



FCC RADIO TEST REPORT

FCC ID : UDX-60093010
Equipment : 4x4 Wi-Fi 6 Access Point with External Antennas
Brand Name : CISCO
Model Name : MR46E-HW
Applicant : Cisco Systems
170 West Tasman Drive, San Jose, CA 95134 USA
Manufacturer : Cisco Systems
170 West Tasman Drive, San Jose, CA 95134 USA
Standard : 47 CFR FCC Part 15.247

The product was received on Jun. 20, 2019, and testing was started from Jul. 03, 2019 and completed on Sep. 23, 2019. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.


Approved by: Cliff Chang

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)



Table of Contents

History of this test report.....	3
Summary of Test Result.....	4
1 General Description	5
1.1 Information.....	5
1.2 Applicable Standards	10
1.3 Testing Location Information	10
1.4 Measurement Uncertainty	10
2 Test Configuration of EUT	11
2.1 Test Channel Mode	11
2.2 The Worst Case Measurement Configuration.....	12
2.3 EUT Operation during Test	14
2.4 Accessories	15
2.5 Support Equipment.....	15
2.6 Test Setup Diagram	16
3 Transmitter Test Result	19
3.1 AC Power-line Conducted Emissions	19
3.2 DTS Bandwidth	21
3.3 Maximum Conducted Output Power	22
3.4 Power Spectral Density	25
3.5 Emissions in Non-restricted Frequency Bands	27
3.6 Emissions in Restricted Frequency Bands.....	28
4 Test Equipment and Calibration Data	32
Appendix A. Test Results of AC Power-line Conducted Emissions	
Appendix B. Test Results of DTS Bandwidth	
Appendix C. Test Results of Maximum Conducted Output Power	
Appendix D. Test Results of Power Spectral Density	
Appendix E. Test Results of Emissions in Non-restricted Frequency Bands	
Appendix F. Test Results of Emissions in Restricted Frequency Bands	
Appendix G. Test Photos	
Photographs of EUT v01	



TEL : 886-3-656-9065
FAX : 886-3-656-9085
Report Template No.: CB-A10_6 Ver1.0



Summary of Test Result

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

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Reviewed by: Sam Chen

Report Producer: Wendy Pan



1 General Description

1.1 Information

1.1.1 RF General Information

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

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

Note:

- ♦ Bluetooth LE uses a GFSK modulation.
- ♦ BWch is the nominal channel bandwidth.
- ♦ Nss-Min is the minimum number of spatial streams.
- ♦ Nant is the number of outputs. e.g., 2(2, 3) means have 2 outputs for port 2 and port 3. 2 means have 2 outputs for port 1 and port 2.

**1.1.2 Antenna Information**

Set	Brand	Official Model Number	Antenna Type	Connector	Gain (dBi)
1	Cisco	MA-ANT-3-A6	Dipole antenna	RP-TNC	Note 1
2	Cisco	MA-ANT-3-B6	Dipole antenna	RP-TNC	
3	Cisco	MA-ANT-3-C6	Omni antenna	RP-TNC	
4	Cisco	MA-ANT-3-D6	Omni-directional antenna	RP-TNC	
5	Cisco	MA-ANT-3-E6	Wide patch antenna	RP-TNC	
6	Cisco	MA-ANT-3-F6	Narrow patch antenna	RP-TNC	

Note1:

Radio 1 (2.4GHz)												
Set	Antenna Gain (dBi)				Cable Loss (dB)				True Gain (dBi)			
	Port 1	Port 2	Port 3	Port 4	Port 1	Port 2	Port 3	Port 4	Port 1	Port 2	Port 3	Port 4
1	3.80	3.80	3.80	3.80	1.01	0.41	0.41	1.00	2.79	3.39	3.39	2.80
2	3.00	3.00	3.00	3.00	1.01	0.41	0.41	1.00	1.99	2.59	2.59	2.00
3	4.90	4.90	4.90	4.90	1.01	0.41	0.41	1.00	3.89	4.49	4.49	3.90
4	2.90	2.90	2.90	2.90	1.01	0.41	0.41	1.00	1.89	2.49	2.49	1.90
5	7.00	7.00	7.00	7.00	1.01	0.41	0.41	1.00	5.99	6.59	6.59	6.00
6	11.20	11.20	11.20	11.20	1.01	0.41	0.41	1.00	10.19	10.79	10.79	10.20

Radio 2 (5GHz)												
Set	Antenna Gain (dBi)				Cable Loss (dB)				True Gain (dBi)			
	Port 1	Port 2	Port 3	Port 4	Port 1	Port 2	Port 3	Port 4	Port 1	Port 2	Port 3	Port 4
1	5.5	5.5	5.5	5.5	1.53	0.66	0.61	1.54	3.97	4.84	4.89	3.96
2	5.7	5.7	5.7	5.7	1.53	0.66	0.61	1.54	4.17	5.04	5.09	4.16
3	4.9	4.9	4.9	4.9	1.53	0.66	0.61	1.54	3.37	4.24	4.29	3.36
4	3.7	3.7	3.7	3.7	1.53	0.66	0.61	1.54	2.17	3.04	3.09	2.16
5	6.3	6.3	6.3	6.3	1.53	0.66	0.61	1.54	4.77	5.64	5.69	4.76
6	10.8	10.8	10.8	10.8	1.53	0.66	0.61	1.54	9.27	10.14	10.19	9.26



Radio 3 (2.4GHz + 5GHz)						
Set	Antenna Gain (dBi)		Cable Loss (dB)		True Gain (dBi)	
	Port 1		Port 1		Port 1	
	2.4GHz	5GHz	2.4GHz	5GHz	2.4GHz	5GHz
1	3.80	5.50	0.68	1.09	3.12	4.41
2	3.00	5.70	0.68	1.09	2.32	4.61
3	4.90	4.90	0.68	1.09	4.22	3.81
4	2.90	3.70	0.68	1.09	2.22	2.61
5	7.00	6.30	0.68	1.09	6.32	5.21
6	11.20	10.80	0.68	1.09	10.52	9.71

Radio 4 (Bluetooth)			
Set	Antenna Gain (dBi)	Cable Loss (dB)	True Gain (dBi)
	Port 1	Port 1	Port 1
1	3.80	0.56	3.24
2	3.00	0.56	2.44
3	4.90	0.56	4.34
4	2.90	0.56	2.34
5	7.00	0.56	6.44
6	11.20	0.56	10.64

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	4.00	3.30	0.41	0.66	3.59	2.64
3	2.97	4.43	0.41	0.66	2.56	3.77
4	5.29	4.85	0.41	0.66	4.88	4.19
5	11.03	10.04	0.41	0.66	10.62	9.38
6	14.28	14.08	0.41	0.66	13.87	13.42
Set	2TX Directional gain (dBi) for Radio 2					
2	8.05					



4TX 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	7.80	7.90	0.41	0.61	7.39	7.29
3	7.50	8.30	0.41	0.61	7.09	7.69
4	7.24	7.94	0.41	0.61	6.83	7.33
5	13.59	12.31	0.41	0.61	13.18	11.70
6	17.17	17.06	0.41	0.61	16.76	16.45
Set	4TX Directional gain (dBi) for Radio 2					
2	11.11					

Note2: The above information was declared by manufacturer.

Note3: The EUT has six set antennas.

The EUT has four radios, Radio 1 supports WLAN 2.4GHz (802.11b/g/n/ax mode), Radio 2 supports WLAN 5GHz (802.11a/n/ac/ax mode), 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) and Radio 2 (5GHz Functions)>

For 1TX/4RX:

Only Port 1 can be use as transmitting antenna

Port 1, Port 2, Port 3 and Port 4 can be used as receiving antennas.

Port 1, Port 2, Port 3 and Port 4 could receive simultaneously.

For 2TX/4RX:

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

Port 1, Port 2, Port 3 and Port 4 can be used as receiving antennas.

Port 1, Port 2, Port 3 and Port 4 could receive simultaneously.

For 4TX/4RX:

Port 1, Port 2, Port 3 and Port 4 can be use as transmitting/receiving antenna

Port 1, Port 2, Port 3 and Port 4 could receive simultaneously.

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

Only Port 1 can be used as receiving antennas.

<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) $\geq 1/T$
BT-LE(1Mbps)	0.625	2.04	392.5u	3k

Note:

- ♦ DC is Duty Cycle.
- ♦ DCF is Duty Cycle Factor.

1.1.4 EUT Operational Condition

EUT Power Type	From Power Adapter or PoE			
Function	☒	Point-to-multipoint	☐	Point-to-point
Test Software Version	Telnet (6.1.7601)			
Support Mode	☒	LE 1M PHY: 1 Mb/s		
	☐	LE Coded PHY (S=2): 500 Kb/s		
	☐	LE Coded PHY (S=8): 125 Kb/s		
	☐	LE 2M PHY: 2 Mb/s		

Note: The above information was declared by manufacturer.

1.1.5 Table for DDR information

EUT No.	Brand Name	Model No.	Main source	Second source
1	Hynix	H5AN8G6NAFR-UHC	V	-
2	Micron	MT40A512M16LY-075:E	-	V



1.2 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ 47 CFR FCC Part 15
- ♦ ANSI C63.10-2013
- ♦ FCC KDB 558074 D01 v05r02
- ♦ FCC KDB 414788 D01 v01r01

1.3 Testing Location Information

Testing Location				
☐	HWA YA	ADD : No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)	TEL : 886-3-327-3456	FAX : 886-3-327-0973
☒	JHUBEI	ADD : 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	TH03-CB	Serway Li	24.6~25°C / 65~69%	Jul. 18, 2019 ~ Aug. 13, 2019
Radiated<1GHz	03CH05-CB	KJ Chang	22~24°C / 50~60%	Jul. 06, 2019 ~ Sep. 23, 2019
Radiated>1GHz	03CH01-CB	Eason Chen	27.1~28.3°C / 62~66%	Jul. 03, 2019 ~ Jul. 30, 2019
AC Conduction	CO01-CB	Peter Wu	23.3~24°C / 63~64%	Jul. 09, 2019 ~ Jul. 10, 2019

Test site Designation No. TW0006 with FCC.

Test site registered number IC 4086D with Industry Canada.

1.4 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	2.0 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	4.3 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	4.3 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	5.1 dB	Confidence levels of 95%
Conducted Emission	2.4 dB	Confidence levels of 95%
Output Power Measurement	1.5 dB	Confidence levels of 95%
Power Density Measurement	2.4 dB	Confidence levels of 95%
Bandwidth Measurement	2%	Confidence levels of 95%



2 Test Configuration of EUT

2.1 Test Channel Mode

For Set 1 antennas:

Mode	PowerSetting
BT-LE(1Mbps)	-
2402MHz	200
2440MHz	200
2480MHz	105

For Set 3 antennas:

Mode	PowerSetting
BT-LE(1Mbps)	-
2402MHz	200
2440MHz	200
2480MHz	110

For Set 4 antennas:

Mode	PowerSetting
BT-LE(1Mbps)	-
2402MHz	200
2440MHz	200
2480MHz	120

For Set 5 antennas:

Mode	PowerSetting
BT-LE(1Mbps)	-
2402MHz	200
2440MHz	200
2480MHz	100

For Set 6 antennas:

Mode	PowerSetting
BT-LE(1Mbps)	-
2402MHz	200
2440MHz	200
2480MHz	55

2.2 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral
Operating Mode	Normal Link
	There are two modes of EUT, one is EUT (Radio 1 + Radio 2 + Radio 3: 2.4GHz + Radio 4) mode, the other is EUT (Radio 1 + Radio 2 + Radio 3: 5GHz + Radio 4) mode. EUT (Radio 1 + Radio 2 + Radio 3: 2.4GHz + Radio 4) mode has been evaluated to be the worst case. So the measurement will follow this same test configuration.
1	EUT 1 (Radio 1 + Radio 2 + Radio 3: 2.4GHz + Radio 4) + Adapter 1 + Set 6
2	EUT 1 (Radio 1 + Radio 2 + Radio 3: 2.4GHz + Radio 4) + Adapter 2 + Set 6
For operating mode 1 is the worst case and it was record in this test report.	

The Worst Case Mode for Following Conformance Tests	
Tests Item	DTS Bandwidth Maximum Conducted Output Power Power Spectral Density Emissions in Non-restricted Frequency Bands
Operating Mode	Conducted measurement at transmit chains
1	EUT 1 (Radio 4) + Antenna Set 1
2	EUT 1 (Radio 4) + Antenna Set 3
3	EUT 1 (Radio 4) + Antenna Set 4
4	EUT 1 (Radio 4) + Antenna Set 5
5	EUT 1 (Radio 4) + Antenna Set 6



The Worst Case Mode for Following Conformance Tests	
Tests Item	Emissions in Restricted Frequency Bands
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.
Operating Mode < 1GHz	Normal Link
1	EUT 1 in Z axis (Radio 1 + Radio 2 + Radio 3: 2.4GHz + Radio 4) + Adapter 1 + Set 6
2	EUT 1 in X axis (Radio 1 + Radio 2 + Radio 3: 2.4GHz + Radio 4) + Adapter 1 + Set 6
Mode 2 has been evaluated to be the worst case between Mode 1~2, thus measurement for Mode 3 will follow this same test mode.	
3	EUT 1 in X axis (Radio 1 + Radio 2 + Radio 3: 5GHz + Radio 4) + Adapter 1 + Set 6
Mode 2 has been evaluated to be the worst case among Mode 1~3, thus measurement for Mode 4~6 will follow this same test mode.	
4	EUT 1 in X axis (Radio 1 + Radio 2 + Radio 3: 2.4GHz + Radio 4) + Adapter 2 + Set 6
5	EUT 1 in X axis (Radio 1 + Radio 2 + Radio 3: 2.4GHz + Radio 4) + PoE 1 + Set 6
6	EUT 1 in X axis (Radio 1 + Radio 2 + Radio 3: 2.4GHz + Radio 4) + PoE 2 + Set 6
7	EUT 1 in X axis (Radio 1 + Radio 2 + Radio 3: 2.4GHz + Radio 4) + PoE 3 + Set 6
Mode 5 has been evaluated to be the worst case between Mode 1~7, thus measurement for Mode 8 will follow this same test mode.	
8	EUT 2 in X axis (Radio 1 + Radio 2 + Radio 3: 2.4GHz + Radio 4) + PoE 1 + Set 6
For operating mode 5 was the worst case and it was record in this test report.	
Operating Mode > 1GHz	CTX
The EUT was performed at X axis and Z axis, the worst case was found as below. So the measurement will follow this same test configuration. The antenna 3, 4 were performed at Y axis and Z axis, the worst case were found as below. So the measurement will follow this same test configuration.	
1	EUT 1 in X axis Radio 4 + Antenna Set 1
2	EUT 1 in X axis Radio 4 + Antenna in Z axis Set 3
3	EUT 1 in Z axis Radio 4 + Antenna in Y axis Set 4
4	EUT 1 in X axis Radio 4 + Antenna Set 5
5	EUT 1 in X axis Radio 4 + Antenna Set 6



The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation
Operating Mode	
1	EUT 1: Radio 1 (WLAN 2.4GHz) + Radio 2 (WLAN 5GHz) + Radio 4 (Bluetooth)
Refer to Sporton Test Report No.: FA960317 for Co-location RF Exposure Evaluation.	

Note1: For AC power-line conducted emissions and Emissions in Restricted Frequency Bands <1GHz, the higher gain antennas "Set 6 (Narrow patch antenna)" only was tested and recorded in the report.

Note2: The PoE below are for measurement only, would not be marketed.

PoE information as below:

Power	Brand	Model
PoE 1	CISCO	MA-INJ-5
PoE 2	CISCO	MA-INJ-4
PoE 3	PHIHONG	POEA30U-1ATE

2.3 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.



2.4 Accessories

Accessories				
Equipment Name	Brand Name	Model Name	P/N	Rating
Adapter 1	CISCO	KSAS0361200250HU	-	Input: 100-240V, 50/60Hz, 1.0A Output: 12V, 2.5A
Adapter 2	CISCO	MA-PWR-30W-US	640-39010-A	Input: 100-240V, 50-60Hz, 0.8A Max. Output: 12V, 2.5A 30W
Other				
Wall-mounted rack*1				

2.5 Support Equipment

For AC Conduction:

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
B	2.5G LAN PC	DELL	T3400	N/A
C	2.4G NB	DELL	E6430	N/A
D	5G NB	DELL	E6430	N/A
E	Scan Radio (2.4G or 5G) NB	DELL	E6430	N/A

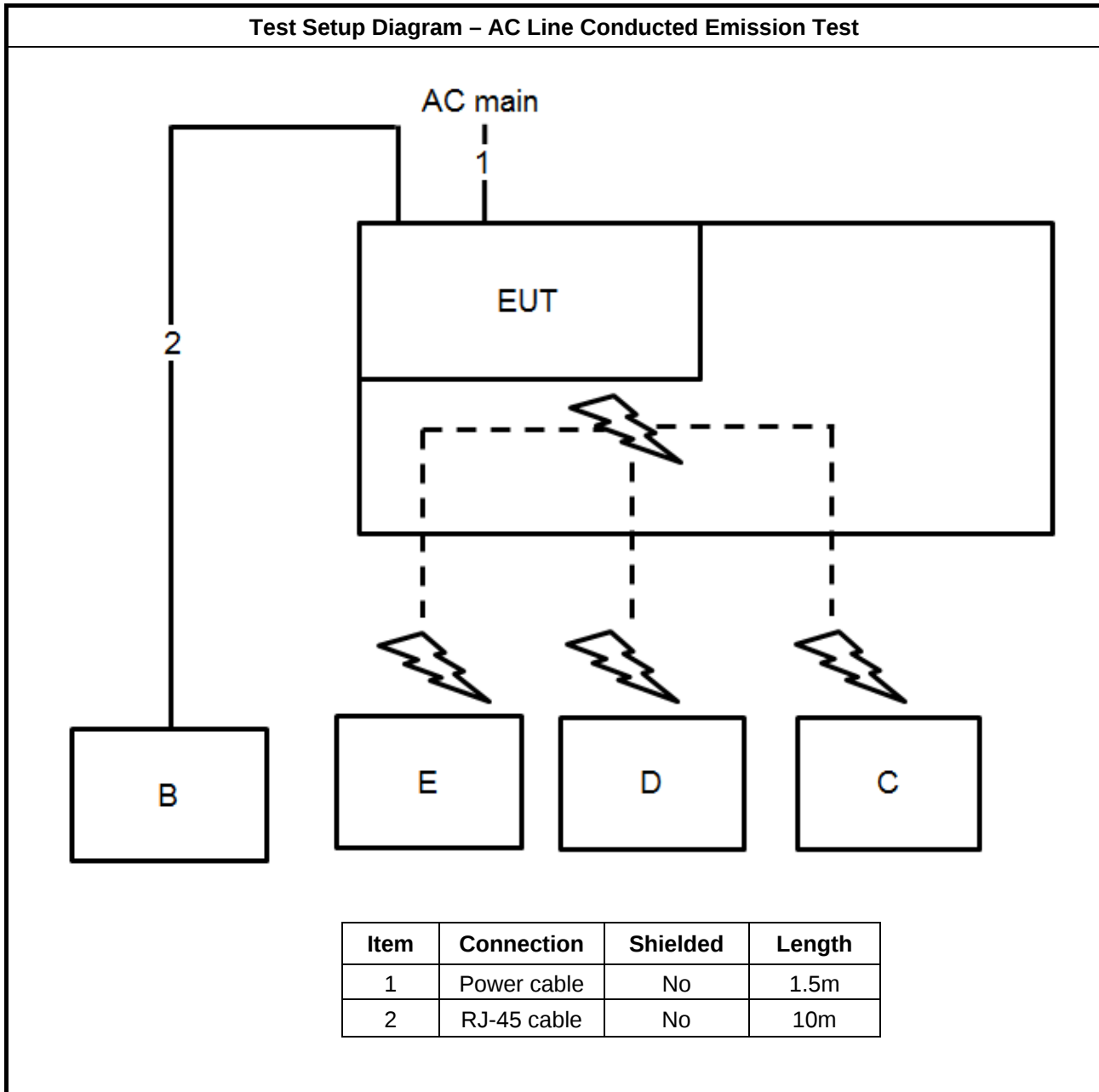
For Radiated (below 1GHz):

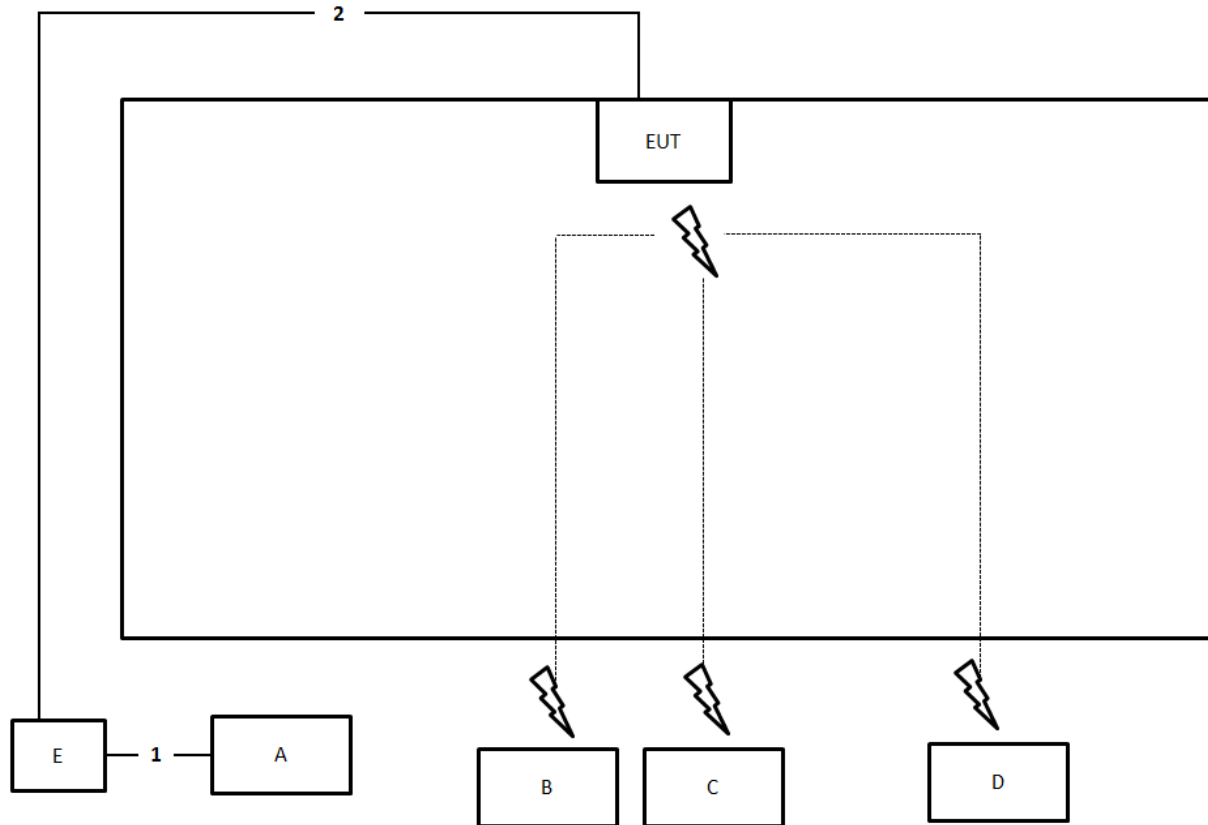
Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	2.5G LAN PC	DELL	OPTIPLEX 380	N/A
B	2.4G NB	DELL	E4300	N/A
C	5G NB	DELL	E4300	N/A
D	Scan Radio (2.4G or 5G) NB	DELL	E4300	N/A
E	PoE 1	CISCO	MA-INJ-5	N/A

For Radiated (above 1GHz) and RF Conducted:

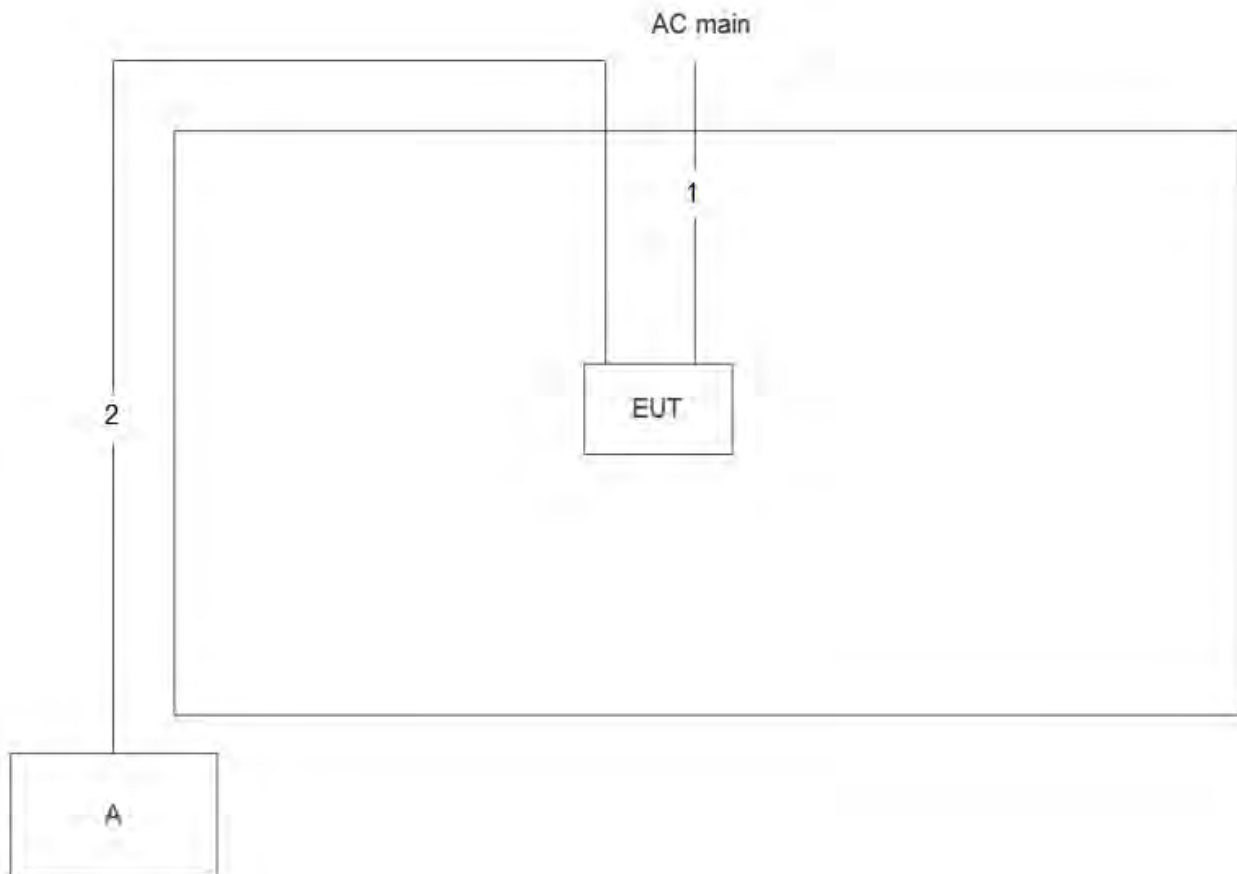
Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	Notebook	DELL	E4300	N/A

2.6 Test Setup Diagram



Test Setup Diagram - Radiated Test < 1GHz


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

Test Setup Diagram - Radiated Test > 1GHz


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



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.		

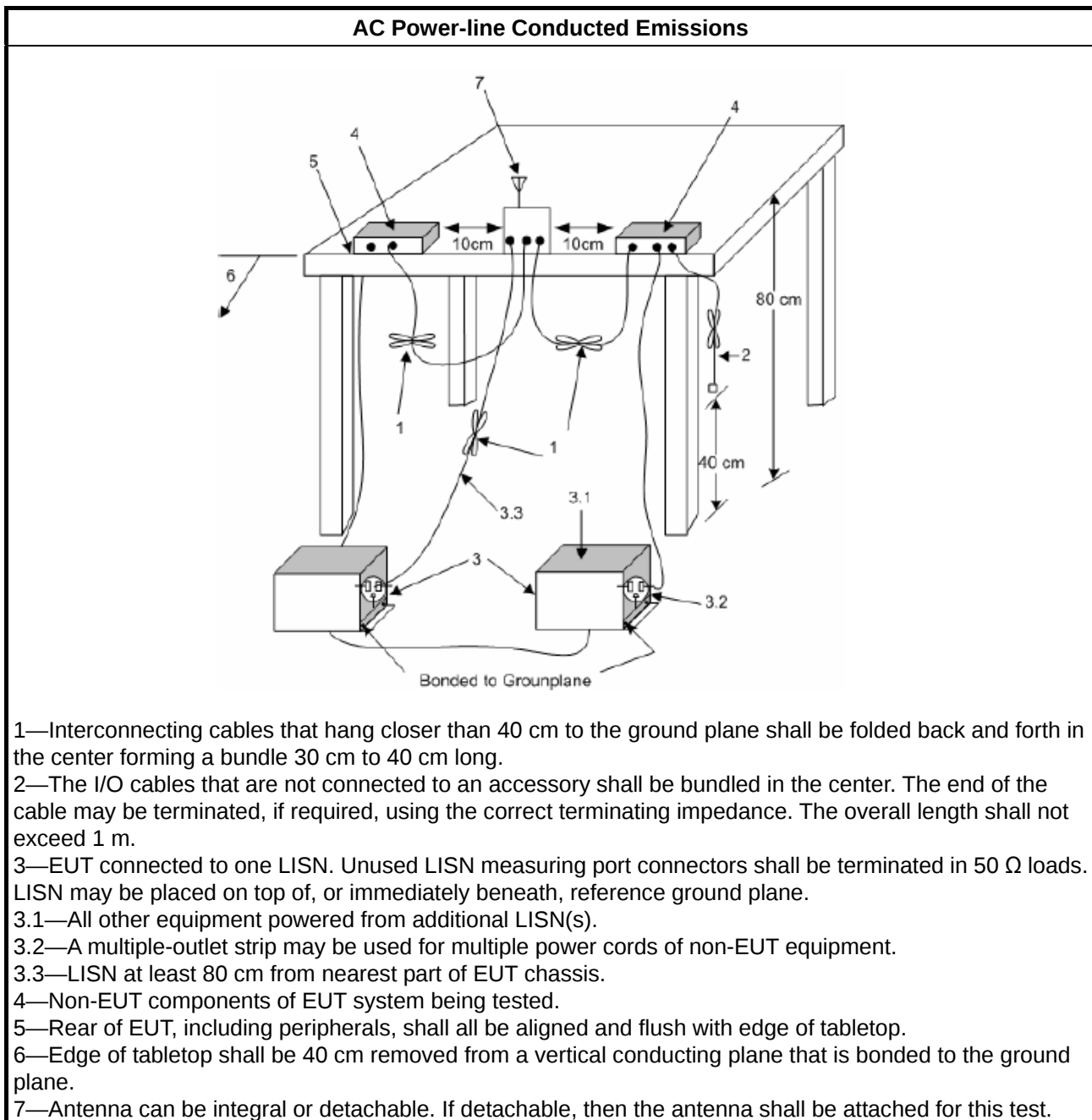
3.1.2 Measuring Instruments

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



3.1.5 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A

3.2 DTS Bandwidth

3.2.1 6dB Bandwidth Limit

6dB Bandwidth Limit
Systems using digital modulation techniques:
6 dB bandwidth $\geq$ 500 kHz.

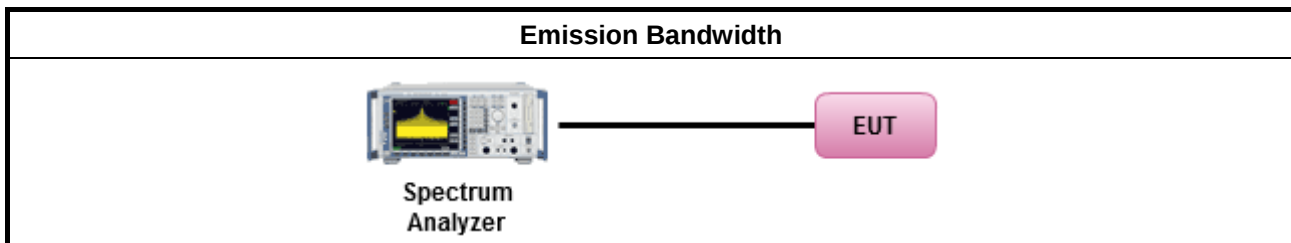
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

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

3.2.4 Test Setup



3.2.5 Test Result of Emission Bandwidth

Refer as Appendix B

3.3 Maximum Conducted Output Power

3.3.1 Maximum Conducted Output Power Limit

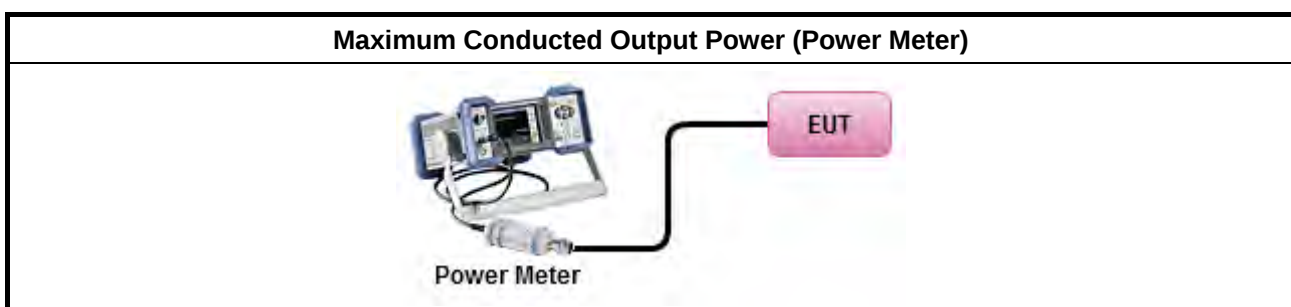
Maximum Conducted Output Power Limit	
	▪ If $G_{TX} \leq 6$ dBi, then $P_{Out} \leq 30$ dBm (1 W)
	▪ Point-to-multipoint systems (P2M): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$ dBm
	▪ Point-to-point systems (P2P): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
	▪ Smart antenna system (SAS):
	- Single beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
	- Overlap beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
	- Aggregate power on all beams: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3 + 8$ dB dBm
P_{Out} = maximum peak conducted output power or maximum conducted output power in dBm, G_{TX} = the maximum transmitting antenna directional gain in dBi.	

3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

Test Method	
Maximum Peak Conducted Output Power	
☐	Refer as FCC KDB 558074, clause 8.3.1.1 & C63.10 clause 11.9.1.1 (RBW ≥ EBW method).
☐	Refer as FCC KDB 558074, clause 8.3.1.3 & C63.10 clause 11.9.1.3 (peak power meter).
Maximum Conducted Output Power	
[duty cycle ≥ 98% or external video / power trigger]	
☐	Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.2 Method AVGSA-1.
☐	Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.3 Method AVGSA-1A. (alternative)
duty cycle < 98% and average over on/off periods with duty factor	
☐	Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.4 Method AVGSA-2.
☐	Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.5 Method AVGSA-2A (alternative)
☐	Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.6 Method AVGSA-3
☐	Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.7 Method AVGSA-3A (alternative)
Measurement using a power meter (PM)	
☒	Refer as FCC KDB 558074, clause 8.3.2.3 & C63.10 clause 11.9.2.3.1 Method AVGPM (using an RF average power meter).
☐	Refer as FCC KDB 558074, clause 8.3.2.3 & C63.10 clause 11.9.2.3.2 Method AVGPM-G (using an gate RF average power meter).
For conducted measurement.	
If the EUT supports multiple transmit chains using options given below: Refer as FCC KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them.	
If multiple transmit chains, EIRP calculation could be following as methods: $P_{total} = P_1 + P_2 + \dots + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = P_{total} + DG$	





3.3.4 Test Result of Maximum Conducted Output Power

Refer as Appendix C



3.4 Power Spectral Density

3.4.1 Power Spectral Density Limit

Power Spectral Density Limit
Power Spectral Density (PSD) ≤ 8 dBm/3kHz

3.4.2 Measuring Instruments

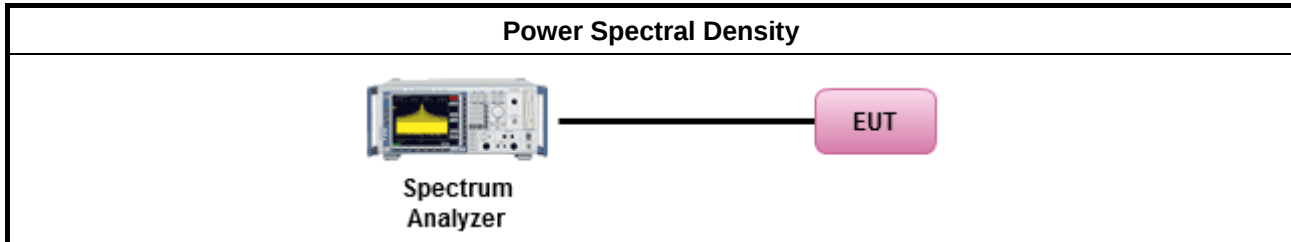
Refer a test equipment and calibration data table in this test report.

