



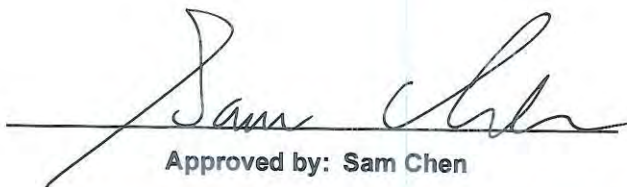
FCC RADIO TEST REPORT

FCC ID : UIDW31
Equipment : Wireless Router
Brand Name : ARRIS
Model Name : W31, W30
Applicant : ARRIS
3871 Lakefield Drive Suite 300, Suwanee, Georgia,
30024 United States
Manufacturer : ARRIS
3871 Lakefield Drive Suite 300, Suwanee, Georgia,
30024 United States
Standard : 47 CFR FCC Part 15.247

The product was received on Sep. 03, 2019, and testing was started from Sep. 26, 2019 and completed on Nov. 09, 2019. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

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

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



Approved by: 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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History of this test report

TEL : 886-3-656-9065
FAX : 886-3-656-9085
Report Template No.: CB-A10_5 Ver1.1

Page Number : 3 of 23
Issued Date : May 29, 2020
Report Version : 01



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	15.247(a)	20dB Bandwidth	PASS	-
3.1	15.247(a)	Carrier Frequency Separation	PASS	-
3.2	15.247(b)	Maximum Conducted Output Power	PASS	-
3.3	15.247(a)	Number of Hopping Frequencies and Hopping Band edge	PASS	-
3.4	15.247(a)	Time of Occupancy (Dwell Time)	PASS	-
3.5	15.247(d)	Emissions in Non-restricted Frequency Bands	PASS	-
3.6	15.247(d)	Emissions in Restricted Frequency Bands	PASS	-

Declaration of Conformity:

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

Comments and Explanations:

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

Reviewed by: Sam Chen

Report Producer: Emily Chen



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

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	PEGATRON	1415-07GT000	Dual band PCB dipole antenna	I-PEX	Note
2	PEGATRON	1415-07GS000	Dual band PCB dipole antenna	I-PEX	
3	PEGATRON	1415-06WH000	Dual band PCB dipole antenna	I-PEX	
4	PEGATRON	1415-07GW000	Dual band PCB dipole antenna	I-PEX	
5	PEGATRON	1415-07GU000	PCB dipole antenna	I-PEX	
6	PEGATRON	1415-07JP000	PCB dipole antenna	I-PEX	
7	PEGATRON	1415-07JN000	PCB dipole antenna	I-PEX	
8	PEGATRON	1415-07GX000	PCB dipole antenna	I-PEX	
9	PEGATRON	1415-07JQ000	PCB antenna	I-PEX	
10	PEGATRON	1415-06MM000	PCB dipole antenna	I-PEX	

Note:

Ant.	Port	Uncorrelated (dBi)			Correlated (dBi)			(dBi)
		2.4GHz	5GHz Band 1~2	5GHz Band 3~4	2.4GHz	5GHz Band 1~2	5GHz Band 3~4	Bluetooth
1	1	4.73	4.35	-	6.55	6.83		-
2	2	4.73	4.35	-	6.55	6.83		-
3	3	4.73	4.35	-	6.55	6.83		-
4	4	4.73	4.35	-	6.55	6.83		-
5	1	-	-	5.11	-	-	7.15	-
6	2	-	-	5.11	-	-	7.15	-
7	3	-	-	5.11	-	-	7.15	-
8	4	-	-	5.11	-	-	7.15	-
9	1	-	-	-	-	-	-	4.03
10	-	-	5.00	5.00	-	-	-	-

Note 1: The above information was declared by manufacturer.

Note 2: The EUT has ten antennas.

For Radio 1

WLAN 2.4GHz Functions

For IEEE 802.11b/g/n/ac/ax mode (4TX, 4RX):

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

WLAN 5GHz Functions (1RX):

Ant. 10 only supports the antenna receive function.

**For Radio 3****WLAN 5GHz Band 1~2 Functions****For IEEE 802.11a/n/ac/ax mode (4TX, 4RX):**

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

For Radio 2**WLAN 5GHz Band 3~4 Functions****For IEEE 802.11a/n/ac/ax mode (4TX, 4RX):**

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

For Radio 4**Bluetooth Functions (1TX, 1RX):**

Only Port 1 could transmit/receive simultaneously.

1.1.3 Table for Radio Type

Radio No.	2.4GHz	5GHz Band 1~2	5GHz Band 3~4	Bluetooth
Radio 1	V	Only RX function	Only RX function	-
Radio 2	-	-	V	-
Radio 3	-	V	-	-
Radio 4	-	-	-	V

1.1.4 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
BT-BR(1Mbps)	0.769	1.14	2.944m	1k
BT-EDR(2Mbps)	0.751	1.24	2.878m	1k
BT-EDR(3Mbps)	0.785	1.05	2.892m	1k

Note:

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

1.1.5 EUT Operational Condition

EUT Power Type	From Power Adapter
Test Software Version	Telnet v1.27.2

**1.1.6 Table for EUT Functions**

Type of Function	2.4GHz	5GHz Band 1~2	5GHz Band 3~4
Master (AP Router)	V	V	V
Master (Extender)	-	-	V
Bridge (Client without radar detection)	-	-	V
Client without radar detection	-	-	V

1.1.7 Table for Multiple Listing

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

Model Name	Color of Device's Bottom
W31	Matte Black
W30	Silver

From the above models, model name "W30" was selected as representative model for the test and its data was recorded in this report.

1.1.8 Table for Class II Change

This product is an extension of original one reported under Sporton project number: FR842742-01AC

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

Modifications	Performance Checking
1. Change the antenna and antenna models (all internal). 2. Changing the antenna location: antenna 2/5/6/7/8/9/10. For the detail antenna information please refer to the section 1.1.2.	1. 20dB Bandwidth AND Carrier Frequency Separation 2. Maximum Conducted Output Power 3. Number of Hopping Frequencies and Hopping oppBandedge 4. Time of Occupancy (Dwell Time) 5. Emissions in Non-restricted Frequency Bands 6. Emissions Restricted Frequency Bands



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

The following reference test guidance is not within the scope of accreditation of TAF.

- ♦ FCC KDB 558074 D01 v05r02
- ♦ FCC KDB 414788 D01 v01r01

1.3 Testing Location Information

Testing Location				
☐	HWA YA	ADD : No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)	TEL : 886-3-327-3456	FAX : 886-3-327-0973
☒	JHUBEI	ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C.	TEL : 886-3-656-9065	FAX : 886-3-656-9085

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
RF Conducted	TH02-CB	Owen Hsu	24.7~25.9°C / 59~64%	Sep. 26, 2019~ Nov. 09, 2019
Radiated below 1GHz	03CH05-CB	KJ Chang	23.9~24.7°C / 57~59%	Oct. 17, 2019~ Oct. 29, 2019
Radiated Above 1GHz	03CH05-CB	KJ Chang	23.8~25.7°C / 55~58%	Oct. 17, 2019~ Oct. 29, 2019

Test site Designation No. TW0006 with FCC.

Test site registered number IC 4086D with Industry Canada.

1.4 Measurement Uncertainty

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

Test Items	Uncertainty	Remark
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	Power Setting
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	20dB Bandwidth Carrier Frequency Separation Maximum Conducted Output Power 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 There are two adapters (adapter 1 and adapter 2) The worst case was found as Adapter 1 from testing result of previously. So the measurement will follow this same test configuration
1	EUT - Radio 1 (WLAN 2.4GHz) + Adapter 1
2	EUT - Radio 3 (WLAN 5GHz Band 1~2) + Adapter 1
3	EUT - Radio 2 (WLAN 5GHz Band 3~4) + Adapter 1
4	EUT - Radio 4 (Bluetooth) + Adapter 1
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 3 (WLAN 5GHz Band 1~2) + Radio 2 (WLAN 5GHz Band 3~4) + Radio 4 (Bluetooth)
Refer to Sporton Test Report No.: FA842742-05 for Co-location RF Exposure Evaluation.	

Note: The EUT can only be use in Y axis position

2.3 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.



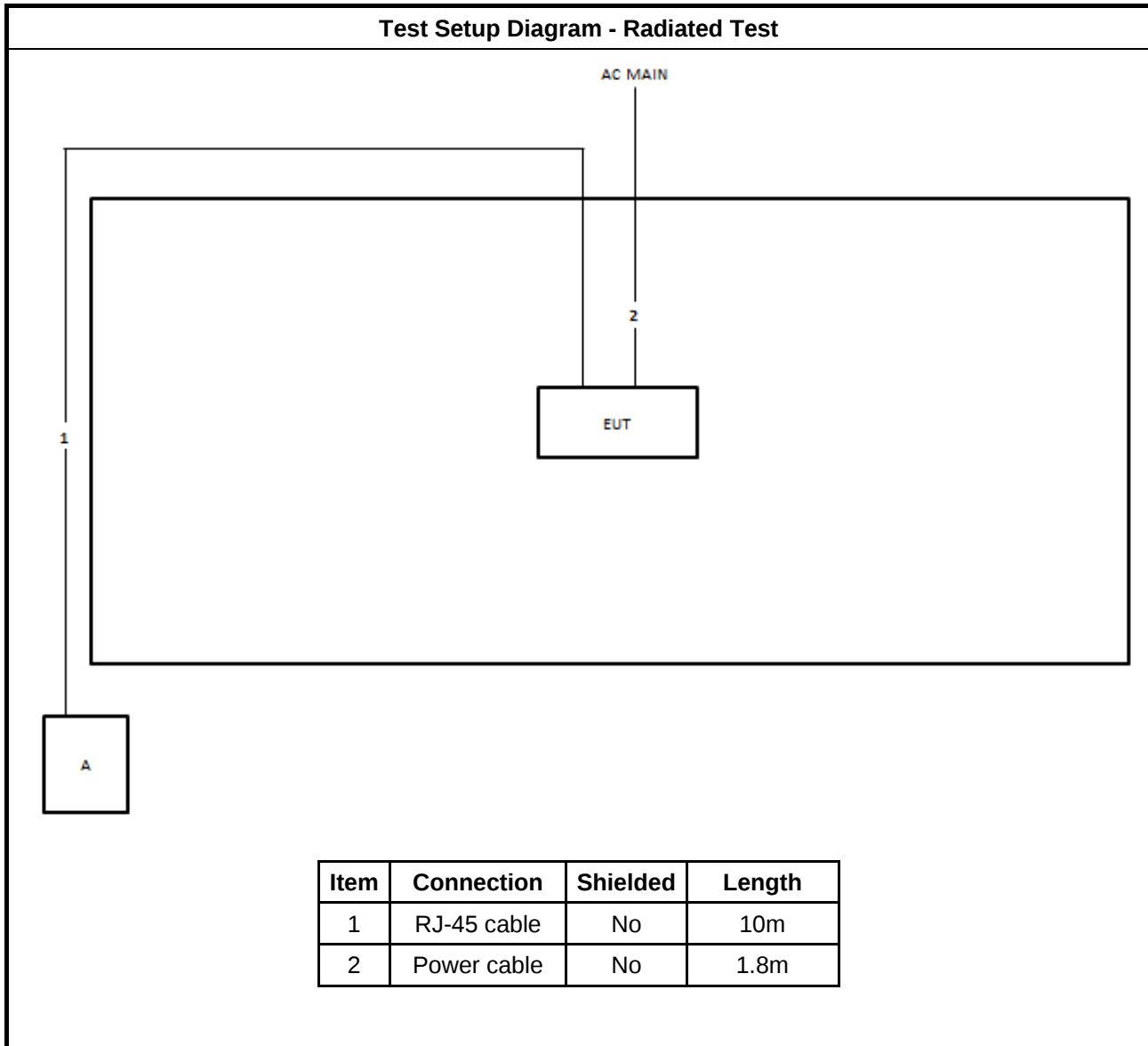
2.4 Accessories

Accessories					
No.	Equipment Name	Brand Name	Model Name	P/N	Rating
1	Adapter 1	APD	WA-36L12FU	AREP05681	INPUT: 100-120V ~, 60Hz, 0.9A Max OUTPUT: 12V, 3A
2	Adapter 2	NetBit	NBS42D120 350VU	AREP05751	INPUT: 100-120V ~, 50/60Hz, 1.0A OUTPUT: 12.0V, 3.5A

2.5 Support Equipment

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

2.6 Test Setup Diagram



3 Transmitter Test Result

3.1 20dB Bandwidth and Carrier Frequency Separation

3.1.1 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	

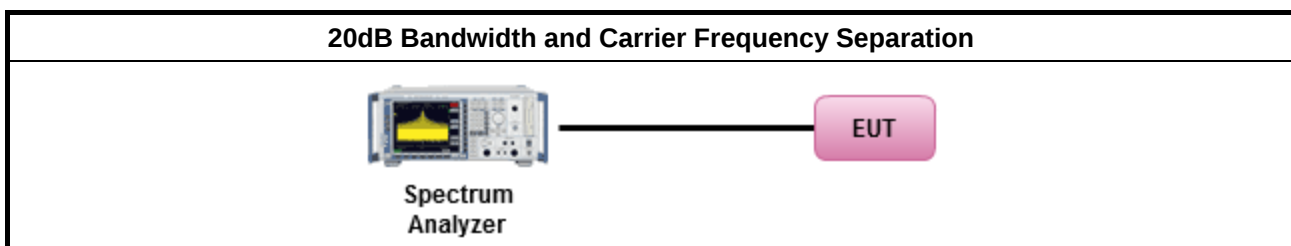
3.1.2 Measuring Instruments

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 6.9.1 for 20 dB bandwidth measurement.
▪ Refer as ANSI C63.10-2013, clause 7.8.2 for carrier frequency separation measurement.

3.1.4 Test Setup



3.1.5 Test Result of 20dB Bandwidth

Refer as Appendix A

3.1.6 Test Result of Carrier Frequency Separation

Refer as Appendix A

3.2 Maximum Conducted Output Power

3.2.1 Maximum Conducted Output Power Limit

Maximum Conducted Output Power Limit	
▪ 902-928 MHz Band:	
	▪ $N \geq 50$; Power 30dBm; EIRP 36dBm
	▪ $50 > N \geq 25$; Power 24dBm; EIRP 30dBm
▪ 2400-2483.5 MHz Band:	
	▪ $N \geq 75$; Power 30dBm; EIRP 36dBm
	▪ $75 > N \geq 15$; Power 21dBm; EIRP 27dBm
▪ 5725-5850 MHz Band:	
	▪ $N \geq 75$; Power 30dBm; EIRP 36dBm
N: Number of Hopping Frequencies	

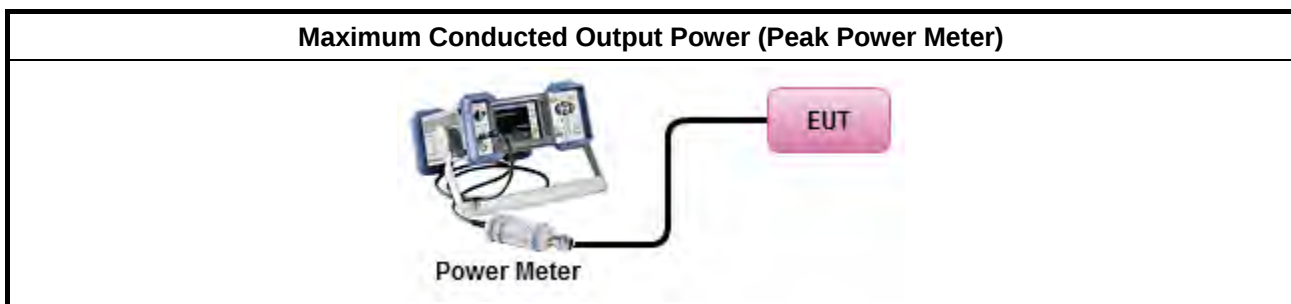
3.2.2 Measuring Instruments

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 7.8.5 for output power measurement.

3.2.4 Test Setup



3.2.5 Test Result of Maximum Conducted Output Power

Refer as Appendix B

3.3 Number of Hopping Frequencies and Hopping Bandedge

3.3.1 Number of Hopping Frequencies Limit

Number of Hopping Frequencies Limit	
▪ 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	

3.3.2 Hopping Bandedge Limit

Refer clause 3.5.1 and clause 3.6.1

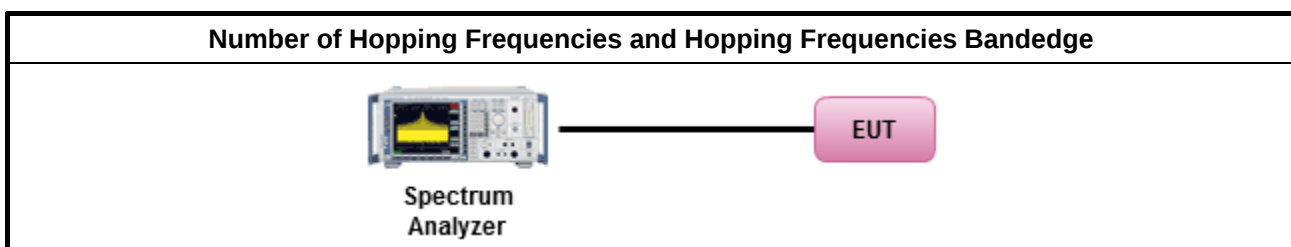
3.3.3 Measuring Instruments

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

3.3.4 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.

3.3.5 Test Setup



3.3.6 Test Result of Number of Hopping Frequencies

Refer as Appendix C

3.3.7 Test Result of Number of Hopping Frequencies Bandedge

Refer as Appendix C

3.4 Time of Occupancy (Dwell Time)

3.4.1 Time of Occupancy (Dwell Time) Limit

20dB Bandwidth and Carrier Frequency Separation Limit for Frequency Hopping Systems	
▪ 902-928 MHz Band:	
	▪ $N \geq 50$; 0.4s in 20s period
	▪ $50 > N \geq 25$; 0.4s in 10s period
▪ 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
▪ 5725-5850 MHz Band:	
	▪ $N \geq 75$; 0.4s in 30s period
N: Number of Hopping Frequencies	

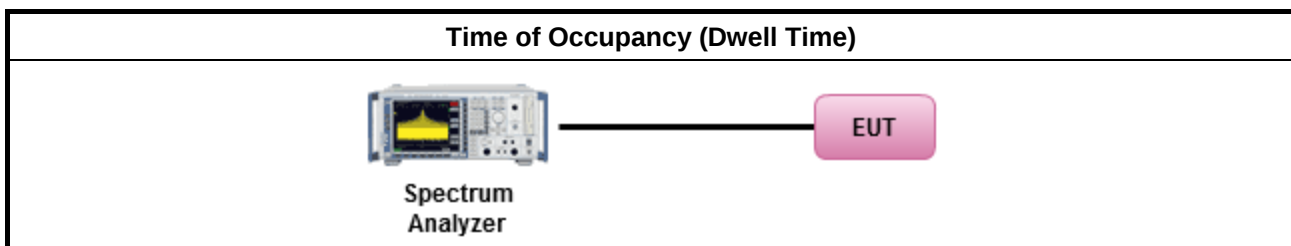
3.4.2 Measuring Instruments

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

3.4.3 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.

3.4.4 Test Setup



3.4.5 Test Result of Time of Occupancy (Dwell Time)

Refer as Appendix D

3.5 Emissions in Non-restricted Frequency Bands

3.5.1 Emissions in Non-restricted Frequency Bands Limit

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

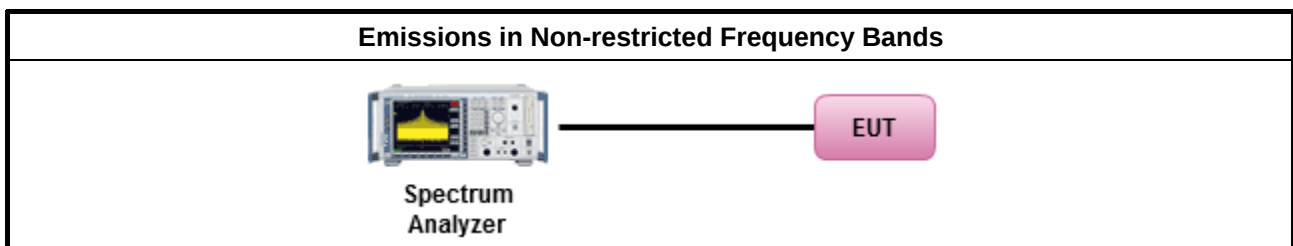
3.5.2 Measuring Instruments

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 7.8.8 for unwanted emissions into non-restricted bands.

