

Japan Test Report

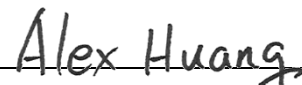
Equipment : Sona IF573 802.11ax Wi-Fi 6E Module with Bluetooth 5.4
Model No. : Sona IF573
Brand Name : Laird Connectivity
Applicant : Laird Connectivity LLC
Address : W66N220 Commerce Court, Cedarburg, WI 53012 United States Of America
Standard : Article 2 Paragraph 1 Item 19
Received Date : Jan. 17, 2023
Tested Date : Aug. 09, 2023

Measurement was conducted by the following test method:
the test method of Ordinance Concerning Technical Regulations Conformity Certification etc. of Specified Radio Equipment in Annex 1, the Ministry of Internal Affairs and Communications notification in Annex "43" of Article 88, Paragraph 1 and ARIB STD-T66.

We, International Certification Corporation, would like to declare that the tested sample has been evaluated and in compliance with the requirement of the above standards. The test results contained in this report refer exclusively to the product. It shall not be reproduced except in full without the written approval of our laboratory.

Reviewed by:

Approved by:


Alex Huang / Supervisor


Gary Chang / Manager

Table of Contents

1	GENERAL DESCRIPTION	5
1.1	Information.....	5
1.2	Test Equipment and Calibration Data	8
1.3	Testing Applied Standards	8
1.4	Deviation from Test Standard and Measurement Procedure.....	8
1.5	Measurement Uncertainty	9
2	TEST CONFIGURATION.....	10
2.1	Testing Location and Conditions.....	10
2.2	Testing Facility	10
2.3	Supporting Units.....	10
2.4	The Worst Test Modes and Channel Details	10
3	TRANSMITTER TEST RESULTS	11
3.1	Antenna Power	11
3.2	Frequency Tolerance	12
3.3	Occupied Bandwidth	13
3.4	Spreading Bandwidth and Factor.....	14
3.5	Transmitter Spurious Emissions.....	15
3.6	Dwell time.....	16
3.7	Interference Prevention Function	17
4	RECEIVER TEST RESULTS	18
4.1	Receiver Spurious Emissions.....	18
5	TEST LABORATORY INFORMATION	19

Appendix A. Antenna Power

Appendix B. Frequency Tolerance

Appendix C. Occupied Bandwidth

Appendix D. Spreading Bandwidth And Factor

Appendix E. Transmitter Spurious Emissions

Appendix F. Dwell Time

Appendix G. Interference Prevention Function

Appendix H. Receiver Spurious Emissions

Release Record

Report No.	Version	Description	Issued Date
JR311701AD	Rev. 01	Initial issue	Sep. 20, 2023

Summary of Test Results

Ref. Std. Clause	Description	Result
3.2(2)(3)	Antenna Power / Tolerances for antenna power	Pass
3.2(4)	Frequency Tolerance	Pass
3.2(6)	Transmitter Spurious Emission	Pass
3.2(7)	Occupied Bandwidth	Pass
3.2(8)	Spreading Bandwidth	Pass
3.2(9)	Spreading Factor	Pass
3.2(11)	Dwell time	Pass
3.4.1	Interference prevention function	Pass
3.3(1)	Receiver Spurious Emission	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.

1 General Description

1.1 Information

1.1.1 Product Details

The configuration of the EUT is shown as the following:

Model Name	Part No.	Description
Sona IF573	453-00117	Module, Sona IF573, MIMO, MHF4
	453-00118	Module, Sona IF573, MIMO, Trace Pin

1.1.2 Specification of the Equipment under Test (EUT)

Power Type	3.3Vdc from host
Type(s) of Modulation / Technology	FHSS / GFSK = 1Mbps, $\pi/4$ DQPSK = 2Mbps, 8DPSK = 3Mbps
Frequency Range (MHz)	2402 ~ 2480 MHz
Total Channel Number	79
HW Version	R1.0
SW Version	18.15 RC1.54 wI0: May 21 2023 19:48:44 version 18.53.212.8(7e2f89f) FWID 01-2b47fc4c

1.1.3 Accessories

N/A

1.1.4 Antenna Details

Ant. No.	Manufacturer	Model	Part Number	Type	Connector	Gain (dBi)
1	JOYMAX	TWX-100BRSAX-2001	NA	Dipole	RP-SMA	2
2	Laird	FlexMIMO 6E	EFD2471A3S-10MH4L	PIFA	MHF4L	2.2
3	Laird	Mini NanoBlade Flex 6 GHz	EMF2471A3S-10MH4L	PCB Dipole	MHF4L	2.4
4	Laird	FlexPIFA 6E	EFB2471A3S-10MH4L	PIFA	MHF4L	2.2

Note: Please refer to antenna report for more details about antenna pattern and other information.

1.1.5 Antenna Power

Operating Mode	Rated Power (mW/MHz)	Measured Conducted Power (mW/MHz)	Radiated Power (mW/MHz)
BT-BR (1Mbps)	0.09	0.08831	0.15346
BT-EDR (3Mbps)	0.09	0.02483	0.04315
BT-BR-AFH (1Mbps)	0.40	0.33651	0.58479
BT-EDR-AFH (3Mbps)	0.40	0.09441	0.16406

1.1.6 Channel List

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	20	2422	40	2442	60	2462
1	2403	21	2423	41	2443	61	2463
2	2404	22	2424	42	2444	62	2464
3	2405	23	2425	43	2445	63	2465
4	2406	24	2426	44	2446	64	2466
5	2407	25	2427	45	2447	65	2467
6	2408	26	2428	46	2448	66	2468
7	2409	27	2429	47	2449	67	2469
8	2410	28	2430	48	2450	68	2470
9	2411	29	2431	49	2451	69	2471
10	2412	30	2432	50	2452	70	2472
11	2413	31	2433	51	2453	71	2473
12	2414	32	2434	52	2454	72	2474
13	2415	33	2435	53	2455	73	2475
14	2416	34	2436	54	2456	74	2476
15	2417	35	2437	55	2457	75	2477
16	2418	36	2438	56	2458	76	2478
17	2419	37	2439	57	2459	77	2479
18	2420	38	2440	58	2460	78	2480
19	2421	39	2441	59	2461	-	-

1.1.7 Test Tool and Power Index

Test Tool
By Command, Version: 10.0.0.177

Power Index			
Channel	Frequency (MHz)	GFSK	8DPSK
0	2402	CBT Max Power	CBT Max Power
39	2441	CBT Max Power	CBT Max Power
78	2480	CBT Max Power	CBT Max Power

1.1.8 Test Voltage

Test Voltage	<input checked="" type="checkbox"/> Vnom (3.3 Vdc)	<input checked="" type="checkbox"/> Vmax (3.6 Vdc)	<input checked="" type="checkbox"/> Vmin (3.13 Vdc)
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1.1.9 Protection Method for High Frequency and Modulation Section

Protected Method	Description
Glued key component	The RF chipset will be protected by glue.

1.2 Test Equipment and Calibration Data

Test Item	RF Conducted						
Test Site	(TH01-WS)						
Tested Date	Aug. 09, 2023						
Instrument	Brand	Model No.	Serial No.	Calibration Date	Calibration Until	Calibration Authority	Calibration Method
Spectrum Analyzer	R&S	FSV40	101910	Apr. 14, 2023	Apr. 13, 2024	ETC	(C)
Wireless connectivity tester	R&S	CMW270	100856	Nov. 16, 2022	Nov. 15, 2023	ETC	(C)
DC POWER SOURCE	GW INSTEK	GPC-6030D	GES855395	Oct. 31, 2022	Oct. 30, 2023	ETC	(C)
Power Meter	Anritsu	ML2495A	1241002	Nov. 23, 2022	Nov. 22, 2023	ETC	(C)
Power Sensor	Anritsu	MA2411B	1207366	Nov. 23, 2022	Nov. 22, 2023	ETC	(C)
Measurement Software	Sporton	SENSE-T66_FS	V5.10.7	NA	NA	N/A	N/A
<p>Note 1: Calibration Interval of instruments listed above is one year.</p> <p>Note 2: Calibration Method</p> <p>a. Calibration conducted by the National Institute of Information and Communications Technology(NICT) or a designated calibration agency under Article 102-18 paragraph (1) of the Radio Law.</p> <p>b. Calibration conducted pursuant to the provisions of Article 135 or Article 144 of the Measurement Law (Law No. 51 of 1992) Japan Calibration Service System.</p> <p>c. Calibration conducted in foreign countries, which shall be equivalent to the calibration conducted by the NICT or a designated calibration agency under Article 102-18 paragraph (1).</p> <p>d. Calibration conducted by using other equipment that listed above from a) to c).</p>							

1.3 Testing Applied Standards

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

Article 2 Paragraph 1 Item 19

1.4 Deviation from Test Standard and Measurement Procedure

None

1.5 Measurement Uncertainty

The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor ($k=2$)).

Measurement Uncertainty	
Parameters	Uncertainty
Bandwidth	± 34.139 Hz
Conducted power	± 0.808 dB
Frequency error	$\pm 1 \times 10^{-9}$
TX Conducted emission	± 2.680 dB
RX Conducted emission	± 3.034 dB
Time	$\pm 0.1\%$

2 Test Configuration

2.1 Testing Location and Conditions

Test Site	Site Category	Ambient Condition	Tested By
TH01-WS	OVEN Room	25°C / 65%	Ryan Lee

2.2 Testing Facility

Test Laboratory	International Certification Corporation
Test Site	TH01-WS
Address of Test Site	No.3-1, Lane 6, Wen San 3rd St., Kwei Shan Dist., Tao Yuan City 33381, Taiwan (R.O.C.)

2.3 Supporting Units

Support Equipment List				
No.	Equipment	Brand Name	Model Name	Remark
1	Laptop	DELL	Latitude E5470	---

2.4 The Worst Test Modes and Channel Details

Test item	Mode	Test Frequency (MHz)	Test method	Mode
Antenna Power	GFSK, 8DPSK	Hopping	Conducted	TX
Frequency Tolerance	GFSK, 8DPSK	2402 / 2441 / 2480	Conducted	TX
Occupied Bandwidth	GFSK, 8DPSK	Hopping	Conducted	TX
Spreading Bandwidth and Factor	GFSK, 8DPSK	Hopping	Conducted	TX
Transmitter Spurious Emission	GFSK, 8DPSK	Hopping	Conducted	TX
Dwell time	GFSK, 8DPSK	Hopping	Conducted	TX
Interference Prevention Function	GFSK, 8DPSK	Hopping	Conducted	TX
Receiver Spurious Emission	GFSK, 8DPSK	2402 / 2441 / 2480	Conducted	RX

3 Transmitter Test Results

3.1 Antenna Power

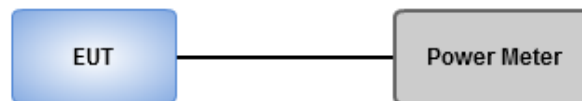
3.1.1 Limit of Antenna Power

Mode	Limit	Tolerance
1) FH, FH+DS, FH+OFDM	3 mW / MHz	+20 % , -80 %
2) OFDM(Narrow- bandwidht), DS	10 mW / MHz	
3) Other than 1) & 2)	10mW	
4) OFDM (Wide-band)	5 mW / MHz	

3.1.2 Test Procedures

1. Measure the total power by Power Meter in a state of hopping mode
2. Measure the burst ratio. Then calculate the real total power by burst ratio.
3. Calculate the mean power per 1MHz by dividing the total power by spread bandwidth
4. $\text{Output Power Density (mW/MHz)} = \text{Total Output Power (mW)} / \text{Burst Ratio} / \text{Spread Bandwidth (MHz)}$

3.1.3 Test Setup



3.1.4 Test Results

Refer to Appendix A.

3.2 Frequency Tolerance

3.2.1 Limit of Frequency Tolerance

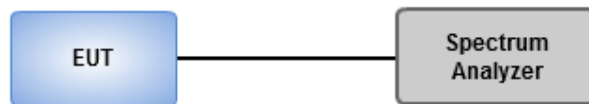
Frequency tolerance shall be +/- 50ppm.

3.2.2 Test Procedures

1. Set Span = 500kHz, RBW = 1kHz, VBW = 3kHz, Sweep time = Auto, detector = Peak.
2. Use Peak search function to find the max peak value and record this value (RF).
3. Calculate frequency tolerance by below formula
$$FT(\text{ppm}) = \{ (RF) - (MF) / (MF) \} \times 1000000$$

(FT: Frequency Tolerance, RF: Reading Frequency, MF: Measurement Frequency.)

3.2.3 Test Setup



3.2.4 Test Results

Refer to Appendix B.

3.3 Occupied Bandwidth

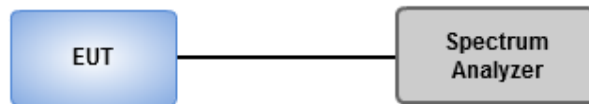
3.3.1 Limit of Occupied Bandwidth

Mode	Limit (MHz)
FH	83.5
FH+DS	83.5
FH+OFDM	83.5
OFDM(Narrow- bandwidht), DS	26
Others	26
OFDM (Wide-band)	38

3.3.2 Test Procedures

1. Set Span = 200MHz, RBW = VBW = 300kHz, detector = Peak, Sweep time = Auto.
2. Enable OBW function of spectrum analyzer to measure 99% bandwidth of total power.

3.3.3 Test Setup



3.3.4 Test Results

Refer to Appendix C.

3.4 Spreading Bandwidth and Factor

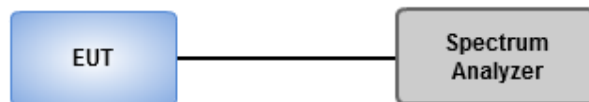
3.4.1 Limit of Spreading Bandwidth and Factor

Item	Limit
Spreading bandwidth	$\geq 500\text{kHz}$
Spreading factor for DSSS (operates at 2400~2483.5 MHz)	≥ 5
Spreading factor for DSSS (operates at 2471~2497 MHz)	≥ 10

3.4.2 Test Procedures

1. Set Span = 20MHz, RBW = VBW = 300kHz, detector = Peak, Sweep time = Auto.
2. Enable OBW (90%) function of spectrum analyzer to measure 90% bandwidth of total power.

3.4.3 Test Setup



3.4.4 Test Results

Refer to Appendix D.

3.5 Transmitter Spurious Emissions

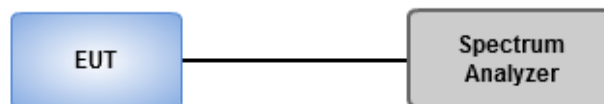
3.5.1 Limit of Transmitter Spurious Emissions

Item	Limits
Tx Spurious Emission	$\leq 2.5 \mu\text{W} / \text{MHz}$ ($2387\text{MHz} > f$; $2496.5\text{MHz} < f$).
	$\leq 25 \mu\text{W} / \text{MHz}$ ($2387\text{MHz} \leq f < 2400\text{MHz}$) and ($2483.5\text{MHz} < f \leq 2496.5\text{MHz}$).

3.5.2 Test Procedures

1. Set EUT to transmit at rated power and channel to perform test.
2. Set RBW = VBW = 1MHz, Detector type = Peak, Sweep time = Auto.
3. Following above setting of spectrum analyzer to measure spurious emission of 30~12500 MHz.

3.5.3 Test Setup



3.5.4 Test Results

Refer to Appendix E.

3.6 Dwell time

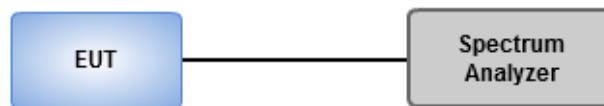
3.6.1 Limit of Dwell time

Limits	Shall be less than 0.4 second
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3.6.2 Test Procedures

1. Set EUT to transmit at rated power and channel to perform test.
2. Set RBW = VBW = 300kHz, Detector type = Peak, Span = Zero Span, Sweep time = 5 msec.
3. Use marker function to measure Burst on and off time.
4. Burst ratio = On Time / (On Time + Off time)

3.6.3 Test Setup



3.6.4 Test Results

Refer to Appendix F.

3.7 Interference Prevention Function

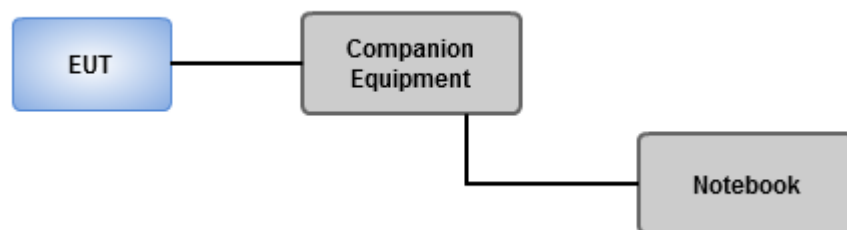
3.7.1 Limit of Interference Prevention Function

Limits
The identification code shall be 48 bits long

3.7.2 Test Procedures

1. Set EUT under operating mode and link up with companion equipment
2. Check communication status between EUT and companion equipment is normal
3. Confirm the MAC address of EUT

3.7.3 Test Setup



3.7.4 Test Results

Refer to Appendix G.

4 Receiver Test Results

4.1 Receiver Spurious Emissions

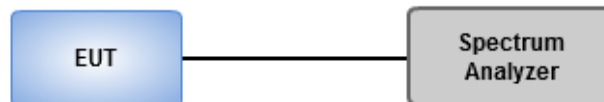
4.1.1 Limit of Receiver Spurious Emissions

Item	Limits
Rx Spurious Emission	$\leq 4\text{nW}$ ($f < 1\text{GHz}$).
	$\leq 20\text{nW}$ ($1\text{GHz} \leq f$).

4.1.2 Test Procedures

1. Set EUT under receiving condition to perform test
2. Set RBW = VBW = 100kHz, detector = Peak, Sweep time = Auto for emission measurement below 1GHz.
3. Set RBW = VBW=1MHz, detector = Peak, Sweep time = Auto for emission measurement above 1GHz.

4.1.3 Test Setup



4.1.4 Test Results

Refer to Appendix H.

5 Test laboratory information

Established in 2012, ICC provides foremost EMC & RF Testing and advisory consultation services by our skilled engineers and technicians. Our services employ a wide variety of advanced edge test equipment and one of the widest certification extents in the business.

International Certification Corporation (EMC and Wireless Communication Laboratory), it is our definitive objective is to institute long term, trust-based associations with our clients. The expectation we set up with our clients is based on outstanding service, practical expertise and devotion to a certified value structure. Our passion is to grant our clients with best EMC / RF services by oriented knowledgeable and accommodating staff.

Our Test sites are located at Linkou District and Kwei Shan District. Location map can be found on our website <http://www.icertifi.com.tw>.

Linkou

Tel: 886-2-2601-1640

No.30-2, Ding Fwu Tsuen, Lin Kou
District, New Taipei City, Taiwan
(R.O.C.)

Kwei Shan

Tel: 886-3-271-8666

No.3-1, Lane 6, Wen San 3rd
St., Kwei Shan Dist., Tao Yuan
City 33381, Taiwan (R.O.C.)
No.2-1, Lane 6, Wen San 3rd
St., Kwei Shan Dist., Tao Yuan
City 33381, Taiwan (R.O.C.)

Kwei Shan Site II

Tel: 886-3-271-8640

No.14-1, Lane 19, Wen San 3rd
St., Kwei Shan Dist., Tao Yuan
City 33381, Taiwan (R.O.C.)

If you have any suggestion, please feel free to contact us as below information.

Tel: 886-3-271-8666

Fax: 886-3-318-0345

Email: ICC_Service@icertifi.com.tw

==END==

Summary

Mode	Result	Antenna Power (dBm/MHz)	Antenna Power (mW/MHz)	Declare (mW/MHz)	Tolerance (%)	Limit+ (%)	Limit- (%)
2.4-2.4835GHz	-	-	-	-	-	-	-
BT-BR(1Mbps)	Pass	-10.54	0.08831	0.09000	-1.88	20	-80
BT-EDR(3Mbps)	Pass	-16.06	0.02477	0.09000	-72.47	20	-80
BT-BR-AFH(1Mbps)	Pass	-4.73	0.33651	0.40000	-15.87	20	-80
BT-EDR-AFH(3Mbps)	Pass	-10.27	0.09397	0.40000	-76.51	20	-80

Result

Mode	Result	Antenna Power (dBm/MHz)	Antenna Power (mW/MHz)	Declare (mW/MHz)	Tolerance (%)	Limit+ (%)	Limit- (%)
BT-BR(1Mbps)	-	-	-	-	-	-	-
Hopping_Mode_TnomVnom	Pass	-10.57	0.08770	0.09000	-2.56	20	-80
Hopping_Mode_TnomVmin	Pass	-10.55	0.08810	0.09000	-2.11	20	-80
Hopping_Mode_TnomVmax	Pass	-10.54	0.08831	0.09000	-1.88	20	-80
BT-EDR(3Mbps)	-	-	-	-	-	-	-
Hopping_Mode_TnomVnom	Pass	-16.06	0.02477	0.09000	-72.47	20	-80
Hopping_Mode_TnomVmin	Pass	-16.06	0.02477	0.09000	-72.47	20	-80
Hopping_Mode_TnomVmax	Pass	-16.05	0.02483	0.09000	-72.41	20	-80
BT-BR-AFH(1Mbps)	-	-	-	-	-	-	-
Hopping_Mode_TnomVnom	Pass	-4.74	0.33574	0.40000	-16.07	20	-80
Hopping_Mode_TnomVmin	Pass	-4.75	0.33497	0.40000	-16.26	20	-80
Hopping_Mode_TnomVmax	Pass	-4.73	0.33651	0.40000	-15.87	20	-80
BT-EDR-AFH(3Mbps)	-	-	-	-	-	-	-
Hopping_Mode_TnomVnom	Pass	-10.26	0.09419	0.40000	-76.45	20	-80
Hopping_Mode_TnomVmin	Pass	-10.27	0.09397	0.40000	-76.51	20	-80
Hopping_Mode_TnomVmax	Pass	-10.25	0.09441	0.40000	-76.40	20	-80

Summary

Mode	Antenna Power (dBm/MHz)	Antenna Power (mW/MHz)	EIRP Antenna Power (dBm/MHz)	EIRP Antenna Power (mW/MHz)
2.4-2.4835GHz	-	-	-	-
BT-BR(1Mbps)	-10.54	0.08831	-8.14	0.15346
BT-EDR(3Mbps)	-16.05	0.02483	-13.65	0.04315
BT-BR-AFH(1Mbps)	-4.73	0.33651	-2.33	0.58479
BT-EDR-AFH(3Mbps)	-10.25	0.09441	-7.85	0.16406

Result

Mode	Result	Gain (dBi)	Antenna Power (dBm/MHz)	Antenna Power (mW/MHz)	Antenna Power Lim. (mW/MHz)	EIRP Antenna Power (dBm/MHz)	EIRP Antenna Power (mW/MHz)	EIRP Antenna Power Lim. (mW/MHz)
BT-BR(1Mbps)	-	-	-	-	-	-	-	-
Hopping_Mode_TnomVnom	Pass	2.40	-10.57	0.08770	3	-8.17	0.15241	4.91
Hopping_Mode_TnomVmin	Pass	2.40	-10.55	0.08810	3	-8.15	0.15311	4.91
Hopping_Mode_TnomVmax	Pass	2.40	-10.54	0.08831	3	-8.14	0.15346	4.91
BT-EDR(3Mbps)	-	-	-	-	-	-	-	-
Hopping_Mode_TnomVnom	Pass	2.40	-16.06	0.02477	3	-13.66	0.04305	4.91
Hopping_Mode_TnomVmin	Pass	2.40	-16.06	0.02477	3	-13.66	0.04305	4.91
Hopping_Mode_TnomVmax	Pass	2.40	-16.05	0.02483	3	-13.65	0.04315	4.91
BT-BR-AFH(1Mbps)	-	-	-	-	-	-	-	-
Hopping_Mode_TnomVnom	Pass	2.40	-4.74	0.33574	3	-2.34	0.58345	4.91
Hopping_Mode_TnomVmin	Pass	2.40	-4.75	0.33497	3	-2.35	0.58210	4.91
Hopping_Mode_TnomVmax	Pass	2.40	-4.73	0.33651	3	-2.33	0.58479	4.91
BT-EDR-AFH(3Mbps)	-	-	-	-	-	-	-	-
Hopping_Mode_TnomVnom	Pass	2.40	-10.26	0.09419	3	-7.86	0.16368	4.91
Hopping_Mode_TnomVmin	Pass	2.40	-10.27	0.09397	3	-7.87	0.16331	4.91
Hopping_Mode_TnomVmax	Pass	2.40	-10.25	0.09441	3	-7.85	0.16406	4.91

P1 = Port 1 Antenna Power; **P2** = Port 2 Antenna Power; **Pn** = Port n Antenna Power; **Antenna Power** = Sum by **P1~Pn**

Summary

Mode	Result	Ch (Hz)	Center (Hz)	ppm	Limit (ppm)	Port	Remark
2.4-2.4835GHz	-	-	-	-	-	-	-
BT-BR(1Mbps)	Pass	2.48G	2.47997813G	-8.8169	±50	1	-
BT-EDR(3Mbps)	Pass	2.48G	2.47997843G	-8.6988	±50	1	-

Result

Mode	Result	Ch (Hz)	Center (Hz)	ppm	Limit (ppm)	Port	Remark
BT-BR(1Mbps)	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.402G	2.40199076G	-3.8485	±50	1	-
2402MHz_TnomVmin	Pass	2.402G	2.40199019G	-4.0824	±50	1	-
2402MHz_TnomVmax	Pass	2.402G	2.4019902G	-4.0783	±50	1	-
2441MHz_TnomVnom	Pass	2.441G	2.44098558G	-5.9066	±50	1	-
2441MHz_TnomVmin	Pass	2.441G	2.4409856G	-5.9005	±50	1	-
2441MHz_TnomVmax	Pass	2.441G	2.44098469G	-6.2716	±50	1	-
2480MHz_TnomVnom	Pass	2.48G	2.47997813G	-8.8169	±50	1	-
2480MHz_TnomVmin	Pass	2.48G	2.4799782G	-8.7899	±50	1	-
2480MHz_TnomVmax	Pass	2.48G	2.47997827G	-8.7641	±50	1	-
BT-EDR(3Mbps)	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.402G	2.40199111G	-3.7019	±50	1	-
2402MHz_TnomVmin	Pass	2.402G	2.40199129G	-3.6253	±50	1	-
2402MHz_TnomVmax	Pass	2.402G	2.40199144G	-3.5641	±50	1	-
2441MHz_TnomVnom	Pass	2.441G	2.44098546G	-5.9586	±50	1	-
2441MHz_TnomVmin	Pass	2.441G	2.44098548G	-5.9472	±50	1	-
2441MHz_TnomVmax	Pass	2.441G	2.44098549G	-5.9435	±50	1	-
2480MHz_TnomVnom	Pass	2.48G	2.47997843G	-8.6988	±50	1	-
2480MHz_TnomVmin	Pass	2.48G	2.47997846G	-8.6863	±50	1	-
2480MHz_TnomVmax	Pass	2.48G	2.4799785G	-8.671	±50	1	-

