

FCC Test Report

FCC ID : SK6-XH2240

Equipment : Wireless Access Point

Brand Name : riverbed

Model Name : XH2240

Applicant : RIVERBED TECHNOLOGY, INC.
680 Folsom Street San Francisco, California United States 94107

Manufacturer : 1) Lite-On Network Communication (Dongguan) Limited
30#Keji Rd., Yin Hu Industrial Area, Qingxi Town, DongGuan
City, Guangdong, China
2) LiteOn Technology Corporation ZhuBei Plant
1F, No.20-1, Taiyuan St., Zhubei City, Hsinchu County 30288,
Taiwan
3) LiteOn Technology Corporation
No.37, Chung Yang Road, N.E.P.Z., Kaohsiung 81170, Taiwan

Standard : 47 CFR FCC Part 15.247

The product was received on Jul. 13, 2018, and testing was started from Jul. 30, 2018 and completed on Aug. 30, 2018. 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: Allen Lin

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

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

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PHOTOGRAPHS OF EUT V01



History of this test report

[illegible]

Summary of Test Result

Report Clause	Ref. Std. Clause	Test Items	Result (PASS/FAIL)	Remark
0	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

Reviewed by: Sam Tsai

Report Producer: Debby Hung

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

Ant.	Radio	Brand	Model Name	Antenna Type	Connector
1~4	1~2	EAhison	EHS1GA260A	Omni-directional Antenna	N-Type
5~8	1~2	MTI	MT – 953019/NVHD	Dual Band & Quad Polarization Subscriber Antenna	N-Type
9	3	Walsin	RFDPA161300SBAB801	Omni-directional Antenna	MMCX
10		Yethorson	TLB-2400-3800B	Omni-directional Antenna	MMCX

Ant.	Gain (dBi)		
	2.4G	5G	BT
1~4	2	2	-
5~8	10.23	12.14	-
9	-	-	2.3
10	-	-	2

Note 1: Radio 1 and Radio 2 has two antenna configurations.

Note 2: Ant. 9 was declared to be tested by customer at Bluetooth function.

For 2.4GHz function:

For IEEE 802.11 b/g/n mode (4TX/4RX)

Configurations 1: Ant. 1 to Ant. 4 could transmit/receive simultaneously.

Configurations 2: Ant. 5 to Ant. 8 could transmit/receive simultaneously.

For 5GHz function:

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

Configurations 1: Ant. 1 to Ant. 4 could transmit/receive simultaneously.

Configurations 2: Ant. 5 to Ant. 8 could transmit/receive simultaneously.

For Bluetooth function:

For IEEE 802.15.1 Bluetooth mode (1TX/1RX)

Ant. 9 could transmit/receive simultaneously.

1.1.3 EUT Information

EUT support function			
Radio	2.4G Function	5G Function	Bluetooth Function
1	Support	Support	N/A
2	N/A	Support	N/A
3	N/A	N/A	Support

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) $\geq 1/T$
BT-EDR(2Mbps)	0.777	1.096	2.894m	1k
BT-EDR(3Mbps)	0.777	1.096	2.894m	1k
BT-LE(1Mbps)	0.156	8.069	97.5u	10k

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 v05
- ♦ 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
AC Conduction	CO04-HY	Jerry	24.5°C / 55%	30/Aug/2018
RF Conducted	TH01-HY	Andy	24.9°C / 63.7%	27/Jul/2018
Radiated	03CH02-HY	Jeremy	23.1°C / 60%	30/Jul/2018

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)	3.6 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	3.0 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 Version	bluetool1.8.7.2
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Mode	PowerSetting
BT-BR(1Mbps)	-
2402MHz	0
2441MHz	0
2480MHz	0
BT-EDR(2Mbps)	-
2402MHz	0
2441MHz	0
2480MHz	0
BT-EDR(3Mbps)	-
2402MHz	0
2441MHz	0
2480MHz	0

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

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		
Operating Mode > 1GHz	CTX		
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(BT)
2	Radio 1 (5G)+ Radio 2(5G)+ Radio 3(BT)
Refer to Sporton Test Report No.: FA870620 for Co-location RF Exposure Evaluation.	

Note.

Non-AFH: DH5 Packet permit maximum $1600 / 79 / 6 = 3.37$ hops per second in each channel (5 time slots RX, 1 time slot TX). So, the dwell time is the time duration of the pulse times $3.37 \times 1.185 = 4$ within 1.185 seconds.

AFH: DH5 Packet permit maximum $800 / 20 / 6 = 6.67$ hops per second in each channel (5 time slots RX, 1 time slot TX). So, the dwell time is the time duration of the pulse times $13.33 \times 8 = 106.6$ within 8 seconds.

Under the above conditions, Non-AFH Mode configuration was found to be the worst case and measured during the test.

2.4 Accessories and Support Equipment

Accessories		
Ground Wire	Signal Line	0.22 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	XIRRUS	XP1-MSI-75	-

Note.Support equipment No.1,2 was provided by customer.

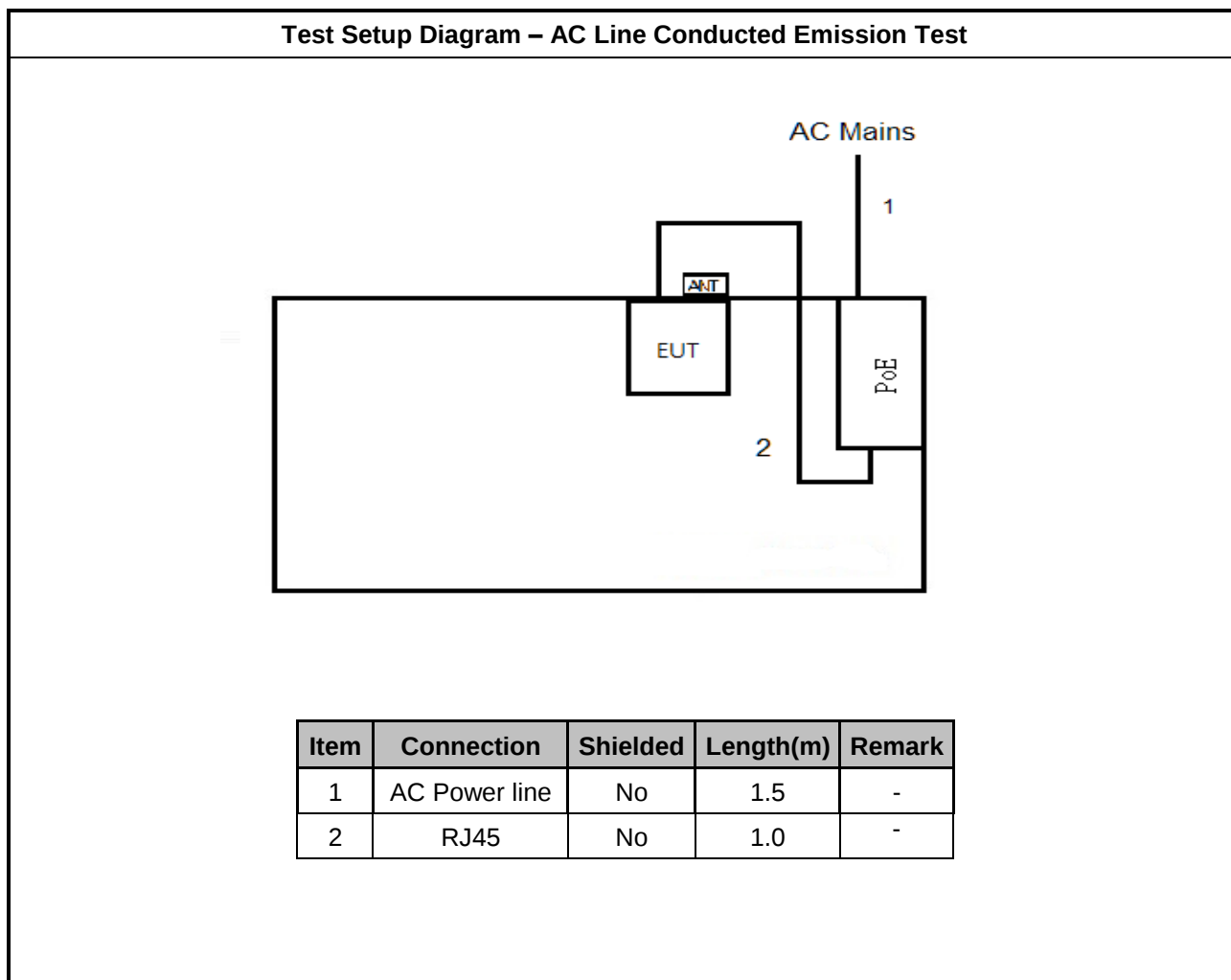
Support Equipment – RF Conducted				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Notebook	DELL	E5410	R33002 / DOC
2	Adapter for NB	DELL	HA65NM130	R35737 / DOC
3	AC Power Source	GW	APS-9102	-
4	PoE	XIRRUS	XP1-MSI-75	-

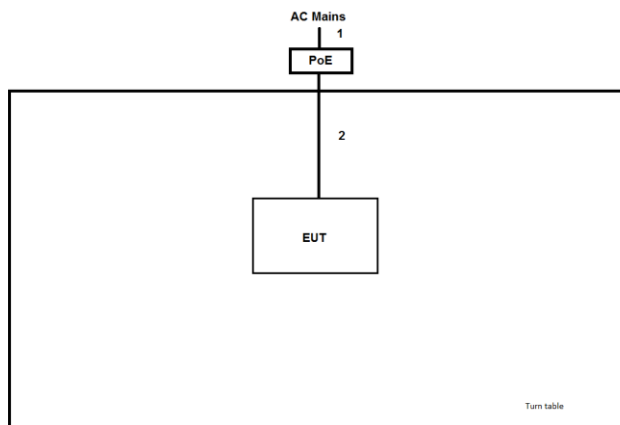
Note.Support equipment No.4 was provided by customer.

Support Equipment – Radiated Emission				
No.	Equipment	Brand Name	Model Name	FCC ID
1	PoE(remote)	XIRRUS	XP1-MSI-75	-

Note.Support equipment No.1 was provided by customer.

2.5 Test Setup Diagram



Test Setup Diagram - Radiated Test


Item	Connection	Shielded	Length(m)	Remark
1	AC Power line	No	1.5	-
2	Lan cable	No	10	-

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.

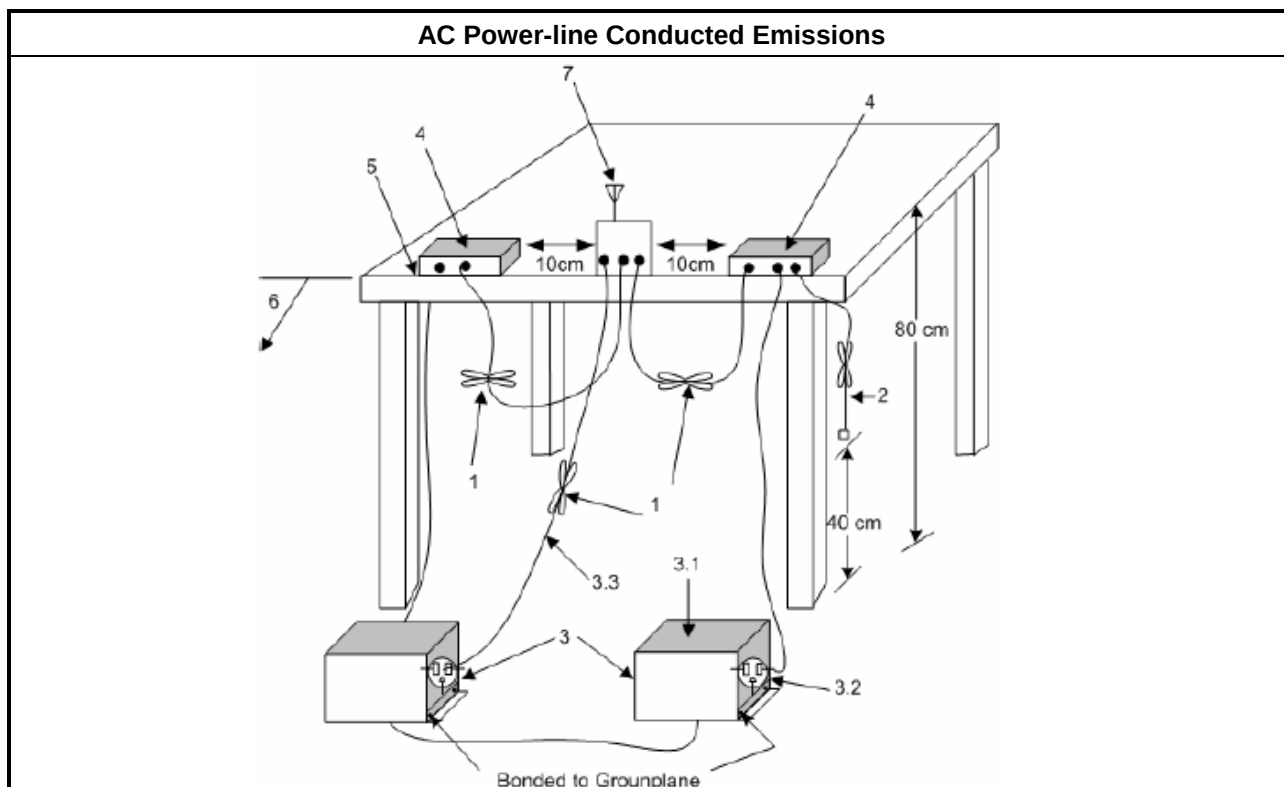
3.1.2 Measuring Instruments

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	

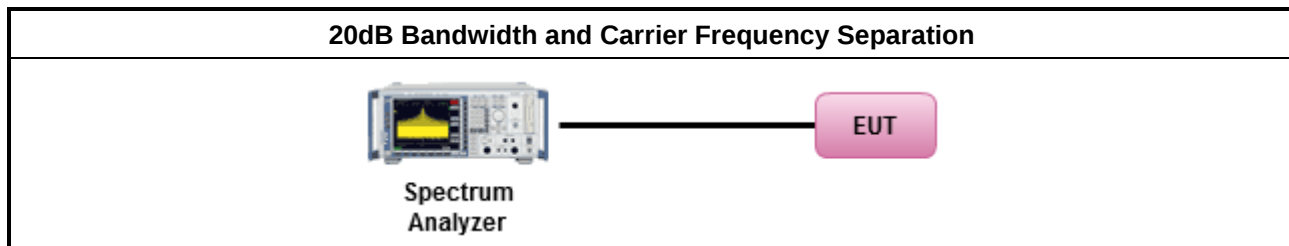
3.2.2 Measuring Instruments

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	

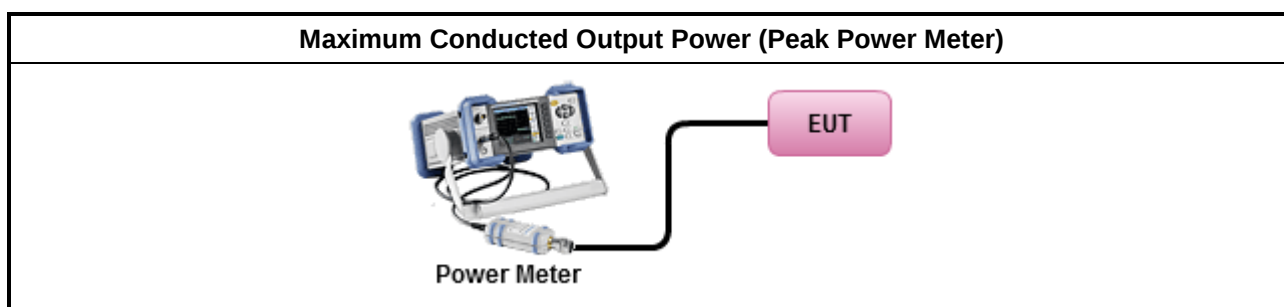
3.3.2 Measuring Instruments

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

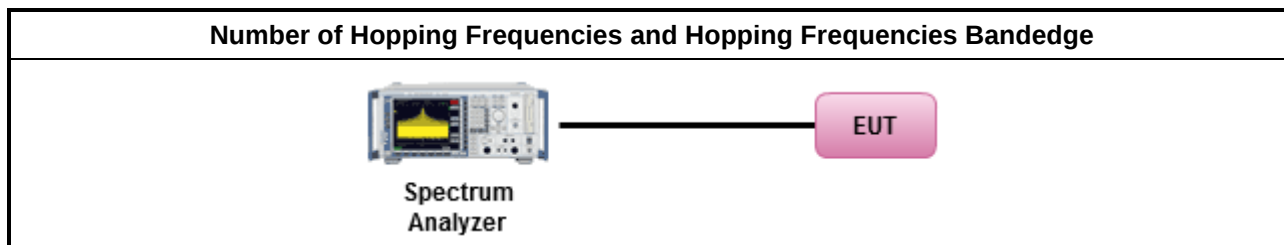
3.4.3 Measuring Instruments

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	

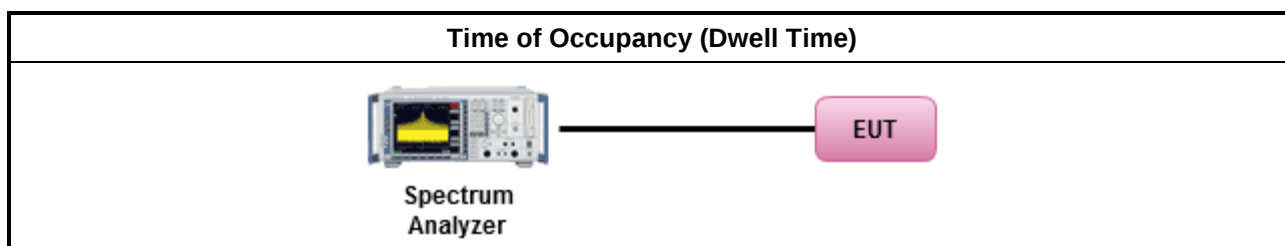
3.5.2 Measuring Instruments

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.	

