Testing Laboratory 1190

FCC RADIO TEST REPORT

FCC ID	:	RAXG3100
Equipment	:	Fios Home Router, Fios Business Router
Brand Name	:	Verizon
Model Name	:	G3100
Applicant	:	Arcadyan Technology Corporation No.8, Sec.2, Guangfu Rd.,Hsinchu, 30071 Taiwan
Manufacturer	:	Arcadyan Technology Corporation No.8, Sec.2, Guangfu Rd.,Hsinchu, 30071 Taiwan
Standard	:	47 CFR FCC Part 15.247

The product was received on Apr. 01, 2019, and testing was started from Apr. 02, 2019 and completed on Jun. 04, 2019. 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 report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

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.)

Table of Contents

History of this test report

Report No.	Version	Description	Issued Date
FR932731AD	01	Initial issue of report	Jun. 21, 2019

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: Cindy Peng

1 General Description

1.1 Information

1.1.1 RF General Information

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

Band	Mode	BWch (MHz)	Nant
2.4-2.4835GHz	Zigbee	2	1TX

Note:
- Zigbee uses a DSSS-OQPSK (250kbps) modulation.
- BWch is the nominal channel bandwidth.
- Nss-Min is the minimum number of spatial streams.
- Nant is the number of outputs. e.g., 2(2,3) means have 2 outputs for port 2 and port 3. 2 means have 2 outputs for port 1 and port 2.

1.1.2 Antenna Information

For WLAN and Bluetooth Antenna:

Ant.	Port	Brand	Model Name	Antenna Type	Connector	Gain (dBi)			
						WLAN 2.4GHz	5GHz B1	5GHz B4	BT
1	4	Arcadyan	-	Monopole	N/A	2.2	0.4	-	-
2	2	Arcadyan	12080073700J	PCB	I-PEX	0.3	1.2	-	-
3	3	Arcadyan	12080073800J	PCB	I-PEX	2.49	0.9	-	-
4	1	Arcadyan	12080073900J	PCB	I-PEX	1.7	2.48	-	-
5	3	Arcadyan	12080073400J	PCB	I-PEX	-	-	0.7	-
6	2	Arcadyan	12080073300J	PCB	I-PEX	-	-	1.3	-
7	1	Arcadyan	12080073600J	PCB	I-PEX	-	-	0.4	-
8	4	Arcadyan	12080073500J	PCB	I-PEX	-	-	1.6	-
9	1	Arcadyan	-	PIFA	N/A	-	-	-	-0.85

For Zigbee and Z-wave Antenna:

Ant.	Port	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	
						Zigbee	Z-wave
10	1	Arcadyan	-	PIFA	N/A	4.4	-
11	1	Arcadyan	-	PIFA	N/A	-	0.7

Note: The above information was declared by manufacturer.

<For WLAN 2.4GHz Function>

For IEEE 802.11b mode (1TX/1RX):

Only Port 1 can be used as transmitting/receiving antenna.

For IEEE 802.11g/n/VHT/ax mode (4TX/4RX):

Port 1、Port 2、Port 3 and Port 4 can be used as transmitting/receiving antenna.
Port 1、Port 2、Port 3 and Port 4 could transmit/receive simultaneously.

<For WLAN 5GHz Band 1/Band 4 Function>

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

Port 1、Port 2、Port 3 and Port 4 can be used as transmitting/receiving antenna.

Port 1、Port 2、Port 3 and Port 4 could transmit/receive simultaneously.

<For Bluetooth Function>

For Bluetooth mode (1TX/1RX)

Only Port 1 can be use as transmit and receive antenna.

<For Zigbee Function>

For Zigbee mode (1TX/1RX)

Only Port 1 can be use as transmit and receive antenna.

<For Z-wave Function>

For Z-wave mode (1TX/1RX)

Only Port 1 can be use as transmit and receive antenna.

1.1.3 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
Zigbee	0.262	5.82	857.5u	3k

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

1.1.4 EUT Operational Condition

EUT Power Type	From power adapter			
Function	☒	Point-to-multipoint	☐	Point-to-point
Test Software Version	MTool 3.1.0.1			

Note: The above information was declared by manufacturer.

1.1.5 Table for Multiple Listing

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

Equipment Name	Model Name	Description
Fios Home Router	G3100	All the equipments are identical, the difference equipment name served as marketing strategy.
Fios Business Router		

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
- FCC KDB 558074 D01 v05r02
- FCC KDB 662911 D01 v02r01

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 :	No.8, Lane 724, Bo-ai St., Jhubei 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	Test Date
RF Conducted	TH01-CB	Serway Li	22~24°C / 53~55%	May 02, 2019~Jun. 04, 2019
Radiated (below 1GHz)	03CH04-CB	Stim Sung	22~24°C / 50~60%	Apr. 02, 2019~Jun. 04, 2019
Radiated (above 1GHz)	03CH06-CB			
AC Conduction	CO02-CB	GN Hou	21.2~22.4°C / 62~65%	May 14, 2019

Test site Designation No. TW0006 with FCC.
Test site registered number IC 4086B 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 (30MHz ~ 1,000MHz)	3.9 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.9 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	4.7 dB	Confidence levels of 95%
Conducted Emission	1.3 dB	Confidence levels of 95%
Output Power Measurement	1.3 dB	Confidence levels of 95%
Power Density Measurement	1.3 dB	Confidence levels of 95%
Bandwidth Measurement	9.74×10^{-5}	Confidence levels of 95%

2 Test Configuration of EUT

2.1 Test Channel Mode

Mode	PowerSetting
Zigbee	-
2405MHz	14
2445MHz	14
2480MHz	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
Operating Mode	CTX
1	WLAN 2.4GHz – EUT + Adapter 1
2	WLAN 2.4GHz – EUT + Adapter 2
Mode 2 has been evaluated to be the worst case among Mode 1~2, thus measurement for Mode 3~7 will follow this same test mode.	
3	WLAN 5GHz – EUT + Adapter 2
4	Bluetooth 4.0 – EUT + Adapter 2
5	Bluetooth 5.0 – EUT + Adapter 2
6	Z-wave – EUT + Adapter 2
7	Zigbee – EUT + Adapter 2
For operating mode 7 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	CTX
1	WLAN 2.4GHz – EUT + Adapter 1
2	WLAN 2.4GHz – EUT + Adapter 2
Mode 1 has been evaluated to be the worst case among Mode 1~2, thus measurement for Mode 3~7 will follow this same test mode.	
3	WLAN 5GHz – EUT + Adapter 1
4	Bluetooth 4.0 – EUT + Adapter 1
5	Bluetooth 5.0 – EUT + Adapter 1
6	Z-wave – EUT + Adapter 1
7	Zigbee – EUT + Adapter 1
For operating mode 4 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	WLAN 2.4GHz + WLAN 5GHz Band 1 + WLAN 5GHz Band 4 + Bluetooth + Z-wave
2	WLAN 2.4GHz + WLAN 5GHz Band 1 + WLAN 5GHz Band 4 + Zigbee + Z-wave
Refer to Sporton Test Report No.: FA932731 for Co-location RF Exposure Evaluation.	

Note: The EUT can only be used at Y axis position.

2.3 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

2.4 Accessories

Accessories				
No.	**Equipment Name**	**Brand Name**	**Model Name**	**Rating**
1	Adapter 1	LEI	ML42AY120350-A1	INPUT: 105-125V ~ 60Hz, 1.5A OUTPUT: 12V, 3.5A
2	Adapter 2	Delta	ADH-42AW B	INPUT: 105-125V ~ 60Hz, 1.2A OUTPUT: 12V, 3.5A
No.	**Other**			
3	RJ-45 cable	Non-shielded: 3m		

2.5 Support Equipment

For AC Conduction:

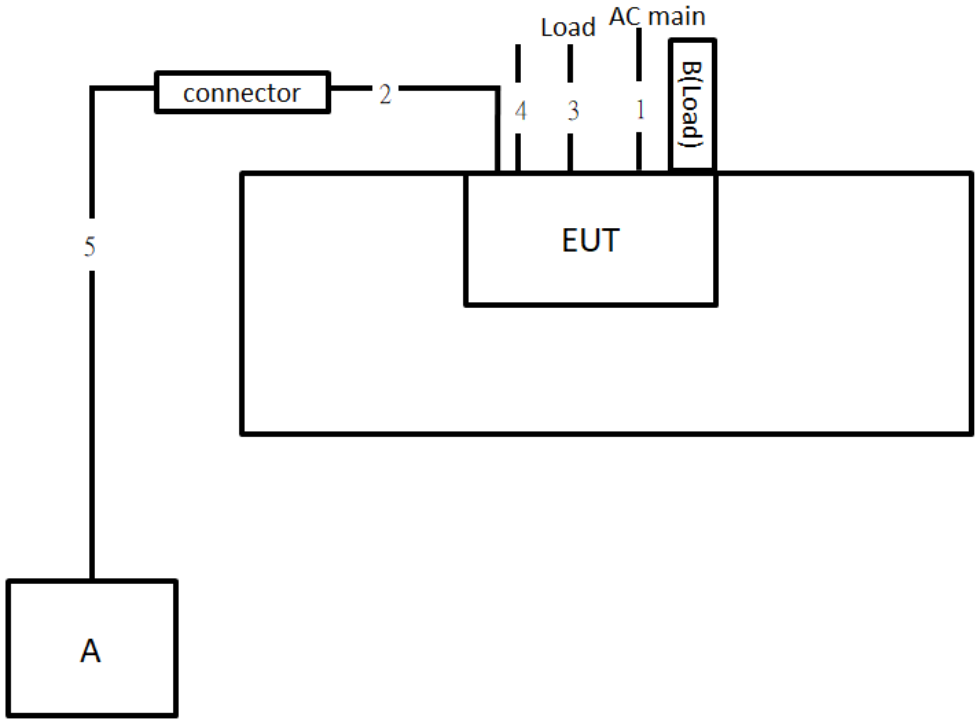
Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
A	LAN NB	DELL	E6430	N/A
B	Flash disk3.0	Transcend	JetFlash-700	N/A
C	Fixture	Silicon LABs	BRD4001A+SLSDA001A	N/A

