FCC Test Report

Equipment	:	Wireless 802.11 a/b/g/n/ac Access Point
Brand Name	:	CISCO
Model No.	:	MR42E-HW
FCC ID	:	UDX-60063010
Standard	:	47 CFR FCC Part 15.247
Frequency	:	2400 MHz – 2483.5 MHz
Function	:	☒Point-to-multipoint; ☐Point-to-point
Applicant	:	Cisco Systems, Inc. 170 West Tasman Drive, San Jose, CA 95134 USA
Manufacturer	:	Cisco Systems, Inc. 170 West Tasman Drive, San Jose, CA 95134 USA

The product sample received on Sep. 01, 2017 and completely tested on Sep. 01, 2017. 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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APPENDIX A. TEST PHOTOS

PHOTOGRAPHS OF EUT V01

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
FR760613AB	Rev. 01	Initial issue of report	Oct. 02, 2017
FR760613AB	Rev. 02	Modifying the brand name and model name of Antenna for the test report.	Oct. 25, 2017

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	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	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	Cisco	MA-ANT-3-A	Dipole Antenna	I-PEX	Note
2	Cisco	MA-ANT-3-B	Dipole Antenna	I-PEX	
3	Cisco	MA-ANT-3-F	Patch Antenna	I-PEX	
4	Cisco	MA-ANT-3-E	Patch Antenna	I-PEX	
5	Cisco	MA-ANT-3-C	Omni Antenna	I-PEX	
6	Cisco	MA-ANT-3-D	Omni Antenna	I-PEX	

Note:

Radio 1 (2.4GHz)									
Set	Antenn Gain (dBi)			Cable Loss (dB)			True Gain (dBi)		
	Port 1	Port 2	Port 3	Port 1 (Red)	Port 2 (Gray)	Port 3 (White)	Port 1	Port 2	Port 3
1	4.9	4.9	4.9	0.8	0.8	1.2	4.1	4.1	3.7
2	4.1	4.1	4.1	0.8	0.8	1.2	3.3	3.3	2.9
3	11.55	11.55	11.55	0.8	0.8	1.2	10.75	10.75	10.35
4	6.7	6.7	6.7	0.8	0.8	1.2	5.9	5.9	5.5
5	5.1	5.1	5.1	0.8	0.8	1.2	4.3	4.3	3.9
6	3.16	3.16	3.16	0.8	0.8	1.2	2.36	2.36	1.96

Radio 2 (5GHz)									
Set	Antenn Gain (dBi)			Cable Loss (dB)			True Gain (dBi)		
	Port 1	Port 2	Port 3	Port 1 (Red)	Port 2 (Gray)	Port 3 (White)	Port 1	Port 2	Port 3
1	6.1	6.1	6.1	1.2	1.2	1.7	4.9	4.9	4.4
2	6.9	6.9	6.9	1.2	1.2	1.7	5.7	5.7	5.2
3	10.94	10.94	10.94	1.2	1.2	1.7	9.74	9.74	9.24
4	6.93	6.93	6.93	1.2	1.2	1.7	5.73	5.73	5.23
5	5.4	5.4	5.4	1.2	1.2	1.7	4.2	4.2	3.7
6	3.95	3.95	3.95	1.2	1.2	1.7	2.75	2.75	2.25

Radio 3 (2.4GHz + 5GHz)						
Set	Antenn Gain (dBi)		Cable Loss (dB)		True Gain (dBi)	
	Port 1		Port 1 (Green)		Port 1	
	2.4GHz	5GHz	2.4GHz	5GHz	2.4GHz	5GHz
1	4.9	6.1	1.2	1.7	3.7	4.4
2	4.1	6.9	1.2	1.7	2.9	5.2
3	11.55	10.94	1.2	1.7	10.35	9.24
4	6.7	6.93	1.2	1.7	5.5	5.23
5	5.1	5.4	1.2	1.7	3.9	3.7
6	3.16	3.95	1.2	1.7	1.96	2.25

Radio 4 (Bluetooth)			
Set	Antenn Gain (dBi)	Cable Loss (dB)	True Gain (dBi)
	Port 1	Port 1 (Blue)	Port 1
1	4.9	0.6	4.3
2	4.1	0.6	3.5
3	11.55	0.6	10.95
4	6.7	0.6	6.1
5	5.1	0.6	4.5
6	3.16	0.6	2.56

3TX Correlated Composite Gain(dBi) for Radio 1 and Radio 2						
Set	Antenn Gain (dBi)		Cable Loss (dB)		True Gain (dBi)	
	2.4GHz	5GHz	2.4GHz	5GHz	2.4GHz	5GHz
1	7.10	-	1.2	-	5.9	-
3	16.43	15.18	1.2	1.2	15.2	14.0
4	10.98	11.52	1.2	1.2	9.8	10.3
5	6.60	7.00	1.2	1.2	5.4	5.8
6	6.40	7.01	1.2	1.2	5.2	5.8
Set	3TX Directional gain (dBi) for Radio 2					
2	10.31					

2TX Correlated Composite Gain(dBi) for Radio 1 and Radio 2						
Set	Antenn Gain (dBi)		Cable Loss (dB)		True Gain (dBi)	
	2.4GHz	5GHz	2.4GHz	5GHz	2.4GHz	5GHz
1	5.70	-	1.2	-	4.5	-
3	14.42	12.17	1.2	1.2	13.2	11.0
4	9.93	10.18	1.2	1.2	8.7	9.0
5	4.80	5.60	1.2	1.2	3.6	4.4
6	5.29	4.85	1.2	1.2	4.1	3.7
Set	2TX Directional gain (dBi) for Radio 2					
2	8.46					

Note: The EUT has six set antennas and there are five antennas for each set.

The EUT has four radios, Radio 1 supports WLAN 2.4GHz, Radio 2 supports WLAN 5GHz, Radio 3 supports WLAN 2.4GHz + 5GHz (scanning radio) and Radio 4 supports Bluetooth function.

Set 1 and Set 2 antennas are the same type antennas, only the higher gain antennas Set 1 for 2.4GHz, Set 2 for 5GHz were tested.

<For Radio 1 (2.4GHz Functions) >

For 1TX/3RX:

Only Port 1 can be use as transmitting antenna

Port 1, Port 2 and Port 3 can be used as receiving antennas.

Port 1, Port 2 and Port 3 could receive simultaneously.

For 2TX/3RX:

Only Port 1 and Port 2 can be use as transmitting antenna

Port 1, Port 2 and Port 3 can be used as receiving antennas.

Port 1, Port 2 and Port 3 could receive simultaneously.

For 3TX/3RX:

Port 1, Port 2 and Port 3 can be use as transmitting antenna

Port 1, Port 2 and Port 3 can be used as receiving antennas.

Port 1, Port 2 and Port 3 could transmit/receive simultaneously.

< Radio 2 (5GHz Functions) >

For 1TX/3RX:

Only Port 1 can be use as transmitting antenna

Port 1, Port 2 and Port 3 can be used as receiving antennas.

Port 1, Port 2 and Port 3 could receive simultaneously.

For 2TX/3RX:

Only Port 2 and Port 3 can be use as transmitting antenna

Port 1, Port 2 and Port 3 can be used as receiving antennas.

Port 1, Port 2 and Port 3 could receive simultaneously.

For 3TX/3RX:

Port 1, Port 2 and Port 3 can be use as transmitting antenna

Port 1, Port 2 and Port 3 can be used as receiving antennas.

Port 1, Port 2 and Port 3 could transmit/receive simultaneously.

<For Radio 3 / 2.4GHz + 5GHz Functions>

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

<For Radio 4 / Bluetooth Functions>

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

1.1.3 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
BT-LE(1Mbps)	0.679	1.681	424.375u	3k

1.1.4 EUT Operational Condition

EUT Power Type	From Power Adapter or PoE

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	Eddie Weng, Peter Wu, Gary Chu	25°C / 56%	Jul. 04, 2017 ~ Aug. 21, 2017
Radiated	03CH01-CB	Joy Tseng	22°C / 54%	Jun. 20, 2017 ~ Sep. 01, 2017
AC Conduction	CO01-CB	Deven Huang	23°C / 60%	Jul. 13, 2017

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

For Set 1 antennas / 1TX:

Mode	Power Setting
BT-LE(1Mbps)	-
2402MHz	5
2440MHz	5
2480MHz	4

For Set 3 antennas / 1TX:

Mode	Power Setting
BT-LE(1Mbps)	-
2402MHz	5
2440MHz	5
2480MHz	-3

For Set 4 antennas / 1TX:

Mode	Power Setting
BT-LE(1Mbps)	-
2402MHz	5
2440MHz	5
2480MHz	0

For Set 5 antennas / 1TX:

Mode	Power Setting
BT-LE(1Mbps)	-
2402MHz	5
2440MHz	5
2480MHz	3

For Set 6 antennas / 1TX:

Mode	Power Setting
BT-LE(1Mbps)	-
2402MHz	5
2440MHz	5
2480MHz	4

2.2 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests					
Test Item	**Antenna**	**Test Condition**	**Mode**	**Data Rate**	**TX No.**
AC power-line conducted emissions	Set 3	AC power-line conducted measurement for line and neutral	CTX	-	1TX
DTS Bandwidth	Set 1 Set 3 Set 4 Set 5 Set 6	Conducted measurement at transmit chains	GFSK	1 Mbps	1TX
Maximum Conducted Output Power	Set 1 Set 3 Set 4 Set 5 Set 6	Conducted measurement at transmit chains	GFSK	1 Mbps	1TX
Power Spectral Density	Set 1 Set 3 Set 4 Set 5 Set 6	Conducted measurement at transmit chains	GFSK	1 Mbps	1TX
Emissions in Non-restricted Frequency Bands	Set 1 Set 3 Set 4 Set 5 Set 6	Conducted measurement at transmit chains	GFSK	1 Mbps	1TX
Emissions in Restricted Frequency Bands < 1GHz	Set 3	Radiated measurement	CTX	-	1TX
Emissions in Restricted Frequency Bands > 1GHz	Set 1 Set 3 Set 4 Set 5 Set 6	Radiated measurement	GFSK	1 Mbps	1TX

The following test modes were performed for all tests:

For Conducted Emission test:

Mode 1. EUT with Set 3 antenna + Radio 1 (2.4GHz)

Mode 2. EUT with Set 3 antenna + Radio 2 (5GHz)

Mode 3. EUT with Set 3 antenna + Radio 3 (2.4GHz)

Mode 4. EUT with Set 3 antenna + Radio 3 (5GHz)

Mode 5. EUT with Set 3 antenna + Radio 4 (Bluetooth)

Mode 4 is the worst case, so it was selected to record in this test report.

For Radiated Emission test below 1GHz:

The EUT was performed at X axis and Z axis position for Radiated emission above 1GHz test, and the worst

case was found for 2.4GHz at X axis and for 5GHz and Bluetooth at Z axis. So the measurement will follow this same test configuration.

Mode 1. EUT in X axis with Set 3 antenna + Radio 1 (2.4GHz)

Mode 2. EUT in Z axis with Set 3 antenna + Radio 2 (5GHz)

Mode 3. EUT in X axis with Set 3 antenna + Radio 3 (2.4GHz)

Mode 4. EUT in Z axis with Set 3 antenna + Radio 3 (5GHz)

Mode 5. EUT in Z axis with Set 3 antenna + Radio 4 (Bluetooth)

Mode 4 is the worst case, so it was selected to record in this test report.

For Radiated Emission test above 1GHz:

The EUT was performed at X axis and Z axis position for Radiated emission above 1GHz test, and the worst case was found at Z axis. So the measurement will follow this same test configuration.

Mode 1. EUT in Z axis with Set 1 antenna + Radio 4 (Bluetooth)

Mode 2. EUT in Z axis with Set 3 antenna + Radio 4 (Bluetooth)

Mode 3. EUT in Z axis with Set 4 antenna + Radio 4 (Bluetooth)

Mode 4. EUT in Z axis with Set 5 antenna + Radio 4 (Bluetooth)

Mode 5. EUT in Z axis with Set 6 antenna + Radio 4 (Bluetooth)

For Co-location MPE Test:

The EUT could be applied with 2.4GHz WLAN function, 5GHz WLAN function and Bluetooth function; therefore Co-location Maximum Permissible Exposure (Please refer to FA760613).

Mode 1. Radio 1 (2.4GHz) + Radio 2 (5GHz) + Radio 3 (2.4GHz) + Radio 4 (BT4.0)

Mode 2. Radio 1 (2.4GHz) + Radio 2 (5GHz) + Radio 3 (5GHz) + Radio 4 (BT4.0)

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**	**PSU Vendor P/N**	**Meraki Model**	**Rating**
1	Adapter	CISCO	KSAS0361200250HU	MA-PWR-30W-US	Input: 100-240V ~ 50/60Hz, 1.0A Output: 12V, 2.5A
Other					
Wall-mounted rack*1					

2.5 Support Equipment

For Test Site No: CO01-CB

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
1	Notebook	DELL	E6430	DoC

For Test Site No: 03CH01-CB

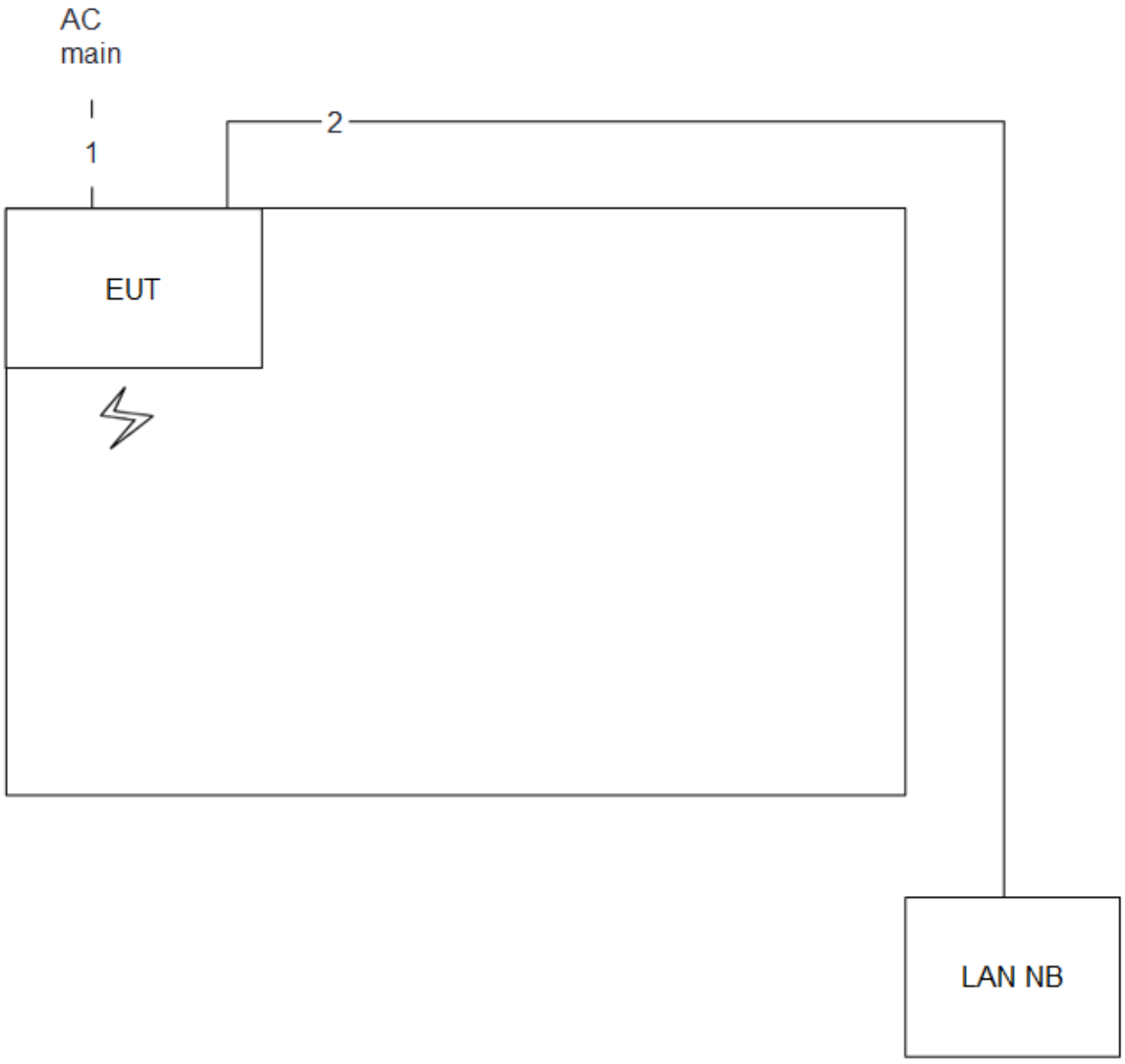
Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
1	Notebook	DELL	E4300	DoC

For Test Site No: TH01-CB

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
1	Notebook	DELL	E4300	DoC

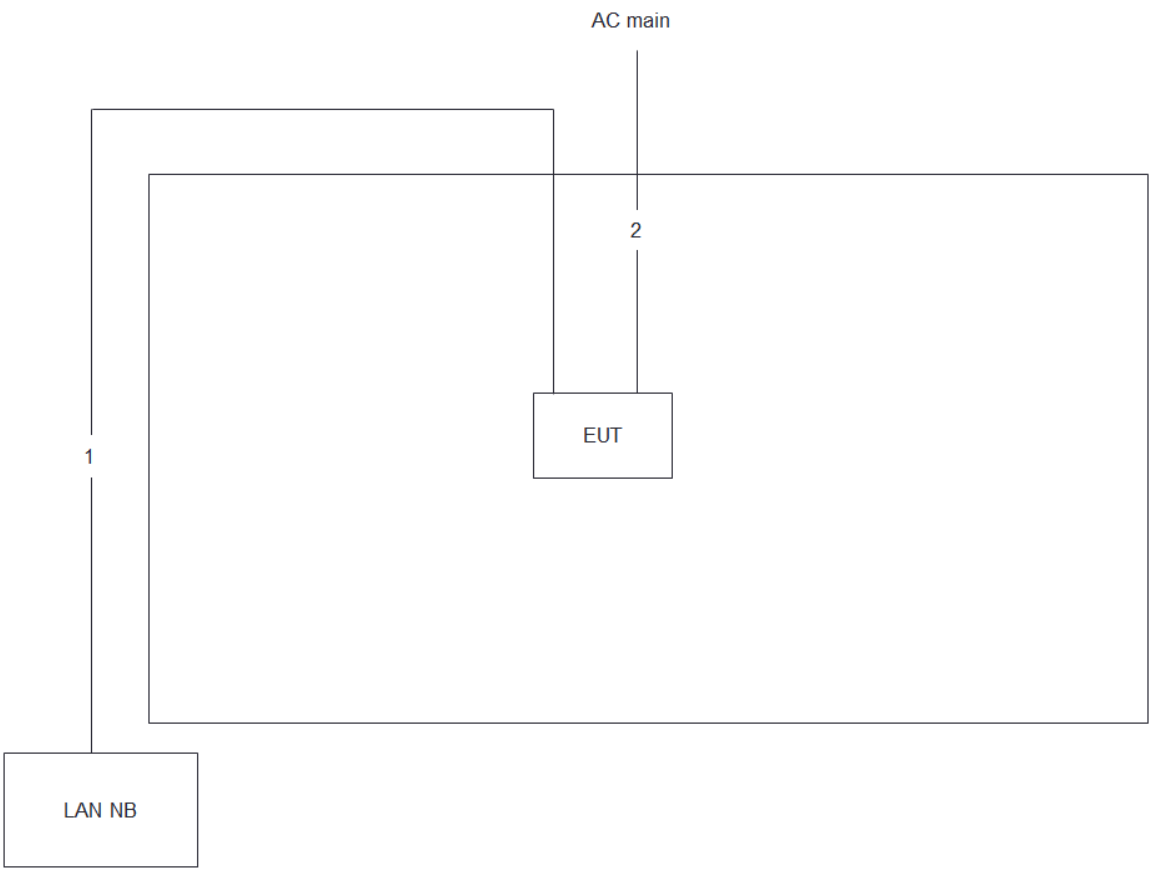
2.6 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test



Item	Connection	Shielded	Length
1	Power cable	No	1.6m
2	RJ-45 cable	No	10m

Test Setup Diagram - Radiated Test



Item	Connection	Shielded	Length
1	RJ-45 Cable	No	10m
2	Power cable	No	1.6m

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

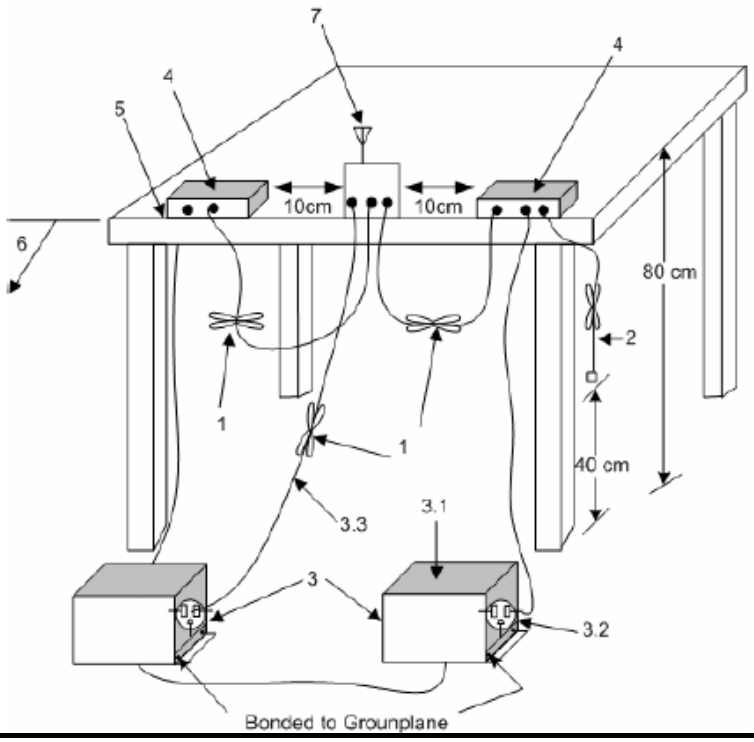
Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

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

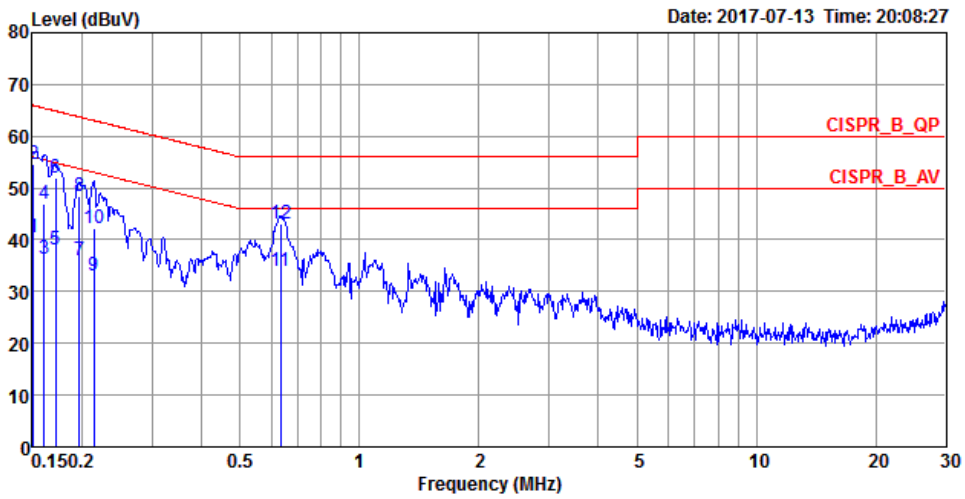
3.1.4 Test Setup

AC Power-line Conducted Emissions



3.1.5 Test Result of AC Power-line Conducted Emissions

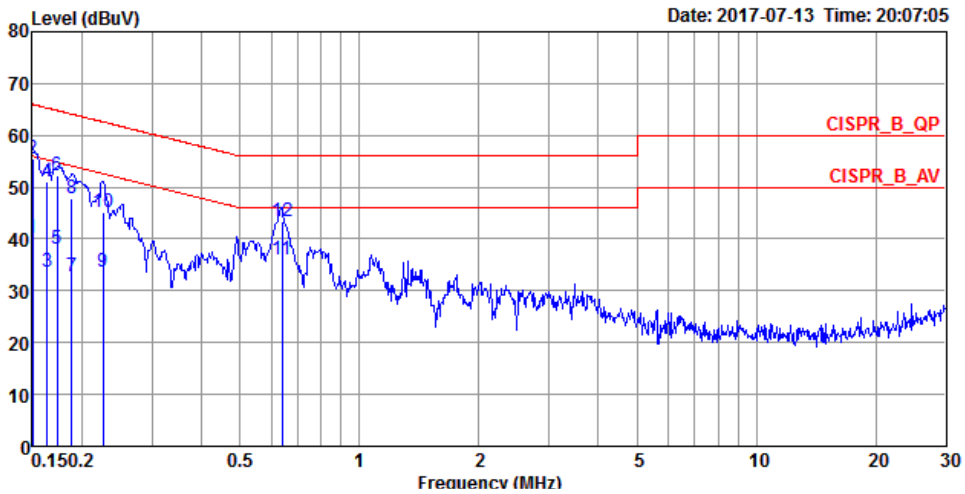
AC Power-line Conducted Emissions Result			
Operating Mode	4	**Power Phase**	Neutral
Operating Function	CTX		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark	Pol/Phase
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.1508	40.46	-15.50	55.96	30.48	9.94	0.04	Average	NEUTRAL
2	0.1508	54.68	-11.28	65.96	44.70	9.94	0.04	QP	NEUTRAL
3	0.1607	36.26	-19.17	55.43	26.27	9.95	0.04	Average	NEUTRAL
4	0.1607	46.96	-18.47	65.43	36.97	9.95	0.04	QP	NEUTRAL
5	0.1712	38.00	-16.90	54.90	28.00	9.96	0.04	Average	NEUTRAL
6	0.1712	52.01	-12.89	64.90	42.01	9.96	0.04	QP	NEUTRAL
7	0.1965	35.99	-17.77	53.76	25.96	9.98	0.05	Average	NEUTRAL
8	0.1965	48.52	-15.24	63.76	38.49	9.98	0.05	QP	NEUTRAL
9	0.2139	33.12	-19.93	53.05	23.09	9.98	0.05	Average	NEUTRAL
10	0.2139	42.25	-20.80	63.05	32.22	9.98	0.05	QP	NEUTRAL
11	0.6338	34.03	-11.97	46.00	24.01	9.97	0.05	Average	NEUTRAL
12	0.6338	43.14	-12.86	56.00	33.12	9.97	0.05	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	4	**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	0.1500	40.10	-15.90	56.00	30.11	9.95	0.04	Average	LINE
2	0.1500	55.56	-10.44	66.00	45.57	9.95	0.04	QP	LINE
3	0.1633	33.71	-21.59	55.30	23.73	9.94	0.04	Average	LINE
4	0.1633	50.97	-14.33	65.30	40.99	9.94	0.04	QP	LINE
5	0.1731	37.97	-16.84	54.81	27.99	9.94	0.04	Average	LINE
6	0.1731	52.27	-12.54	64.81	42.29	9.94	0.04	QP	LINE
7	0.1884	32.72	-21.39	54.11	22.74	9.93	0.05	Average	LINE
8	0.1884	47.89	-16.22	64.11	37.91	9.93	0.05	QP	LINE
9	0.2256	33.60	-19.01	52.61	23.63	9.92	0.05	Average	LINE
10	0.2256	45.14	-17.47	62.61	35.17	9.92	0.05	QP	LINE
11	0.6372	35.89	-10.11	46.00	25.91	9.93	0.05	Average	LINE
12	0.6372	43.44	-12.56	56.00	33.46	9.93	0.05	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.)

