Testing Laboratory 3787

RADIO TEST REPORT

FCC ID	:	NKR-ATTC61W1
Equipment	:	Wireless Genie Mini
Brand Name	:	DirecTV
Model Name	:	C61W-400, C61WBP-400, C61WNC-400
Applicant	:	Wistron NeWeb Corporation 20 Park Avenue II Hsinchu Science Park Hsinchu, 308 Taiwan
Manufacturer	:	Wistron NeWeb Corporation 20 Park Avenue II Hsinchu Science Park Hsinchu, 308 Taiwan
Standard	:	47 CFR FCC Part 15.247

The product was received on Mar. 31, 2023, and testing was started from May 05, 2023 and completed on Jul. 07, 2023. 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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Photographs of EUT v01

History of this test report

Report No.	Version	Description	Issued Date
FR730747-01AA	01	Initial issue of report	Jul. 25, 2023

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: Viola Huang

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	2425-2475	15-25 [11]

Band	Mode	BWch (MHz)	Nant
2.4-2.4835GHz	RF4CE	3	1TX

Note:
- RF4CE uses a O-QPSK (250kbps) modulation.
- BWch is the nominal channel bandwidth.

1.1.2 Antenna Information

Ant.	Port	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	2	WNC	ANT1	PCB	N/A	Note 1
2	1	WNC	ANT2	PCB	N/A	
3	1	Airgain	N5X35BCMY	PIFA	I-PEX	
4	2	Airgain	N5X35BCHY	PIFA	I-PEX	
5	3	Airgain	N5X35BC2MY	PIFA	I-PEX	
6	4	Airgain	N5X35BC2MY	PIFA	I-PEX	

Note 1:

Ant.	Gain (dBi)						
	2.4GHz	2.45G	2.4835G	5.2GHz	5.3GHz	5.6GHz	5.785GHz
1	1.66	2.79	2.77	-	-	-	-
2	3.72	3.49	2.32	-	-	-	-
3	-	-	-	1.89	1.77	1.83	2.06
4	-	-	-	1.73	2.2	1.35	1.77
5	-	-	-	2.07	1.91	1.25	2.61
6	-	-	-	2.94	2.67	3.22	3.11
Items	**Directional Gain (dBi)**						
4T1S	-	-	-	4.53	4.63	4.42	6
4T2S	-	-	-	2.94	2.67	3.22	3.11
4T4S	-	-	-	2.94	2.67	3.22	3.11

Note 2: The above information (except gain) was declared by manufacturer.

Note 3: 2.4GHz, 5GHz UNII 1~UNII 3: Maximum Directional Gain following KDB662911 D03.

For 2.4GHz:

For RF4CE (1TX/1RX)

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

Both Port 1 and Port 2 support transmit and receive functions, but only one of them will be used at one time.

The Port 1 generated the worst case, so it was selected to test and record in the report.

For 5GHz UNII 1~UNII 3:

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

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

Port 1~Port 4 could transmit/receive simultaneously.

1.1.3 Mode Test Duty Cycle

Mode	DC	DCF(dB)
RF4CE	1	0

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

1.1.4 EUT Operational Condition

EUT Power Type	From Power Adapter			
Beamforming Function	☒	With beamforming	☐	Without beamforming
	The product has beamforming function for 11n/11ac in 5GHz.			
Function	☒	Point-to-multipoint	☐	Point-to-point
Test Software Version	Tera Term Version 4.75			

Note: The above information was declared by manufacturer.

1.1.5 Table for Multiple Listing

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

Model Name	Description
C61W-400	All the models are identical, the different model names served as package different.
C61WBP-400	
C61WNC-400	

Note 1: From the above models, model: C61W-400 was selected as representative model for the test and its data was recorded in this report.
Note 2: The above information was declared by manufacturer.

1.1.6 EUT Support Function

Function	Supports Type	Supports band
AP	Master	5GHz UNII 1/3, RF4CE
Slave	Slave without Radar	5GHz UNII 1~3, RF4CE

Note: The EUT supports AP / Slave functions, only the Slave function was performed for AC power-line conducted emissions and Emissions in Restricted Frequency Bands below 1GHz test, and it was based on manufacturer's request.

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	Ken Yeh	22.9~24 / 60~63	May 08, 2023
Radiated below 1GHz	03CH05-CB	Black Lu	21.7~22.9 / 58~62	May 30, 2023 ~ Jul. 06, 2023
Radiated above 1GHz	03CH06-CB	Ederson Huang	22~23 / 55~58	May 05, 2023
AC Conduction	CO01-CB	Gray Lee	22~23 / 47~48	Jul. 07, 2023

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 date before Jun. 01, 2023

Test Items	Uncertainty	Remark
Radiated Emission (9kHz ~ 30MHz)	3.4 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	5.6 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	5.2 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	4.7 dB	Confidence levels of 95%
Conducted Emission	3.2 dB	Confidence levels of 95%
Output Power Measurement	0.8 dB	Confidence levels of 95%
Power Density Measurement	3.2 dB	Confidence levels of 95%
Bandwidth Measurement	2.0 %	Confidence levels of 95%

Test date after May 31, 2023

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	3.4 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	3.7 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	5.1 dB	Confidence levels of 95%

2 Test Configuration of EUT

2.1 Test Channel Mode

Mode	Power Setting
RF4CE	-
2425MHz	3
2450MHz	3
2475MHz	3

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 (Slave mode) / CTX (RF4CE)
1	Normal Link_Slave mode_EUT + YPbPr mode + CTX_RF4CE
2	Normal Link_Slave mode_EUT + CVBS mode + CTX_RF4CE
For operating mode 2 is the worst case and it was record in this test report.	

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

The Worst Case Mode for Following Conformance Tests	
Tests Item	Emissions in Restricted Frequency Bands
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.
Operating Mode < 1GHz	Normal Link (Slave mode) / CTX (RF4CE)
	After evaluating, the worst case was found at Z axis. So the measurement will follow this same test configuration.
1	Normal Link_Slave mode_EUT in Z axis + YPbPr mode + CTX_RF4CE
2	Normal Link_Slave mode_EUT in Z axis + CVBS mode + CTX_RF4CE
For operating mode 2 is the worst case and it was record in this test report.	

Operating Mode > 1GHz	CTX
	After evaluating, the worst case was found at Z axis. So the measurement will follow this same test configuration.
1	EUT in Z axis

The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation
Operating Mode	
1	RF4CE + WLAN 5GHz
Refer to Sporton Test Report No.: FA730747-01 for Co-location RF Exposure Evaluation.	

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

Adapter information as below:

Power	Brand	Model
Adapter	DIRECTV	EPS10R4-08

2.3 EUT Operation during Test

For CTX Mode:

The EUT was programmed to be in continuously transmitting mode.

For Normal Link:

During the test, the EUT operation to normal function.

2.4 Accessories

N/A

2.5 Support Equipment

For AC Conduction:

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
A	Load Device	NA	NA	N/A
B	TV1	SONY	KLV-32U300A	N/A
C	LCD Monitor	PHILIPS	288E2A/96	N/A
D	AP Router	VeriZon	FiOS-1100	N/A
E	NB	DELL	E6430	N/A
F	Adapter	DIRECTV	EPS10R4-08	N/A

For Radiated (below 1GHz):

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
A	Load device	N/A	TV Simulator	N/A
B	WLAN AP	Verizon	Fios-G1100	N/A
C	Notebook	Lenovo	L440	N/A
D	LCD TV	SONY	KLV-26U300A	N/A
E	LCD TV	PHIPLIPS	HOMeP	N/A
F	Adapter	DIRECTV	EPS10R4-08	N/A

For Radiated (above 1GHz):

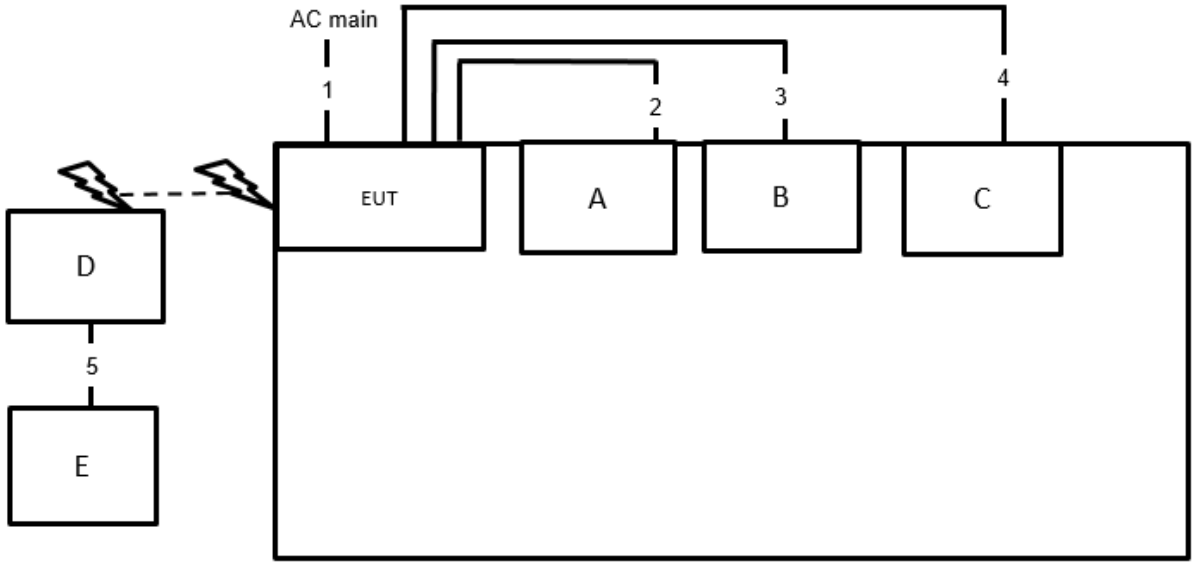
Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
A	Notebook	DELL	E4300	N/A
B	Fixture	N/A	N/A	N/A
C	Adapter	DIRECTV	EPS10R-08	N/A

For RF Conducted:

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
A	NB	DELL	E4300	N/A
B	Adapter	DIRECTV	EPS10R-08	N/A

