

FCC Test Report

FCC ID : PPQ-WP9333
Equipment : 802.11 a/n/ac + b/g/n Access Point
Brand Name : LITE-ON, MOJO, ARISTA, WatchGuard
Model Name : WP9333, WP9331, O-105, WP9331-FM, O-105E, AP327X
Applicant : LITE-ON Technology Corp.
Bldg. C, 90, Chien 1 Rd., Chung-Ho, New Taipei City,
23585 Taiwan
Manufacturer : Lite-On Network Communication (Dongguan) Limited
30#Keji Rd., Yin Hu Industrial Area, Qingxi
Town, DongGuan City, Guangdong, China
Standard : 47 CFR FCC Part 15.247

The product was received on Jan. 17, 2019, and testing was started from Jan. 29, 2019 and completed on Feb. 01, 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 variant 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: Allen Lin

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

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Report Template No.: HE1-C9 Ver3.4
FCC ID: PPQ-WP9333

Summary of Test Result

Report Clause	Ref. Std. Clause	Test Items	Result (PASS/FAIL)	Remark
1.1.2	15.203	Antenna Requirement	PASS	FCC 15.203
3.1	15.207	AC Power-line Conducted Emissions	PASS	FCC 15.207
3.2	15.247(a)	20dB Bandwidth	PASS	15.247(a)
3.2	15.247(a)	Carrier Frequency Separation	PASS	15.247(a)
3.3	15.247(b)	Maximum Conducted Output Power	PASS	15.247(b)
3.4	15.247(a)	Number of Hopping Frequencies and Hopping Bandedge	PASS	15.247(a)
3.5	15.247(a)	Time of Occupancy (Dwell Time)	PASS	15.247(a)
3.6	15.247(d)	Emissions in Non-restricted Frequency Bands	PASS	15.247(d)
3.7	15.247(d)	Emissions in Restricted Frequency Bands	PASS	Restricted Bands: FCC 15.209

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:

None

Reviewed by: Sam Tsai

Report Producer: Amber Chiu

1 General Description

1.1 Information

1.1.1 RF General Information

Frequency Range (MHz)	Bluetooth Version	Ch. Frequency (MHz)	Channel Number
2400-2483.5	BR / EDR	2402-2480	0-78 [79]

Band	Mode	BWch (MHz)	Nant
2.4-2.4835GHz	BT-BR(1Mbps)	1	1TX
2.4-2.4835GHz	BT-EDR(2Mbps)	1	1TX
2.4-2.4835GHz	BT-EDR(3Mbps)	1	1TX

Note:

- Bluetooth BR uses a GFSK (1Mbps).
- Bluetooth EDR uses a combination of $\pi/4$ -DQPSK (2Mbps) and 8DPSK (3Mbps).
- Bluetooth BR/EDR uses as a system using FHSS modulation.
- BWch is the nominal channel bandwidth.

1.1.2 Antenna Information

SKU#	Ant.	Port	Brand	Model Name	Antenna Type	Connector	Radio
1~8	1	2	Walsin	RFMTA400809MMLB901	Metal Antenna	MMCX	1
	2	1	Walsin	RFMTA400811MMLB901	Metal Antenna	MMCX	1
	3	2	Walsin	RFMTA400814MM5B901	Metal Antenna	MMCX	2
	4	1	Walsin	RFMTA400816MM5B901	Metal Antenna	MMCX	2
	5	2	Master Wave Technology Co., Ltd	98P7RPIPF000	PCB Antenna	I-PEX	3
	6	1	Master Wave Technology Co., Ltd	98P7RPIPF001	PCB Antenna	I-PEX	3
	7	1	Walsin	RFPCA381017MMAB702	PCB Antenna	MMCX	4
9	8	2	MasterWave	98615MNXX003	Dipole	N-type	1
	9	1					
	10	2	MasterWave	98615UNXX005	Dipole	N-type	2
	11	1					
10	12	2	Senao	5718A0394300	Dipole	N-type	1
	13	1					
	14	2	Senao	5718A0394300	Dipole	N-type	2
	15	1					
9~10	16	1	LITEON	30100011316D	PCB Antenna	MMCX	4

Ant.	Gain (dBi)						
	Radio 1	Radio 2		Radio 3			Radio 4
	2.4G	5G U-NII-1	5G U-NII-3	2.4G	5G U-NII-1	5G U-NII-3	BT
	with cable loss	with cable loss	with cable loss	with cable loss	with cable loss	with cable loss	with cable loss
1	5.9	-	-	-	-	-	-
2	5.9	-	-	-	-	-	-
3	-	6.2	6.4	-	-	-	-
4	-	6.2	6.4	-	-	-	-
5	-	-	-	6.5	4.7	6.0	-
6	-	-	-	6.5	4.8	5.5	-
7	-	-	-	-	-	-	8.6

Ant.	Gain (dBi)						
	Radio 1		Radio 2				Radio 4
	2.4G		5G U-NII-1		5G U-NII-3		BT
	without cable loss	with cable loss	without cable loss	with cable loss	without cable loss	with cable loss	with cable loss
8	5.0	4.46	-	-	-	-	-
9	5.0	4.46	-	-	-	-	-
10	-	-	7.0	6.19	7.0	6.19	-
11	-	-	7.0	6.19	7.0	6.19	-
12	5.5	4.96	-	-	-	-	-
13	5.5	4.96	-	-	-	-	-
14	-	-	7.0	6.19	7.0	6.19	-
15	-	-	7.0	6.19	7.0	6.19	-
16	-	-	-	-	-	-	8

Note 1: Regarding to more detail and other information, please refer to 1.1.5.

Note 2: The SKU#1~2 contain Radio 3 (2.4G)/(5G) RF module(Model Name: WM862FEMD, FCC ID: PPQ-WM862FEMD).

Note 3: For WiFi Function ; SKU# 1~8 use Internal antenna system, and SKU# 9~10 use external antenna system.

Note 4: The antenna gain with cable loss and was used to perform the worst configuration and result of that was recorded as the final test result.

For 2.4 GHz function:

For IEEE 802.11b/g/n/ac mode (2TX/2RX)

Radio 1

SKU#1~8: Ant. 1 (port 2) and Ant. 2 (port 1) could transmit/receive simultaneously.

SKU#9: Ant. 8 (port 2), Ant. 9 (port 1) could transmit/receive simultaneously.

SKU#10: Ant. 12 (port 2) and Ant. 13 (port 1) could transmit/receive simultaneously.

Radio 3

SKU#1~2: Ant. 5 (port 2) and Ant. 6 (port 1) could transmit/receive simultaneously.

For 5 GHz function:

For IEEE 802.11a/n/ac mode (2TX/2RX)

Radio 2 (For U-NII-1 and U-NII-3)

SKU#1~8: Ant. 3 (port 2) and Ant. 4 (port 1) could transmit/receive simultaneously.

SKU#9: Ant. 10 (port 2), Ant. 11 (port 1) could transmit/receive simultaneously.

SKU#10: Ant. 14 (port 2) and Ant. 15 (port 1) could transmit/receive simultaneously.

Radio 3 (For U-NII-1 and U-NII-3)

SKU#1~2: Ant. 5 (port 2) and Ant. 6 (port 1) could transmit/receive simultaneously.

For Bluetooth function:

For Bluetooth mode (1TX/1RX)

Radio 4

SKU#1~8: Only Ant. 7 (port 1) can be used as transmitting/receiving antenna.

SKU#9~10: Only Ant. 16 (port 1) can be used as transmitting/receiving antenna.

- The Signals support CDD and correlated, and transmits simultaneously in multiple channels in single or multiple frequency bands.
- If all antennas have the same gain, GANT:
Directional gain = GANT + 10 log(NANT/NSS) dBi, where NSS = the number of independent spatial streams of data and GANT is the antenna gain in dBi. (This formula can also be applied when antennas have different gains if the highest antenna gain is substituted for GANT.)
- For power measurements on IEEE 802.11 devices,
Array Gain = 0 dB (i.e., no array gain) for NANT ≤ 4;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any NANT;
Array Gain = 5 log(NANT/NSS) dB or 3 dB, whichever is less, for 20-MHz channel widths with NANT ≥ 5..

1.1.3 EUT Information

Operational Condition			
EUT Power Type	From PoE		
EUT Function	☒ Point-to-multipoint	☐ Point-to-point	
Type of EUT			
☒	Stand-alone		
☐	Combined (EUT where the radio part is fully integrated within another device)		
	Combined Equipment - Brand Name / Model No.:	...	
☐	Plug-in radio (EUT intended for a variety of host systems)		
	Host System - Brand Name / Model No.:	...	
☐	Other:		

1.1.4 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
BT-BR(1Mbps)	0.448	3.487	2.899m	1k
BT-EDR(2Mbps)	0.464	3.335	2.906m	1k
BT-EDR(3Mbps)	0.443	3.536	2.907m	1k

Note. If DC < 0.98, the DCF was added while measuring Output power and PSD.

1.1.5 Table for Multiple Listing

The brand/model names in the following table are all refer to the identical product.

SKU#	Brand Name	Model Name	CPU	CPU Brand	DDR	DDR Brand	Flash	Flash Brand/Model	NAND	NAND Brand/Model
1	LITE-ON	WP9333	IPQ4029	Qualcomm Atheros	256	Micron	64	1x64 MX25L51245GMI-08G MXIC	-	-
							32X2	2x32 25Q256JVFQ WINBOND	-	-
2		WP9333	IPQ4019	Qualcomm Atheros	256	Micron	64	1x64 MX25L51245GMI-08G MXIC	-	-
							32X2	2x32 25Q256JVFQ WINBOND	-	-
3		WP9331	IPQ4029	Qualcomm Atheros	256	Micron	64	1x64 MX25L51245GMI-08G MXIC	-	-
							32X2	2x32 25Q256JVFQ WINBOND	-	-
4		WP9331	IPQ4019	Qualcomm Atheros	256	Micron	64	1x64 MX25L51245GMI-08G MXIC	-	-
							32X2	2x32 25Q256JVFQ WINBOND	-	-
5		WP9331-FM	IPQ4029	Qualcomm Atheros	512	Micron	64	1x64 MX25L51245GMI-08G MXIC	-	-
							32X2	2x32 25Q256JVFQ WINBOND	-	-
6	MOJO	O-105	IPQ4029	Qualcomm Atheros	256	Micron	64	1x64 MX25L51245GMI-08G MXIC	-	-
							32X2	2x32 25Q256JVFQ WINBOND	-	-
7	MOJO	O-105	IPQ4019	Qualcomm Atheros	256	Micron	64	1x64 MX25L51245GMI-08G MXIC	-	-
							32X2	2x32 25Q256JVFQ WINBOND	-	-
8	ARISTA	O-105	IPQ4029 (I-TEMP)	Qualcomm Atheros	512	Micron	32	2x32 25Q256JVFQ WINBOND	128	MT29F1G08AB AEA WP-IT
9	ARISTA	O-105E	IPQ4029 (I-TEMP)	Qualcomm Atheros	512	Micron	32	2x32 25Q256JVFQ WINBOND	128	MT29F1G08AB AEA WP-IT
10	WatchGuard	O-105E AP327X	IPQ4029 (I-TEMP)	Qualcomm Atheros	512	Micron	32	2x32 25Q256JVFQ WINBOND	128	MT29F1G08AB AEA WP-IT

SKU#	Brand Name	Model Name	Radio 1	Radio 2	Radio 3	Radio 4	SFP	EUT Power Type
1~2	LITE-ON	WP9333	V	V	V	V	V	AC main / PoE
3~4	LITE-ON	WP9331	V	V	X	V	V	PoE
5	LITE-ON	WP9331-FM	V	V	X	V	V	PoE
6~7	MOJO	O-105	V	V	X	V	V	PoE
8	ARISTA	O-105	V	V	X	V	X	PoE
9	ARISTA	O-105E	V	V	X	V	X	PoE
10	WatchGuard	O-105E	V	V	X	V	X	PoE
		AP327X						

Note:

Radio 1: 802.11ac 2.4G only

Radio 2: 802.11ac 5GHz on board

Radio 3: 802.11ag/nac PCIe card, 2.4G+5GB1/B4

Radio 4: Bluetooth (BT LE and BR/EDR) on board

The models O-105E & AP327X for Brand Name WatchGuard are identical. All the models are identical, the difference models served as marketing strategy.

1.1.6 Table for Permissive Change

This product is an extension of original one reported under Sporton project number: FR790613-03AD

Below is the table for the change of the product with respect to the original one.

Modifications	Performance Checking
1. Modified equipment name.	N/A
2. Upgrade BLE version from 4.0(CSR8811A08) to 4.2(CSR8811A12)	All
3. Add a new sample model name: O-105E & AP327X and new type antenna 8~15(only use for O-105E & AP327X).	
4. Add antenna 16 and change it's location for model name: O-105E & AP327X.	

Note. Regarding to more detail and other information, please refer to 1.1.5.

1.2 Testing Applied Standards

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

- ♦ 47 CFR FCC Part 15
- ♦ KDB 558074 D01 v05r01
- ♦ ANSI C63.10-2013

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
Test site Designation No. TW1190 with FCC.			
☐	JHUBEI	ADD : No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County, Taiwan (R.O.C.)	
		TEL : 886-3-656-9065	FAX : 886-3-656-9085
Test site Designation No. TW0006 with FCC.			

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
RF Conducted	TH01-HY	Andy	22.1~25°C / 50~60%	01/Feb/2019
Radiated	03CH09-HY	Kevin	24~26°C / 54~57%	29/Jan/2019~ 01/Feb/2019
AC Conduction	CO04-HY	Andy	21.5~22.4°C / 52.7~53.3%	01/Feb/2019

1.4 Measurement Uncertainty

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

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	3.54 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	1.6 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	4.3 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.9 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.3 dB	Confidence levels of 95%
Temperature	0.7 °C	Confidence levels of 95%
Humidity	4 %	Confidence levels of 95%

2 Test Configuration of EUT

2.1 Test Condition

RF Conducted	Abbreviation	Remark
TnomVnom	Tnom	20°C
-	Vnom	120V

2.2 Test Channel Mode

Test Software	Dos
---------------	-----

Mode	Power Setting
BT-BR(1Mbps)	-
2402MHz	08
2440MHz	08
2480MHz	08
BT-EDR(2Mbps)	-
2402MHz	08
2440MHz	08
2480MHz	08
BT-EDR(3Mbps)	-
2402MHz	08
2440MHz	08
2480MHz	08

2.3 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral
Operating Mode	CTX
1	PoE mode, SKU #10

The Worst Case Mode for Following Conformance Tests	
Tests Item	20dB Bandwidth Carrier Frequency Separation Maximum Conducted Output Power Number of Hopping Frequencies Hopping Bandedge Time of Occupancy (Dwell Time) Emissions in Non-restricted Frequency Bands
Test Condition	Conducted measurement at transmit chains

The Worst Case Mode for Following Conformance Tests			
Tests Item	Emissions in Restricted Frequency Bands		
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.		
Operating Mode < 1GHz	CTX		
1	PoE mode, SKU #10		
Operating Mode > 1GHz	CTX		
1	PoE mode, SKU #10		
Orthogonal Planes of EUT	X Plane	Y Plane	Z Plane
			
Worst Planes of EUT	V		

The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis
Operating Mode	CTX
1	Radio 1 (2.4G) + Radio 2 (5G) + Radio 3 (2.4G) + Radio 4 (BT)
2	Radio 1 (2.4G) + Radio 2 (5G) + Radio 3 (5G) + Radio 4 (BT)
Refer to Sporton Test Report No.: FA790613 for Co-location RF Exposure Evaluation.	

2.4 Accessories and Support Equipment

Accessories		
Ground Wire	Signal Line	6.4 meter, non-shielded cable, w/o ferrite core

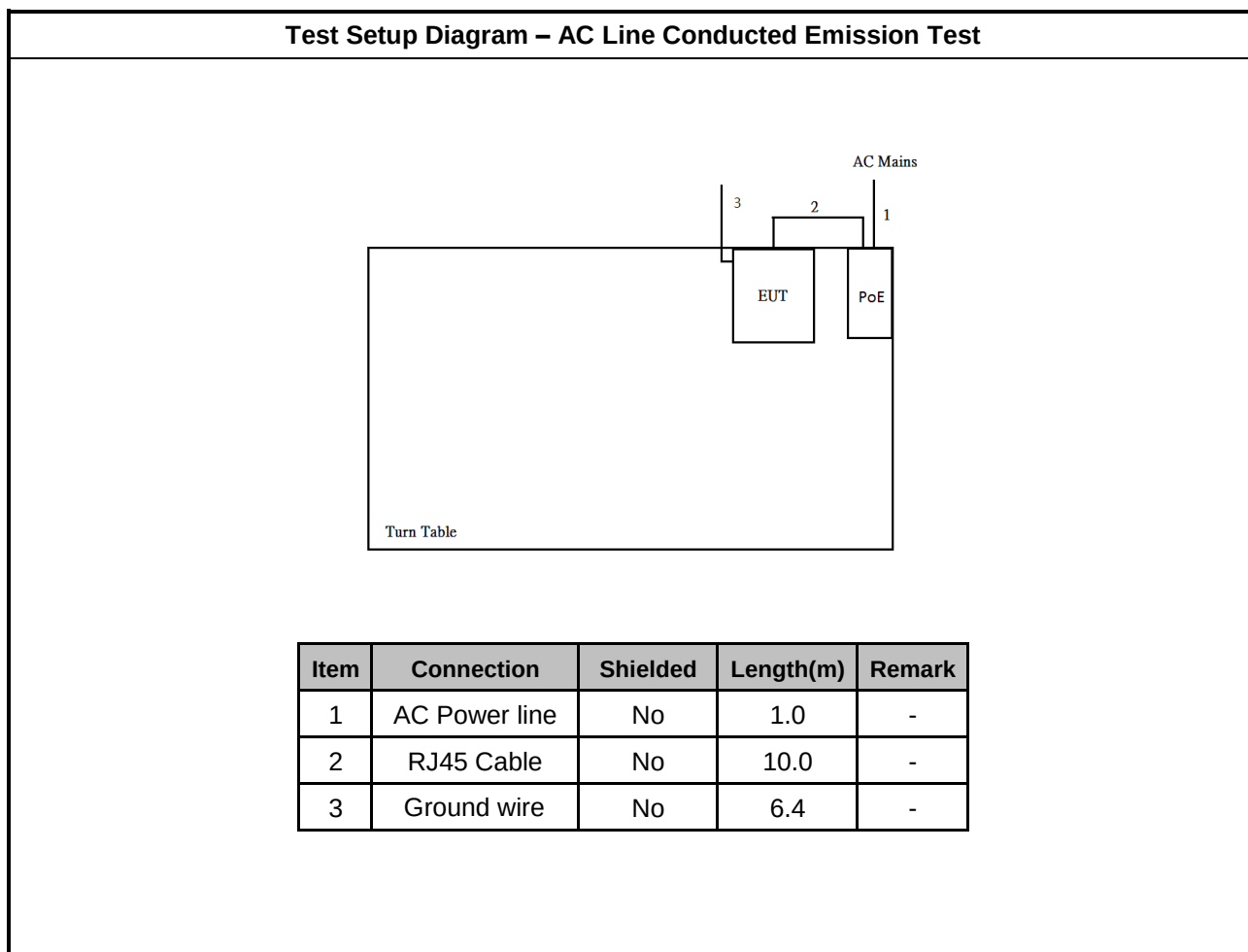
Reminder: Regarding to more detail and other information, please refer to user manual.

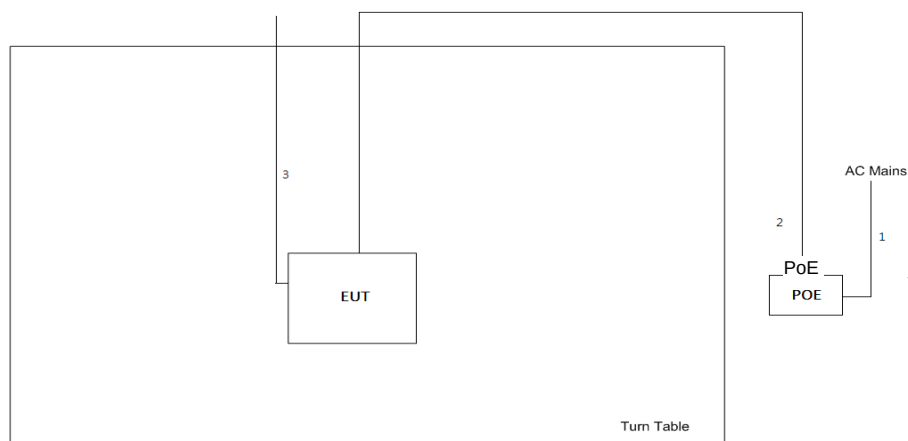
Support Equipment – AC Conduction				
No.	Equipment	Brand Name	Model Name	FCC ID
1	PoE	PowerDsine	7001G	-

Support Equipment – RF Conducted				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Notebook	DELL	E5410	DoC
2	Adapter for NB	DELL	HA65NM130	DoC
3	AC Source	G.W	APS-9102	-

Support Equipment – Radiated Emission				
No.	Equipment	Brand Name	Model Name	FCC ID
1	PoE	D-Link	DWL-P200	-

2.5 Test Setup Diagram



Test Setup Diagram - Radiated Test


Item	Connection	Shielded	Length
1	AC power line	No	1.2
2	RJ-45 cable	No	10
3	Ground wire	No	6.4

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.

