FCC RADIO TEST REPORT

FCC ID	:	2AWNEKDE20104
Equipment	:	Home Entertainment Hub
Brand Name	:	E1 by Ericsson
Model Name	:	KDE20104
Applicant	:	Ericsson AB 21-23 Torshamnsgatan Stockholm, 16480 Sweden
Manufacturer	:	CyberTAN Technology Inc. No. 99, Park Avenue III Science-based Industrial Park Hsinchu Taiwan 308
Standard	:	47 CFR FCC Part 15.247

The product was received on Jan. 21, 2021, and testing was started from Jan. 21, 2021 and completed on Feb. 22, 2021. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications 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. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Approved by: Sam Chen

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)

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Photographs of EUT v01

History of this test report

Report No.	Version	Description	Issued Date
FR031633-01AA	01	Initial issue of report	Feb. 26, 2021

Summary of Test Result

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

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and Explanations:
The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Reviewed by: Sam Chen
Report Producer: Vicky 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	2405-2475	11-25 [15]

Band	Mode	BWch (MHz)	Nant
2.4G	Zigbee	2	1

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

1.1.2 Antenna Information

For AX Module:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)		
					WLAN 2.4GHz	WLAN 5GHz	Bluetooth
1	Airgain	N2420DSRH-T6-PK1-B320 U4LI	PCB Antenna	I-PEX	1.1	3.3	1.1
2	Airgain	N2420DSRJ-T6-PK1-W110 U4LIR1	PCB Antenna	I-PEX	1.1	3.6	-

Note: Certified AX module (module FCC ID: PD9AX200NG)

For AI module:

Ant.	Port	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	
						WLAN 2.4GHz	Zigbee
1	1	Airgain	N2415GB	PCB Antenna	I-PEX	3.2	-
2	1	Airgain	N2420ZB	PCB Antenna	I-PEX	-	1.4

Note: The above information was declared by manufacturer.
Only Port 1 can be used as transmitting/receiving antenna.

1.1.3 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
Zigbee	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 Power Adapter			
Beamforming Function	☐	With beamforming	☒	Without beamforming
Function	☒	Point-to-multipoint	☐	Point-to-point
Test Software Version	SmartRF Studio 7_v2.11.0			

Note: The above information was declared by manufacturer.

1.1.5 The EUT Support Function Information

Module	Function
AX (Contain module FCC ID: PD9AX200NG)	WLAN 2.4GHz, WLAN 5GHz and Bluetooth
AI	WLAN 2.4GHz, Zigbee

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
- 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			
☐	HWA YA	ADD :	No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)
		TEL :	886-3-327-3456 FAX : 886-3-327-0973
☒	JHUBEI	ADD :	NoNo.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302, Taiwan (R.O.C.)
		TEL :	886-3-656-9065 FAX : 886-3-656-9085

Test Condition	Test Site No.	Test Engineer	Test Environment (°C / %)	Test Date
RF Conducted	TH02-CB	Paul Chen	21-22 / 56-57	Feb. 05, 2021
Radiated<1GHz	03CH05-CB	KJ Chang	20.8-22 / 55-58	Feb. 03, 2021~ Feb. 22, 2021
Radiated>1GHz	03CH05-CB	KJ Chang	20.1-21.3 / 56-58	Feb. 03, 2021~ Feb. 22, 2021
AC Conduction	CO01-CB	Ryo Fan	19~20 / 61~62	Jan. 21, 2021

Test site Designation No. TW0006 with FCC.
Test site registered number IC 4086D with Industry Canada.

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)	2.0 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	3.8 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	5.6 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	5.0 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	4.9 dB	Confidence levels of 95%
Conducted Emission	2.8 dB	Confidence levels of 95%
Output Power Measurement	1.4 dB	Confidence levels of 95%
Power Density Measurement	2.8 dB	Confidence levels of 95%
Bandwidth Measurement	0.4%	Confidence levels of 95%

2 Test Configuration of EUT

2.1 Test Channel Mode

Mode	Power Setting
Zigbee	-
2405MHz	21.1
2440MHz	21.1
2475MHz	21.1

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				
Operating Mode	Normal Link				
Test Mode	**SD R/W**	**Camera**	**AX Module**	**AI Module**	**Adapter**
1	●	-	● WLAN 5GHz + Bluetooth	● WLAN 2.4GHz + Zigbee	● US cable
2	●	-	● WLAN 2.4GHz + Bluetooth	● WLAN 2.4GHz + Zigbee	● US cable
Mode 1 has been evaluated to be the worst case between Mode 1~2, thus measurement for Mode 3 will follow this same test mode.					
3	●	●	● WLAN 5GHz + Bluetooth	-	● US cable
For operating mode 3 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
Test Condition	Conducted measurement at transmit chains

The Worst Case Mode for Following Conformance Tests	
Tests Item	Emissions in Restricted Frequency Bands
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.
Operating Mode < 1GHz	CTX
1	EUT - WLAN 2.4GHz (AI module) + Adapter
2	EUT - Zigbee (AI module) + Adapter
For operating mode 1 is the worst case and it was record in this test report.	
Operating Mode > 1GHz	CTX

The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation
Operating Mode	
1	AX module (WLAN 2.4GHz + Bluetooth) + AI module (WLAN 2.4GHz + Zigbee)
2	AX module (WLAN 5GHz + Bluetooth) + AI module (WLAN 2.4GHz + Zigbee)
Refer to Sporton Test Report No.: FA031633-01 for Co-location RF Exposure Evaluation.	

Note: The EUT can only be used at Z axis.

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

Power	Brand	Model	Rating	DC Power cable length
Adapter	FSP	FSP100-A1AR3	Input: 100-240V ~ 50-60Hz, 1.4A Output: 5V, 3A / 9V, 3A 12V, 3A / 15V, 3A 20V, 5.0A 100W MAX.	Non-Shielded 1.6m
Others				
HDMI cable*1: Shielded, 1.5m USB-C to USB-A cable*1: Shielded, 0.1m Power cable*1: Non-Shielded, 1m				

2.5 Support Equipment

For AC Conduction:

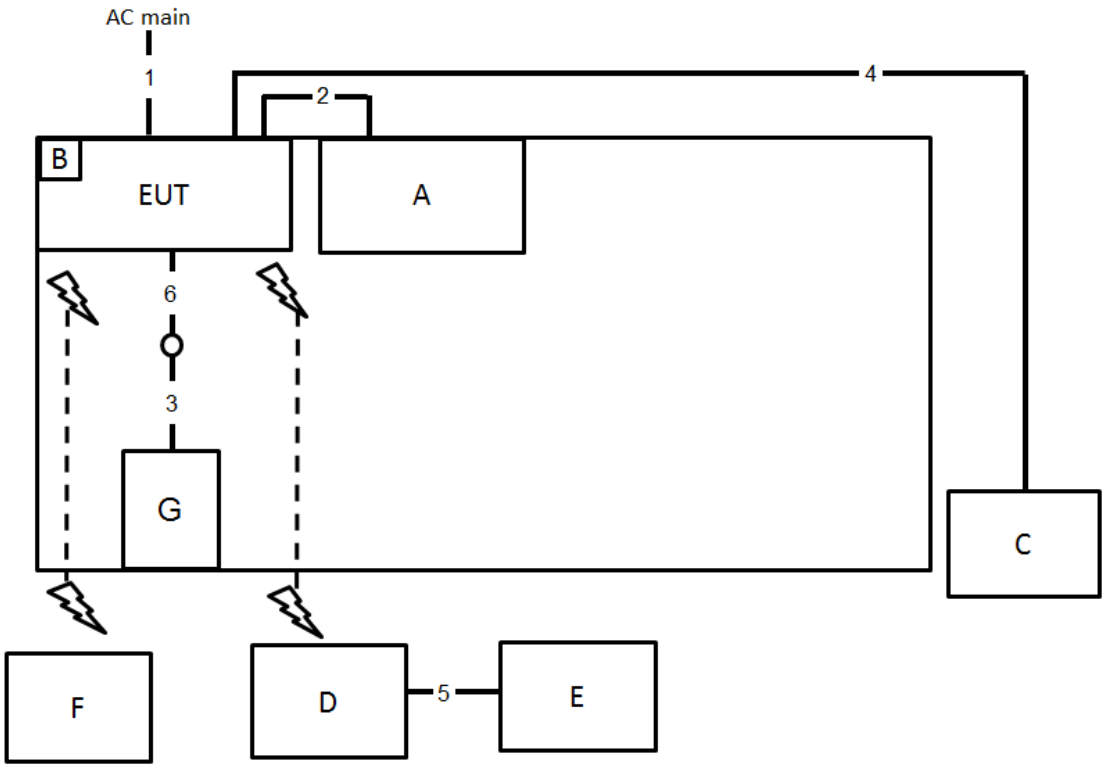
Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
A	TV	ASUS	VP28U	N/A
B	Micro SD Card	Transcend	TS16GUSDHC10	N/A
C	LAN NB	DELL	E6430	N/A
D	AP Router	ASUS	RT-AX88U	MSQ-RTAXHP00
E	AP NB	DELL	E6430	N/A
F	Bluetooth Speaker	MARUS	MSK06C-RD	N/A
G	Air mouse	HENCHUNGYU	HCY-57B	2AOBUHCY-57B

For Radiated and RF Conducted:

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
A	NB	DELL	E4300	N/A
B	Test Fixture	Cybertan	0X1894	N/A