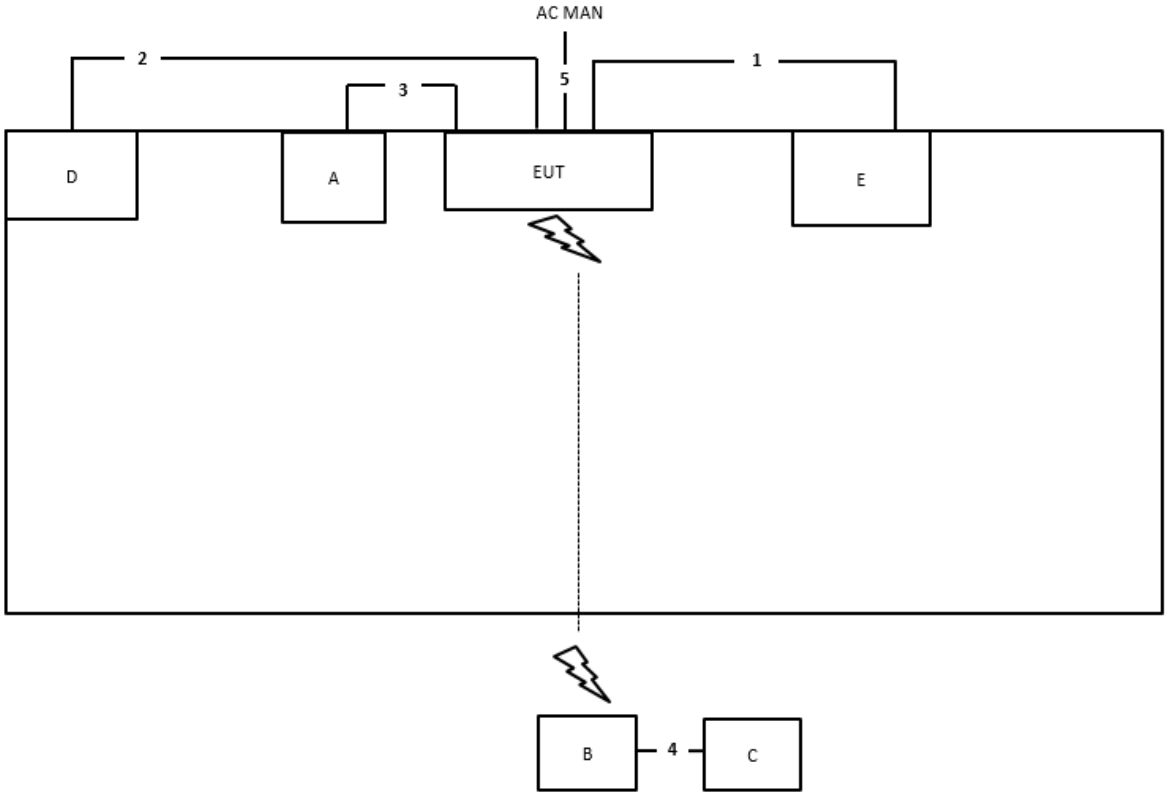
2.6 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test



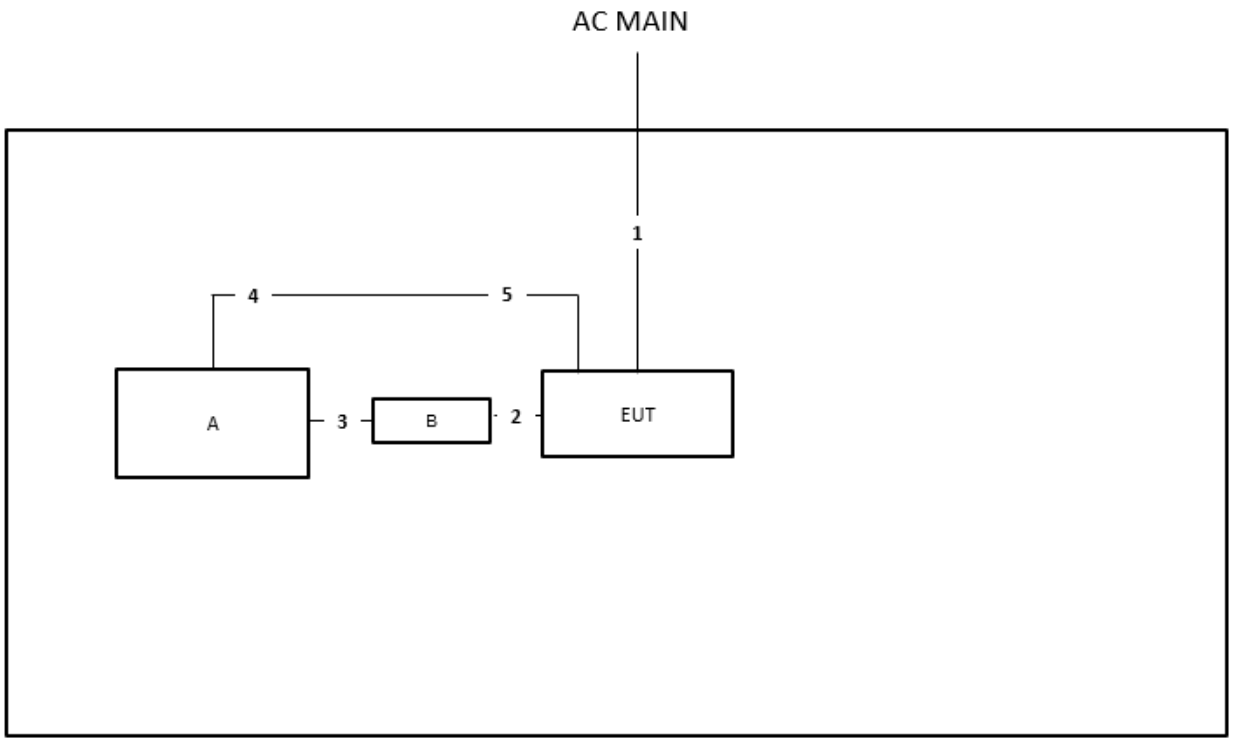
Item	Connection	Shielded	Length
1	Power cable	No	2.9m
2	Audio cable	No	1.3m
3	Video cable(CVBS)	No	1.8m
4	HDMI cable	No	1.8m
5	RJ-45 cable	No	1.5m

Test Setup Diagram - Radiated Test < 1GHz



Item	Connection	Shielded	Length
1	DVT cable	Yes	1.7m
2	Componet video cable	Yes	1.7m
3	Audio cable	Yes	1.27m
4	RJ-45 cable	No	1.5m
5	Power cable	No	2.9m

Test Setup Diagram - Radiated Test > 1GHz



Item	Connection	Shielded	Length
1	Power cable	No	2.9m
2	Console cable	No	0.15m
3	USB cable	Yes	0.3m
4	RJ-45 cable	No	0.3m
5	USB to RJ-45 cable	No	0.3m

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

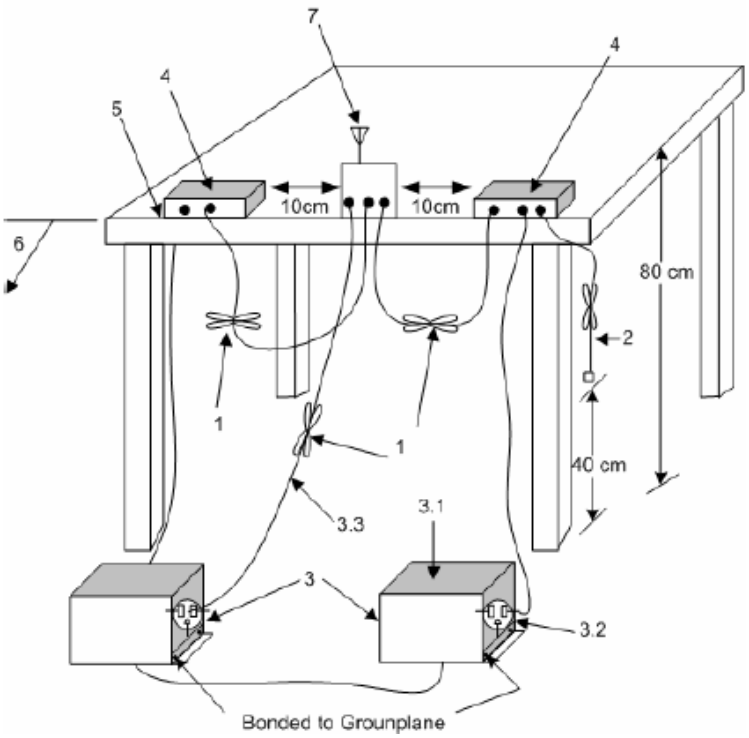
Refer a test equipment and calibration data table in this test report.

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.

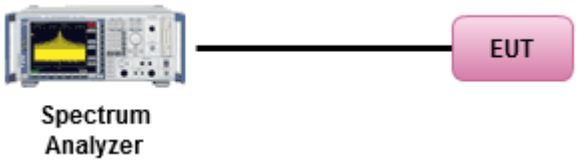
3.2.2 Measuring Instruments

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

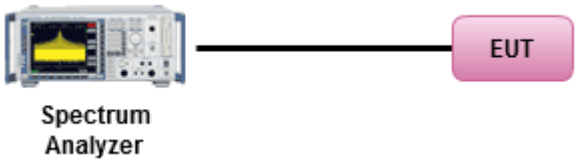
3.4.2 Measuring Instruments

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

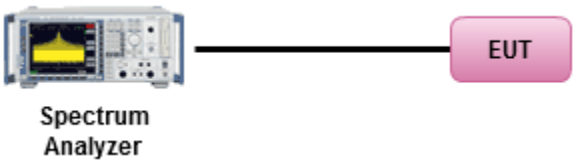
Refer a test equipment and calibration data table in this test report.

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.

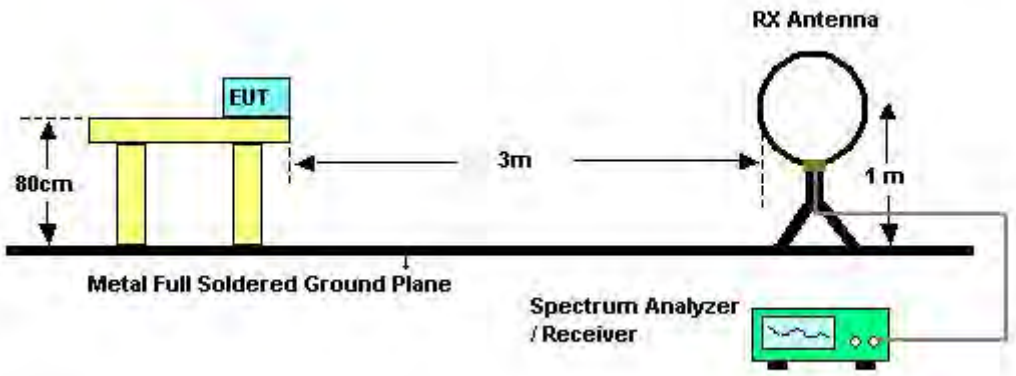
3.6.3 Test Procedures

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.