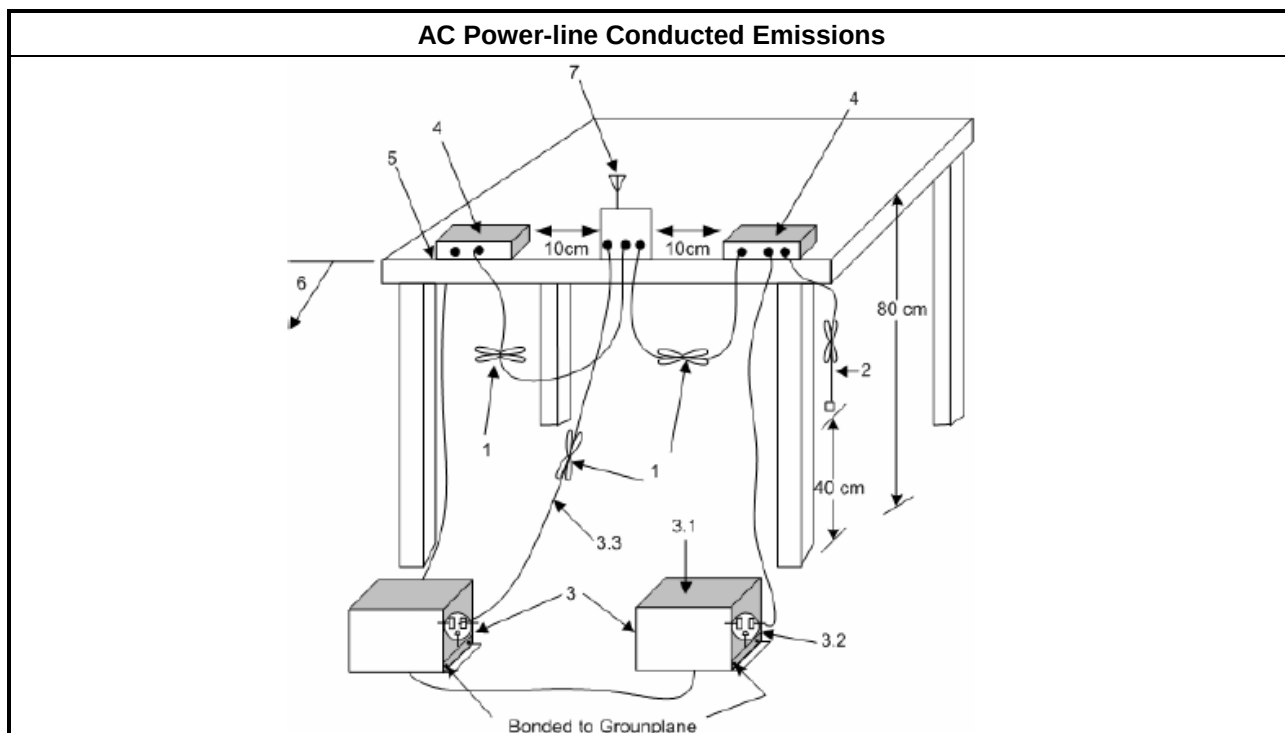
3.1.2 Measuring Instruments

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 foray 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 20dB Bandwidth and Carrier Frequency Separation

3.2.1 20dB Bandwidth and Carrier Frequency Separation Limit

20dB Bandwidth and Carrier Frequency Separation Limit for Frequency Hopping Systems	
2400-2483.5 MHz Band:	
	$N \geq 75$ and $ChS \geq MAX$ (20 dB bandwidth, 25 kHz).
	$75 > N \geq 15$ and $ChS \geq MAX$ (20 dB bandwidth 2/3, 25 kHz).
N: Number of Hopping Frequencies; ChS: Hopping Channel Separation	

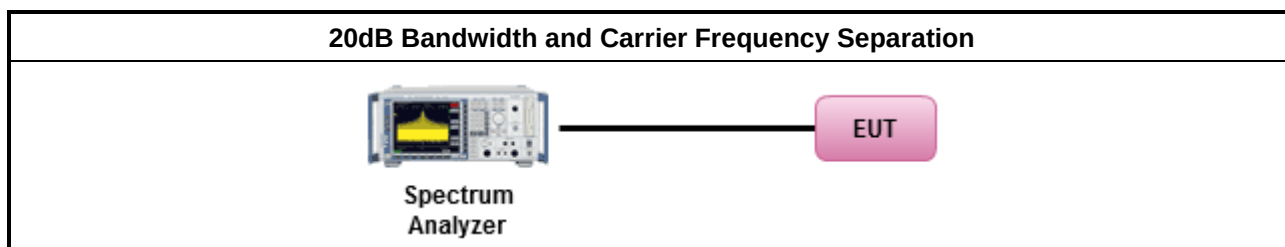
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

Test Method
Refer as ANSI C63.10-2013, clause 6.9.2 for 20 dB bandwidth measurement.
Refer as ANSI C63.10-2013, clause 7.8.2 for carrier frequency separation measurement.

3.2.4 Test Setup



3.2.5 Test Result of 20dB Bandwidth

Refer as Appendix B

3.2.6 Test Result of Carrier Frequency Separation

Refer as Appendix B

3.3 Maximum Conducted Output Power

3.3.1 Maximum Conducted Output Power Limit

Maximum Conducted Output Power Limit	
2400-2483.5 MHz Band:	
	$N \geq 75$; Power 30dBm; EIRP 36dBm
	$75 > N \geq 15$; Power 21dBm; EIRP 27dBm
N: Number of Hopping Frequencies	

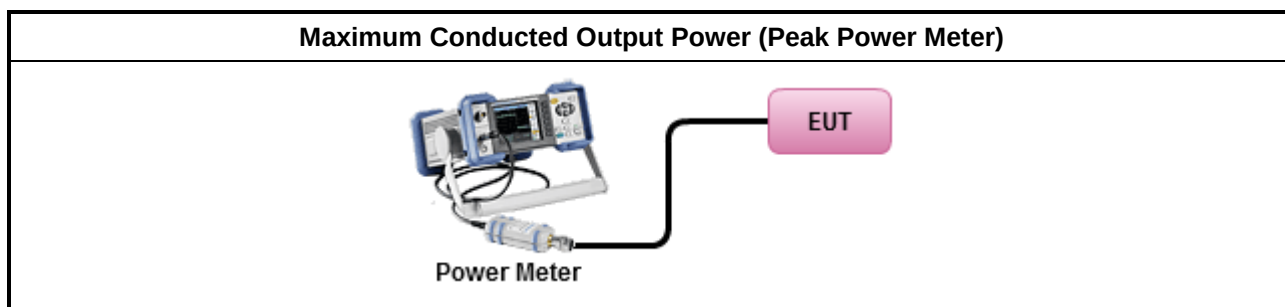
3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

Test Method
Refer as ANSI C63.10-2013, clause 7.8.5 for output power measurement.

3.3.4 Test Setup



3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix C

3.4 Number of Hopping Frequencies and Hopping Bandedge

3.4.1 Number of Hopping Frequencies Limit

Number of Hopping Frequencies Limit	
▪ 2400-2483.5 MHz Band:	
	▪ $N \geq 75$ and $ChS \geq MAX$ (20 dB bandwidth, 25 kHz).
	▪ $75 > N \geq 15$ and $ChS \geq MAX$ (20 dB bandwidth 2/3, 25 kHz).
N: Number of Hopping Frequencies; ChS : Hopping Channel Separation	

3.4.2 Hopping Bandedge Limit

Refer clause 3.6.1 and clause 3.7.1

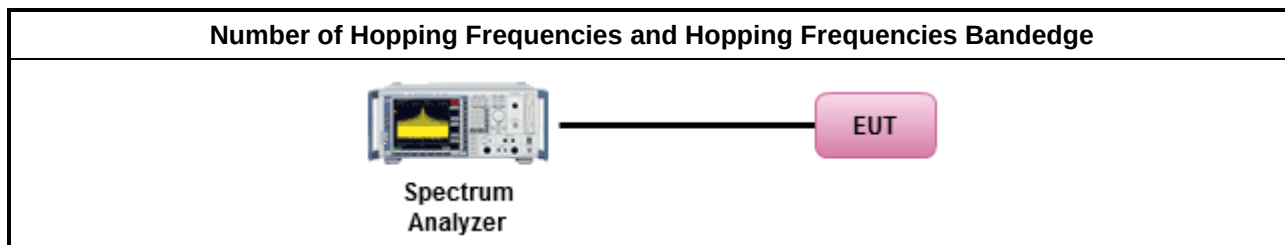
3.4.3 Measuring Instruments

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

3.4.4 Test Procedures

Test Method
▪ Refer as ANSI C63.10-2013, clause 7.8.3 for number of hopping frequencies measurement.
▪ Refer as ANSI C63.10-2013, clause 7.8.6 for hopping frequencies Bandedge measurement.

3.4.5 Test Setup



3.4.6 Test Result of Number of Hopping Frequencies

Refer as Appendix D

3.4.7 Test Result of Number of Hopping Frequencies Bandedge

Refer as Appendix D

3.5 Time of Occupancy (Dwell Time)

3.5.1 Time of Occupancy (Dwell Time) Limit

Time of Occupancy (Dwell Time) Limit for Frequency Hopping Systems	
2400-2483.5 MHz Band:	
	$N \geq 75$; 0.4s in $N \times 0.4$ period
	$75 > N \geq 15$; 0.4s in $N \times 0.4$ period
N: Number of Hopping Frequencies	

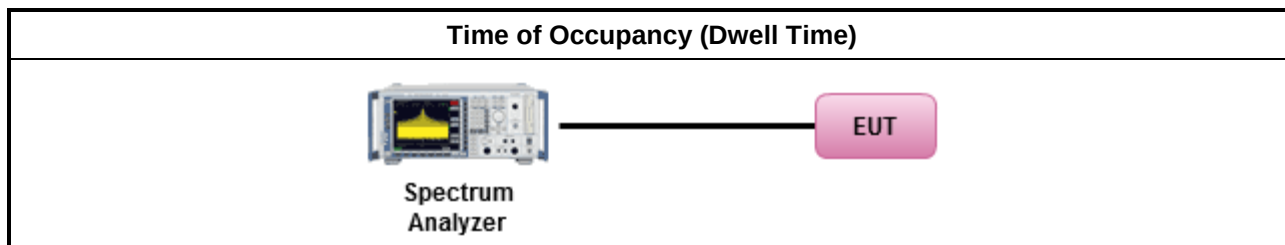
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

Test Method	
Refer as ANSI C63.10-2013, clause 7.8.4 for dwell time measurement.	
Bluetooth ACL packets can be 1, 3, or 5 time slots. Following as dwell time. Operate DH5 at maximum dwell time and maximum duty cycle.	
	The DH5 packet can cover up to 5 time slots. Operate DH5 at maximum dwell time and maximum duty cycle. A maximum length packet has duration of 5 time slots. The hopping rate is 1600 hops/second so the maximum dwell time is $5/1600$ seconds, or 3.125ms. DH5 Packet permit maximum $1600 / 79 / 6 = 3.37$ hops per second in each channel.

3.5.4 Test Setup



3.5.5 Test Result of Time of Occupancy (Dwell Time)

Refer as Appendix E

3.6 Emissions in Non-restricted Frequency Bands

3.6.1 Emissions in Non-restricted Frequency Bands Limit

Un-restricted Band Emissions Limit	
RF output power procedure	Limit (dB)
Peak output power procedure	20
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.	

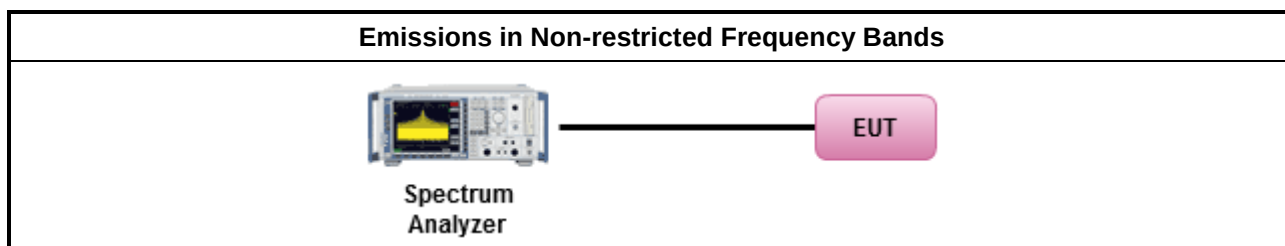
3.6.2 Measuring Instruments

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

3.6.3 Test Procedures

Test Method
Refer as ANSI C63.10-2013, clause 7.8.8 for unwanted emissions into non-restricted bands.

3.6.4 Test Setup



3.6.5 Test Result of Emissions in Non-restricted Frequency Bands

Refer as Appendix F

3.7 Emissions in Restricted Frequency Bands

3.7.1 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.

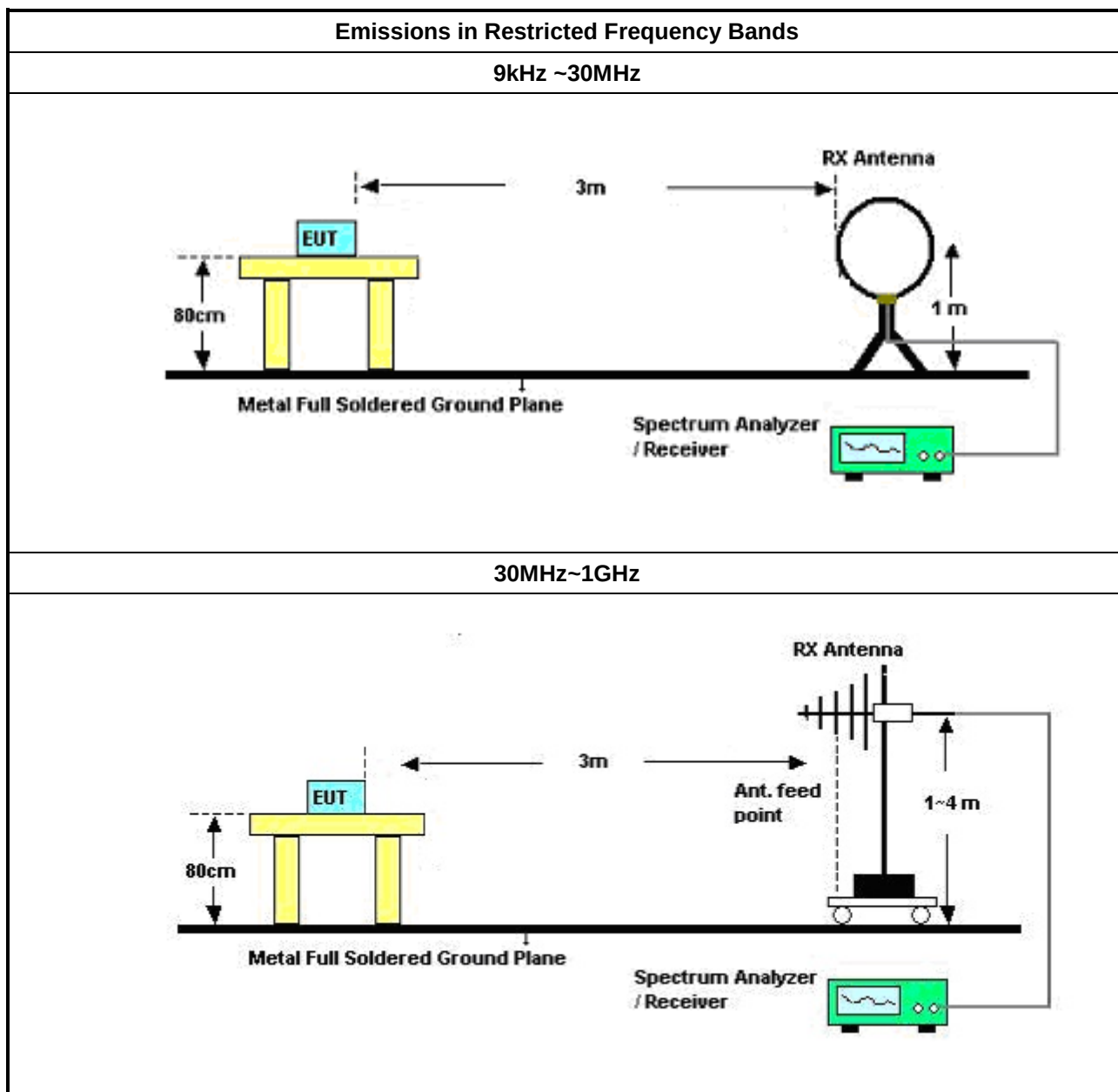
3.7.2 Measuring Instruments

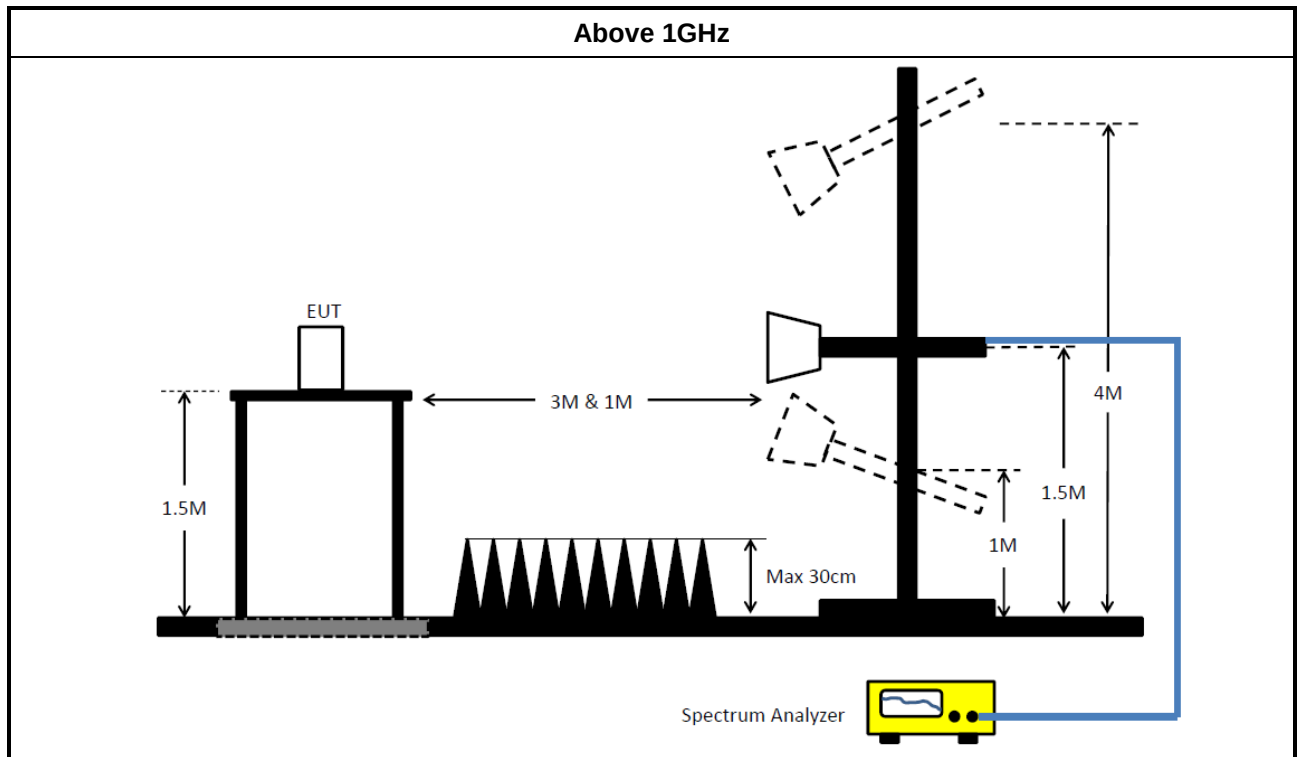
Refer a test equipment and calibration data table in this test report.

3.7.3 Test Procedures

Test Method	
▪ The average emission levels shall be measured in [hopping duty factor].	
▪ Refer as ANSI C63.10; clause 6.9.2.2 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.	
▪ For the transmitter unwanted emissions shall be measured using following options below:	
	▪ Refer as ANSI C63.10, clause 4.1.4.2.1 QP value.
	▪ Refer as ANSI C63.10, clause 4.1.4.2.2 measurement procedure peak.
	▪ Refer as ANSI C63.10, clause 4.1.4.2.4 average value of hopping pulsed emissions.

3.7.4 Test Setup





3.7.5 Test Result of Emissions in Restricted Frequency Bands (Below 30MHz)

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

3.7.6 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix G

4 Test Equipment and Calibration Data

Instrument for AC Conduction

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
EMC Receiver	R&S	ESR	102051	9KHz ~ 3.6GHz	03/May/2018	02/May/2019
LISN	R&S	ENV216	101295	9kHz ~ 30MHz	08/Nov/2018	07/Nov/2019
RF Cable-CON	MTJ	RG142	CB002-CO	9kHz ~ 200MHz	17/Sep/2018	16/Sep/2019
AC POWER	APC	AFC-11005G	F310050055	47Hz~63Hz 5~300V	NCR	NCR
Impuls Begrenzer Puls e Limiter	SCHWARZBECK	VTSD 9561-F	9561-F041	9 kHz ~ 30 MHz	12/Oct/2018	11/Oct/2019

NCR : Non-Calibration Require

Instrument for Conducted Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Signal Analyzer	R&S	FSV40	101500	10Hz ~ 40GHz	18/Jul/2018	17/Jul/2019
Signal Generator	R&S	SMB100A	175727	100kHz~40GHz	26/Oct/2018	25/Oct/2019
Power Sensor	Anritsu	MA2411B	0917017	300MHz ~ 40GHz	05/Feb/2018	04/Feb/2019
Power Meter	Anritsu	ML2495A	0949003	300MHz ~ 40GHz	05/Feb/2018	04/Feb/2019
Cable 0.2m	HUBER	MY10710/4	RF Cable - 01	30MHz~18G	11/Jan/2019	10/Jan/2020
Cable 0.2m	HUBER	MY10711/4	RF Cable - 02	30MHz~18G	11/Jan/2019	10/Jan/2020
Cable 0.5m	HUBER	MY10714/4	RF Cable – 05	30MHz~1G	11/Jan/2019	10/Jan/2020

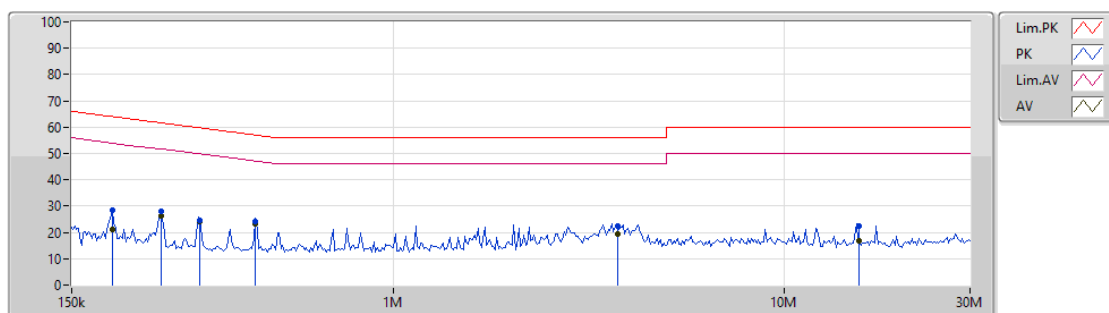
Instrument for Radiated Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	30MHz ~ 1GHz	23/Apr/2018	22/Apr/2019
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	1GHz ~ 18GHz	14/Jun/2018	13/Jun/2019
Microwave Preamplifier	Agilent	8449B	3008A02096	1GHz ~ 26.5GHz	10/May/2018	09/May/2019
Amplifier	EMC	EMC9135	980232	9KHz~1GHz	27/Apr/2018	26/Apr/2019
EMI Test Receiver	R&S	ESR3	102052	9kHz ~ 3.6GHz	10/Apr/2018	09/Apr/2019
EXA Signal Analyzer	KEYSIGHT	N9010A	MY54200885	10Hz ~ 44GHz	31/Jul/2018	30/Jul/2019
Bilog Antenna & 5dB Attenuator	TESEQ & MTJ	CBL6111D & MTJ6102-05	35418 / 3	30MHz~1GHz	02/Oct/2018	03/Oct/2019
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	BBHA9120 D 1534	1GHz~18GHz	30/Apr/2018	29/Apr/2019
Loop Antenna	TESEQ	HLA 6120	31244	9k-30MHz	29/Mar/2018	28/Mar/2019
RF Cable-R03m	Jye Bao	RG142	CB031	9kHz ~ 1GHz	1/Feb/2019	31/Jan/2020
RF Cable-high	HUBER+SUHNER	SUCOFLEX104	SN 556626/4 + 556627	1GHz ~ 40GHz	14/Mar/2018	13/Mar/2019

AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Neutral
Operating Function	PoE Mode		

01/02/2019

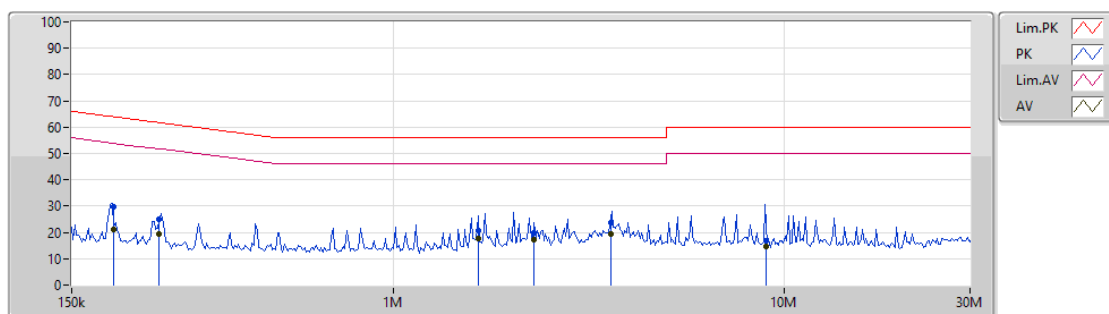


Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	190.417k	28.62	64.01	-35.39	19.47	Neutral	-	9.15	9.59	0.01	9.87			
AV	190.634k	21.21	54.01	-32.80	19.47	Neutral	-	1.74	9.59	0.01	9.87			
QP	254.532k	27.91	61.60	-33.69	19.47	Neutral	-	8.44	9.59	0.01	9.87			
AV	254.532k	26.50	51.60	-25.10	19.47	Neutral	-	7.03	9.59	0.01	9.87			
QP	318.902k	24.70	59.73	-35.03	19.48	Neutral	-	5.22	9.59	0.01	9.88			
AV	318.902k	24.10	49.73	-25.63	19.48	Neutral	-	4.62	9.59	0.01	9.88			
QP	443.949k	24.12	56.99	-32.87	19.48	Neutral	-	4.64	9.59	0.01	9.88			
AV	443.949k	23.49	46.99	-23.50	19.48	Neutral	"Worst"	4.01	9.59	0.01	9.88			
QP	3.752M	22.48	56.00	-33.52	19.54	Neutral	-	2.94	9.61	0.04	9.89			
AV	3.752M	19.22	46.00	-26.78	19.54	Neutral	-	-0.32	9.61	0.04	9.89			
QP	15.575M	22.31	60.00	-37.69	19.67	Neutral	-	2.64	9.68	0.09	9.90			
AV	15.575M	16.82	50.00	-33.18	19.67	Neutral	-	-2.85	9.68	0.09	9.90			

AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Line
Operating Function	PoE Mode		

01/02/2019



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	191.93k	29.58	63.95	-34.37	19.48	Line	-	10.10	9.60	0.01	9.87			
AV	191.93k	20.95	53.95	-33.00	19.48	Line	-	1.47	9.60	0.01	9.87			
QP	251.493k	24.94	61.70	-36.76	19.48	Line	-	5.46	9.60	0.01	9.87			
AV	251.493k	19.54	51.70	-32.16	19.48	Line	-	0.06	9.60	0.01	9.87			
QP	1.651M	20.54	56.00	-35.46	19.54	Line	-	1.00	9.62	0.03	9.89			
AV	1.651M	17.51	46.00	-28.49	19.54	Line	-	-2.03	9.62	0.03	9.89			
QP	2.284M	19.69	56.00	-36.31	19.55	Line	-	0.14	9.62	0.04	9.89			
AV	2.284M	17.06	46.00	-28.94	19.55	Line	-	-2.49	9.62	0.04	9.89			
QP	3.618M	23.76	56.00	-32.24	19.56	Line	-	4.20	9.63	0.04	9.89			
AV	3.618M	19.35	46.00	-26.65	19.56	Line	"Worst"	-0.21	9.63	0.04	9.89			
QP	9.026M	16.62	60.00	-43.38	19.63	Line	-	-3.01	9.67	0.07	9.89			
AV	9.026M	14.84	50.00	-35.16	19.63	Line	-	-4.79	9.67	0.07	9.89			

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
BT-BR(1Mbps)	920k	875.812k	876KF1D	920k	869.565k
BT-EDR(2Mbps)	1.315M	1.197M	1M20G1D	1.309M	1.193M
BT-EDR(3Mbps)	1.276M	1.212M	1M21G1D	1.27M	1.197M

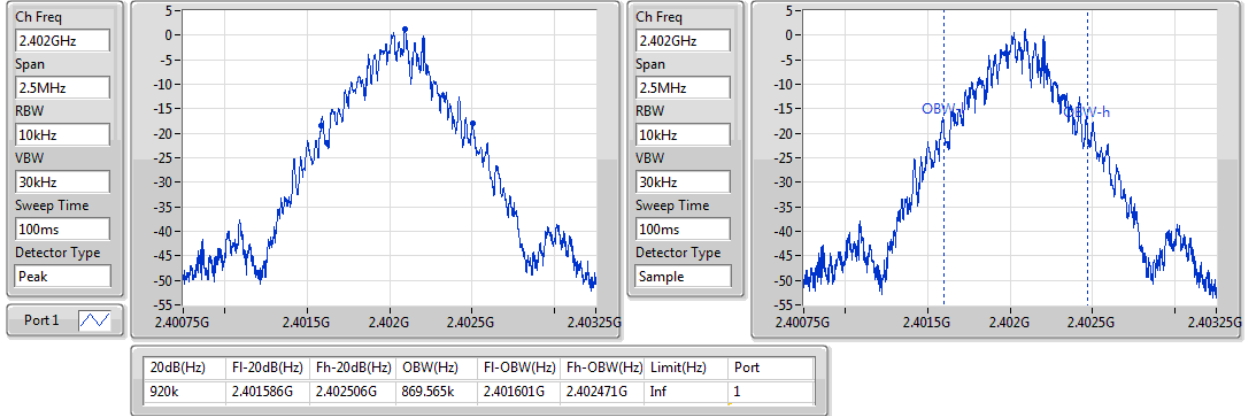
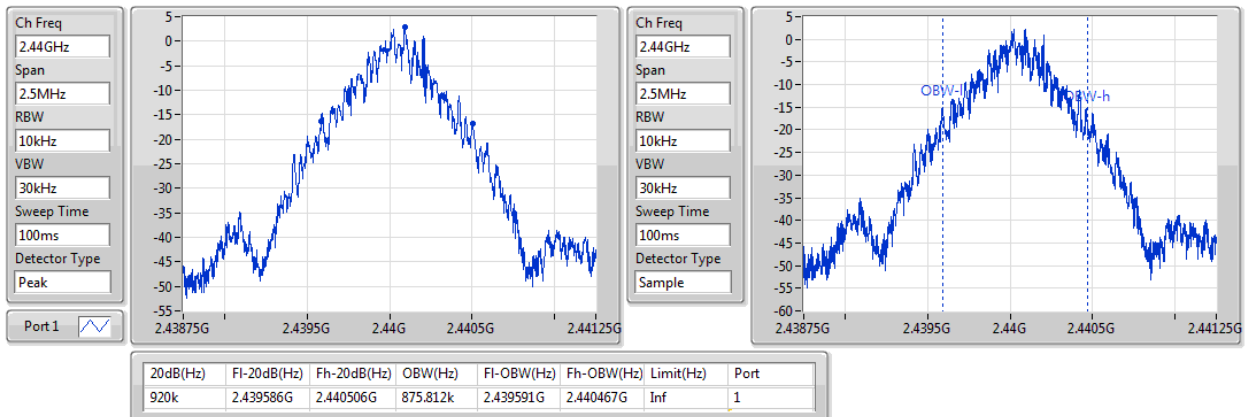
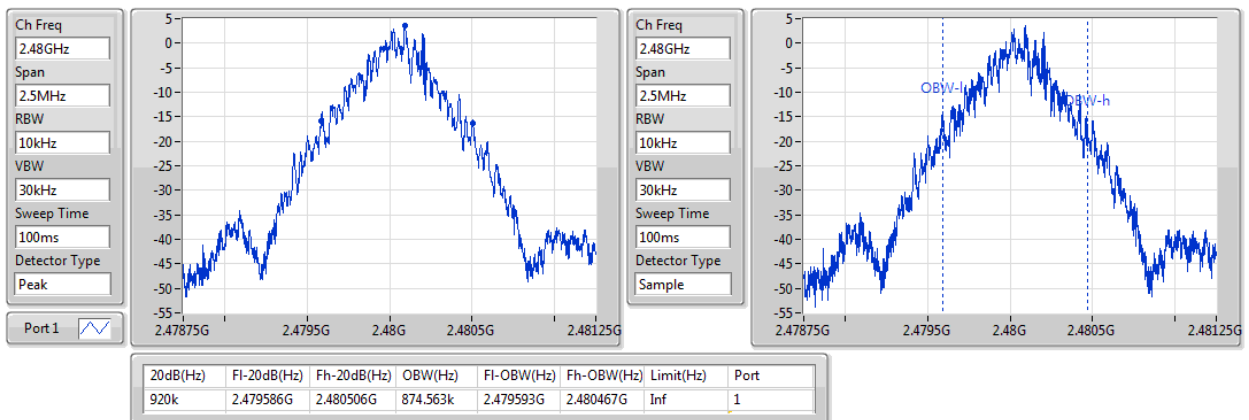
Max-N dB = Maximum 20dB down bandwidth; **Max-OBW** = Maximum 99% occupied bandwidth;

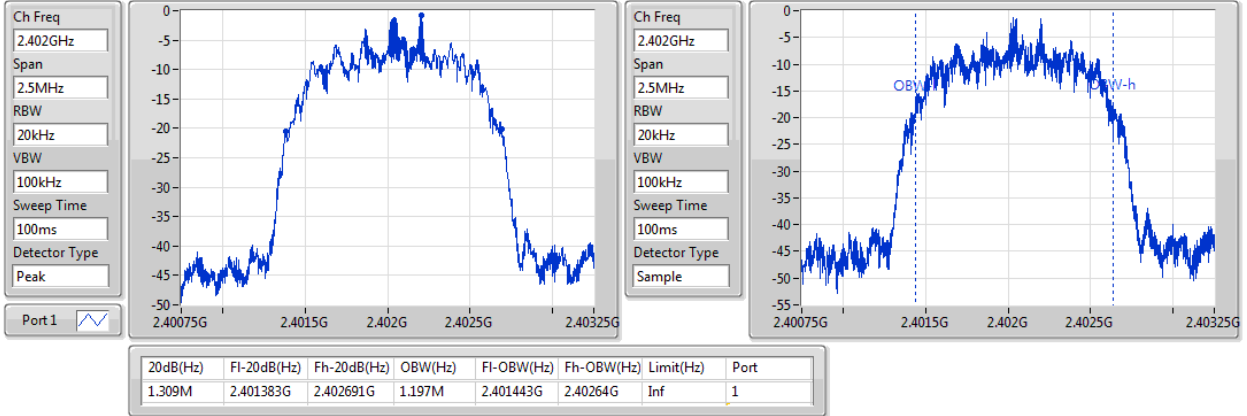
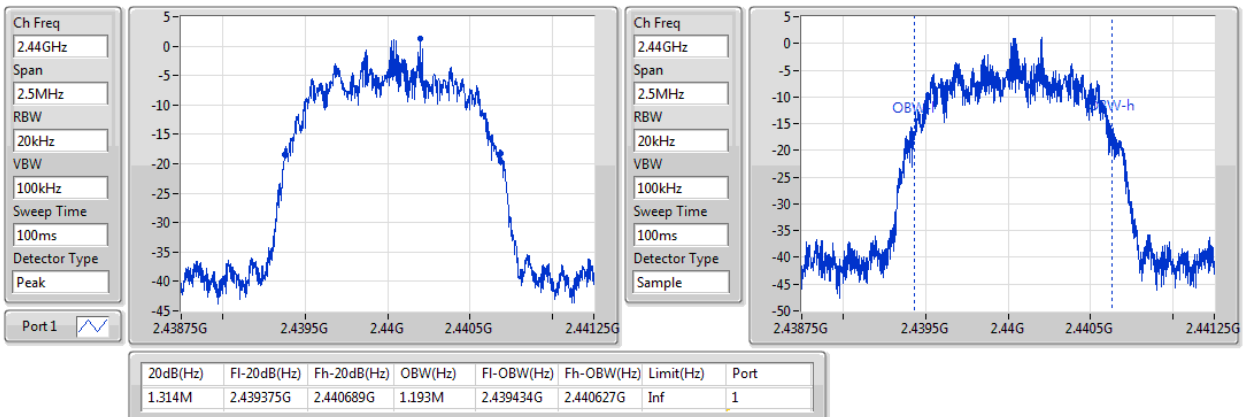
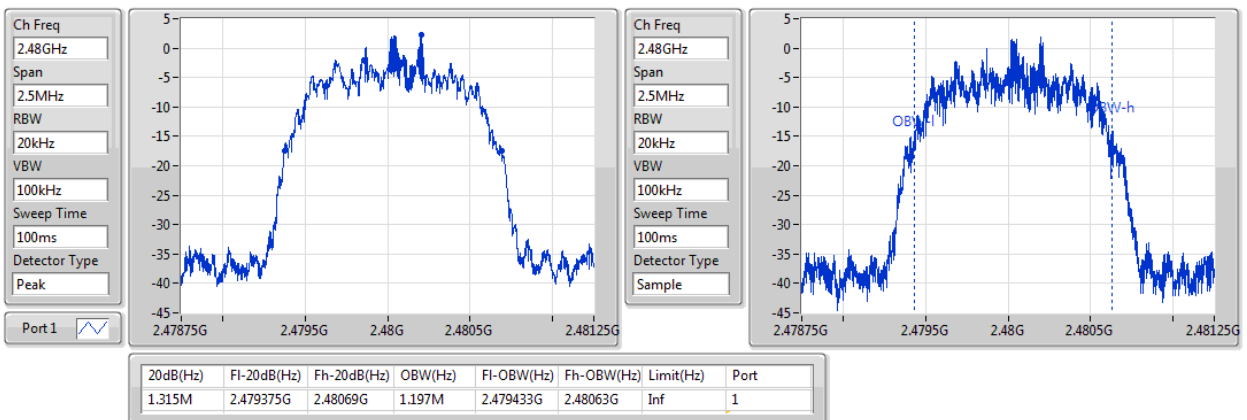
Min-N dB = Minimum 20dB down bandwidth; **Min-OBW** = Minimum 99% occupied bandwidth;

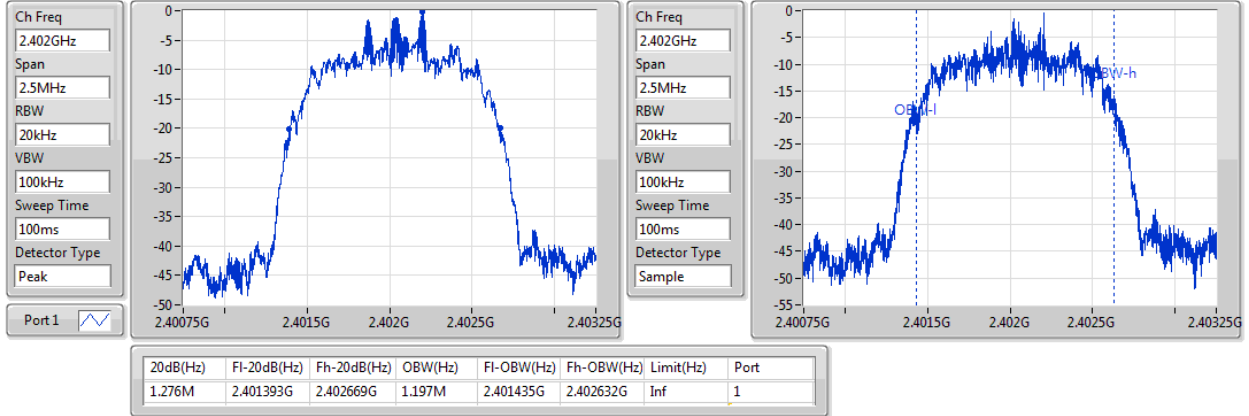
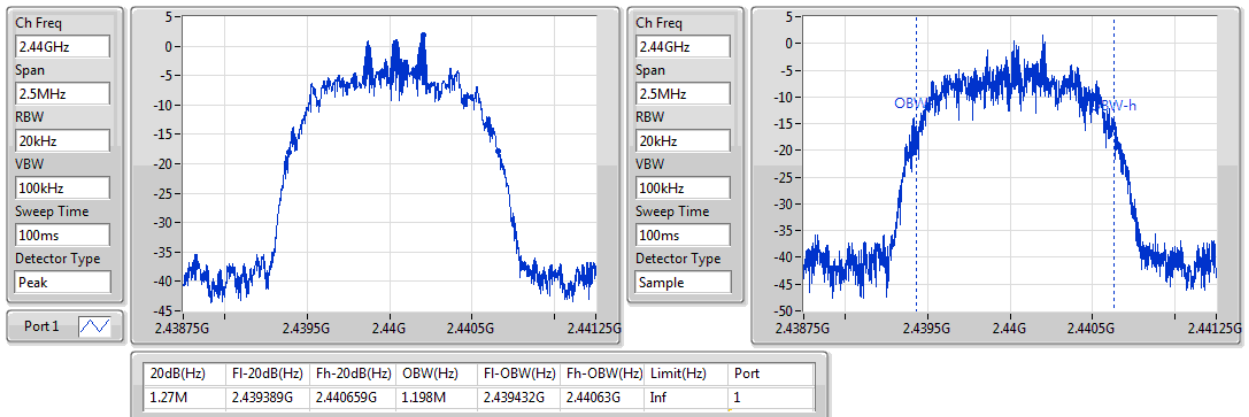
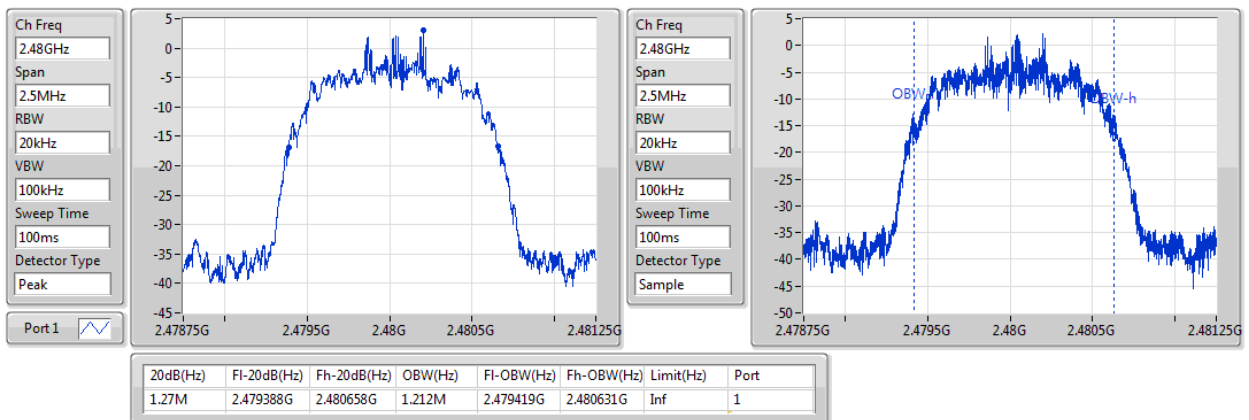
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-BR(1Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	Inf	920k	869.565k
2440MHz_TnomVnom	Pass	Inf	920k	875.812k
2480MHz_TnomVnom	Pass	Inf	920k	874.563k
BT-EDR(2Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	Inf	1.309M	1.197M
2440MHz_TnomVnom	Pass	Inf	1.314M	1.193M
2480MHz_TnomVnom	Pass	Inf	1.315M	1.197M
BT-EDR(3Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	Inf	1.276M	1.197M
2440MHz_TnomVnom	Pass	Inf	1.27M	1.198M
2480MHz_TnomVnom	Pass	Inf	1.27M	1.212M

Port X-N dB = Port X 20dB down bandwidth; **Port X-OBW** = Port X 99% occupied bandwidth;

BT-BR(1Mbps)
EBW
2402MHz

BT-BR(1Mbps)
EBW
2440MHz

BT-BR(1Mbps)
EBW
2480MHz


BT-EDR(2Mbps)
EBW
2402MHz

BT-EDR(2Mbps)
EBW
2440MHz

BT-EDR(2Mbps)
EBW
2480MHz


BT-EDR(3Mbps)
EBW
2402MHz

BT-EDR(3Mbps)
EBW
2440MHz

BT-EDR(3Mbps)
EBW
2480MHz


Summary

Mode	Max-Space (Hz)	Min-Space (Hz)
2.4-2.4835GHz	-	-
BT-BR(1Mbps)	1.002M	999k
BT-EDR(2Mbps)	1.002M	997.5k
BT-EDR(3Mbps)	1.0035M	1.0005M

Result

Mode	Result	Fl (Hz)	Fh (Hz)	Ch.Space (Hz)	Limit (Hz)
BT-BR(1Mbps)	-	-	-	-	-
2402MHz	Pass	2.402202G	2.403204G	1.002M	612.72k
2440MHz	Pass	2.440202G	2.441201G	999k	612.72k
2480MHz	Pass	2.479205G	2.480202G	997.5k	612.72k
BT-EDR(2Mbps)	-	-	-	-	-
2402MHz	Pass	2.40204G	2.403037G	997.5k	871.794k
2440MHz	Pass	2.440038G	2.44104G	1.002M	875.124k
2480MHz	Pass	2.479038G	2.480037G	999k	875.79k
BT-EDR(3Mbps)	-	-	-	-	-
2402MHz	Pass	2.402199G	2.403199G	1.0005M	848.484k
2440MHz	Pass	2.440197G	2.441201G	1.0035M	845.82k
2480MHz	Pass	2.479199G	2.480199G	1.0005M	845.82k

BT-BR(1Mbps)

2.402G/2.403GHz

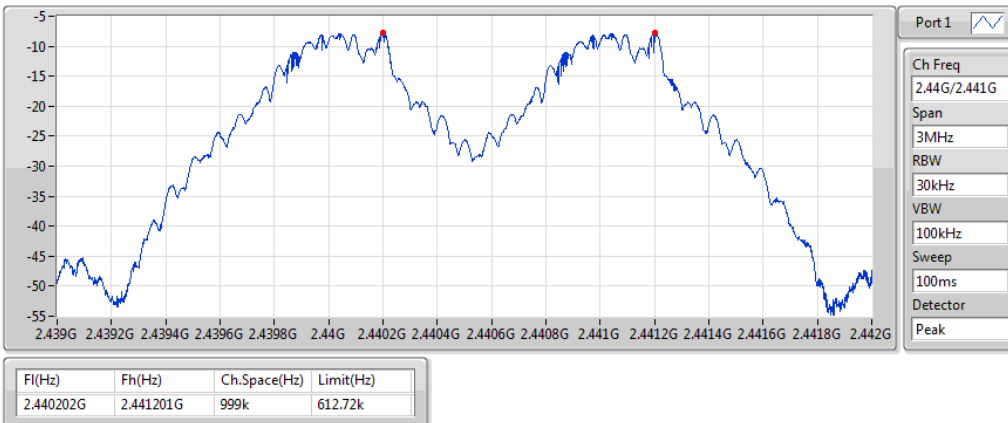
Channel Separation



BT-BR(1Mbps)

