

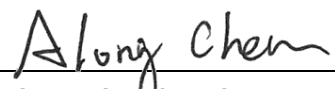
ISED Test Report

IC : 3147A-LYRA24P
Equipment : Lyra 24P Series - Bluetooth 5.3 PCB module
(Please refer to section 1.1.1 for more details)
Model No. : Lyra 24P
Brand Name : Laird Connectivity
Applicant : Laird Connectivity LLC
Address : W66N220 Commerce Court, Cedarburg, WI
53012 United States Of America
Manufacturer : Laird Connectivity LLC
Address : W66N220 Commerce Court, Cedarburg,
Wisconsin 53012, USA
Standard : RSS-247 Issue 2 February 2017
Received Date : Dec. 30, 2022
Tested Date : Jan. 12 ~ May 15, 2023

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:


Along Chen / Assistant Manager

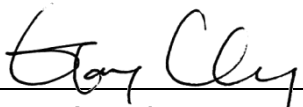

Gary Chang / Manager

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Release Record

Report No.	Version	Description	Issued Date
CR2D3001	Rev. 01	Initial issue	Jul. 05, 2023

Summary of Test Results

IC Rules	Test Items	Measured	Result
RSS-Gen Section 8.8	AC Power Line Conducted Emissions	[dBuV]: 0.538MHz 30.90 (Margin -15.10dB) - AV	Pass
RSS-247 Section 5.5 RSS-Gen Section 8.9	Unwanted Emissions	[dBuV/m at 3m]: 2483.50MHz 72.30 (Margin -1.70dB) - PK	Pass
RSS-247 Section 5.4 (d)	Conducted Output Power	Power [dBm]: 19.89	Pass
RSS-247 Section 5.2 (a)	6dB Bandwidth	Meet the requirement of limit	Pass
RSS-247 Section 5.2 (b)	Power Spectral Density	Meet the requirement of limit	Pass
N/A	Antenna Requirement	Meet the requirement of limit	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 following models are provided to this EUT.

Brand Name	Model Name	Product Name	Laird part number
Laird Connectivity	Lyra 24P	Lyra 24P Series - Bluetooth v5.3 PCB Module (20dBm) with integrated antenna	453-00145
Laird Connectivity	Lyra 24P	Lyra 24P Series - Bluetooth v5.3 PCB Module (20dBm) with RF Trace Pad	453-00148
Laird Connectivity	Lyra 24P	Lyra 24P Series - Bluetooth v5.3 PCB Module (10dBm) with integrated antenna	453-00142

1.1.2 Specification of the Equipment under Test (EUT)

RF General Information				
Frequency Range (MHz)	Bluetooth Mode	Ch. Freq. (MHz)	Channel Number	Data Rate
2400-2483.5	LE	2402-2480	0-39 [40]	Coding rate 125kbps
				Coding rate 500kbps
				Symbol rate 1Mbps
		2404-2478	37	Symbol rate 2Mbps
Note: Bluetooth LE (Low energy) uses GFSK modulation.				

1.1.3 Antenna Details

Ant. No.	Brand	Model	Type	Connector	2400-2500MHz	Cable loss
					Gain (dBi)	
1	Laird	NanoBlue	PCB Dipole	IPEX MHF4	2	N/A
2	Laird	FlexPIFA	PCB Dipole	IPEX MHF4	2	N/A
3	Mag.Layers	EDA-8709-2G4C1-B27-CY	Dipole	IPEX MHF4	2.32	0.7
4	Laird	mFlexPIFA	PIFA	IPEX MHF4	2	N/A
5	Laird	Lyra 24P PCB Trace Antenna	PCB Trace	---	1.82	N/A

1.1.4 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	3.3Vdc from host
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1.1.5 Accessories

N/A

1.1.6 Test Sample Information

Laird part number: 453-00142

MAC of Test Sample	Radiated Emission: B4:3A:31:04:B2:90 AC Power Line Conducted Emission: B4:3A:31:04:B2:90 Antenna Port Conducted: B4:3A:31:04:B2:98
---------------------------	--

Laird part number: 453-00145

MAC of Test Sample	Radiated Emission: B4:3A:31:03:93:55 AC Power Line Conducted Emission: B4:3A:31:03:93:55 Antenna Port Conducted: 34:25:B4:0F:69:38
---------------------------	--

Laird part number: 453-00148

MAC of Test Sample	Radiated Emission: B4:3A:31:03:82:B6 AC Power Line Conducted Emission: B4:3A:31:03:82:B6 Antenna Port Conducted: B4:3A:31:03:82:B6
---------------------------	--

1.1.7 Channel List

BT-LE(Coding rate 125 kbps / Coding rate 500 kbps / Symbol rate 1 Mbps)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
37	2402	9	2422	18	2442	28	2462
0	2404	10	2424	19	2444	29	2464
1	2406	38	2426	20	2446	30	2466
2	2408	11	2428	21	2448	31	2468
3	2410	12	2430	22	2450	32	2470
4	2412	13	2432	23	2452	33	2472
5	2414	14	2434	24	2454	34	2474
6	2416	15	2436	25	2456	35	2476
7	2418	16	2438	26	2458	36	2478
8	2420	17	2440	27	2460	39	2480

BT-LE(Symbol rate 2Mbps)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2404	10	2424	20	2446	30	2466
1	2406	11	2428	21	2448	31	2468
2	2408	12	2430	22	2450	32	2470
3	2410	13	2432	23	2452	33	2472
4	2412	14	2434	24	2454	34	2474
5	2414	15	2436	25	2456	35	2476
6	2416	16	2438	26	2458	36	2478
7	2418	17	2440	27	2460	--	--
8	2420	18	2442	28	2462	--	--
9	2422	19	2444	29	2464	--	--

1.1.8 Test Tool and Duty Cycle

Test Tool	Simplicity Studio, SV5.6.0.0	
Modulation Mode	Duty Cycle Of Test Signal (%)	Duty Factor (dB)
BT-LE(Coding rate 125kbps)	98.35%	0.07
BT-LE(Coding rate 500kbps)	92.64%	0.33
BT-LE(Symbol rate 1Mbps)	86.46%	0.63
BT-LE(Symbol rate 2Mbps)	59.05%	2.29

1.1.9 Power Index of Test Tool

Laird part number: 453-00142, 10dBm mode, DTS

Modulation Mode	Test Frequency (MHz)			
	2402	2440	2478	2480
BT-LE(Coding rate 125kbps)	10 dBm	10 dBm	10 dBm	10 dBm
BT-LE(Coding rate 500kbps)	10 dBm	10 dBm	10 dBm	10 dBm
BT-LE(Symbol rate 1Mbps)	10 dBm	10 dBm	10 dBm	10 dBm
Modulation Mode	2404	2440	2478	---
BT-LE(Symbol rate 2Mbps)	10 dBm	10 dBm	10 dBm	---

Laird part number: 453-00145, 20dBm mode, DTS

Modulation Mode	Test Frequency (MHz)			
	2402	2440	2478	2480
BT-LE(Coding rate 125kbps)	13 dBm	13 dBm	13 dBm	13 dBm
BT-LE(Coding rate 500kbps)	20 dBm	20 dBm	20 dBm	20 dBm
BT-LE(Symbol rate 1Mbps)	20 dBm	20 dBm	20 dBm	20 dBm
Modulation Mode	2404	2440	2478	---
BT-LE(Symbol rate 2Mbps)	20 dBm	20 dBm	20 dBm	---

Note: Laird hard-coded 19.7dBm for all channels at all data rates, except for 1Mbps, which has 17.4dBm hard-coded for 2480MHz, even if "Test Tool Power Index" of 20dBm is used.

Modulation Mode	Test Frequency (MHz)			
	2402	2440	2478	2480
BT-LE(Coding rate 125kbps)	10 dBm	10 dBm	10 dBm	10 dBm
BT-LE(Coding rate 500kbps)	10 dBm	10 dBm	10 dBm	10 dBm
BT-LE(Symbol rate 1Mbps)	10 dBm	10 dBm	10 dBm	10 dBm
Modulation Mode	2404	2440	2478	---
BT-LE(Symbol rate 2Mbps)	10 dBm	10 dBm	10 dBm	---

Laird part number: 453-00148, 20dBm mode, DTS

Modulation Mode	Test Frequency (MHz)			
	2402	2440	2478	2480
BT-LE(Coding rate 125kbps)	12dBm	12dBm	12dBm	12dBm
BT-LE(Coding rate 500kbps)	20dBm	20dBm	18dBm	15dBm
BT-LE(Symbol rate 1Mbps)	20dBm	20dBm	18dBm	15dBm
Modulation Mode	2404	2440	2478	---
BT-LE(Symbol rate 2Mbps)	20dBm	20dBm	17dBm	---

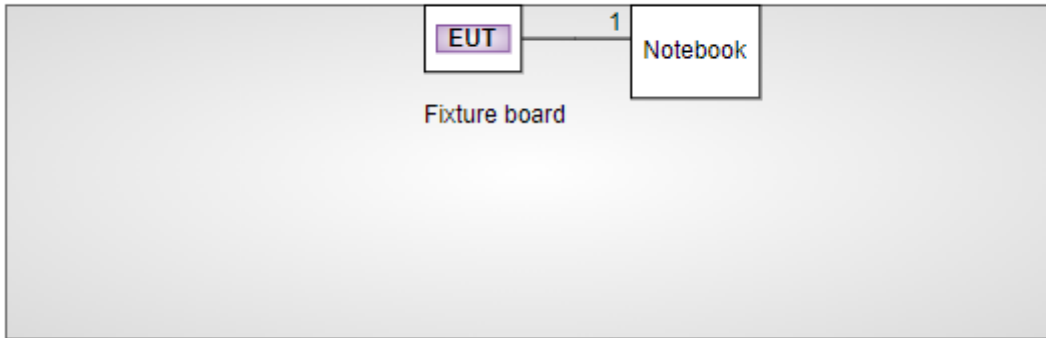
Note: Laird hard-coded 19.7dBm for all channels at all data rates, except for 1Mbps, which has 17.4dBm hard-coded for 2480MHz, even if "Test Tool Power Index" of 20dBm is used.

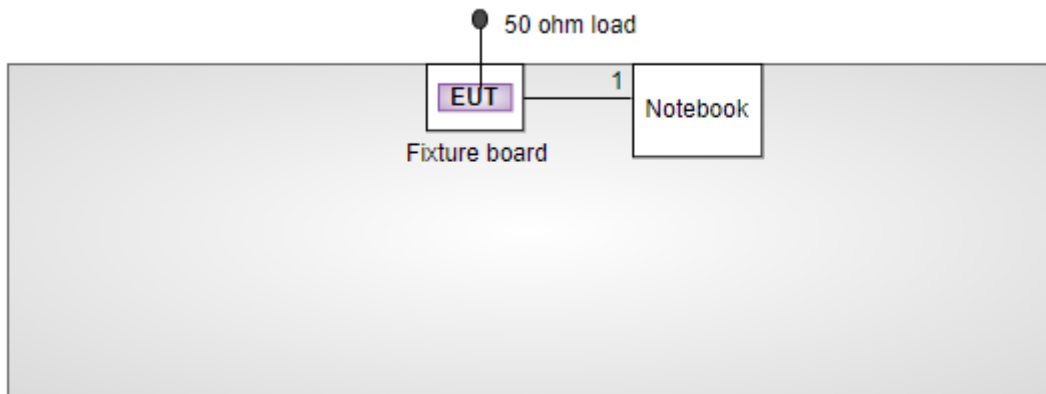
Modulation Mode	Test Frequency (MHz)			
	2402	2440	2478	2480
BT-LE(Coding rate 125kbps)	10 dBm	10 dBm	10 dBm	10 dBm
BT-LE(Coding rate 500kbps)	10 dBm	10 dBm	10 dBm	10 dBm
BT-LE(Symbol rate 1Mbps)	10 dBm	10 dBm	10 dBm	10 dBm
Modulation Mode	2404	2440	2478	---
BT-LE(Symbol rate 2Mbps)	10 dBm	10 dBm	10 dBm	---

1.2 Local Support Equipment List

Support Equipment List					
No.	Equipment	Brand	Model	FCC ID	Remarks
1	Notebook	DELL	Latitude E5400	DoC	---
2	Fixture board	Laird	DVK-Lyra 24P	---	Provided by applicant.
3	50 ohm load	Woken	WTER-18S2	---	---

1.3 Test Setup Chart

Test Setup Diagram (Lyra 24P Chip antenna power=20dBm, FHSS)	
	
No.	Signal cable / Length (m)
1	USB, 1m shielded without core

Test Setup Diagram (Lyra 24P RF trace pin power=20dBm, FHSS)	
	
No.	Signal cable / Length (m)
1	USB, 1m shielded without core

1.4 Test Equipment List and Calibration Data

Test Item	Conducted Emission				
Test Site	Conduction room 1 / (CO01-WS)				
Tested Date	May 10, 2023				
Instrument	Brand	Model No.	Serial No.	Calibration Date	Calibration Until
Receiver	R&S	ESR3	101658	Feb. 17, 2023	Feb. 16, 2024
LISN	R&S	ENV216	101295	Jan. 31, 2023	Jan. 30, 2024
LISN (Support Unit)	SCHWARZBECK	Schwarzbeck 8127	8127667	Jan. 03, 2023	Jan. 02, 2024
RF Cable-CON	Woken	CFD200-NL	CFD200-NL-001	Oct. 17, 2022	Oct. 16, 2023
50 ohm terminal (Support Unit)	NA	50	03	Jun. 08, 2022	Jun. 07, 2023
Measurement Software	AUDIX	e3	6.120210k	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	Radiated Emission				
Test Site	966 chamber3 / (03CH03-WS)				
Tested Date	Jan. 12 ~ Feb. 15, 2023				
Instrument	Brand	Model No.	Serial No.	Calibration Date	Calibration Until
Receiver	R&S	ESR3	101657	Mar. 15, 2022	Mar. 14, 2023
Spectrum Analyzer	R&S	FSV40	101499	Mar. 08, 2022	Mar. 07, 2023
Loop Antenna	R&S	HFH2-Z2	100330	Nov. 01, 2022	Oct. 31, 2023
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-685	Jun. 28, 2022	Jun. 27, 2023
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1206	Dec. 15, 2022	Dec. 14, 2023
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Oct. 27, 2022	Oct. 26, 2023
Preamplifier	EMC	EMC02325	980187	Jul. 16, 2022	Jul. 15, 2023
Preamplifier	EMC	EMC184045SE	980897	Aug. 01, 2022	Jul. 31, 2023
Preamplifier	EMC	EMC184045SE	980903	Jul. 16, 2022	Jul. 15, 2023
Loop Antenna Cable	KOAX KABEL	101354-BW	101354-BW	Oct. 04, 2022	Oct. 03, 2023
LF cable-0.8M	EMC	EMC8D-NM-NM-800	EMC8D-NM-NM-800-001	Sep. 23, 2022	Sep. 22, 2023
LF cable-3M	EMC	EMC8D-NM-NM-3000	131103	Sep. 23, 2022	Sep. 22, 2023
LF cable-13M	EMC	EMC8D-NM-NM-13000	131104	Sep. 23, 2022	Sep. 22, 2023
RF cable-3M	HUBER+SUHNER	SUCOFLEX104	MY22620/4	Sep. 23, 2022	Sep. 22, 2023
RF cable-8M	EMC	EMC104-SM-SM-8000	181107	Sep. 23, 2022	Sep. 22, 2023
HIGHPASS FILTER	WI	WHK3.1-18G-10SS	43	Sep. 28, 2022	Sep. 27, 2023
Attenuator	woken	PE7013-10	10-2	Oct. 14, 2022	Oct. 13, 2023
Measurement Software	AUDIX	e3	6.120210g	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	RF Conducted				
Test Site	(TH01-WS)				
Tested Date	Apr. 17 ~ May 15, 2023				
Instrument	Brand	Model No.	Serial No.	Calibration Date	Calibration Until
Spectrum Analyzer	R&S	FSV40	101910	Apr. 14, 2023	Apr. 13, 2024
Power Meter	Anritsu	ML2495A	1241002	Nov. 23, 2022	Nov. 22, 2023
Power Sensor	Anritsu	MA2411B	1207366	Nov. 23, 2022	Nov. 22, 2023
HIGHPASS FILTER 3.1-18G	WHK	WHK3.1/18G-10SS	39	Oct. 06, 2022	Oct. 05, 2023
Attenuator	woken	PE7013-10	10-1	Oct. 14, 2022	Oct. 13, 2023
Measurement Software	Sporton	SENSE-15247_FS	V5.10.7	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

1.5 Test Standards

RSS-247 Issue 2 February 2017

RSS-Gen Issue 5 February 2021 Amendment 2

ANSI C63.10-2013

1.6 Reference Guidance

FCC KDB 558074 D01 15.247 Meas Guidance v05r02

1.7 Deviation from Test Standard and Measurement Procedure

None

1.8 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	± 34.130 Hz
Conducted power	± 0.808 dB
Power density	± 0.583 dB
Conducted emission	± 2.715 dB
AC conducted emission	± 2.92 dB
Unwanted Emission ≤ 1 GHz	± 3.96 dB
Unwanted Emission > 1 GHz	± 4.51 dB

2 Test Configuration

2.1 Testing Facility

Test Laboratory	International Certification Corporation
Test Site	CO01-WS, 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.)
Test Site	03CH03-WS
Address of Test Site	No.14-1, Lane 19, Wen San 3rd St., Kwei Shan Dist., Tao Yuan City 33381, Taiwan (R.O.C.)

- FCC Designation No.: TW0009
- FCC site registration No.: 207696
- ISED#: 10807C
- CAB identifier: TW2732

2.2 The Worst Test Modes and Channel Details

Test item	Modulation Mode	Test Frequency (MHz)	TX/RX	Test method	Test Configuration
AC Power Line Conducted Emissions	Symbol rate 1Mbps	2402	TX	Conducted	1, 2, 3
Unwanted Emissions $\leq$ 1GHz	Symbol rate 1Mbps	2402	TX	Radiated	1, 2, 3
Unwanted Emissions > 1GHz	Coding rate 125kbps	2402, 2440, 2478, 2480	TX	Radiated	2, 3
	Coding rate 500kbps	2402, 2440, 2478, 2480	TX	Radiated	2, 3
	Symbol rate 1Mbps	2402, 2440, 2478, 2480	TX	Radiated	1, 2, 3
	Symbol rate 2Mbps	2404, 2440, 2478	TX	Radiated	1, 2, 3
Unwanted Emissions $\leq$ 1GHz	Symbol rate 1Mbps	2402	TX	Conducted	3
Unwanted Emissions > 1GHz	Coding rate 125kbps Coding rate 500kbps Symbol rate 1Mbps	2402, 2440, 2478, 2480	TX	Conducted	3
Unwanted Emissions > 1GHz	Symbol rate 2Mbps	2404, 2440, 2478	TX	Conducted	3
Conducted Output Power	Coding rate 125kbps Coding rate 500kbps Symbol rate 1Mbps	2402, 2440, 2478, 2480	TX	Conducted	1, 2, 3, 4, 5
	Symbol rate 2Mbps	2404, 2440, 2478	TX	Conducted	1, 2, 3, 4, 5
6dB bandwidth Power spectral density	Coding rate 125kbps Coding rate 500kbps Symbol rate 1Mbps	2402, 2440, 2478, 2480	TX	Conducted	1, 2, 3
	Symbol rate 2Mbps	2404, 2440, 2478	TX	Conducted	1, 2, 3

NOTE:

- The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement – X, Y, and Z-plane. The **X-plane** results were found as the worst case and were shown in this report.
- The test configurations are listed as follows:
 - Configuration 1: Laird part number: 453-00142, 10dBm, Integrated Antenna
 - Configuration 2: Laird part number: 453-00145, 20dBm, Integrated Antenna
 - Configuration 3: Laird part number: 453-00148, 20dBm, RF Trace Pad (External antenna)
 - Configuration 4: Laird part number: 453-00145, 10dBm, Integrated Antenna
 - Configuration 5: Laird part number: 453-00148, 10dBm, RF Trace Pad (External antenna)
- 50 Ω terminator was connected to antenna port of EUT for radiated emission measurement.
- Chipset DCDC Bypass mode Mode A: DCDC OFF (LDO ON)
Chipset DCDC Regulation mode Mode B: DCDC ON
Mode B is the worst case

3 Transmitter Test Results

3.1 6dB and Occupied Bandwidth

3.1.1 Limit of 6dB Bandwidth

The minimum 6dB bandwidth shall be at least 500 kHz.

3.1.2 Test Procedures

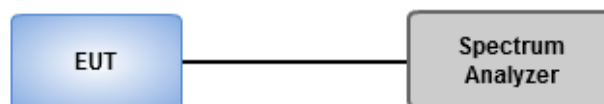
6dB Bandwidth

1. Set resolution bandwidth (RBW) = 1% to 5% of the anticipated emission, Video bandwidth = 3x the RBW.
2. Detector = Peak, Trace mode = max hold.
3. Sweep = auto couple, Allow the trace to stabilize.
4. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6dB relative to the maximum level measured in the fundamental emission.

Occupied Bandwidth

1. Set resolution bandwidth (RBW) = 1% ~ 5 % of OBW, Video bandwidth = 3 x RBW
2. Detector = Sample, Trace mode = max hold.
3. Sweep = auto couple, Allow the trace to stabilize.
4. Use the OBW measurement function of spectrum analyzer to measure the occupied bandwidth.

3.1.3 Test Setup



3.1.4 Test Results

Ambient Condition	24-25°C /62-65%	Tested By	Roger Lu
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Refer to Appendix A.

3.2 Conducted Output Power

3.2.1 Limit of Conducted Output Power

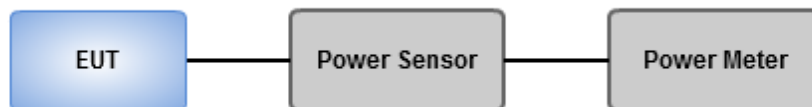
Conducted power shall not exceed 1Watt.

Antenna gain $\leq 6\text{dBi}$, no any corresponding reduction is in output power limit.

3.2.2 Test Procedures

A broadband RF power meter is used for output power measurement. The video bandwidth of power meter is greater than DTS bandwidth of EUT. If duty cycle of test signal is not 100 %, trigger and gating function of power meter will be enabled to capture transmission burst for measuring output power.

3.2.3 Test Setup



3.2.4 Test Results

Ambient Condition	24-25°C / 62-65%	Tested By	Roger Lu
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Refer to Appendix B.

3.3 Power Spectral Density

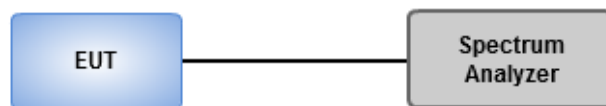
3.3.1 Limit of Power Spectral Density

Power spectral density shall not be greater than 8 dBm in any 3 kHz band.

3.3.2 Test Procedures

1. Set the RBW = 3 kHz, VBW = 10 kHz.
2. Detector = Peak, Sweep time = auto couple.
3. Trace mode = max hold, allow trace to fully stabilize.
4. Use the peak marker function to determine the maximum amplitude level.

3.3.3 Test Setup



3.3.4 Test Results

Ambient Condition	24-25°C / 62-65%	Tested By	Roger Lu
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Refer to Appendix C.

3.4 Unwanted Emissions in Restricted Frequency Bands

3.4.1 Limit of Unwanted Emissions in Restricted Frequency Bands

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:
Quasi-Peak value is measured for frequency below 1GHz except for 9–90 kHz, 110–490 kHz frequency band. Peak and average value are measured for frequency above 1GHz. The limit on average radio frequency emission is as above table. The limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit

Note 2:
Measurements may be performed at a distance other than what is specified provided. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor as below, Frequency at or above 30 MHz: 20 dB/decade Frequency below 30 MHz: 40 dB/decade.

3.4.2 Test Procedures

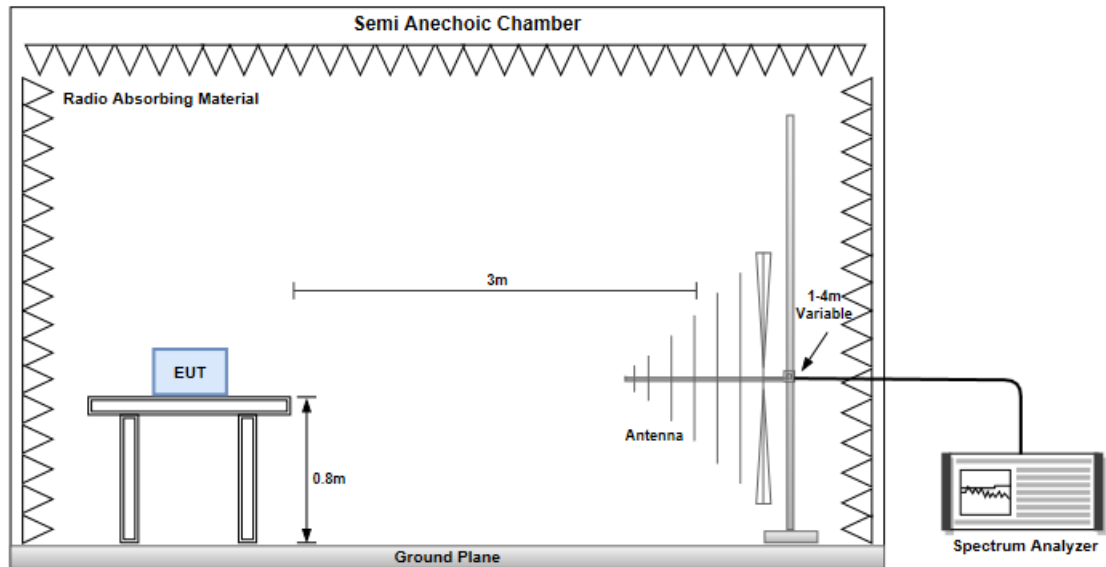
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission frequency. The EUT is placed at test table. For emissions testing at or below 1 GHz, the table height is 80 cm above the reference ground plane. For emission measurements above 1 GHz, the table height is 1.5 m
2. Measurement is made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna is varied in height (1m ~ 4m) above the reference ground plane to obtain the maximum signal strength. Distance between EUT and antenna is 3 m.
3. This investigation is performed with the EUT rotated 360°, the antenna height scanned between 1 m and 4 m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations.

Note:

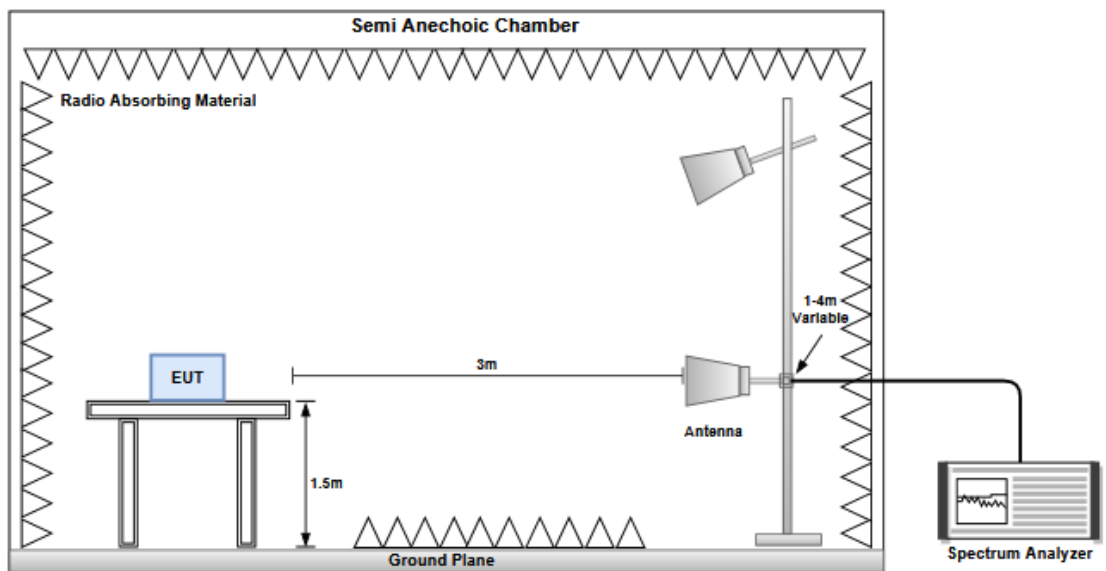
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above 1GHz.

3.4.3 Test Setup

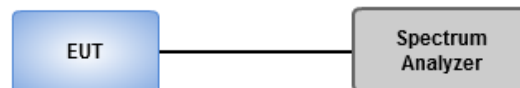
Radiated Emissions below 1 GHz



Radiated Emissions above 1 GHz



Transmitter Conducted Unwanted Emissions (30MHz~40GHz)



3.4.4 Test Results

Refer to Appendix D.

3.5 Emissions in non-restricted Frequency Bands

3.5.1 Emissions in non-restricted frequency bands limit

Peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum in-band peak PSD level in 100 kHz.

3.5.2 Test Procedures

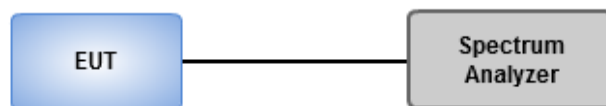
Reference level measurement

1. Set RBW=100kHz, VBW = 300kHz , Detector = Peak, Sweep time = Auto
2. Trace = max hold , Allow Trace to fully stabilize
3. Use the peak marker function to determine the maximum PSD level

Emission level measurement

1. Set RBW=100kHz, VBW = 300kHz , Detector = Peak, Sweep time = Auto
2. Trace = max hold , Allow Trace to fully stabilize
3. Scan Frequency range is up to 25GHz
4. Use the peak marker function to determine the maximum amplitude level

3.5.3 Test Setup



3.5.4 Test Results

Ambient Condition	24-25°C / 62-65%	Tested By	Roger Lu
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Refer to Appendix E.

3.6 AC Power Line Conducted Emissions

3.6.1 Limit of AC Power Line Conducted Emissions

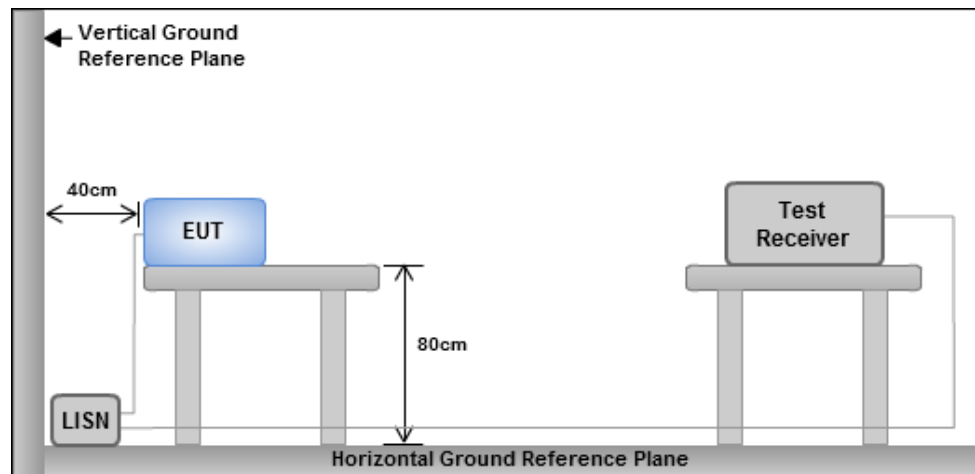
Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

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

3.6.2 Test Procedures

1. The device is placed on a test table, raised 80 cm above the reference ground plane. The vertical conducting plane is located 40 cm to the rear of the device.
2. The device is connected to line impedance stabilization network (LISN) and other accessories are connected to other LISN. Measured levels of AC power line conducted emission are across the 50 Ω LISN port.
3. AC conducted emission measurements is made over frequency range from 150 kHz to 30 MHz.
4. This measurement was performed with AC 120V/60Hz

3.6.3 Test Setup



- Note: 1. Support units were connected to second LISN.
 2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

3.6.4 Test Results

Refer to Appendix F.

4 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: 886-3-318-0155

Email: ICC_Service@icertifi.com.tw

==END==

1) Configuration 1: Laird part number: 453-00142, 10dBm, Integrated Antenna
Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
BT-LE(Coding rate125kbps)	695.652k	1.06M	1M06F1D	615.942k	1.056M
BT-LE(Coding rate 500kbps)	673.913k	1.024M	1M02F1D	652.174k	1.02M
BT-LE(Symbol rate 1Mbps)	670.29k	1.024M	1M02F1D	644.928k	1.02M
BT-LE(Symbol rate 2Mbps)	1.196M	2.091M	2M09F1D	1.072M	2.077M

Max-N dB = Maximum 6dB down bandwidth; Max-OBW = Maximum 99% occupied bandwidth;

Min-N dB = Minimum 6dB down bandwidth; Min-OBW = Minimum 99% occupied bandwidth

Result

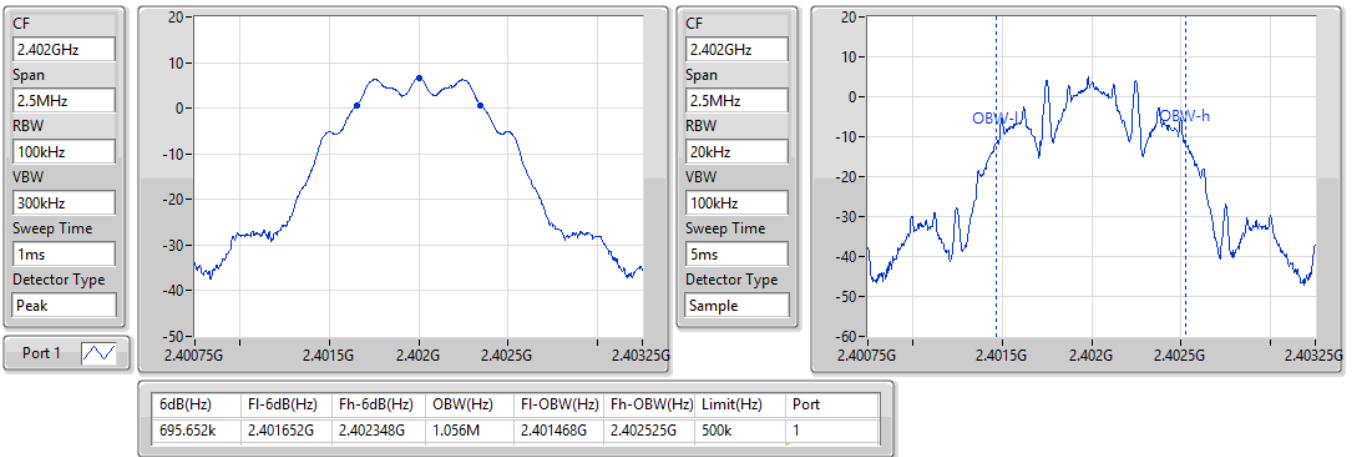
Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(Coding rate125kbps)	-	-	-	-
2402MHz	Pass	500k	695.652k	1.056M
2440MHz	Pass	500k	626.812k	1.06M
2478MHz	Pass	500k	615.942k	1.056M
2480MHz	Pass	500k	688.406k	1.06M
BT-LE(Coding rate 500kbps)	-	-	-	-
2402MHz	Pass	500k	673.913k	1.02M
2440MHz	Pass	500k	655.797k	1.024M
2478MHz	Pass	500k	655.797k	1.02M
2480MHz	Pass	500k	652.174k	1.02M
BT-LE(Symbol rate 1Mbps)	-	-	-	-
2402MHz	Pass	500k	670.29k	1.02M
2440MHz	Pass	500k	644.928k	1.02M
2478MHz	Pass	500k	652.174k	1.024M
2480MHz	Pass	500k	652.174k	1.024M
BT-LE(Symbol rate 2Mbps)	-	-	-	-
2404MHz	Pass	500k	1.072M	2.077M
2440MHz	Pass	500k	1.109M	2.084M
2478MHz	Pass	500k	1.196M	2.091M

Port X-N dB = Port X 6dB down bandwidth;

Port X-OBW = Port X 99% occupied bandwidth

BT-LE(125kbps)

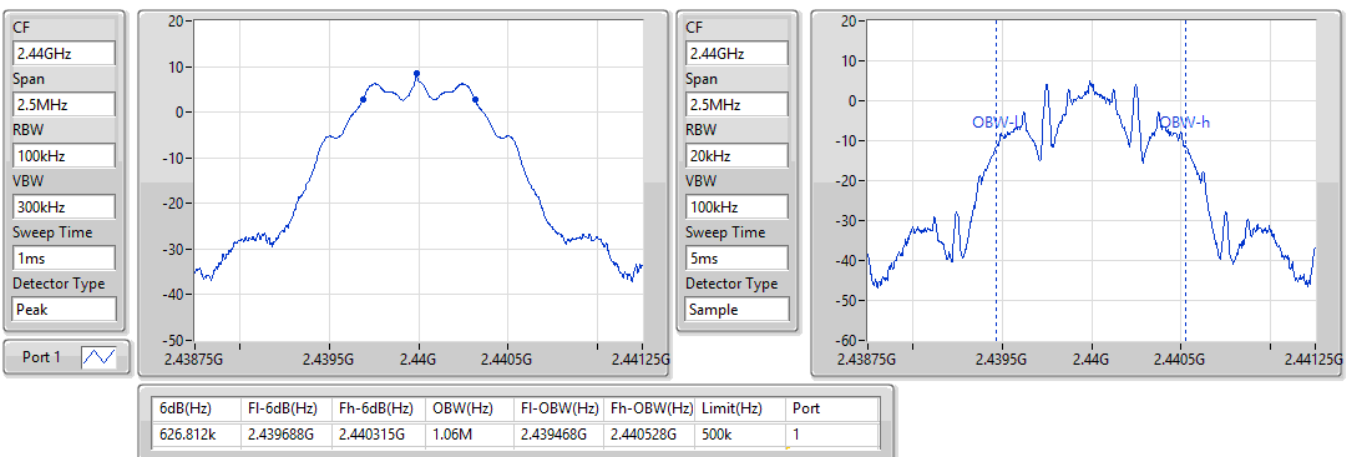
2402MHz



EBW-DTS

BT-LE(125kbps)

2440MHz

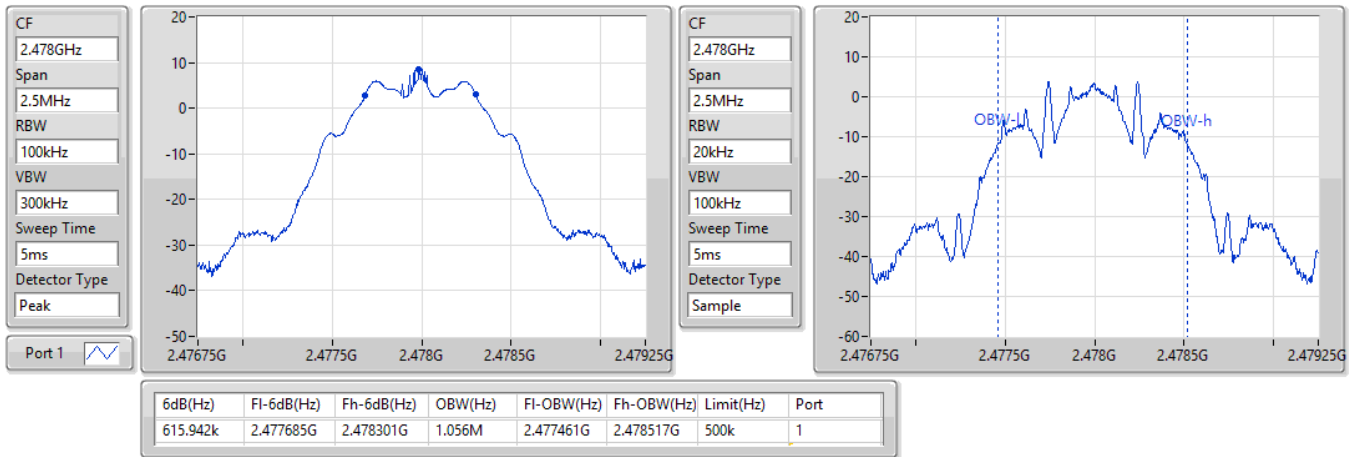


EBW-DTS

BT-LE(125kbps)

EBW-DTS

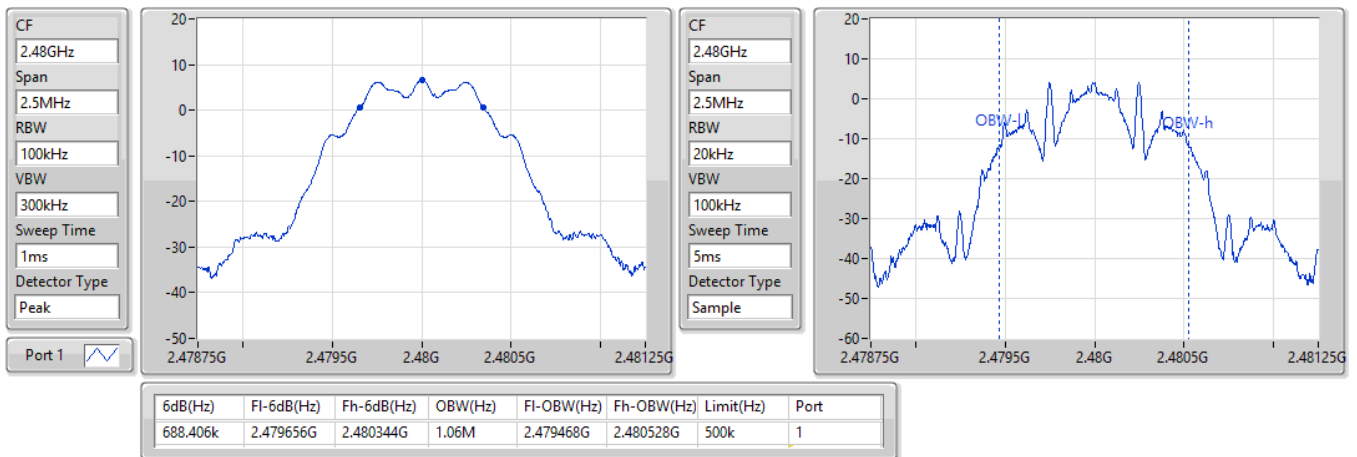
2478MHz



BT-LE(125kbps)

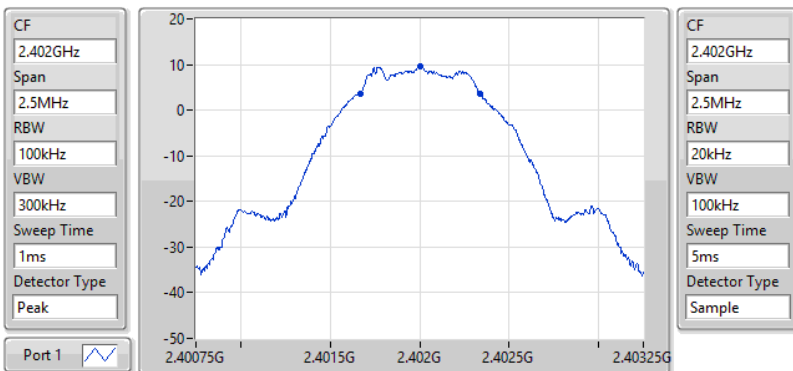
EBW-DTS

2480MHz



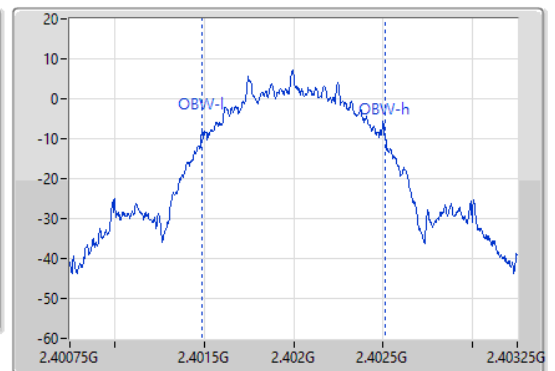
BT-LE(500kbps)

2402MHz



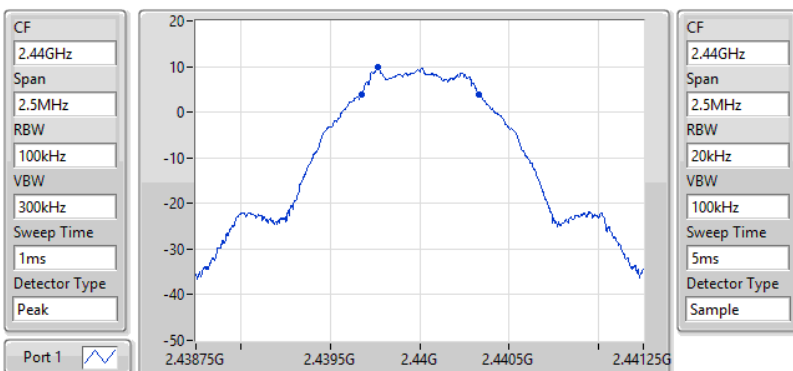
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
673.913k	2.401667G	2.402341G	1.02M	2.40149G	2.40251G	500k	1

EBW-DTS



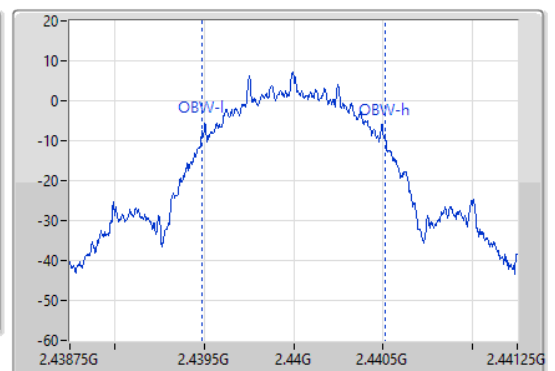
BT-LE(500kbps)

2440MHz



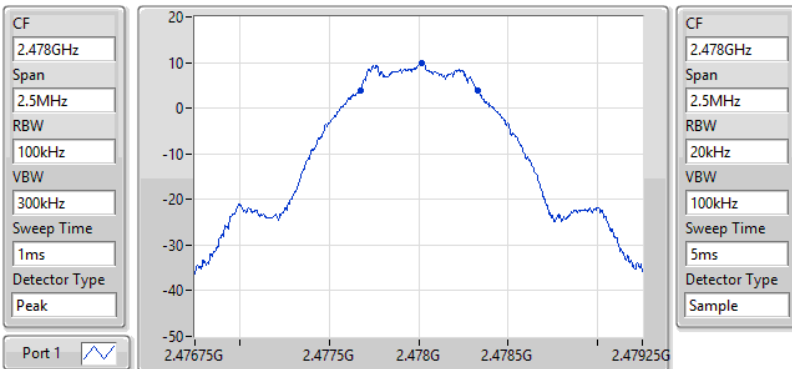
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
655.797k	2.439678G	2.440333G	1.024M	2.439486G	2.44051G	500k	1

EBW-DTS



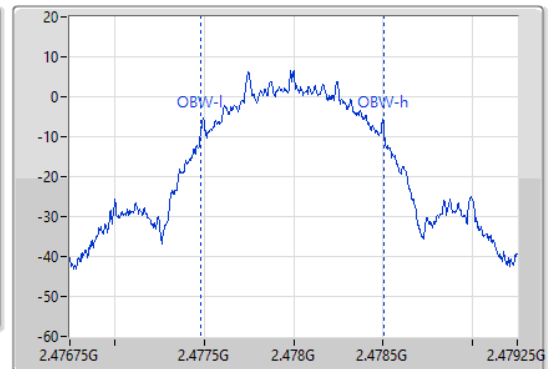
BT-LE(500kbps)

2478MHz



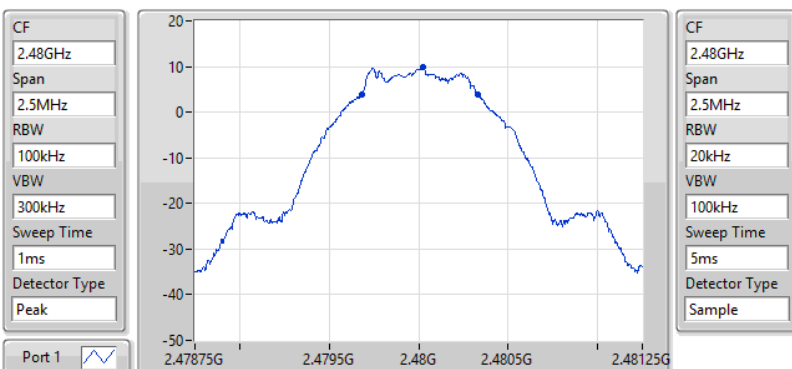
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
655.797k	2.477674G	2.47833G	1.02M	2.477483G	2.478503G	500k	1

EBW-DTS



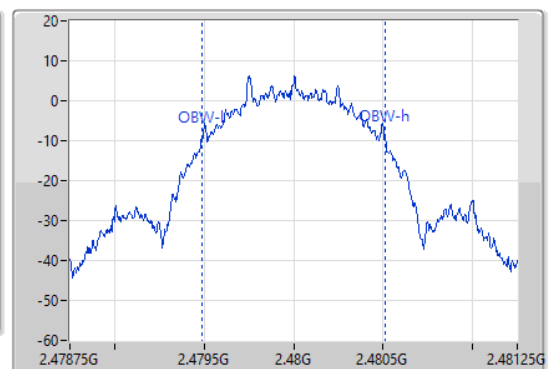
BT-LE(500kbps)

2480MHz



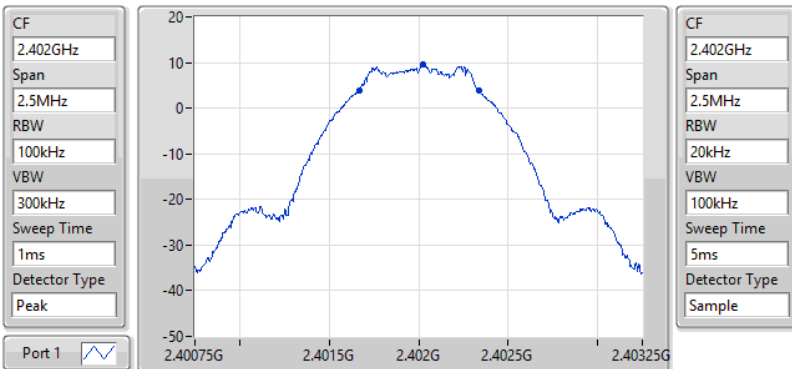
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
652.174k	2.479681G	2.480333G	1.02M	2.47949G	2.48051G	500k	1

EBW-DTS

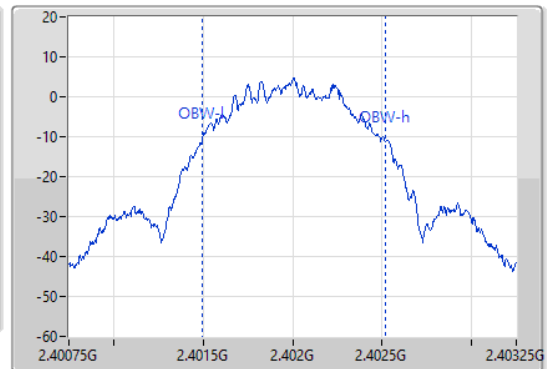


BT-LE(1Mbps)

2402MHz

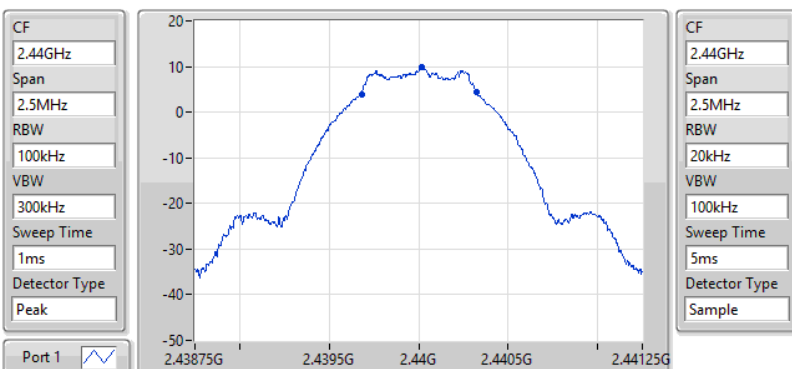


EBW-DTS

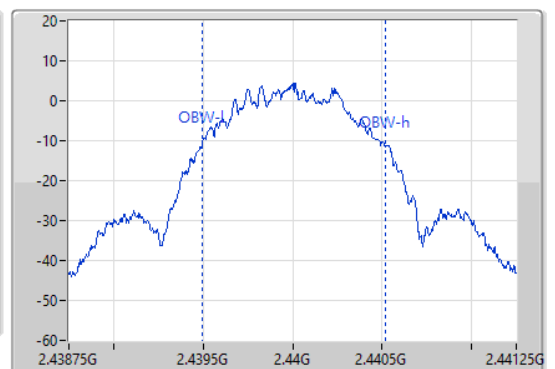


BT-LE(1Mbps)

2440MHz

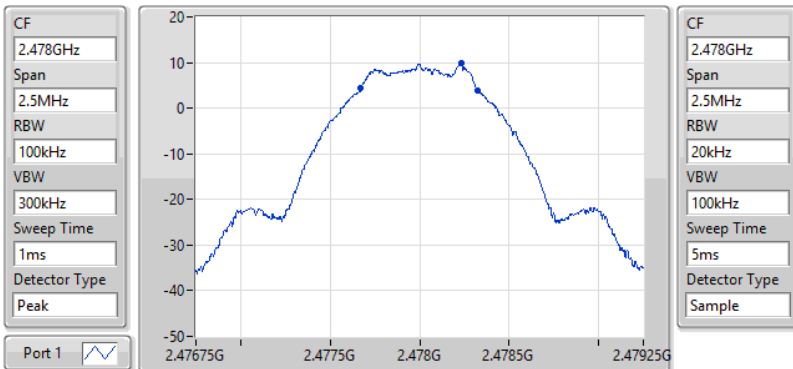


EBW-DTS



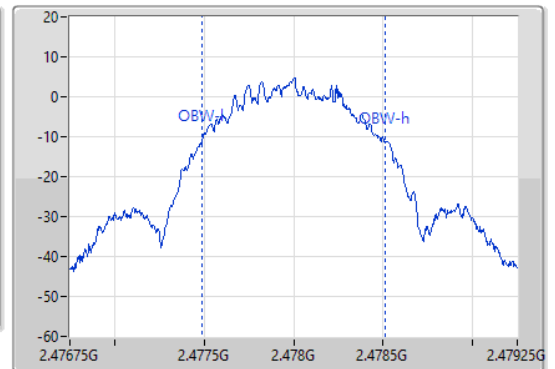
BT-LE(1Mbps)

2478MHz



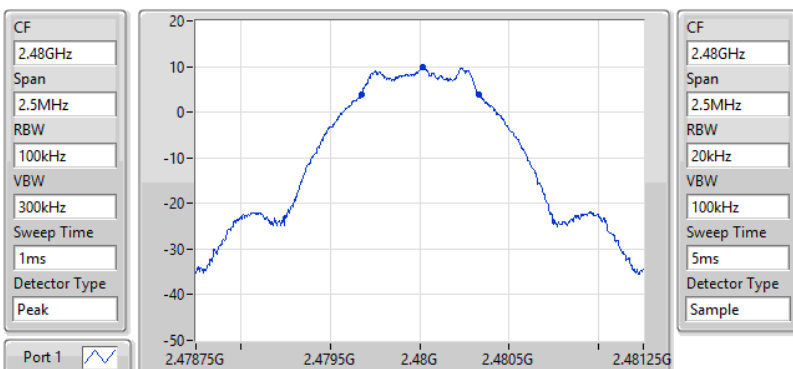
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
652.174k	2.47767G	2.478322G	1.024M	2.47749G	2.478514G	500k	1

EBW-DTS



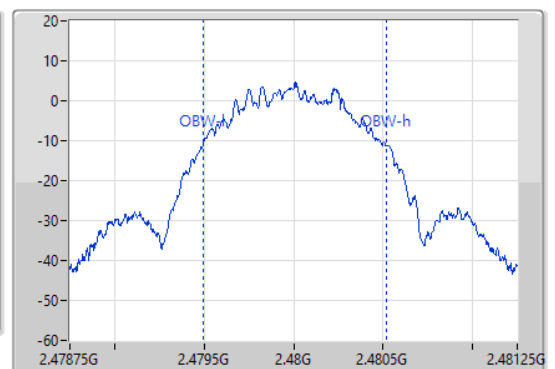
BT-LE(1Mbps)

2480MHz



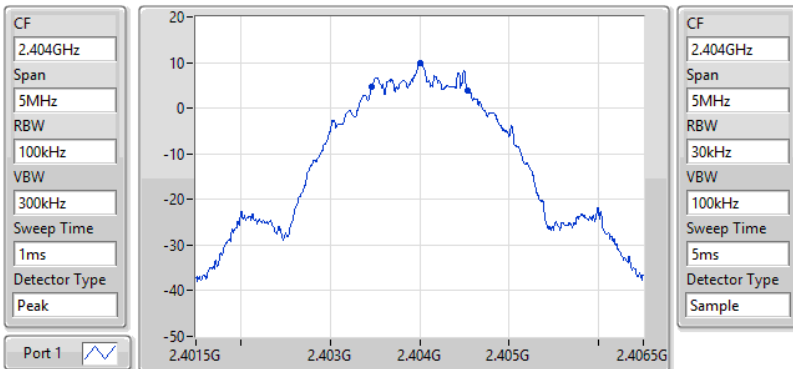
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
652.174k	2.479678G	2.48033G	1.024M	2.479493G	2.480517G	500k	1

