



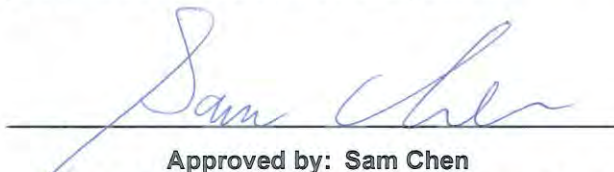
FCC RADIO TEST REPORT

FCC ID : MSQ-RTACJ900
Equipment : Wireless AC3000 Tri Band Gigabit Router
Brand Name : ASUS
Model Name : RT-AC95U,ZenWiFi CT8, ZenWiFi, CT8, ASUS ZenWiFi CT8, ASUS ZenWiFi
Applicant : ASUSTeK COMPUTER INC.
4F, No. 150, Li-Te Rd., Peitou, Taipei 112, Taiwan
Manufacturer (1) : Datamax Electronics (DongGuan) Co., Ltd.
Niu Shan Foreign Economic Industrial Park, Dong Cheng District, Dong Guan City, Guang Dong, China
Manufacturer (2) : Lukisen Electronic Corp.
3F.,No.236,Boai St., Shulin Dist.,New Taipei City 23845, Taiwan
Manufacturer (3) : Kentec Inc.
No. 5, Tzu-Chiang 1st Rd. Chungli Industrial Zone, Taoyuan City, Taiwan
Standard : 47 CFR FCC Part 15.247

The product was received on Jun. 07, 2019, and testing was started from Jun. 07, 2019 and completed on Jul. 31, 2019. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

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

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



Approved by: Sam Chen

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

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



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Appendix H. Test Photos

Photographs of EUT v01



History of this test report

Report No.	Version	Description	Issued Date
FR850709AA	01	Initial issue of report	Aug. 22, 2019



Summary of Test Result

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

Declaration of Conformity:

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

Comments and Explanations:

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

Reviewed by: Sam Chen
Report Producer: Wendy Pan



1 General Description

1.1 Information

1.1.1 RF General Information

Frequency Range (MHz)	Bluetooth 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.
- ♦ Nss-Min is the minimum number of spatial streams.
- ♦ Nant is the number of outputs. e.g., 2(2, 3) means have 2 outputs for port 2 and port 3. 2 means have 2 outputs for port 1 and port 2.



1.1.2 Antenna Information

Set	Ant.	Port	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	1	1	PSA	RFDPA230505IMLB901	Dipole Antenna	I-PEX	Note 1
	2	2	PSA	RFDPA230510IMLB901	Dipole Antenna	I-PEX	
	3	3	PSA	RFDPA100610IM5B901	Dipole Antenna	I-PEX	
	4	4	PSA	RFDPA100607IM5B901	Dipole Antenna	I-PEX	
	5	5	PSA	RFDPA100608IM5B901	Dipole Antenna	I-PEX	
	6	6	PSA	RFDPA100605IM5B901	Dipole Antenna	I-PEX	
	7	1	PSA	-	Printed Antenna	N/A	
2	1	1	Whayu	C660-510478-A ANT1 2_5G	Dipole Antenna	I-PEX	
	2	2	Whayu	C660-510478-A ANT2 2_5G	Dipole Antenna	I-PEX	
	3	3	Whayu	C660-510478-A_ANT 3 5G	Dipole Antenna	I-PEX	
	4	4	Whayu	C660-510478-A_ANT 4 5G	Dipole Antenna	I-PEX	
	5	5	Whayu	C660-510478-A_ANT 5 5G	Dipole Antenna	I-PEX	
	6	6	Whayu	C660-510478-A_ANT 6 5G	Dipole Antenna	I-PEX	
3	1	1	Airgain	M2440DMCT-PK1-HSR3-LB1X52BU	Dipole Antenna	I-PEX	
	2	2	Airgain	M2440DMCT-PK1-HSY3-LB1X102BU	Dipole Antenna	I-PEX	
	3	3	Airgain	M5X30CT-PK1-HSE3-LBIX102BU	Dipole Antenna	I-PEX	
	4	4	Airgain	M5X30CT-PK1-HSA3-LB1X75BU	Dipole Antenna	I-PEX	
	5	5	Airgain	M5X30CT-PK1-HSW3-LB 1X85BU	Dipole Antenna	I-PEX	
	6	6	Airgain	M5X30CT-PK1-HSB3-LBIX52BU	Dipole Antenna	I-PEX	



Note 1:

Set	Ant.	Port	Gain (dBi) - CDD mode for output power			
			2.4GHz	5GHz Band 1	5GHz Band 4	Bluetooth
1	1	1	1.36	1.74	-	-
	2	2	1.36	1.74	-	-
	3	1	-	-	1.36	-
	4	2	-	-	1.36	-
	5	3	-	-	1.36	-
	6	4	-	-	1.36	-
	7	1	-	-	-	-2.93
2	1	1	1.17	1.69	-	-
	2	2	1.17	1.69	-	-
	3	1	-	-	0.43	-
	4	2	-	-	0.43	-
	5	3	-	-	0.43	-
	6	4	-	-	0.43	-
3	1	1	0.80	1.47	-	-
	2	2	0.80	1.47	-	-
	3	1	-	-	0.34	-
	4	2	-	-	0.34	-
	5	3	-	-	0.34	-
	6	4	-	-	0.34	-

Set	Ant.	Port	Gain (dBi) - Beamforming mode for output power & PSD, CDD mode for PSD			
			2.4GHz	5GHz Band 1 Nss1	5GHz Band 4 Nss1	5GHz Band 4 Nss2
1	1	1	4.37	4.70	-	-
	2	2	4.37	4.70	-	-
	3	1	-	-	7.21	4.32
	4	2	-	-	7.21	4.32
	5	3	-	-	7.21	4.32
	6	4	-	-	7.21	4.32
2	1	1	4.18	4.54	-	-
	2	2	4.18	4.54	-	-
	3	1	-	-	6.05	3.40
	4	2	-	-	6.05	3.40
	5	3	-	-	6.05	3.40
	6	4	-	-	6.05	3.40
3	1	1	3.79	4.48	-	-
	2	2	3.79	4.48	-	-
	3	1	-	-	6.02	3.33
	4	2	-	-	6.02	3.33
	5	3	-	-	6.02	3.33
	6	4	-	-	6.02	3.33

Note2: The above information was declared by manufacturer.

The EUT has three sets of WLAN antenna and there are six antennas for each set.

There are three sets antenna are the same type antennas, only the higher gain antennas "Set 1" was tested and recorded in the report.

Directional Gain of CDD in Power Measurement = Gant + Array Gain ; Array Gain = 0dB.

For 2.4GHz function:

For IEEE 802.11a/b/g/n/VHT mode (2TX/2RX):

Port 1 and Port 2 can be used as transmitting/receiving antenna.

Port 1 and Port 2 could transmit/receive simultaneously.



For 5GHz Band 1 function:

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

Port 1 and Port 2 can be used as transmitting/receiving antenna.

Port 1 and Port 2 could transmit/receive simultaneously.

For 5GHz Band 4 function:

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

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

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

For Bluetooth function

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

1.1.3 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
BT-BR(1Mbps)	0.758	1.2	2.9m	1k
BT-EDR(2Mbps)	0.749	1.26	2.906m	1k
BT-EDR(3Mbps)	0.785	1.05	2.905m	1k

Note:

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



1.1.4 EUT Operational Condition

EUT Power Type	From Power Adapter
Test Software Version	Telnet

1.1.5 Table for Radio information

Radio	Band
1	5GHz Band 1
	2.4GHz
2	5GHz Band 4
3	Bluetooth

Note: The above information was declared by manufacturer.

1.1.6 Table for Multiple Listing

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

Brand Name	Model Name	Description
ASUS	RT-AC95U	All the models are identical, the difference model served as marketing strategy.
	ZenWiFi CT8	
	ZenWiFi	
	CT8	
	ASUS ZenWiFi CT8	
	ASUS ZenWiFi	

From the above models, model:RT-AC95U was selected as representative model for the test and its data was recorded in this report.



1.2 Applicable Standards

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

- ◆ 47 CFR FCC Part 15
- ◆ FCC KDB 558074 D01 v05r02

1.3 Testing Location Information

Testing Location		
<input type="checkbox"/>	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
<input checked="" type="checkbox"/>	JHUBEI	ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C. TEL : 886-3-656-9065 FAX : 886-3-656-9085

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
RF Conducted	TH02-CB	Lucas Huang	25.4~26.9°C / 62~66%	Jun. 07, 2019 ~ Jul. 18, 2019
Radiated<1GHz	03CH05-CB	KJ Chang	24.8~25.5°C / 58~63%	Jul. 06, 2019 ~ Jul. 31, 2019
Radiated>1GHz	03CH03-CB	KJ Chang	25.6~26.9°C / 60~64%	Jul. 06, 2019 ~ Jul. 31, 2019
AC Conduction	CO01-CB	Deven Huang	22~23°C / 58~60%	Jul. 22, 2019

Test site Designation No. TW0006 with FCC.
Test site registered number IC 4086B with Industry Canada.

1.4 Measurement Uncertainty

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

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



2 Test Configuration of EUT

2.1 Test Channel Mode

Mode	PowerSetting
BT-BR(1Mbps)	-
2402MHz	Default
2440MHz	Default
2480MHz	Default
BT-EDR(2Mbps)	-
2402MHz	Default
2440MHz	Default
2480MHz	Default
BT-EDR(3Mbps)	-
2402MHz	Default
2440MHz	Default
2480MHz	Default



2.2 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral
Operating Mode	CTX
1	CTX + Radio 1 WLAN 2.4GHz + Adapter
2	CTX + Radio 1 WLAN 5GHz + Adapter
3	CTX + Radio 2 WLAN 5GHz + Adapter
4	CTX + Radio 3 Bluetooth BR/EDR + Adapter
5	CTX + Radio 3 Bluetooth LE + Adapter
For operating mode 1 is the worst case and it was record in this test report.	

The Worst Case Mode for Following Conformance Tests	
Tests Item	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	CTX + Radio 1 WLAN 2.4GHz + Adapter
2	CTX + Radio 1 WLAN 5GHz + Adapter
3	CTX + Radio 2 WLAN 5GHz + Adapter
4	CTX + Radio 3 Bluetooth BR/EDR + Adapter
5	CTX + Radio 3 Bluetooth LE + Adapter
For operating mode 2 is the worst case and it was record in this test report.	
Operating Mode > 1GHz	CTX



The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation
Operating Mode	
1	Radio 1 WLAN 2.4GHz + Radio 2 WLAN 5GHz + Radio 3 Bluetooth
2	Radio 1 WLAN 5GHz + Radio 2 WLAN 5GHz + Radio 3 Bluetooth
Refer to Sporton Test Report No.: FA850709 for Co-location RF Exposure Evaluation.	

Note: The EUT can only be used Y axis.

2.3 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.



2.4 Accessories

Accessories				
Equipment Name	Brand Name	Model Name	Type	Rating
Adapter	ASUS	AD2088320	010LF	Input: 100-240V~50/60Hz, 0.8A Output: 19V, 1.75A
Equipment Name	Brand Name	Model Name		Remark
RJ-45 cable	NIEN-YI	NYT976		Non-Shielding:1.5m

2.5 Support Equipment

For AC Conduction:

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	Flash disk3.0	Transcend	JetFlash-700	N/A
B	LAN NB	DELL	E6430	N/A

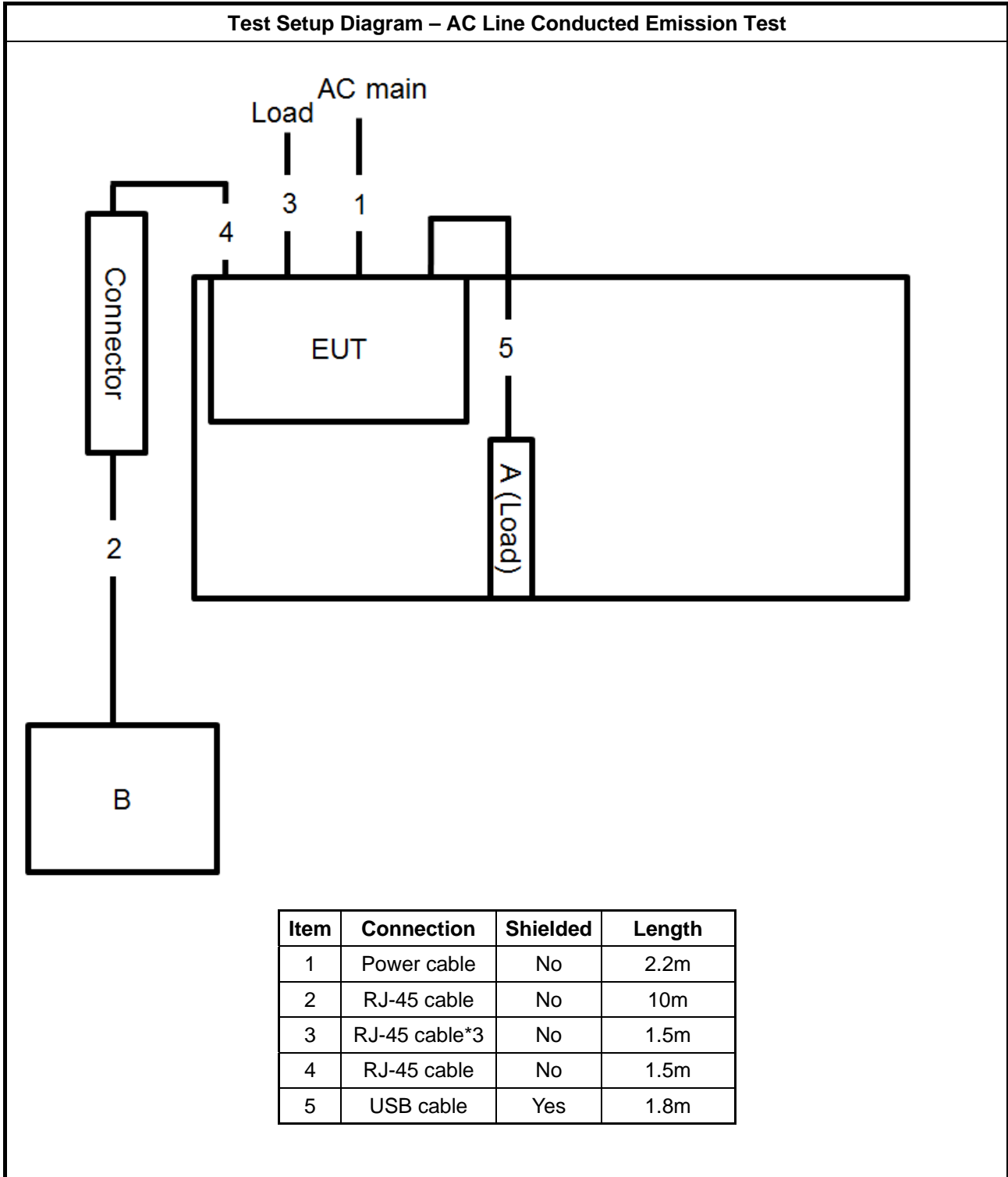
For Radiated:

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

For RF Conducted:

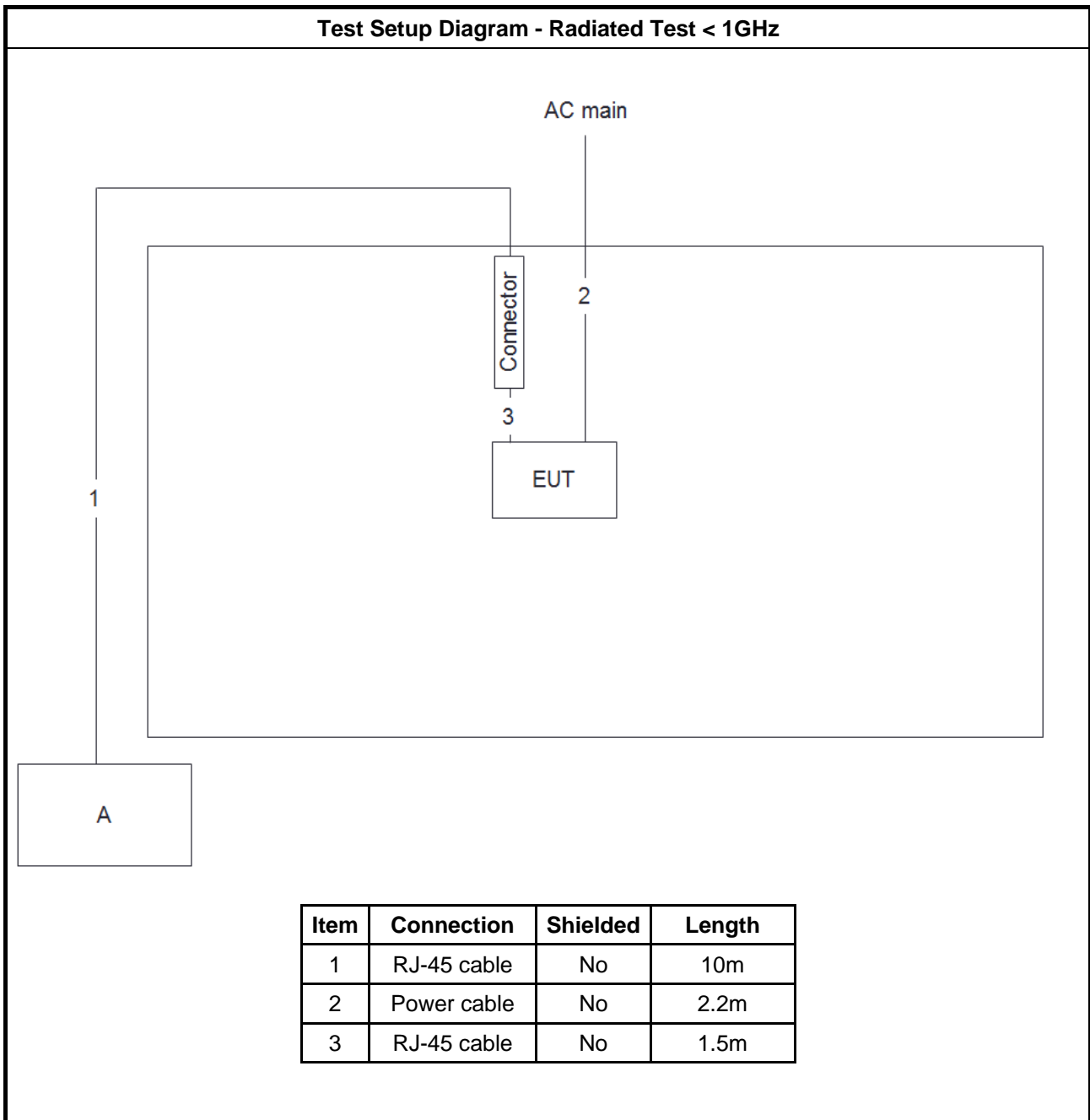
Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	Notebook	DELL	E4300	N/A

2.6 Test Setup Diagram





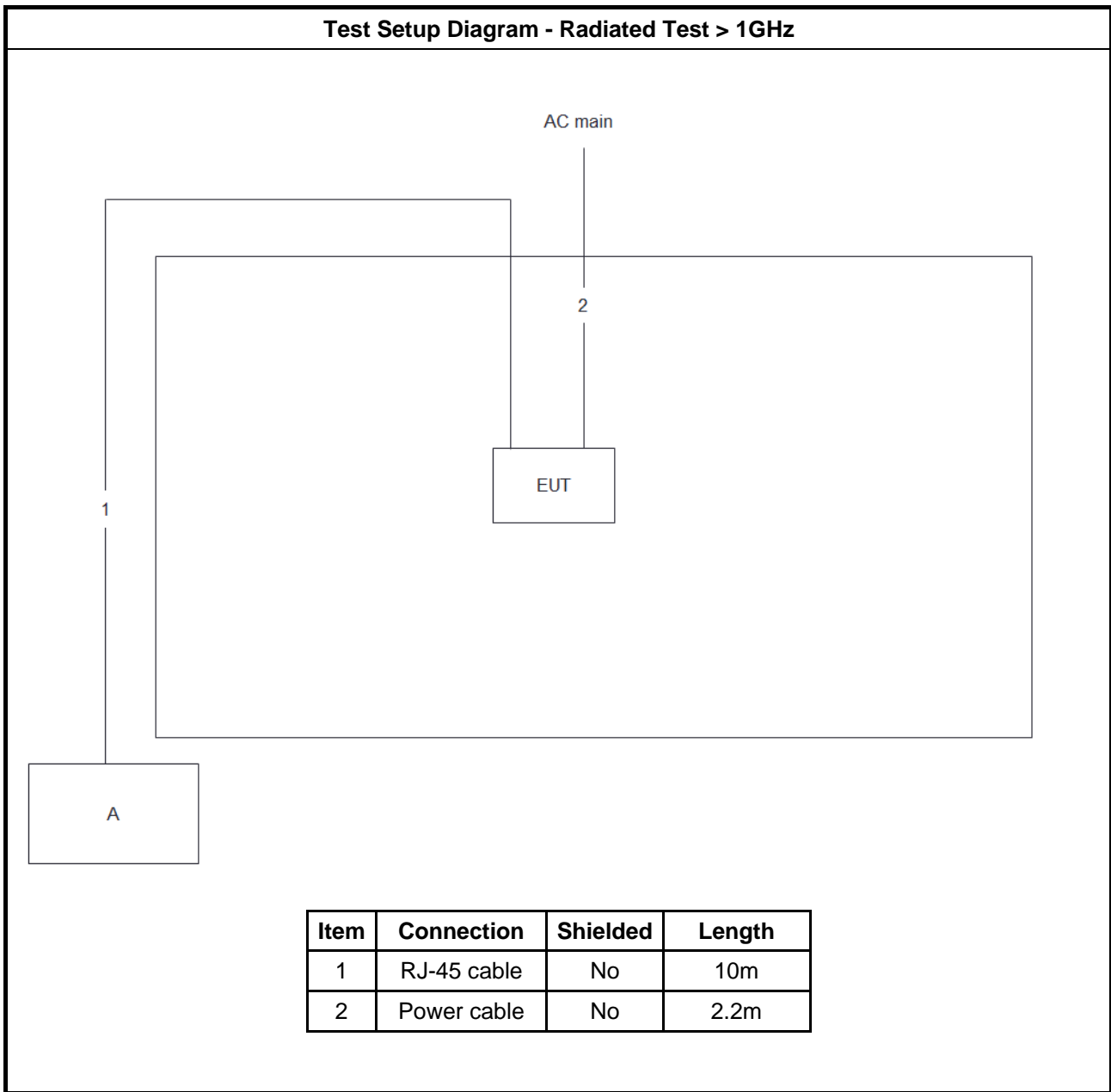
Test Setup Diagram - Radiated Test < 1GHz



Item	Connection	Shielded	Length
1	RJ-45 cable	No	10m
2	Power cable	No	2.2m
3	RJ-45 cable	No	1.5m



Test Setup Diagram - Radiated Test > 1GHz



Item	Connection	Shielded	Length
1	RJ-45 cable	No	10m
2	Power cable	No	2.2m



3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

AC Power-line Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

Note 1: * Decreases with the logarithm of the frequency.

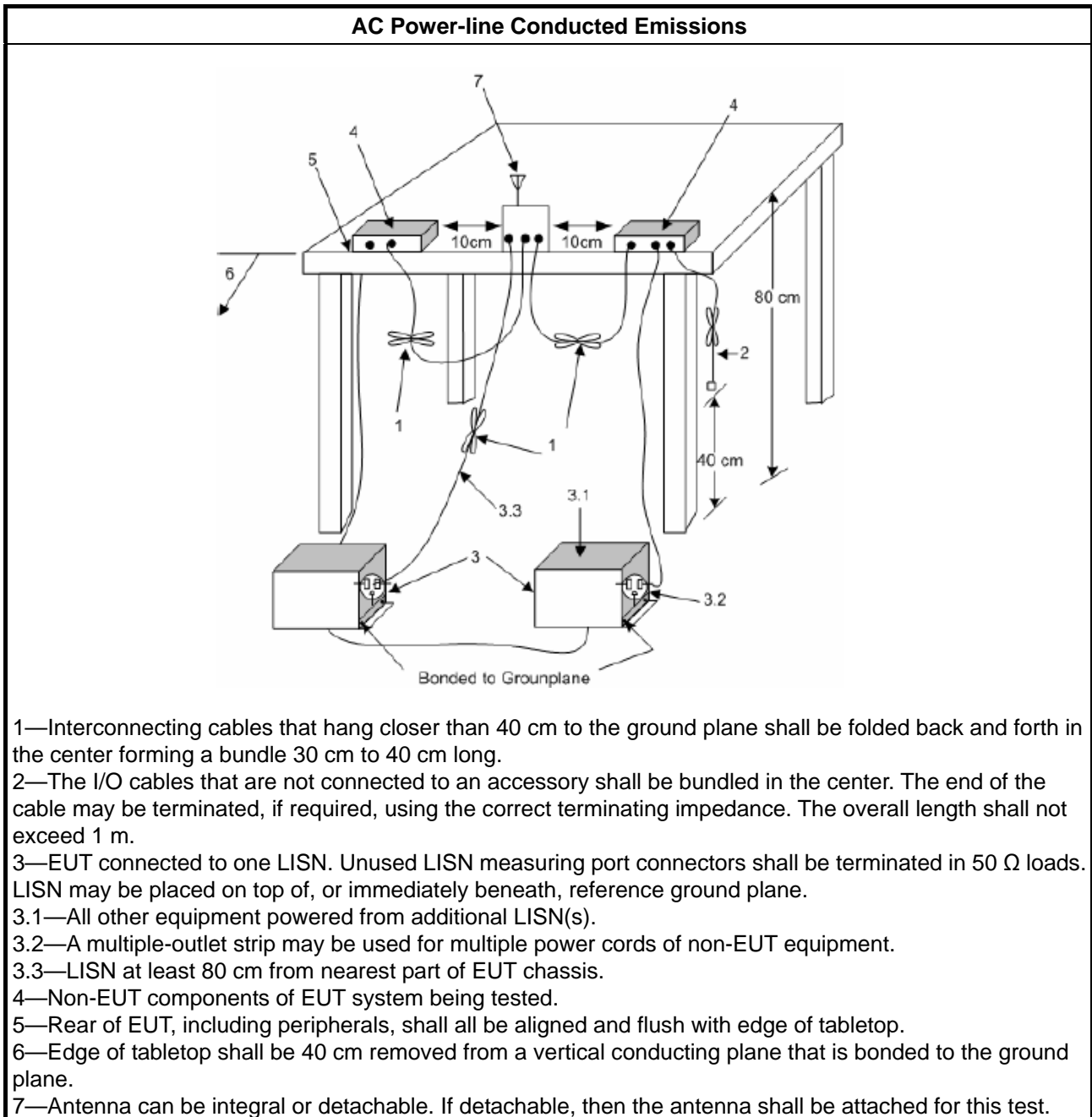
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

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

3.1.4 Test Setup



3.1.5 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A

3.2 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	
▪ 902-928 MHz Band:	
	▪ $N \geq 50$ and $ChS \geq \text{MAX}$ (20 dB bandwidth, 25 kHz); 20 dB bandwidth \leq 250 kHz.
	▪ $50 > N \geq 25$ and $ChS \geq \text{MAX}$ (20 dB bandwidth, 25 kHz); 20 dB bandwidth $>$ 250 kHz.
▪ 2400-2483.5 MHz Band:	
	▪ $N \geq 75$ and $ChS \geq \text{MAX}$ (20 dB bandwidth, 25 kHz).
	▪ $75 > N \geq 15$ and $ChS \geq \text{MAX}$ (20 dB bandwidth 2/3, 25 kHz).
▪ 5725-5850 MHz Band:	
	▪ $N \geq 75$ and $ChS \geq \text{MAX}$ (20 dB bandwidth, 25 kHz); 20 dB bandwidth \leq 1 MHz.
N: Number of Hopping Frequencies; ChS: Hopping Channel Separation	