3.4.3 Test Procedures

Test Method
Peak power spectral density procedures that the same method as used to determine the conducted output power. If maximum peak conducted output power was measured to demonstrate compliance to the output power limit, then the peak PSD procedure below (Method PKPSD) shall be used. If maximum conducted output power was measured to demonstrate compliance to the output power limit, then one of the average PSD procedures shall be used, as applicable based on the following criteria (the peak PSD procedure is also an acceptable option).
☒ Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10.2 Method PKPSD. [duty cycle $\geq 98\%$ or external video / power trigger]
☐ Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10.3 Method AVGPS-1.
☐ Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10.5 Method AVGPS-2.
☐ Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10.7 Method AVGPS-3.
duty cycle $< 98\%$ and average over on/off periods with duty factor
☐ Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10.4 Method AVGPS-1A. (alternative).
☐ Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10.6 Method AVGPS-2A. (alternative)
☐ Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10.8 Method AVGPS-3A. (alternative)
For conducted measurement.
If The EUT supports multiple transmit chains using options given below:
☒ Option 1: Measure and sum the spectra across the outputs. Refer as FCC KDB 662911, In-band power spectral density (PSD). Sample all transmit ports simultaneously using a spectrum analyzer for each transmit port. Where the trace bin-by-bin of each transmit port summing can be performed. (i.e., in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3, and so on up to the NTX output to obtain the value for the first frequency bin of the summed spectrum.). Add up the amplitude (power) values for the different transmit chains and use this as the new data trace.
☐ Option 2: Measure and sum spectral maxima across the outputs. With this technique, spectra are measured at each output of the device at the required resolution bandwidth. The maximum value (peak) of each spectrum is determined. These maximum values are then summed mathematically in linear power units across the outputs. These operations shall be performed separately over frequency spans that have different out-of-band or spurious emission limits,

- | | |
|--|--|
| | ☐ Option 3: Measure and add $10 \log(N)$ dB, where N is the number of transmit chains. Refer as FCC KDB 662911, In-band power spectral density (PSD). Performed at each transmit chains and each transmit chains shall be compared with the limit have been reduced with $10 \log(N)$. Or each transmit chains shall be add $10 \log(N)$ to compared with the limit. |
|--|--|

3.4.4 Test Setup



3.4.5 Test Result of Power Spectral Density

Refer as Appendix D

3.5 Emissions in Non-restricted Frequency Bands

3.5.1 Emissions in Non-restricted Frequency Bands Limit

Un-restricted Band Emissions Limit	
RF output power procedure	Limit (dBc)
Peak output power procedure	20
Average output power procedure	30
Note 1: If the peak output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum measured in-band peak PSD level. Note 2: If the average output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the power in any 100 kHz outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum measured in-band average PSD level.	

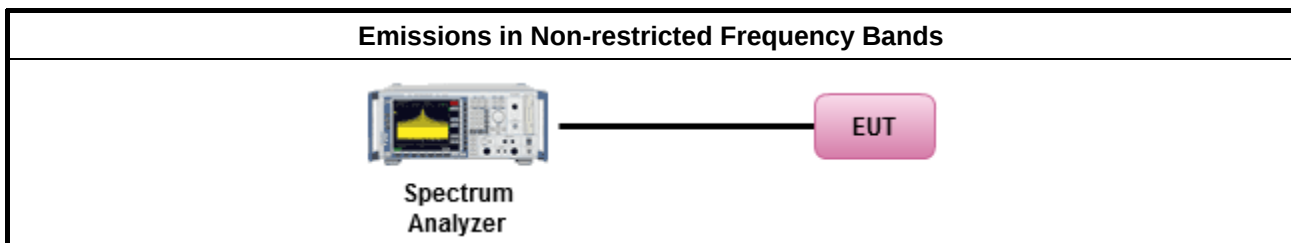
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

Test Method
Refer as FCC KDB 558074, clause 8.5 for unwanted emissions into non-restricted bands.

3.5.4 Test Setup



3.5.5 Test Result of Emissions in Non-restricted Frequency Bands

Refer as Appendix E

3.6 Emissions in Restricted Frequency Bands

3.6.1 Emissions in Restricted Frequency Bands Limit

Restricted Band Emissions Limit			
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300
0.490~1.705	24000/F(kHz)	33.8 - 23	30
1.705~30.0	30	29	30
30~88	100	40	3
88~216	150	43.5	3
216~960	200	46	3
Above 960	500	54	3

Note 1: Test distance for frequencies at or above 30 MHz, measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

Note 2: Test distance for frequencies at below 30 MHz, measurements may be performed at a distance closer than the EUT limit distance; however, an attempt should be made to avoid making measurements in the near field. When performing measurements below 30 MHz at a closer distance than the limit distance, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two or more distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB / decade). The test report shall specify the extrapolation method used to determine compliance of the EUT.

Note 3: Using the distance of 1m during the test for above 18 GHz, and the test value to correct for the distance factor at 3m.

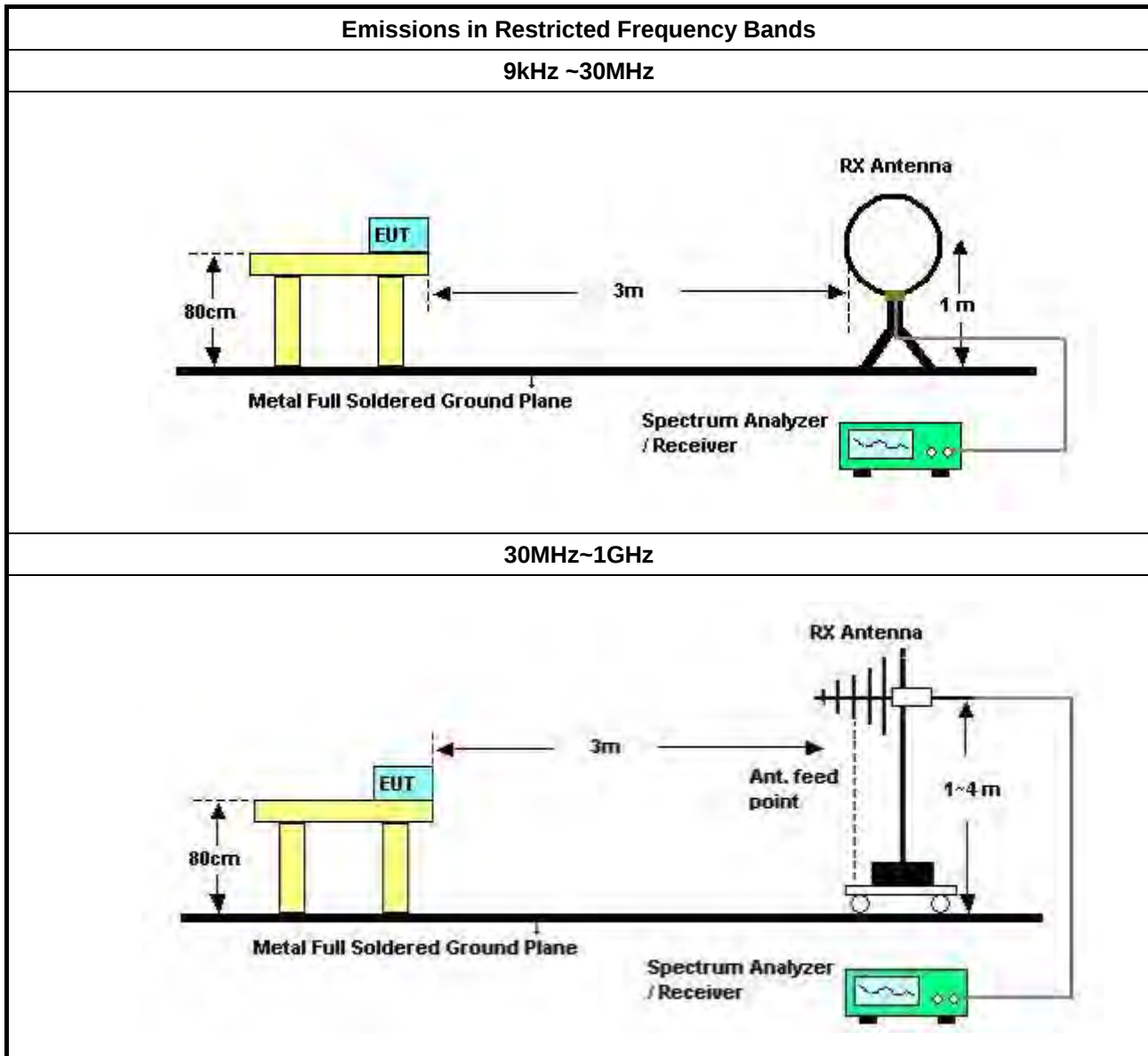
3.6.2 Measuring Instruments

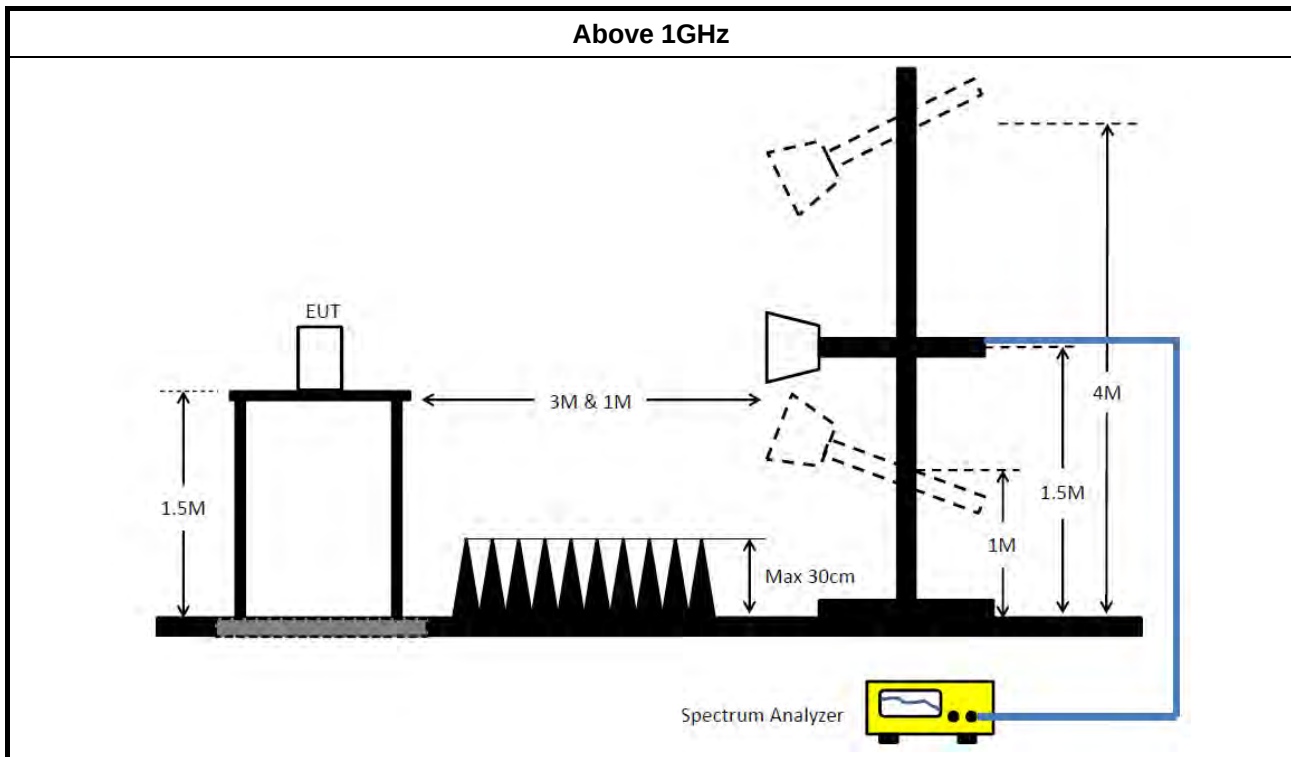
Refer a test equipment and calibration data table in this test report.

3.6.3 Test Procedures

Test Method	
The average emission levels shall be measured in [duty cycle ≥ 98 or duty factor].	
Refer as ANSI C63.10, clause 6.10.3 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.	
For the transmitter unwanted emissions shall be measured using following options below:	
	Refer as FCC KDB 558074, clause 8.6 for unwanted emissions into restricted bands.
	☐ Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.5.1(trace averaging for duty cycle $\geq 98\%$).
	☐ Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.5.2(trace averaging + duty factor).
	☒ Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.5.3(Reduced VBW $\geq 1/T$).
	☐ Refer as ANSI C63.10, clause 11.12.2.5.3 (Reduced VBW). VBW $\geq 1/T$, where T is pulse time.
	☐ Refer as ANSI C63.10, clause 7.5 average value of pulsed emissions.
	☒ Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.4 measurement procedure peak limit.
For the transmitter band-edge emissions shall be measured using following options below:	
	Refer as FCC KDB 558074 clause 8.7 & c63.10 clause 11.13.1, When the performing peak or average radiated measurements, emissions within 2 MHz of the authorized band edge may be measured using the marker-delta method described below.
	Refer as FCC KDB 558074, clause 8.7 (ANSI C63.10, clause 6.10.6) for marker-delta method for band-edge measurements.
	Refer as FCC KDB 558074, clause 8.7 for narrower resolution bandwidth (100kHz) using the band power and summing the spectral levels (i.e., 1 MHz).
	For conducted unwanted emissions into restricted bands (absolute emission limits). Devices with multiple transmit chains using options given below: (1) Measure and sum the spectra across the outputs or (2) Measure and add 10 log(N) dB
	For FCC KDB 662911 The methodology described here may overestimate array gain, thereby resulting in apparent failures to satisfy the out-of-band limits even if the device is actually compliant. In such cases, compliance may be demonstrated by performing radiated tests around the frequencies at which the apparent failures occurred.

3.6.4 Test Setup





3.6.5 Measurement Results Calculation

The measured Level is calculated using:

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

3.6.6 Emissions in Restricted Frequency Bands (Below 30MHz)

There is a comparison data of both open-field test site and alternative test site - semi-Anechoic chamber according to KDB414788 Radiated Test Site, and the result came out very similar.

All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

The radiated emissions were investigated from 9 kHz or the lowest frequency generated within the device, up to the 10 harmonic or 40 GHz, whichever is appropriate.

3.6.7 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix F



4 Test Equipment and Calibration Data

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.45GHz	Jan. 28, 2019	Jan. 29, 2020	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz~100MHz	Dec. 24, 2018	Dec. 23, 2019	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Jan. 11, 2019	Jan. 10, 2020	Conduction (CO01-CB)
Software	Audix	E3	6.120210n	-	N.C.R.	N.C.R.	Conduction (CO01-CB)
Bilog Antenna with 6dB Attenuator	TESE & EMCI	CBL 6112D & N-6-06	35236 & AT-N0610	30MHz ~ 2GHz	Mar. 28, 2019	Mar. 27, 2020	Radiation (03CH05-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Mar. 29, 2019	Mar. 28, 2020	Radiation (03CH05-CB)
Pre-Amplifier	EMCI	EMC330N	980331	20MHz ~ 3GHz	May 02, 2019	May 01, 2020	Radiation (03CH05-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	Jan. 31, 2019	Jan. 30, 2020	Radiation (03CH05-CB)
EMI Test Receiver	R&S	ESCS	826547/017	9kHz ~ 2.75GHz	May 15, 2019	May 14, 2020	Radiation (03CH05-CB)
RF Cable-low	Woken	RG402	LOW Cable-04+23	30MHz~1GHz	Oct. 08, 2018	Oct. 07, 2019	Radiation (03CH05-CB)
Horn Antenna	EMCO	3115	00075790	750MHz ~ 18GHz	Nov. 13, 2018	Nov. 12, 2019	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jun. 27, 2019	Jun. 26, 2020	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Jan. 08, 2019	Jan. 07, 2020	Radiation (03CH01-CB)
Pre-Amplifier	MITEQ	TTA1840-35-H G	1864479	18GHz ~ 40GHz	Jul. 03, 2019	Jul. 02, 2020	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	Jan. 31, 2019	Jan. 30, 2020	Radiation (03CH01-CB)
RF Cable-high	Woken	RG402	High Cable-16	1 GHz ~ 18 GHz	Oct. 08, 2018	Oct. 07, 2019	Radiation (03CH01-CB)
RF Cable-high	Woken	RG402	High Cable-16+17	1 GHz ~ 18 GHz	Oct. 08, 2018	Oct. 07, 2019	Radiation (03CH01-CB)
RF Cable-high	Woken	RG402	High Cable-40G#1	18GHz ~ 40 GHz	Jul. 27, 2018	Jul. 26, 2019	Radiation (03CH01-CB)
RF Cable-high	Woken	RG402	High Cable-40G#1	18GHz ~ 40 GHz	Jul. 24, 2019	Jul. 23, 2020	Radiation (03CH01-CB)
RF Cable-high	Woken	RG402	High Cable-40G#2	18GHz ~ 40 GHz	Jul. 27, 2018	Jul. 26, 2019	Radiation (03CH01-CB)
RF Cable-high	Woken	RG402	High Cable-40G#2	18GHz ~ 40 GHz	Jul. 24, 2019	Jul. 23, 2020	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSV40	101028	9kHz~40GHz	Oct. 30, 2018	Oct. 29, 2019	Conducted (TH03-CB)



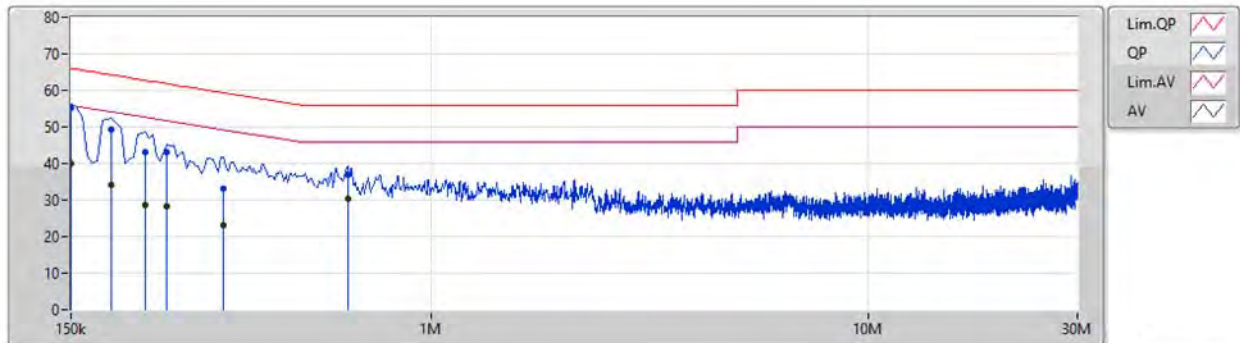
Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
RF Cable-high	Woken	RG402	High Cable-11	1 GHz – 26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-12	1 GHz – 26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-13	1 GHz – 26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-14	1 GHz – 26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-15	1 GHz – 26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (TH03-CB)
Power Sensor	Anritsu	MA2411B	1126203	300MHz~40GHz	Sep. 03, 2018	Sep. 02, 2019	Conducted (TH03-CB)
Power Meter	Anritsu	ML2495A	1210004	300MHz~40GHz	Sep. 03, 2018	Sep. 02, 2019	Conducted (TH03-CB)

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

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

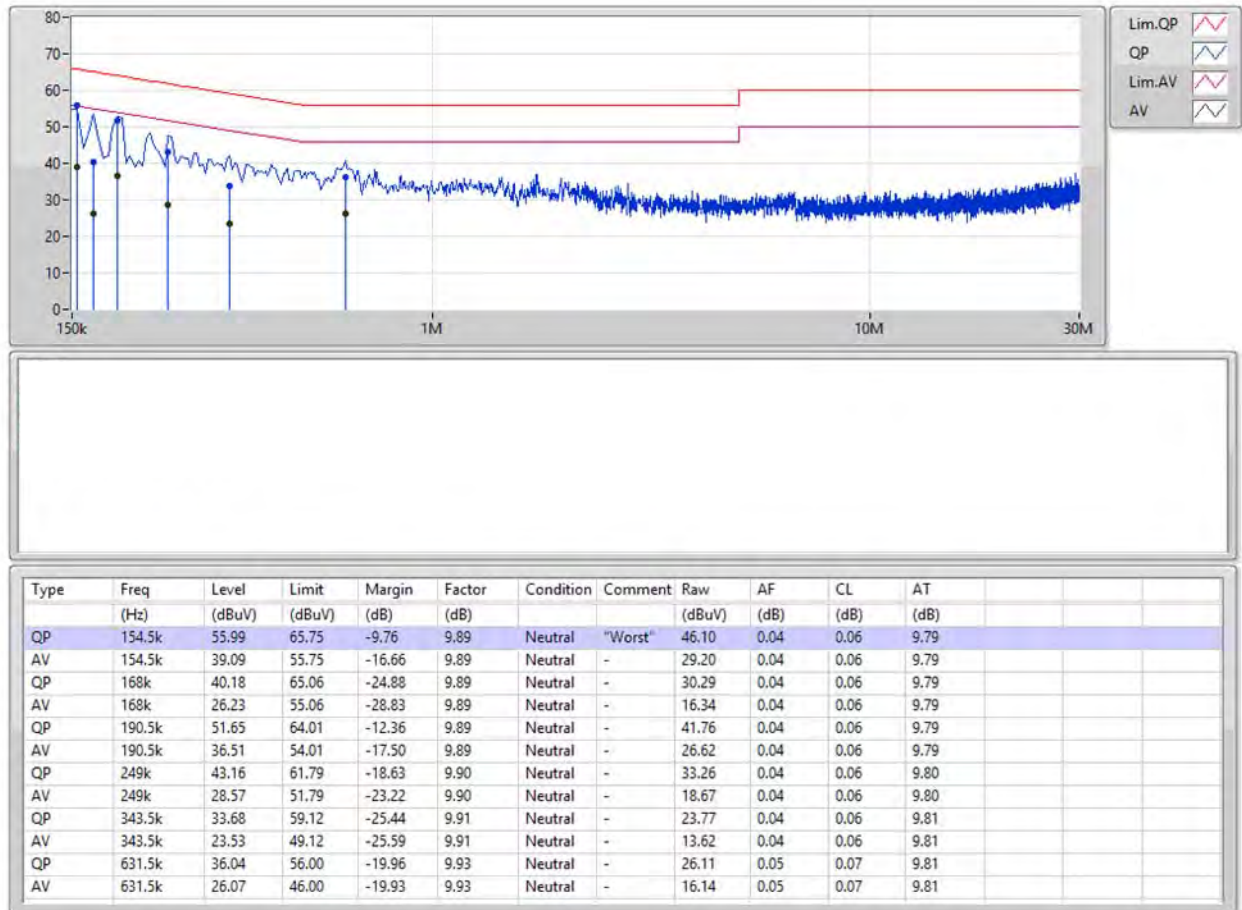
Test Mode	Mode 1	Frequency Range	0.15 MHz to 30 MHz
-----------	--------	-----------------	--------------------

Line



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor	Condition	Comment	Raw (dBuV)	AF (dB)	CL (dB)	AT (dB)			
QP	150k	55.22	66.00	-10.78	9.90	Line	"Worst"	45.32	0.05	0.06	9.79			
AV	150k	39.85	56.00	-16.15	9.90	Line	-	29.95	0.05	0.06	9.79			
QP	186k	49.28	64.20	-14.92	9.91	Line	-	39.37	0.06	0.06	9.79			
AV	186k	34.16	54.20	-20.04	9.91	Line	-	24.25	0.06	0.06	9.79			
QP	222k	43.27	62.75	-19.48	9.91	Line	-	33.36	0.06	0.06	9.79			
AV	222k	28.51	52.75	-24.24	9.91	Line	-	18.60	0.06	0.06	9.79			
QP	249k	43.26	61.79	-18.53	9.92	Line	-	33.34	0.06	0.06	9.80			
AV	249k	28.37	51.79	-23.42	9.92	Line	-	18.45	0.06	0.06	9.80			
QP	334.5k	33.06	59.35	-26.29	9.92	Line	-	23.14	0.06	0.06	9.80			
AV	334.5k	23.02	49.35	-26.33	9.92	Line	-	13.10	0.06	0.06	9.80			
QP	645k	37.06	56.00	-18.94	9.97	Line	-	27.09	0.07	0.08	9.82			
AV	645k	30.35	46.00	-15.65	9.97	Line	-	20.38	0.07	0.08	9.82			

Neutral



**Summary**

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
BT-LE(1Mbps)	707.5k	1.029M	1M03F1D	695k	1.027M

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;

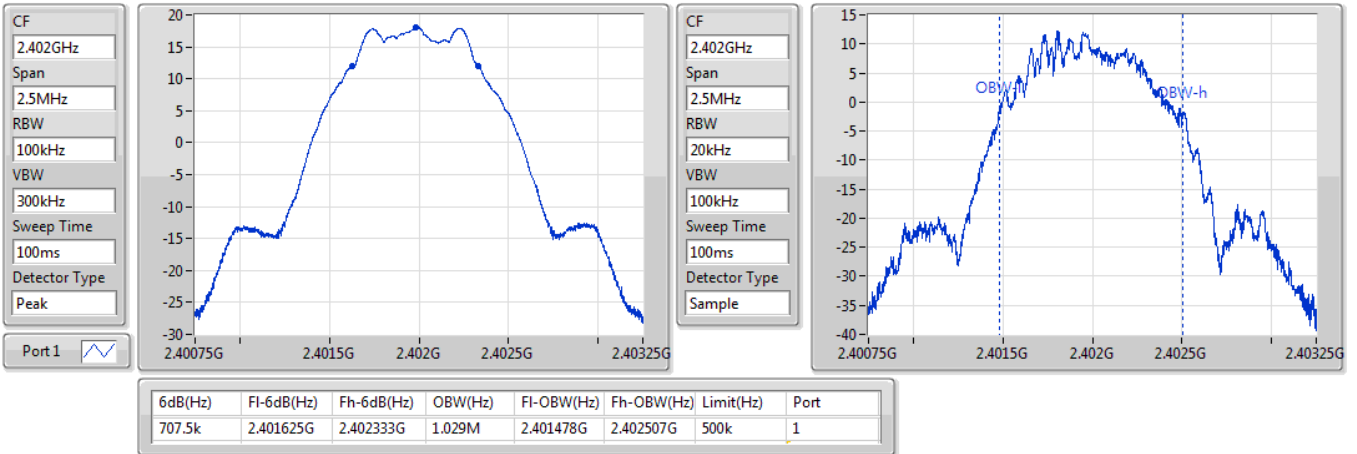
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	707.5k	1.029M
2440MHz	Pass	500k	705k	1.027M
2480MHz	Pass	500k	695k	1.027M

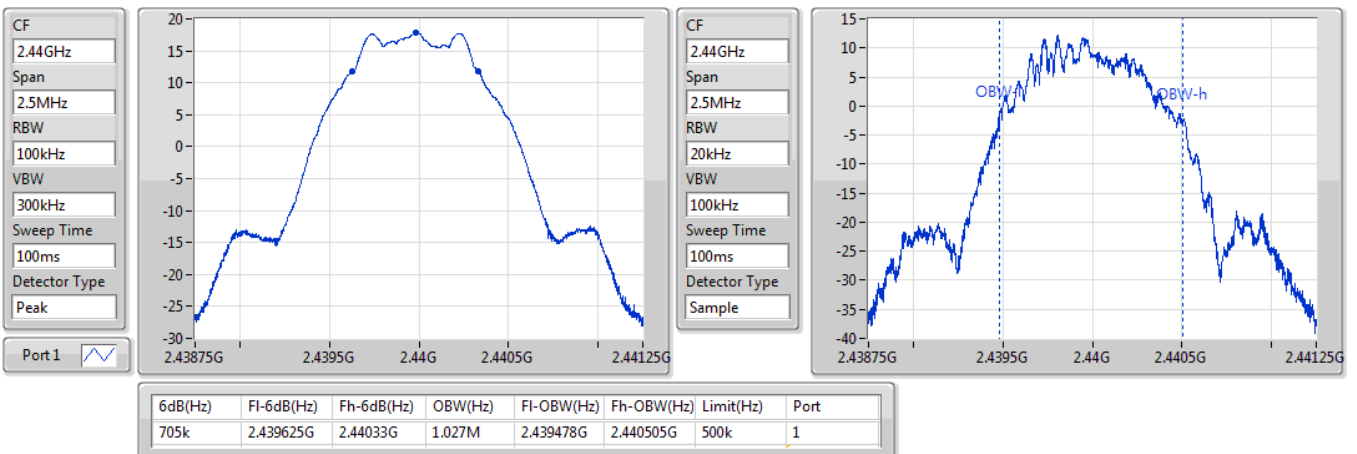
Port X-N dB = Port X 6dB down bandwidth; **Port X-OBW** = Port X 99% occupied bandwidth;

BT-LE(1Mbps)
EBW
2402MHz

18/07/2019

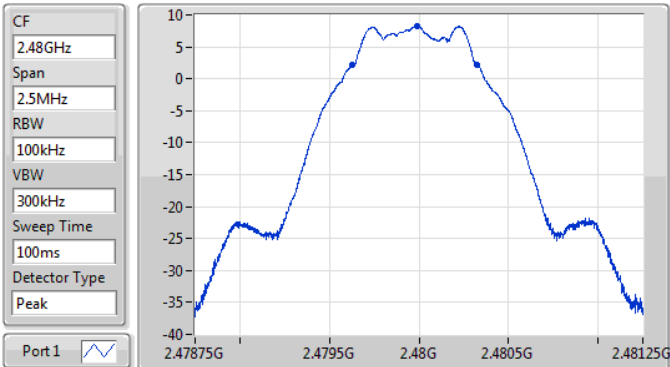

BT-LE(1Mbps)
EBW
2440MHz

18/07/2019



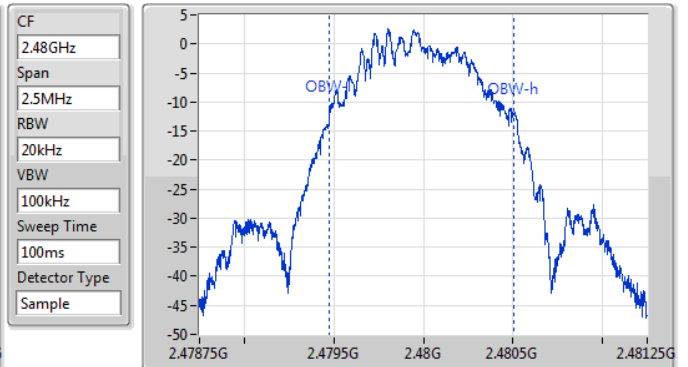
BT-LE(1Mbps)

2480MHz



EBW

18/07/2019



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
695k	2.47963G	2.480325G	1.027M	2.479477G	2.480503G	500k	1



Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
BT-LE(1Mbps)	707.5k	1.029M	1M03F1D	693.75k	1.027M

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;

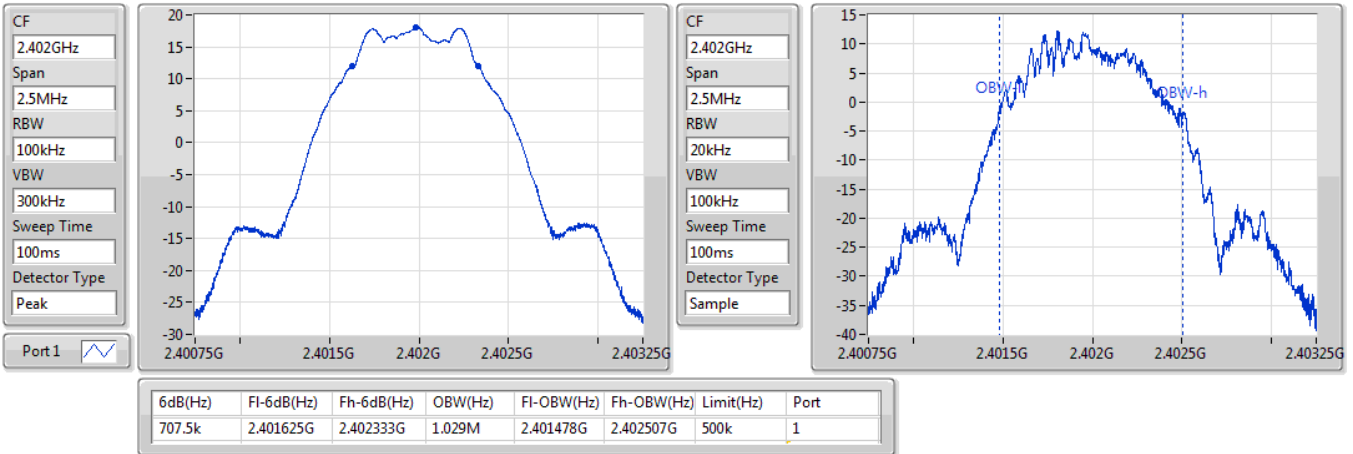
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	707.5k	1.029M
2440MHz	Pass	500k	705k	1.027M
2480MHz	Pass	500k	693.75k	1.029M

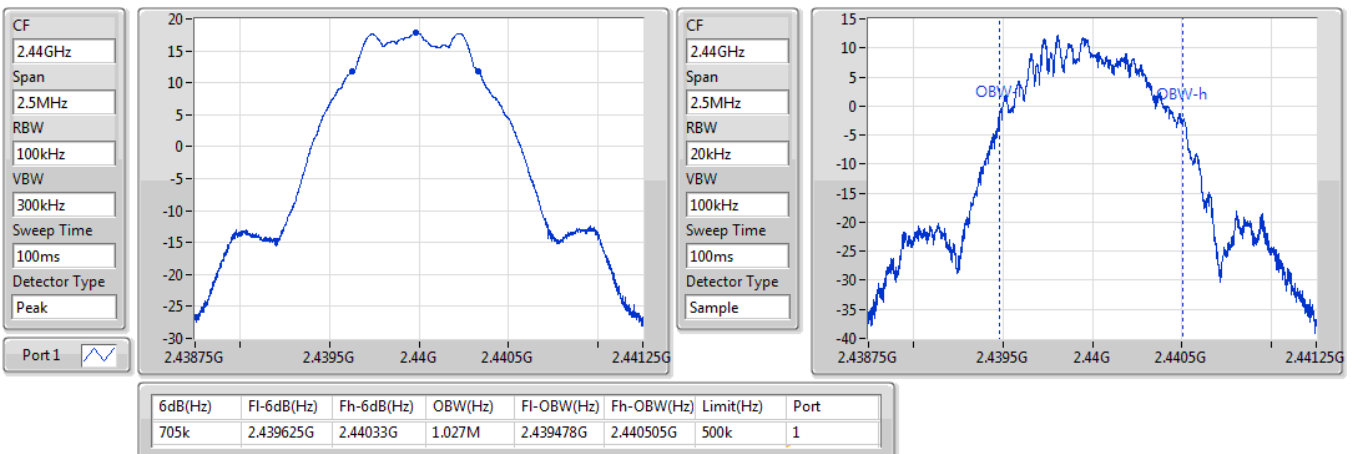
Port X-N dB = Port X 6dB down bandwidth; **Port X-OBW** = Port X 99% occupied bandwidth;

BT-LE(1Mbps)
EBW
2402MHz

18/07/2019

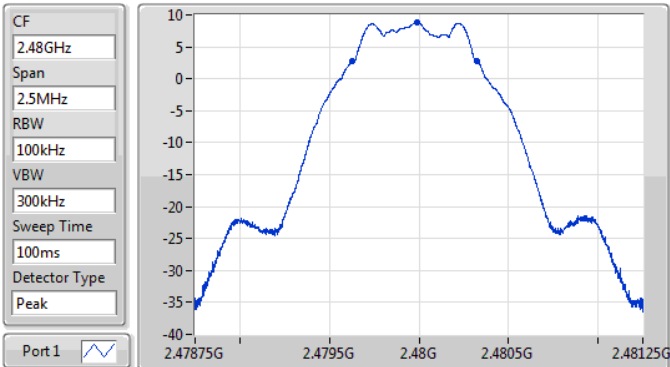

BT-LE(1Mbps)
EBW
2440MHz

18/07/2019



BT-LE(1Mbps)