3.2 DTS Bandwidth

3.2.1 6dB Bandwidth Limit

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

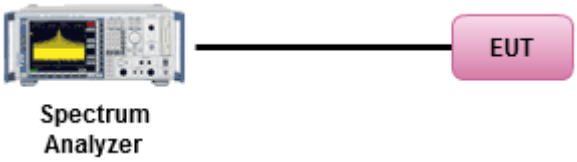
3.2.2 Measuring Instruments

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

For Set 1 antennas / 1TX:

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-	-
2.4-2.4835GHz	686.25k	1.012M	1M01F1D	665k	994.503k

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;

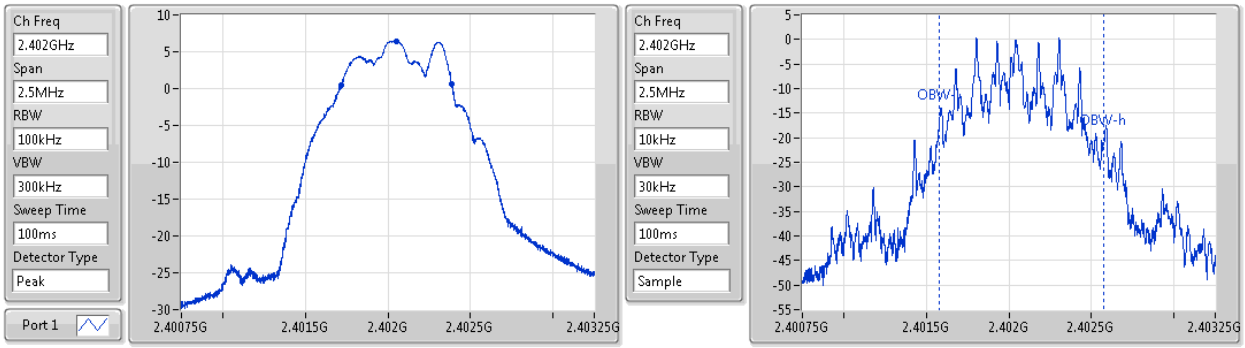
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	665k	994.503k
2440MHz	Pass	500k	681.25k	1.009M
2480MHz	Pass	500k	686.25k	1.012M

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

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

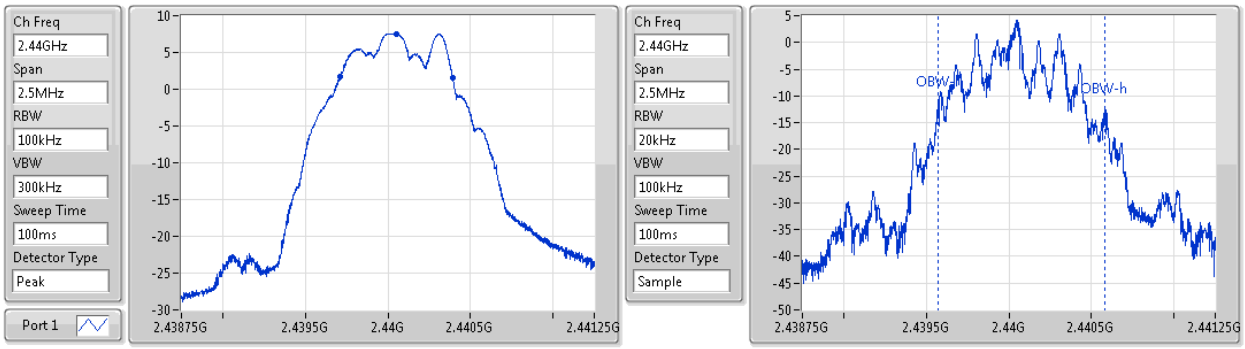
2402MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
665k	2.401719G	2.402384G	994.503k	2.401581G	2.402576G	500k	1

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

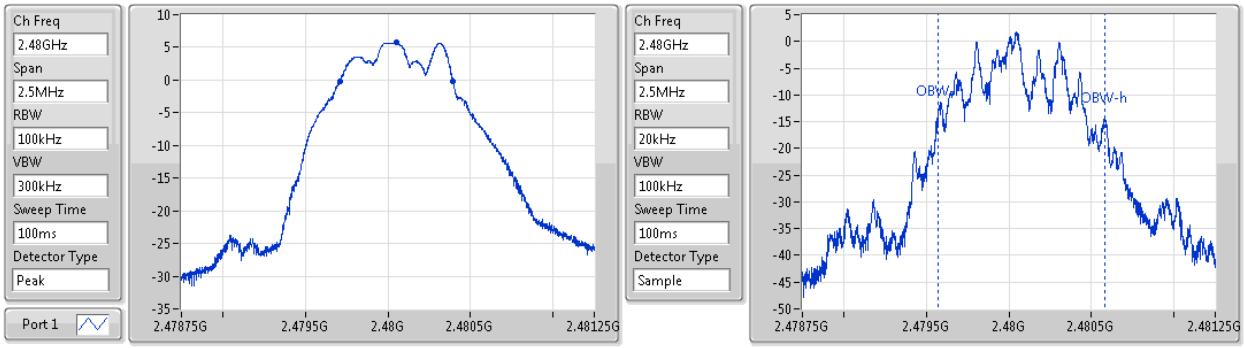
2440MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
681.25k	2.439714G	2.440395G	1.009M	2.439573G	2.440582G	500k	1

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

2480MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
686.25k	2.479709G	2.480395G	1.012M	2.479571G	2.480583G	500k	1

For Set 3 antennas / 1TX:

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-	-
2.4-2.4835GHz	691.25k	1.069M	1M07F1D	665k	994.503k

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;

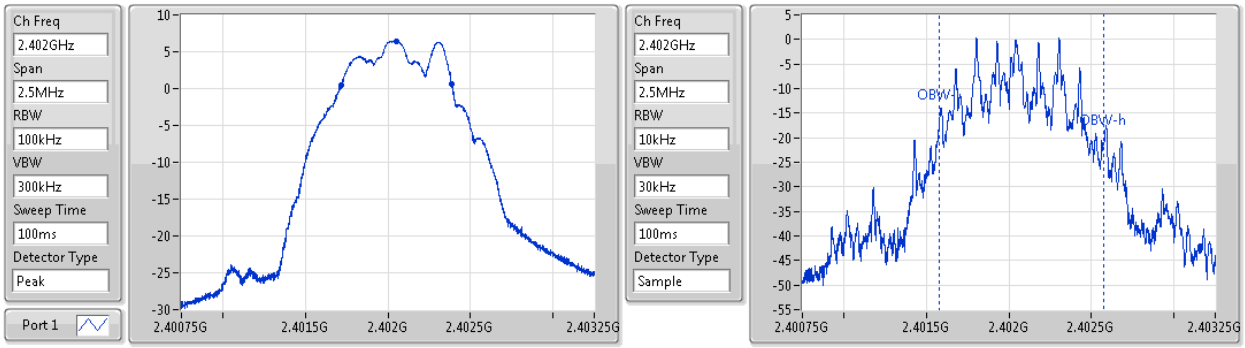
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	665k	994.503k
2440MHz	Pass	500k	681.25k	1.009M
2480MHz	Pass	500k	691.25k	1.069M

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

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

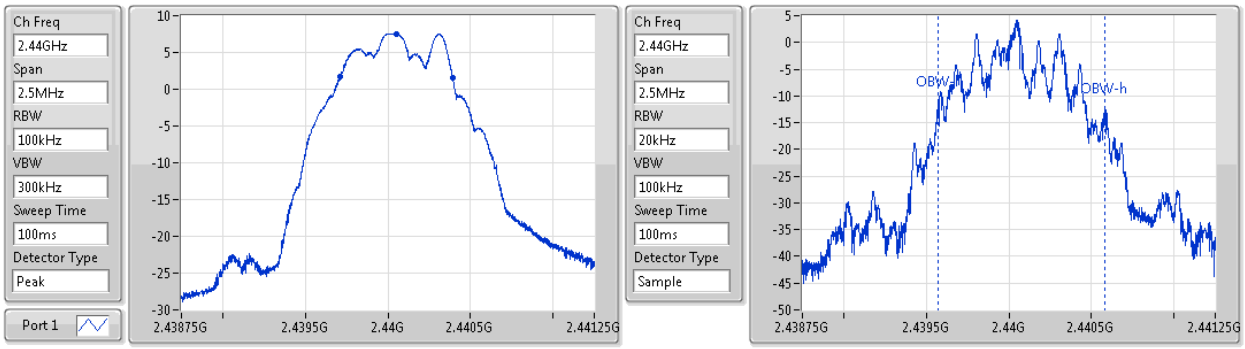
2402MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
665k	2.401719G	2.402384G	994.503k	2.401581G	2.402576G	500k	1

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

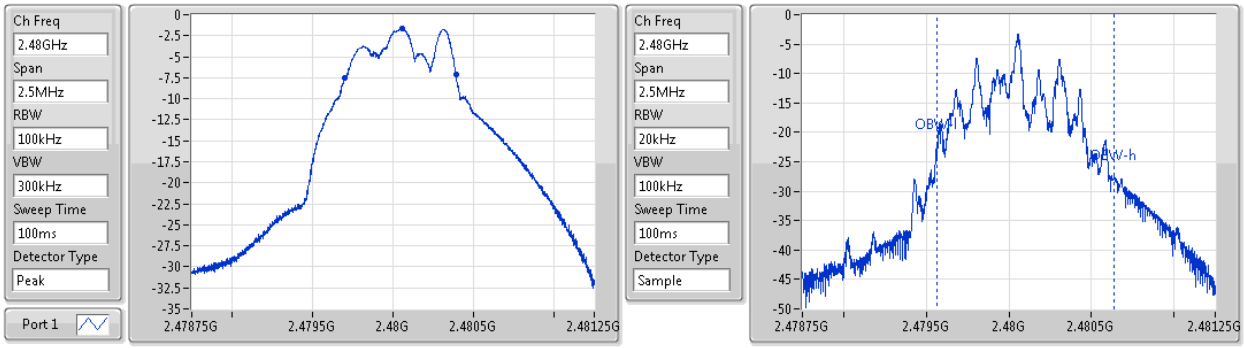
2440MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
681.25k	2.439714G	2.440395G	1.009M	2.439573G	2.440582G	500k	1

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

2480MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
691.25k	2.4797G	2.480391G	1.069M	2.479566G	2.480636G	500k	1

For Set 4 antennas / 1TX:

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-	-
2.4-2.4835GHz	692.5k	1.031M	1M03F1D	665k	994.503k

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;

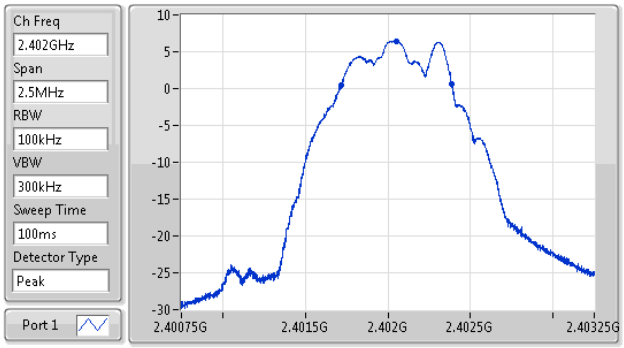
Result

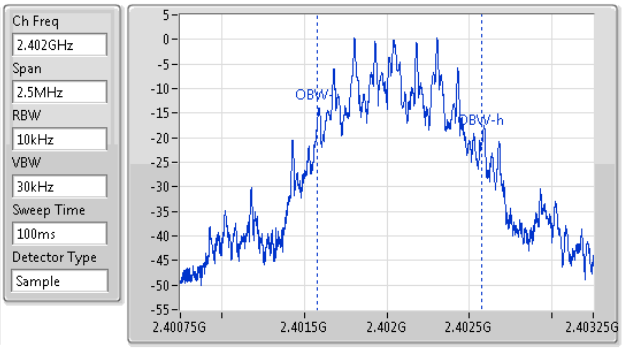
Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	665k	994.503k
2440MHz	Pass	500k	681.25k	1.009M
2480MHz	Pass	500k	692.5k	1.031M

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

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

2402MHz

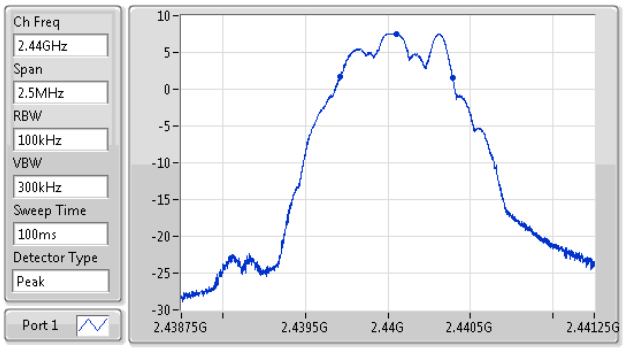


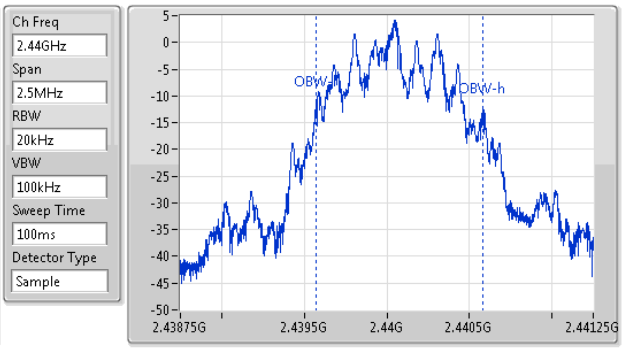


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
665k	2.401719G	2.402384G	994.503k	2.401581G	2.402576G	500k	1

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

2440MHz

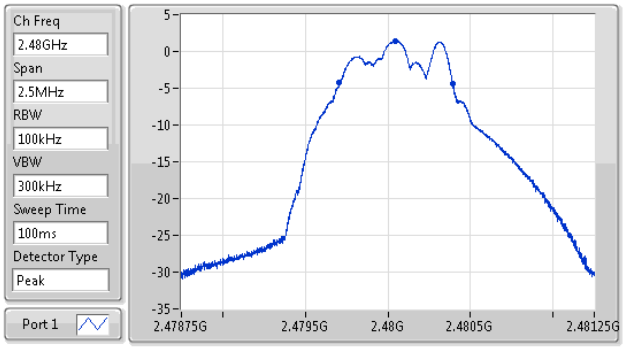


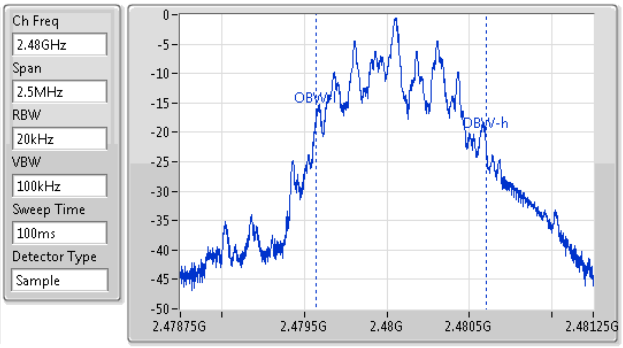


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
681.25k	2.439714G	2.440395G	1.009M	2.439573G	2.440582G	500k	1

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

2480MHz





6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
692.5k	2.479703G	2.480395G	1.031M	2.47957G	2.480601G	500k	1

For Set 5 antennas / 1TX:

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-	-
2.4-2.4835GHz	683.75k	1.028M	1M03F1D	665k	994.503k

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;

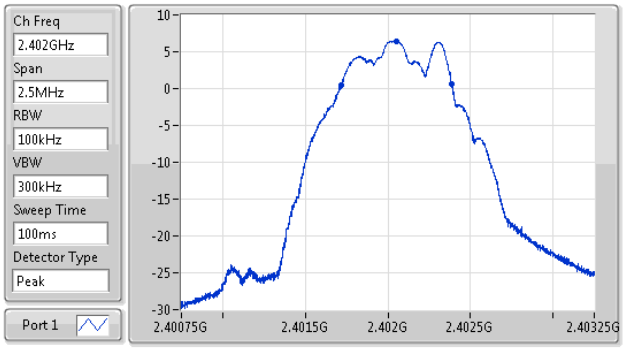
Result

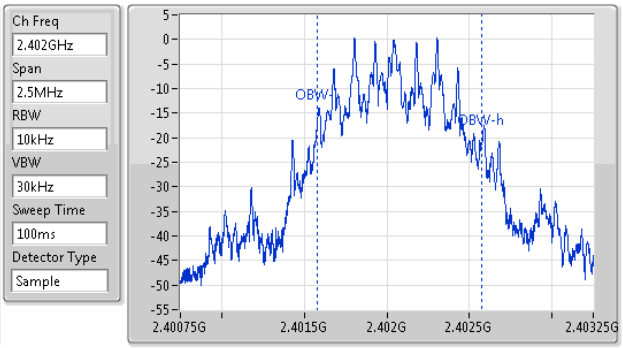
Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	665k	994.503k
2440MHz	Pass	500k	681.25k	1.009M
2480MHz	Pass	500k	683.75k	1.028M

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

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

2402MHz

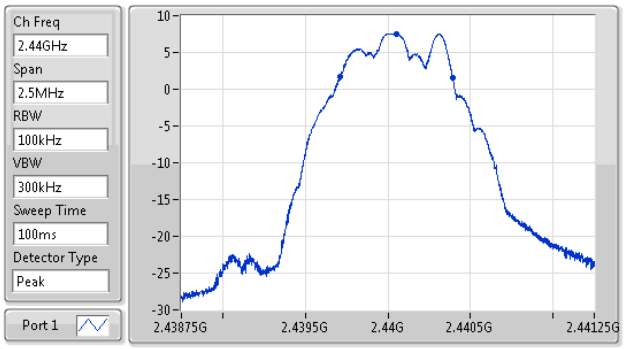


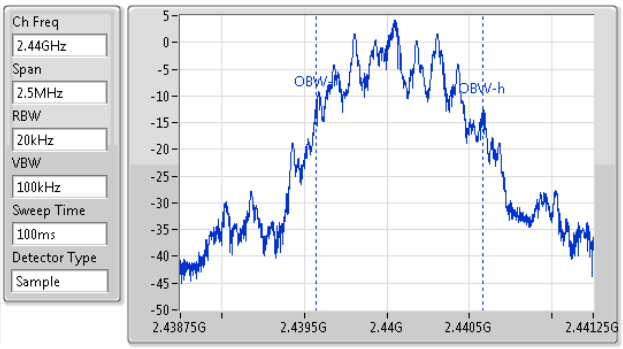


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
665k	2.401719G	2.402384G	994.503k	2.401581G	2.402576G	500k	1

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

2440MHz

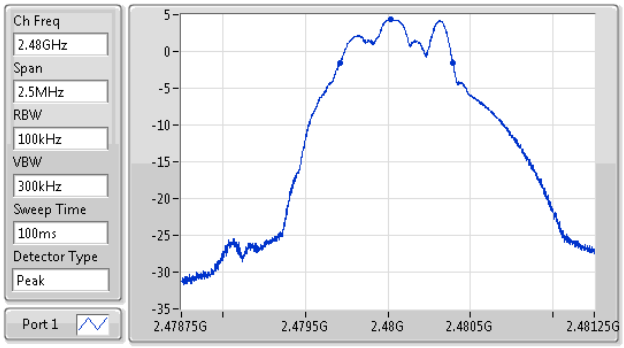


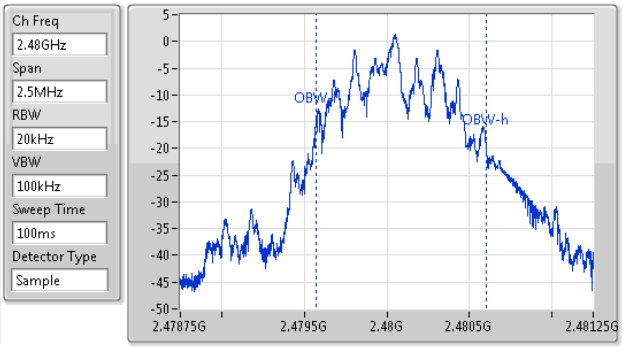


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
681.25k	2.439714G	2.440395G	1.009M	2.439573G	2.440582G	500k	1

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

2480MHz





6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
683.75k	2.479713G	2.480396G	1.028M	2.479574G	2.480602G	500k	1

For Set 6 antennas / 1TX:

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-	-
2.4-2.4835GHz	686.25k	1.012M	1M01F1D	665k	994.503k

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;

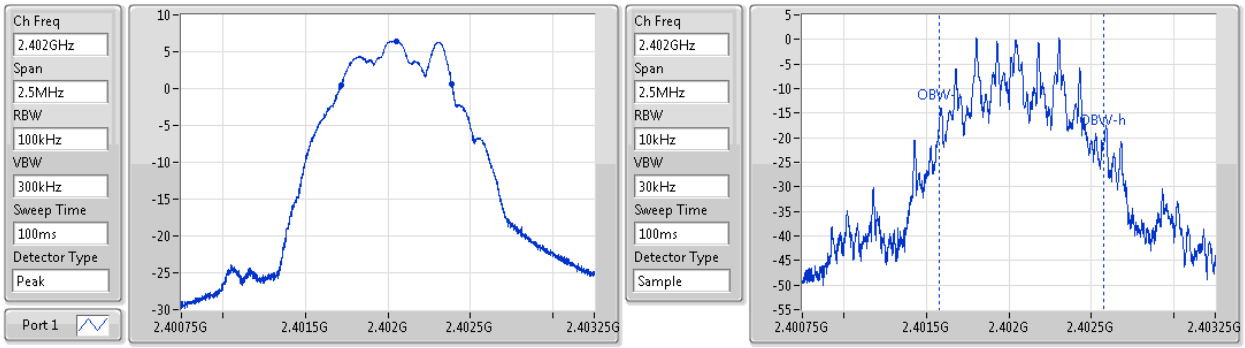
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	665k	994.503k
2440MHz	Pass	500k	681.25k	1.009M
2480MHz	Pass	500k	686.25k	1.012M

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

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

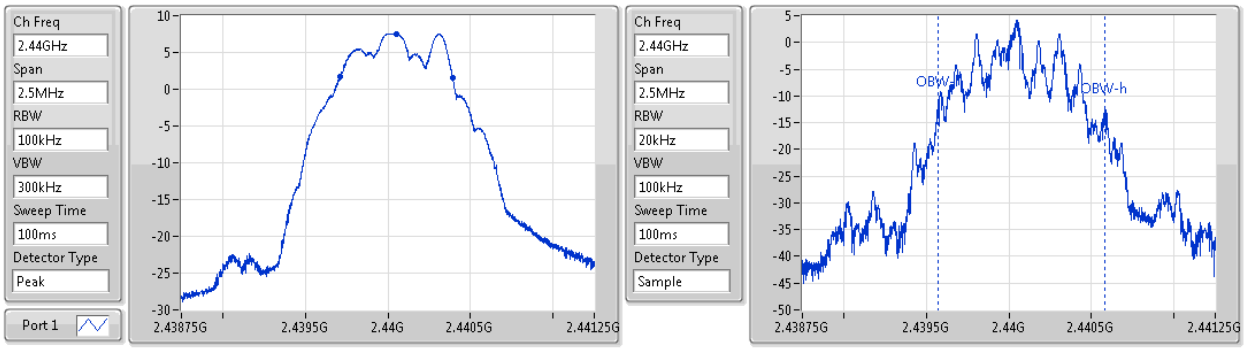
2402MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
665k	2.401719G	2.402384G	994.503k	2.401581G	2.402576G	500k	1

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

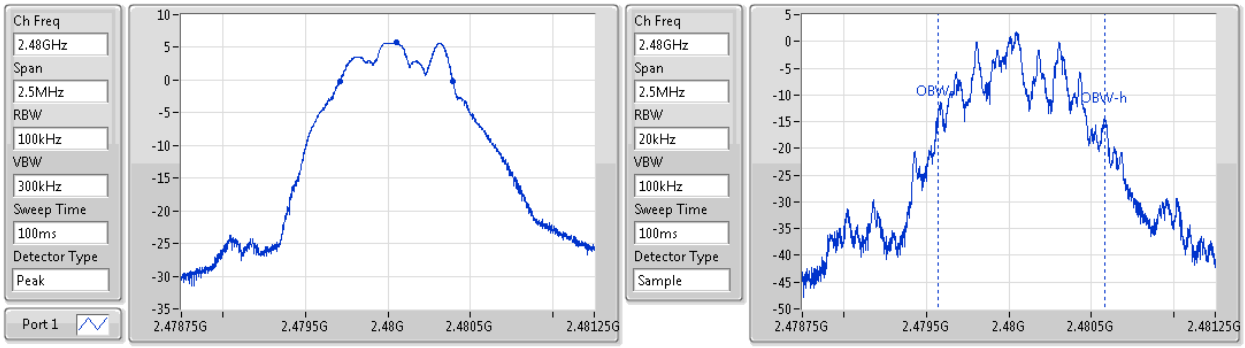
2440MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
681.25k	2.439714G	2.440395G	1.009M	2.439573G	2.440582G	500k	1

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

2480MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
686.25k	2.479709G	2.480395G	1.012M	2.479571G	2.480583G	500k	1

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: $P_{total} = P_1 + P_2 + \ldots + P_n$ (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

For Set 1 antennas / 1TX:
Summary

Mode	Power	Power
	(dBm)	(W)
BT-LE(1Mbps)	-	-
2.4-2.4835GHz	5.52	0.00356

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	4.30	5.49	30.00
2440MHz	Pass	4.30	5.52	30.00
2480MHz	Pass	4.30	4.04	30.00

For Set 3 antennas / 1TX:
Summary

Mode	Power	Power
	(dBm)	(W)
BT-LE(1Mbps)	-	-
2.4-2.4835GHz	5.52	0.00356

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	10.95	5.49	25.05
2440MHz	Pass	10.95	5.52	25.05
2480MHz	Pass	10.95	-3.32	25.05

For Set 4 antennas / 1TX:
Summary

Mode	Power	Power
	(dBm)	(W)
BT-LE(1Mbps)	-	-
2.4-2.4835GHz	5.52	0.00356

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	6.10	5.49	29.90
2440MHz	Pass	6.10	5.52	29.90
2480MHz	Pass	6.10	-0.19	29.90

For Set 5 antennas / 1TX:
Summary

Mode	Power	Power
	(dBm)	(W)
BT-LE(1Mbps)	-	-
2.4-2.4835GHz	5.52	0.00356

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	4.50	5.49	30.00
2440MHz	Pass	4.50	5.52	30.00
2480MHz	Pass	4.50	2.86	30.00

For Set 6 antennas / 1TX:
Summary

Mode	Power	Power
	(dBm)	(W)
BT-LE(1Mbps)	-	-
2.4-2.4835GHz	5.52	0.00356

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	2.56	5.49	30.00
2440MHz	Pass	2.56	5.52	30.00
2480MHz	Pass	2.56	4.04	30.00

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

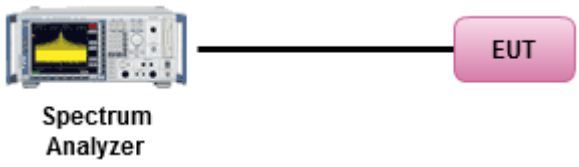
Refer a test equipment and calibration data table in this test report.

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

For Set 1 antennas / 1TX:

Summary

Mode	PD (dBm/RBW)
BT-LE(1Mbps)	-
2.4-2.4835GHz	0.92

RBW=3kHz.

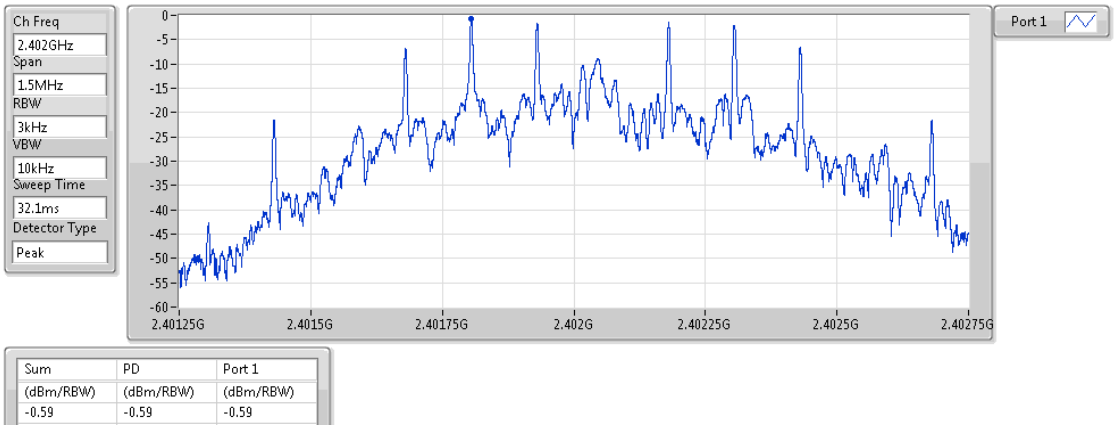
Result

Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	4.30	-0.59	8.00
2440MHz	Pass	4.30	0.92	8.00
2480MHz	Pass	4.30	-0.95	8.00

RBW=3kHz.

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

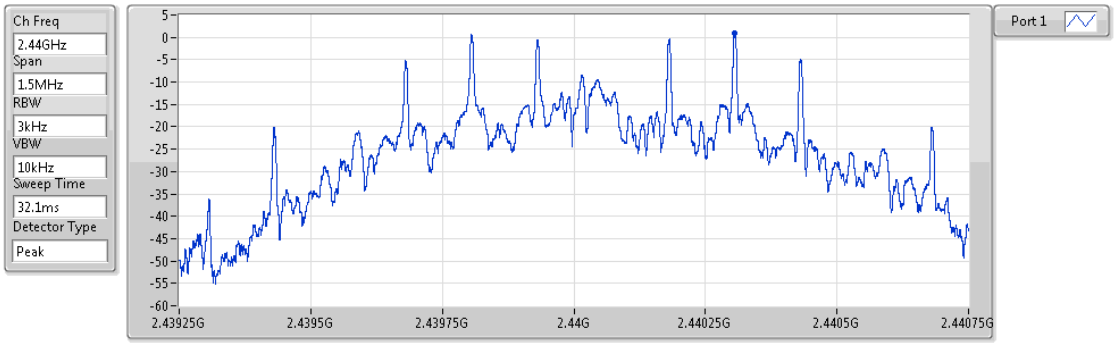
2402MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-0.59	-0.59	-0.59

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

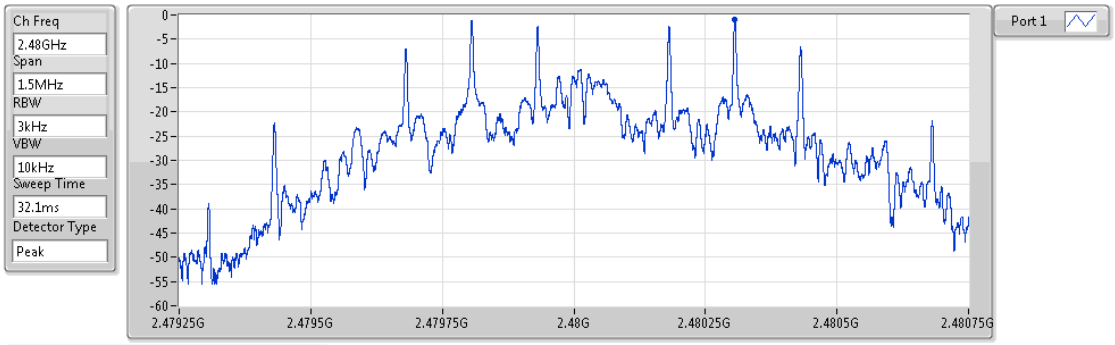
2440MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
0.92	0.92	0.92

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

2480MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-0.95	-0.95	-0.95

For Set 3 antennas / 1TX:

Summary

Mode	PD (dBm/RBW)
BT-LE(1Mbps)	-
2.4-2.4835GHz	0.92

RBW=3kHz.

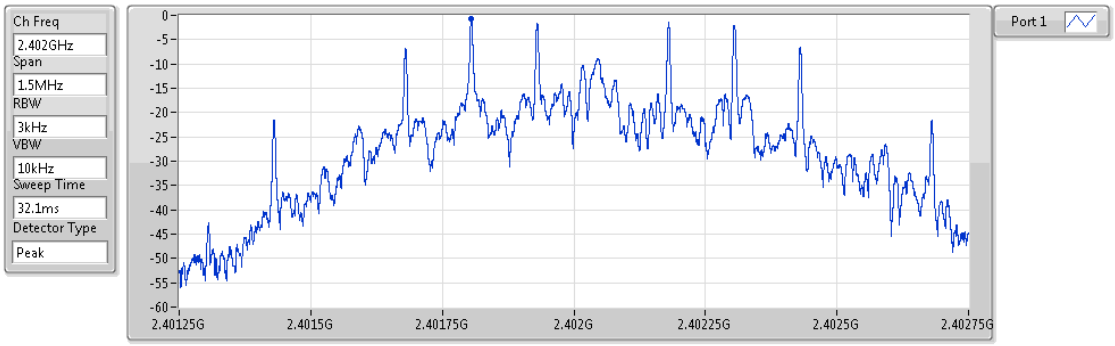
Result

Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	10.95	-0.59	3.05
2440MHz	Pass	10.95	0.92	3.05
2480MHz	Pass	10.95	-8.21	3.05

RBW=3kHz.