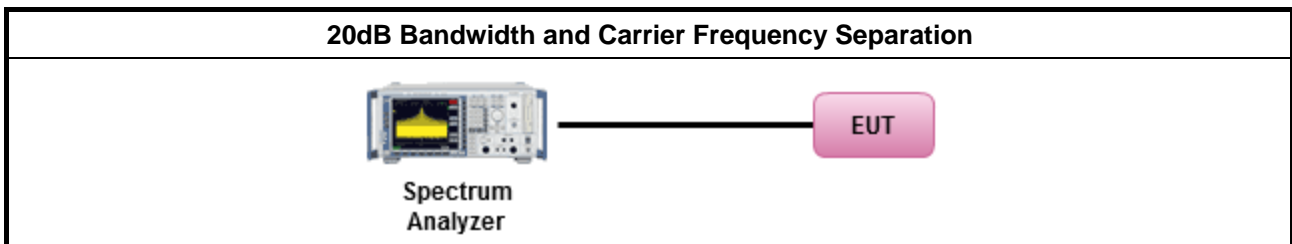
3.2.2 Measuring Instruments

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 6.9.1 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	
<ul style="list-style-type: none"> ▪ 902-928 MHz Band: 	
	<ul style="list-style-type: none"> ▪ $N \geq 50$; Power 30dBm; EIRP 36dBm
	<ul style="list-style-type: none"> ▪ $50 > N \geq 25$; Power 24dBm; EIRP 30dBm
<ul style="list-style-type: none"> ▪ 2400-2483.5 MHz Band: 	
	<ul style="list-style-type: none"> ▪ $N \geq 75$; Power 30dBm; EIRP 36dBm
	<ul style="list-style-type: none"> ▪ $75 > N \geq 15$; Power 21dBm; EIRP 27dBm
<ul style="list-style-type: none"> ▪ 5725-5850 MHz Band: 	
	<ul style="list-style-type: none"> ▪ $N \geq 75$; Power 30dBm; EIRP 36dBm
N: Number of Hopping Frequencies	

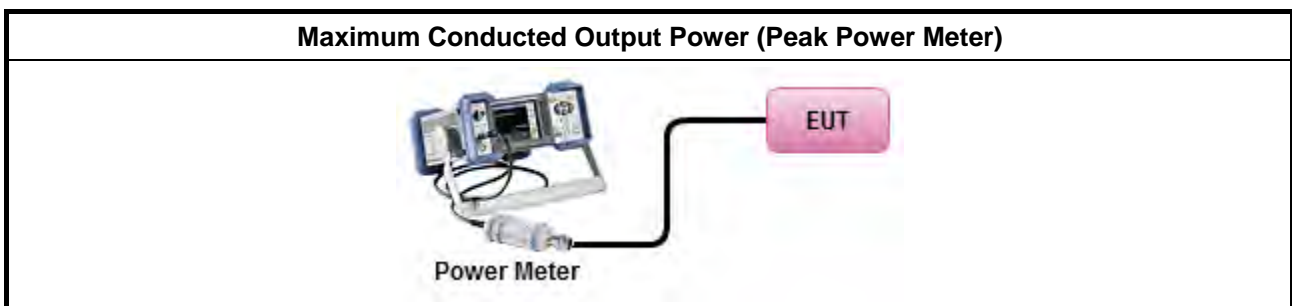
3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

Test Method
<ul style="list-style-type: none"> ▪ 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	
▪ 902-928 MHz Band:	
	▪ $N \geq 50$ and $ChS \geq MAX$ (20 dB bandwidth, 25 kHz); 20 dB bandwidth \leq 250 kHz.
	▪ $50 > N \geq 25$ and $ChS \geq MAX$ (20 dB bandwidth, 25 kHz); 20 dB bandwidth $>$ 250 kHz.
▪ 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).
▪ 5725-5850 MHz Band:	
	▪ $N \geq 75$ and $ChS \geq MAX$ (20 dB bandwidth, 25 kHz); 20 dB bandwidth \leq 1 MHz.
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

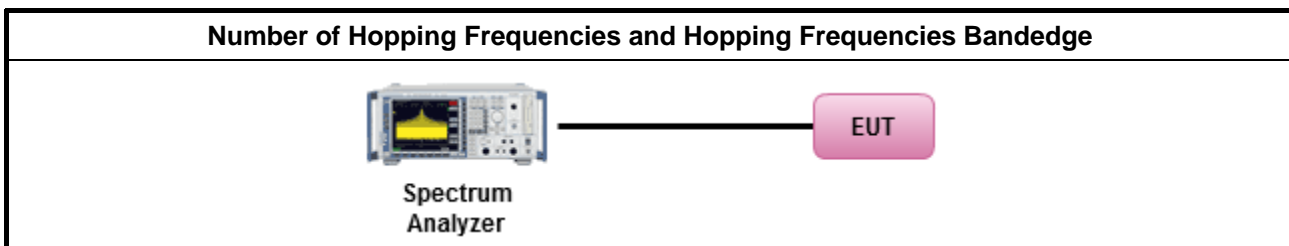
3.4.3 Measuring Instruments

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

20dB Bandwidth and Carrier Frequency Separation Limit for Frequency Hopping Systems	
<ul style="list-style-type: none"> 902-928 MHz Band: 	
	<ul style="list-style-type: none"> N ≥ 50; 0.4s in 20s period
	<ul style="list-style-type: none"> 50 > N ≥ 25; 0.4s in 10s period
<ul style="list-style-type: none"> 2400-2483.5 MHz Band: 	
	<ul style="list-style-type: none"> N ≥ 75; 0.4s in N x 0.4 period
	<ul style="list-style-type: none"> 75 > N ≥ 15; 0.4s in N x 0.4 period
<ul style="list-style-type: none"> 5725-5850 MHz Band: 	
	<ul style="list-style-type: none"> N ≥ 75; 0.4s in 30s period
N: Number of Hopping Frequencies	

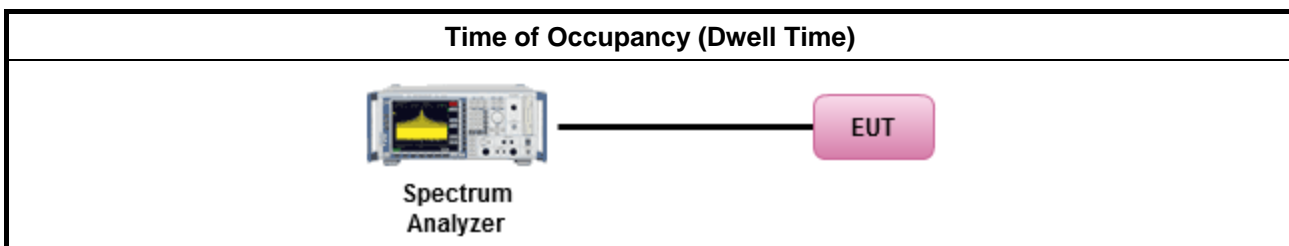
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

Test Method	
<ul style="list-style-type: none"> Refer as ANSI C63.10-2013, clause 7.8.4 for dwell time measurement. 	
<ul style="list-style-type: none"> 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. 	
	<ul style="list-style-type: none"> 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 (dBc)
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.

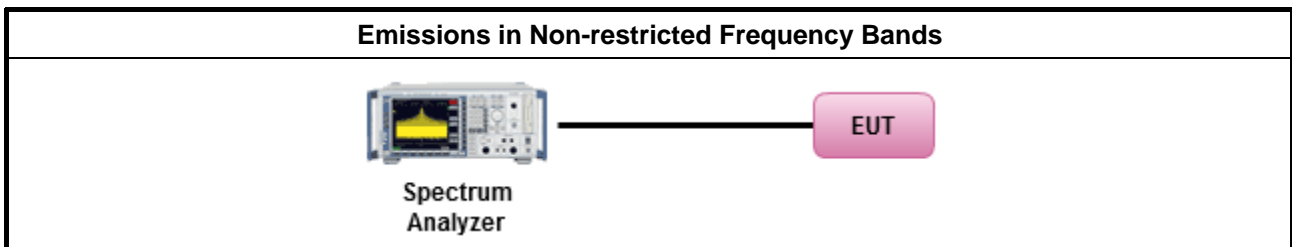
3.6.2 Measuring Instruments

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

3.6.3 Test Procedures

Test Method
<ul style="list-style-type: none"> 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.

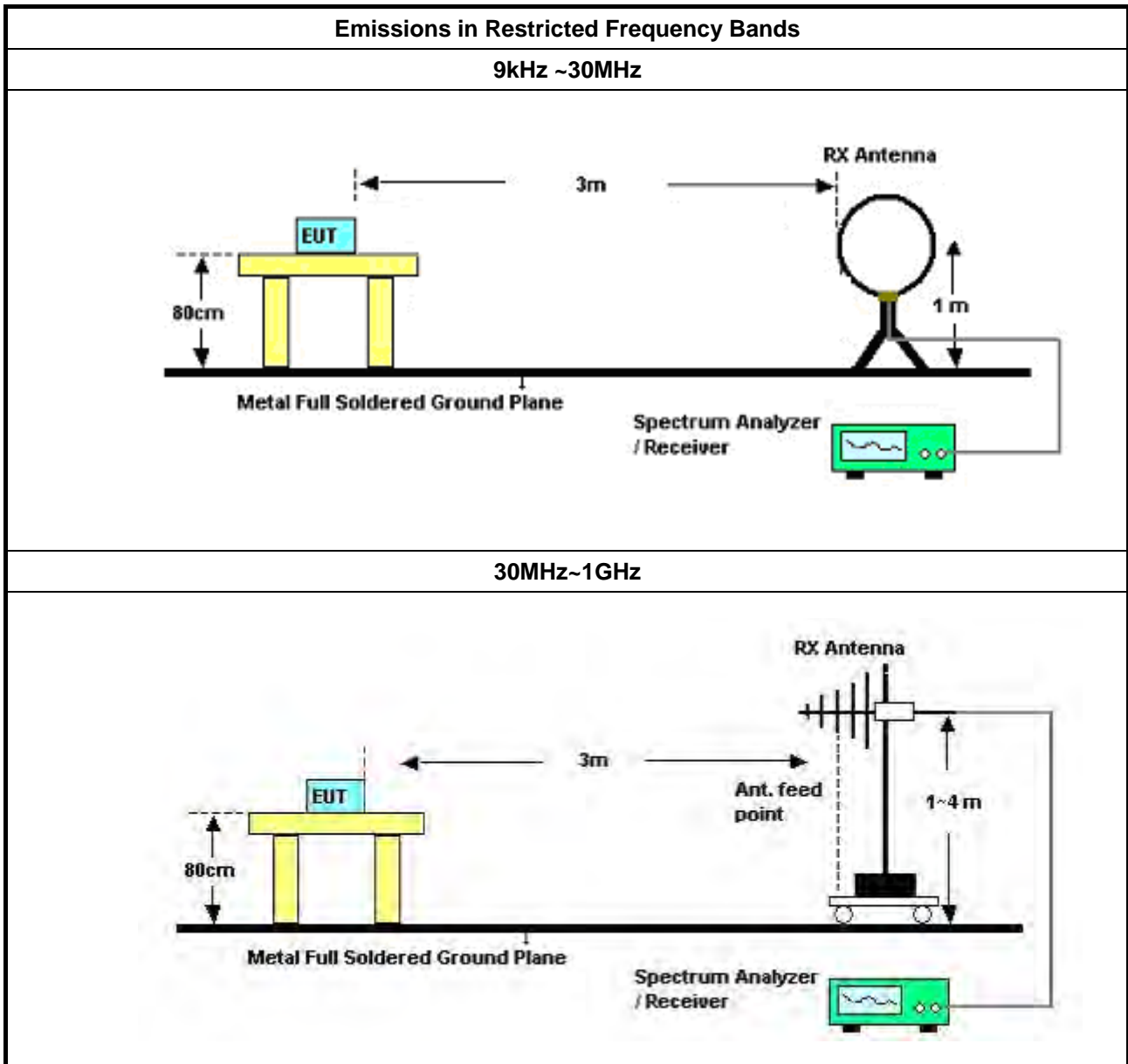
3.7.2 Measuring Instruments

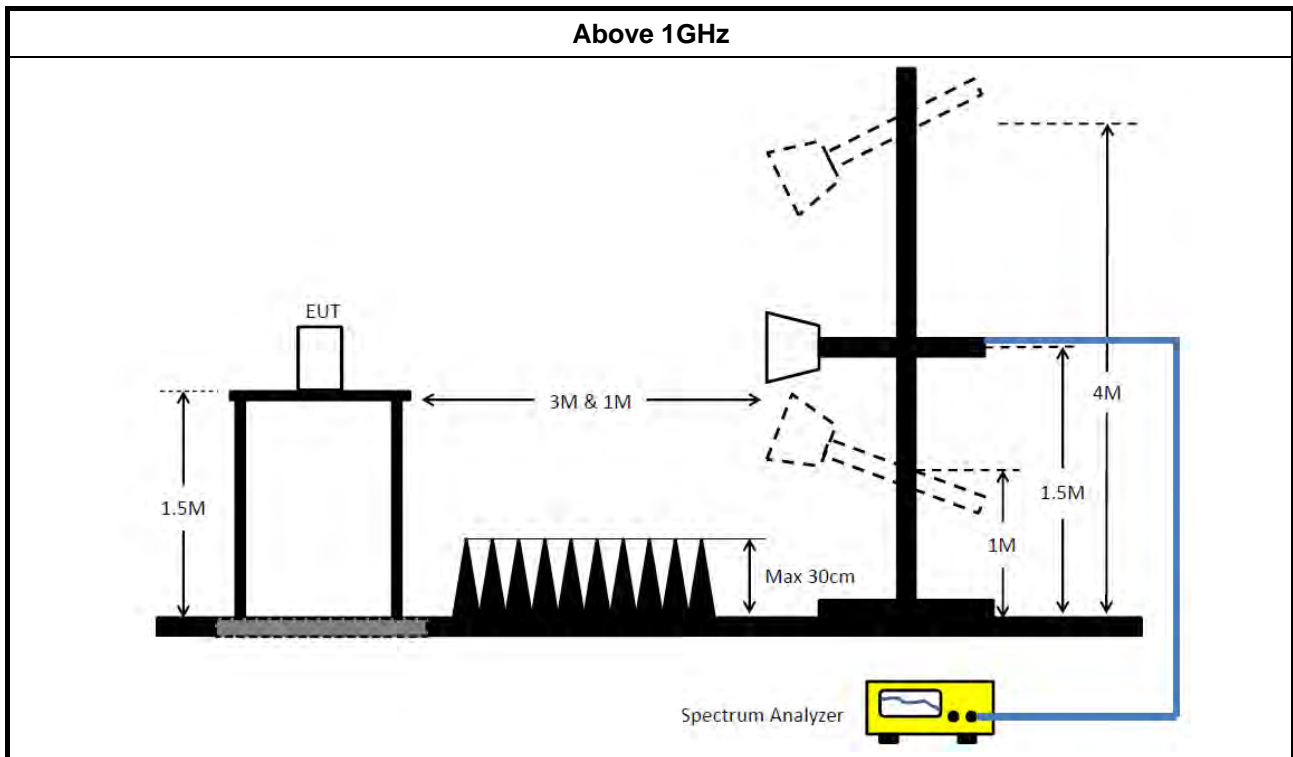
Refer a test equipment and calibration data table in this test report.

3.7.3 Test Procedures

Test Method	
<ul style="list-style-type: none"> The average emission levels shall be measured in [hopping duty factor]. 	
<ul style="list-style-type: none"> Refer as ANSI C63.10; clause 6.10.3 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band. 	
<ul style="list-style-type: none"> For the transmitter unwanted emissions shall be measured using following options below: <ul style="list-style-type: none"> 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 Measurement Results Calculation

The measured Level is calculated using:

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

3.7.6 Emissions in Restricted Frequency Bands (Below 30MHz)

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

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

3.7.7 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix G



4 Test Equipment and Calibration Data

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.45GHz	Jan. 28, 2019	Jan. 29, 2020	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Dec. 24, 2018	Dec. 23, 2019	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Jan. 11, 2019	Jan. 10, 2020	Conduction (CO01-CB)
COND Cable	Woken	Cable	Low cable-CO01	9kHz ~ 30MHz	May 21, 2019	May 20, 2020	Conduction (CO01-CB)
Software	Audix	E3	6.120210n	-	N.C.R.	N.C.R.	Conduction (CO01-CB)
Bilog Antenna with 6dB Attenuator	TESE & EMCI	CBL 6112D & N-6-06	35236 & AT-N0610	30MHz ~ 2GHz	Mar. 28, 2019	Mar. 27, 2020	Radiation (03CH05-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Mar. 29, 2019	Mar. 28, 2020	Radiation (03CH05-CB)
Pre-Amplifier	EMCI	EMC330N	980331	20MHz ~ 3GHz	May 02, 2019	May 01, 2020	Radiation (03CH05-CB)
Spectrum analyzer	R&S	FSP40	100080	9kHz~40GHz	Oct. 03, 2018	Oct. 02, 2019	Radiation (03CH05-CB)
EMI Test Receiver	R&S	ESCS	826547/017	9kHz ~ 2.75GHz	May 15, 2019	May 14, 2020	Radiation (03CH05-CB)
RF Cable-low	Woken	RG402	LOW Cable-04+23	30MHz~1GHz	Oct. 08, 2018	Oct. 07, 2019	Radiation (03CH05-CB)
Horn Antenna	ETS • Lindgren	3115	6821	750MHz~18GHz	Jan. 24, 2019	Jan. 23, 2020	Radiation (03CH03-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jun. 27, 2019	Jun. 26, 2020	Radiation (03CH03-CB)
Pre-Amplifier	Agilent	8449B	3008A02097	1GHz ~ 26.5GHz	Dec. 20, 2018	Dec. 19, 2019	Radiation (03CH03-CB)
Pre-Amplifier	MITEQ	TTA1840-35-H G	1864479	18GHz ~ 40GHz	Jul. 03, 2019	Jul. 02, 2020	Radiation (03CH03-CB)
Spectrum Analyzer	R&S	FSP-40	100019	9kHz ~ 40GHz	Jun. 19, 2019	Jun. 18, 2020	Radiation (03CH03-CB)
RF Cable-high	Woken	RG402	High Cable-20+27	1GHz ~ 18GHz	Oct. 08, 2018	Oct. 07, 2019	Radiation (03CH03-CB)
RF Cable-high	Woken	RG402	High Cable-27	1GHz ~ 18GHz	Oct. 08, 2018	Oct. 07, 2019	Radiation (03CH03-CB)
RF Cable-high	Woken	RG402	High Cable-40G#1	18GHz ~ 40 GHz	Jul. 27, 2018	Jul. 26, 2019	Radiation (03CH03-CB)
RF Cable-high	Woken	RG402	High Cable-40G#1	18GHz ~ 40 GHz	Jul. 24, 2019	Jul. 23, 2020	Radiation (03CH03-CB)
RF Cable-high	Woken	RG402	High Cable-40G#2	18GHz ~ 40 GHz	Jul. 27, 2018	Jul. 26, 2019	Radiation (03CH03-CB)



Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
RF Cable-high	Woken	RG402	High Cable-40G#2	18GHz ~ 40 GHz	Jul. 24, 2019	Jul. 23, 2020	Radiation (03CH03-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	Feb. 25, 2019	Feb. 24, 2020	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-01	1 GHz – 26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-02	1 GHz – 26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-3	1 GHz – 26.5 GHz	Oct. 24, 2018	Oct. 23, 2019	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-04	1 GHz – 26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-05	1 GHz – 26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (TH02-CB)
Power Sensor	Anritsu	MA2411B	1126203	300MHz~40GHz	Sep. 03, 2018	Sep. 02, 2019	Conducted (TH02-CB)
Power Meter	Anritsu	ML2495A	1210004	300MHz~40GHz	Sep. 03, 2018	Sep. 02, 2019	Conducted (TH02-CB)

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

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

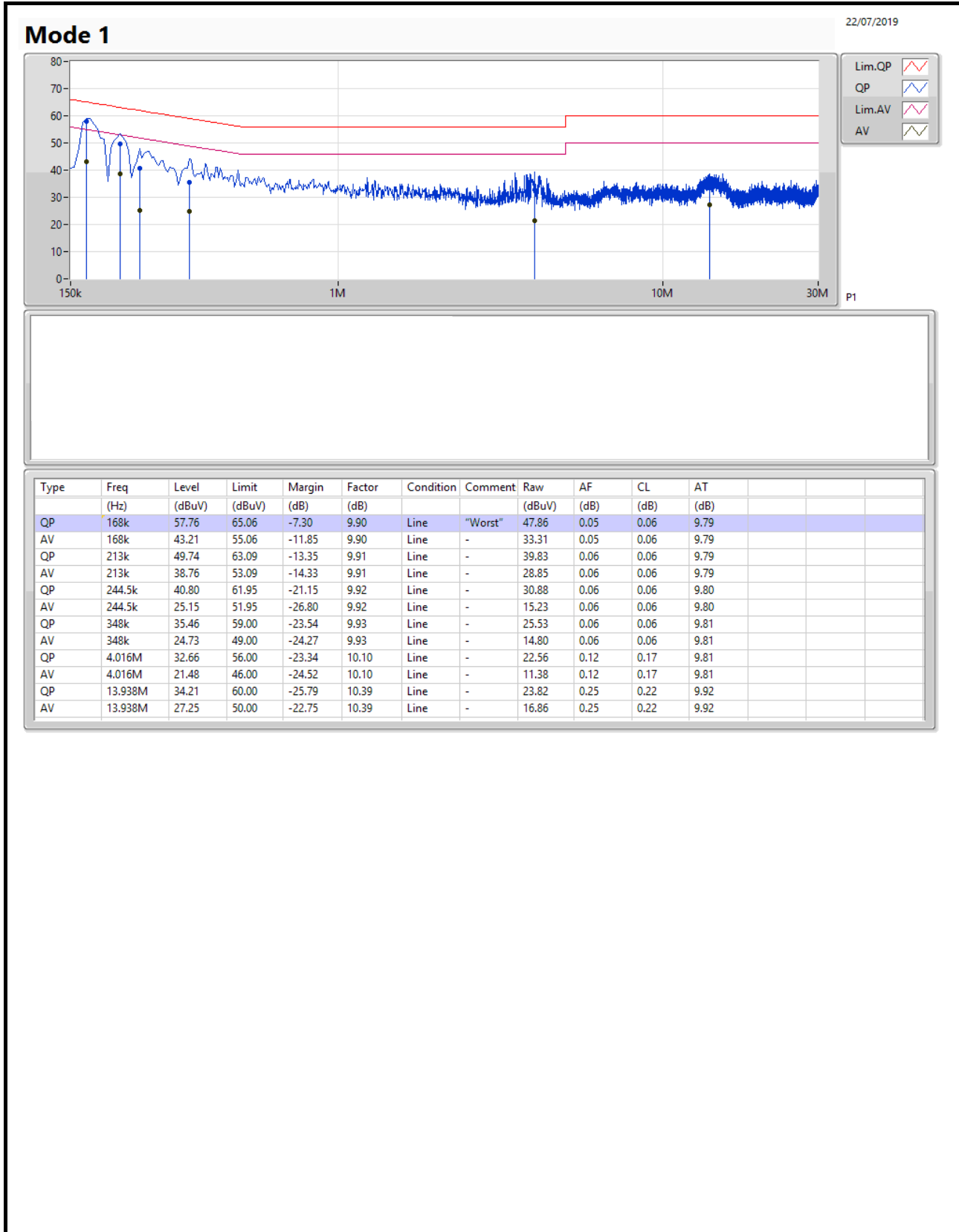


AC Power Port Conducted Emission Result

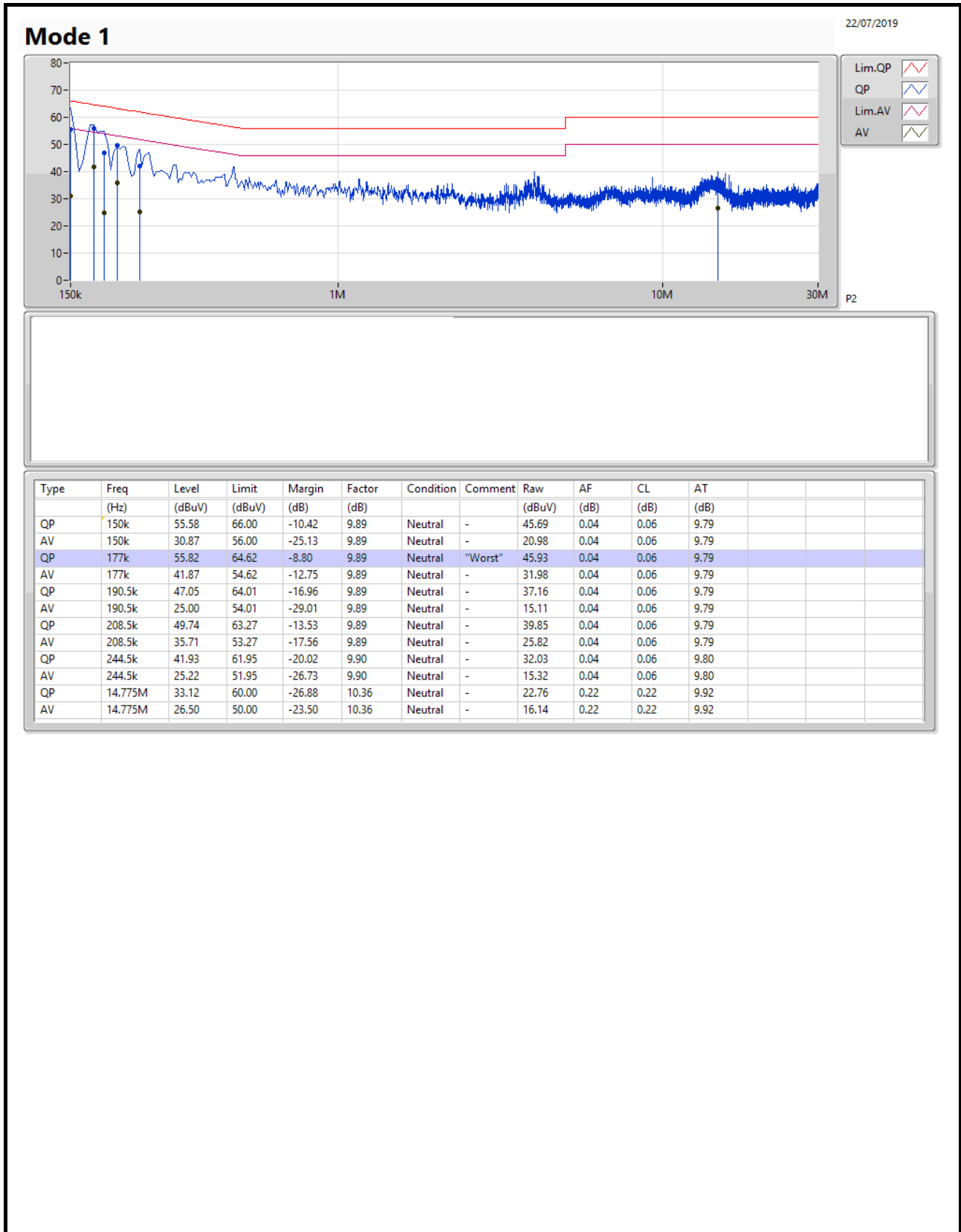
Appendix A

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



Neutral





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)	921.25k	902.246k	902KF1D	920k	891.562k
BT-EDR(2Mbps)	1.309M	1.201M	1M20G1D	1.308M	1.195M
BT-EDR(3Mbps)	1.283M	1.206M	1M21G1D	1.268M	1.193M

