Testing Laboratory
3787

RADIO TEST REPORT

FCC ID	:	UDX-600216010
Equipment	:	Cisco Wireless 9179F Series Wi-Fi 7 Access Point
Brand Name	:	CISCO
Model Name	:	CW9179F
Applicant	:	Cisco Systems, Inc. 170 West Tasman Drive, San Jose, CA 95134 USA
Manufacturer	:	Cisco Systems, Inc. 170 West Tasman Drive, San Jose, CA 95134 USA
Standard	:	47 CFR FCC Part 15.247

The product was received on Nov. 29, 2024, and testing was started from Dec. 18, 2024 and completed on Mar. 18, 2025. 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

Report No.	Version	Description	Issued Date
FR4N2714-02AB	01	Initial issue of report	Jul. 11, 2025

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:

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: Sophia Shiung

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

<Internal Antenna>

Ant.	Brand	Model Name	Antenna Type	Connector	Support
1	WNC	57XPAD15.LAU	Dipole	U.FL	Radio 1
2	WNC	57XPAD15.MAU	Dipole	U.FL	
3	WNC	57XPAD15.AAU	Dipole	U.FL	Radio 2
4	WNC	57XPAD15.BAU	Dipole	U.FL	
5	WNC	57XPAD15.CAU	Dipole	U.FL	
6	WNC	57XPAD15.DAU	Dipole	U.FL	
7	WNC	57XPAD15.HAU	Dipole	U.FL	Radio 3
8	WNC	57XPAD15.HAU	Dipole	U.FL	
9	WNC	57XPAD15.IAU	Dipole	U.FL	
10	WNC	57XPAD15.IAU	Dipole	U.FL	
11	WNC	57XPAD15.JAU	Dipole	U.FL	Radio 4
12	WNC	57XPAD15.JAU	Dipole	U.FL	
13	WNC	57XPAD15.KAU	Dipole	U.FL	
14	WNC	57XPAD15.KAU	Dipole	U.FL	
15	WNC	57XPAD15.EAU	Dipole	U.FL	Radio 5
16	WNC	57XPAD15.EAU	Dipole	U.FL	
17	WNC	57XPAD15.FAU	Dipole	U.FL	
18	WNC	57XPAD15.FAU	Dipole	U.FL	
19	WNC	57XPAD15.NAU	Loop	U.FL	Radio 6
20	WNC	57XPAD15.PAU	PIFA	U.FL	Radio 7
21	WNC	57XPAD15.0DG	PIFA	U.FL	
22	WNC	57XPAD15.OAU	Patch	U.FL	Radio 8
23	WNC	57XPAD15.OAU	Patch	U.FL	

Ant.	Port	Gain (dBi)						Support
		WLAN 2.4GHz	WLAN 5GHz		WLAN 6GHz			
			UNII 1~2A	UNII 2C~3	UNII 5~6	UNII 7	UNII 8	
1	1	3.7	4.9	6.1	5.0	5.8	5.7	Radio 1
2	2	5.1	4.5	5.2	5.5	6.4	5.3	
3	1	5.0	-	-	-	-	-	Radio 2
4	2	4.3	-	-	-	-	-	
5	3	5.1	-	-	-	-	-	
6	4	5.3	-	-	-	-	-	

Ant.	Port	Gain (dBi)					Support
		WLAN 5GHz					
		Mode	UNII 1	UNII 2A	UNII 2C	UNII 3	
7	3	Boresight	9.3	9.4	9.7	9.8	Radio 3
		Steering	9.4	9.4	10.0	10.0	
8	4	Boresight	10.3	10.3	10.6	10.2	
		Steering	10.2	10.2	10.6	10.3	
9	2	Boresight	9.6	9.9	10.3	9.9	
		Steering	9.9	9.8	10.3	10.1	
10	1	Boresight	10.4	10.6	10.7	10.4	
		Steering	10.3	10.7	10.6	10.4	

Ant.	Port	Gain (dBi)					Support
		WLAN 6GHz					
		Mode	UNII 5	UNII 6	UNII 7	UNII 8	
11	3	Narrow Beam	9.2	9.0	9.0	9.1	Radio 4
		Wide Beam	5.4	4.9	5.3	6.0	
12	4	Narrow Beam	9.2	8.7	8.7	8.8	
		Wide Beam	5.1	5.2	5.2	5.4	
13	2	Narrow Beam	10.0	9.8	9.8	9.9	
		Wide Beam	6.4	6.2	6.5	6.9	
14	1	Narrow Beam	9.8	10.1	10.1	10.0	
		Wide Beam	5.6	6.2	6.2	7.0	

Ant.	Port	Gain (dBi)						Support
		WLAN 5GHz			Bluetooth / Zigbee	UWB	GPS	
		Mode	UNII 1	UNII 2A				
15	2	Boresight	8.6	8.8	-	-	-	Radio 5
		Steering	8.5	9.0	-	-	-	
16	1	Boresight	9.4	9.4	-	-	-	
		Steering	9.4	9.4	-	-	-	
17	4	Boresight	8.7	9.3	-	-	-	
		Steering	8.8	9.2	-	-	-	
18	3	Boresight	8.5	9.0	-	-	-	
		Steering	8.5	9.0	-	-	-	
19	1	-	-	-	6.1	-	-	Radio 6
20	1	-	-	-	-	-	3.8	Radio 7
21	1	-	-	-	-	-	3.5	
22	2	-	-	-	-	8.2	-	Radio 8
23	1	-	-	-	-	8.6	-	

<External Antenna>

Ant.	Port	Brand	Model Name	Antenna Type	Connector	Support
1	1~4	CISCO	AIR-ANT2588P4M-NS	(Panel) Dual-polarized directional	N-Female Bulkhead	Radio 2, Radio 5
2	1~4	CISCO	AIR-ANT2566D4M-R	(Patch) Dual-Band Polarization-Diverse Directional Array	RP-TNC (with coupling ring)	
3	1~4	CISCO	AIR-ANT2566D4M-RS	(Patch) Dual-Band Polarization-Diverse Directional Array	RP-TNC (with coupling ring)	
4	1~4	CISCO	AIR-ANT2566P4W-R	(Patch) 4-element dual-band MIMO	RP-TNC	
5	1~4	CISCO	AIR-ANT2566P4W-RS	(Patch) 4-element dual-band MIMO	RP-TNC	
6	1~4	CISCO	CW-ANT-T-D3-N	Dipole	RP-TNC	
7	1	CISCO	CW-ANT-GPS1-M-00	OMNI	MMCX	Radio 7

Ant.	Gain (dBi)					Support
	Pol	WLAN 2.4GHz				
		Peak Gain	Internal Cable Loss	External Cable Loss	Net Gain	
1	V-Pol*2	9.1	0.83	0.5	7.77	Radio 2
	H-Pol*2	7.1	0.83		5.77	
2~3	V-Pol*2	6	0.83	-	5.17	
	H-Pol*2	6	0.83	-	5.17	
4~5	V-Pol*4	6	0.83	-	5.17	
6	-	6	0.83	-	5.17	

Ant.	Gain (dBi)					Support
	Pol	WLAN 5GHz				
		Peak Gain	Internal Cable Loss	External Cable Loss	Net Gain	
1	V-Pol*2	9.6	1.29	0.8	7.51	Radio 5
	H-Pol*2	7.8	1.29		5.71	
2~3	V-Pol*2	6	1.29	-	4.71	
	H-Pol*2	6	1.29	-	4.71	
4~5	V-Pol*4	6	1.29	-	4.71	
6	-	7.5	1.29	-	6.21	

Ant.	Gain (dBi)	Support
	GPS	
7	5	Radio 7

Note 1: The above information was declared by manufacturer.
Note 2: For external Ant. 1~6:
For radiated measurement: The external Ant. 1, 5 and 6 with the highest antenna gain for each type were selected for testing.
For conducted measurement:
NonTXBF power: The external Ant. 1 with the highest antenna gain was selected for testing.

NonTXBF PSD / TXBF power & PSD:
2.4GHz: The external Ant. 4 with the highest antenna array gain was selected for testing.
5GHz: The external Ant. 6 with the highest antenna array gain was selected for testing.

Note 3: Directional gain information

Type	Maximum Output Power	Power Spectral Density
Non-BF	Directional gain = Max.gain + array gain. For power measurements on IEEE 802.11 devices Array Gain = 0 dB (i.e., no array gain) for N ANT ≤ 4	$DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$
BF	$DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$	$DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$

Ex.

Directional Gain (NSS1) formula : $Directiona\ lGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$

NSS1(g1,1) = $10^{G1/20}$; NSS1(g1,2)= $10^{G2/20}$; NSS1(g1,2)= $10^{G3/20}$; NSS1(g1,2)= $10^{G4/20}$

gj,k =$(Nss1(g1,1) + Nss1(g1,2) + Nss1(g1,3) + Nss1(g1,4))^2$

DG = 10 log$[(Nss1(g1,1) + Nss1(g1,2) + Nss1(g1,3) + Nss1(g1,4))^2 / N_{ANT}]$ => 10 log$[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / N_{ANT}]$

Where;

For nonTXBF power:

Radio	Mode		Max Gain (dBi)				DG (dBi)	Remark
			G1	G2	G3	G4		
2	2.4G External	2TX	7.77	5.77	-	-	7.77	Cross-Polarized Antenna
		4TX	7.77	5.77	7.77	5.77	7.77	
	2.4G Internal	2TX	5	4.3	-	-	5	
		4TX	5	4.3	5.1	5.3	5.3	
3	5G UNII 1 (Note 4)	2TX	10.4	9.9	-	-	10.4	
		4TX	10.4	9.9	9.4	10.3	10.4	
	5G UNII 1 (Boresight)	2TX	10.4	9.6	-	-	10.4	
		4TX	10.4	9.6	9.3	10.3	10.4	
	5G UNII 2A (Note 4)	2TX	10.7	9.9	-	-	10.7	
		4TX	10.7	9.9	9.4	10.3	10.7	
	5G UNII 2A (Boresight)	2TX	10.6	9.9	-	-	10.6	
		4TX	10.6	9.9	9.4	10.3	10.6	
	5G UNII 2C (Note 4)	2TX	10.7	10.3	-	-	10.7	
		4TX	10.7	10.3	10	10.6	10.7	
	5G UNII 2C (Boresight)	2TX	10.7	10.3	-	-	10.7	
		4TX	10.7	10.3	9.7	10.6	10.7	
	5G UNII 2C (Steering)	2TX	10.6	10.3	-	-	10.6	
		4TX	10.6	10.3	10	10.6	10.6	

Radio	Mode		Max Gain (dBi)				DG (dBi)	Remark
			G1	G2	G3	G4		
3	5G UNII 3 (Note 4)	2TX	10.4	10.1	-	-	10.4	Cross-Polarized Antenna
		4TX	10.4	10.1	10	10.3	10.4	
	5G UNII 3 (Boresight)	2TX	10.4	9.9	-	-	10.4	
		4TX	10.4	9.9	9.8	10.2	10.4	
	5G UNII 3 (Steering)	2TX	10.4	10.1	-	-	10.4	
		4TX	10.4	10.1	10	10.3	10.4	
4	6G UNII 5 (Narrow Beam)	2TX	9.8	10	-	-	10	
		4TX	9.8	10	9.2	9.2	10	
	6G UNII 5 (Wide Beam)	2TX	5.6	6.4	-	-	6.4	
		4TX	5.6	6.4	5.4	5.1	6.4	
	6G UNII 6 (Narrow Beam)	2TX	10.1	9.8	-	-	10.1	
		4TX	10.1	9.8	9	8.7	10.1	
	6G UNII 6 (Wide Beam)	2TX	6.2	6.2	-	-	6.2	
		4TX	6.2	6.2	4.9	5.2	6.2	
	6G UNII 7 (Narrow Beam)	2TX	10.1	9.8	-	-	10.1	
		4TX	10.1	9.8	9	8.7	10.1	
	6G UNII 7 (Wide Beam)	2TX	6.2	6.5	-	-	6.5	
		4TX	6.2	6.5	5.3	5.2	6.5	
	6G UNII 8 (Narrow Beam)	2TX	10	9.9	-	-	10	
		4TX	10	9.9	9.1	8.8	10	
	6G UNII 8 (Wide Beam)	2TX	7	6.9	-	-	7	
		4TX	7	6.9	6.0	5.4	7	
5	5G UNII 1~2A External	2TX	7.51	5.71	-	-	7.51	
		4TX	7.51	5.71	7.51	5.71	7.51	
	5G UNII 1 Internal (Note 4)	2TX	9.4	8.6	-	-	9.4	
		4TX	9.4	8.6	8.5	8.8	9.4	
	5G UNII 1 Internal (Boresight)	2TX	9.4	8.6	-	-	9.4	
		4TX	9.4	8.6	8.5	8.7	9.4	
	5G UNII 1 Internal (Steering)	2TX	9.4	8.5	-	-	9.4	
		4TX	9.4	8.5	8.5	8.8	9.4	
	5G UNII 2A Internal (Note 4)	2TX	9.4	9	-	-	9.4	
		4TX	9.4	9	9	9.3	9.4	
	5G UNII 2A Internal (Boresight)	2TX	9.4	8.8	-	-	9.4	
		4TX	9.4	8.8	9	9.3	9.4	
	5G UNII 2A Internal (Steering)	2TX	9.4	9	-	-	9.4	
		4TX	9.4	9	9	9.2	9.4	

For nonTXBF PSD / TXBF power & PSD:

Radio	Mode		Max Gain (dBi)				DG (dBi)	Remark
			G1	G2	G3	G4		
2	2.4G External	2TX	5.17	5.17	-	-	8.18	-
		4TX	5.17	5.17	5.17	5.17	11.19	
	2.4G Internal	2TX	5	4.3	-	-	5	Cross-Polarized Antenna
		4TX	5	4.3	5.1	5.3	7.95	
3	5G UNII 1 (Note 4)	2TX	10.4	9.9	-	-	10.4	
		4TX	10.4	9.9	9.4	10.3	13.02	
	5G UNII 1 (Boresight)	2TX	10.4	9.6	-	-	10.4	
		4TX	10.4	9.6	9.3	10.3	12.93	
	5G UNII 2A (Note 4)	2TX	10.7	9.9	-	-	10.7	
		4TX	10.7	9.9	9.4	10.3	13.11	
	5G UNII 2A (Boresight)	2TX	10.6	9.9	-	-	10.6	
		4TX	10.6	9.9	9.4	10.3	13.08	
	5G UNII 2C (Note 4)	2TX	10.7	10.3	-	-	10.7	
		4TX	10.7	10.3	10	10.6	13.42	
	5G UNII 2C (Boresight)	2TX	10.7	10.3	-	-	10.7	
		4TX	10.7	10.3	9.7	10.6	13.35	
	5G UNII 2C (Steering)	2TX	10.6	10.3	-	-	10.6	
		4TX	10.6	10.3	10	10.6	13.31	
	5G UNII 3 (Note 4)	2TX	10.4	10.1	-	-	10.4	
		4TX	10.4	10.1	10	10.3	13.21	
	5G UNII 3 (Boresight)	2TX	10.4	9.9	-	-	10.4	
		4TX	10.4	9.9	9.8	10.2	13.09	
	5G UNII 3 (Steering)	2TX	10.4	10.1	-	-	10.4	
		4TX	10.4	10.1	10	10.3	13.21	
4	6G UNII 5 (Narrow Beam)	2TX	9.8	10	-	-	10	
		4TX	9.8	10	9.2	9.2	12.57	
	6G UNII 5 (Wide Beam)	2TX	5.6	6.4	-	-	6.4	
		4TX	5.6	6.4	5.4	5.1	8.66	
	6G UNII 6 (Narrow Beam)	2TX	10.1	9.8	-	-	10.1	
		4TX	10.1	9.8	9	8.7	12.45	
	6G UNII 6 (Wide Beam)	2TX	6.2	6.2	-	-	6.2	
		4TX	6.2	6.2	4.9	5.2	8.67	
	6G UNII 7 (Narrow Beam)	2TX	10.1	9.8	-	-	10.1	
		4TX	10.1	9.8	9	8.7	12.45	
	6G UNII 7 (Wide Beam)	2TX	6.2	6.5	-	-	6.5	
		4TX	6.2	6.5	5.3	5.2	8.85	
	6G UNII 8 (Narrow Beam)	2TX	10	9.9	-	-	10	
		4TX	10	9.9	9.1	8.8	12.49	
	6G UNII 8 (Wide Beam)	2TX	7	6.9	-	-	7	
		4TX	7	6.9	6.0	5.4	9.38	

Radio	Mode		Max Gain (dBi)				DG (dBi)	Remark
			G1	G2	G3	G4		
5	5G UNII 1~2A External	2TX	6.21	6.21	-	-	9.22	-
		4TX	6.21	6.21	6.21	6.21	12.23	
	5G UNII 1 Internal (Note 4)	2TX	9.4	8.6	-	-	9.4	Cross-Polarized Antenna
		4TX	9.4	8.6	8.5	8.8	12.19	
	5G UNII 1 Internal (Boresight)	2TX	9.4	8.6	-	-	9.4	
		4TX	9.4	8.6	8.5	8.7	11.82	
	5G UNII 1 Internal (Steering)	2TX	9.4	8.5	-	-	9.4	
		4TX	9.4	8.5	8.5	8.8	11.82	
	5G UNII 2A Internal (Note 4)	2TX	9.4	9	-	-	9.4	
		4TX	9.4	9	9	9.3	12.19	
	5G UNII 2A Internal (Boresight)	2TX	9.4	8.8	-	-	9.4	
		4TX	9.4	8.8	9	9.3	12.14	
	5G UNII 2A Internal (Steering)	2TX	9.4	9	-	-	9.4	
		4TX	9.4	9	9	9.2	12.16	

Note 4: For RF Conducted: For internal Ant. 7~10 and Ant. 15~18, only the mode with higher antenna gain between Boresight mode and Steering mode was selected to record in this column and to perform all the test items, except for RF exposure tests.