EBW-DTS



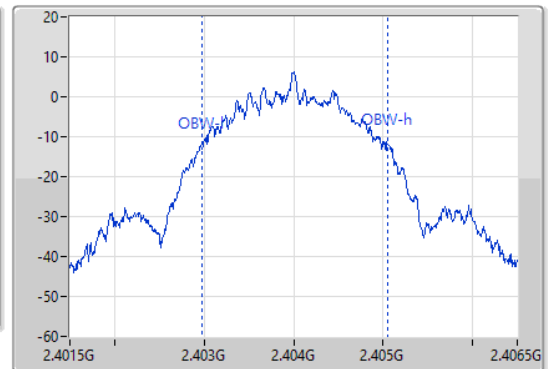
BT-LE(2Mbps)

2404MHz



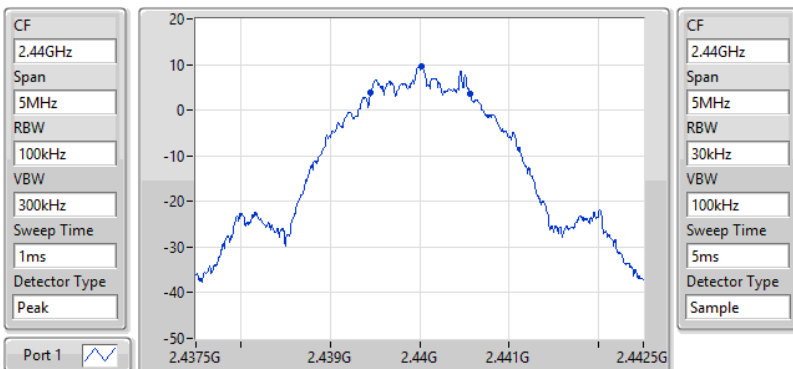
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.072M	2.403464G	2.404536G	2.077M	2.402973G	2.405049G	500k	1

EBW-DTS



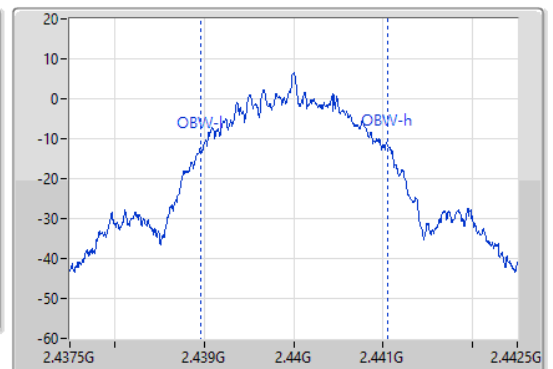
BT-LE(2Mbps)

2440MHz



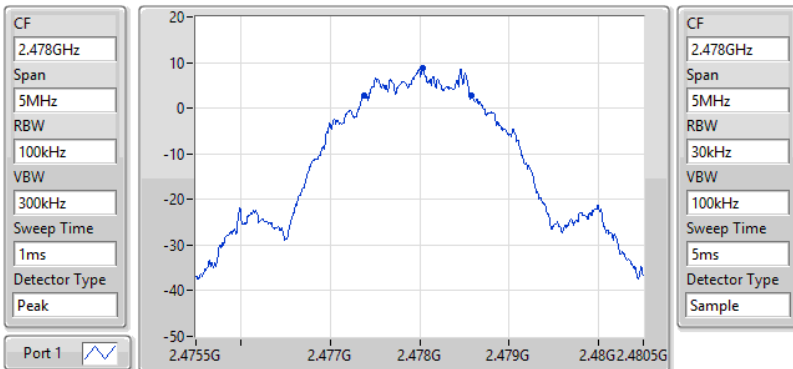
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.109M	2.439457G	2.440565G	2.084M	2.438965G	2.441049G	500k	1

EBW-DTS



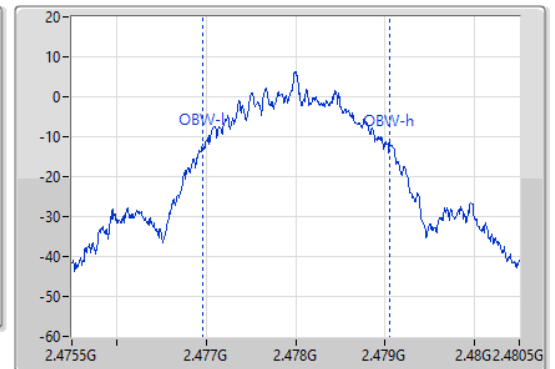
BT-LE(2Mbps)

2478MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.196M	2.477384G	2.47858G	2.091M	2.476965G	2.479056G	500k	1

EBW-DTS



2) Configuration 2: Laird part number: 453-00145, 20dBm, Integrated Antenna
Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
BT-LE(Coding rate125kbps)	699.275k	1.056M	1M06F1D	626.812k	1.049M
BT-LE(Coding rate 500kbps)	673.913k	1.02M	1M02F1D	659.42k	1.013M
BT-LE(Symbol rate 1Mbps)	659.42k	1.024M	1M02F1D	655.797k	1.02M
BT-LE(Symbol rate 2Mbps)	1.094M	2.084M	2M08F1D	1.087M	2.069M

Max-N dB = Maximum 6dB down bandwidth; Max-OBW = Maximum 99% occupied bandwidth;
Min-N dB = Minimum 6dB down bandwidth; Min-OBW = Minimum 99% occupied bandwidth

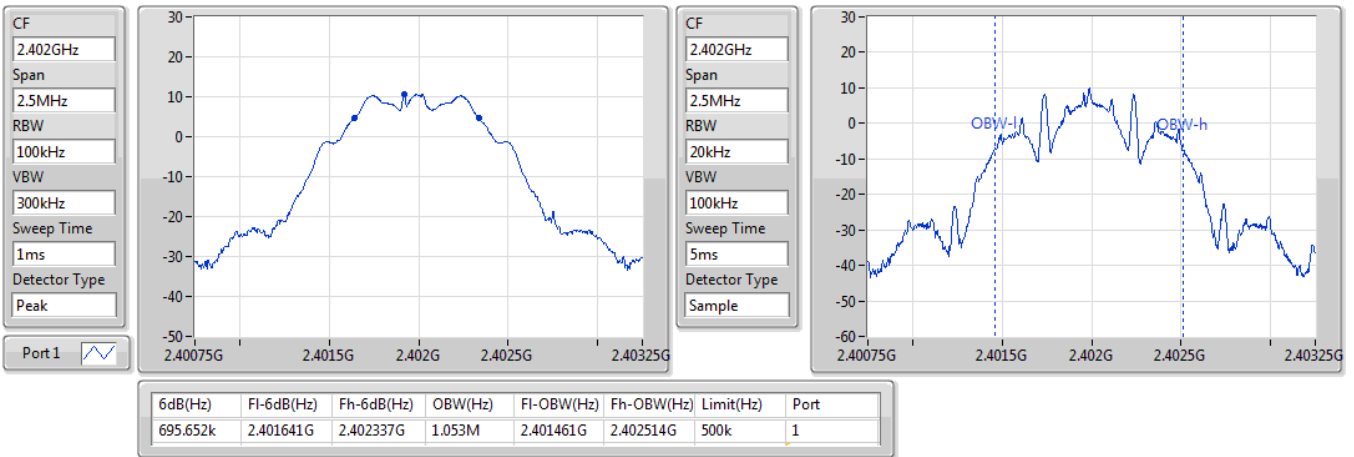
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(Coding rate125kbps)	-	-	-	-
2402MHz	Pass	500k	695.652k	1.053M
2440MHz	Pass	500k	699.275k	1.049M
2478MHz	Pass	500k	652.174k	1.056M
2480MHz	Pass	500k	626.812k	1.053M
BT-LE(Coding rate 500kbps)	-	-	-	-
2402MHz	Pass	500k	673.913k	1.02M
2440MHz	Pass	500k	659.42k	1.02M
2478MHz	Pass	500k	670.29k	1.017M
2480MHz	Pass	500k	670.29k	1.013M
BT-LE(Symbol rate 1Mbps)	-	-	-	-
2402MHz	Pass	500k	655.797k	1.024M
2440MHz	Pass	500k	659.42k	1.024M
2478MHz	Pass	500k	659.42k	1.02M
2480MHz	Pass	500k	659.42k	1.02M
BT-LE(Symbol rate 2Mbps)	-	-	-	-
2404MHz	Pass	500k	1.087M	2.069M
2440MHz	Pass	500k	1.087M	2.084M
2478MHz	Pass	500k	1.094M	2.084M

Port X-N dB = Port X 6dB down bandwidth;
Port X-OBW = Port X 99% occupied bandwidth

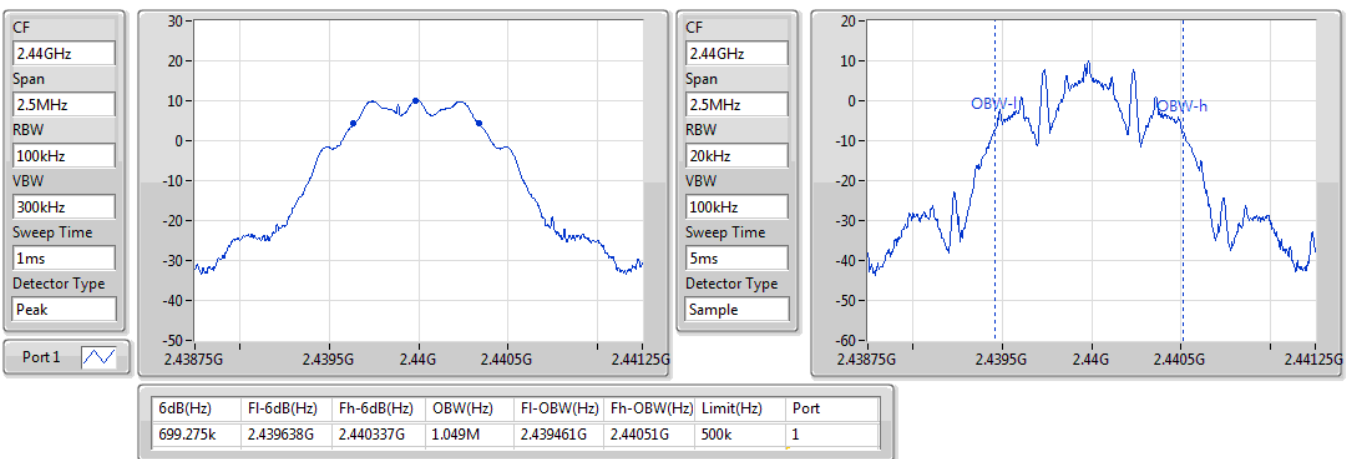
BT-LE(125kbps)

2402MHz



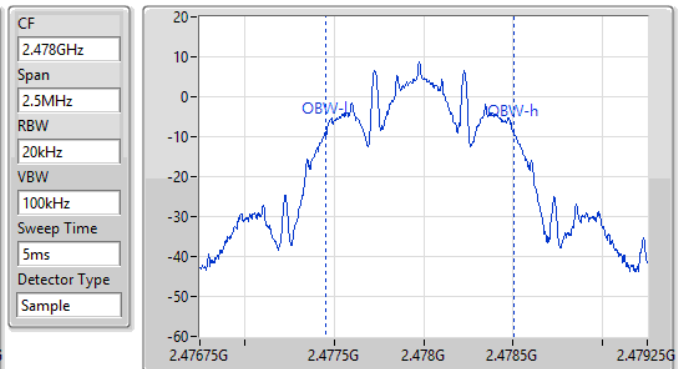
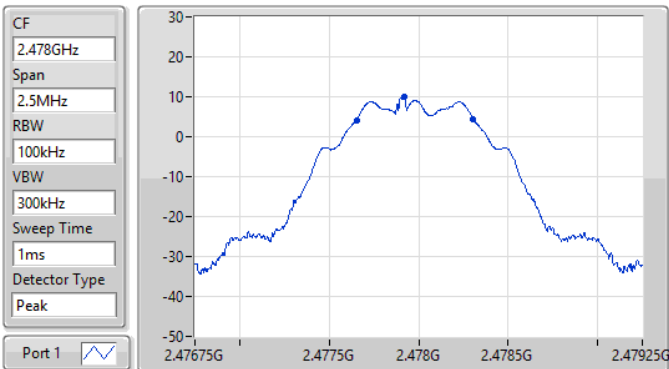
BT-LE(125kbps)

2440MHz



BT-LE(125kbps)

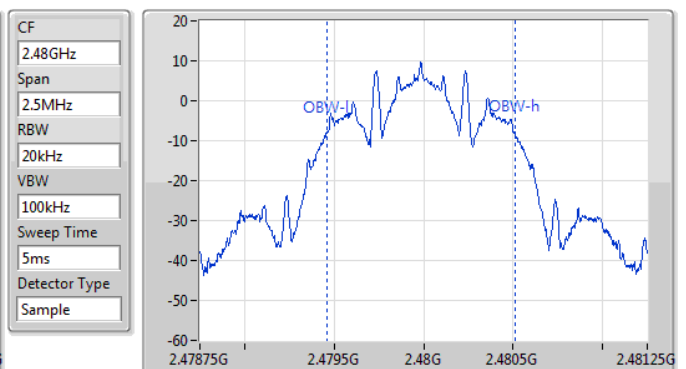
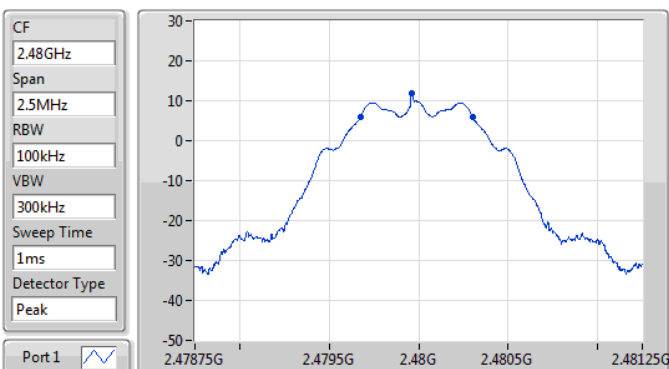
2478MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
652.174k	2.477652G	2.478304G	1.056M	2.47745G	2.478507G	500k	1

BT-LE(125kbps)

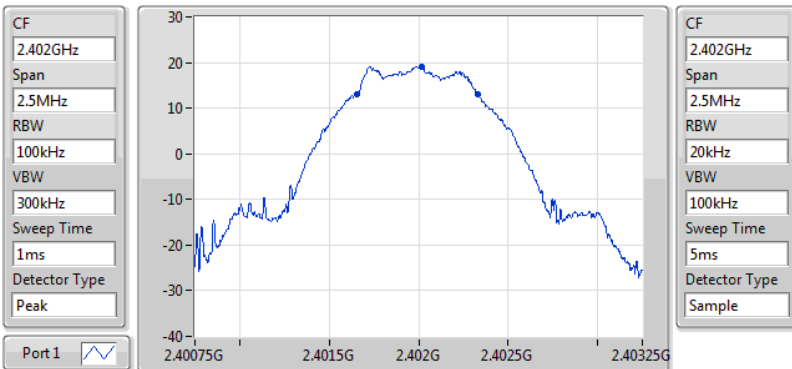
2480MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
626.812k	2.479674G	2.480301G	1.053M	2.479457G	2.48051G	500k	1

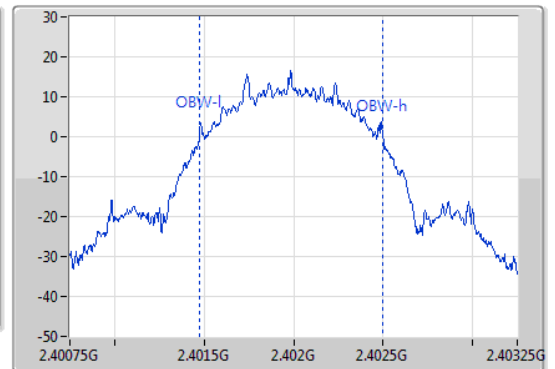
BT-LE(500kbps)

2402MHz



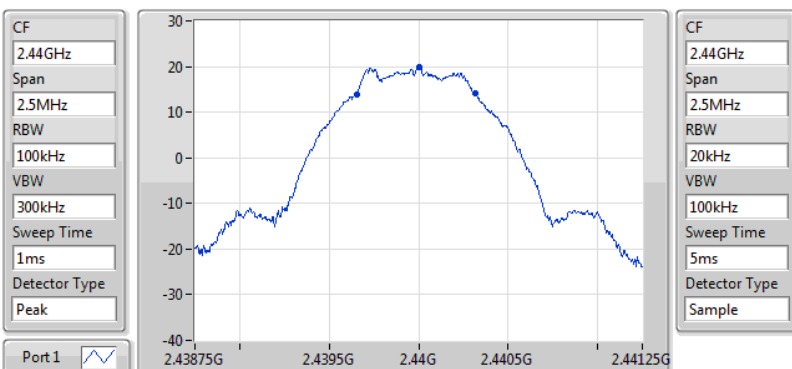
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
673.913k	2.401656G	2.40233G	1.02M	2.401475G	2.402496G	500k	1

EBW-DTS



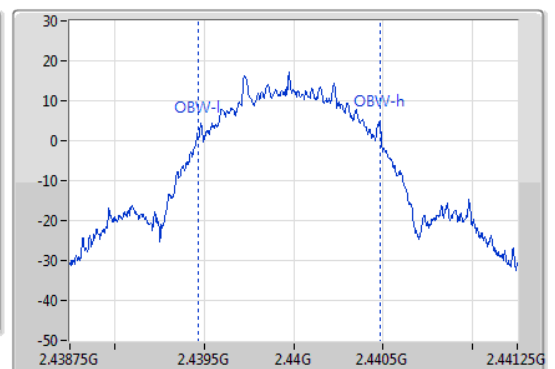
BT-LE(500kbps)

2440MHz



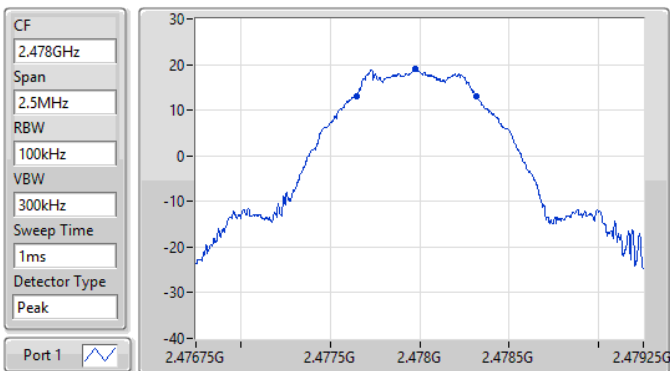
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
659.42k	2.439656G	2.440315G	1.02M	2.439465G	2.440485G	500k	1

EBW-DTS



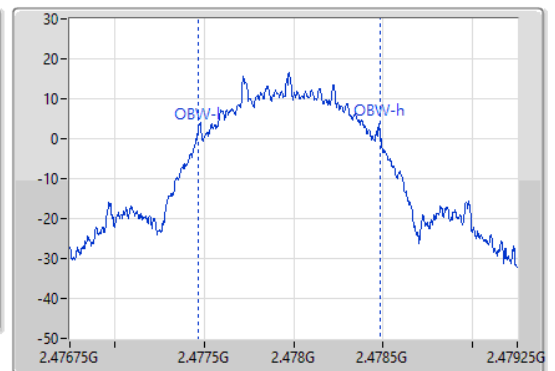
BT-LE(500kbps)

2478MHz



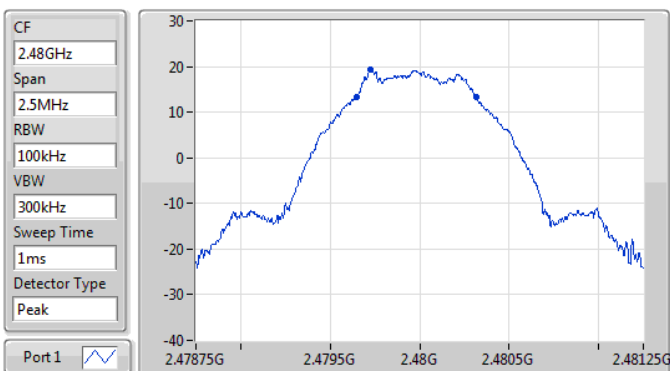
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
670.29k	2.477649G	2.478319G	1.017M	2.477465G	2.478481G	500k	1

EBW-DTS



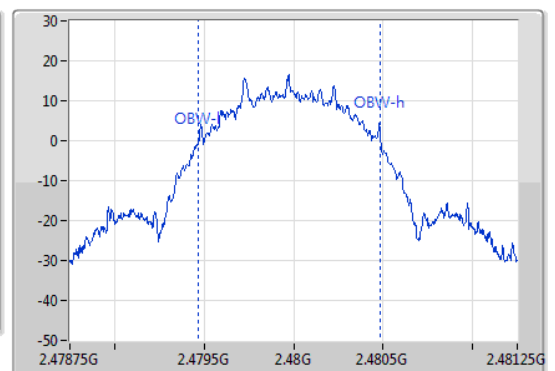
BT-LE(500kbps)

2480MHz



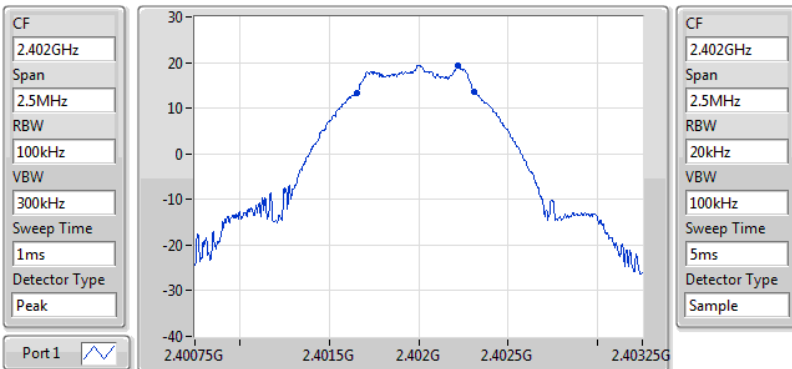
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
670.29k	2.479649G	2.480319G	1.013M	2.479468G	2.480481G	500k	1

EBW-DTS



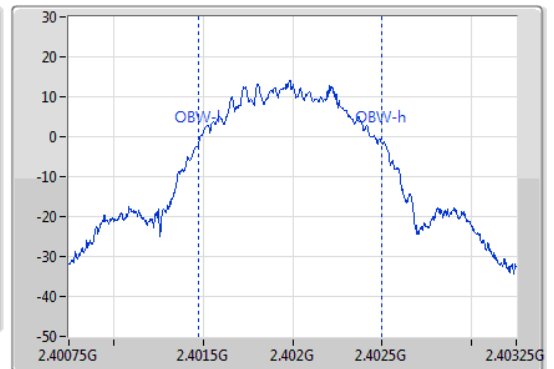
BT-LE(1Mbps)

2402MHz



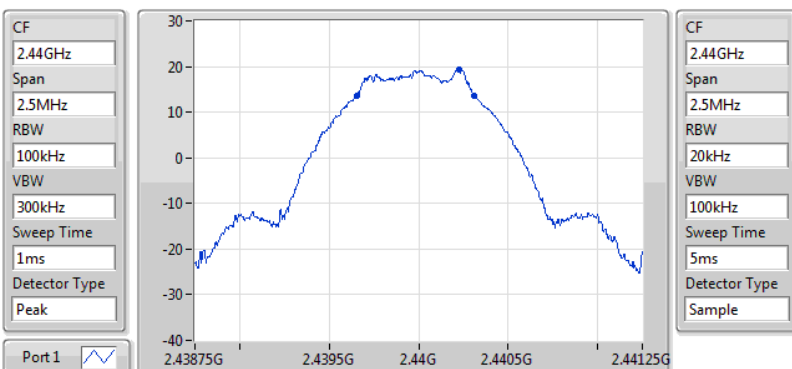
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
655.797k	2.401656G	2.402312G	1.024M	2.401475G	2.402499G	500k	1

EBW-DTS



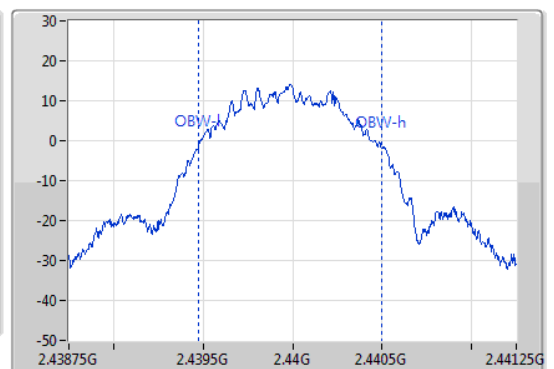
BT-LE(1Mbps)

2440MHz



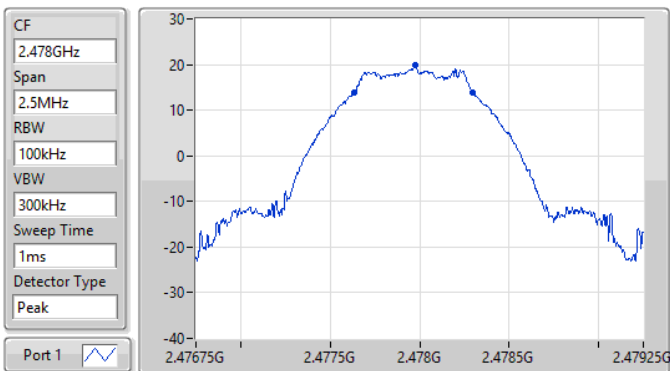
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
659.42k	2.439652G	2.440312G	1.024M	2.439475G	2.440499G	500k	1

EBW-DTS



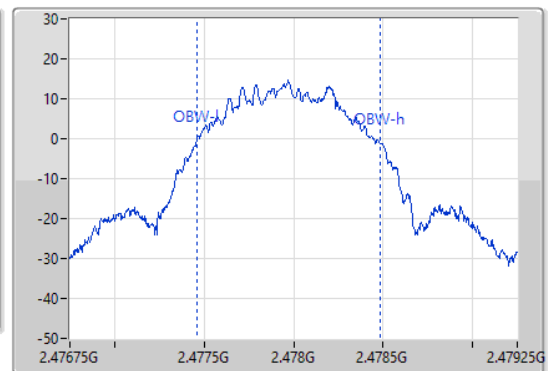
BT-LE(1Mbps)

2478MHz



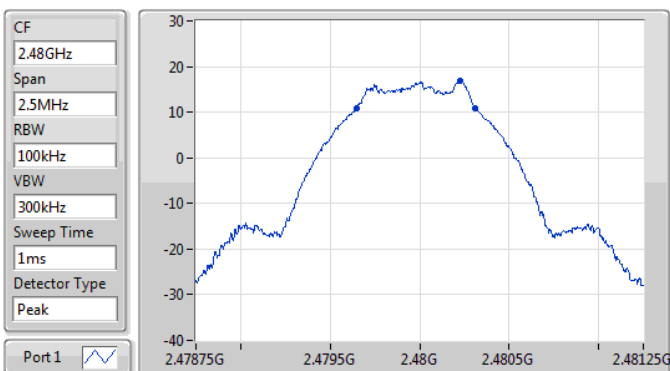
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
659.42k	2.477634G	2.478293G	1.02M	2.477461G	2.478481G	500k	1

EBW-DTS



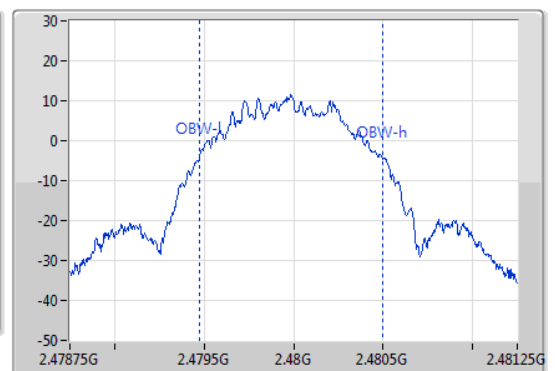
BT-LE(1Mbps)

2480MHz



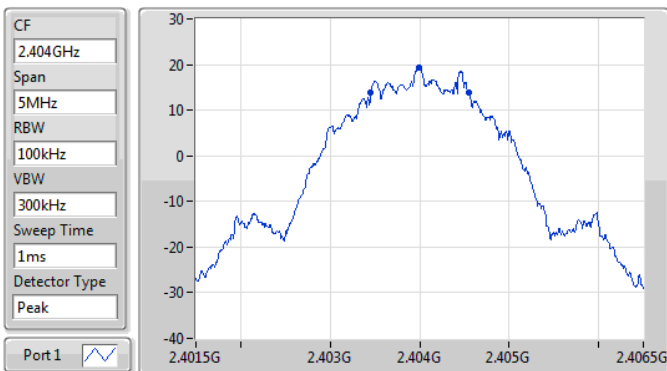
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
659.42k	2.479649G	2.480308G	1.02M	2.479475G	2.480496G	500k	1

EBW-DTS



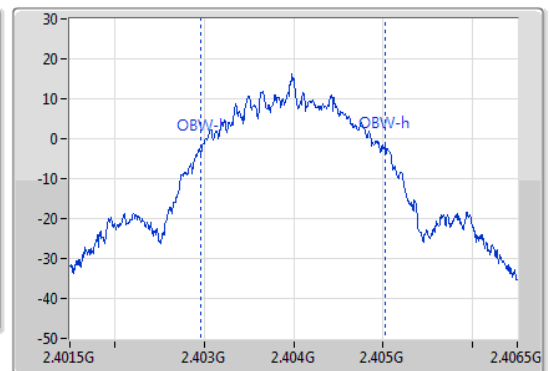
BT-LE(2Mbps)

2404MHz



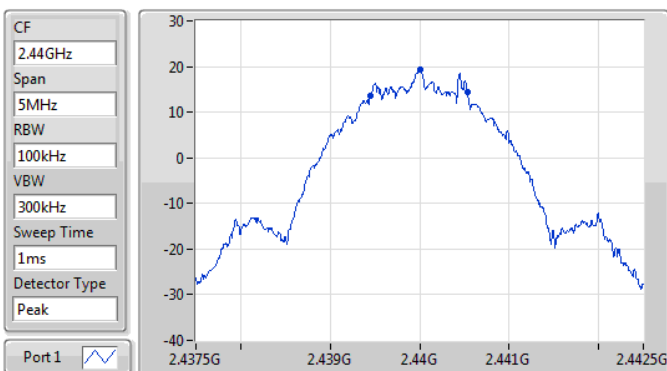
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.087M	2.403457G	2.404543G	2.069M	2.402958G	2.405027G	500k	1

EBW-DTS



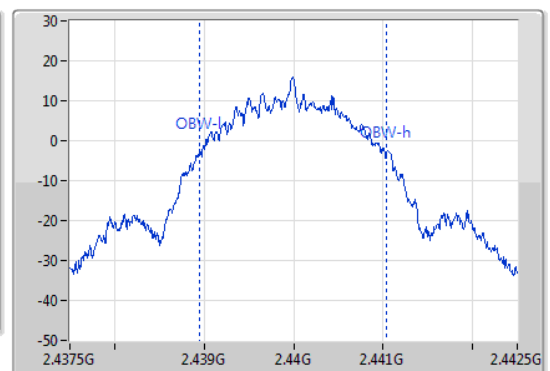
BT-LE(2Mbps)

2440MHz



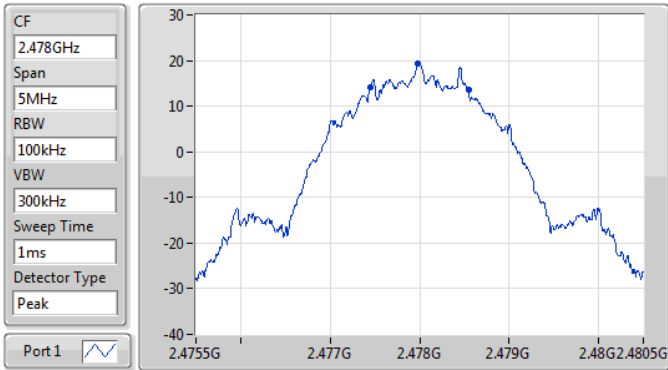
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.087M	2.439449G	2.440536G	2.084M	2.438951G	2.441035G	500k	1

EBW-DTS



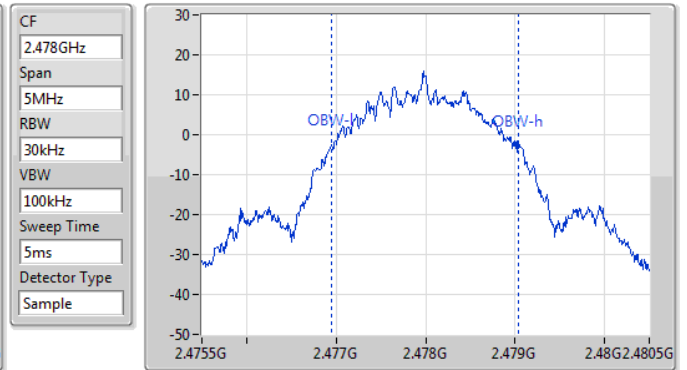
BT-LE(2Mbps)

2478MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.094M	2.477449G	2.478543G	2.084M	2.476951G	2.479035G	500k	1

EBW-DTS



3) Configuration 3: Laird part number: 453-00148, 20dBm, RF Trace Pad (External antenna)
Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
BT-LE(Coding rate125kbps)	630.435k	1.067M	1M07F1D	597.826k	1.056M
BT-LE(Coding rate 500kbps)	659.42k	1.024M	1M02F1D	652.174k	1.017M
BT-LE(Symbol rate 1Mbps)	666.667k	1.027M	1M03F1D	641.304k	1.024M
BT-LE(Symbol rate 2Mbps)	1.116M	2.084M	2M08F1D	1.094M	2.069M

Max-N dB = Maximum 6dB down bandwidth; Max-OBW = Maximum 99% occupied bandwidth;
Min-N dB = Minimum 6dB down bandwidth; Min-OBW = Minimum 99% occupied bandwidth

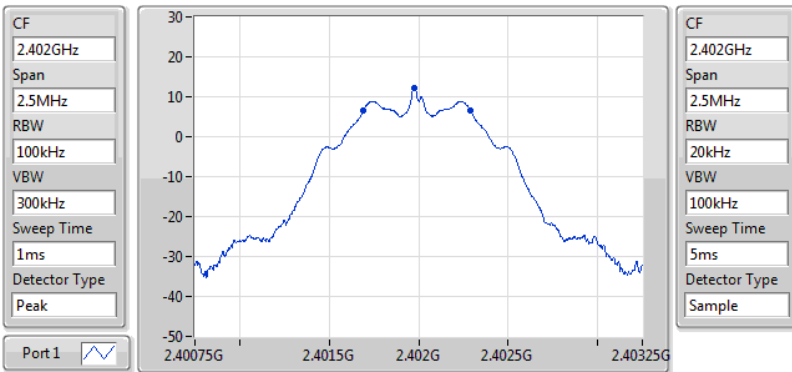
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(Coding rate125kbps)	-	-	-	-
2402MHz	Pass	500k	601.449k	1.067M
2440MHz	Pass	500k	597.826k	1.056M
2478MHz	Pass	500k	601.449k	1.056M
2480MHz	Pass	500k	630.435k	1.06M
BT-LE(Coding rate 500kbps)	-	-	-	-
2402MHz	Pass	500k	659.42k	1.024M
2440MHz	Pass	500k	652.174k	1.02M
2478MHz	Pass	500k	655.797k	1.02M
2480MHz	Pass	500k	655.797k	1.017M
BT-LE(Symbol rate 1Mbps)	-	-	-	-
2402MHz	Pass	500k	666.667k	1.024M
2440MHz	Pass	500k	641.304k	1.024M
2478MHz	Pass	500k	659.42k	1.024M
2480MHz	Pass	500k	666.667k	1.027M
BT-LE(Symbol rate 2Mbps)	-	-	-	-
2404MHz	Pass	500k	1.101M	2.069M
2440MHz	Pass	500k	1.094M	2.069M
2478MHz	Pass	500k	1.116M	2.084M

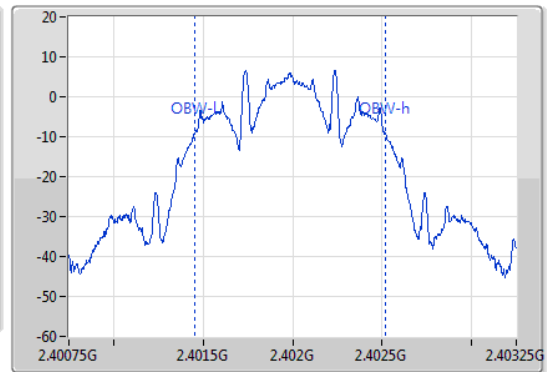
Port X-N dB = Port X 6dB down bandwidth;
Port X-OBW = Port X 99% occupied bandwidth

BT-LE(125kbps)

2402MHz



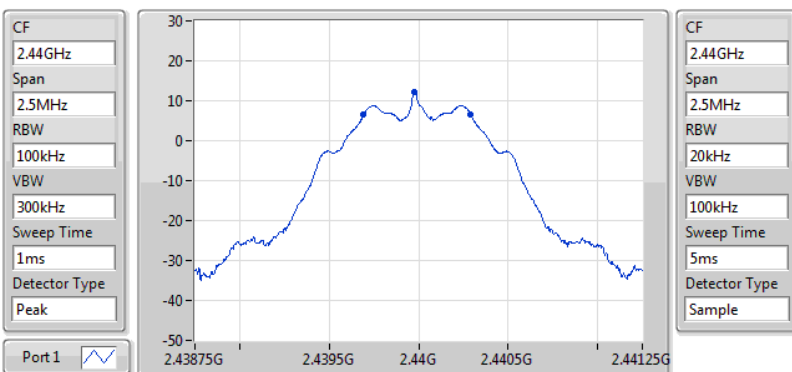
EBW-DTS



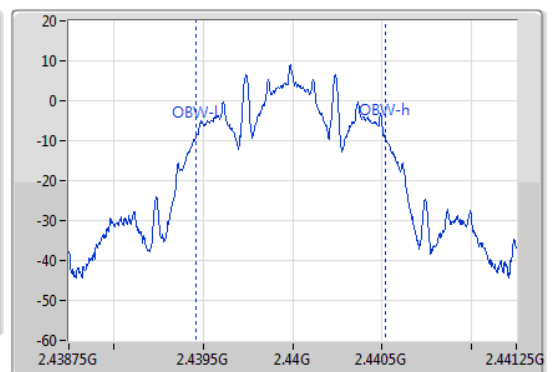
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
601.449k	2.401688G	2.40229G	1.067M	2.401454G	2.402521G	500k	1

BT-LE(125kbps)

2440MHz



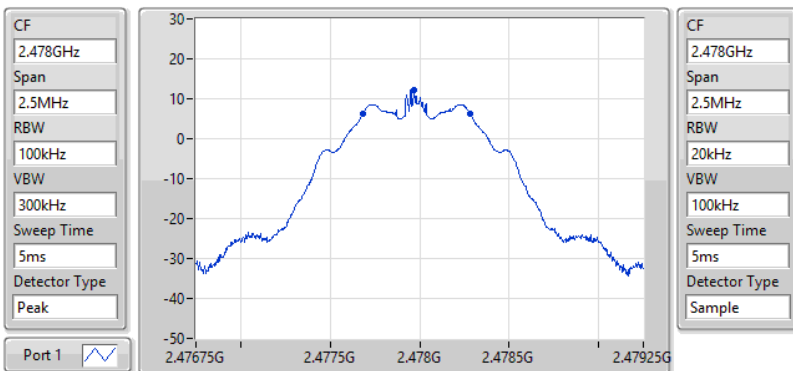
EBW-DTS



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
597.826k	2.439692G	2.44029G	1.056M	2.439461G	2.440517G	500k	1

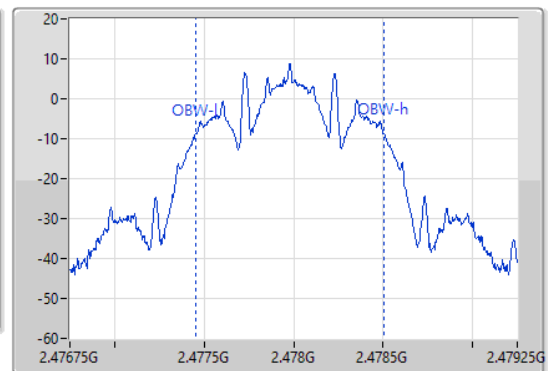
BT-LE(125kbps)

2478MHz



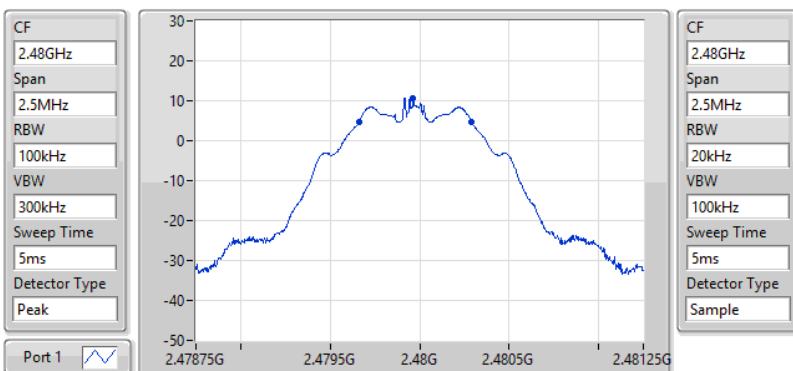
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
601.449k	2.477681G	2.478283G	1.056M	2.47745G	2.478507G	500k	1

EBW-DTS



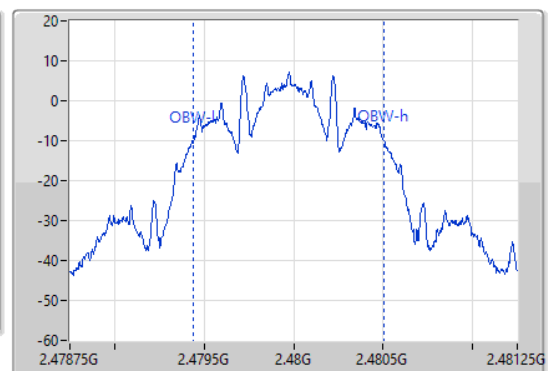
BT-LE(125kbps)

2480MHz



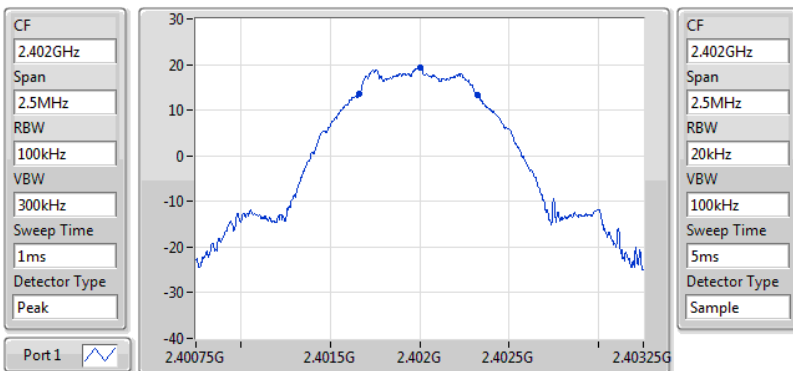
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
630.435k	2.479659G	2.48029G	1.06M	2.479443G	2.480503G	500k	1

EBW-DTS



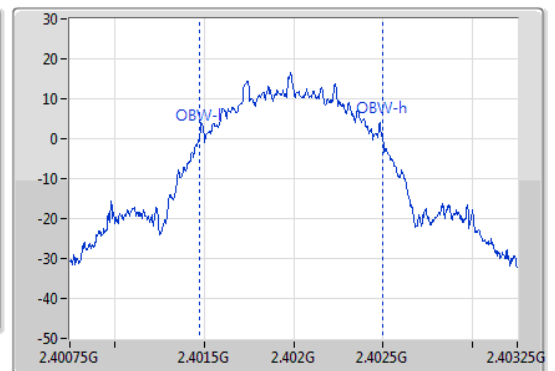
BT-LE(500kbps)

2402MHz



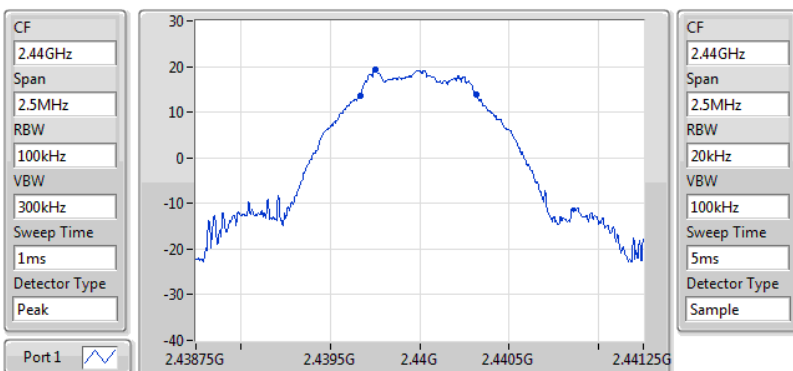
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
659.42k	2.401663G	2.402322G	1.024M	2.401472G	2.402496G	500k	1

EBW-DTS



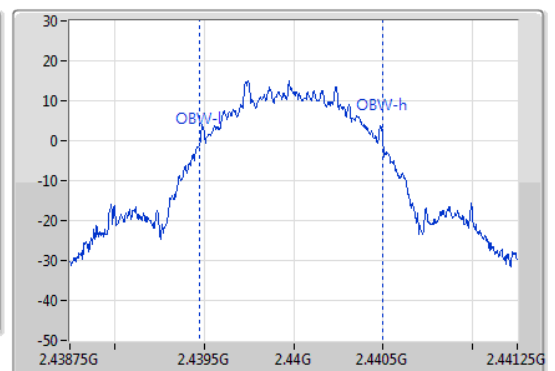
BT-LE(500kbps)

2440MHz



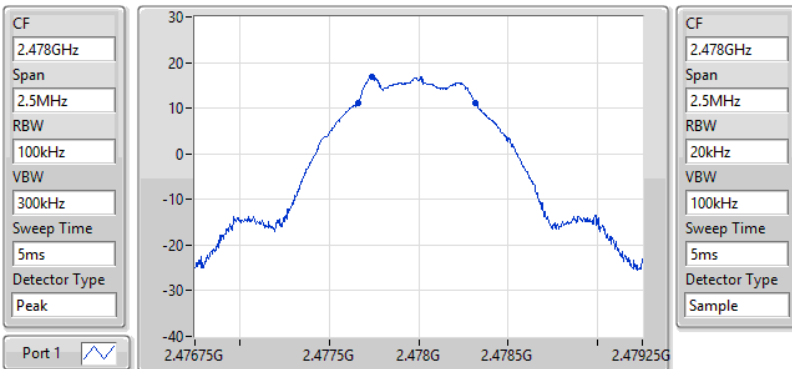
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
652.174k	2.439667G	2.440319G	1.02M	2.439475G	2.440496G	500k	1

EBW-DTS



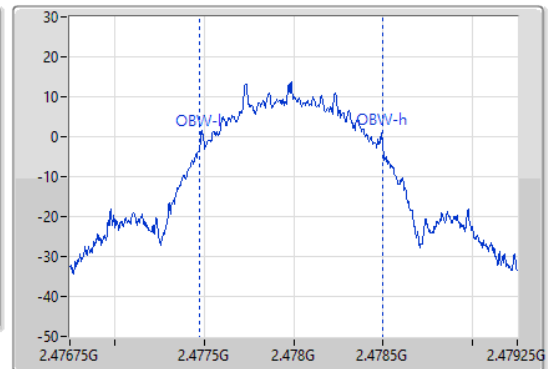
BT-LE(500kbps)

2478MHz



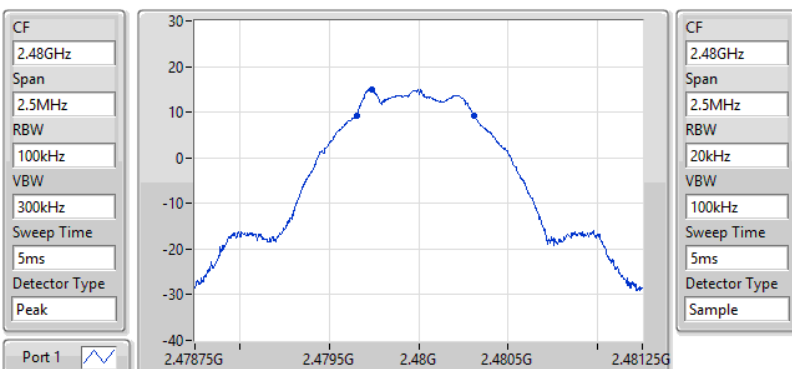
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
655.797k	2.477663G	2.478319G	1.02M	2.477475G	2.478496G	500k	1

EBW-DTS



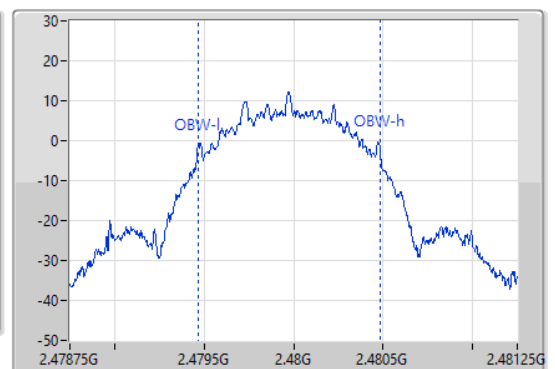
BT-LE(500kbps)

2480MHz



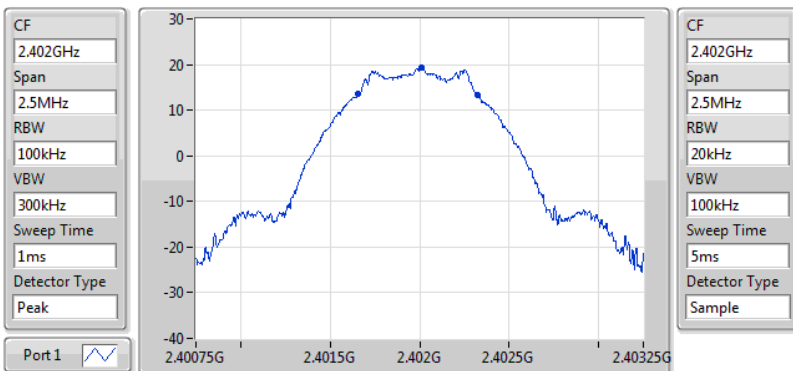
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
655.797k	2.479652G	2.480308G	1.017M	2.479465G	2.480481G	500k	1

EBW-DTS



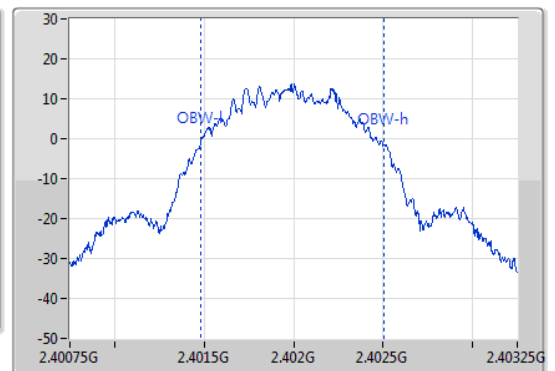
BT-LE(1Mbps)

2402MHz



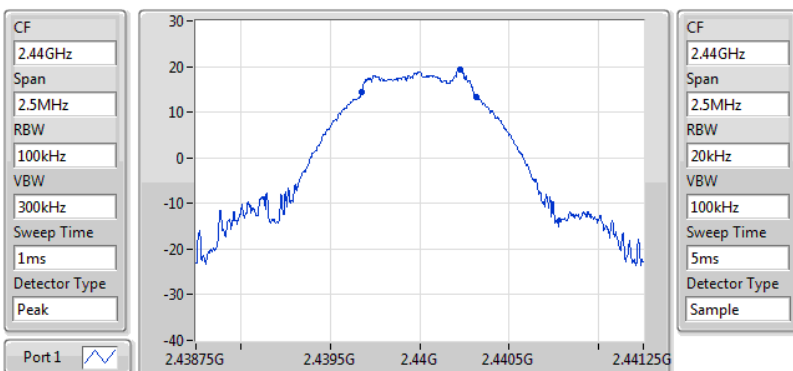
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
666.667k	2.401656G	2.402322G	1.024M	2.401479G	2.402503G	500k	1

EBW-DTS



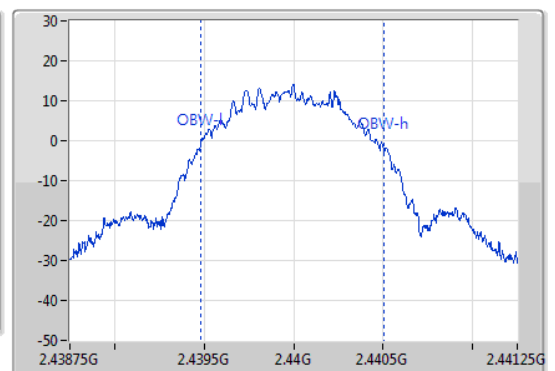
BT-LE(1Mbps)

2440MHz



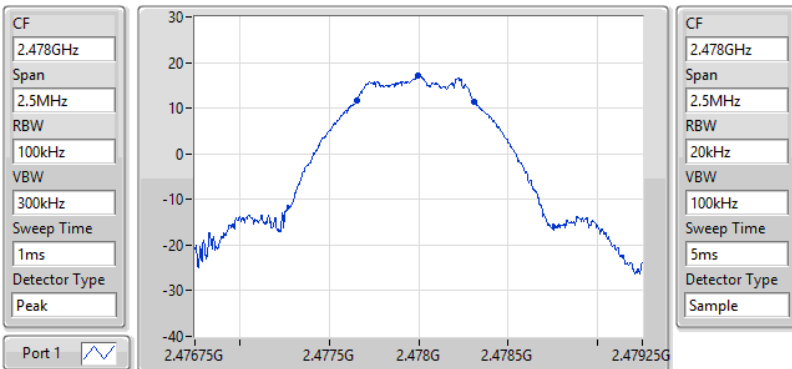
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
641.304k	2.439674G	2.440315G	1.024M	2.439479G	2.440503G	500k	1

EBW-DTS



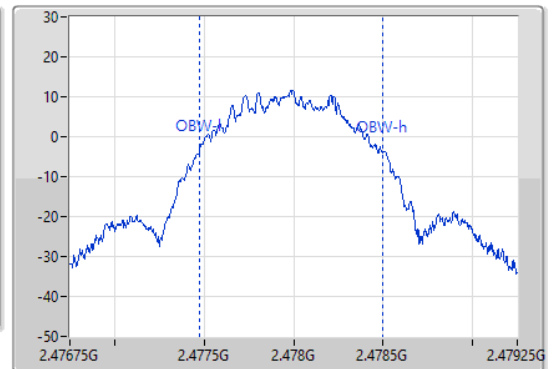
BT-LE(1Mbps)

2478MHz



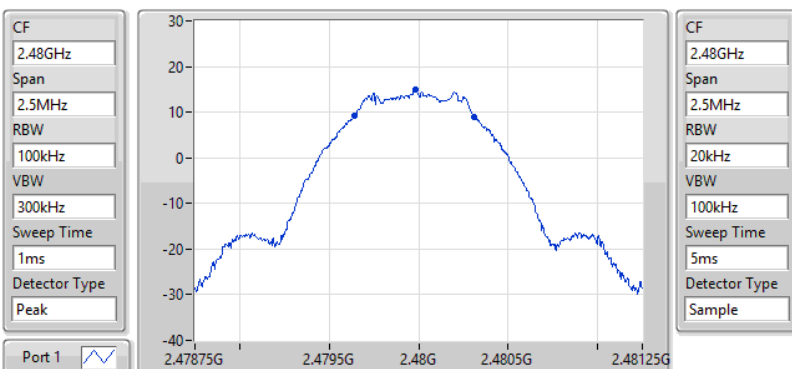
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
659.42k	2.477652G	2.478312G	1.024M	2.477475G	2.478499G	500k	1

EBW-DTS



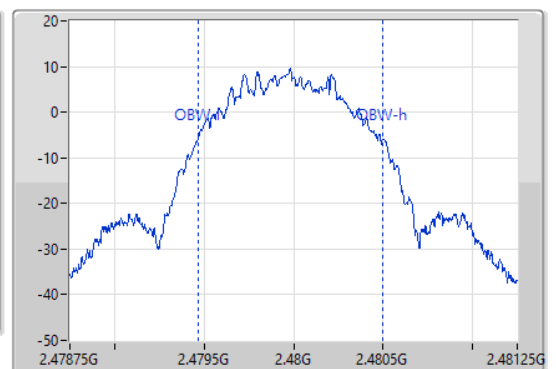
BT-LE(1Mbps)

2480MHz



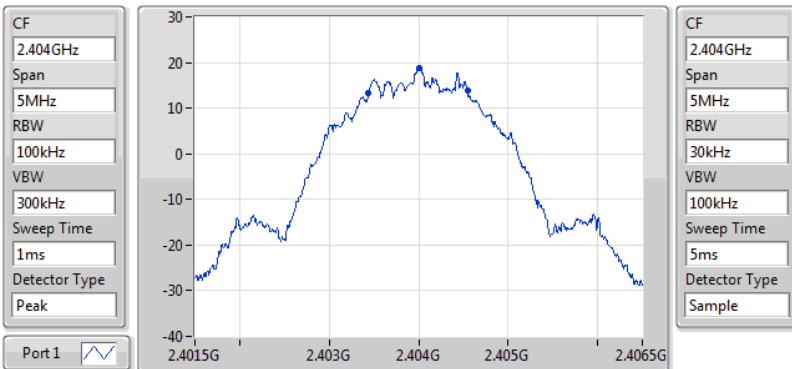
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
666.667k	2.479641G	2.480308G	1.027M	2.479468G	2.480496G	500k	1