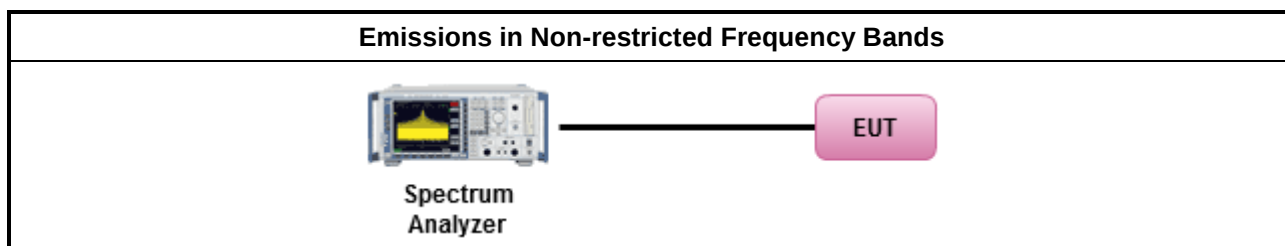
3.6.2 Measuring Instruments

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.

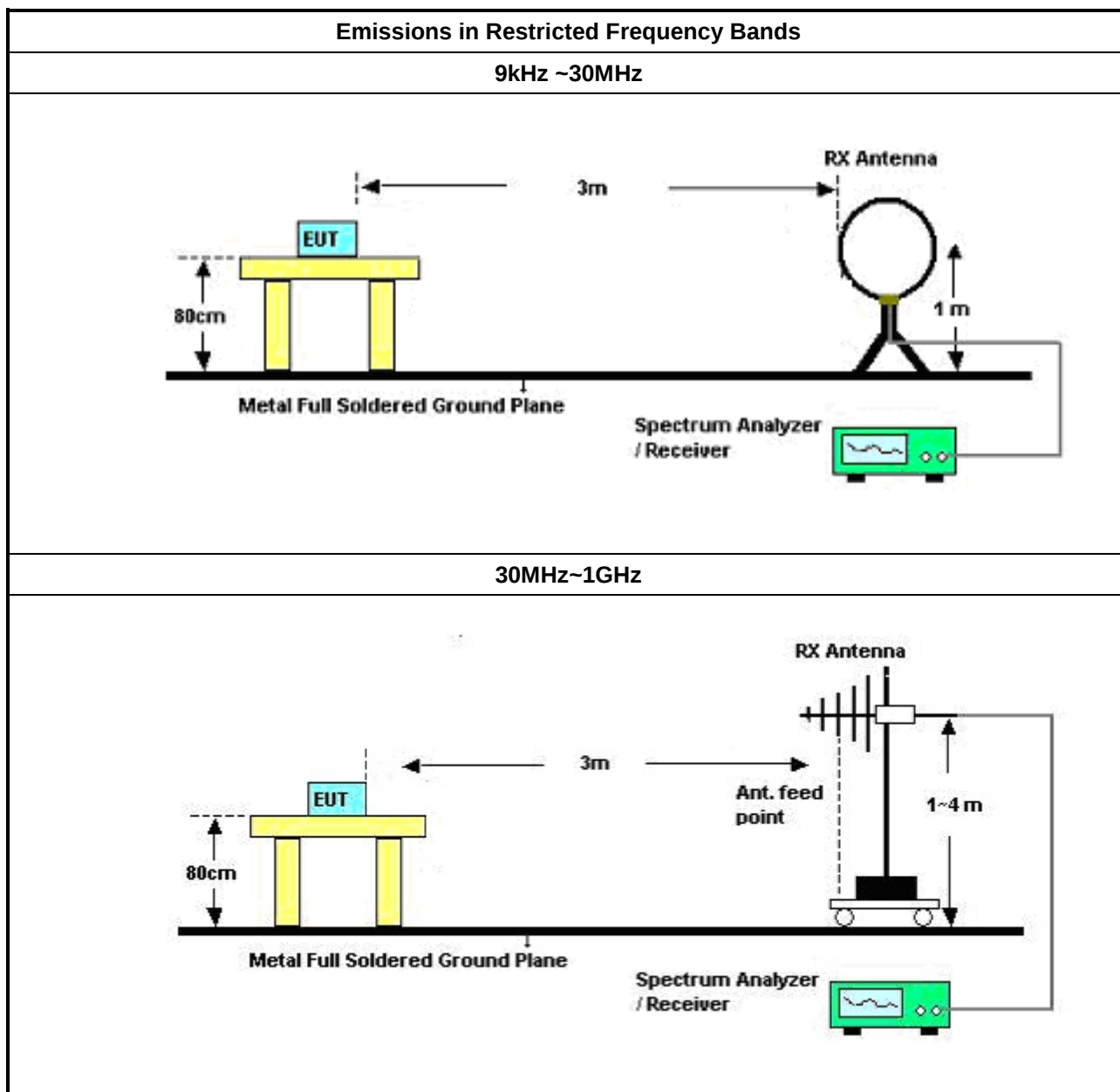
3.7.2 Measuring Instruments

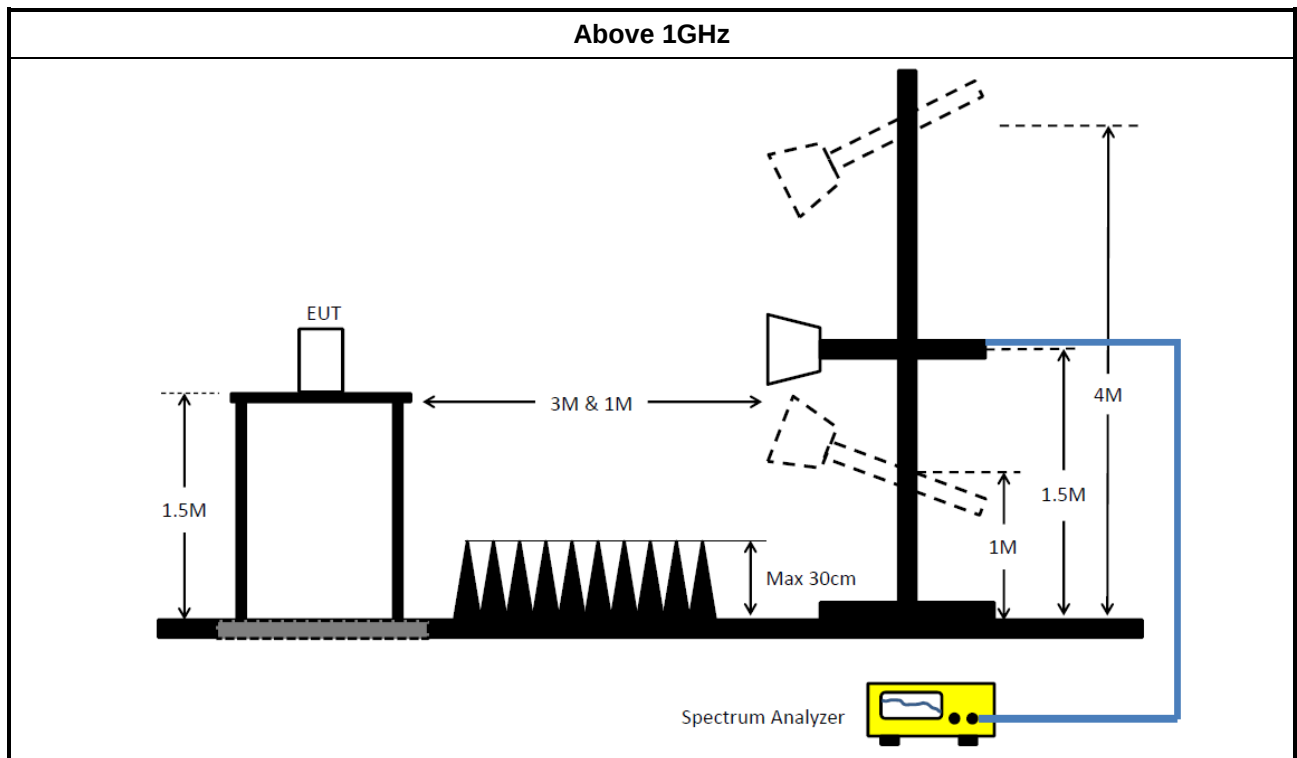
Refer a test equipment and calibration data table in this test report.

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	17/Nov/2017	16/Nov/2018
RF Cable-CON	HUBER+SUHNER	RG213/U	07611832020001	9kHz ~ 30MHz	06/Oct/2017	05/Oct/2018
AC POWER	APC	AFC-11005G	F310050055	47Hz~63Hz 5~300V	NCR	NCR
Impuls Begrenzer Puls e Limiter	SCHWARZBEC K	VTSD 9561-F	9561-F041	9 kHz ~ 30 MHz	12/Oct/2017	11/Oct/2018

NCR : Non-Calibration Require

Instrument for Conducted Test

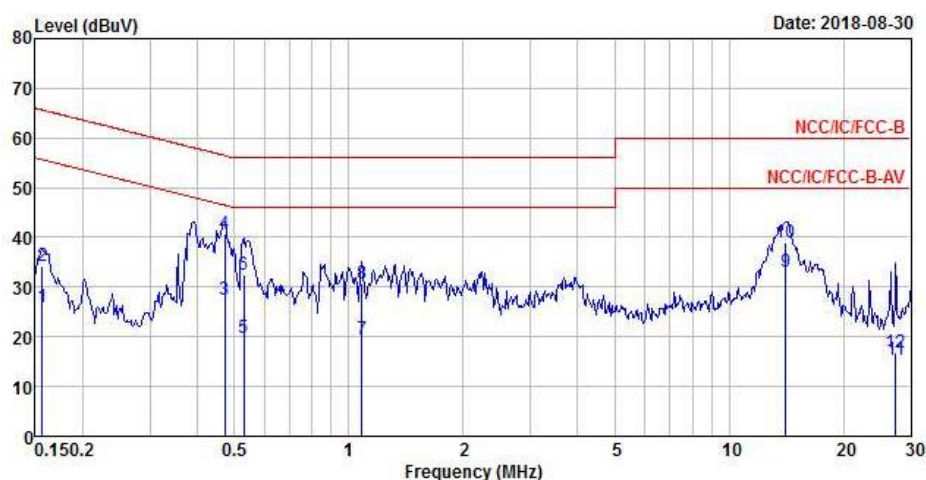
Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Signal Analyzer	R&S	FSV40	101500	10Hz ~ 40GHz	18/Jul/2018	17/Jul/2019
Power Sensor	Anritsu	MA2411B	1339407	300MHz ~ 40GHz	06/Nov/2017	05/Nov/2018
Power Meter	Anritsu	ML2495A	1517010	300MHz ~ 40GHz	06/Nov/2017	05/Nov/2018
RF Cable-0.2m	HUBER+SUHNER	SUCOFLEX_104	MY10710/4	30MHz ~ 26.5GHz	25/Aug/2017	24/Aug/2018
RF Cable-0.2m	HUBER+SUHNER	SUCOFLEX_104	MY10709/4	30MHz ~ 26.5GHz	25/Aug/2017	24/Aug/2018
RF Cable-1m	HUBER+SUHNER	SUCOFLEX_104	MY37332/4	30MHz ~ 26.5GHz	26/Jan/2018	25/Jan/2019
Signal Generator	R&S	SMR40	100116	10MHz ~ 40GHz	26/Jul/2018	25/Jul/2019

Instrument for Radiated Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH02-HY	30MHz ~ 1GHz 3m	20/Oct/2017	19/Oct/2018
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH02-HY	1GHz ~ 18GHz 3m	27/Oct/2017	26/Oct/2018
Amplifier	Agilent	8447D	2944A08290	100kHz ~ 1.3GHz	30Aug/2017	29Aug/2018
Microwave Preamplifier	Agilent	8449B	3008A02373	1GHz ~ 26.5GHz	28/Sep/2017	27/Sep/2018
Spectrum Analyzer	Rohde & Schwarz	FSP40	100593	9KHz - 40GHz	12/Dec/2017	11/Dec/2018
EMI Test Receiver	Rohde & Schwarz	ESCS 30	100354	9kHz ~ 2.75GHz	08/Dec/2017	07/Dec/2018
RF Cable-R03m	Jye Bao	RG142	CB017	9kHz ~ 1GHz	19/Jan/2018	18/Jan/2019
RF Cable-high	SUHNER	SUCOFLEX104	MY34918/4	1GHz ~ 40GHz	19/Jan/2018	18/Jan/2019
Bilog Antenna	SCHAFFNER	CBL 6112B	2723	30MHz ~ 1GHz	09/Sep/2017	08/Sep/2018
Broadband Horn Antenna	SCHWARZBEC K	BBHA 9170	BBHA 9170154	18GHz ~ 40GHz	06/Feb/2018	05/Feb/2019
Preamplifier	MITEQ	TTA1840-35-HG	1864481	18GHz ~ 40GHz	31/Aug/2017	30/Aug/2018
Double Ridged Guide Horn Antenna	SCHWARZBEC K	BBHA 9120D	BBHA 9120 D 1543	1GHz ~ 18GHz	11/May/ 2018	10/May/2019
Double Ridged Guide Horn Antenna	SCHWARZBEC K	BBHA 9120D	BBHA 9120 D 1531	1GHz ~ 18GHz	18/Apr/ 2018	17/Apr/2019
Loop Antenna	TESEQ	HLA 6120	31244	9k-30MHz	29/Mar/2018	28/Mar/2019

AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Neutral
Operating Function	PoE mode		

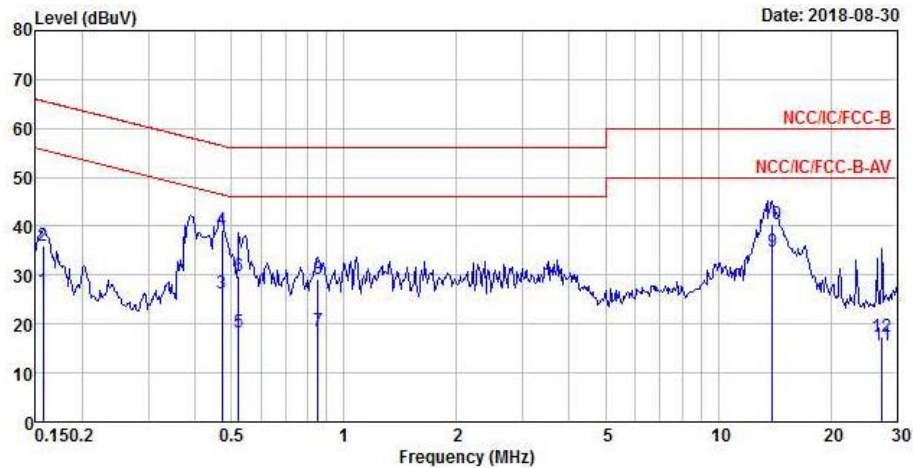


	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.16	26.00	-29.65	55.65	16.33	9.63	0.04	Average
2	0.16	34.23	-31.42	65.65	24.56	9.63	0.04	QP
3	0.47	27.42	-19.07	46.49	17.73	9.61	0.08	Average
4 MAX	0.47	40.74	-15.75	56.49	31.05	9.61	0.08	QP
5	0.53	19.87	-26.13	46.00	10.19	9.61	0.07	Average
6	0.53	32.59	-23.41	56.00	22.91	9.61	0.07	QP
7	1.08	19.38	-26.62	46.00	9.76	9.62	0.00	Average
8	1.08	30.81	-25.19	56.00	21.19	9.62	0.00	QP
9	14.06	33.04	-16.96	50.00	23.31	9.70	0.03	Average
10	14.06	39.08	-20.92	60.00	29.35	9.70	0.03	QP
11	27.42	15.32	-34.68	50.00	5.48	9.69	0.15	Average
12	27.42	16.79	-43.21	60.00	6.95	9.69	0.15	QP

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

AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Line
Operating Function	PoE mode		



	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.16	26.85	-28.75	55.60	17.19	9.62	0.04	Average
2	0.16	35.90	-29.70	65.60	26.24	9.62	0.04	QP
3	0.47	26.33	-20.16	46.49	16.64	9.61	0.08	Average
4	0.47	39.34	-17.15	56.49	29.65	9.61	0.08	QP
5	0.52	18.32	-27.68	46.00	8.64	9.61	0.07	Average
6	0.52	29.72	-26.28	56.00	20.04	9.61	0.07	QP
7	0.85	18.69	-27.31	46.00	9.06	9.61	0.02	Average
8	0.85	29.29	-26.71	56.00	19.66	9.61	0.02	QP
9 MAX	13.99	34.69	-15.31	50.00	25.02	9.64	0.03	Average
10	13.99	40.43	-19.57	60.00	30.76	9.64	0.03	QP
11	27.42	15.50	-34.50	50.00	5.82	9.53	0.15	Average
12	27.42	17.32	-42.68	60.00	7.64	9.53	0.15	QP

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

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
BT-BR(1Mbps)	916.25k	890.805k	891KF1D	916.25k	885.807k
BT-EDR(2Mbps)	1.33M	1.226M	1M23G1D	1.32M	1.221M
BT-EDR(3Mbps)	1.289M	1.221M	1M22G1D	1.283M	1.209M

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;