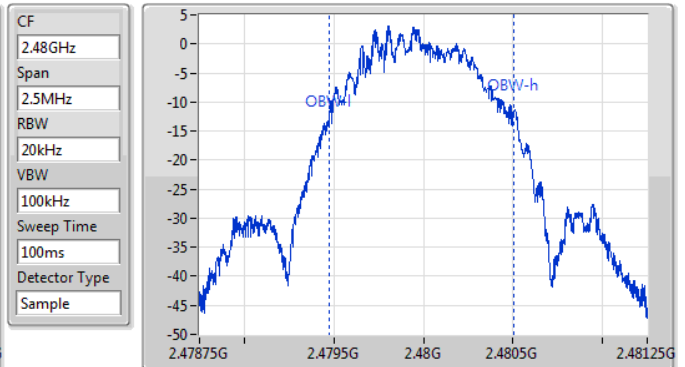
2480MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
693.75k	2.47963G	2.480324G	1.029M	2.479475G	2.480505G	500k	1

EBW

18/07/2019





Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
BT-LE(1Mbps)	707.5k	1.029M	1M03F1D	696.25k	1.027M

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;

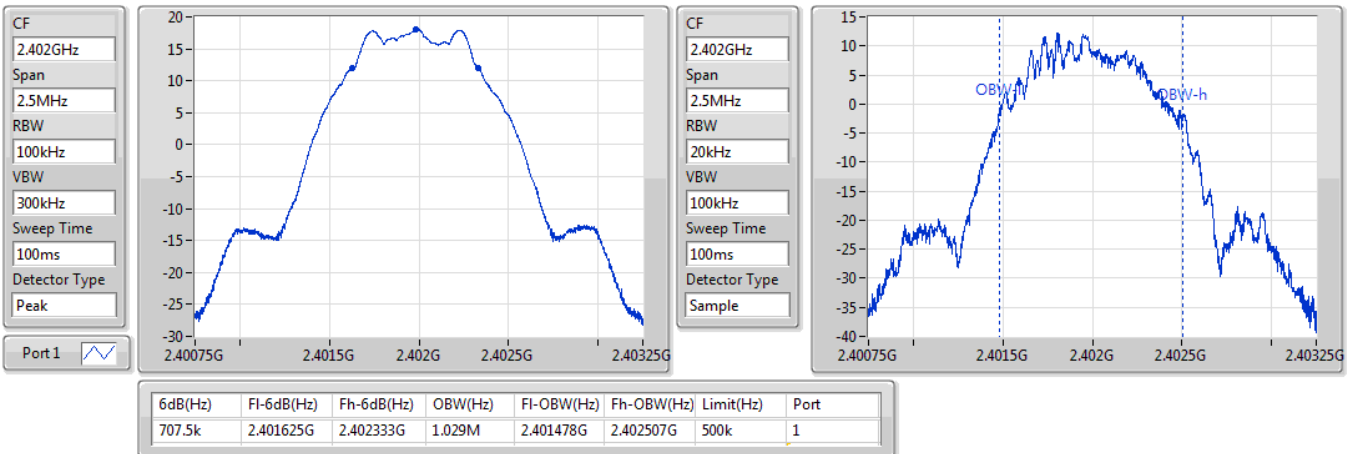
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	707.5k	1.029M
2440MHz	Pass	500k	705k	1.027M
2480MHz	Pass	500k	696.25k	1.029M

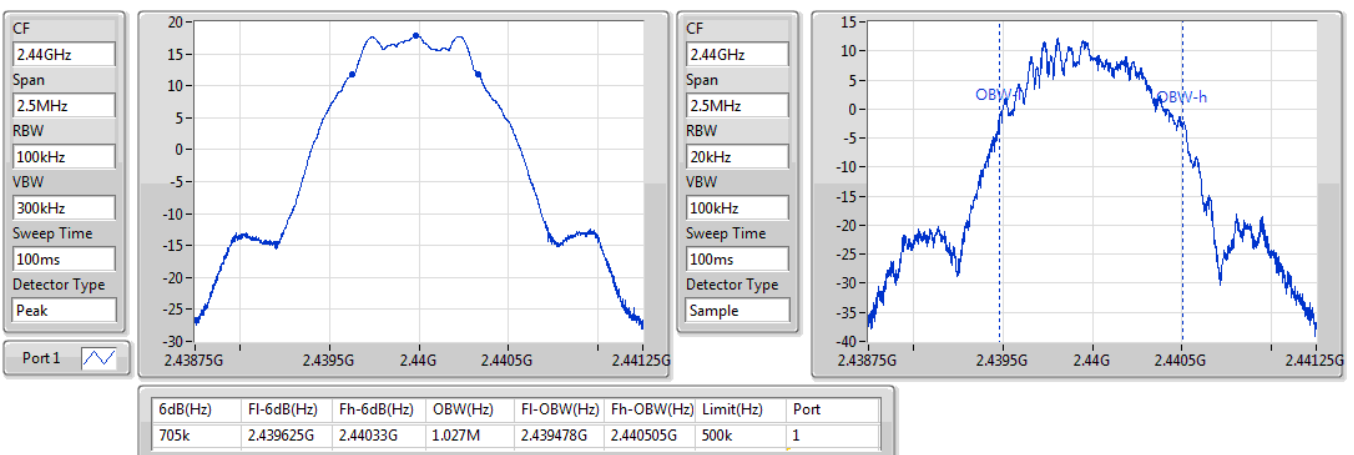
Port X-N dB = Port X 6dB down bandwidth; **Port X-OBW** = Port X 99% occupied bandwidth;

BT-LE(1Mbps)
EBW
2402MHz

18/07/2019

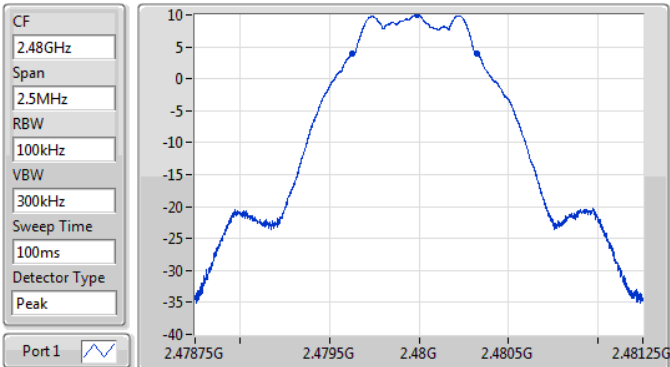

BT-LE(1Mbps)
EBW
2440MHz

18/07/2019



BT-LE(1Mbps)

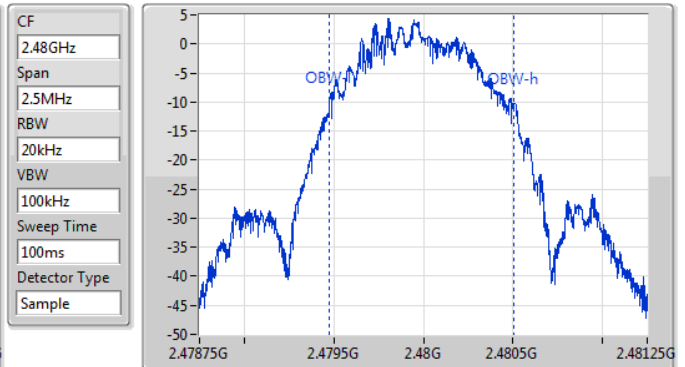
2480MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
696.25k	2.479628G	2.480324G	1.029M	2.479475G	2.480505G	500k	1

EBW

18/07/2019





Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
BT-LE(1Mbps)	707.5k	1.029M	1M03F1D	695k	1.027M

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;

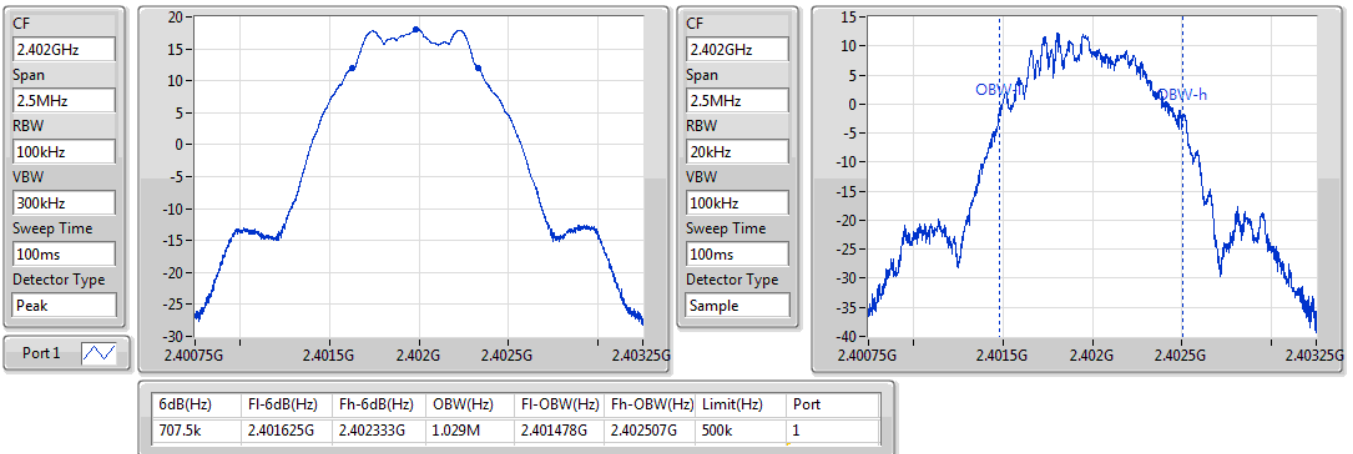
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	707.5k	1.029M
2440MHz	Pass	500k	705k	1.027M
2480MHz	Pass	500k	695k	1.028M

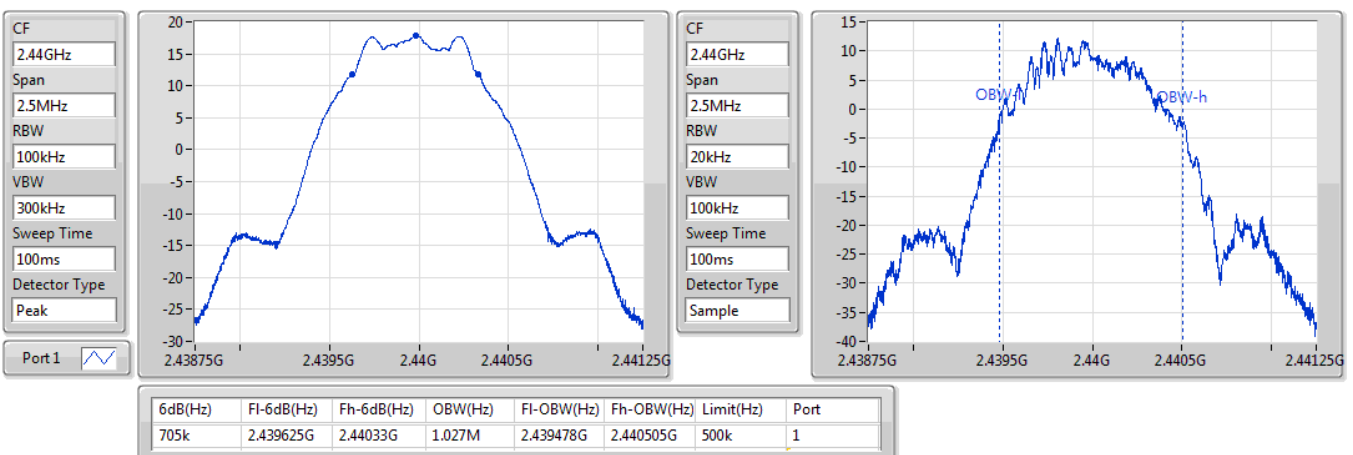
Port X-N dB = Port X 6dB down bandwidth; **Port X-OBW** = Port X 99% occupied bandwidth;

BT-LE(1Mbps)
EBW
2402MHz

18/07/2019

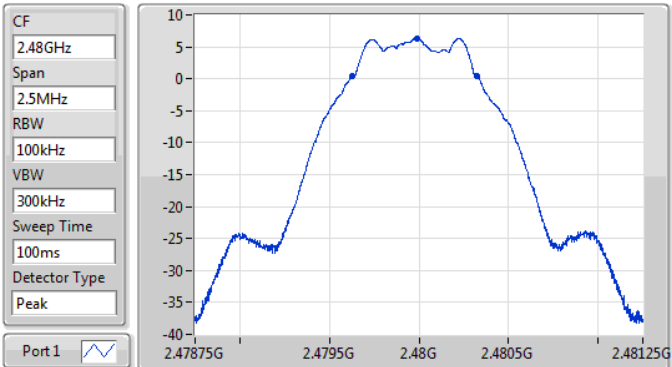

BT-LE(1Mbps)
EBW
2440MHz

18/07/2019



BT-LE(1Mbps)

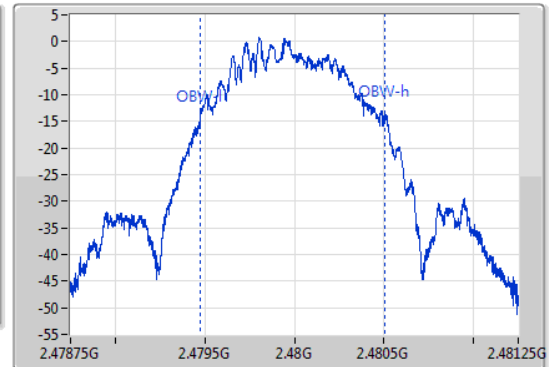
2480MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
695k	2.47963G	2.480325G	1.028M	2.479475G	2.480503G	500k	1

EBW

18/07/2019





Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
BT-LE(1Mbps)	708.75k	1.031M	1M03F1D	703.75k	1.028M

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;

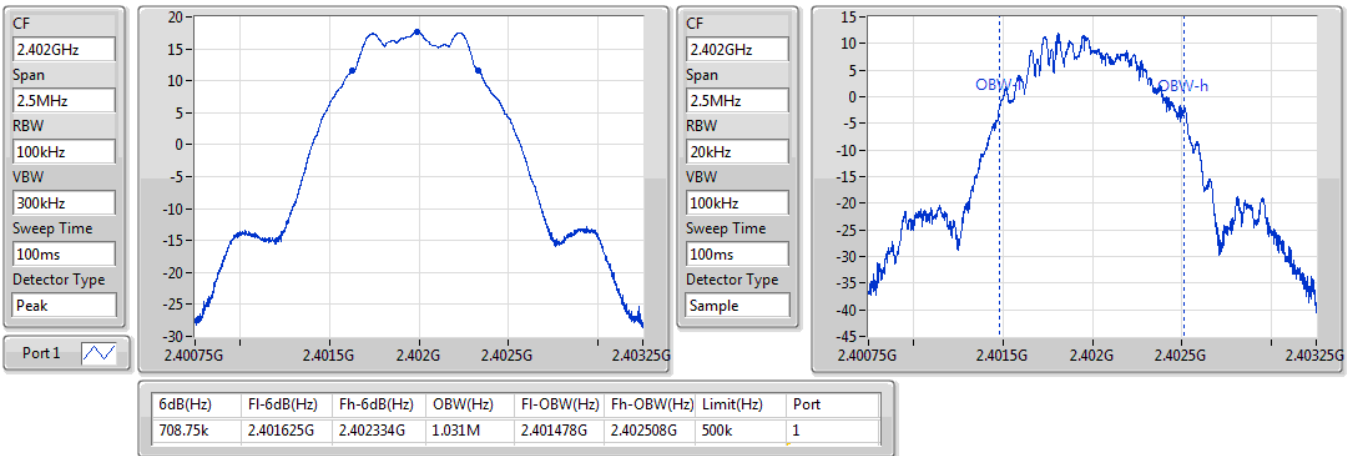
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	708.75k	1.031M
2440MHz	Pass	500k	705k	1.028M
2480MHz	Pass	500k	703.75k	1.031M

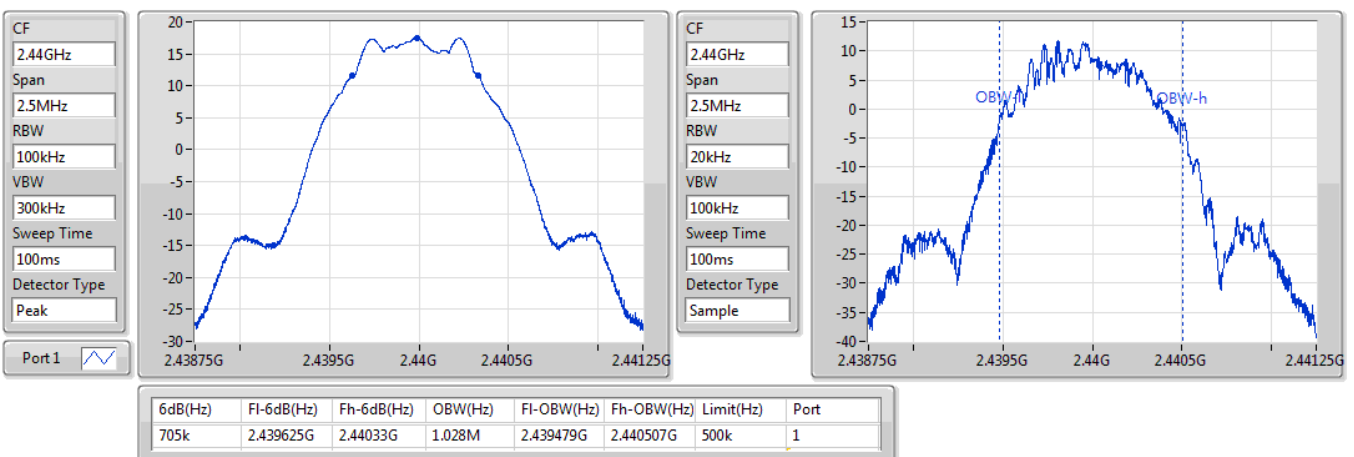
Port X-N dB = Port X 6dB down bandwidth; **Port X-OBW** = Port X 99% occupied bandwidth;

BT-LE(1Mbps)
EBW
2402MHz

18/07/2019

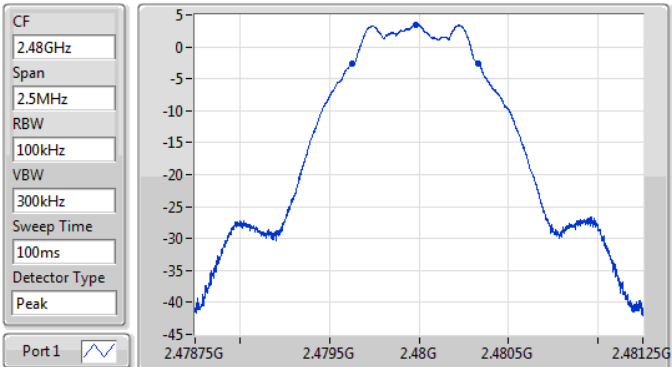

BT-LE(1Mbps)
EBW
2440MHz

18/07/2019



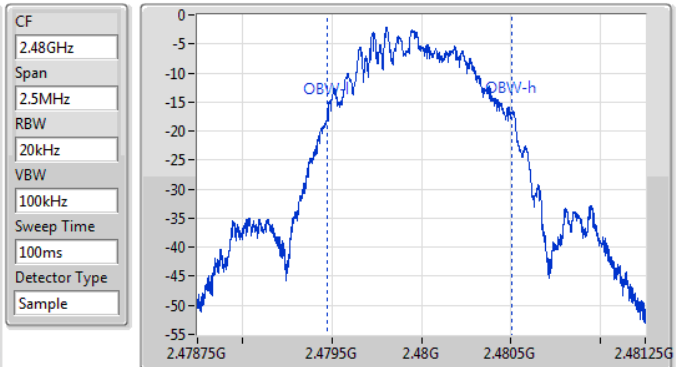
BT-LE(1Mbps)

2480MHz



EBW

18/07/2019



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
703.75k	2.479625G	2.480329G	1.031M	2.479475G	2.480506G	500k	1



Summary

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	19.12	0.08166



Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	3.24	19.12	30.00
2440MHz	Pass	3.24	18.93	30.00
2480MHz	Pass	3.24	9.52	30.00

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



Summary

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	19.12	0.08166



Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	4.34	19.12	30.00
2440MHz	Pass	4.34	18.93	30.00
2480MHz	Pass	4.34	10.01	30.00

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



Summary

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	19.12	0.08166



Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	2.34	19.12	30.00
2440MHz	Pass	2.34	18.93	30.00
2480MHz	Pass	2.34	10.68	30.00

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



Summary

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	19.12	0.08166



Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	6.44	19.12	29.56
2440MHz	Pass	6.44	18.93	29.56
2480MHz	Pass	6.44	7.59	29.56

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



Summary

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	19.12	0.08166



Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	10.64	19.12	25.36
2440MHz	Pass	10.64	18.93	25.36
2480MHz	Pass	10.64	4.72	25.36

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



Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE(1Mbps)	2.86

RBW=3 kHz.



Result

Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	3.24	2.86	8.00
2440MHz	Pass	3.24	2.73	8.00
2480MHz	Pass	3.24	-6.67	8.00

DG = Directional Gain; RBW=3 kHz;

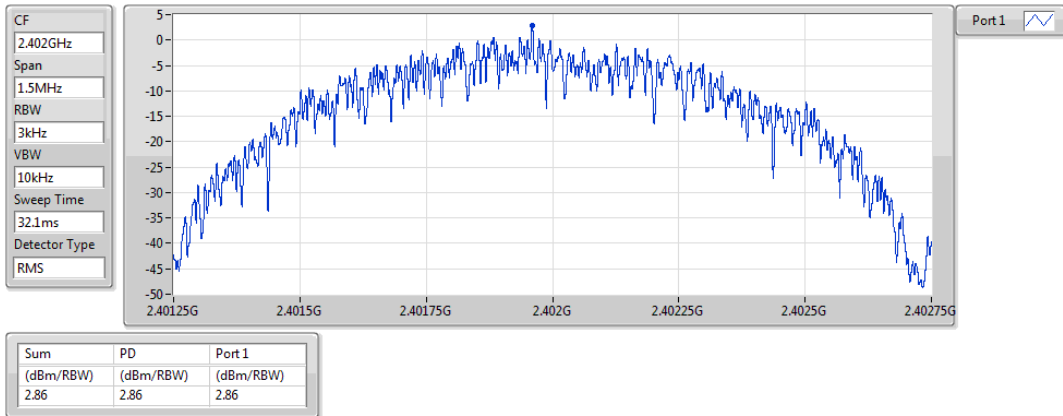
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

BT-LE(1Mbps)

2402MHz

PSD

22/07/2019

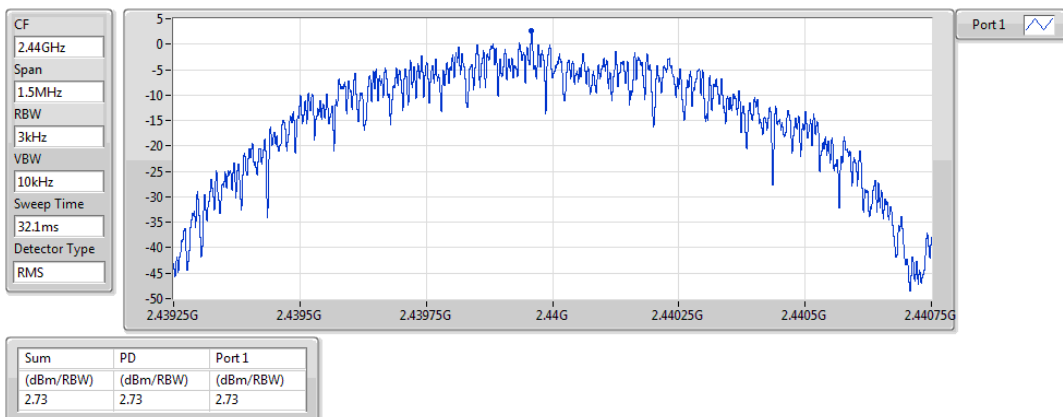


BT-LE(1Mbps)

2440MHz

PSD

22/07/2019

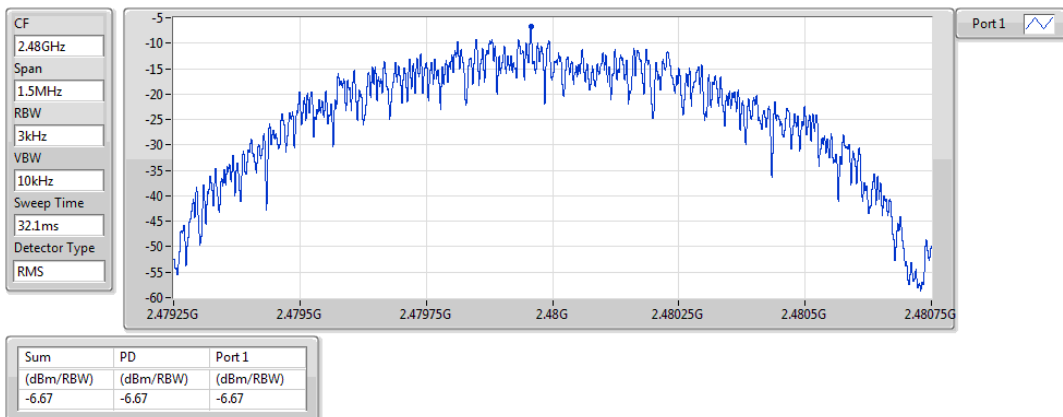


BT-LE(1Mbps)

2480MHz

PSD

22/07/2019





Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE(1Mbps)	2.86

RBW=3 kHz.

Result

Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	4.34	2.86	8.00
2440MHz	Pass	4.34	2.73	8.00
2480MHz	Pass	4.34	-6.07	8.00

DG = Directional Gain; RBW=3 kHz;

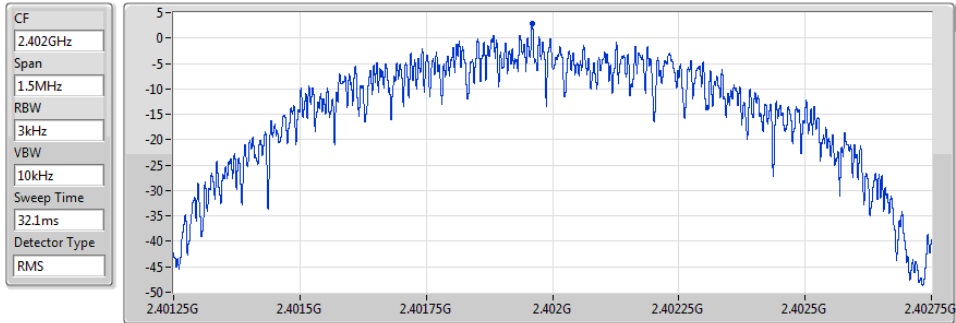
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

BT-LE(1Mbps)

PSD

2402MHz

22/07/2019



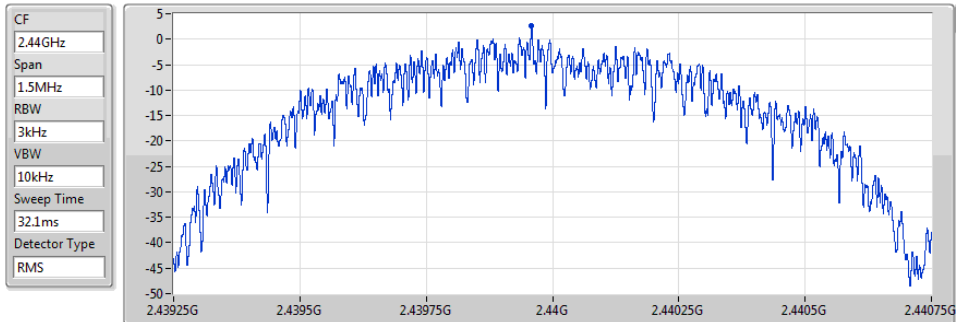
Sum	PD	Port 1
(dBm/Hz)	(dBm/Hz)	(dBm/Hz)
2.86	2.86	2.86

BT-LE(1Mbps)

PSD

2440MHz

22/07/2019



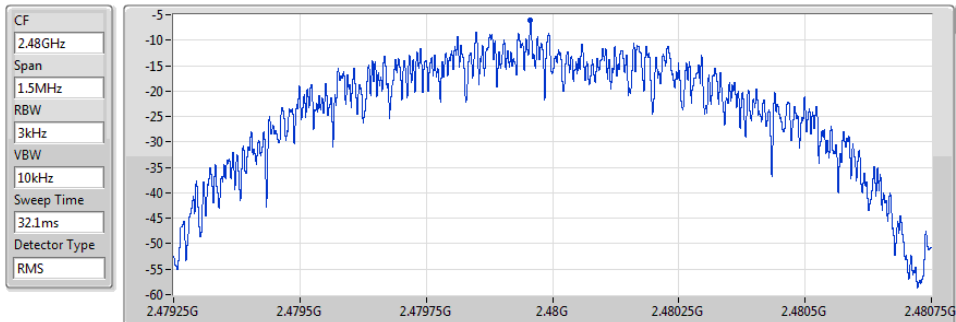
Sum	PD	Port 1
(dBm/Hz)	(dBm/Hz)	(dBm/Hz)
2.73	2.73	2.73

BT-LE(1Mbps)

PSD

2480MHz

22/07/2019



Sum	PD	Port 1
(dBm/Hz)	(dBm/Hz)	(dBm/Hz)
-6.07	-6.07	-6.07



Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE(1Mbps)	2.86

RBW=3 kHz.



Result

Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	2.34	2.86	8.00
2440MHz	Pass	2.34	2.73	8.00
2480MHz	Pass	2.34	-5.48	8.00

DG = Directional Gain; RBW=3 kHz;

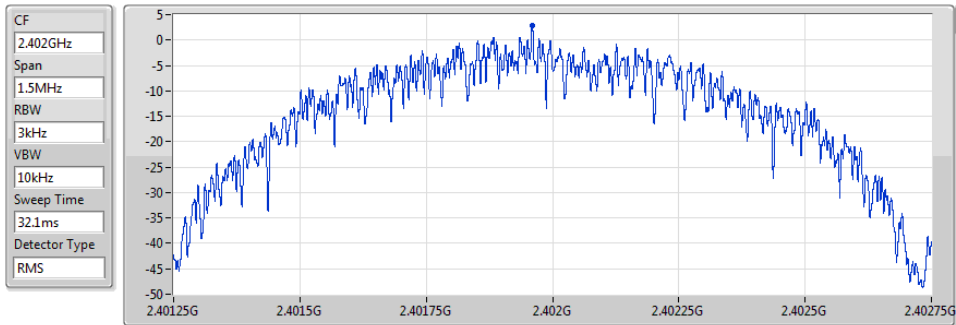
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

BT-LE(1Mbps)

2402MHz

PSD

22/07/2019



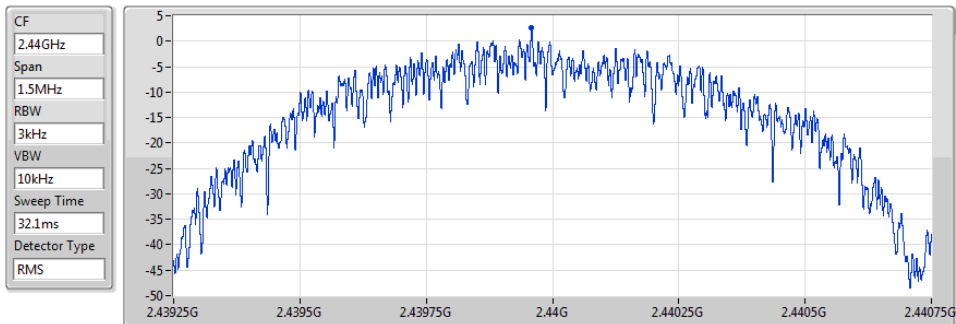
Sum	PD	Port 1
(dBm/Hz)	(dBm/Hz)	(dBm/Hz)
2.86	2.86	2.86

BT-LE(1Mbps)

2440MHz

PSD

22/07/2019



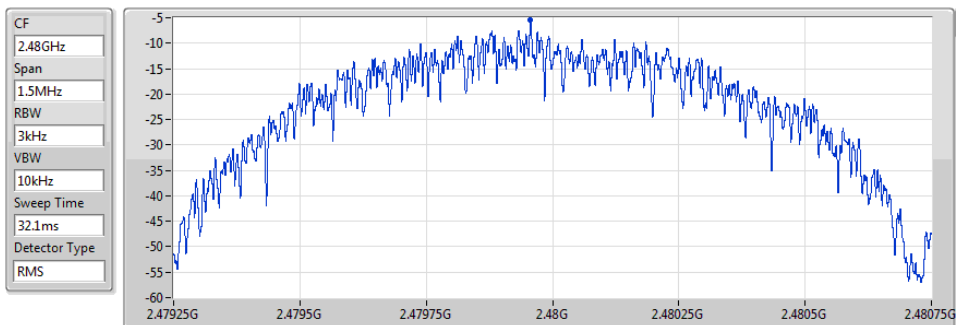
Sum	PD	Port 1
(dBm/Hz)	(dBm/Hz)	(dBm/Hz)
2.73	2.73	2.73

BT-LE(1Mbps)

2480MHz

PSD

22/07/2019



Sum	PD	Port 1
(dBm/Hz)	(dBm/Hz)	(dBm/Hz)
-5.48	-5.48	-5.48



Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE(1Mbps)	2.86

RBW=3 kHz.



Result

Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	6.44	2.86	7.56
2440MHz	Pass	6.44	2.73	7.56
2480MHz	Pass	6.44	-8.47	7.56

DG = Directional Gain; RBW=3 kHz;

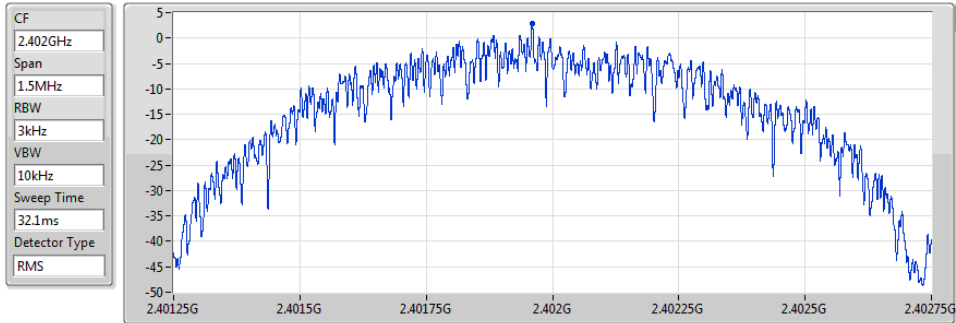
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

BT-LE(1Mbps)

2402MHz

PSD

22/07/2019



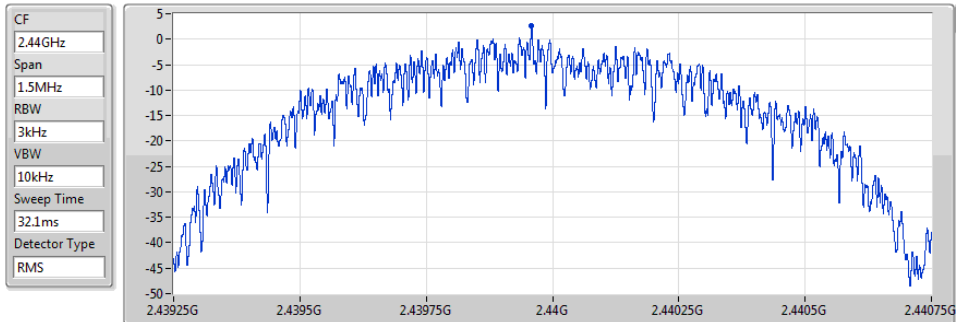
Sum	PD	Port 1
(dBm/Hz)	(dBm/Hz)	(dBm/Hz)
2.86	2.86	2.86

BT-LE(1Mbps)

2440MHz

PSD

22/07/2019



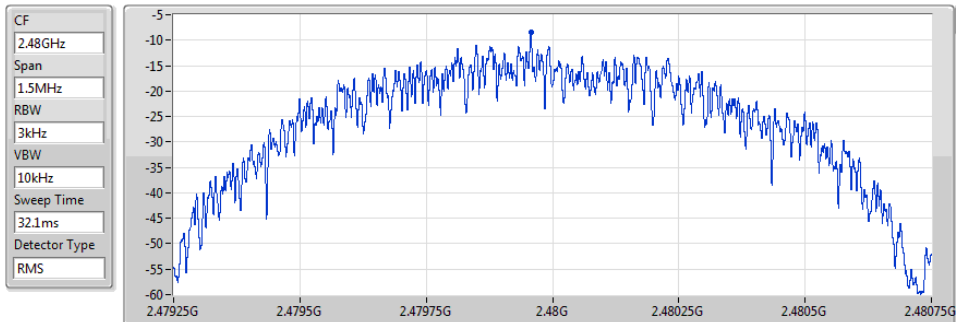
Sum	PD	Port 1
(dBm/Hz)	(dBm/Hz)	(dBm/Hz)
2.73	2.73	2.73

BT-LE(1Mbps)

2480MHz

PSD

22/07/2019



Sum	PD	Port 1
(dBm/Hz)	(dBm/Hz)	(dBm/Hz)
-8.47	-8.47	-8.47



Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE(1Mbps)	2.86

RBW=3 kHz.