For RF Conducted and Radiated:

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

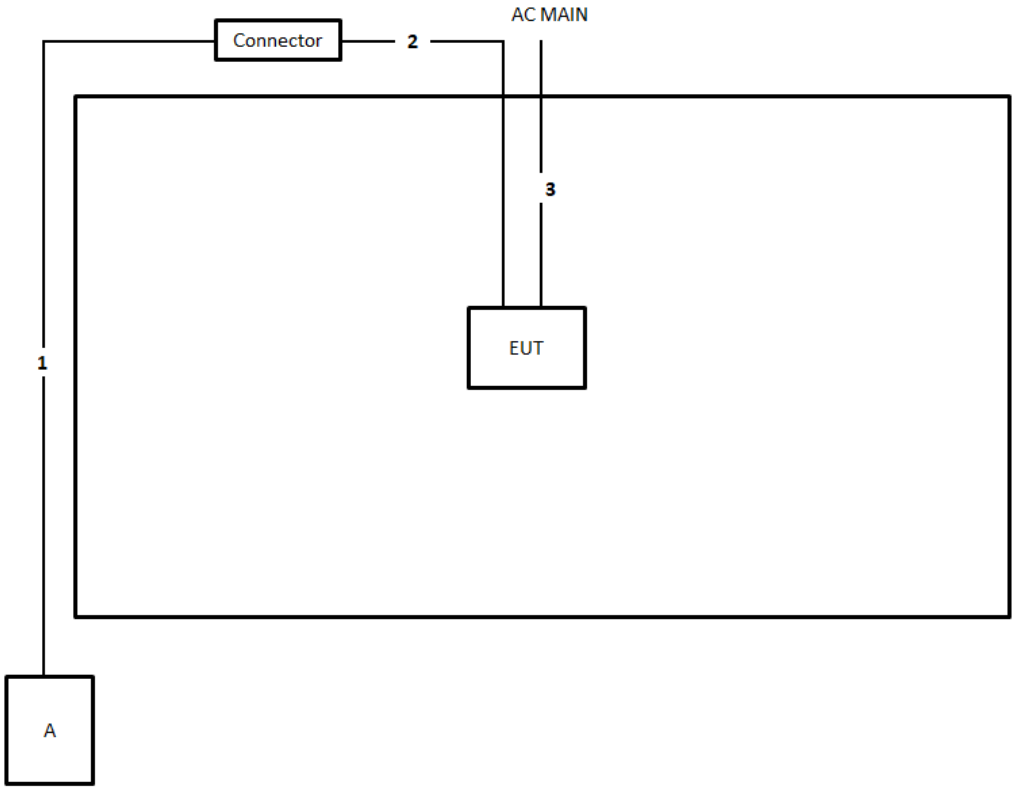
2.6 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test



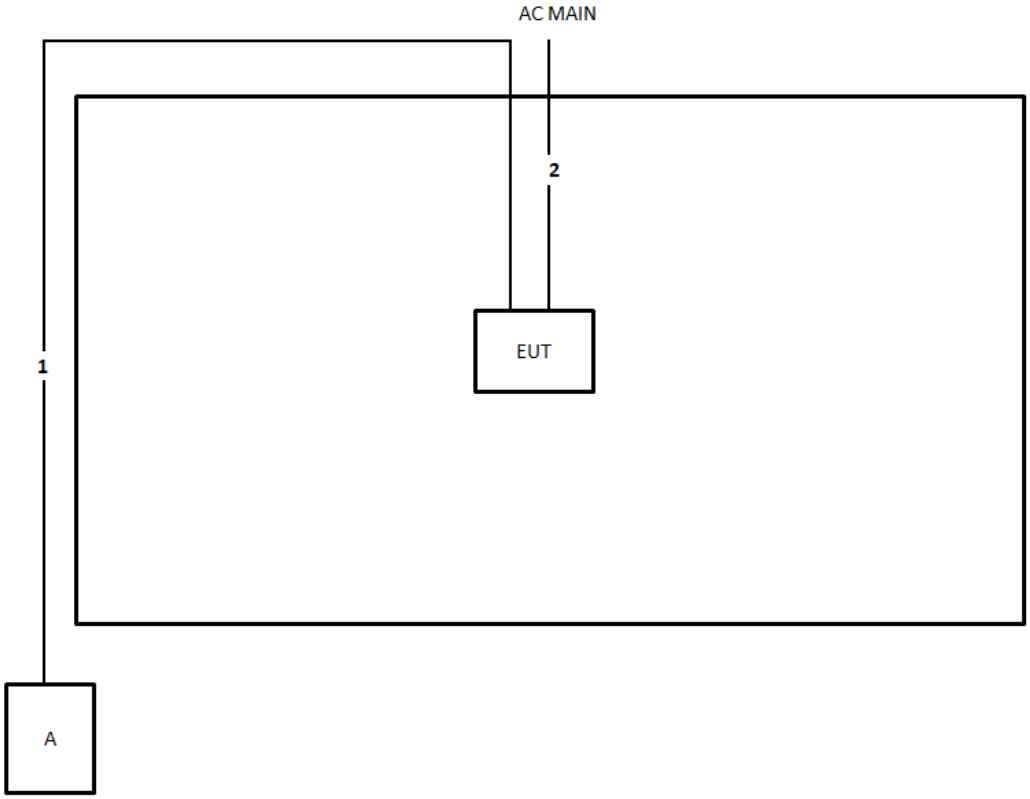
Item	Connection	Shielded	Length
1	Power cable	No	1.5m
2	RJ-45 cable	No	3m
3	RJ-45 cable*4	No	1.5m
4	Coaxial cable	Yes	1.5m
5	RJ-45 cable	No	10m

Test Setup Diagram - Radiated Test (below 1GHz)



Item	Connection	Shielded	Length
1	RJ-45 cable	No	10m
2	RJ-45 cable	No	3m
3	Power cable	No	1.5m

Test Setup Diagram - Radiated Test (above 1GHz)



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

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

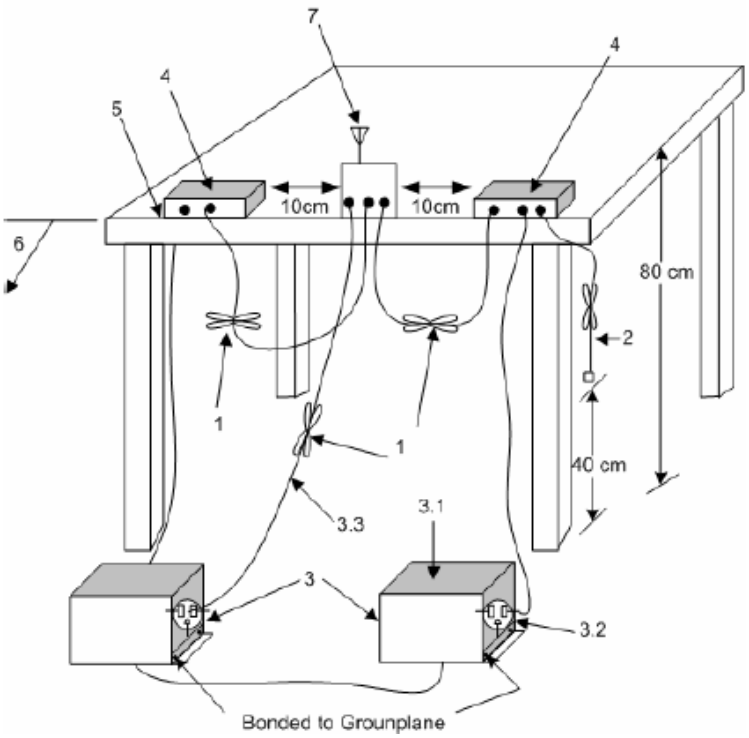
Refer a test equipment and calibration data table in this test report.

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 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.

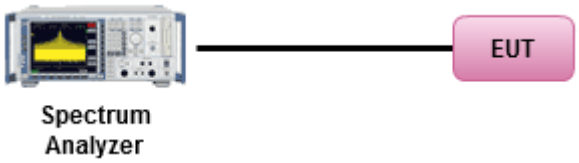
3.2.2 Measuring Instruments

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

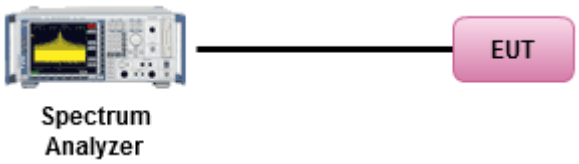
Refer a test equipment and calibration data table in this test report.

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 11.10.2 Method PKPSD.
	[duty cycle ≥ 98% or external video / power trigger]
	☐ Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10.3 Method AVGPSD-1.
	☐ Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10.5 Method AVGPSD-2.
	☐ Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10.7 Method AVGPSD-3.
	duty cycle < 98% and average over on/off periods with duty factor
	☐ Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10.4 Method AVGPSD-1A. (alternative).
	☐ Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10.6 Method AVGPSD-2A. (alternative)
	☐ Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10.8 Method AVGPSD-3A. (alternative)
▪ 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.	

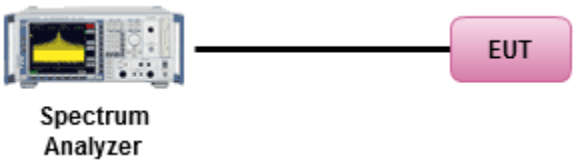
3.5.2 Measuring Instruments

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.