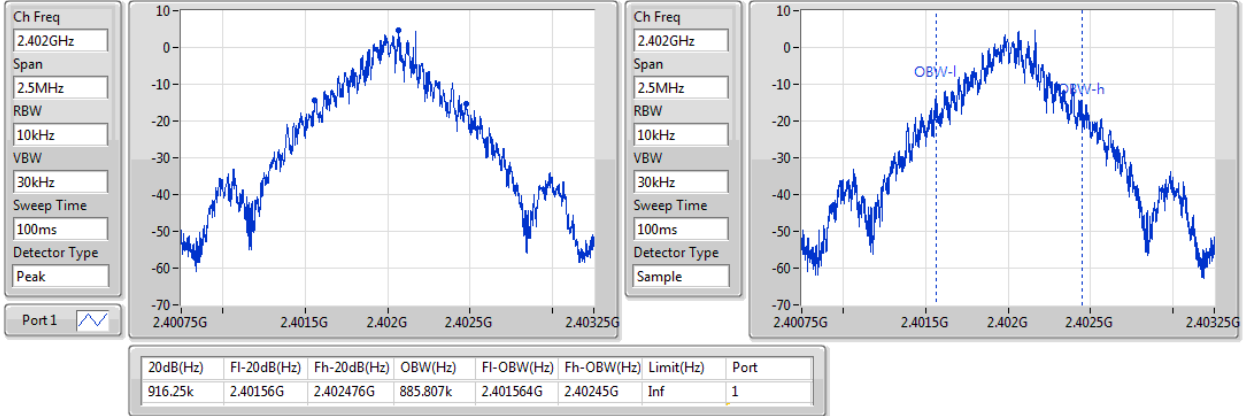
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-BR(1Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	Inf	916.25k	885.807k
2441MHz_TnomVnom	Pass	Inf	916.25k	890.805k
2480MHz_TnomVnom	Pass	Inf	916.25k	890.805k
BT-EDR(2Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	Inf	1.323M	1.222M
2441MHz_TnomVnom	Pass	Inf	1.33M	1.221M
2480MHz_TnomVnom	Pass	Inf	1.32M	1.226M
BT-EDR(3Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	Inf	1.289M	1.221M
2441MHz_TnomVnom	Pass	Inf	1.285M	1.218M
2480MHz_TnomVnom	Pass	Inf	1.283M	1.209M

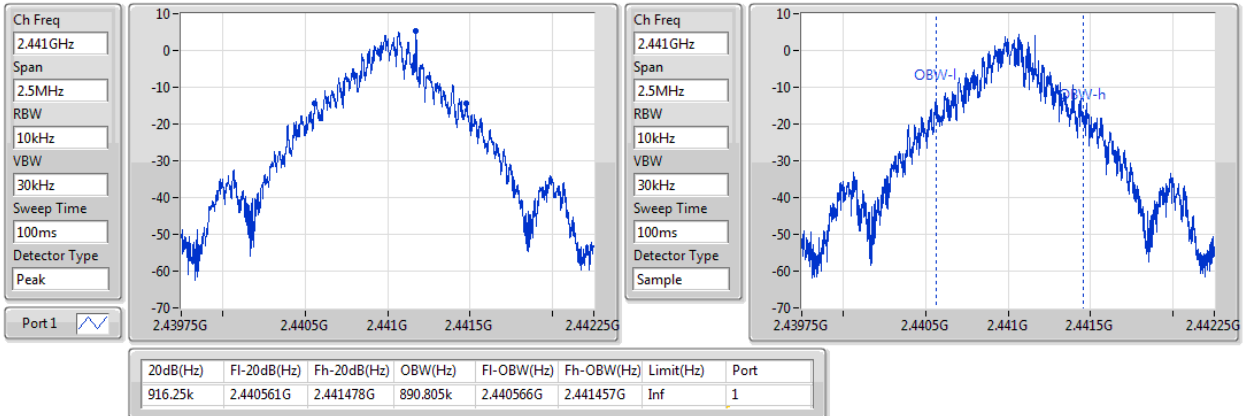
Port X-N dB = Port X 20dB down bandwidth; **Port X-OBW** = Port X 99% occupied bandwidth;

BT-BR(1Mbps)
EBW
2402MHz

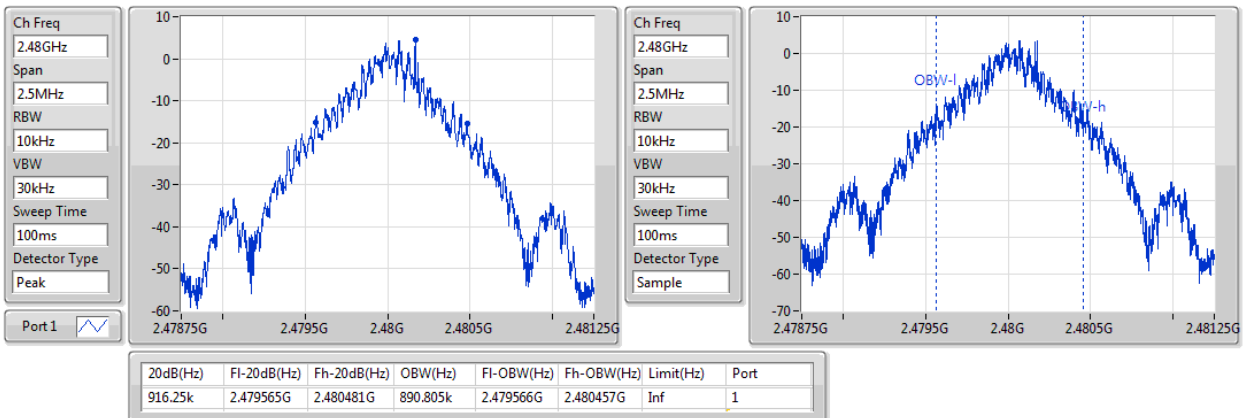
27/07/2018


BT-BR(1Mbps)
EBW
2441MHz

27/07/2018

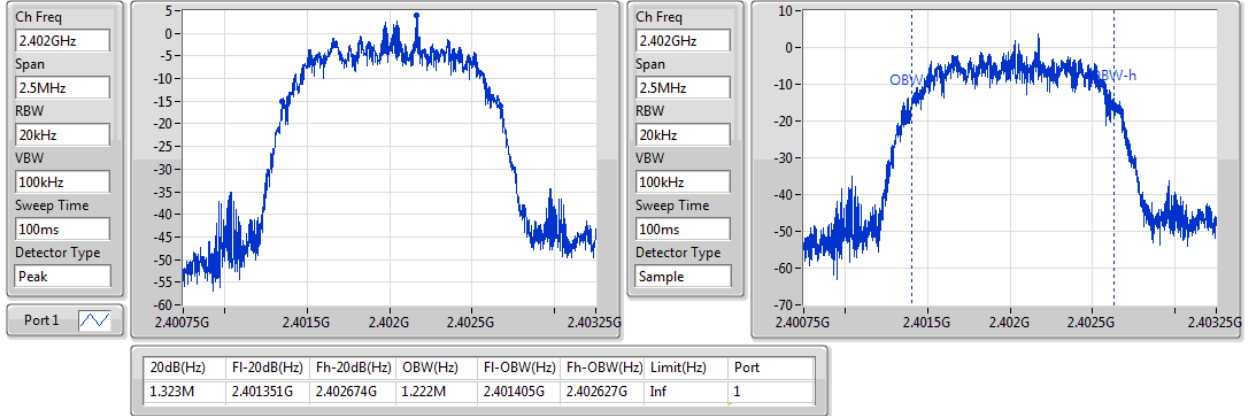

BT-BR(1Mbps)
EBW
2480MHz

27/07/2018

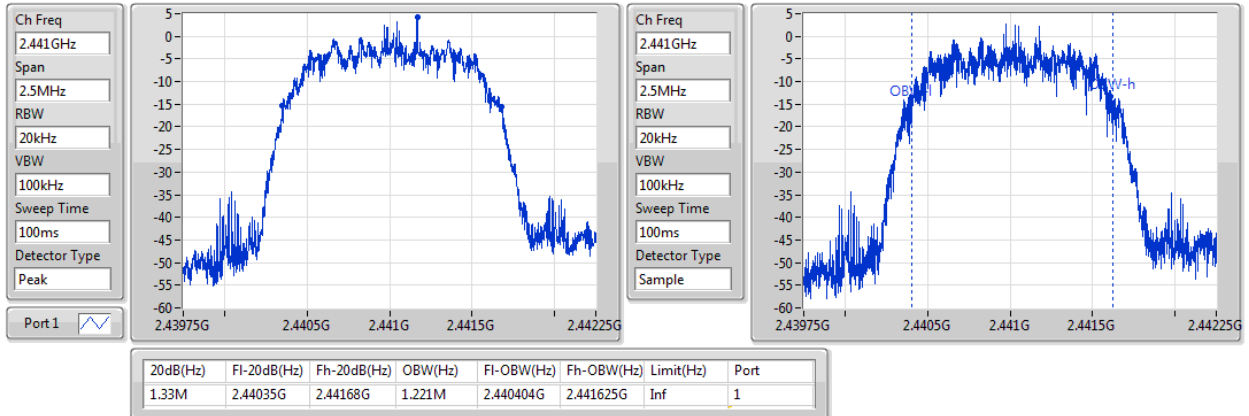


BT-EDR(2Mbps)
EBW
2402MHz

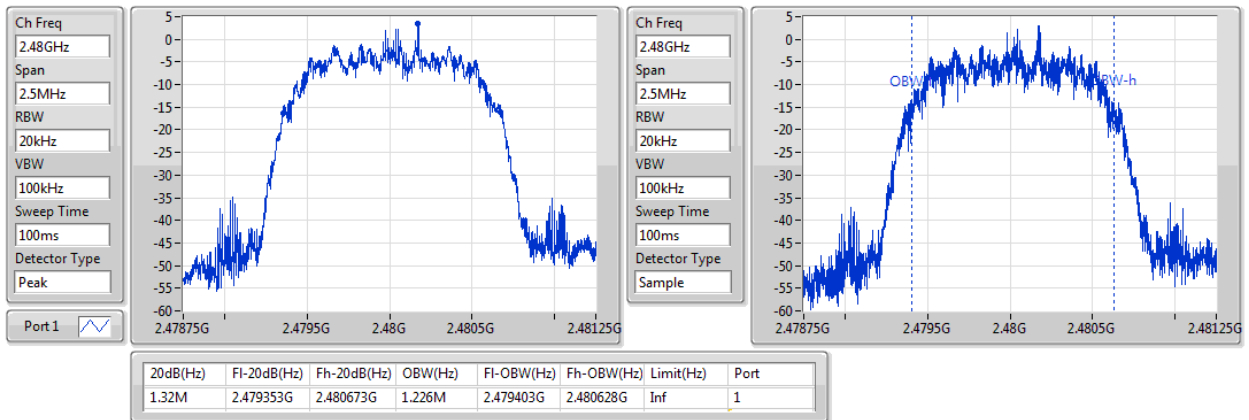
27/07/2018


BT-EDR(2Mbps)
EBW
2441MHz

27/07/2018

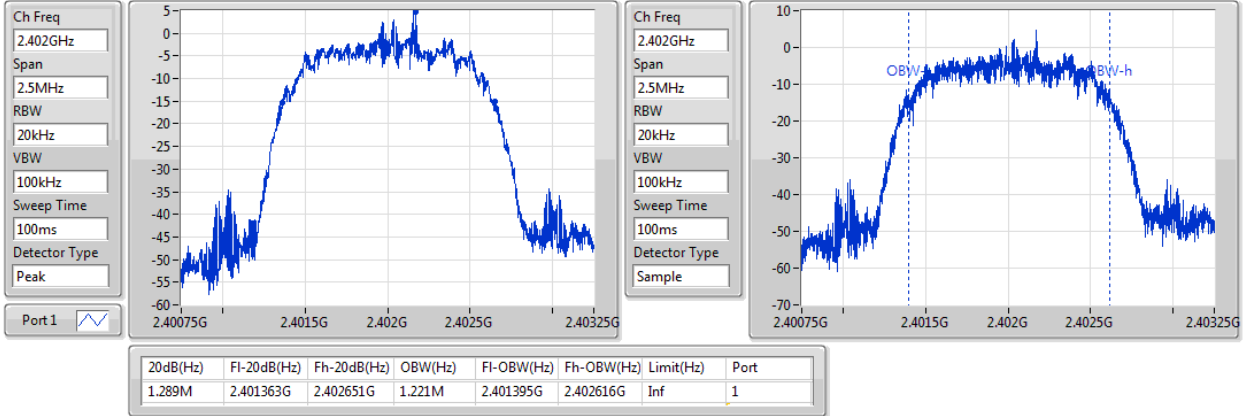

BT-EDR(2Mbps)
EBW
2480MHz

27/07/2018

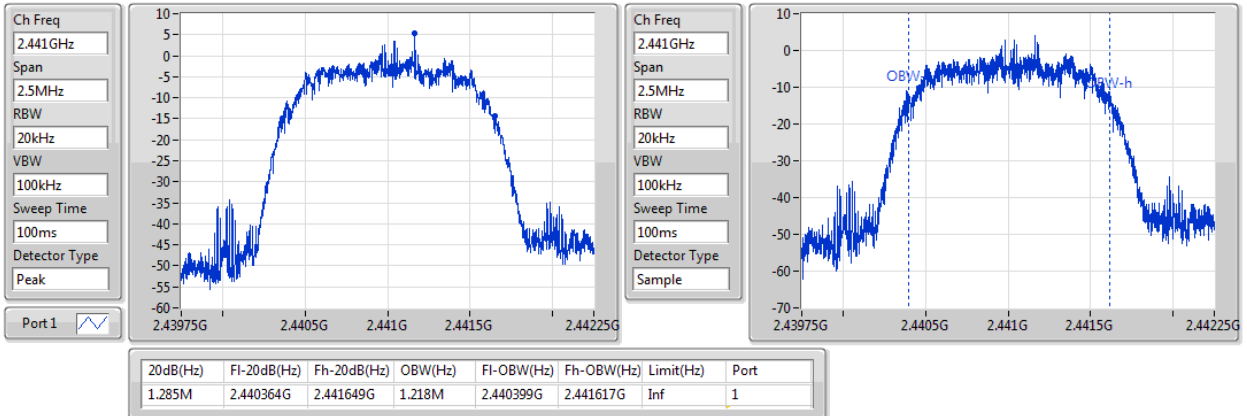


BT-EDR(3Mbps)
EBW
2402MHz

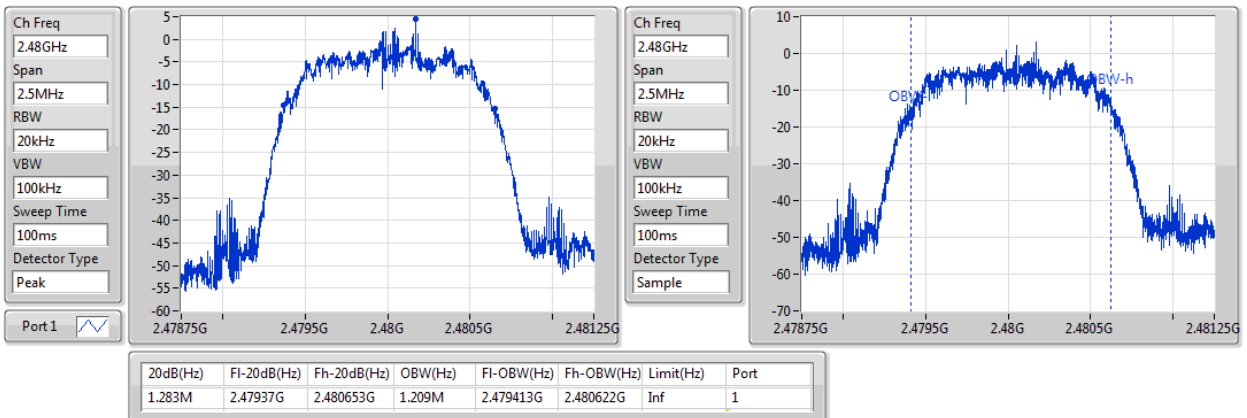
27/07/2018


BT-EDR(3Mbps)
EBW
2441MHz

27/07/2018


BT-EDR(3Mbps)
EBW
2480MHz

27/07/2018



Summary

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

Result

Mode	Result	Fl (Hz)	Fh (Hz)	Ch.Space (Hz)	Limit (Hz)
BT-BR(1Mbps)	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.402164G	2.403166G	1.002M	610.2225k
2441MHz_TnomVnom	Pass	2.441166G	2.442168G	1.002M	610.2225k
2480MHz_TnomVnom	Pass	2.47917G	2.480169G	999k	610.2225k
BT-EDR(2Mbps)	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.40204G	2.403043G	1.0035M	881.118k
2441MHz_TnomVnom	Pass	2.441044G	2.442043G	999k	885.78k
2480MHz_TnomVnom	Pass	2.479046G	2.480048G	1.002M	879.12k
BT-EDR(3Mbps)	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.402163G	2.403163G	1.0005M	858.474k
2441MHz_TnomVnom	Pass	2.441166G	2.442166G	1.0005M	855.81k
2480MHz_TnomVnom	Pass	2.479169G	2.480171G	1.002M	854.478k

BT-BR(1Mbps)

Channel Separation

2.402G/2.403GHz



BT-BR(1Mbps)