3.5.4 Test Setup



3.5.5 Test Result of Emissions in Non-restricted Frequency Bands

Refer as Appendix E



3.6 Emissions in Restricted Frequency Bands

3.6.1 Emissions in Restricted Frequency Bands Limit

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

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

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

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

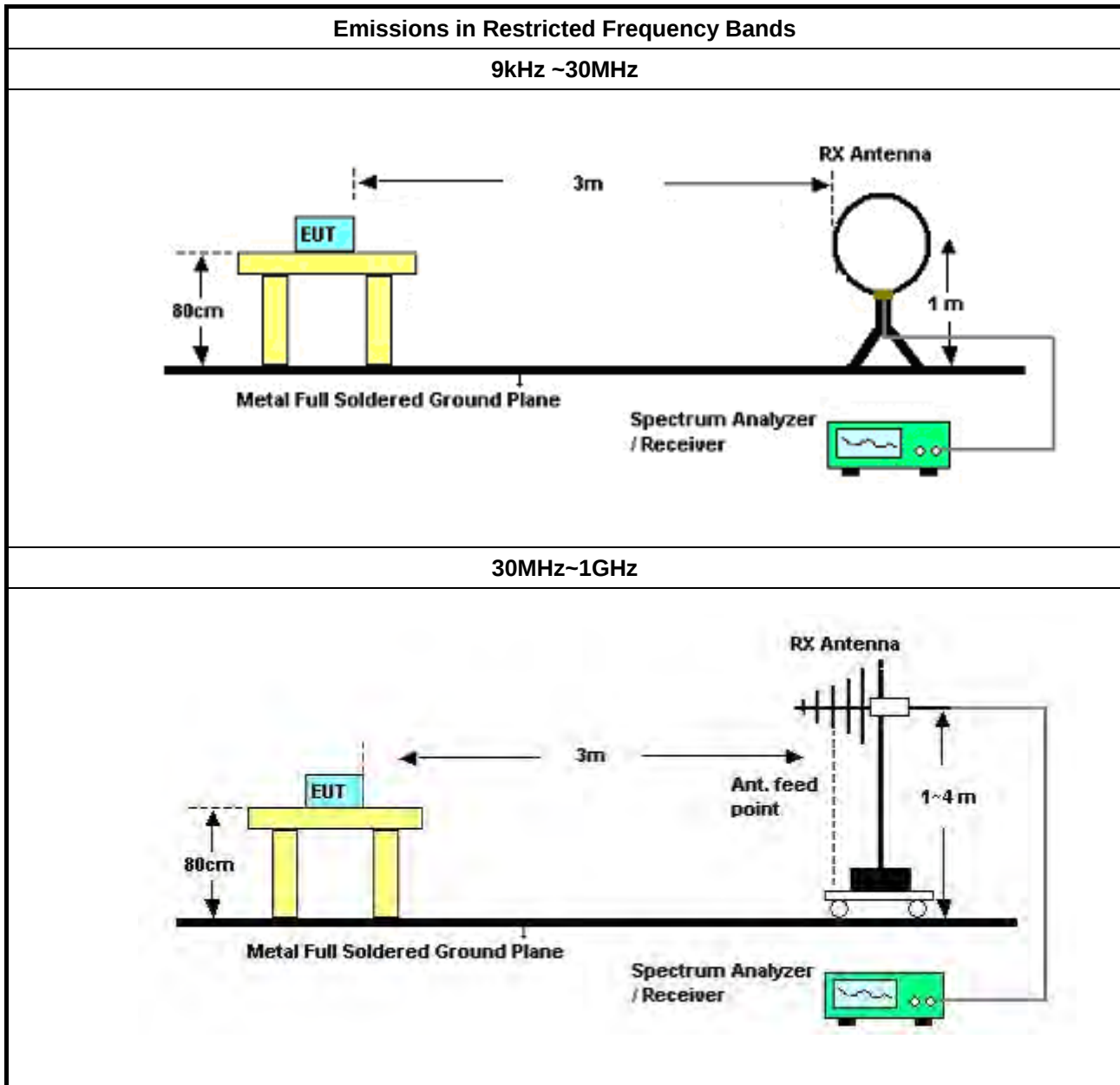
3.6.2 Measuring Instruments

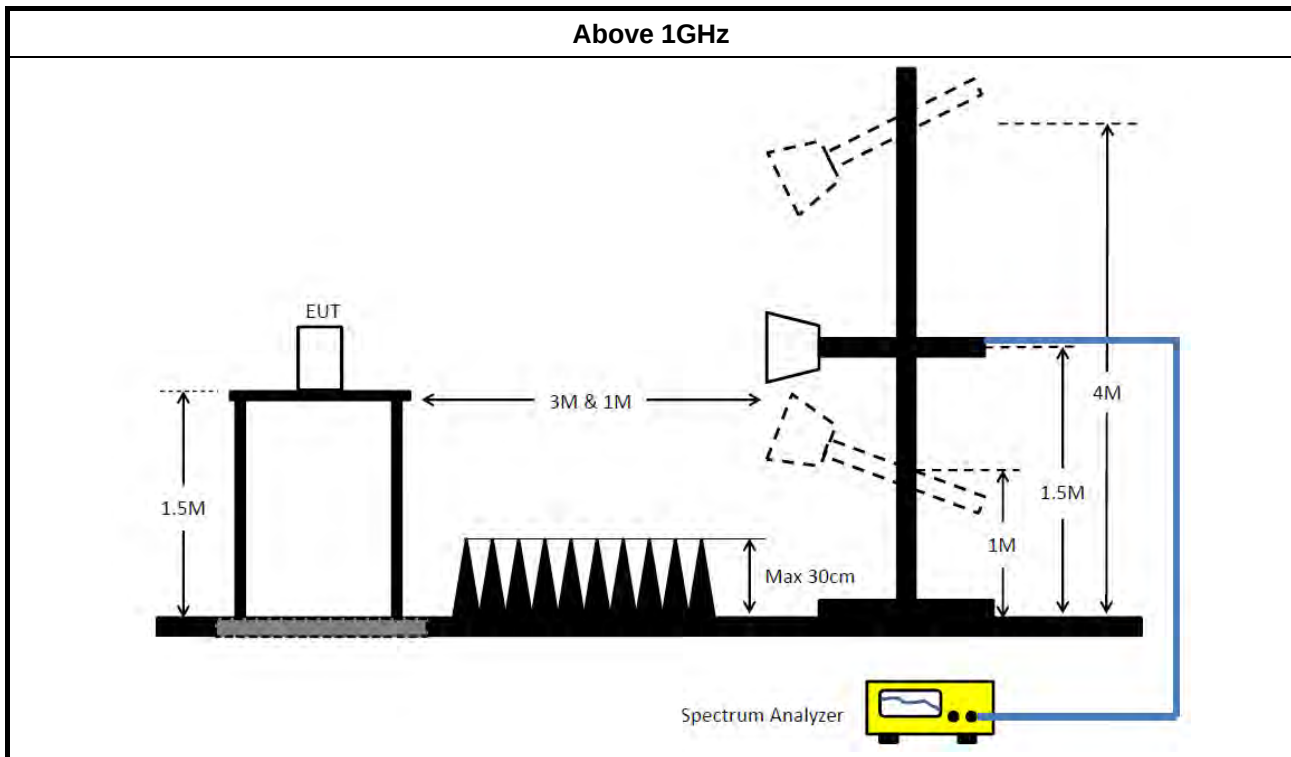
Refer a test equipment and calibration data table in this test report.

3.6.3 Test Procedures

Test Method	
▪ The average emission levels shall be measured in [hopping duty factor].	
▪ Refer as ANSI C63.10; clause 6.10.3 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.	
▪ For the transmitter unwanted emissions shall be measured using following options below:	
	▪ Refer as 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.

3.6.4 Test Setup





3.6.5 Measurement Results Calculation

The measured Level is calculated using:

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

3.6.6 Emissions in Restricted Frequency Bands (Below 30MHz)

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

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

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

3.6.7 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix F



4 Test Equipment and Calibration Data

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
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)
Horn Antenna	SCHWARZBECK	BBHA9120D	BBHA 9120D-1291	1GHz~18GHz	Oct. 05, 2019	Oct. 04, 2020	Radiation (03CH05-CB)
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170507	15GHz ~ 40GHz	Jun. 12, 2019	Jun. 11, 2020	Radiation (03CH05-CB)
Pre-Amplifier	EMCI	EMC330N	980331	20MHz ~ 3GHz	May 01, 2019	Apr. 30, 2020	Radiation (03CH05-CB)
Pre-Amplifier	EMCI	EMC12630SE	980287	1GHz ~ 26.5GHz	Apr. 16, 2019	Apr. 15, 2020	Radiation (03CH05-CB)
Pre-Amplifier	MITEQ	TTA1840-35-HG	1864479	18GHz ~ 40GHz	Jul. 03, 2019	Jul. 02, 2020	Radiation (03CH05-CB)
Spectrum Analyzer	R&S	FSP40	100304	9kHz ~ 40GHz	Aug. 15, 2019	Aug. 14, 2020	Radiation (03CH05-CB)
EMI Test Receiver	R&S	ESCS	826547/017	9kHz ~ 2.75GHz	May 15, 2019	May 14, 2020	Radiation (03CH05-CB)
RF Cable-low	Woken	RG402	LOW Cable-04+23	30MHz~1GHz	Oct. 07, 2019	Oct. 06, 2020	Radiation (03CH05-CB)
RF Cable-high	Woken	RG402	High Cable-28	1GHz~18GHz	Oct. 07, 2019	Oct. 06, 2020	Radiation (03CH05-CB)
RF Cable-high	Woken	RG402	High Cable-04+28	1GHz~18GHz	Oct. 07, 2019	Oct. 06, 2020	Radiation (03CH05-CB)
RF Cable-high	Woken	RG402	High Cable-40G#1	18GHz ~ 40 GHz	Jul. 24, 2019	Jul. 23, 2020	Radiation (03CH05-CB)
RF Cable-high	Woken	RG402	High Cable-40G#2	18GHz ~ 40 GHz	Jul. 24, 2019	Jul. 23, 2020	Radiation (03CH05-CB)
Spectrum analyzer	R&S	FSV40	101027	9kHz~40GHz	Jul. 02, 2019	Jul. 01, 2020	Conducted (TH02-CB)
Power Sensor	Anritsu	MA2411B	1126203	300MHz~40GHz	Sep. 11, 2019	Sep. 10, 2020	Conducted (TH02-CB)
Power Meter	Anritsu	ML2495A	1210004	300MHz~40GHz	Sep. 11, 2019	Sep. 10, 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-01	1 GHz ~ 26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	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-02	1 GHz ~ 26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	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)



Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
RF Cable-high	Woken	RG402	High Cable-3	1 GHz – 26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	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-04	1 GHz – 26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	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)
RF Cable-high	Woken	RG402	High Cable-05	1 GHz – 26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH02-CB)

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

**Summary**

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
BT-BR(1Mbps)	920k	932.5k	933KF1D	916.25k	928.75k
BT-EDR(2Mbps)	1.344M	1.231M	1M23G1D	1.341M	1.223M
BT-EDR(3Mbps)	1.304M	1.228M	1M23G1D	1.303M	1.219M

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;

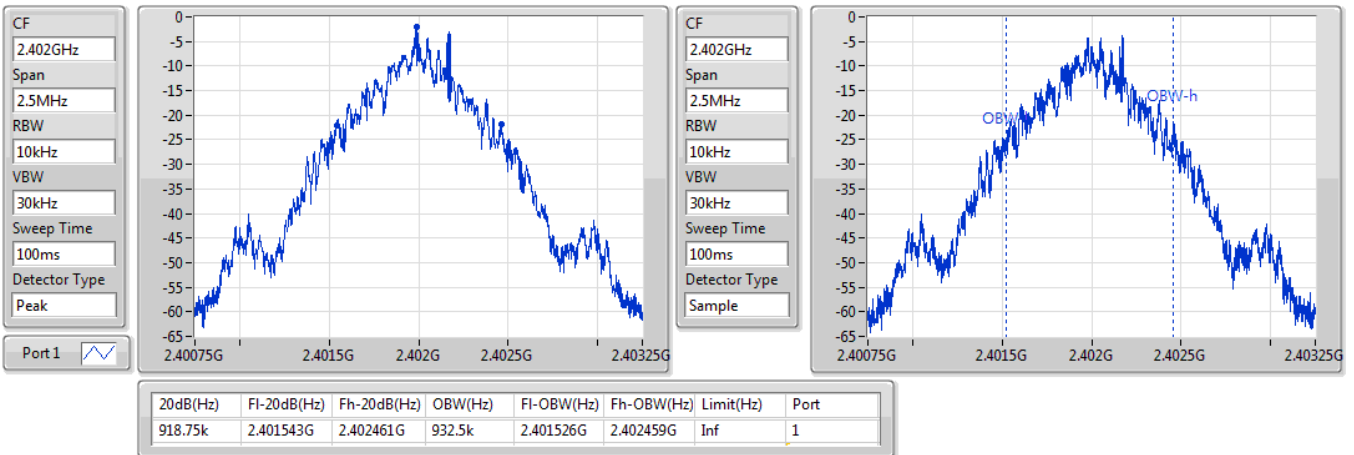
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-BR(1Mbps)	-	-	-	-
2402MHz	Pass	Inf	918.75k	932.5k
2440MHz	Pass	Inf	916.25k	928.75k
2480MHz	Pass	Inf	920k	928.75k
BT-EDR(2Mbps)	-	-	-	-
2402MHz	Pass	Inf	1.341M	1.223M
2440MHz	Pass	Inf	1.341M	1.231M
2480MHz	Pass	Inf	1.344M	1.226M
BT-EDR(3Mbps)	-	-	-	-
2402MHz	Pass	Inf	1.303M	1.228M
2440MHz	Pass	Inf	1.303M	1.224M
2480MHz	Pass	Inf	1.304M	1.219M

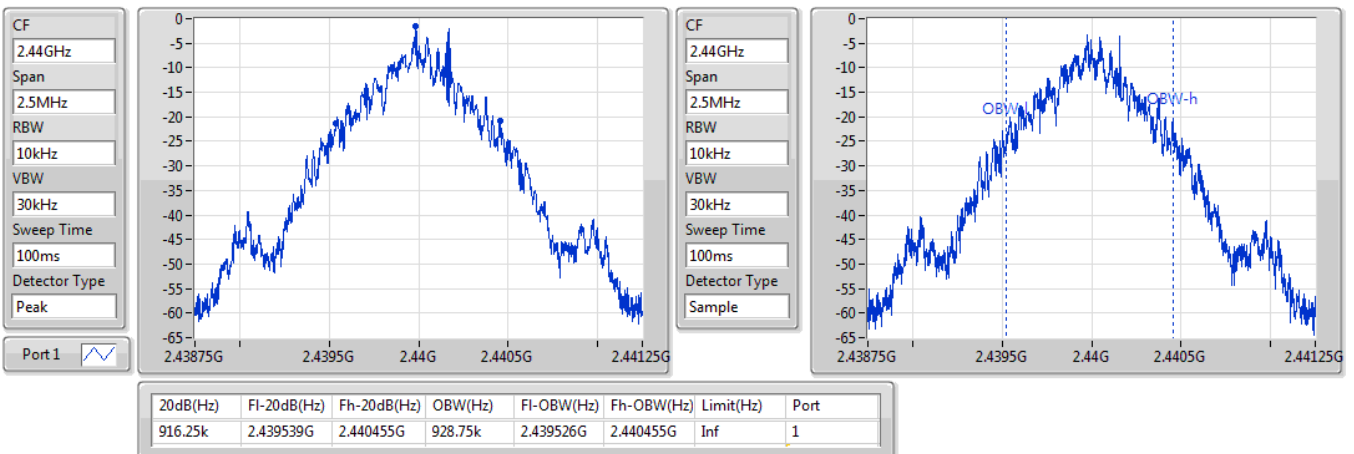
Port X-N dB = Port X 20dB down bandwidth; **Port X-OBW** = Port X 99% occupied bandwidth;