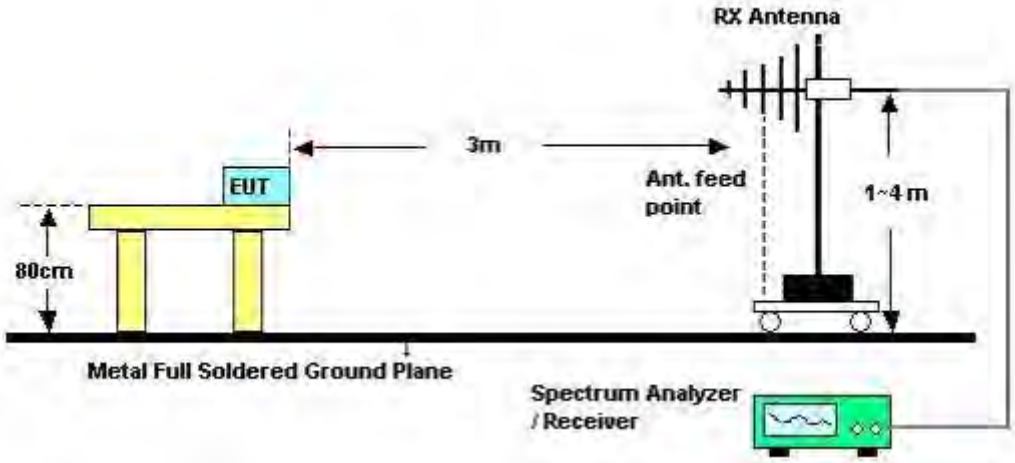
3.6.4 Test Setup

Emissions in Restricted Frequency Bands

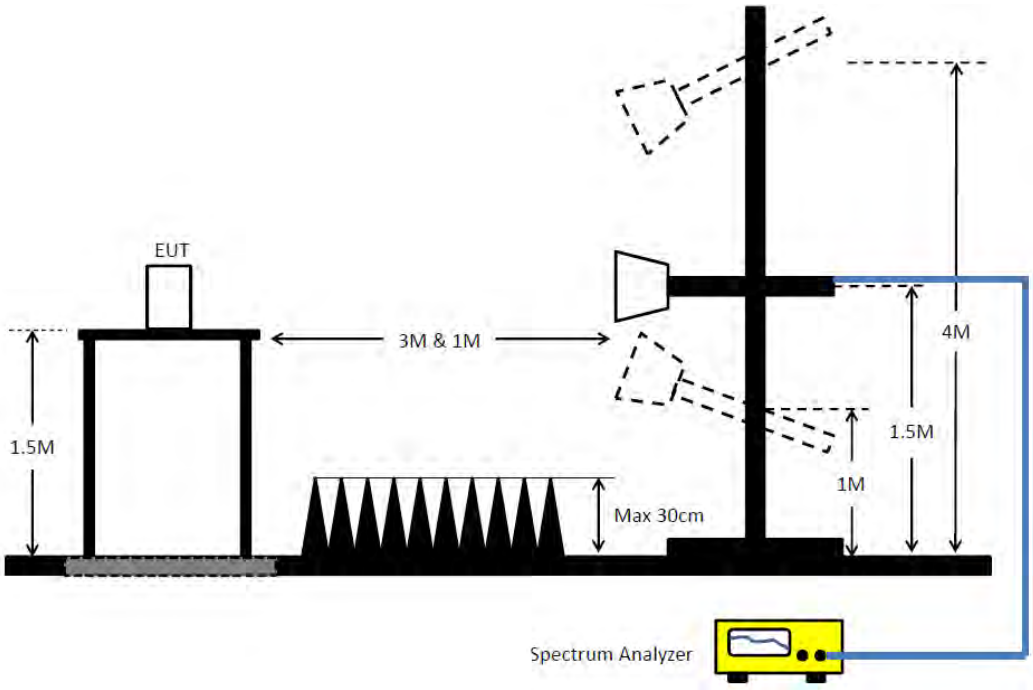
9kHz ~30MHz



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
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.4GHz	Feb. 20, 2023	Feb. 19, 2024	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Feb. 16, 2023	Feb. 15, 2024	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Apr. 27, 2023	Apr. 26, 2024	Conduction (CO01-CB)
Pulse Limiter	Rohde& Schwarz	ESH3-Z2	100430	9kHz ~ 30MHz	Feb. 09, 2023	Feb. 08, 2024	Conduction (CO01-CB)
COND Cable	Woken	Cable	Low cable-CO01	9kHz ~ 30MHz	Oct. 18, 2022	Oct. 17, 2023	Conduction (CO01-CB)
Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conduction (CO01-CB)
Loop Antenna	Teseq	HLA 6120	31244	9kHz - 30 MHz	Mar. 23, 2023	Mar. 22, 2024	Radiation (03CH05-CB)
3m Semi Anechoic Chamber NSA	TDK	SAC-3M	03CH05-CB	30 MHz ~ 1 GHz	Aug. 03, 2022	Aug. 02, 2023	Radiation (03CH05-CB)
Bilog Antenna with 6dB Attenuator	TESEQ & EMCI	CBL 6112D & N-6-06	35236 & AT-N0610	30MHz ~ 2GHz	Mar. 24, 2023	Mar. 23, 2024	Radiation (03CH05-CB)
Amplifier	EMCI	EMC330N	980331	20MHz ~ 3GHz	May 03, 2023	May 02, 2024	Radiation (03CH05-CB)
Spectrum Analyzer	R&S	FSP40	100304	9kHz ~ 40GHz	Apr. 18, 2023	Apr. 17, 2024	Radiation (03CH05-CB)
EMI Test Receiver	R&S	ESCS	826547/017	9kHz ~ 2.75GHz	Jun. 17, 2022	Jun. 16, 2023	Radiation (03CH05-CB)
EMI Test Receiver	R&S	ESCS	826547/017	9kHz ~ 2.75GHz	Jun. 13, 2023	Jun. 12, 2024	Radiation (03CH05-CB)
RF Cable-low	Woken	RG402	Low Cable-04+23	30MHz~1GHz	Oct. 03, 2022	Oct. 02, 2023	Radiation (03CH05-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH05-CB)
3m Semi Anechoic Chamber VSWR	TDK	SAC-3M	03CH06-CB	1GHz ~18GHz 3m	Sep. 30, 2022	Sep. 29, 2023	Radiation (03CH06-CB)
Horn Antenna	SCHWARZBECK	BBHA9120D	BBHA 9120D-1292	1GHz~18GHz	Aug. 09, 2022	Aug. 08, 2023	Radiation (03CH06-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Aug. 22, 2022	Aug. 21, 2023	Radiation (03CH06-CB)
Pre-Amplifier	Agilent	83017A	MY53270064	0.5GHz ~ 26.5GHz	Aug. 02, 2022	Aug. 01, 2023	Radiation (03CH06-CB)
Pre-Amplifier	SGH	SGH184	20221107-3	18GHz ~ 40GHz	Nov. 16, 2022	Nov. 15, 2023	Radiation (03CH06-CB)

Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
Spectrum analyzer	R&S	FSP40	100080	9kHz~40GHz	Dec. 21, 2022	Dec. 20, 2023	Radiation (03CH06-CB)
RF Cable-high	Woken	RG402	High Cable-68	1GHz~18GHz	Oct. 03, 2022	Oct. 02, 2023	Radiation (03CH06-CB)
RF Cable-high	Woken	RG402	High Cable-05+68	1GHz~18GHz	Dec. 21, 2022	Dec. 20, 2023	Radiation (03CH06-CB)
High Cable	Woken	WCA0929M	40G#5+6	1GHz ~ 40 GHz	Dec. 07, 2022	Dec. 06, 2023	Radiation (03CH06-CB)
High Cable	Woken	WCA0929M	40G#5	1GHz ~ 40 GHz	Dec. 07, 2022	Dec. 06, 2023	Radiation (03CH06-CB)
High Cable	Woken	WCA0929M	40G#6	1GHz ~ 40 GHz	Dec. 07, 2022	Dec. 06, 2023	Radiation (03CH06-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH06-CB)
Spectrum analyzer	R&S	FSV40	101027	9kHz~40GHz	Aug. 15, 2022	Aug. 14, 2023	Conducted (TH02-CB)
Power Sensor	Anritsu	MA2411B	1126203	300MHz~40GHz	Oct. 17, 2022	Oct. 16, 2023	Conducted (TH02-CB)
Power Meter	Anritsu	ML2495A	1210004	300MHz~40GHz	Oct. 17, 2022	Oct. 16, 2023	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-01	1 GHz – 18 GHz	Oct. 03, 2022	Oct. 02, 2023	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-02	1 GHz – 18 GHz	Oct. 03, 2022	Oct. 02, 2023	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-03	1 GHz – 18 GHz	Oct. 03, 2022	Oct. 02, 2023	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-04	1 GHz – 18 GHz	Oct. 03, 2022	Oct. 02, 2023	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-05	1 GHz – 18 GHz	Oct. 03, 2022	Oct. 02, 2023	Conducted (TH02-CB)
Switch	SPTCB	SP-SWI	SWI-02	1 GHz –26.5 GHz	Oct. 04, 2022	Oct. 03, 2023	Conducted (TH02-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conducted (TH02-CB)

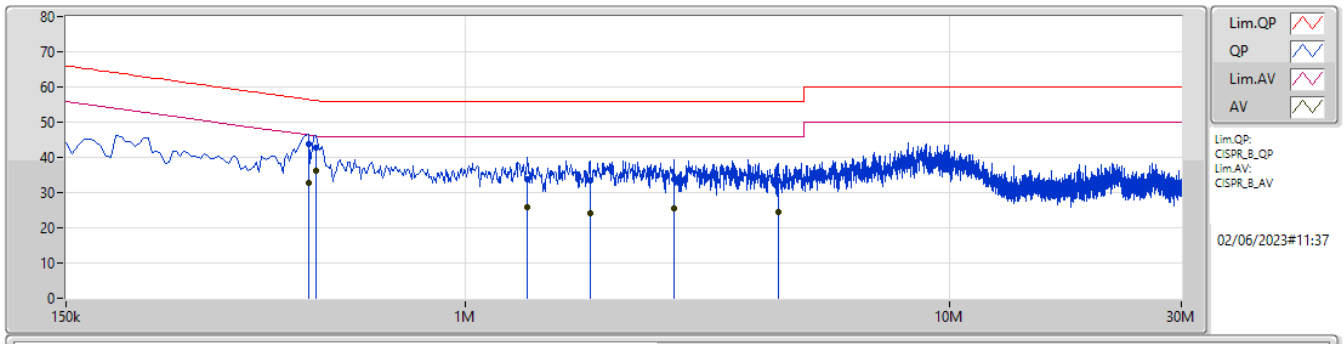
Note: Calibration Interval of instruments listed above is one year.

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

Summary

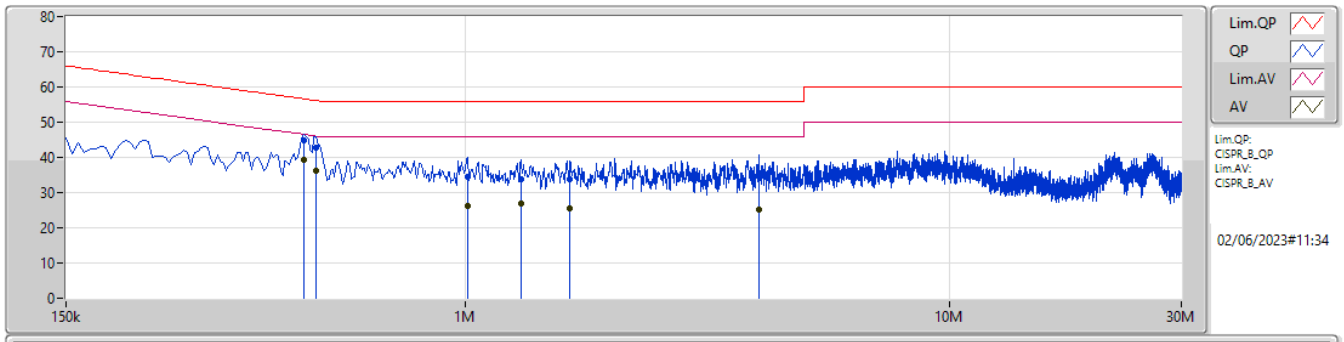
Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 2	Pass	AV	465k	39.27	46.61	-7.34	Neutral