Result

Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	10.64	2.86	3.36
2440MHz	Pass	10.64	2.73	3.36
2480MHz	Pass	10.64	-11.33	3.36

DG = Directional Gain; RBW=3 kHz;

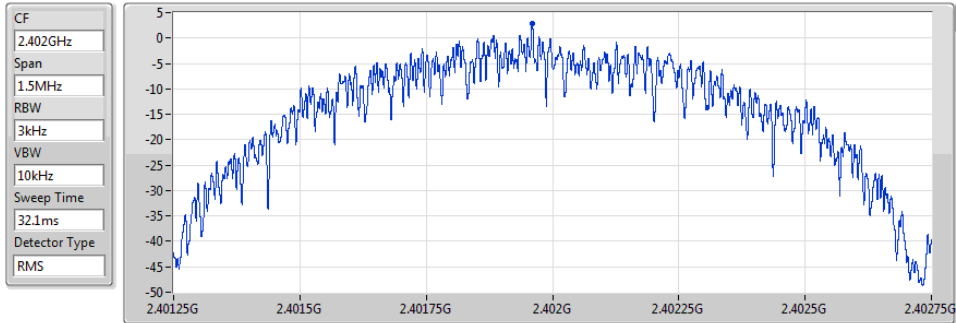
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

BT-LE(1Mbps)

2402MHz

PSD

22/07/2019



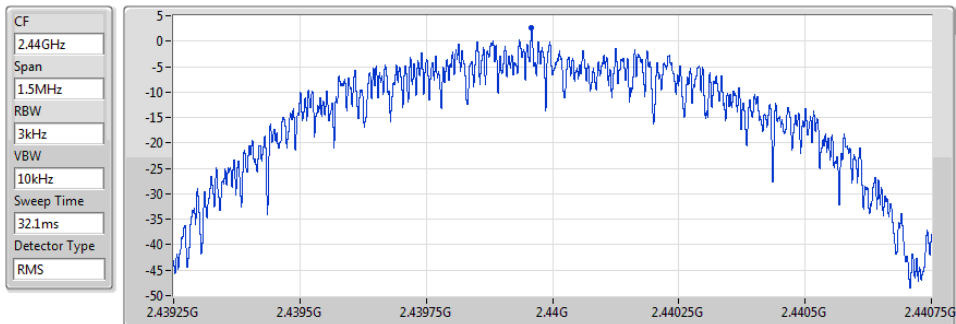
Sum	PD	Port 1
(dBm/Hz)	(dBm/Hz)	(dBm/Hz)
2.86	2.86	2.86

BT-LE(1Mbps)

2440MHz

PSD

22/07/2019



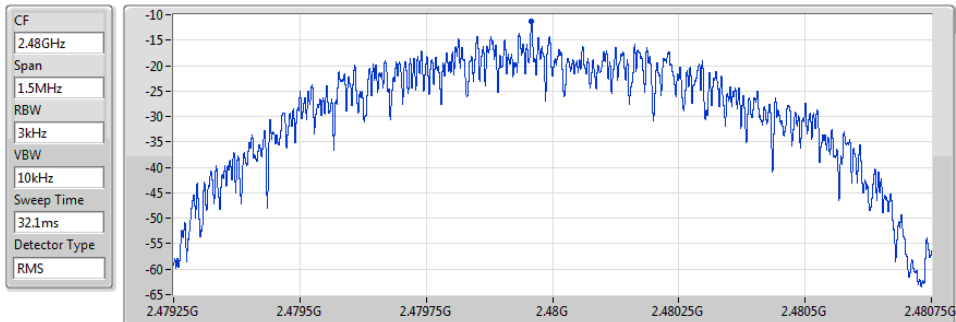
Sum	PD	Port 1
(dBm/Hz)	(dBm/Hz)	(dBm/Hz)
2.73	2.73	2.73

BT-LE(1Mbps)

2480MHz

PSD

22/07/2019



Sum	PD	Port 1
(dBm/Hz)	(dBm/Hz)	(dBm/Hz)
-11.33	-11.33	-11.33



Summary

Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	2.40196G	18.10	-11.90	2.3977G	-48.01	2.39988G	-36.52	2.48544G	-52.93	6.9096G	-47.70	1

Result

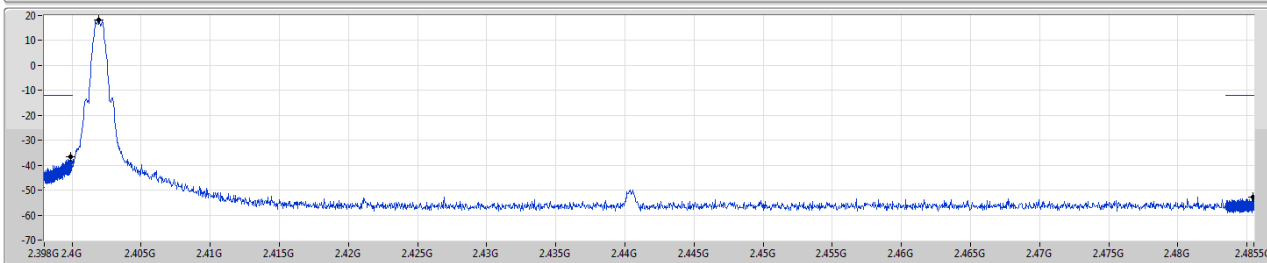
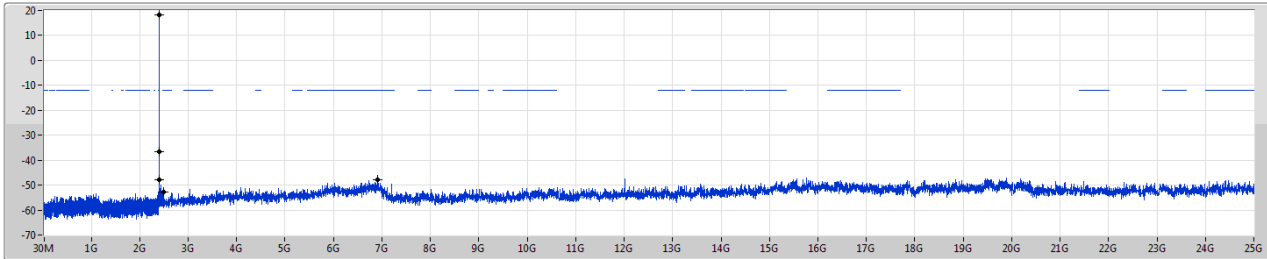
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.40196G	18.10	-11.90	2.3977G	-48.01	2.39988G	-36.52	2.48544G	-52.93	6.9096G	-47.70	1
2440MHz	Pass	2.40196G	18.10	-11.90	1.82702G	-53.51	2.39852G	-52.51	2.48382G	-52.68	16.4473G	-47.38	1
2480MHz	Pass	2.40196G	18.10	-11.90	866.2M	-54.04	2.39848G	-53.43	2.48362G	-48.21	16.46138G	-47.63	1

BT-LE(1Mbps)

2402MHz

CSE NdB

18/07/2019



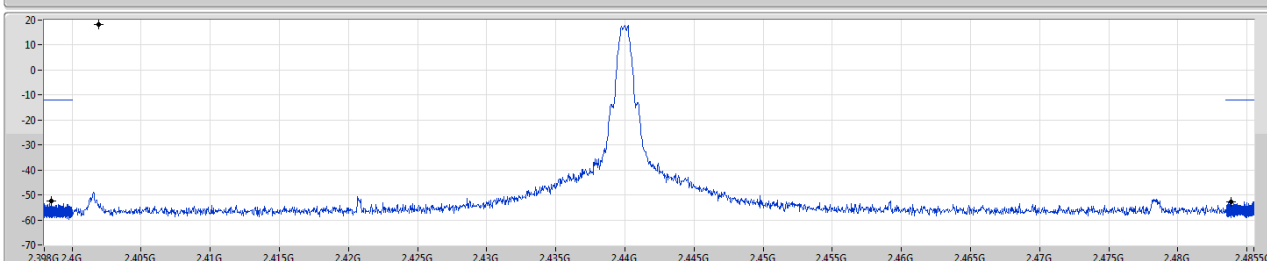
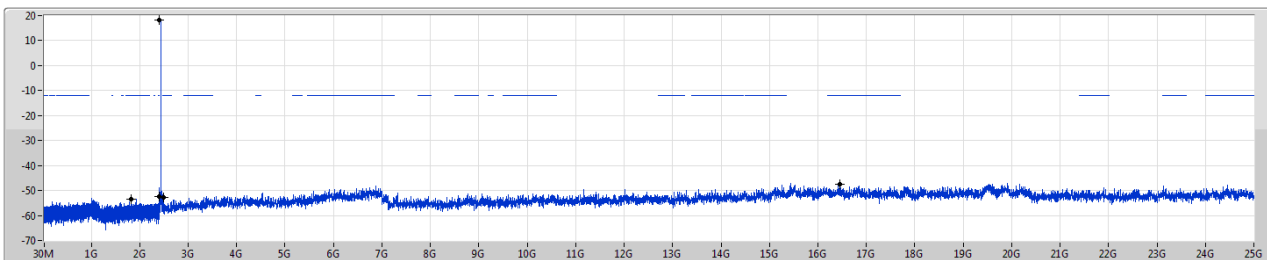
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
240196G	18.10	-11.90	2.3977G	-48.01	2.39988G	-36.52	2.48544G	-52.93	6.9096G	-47.70	1

BT-LE(1Mbps)

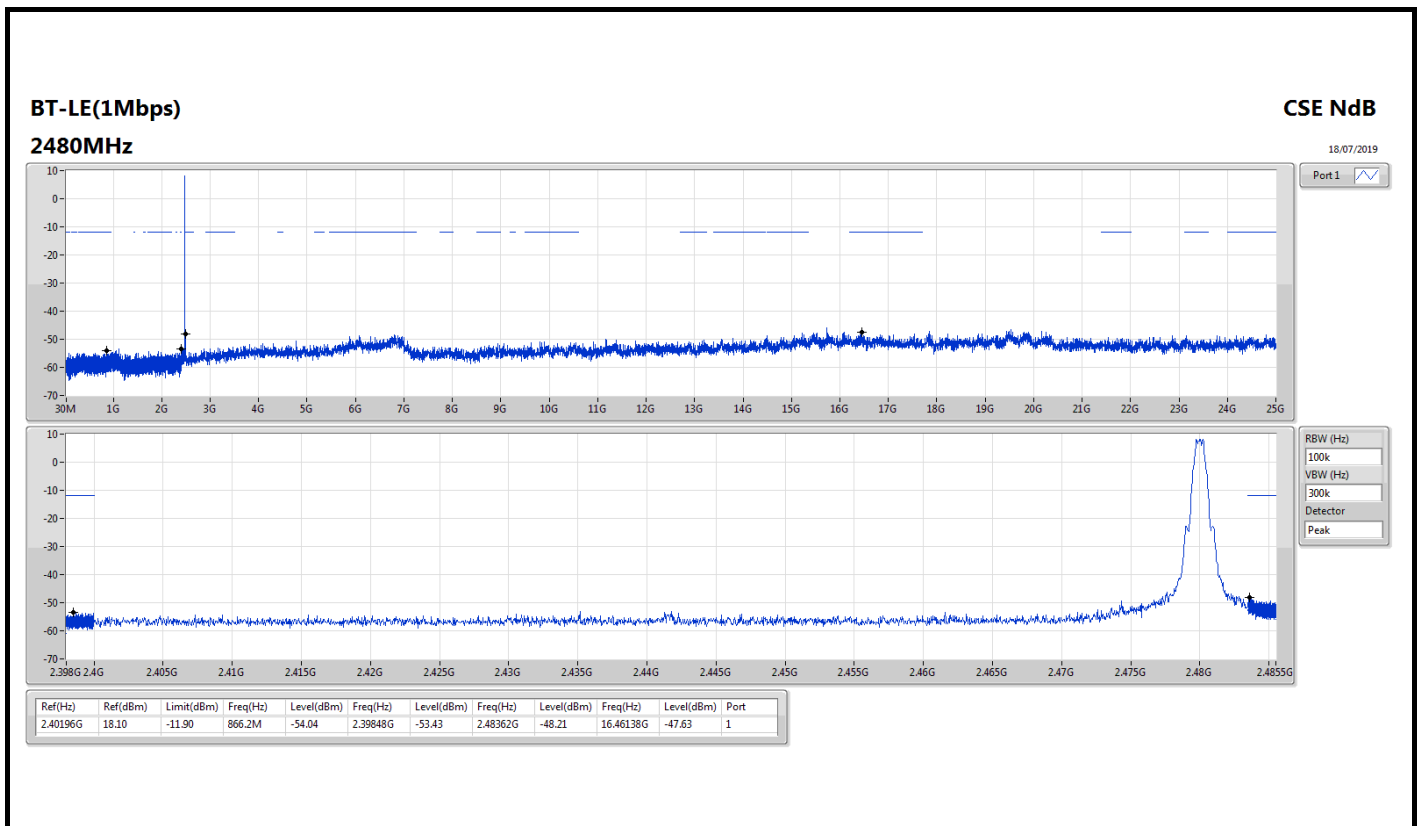
2440MHz

CSE NdB

18/07/2019



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
240196G	18.10	-11.90	1.82702G	-53.51	2.39852G	-52.51	2.48382G	-52.68	16.4473G	-47.38	1



**Summary**

Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	2.40196G	18.09	-11.91	2.39534G	-46.86	2.39999G	-36.31	2.48419G	-52.29	16.20246G	-47.61	1

Result

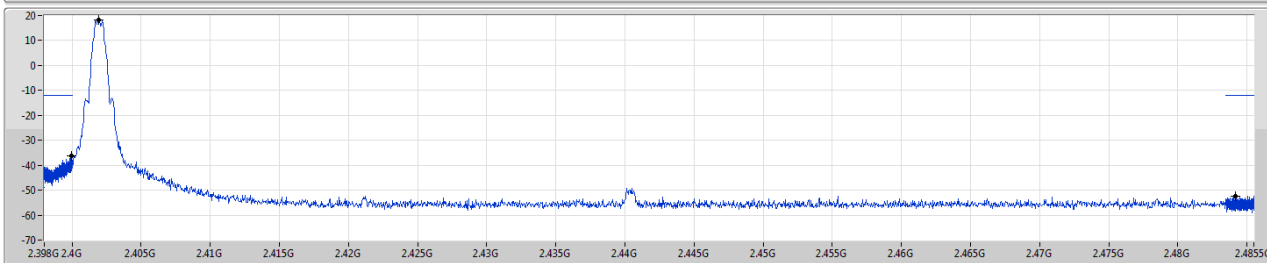
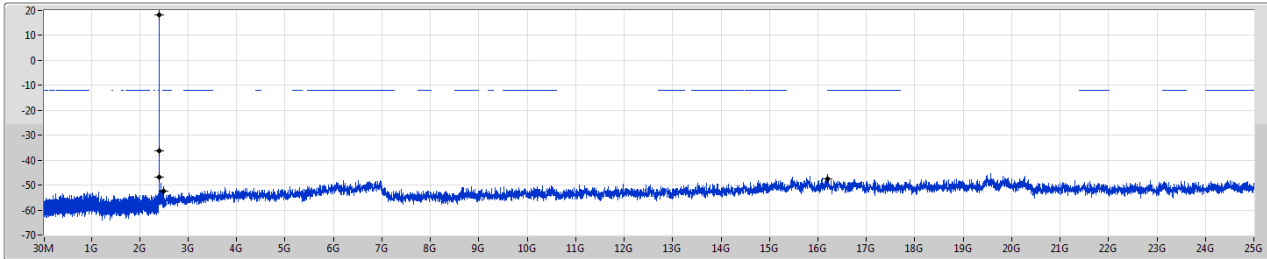
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.40196G	18.09	-11.91	2.39534G	-46.86	2.39999G	-36.31	2.48419G	-52.29	16.20246G	-47.61	1
2440MHz	Pass	2.40196G	18.09	-11.91	784.21M	-53.60	2.39931G	-52.39	2.48523G	-52.13	15.26248G	-46.79	1
2480MHz	Pass	2.40196G	18.09	-11.91	594.77M	-53.15	2.39854G	-51.87	2.48353G	-47.11	16.39946G	-47.36	1

BT-LE(1Mbps)

2402MHz

CSE NdB

18/07/2019



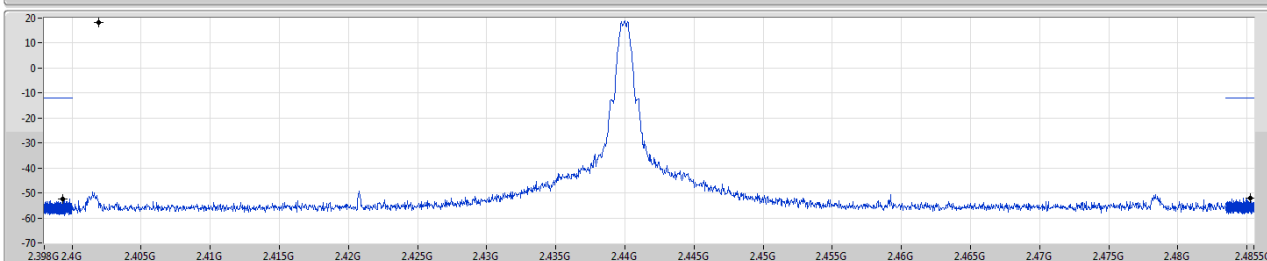
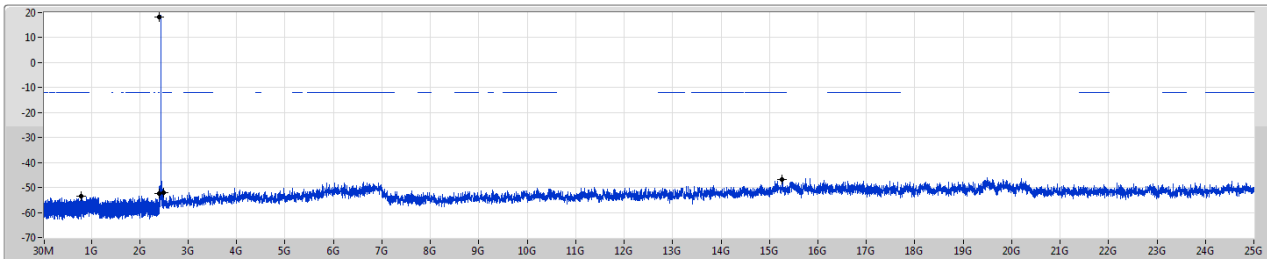
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.40196G	18.09	-11.91	2.39534G	-46.86	2.39999G	-36.31	2.48419G	-52.29	16.20246G	-47.61	1

BT-LE(1Mbps)

2440MHz

CSE NdB

18/07/2019



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.40196G	18.09	-11.91	784.21M	-53.60	2.39931G	-52.39	2.48523G	-52.13	15.26248G	-46.79	1

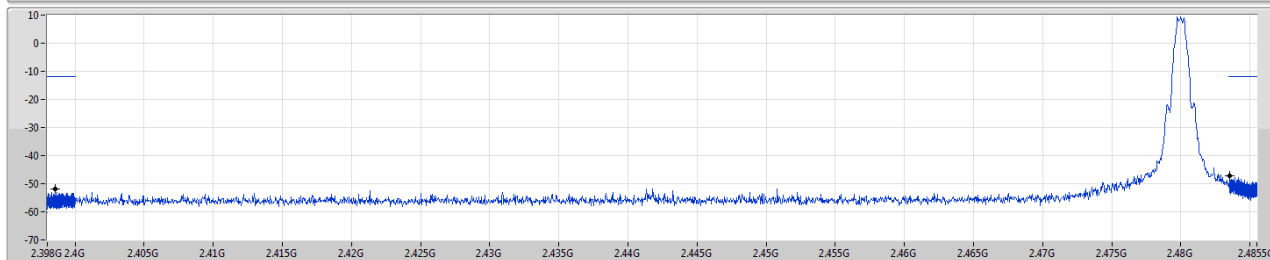
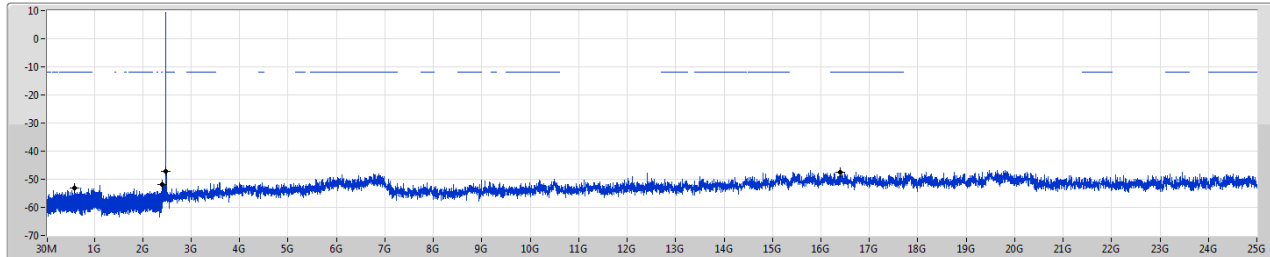
BT-LE(1Mbps)

2480MHz

CSE NdB

18/07/2019

Port 1

RBW (Hz)
100k
VBW (Hz)
300k
Detector
Peak

Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.40196G	18.09	-11.91	594.77M	-53.15	2.39854G	-51.87	2.48353G	-47.11	16.39946G	-47.36	1



Summary

Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	2.40196G	18.10	-11.90	2.39652G	-47.16	2.3999G	-37.04	2.4844G	-51.37	6.99121G	-46.21	1

Result

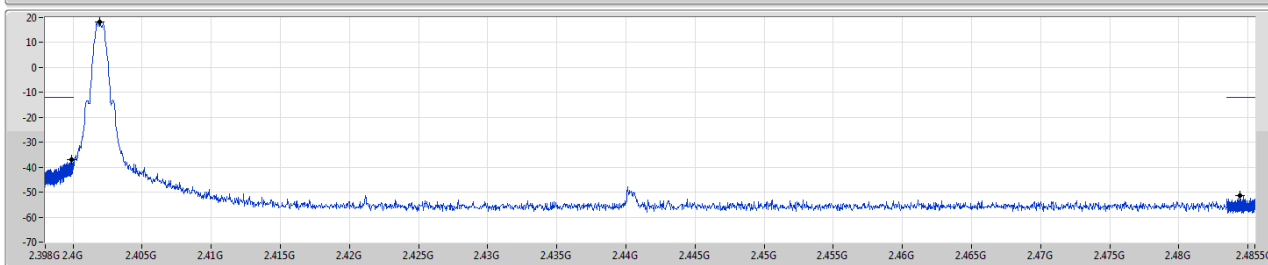
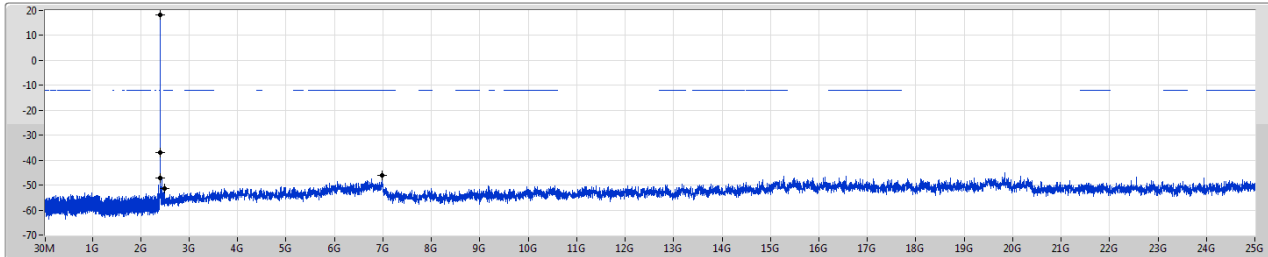
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.40196G	18.10	-11.90	2.39652G	-47.16	2.3999G	-37.04	2.4844G	-51.37	6.99121G	-46.21	1
2440MHz	Pass	2.40196G	18.10	-11.90	2.07654G	-53.29	2.39816G	-51.66	2.48441G	-52.23	16.41072G	-46.68	1
2480MHz	Pass	2.40196G	18.10	-11.90	1.93446G	-53.59	2.39938G	-53.00	2.48352G	-47.05	6.8899G	-46.28	1

BT-LE(1Mbps)

2402MHz

CSE NdB

18/07/2019



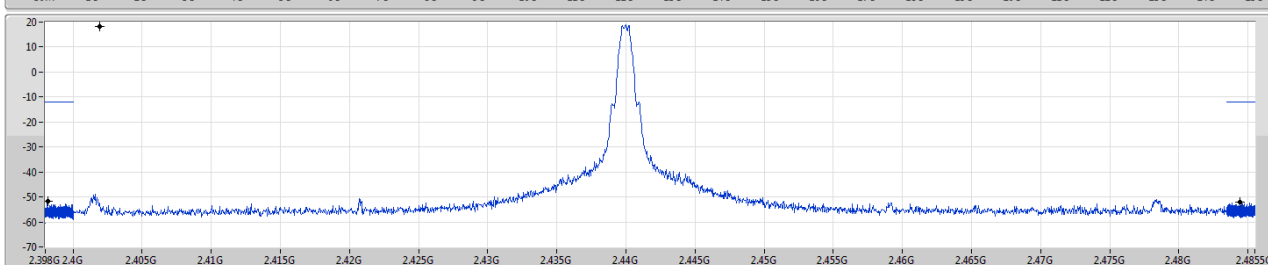
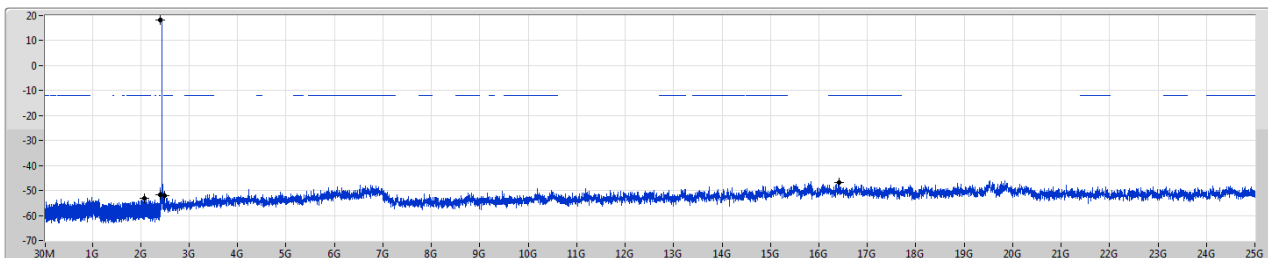
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.40196G	18.10	-11.90	2.39652G	-47.16	2.3999G	-37.04	2.4844G	-51.37	6.99121G	-46.21	1

BT-LE(1Mbps)

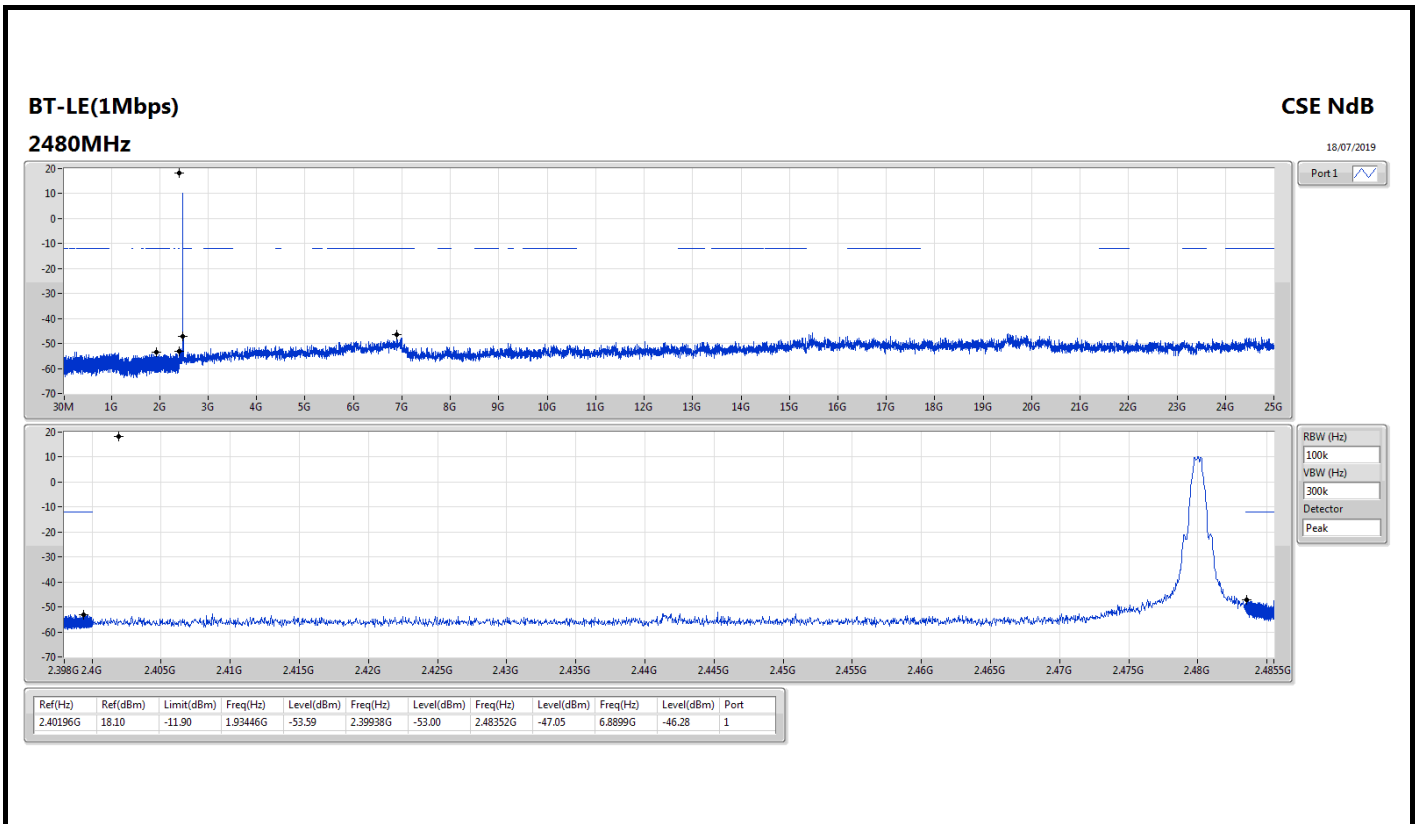
2440MHz

CSE NdB

18/07/2019



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.40196G	18.10	-11.90	2.07654G	-53.29	2.39816G	-51.66	2.48441G	-52.23	16.41072G	-46.68	1





Summary

Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	2.40221G	18.03	-11.97	2.39682G	-47.02	2.39978G	-36.06	2.48474G	-52.76	7.2051G	-47.69	1

Result

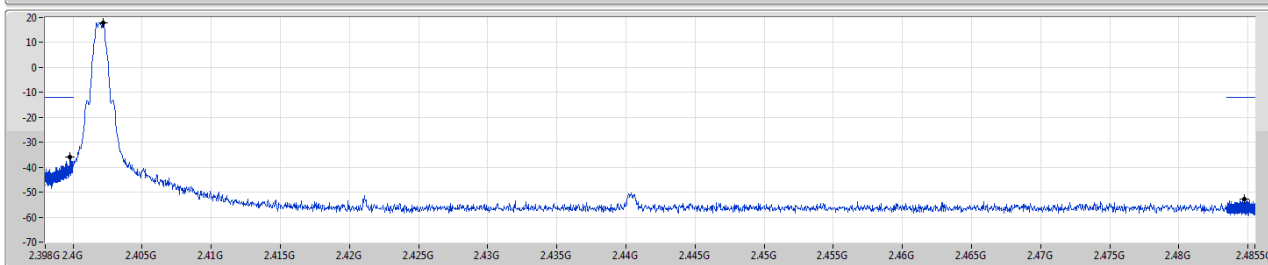
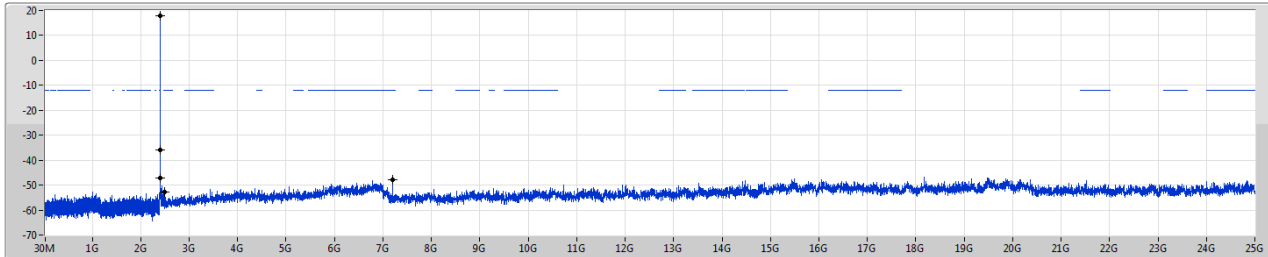
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.40221G	18.03	-11.97	2.39682G	-47.02	2.39978G	-36.06	2.48474G	-52.76	7.2051G	-47.69	1
2440MHz	Pass	2.40221G	18.03	-11.97	1.81044G	-53.79	2.39804G	-53.09	2.48483G	-52.92	15.13865G	-47.28	1
2480MHz	Pass	2.40221G	18.03	-11.97	1.91996G	-53.34	2.3997G	-52.75	2.48352G	-48.54	14.72213G	-47.88	1

BT-LE(1Mbps)

2402MHz

CSE NdB

18/07/2019



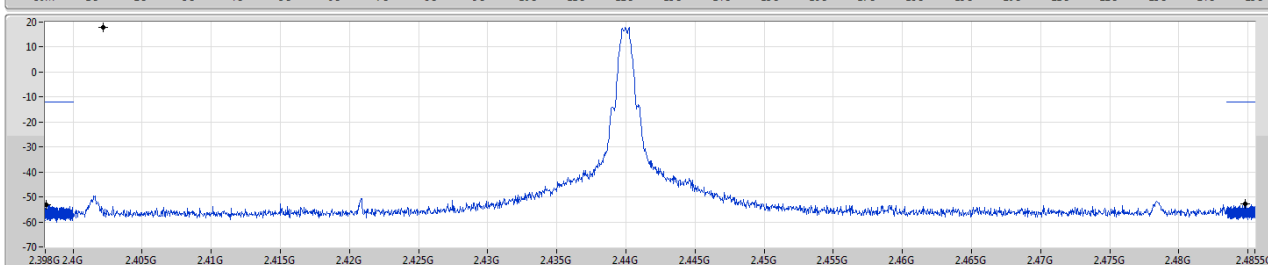
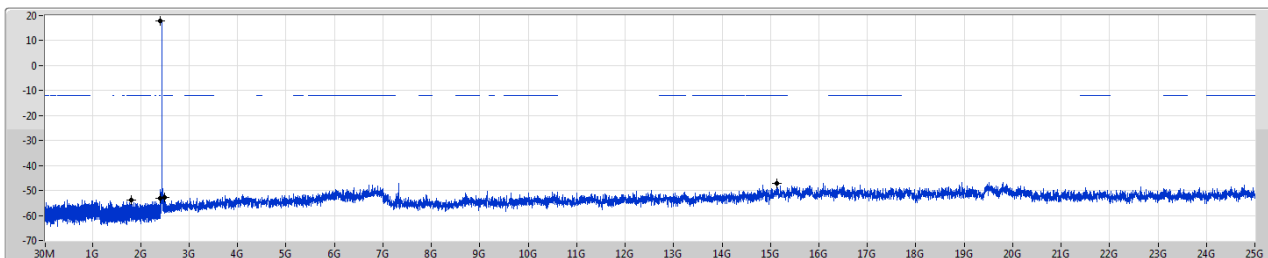
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.40221G	18.03	-11.97	2.39682G	-47.02	2.39978G	-36.06	2.48474G	-52.76	7.2051G	-47.69	1

