FCC Test Report

Equipment	:	DHUR-AZ68 11a/b/g/n/ac 2x2 module
Brand Name	:	WNC
Model No.	:	DHUR-AZ68
FCC ID	:	NKR-DHURAZ68
Standard	:	47 CFR FCC Part 15.247
Frequency	:	2400 MHz – 2483.5 MHz
Function	:	☒Point-to-multipoint; ☐Point-to-point
Applicant	:	Wistron NeWeb Corporation 20 Park Avenue II, Hsinchu Science Park, Hsinchu 308, Taiwan
Manufacturer	:	Wistron NeWeb Corporation 20 Park Avenue II, Hsinchu Science Park, Hsinchu 308, Taiwan

The product sample received on Oct. 20, 2017 and completely tested on Feb. 07, 2018. We, SPORTON, 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 INTERNATIONALINC., the test report shall not be reproduced except in full.

Cliff Chang
SPORTON INTERNATIONAL INC.

Testing Laboratory
1190

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Summary of Test Result

Conformance Test Specifications				
Report Clause	**Ref. Std. Clause**	**Description**	**Limit**	**Result**
1.1.2	15.203	Antenna Requirement	FCC 15.203	Complied
3.1	15.207	AC Power-line Conducted Emissions	FCC 15.207	Complied
3.2	15.247(a)	DTS Bandwidth	≥500kHz	Complied
3.3	15.247(b)	Maximum Conducted Output Power	Power [dBm]:30	Complied
3.4	15.247(e)	Power Spectral Density	PSD [dBm/3kHz]:8	Complied
3.5	15.247(d)	Emissions in Non-restricted Frequency Bands	Non-Restricted Bands: >30 dBc	Complied
3.6	15.247(d)	Emissions in Restricted Frequency Bands	Restricted Bands: FCC 15.209	Complied

Revision History

Report No.	Version	Description	Issued Date
FR7D1249AD	Rev. 01	Initial issue of report	Feb. 12, 2018

1 General Description

1.1 Information

1.1.1 RF General Information

Frequency Range (MHz)	Bluetooth Mode	Ch. Frequency (MHz)	Channel Number
2400-2483.5	LE	2402-2480	0-39 [40]

Band	Mode	BWch (MHz)	Nant
2.4-2.4835GHz	BT-LE(1Mbps)	1.0	1TX

Note:
- Bluetooth LE uses a GFSK (1Mbps) modulation for DSSS.
- 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

Set	Ant.	Port	Brand	Model Name	Antenna Type	Connector	Gain (dBi)		
							WLAN 2.4GHz	WLAN 5GHz	Bluetooth
1	1	1	WNC	-	Printed Antenna	N/A	5.31	5.92	-
	2	2	WNC	-	Printed Antenna	N/A	5.26	5.91	-
2	3	1	WNC	-	PIFA Antenna	I-PEX	1.54	3.52	-
	4	2	WNC	-	PIFA Antenna	I-PEX	0.15	2.83	-
3	5	1	WNC	-	PIFA Antenna	I-PEX	3.56	5.59	-
	6	2	WNC	-	PIFA Antenna	I-PEX	2.14	5.08	-
4	7	1	WNC	-	PIFA Antenna	I-PEX	-	-	3.90
5	8	1	WNC	-	PIFA Antenna	I-PEX	-	-	1.18
6	9	1	WNC	-	PIFA Antenna	I-PEX	-	-	0.01

Note: The EUT has six set antennas, and they have total of nine antennas.

For 2.4GHz / 5GHz WLAN function (2TX/2RX):

Antenna set 1~3 support 2.4GHz / 5GHz WLAN function.

Port 1 and Port 2 could transmit/receive simultaneously.

For Bluetooth function (1TX/1RX):

Antenna set 4~6 support Bluetooth function.

Antenna set 4~6 are the same type antennas, only the higher gain antenna “Set 4” was tested.

Only Port 1 can be used as transmitting/receiving.

1.1.3 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
BT-LE(1Mbps)	0.608	2.161	380u	3k

1.1.4 EUT Operational Condition

EUT Power Type	From host system
Test Software Version	QATool_Dbg.exe

1.2 Testing Applied 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 v04
- FCC KDB 412172 D01 v01r01

1.3 Testing Location Information

Testing Location							
☐	HWA YA	ADD	:	No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.			
		TEL	:	886-3-327-3456	FAX	:	886-3-318-0055
☒	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	Stim Sung	25°C / 55%	Dec. 18, 2017~Dec. 27, 2017
Radiated	03CH01-CB (For below 1GHz)	Brain Sun, RJ Huang, Cola Fan, Mason Chen, Justin Lin, DK Chang	22°C / 54%	Feb. 07, 2018
Radiated	03CH01-CB (For above 1GHz)	Brain Sun, RJ Huang, Cola Fan, Mason Chen, Justin Lin, DK Chang	22°C / 54%	Oct. 20, 2017~Jan. 30, 2018
AC Conduction	CO01-CB	Deven Huang	20°C / 60%	Feb. 07, 2018

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)	3.2 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	3.6 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.7 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.7 dB	Confidence levels of 95%
Output Power Measurement	1.33 dB	Confidence levels of 95%
Power Density Measurement	1.27 dB	Confidence levels of 95%
Bandwidth Measurement	9.74×10^{-8}	Confidence levels of 95%

2 Test Configuration of EUT

2.1 Test Channel Mode

Mode	Power Setting
BT-LE(1Mbps)	-
2402MHz	Default
2440MHz	Default
2480MHz	Default

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. For 2.4GHz / 5GHz WLAN function: Antenna set 2~3 are the same type antennas, only the higher gain antenna “Set 3” was tested. 2. For Bluetooth function: Antenna set 4~6 are the same type antennas, only the higher gain antenna “Set 4” was tested.	
1	EUT with Set 1 antennas (2.4GHz WLAN function)
2	EUT with Set 3 antennas (2.4GHz WLAN function)
3	EUT with Set 1 antennas (5GHz WLAN function)
4	EUT with Set 3 antennas (5GHz WLAN function)
5	EUT with Set 4 antennas (Bluetooth function)
For operating mode 1 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
Operating Mode	CTX
1	EUT with Set 4 antennas

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
The EUT was performed at X axis, Y axis and Z axis position for Emissions in Restricted Frequency Bands above 1GHz test. 1. For Set 1 antennas (2.4GHz WLAN function): the worst case was found at X axis. 2. For Set 2 antennas (2.4GHz WLAN function): the worst case was found at Z axis. 3. For Set 3 antennas (2.4GHz WLAN function): the worst case was found at Y axis. 4. For Set 1 antennas (5GHz WLAN function): the worst case was found at X axis. 5. For Set 2 antennas (5GHz WLAN function): the worst case was found at Y axis. 6. For Set 3 antennas (5GHz WLAN function): the worst case was found at Y axis. 7. For Set 4 antennas (Bluetooth function): the worst case was found at Y axis. From the above, so the measurement will follow this same test configuration.	
1	EUT X axis with Set 1 antennas (2.4GHz WLAN function)
2	EUT Z axis with Set 2 antennas (2.4GHz WLAN function)
3	EUT Y axis with Set 3 antennas (2.4GHz WLAN function)
4	EUT X axis with Set 1 antennas (5GHz WLAN function)
5	EUT Y axis with Set 2 antennas (5GHz WLAN function)
6	EUT Y axis with Set 3 antennas (5GHz WLAN function)
7	EUT Y axis with Set 4 antennas (Bluetooth function)
For operating mode 1 is the worst case and it was record in this test report.	
Operating Mode > 1GHz	CTX
The EUT was performed at X axis, Y axis and Z axis position for Emissions in Restricted Frequency Bands above 1GHz test, and the worst case was found at Y axis, so the measurement will follow this same test configuration.	
1	EUT Y axis with Set 4 antennas

The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation
Operating Mode	
1	EUT with Set 1 and Set 4 antennas (2.4GHz WLAN + Bluetooth function)
2	EUT with Set 1 and Set 4 antennas (5GHz WLAN + Bluetooth function)
3	EUT with Set 2 and Set 4 antennas (2.4GHz WLAN + Bluetooth function)
4	EUT with Set 2 and Set 4 antennas (5GHz WLAN + Bluetooth function)
5	EUT with Set 3 and Set 4 antennas (2.4GHz WLAN + Bluetooth function)
6	EUT with Set 3 and Set 4 antennas (5GHz WLAN + Bluetooth function)
Refer to Sporton Test Report No.: FA7D1249 for Co-location RF Exposure Evaluation.	

2.3 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

2.4 Accessories

N/A

2.5 Support Equipment

For Test Site No: CO01-CB

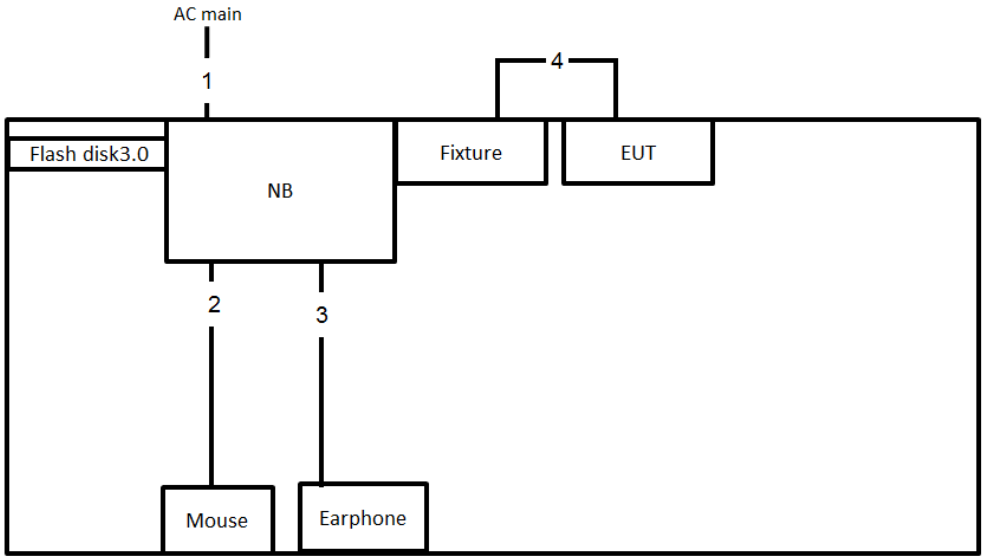
Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
1	NB	DELL	E6430	DoC
2	Earphone	e-Power	S90W	DoC
3	Mouse	Logitech	M-U0026	DoC
4	Fixture	WNC	48DHUR09.SGB	DoC
5	Flash disk3.0	Transcend	JetFlash-760	DoC