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

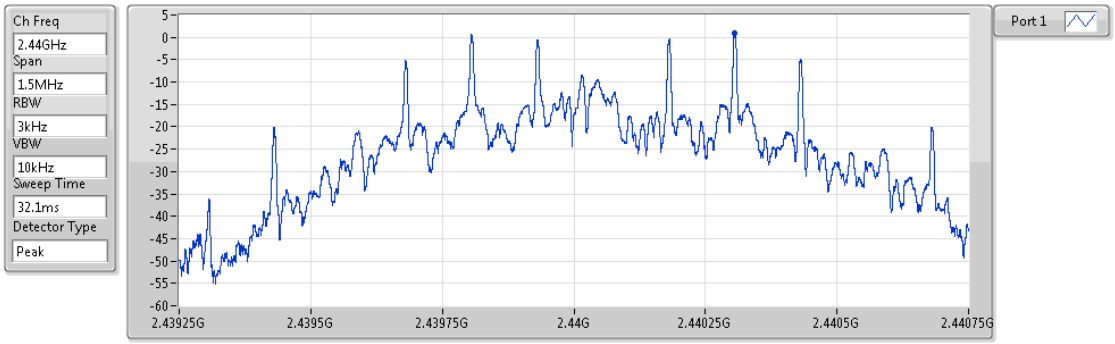
2402MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-0.59	-0.59	-0.59

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

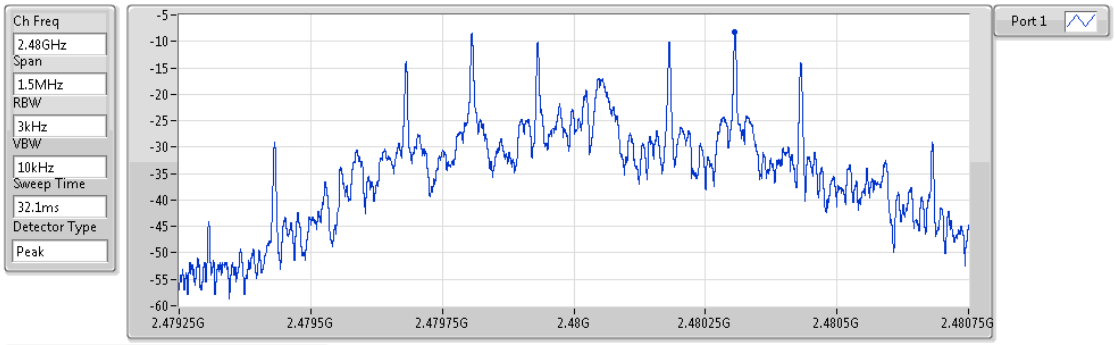
2440MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
0.92	0.92	0.92

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

2480MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-8.21	-8.21	-8.21

For Set 4 antennas / 1TX:

Summary

Mode	PD (dBm/RBW)
BT-LE(1Mbps)	-
2.4-2.4835GHz	0.92

RBW=3kHz.

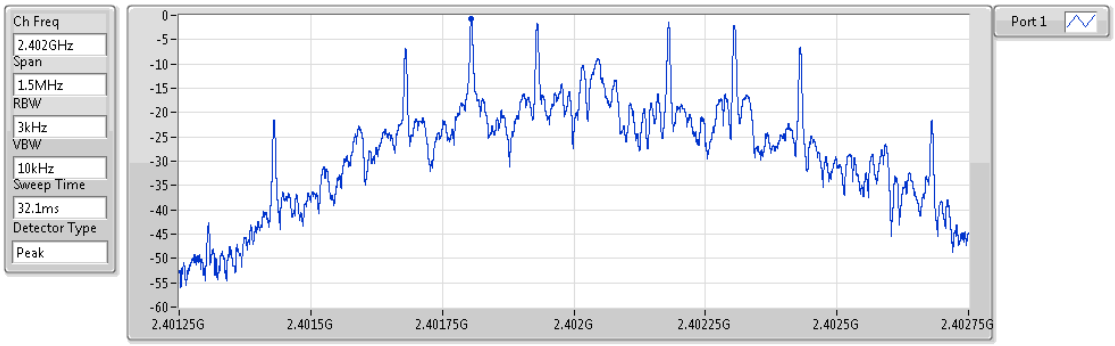
Result

Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	6.10	-0.59	7.90
2440MHz	Pass	6.10	0.92	7.90
2480MHz	Pass	6.10	-5.21	7.90

RBW=3kHz.

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

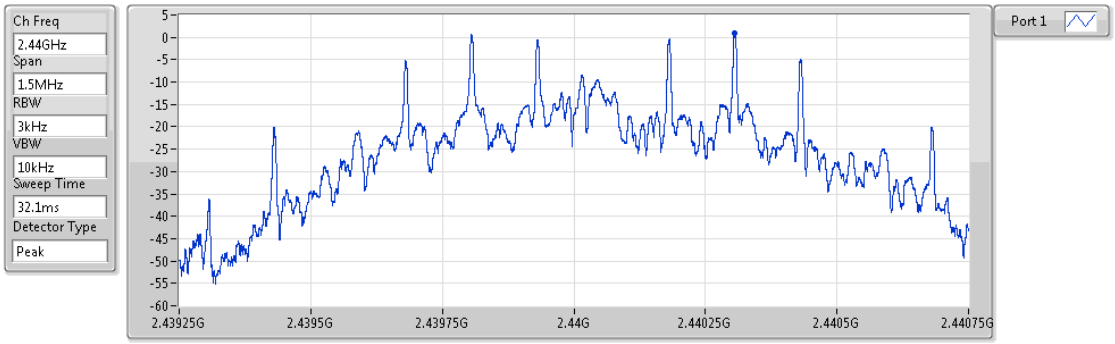
2402MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-0.59	-0.59	-0.59

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

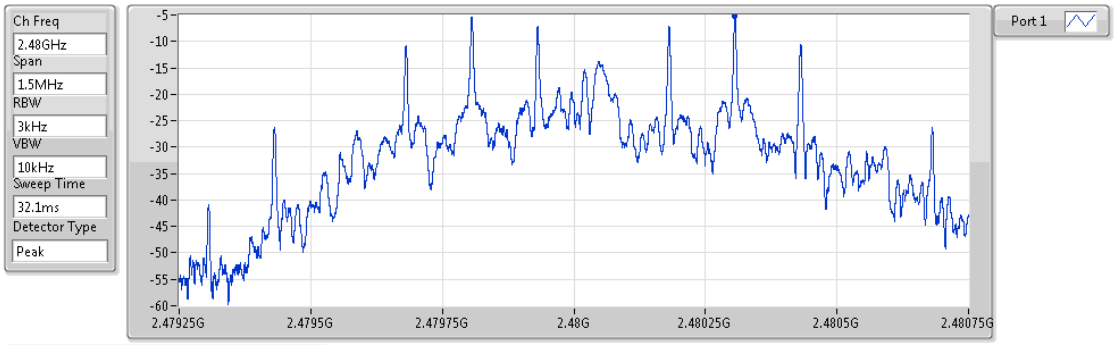
2440MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
0.92	0.92	0.92

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

2480MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-5.21	-5.21	-5.21

For Set 5 antennas / 1TX:

Summary

Mode	PD (dBm/RBW)
BT-LE(1Mbps)	-
2.4-2.4835GHz	0.92

RBW=3kHz.

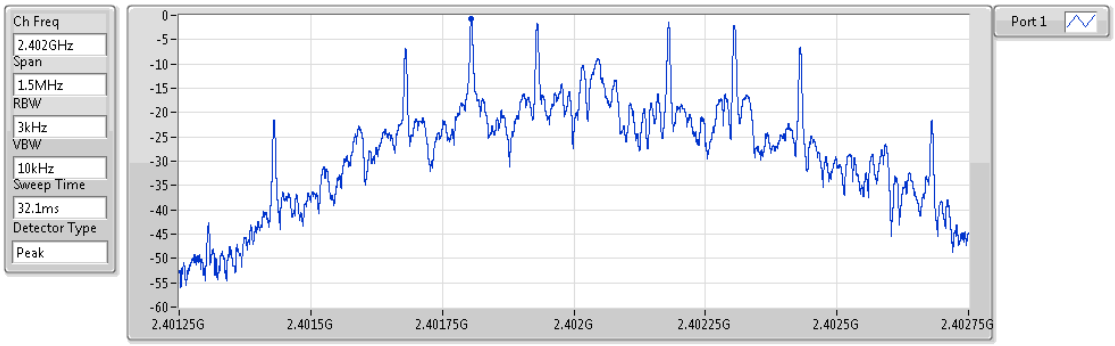
Result

Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	4.50	-0.59	8.00
2440MHz	Pass	4.50	0.92	8.00
2480MHz	Pass	4.50	-2.46	8.00

RBW=3kHz.

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

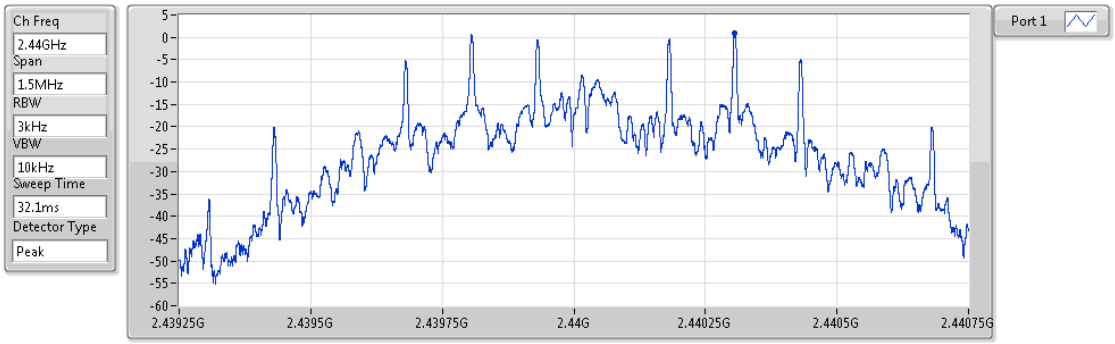
2402MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-0.59	-0.59	-0.59

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

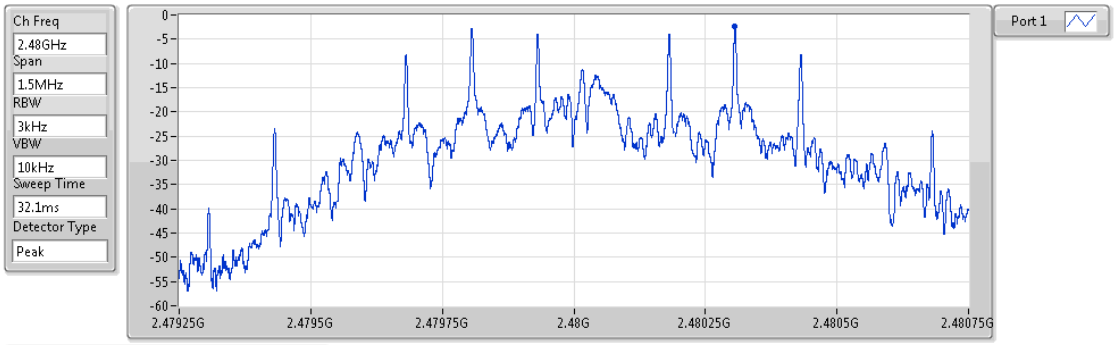
2440MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
0.92	0.92	0.92

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

2480MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-2.46	-2.46	-2.46

For Set 6 antennas / 1TX:

Summary

Mode	PD (dBm/RBW)
BT-LE(1Mbps)	-
2.4-2.4835GHz	0.92

RBW=3kHz.

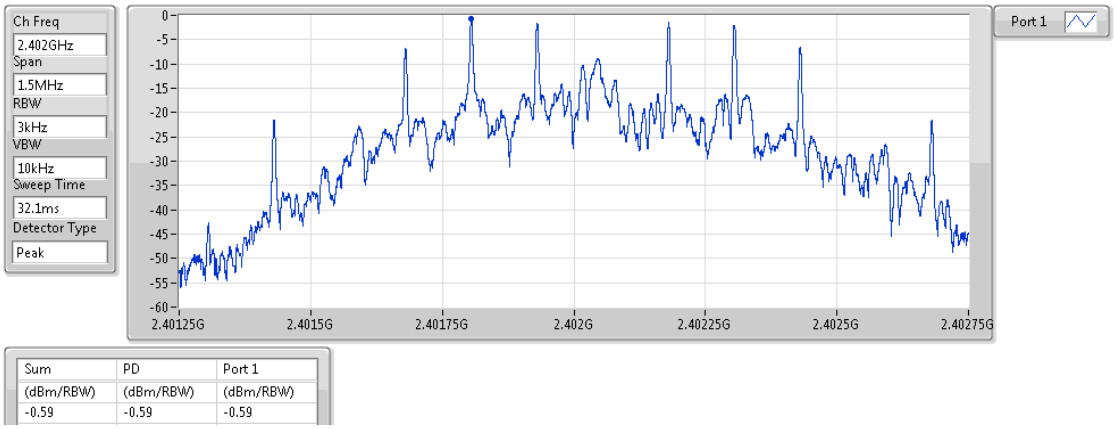
Result

Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	2.56	-0.59	8.00
2440MHz	Pass	2.56	0.92	8.00
2480MHz	Pass	2.56	-0.95	8.00

RBW=3kHz.

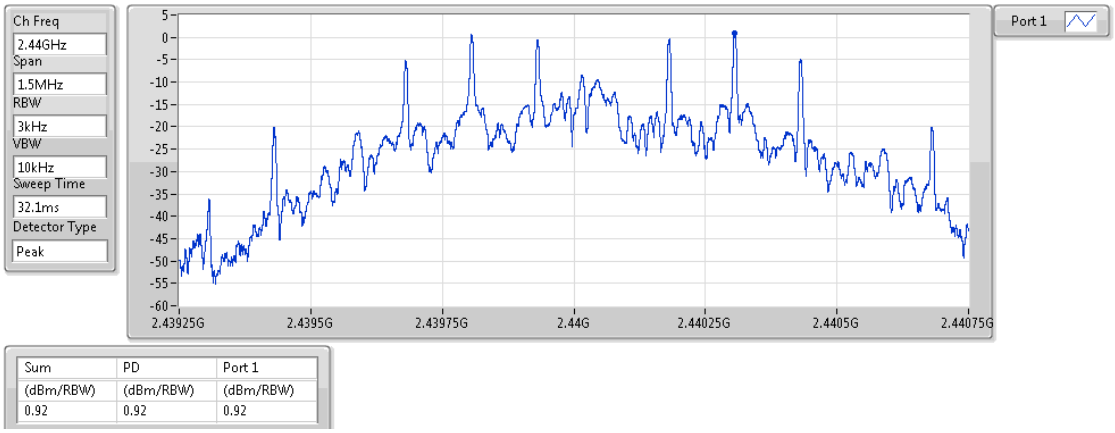
BT-LE(1Mbps) **PSD**

2402MHz



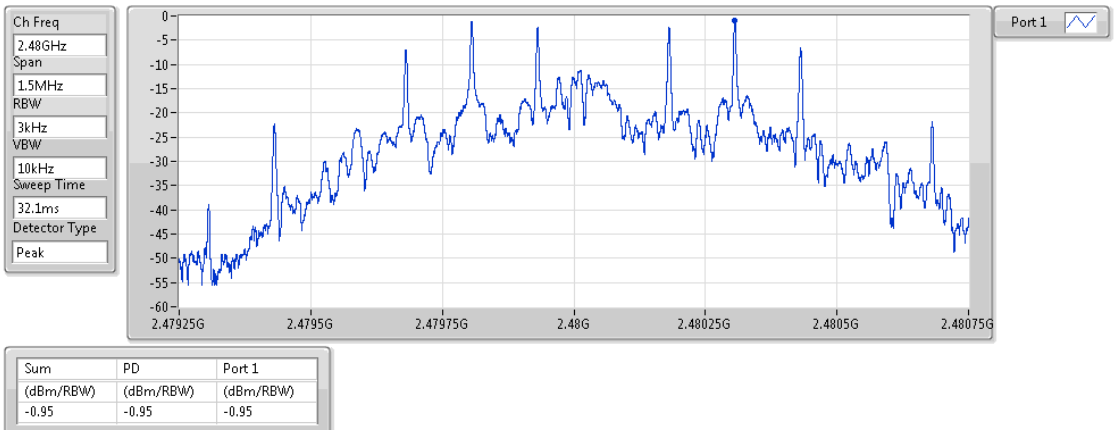
BT-LE(1Mbps) **PSD**

2440MHz



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

2480MHz



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

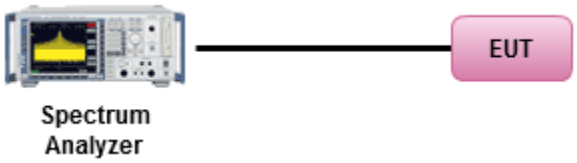
Refer a test equipment and calibration data table in this test report.

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

For Set 1 antennas / 1TX:

Summary

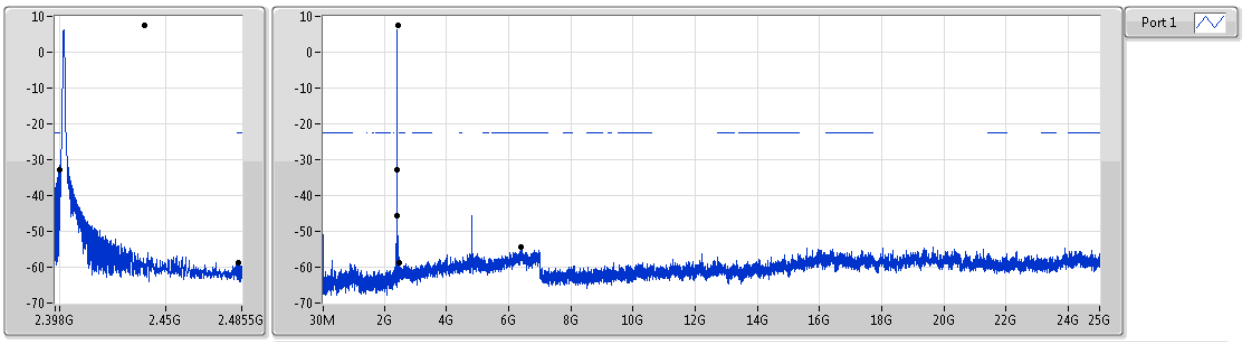
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2.4-2.4835GHz	Pass	2.44008G	7.52	-22.48	2.39208G	-45.53	2.399968G	-32.82	2.484188G	-58.84	6.377694G	-54.35	1

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	2.44008G	7.52	-22.48	2.39208G	-45.53	2.399968G	-32.82	2.484188G	-58.84	6.377694G	-54.35	1
2440MHz	Pass	2.44008G	7.52	-22.48	33.552M	-53.44	2.399152G	-55.52	2.484488G	-56.39	6.194764G	-54.67	1
2480MHz	Pass	2.44008G	7.52	-22.48	33.552M	-53.48	2.399504G	-58.15	2.483552G	-36.87	2.4855G	-47.53	1

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

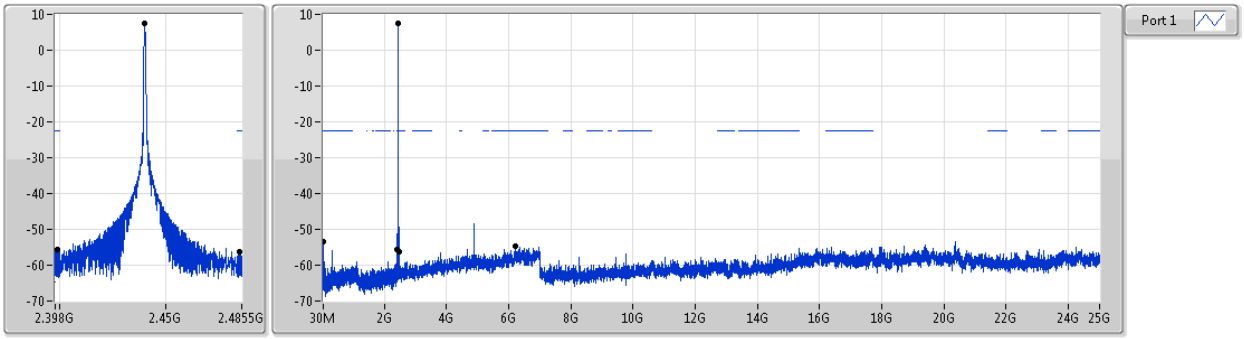
2402MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44008G	7.52	-22.48	2.39208G	-45.53	2.399968G	-32.82	2.484188G	-58.84	6.377694G	-54.35	1

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

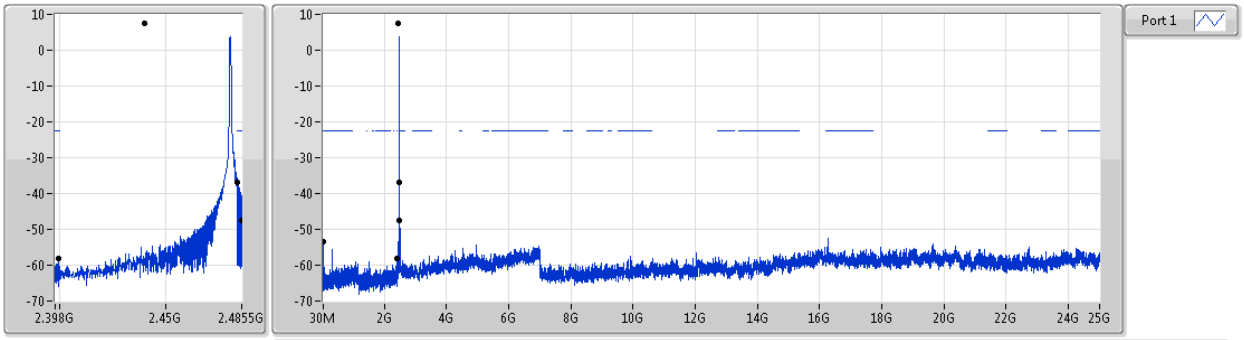
2440MHz



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	7.52	-22.48	33.552M	-53.44	2.399152G	-55.52	2.484488G	-56.39	6.194764G	-54.67	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
2.44008G	7.52	-22.48	33.552M	-53.48	2.399504G	-58.15	2.483552G	-36.87	2.4855G	-47.53	1

For Set 3 antennas / 1TX:

Summary

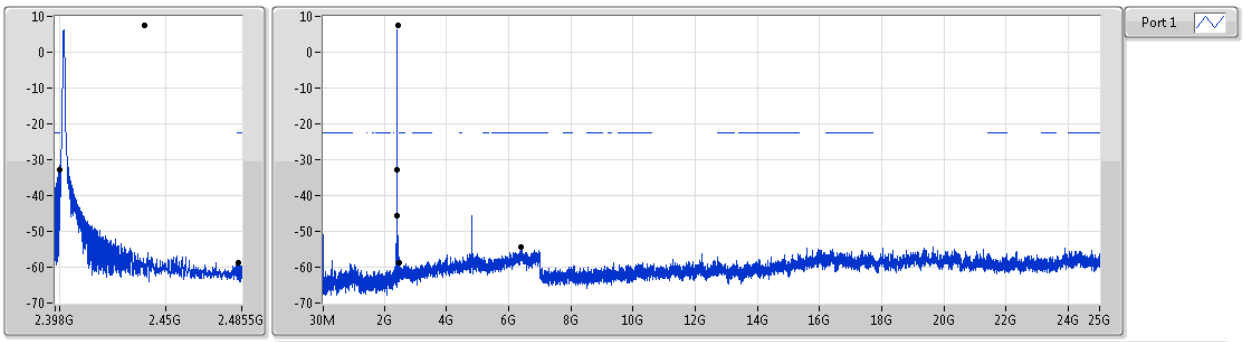
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2.4-2.4835GHz	Pass	2.44008G	7.52	-22.48	2.39208G	-45.53	2.399968G	-32.82	2.484188G	-58.84	6.377694G	-54.35	1

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	2.44008G	7.52	-22.48	2.39208G	-45.53	2.399968G	-32.82	2.484188G	-58.84	6.377694G	-54.35	1
2440MHz	Pass	2.44008G	7.52	-22.48	33.552M	-53.44	2.399152G	-55.52	2.484488G	-56.39	6.194764G	-54.67	1
2480MHz	Pass	2.44008G	7.52	-22.48	309.424M	-60.16	2.399112G	-59.12	2.483716G	-44.17	2.4855G	-52.23	1

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

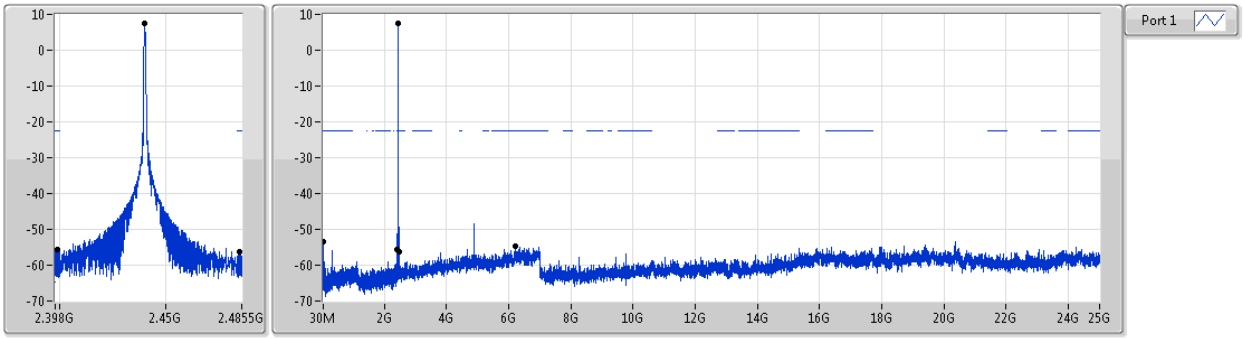
2402MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44008G	7.52	-22.48	2.39208G	-45.53	2.399968G	-32.82	2.484188G	-58.84	6.377694G	-54.35	1

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

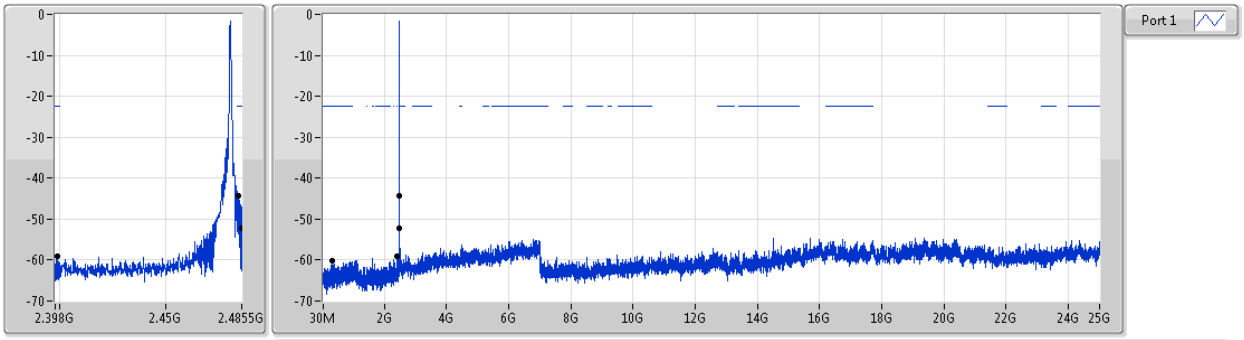
2440MHz



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	7.52	-22.48	33.552M	-53.44	2.399152G	-55.52	2.484488G	-56.39	6.194764G	-54.67	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
2.44008G	7.52	-22.48	309.424M	-60.16	2.399112G	-59.12	2.483716G	-44.17	2.4855G	-52.23	1

For Set 4 antennas / 1TX:

Summary

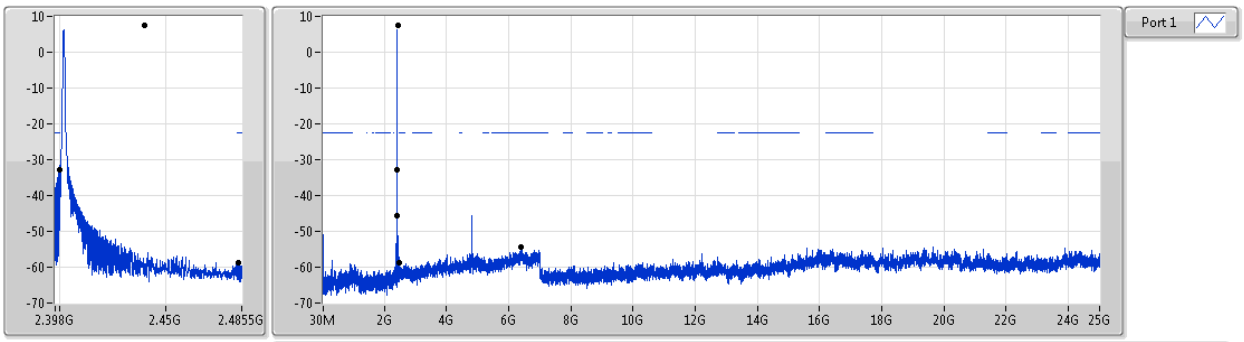
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2.4-2.4835GHz	Pass	2.44008G	7.52	-22.48	2.39208G	-45.53	2.399968G	-32.82	2.484188G	-58.84	6.377694G	-54.35	1

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	2.44008G	7.52	-22.48	2.39208G	-45.53	2.399968G	-32.82	2.484188G	-58.84	6.377694G	-54.35	1
2440MHz	Pass	2.44008G	7.52	-22.48	33.552M	-53.44	2.399152G	-55.52	2.484488G	-56.39	6.194764G	-54.67	1
2480MHz	Pass	2.44008G	7.52	-22.48	30M	-59.88	2.399352G	-58.52	2.483564G	-41.18	2.4855G	-46.26	1