Note 5: **<Radio 1>**

For 2.4GHz function:

For IEEE 802.11 b/g/n/VHT/ax (1TX/2RX):

Only Port 1 can be used as transmitting antenna.
Both Port 1 and 2 can be used as receiving antenna.
Port 1~2 could receive simultaneously.

For 5GHz function:

For IEEE 802.11 a/n/ac/ax (1TX/2RX):

Only Port 1 can be used as transmitting antenna.
Both Port 1 and 2 can be used as receiving antenna.
Port 1~2 could receive simultaneously.

For 6GHz function:

For IEEE 802.11 ax (1TX/2RX):

Only Port 1 can be used as transmitting antenna.
Both Port 1 and 2 can be used as receiving antenna.
Port 1~2 could receive simultaneously.

<Radio 2>
For 2.4GHz function:
For IEEE 802.11 b/g/n/VHT/ax/be (1TX, 2TX, 4TX/4RX):
1TX:
Only Port 1 can be used as transmitting antenna.
2TX:
Both Port 1 and 2 can be used as transmitting antenna.
Port 1~2 could transmit simultaneously.
4TX:
Port 1~4 can be used as transmitting antenna.
Port 1~4 could transmit simultaneously.
4RX:
Port 1~4 can be used as receiving antenna.
Port 1~4 could receive simultaneously.

<Radio 3>
For 5GHz function:
For IEEE 802.11 a/n/ac/ax/be (1TX, 2TX, 4TX/4RX):
1TX:
Only Port 1 can be used as transmitting antenna.
2TX:
Both Port 1 and 2 can be used as transmitting antenna.
Port 1~2 could transmit simultaneously.
4TX:
Port 1~4 can be used as transmitting antenna.
Port 1~4 could transmit simultaneously.
4RX:
Port 1~4 can be used as receiving antenna.
Port 1~4 could receive simultaneously.

<Radio 4>
For 6GHz function:
For IEEE 802.11 ax/be (1TX, 2TX, 4TX/4RX):
1TX:
Only Port 1 can be used as transmitting antenna.
2TX:
Both Port 1 and 2 can be used as transmitting antenna.
Port 1~2 could transmit simultaneously.
4TX:
Port 1~4 can be used as transmitting antenna.
Port 1~4 could transmit simultaneously.
4RX:
Port 1~4 can be used as receiving antenna.
Port 1~4 could receive simultaneously.

<Radio 5>
For 5GHz function:
For IEEE 802.11 a/n/ac/ax/be (1TX, 2TX, 4TX/4RX):
1TX:
Only Port 1 can be used as transmitting antenna.
2TX:
Both Port 1 and 2 can be used as transmitting antenna.
Port 1~2 could transmit simultaneously.
4TX:
Port 1~4 can be used as transmitting antenna.
Port 1~4 could transmit simultaneously.
4RX:
Port 1~4 can be used as receiving antenna.
Port 1~4 could receive simultaneously.

<Radio 6>
For Bluetooth function (1TX/1RX):
Only Port 1 can be used as transmitting/receiving antenna.
For Zigbee function (1TX/1RX):
Only Port 1 can be used as transmitting/receiving antenna.

<Radio 7>
For GPS function (1RX):
The EUT supports the antenna with RX diversity functions.
Internal Ant. 20~21 and external Ant. 7 can be used as receiving antenna, but only one of them will be used at one time.

<Radio 8>
For UWB function (1TX/2RX):
Only Port 1 can be used as transmitting antenna.
Both Port 1 and 2 can be used as receiving antenna.
Port 1~2 could receive simultaneously.

1.1.3 Mode Test Duty Cycle

Mode	DC	DCF (dB)	T (s)	VBW (Hz)_1/T
Zigbee_Nss 1	1	0	n/a (DC>=0.98)	n/a (DC>=0.98)

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	DOS[10.0.19045.4780]			
Serial Number	For AC Conduction and Radiated below 1GHz tests: WNT284706NC For others: WNT284508JE			

Note: The above information was declared by manufacturer.

1.1.5 Table for Multiple Listing

Equipment Name	Model Name	BW of 5G Mode (MHz)	Radio 3	6G Mode	SW	Frequencies supported by 320MHz (MHz)
Cisco Wireless 9179F Series Wi-Fi 7 Access Point	CW9179F	20/40/80/160	UNII 1~3/ UNII 2C~3	6ID	Cisco	6105, 6265, 6425, 6745
				6SD		Not support
		20/40/80	UNII 2C~3	6ID&6PP	Meraki	6105, 6265, 6425, 6585, 6745, 6905
				6SD		6105

Note: The above information was declared by manufacturer.

1.1.6 Table for EUT Support Function

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

Note 1: Form above table list, only AP mode was tested and recorded in this report.

Note 2: The above information was declared by manufacturer.

1.1.7 Table for Radio Function

Function / Radio (R)	WLAN 2.4GHz	WLAN 5GHz	WLAN 6GHz	Bluetooth	Zigbee	UWB	GPS
R1 (Scanning Radio)	✓	✓ (UNII 1~3)	✓	-	-	-	-
R2	✓	-	-	-	-	-	-
R3	-	✓ (Note 1) (Full band: UNII 1~3) (High band: UNII 2C~3)	-	-	-	-	-
R4	-	-	✓	-	-	-	-
R5	-	✓ (Low band: UNII 1~2A)	-	-	-	-	-
R6	-	-	-	✓	✓	-	-
R7	-	-	-	-	-	-	✓
R8	-	-	-	-	-	✓	-

Note 1: For R3, the full band mode supports Boresight mode only, and the high band mode supports both Boresight mode and Steering mode.

Note 2: For WLAN 2.4GHz, R1 and R2 can't operate at the same frequency simultaneously.
For WLAN 5GHz, R1, R3 and R5 can't operate at the same frequency simultaneously.
For WLAN 6GHz, R1 and R4 can't operate at the same frequency simultaneously.

Note 3: 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	Ederson Huang	23.2~24.9 / 61~64	Dec. 18, 2024~ Jan. 24, 2025
Radiated < 1GHz	03CH05-CB	Jackson Peng	21.9~22.4 / 60~62	Feb. 19, 2025~ Feb. 25, 2025
Radiated > 1GHz	03CH06-CB	Jackson Peng	22.5~22.9 / 58~60	Feb. 06, 2025~ Feb. 08, 2025
AC Conduction	CO02-CB	Joe Chu	23~24 / 50~51	Jan. 21, 2025~ Feb. 06, 2025
				Mar. 18, 2025

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
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								
	R1 (2.4GHz/ 5GHz/6GHz)	**R2** (2.4GHz)	**R3** (5GHz)	**R4** (6GHz)	**R5** (5GHz)	**R6** (BT/ Zigbee)	**R7** (GPS)	**R8** (UWB)	**PoE**
1	2.4GHz	Internal Ant.	Boresight	Narrow Beam	N/A	BT	Internal Ant. 20	✓	1 (Test LAN 0)
2									1 (Test LAN 1)
Mode 2 has been evaluated to be the worst case among Mode 1~2, so the measurement for Mode 3~9 will follow this same test mode.									
3	2.4GHz	Internal Ant.	Boresight	Narrow Beam	N/A	BT	Internal Ant. 20	✓	2 (Test LAN 1)
4									3 (Test LAN 1)
5									4 (Test LAN 1)
6									5 (Test LAN 1)
7									6 (Test LAN 1)
8									7 (Test LAN 1)
9									8 (Test LAN 1)
Mode 5 has been evaluated to be the worst case among Mode 1~9, so the measurement for Mode 10~11 will follow this same test mode.									
10	5GHz	Internal Ant.	Boresight	Narrow Beam	N/A	BT	Internal Ant. 20	✓	4 (Test LAN 1)
11	6GHz								
Mode 5 has been evaluated to be the worst case among Mode 1~11, so the measurement for Mode 12 will follow this same test mode.									
12	2.4GHz	Internal Ant.	Boresight	Narrow Beam	N/A	Zigbee	Internal Ant. 20	✓	4 (Test LAN 1)
Mode 5 has been evaluated to be the worst case among Mode 1~12, so the measurement for Mode 13~14 will follow this same test mode.									
13	2.4GHz	Internal Ant.	Boresight	Narrow Beam	N/A	BT	Internal Ant. 21	✓	4 (Test LAN 1)
14							External Ant. 7		
Mode 5 has been evaluated to be the worst case among Mode 1~14, so the measurement for Mode 15~19 will follow this same test mode.									
15	2.4GHz	Internal Ant.	Steering	Wide Beam	Internal Ant. (Steering)	BT	Internal Ant. 20	✓	4 (Test LAN 1)
16		External Ant. 1	Boresight	Narrow Beam	External Ant. 1				

Operating Mode	Normal Link								
	R1 (2.4GHz/ 5GHz/6GHz)	R2 (2.4GHz)	R3 (5GHz)	R4 (6GHz)	R5 (5GHz)	R6 (BT/ Zigbee)	R7 (GPS)	R8 (UWB)	PoE
17	2.4GHz	External Ant. 5	Boresight	Narrow Beam	External Ant. 5	BT	Internal Ant. 20	✓	4 (Test LAN 1)
18		External Ant. 6			External Ant. 6				
19		Internal Ant.			Internal Ant. (Boresight)				
For operating, mode 5 is the worst case and it was recorded 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	
Operating Mode	1	EUT_R6: Zigbee

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, EUT in Y axis was the worst case, so the measurement will follow this same test configuration.
1	EUT in Y axis_R1: 2.4GHz + PoE 1
2	EUT in Y axis_R1: 2.4GHz + PoE 2
3	EUT in Y axis_R1: 2.4GHz + PoE 3
4	EUT in Y axis_R1: 2.4GHz + PoE 4
5	EUT in Y axis_R1: 2.4GHz + PoE 5
6	EUT in Y axis_R1: 2.4GHz + PoE 6
7	EUT in Y axis_R1: 2.4GHz + PoE 7
8	EUT in Y axis_R1: 2.4GHz + PoE 8
Mode 4 has been evaluated to be the worst case among Mode 1~8, so the measurement for Mode 9~25 will follow this same test mode.	
9	EUT in Y axis_R1: 5GHz + PoE 4
10	EUT in Y axis_R1: 6GHz + PoE 4

11	EUT in Y axis_R2: 2.4GHz (Internal Ant.) + PoE 4
12	EUT in Y axis_R3: 5GHz (Boresight) + PoE 4
13	EUT in Y axis_R4: 6GHz (Narrow Beam) + PoE 4
14	EUT in Y axis_R5: 5GHz (Internal Ant. - Boresight) + PoE 4
15	EUT in Y axis_R6: Bluetooth + PoE 4
16	EUT in Y axis_R6: Zigbee + PoE 4
17	EUT in Y axis_R3: 5GHz (Steering) + PoE 4
18	EUT in Y axis_R4: 6GHz (Wide Beam) + PoE 4
19	EUT in Y axis_R5: 5GHz (Internal Ant. - Steering) + PoE 4
20	EUT in Y axis_R2: 2.4GHz (External Ant. 1) + PoE 4
21	EUT in Y axis_R2: 2.4GHz (External Ant. 5) + PoE 4
22	EUT in Y axis_R2: 2.4GHz (External Ant. 6) + PoE 4
23	EUT in Y axis_R5: 5GHz (External Ant. 1) + PoE 4
24	EUT in Y axis_R5: 5GHz (External Ant. 5) + PoE 4
25	EUT in Y axis_R5: 5GHz (External Ant. 6) + PoE 4
For operating, mode 13 is the worst case and it was recorded in this test report.	
Operating Mode > 1GHz	CTX (Cabinet)
	After evaluating, EUT in Y axis was the worst case, so the measurement will follow this same test configuration.
1	EUT in Y axis_R6: Zigbee

The Worst Case Mode for Following Conformance Tests		
Tests Item	Emissions in Restricted Frequency Bands	
Test Condition	Conducted measurement at transmit chains	
Operating Mode > 1GHz	CTX (Harmonic & Bandedge)	
	1	EUT_R6: Zigbee

The Worst Case Mode for Following Conformance Tests							
Tests Item	Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation						
Operating Mode	**R1** (2.4GHz/5GHz/ 6GHz)	**R2** (2.4GHz)	**R3** (5GHz UNII 1~3/ 5GHz UNII 2C~3)	**R4** (6GHz)	**R5** (5GHz)	**R6** (BT/ Zigbee)	**R8** (UWB)
1	2.4GHz	Internal Ant.	Full band: UNII 1~3 (Boresight)	Narrow Beam	N/A	BT	✓
2	5GHz						
3	6GHz						
4	2.4GHz					Zigbee	
5	5GHz						
6	6GHz						
7	2.4GHz		High band: UNII 2C~3 (Steering)	Wide Beam	Internal Ant. (Steering)	BT	
8	5GHz						
9	6GHz						
10	2.4GHz					Zigbee	
11	5GHz						
12	6GHz						
13	2.4GHz	External Ant.	High band: UNII 2C~3 (Boresight)	Narrow Beam	External Ant.	BT	
14	5GHz						
15	6GHz						
16	2.4GHz					Zigbee	
17	5GHz						
18	6GHz						
19	2.4GHz	Internal Ant.			Internal Ant. (Boresight)	BT	
20	5GHz						
21	6GHz						
22	2.4GHz					Zigbee	
23	5GHz						
24	6GHz						
Refer to Sporton Test Report No.: FA4N2714-02 for Co-location RF Exposure Evaluation.							