Channel Separation

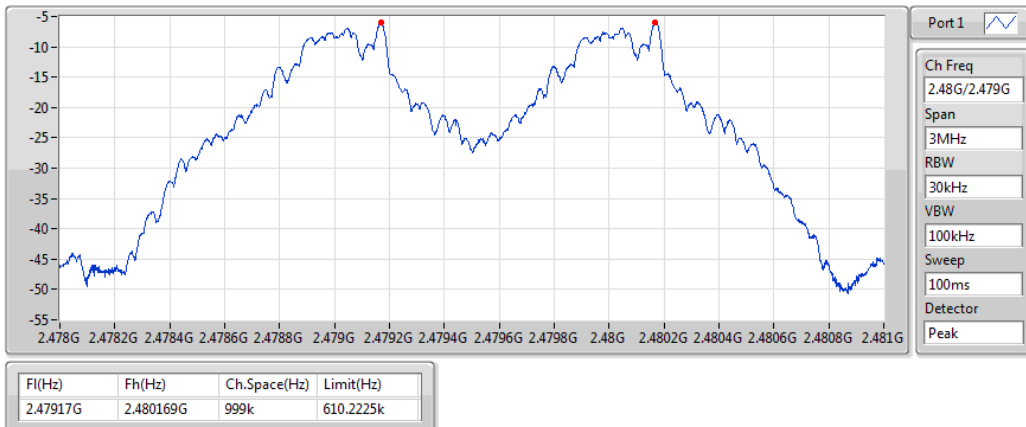
2.441G/2.442GHz



BT-BR(1Mbps)

Channel Separation

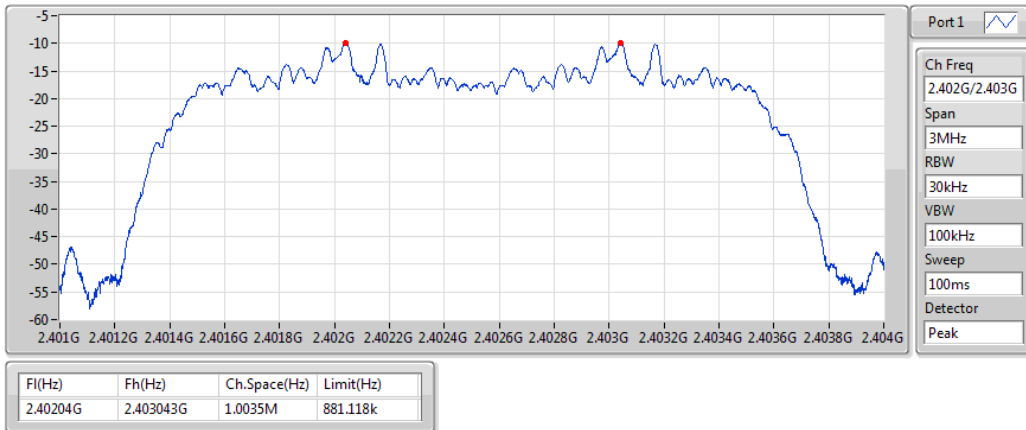
2.48G/2.479GHz



BT-EDR(2Mbps)

Channel Separation

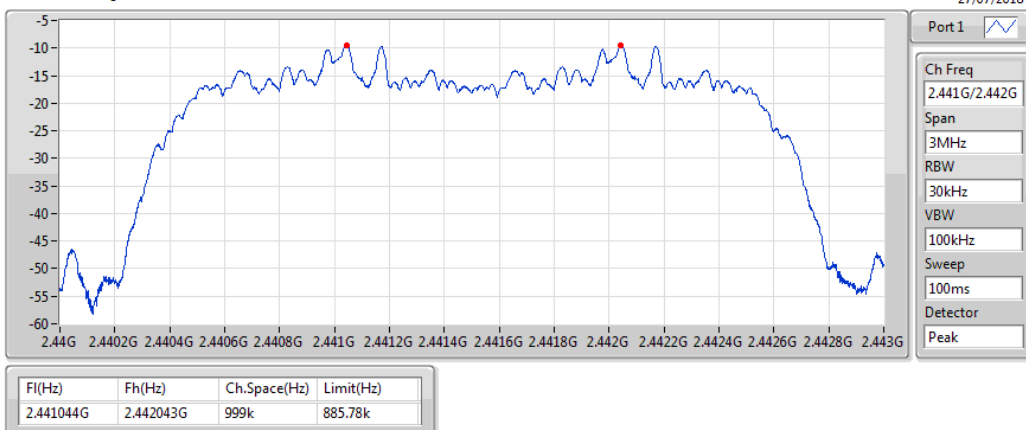
2.402G/2.403GHz



BT-EDR(2Mbps)

Channel Separation

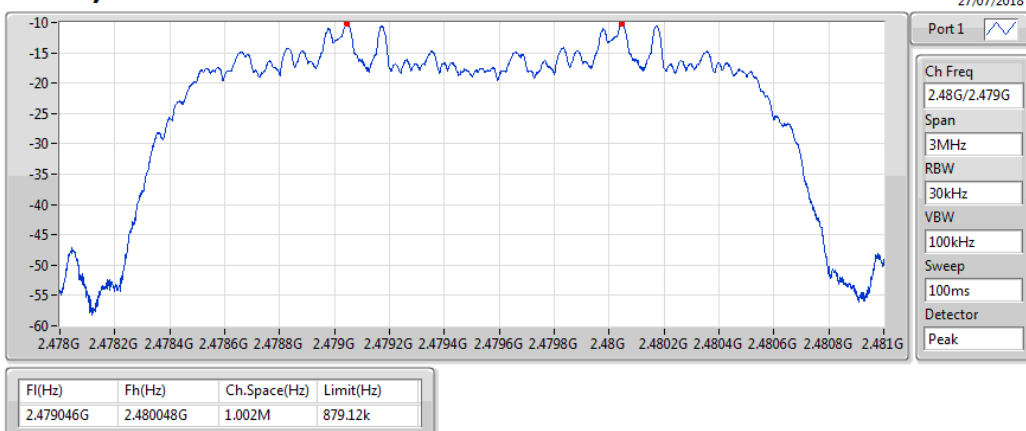
2.441G/2.442GHz



BT-EDR(2Mbps)

Channel Separation

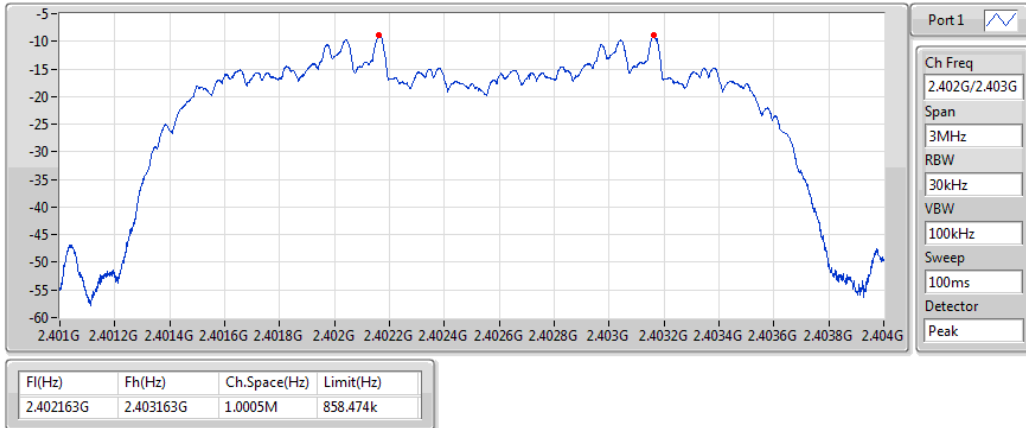
2.48G/2.479GHz



BT-EDR(3Mbps)

Channel Separation

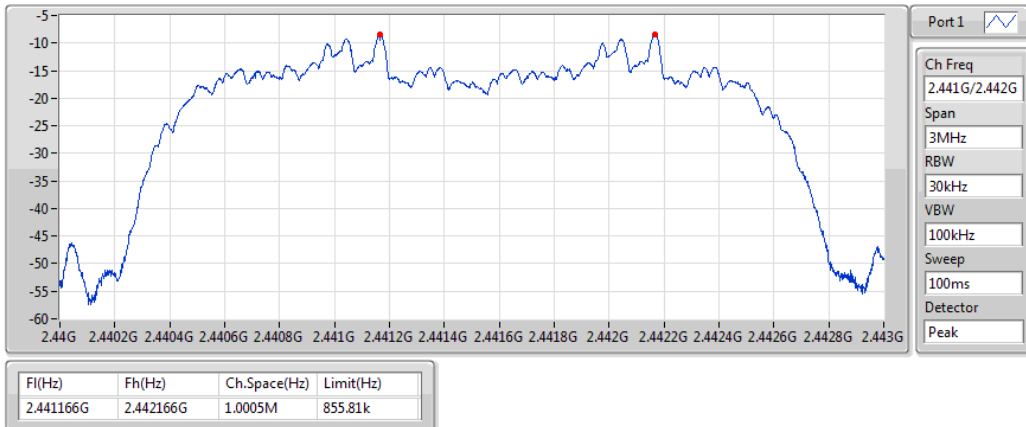
2.402G/2.403GHz



BT-EDR(3Mbps)

Channel Separation

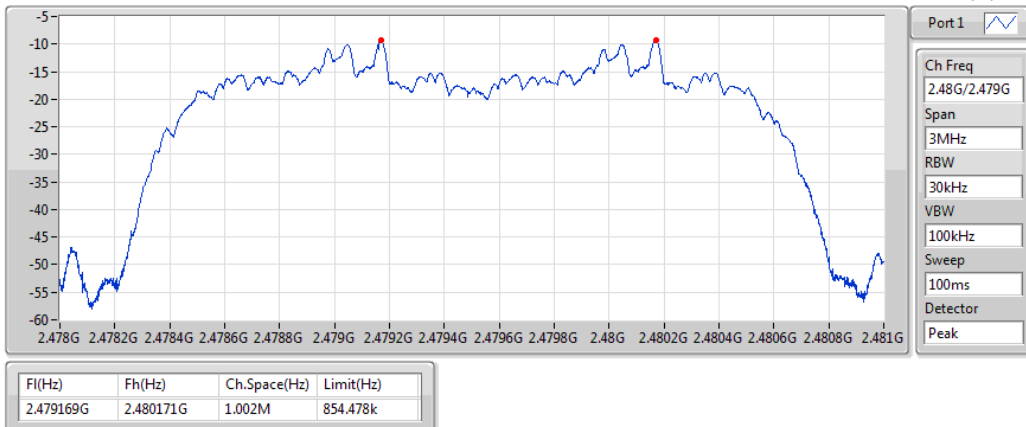
2.441G/2.442GHz



BT-EDR(3Mbps)

Channel Separation

2.48G/2.479GHz



Summary

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-BR(1Mbps)	10.52	0.01127
BT-EDR(2Mbps)	10.06	0.01014
BT-EDR(3Mbps)	10.44	0.01107

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-BR(1Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	2.30	10.06	21.00
2441MHz_TnomVnom	Pass	2.30	10.52	21.00
2480MHz_TnomVnom	Pass	2.30	9.90	21.00
BT-EDR(2Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	2.30	9.67	21.00
2441MHz_TnomVnom	Pass	2.30	10.06	21.00
2480MHz_TnomVnom	Pass	2.30	9.28	21.00
BT-EDR(3Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	2.30	9.99	21.00
2441MHz_TnomVnom	Pass	2.30	10.44	21.00
2480MHz_TnomVnom	Pass	2.30	9.65	21.00

Summary

Mode	Power	Power
	(dBm)	(W)
2.4-2.4835GHz	-	-
BT-BR(1Mbps)	10.31	0.01074
BT-EDR(2Mbps)	7.37	0.00546
BT-EDR(3Mbps)	7.53	0.00566

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-BR(1Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	2.30	9.83	21.00
2441MHz_TnomVnom	Pass	2.30	10.31	21.00
2480MHz_TnomVnom	Pass	2.30	9.68	21.00
BT-EDR(2Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	2.30	6.92	21.00
2441MHz_TnomVnom	Pass	2.30	7.37	21.00
2480MHz_TnomVnom	Pass	2.30	6.59	21.00
BT-EDR(3Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	2.30	7.09	21.00
2441MHz_TnomVnom	Pass	2.30	7.53	21.00
2480MHz_TnomVnom	Pass	2.30	6.71	21.00

Summary

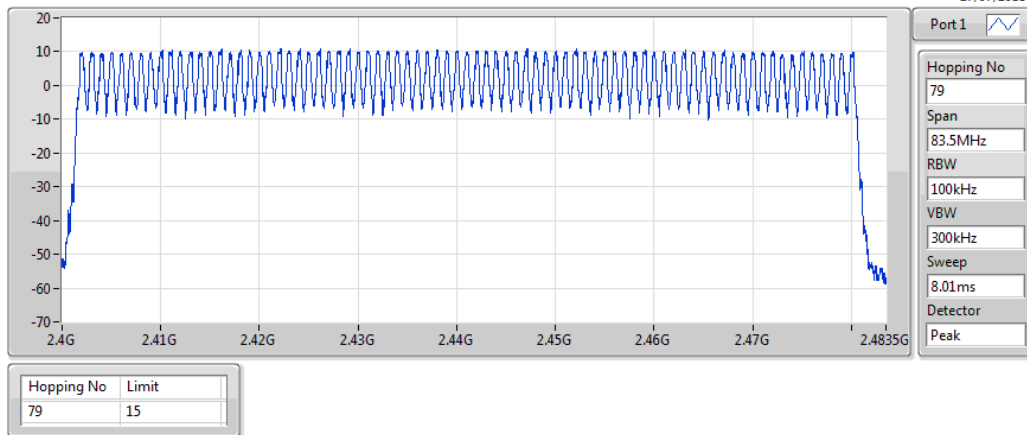
Mode	Max-Hop No
2.4-2.4835GHz	-
BT-BR(1Mbps)	79
BT-EDR(2Mbps)	79
BT-EDR(3Mbps)	79

Result

Mode	Result	Hopping No	Limit
BT-BR(1Mbps)	-	-	-
2441MHz_TnomVnom	Pass	79	15
BT-EDR(2Mbps)	-	-	-
2441MHz_TnomVnom	Pass	79	15
BT-EDR(3Mbps)	-	-	-
2441MHz_TnomVnom	Pass	79	15

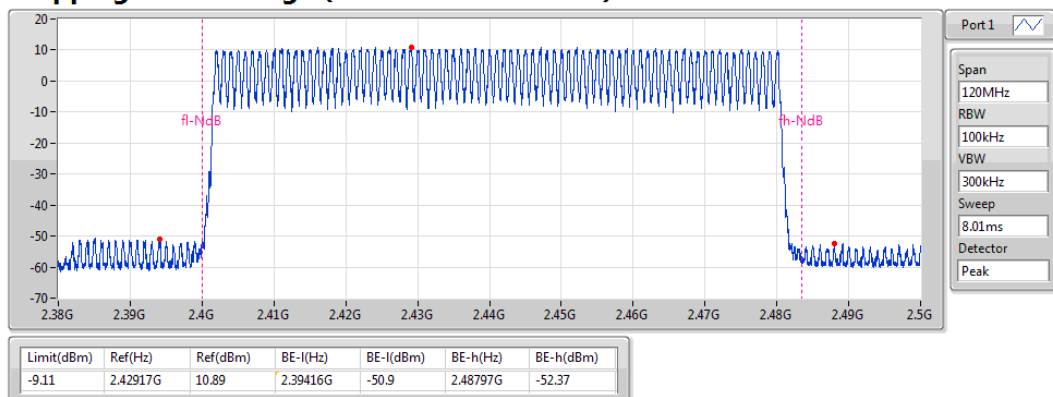
BT-BR(1Mbps) 2441MHz

Hopping Ch



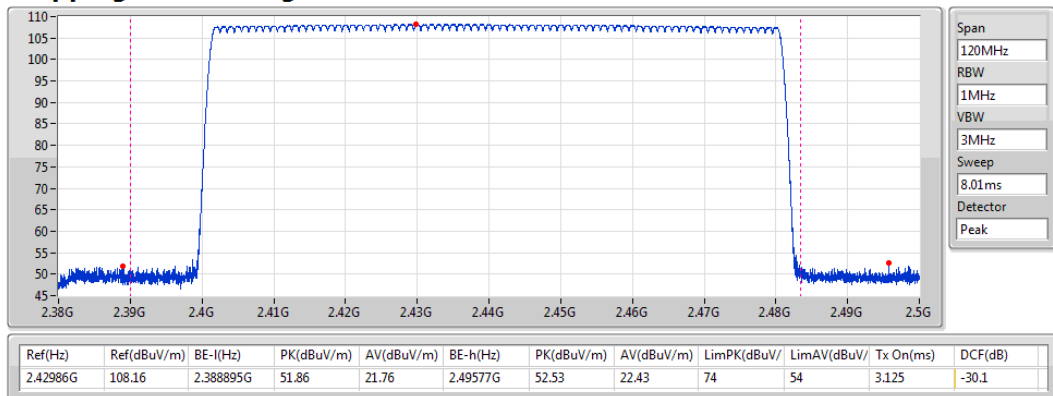
BT-BR(1Mbps) 2441MHz

Hopping Ch Bandedge (Non-restricted Band)



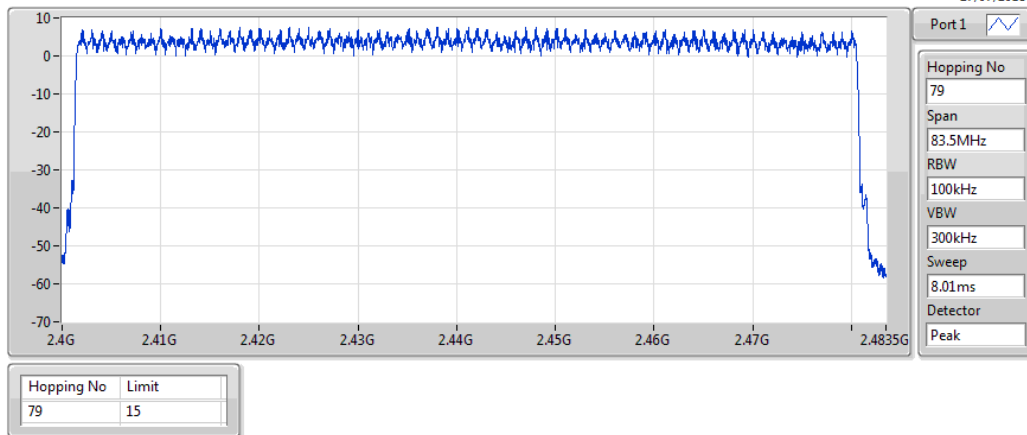
BT-BR(1Mbps) 2441MHz

Hopping Ch Bandedge (Restricted Band)