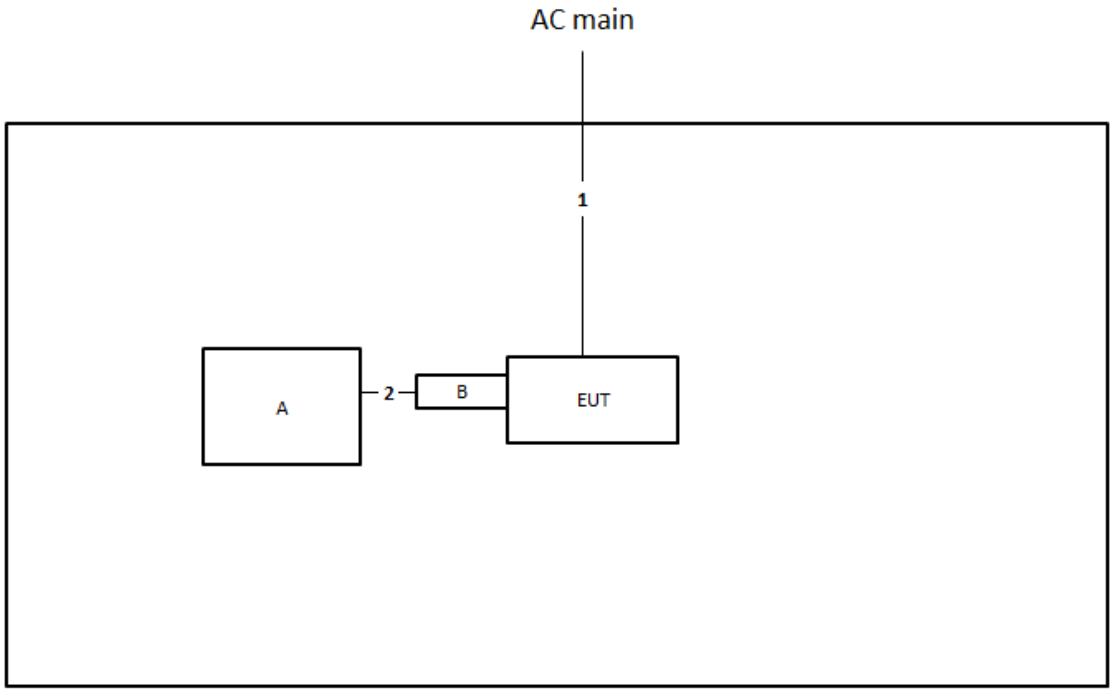
2.6 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test



Item	Connection	Shielded	Length
1	Power cable	No	2.6m
2	HDMI cable	Yes	1.5m
3	USB cable	Yes	0.9m
4	RJ-45 cable	No	10m
5	RJ-45 cable	No	3m
6	USB-C to USB-A cable	Yes	0.1m

Test Setup Diagram - Radiated Test



Item	Connection	Shielded	Length
1	Power cable	No	2.6m
2	USB-C to USB-A cable	Yes	0.1m

3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

AC Power-line Conducted Emissions Limit		
Frequency Emission (MHz)	**Quasi-Peak**	**Average**
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50
Note 1: * Decreases with the logarithm of the frequency.		

3.1.2 Measuring Instruments

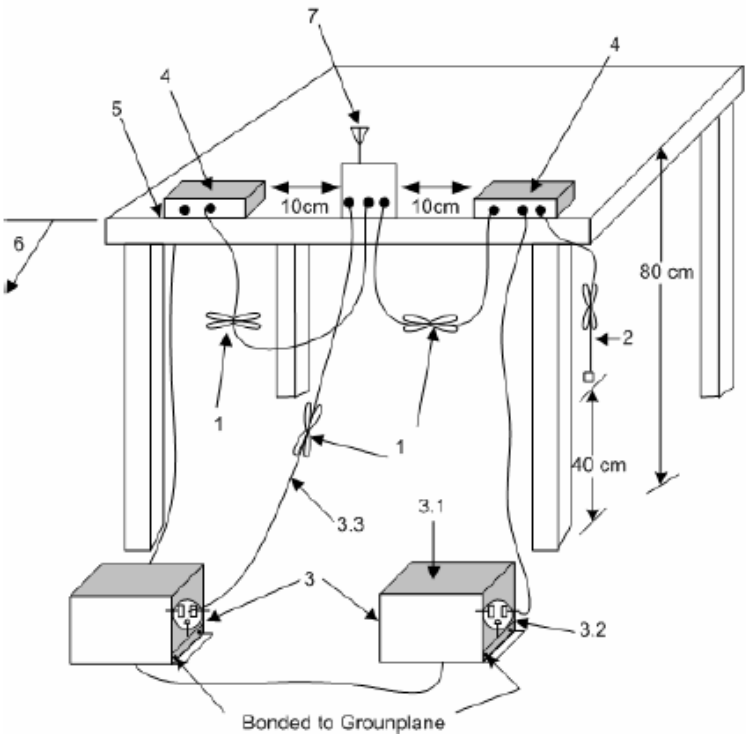
Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

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

3.1.4 Test Setup

AC Power-line Conducted Emissions



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

3.1.5 Measurement Results Calculation

The measured Level is calculated using:

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

b. Margin = -Limit + Level

3.1.6 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A

3.2 DTS Bandwidth

3.2.1 6dB Bandwidth Limit

6dB Bandwidth Limit
Systems using digital modulation techniques:
▪ 6 dB bandwidth ≥ 500 kHz.

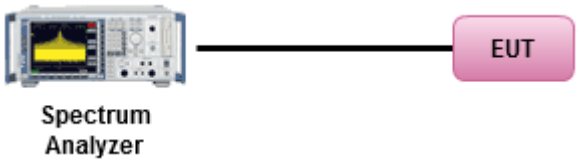
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

Test Method	
▪ For the emission bandwidth shall be measured using one of the options below:	
	☒ Refer as FCC KDB 558074, clause 8.2 & C63.10 clause 11.8.1 Option 1 for 6 dB bandwidth measurement.
	☐ Refer as FCC KDB 558074, clause 8.2 & C63.10 clause 11.8.2 Option 2 for 6 dB bandwidth measurement.
	☐ Refer as ANSI C63.10, clause 6.9.1 for occupied bandwidth testing.

3.2.4 Test Setup

Emission Bandwidth


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

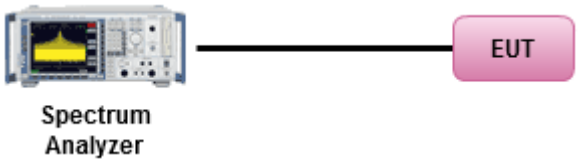
3.4.2 Measuring Instruments

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.	

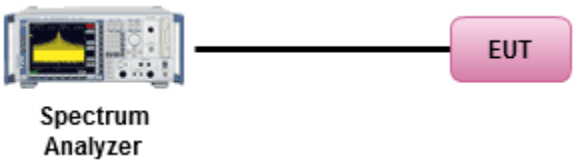
3.5.2 Measuring Instruments

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.

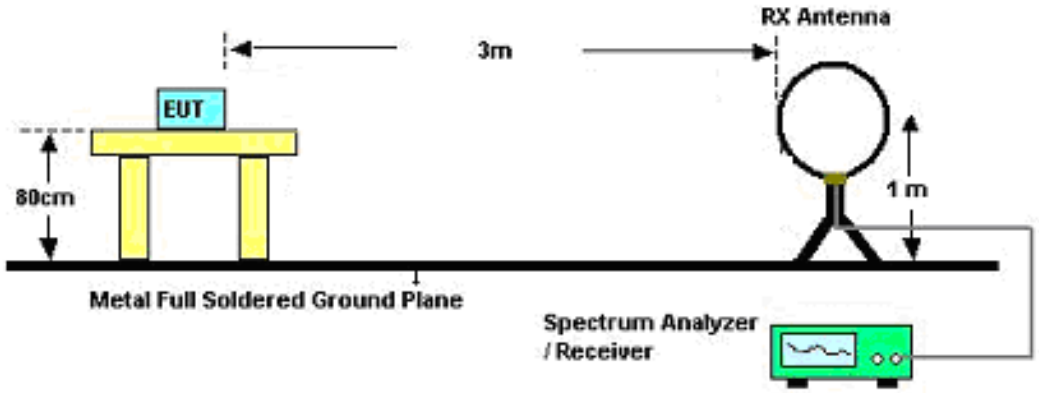
3.6.3 Test Procedures

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.		