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

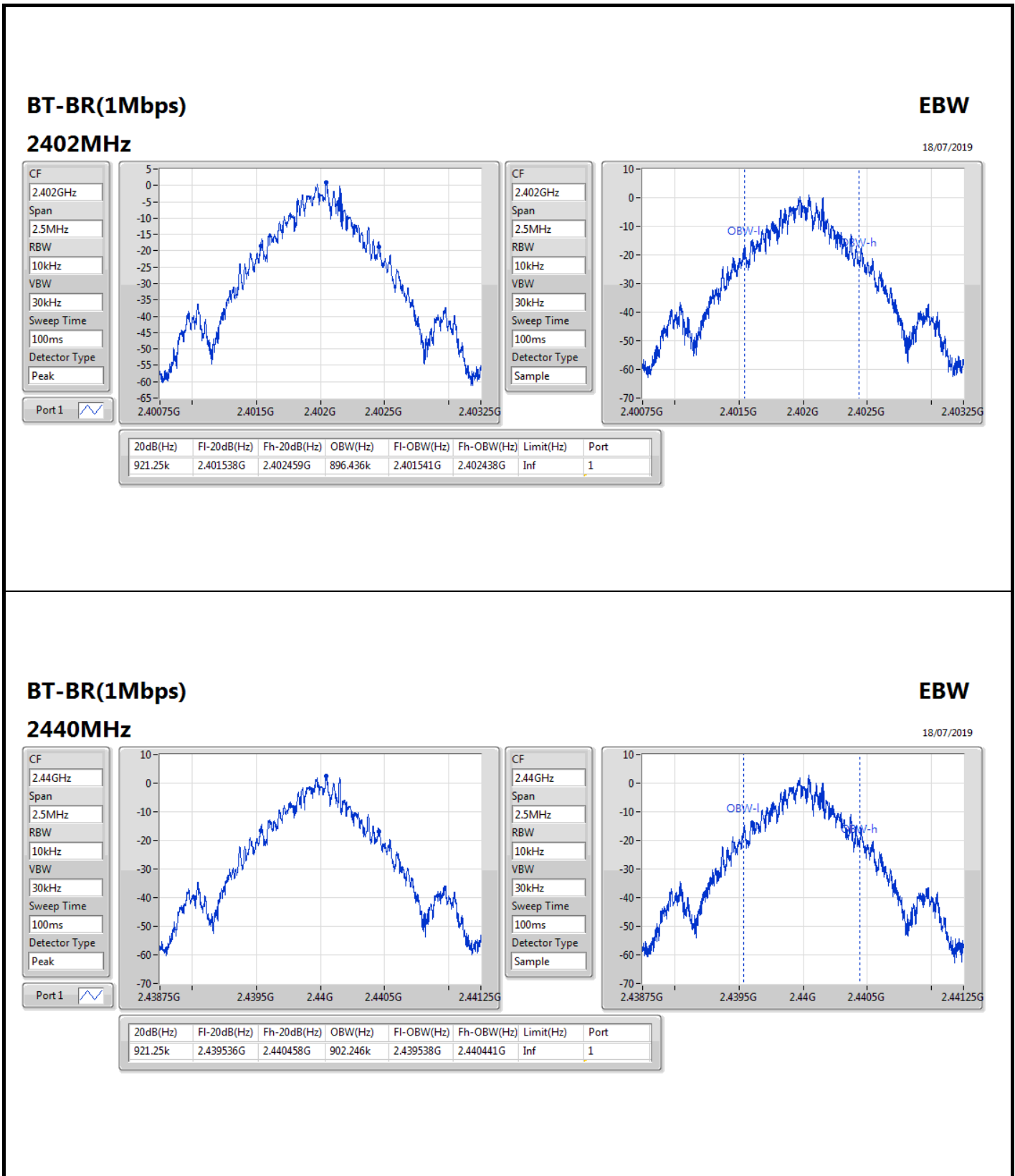
Min-N dB = Minimum 20dB down bandwidth; Min-OBW = Minimum 99% occupied bandwidth;



Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-BR(1Mbps)	-	-	-	-
2402MHz	Pass	Inf	921.25k	896.436k
2440MHz	Pass	Inf	921.25k	902.246k
2480MHz	Pass	Inf	920k	891.562k
BT-EDR(2Mbps)	-	-	-	-
2402MHz	Pass	Inf	1.309M	1.195M
2440MHz	Pass	Inf	1.308M	1.201M
2480MHz	Pass	Inf	1.309M	1.199M
BT-EDR(3Mbps)	-	-	-	-
2402MHz	Pass	Inf	1.269M	1.193M
2440MHz	Pass	Inf	1.268M	1.196M
2480MHz	Pass	Inf	1.283M	1.206M

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



BT-BR(1Mbps)

EBW

2440MHz

18/07/2019

CF
2.44GHz

Span
2.5MHz

RBW
10kHz

VBW
30kHz

Sweep Time
100ms

Detector Type
Peak



CF
2.44GHz

Span
2.5MHz

RBW
10kHz

VBW
30kHz

Sweep Time
100ms

Detector Type
Sample



20dB(Hz)	Fl-20dB(Hz)	Fh-20dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
921.25k	2.439536G	2.440458G	902.246k	2.439538G	2.440441G	Inf	1

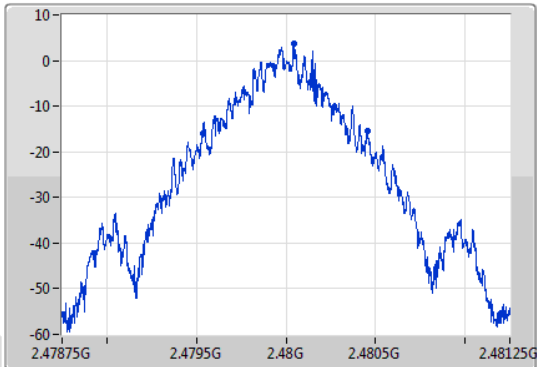
BT-BR(1Mbps)

EBW

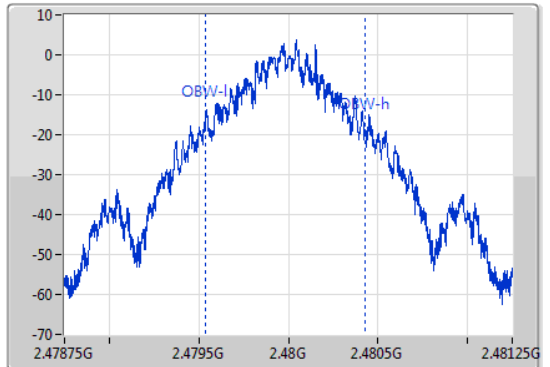
2480MHz

18/07/2019

CF
2.48GHz
Span
2.5MHz
RBW
10kHz
VBW
30kHz
Sweep Time
100ms
Detector Type
Peak



CF
2.48GHz
Span
2.5MHz
RBW
10kHz
VBW
30kHz
Sweep Time
100ms
Detector Type
Sample



20dB(Hz)	Fl-20dB(Hz)	Fh-20dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
920k	2.479536G	2.480456G	891.562k	2.47954G	2.480431G	Inf	1

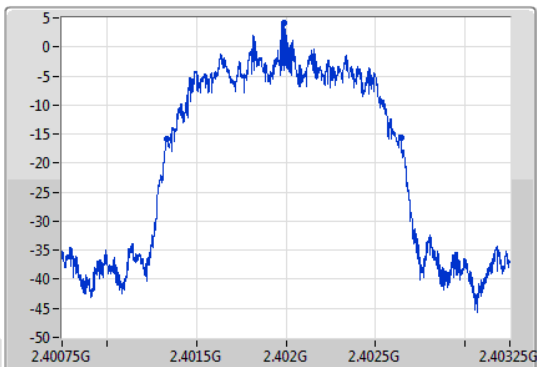
BT-EDR(2Mbps)

EBW

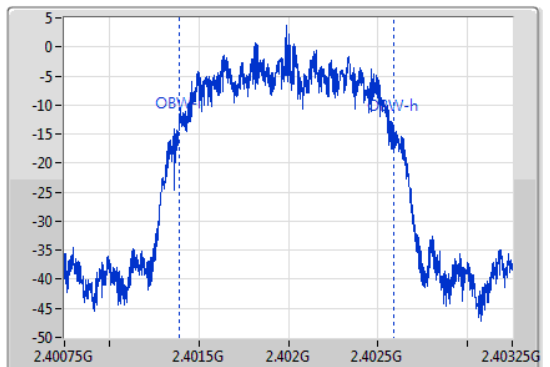
2402MHz

18/07/2019

CF
2.402GHz
Span
2.5MHz
RBW
20kHz
VBW
100kHz
Sweep Time
100ms
Detector Type
Peak



CF
2.402GHz
Span
2.5MHz
RBW
20kHz
VBW
100kHz
Sweep Time
100ms
Detector Type
Sample



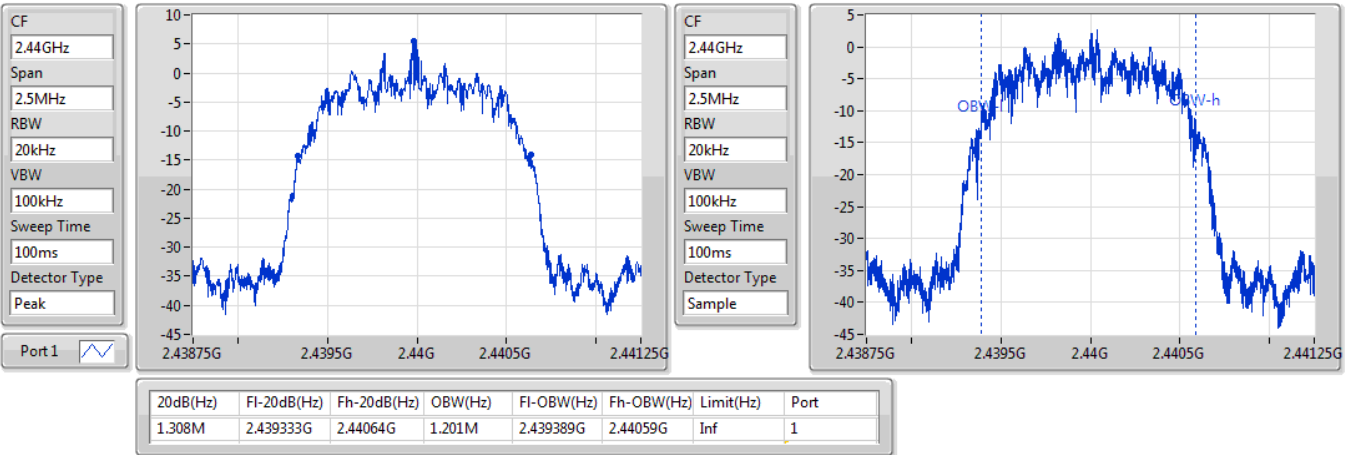
20dB(Hz)	Fl-20dB(Hz)	Fh-20dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.309M	2.401333G	2.402641G	1.195M	2.401391G	2.402586G	Inf	1

BT-EDR(2Mbps)

EBW

2440MHz

18/07/2019

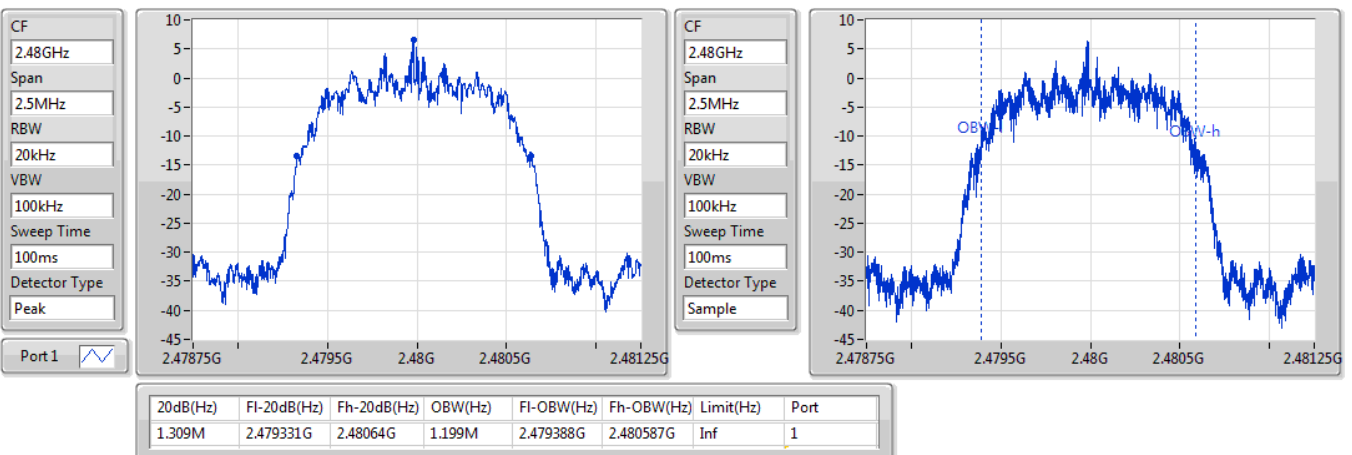


BT-EDR(2Mbps)

EBW

2480MHz

18/07/2019

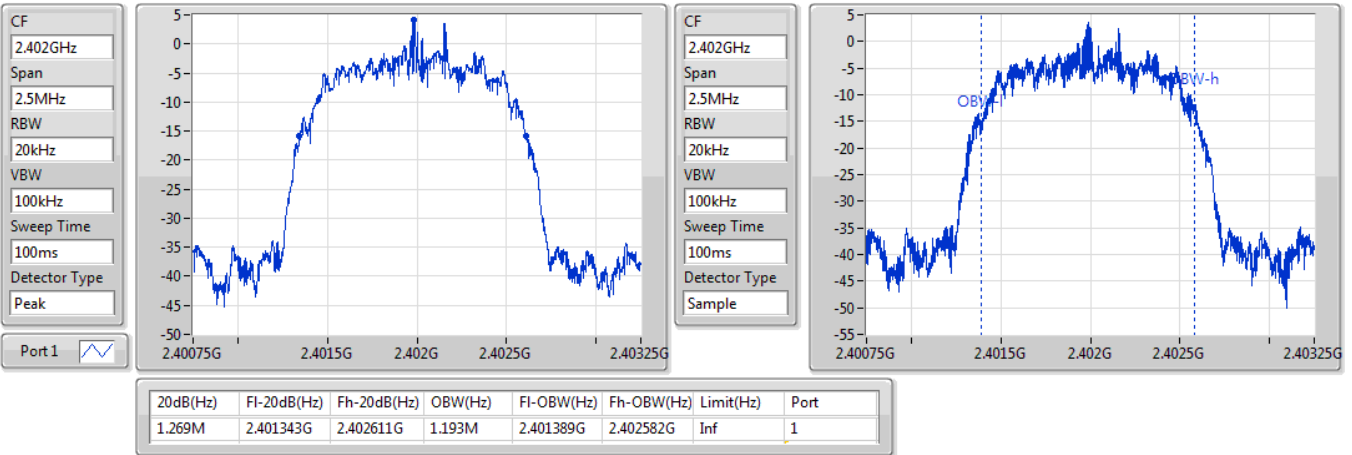


BT-EDR(3Mbps)

EBW

2402MHz

18/07/2019

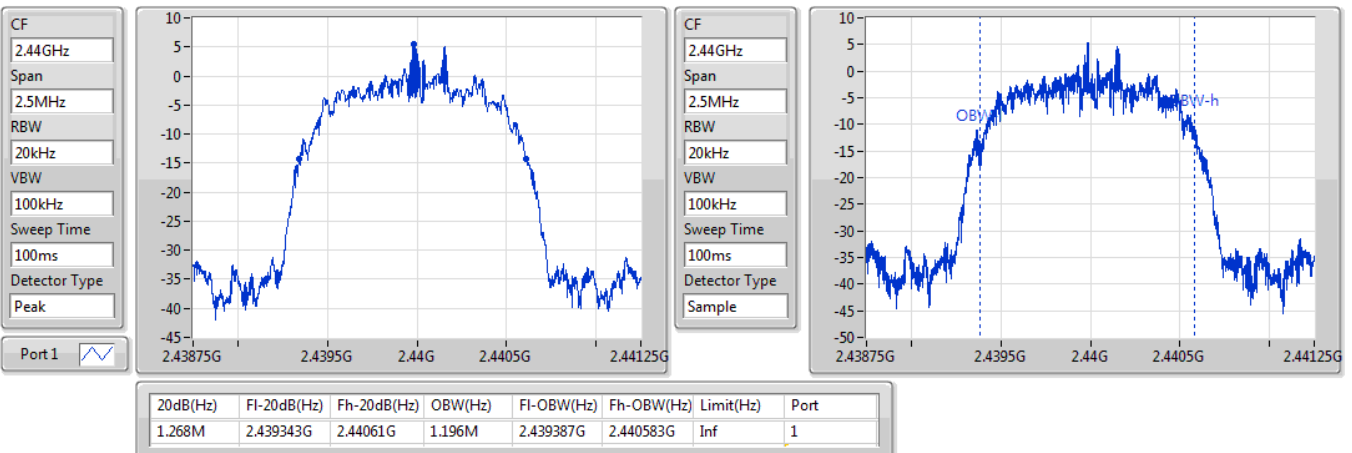


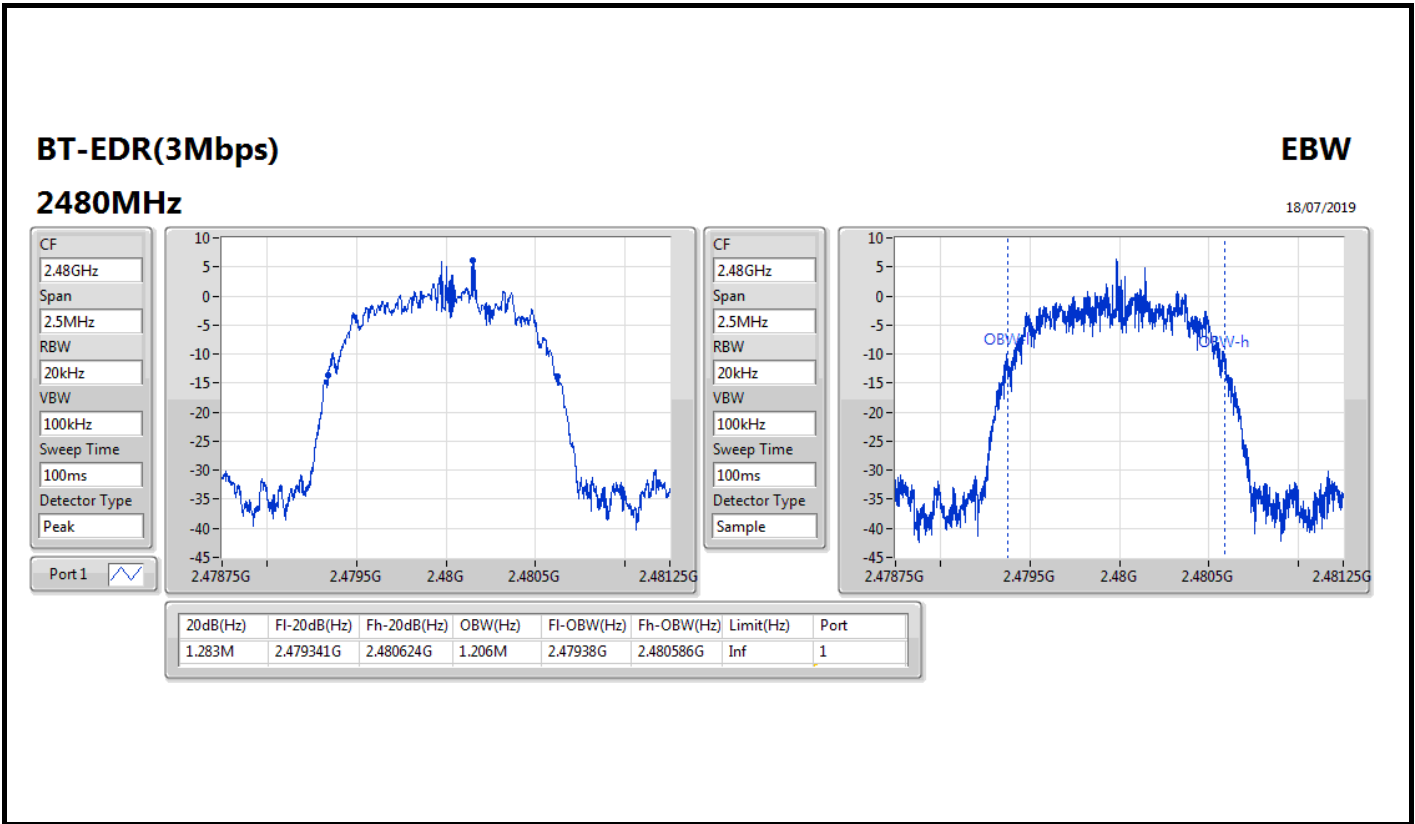
BT-EDR(3Mbps)

EBW

2440MHz

18/07/2019







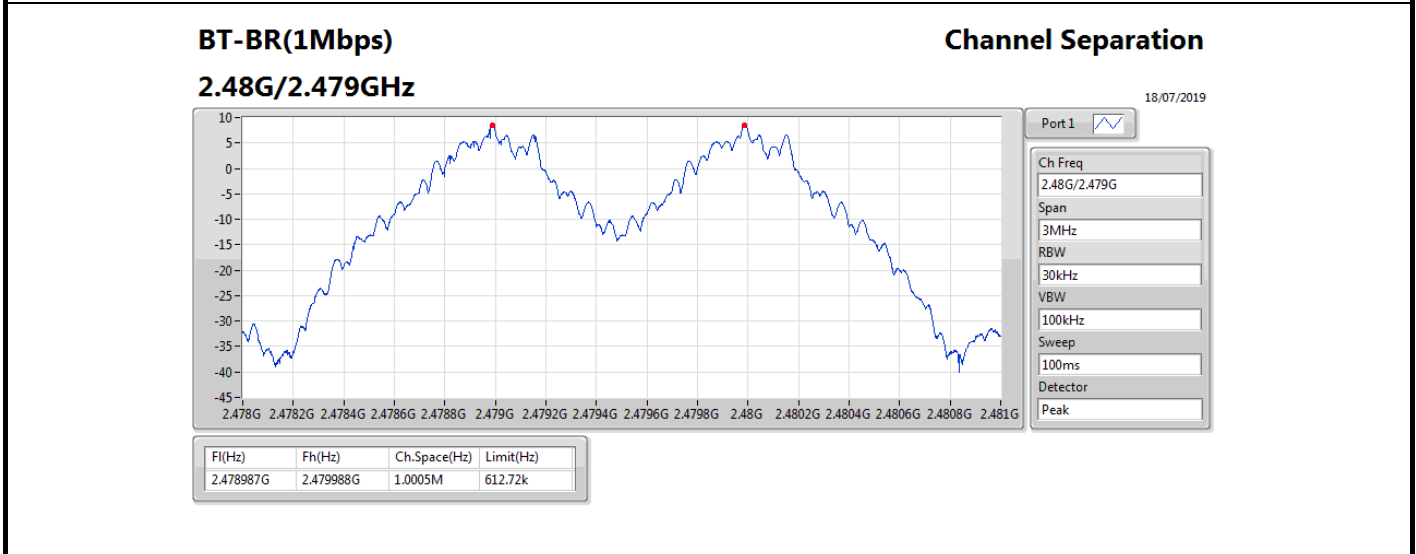
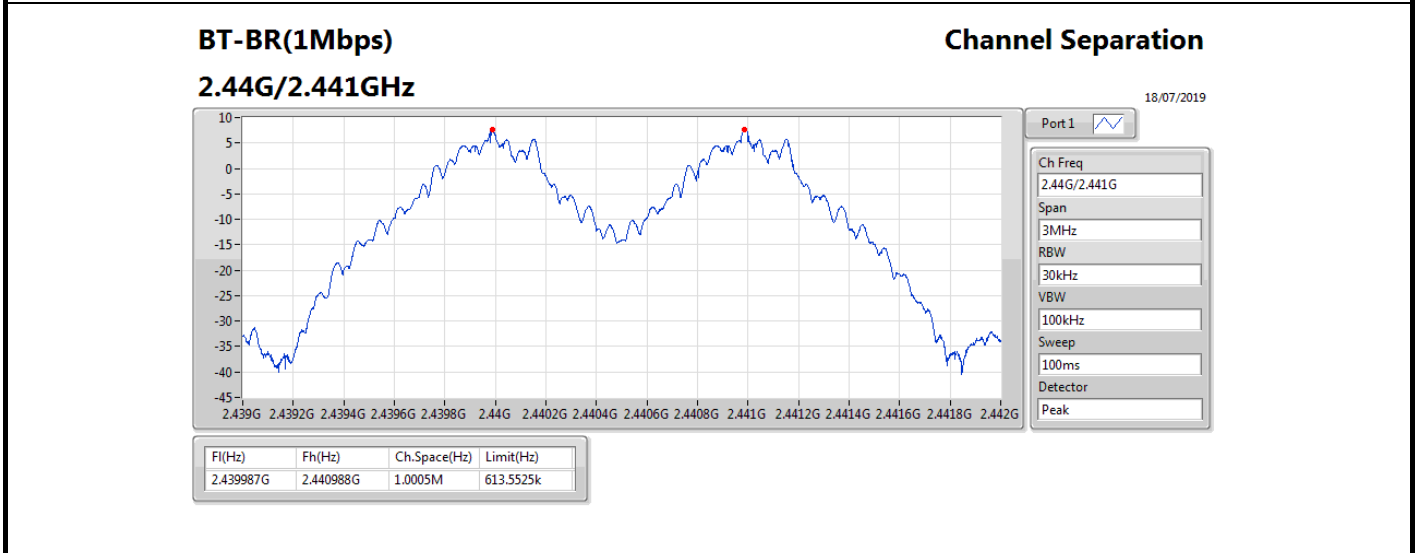
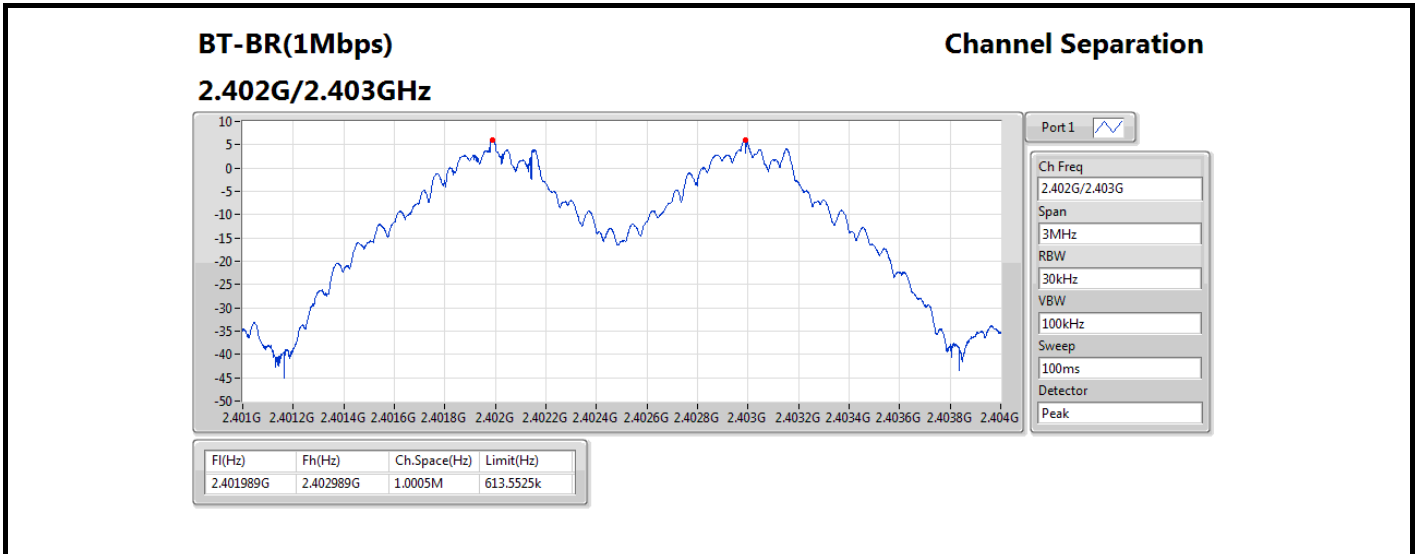
Summary