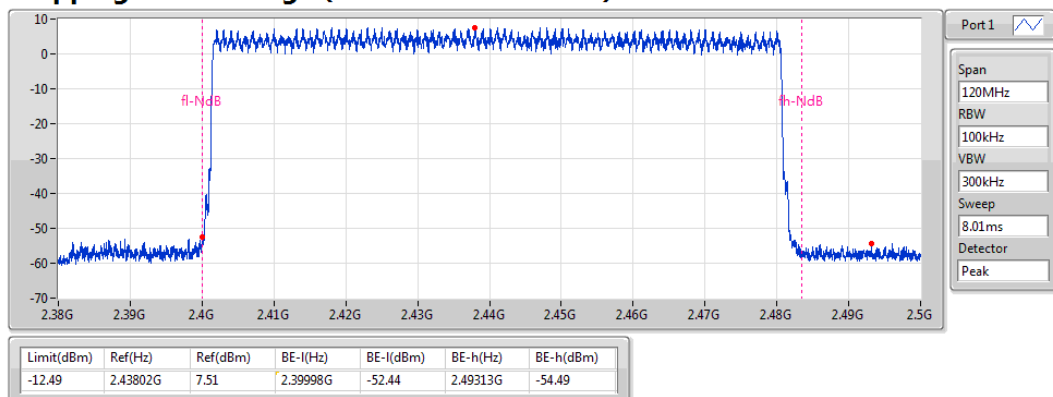
BT-EDR(2Mbps) 2441MHz

Hopping Ch



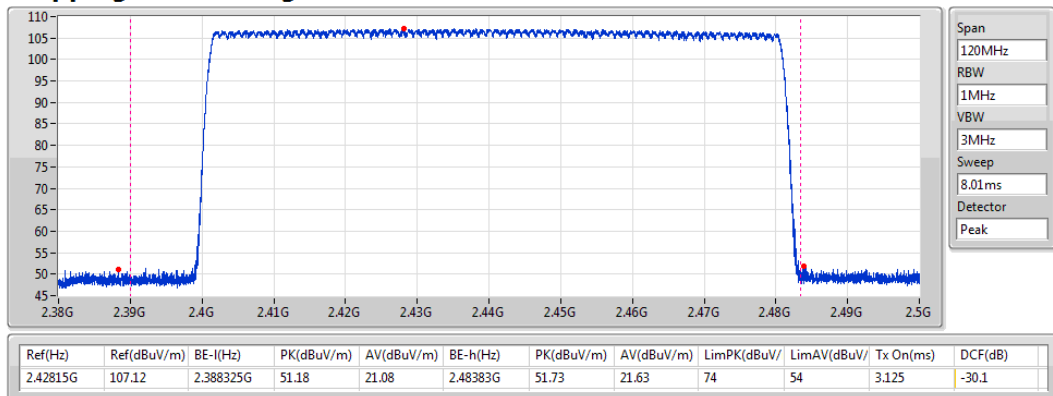
BT-EDR(2Mbps) 2441MHz

Hopping Ch Bandedge (Non-restricted Band)



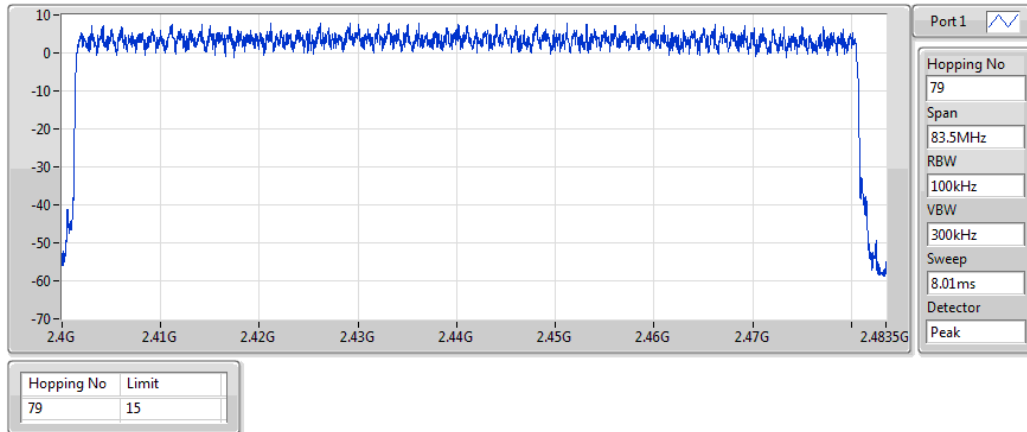
BT-EDR(2Mbps) 2441MHz

Hopping Ch Bandedge (Restricted Band)



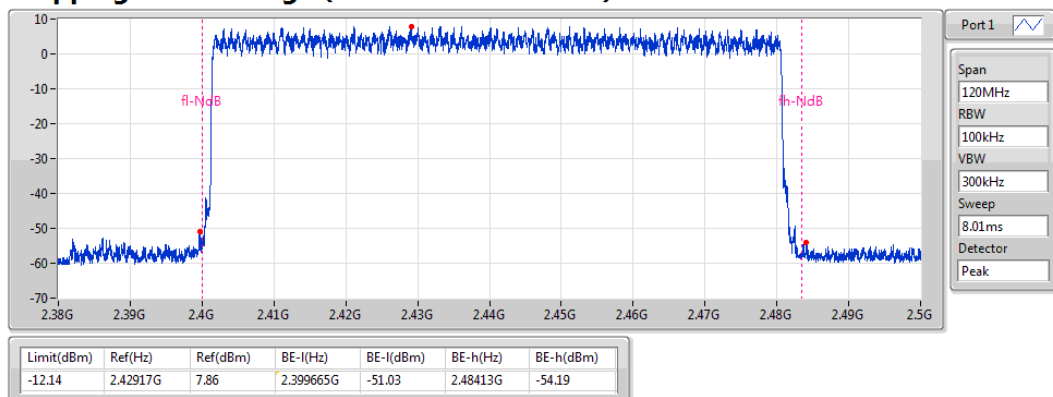
BT-EDR(3Mbps) 2441MHz

Hopping Ch



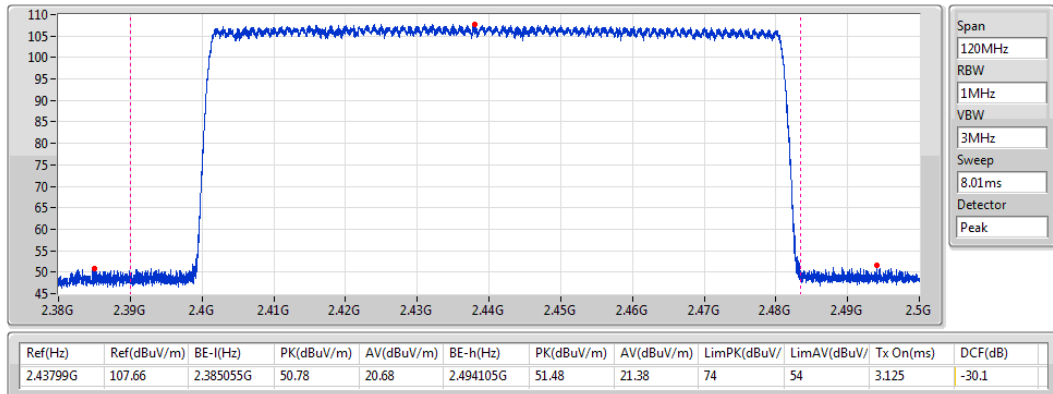
BT-EDR(3Mbps) 2441MHz

Hopping Ch Bandedge (Non-restricted Band)



BT-EDR(3Mbps) 2441MHz

Hopping Ch Bandedge (Restricted Band)



Summary

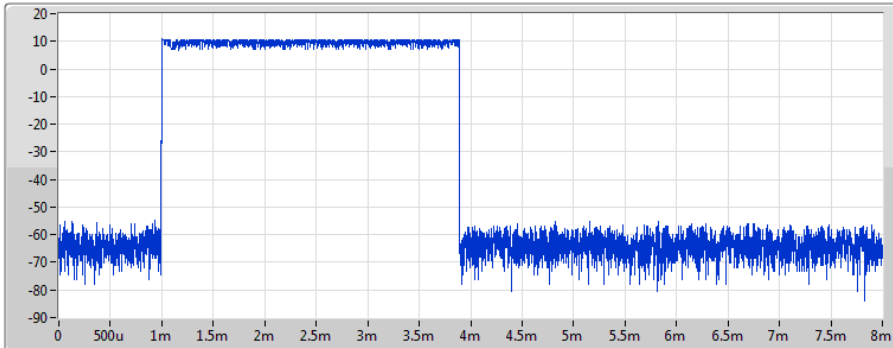
Mode	Max-Dwell (s)
2.4-2.4835GHz	-
BT-BR(1Mbps)	308.2872m
BT-EDR(2Mbps)	308.607m
BT-EDR(3Mbps)	308.7136m

Result

Mode	Result	Period (s)	Dwell (s)	Limit (s)	Tx On (s)
BT-BR(1Mbps)	-	-	-	-	-
2441MHz_TnomVnom	Pass	31.6	308.2872m	400m	2.892m
BT-EDR(2Mbps)	-	-	-	-	-
2441MHz_TnomVnom	Pass	31.6	308.607m	400m	2.895m
BT-EDR(3Mbps)	-	-	-	-	-
2441MHz_TnomVnom	Pass	31.6	308.7136m	400m	2.896m

BT-BR(1Mbps)

2441MHz



Period(s)	Dwell(s)	Limit(s)	Tx On(s)
31.6	308.2872m	400m	2.892m

Dwell

27/07/2018

Port 1 

Ch Freq
2.441GHz

RBW
300kHz

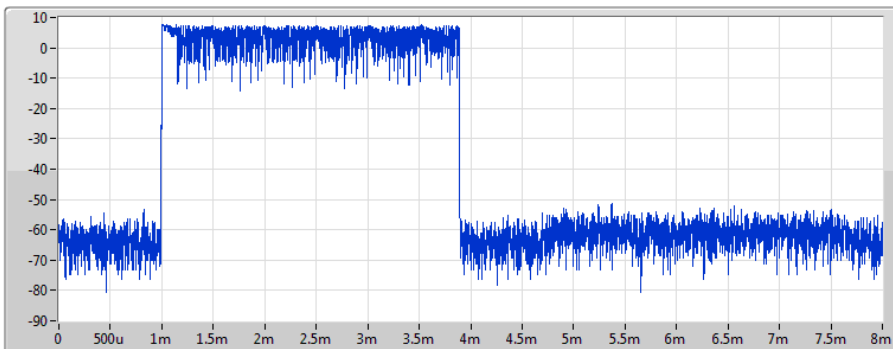
VBW
1MHz

Sweep Time
8ms

TX Time
2.892ms

BT-EDR(2Mbps)

2441MHz



Period(s)	Dwell(s)	Limit(s)	Tx On(s)
31.6	308.607m	400m	2.895m

Dwell

27/07/2018

Port 1 

Ch Freq
2.441GHz

RBW
300kHz

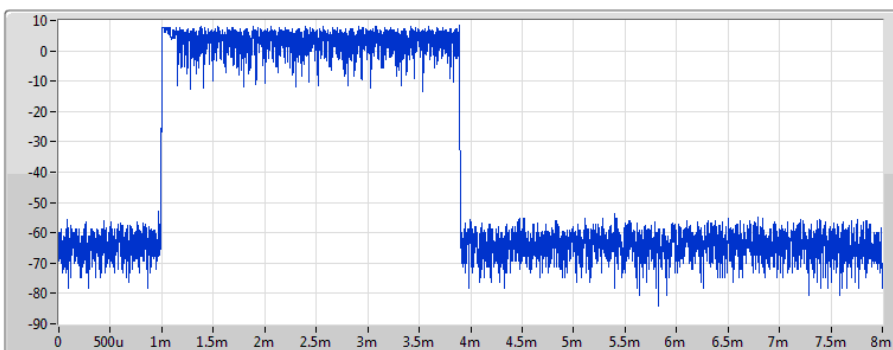
VBW
1MHz

Sweep Time
8ms

TX Time
2.895ms

BT-EDR(3Mbps)

2441MHz



Period(s)	Dwell(s)	Limit(s)	Tx On(s)
31.6	308.7136m	400m	2.896m

Dwell

27/07/2018

Port 1 

Ch Freq
2.441GHz

RBW
300kHz

VBW
1MHz

Sweep Time
8ms

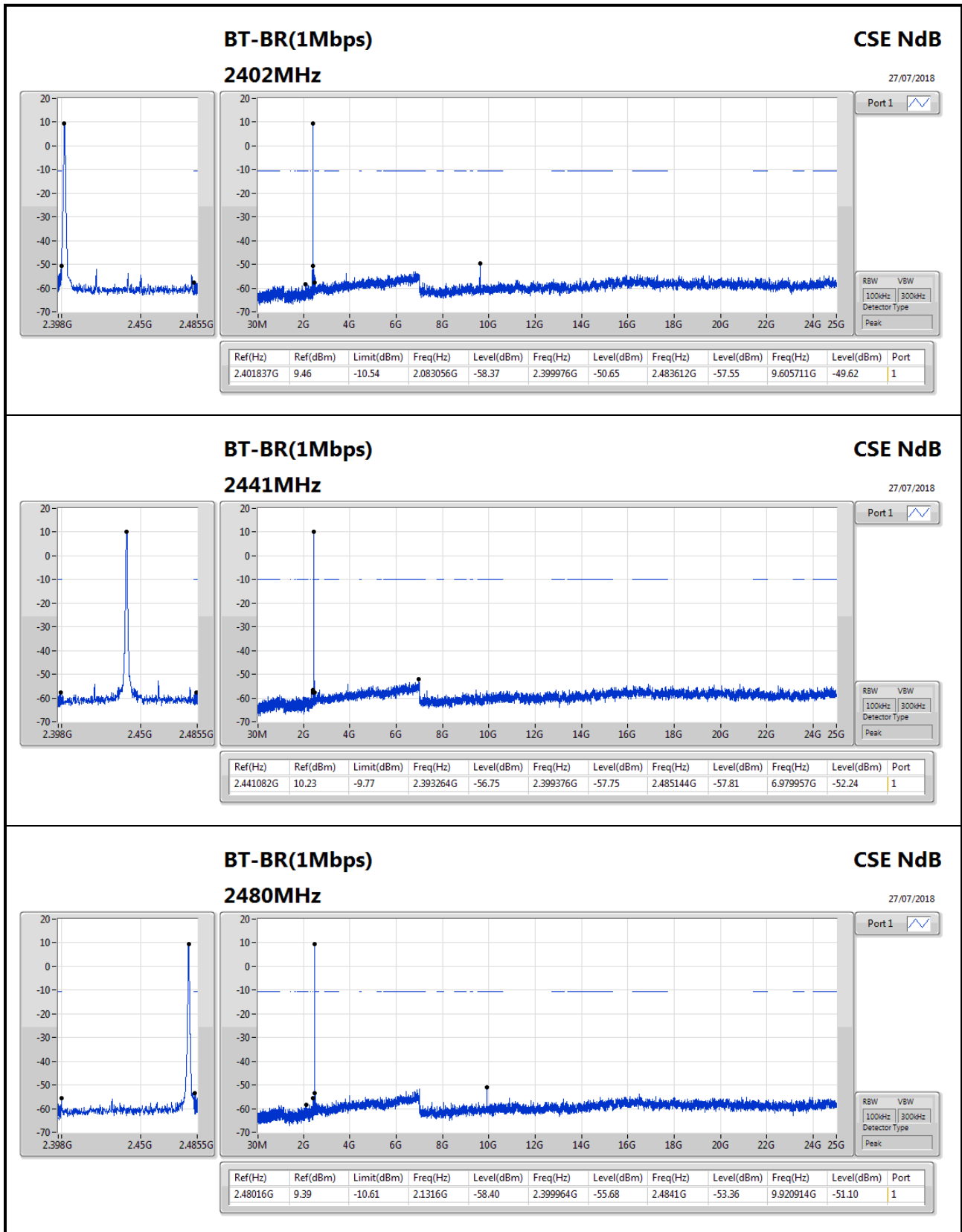
TX Time
2.896ms

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	9.46	-10.54	2.083056G	-58.37	2.399976G	-50.65	2.483612G	-57.55	9.605711G	-49.62	1
BT-EDR(2Mbps)	Pass	2.402004G	6.87	-13.13	891.952M	-58.22	2.3998G	-50.93	2.483888G	-57.35	6.417095G	-53.02	1
BT-EDR(3Mbps)	Pass	2.401837G	5.43	-14.57	2.11976G	-58.84	2.399496G	-51.01	2.483588G	-56.92	6.985586G	-53.36	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_TnomVnom	Pass	2.401837G	9.46	-10.54	2.083056G	-58.37	2.399976G	-50.65	2.483612G	-57.55	9.605711G	-49.62	1
2441MHz_TnomVnom	Pass	2.441082G	10.23	-9.77	2.393264G	-56.75	2.399376G	-57.75	2.485144G	-57.81	6.979957G	-52.24	1
2480MHz_TnomVnom	Pass	2.48016G	9.39	-10.61	2.1316G	-58.40	2.399964G	-55.68	2.4841G	-53.36	9.920914G	-51.10	1
BT-EDR(2Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.402004G	6.87	-13.13	891.952M	-58.22	2.3998G	-50.93	2.483888G	-57.35	6.417095G	-53.02	1
2441MHz_TnomVnom	Pass	2.440915G	6.86	-13.14	2.14936G	-59.02	2.39876G	-57.70	2.484832G	-57.86	6.957443G	-52.06	1
2480MHz_TnomVnom	Pass	2.48016G	5.10	-14.90	1.923216G	-58.35	2.399972G	-57.14	2.484072G	-54.90	6.9884G	-52.88	1
BT-EDR(3Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.401837G	5.43	-14.57	2.11976G	-58.84	2.399496G	-51.01	2.483588G	-56.92	6.985586G	-53.36	1
2441MHz_TnomVnom	Pass	2.441082G	6.12	-13.88	2.300912G	-57.80	2.399196G	-58.47	2.48414G	-57.34	6.994029G	-51.68	1
2480MHz_TnomVnom	Pass	2.480327G	4.43	-15.57	2.06648G	-57.97	2.399748G	-56.92	2.484148G	-54.86	6.929299G	-52.84	1