Mode 2



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	474k	43.96	56.44	-12.48	10.05	Line	-	33.91	0.09	0.06	9.90
AV	474k	32.74	46.44	-13.70	10.05	Line	-	22.69	0.09	0.06	9.90
QP	492k	42.66	56.13	-13.47	10.05	Line	-	32.61	0.09	0.06	9.90
AV	492k	36.05	46.13	-10.08	10.05	Line	"Worst"	26.00	0.09	0.06	9.90
QP	1.343M	33.89	56.00	-22.11	10.08	Line	-	23.81	0.12	0.06	9.90
AV	1.343M	25.98	46.00	-20.02	10.08	Line	-	15.90	0.12	0.06	9.90
QP	1.806M	33.49	56.00	-22.51	10.12	Line	-	23.37	0.14	0.08	9.90
AV	1.806M	24.04	46.00	-21.96	10.12	Line	-	13.92	0.14	0.08	9.90
QP	2.697M	33.93	56.00	-22.07	10.14	Line	-	23.79	0.15	0.09	9.90
AV	2.697M	25.61	46.00	-20.39	10.14	Line	-	15.47	0.15	0.09	9.90
QP	4.425M	33.54	56.00	-22.46	10.20	Line	-	23.34	0.18	0.11	9.91
AV	4.425M	24.35	46.00	-21.65	10.20	Line	-	14.15	0.18	0.11	9.91

Mode 2



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	465k	44.86	56.61	-11.75	10.03	Neutral	-	34.83	0.07	0.06	9.90
AV	465k	39.27	46.61	-7.34	10.03	Neutral	"Worst"	29.24	0.07	0.06	9.90
QP	492k	42.66	56.13	-13.47	10.03	Neutral	-	32.63	0.07	0.06	9.90
AV	492k	36.07	46.13	-10.06	10.03	Neutral	-	26.04	0.07	0.06	9.90
QP	1.014M	34.50	56.00	-21.50	10.02	Neutral	-	24.48	0.08	0.04	9.90
AV	1.014M	26.34	46.00	-19.66	10.02	Neutral	-	16.32	0.08	0.04	9.90
QP	1.302M	33.83	56.00	-22.17	10.05	Neutral	-	23.78	0.09	0.06	9.90
AV	1.302M	26.90	46.00	-19.10	10.05	Neutral	-	16.85	0.09	0.06	9.90
QP	1.644M	33.92	56.00	-22.08	10.07	Neutral	-	23.85	0.09	0.08	9.90
AV	1.644M	25.41	46.00	-20.59	10.07	Neutral	-	15.34	0.09	0.08	9.90
QP	4.034M	34.61	56.00	-21.39	10.14	Neutral	-	24.47	0.13	0.10	9.91
AV	4.034M	25.10	46.00	-20.90	10.14	Neutral	-	14.96	0.13	0.10	9.91

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
RF4CE	1.575M	2.399M	2M40D1D	1.569M	2.38M

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

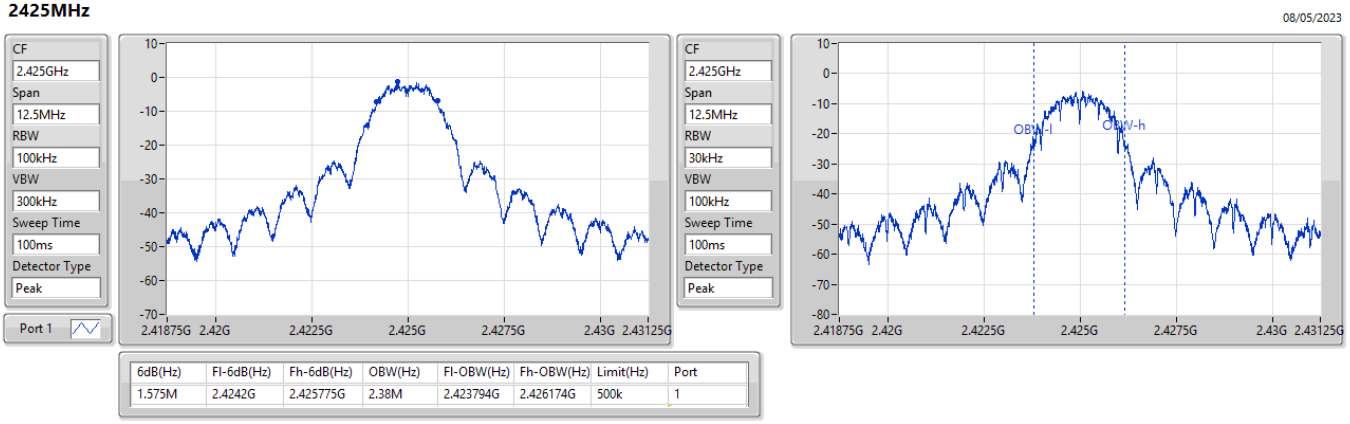
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
RF4CE	-	-	-	-
2425MHz	Pass	500k	1.575M	2.38M
2450MHz	Pass	500k	1.569M	2.393M
2475MHz	Pass	500k	1.575M	2.399M

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

2.4-2.4835GHz_RF4CE **EBW**

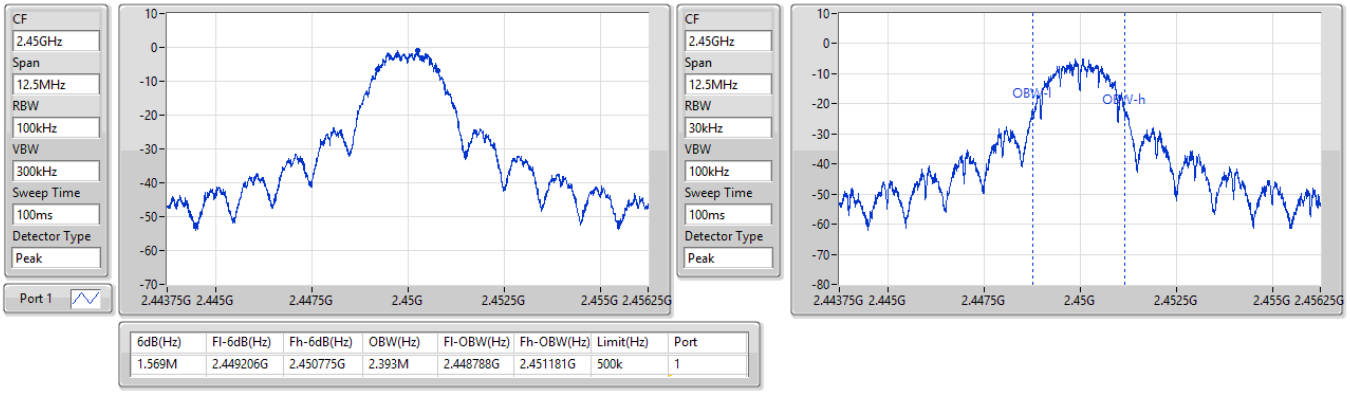
2425MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.575M	2.4242G	2.425775G	2.38M	2.423794G	2.426174G	500k	1

2.4-2.4835GHz_RF4CE **EBW**

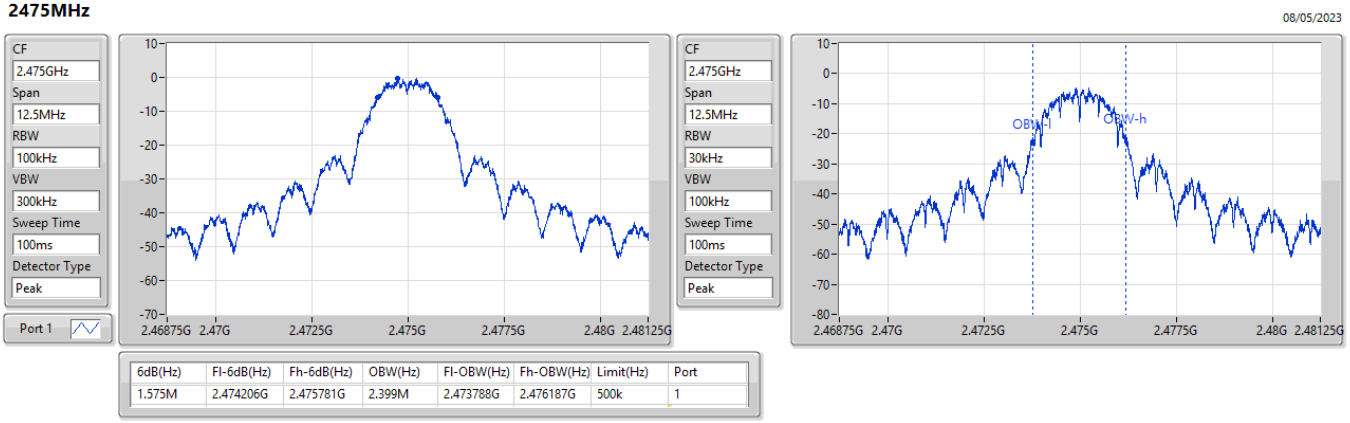
2450MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.569M	2.449206G	2.450775G	2.393M	2.448788G	2.451181G	500k	1

2.4-2.4835GHz_RF4CE **EBW**

2475MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.575M	2.474206G	2.475781G	2.399M	2.473788G	2.476187G	500k	1

Summary

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
RF4CE	2.54	0.00179

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Total Power (dBm)	Power Limit (dBm)
RF4CE	-	-	-	-	-
2425MHz	Pass	3.72	1.47	1.47	30.00
2450MHz	Pass	3.72	2.02	2.02	30.00
2475MHz	Pass	3.72	2.54	2.54	30.00

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

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
RF4CE	-11.33

RBW = 3kHz;

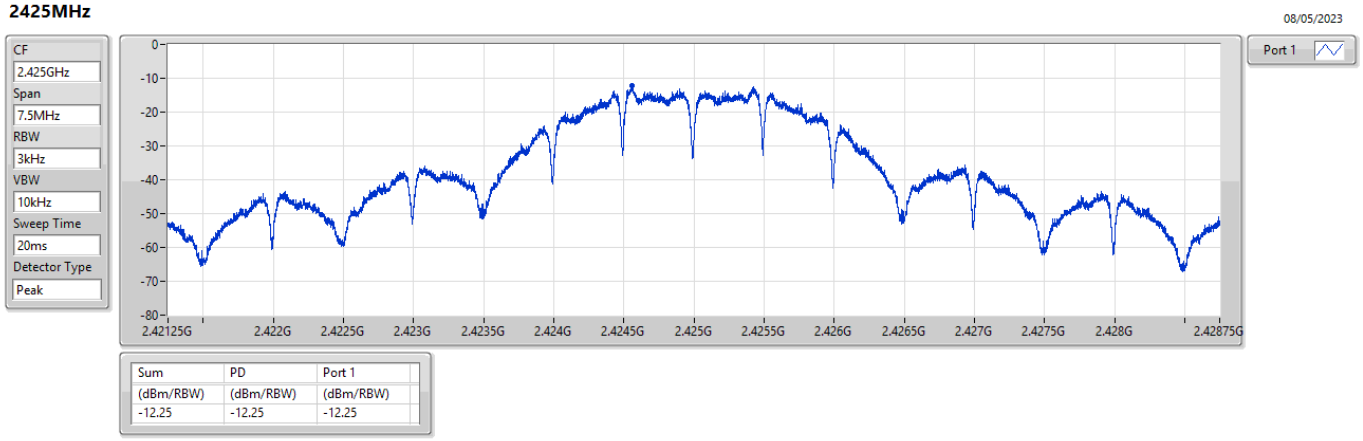
Result

Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
RF4CE	-	-	-	-	-
2425MHz	Pass	3.72	-12.25	-12.25	8.00
2450MHz	Pass	3.72	-12.05	-12.05	8.00
2475MHz	Pass	3.72	-11.33	-11.33	8.00

