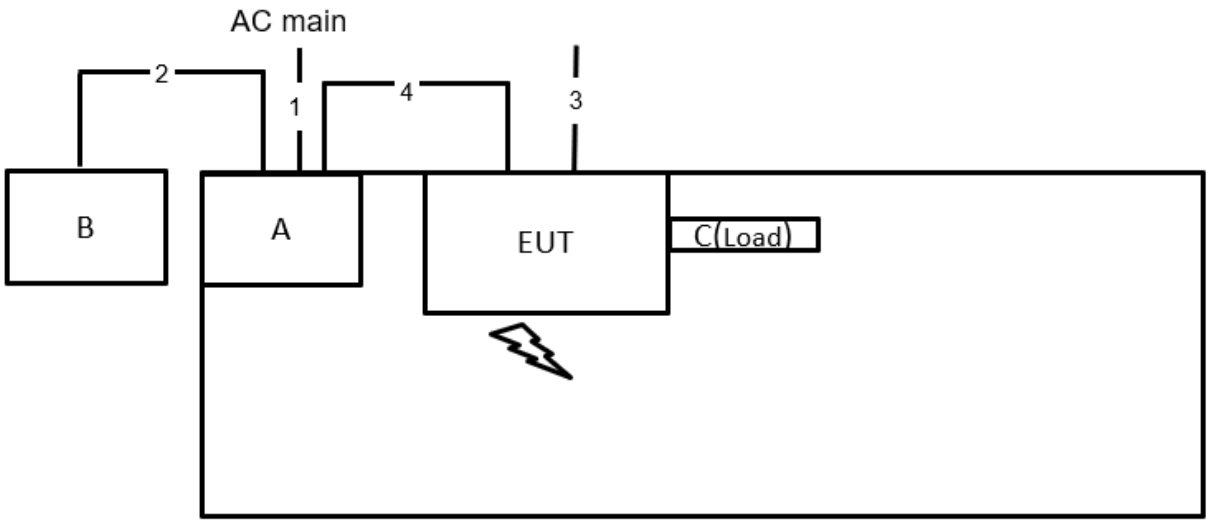
Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
A	Notebook	DELL	E4300	N/A
B	PoE 2	PHIHONG	POE29U-1AT(PL)	N/A

For RF Conducted:

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
A	Notebook	DELL	E4300	N/A
B	PoE 6	PHIHONG	POE60U-BTA(X66M-R)	N/A

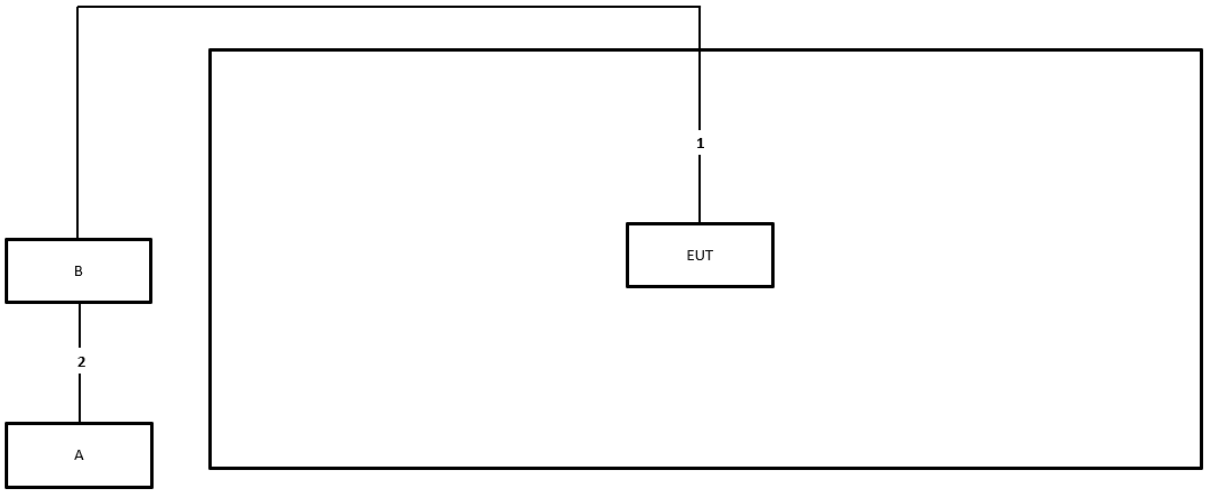
2.6 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test



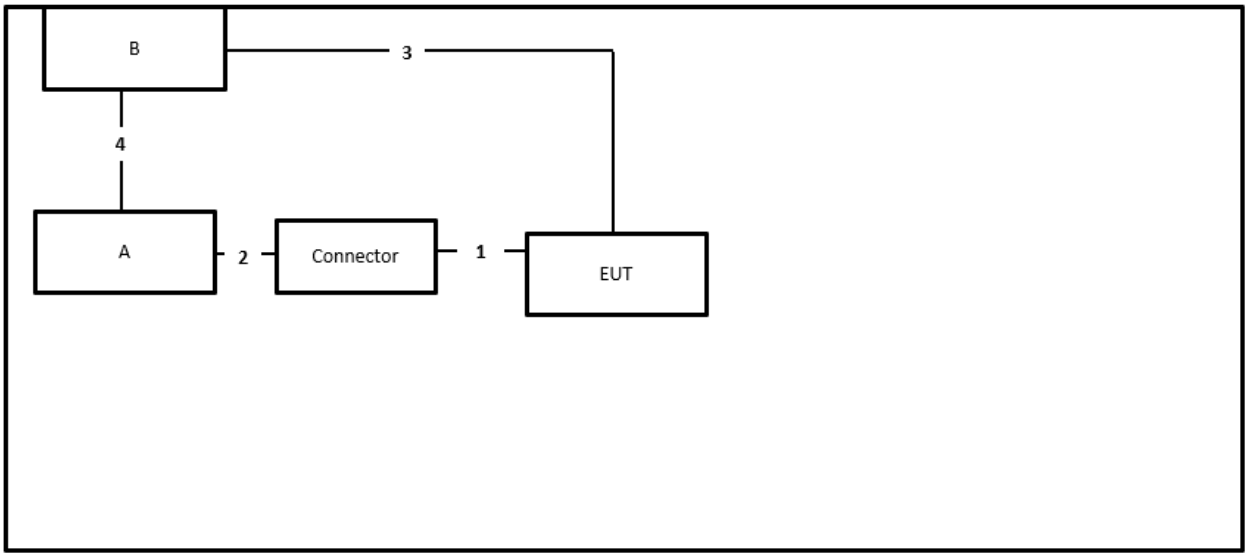
Item	Connection	Shielded	Length
1	Power cable	No	0.8m
2	Cat6 RJ-45 Cable	No	10m
3	Console cable	No	1.5m
4	Cat6 RJ-45 Cable	No	1.5m

Test Setup Diagram - Radiated Test < 1GHz



Item	Connection	Shielded	Length
1	RJ-45 cable	No	10m
2	RJ-45 cable	No	1.5m

Test Setup Diagram - Radiated Test > 1GHz



Item	Connection	Shielded	Length
1	Console cable (RS-232 to RJ-45)	No	1m
2	Console cable (RS-232 to USB)	No	1m
3	RJ-45 cable	No	1m
4	RJ-45 cable	No	1m

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

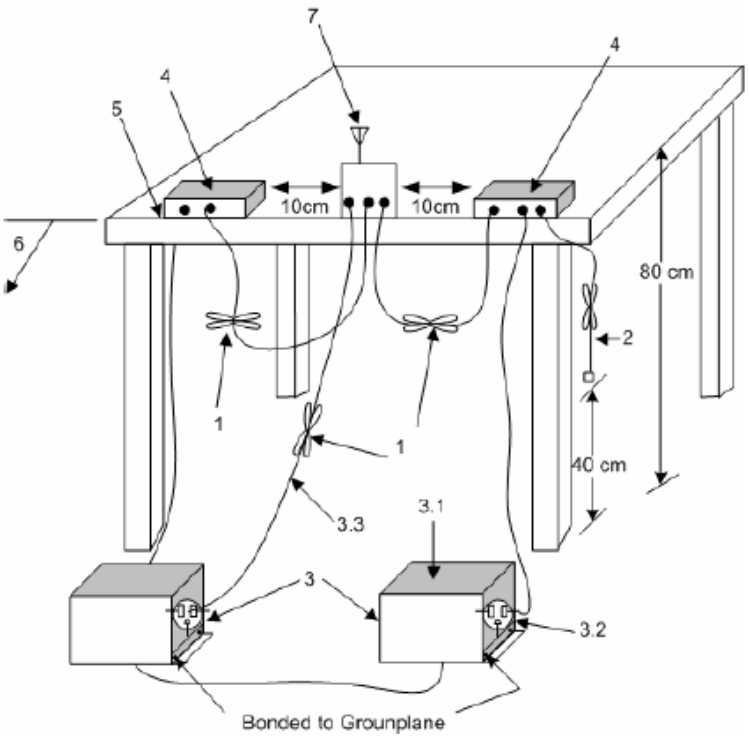
Refer a test equipment and calibration data table in this test report.

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

AC Power-line Conducted Emissions



1—Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 cm to 40 cm long.
2—The I/O cables that are not connected to an accessory shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
3—EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50 Ω loads. LISN may be placed on top of, or immediately beneath, reference ground plane.
3.1—All other equipment powered from additional LISN(s).
3.2—A multiple-outlet strip may be used for multiple power cords of non-EUT equipment.
3.3—LISN at least 80 cm from nearest part of EUT chassis.
4—Non-EUT components of EUT system being tested.
5—Rear of EUT, including peripherals, shall all be aligned and flush with edge of tabletop.
6—Edge of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane.
7—Antenna can be integral or detachable. If detachable, then the antenna shall be attached for this test.

3.1.5 Measurement Results Calculation

The measured Level is calculated using:

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

b. 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 ≥ 500 kHz.