For Test Site No: 03CH01-CB and TH01-CB

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
1	NB	DELL	E4300	DoC
2	Fixture	WNC	48DHUR09.SGB	DoC

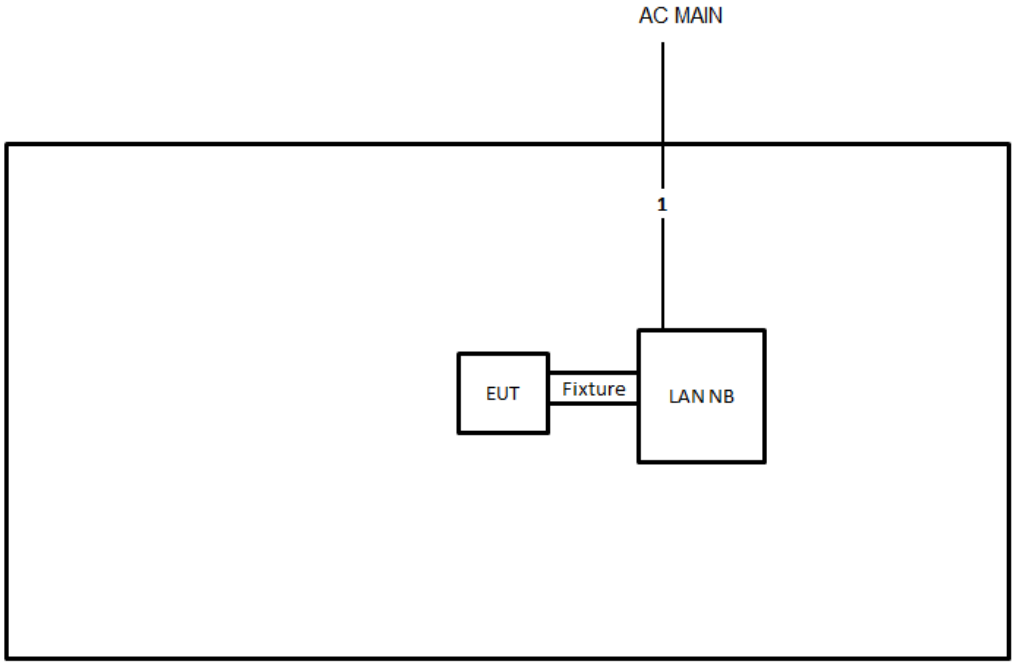
2.6 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test



Item	Connection	Shielded	Length
1	Power cable	No	2.6m
2	USB cable	Yes	1.8m
3	Audio cable	No	1.4m
4	Bus cable	No	0.1m

Test Setup Diagram - Radiated Test



Item	Connection	Shielded	Length
1	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

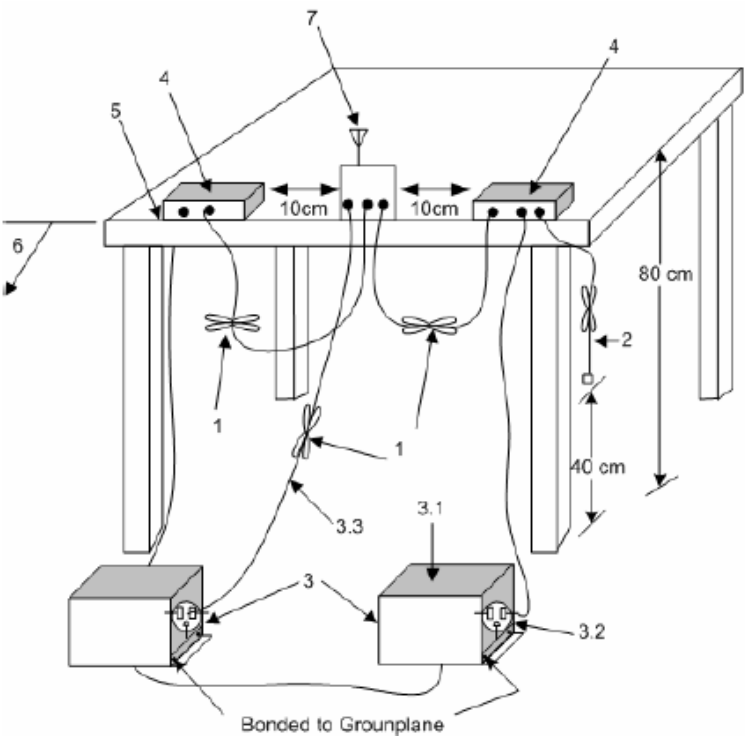
Refer a test equipment and calibration data table in this test report.

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.

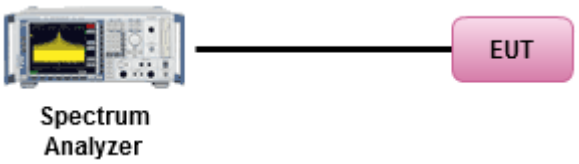
3.2.2 Measuring Instruments

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 8.1 Option 1 for6 dB bandwidth measurement.
	☐ Refer as FCC KDB 558074, clause 8.2 Option 2 for6 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 9.1.1 Option 1 (RBW ≥ EBW method).
☐	Refer as FCC KDB 558074, clause 9.1.2 Option 2 (peak power meter for VBW ≥ DTS BW)
▪	Maximum Conducted Output Power
	[duty cycle ≥ 98% or external video / power trigger]
☐	Refer as FCC KDB 558074, clause 9.2.2.2 Method AVGSA-1 (spectral trace averaging).
☐	Refer as FCC KDB 558074, clause 9.2.2.3 Method AVGSA-1 Alt. (slow sweep speed)
	duty cycle < 98% and average over on/off periods with duty factor
☐	Refer as FCC KDB 558074, clause 9.2.2.4 Method AVGSA-2 (spectral trace averaging).
☐	Refer as FCC KDB 558074, clause 9.2.2.5 Method AVGSA-2 Alt. (slow sweep speed)
	RF power meter and average over on/off periods with duty factor or gated trigger
☒	Refer as FCC KDB 558074, clause 9.2.3 Method AVGPM-G (using an 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: $P_{total} = P_1 + P_2 + … + P_n$ (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

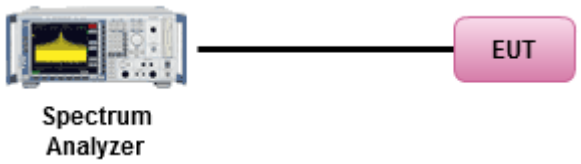
3.4.2 Measuring Instruments

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 10.2 Method PKPSD (RBW=3-100kHz; Detector=peak).	
	[duty cycle ≥ 98% or external video / power trigger]	
	☐ Refer as FCC KDB 558074, clause 10.3 Method AVGPSD-1 (spectral trace averaging).	
	☐ Refer as FCC KDB 558074, clause 10.4 Method AVGPSD-2 (slow sweep speed)	
	duty cycle < 98% and average over on/off periods with duty factor	
	☐ Refer as FCC KDB 558074, clause 10.5 Method AVGPSD-1 Alt (spectral trace averaging).	
	☐ Refer as FCC KDB 558074, clause 10.6 Method AVGPSD-2 Alt. (slow sweep speed)	
▪ 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 (dB)**
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

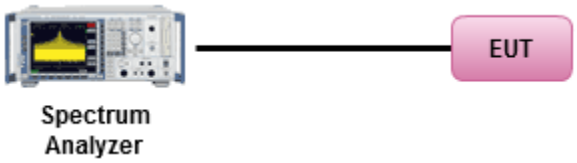
Refer a test equipment and calibration data table in this test report.

3.5.3 Test Procedures

Test Method
▪ Refer as FCC KDB 558074, clause 11 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 below30 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.

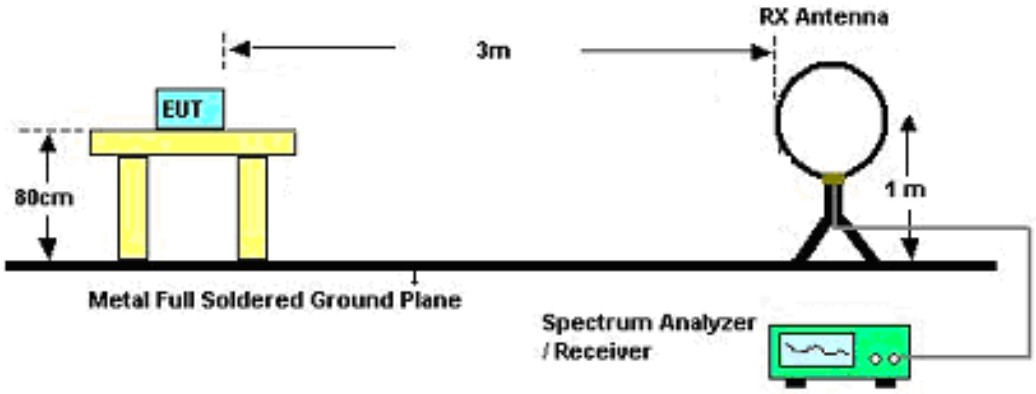
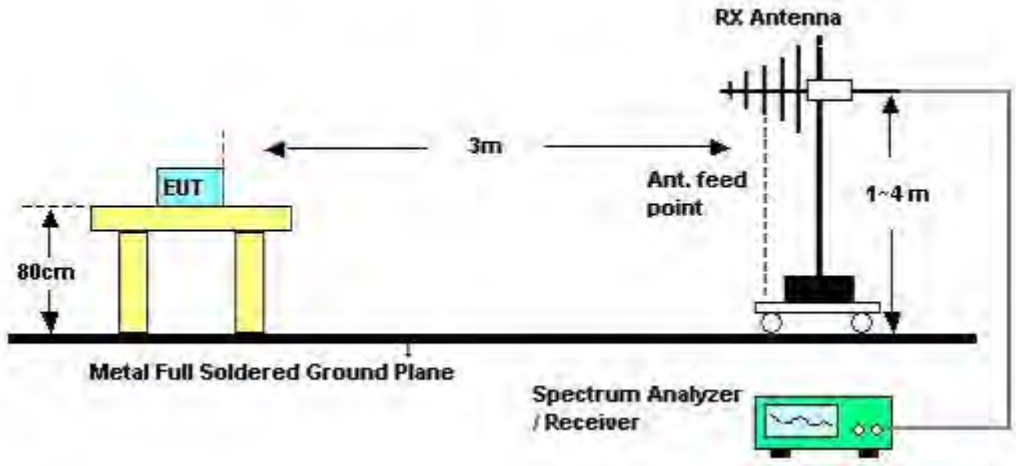
3.6.2 Measuring Instruments