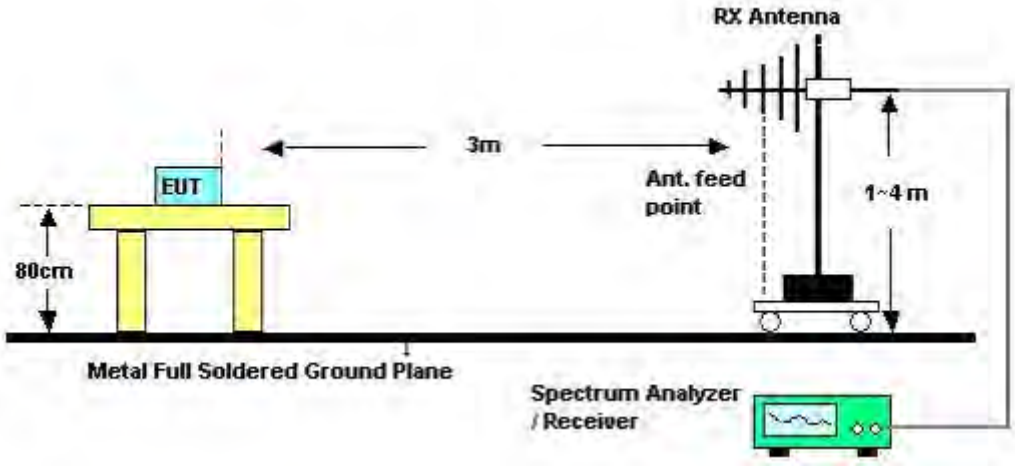
3.6.4 Test Setup

Emissions in Restricted Frequency Bands

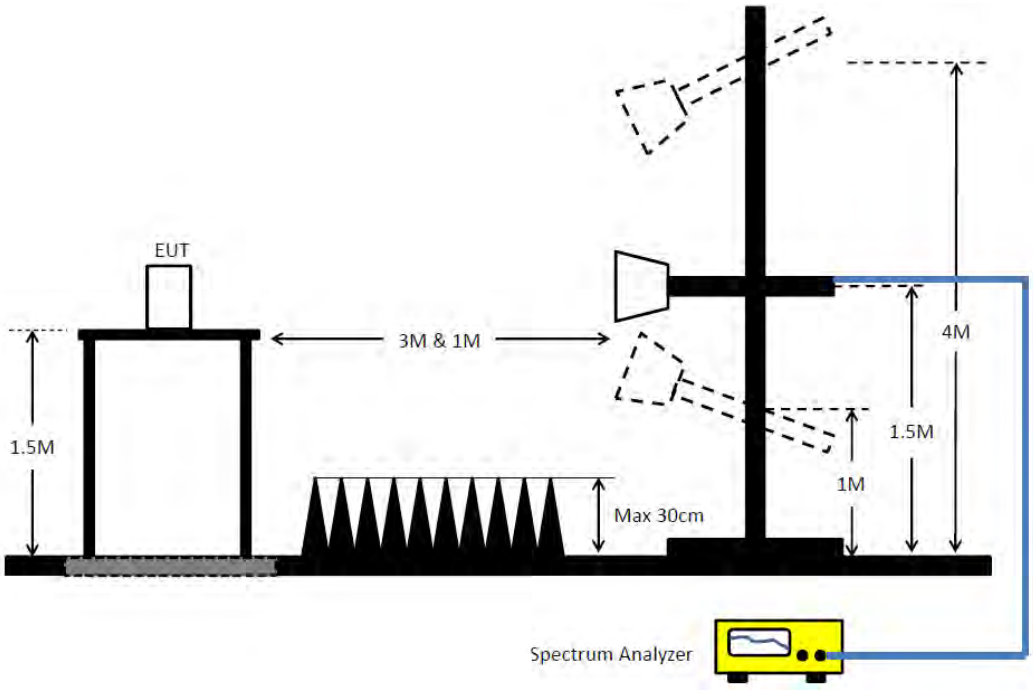
9kHz ~30MHz



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. 26, 2020	Feb. 25, 2021	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Jan. 06, 2021	Jan. 05, 2022	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Feb. 25, 2020	Feb. 24, 2021	Conduction (CO01-CB)
Pulse Limiter	Rohde& Schwarz	ESH3-Z2	100430	9kHz ~ 30MHz	Jan. 31, 2020	Jan. 30, 2021	Conduction (CO01-CB)
COND Cable	Woken	Cable	Low cable-CO01	9kHz ~ 30MHz	May 20, 2020	May 19, 2021	Conduction (CO01-CB)
Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conduction (CO01-CB)
3m Semi Anechoic Chamber NSA	TDK	SAC-3M	03CH05-CB	30 MHz ~ 1 GHz	Aug. 10, 2020	Aug. 09, 2021	Radiation (03CH05-CB)
3m Semi Anechoic Chamber VSWR	TDK	SAC-3M	03CH05-CB	1GHz ~18GHz 3m	Nov. 08, 2020	Nov. 07, 2021	Radiation (03CH05-CB)
Bilog Antenna with 6dB Attenuator	TESEQ & EMCI	CBL 6112D & N-6-06	35236 & AT-N0610	30MHz ~ 2GHz	Mar. 27, 2020	Mar. 26, 2021	Radiation (03CH05-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Apr. 13, 2020	Apr. 12, 2021	Radiation (03CH05-CB)
Horn Antenna	SCHWARZBECK	BBHA9120D	BBHA 9120 D-1291	1GHz~18GHz	Sep. 05, 2020	Sep. 04, 2021	Radiation (03CH05-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jul. 21, 2020	Jul. 20, 2021	Radiation (03CH05-CB)
Pre-Amplifier	EMCI	EMC330N	980331	20MHz ~ 3GHz	Apr. 28, 2020	Apr. 27, 2021	Radiation (03CH05-CB)
Pre-Amplifier	EMCI	EMC12630SE	980287	1GHz – 26.5GHz	Jul. 03, 2020	Jul. 02, 2021	Radiation (03CH05-CB)
Pre-Amplifier	MITEQ	TTA1840-35-HG	1864479	18GHz ~ 40GHz	Jul. 08, 2020	Jul. 07, 2021	Radiation (03CH05-CB)
Spectrum Analyzer	R&S	FSP40	100304	9kHz ~ 40GHz	Nov. 10, 2020	Nov. 09, 2021	Radiation (03CH05-CB)
EMI Test Receiver	R&S	ESCS	826547/017	9kHz ~ 2.75GHz	May 13, 2020	May 12, 2021	Radiation (03CH05-CB)
RF Cable-low	Woken	RG402	Low Cable-04+23	30MHz~1GHz	Oct. 05, 2020	Oct. 04, 2021	Radiation (03CH05-CB)
RF Cable-high	Woken	RG402	High Cable-28	1GHz~18GHz	Oct. 05, 2020	Oct. 04, 2021	Radiation (03CH05-CB)
RF Cable-high	Woken	RG402	High Cable-04+28	1GHz~18GHz	Oct. 05, 2020	Oct. 04, 2021	Radiation (03CH05-CB)
RF Cable-high	Woken	RG402	High Cable-40G#1	18GHz ~ 40 GHz	Jul. 16, 2020	Jul. 15, 2021	Radiation (03CH05-CB)

Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
RF Cable-high	Woken	RG402	High Cable-40G#2	18GHz ~ 40 GHz	Jul. 16, 2020	Jul. 15, 2021	Radiation (03CH05-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH05-CB)
Spectrum analyzer	R&S	FSV40	101027	9kHz~40GHz	Jul. 27, 2020	Jul. 26, 2021	Conducted (TH02-CB)
Power Sensor	Anritsu	MA2411B	1126203	300MHz~40GHz	Sep. 17, 2020	Sep. 16, 2021	Conducted (TH02-CB)
Power Meter	Anritsu	ML2495A	1210004	300MHz~40GHz	Sep. 17, 2020	Sep. 16, 2021	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-01	1 GHz – 18 GHz	Oct. 05, 2020	Oct. 04, 2021	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-02	1 GHz – 18 GHz	Oct. 05, 2020	Oct. 04, 2021	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-03	1 GHz – 18 GHz	Oct. 05, 2020	Oct. 04, 2021	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-04	1 GHz – 18 GHz	Oct. 05, 2020	Oct. 04, 2021	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-05	1 GHz – 18 GHz	Oct. 05, 2020	Oct. 04, 2021	Conducted (TH02-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conducted (TH02-CB)

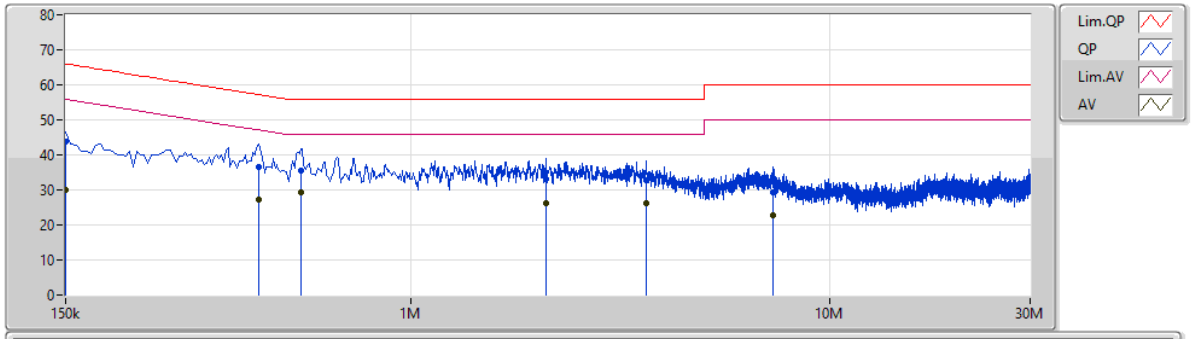
Note: Calibration Interval of instruments listed above is one year.
NCR means Non-Calibration required.

Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 3	Pass	AV	546k	29.35	46.00	-16.65	Line

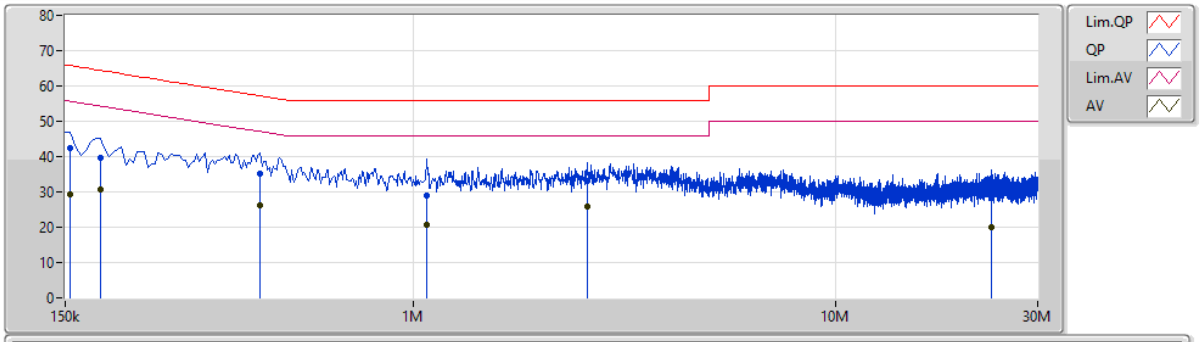
Mode 3

21/01/2021



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	150k	43.95	66.00	-22.05	9.89	Line	-	34.06	0.05	0.03	9.81
AV	150k	29.94	56.00	-26.06	9.89	Line	-	20.05	0.05	0.03	9.81
QP	433.5k	36.64	57.19	-20.55	9.90	Line	-	26.74	0.04	0.03	9.83
AV	433.5k	27.18	47.19	-20.01	9.90	Line	-	17.28	0.04	0.03	9.83
QP	546k	35.43	56.00	-20.57	9.90	Line	-	25.53	0.04	0.03	9.83
AV	546k	29.35	46.00	-16.65	9.90	Line	"Worst"	19.45	0.04	0.03	9.83
QP	2.099M	33.19	56.00	-22.81	9.99	Line	-	23.20	0.06	0.07	9.86
AV	2.099M	26.15	46.00	-19.85	9.99	Line	-	16.16	0.06	0.07	9.86
QP	3.647M	32.75	56.00	-23.25	10.05	Line	-	22.70	0.09	0.12	9.84
AV	3.647M	26.04	46.00	-19.96	10.05	Line	-	15.99	0.09	0.12	9.84
QP	7.328M	29.30	60.00	-30.70	10.17	Line	-	19.13	0.14	0.14	9.89
AV	7.328M	22.82	50.00	-27.18	10.17	Line	-	12.65	0.14	0.14	9.89