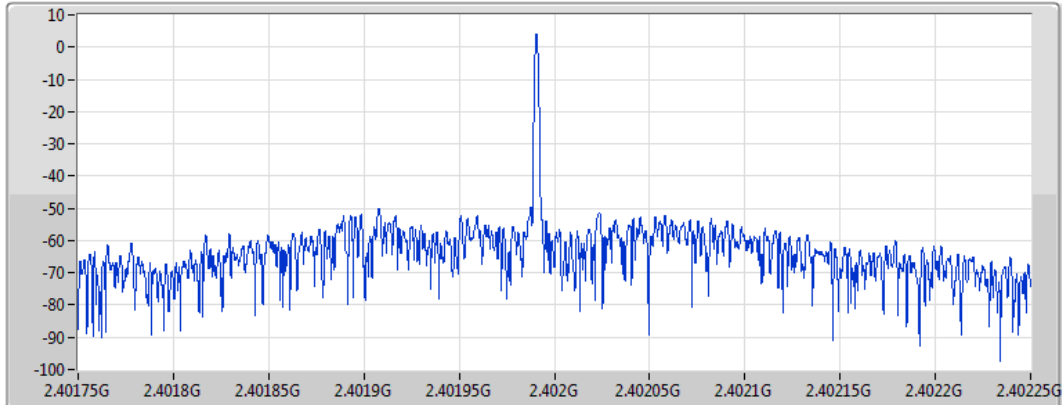
BT-BR(1Mbps)

Freq. Stability

2402MHz_TnomVnom

09/08/2023

CF
2.402GHz
Span
500kHz
RBW
1kHz
VBW
3kHz
Sweep Time
50ms
Detector Type
Auto Peak



Port 1

Ch(Hz)	Center(Hz)	Fl(Hz)	Fh(Hz)	ppm	Limit(ppm)	Port	Remark
2.402G	2.40199076G	NaN	NaN	-3.8485	±50	1	-

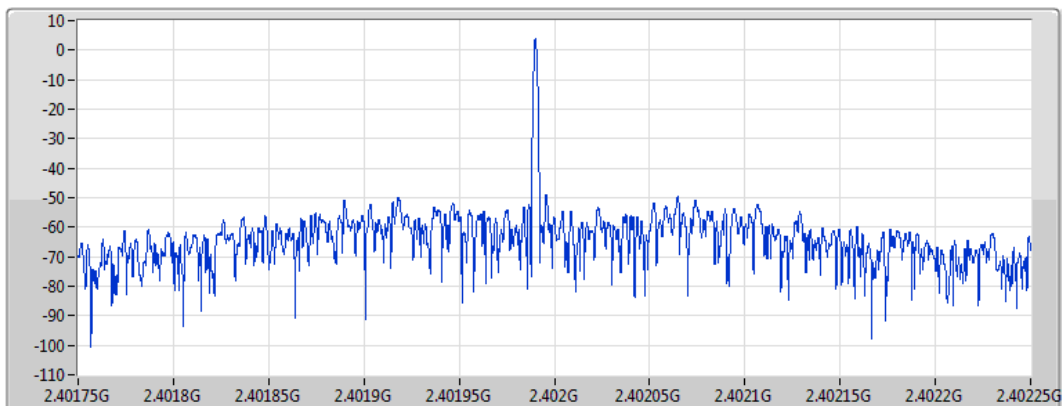
BT-BR(1Mbps)

Freq. Stability

2402MHz_TnomVmin

09/08/2023

CF
2.402GHz
Span
500kHz
RBW
1kHz
VBW
3kHz
Sweep Time
50ms
Detector Type
Auto Peak



Port 1

Ch(Hz)	Center(Hz)	Fl(Hz)	Fh(Hz)	ppm	Limit(ppm)	Port	Remark
2.402G	2.40199019G	NaN	NaN	-4.0824	±50	1	-

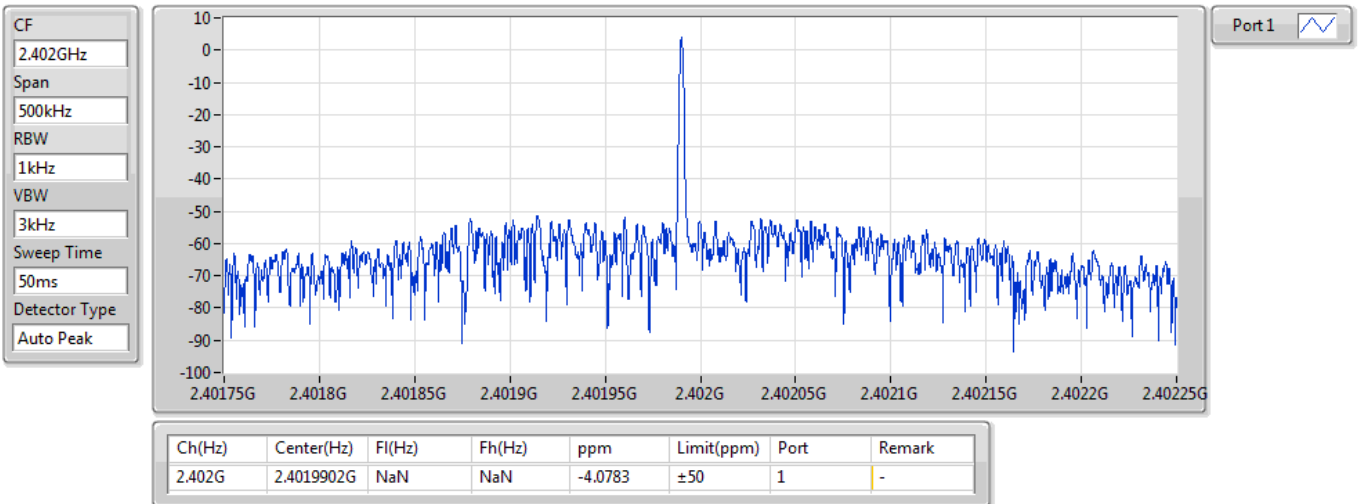


BT-BR(1Mbps)

Freq. Stability

2402MHz_TnomVmax

09/08/2023

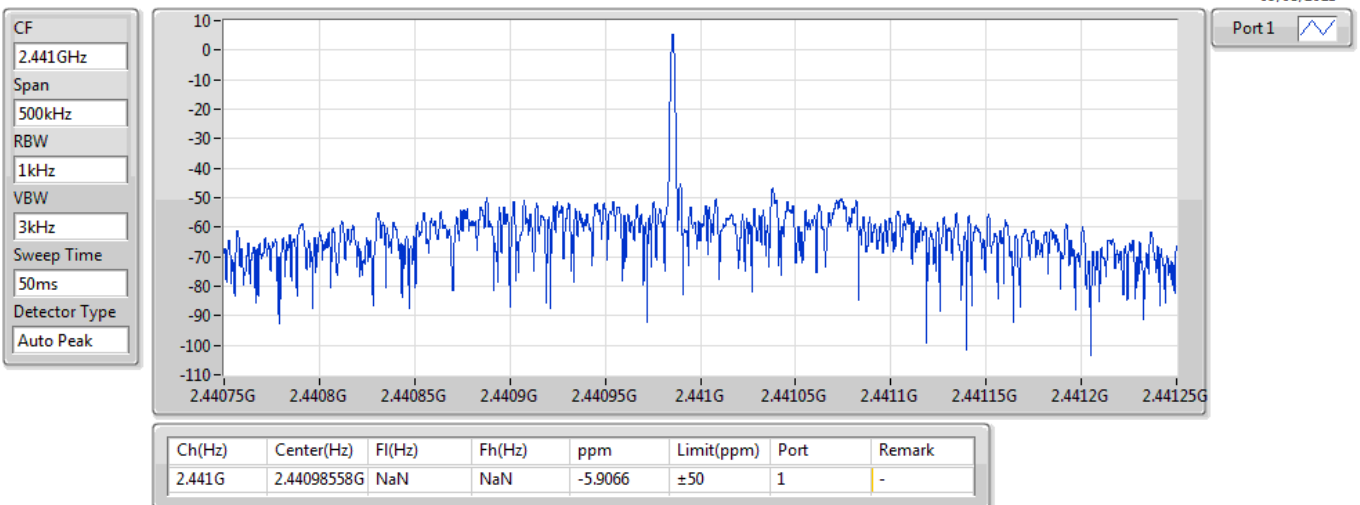


BT-BR(1Mbps)

Freq. Stability

2441MHz_TnomVnom

09/08/2023

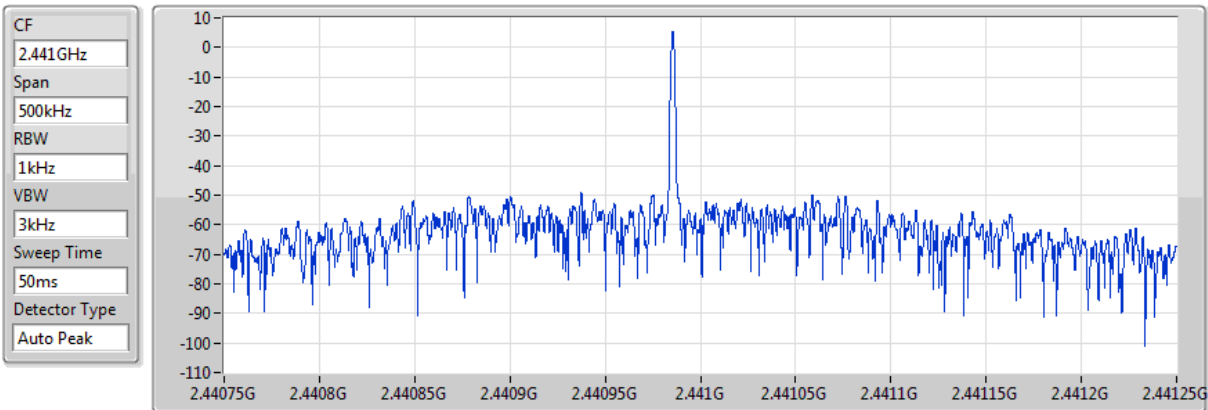


BT-BR(1Mbps)

Freq. Stability

2441MHz_TnomVmin

09/08/2023



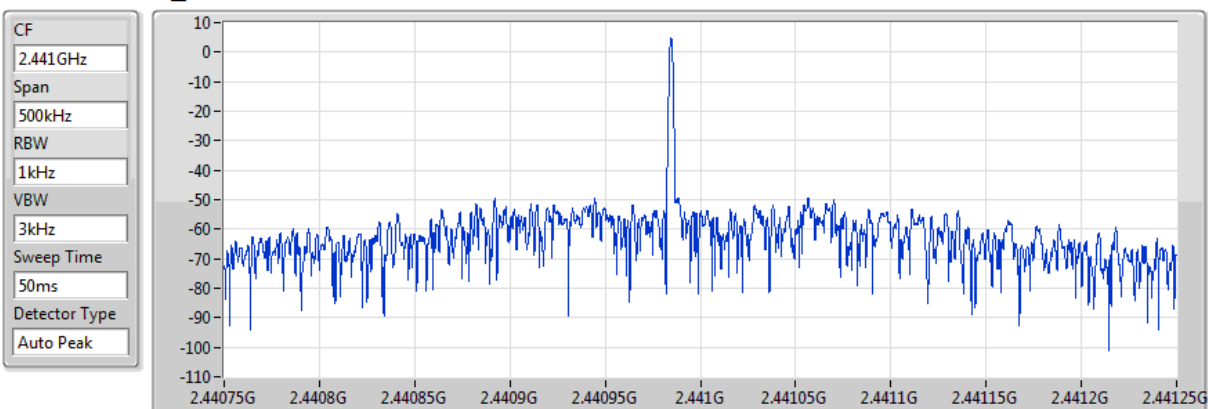
Ch(Hz)	Center(Hz)	Fl(Hz)	Fh(Hz)	ppm	Limit(ppm)	Port	Remark
2.441G	2.4409856G	NaN	NaN	-5.9005	±50	1	-

BT-BR(1Mbps)

Freq. Stability

2441MHz_TnomVmax

09/08/2023



Ch(Hz)	Center(Hz)	Fl(Hz)	Fh(Hz)	ppm	Limit(ppm)	Port	Remark
2.441G	2.44098469G	NaN	NaN	-6.2716	±50	1	-

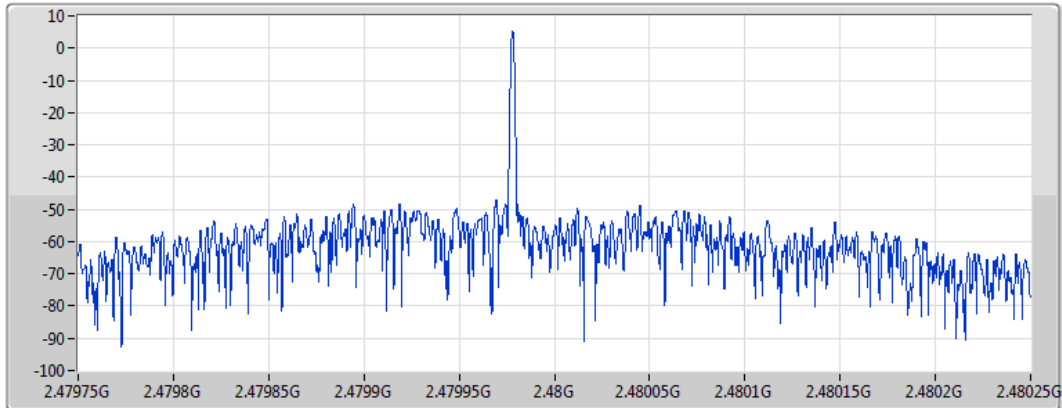
BT-BR(1Mbps)

Freq. Stability

2480MHz_TnomVnom

09/08/2023

CF
2.48GHz
Span
500kHz
RBW
1kHz
VBW
3kHz
Sweep Time
50ms
Detector Type
Auto Peak



Port 1

Ch(Hz)	Center(Hz)	Fl(Hz)	Fh(Hz)	ppm	Limit(ppm)	Port	Remark
2.48G	2.47997813G	NaN	NaN	-8.8169	±50	1	-

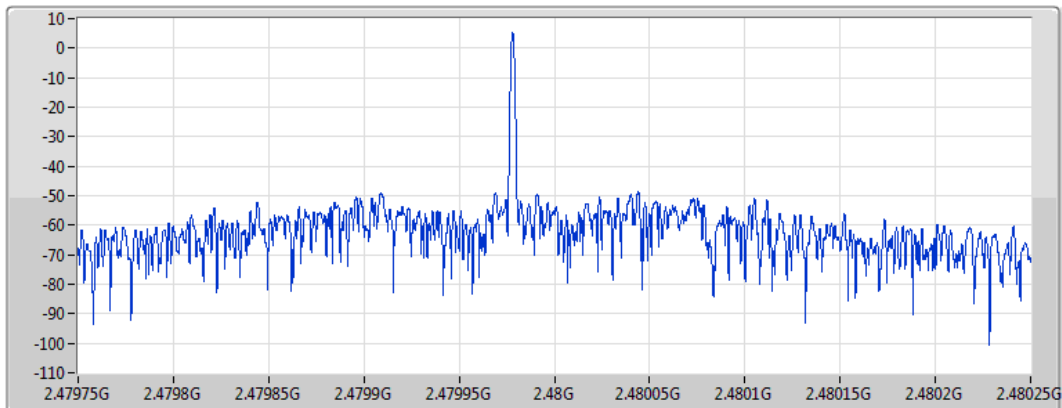
BT-BR(1Mbps)

Freq. Stability

2480MHz_TnomVmin

09/08/2023

CF
2.48GHz
Span
500kHz
RBW
1kHz
VBW
3kHz
Sweep Time
50ms
Detector Type
Auto Peak



Port 1

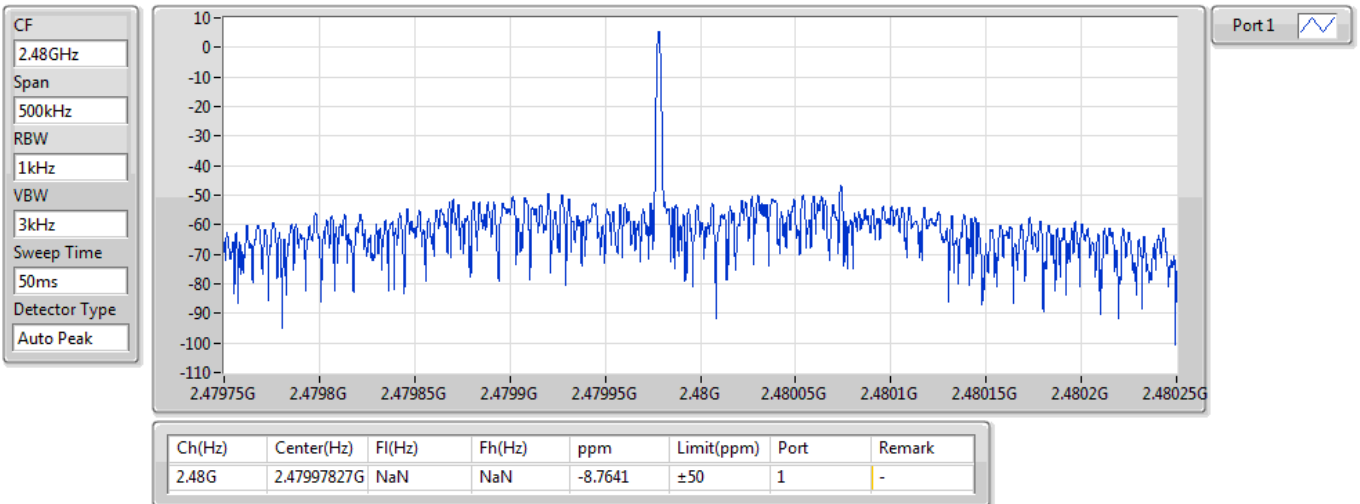
Ch(Hz)	Center(Hz)	Fl(Hz)	Fh(Hz)	ppm	Limit(ppm)	Port	Remark
2.48G	2.4799782G	NaN	NaN	-8.7899	±50	1	-

BT-BR(1Mbps)

Freq. Stability

2480MHz_TnomVmax

09/08/2023

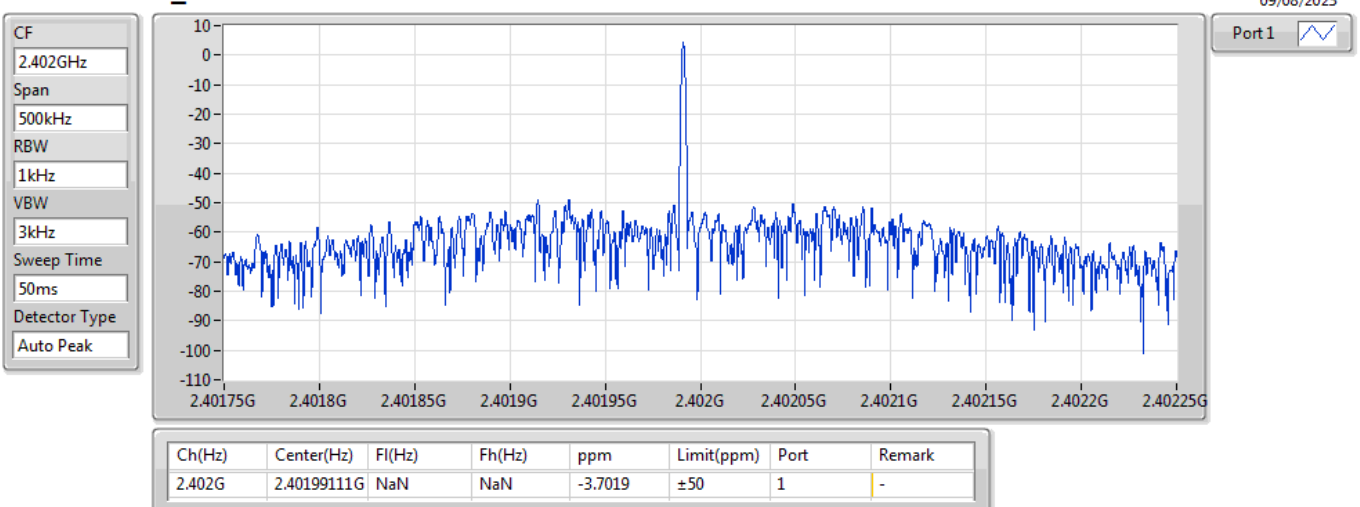


BT-EDR(3Mbps)

Freq. Stability

2402MHz_TnomVnom

09/08/2023

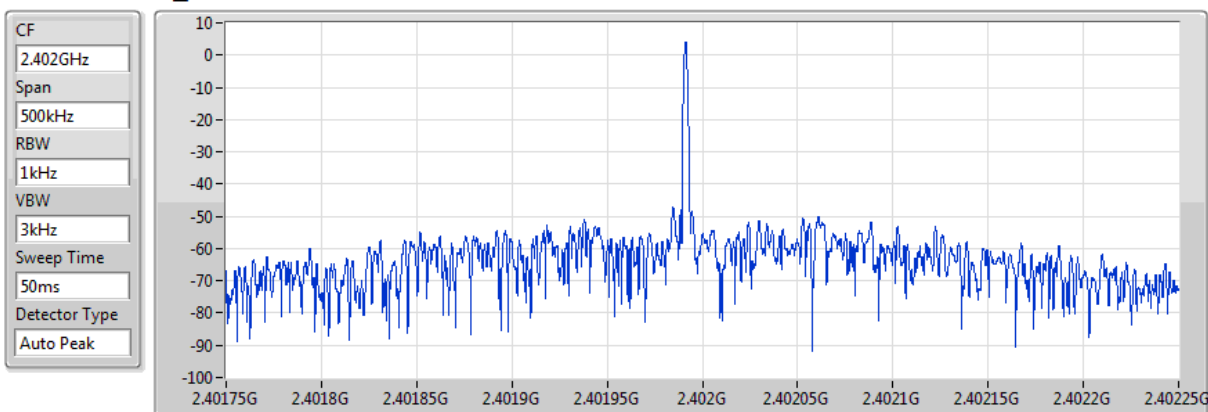


BT-EDR(3Mbps)

Freq. Stability

2402MHz_TnomVmin

09/08/2023



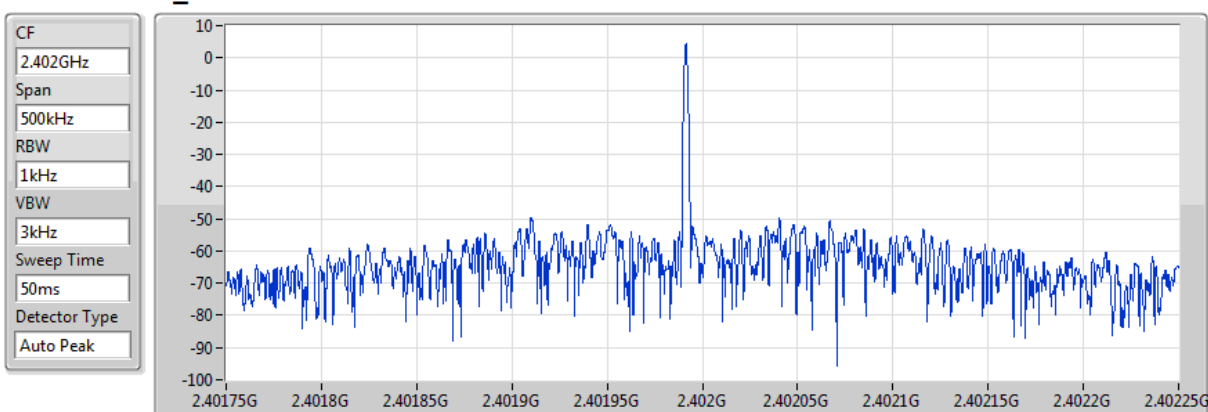
Ch(Hz)	Center(Hz)	Fl(Hz)	Fh(Hz)	ppm	Limit(ppm)	Port	Remark
2.402G	2.40199129G	NaN	NaN	-3.6253	±50	1	-

BT-EDR(3Mbps)

Freq. Stability

2402MHz_TnomVmax

09/08/2023



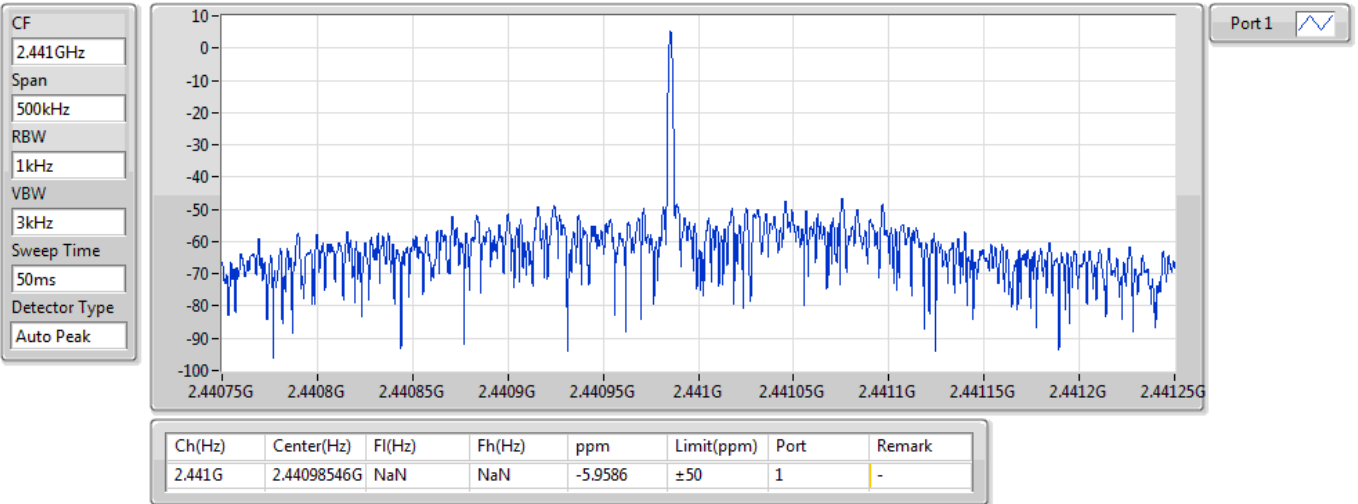
Ch(Hz)	Center(Hz)	Fl(Hz)	Fh(Hz)	ppm	Limit(ppm)	Port	Remark
2.402G	2.40199144G	NaN	NaN	-3.5641	±50	1	-