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

2.4-2.4835GHz_RF4CE **PSD**

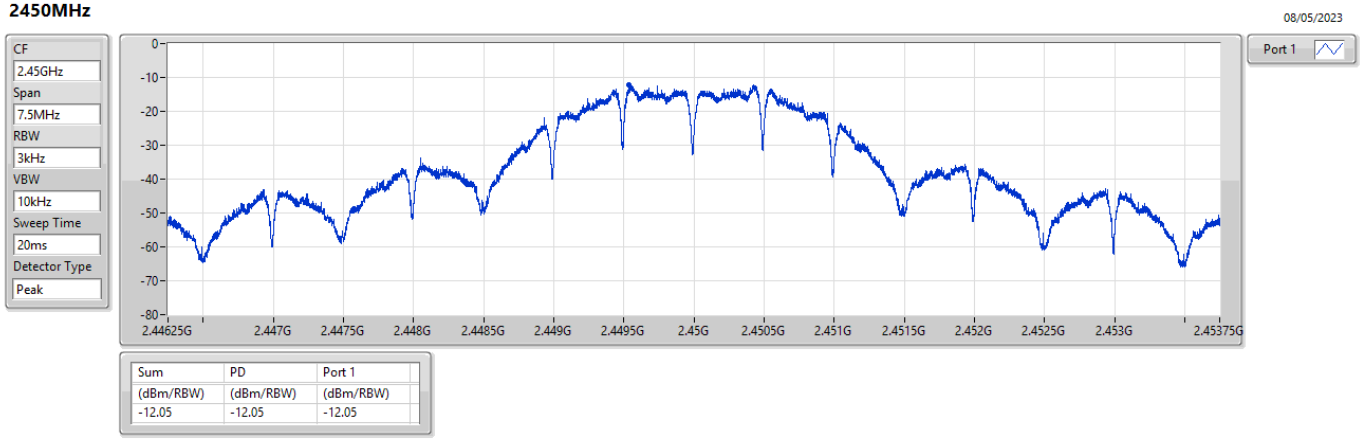
2425MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-12.25	-12.25	-12.25

2.4-2.4835GHz_RF4CE **PSD**

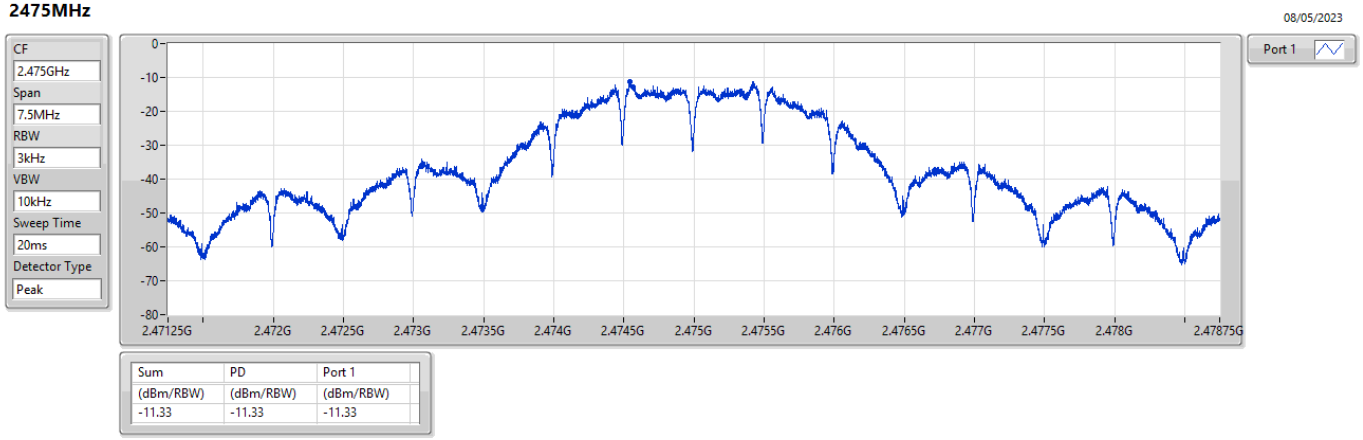
2450MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-12.05	-12.05	-12.05

2.4-2.4835GHz_RF4CE **PSD**

2475MHz



Summary

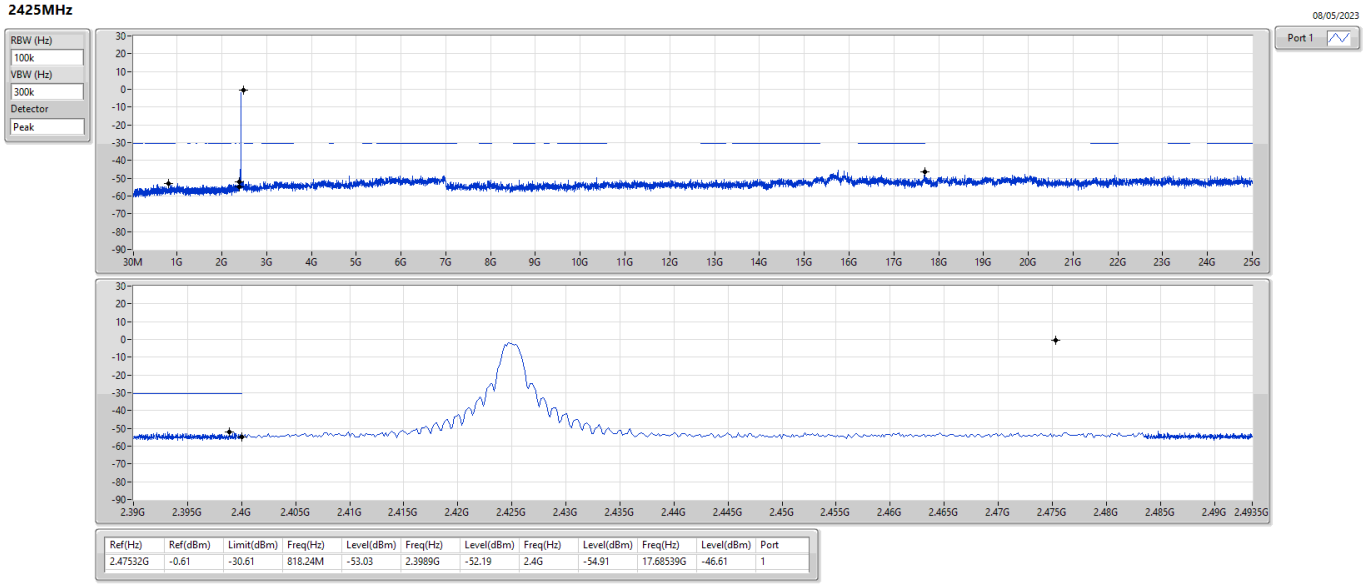
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-
RF4CE	Pass	2.47532G	-0.61	-30.61	818.24M	-53.03	2.3989G	-52.19	2.4G	-54.91	17.68539G	-46.61	1

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
RF4CE	-	-	-	-	-	-	-	-	-	-	-	-	-
2425MHz	Pass	2.47532G	-0.61	-30.61	818.24M	-53.03	2.3989G	-52.19	2.4G	-54.91	17.68539G	-46.61	1
2450MHz	Pass	2.47532G	-0.61	-30.61	1.87434G	-53.35	2.39584G	-51.84	2.4G	-54.68	5.80477G	-47.73	1
2475MHz	Pass	2.47532G	-0.61	-30.61	1.63244G	-53.33	2.39084G	-52.24	2.4G	-55.24	24.92123G	-47.32	1

2.4-2.4835GHz_RF4CE CSENdB

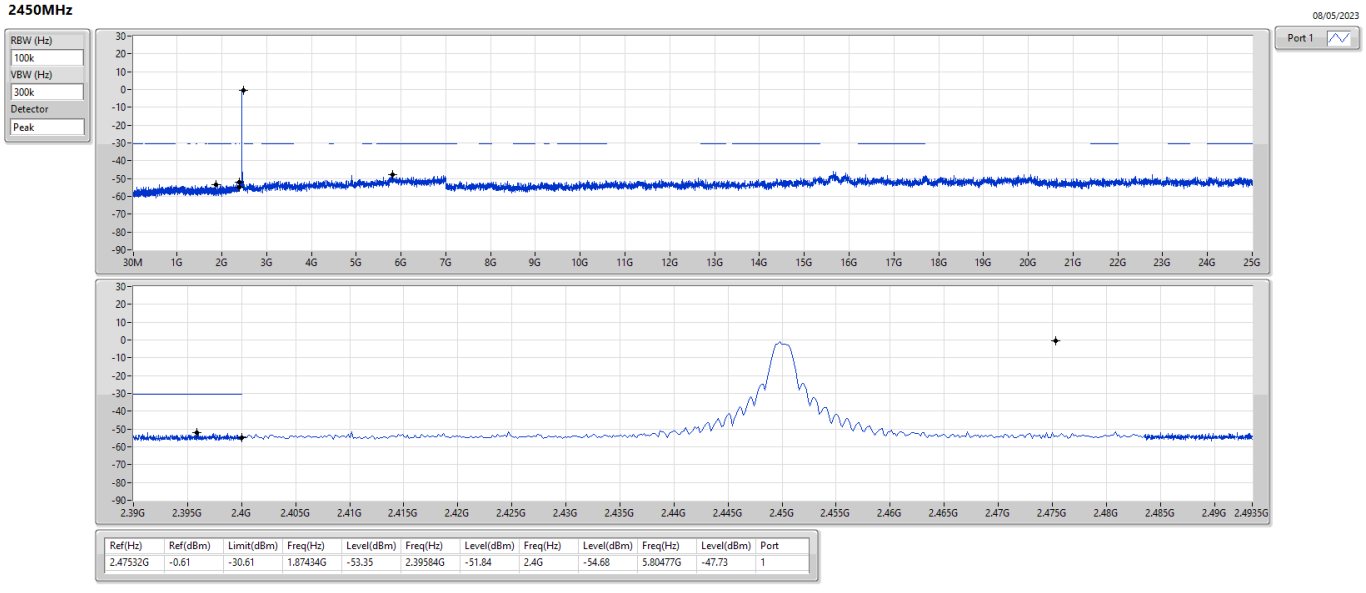
2425MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.47532G	-0.61	-30.61	818.24M	-53.03	2.3989G	-52.19	2.4G	-54.91	17.68539G	-46.61	1