Note: The PoEs were for measurement only and would not be marketed. Their information is shown as below:

Equipment	Brand	Model Name
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

Equipment	Brand	Model Name
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

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

Bracket*1 (Optional)

IO Bazel*1

2.5 Support Equipment

For AC Conduction:

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
A	PoE 4 (1)	PHIHONG	POEA33U-1ATE	N/A
B	2.4G NB	DELL	E6400	N/A
C	5G NB	DELL	E6400	N/A
D	6G module	MTK	MT7927	N/A
E	6G NB	DELL	E6400	N/A
F	GPS Simulator	WELNAVIGATE	GS-100	N/A
G	LAN1 PC	ASUS	S300TA	TX2-RTL8821CE
H	PoE 4 (2)	PHIHONG	POEA33U-1ATE	N/A
I	LAN0 PC	ASUS	S300TA	TX2-RTL8821CE
J	Smart phone	REDMI	M1810F6LH	2AFZZ-RMSF6LG
K	UWB Device	CISCO	DB10	N/A

For Radiated:

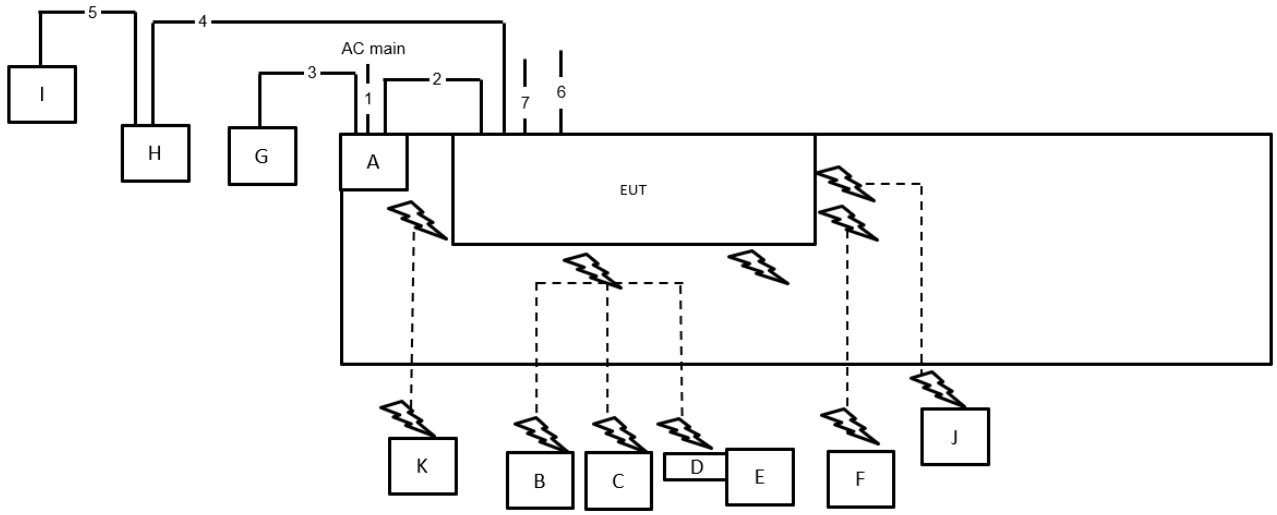
Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
A	Notebook	DELL	E4300	N/A
B	PoE 4	PHIHONG	POEA33U-1ATE	N/A

For RF Conducted:

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
A	Notebook	DELL	E4300	N/A
B	PoE 4	PHIHONG	POEA33U-1ATE	N/A

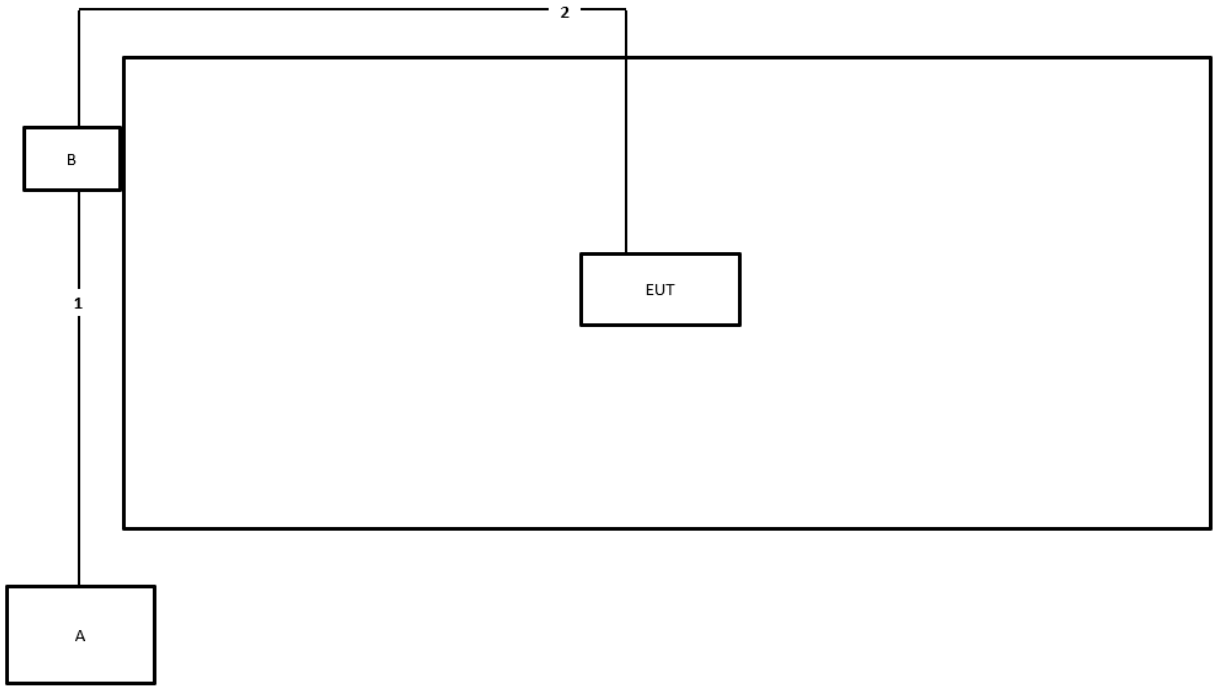
2.6 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test



Item	Connection	Shielded	Length
1	Power cable	No	1.5m
2	RJ-45 cable	No	1.5m
3	RJ-45 cable	No	10m
4	RJ-45 cable	No	10m
5	RJ-45 cable	No	10m
6	RJ-45 console cable	No	1.5m
7	GND cable	No	1.5m

Test Setup Diagram - Radiated Test



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

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

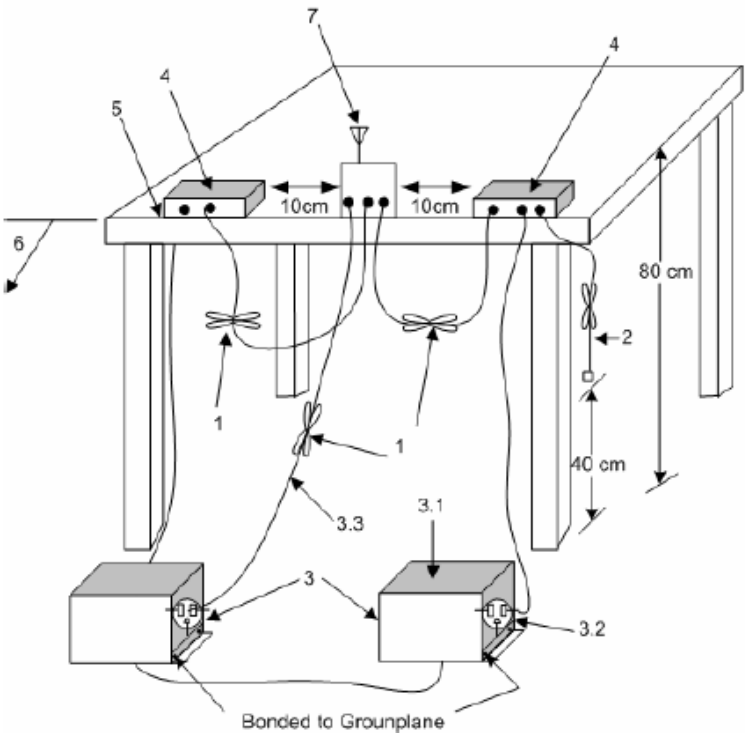
Refer a test equipment and calibration data table in this test report.

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.

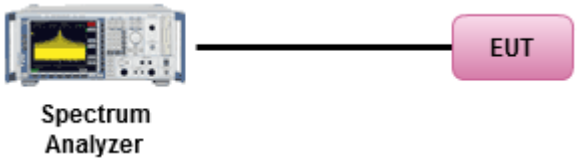
3.2.2 Measuring Instruments

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


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

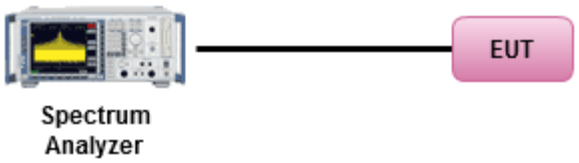
3.4.2 Measuring Instruments

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.

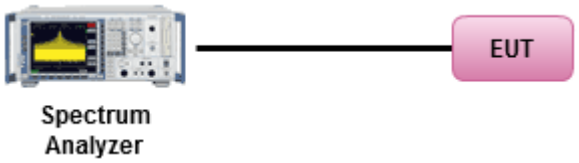
3.5.2 Measuring Instruments

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

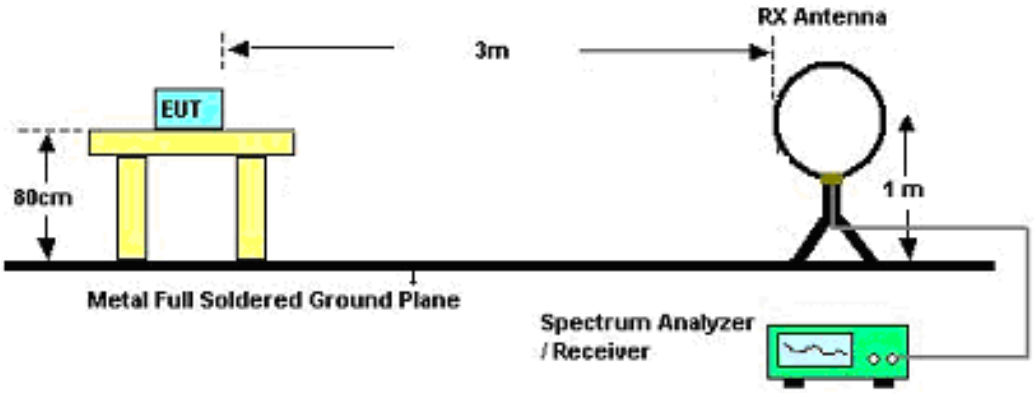
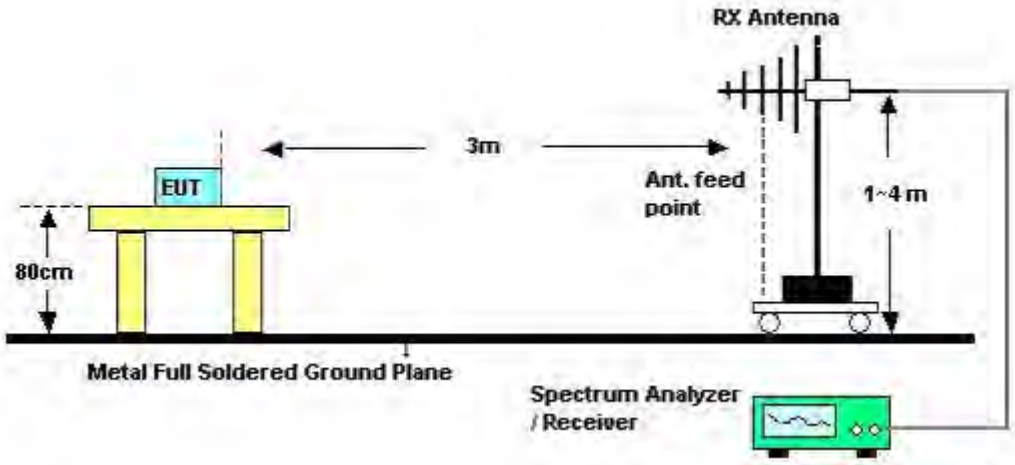
Refer a test equipment and calibration data table in this test report.

3.6.3 Test Procedures

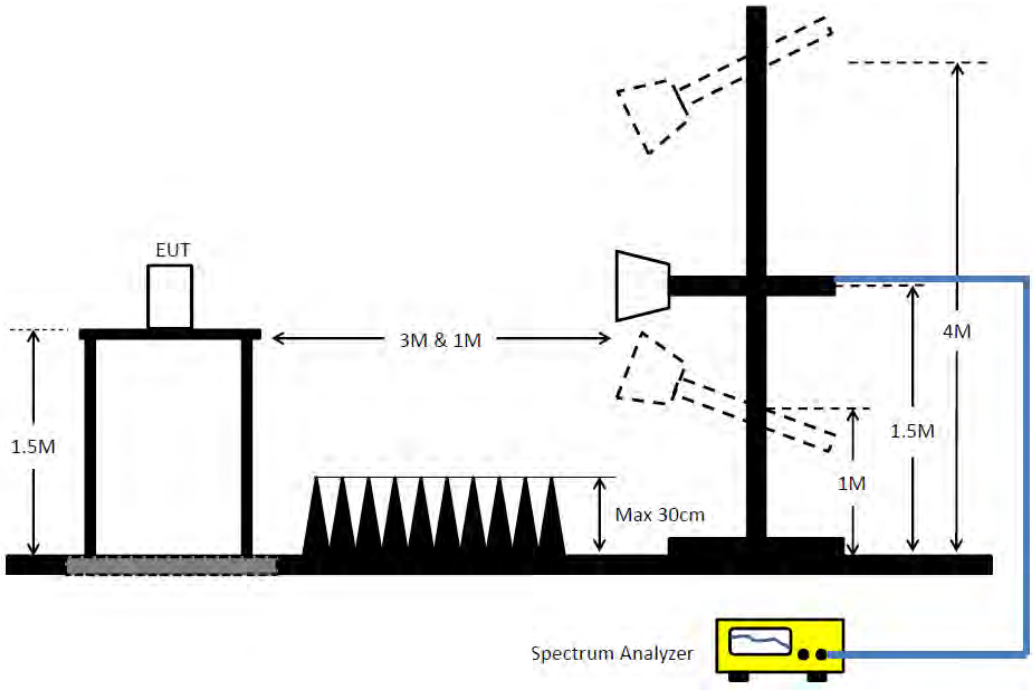
Test Method		
▪ The average emission levels shall be measured in [duty cycle ≥ 98 or duty factor].		
▪ Refer as ANSI C63.10, clause 6.10.3 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.		
▪ For the transmitter unwanted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

Test Method	
▪ For conducted and cabinet radiation measurement, refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.2.	
	▪ For conducted unwanted emissions into non-restricted bands (relative emission limits). Devices with multiple transmit chains: Refer as FCC KDB 662911, when testing out-of-band and spurious emissions against relative emission limits, tests may be performed on each output individually without summing or adding 10 log(N) if the measurements are made relative to the in-band emissions on the individual outputs.
	▪ 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.

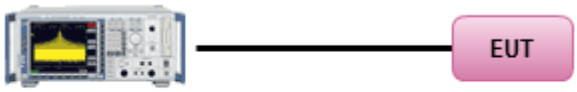
3.6.4 Test Setup

Emissions in Restricted Frequency Bands
9kHz ~30MHz

30MHz~1GHz


Above 1GHz



Conducted - Emissions in Restricted Frequency Bands



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	8127647	9kHz ~ 30MHz	Apr. 24, 2024	Apr. 23, 2025	Conduction (CO02-CB)
EMI Receiver	Agilent	N9038A	MY52260140	9kHz ~ 8.4GHz	May 15, 2024	May 14, 2025	Conduction (CO02-CB)
COND Cable	Woken	Cable	02	0.15MHz ~ 30MHz	Oct. 16, 2024	Oct. 15, 2025	Conduction (CO02-CB)
Pulse Limiter	Schwarzbeck	VTSD 9561F-N	00378	9kHz ~ 30MHz	Oct. 16, 2024	Oct. 15, 2025	Conduction (CO02-CB)
Test Software	SPORTON	SENSE-EMI	V5.11	150kHz-30MHz	N.C.R.	N.C.R.	Conduction (CO02-CB)
Loop Antenna	Teseq	HLA 6121	65417	9kHz - 30MHz	Oct. 16, 2024	Oct. 15, 2025	Radiation (03CH05-CB)
3m Semi Anechoic Chamber NSA	TDK	SAC-3M	03CH05-CB	30 MHz ~ 1 GHz	Aug. 01, 2024	Jul. 31, 2025	Radiation (03CH05-CB)
Bilog Antenna with 6dB Attenuator	TESEQ & EMCI	CBL 6112D & N-6-06	35236 & AT-N0610	30MHz ~ 2GHz	Mar. 23, 2024	Mar. 22, 2025	Radiation (03CH05-CB)
Amplifier	EMCI	EMC330N	980331	20MHz ~ 3GHz	May 02, 2024	May 01, 2025	Radiation (03CH05-CB)
Spectrum Analyzer	R&S	FSP40	100304	9kHz ~ 40GHz	Apr. 17, 2024	Apr. 16, 2025	Radiation (03CH05-CB)
EMI Test Receiver	R&S	ESR7	102172	9kHz ~ 7GHz	Oct. 21, 2024	Oct. 20, 2025	Radiation (03CH05-CB)
RF Cable-low	Woken	RG402	Low Cable-04+23	30MHz~1GHz	Oct. 01, 2024	Sep. 30, 2025	Radiation (03CH05-CB)
Test Software	SPORTON	SENSE-EMI	V5.11.8	30MHz-40GHz	N.C.R.	N.C.R.	Radiation (03CH05-CB)
3m Semi Anechoic Chamber VSWR	TDK	SAC-3M	03CH06-CB	1GHz ~18GHz 3m	Oct. 08, 2024	Oct. 07, 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	BBHA9170252	15GHz ~ 40GHz	Sep. 23, 2024	Sep. 22, 2025	Radiation (03CH06-CB)
Pre-Amplifier	EMCI	EMC12630SE	980383	1GHz ~ 18GHz	Jul. 31, 2024	Jul. 30, 2025	Radiation (03CH06-CB)
Pre-Amplifier	SGH	SGH184	20221107-3	18GHz ~ 40GHz	Nov. 25, 2024	Nov. 24, 2025	Radiation (03CH06-CB)
Signal analyzer	R&S	FSV3044	101667	9kHz~44GHz	Aug. 20, 2024	Aug. 19, 2025	Radiation (03CH06-CB)

Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
RF Cable-high	Woken	RG402	High Cable-05+68	1GHz~18GHz	Oct. 01, 2024	Sep. 30, 2025	Radiation (03CH06-CB)
High Cable	Woken	WCA0929M	40G#5+6	1GHz ~ 40 GHz	Oct. 01, 2024	Sep. 30, 2025	Radiation (03CH06-CB)
Test Software	SPORTON	SENSE-15247 _FS	V5.11.23	2.4GHz-2.4835GHz	N.C.R.	N.C.R.	Radiation (03CH06-CB)
Signal Analyzer	R&S	FSV40	101903	9kHz ~ 40GHz	Jun. 11, 2024	Jun. 10, 2025	Conducted (TH03-CB)
Power Sensor	Anritsu	MA2411B	1726195	300MHz~40GHz	Sep. 06, 2024	Sep. 05, 2025	Conducted (TH03-CB)
Power Meter	Anritsu	ML2495A	1035008	300MHz~40GHz	Sep. 06, 2024	Sep. 05, 2025	Conducted (TH03-CB)
RF Cable	Woken	RG402	High Cable-11	30MHz –18 GHz	Oct. 01, 2024	Sep. 30, 2025	Conducted (TH03-CB)
RF Cable	Woken	RG402	High Cable-12	30MHz –18 GHz	Oct. 01, 2024	Sep. 30, 2025	Conducted (TH03-CB)
RF Cable	Woken	RG402	High Cable-13	30MHz –18 GHz	Oct. 01, 2024	Sep. 30, 2025	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-14	1 GHz –18 GHz	Oct. 01, 2024	Sep. 30, 2025	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-15	1 GHz –18 GHz	Oct. 01, 2024	Sep. 30, 2025	Conducted (TH03-CB)
High Cable	Woken	WCA0929M	40G#5+6	1GHz ~ 40 GHz	Oct. 01, 2024	Sep. 30, 2025	Conducted (TH03-CB)
Switch	SPTCB	SP-SWI	SWI-03	1~18GHz	Oct. 02, 2024	Oct. 01, 2025	Conducted (TH03-CB)
Test Software	SPORTON	SENSE-15247 _FS	V5.11.23	2.4GHz-2.4835GHz	N.C.R.	N.C.R.	Conducted (TH03-CB)

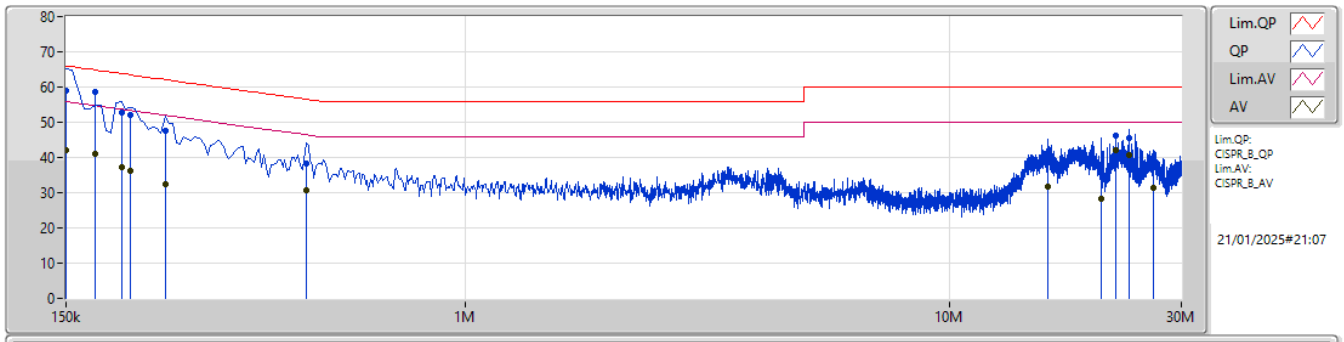
Note: Calibration Interval of instruments listed above is one year.

NCR means Non-Calibration required.

Summary

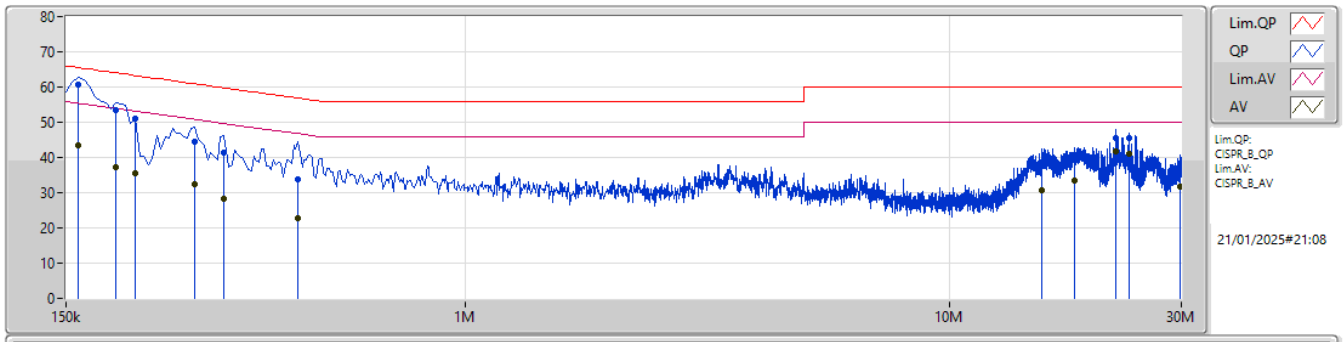
Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 5	Pass	QP	159k	60.69	65.52	-4.83	Neutral

Mode 5



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	150k	58.86	66.00	-7.14	10.15	Line	-	48.71	0.05	0.08	10.02
AV	150k	41.91	56.00	-14.09	10.15	Line	-	31.76	0.05	0.08	10.02
QP	172.5k	58.48	64.83	-6.35	10.14	Line	"Worst"	48.34	0.05	0.07	10.02
AV	172.5k	40.98	54.83	-13.85	10.14	Line	-	30.84	0.05	0.07	10.02
QP	195k	52.89	63.82	-10.93	10.14	Line	-	42.75	0.05	0.07	10.02
AV	195k	37.14	53.82	-16.68	10.14	Line	-	27.00	0.05	0.07	10.02
QP	204k	52.00	63.44	-11.44	10.14	Line	-	41.86	0.05	0.07	10.02
AV	204k	36.16	53.44	-17.28	10.14	Line	-	26.02	0.05	0.07	10.02
QP	240k	47.42	62.10	-14.68	10.15	Line	-	37.27	0.05	0.08	10.02
AV	240k	32.51	52.10	-19.59	10.15	Line	-	22.36	0.05	0.08	10.02
QP	469.5k	38.21	56.52	-18.31	10.18	Line	-	28.03	0.05	0.10	10.03
AV	469.5k	30.68	46.52	-15.84	10.18	Line	-	20.50	0.05	0.10	10.03
QP	15.909M	38.70	60.00	-21.30	10.61	Line	-	28.09	0.34	0.24	10.03
AV	15.909M	31.76	50.00	-18.24	10.61	Line	-	21.15	0.34	0.24	10.03
QP	20.477M	35.60	60.00	-24.40	10.74	Line	-	24.86	0.40	0.33	10.01
AV	20.477M	28.43	50.00	-21.57	10.74	Line	-	17.69	0.40	0.33	10.01
QP	21.957M	46.04	60.00	-13.96	10.78	Line	-	35.26	0.44	0.32	10.02
AV	21.957M	42.01	50.00	-7.99	10.78	Line	-	31.23	0.44	0.32	10.02
QP	23.451M	45.59	60.00	-14.41	10.81	Line	-	34.78	0.47	0.32	10.02
AV	23.451M	40.67	50.00	-9.33	10.81	Line	-	29.86	0.47	0.32	10.02
QP	26.21M	37.46	60.00	-22.54	10.90	Line	-	26.56	0.53	0.32	10.05
AV	26.21M	31.34	50.00	-18.66	10.90	Line	-	20.44	0.53	0.32	10.05

Mode 5



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	159k	60.69	65.52	-4.83	10.15	Neutral	"Worst"	50.54	0.05	0.08	10.02
AV	159k	43.58	55.52	-11.94	10.15	Neutral	-	33.43	0.05	0.08	10.02
QP	190.5k	53.52	64.01	-10.49	10.14	Neutral	-	43.38	0.05	0.07	10.02
AV	190.5k	37.15	54.01	-16.86	10.14	Neutral	-	27.01	0.05	0.07	10.02
QP	208.5k	51.08	63.27	-12.19	10.14	Neutral	-	40.94	0.05	0.07	10.02
AV	208.5k	35.52	53.27	-17.75	10.14	Neutral	-	25.38	0.05	0.07	10.02
QP	276k	44.53	60.93	-16.40	10.15	Neutral	-	34.38	0.05	0.08	10.02
AV	276k	32.51	50.93	-18.42	10.15	Neutral	-	22.36	0.05	0.08	10.02
QP	316.5k	41.25	59.80	-18.55	10.17	Neutral	-	31.08	0.05	0.09	10.03
AV	316.5k	28.36	49.80	-21.44	10.17	Neutral	-	18.19	0.05	0.09	10.03
QP	451.5k	33.75	56.84	-23.09	10.18	Neutral	-	23.57	0.05	0.10	10.03
AV	451.5k	22.83	46.84	-24.01	10.18	Neutral	-	12.65	0.05	0.10	10.03
QP	15.486M	37.42	60.00	-22.58	10.50	Neutral	-	26.92	0.24	0.23	10.03
AV	15.486M	30.54	50.00	-19.46	10.50	Neutral	-	20.04	0.24	0.23	10.03
QP	18.083M	39.80	60.00	-20.20	10.56	Neutral	-	29.24	0.25	0.29	10.02
AV	18.083M	33.57	50.00	-16.43	10.56	Neutral	-	23.01	0.25	0.29	10.02
QP	21.957M	45.68	60.00	-14.32	10.62	Neutral	-	35.06	0.28	0.32	10.02
AV	21.957M	41.81	50.00	-8.19	10.62	Neutral	-	31.19	0.28	0.32	10.02
QP	23.451M	45.66	60.00	-14.34	10.63	Neutral	-	35.03	0.29	0.32	10.02
AV	23.451M	41.15	50.00	-8.85	10.63	Neutral	-	30.52	0.29	0.32	10.02
QP	29.846M	37.75	60.00	-22.25	10.76	Neutral	-	26.99	0.33	0.33	10.10
AV	29.846M	31.61	50.00	-18.39	10.76	Neutral	-	20.85	0.33	0.33	10.10

Summary

Mode	Max-N dB	Max-OBW	ITU-Code	Min-N dB	Min-OBW
	(Hz)	(Hz)		(Hz)	(Hz)
2.4-2.4835GHz	-	-	-	-	-
Zigbee	1.856M	2.243M	2M24G1D	1.706M	2.228M

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

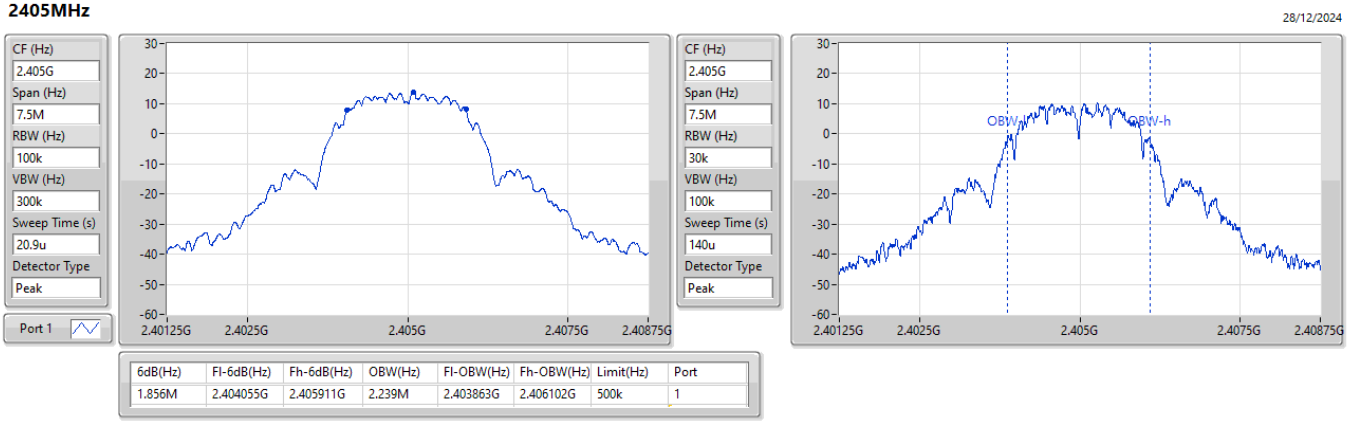
Result

Mode	Result	Limit	Port 1-N dB	Port 1-OBW
		(Hz)	(Hz)	(Hz)
Zigbee	-	-	-	-
2405MHz	Pass	500k	1.856M	2.239M
2440MHz	Pass	500k	1.706M	2.243M
2480MHz	Pass	500k	1.763M	2.228M

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

2.4-2.4835GHz_Zigbee **EBW**

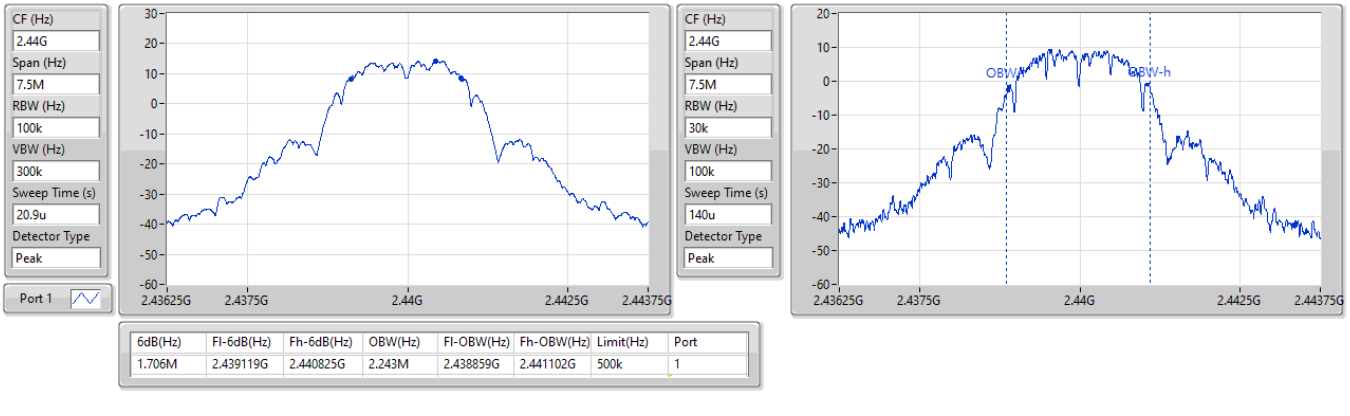
2405MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.856M	2.404055G	2.405911G	2.239M	2.403863G	2.406102G	500k	1