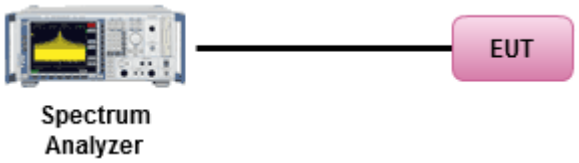
3.2.2 Measuring Instruments

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

Emission Bandwidth
 Spectrum Analyzer

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

3.3.4 Test Setup

Maximum Conducted Output Power (Power Meter)


3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix C

3.4 Power Spectral Density

3.4.1 Power Spectral Density Limit

Power Spectral Density Limit
▪ Power Spectral Density (PSD) ≤ 8 dBm/3kHz

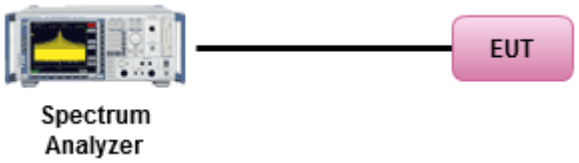
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

Test Method		
▪ Peak power spectral density procedures that the same method as used to determine the conducted output power. If maximum peak conducted output power was measured to demonstrate compliance to the output power limit, then the peak PSD procedure below (Method PKPSD) shall be used. If maximum conducted output power was measured to demonstrate compliance to the output power limit, then one of the average PSD procedures shall be used, as applicable based on the following criteria (the peak PSD procedure is also an acceptable option).		
	☒ Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10 Method Max. PSD.	
▪ 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

Power Spectral Density


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.	

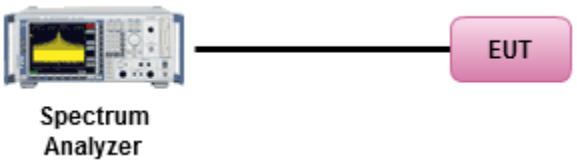
3.5.2 Measuring Instruments

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

Emissions in Non-restricted Frequency Bands


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.

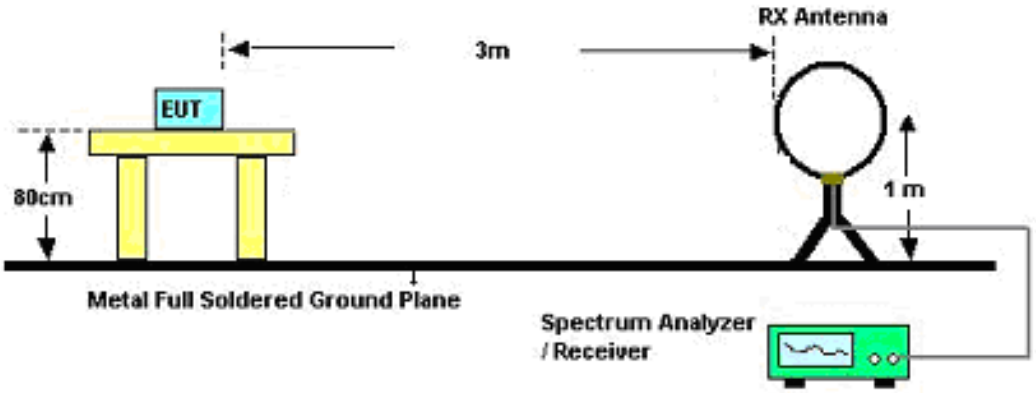
3.6.3 Test Procedures

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 ≥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≥1/T).
		☐	Refer as ANSI C63.10, clause 11.12.2.5.3 (Reduced VBW). VBW ≥ 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.		

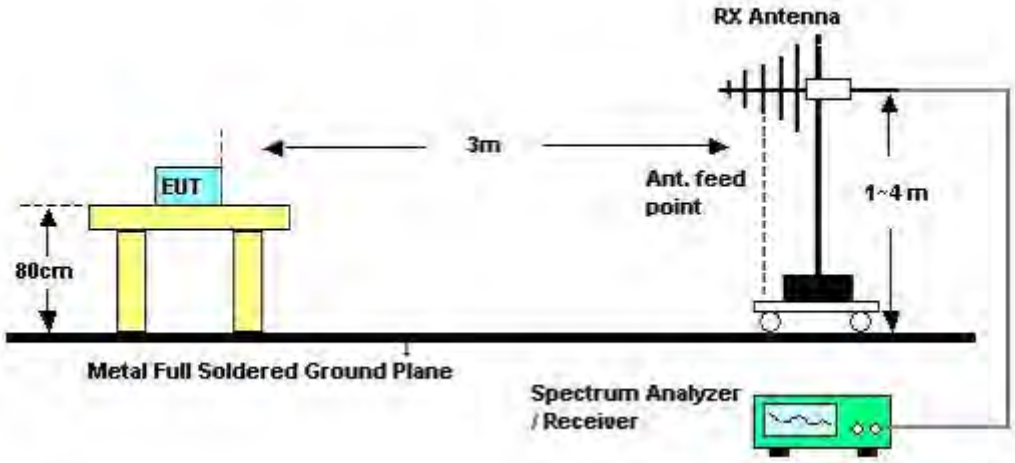
3.6.4 Test Setup

Emissions in Restricted Frequency Bands

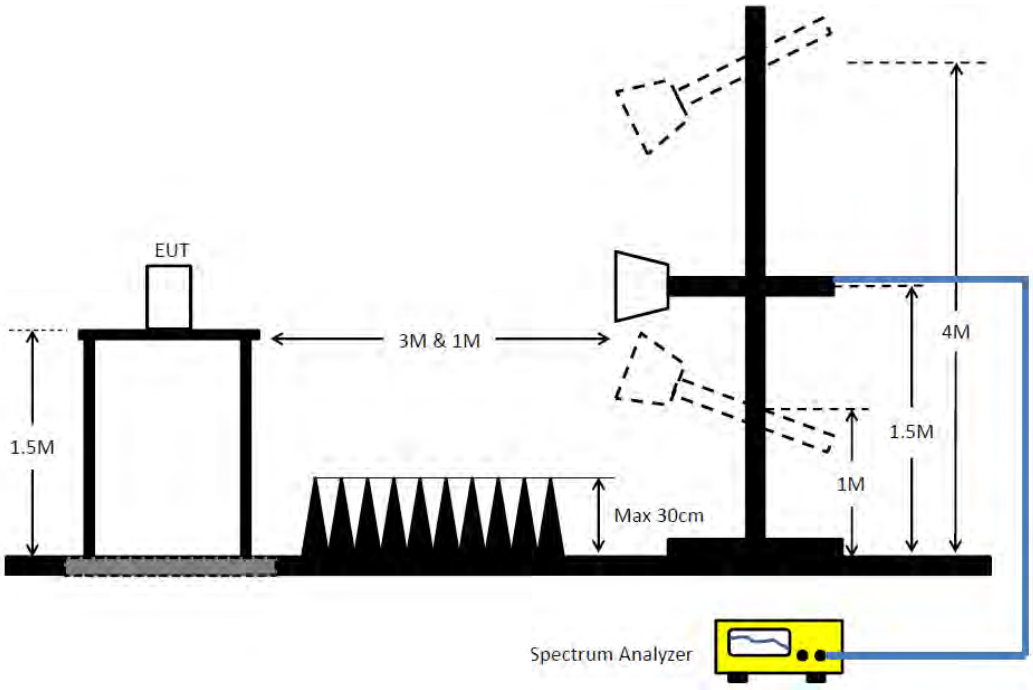
9kHz ~30MHz



30MHz~1GHz



Above 1GHz



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
LISN	Schwarzbeck	NSLK 8127	8127650	9kHz ~ 30MHz	Apr. 15, 2024	Apr. 14, 2025	Conduction (CO02-CB)
LISN	Schwarzbeck	NSLK 8127	8127478	9kHz ~ 30MHz	Dec. 29, 2023	Dec. 28, 2024	Conduction (CO02-CB)
EMI Receiver	Agilent	N9038A	MY52260140	9kHz ~ 8.4GHz	May 15, 2024	May 14, 2025	Conduction (CO02-CB)
COND Cable	Woken	Cable	2	0.15MHz ~ 30MHz	Oct. 17, 2023	Oct. 16, 2024	Conduction (CO02-CB)
Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conduction (CO02-CB)
Pulse Limiter	Schwarzbeck	VTSD 9561F-N	00378	9kHz ~ 30MHz	Oct. 17, 2023	Oct. 16, 2024	Conduction (CO02-CB)
Spectrum analyzer	R&S	FSV40	101027	9kHz~40GHz	Aug. 14, 2023	Aug. 13, 2024	Conducted (TH02-CB)
Power Sensor	Anritsu	MA2411B	1126203	300MHz~40GHz	Oct. 19, 2023	Oct. 18, 2024	Conducted (TH02-CB)
Power Meter	Anritsu	ML2495A	1210004	300MHz~40GHz	Oct. 19, 2023	Oct. 18, 2024	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-01	1 GHz – 18 GHz	Oct. 02, 2023	Oct. 01, 2024	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-02	1 GHz – 18 GHz	Oct. 02, 2023	Oct. 01, 2024	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-03	1 GHz – 18 GHz	Oct. 02, 2023	Oct. 01, 2024	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-04	1 GHz – 18 GHz	Oct. 02, 2023	Oct. 01, 2024	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-05	1 GHz – 18 GHz	Oct. 02, 2023	Oct. 01, 2024	Conducted (TH02-CB)
Switch	SPTCB	SP-SWI	SWI-02	1 –26.5 GHz	Oct. 03, 2023	Oct. 02, 2024	Conducted (TH02-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conducted (TH02-CB)
Loop Antenna	Teseq	HLA 6121	65417	9kHz - 30 MHz	Oct. 13, 2023	Oct. 12, 2024	Radiation (03CH04-CB)
3m Semi Anechoic Chamber NSA	TDK	SAC-3M	03CH04-CB	30 MHz ~ 1 GHz	Aug. 01, 2023	Jul. 31, 2024	Radiation (03CH04-CB)
BILOG ANTENNA with 6 dB attenuator	Schaffner & EMCI	CBL6112B & N-6-06	22021&AT-N0607	30MHz ~ 1GHz	Oct. 07, 2023	Oct. 06, 2024	Radiation (03CH04-CB)
Pre-Amplifier	EMCI	EMC330N	980391	20MHz ~ 3GHz	May 22, 2024	May 21, 2025	Radiation (03CH04-CB)

Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100142	9kHz~40GHz	Mar. 19, 2024	Mar. 18, 2025	Radiation (03CH04-CB
EMI Test Receiver	R&S	ESR7	102171	9kHz ~ 7GHz	Jul. 26, 2023	Jul. 25, 2024	Radiation (03CH04-CB
RF Cable-low	Woken	RG402	Low Cable-03+67	30MHz – 1GHz	Oct. 02, 2023	Oct. 01, 2024	Radiation (03CH04-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH04-CB)
3m Semi Anechoic Chamber VSWR	RIKEN	SAC-3M	03CH02-CB	1GHz ~18GHz	Mar. 24, 2024	Mar. 23, 2025	Radiation (03CH02-CB)
Horn Antenna	EMCO	3115	9610-4976	1GHz ~ 18GHz	Apr. 12, 2024	Apr. 11, 2025	Radiation (03CH02-CB)
Horn AnteCnna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Sep. 04, 2023	Sep. 03, 2024	Radiation (03CH02-CB)
Pre-Amplifier	Agilent	83017A	MY39501305	1GHz ~ 26.5GHz	Jun. 30, 2023	Jun. 29, 2024	Radiation (03CH02-CB)
Pre-Amplifier	SGH	SGH184	20221107-3	18GHz ~ 40GHz	Nov. 24, 2023	Nov. 23, 2024	Radiation (03CH02-CB)
Signal Analyzer	R&S	FSV3044	101536	10kHz ~ 44GHz	Jul. 24, 2023	Jul. 23, 2024	Radiation (03CH02-CB)
RF Cable-high	Woken	RG402	High Cable-18	1GHz ~ 18GHz	Oct. 02, 2023	Oct. 01, 2024	Radiation (03CH02-CB)
RF Cable-high	Woken	RG402	High Cable-18+19	1GHz ~ 18GHz	Oct. 02, 2023	Oct. 01, 2024	Radiation (03CH02-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH02-CB)

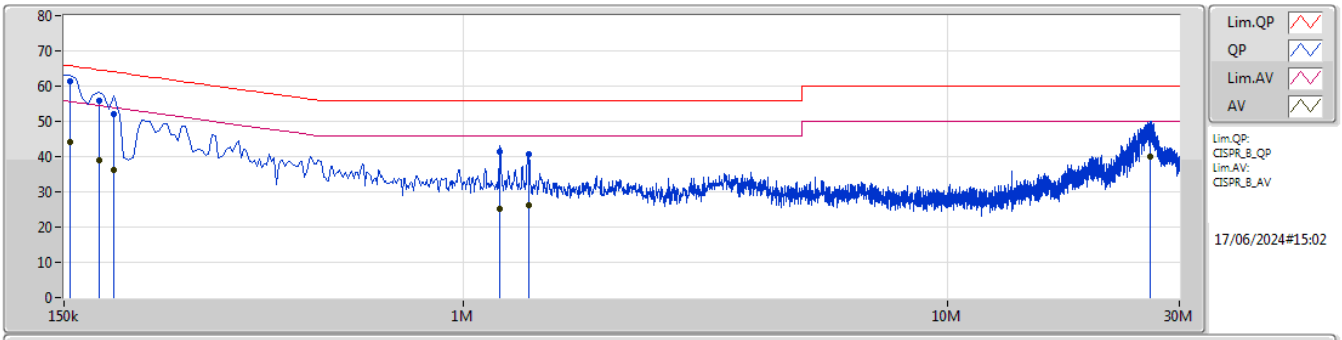
Note: Calibration Interval of instruments listed above is one year.

N.C.R. means Non-Calibration required.

Summary

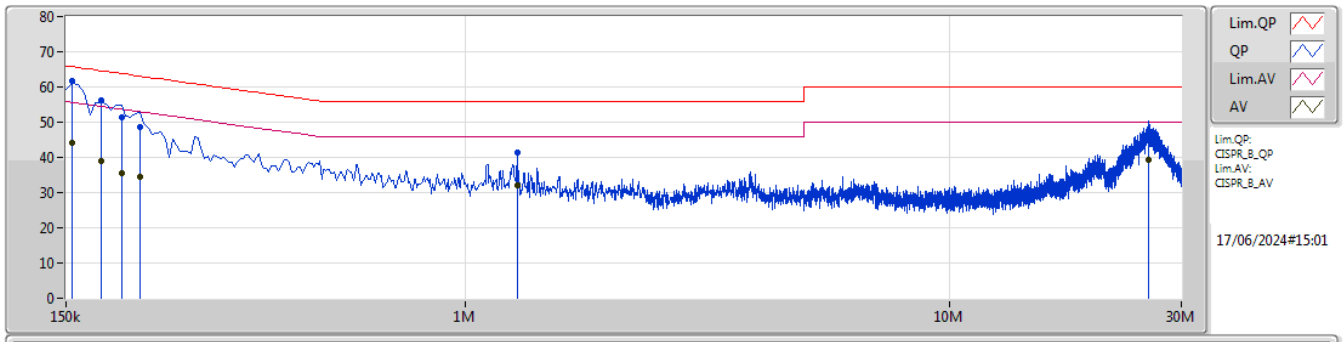
Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 9	Pass	QP	154.5k	61.62	65.75	-4.13	Neutral

Mode 9



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	154.5k	61.43	65.75	-4.32	10.09	Line	"Worst"	51.34	0.05	0.03	10.01
AV	154.5k	44.15	55.75	-11.60	10.09	Line	-	34.06	0.05	0.03	10.01
QP	177k	56.02	64.62	-8.60	10.08	Line	-	45.94	0.05	0.03	10.00
AV	177k	38.85	54.62	-15.77	10.08	Line	-	28.77	0.05	0.03	10.00
QP	190.5k	52.03	64.01	-11.98	10.07	Line	-	41.96	0.05	0.03	9.99
AV	190.5k	36.20	54.01	-17.81	10.07	Line	-	26.13	0.05	0.03	9.99
QP	1.19M	41.46	56.00	-14.54	10.12	Line	-	31.34	0.08	0.04	10.00
AV	1.19M	25.29	46.00	-20.71	10.12	Line	-	15.17	0.08	0.04	10.00
QP	1.361M	40.81	56.00	-15.19	10.11	Line	-	30.70	0.08	0.05	9.98
AV	1.361M	26.26	46.00	-19.74	10.11	Line	-	16.15	0.08	0.05	9.98
QP	26.156M	47.10	60.00	-12.90	10.63	Line	-	36.47	0.53	0.24	9.86
AV	26.156M	39.99	50.00	-10.01	10.63	Line	-	29.36	0.53	0.24	9.86

Mode 9



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	154.5k	61.62	65.75	-4.13	10.09	Neutral	"Worst"	51.53	0.05	0.03	10.01
AV	154.5k	44.15	55.75	-11.60	10.09	Neutral	-	34.06	0.05	0.03	10.01
QP	177k	56.28	64.62	-8.34	10.08	Neutral	-	46.20	0.05	0.03	10.00
AV	177k	39.09	54.62	-15.53	10.08	Neutral	-	29.01	0.05	0.03	10.00
QP	195k	51.52	63.82	-12.30	10.07	Neutral	-	41.45	0.05	0.03	9.99
AV	195k	35.65	53.82	-18.17	10.07	Neutral	-	25.58	0.05	0.03	9.99
QP	213k	48.54	63.09	-14.55	10.07	Neutral	-	38.47	0.05	0.03	9.99
AV	213k	34.44	53.09	-18.65	10.07	Neutral	-	24.37	0.05	0.03	9.99
QP	1.28M	41.22	56.00	-14.78	10.10	Neutral	-	31.12	0.07	0.04	9.99
AV	1.28M	32.11	46.00	-13.89	10.10	Neutral	-	22.01	0.07	0.04	9.99
QP	25.652M	45.58	60.00	-14.42	10.39	Neutral	-	35.19	0.30	0.23	9.86
AV	25.652M	39.24	50.00	-10.76	10.39	Neutral	-	28.85	0.30	0.23	9.86

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
Zigbee	1.834M	2.25M	2M25G1D	1.733M	2.221M

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

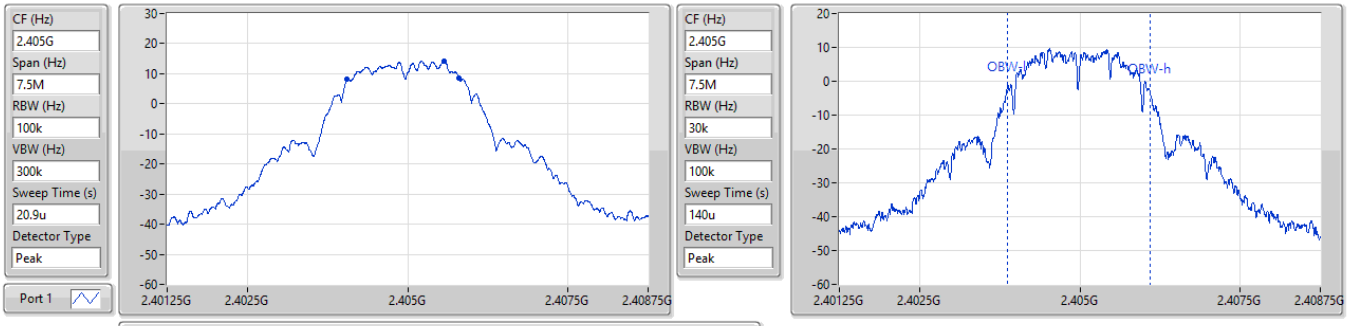
Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
Zigbee	-	-	-	-
2405MHz	Pass	500k	1.744M	2.221M
2440MHz	Pass	500k	1.733M	2.234M
2480MHz	Pass	500k	1.834M	2.25M

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

2.4-2.4835GHz_Zigbee **EBW**

2405MHz

30/04/2024

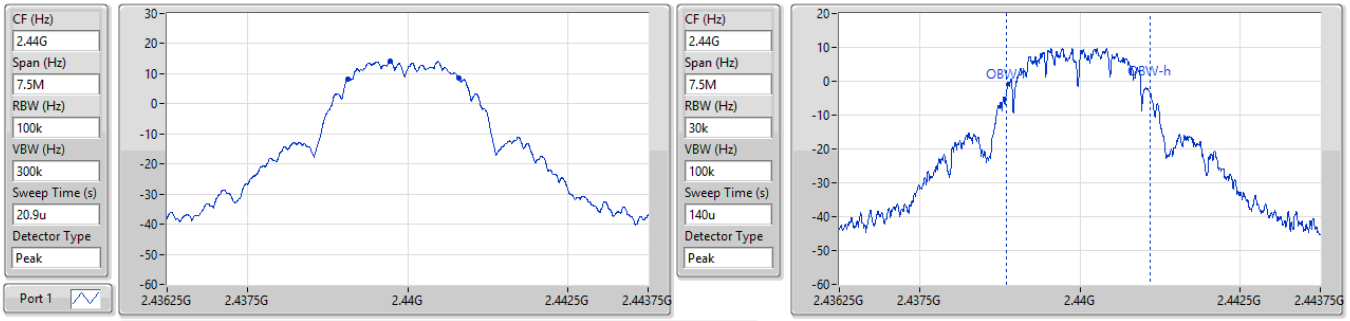


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.744M	2.404051G	2.405795G	2.221M	2.403867G	2.406088G	500k	1