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

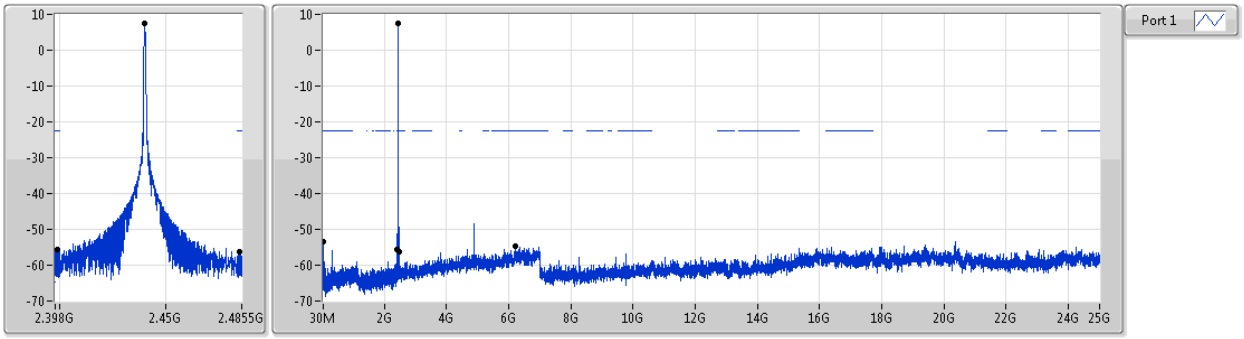
2402MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44008G	7.52	-22.48	2.39208G	-45.53	2.399968G	-32.82	2.484188G	-58.84	6.377694G	-54.35	1

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

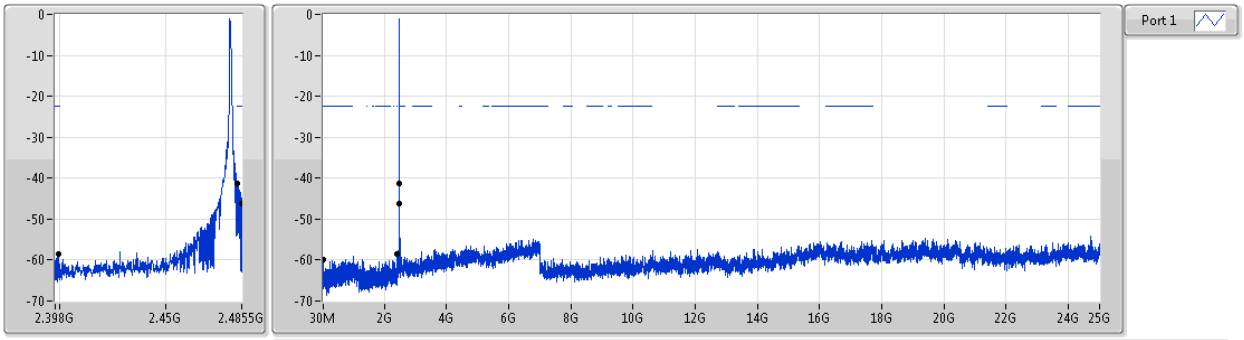
2440MHz



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	7.52	-22.48	33.552M	-53.44	2.399152G	-55.52	2.484488G	-56.39	6.194764G	-54.67	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
2.44008G	7.52	-22.48	30M	-59.88	2.399352G	-58.52	2.483564G	-41.18	2.4855G	-46.26	1

For Set 5 antennas / 1TX:

Summary

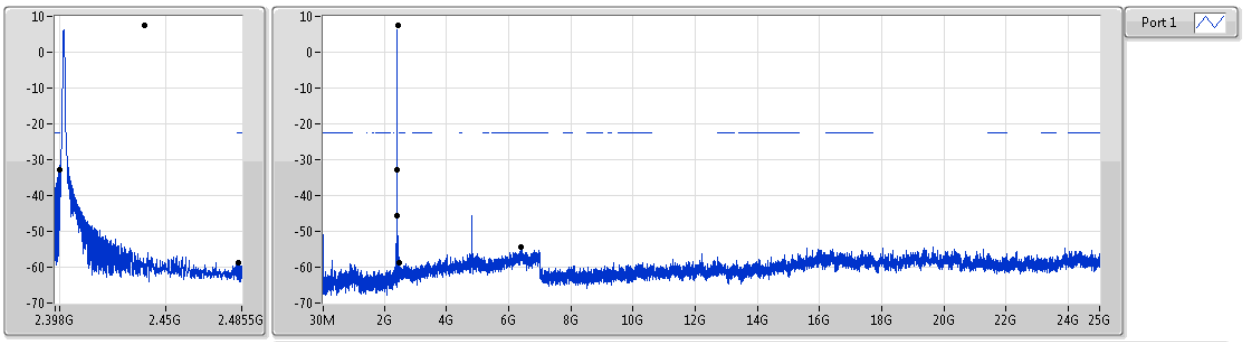
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2.4-2.4835GHz	Pass	2.44008G	7.52	-22.48	2.39208G	-45.53	2.399968G	-32.82	2.484188G	-58.84	6.377694G	-54.35	1

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	2.44008G	7.52	-22.48	2.39208G	-45.53	2.399968G	-32.82	2.484188G	-58.84	6.377694G	-54.35	1
2440MHz	Pass	2.44008G	7.52	-22.48	33.552M	-53.44	2.399152G	-55.52	2.484488G	-56.39	6.194764G	-54.67	1
2480MHz	Pass	2.44008G	7.52	-22.48	32.368M	-54.01	2.39806G	-58.24	2.483508G	-37.97	2.4855G	-45.54	1

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

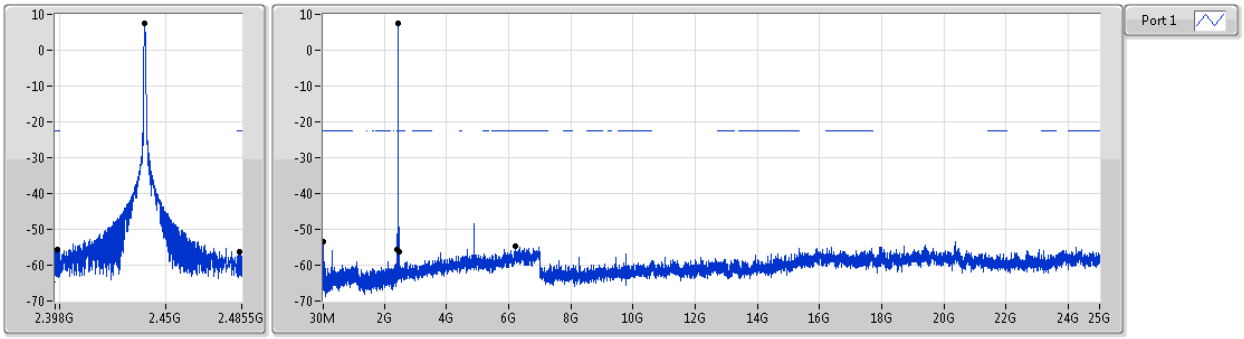
2402MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44008G	7.52	-22.48	2.39208G	-45.53	2.399968G	-32.82	2.484188G	-58.84	6.377694G	-54.35	1

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

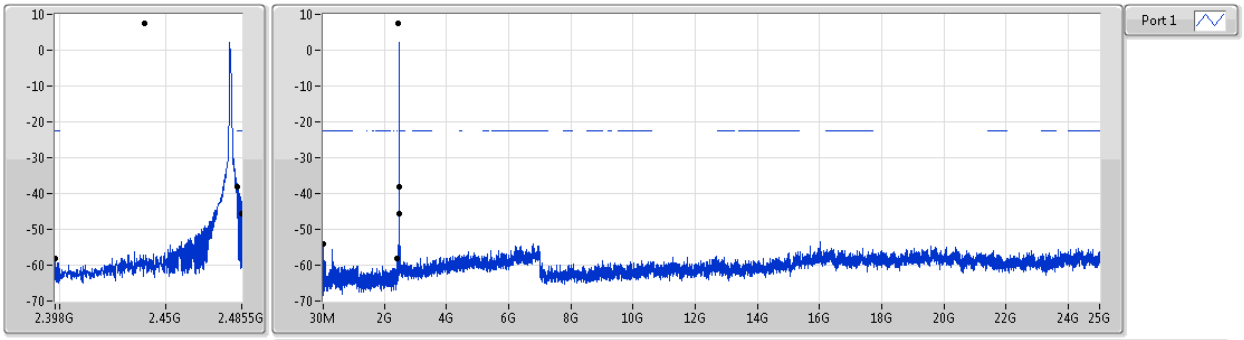
2440MHz



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	7.52	-22.48	33.552M	-53.44	2.399152G	-55.52	2.484488G	-56.39	6.194764G	-54.67	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
2.44008G	7.52	-22.48	32.368M	-54.01	2.39806G	-58.24	2.483508G	-37.97	2.4855G	-45.54	1

For Set 6 antennas / 1TX:

Summary

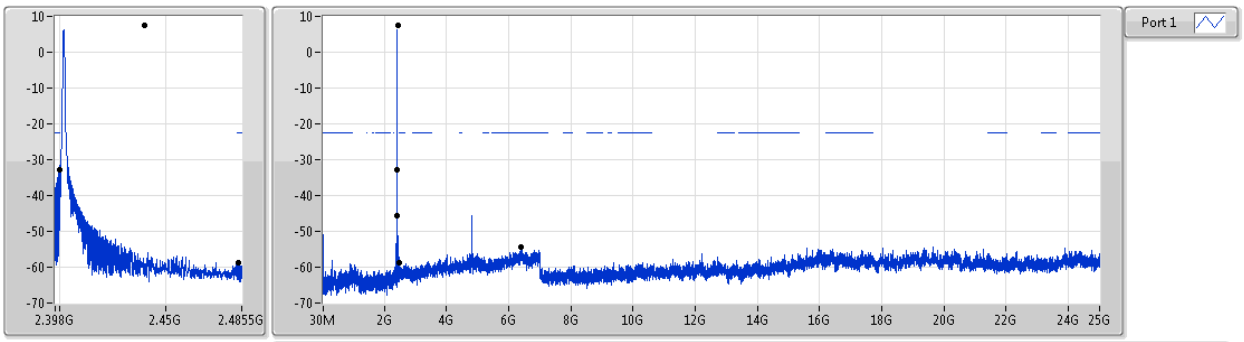
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2.4-2.4835GHz	Pass	2.44008G	7.52	-22.48	2.39208G	-45.53	2.399968G	-32.82	2.484188G	-58.84	6.377694G	-54.35	1

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	2.44008G	7.52	-22.48	2.39208G	-45.53	2.399968G	-32.82	2.484188G	-58.84	6.377694G	-54.35	1
2440MHz	Pass	2.44008G	7.52	-22.48	33.552M	-53.44	2.399152G	-55.52	2.484488G	-56.39	6.194764G	-54.67	1
2480MHz	Pass	2.44008G	7.52	-22.48	33.552M	-53.48	2.399504G	-58.15	2.483552G	-36.87	2.4855G	-47.53	1

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

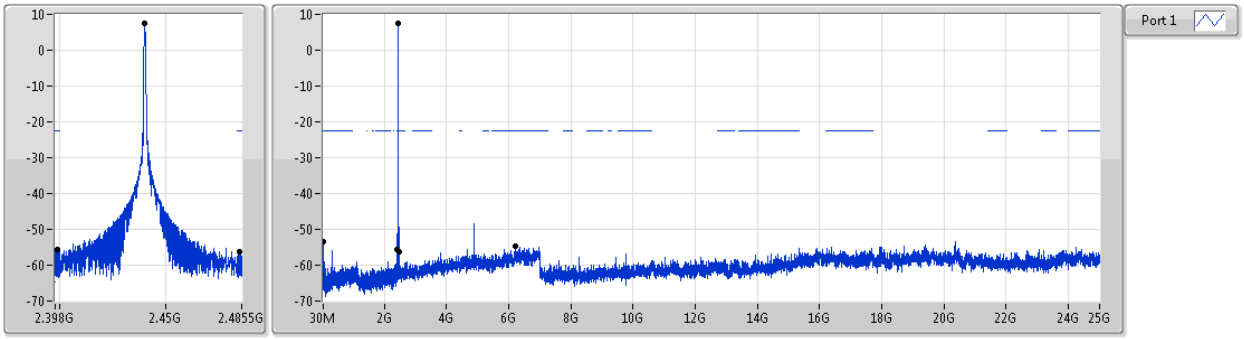
2402MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44008G	7.52	-22.48	2.39208G	-45.53	2.399968G	-32.82	2.484188G	-58.84	6.377694G	-54.35	1

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

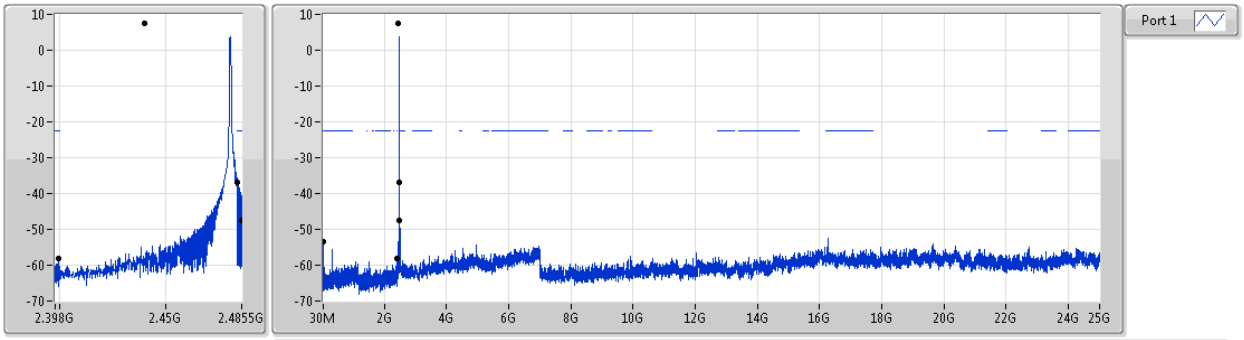
2440MHz



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	7.52	-22.48	33.552M	-53.44	2.399152G	-55.52	2.484488G	-56.39	6.194764G	-54.67	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
2.44008G	7.52	-22.48	33.552M	-53.48	2.399504G	-58.15	2.483552G	-36.87	2.4855G	-47.53	1

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.

3.6.2 Measuring Instruments

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

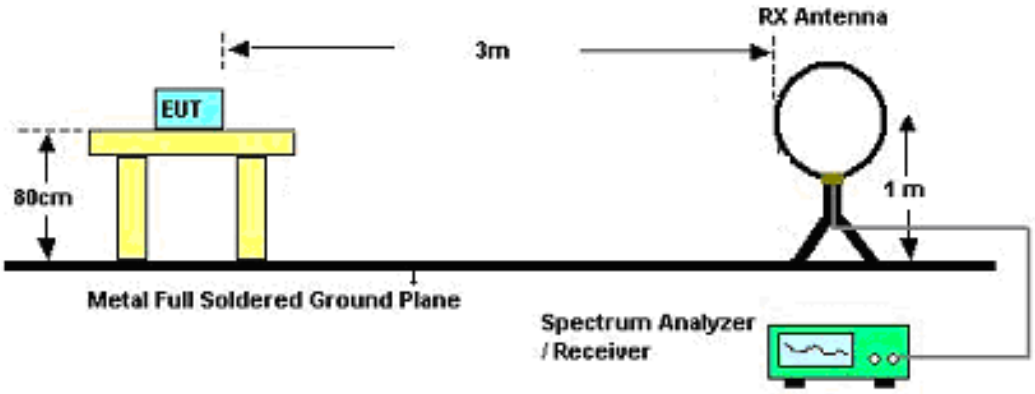
3.6.3 Test Procedures

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.		

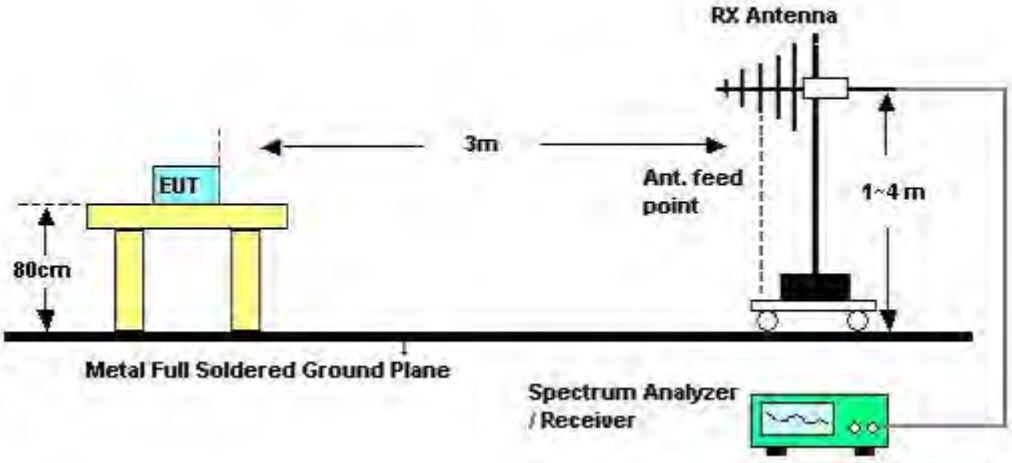
3.6.4 Test Setup

Transmitter Radiated Emissions

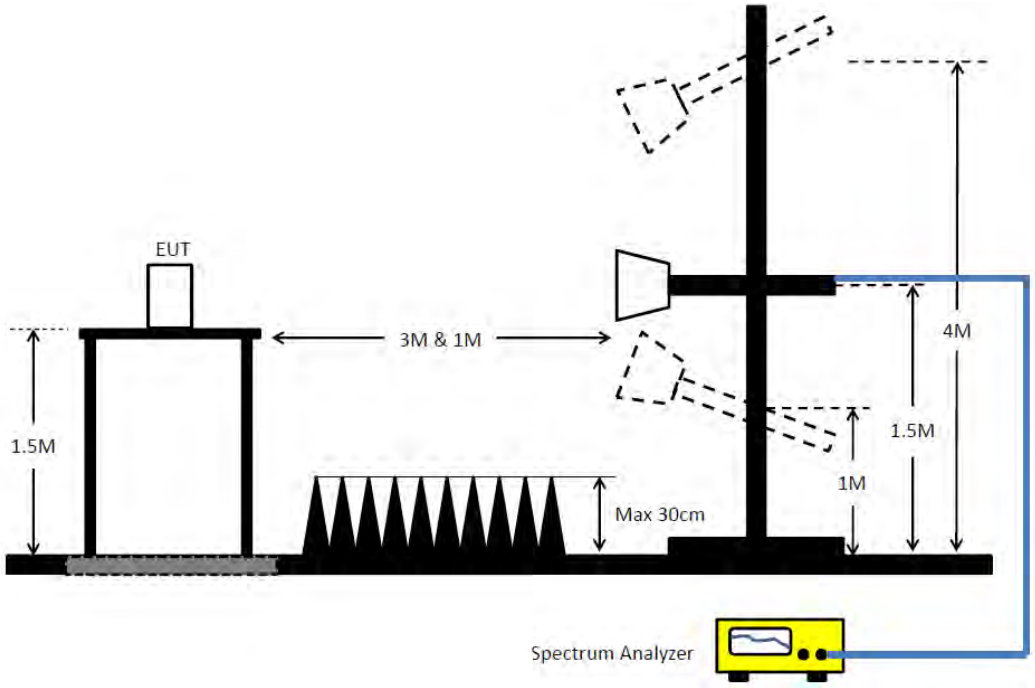
9kHz ~30MHz



30MHz~1GHz



Above 1GHz

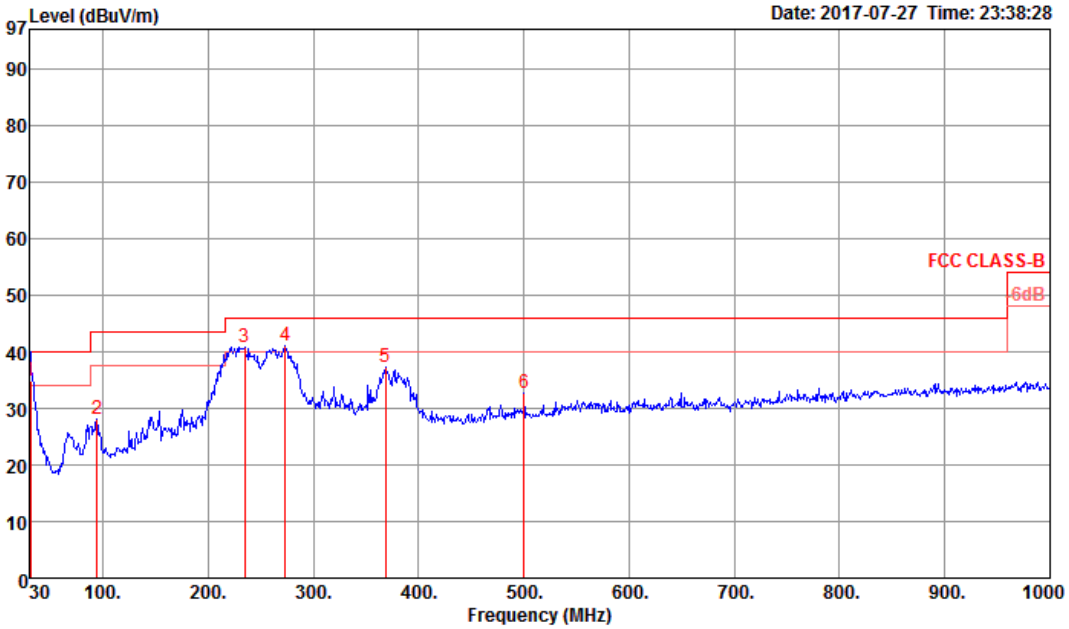


3.6.5 Transmitter Radiated Unwanted Emissions (Below 30MHz)

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

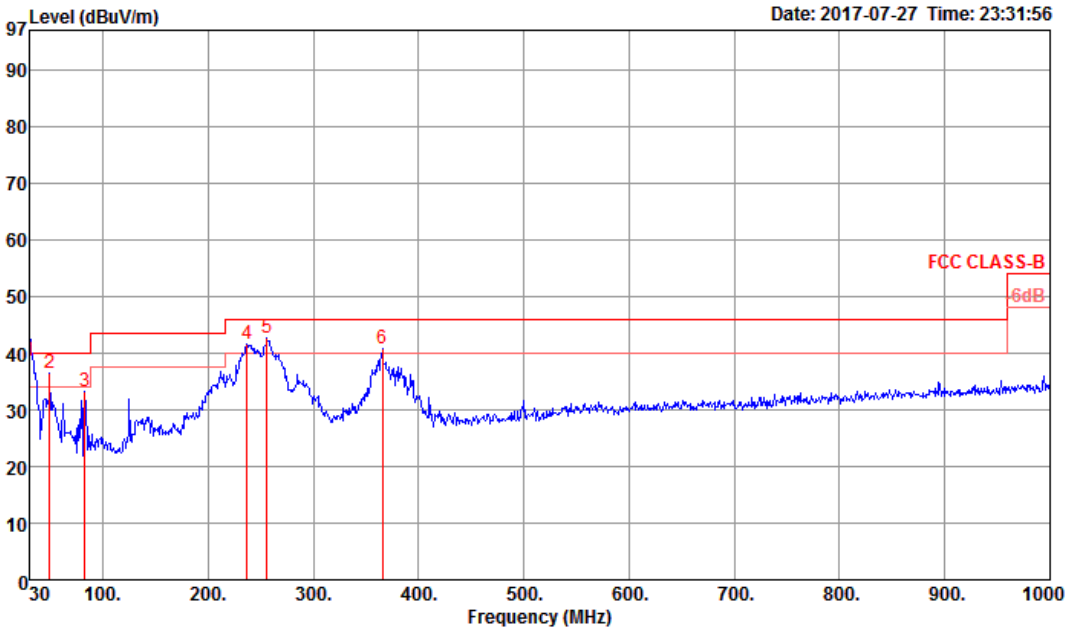
RSE below 1GHz Result			
Operating Mode	4	**Polarization**	Horizontal
Operating Function	CTX		



	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	34.98	40.00	-5.02	37.45	2.11	24.00	28.58	100	314	QP	HORIZONTAL
2	94.02	28.10	43.50	-15.40	38.74	2.21	15.58	28.43	100	107	Peak	HORIZONTAL
3	234.67	40.91	46.00	-5.09	49.76	2.57	16.54	27.96	100	216	Peak	HORIZONTAL
4	273.47	41.04	46.00	-4.96	47.32	2.68	18.91	27.87	100	102	Peak	HORIZONTAL
5	368.53	37.18	46.00	-8.82	41.98	3.03	20.62	28.45	100	125	Peak	HORIZONTAL
6	500.45	32.71	46.00	-13.29	35.08	3.45	23.46	29.28	100	175	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	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	30.00	38.76	40.00	-1.24	41.00	2.10	24.24	28.58	100	255	QP	VERTICAL
2	49.40	36.51	40.00	-3.49	48.40	2.16	14.52	28.57	100	130	Peak	VERTICAL
3	82.38	33.31	40.00	-6.69	46.08	2.22	13.47	28.46	100	123	Peak	VERTICAL
4	236.61	41.60	46.00	-4.40	50.27	2.57	16.72	27.96	100	324	Peak	VERTICAL
5	256.01	42.62	46.00	-3.38	48.91	2.62	19.00	27.91	100	211	Peak	VERTICAL
6	365.62	40.91	46.00	-5.09	45.74	3.02	20.58	28.43	100	190	Peak	VERTICAL

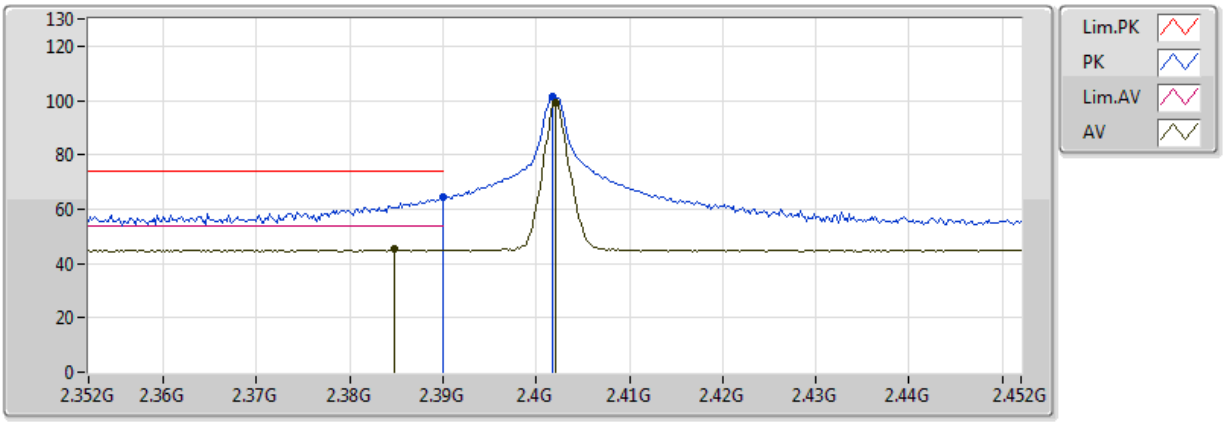
Note 1: “>20dB” means emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found emissions (No emissions were detected.)