EBW-DTS



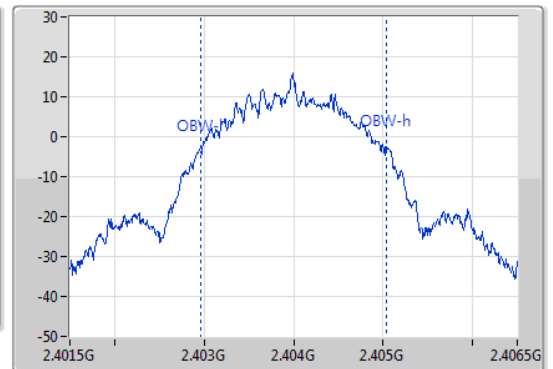
BT-LE(2Mbps)

2404MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.101M	2.403442G	2.404543G	2.069M	2.402965G	2.405035G	500k	1

EBW-DTS



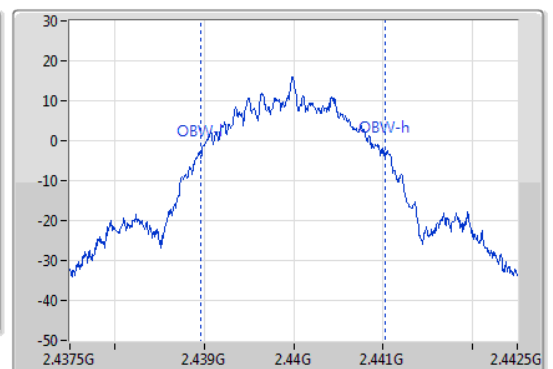
BT-LE(2Mbps)

2440MHz



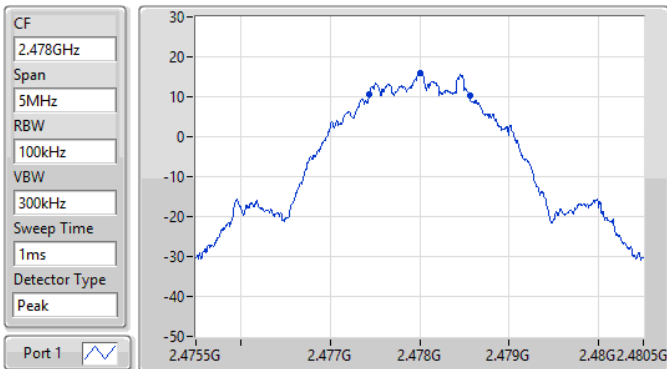
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.094M	2.439442G	2.440536G	2.069M	2.438958G	2.441027G	500k	1

EBW-DTS



BT-LE(2Mbps)

2478MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.116M	2.477442G	2.478558G	2.084M	2.476951G	2.479035G	500k	1

EBW-DTS



**1) Configuration 1: Laird part number: 453-00142, 10dBm, Integrated Antenna****Summary**

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-LE(Coding rate125kbps)	9.89	0.00975
BT-LE(Coding rate 500kbps)	9.89	0.00975
BT-LE(Symbol rate 1Mbps)	9.91	0.00979
BT-LE(Symbol rate 2Mbps)	9.90	0.00977

Result

Mode	Result	Antenna Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(Coding rate125kbps)	-	-	-	-
2402MHz	Pass	1.82	9.89	30.00
2440MHz	Pass	1.82	9.80	30.00
2478MHz	Pass	1.82	9.75	30.00
2480MHz	Pass	1.82	9.73	30.00
BT-LE(Coding rate 500kbps)	-	-	-	-
2402MHz	Pass	1.82	9.89	30.00
2440MHz	Pass	1.82	9.79	30.00
2478MHz	Pass	1.82	9.76	30.00
2480MHz	Pass	1.82	9.72	30.00
BT-LE(Symbol rate 1Mbps)	-	-	-	-
2402MHz	Pass	1.82	9.91	30.00
2440MHz	Pass	1.82	9.81	30.00
2478MHz	Pass	1.82	9.77	30.00
2480MHz	Pass	1.82	9.74	30.00
BT-LE(Symbol rate 2Mbps)	-	-	-	-
2404MHz	Pass	1.82	9.90	30.00
2440MHz	Pass	1.82	9.81	30.00
2478MHz	Pass	1.82	9.74	30.00

**2) Configuration 2: Laird part number: 453-00145, 20dBm, Integrated Antenna****Summary**

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-LE(Coding rate125kbps)	13.16	0.02070
BT-LE(Coding rate 500kbps)	19.54	0.08995
BT-LE(Symbol rate 1Mbps)	19.56	0.09036
BT-LE(Symbol rate 2Mbps)	19.55	0.09016

Result

Mode	Result	Antenna Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(Coding rate125kbps)	-	-	-	-
2402MHz	Pass	1.82	13.16	30.00
2440MHz	Pass	1.82	12.91	30.00
2478MHz	Pass	1.82	12.90	30.00
2480MHz	Pass	1.82	12.89	30.00
BT-LE(Coding rate 500kbps)	-	-	-	-
2402MHz	Pass	1.82	19.54	30.00
2440MHz	Pass	1.82	19.39	30.00
2478MHz	Pass	1.82	19.27	30.00
2480MHz	Pass	1.82	19.15	30.00
BT-LE(Symbol rate 1Mbps)	-	-	-	-
2402MHz	Pass	1.82	19.56	30.00
2440MHz	Pass	1.82	19.42	30.00
2478MHz	Pass	1.82	19.30	30.00
2480MHz	Pass	1.82	17.05	30.00
BT-LE(Symbol rate 2Mbps)	-	-	-	-
2404MHz	Pass	1.82	19.55	30.00
2440MHz	Pass	1.82	19.40	30.00
2478MHz	Pass	1.82	19.39	30.00

**3) Configuration 3: Laird part number: 453-00148, 20dBm, RF Trace Pad (External antenna)****Summary**

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-LE(Coding rate125kbps)	12.79	0.01901
BT-LE(Coding rate 500kbps)	19.86	0.09683
BT-LE(Symbol rate 1Mbps)	19.89	0.09750
BT-LE(Symbol rate 2Mbps)	19.88	0.09727

Result

Mode	Result	Antenna Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(Coding rate125kbps)	-	-	-	-
2402MHz	Pass	2.00	12.79	30.00
2440MHz	Pass	2.00	12.65	30.00
2478MHz	Pass	2.00	12.58	30.00
2480MHz	Pass	2.00	12.55	30.00
BT-LE(Coding rate 500kbps)	-	-	-	-
2402MHz	Pass	2.00	19.86	30.00
2440MHz	Pass	2.00	19.83	30.00
2478MHz	Pass	2.00	18.01	30.00
2480MHz	Pass	2.00	15.45	30.00
BT-LE(Symbol rate 1Mbps)	-	-	-	-
2402MHz	Pass	2.00	19.89	30.00
2440MHz	Pass	2.00	19.87	30.00
2478MHz	Pass	2.00	18.03	30.00
2480MHz	Pass	2.00	15.47	30.00
BT-LE(Symbol rate 2Mbps)	-	-	-	-
2404MHz	Pass	2.00	19.88	30.00
2440MHz	Pass	2.00	19.86	30.00
2478MHz	Pass	2.00	17.15	30.00

4) Configuration 4: Laird part number: 453-00145, 10dBm, Integrated Antenna
Summary

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-LE(Coding rate125kbps)	9.81	0.00957
BT-LE(Coding rate 500kbps)	9.79	0.00953
BT-LE(Symbol rate 1Mbps)	9.83	0.00962
BT-LE(Symbol rate 2Mbps)	9.82	0.00959

Result

Mode	Result	Antenna Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(Coding rate125kbps)	-	-	-	-
2402MHz	Pass	1.82	9.81	30.00
2440MHz	Pass	1.82	9.56	30.00
2478MHz	Pass	1.82	9.47	30.00
2480MHz	Pass	1.82	9.47	30.00
BT-LE(Coding rate 500kbps)	-	-	-	-
2402MHz	Pass	1.82	9.79	30.00
2440MHz	Pass	1.82	9.56	30.00
2478MHz	Pass	1.82	9.46	30.00
2480MHz	Pass	1.82	9.28	30.00
BT-LE(Symbol rate 1Mbps)	-	-	-	-
2402MHz	Pass	1.82	9.83	30.00
2440MHz	Pass	1.82	9.58	30.00
2478MHz	Pass	1.82	9.48	30.00
2480MHz	Pass	1.82	9.31	30.00
BT-LE(Symbol rate 2Mbps)	-	-	-	-
2404MHz	Pass	1.82	9.82	30.00
2440MHz	Pass	1.82	9.57	30.00
2478MHz	Pass	1.82	9.30	30.00

**5) Configuration 5: Laird part number: 453-00148, 10dBm, RF Trace Pad (External antenna)****Summary**

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-LE(Coding rate125kbps)	10.32	0.01076
BT-LE(Coding rate 500kbps)	10.30	0.01072
BT-LE(Symbol rate 1Mbps)	10.29	0.01069
BT-LE(Symbol rate 2Mbps)	10.31	0.01074

Result

Mode	Result	Antenna Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(Coding rate125kbps)	-	-	-	-
2402MHz	Pass	2.00	10.30	30.00
2440MHz	Pass	2.00	10.17	30.00
2478MHz	Pass	2.00	10.02	30.00
2480MHz	Pass	2.00	10.01	30.00
BT-LE(Coding rate 500kbps)	-	-	-	-
2402MHz	Pass	2.00	10.29	30.00
2440MHz	Pass	2.00	10.16	30.00
2478MHz	Pass	2.00	10.02	30.00
2480MHz	Pass	2.00	10.01	30.00
BT-LE(Symbol rate 1Mbps)	-	-	-	-
2402MHz	Pass	2.00	10.32	30.00
2440MHz	Pass	2.00	10.18	30.00
2478MHz	Pass	2.00	10.05	30.00
2480MHz	Pass	2.00	10.02	30.00
BT-LE(Symbol rate 2Mbps)	-	-	-	-
2404MHz	Pass	2.00	10.31	30.00
2440MHz	Pass	2.00	10.17	30.00
2478MHz	Pass	2.00	10.03	30.00

1) Configuration 1: Laird part number: 453-00142, 10dBm, Integrated Antenna
Summary

Mode	PD (dBm/3kHz)
2.4-2.4835GHz	-
BT-LE(Coding rate125kbps)	3.86
BT-LE(Coding rate 500kbps)	-7.12
BT-LE(Symbol rate 1Mbps)	-10.16
BT-LE(Symbol rate 2Mbps)	-8.24

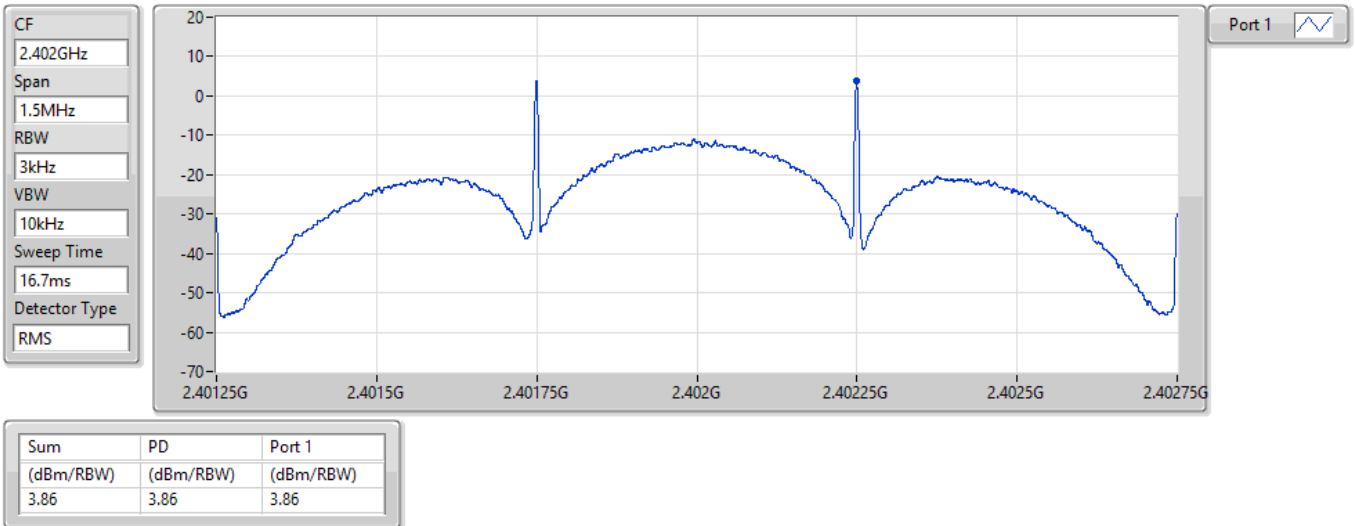
Result

Mode	Result	Antenna Gain (dBi)	Power Density (dBm/3kHz)	Power Density Limit (dBm/3kHz)
BT-LE(Coding rate125kbps)	-	-	-	-
2402MHz	Pass	1.82	3.86	8.00
2440MHz	Pass	1.82	3.74	8.00
2478MHz	Pass	1.82	3.71	8.00
2480MHz	Pass	1.82	3.70	8.00
BT-LE(Coding rate 500kbps)	-	-	-	-
2402MHz	Pass	1.82	-7.16	8.00
2440MHz	Pass	1.82	-8.08	8.00
2478MHz	Pass	1.82	-7.12	8.00
2480MHz	Pass	1.82	-7.44	8.00
BT-LE(Symbol rate 1Mbps)	-	-	-	-
2402MHz	Pass	1.82	-10.55	8.00
2440MHz	Pass	1.82	-10.47	8.00
2478MHz	Pass	1.82	-10.16	8.00
2480MHz	Pass	1.82	-10.19	8.00
BT-LE(Symbol rate 2Mbps)	-	-	-	-
2404MHz	Pass	1.82	-8.24	8.00
2440MHz	Pass	1.82	-8.85	8.00
2478MHz	Pass	1.82	-9.32	8.00

BT-LE(125kbps)

PSD

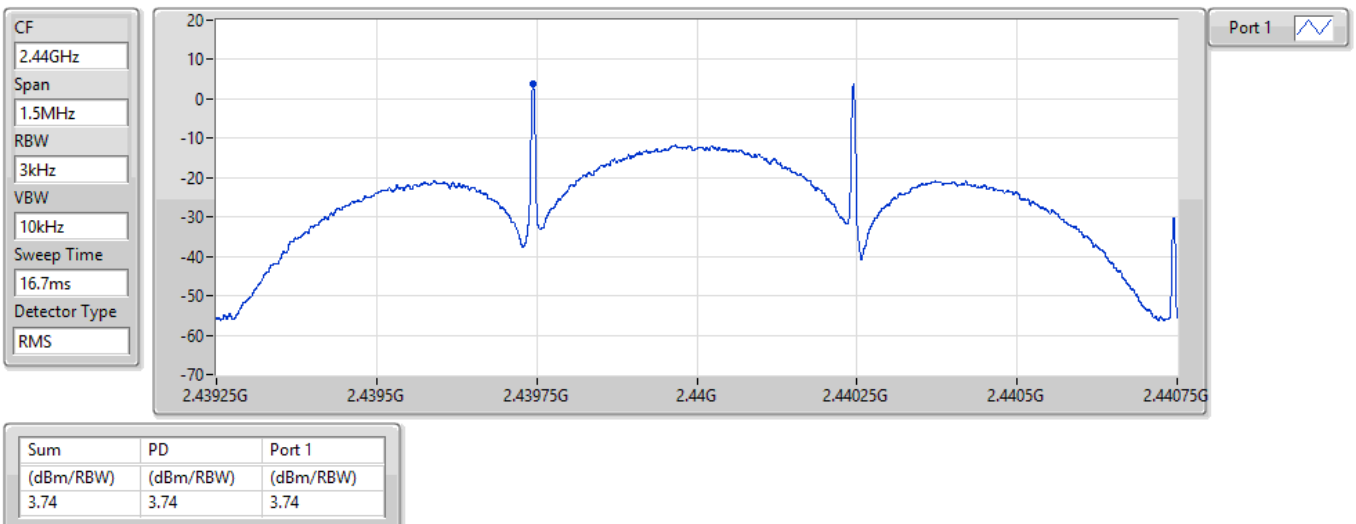
2402MHz



BT-LE(125kbps)

PSD

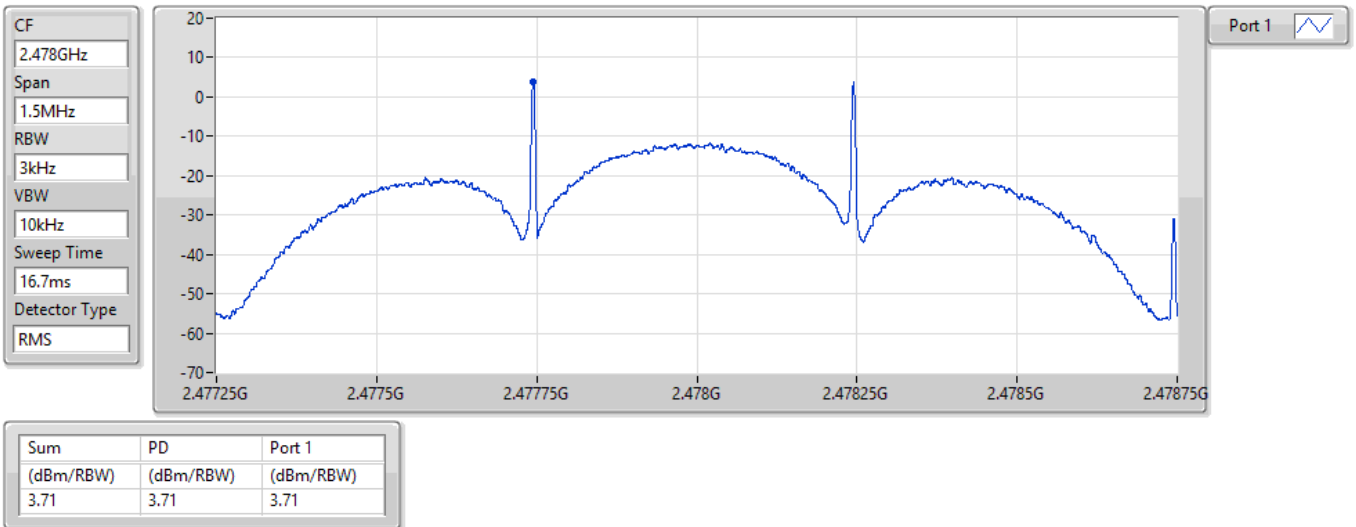
2440MHz



BT-LE(125kbps)

PSD

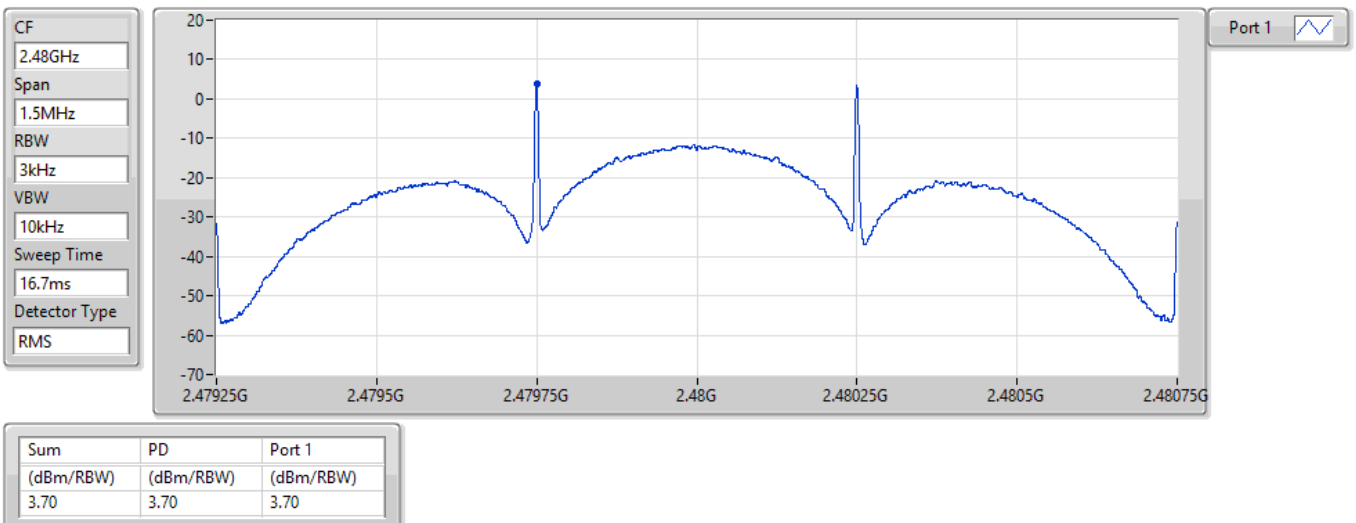
2478MHz



BT-LE(125kbps)

PSD

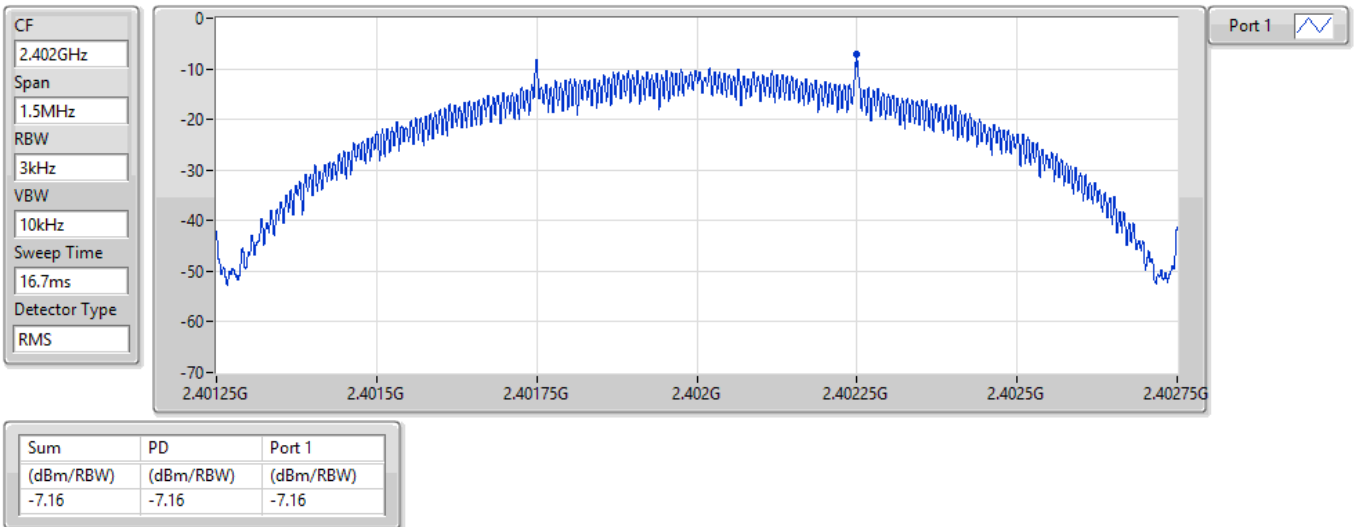
2480MHz



BT-LE(500kbps)

PSD

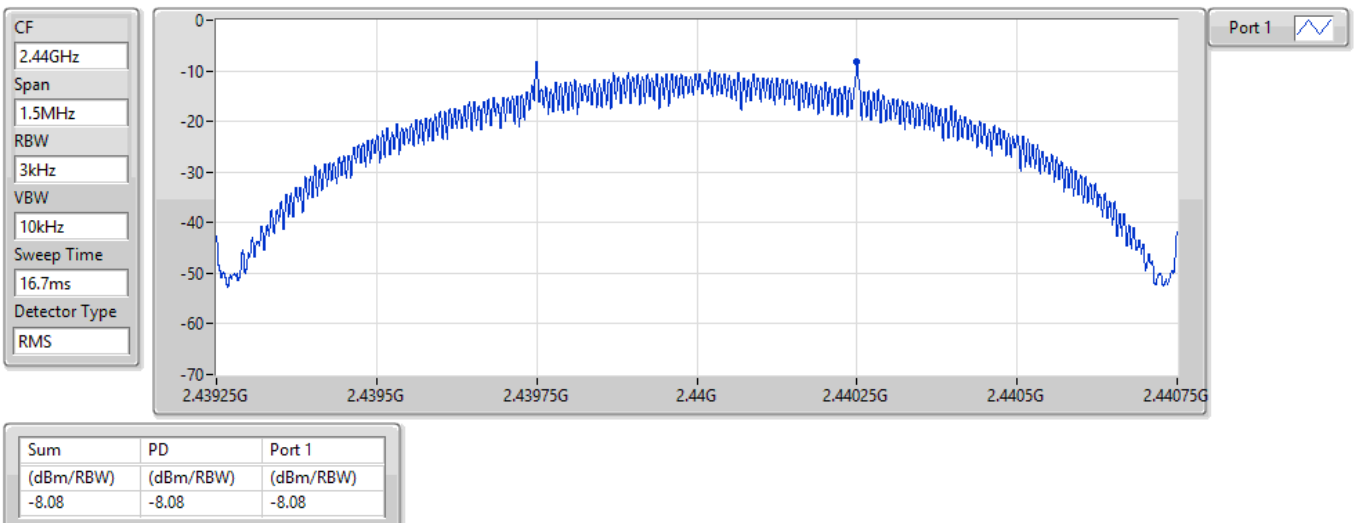
2402MHz



BT-LE(500kbps)

PSD

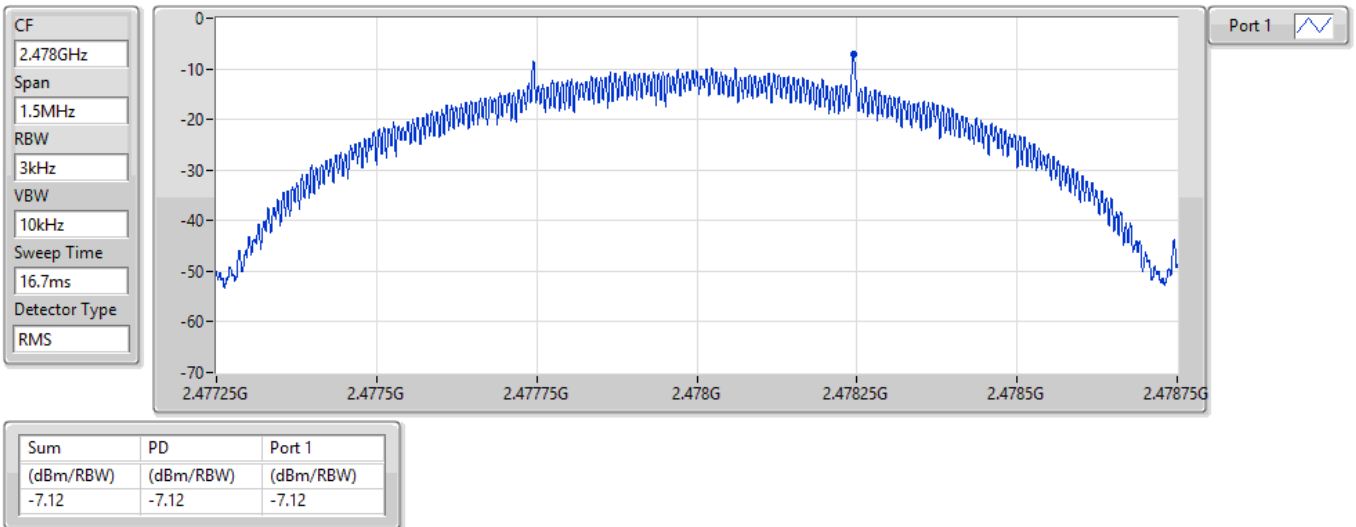
2440MHz



BT-LE(500kbps)

PSD

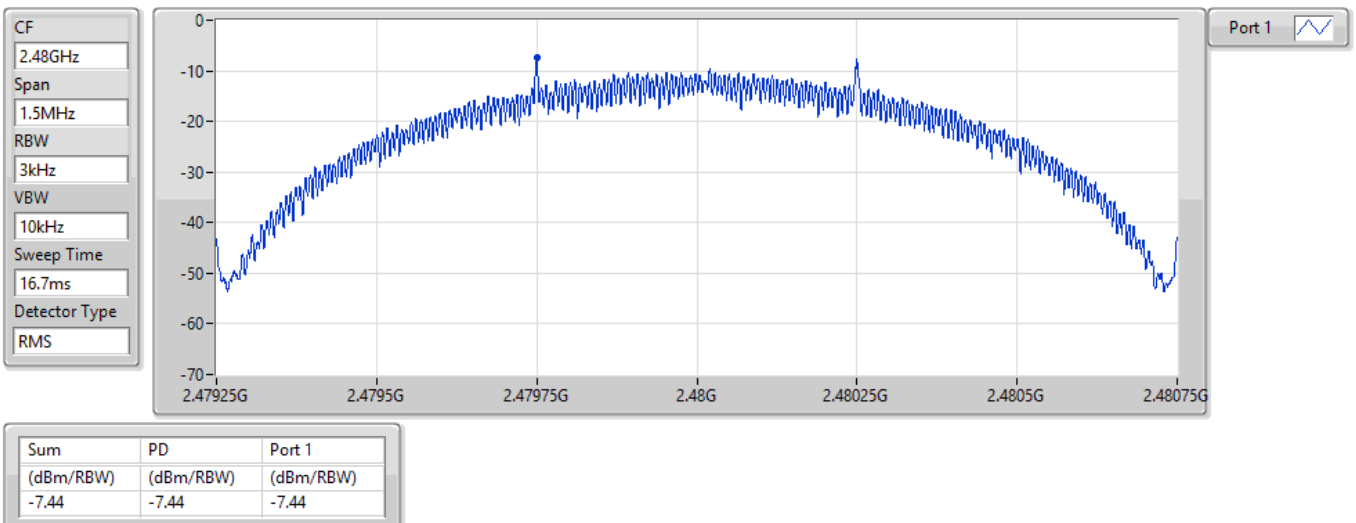
2478MHz



BT-LE(500kbps)

PSD

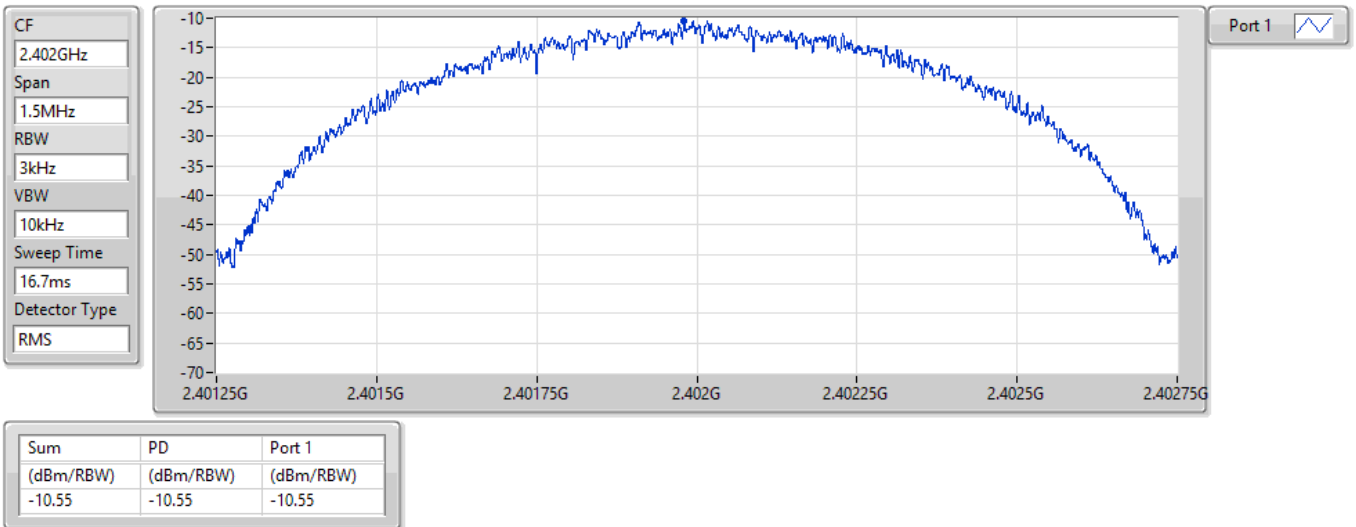
2480MHz



BT-LE(1Mbps)

PSD

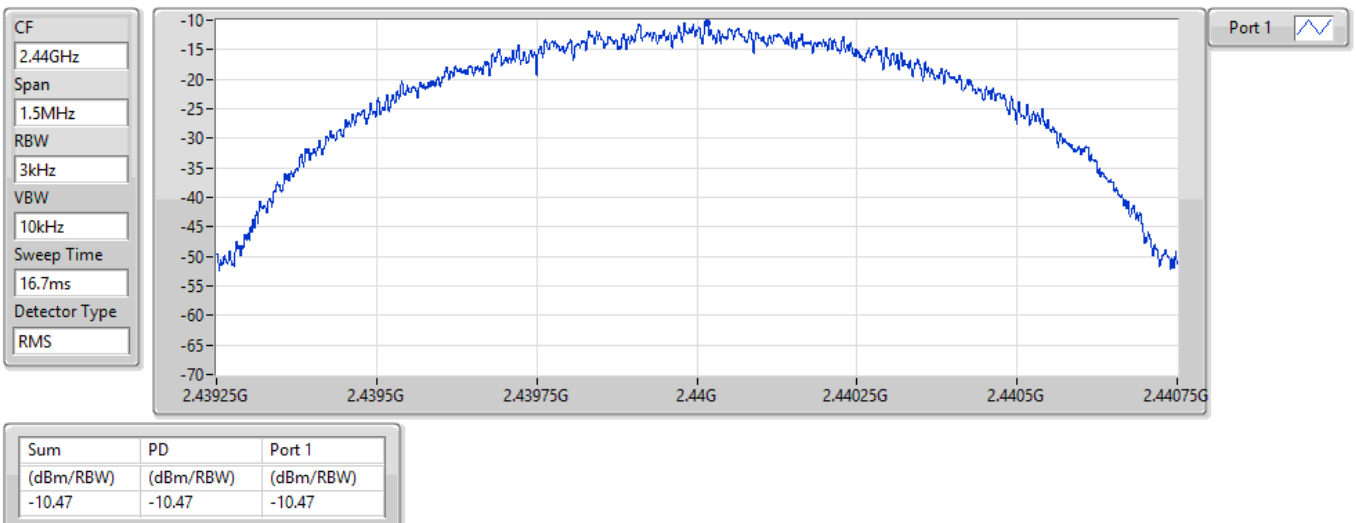
2402MHz



BT-LE(1Mbps)

PSD

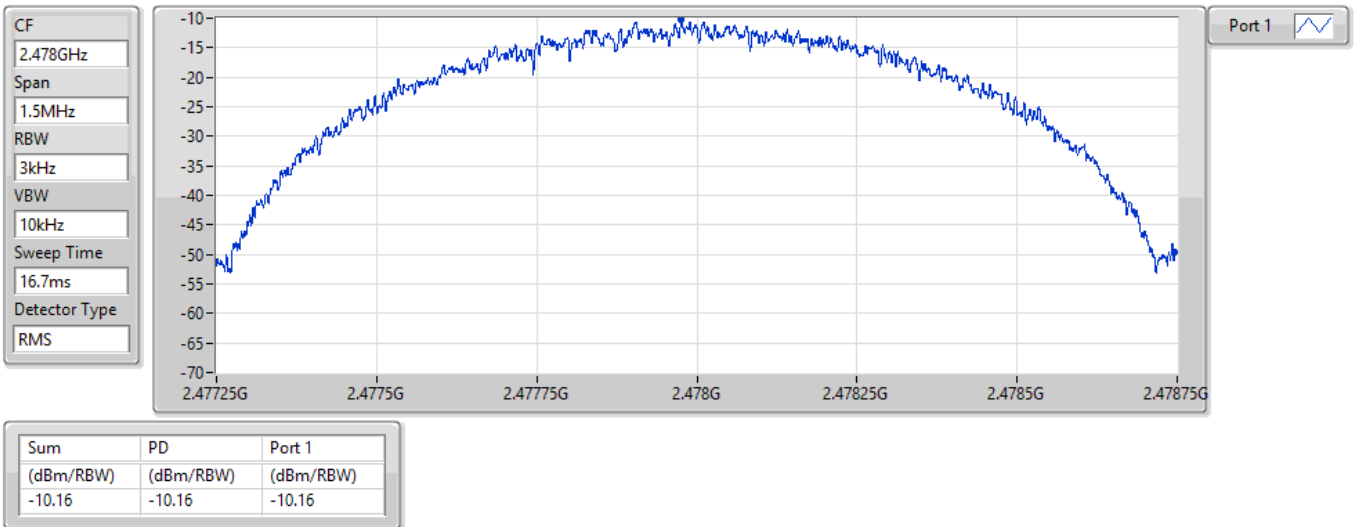
2440MHz



BT-LE(1Mbps)

PSD

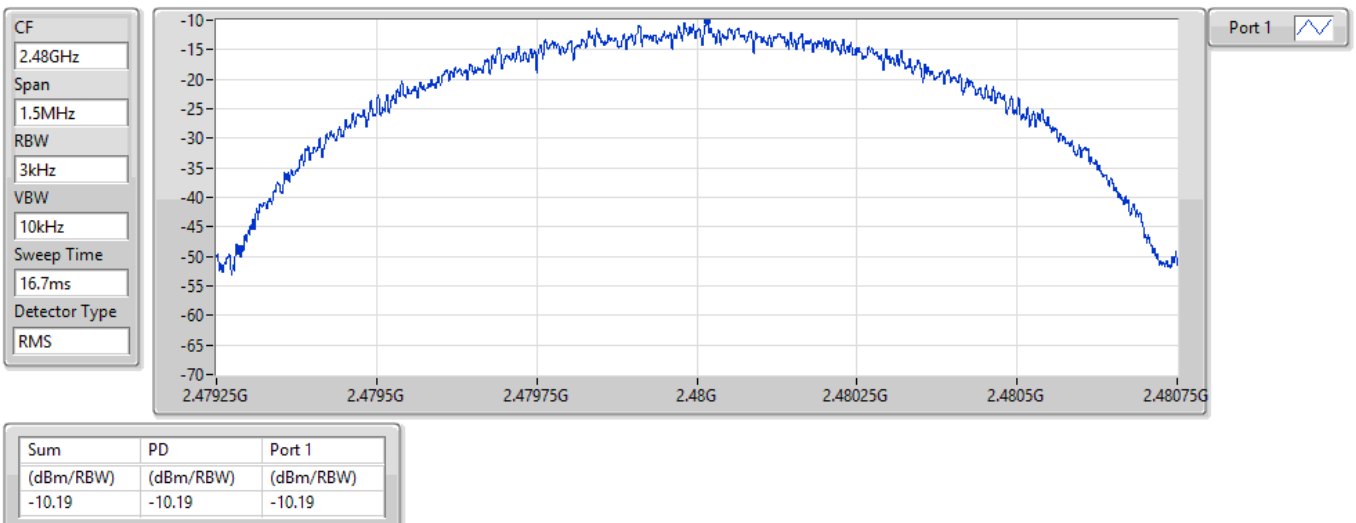
2478MHz



BT-LE(1Mbps)

PSD

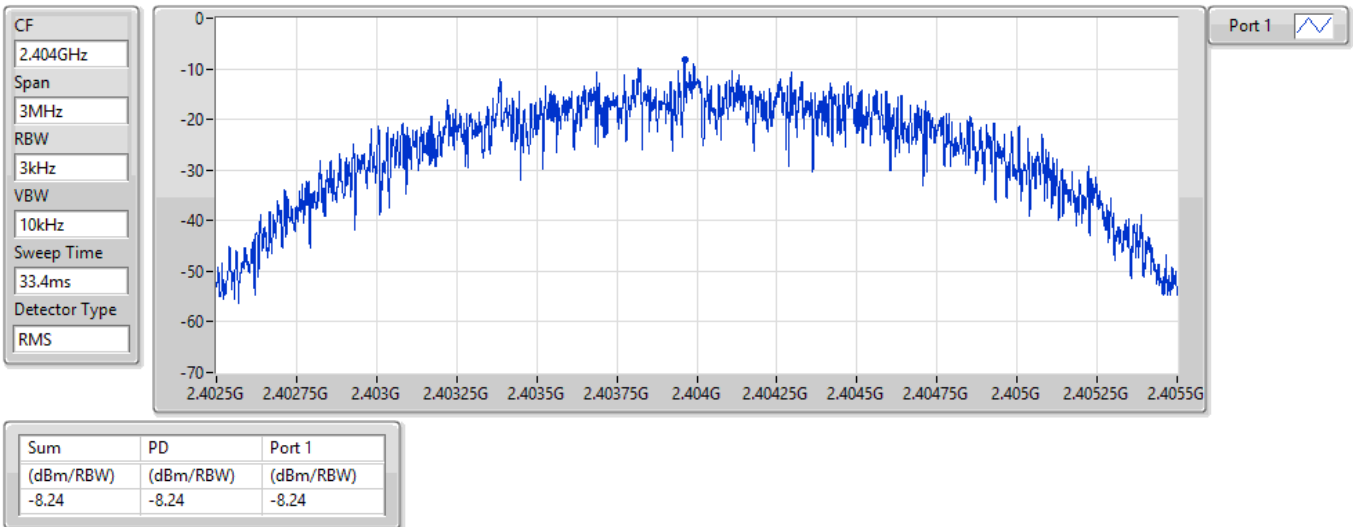
2480MHz



BT-LE(2Mbps)

PSD

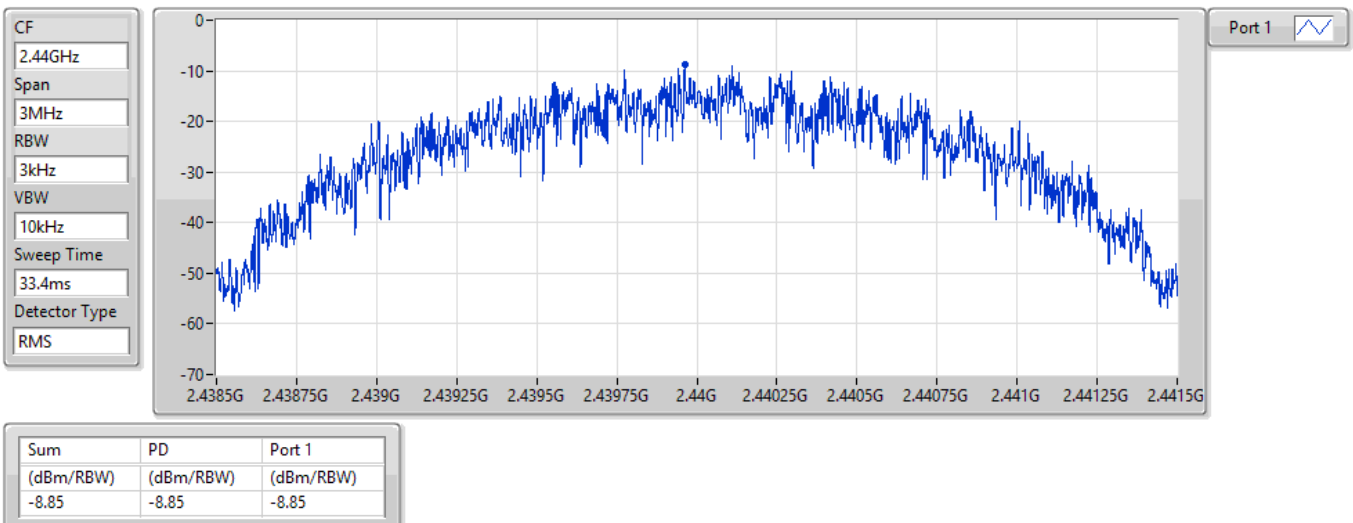
2404MHz



BT-LE(2Mbps)

PSD

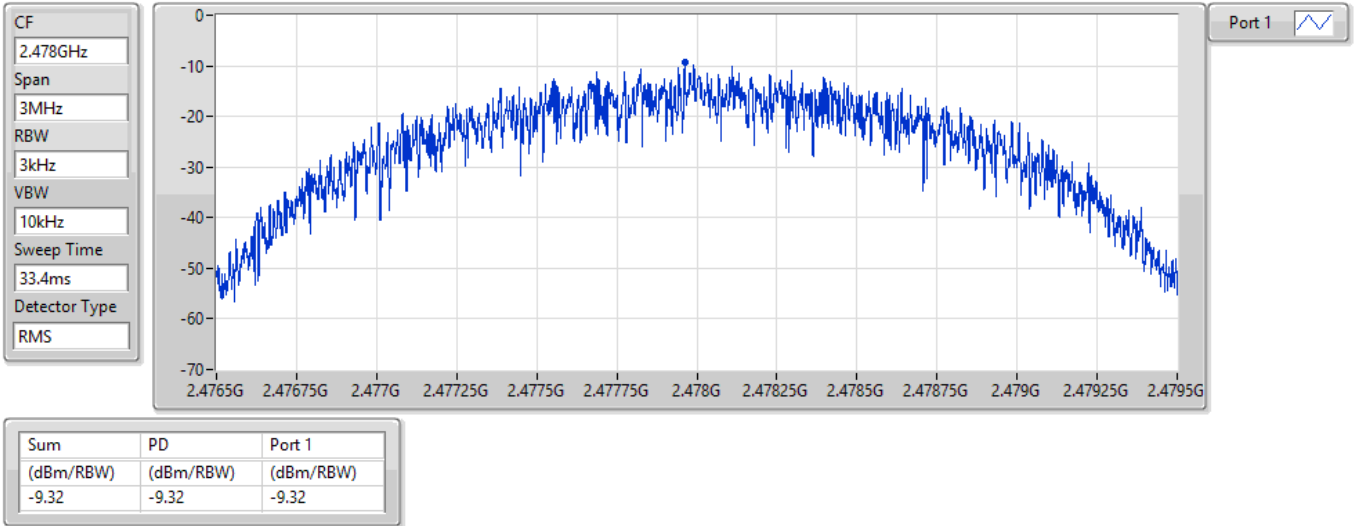
2440MHz



BT-LE(2Mbps)

PSD

2478MHz



**2) Configuration 2: Laird part number: 453-00145, 20dBm, Integrated Antenna****Summary**

Mode	PD (dBm/3kHz)
2.4-2.4835GHz	-
BT-LE(Coding rate125kbps)	7.15
BT-LE(Coding rate 500kbps)	3.10
BT-LE(Symbol rate 1Mbps)	-0.52
BT-LE(Symbol rate 2Mbps)	1.01

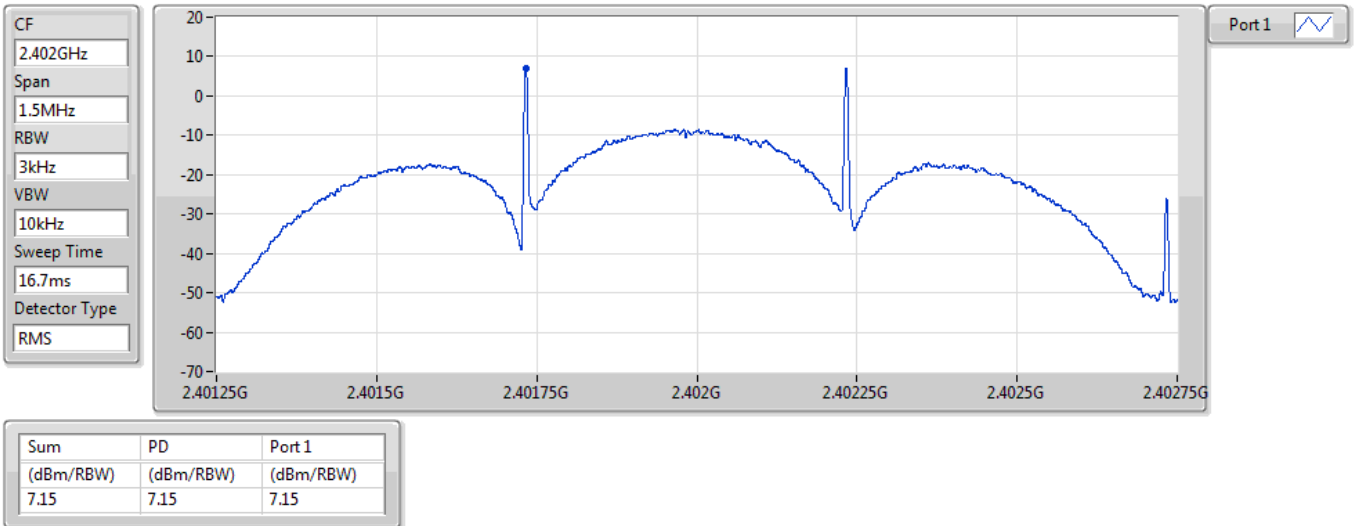
Result

Mode	Result	Antenna Gain (dBi)	Power Density (dBm/3kHz)	Power Density Limit (dBm/3kHz)
BT-LE(Coding rate125kbps)	-	-	-	-
2402MHz	Pass	1.82	7.15	8.00
2440MHz	Pass	1.82	6.88	8.00
2478MHz	Pass	1.82	6.85	8.00
2480MHz	Pass	1.82	6.79	8.00
BT-LE(Coding rate 500kbps)	-	-	-	-
2402MHz	Pass	1.82	3.10	8.00
2440MHz	Pass	1.82	3.03	8.00
2478MHz	Pass	1.82	3.08	8.00
2480MHz	Pass	1.82	3.03	8.00
BT-LE(Symbol rate 1Mbps)	-	-	-	-
2402MHz	Pass	1.82	-0.68	8.00
2440MHz	Pass	1.82	-0.63	8.00
2478MHz	Pass	1.82	-0.52	8.00
2480MHz	Pass	1.82	-3.74	8.00
BT-LE(Symbol rate 2Mbps)	-	-	-	-
2404MHz	Pass	1.82	0.97	8.00
2440MHz	Pass	1.82	1.01	8.00
2478MHz	Pass	1.82	0.92	8.00

BT-LE(125kbps)

PSD

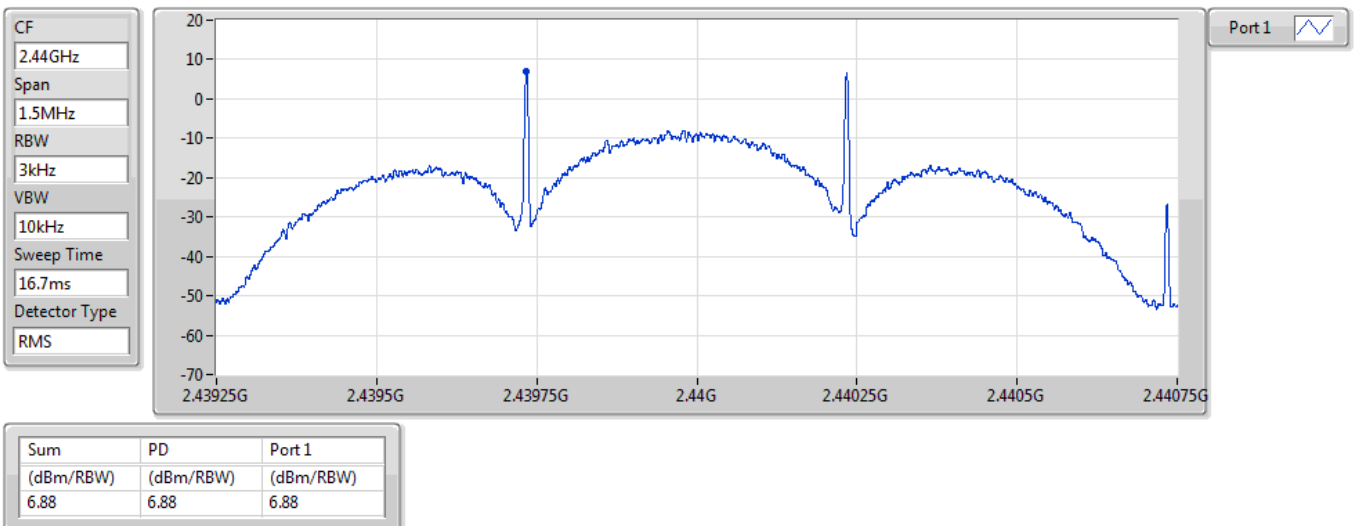
2402MHz



BT-LE(125kbps)

PSD

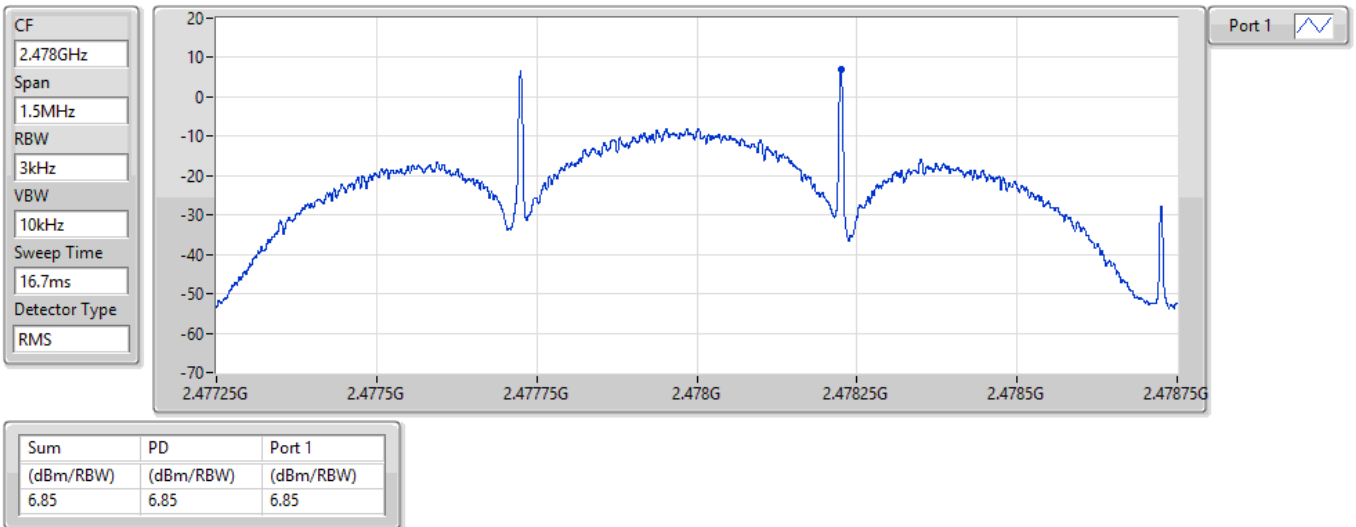
2440MHz



BT-LE(125kbps)

PSD

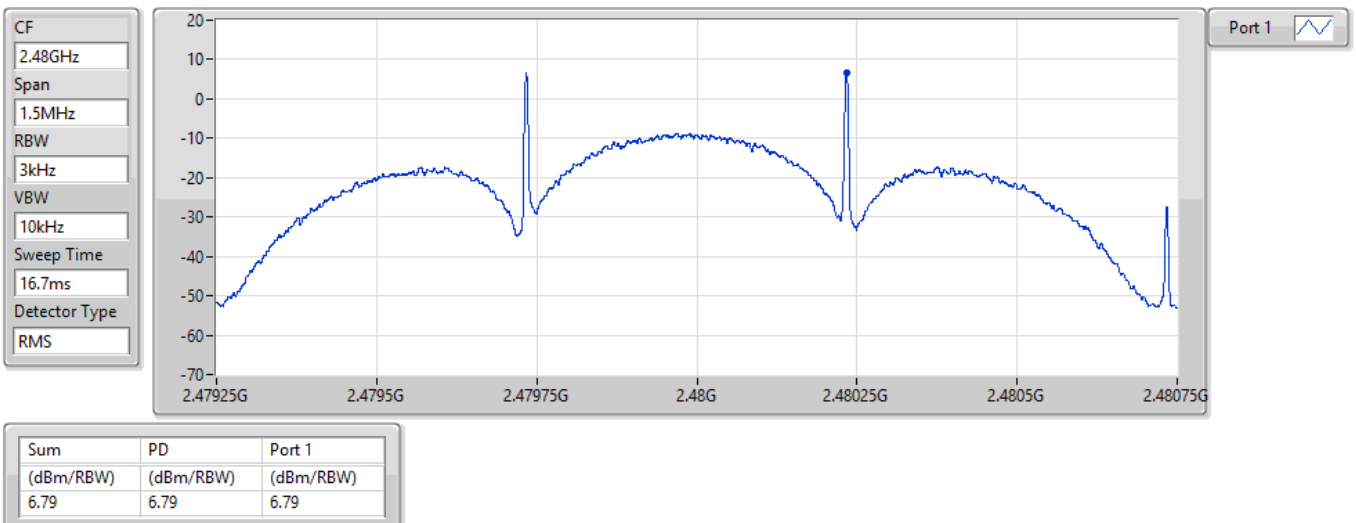
2478MHz



BT-LE(125kbps)