2.44G/2.441GHz

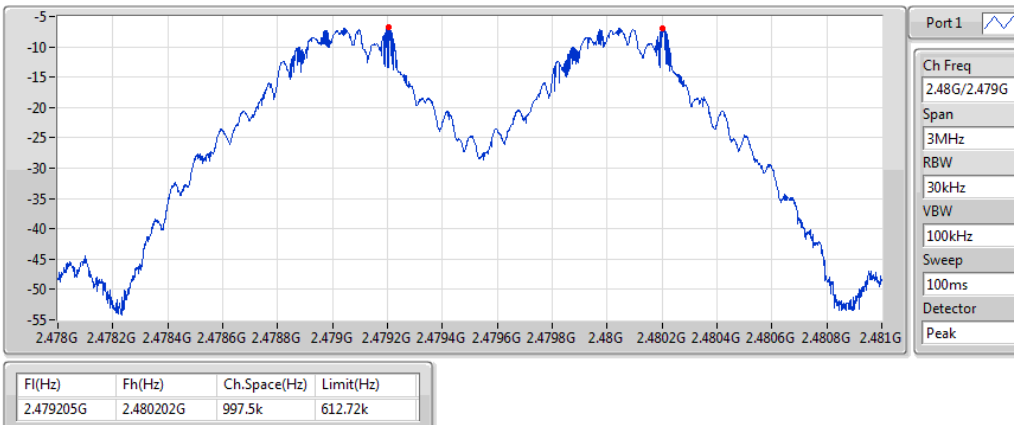
Channel Separation



BT-BR(1Mbps)

2.48G/2.479GHz

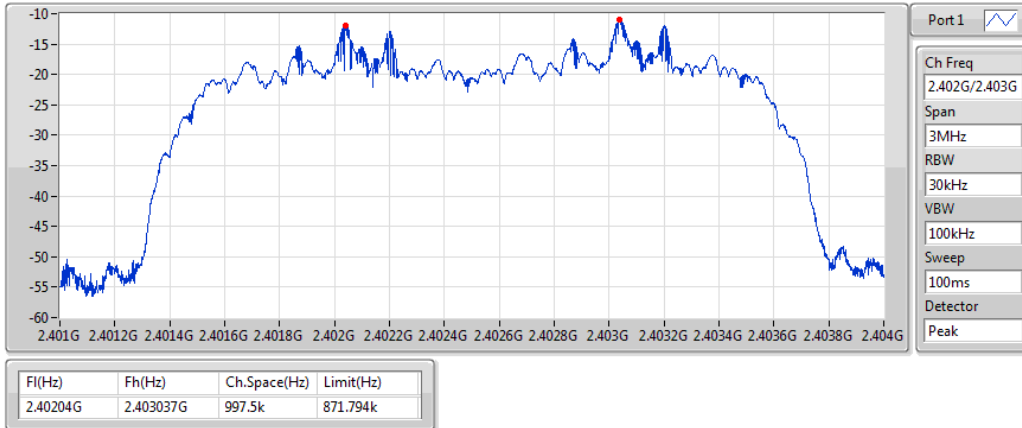
Channel Separation



BT-EDR(2Mbps)

Channel Separation

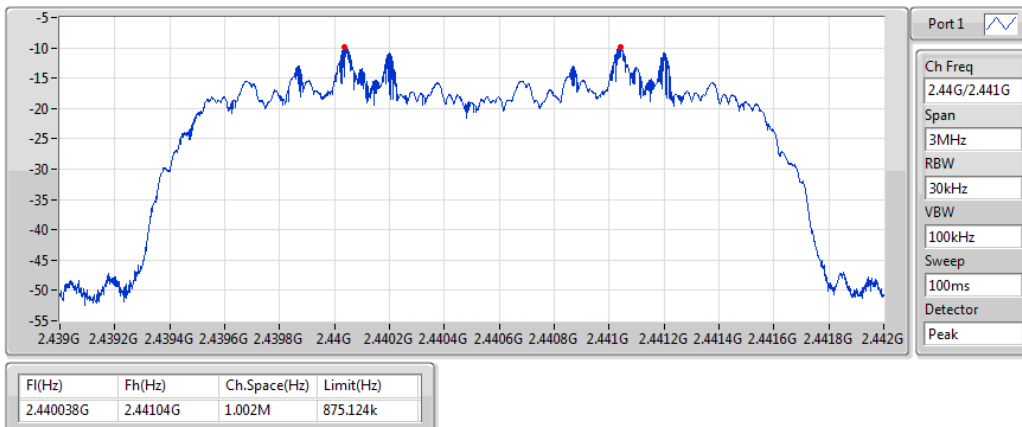
2.402G/2.403GHz



BT-EDR(2Mbps)

Channel Separation

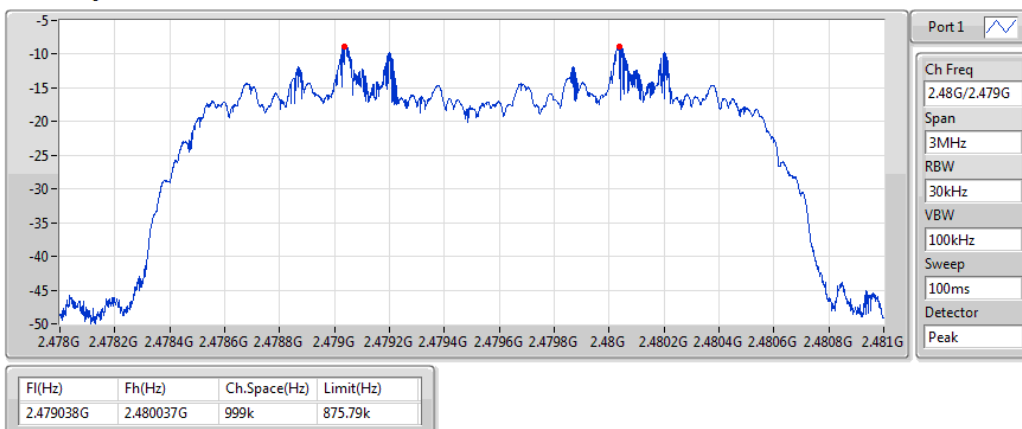
2.44G/2.441GHz



BT-EDR(2Mbps)

Channel Separation

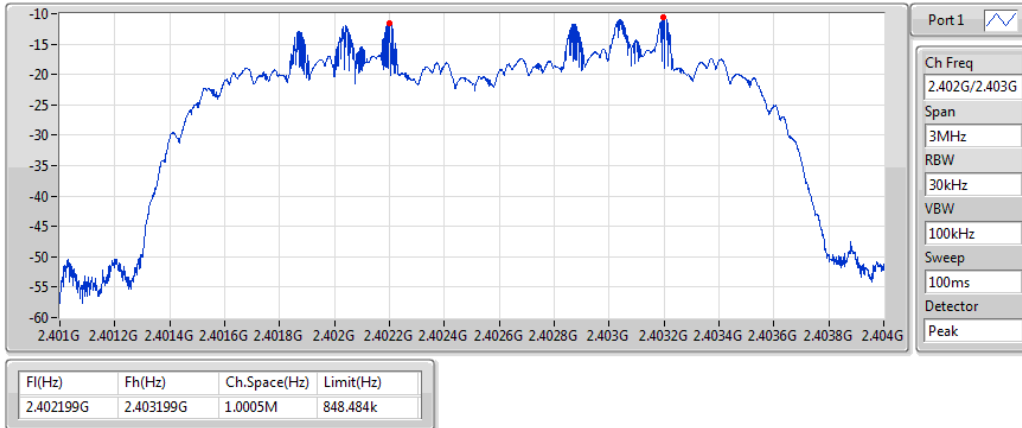
2.48G/2.479GHz



BT-EDR(3Mbps)

Channel Separation

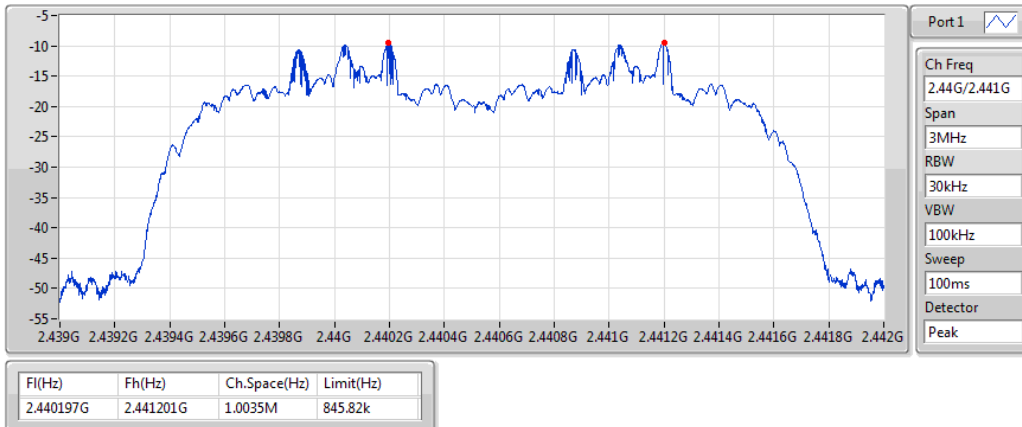
2.402G/2.403GHz



BT-EDR(3Mbps)

Channel Separation

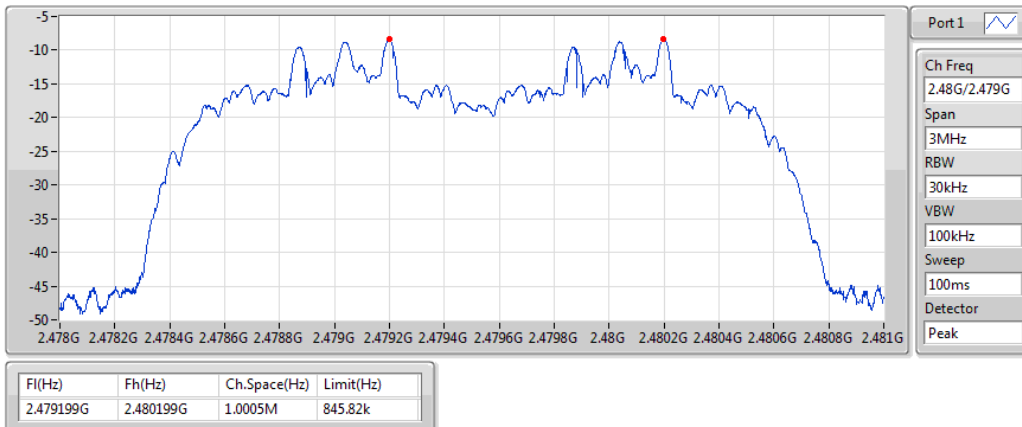
2.44G/2.441GHz



BT-EDR(3Mbps)

Channel Separation

2.48G/2.479GHz



Summary

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-BR(1Mbps)	8.95	0.00785
BT-EDR(2Mbps)	7.65	0.00582
BT-EDR(3Mbps)	7.98	0.00628

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-BR(1Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	8.60	6.63	18.40
2440MHz_TnomVnom	Pass	8.60	8.24	18.40
2480MHz_TnomVnom	Pass	8.60	8.95	18.40
BT-EDR(2Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	8.60	4.61	18.40
2440MHz_TnomVnom	Pass	8.60	6.63	18.40
2480MHz_TnomVnom	Pass	8.60	7.65	18.40
BT-EDR(3Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	8.60	5.10	18.40
2440MHz_TnomVnom	Pass	8.60	7.03	18.40
2480MHz_TnomVnom	Pass	8.60	7.98	18.40

Summary

Mode	Power	Power
	(dBm)	(W)
2.4-2.4835GHz	-	-
BT-BR(1Mbps)	8.28	0.00673
BT-EDR(2Mbps)	5.46	0.00352
BT-EDR(3Mbps)	5.48	0.00353

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-BR(1Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	8.60	6.28	18.40
2440MHz_TnomVnom	Pass	8.60	7.89	18.40
2480MHz_TnomVnom	Pass	8.60	8.28	18.40
BT-EDR(2Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	8.60	2.16	18.40
2440MHz_TnomVnom	Pass	8.60	4.30	18.40
2480MHz_TnomVnom	Pass	8.60	5.46	18.40
BT-EDR(3Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	8.60	2.04	18.40
2440MHz_TnomVnom	Pass	8.60	4.25	18.40
2480MHz_TnomVnom	Pass	8.60	5.48	18.40

Summary

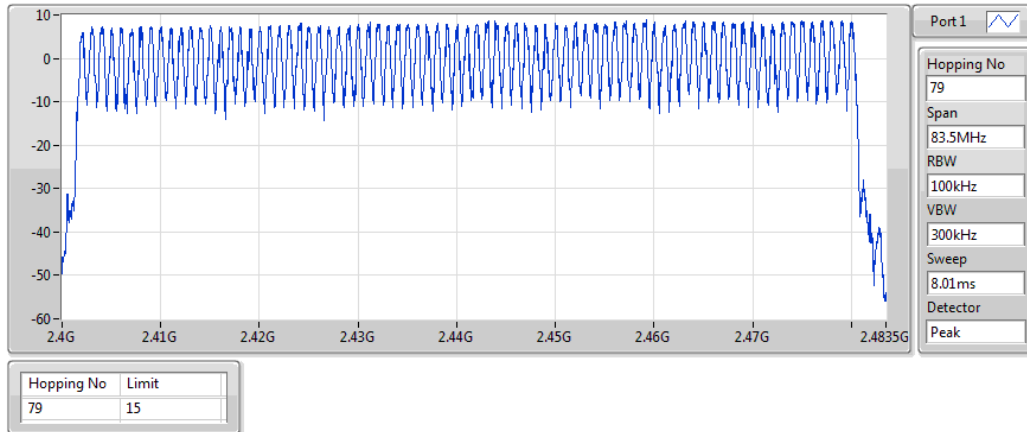
Mode	Max-Hop No
2.4-2.4835GHz	-
BT-BR(1Mbps)	79
BT-EDR(2Mbps)	79
BT-EDR(3Mbps)	79

Result

Mode	Result	Hopping No	Limit
BT-BR(1Mbps)	-	-	-
2440MHz_TnomVnom	Pass	79	15
BT-EDR(2Mbps)	-	-	-
2440MHz_TnomVnom	Pass	79	15
BT-EDR(3Mbps)	-	-	-
2440MHz_TnomVnom	Pass	79	15

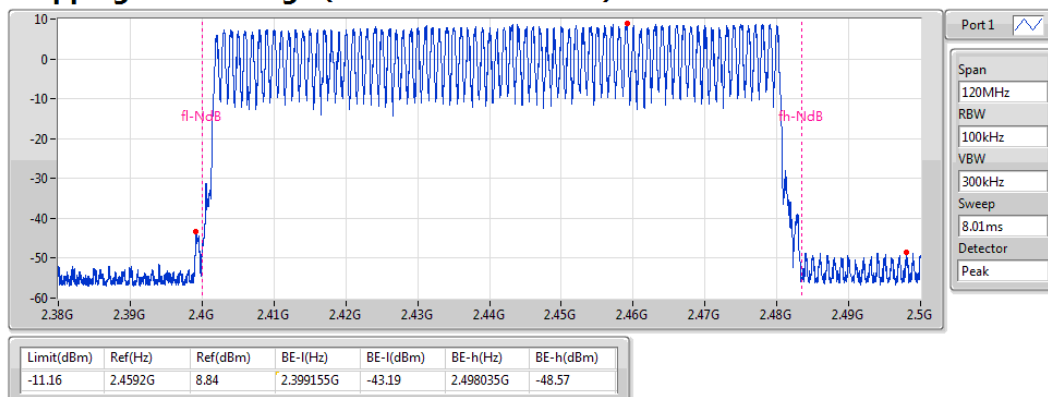
BT-BR(1Mbps) 2440MHz

Hopping Ch



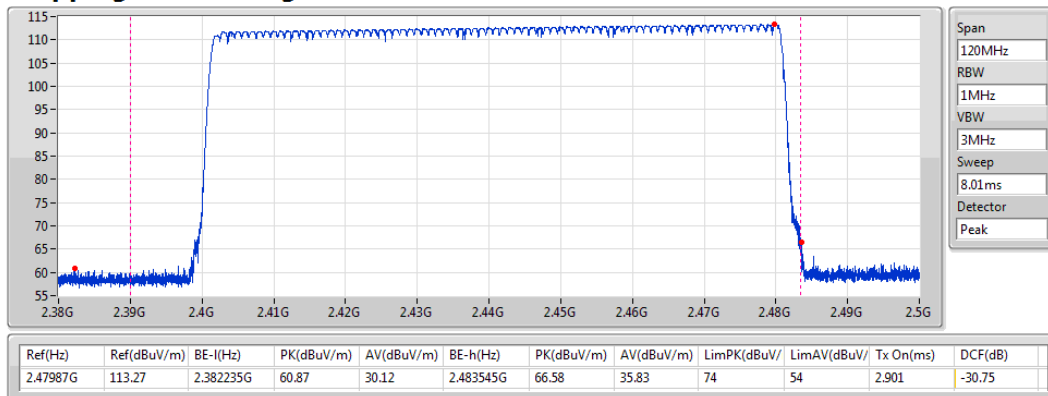
BT-BR(1Mbps) 2440MHz

Hopping Ch Bandedge (Non-restricted Band)



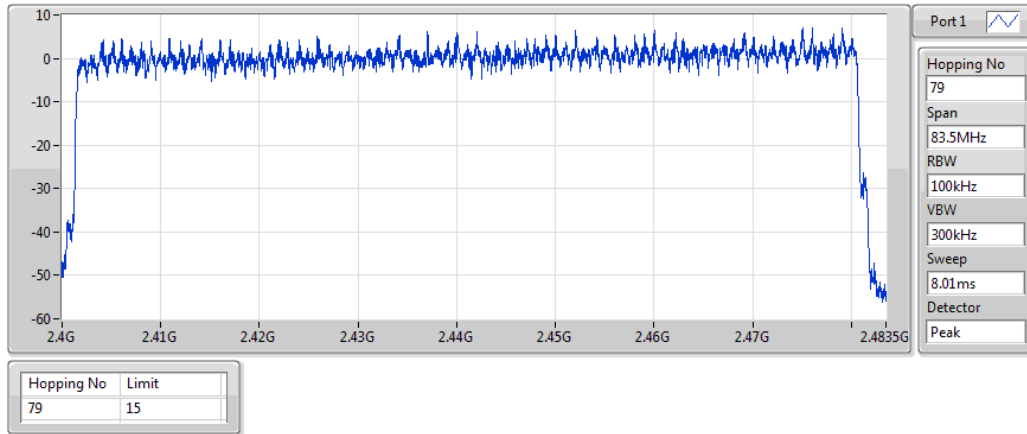
BT-BR(1Mbps) 2440MHz

Hopping Ch Bandedge (Restricted Band)



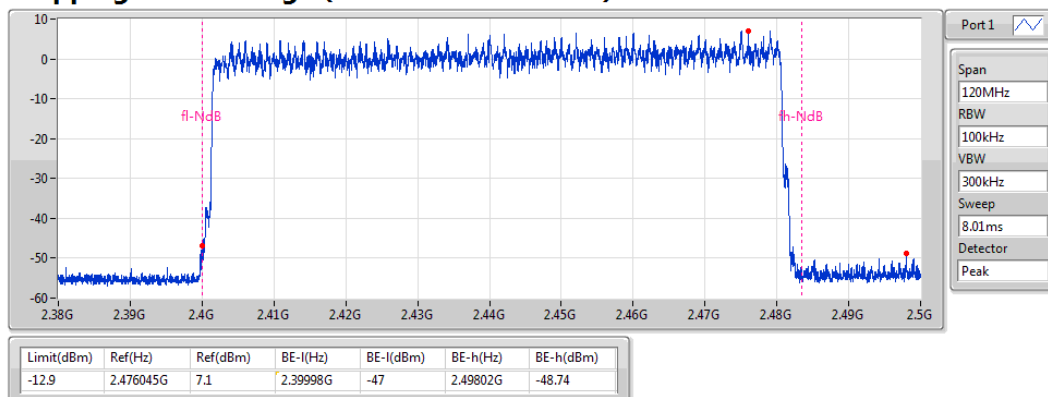
BT-EDR(2Mbps) 2440MHz

Hopping Ch



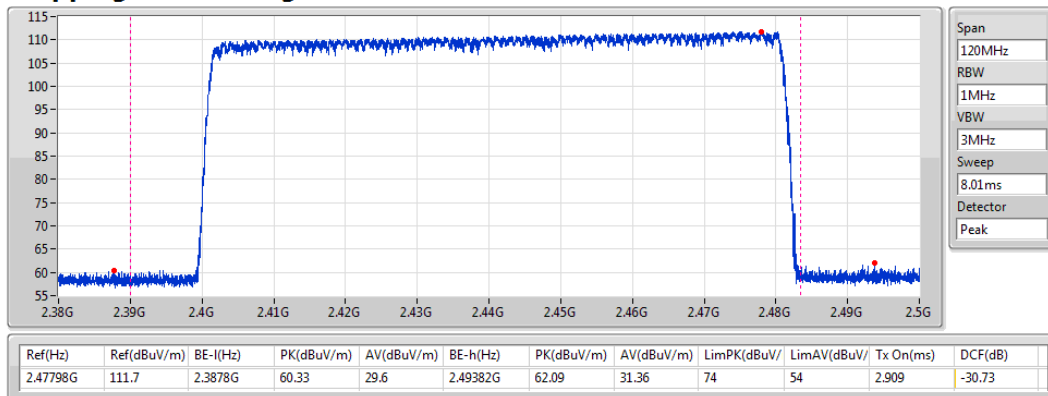
BT-EDR(2Mbps) 2440MHz

Hopping Ch Bandedge (Non-restricted Band)



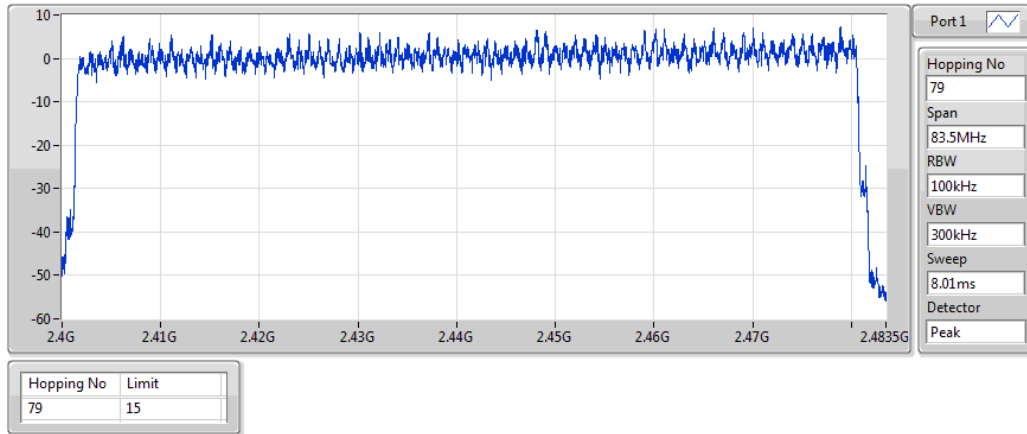
BT-EDR(2Mbps) 2440MHz

Hopping Ch Bandedge (Restricted Band)