2.4-2.4835GHz_Zigbee **EBW**

2440MHz

30/04/2024



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.733M	2.439063G	2.440795G	2.234M	2.438855G	2.441089G	500k	1

2.4-2.4835GHz_Zigbee **EBW**

2480MHz

6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.834M	2.479051G	2.480885G	2.25M	2.478845G	2.481095G	500k	1

Summary

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
Zigbee	19.44	0.08790

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Total Power (dBm)	Power Limit (dBm)
Zigbee	-	-	-	-	-
2405MHz	Pass	6.92	19.44	19.44	29.08
2440MHz	Pass	6.92	19.39	19.39	29.08
2475MHz	Pass	6.92	19.34	19.34	29.08
2480MHz	Pass	6.92	6.48	6.48	29.08

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

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
Zigbee	2.78

RBW = 3kHz;

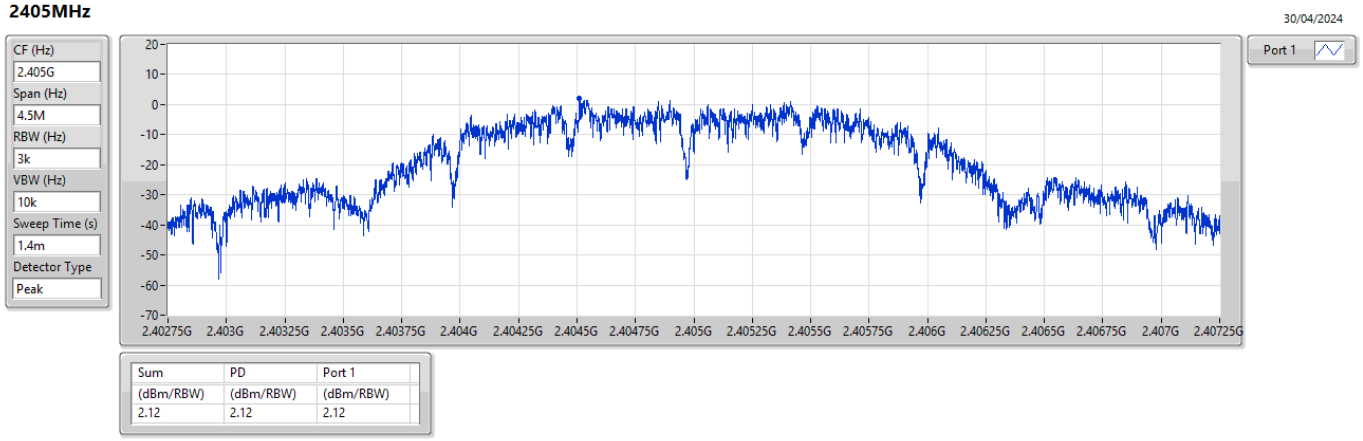
Result

Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
Zigbee	-	-	-	-	-
2405MHz	Pass	6.92	2.12	2.12	7.08
2440MHz	Pass	6.92	2.78	2.78	7.08
2480MHz	Pass	6.92	-10.17	-10.17	7.08

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

2.4-2.4835GHz_Zigbee **PSD**

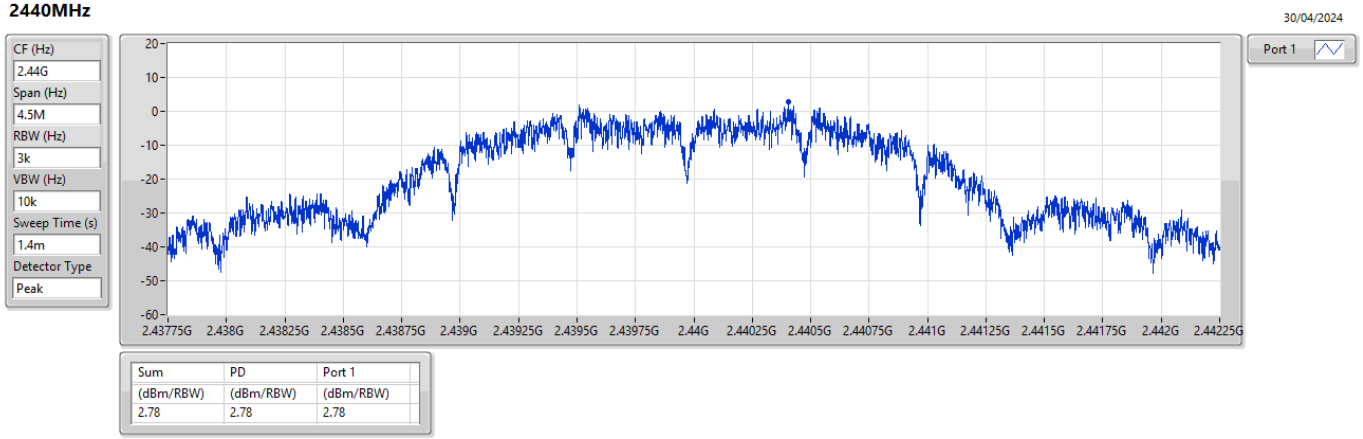
2405MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
2.12	2.12	2.12

2.4-2.4835GHz_Zigbee **PSD**

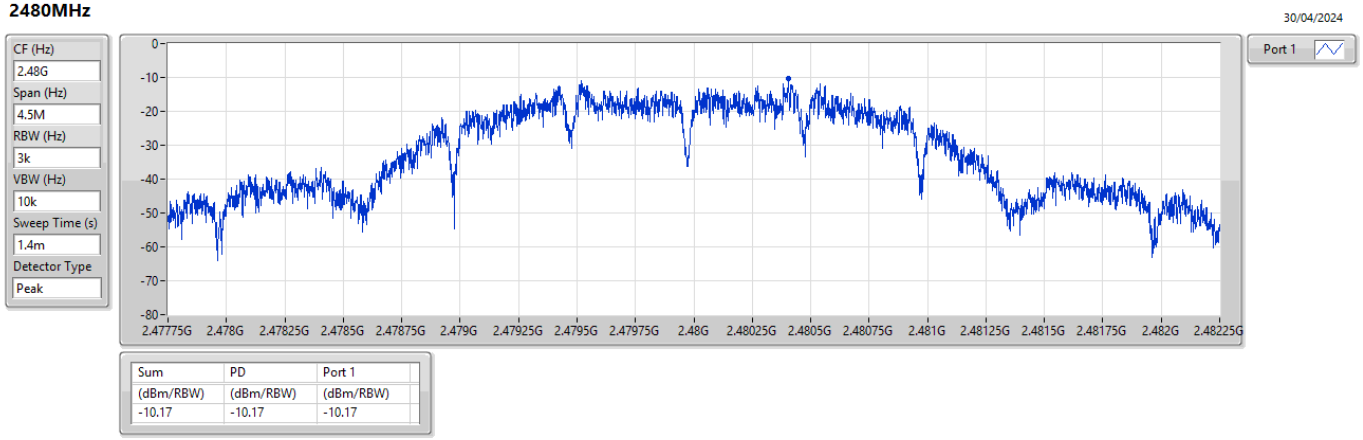
2440MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
2.78	2.78	2.78

2.4-2.4835GHz_Zigbee **PSD**

2480MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-10.17	-10.17	-10.17

Summary

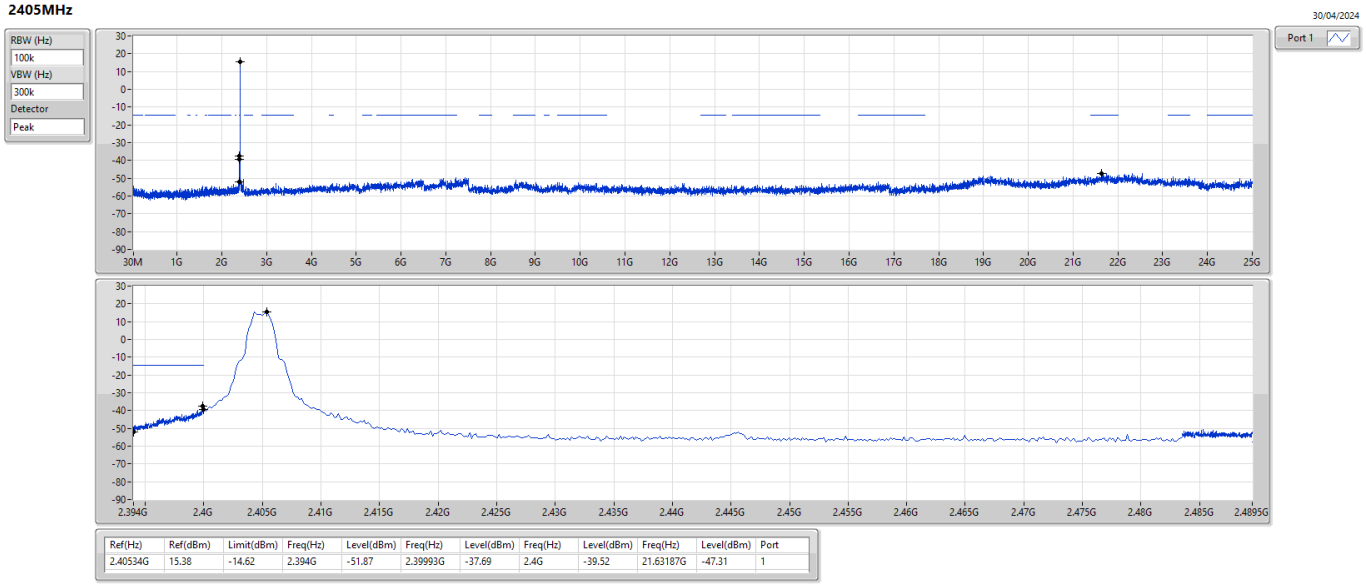
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-
Zigbee	Pass	2.40534G	15.38	-14.62	2.394G	-51.87	2.39993G	-37.69	2.4G	-39.52	21.63187G	-47.31	1