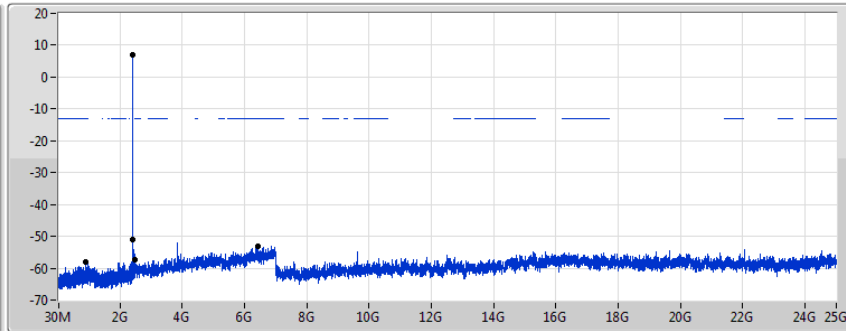
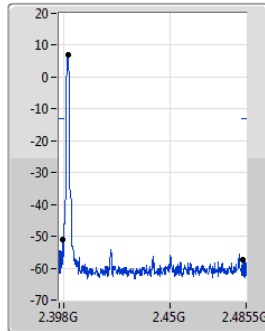


BT-EDR(2Mbps)

CSE NdB

2402MHz

27/07/2018



Port 1

RBW 100kHz VSW 300kHz
Detector Type Peak

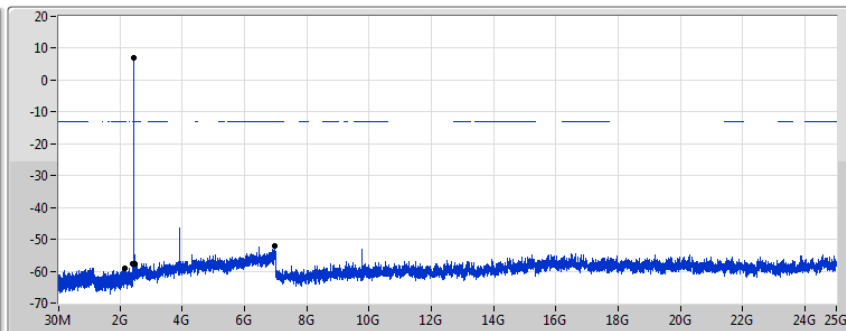
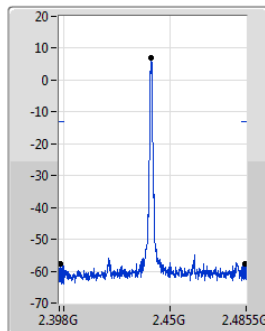
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.402004G	6.87	-13.13	891.952M	-58.22	2.3998G	-50.93	2.483888G	-57.35	6.417095G	-53.02	1

BT-EDR(2Mbps)

CSE NdB

2441MHz

27/07/2018



Port 1

RBW 100kHz VSW 300kHz
Detector Type Peak

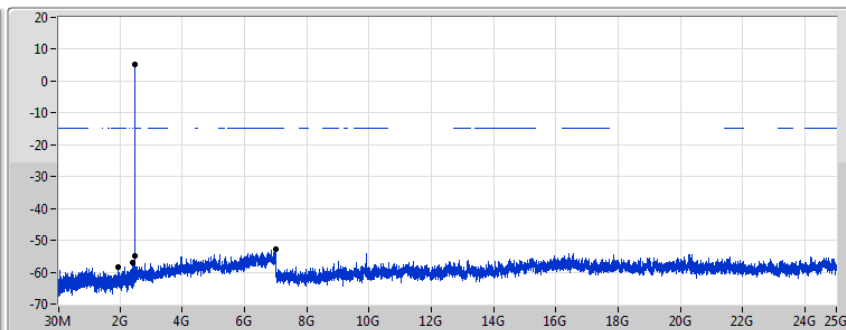
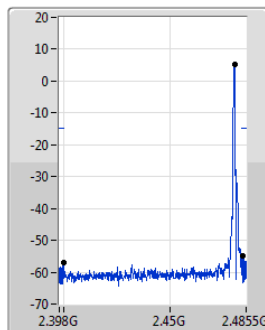
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.440915G	6.86	-13.14	2.14936G	-59.02	2.39876G	-57.70	2.484832G	-57.86	6.957443G	-52.06	1

BT-EDR(2Mbps)

CSE NdB

2480MHz

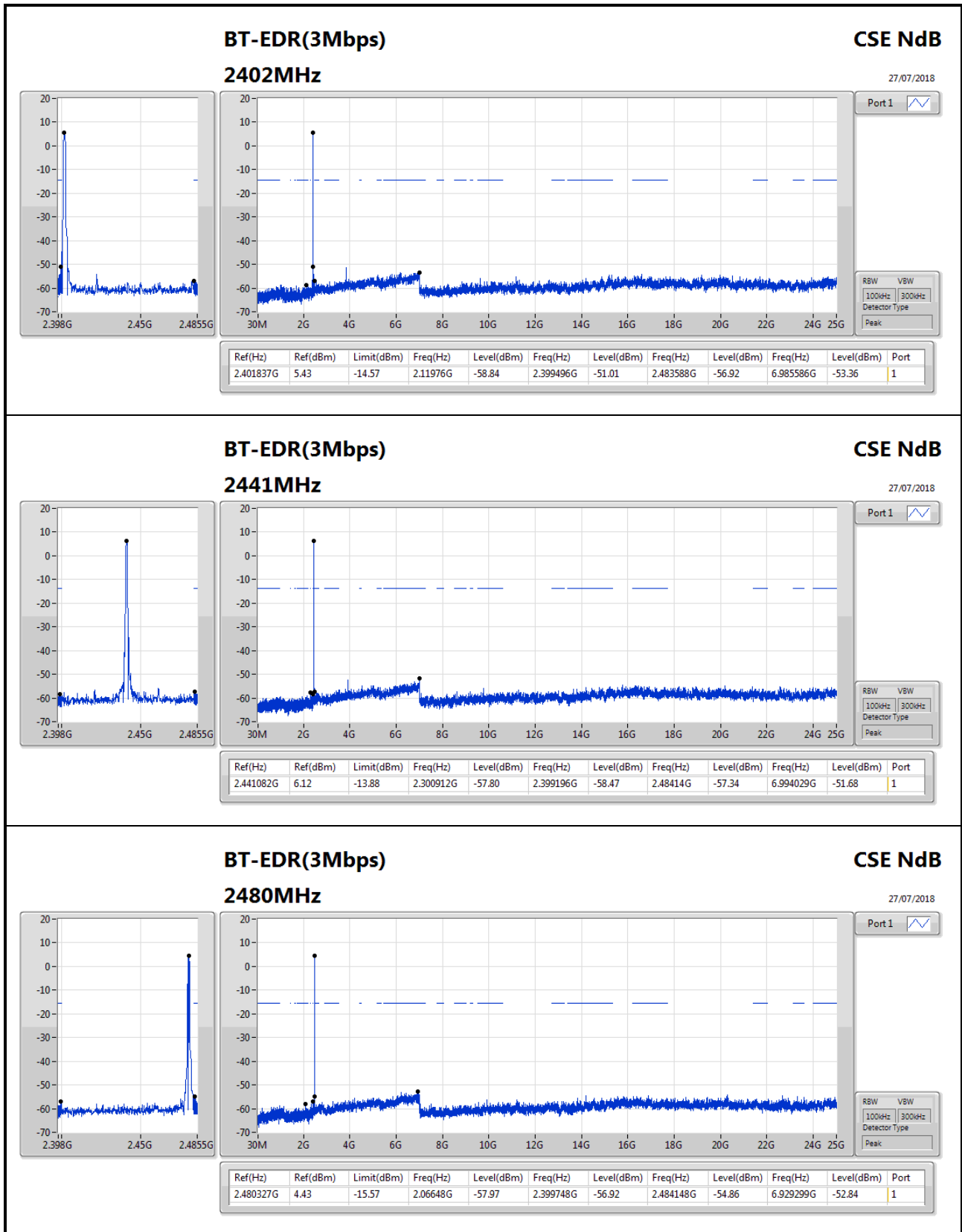
27/07/2018



Port 1

RBW 100kHz VSW 300kHz
Detector Type Peak

Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.48016G	5.10	-14.90	1.923216G	-58.35	2.399972G	-57.14	2.484072G	-54.90	6.9884G	-52.88	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	39.7M	33.78	40.00	-6.22	-9.61	3	Vertical	0	1.00	-

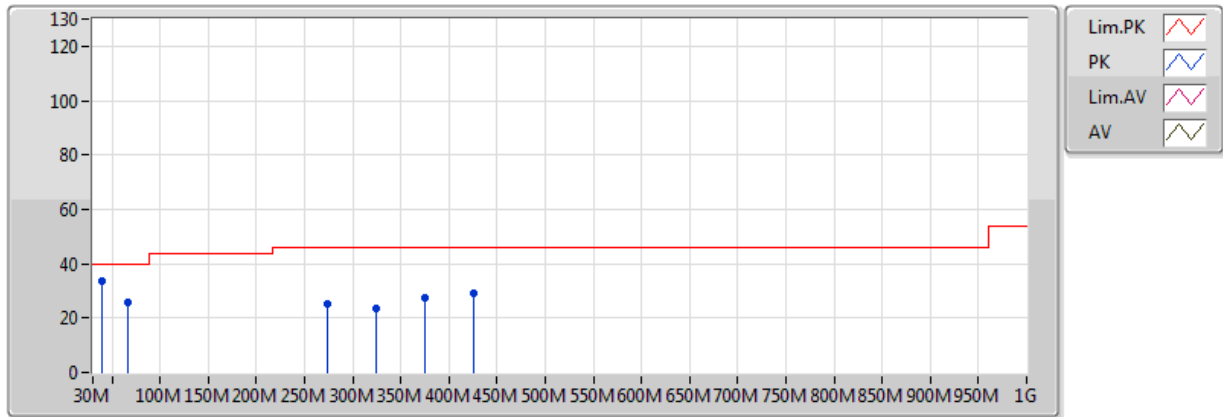
Result

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	39.7M	33.78	40.00	-6.22	-9.61	3	Vertical	0	1.00	-
2441MHz	Pass	PK	66.86M	25.87	40.00	-14.13	-15.76	3	Vertical	0	1.00	-
2441MHz	Pass	PK	274.44M	25.46	46.00	-20.54	-7.84	3	Vertical	0	1.00	-
2441MHz	Pass	PK	324.88M	23.62	46.00	-22.38	-7.07	3	Vertical	0	1.00	-
2441MHz	Pass	PK	375.32M	27.28	46.00	-18.72	-6.12	3	Vertical	0	1.00	-
2441MHz	Pass	PK	425.76M	29.11	46.00	-16.89	-4.62	3	Vertical	0	1.00	-
2441MHz	Pass	PK	39.7M	33.22	40.00	-6.78	-9.61	3	Horizontal	360	1.00	-
2441MHz	Pass	PK	224M	20.18	46.00	-25.82	-11.45	3	Horizontal	360	1.00	-
2441MHz	Pass	PK	274.44M	28.01	46.00	-17.99	-7.84	3	Horizontal	360	1.00	-
2441MHz	Pass	PK	375.32M	29.85	46.00	-16.15	-6.12	3	Horizontal	360	1.00	-
2441MHz	Pass	PK	425.76M	24.79	46.00	-21.21	-4.62	3	Horizontal	360	1.00	-
2441MHz	Pass	PK	567.38M	25.24	46.00	-20.76	-2.99	3	Horizontal	360	1.00	-

BT-BR(1Mbps)

2441MHz_PoE

30/07/2018

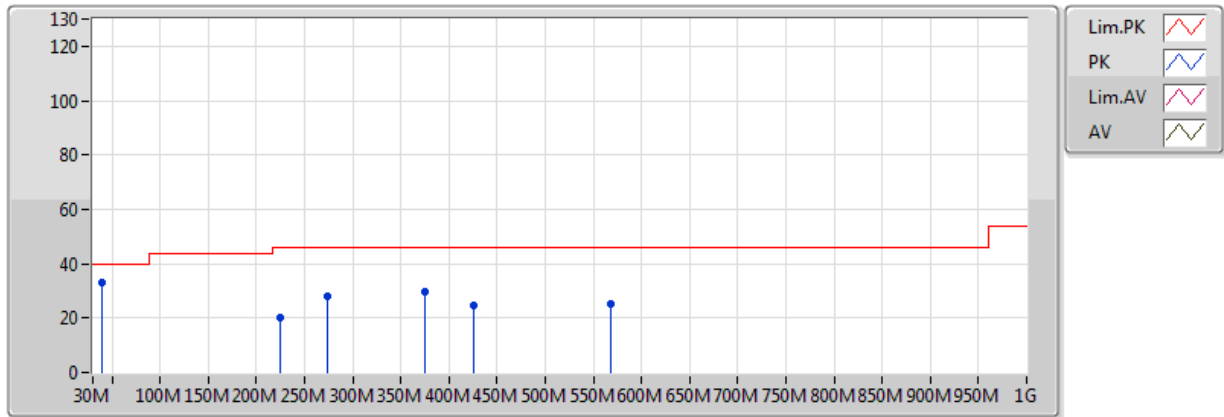


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	39.7M	33.78	40.00	-6.22	-9.61	3	Vertical	0	1.00	-
PK	66.86M	25.87	40.00	-14.13	-15.76	3	Vertical	0	1.00	-
PK	274.44M	25.46	46.00	-20.54	-7.84	3	Vertical	0	1.00	-
PK	324.88M	23.62	46.00	-22.38	-7.07	3	Vertical	0	1.00	-
PK	375.32M	27.28	46.00	-18.72	-6.12	3	Vertical	0	1.00	-
PK	425.76M	29.11	46.00	-16.89	-4.62	3	Vertical	0	1.00	-

BT-BR(1Mbps)

2441MHz_PoE

30/07/2018



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	39.7M	33.22	40.00	-6.78	-9.61	3	Horizontal	360	1.00	-
PK	224M	20.18	46.00	-25.82	-11.45	3	Horizontal	360	1.00	-
PK	274.44M	28.01	46.00	-17.99	-7.84	3	Horizontal	360	1.00	-
PK	375.32M	29.85	46.00	-16.15	-6.12	3	Horizontal	360	1.00	-
PK	425.76M	24.79	46.00	-21.21	-4.62	3	Horizontal	360	1.00	-
PK	567.38M	25.24	46.00	-20.76	-2.99	3	Horizontal	360	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	2.483502G	45.25	54.00	-8.75	32.61	3	Vertical	357	2.78	-
BT-EDR(2Mbps)	Pass	AV	2.483502G	44.89	54.00	-9.11	32.61	3	Vertical	357	2.77	-
BT-EDR(3Mbps)	Pass	AV	2.483502G	44.90	54.00	-9.10	32.61	3	Vertical	360	2.77	-