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

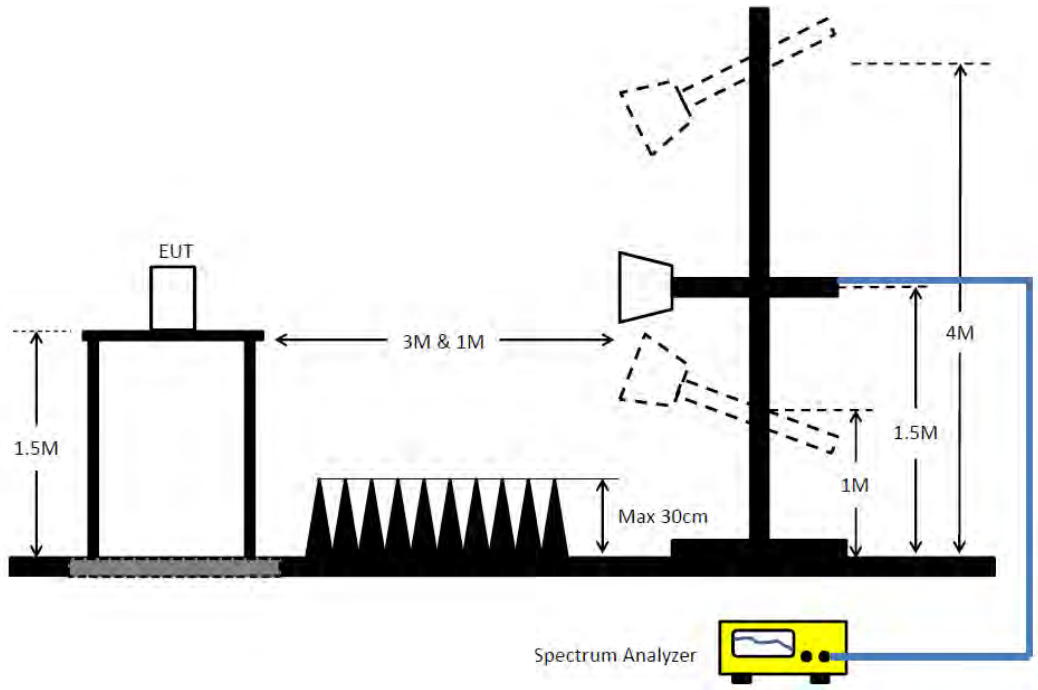
3.6.3 Test Procedures

Test Method		
▪ The average emission levels shall be measured in [duty cycle ≥ 98 or duty factor].		
▪ Refer as ANSI C63.10, clause 6.9.2.2 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 12 for unwanted emissions into restricted bands.	
		☐ Refer as FCC KDB 558074, clause 12.2.5.1 Option 1 (trace averaging for duty cycle ≥98%)
		☐ Refer as FCC KDB 558074, clause 12.2.5.2 Option 2 (trace averaging + duty factor).
		☒ Refer as FCC KDB 558074, clause 12.2.5.3 Option 3 (Reduced VBW≥1/T).
		☐ Refer as ANSI C63.10, clause 4.2.3.2.3 (Reduced VBW). VBW ≥ 1/T, where T is pulse time.
		☐ Refer as ANSI C63.10, clause 4.2.3.2.4 average value of pulsed emissions.
		☒ Refer as FCC KDB 558074, clause 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 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 13.2 (ANSI C63.10, clause 6.9.3) for marker-delta method for band-edge measurements.	
	▪ Refer as FCC KDB 558074, clause 13.3 for narrower resolution bandwidth (100kHz) using the band power and summing the spectral levels (i.e., 1 MHz).	
▪ For conducted and cabinet radiation measurement, refer as FCC KDB 558074, clause 12.2.2.		
	▪ 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

Transmitter Radiated Emissions
9kHz ~30MHz

30MHz~1GHz


Above 1GHz



3.6.5 Transmitter Radiated Unwanted Emissions (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.

3.6.6 Transmitter Radiated Unwanted Emissions

Refer as Appendix F

4 Test Equipment and Calibration Data

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.45GHz	Jan. 31, 2018	Jan. 30, 2019	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50 -16-2	04083	150kHz ~ 100MHz	Dec. 20, 2017	Dec. 19, 2018	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127650	9kHz ~ 30MHz	Nov. 24, 2017	Nov. 23, 2018	Conduction (CO01-CB)
COND Cable	Woken	Cable	01	150kHz ~ 30MHz	May 23, 2017	May 22, 2018	Conduction (CO01-CB)
Software	Audix	E3	6.120210n	-	N.C.R.	N.C.R.	Conduction (CO01-CB)
BILOG ANTENNA with 6dB Attenuator	TESEQ & EMCI	CBL6112D & N-6-06	37880 & AT-N0609	20MHz ~ 2GHz	Aug. 30, 2017	Aug. 29, 2018	Radiation (03CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz ~ 18GHz	Nov. 10, 2016	Nov. 09, 2017	Radiation (03CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz ~ 18GHz	Nov. 20, 2017	Nov. 19, 2018	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jul. 05, 2017	Jul. 04, 2018	Radiation (03CH01-CB)
Pre-Amplifier	EMCI	EMC330N	980332	20MHz ~ 3GHz	May 02, 2017	May 01, 2018	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Jan. 16, 2017	Jan. 15, 2018	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Jan. 09, 2018	Jan. 08, 2019	Radiation (03CH01-CB)
Pre-Amplifier	MITEQ	TTA1840-35-HG	1864479	18GHz ~ 40GHz	Jul. 10, 2017	Jul. 09, 2018	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	Nov. 22, 2016	Nov. 21, 2017	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	Nov. 23, 2017	Nov. 22, 2018	Radiation (03CH01-CB)
EMI Test	R&S	ESCS	100355	9kHz ~ 2.75GHz	May 06, 2017	May 05, 2018	Radiation (03CH01-CB)
RF Cable-low	Woken	Low Cable-16+17	N/A	30 MHz ~ 1 GHz	Oct. 11, 2017	Oct. 10, 2018	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16	N/A	1 GHz ~ 18 GHz	Oct. 11, 2017	Oct. 10, 2018	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16+17	N/A	1 GHz ~ 18 GHz	Oct. 11, 2017	Oct. 10, 2018	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G#1	N/A	18GHz ~ 40 GHz	Oct. 11, 2017	Oct. 10, 2018	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G#2	N/A	18GHz ~ 40 GHz	Oct. 11, 2017	Oct. 10, 2018	Radiation (03CH01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Mar. 16, 2016*	Mar. 15, 2018*	Radiation (03CH01-CB)
Test Software	Audix	E3	6.2009-l0-7	N/A	N/A	N/A	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	Dec. 26, 2016	Dec. 25, 2017	Conducted (TH01-CB)

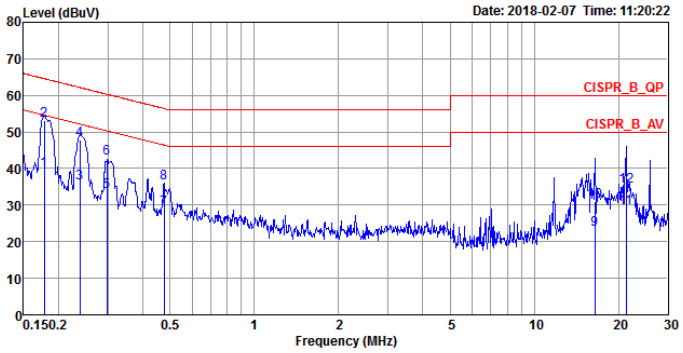
Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	Dec. 21, 2017	Dec. 20, 2018	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-06	1 GHz – 26.5 GHz	Oct. 11, 2017	Oct. 10, 2018	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-07	1 GHz –26.5 GHz	Oct. 11, 2017	Oct. 10, 2018	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-08	1 GHz –26.5 GHz	Oct. 11, 2017	Oct. 10, 2018	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-09	1 GHz –26.5 GHz	Oct. 11, 2017	Oct. 10, 2018	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz –26.5 GHz	Oct. 11, 2017	Oct. 10, 2018	Conducted (TH01-CB)
Power Sensor	Agilent	U2021XA	MY53410001	50MHz~18GHz	Nov. 20, 2017	Nov. 19, 2018	Conducted (TH01-CB)

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

"*" Calibration Interval of instruments listed above is two years.