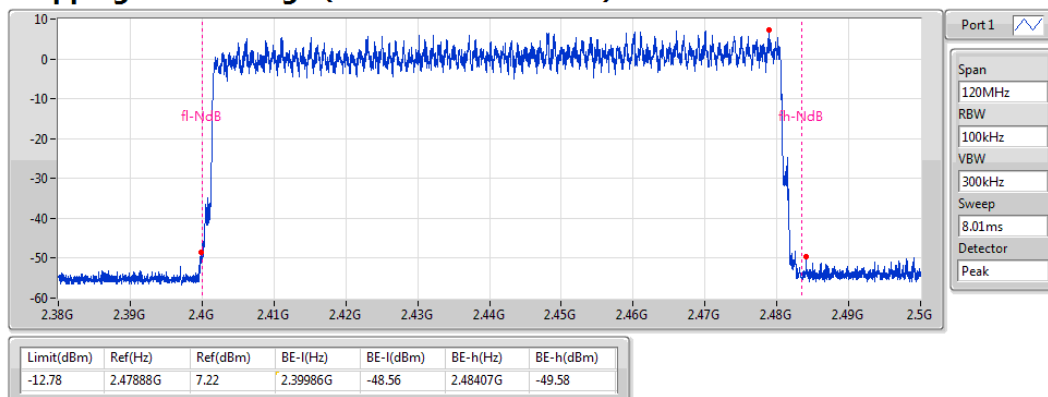
BT-EDR(3Mbps) 2440MHz

Hopping Ch



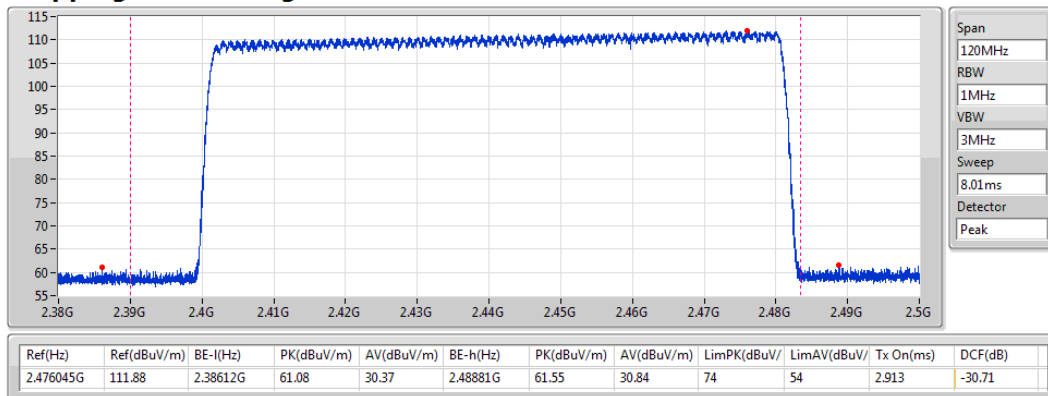
BT-EDR(3Mbps) 2440MHz

Hopping Ch Bandedge (Non-restricted Band)



BT-EDR(3Mbps) 2440MHz

Hopping Ch Bandedge (Restricted Band)



Summary

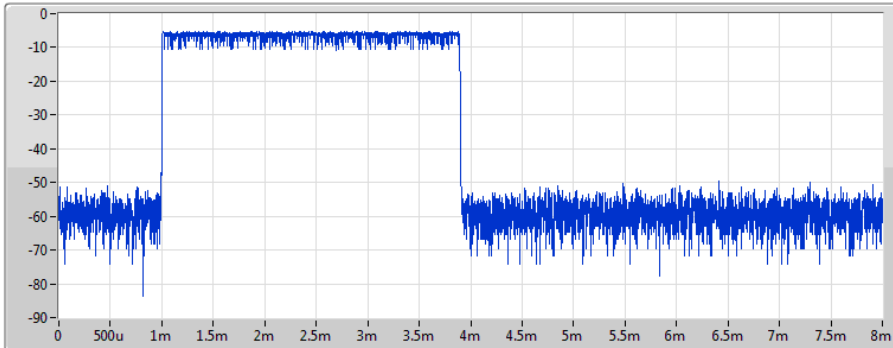
Mode	Max-Dwell (s)
2.4-2.4835GHz	-
BT-BR(1Mbps)	309.2466m
BT-EDR(2Mbps)	310.0994m
BT-EDR(3Mbps)	310.5258m

Result

Mode	Result	Period (s)	Dwell (s)	Limit (s)	Tx On (s)
BT-BR(1Mbps)	-	-	-	-	-
2440MHz_TnomVnom	Pass	31.6	309.2466m	400m	2.901m
BT-EDR(2Mbps)	-	-	-	-	-
2440MHz_TnomVnom	Pass	31.6	310.0994m	400m	2.909m
BT-EDR(3Mbps)	-	-	-	-	-
2440MHz_TnomVnom	Pass	31.6	310.5258m	400m	2.913m

BT-BR(1Mbps)

2440MHz



Dwell

Port 1 

Ch Freq
2.44GHz

RBW
300kHz

VBW
1MHz

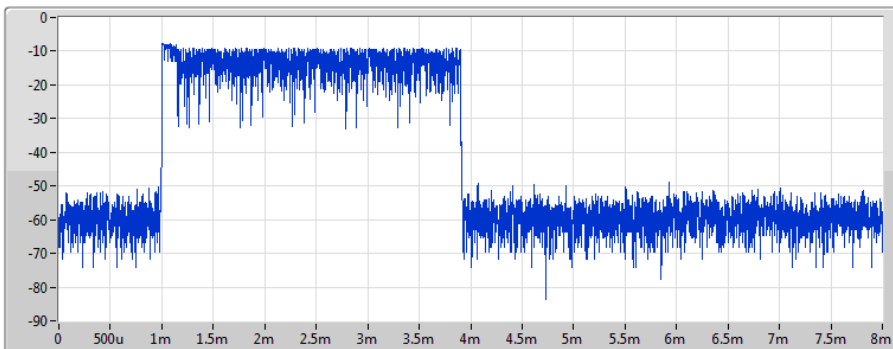
Sweep Time
8ms

TX Time
2.901ms

Period(s)	Dwell(s)	Limit(s)	Tx On(s)
31.6	309.2466m	400m	2.901m

BT-EDR(2Mbps)

2440MHz



Dwell

Port 1 

Ch Freq
2.44GHz

RBW
300kHz

VBW
1MHz

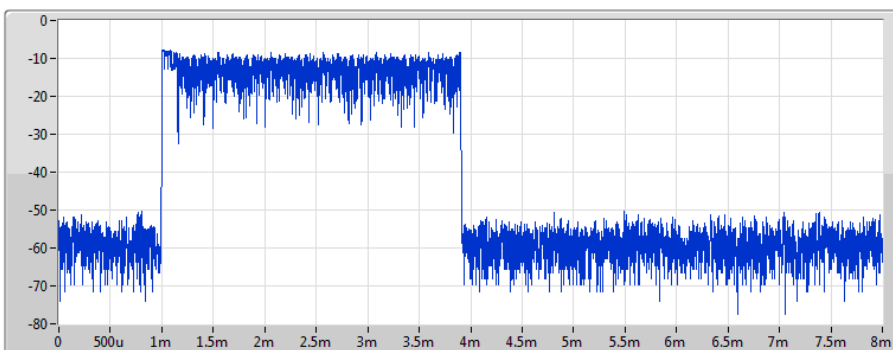
Sweep Time
8ms

TX Time
2.909ms

Period(s)	Dwell(s)	Limit(s)	Tx On(s)
31.6	310.0994m	400m	2.909m

BT-EDR(3Mbps)

2440MHz



Dwell

Port 1 

Ch Freq
2.44GHz

RBW
300kHz

VBW
1MHz

Sweep Time
8ms

TX Time
2.913ms

Period(s)	Dwell(s)	Limit(s)	Tx On(s)
31.6	310.5258m	400m	2.913m

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-BR(1Mbps)	Pass	2.401837G	4.13	-15.87	147.216M	-41.52	2.399996G	-42.01	2.483836G	-59.38	2.5052G	-51.29	1
BT-EDR(2Mbps)	Pass	2.402004G	0.64	-19.36	147.216M	-41.56	2.399968G	-49.04	2.484752G	-59.41	15.099249G	-53.94	1
BT-EDR(3Mbps)	Pass	2.44008G	1.41	-18.59	147.216M	-41.68	2.398116G	-59.56	2.48492G	-59.41	24.442766G	-54.29	1

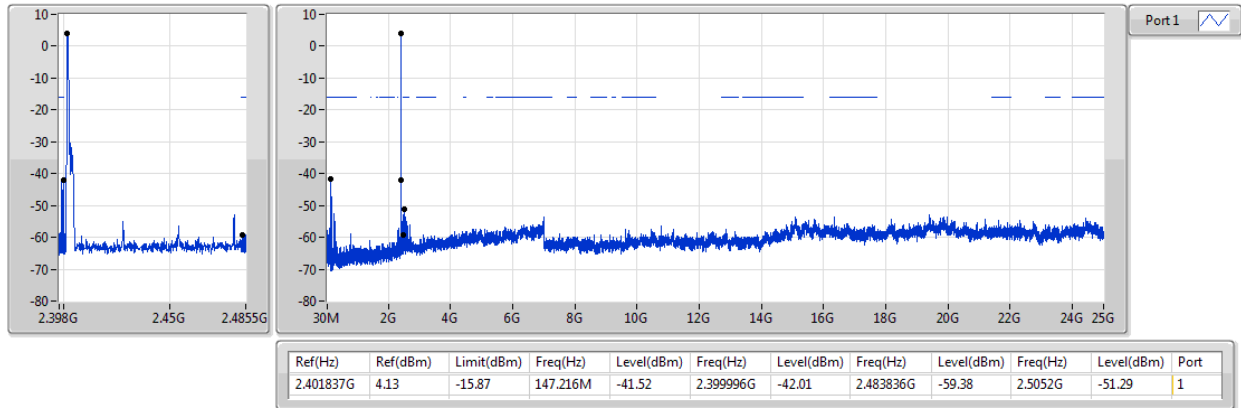
Result

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-BR(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.401837G	4.13	-15.87	147.216M	-41.52	2.399996G	-42.01	2.483836G	-59.38	2.5052G	-51.29	1
2440MHz	Pass	2.439913G	5.78	-14.22	147.216M	-41.62	2.399756G	-59.12	2.48448G	-59.16	2.595258G	-49.43	1
2480MHz	Pass	2.48016G	6.16	-13.84	147.216M	-41.41	2.399524G	-60.78	2.484052G	-55.51	2.634659G	-51.67	1
BT-EDR(2Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.402004G	0.64	-19.36	147.216M	-41.56	2.399968G	-49.04	2.484752G	-59.41	15.099249G	-53.94	1
2440MHz	Pass	2.439913G	1.66	-18.34	147.216M	-41.64	2.39976G	-60.05	2.483576G	-58.63	15.07392G	-53.57	1
2480MHz	Pass	2.48016G	3.76	-16.24	147.216M	-41.56	2.398112G	-59.60	2.484016G	-57.59	24.65384G	-53.82	1
BT-EDR(3Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.402171G	1.90	-18.10	147.216M	-41.50	2.399972G	-48.85	2.484452G	-60.04	15.107692G	-54.48	1
2440MHz	Pass	2.44008G	1.41	-18.59	147.216M	-41.68	2.398116G	-59.56	2.48492G	-59.41	24.442766G	-54.29	1
2480MHz	Pass	2.479993G	1.91	-18.09	147.216M	-41.68	2.399704G	-59.23	2.4838G	-57.86	2.634659G	-52.48	1

BT-BR(1Mbps)

CSE NdB

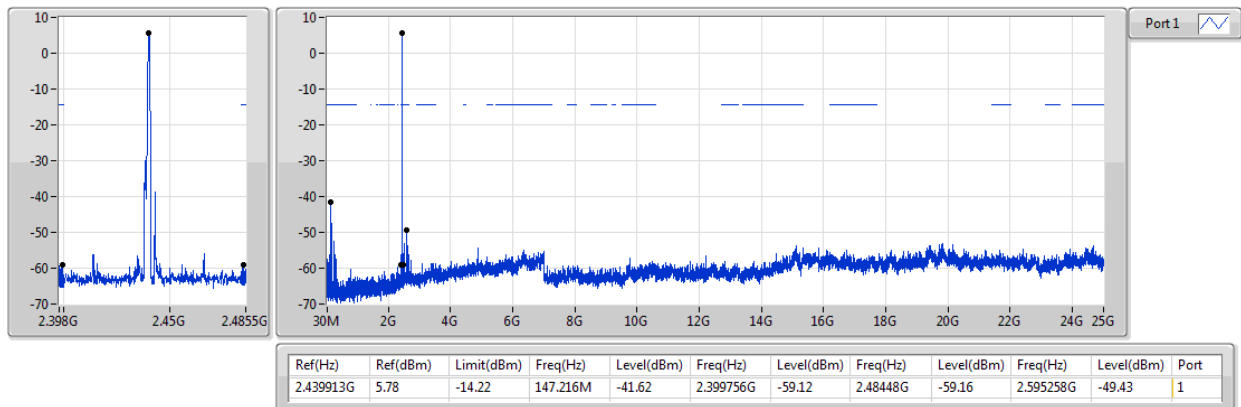
2402MHz



BT-BR(1Mbps)

CSE NdB

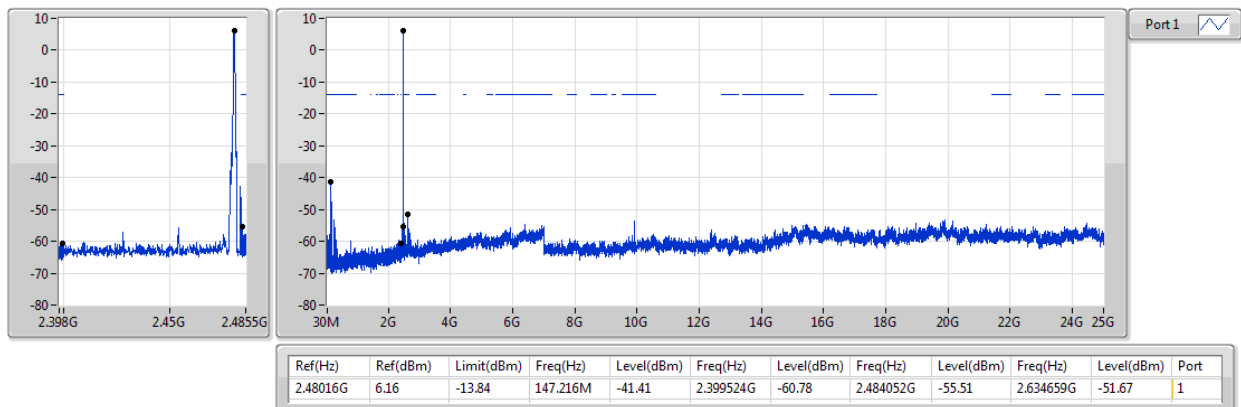
2440MHz



BT-BR(1Mbps)

CSE NdB

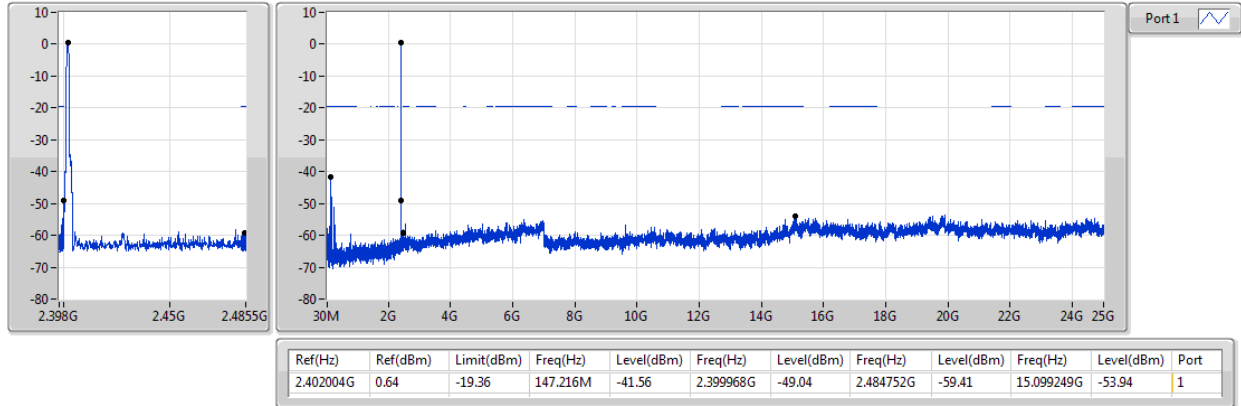
2480MHz



BT-EDR(2Mbps)

CSE NdB

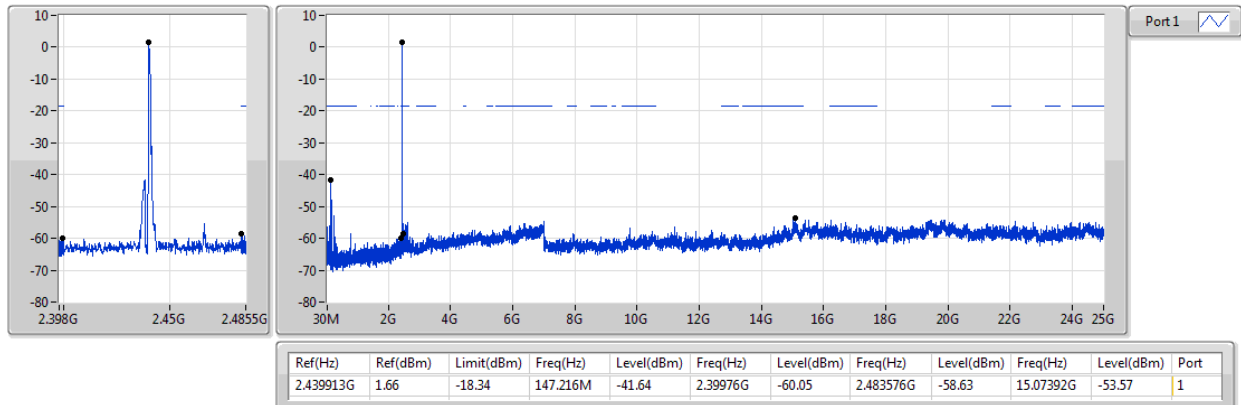
2402MHz



BT-EDR(2Mbps)

CSE NdB

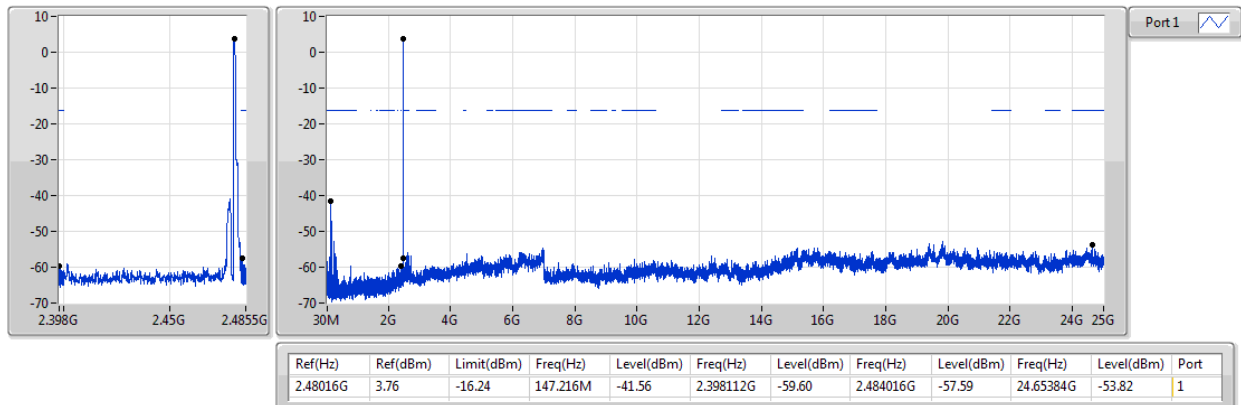
2440MHz



BT-EDR(2Mbps)

CSE NdB

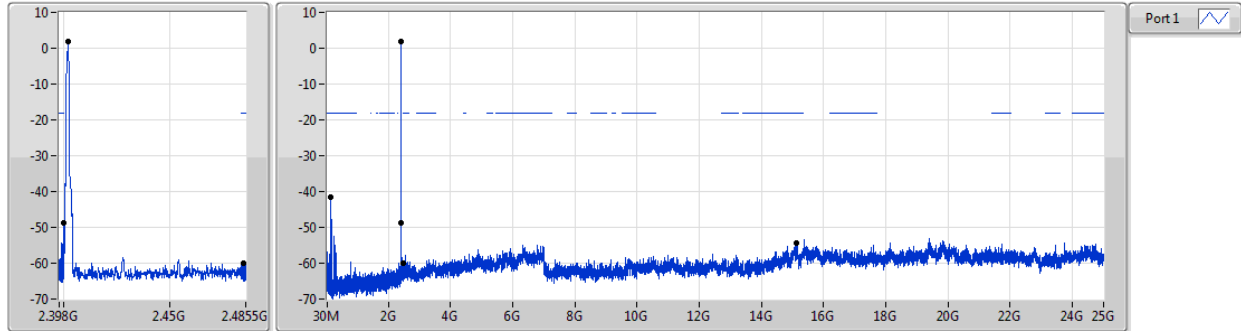
2480MHz



BT-EDR(3Mbps)

CSE NdB

2402MHz

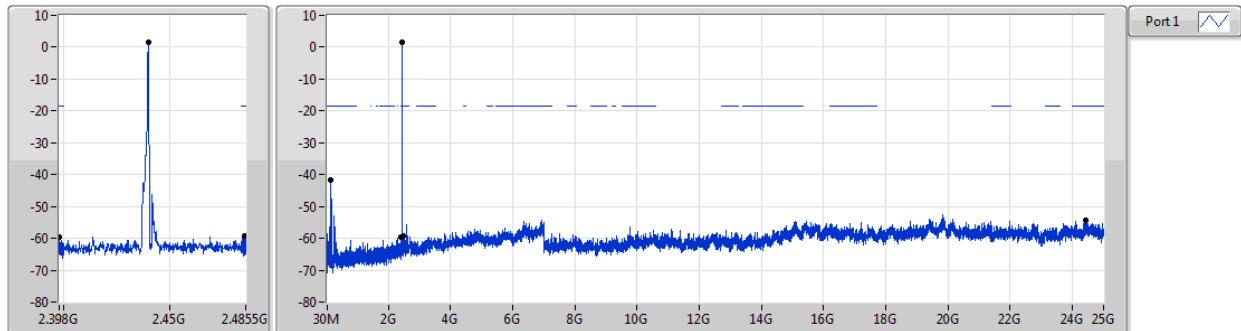


Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.402171G	1.90	-18.10	147.216M	-41.50	2.399972G	-48.85	2.484452G	-60.04	15.107692G	-54.48	1