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	2.3528G	44.32	54.00	-9.68	32.14	3	Vertical	349	1.84	-
2402MHz	Pass	AV	2.402G	83.43	Inf	-Inf	32.31	3	Vertical	349	1.84	-
2402MHz	Pass	PK	2.3826G	56.98	74.00	-17.02	32.25	3	Vertical	349	1.84	-
2402MHz	Pass	PK	2.4022G	95.37	Inf	-Inf	32.32	3	Vertical	349	1.84	-
2402MHz	Pass	AV	4.79476G	31.29	54.00	-22.71	2.97	3	Vertical	160	1.50	-
2402MHz	Pass	PK	4.79164G	45.60	74.00	-28.40	2.96	3	Vertical	160	1.50	-
2402MHz	Pass	AV	4.79284G	31.20	54.00	-22.80	2.97	3	Horizontal	283	1.50	-
2402MHz	Pass	PK	4.7906G	44.66	74.00	-29.34	2.96	3	Horizontal	283	1.50	-
2441MHz	Pass	AV	2.3442G	44.35	54.00	-9.65	32.11	3	Vertical	359	2.61	-
2441MHz	Pass	AV	2.441G	83.32	Inf	-Inf	32.46	3	Vertical	359	2.61	-
2441MHz	Pass	AV	2.4986G	44.57	54.00	-9.43	32.67	3	Vertical	359	2.61	-
2441MHz	Pass	PK	2.3534G	57.44	74.00	-16.56	32.14	3	Vertical	359	2.61	-
2441MHz	Pass	PK	2.441G	95.56	Inf	-Inf	32.46	3	Vertical	359	2.61	-
2441MHz	Pass	PK	2.4954G	57.17	74.00	-16.83	32.65	3	Vertical	359	2.61	-
2441MHz	Pass	AV	4.879G	31.20	54.00	-22.80	3.16	3	Vertical	156	1.67	-
2441MHz	Pass	PK	4.8781G	45.16	74.00	-28.84	3.16	3	Vertical	156	1.67	-
2441MHz	Pass	AV	4.8817G	31.15	54.00	-22.85	3.17	3	Horizontal	279	1.44	-
2441MHz	Pass	PK	4.89046G	45.03	74.00	-28.97	3.18	3	Horizontal	279	1.44	-
2480MHz	Pass	AV	2.48G	83.10	Inf	-Inf	32.60	3	Vertical	357	2.78	-
2480MHz	Pass	AV	2.483502G	45.25	54.00	-8.75	32.61	3	Vertical	357	2.78	-
2480MHz	Pass	PK	2.4798G	94.92	Inf	-Inf	32.60	3	Vertical	357	2.78	-
2480MHz	Pass	PK	2.4918G	56.82	74.00	-17.18	32.64	3	Vertical	357	2.78	-
2480MHz	Pass	AV	4.94956G	31.48	54.00	-22.52	3.30	3	Vertical	36	1.50	-
2480MHz	Pass	PK	4.97446G	45.61	74.00	-28.39	3.35	3	Vertical	36	1.50	-
2480MHz	Pass	AV	4.95976G	31.53	54.00	-22.47	3.33	3	Horizontal	288	1.66	-
2480MHz	Pass	PK	4.94548G	45.94	74.00	-28.06	3.29	3	Horizontal	288	1.66	-
BT-EDR(2Mbps)	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	AV	2.3522G	44.32	54.00	-9.68	32.14	3	Vertical	216	2.78	-
2402MHz	Pass	AV	2.402G	78.95	Inf	-Inf	32.31	3	Vertical	216	2.78	-
2402MHz	Pass	PK	2.3818G	56.82	74.00	-17.18	32.25	3	Vertical	216	2.78	-
2402MHz	Pass	PK	2.4022G	93.14	Inf	-Inf	32.32	3	Vertical	216	2.78	-
2441MHz	Pass	AV	2.3486G	44.34	54.00	-9.66	32.13	3	Vertical	359	2.65	-
2441MHz	Pass	AV	2.441G	79.56	Inf	-Inf	32.46	3	Vertical	359	2.65	-
2441MHz	Pass	AV	2.4994G	44.57	54.00	-9.43	32.67	3	Vertical	359	2.65	-
2441MHz	Pass	PK	2.3554G	56.53	74.00	-17.47	32.15	3	Vertical	359	2.65	-
2441MHz	Pass	PK	2.4414G	93.55	Inf	-Inf	32.46	3	Vertical	359	2.65	-
2441MHz	Pass	PK	2.4874G	56.23	74.00	-17.77	32.62	3	Vertical	359	2.65	-
2480MHz	Pass	AV	2.48G	78.56	Inf	-Inf	32.60	3	Vertical	357	2.77	-
2480MHz	Pass	AV	2.483502G	44.89	54.00	-9.11	32.61	3	Vertical	357	2.77	-
2480MHz	Pass	PK	2.4802G	92.60	Inf	-Inf	32.60	3	Vertical	357	2.77	-
2480MHz	Pass	PK	2.496G	56.73	74.00	-17.27	32.66	3	Vertical	357	2.77	-
BT-EDR(3Mbps)	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	AV	2.3558G	44.32	54.00	-9.68	32.15	3	Vertical	344	2.82	-
2402MHz	Pass	AV	2.402G	78.80	Inf	-Inf	32.31	3	Vertical	344	2.82	-
2402MHz	Pass	PK	2.378G	56.46	74.00	-17.54	32.23	3	Vertical	344	2.82	-
2402MHz	Pass	PK	2.402G	92.97	Inf	-Inf	32.31	3	Vertical	344	2.82	-
2441MHz	Pass	AV	2.3474G	44.32	54.00	-9.68	32.12	3	Vertical	360	2.66	-



RSE TX above 1GHz Result

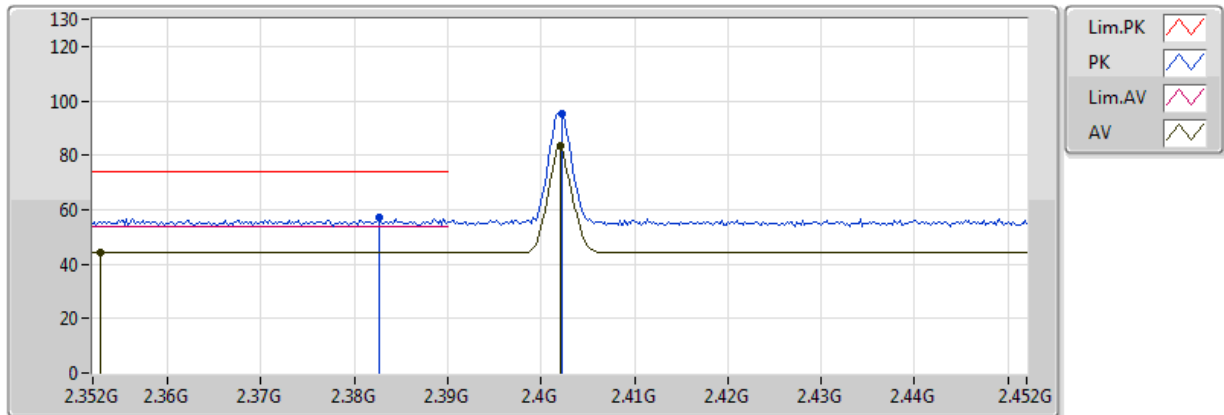
Appendix G.2

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2441MHz	Pass	AV	2.441G	79.44	Inf	-Inf	32.46	3	Vertical	360	2.66	-
2441MHz	Pass	AV	2.4982G	44.53	54.00	-9.47	32.67	3	Vertical	360	2.66	-
2441MHz	Pass	PK	2.3586G	57.16	74.00	-16.84	32.16	3	Vertical	360	2.66	-
2441MHz	Pass	PK	2.441G	93.59	Inf	-Inf	32.46	3	Vertical	360	2.66	-
2441MHz	Pass	PK	2.491G	56.05	74.00	-17.95	32.64	3	Vertical	360	2.66	-
2480MHz	Pass	AV	2.48G	78.36	Inf	-Inf	32.60	3	Vertical	360	2.77	-
2480MHz	Pass	AV	2.483502G	44.90	54.00	-9.10	32.61	3	Vertical	360	2.77	-
2480MHz	Pass	PK	2.48G	92.36	Inf	-Inf	32.60	3	Vertical	360	2.77	-
2480MHz	Pass	PK	2.498G	57.00	74.00	-17.00	32.67	3	Vertical	360	2.77	-

BT-BR(1Mbps)

2402MHz_TX

29/07/2018

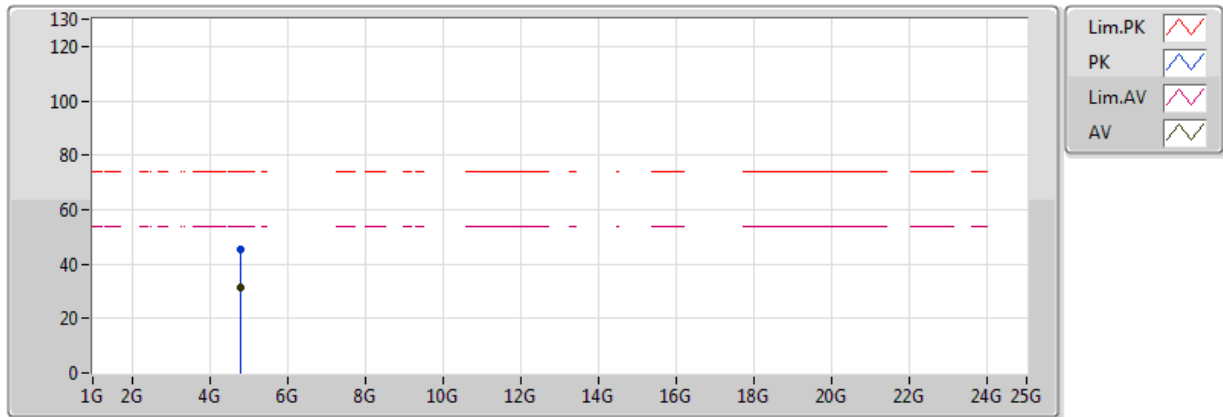


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.3528G	44.32	54.00	-9.68	32.14	3	Vertical	349	1.84	-
AV	2.402G	83.43	Inf	-Inf	32.31	3	Vertical	349	1.84	-
PK	2.3826G	56.98	74.00	-17.02	32.25	3	Vertical	349	1.84	-
PK	2.4022G	95.37	Inf	-Inf	32.32	3	Vertical	349	1.84	-

BT-BR(1Mbps)

2402MHz_TX

29/07/2018

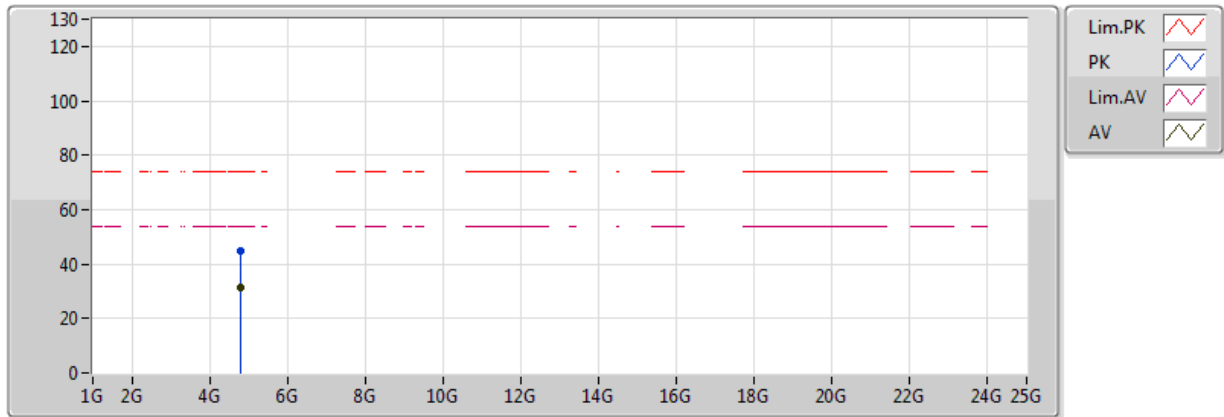


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.79476G	31.29	54.00	-22.71	2.97	3	Vertical	160	1.50	-
PK	4.79164G	45.60	74.00	-28.40	2.96	3	Vertical	160	1.50	-

BT-BR(1Mbps)

2402MHz_TX

29/07/2018

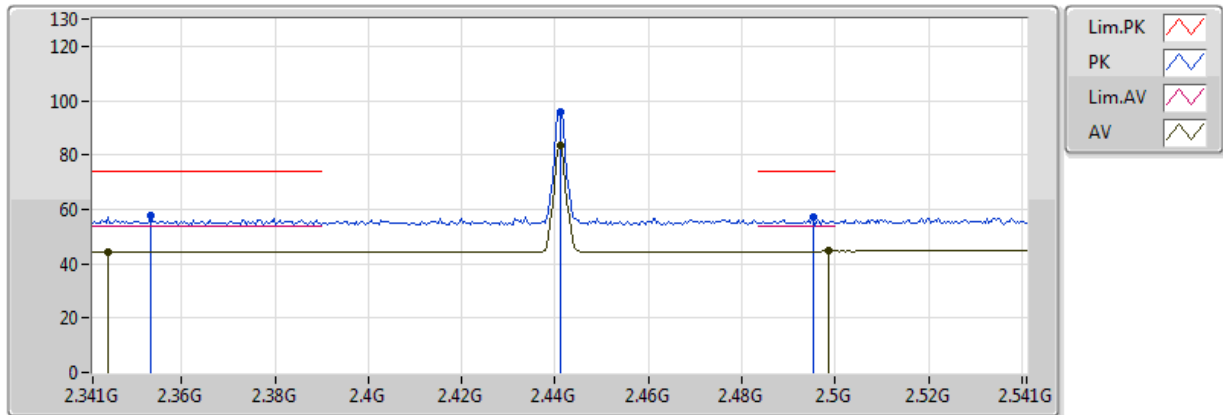


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	4.79284G	31.20	54.00	-22.80	2.97	3	Horizontal	283	1.50	-
PK	4.7906G	44.66	74.00	-29.34	2.96	3	Horizontal	283	1.50	-

BT-BR(1Mbps)

2441MHz_TX

29/07/2018

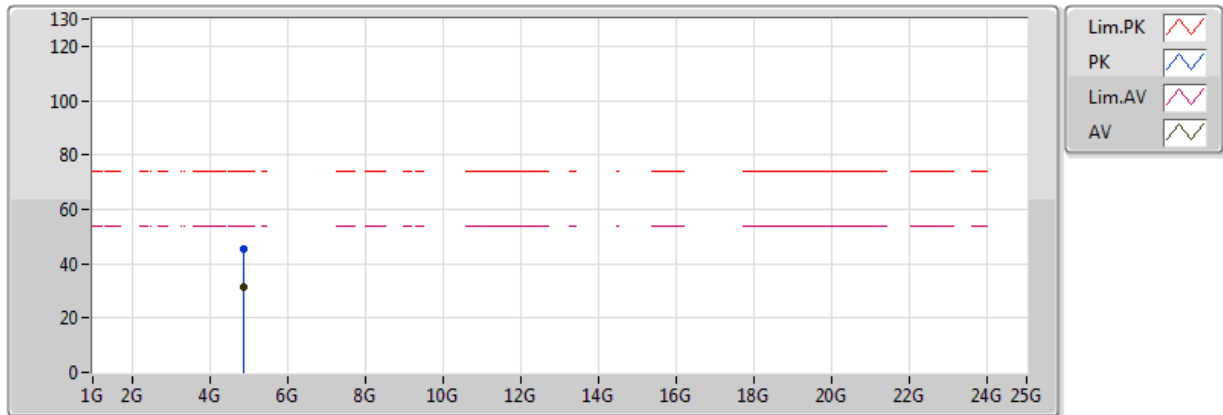


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.3442G	44.35	54.00	-9.65	32.11	3	Vertical	359	2.61	-
AV	2.441G	83.32	Inf	-Inf	32.46	3	Vertical	359	2.61	-
AV	2.4986G	44.57	54.00	-9.43	32.67	3	Vertical	359	2.61	-
PK	2.3534G	57.44	74.00	-16.56	32.14	3	Vertical	359	2.61	-
PK	2.441G	95.56	Inf	-Inf	32.46	3	Vertical	359	2.61	-
PK	2.4954G	57.17	74.00	-16.83	32.65	3	Vertical	359	2.61	-

BT-BR(1Mbps)

2441MHz_TX

29/07/2018



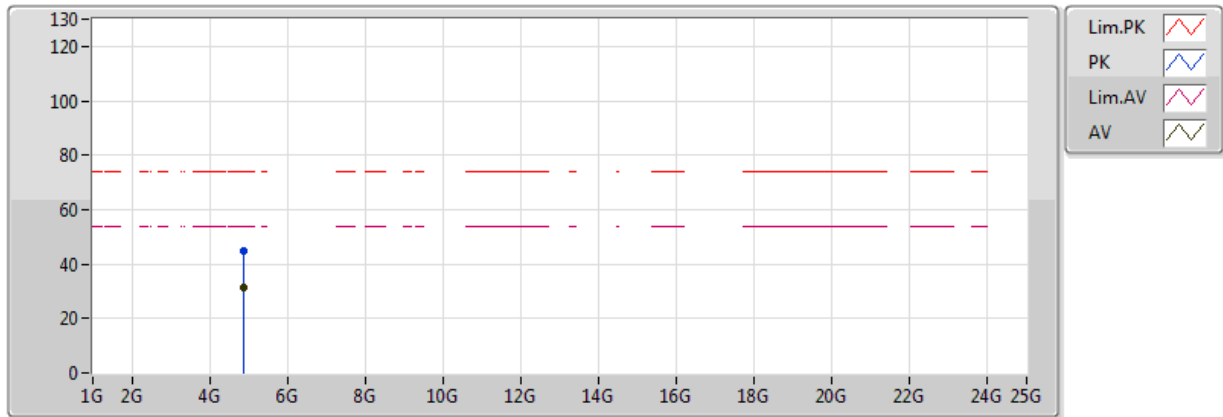
EUT = Y axis, Ant = Y axis
Power set : 0 dBm

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.879G	31.20	54.00	-22.80	3.16	3	Vertical	156	1.67	-
PK	4.8781G	45.16	74.00	-28.84	3.16	3	Vertical	156	1.67	-

BT-BR(1Mbps)

2441MHz_TX

29/07/2018

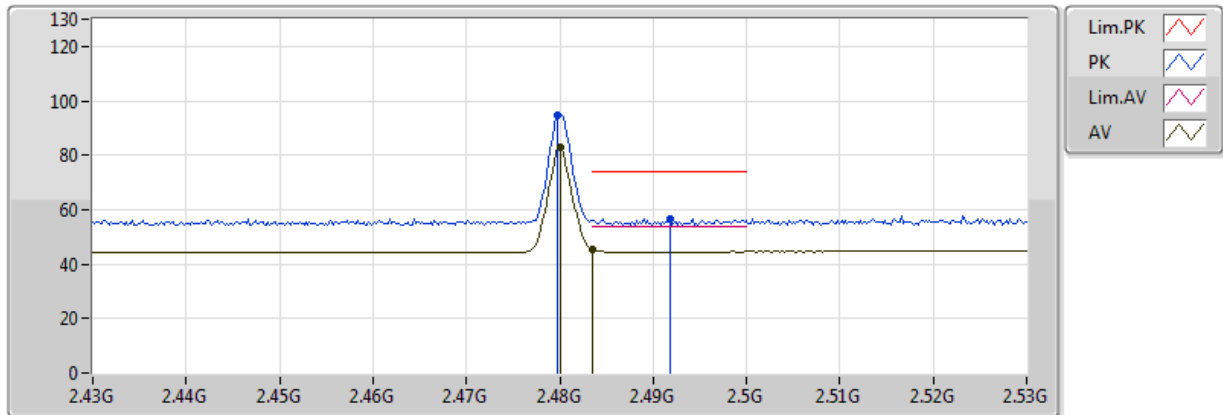


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.8817G	31.15	54.00	-22.85	3.17	3	Horizontal	279	1.44	-
PK	4.89046G	45.03	74.00	-28.97	3.18	3	Horizontal	279	1.44	-