Mode 3 21/01/2021



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	154.5k	42.58	65.75	-23.17	9.88	Neutral	-	32.70	0.04	0.03	9.81
AV	154.5k	29.33	55.75	-26.42	9.88	Neutral	-	19.45	0.04	0.03	9.81
QP	181.5k	39.61	64.41	-24.80	9.89	Neutral	-	29.72	0.04	0.03	9.82
AV	181.5k	30.72	54.41	-23.69	9.89	Neutral	-	20.83	0.04	0.03	9.82
QP	433.5k	35.34	57.19	-21.85	9.90	Neutral	-	25.44	0.04	0.03	9.83
AV	433.5k	26.06	47.19	-21.13	9.90	Neutral	-	16.16	0.04	0.03	9.83
QP	1.077M	28.92	56.00	-27.08	9.93	Neutral	-	18.99	0.06	0.04	9.83
AV	1.077M	20.81	46.00	-25.19	9.93	Neutral	-	10.88	0.06	0.04	9.83
QP	2.576M	33.07	56.00	-22.93	10.02	Neutral	-	23.05	0.08	0.09	9.85
AV	2.576M	25.85	46.00	-20.15	10.02	Neutral	"Worst"	15.83	0.08	0.09	9.85
QP	23.294M	28.28	60.00	-31.72	10.59	Neutral	-	17.69	0.25	0.33	10.01
AV	23.294M	20.13	50.00	-29.87	10.59	Neutral	-	9.54	0.25	0.33	10.01

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
Zigbee	1.775M	3.711M	3M71G1D	1.625M	3.529M

Max-N dB = Maximum 6dB down bandwidth; **Max-OBW** = Maximum 99% occupied bandwidth;
Min-N dB = Minimum 6dB down bandwidth; **Min-OBW** = Minimum 99% occupied bandwidth;

Result

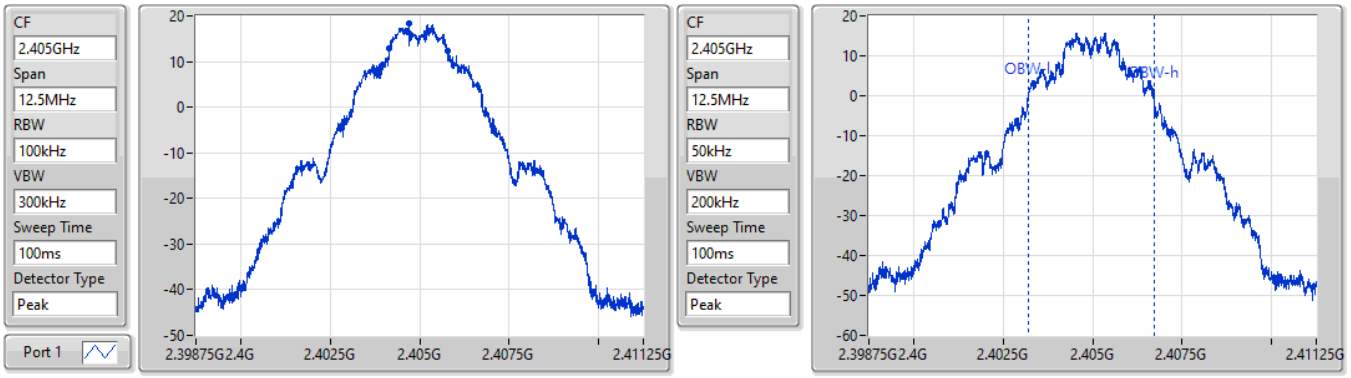
Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
Zigbee	-	-	-	-
2405MHz	Pass	500k	1.625M	3.529M
2440MHz	Pass	500k	1.775M	3.711M
2475MHz	Pass	500k	1.675M	3.711M

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

Zigbee EBW

2405MHz

05/02/2021

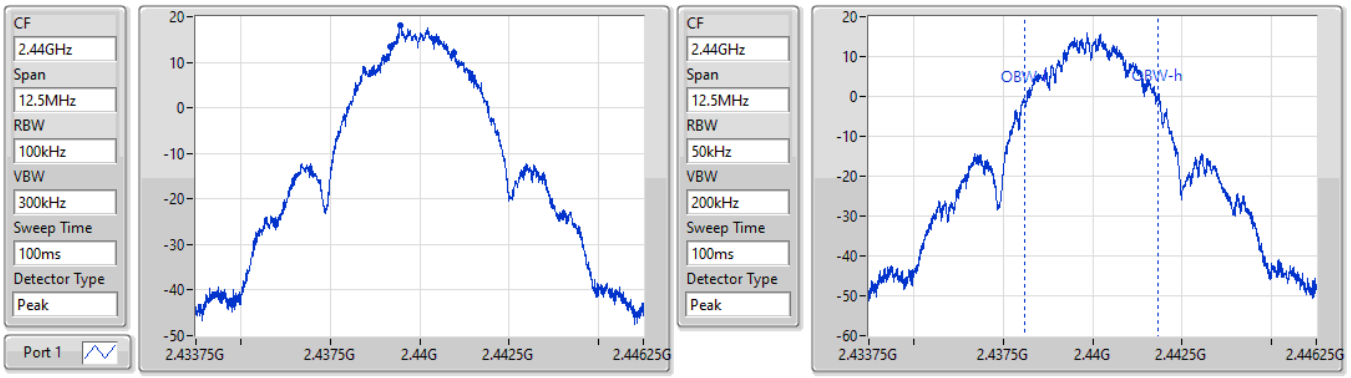


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.625M	2.404144G	2.405769G	3.529M	2.403195G	2.406724G	500k	1

Zigbee EBW

2440MHz

05/02/2021

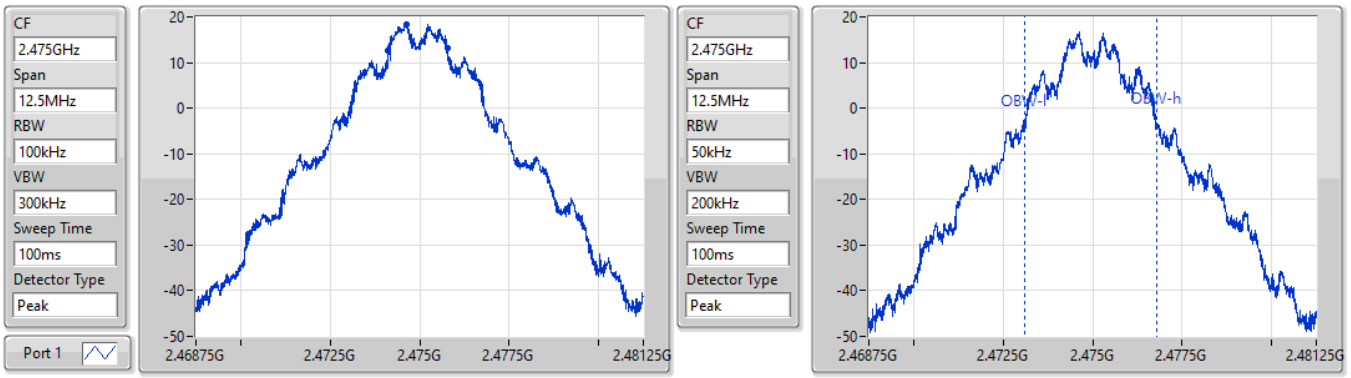


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.775M	2.439188G	2.440963G	3.711M	2.438107G	2.441818G	500k	1

Zigbee **EBW**

2475MHz

05/02/2021



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.675M	2.474119G	2.475794G	3.711M	2.473095G	2.476805G	500k	1

Summary

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
Zigbee	21.39	0.13772

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Total Power (dBm)	Power Limit (dBm)
Zigbee	-	-	-	-	-
2405MHz	Pass	1.40	21.39	21.39	30.00
2440MHz	Pass	1.40	21.27	21.27	30.00
2475MHz	Pass	1.40	21.26	21.26	30.00

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

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
Zigbee	7.89

RBW = 500 kHz for 5.725-5.85GHz band / 1MHz for other band;

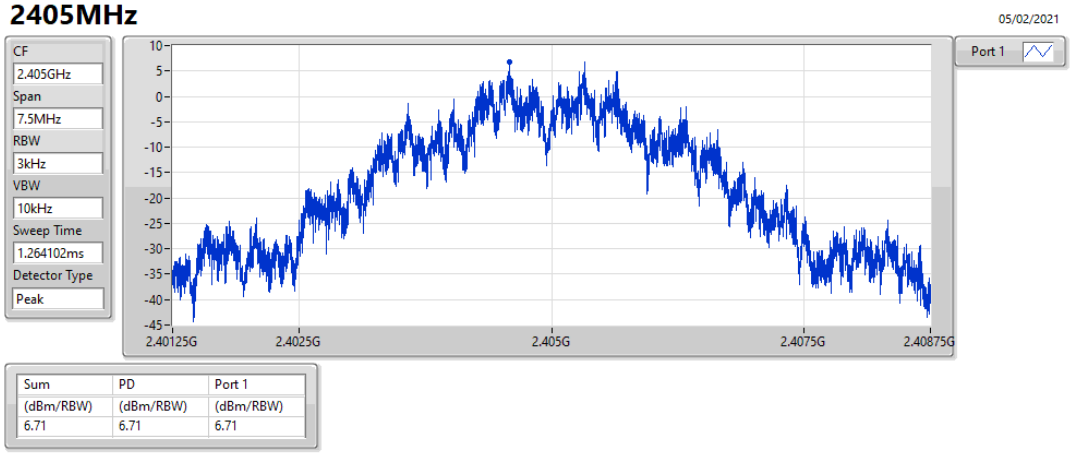
Result

Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
Zigbee	-	-	-	-	-
2405MHz	Pass	1.40	6.71	6.71	8.00
2440MHz	Pass	1.40	5.26	5.26	8.00
2475MHz	Pass	1.40	7.89	7.89	8.00

DG = Directional Gain; **RBW** = 500 kHz for 5.725-5.85GHz band / 1MHz for other band;
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