RSE Above 1GHz Result
For Set 1 antennas / 1TX:
Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Pol. (H/V)	Azimuth (°)	Height (m)	Comments
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-
2.4-2.4835GHz	Pass	PK	2.483502G	73.85	74.00	-0.15	32.14	3	V	134	1.49	-

BT-LE(1Mbps)

2402MHz_TX

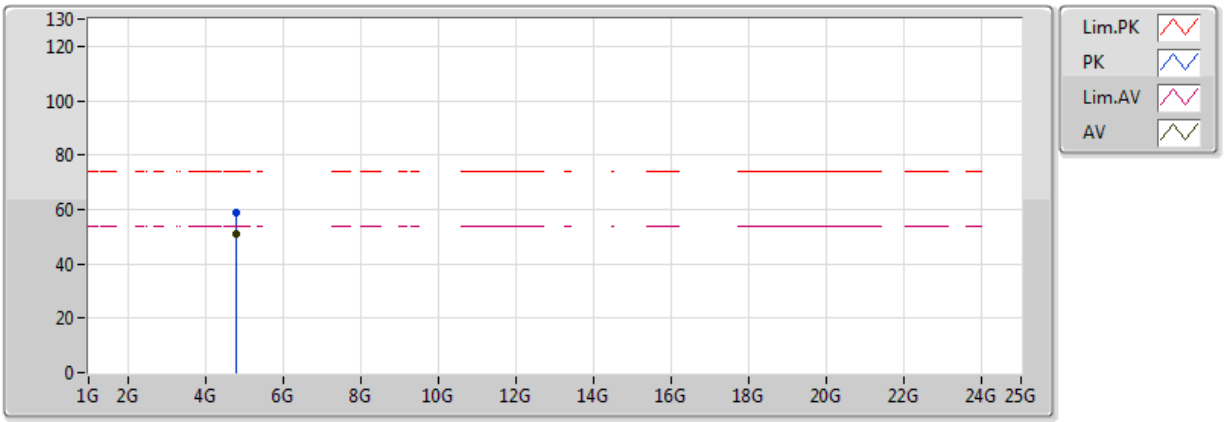


20170814
EUT Z 1TX
Setting 0C
03-J-4
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.3848G	45.26	54.00	-8.74	31.90	3	V	134	1.18	-
AV	2.402G	99.19	Inf	-Inf	31.94	3	V	134	1.18	-
PK	2.39G	64.27	74.00	-9.73	31.91	3	V	134	1.18	-
PK	2.4018G	101.40	Inf	-Inf	31.94	3	V	134	1.18	-

BT-LE(1Mbps)

2402MHz_TX

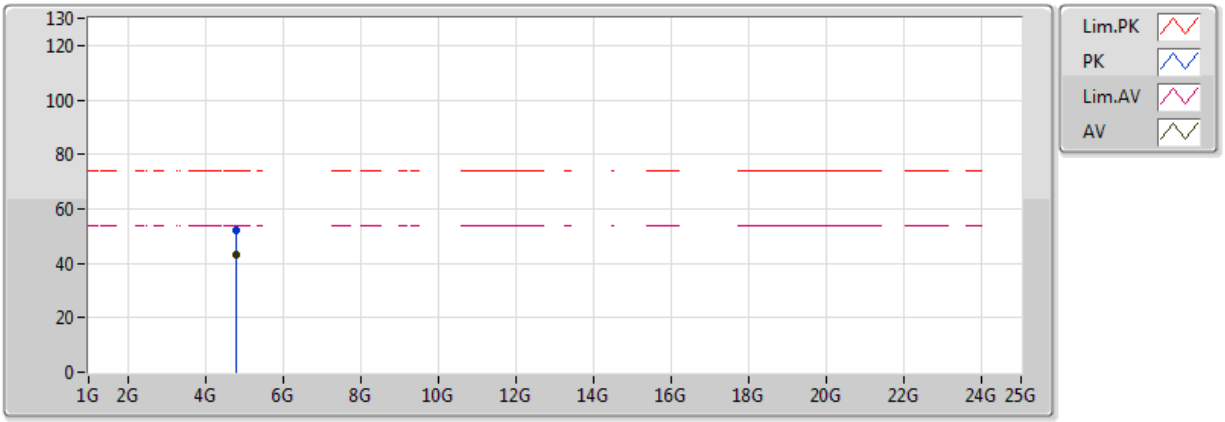


20170814
EUT Z 1TX
Setting 0C
03-J-4
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.80406G	50.91	54.00	-3.09	4.68	3	V	162	2.17	-
PK	4.80338G	58.91	74.00	-15.09	4.68	3	V	162	2.17	-

BT-LE(1Mbps)

2402MHz_TX

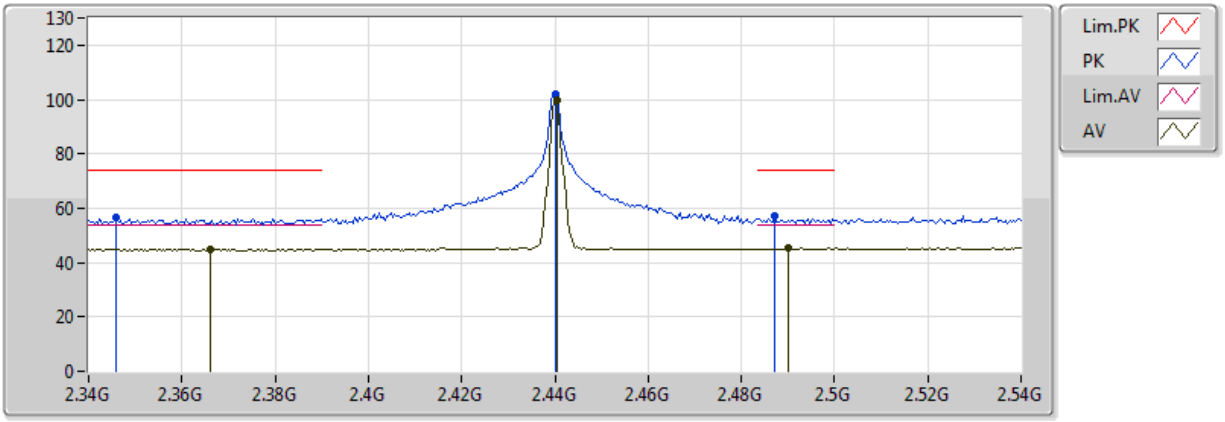


20170814
EUT Z 1TX
Setting 0C
03-J-4
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.80402G	43.38	54.00	-10.62	4.68	3	H	201	1.54	-
PK	4.8047G	52.31	74.00	-21.69	4.68	3	H	201	1.54	-

BT-LE(1Mbps)

2440MHz_TX

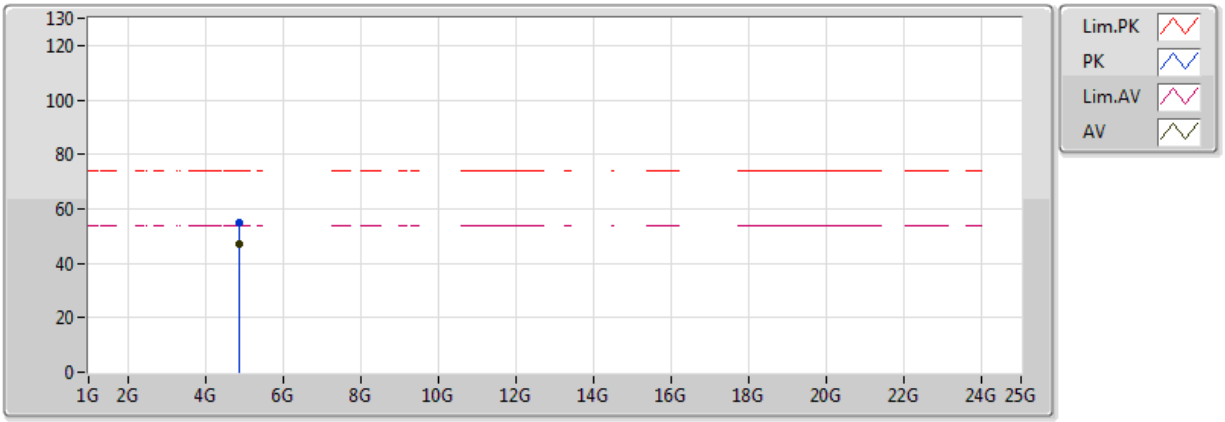


20170814
EUT Z 1TX
Setting 0C
03-J-4
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.366G	44.91	54.00	-9.09	31.85	3	V	217	1.04	-
AV	2.4404G	99.88	Inf	-Inf	32.04	3	V	217	1.04	-
AV	2.49G	45.26	54.00	-8.74	32.16	3	V	217	1.04	-
PK	2.346G	56.35	74.00	-17.65	31.80	3	V	217	1.04	-
PK	2.44G	101.78	Inf	-Inf	32.04	3	V	217	1.04	-
PK	2.4872G	57.14	74.00	-16.86	32.15	3	V	217	1.04	-

BT-LE(1Mbps)

2440MHz_TX

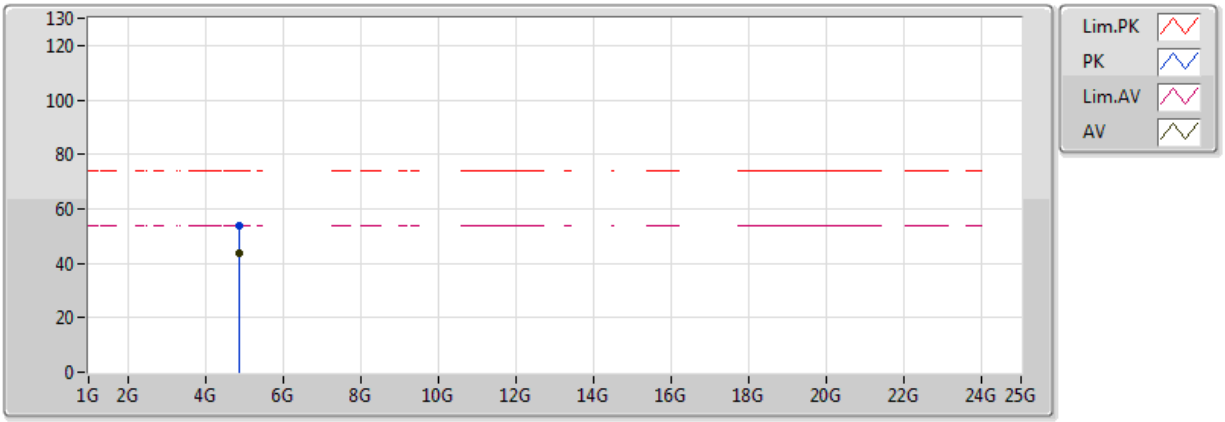


20170814
EUT Z 1TX
Setting 0C
03-J-4
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.88014G	46.85	54.00	-7.15	4.83	3	V	164	1.89	-
PK	4.8806G	55.16	74.00	-18.84	4.83	3	V	164	1.89	-

BT-LE(1Mbps)

2440MHz_TX

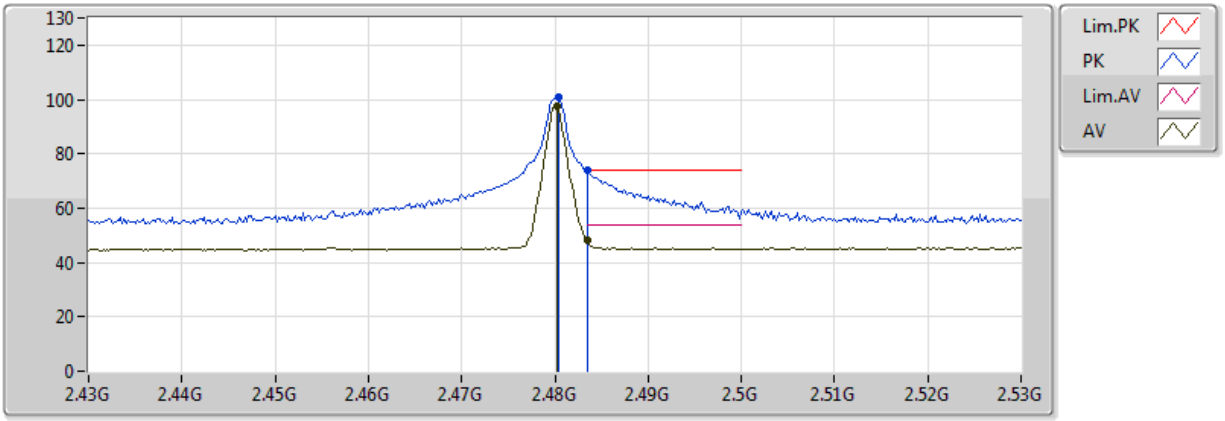


20170814
EUT Z 1TX
Setting 0C
03-J-4
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.88002G	43.95	54.00	-10.05	4.83	3	H	202	1.00	-
PK	4.8795G	53.69	74.00	-20.31	4.83	3	H	202	1.00	-

BT-LE(1Mbps)

2480MHz_TX

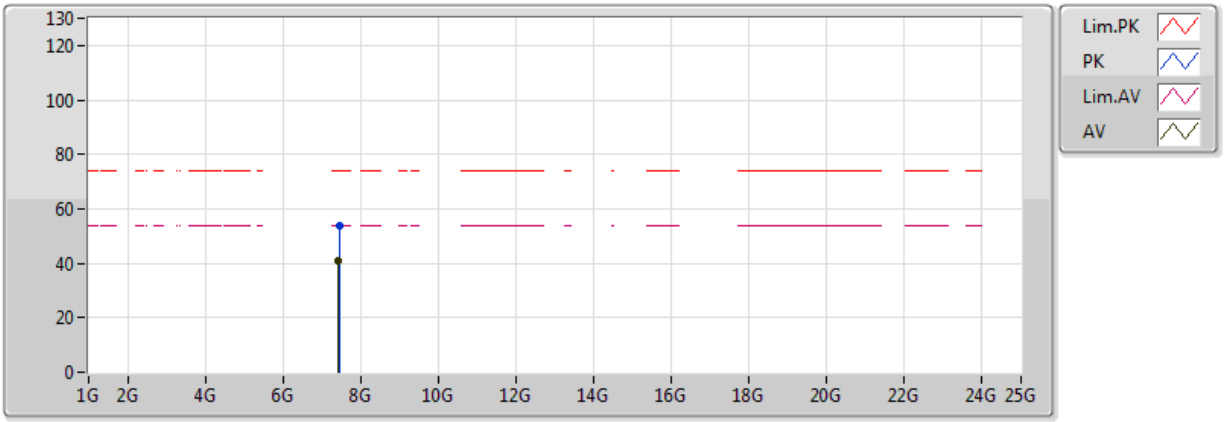


20170814
EUT Z 1TX
Setting 0B
03-J-4
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.4802G	97.73	Inf	-Inf	32.13	3	V	134	1.49	-
AV	2.483502G	47.93	54.00	-6.07	32.14	3	V	134	1.49	-
PK	2.4804G	101.13	Inf	-Inf	32.13	3	V	134	1.49	-
PK	2.483502G	73.85	74.00	-0.15	32.14	3	V	134	1.49	-

BT-LE(1Mbps)

2480MHz_TX

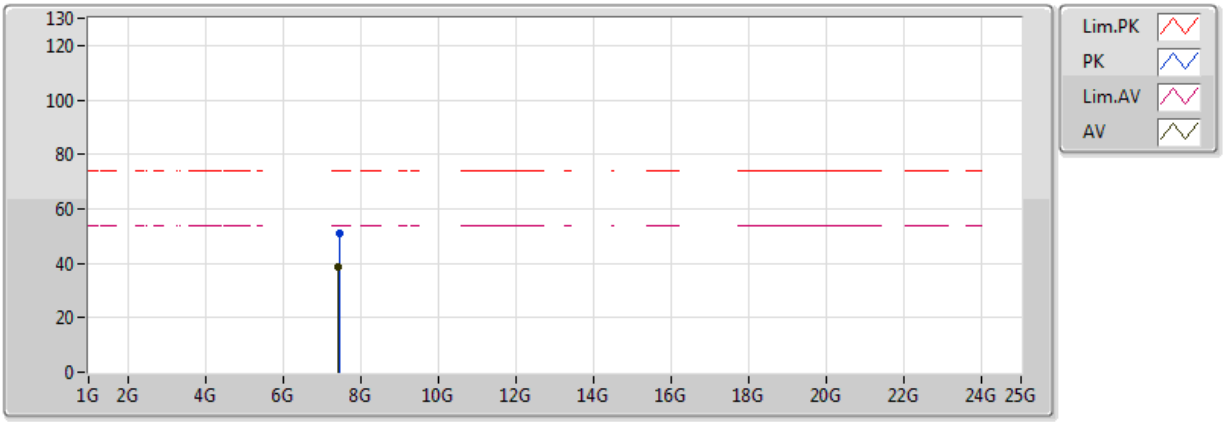


20170814
EUT Z 1TX
Setting 0B
03-J-4
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	7.4396G	41.07	54.00	-12.93	8.96	3	V	269	1.06	-
PK	7.44072G	54.02	74.00	-19.98	8.97	3	V	269	1.06	-

BT-LE(1Mbps)

2480MHz_TX



20170814
EUT Z 1TX
Setting 0B
03-J-4
FSP

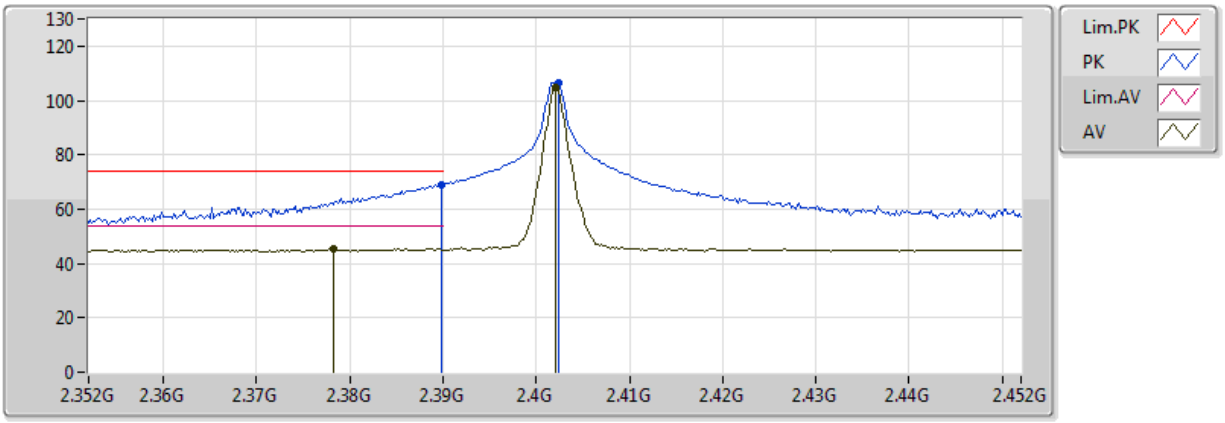
Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	7.44024G	38.55	54.00	-15.45	8.97	3	H	113	2.03	-
PK	7.44072G	50.93	74.00	-23.07	8.97	3	H	113	2.03	-

For Set 3 antennas / 1TX:
Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Pol. (H/V)	Azimuth (°)	Height (m)	Comments
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-
2.4-2.4835GHz	Pass	PK	2.483502G	73.97	74.00	-0.03	32.14	3	H	178	1.57	-

BT-LE(1Mbps)

2402MHz_TX

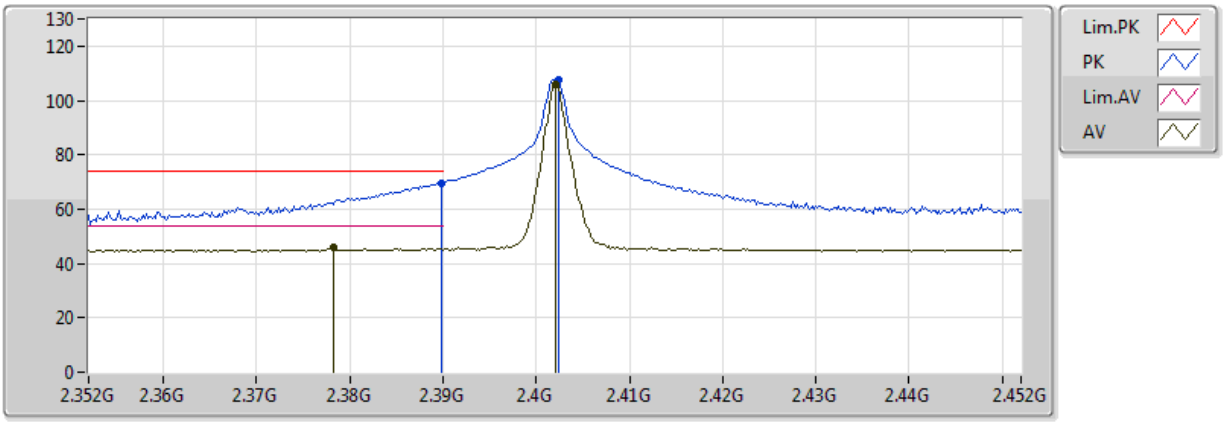


20170814
EUT Z 1TX
Setting 0C
03-J-4
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.3782G	45.61	54.00	-8.39	31.88	3	V	173	1.64	-
AV	2.402G	104.65	Inf	-Inf	31.94	3	V	173	1.64	-
PK	2.3898G	69.09	74.00	-4.91	31.91	3	V	173	1.64	-
PK	2.4024G	106.59	Inf	-Inf	31.95	3	V	173	1.64	-

BT-LE(1Mbps)

2402MHz_TX

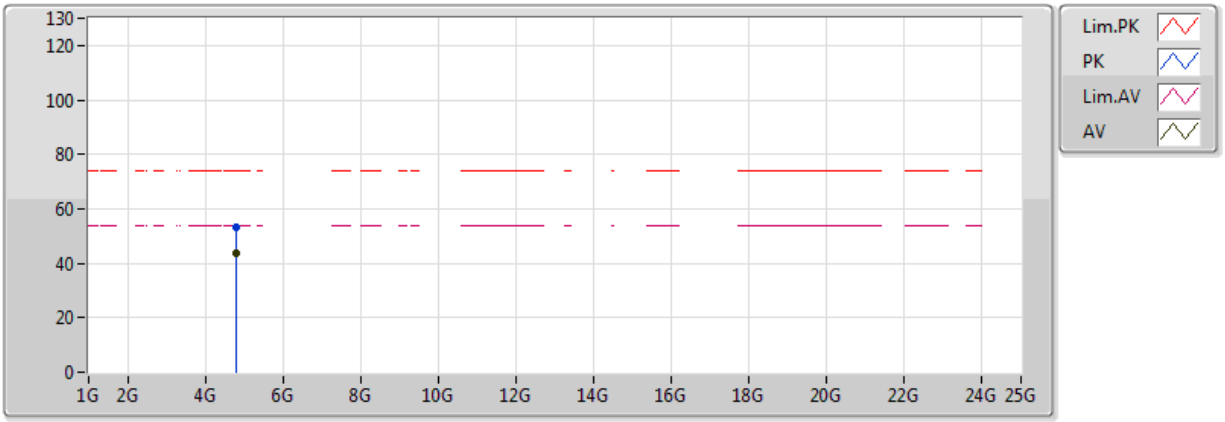


20170814
EUT Z 1TX
Setting 0C
03-J-4
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.3782G	45.83	54.00	-8.17	31.88	3	H	172	1.50	-
AV	2.402G	105.78	Inf	-Inf	31.94	3	H	172	1.50	-
PK	2.3898G	69.72	74.00	-4.28	31.91	3	H	172	1.50	-
PK	2.4024G	107.54	Inf	-Inf	31.95	3	H	172	1.50	-

BT-LE(1Mbps)

2402MHz_TX

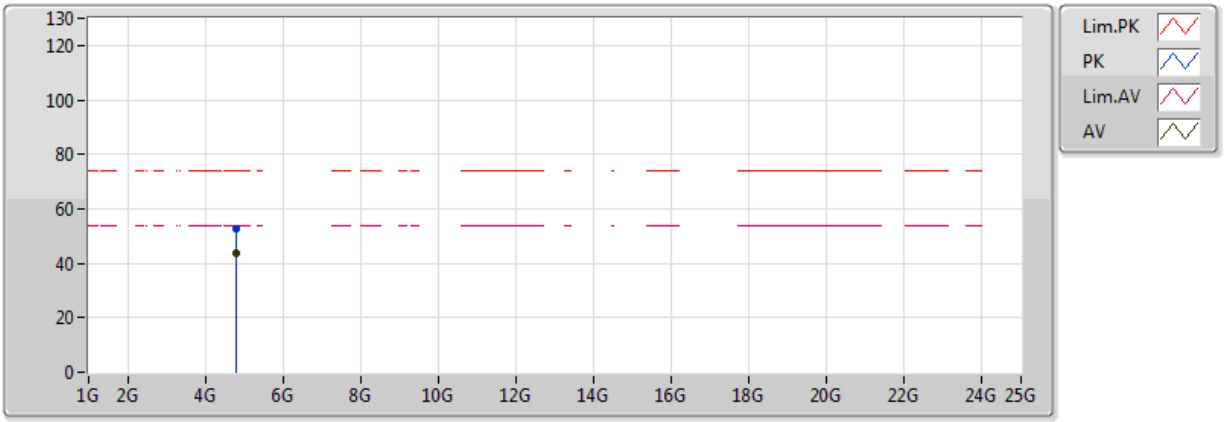


20170814
EUT Z 1TX
Setting 0C
03-J-4
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.80406G	43.50	54.00	-10.50	4.68	3	V	335	1.20	-
PK	4.80465G	53.01	74.00	-20.99	4.68	3	V	335	1.20	-

BT-LE(1Mbps)

2402MHz_TX

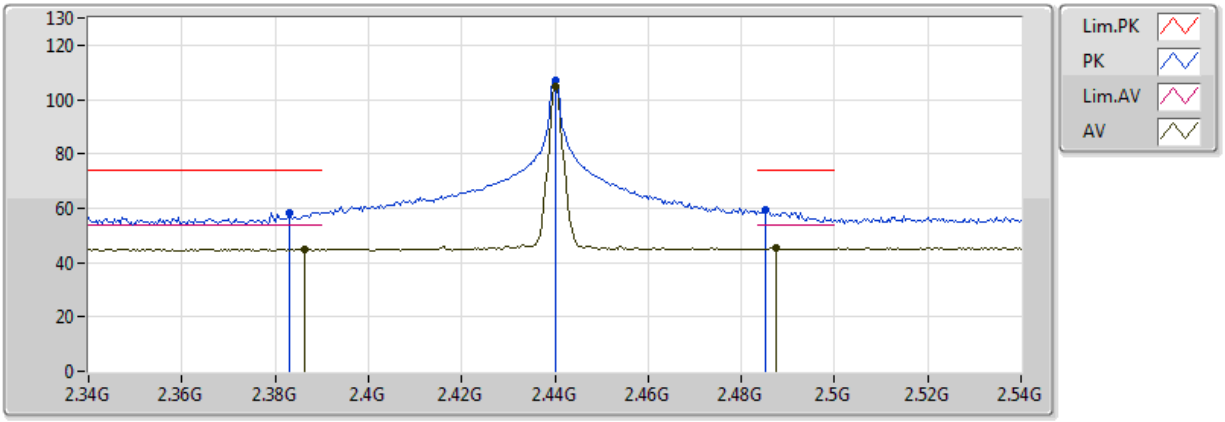


20170814
EUT Z 1TX
Setting 0C
03-J-4
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.80393G	43.49	54.00	-10.51	4.68	3	H	118	1.27	-
PK	4.80449G	52.57	74.00	-21.43	4.68	3	H	118	1.27	-

BT-LE(1Mbps)

2440MHz_TX

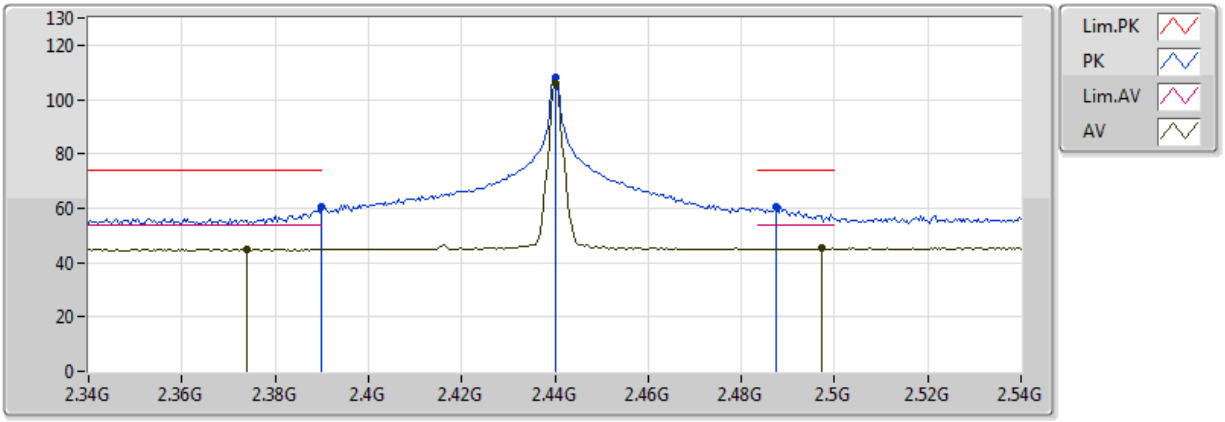


20170814
EUT Z 1TX
Setting 0C
03-J-4
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.3864G	44.96	54.00	-9.04	31.90	3	V	178	1.48	-
AV	2.44G	104.99	Inf	-Inf	32.04	3	V	178	1.48	-
AV	2.4876G	45.42	54.00	-8.58	32.15	3	V	178	1.48	-
PK	2.3832G	58.50	74.00	-15.50	31.90	3	V	178	1.48	-
PK	2.44G	106.95	Inf	-Inf	32.04	3	V	178	1.48	-
PK	2.4852G	59.61	74.00	-14.39	32.14	3	V	178	1.48	-

BT-LE(1Mbps)

2440MHz_TX

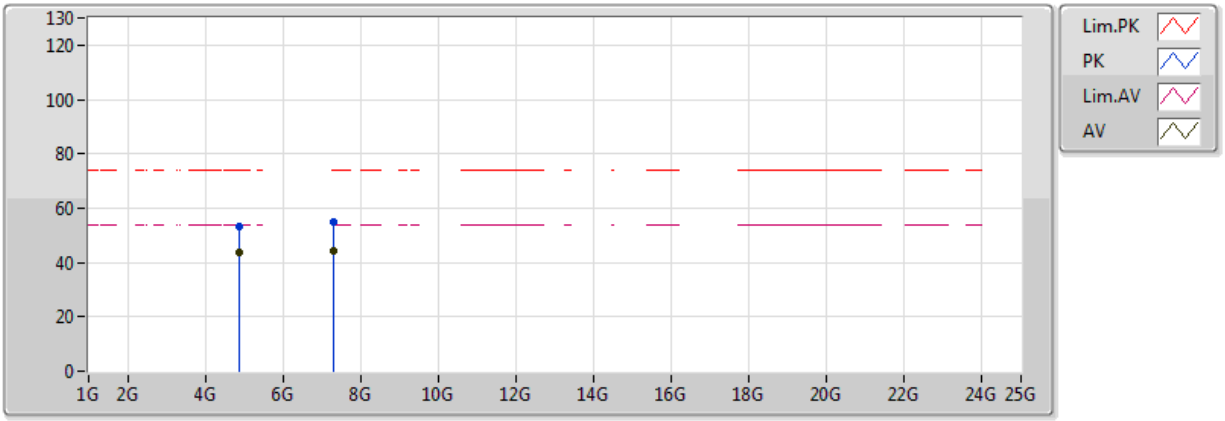


20170814
EUT Z 1TX
Setting 0C
03-J-4
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.374G	44.99	54.00	-9.01	31.87	3	H	179	1.48	-
AV	2.44G	106.04	Inf	-Inf	32.04	3	H	179	1.48	-
AV	2.4972G	45.25	54.00	-8.75	32.17	3	H	179	1.48	-
PK	2.39G	60.41	74.00	-13.59	31.91	3	H	179	1.48	-
PK	2.44G	107.96	Inf	-Inf	32.04	3	H	179	1.48	-
PK	2.4876G	60.55	74.00	-13.45	32.15	3	H	179	1.48	-

BT-LE(1Mbps)