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	-	-	-	-	-	-	-	-	-	-	-	-	-
2405MHz	Pass	2.40534G	15.38	-14.62	2.394G	-51.87	2.39993G	-37.69	2.4G	-39.52	21.63187G	-47.31	1
2440MHz	Pass	2.40534G	15.38	-14.62	1.73681G	-53.83	2.39908G	-50.64	2.4G	-54.16	21.65438G	-45.92	1
2480MHz	Pass	2.40534G	15.38	-14.62	34.73M	-53.43	2.3942G	-51.47	2.4G	-56.30	21.96671G	-47.81	1

2.4-2.4835GHz_Zigbee CSENdB

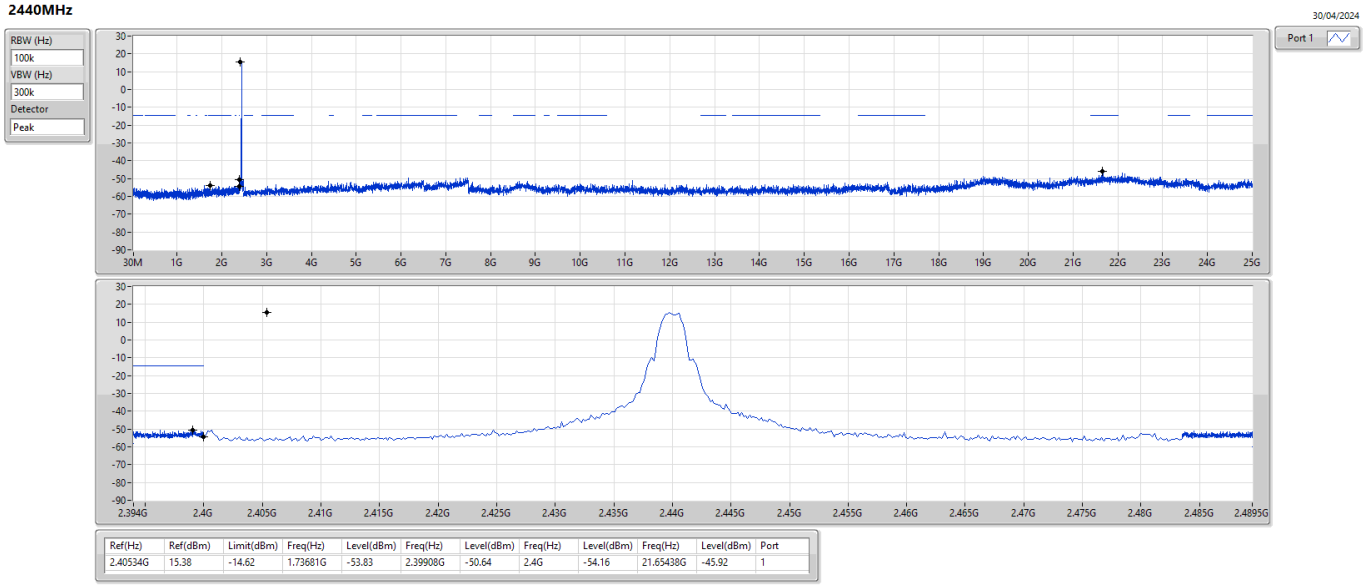
2405MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.40534G	15.38	-14.62	2.394G	-51.87	2.39993G	-37.69	2.4G	-39.52	21.63187G	-47.31	1

2.4-2.4835GHz_Zigbee CSENdB

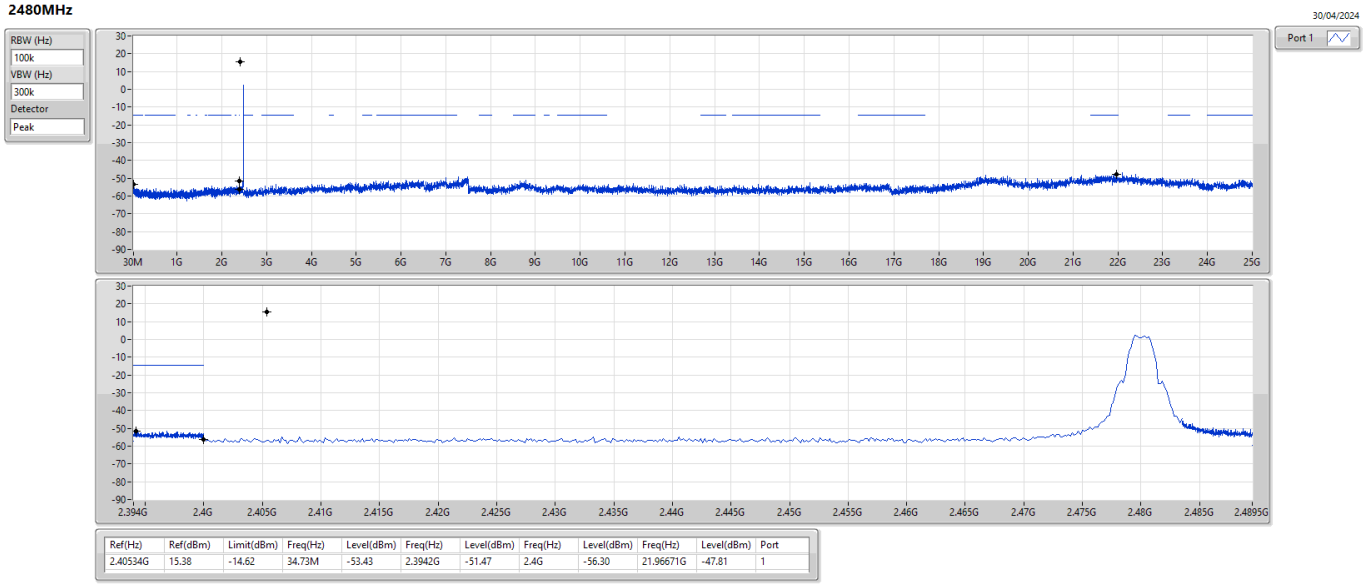
2440MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.40534G	15.38	-14.62	1.73681G	-53.83	2.39908G	-50.64	2.4G	-54.16	21.65438G	-45.92	1

2.4-2.4835GHz_Zigbee CSENdB

2480MHz

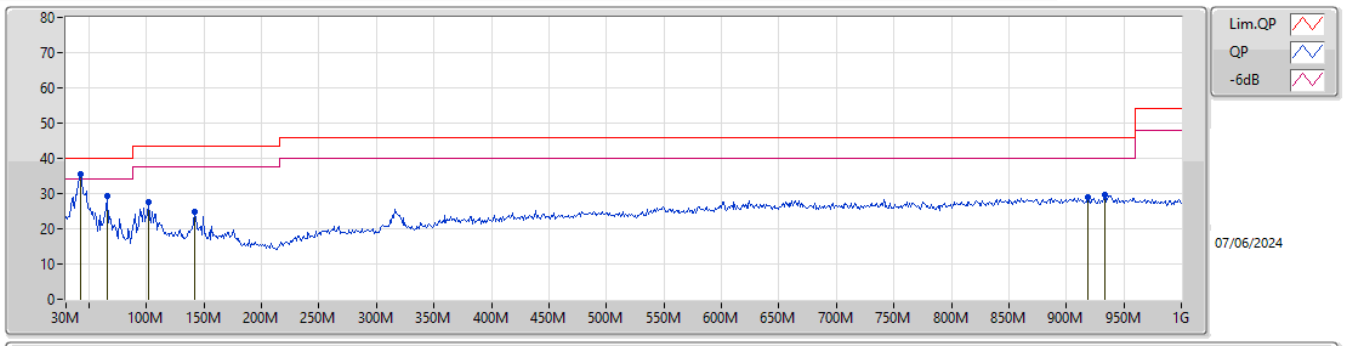


Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.40534G	15.38	-14.62	34.73M	-53.43	2.3942G	-51.47	2.4G	-56.30	21.96671G	-47.81	1

Summary

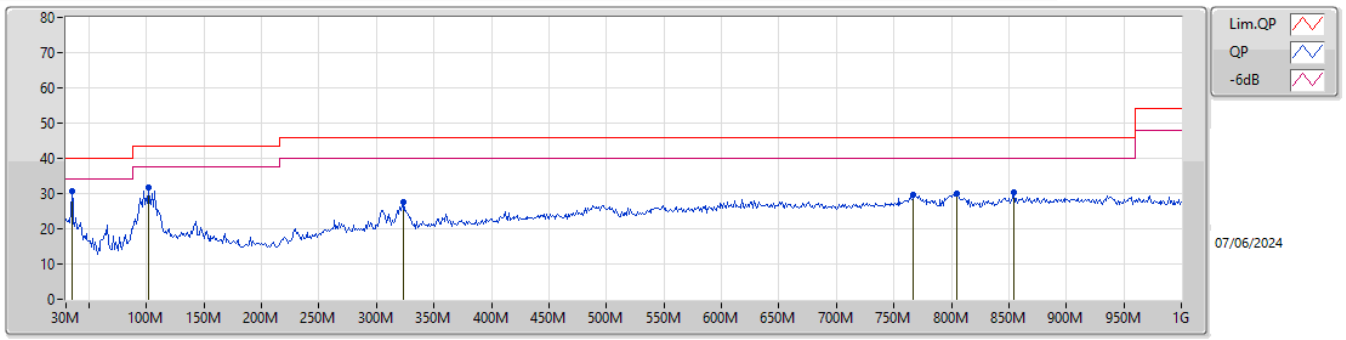
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 10	Pass	PK	42.61M	35.38	40.00	-4.62	Vertical

Mode 10



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB/m)	(m)		(°)	(m)		(dBuV/m)	(dB/m)	(dB)	(dB)
PK	42.61M	35.38	40.00	-4.62	-13.05	3	Vertical	360	1.00	"Worst"	48.43	17.18	0.43	30.66
PK	65.89M	29.30	40.00	-10.70	-17.97	3	Vertical	130	1.00	-	47.27	12.34	0.63	30.94
PK	101.78M	27.59	43.50	-15.91	-12.49	3	Vertical	358	1.50	-	40.08	17.39	0.83	30.71
PK	141.55M	24.77	43.50	-18.73	-12.86	3	Vertical	21	1.25	-	37.63	17.41	1.09	31.36
PK	918.52M	29.05	46.00	-16.95	-2.15	3	Vertical	351	2.00	-	31.20	26.77	3.12	32.04
PK	933.07M	29.60	46.00	-16.40	-2.35	3	Vertical	315	1.00	-	31.95	26.66	3.16	32.17