Zigbee **PSD**

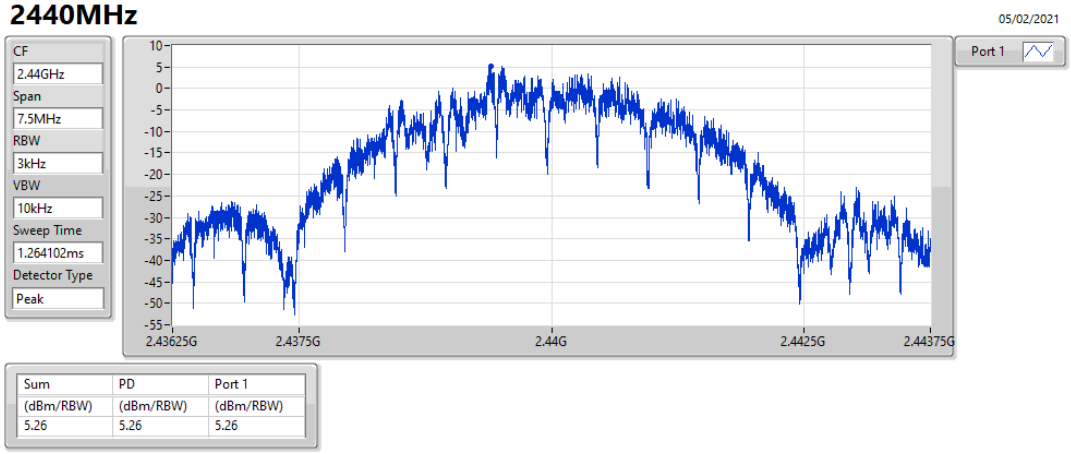
2405MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
6.71	6.71	6.71

Zigbee **PSD**

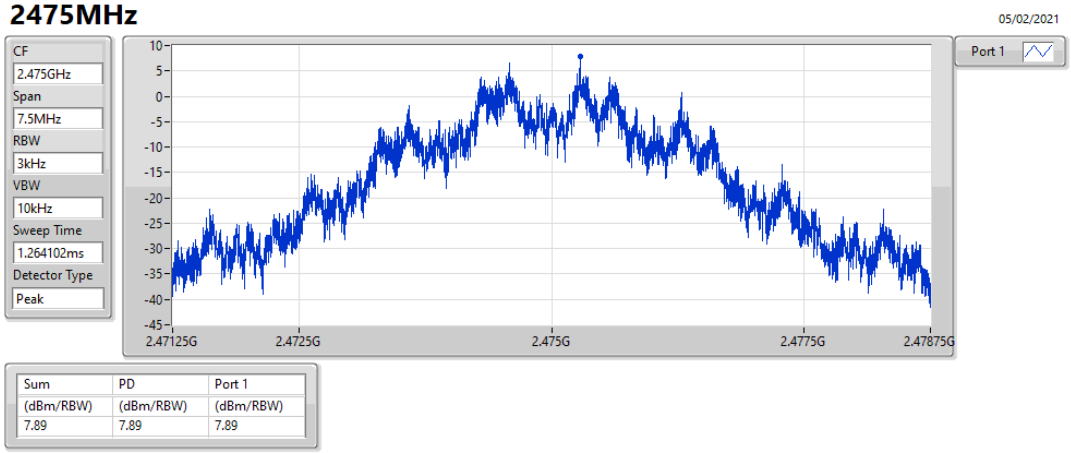
2440MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
5.26	5.26	5.26

Zigbee **PSD**

2475MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
7.89	7.89	7.89

Summary

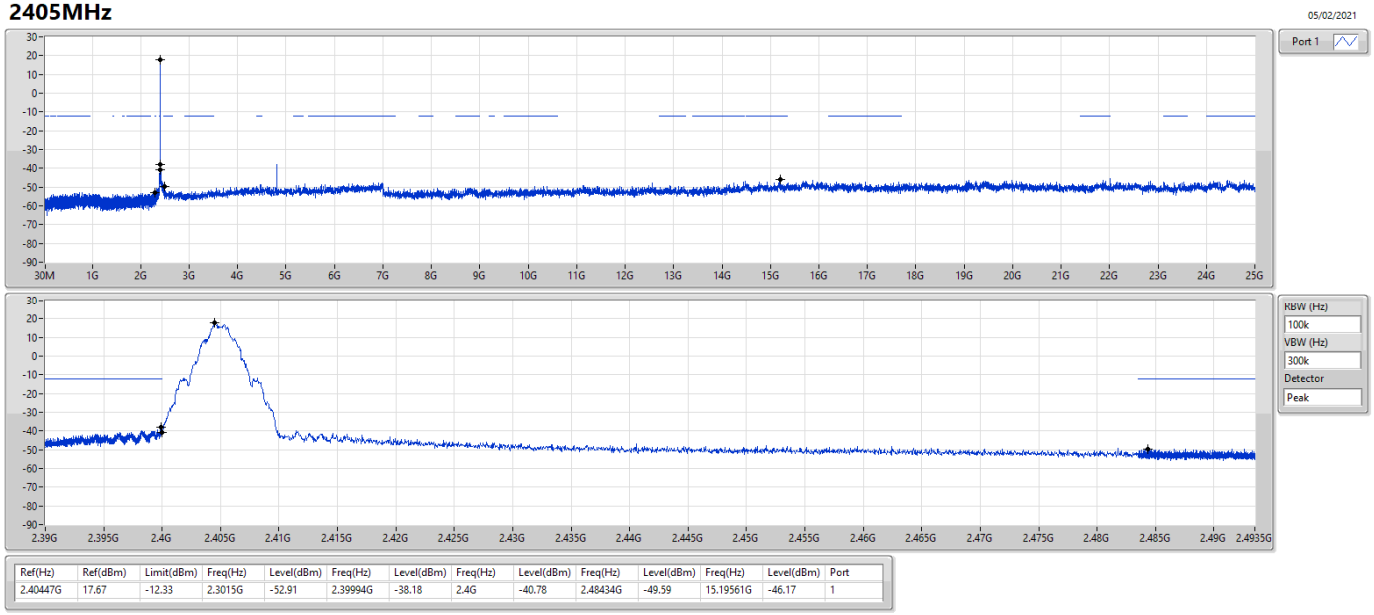
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zigbee	Pass	2.40447G	17.67	-12.33	2.3015G	-52.91	2.39994G	-38.18	2.4G	-40.78	2.48434G	-49.59	15.19561G	-46.17	1

Result

Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
Zigbee	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2405MHz	Pass	2.40447G	17.67	-12.33	2.3015G	-52.91	2.39994G	-38.18	2.4G	-40.78	2.48434G	-49.59	15.19561G	-46.17	1
2440MHz	Pass	2.40447G	17.67	-12.33	2.30062G	-52.82	2.39785G	-47.42	2.4835G	-49.27	2.48789G	-47.36	24.08849G	-46.38	1
2475MHz	Pass	2.40447G	17.67	-12.33	693.46M	-51.73	2.39835G	-49.67	2.4835G	-43.50	2.48371G	-38.95	24.16163G	-46.41	1

Zigbee **CSE NdB**

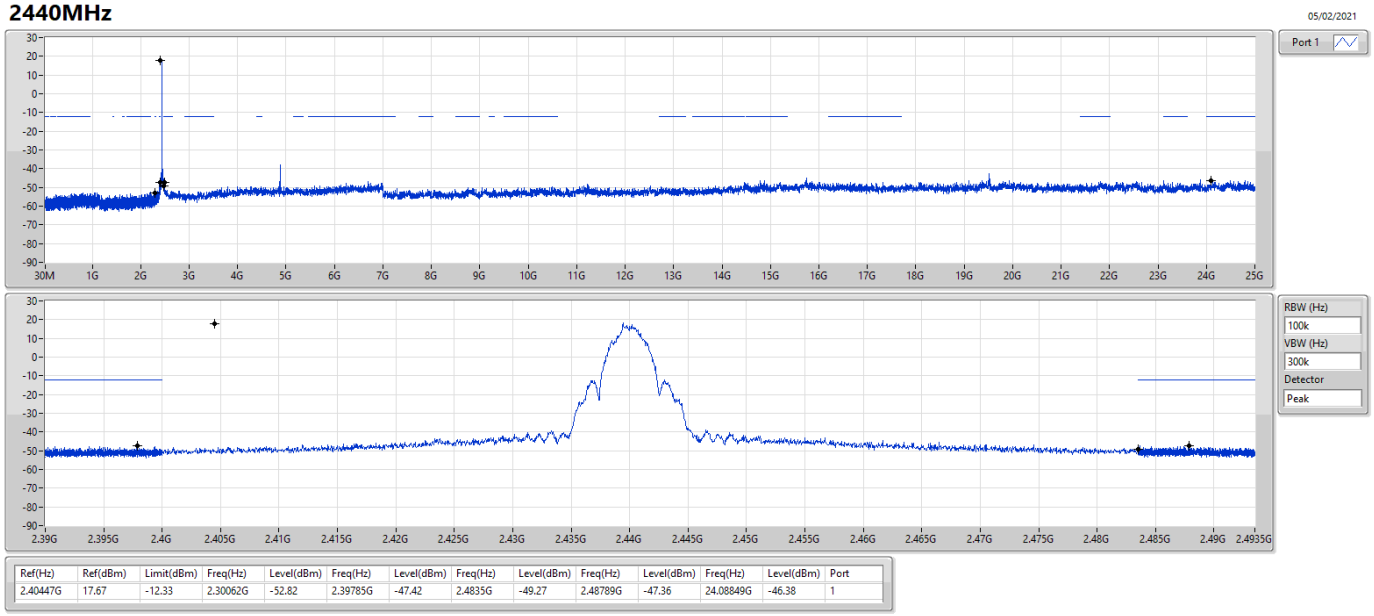
2405MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.40447G	17.67	-12.33	2.3015G	-52.91	2.39994G	-38.18	2.4G	-40.78	2.48434G	-49.59	15.19561G	-46.17	1