BT-EDR(3Mbps)

Freq. Stability

2441MHz_TnomVnom

09/08/2023

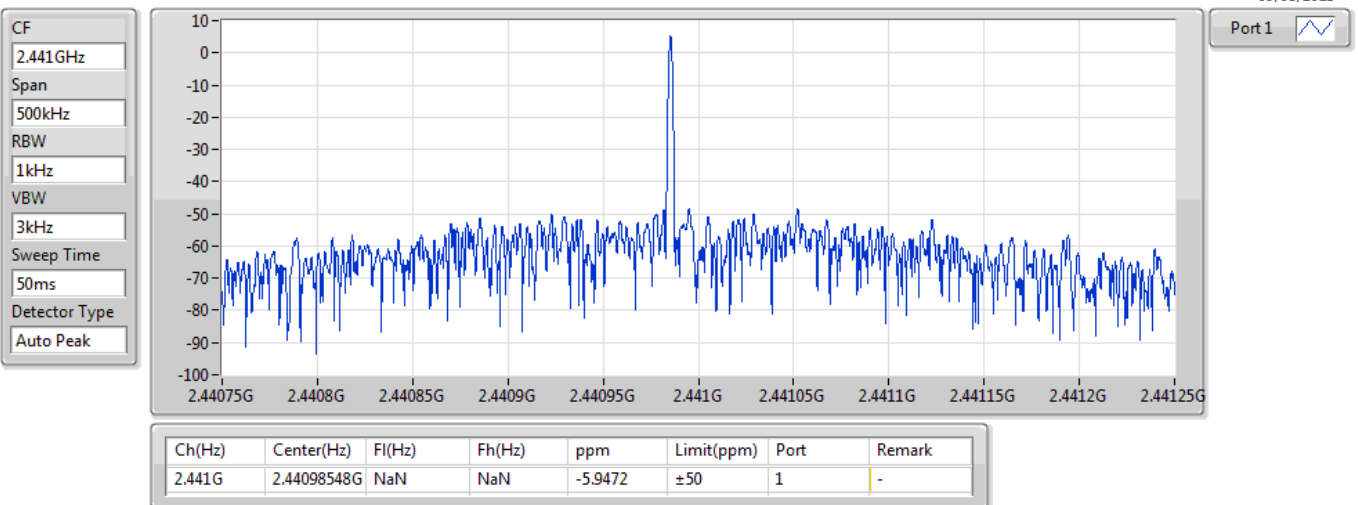


BT-EDR(3Mbps)

Freq. Stability

2441MHz_TnomVmin

09/08/2023

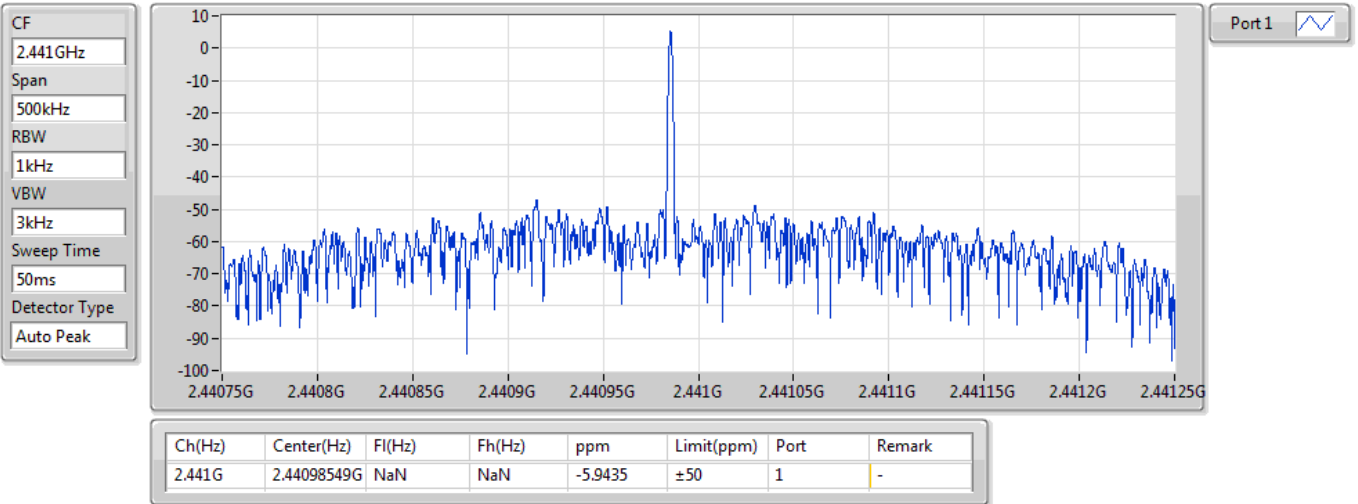


BT-EDR(3Mbps)

Freq. Stability

2441MHz_TnomVmax

09/08/2023

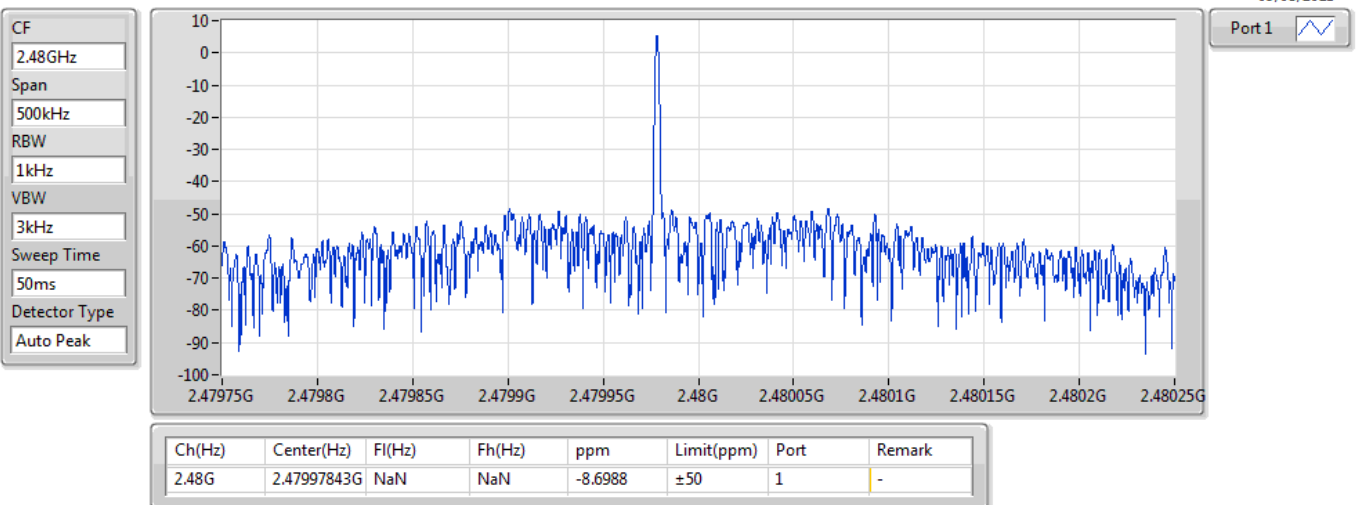


BT-EDR(3Mbps)

Freq. Stability

2480MHz_TnomVnom

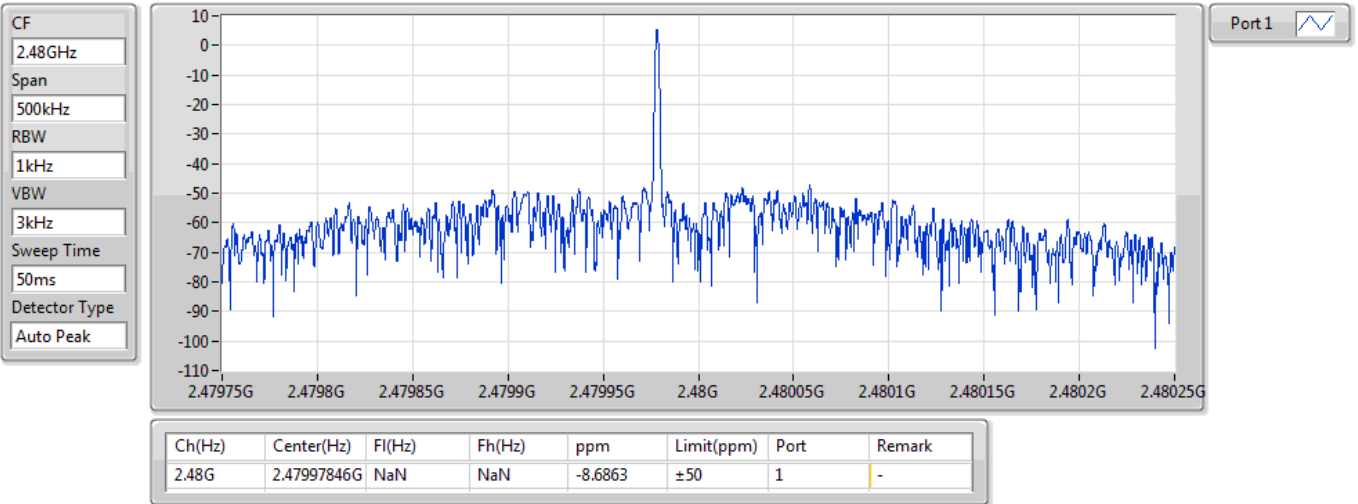
09/08/2023



BT-EDR(3Mbps)

Freq. Stability

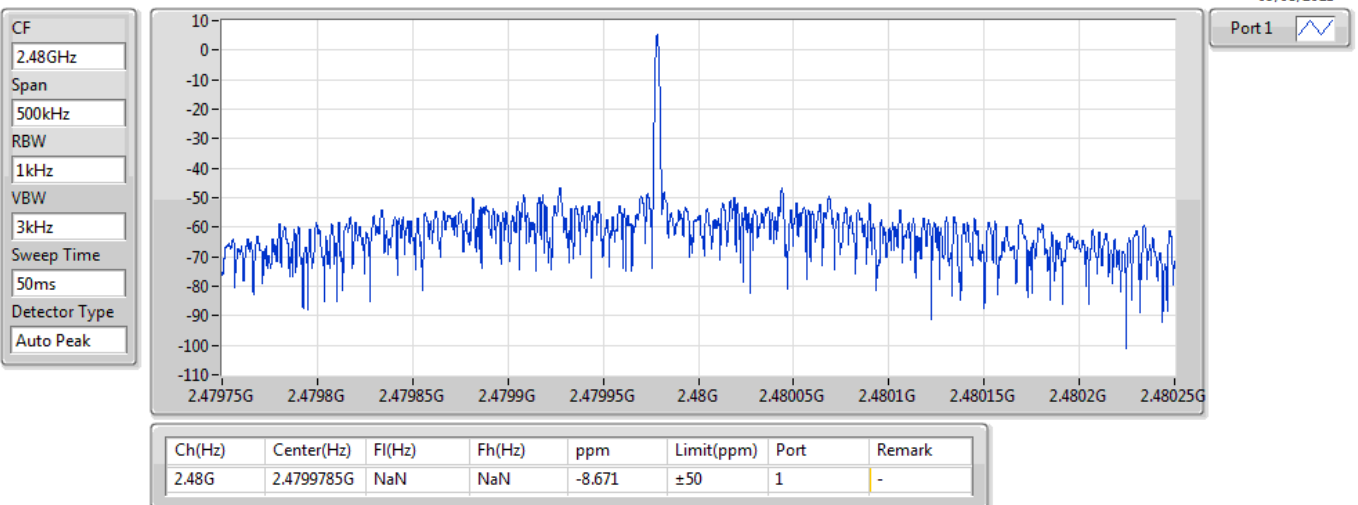
2480MHz_TnomVmin



BT-EDR(3Mbps)

Freq. Stability

2480MHz_TnomVmax



Summary

Mode	Max-OBW (Hz)	ITU-Code	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-
BT-BR(1Mbps)	78.661M	78M7F1D	78.661M
BT-EDR(3Mbps)	78.761M	78M8G1D	78.661M
BT-BR-AFH(1Mbps)	20.49M	20M5F1D	20.49M
BT-EDR-AFH(3Mbps)	20.79M	20M8G1D	20.69M

Max-OBW = Maximum 99% occupied bandwidth; **Min-OBW** = Minimum 99% occupied bandwidth

Result

Mode	Result	Limit (Hz)	P1-OBW (Hz)
BT-BR(1Mbps)	-	-	-
Hopping_Mode_TnomVnom	Pass	83.5M	78.661M
Hopping_Mode_TnomVmin	Pass	83.5M	78.661M
Hopping_Mode_TnomVmax	Pass	83.5M	78.661M
BT-EDR(3Mbps)	-	-	-
Hopping_Mode_TnomVnom	Pass	83.5M	78.661M
Hopping_Mode_TnomVmin	Pass	83.5M	78.661M
Hopping_Mode_TnomVmax	Pass	83.5M	78.761M
BT-BR-AFH(1Mbps)	-	-	-
Hopping_Mode_TnomVnom	Pass	83.5M	20.49M
Hopping_Mode_TnomVmin	Pass	83.5M	20.49M
Hopping_Mode_TnomVmax	Pass	83.5M	20.49M
BT-EDR-AFH(3Mbps)	-	-	-
Hopping_Mode_TnomVnom	Pass	83.5M	20.69M
Hopping_Mode_TnomVmin	Pass	83.5M	20.69M
Hopping_Mode_TnomVmax	Pass	83.5M	20.79M

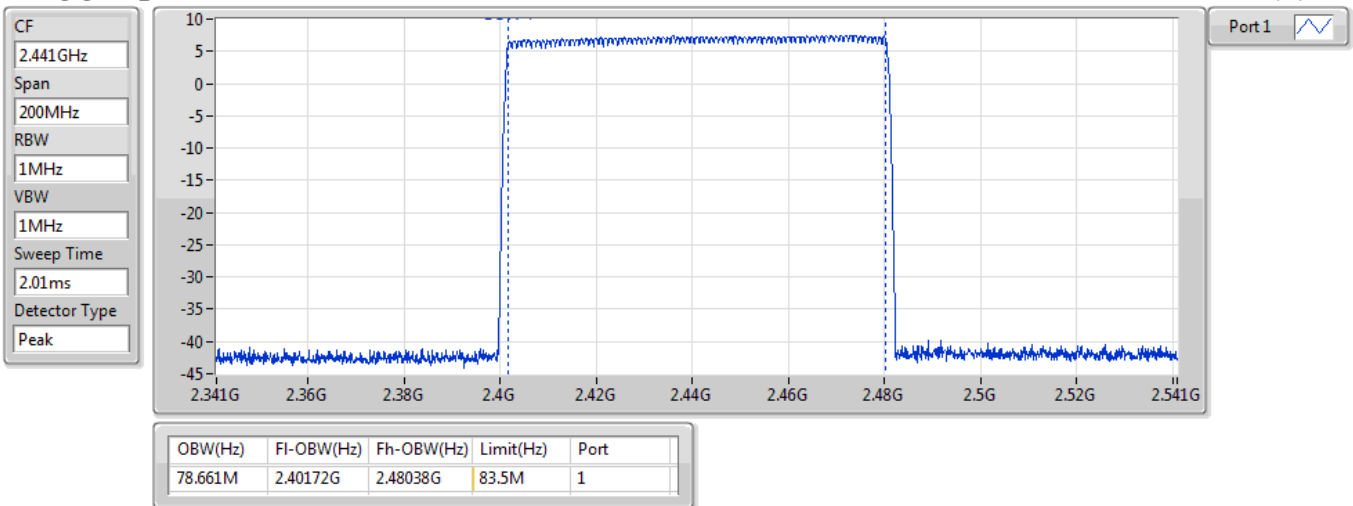
P1-OBW = Port 1 99% occupied bandwidth; **P2-OBW** = Port 2 99% occupied bandwidth; **Pn-OBW** = Port n 99% occupied bandwidth

BT-BR(1Mbps)

OBW

Hopping Mode_TnomVnom

09/08/2023

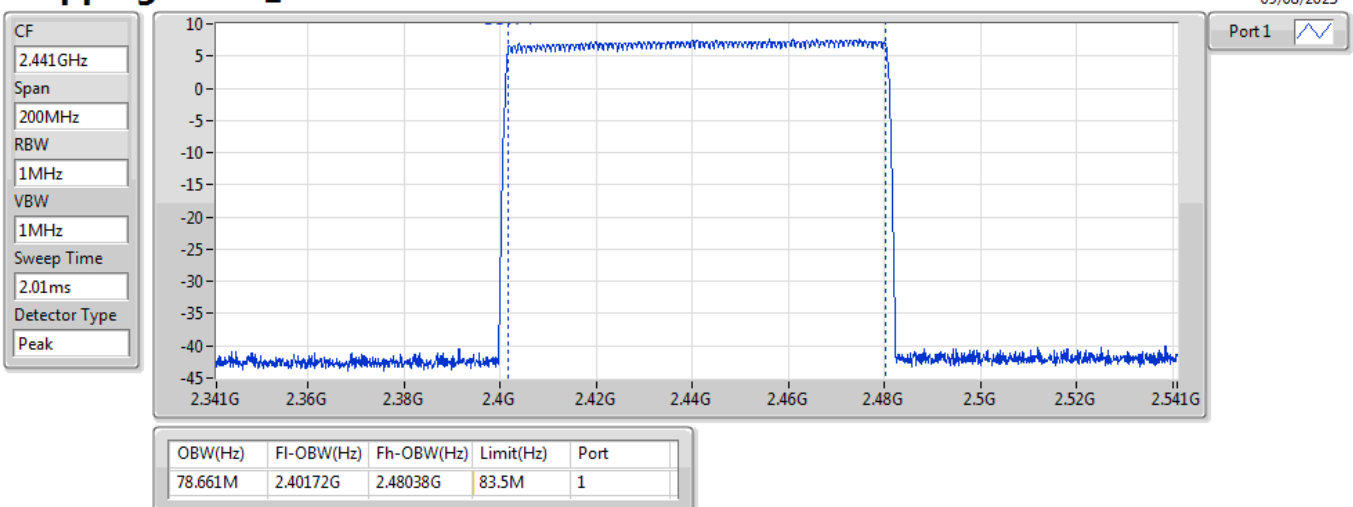


BT-BR(1Mbps)

OBW

Hopping Mode_TnomVmin

09/08/2023

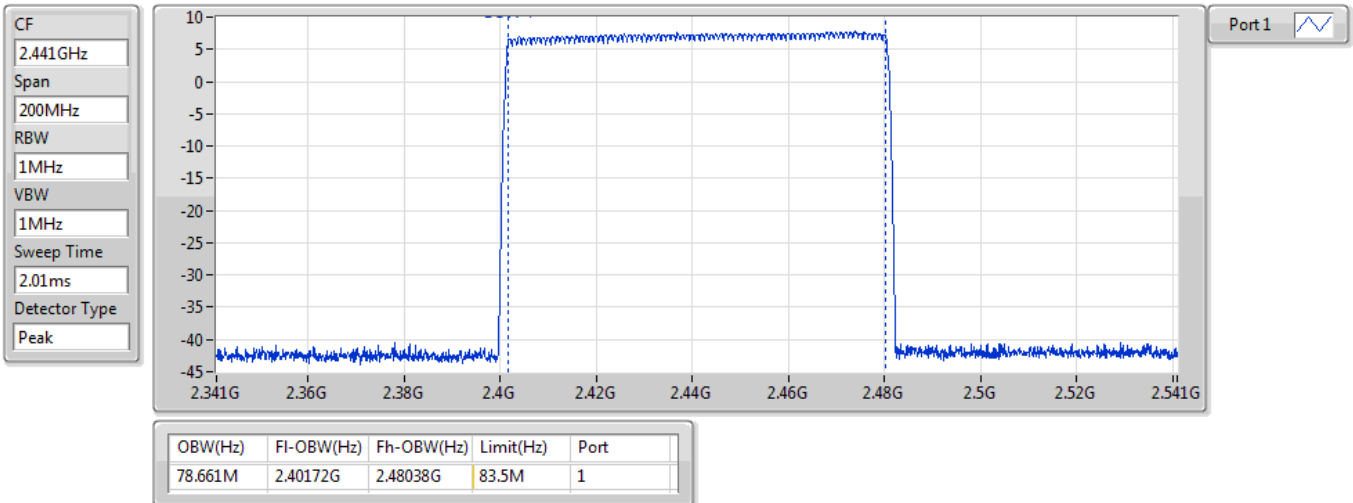


BT-BR(1Mbps)

OBW

Hopping Mode_TnomVmax

09/08/2023

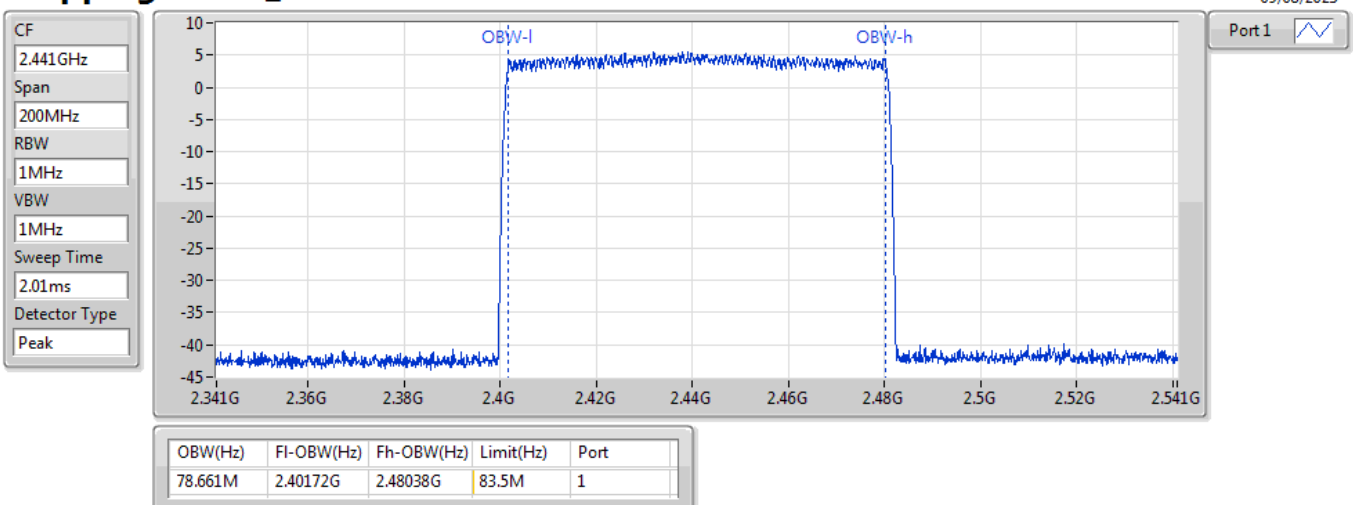


BT-EDR(3Mbps)

OBW

Hopping Mode_TnomVnom

09/08/2023

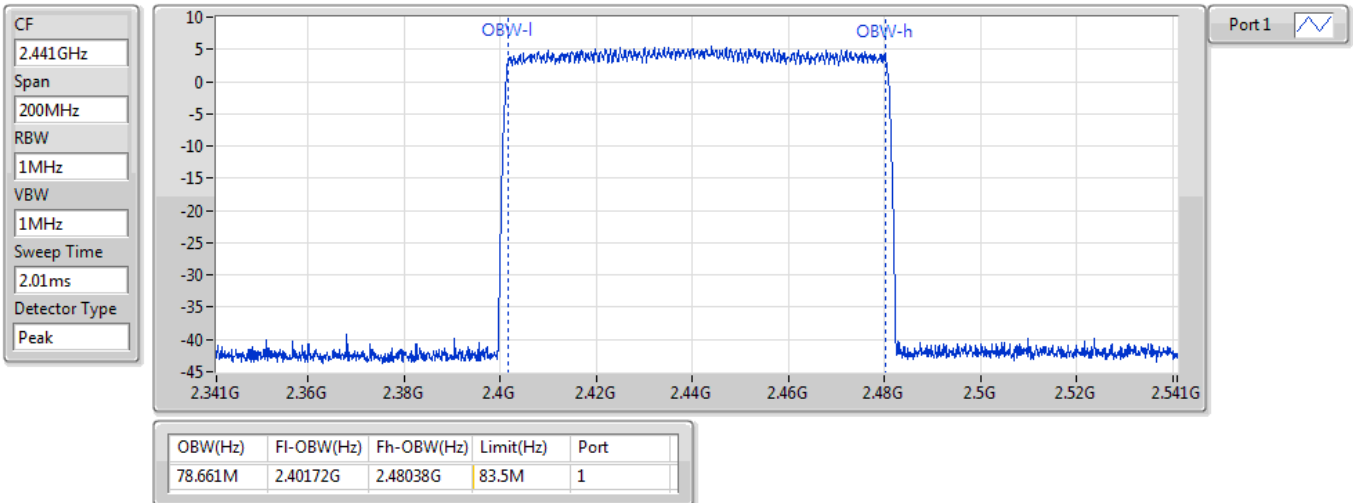


BT-EDR(3Mbps)