2440MHz_TX

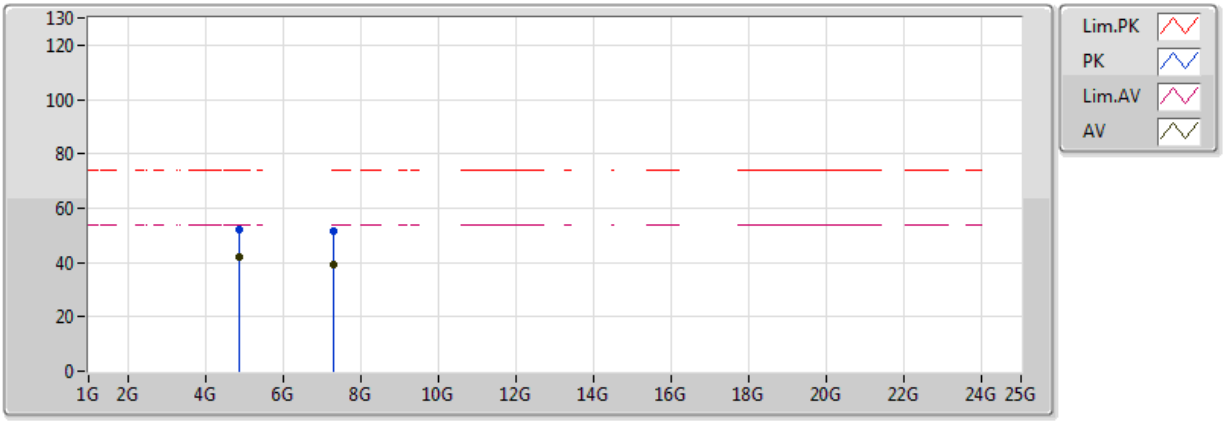


20170814
EUT Z1TX
Setting 0C
03-J-4
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.8801G	43.64	54.00	-10.36	4.83	3	V	339	1.68	-
AV	7.31938G	44.27	54.00	-9.73	8.81	3	V	308	1.03	-
PK	4.8807G	53.32	74.00	-20.68	4.83	3	V	339	1.68	-
PK	7.32086G	54.75	74.00	-19.25	8.81	3	V	308	1.03	-

BT-LE(1Mbps)

2440MHz_TX

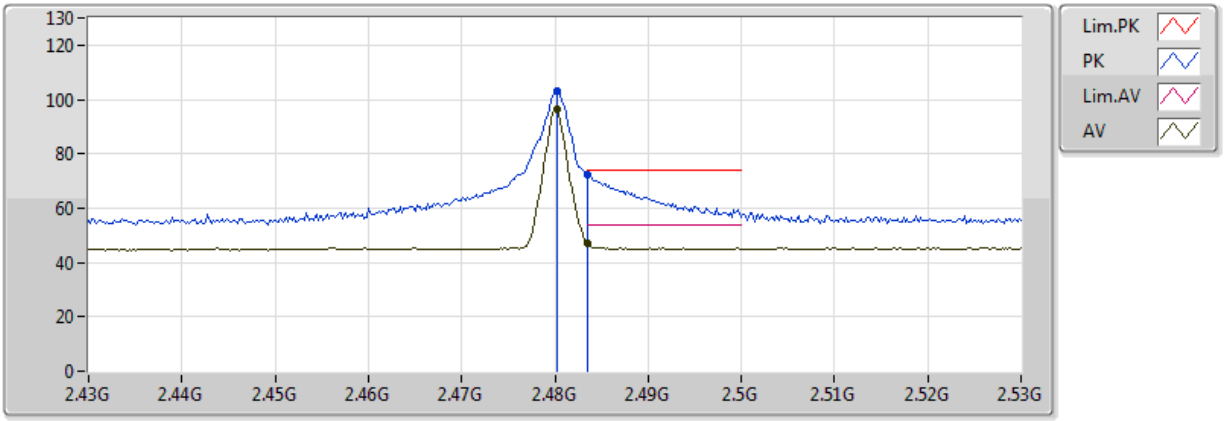


20170814
EUT Z1TX
Setting 0C
03-J-4
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.87992G	42.11	54.00	-11.89	4.83	3	H	195	1.52	-
AV	7.3195G	39.28	54.00	-14.72	8.81	3	H	23	2.43	-
PK	4.87961G	51.89	74.00	-22.11	4.83	3	H	195	1.52	-
PK	7.32066G	51.83	74.00	-22.17	8.81	3	H	23	2.43	-

BT-LE(1Mbps)

2480MHz_TX

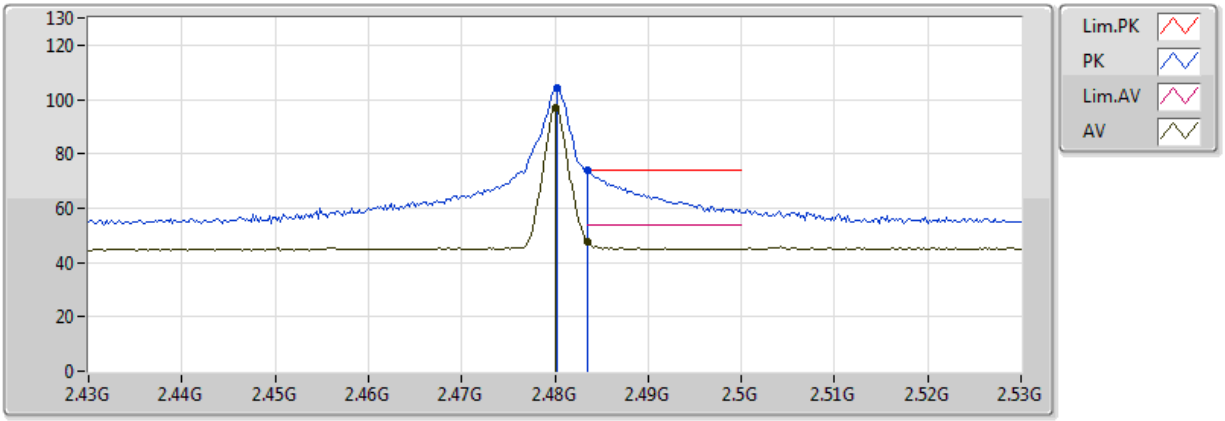


20170814
EUT Z 1TX
Setting 06
03-J-4
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.4802G	96.25	Inf	-Inf	32.13	3	V	175	1.47	-
AV	2.483502G	47.20	54.00	-6.80	32.14	3	V	175	1.47	-
PK	2.4802G	103.20	Inf	-Inf	32.13	3	V	175	1.47	-
PK	2.483502G	72.51	74.00	-1.49	32.14	3	V	175	1.47	-

BT-LE(1Mbps)

2480MHz_TX

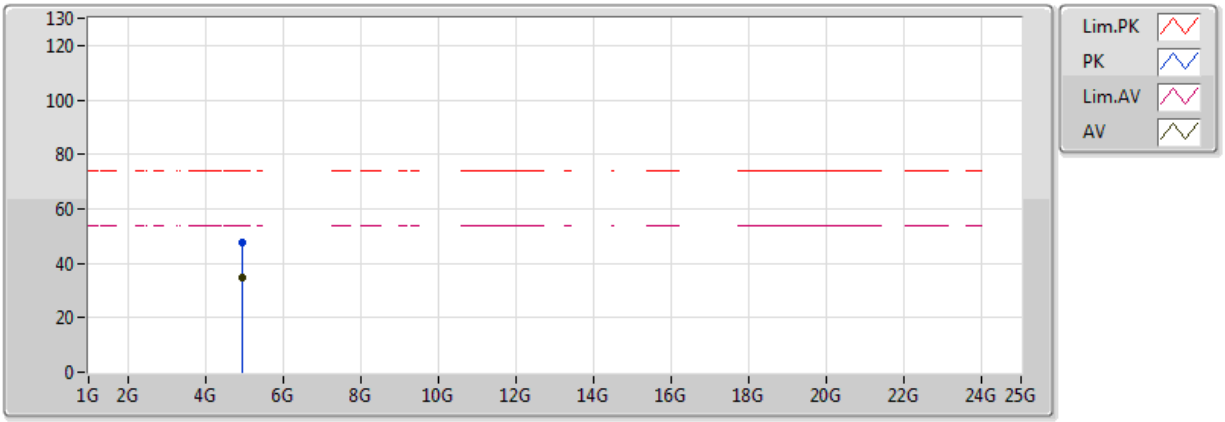


20170814
EUT Z 1TX
Setting 06
03-J-4
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.48G	97.18	Inf	-Inf	32.13	3	H	178	1.57	-
AV	2.483502G	47.83	54.00	-6.17	32.14	3	H	178	1.57	-
PK	2.4802G	104.20	Inf	-Inf	32.13	3	H	178	1.57	-
PK	2.483502G	73.97	74.00	-0.03	32.14	3	H	178	1.57	-

BT-LE(1Mbps)

2480MHz_TX

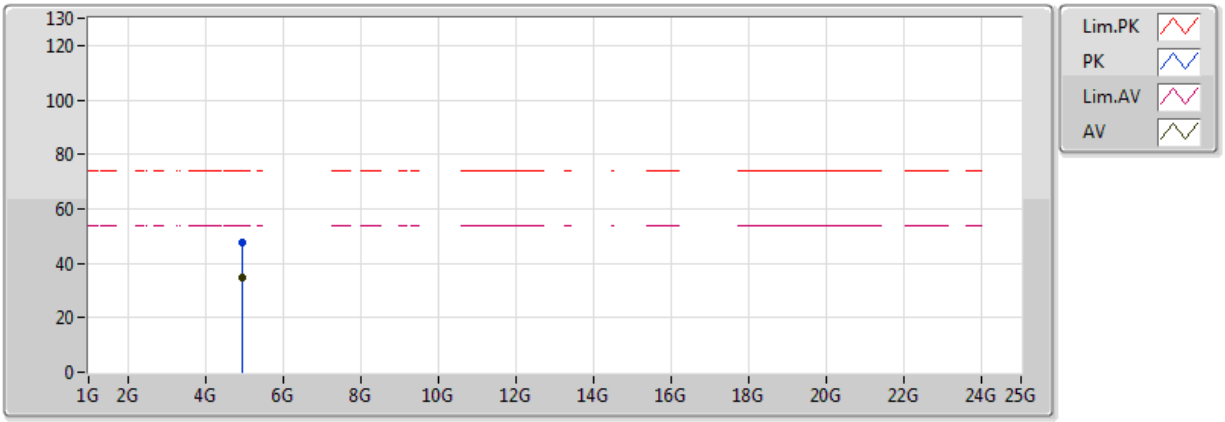


20170814
EUT Z 1TX
Setting 06
03-J-4
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.9607G	34.91	54.00	-19.09	5.00	3	V	197	1.83	-
PK	4.96004G	47.52	74.00	-26.48	5.00	3	V	197	1.83	-

BT-LE(1Mbps)

2480MHz_TX



20170814
EUT Z 1TX
Setting 06
03-J-4
FSP

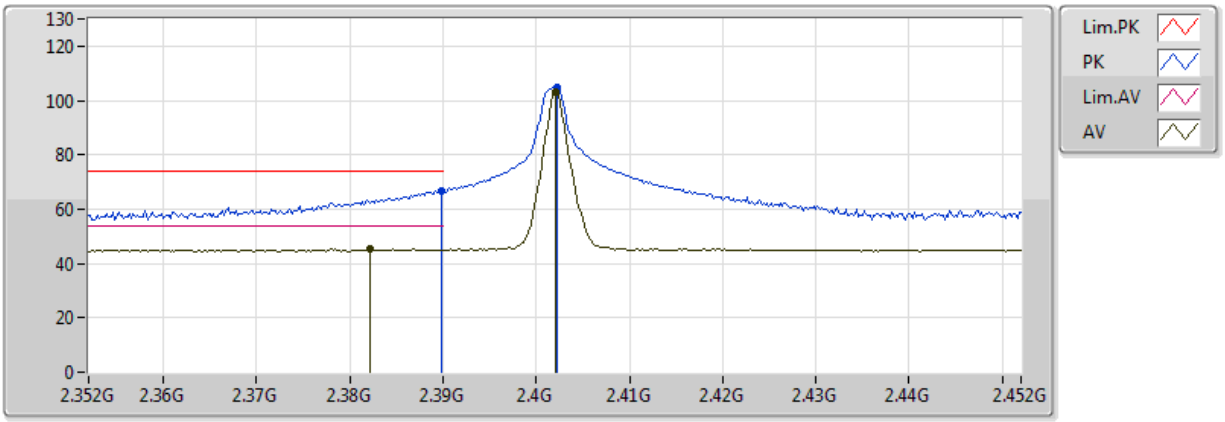
Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.96462G	34.49	54.00	-19.51	5.01	3	H	12	1.22	-
PK	4.9629G	47.44	74.00	-26.56	5.01	3	H	12	1.22	-

For Set 4 antennas / 1TX:
Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Pol. (H/V)	Azimuth (°)	Height (m)	Comments
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-
2.4-2.4835GHz	Pass	PK	2.483502G	73.90	74.00	-0.10	32.14	3	V	161	1.50	-

BT-LE(1Mbps)

2402MHz_TX

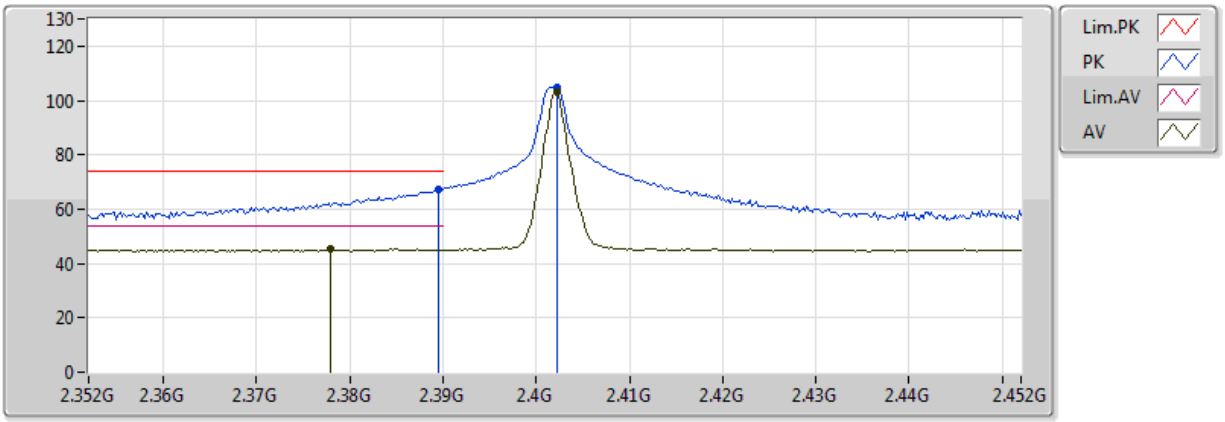


20170814
EUT Z 1TX
Setting 0C
03-J-4
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.3822G	45.28	54.00	-8.72	31.89	3	V	169	1.51	-
AV	2.402G	103.03	Inf	-Inf	31.94	3	V	169	1.51	-
PK	2.3898G	66.71	74.00	-7.29	31.91	3	V	169	1.51	-
PK	2.4022G	104.82	Inf	-Inf	31.95	3	V	169	1.51	-

BT-LE(1Mbps)

2402MHz_TX

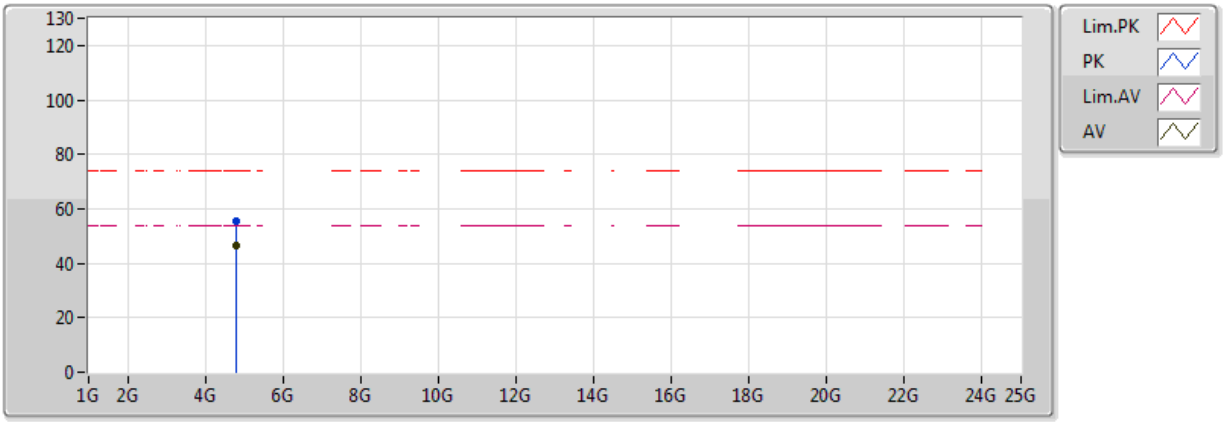


20170814
EUT Z 1TX
Setting 0C
03-J-4
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.378G	45.44	54.00	-8.56	31.88	3	H	168	1.47	-
AV	2.4022G	103.24	Inf	-Inf	31.95	3	H	168	1.47	-
PK	2.3896G	67.22	74.00	-6.78	31.91	3	H	168	1.47	-
PK	2.4022G	105.05	Inf	-Inf	31.95	3	H	168	1.47	-

BT-LE(1Mbps)

2402MHz_TX

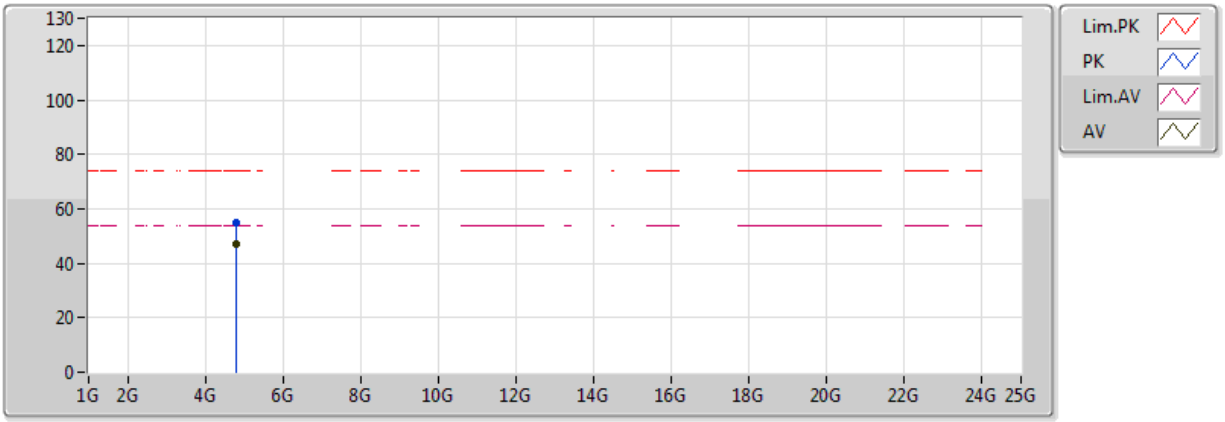


20170814
EUT Z 1TX
Setting 0C
03-J-4
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.80404G	46.74	54.00	-7.26	4.68	3	V	155	1.47	-
PK	4.80362G	55.34	74.00	-18.66	4.68	3	V	155	1.47	-

BT-LE(1Mbps)

2402MHz_TX

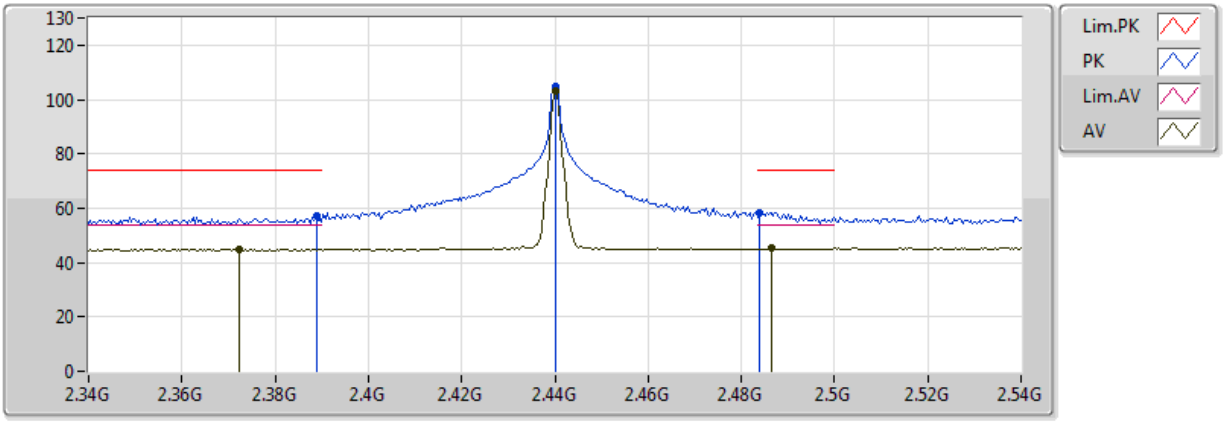


20170814
EUT Z 1TX
Setting 0C
03-J-4
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.804G	46.86	54.00	-7.14	4.68	3	H	182	1.47	-
PK	4.80406G	55.00	74.00	-19.00	4.68	3	H	182	1.47	-

BT-LE(1Mbps)

2440MHz_TX

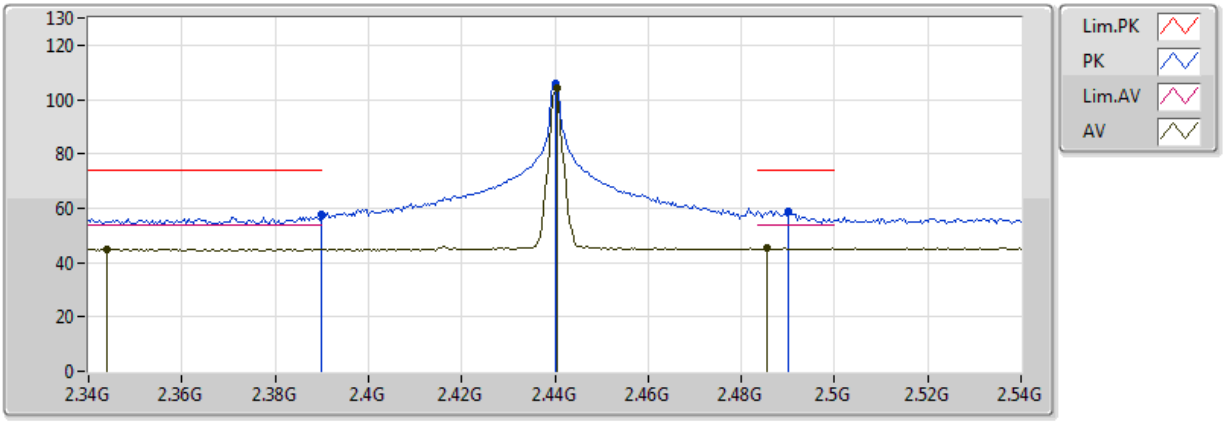


20170814
EUT Z 1TX
Setting 0C
03-J-4
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.3724G	45.01	54.00	-8.99	31.87	3	V	183	1.73	-
AV	2.44G	102.86	Inf	-Inf	32.04	3	V	183	1.73	-
AV	2.4864G	45.48	54.00	-8.52	32.15	3	V	183	1.73	-
PK	2.3888G	57.07	74.00	-16.93	31.91	3	V	183	1.73	-
PK	2.44G	104.81	Inf	-Inf	32.04	3	V	183	1.73	-
PK	2.484G	58.52	74.00	-15.48	32.14	3	V	183	1.73	-

BT-LE(1Mbps)

2440MHz_TX

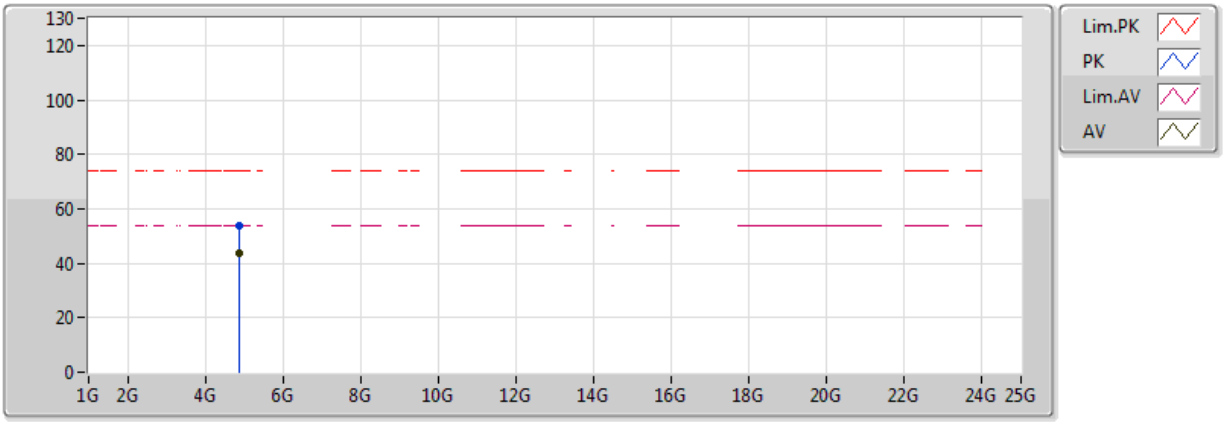


20170814
EUT Z 1TX
Setting 0C
03-J-4
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.344G	45.06	54.00	-8.94	31.79	3	H	180	1.98	-
AV	2.4404G	103.97	Inf	-Inf	32.04	3	H	180	1.98	-
AV	2.4856G	45.20	54.00	-8.80	32.15	3	H	180	1.98	-
PK	2.39G	57.70	74.00	-16.30	31.91	3	H	180	1.98	-
PK	2.44G	105.88	Inf	-Inf	32.04	3	H	180	1.98	-
PK	2.49G	59.04	74.00	-14.96	32.16	3	H	180	1.98	-

BT-LE(1Mbps)

2440MHz_TX

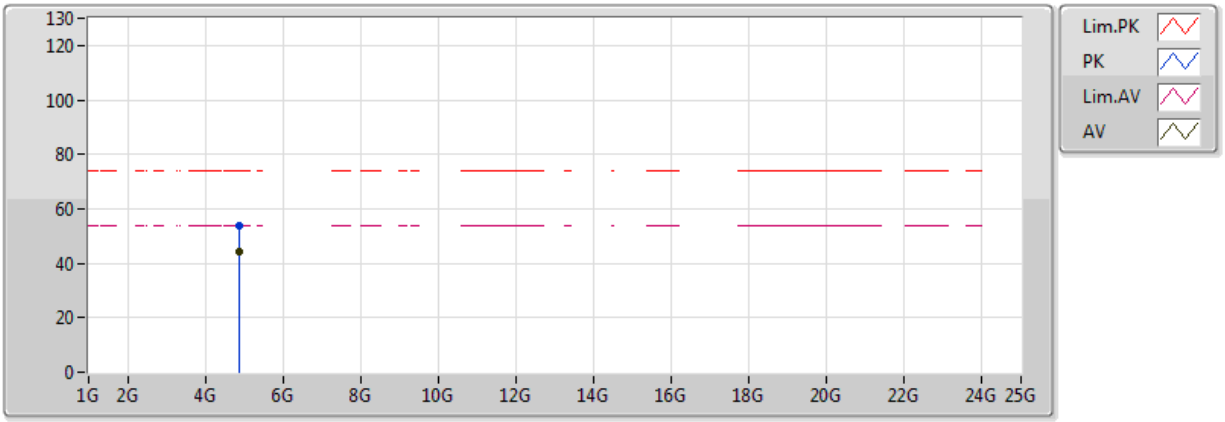


20170814
EUT Z 1TX
Setting 0C
03-J-4
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.880012G	43.88	54.00	-10.12	4.83	3	V	122	1.34	-
PK	4.88064G	53.86	74.00	-20.14	4.83	3	V	122	1.34	-

BT-LE(1Mbps)

2440MHz_TX

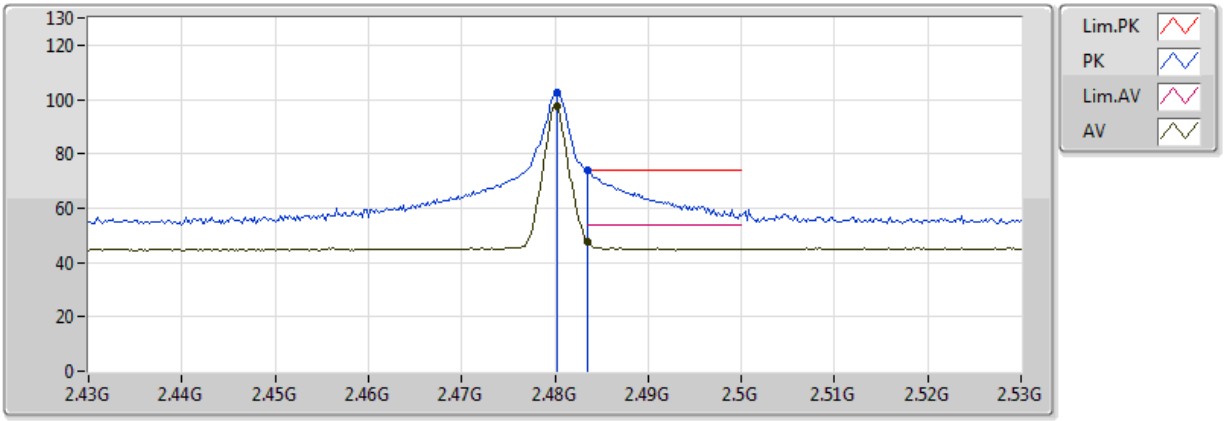


20170814
EUT Z 1TX
Setting 0C
03-J-4
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.880092G	44.00	54.00	-10.00	4.83	3	H	185	1.43	-
PK	4.879984G	53.56	74.00	-20.44	4.83	3	H	185	1.43	-

BT-LE(1Mbps)

2480MHz_TX

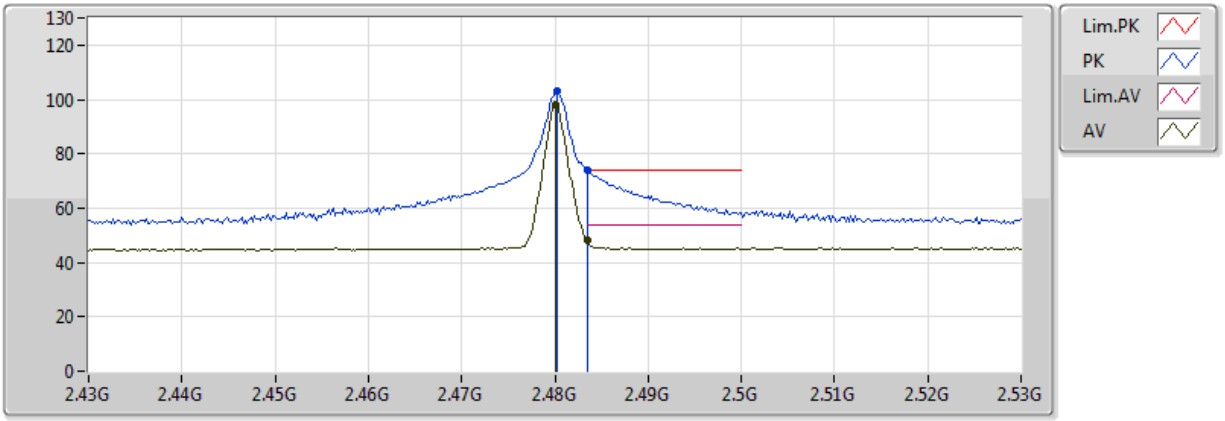


20170814
EUT Z 1TX
Setting 07
03-J-4
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.4802G	97.66	Inf	-Inf	32.13	3	V	161	1.50	-
AV	2.483502G	47.72	54.00	-6.28	32.14	3	V	161	1.50	-
PK	2.4802G	102.65	Inf	-Inf	32.13	3	V	161	1.50	-
PK	2.483502G	73.90	74.00	-0.10	32.14	3	V	161	1.50	-