Zigbee **CSE NdB**

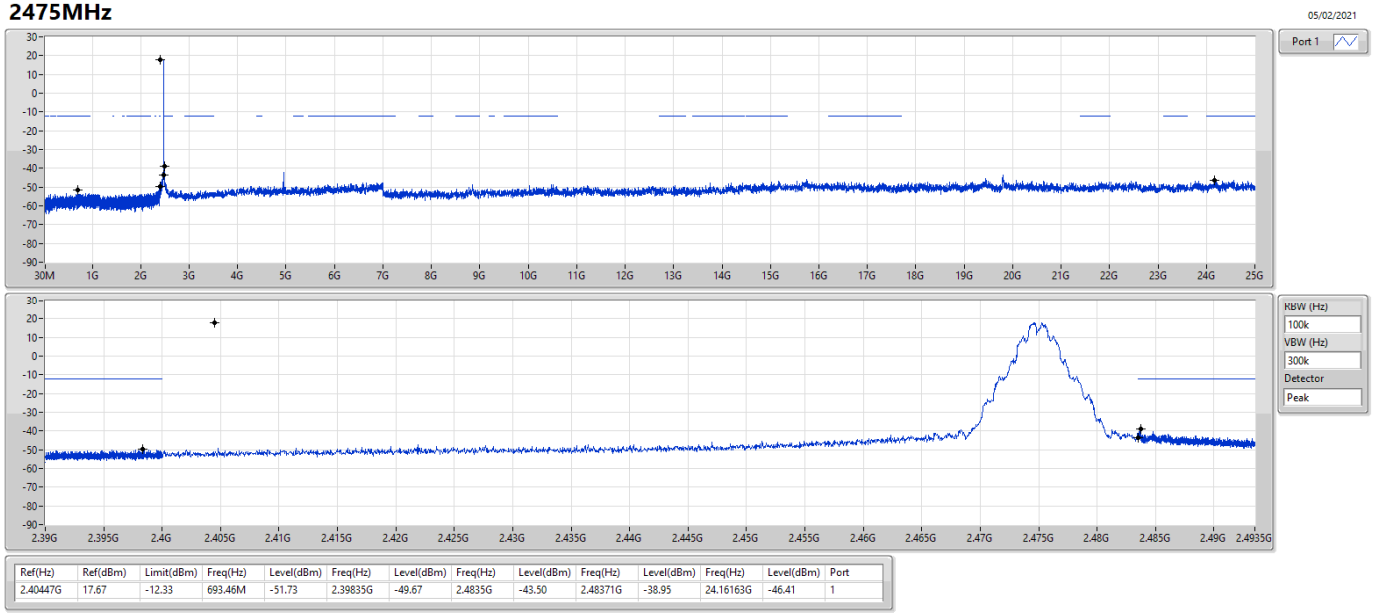
2440MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.40447G	17.67	-12.33	2.30062G	-52.82	2.39785G	-47.42	2.4835G	-49.27	2.48789G	-47.36	24.08849G	-46.38	1

Zigbee **CSE NdB**

2475MHz

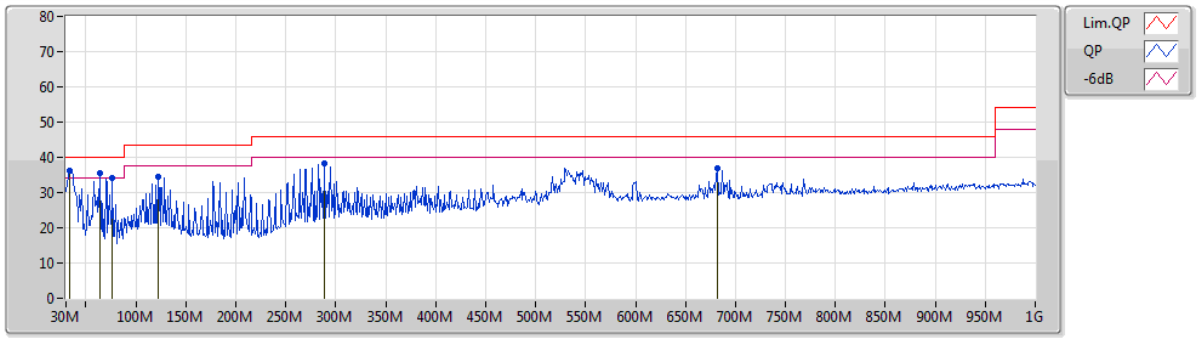


Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.40447G	17.67	-12.33	693.46M	-51.73	2.39835G	-49.67	2.4835G	-43.50	2.48371G	-38.95	24.16163G	-46.41	1

Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 1	Pass	QP	282.2M	42.46	46.00	-3.54	Horizontal

Mode 1 22/02/2021



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV/m)	(dB/m)	(dB)	(dB)
PK	33.88M	36.17	40.00	-3.83	-8.72	3	Vertical	282	1.00	"Worst"	44.89	22.30	0.48	31.50
PK	63.95M	35.59	40.00	-4.41	-18.59	3	Vertical	144	1.50	-	54.18	12.43	0.80	31.82
PK	76.56M	34.20	40.00	-5.80	-18.29	3	Vertical	111	1.50	-	52.49	12.56	0.90	31.75
PK	122.15M	34.43	43.50	-9.07	-12.27	3	Vertical	223	2.00	-	46.70	18.16	1.30	31.73
PK	288.99M	38.30	46.00	-7.70	-11.46	3	Vertical	201	1.50	-	49.76	18.41	2.13	32.00
PK	681.84M	36.87	46.00	-9.13	-4.58	3	Vertical	219	1.00	-	41.45	24.46	3.43	32.47

Mode 1

22/02/2021

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV/m)	(dB/m)	(dB)	(dB)
PK	122.15M	39.29	43.50	-4.21	-12.27	3	Horizontal	124	1.50	-	51.56	18.16	1.30	31.73
QP	270.56M	42.10	46.00	-3.90	-11.71	3	Horizontal	302	1.25	-	53.81	18.25	2.02	31.98
QP	276.38M	42.17	46.00	-3.83	-11.76	3	Horizontal	302	1.25	-	53.93	18.17	2.06	31.99
QP	282.2M	42.46	46.00	-3.54	-11.62	3	Horizontal	313	1.00	"Worst"	54.08	18.29	2.09	32.00
QP	288.02M	41.48	46.00	-4.52	-11.48	3	Horizontal	306	1.00	-	52.96	18.39	2.13	32.00
QP	294.81M	41.47	46.00	-4.53	-11.34	3	Horizontal	300	1.00	-	52.81	18.50	2.17	32.01

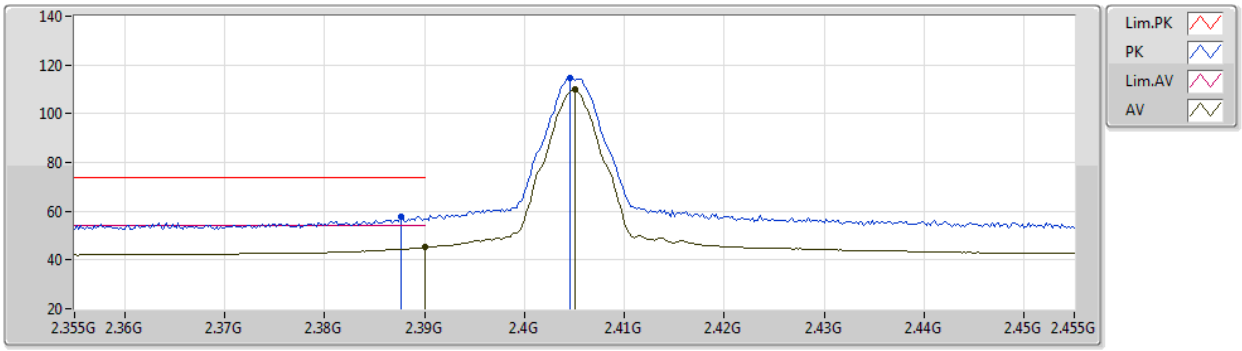
Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
Zigbee	Pass	AV	4.87888G	52.34	54.00	-1.66	3	Vertical	198	2.40	-

Zigbee

03/02/2021

2405MHz_TX



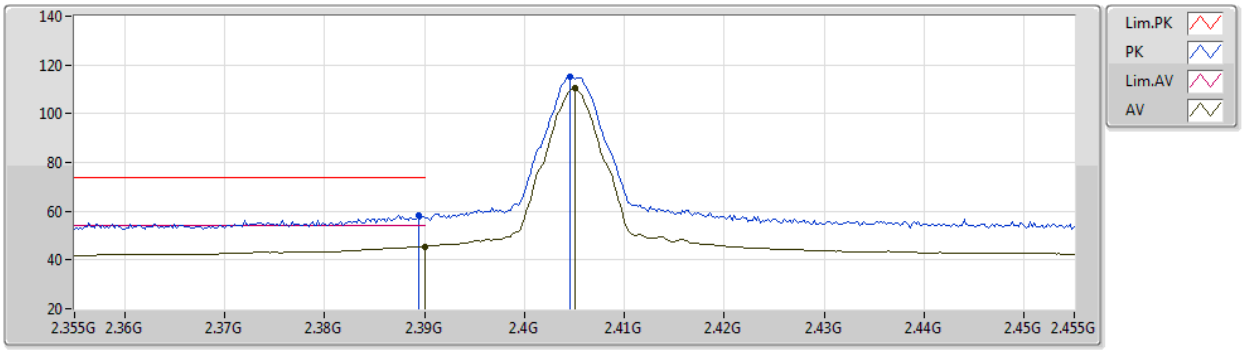
EUT Z_1TX
Setting 21.1
01-A-K-3

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	2.3876G	57.62	74.00	-16.38	28.05	3	Vertical	122	1.68	-	27.38	2.19	-
AV	2.39G	45.15	54.00	-8.85	15.58	3	Vertical	122	1.68	-	27.38	2.19	-
PK	2.4046G	114.49	Inf	-Inf	84.88	3	Vertical	122	1.68	-	27.41	2.20	-
AV	2.405G	109.80	Inf	-Inf	80.18	3	Vertical	122	1.68	-	27.41	2.21	-