BT-BR(1Mbps)
2402MHz
EBW

28/10/2019

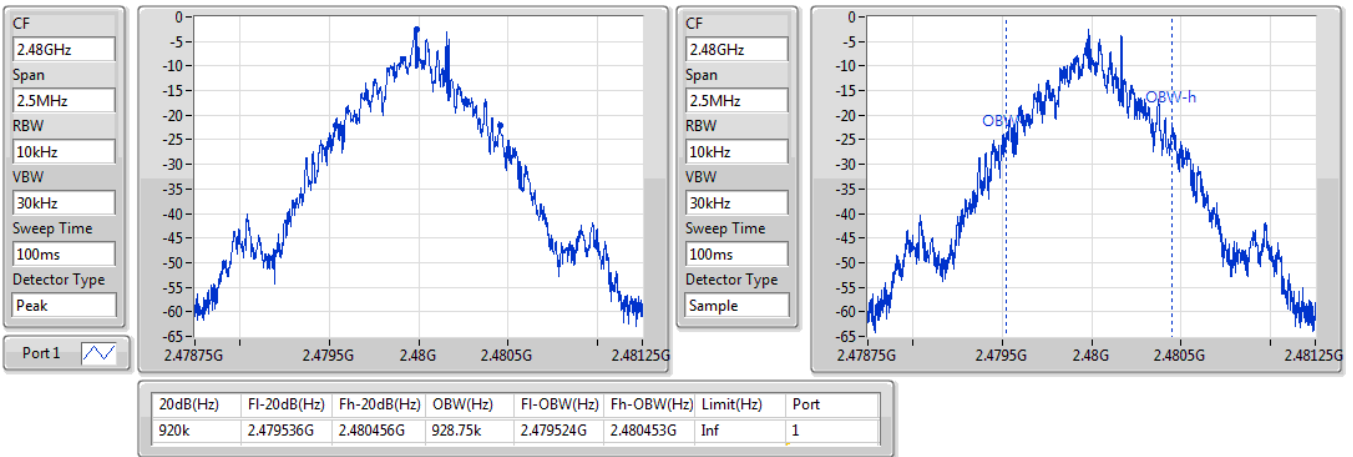

BT-BR(1Mbps)
2440MHz
EBW

28/10/2019

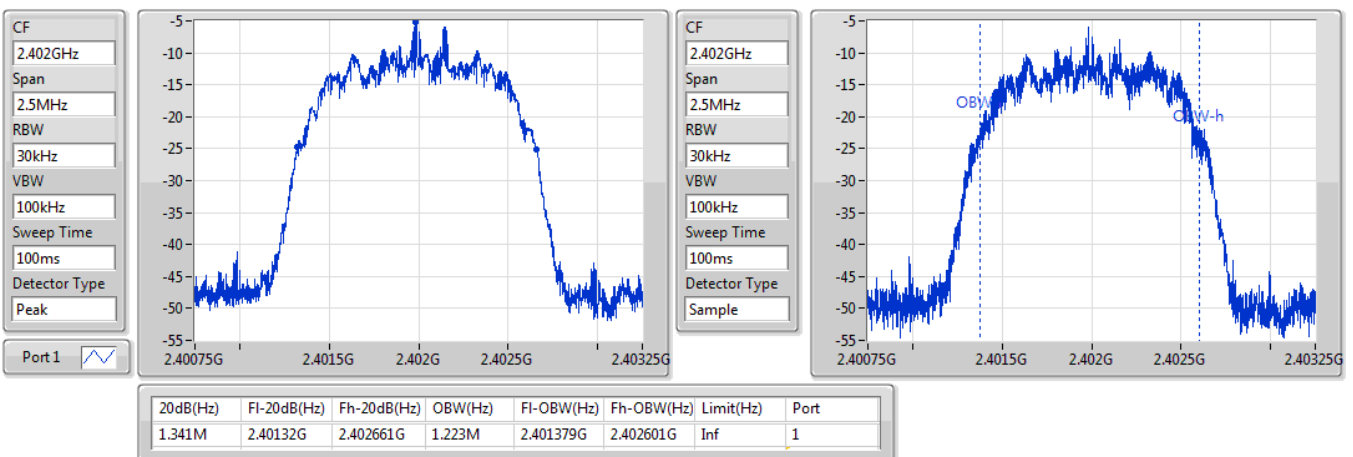


BT-BR(1Mbps)
2480MHz

28/10/2019

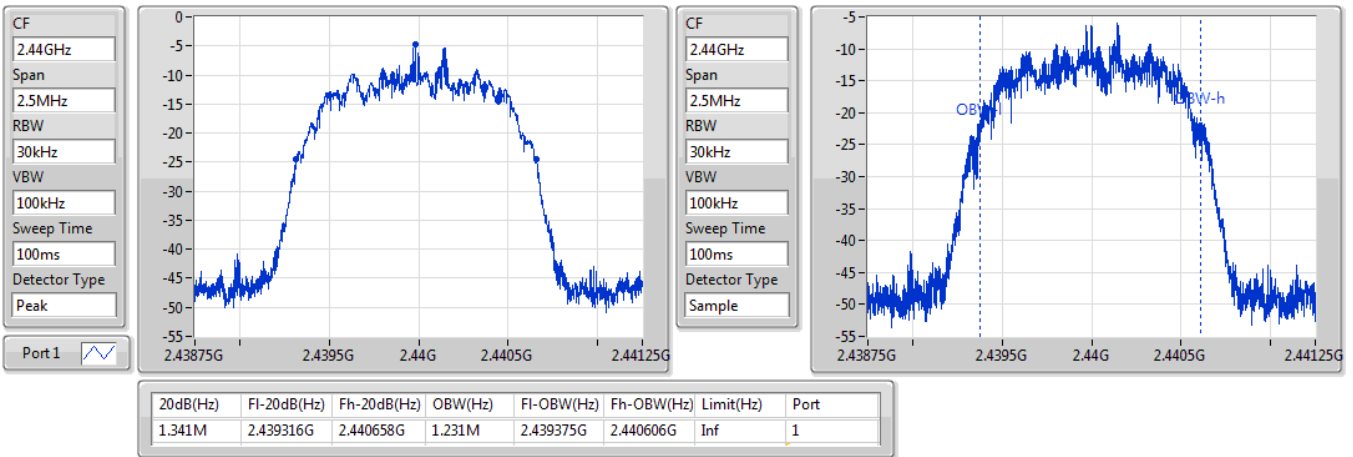

BT-EDR(2Mbps)
2402MHz

28/10/2019

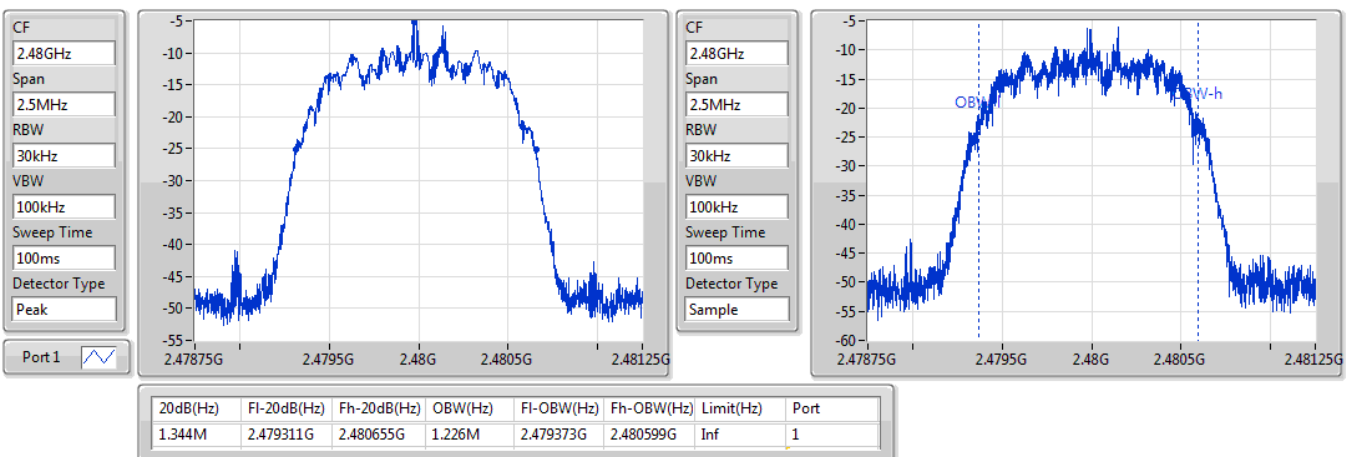


BT-EDR(2Mbps)
2440MHz

28/10/2019

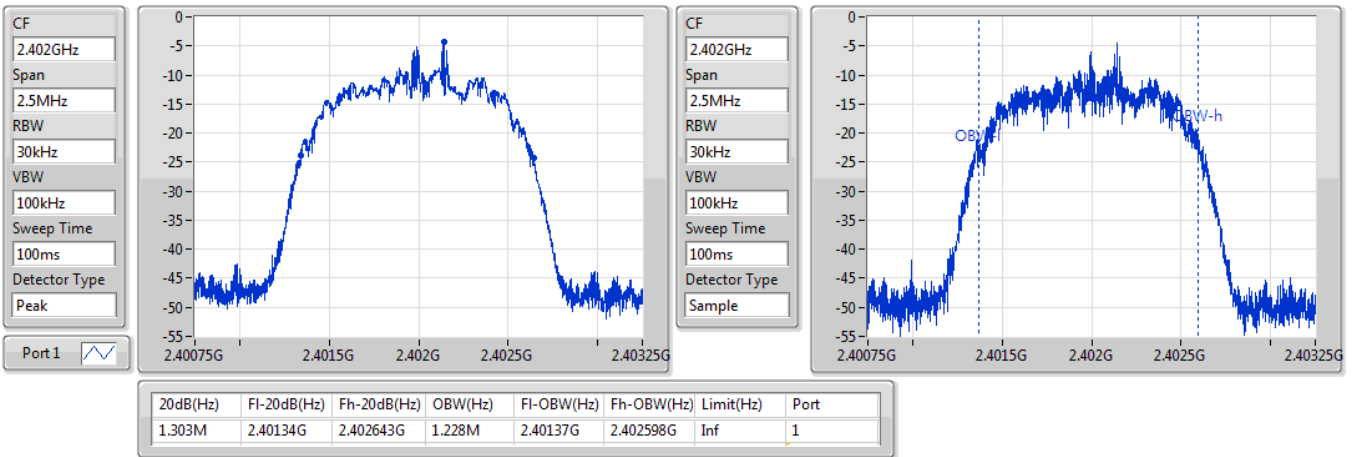

BT-EDR(2Mbps)
2480MHz

28/10/2019

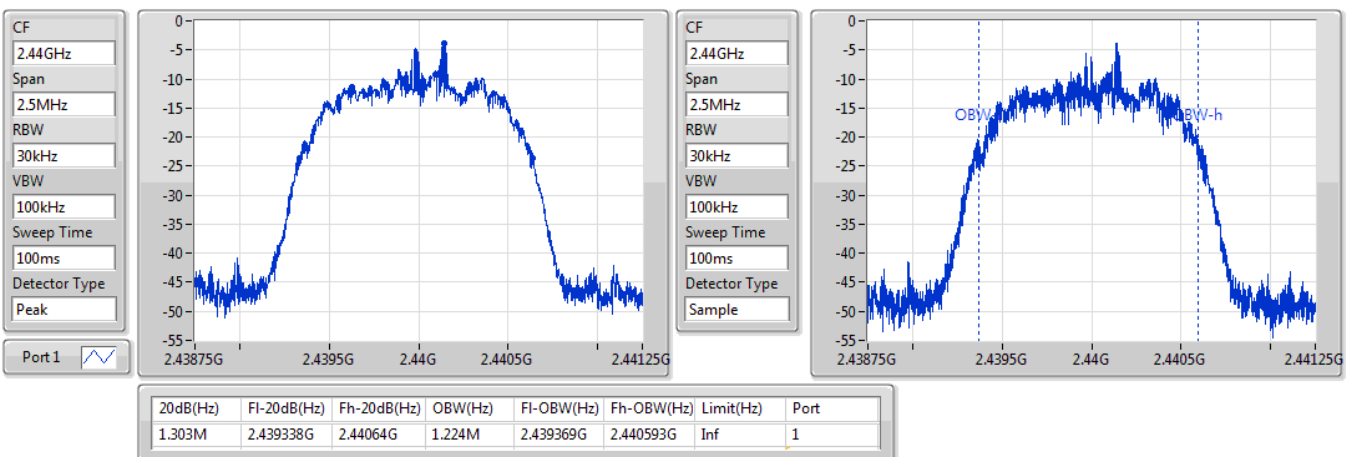


BT-EDR(3Mbps)
2402MHz

28/10/2019


BT-EDR(3Mbps)
2440MHz

28/10/2019

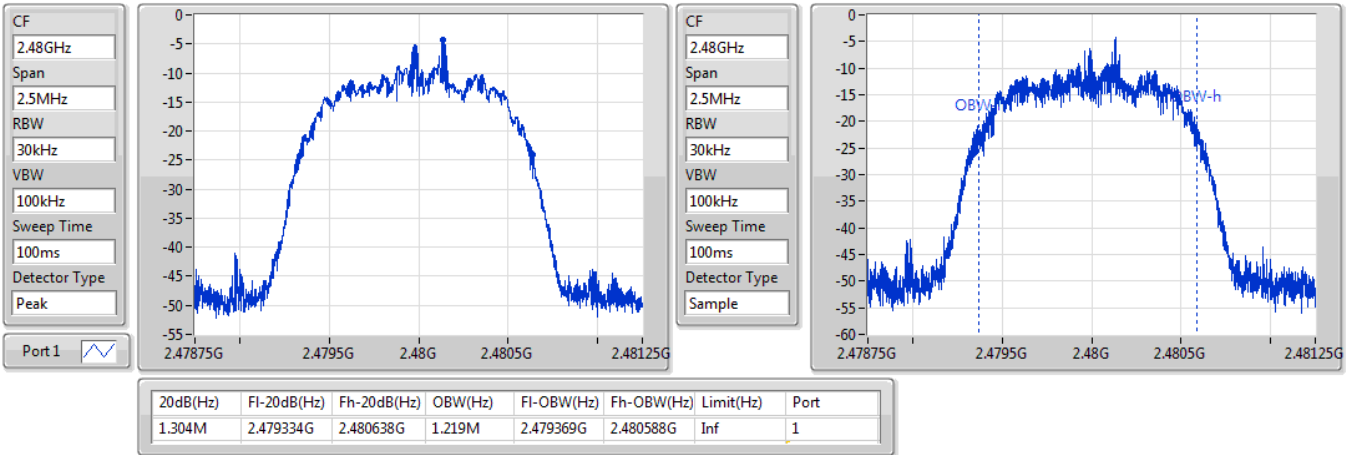


BT-EDR(3Mbps)

2480MHz

EBW

28/10/2019





Summary

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

Result

Mode	Result	Fi (Hz)	Fh (Hz)	Ch.Space (Hz)	Limit (Hz)
BT-BR(1Mbps)	-	-	-	-	-
2402MHz	Pass	2.40199G	2.402989G	999k	611.8875k
2440MHz	Pass	2.439986G	2.440986G	1.0005M	610.2225k
2480MHz	Pass	2.478983G	2.479983G	1.0005M	612.72k
BT-EDR(2Mbps)	-	-	-	-	-
2402MHz	Pass	2.40199G	2.402991G	1.0005M	893.106k
2440MHz	Pass	2.439987G	2.440988G	1.0005M	893.106k
2480MHz	Pass	2.478984G	2.479985G	1.0005M	895.104k
BT-EDR(3Mbps)	-	-	-	-	-
2402MHz	Pass	2.402146G	2.403147G	1.0005M	867.798k
2440MHz	Pass	2.440143G	2.441144G	1.0005M	867.798k
2480MHz	Pass	2.47914G	2.480141G	1.0005M	868.464k

BT-BR(1Mbps)

2.402G/2.403GHz

Channel Separation



BT-BR(1Mbps)

2.44G/2.441GHz

Channel Separation



BT-BR(1Mbps)

2.48G/2.479GHz

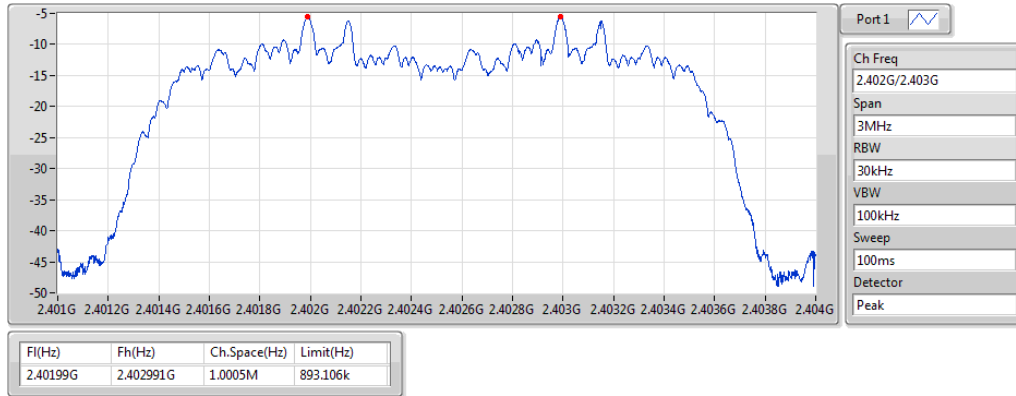
Channel Separation



BT-EDR(2Mbps)

2.402G/2.403GHz

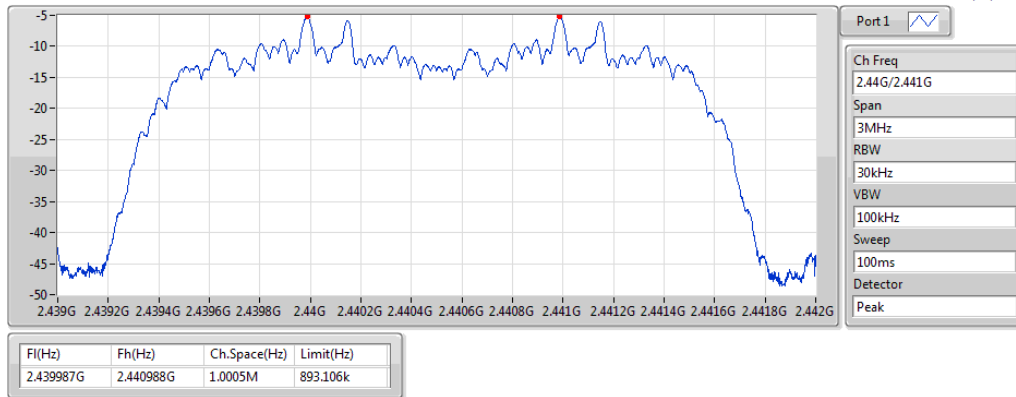
Channel Separation



BT-EDR(2Mbps)

2.44G/2.441GHz

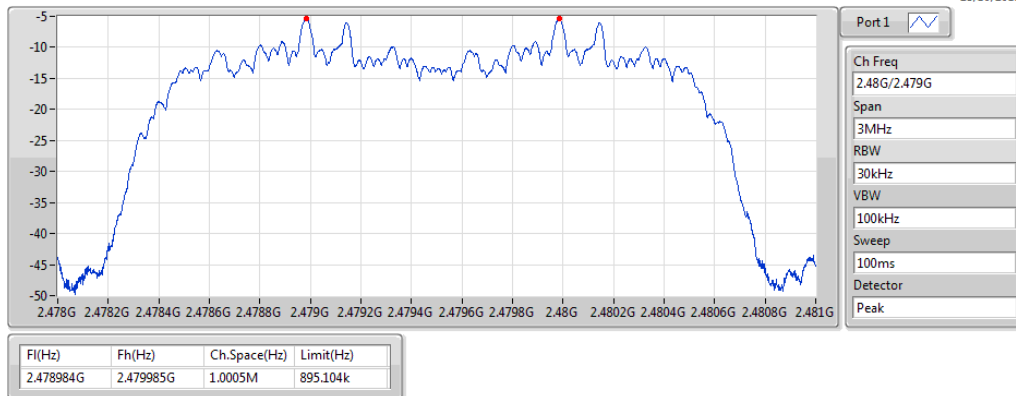
Channel Separation



BT-EDR(2Mbps)

2.48G/2.479GHz

Channel Separation

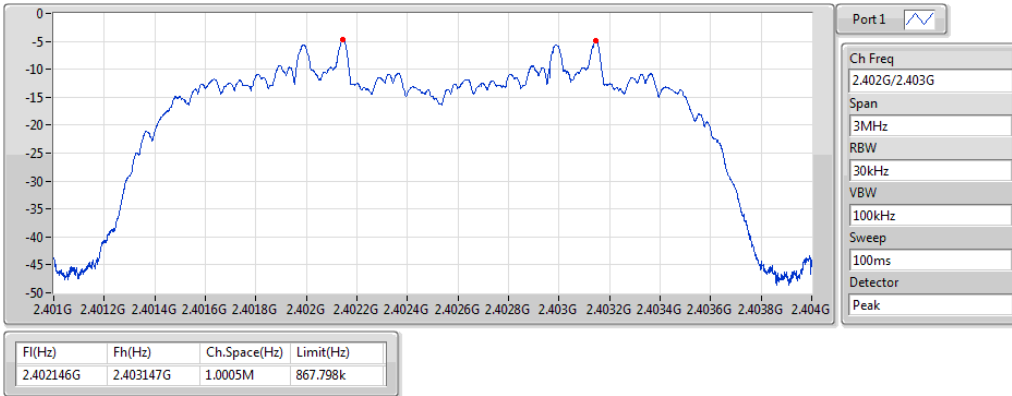


BT-EDR(3Mbps)

2.402G/2.403GHz

Channel Separation

28/10/2019

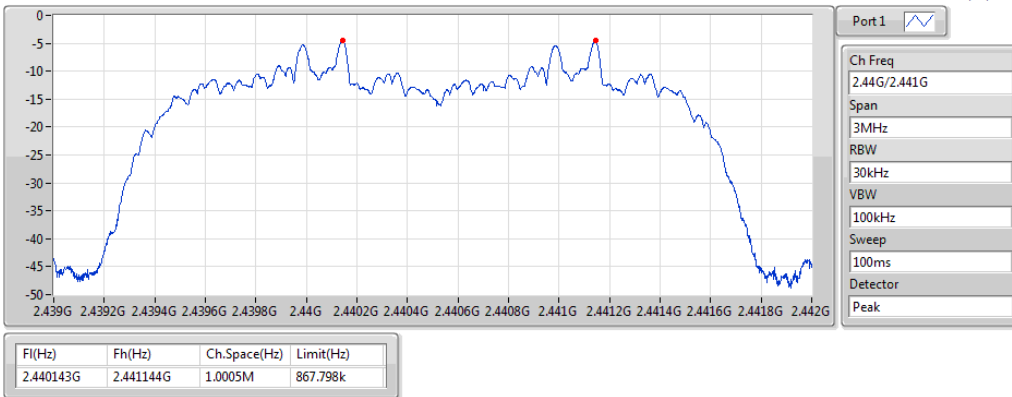


BT-EDR(3Mbps)

2.44G/2.441GHz

Channel Separation

28/10/2019

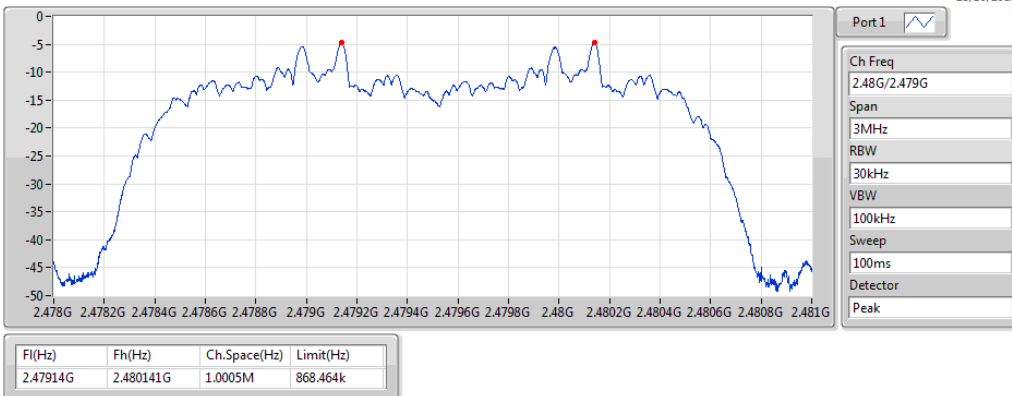


BT-EDR(3Mbps)

2.48G/2.479GHz

Channel Separation

28/10/2019





Summary

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-BR(1Mbps)	2.30	0.00170
BT-EDR(2Mbps)	-2.43	0.00057
BT-EDR(3Mbps)	-2.17	0.00061

**Result**

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-BR(1Mbps)	-	-	-	-
2402MHz	Pass	4.03	1.75	21.00
2440MHz	Pass	4.03	2.30	21.00
2480MHz	Pass	4.03	1.65	21.00
BT-EDR(2Mbps)	-	-	-	-
2402MHz	Pass	4.03	-2.79	21.00
2440MHz	Pass	4.03	-2.53	21.00
2480MHz	Pass	4.03	-2.43	21.00
BT-EDR(3Mbps)	-	-	-	-
2402MHz	Pass	4.03	-3.19	21.00
2440MHz	Pass	4.03	-2.17	21.00
2480MHz	Pass	4.03	-2.54	21.00

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



Summary

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-BR(1Mbps)	2.33	0.00171
BT-EDR(2Mbps)	-0.54	0.00088
BT-EDR(3Mbps)	-0.14	0.00097

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-BR(1Mbps)	-	-	-	-
2402MHz	Pass	4.03	1.78	21.00
2440MHz	Pass	4.03	2.33	21.00
2480MHz	Pass	4.03	1.66	21.00
BT-EDR(2Mbps)	-	-	-	-
2402MHz	Pass	4.03	-0.97	21.00
2440MHz	Pass	4.03	-0.54	21.00
2480MHz	Pass	4.03	-0.78	21.00
BT-EDR(3Mbps)	-	-	-	-
2402MHz	Pass	4.03	-0.60	21.00
2440MHz	Pass	4.03	-0.14	21.00
2480MHz	Pass	4.03	-0.51	21.00

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

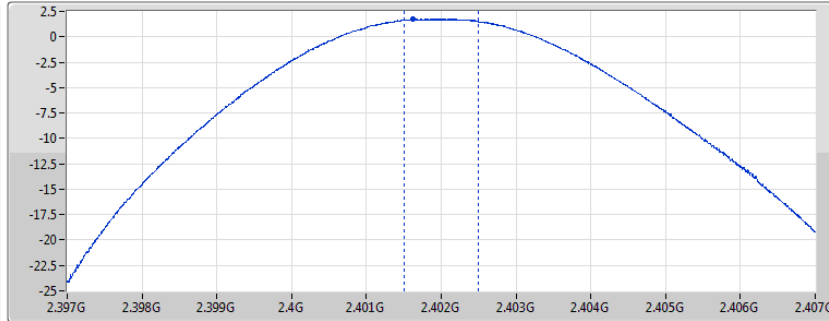
BT-BR(1Mbps)

PK Power

2402MHz

28/10/2019

CF
2.402GHz
Span
10MHz
RBW
3MHz
VBW
10MHz
Sweep Time
20ms
Detector Type
Peak
CP BW
NaNHz



Port1

Sum=Total Power
PX=Port X

Sum(dBm)	P1(dBm)
1.78	1.78

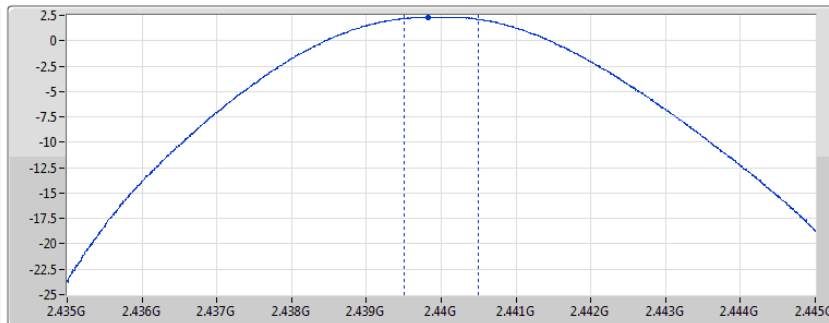
BT-BR(1Mbps)

PK Power

2440MHz

28/10/2019

CF
2.44GHz
Span
10MHz
RBW
3MHz
VBW
10MHz
Sweep Time
20ms
Detector Type
Peak
CP BW
NaNHz



Port1

Sum=Total Power
PX=Port X

Sum(dBm)	P1(dBm)
2.33	2.33

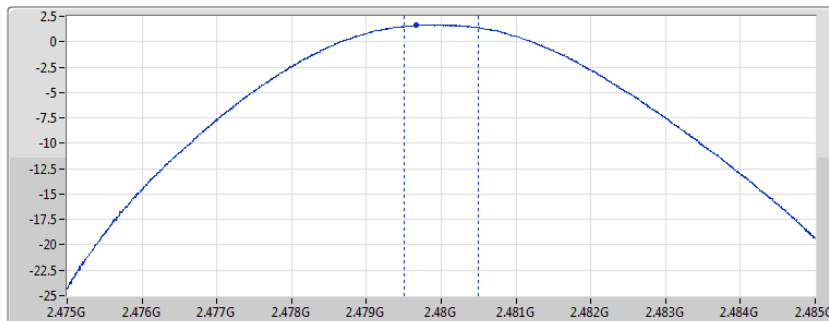
BT-BR(1Mbps)

PK Power

2480MHz

28/10/2019

CF
2.48GHz
Span
10MHz
RBW
3MHz
VBW
10MHz
Sweep Time
20ms
Detector Type
Peak
CP BW
NaNHz



Port1

Sum=Total Power
PX=Port X

Sum(dBm)	P1(dBm)
1.66	1.66

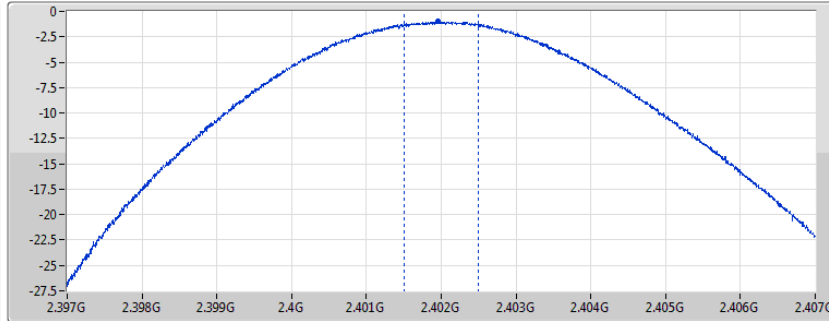
BT-EDR(2Mbps)

PK Power

2402MHz

28/10/2019

CF
2.402GHz
Span
10MHz
RBW
3MHz
VBW
10MHz
Sweep Time
20ms
Detector Type
Peak
CP BW
NaNHz



Port1

Sum=Total Power
PX=Port X

Sum(dBm)	P1(dBm)
-0.97	-0.97

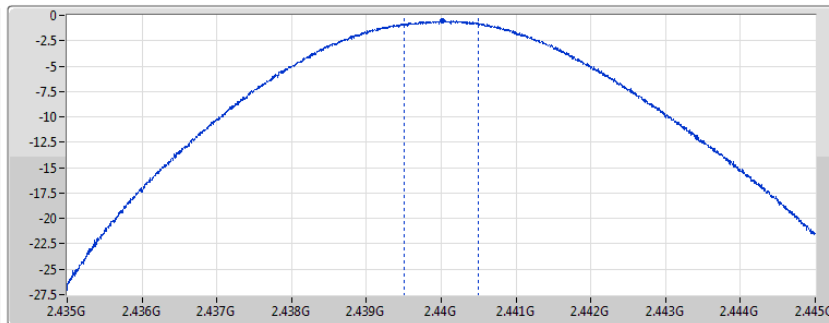
BT-EDR(2Mbps)

PK Power

2440MHz

28/10/2019

CF
2.44GHz
Span
10MHz
RBW
3MHz
VBW
10MHz
Sweep Time
20ms
Detector Type
Peak
CP BW
NaNHz



Port1

Sum=Total Power
PX=Port X

Sum(dBm)	P1(dBm)
-0.54	-0.54

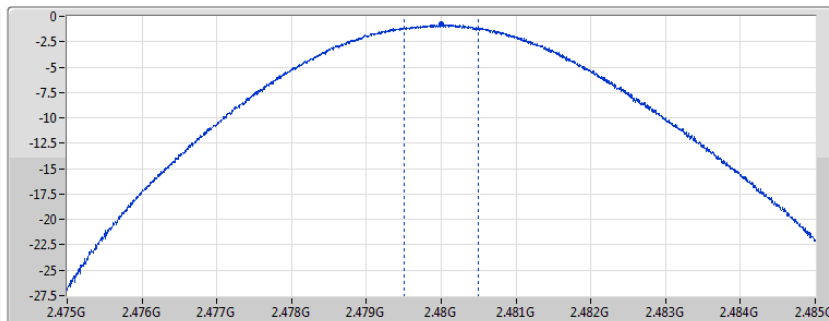
BT-EDR(2Mbps)

PK Power

2480MHz

28/10/2019

CF
2.48GHz
Span
10MHz
RBW
3MHz
VBW
10MHz
Sweep Time
20ms
Detector Type
Peak
CP BW
NaNHz