PSD

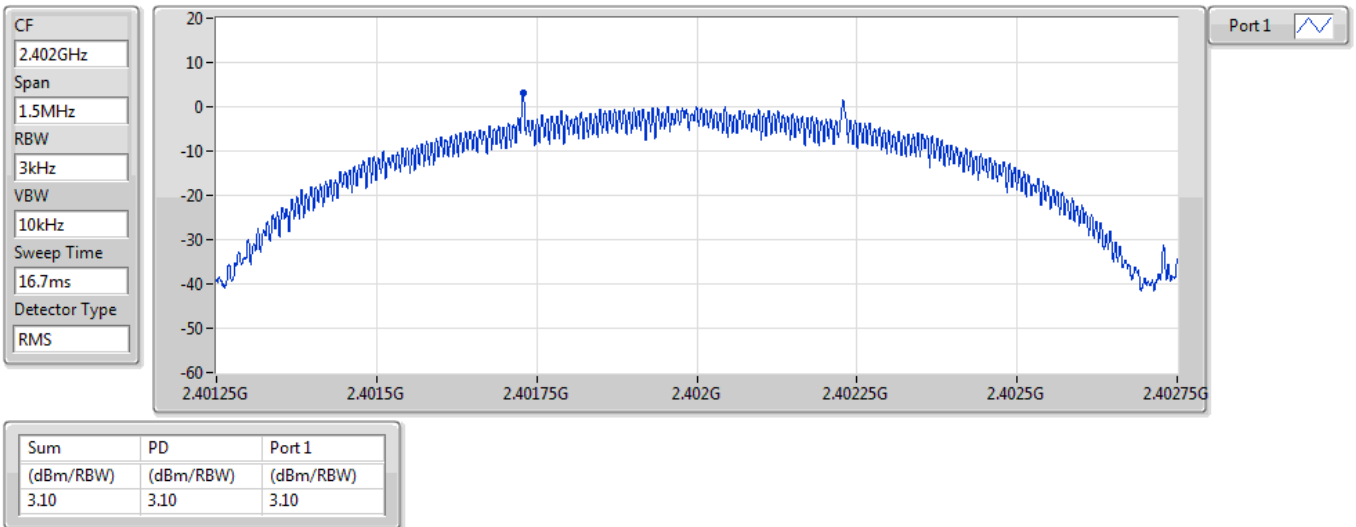
2480MHz



BT-LE(500kbps)

PSD

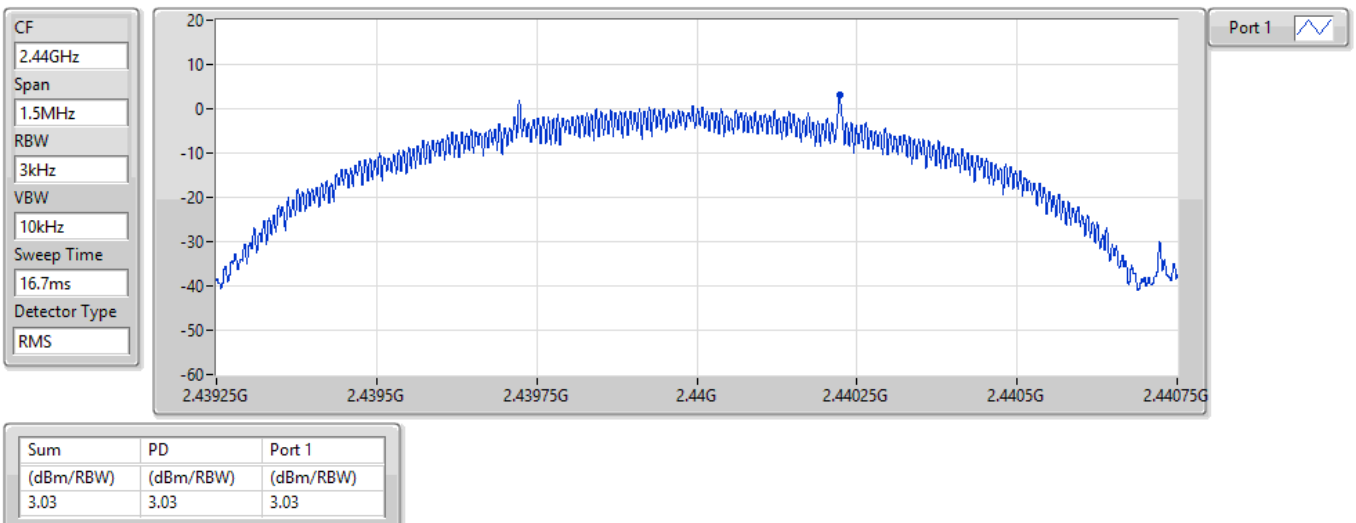
2402MHz



BT-LE(500kbps)

PSD

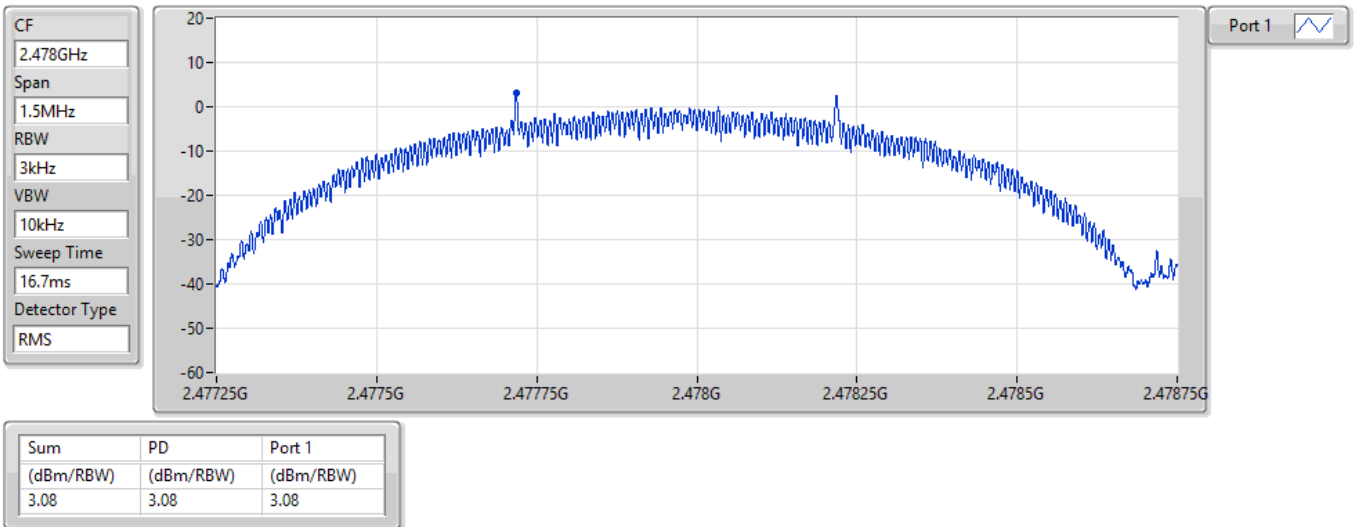
2440MHz



BT-LE(500kbps)

PSD

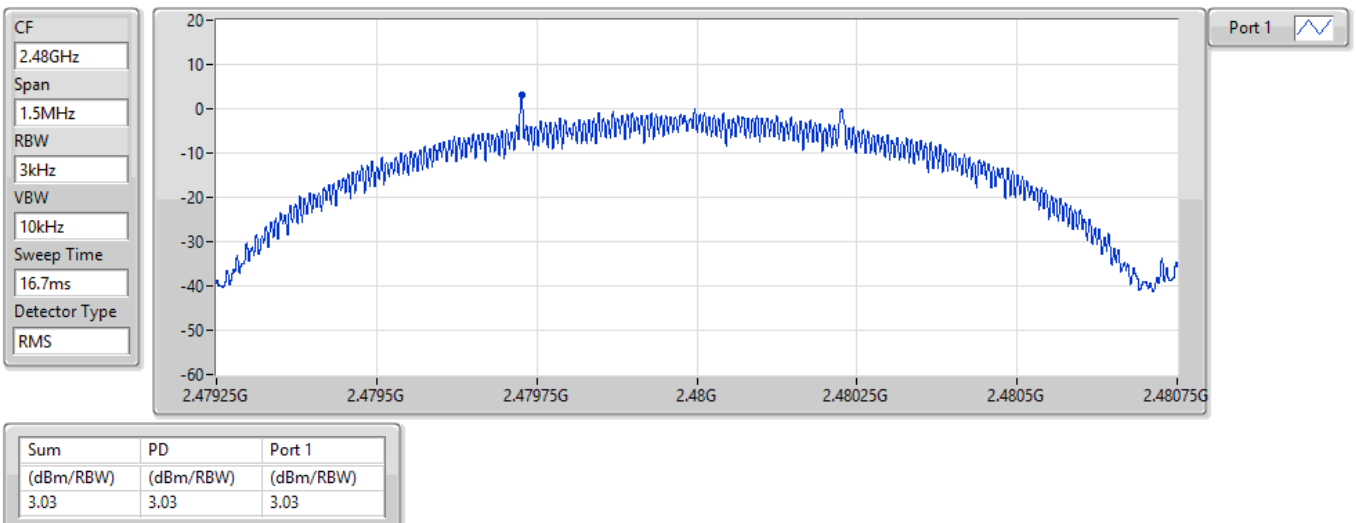
2478MHz



BT-LE(500kbps)

PSD

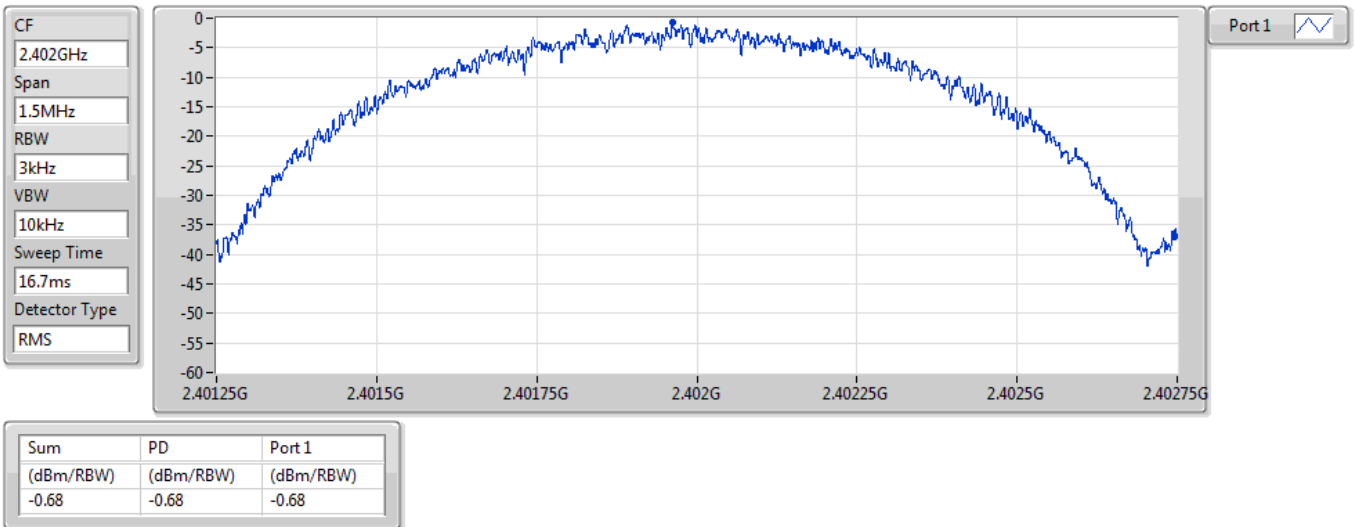
2480MHz



BT-LE(1Mbps)

PSD

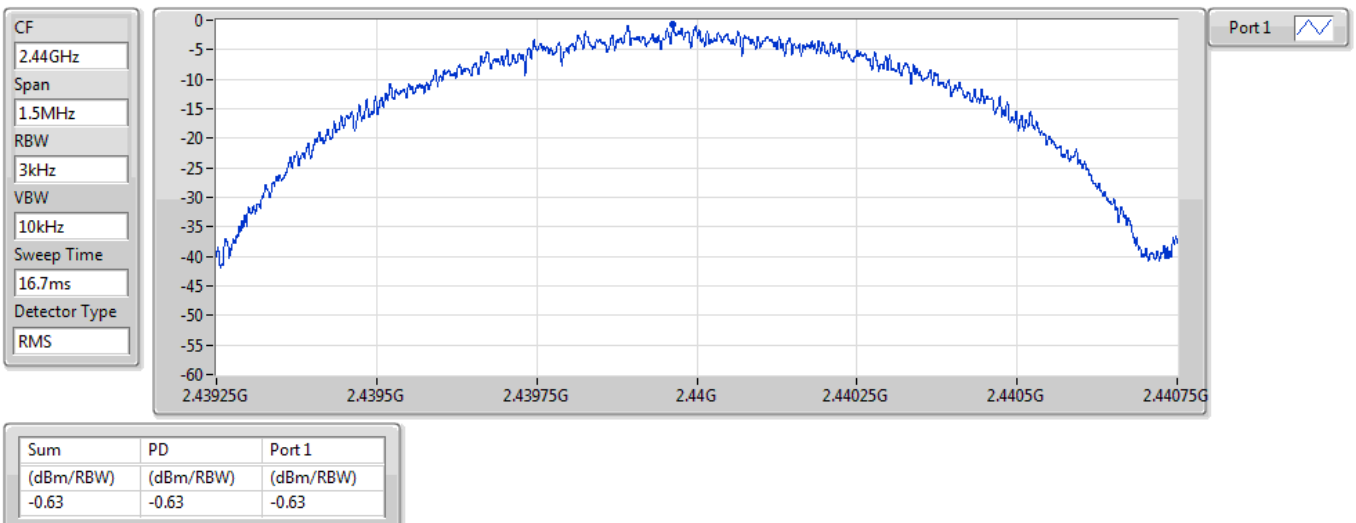
2402MHz



BT-LE(1Mbps)

PSD

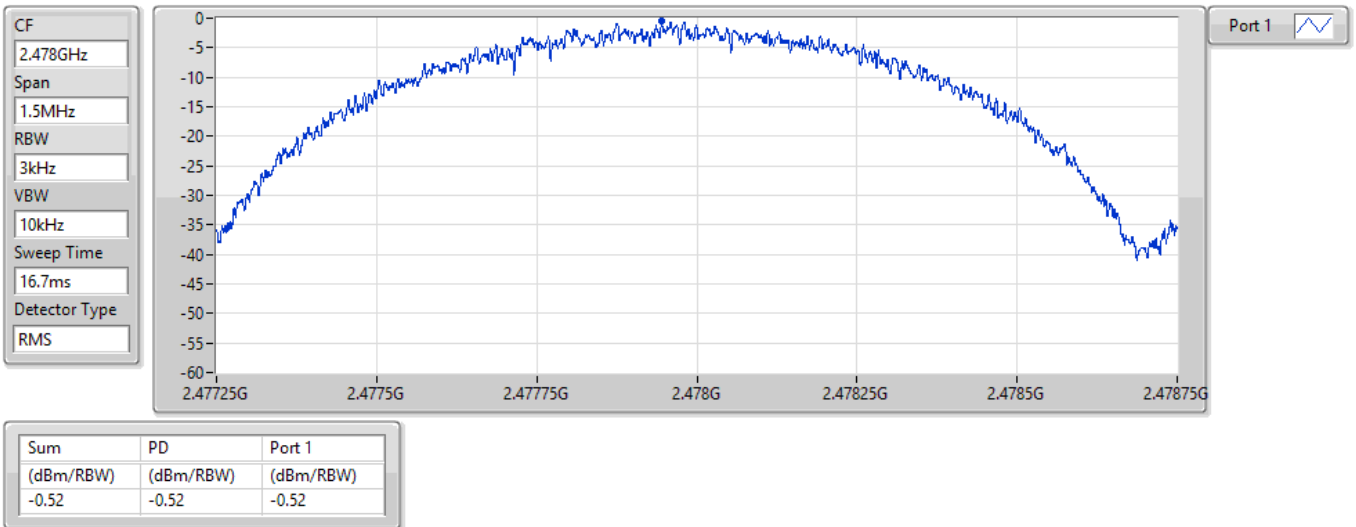
2440MHz



BT-LE(1Mbps)

PSD

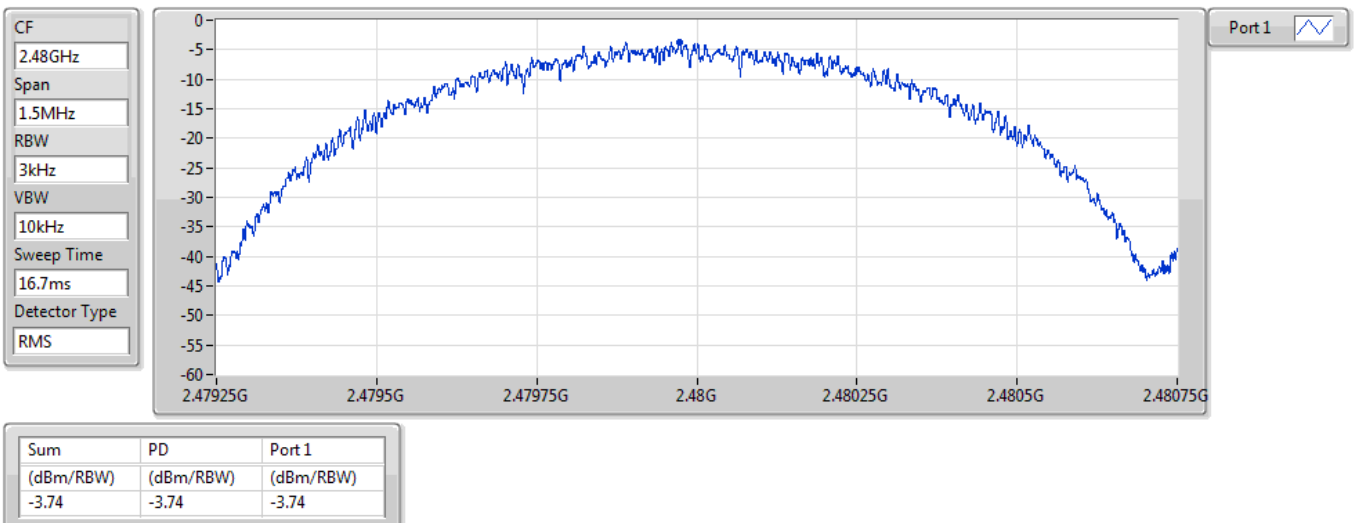
2478MHz



BT-LE(1Mbps)

PSD

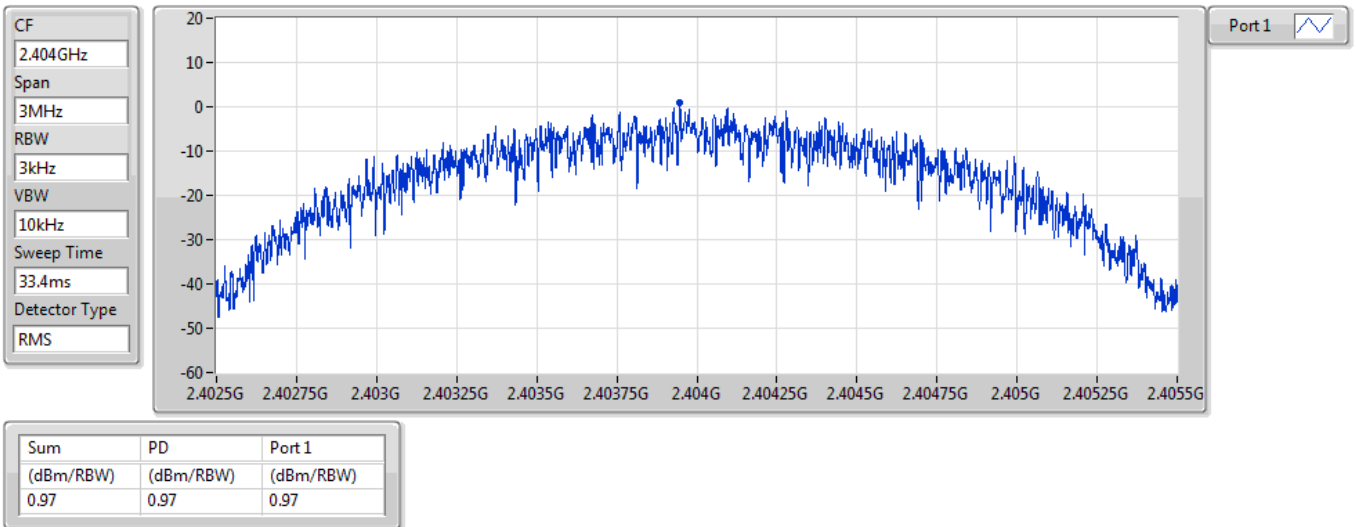
2480MHz



BT-LE(2Mbps)

PSD

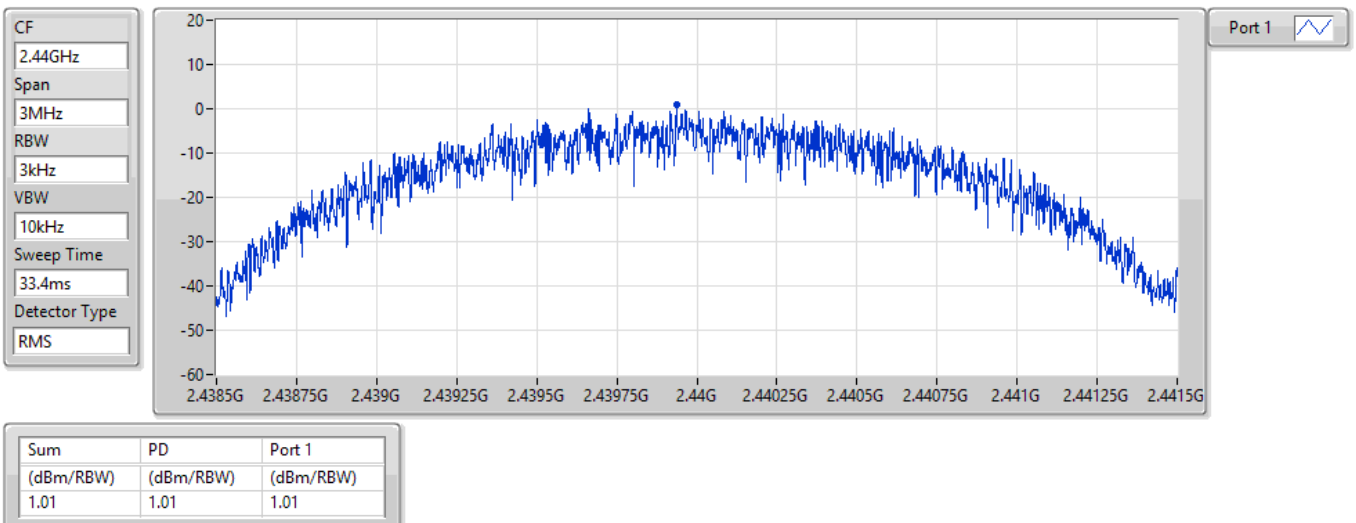
2404MHz



BT-LE(2Mbps)

PSD

2440MHz

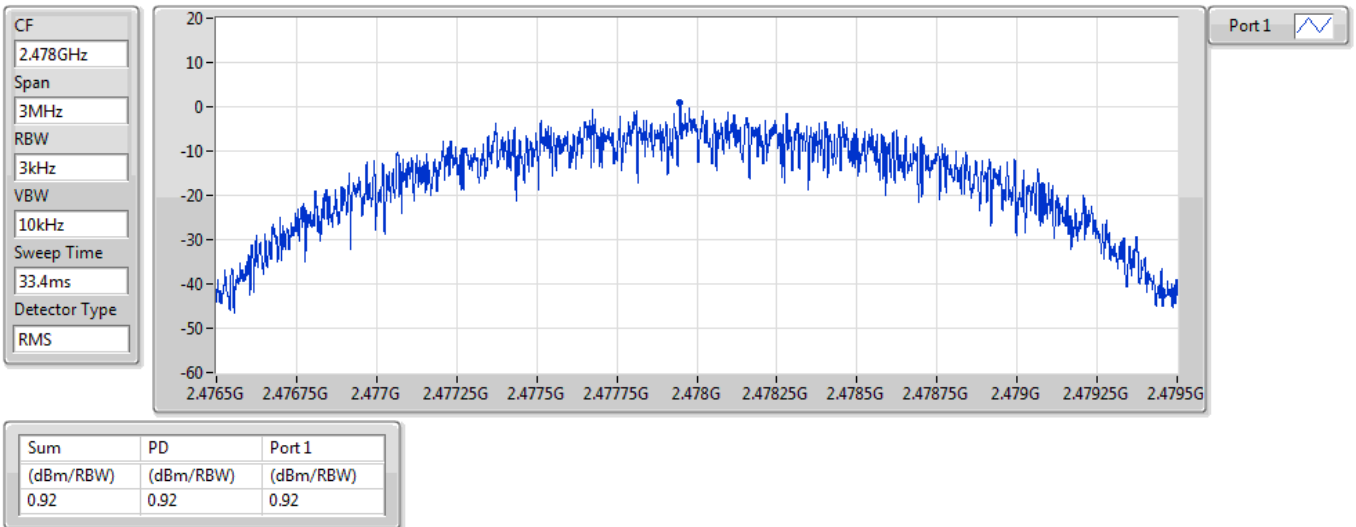




BT-LE(2Mbps)

PSD

2478MHz



3) Configuration 3: Laird part number: 453-00148, 20dBm, RF Trace Pad (External antenna)
Summary

Mode	PD (dBm/3kHz)
2.4-2.4835GHz	-
BT-LE(Coding rate125kbps)	6.73
BT-LE(Coding rate 500kbps)	1.87
BT-LE(Symbol rate 1Mbps)	-0.72
BT-LE(Symbol rate 2Mbps)	0.57

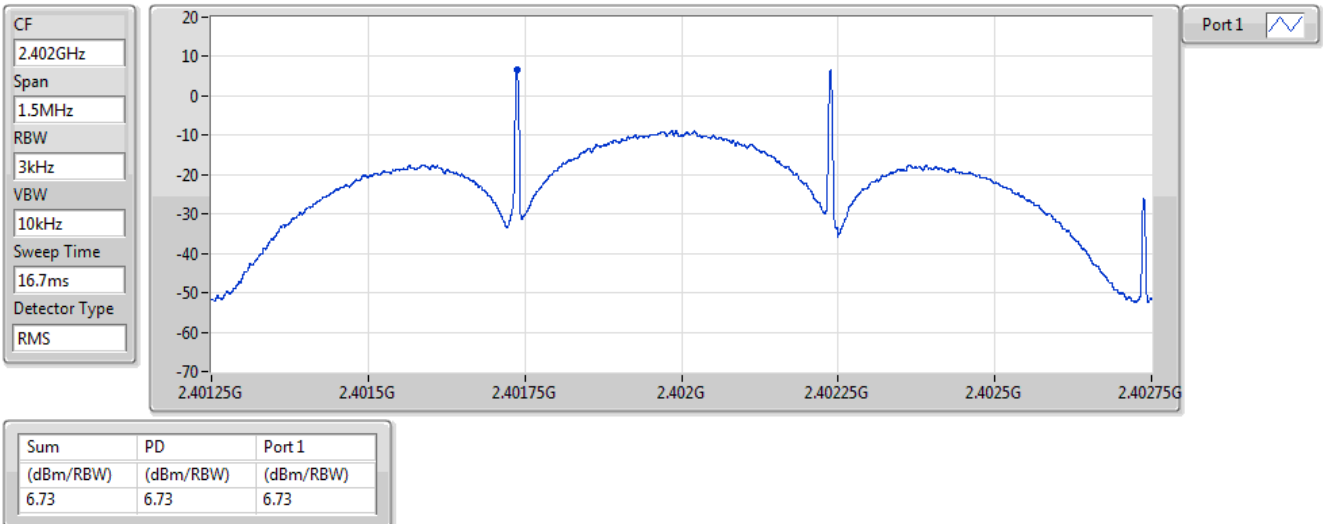
Result

Mode	Result	Antenna Gain (dBi)	Power Density (dBm/3kHz)	Power Density Limit (dBm/3kHz)
BT-LE(Coding rate125kbps)	-	-	-	-
2402MHz	Pass	2.00	6.73	8.00
2440MHz	Pass	2.00	6.53	8.00
2478MHz	Pass	2.00	6.52	8.00
2480MHz	Pass	2.00	6.49	8.00
BT-LE(Coding rate 500kbps)	-	-	-	-
2402MHz	Pass	2.00	1.87	8.00
2440MHz	Pass	2.00	1.75	8.00
2478MHz	Pass	2.00	-0.73	8.00
2480MHz	Pass	2.00	-3.74	8.00
BT-LE(Symbol rate 1Mbps)	-	-	-	-
2402MHz	Pass	2.00	-0.72	8.00
2440MHz	Pass	2.00	-0.96	8.00
2478MHz	Pass	2.00	-2.83	8.00
2480MHz	Pass	2.00	-5.21	8.00
BT-LE(Symbol rate 2Mbps)	-	-	-	-
2404MHz	Pass	2.00	0.38	8.00
2440MHz	Pass	2.00	0.57	8.00
2478MHz	Pass	2.00	-2.31	8.00

BT-LE(125kbps)

PSD

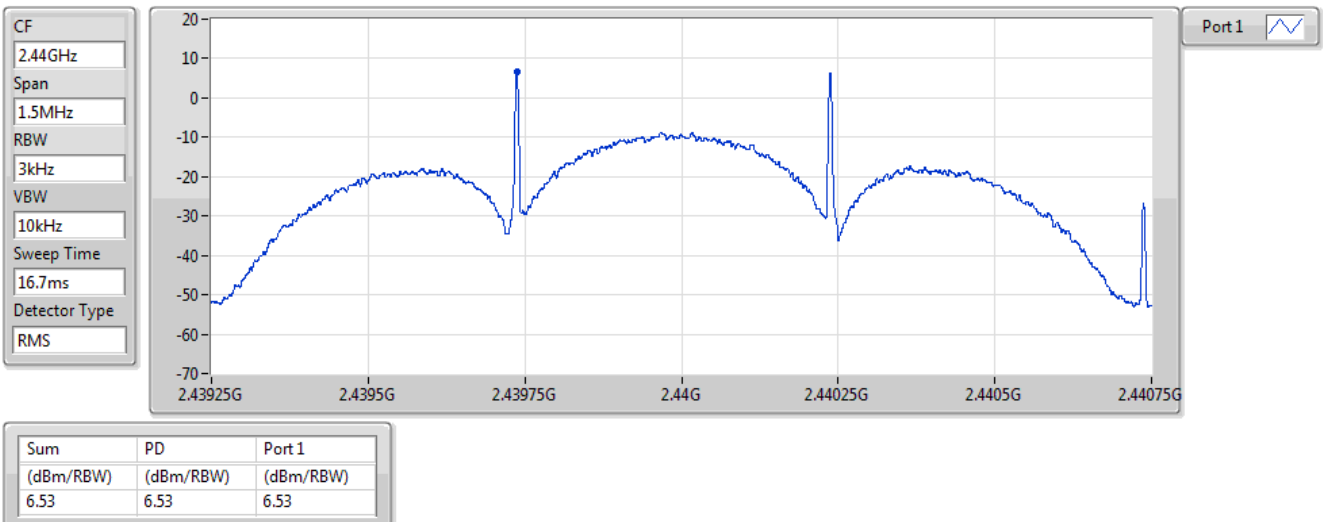
2402MHz



BT-LE(125kbps)

PSD

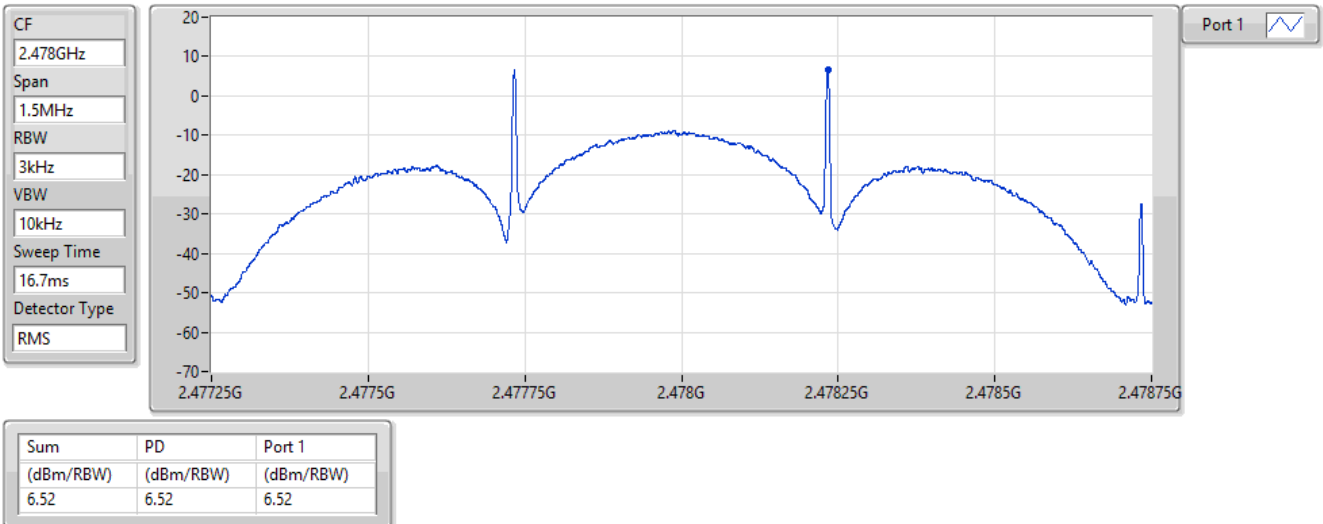
2440MHz



BT-LE(125kbps)

PSD

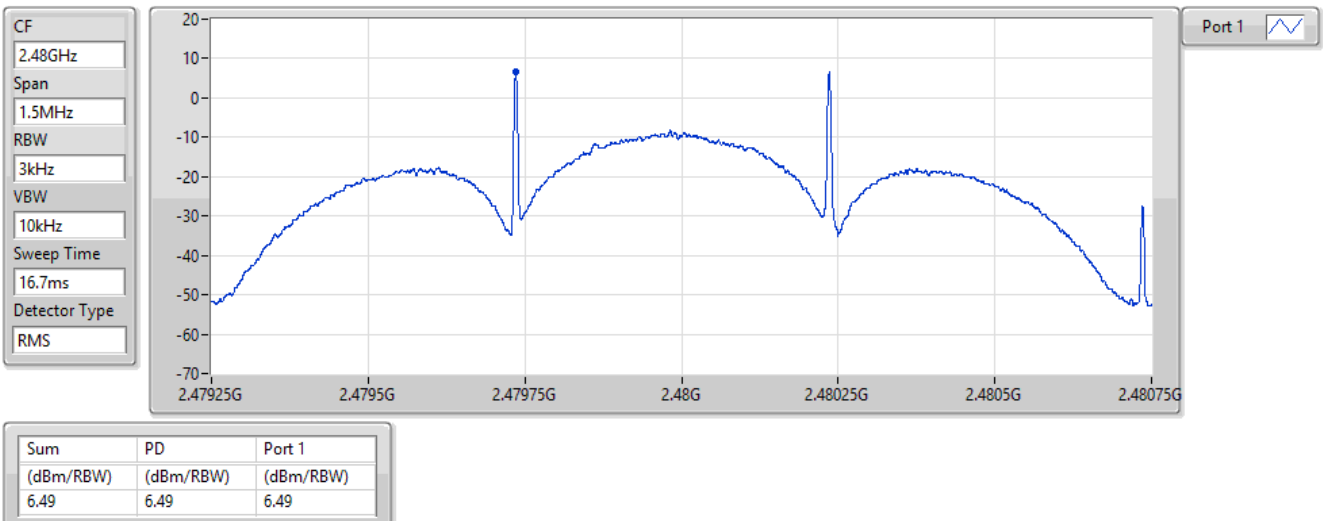
2478MHz



BT-LE(125kbps)

PSD

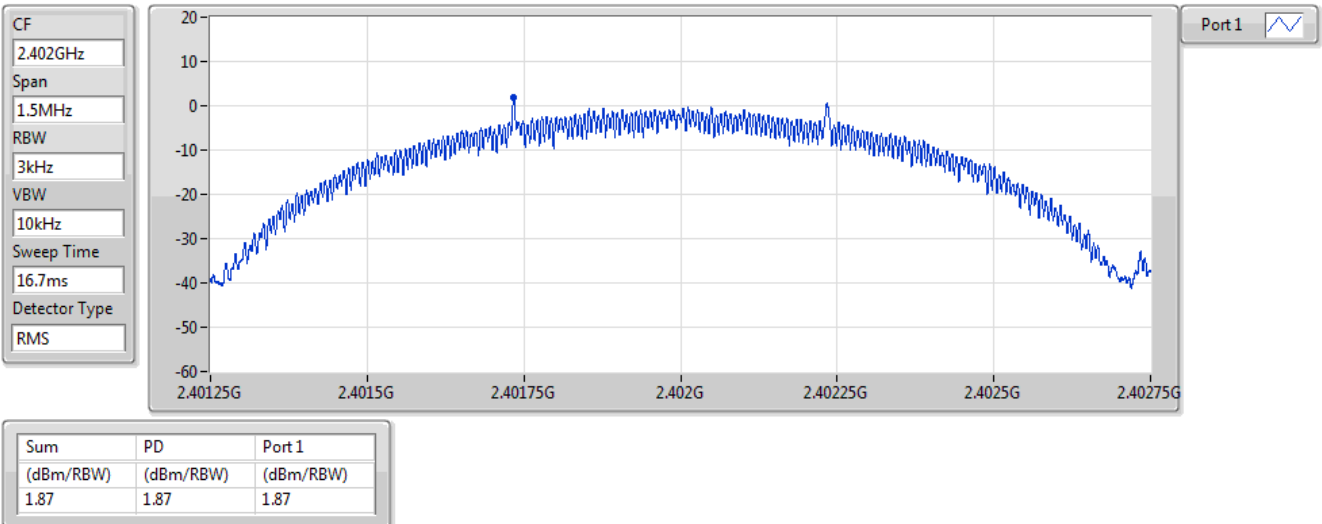
2480MHz



BT-LE(500kbps)

PSD

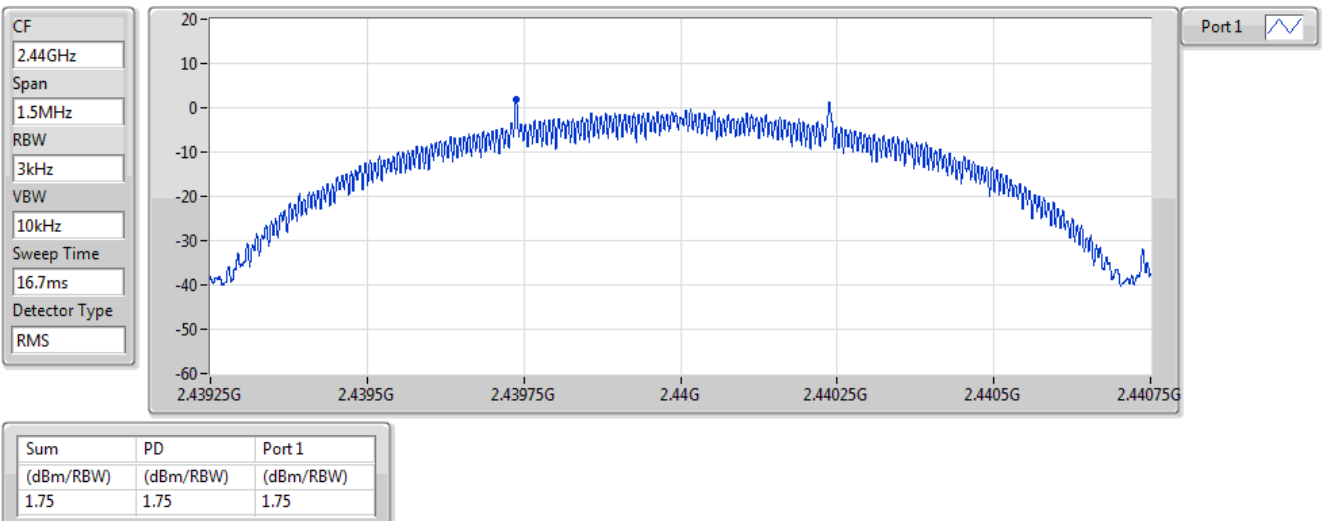
2402MHz



BT-LE(500kbps)

PSD

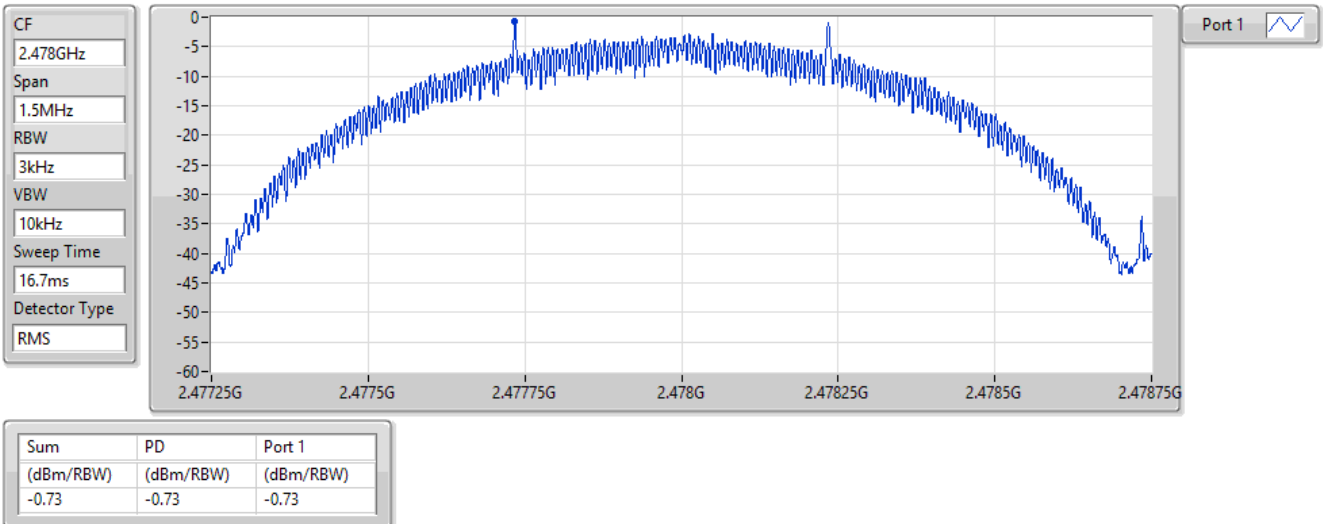
2440MHz



BT-LE(500kbps)

PSD

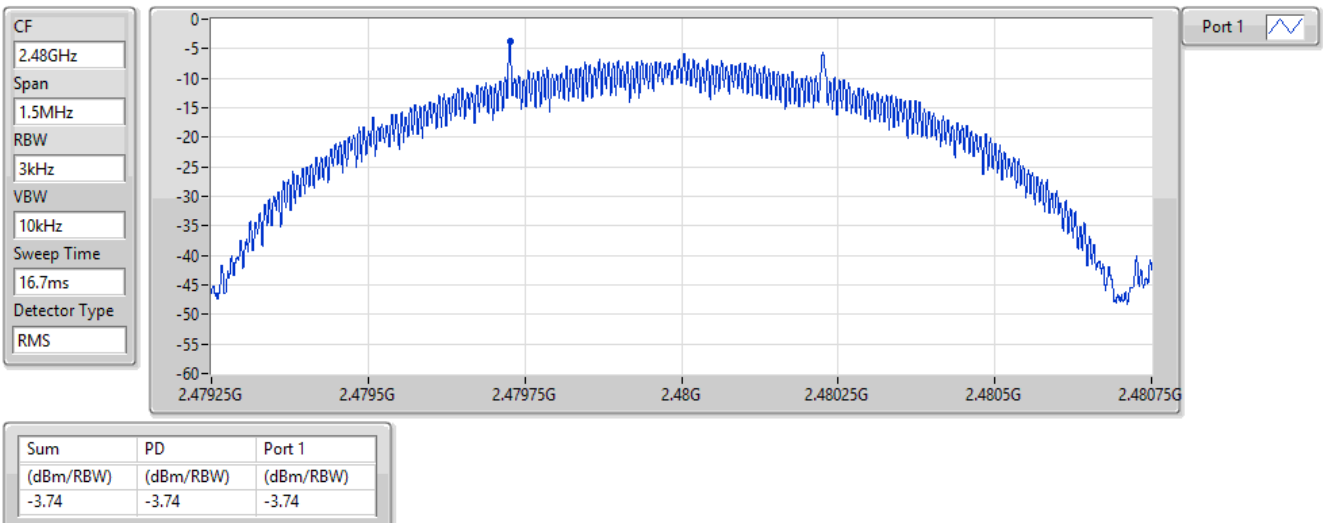
2478MHz



BT-LE(500kbps)

PSD

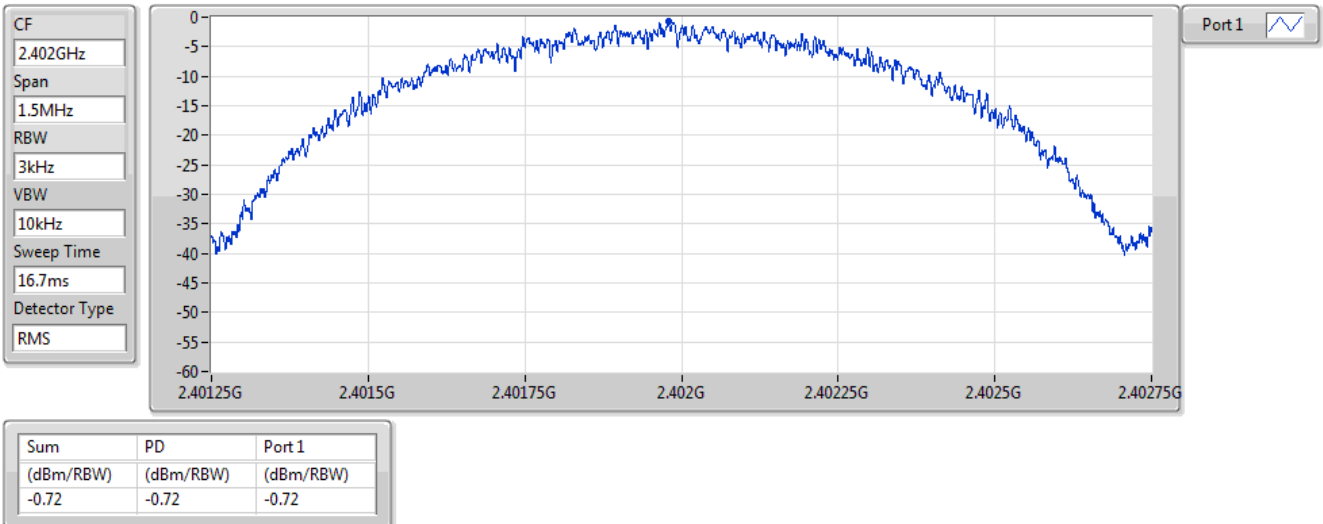
2480MHz



BT-LE(1Mbps)

PSD

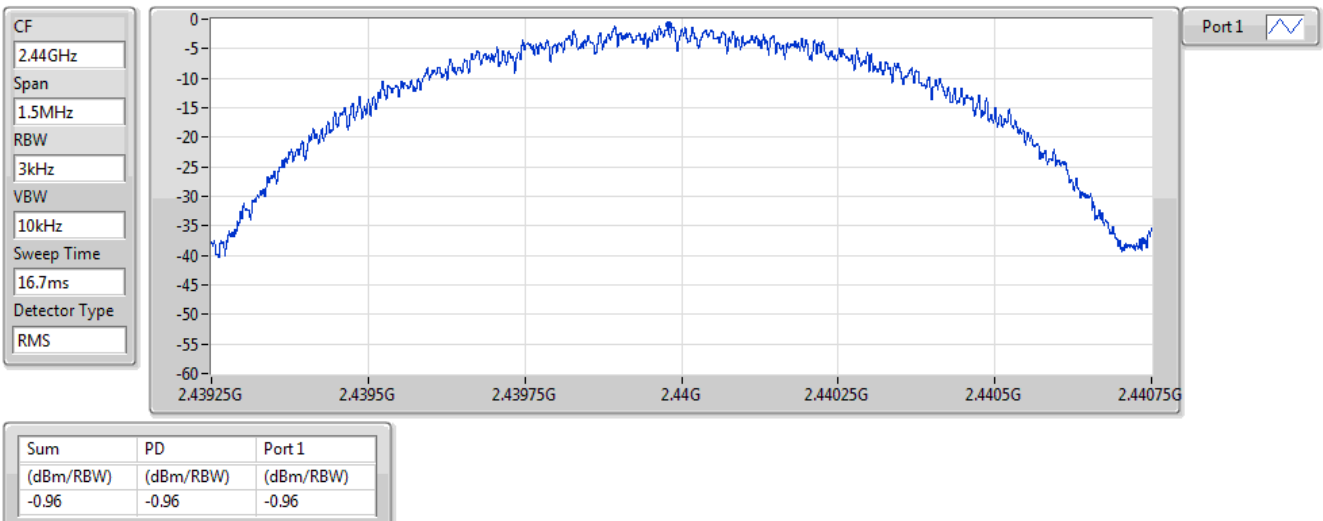
2402MHz



BT-LE(1Mbps)

PSD

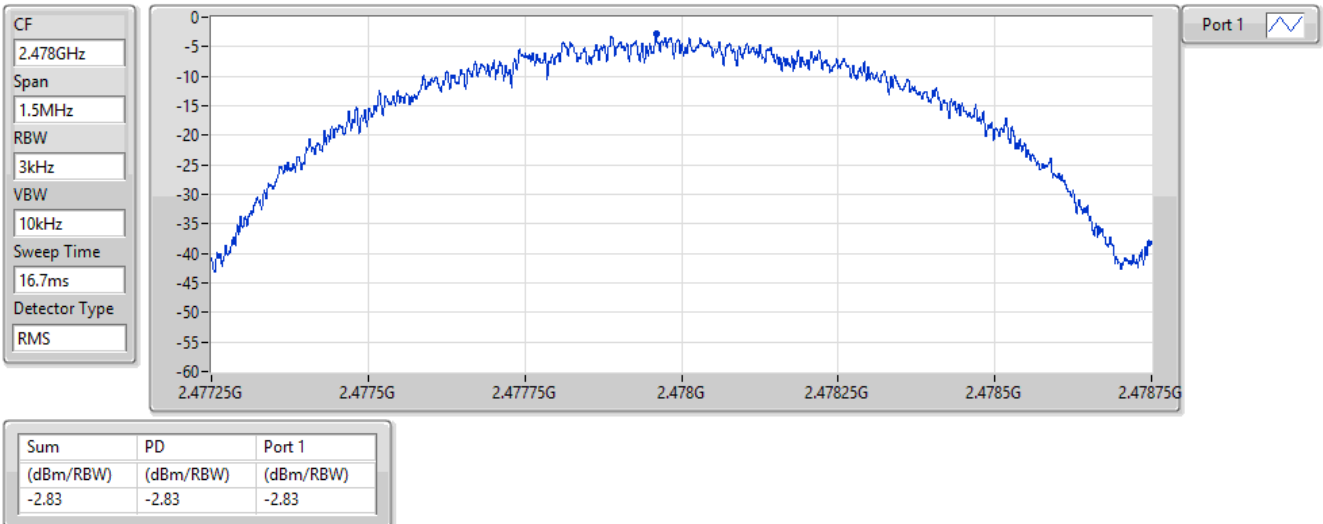
2440MHz



BT-LE(1Mbps)

PSD

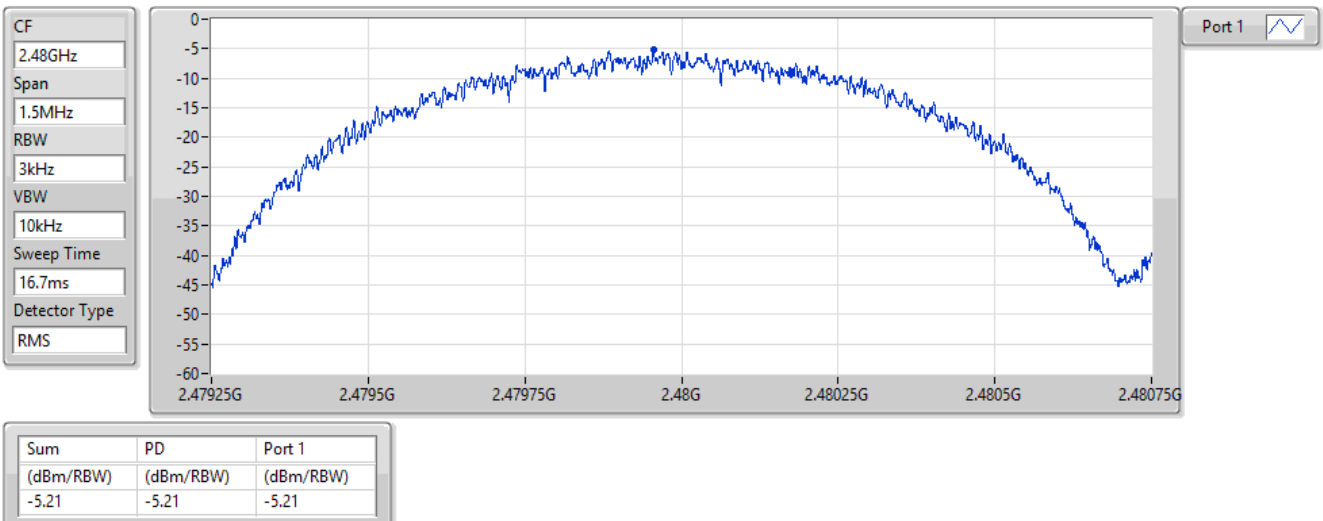
2478MHz



BT-LE(1Mbps)

PSD

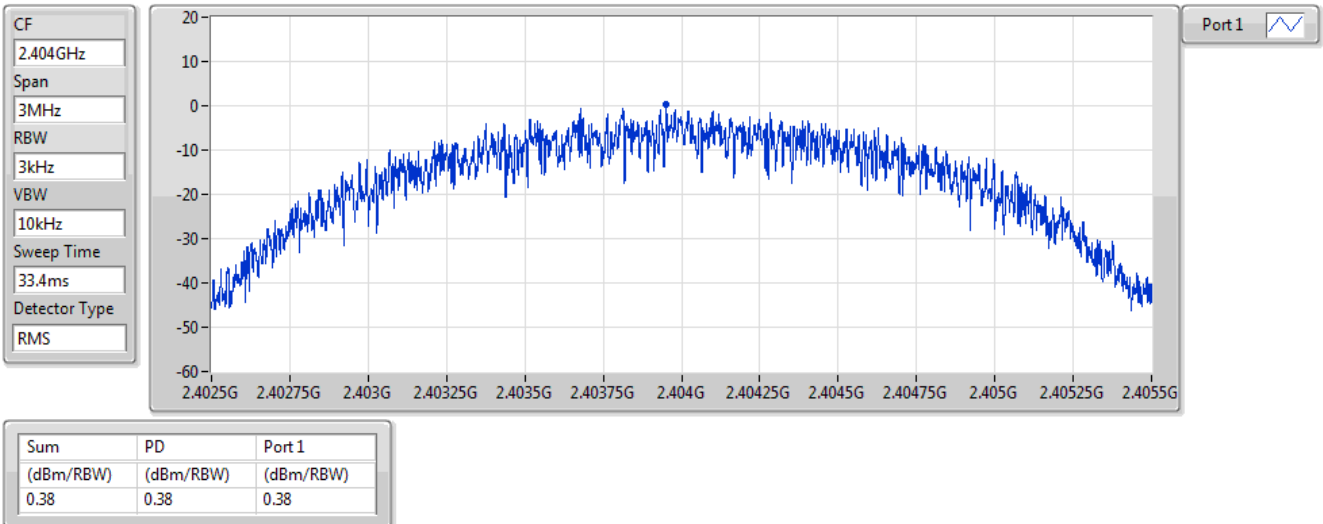
2480MHz



BT-LE(2Mbps)

PSD

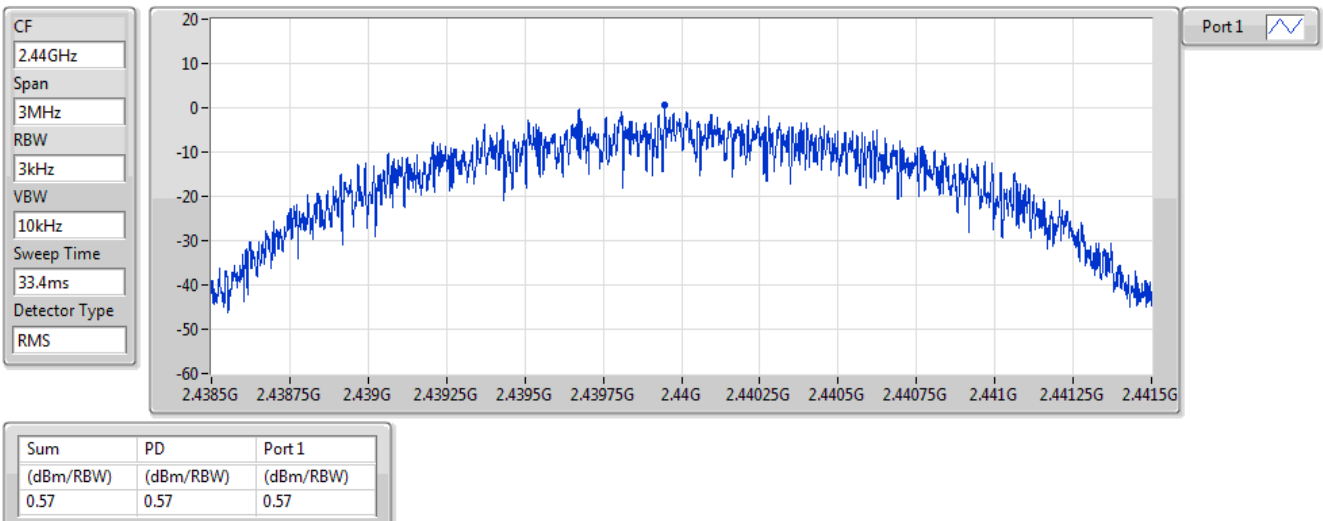
2404MHz



BT-LE(2Mbps)

PSD

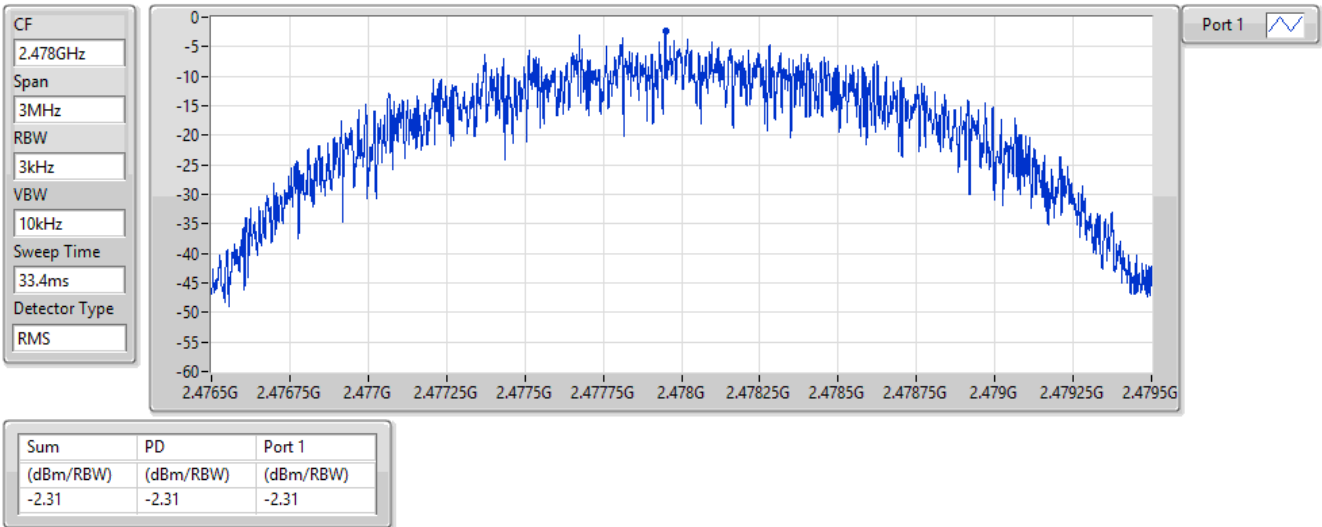
2440MHz



BT-LE(2Mbps)

PSD

2478MHz



**Test configuration 1: Laird part number: 453-00142, 10dBm, DTS****Unwanted Emissions (Below 1GHz)**

Modulation	BT-LE (1Mbps)		Test Freq. (MHz)		2402																																																																										
Polarization	Horizontal																																																																														
Test By :Brad Wu			Temperature(°C):24			Humidity(%):63																																																																									
Level (dBuV/m) <table><tr><th></th><th>Freq. MHz</th><th>Emission level dBuV/m</th><th>Limit dBuV/m</th><th>Margin dB</th><th>SA reading dBuV</th><th>Factor dB/m</th><th>Remark</th><th>ANT High cm</th><th>Turn Table deg</th></tr><tr><td>1</td><td>49.40</td><td>23.32</td><td>40.00</td><td>-16.68</td><td>31.61</td><td>-8.29</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>2</td><td>71.71</td><td>30.10</td><td>40.00</td><td>-9.90</td><td>41.25</td><td>-11.15</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>3</td><td>148.34</td><td>23.36</td><td>43.50</td><td>-20.14</td><td>31.98</td><td>-8.62</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>4</td><td>184.23</td><td>30.67</td><td>43.50</td><td>-12.83</td><td>41.22</td><td>-10.55</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>5</td><td>264.74</td><td>25.90</td><td>46.00</td><td>-20.10</td><td>34.86</td><td>-8.96</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>6</td><td>446.13</td><td>28.94</td><td>46.00</td><td>-17.06</td><td>32.42</td><td>-3.48</td><td>Peak</td><td>---</td><td>---</td></tr></table>											Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg	1	49.40	23.32	40.00	-16.68	31.61	-8.29	Peak	---	---	2	71.71	30.10	40.00	-9.90	41.25	-11.15	Peak	---	---	3	148.34	23.36	43.50	-20.14	31.98	-8.62	Peak	---	---	4	184.23	30.67	43.50	-12.83	41.22	-10.55	Peak	---	---	5	264.74	25.90	46.00	-20.10	34.86	-8.96	Peak	---	---	6	446.13	28.94	46.00	-17.06	32.42	-3.48	Peak	---	---
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg																																																																						
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2	71.71	30.10	40.00	-9.90	41.25	-11.15	Peak	---	---																																																																						
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Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m) *Factor includes antenna factor , cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m). Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.																																																																															



Modulation	BT-LE (1Mbps)	Test Freq. (MHz)	2402
Polarization	Vertical		
Test By :Brad Wu Temperature(°C):24 Humidity(%):63			
Level (dBUV/m) </			



Unwanted Emissions (Above 1GHz)

Modulation	BT-LE (1Mbps)		Test Freq. (MHz)		2402		
Polarization	Horizontal						
Test By		:Brad Wu		Temperature(°C):24		Humidity(%):63	
Level (dBUV/m)							



Modulation	BT-LE (1Mbps)		Test Freq. (MHz)		2402				
Polarization	Vertical								
Test By :Brad Wu Temperature(°C):24 Humidity(%):63									
	Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn
	MHz	level			reading			High	Table
		dBuV/m	dBuV/m	dB	dBuV	dB/m		cm	deg
1	2390.00	38.05	54.00	-15.95	41.84	-3.79	Average	310	64
2	2390.00	52.21	74.00	-21.79	56.00	-3.79	Peak	310	64
3	4804.00	39.65	54.00	-14.35	39.62	0.03	Average	100	196
4	4804.00	48.39	74.00	-25.61	48.36	0.03	Peak	100	196
5	12010.00	42.29	54.00	-11.71	34.53	7.76	Average	100	44
6	12010.00	55.29	74.00	-18.71	47.53	7.76	Peak	100	44
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m) *Factor includes antenna factor , cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).									