2.4-2.4835GHz_Zigbee **EBW**

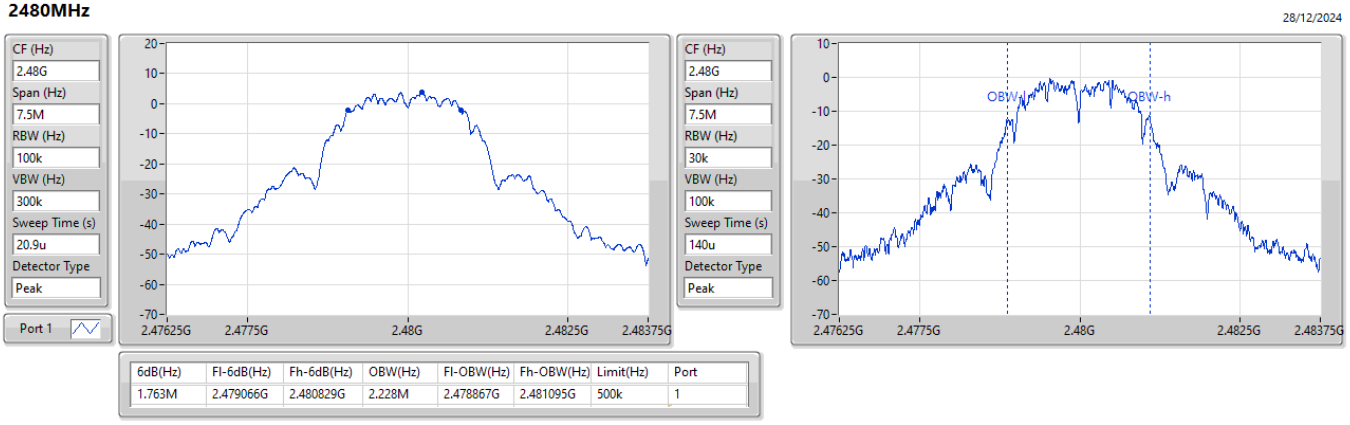
2440MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.706M	2.439119G	2.440825G	2.243M	2.438859G	2.441102G	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
1.763M	2.479066G	2.480829G	2.228M	2.478867G	2.481095G	500k	1

Summary

Mode	Total Power	Total Power
	(dBm)	(W)
2.4-2.4835GHz	-	-
Zigbee	19.47	0.08851

Result

Mode	Result	DG	Port 1	Total Power	Power Limit
		(dBi)	(dBm)	(dBm)	(dBm)
Zigbee	-	-	-	-	-
2405MHz	Pass	6.10	19.47	19.47	29.90
2440MHz	Pass	6.10	19.19	19.19	29.90
2475MHz	Pass	6.10	19.13	19.13	29.90
2480MHz	Pass	6.10	7.71	7.71	29.90

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	4.06

RBW = 3kHz;

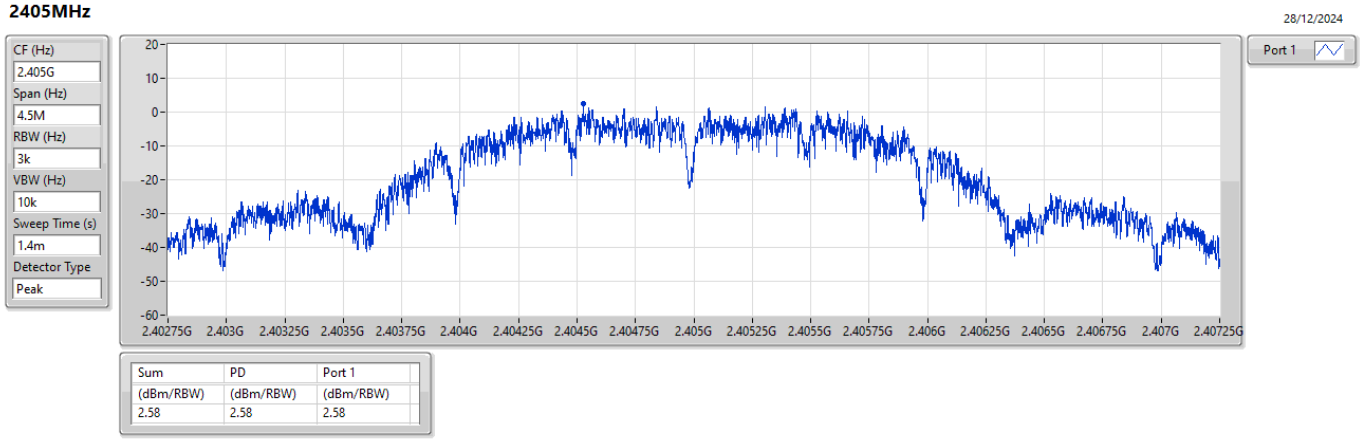
Result

Mode	Result	DG	Port 1	PD	PD Limit
		(dBi)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
Zigbee	-	-	-	-	-
2405MHz	Pass	6.10	2.58	2.58	7.90
2440MHz	Pass	6.10	4.06	4.06	7.90
2480MHz	Pass	6.10	-9.00	-9.00	7.90

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.

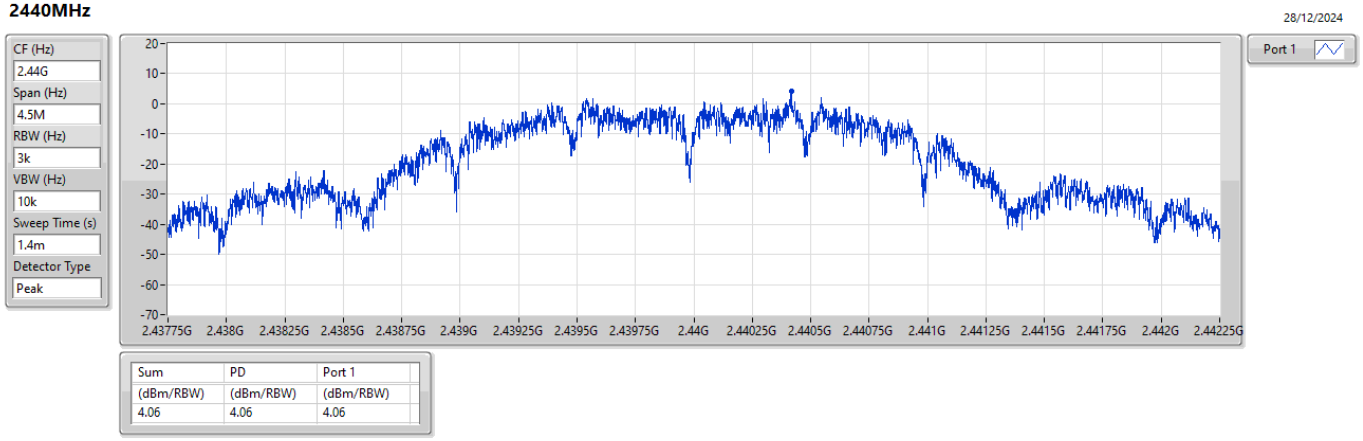
2.4-2.4835GHz_Zigbee **PSD**

2405MHz



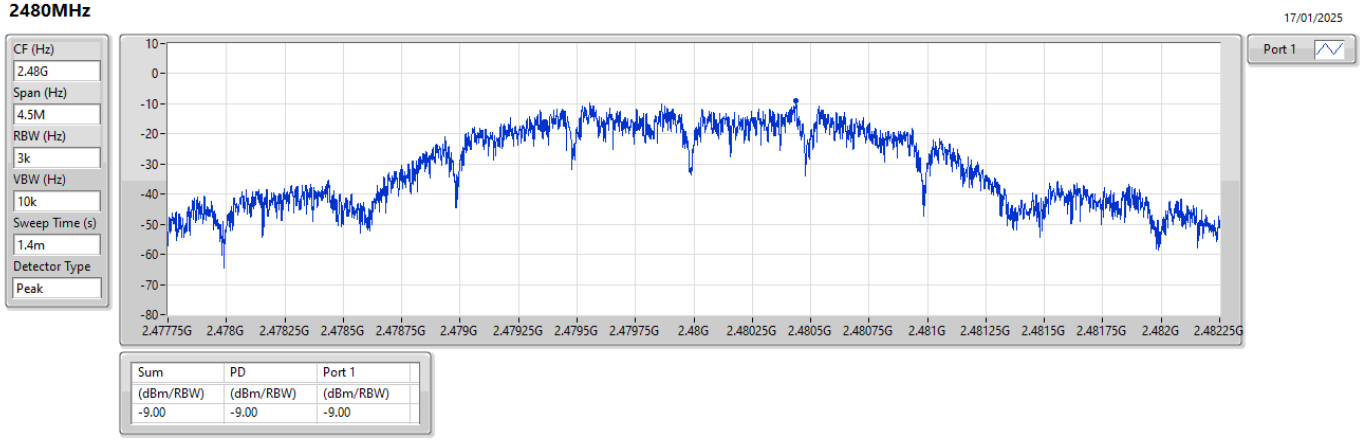
2.4-2.4835GHz_Zigbee **PSD**

2440MHz



2.4-2.4835GHz_Zigbee **PSD**

2480MHz



Summary

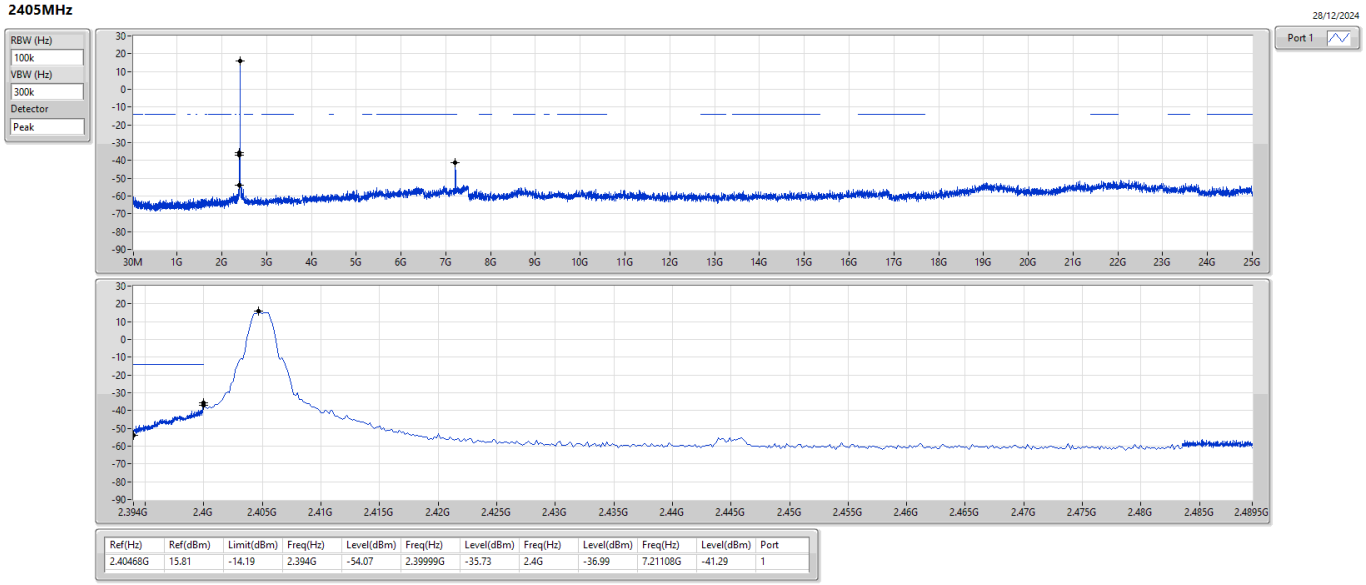
Mode	Result	Ref	Ref	Limit	Freq	Level	Freq	Level	Freq	Level	Freq	Level	Port
		(Hz)	(dBm)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-
Zigbee	Pass	2.40468G	15.81	-14.19	2.394G	-54.07	2.39999G	-35.73	2.4G	-36.99	7.21108G	-41.29	1

Result

Mode	Result	Ref	Ref	Limit	Freq	Level	Freq	Level	Freq	Level	Freq	Level	Port
		(Hz)	(dBm)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	
Zigbee	-	-	-	-	-	-	-	-	-	-	-	-	-
2405MHz	Pass	2.40468G	15.81	-14.19	2.394G	-54.07	2.39999G	-35.73	2.4G	-36.99	7.21108G	-41.29	1
2440MHz	Pass	2.40468G	15.81	-14.19	2.39164G	-59.19	2.39892G	-53.98	2.4G	-57.76	21.86541G	-52.00	1
2480MHz	Pass	2.40468G	15.81	-14.19	1.81482G	-59.70	2.39731G	-56.19	2.4G	-63.09	21.65719G	-50.70	1

2.4-2.4835GHz_Zigbee CSENdB

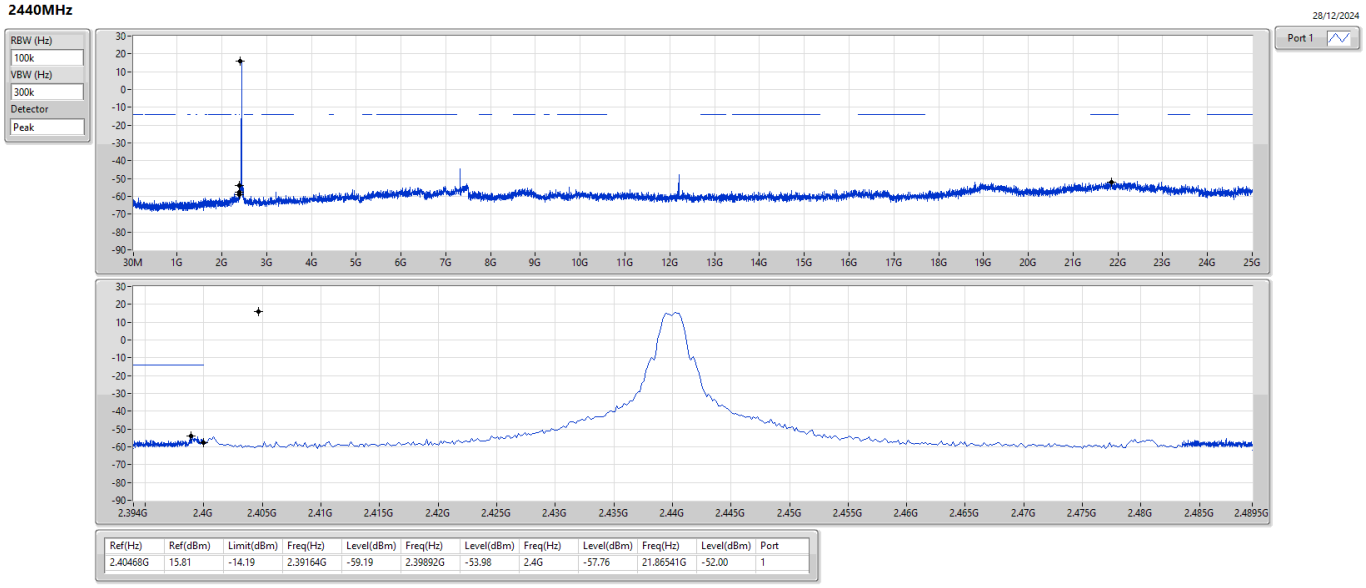
2405MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.40468G	15.81	-14.19	2.394G	-54.07	2.39999G	-35.73	2.4G	-36.99	7.21108G	-41.29	1

2.4-2.4835GHz_Zigbee CSENdB

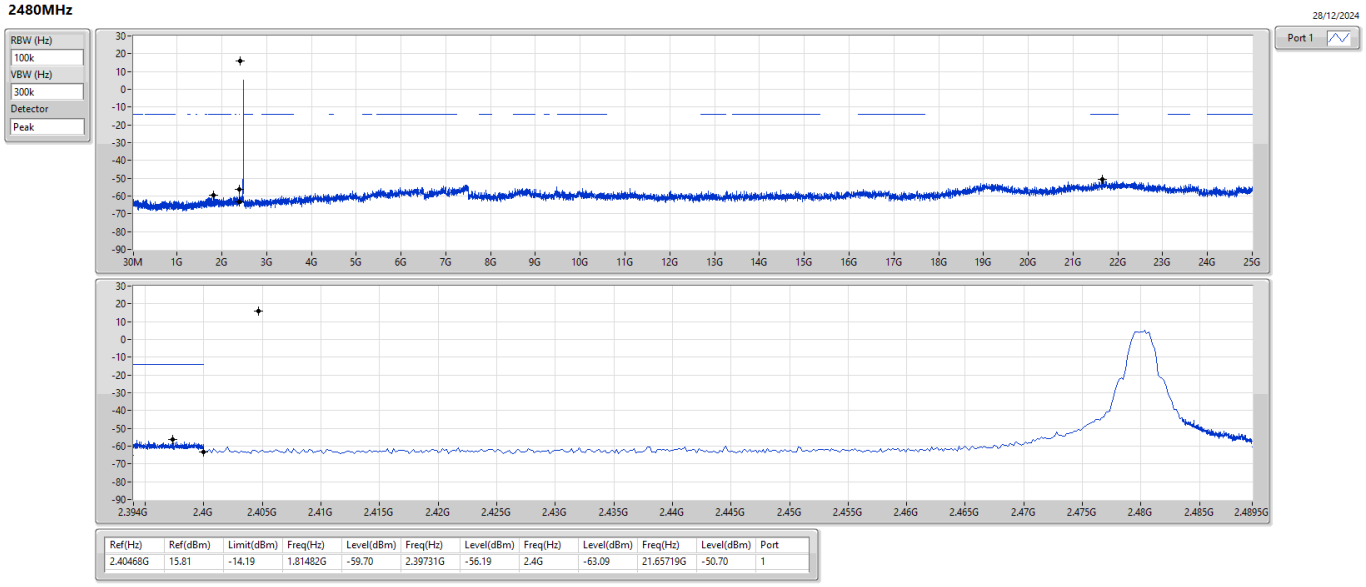
2440MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.40468G	15.81	-14.19	2.39164G	-59.19	2.39892G	-53.98	2.4G	-57.76	21.86541G	-52.00	1