BT-LE(1Mbps)

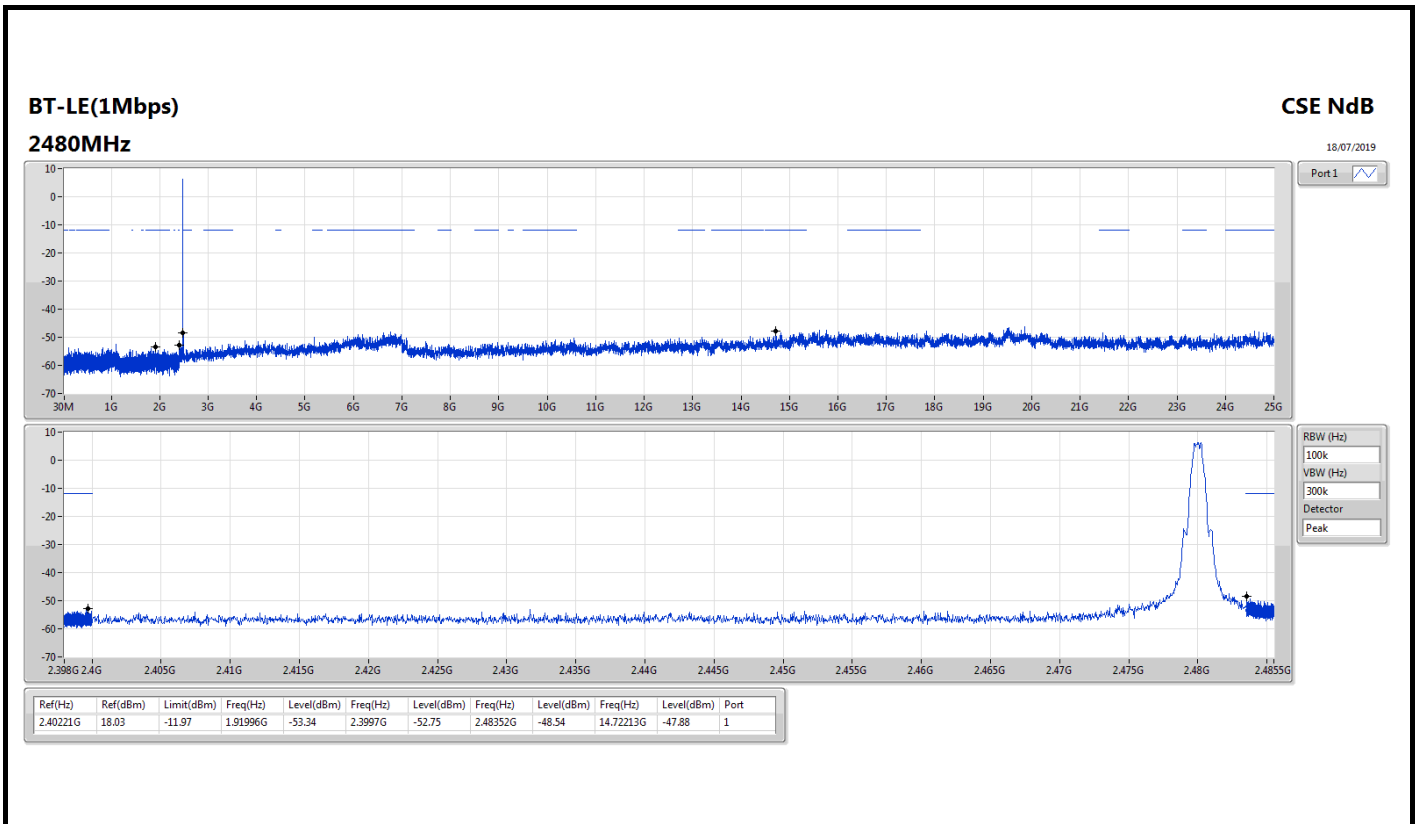
2440MHz

CSE NdB

18/07/2019



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.40221G	18.03	-11.97	1.81044G	-53.79	2.39804G	-53.09	2.48483G	-52.92	15.13865G	-47.28	1





Summary

Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	2.40196G	17.64	-12.36	2.398G	-47.16	2.39992G	-37.67	2.48532G	-53.10	16.38258G	-46.63	1

Result

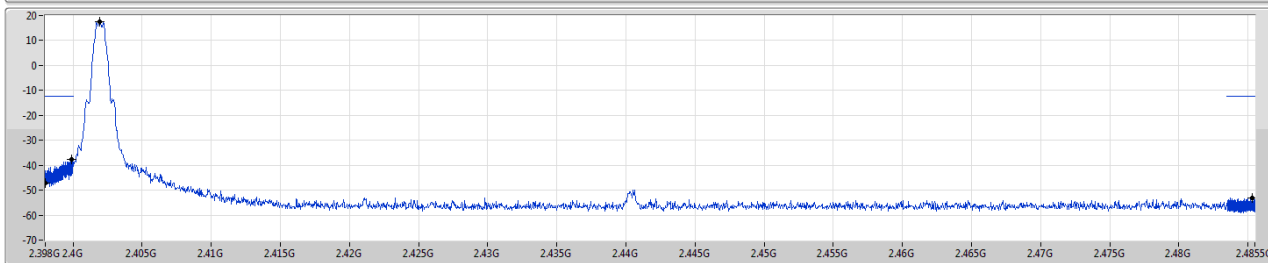
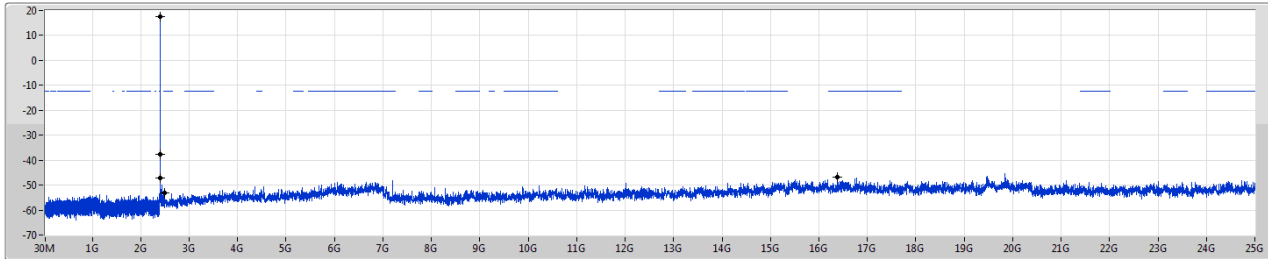
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.40196G	17.64	-12.36	2.398G	-47.16	2.39992G	-37.67	2.48532G	-53.10	16.38258G	-46.63	1
2440MHz	Pass	2.40196G	17.64	-12.36	366.26M	-51.71	2.39948G	-53.54	2.4853G	-52.56	15.19775G	-48.03	1
2480MHz	Pass	2.40196G	17.64	-12.36	349.98M	-54.26	2.39878G	-53.76	2.48546G	-51.39	15.09643G	-46.31	1

BT-LE(1Mbps)

2402MHz

CSE NdB

18/07/2019



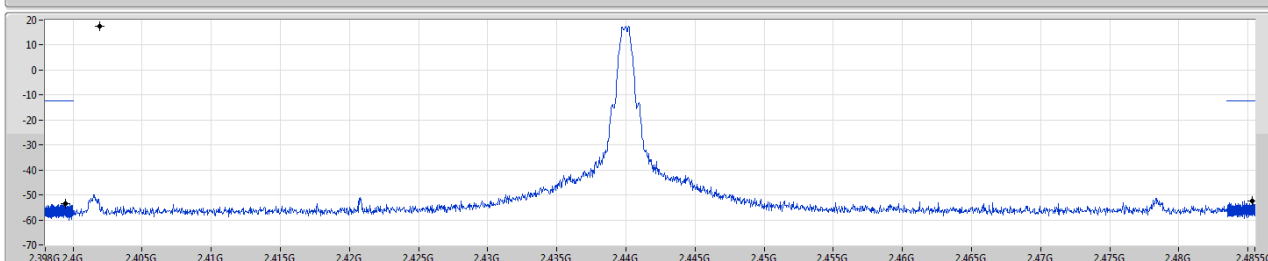
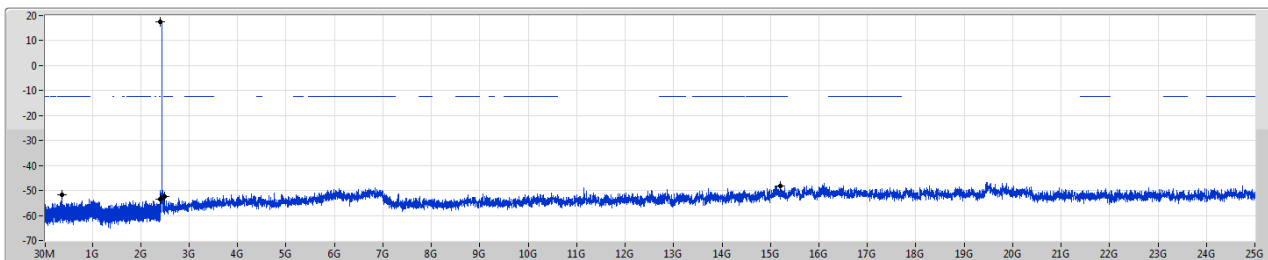
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
240196G	17.64	-12.36	2.398G	-47.16	2.39992G	-37.67	2.48532G	-53.10	16.38258G	-46.63	1

BT-LE(1Mbps)

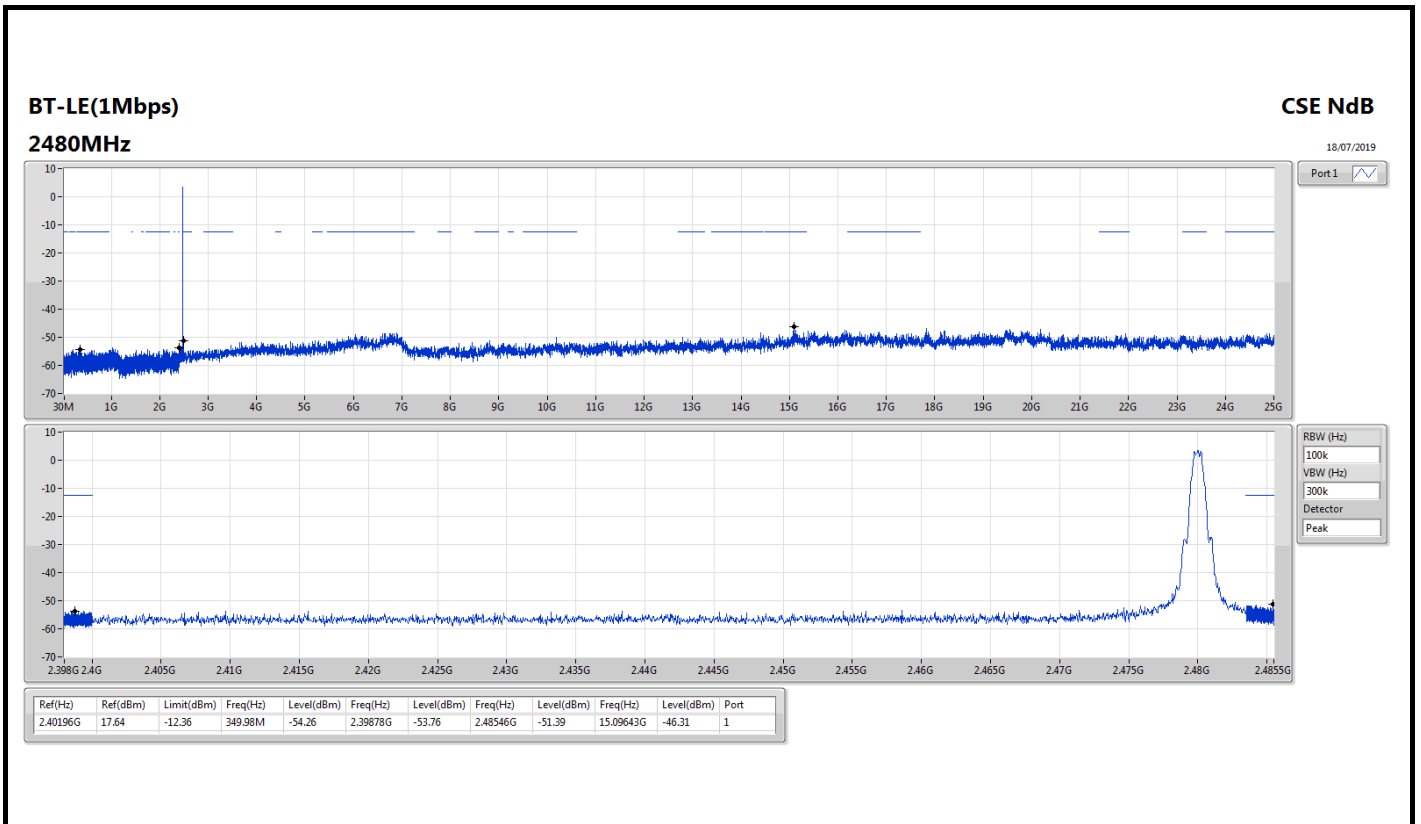
2440MHz

CSE NdB

18/07/2019

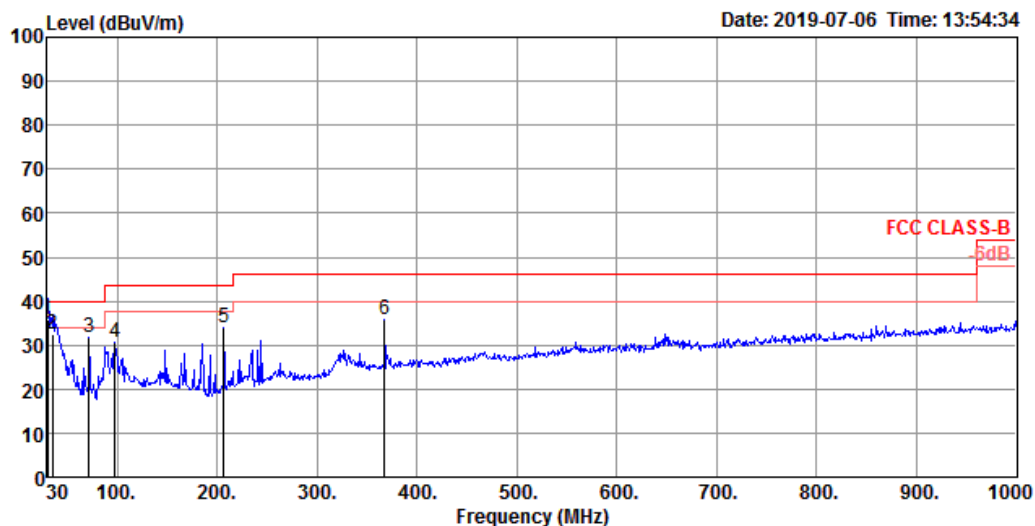


Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
240196G	17.64	-12.36	366.26M	-51.71	2.39948G	-53.54	2.4853G	-52.56	15.19775G	-48.03	1



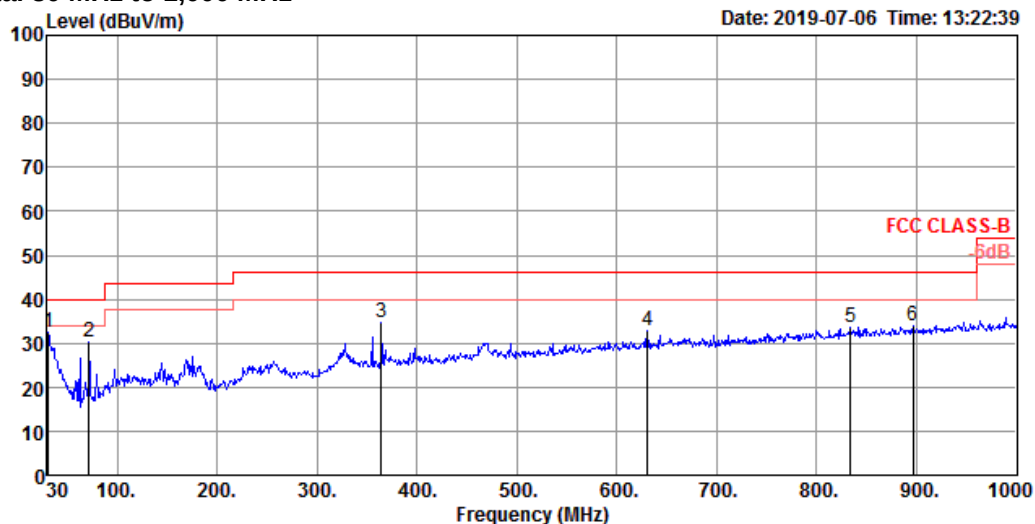
Test Mode	Mode 5	Frequency Range	30 MHz to 1,000 MHz
-----------	--------	-----------------	---------------------

Vertical 30 MHz to 1,000 MHz



	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	30.00	35.96	40.00	-4.04	41.17	0.67	25.70	31.58	100	305 QP	VERTICAL
2	34.85	32.53	40.00	-7.47	40.39	0.75	22.87	31.48	100	160 QP	VERTICAL
3	71.71	31.63	40.00	-8.37	49.72	1.06	12.73	31.88	125	220 Peak	VERTICAL
4	97.90	30.45	43.50	-13.05	44.44	1.27	16.72	31.98	125	259 Peak	VERTICAL
5	206.54	33.86	43.50	-9.64	47.70	1.78	16.33	31.95	125	87 Peak	VERTICAL
6	367.56	35.78	46.00	-10.22	43.76	2.50	21.68	32.16	125	119 Peak	VERTICAL

Horizontal 30 MHz to 1,000 MHz



	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	30.97	32.54	40.00	-7.46	38.30	0.69	25.11	31.56	150	211 Peak	HORIZONTAL
2	71.71	30.20	40.00	-9.80	48.29	1.06	12.73	31.88	200	359 Peak	HORIZONTAL
3	364.65	34.60	46.00	-11.40	42.68	2.49	21.58	32.15	100	314 Peak	HORIZONTAL
4	630.43	32.67	46.00	-13.33	36.58	3.27	25.27	32.45	100	318 Peak	HORIZONTAL
5	834.13	33.40	46.00	-12.60	34.92	3.74	27.10	32.36	200	207 Peak	HORIZONTAL
6	896.21	34.01	46.00	-11.99	34.67	4.07	27.68	32.41	200	50 Peak	HORIZONTAL



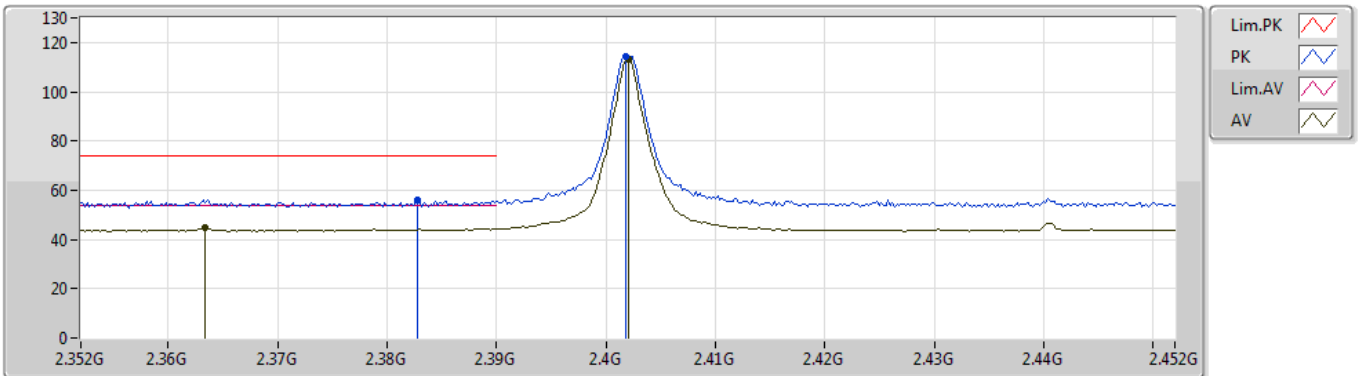
Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	AV	2.4835G	53.82	54.00	-0.18	30.96	3	Horizontal	36	1.23

BT-LE(1Mbps)

2402MHz_TX

12/07/2019



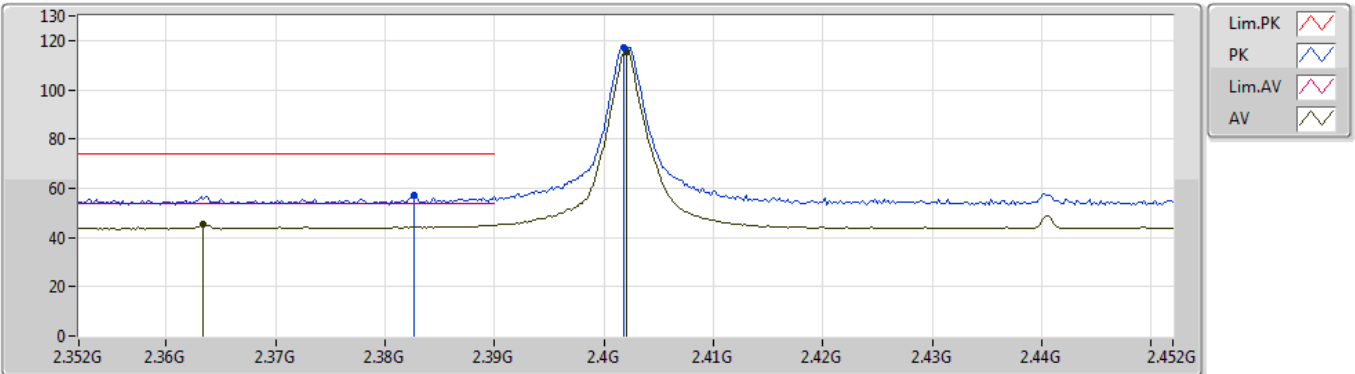
EUT X_1TX
Setting 200
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	2.3828G	56.30	74.00	-17.70	30.78	3	Vertical	132	1.00	-				
AV	2.3634G	44.65	54.00	-9.35	30.70	3	Vertical	132	1.00	-				
PK	2.4018G	114.37	Inf	-Inf	30.84	3	Vertical	132	1.00	-				
AV	2.402G	112.93	Inf	-Inf	30.84	3	Vertical	132	1.00	-				

BT-LE(1Mbps)

12/07/2019

2402MHz_TX



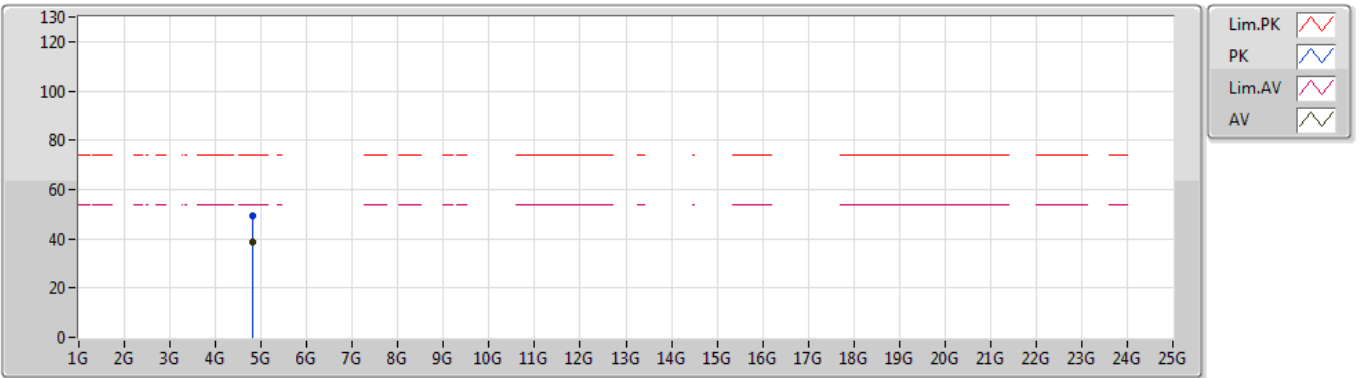
EUT X_1TX
Setting 200
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	2.3826G	57.35	74.00	-16.65	30.78	3	Horizontal	36	1.01	-				
AV	2.3634G	45.11	54.00	-8.89	30.70	3	Horizontal	36	1.01	-				
PK	2.4018G	117.00	Inf	-Inf	30.84	3	Horizontal	36	1.01	-				
AV	2.402G	115.54	Inf	-Inf	30.84	3	Horizontal	36	1.01	-				

BT-LE(1Mbps)

2402MHz_TX

12/07/2019



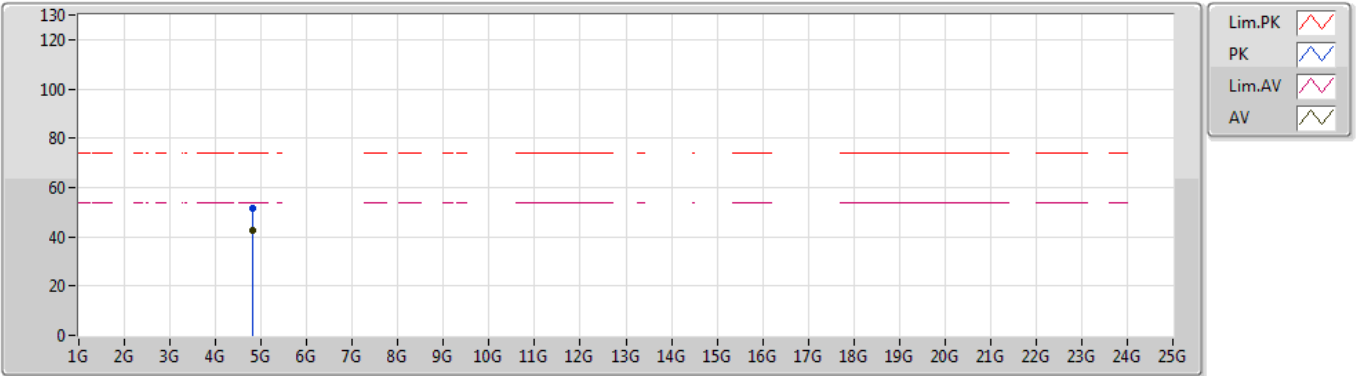
EUT X_1TX
Setting 200
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	4.80444G	49.05	74.00	-24.95	3.50	3	Vertical	336	1.52	-				
AV	4.80372G	38.81	54.00	-15.19	3.49	3	Vertical	336	1.52	-				

BT-LE(1Mbps)

2402MHz_TX

12/07/2019



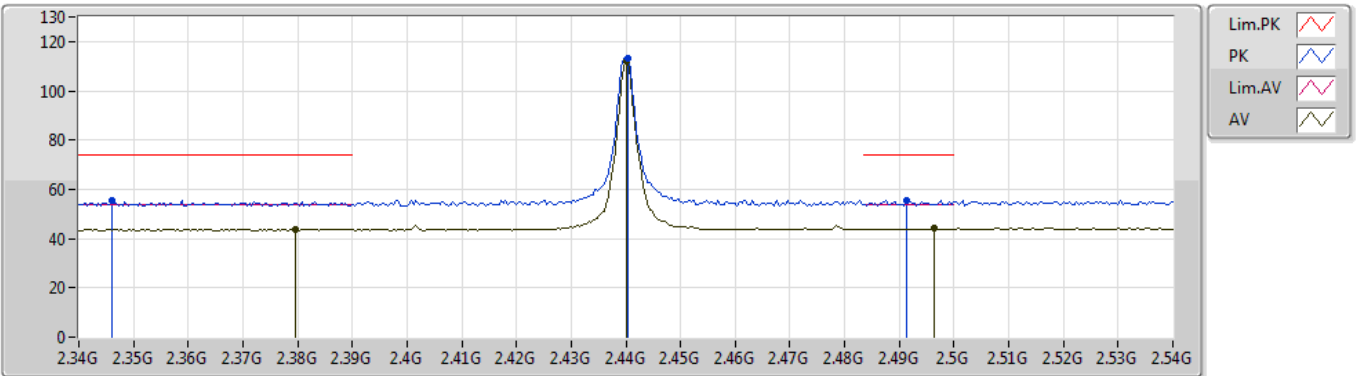
EUT X_1TX
Setting 200
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	4.80396G	51.44	74.00	-22.56	3.49	3	Horizontal	59	1.01	-				
AV	4.80398G	42.53	54.00	-11.47	3.49	3	Horizontal	59	1.01	-				

BT-LE(1Mbps)

2440MHz_TX

12/07/2019



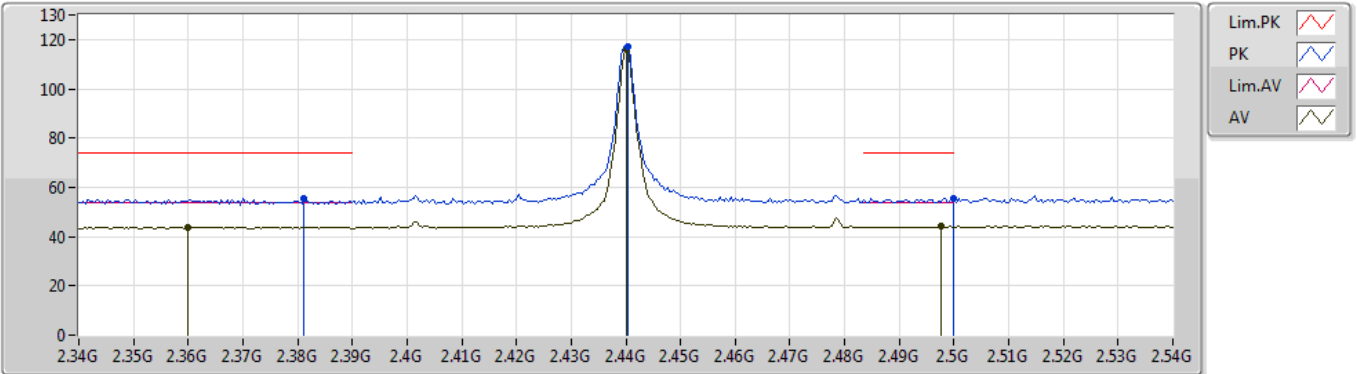
EUT X_1TX
Setting 200
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	2.346G	55.41	74.00	-18.59	30.64	3	Vertical	132	1.28	-				
AV	2.3796G	43.75	54.00	-10.25	30.76	3	Vertical	132	1.28	-				
PK	2.4404G	113.31	Inf	-Inf	30.90	3	Vertical	132	1.28	-				
AV	2.44G	111.91	Inf	-Inf	30.90	3	Vertical	132	1.28	-				
PK	2.4912G	55.60	74.00	-18.40	30.98	3	Vertical	132	1.28	-				
AV	2.4964G	43.99	54.00	-10.01	30.99	3	Vertical	132	1.28	-				

BT-LE(1Mbps)

2440MHz_TX

12/07/2019



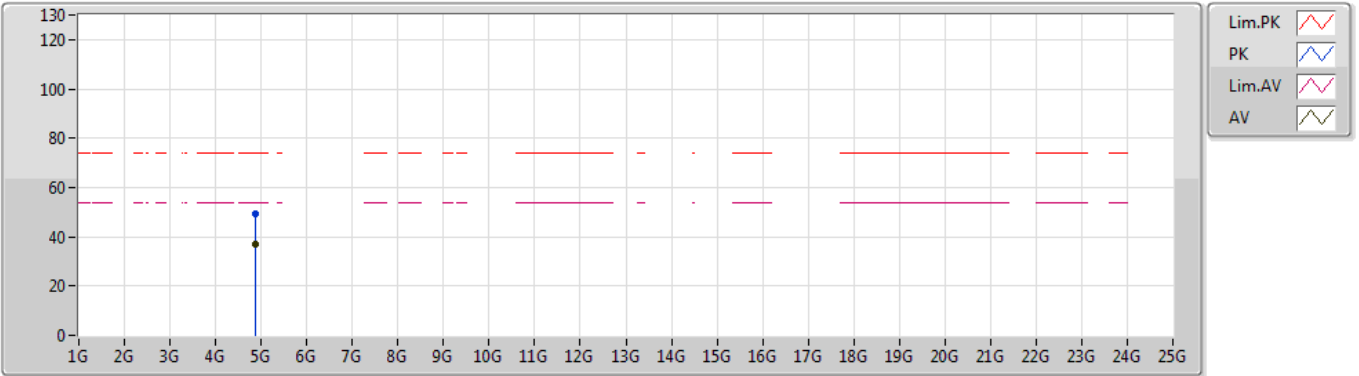
EUT X_1TX
Setting 200
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	2.3812G	55.55	74.00	-18.45	30.76	3	Horizontal	42	1.24	-				
AV	2.36G	43.93	54.00	-10.07	30.69	3	Horizontal	42	1.24	-				
PK	2.4404G	117.17	Inf	-Inf	30.90	3	Horizontal	42	1.24	-				
AV	2.44G	115.75	Inf	-Inf	30.90	3	Horizontal	42	1.24	-				
PK	2.5G	55.62	74.00	-18.38	30.99	3	Horizontal	42	1.24	-				
AV	2.4976G	44.13	54.00	-9.87	30.99	3	Horizontal	42	1.24	-				

BT-LE(1Mbps)

2440MHz_TX

12/07/2019



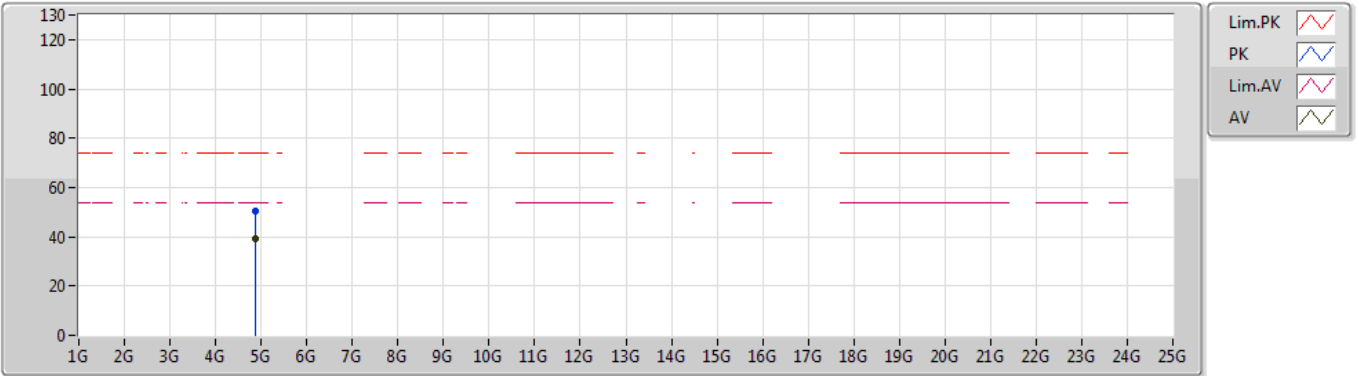
EUT X_1TX
Setting 200
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	4.88002G	49.04	74.00	-24.96	3.84	3	Vertical	4	2.03	-				
AV	4.87968G	36.72	54.00	-17.28	3.84	3	Vertical	4	2.03	-				

BT-LE(1Mbps)

2440MHz_TX

12/07/2019



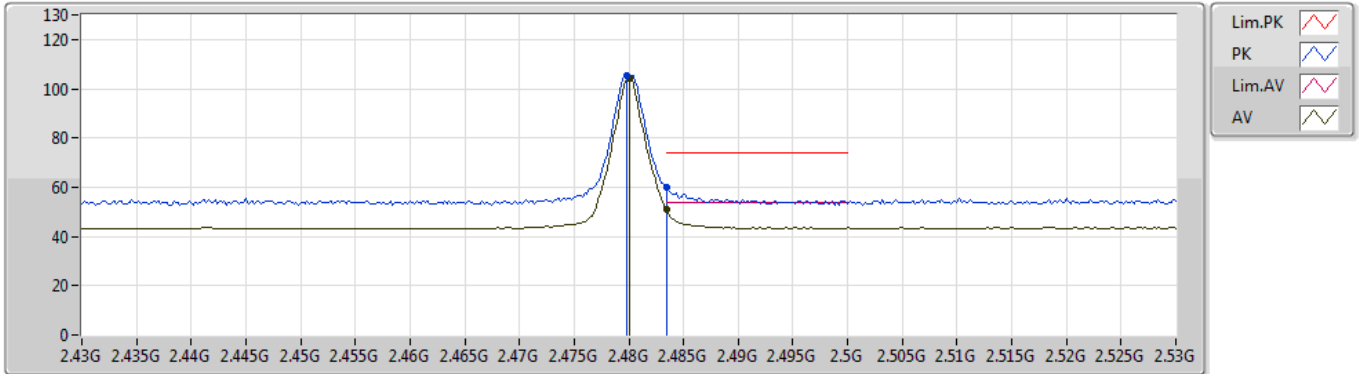
EUT X_1TX
Setting 200
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	4.87988G	50.56	74.00	-23.44	3.84	3	Horizontal	63	1.25	-				
AV	4.87984G	39.41	54.00	-14.59	3.84	3	Horizontal	63	1.25	-				