OBW

Hopping Mode_TnomVmin

09/08/2023

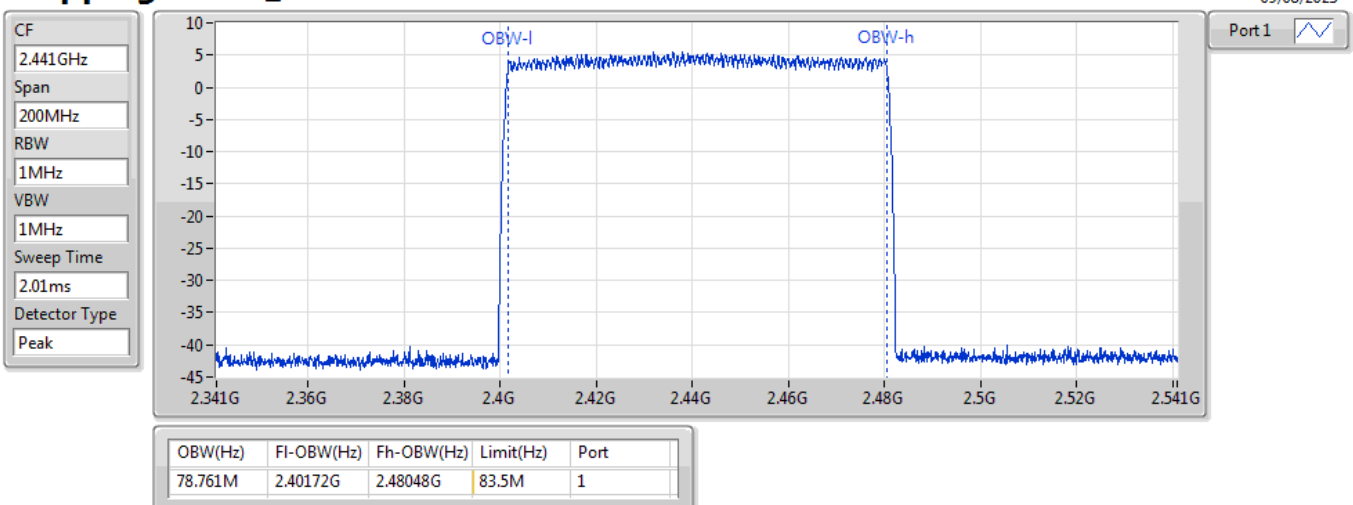


BT-EDR(3Mbps)

OBW

Hopping Mode_TnomVmax

09/08/2023

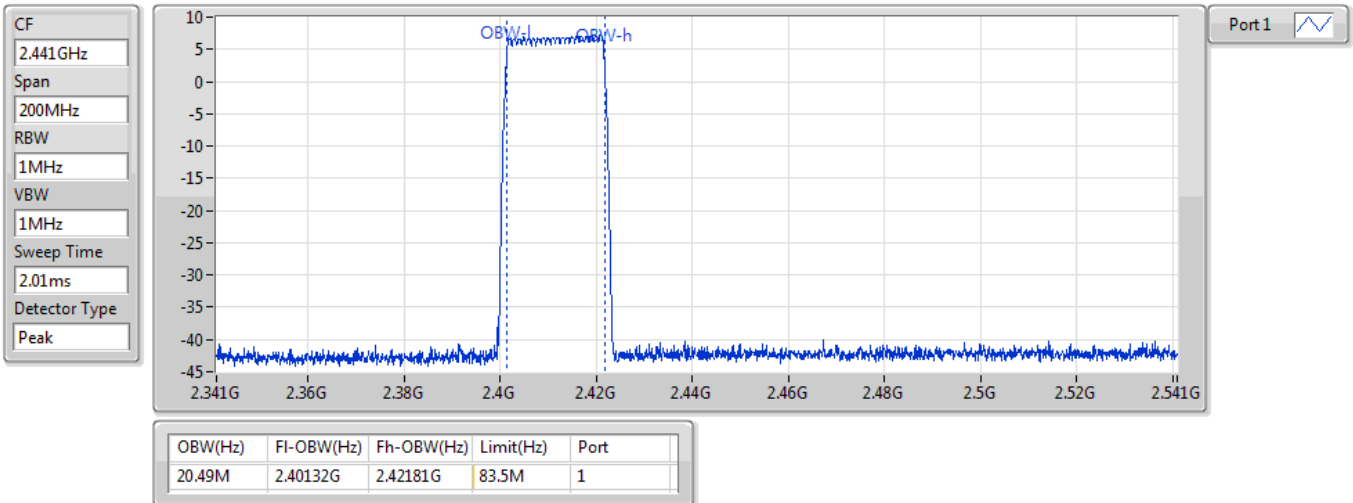


BT-BR-AFH(1Mbps)

OBW

Hopping Mode_TnomVnom

09/08/2023

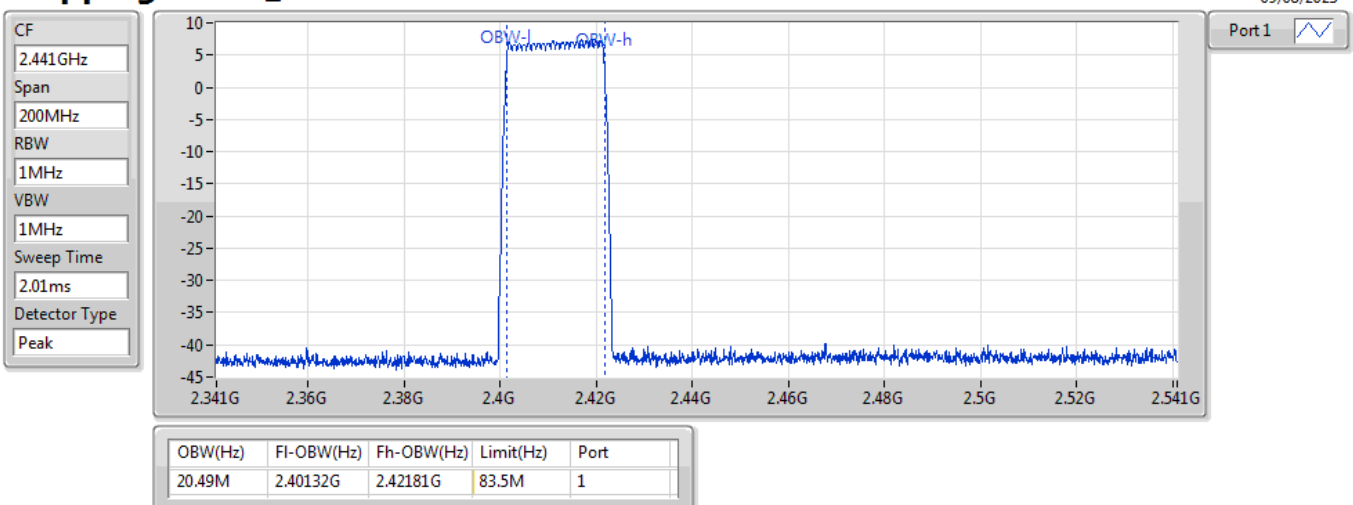


BT-BR-AFH(1Mbps)

OBW

Hopping Mode_TnomVmin

09/08/2023

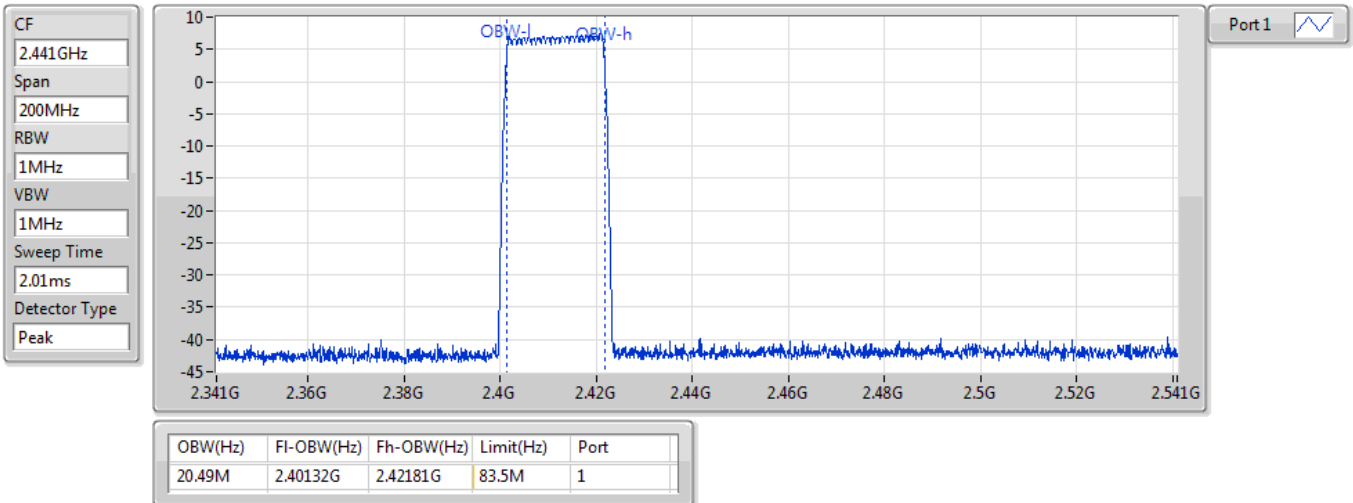


BT-BR-AFH(1Mbps)

OBW

Hopping Mode_TnomVmax

09/08/2023

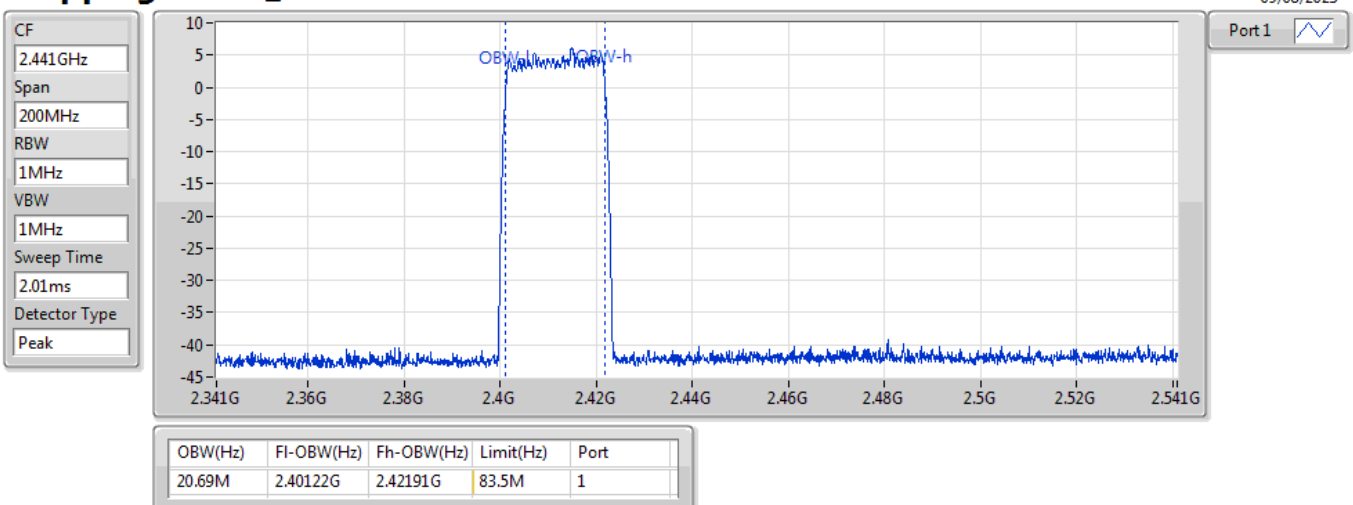


BT-EDR-AFH(3Mbps)

OBW

Hopping Mode_TnomVnom

09/08/2023

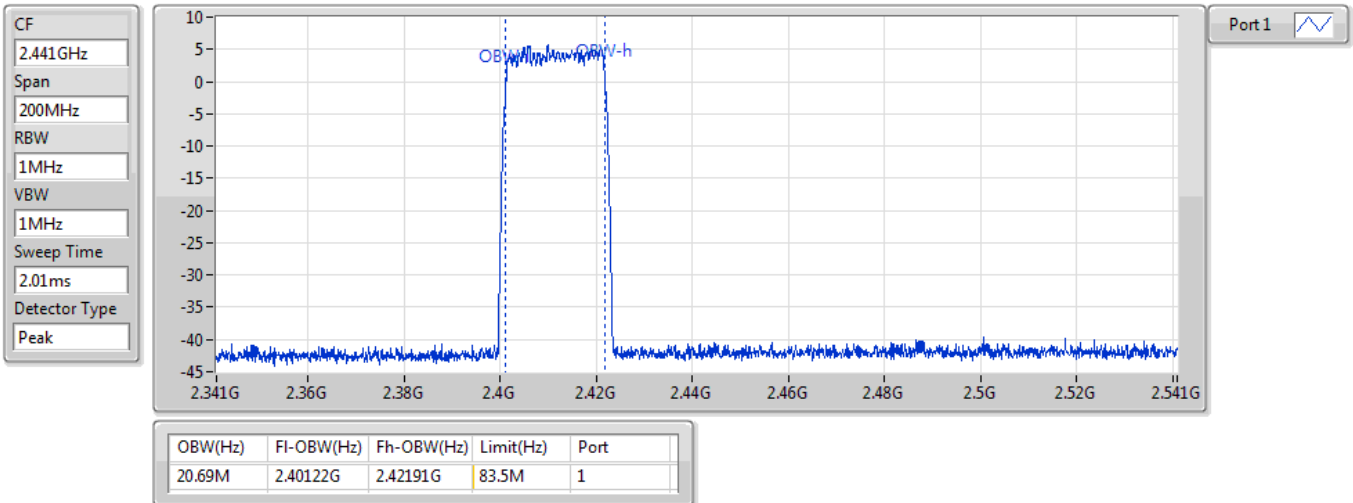


BT-EDR-AFH(3Mbps)

OBW

Hopping Mode_TnomVmin

09/08/2023

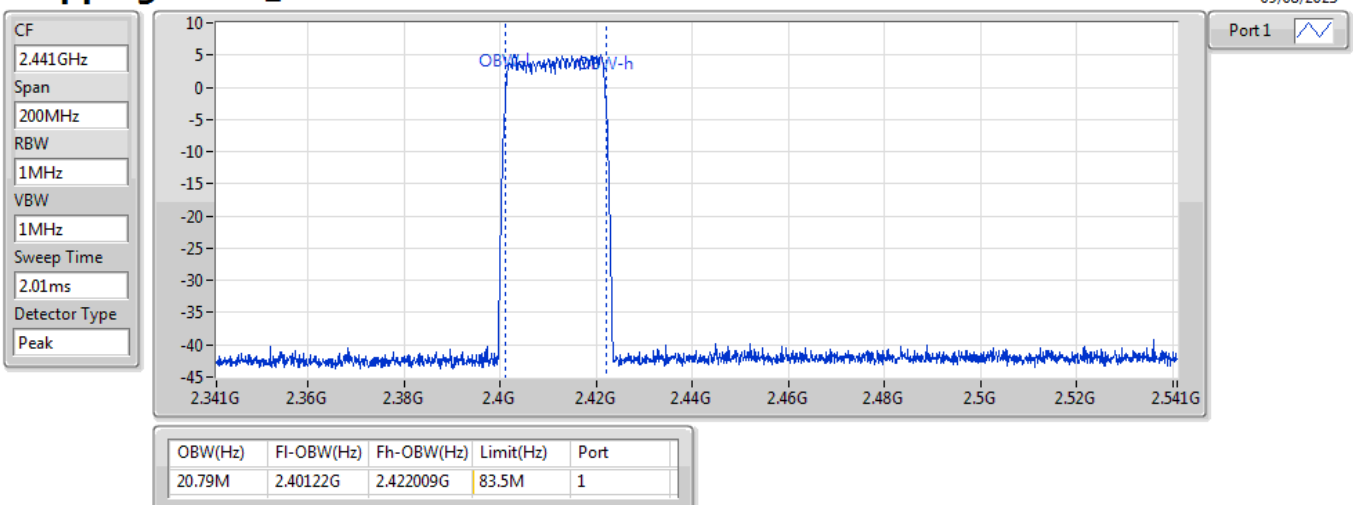


BT-EDR-AFH(3Mbps)

OBW

Hopping Mode_TnomVmax

09/08/2023



Summary

Mode	Max-SBW (Hz)	Min-SBW (Hz)	Max-SF	Min-SF
2.4-2.4835GHz	-	-	-	-
BT-BR(1Mbps)	71.064M	71.064M	71.064	71.064
BT-EDR(3Mbps)	70.865M	70.665M	70.865	70.665
BT-BR-AFH(1Mbps)	18.591M	18.591M	18.591	18.591
BT-EDR-AFH(3Mbps)	18.591M	18.591M	18.591	18.591

Max-SBW = Maximum spreading bandwidth; **Min-SBW** = Minimum spreading bandwidth;
Max-SF = Maximum spreading factor; **Min-SF** = Minimum spreading factor;

Result

Mode	Result	SBW Limit (Hz)	Symbol Rate (Mps)	SF Limit	P1-SBW (Hz)	P1-SF
BT-BR(1Mbps)	-	-	-	-	-	-
Hopping_Mode_TnomVnom	Pass	Inf	1M	5	71.064M	71.064
Hopping_Mode_TnomVmin	Pass	Inf	1M	5	71.064M	71.064
Hopping_Mode_TnomVmax	Pass	Inf	1M	5	71.064M	71.064
BT-EDR(3Mbps)	-	-	-	-	-	-
Hopping_Mode_TnomVnom	Pass	Inf	1M	5	70.765M	70.765
Hopping_Mode_TnomVmin	Pass	Inf	1M	5	70.665M	70.665
Hopping_Mode_TnomVmax	Pass	Inf	1M	5	70.865M	70.865
BT-BR-AFH(1Mbps)	-	-	-	-	-	-
Hopping_Mode_TnomVnom	Pass	Inf	1M	5	18.591M	18.591
Hopping_Mode_TnomVmin	Pass	Inf	1M	5	18.591M	18.591
Hopping_Mode_TnomVmax	Pass	Inf	1M	5	18.591M	18.591
BT-EDR-AFH(3Mbps)	-	-	-	-	-	-
Hopping_Mode_TnomVnom	Pass	Inf	1M	5	18.591M	18.591
Hopping_Mode_TnomVmin	Pass	Inf	1M	5	18.591M	18.591
Hopping_Mode_TnomVmax	Pass	Inf	1M	5	18.591M	18.591

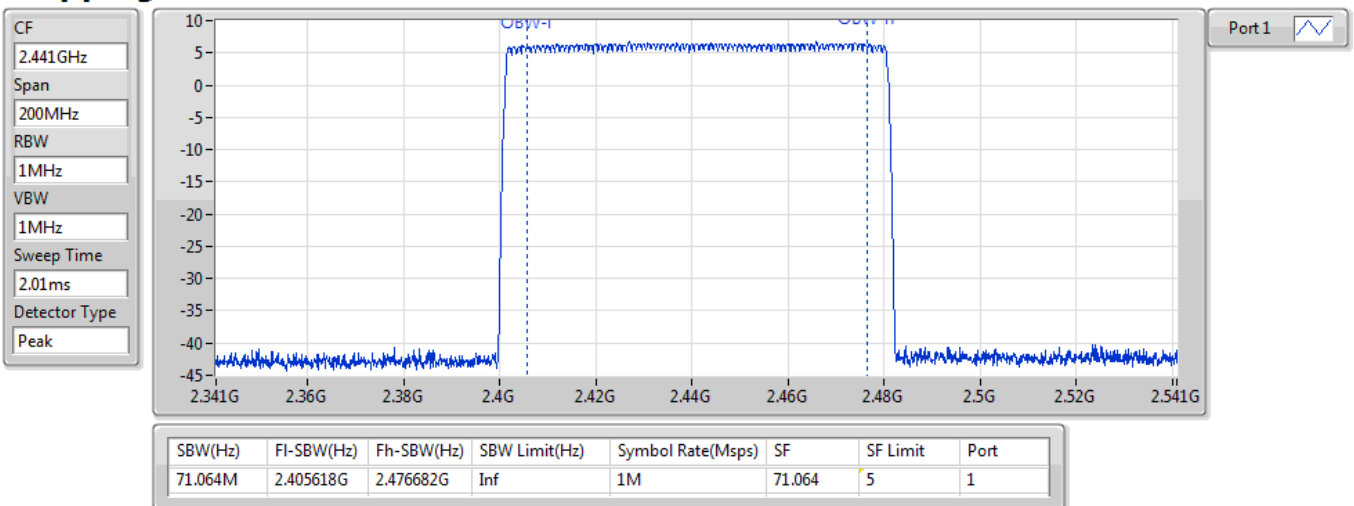
P1-SBW = Port 1 spreading bandwidth; **P2-SBW** = Port 2 spreading bandwidth; **Pn-SBW** = Port n spreading bandwidth;
P1-SF = Port 1 spreading factor; **P2-SF** = Port 2 spreading factor; **Pn-SF** = Port n spreading factor;

BT-BR(1Mbps)

SBW

Hopping Mode_TnomVnom

09/08/2023

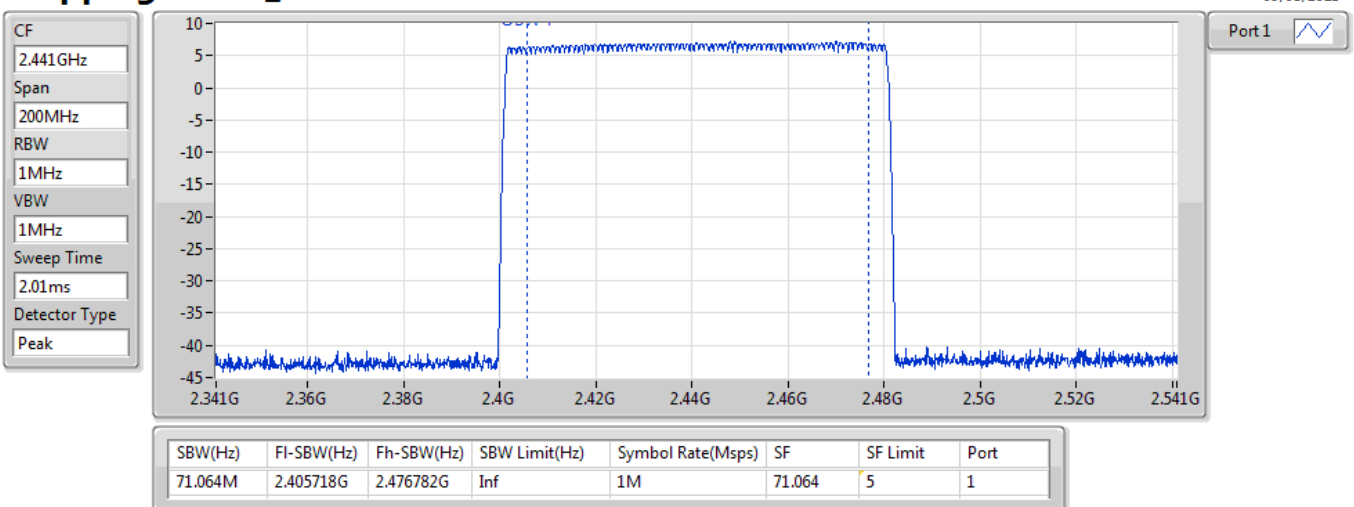


BT-BR(1Mbps)

SBW

Hopping Mode_TnomVmin

09/08/2023

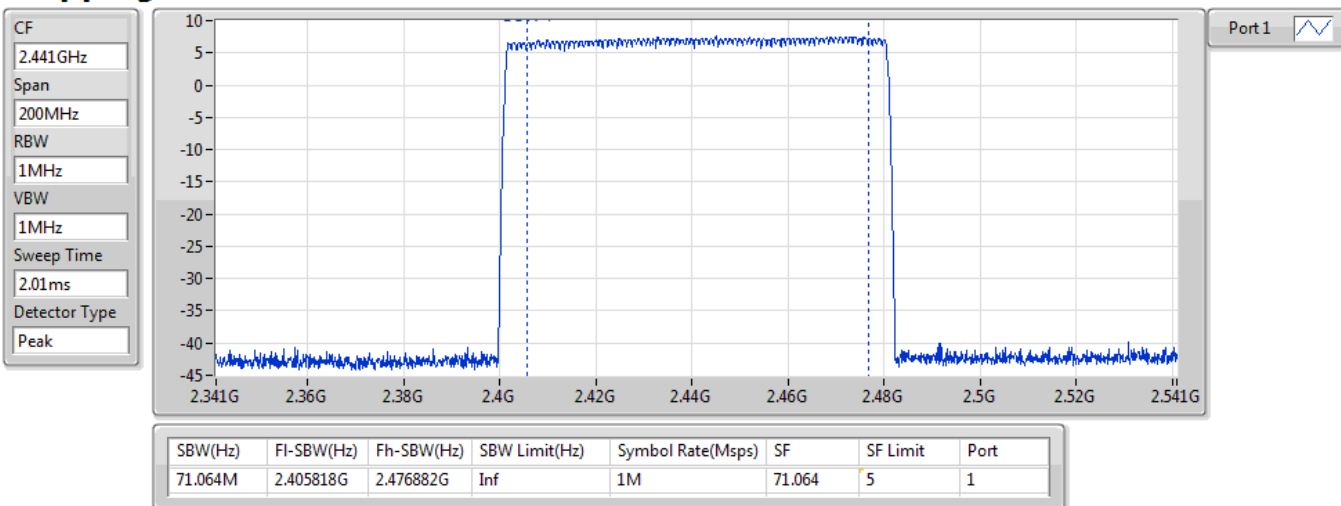


BT-BR(1Mbps)