2.4-2.4835GHz_Zigbee CSENdB

2480MHz

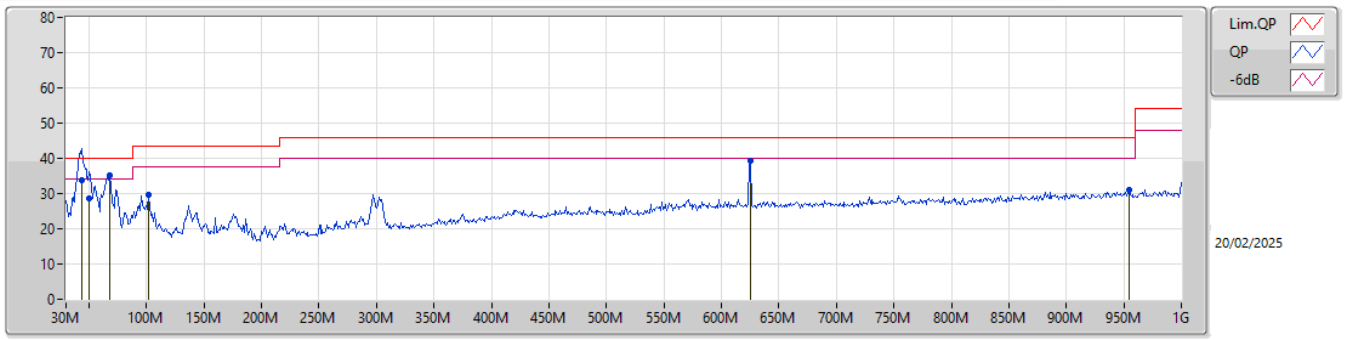


Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.40468G	15.81	-14.19	1.81482G	-59.70	2.39731G	-56.19	2.4G	-63.09	21.65719G	-50.70	1

Summary

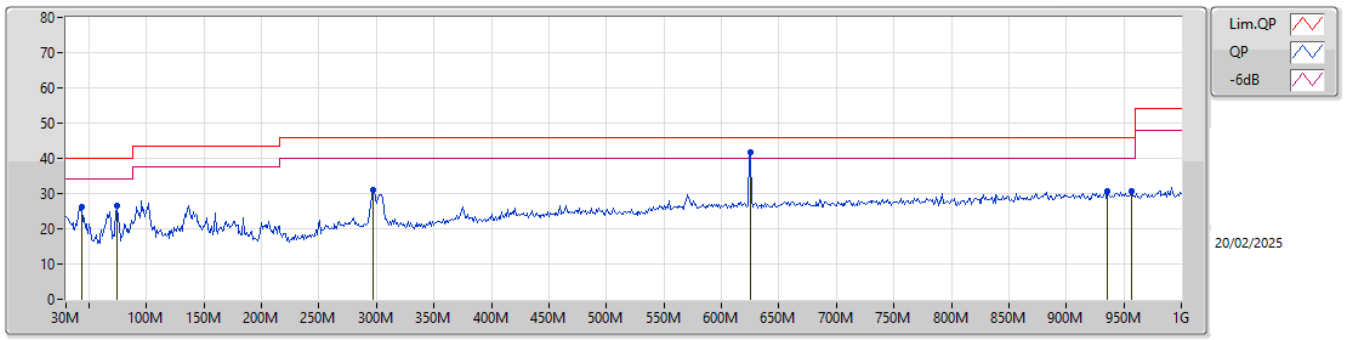
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 13	Pass	PK	625.58M	41.76	46.00	-4.24	Horizontal

Mode 13



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)	(dB/m)	(dB)	(dB)
QP	43.58M	33.73	40.00	-6.27	-13.39	3	Vertical	357	1.00	-	47.12	17.10	1.10	31.59
QP	50.37M	28.46	40.00	-11.54	-16.22	3	Vertical	353	1.00	-	44.68	14.25	1.16	31.63
PK	67.83M	35.24	40.00	-4.76	-17.88	3	Vertical	12	1.50	"Worst"	53.12	12.51	1.30	31.69
PK	101.78M	29.53	43.50	-13.97	-13.16	3	Vertical	186	1.00	-	42.69	17.04	1.54	31.74
PK	625.58M	39.34	46.00	-6.66	-3.79	3	Vertical	86	1.00	-	43.13	24.64	3.85	32.28
PK	954.41M	31.13	46.00	-14.87	-0.83	3	Vertical	357	1.50	-	31.96	26.68	4.80	32.31

Mode 13



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)	(dB/m)	(dB)	(dB)
PK	43.58M	26.31	40.00	-13.69	-13.39	3	Horizontal	212	1.50	-	39.70	17.10	1.10	31.59
PK	74.62M	26.49	40.00	-13.51	-17.59	3	Horizontal	115	1.50	-	44.08	12.76	1.36	31.71
PK	296.75M	31.09	46.00	-14.91	-10.14	3	Horizontal	167	1.00	-	41.23	19.08	2.62	31.84
PK	625.58M	41.76	46.00	-4.24	-3.79	3	Horizontal	131	1.50	"Worst"	45.55	24.64	3.85	32.28
PK	935.98M	30.54	46.00	-15.46	-1.15	3	Horizontal	281	1.00	-	31.69	26.42	4.75	32.32
PK	956.35M	30.81	46.00	-15.19	-0.78	3	Horizontal	318	1.50	-	31.59	26.72	4.81	32.31

Summary

Mode	Result	F-Start	F-Stop	Type	Freq	DG	P1	Psum	EIRP	Limit	Margin
		(Hz)	(Hz)		(Hz)	(dBi)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
Zigbee	Pass	1G	3G	AV	2.366G	6.10	-49.52	-49.52	-43.42	-41.20	-2.22

DG = Directional Gain ; PX=Port X; Psum=P1+P2+...PX

Result

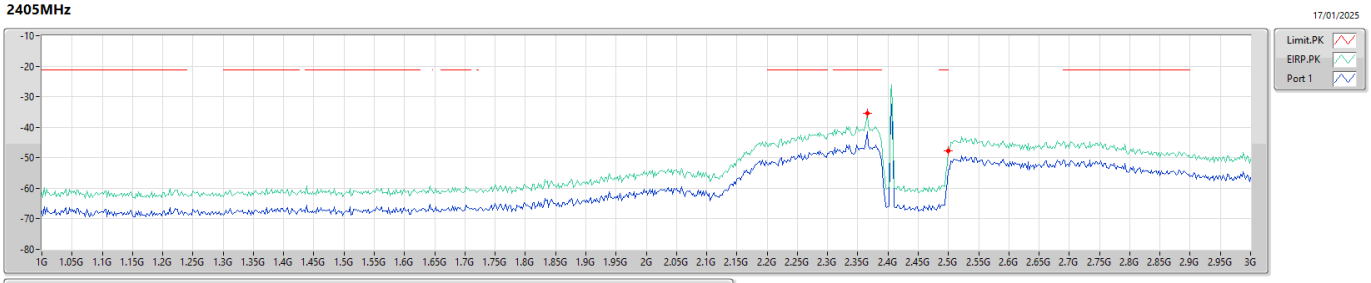
Mode	Result	F-Start	F-Stop	Type	Freq	DG	P1	Psum	EIRP	Limit	Margin
		(Hz)	(Hz)		(Hz)	(dBi)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Zigbee	-	-	-	-	-	-	-	-	-	-	-
2405MHz	Pass	1G	3G	AV	2.366G	6.10	-49.52	-49.52	-43.42	-41.20	-2.22
2405MHz	Pass	1G	3G	AV	2.5G	6.10	-64.18	-64.18	-58.08	-41.20	-16.88
2405MHz	Pass	1G	3G	PK	2.366G	6.10	-41.45	-41.45	-35.35	-21.20	-14.15
2405MHz	Pass	1G	3G	PK	2.5G	6.10	-53.97	-53.97	-47.87	-21.20	-26.67
2440MHz	Pass	1G	3G	AV	2.36G	6.10	-56.51	-56.51	-50.41	-41.20	-9.21
2440MHz	Pass	1G	3G	AV	2.5G	6.10	-62.90	-62.90	-56.80	-41.20	-15.60
2440MHz	Pass	1G	3G	PK	2.328G	6.10	-46.46	-46.46	-40.36	-21.20	-19.16
2440MHz	Pass	1G	3G	PK	2.5G	6.10	-55.10	-55.10	-49.00	-21.20	-27.80
2480MHz	Pass	1G	3G	AV	2.354G	6.10	-66.64	-66.64	-60.54	-41.20	-19.34
2480MHz	Pass	1G	3G	AV	2.5G	6.10	-68.84	-68.84	-62.74	-41.20	-21.54
2480MHz	Pass	1G	3G	PK	2.252G	6.10	-56.91	-56.91	-50.81	-21.20	-29.61
2480MHz	Pass	1G	3G	PK	2.358G	6.10	-57.35	-57.35	-51.25	-21.20	-30.05
2480MHz	Pass	1G	3G	PK	2.5G	6.10	-59.96	-59.96	-53.86	-21.20	-32.66

DG = Directional Gain ; PX=Port X; Psum=P1+P2+...PX

2.4-2.4835GHz_Zigbee

CSE Other [PK]

2405MHz

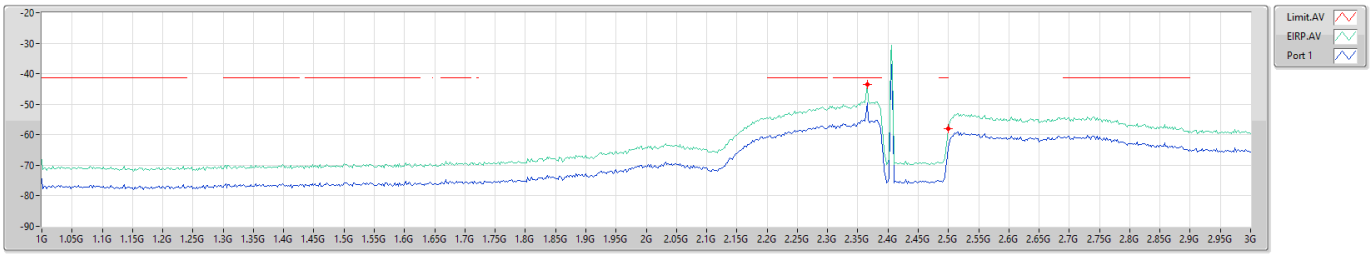


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Margin(dB)	DG(dBi)	Refl(dB)	Psum(dBm)	P1(dBm)
1G	3G	1M	PK	2.366G	-35.35	-21.20	-14.15	6.10	0.00	-41.45	-41.45
1G	3G	1M	PK	2.5G	-47.87	-21.20	-26.67	6.10	0.00	-53.97	-53.97

2.4-2.4835GHz_Zigbee

CSE Other [AV]

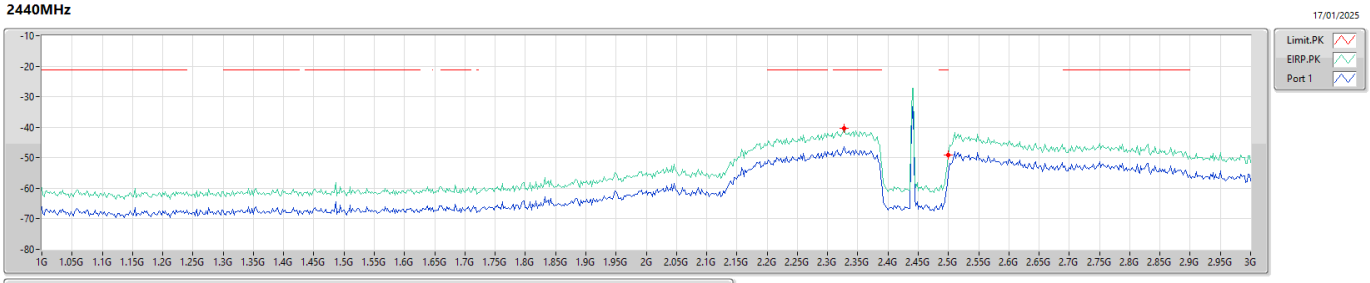
2405MHz



F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Margin(dB)	DG(dBi)	Refl(dB)	Psum(dBm)	P1(dBm)
1G	3G	1M	AV	2.366G	-43.42	-41.20	-2.22	6.10	0.00	-49.52	-49.52
1G	3G	1M	AV	2.5G	-58.08	-41.20	-16.88	6.10	0.00	-64.18	-64.18

2.4-2.4835GHz_Zigbee CSE Other [PK]

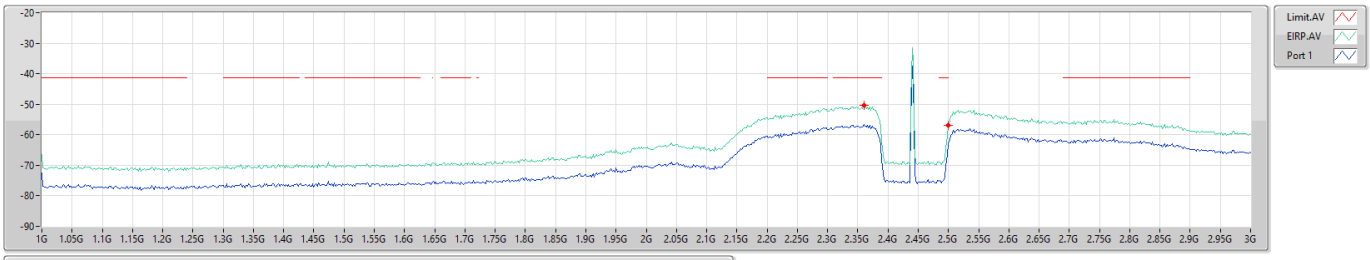
2440MHz



F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Margin(dB)	DG(dBi)	Refl(dB)	Psum(dBm)	P1(dBm)
1G	3G	1M	PK	2.328G	-40.36	-21.20	-19.16	6.10	0.00	-46.46	-46.46
1G	3G	1M	PK	2.5G	-49.00	-21.20	-27.80	6.10	0.00	-55.10	-55.10

2.4-2.4835GHz_Zigbee CSE Other [AV]

2440MHz

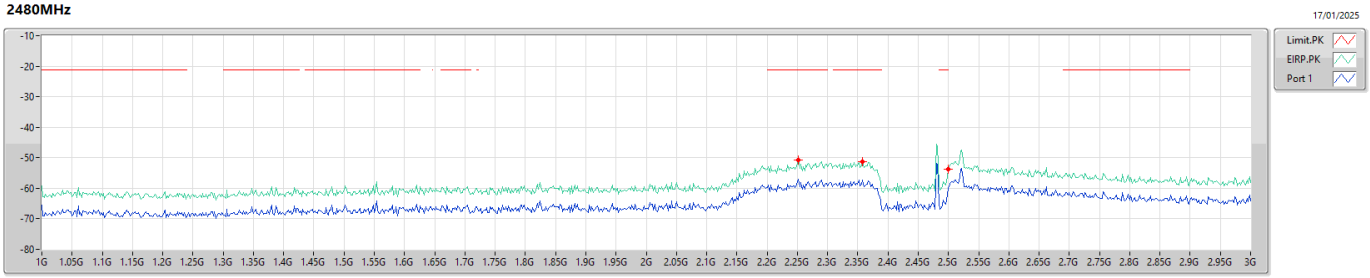


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Margin(dB)	DG(dBi)	Refl(dB)	Psum(dBm)	P1(dBm)
1G	3G	1M	AV	2.36G	-50.41	-41.20	-9.21	6.10	0.00	-56.51	-56.51
1G	3G	1M	AV	2.5G	-56.80	-41.20	-15.60	6.10	0.00	-62.90	-62.90

2.4-2.4835GHz_Zigbee

CSE Other [PK]