Port1

Sum=Total Power
PX=Port X

Sum(dBm)	P1(dBm)
-0.78	-0.78

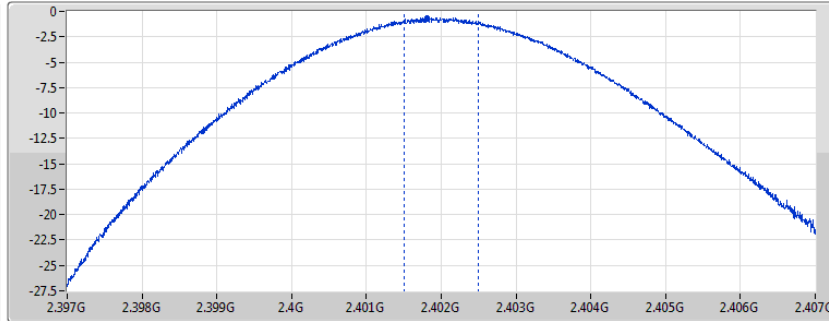
BT-EDR(3Mbps)

PK Power

2402MHz

28/10/2019

CF
2.402GHz
Span
10MHz
RBW
3MHz
VBW
10MHz
Sweep Time
20ms
Detector Type
Peak
CP BW
NaNHz



Sum=Total Power
PX=Port X

Sum(dBm)	P1(dBm)
-0.60	-0.60

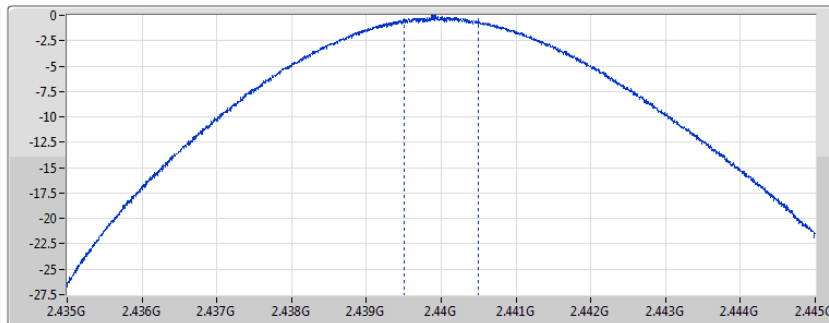
BT-EDR(3Mbps)

PK Power

2440MHz

28/10/2019

CF
2.44GHz
Span
10MHz
RBW
3MHz
VBW
10MHz
Sweep Time
20ms
Detector Type
Peak
CP BW
NaNHz



Sum=Total Power
PX=Port X

Sum(dBm)	P1(dBm)
-0.14	-0.14

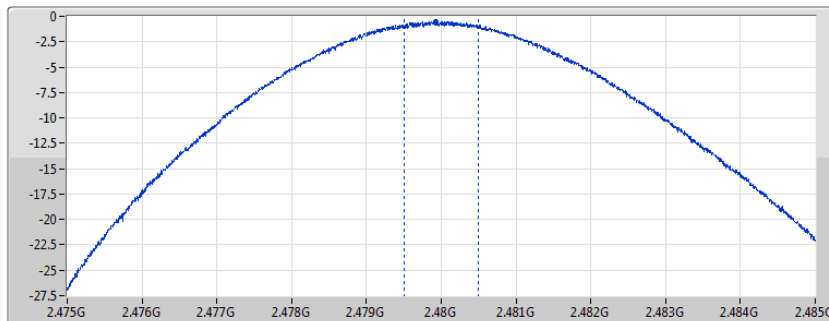
BT-EDR(3Mbps)

PK Power

2480MHz

28/10/2019

CF
2.48GHz
Span
10MHz
RBW
3MHz
VBW
10MHz
Sweep Time
20ms
Detector Type
Peak
CP BW
NaNHz



Sum=Total Power
PX=Port X

Sum(dBm)	P1(dBm)
-0.51	-0.51



Summary

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

Result

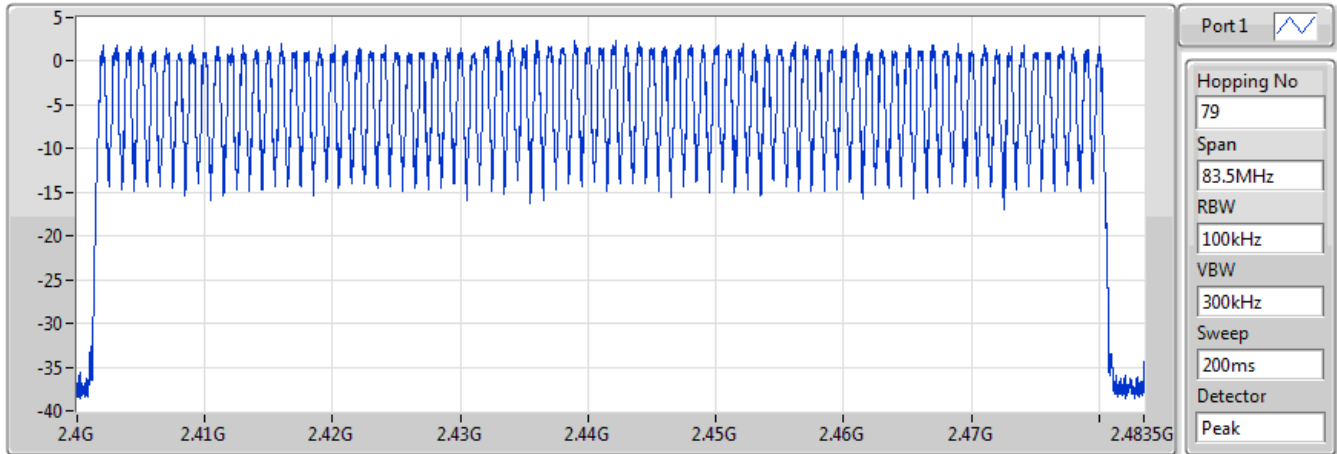
Mode	Result	Hopping No	Limit
BT-BR(1Mbps)	-	-	-
2440MHz	Pass	79	15
BT-EDR(2Mbps)	-	-	-
2440MHz	Pass	79	15
BT-EDR(3Mbps)	-	-	-
2440MHz	Pass	79	15

BT-BR(1Mbps)

2440MHz

Hopping Ch

28/10/2019



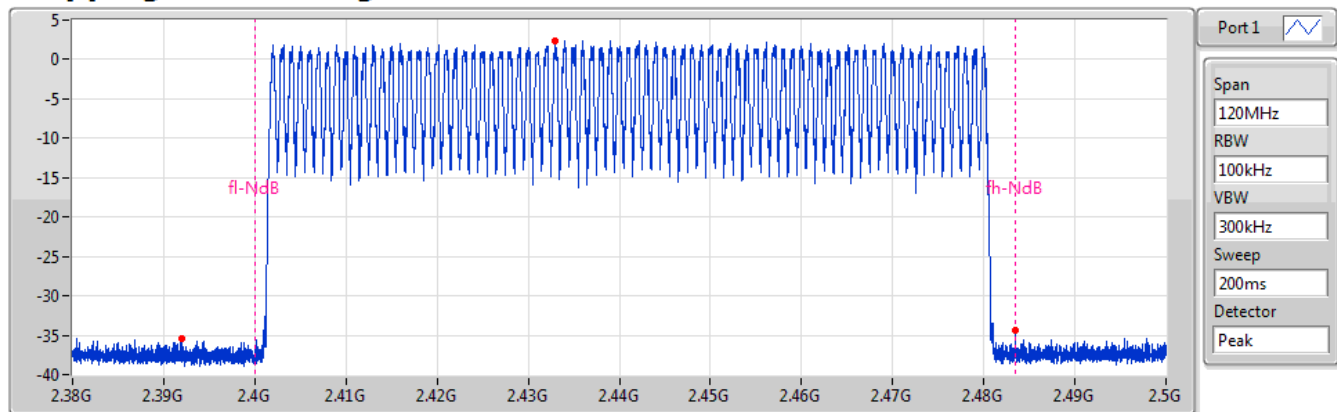
Hopping No	Limit
79	15

BT-BR(1Mbps)

2440MHz

Hopping Ch Bandedge (Non-restricted Band)

28/10/2019



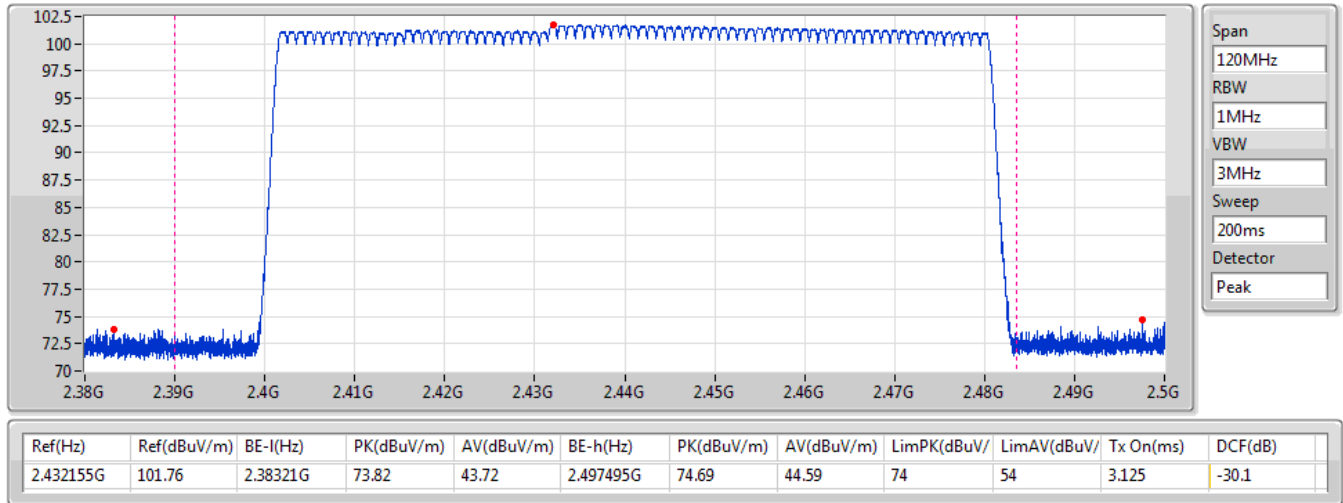
Limit(dBm)	Ref(Hz)	Ref(dBm)	BE-l(Hz)	BE-l(dBm)	BE-h(Hz)	BE-h(dBm)
-17.59	2.43298G	2.41	2.39206G	-35.4	2.483515G	-34.41

BT-BR(1Mbps)

2440MHz

Hopping Ch Bandedge (Restricted Band)

28/10/2019

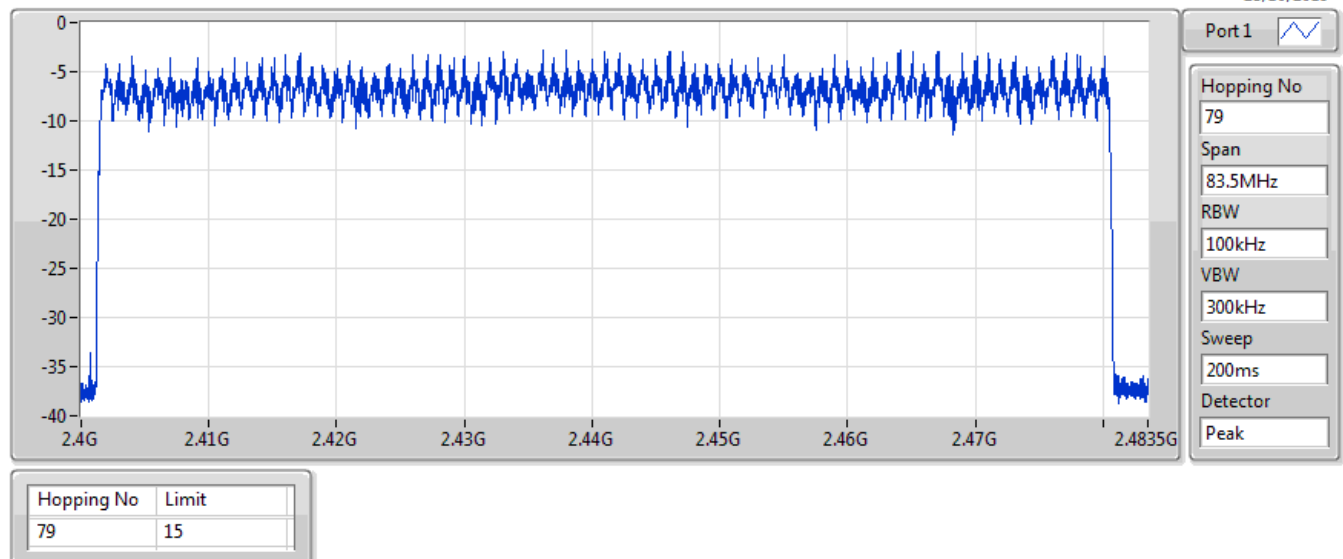


BT-EDR(2Mbps)

2440MHz

Hopping Ch

28/10/2019

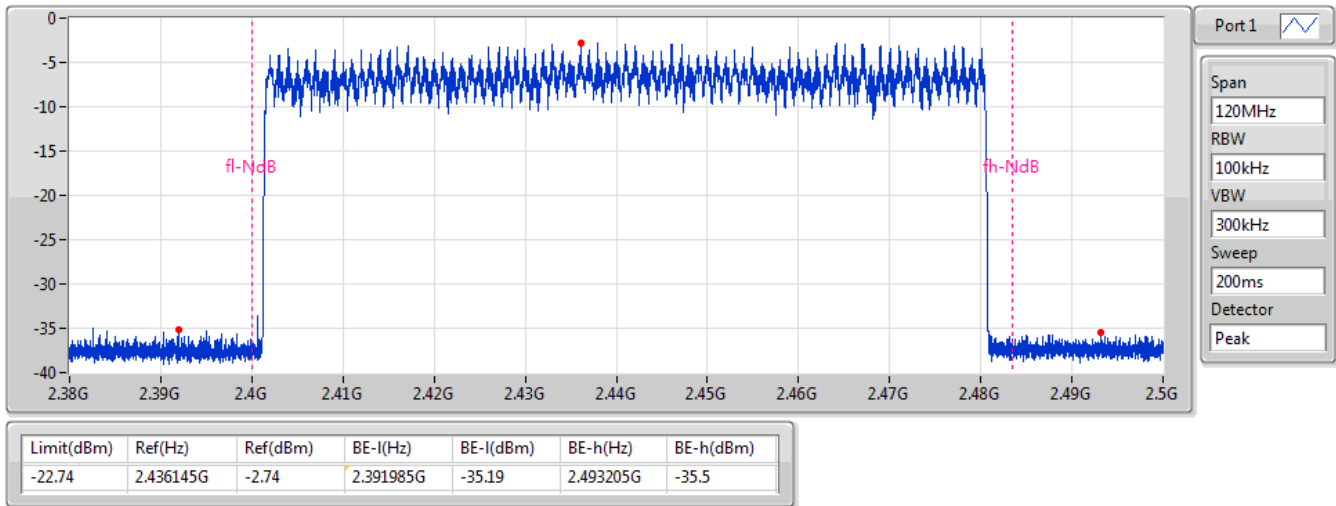


BT-EDR(2Mbps)

2440MHz

Hopping Ch Bandedge (Non-restricted Band)

28/10/2019

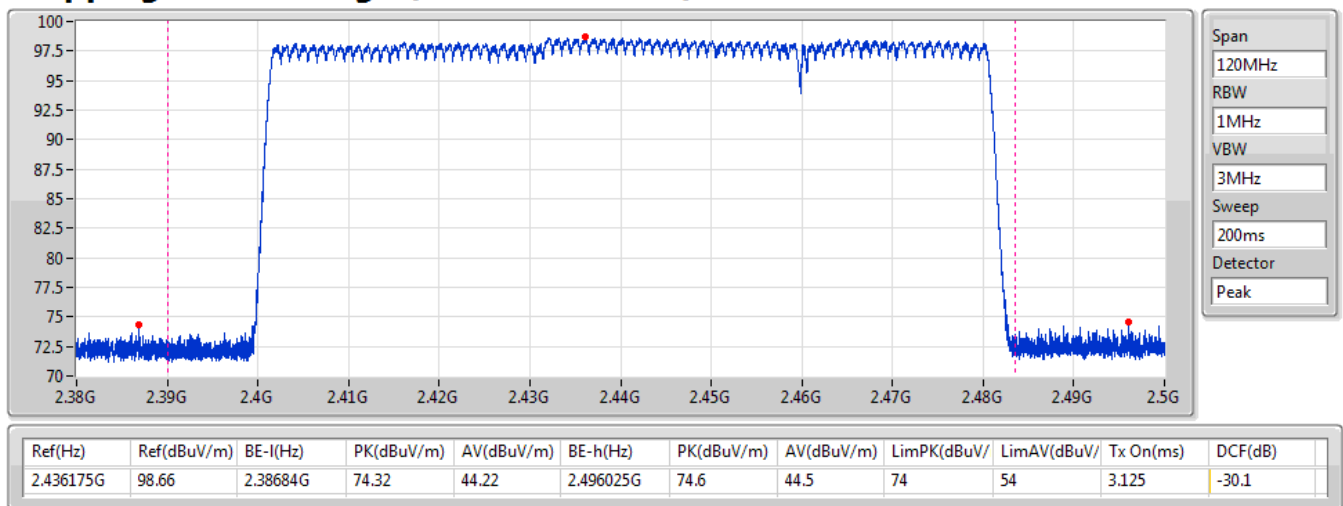


BT-EDR(2Mbps)

2440MHz

Hopping Ch Bandedge (Restricted Band)

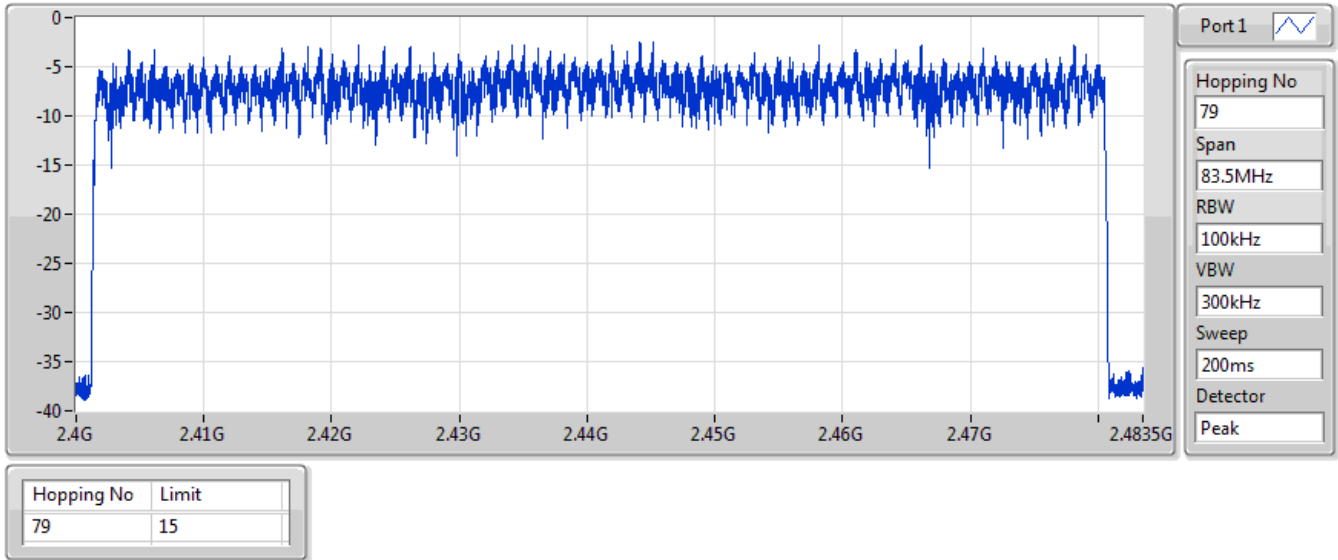
28/10/2019



BT-EDR(3Mbps) 2440MHz

Hopping Ch

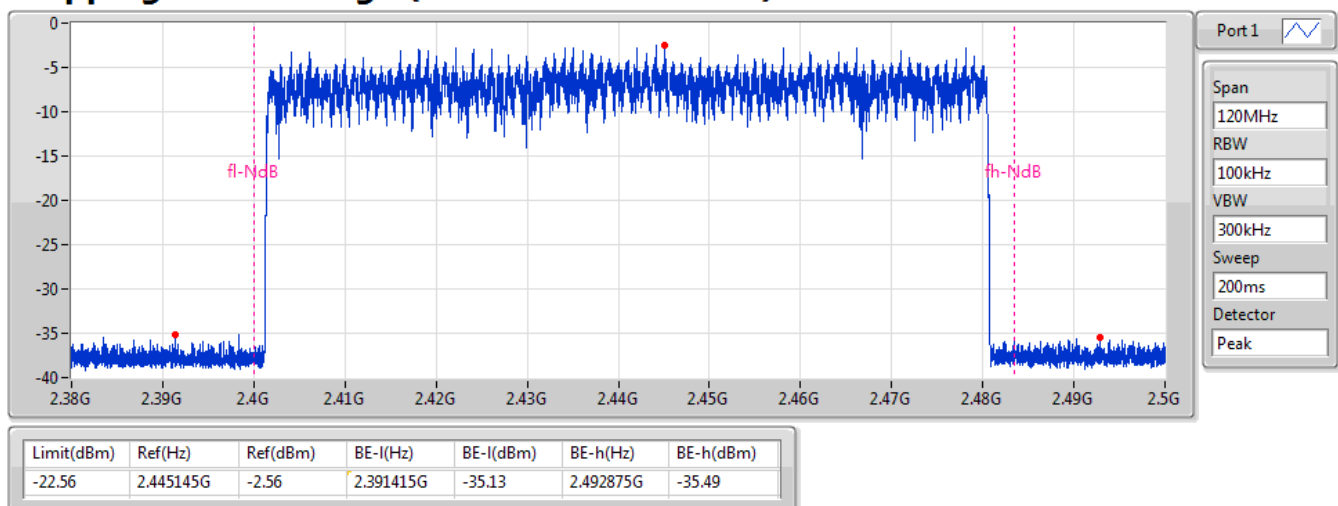
28/10/2019



BT-EDR(3Mbps) 2440MHz

Hopping Ch Bandedge (Non-restricted Band)