BT-LE(1Mbps)

2480MHz_TX

12/07/2019



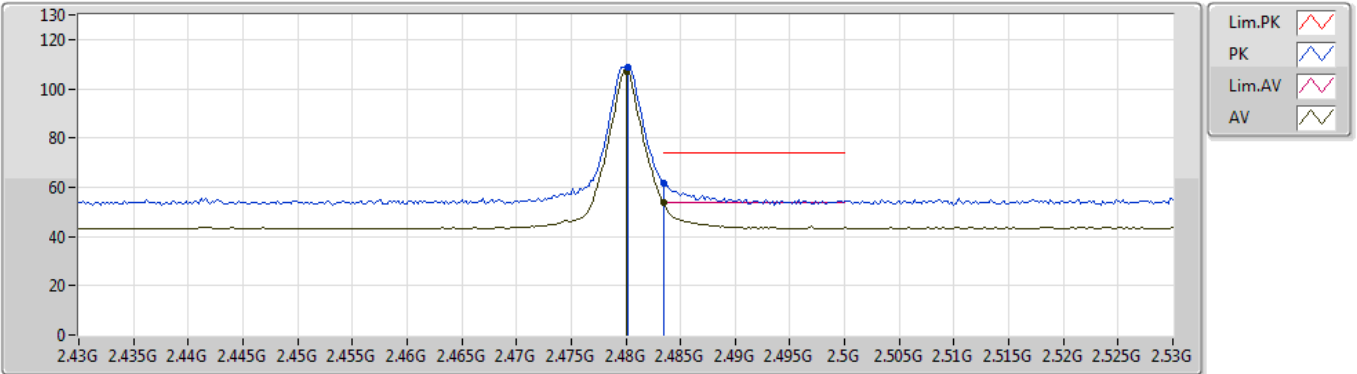
EUT X_1TX
Setting 105
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	2.4798G	105.62	Inf	-Inf	30.96	3	Vertical	135	1.14	-				
AV	2.48G	104.22	Inf	-Inf	30.96	3	Vertical	135	1.14	-				
PK	2.4835G	60.00	74.00	-14.00	30.96	3	Vertical	135	1.14	-				
AV	2.4835G	50.90	54.00	-3.10	30.96	3	Vertical	135	1.14	-				

BT-LE(1Mbps)

2480MHz_TX

12/07/2019



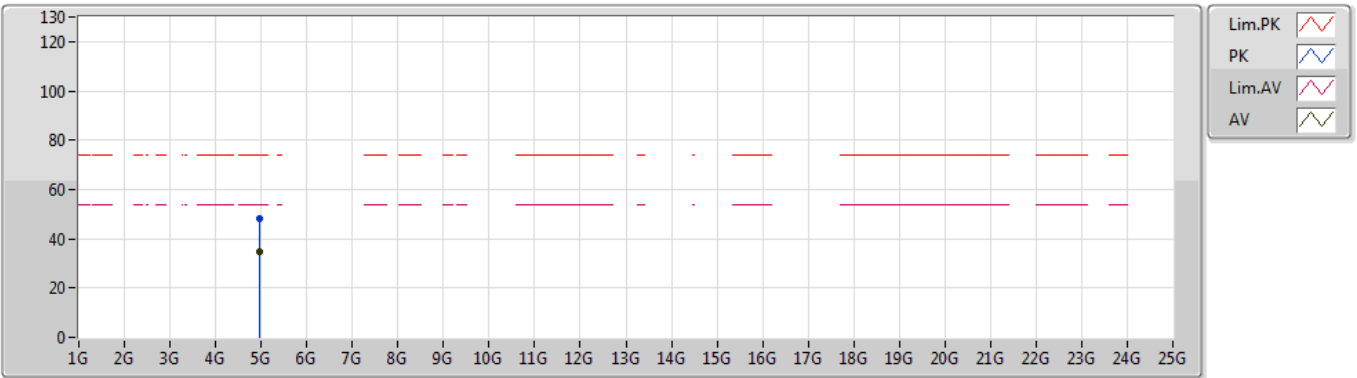
EUT X_1TX
Setting 105
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	2.4802G	108.63	Inf	-Inf	30.96	3	Horizontal	36	1.23	-				
AV	2.48G	107.27	Inf	-Inf	30.96	3	Horizontal	36	1.23	-				
PK	2.4835G	61.51	74.00	-12.49	30.96	3	Horizontal	36	1.23	-				
AV	2.4835G	53.82	54.00	-0.18	30.96	3	Horizontal	36	1.23	-				

BT-LE(1Mbps)

2480MHz_TX

12/07/2019



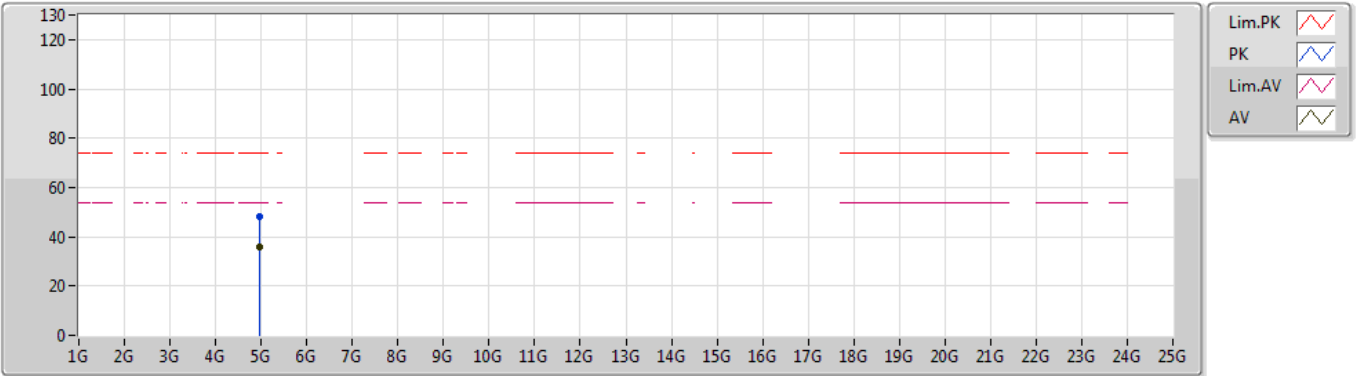
EUT X_1TX
Setting 105
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	4.96042G	48.32	74.00	-25.68	4.20	3	Vertical	353	1.66	-				
AV	4.9603G	34.89	54.00	-19.11	4.20	3	Vertical	353	1.66	-				

BT-LE(1Mbps)

2480MHz_TX

12/07/2019



EUT X_1TX
Setting 105
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	4.96042G	48.12	74.00	-25.88	4.20	3	Horizontal	60	1.03	-				
AV	4.95998G	36.13	54.00	-17.87	4.20	3	Horizontal	60	1.03	-				



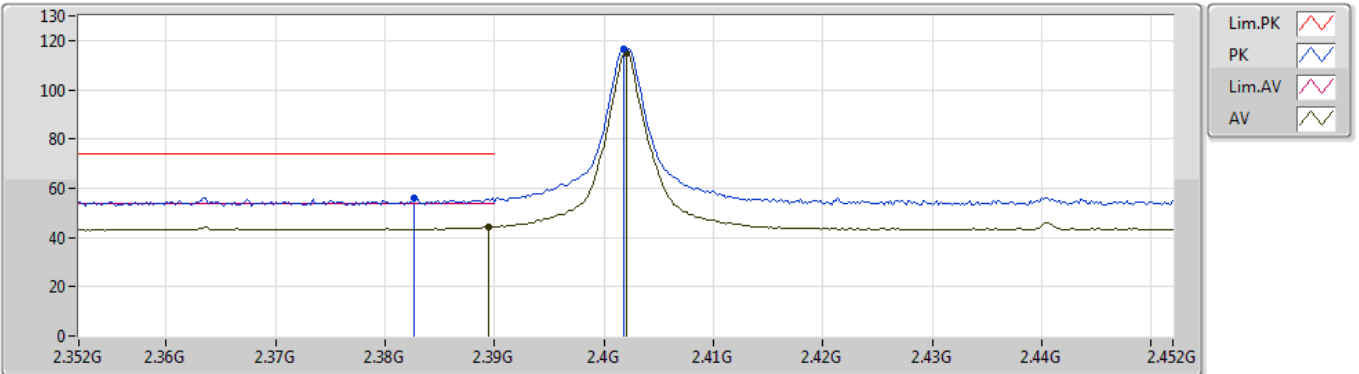
Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	AV	2.4835G	53.64	54.00	-0.36	30.96	3	Vertical	45	2.64	-

BT-LE(1Mbps)

2402MHz_TX

12/07/2019



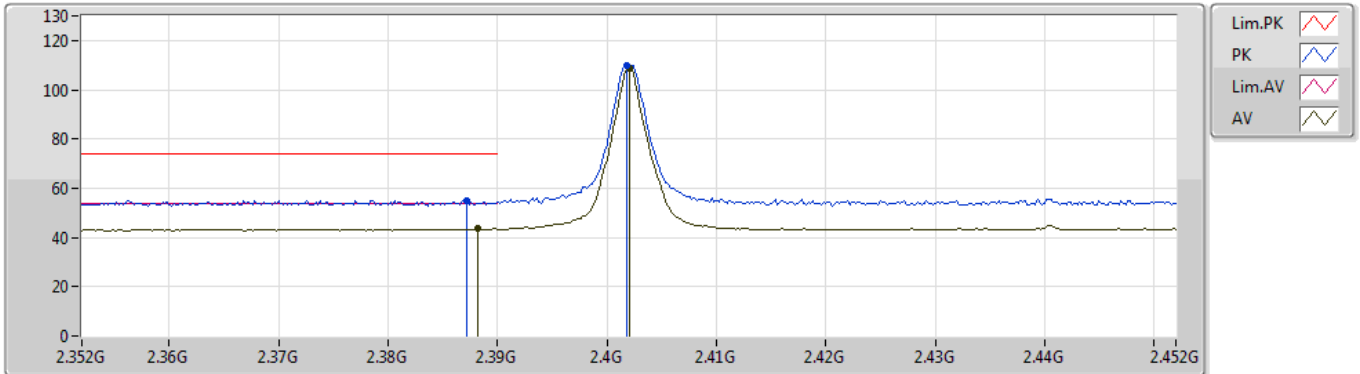
EUT X_1TX_ANT Z
Setting 200
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	2.3826G	55.91	74.00	-18.09	30.78	3	Vertical	43	2.76	-				
AV	2.3894G	44.32	54.00	-9.68	30.80	3	Vertical	43	2.76	-				
PK	2.4018G	116.41	Inf	-Inf	30.84	3	Vertical	43	2.76	-				
AV	2.402G	114.99	Inf	-Inf	30.84	3	Vertical	43	2.76	-				

BT-LE(1Mbps)

12/07/2019

2402MHz_TX



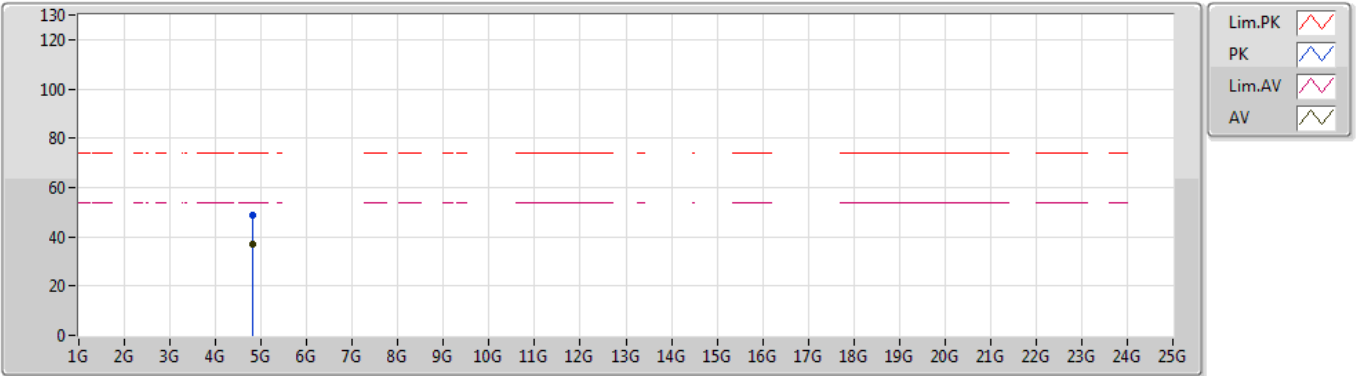
EUT X_1TX_ANT Z
Setting 200
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	2.3872G	55.14	74.00	-18.86	30.79	3	Horizontal	262	1.50	-				
AV	2.3882G	43.58	54.00	-10.42	30.79	3	Horizontal	262	1.50	-				
PK	2.4018G	110.06	Inf	-Inf	30.84	3	Horizontal	262	1.50	-				
AV	2.402G	108.65	Inf	-Inf	30.84	3	Horizontal	262	1.50	-				

BT-LE(1Mbps)

2402MHz_TX

12/07/2019



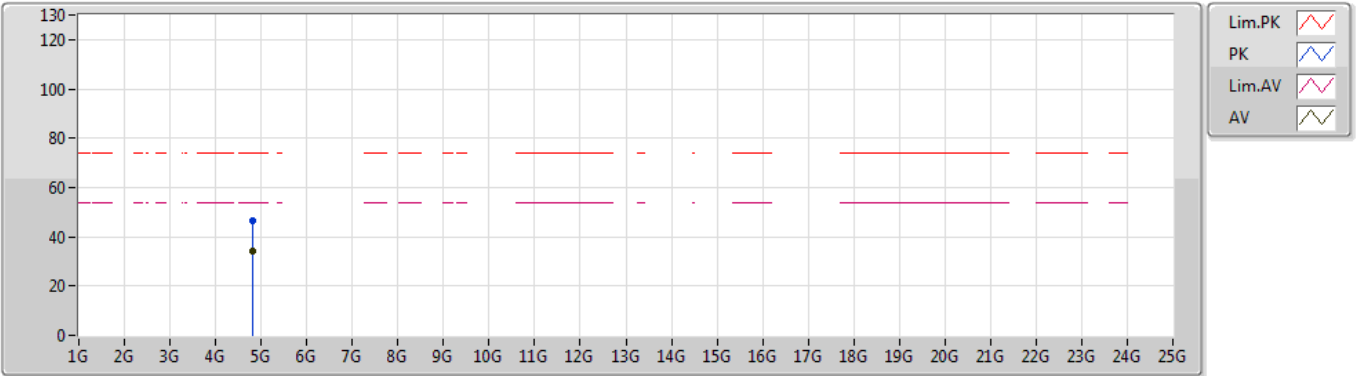
EUT X_1TX_ANT Z
Setting 200
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	4.80407G	48.92	74.00	-25.08	3.49	3	Vertical	6	1.50	-				
AV	4.80361G	36.73	54.00	-17.27	3.49	3	Vertical	6	1.50	-				

BT-LE(1Mbps)

2402MHz_TX

12/07/2019



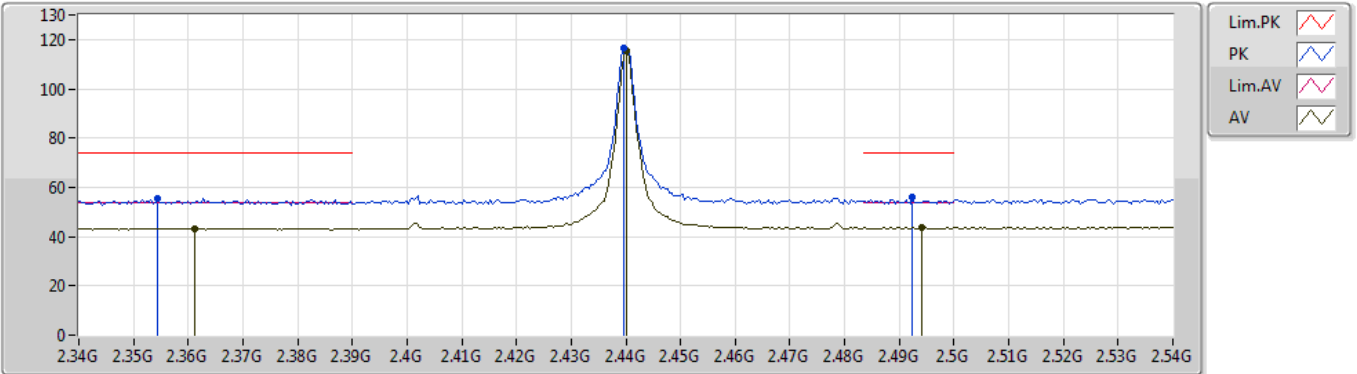
EUT X_1TX_ANT Z
Setting 200
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	4.80355G	46.61	74.00	-27.39	3.49	3	Horizontal	357	1.50	-				
AV	4.80436G	34.09	54.00	-19.91	3.50	3	Horizontal	357	1.50	-				

BT-LE(1Mbps)

2440MHz_TX

12/07/2019



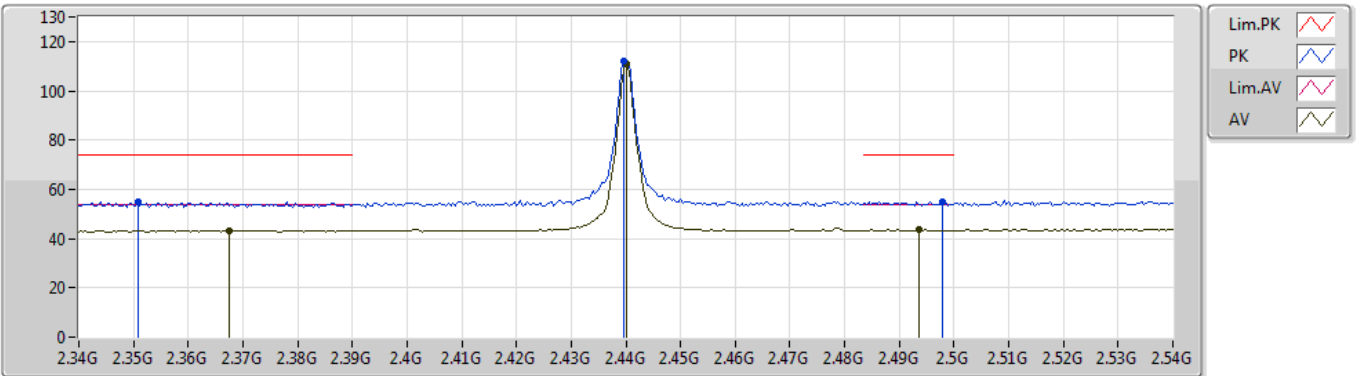
EUT X_1TX_ANT Z
Setting 200
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	2.3544G	55.42	74.00	-18.58	30.66	3	Vertical	41	2.33	-				
AV	2.3612G	43.37	54.00	-10.63	30.69	3	Vertical	41	2.33	-				
PK	2.4396G	116.63	Inf	-Inf	30.90	3	Vertical	41	2.33	-				
AV	2.44G	115.23	Inf	-Inf	30.90	3	Vertical	41	2.33	-				
PK	2.4924G	55.91	74.00	-18.09	30.98	3	Vertical	41	2.33	-				
AV	2.494G	43.68	54.00	-10.32	30.98	3	Vertical	41	2.33	-				

BT-LE(1Mbps)

2440MHz_TX

12/07/2019



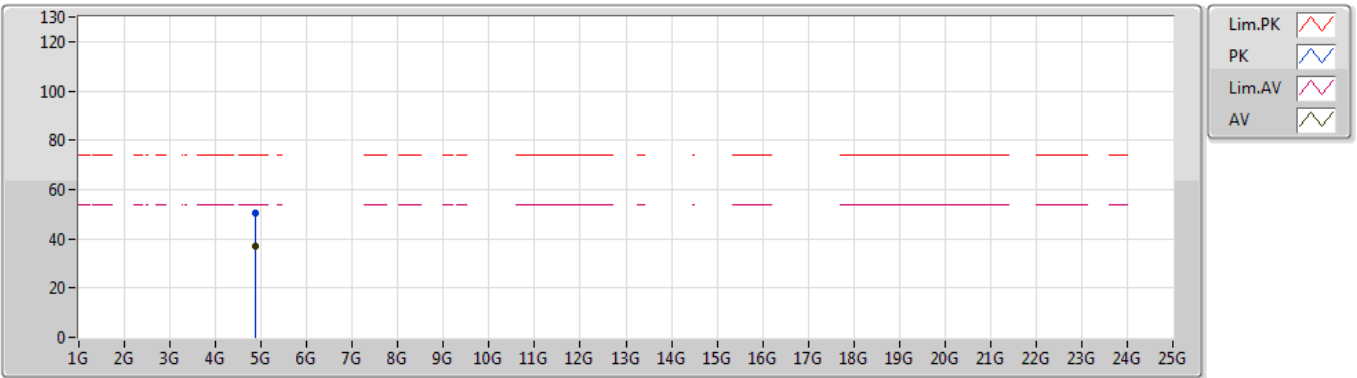
EUT X_1TX_ANT Z
Setting 200
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	2.3508G	55.12	74.00	-18.88	30.65	3	Horizontal	260	1.55	-				
AV	2.3676G	43.37	54.00	-10.63	30.71	3	Horizontal	260	1.55	-				
PK	2.4396G	112.18	Inf	-Inf	30.90	3	Horizontal	260	1.55	-				
AV	2.44G	110.74	Inf	-Inf	30.90	3	Horizontal	260	1.55	-				
PK	2.498G	55.11	74.00	-18.89	30.99	3	Horizontal	260	1.55	-				
AV	2.4936G	43.70	54.00	-10.30	30.98	3	Horizontal	260	1.55	-				

BT-LE(1Mbps)

2440MHz_TX

12/07/2019



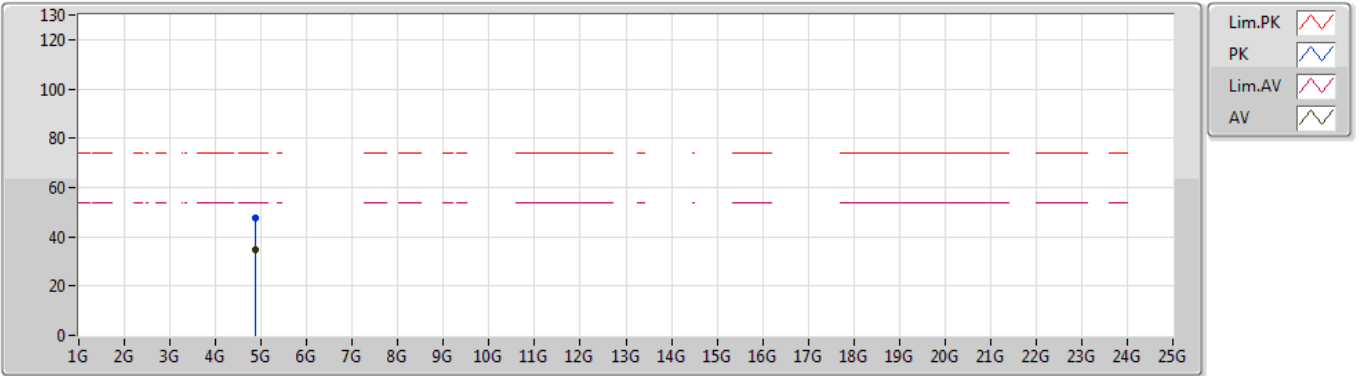
EUT X_1TX_ANT Z
Setting 200
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	4.88015G	50.29	74.00	-23.71	3.84	3	Vertical	327	2.01	-				
AV	4.87949G	37.14	54.00	-16.86	3.84	3	Vertical	327	2.01	-				

BT-LE(1Mbps)

2440MHz_TX

12/07/2019



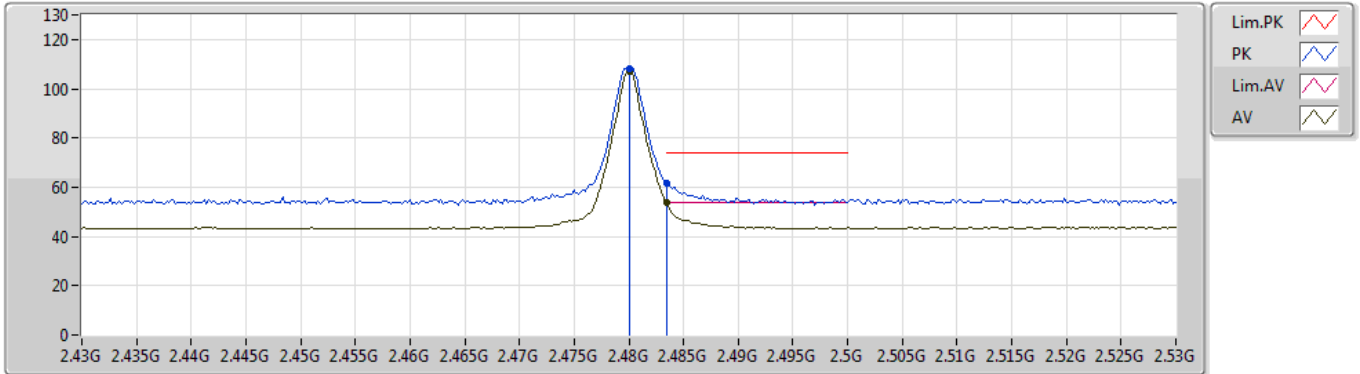
EUT X_1TX_ANT Z
Setting 200
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	4.88045G	47.65	74.00	-26.35	3.84	3	Horizontal	223	1.01	-				
AV	4.88021G	34.74	54.00	-19.26	3.84	3	Horizontal	223	1.01	-				

BT-LE(1Mbps)

2480MHz_TX

12/07/2019



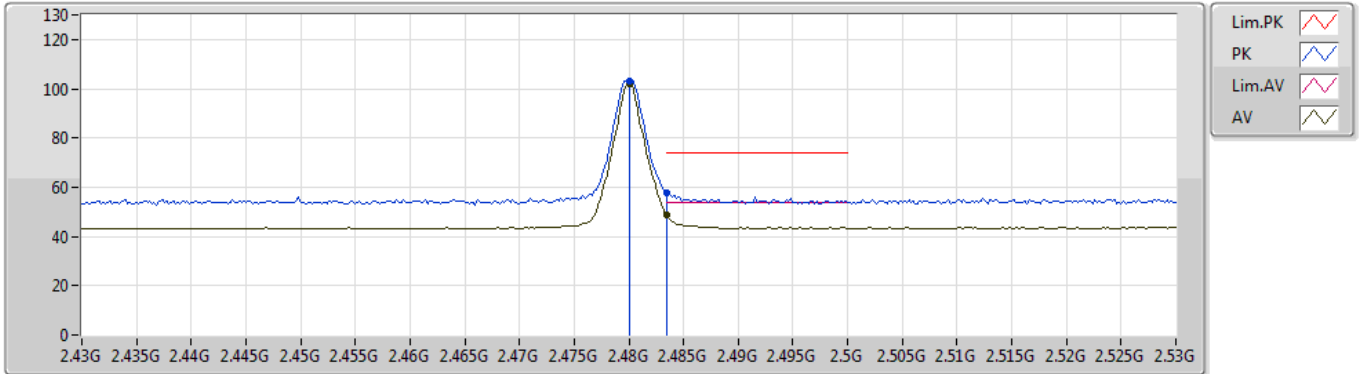
EUT X_1TX_ANT Z
Setting 110
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	2.48G	108.42	Inf	-Inf	30.96	3	Vertical	45	2.64	-				
AV	2.48G	107.04	Inf	-Inf	30.96	3	Vertical	45	2.64	-				
PK	2.4835G	61.78	74.00	-12.22	30.96	3	Vertical	45	2.64	-				
AV	2.4835G	53.64	54.00	-0.36	30.96	3	Vertical	45	2.64	-				

BT-LE(1Mbps)

2480MHz_TX

12/07/2019



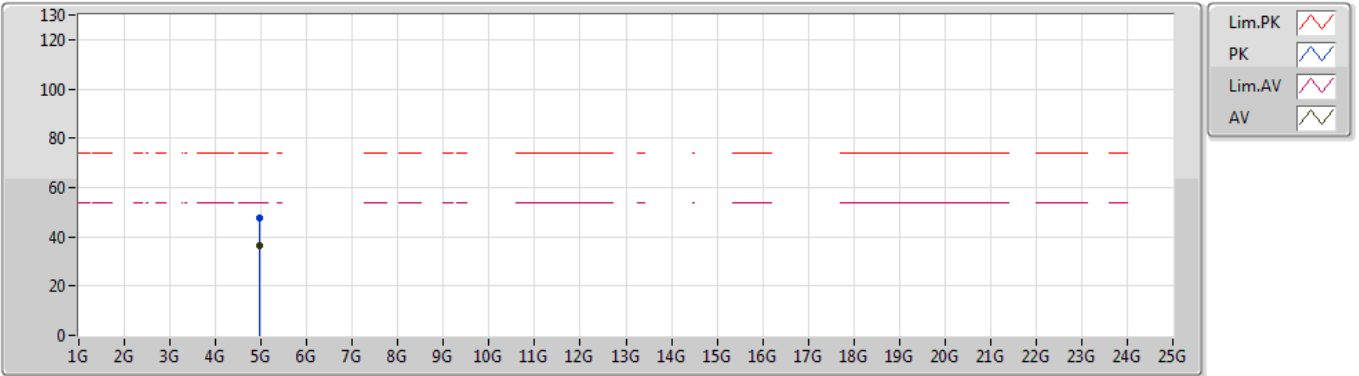
EUT X_1TX_ANT Z
Setting 110
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	2.48G	103.27	Inf	-Inf	30.96	3	Horizontal	48	1.15	-				
AV	2.48G	101.88	Inf	-Inf	30.96	3	Horizontal	48	1.15	-				
PK	2.4835G	57.77	74.00	-16.23	30.96	3	Horizontal	48	1.15	-				
AV	2.4835G	49.03	54.00	-4.97	30.96	3	Horizontal	48	1.15	-				

BT-LE(1Mbps)

2480MHz_TX

12/07/2019



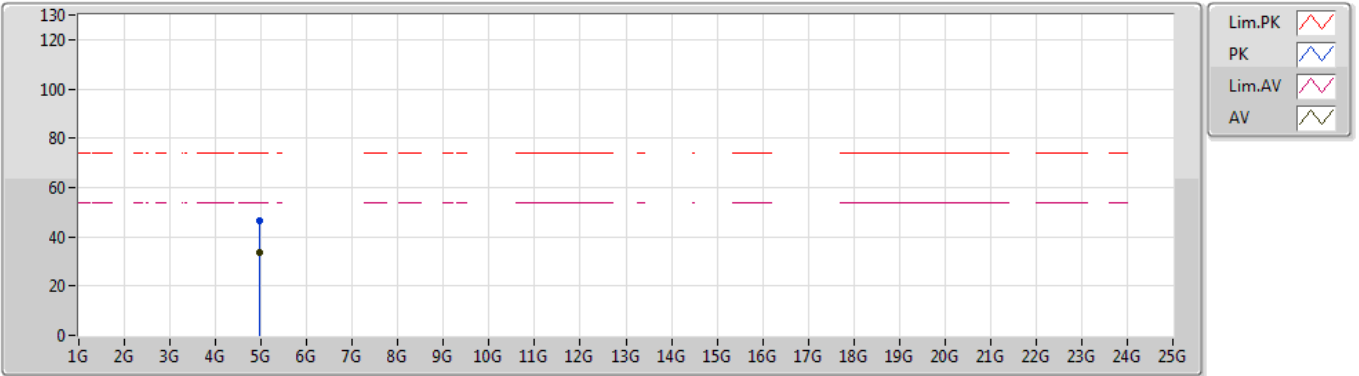
EUT X_1TX_ANT Z
Setting 110
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	4.95934G	47.86	74.00	-26.14	4.20	3	Vertical	302	1.92	-				
AV	4.95948G	36.16	54.00	-17.84	4.20	3	Vertical	302	1.92	-				

BT-LE(1Mbps)

2480MHz_TX

12/07/2019



EUT X_1TX_ANT Z
Setting 110
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	4.96046G	46.58	74.00	-27.42	4.20	3	Horizontal	211	1.50	-				
AV	4.9624G	33.68	54.00	-20.32	4.21	3	Horizontal	211	1.50	-				



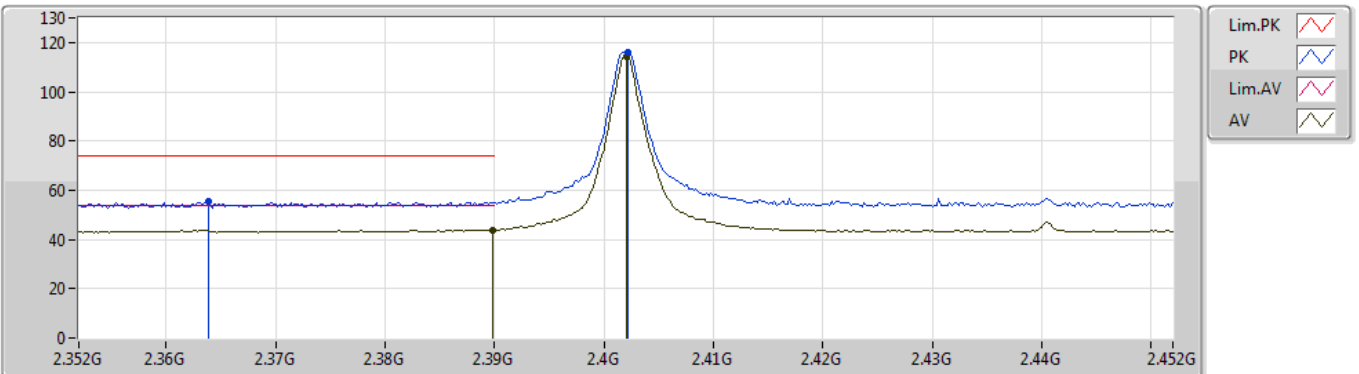
Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	AV	2.4835G	53.78	54.00	-0.22	30.96	3	Vertical	39	2.14	-

BT-LE(1Mbps)

2402MHz_TX

12/07/2019



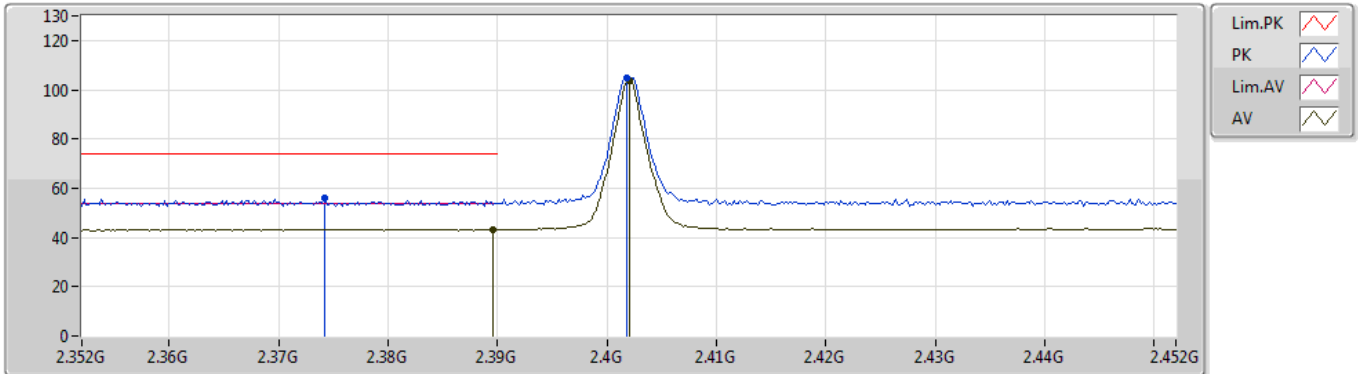
EUT Z_1TX_ANT Y
Setting 200
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	2.3638G	55.62	74.00	-18.38	30.70	3	Vertical	39	2.22	-				
AV	2.3898G	43.94	54.00	-10.06	30.80	3	Vertical	39	2.22	-				
PK	2.4022G	115.85	Inf	-Inf	30.84	3	Vertical	39	2.22	-				
AV	2.402G	114.44	Inf	-Inf	30.84	3	Vertical	39	2.22	-				