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

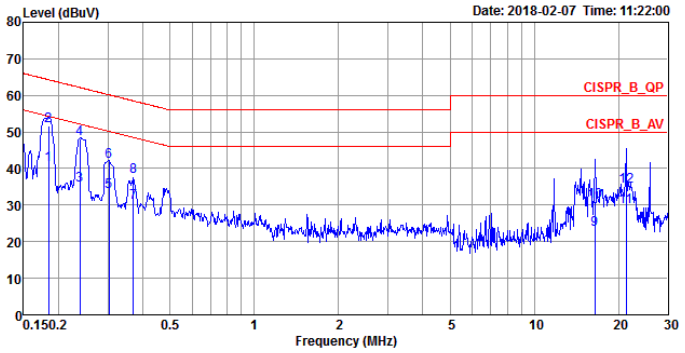
AC Power-line Conducted Emissions Result			
Operating Mode	1	**Power Phase**	Neutral
Operating Function	CTX		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark	Pol/Phase
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.1777	39.43	-15.16	54.59	29.28	10.01	0.14	Average	NEUTRAL
2	0.1777	53.05	-11.54	64.59	42.90	10.01	0.14	QP	NEUTRAL
3	0.2378	35.89	-16.28	52.17	25.71	10.08	0.10	Average	NEUTRAL
4	0.2378	47.84	-14.33	62.17	37.66	10.08	0.10	QP	NEUTRAL
5	0.2971	33.55	-16.77	50.32	23.34	10.15	0.06	Average	NEUTRAL
6	0.2971	42.73	-17.59	60.32	32.52	10.15	0.06	QP	NEUTRAL
7	0.4761	28.98	-17.43	46.41	18.71	10.23	0.04	Average	NEUTRAL
8	0.4761	36.07	-20.34	56.41	25.80	10.23	0.04	QP	NEUTRAL
9	16.4856	23.29	-26.71	50.00	12.81	10.29	0.19	Average	NEUTRAL
10	16.4856	31.12	-28.88	60.00	20.64	10.29	0.19	QP	NEUTRAL
11	21.2596	29.36	-20.64	50.00	18.78	10.37	0.21	Average	NEUTRAL
12	21.2596	35.08	-24.92	60.00	24.50	10.37	0.21	QP	NEUTRAL

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	1	**Power Phase**	Line
Operating Function	CTX		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark	Pol/Phase
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.1844	41.06	-13.22	54.28	31.01	9.91	0.14	Average	LINE
2	0.1844	51.72	-12.56	64.28	41.67	9.91	0.14	QP	LINE
3	0.2378	35.52	-16.65	52.17	25.50	9.92	0.10	Average	LINE
4	0.2378	48.06	-14.11	62.17	38.04	9.92	0.10	QP	LINE
5	0.3035	33.61	-16.54	50.15	23.62	9.93	0.06	Average	LINE
6	0.3035	41.99	-18.16	60.15	32.00	9.93	0.06	QP	LINE
7	0.3692	30.65	-17.87	48.52	20.69	9.94	0.02	Average	LINE
8	0.3692	37.70	-20.82	58.52	27.74	9.94	0.02	QP	LINE
9	16.4856	23.32	-26.68	50.00	12.86	10.27	0.19	Average	LINE
10	16.4856	30.97	-29.03	60.00	20.51	10.27	0.19	QP	LINE
11	21.2596	29.54	-20.46	50.00	18.97	10.36	0.21	Average	LINE
12	21.2596	35.10	-24.90	60.00	24.53	10.36	0.21	QP	LINE

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	-	-	-	-	-
BT-LE(1Mbps)	701.25k	1.028M	1M03F1D	693.75k	1.026M

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

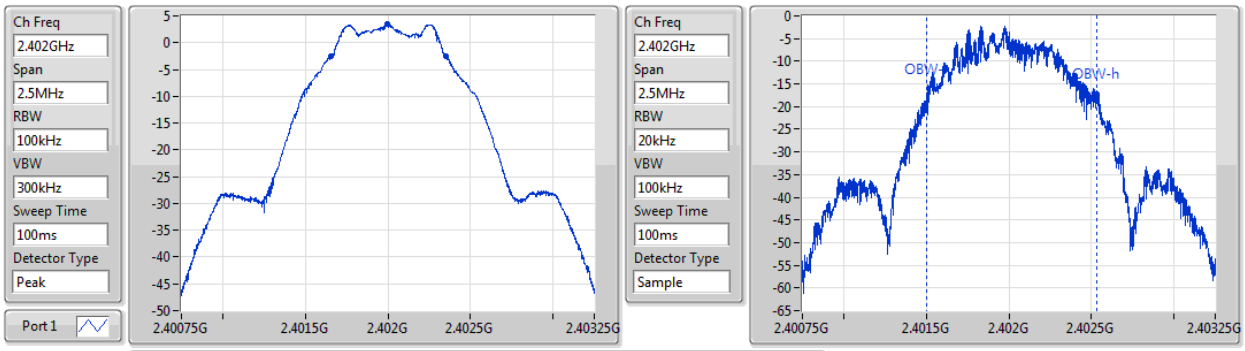
Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	693.75k	1.028M
2440MHz	Pass	500k	698.75k	1.028M
2480MHz	Pass	500k	701.25k	1.026M

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

BT-LE(1Mbps) **EBW**

2402MHz

27/12/2017

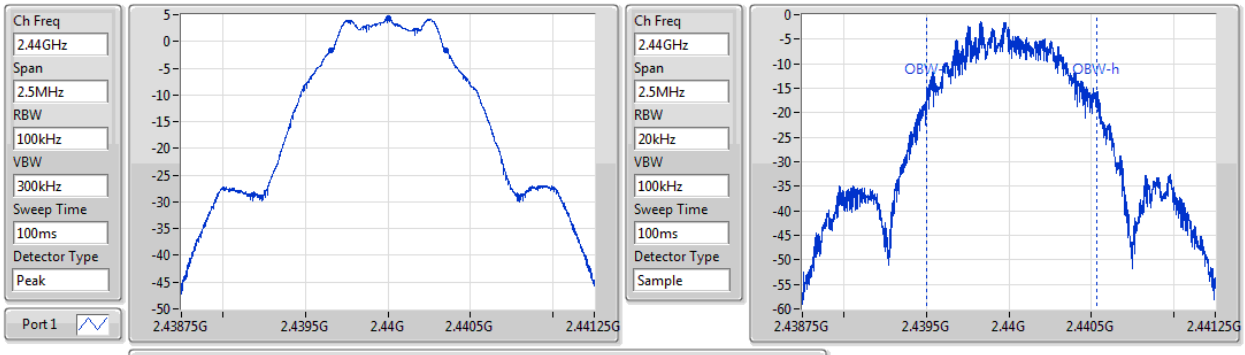


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
693.75k	2.401658G	2.402351G	1.028M	2.401504G	2.402532G	500k	1

BT-LE(1Mbps) **EBW**

2440MHz

27/12/2017

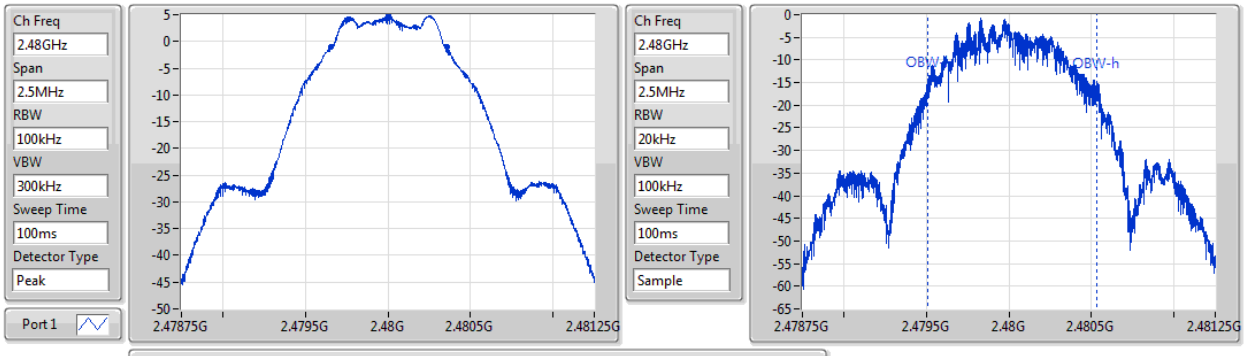


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
698.75k	2.439655G	2.440354G	1.028M	2.439503G	2.440531G	500k	1

BT-LE(1Mbps) **EBW**

2480MHz

27/12/2017



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
701.25k	2.479655G	2.480356G	1.026M	2.479506G	2.480532G	500k	1

Summary

Mode	Power	Power
	(dBm)	(W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	6.63	0.00460

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	3.90	5.24	30.00
2440MHz	Pass	3.90	5.99	30.00
2480MHz	Pass	3.90	6.63	30.00

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE(1Mbps)	-9.97

RBW=3kHz.

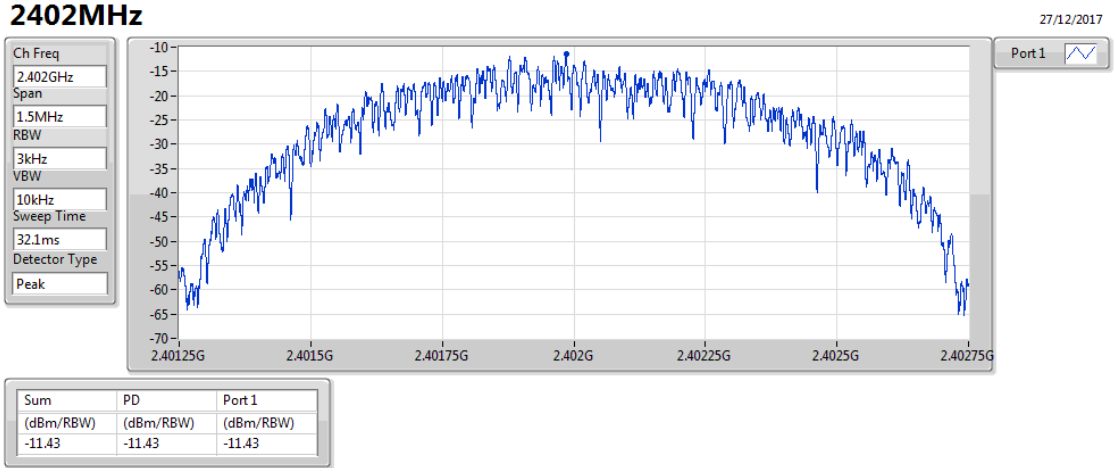
Result

Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	3.90	-11.43	8.00
2440MHz	Pass	3.90	-10.58	8.00
2480MHz	Pass	3.90	-9.97	8.00

RBW=3kHz.