28/10/2019

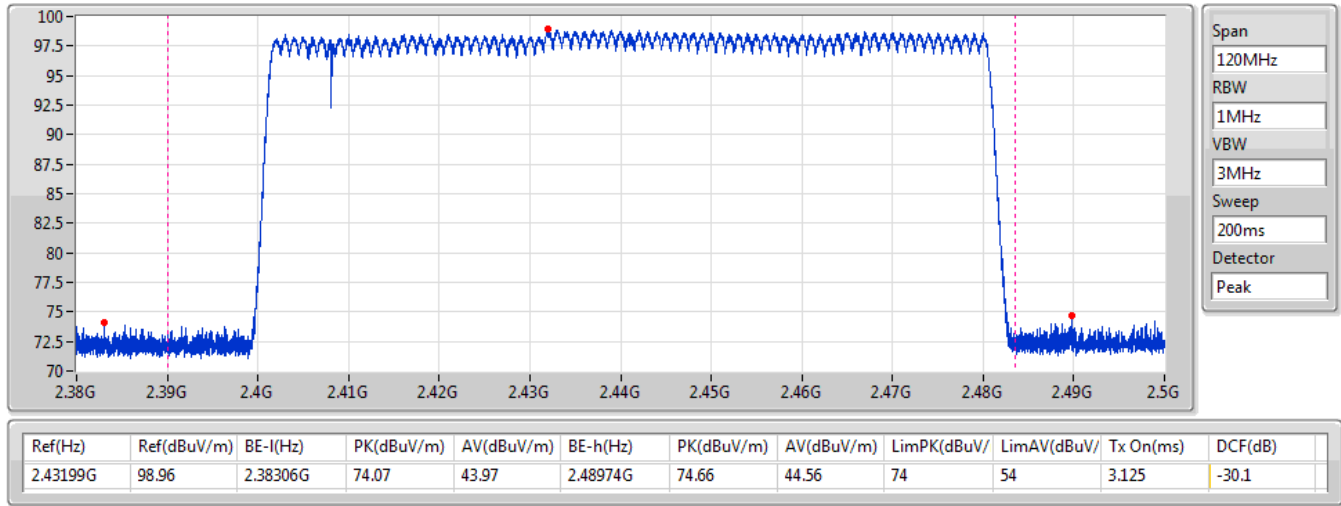


BT-EDR(3Mbps)

2440MHz

Hopping Ch Bandedge (Restricted Band)

28/10/2019





Summary

Mode	Max-Dwell (s)
2.4-2.4835GHz	-
BT-BR(1Mbps)	314.1502m
BT-EDR(2Mbps)	307.2212m
BT-EDR(3Mbps)	308.7136m

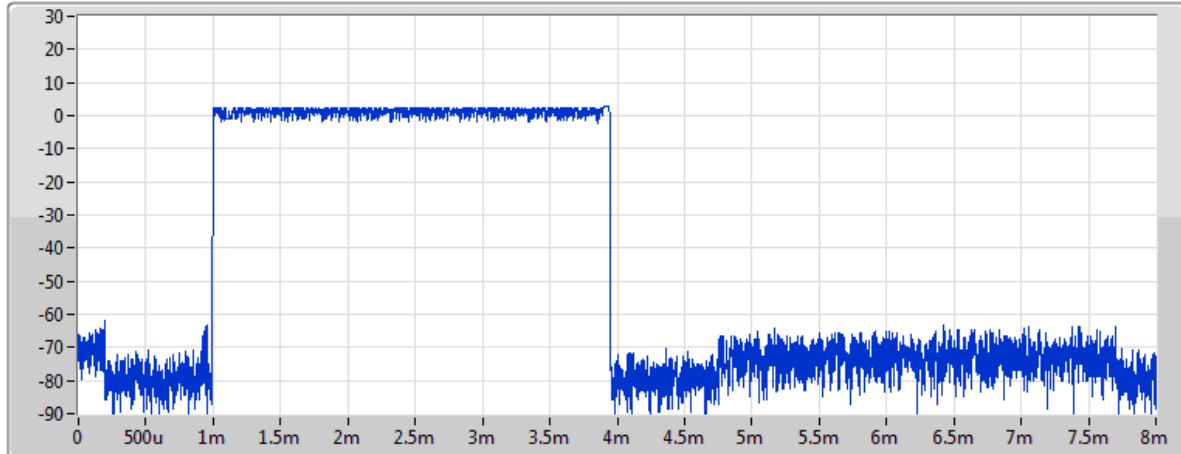
Result

Mode	Result	Period (s)	Dwell (s)	Limit (s)	Tx On (s)
BT-BR(1Mbps)	-	-	-	-	-
2440MHz	Pass	31.6	314.1502m	400m	2.947m
BT-EDR(2Mbps)	-	-	-	-	-
2440MHz	Pass	31.6	307.2212m	400m	2.882m
BT-EDR(3Mbps)	-	-	-	-	-
2440MHz	Pass	31.6	308.7136m	400m	2.896m

BT-BR(1Mbps)

2440MHz

28/10/2019



Port1

Ch Freq

2.44GHz

RBW

300kHz

VBW

1MHz

Sweep Time

8ms

TX Time

2.947ms

non AFH Mode

Period(s)	Dwell(s)	Limit(s)	Tx On(s)
31.6	314.1502m	400m	2.947m

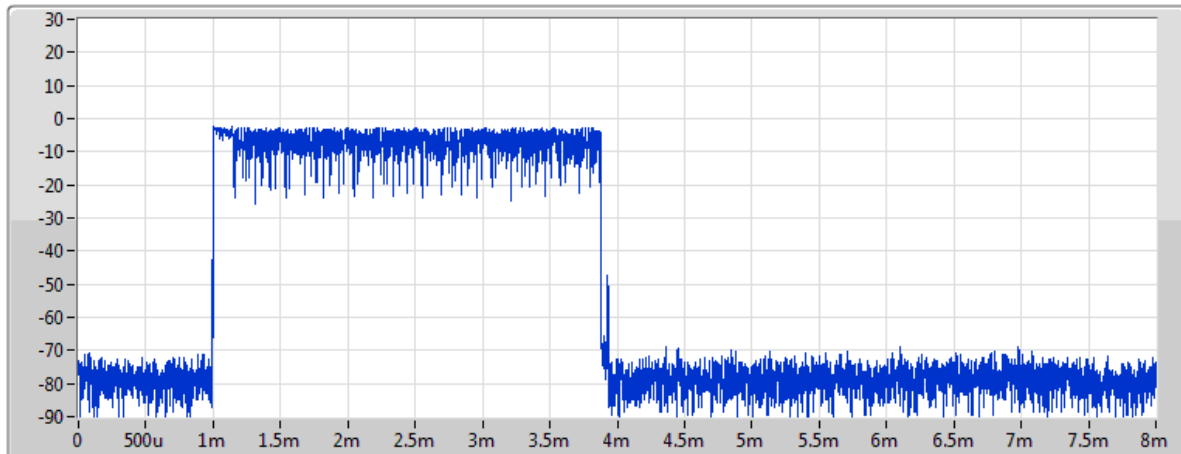
AFH Mode

Period(s)	Dwell(s)	Limit(s)	Tx On(s)
0	157.0751m	400m	2.947m

BT-EDR(2Mbps)

2440MHz

28/10/2019



Port1

Ch Freq

2.44GHz

RBW

300kHz

VBW

1MHz

Sweep Time

8ms

TX Time

2.882ms

non AFH Mode

Period(s)	Dwell(s)	Limit(s)	Tx On(s)
31.6	307.2212m	400m	2.882m

AFH Mode

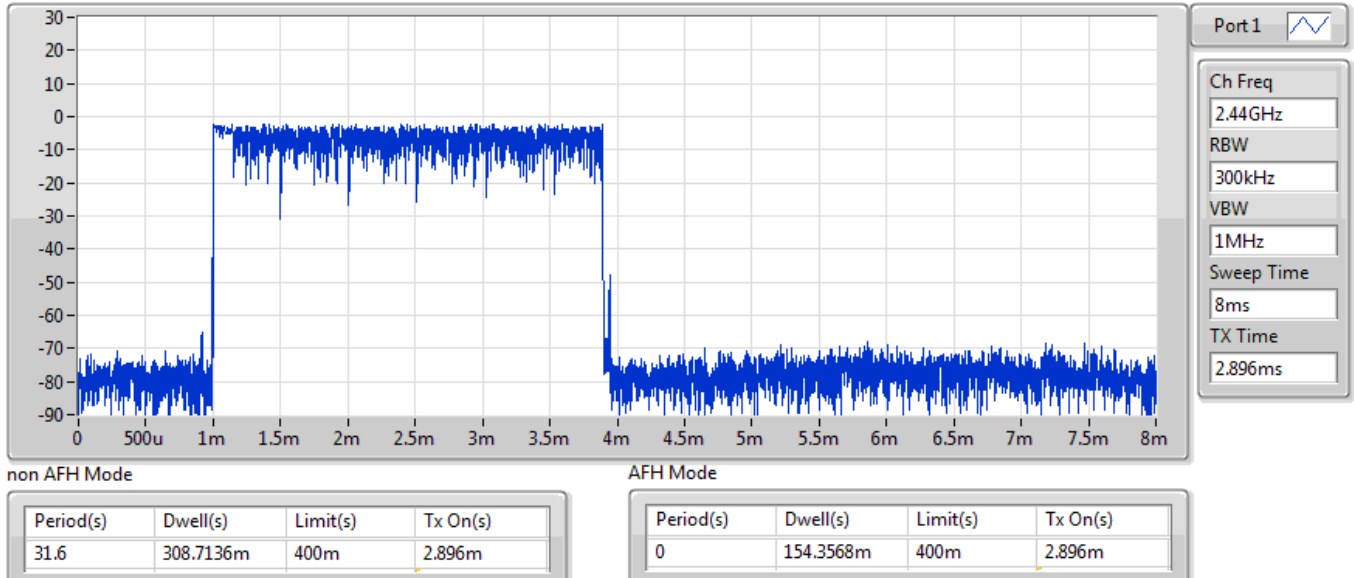
Period(s)	Dwell(s)	Limit(s)	Tx On(s)
0	153.6106m	400m	2.882m

BT-EDR(3Mbps)

2440MHz

Dwell

28/10/2019



**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	2.47999G	0.79	-19.21	648.94M	-42.84	2.39864G	-41.76	2.48489G	-42.36	24.90994G	-36.60	1
BT-EDR(2Mbps)	Pass	2.402G	-3.87	-23.87	782.73M	-41.94	2.39933G	-41.94	2.48448G	-42.51	21.893G	-36.58	1
BT-EDR(3Mbps)	Pass	2.48008G	-4.73	-24.73	1.79357G	-42.44	2.39883G	-42.24	2.48397G	-42.71	24.89024G	-36.42	1

Result

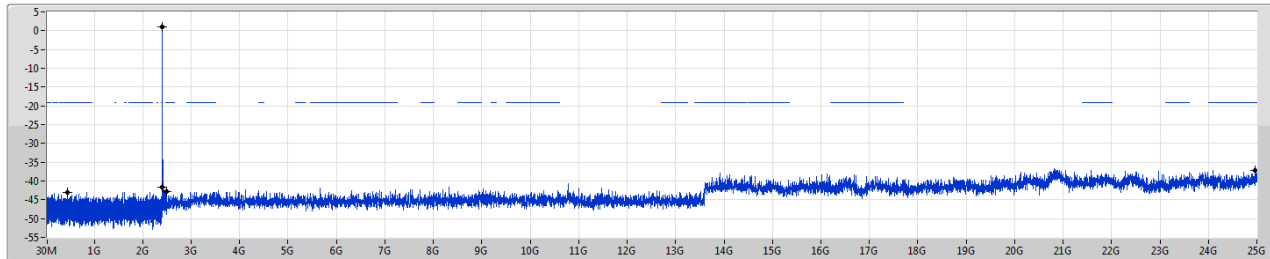
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
BT-BR(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.40196G	0.92	-19.08	451.21M	-42.93	2.39917G	-41.70	2.48513G	-42.80	24.96904G	-37.08	1
2440MHz	Pass	2.44G	1.63	-18.37	300.25M	-43.14	2.39929G	-42.58	2.48376G	-43.05	24.67354G	-36.87	1
2480MHz	Pass	2.47999G	0.79	-19.21	648.94M	-42.84	2.39864G	-41.76	2.48489G	-42.36	24.90994G	-36.60	1
BT-EDR(2Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.402G	-3.87	-23.87	782.73M	-41.94	2.39933G	-41.94	2.48448G	-42.51	21.893G	-36.58	1
2440MHz	Pass	2.44016G	-3.09	-23.09	1.88207G	-43.36	2.39921G	-42.90	2.48501G	-42.71	24.99156G	-36.68	1
2480MHz	Pass	2.48003G	-4.08	-24.08	891.66M	-42.80	2.39853G	-42.48	2.48392G	-42.61	24.7833G	-36.92	1
BT-EDR(3Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.40213G	-3.24	-23.24	862.65M	-42.76	2.39991G	-42.34	2.48392G	-42.31	24.96341G	-36.95	1
2440MHz	Pass	2.44016G	-2.72	-22.72	2.0209G	-42.56	2.39879G	-42.47	2.48462G	-41.97	24.9803G	-37.32	1
2480MHz	Pass	2.48008G	-4.73	-24.73	1.79357G	-42.44	2.39883G	-42.24	2.48397G	-42.71	24.89024G	-36.42	1

BT-BR(1Mbps)

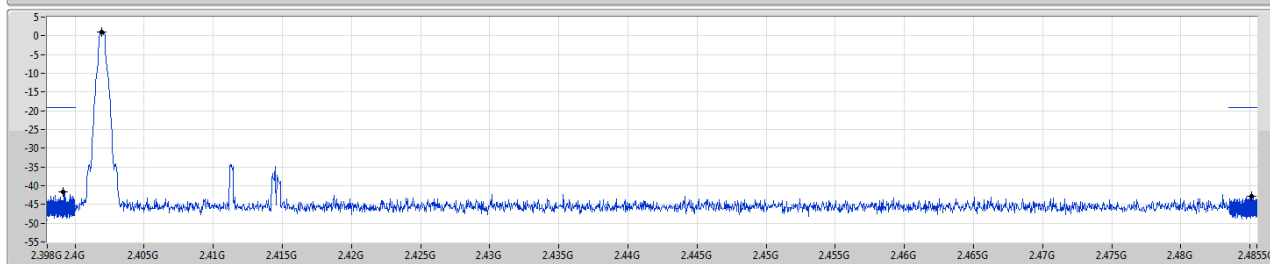
CSE NdB

2402MHz

28/10/2019



Port 1



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

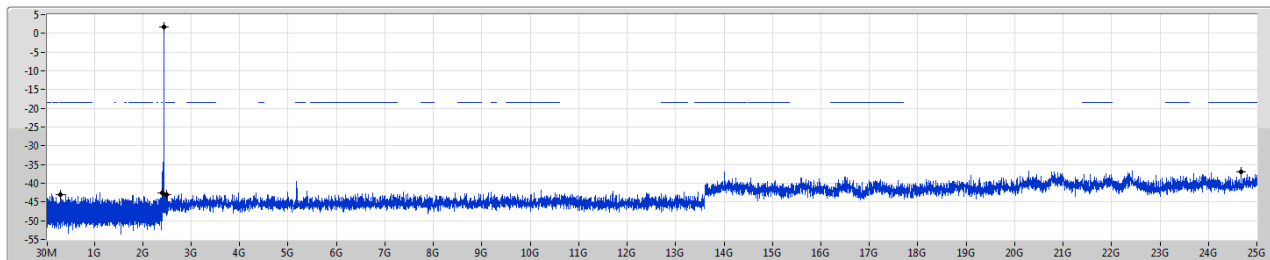
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.40196G	0.92	-19.08	451.21M	-42.93	2.39917G	-41.70	2.48513G	-42.80	2.46904G	-37.08	1

BT-BR(1Mbps)

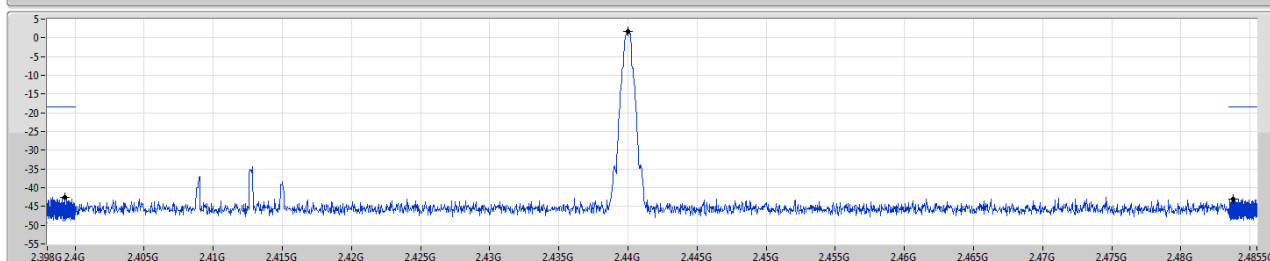
CSE NdB

2440MHz

28/10/2019



Port 1



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

Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44G	1.63	-18.37	300.25M	-43.14	2.39929G	-42.58	2.48376G	-43.05	2.467354G	-36.87	1

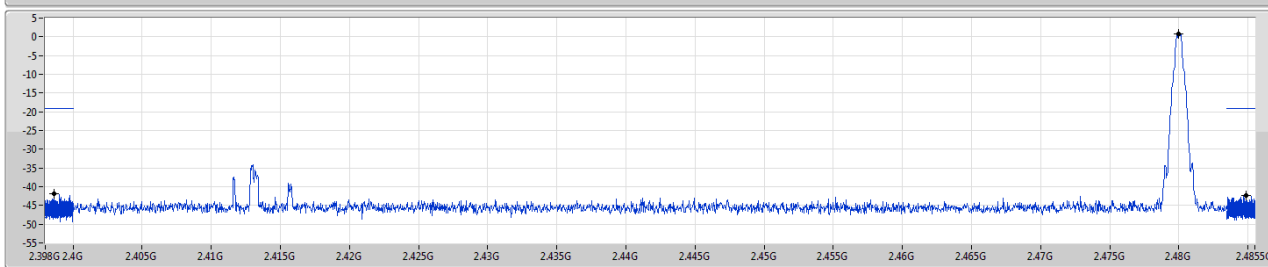
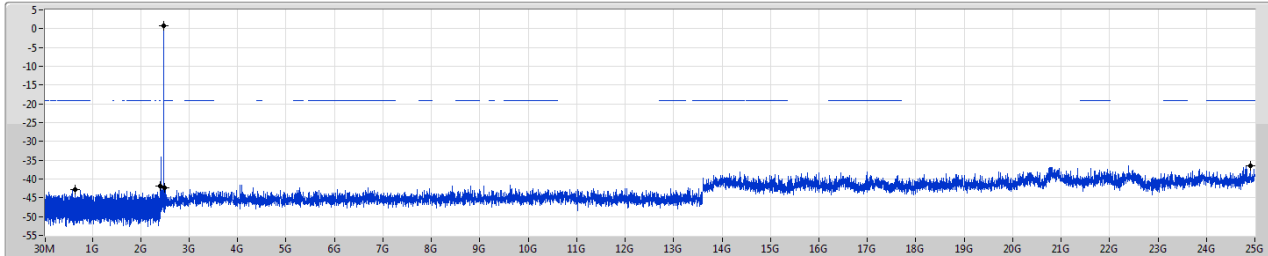
BT-BR(1Mbps)

2480MHz

CSE NdB

28/10/2019

Port1



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

Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.47999G	0.79	-19.21	648.94M	-42.84	2.39864G	-41.76	2.48489G	-42.36	2.49094G	-36.60	1

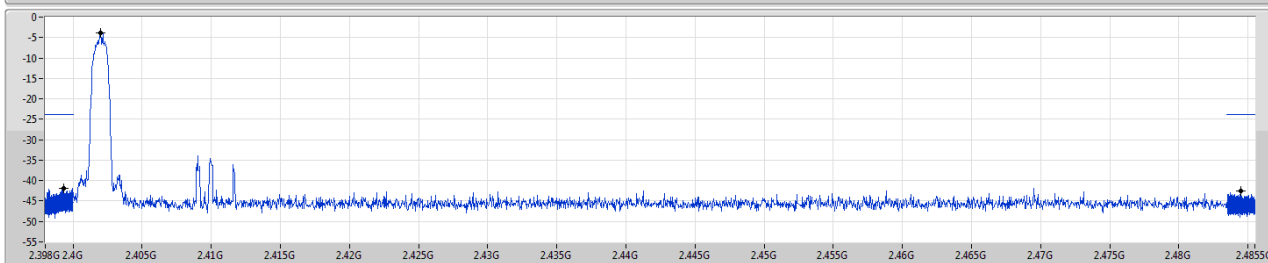
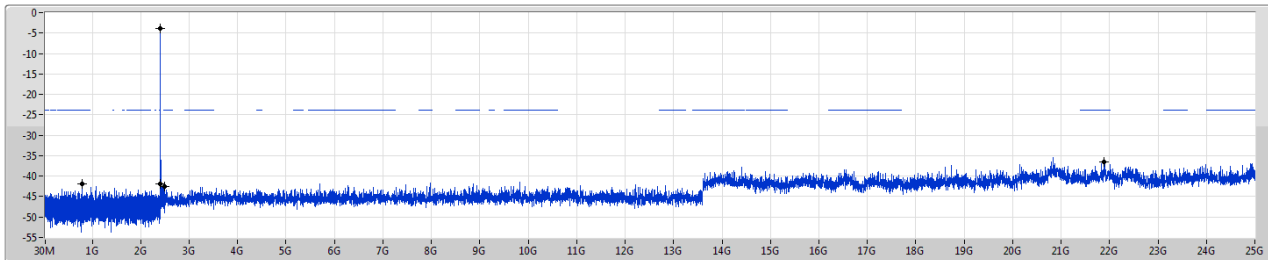
BT-EDR(2Mbps)

2402MHz

CSE NdB

28/10/2019

Port1



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

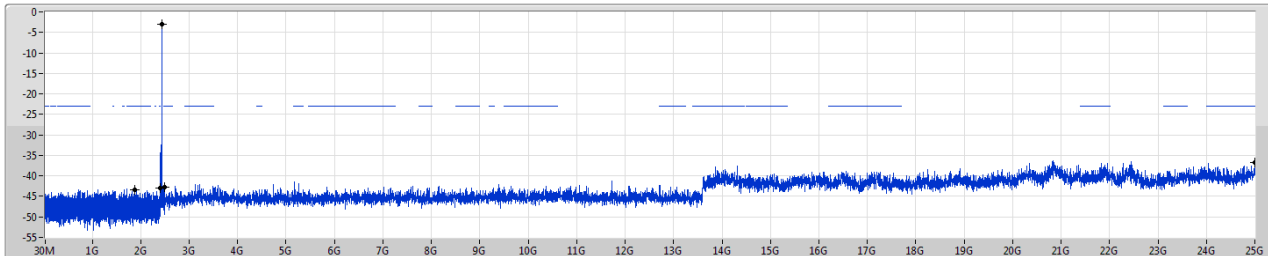
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.402G	-3.87	-23.87	782.73M	-41.94	2.39933G	-41.94	2.48448G	-42.51	2.4893G	-36.58	1

BT-EDR(2Mbps)