2.4-2.4835GHz_RF4CE CSENdB

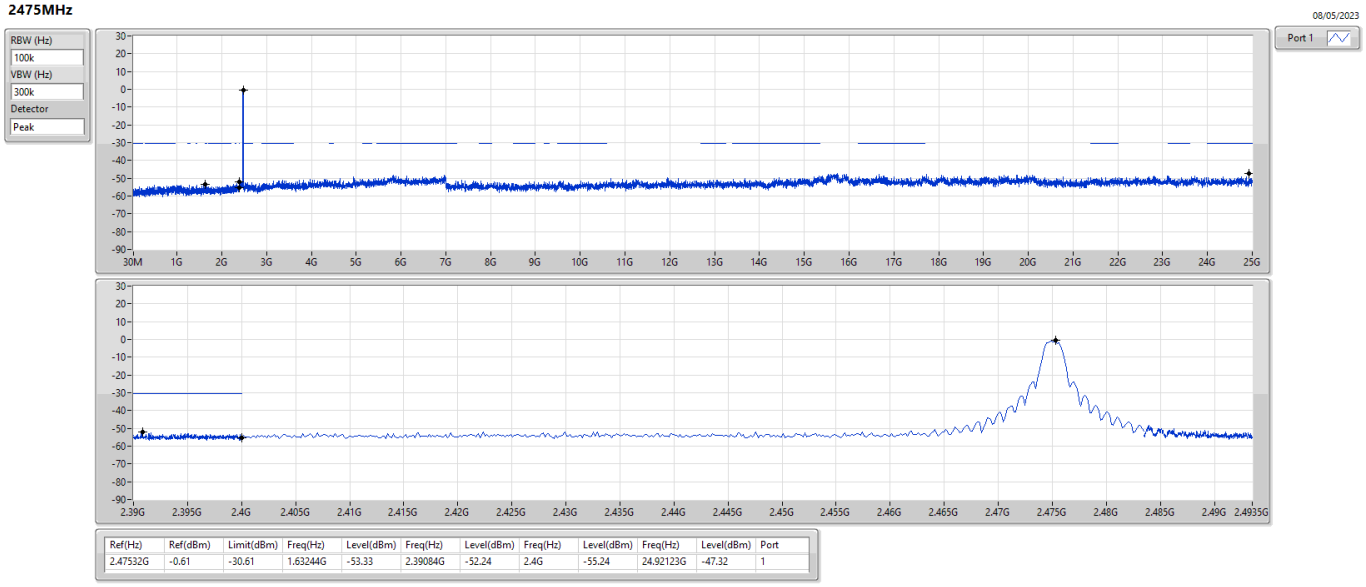
2450MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.47532G	-0.61	-30.61	1.87434G	-53.35	2.39584G	-51.84	2.4G	-54.68	5.80477G	-47.73	1

2.4-2.4835GHz_RF4CE CSENdB

2475MHz

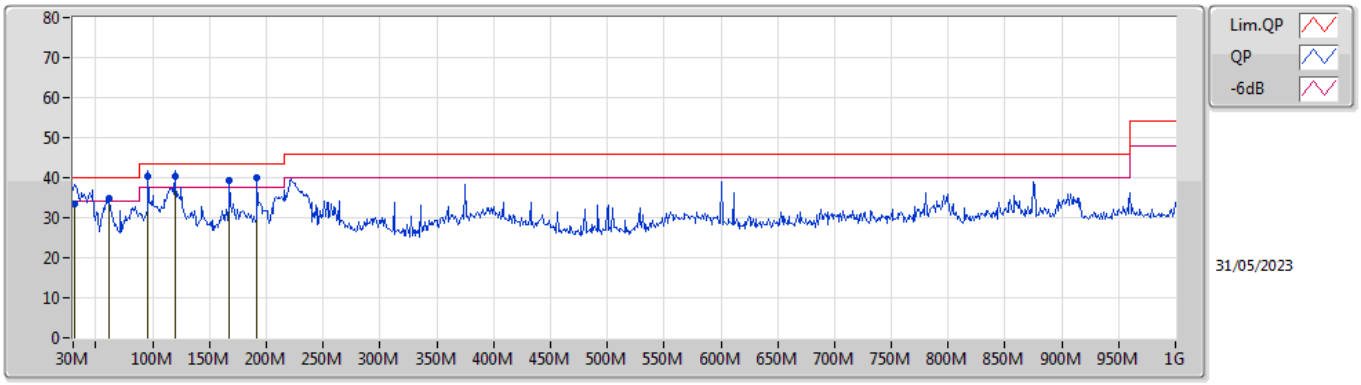


Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.47532G	-0.61	-30.61	1.63244G	-53.33	2.39084G	-52.24	2.4G	-55.24	24.92123G	-47.32	1

Summary

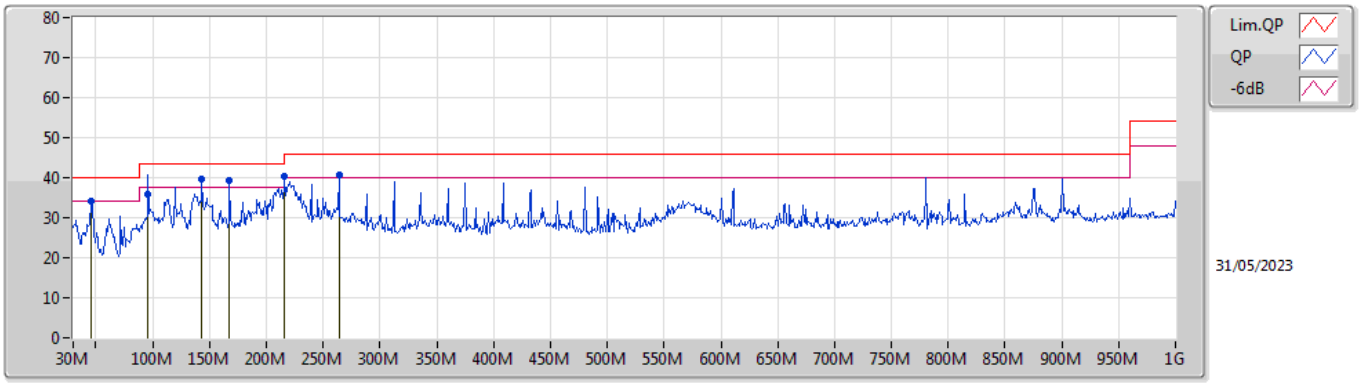
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 2	Pass	QP	119.24M	40.36	43.50	-3.14	Vertical

Mode 2



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)
QP	30.97M	33.38	40.00	-6.62	-6.92	3	Vertical	245	1.25	-	40.30	23.62	1.03	31.57
PK	62.01M	34.75	40.00	-5.25	-18.38	3	Vertical	9	2.00	-	53.13	12.17	1.38	31.93
QP	95.96M	40.33	43.50	-3.17	-14.17	3	Vertical	0	1.00	-	54.50	16.15	1.67	31.99
QP	119.24M	40.36	43.50	-3.14	-11.84	3	Vertical	177	1.00	"Worst"	52.20	18.29	1.85	31.98
PK	167.74M	39.20	43.50	-4.30	-14.12	3	Vertical	2	1.00	-	53.32	15.71	2.20	32.03
PK	191.99M	39.84	43.50	-3.66	-14.52	3	Vertical	335	1.00	-	54.36	15.12	2.37	32.01

Mode 2



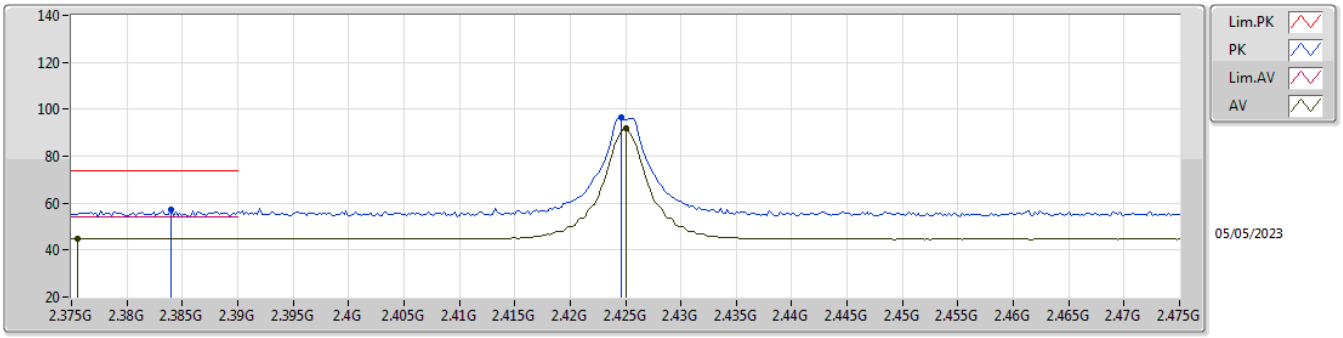
Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB/m)	(m)		(°)	(m)		(dBuV/m)	(dB/m)	(dB)	(dB)
PK	45.52M	34.09	40.00	-5.91	-14.61	3	Horizontal	360	3.00	-	48.70	15.99	1.22	31.82
QP	95.96M	35.83	43.50	-7.67	-14.17	3	Horizontal	211	2.00	-	50.00	16.15	1.67	31.99
PK	143.49M	39.57	43.50	-3.93	-13.03	3	Horizontal	81	2.00	"Worst"	52.60	16.92	2.03	31.98
PK	167.74M	39.42	43.50	-4.08	-14.12	3	Horizontal	226	1.50	-	53.54	15.71	2.20	32.03
PK	216M	40.32	46.00	-5.68	-14.51	3	Horizontal	225	1.50	-	54.83	14.99	2.52	32.02
PK	263.77M	40.66	46.00	-5.34	-9.93	3	Horizontal	225	1.50	-	50.59	19.33	2.80	32.06

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	-	-	-	-	-	-	-	-	-	-	-
RF4CE	Pass	AV	2.4835G	47.52	54.00	-6.48	3	Horizontal	57	1.20	-

2.4-2.4835GHz_RF4CE

2425MHz_TX

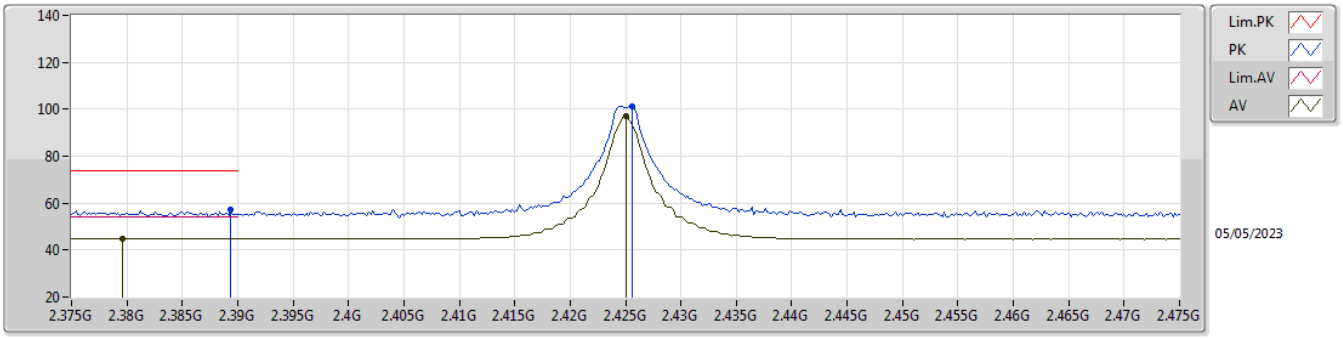


EUT Z_1TX
Setting 3
06-D-P-5

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	2.384G	57.08	74.00	-16.92	24.35	3	Vertical	134	2.78	-	27.66	5.07	-
AV	2.3756G	44.83	54.00	-9.17	12.07	3	Vertical	134	2.78	-	27.70	5.06	-
PK	2.4246G	96.31	Inf	-Inf	63.60	3	Vertical	134	2.78	-	27.60	5.11	-
AV	2.425G	91.95	Inf	-Inf	59.24	3	Vertical	134	2.78	-	27.60	5.11	-