BT-EDR(3Mbps)

CSE NdB

2440MHz

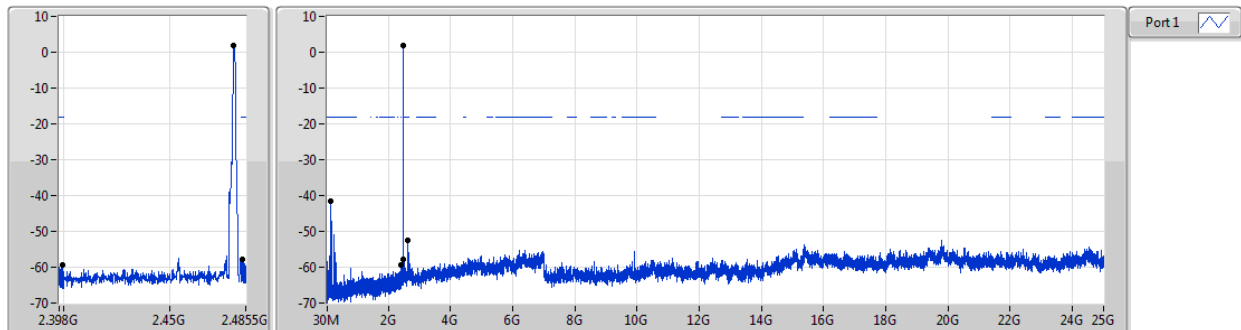


Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44008G	1.41	-18.59	147.216M	-41.68	2.398116G	-59.56	2.48492G	-59.41	24.442766G	-54.29	1

BT-EDR(3Mbps)

CSE NdB

2480MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.479993G	1.91	-18.09	147.216M	-41.68	2.399704G	-59.23	2.4838G	-57.86	2.634659G	-52.48	1

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-BR(1Mbps)	Pass	PK	718.7M	40.65	46.00	-5.35	0.20	3	Horizontal	0	1.00	-

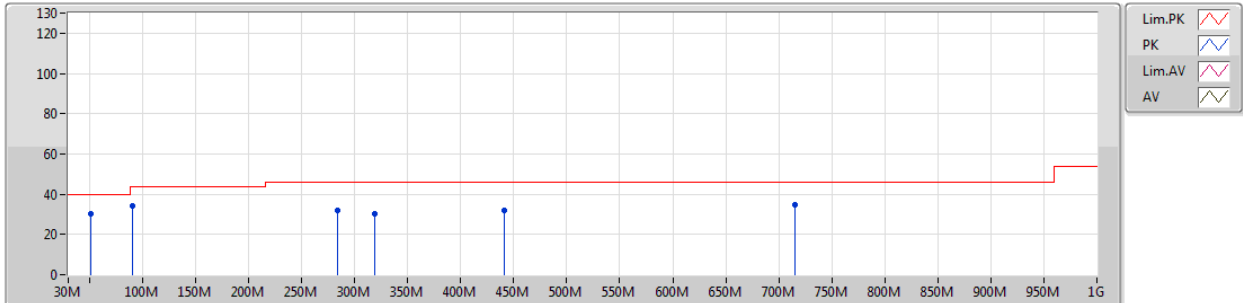
Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
BT-BR(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-
2441MHz	Pass	PK	51.34M	30.42	40.00	-9.58	-14.27	3	Vertical	360	1.00	-
2441MHz	Pass	PK	90.14M	33.94	43.50	-9.56	-12.55	3	Vertical	360	1.00	-
2441MHz	Pass	PK	284.14M	32.15	46.00	-13.85	-6.22	3	Vertical	360	1.00	-
2441MHz	Pass	PK	319.06M	30.00	46.00	-16.00	-5.51	3	Vertical	360	1.00	-
2441MHz	Pass	PK	441.28M	31.68	46.00	-14.32	-3.02	3	Vertical	360	1.00	-
2441MHz	Pass	PK	714.82M	34.89	46.00	-11.11	0.11	3	Vertical	360	1.00	-
2441MHz	Pass	PK	37.76M	25.31	40.00	-14.69	-8.64	3	Horizontal	0	1.00	-
2441MHz	Pass	PK	90.14M	29.33	43.50	-14.17	-12.55	3	Horizontal	0	1.00	-
2441MHz	Pass	PK	286.08M	39.60	46.00	-6.40	-6.17	3	Horizontal	0	1.00	-
2441MHz	Pass	PK	319.06M	34.56	46.00	-11.44	-5.51	3	Horizontal	0	1.00	-
2441MHz	Pass	PK	441.28M	33.84	46.00	-12.16	-3.02	3	Horizontal	0	1.00	-
2441MHz	Pass	PK	718.7M	40.65	46.00	-5.35	0.20	3	Horizontal	0	1.00	-

BT-BR(1Mbps)

2441MHz_PoE

01/02/2019

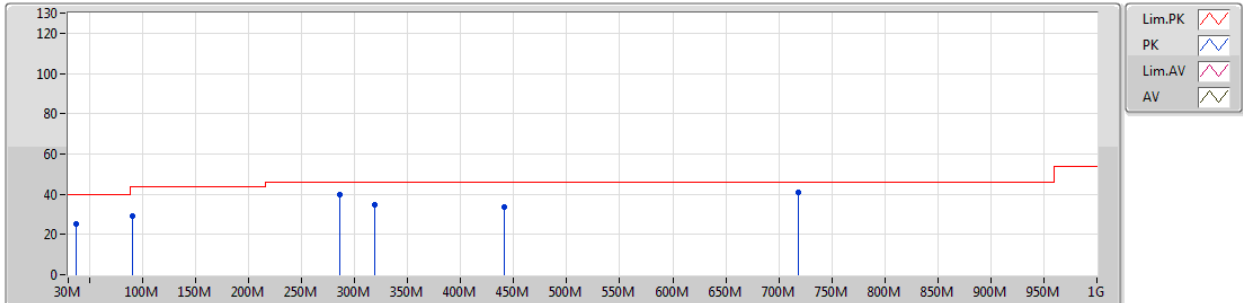


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	51.34M	30.42	40.00	-9.58	-14.27	3	Vertical	360	1.00	-
PK	90.14M	33.94	43.50	-9.56	-12.55	3	Vertical	360	1.00	-
PK	284.14M	32.15	46.00	-13.85	-6.22	3	Vertical	360	1.00	-
PK	319.06M	30.00	46.00	-16.00	-5.51	3	Vertical	360	1.00	-
PK	441.28M	31.68	46.00	-14.32	-3.02	3	Vertical	360	1.00	-
PK	714.82M	34.89	46.00	-11.11	0.11	3	Vertical	360	1.00	-

BT-BR(1Mbps)

2441MHz_PoE

01/02/2019



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	37.76M	25.31	40.00	-14.69	-8.64	3	Horizontal	0	1.00	-
PK	90.14M	29.33	43.50	-14.17	-12.55	3	Horizontal	0	1.00	-
PK	286.08M	39.60	46.00	-6.40	-6.17	3	Horizontal	0	1.00	-
PK	319.06M	34.56	46.00	-11.44	-5.51	3	Horizontal	0	1.00	-
PK	441.28M	33.84	46.00	-12.16	-3.02	3	Horizontal	0	1.00	-
PK	718.7M	40.65	46.00	-5.35	0.20	3	Horizontal	0	1.00	-

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-BR(1Mbps)	Pass	AV	2.493G	48.56	54.00	-5.44	30.72	3	Vertical	357	1.97	-
BT-EDR(2Mbps)	Pass	AV	2.493G	47.59	54.00	-6.41	30.72	3	Vertical	357	1.96	-
BT-EDR(3Mbps)	Pass	AV	2.493G	47.71	54.00	-6.29	30.72	3	Vertical	359	1.71	-

Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
BT-BR(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	AV	2.3532G	46.13	54.00	-7.87	30.26	3	Vertical	359	2.05	-
2402MHz	Pass	AV	2.402G	101.34	Inf	-Inf	30.41	3	Vertical	359	2.05	-
2402MHz	Pass	PK	2.3812G	57.30	74.00	-16.70	30.34	3	Vertical	359	2.05	-
2402MHz	Pass	PK	2.4022G	101.47	Inf	-Inf	30.42	3	Vertical	359	2.05	-
2402MHz	Pass	AV	2.3758G	46.41	54.00	-7.59	30.33	3	Horizontal	353	2.18	-
2402MHz	Pass	AV	2.402G	101.22	Inf	-Inf	30.41	3	Horizontal	353	2.18	-
2402MHz	Pass	PK	2.3658G	57.67	74.00	-16.33	30.30	3	Horizontal	353	2.18	-
2402MHz	Pass	PK	2.4022G	101.38	Inf	-Inf	30.42	3	Horizontal	353	2.18	-
2402MHz	Pass	AV	4.80403G	43.62	54.00	-10.38	5.86	3	Vertical	0	1.83	-
2402MHz	Pass	PK	4.80416G	49.72	74.00	-24.28	5.86	3	Vertical	0	1.83	-
2402MHz	Pass	AV	4.80408G	41.70	54.00	-12.30	5.86	3	Horizontal	17	1.33	-
2402MHz	Pass	PK	4.80426G	48.60	74.00	-25.40	5.86	3	Horizontal	17	1.33	-
2441MHz	Pass	AV	2.3626G	46.37	54.00	-7.63	30.29	3	Vertical	357	1.97	-
2441MHz	Pass	AV	2.441G	103.58	Inf	-Inf	30.55	3	Vertical	357	1.97	-
2441MHz	Pass	AV	2.493G	48.56	54.00	-5.44	30.72	3	Vertical	357	1.97	-
2441MHz	Pass	PK	2.385G	58.37	74.00	-15.63	30.36	3	Vertical	357	1.97	-
2441MHz	Pass	PK	2.441G	103.71	Inf	-Inf	30.55	3	Vertical	357	1.97	-
2441MHz	Pass	PK	2.4946G	58.42	74.00	-15.58	30.73	3	Vertical	357	1.97	-
2441MHz	Pass	AV	2.363G	46.62	54.00	-7.38	30.29	3	Horizontal	356	2.64	-
2441MHz	Pass	AV	2.441G	104.08	Inf	-Inf	30.55	3	Horizontal	356	2.64	-
2441MHz	Pass	AV	2.493G	48.09	54.00	-5.91	30.72	3	Horizontal	356	2.64	-
2441MHz	Pass	PK	2.3802G	57.44	74.00	-16.56	30.34	3	Horizontal	356	2.64	-
2441MHz	Pass	PK	2.441G	104.21	Inf	-Inf	30.55	3	Horizontal	356	2.64	-
2441MHz	Pass	PK	2.4846G	58.51	74.00	-15.49	30.69	3	Horizontal	356	2.64	-
2441MHz	Pass	AV	4.88215G	45.19	54.00	-8.81	6.02	3	Vertical	0	1.86	-
2441MHz	Pass	PK	4.88208G	50.73	74.00	-23.27	6.01	3	Vertical	0	1.86	-
2441MHz	Pass	AV	4.88213G	42.25	54.00	-11.75	6.01	3	Horizontal	18	1.34	-
2441MHz	Pass	PK	4.88173G	48.92	74.00	-25.08	6.01	3	Horizontal	18	1.34	-
2480MHz	Pass	AV	2.48G	105.78	Inf	-Inf	30.68	3	Vertical	1	1.95	-
2480MHz	Pass	AV	2.4994G	47.10	54.00	-6.90	30.75	3	Vertical	1	1.95	-
2480MHz	Pass	PK	2.4798G	105.87	Inf	-Inf	30.68	3	Vertical	1	1.95	-
2480MHz	Pass	PK	2.4844G	58.02	74.00	-15.98	30.69	3	Vertical	1	1.95	-
2480MHz	Pass	AV	2.48G	105.07	Inf	-Inf	30.68	3	Horizontal	354	2.30	-
2480MHz	Pass	AV	2.4944G	47.34	54.00	-6.66	30.73	3	Horizontal	354	2.30	-
2480MHz	Pass	PK	2.4798G	105.17	Inf	-Inf	30.68	3	Horizontal	354	2.30	-
2480MHz	Pass	PK	2.489G	58.40	74.00	-15.60	30.71	3	Horizontal	354	2.30	-
2480MHz	Pass	AV	4.96009G	42.43	54.00	-11.57	6.17	3	Vertical	17	1.30	-
2480MHz	Pass	PK	4.95978G	49.98	74.00	-24.02	6.17	3	Vertical	17	1.30	-
2480MHz	Pass	AV	4.96004G	42.52	54.00	-11.48	6.17	3	Horizontal	344	1.41	-
2480MHz	Pass	PK	4.95983G	49.16	74.00	-24.84	6.17	3	Horizontal	344	1.41	-
BT-EDR(2Mbps)	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	AV	2.3772G	45.89	54.00	-8.11	30.34	3	Vertical	3	2.03	-
2402MHz	Pass	AV	2.402G	96.21	Inf	-Inf	30.41	3	Vertical	3	2.03	-
2402MHz	Pass	PK	2.3562G	57.46	74.00	-16.54	30.26	3	Vertical	3	2.03	-
2402MHz	Pass	PK	2.402G	99.30	Inf	-Inf	30.41	3	Vertical	3	2.03	-
2402MHz	Pass	AV	2.3874G	45.95	54.00	-8.05	30.37	3	Horizontal	352	2.18	-
2402MHz	Pass	AV	2.402G	96.20	Inf	-Inf	30.41	3	Horizontal	352	2.18	-

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2402MHz	Pass	PK	2.374G	57.70	74.00	-16.30	30.33	3	Horizontal	352	2.18	-
2402MHz	Pass	PK	2.402G	99.29	Inf	-Inf	30.41	3	Horizontal	352	2.18	-
2441MHz	Pass	AV	2.3898G	45.99	54.00	-8.01	30.38	3	Vertical	357	1.96	-
2441MHz	Pass	AV	2.441G	98.64	Inf	-Inf	30.55	3	Vertical	357	1.96	-
2441MHz	Pass	AV	2.493G	47.59	54.00	-6.41	30.72	3	Vertical	357	1.96	-
2441MHz	Pass	PK	2.3698G	57.34	74.00	-16.66	30.31	3	Vertical	357	1.96	-
2441MHz	Pass	PK	2.441G	101.68	Inf	-Inf	30.55	3	Vertical	357	1.96	-
2441MHz	Pass	PK	2.4858G	58.18	74.00	-15.82	30.71	3	Vertical	357	1.96	-
2441MHz	Pass	AV	2.389G	45.97	54.00	-8.03	30.37	3	Horizontal	357	2.65	-
2441MHz	Pass	AV	2.441G	99.06	Inf	-Inf	30.55	3	Horizontal	357	2.65	-
2441MHz	Pass	AV	2.4934G	47.33	54.00	-6.67	30.72	3	Horizontal	357	2.65	-
2441MHz	Pass	PK	2.3722G	57.48	74.00	-16.52	30.31	3	Horizontal	357	2.65	-
2441MHz	Pass	PK	2.441G	102.10	Inf	-Inf	30.55	3	Horizontal	357	2.65	-
2441MHz	Pass	PK	2.4986G	58.08	74.00	-15.92	30.75	3	Horizontal	357	2.65	-
2480MHz	Pass	AV	2.48G	100.73	Inf	-Inf	30.68	3	Vertical	0	1.97	-
2480MHz	Pass	AV	2.4994G	47.10	54.00	-6.90	30.75	3	Vertical	0	1.97	-
2480MHz	Pass	PK	2.4798G	103.72	Inf	-Inf	30.68	3	Vertical	0	1.97	-
2480MHz	Pass	PK	2.4848G	58.85	74.00	-15.15	30.69	3	Vertical	0	1.97	-
2480MHz	Pass	AV	2.48G	99.88	Inf	-Inf	30.68	3	Horizontal	352	2.27	-
2480MHz	Pass	AV	2.4992G	47.10	54.00	-6.90	30.75	3	Horizontal	352	2.27	-
2480MHz	Pass	PK	2.48G	102.89	Inf	-Inf	30.68	3	Horizontal	352	2.27	-
2480MHz	Pass	PK	2.4938G	58.63	74.00	-15.37	30.73	3	Horizontal	352	2.27	-
BT-EDR(3Mbps)	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	AV	2.3878G	46.33	54.00	-7.67	30.37	3	Vertical	2	1.71	-
2402MHz	Pass	AV	2.402G	95.54	Inf	-Inf	30.41	3	Vertical	2	1.71	-
2402MHz	Pass	PK	2.3678G	58.30	74.00	-15.70	30.30	3	Vertical	2	1.71	-
2402MHz	Pass	PK	2.402G	98.88	Inf	-Inf	30.41	3	Vertical	2	1.71	-
2402MHz	Pass	AV	2.3788G	46.26	54.00	-7.74	30.34	3	Horizontal	356	2.05	-
2402MHz	Pass	AV	2.402G	95.50	Inf	-Inf	30.41	3	Horizontal	356	2.05	-
2402MHz	Pass	PK	2.357G	58.17	74.00	-15.83	30.27	3	Horizontal	356	2.05	-
2402MHz	Pass	PK	2.402G	98.79	Inf	-Inf	30.41	3	Horizontal	356	2.05	-
2441MHz	Pass	AV	2.3882G	46.33	54.00	-7.67	30.37	3	Vertical	359	1.71	-
2441MHz	Pass	AV	2.441G	98.75	Inf	-Inf	30.55	3	Vertical	359	1.71	-
2441MHz	Pass	AV	2.493G	47.71	54.00	-6.29	30.72	3	Vertical	359	1.71	-
2441MHz	Pass	PK	2.3766G	57.66	74.00	-16.34	30.33	3	Vertical	359	1.71	-
2441MHz	Pass	PK	2.441G	102.02	Inf	-Inf	30.55	3	Vertical	359	1.71	-
2441MHz	Pass	PK	2.4878G	58.70	74.00	-15.30	30.71	3	Vertical	359	1.71	-
2441MHz	Pass	AV	2.363G	46.48	54.00	-7.52	30.29	3	Horizontal	350	1.81	-
2441MHz	Pass	AV	2.441G	97.17	Inf	-Inf	30.55	3	Horizontal	350	1.81	-
2441MHz	Pass	AV	2.4946G	47.45	54.00	-6.55	30.73	3	Horizontal	350	1.81	-
2441MHz	Pass	PK	2.381G	57.39	74.00	-16.61	30.34	3	Horizontal	350	1.81	-
2441MHz	Pass	PK	2.441G	100.40	Inf	-Inf	30.55	3	Horizontal	350	1.81	-
2441MHz	Pass	PK	2.4934G	58.71	74.00	-15.29	30.72	3	Horizontal	350	1.81	-
2480MHz	Pass	AV	2.48G	100.94	Inf	-Inf	30.68	3	Vertical	4	1.72	-
2480MHz	Pass	AV	2.4998G	47.47	54.00	-6.53	30.75	3	Vertical	4	1.72	-
2480MHz	Pass	PK	2.48G	104.19	Inf	-Inf	30.68	3	Vertical	4	1.72	-
2480MHz	Pass	PK	2.4872G	58.41	74.00	-15.59	30.71	3	Vertical	4	1.72	-
2480MHz	Pass	AV	2.48G	99.24	Inf	-Inf	30.68	3	Horizontal	346	1.44	-
2480MHz	Pass	AV	2.4998G	47.47	54.00	-6.53	30.75	3	Horizontal	346	1.44	-



RSE TX above 1GHz Result

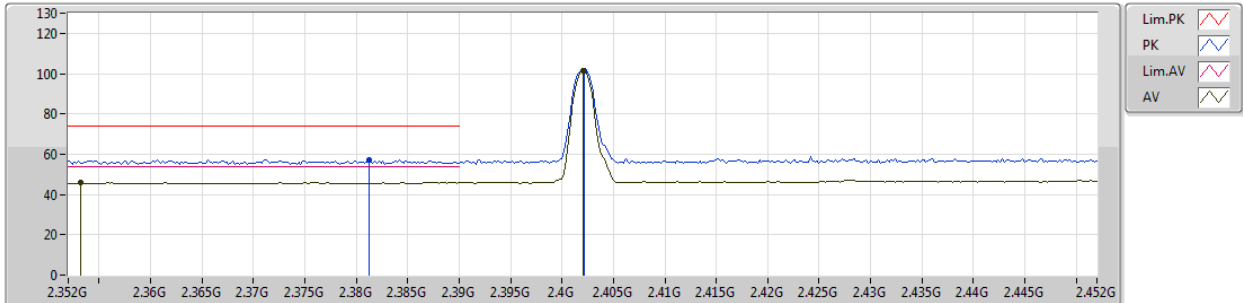
Appendix G.2

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2480MHz	Pass	PK	2.48G	102.50	Inf	-Inf	30.68	3	Horizontal	346	1.44	-
2480MHz	Pass	PK	2.4974G	58.87	74.00	-15.13	30.74	3	Horizontal	346	1.44	-

BT-BR(1Mbps)

2402MHz_TX

01/02/2019

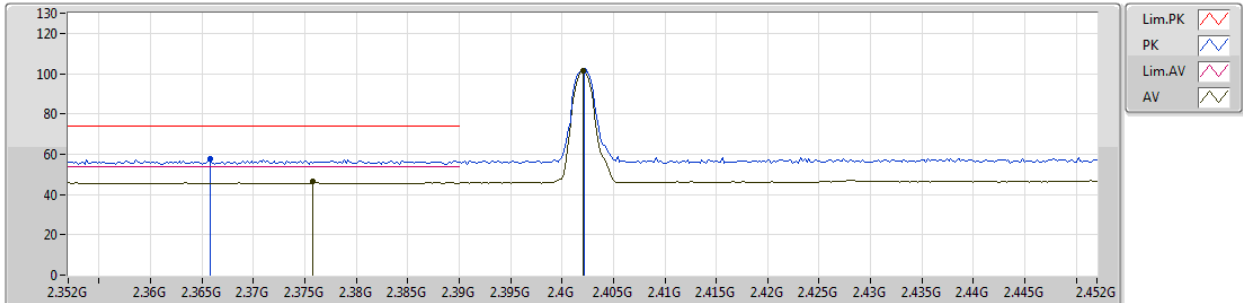


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.3532G	46.13	54.00	-7.87	30.26	3	Vertical	359	2.05	-
AV	2.402G	101.34	Inf	-Inf	30.41	3	Vertical	359	2.05	-
PK	2.3812G	57.30	74.00	-16.70	30.34	3	Vertical	359	2.05	-
PK	2.4022G	101.47	Inf	-Inf	30.42	3	Vertical	359	2.05	-

BT-BR(1Mbps)