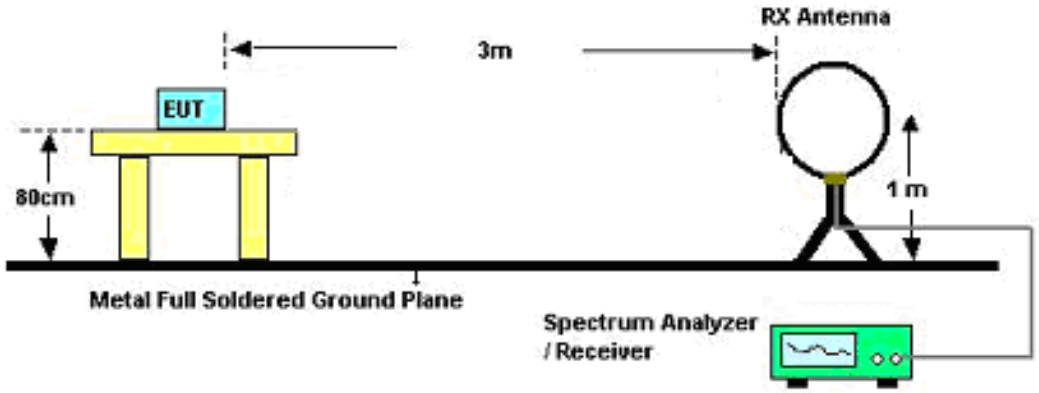
3.6.3 Test Procedures

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.	

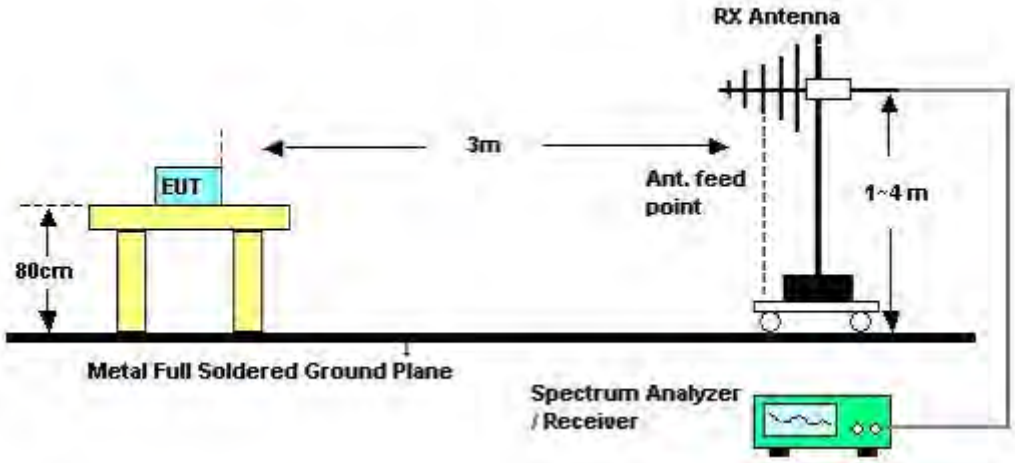
3.6.4 Test Setup

Emissions in Restricted Frequency Bands

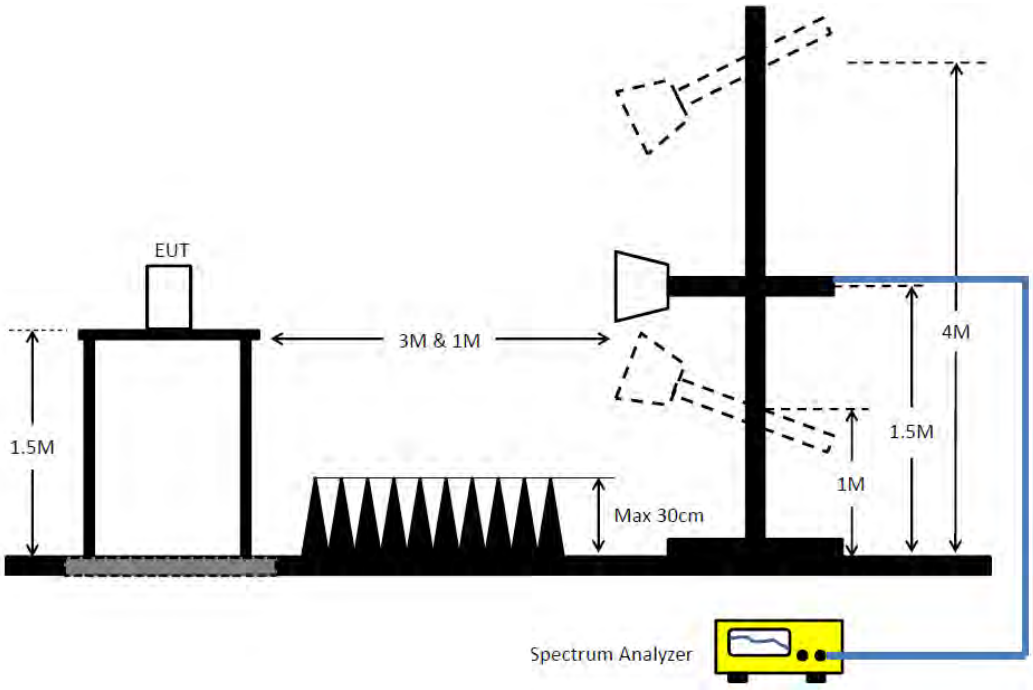
9kHz ~30MHz



30MHz~1GHz



Above 1GHz



3.6.5 Emissions in Restricted Frequency Bands (Below 30MHz)

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 10 harmonic or 40 GHz, whichever is appropriate.

3.6.6 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix F

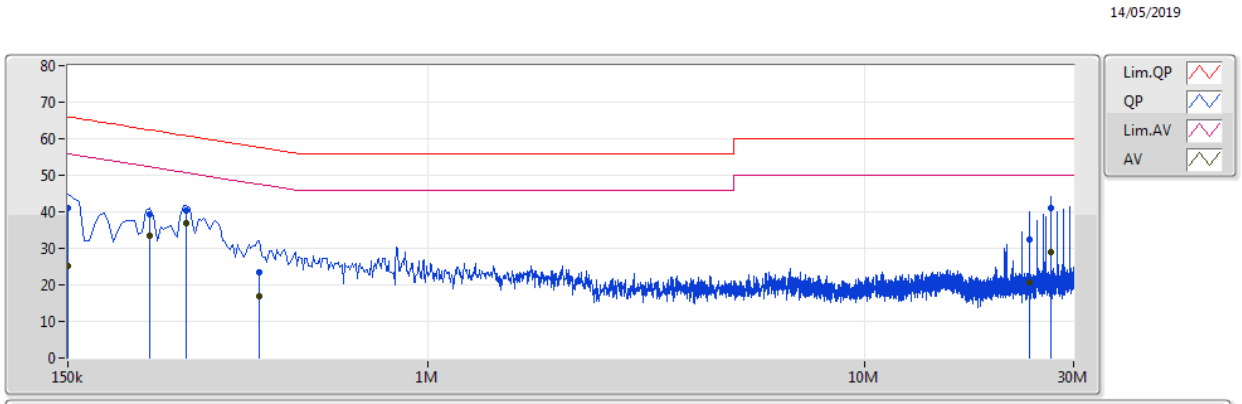
4 Test Equipment and Calibration Data

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
LISN	Schwarzbeck	NSLK 8127	8127650	9kHz ~ 30MHz	Nov. 21, 2018	Nov. 20, 2019	Conduction (CO02-CB)
LISN	Schwarzbeck	NSLK 8127	8127478	9kHz ~ 30MHz	Nov. 05, 2018	Nov. 04, 2019	Conduction (CO02-CB)
EMI Receiver	Agilent	N9038A	MY52260140	9kHz ~ 8.4GHz	Jan. 16, 2019	Jan. 15, 2020	Conduction (CO02-CB)
COND Cable	Woken	Cable	2	0.15MHz ~ 30MHz	Nov. 06, 2018	Nov. 05, 2019	Conduction (CO02-CB)
Software	Audix	E3	6.120210n	-	N.C.R.	N.C.R.	Conduction (CO02-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Mar. 29, 2019	Mar. 28, 2020	Radiation (03CH04-CB)
BILOG ANTENNA with 6 dB attenuator	Schaffner & Woken	CBL6112B & N-6-06	22021&AT-N06 07	30MHz ~ 1GHz	Oct. 12, 2018	Oct. 11, 2019	Radiation (03CH04-CB)
Pre-Amplifier	Agilent	310N	187291	0.1MHz ~ 1GHz	Mar. 19, 2019	Mar. 18, 2020	Radiation (03CH04-CB)
Spectrum Analyzer	R&S	FSP40	100142	9kHz~40GHz	Dec. 26, 2018	Dec. 25, 2019	Radiation (03CH04-CB
EMI Test Receiver	R&S	ESCS	100359	9kHz ~ 2.75GHz	Jul. 03, 2018	Jul. 02, 2019	Radiation (03CH04-CB)
RF Cable-low	Woken	RG402	Low Cable-03+22	30MHz – 1GHz	Oct. 08, 2018	Oct. 07, 2019	Radiation (03CH04-CB)
Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-1292	1GHz~18GHz	Jul. 20, 2018	Jul. 19, 2019	Radiation (03CH06-CB)
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170507	15GHz ~ 40GHz	Jun. 07, 2018	Jun. 06, 2019	Radiation (03CH06-CB)
Pre-Amplifier	Agilent	83017A	MY53270064	0.5GHz ~ 26.5GHz	May 09, 2018	May 08, 2019	Radiation (03CH06-CB)
Pre-Amplifier	Agilent	83017A	MY53270064	0.5GHz ~ 26.5GHz	May 08, 2019	May 07, 2020	Radiation (03CH06-CB)
Spectrum analyzer	R&S	FSP40	100080	9kHz~40GHz	Oct. 03, 2018	Oct. 02, 2019	Radiation (03CH06-CB)
RF Cable-high	HUBER+SUHNER	RG402	High Cable-05	1GHz~18GHz	Oct. 08, 2018	Oct. 07, 2019	Radiation (03CH06-CB)
RF Cable-high	HUBER+SUHNER	RG402	High Cable-05+24	1GHz~18GHz	Oct. 08, 2018	Oct. 07, 2019	Radiation (03CH06-CB)
RF Cable-high	Woken	RG402	High Cable-40G#1	18GHz ~ 40 GHz	Jul. 27, 2018	Jul. 26, 2019	Radiation (03CH06-CB)
RF Cable-high	Woken	RG402	High Cable-40G#2	18GHz ~ 40 GHz	Jul. 27, 2018	Jul. 26, 2019	Radiation (03CH06-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	Feb. 25, 2019	Feb. 24, 2020	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-06	1 GHz – 26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (TH01-CB)