BT-LE(1Mbps)

2480MHz_TX

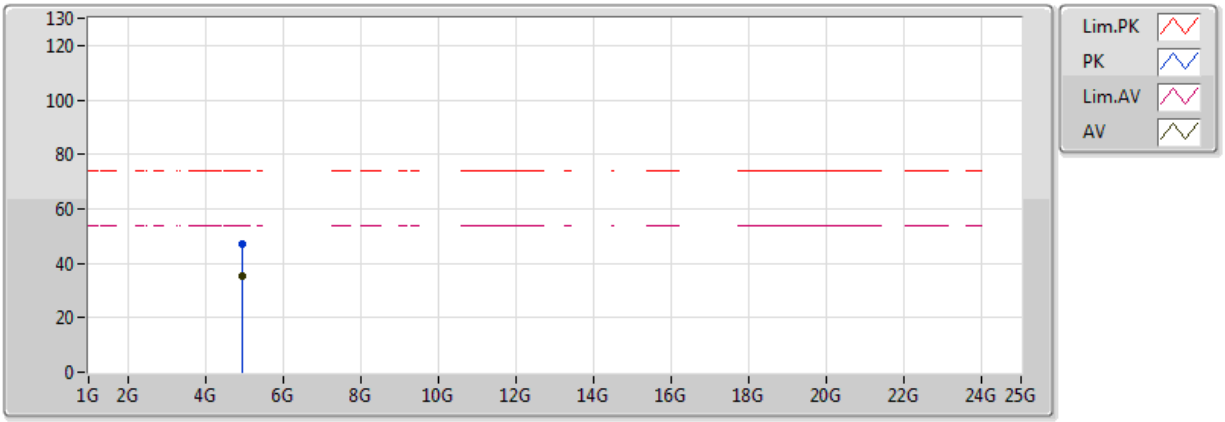


20170814
EUT Z 1TX
Setting 07
03-J-4
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.48G	97.99	Inf	-Inf	32.13	3	H	168	1.91	-
AV	2.483502G	47.95	54.00	-6.05	32.14	3	H	168	1.91	-
PK	2.4802G	102.92	Inf	-Inf	32.13	3	H	168	1.91	-
PK	2.483502G	73.82	74.00	-0.18	32.14	3	H	168	1.91	-

BT-LE(1Mbps)

2480MHz_TX

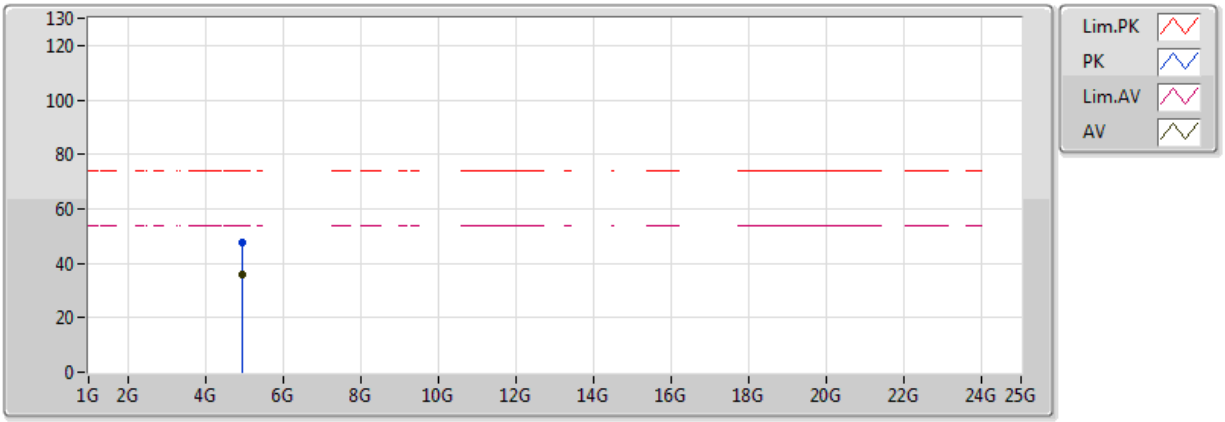


20170814
EUT Z 1TX
Setting 07
03-J-4
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.96056G	35.29	54.00	-18.71	5.00	3	V	184	1.57	-
PK	4.95986G	47.19	74.00	-26.81	5.00	3	V	184	1.57	-

BT-LE(1Mbps)

2480MHz_TX



20170814
EUT Z 1TX
Setting 07
03-J-4
FSP

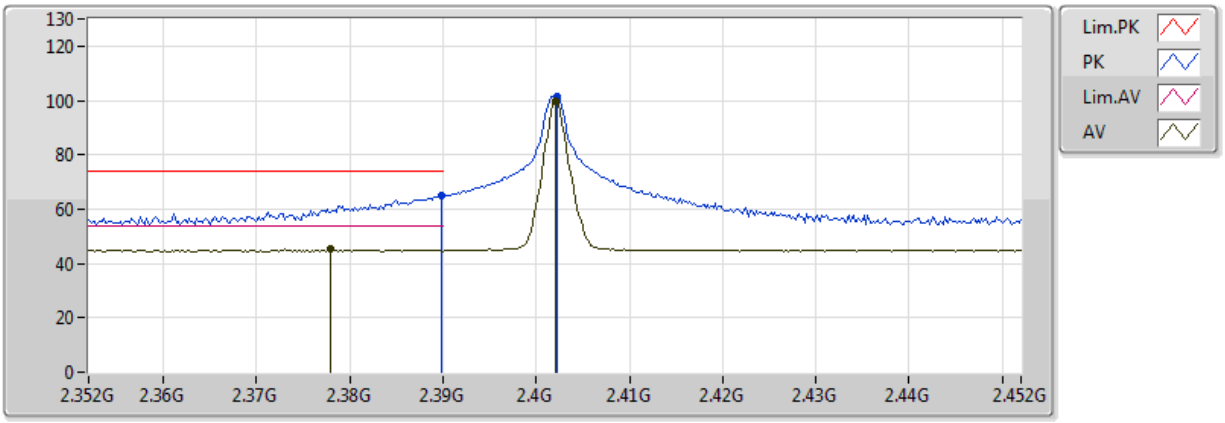
Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.96012G	35.76	54.00	-18.24	5.00	3	H	165	1.52	-
PK	4.96052G	47.52	74.00	-26.48	5.00	3	H	165	1.52	-

For Set 5 antennas / 1TX:
Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Pol. (H/V)	Azimuth (°)	Height (m)	Comments
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-
2.4-2.4835GHz	Pass	PK	2.483502G	73.56	74.00	-0.44	32.14	3	V	261	1.45	-

BT-LE(1Mbps)

2402MHz_TX

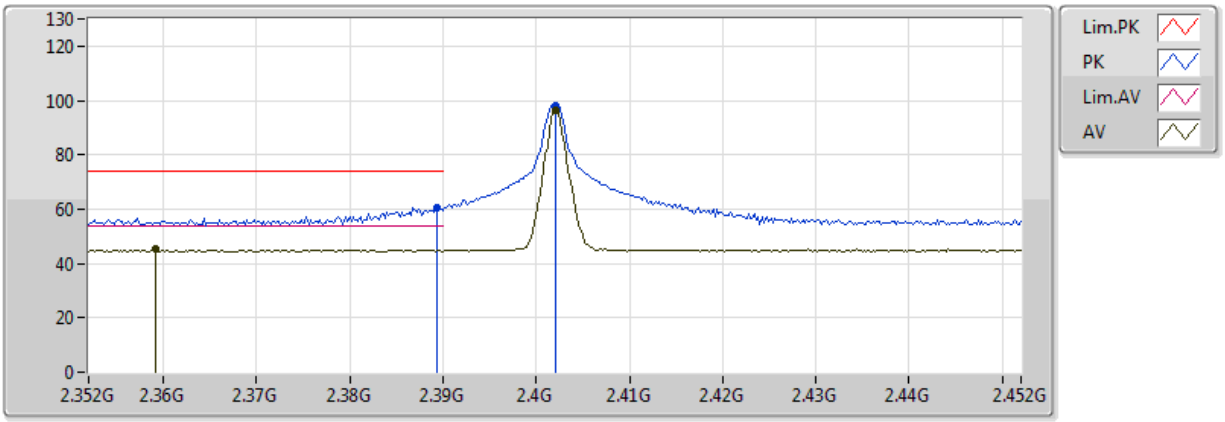


20170814
EUT Z 1TX
Setting 0C
03-J-4
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.378G	45.33	54.00	-8.67	31.88	3	V	214	2.00	-
AV	2.402G	99.73	Inf	-Inf	31.94	3	V	214	2.00	-
PK	2.3898G	65.14	74.00	-8.86	31.91	3	V	214	2.00	-
PK	2.4022G	101.57	Inf	-Inf	31.95	3	V	214	2.00	-

BT-LE(1Mbps)

2402MHz_TX

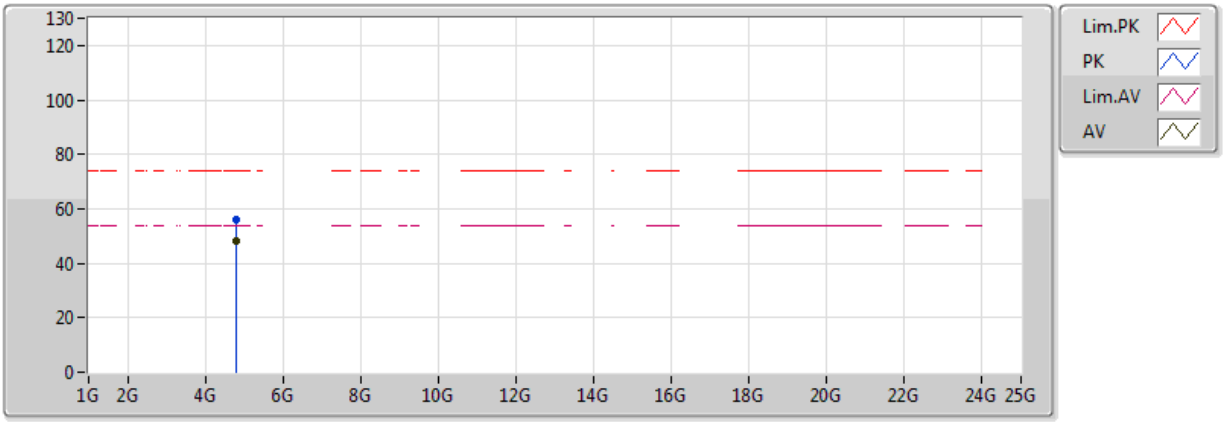


20170814
EUT Z 1TX
Setting 0C
03-J-4
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.3592G	45.21	54.00	-8.79	31.83	3	H	109	1.79	-
AV	2.402G	96.48	Inf	-Inf	31.94	3	H	109	1.79	-
PK	2.3894G	60.46	74.00	-13.54	31.91	3	H	109	1.79	-
PK	2.402G	98.24	Inf	-Inf	31.94	3	H	109	1.79	-

BT-LE(1Mbps)

2402MHz_TX

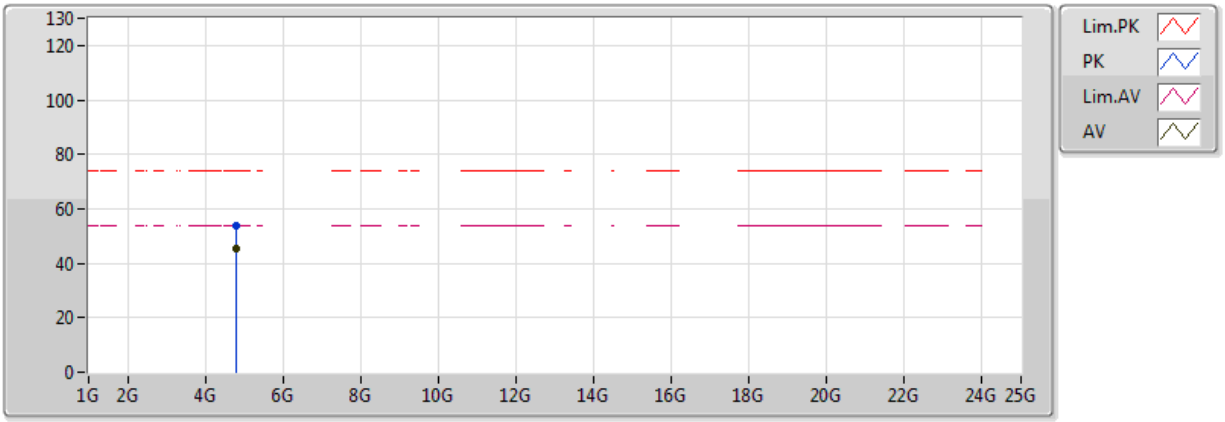


20170814
EUT Z 1TX
Setting 0C
03-J-4
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.80411G	48.34	54.00	-5.66	4.68	3	V	18	1.36	-
PK	4.80459G	56.14	74.00	-17.86	4.68	3	V	18	1.36	-

BT-LE(1Mbps)

2402MHz_TX

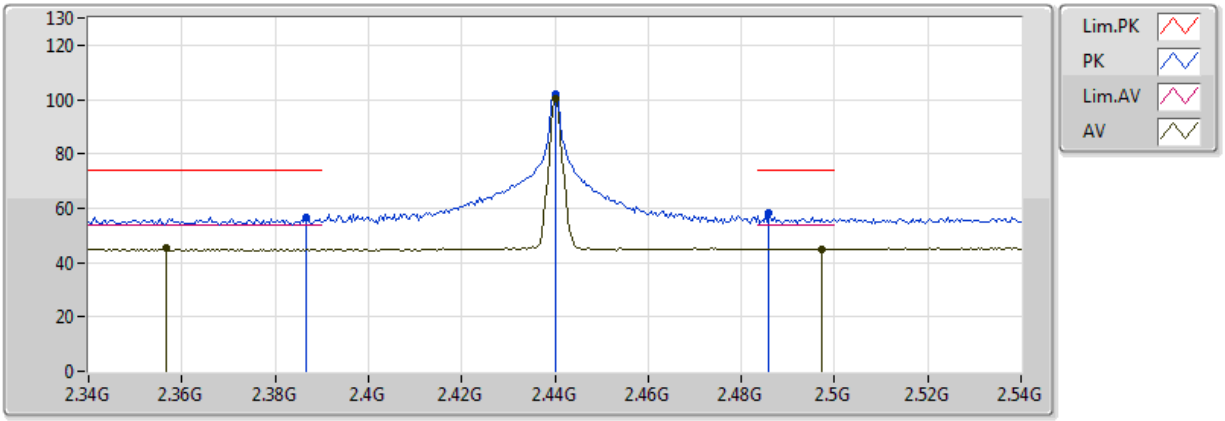


20170814
EUT Z 1TX
Setting 0C
03-J-4
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.80404G	45.11	54.00	-8.89	4.68	3	H	266	1.30	-
PK	4.80458G	53.68	74.00	-20.32	4.68	3	H	266	1.30	-

BT-LE(1Mbps)

2440MHz_TX

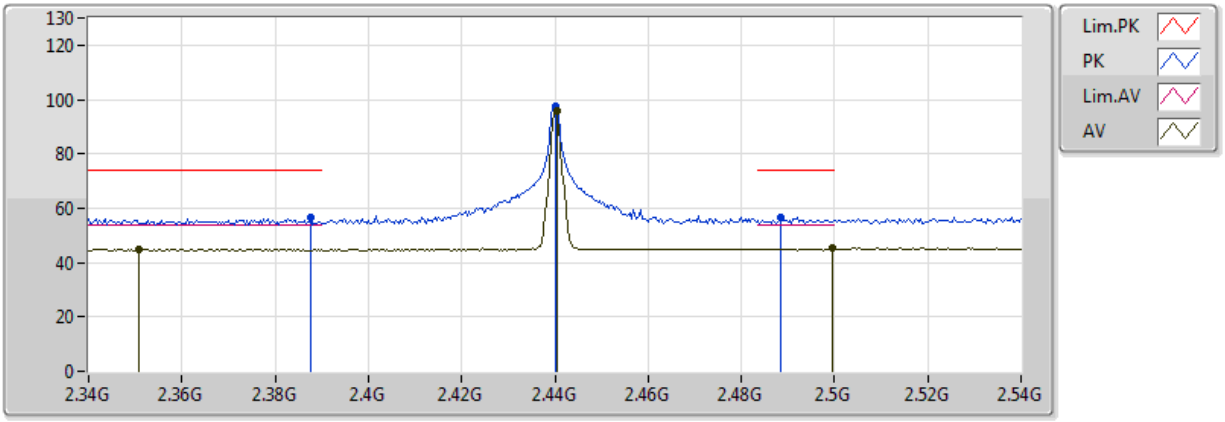


20170814
EUT Z 1TX
Setting 0C
03-J-4
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.3568G	45.19	54.00	-8.81	31.83	3	V	213	1.72	-
AV	2.44G	100.17	Inf	-Inf	32.04	3	V	213	1.72	-
AV	2.4972G	45.10	54.00	-8.90	32.17	3	V	213	1.72	-
PK	2.3868G	56.81	74.00	-17.19	31.91	3	V	213	1.72	-
PK	2.44G	102.12	Inf	-Inf	32.04	3	V	213	1.72	-
PK	2.486G	58.33	74.00	-15.67	32.15	3	V	213	1.72	-

BT-LE(1Mbps)

2440MHz_TX

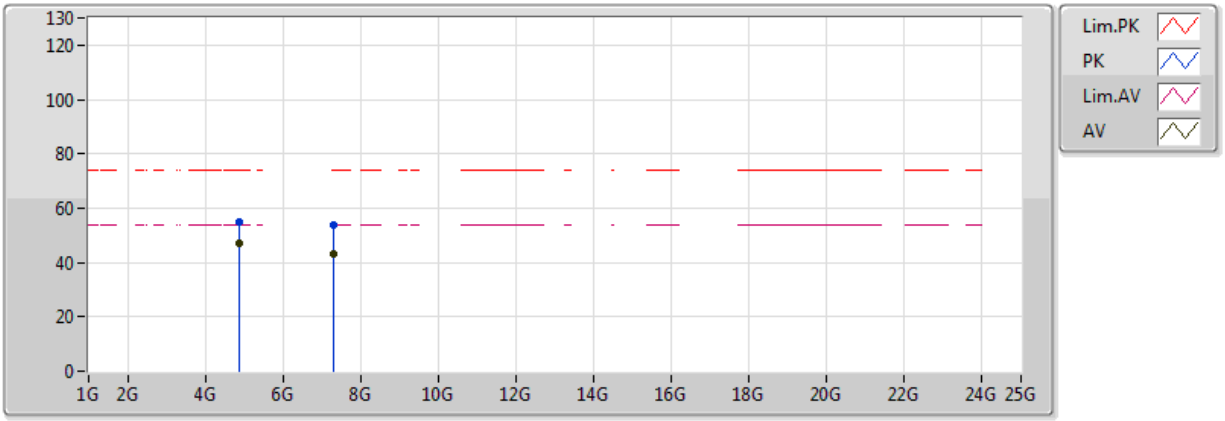


20170814
EUT Z 1TX
Setting 0C
03-J-4
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.3508G	44.96	54.00	-9.04	31.81	3	H	124	1.59	-
AV	2.4404G	95.62	Inf	-Inf	32.04	3	H	124	1.59	-
AV	2.4996G	45.11	54.00	-8.89	32.18	3	H	124	1.59	-
PK	2.3876G	56.35	74.00	-17.65	31.91	3	H	124	1.59	-
PK	2.44G	97.58	Inf	-Inf	32.04	3	H	124	1.59	-
PK	2.4884G	56.61	74.00	-17.39	32.15	3	H	124	1.59	-

BT-LE(1Mbps)

2440MHz_TX

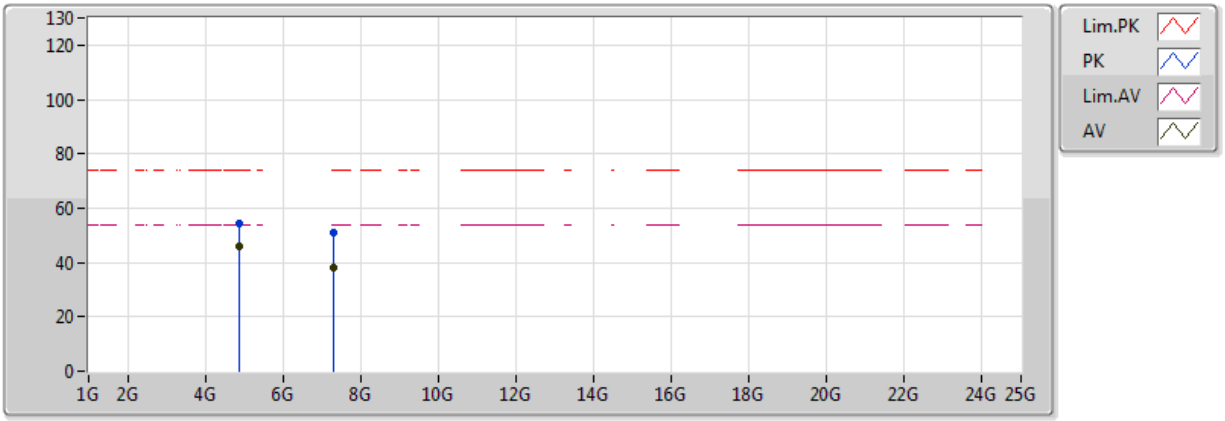


20170814
EUT Z1TX
Setting 0C
03-J-4
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.88011G	46.79	54.00	-7.21	4.83	3	V	355	1.55	-
AV	7.32086G	42.97	54.00	-11.03	8.81	3	V	260	1.46	-
PK	4.88056G	55.16	74.00	-18.84	4.83	3	V	355	1.55	-
PK	7.3209G	54.00	74.00	-20.00	8.81	3	V	260	1.46	-

BT-LE(1Mbps)

2440MHz_TX

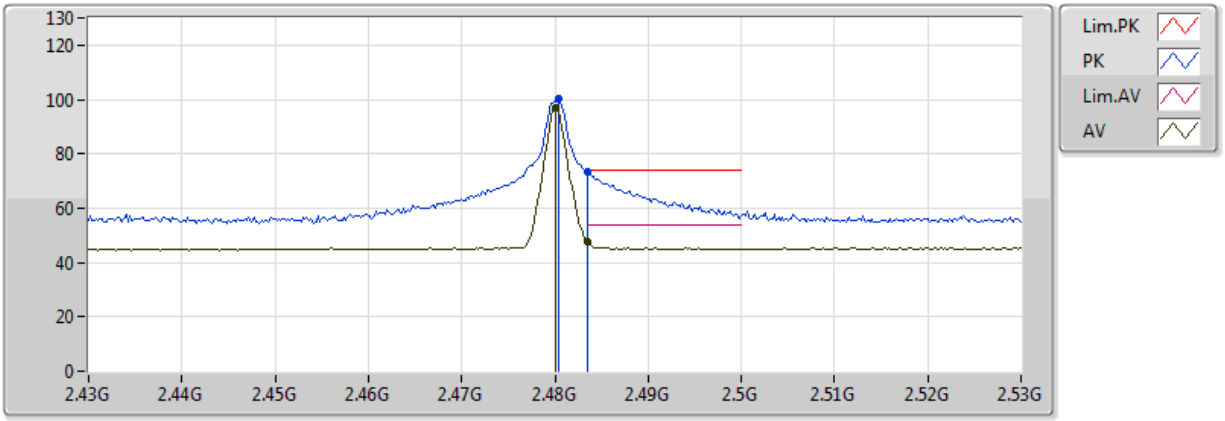


20170814
EUT Z1TX
Setting 0C
03-J-4
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.88008G	46.12	54.00	-7.88	4.83	3	H	265	3.00	-
AV	7.3193G	38.37	54.00	-15.63	8.81	3	H	66	2.74	-
PK	4.8806G	54.43	74.00	-19.57	4.83	3	H	265	3.00	-
PK	7.3176G	50.82	74.00	-23.18	8.81	3	H	66	2.74	-

BT-LE(1Mbps)

2480MHz_TX

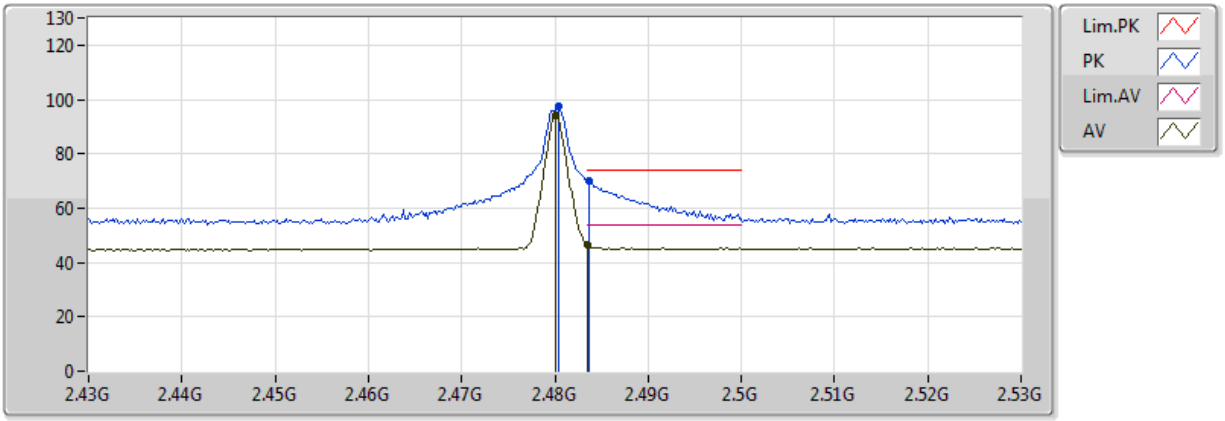


20170814
EUT Z 1TX
Setting 0A
03-J-4
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.48G	96.94	Inf	-Inf	32.13	3	V	261	1.45	-
AV	2.483502G	47.67	54.00	-6.33	32.14	3	V	261	1.45	-
PK	2.4804G	100.36	Inf	-Inf	32.13	3	V	261	1.45	-
PK	2.483502G	73.56	74.00	-0.44	32.14	3	V	261	1.45	-

BT-LE(1Mbps)

2480MHz_TX

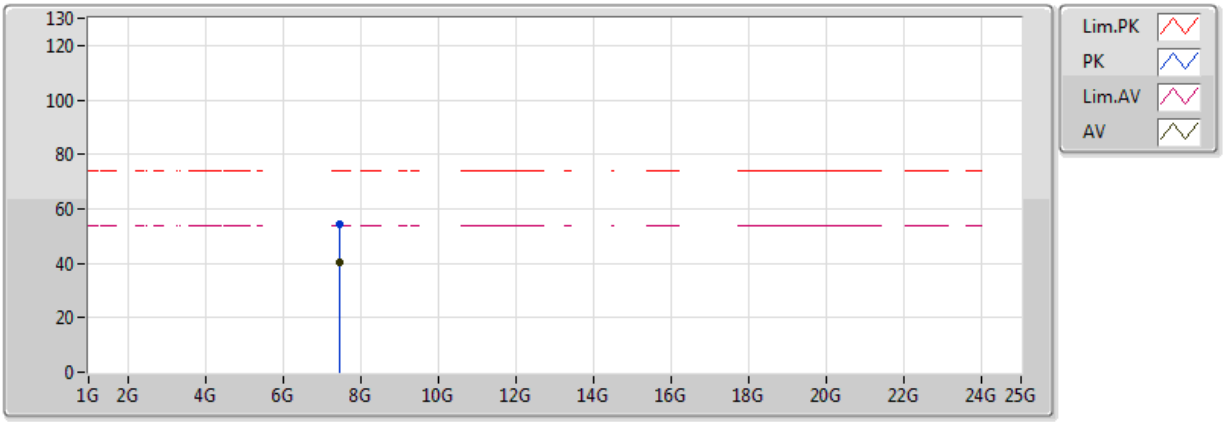


20170814
EUT Z 1TX
Setting 0A
03-J-4
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.48G	94.14	Inf	-Inf	32.13	3	H	274	1.41	-
AV	2.483502G	46.36	54.00	-7.64	32.14	3	H	274	1.41	-
PK	2.4804G	97.59	Inf	-Inf	32.13	3	H	274	1.41	-
PK	2.4836G	70.19	74.00	-3.81	32.14	3	H	274	1.41	-

BT-LE(1Mbps)

2480MHz_TX

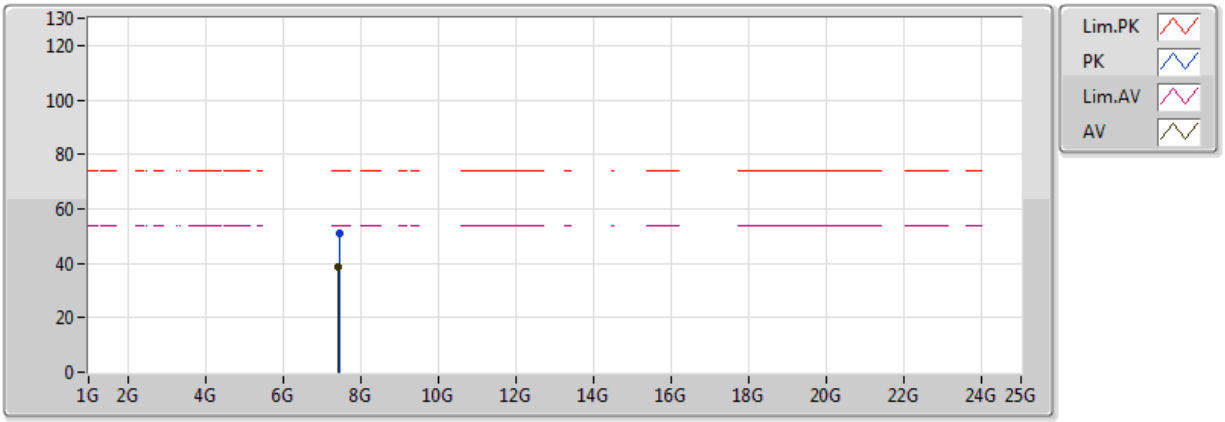


20170814
EUT Z 1TX
Setting 0A
03-J-4
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	7.44096G	40.62	54.00	-13.38	8.97	3	V	293	1.28	-
PK	7.44096G	54.16	74.00	-19.84	8.97	3	V	293	1.28	-