BT-LE(1Mbps)

12/07/2019

2402MHz_TX



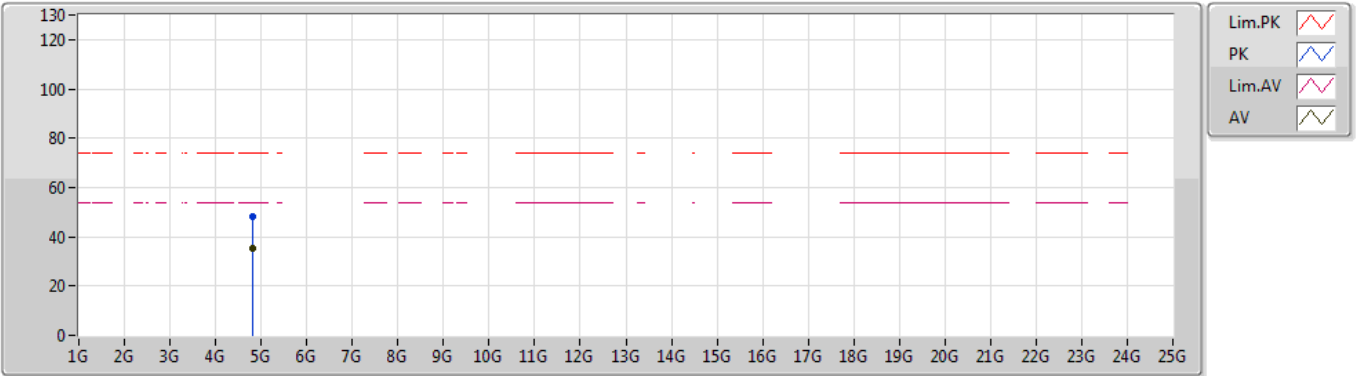
EUT_Z_1TX_ANT Y
Setting 200
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	2.3742G	55.77	74.00	-18.23	30.74	3	Horizontal	131	1.90	-				
AV	2.3896G	43.29	54.00	-10.71	30.80	3	Horizontal	131	1.90	-				
PK	2.4018G	105.01	Inf	-Inf	30.84	3	Horizontal	131	1.90	-				
AV	2.402G	103.67	Inf	-Inf	30.84	3	Horizontal	131	1.90	-				

BT-LE(1Mbps)

2402MHz_TX

12/07/2019



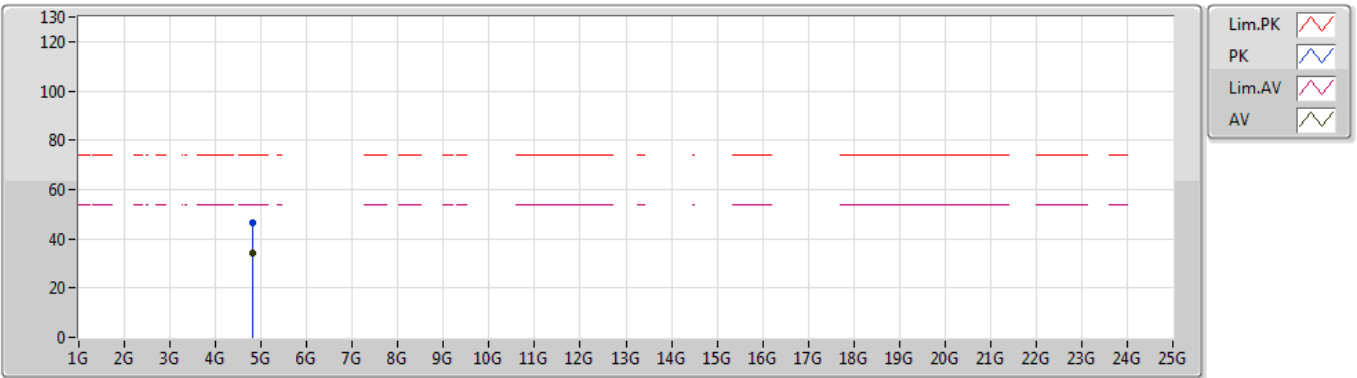
EUT Z_1TX_ANT Y
Setting 200
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	4.8039G	48.19	74.00	-25.81	3.49	3	Vertical	292	1.81	-				
AV	4.80416G	35.40	54.00	-18.60	3.49	3	Vertical	292	1.81	-				

BT-LE(1Mbps)

2402MHz_TX

12/07/2019



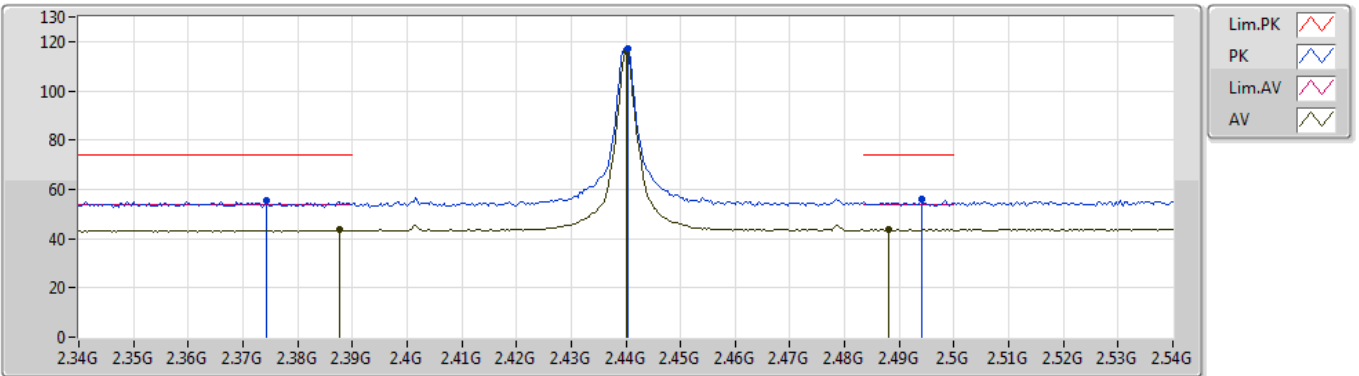
EUT Z_1TX_ANT Y
Setting 200
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	4.80271G	46.29	74.00	-27.71	3.49	3	Horizontal	172	1.50	-				
AV	4.80363G	33.98	54.00	-20.02	3.49	3	Horizontal	172	1.50	-				

BT-LE(1Mbps)

2440MHz_TX

12/07/2019



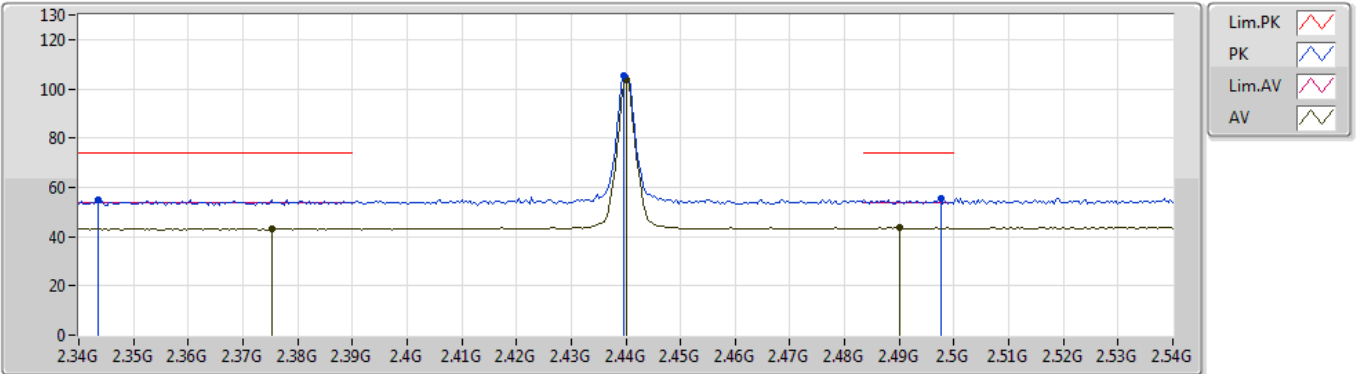
EUT_Z_1TX_ANT Y
Setting 200
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	2.3744G	55.25	74.00	-18.75	30.74	3	Vertical	40	2.18	-				
AV	2.3876G	43.50	54.00	-10.50	30.79	3	Vertical	40	2.18	-				
PK	2.4404G	117.11	Inf	-Inf	30.90	3	Vertical	40	2.18	-				
AV	2.44G	115.73	Inf	-Inf	30.90	3	Vertical	40	2.18	-				
PK	2.494G	55.96	74.00	-18.04	30.98	3	Vertical	40	2.18	-				
AV	2.488G	43.78	54.00	-10.22	30.97	3	Vertical	40	2.18	-				

BT-LE(1Mbps)

2440MHz_TX

12/07/2019



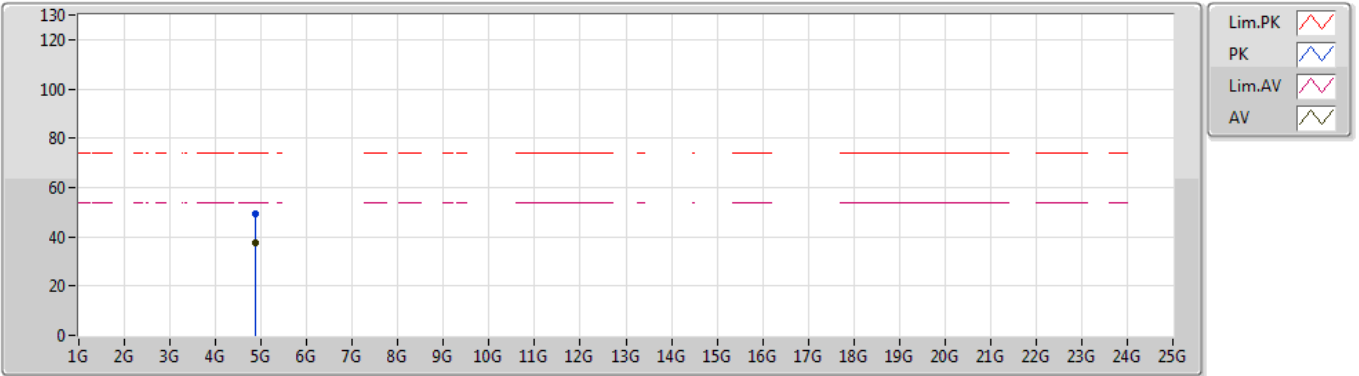
EUT Z_1TX_ANT Y
Setting 200
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	2.3436G	55.00	74.00	-19.00	30.62	3	Horizontal	129	1.83	-				
AV	2.3752G	43.21	54.00	-10.79	30.75	3	Horizontal	129	1.83	-				
PK	2.4396G	105.19	Inf	-Inf	30.90	3	Horizontal	129	1.83	-				
AV	2.44G	103.81	Inf	-Inf	30.90	3	Horizontal	129	1.83	-				
PK	2.4976G	55.30	74.00	-18.70	30.99	3	Horizontal	129	1.83	-				
AV	2.49G	43.64	54.00	-10.36	30.98	3	Horizontal	129	1.83	-				

BT-LE(1Mbps)

2440MHz_TX

12/07/2019



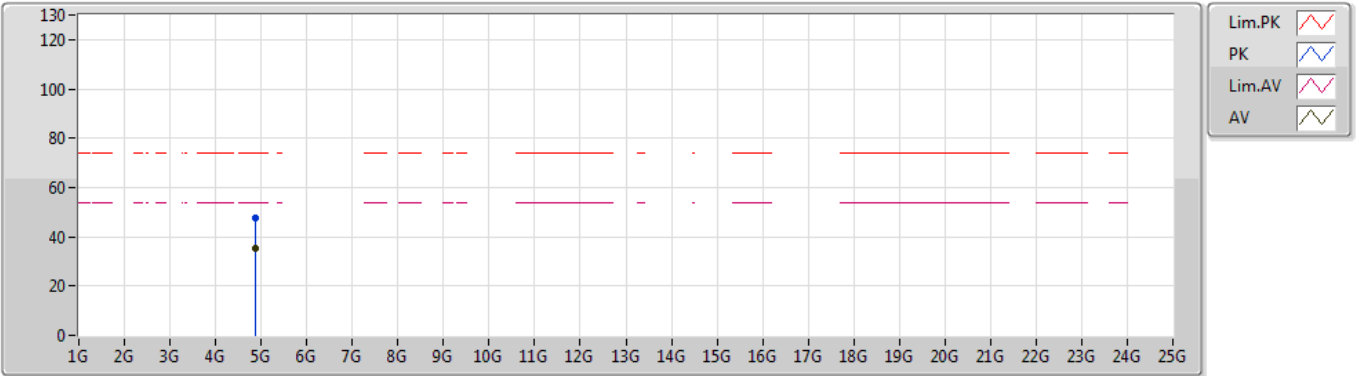
EUT Z_1TX_ANT Y
Setting 200
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	4.88031G	49.04	74.00	-24.96	3.84	3	Vertical	298	1.50	-				
AV	4.87943G	37.56	54.00	-16.44	3.84	3	Vertical	298	1.50	-				

BT-LE(1Mbps)

2440MHz_TX

12/07/2019



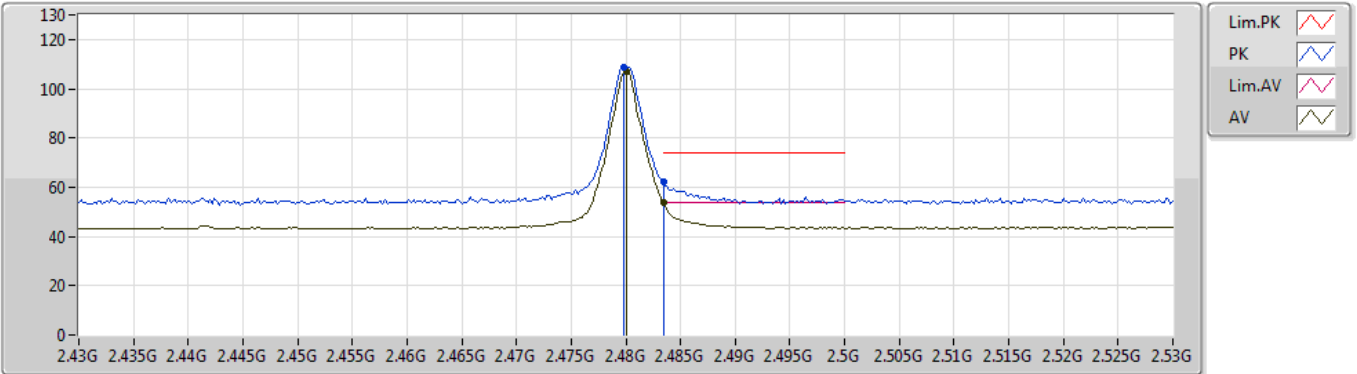
EUT Z_1TX_ANT Y
Setting 200
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	4.88043G	47.45	74.00	-26.55	3.84	3	Horizontal	26	2.65	-				
AV	4.87966G	35.43	54.00	-18.57	3.84	3	Horizontal	26	2.65	-				

BT-LE(1Mbps)

2480MHz_TX

12/07/2019



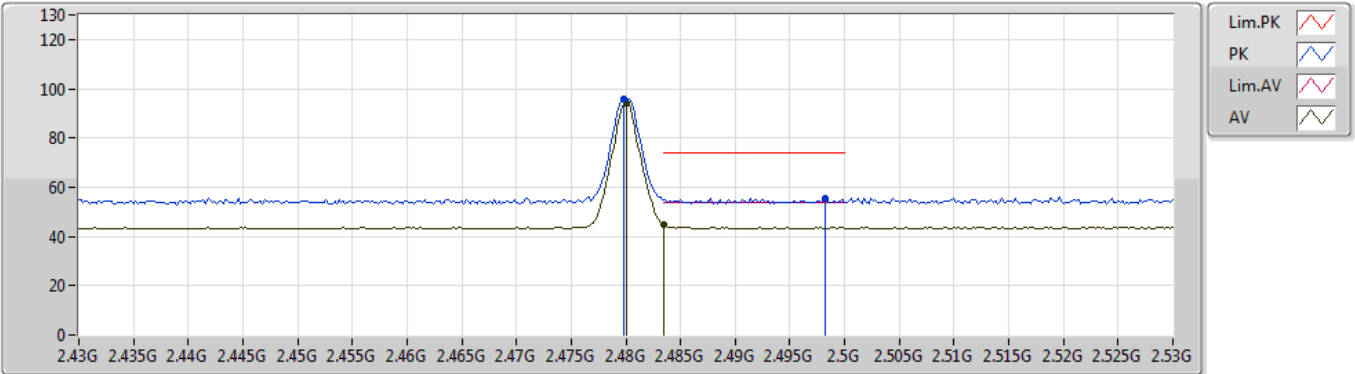
EUT Z_1TX_ANT Y
Setting 120
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	2.4798G	108.52	Inf	-Inf	30.96	3	Vertical	39	2.14	-				
AV	2.48G	107.12	Inf	-Inf	30.96	3	Vertical	39	2.14	-				
PK	2.4835G	62.36	74.00	-11.64	30.96	3	Vertical	39	2.14	-				
AV	2.4835G	53.78	54.00	-0.22	30.96	3	Vertical	39	2.14	-				

BT-LE(1Mbps)

2480MHz_TX

12/07/2019



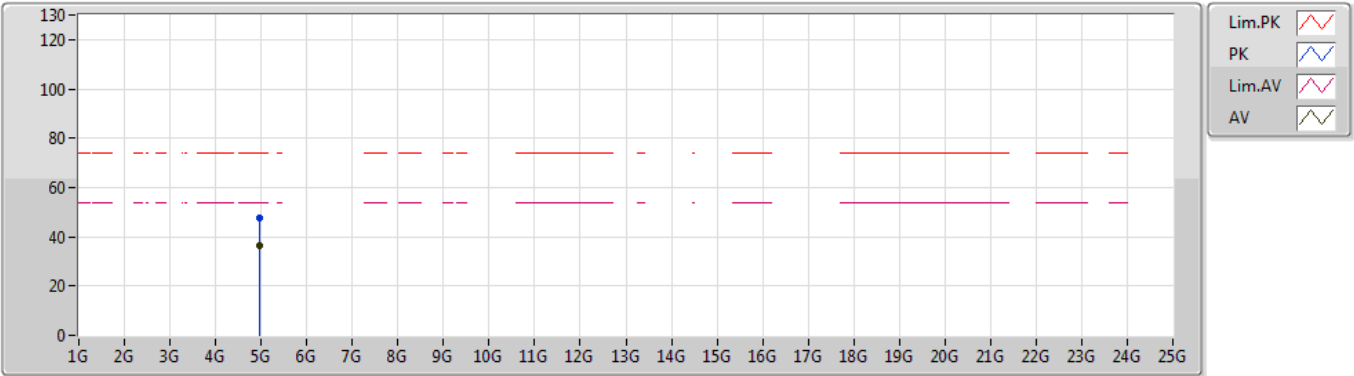
EUT Z_1TX_ANT Y
Setting 120
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	2.4798G	95.57	Inf	-Inf	30.96	3	Horizontal	127	1.99	-				
AV	2.48G	94.20	Inf	-Inf	30.96	3	Horizontal	127	1.99	-				
PK	2.4982G	55.60	74.00	-18.40	30.99	3	Horizontal	127	1.99	-				
AV	2.4835G	44.83	54.00	-9.17	30.96	3	Horizontal	127	1.99	-				

BT-LE(1Mbps)

2480MHz_TX

12/07/2019



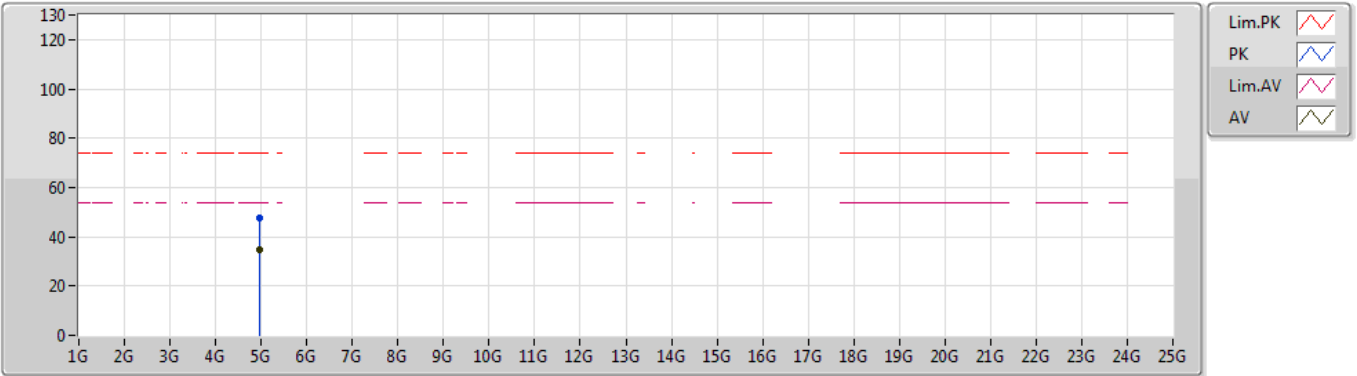
EUT Z_1TX_ANT Y
Setting 120
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	4.95976G	47.62	74.00	-26.38	4.20	3	Vertical	304	1.52	-				
AV	4.95996G	36.20	54.00	-17.80	4.20	3	Vertical	304	1.52	-				

BT-LE(1Mbps)

2480MHz_TX

12/07/2019



EUT Z_1TX_ANT Y
Setting 120
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	4.96077G	47.53	74.00	-26.47	4.20	3	Horizontal	68	1.50	-				
AV	4.96031G	34.53	54.00	-19.47	4.20	3	Horizontal	68	1.50	-				



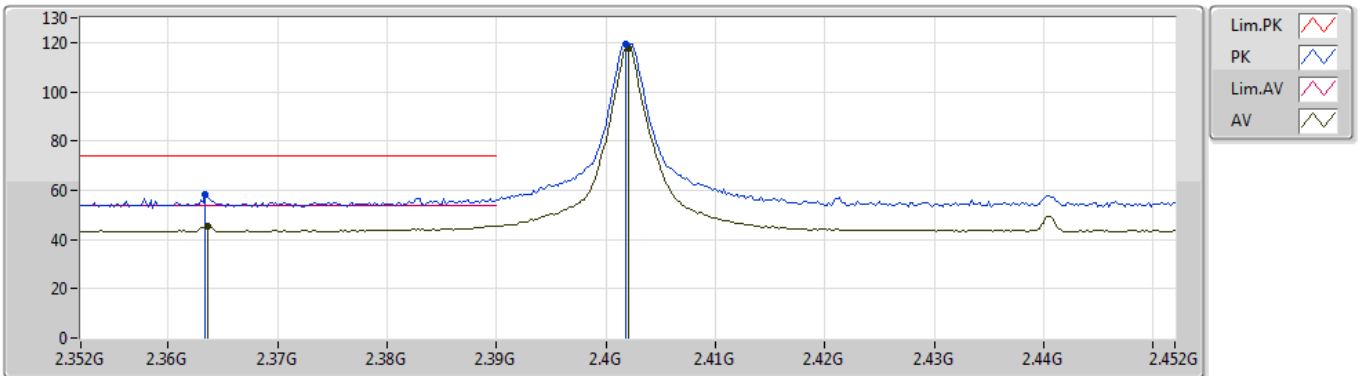
Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	AV	2.4836G	53.54	54.00	-0.46	30.96	3	Horizontal	0	1.50	-

BT-LE(1Mbps)

2402MHz_TX

12/07/2019



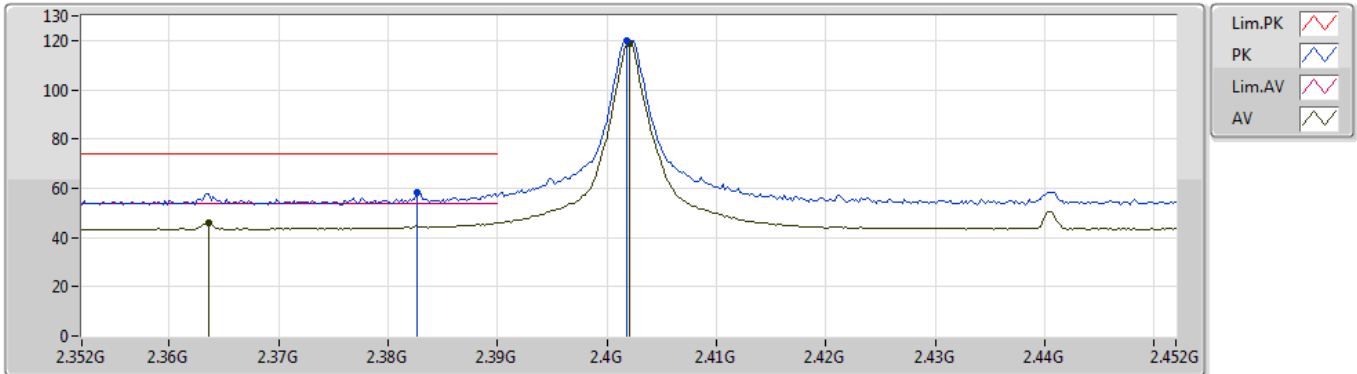
EUT X_1TX
Setting 200
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	2.3634G	58.10	74.00	-15.90	30.70	3	Vertical	0	1.84	-				
AV	2.3636G	45.54	54.00	-8.46	30.70	3	Vertical	0	1.84	-				
PK	2.4018G	119.30	Inf	-Inf	30.84	3	Vertical	0	1.84	-				
AV	2.402G	117.90	Inf	-Inf	30.84	3	Vertical	0	1.84	-				

BT-LE(1Mbps)

12/07/2019

2402MHz_TX



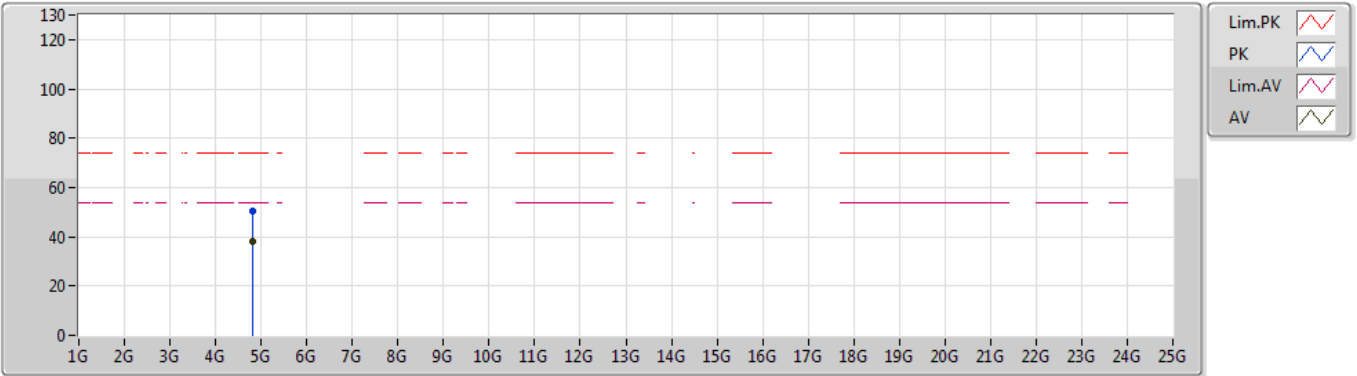
EUT X_1TX
Setting 200
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	2.3826G	58.05	74.00	-15.95	30.78	3	Horizontal	358	1.82	-				
AV	2.3636G	46.04	54.00	-7.96	30.70	3	Horizontal	358	1.82	-				
PK	2.4018G	120.11	Inf	-Inf	30.84	3	Horizontal	358	1.82	-				
AV	2.402G	118.71	Inf	-Inf	30.84	3	Horizontal	358	1.82	-				

BT-LE(1Mbps)

2402MHz_TX

12/07/2019



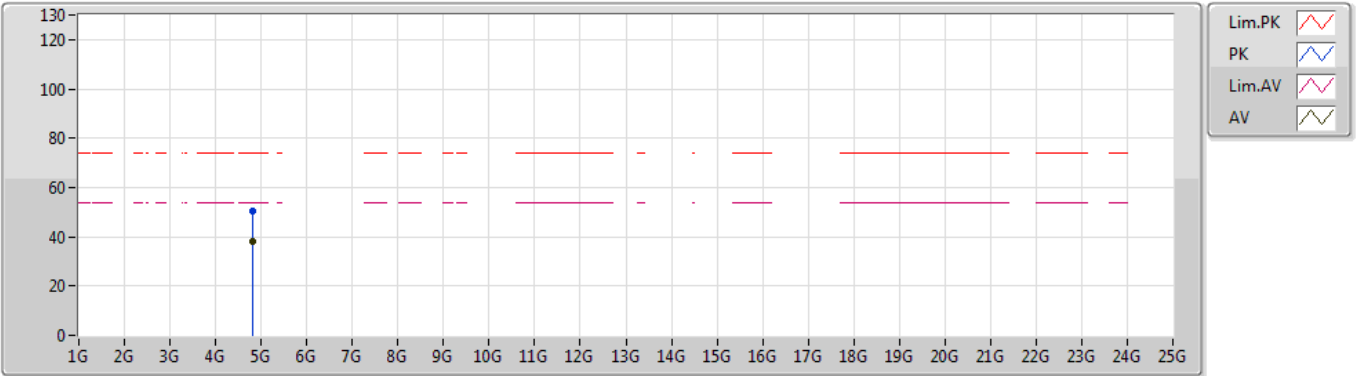
EUT X_1TX
Setting 200
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	4.80391G	50.56	74.00	-23.44	3.49	3	Vertical	30	1.50	-				
AV	4.8037G	38.26	54.00	-15.74	3.49	3	Vertical	30	1.50	-				

BT-LE(1Mbps)

2402MHz_TX

12/07/2019



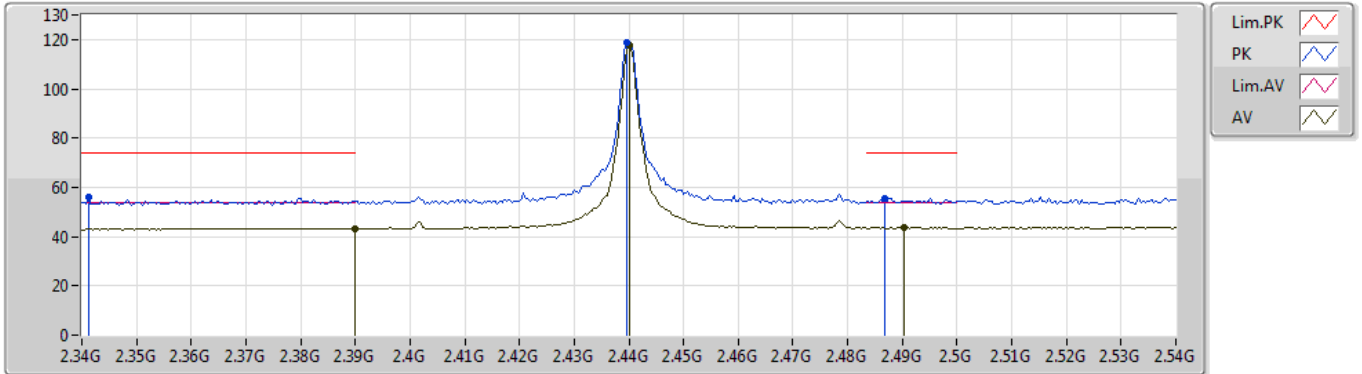
EUT X_1TX
Setting 200
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	4.80398G	50.46	74.00	-23.54	3.49	3	Horizontal	7	1.40	-				
AV	4.80383G	38.15	54.00	-15.85	3.49	3	Horizontal	7	1.40	-				

BT-LE(1Mbps)

2440MHz_TX

12/07/2019



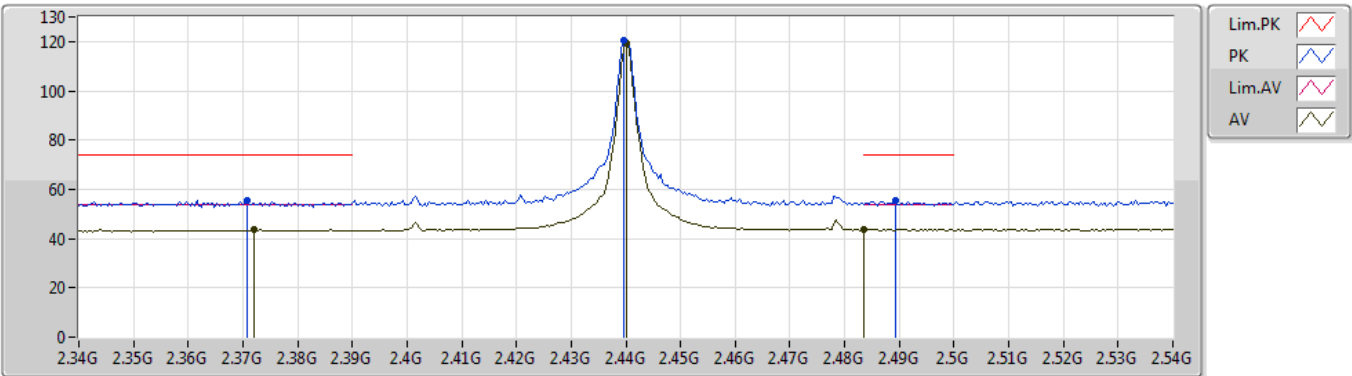
EUT X_1TX
Setting 200
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	2.3412G	56.13	74.00	-17.87	30.61	3	Vertical	0	1.50	-				
AV	2.39G	43.39	54.00	-10.61	30.80	3	Vertical	0	1.50	-				
PK	2.4396G	118.98	Inf	-Inf	30.90	3	Vertical	0	1.50	-				
AV	2.44G	117.56	Inf	-Inf	30.90	3	Vertical	0	1.50	-				
PK	2.4868G	55.57	74.00	-18.43	30.97	3	Vertical	0	1.50	-				
AV	2.4904G	43.62	54.00	-10.38	30.98	3	Vertical	0	1.50	-				

BT-LE(1Mbps)

2440MHz_TX

12/07/2019



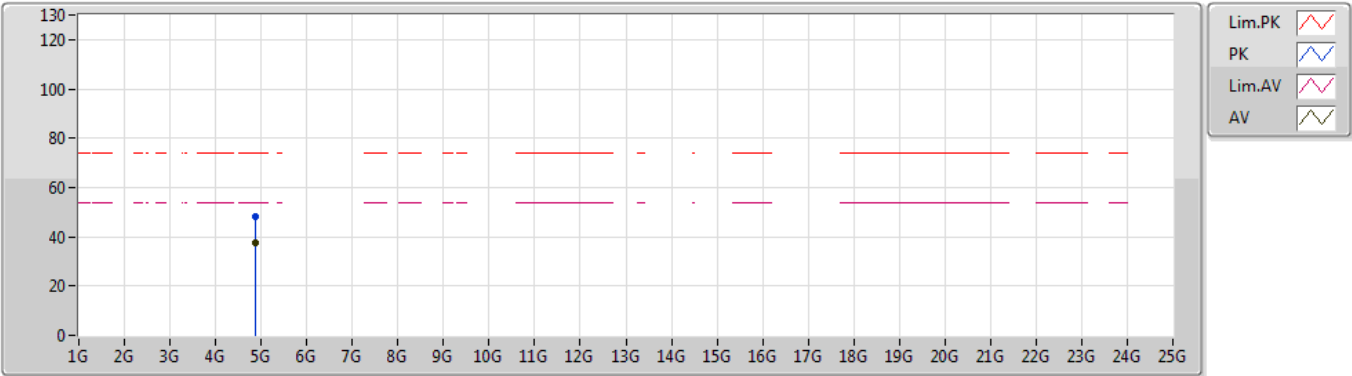
EUT X_1TX
Setting 200
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	2.3708G	55.62	74.00	-18.38	30.73	3	Horizontal	357	1.77	-				
AV	2.372G	43.57	54.00	-10.43	30.74	3	Horizontal	357	1.77	-				
PK	2.4396G	120.62	Inf	-Inf	30.90	3	Horizontal	357	1.77	-				
AV	2.44G	119.21	Inf	-Inf	30.90	3	Horizontal	357	1.77	-				
PK	2.4892G	55.31	74.00	-18.69	30.97	3	Horizontal	357	1.77	-				
AV	2.4835G	43.87	54.00	-10.13	30.96	3	Horizontal	357	1.77	-				