2480MHz

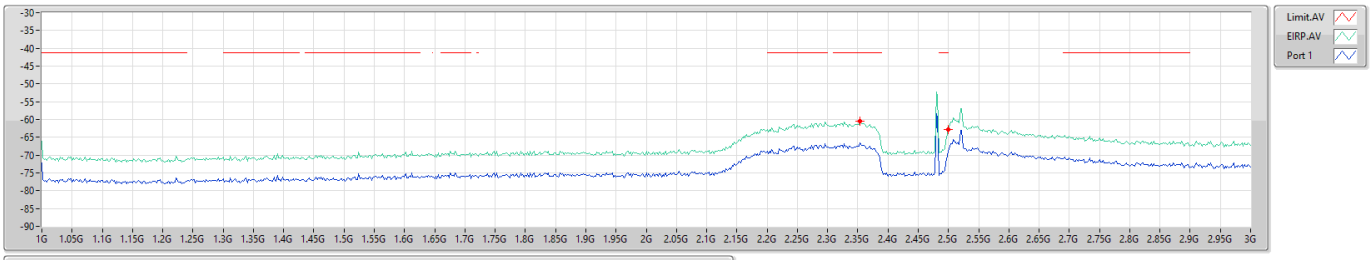


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Margin(dB)	DG(dBi)	Refl(dB)	Psum(dBm)	P1(dBm)
1G	3G	1M	PK	2.252G	-50.81	-21.20	-29.61	6.10	0.00	-56.91	-56.91
1G	3G	1M	PK	2.358G	-51.25	-21.20	-30.05	6.10	0.00	-57.35	-57.35
1G	3G	1M	PK	2.5G	-53.86	-21.20	-32.66	6.10	0.00	-59.96	-59.96

2.4-2.4835GHz_Zigbee

CSE Other [AV]

2480MHz



F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Margin(dB)	DG(dBi)	Refl(dB)	Psum(dBm)	P1(dBm)
1G	3G	1M	AV	2.354G	-60.54	-41.20	-19.34	6.10	0.00	-66.64	-66.64
1G	3G	1M	AV	2.5G	-62.74	-41.20	-21.54	6.10	0.00	-68.84	-68.84

Summary

Mode	Result	F-Start	F-Stop	Type	Freq	DG	P1	Psum	EIRP	Limit	Margin
		(Hz)	(Hz)		(Hz)	(dBi)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
Zigbee	Pass	3G	25G	AV	3.3355G	6.10	-62.76	-62.76	-56.66	-41.20	-15.46

DG = Directional Gain ; PX=Port X; Psum=P1+P2+...PX

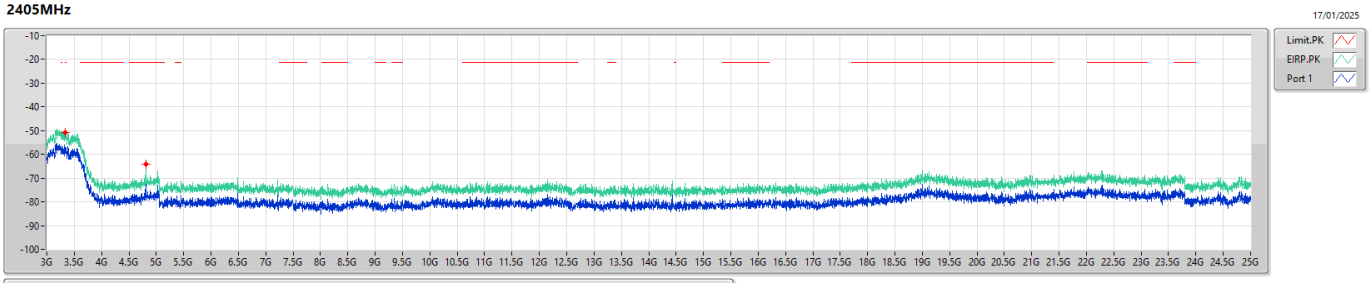
Result

Mode	Result	F-Start	F-Stop	Type	Freq	DG	P1	Psum	EIRP	Limit	Margin
		(Hz)	(Hz)		(Hz)	(dBi)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Zigbee	-	-	-	-	-	-	-	-	-	-	-
2405MHz	Pass	3G	25G	AV	3.33825G	6.10	-64.73	-64.73	-58.63	-41.20	-17.43
2405MHz	Pass	3G	25G	AV	4.8095G	6.10	-76.94	-76.94	-70.84	-41.20	-29.64
2405MHz	Pass	3G	25G	PK	3.33275G	6.10	-57.02	-57.02	-50.92	-21.20	-29.72
2405MHz	Pass	3G	25G	PK	4.8095G	6.10	-70.13	-70.13	-64.03	-21.20	-42.83
2440MHz	Pass	3G	25G	AV	3.3355G	6.10	-62.76	-62.76	-56.66	-41.20	-15.46
2440MHz	Pass	3G	25G	AV	4.87825G	6.10	-74.90	-74.90	-68.80	-41.20	-27.60
2440MHz	Pass	3G	25G	PK	3.3355G	6.10	-54.14	-54.14	-48.04	-21.20	-26.84
2440MHz	Pass	3G	25G	PK	4.87825G	6.10	-68.60	-68.60	-62.50	-21.20	-41.30
2480MHz	Pass	3G	25G	AV	3.3355G	6.10	-75.96	-75.96	-69.86	-41.20	-28.66
2480MHz	Pass	3G	25G	AV	4.958G	6.10	-83.72	-83.72	-77.62	-41.20	-36.42
2480MHz	Pass	3G	25G	PK	3.3355G	6.10	-68.25	-68.25	-62.15	-21.20	-40.95
2480MHz	Pass	3G	25G	PK	4.9635G	6.10	-76.39	-76.39	-70.29	-21.20	-49.09

DG = Directional Gain ; PX=Port X; Psum=P1+P2+...PX

2.4-2.4835GHz_Zigbee CSE [PK]

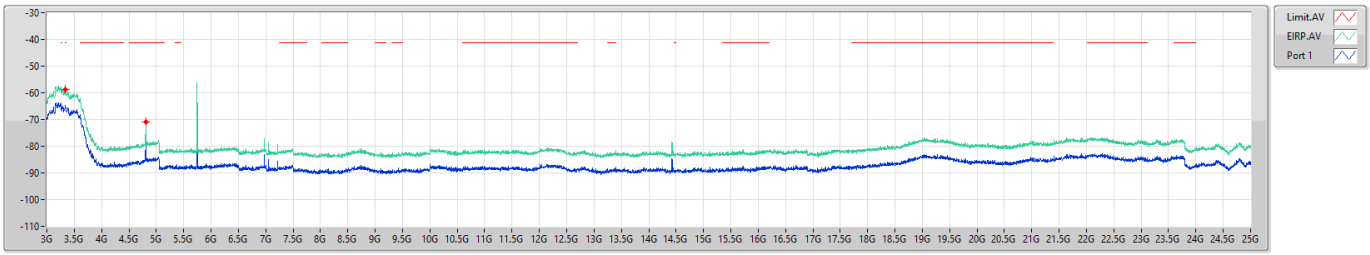
2405MHz



F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Margin(dB)	DG(dBi)	Refl(dB)	Psum(dBm)	P1(dBm)
3G	25G	1M	PK	3.33275G	-50.92	-21.20	-29.72	6.10	0.00	-57.02	-57.02
3G	25G	1M	PK	4.8095G	-64.03	-21.20	-42.83	6.10	0.00	-70.13	-70.13

2.4-2.4835GHz_Zigbee CSE [AV]

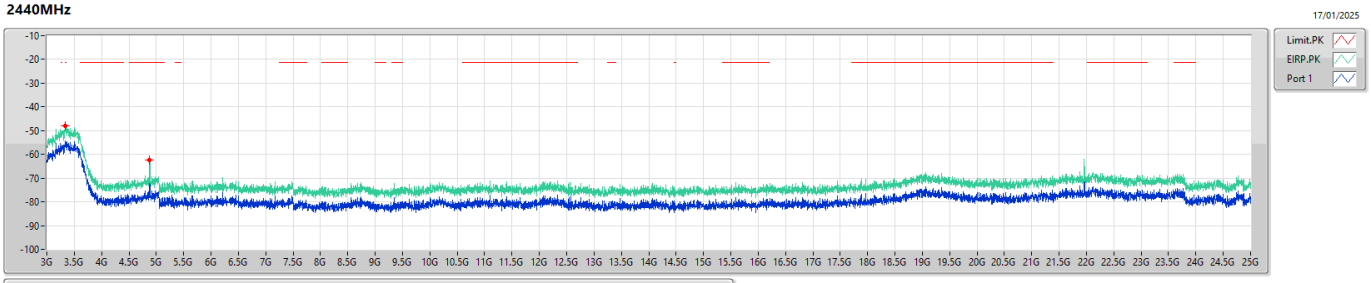
2405MHz



F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Margin(dB)	DG(dBi)	Refl(dB)	Psum(dBm)	P1(dBm)
3G	25G	1M	AV	3.33825G	-58.63	-41.20	-17.43	6.10	0.00	-64.73	-64.73
3G	25G	1M	AV	4.8095G	-70.84	-41.20	-29.64	6.10	0.00	-76.94	-76.94

2.4-2.4835GHz_Zigbee CSE [PK]

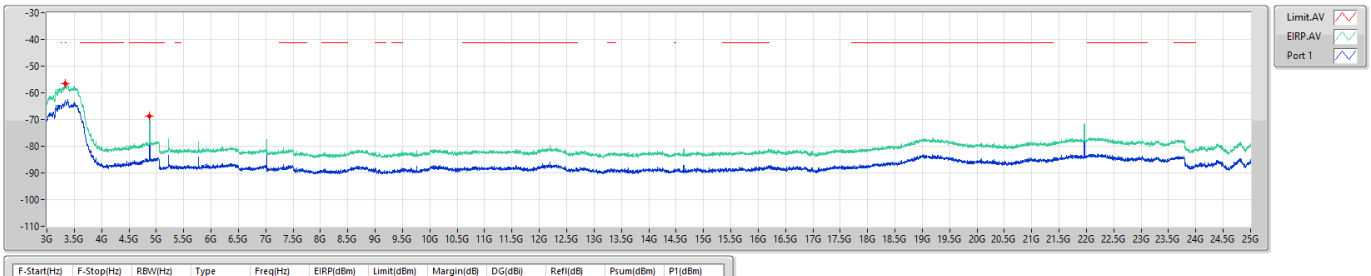
2440MHz



F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Margin(dB)	DG(dBi)	Refl(dB)	Psum(dBm)	P1(dBm)
3G	25G	1M	PK	3.3355G	-48.04	-21.20	-26.84	6.10	0.00	-54.14	-54.14
3G	25G	1M	PK	4.87825G	-62.50	-21.20	-41.30	6.10	0.00	-68.60	-68.60

2.4-2.4835GHz_Zigbee CSE [AV]

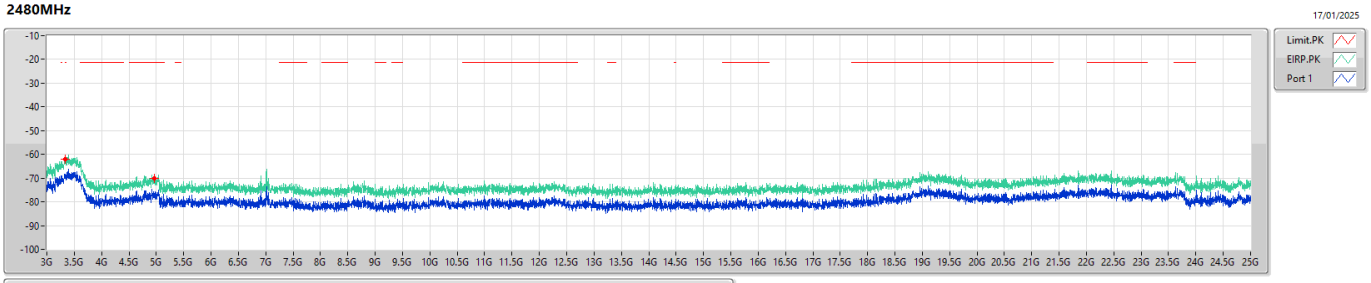
2440MHz



F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Margin(dB)	DG(dBi)	Refl(dB)	Psum(dBm)	P1(dBm)
3G	25G	1M	AV	3.3355G	-56.66	-41.20	-15.46	6.10	0.00	-62.76	-62.76
3G	25G	1M	AV	4.87825G	-68.80	-41.20	-27.60	6.10	0.00	-74.90	-74.90

2.4-2.4835GHz_Zigbee CSE [PK]

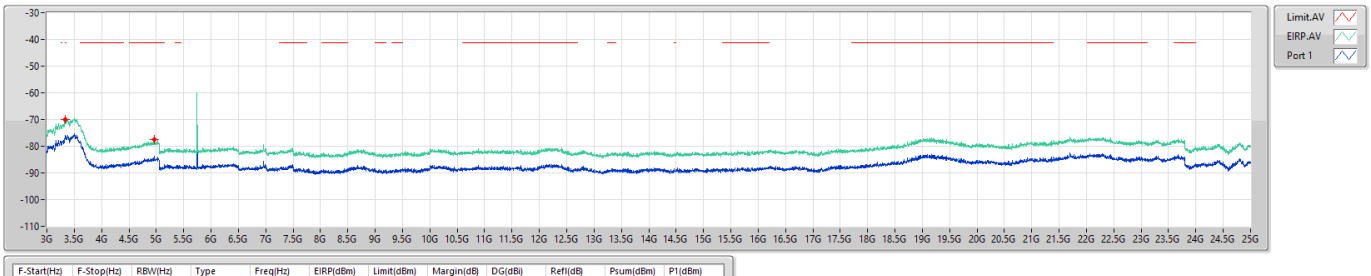
2480MHz



F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Margin(dB)	DG(dBi)	Refl(dB)	Psum(dBm)	P1(dBm)
3G	25G	1M	PK	3.3355G	-62.15	-21.20	-40.95	6.10	0.00	-68.25	-68.25
3G	25G	1M	PK	4.9635G	-70.29	-21.20	-49.09	6.10	0.00	-76.39	-76.39

2.4-2.4835GHz_Zigbee CSE [AV]

2480MHz



F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Margin(dB)	DG(dBi)	Refl(dB)	Psum(dBm)	P1(dBm)
3G	25G	1M	AV	3.3355G	-69.86	-41.20	-28.66	6.10	0.00	-75.96	-75.96
3G	25G	1M	AV	4.958G	-77.62	-41.20	-36.42	6.10	0.00	-83.72	-83.72

Summary

Mode	Result	F-Start	F-Stop	Type	Freq	DG	P1	Psum	EIRP	Limit	Margin
		(Hz)	(Hz)		(Hz)	(dBi)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
Zigbee	Pass	2.394G	2.4895G	AV	2.48358G	6.10	-48.14	-48.14	-42.04	-41.20	-0.84

DG = Directional Gain ; PX=Port X; Psum=P1+P2+...PX

Result

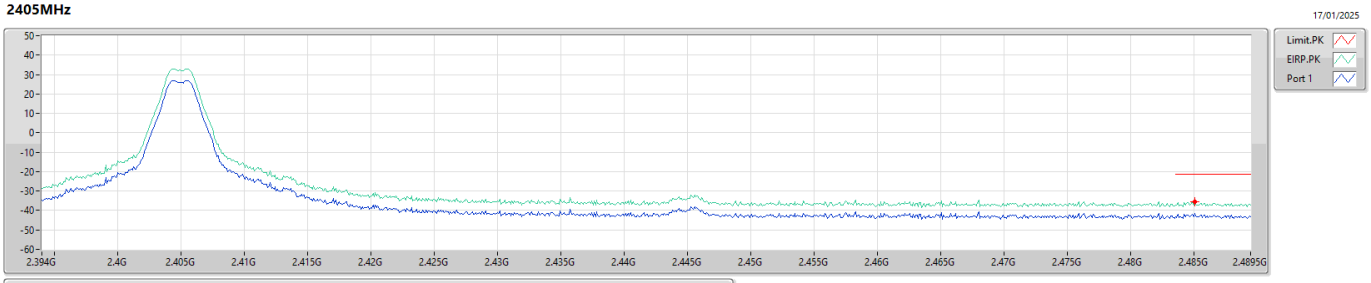
Mode	Result	F-Start	F-Stop	Type	Freq	DG	P1	Psum	EIRP	Limit	Margin
		(Hz)	(Hz)		(Hz)	(dBi)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Zigbee	-	-	-	-	-	-	-	-	-	-	-
2405MHz	Pass	2.394G	2.4895G	AV	2.48874G	6.10	-54.12	-54.12	-48.02	-41.20	-6.82
2405MHz	Pass	2.394G	2.4895G	PK	2.48511G	6.10	-41.43	-41.43	-35.33	-21.20	-14.13
2440MHz	Pass	2.394G	2.4895G	AV	2.48434G	6.10	-53.79	-53.79	-47.69	-41.20	-6.49
2440MHz	Pass	2.394G	2.4895G	PK	2.48444G	6.10	-40.21	-40.21	-34.11	-21.20	-12.91
2475MHz	Pass	2.394G	2.4895G	AV	2.48358G	6.10	-49.03	-49.03	-42.93	-41.20	-1.73
2475MHz	Pass	2.394G	2.4895G	PK	2.48406G	6.10	-36.54	-36.54	-30.44	-21.20	-9.24
2480MHz	Pass	2.394G	2.4895G	AV	2.48358G	6.10	-48.14	-48.14	-42.04	-41.20	-0.84
2480MHz	Pass	2.394G	2.4895G	PK	2.48377G	6.10	-36.58	-36.58	-30.48	-21.20	-9.28