2.4-2.4835GHz_RF4CE

2425MHz_TX

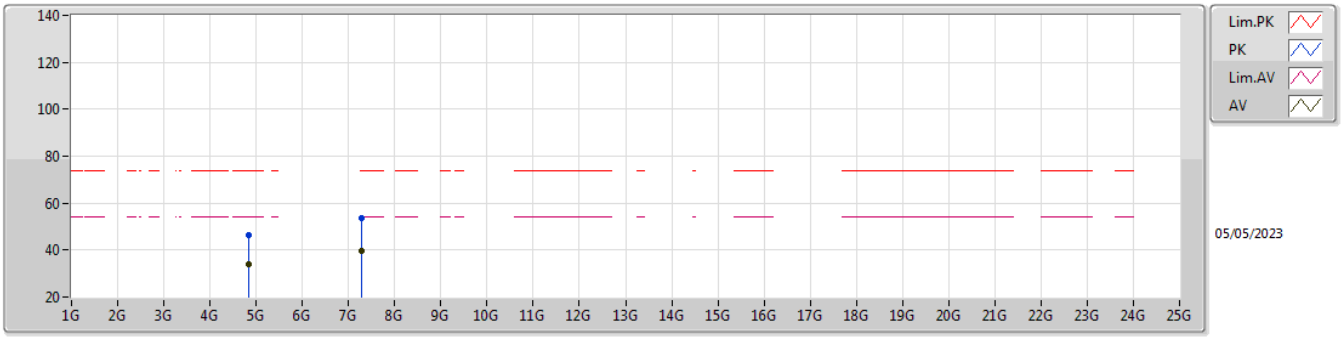


EUT Z_1TX
Setting 3
06-D-P-5

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	2.3894G	57.12	74.00	-16.88	24.39	3	Horizontal	54	1.00	-	27.64	5.09	-
AV	2.3796G	44.83	54.00	-9.17	12.09	3	Horizontal	54	1.00	-	27.68	5.06	-
PK	2.4256G	101.37	Inf	-Inf	68.66	3	Horizontal	54	1.00	-	27.60	5.11	-
AV	2.425G	97.02	Inf	-Inf	64.31	3	Horizontal	54	1.00	-	27.60	5.11	-

2.4-2.4835GHz_RF4CE

2425MHz_TX

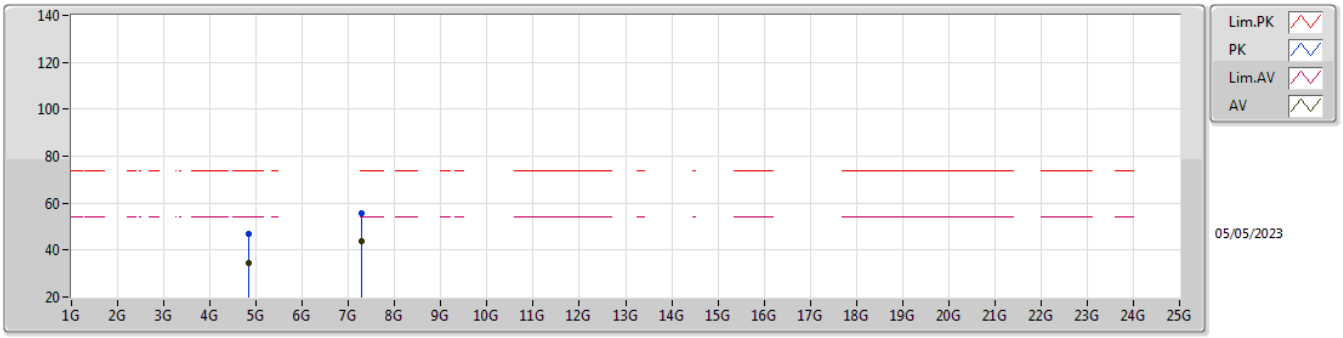


EUT Z_1TX
Setting 3
06-D-P-5

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	4.84934G	46.45	74.00	-27.55	40.79	3	Vertical	209	1.34	-	31.40	6.77	32.51
AV	4.85098G	33.76	54.00	-20.24	28.10	3	Vertical	209	1.34	-	31.40	6.77	32.51
PK	7.27334G	53.43	74.00	-20.57	42.05	3	Vertical	246	2.39	-	36.65	8.12	33.39
AV	7.27352G	39.83	54.00	-14.17	28.45	3	Vertical	246	2.39	-	36.65	8.12	33.39

2.4-2.4835GHz_RF4CE

2425MHz_TX

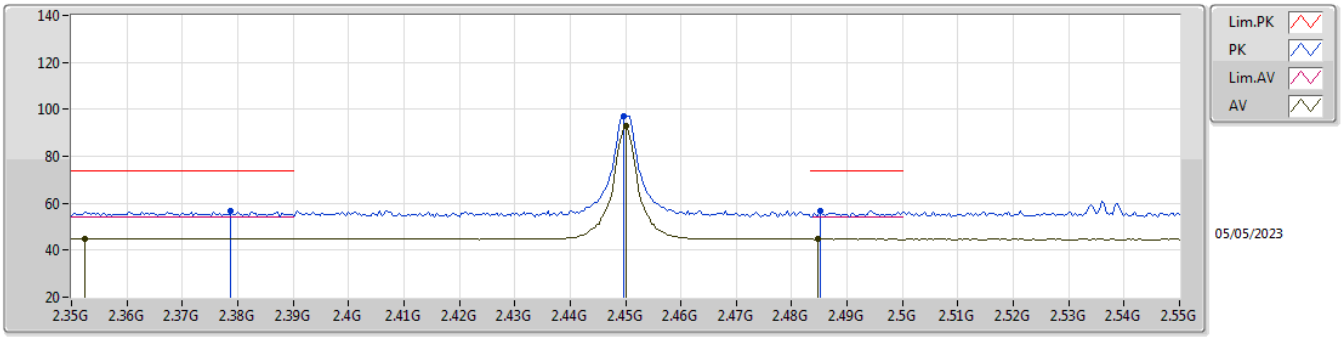


EUT Z_1TX
Setting 3
06-D-P-5

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	4.85104G	46.90	74.00	-27.10	41.24	3	Horizontal	343	2.82	-	31.40	6.77	32.51
AV	4.8509G	34.29	54.00	-19.71	28.63	3	Horizontal	343	2.82	-	31.40	6.77	32.51
PK	7.2766G	55.85	74.00	-18.15	44.47	3	Horizontal	345	1.00	-	36.65	8.12	33.39
AV	7.27356G	43.96	54.00	-10.04	32.58	3	Horizontal	345	1.00	-	36.65	8.12	33.39

2.4-2.4835GHz_RF4CE

2450MHz_TX

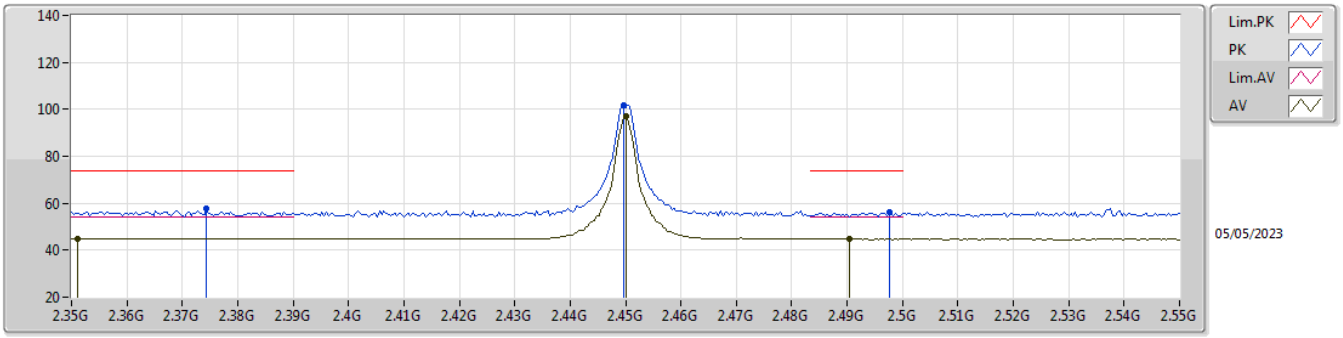


EUT Z_1TX
Setting 3
06-D-P-5

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	2.3788G	56.70	74.00	-17.30	23.96	3	Vertical	119	2.74	-	27.68	5.06	-
AV	2.3524G	44.96	54.00	-9.04	12.17	3	Vertical	119	2.74	-	27.79	5.00	-
PK	2.4496G	97.27	Inf	-Inf	64.56	3	Vertical	119	2.74	-	27.60	5.11	-
AV	2.45G	92.93	Inf	-Inf	60.22	3	Vertical	119	2.74	-	27.60	5.11	-
PK	2.4852G	56.92	74.00	-17.08	24.21	3	Vertical	119	2.74	-	27.60	5.11	-
AV	2.4848G	44.68	54.00	-9.32	11.97	3	Vertical	119	2.74	-	27.60	5.11	-

2.4-2.4835GHz_RF4CE

2450MHz_TX

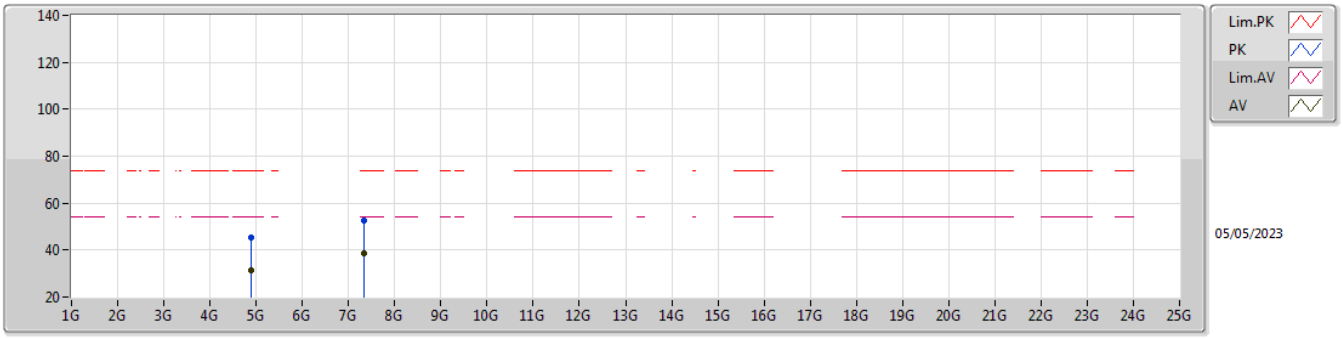


EUT Z_1TX
Setting 3
06-D-P-5

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	2.3744G	57.52	74.00	-16.48	24.77	3	Horizontal	59	1.03	-	27.70	5.05	-
AV	2.3512G	45.00	54.00	-9.00	12.20	3	Horizontal	59	1.03	-	27.80	5.00	-
PK	2.4496G	101.68	Inf	-Inf	68.97	3	Horizontal	59	1.03	-	27.60	5.11	-
AV	2.45G	97.24	Inf	-Inf	64.53	3	Horizontal	59	1.03	-	27.60	5.11	-
PK	2.4976G	56.07	74.00	-17.93	23.36	3	Horizontal	59	1.03	-	27.60	5.11	-
AV	2.4904G	44.68	54.00	-9.32	11.97	3	Horizontal	59	1.03	-	27.60	5.11	-