Modulation	BT-LE (1Mbps)		Test Freq. (MHz)		2440		
Polarization	Horizontal						
Test By		:Brad Wu		Temperature(°C):23		Humidity(%):63	
Level (dBuV/m)							



Modulation	BT-LE (1Mbps)	Test Freq. (MHz)	2440
Polarization	Vertical		
Test By :Brad Wu Temperature(°C):23 Humidity(%):63			
Level (dBuV/m) </			



Modulation	BT-LE (1Mbps)		Test Freq. (MHz)		2478	
Polarization	Horizontal					
Test By :Paul Lin Temperature(°C):24 Humidity(%):63						
Level (dBuV/m) <						



Modulation	BT-LE (1Mbps)		Test Freq. (MHz)		2478	
Polarization	Vertical					
Test By :Paul Lin Temperature(°C):24 Humidity(%):63						
Level (dBuV/m)						



Modulation	BT-LE (1Mbps)		Test Freq. (MHz)	2480					
Polarization	Horizontal								
Test By :Brad Wu			Temperature(°C):24			Humidity(%):63			
Level (dBuV/m) </									



Modulation	BT-LE (1Mbps)	Test Freq. (MHz)	2480
Polarization	Vertical		
Test By :Brad Wu Temperature(°C):24 Humidity(%):63			
Level (dBuV/m)			



Modulation	BT-LE (2Mbps)		Test Freq. (MHz)		2404																																																																							
Polarization	Horizontal																																																																											
Test By		:Brad Wu		Temperature(°C):24		Humidity(%):63																																																																						
Level (dBuV/m) Frequency (MHz) <table><thead><tr><th></th><th>Freq. MHz</th><th>Emission level dBuV/m</th><th>Limit dBuV/m</th><th>Margin dB</th><th>SA reading dBuV</th><th>Factor dB/m</th><th>Remark</th><th>ANT High cm</th><th>Turn Table deg</th></tr></thead><tbody><tr><td>1</td><td>2390.00</td><td>37.82</td><td>54.00</td><td>-16.18</td><td>41.61</td><td>-3.79</td><td>Average</td><td>129</td><td>196</td></tr><tr><td>2</td><td>2390.00</td><td>53.15</td><td>74.00</td><td>-20.85</td><td>56.94</td><td>-3.79</td><td>Peak</td><td>129</td><td>196</td></tr><tr><td>3</td><td>4808.00</td><td>42.54</td><td>54.00</td><td>-11.46</td><td>42.49</td><td>0.05</td><td>Average</td><td>100</td><td>221</td></tr><tr><td>4</td><td>4808.00</td><td>50.26</td><td>74.00</td><td>-23.74</td><td>50.21</td><td>0.05</td><td>Peak</td><td>100</td><td>221</td></tr><tr><td>5</td><td>12020.00</td><td>41.65</td><td>54.00</td><td>-12.35</td><td>33.88</td><td>7.77</td><td>Average</td><td>100</td><td>24</td></tr><tr><td>6</td><td>12020.00</td><td>56.21</td><td>74.00</td><td>-17.79</td><td>48.44</td><td>7.77</td><td>Peak</td><td>100</td><td>24</td></tr></tbody></table>								Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg	1	2390.00	37.82	54.00	-16.18	41.61	-3.79	Average	129	196	2	2390.00	53.15	74.00	-20.85	56.94	-3.79	Peak	129	196	3	4808.00	42.54	54.00	-11.46	42.49	0.05	Average	100	221	4	4808.00	50.26	74.00	-23.74	50.21	0.05	Peak	100	221	5	12020.00	41.65	54.00	-12.35	33.88	7.77	Average	100	24	6	12020.00	56.21	74.00	-17.79	48.44	7.77	Peak	100	24
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg																																																																			
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Modulation	BT-LE (2Mbps)		Test Freq. (MHz)		2404	
Polarization	Vertical					
Test By :Brad Wu						
Temperature(°C):24			Humidity(%):63			
Level (dBuV/m)						



Modulation	BT-LE (2Mbps)		Test Freq. (MHz)		2440	
Polarization	Horizontal					
Test By :Brad Wu Temperature(°C):24 Humidity(%):63						
Level (dBUV/m) </						



Modulation	BT-LE (2Mbps)		Test Freq. (MHz)		2440	
Polarization	Vertical					
Test By :Brad Wu Temperature(°C):24 Humidity(%):63						
Level (dBUV/m)						



Modulation	BT-LE (2Mbps)		Test Freq. (MHz)		2478	
Polarization	Horizontal					
Test By :Brad Wu Temperature(°C):24 Humidity(%):63						
Level (dBuV/m) </						



Modulation	BT-LE (2Mbps)		Test Freq. (MHz)		2478	
Polarization	Vertical					
Test By :Brad Wu Temperature(°C):24 Humidity(%):63						
Level (dBuV/m)						

**Test configuration 2: Laird part number: 453-00145, 20dBm, Integrated Antenna****Unwanted Emissions (Below 1GHz)**

Modulation	BT-LE (1Mbps)		Test Freq. (MHz)		2402																																																																										
Polarization	Horizontal																																																																														
Test By :Brad Wu			Temperature(°C):24			Humidity(%):63																																																																									
Level (dBUV/m) <table><tr><th></th><th>Freq. MHz</th><th>Emission level dBUV/m</th><th>Limit dBUV/m</th><th>Margin dB</th><th>SA reading dBUV</th><th>Factor dB/m</th><th>Remark</th><th>ANT High cm</th><th>Turn Table deg</th></tr><tr><td>1</td><td>49.40</td><td>24.11</td><td>40.00</td><td>-15.89</td><td>32.40</td><td>-8.29</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>2</td><td>80.44</td><td>24.68</td><td>40.00</td><td>-15.32</td><td>38.44</td><td>-13.76</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>3</td><td>148.34</td><td>23.67</td><td>43.50</td><td>-19.83</td><td>32.29</td><td>-8.62</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>4</td><td>194.90</td><td>27.67</td><td>43.50</td><td>-15.83</td><td>39.17</td><td>-11.50</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>5</td><td>221.09</td><td>23.37</td><td>46.00</td><td>-22.63</td><td>35.18</td><td>-11.81</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>6</td><td>270.56</td><td>23.99</td><td>46.00</td><td>-22.01</td><td>32.78</td><td>-8.79</td><td>Peak</td><td>---</td><td>---</td></tr></table>											Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB/m	Remark	ANT High cm	Turn Table deg	1	49.40	24.11	40.00	-15.89	32.40	-8.29	Peak	---	---	2	80.44	24.68	40.00	-15.32	38.44	-13.76	Peak	---	---	3	148.34	23.67	43.50	-19.83	32.29	-8.62	Peak	---	---	4	194.90	27.67	43.50	-15.83	39.17	-11.50	Peak	---	---	5	221.09	23.37	46.00	-22.63	35.18	-11.81	Peak	---	---	6	270.56	23.99	46.00	-22.01	32.78	-8.79	Peak	---	---
	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB/m	Remark	ANT High cm	Turn Table deg																																																																						
1	49.40	24.11	40.00	-15.89	32.40	-8.29	Peak	---	---																																																																						
2	80.44	24.68	40.00	-15.32	38.44	-13.76	Peak	---	---																																																																						
3	148.34	23.67	43.50	-19.83	32.29	-8.62	Peak	---	---																																																																						
4	194.90	27.67	43.50	-15.83	39.17	-11.50	Peak	---	---																																																																						
5	221.09	23.37	46.00	-22.63	35.18	-11.81	Peak	---	---																																																																						
6	270.56	23.99	46.00	-22.01	32.78	-8.79	Peak	---	---																																																																						
Note 1: Emission Level (dBUV/m) = SA Reading (dBUV) + Factor* (dB/m) *Factor includes antenna factor , cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBUV/m) – Limit (dBUV/m). Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.																																																																															



Modulation	BT-LE (1Mbps)		Test Freq. (MHz)		2402																																																																																														
Polarization	Vertical																																																																																																		
Test By :Brad Wu			Temperature(°C):24			Humidity(%):63																																																																																													
Level (dBuV/m) Frequency (MHz) <table><tr><td></td><td>Freq.</td><td>Emission</td><td>Limit</td><td>Margin</td><td>SA</td><td>Factor</td><td>Remark</td><td>ANT</td><td>Turn</td></tr><tr><td></td><td>MHz</td><td>level</td><td>dBuV/m</td><td>dB</td><td>reading</td><td>dB/m</td><td></td><td>High</td><td>Table</td></tr><tr><td></td><td></td><td>dBuV/m</td><td></td><td></td><td>dBuV</td><td></td><td></td><td>cm</td><td>deg</td></tr><tr><td>1</td><td>49.40</td><td>23.94</td><td>40.00</td><td>-16.06</td><td>32.23</td><td>-8.29</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>2</td><td>90.14</td><td>19.29</td><td>43.50</td><td>-24.21</td><td>33.86</td><td>-14.57</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>3</td><td>133.79</td><td>20.54</td><td>43.50</td><td>-22.96</td><td>30.28</td><td>-9.74</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>4</td><td>148.34</td><td>23.69</td><td>43.50</td><td>-19.81</td><td>32.31</td><td>-8.62</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>5</td><td>164.83</td><td>21.92</td><td>43.50</td><td>-21.58</td><td>30.60</td><td>-8.68</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>6</td><td>194.90</td><td>22.77</td><td>43.50</td><td>-20.73</td><td>34.27</td><td>-11.50</td><td>Peak</td><td>---</td><td>---</td></tr></table>											Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn		MHz	level	dBuV/m	dB	reading	dB/m		High	Table			dBuV/m			dBuV			cm	deg	1	49.40	23.94	40.00	-16.06	32.23	-8.29	Peak	---	---	2	90.14	19.29	43.50	-24.21	33.86	-14.57	Peak	---	---	3	133.79	20.54	43.50	-22.96	30.28	-9.74	Peak	---	---	4	148.34	23.69	43.50	-19.81	32.31	-8.62	Peak	---	---	5	164.83	21.92	43.50	-21.58	30.60	-8.68	Peak	---	---	6	194.90	22.77	43.50	-20.73	34.27	-11.50	Peak	---	---
	Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn																																																																																										
	MHz	level	dBuV/m	dB	reading	dB/m		High	Table																																																																																										
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Unwanted Emissions (Above 1GHz)

Modulation	BT-LE (125kbps)	Test Freq. (MHz)	2402
Polarization	Horizontal		
Test By :Brad Wu Temperature(°C):22 Humidity(%):63			
Level (dBuV/m) <			



Modulation	BT-LE (125kbps)		Test Freq. (MHz)		2402		
Polarization	Vertical						
Test By		:Brad Wu		Temperature(°C):22		Humidity(%):63	
Level (dBUV/m) <							



Modulation	BT-LE (125kbps)	Test Freq. (MHz)	2440
Polarization	Horizontal		
Test By :Brad Wu Temperature(°C):22 Humidity(%):63			
Level (dBuV/m)			



Modulation	BT-LE (125kbps)		Test Freq. (MHz)		2440	
Polarization	Vertical					
Test By :Brad Wu Temperature(°C):22 Humidity(%):63						
Level (dBUV/m) </						



Modulation	BT-LE (125kbps)		Test Freq. (MHz)		2478	
Polarization	Horizontal					
Test By :Paul Lin Temperature(°C):22 Humidity(%):63						
Level (dBuV/m) </						



Modulation	BT-LE (125kbps)		Test Freq. (MHz)		2478				
Polarization	Vertical								
Test By :Paul Lin Temperature(°C):22 Humidity(%):63									
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2483.50	40.18	54.00	-13.82	44.27	-4.09	Average	319	270
2	2483.50	55.83	74.00	-18.17	59.92	-4.09	Peak	319	270
3	4956.00	35.80	54.00	-18.20	35.65	0.15	Average	100	309
4	4956.00	46.14	74.00	-27.86	45.99	0.15	Peak	100	309
5	7434.00	38.88	54.00	-15.12	32.92	5.96	Average	237	35
6	7434.00	51.34	74.00	-22.66	45.38	5.96	Peak	237	35
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m) *Factor includes antenna factor , cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).									



Modulation	BT-LE (125kbps)		Test Freq. (MHz)		2480	
Polarization	Horizontal					
Test By :Brad Wu Temperature(°C):22 Humidity(%):63						
Level (dBuV/m) </						



Modulation	BT-LE (125kbps)		Test Freq. (MHz)		2480		
Polarization	Vertical						
Test By		:Brad Wu		Temperature(°C):22		Humidity(%):63	
Level (dBuV/m) <							

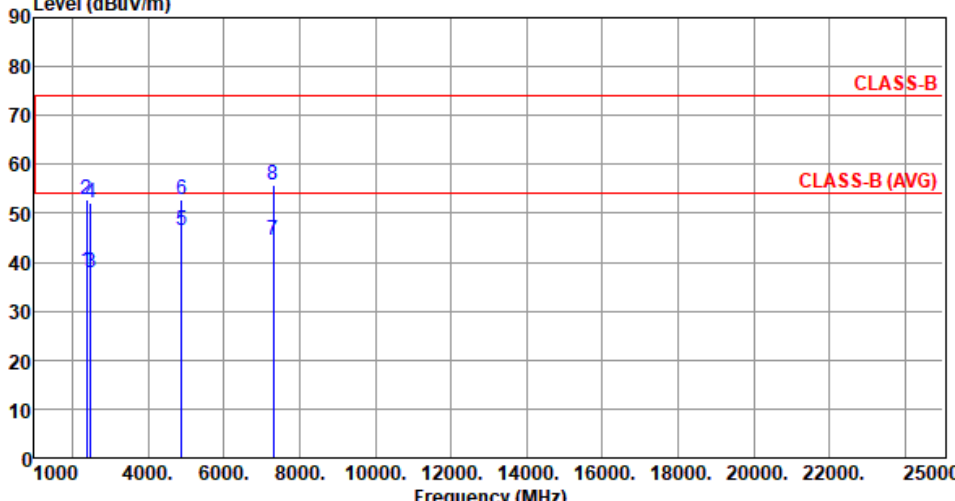


Modulation	BT-LE (500kbps)		Test Freq. (MHz)		2402		
Polarization	Horizontal						
Test By		:Brad Wu		Temperature(°C):22		Humidity(%):63	
Level (dBUV/m)							



Modulation	BT-LE (500kbps)	Test Freq. (MHz)	2402
Polarization	Vertical		
Test By :Brad Wu Temperature(°C):22 Humidity(%):63			
Level (dBuV/m)			



Modulation	BT-LE (500kbps)	Test Freq. (MHz)	2440						
Polarization	Horizontal								
Test By :Brad Wu Temperature(°C):22 Humidity(%):63									
Level (dBUV/m)  Frequency (MHz)									
	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2390.00	38.29	54.00	-15.71	42.08	-3.79	Average	100	286
2	2390.00	52.75	74.00	-21.25	56.54	-3.79	Peak	100	286
3	2483.50	38.02	54.00	-15.98	42.11	-4.09	Average	100	286
4	2483.50	52.29	74.00	-21.71	56.38	-4.09	Peak	100	286
5	4880.00	46.34	54.00	-7.66	46.24	0.10	Average	100	349
6	4880.00	52.78	74.00	-21.22	52.68	0.10	Peak	100	349
7	7320.00	44.62	54.00	-9.38	38.71	5.91	Average	285	302
8	7320.00	55.74	74.00	-18.26	49.83	5.91	Peak	285	302
Note 1: Emission Level (dBUV/m) = SA Reading (dBUV) + Factor* (dB/m) *Factor includes antenna factor , cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBUV/m) – Limit (dBUV/m).									



Modulation	BT-LE (500kbps)		Test Freq. (MHz)		2440				
Polarization	Vertical								
Test By :Brad Wu			Temperature(°C):22			Humidity(%):63			
Level (dBUV/m)									



Modulation	BT-LE (500kbps)		Test Freq. (MHz)		2478	
Polarization	Horizontal					
Test By :Paul Lin Temperature(°C):22 Humidity(%):63						
Level (dBuV/m) </						



Modulation	BT-LE (500kbps)		Test Freq. (MHz)		2478		
Polarization	Vertical						
Test By		:Paul Lin		Temperature(°C):22		Humidity(%):63	
Level (dBuV/m) </							



Modulation	BT-LE (500kbps)		Test Freq. (MHz)		2480											
Polarization	Horizontal															
Test By		:Brad Wu		Temperature(°C):22		Humidity(%):63										
Level (dBuV/m) Frequency (MHz)																
							Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn	
							MHz	level			reading			High	Table	
								dBuV/m	dBuV/m	dB	dBuV	dB/m		cm	deg	
							1	2483.50	51.56	54.00	-2.44	55.65	-4.09	Average	100	324
							2	2483.50	72.30	74.00	-1.70	76.39	-4.09	Peak	100	324
							3	4960.00	48.42	54.00	-5.58	48.24	0.18	Average	100	19
							4	4960.00	55.05	74.00	-18.95	54.87	0.18	Peak	100	19
							5	7440.00	43.36	54.00	-10.64	37.40	5.96	Average	322	303
							6	7440.00	54.61	74.00	-19.39	48.65	5.96	Peak	322	303

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).



Modulation	BT-LE (500kbps)	Test Freq. (MHz)	2480
Polarization	Vertical		
Test By :Brad Wu Temperature(°C):22 Humidity(%):63			
Level (dBuV/m)			



Modulation	BT-LE (1Mbps)	Test Freq. (MHz)	2402
Polarization	Horizontal		
Test By :Brad Wu Temperature(°C):23 Humidity(%):63			
Level (dBUV/m)			



Modulation	BT-LE (1Mbps)		Test Freq. (MHz)		2402	
Polarization	Vertical					
Test By :Brad Wu Temperature(°C):23 Humidity(%):63						
Level (dBuV/m) <						



Modulation	BT-LE (1Mbps)	Test Freq. (MHz)	2440
Polarization	Horizontal		
Test By :Brad Wu Temperature(°C):23 Humidity(%):63			
Level (dBuV/m)			



Modulation	BT-LE (1Mbps)		Test Freq. (MHz)		2440	
Polarization	Vertical					
Test By :Brad Wu Temperature(°C):23 Humidity(%):63						
Level (dBUV/m) <						



Modulation	BT-LE (1Mbps)		Test Freq. (MHz)		2478	
Polarization	Horizontal					
Test By :Paul Lin Temperature(°C):23 Humidity(%):63						
Level (dBUV/m) <						



Modulation	BT-LE (1Mbps)		Test Freq. (MHz)		2478				
Polarization	Vertical								
Test By		:Paul Lin		Temperature(°C):23		Humidity(%):63			
Level (dBuV/m) Frequency (MHz)									
	Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn
	MHz	level			reading			High	Table
		dBuV/m	dBuV/m	dB	dBuV	dB/m		cm	deg
1	2483.50	42.00	54.00	-12.00	46.09	-4.09	Average	322	99
2	2483.50	60.92	74.00	-13.08	65.01	-4.09	Peak	322	99
3	4956.00	40.61	54.00	-13.39	40.46	0.15	Average	100	345
4	4956.00	49.32	74.00	-24.68	49.17	0.15	Peak	100	345
5	7434.00	42.36	54.00	-11.64	36.40	5.96	Average	242	23
6	7434.00	53.28	74.00	-20.72	47.32	5.96	Peak	242	23

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).



Modulation	BT-LE (1Mbps)		Test Freq. (MHz)		2480		
Polarization	Horizontal						
Test By		:Brad Wu		Temperature(°C):23		Humidity(%):63	
Level (dBUV/m) <							



Modulation	BT-LE (1Mbps)		Test Freq. (MHz)		2480		
Polarization	Vertical						
Test By		:Brad Wu		Temperature(°C):23		Humidity(%):63	
Level (dBUV/m) <							



Modulation	BT-LE (2Mbps)		Test Freq. (MHz)	2404					
Polarization	Horizontal								
Test By :Brad Wu			Temperature(°C):23			Humidity(%):63			
Level (dBUV/m)									



Modulation	BT-LE (2Mbps)		Test Freq. (MHz)		2404		
Polarization	Vertical						
Test By		:Brad Wu		Temperature(°C):23		Humidity(%):63	
Level (dBuV/m) <							



Modulation	BT-LE (2Mbps)	Test Freq. (MHz)	2440
Polarization	Horizontal		
Test By :Brad Wu Temperature(°C):23 Humidity(%):63			
Level (dBUV/m) </			



Modulation	BT-LE (2Mbps)		Test Freq. (MHz)		2440	
Polarization	Vertical					
Test By :Brad Wu Temperature(°C):23 Humidity(%):63						
Level (dBUV/m)						



Modulation	BT-LE (2Mbps)		Test Freq. (MHz)		2478		
Polarization	Horizontal						
Test By		:Brad Wu		Temperature(°C):23		Humidity(%):63	
Level (dBUV/m) <							



Modulation	BT-LE (2Mbps)		Test Freq. (MHz)		2478				
Polarization	Vertical								
Test By :Brad Wu			Temperature(°C):23			Humidity(%):63			
Level (dBUV/m) </									



Test configuration 3: Laird part number: 453-00148, 20dBm, DTS

Unwanted Emissions (Below 1GHz)

Modulation	BT-LE (1Mbps)		Test Freq. (MHz)		2402				
Polarization	Horizontal								
Test By :Brad Wu			Temperature(°C):24			Humidity(%):63			
Level (dBUV/m)									



Modulation	BT-LE (1Mbps)	Test Freq. (MHz)	2402
Polarization	Vertical		
Test By :Brad Wu Temperature(°C):24 Humidity(%):63			
Level (dBUV/m) </			



Unwanted Emissions (Above 1GHz)

Modulation	BT-LE (125kbps)	Test Freq. (MHz)	2402						
Polarization	Horizontal								
Test By :Brad Wu Temperature(°C):23 Humidity(%):63									
Level (dBUV/m) Frequency (MHz)									
	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	3688.00	29.65	54.00	-24.35	31.34	-1.69	Average	100	75
2	3688.00	42.18	74.00	-31.82	43.87	-1.69	Peak	100	75
3	4804.00	40.25	54.00	-13.75	40.22	0.03	Average	100	165
4	4804.00	49.05	74.00	-24.95	49.02	0.03	Peak	100	165
5	12010.00	43.04	54.00	-10.96	35.28	7.76	Average	100	51
6	12010.00	56.08	74.00	-17.92	48.32	7.76	Peak	100	51

Note 1: Emission Level (dBUV/m) = SA Reading (dBUV) + Factor* (dB/m)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBUV/m) – Limit (dBUV/m).



Modulation	BT-LE (125kbps)		Test Freq. (MHz)		2402	
Polarization	Vertical					
Test By :Brad Wu Temperature(°C):23 Humidity(%):63						
Level (dBUV/m) <						



Modulation	BT-LE (125kbps)		Test Freq. (MHz)		2440				
Polarization	Horizontal								
Test By :Brad Wu			Temperature(°C):23			Humidity(%):63			
Level (dBuV/m)									



Modulation	BT-LE (125kbps)		Test Freq. (MHz)		2440				
Polarization	Vertical								
Test By :Brad Wu Temperature(°C):23 Humidity(%):63									
Level (dBUV/m) </									



Modulation	BT-LE (125kbps)		Test Freq. (MHz)		2478	
Polarization	Horizontal					
Test By :Paul Lin Temperature(°C):23 Humidity(%):63						
Level (dBUV/m)						



Modulation	BT-LE (125kbps)		Test Freq. (MHz)		2478				
Polarization	Vertical								
Test By :Paul Lin			Temperature(°C):23			Humidity(%):63			
Level (dBuV/m)									



Modulation	BT-LE (125kbps)	Test Freq. (MHz)	2480
Polarization	Horizontal		
Test By :Brad Wu Temperature(°C):23 Humidity(%):63			
Level (dBuV/m)			



Modulation	BT-LE (125kbps)		Test Freq. (MHz)		2480	
Polarization	Vertical					
Test By :Brad Wu Temperature(°C):23 Humidity(%):63						
Level (dBUV/m)						



Modulation	BT-LE (500kbps)	Test Freq. (MHz)	2402
Polarization	Horizontal		
Test By :Brad Wu Temperature(°C):24 Humidity(%):63			
Level (dBuV/m) <			



Modulation	BT-LE (500kbps)		Test Freq. (MHz)		2402	
Polarization	Vertical					
Test By :Brad Wu Temperature(°C):24 Humidity(%):63						
Level (dBuV/m)						



Modulation	BT-LE (500kbps)	Test Freq. (MHz)	2440
Polarization	Horizontal		
Test By :Brad Wu Temperature(°C):24 Humidity(%):63			
Level (dBuV/m)			



Modulation	BT-LE (500kbps)		Test Freq. (MHz)		2440				
Polarization	Vertical								
Test By :Brad Wu			Temperature(°C):24			Humidity(%):63			
Level (dBuV/m)									



Modulation	BT-LE (500kbps)	Test Freq. (MHz)	2478
Polarization	Horizontal		
Test By :Paul Lin Temperature(°C):24 Humidity(%):63			
Level (dBuV/m)			



Modulation	BT-LE (500kbps)		Test Freq. (MHz)		2478						
Polarization	Vertical										
Test By :Paul Lin							Temperature(°C):24		Humidity(%):63		
Level (dBuV/m) <											



Modulation	BT-LE (500kbps)		Test Freq. (MHz)		2480		
Polarization	Horizontal						
Test By		:Brad Wu		Temperature(°C):24		Humidity(%):63	
Level (dBuV/m) </							



Modulation	BT-LE (500kbps)		Test Freq. (MHz)		2480				
Polarization	Vertical								
Test By :Brad Wu			Temperature(°C):24			Humidity(%):63			
Level (dBuV/m) </									



Modulation	BT-LE (1Mbps)	Test Freq. (MHz)	2402
Polarization	Horizontal		
Test By :Brad Wu Temperature(°C):24 Humidity(%):63			
Level (dBUV/m) <			



Modulation	BT-LE (1Mbps)		Test Freq. (MHz)		2402	
Polarization	Vertical					
Test By :Brad Wu Temperature(°C):24 Humidity(%):63						
Level (dBuV/m) </						



Modulation	BT-LE (1Mbps)		Test Freq. (MHz)		2440		
Polarization	Horizontal						
Test By		:Brad Wu		Temperature(°C):24		Humidity(%):63	
Level (dBUV/m) <							



Modulation	BT-LE (1Mbps)		Test Freq. (MHz)		2440				
Polarization	Vertical								
Test By :Brad Wu			Temperature(°C):24			Humidity(%):63			
Level (dBuV/m) </									



Modulation	BT-LE (1Mbps)		Test Freq. (MHz)		2478		
Polarization	Horizontal						
Test By		:Paul Lin		Temperature(°C):24		Humidity(%):63	
Level (dBuV/m) <							



Modulation	BT-LE (1Mbps)		Test Freq. (MHz)		2478		
Polarization	Vertical						
Test By		:Paul Lin		Temperature(°C):24		Humidity(%):63	
Level (dBuV/m) <							



Modulation	BT-LE (1Mbps)		Test Freq. (MHz)		2480	
Polarization	Horizontal					
Test By :Brad Wu						
Temperature(°C):24			Humidity(%):63			
Level (dBUV/m)						



Modulation	BT-LE (1Mbps)		Test Freq. (MHz)		2480				
Polarization	Vertical								
Test By :Brad Wu			Temperature(°C):24			Humidity(%):63			
Level (dBuV/m)									



Modulation	BT-LE (2Mbps)		Test Freq. (MHz)		2404	
Polarization	Horizontal					
Test By :Brad Wu Temperature(°C):24 Humidity(%):63						
Level (dBUV/m) <						



Modulation	BT-LE (2Mbps)		Test Freq. (MHz)		2404	
Polarization	Vertical					
Test By :Brad Wu Temperature(°C):24 Humidity(%):63						
Level (dBUV/m) </						



Modulation	BT-LE (2Mbps)		Test Freq. (MHz)		2440						
Polarization	Horizontal										
Test By :Brad Wu							Temperature(°C):24		Humidity(%):63		
Level (dBUV/m) <											



Modulation	BT-LE (2Mbps)		Test Freq. (MHz)		2440				
Polarization	Vertical								
Test By :Brad Wu			Temperature(°C):24			Humidity(%):63			
Level (dBuV/m) <									



Modulation	BT-LE (2Mbps)		Test Freq. (MHz)		2478		
Polarization	Horizontal						
Test By		:Brad Wu		Temperature(°C):24		Humidity(%):63	
Level (dBuV/m) <							



Modulation	BT-LE (2Mbps)		Test Freq. (MHz)		2478		
Polarization	Vertical						
Test By		:Brad Wu		Temperature(°C):24		Humidity(%):63	
Level (dBuV/m)							

**3) Configuration 3: Laird part number: 453-00148, 20dBm, RF Trace Pad (External antenna)****Transmitter Conducted Unwanted Emissions (30MHz ~ 1GHz)****Summary**

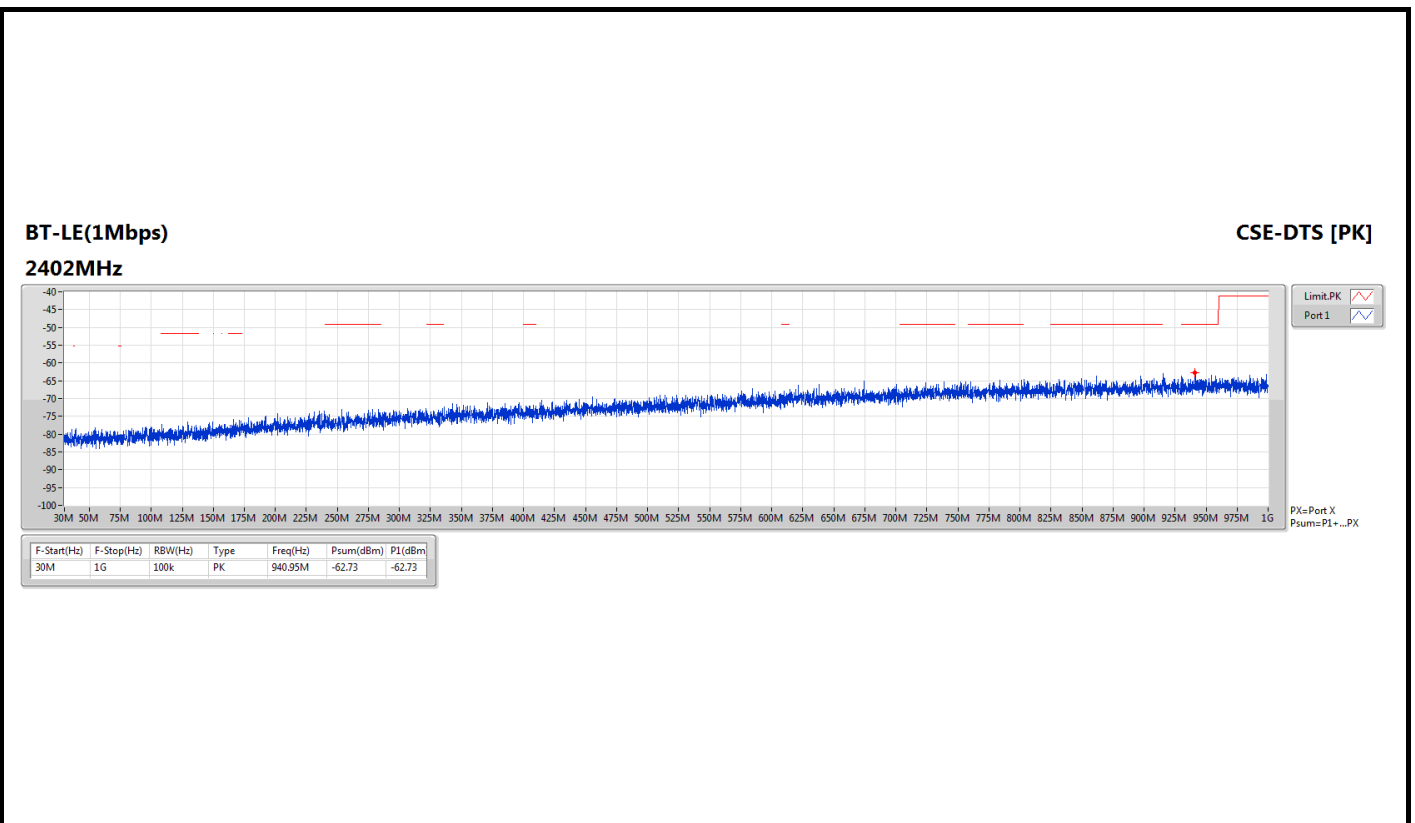
Mode	Result	F-Start (Hz)	F-Stop (Hz)	Type	Freq (Hz)	DG (dBi)	Psum (dBm)	GRF (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
BT-LE(Symbol rate 1Mbps)	Pass	30M	1G	PK	940.95M	2.00	-62.73	4.7	-56.03	-49.20	-6.83

DG = Directional Gain ; PX=Port X; Psum=P1+P2+...PX

Result

Mode	Result	F-Start (Hz)	F-Stop (Hz)	Type	Freq (Hz)	DG (dBi)	Psum (dBm)	GRF (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
BT-LE(Symbol rate 1Mbps)	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	30M	1G	PK	940.95M	2.00	-62.73	4.7	-56.03	-49.20	-6.83

DG = Directional Gain ; PX=Port X; Psum=P1+P2+...PX



3) Configuration 3: Laird part number: 453-00148, 20dBm, RF Trace Pad (External antenna)

Transmitter Conducted Unwanted Emissions (1GHz ~ 3.1GHz)

Summary

Mode	Result	F-Start (Hz)	F-Stop (Hz)	Type	Freq (Hz)	DG (dBi)	Psum (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dB)
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-
BT-LE(Coding rate125kbps)	Pass	2.4835G	2.5G	AV	2.48359G	2.00	-48.08	-46.08	-41.20	-4.88
BT-LE(Coding rate 500kbps)	Pass	2.4835G	2.5G	AV	2.48352G	2.00	-44.21	-42.21	-41.20	-1.01
BT-LE(Symbol rate 1Mbps)	Pass	2.4835G	2.5G	AV	2.4835G	2.00	-44.28	-42.28	-41.20	-1.08
BT-LE(Symbol rate 2Mbps)	Pass	2.4835G	2.5G	AV	2.48352G	2.00	-44.32	-42.32	-41.20	-1.12

DG = Directional Gain ; PX=Port X; Psum=P1+P2+...PX

Result

Mode	Result	F-Start (Hz)	F-Stop (Hz)	Type	Freq (Hz)	DG (dBi)	Psum (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dB)
BT-LE(Coding rate125kbps)										
2402MHz	Pass	1G	2.31G	AV	2.1695G	2.00	-64.04	-62.04	-41.20	-20.84
2402MHz	Pass	2.31G	2.39G	AV	2.39G	2.00	-61.16	-59.16	-41.20	-17.96
2402MHz	Pass	2.4835G	2.5G	AV	2.48624G	2.00	-63.51	-61.51	-41.20	-20.31
2402MHz	Pass	2.5G	3.1G	AV	2.8234G	2.00	-62.83	-60.83	-41.20	-19.63
2402MHz	Pass	1G	2.31G	PK	2.28642G	2.00	-52.87	-50.87	-21.20	-29.67
2402MHz	Pass	2.31G	2.39G	PK	2.3892G	2.00	-49.75	-47.75	-21.20	-26.55
2402MHz	Pass	2.4835G	2.5G	PK	2.49915G	2.00	-51.11	-49.11	-21.20	-27.91
2402MHz	Pass	2.5G	3.1G	PK	2.8399G	2.00	-51.22	-49.22	-21.20	-28.02
2440MHz	Pass	1G	2.31G	AV	2.14379G	2.00	-63.87	-61.87	-41.20	-20.67
2440MHz	Pass	2.31G	2.39G	AV	2.3326G	2.00	-63.91	-61.91	-41.20	-20.71
2440MHz	Pass	2.4835G	2.5G	AV	2.48453G	2.00	-63.31	-61.31	-41.20	-20.11
2440MHz	Pass	2.5G	3.1G	AV	2.84515G	2.00	-62.68	-60.68	-41.20	-19.48
2440MHz	Pass	1G	2.31G	PK	2.14298G	2.00	-53.34	-51.34	-21.20	-30.14
2440MHz	Pass	2.31G	2.39G	PK	2.38936G	2.00	-52.23	-50.23	-21.20	-29.03
2440MHz	Pass	2.4835G	2.5G	PK	2.4854G	2.00	-51.24	-49.24	-21.20	-28.04
2440MHz	Pass	2.5G	3.1G	PK	2.7898G	2.00	-51.85	-49.85	-21.20	-28.65
2478MHz	Pass	1G	2.31G	AV	2.13823G	2.00	-62.98	-60.98	-41.20	-19.78
2478MHz	Pass	2.31G	2.39G	AV	2.31944G	2.00	-63.26	-61.26	-41.20	-20.06
2478MHz	Pass	2.4835G	2.5G	AV	2.48352G	2.00	-51.19	-49.19	-41.20	-7.99
2478MHz	Pass	2.5G	3.1G	AV	2.8132G	2.00	-62.20	-60.20	-41.20	-19.00
2478MHz	Pass	1G	2.31G	PK	2.12136G	2.00	-52.22	-50.22	-21.20	-29.02
2478MHz	Pass	2.31G	2.39G	PK	2.31148G	2.00	-51.44	-49.44	-21.20	-28.24
2478MHz	Pass	2.4835G	2.5G	PK	2.48389G	2.00	-39.20	-37.20	-21.20	-16.00
2478MHz	Pass	2.5G	3.1G	PK	2.8084G	2.00	-50.61	-48.61	-21.20	-27.41
2480MHz	Pass	1G	2.31G	AV	2.29297G	2.00	-64.17	-62.17	-41.20	-20.97
2480MHz	Pass	2.31G	2.39G	AV	2.3582G	2.00	-64.06	-62.06	-41.20	-20.86
2480MHz	Pass	2.4835G	2.5G	AV	2.48359G	2.00	-48.08	-46.08	-41.20	-4.88
2480MHz	Pass	2.5G	3.1G	AV	2.82835G	2.00	-62.83	-60.83	-41.20	-19.63
2480MHz	Pass	1G	2.31G	PK	2.16721G	2.00	-53.50	-51.50	-21.20	-30.30
2480MHz	Pass	2.31G	2.39G	PK	2.3184G	2.00	-52.23	-50.23	-21.20	-29.03
2480MHz	Pass	2.4835G	2.5G	PK	2.48362G	2.00	-35.90	-33.90	-21.20	-12.70
2480MHz	Pass	2.5G	3.1G	PK	2.5042G	2.00	-50.49	-48.49	-21.20	-27.29
BT-LE(Coding rate 500kbps)										
2402MHz	Pass	1G	2.31G	AV	1.52728G	2.00	-59.50	-57.50	-41.20	-16.30
2402MHz	Pass	2.31G	2.39G	AV	2.39G	2.00	-53.65	-51.65	-41.20	-10.45
2402MHz	Pass	2.4835G	2.5G	AV	2.48417G	2.00	-61.47	-59.47	-41.20	-18.27
2402MHz	Pass	2.5G	3.1G	AV	2.8981G	2.00	-60.91	-58.91	-41.20	-17.71
2402MHz	Pass	1G	2.31G	PK	1.97137G	2.00	-49.16	-47.16	-21.20	-25.96
2402MHz	Pass	2.31G	2.39G	PK	2.38916G	2.00	-43.84	-41.84	-21.20	-20.64
2402MHz	Pass	2.4835G	2.5G	PK	2.48672G	2.00	-49.87	-47.87	-21.20	-26.67

Mode	Result	F-Start (Hz)	F-Stop (Hz)	Type	Freq (Hz)	DG (dBi)	Psum (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dB)
2402MHz	Pass	2.5G	3.1G	PK	2.7835G	2.00	-49.55	-47.55	-21.20	-26.35
2440MHz	Pass	1G	2.31G	AV	1.58393G	2.00	-60.10	-58.10	-41.20	-16.90
2440MHz	Pass	2.31G	2.39G	AV	2.38968G	2.00	-61.63	-59.63	-41.20	-18.43
2440MHz	Pass	2.4835G	2.5G	AV	2.48401G	2.00	-60.77	-58.77	-41.20	-17.57
2440MHz	Pass	2.5G	3.1G	AV	2.824G	2.00	-61.36	-59.36	-41.20	-18.16
2440MHz	Pass	1G	2.31G	PK	1.19388G	2.00	-49.12	-47.12	-21.20	-25.92
2440MHz	Pass	2.31G	2.39G	PK	2.36992G	2.00	-50.11	-48.11	-21.20	-26.91
2440MHz	Pass	2.4835G	2.5G	PK	2.48775G	2.00	-49.02	-47.02	-21.20	-25.82
2440MHz	Pass	2.5G	3.1G	PK	2.5162G	2.00	-49.86	-47.86	-21.20	-26.66
2478MHz	Pass	1G	2.31G	AV	1.8122G	2.00	-61.57	-59.57	-41.20	-18.37
2478MHz	Pass	2.31G	2.39G	AV	2.31588G	2.00	-62.12	-60.12	-41.20	-18.92
2478MHz	Pass	2.4835G	2.5G	AV	2.48355G	2.00	-44.64	-42.64	-41.20	-1.44
2478MHz	Pass	2.5G	3.1G	AV	2.5006G	2.00	-59.57	-57.57	-41.20	-16.37
2478MHz	Pass	1G	2.31G	PK	1.7788G	2.00	-49.48	-47.48	-21.20	-26.28
2478MHz	Pass	2.31G	2.39G	PK	2.32192G	2.00	-48.58	-46.58	-21.20	-25.38
2478MHz	Pass	2.4835G	2.5G	PK	2.48358G	2.00	-32.76	-30.76	-21.20	-9.56
2478MHz	Pass	2.5G	3.1G	PK	2.5057G	2.00	-49.42	-47.42	-21.20	-26.22
2480MHz	Pass	1G	2.31G	AV	2.12431G	2.00	-62.07	-60.07	-41.20	-18.87
2480MHz	Pass	2.31G	2.39G	AV	2.31372G	2.00	-62.47	-60.47	-41.20	-19.27
2480MHz	Pass	2.4835G	2.5G	AV	2.48352G	2.00	-44.21	-42.21	-41.20	-1.01
2480MHz	Pass	2.5G	3.1G	AV	2.5003G	2.00	-60.61	-58.61	-41.20	-17.41
2480MHz	Pass	1G	2.31G	PK	2.11088G	2.00	-51.37	-49.37	-21.20	-28.17
2480MHz	Pass	2.31G	2.39G	PK	2.32444G	2.00	-51.17	-49.17	-21.20	-27.97
2480MHz	Pass	2.4835G	2.5G	PK	2.48358G	2.00	-28.62	-26.62	-21.20	-5.42
2480MHz	Pass	2.5G	3.1G	PK	2.5033G	2.00	-49.92	-47.92	-21.20	-26.72
BT-LE(Symbol rate 1Mbps)										
2402MHz	Pass	1G	2.31G	AV	1.5037G	2.00	-59.48	-57.48	-41.20	-16.28
2402MHz	Pass	2.31G	2.39G	AV	2.3898G	2.00	-53.45	-51.45	-41.20	-10.25
2402MHz	Pass	2.4835G	2.5G	AV	2.49851G	2.00	-61.60	-59.60	-41.20	-18.40
2402MHz	Pass	2.5G	3.1G	AV	2.82475G	2.00	-60.69	-58.69	-41.20	-17.49
2402MHz	Pass	1G	2.31G	PK	1.75129G	2.00	-48.91	-46.91	-21.20	-25.71
2402MHz	Pass	2.31G	2.39G	PK	2.38836G	2.00	-42.30	-40.30	-21.20	-19.10
2402MHz	Pass	2.4835G	2.5G	PK	2.49064G	2.00	-49.58	-47.58	-21.20	-26.38
2402MHz	Pass	2.5G	3.1G	PK	2.7532G	2.00	-49.83	-47.83	-21.20	-26.63
2440MHz	Pass	1G	2.31G	AV	1.53841G	2.00	-59.53	-57.53	-41.20	-16.33
2440MHz	Pass	2.31G	2.39G	AV	2.38624G	2.00	-61.48	-59.48	-41.20	-18.28
2440MHz	Pass	2.4835G	2.5G	AV	2.48866G	2.00	-60.74	-58.74	-41.20	-17.54
2440MHz	Pass	2.5G	3.1G	AV	2.82295G	2.00	-61.36	-59.36	-41.20	-18.16
2440MHz	Pass	1G	2.31G	PK	1.58885G	2.00	-48.38	-46.38	-21.20	-25.18
2440MHz	Pass	2.31G	2.39G	PK	2.323G	2.00	-49.54	-47.54	-21.20	-26.34
2440MHz	Pass	2.4835G	2.5G	PK	2.49G	2.00	-47.73	-45.73	-21.20	-24.53
2440MHz	Pass	2.5G	3.1G	PK	2.8789G	2.00	-49.84	-47.84	-21.20	-26.64

Mode	Result	F-Start (Hz)	F-Stop (Hz)	Type	Freq (Hz)	DG (dBi)	Psum (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dB)
2478MHz	Pass	1G	2.31G	AV	1.77781G	2.00	-61.53	-59.53	-41.20	-18.33
2478MHz	Pass	2.31G	2.39G	AV	2.31176G	2.00	-62.09	-60.09	-41.20	-18.89
2478MHz	Pass	2.4835G	2.5G	AV	2.48352G	2.00	-44.76	-42.76	-41.20	-1.56
2478MHz	Pass	2.5G	3.1G	AV	2.5009G	2.00	-59.71	-57.71	-41.20	-16.51
2478MHz	Pass	1G	2.31G	PK	1.47029G	2.00	-50.34	-48.34	-21.20	-27.14
2478MHz	Pass	2.31G	2.39G	PK	2.32204G	2.00	-49.37	-47.37	-21.20	-26.17
2478MHz	Pass	2.4835G	2.5G	PK	2.48372G	2.00	-30.34	-28.34	-21.20	-7.14
2478MHz	Pass	2.5G	3.1G	PK	2.5003G	2.00	-48.64	-46.64	-21.20	-25.44
2480MHz	Pass	1G	2.31G	AV	2.13741G	2.00	-62.41	-60.41	-41.20	-19.21
2480MHz	Pass	2.31G	2.39G	AV	2.33584G	2.00	-62.78	-60.78	-41.20	-19.58
2480MHz	Pass	2.4835G	2.5G	AV	2.4835G	2.00	-44.28	-42.28	-41.20	-1.08
2480MHz	Pass	2.5G	3.1G	AV	2.5003G	2.00	-60.77	-58.77	-41.20	-17.57
2480MHz	Pass	1G	2.31G	PK	2.12726G	2.00	-51.88	-49.88	-21.20	-28.68
2480MHz	Pass	2.31G	2.39G	PK	2.3126G	2.00	-51.46	-49.46	-21.20	-28.26
2480MHz	Pass	2.4835G	2.5G	PK	2.48366G	2.00	-28.51	-26.51	-21.20	-5.31
2480MHz	Pass	2.5G	3.1G	PK	2.8825G	2.00	-50.37	-48.37	-21.20	-27.17
BT-LE(Symbol rate 2Mbps)										
2404MHz	Pass	1G	2.31G	AV	1.60915G	2.00	-60.26	-58.26	-41.20	-17.06
2404MHz	Pass	2.31G	2.39G	AV	2.36564G	2.00	-54.09	-52.09	-41.20	-10.89
2404MHz	Pass	2.4835G	2.5G	AV	2.49915G	2.00	-61.60	-59.60	-41.20	-18.40
2404MHz	Pass	2.5G	3.1G	AV	2.86255G	2.00	-61.11	-59.11	-41.20	-17.91
2404MHz	Pass	1G	2.31G	PK	1.61963G	2.00	-49.38	-47.38	-21.20	-26.18
2404MHz	Pass	2.31G	2.39G	PK	2.38988G	2.00	-43.73	-41.73	-21.20	-20.53
2404MHz	Pass	2.4835G	2.5G	PK	2.48577G	2.00	-49.68	-47.68	-21.20	-26.48
2404MHz	Pass	2.5G	3.1G	PK	2.5603G	2.00	-49.09	-47.09	-21.20	-25.89
2440MHz	Pass	1G	2.31G	AV	1.46063G	2.00	-60.08	-58.08	-41.20	-16.88
2440MHz	Pass	2.31G	2.39G	AV	2.38952G	2.00	-61.79	-59.79	-41.20	-18.59
2440MHz	Pass	2.4835G	2.5G	AV	2.48619G	2.00	-60.91	-58.91	-41.20	-17.71
2440MHz	Pass	2.5G	3.1G	AV	2.88325G	2.00	-61.48	-59.48	-41.20	-18.28
2440MHz	Pass	1G	2.31G	PK	1.57902G	2.00	-48.84	-46.84	-21.20	-25.64
2440MHz	Pass	2.31G	2.39G	PK	2.34204G	2.00	-49.97	-47.97	-21.20	-26.77
2440MHz	Pass	2.4835G	2.5G	PK	2.48386G	2.00	-48.96	-46.96	-21.20	-25.76
2440MHz	Pass	2.5G	3.1G	PK	2.7094G	2.00	-49.55	-47.55	-21.20	-26.35
2478MHz	Pass	1G	2.31G	AV	2.14412G	2.00	-62.26	-60.26	-41.20	-19.06
2478MHz	Pass	2.31G	2.39G	AV	2.31344G	2.00	-62.66	-60.66	-41.20	-19.46
2478MHz	Pass	2.4835G	2.5G	AV	2.48352G	2.00	-44.32	-42.32	-41.20	-1.12
2478MHz	Pass	2.5G	3.1G	AV	2.5174G	2.00	-58.86	-56.86	-41.20	-15.66
2478MHz	Pass	1G	2.31G	PK	2.14036G	2.00	-50.28	-48.28	-21.20	-27.08
2478MHz	Pass	2.31G	2.39G	PK	2.36848G	2.00	-51.33	-49.33	-21.20	-28.13
2478MHz	Pass	2.4835G	2.5G	PK	2.48373G	2.00	-32.37	-30.37	-21.20	-9.17
2478MHz	Pass	2.5G	3.1G	PK	2.5171G	2.00	-48.60	-46.60	-21.20	-25.40

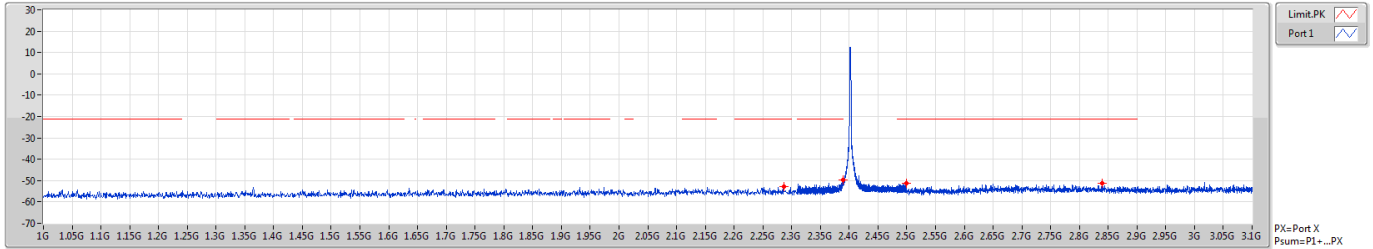
DG = Directional Gain ; PX=Port X; Psum=P1+P2+...PX



BT-LE(125kbps)

CSE-DTS [PK]

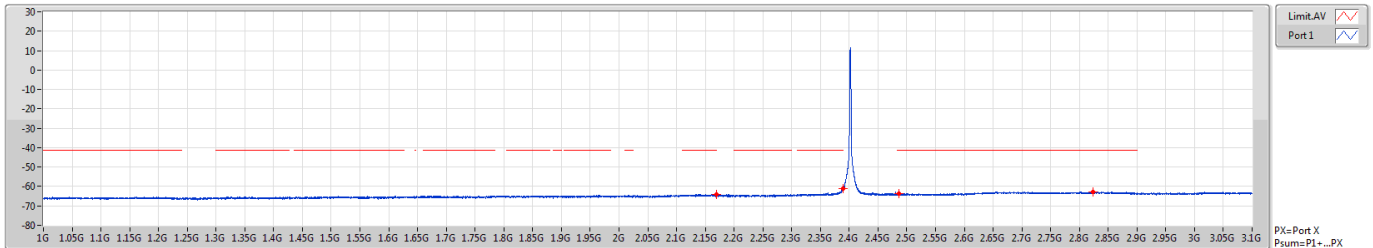
2402MHz



BT-LE(125kbps)