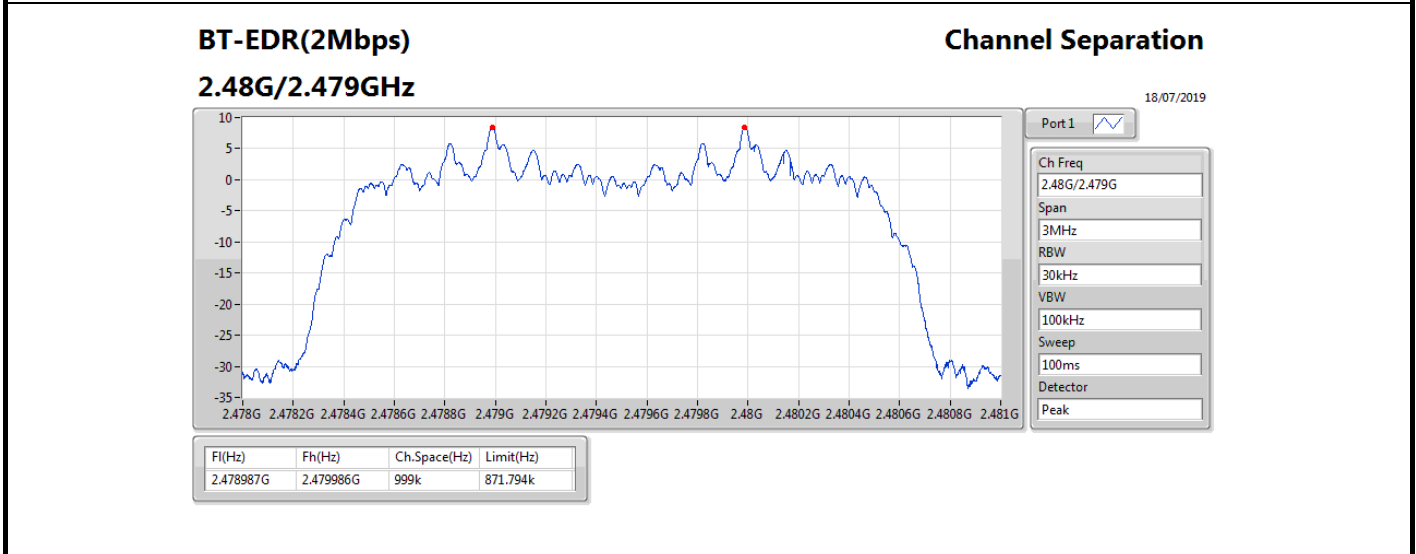
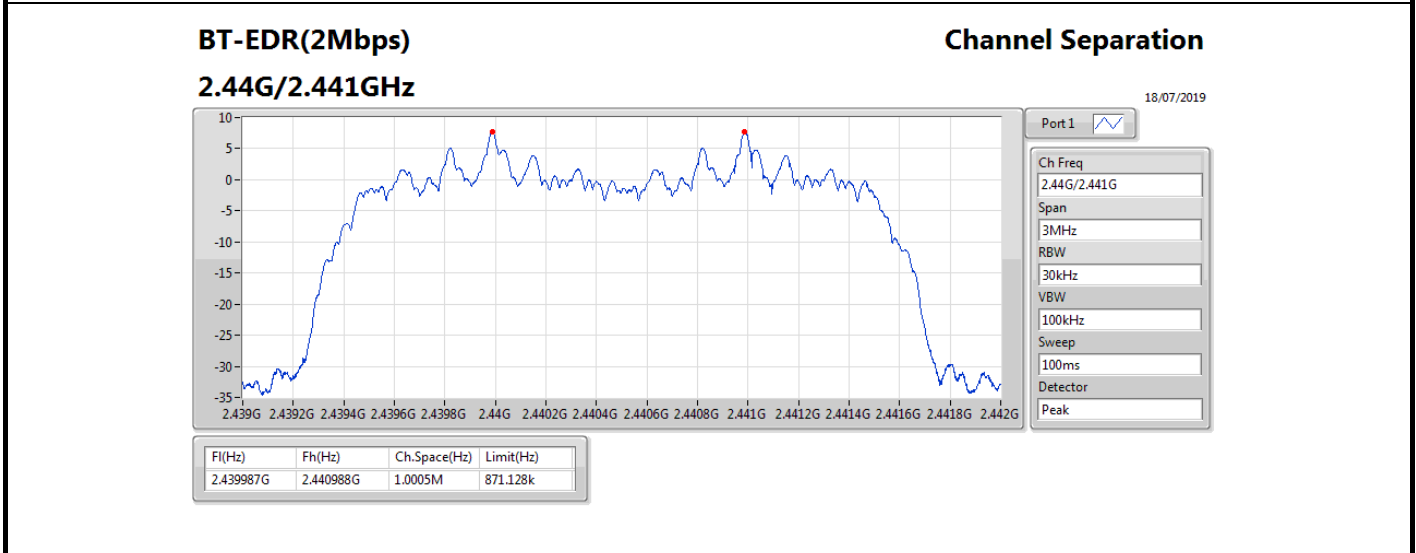
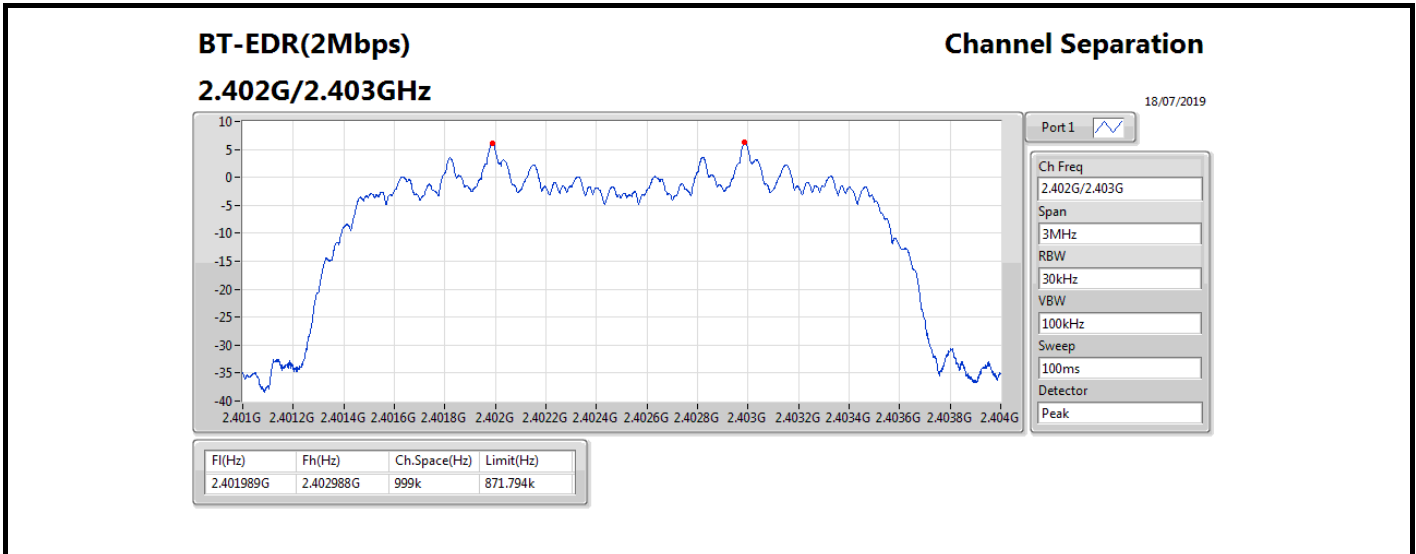
Mode	Max-Space (Hz)	Min-Space (Hz)
2.4-2.4835GHz	-	-
BT-BR(1Mbps)	1.0005M	1.0005M
BT-EDR(2Mbps)	1.0005M	999k
BT-EDR(3Mbps)	1.0005M	997.5k

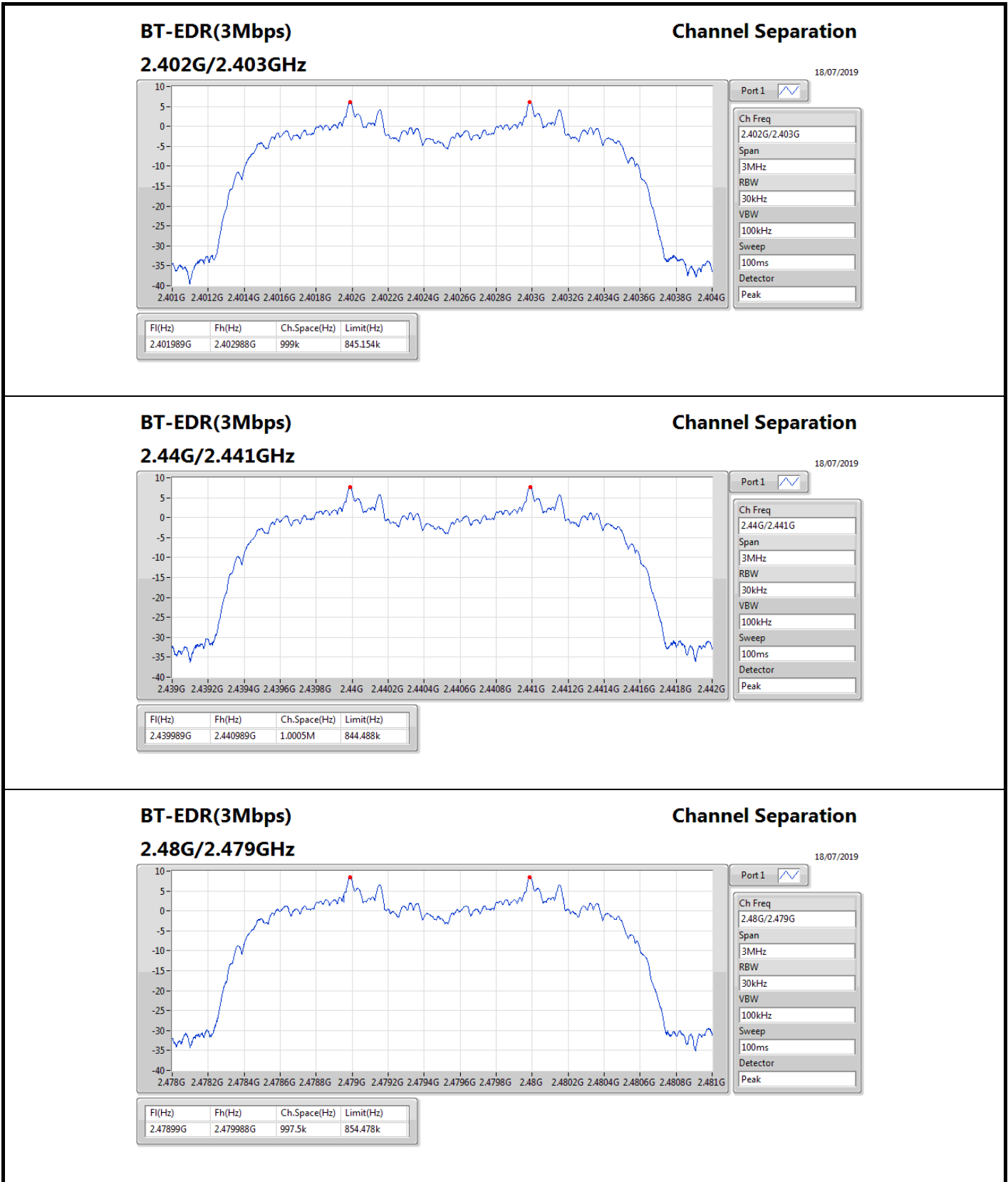


Result

Mode	Result	Fl (Hz)	Fh (Hz)	Ch.Space (Hz)	Limit (Hz)
BT-BR(1Mbps)	-	-	-	-	-
2402MHz	Pass	2.401989G	2.402989G	1.0005M	613.5525k
2440MHz	Pass	2.439987G	2.440988G	1.0005M	613.5525k
2480MHz	Pass	2.478987G	2.479988G	1.0005M	612.72k
BT-EDR(2Mbps)	-	-	-	-	-
2402MHz	Pass	2.401989G	2.402988G	999k	871.794k
2440MHz	Pass	2.439987G	2.440988G	1.0005M	871.128k
2480MHz	Pass	2.478987G	2.479986G	999k	871.794k
BT-EDR(3Mbps)	-	-	-	-	-
2402MHz	Pass	2.401989G	2.402988G	999k	845.154k
2440MHz	Pass	2.439989G	2.440989G	1.0005M	844.488k
2480MHz	Pass	2.47899G	2.479988G	997.5k	854.478k









Summary

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-BR(1Mbps)	9.06	0.00805
BT-EDR(2Mbps)	9.17	0.00826
BT-EDR(3Mbps)	9.14	0.00820

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-BR(1Mbps)	-	-	-	-
2402MHz	Pass	-2.93	6.70	21.00
2440MHz	Pass	-2.93	8.31	21.00
2480MHz	Pass	-2.93	9.06	21.00
BT-EDR(2Mbps)	-	-	-	-
2402MHz	Pass	-2.93	6.89	21.00
2440MHz	Pass	-2.93	8.33	21.00
2480MHz	Pass	-2.93	9.17	21.00
BT-EDR(3Mbps)	-	-	-	-
2402MHz	Pass	-2.93	6.89	21.00
2440MHz	Pass	-2.93	8.33	21.00
2480MHz	Pass	-2.93	9.14	21.00

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



Summary

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-BR(1Mbps)	9.56	0.00904
BT-EDR(2Mbps)	11.65	0.01462
BT-EDR(3Mbps)	12.10	0.01622

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-BR(1Mbps)	-	-	-	-
2402MHz	Pass	-2.93	7.04	21.00
2440MHz	Pass	-2.93	8.72	21.00
2480MHz	Pass	-2.93	9.56	21.00
BT-EDR(2Mbps)	-	-	-	-
2402MHz	Pass	-2.93	9.41	21.00
2440MHz	Pass	-2.93	10.85	21.00
2480MHz	Pass	-2.93	11.65	21.00
BT-EDR(3Mbps)	-	-	-	-
2402MHz	Pass	-2.93	9.91	21.00
2440MHz	Pass	-2.93	11.32	21.00
2480MHz	Pass	-2.93	12.10	21.00

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

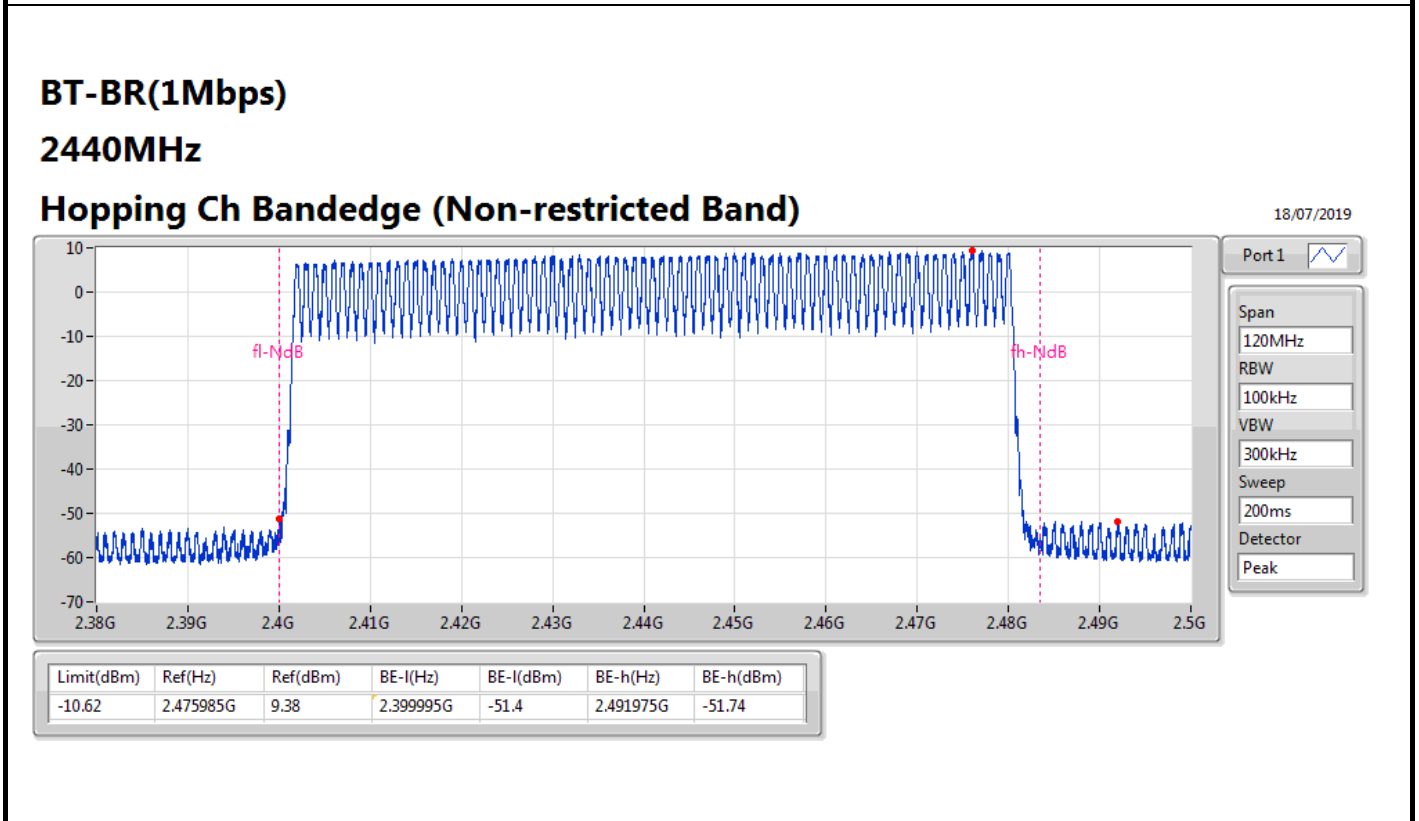
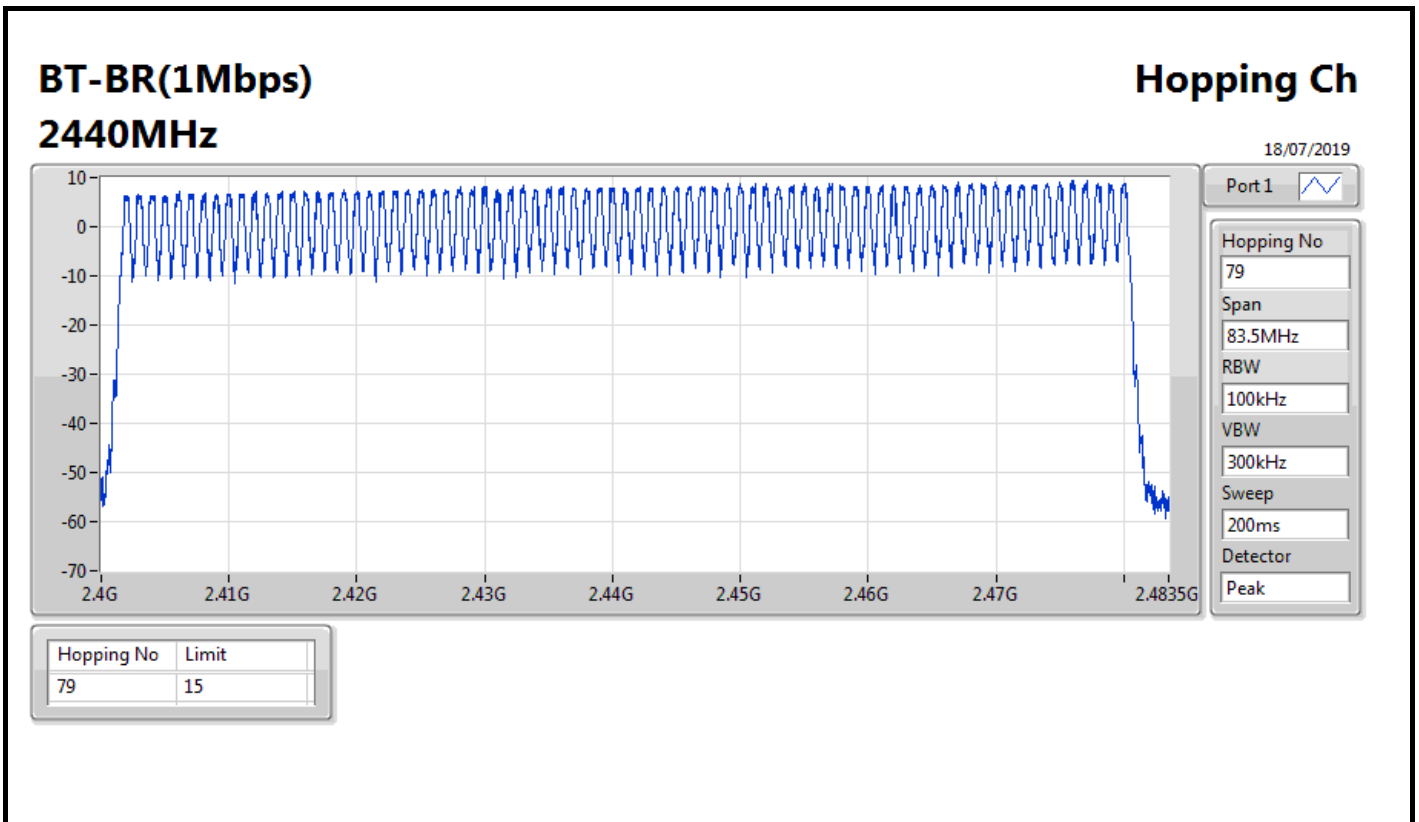


Summary

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

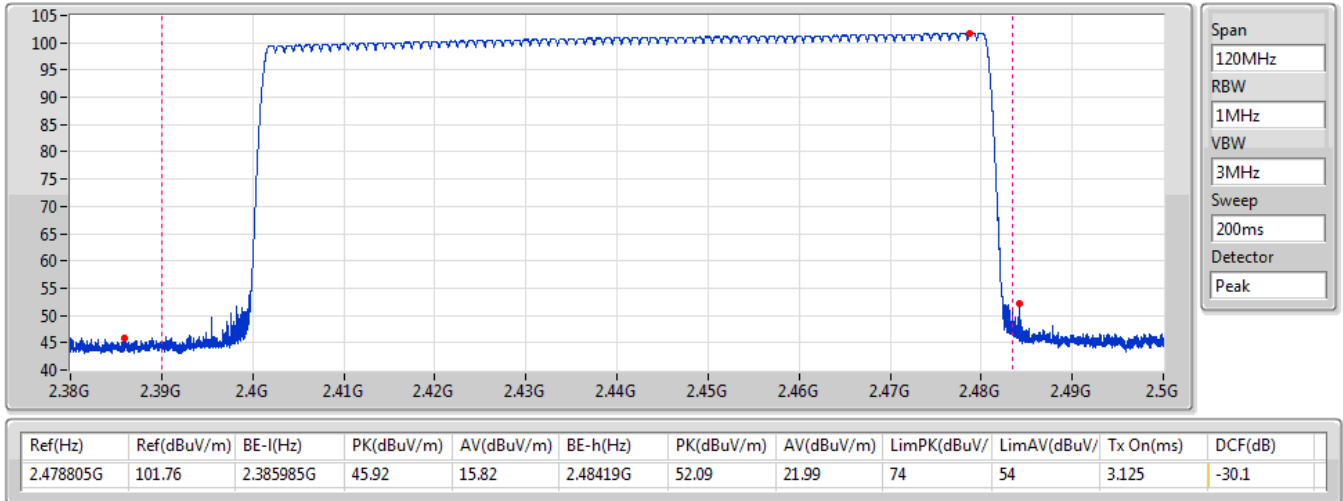
Result

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



BT-BR(1Mbps)
2440MHz
Hopping Ch Bandedge (Restricted Band)

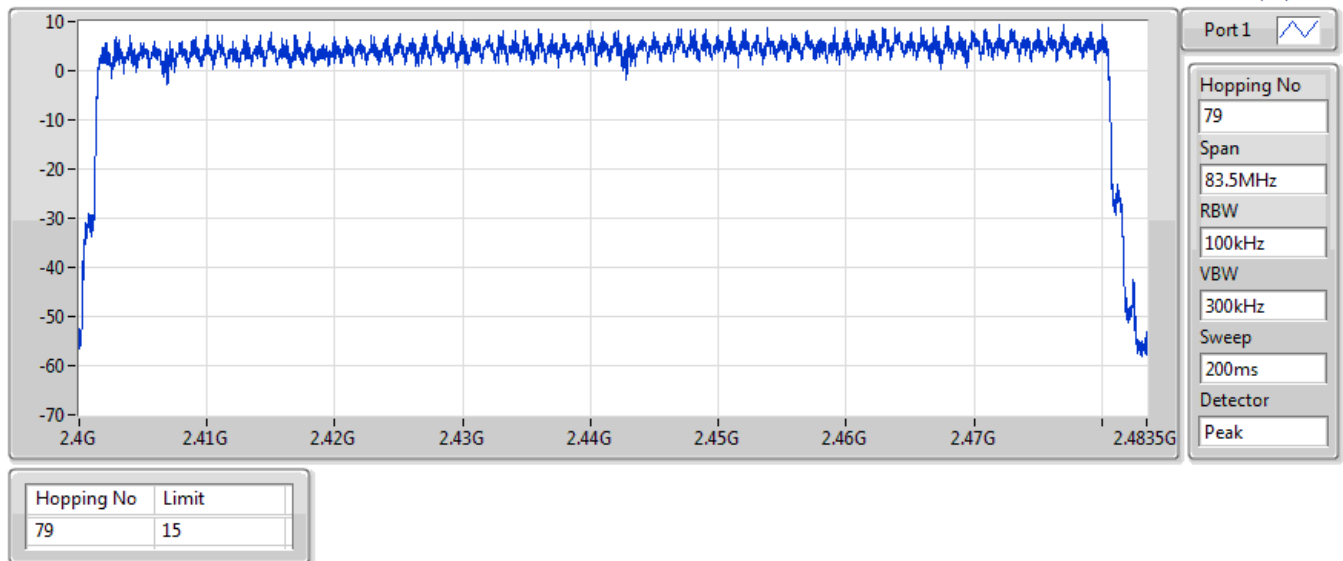
18/07/2019



BT-EDR(2Mbps)
2440MHz

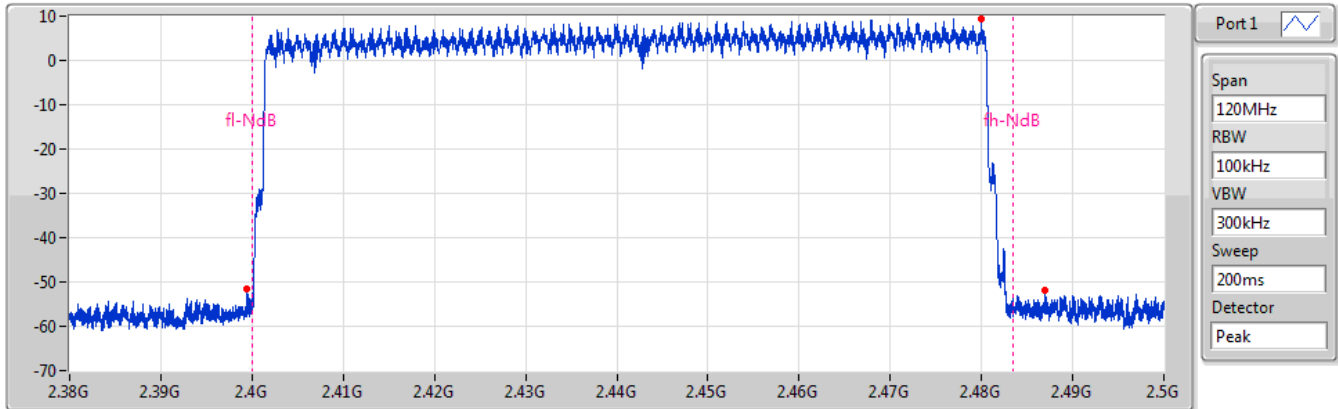
Hopping Ch

18/07/2019



BT-EDR(2Mbps)
2440MHz
Hopping Ch Bandedge (Non-restricted Band)