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
RF Cable-high	Woken	RG402	High Cable-07	1 GHz –26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-08	1 GHz –26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-09	1 GHz –26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz –26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-28	1 GHz –26.5 GHz	Nov. 19, 2018	Nov. 18, 2019	Conducted (TH01-CB)
Power Sensor	Agilent	E9327A	US40442088	50MHz~18GHz	Jan. 15, 2019	Jan. 14, 2020	Conducted (TH01-CB)
Power Meter	Agilent	E4416A	GB41291199	50MHz~18GHz	Jan. 15, 2019	Jan. 14, 2020	Conducted (TH01-CB)

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

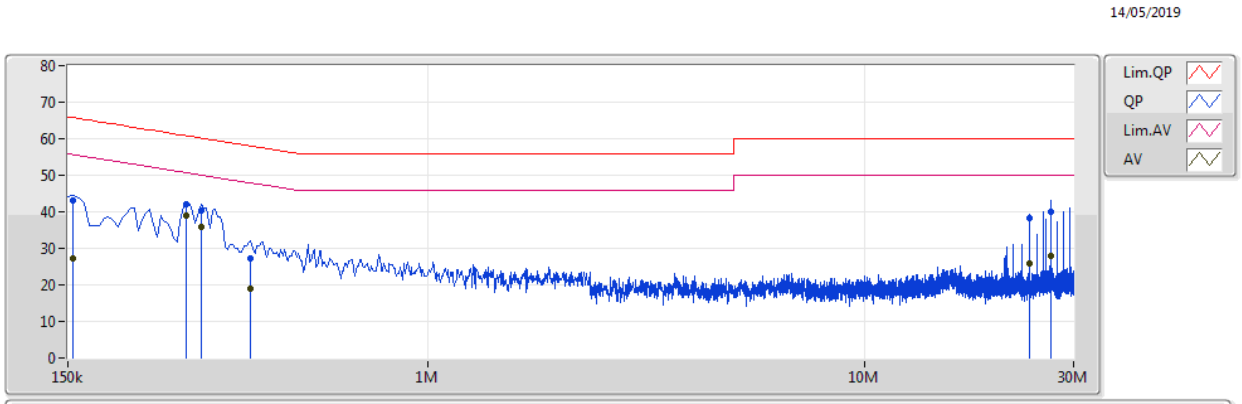
AC Power-line Conducted Emissions Result			
Operating Mode	7	**Power Phase**	Line
Operating Function	CTX		



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	AF	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	150k	41.01	66.00	-24.99	10.17	Line	-	30.84	0.05	0.02	10.10
AV	150k	25.12	56.00	-30.88	10.17	Line	-	14.95	0.05	0.02	10.10
QP	231k	39.44	62.41	-22.97	10.17	Line	-	29.27	0.05	0.02	10.10
AV	231k	33.46	52.41	-18.95	10.17	Line	-	23.29	0.05	0.02	10.10
QP	280.5k	40.21	60.80	-20.59	10.17	Line	-	30.04	0.05	0.02	10.10
AV	280.5k	36.87	50.80	-13.93	10.17	Line	"Worst"	26.70	0.05	0.02	10.10
QP	411k	23.55	57.63	-34.08	10.18	Line	-	13.37	0.06	0.02	10.10
AV	411k	16.90	47.63	-30.73	10.18	Line	-	6.72	0.06	0.02	10.10
QP	23.753M	32.33	60.00	-27.67	10.62	Line	-	21.71	0.32	0.18	10.12
AV	23.753M	20.81	50.00	-29.19	10.62	Line	-	10.19	0.32	0.18	10.12
QP	26.601M	41.07	60.00	-18.93	10.68	Line	-	30.39	0.35	0.21	10.12
AV	26.601M	28.85	50.00	-21.15	10.68	Line	-	18.17	0.35	0.21	10.12

Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)

AC Power-line Conducted Emissions Result			
Operating Mode	7	**Power Phase**	Neutral
Operating Function	CTX		



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	AF	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	154.5k	43.06	65.75	-22.69	10.15	Neutral	-	32.91	0.03	0.02	10.10
AV	154.5k	27.27	55.75	-28.48	10.15	Neutral	-	17.12	0.03	0.02	10.10
QP	280.5k	42.02	60.80	-18.78	10.15	Neutral	-	31.87	0.03	0.02	10.10
AV	280.5k	39.09	50.80	-11.71	10.15	Neutral	"Worst"	28.94	0.03	0.02	10.10
QP	303k	40.18	60.17	-19.99	10.16	Neutral	-	30.02	0.04	0.02	10.10
AV	303k	36.03	50.17	-14.14	10.16	Neutral	-	25.87	0.04	0.02	10.10
QP	393k	27.41	58.01	-30.60	10.16	Neutral	-	17.25	0.04	0.02	10.10
AV	393k	19.03	48.01	-28.98	10.16	Neutral	-	8.87	0.04	0.02	10.10
QP	23.748M	38.17	60.00	-21.83	10.56	Neutral	-	27.61	0.26	0.18	10.12
AV	23.748M	26.03	50.00	-23.97	10.56	Neutral	-	15.47	0.26	0.18	10.12
QP	26.601M	40.04	60.00	-19.96	10.62	Neutral	-	29.42	0.29	0.21	10.12
AV	26.601M	28.09	50.00	-21.91	10.62	Neutral	-	17.47	0.29	0.21	10.12

Note 1: “>20dB” means emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found emissions (No emissions were detected.)

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
Zigbee	1.523M	2.224M	2M22G1D	1.428M	2.211M

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;

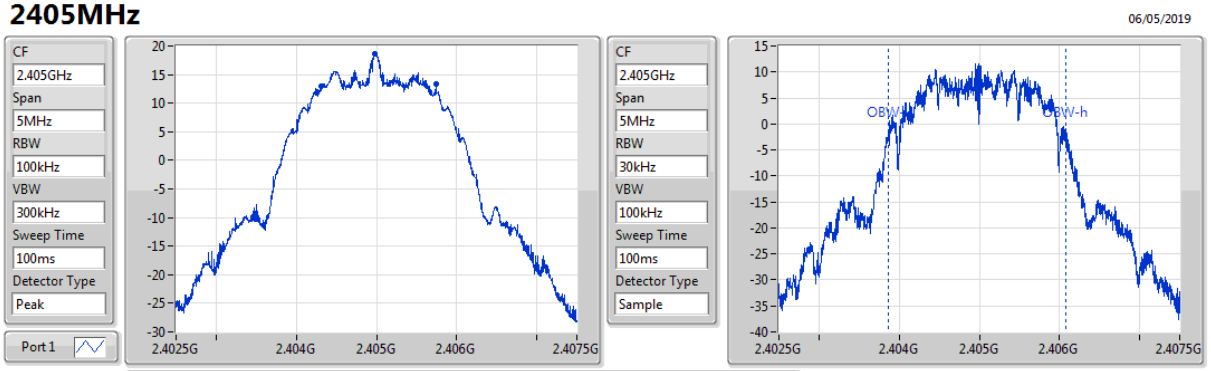
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
Zigbee	-	-	-	-
2405MHz	Pass	500k	1.428M	2.211M
2445MHz	Pass	500k	1.46M	2.211M
2480MHz	Pass	500k	1.523M	2.224M

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

Zigbee **EBW**

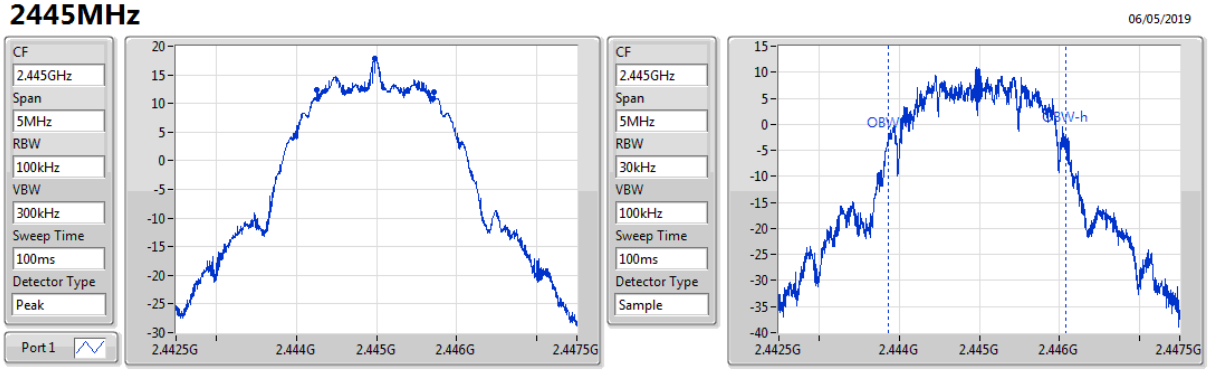
2405MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.428M	2.404313G	2.40574G	2.211M	2.403868G	2.406079G	500k	1