BT-LE(1Mbps) **PSD**

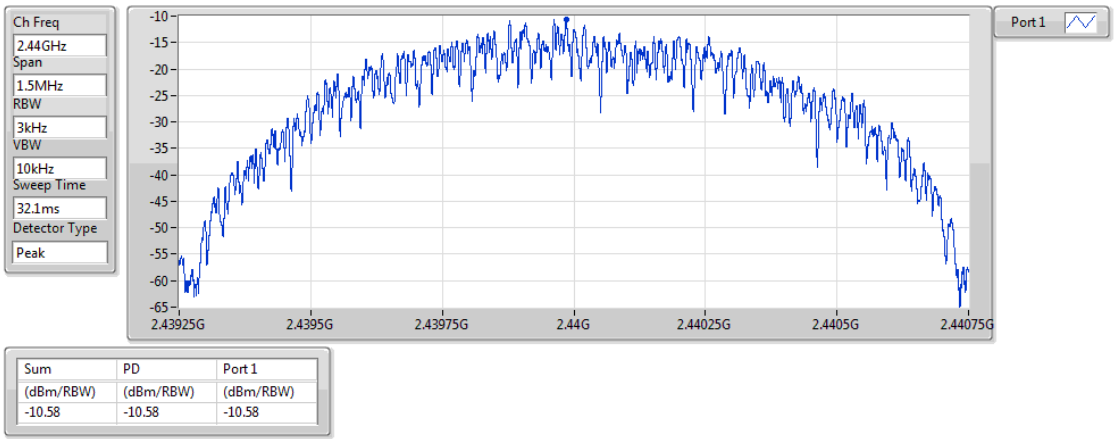
2402MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-11.43	-11.43	-11.43

BT-LE(1Mbps) **PSD**

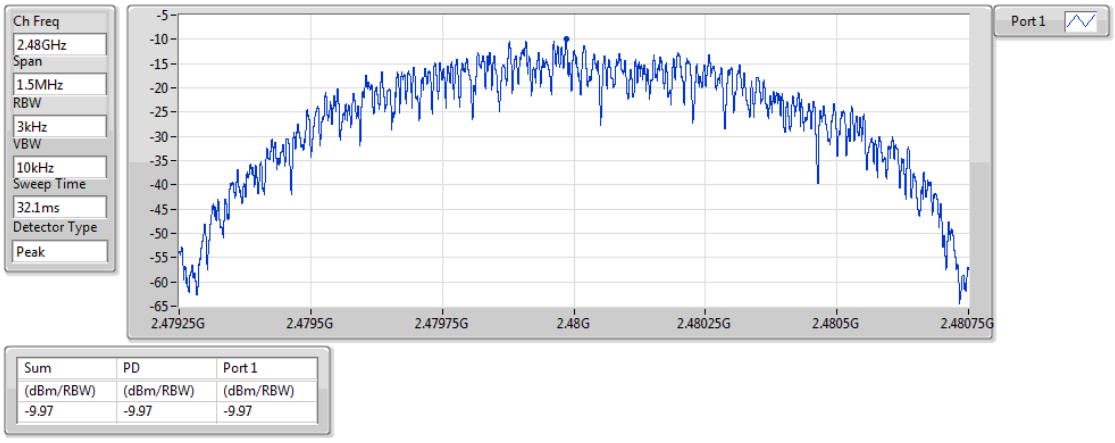
2440MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-10.58	-10.58	-10.58

BT-LE(1Mbps) **PSD**

2480MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-9.97	-9.97	-9.97

Summary

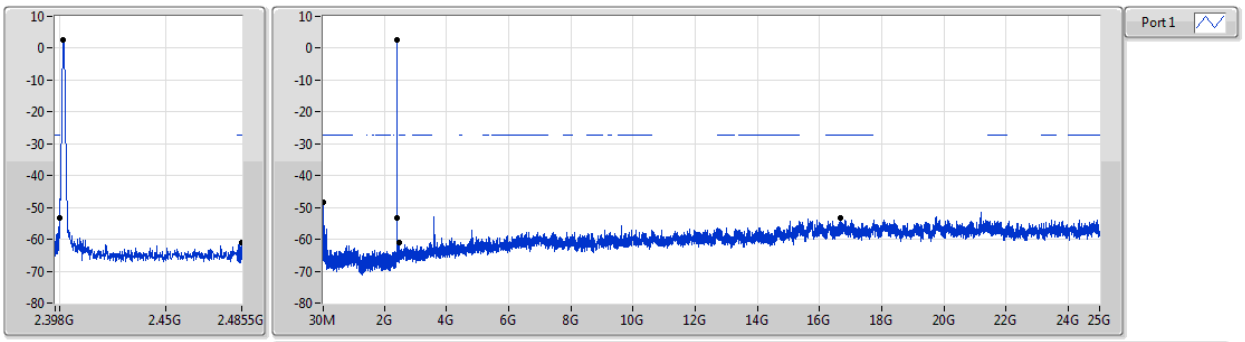
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	2.44008G	3.78	-26.22	31.184M	-45.04	2.399068G	-62.29	2.484628G	-61.05	21.802941G	-53.25	1

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
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.401837G	2.75	-27.25	31.184M	-48.43	2.399988G	-53.21	2.48538G	-61.08	16.666821G	-53.14	1
2440MHz	Pass	2.44008G	3.78	-26.22	31.184M	-45.04	2.399068G	-62.29	2.484628G	-61.05	21.802941G	-53.25	1
2480MHz	Pass	2.479826G	4.12	-25.88	31.184M	-46.40	2.399992G	-61.87	2.483504G	-57.10	16.77095G	-53.55	1

BT-LE(1Mbps) **CSE NdB**

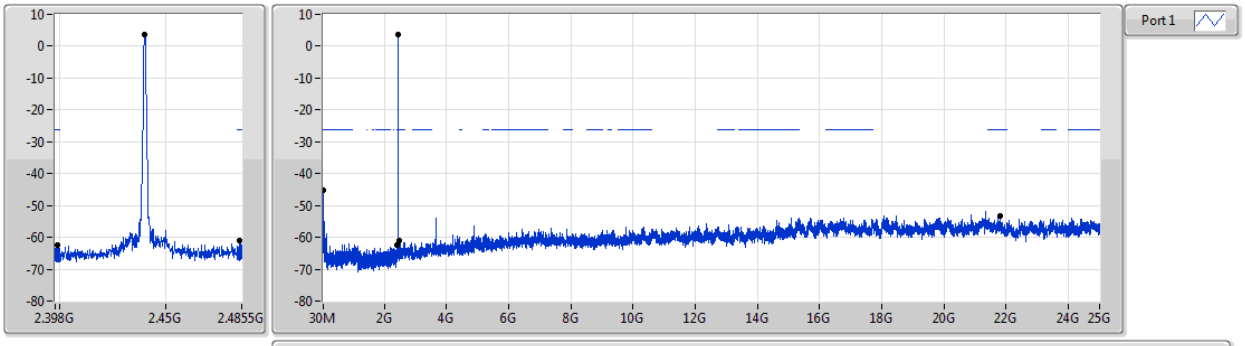
2402MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.401837G	2.75	-27.25	31.184M	-48.43	2.399988G	-53.21	2.48538G	-61.08	16.666821G	-53.14	1

BT-LE(1Mbps) **CSE NdB**

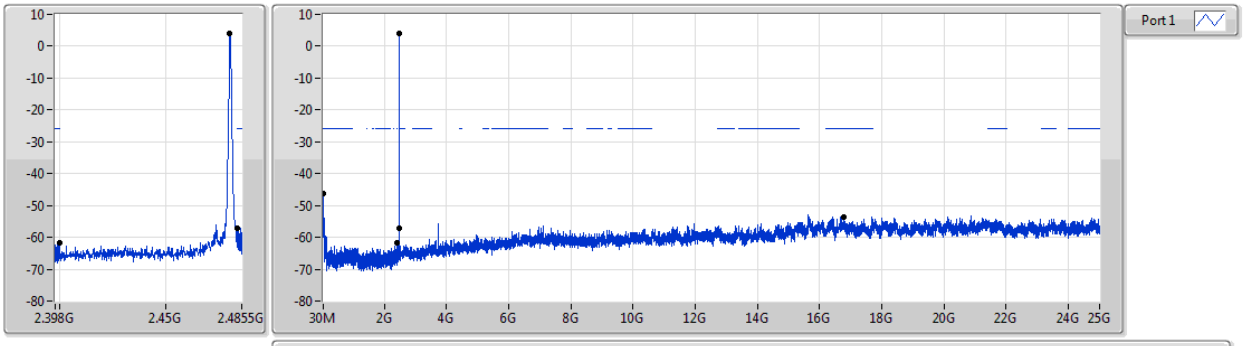
2440MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44008G	3.78	-26.22	31.184M	-45.04	2.399068G	-62.29	2.484628G	-61.05	21.802941G	-53.25	1

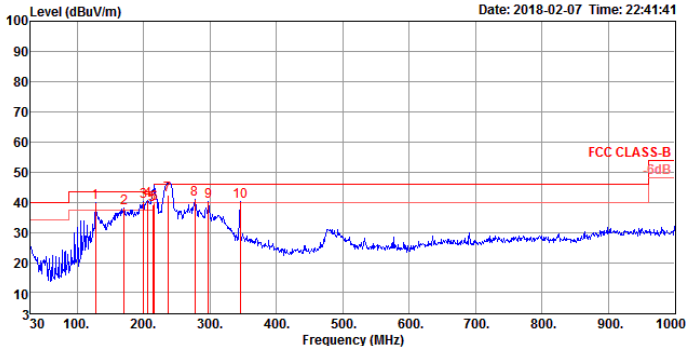
BT-LE(1Mbps) **CSE NdB**

2480MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.479826G	4.12	-25.88	31.184M	-46.40	2.399992G	-61.87	2.483504G	-57.10	16.77095G	-53.55	1

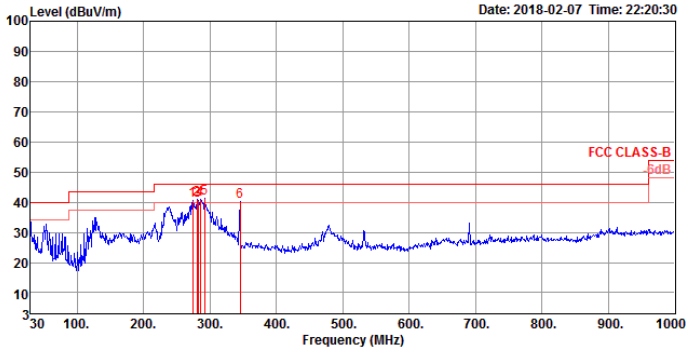
RSE below 1GHz Result			
Operating Mode	1	**Polarization**	Horizontal
Operating Function	CTX		