SBW

Hopping Mode_TnomVmax

09/08/2023

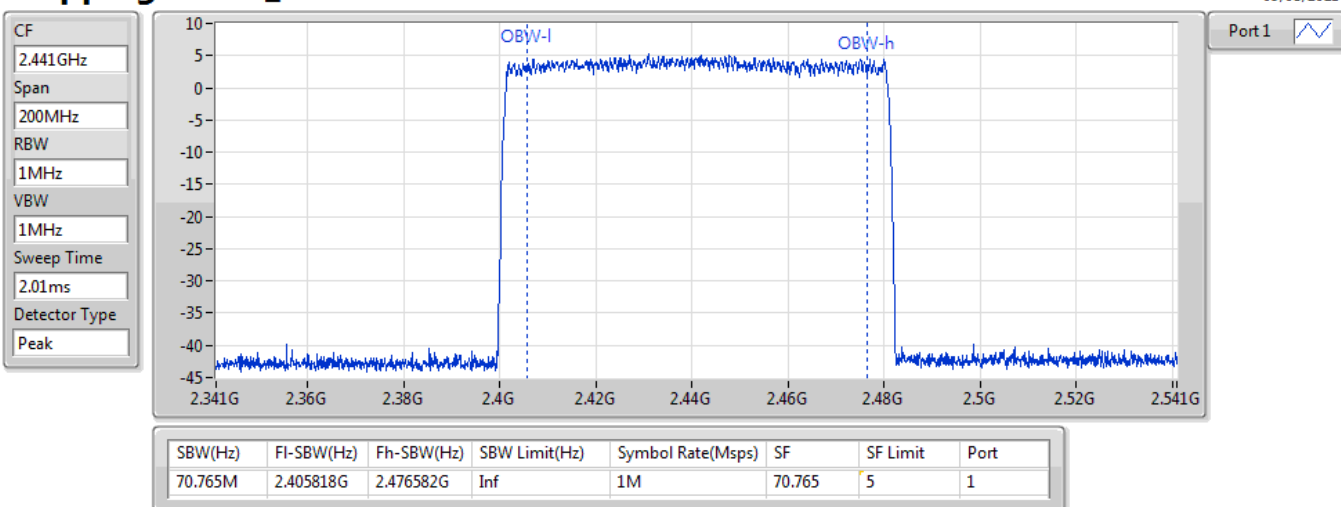


BT-EDR(3Mbps)

SBW

Hopping Mode_TnomVnom

09/08/2023

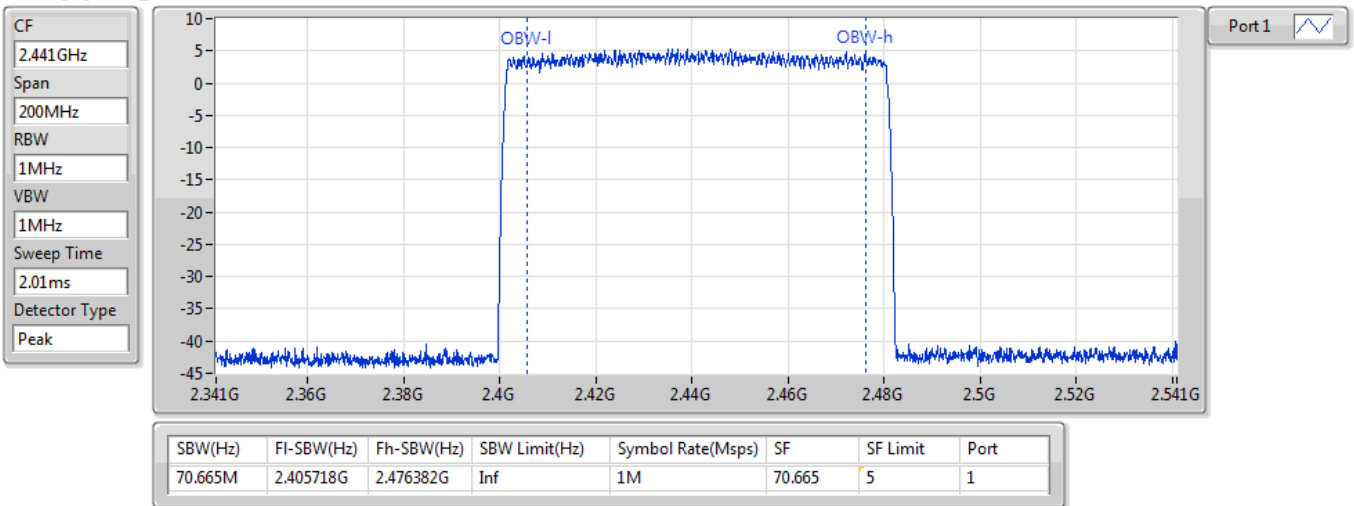


BT-EDR(3Mbps)

SBW

Hopping Mode_TnomVmin

09/08/2023

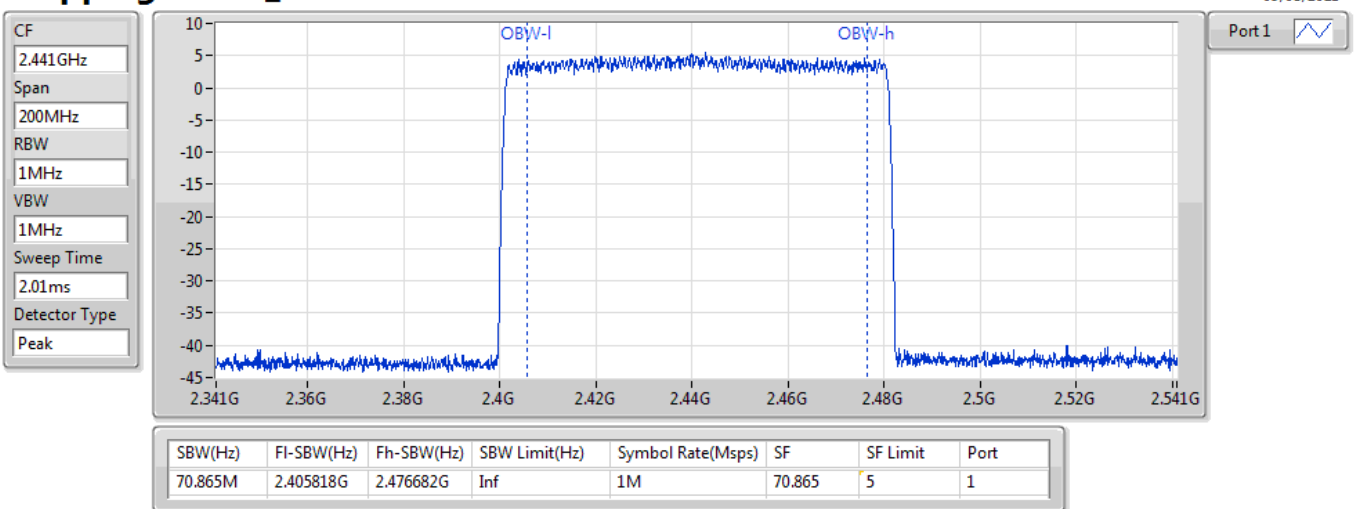


BT-EDR(3Mbps)

SBW

Hopping Mode_TnomVmax

09/08/2023

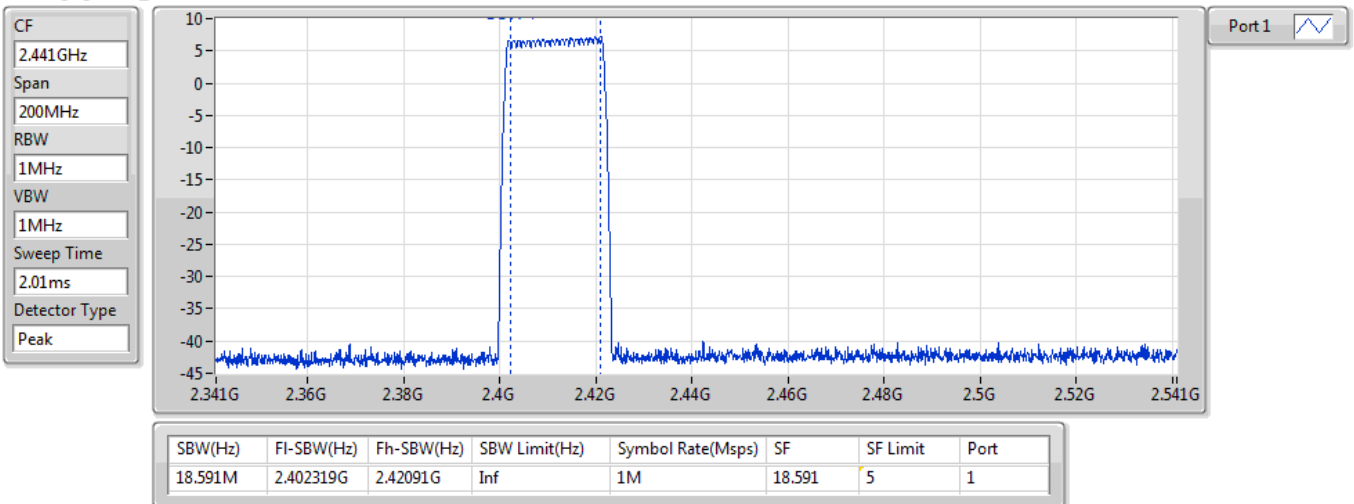


BT-BR-AFH(1Mbps)

SBW

Hopping Mode_TnomVnom

09/08/2023

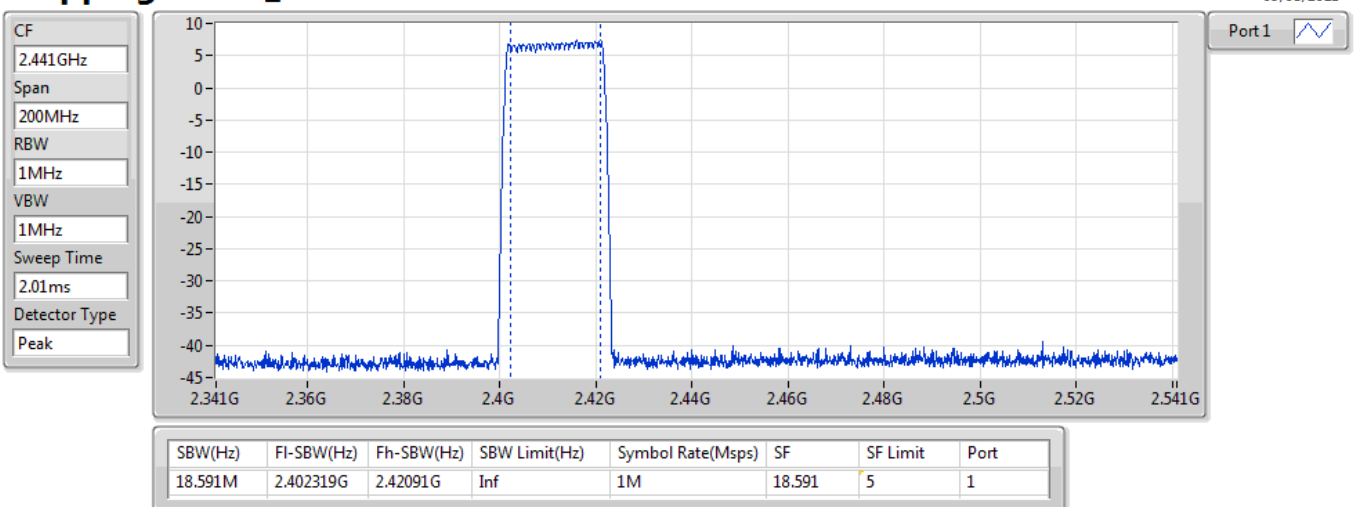


BT-BR-AFH(1Mbps)

SBW

Hopping Mode_TnomVmin

09/08/2023

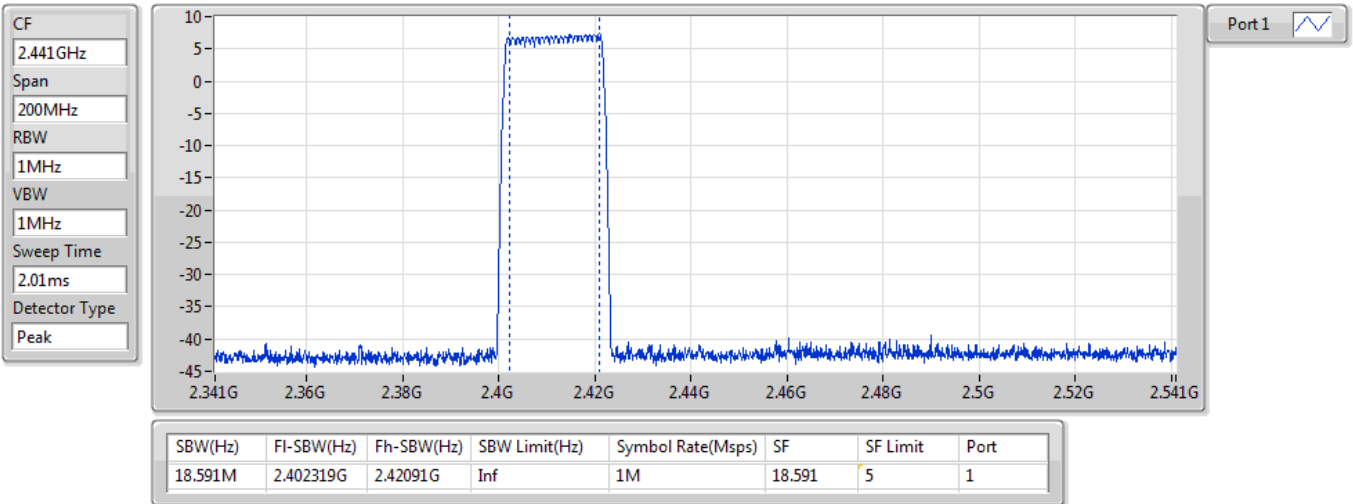


BT-BR-AFH(1Mbps)

SBW

Hopping Mode_TnomVmax

09/08/2023

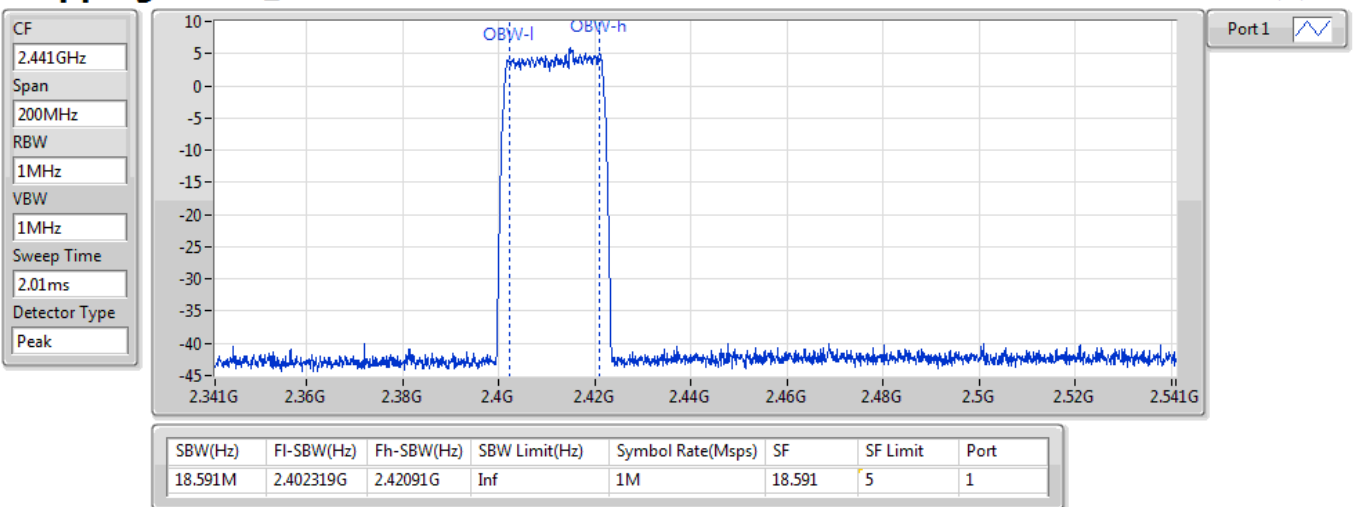


BT-EDR-AFH(3Mbps)

SBW

Hopping Mode_TnomVnom

09/08/2023

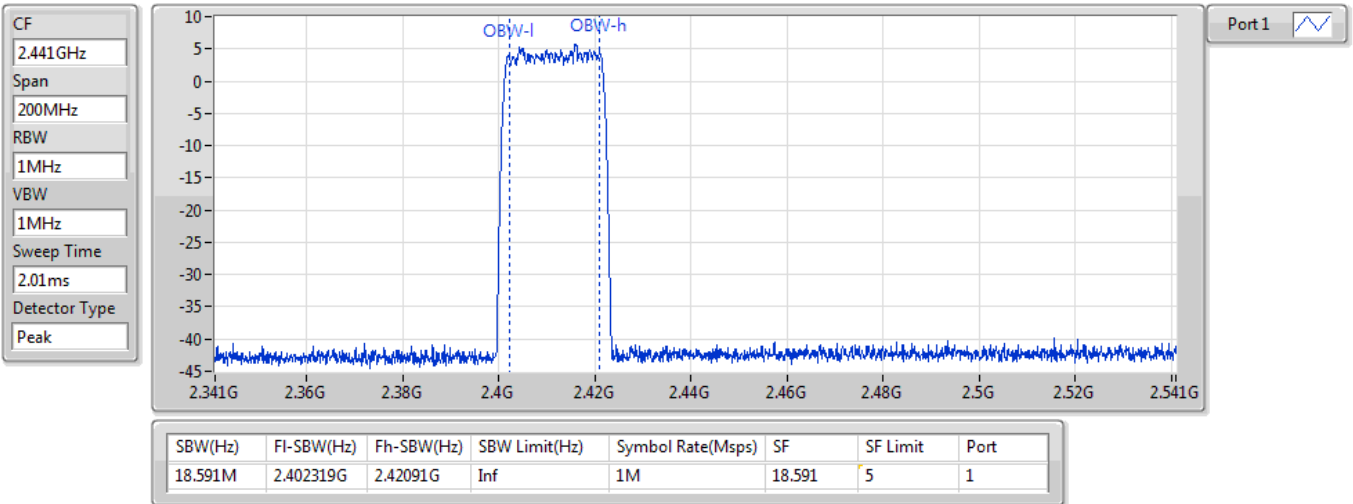


BT-EDR-AFH(3Mbps)

SBW

Hopping Mode_TnomVmin

09/08/2023

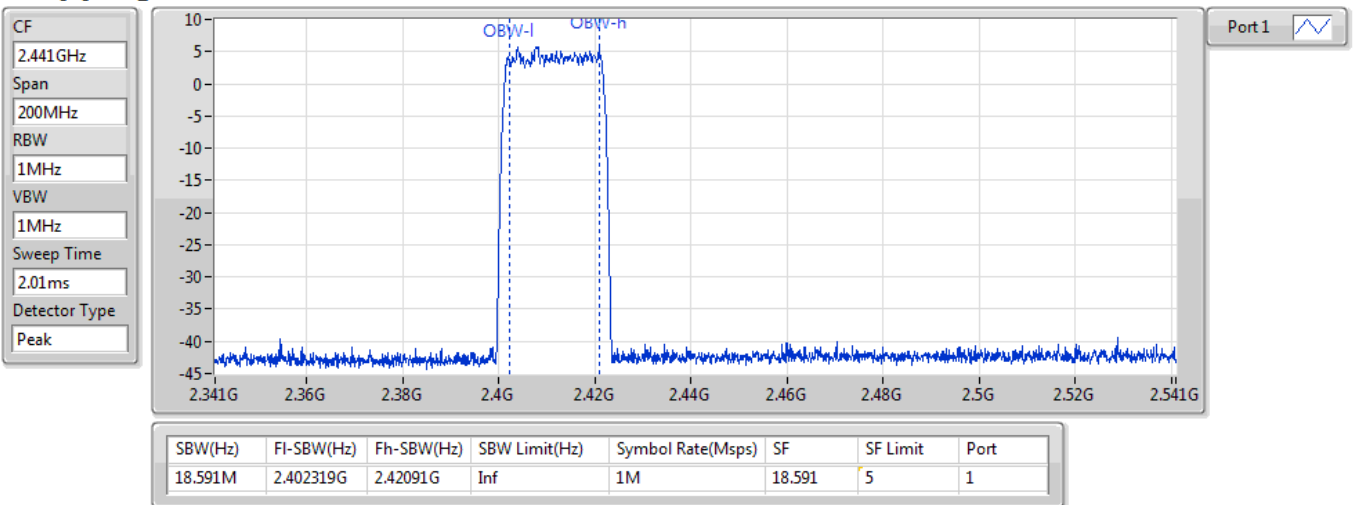


BT-EDR-AFH(3Mbps)

SBW

Hopping Mode_TnomVmax

09/08/2023



Summary

Mode	Result	F-Start (Hz)	F-Stop (Hz)	RBW (Hz)	Freq (Hz)	Psum (dBm/MHz)	Psum (uW/MHz)	Limit (dBm/MHz)	Limit (uW/MHz)
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-
BT-BR(1Mbps)	Pass	2.4965G	12.5G	1M	4.94361G	-43.59	0.04375	-26.02	2.5
BT-EDR(3Mbps)	Pass	2.387G	2.4G	1M	2.4G	-30.93	0.80724	-16.02	25

Result

Mode	Result	F-Start (Hz)	F-Stop (Hz)	RBW (Hz)	Freq (Hz)	Psum (dBm/MHz)	Psum (uW/MHz)	Limit (dBm/MHz)	Limit (uW/MHz)
BT-BR(1Mbps)	-	-	-	-	-	-	-	-	-
Hopping_Mode_TnomVnom	Pass	30M	2.387G	1M	2.31511G	-54.39	0.00364	-26.02	2.5
Hopping_Mode_TnomVnom	Pass	2.387G	2.4G	1M	2.39995G	-36.12	0.24434	-16.02	25
Hopping_Mode_TnomVnom	Pass	2.4835G	2.4965G	1M	2.4835G	-53.78	0.00419	-16.02	25
Hopping_Mode_TnomVnom	Pass	2.4965G	12.5G	1M	4.94361G	-44.26	0.0375	-26.02	2.5
Hopping_Mode_TnomVmin	Pass	30M	2.387G	1M	2.28918G	-54.23	0.00378	-26.02	2.5
Hopping_Mode_TnomVmin	Pass	2.387G	2.4G	1M	2.4G	-34.34	0.36813	-16.02	25
Hopping_Mode_TnomVmin	Pass	2.4835G	2.4965G	1M	2.48389G	-53.94	0.00404	-16.02	25
Hopping_Mode_TnomVmin	Pass	2.4965G	12.5G	1M	4.94361G	-44.70	0.03388	-26.02	2.5
Hopping_Mode_TnomVmax	Pass	30M	2.387G	1M	2.28565G	-54.24	0.00377	-26.02	2.5
Hopping_Mode_TnomVmax	Pass	2.387G	2.4G	1M	2.4G	-34.02	0.39628	-16.02	25
Hopping_Mode_TnomVmax	Pass	2.4835G	2.4965G	1M	2.48358G	-53.76	0.00421	-16.02	25
Hopping_Mode_TnomVmax	Pass	2.4965G	12.5G	1M	4.94361G	-43.59	0.04375	-26.02	2.5
BT-EDR(3Mbps)	-	-	-	-	-	-	-	-	-
Hopping_Mode_TnomVnom	Pass	30M	2.387G	1M	2.32336G	-54.34	0.00368	-26.02	2.5
Hopping_Mode_TnomVnom	Pass	2.387G	2.4G	1M	2.4G	-31.18	0.76208	-16.02	25
Hopping_Mode_TnomVnom	Pass	2.4835G	2.4965G	1M	2.49247G	-54.40	0.00363	-16.02	25
Hopping_Mode_TnomVnom	Pass	2.4965G	12.5G	1M	10.53681G	-46.61	0.02183	-26.02	2.5
Hopping_Mode_TnomVmin	Pass	30M	2.387G	1M	2.34457G	-54.33	0.00369	-26.02	2.5
Hopping_Mode_TnomVmin	Pass	2.387G	2.4G	1M	2.4G	-30.93	0.80724	-16.02	25
Hopping_Mode_TnomVmin	Pass	2.4835G	2.4965G	1M	2.4835G	-52.29	0.0059	-16.02	25
Hopping_Mode_TnomVmin	Pass	2.4965G	12.5G	1M	10.51806G	-46.39	0.02296	-26.02	2.5
Hopping_Mode_TnomVmax	Pass	30M	2.387G	1M	2.29036G	-54.22	0.00378	-26.02	2.5
Hopping_Mode_TnomVmax	Pass	2.387G	2.4G	1M	2.4G	-31.70	0.67608	-16.02	25
Hopping_Mode_TnomVmax	Pass	2.4835G	2.4965G	1M	2.49491G	-54.48	0.00356	-16.02	25
Hopping_Mode_TnomVmax	Pass	2.4965G	12.5G	1M	10.51931G	-46.51	0.02234	-26.02	2.5

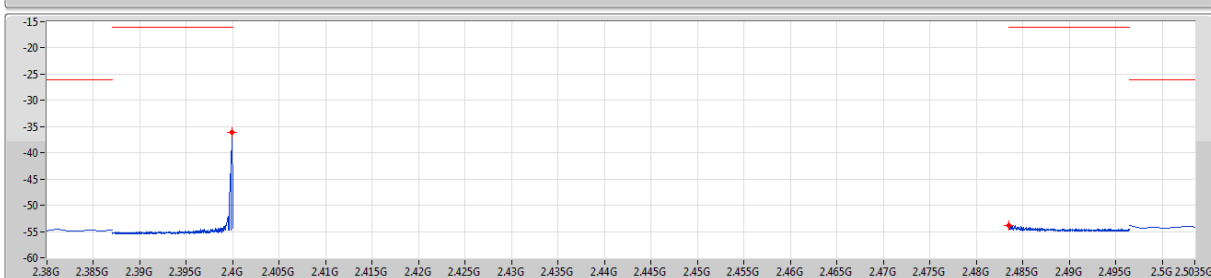
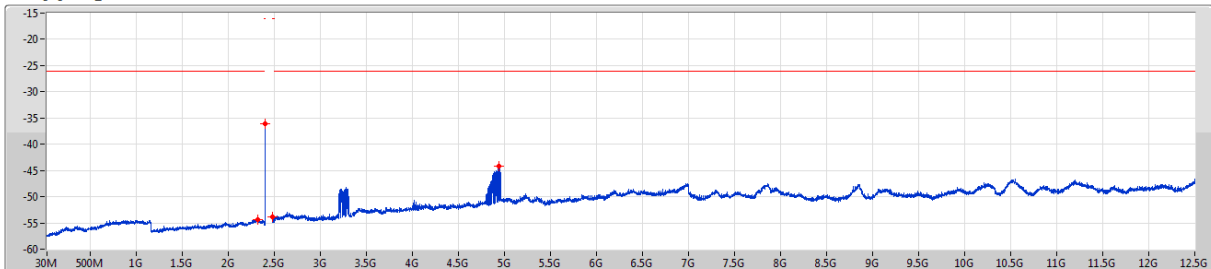