Zigbee **EBW**

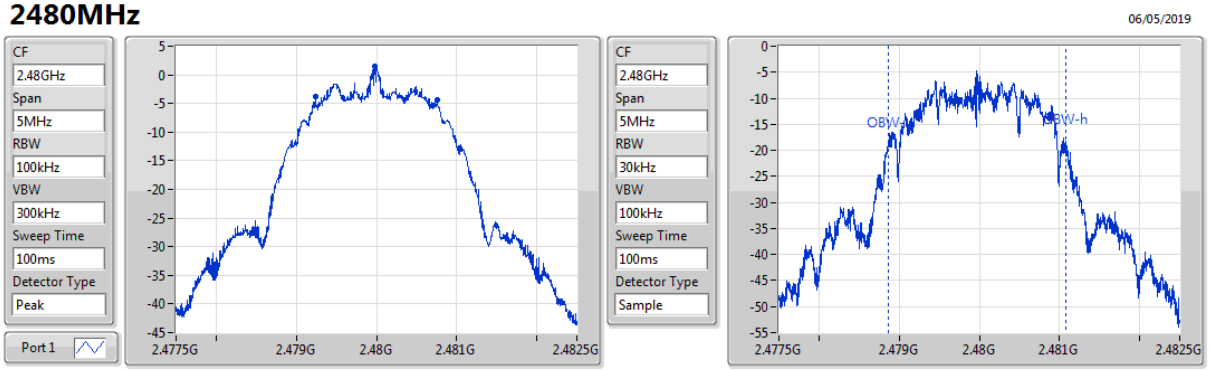
2445MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.46M	2.444253G	2.445713G	2.211M	2.443868G	2.446079G	500k	1

Zigbee **EBW**

2480MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.523M	2.479235G	2.480758G	2.224M	2.478861G	2.481084G	500k	1

Summary

Mode	Power	Power
	(dBm)	(W)
2.4-2.4835GHz	-	-
Zigbee	19.50	0.08913

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
Zigbee	-	-	-	-
2405MHz	Pass	4.40	19.50	30.00
2445MHz	Pass	4.40	19.34	30.00
2480MHz	Pass	4.40	3.02	30.00

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
Zigbee	4.66

RBW=3kHz.

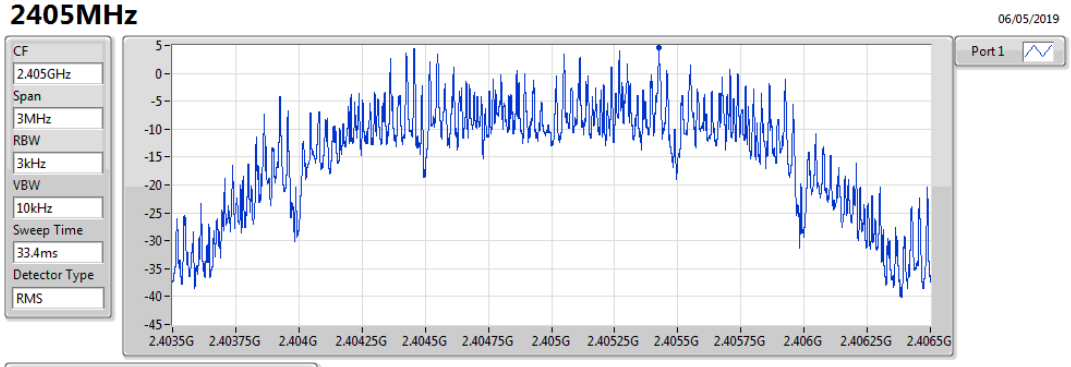
Result

Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
Zigbee	-	-	-	-
2405MHz	Pass	4.40	4.66	8.00
2445MHz	Pass	4.40	4.11	8.00
2480MHz	Pass	4.40	-11.89	8.00

RBW=3kHz.

Zigbee **PSD**

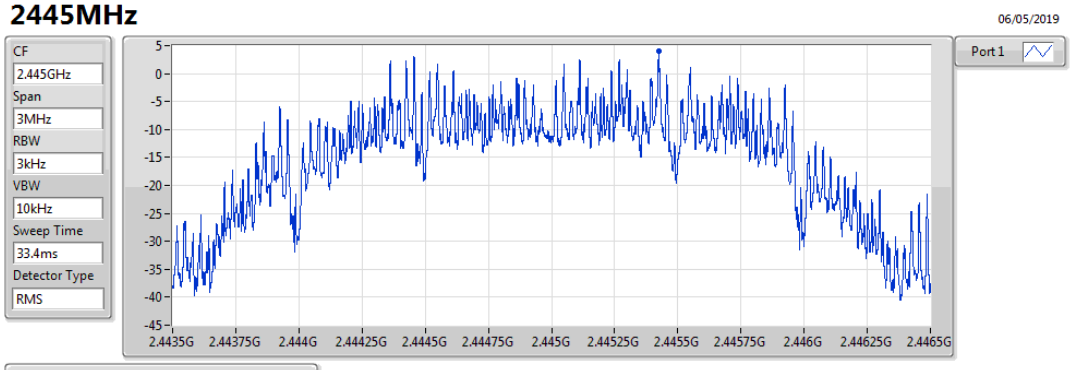
2405MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
4.66	4.66	4.66

Zigbee **PSD**

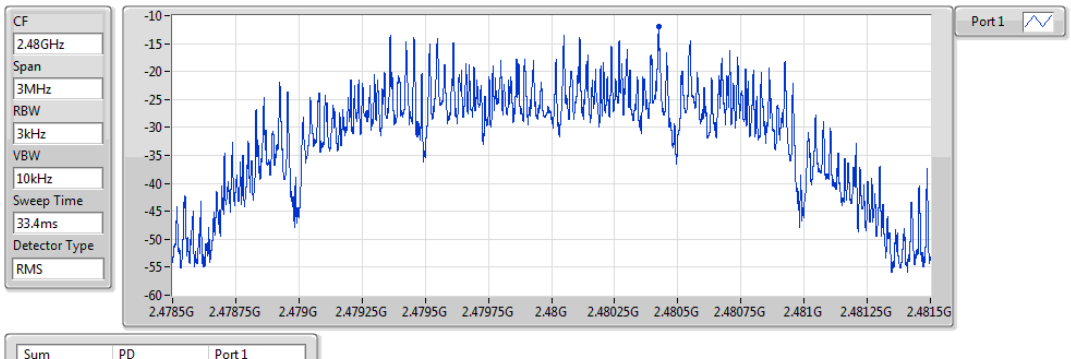
2445MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
4.11	4.11	4.11

Zigbee **PSD**

2480MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-11.89	-11.89	-11.89

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)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-
Zigbee	Pass	2.40447G	15.45	-14.55	159.83M	-40.94	2.4G	-36.13	2.4866G	-42.71	16.95741G	-36.45	1

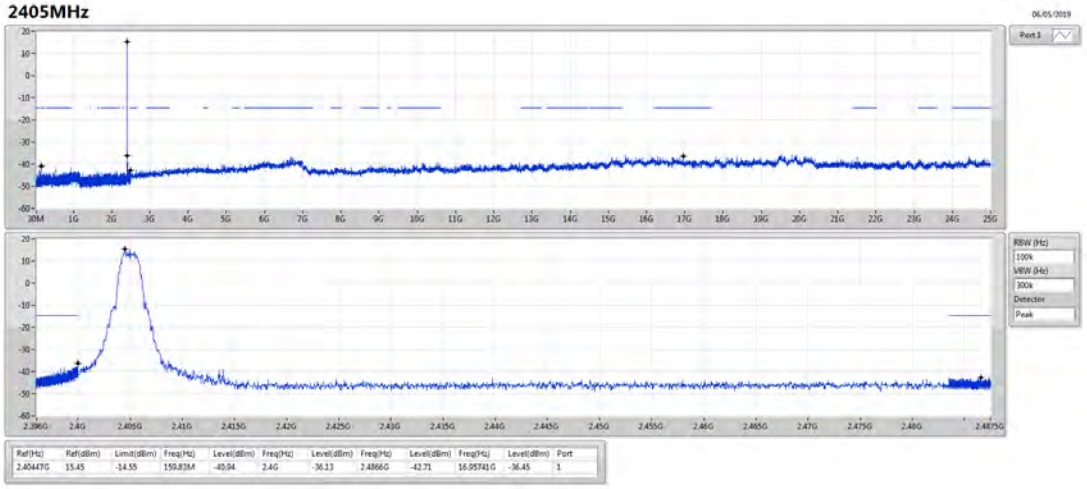
Result

Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
Zigbee	-	-	-	-	-	-	-	-	-	-	-	-	-
2405MHz	Pass	2.40447G	15.45	-14.55	159.83M	-40.94	2.4G	-36.13	2.4866G	-42.71	16.95741G	-36.45	1
2445MHz	Pass	2.40447G	15.45	-14.55	95.95M	-41.81	2.39768G	-42.65	2.48613G	-42.65	16.84766G	-37.12	1
2480MHz	Pass	2.40447G	15.45	-14.55	544.01M	-40.85	2.39614G	-43.05	2.48513G	-42.27	6.79583G	-36.74	1