	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	127.97	39.81	43.50	-3.69	52.48	1.15	18.53	32.35	100	97	Peak	HORIZONTAL
2	170.65	38.24	43.50	-5.26	53.32	1.27	15.98	32.33	150	173	Peak	HORIZONTAL
3	199.75	40.05	43.50	-3.45	54.11	1.95	16.30	32.31	100	175	Peak	HORIZONTAL
4	206.54	40.47	43.50	-3.03	54.41	2.01	16.36	32.31	150	3	Peak	HORIZONTAL
5	214.30	39.28	43.50	-4.22	53.10	2.08	16.40	32.30	195	359	QP	HORIZONTAL
6	216.24	39.40	46.00	-6.60	53.20	2.10	16.40	32.30	156	13	QP	HORIZONTAL
7	236.61	42.48	46.00	-3.52	54.80	2.27	17.70	32.29	146	33	QP	HORIZONTAL
8	277.35	41.06	46.00	-4.94	51.52	2.52	19.30	32.28	150	248	Peak	HORIZONTAL
9	297.72	40.21	46.00	-5.79	50.22	2.62	19.64	32.27	100	137	Peak	HORIZONTAL
10	345.25	40.21	46.00	-5.79	50.04	1.48	20.97	32.28	100	360	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.)

RSE below 1GHz Result			
Operating Mode	1	**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	274.44	40.56	46.00	-5.44	51.03	2.51	19.30	32.28	200	358	Peak	VERTICAL
2	280.26	40.95	46.00	-5.05	51.40	2.53	19.30	32.28	150	148	Peak	VERTICAL
3	282.20	40.47	46.00	-5.53	50.87	2.54	19.34	32.28	150	359	Peak	VERTICAL
4	285.11	40.98	46.00	-5.02	51.29	2.56	19.40	32.27	200	4	Peak	VERTICAL
5	291.90	41.38	46.00	-4.62	51.52	2.59	19.54	32.27	200	0	Peak	VERTICAL
6	345.25	40.09	46.00	-5.91	49.92	1.48	20.97	32.28	150	359	Peak	VERTICAL

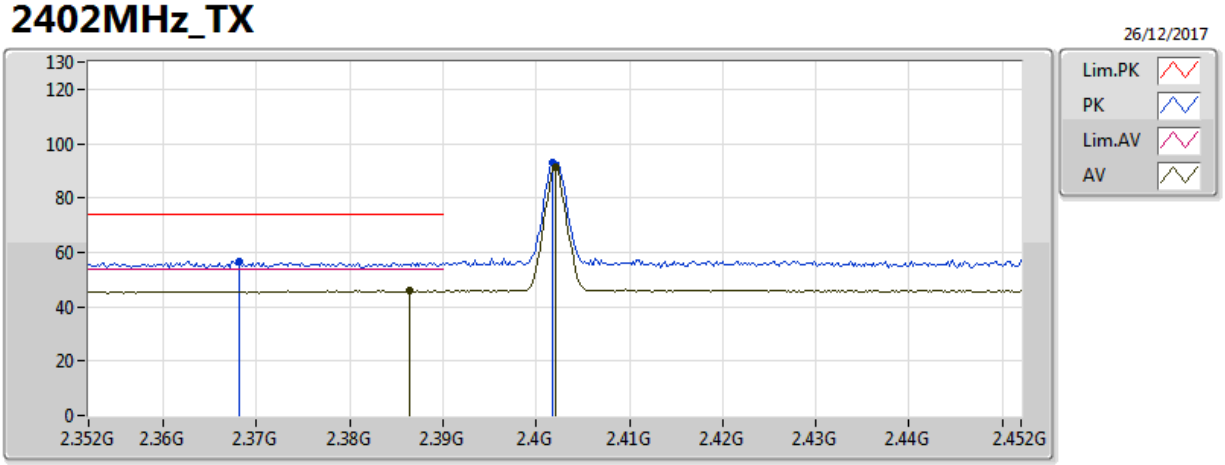
Note 1: “>20dB” means emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found emissions (No emissions were detected.)

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	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	AV	2.483502G	46.75	54.00	-7.25	33.19	3	Horizontal	172	2.83	-

BT-LE,Y_Nss1_1TX

2402MHz_TX

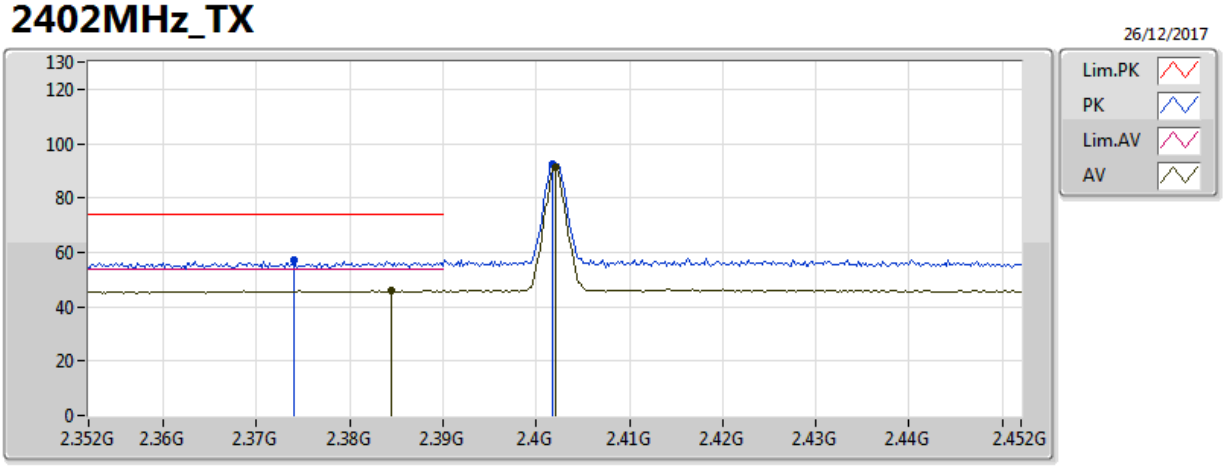


20171225
EUT Y_1TX
Setting Default
04-J-5
FSP(100142)

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	2.3864G	45.86	54.00	-8.14	33.16	3	Vertical	356	1.23	-
AV	2.402G	91.29	Inf	-Inf	33.17	3	Vertical	356	1.23	-
PK	2.3682G	56.71	74.00	-17.29	33.15	3	Vertical	356	1.23	-
PK	2.4018G	92.88	Inf	-Inf	33.17	3	Vertical	356	1.23	-

BT-LE,Y_Nss1_1TX

2402MHz_TX

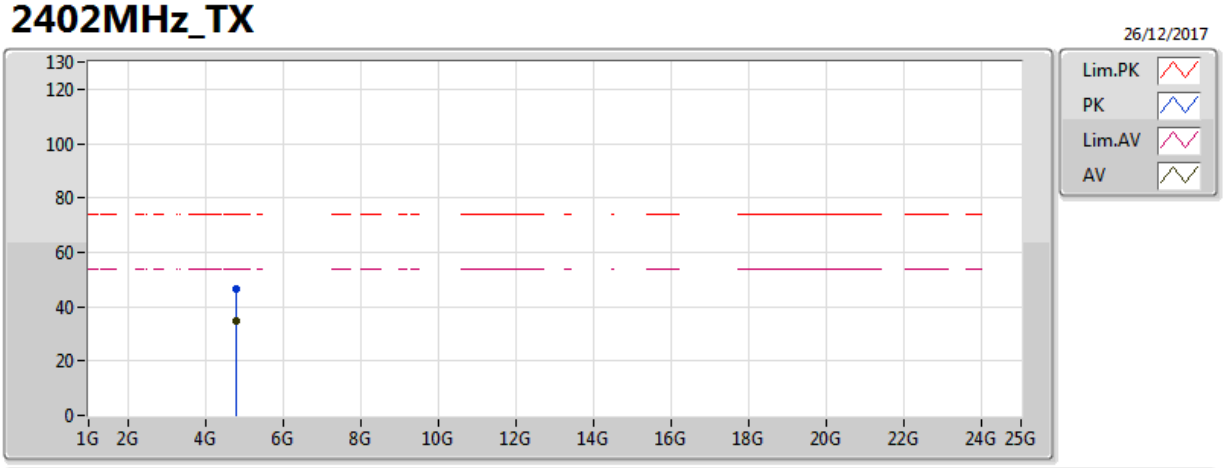


20171225
EUT Y_1TX
Setting Default
04-J-5
FSP(100142)

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	2.3844G	45.99	54.00	-8.01	33.16	3	Horizontal	357	1.03	-
AV	2.402G	91.19	Inf	-Inf	33.17	3	Horizontal	357	1.03	-
PK	2.374G	57.19	74.00	-16.81	33.15	3	Horizontal	357	1.03	-
PK	2.4018G	92.73	Inf	-Inf	33.17	3	Horizontal	357	1.03	-