BT-BR(1Mbps)

CSE-TX-FS

Hopping Mode_TnomVnom

09/08/2023



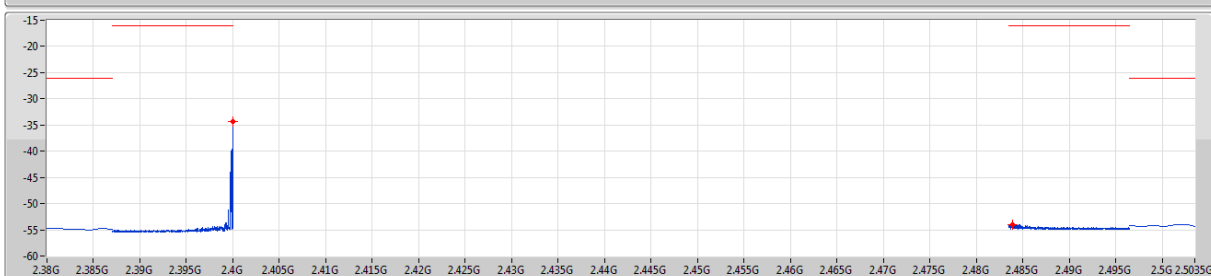
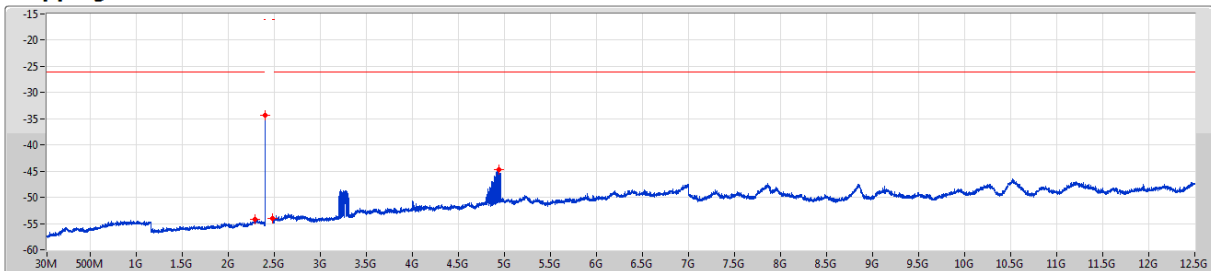
F-Start(Hz)	F-Stop(Hz)	Freq(Hz)	Psum(dBm)	Limit(dBm)	Margin(dB)	P1(dBm)
30M	2.387G	2.31511G	-54.39	-26.02	-28.37	-54.39
2.387G	2.4G	2.39995G	-36.12	-16.02	-20.10	-36.12
2.4835G	2.4965G	2.4835G	-53.78	-16.02	-37.76	-53.78
2.4965G	12.5G	4.94361G	-44.26	-26.02	-18.24	-44.26

BT-BR(1Mbps)

CSE-TX-FS

Hopping Mode_TnomVmin

09/08/2023



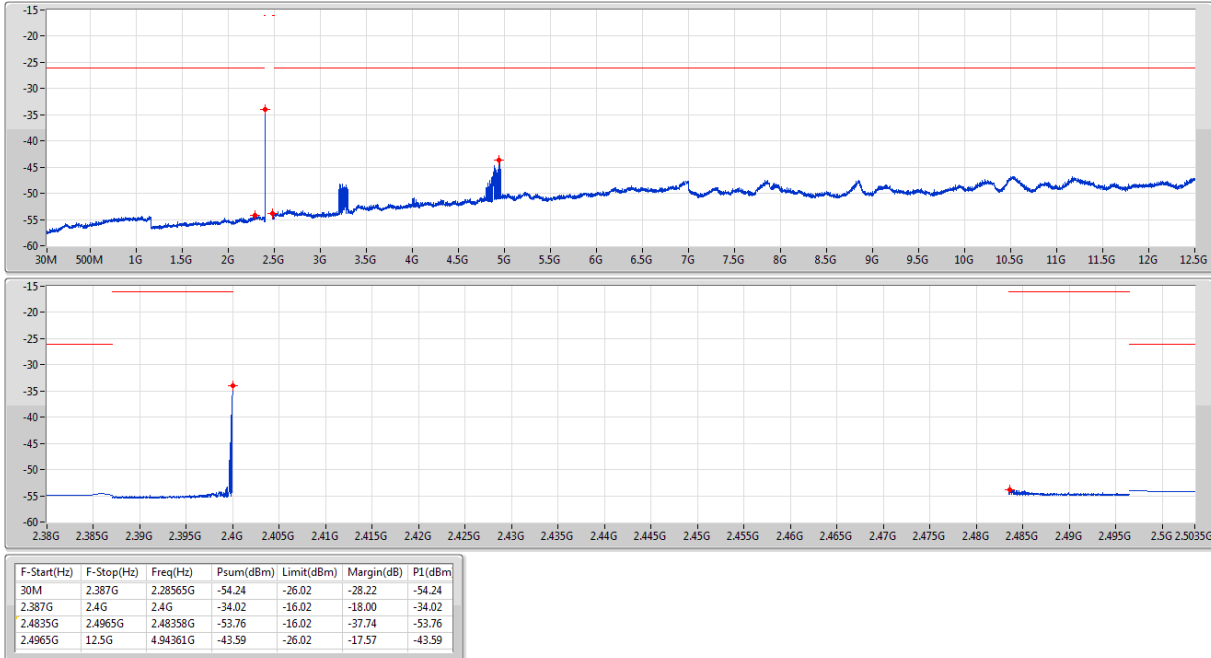
F-Start(Hz)	F-Stop(Hz)	Freq(Hz)	Psum(dBm)	Limit(dBm)	Margin(dB)	P1(dBm)
30M	2.387G	2.28918G	-54.23	-26.02	-28.21	-54.23
2.387G	2.4G	2.4G	-34.34	-16.02	-18.32	-34.34
2.4835G	2.4965G	2.48389G	-53.94	-16.02	-37.92	-53.94
2.4965G	12.5G	4.94361G	-44.70	-26.02	-18.68	-44.70



BT-BR(1Mbps)

CSE-TX-FS

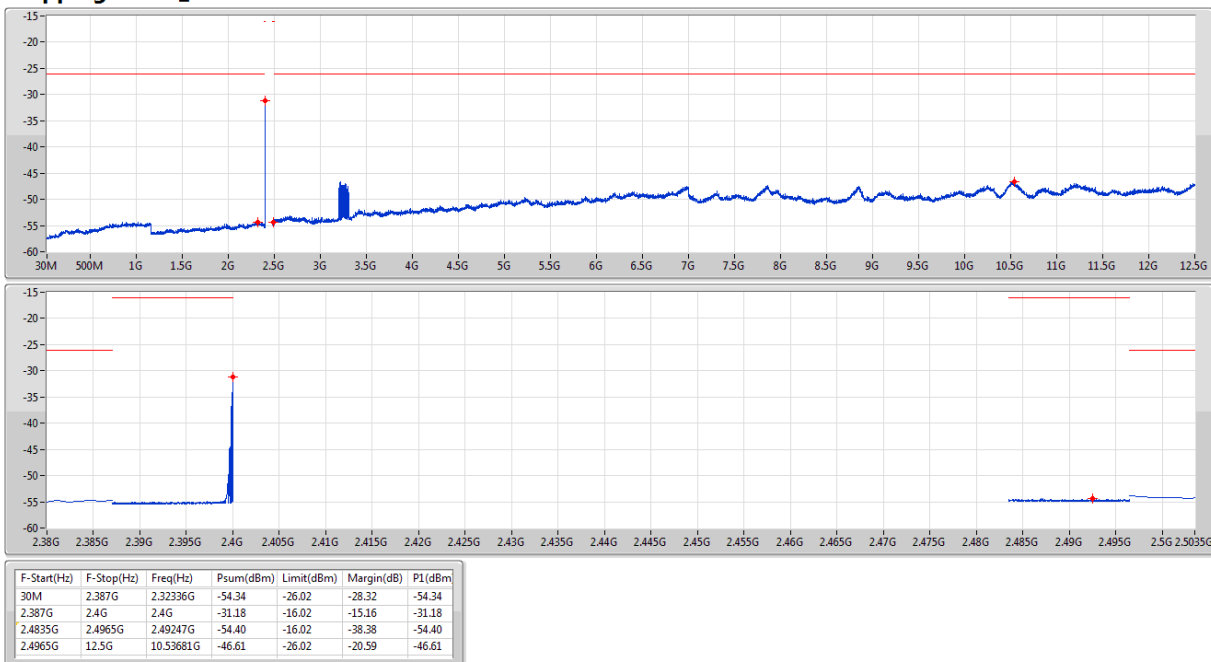
Hopping Mode_TnomVmax



BT-EDR(3Mbps)

CSE-TX-FS

Hopping Mode_TnomVnom

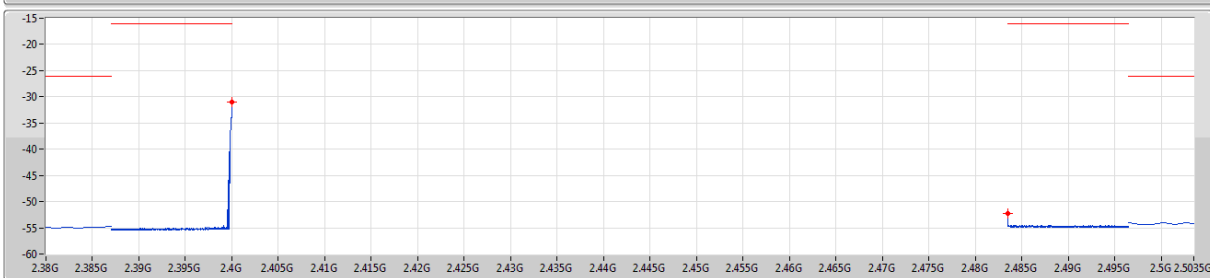
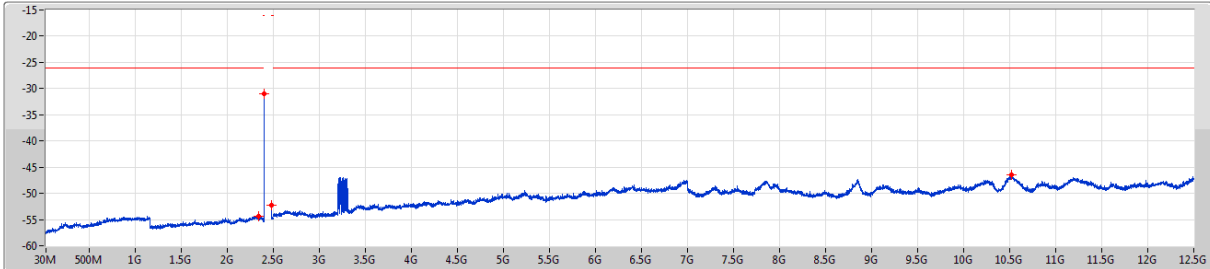




BT-EDR(3Mbps)

CSE-TX-FS

Hopping Mode_TnomVmin

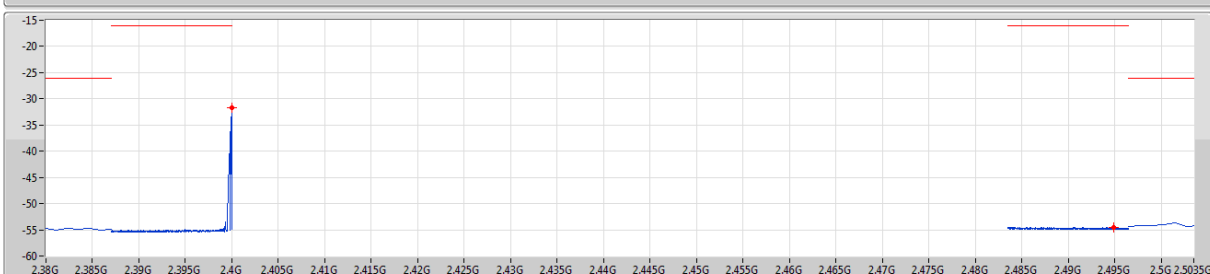
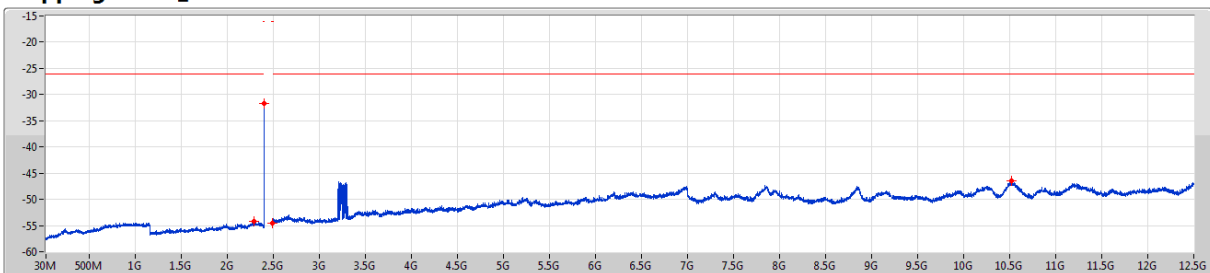


F-Start(Hz)	F-Stop(Hz)	Freq(Hz)	Psum(dBm)	Limit(dBm)	Margin(dB)	P1(dBm)
30M	2.387G	2.34457G	-54.33	-26.02	-28.31	-54.33
2.387G	2.4G	2.4G	-30.93	-16.02	-14.91	-30.93
2.4835G	2.4965G	2.4835G	-52.29	-16.02	-36.27	-52.29
2.4965G	12.5G	10.51806G	-46.39	-26.02	-20.37	-46.39

BT-EDR(3Mbps)

CSE-TX-FS

Hopping Mode_TnomVmax



F-Start(Hz)	F-Stop(Hz)	Freq(Hz)	Psum(dBm)	Limit(dBm)	Margin(dB)	P1(dBm)
30M	2.387G	2.29036G	-54.22	-26.02	-28.20	-54.22
2.387G	2.4G	2.4G	-31.70	-16.02	-15.68	-31.70
2.4835G	2.4965G	2.49491G	-54.48	-16.02	-38.46	-54.48
2.4965G	12.5G	10.51931G	-46.51	-26.02	-20.49	-46.51

Summary

Mode	Max-Dwell (s)
2.4-2.4835GHz	-
BT-BR(1Mbps)	276.547m
BT-EDR(3Mbps)	276.203m
BT-BR-AFH(1Mbps)	142.873m
BT-EDR-AFH(3Mbps)	143.096m

Result

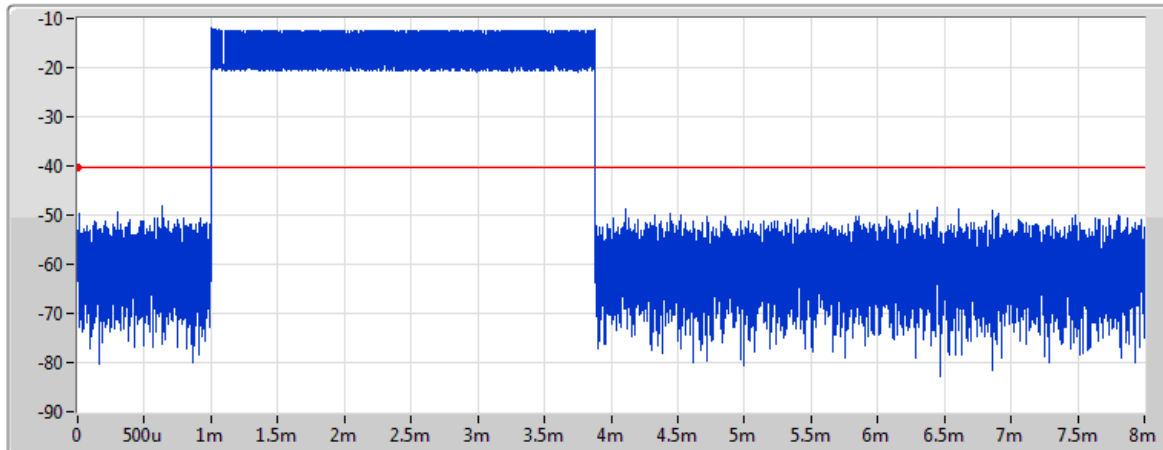
Mode	Result	Period (s)	Dwell (s)	Limit (s)	Tx On (s)
BT-BR(1Mbps)	-	-	-	-	-
Hopping_Mode_TnomVnom	Pass	28.426	276.523m	400m	2.881m
Hopping_Mode_TnomVmin	Pass	28.426	276.523m	400m	2.881m
Hopping_Mode_TnomVmax	Pass	28.426	276.547m	400m	2.882m
BT-EDR(3Mbps)	-	-	-	-	-
Hopping_Mode_TnomVnom	Pass	28.306	275.789m	400m	2.886m
Hopping_Mode_TnomVmin	Pass	28.266	275.423m	400m	2.886m
Hopping_Mode_TnomVmax	Pass	28.346	276.203m	400m	2.886m
BT-BR-AFH(1Mbps)	-	-	-	-	-
Hopping_Mode_TnomVnom	Pass	7.436	142.86m	400m	2.881m
Hopping_Mode_TnomVmin	Pass	7.436	142.873m	400m	2.882m
Hopping_Mode_TnomVmax	Pass	7.436	142.86m	400m	2.881m
BT-EDR-AFH(3Mbps)	-	-	-	-	-
Hopping_Mode_TnomVnom	Pass	7.436	143.096m	400m	2.886m
Hopping_Mode_TnomVmin	Pass	7.436	143.096m	400m	2.886m
Hopping_Mode_TnomVmax	Pass	7.436	143.096m	400m	2.886m


BT-BR(1Mbps)

Dwell

Hopping Mode_TnomVnom

09/08/2023



Port 1 

CF
2.441GHz

RBW
1MHz

VBW
1MHz

Sweep Time
8ms

TX Time
2.8815ms

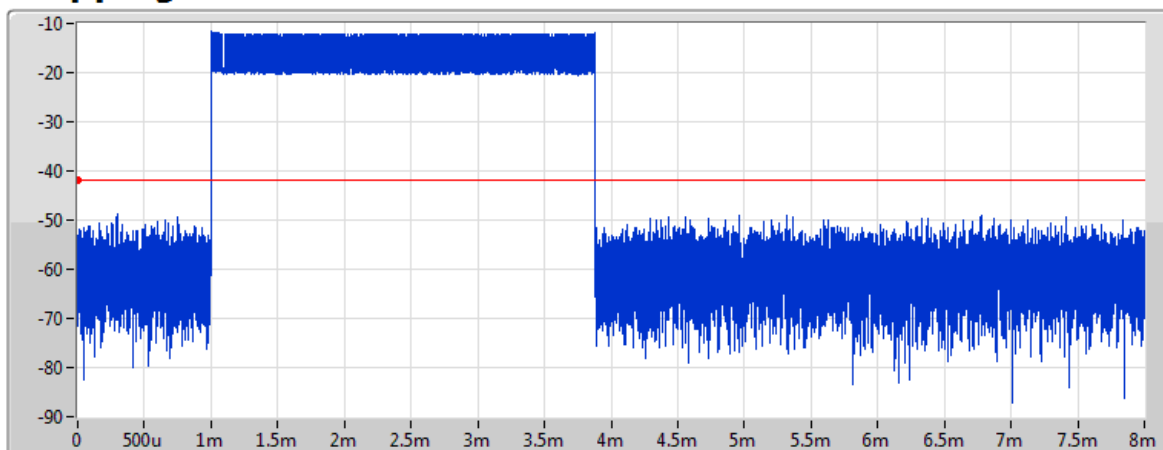
Period(s)	Dwell(s)	Limit(s)	Tx On(s)
28.426	276.523m	400m	2.881m


BT-BR(1Mbps)

Dwell

Hopping Mode_TnomVmin

09/08/2023



Port 1 

CF
2.441GHz

RBW
1MHz

VBW
1MHz

Sweep Time
8ms

TX Time
2.8815ms

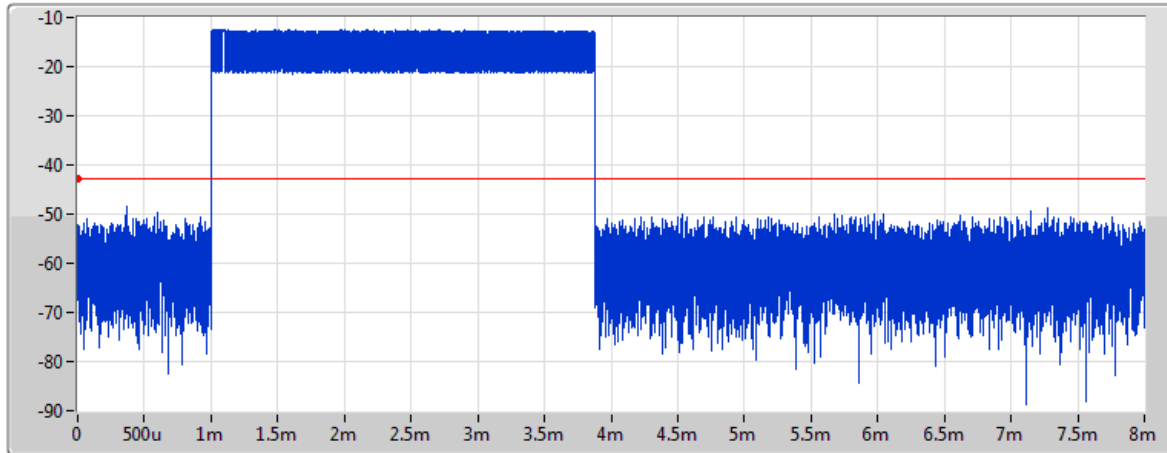
Period(s)	Dwell(s)	Limit(s)	Tx On(s)
28.426	276.523m	400m	2.881m

BT-BR(1Mbps)

Dwell

Hopping Mode_TnomVmax

09/08/2023



Port 1 

CF
2.441GHz

RBW
1MHz

VBW
1MHz

Sweep Time
8ms

TX Time
2.88175ms

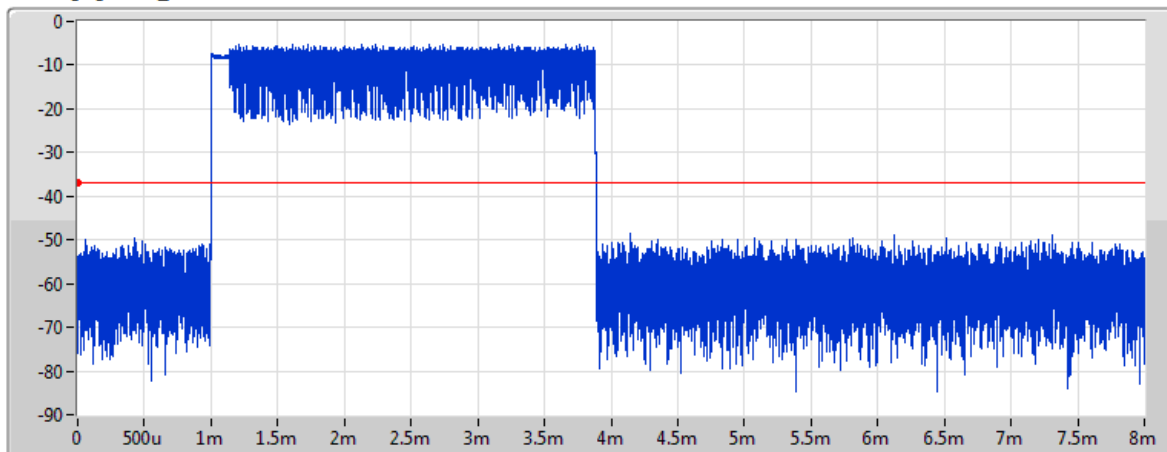
Period(s)	Dwell(s)	Limit(s)	Tx On(s)
28.426	276.547m	400m	2.882m


BT-EDR(3Mbps)

Dwell

Hopping Mode_TnomVnom

09/08/2023



Port 1 

CF
2.441GHz

RBW
1MHz

VBW
1MHz

Sweep Time
8ms

TX Time
2.886ms

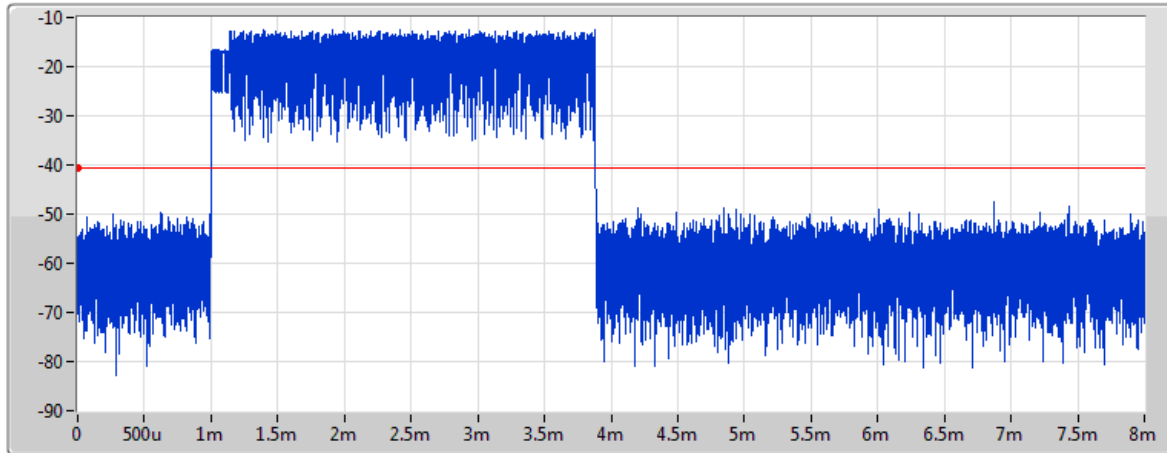
Period(s)	Dwell(s)	Limit(s)	Tx On(s)
28.306	275.789m	400m	2.886m