Zigbee

03/02/2021

2405MHz_TX



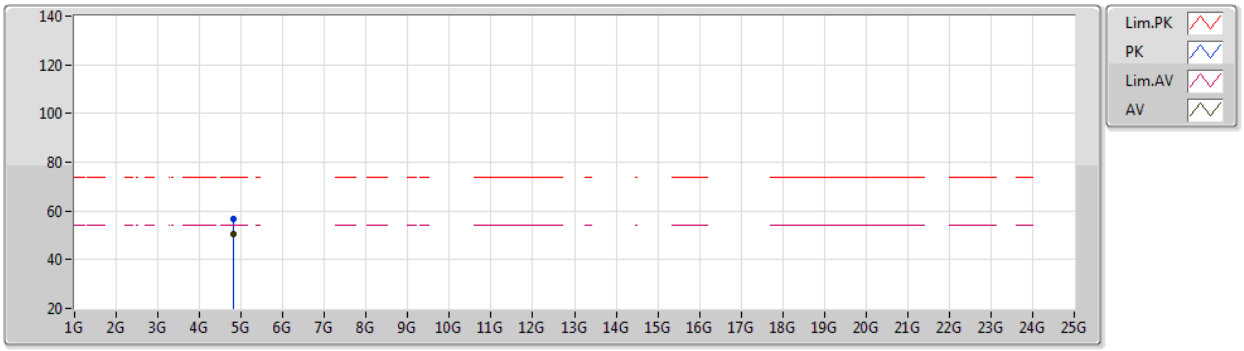
EUT Z_1TX
Setting 21.1
01-A-K-3

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	58.09	74.00	-15.91	28.52	3	Horizontal	56	1.00	-	27.38	2.19	-
AV	2.39G	45.55	54.00	-8.45	15.98	3	Horizontal	56	1.00	-	27.38	2.19	-
PK	2.4046G	114.96	Inf	-Inf	85.35	3	Horizontal	56	1.00	-	27.41	2.20	-
AV	2.405G	110.37	Inf	-Inf	80.75	3	Horizontal	56	1.00	-	27.41	2.21	-

Zigbee

03/02/2021

2405MHz_TX



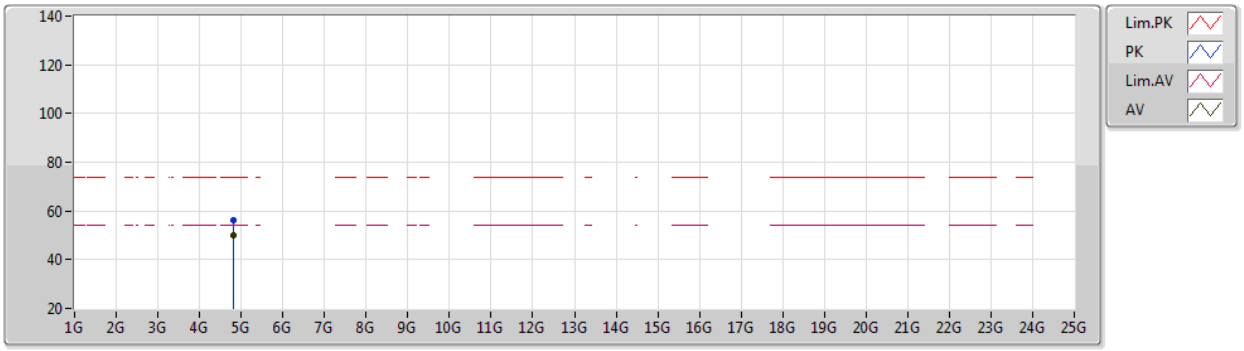
EUT Z_1TX
Setting 21.1
01-A-K-3

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	4.80904G	56.88	74.00	-17.12	54.28	3	Vertical	68	2.55	-	32.15	5.00	34.55
AV	4.8089G	50.56	54.00	-3.44	47.96	3	Vertical	68	2.55	-	32.15	5.00	34.55

Zigbee

03/02/2021

2405MHz_TX



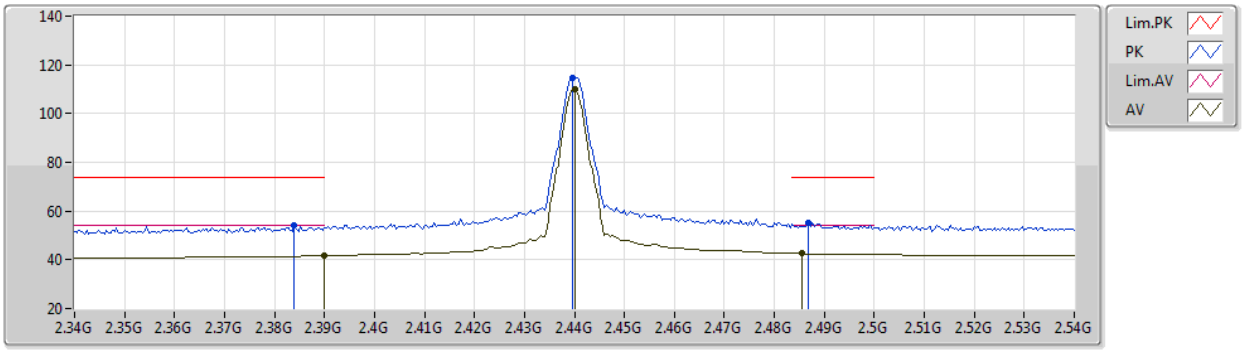
EUT Z_1TX
Setting 21.1
01-A-K-3

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	4.80942G	56.34	74.00	-17.66	53.73	3	Horizontal	131	2.31	-	32.16	5.00	34.55
AV	4.81084G	49.84	54.00	-4.16	47.21	3	Horizontal	131	2.31	-	32.17	5.01	34.55

Zigbee

2440MHz_TX

03/02/2021



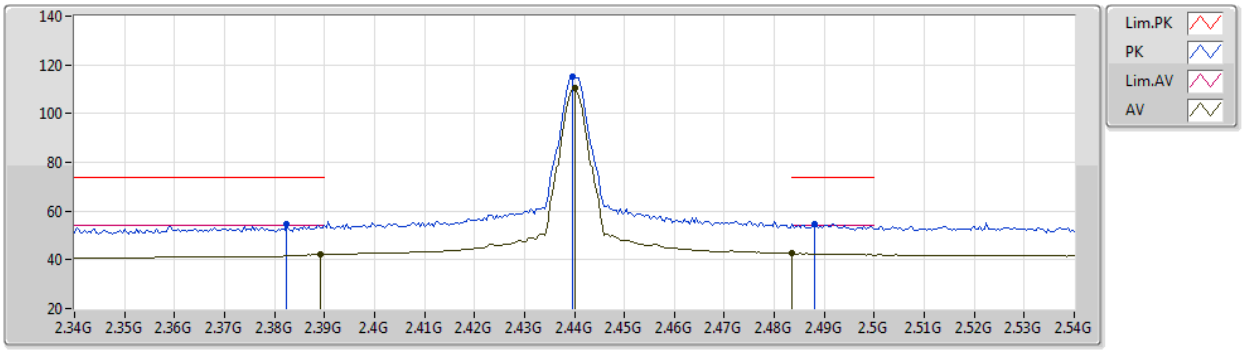
EUT Z_1TX
Setting 21.1
01-A-K-3

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	54.26	74.00	-19.74	24.71	3	Vertical	109	1.34	-	27.37	2.18	-
AV	2.39G	41.75	54.00	-12.25	12.18	3	Vertical	109	1.34	-	27.38	2.19	-
PK	2.4396G	114.76	Inf	-Inf	85.04	3	Vertical	109	1.34	-	27.48	2.24	-
AV	2.44G	110.08	Inf	-Inf	80.36	3	Vertical	109	1.34	-	27.48	2.24	-
PK	2.4868G	55.38	74.00	-18.62	25.37	3	Vertical	109	1.34	-	27.72	2.29	-
AV	2.4856G	42.56	54.00	-11.44	12.56	3	Vertical	109	1.34	-	27.71	2.29	-

Zigbee

03/02/2021

2440MHz_TX



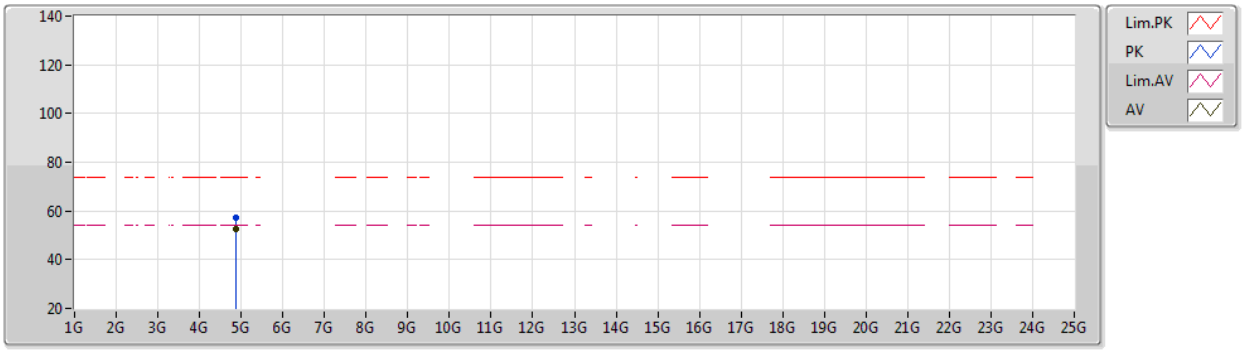
EUT Z_1TX
Setting 21.1
01-A-K-3

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	2.3824G	54.64	74.00	-19.36	25.10	3	Horizontal	67	1.37	-	27.36	2.18	-
AV	2.3892G	42.21	54.00	-11.79	12.64	3	Horizontal	67	1.37	-	27.38	2.19	-
PK	2.4396G	114.97	Inf	-Inf	85.25	3	Horizontal	67	1.37	-	27.48	2.24	-
AV	2.44G	110.38	Inf	-Inf	80.66	3	Horizontal	67	1.37	-	27.48	2.24	-
PK	2.488G	54.59	74.00	-19.41	24.57	3	Horizontal	67	1.37	-	27.73	2.29	-
AV	2.4835G	42.54	54.00	-11.46	12.56	3	Horizontal	67	1.37	-	27.70	2.28	-