BT-LE,Y_Nss1_1TX

2402MHz_TX

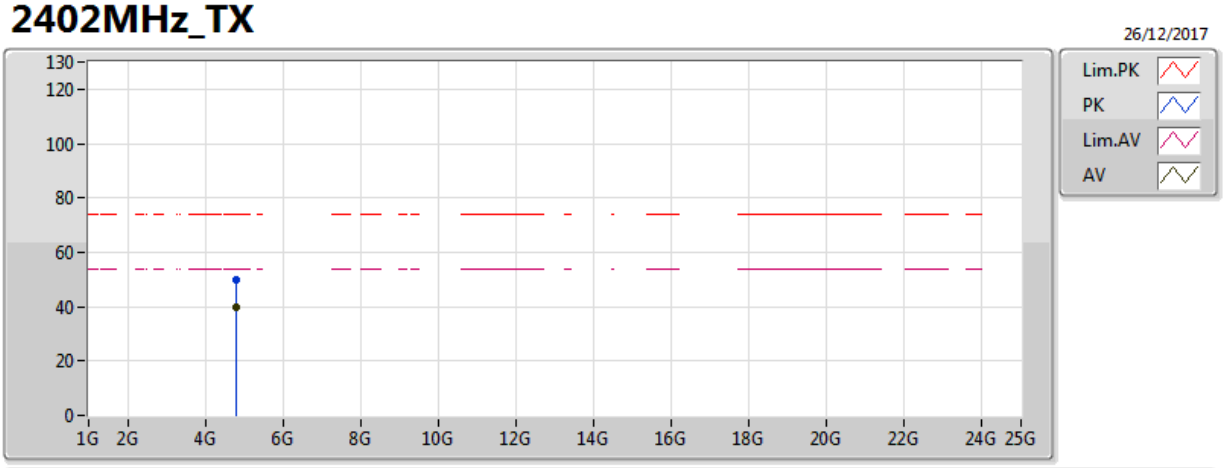


20171225
EUT Y_1TX
Setting Default
04-J-5
FSP(100142)

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	4.80396G	34.83	54.00	-19.17	3.12	3	Vertical	183	1.03	-
PK	4.80368G	46.36	74.00	-27.64	3.12	3	Vertical	183	1.03	-

BT-LE,Y_Nss1_1TX

2402MHz_TX

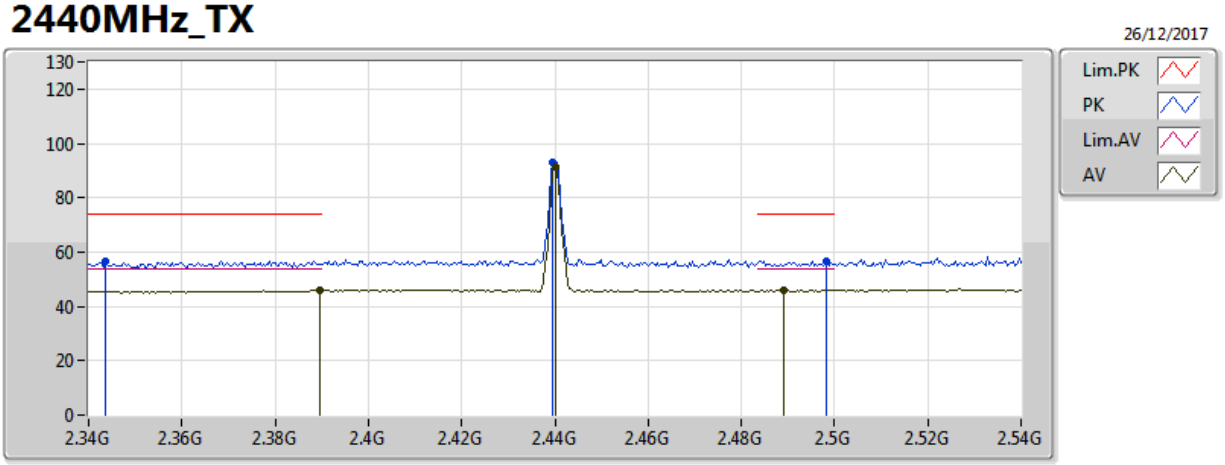


20171225
EUT Y_1TX
Setting Default
04-J-5
FSP(100142)

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	4.80404G	39.69	54.00	-14.31	3.12	3	Horizontal	351	2.89	-
PK	4.8045G	49.64	74.00	-24.36	3.12	3	Horizontal	351	2.89	-

BT-LE(1Mbps)

2440MHz_TX

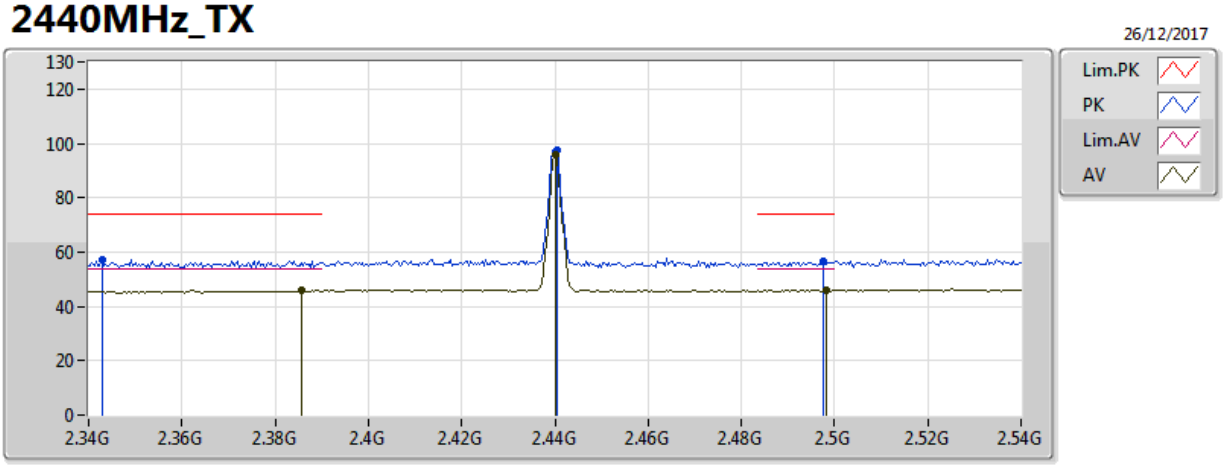


20171225
EUT Y_1TX
Setting Default
04-J-5
FSP(100142)

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	2.3896G	45.92	54.00	-8.08	33.16	3	Vertical	37	1.58	-
AV	2.44G	91.22	Inf	-Inf	33.18	3	Vertical	37	1.58	-
AV	2.4892G	45.90	54.00	-8.10	33.19	3	Vertical	37	1.58	-
PK	2.3436G	56.48	74.00	-17.52	33.14	3	Vertical	37	1.58	-
PK	2.4396G	92.85	Inf	-Inf	33.18	3	Vertical	37	1.58	-
PK	2.4984G	56.80	74.00	-17.20	33.19	3	Vertical	37	1.58	-

BT-LE(1Mbps)

2440MHz_TX

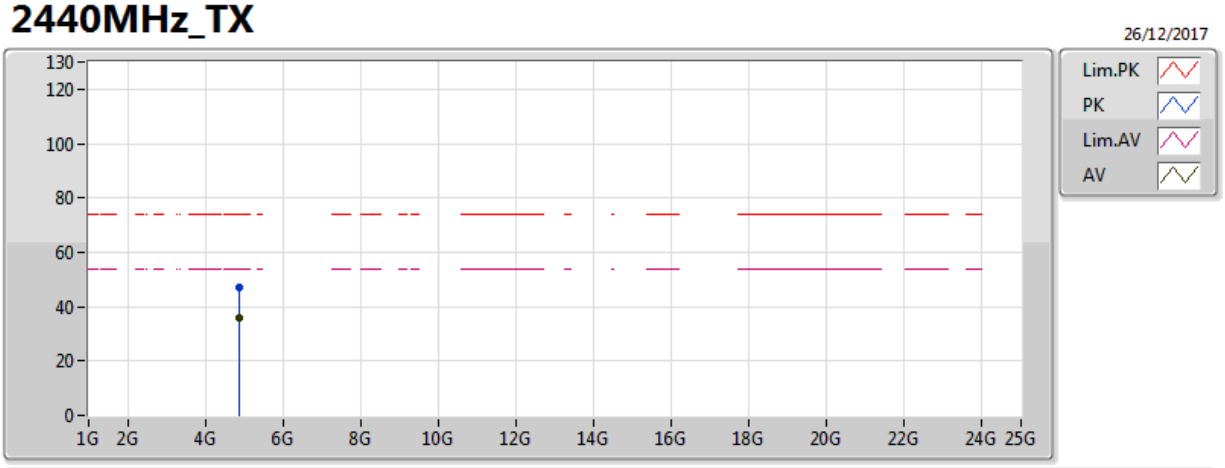


20171225
EUT Y_1TX
Setting Default
04-J-5
FSP(100142)

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	2.3856G	46.13	54.00	-7.87	33.16	3	Horizontal	173	2.90	-
AV	2.44G	95.75	Inf	-Inf	33.18	3	Horizontal	173	2.90	-
AV	2.4984G	45.94	54.00	-8.06	33.19	3	Horizontal	173	2.90	-
PK	2.3428G	57.07	74.00	-16.93	33.14	3	Horizontal	173	2.90	-
PK	2.4404G	97.45	Inf	-Inf	33.18	3	Horizontal	173	2.90	-
PK	2.4976G	56.52	74.00	-17.48	33.19	3	Horizontal	173	2.90	-

BT-LE(1Mbps)

2440MHz_TX

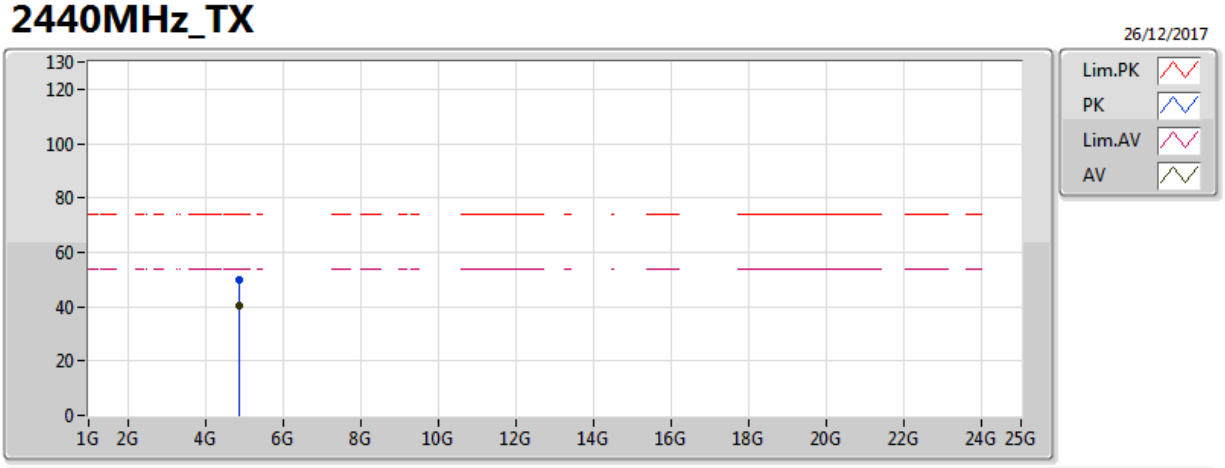


20171225
EUT Y_1TX
Setting Default
04-J-5
FSP(100142)

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	4.88002G	35.70	54.00	-18.30	3.29	3	Vertical	165	2.96	-
PK	4.87993G	46.93	74.00	-27.07	3.29	3	Vertical	165	2.96	-