BT-LE(1Mbps)

2440MHz_TX

12/07/2019



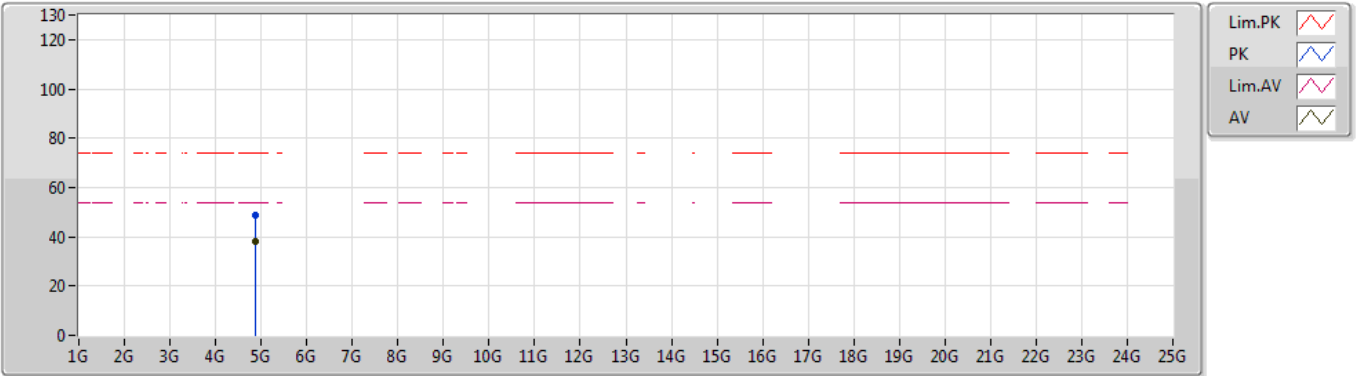
EUT X_1TX
Setting 200
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	4.8797G	48.45	74.00	-25.55	3.84	3	Vertical	31	1.50	-				
AV	4.87967G	37.81	54.00	-16.19	3.84	3	Vertical	31	1.50	-				

BT-LE(1Mbps)

2440MHz_TX

12/07/2019



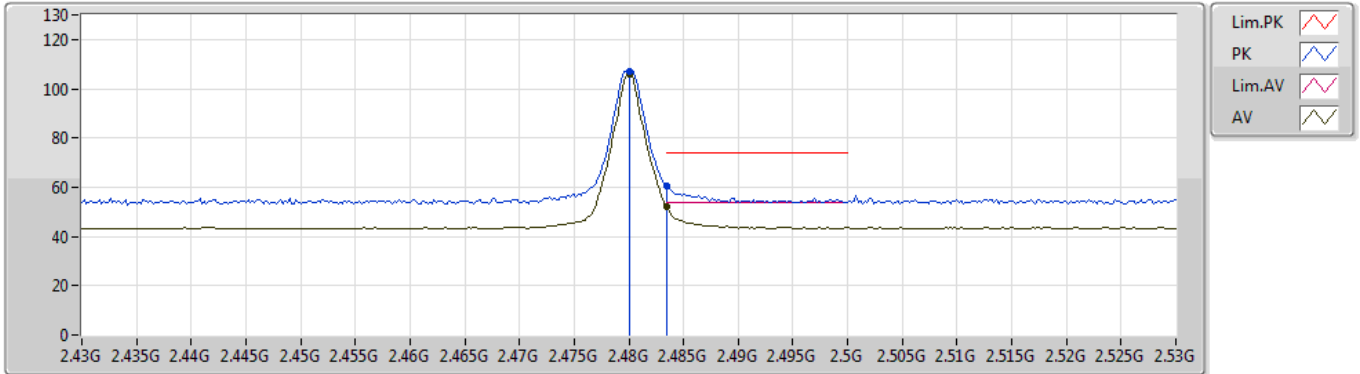
EUT X_1TX
Setting 200
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	4.88007G	48.63	74.00	-25.37	3.84	3	Horizontal	10	1.45	-				
AV	4.8797G	38.14	54.00	-15.86	3.84	3	Horizontal	10	1.45	-				

BT-LE(1Mbps)

2480MHz_TX

12/07/2019



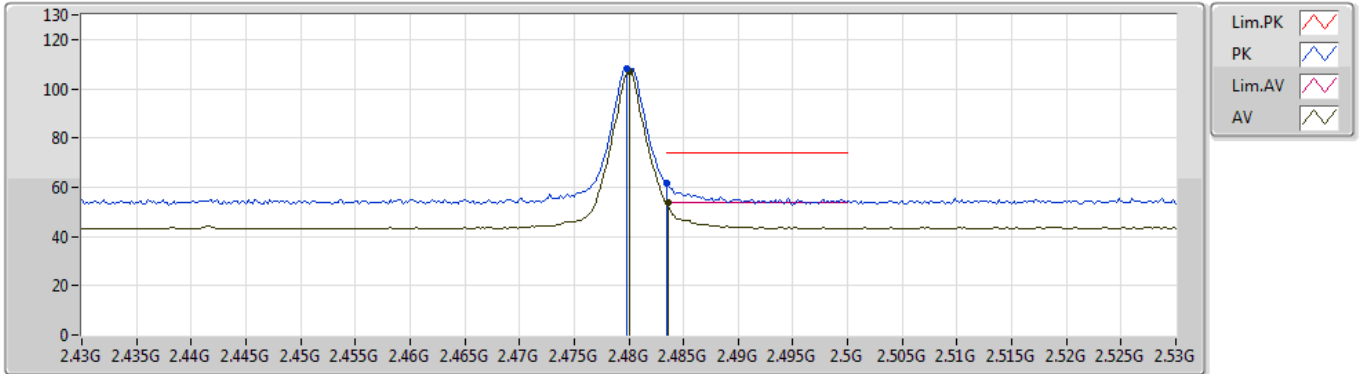
EUT X_1TX
Setting 100
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	2.48G	107.05	Inf	-Inf	30.96	3	Vertical	4	1.72	-				
AV	2.48G	105.67	Inf	-Inf	30.96	3	Vertical	4	1.72	-				
PK	2.4835G	60.66	74.00	-13.34	30.96	3	Vertical	4	1.72	-				
AV	2.4835G	52.32	54.00	-1.68	30.96	3	Vertical	4	1.72	-				

BT-LE(1Mbps)

2480MHz_TX

12/07/2019



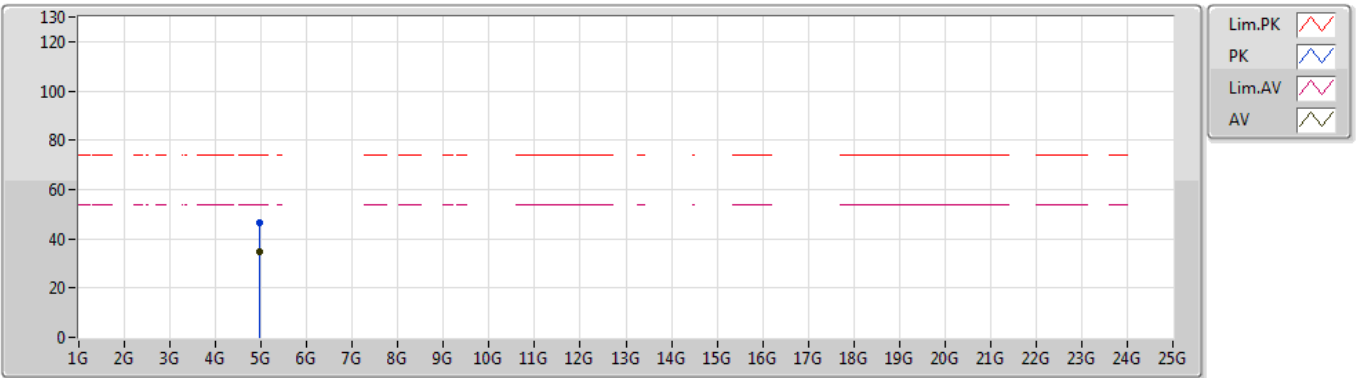
EUT X_1TX
Setting 100
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	2.4798G	108.10	Inf	-Inf	30.96	3	Horizontal	0	1.50	-				
AV	2.48G	106.76	Inf	-Inf	30.96	3	Horizontal	0	1.50	-				
PK	2.48351G	61.62	74.00	-12.38	30.96	3	Horizontal	0	1.50	-				
AV	2.4836G	53.54	54.00	-0.46	30.96	3	Horizontal	0	1.50	-				

BT-LE(1Mbps)

2480MHz_TX

12/07/2019



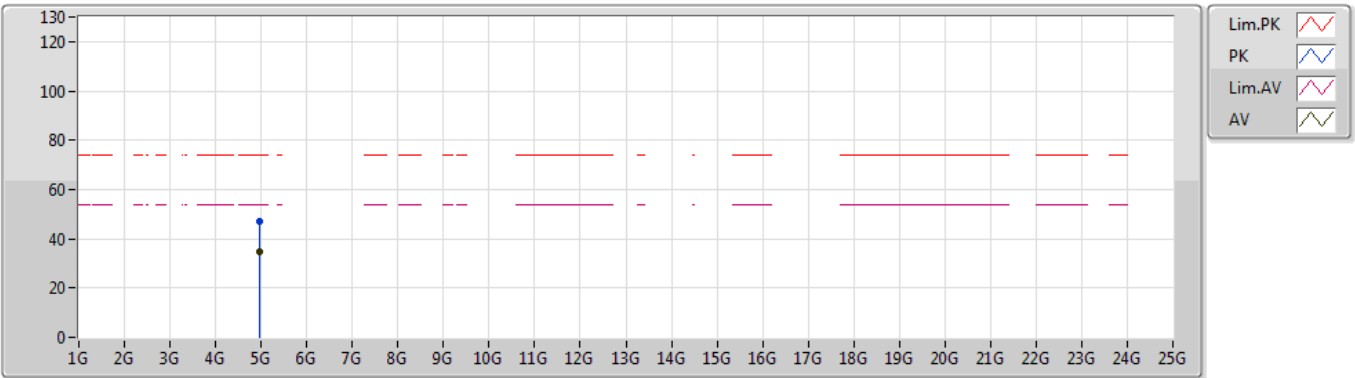
EUT X_1TX
Setting 100
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	4.96049G	46.68	74.00	-27.32	4.20	3	Vertical	265	1.92	-				
AV	4.95954G	34.70	54.00	-19.30	4.20	3	Vertical	265	1.92	-				

BT-LE(1Mbps)

2480MHz_TX

12/07/2019



EUT X_1TX
Setting 100
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	4.96017G	47.16	74.00	-26.84	4.20	3	Horizontal	251	1.78	-				
AV	4.95955G	34.80	54.00	-19.20	4.20	3	Horizontal	251	1.78	-				



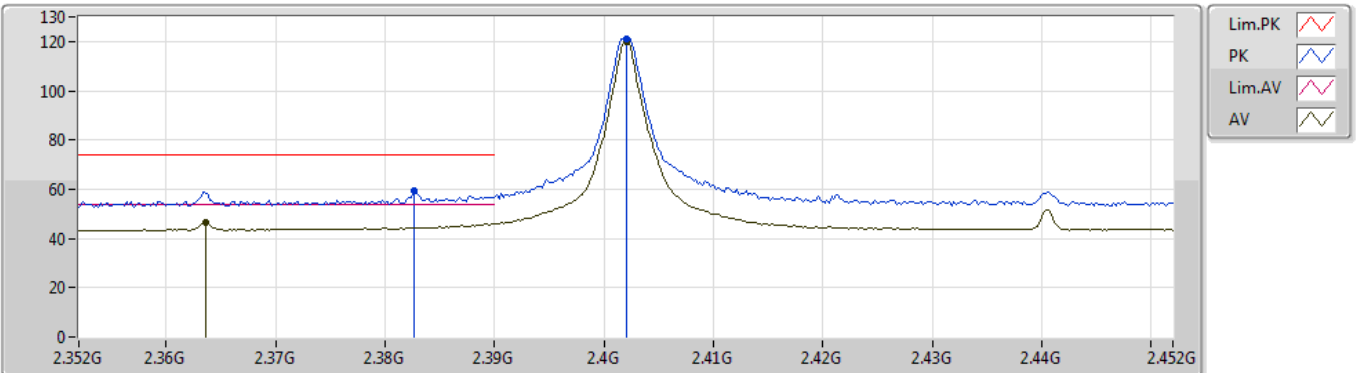
Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	AV	2.4835G	53.65	54.00	-0.35	30.96	3	Horizontal	355	1.62

BT-LE(1Mbps)

2402MHz_TX

12/07/2019



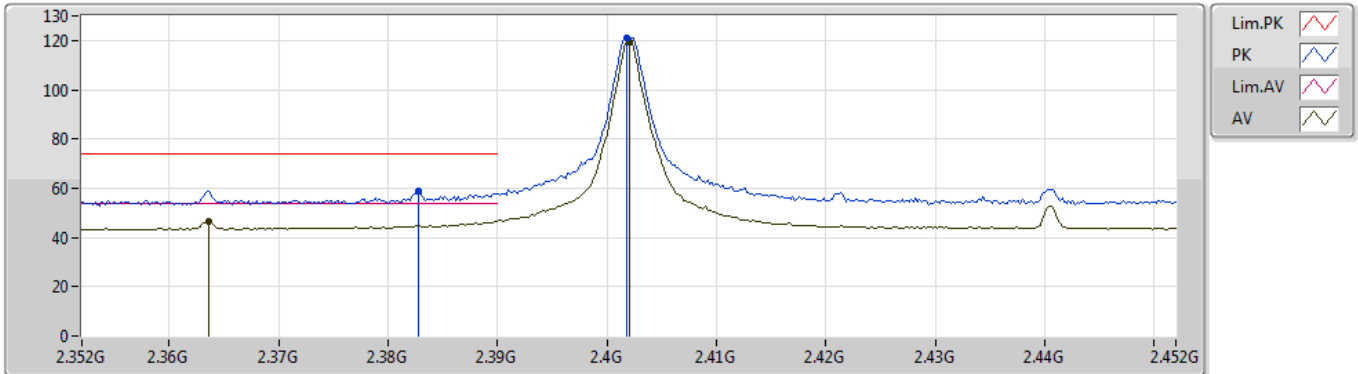
EUT X_1TX
Setting 200
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	2.3826G	59.67	74.00	-14.33	30.78	3	Vertical	352	1.85	-				
AV	2.3636G	46.70	54.00	-7.30	30.70	3	Vertical	352	1.85	-				
PK	2.402G	121.12	Inf	-Inf	30.84	3	Vertical	352	1.85	-				
AV	2.402G	119.71	Inf	-Inf	30.84	3	Vertical	352	1.85	-				

BT-LE(1Mbps)

12/07/2019

2402MHz_TX



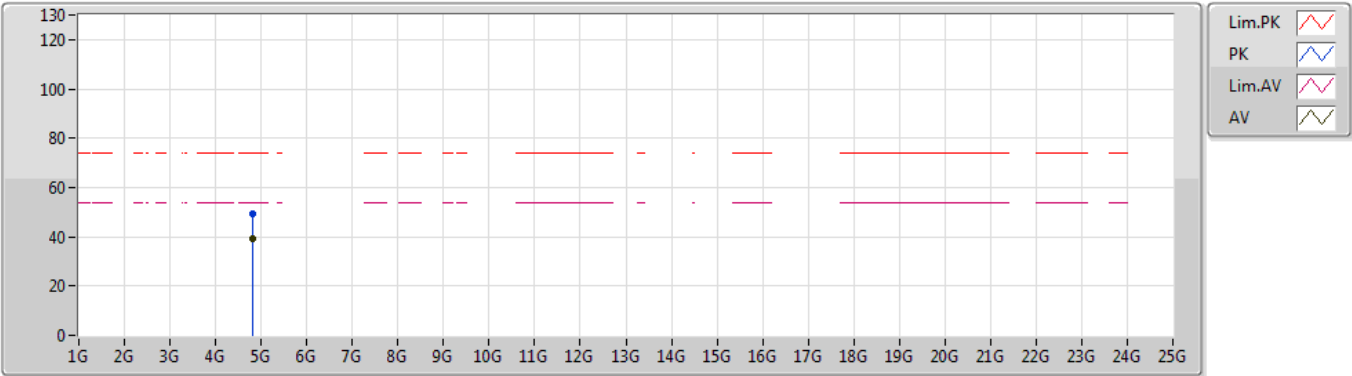
EUT X_1TX
Setting 200
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	2.3828G	59.04	74.00	-14.96	30.78	3	Horizontal	358	1.50	-				
AV	2.3636G	46.42	54.00	-7.58	30.70	3	Horizontal	358	1.50	-				
PK	2.4018G	121.07	Inf	-Inf	30.84	3	Horizontal	358	1.50	-				
AV	2.402G	119.63	Inf	-Inf	30.84	3	Horizontal	358	1.50	-				

BT-LE(1Mbps)

2402MHz_TX

12/07/2019



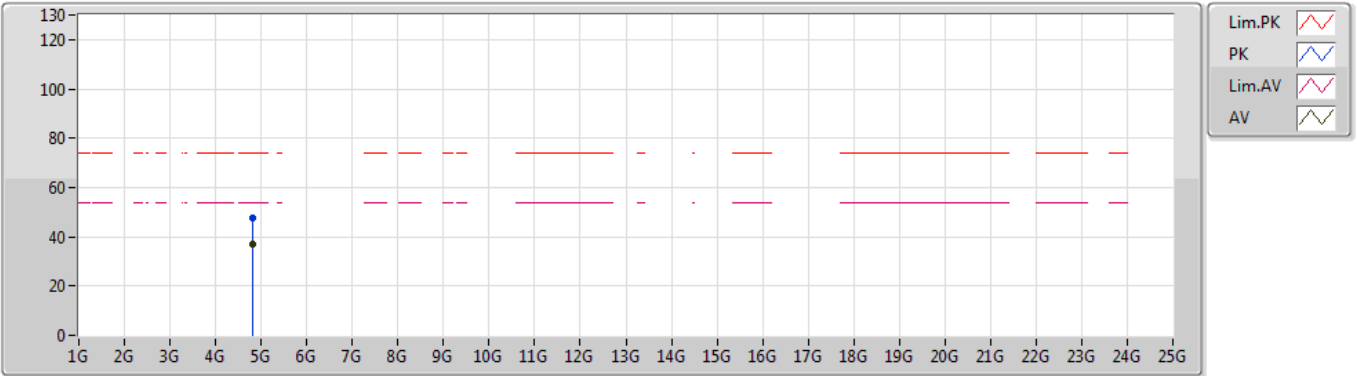
EUT X_1TX
Setting 200
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	4.80456G	49.08	74.00	-24.92	3.50	3	Vertical	356	1.50	-				
AV	4.804G	39.41	54.00	-14.59	3.49	3	Vertical	356	1.50	-				

BT-LE(1Mbps)

2402MHz_TX

12/07/2019



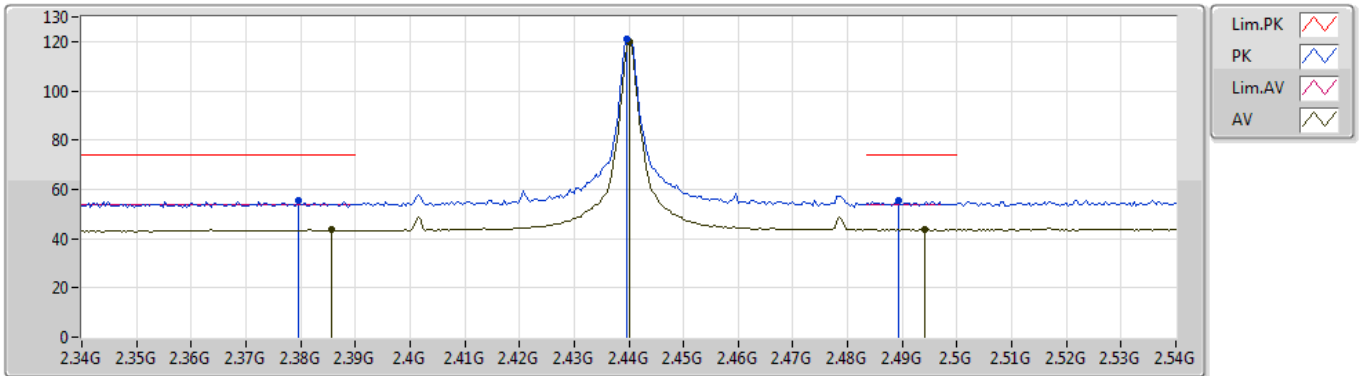
EUT X_1TX
Setting 200
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	4.80452G	47.74	74.00	-26.26	3.50	3	Horizontal	359	1.36	-				
AV	4.80372G	36.84	54.00	-17.16	3.49	3	Horizontal	359	1.36	-				

BT-LE(1Mbps)

2440MHz_TX

12/07/2019



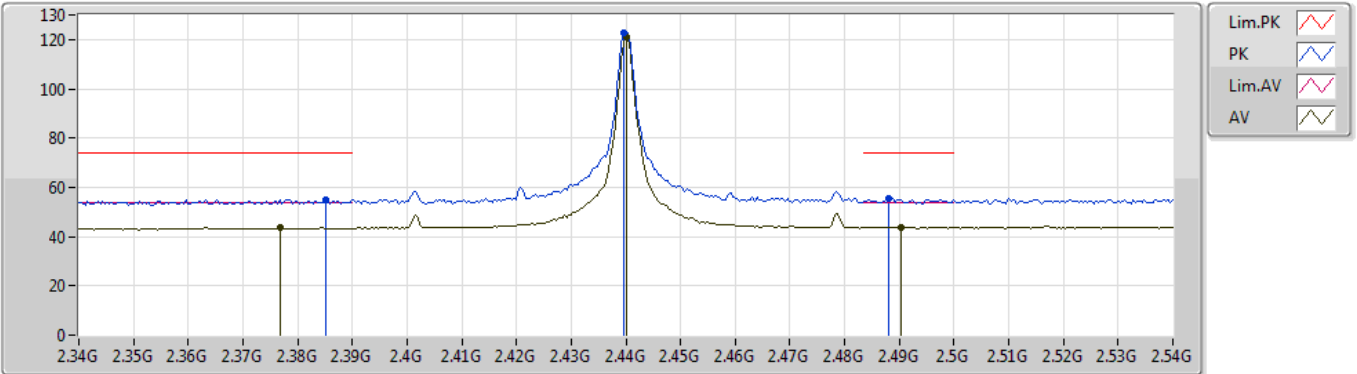
EUT X_1TX
Setting 200
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	2.3796G	55.39	74.00	-18.61	30.76	3	Vertical	359	1.46	-				
AV	2.3856G	43.59	54.00	-10.41	30.79	3	Vertical	359	1.46	-				
PK	2.4396G	121.08	Inf	-Inf	30.90	3	Vertical	359	1.46	-				
AV	2.44G	119.65	Inf	-Inf	30.90	3	Vertical	359	1.46	-				
PK	2.4892G	55.63	74.00	-18.37	30.97	3	Vertical	359	1.46	-				
AV	2.494G	43.82	54.00	-10.18	30.98	3	Vertical	359	1.46	-				

BT-LE(1Mbps)

2440MHz_TX

12/07/2019



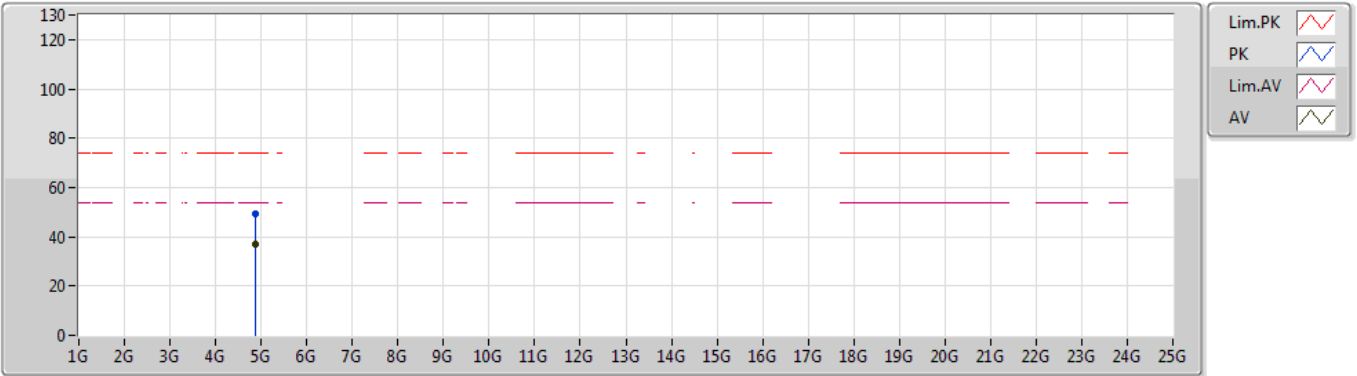
EUT X_1TX
Setting 200
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	2.3852G	55.06	74.00	-18.94	30.79	3	Horizontal	357	1.49	-				
AV	2.3768G	43.58	54.00	-10.42	30.75	3	Horizontal	357	1.49	-				
PK	2.4396G	122.49	Inf	-Inf	30.90	3	Horizontal	357	1.49	-				
AV	2.44G	121.07	Inf	-Inf	30.90	3	Horizontal	357	1.49	-				
PK	2.488G	55.59	74.00	-18.41	30.97	3	Horizontal	357	1.49	-				
AV	2.4904G	43.87	54.00	-10.13	30.98	3	Horizontal	357	1.49	-				

BT-LE(1Mbps)

2440MHz_TX

12/07/2019



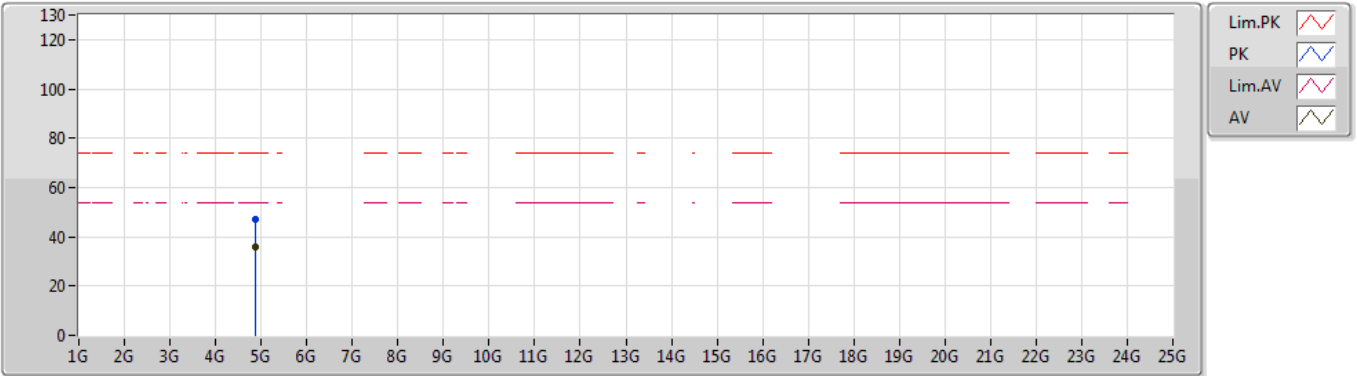
EUT X_1TX
Setting 200
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	4.88004G	49.59	74.00	-24.41	3.84	3	Vertical	356	1.50	-				
AV	4.88016G	37.23	54.00	-16.77	3.84	3	Vertical	356	1.50	-				

BT-LE(1Mbps)

2440MHz_TX

12/07/2019



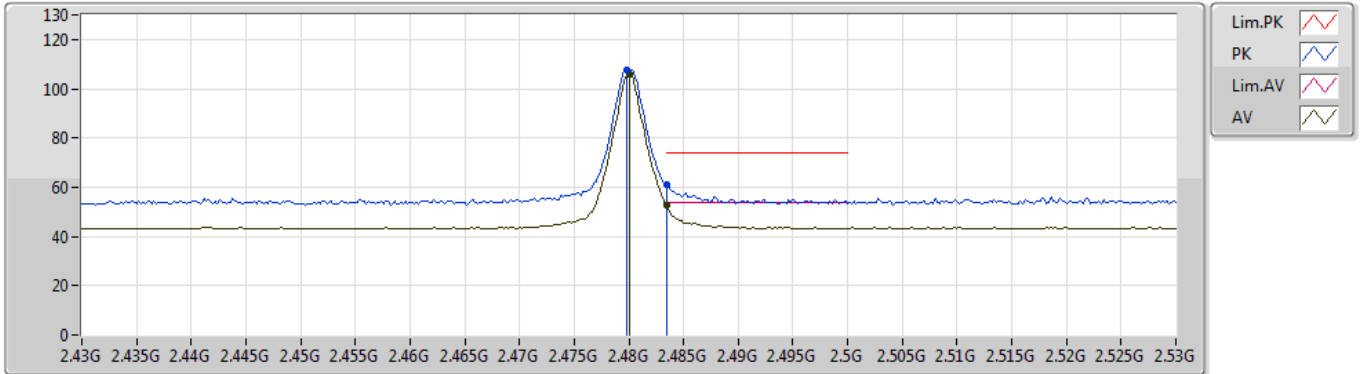
EUT X_1TX
Setting 200
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	4.88032G	47.19	74.00	-26.81	3.84	3	Horizontal	352	1.50	-				
AV	4.87972G	35.88	54.00	-18.12	3.84	3	Horizontal	352	1.50	-				

BT-LE(1Mbps)

2480MHz_TX

12/07/2019



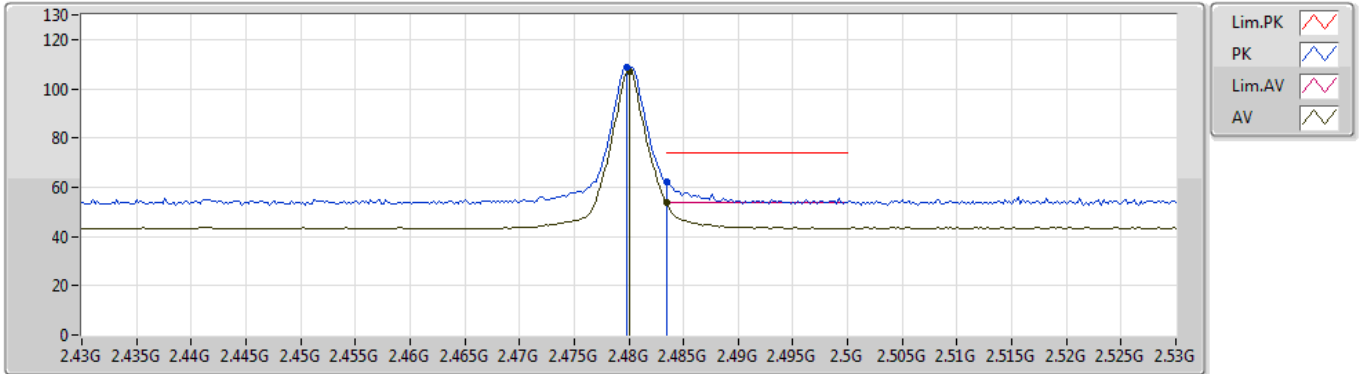
EUT X_1TX
Setting 55
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	2.4798G	107.42	Inf	-Inf	30.96	3	Vertical	356	1.50	-				
AV	2.48G	106.03	Inf	-Inf	30.96	3	Vertical	356	1.50	-				
PK	2.4835G	61.25	74.00	-12.75	30.96	3	Vertical	356	1.50	-				
AV	2.4835G	52.62	54.00	-1.38	30.96	3	Vertical	356	1.50	-				

BT-LE(1Mbps)

2480MHz_TX

12/07/2019



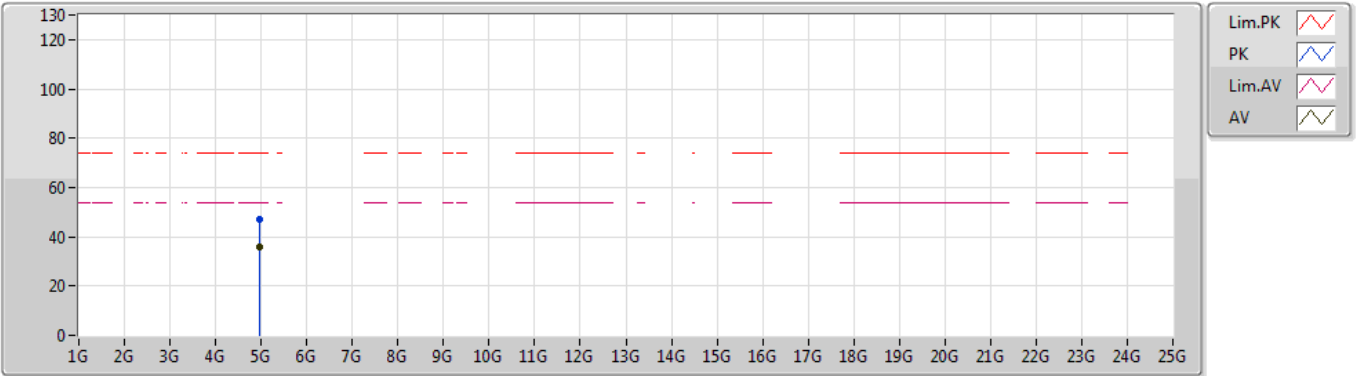
EUT X_1TX
Setting 55
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	2.4798G	108.58	Inf	-Inf	30.96	3	Horizontal	355	1.62	-				
AV	2.48G	107.20	Inf	-Inf	30.96	3	Horizontal	355	1.62	-				
PK	2.4835G	61.99	74.00	-12.01	30.96	3	Horizontal	355	1.62	-				
AV	2.4835G	53.65	54.00	-0.35	30.96	3	Horizontal	355	1.62	-				

BT-LE(1Mbps)

2480MHz_TX

12/07/2019



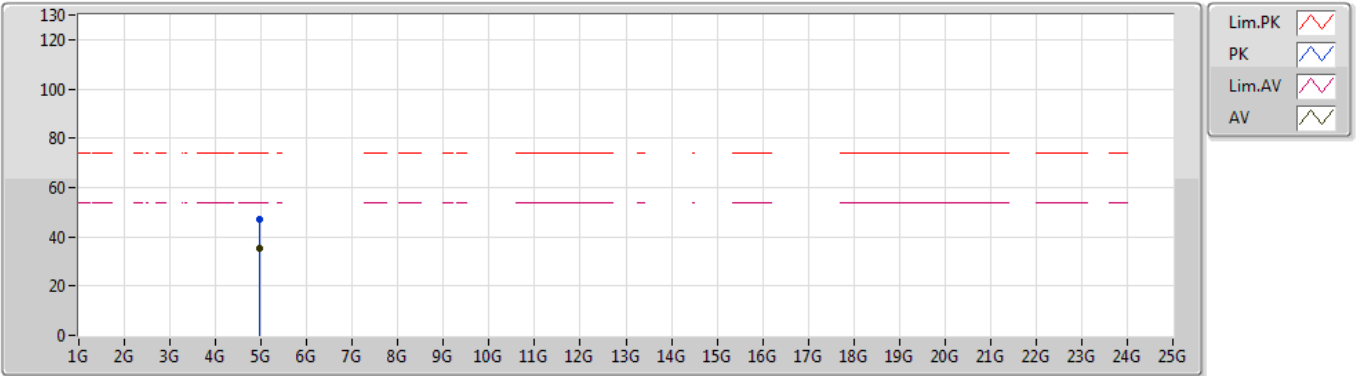
EUT X_1TX
Setting 55
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	4.9596G	47.11	74.00	-26.89	4.20	3	Vertical	1	1.50	-				
AV	4.95956G	35.79	54.00	-18.21	4.20	3	Vertical	1	1.50	-				

BT-LE(1Mbps)

2480MHz_TX

12/07/2019



EUT X_1TX
Setting 55
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	4.95972G	47.01	74.00	-26.99	4.20	3	Horizontal	349	1.50	-				
AV	4.96028G	35.25	54.00	-18.75	4.20	3	Horizontal	349	1.50	-				