2402MHz_TX

30/01/2019

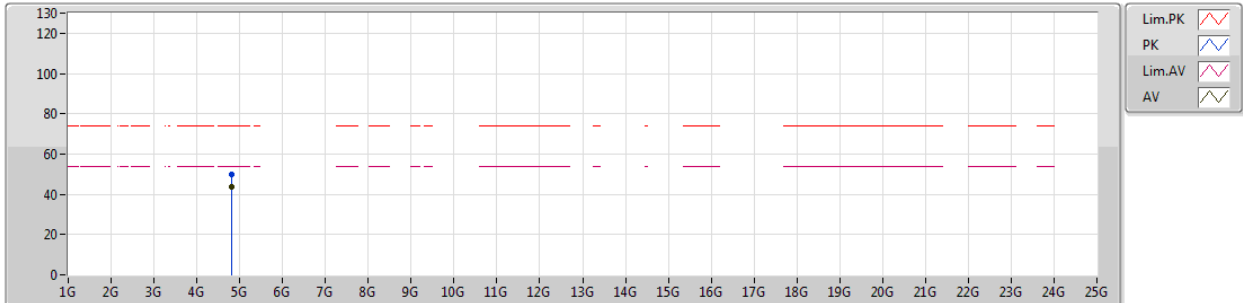


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.3758G	46.41	54.00	-7.59	30.33	3	Horizontal	353	2.18	-
AV	2.402G	101.22	Inf	-Inf	30.41	3	Horizontal	353	2.18	-
PK	2.3658G	57.67	74.00	-16.33	30.30	3	Horizontal	353	2.18	-
PK	2.4022G	101.38	Inf	-Inf	30.42	3	Horizontal	353	2.18	-

BT-BR(1Mbps)

2402MHz_TX

30/01/2019

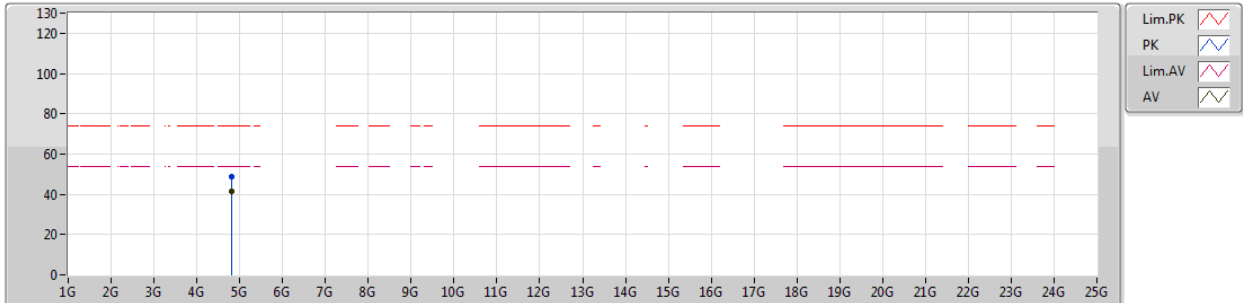


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.80403G	43.62	54.00	-10.38	5.86	3	Vertical	0	1.83	-
PK	4.80416G	49.72	74.00	-24.28	5.86	3	Vertical	0	1.83	-

BT-BR(1Mbps)

2402MHz_TX

30/01/2019

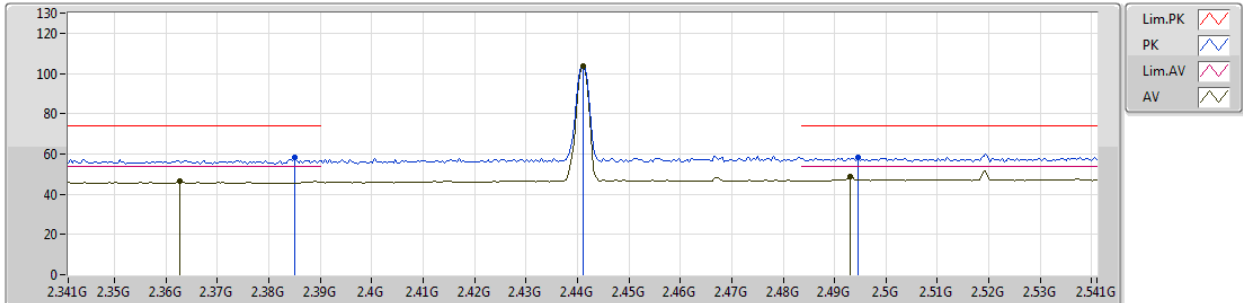


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.80408G	41.70	54.00	-12.30	5.86	3	Horizontal	17	1.33	-
PK	4.80426G	48.60	74.00	-25.40	5.86	3	Horizontal	17	1.33	-

BT-BR(1Mbps)

2441MHz_TX

30/01/2019

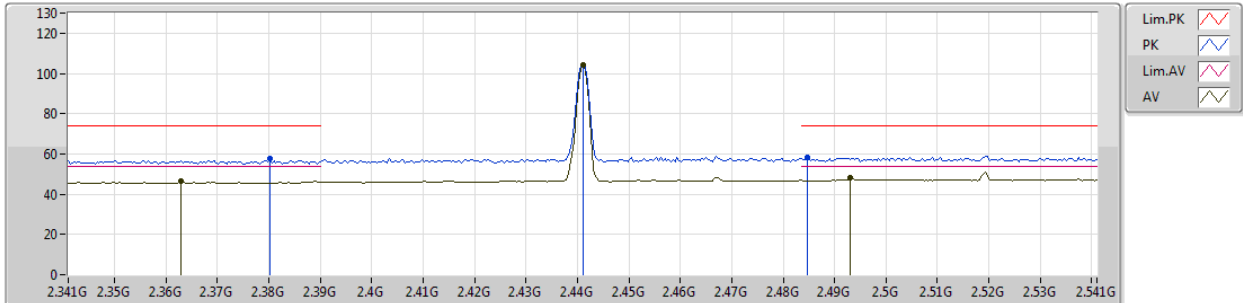


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.3626G	46.37	54.00	-7.63	30.29	3	Vertical	357	1.97	-
AV	2.441G	103.58	Inf	-Inf	30.55	3	Vertical	357	1.97	-
AV	2.493G	48.56	54.00	-5.44	30.72	3	Vertical	357	1.97	-
PK	2.385G	58.37	74.00	-15.63	30.36	3	Vertical	357	1.97	-
PK	2.441G	103.71	Inf	-Inf	30.55	3	Vertical	357	1.97	-
PK	2.4946G	58.42	74.00	-15.58	30.73	3	Vertical	357	1.97	-

BT-BR(1Mbps)

2441MHz_TX

30/01/2019

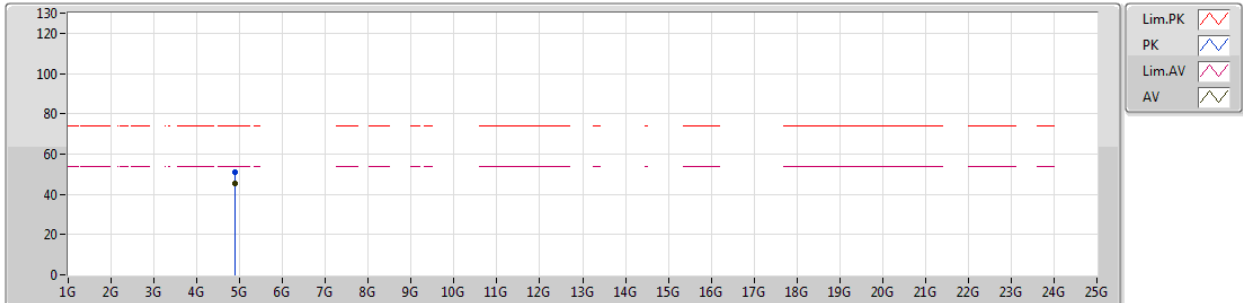


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.363G	46.62	54.00	-7.38	30.29	3	Horizontal	356	2.64	-
AV	2.441G	104.08	Inf	-Inf	30.55	3	Horizontal	356	2.64	-
AV	2.493G	48.09	54.00	-5.91	30.72	3	Horizontal	356	2.64	-
PK	2.3802G	57.44	74.00	-16.56	30.34	3	Horizontal	356	2.64	-
PK	2.441G	104.21	Inf	-Inf	30.55	3	Horizontal	356	2.64	-
PK	2.4846G	58.51	74.00	-15.49	30.69	3	Horizontal	356	2.64	-

BT-BR(1Mbps)

2441MHz_TX

30/01/2019

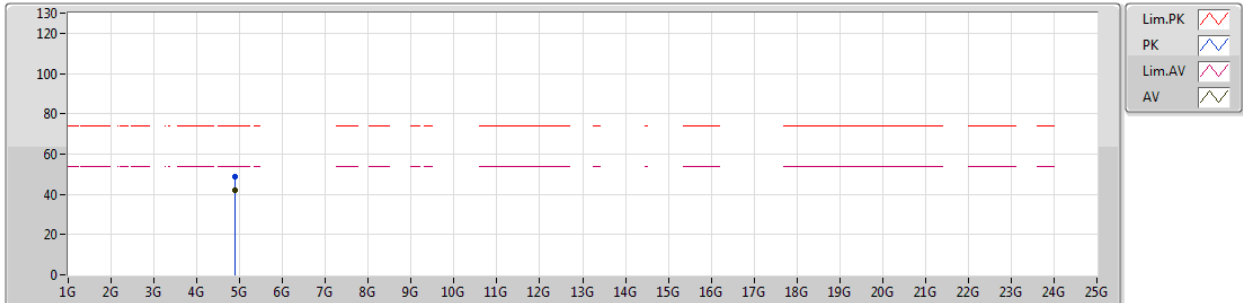


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.88215G	45.19	54.00	-8.81	6.02	3	Vertical	0	1.86	-
PK	4.88208G	50.73	74.00	-23.27	6.01	3	Vertical	0	1.86	-

BT-BR(1Mbps)

2441MHz_TX

30/01/2019

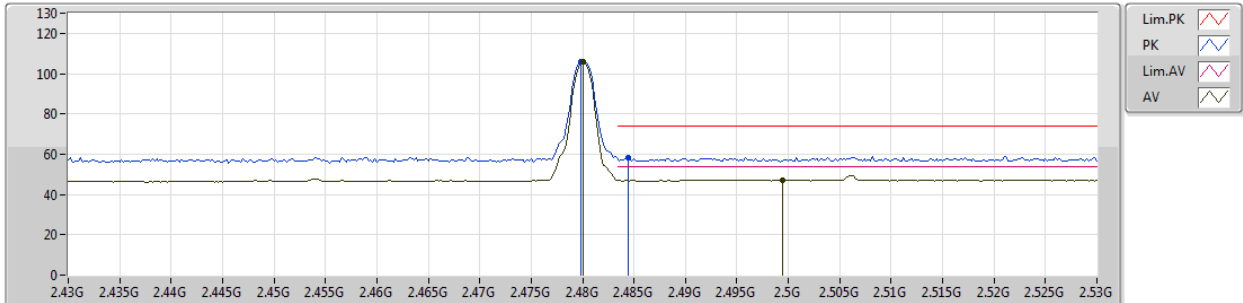


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.88213G	42.25	54.00	-11.75	6.01	3	Horizontal	18	1.34	-
PK	4.88173G	48.92	74.00	-25.08	6.01	3	Horizontal	18	1.34	-

BT-BR(1Mbps)

2480MHz_TX

30/01/2019

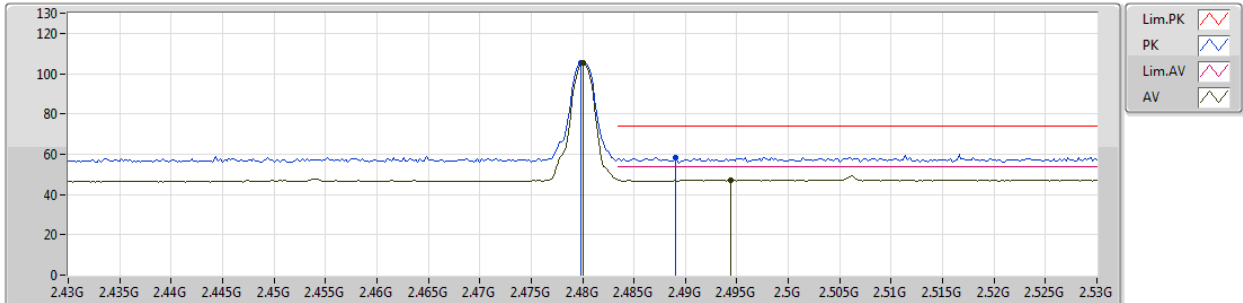


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.48G	105.78	Inf	-Inf	30.68	3	Vertical	1	1.95	-
AV	2.4994G	47.10	54.00	-6.90	30.75	3	Vertical	1	1.95	-
PK	2.4798G	105.87	Inf	-Inf	30.68	3	Vertical	1	1.95	-
PK	2.4844G	58.02	74.00	-15.98	30.69	3	Vertical	1	1.95	-

BT-BR(1Mbps)

2480MHz_TX

30/01/2019

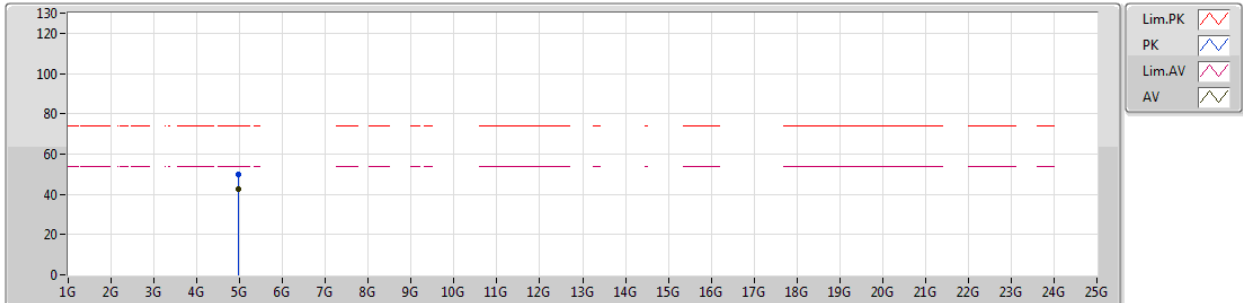


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.48G	105.07	Inf	-Inf	30.68	3	Horizontal	354	2.30	-
AV	2.4944G	47.34	54.00	-6.66	30.73	3	Horizontal	354	2.30	-
PK	2.4798G	105.17	Inf	-Inf	30.68	3	Horizontal	354	2.30	-
PK	2.489G	58.40	74.00	-15.60	30.71	3	Horizontal	354	2.30	-

BT-BR(1Mbps)

2480MHz_TX

30/01/2019

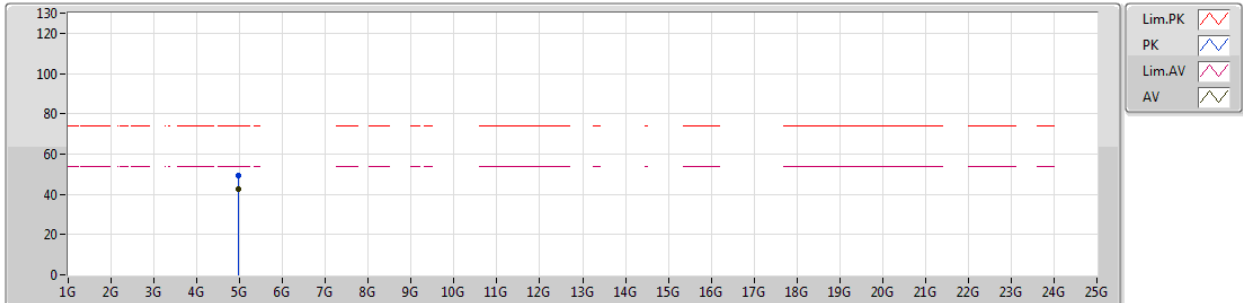


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.96009G	42.43	54.00	-11.57	6.17	3	Vertical	17	1.30	-
PK	4.95978G	49.98	74.00	-24.02	6.17	3	Vertical	17	1.30	-

BT-BR(1Mbps)

2480MHz_TX

30/01/2019

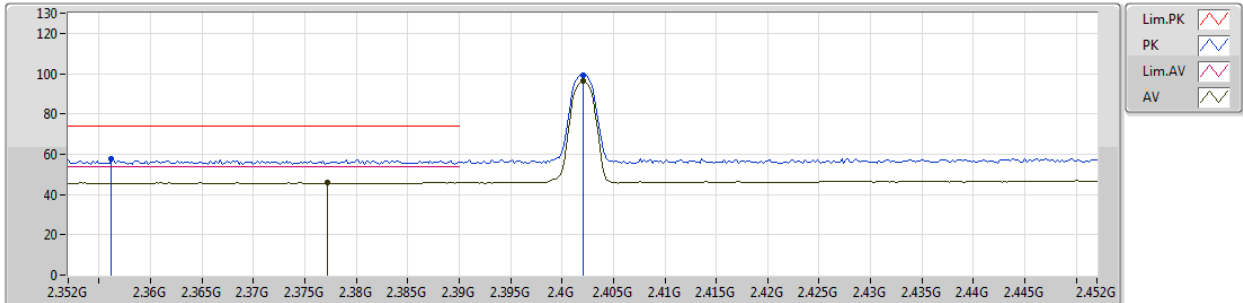


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.96004G	42.52	54.00	-11.48	6.17	3	Horizontal	344	1.41	-
PK	4.95983G	49.16	74.00	-24.84	6.17	3	Horizontal	344	1.41	-

BT-EDR(2Mbps)

2402MHz_TX

29/01/2019

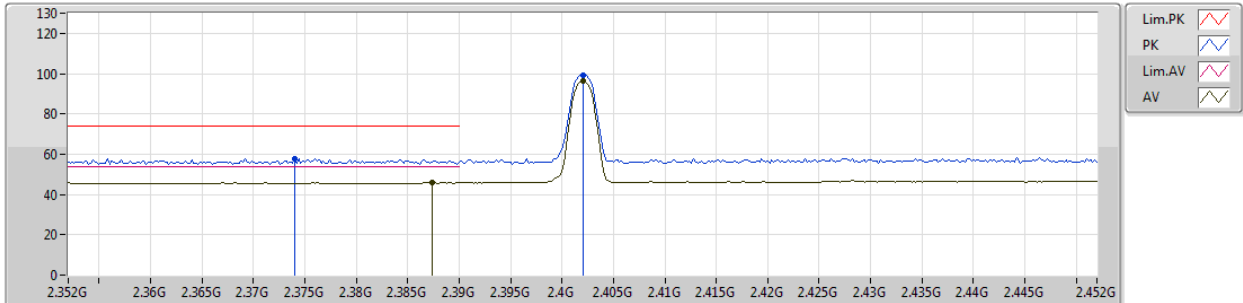


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments								
AV	2.3772G	45.89	54.00	-8.11	30.34	3	Vertical	3	2.03	-								
AV	2.402G	96.21	Inf	-Inf	30.41	3	Vertical	3	2.03	-								
PK	2.3562G	57.46	74.00	-16.54	30.26	3	Vertical	3	2.03	-								
PK	2.402G	99.30	Inf	-Inf	30.41	3	Vertical	3	2.03	-								

BT-EDR(2Mbps)

2402MHz_TX

29/01/2019

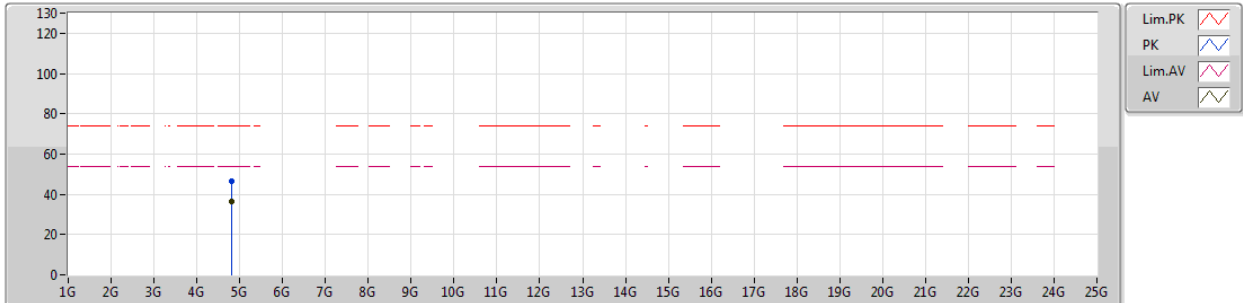


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments								
AV	2.3874G	45.95	54.00	-8.05	30.37	3	Horizontal	352	2.18	-								
AV	2.402G	96.20	Inf	-Inf	30.41	3	Horizontal	352	2.18	-								
PK	2.374G	57.70	74.00	-16.30	30.33	3	Horizontal	352	2.18	-								
PK	2.402G	99.29	Inf	-Inf	30.41	3	Horizontal	352	2.18	-								

BT-EDR(2Mbps)

2402MHz_TX

29/01/2019

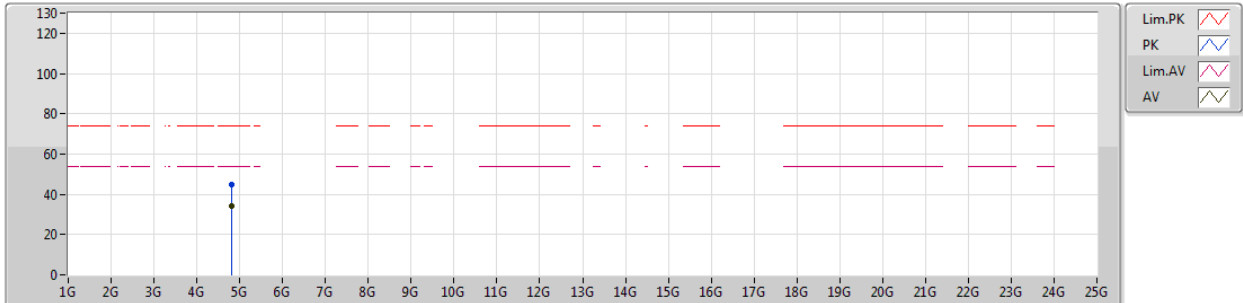


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments								
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)									
AV	4.80401G	36.17	54.00	-17.83	5.86	3	Vertical	358	1.76	-								
PK	4.80371G	46.72	74.00	-27.28	5.86	3	Vertical	358	1.76	-								

BT-EDR(2Mbps)