BT-BR(1Mbps)

2480MHz_TX

29/07/2018

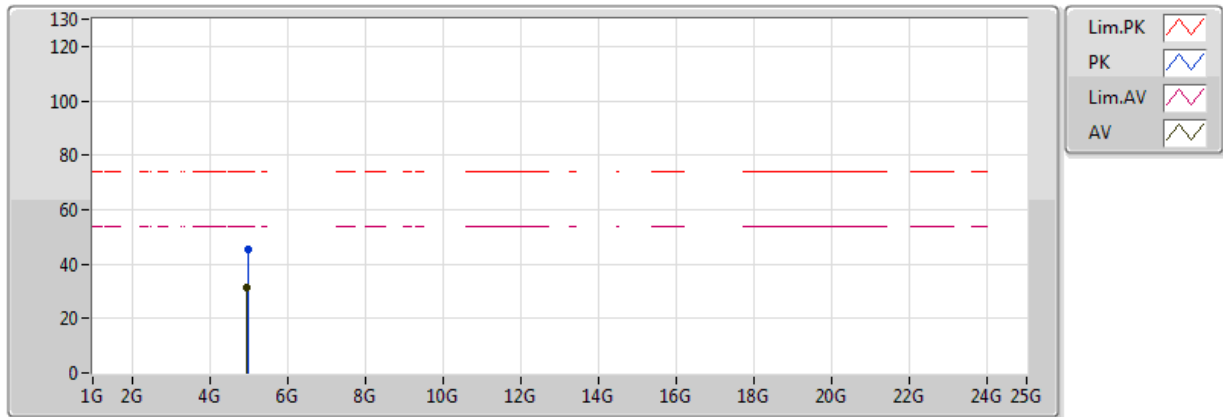


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.48G	83.10	Inf	-Inf	32.60	3	Vertical	357	2.78	-
AV	2.483502G	45.25	54.00	-8.75	32.61	3	Vertical	357	2.78	-
PK	2.4798G	94.92	Inf	-Inf	32.60	3	Vertical	357	2.78	-
PK	2.4918G	56.82	74.00	-17.18	32.64	3	Vertical	357	2.78	-

BT-BR(1Mbps)

2480MHz_TX

29/07/2018

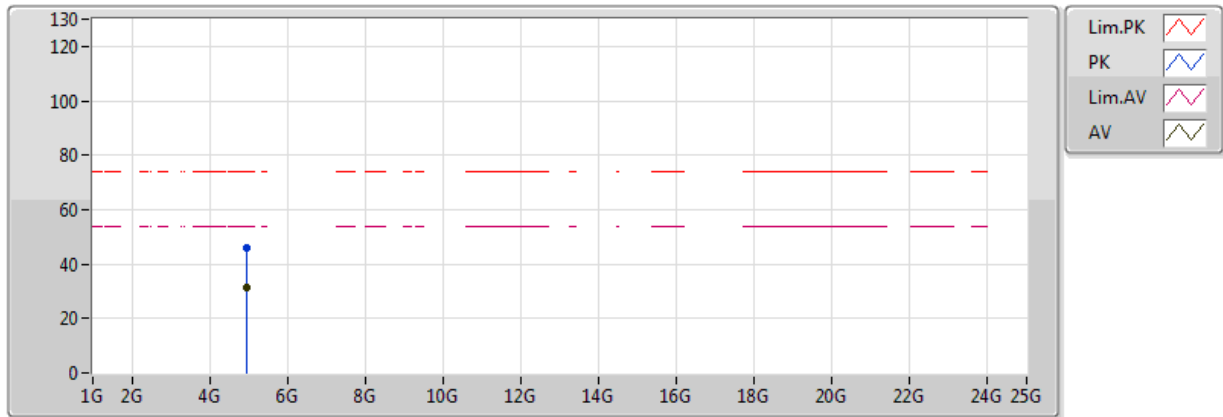


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.94956G	31.48	54.00	-22.52	3.30	3	Vertical	36	1.50	-
PK	4.97446G	45.61	74.00	-28.39	3.35	3	Vertical	36	1.50	-

BT-BR(1Mbps)

2480MHz_TX

29/07/2018

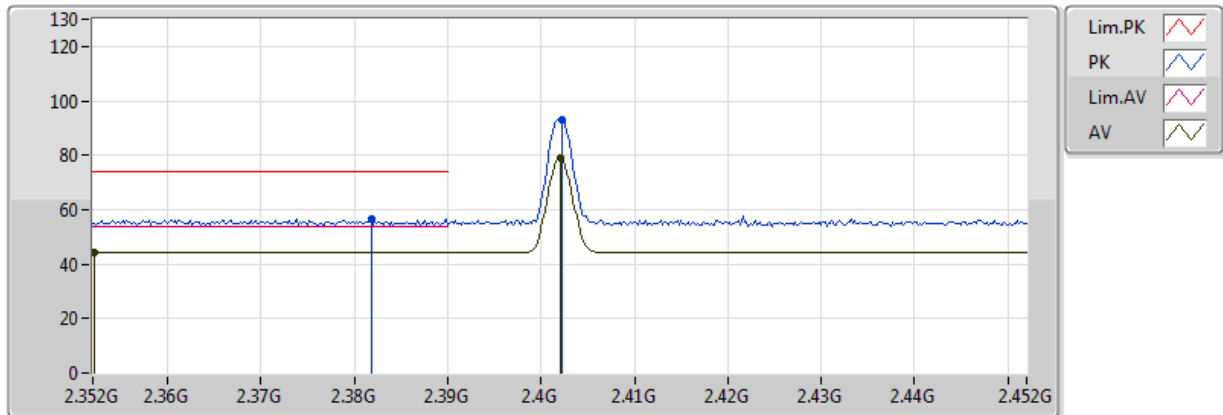


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.95976G	31.53	54.00	-22.47	3.33	3	Horizontal	288	1.66	-
PK	4.94548G	45.94	74.00	-28.06	3.29	3	Horizontal	288	1.66	-

BT-EDR(2Mbps)

2402MHz_TX

29/07/2018

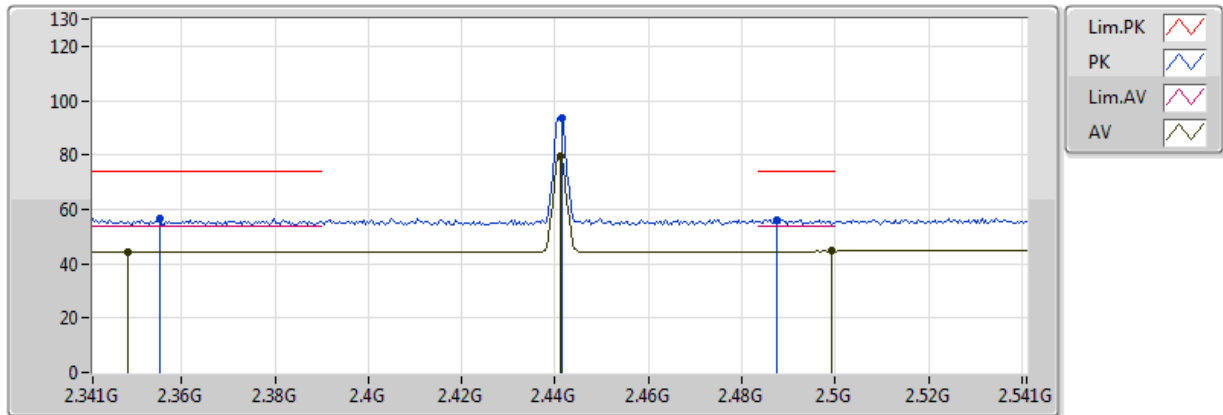


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.3522G	44.32	54.00	-9.68	32.14	3	Vertical	216	2.78	-
AV	2.402G	78.95	Inf	-Inf	32.31	3	Vertical	216	2.78	-
PK	2.3818G	56.82	74.00	-17.18	32.25	3	Vertical	216	2.78	-
PK	2.4022G	93.14	Inf	-Inf	32.32	3	Vertical	216	2.78	-

BT-EDR(2Mbps)

2441MHz_TX

29/07/2018

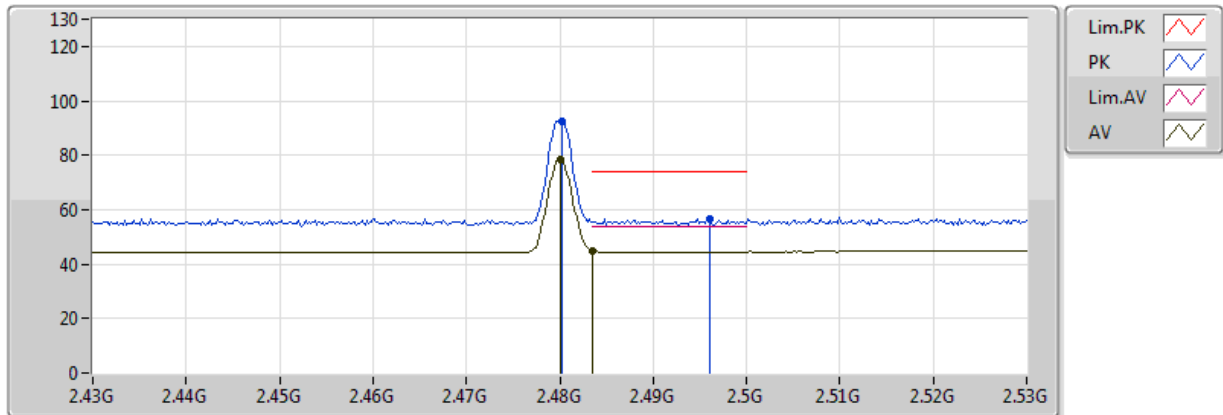


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.3486G	44.34	54.00	-9.66	32.13	3	Vertical	359	2.65	-
AV	2.441G	79.56	Inf	-Inf	32.46	3	Vertical	359	2.65	-
AV	2.4994G	44.57	54.00	-9.43	32.67	3	Vertical	359	2.65	-
PK	2.3554G	56.53	74.00	-17.47	32.15	3	Vertical	359	2.65	-
PK	2.4414G	93.55	Inf	-Inf	32.46	3	Vertical	359	2.65	-
PK	2.4874G	56.23	74.00	-17.77	32.62	3	Vertical	359	2.65	-

BT-EDR(2Mbps)

2480MHz_TX

29/07/2018

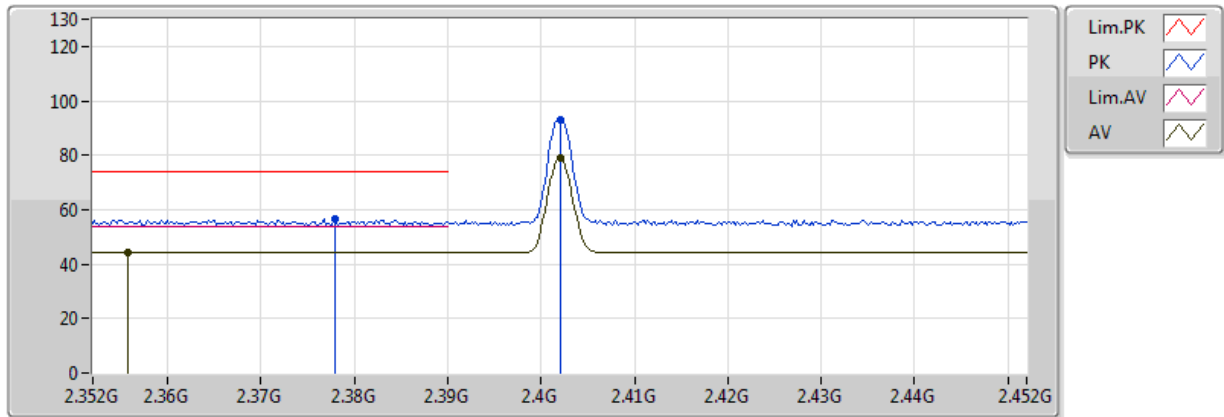


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.48G	78.56	Inf	-Inf	32.60	3	Vertical	357	2.77	-
AV	2.483502G	44.89	54.00	-9.11	32.61	3	Vertical	357	2.77	-
PK	2.4802G	92.60	Inf	-Inf	32.60	3	Vertical	357	2.77	-
PK	2.496G	56.73	74.00	-17.27	32.66	3	Vertical	357	2.77	-

BT-EDR(3Mbps)

2402MHz_TX

29/07/2018

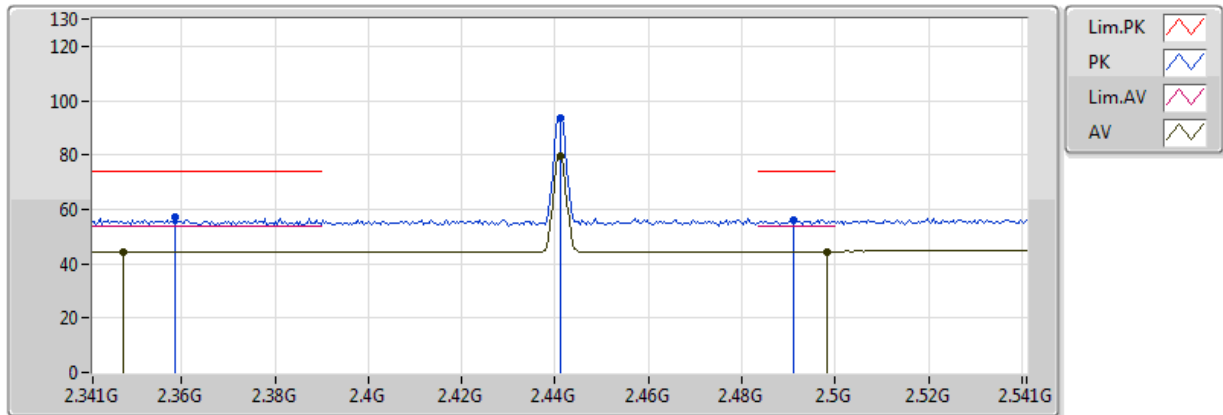


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.3558G	44.32	54.00	-9.68	32.15	3	Vertical	344	2.82	-
AV	2.402G	78.80	Inf	-Inf	32.31	3	Vertical	344	2.82	-
PK	2.378G	56.46	74.00	-17.54	32.23	3	Vertical	344	2.82	-
PK	2.402G	92.97	Inf	-Inf	32.31	3	Vertical	344	2.82	-

BT-EDR(3Mbps)

2441MHz_TX

29/07/2018

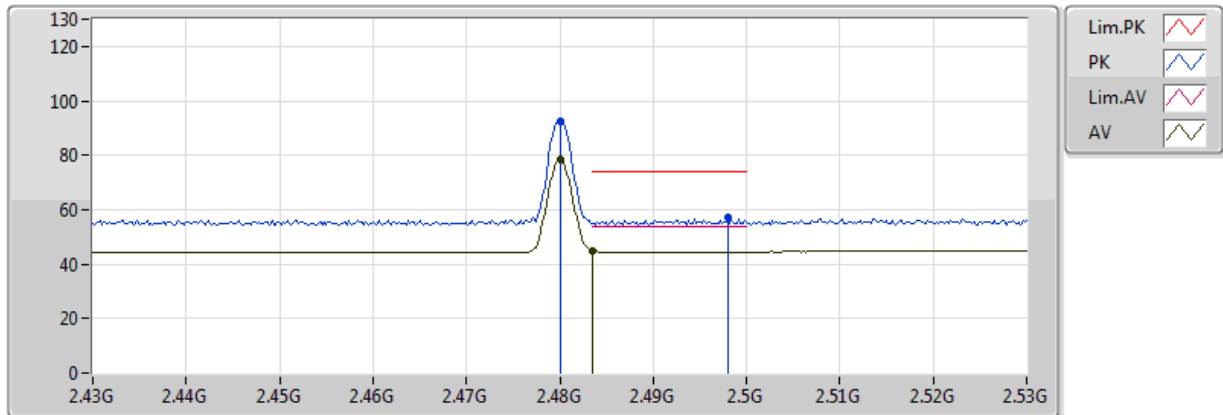


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.3474G	44.32	54.00	-9.68	32.12	3	Vertical	360	2.66	-
AV	2.441G	79.44	Inf	-Inf	32.46	3	Vertical	360	2.66	-
AV	2.4982G	44.53	54.00	-9.47	32.67	3	Vertical	360	2.66	-
PK	2.3586G	57.16	74.00	-16.84	32.16	3	Vertical	360	2.66	-
PK	2.441G	93.59	Inf	-Inf	32.46	3	Vertical	360	2.66	-
PK	2.491G	56.05	74.00	-17.95	32.64	3	Vertical	360	2.66	-

BT-EDR(3Mbps)

2480MHz_TX

29/07/2018



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.48G	78.36	Inf	-Inf	32.60	3	Vertical	360	2.77	-
AV	2.483502G	44.90	54.00	-9.10	32.61	3	Vertical	360	2.77	-
PK	2.48G	92.36	Inf	-Inf	32.60	3	Vertical	360	2.77	-
PK	2.498G	57.00	74.00	-17.00	32.67	3	Vertical	360	2.77	-