BT-EDR(3Mbps)

Dwell

Hopping Mode_TnomVmin

09/08/2023



Port 1 

CF
2.441GHz

RBW
1MHz

VBW
1MHz

Sweep Time
8ms

TX Time
2.88625ms

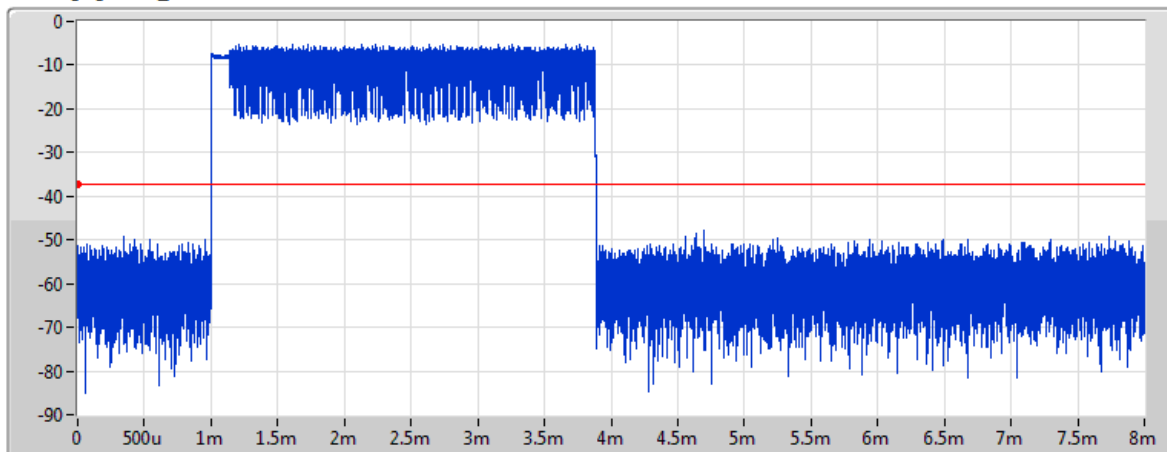
Period(s)	Dwell(s)	Limit(s)	Tx On(s)
28.266	275.423m	400m	2.886m


BT-EDR(3Mbps)

Dwell

Hopping Mode_TnomVmax

09/08/2023



Port 1 

CF
2.441GHz

RBW
1MHz

VBW
1MHz

Sweep Time
8ms

TX Time
2.88625ms

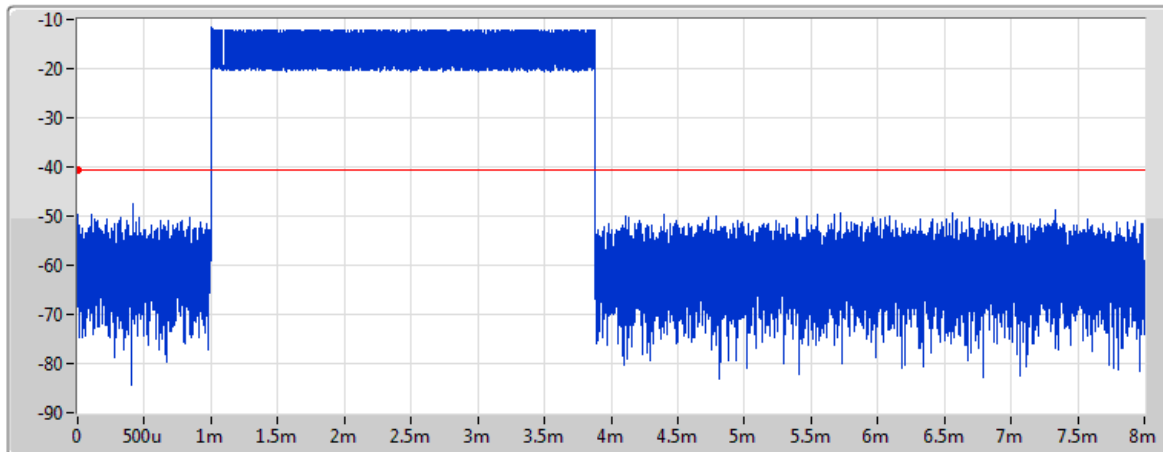
Period(s)	Dwell(s)	Limit(s)	Tx On(s)
28.346	276.203m	400m	2.886m


BT-BR-AFH(1Mbps)

Dwell

Hopping Mode_TnomVnom

09/08/2023



Port 1 

CF
2.441GHz

RBW
1MHz

VBW
1MHz

Sweep Time
8ms

TX Time
2.8815ms

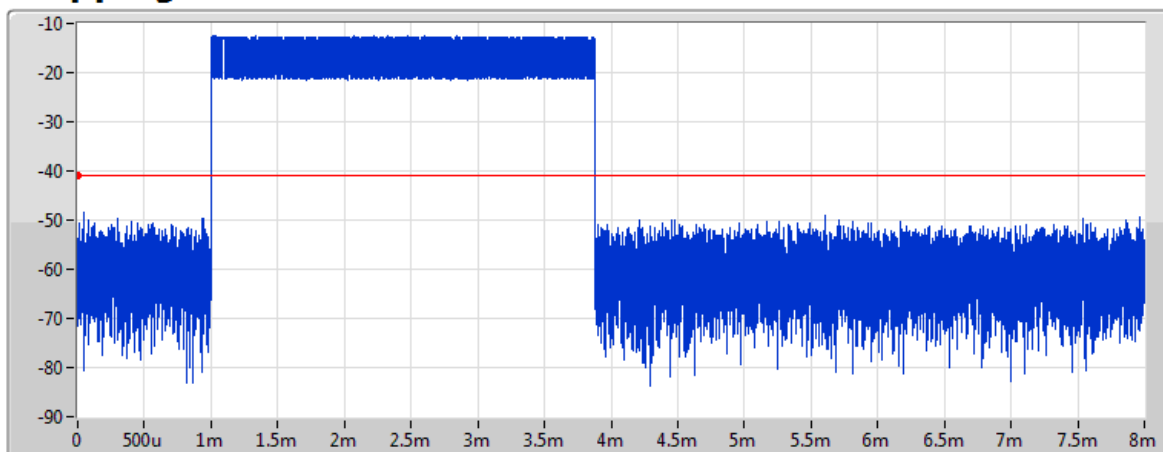
Period(s)	Dwell(s)	Limit(s)	Tx On(s)
7.436	142.86m	400m	2.881m


BT-BR-AFH(1Mbps)

Dwell

Hopping Mode_TnomVmin

09/08/2023



Port 1 

CF
2.441GHz

RBW
1MHz

VBW
1MHz

Sweep Time
8ms

TX Time
2.88175ms

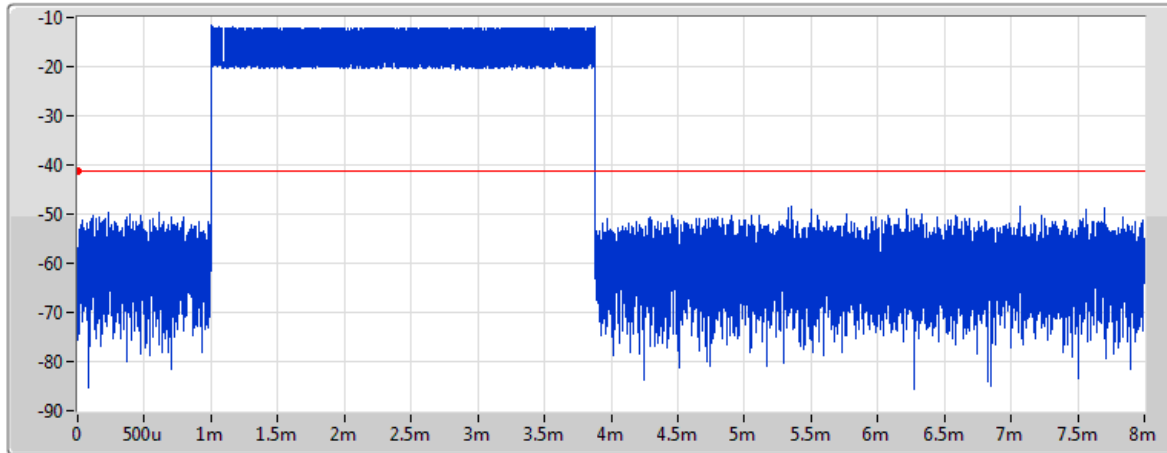
Period(s)	Dwell(s)	Limit(s)	Tx On(s)
7.436	142.873m	400m	2.882m

BT-BR-AFH(1Mbps)

Dwell

Hopping Mode_TnomVmax

09/08/2023



Port 1 

CF
2.441GHz

RBW
1MHz

VBW
1MHz

Sweep Time
8ms

TX Time
2.8815ms

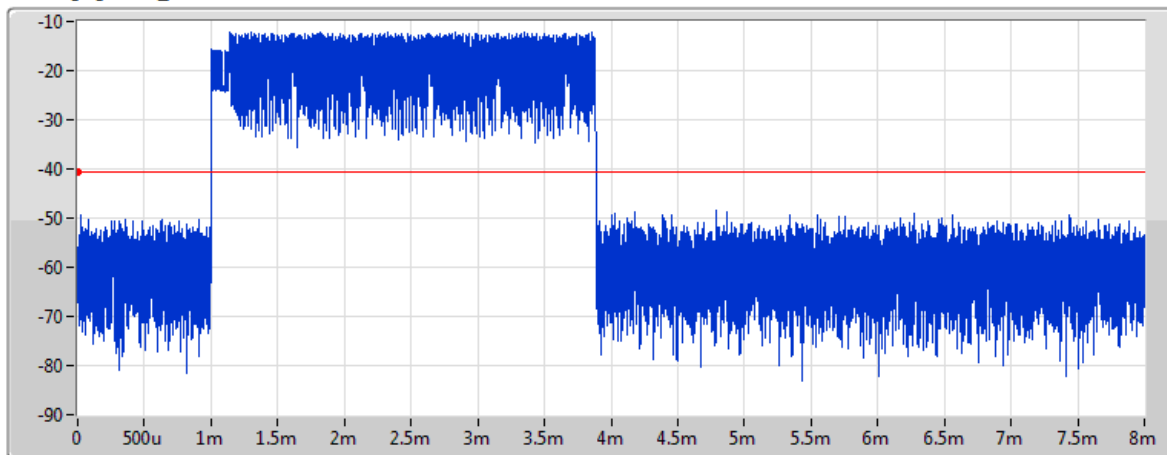
Period(s)	Dwell(s)	Limit(s)	Tx On(s)
7.436	142.86m	400m	2.881m


BT-EDR-AFH(3Mbps)

Dwell

Hopping Mode_TnomVnom

09/08/2023



Port 1 

CF
2.441GHz

RBW
1MHz

VBW
1MHz

Sweep Time
8ms

TX Time
2.88625ms

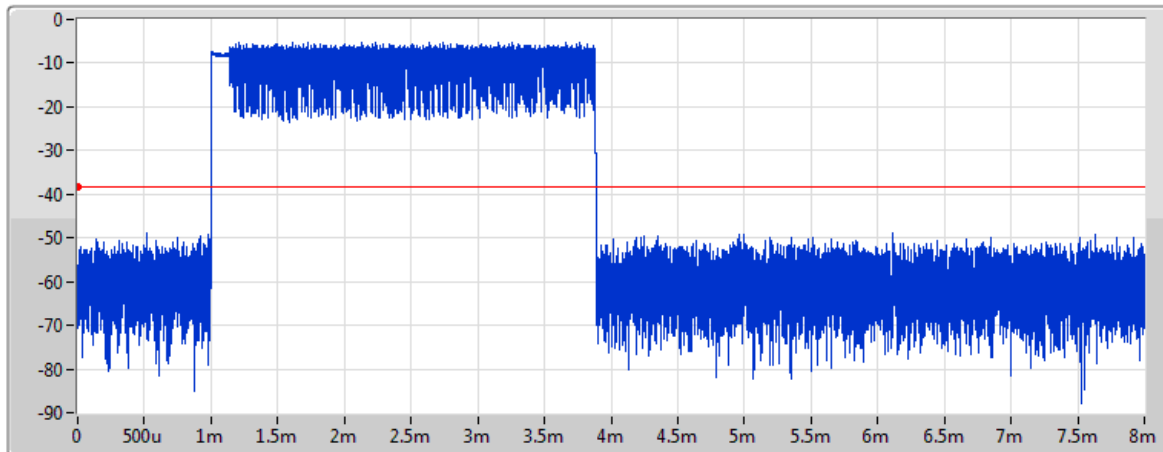
Period(s)	Dwell(s)	Limit(s)	Tx On(s)
7.436	143.096m	400m	2.886m

BT-EDR-AFH(3Mbps)

Dwell

Hopping Mode_TnomVmin

09/08/2023



Port 1 

CF
2.441GHz

RBW
1MHz

VBW
1MHz

Sweep Time
8ms

TX Time
2.88625ms

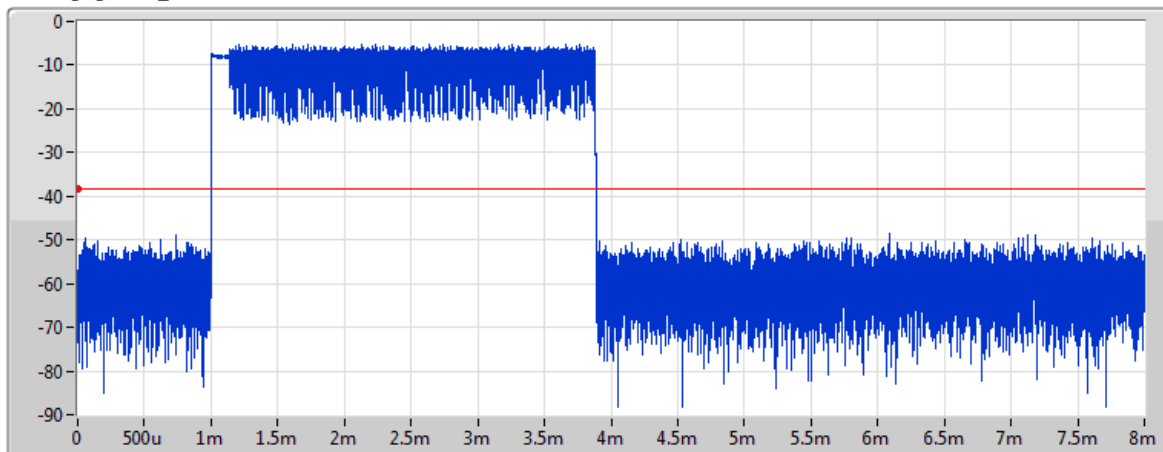
Period(s)	Dwell(s)	Limit(s)	Tx On(s)
7.436	143.096m	400m	2.886m


BT-EDR-AFH(3Mbps)

Dwell

Hopping Mode_TnomVmax

09/08/2023



Port 1 

CF
2.441GHz

RBW
1MHz

VBW
1MHz

Sweep Time
8ms

TX Time
2.88625ms

Period(s)	Dwell(s)	Limit(s)	Tx On(s)
7.436	143.096m	400m	2.886m

Summary

Mode	Result	MAC (ID Length)	ID Limit	Function
2.4-2.4835GHz	-	-	-	-
BT-BR(1Mbps)	Pass	C0:EE:40:D8:56:EF	48 bits	Good
BT-EDR(3Mbps)	Pass	C0:EE:40:D8:56:EF	48 bits	Good
BT-BR-AFH(1Mbps)	Pass	C0:EE:40:D8:56:EF	48 bits	Good
BT-EDR-AFH(3Mbps)	Pass	C0:EE:40:D8:56:EF	48 bits	Good

Result

Mode	Result	MAC (ID Length)	ID Limit	Function
BT-BR(1Mbps)	-	-	-	-
Hopping_Mode_TnomVnom	Pass	C0:EE:40:D8:56:EF	48 bits	Good
Hopping_Mode_TnomVmin	Pass	C0:EE:40:D8:56:EF	48 bits	Good
Hopping_Mode_TnomVmax	Pass	C0:EE:40:D8:56:EF	48 bits	Good
BT-EDR(3Mbps)	-	-	-	-
Hopping_Mode_TnomVnom	Pass	C0:EE:40:D8:56:EF	48 bits	Good
Hopping_Mode_TnomVmin	Pass	C0:EE:40:D8:56:EF	48 bits	Good
Hopping_Mode_TnomVmax	Pass	C0:EE:40:D8:56:EF	48 bits	Good
BT-BR-AFH(1Mbps)	-	-	-	-
Hopping_Mode_TnomVnom	Pass	C0:EE:40:D8:56:EF	48 bits	Good
Hopping_Mode_TnomVmin	Pass	C0:EE:40:D8:56:EF	48 bits	Good
Hopping_Mode_TnomVmax	Pass	C0:EE:40:D8:56:EF	48 bits	Good
BT-EDR-AFH(3Mbps)	-	-	-	-
Hopping_Mode_TnomVnom	Pass	C0:EE:40:D8:56:EF	48 bits	Good
Hopping_Mode_TnomVmin	Pass	C0:EE:40:D8:56:EF	48 bits	Good
Hopping_Mode_TnomVmax	Pass	C0:EE:40:D8:56:EF	48 bits	Good

Summary

Mode	Result	F-Start (Hz)	F-Stop (Hz)	RBW (Hz)	Freq (Hz)	Psum (dBm)	Psum (nW)	Limit (dBm)	Limit (nW)
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-
BT-BR(1Mbps)	Pass	1G	12.5G	1M	10.52056G	-77.57	0.0175	-46.99	20
BT-EDR(3Mbps)	Pass	1G	12.5G	1M	12.49856G	-77.71	0.01694	-46.99	20

Result

Mode	Result	F-Start (Hz)	F-Stop (Hz)	RBW (Hz)	Freq (Hz)	Psum (dBm)	Psum (nW)	Limit (dBm)	Limit (nW)
BT-BR(1Mbps)	-	-	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	30M	1G	100k	822.01M	-94.89	0.00032	-53.98	4
2402MHz_TnomVnom	Pass	1G	12.5G	1M	10.52056G	-77.57	0.0175	-46.99	20
2402MHz_TnomVmin	Pass	30M	1G	100k	765.26M	-94.49	0.00036	-53.98	4
2402MHz_TnomVmin	Pass	1G	12.5G	1M	10.50763G	-78.05	0.01567	-46.99	20
2402MHz_TnomVmax	Pass	30M	1G	100k	764.78M	-94.40	0.00036	-53.98	4
2402MHz_TnomVmax	Pass	1G	12.5G	1M	10.52631G	-78.30	0.01479	-46.99	20
2441MHz_TnomVnom	Pass	30M	1G	100k	765.26M	-93.88	0.00041	-53.98	4
2441MHz_TnomVnom	Pass	1G	12.5G	1M	10.51625G	-78.03	0.01574	-46.99	20
2441MHz_TnomVmin	Pass	30M	1G	100k	777.39M	-94.17	0.00038	-53.98	4
2441MHz_TnomVmin	Pass	1G	12.5G	1M	10.48894G	-78.25	0.01496	-46.99	20
2441MHz_TnomVmax	Pass	30M	1G	100k	765.26M	-93.14	0.00049	-53.98	4
2441MHz_TnomVmax	Pass	1G	12.5G	1M	10.52631G	-77.90	0.01622	-46.99	20
2480MHz_TnomVnom	Pass	30M	1G	100k	772.05M	-94.32	0.00037	-53.98	4
2480MHz_TnomVnom	Pass	1G	12.5G	1M	10.50331G	-78.23	0.01503	-46.99	20
2480MHz_TnomVmin	Pass	30M	1G	100k	773.99M	-94.65	0.00034	-53.98	4
2480MHz_TnomVmin	Pass	1G	12.5G	1M	10.522G	-78.09	0.01552	-46.99	20
2480MHz_TnomVmax	Pass	30M	1G	100k	773.51M	-94.87	0.00033	-53.98	4
2480MHz_TnomVmax	Pass	1G	12.5G	1M	10.51338G	-78.15	0.01531	-46.99	20
BT-EDR(3Mbps)	-	-	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	30M	1G	100k	765.26M	-93.76	0.00042	-53.98	4
2402MHz_TnomVnom	Pass	1G	12.5G	1M	10.51481G	-78.08	0.01556	-46.99	20
2402MHz_TnomVmin	Pass	30M	1G	100k	774.96M	-93.90	0.00041	-53.98	4
2402MHz_TnomVmin	Pass	1G	12.5G	1M	10.49181G	-78.10	0.01549	-46.99	20
2402MHz_TnomVmax	Pass	30M	1G	100k	771.57M	-94.31	0.00037	-53.98	4
2402MHz_TnomVmax	Pass	1G	12.5G	1M	10.54069G	-78.24	0.015	-46.99	20
2441MHz_TnomVnom	Pass	30M	1G	100k	764.78M	-93.58	0.00044	-53.98	4
2441MHz_TnomVnom	Pass	1G	12.5G	1M	10.50188G	-78.16	0.01528	-46.99	20
2441MHz_TnomVmin	Pass	30M	1G	100k	772.05M	-94.31	0.00037	-53.98	4



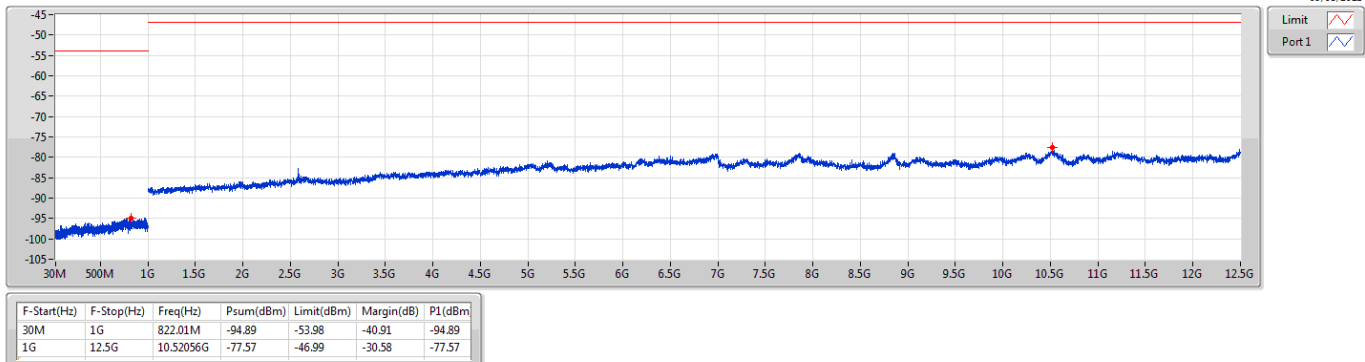
Mode	Result	F-Start (Hz)	F-Stop (Hz)	RBW (Hz)	Freq (Hz)	Psum (dBm)	Psum (nW)	Limit (dBm)	Limit (nW)
2441MHz_TnomVmin	Pass	1G	12.5G	1M	10.50044G	-78.02	0.01578	-46.99	20
2441MHz_TnomVmax	Pass	30M	1G	100k	774.96M	-93.07	0.00049	-53.98	4
2441MHz_TnomVmax	Pass	1G	12.5G	1M	10.52775G	-78.10	0.01549	-46.99	20
2480MHz_TnomVnom	Pass	30M	1G	100k	772.05M	-93.82	0.00041	-53.98	4
2480MHz_TnomVnom	Pass	1G	12.5G	1M	12.49856G	-77.71	0.01694	-46.99	20
2480MHz_TnomVmin	Pass	30M	1G	100k	777.39M	-94.26	0.00037	-53.98	4
2480MHz_TnomVmin	Pass	1G	12.5G	1M	10.51338G	-78.25	0.01496	-46.99	20
2480MHz_TnomVmax	Pass	30M	1G	100k	770.6M	-94.56	0.00035	-53.98	4
2480MHz_TnomVmax	Pass	1G	12.5G	1M	10.52056G	-78.02	0.01578	-46.99	20



BT-BR(1Mbps)

CSE-RX-FS

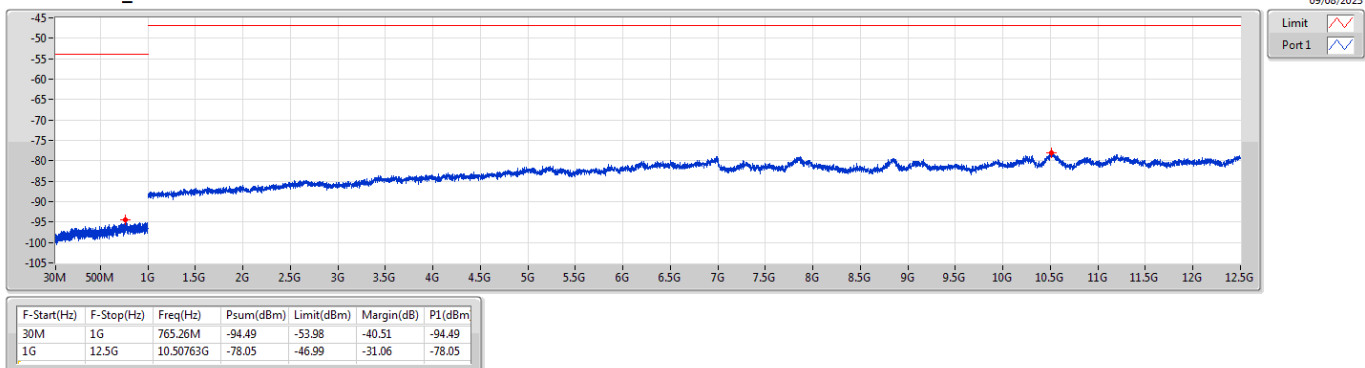
2402MHz_TnomVnom



BT-BR(1Mbps)