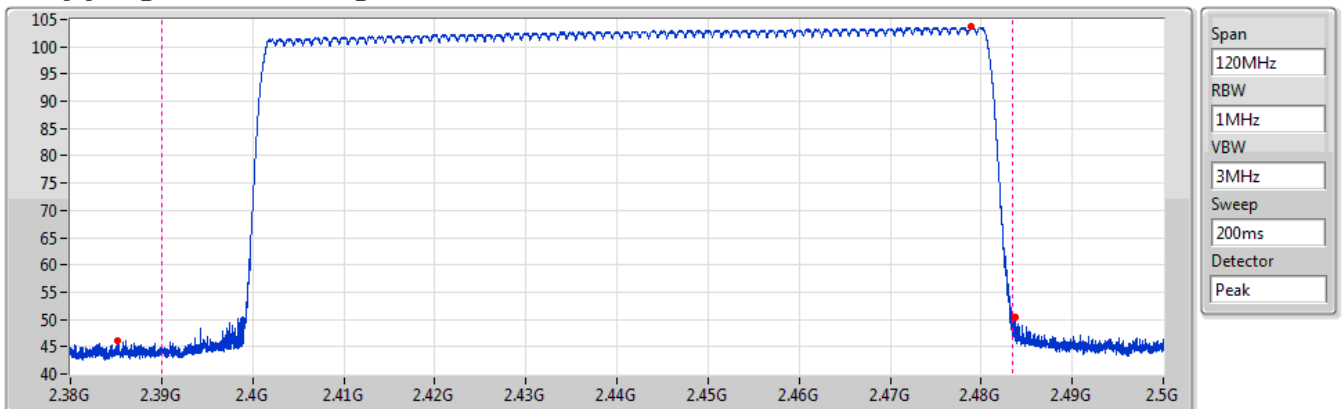
18/07/2019



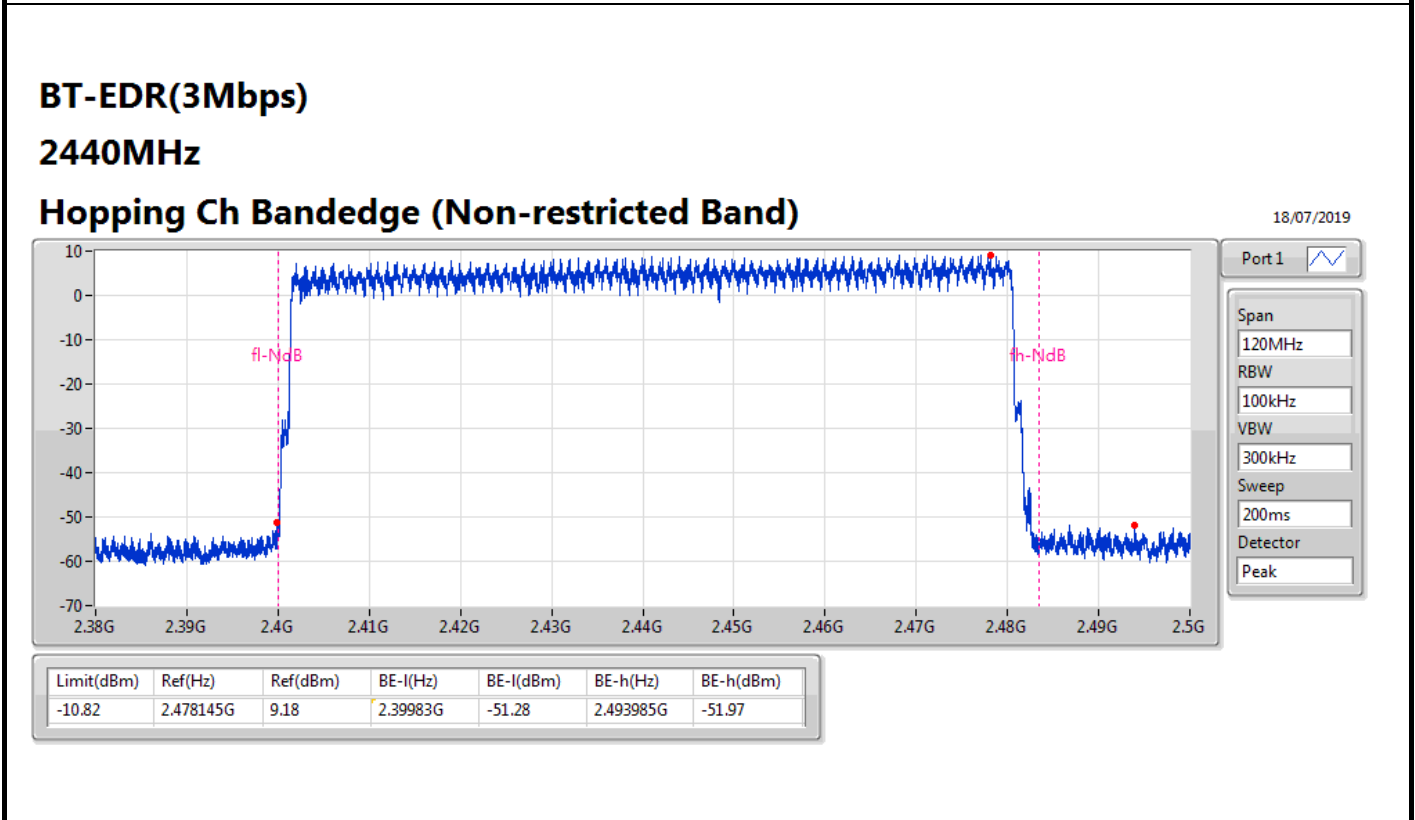
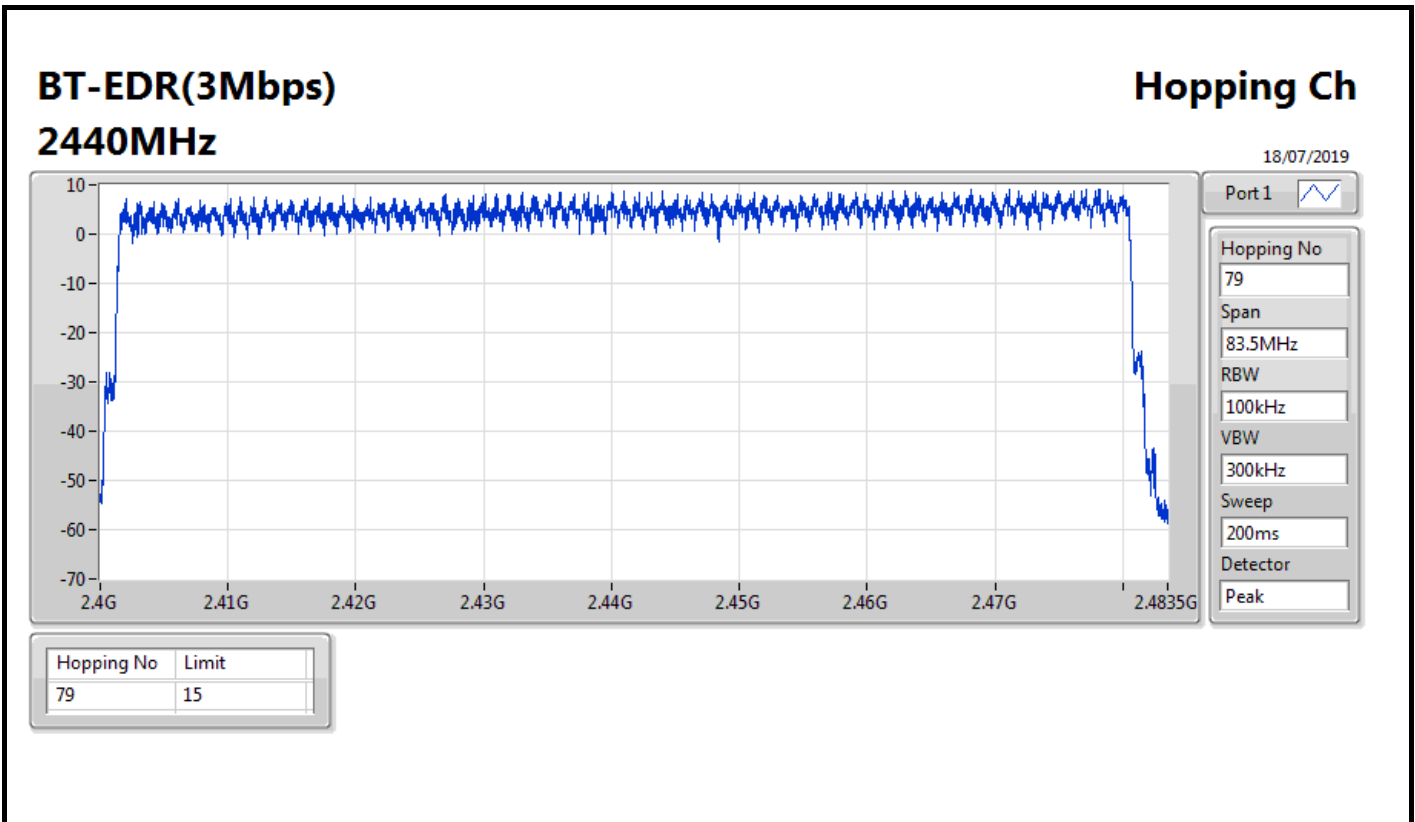
Limit(dBm)	Ref(Hz)	Ref(dBm)	BE-l(Hz)	BE-l(dBm)	BE-h(Hz)	BE-h(dBm)
-10.55	2.47999G	9.45	2.39947G	-51.61	2.486995G	-51.81

BT-EDR(2Mbps)
2440MHz
Hopping Ch Bandedge (Restricted Band)

18/07/2019



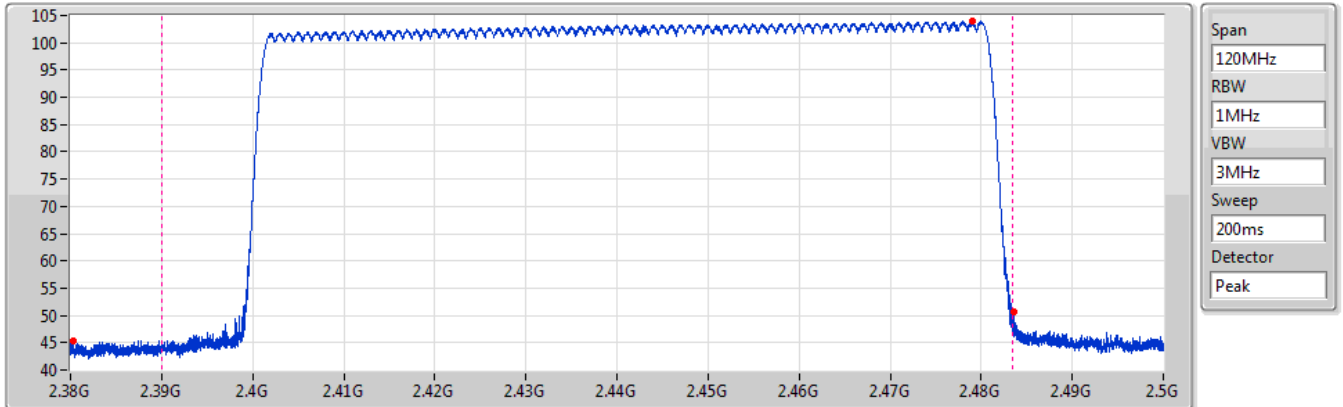
Ref(Hz)	Ref(dBuV/m)	BE-l(Hz)	PK(dBuV/m)	AV(dBuV/m)	BE-h(Hz)	PK(dBuV/m)	AV(dBuV/m)	LimPK(dBuV/	LimAV(dBuV/	Tx On(ms)	DCF(dB)
2.47888G	103.61	2.385205G	46.08	15.98	2.48374G	50.31	20.21	74	54	3.125	-30.1





BT-EDR(3Mbps)
2440MHz
Hopping Ch Bandedge (Restricted Band)

18/07/2019



Span
 120MHz
 RBW
 1MHz
 VBW
 3MHz
 Sweep
 200ms
 Detector
 Peak

Ref(Hz)	Ref(dBuV/m)	BE-l(Hz)	PK(dBuV/m)	AV(dBuV/m)	BE-h(Hz)	PK(dBuV/m)	AV(dBuV/m)	LimPK(dBuV/	LimAV(dBuV/	Tx On(ms)	DCF(dB)
2.479015G	103.91	2.38033G	45.38	15.28	2.48359G	50.79	20.69	74	54	3.125	-30.1



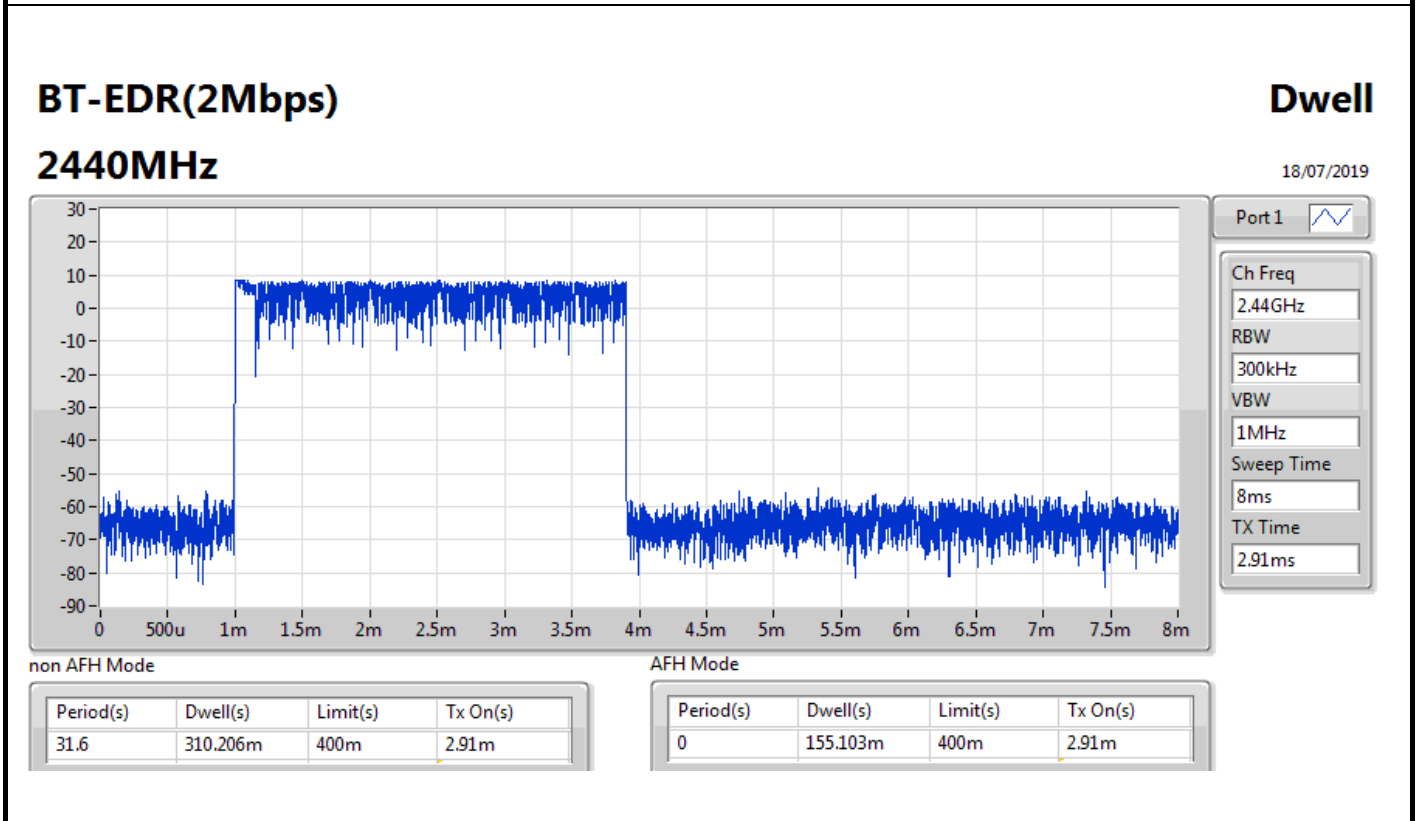
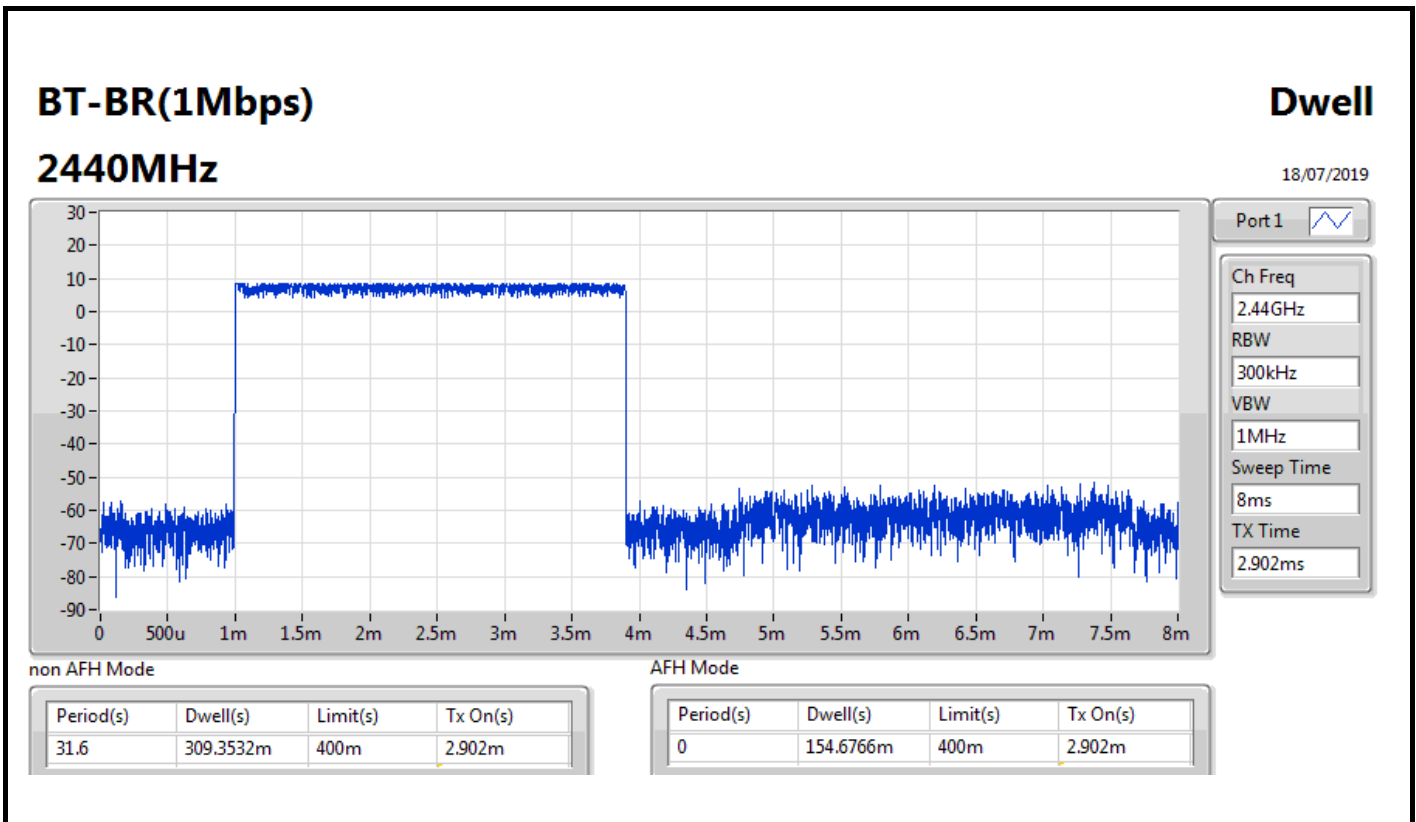
Summary

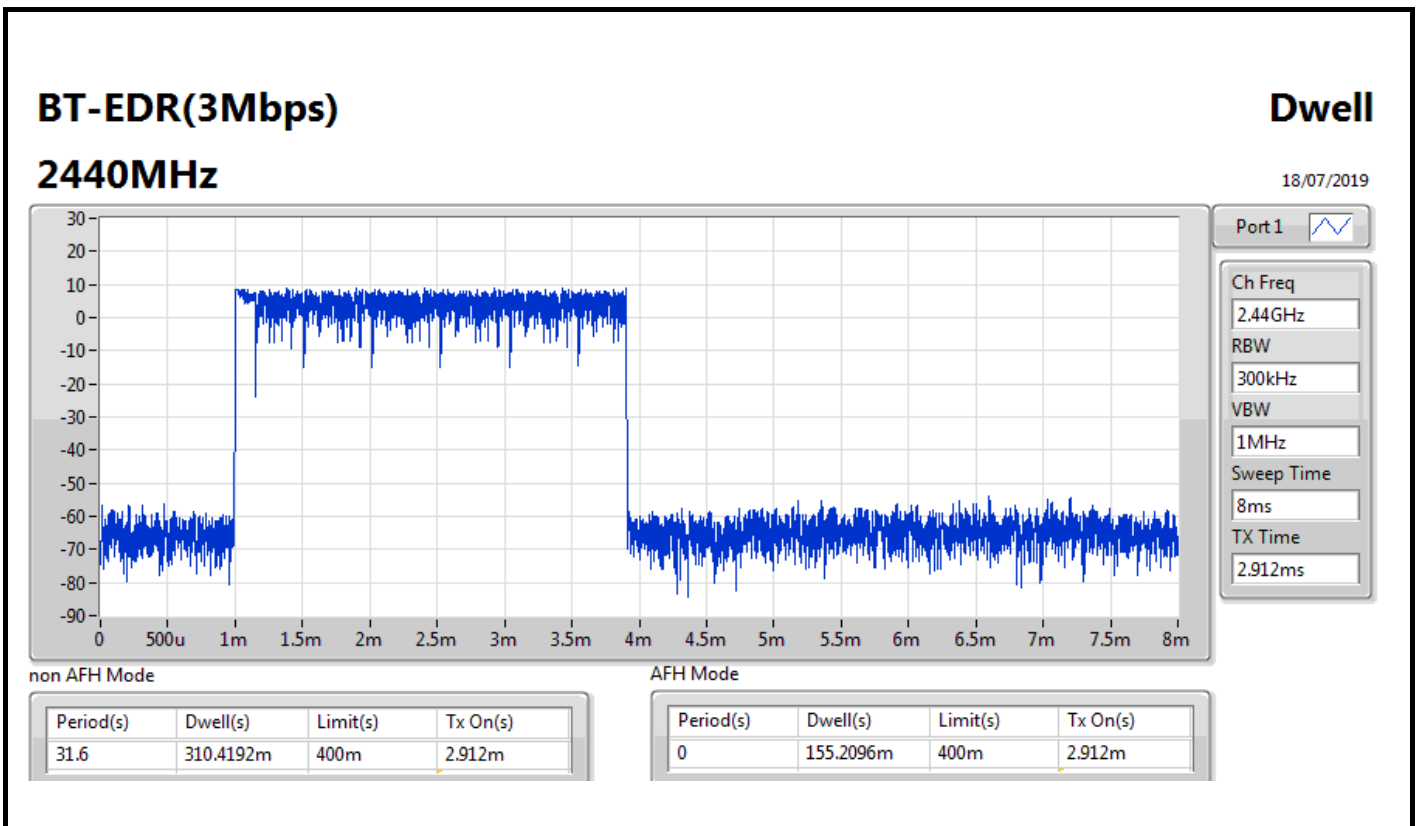
Mode	Max-Dwell (s)
2.4-2.4835GHz	-
BT-BR(1Mbps)	309.3532m
BT-EDR(2Mbps)	310.206m
BT-EDR(3Mbps)	310.4192m



Result

Mode	Result	Period (s)	Dwell (s)	Limit (s)	Tx On (s)
BT-BR(1Mbps)	-	-	-	-	-
2440MHz	Pass	31.6	309.3532m	400m	2.902m
BT-EDR(2Mbps)	-	-	-	-	-
2440MHz	Pass	31.6	310.206m	400m	2.91m
BT-EDR(3Mbps)	-	-	-	-	-
2440MHz	Pass	31.6	310.4192m	400m	2.912m







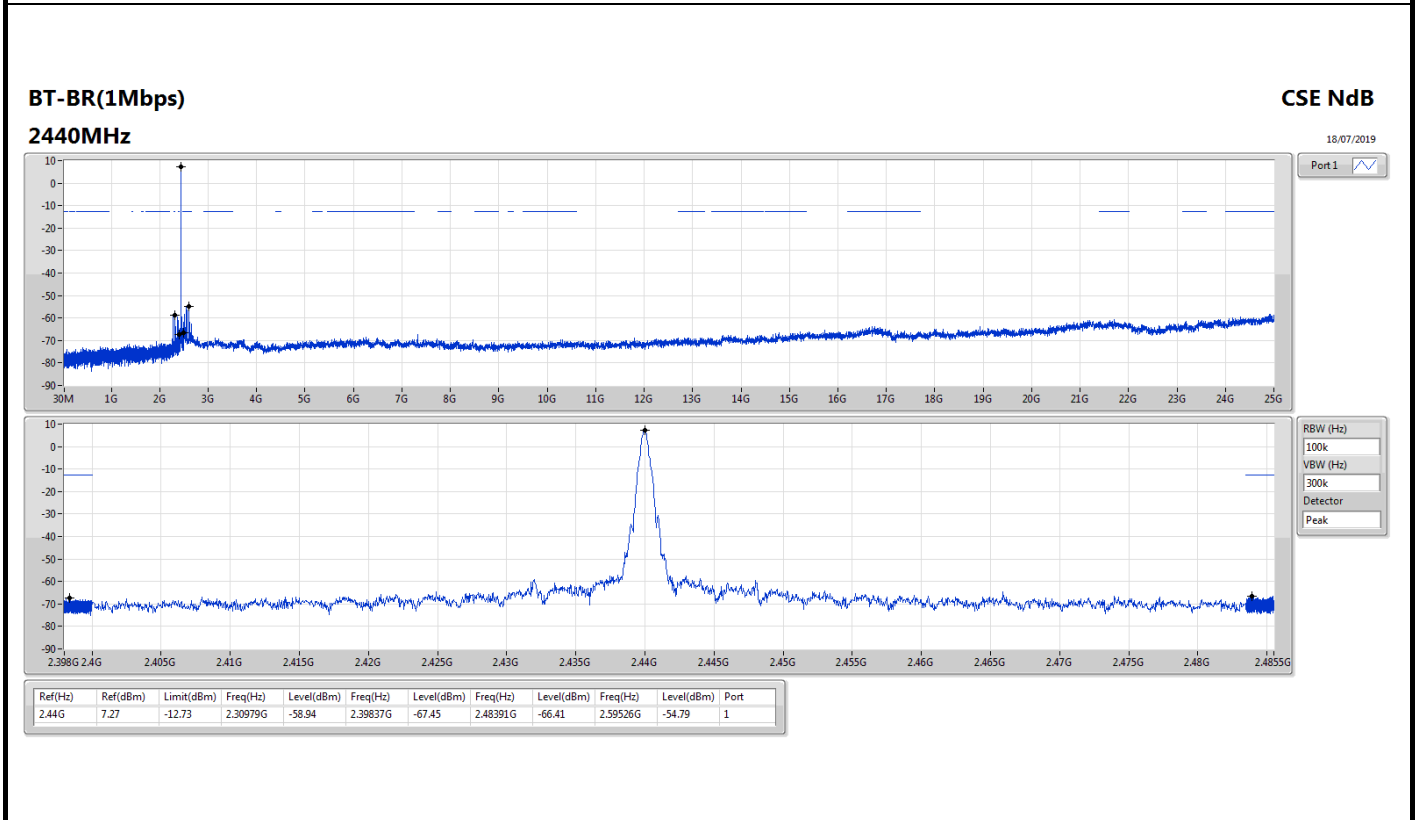
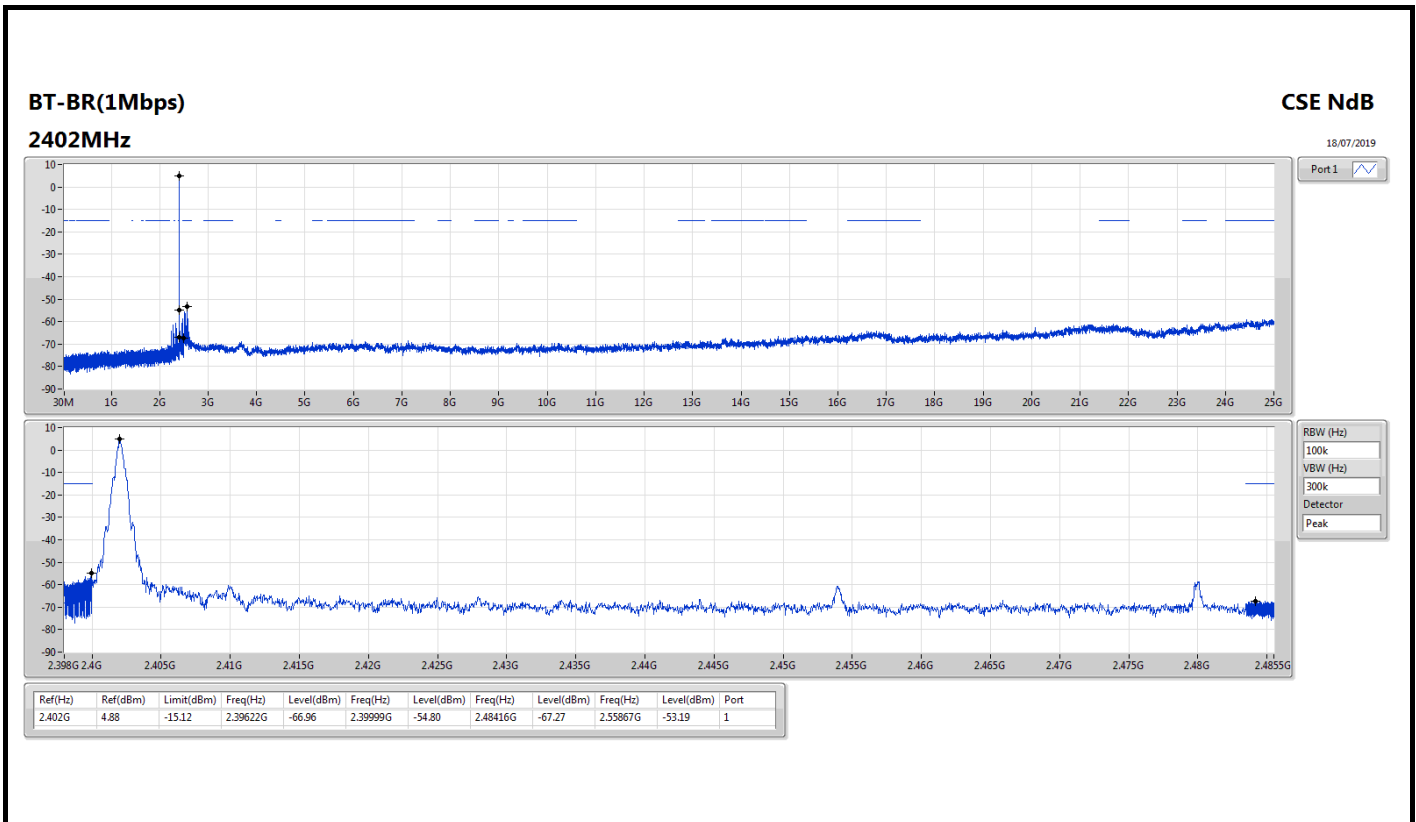
Summary