Mode 10



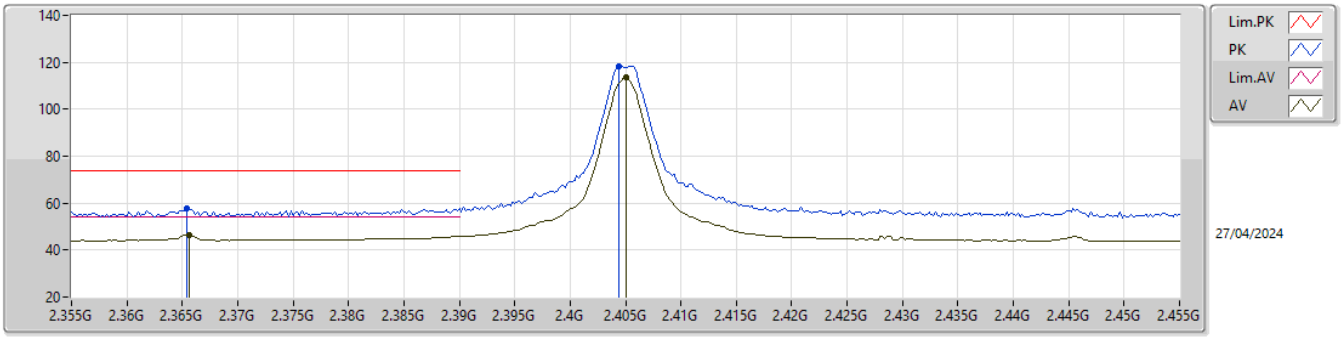
Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB/m)	(m)		(°)	(m)		(dBuV/m)	(dB/m)	(dB)	(dB)
PK	34.85M	30.62	40.00	-9.38	-9.00	3	Horizontal	124	1.00	"Worst"	39.62	21.32	0.37	30.69
PK	101.78M	31.79	43.50	-11.71	-12.49	3	Horizontal	296	2.00	-	44.28	17.39	0.83	30.71
PK	323.91M	27.63	46.00	-18.37	-10.16	3	Horizontal	76	1.00	-	37.79	19.43	1.73	31.32
PK	767.2M	29.71	46.00	-16.29	-3.68	3	Horizontal	325	1.25	-	33.39	25.60	2.78	32.06
PK	805.03M	30.14	46.00	-15.86	-3.09	3	Horizontal	307	1.00	-	33.23	25.95	2.92	31.96
PK	854.5M	30.24	46.00	-15.76	-2.67	3	Horizontal	333	1.50	-	32.91	26.28	2.94	31.89

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	53.08	54.00	-0.92	3	Horizontal	344	1.17	-

2.4-2.4835GHz_Zigbee

2405MHz_TX

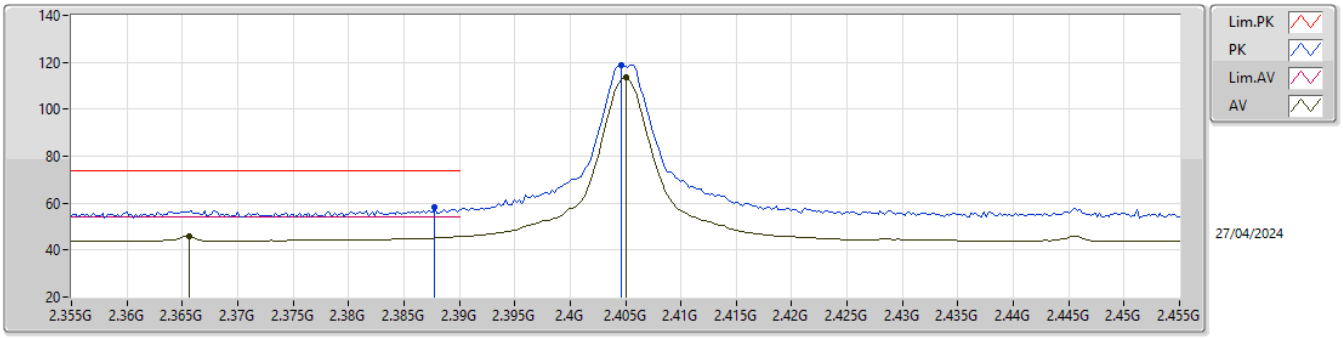


EUT X_1TX
Setting 20
02-C-V-1

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.3654G	58.01	74.00	-15.99	26.57	3	Vertical	5	1.01	-	28.40	3.04	-
AV	2.3656G	46.50	54.00	-7.50	15.06	3	Vertical	5	1.01	-	28.40	3.04	-
PK	2.4044G	118.52	Inf	-Inf	87.00	3	Vertical	5	1.01	-	28.46	3.06	-
AV	2.405G	113.52	Inf	-Inf	82.01	3	Vertical	5	1.01	-	28.45	3.06	-

2.4-2.4835GHz_Zigbee

2405MHz_TX

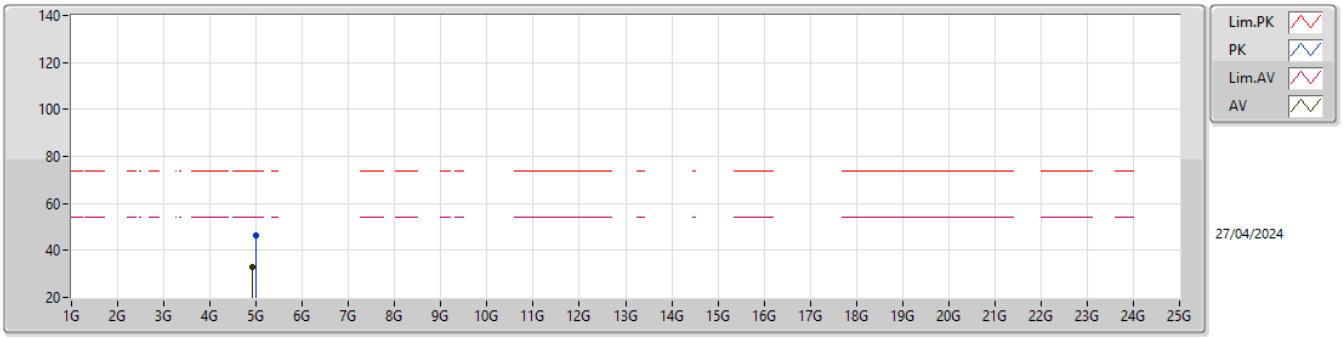


EUT X_1TX
Setting 20
02-C-V-1

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.3878G	58.19	74.00	-15.81	26.66	3	Horizontal	344	1.16	-	28.48	3.05	-
AV	2.3656G	45.95	54.00	-8.05	14.51	3	Horizontal	344	1.16	-	28.40	3.04	-
PK	2.4046G	118.80	Inf	-Inf	87.29	3	Horizontal	344	1.16	-	28.45	3.06	-
AV	2.405G	113.85	Inf	-Inf	82.34	3	Horizontal	344	1.16	-	28.45	3.06	-

2.4-2.4835GHz_Zigbee

2405MHz_TX

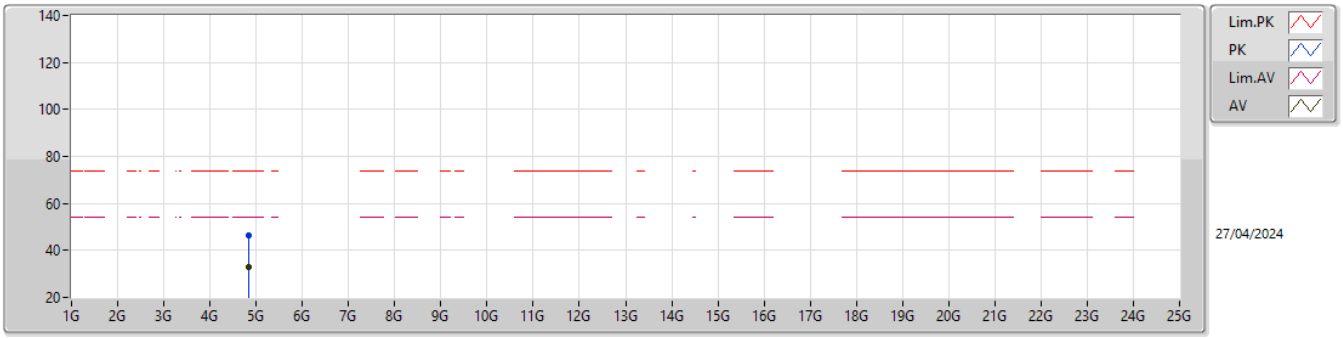


EUT X_1TX
Setting 20
02-C-V-1

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.999G	46.20	74.00	-27.80	38.21	3	Vertical	332	2.45	-	33.40	5.15	30.56
AV	4.9238G	33.15	54.00	-20.85	25.28	3	Vertical	332	2.45	-	33.35	5.13	30.61

2.4-2.4835GHz_Zigbee

2405MHz_TX

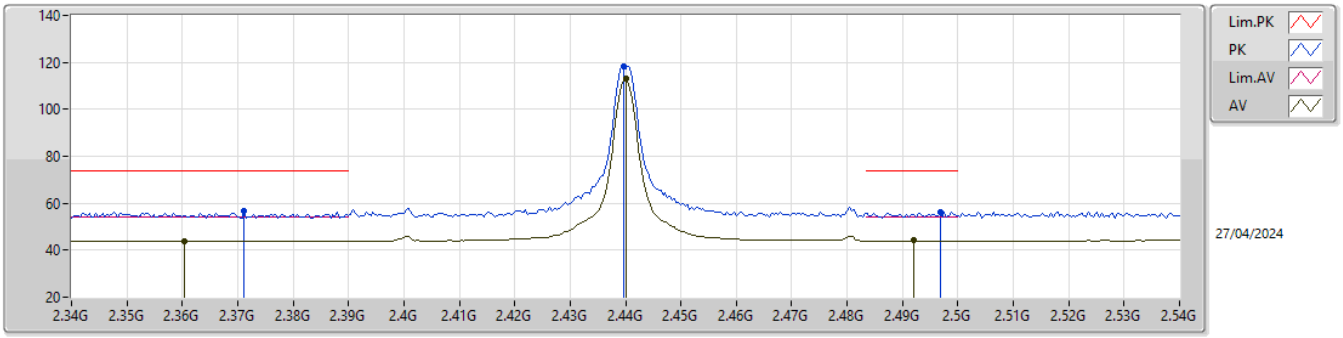


EUT X_1TX
Setting 20
02-C-V-1

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.8402G	46.61	74.00	-27.39	39.00	3	Horizontal	15	2.71	-	33.18	5.10	30.67
AV	4.8314G	33.10	54.00	-20.90	25.51	3	Horizontal	15	2.71	-	33.16	5.10	30.67