CSE-RX-FS

2402MHz_TnomVmin

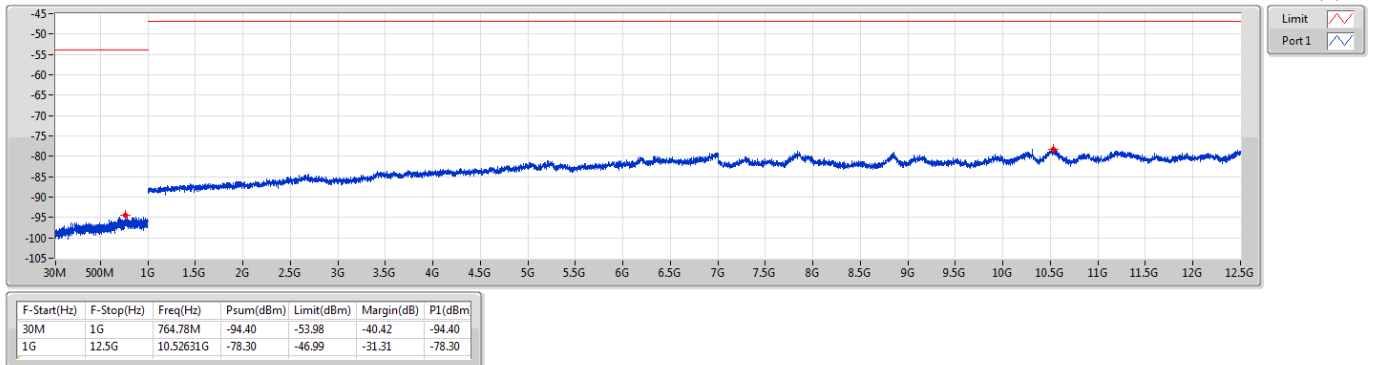




BT-BR(1Mbps)

CSE-RX-FS

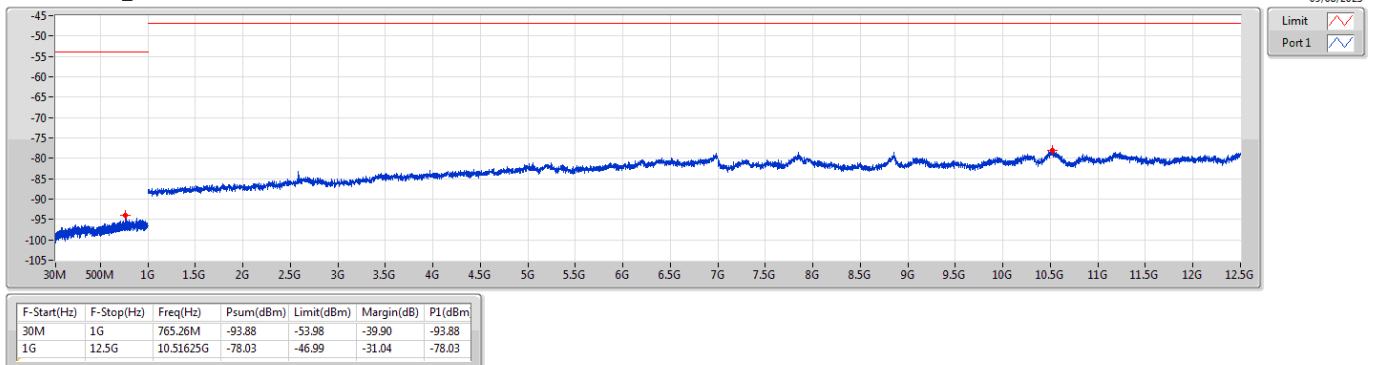
2402MHz_TnomVmax



BT-BR(1Mbps)

CSE-RX-FS

2441MHz_TnomVnom

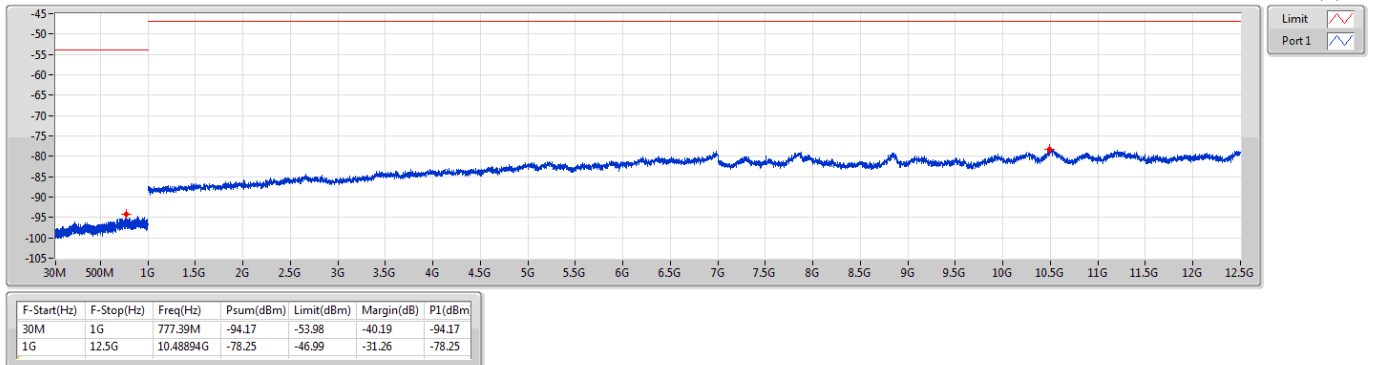




BT-BR(1Mbps)

CSE-RX-FS

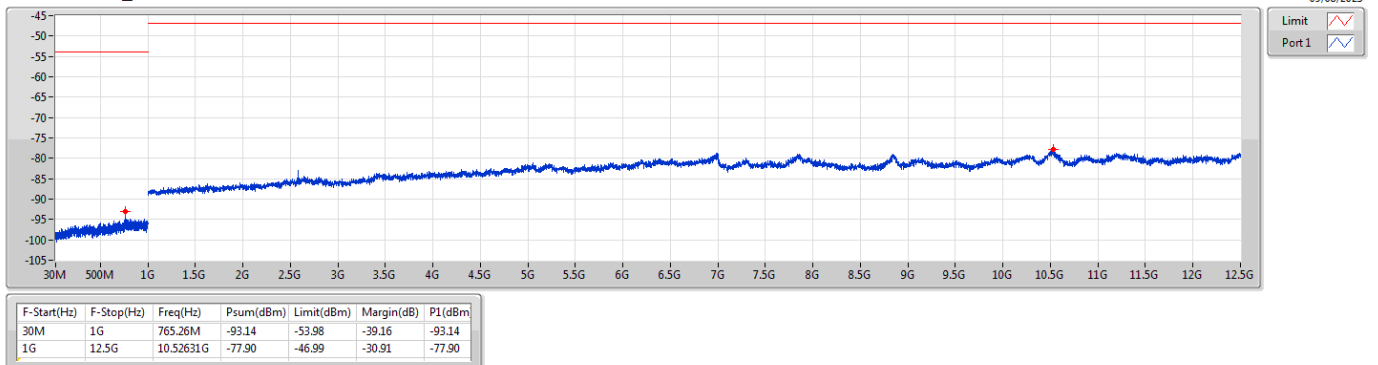
2441MHz_TnomVmin



BT-BR(1Mbps)

CSE-RX-FS

2441MHz_TnomVmax

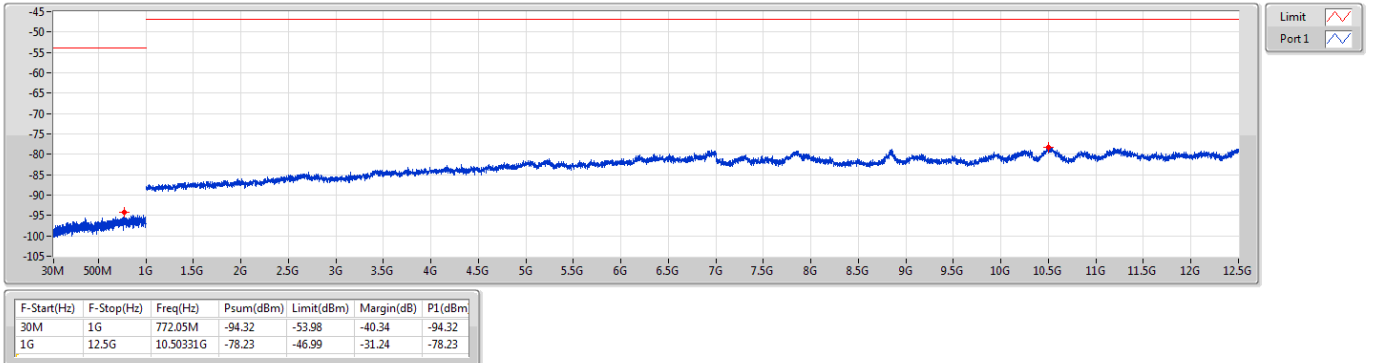




BT-BR(1Mbps)

CSE-RX-FS

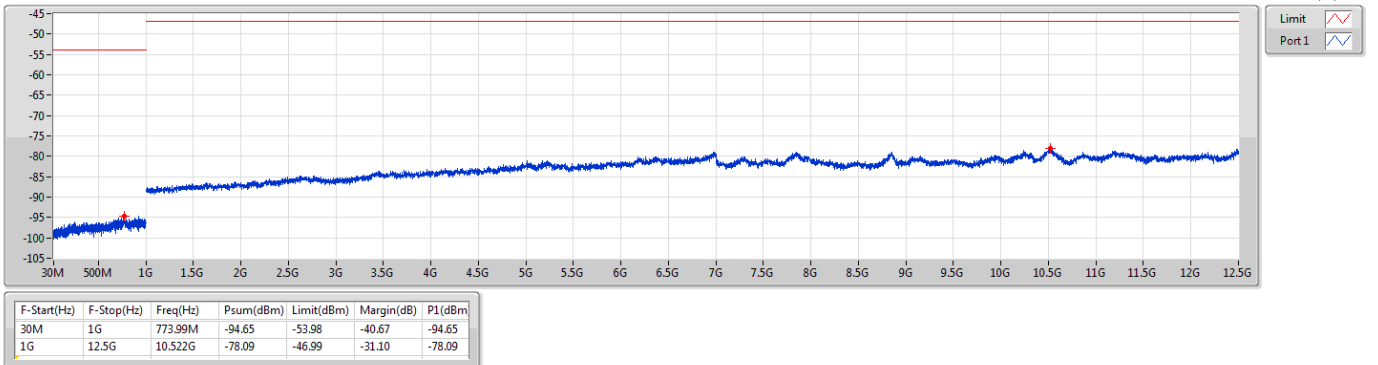
2480MHz_TnomVnom



BT-BR(1Mbps)

CSE-RX-FS

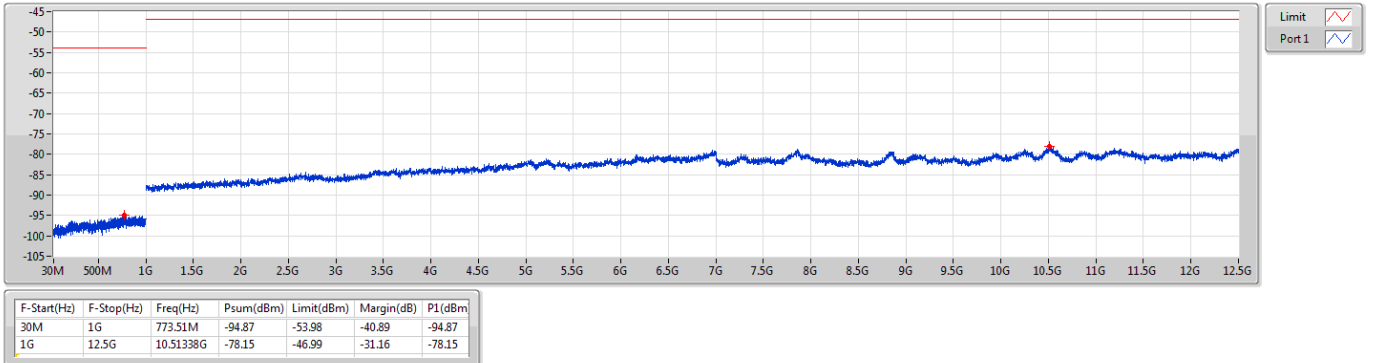
2480MHz_TnomVmin



BT-BR(1Mbps)

CSE-RX-FS

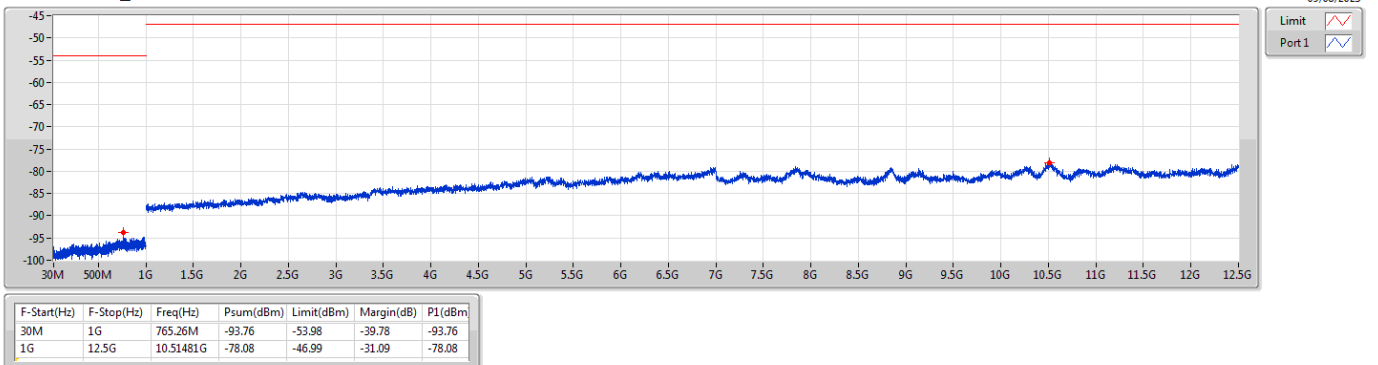
2480MHz_TnomVmax



BT-EDR(3Mbps)

CSE-RX-FS

2402MHz_TnomVnom

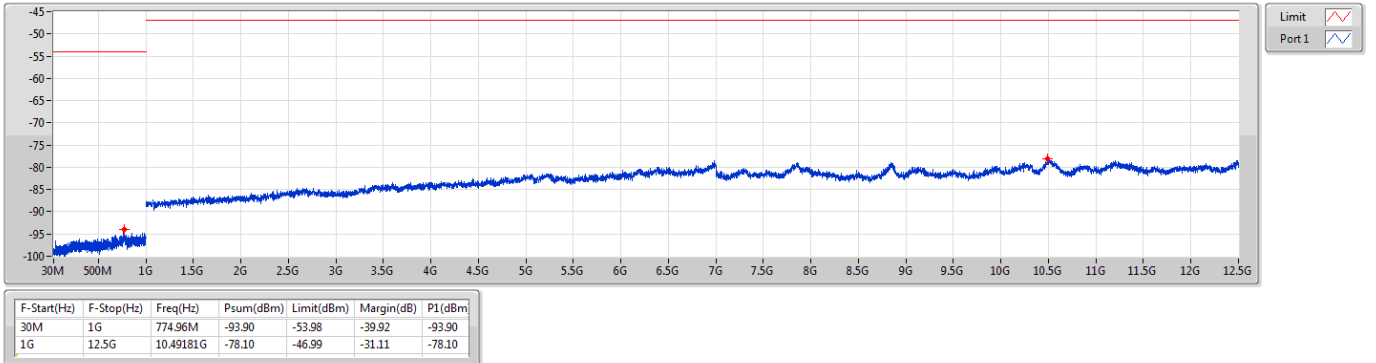




BT-EDR(3Mbps)

CSE-RX-FS

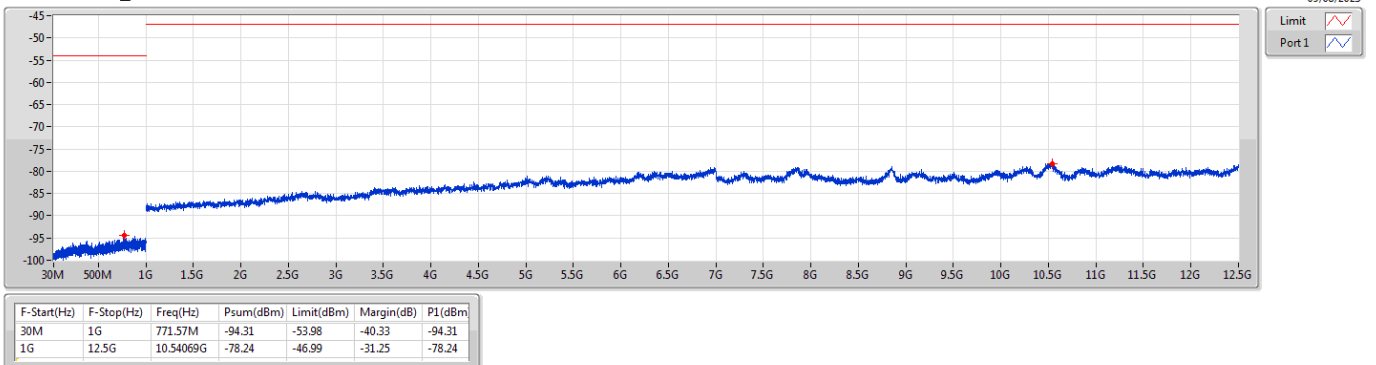
2402MHz_TnomVmin



BT-EDR(3Mbps)

CSE-RX-FS

2402MHz_TnomVmax

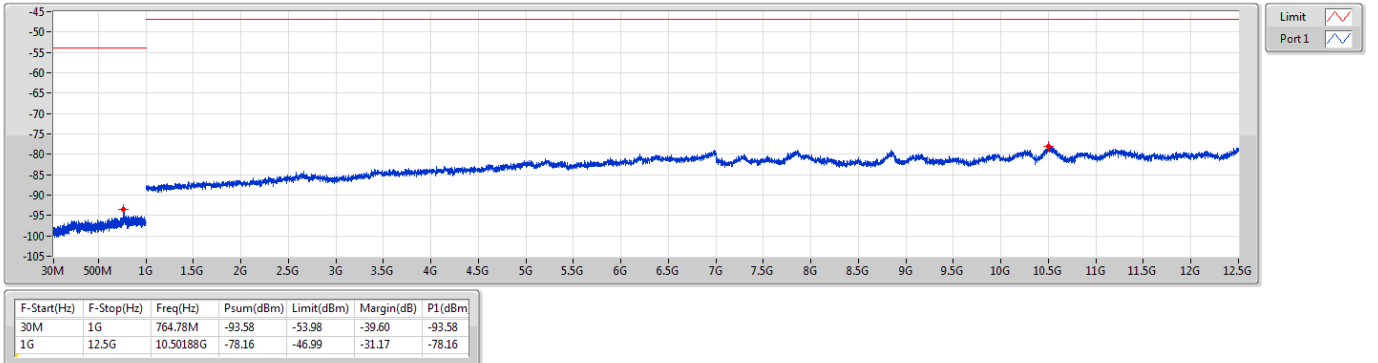




BT-EDR(3Mbps)

CSE-RX-FS

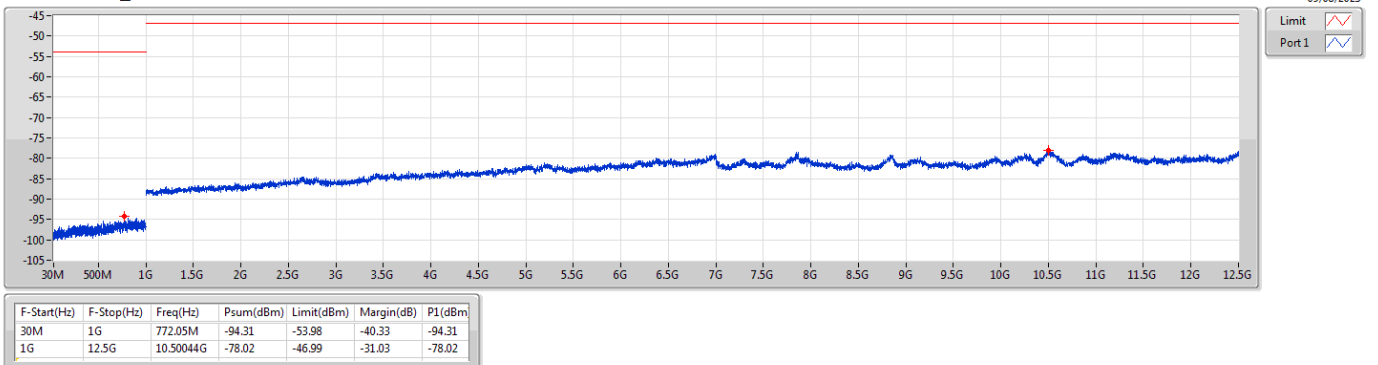
2441MHz_TnomVnom



BT-EDR(3Mbps)

CSE-RX-FS

2441MHz_TnomVmin

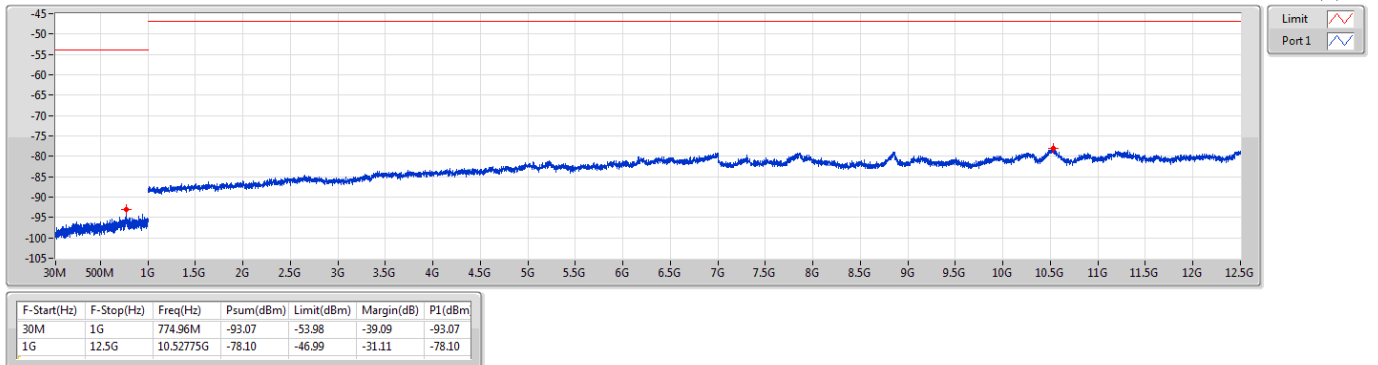




BT-EDR(3Mbps)

CSE-RX-FS

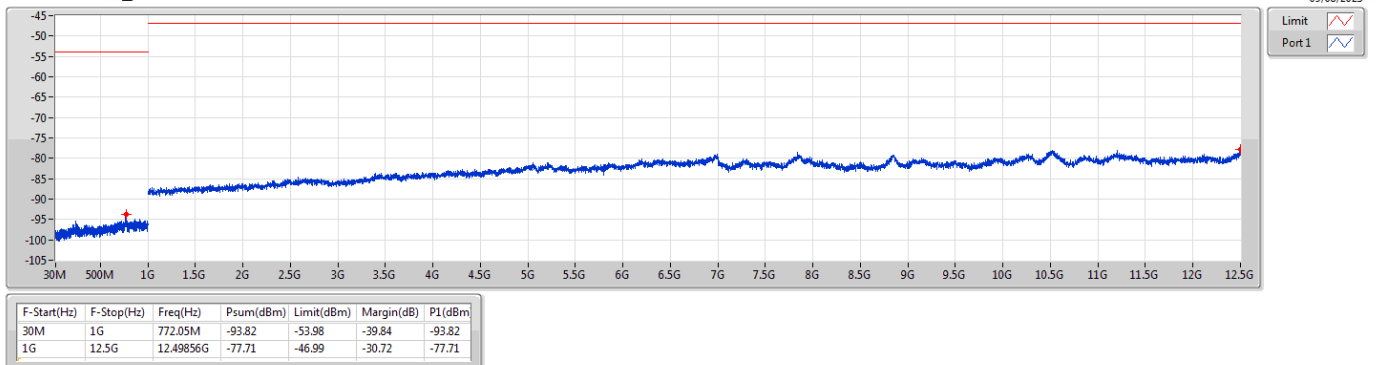
2441MHz_TnomVmax



BT-EDR(3Mbps)

CSE-RX-FS

2480MHz_TnomVnom

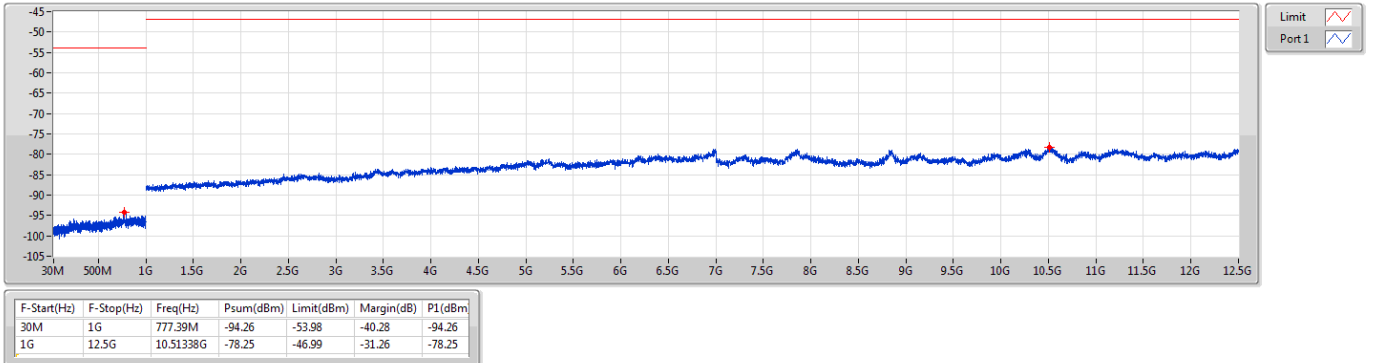




BT-EDR(3Mbps)

CSE-RX-FS

2480MHz_TnomVmin



BT-EDR(3Mbps)

CSE-RX-FS

2480MHz_TnomVmax