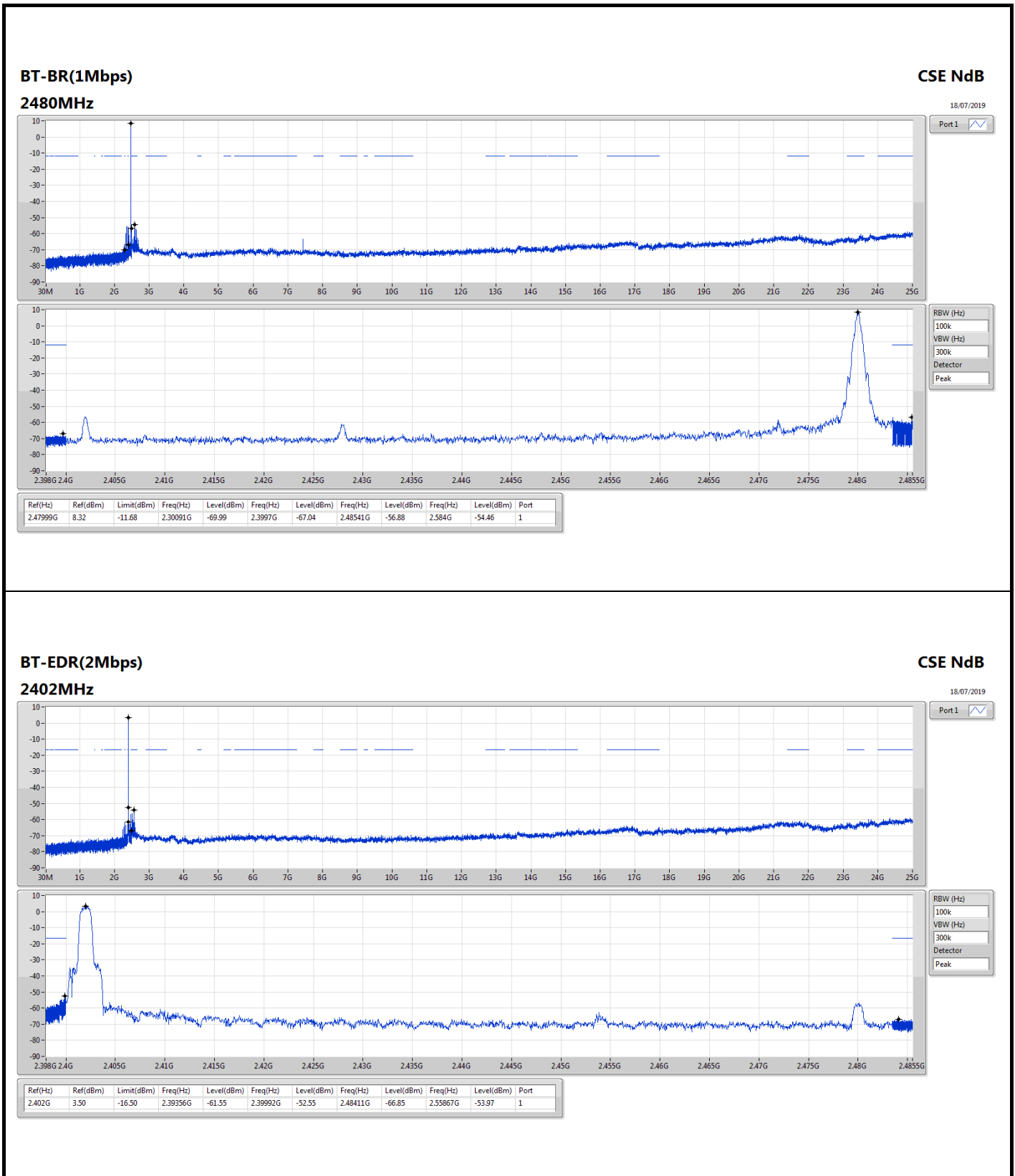
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-
BT-BR(1Mbps)	Pass	2.402G	4.88	-15.12	2.39622G	-66.96	2.39999G	-54.80	2.48416G	-67.27	2.55867G	-53.19	1
BT-EDR(2Mbps)	Pass	2.402G	3.50	-16.50	2.39356G	-61.55	2.39992G	-52.55	2.48411G	-66.85	2.55867G	-53.97	1
BT-EDR(3Mbps)	Pass	2.40196G	3.44	-16.56	2.39711G	-62.69	2.39998G	-53.71	2.4836G	-66.95	2.53334G	-56.10	1

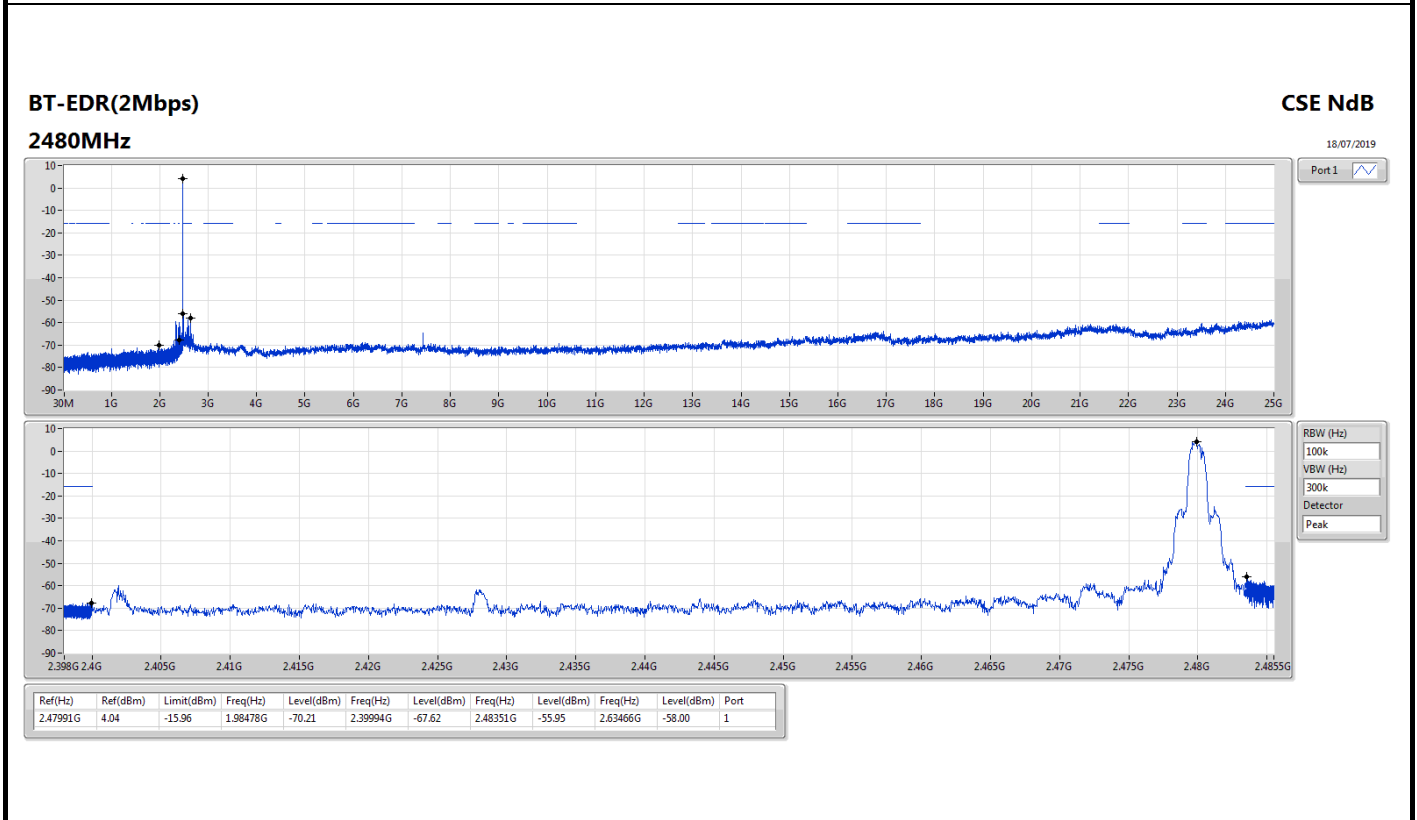
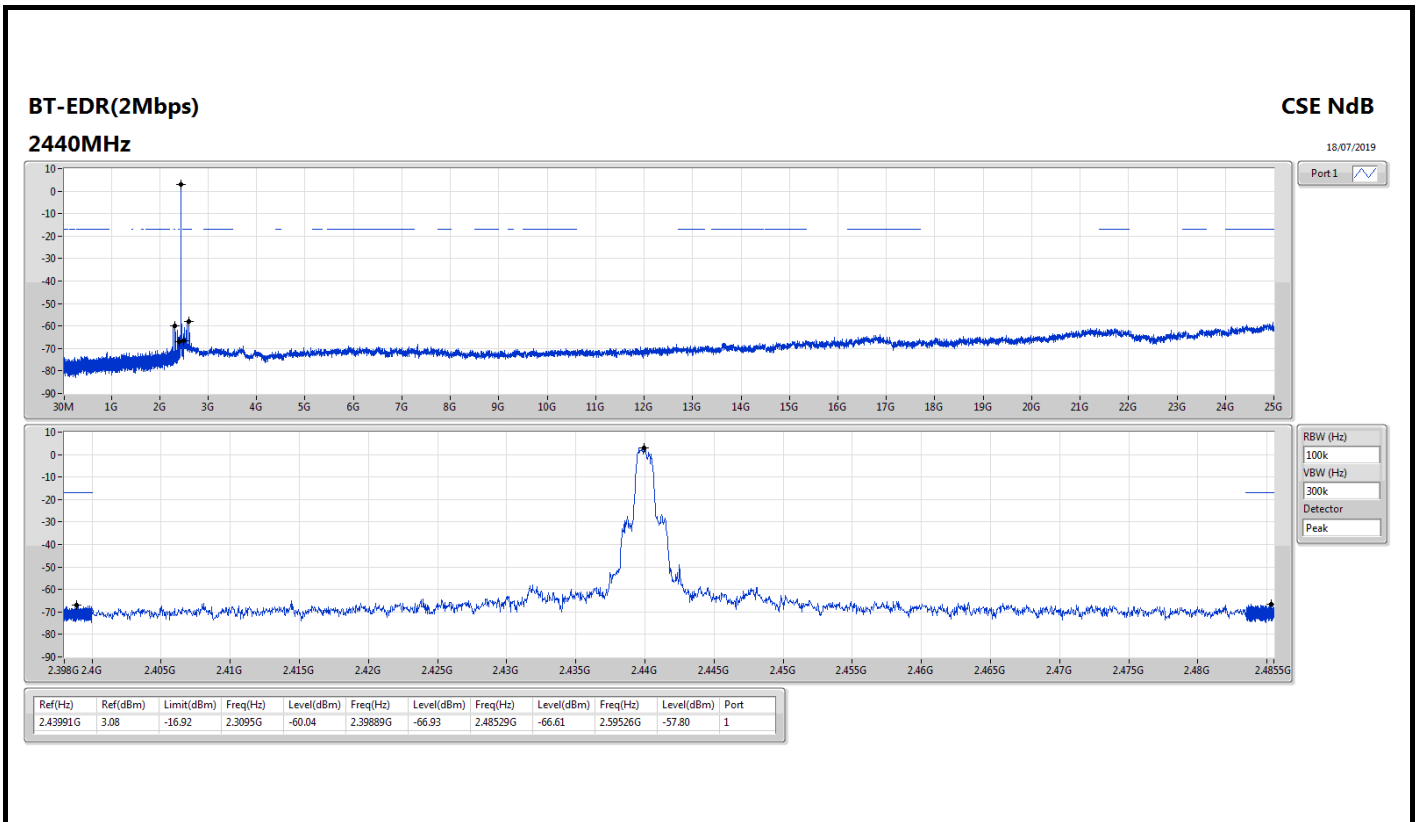


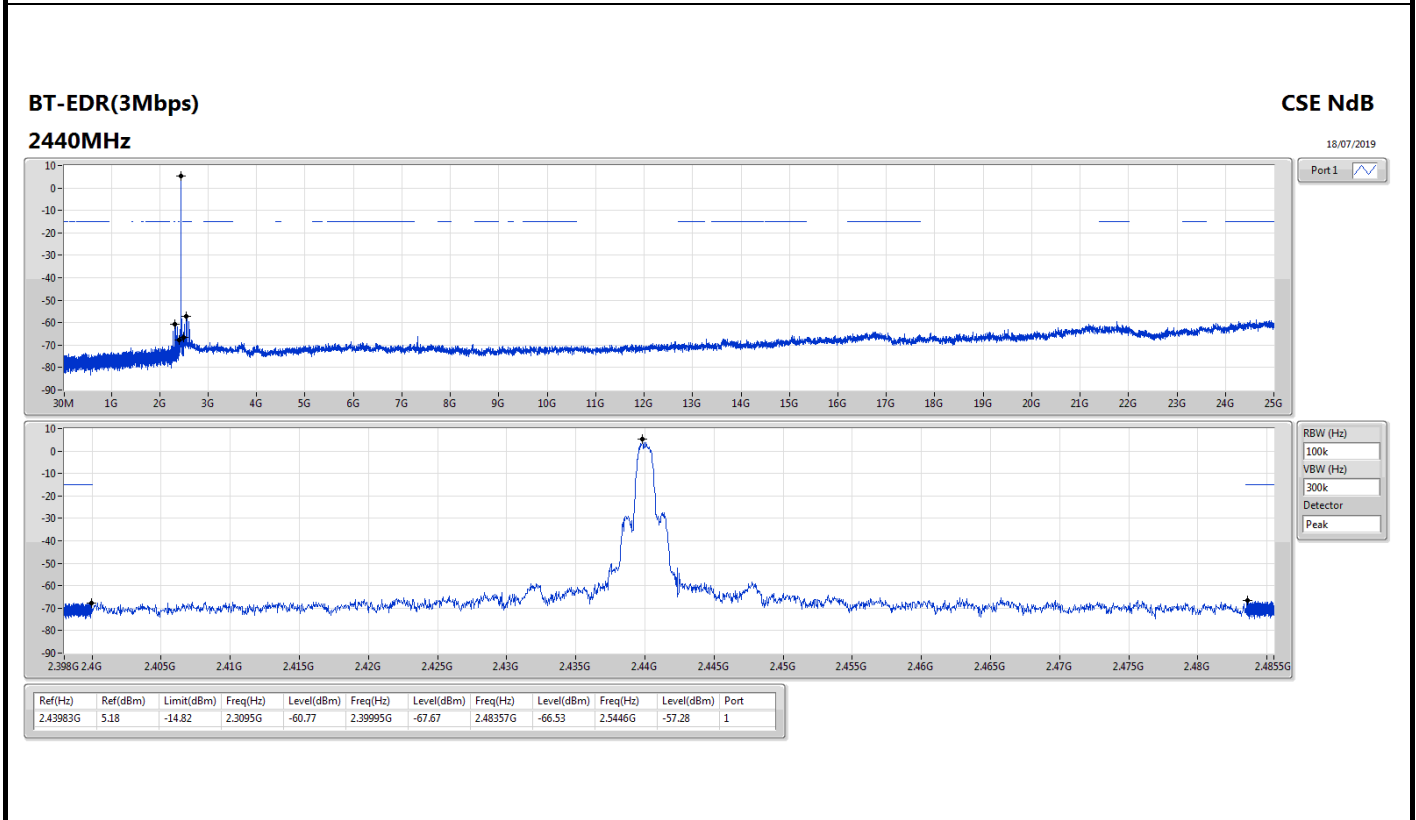
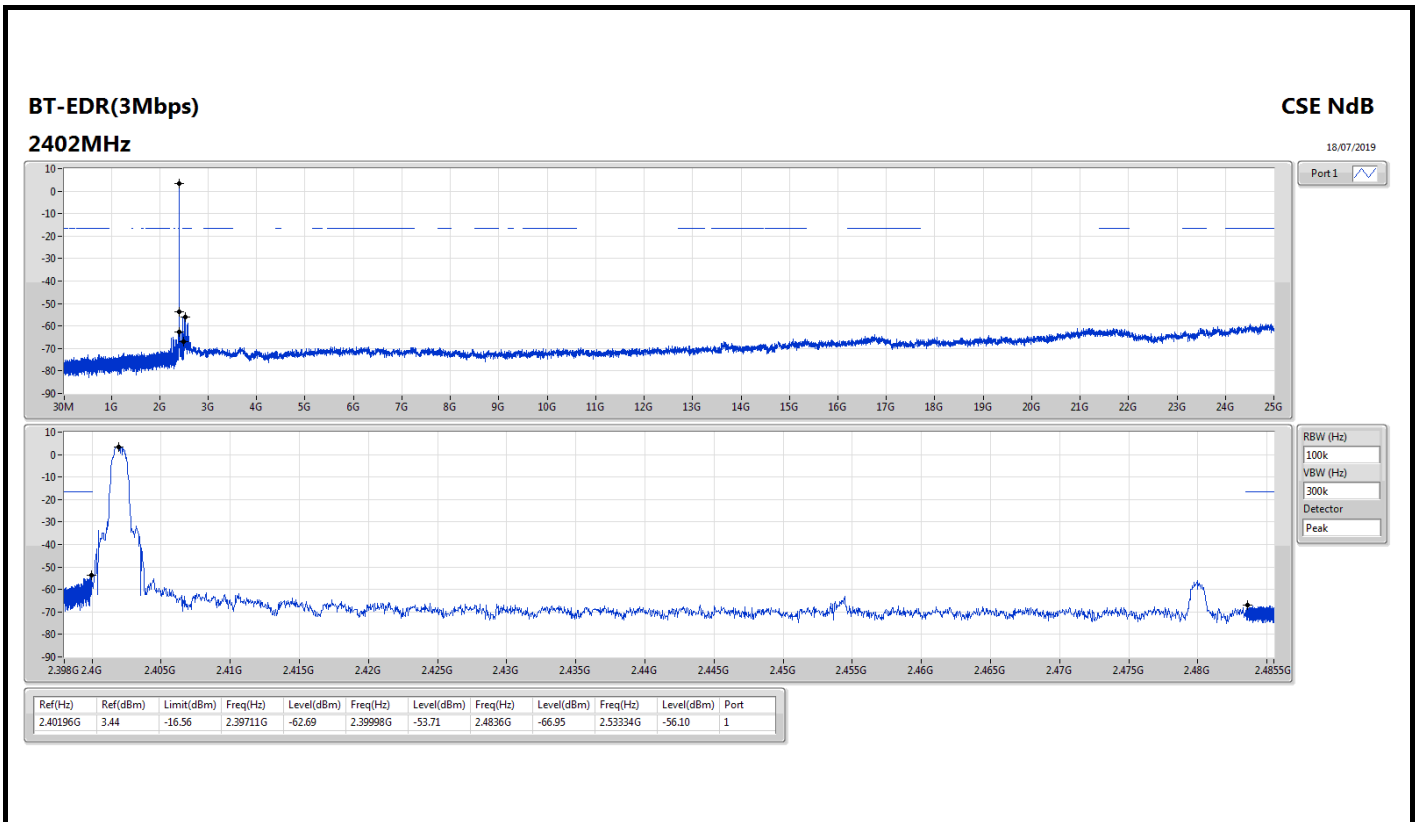
Result

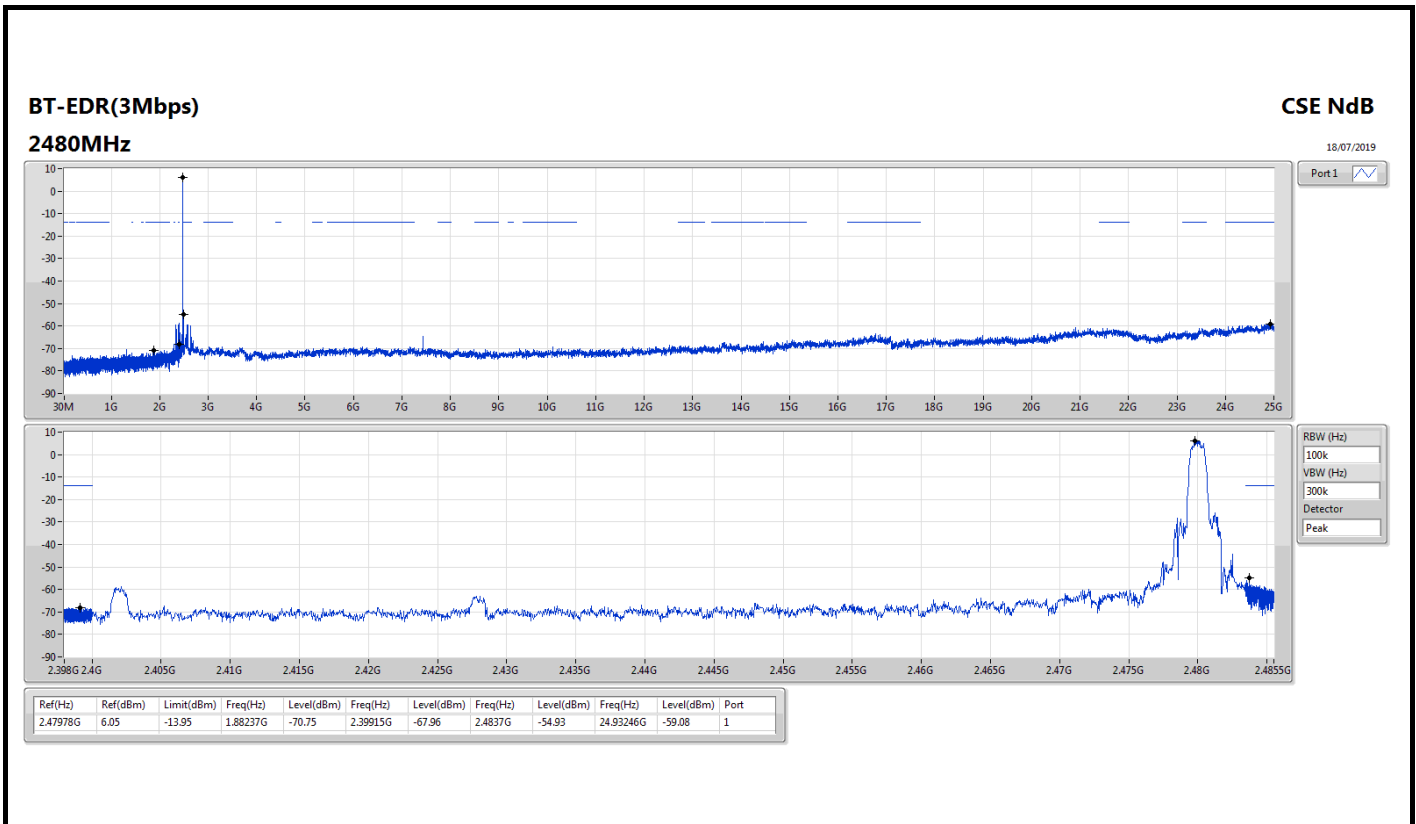
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
BT-BR(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.402G	4.88	-15.12	2.39622G	-66.96	2.39999G	-54.80	2.48416G	-67.27	2.55867G	-53.19	1
2440MHz	Pass	2.44G	7.27	-12.73	2.30979G	-58.94	2.39837G	-67.45	2.48391G	-66.41	2.59526G	-54.79	1
2480MHz	Pass	2.47999G	8.32	-11.68	2.30091G	-69.99	2.3997G	-67.04	2.48541G	-56.88	2.584G	-54.46	1
BT-EDR(2Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.402G	3.50	-16.50	2.39356G	-61.55	2.39992G	-52.55	2.48411G	-66.85	2.55867G	-53.97	1
2440MHz	Pass	2.43991G	3.08	-16.92	2.3095G	-60.04	2.39889G	-66.93	2.48529G	-66.61	2.59526G	-57.80	1
2480MHz	Pass	2.47991G	4.04	-15.96	1.98478G	-70.21	2.39994G	-67.62	2.48351G	-55.95	2.63466G	-58.00	1
BT-EDR(3Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.40196G	3.44	-16.56	2.39711G	-62.69	2.39998G	-53.71	2.4836G	-66.95	2.53334G	-56.10	1
2440MHz	Pass	2.43983G	5.18	-14.82	2.3095G	-60.77	2.39995G	-67.67	2.48357G	-66.53	2.5446G	-57.28	1
2480MHz	Pass	2.47978G	6.05	-13.95	1.88237G	-70.75	2.39915G	-67.96	2.4837G	-54.93	24.93246G	-59.08	1