Zigbee

2405MHz

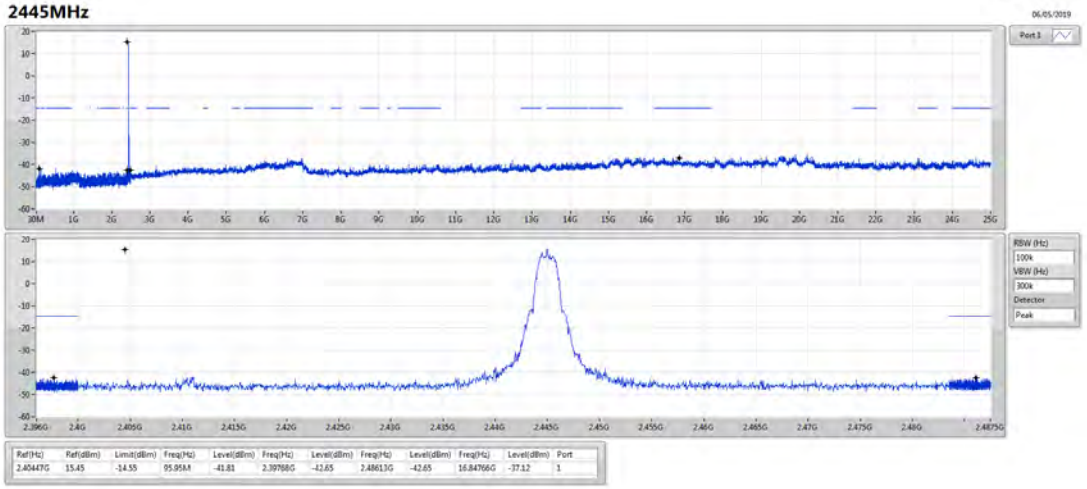
CSE NdB



Zigbee

2445MHz

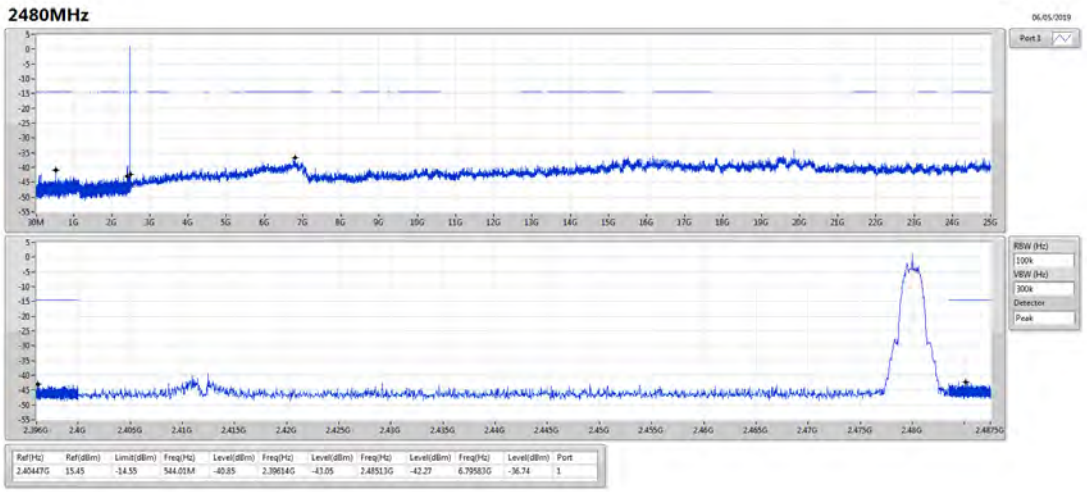
CSE NdB



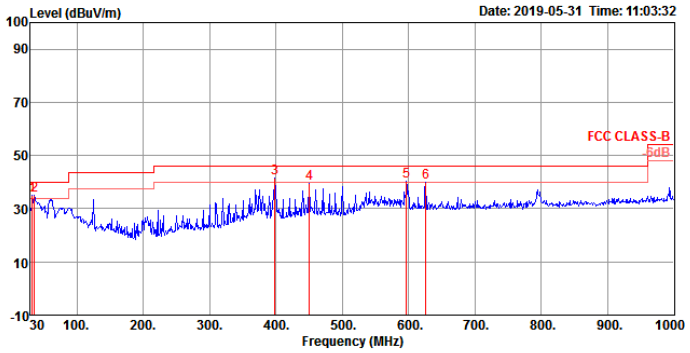
Zigbee

2480MHz

CSE NdB



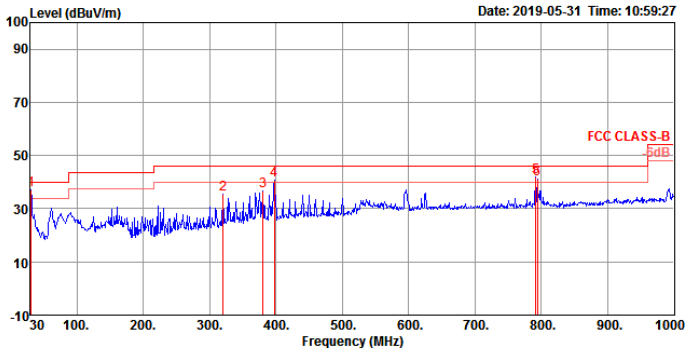
RSE below 1GHz Result			
Operating Mode	4	**Polarization**	Vertical
Operating Function	CTX		



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	32.91	35.00	40.00	-5.00	44.26	0.54	22.40	32.20	100	135	Peak	VERTICAL
2	35.82	34.88	40.00	-5.12	45.83	0.58	20.68	32.21	200	196	Peak	VERTICAL
3	398.60	41.43	46.00	-4.57	49.76	2.15	21.61	32.09	100	220	Peak	VERTICAL
4	450.01	39.38	46.00	-6.62	46.10	2.32	22.80	31.84	125	250	Peak	VERTICAL
5	596.48	40.25	46.00	-5.75	44.99	2.59	24.67	32.00	150	226	Peak	VERTICAL
6	625.58	39.96	46.00	-6.04	44.15	2.66	25.21	32.06	100	255	Peak	VERTICAL

Note 1: “>20dB” means emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found emissions (No emissions were detected.)

RSE below 1GHz Result			
Operating Mode	4	**Polarization**	Horizontal
Operating Function	CTX		



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	30.97	36.89	40.00	-3.11	45.06	0.51	23.51	32.19	125	140	Peak	HORIZONTAL
2	320.03	35.39	46.00	-10.61	45.96	1.92	19.48	31.97	100	117	Peak	HORIZONTAL
3	380.17	36.82	46.00	-9.18	45.85	2.11	20.85	31.99	100	300	Peak	HORIZONTAL
4	397.63	40.63	46.00	-5.37	49.03	2.14	21.55	32.09	100	309	Peak	HORIZONTAL
5	791.45	41.85	46.00	-4.15	44.52	3.05	26.00	31.72	150	153	Peak	HORIZONTAL
6	794.36	40.96	46.00	-5.04	43.51	3.06	26.09	31.70	150	153	Peak	HORIZONTAL

Note 1: “>20dB” means emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found emissions (No emissions were detected.)

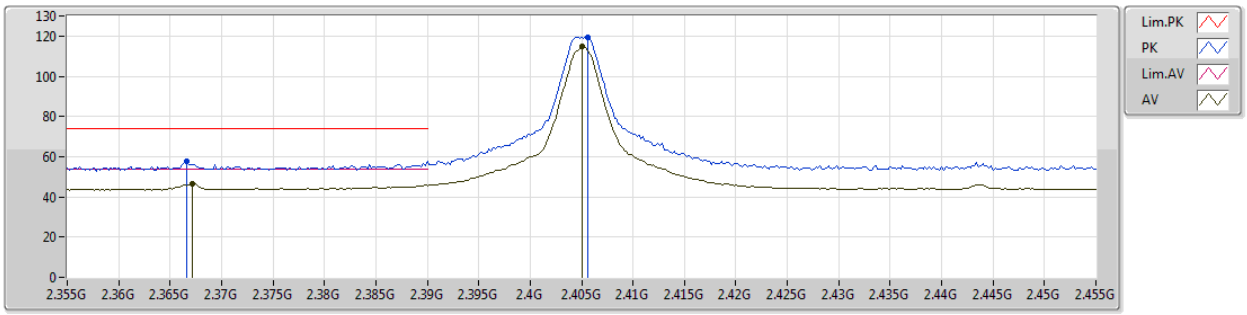
Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-
Zigbee	Pass	AV	2.4835G	53.03	54.00	-0.97	30.96	3	Vertical	271	1.58	-

Zigbee

2405MHz_TX

03/05/2019



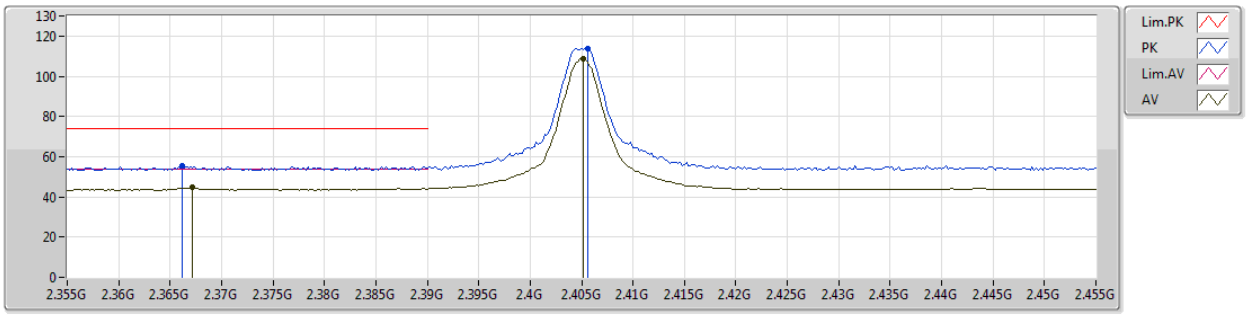
EUT Y_1TX
Setting 14
01-L-3
FSP

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
PK	2.3666G	57.98	74.00	-16.02	30.71	3	Vertical	285	1.45	-
AV	2.3672G	46.44	54.00	-7.56	30.71	3	Vertical	285	1.45	-
PK	2.4056G	119.28	Inf	-Inf	30.85	3	Vertical	285	1.45	-
AV	2.405G	114.63	Inf	-Inf	30.84	3	Vertical	285	1.45	-