DG = Directional Gain ; PX=Port X; Psum=P1+P2+...PX

2.4-2.4835GHz_Zigbee

CSE Bandedge [PK]

2405MHz

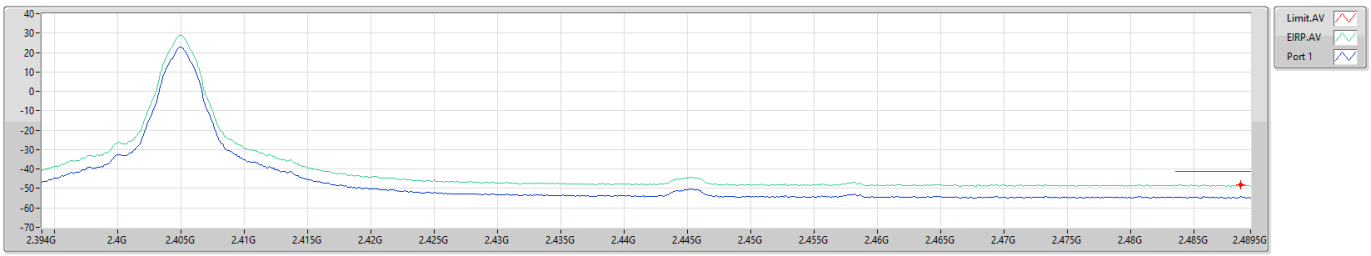


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Margin(dB)	DG(dBi)	Refl(dB)	Psum(dBm)	P1(dBm)
2.394G	2.4895G	1M	PK	2.48511G	-35.33	-21.20	-14.13	6.10	0.00	-41.43	-41.43

2.4-2.4835GHz_Zigbee

CSE Bandedge [AV]

2405MHz

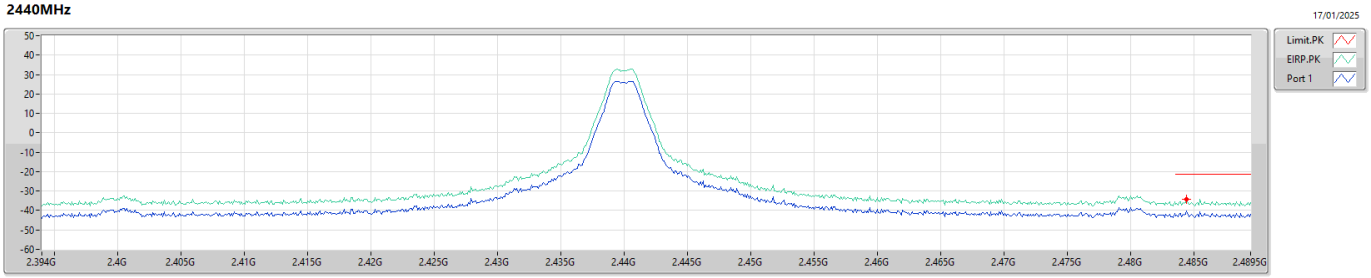


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Margin(dB)	DG(dBi)	Refl(dB)	Psum(dBm)	P1(dBm)
2.394G	2.4895G	1M	AV	2.48874G	-48.02	-41.20	-6.82	6.10	0.00	-54.12	-54.12

2.4-2.4835GHz_Zigbee

CSE Bandedge [PK]

2440MHz

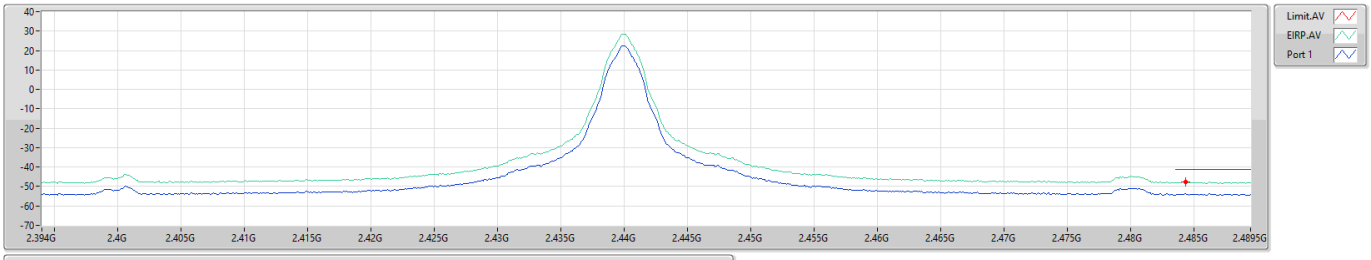


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Margin(dB)	DG(dBi)	Refl(dB)	Psum(dBm)	P1(dBm)
2.394G	2.4895G	1M	PK	2.48444G	-34.11	-21.20	-12.91	6.10	0.00	-40.21	-40.21

2.4-2.4835GHz_Zigbee

CSE Bandedge [AV]

2440MHz

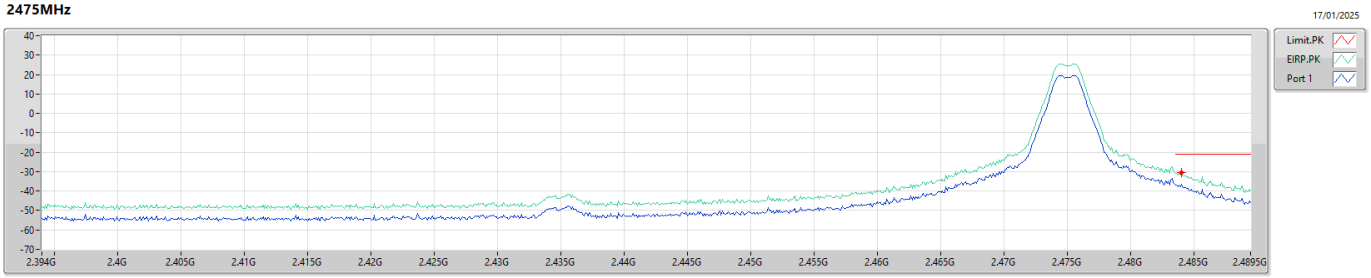


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Margin(dB)	DG(dBi)	Refl(dB)	Psum(dBm)	P1(dBm)
2.394G	2.4895G	1M	AV	2.48434G	-47.69	-41.20	-6.49	6.10	0.00	-53.79	-53.79

2.4-2.4835GHz_Zigbee

CSE Bandedge [PK]

2475MHz

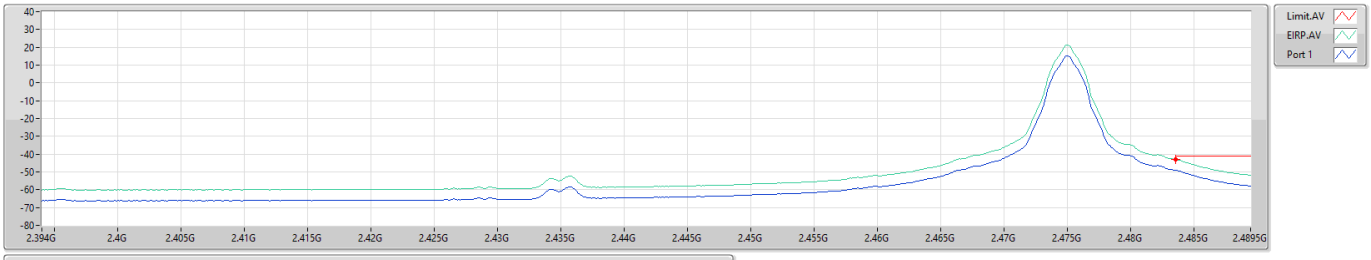


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Margin(dB)	DG(dBi)	Refl(dB)	Psum(dBm)	P1(dBm)
2.394G	2.4895G	1M	PK	2.48406G	-30.44	-21.20	-9.24	6.10	0.00	-36.54	-36.54

2.4-2.4835GHz_Zigbee

CSE Bandedge [AV]

2475MHz

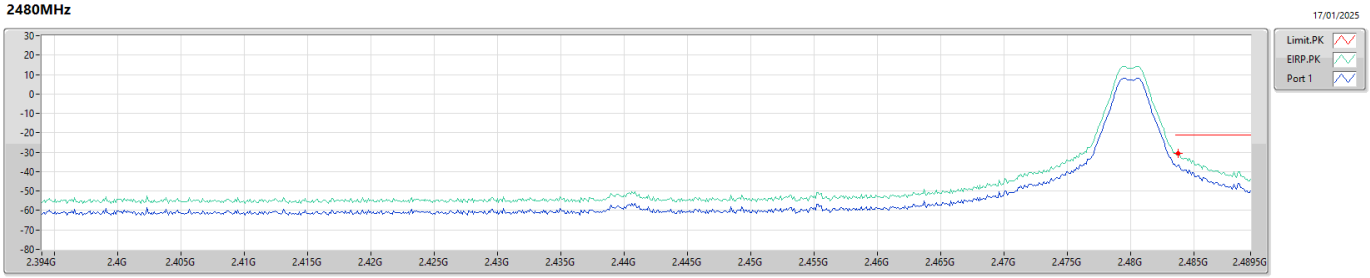


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Margin(dB)	DG(dBi)	Refl(dB)	Psum(dBm)	P1(dBm)
2.394G	2.4895G	1M	AV	2.48358G	-42.93	-41.20	-1.73	6.10	0.00	-49.03	-49.03

2.4-2.4835GHz_Zigbee

CSE Bandedge [PK]

2480MHz

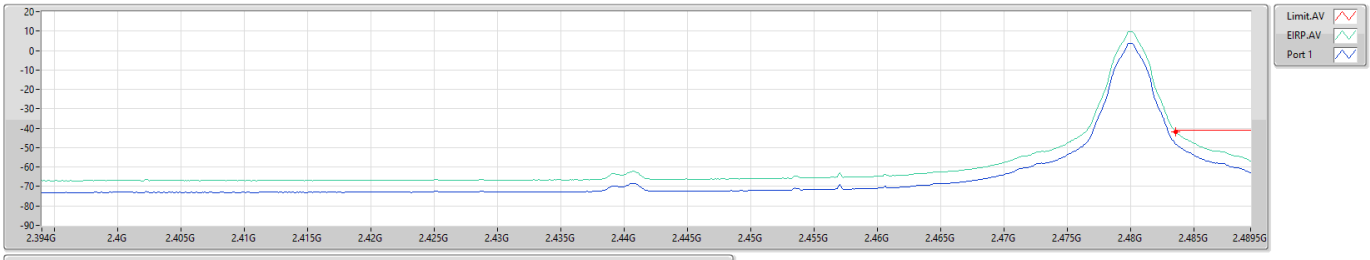


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Margin(dB)	DG(dBi)	Refl(dB)	Psum(dBm)	P1(dBm)
2.394G	2.4895G	1M	PK	2.48377G	-30.48	-21.20	-9.28	6.10	0.00	-36.58	-36.58

2.4-2.4835GHz_Zigbee

CSE Bandedge [AV]

2480MHz



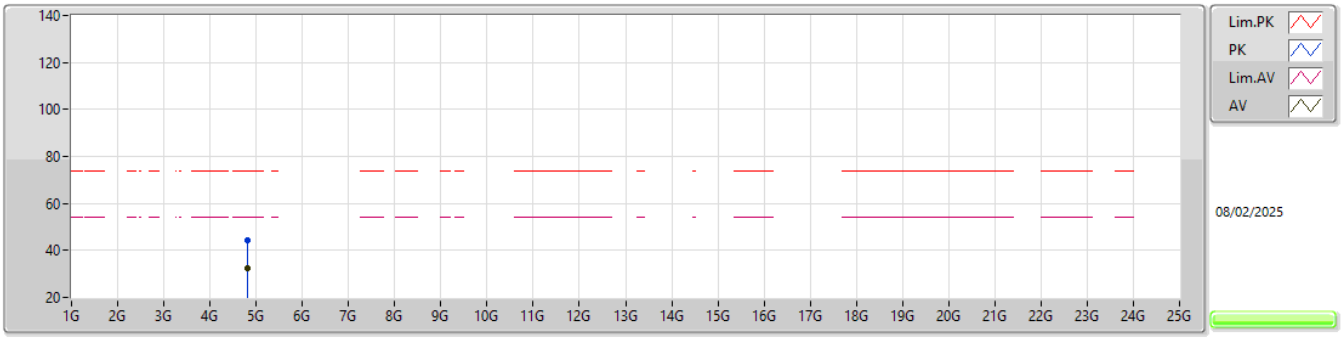
F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Margin(dB)	DG(dBi)	Refl(dB)	Psum(dBm)	P1(dBm)
2.394G	2.4895G	1M	AV	2.48358G	-42.04	-41.20	-0.84	6.10	0.00	-48.14	-48.14

Summary

Mode	Result	Type	Freq	Level	Limit	Margin	Dist	Condition	Azimuth	Height	Comments
			(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(m)		(°)	(m)	
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
Zigbee	Pass	AV	4.80736G	32.36	54.00	-21.64	3	Horizontal	110	2.88	-

2.4-2.4835GHz_Zigbee

2405MHz_TX

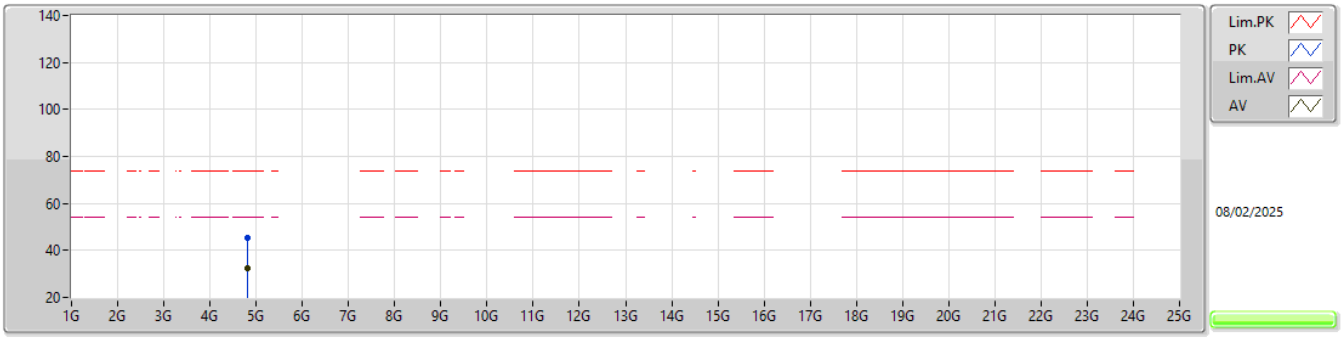


EUT Y_1TX
Setting 20
06-I-G-5

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	4.80592G	44.55	74.00	-29.45	40.57	3	Vertical	20	2.74	-	31.39	6.55	33.96
AV	4.80784G	32.35	54.00	-21.65	28.38	3	Vertical	20	2.74	-	31.38	6.55	33.96

2.4-2.4835GHz_Zigbee

2405MHz_TX



EUT Y_1TX
Setting 20
06-I-G-5

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	4.80902G	45.41	74.00	-28.59	41.44	3	Horizontal	110	2.88	-	31.38	6.55	33.96
AV	4.80736G	32.36	54.00	-21.64	28.38	3	Horizontal	110	2.88	-	31.39	6.55	33.96