BT-LE(1Mbps)

2440MHz_TX

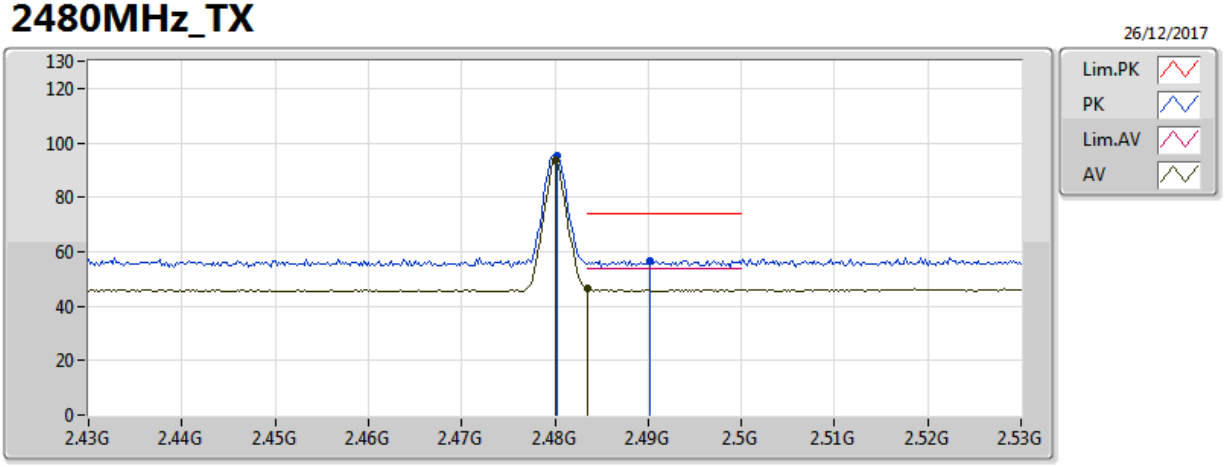


20171225
EUT Y_1TX
Setting Default
04-J-5
FSP(100142)

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	4.88007G	40.10	54.00	-13.90	3.29	3	Horizontal	356	2.45	-
PK	4.88014G	49.81	74.00	-24.19	3.29	3	Horizontal	356	2.45	-

BT-LE(1Mbps)

2480MHz_TX

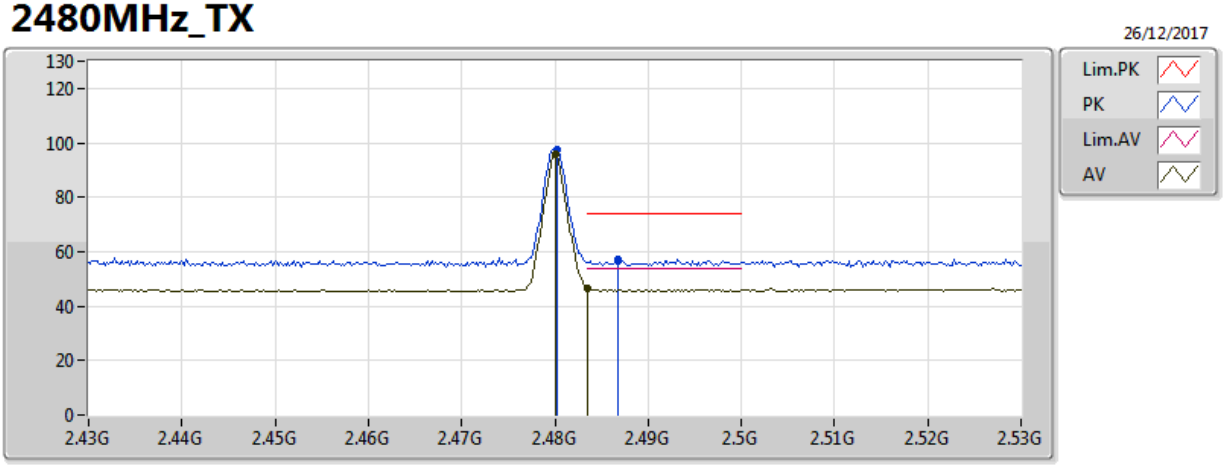


20171225
EUT Y_1TX
Setting Default
04-J-5
FSP(100142)

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	2.48G	93.63	Inf	-Inf	33.19	3	Vertical	38	2.58	-
AV	2.483502G	46.23	54.00	-7.77	33.19	3	Vertical	38	2.58	-
PK	2.4802G	95.16	Inf	-Inf	33.19	3	Vertical	38	2.58	-
PK	2.4902G	56.87	74.00	-17.13	33.19	3	Vertical	38	2.58	-

BT-LE(1Mbps)

2480MHz_TX

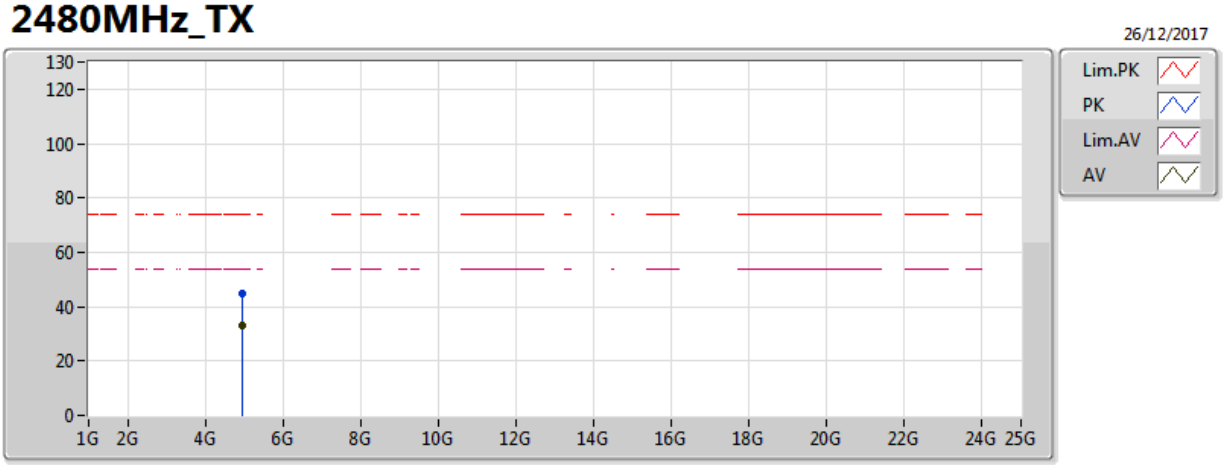


20171225
EUT Y_1TX
Setting Default
04-J-5
FSP(100142)

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	2.48G	95.75	Inf	-Inf	33.19	3	Horizontal	172	2.83	-
AV	2.483502G	46.75	54.00	-7.25	33.19	3	Horizontal	172	2.83	-
PK	2.4802G	97.29	Inf	-Inf	33.19	3	Horizontal	172	2.83	-
PK	2.4868G	57.28	74.00	-16.72	33.19	3	Horizontal	172	2.83	-

BT-LE(1Mbps)

2480MHz_TX

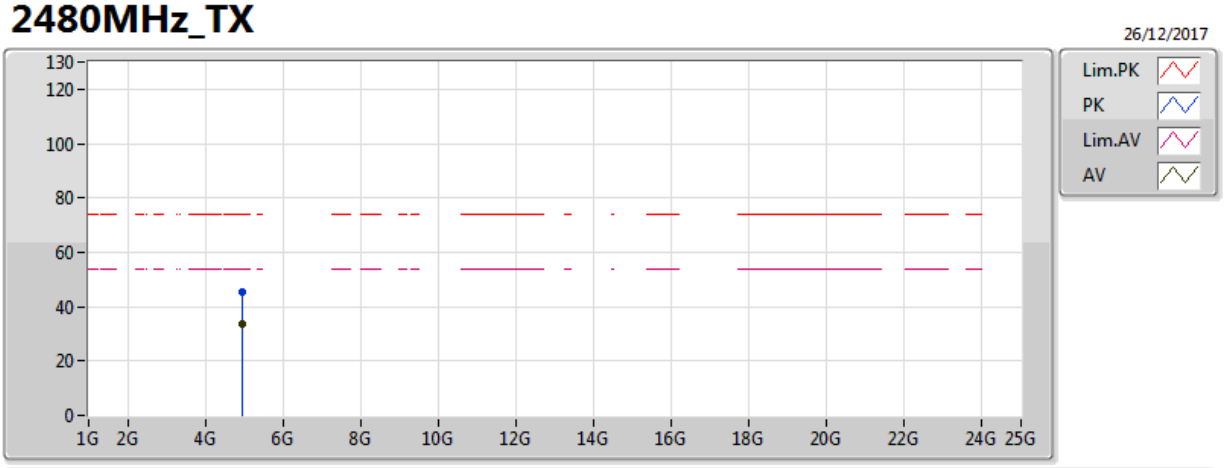


20171225
EUT Y_1TX
Setting Default
04-J-5
FSP(100142)

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	4.96056G	33.15	54.00	-20.85	3.46	3	Vertical	159	1.48	-
PK	4.95824G	44.78	74.00	-29.22	3.46	3	Vertical	159	1.48	-

BT-LE(1Mbps)

2480MHz_TX



20171225
EUT Y_1TX
Setting Default
04-J-5
FSP(100142)

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	4.96013G	33.51	54.00	-20.49	3.46	3	Horizontal	354	2.47	-
PK	4.95925G	45.65	74.00	-28.35	3.46	3	Horizontal	354	2.47	-