Zigbee

2405MHz_TX

03/05/2019



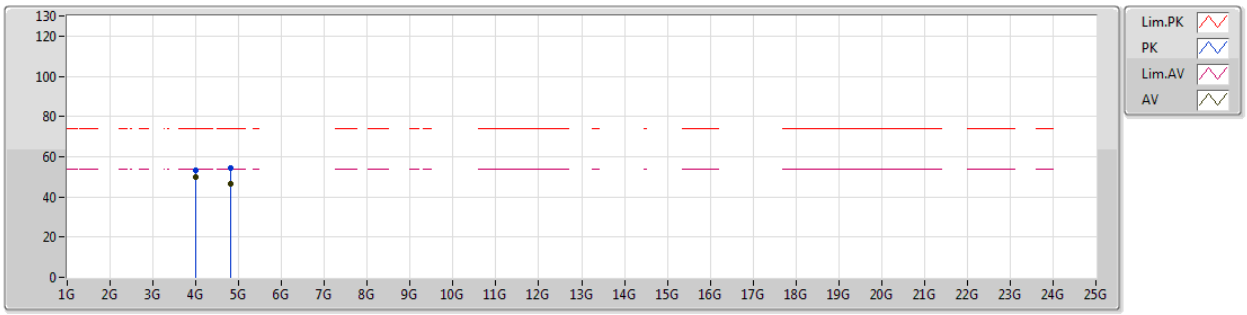
EUT Y_1TX
Setting 14
01-L-3
FSP

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
PK	2.3662G	55.66	74.00	-18.34	30.71	3	Horizontal	219	2.00	-
AV	2.3672G	44.96	54.00	-9.04	30.71	3	Horizontal	219	2.00	-
PK	2.4056G	113.56	Inf	-Inf	30.85	3	Horizontal	219	2.00	-
AV	2.4052G	108.73	Inf	-Inf	30.85	3	Horizontal	219	2.00	-

Zigbee

2405MHz_TX

03/05/2019



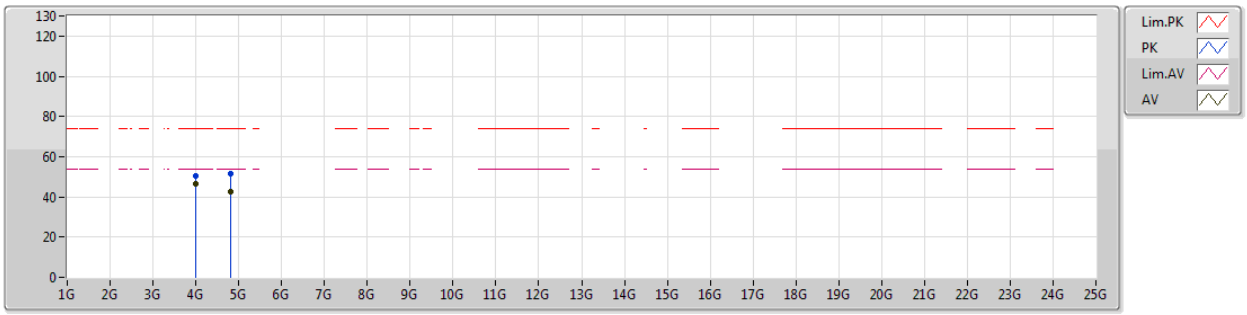
EUT Y_1TX
Setting 14
01-L-3
FSP

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
PK	4.00004G	53.09	74.00	-20.91	2.34	3	Vertical	112	1.49	-
AV	4G	49.89	54.00	-4.11	2.34	3	Vertical	112	1.49	-
PK	4.8111G	54.38	74.00	-19.62	3.52	3	Vertical	320	1.72	-
AV	4.81096G	46.38	54.00	-7.62	3.52	3	Vertical	320	1.72	-

Zigbee

2405MHz_TX

03/05/2019



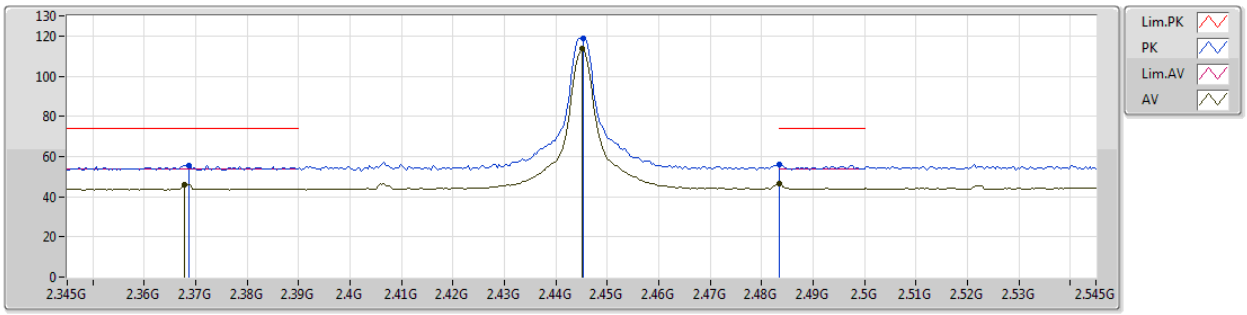
EUT Y_1TX
Setting 14
01-L-3
FSP

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
PK	4.00013G	50.50	74.00	-23.50	2.34	3	Horizontal	270	1.46	-
AV	4.00004G	46.41	54.00	-7.59	2.34	3	Horizontal	270	1.46	-
PK	4.80892G	51.64	74.00	-22.36	3.52	3	Horizontal	254	1.69	-
AV	4.811G	42.84	54.00	-11.16	3.52	3	Horizontal	254	1.69	-

Zigbee

2445MHz_TX

03/05/2019



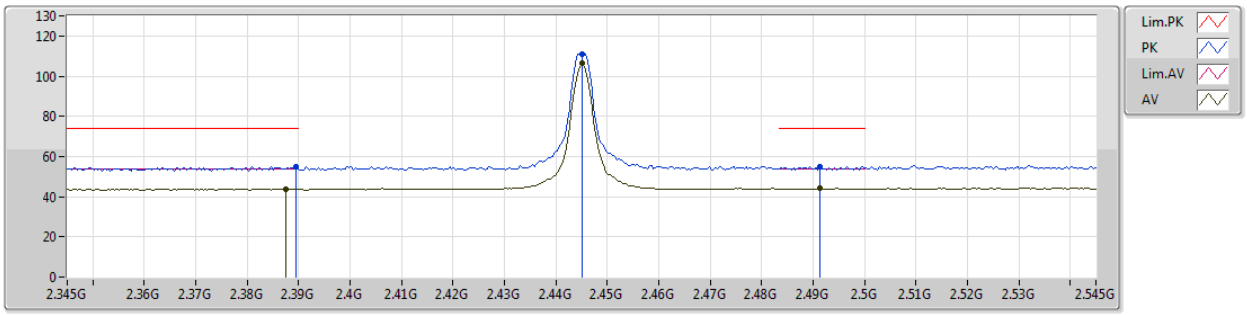
EUT Y_1TX
Setting 14
01-L-3
FSP

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
PK	2.3686G	55.73	74.00	-18.27	30.72	3	Vertical	275	1.62	-
AV	2.3678G	45.95	54.00	-8.05	30.71	3	Vertical	275	1.62	-
PK	2.4454G	118.82	Inf	-Inf	30.91	3	Vertical	275	1.62	-
AV	2.445G	114.00	Inf	-Inf	30.91	3	Vertical	275	1.62	-
PK	2.4835G	56.25	74.00	-17.75	30.96	3	Vertical	275	1.62	-
AV	2.4835G	46.48	54.00	-7.52	30.96	3	Vertical	275	1.62	-

Zigbee

2445MHz_TX

03/05/2019



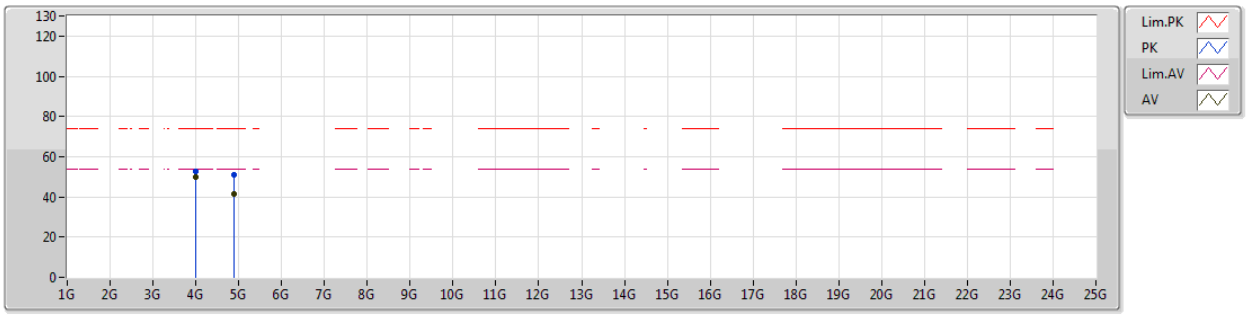
EUT Y_1TX
Setting 14
01-L-3
FSP

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
PK	2.3894G	55.11	74.00	-18.89	30.80	3	Horizontal	139	1.82	-
AV	2.3874G	43.80	54.00	-10.20	30.79	3	Horizontal	139	1.82	-
PK	2.445G	111.02	Inf	-Inf	30.91	3	Horizontal	139	1.82	-
AV	2.445G	106.41	Inf	-Inf	30.91	3	Horizontal	139	1.82	-
PK	2.4914G	55.18	74.00	-18.82	30.98	3	Horizontal	139	1.82	-
AV	2.4914G	44.05	54.00	-9.95	30.98	3	Horizontal	139	1.82	-