CSE-DTS [AV]

2402MHz

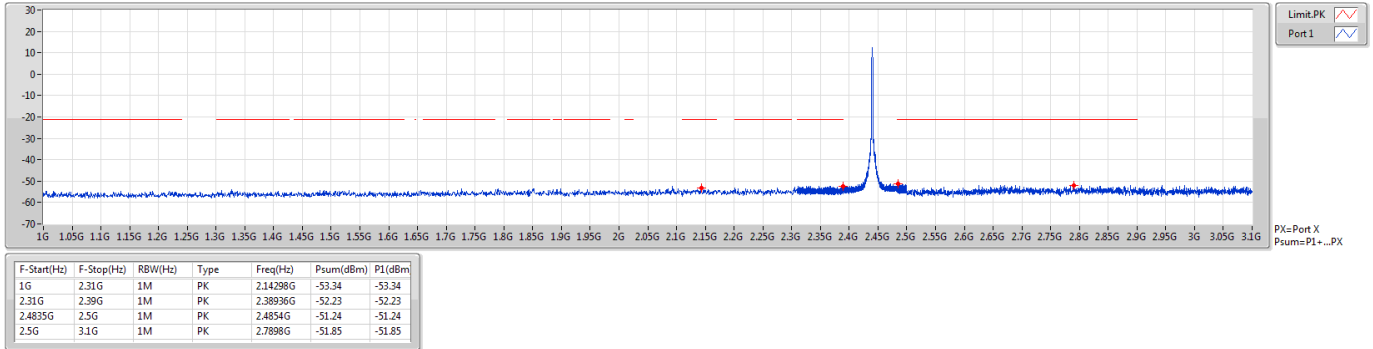




BT-LE(125kbps)

CSE-DTS [PK]

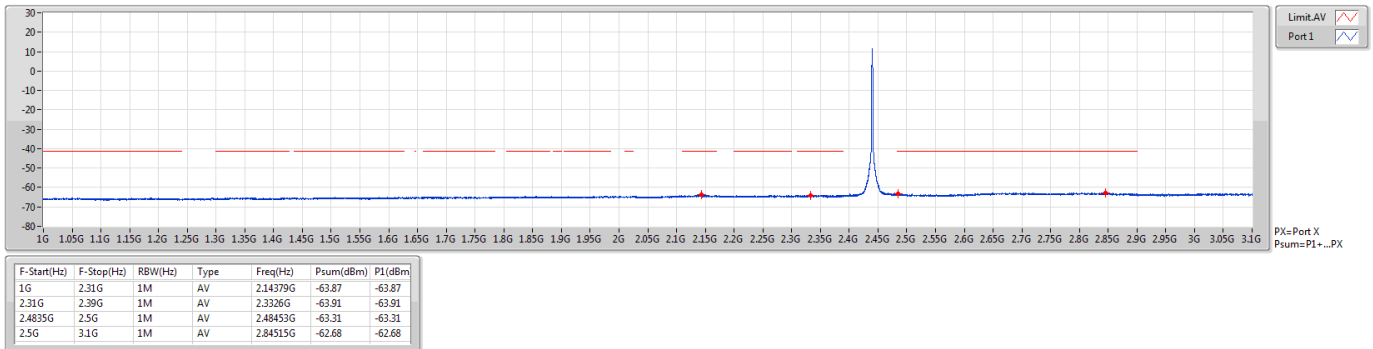
2440MHz



BT-LE(125kbps)

CSE-DTS [AV]

2440MHz

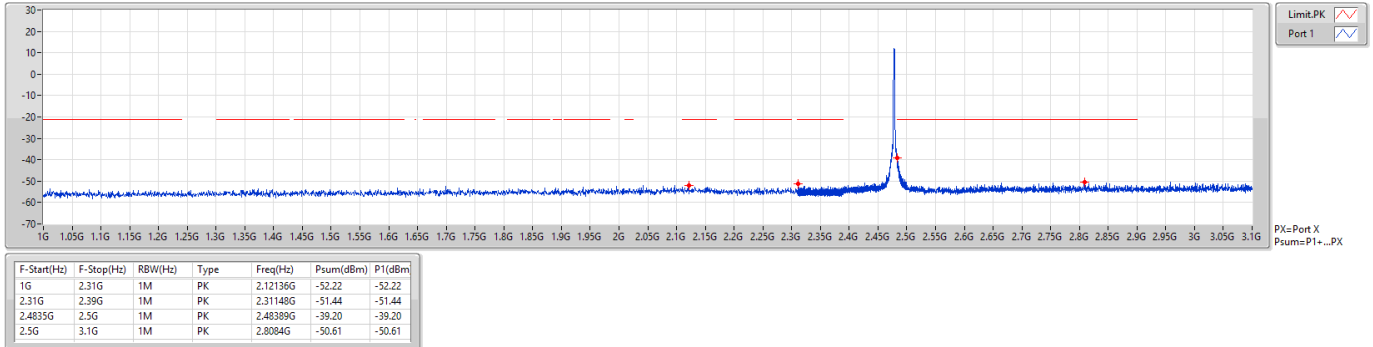




BT-LE(125kbps)

CSE-DTS [PK]

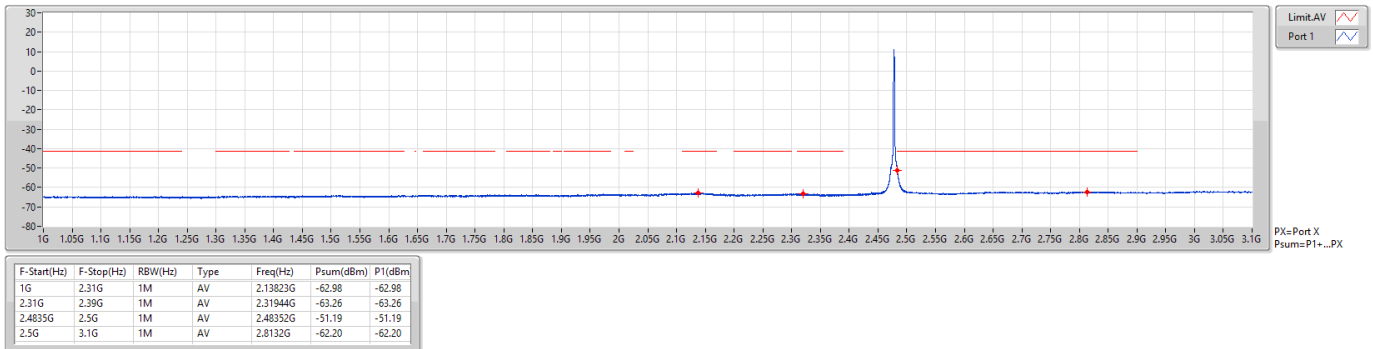
2478MHz



BT-LE(125kbps)

CSE-DTS [AV]

2478MHz

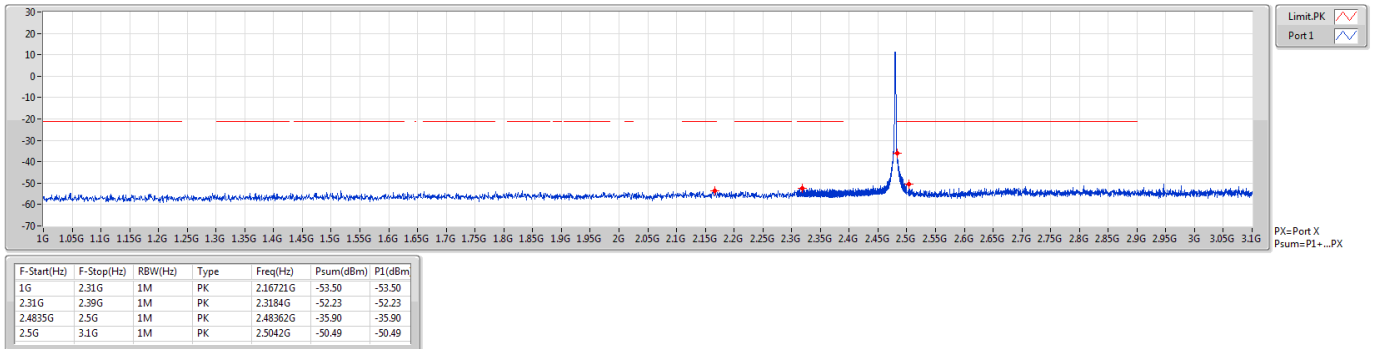




BT-LE(125kbps)

CSE-DTS [PK]

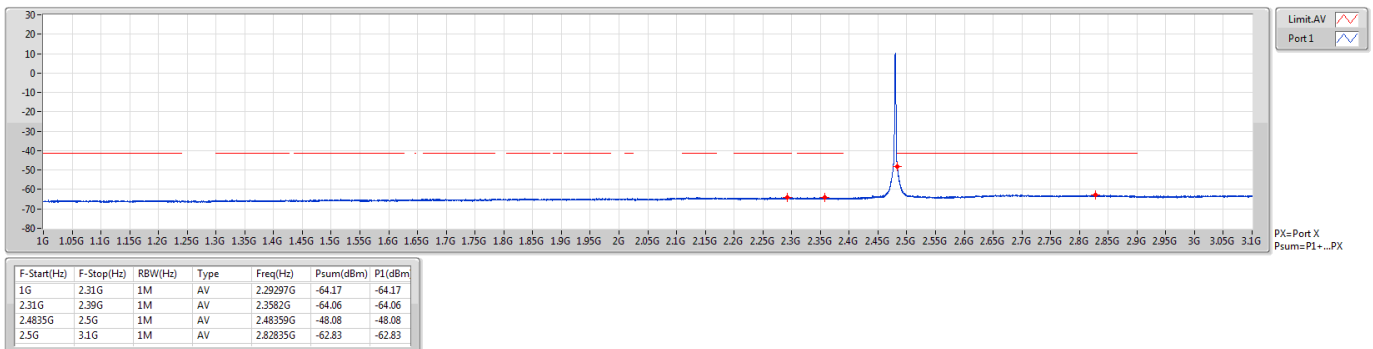
2480MHz



BT-LE(125kbps)

CSE-DTS [AV]

2480MHz

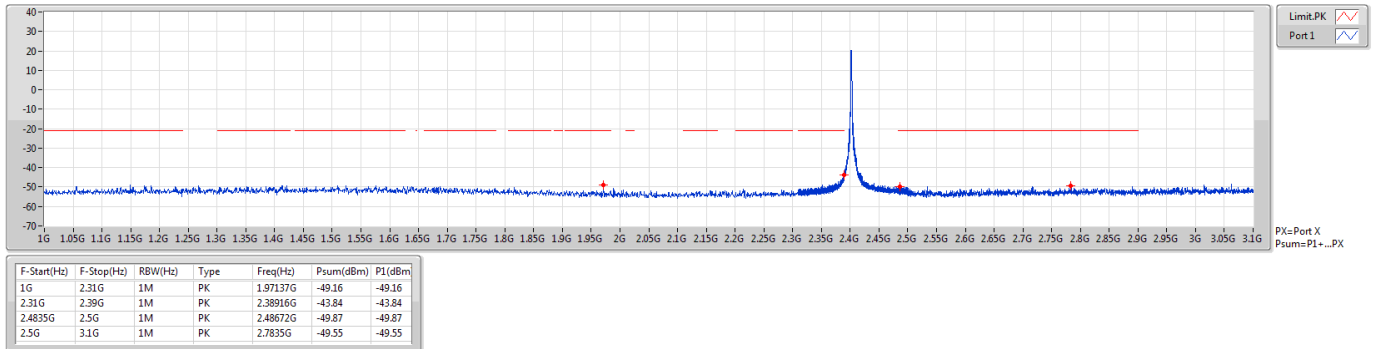




BT-LE(500kbps)

CSE-DTS [PK]

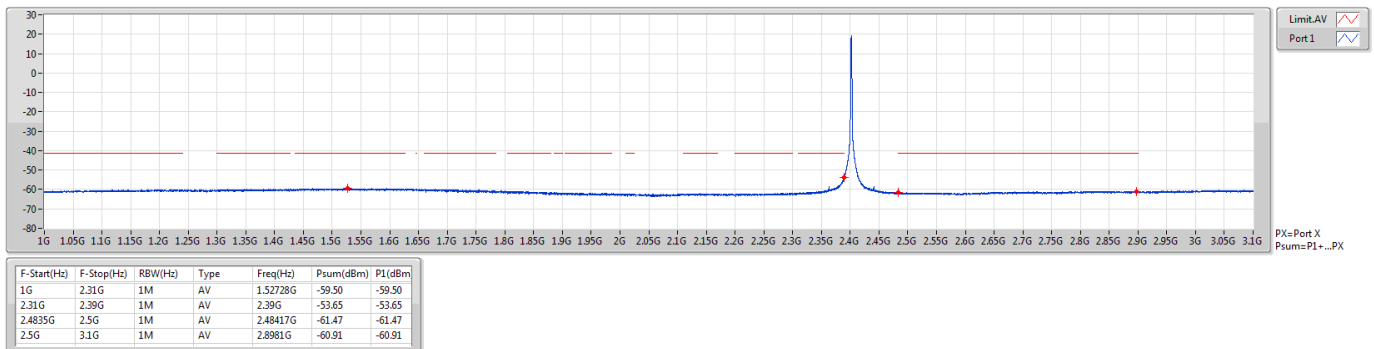
2402MHz



BT-LE(500kbps)

CSE-DTS [AV]

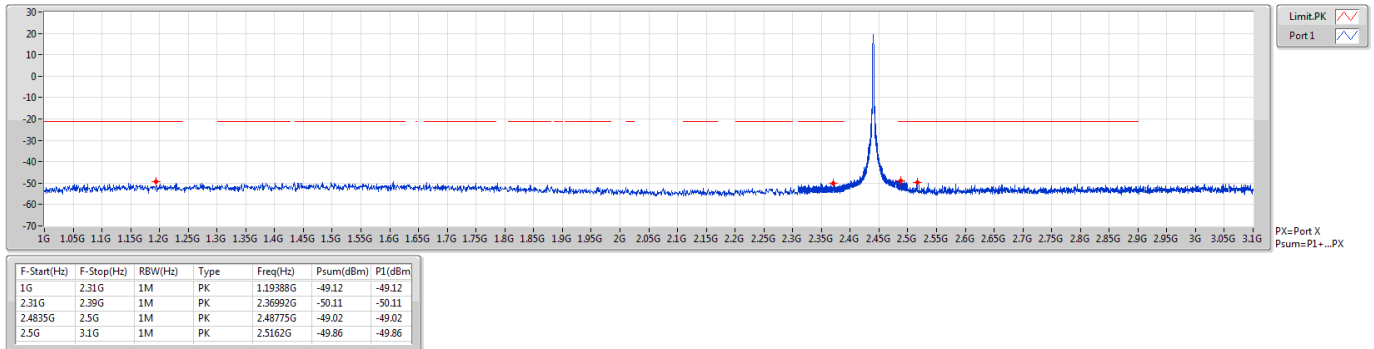
2402MHz



BT-LE(500kbps)

CSE-DTS [PK]

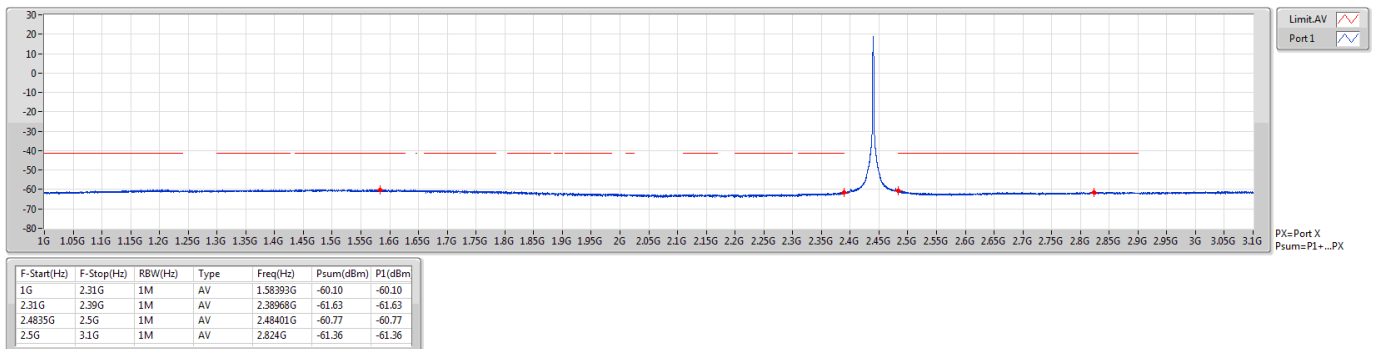
2440MHz



BT-LE(500kbps)

CSE-DTS [AV]

2440MHz

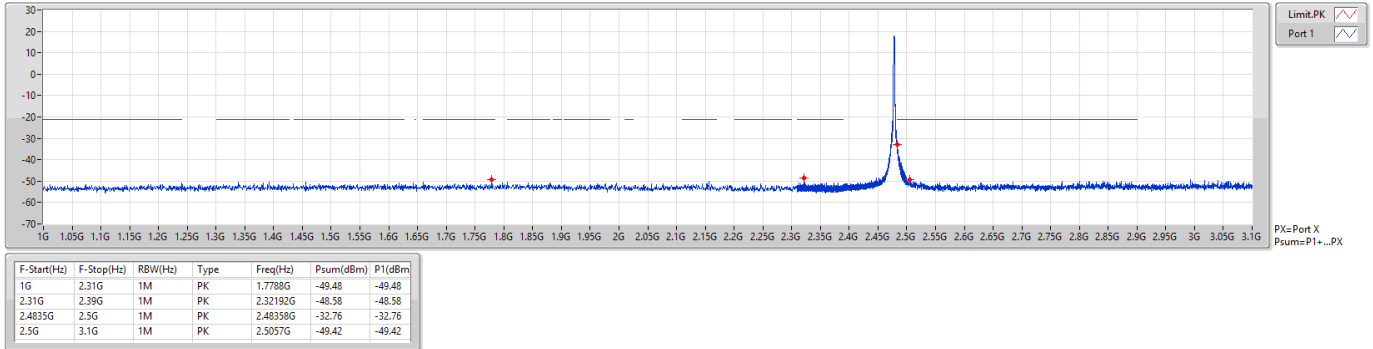




BT-LE(500kbps)

CSE-DTS [PK]

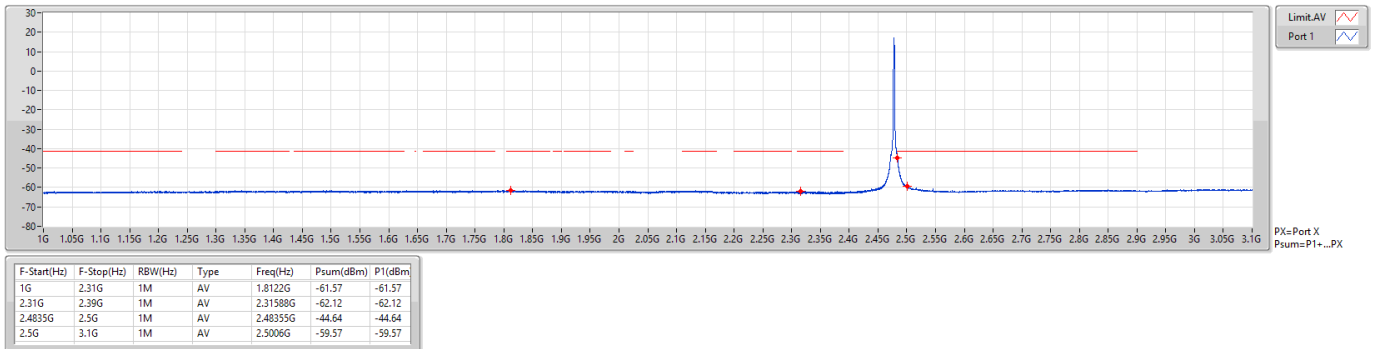
2478MHz



BT-LE(500kbps)

CSE-DTS [AV]

2478MHz

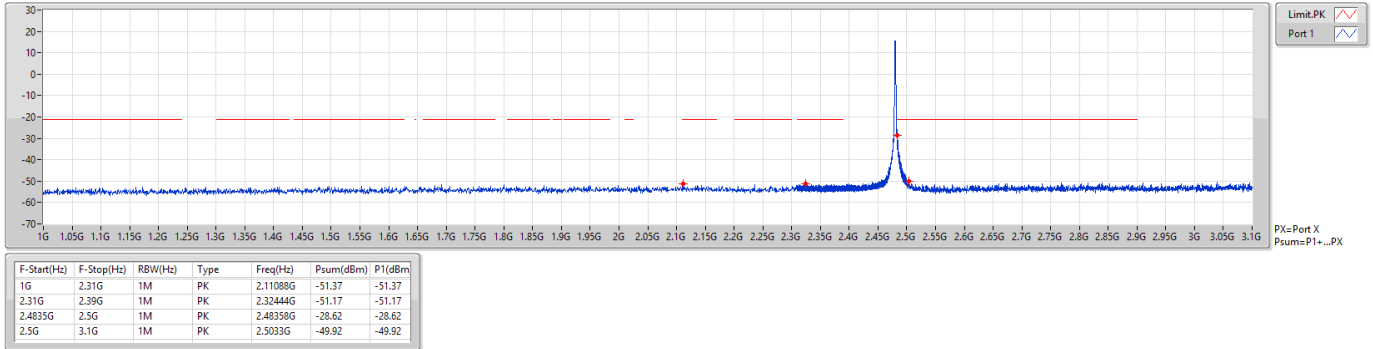




BT-LE(500kbps)

CSE-DTS [PK]

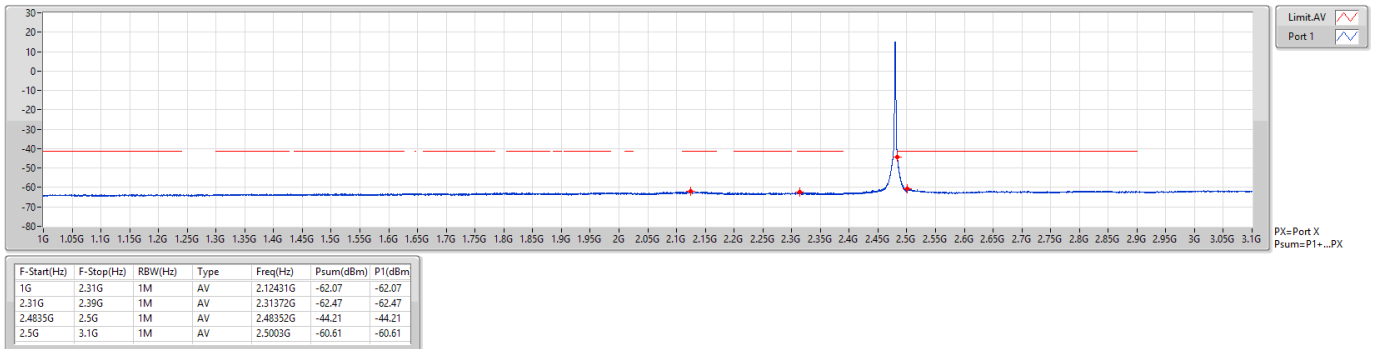
2480MHz



BT-LE(500kbps)

CSE-DTS [AV]

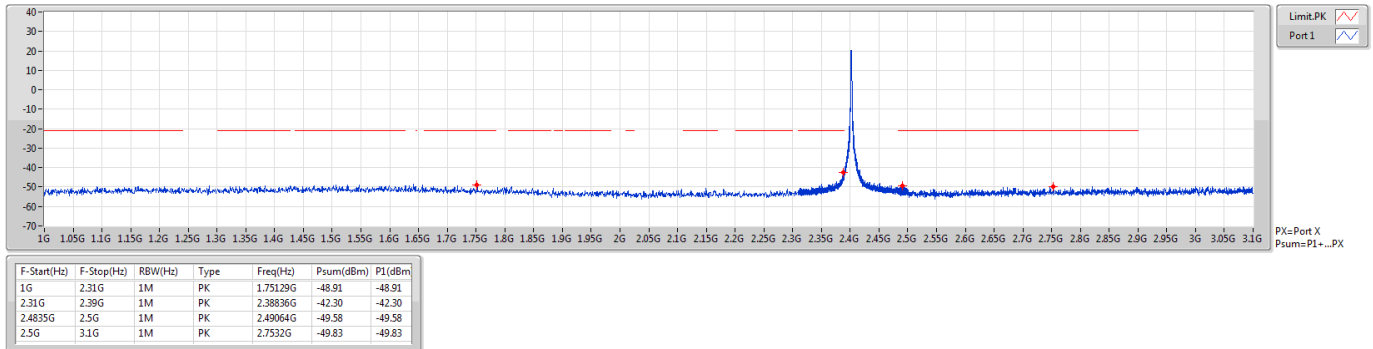
2480MHz



BT-LE(1Mbps)

CSE-DTS [PK]

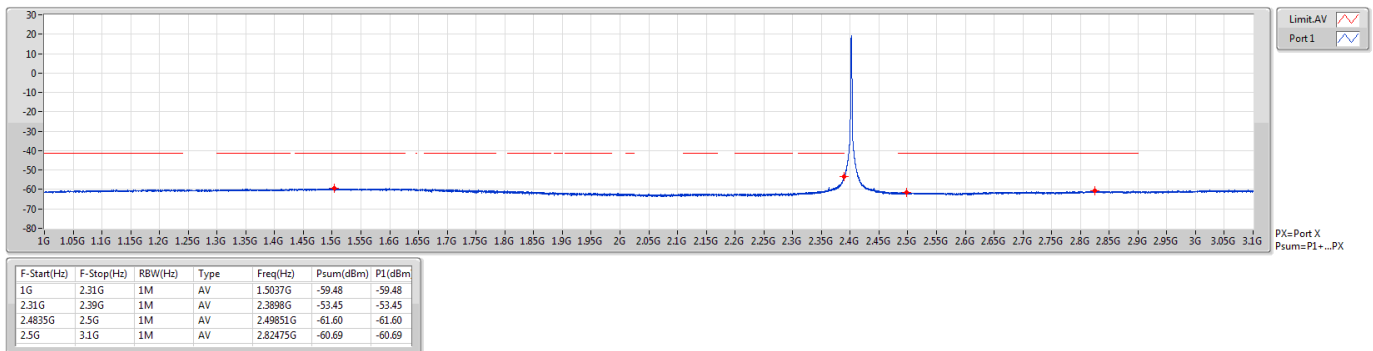
2402MHz



BT-LE(1Mbps)

CSE-DTS [AV]

2402MHz

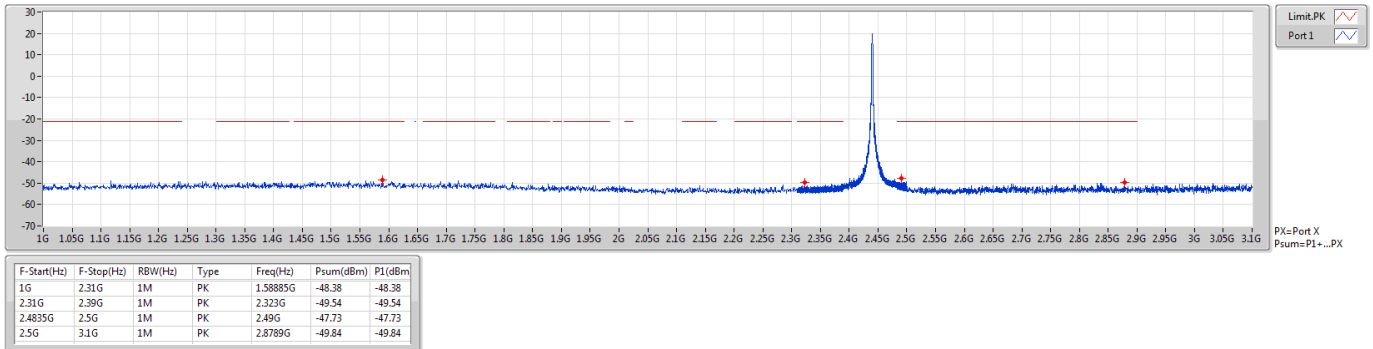




BT-LE(1Mbps)

CSE-DTS [PK]

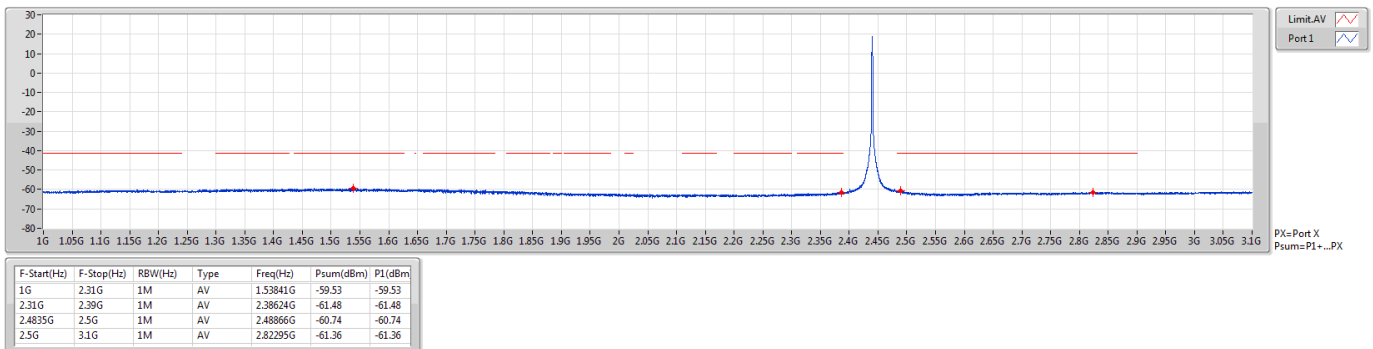
2440MHz



BT-LE(1Mbps)

CSE-DTS [AV]

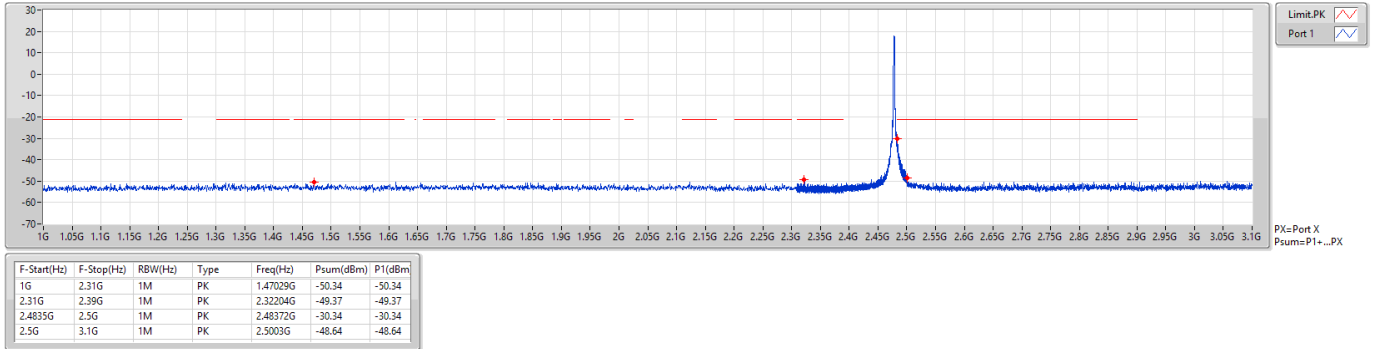
2440MHz



BT-LE(1Mbps)

CSE-DTS [PK]

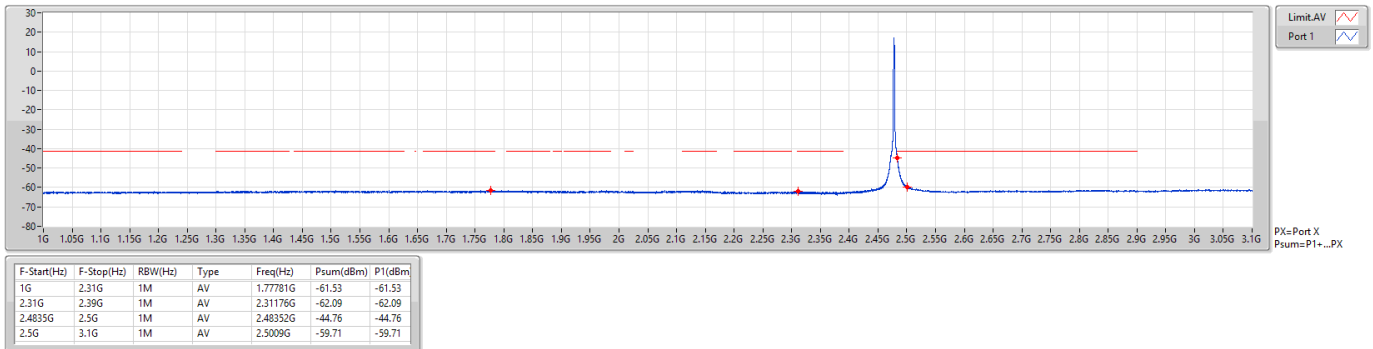
2478MHz



BT-LE(1Mbps)

CSE-DTS [AV]

2478MHz

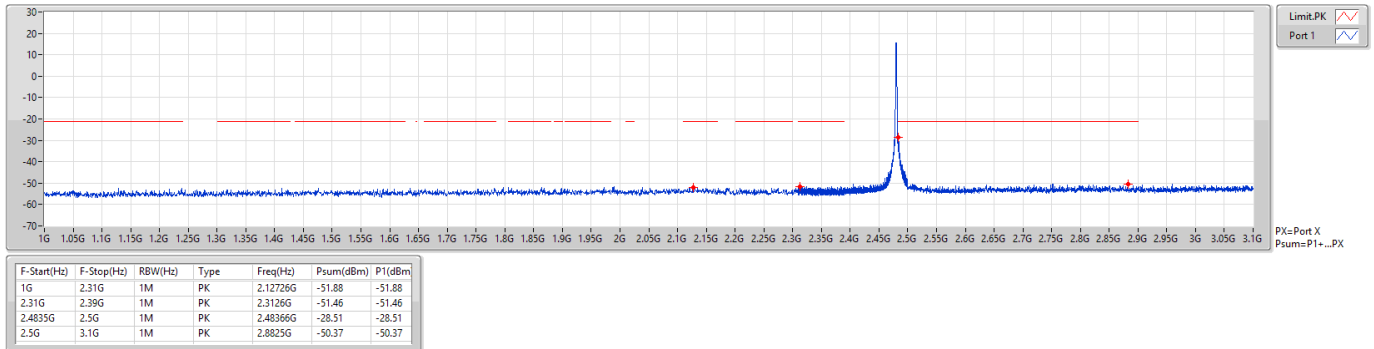




BT-LE(1Mbps)

CSE-DTS [PK]

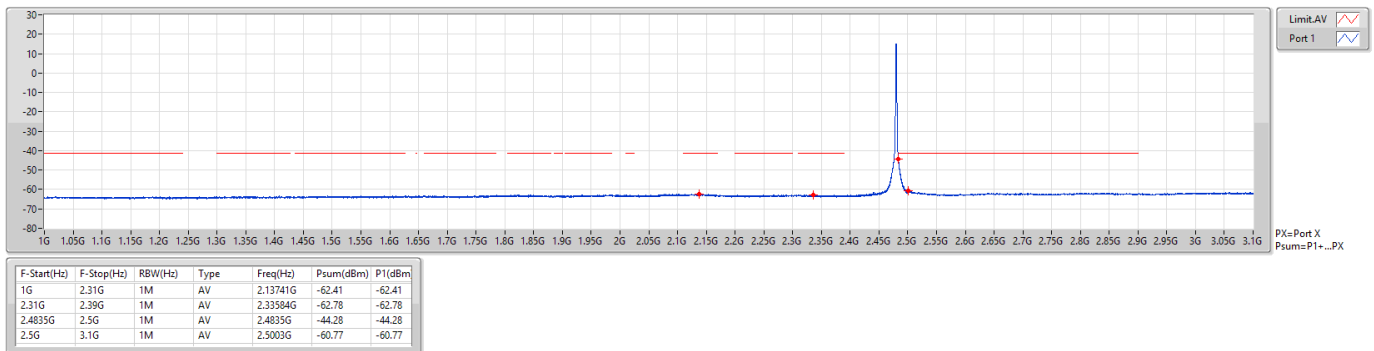
2480MHz



BT-LE(1Mbps)

CSE-DTS [AV]

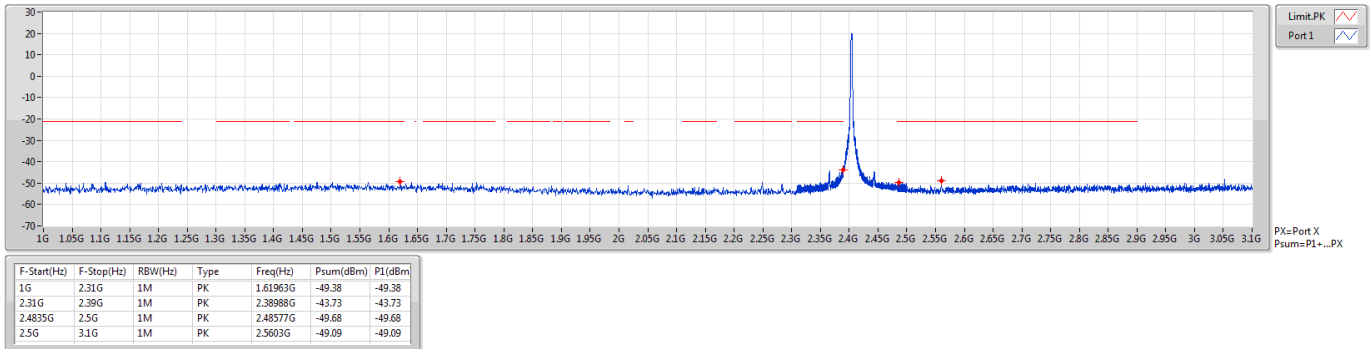
2480MHz



BT-LE(2Mbps)

CSE-DTS [PK]

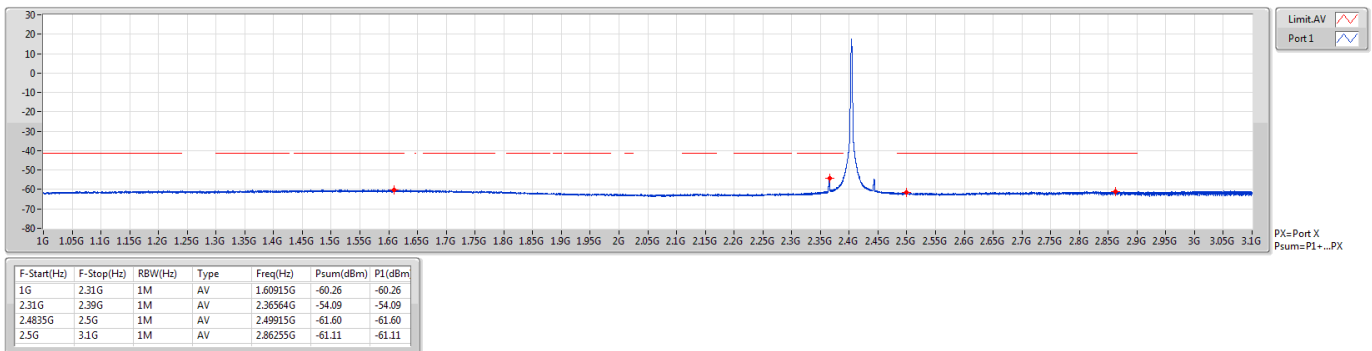
2404MHz



BT-LE(2Mbps)

CSE-DTS [AV]

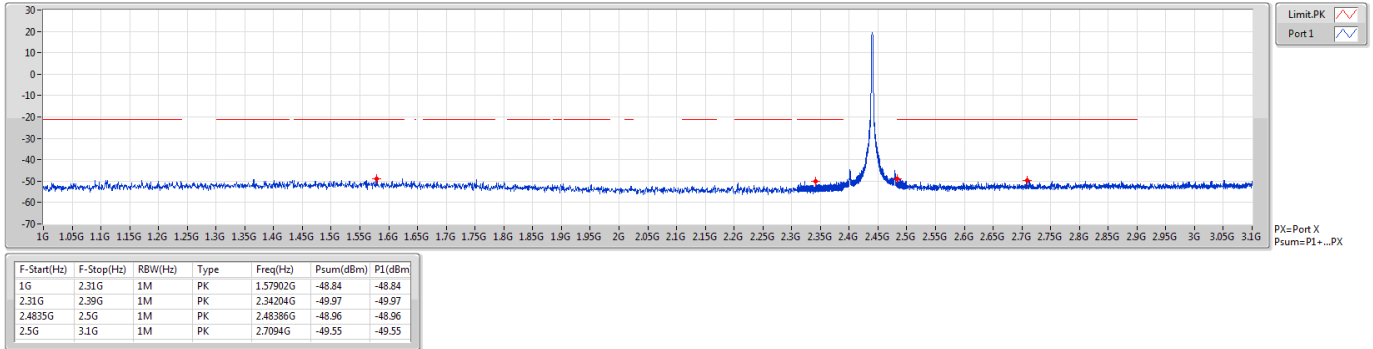
2404MHz



BT-LE(2Mbps)

CSE-DTS [PK]

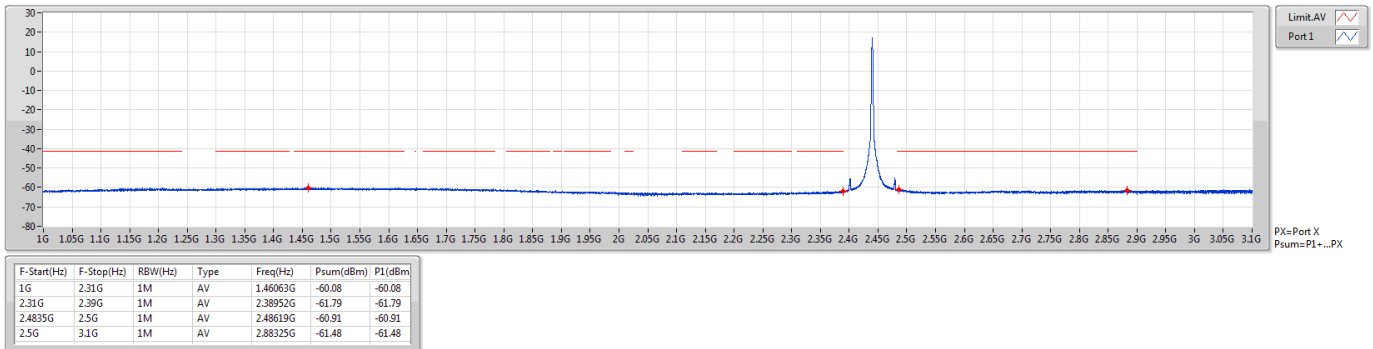
2440MHz



BT-LE(2Mbps)

CSE-DTS [AV]

2440MHz

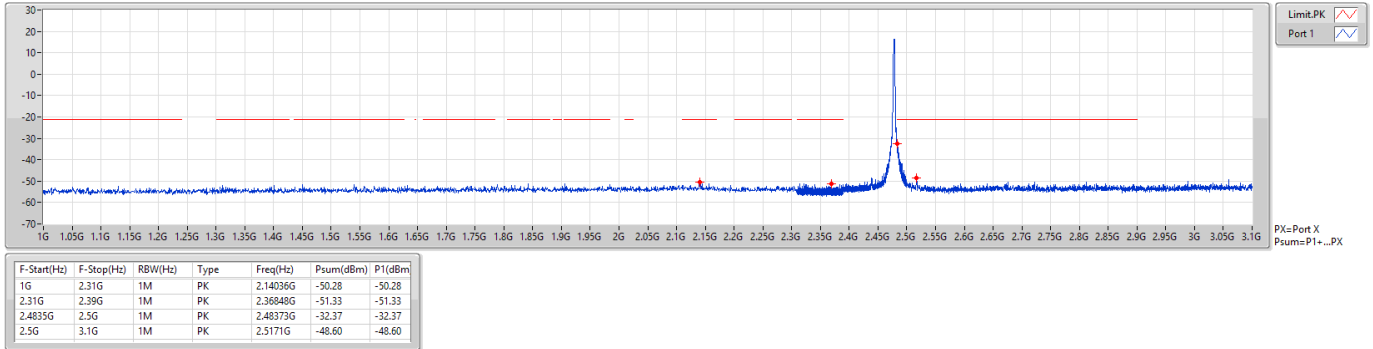




BT-LE(2Mbps)

CSE-DTS [PK]

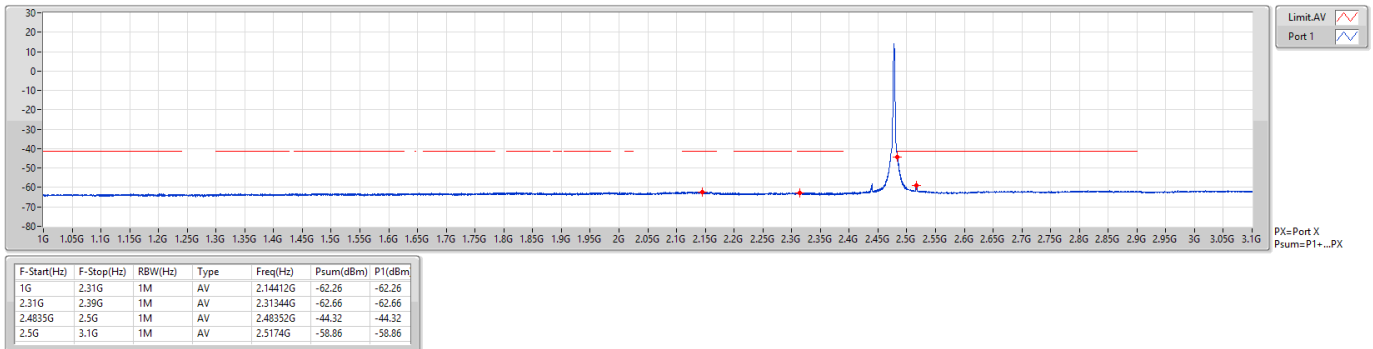
2478MHz



BT-LE(2Mbps)

CSE-DTS [AV]

2478MHz



3) Configuration 3: Laird part number: 453-00148, 20dBm, RF Trace Pad (External antenna)

Transmitter Conducted Unwanted Emissions (3.1GHz ~ 25GHz)

Summary

Mode	Result	F-Start (Hz)	F-Stop (Hz)	Type	Freq (Hz)	DG (dBi)	Psum (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dB)
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-
BT-LE(Coding rate125kbps)	Pass	8G	25G	AV	19.13234G	2.00	-63.78	-61.78	-41.20	-20.58
BT-LE(Coding rate 500kbps)	Pass	8G	25G	AV	19.14775G	2.00	-63.49	-61.49	-41.20	-20.29
BT-LE(Symbol rate 1Mbps)	Pass	8G	25G	AV	19.86759G	2.00	-63.33	-61.33	-41.20	-20.13
BT-LE(Symbol rate 2Mbps)	Pass	8G	25G	AV	16.09784G	2.00	-64.13	-62.13	-41.20	-20.93

DG = Directional Gain ; PX=Port X; Psum=P1+P2+...PX

Result

Mode	Result	F-Start (Hz)	F-Stop (Hz)	Type	Freq (Hz)	DG (dBi)	Psum (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dB)
BT-LE(Coding rate125kbps)										
2402MHz	Pass	3.1G	4G	AV	3.26583G	2.00	-76.22	-74.22	-41.20	-33.02
2402MHz	Pass	4G	5G	AV	4.804G	2.00	-64.73	-62.73	-41.20	-21.53
2402MHz	Pass	5G	7G	AV	5.0515G	2.00	-74.65	-72.65	-41.20	-31.45
2402MHz	Pass	7G	8G	AV	7.6065G	2.00	-74.36	-72.36	-41.20	-31.16
2402MHz	Pass	8G	25G	AV	19.87716G	2.00	-63.96	-61.96	-41.20	-20.76
2402MHz	Pass	3.1G	4G	PK	3.2665G	2.00	-65.52	-63.52	-21.20	-42.32
2402MHz	Pass	4G	5G	PK	4.80375G	2.00	-58.44	-56.44	-21.20	-35.24
2402MHz	Pass	5G	7G	PK	5.3575G	2.00	-63.42	-61.42	-21.20	-40.22
2402MHz	Pass	7G	8G	PK	7.61225G	2.00	-63.66	-61.66	-21.20	-40.46
2402MHz	Pass	8G	25G	PK	19.89681G	2.00	-54.85	-52.85	-21.20	-31.65
2440MHz	Pass	3.1G	4G	AV	3.35178G	2.00	-76.10	-74.10	-41.20	-32.90
2440MHz	Pass	4G	5G	AV	4.88G	2.00	-66.33	-64.33	-41.20	-23.13
2440MHz	Pass	5G	7G	AV	5.2425G	2.00	-74.42	-72.42	-41.20	-31.22
2440MHz	Pass	7G	8G	AV	7.64175G	2.00	-74.11	-72.11	-41.20	-30.91
2440MHz	Pass	8G	25G	AV	19.87025G	2.00	-64.02	-62.02	-41.20	-20.82
2440MHz	Pass	3.1G	4G	PK	3.52075G	2.00	-66.10	-64.10	-21.20	-42.90
2440MHz	Pass	4G	5G	PK	4.88G	2.00	-59.95	-57.95	-21.20	-36.75
2440MHz	Pass	5G	7G	PK	5.236G	2.00	-64.36	-62.36	-21.20	-41.16
2440MHz	Pass	7G	8G	PK	7.594G	2.00	-64.16	-62.16	-21.20	-40.96
2440MHz	Pass	8G	25G	PK	19.91594G	2.00	-54.56	-52.56	-21.20	-31.36
2478MHz	Pass	3.1G	4G	AV	3.3556G	2.00	-75.33	-73.33	-41.20	-32.13
2478MHz	Pass	4G	5G	AV	4.95625G	2.00	-67.28	-65.28	-41.20	-24.08
2478MHz	Pass	5G	7G	AV	5.165G	2.00	-73.80	-71.80	-41.20	-30.60
2478MHz	Pass	7G	8G	AV	7.4925G	2.00	-71.29	-69.29	-41.20	-28.09
2478MHz	Pass	8G	25G	AV	19.13234G	2.00	-63.78	-61.78	-41.20	-20.58
2478MHz	Pass	3.1G	4G	PK	3.26695G	2.00	-64.51	-62.51	-21.20	-41.31

Mode	Result	F-Start (Hz)	F-Stop (Hz)	Type	Freq (Hz)	DG (dBi)	Psum (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dB)
2478MHz	Pass	4G	5G	PK	4.9555G	2.00	-60.16	-58.16	-21.20	-36.96
2478MHz	Pass	5G	7G	PK	5.3535G	2.00	-63.21	-61.21	-21.20	-40.01
2478MHz	Pass	7G	8G	PK	7.48625G	2.00	-59.96	-57.96	-21.20	-36.76
2478MHz	Pass	8G	25G	PK	19.11481G	2.00	-54.88	-52.88	-21.20	-31.68
2480MHz	Pass	3.1G	4G	AV	3.35605G	2.00	-75.19	-73.19	-41.20	-31.99
2480MHz	Pass	4G	5G	AV	4.96025G	2.00	-68.08	-66.08	-41.20	-24.88
2480MHz	Pass	5G	7G	AV	5.2085G	2.00	-74.14	-72.14	-41.20	-30.94
2480MHz	Pass	7G	8G	AV	7.4865G	2.00	-71.83	-69.83	-41.20	-28.63
2480MHz	Pass	8G	25G	AV	16.07075G	2.00	-64.24	-62.24	-41.20	-21.04
2480MHz	Pass	3.1G	4G	PK	3.54505G	2.00	-65.35	-63.35	-21.20	-42.15
2480MHz	Pass	4G	5G	PK	4.96025G	2.00	-60.68	-58.68	-21.20	-37.48
2480MHz	Pass	5G	7G	PK	5.193G	2.00	-64.68	-62.68	-21.20	-41.48
2480MHz	Pass	7G	8G	PK	7.462G	2.00	-62.62	-60.62	-21.20	-39.42
2480MHz	Pass	8G	25G	PK	19.14934G	2.00	-55.32	-53.32	-21.20	-32.12
BT-LE(Coding rate 500kbps)										
2402MHz	Pass	3.1G	4G	AV	3.26448G	2.00	-67.91	-65.91	-41.20	-24.71
2402MHz	Pass	4G	5G	AV	4.804G	2.00	-64.23	-62.23	-41.20	-21.03
2402MHz	Pass	5G	7G	AV	5.21G	2.00	-74.53	-72.53	-41.20	-31.33
2402MHz	Pass	7G	8G	AV	7.48525G	2.00	-72.13	-70.13	-41.20	-28.93
2402MHz	Pass	8G	25G	AV	16.08138G	2.00	-64.45	-62.45	-41.20	-21.25
2402MHz	Pass	3.1G	4G	PK	3.26583G	2.00	-58.44	-56.44	-21.20	-35.24
2402MHz	Pass	4G	5G	PK	4.8035G	2.00	-59.00	-57.00	-21.20	-35.80
2402MHz	Pass	5G	7G	PK	5.201G	2.00	-65.06	-63.06	-21.20	-41.86
2402MHz	Pass	7G	8G	PK	7.4445G	2.00	-61.85	-59.85	-21.20	-38.65
2402MHz	Pass	8G	25G	PK	18.87734G	2.00	-54.87	-52.87	-21.20	-31.67
2440MHz	Pass	3.1G	4G	AV	3.26088G	2.00	-66.83	-64.83	-41.20	-23.63
2440MHz	Pass	4G	5G	AV	4.88G	2.00	-66.95	-64.95	-41.20	-23.75
2440MHz	Pass	5G	7G	AV	5.2045G	2.00	-74.15	-72.15	-41.20	-30.95
2440MHz	Pass	7G	8G	AV	7.48775G	2.00	-71.97	-69.97	-41.20	-28.77
2440MHz	Pass	8G	25G	AV	16.08138G	2.00	-64.32	-62.32	-41.20	-21.12
2440MHz	Pass	3.1G	4G	PK	3.26515G	2.00	-57.71	-55.71	-21.20	-34.51
2440MHz	Pass	4G	5G	PK	4.87925G	2.00	-60.77	-58.77	-21.20	-37.57
2440MHz	Pass	5G	7G	PK	5.1025G	2.00	-64.85	-62.85	-21.20	-41.65
2440MHz	Pass	7G	8G	PK	7.47075G	2.00	-61.88	-59.88	-21.20	-38.68
2440MHz	Pass	8G	25G	PK	19.15838G	2.00	-55.02	-53.02	-21.20	-31.82
2478MHz	Pass	3.1G	4G	AV	3.2665G	2.00	-70.80	-68.80	-41.20	-27.60
2478MHz	Pass	4G	5G	AV	4.95625G	2.00	-72.67	-70.67	-41.20	-29.47
2478MHz	Pass	5G	7G	AV	5.1975G	2.00	-73.91	-71.91	-41.20	-30.71
2478MHz	Pass	7G	8G	AV	7.49425G	2.00	-71.00	-69.00	-41.20	-27.80
2478MHz	Pass	8G	25G	AV	19.14775G	2.00	-63.49	-61.49	-41.20	-20.29
2478MHz	Pass	3.1G	4G	PK	3.26335G	2.00	-61.37	-59.37	-21.20	-38.17
2478MHz	Pass	4G	5G	PK	4.9555G	2.00	-63.96	-61.96	-21.20	-40.76