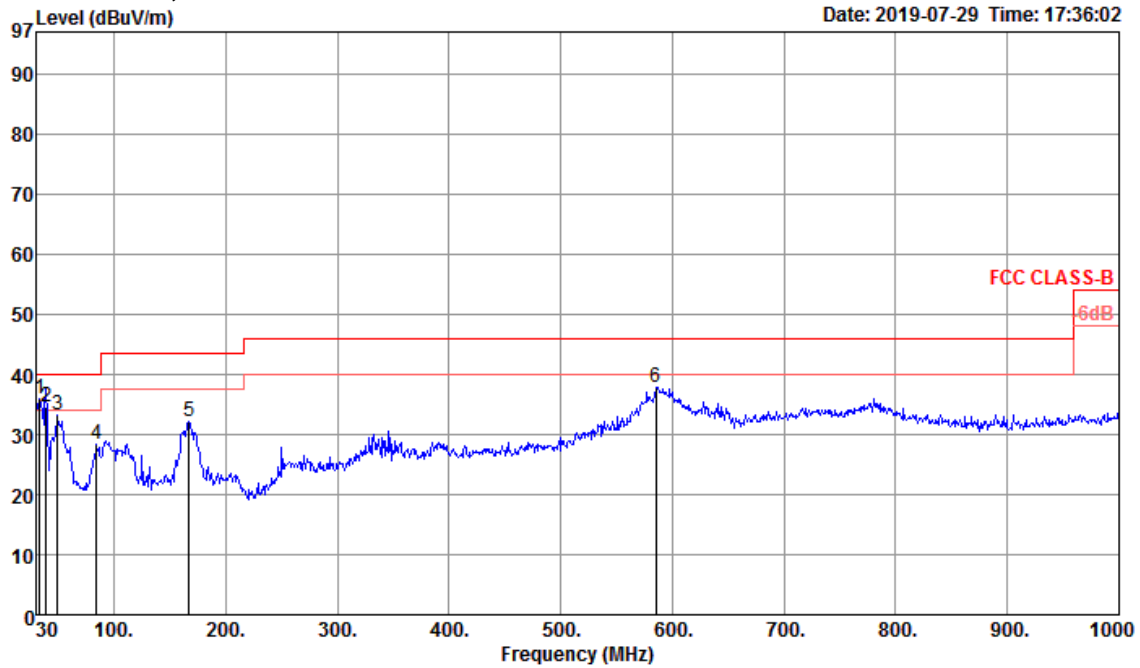


Radiated Emission below 1GHz Result

Appendix G.1

Test Mode	Mode 2	Frequency Range	30 MHz to 1,000 MHz
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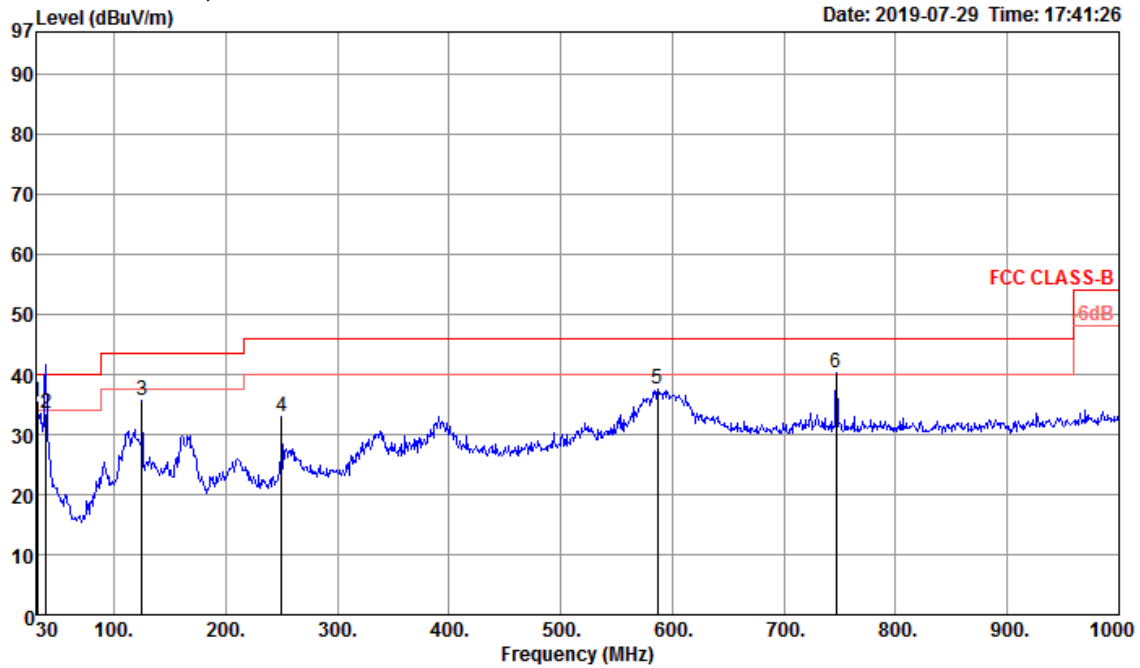
Vertical 30 MHz to 1,000 MHz



	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	32.91	35.89	40.00	-4.11	40.92	0.67	22.87	28.57	300	0 Peak	VERTICAL
2	38.73	34.56	40.00	-5.44	42.71	0.73	19.69	28.57	134	55 QP	VERTICAL
3	49.40	33.24	40.00	-6.76	46.46	0.82	14.52	28.56	300	0 Peak	VERTICAL
4	84.32	28.42	40.00	-11.58	41.99	1.07	13.84	28.48	300	0 Peak	VERTICAL
5	166.77	32.23	43.50	-11.27	43.31	1.50	15.61	28.19	300	0 Peak	VERTICAL
6	584.84	37.93	46.00	-8.07	39.62	2.84	24.96	29.49	300	0 Peak	VERTICAL



Horizontal 30 MHz to 1,000 MHz



	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	30.97	35.29	40.00	-4.71	39.35	0.65	23.86	28.57	100	0 Peak	HORIZONTAL
2	38.73	33.46	40.00	-6.54	41.61	0.73	19.69	28.57	131	17 QP	HORIZONTAL
3	125.06	35.70	43.50	-7.80	44.84	1.30	17.91	28.35	100	0 Peak	HORIZONTAL
4	250.19	32.93	46.00	-13.07	40.73	1.85	18.34	27.99	100	0 Peak	HORIZONTAL
5	586.78	37.65	46.00	-8.35	39.41	2.84	24.89	29.49	100	0 Peak	HORIZONTAL
6	746.83	40.24	46.00	-5.76	40.53	3.22	25.90	29.41	100	0 Peak	HORIZONTAL



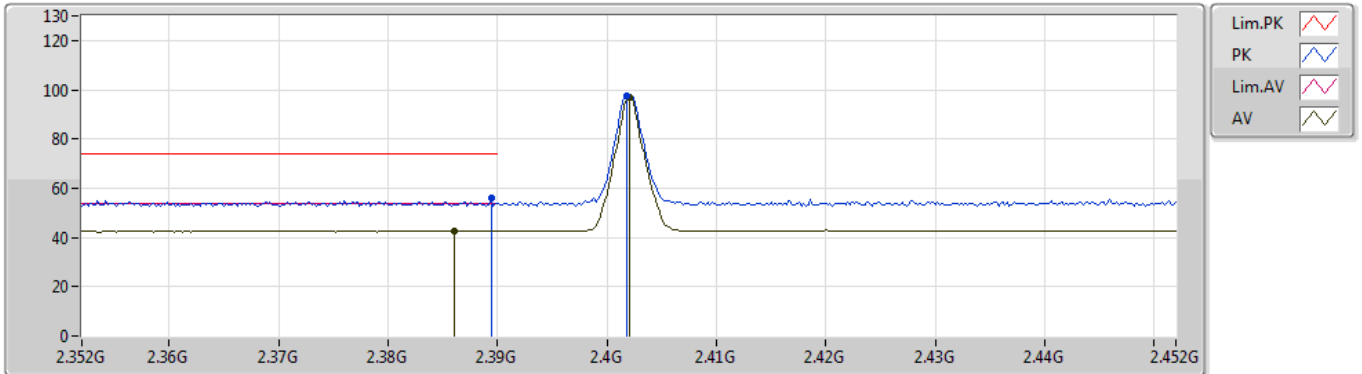
Summary

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	2.4835G	44.17	54.00	-9.83	30.96	3	Vertical	88	1.00	-

BT-BR(1Mbps)

13/07/2019

2402MHz_TX



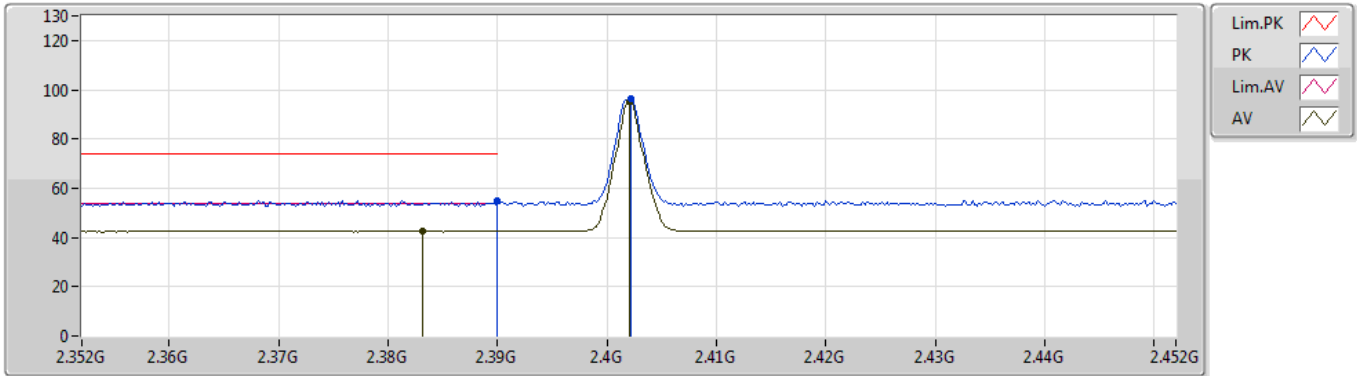
EUT Y_1TX
Setting Default
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment
PK	2.3894G	55.89	74.00	-18.11	30.80	3	Vertical	88	1.03	-
AV	2.386G	42.65	54.00	-11.35	30.79	3	Vertical	88	1.03	-
PK	2.4018G	97.77	Inf	-Inf	30.84	3	Vertical	88	1.03	-
AV	2.402G	96.75	Inf	-Inf	30.84	3	Vertical	88	1.03	-

BT-BR(1Mbps)

13/07/2019

2402MHz_TX



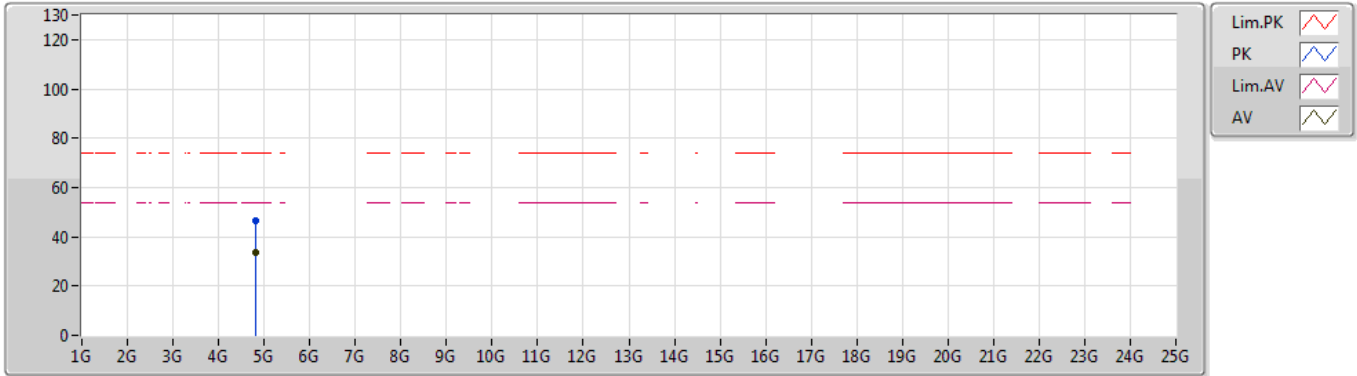
EUT_V_1TX
Setting Default
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment
PK	2.39G	55.00	74.00	-19.00	30.80	3	Horizontal	127	1.79	-
AV	2.3832G	42.65	54.00	-11.35	30.78	3	Horizontal	127	1.79	-
PK	2.4022G	96.11	Inf	-Inf	30.84	3	Horizontal	127	1.79	-
AV	2.402G	95.07	Inf	-Inf	30.84	3	Horizontal	127	1.79	-

BT-BR(1Mbps)

13/07/2019

2402MHz_TX



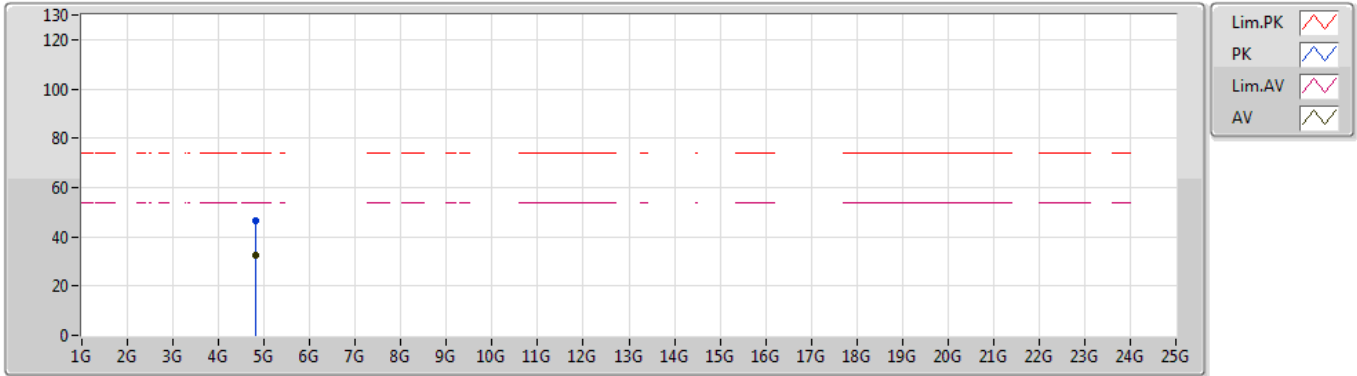
EUT Y_1TX
Setting Default
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment
PK	4.80321G	46.39	74.00	-27.61	3.49	3	Vertical	218	1.15	-
AV	4.80367G	33.36	54.00	-20.64	3.49	3	Vertical	218	1.15	-

BT-BR(1Mbps)

13/07/2019

2402MHz_TX



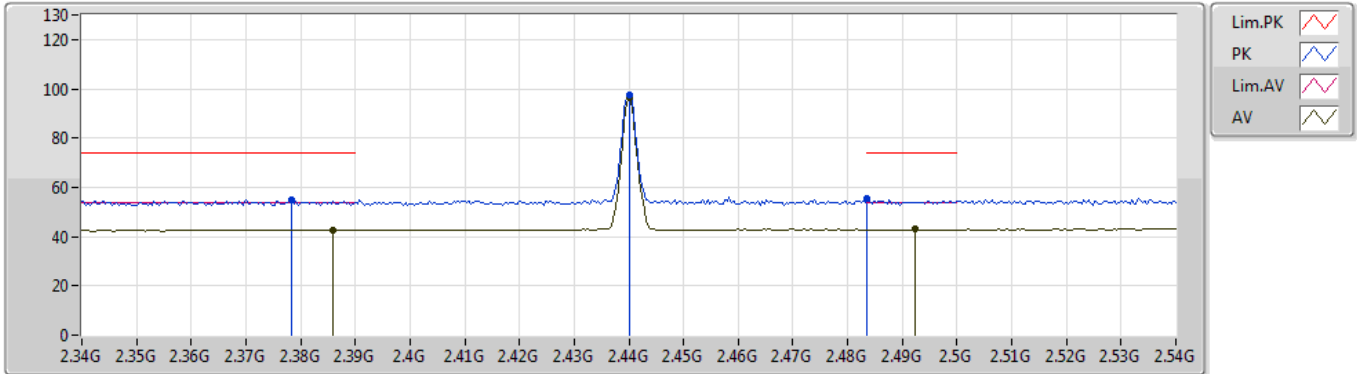
EUT Y_1TX
Setting Default
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment
PK	4.8032G	46.58	74.00	-27.42	3.49	3	Horizontal	225	1.50	-
AV	4.80366G	32.76	54.00	-21.24	3.49	3	Horizontal	225	1.50	-

BT-BR(1Mbps)

2440MHz_TX

13/07/2019



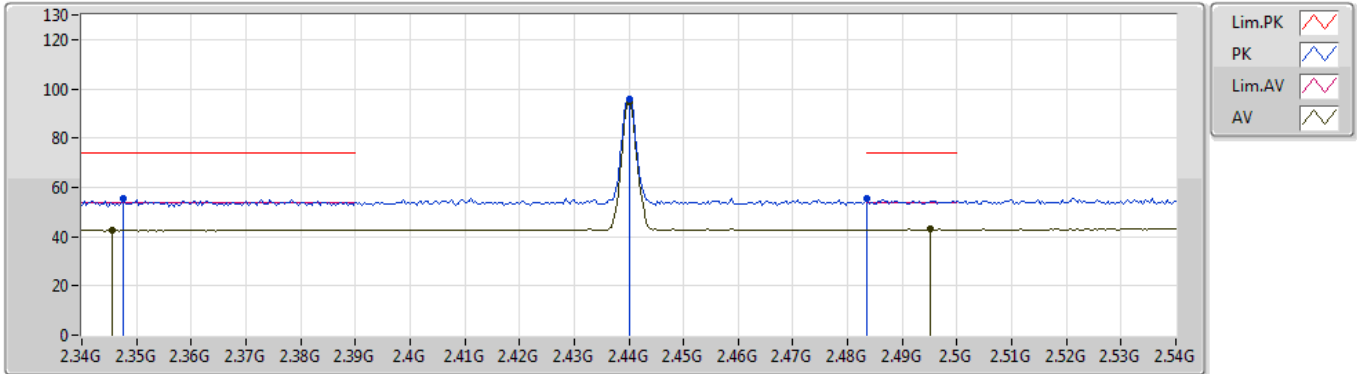
EUT Y_1TX
Setting Default
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment
PK	2.3784G	55.00	74.00	-19.00	30.76	3	Vertical	100	1.03	-
AV	2.386G	42.66	54.00	-11.34	30.79	3	Vertical	100	1.03	-
PK	2.44G	97.25	Inf	-Inf	30.90	3	Vertical	100	1.03	-
AV	2.44G	96.15	Inf	-Inf	30.90	3	Vertical	100	1.03	-
PK	2.4835G	55.68	74.00	-18.32	30.96	3	Vertical	100	1.03	-
AV	2.4924G	42.89	54.00	-11.11	30.98	3	Vertical	100	1.03	-

BT-BR(1Mbps)

2440MHz_TX

13/07/2019



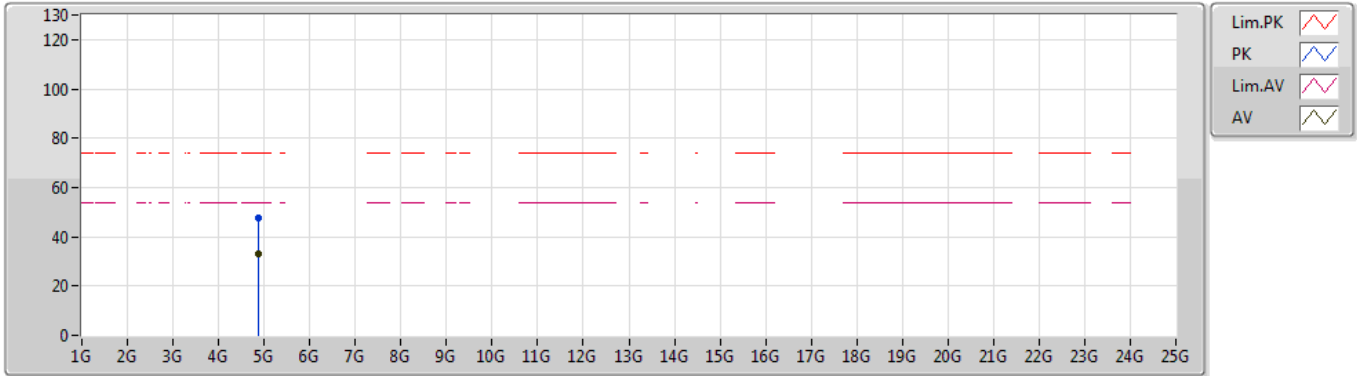
EUT Y_1TX
Setting Default
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment
PK	2.3476G	55.65	74.00	-18.35	30.64	3	Horizontal	62	1.33	-
AV	2.3456G	42.63	54.00	-11.37	30.64	3	Horizontal	62	1.33	-
PK	2.44G	95.79	Inf	-Inf	30.90	3	Horizontal	62	1.33	-
AV	2.44G	94.78	Inf	-Inf	30.90	3	Horizontal	62	1.33	-
PK	2.4835G	55.28	74.00	-18.72	30.96	3	Horizontal	62	1.33	-
AV	2.4952G	42.93	54.00	-11.07	30.99	3	Horizontal	62	1.33	-

BT-BR(1Mbps)

2440MHz_TX

13/07/2019



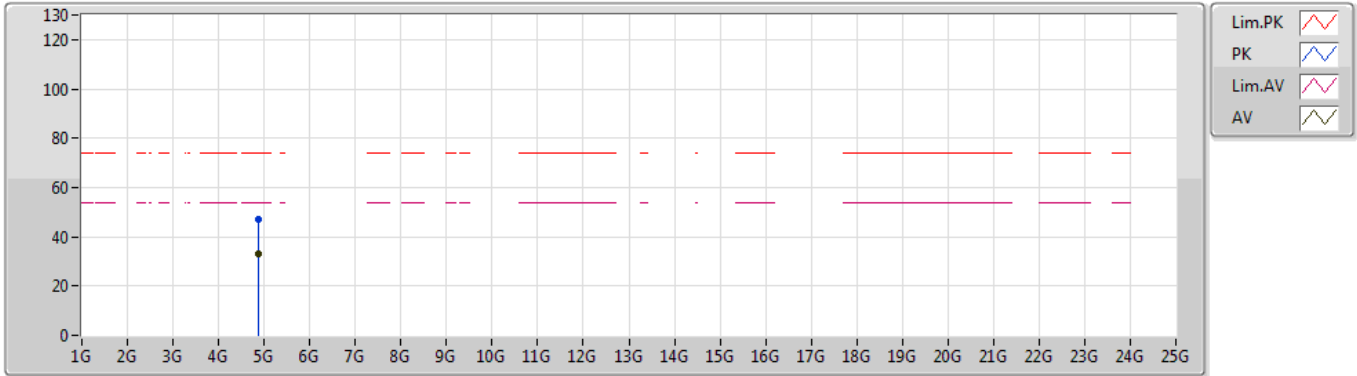
EUT Y_1TX
Setting Default
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment
PK	4.87926G	47.37	74.00	-26.63	3.84	3	Vertical	161	1.50	-
AV	4.87924G	33.21	54.00	-20.79	3.84	3	Vertical	161	1.50	-

BT-BR(1Mbps)

13/07/2019

2440MHz_TX



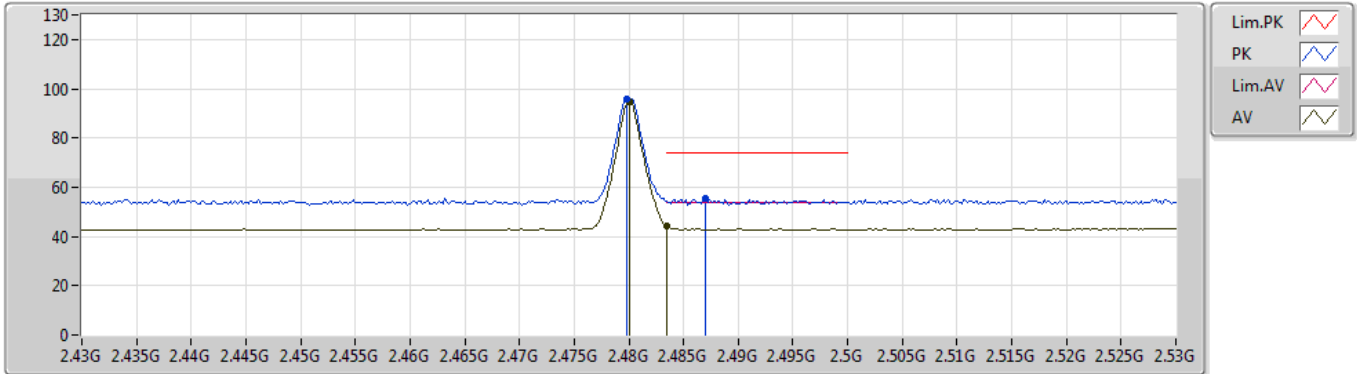
EUT Y_1TX
Setting Default
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment
PK	4.87963G	46.93	74.00	-27.07	3.84	3	Horizontal	122	2.78	-
AV	4.87932G	33.10	54.00	-20.90	3.84	3	Horizontal	122	2.78	-

BT-BR(1Mbps)

13/07/2019

2480MHz_TX



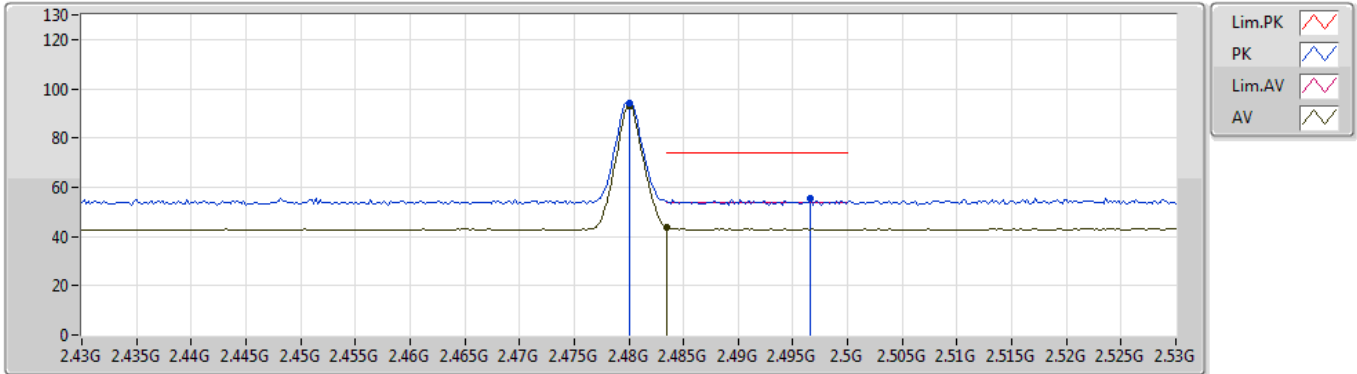
EUT Y_1TX
 Setting Default
 01-M-1
 FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment
PK	2.4798G	95.72	Inf	-Inf	30.96	3	Vertical	88	1.00	-
AV	2.48G	94.74	Inf	-Inf	30.96	3	Vertical	88	1.00	-
PK	2.487G	55.20	74.00	-18.80	30.97	3	Vertical	88	1.00	-
AV	2.4835G	44.17	54.00	-9.83	30.96	3	Vertical	88	1.00	-

BT-BR(1Mbps)

13/07/2019

2480MHz_TX



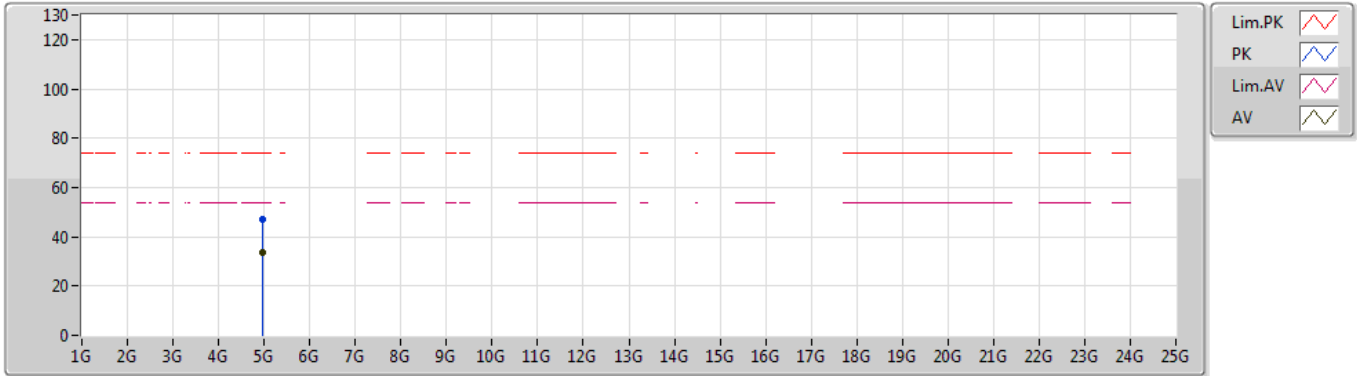
EUT Y_1TX
Setting Default
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment
PK	2.48G	93.94	Inf	-Inf	30.96	3	Horizontal	128	1.50	-
AV	2.48G	92.91	Inf	-Inf	30.96	3	Horizontal	128	1.50	-
PK	2.4966G	55.51	74.00	-18.49	30.99	3	Horizontal	128	1.50	-
AV	2.4835G	43.74	54.00	-10.26	30.96	3	Horizontal	128	1.50	-