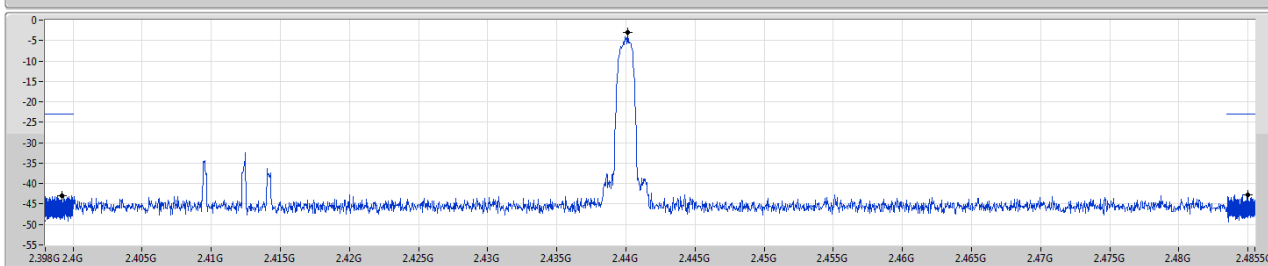
2440MHz

CSE NdB

28/10/2019



Port1



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

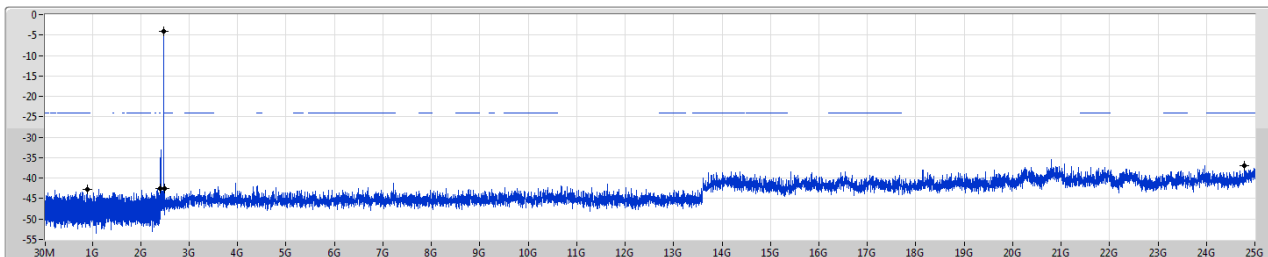
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44016G	-3.09	-23.09	1.88207G	-43.36	2.39921G	-42.90	2.48501G	-42.71	24.99156G	-36.68	1

BT-EDR(2Mbps)

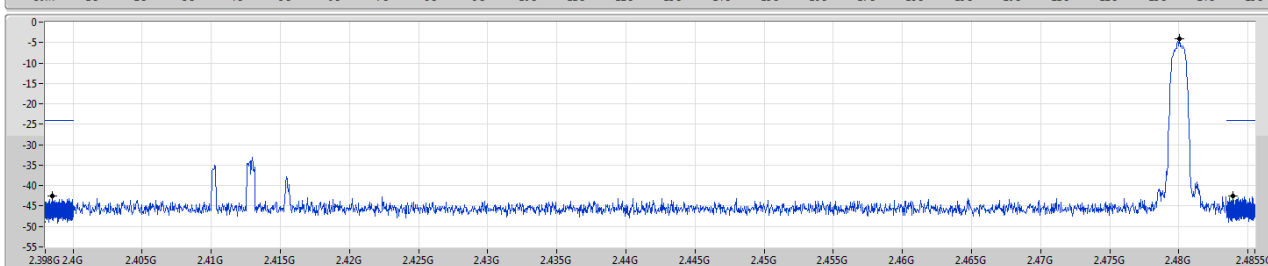
2480MHz

CSE NdB

28/10/2019



Port1



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

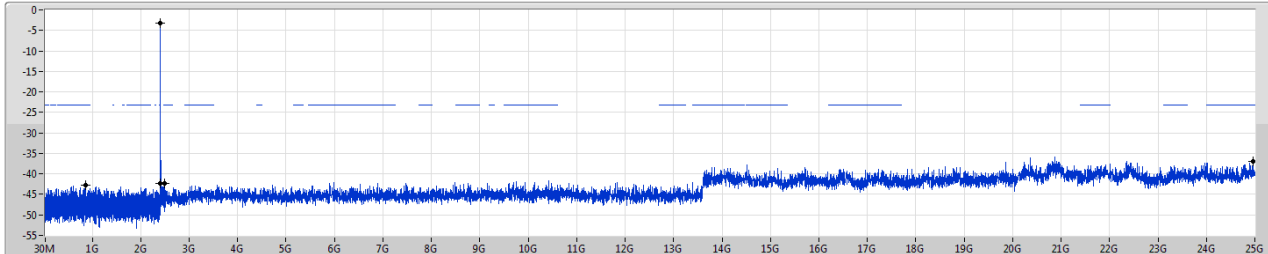
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.48003G	-4.08	-24.08	891.66M	-42.80	2.39853G	-42.48	2.48392G	-42.61	24.7833G	-36.92	1

BT-EDR(3Mbps)

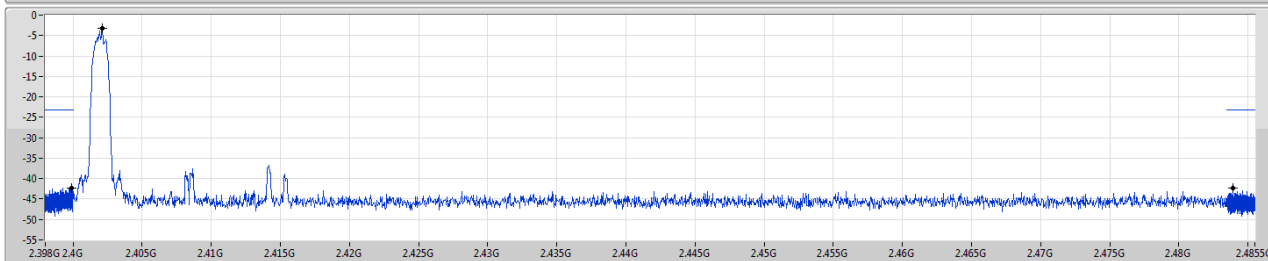
CSE NdB

2402MHz

28/10/2019



Port1



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

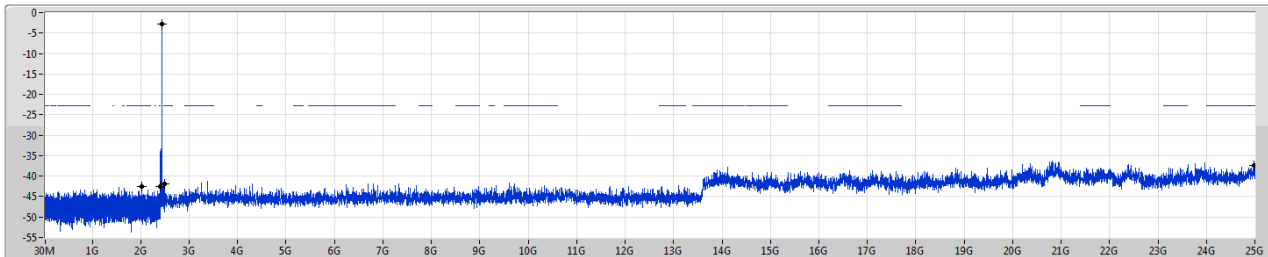
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.40213G	-3.24	-23.24	862.65M	-42.76	2.39991G	-42.34	2.48392G	-42.31	2.496341G	-36.95	1

BT-EDR(3Mbps)

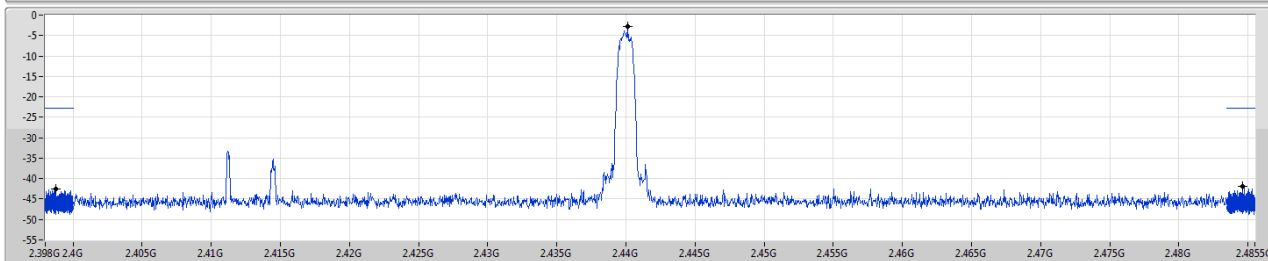
CSE NdB

2440MHz

28/10/2019



Port1



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

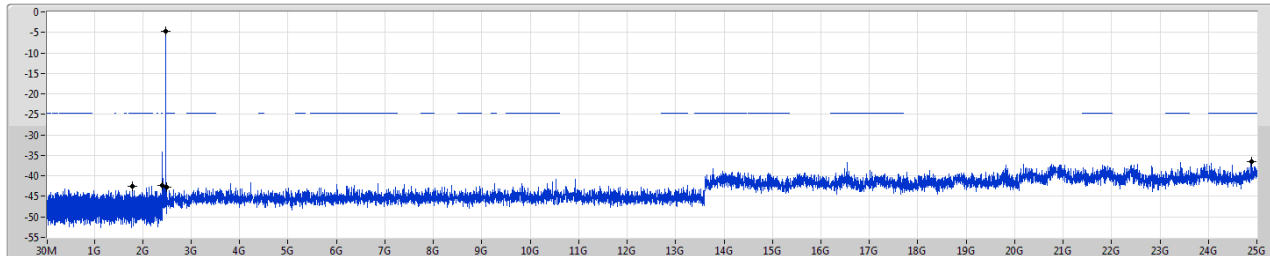
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44016G	-2.72	-22.72	2.0209G	-42.56	2.39879G	-42.47	2.48462G	-41.97	2.49803G	-37.32	1

BT-EDR(3Mbps)

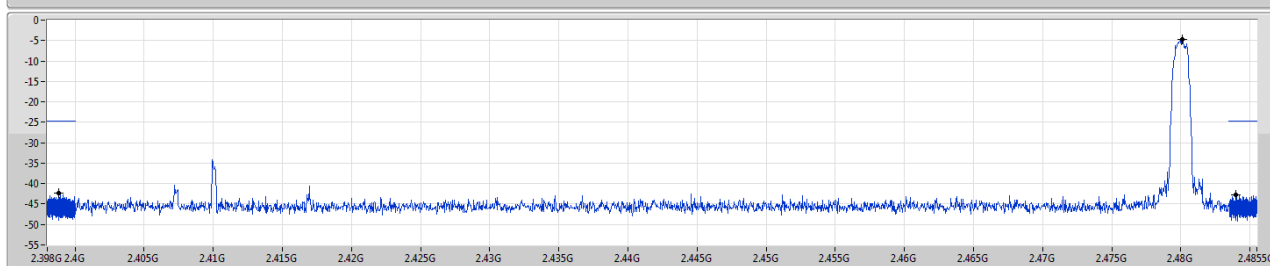
CSE NdB

2480MHz

28/10/2019

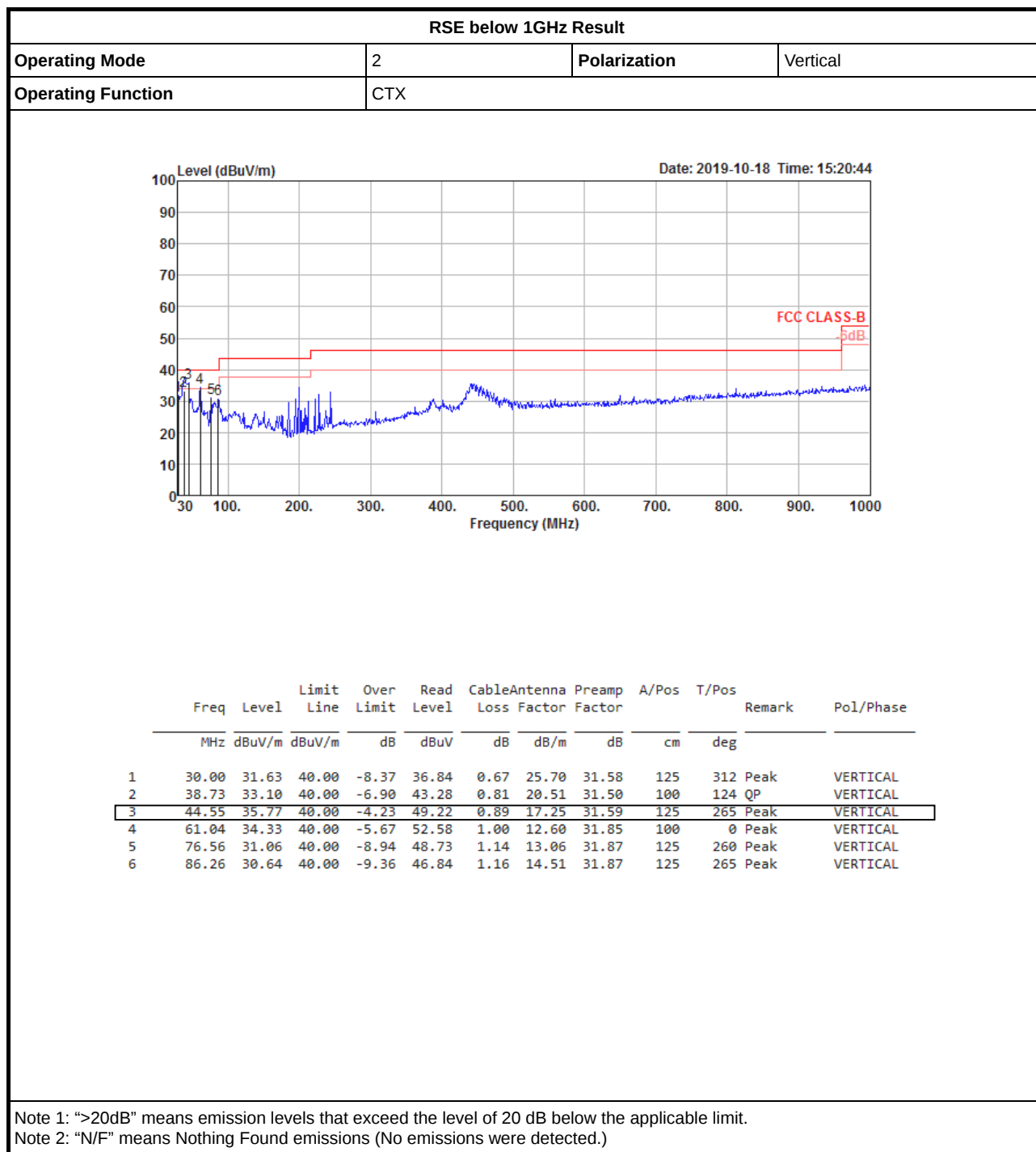


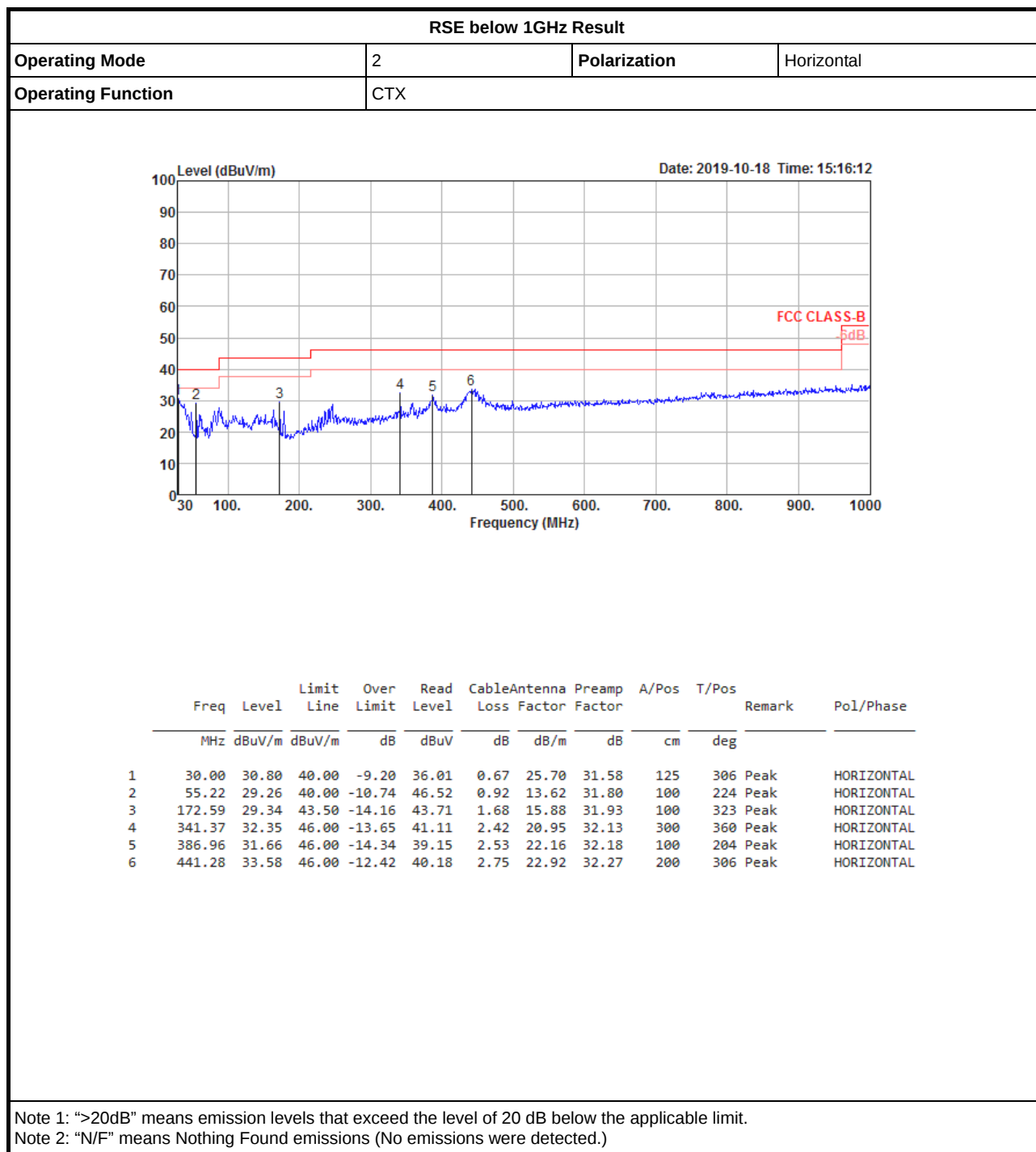
Port1



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

Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.48008G	-4.73	-24.73	1.79357G	-42.44	2.39883G	-42.24	2.48397G	-42.71	24.89024G	-36.42	1







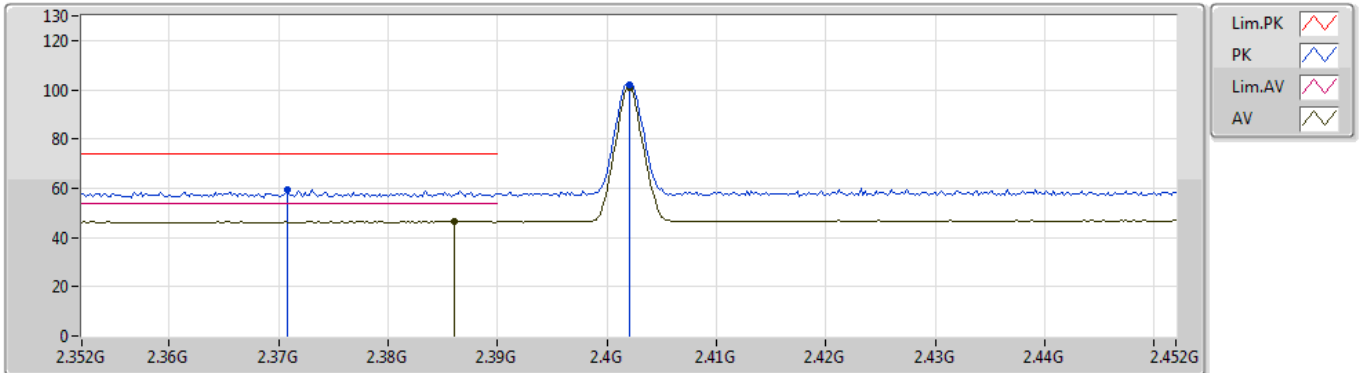
Summary

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	AV	2.4835G	47.21	54.00	-6.79	31.39	3	Vertical	230	1.00	-

BT-BR(1Mbps)

18/10/2019

2402MHz_TX



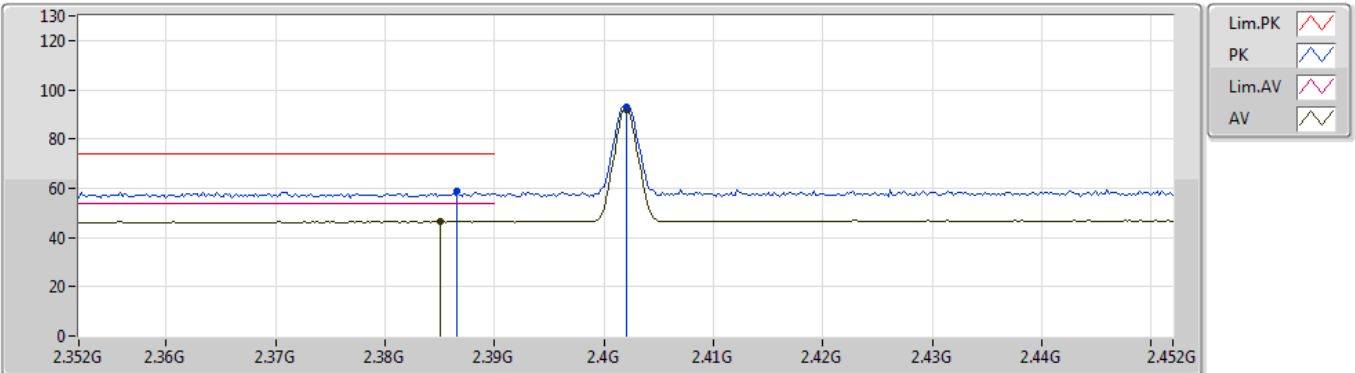
EUT Y_1TX
Setting Default
02-B-2
FSU(100015)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)			
PK	2.3708G	59.65	74.00	-14.35	31.16	3	Vertical	289	1.24	-	28.49			
AV	2.386G	46.61	54.00	-7.39	31.19	3	Vertical	289	1.24	-	15.42			
PK	2.402G	101.84	Inf	-Inf	31.23	3	Vertical	289	1.24	-	70.61			
AV	2.402G	100.82	Inf	-Inf	31.23	3	Vertical	289	1.24	-	69.59			

BT-BR(1Mbps)

18/10/2019

2402MHz_TX



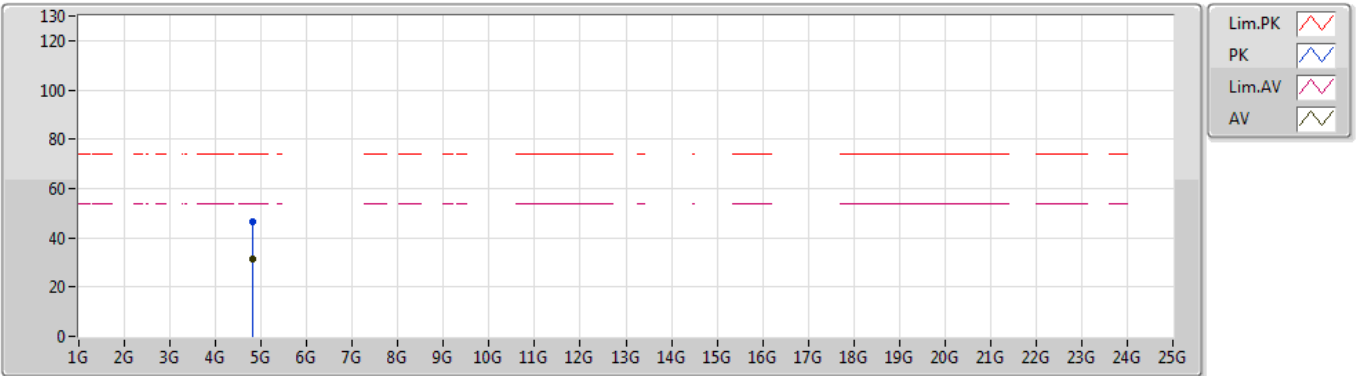
EUT Y_1TX
Setting Default
02-B-2
FSU(100015)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)			
PK	2.3866G	58.69	74.00	-15.31	31.20	3	Horizontal	295	2.75	-	27.49			
AV	2.385G	46.51	54.00	-7.49	31.19	3	Horizontal	295	2.75	-	15.32			
PK	2.402G	93.18	Inf	-Inf	31.23	3	Horizontal	295	2.75	-	61.95			
AV	2.402G	92.11	Inf	-Inf	31.23	3	Horizontal	295	2.75	-	60.88			