Zigbee

2440MHz_TX

03/02/2021



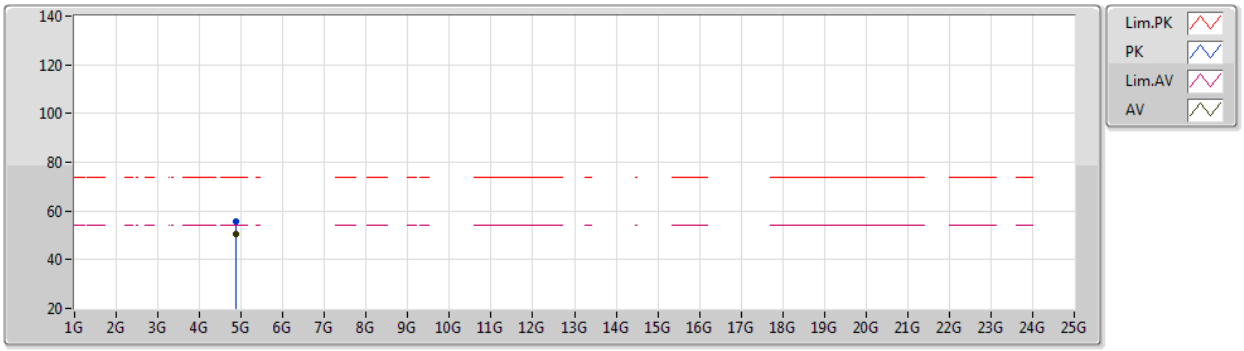
EUT Z_1TX
Setting 21.1
01-A-K-3

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	4.87866G	57.11	74.00	-16.89	54.13	3	Vertical	198	2.40	-	32.46	5.04	34.52
AV	4.87888G	52.34	54.00	-1.66	49.36	3	Vertical	198	2.40	-	32.46	5.04	34.52

Zigbee

2440MHz_TX

03/02/2021



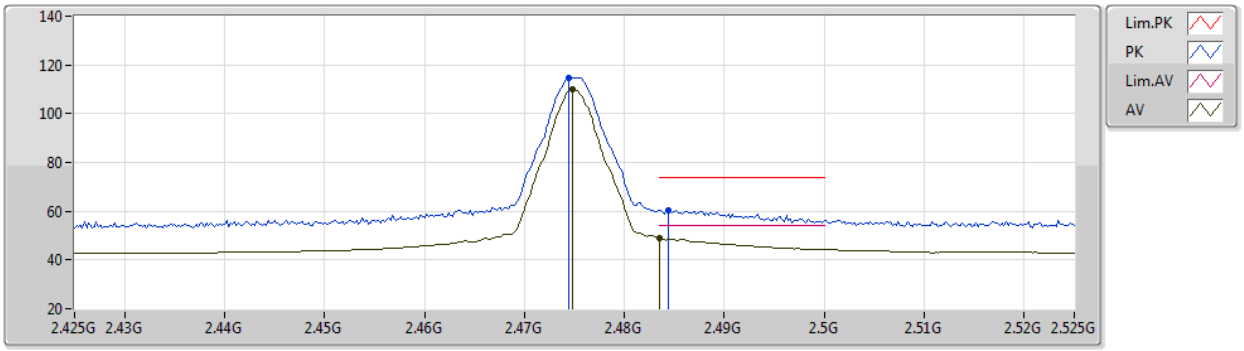
EUT Z_1TX
Setting 21.1
01-A-K-3

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	4.87906G	55.68	74.00	-18.32	52.70	3	Horizontal	190	2.58	-	32.46	5.04	34.52
AV	4.87888G	50.31	54.00	-3.69	47.33	3	Horizontal	190	2.58	-	32.46	5.04	34.52

Zigbee

2475MHz_TX

03/02/2021



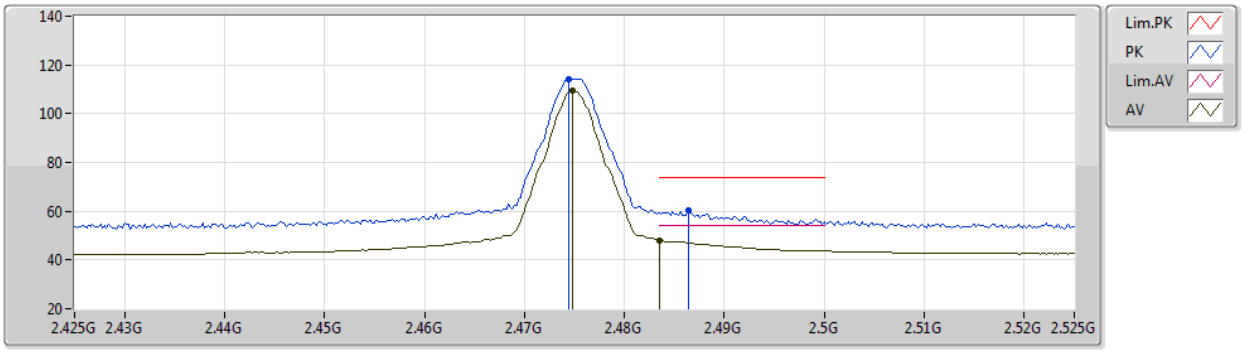
EUT Z_1TX
Setting 21.1
01-A-K-3

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	114.90	Inf	-Inf	84.98	3	Vertical	124	1.57	-	27.65	2.27	-
AV	2.4748G	109.81	Inf	-Inf	79.89	3	Vertical	124	1.57	-	27.65	2.27	-
PK	2.4844G	60.43	74.00	-13.57	30.44	3	Vertical	124	1.57	-	27.71	2.28	-
AV	2.4835G	48.71	54.00	-5.29	18.73	3	Vertical	124	1.57	-	27.70	2.28	-

Zigbee

03/02/2021

2475MHz_TX



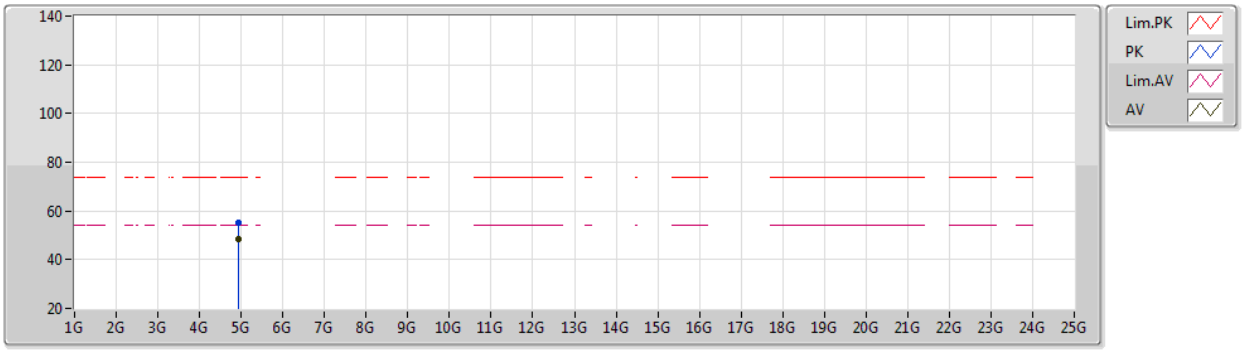
EUT Z_1TX
Setting 21.1
01-A-K-3

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	114.37	Inf	-Inf	84.45	3	Horizontal	68	2.67	-	27.65	2.27	-
AV	2.4748G	109.24	Inf	-Inf	79.32	3	Horizontal	68	2.67	-	27.65	2.27	-
PK	2.4864G	60.15	74.00	-13.85	30.14	3	Horizontal	68	2.67	-	27.72	2.29	-
AV	2.4835G	48.08	54.00	-5.92	18.10	3	Horizontal	68	2.67	-	27.70	2.28	-

Zigbee

03/02/2021

2475MHz_TX



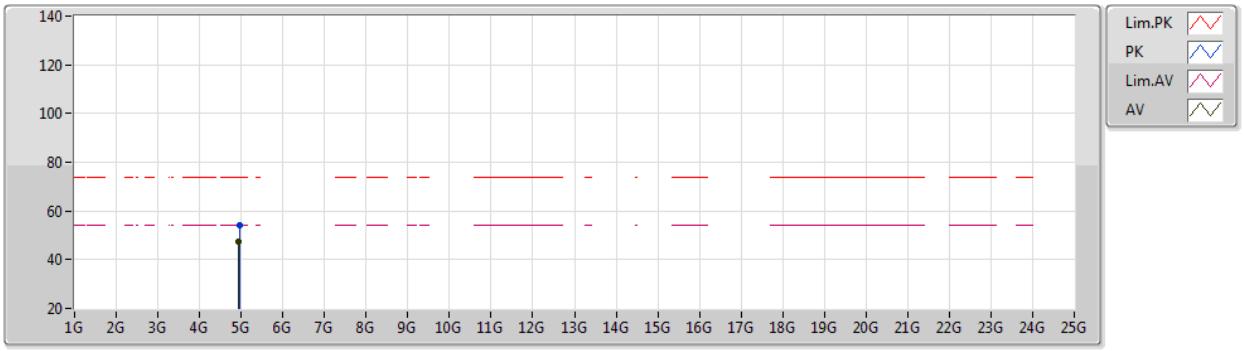
EUT Z_1TX
Setting 21.1
01-A-K-3

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	4.94934G	55.03	74.00	-18.97	51.65	3	Vertical	356	2.10	-	32.80	5.07	34.49
AV	4.9489G	48.19	54.00	-5.81	44.82	3	Vertical	356	2.10	-	32.79	5.07	34.49

Zigbee

2475MHz_TX

03/02/2021



EUT Z_1TX
Setting 21.1
01-A-K-3

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	4.94962G	54.38	74.00	-19.62	51.00	3	Horizontal	113	2.47	-	32.80	5.07	34.49
AV	4.9489G	47.48	54.00	-6.52	44.11	3	Horizontal	113	2.47	-	32.79	5.07	34.49