2.4-2.4835GHz_Zigbee

2440MHz_TX

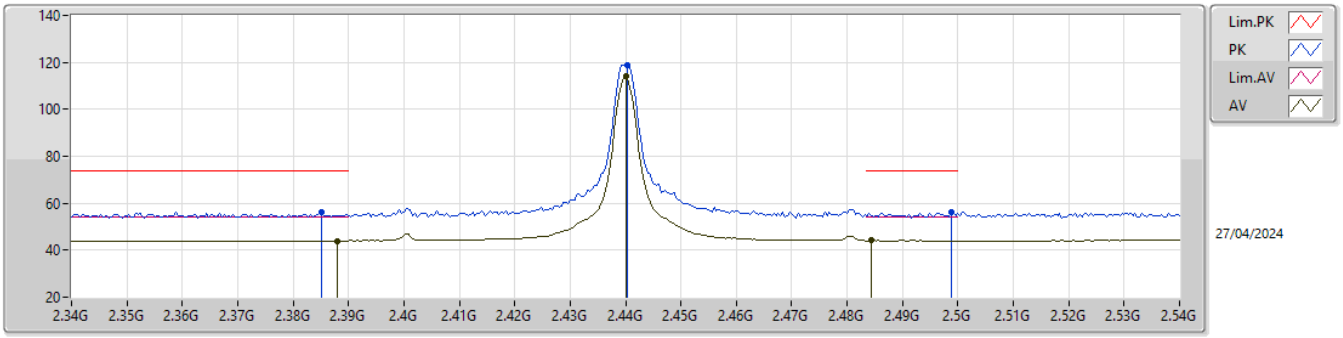


EUT X_1TX
Setting 20
02-C-V-1

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.3712G	56.50	74.00	-17.50	25.05	3	Vertical	360	1.10	-	28.40	3.05	-
AV	2.3604G	43.97	54.00	-10.03	12.53	3	Vertical	360	1.10	-	28.40	3.04	-
PK	2.4396G	118.12	Inf	-Inf	86.54	3	Vertical	360	1.10	-	28.50	3.08	-
AV	2.44G	113.26	Inf	-Inf	81.68	3	Vertical	360	1.10	-	28.50	3.08	-
PK	2.4968G	56.45	74.00	-17.55	24.75	3	Vertical	360	1.10	-	28.60	3.10	-
AV	2.492G	44.07	54.00	-9.93	12.37	3	Vertical	360	1.10	-	28.60	3.10	-

2.4-2.4835GHz_Zigbee

2440MHz_TX

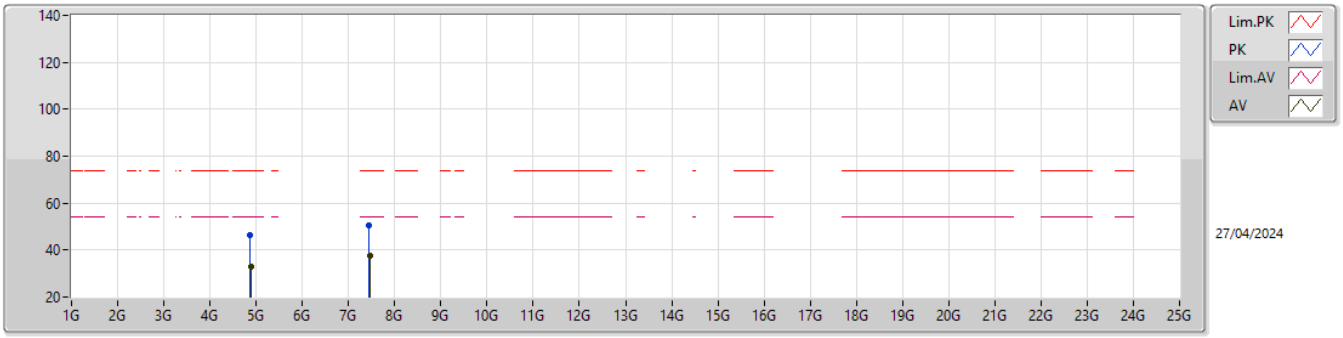


EUT X_1TX
Setting 20
02-C-V-1

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.3852G	56.27	74.00	-17.73	24.77	3	Horizontal	342	1.14	-	28.45	3.05	-
AV	2.388G	44.05	54.00	-9.95	12.52	3	Horizontal	342	1.14	-	28.48	3.05	-
PK	2.4404G	118.78	Inf	-Inf	87.20	3	Horizontal	342	1.14	-	28.50	3.08	-
AV	2.44G	113.92	Inf	-Inf	82.34	3	Horizontal	342	1.14	-	28.50	3.08	-
PK	2.4988G	56.19	74.00	-17.81	24.49	3	Horizontal	342	1.14	-	28.60	3.10	-
AV	2.4844G	44.11	54.00	-9.89	12.42	3	Horizontal	342	1.14	-	28.60	3.09	-

2.4-2.4835GHz_Zigbee

2440MHz_TX

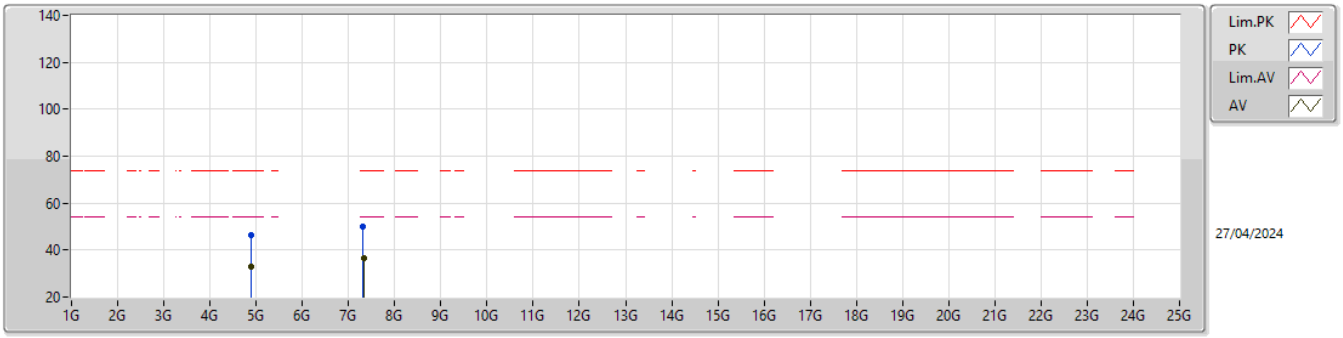


EUT X_1TX
Setting 20
02-C-V-1

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.8731G	46.48	74.00	-27.52	38.76	3	Vertical	120	1.32	-	33.25	5.11	30.64
AV	4.89488G	32.70	54.00	-21.30	24.92	3	Vertical	120	1.32	-	33.29	5.12	30.63
PK	7.4462G	50.50	74.00	-23.50	39.51	3	Vertical	237	2.27	-	36.60	6.58	32.19
AV	7.455G	37.41	54.00	-16.59	26.42	3	Vertical	237	2.27	-	36.59	6.59	32.19

2.4-2.4835GHz_Zigbee

2440MHz_TX

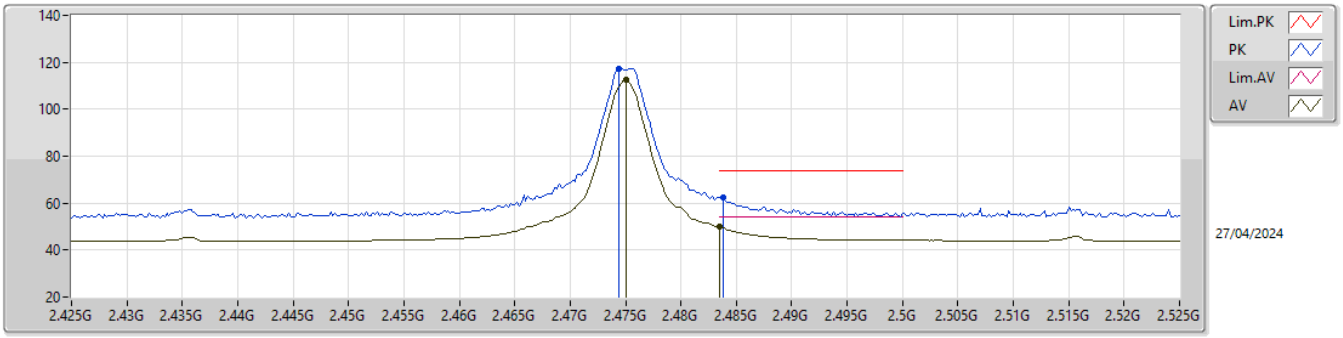


EUT X_1TX
Setting 20
02-C-V-1

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.89272G	46.38	74.00	-27.62	38.60	3	Horizontal	315	2.39	-	33.29	5.12	30.63
AV	4.88294G	32.78	54.00	-21.22	25.04	3	Horizontal	315	2.39	-	33.27	5.11	30.64
PK	7.31238G	49.78	74.00	-24.22	38.93	3	Horizontal	302	2.50	-	36.45	6.51	32.11
AV	7.32576G	36.51	54.00	-17.49	25.61	3	Horizontal	302	2.50	-	36.50	6.52	32.12