Mode	Result	F-Start (Hz)	F-Stop (Hz)	Type	Freq (Hz)	DG (dBi)	Psum (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dB)
2478MHz	Pass	5G	7G	PK	5.1655G	2.00	-63.68	-61.68	-21.20	-40.48
2478MHz	Pass	7G	8G	PK	7.4605G	2.00	-60.99	-58.99	-21.20	-37.79
2478MHz	Pass	8G	25G	PK	18.90603G	2.00	-54.07	-52.07	-21.20	-30.87
2480MHz	Pass	3.1G	4G	AV	3.2647G	2.00	-73.18	-71.18	-41.20	-29.98
2480MHz	Pass	4G	5G	AV	4.9605G	2.00	-73.93	-71.93	-41.20	-30.73
2480MHz	Pass	5G	7G	AV	5.1995G	2.00	-74.35	-72.35	-41.20	-31.15
2480MHz	Pass	7G	8G	AV	7.50425G	2.00	-71.75	-69.75	-41.20	-28.55
2480MHz	Pass	8G	25G	AV	16.08563G	2.00	-64.30	-62.30	-41.20	-21.10
2480MHz	Pass	3.1G	4G	PK	3.3466G	2.00	-64.06	-62.06	-21.20	-40.86
2480MHz	Pass	4G	5G	PK	4.5505G	2.00	-64.14	-62.14	-21.20	-40.94
2480MHz	Pass	5G	7G	PK	5.213G	2.00	-64.26	-62.26	-21.20	-41.06
2480MHz	Pass	7G	8G	PK	7.509G	2.00	-62.03	-60.03	-21.20	-38.83
2480MHz	Pass	8G	25G	PK	19.13181G	2.00	-54.92	-52.92	-21.20	-31.72
BT-LE(Symbol rate 1Mbps)										
2402MHz	Pass	3.1G	4G	AV	3.262G	2.00	-67.00	-65.00	-41.20	-23.80
2402MHz	Pass	4G	5G	AV	4.804G	2.00	-64.28	-62.28	-41.20	-21.08
2402MHz	Pass	5G	7G	AV	5.2065G	2.00	-74.53	-72.53	-41.20	-31.33
2402MHz	Pass	7G	8G	AV	7.5035G	2.00	-71.75	-69.75	-41.20	-28.55
2402MHz	Pass	8G	25G	AV	16.08988G	2.00	-64.30	-62.30	-41.20	-21.10
2402MHz	Pass	3.1G	4G	PK	3.2647G	2.00	-57.39	-55.39	-21.20	-34.19
2402MHz	Pass	4G	5G	PK	4.8045G	2.00	-59.15	-57.15	-21.20	-35.95
2402MHz	Pass	5G	7G	PK	5.22G	2.00	-64.23	-62.23	-21.20	-41.03
2402MHz	Pass	7G	8G	PK	7.497G	2.00	-61.92	-59.92	-21.20	-38.72
2402MHz	Pass	8G	25G	PK	19.12703G	2.00	-55.75	-53.75	-21.20	-32.55
2440MHz	Pass	3.1G	4G	AV	3.26448G	2.00	-66.80	-64.80	-41.20	-23.60
2440MHz	Pass	4G	5G	AV	4.88025G	2.00	-67.90	-65.90	-41.20	-24.70
2440MHz	Pass	5G	7G	AV	5.239G	2.00	-73.94	-71.94	-41.20	-30.74
2440MHz	Pass	7G	8G	AV	7.3195G	2.00	-72.65	-70.65	-41.20	-29.45
2440MHz	Pass	8G	25G	AV	19.86759G	2.00	-63.33	-61.33	-41.20	-20.13
2440MHz	Pass	3.1G	4G	PK	3.26628G	2.00	-56.71	-54.71	-21.20	-33.51
2440MHz	Pass	4G	5G	PK	4.88025G	2.00	-61.47	-59.47	-21.20	-38.27
2440MHz	Pass	5G	7G	PK	5.1785G	2.00	-63.85	-61.85	-21.20	-40.65
2440MHz	Pass	7G	8G	PK	7.647G	2.00	-63.59	-61.59	-21.20	-40.39
2440MHz	Pass	8G	25G	PK	19.86441G	2.00	-53.60	-51.60	-21.20	-30.40
2478MHz	Pass	3.1G	4G	AV	3.26403G	2.00	-70.72	-68.72	-41.20	-27.52
2478MHz	Pass	4G	5G	AV	4.95625G	2.00	-72.73	-70.73	-41.20	-29.53
2478MHz	Pass	5G	7G	AV	5.1935G	2.00	-74.41	-72.41	-41.20	-31.21
2478MHz	Pass	7G	8G	AV	7.47725G	2.00	-72.02	-70.02	-41.20	-28.82
2478MHz	Pass	8G	25G	AV	16.05641G	2.00	-64.30	-62.30	-41.20	-21.10
2478MHz	Pass	3.1G	4G	PK	3.26448G	2.00	-60.63	-58.63	-21.20	-37.43
2478MHz	Pass	4G	5G	PK	4.956G	2.00	-63.84	-61.84	-21.20	-40.64
2478MHz	Pass	5G	7G	PK	5.1315G	2.00	-64.56	-62.56	-21.20	-41.36

Mode	Result	F-Start (Hz)	F-Stop (Hz)	Type	Freq (Hz)	DG (dBi)	Psum (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dB)
2478MHz	Pass	7G	8G	PK	7.46225G	2.00	-62.24	-60.24	-21.20	-39.04
2478MHz	Pass	8G	25G	PK	19.118G	2.00	-54.97	-52.97	-21.20	-31.77
2480MHz	Pass	3.1G	4G	AV	3.26515G	2.00	-73.67	-71.67	-41.20	-30.47
2480MHz	Pass	4G	5G	AV	4.96025G	2.00	-74.44	-72.44	-41.20	-31.24
2480MHz	Pass	5G	7G	AV	5.189G	2.00	-74.46	-72.46	-41.20	-31.26
2480MHz	Pass	7G	8G	AV	7.5005G	2.00	-71.60	-69.60	-41.20	-28.40
2480MHz	Pass	8G	25G	AV	16.09838G	2.00	-64.39	-62.39	-41.20	-21.19
2480MHz	Pass	3.1G	4G	PK	3.2602G	2.00	-64.53	-62.53	-21.20	-41.33
2480MHz	Pass	4G	5G	PK	4.96G	2.00	-64.06	-62.06	-21.20	-40.86
2480MHz	Pass	5G	7G	PK	5.359G	2.00	-64.20	-62.20	-21.20	-41.00
2480MHz	Pass	7G	8G	PK	7.4895G	2.00	-61.18	-59.18	-21.20	-37.98
2480MHz	Pass	8G	25G	PK	19.13288G	2.00	-54.99	-52.99	-21.20	-31.79
BT-LE(Symbol rate 2Mbps)										
2404MHz	Pass	3.1G	4G	AV	3.26673G	2.00	-67.17	-65.17	-41.20	-23.97
2404MHz	Pass	4G	5G	AV	4.80775G	2.00	-66.47	-64.47	-41.20	-23.27
2404MHz	Pass	5G	7G	AV	5.366G	2.00	-73.87	-71.87	-41.20	-30.67
2404MHz	Pass	7G	8G	AV	7.74325G	2.00	-73.27	-71.27	-41.20	-30.07
2404MHz	Pass	8G	25G	AV	19.05106G	2.00	-66.21	-64.21	-41.20	-23.01
2404MHz	Pass	3.1G	4G	PK	3.26335G	2.00	-58.30	-56.30	-21.20	-35.10
2404MHz	Pass	4G	5G	PK	4.80725G	2.00	-58.92	-56.92	-21.20	-35.72
2404MHz	Pass	5G	7G	PK	5.235G	2.00	-63.20	-61.20	-21.20	-40.00
2404MHz	Pass	7G	8G	PK	7.74525G	2.00	-62.43	-60.43	-21.20	-39.23
2404MHz	Pass	8G	25G	PK	15.77431G	2.00	-56.13	-54.13	-21.20	-32.93
2440MHz	Pass	3.1G	4G	AV	3.26605G	2.00	-67.21	-65.21	-41.20	-24.01
2440MHz	Pass	4G	5G	AV	4.879G	2.00	-69.17	-67.17	-41.20	-25.97
2440MHz	Pass	5G	7G	AV	5.2035G	2.00	-74.34	-72.34	-41.20	-31.14
2440MHz	Pass	7G	8G	AV	7.489G	2.00	-71.81	-69.81	-41.20	-28.61
2440MHz	Pass	8G	25G	AV	16.07766G	2.00	-64.34	-62.34	-41.20	-21.14
2440MHz	Pass	3.1G	4G	PK	3.26313G	2.00	-57.86	-55.86	-21.20	-34.66
2440MHz	Pass	4G	5G	PK	4.87925G	2.00	-61.99	-59.99	-21.20	-38.79
2440MHz	Pass	5G	7G	PK	5.206G	2.00	-64.31	-62.31	-21.20	-41.11
2440MHz	Pass	7G	8G	PK	7.4875G	2.00	-61.97	-59.97	-21.20	-38.77
2440MHz	Pass	8G	25G	PK	18.81678G	2.00	-55.19	-53.19	-21.20	-31.99
2478MHz	Pass	3.1G	4G	AV	3.26403G	2.00	-72.28	-70.28	-41.20	-29.08
2478MHz	Pass	4G	5G	AV	4.957G	2.00	-74.81	-72.81	-41.20	-31.61
2478MHz	Pass	5G	7G	AV	5.1885G	2.00	-74.66	-72.66	-41.20	-31.46
2478MHz	Pass	7G	8G	AV	7.48825G	2.00	-71.53	-69.53	-41.20	-28.33
2478MHz	Pass	8G	25G	AV	16.09784G	2.00	-64.13	-62.13	-41.20	-20.93
2478MHz	Pass	3.1G	4G	PK	3.26133G	2.00	-62.56	-60.56	-21.20	-39.36
2478MHz	Pass	4G	5G	PK	4.9575G	2.00	-64.50	-62.50	-21.20	-41.30
2478MHz	Pass	5G	7G	PK	5.1685G	2.00	-64.63	-62.63	-21.20	-41.43
2478MHz	Pass	7G	8G	PK	7.46775G	2.00	-62.64	-60.64	-21.20	-39.44



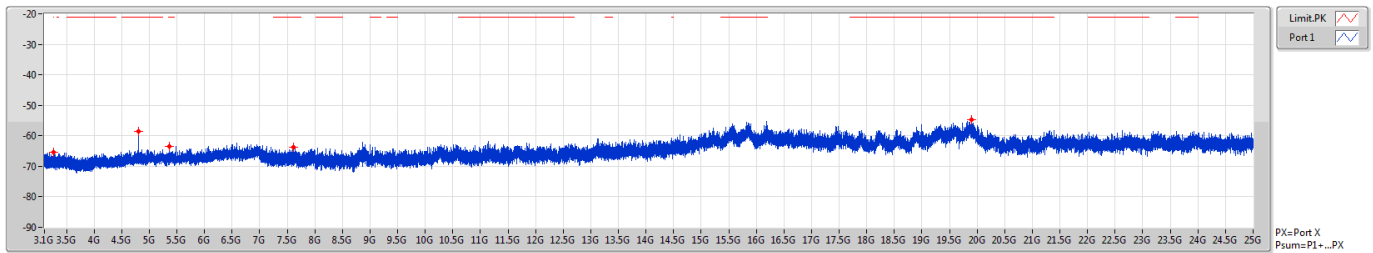
Mode	Result	F-Start (Hz)	F-Stop (Hz)	Type	Freq (Hz)	DG (dBi)	Psum (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dB)
2478MHz	Pass	8G	25G	PK	19.16953G	2.00	-54.92	-52.92	-21.20	-31.72

DG = Directional Gain ; PX=Port X; Psum=P1+P2+...PX

BT-LE(125kbps)

CSE-DTS [PK]

2402MHz

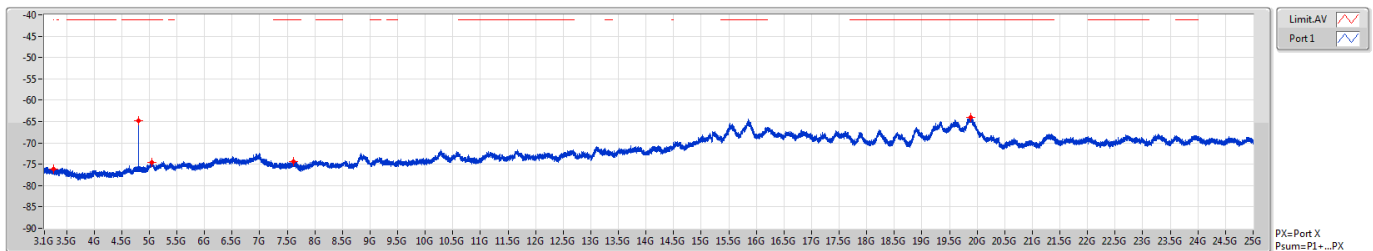


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	Psum(dBm)	P1(dBm)
3.1G	4G	1M	PK	3.2665G	-65.52	-65.52
4G	5G	1M	PK	4.80375G	-58.44	-58.44
5G	7G	1M	PK	5.3575G	-63.42	-63.42
7G	8G	1M	PK	7.61225G	-63.66	-63.66
8G	25G	1M	PK	19.89681G	-54.85	-54.85

BT-LE(125kbps)

CSE-DTS [AV]

2402MHz



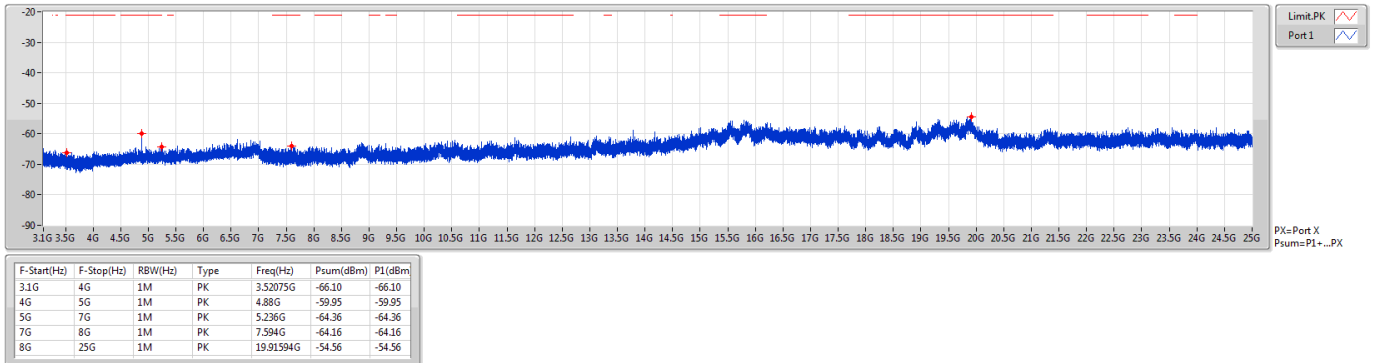
F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	Psum(dBm)	P1(dBm)
3.1G	4G	1M	AV	3.26583G	-76.22	-76.22
4G	5G	1M	AV	4.804G	-64.73	-64.73
5G	7G	1M	AV	5.0519G	-74.65	-74.65
7G	8G	1M	AV	7.6065G	-74.36	-74.36
8G	25G	1M	AV	19.87716G	-63.96	-63.96



BT-LE(125kbps)

CSE-DTS [PK]

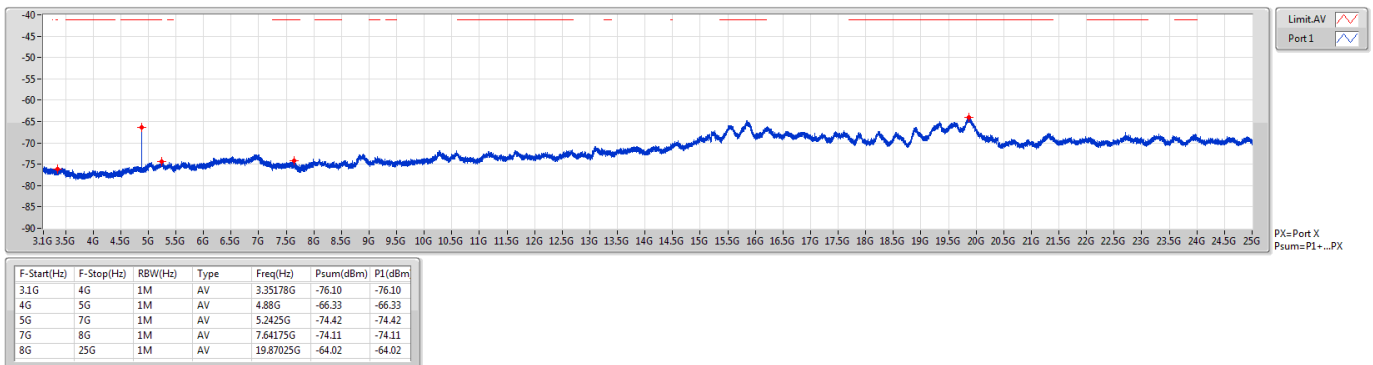
2440MHz



BT-LE(125kbps)

CSE-DTS [AV]

2440MHz

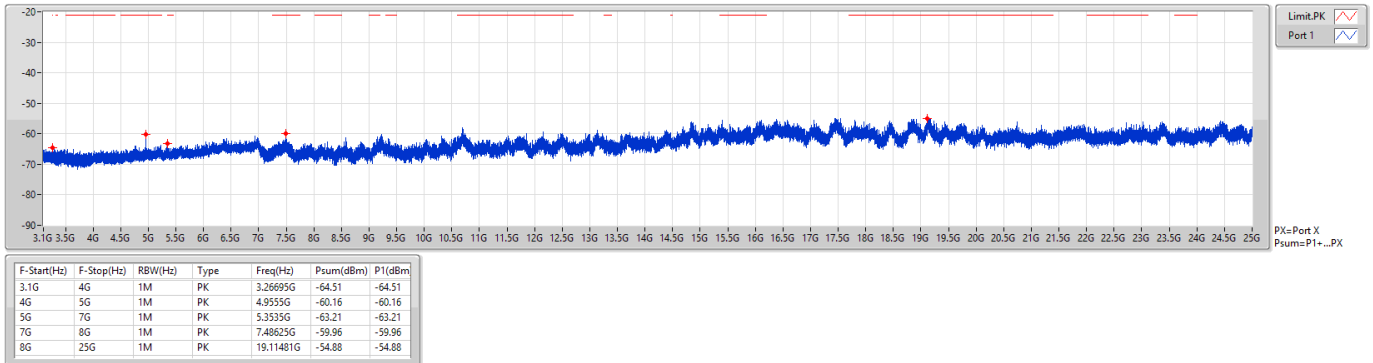




BT-LE(125kbps)

CSE-DTS [PK]

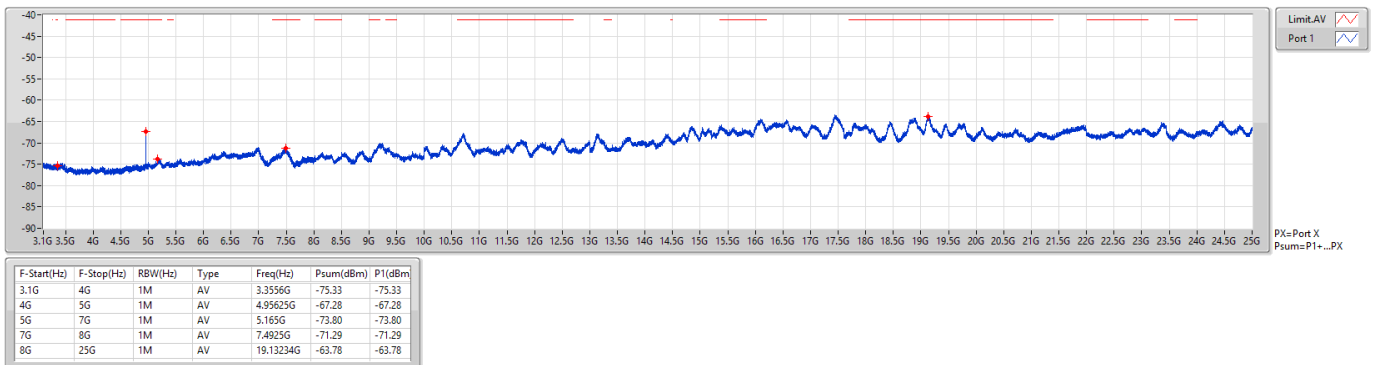
2478MHz



BT-LE(125kbps)

CSE-DTS [AV]

2478MHz

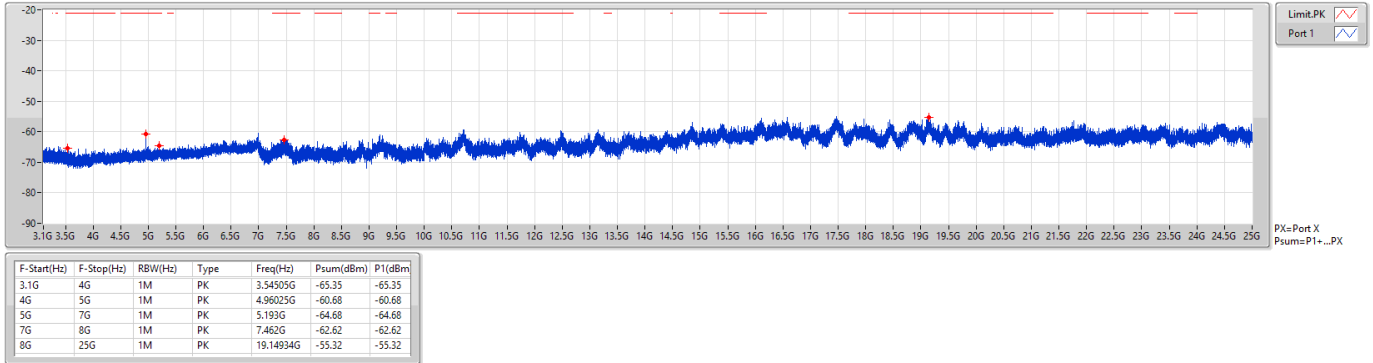




BT-LE(125kbps)

CSE-DTS [PK]

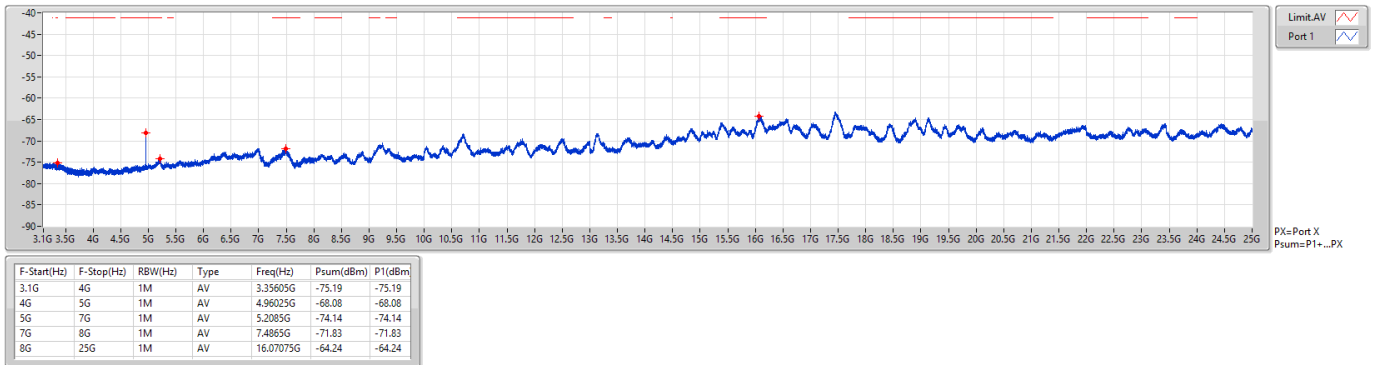
2480MHz



BT-LE(125kbps)

CSE-DTS [AV]

2480MHz

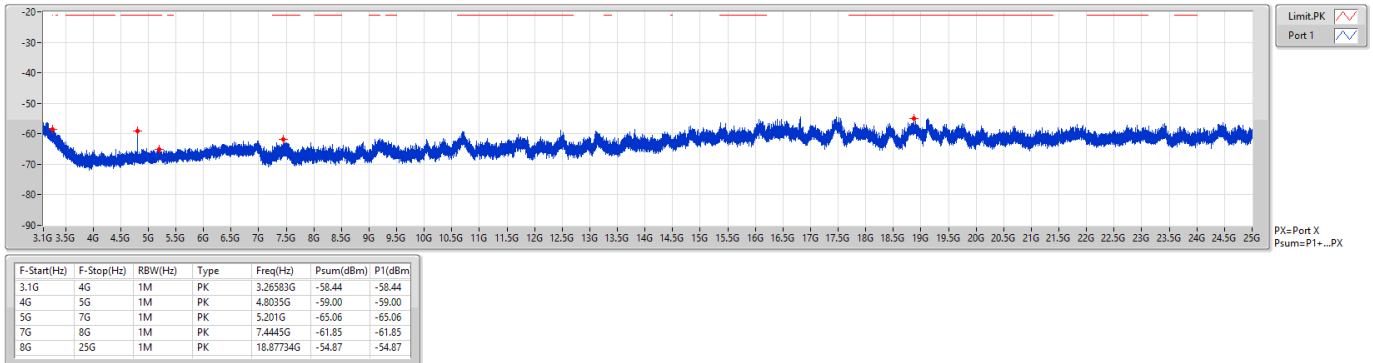




BT-LE(500kbps)

CSE-DTS [PK]

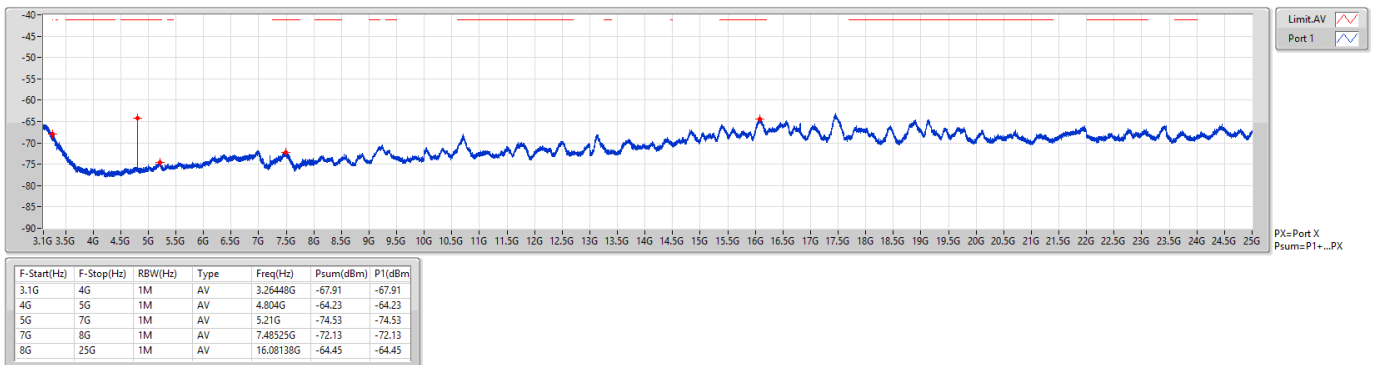
2402MHz



BT-LE(500kbps)

CSE-DTS [AV]

2402MHz

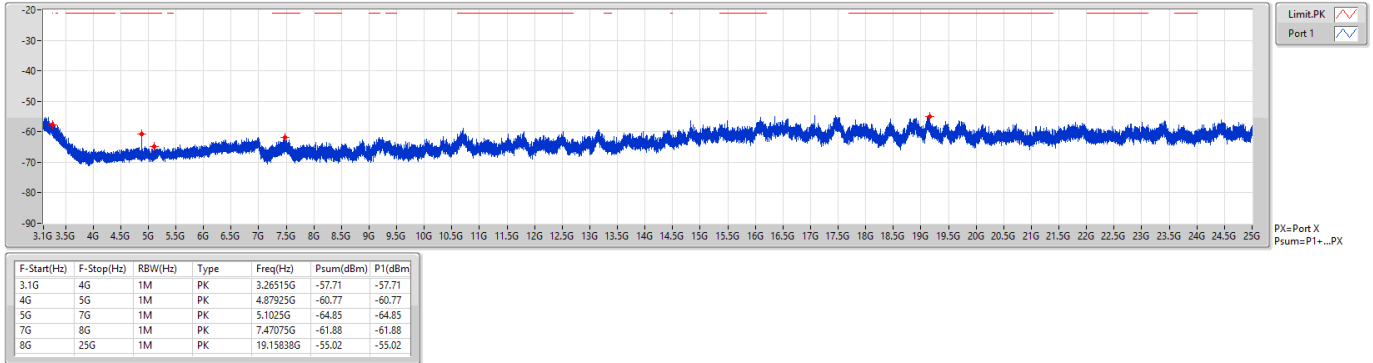




BT-LE(500kbps)

CSE-DTS [PK]

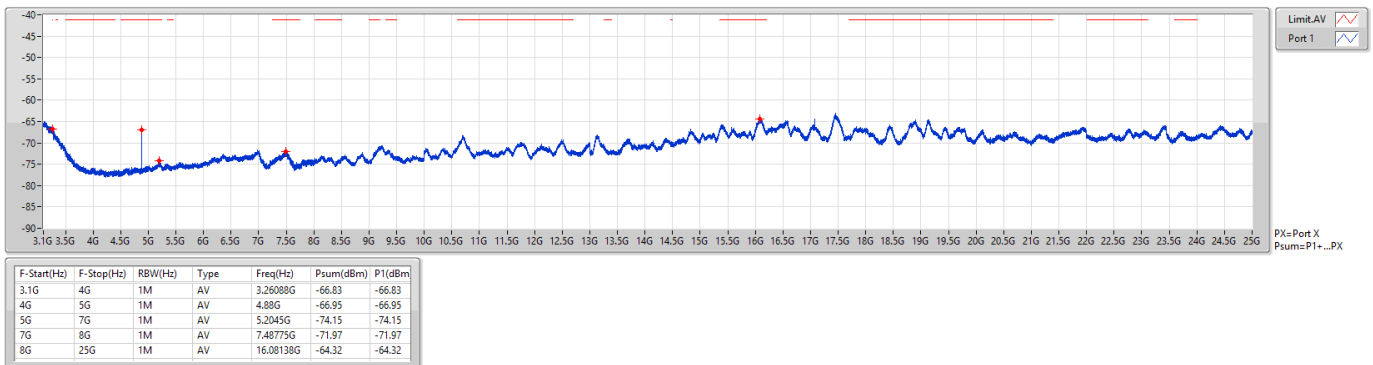
2440MHz



BT-LE(500kbps)

CSE-DTS [AV]

2440MHz

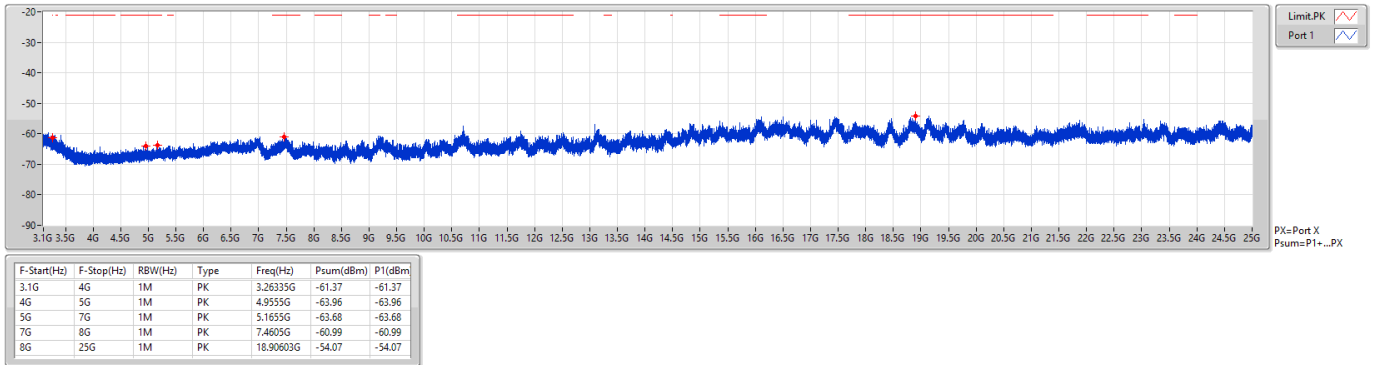




BT-LE(500kbps)

CSE-DTS [PK]

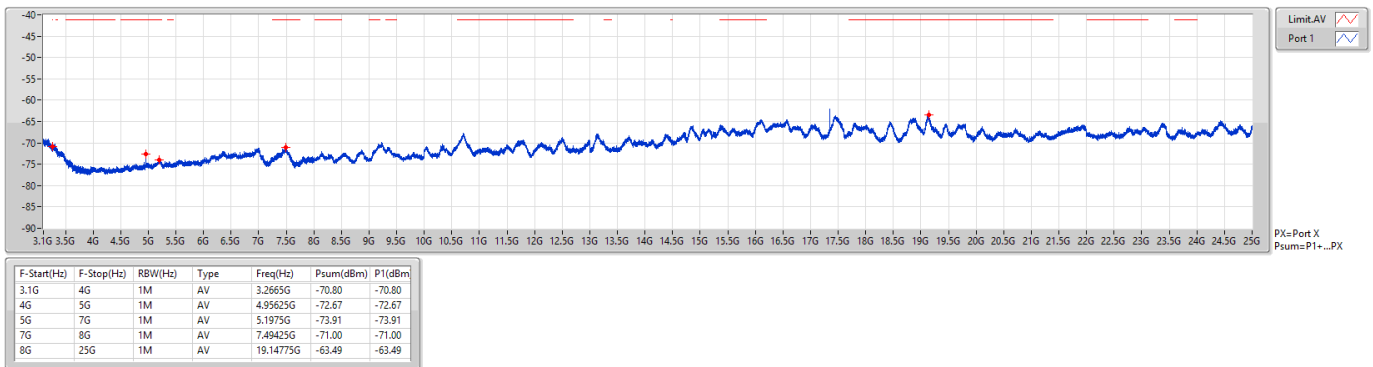
2478MHz



BT-LE(500kbps)

CSE-DTS [AV]

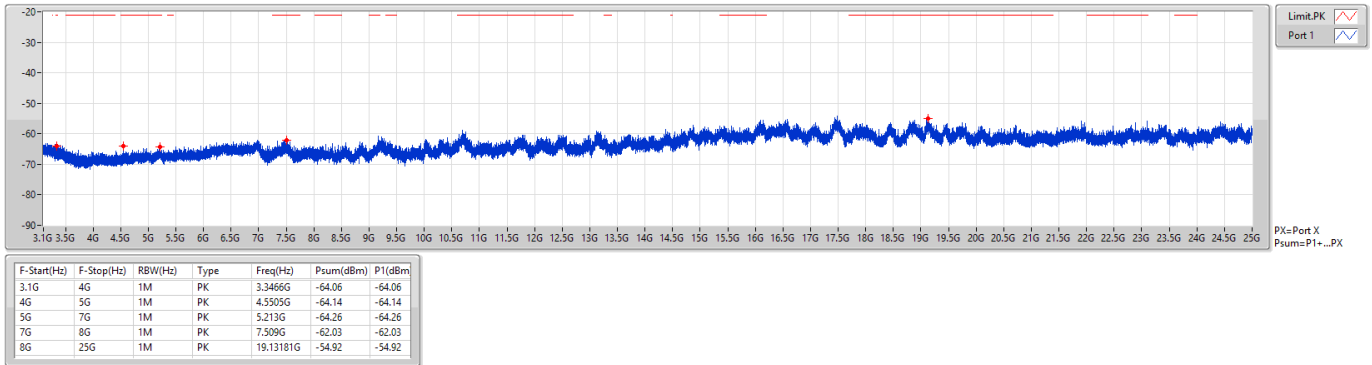
2478MHz



BT-LE(500kbps)

CSE-DTS [PK]

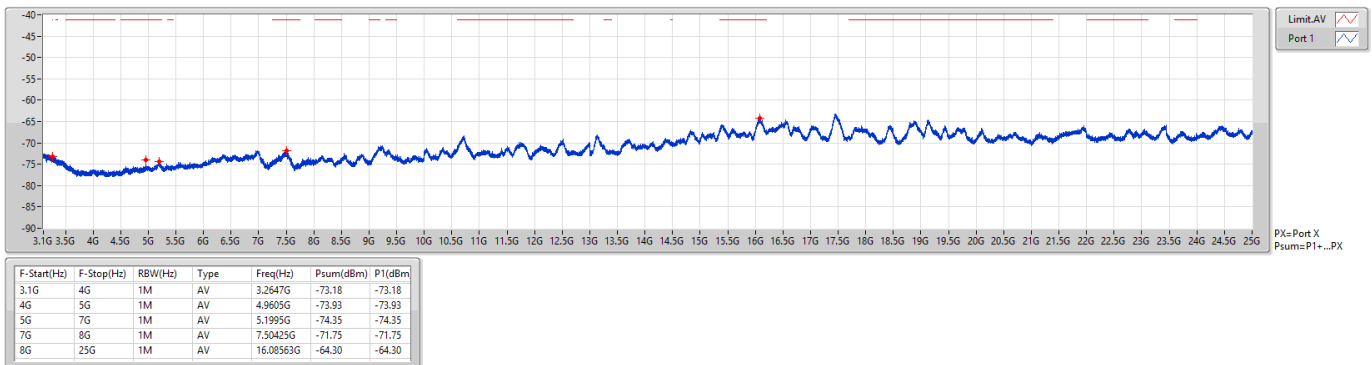
2480MHz



BT-LE(500kbps)

CSE-DTS [AV]

2480MHz

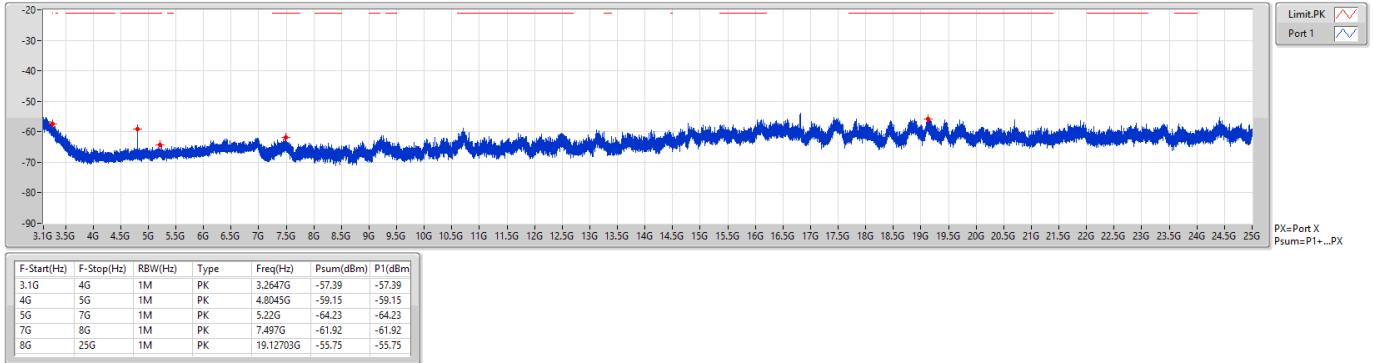




BT-LE(1Mbps)

CSE-DTS [PK]

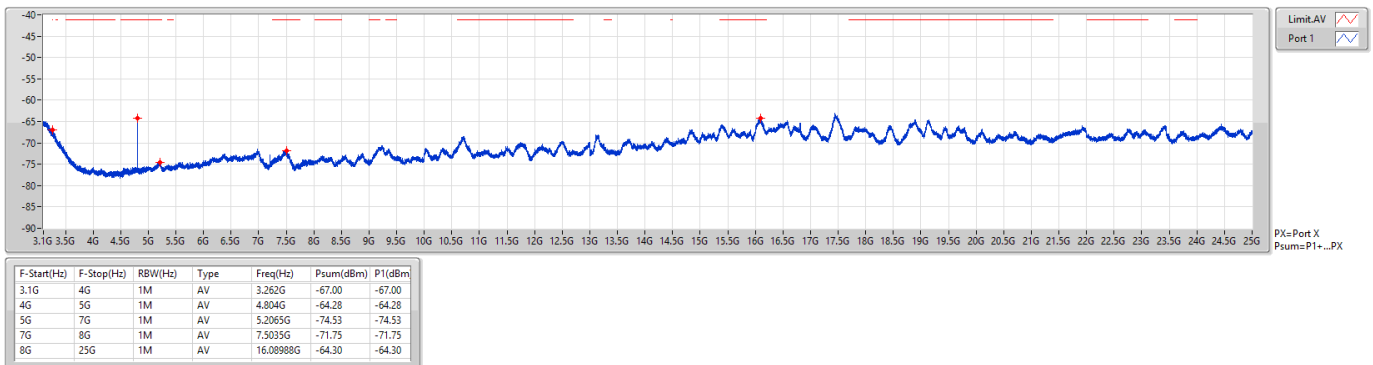
2402MHz



BT-LE(1Mbps)

CSE-DTS [AV]

2402MHz

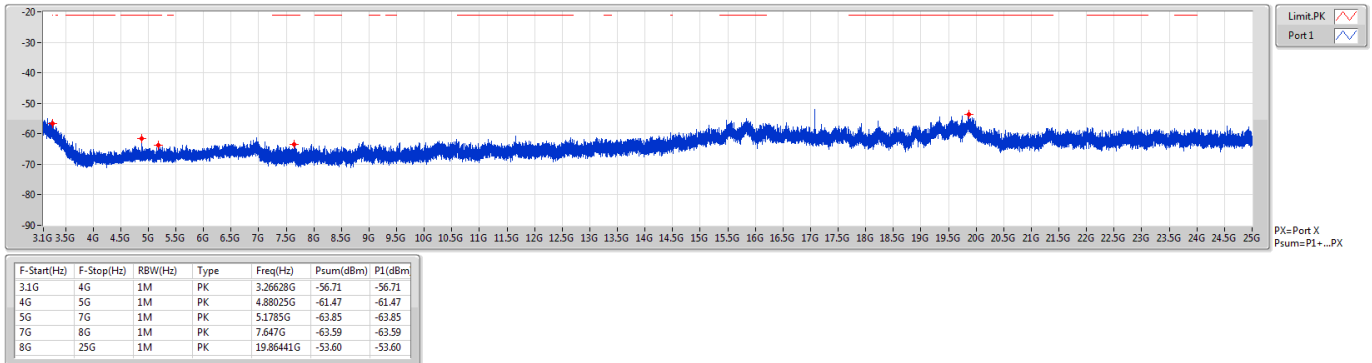




BT-LE(1Mbps)

CSE-DTS [PK]

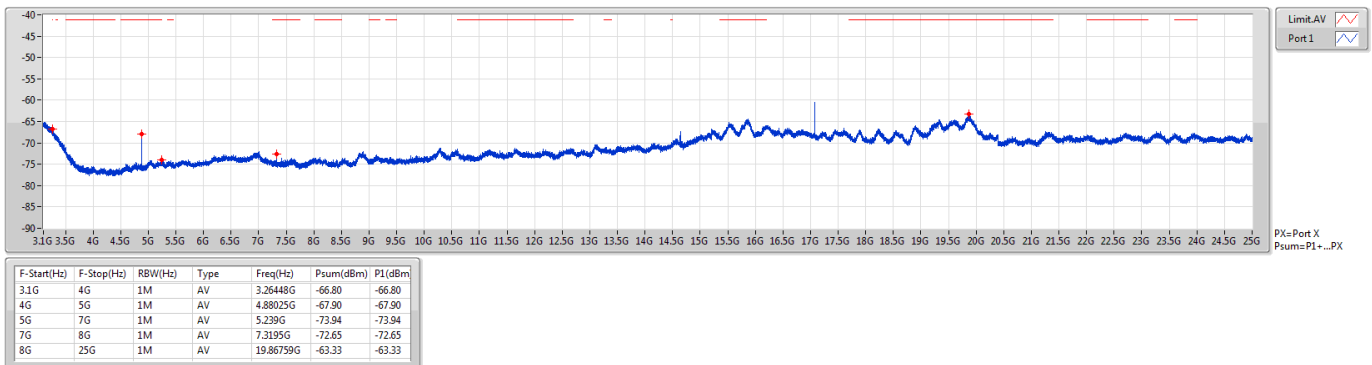
2440MHz



BT-LE(1Mbps)

CSE-DTS [AV]

2440MHz

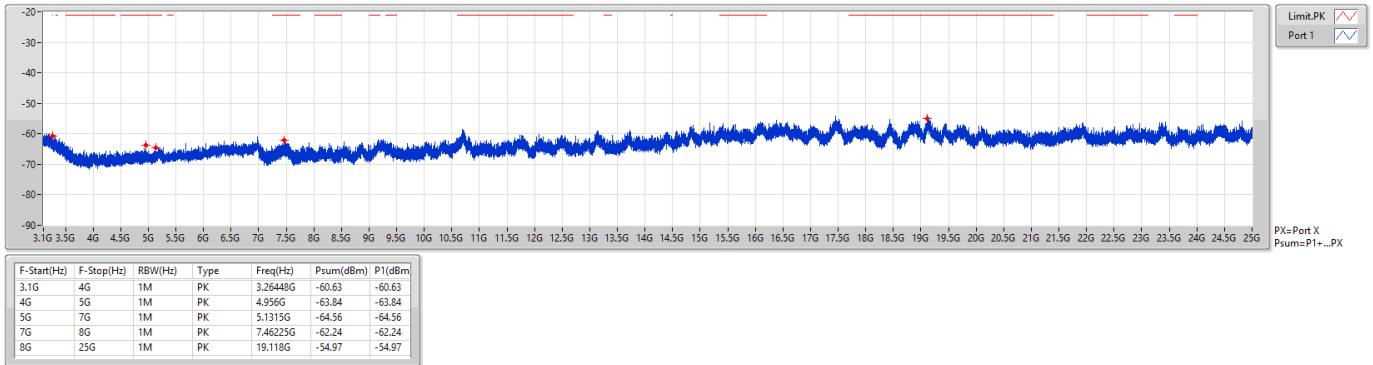




BT-LE(1Mbps)

CSE-DTS [PK]

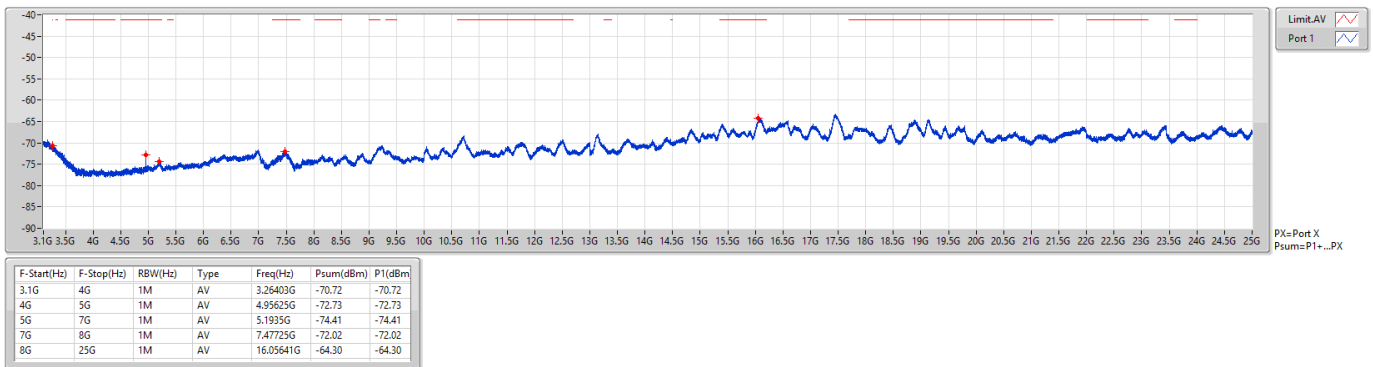
2478MHz



BT-LE(1Mbps)

CSE-DTS [AV]

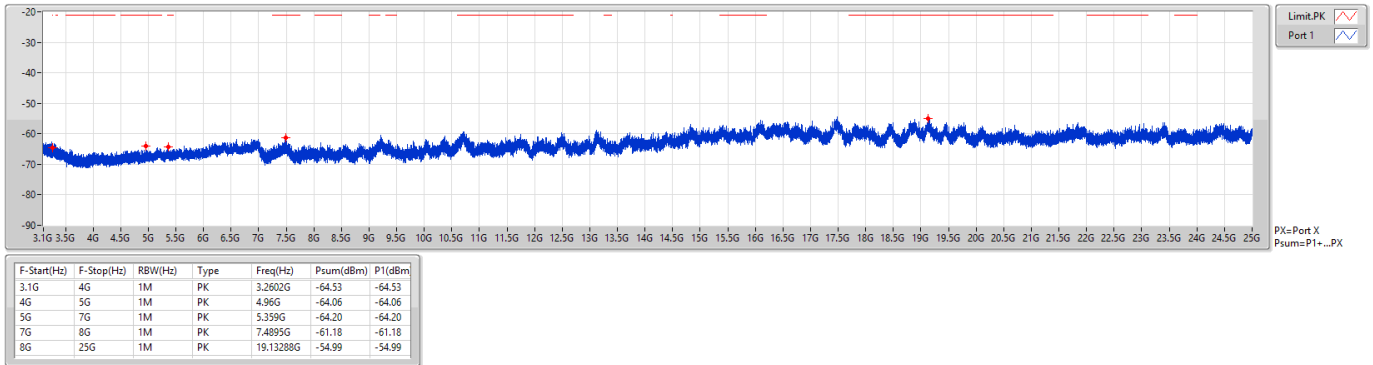
2478MHz



BT-LE(1Mbps)

CSE-DTS [PK]

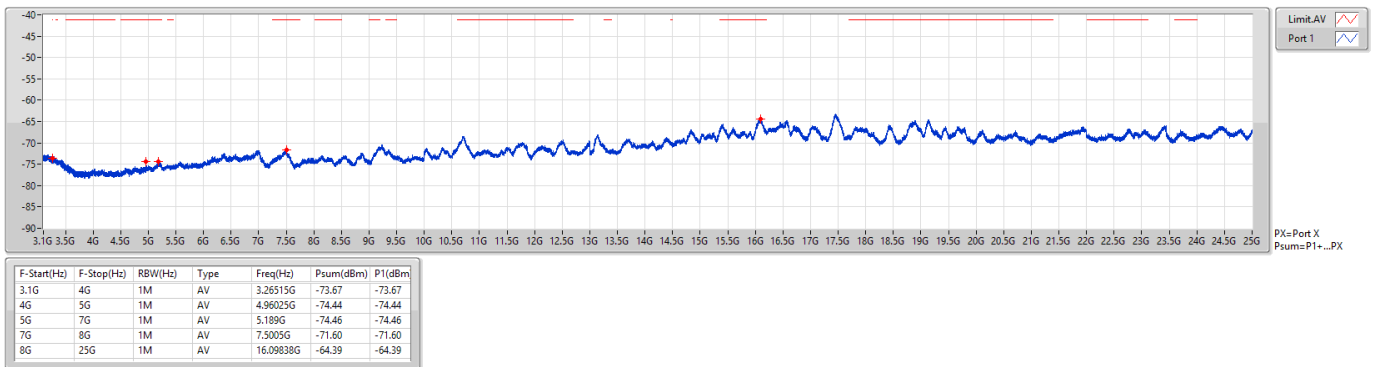
2480MHz



BT-LE(1Mbps)

CSE-DTS [AV]

2480MHz

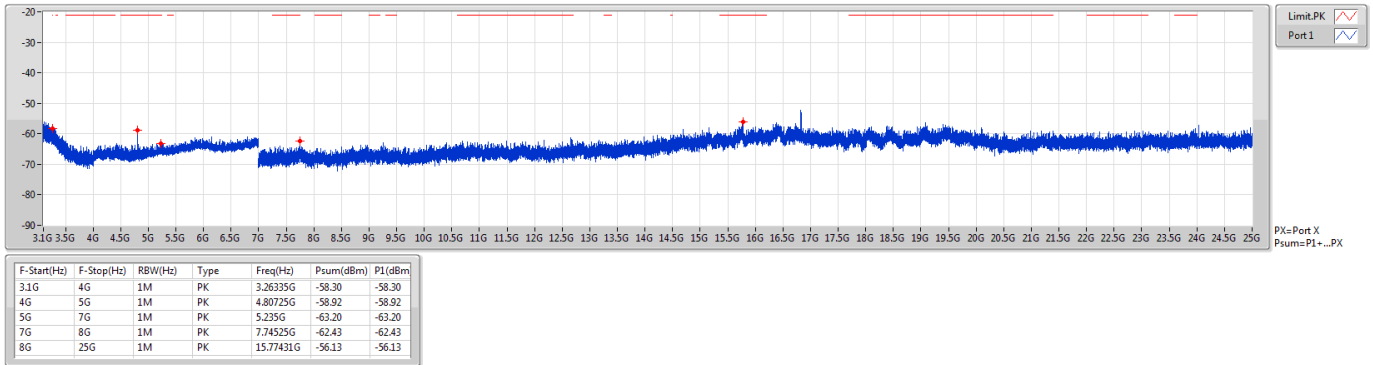




BT-LE(2Mbps)

CSE-DTS [PK]

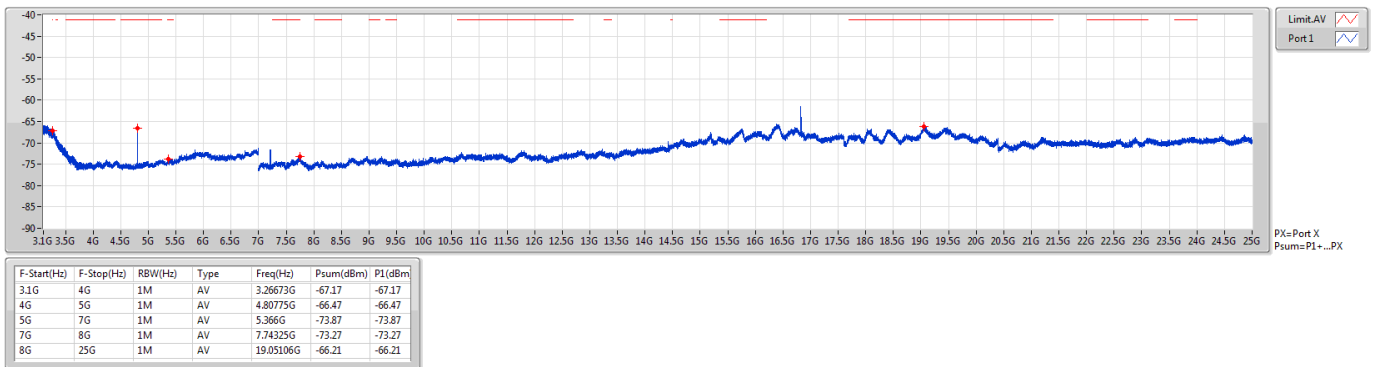
2404MHz



BT-LE(2Mbps)

CSE-DTS [AV]

2404MHz

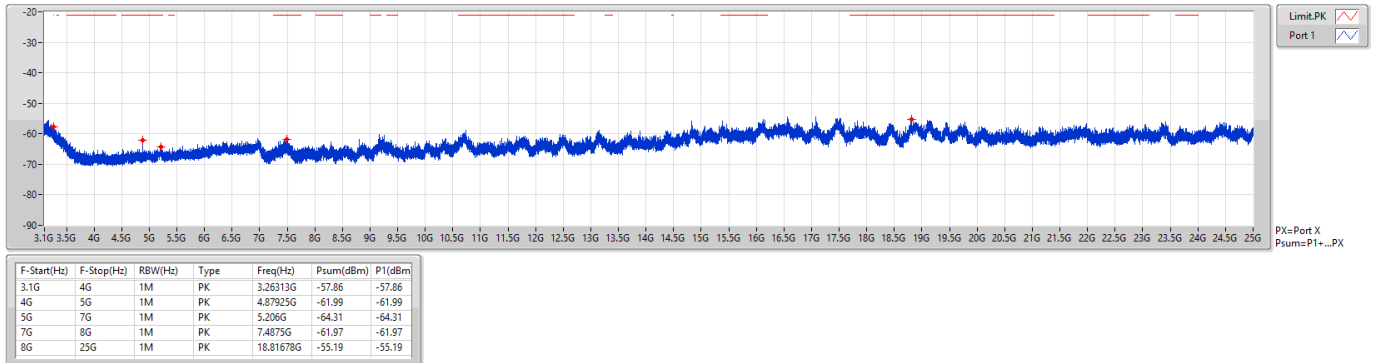




BT-LE(2Mbps)

CSE-DTS [PK]

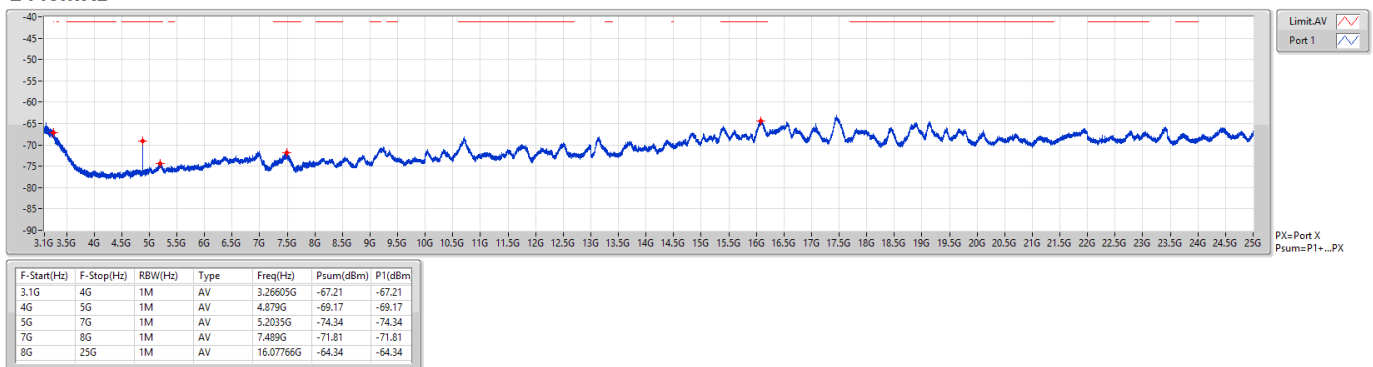
2440MHz



BT-LE(2Mbps)

CSE-DTS [AV]

2440MHz

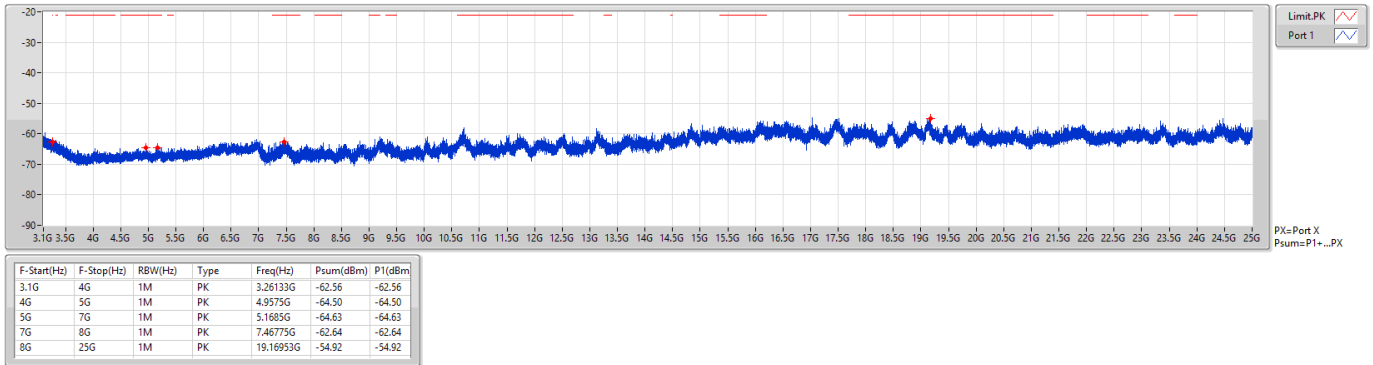




BT-LE(2Mbps)