2402MHz_TX

29/01/2019

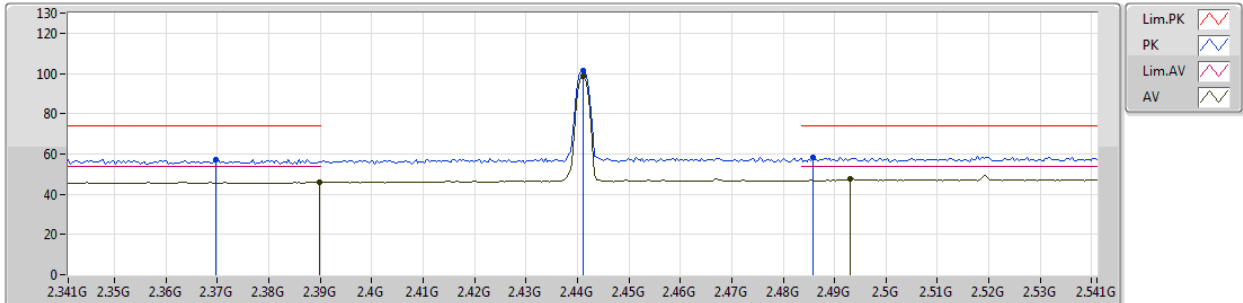


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments								
AV	4.80407G	33.99	54.00	-20.01	5.86	3	Horizontal	3	1.00	-								
PK	4.8021G	44.76	74.00	-29.24	5.85	3	Horizontal	3	1.00	-								

BT-EDR(2Mbps)

29/01/2019

2441MHz_TX

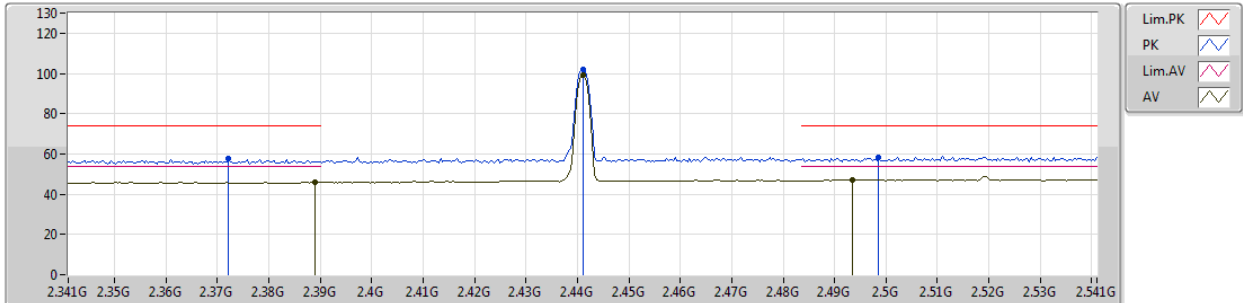


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.3898G	45.99	54.00	-8.01	30.38	3	Vertical	357	1.96	-
AV	2.441G	98.64	Inf	-Inf	30.55	3	Vertical	357	1.96	-
AV	2.493G	47.59	54.00	-6.41	30.72	3	Vertical	357	1.96	-
PK	2.3698G	57.34	74.00	-16.66	30.31	3	Vertical	357	1.96	-
PK	2.441G	101.68	Inf	-Inf	30.55	3	Vertical	357	1.96	-
PK	2.4858G	58.18	74.00	-15.82	30.71	3	Vertical	357	1.96	-

BT-EDR(2Mbps)

29/01/2019

2441MHz_TX

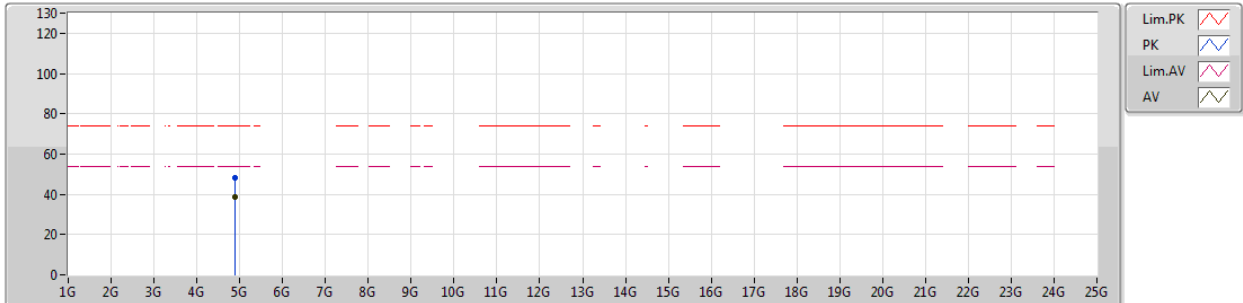


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.389G	45.97	54.00	-8.03	30.37	3	Horizontal	357	2.65	-
AV	2.441G	99.06	Inf	-Inf	30.55	3	Horizontal	357	2.65	-
AV	2.4934G	47.33	54.00	-6.67	30.72	3	Horizontal	357	2.65	-
PK	2.3722G	57.48	74.00	-16.52	30.31	3	Horizontal	357	2.65	-
PK	2.441G	102.10	Inf	-Inf	30.55	3	Horizontal	357	2.65	-
PK	2.4986G	58.08	74.00	-15.92	30.75	3	Horizontal	357	2.65	-

BT-EDR(2Mbps)

2441MHz_TX

29/01/2019

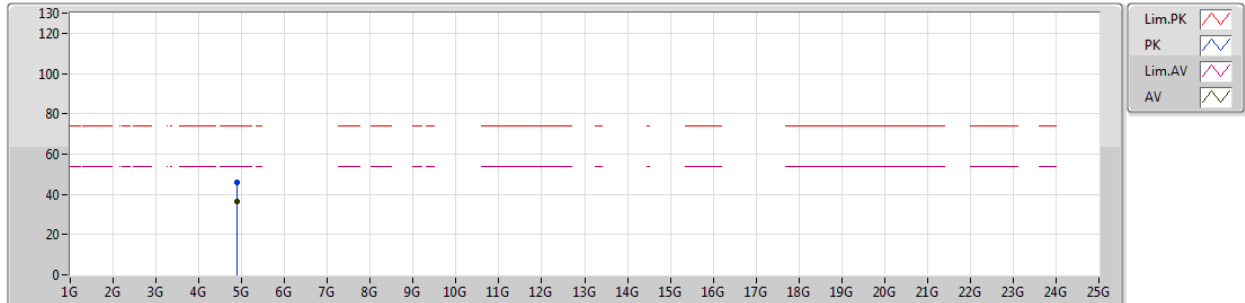


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.88218G	38.84	54.00	-15.16	6.02	3	Vertical	351	2.99	-
PK	4.88232G	47.98	74.00	-26.02	6.02	3	Vertical	351	2.99	-

BT-EDR(2Mbps)

2441MHz_TX

29/01/2019

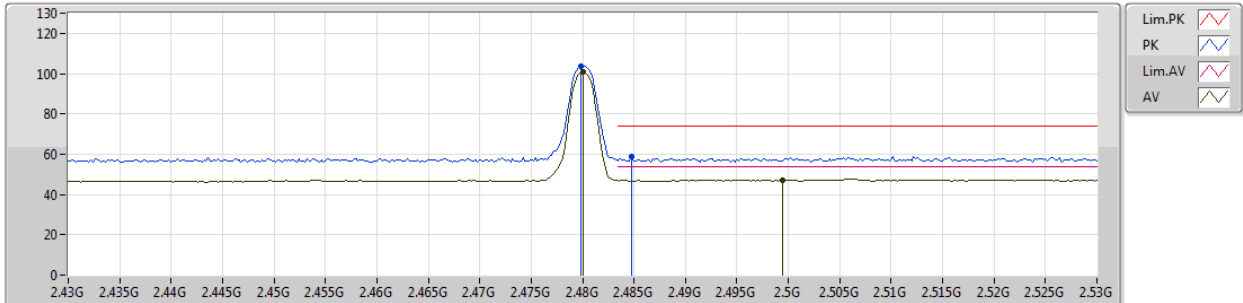


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments								
AV	4.88207G	36.24	54.00	-17.76	6.01	3	Horizontal	12	1.02	-								
PK	4.88167G	46.22	74.00	-27.78	6.01	3	Horizontal	12	1.02	-								

BT-EDR(2Mbps)

2480MHz_TX

29/01/2019

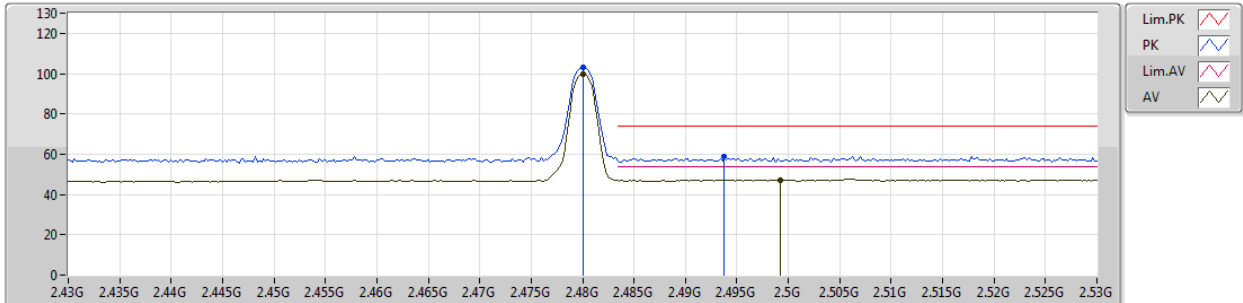


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.48G	100.73	Inf	-Inf	30.68	3	Vertical	0	1.97	-
AV	2.4994G	47.10	54.00	-6.90	30.75	3	Vertical	0	1.97	-
PK	2.4798G	103.72	Inf	-Inf	30.68	3	Vertical	0	1.97	-
PK	2.4848G	58.85	74.00	-15.15	30.69	3	Vertical	0	1.97	-

BT-EDR(2Mbps)

2480MHz_TX

29/01/2019

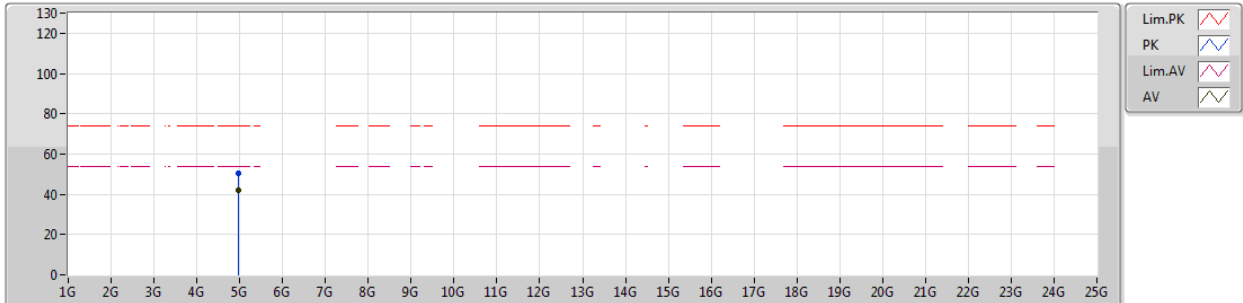


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.48G	99.88	Inf	-Inf	30.68	3	Horizontal	352	2.27	-
AV	2.4992G	47.10	54.00	-6.90	30.75	3	Horizontal	352	2.27	-
PK	2.48G	102.89	Inf	-Inf	30.68	3	Horizontal	352	2.27	-
PK	2.4938G	58.63	74.00	-15.37	30.73	3	Horizontal	352	2.27	-

BT-EDR(2Mbps)

2480MHz_TX

29/01/2019

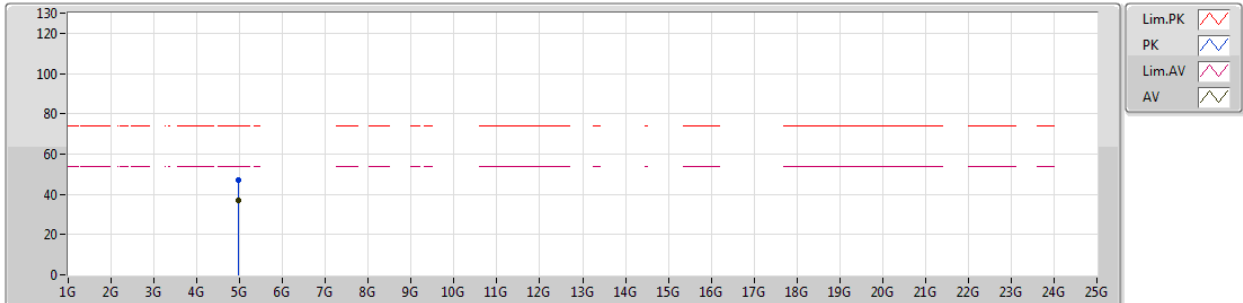


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.96012G	42.11	54.00	-11.89	6.17	3	Vertical	346	2.85	-
PK	4.96036G	50.39	74.00	-23.61	6.17	3	Vertical	346	2.85	-

BT-EDR(2Mbps)

2480MHz_TX

29/01/2019

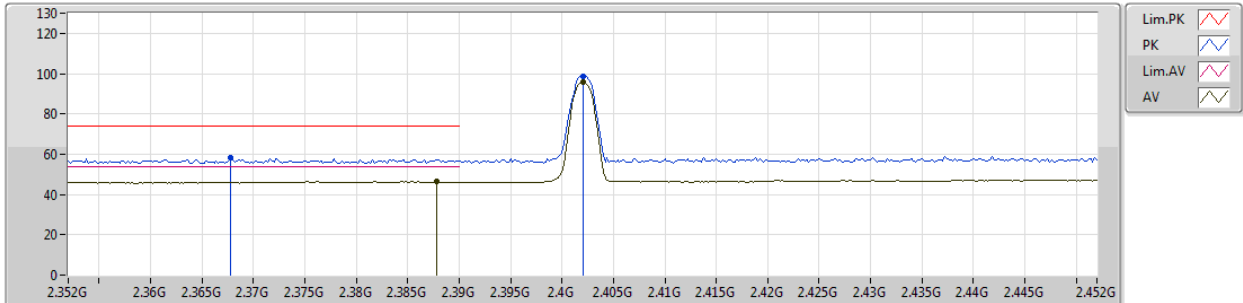


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments							
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)								
AV	4.95999G	36.77	54.00	-17.23	6.17	3	Horizontal	336	1.50	-							
PK	4.95946G	47.05	74.00	-26.95	6.17	3	Horizontal	336	1.50	-							

BT-EDR(3Mbps)

2402MHz_TX

01/02/2019

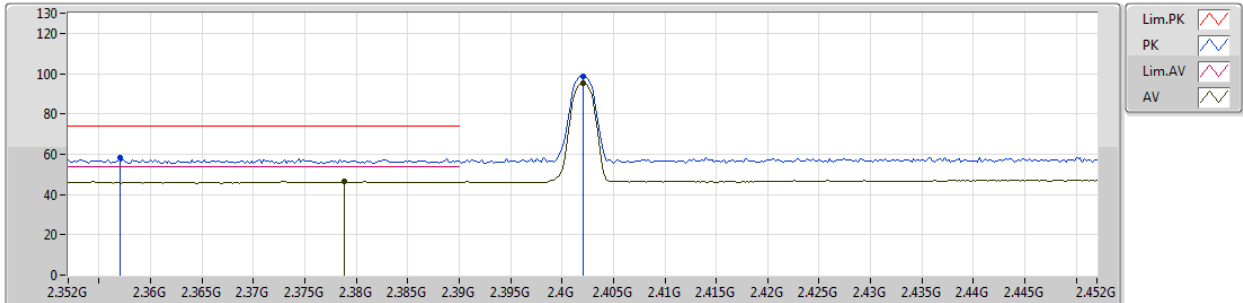


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.3878G	46.33	54.00	-7.67	30.37	3	Vertical	2	1.71	-
AV	2.402G	95.54	Inf	-Inf	30.41	3	Vertical	2	1.71	-
PK	2.3678G	58.30	74.00	-15.70	30.30	3	Vertical	2	1.71	-
PK	2.402G	98.88	Inf	-Inf	30.41	3	Vertical	2	1.71	-

BT-EDR(3Mbps)

2402MHz_TX

01/02/2019

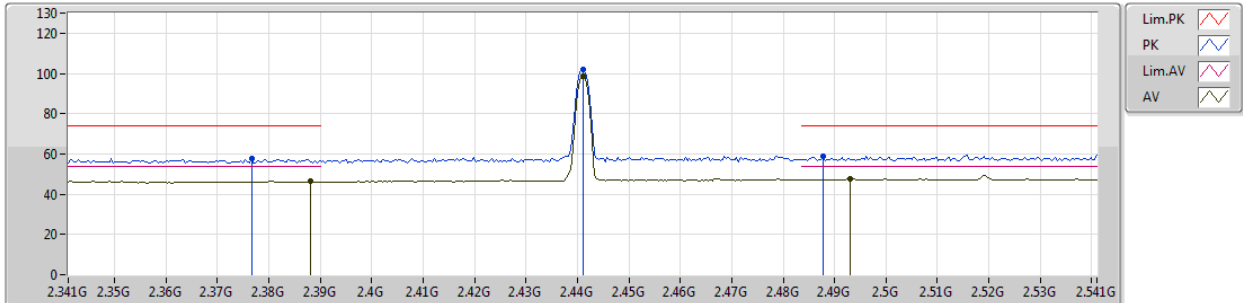


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.3788G	46.26	54.00	-7.74	30.34	3	Horizontal	356	2.05	-
AV	2.402G	95.50	Inf	-Inf	30.41	3	Horizontal	356	2.05	-
PK	2.357G	58.17	74.00	-15.83	30.27	3	Horizontal	356	2.05	-
PK	2.402G	98.79	Inf	-Inf	30.41	3	Horizontal	356	2.05	-

BT-EDR(3Mbps)

01/02/2019

2441MHz_TX

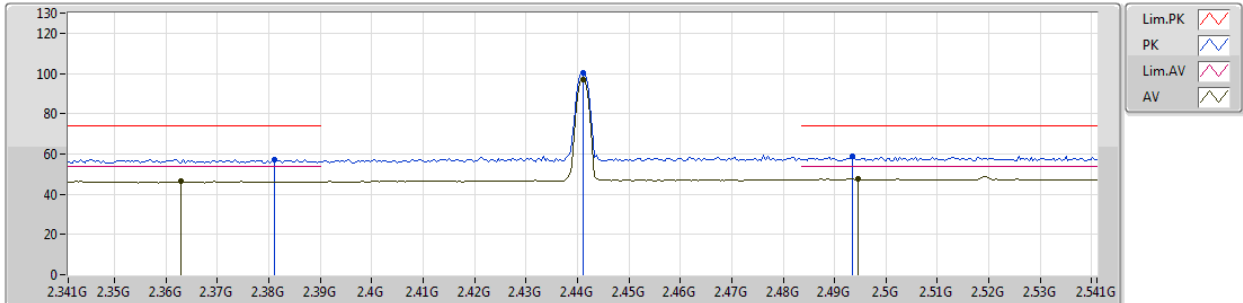


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.3882G	46.33	54.00	-7.67	30.37	3	Vertical	359	1.71	-
AV	2.441G	98.75	Inf	-Inf	30.55	3	Vertical	359	1.71	-
AV	2.493G	47.71	54.00	-6.29	30.72	3	Vertical	359	1.71	-
PK	2.3766G	57.66	74.00	-16.34	30.33	3	Vertical	359	1.71	-
PK	2.441G	102.02	Inf	-Inf	30.55	3	Vertical	359	1.71	-
PK	2.4878G	58.70	74.00	-15.30	30.71	3	Vertical	359	1.71	-

BT-EDR(3Mbps)

01/02/2019

2441MHz_TX

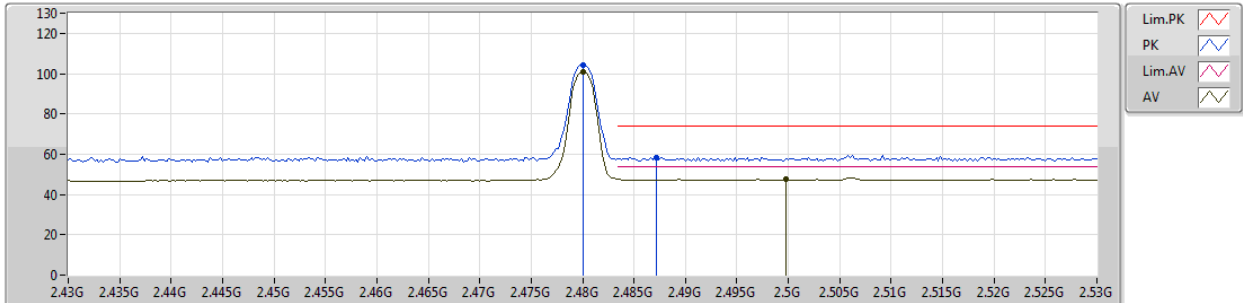


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.363G	46.48	54.00	-7.52	30.29	3	Horizontal	350	1.81	-
AV	2.441G	97.17	Inf	-Inf	30.55	3	Horizontal	350	1.81	-
AV	2.4946G	47.45	54.00	-6.55	30.73	3	Horizontal	350	1.81	-
PK	2.381G	57.39	74.00	-16.61	30.34	3	Horizontal	350	1.81	-
PK	2.441G	100.40	Inf	-Inf	30.55	3	Horizontal	350	1.81	-
PK	2.4934G	58.71	74.00	-15.29	30.72	3	Horizontal	350	1.81	-

BT-EDR(3Mbps)

2480MHz_TX

01/02/2019

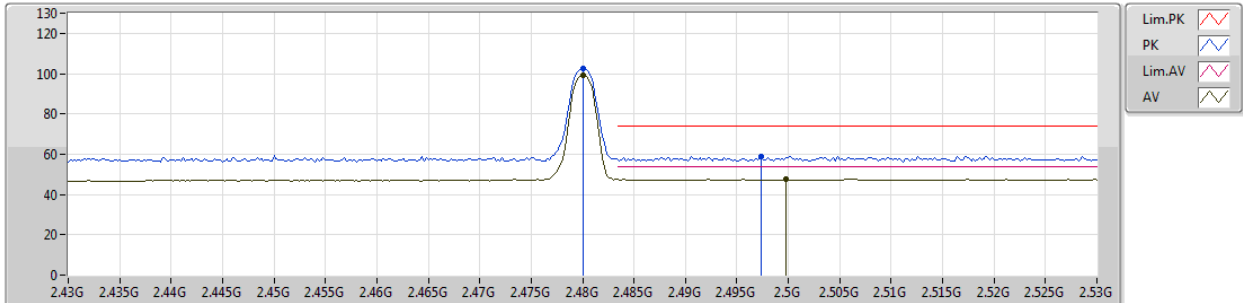


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.48G	100.94	Inf	-Inf	30.68	3	Vertical	4	1.72	-
AV	2.4998G	47.47	54.00	-6.53	30.75	3	Vertical	4	1.72	-
PK	2.48G	104.19	Inf	-Inf	30.68	3	Vertical	4	1.72	-
PK	2.4872G	58.41	74.00	-15.59	30.71	3	Vertical	4	1.72	-

BT-EDR(3Mbps)

2480MHz_TX

01/02/2019



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.48G	99.24	Inf	-Inf	30.68	3	Horizontal	346	1.44	-
AV	2.4998G	47.47	54.00	-6.53	30.75	3	Horizontal	346	1.44	-
PK	2.48G	102.50	Inf	-Inf	30.68	3	Horizontal	346	1.44	-
PK	2.4974G	58.87	74.00	-15.13	30.74	3	Horizontal	346	1.44	-