BT-BR(1Mbps)

13/07/2019

2480MHz_TX



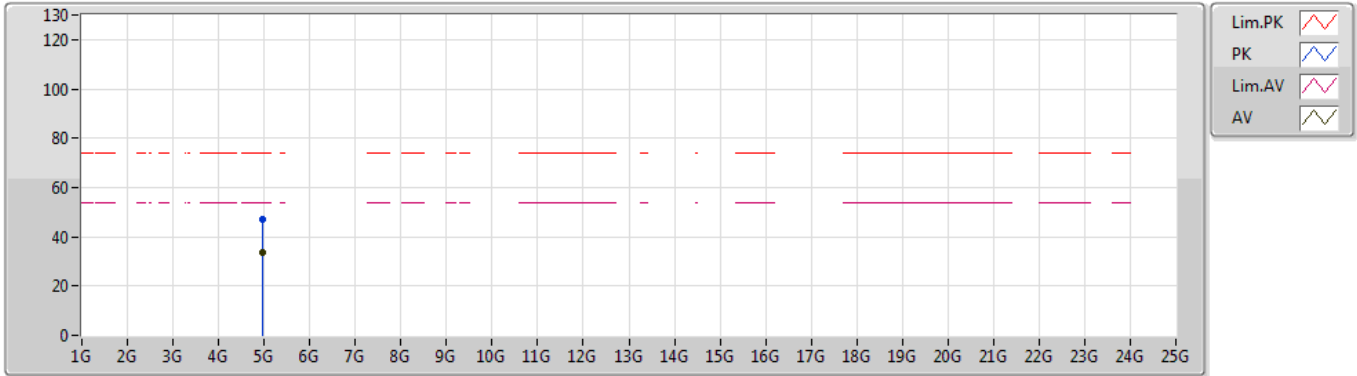
EUT Y_1TX
Setting Default
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment
PK	4.95985G	47.12	74.00	-26.88	4.20	3	Vertical	211	1.02	-
AV	4.95992G	33.73	54.00	-20.27	4.20	3	Vertical	211	1.02	-

BT-BR(1Mbps)

13/07/2019

2480MHz_TX



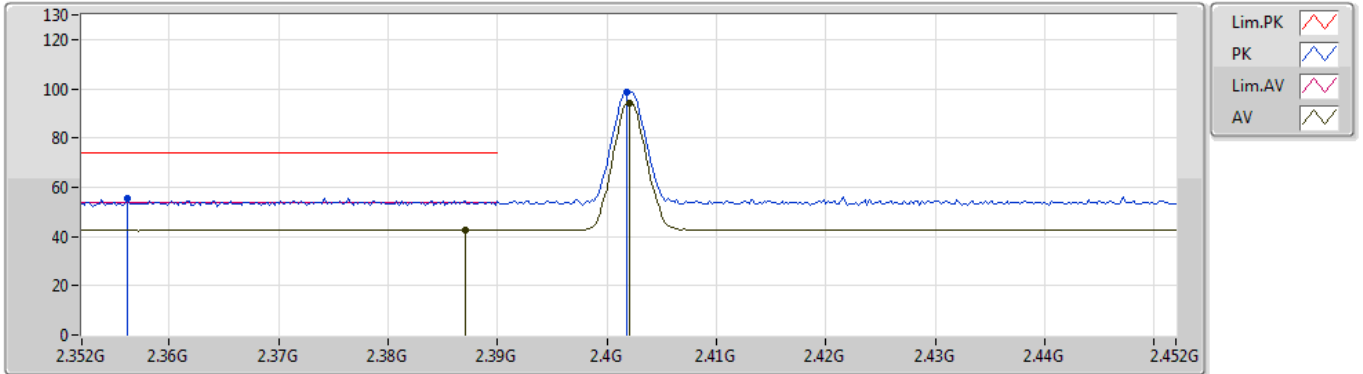
EUT Y_1TX
Setting Default
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment
PK	4.96062G	47.06	74.00	-26.94	4.20	3	Horizontal	81	1.08	-
AV	4.95964G	33.41	54.00	-20.59	4.20	3	Horizontal	81	1.08	-

BT-EDR(3Mbps)

13/07/2019

2402MHz_TX



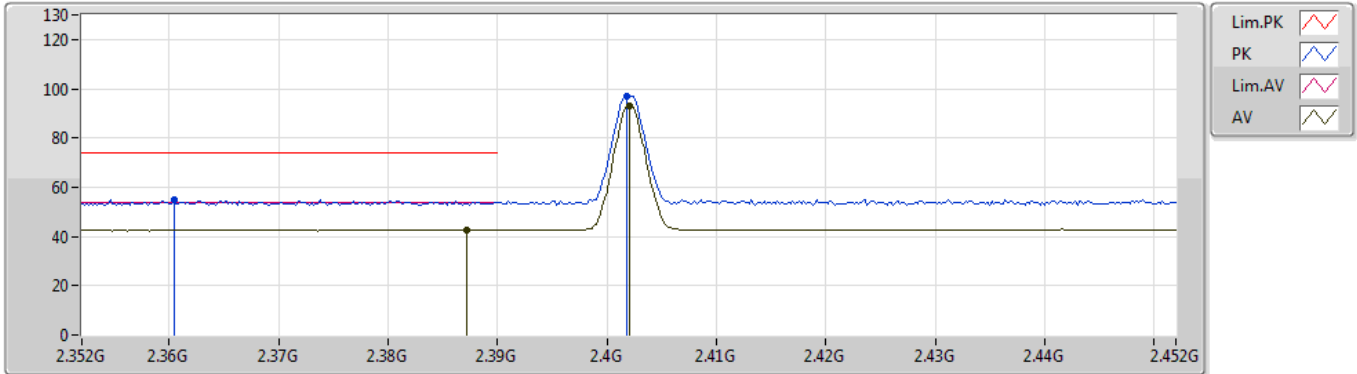
EUT Y_1TX
Setting Default
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment
PK	2.3562G	55.31	74.00	-18.69	30.67	3	Vertical	87	1.05	-
AV	2.387G	42.61	54.00	-11.39	30.79	3	Vertical	87	1.05	-
PK	2.4018G	98.42	Inf	-Inf	30.84	3	Vertical	87	1.05	-
AV	2.402G	94.39	Inf	-Inf	30.84	3	Vertical	87	1.05	-

BT-EDR(3Mbps)

13/07/2019

2402MHz_TX



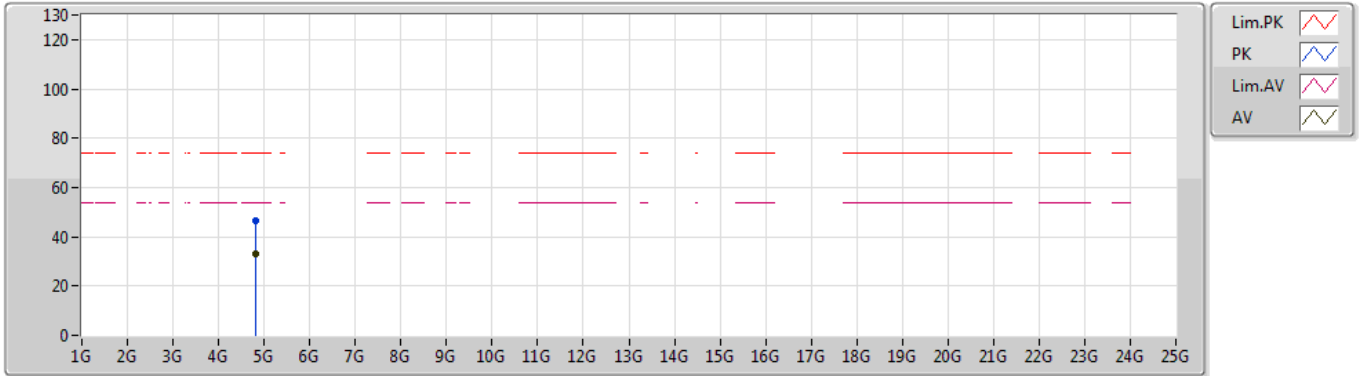
EUT Y_1TX
Setting Default
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment
PK	2.3604G	55.19	74.00	-18.81	30.69	3	Horizontal	127	1.78	-
AV	2.3872G	42.70	54.00	-11.30	30.79	3	Horizontal	127	1.78	-
PK	2.4018G	97.15	Inf	-Inf	30.84	3	Horizontal	127	1.78	-
AV	2.402G	93.01	Inf	-Inf	30.84	3	Horizontal	127	1.78	-

BT-EDR(3Mbps)

13/07/2019

2402MHz_TX



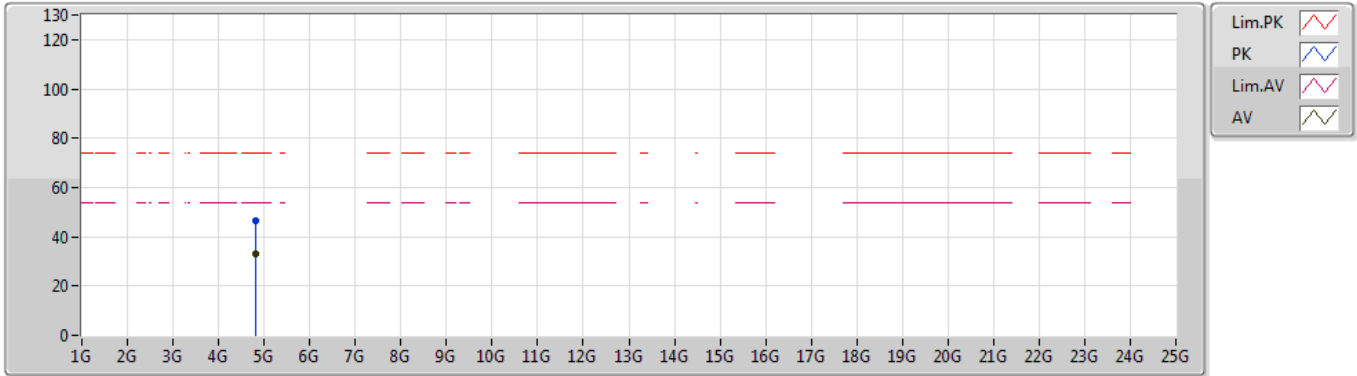
EUT Y_1TX
Setting Default
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment
PK	4.80333G	46.49	74.00	-27.51	3.49	3	Vertical	217	1.50	-
AV	4.80357G	33.05	54.00	-20.95	3.49	3	Vertical	217	1.50	-

BT-EDR(3Mbps)

13/07/2019

2402MHz_TX



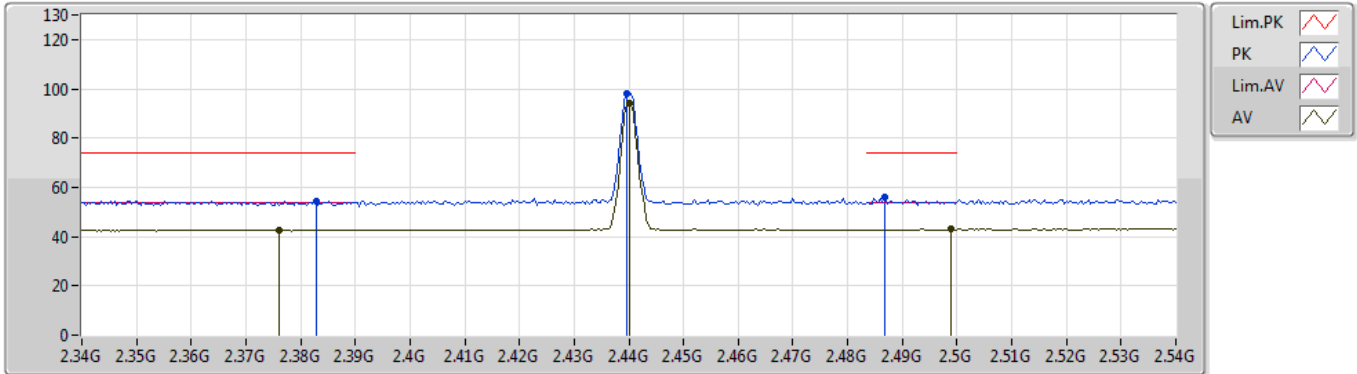
EUT Y_1TX
Setting Default
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment
PK	4.80494G	46.36	74.00	-27.64	3.50	3	Horizontal	69	1.50	-
AV	4.80494G	32.86	54.00	-21.14	3.50	3	Horizontal	69	1.50	-

BT-EDR(3Mbps)

13/07/2019

2440MHz_TX



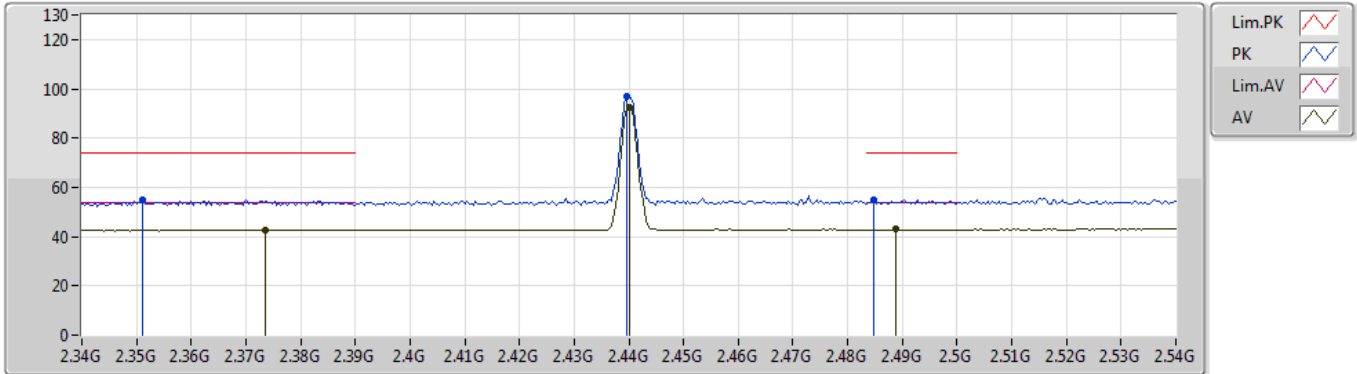
EUT Y_1TX
Setting Default
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment
PK	2.3828G	54.63	74.00	-19.37	30.78	3	Vertical	100	1.03	-
AV	2.376G	42.69	54.00	-11.31	30.75	3	Vertical	100	1.03	-
PK	2.4396G	98.17	Inf	-Inf	30.90	3	Vertical	100	1.03	-
AV	2.44G	94.07	Inf	-Inf	30.90	3	Vertical	100	1.03	-
PK	2.4868G	55.79	74.00	-18.21	30.97	3	Vertical	100	1.03	-
AV	2.4988G	42.97	54.00	-11.03	30.99	3	Vertical	100	1.03	-

BT-EDR(3Mbps)

2440MHz_TX

13/07/2019



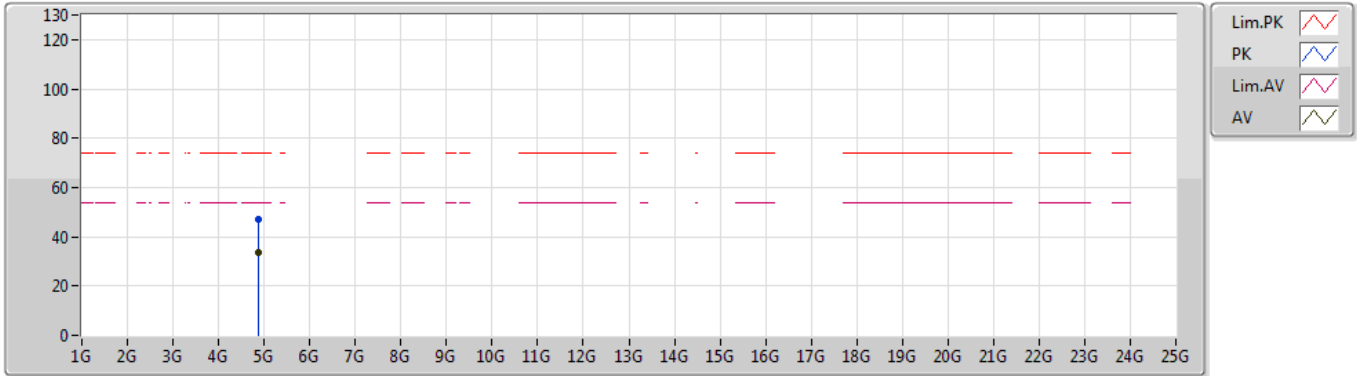
EUT Y_1TX
Setting Default
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment
PK	2.3512G	54.89	74.00	-19.11	30.65	3	Horizontal	60	1.33	-
AV	2.3736G	42.73	54.00	-11.27	30.74	3	Horizontal	60	1.33	-
PK	2.4396G	96.80	Inf	-Inf	30.90	3	Horizontal	60	1.33	-
AV	2.44G	92.67	Inf	-Inf	30.90	3	Horizontal	60	1.33	-
PK	2.4848G	54.89	74.00	-19.11	30.96	3	Horizontal	60	1.33	-
AV	2.4888G	42.91	54.00	-11.09	30.97	3	Horizontal	60	1.33	-

BT-EDR(3Mbps)

13/07/2019

2440MHz_TX



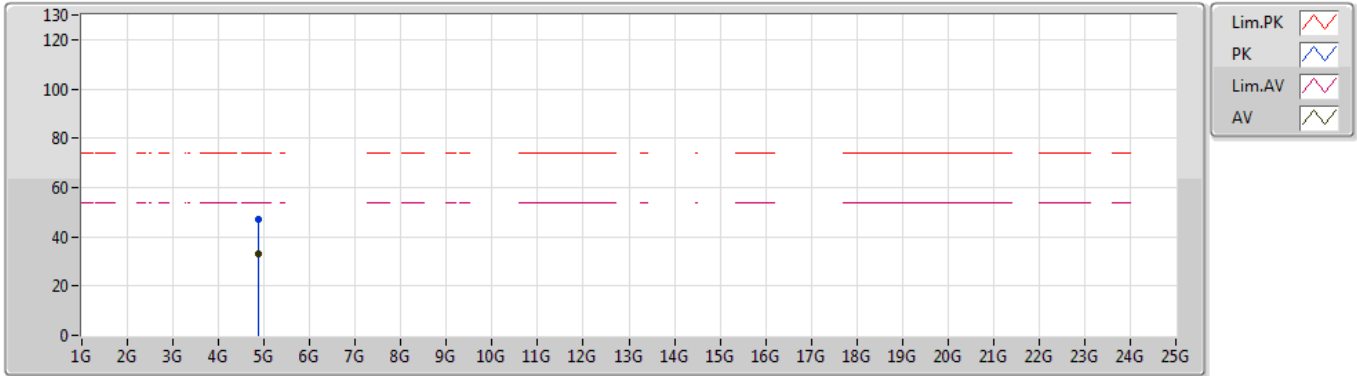
EUT Y_1TX
Setting Default
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment
PK	4.87917G	47.06	74.00	-26.94	3.84	3	Vertical	214	1.26	-
AV	4.88001G	33.56	54.00	-20.44	3.84	3	Vertical	214	1.26	-

BT-EDR(3Mbps)

13/07/2019

2440MHz_TX



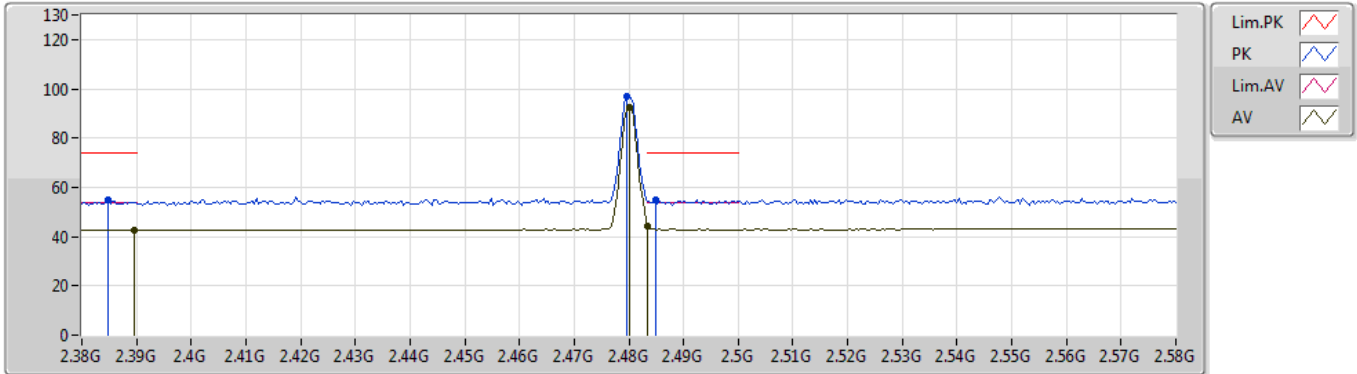
EUT Y_1TX
Setting Default
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment
PK	4.88016G	47.26	74.00	-26.74	3.84	3	Horizontal	78	1.01	-
AV	4.87916G	33.31	54.00	-20.69	3.83	3	Horizontal	78	1.01	-

BT-EDR(3Mbps)

13/07/2019

2480MHz_TX



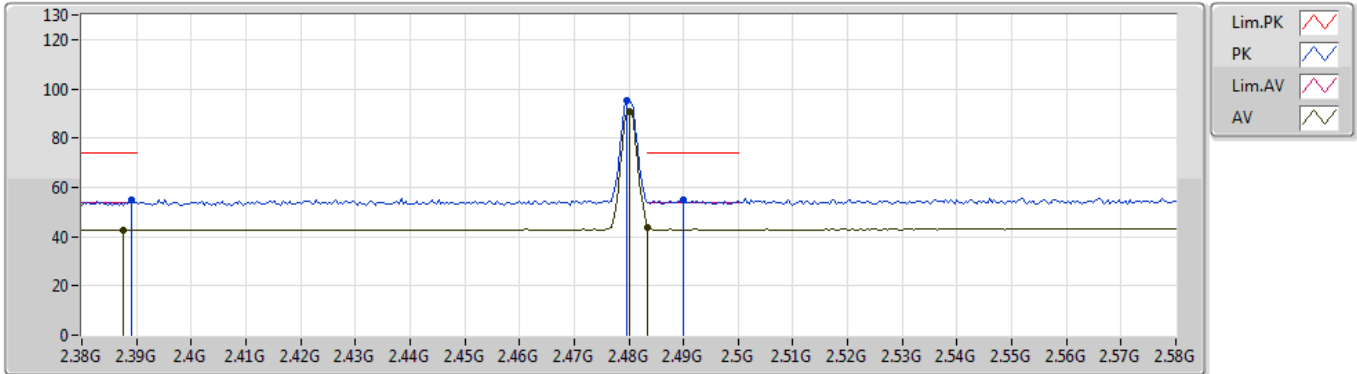
EUT Y_1TX
Setting Default
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment
PK	2.3848G	54.81	74.00	-19.19	30.78	3	Vertical	89	1.01	-
AV	2.3896G	42.62	54.00	-11.38	30.80	3	Vertical	89	1.01	-
PK	2.4796G	96.78	Inf	-Inf	30.96	3	Vertical	89	1.01	-
AV	2.48G	92.57	Inf	-Inf	30.96	3	Vertical	89	1.01	-
PK	2.4848G	54.67	74.00	-19.33	30.96	3	Vertical	89	1.01	-
AV	2.4835G	44.10	54.00	-9.90	30.96	3	Vertical	89	1.01	-

BT-EDR(3Mbps)

13/07/2019

2480MHz_TX



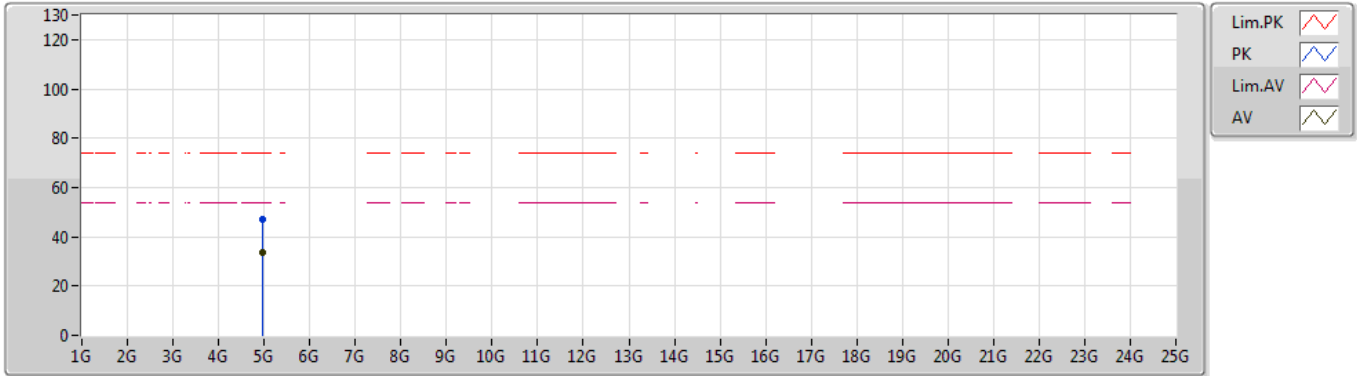
EUT Y_1TX
 Setting Default
 01-M-1
 FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment
PK	2.3892G	54.84	74.00	-19.16	30.80	3	Horizontal	127	1.66	-
AV	2.3876G	42.66	54.00	-11.34	30.79	3	Horizontal	127	1.66	-
PK	2.4796G	95.11	Inf	-Inf	30.96	3	Horizontal	127	1.66	-
AV	2.48G	91.00	Inf	-Inf	30.96	3	Horizontal	127	1.66	-
PK	2.49G	55.05	74.00	-18.95	30.98	3	Horizontal	127	1.66	-
AV	2.4835G	43.72	54.00	-10.28	30.96	3	Horizontal	127	1.66	-

BT-EDR(3Mbps)

13/07/2019

2480MHz_TX



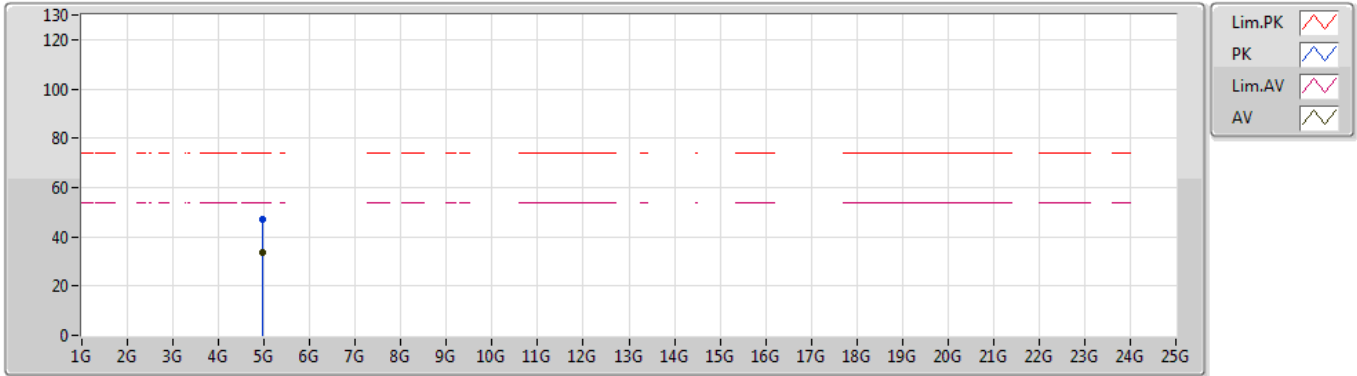
EUT Y_1TX
 Setting Default
 01-M-1
 FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment
PK	4.96084G	47.14	74.00	-26.86	4.20	3	Vertical	315	2.90	-
AV	4.959G	33.40	54.00	-20.60	4.20	3	Vertical	315	2.90	-

BT-EDR(3Mbps)

13/07/2019

2480MHz_TX



EUT Y_1TX
Setting Default
01-M-1
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment
PK	4.95918G	47.20	74.00	-26.80	4.20	3	Horizontal	260	1.43	-
AV	4.9601G	33.60	54.00	-20.40	4.20	3	Horizontal	260	1.43	-