BT-BR(1Mbps)

18/10/2019

2402MHz_TX



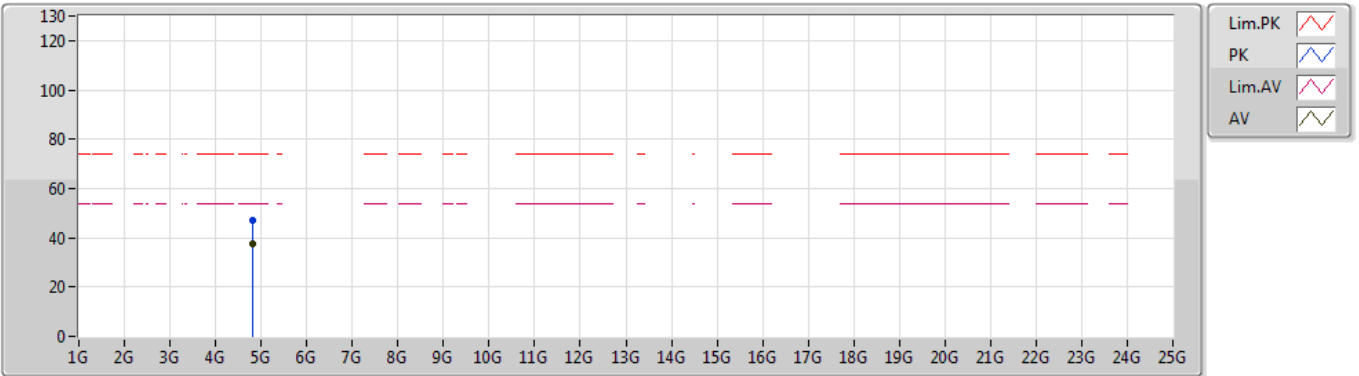
EUT Y_1TX
Setting Default
02-B-2
FSU(100015)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)			
PK	4.80362G	46.41	74.00	-27.59	7.12	3	Vertical	354	1.90	-	39.29			
AV	4.80411G	31.61	54.00	-22.39	7.12	3	Vertical	354	1.90	-	24.49			

BT-BR(1Mbps)

18/10/2019

2402MHz_TX



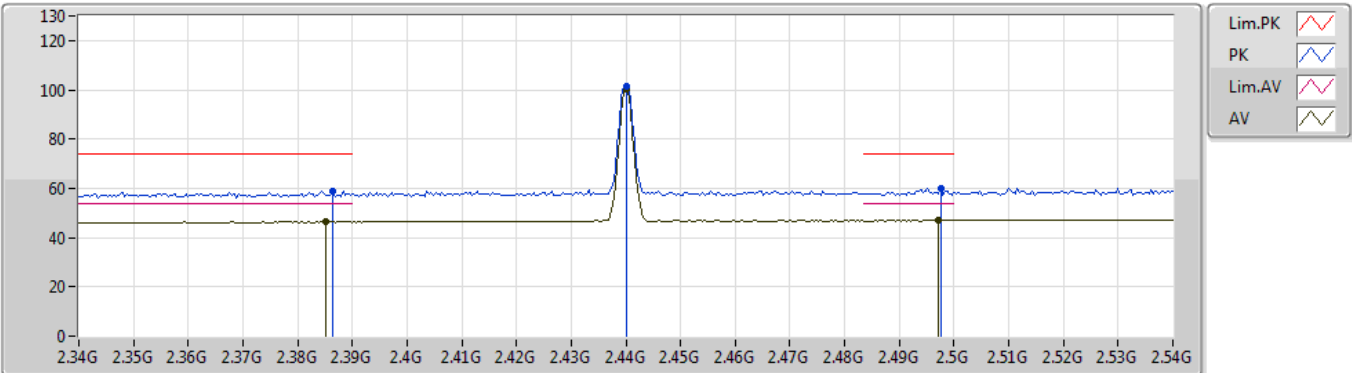
EUT Y_1TX
Setting Default
02-B-2
FSU(100015)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)			
PK	4.80301G	47.12	74.00	-26.88	7.12	3	Horizontal	80	1.60	-	40.00			
AV	4.80388G	37.46	54.00	-16.54	7.12	3	Horizontal	80	1.60	-	30.34			

BT-BR(1Mbps)

18/10/2019

2440MHz_TX



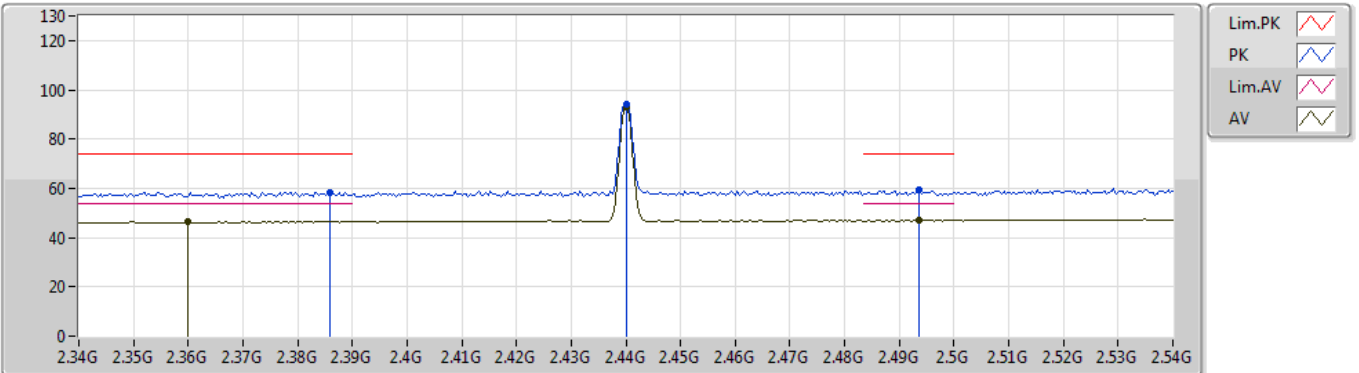
EUT Y_1TX
Setting Default
02-B-2
FSU(100015)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)
PK	2.3864G	59.06	74.00	-14.94	31.20	3	Vertical	242	1.00	-	27.86
AV	2.3852G	46.40	54.00	-7.60	31.19	3	Vertical	242	1.00	-	15.21
PK	2.44G	101.46	Inf	-Inf	31.31	3	Vertical	242	1.00	-	70.15
AV	2.44G	100.46	Inf	-Inf	31.31	3	Vertical	242	1.00	-	69.15
PK	2.4976G	59.92	74.00	-14.08	31.43	3	Vertical	242	1.00	-	28.49
AV	2.4972G	46.96	54.00	-7.04	31.43	3	Vertical	242	1.00	-	15.53

BT-BR(1Mbps)

18/10/2019

2440MHz_TX



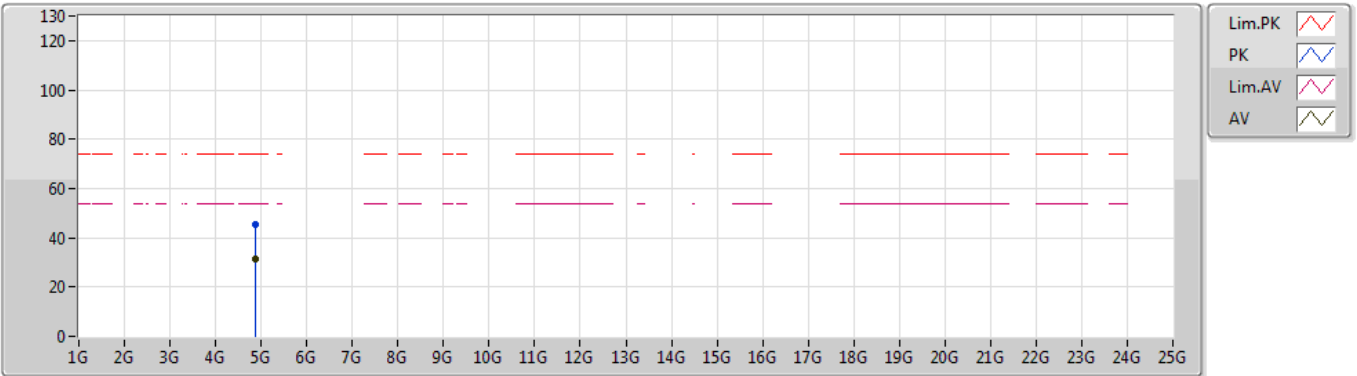
EUT Y_1TX
Setting Default
02-B-2
FSU(100015)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)
PK	2.386G	58.50	74.00	-15.50	31.19	3	Horizontal	286	2.19	-	27.31
AV	2.36G	46.43	54.00	-7.57	31.13	3	Horizontal	286	2.19	-	15.30
PK	2.44G	94.10	Inf	-Inf	31.31	3	Horizontal	286	2.19	-	62.79
AV	2.44G	93.09	Inf	-Inf	31.31	3	Horizontal	286	2.19	-	61.78
PK	2.4936G	59.43	74.00	-14.57	31.42	3	Horizontal	286	2.19	-	28.01
AV	2.4936G	47.12	54.00	-6.88	31.42	3	Horizontal	286	2.19	-	15.70

BT-BR(1Mbps)

18/10/2019

2440MHz_TX



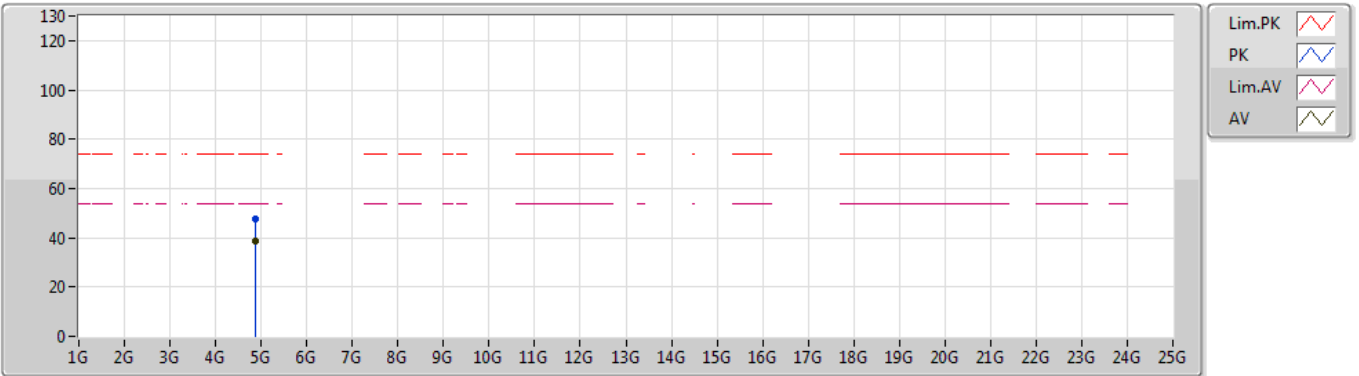
EUT Y_1TX
Setting Default
02-B-2
FSU(100015)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)			
PK	4.88065G	45.59	74.00	-28.41	7.30	3	Vertical	156	2.00	-	38.29			
AV	4.8805G	31.28	54.00	-22.72	7.30	3	Vertical	156	2.00	-	23.98			

BT-BR(1Mbps)

18/10/2019

2440MHz_TX



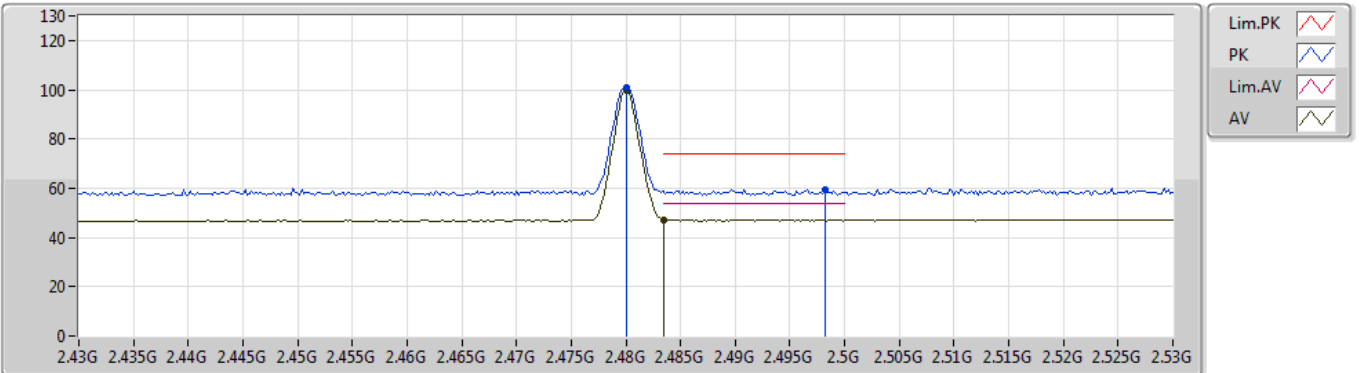
EUT Y_1TX
Setting Default
02-B-2
FSU(100015)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)			
PK	4.88034G	47.87	74.00	-26.13	7.30	3	Horizontal	102	2.00	-	40.57			
AV	4.87997G	38.89	54.00	-15.11	7.30	3	Horizontal	102	2.00	-	31.59			

BT-BR(1Mbps)

18/10/2019

2480MHz_TX



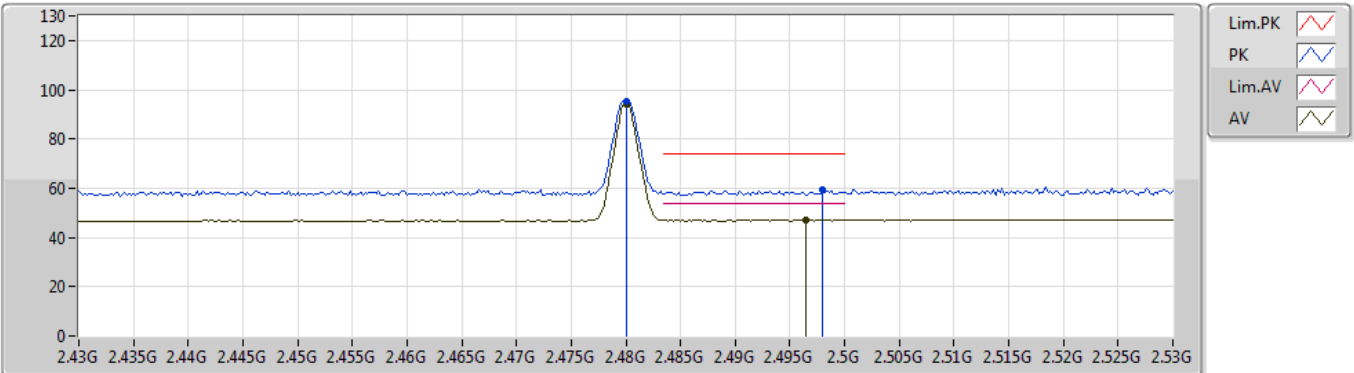
EUT Y_1TX
Setting Default
02-B-2
FSU(100015)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)
PK	2.48G	100.60	Inf	-Inf	31.39	3	Vertical	230	1.00	-	69.21
AV	2.48G	99.54	Inf	-Inf	31.39	3	Vertical	230	1.00	-	68.15
PK	2.4982G	59.26	74.00	-14.74	31.43	3	Vertical	230	1.00	-	27.83
AV	2.4835G	47.21	54.00	-6.79	31.39	3	Vertical	230	1.00	-	15.82

BT-BR(1Mbps)

18/10/2019

2480MHz_TX



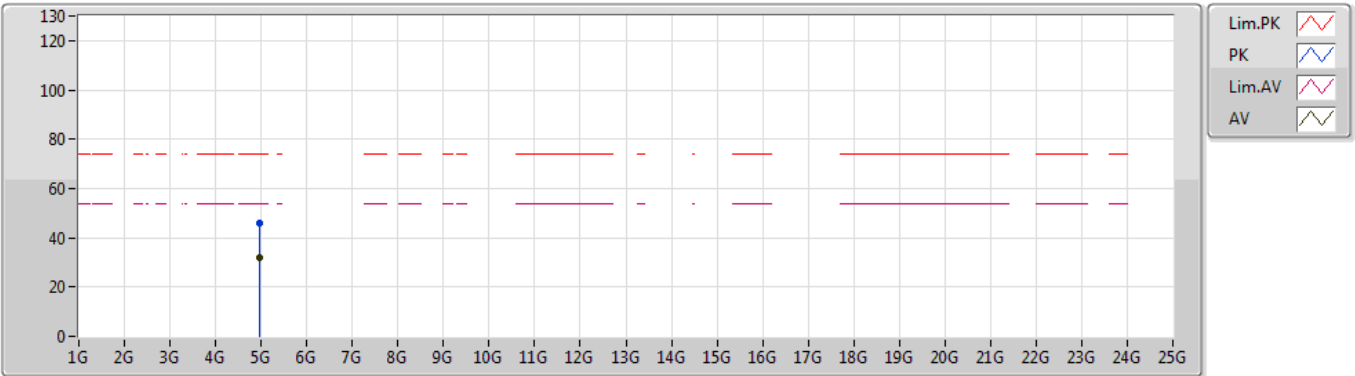
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Setting Default
02-B-2
FSU(100015)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)
PK	2.48G	95.33	Inf	-Inf	31.39	3	Horizontal	240	1.93	-	63.94
AV	2.48G	94.35	Inf	-Inf	31.39	3	Horizontal	240	1.93	-	62.96
PK	2.498G	59.18	74.00	-14.82	31.43	3	Horizontal	240	1.93	-	27.75
AV	2.4964G	47.04	54.00	-6.96	31.42	3	Horizontal	240	1.93	-	15.62

BT-BR(1Mbps)

18/10/2019

2480MHz_TX



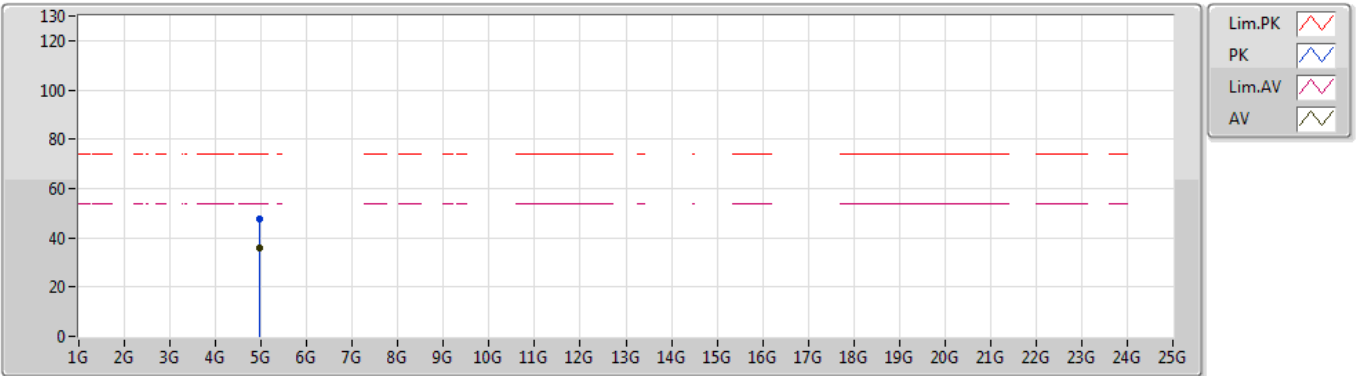
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Setting Default
02-B-2
FSU(100015)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)			
PK	4.9597G	46.18	74.00	-27.82	7.48	3	Vertical	341	2.00	-	38.70			
AV	4.96005G	31.77	54.00	-22.23	7.48	3	Vertical	341	2.00	-	24.29			

BT-BR(1Mbps)

18/10/2019

2480MHz_TX



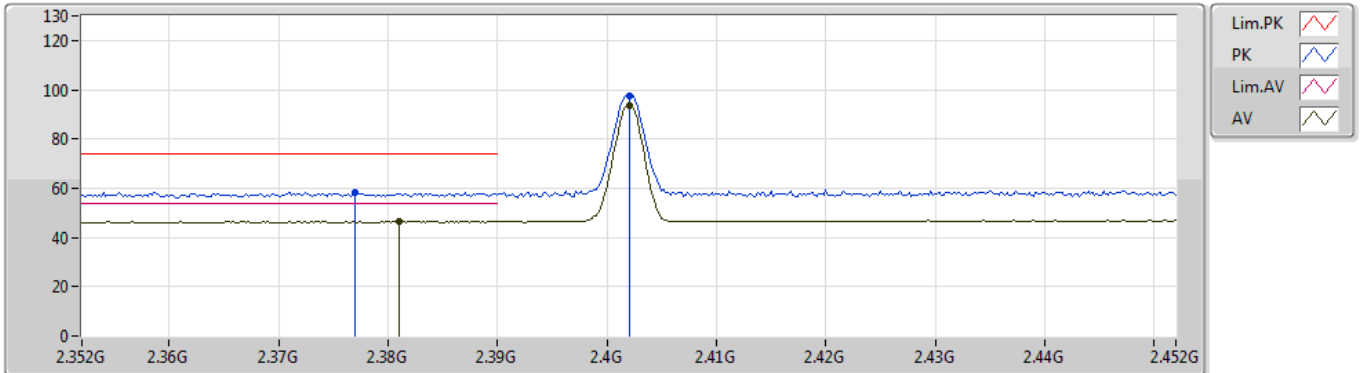
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Setting Default
02-B-2
FSU(100015)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)			
PK	4.9605G	47.61	74.00	-26.39	7.48	3	Horizontal	69	2.65	-	40.13			
AV	4.95975G	36.03	54.00	-17.97	7.48	3	Horizontal	69	2.65	-	28.55			

BT-EDR(3Mbps)