2.4-2.4835GHz_RF4CE

2450MHz_TX

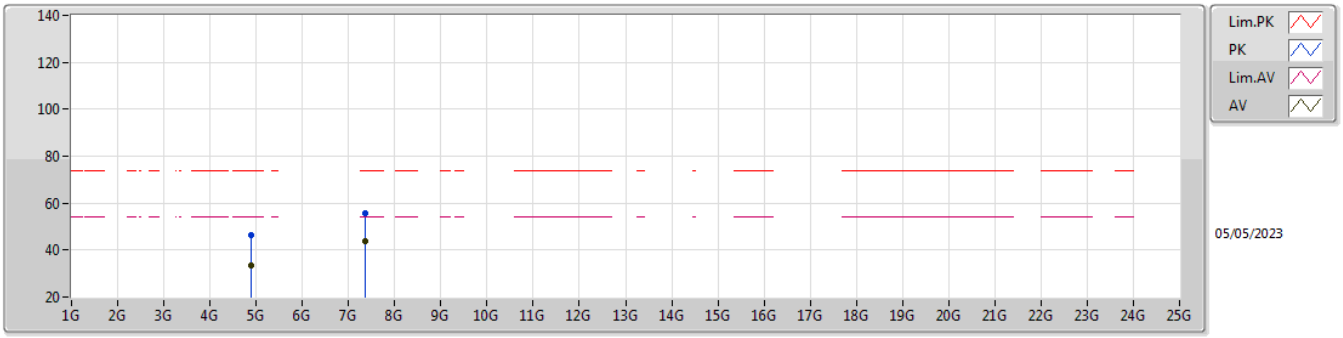


EUT Z_1TX
Setting 3
06-D-P-5

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	4.89584G	45.30	74.00	-28.70	39.61	3	Vertical	331	1.00	-	31.40	6.78	32.49
AV	4.89618G	31.34	54.00	-22.66	25.65	3	Vertical	331	1.00	-	31.40	6.78	32.49
PK	7.34672G	52.36	74.00	-21.64	41.10	3	Vertical	211	1.18	-	36.70	8.04	33.48
AV	7.3475G	38.60	54.00	-15.40	27.34	3	Vertical	211	1.18	-	36.70	8.04	33.48

2.4-2.4835GHz_RF4CE

2450MHz_TX

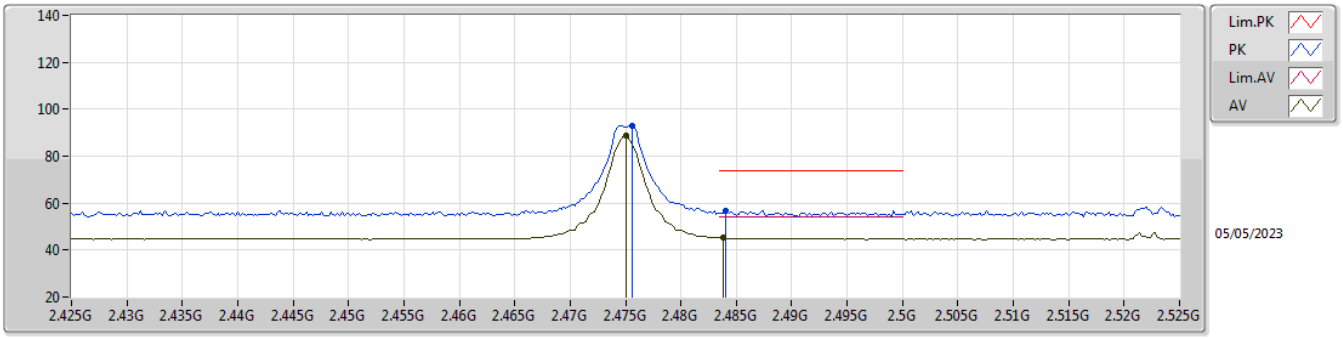


EUT Z_1TX
Setting 3
06-D-P-5

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	4.90118G	46.30	74.00	-27.70	40.60	3	Horizontal	347	1.00	-	31.40	6.79	32.49
AV	4.90092G	33.64	54.00	-20.36	27.94	3	Horizontal	347	1.00	-	31.40	6.79	32.49
PK	7.35124G	55.76	74.00	-18.24	44.52	3	Horizontal	345	1.01	-	36.70	8.03	33.49
AV	7.3485G	43.78	54.00	-10.22	32.53	3	Horizontal	345	1.01	-	36.70	8.04	33.49

2.4-2.4835GHz_RF4CE

2475MHz_TX

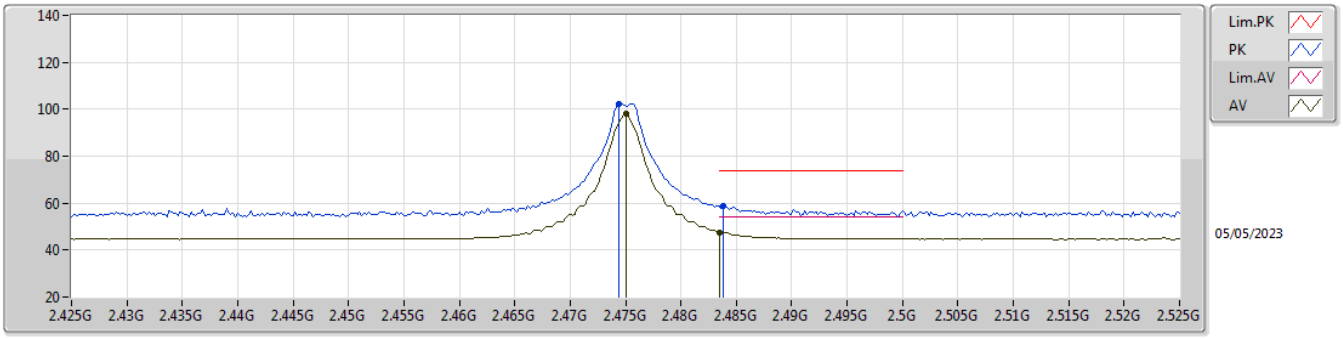


EUT Z_1TX
Setting 3
06-D-P-5

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	2.4756G	93.15	Inf	-Inf	60.44	3	Vertical	190	1.60	-	27.60	5.11	-
AV	2.475G	88.73	Inf	-Inf	56.02	3	Vertical	190	1.60	-	27.60	5.11	-
PK	2.484G	56.65	74.00	-17.35	23.94	3	Vertical	190	1.60	-	27.60	5.11	-
AV	2.4838G	45.11	54.00	-8.89	12.40	3	Vertical	190	1.60	-	27.60	5.11	-

2.4-2.4835GHz_RF4CE

2475MHz_TX

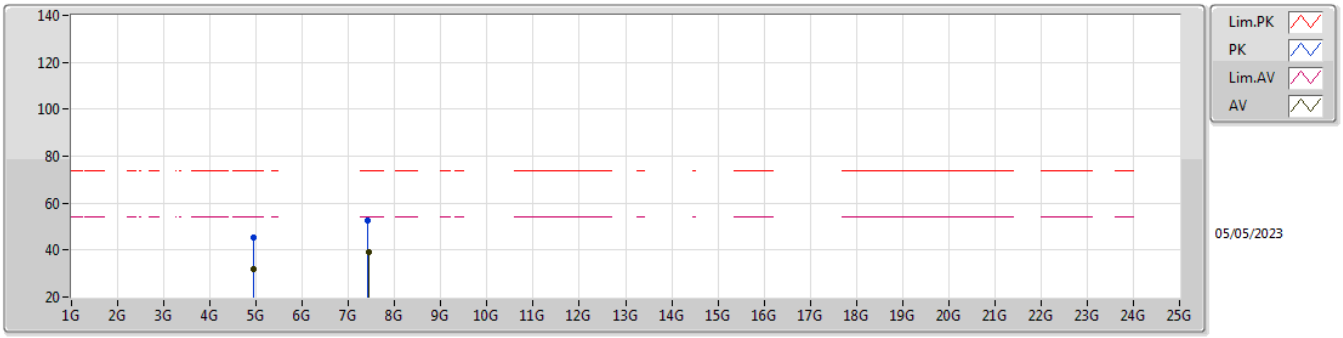


EUT Z_1TX
Setting 3
06-D-P-5

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	2.4744G	102.29	Inf	-Inf	69.58	3	Horizontal	57	1.20	-	27.60	5.11	-
AV	2.475G	97.89	Inf	-Inf	65.18	3	Horizontal	57	1.20	-	27.60	5.11	-
PK	2.4838G	58.93	74.00	-15.07	26.22	3	Horizontal	57	1.20	-	27.60	5.11	-
AV	2.4835G	47.52	54.00	-6.48	14.81	3	Horizontal	57	1.20	-	27.60	5.11	-

2.4-2.4835GHz_RF4CE

2475MHz_TX

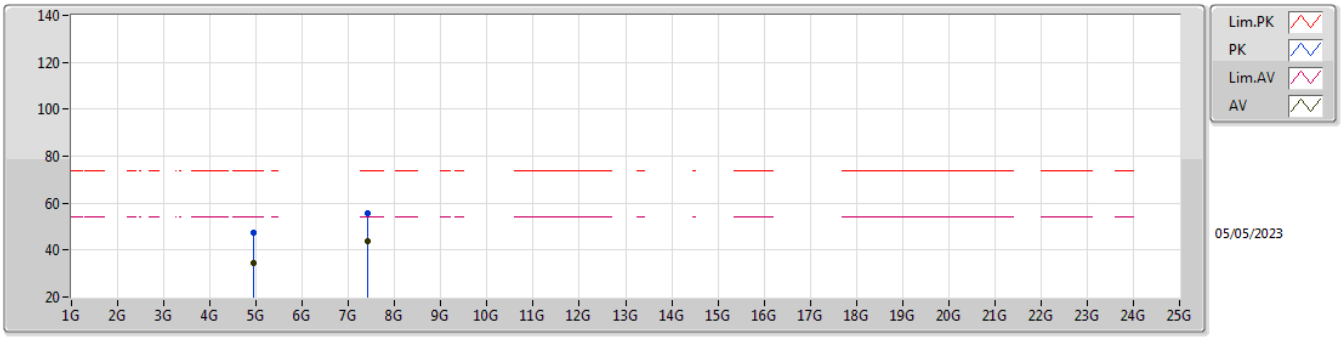


EUT Z_1TX
Setting 3
06-D-P-5

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	4.95096G	45.20	74.00	-28.80	39.35	3	Vertical	296	1.74	-	31.51	6.80	32.46
AV	4.94742G	32.04	54.00	-21.96	26.21	3	Vertical	296	1.74	-	31.49	6.80	32.46
PK	7.42588G	52.61	74.00	-21.39	41.45	3	Vertical	190	1.89	-	36.70	8.05	33.59
AV	7.42914G	39.05	54.00	-14.95	27.88	3	Vertical	190	1.89	-	36.70	8.06	33.59

2.4-2.4835GHz_RF4CE

2475MHz_TX



EUT Z_1TX
Setting 3
06-D-P-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	4.9511G	47.29	74.00	-26.71	41.44	3	Horizontal	344	1.00	-	31.51	6.80	32.46
AV	4.94894G	34.36	54.00	-19.64	28.52	3	Horizontal	344	1.00	-	31.50	6.80	32.46
PK	7.42328G	55.81	74.00	-18.19	44.65	3	Horizontal	351	1.02	-	36.70	8.04	33.58
AV	7.42352G	43.88	54.00	-10.12	32.72	3	Horizontal	351	1.02	-	36.70	8.04	33.58