BT-LE(1Mbps)

2480MHz_TX



20170814
EUT Z 1TX
Setting 0A
03-J-4
FSP

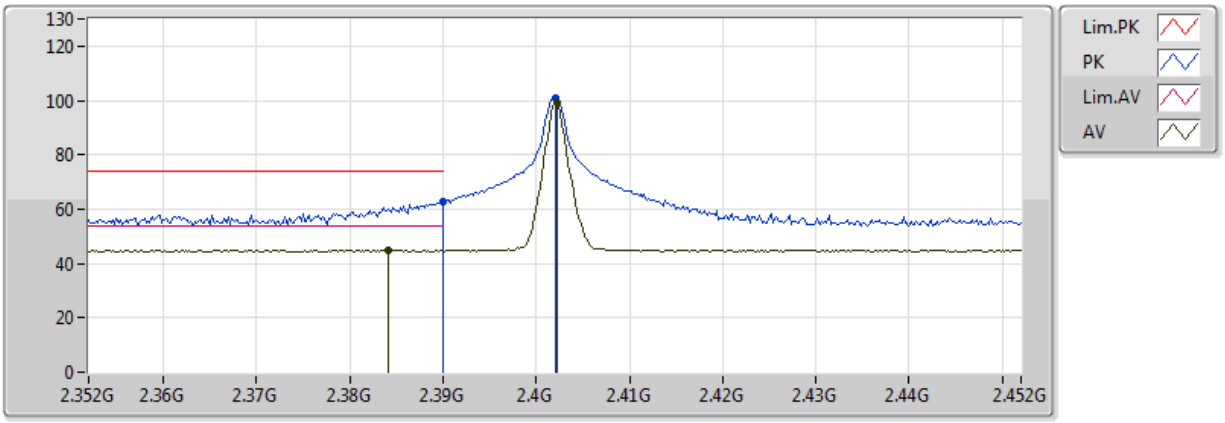
Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	7.43924G	38.41	54.00	-15.59	8.96	3	H	56	2.43	-
PK	7.44324G	51.27	74.00	-22.73	8.98	3	H	56	2.43	-

For Set 6 antennas / 1TX:
Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Pol. (H/V)	Azimuth (°)	Height (m)	Comments
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-
2.4-2.4835GHz	Pass	PK	2.483502G	73.98	74.00	-0.02	32.14	3	V	136	2.05	-

BT-LE(1Mbps)

2402MHz_TX

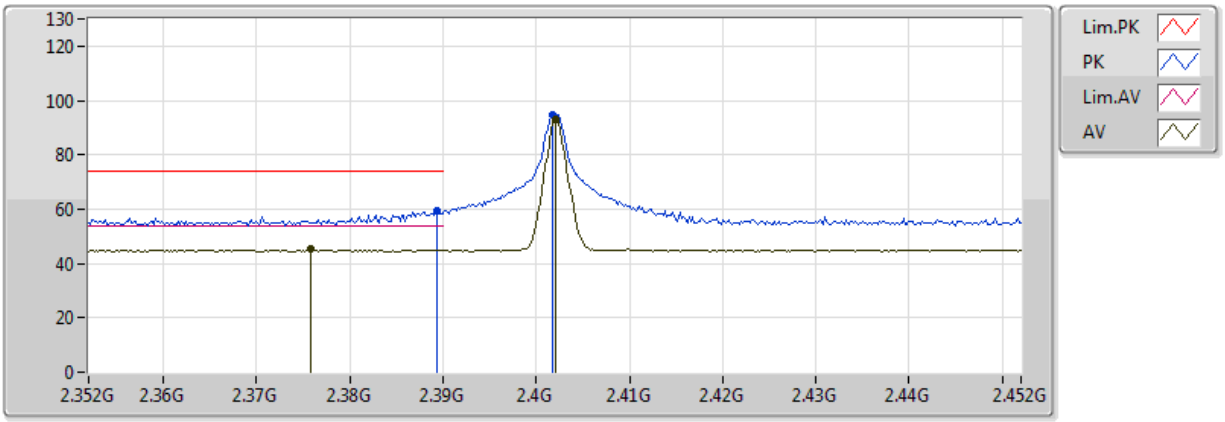


20170814
EUT Z 1TX
Setting 0C
03-J-4
FSP
Omni ANT (小圓)

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.3842G	44.94	54.00	-9.06	31.90	3	V	129	1.50	-
AV	2.4022G	98.93	Inf	-Inf	31.95	3	V	129	1.50	-
PK	2.39G	62.56	74.00	-11.44	31.91	3	V	129	1.50	-
PK	2.402G	100.67	Inf	-Inf	31.94	3	V	129	1.50	-

BT-LE(1Mbps)

2402MHz_TX

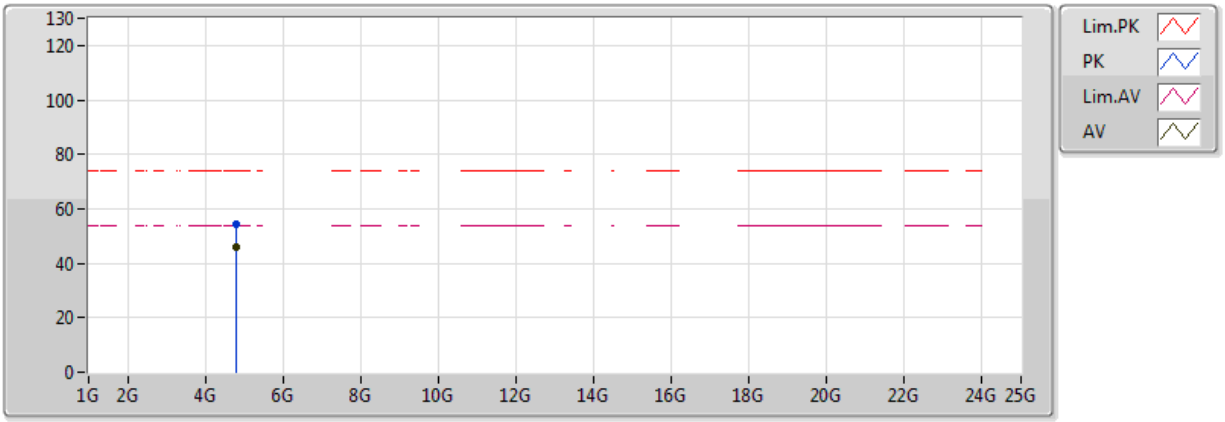


20170814
EUT Z 1TX
Setting 0C
03-J-4
FSP
Omni ANT (小圓)

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.3758G	45.25	54.00	-8.75	31.88	3	H	64	1.98	-
AV	2.402G	92.97	Inf	-Inf	31.94	3	H	64	1.98	-
PK	2.3894G	59.22	74.00	-14.78	31.91	3	H	64	1.98	-
PK	2.4018G	94.73	Inf	-Inf	31.94	3	H	64	1.98	-

BT-LE(1Mbps)

2402MHz_TX

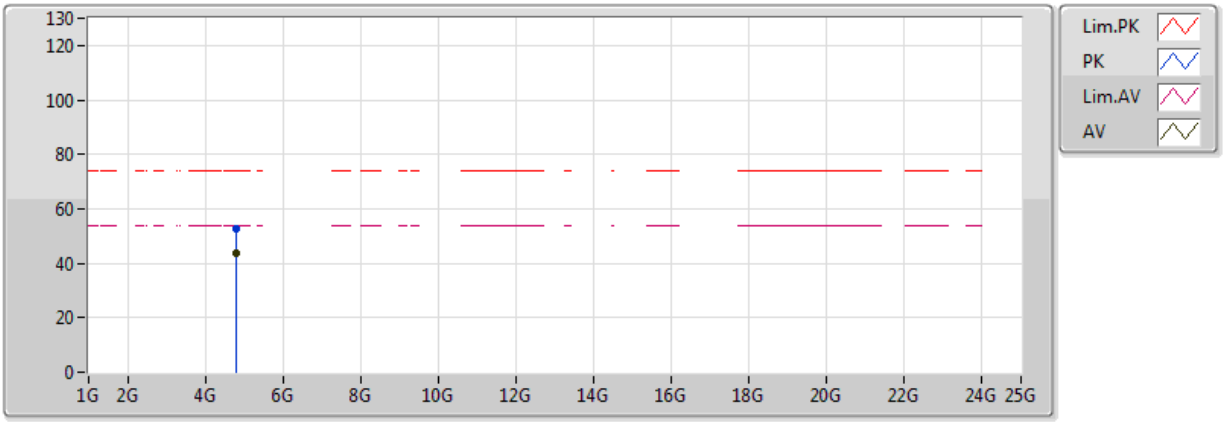


20170814
EUT Z 1TX
Setting 0C
03-J-4
FSP
Omni ANT (小圓)

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.804G	45.98	54.00	-8.02	4.68	3	V	259	1.44	-
PK	4.80368G	54.16	74.00	-19.84	4.68	3	V	259	1.44	-

BT-LE(1Mbps)

2402MHz_TX

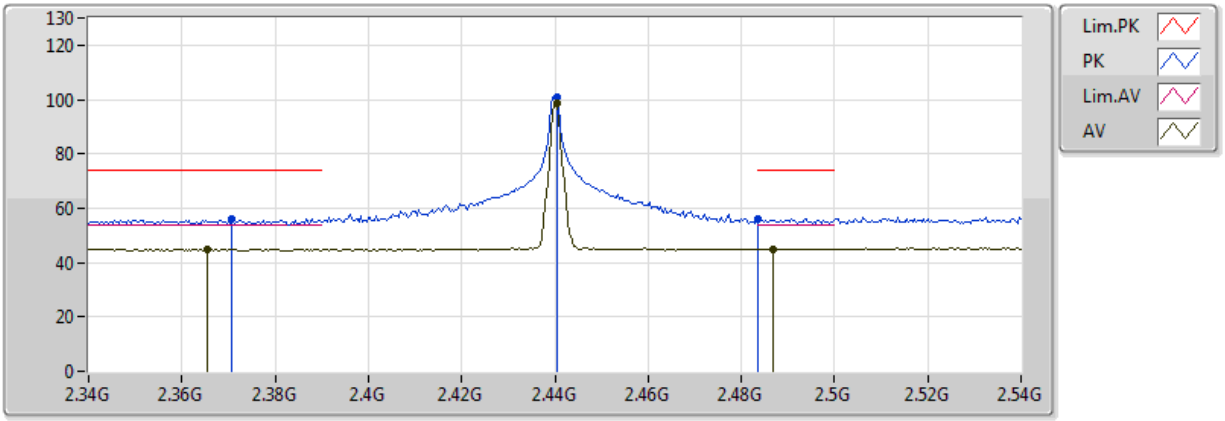


20170814
EUT Z 1TX
Setting 0C
03-J-4
FSP
Omni ANT (小圓)

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.804G	43.53	54.00	-10.47	4.68	3	H	246	1.42	-
PK	4.80376G	52.68	74.00	-21.32	4.68	3	H	246	1.42	-

BT-LE(1Mbps)

2440MHz_TX

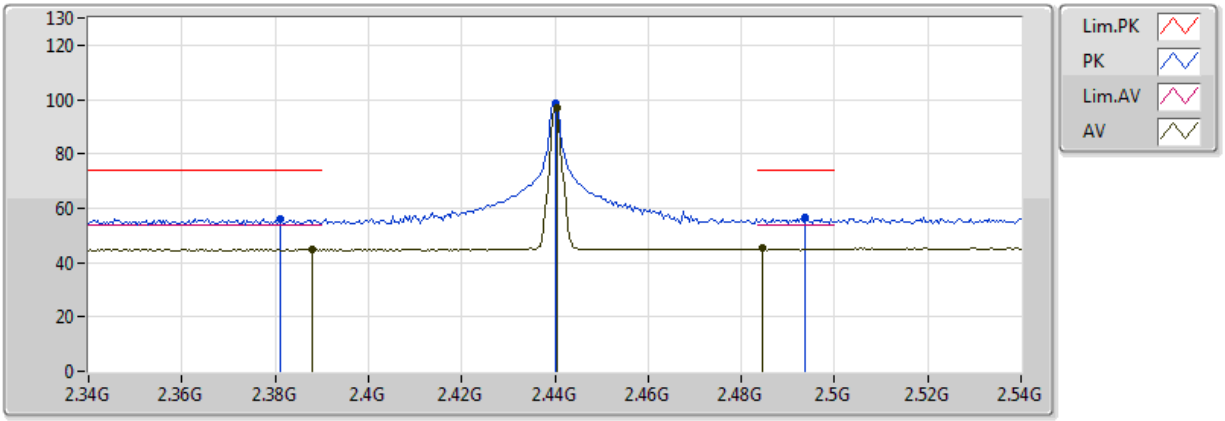


20170814
EUT Z1TX
Setting 0C
03-J-4
FSP
Omni ANT (小圓)

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.3656G	44.96	54.00	-9.04	31.85	3	V	142	2.46	-
AV	2.4404G	98.85	Inf	-Inf	32.04	3	V	142	2.46	-
AV	2.4868G	45.02	54.00	-8.98	32.15	3	V	142	2.46	-
PK	2.3708G	55.98	74.00	-18.02	31.86	3	V	142	2.46	-
PK	2.4404G	100.75	Inf	-Inf	32.04	3	V	142	2.46	-
PK	2.4836G	56.09	74.00	-17.91	32.14	3	V	142	2.46	-

BT-LE(1Mbps)

2440MHz_TX

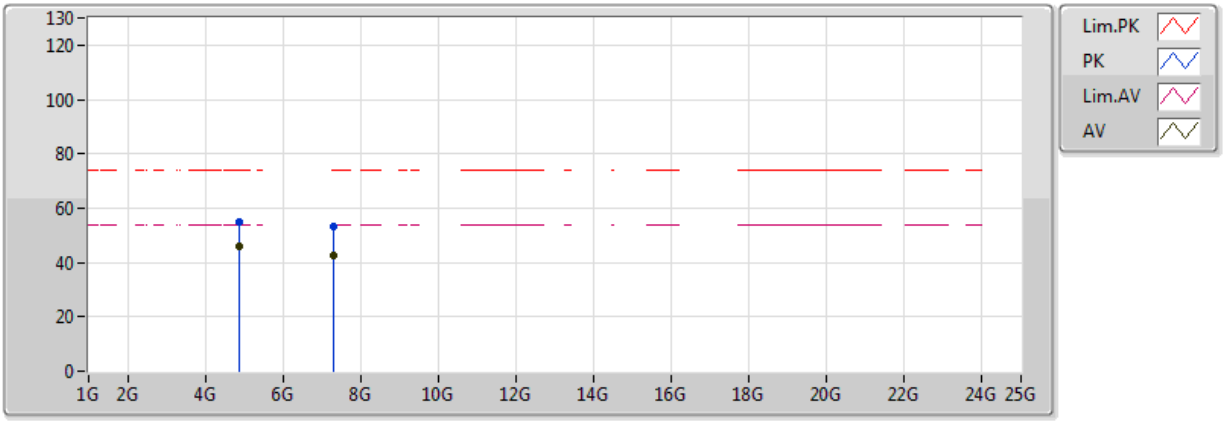


20170814
EUT Z 1TX
Setting 0C
03-J-4
FSP
Omni ANT (小圓)

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.388G	44.91	54.00	-9.09	31.91	3	H	181	2.99	-
AV	2.4404G	96.71	Inf	-Inf	32.04	3	H	181	2.99	-
AV	2.4844G	45.12	54.00	-8.88	32.14	3	H	181	2.99	-
PK	2.3812G	56.14	74.00	-17.86	31.89	3	H	181	2.99	-
PK	2.44G	98.62	Inf	-Inf	32.04	3	H	181	2.99	-
PK	2.4936G	56.68	74.00	-17.32	32.16	3	H	181	2.99	-

BT-LE(1Mbps)

2440MHz_TX

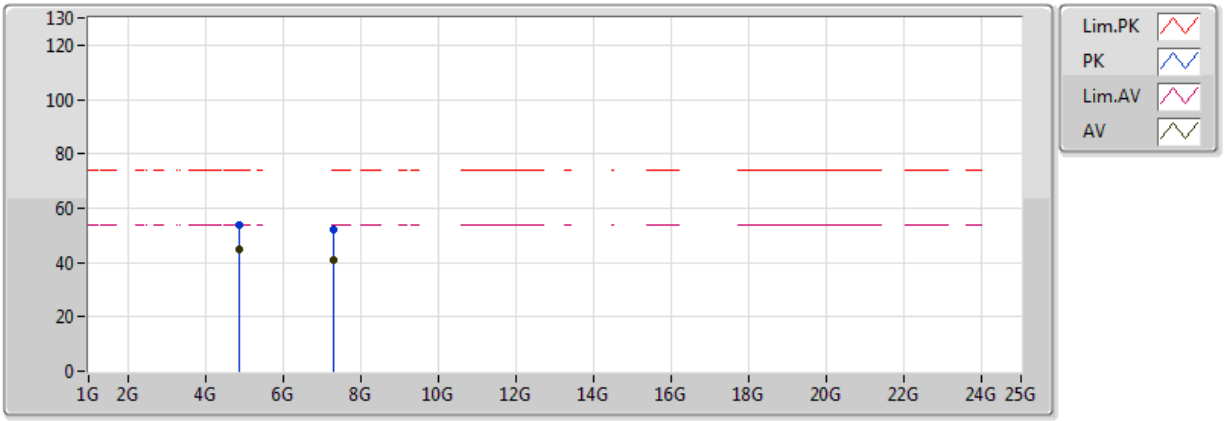


20170814
EUT Z1TX
Setting 0C
03-J-4
FSP
Omni ANT (小圓)

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.88016G	46.21	54.00	-7.79	4.83	3	V	265	1.19	-
AV	7.32078G	42.63	54.00	-11.37	8.81	3	V	292	1.50	-
PK	4.88072G	54.80	74.00	-19.20	4.83	3	V	265	1.19	-
PK	7.32084G	53.17	74.00	-20.83	8.81	3	V	292	1.50	-

BT-LE(1Mbps)

2440MHz_TX

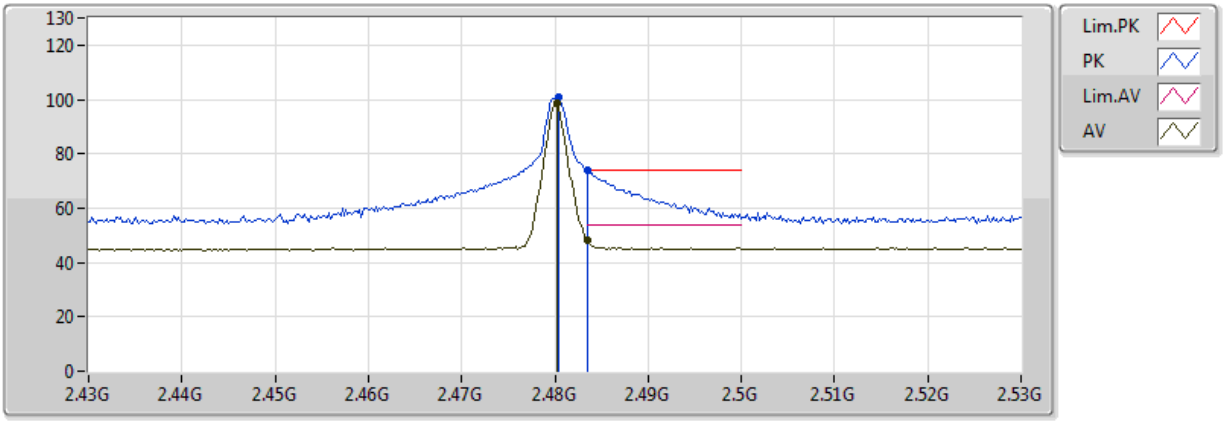


20170814
EUT Z1TX
Setting 0C
03-J-4
FSP
Omni ANT (小圓)

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.88007G	44.84	54.00	-9.16	4.83	3	H	250	1.11	-
AV	7.3194G	40.79	54.00	-13.21	8.81	3	H	248	2.10	-
PK	4.88058G	53.78	74.00	-20.22	4.83	3	H	250	1.11	-
PK	7.3194G	52.23	74.00	-21.77	8.81	3	H	248	2.10	-

BT-LE(1Mbps)

2480MHz_TX

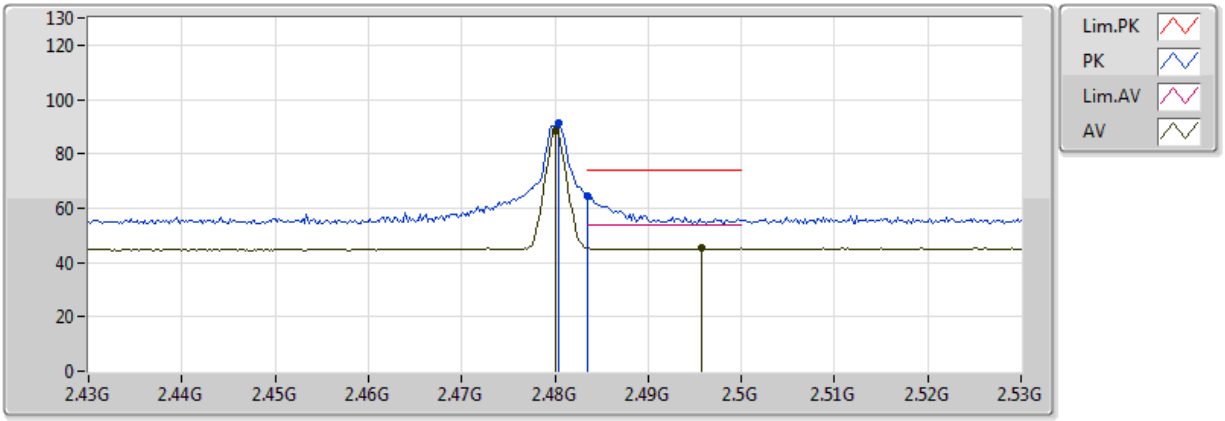


20170814
EUT Z1TX
Setting 0B
03-J-4
FSP
Omni ANT (小圓)

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.4802G	98.38	Inf	-Inf	32.13	3	V	136	2.05	-
AV	2.483502G	48.04	54.00	-5.96	32.14	3	V	136	2.05	-
PK	2.4804G	100.84	Inf	-Inf	32.13	3	V	136	2.05	-
PK	2.483502G	73.98	74.00	-0.02	32.14	3	V	136	2.05	-

BT-LE(1Mbps)

2480MHz_TX

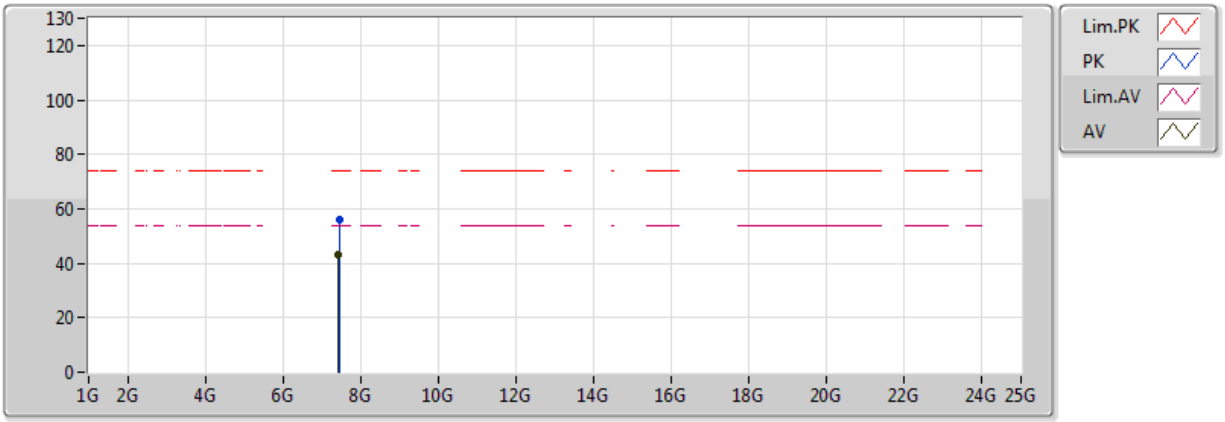


20170814
EUT Z1TX
Setting 0B
03-J-4
FSP
Omni ANT (小圓)

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.48G	88.55	Inf	-Inf	32.13	3	H	30	1.84	-
AV	2.4958G	45.57	54.00	-8.43	32.17	3	H	30	1.84	-
PK	2.4804G	91.13	Inf	-Inf	32.13	3	H	30	1.84	-
PK	2.483502G	64.69	74.00	-9.31	32.14	3	H	30	1.84	-

BT-LE(1Mbps)

2480MHz_TX

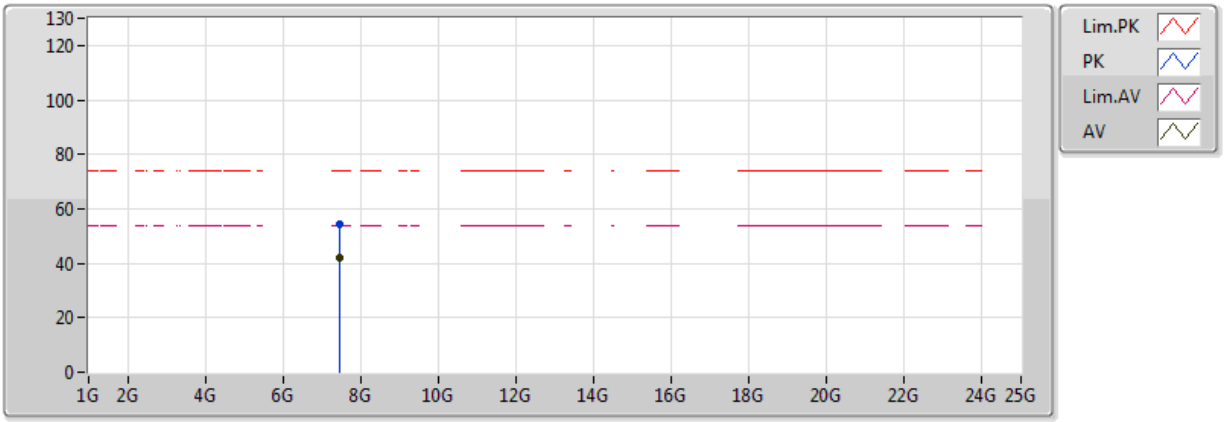


20170814
EUT Z 1TX
Setting 0B
03-J-4
FSP
Omni ANT (小圓)

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	7.43952G	43.26	54.00	-10.74	8.96	3	V	272	1.18	-
PK	7.44124G	55.77	74.00	-18.23	8.97	3	V	272	1.18	-

BT-LE(1Mbps)

2480MHz_TX



20170814
EUT Z 1TX
Setting 0B
03-J-4
FSP
Omni ANT (小圓)

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	7.44101G	41.75	54.00	-12.25	8.97	3	H	324	2.21	-
PK	7.44112G	54.25	74.00	-19.75	8.97	3	H	324	2.21	-

4 Test Equipment and Calibration Data

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.45GHz	Jan. 23, 2017	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Dec. 14, 2016	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Dec. 21, 2016	Conduction (CO01-CB)
COND Cable	Woken	Cable	01	150kHz ~ 30MHz	May 23, 2017	Conduction (CO01-CB)
Software	Audix	E3	6.120210n	-	N.C.R.	Conduction (CO01-CB)
BILOG ANTENNA with 6dB Attenuator	TESEQ & EMCI	CBL6112D&N-6-06	37880&AT-N0609	20MHz ~ 2GHz	Aug. 30, 2016	Radiation (03CH01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Mar. 16, 2016*	Radiation (03CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz ~ 18GHz	Nov. 10, 2016	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jul. 25, 2016	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jul. 05, 2017	Radiation (03CH01-CB)
Pre-Amplifier	EMCI	EMC330N	980332	20MHz ~ 3GHz	May 02, 2017	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Jan. 16, 2017	Radiation (03CH01-CB)
Pre-Amplifier	MITEQ	TTA1840-35-HG	1864479	18GHz ~ 40GHz	Jun. 28, 2016	Radiation (03CH01-CB)
Pre-Amplifier	MITEQ	TTA1840-35-HG	1864479	18GHz ~ 40GHz	Jul. 10, 2017	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	Nov. 22, 2016	Radiation (03CH01-CB)
EMI Test	R&S	ESCS	100355	9kHz ~ 2.75GHz	May 06, 2017	Radiation (03CH01-CB)
RF Cable-low	Woken	Low Cable-16+17	N/A	30 MHz ~ 1 GHz	Oct. 24, 2016	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16	N/A	1 GHz ~ 18 GHz	Oct. 24, 2016	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16+17	N/A	1 GHz ~ 18 GHz	Oct. 24, 2016	Radiation (03CH01-CB)

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
RF Cable-high	Woken	High Cable-40G#1	N/A	18GHz ~ 40 GHz	Oct. 24, 2016	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G#2	N/A	18GHz ~ 40 GHz	Oct. 24, 2016	Radiation (03CH01-CB)
Test Software	Audix	E3	6.2009-l0-7	N/A	N/A	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	Dec. 26, 2016	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-6	1 GHz – 26.5 GHz	Oct. 24, 2016	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-7	1 GHz –26.5 GHz	Oct. 24, 2016	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-8	1 GHz –26.5 GHz	Oct. 24, 2016	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-9	1 GHz –26.5 GHz	Oct. 24, 2016	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz –26.5 GHz	Oct. 24, 2016	Conducted (TH01-CB)
Power Sensor	Agilent	U2021XA	MY53410001	50MHz~18GHz	Nov. 22, 2016	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.