Zigbee

2445MHz_TX

03/05/2019



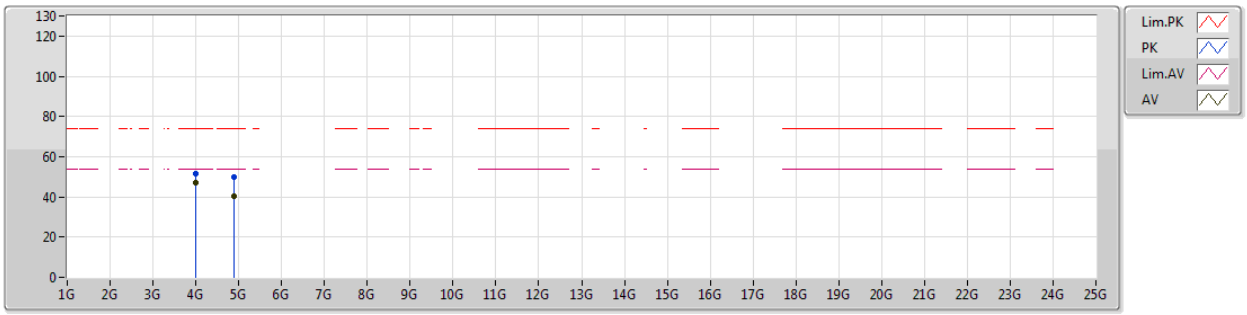
EUT Y_1TX
Setting 14
01-L-3
FSP

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
PK	4G	52.89	74.00	-21.11	2.34	3	Vertical	118	1.67	-
AV	4.00004G	49.74	54.00	-4.26	2.34	3	Vertical	118	1.67	-
PK	4.89112G	50.93	74.00	-23.07	3.89	3	Vertical	355	1.50	-
AV	4.891G	41.47	54.00	-12.53	3.89	3	Vertical	355	1.50	-

Zigbee

03/05/2019

2445MHz_TX



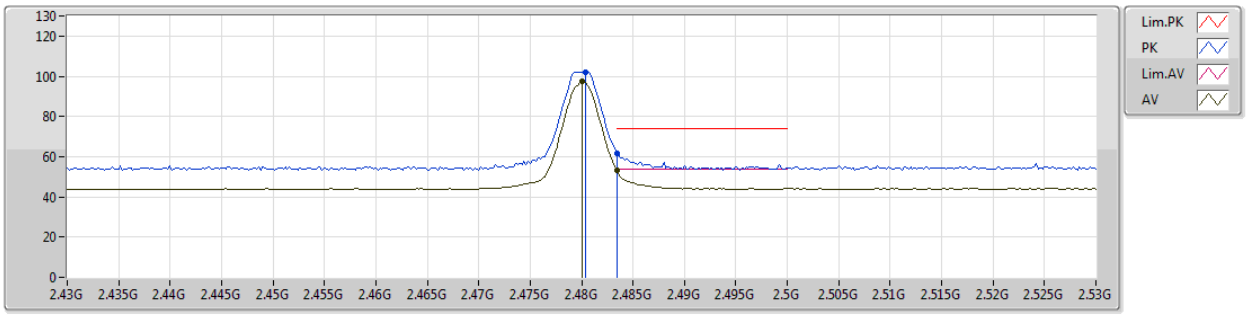
EUT Y_1TX
Setting 14
01-L-3
FSP

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
PK	4.00012G	51.28	74.00	-22.72	2.34	3	Horizontal	269	1.70	-
AV	4G	47.22	54.00	-6.78	2.34	3	Horizontal	269	1.70	-
PK	4.88872G	49.67	74.00	-24.33	3.89	3	Horizontal	247	1.49	-
AV	4.89096G	40.31	54.00	-13.69	3.89	3	Horizontal	247	1.49	-

Zigbee

2480MHz_TX

03/05/2019



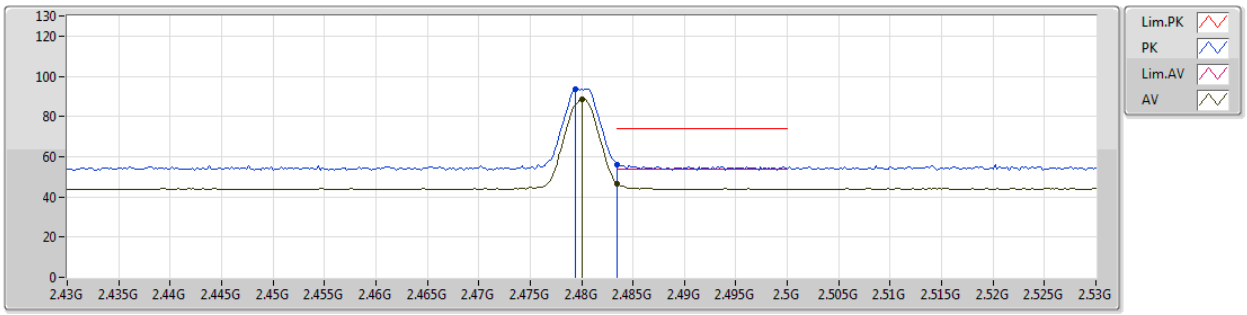
EUT Y_1TX
Setting 3
01-L-3
FSP

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
PK	2.4804G	102.14	Inf	-Inf	30.96	3	Vertical	271	1.58	-
AV	2.48G	97.39	Inf	-Inf	30.96	3	Vertical	271	1.58	-
PK	2.4835G	61.56	74.00	-12.44	30.96	3	Vertical	271	1.58	-
AV	2.4835G	53.03	54.00	-0.97	30.96	3	Vertical	271	1.58	-

Zigbee

2480MHz_TX

03/05/2019



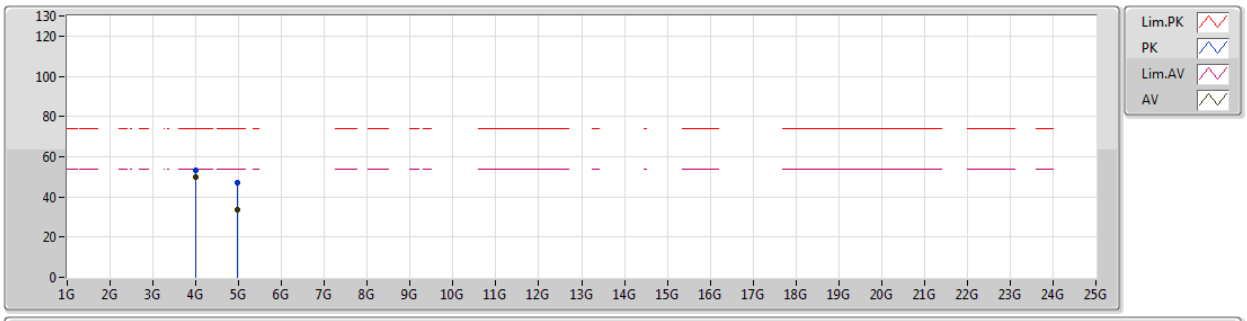
EUT Y_1TX
Setting 3
01-L-3
FSP

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
PK	2.4794G	93.52	Inf	-Inf	30.96	3	Horizontal	28	1.65	-
AV	2.48G	88.80	Inf	-Inf	30.96	3	Horizontal	28	1.65	-
PK	2.4835G	56.12	74.00	-17.88	30.96	3	Horizontal	28	1.65	-
AV	2.4835G	46.55	54.00	-7.45	30.96	3	Horizontal	28	1.65	-

Zigbee

2480MHz_TX

03/05/2019



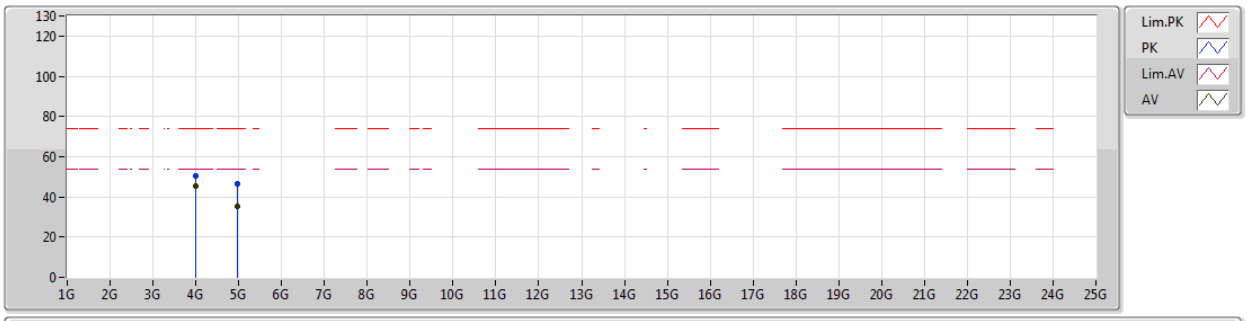
EUT Y_1TX
Setting 3
01-L-3
FSP

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
PK	4.00004G	53.09	74.00	-20.91	2.34	3	Vertical	109	1.69	-
AV	4.00002G	50.00	54.00	-4.00	2.34	3	Vertical	109	1.69	-
PK	4.95958G	46.79	74.00	-27.21	4.20	3	Vertical	262	1.30	-
AV	4.95972G	33.88	54.00	-20.12	4.20	3	Vertical	262	1.30	-

Zigbee

2480MHz_TX

03/05/2019



EUT Y_1TX
Setting 3
01-L-3
FSP

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
PK	3.99989G	50.16	74.00	-23.84	2.34	3	Horizontal	269	1.45	-
AV	4.00004G	45.53	54.00	-8.47	2.34	3	Horizontal	269	1.45	-
PK	4.9593G	46.53	74.00	-27.47	4.20	3	Horizontal	215	1.73	-
AV	4.961G	35.28	54.00	-18.72	4.20	3	Horizontal	215	1.73	-