18/10/2019

2402MHz_TX



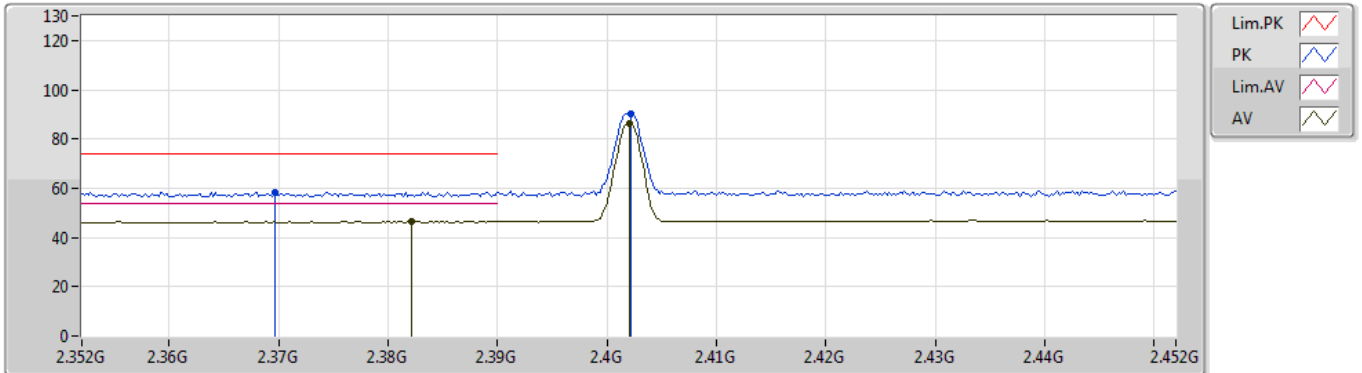
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Setting Default
02-B-2
FSU(100015)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)
PK	2.377G	58.44	74.00	-15.56	31.17	3	Vertical	189	1.22	-	27.27
AV	2.381G	46.47	54.00	-7.53	31.19	3	Vertical	189	1.22	-	15.28
PK	2.402G	97.42	Inf	-Inf	31.23	3	Vertical	189	1.22	-	66.19
AV	2.402G	93.47	Inf	-Inf	31.23	3	Vertical	189	1.22	-	62.24

BT-EDR(3Mbps)

18/10/2019

2402MHz_TX



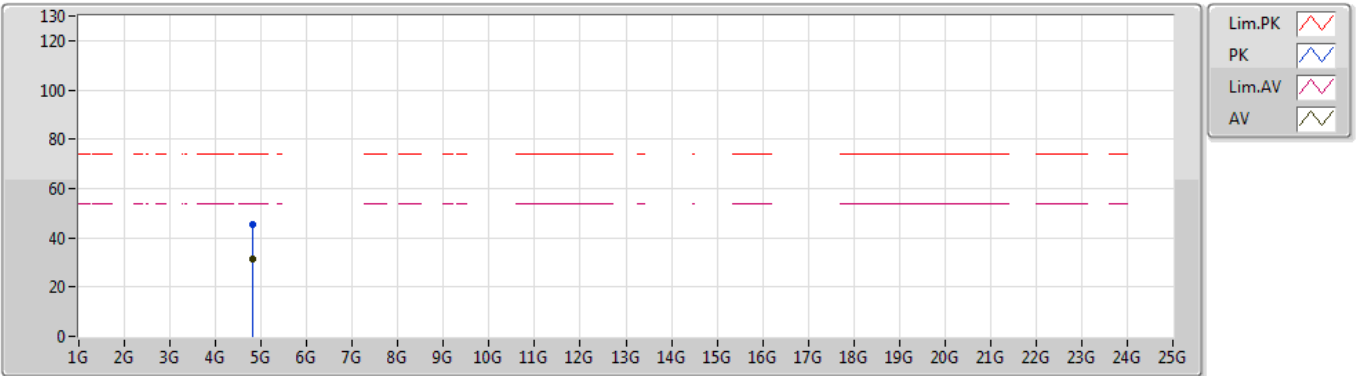
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Setting Default
02-B-2
FSU(100015)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)			
PK	2.3696G	58.47	74.00	-15.53	31.16	3	Horizontal	232	2.74	-	27.31			
AV	2.3822G	46.39	54.00	-7.61	31.19	3	Horizontal	232	2.74	-	15.20			
PK	2.4022G	90.23	Inf	-Inf	31.23	3	Horizontal	232	2.74	-	59.00			
AV	2.402G	86.23	Inf	-Inf	31.23	3	Horizontal	232	2.74	-	55.00			

BT-EDR(3Mbps)

18/10/2019

2402MHz_TX



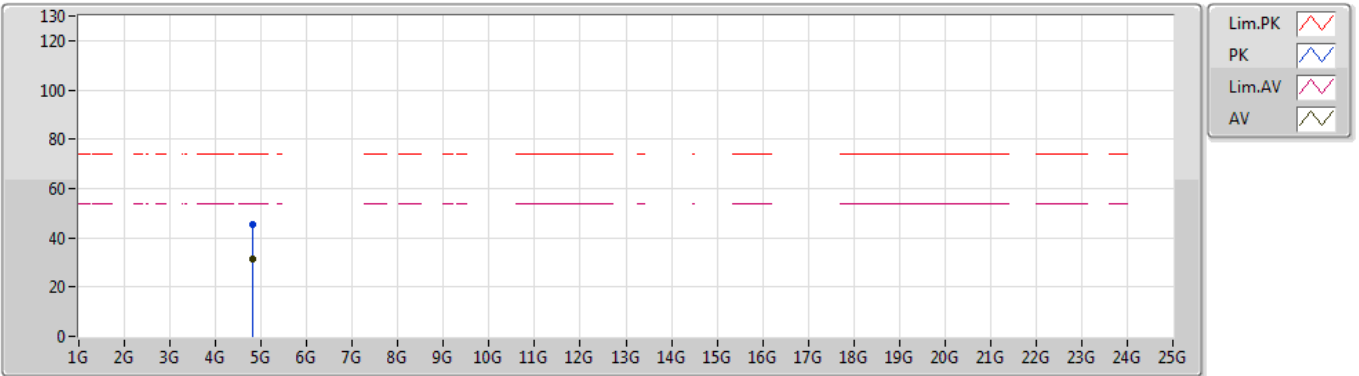
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Setting Default
02-B-2
FSU(100015)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)			
PK	4.80714G	45.35	74.00	-28.65	7.12	3	Vertical	187	2.07	-	38.23			
AV	4.80324G	31.61	54.00	-22.39	7.12	3	Vertical	187	2.07	-	24.49			

BT-EDR(3Mbps)

18/10/2019

2402MHz_TX



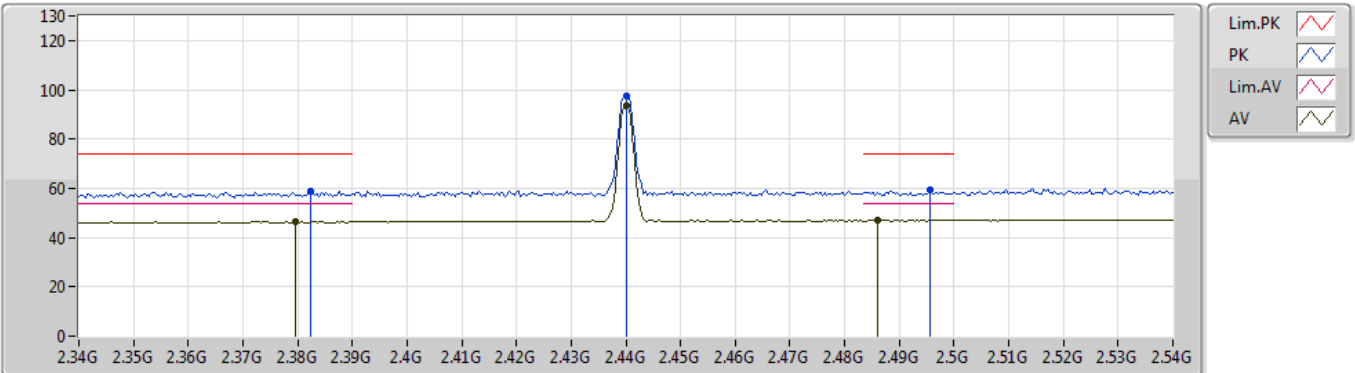
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Setting Default
02-B-2
FSU(100015)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)			
PK	4.80494G	45.40	74.00	-28.60	7.12	3	Horizontal	20	2.66	-	38.28			
AV	4.80336G	31.48	54.00	-22.52	7.12	3	Horizontal	20	2.66	-	24.36			

BT-EDR(3Mbps)

18/10/2019

2440MHz_TX



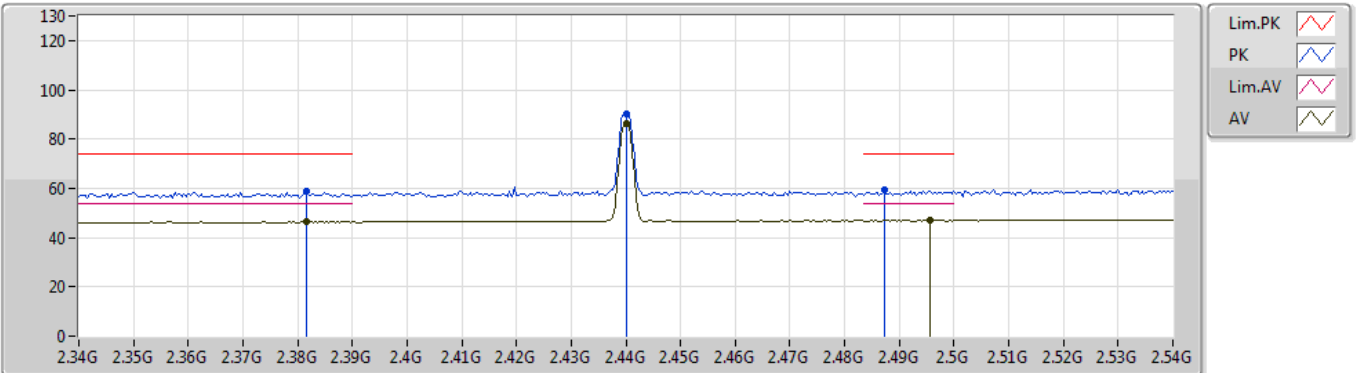
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Setting Default
02-B-2
FSU(100015)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)
PK	2.3824G	58.62	74.00	-15.38	31.19	3	Vertical	200	1.26	-	27.43
AV	2.3796G	46.61	54.00	-7.39	31.18	3	Vertical	200	1.26	-	15.43
PK	2.44G	97.39	Inf	-Inf	31.31	3	Vertical	200	1.26	-	66.08
AV	2.44G	93.41	Inf	-Inf	31.31	3	Vertical	200	1.26	-	62.10
PK	2.4956G	59.52	74.00	-14.48	31.42	3	Vertical	200	1.26	-	28.10
AV	2.486G	46.95	54.00	-7.05	31.40	3	Vertical	200	1.26	-	15.55

BT-EDR(3Mbps)

18/10/2019

2440MHz_TX



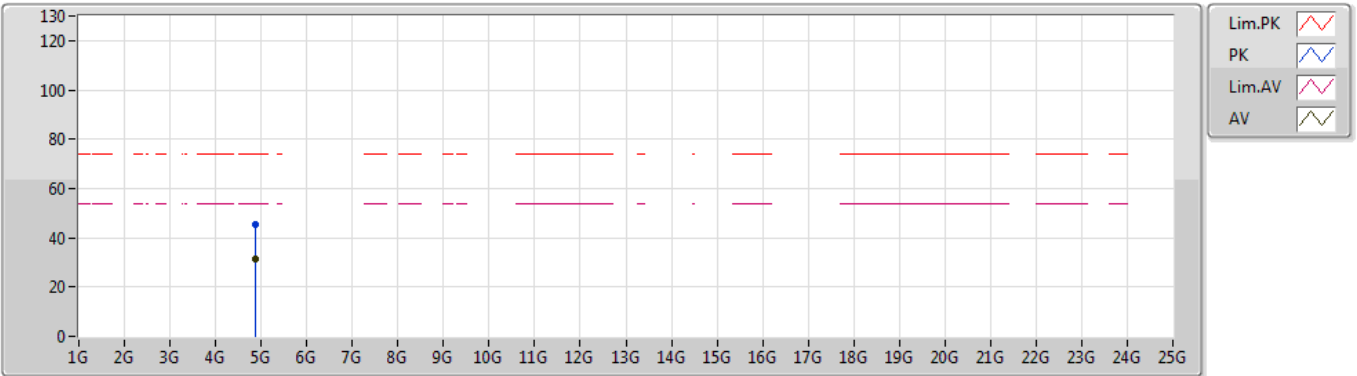
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Setting Default
02-B-2
FSU(100015)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)
PK	2.3816G	58.73	74.00	-15.27	31.19	3	Horizontal	209	2.19	-	27.54
AV	2.3816G	46.48	54.00	-7.52	31.19	3	Horizontal	209	2.19	-	15.29
PK	2.44G	90.36	Inf	-Inf	31.31	3	Horizontal	209	2.19	-	59.05
AV	2.44G	86.32	Inf	-Inf	31.31	3	Horizontal	209	2.19	-	55.01
PK	2.4872G	59.37	74.00	-14.63	31.40	3	Horizontal	209	2.19	-	27.97
AV	2.4956G	47.00	54.00	-7.00	31.42	3	Horizontal	209	2.19	-	15.58

BT-EDR(3Mbps)

18/10/2019

2440MHz_TX



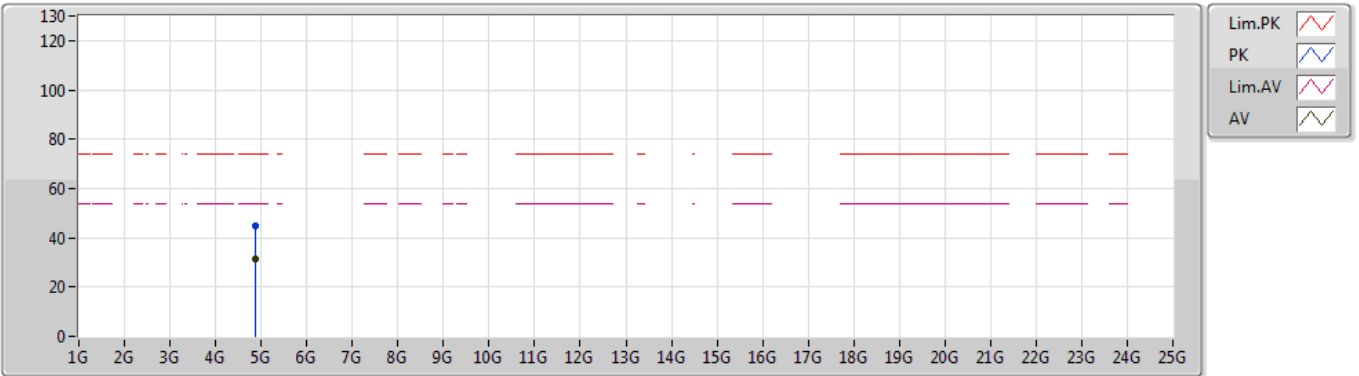
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Setting Default
02-B-2
FSU(100015)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)			
PK	4.88166G	45.12	74.00	-28.88	7.31	3	Vertical	257	2.96	-	37.81			
AV	4.875G	31.65	54.00	-22.35	7.29	3	Vertical	257	2.96	-	24.36			

BT-EDR(3Mbps)

18/10/2019

2440MHz_TX



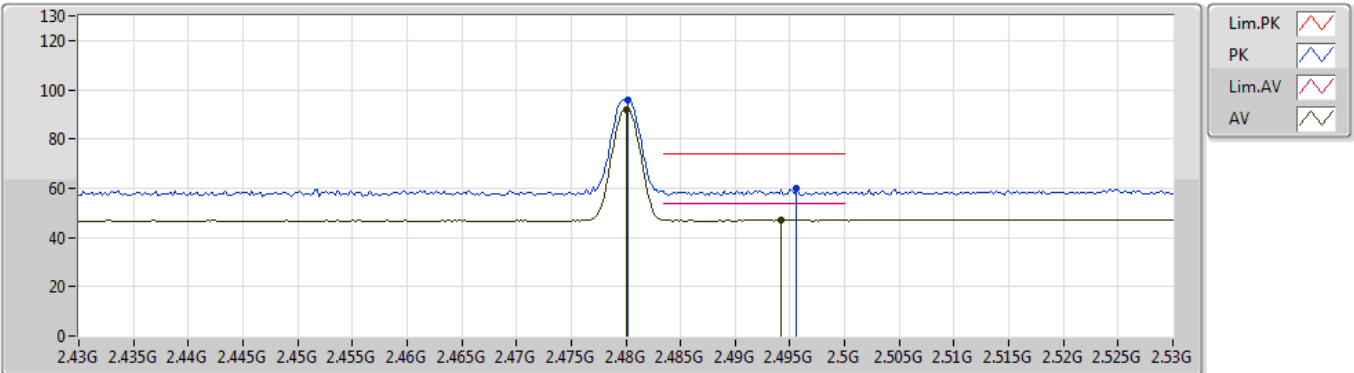
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Setting Default
02-B-2
FSU(100015)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)			
PK	4.8795G	44.99	74.00	-29.01	7.30	3	Horizontal	178	2.85	-	37.69			
AV	4.87912G	31.51	54.00	-22.49	7.30	3	Horizontal	178	2.85	-	24.21			

BT-EDR(3Mbps)

18/10/2019

2480MHz_TX



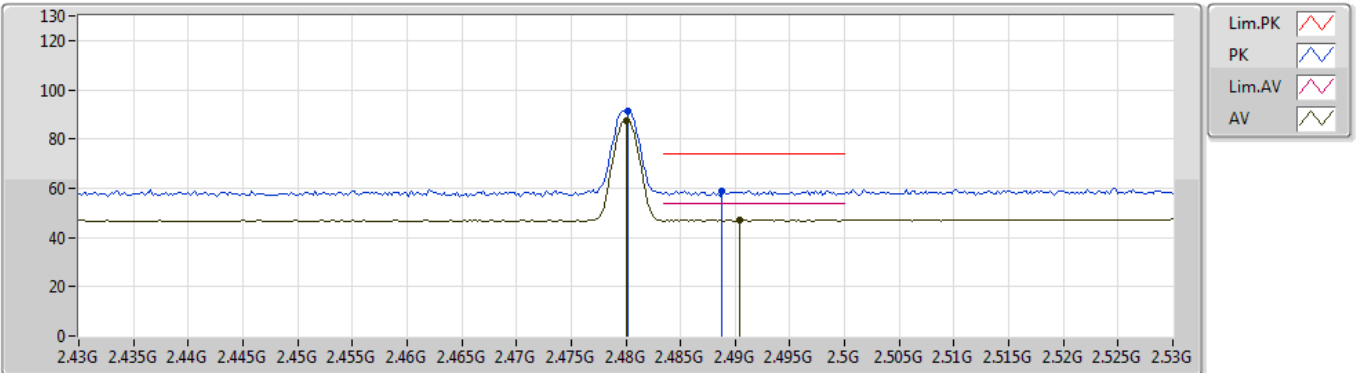
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Setting Default
02-B-2
FSU(100015)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)			
PK	2.4802G	95.82	Inf	-Inf	31.39	3	Vertical	61	1.07	-	64.43			
AV	2.48G	91.76	Inf	-Inf	31.39	3	Vertical	61	1.07	-	60.37			
PK	2.4956G	60.16	74.00	-13.84	31.42	3	Vertical	61	1.07	-	28.74			
AV	2.4942G	47.00	54.00	-7.00	31.42	3	Vertical	61	1.07	-	15.58			

BT-EDR(3Mbps)

18/10/2019

2480MHz_TX



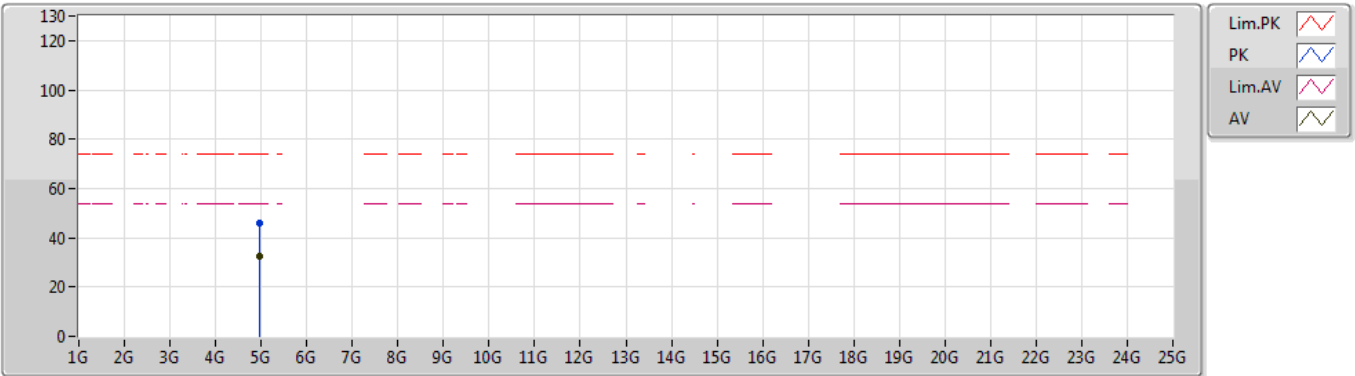
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Setting Default
02-B-2
FSU(100015)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)			
PK	2.4802G	91.44	Inf	-Inf	31.39	3	Horizontal	204	1.93	-	60.05			
AV	2.48G	87.32	Inf	-Inf	31.39	3	Horizontal	204	1.93	-	55.93			
PK	2.4888G	59.10	74.00	-14.90	31.41	3	Horizontal	204	1.93	-	27.69			
AV	2.4904G	47.07	54.00	-6.93	31.41	3	Horizontal	204	1.93	-	15.66			

BT-EDR(3Mbps)

18/10/2019

2480MHz_TX



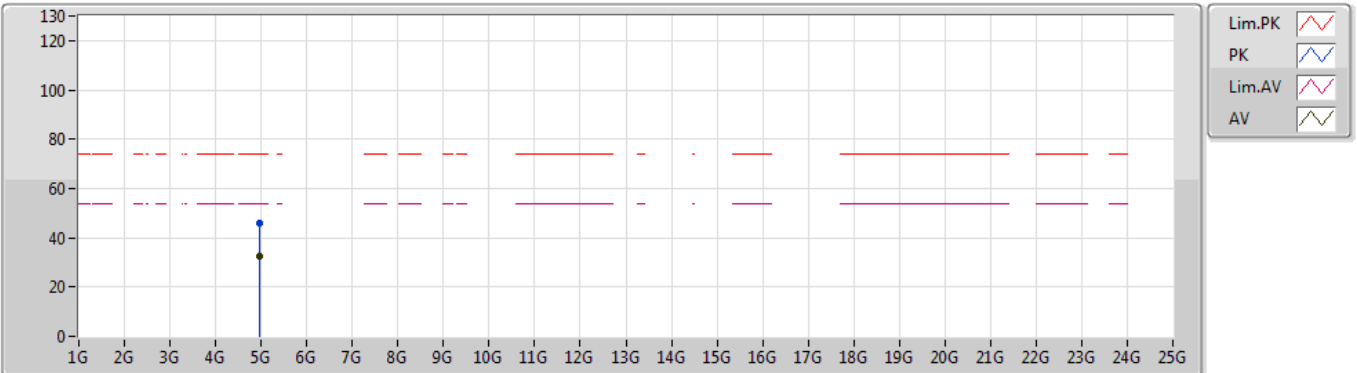
EUT Y_1TX
Setting Default
02-B-2
FSU(100015)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)			
PK	4.95628G	46.02	74.00	-27.98	7.48	3	Vertical	305	1.96	-	38.54			
AV	4.96654G	32.61	54.00	-21.39	7.50	3	Vertical	305	1.96	-	25.11			

BT-EDR(3Mbps)

18/10/2019

2480MHz_TX



EUT Y_1TX
Setting Default
02-B-2
FSU(100015)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)			
PK	4.96248G	46.14	74.00	-27.86	7.49	3	Horizontal	99	2.53	-	38.65			
AV	4.96352G	32.42	54.00	-21.58	7.49	3	Horizontal	99	2.53	-	24.93			