2.4-2.4835GHz_Zigbee

2475MHz_TX

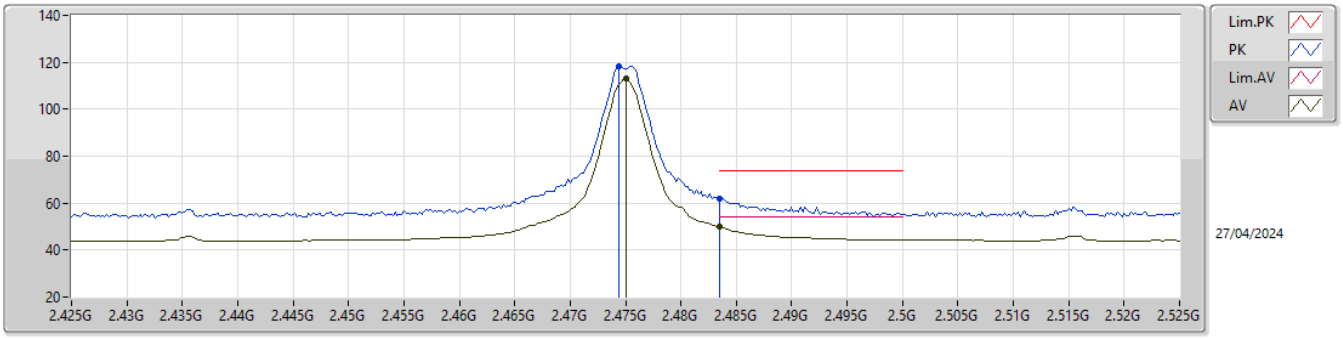


EUT X_1TX
Setting 20
02-C-V-1

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.4744G	117.41	Inf	-Inf	85.78	3	Vertical	360	1.41	-	28.54	3.09	-
AV	2.475G	112.47	Inf	-Inf	80.83	3	Vertical	360	1.41	-	28.55	3.09	-
PK	2.4838G	62.63	74.00	-11.37	30.94	3	Vertical	360	1.41	-	28.60	3.09	-
AV	2.4835G	49.80	54.00	-4.20	18.11	3	Vertical	360	1.41	-	28.60	3.09	-

2.4-2.4835GHz_Zigbee

2475MHz_TX

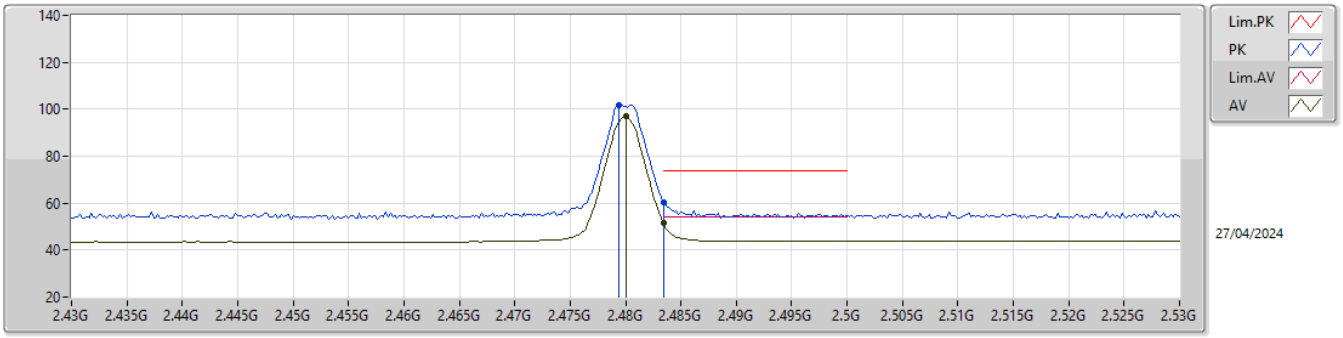


EUT X_1TX
Setting 20
02-C-V-1

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.4744G	118.14	Inf	-Inf	86.51	3	Horizontal	342	1.04	-	28.54	3.09	-
AV	2.475G	113.21	Inf	-Inf	81.57	3	Horizontal	342	1.04	-	28.55	3.09	-
PK	2.4835G	62.07	74.00	-11.93	30.38	3	Horizontal	342	1.04	-	28.60	3.09	-
AV	2.4835G	49.95	54.00	-4.05	18.26	3	Horizontal	342	1.04	-	28.60	3.09	-

2.4-2.4835GHz_Zigbee

2480MHz_TX

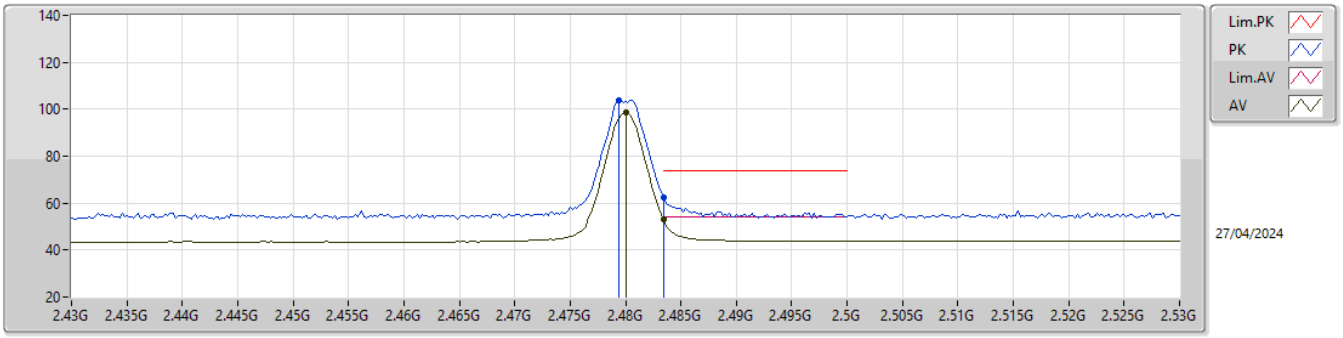


EUT X_1TX
Setting 7
02-C-V-1

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.4794G	101.79	Inf	-Inf	70.11	3	Vertical	-0	1.37	-	28.59	3.09	-
AV	2.48G	97.23	Inf	-Inf	65.54	3	Vertical	-0	1.37	-	28.60	3.09	-
PK	2.4835G	60.57	74.00	-13.43	28.88	3	Vertical	-0	1.37	-	28.60	3.09	-
AV	2.4835G	51.42	54.00	-2.58	19.73	3	Vertical	-0	1.37	-	28.60	3.09	-

2.4-2.4835GHz_Zigbee

2480MHz_TX

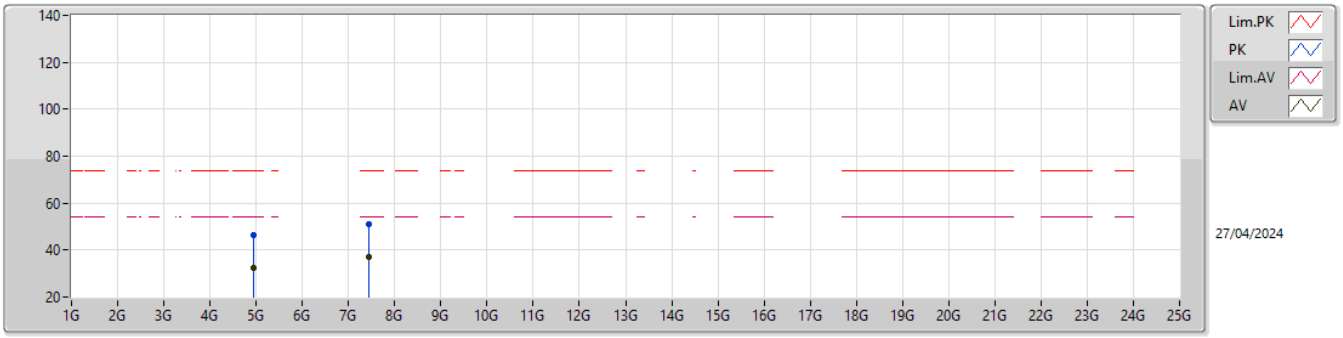


EUT X_1TX
Setting 7
02-C-V-1

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.4794G	103.75	Inf	-Inf	72.07	3	Horizontal	344	1.17	-	28.59	3.09	-
AV	2.48G	98.83	Inf	-Inf	67.14	3	Horizontal	344	1.17	-	28.60	3.09	-
PK	2.4835G	62.40	74.00	-11.60	30.71	3	Horizontal	344	1.17	-	28.60	3.09	-
AV	2.4835G	53.08	54.00	-0.92	21.39	3	Horizontal	344	1.17	-	28.60	3.09	-

2.4-2.4835GHz_Zigbee

2480MHz_TX

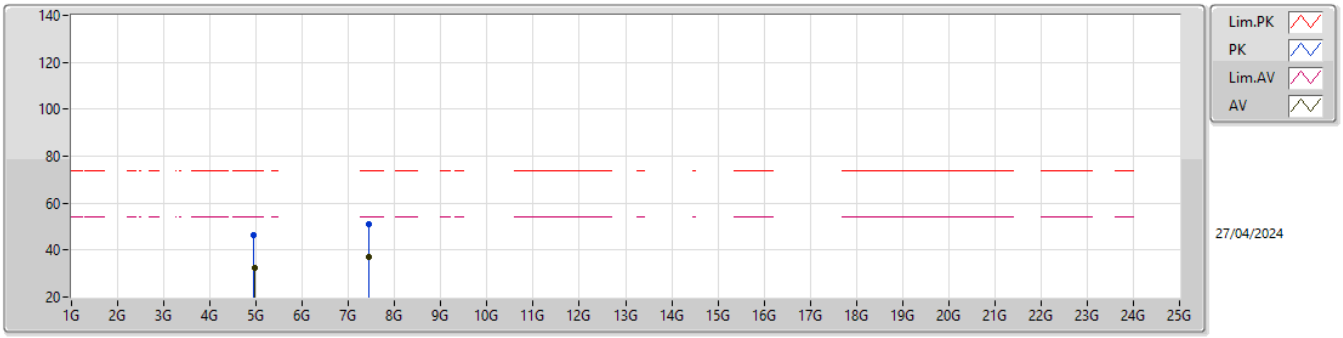


EUT X_1TX
Setting 7
02-C-V-1

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.94536G	46.32	74.00	-27.68	38.40	3	Vertical	105	2.61	-	33.39	5.13	30.60
AV	4.945G	32.45	54.00	-21.55	24.53	3	Vertical	105	2.61	-	33.39	5.13	30.60
PK	7.42998G	51.26	74.00	-22.74	40.27	3	Vertical	143	1.80	-	36.60	6.57	32.18
AV	7.45308G	36.99	54.00	-17.01	26.00	3	Vertical	143	1.80	-	36.59	6.59	32.19

2.4-2.4835GHz_Zigbee

2480MHz_TX



EUT X_1TX
Setting 7
02-C-V-1

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.94674G	46.26	74.00	-27.74	38.34	3	Horizontal	44	1.80	-	33.39	5.13	30.60
AV	4.9657G	32.43	54.00	-21.57	24.47	3	Horizontal	44	1.80	-	33.40	5.14	30.58
PK	7.4523G	50.85	74.00	-23.15	39.85	3	Horizontal	187	1.80	-	36.60	6.59	32.19
AV	7.45344G	37.15	54.00	-16.85	26.16	3	Horizontal	187	1.80	-	36.59	6.59	32.19