CSE-DTS [PK]

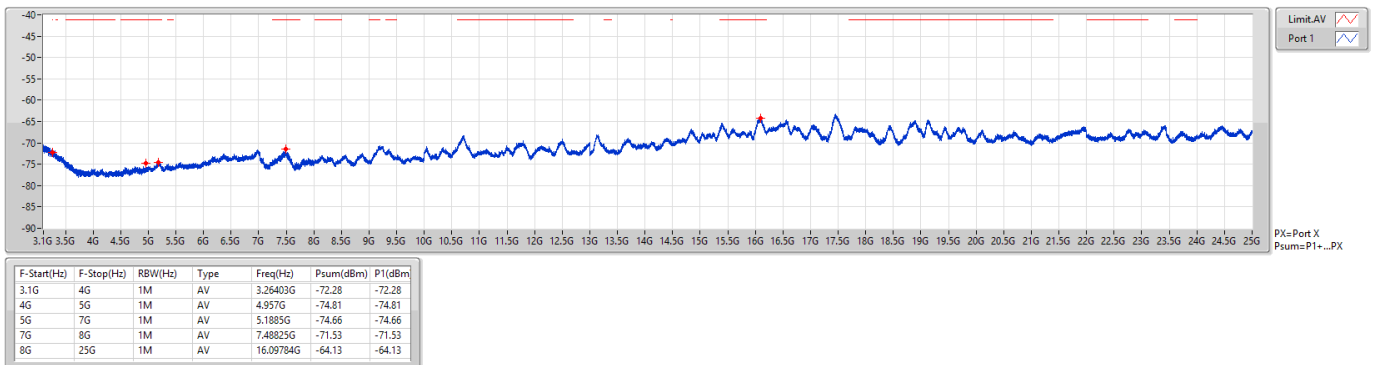
2478MHz



BT-LE(2Mbps)

CSE-DTS [AV]

2478MHz

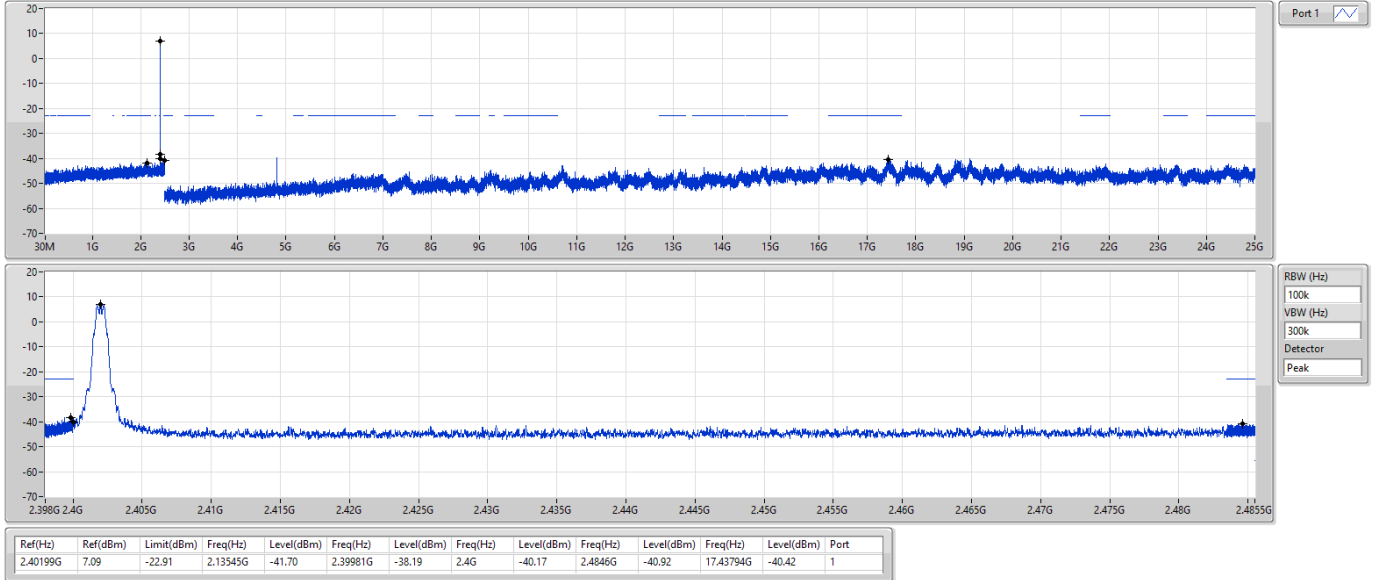


1) Configuration 1: Laird part number: 453-00142, 10dBm, Integrated Antenna

BT-LE(125kbps)

CSENdB-DTS

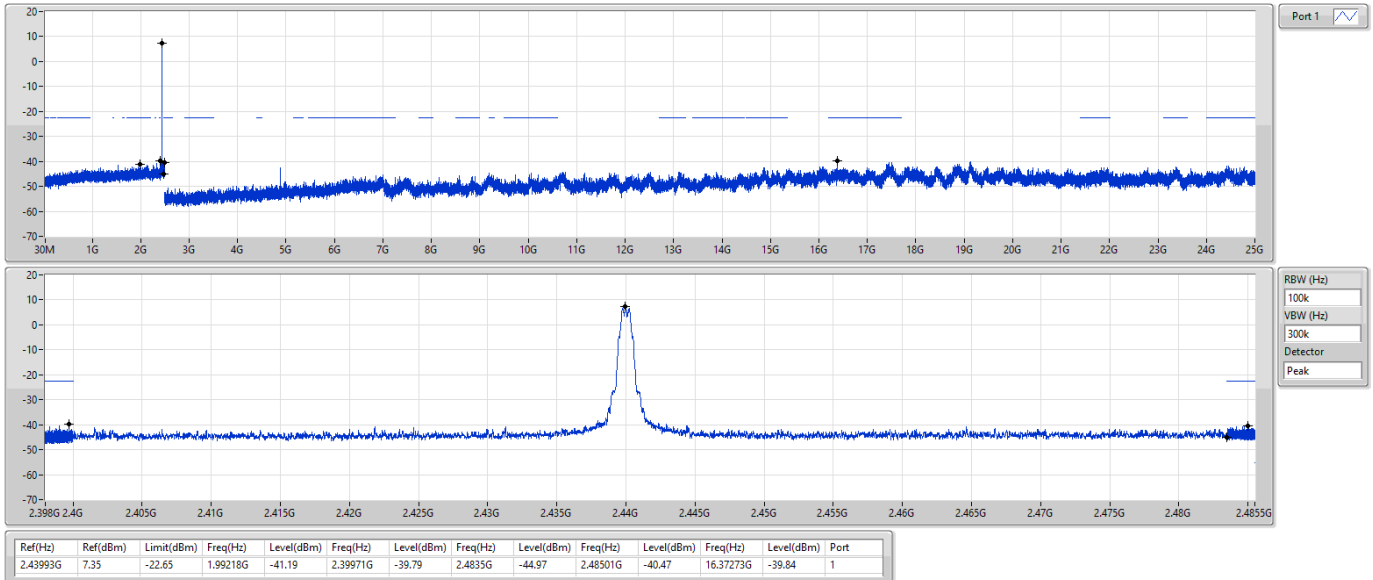
2402MHz



BT-LE(125kbps)

CSENdB-DTS

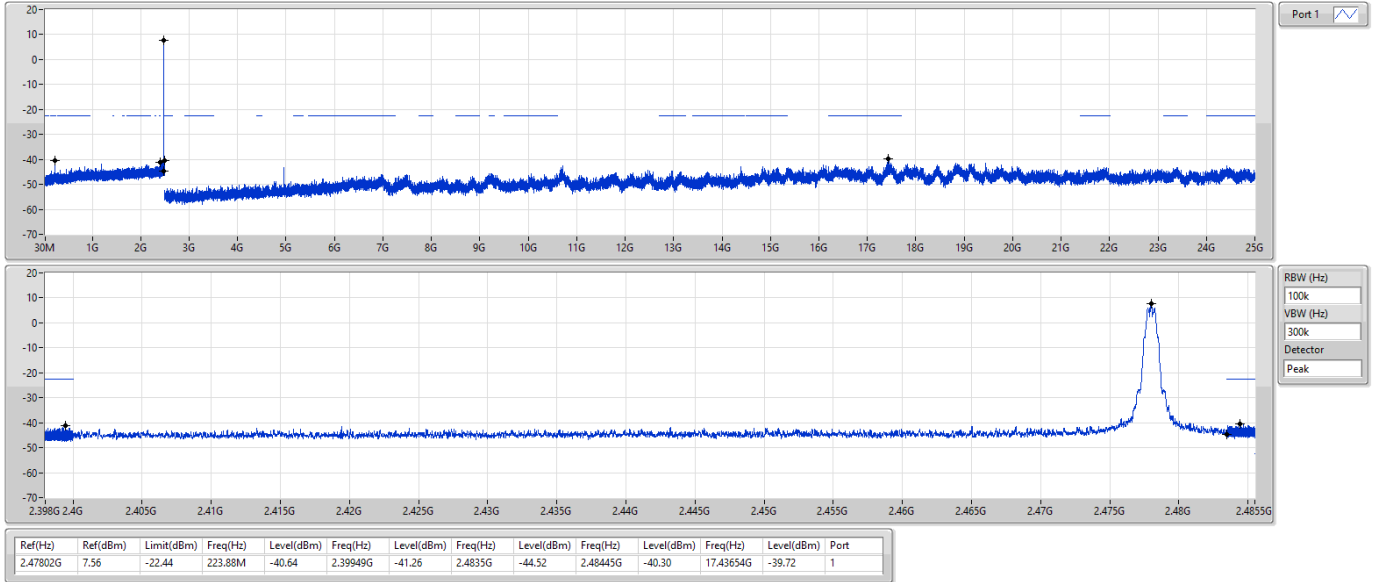
2440MHz



BT-LE(125kbps)

CSEndB-DTS

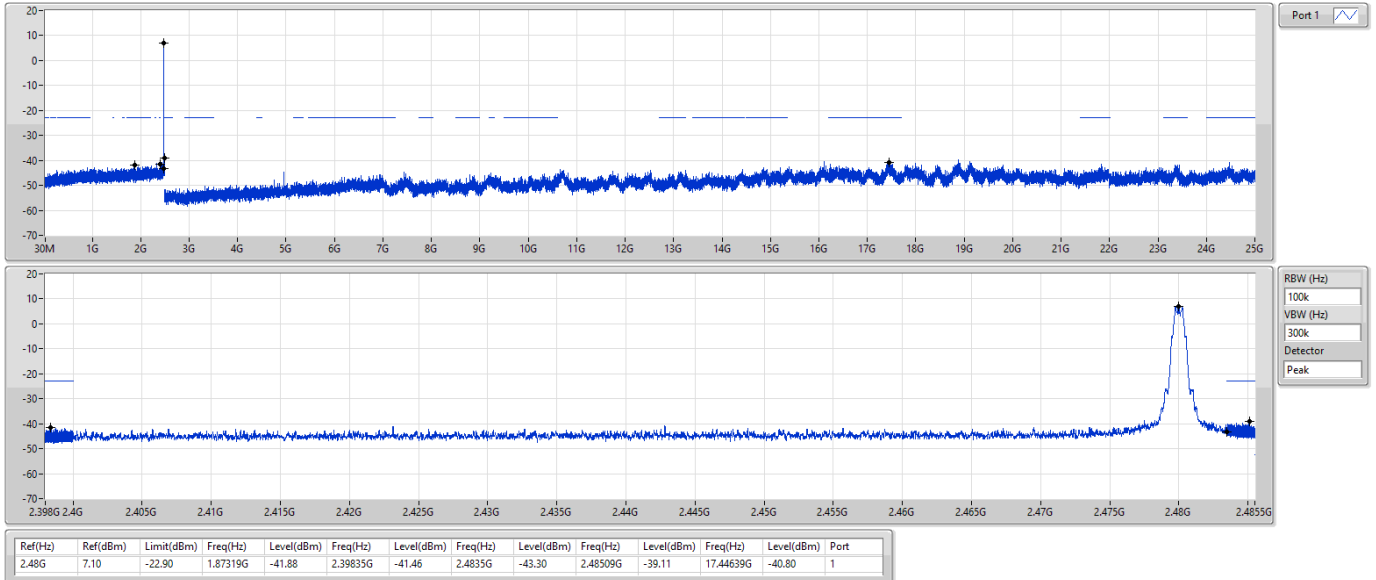
2478MHz



BT-LE(125kbps)

CSEndB-DTS

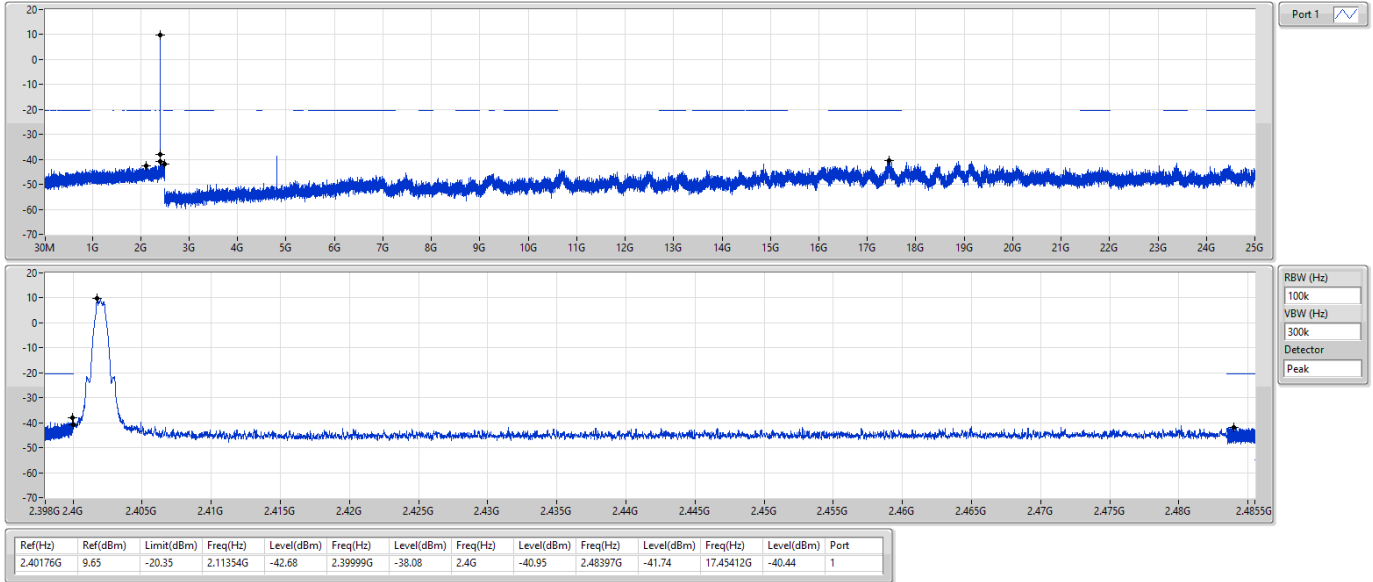
2480MHz



BT-LE(500kbps)

CSEndB-DTS

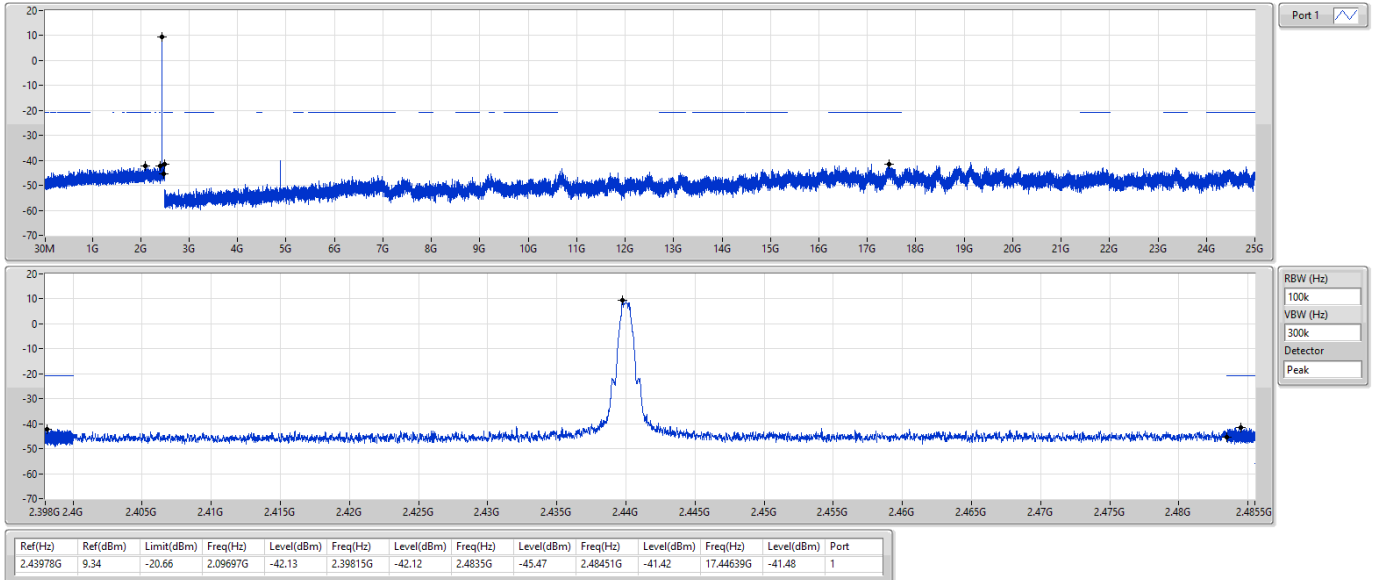
2402MHz



BT-LE(500kbps)

CSEndB-DTS

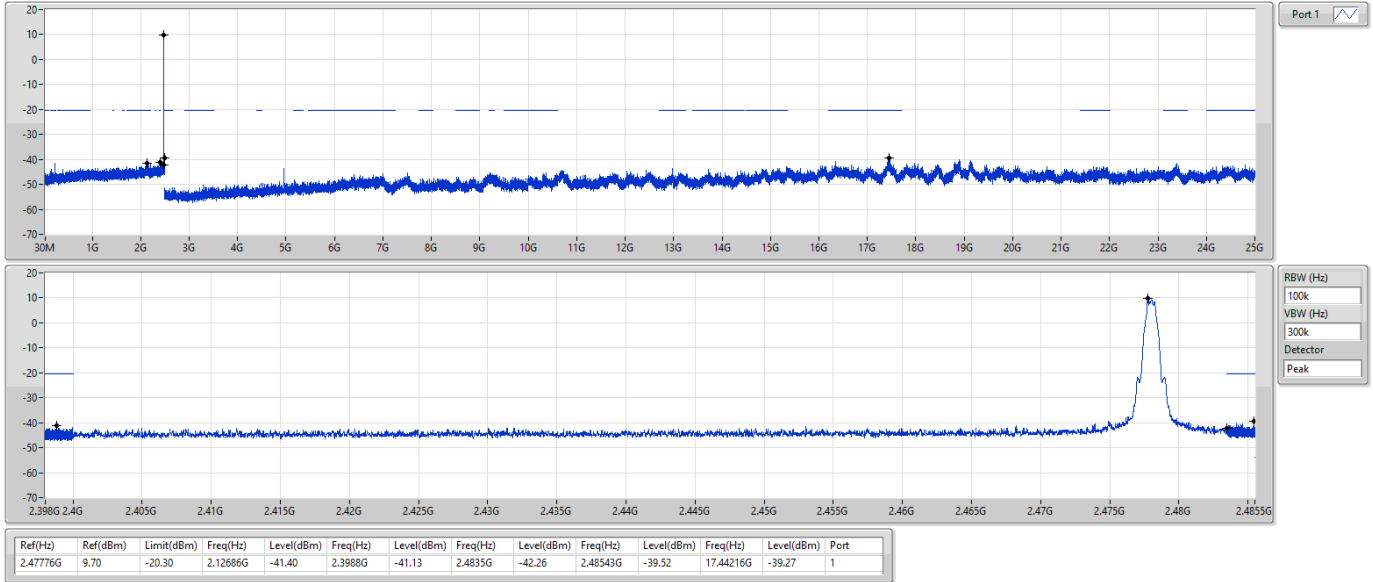
2440MHz



BT-LE(500kbps)

CSENdB-DTS

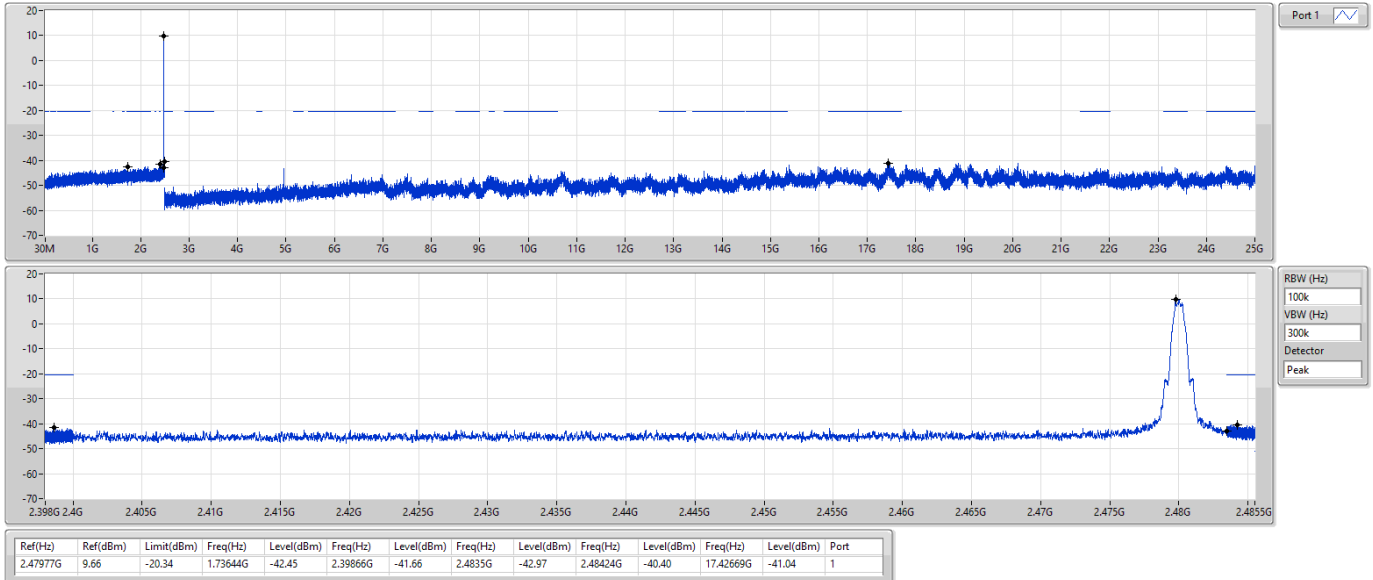
2478MHz



BT-LE(500kbps)

CSENdB-DTS

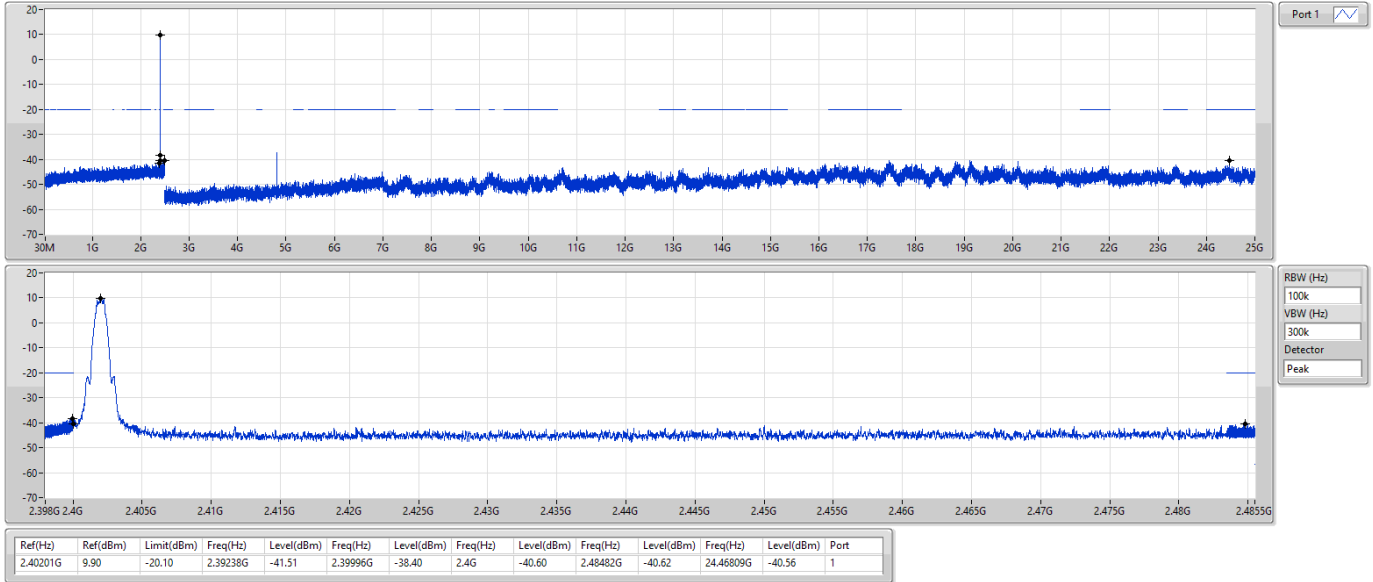
2480MHz



BT-LE(1Mbps)

CSEndB-DTS

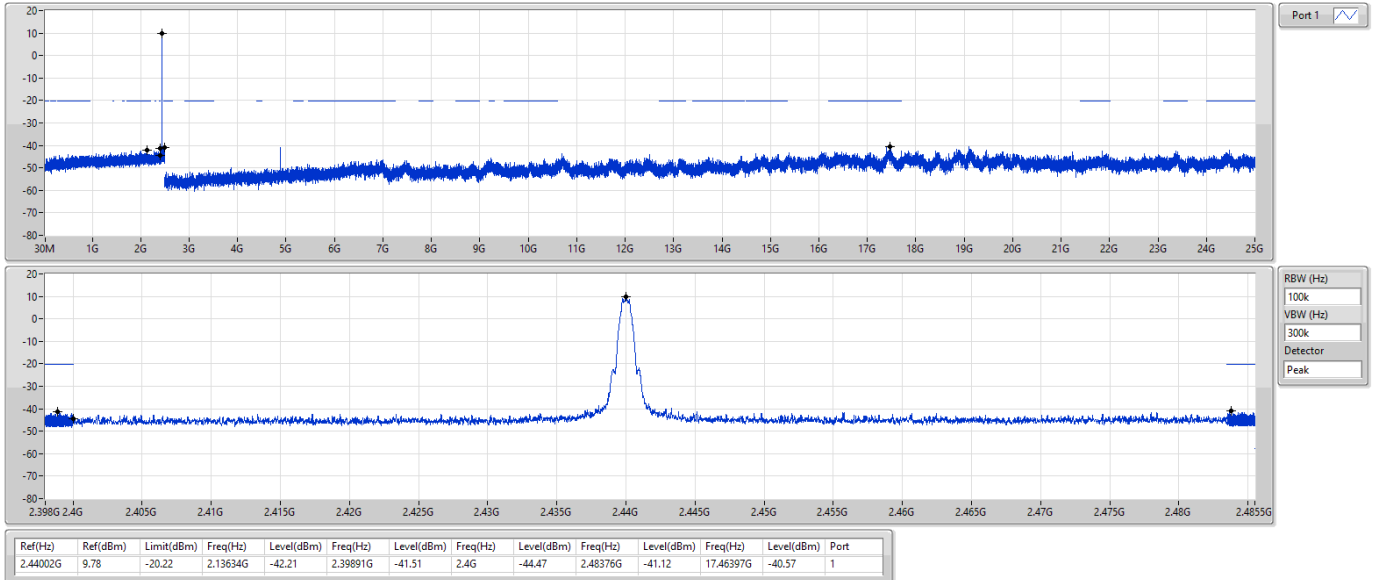
2402MHz



BT-LE(1Mbps)

CSEndB-DTS

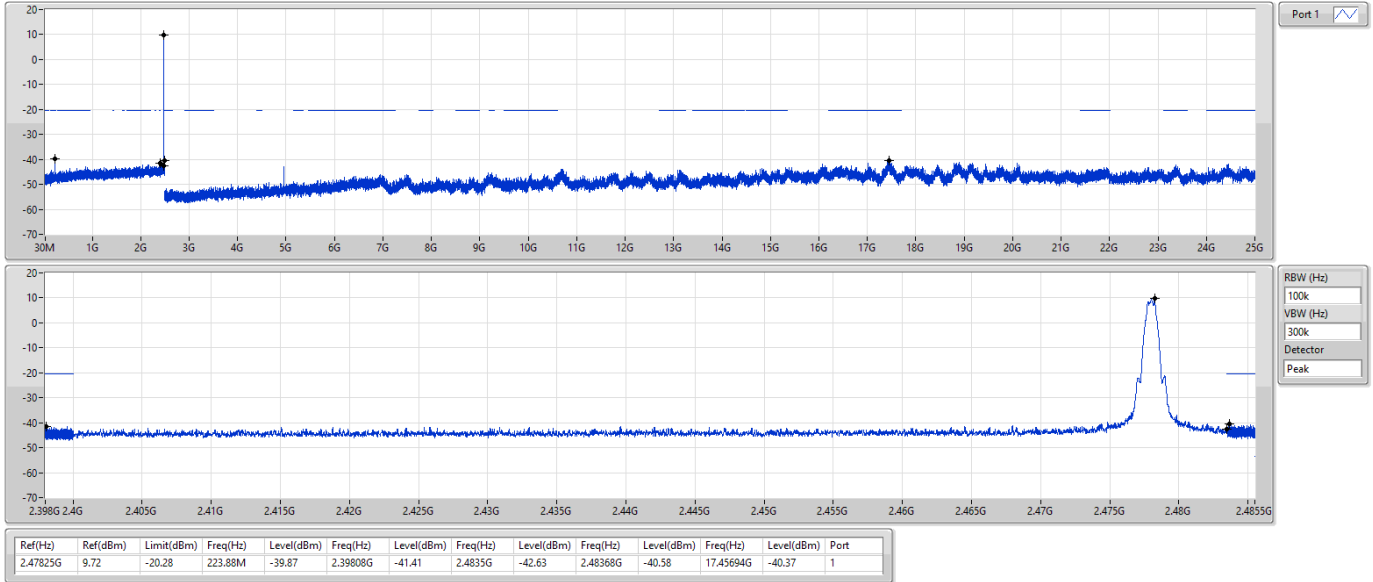
2440MHz



BT-LE(1Mbps)

CSEndB-DTS

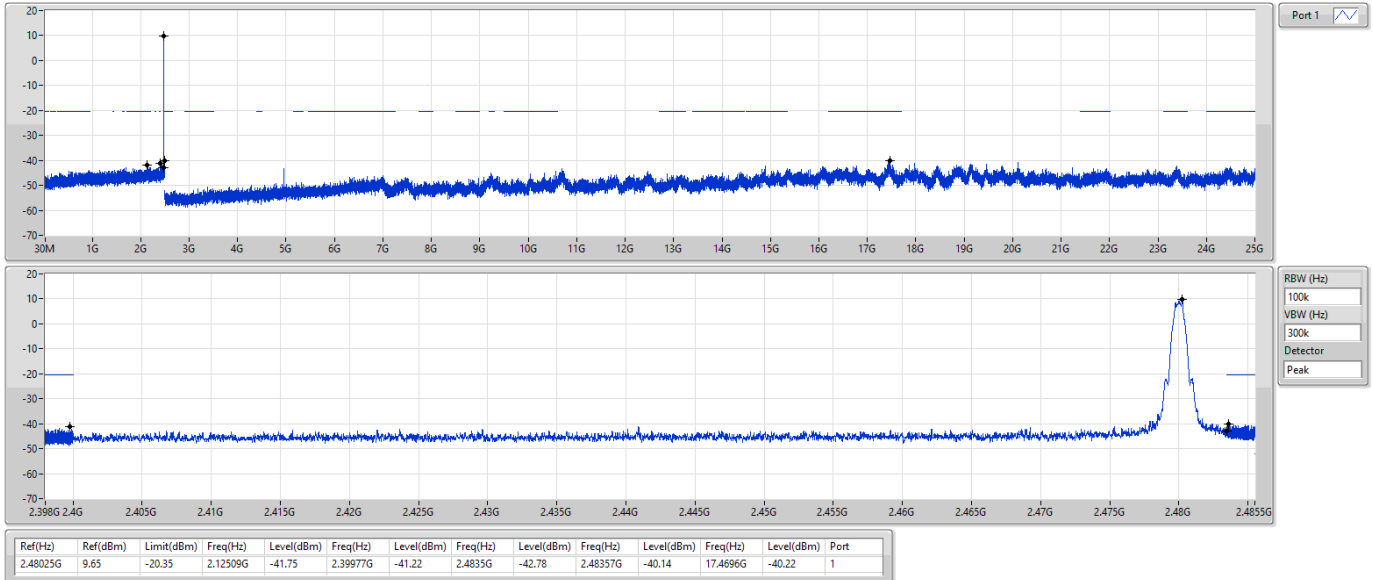
2478MHz



BT-LE(1Mbps)

CSEndB-DTS

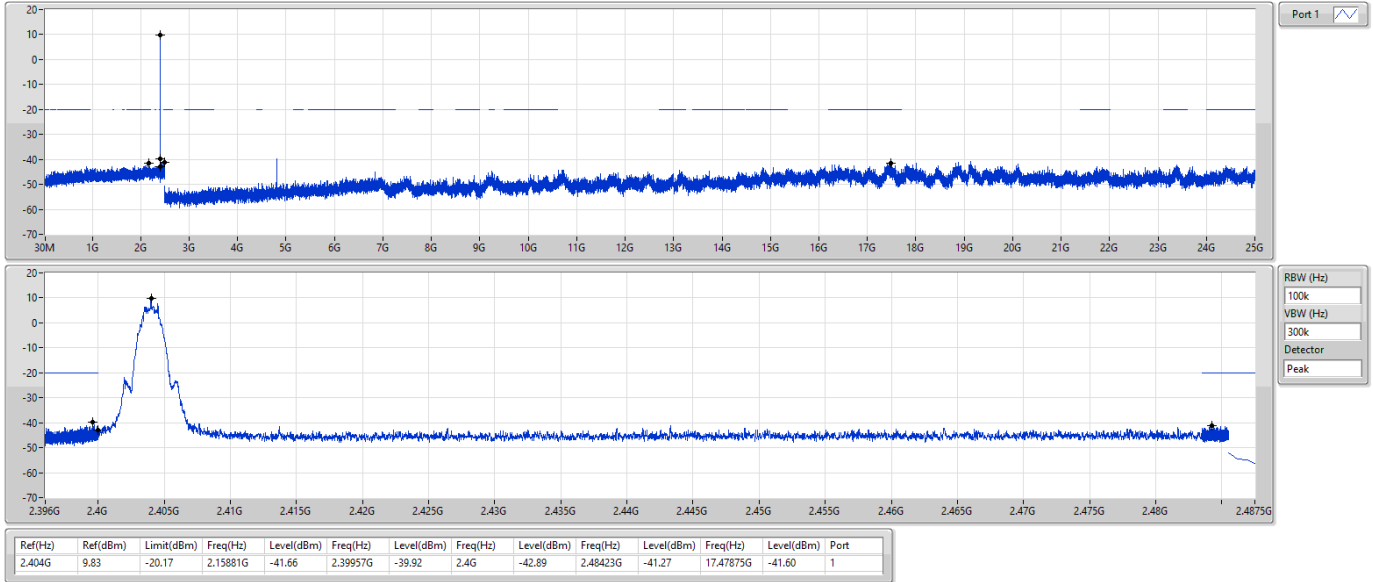
2480MHz



BT-LE(2Mbps)

CSEndB-DTS

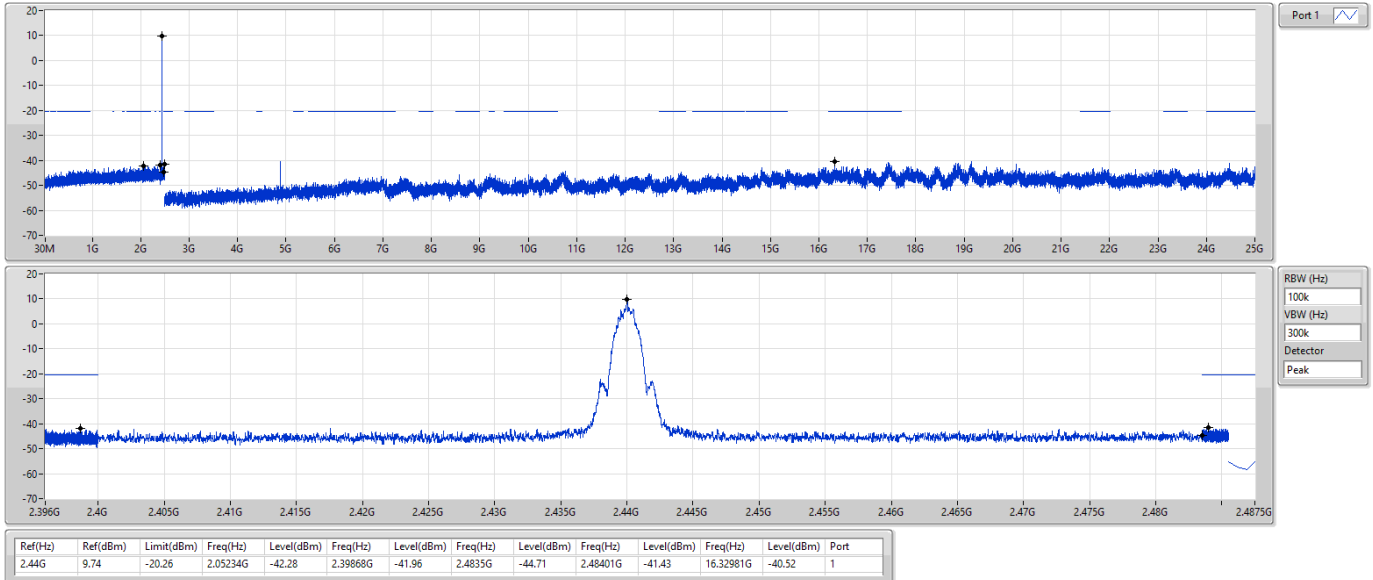
2404MHz



BT-LE(2Mbps)

CSEndB-DTS

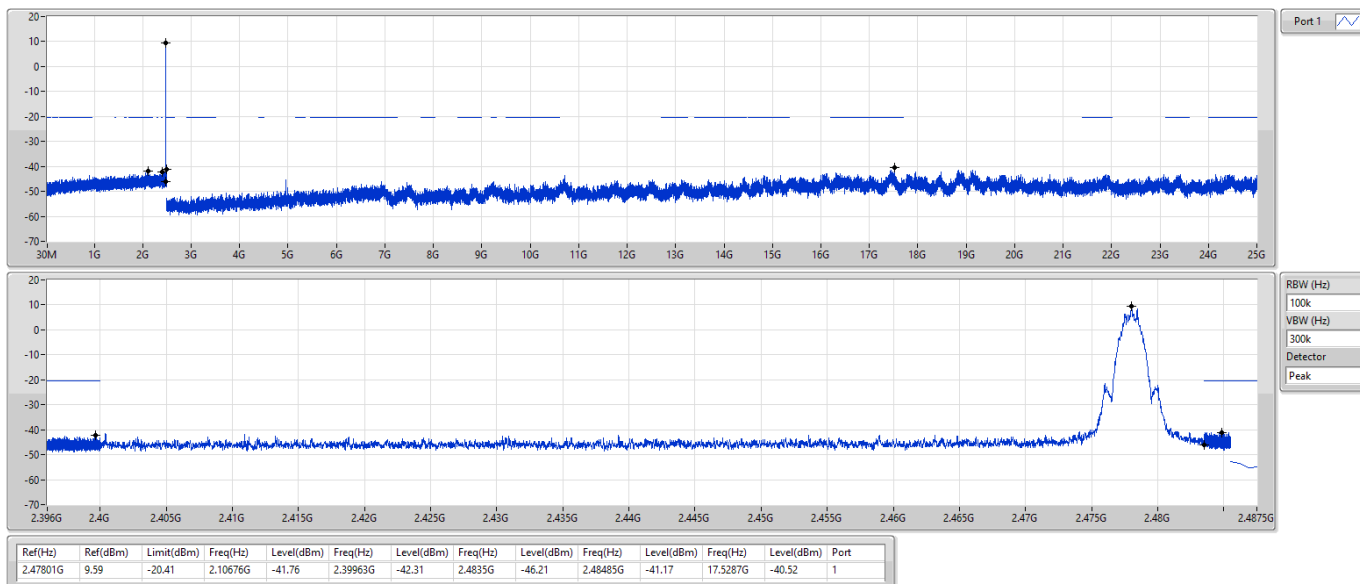
2440MHz



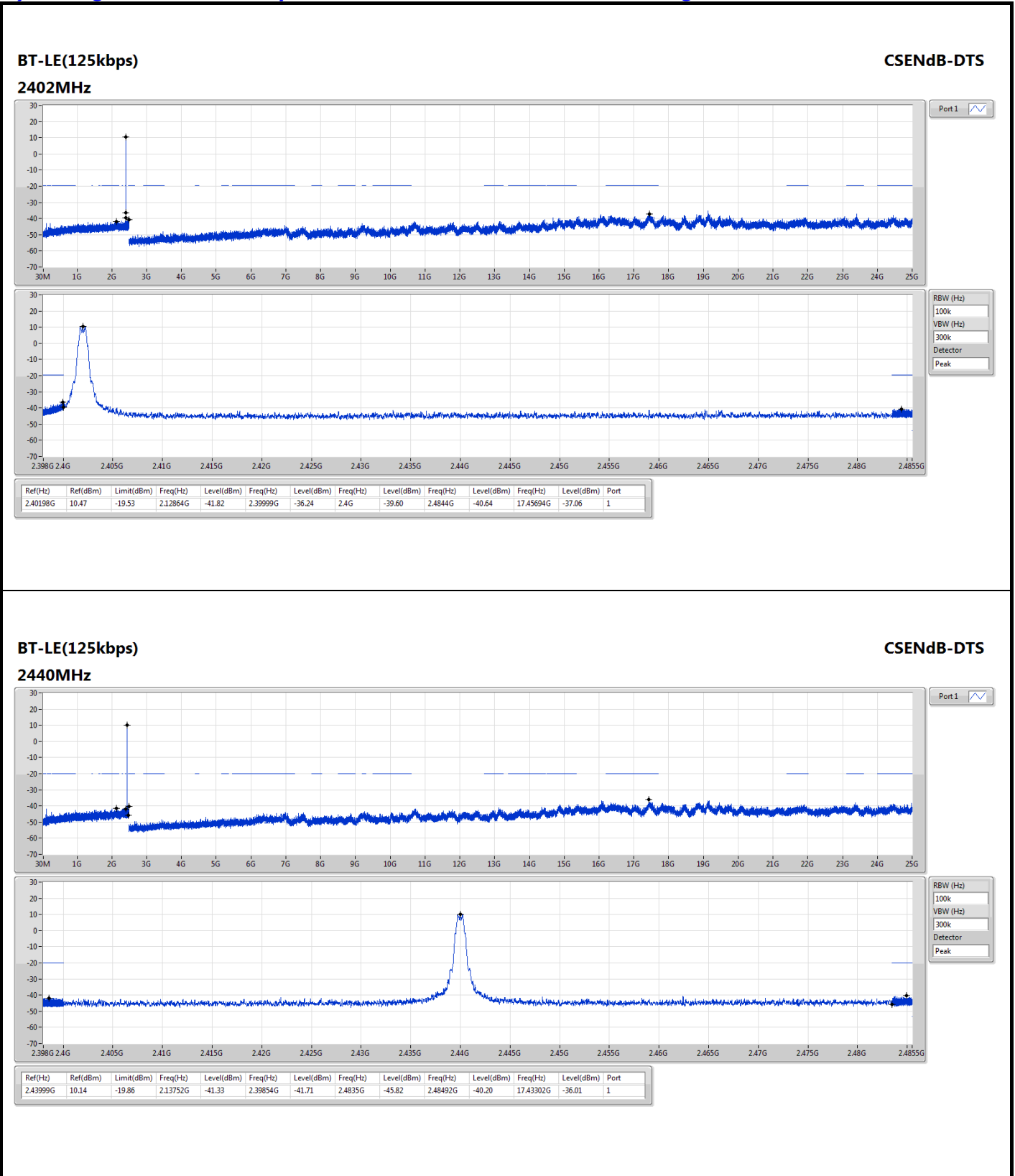
BT-LE(2Mbps)

CSEndB-DTS

2478MHz



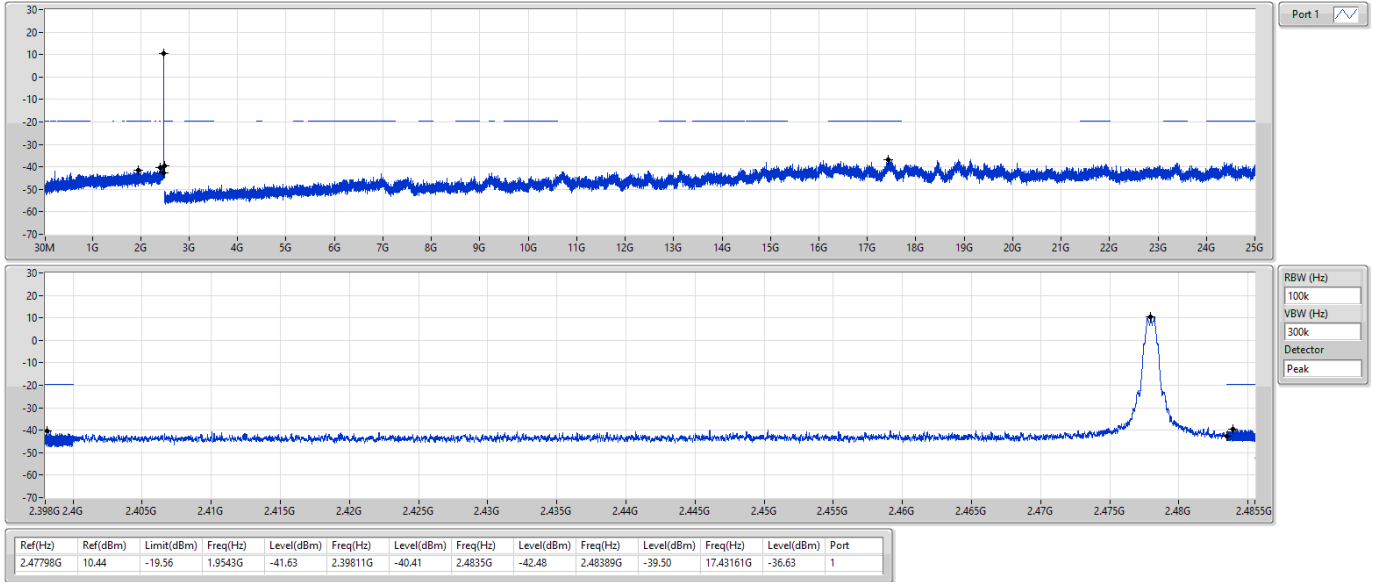
2) Configuration 2: Laird part number: 453-00145, 20dBm, Integrated Antenna



BT-LE(125kbps)

CSEndB-DTS

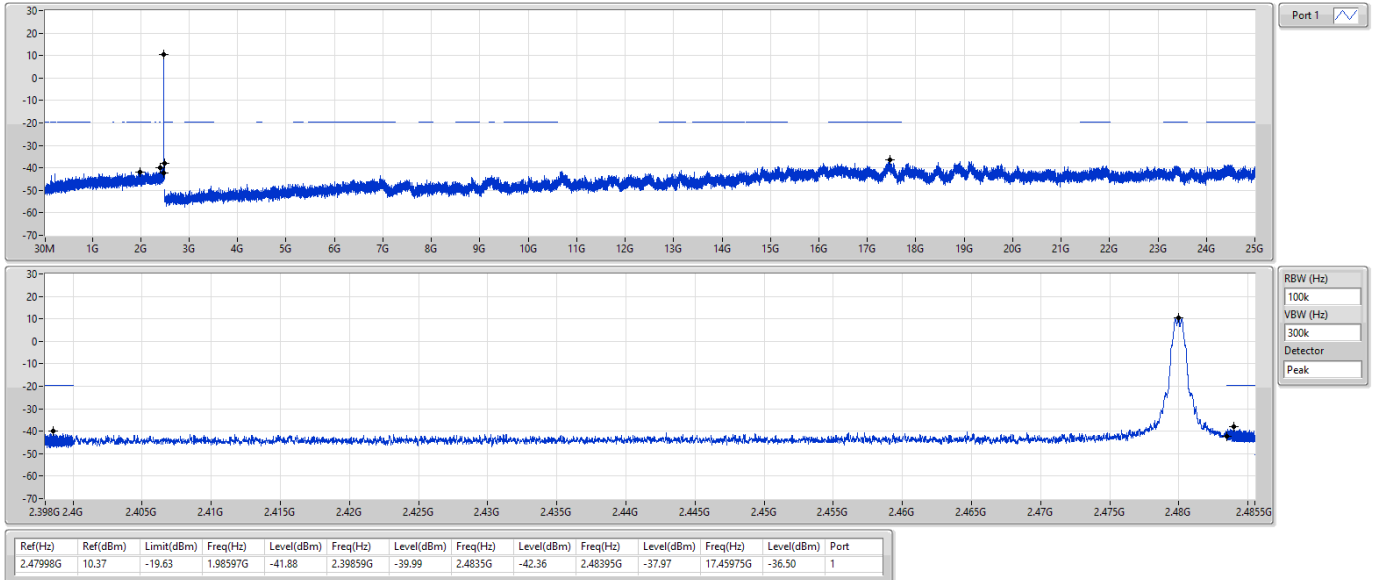
2478MHz



BT-LE(125kbps)

CSEndB-DTS

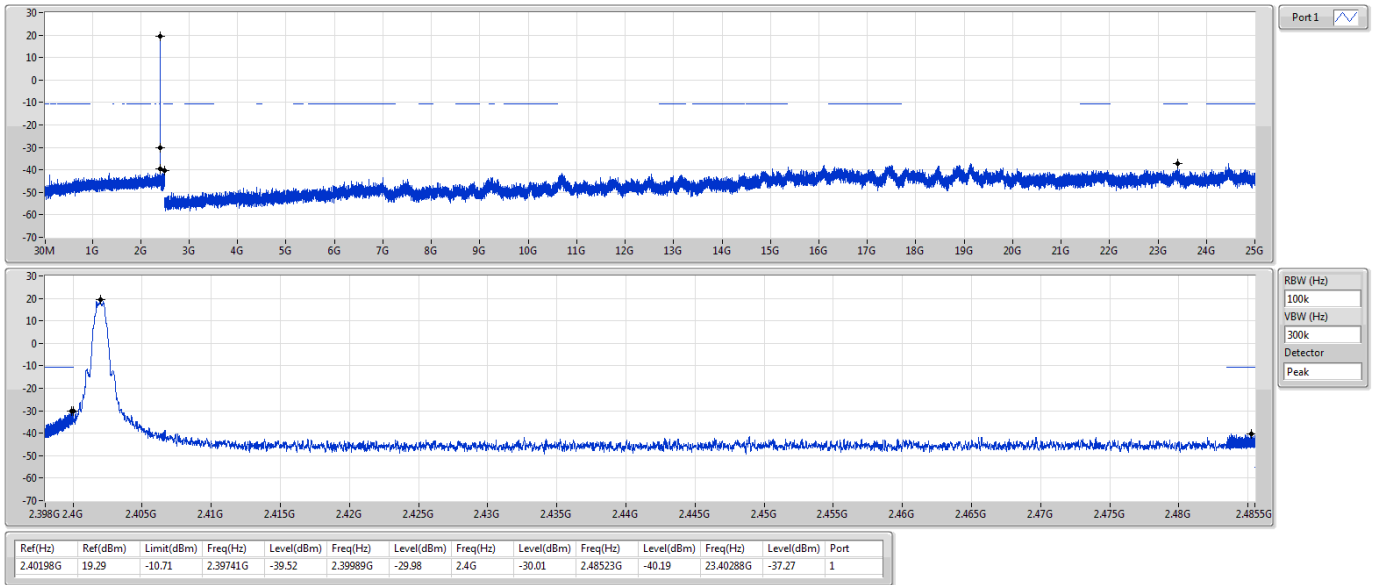
2480MHz



BT-LE(500kbps)

CSEndB-DTS

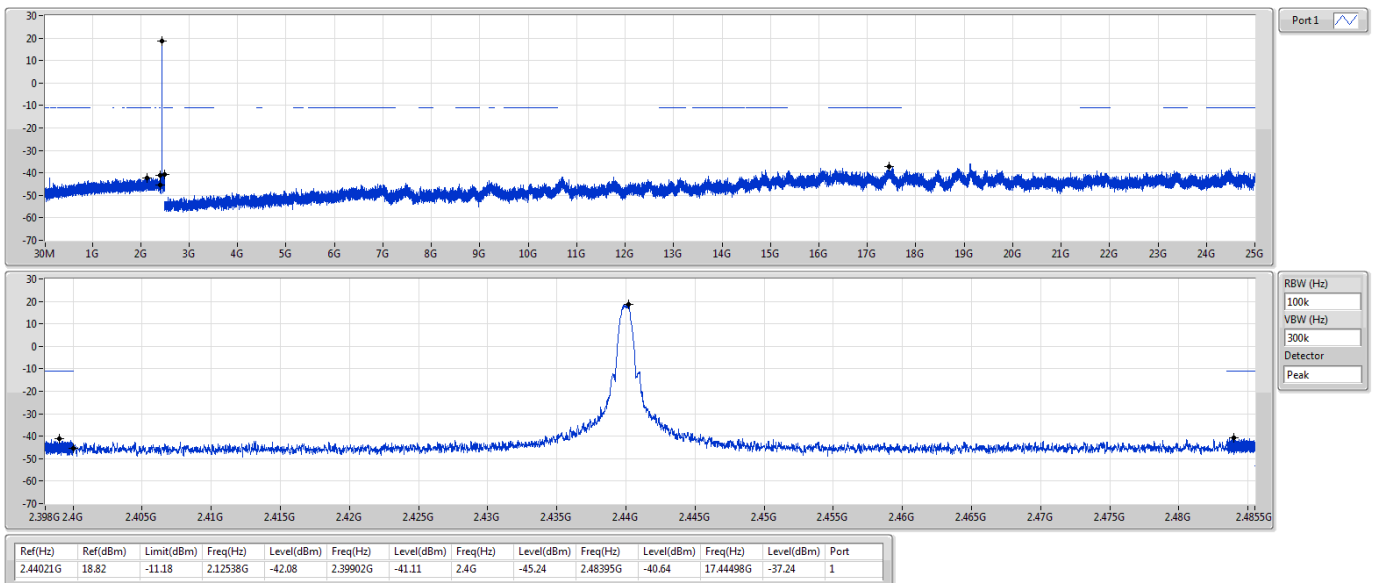
2402MHz



BT-LE(500kbps)

CSEndB-DTS

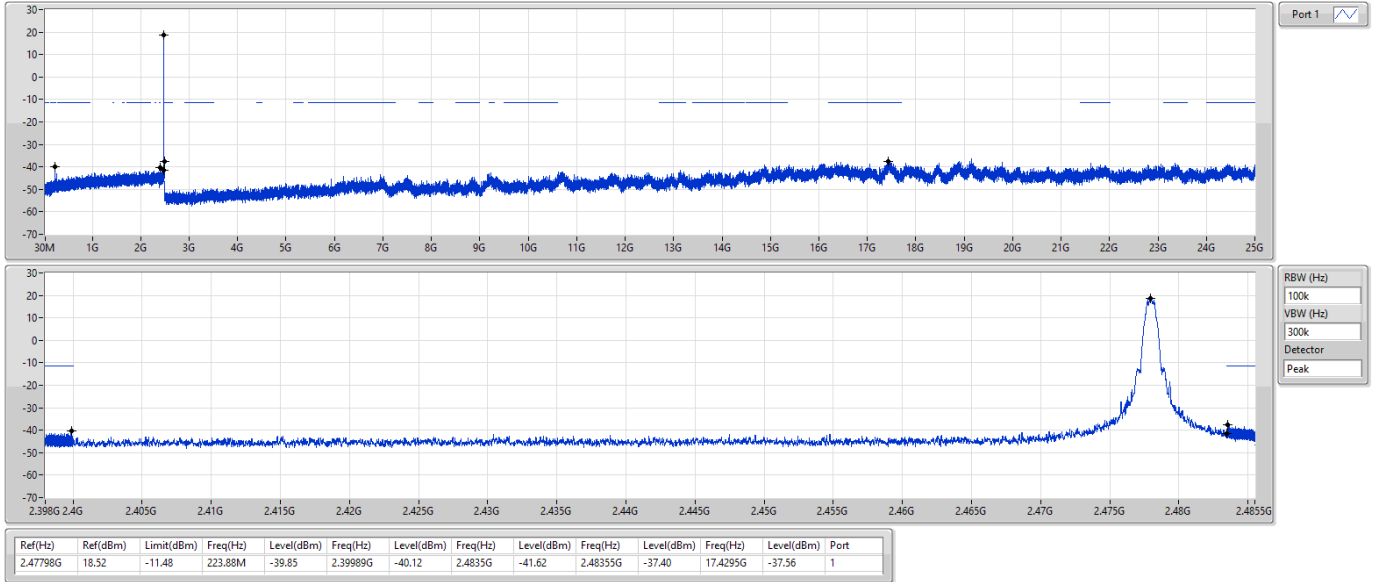
2440MHz



BT-LE(500kbps)

CSEndB-DTS

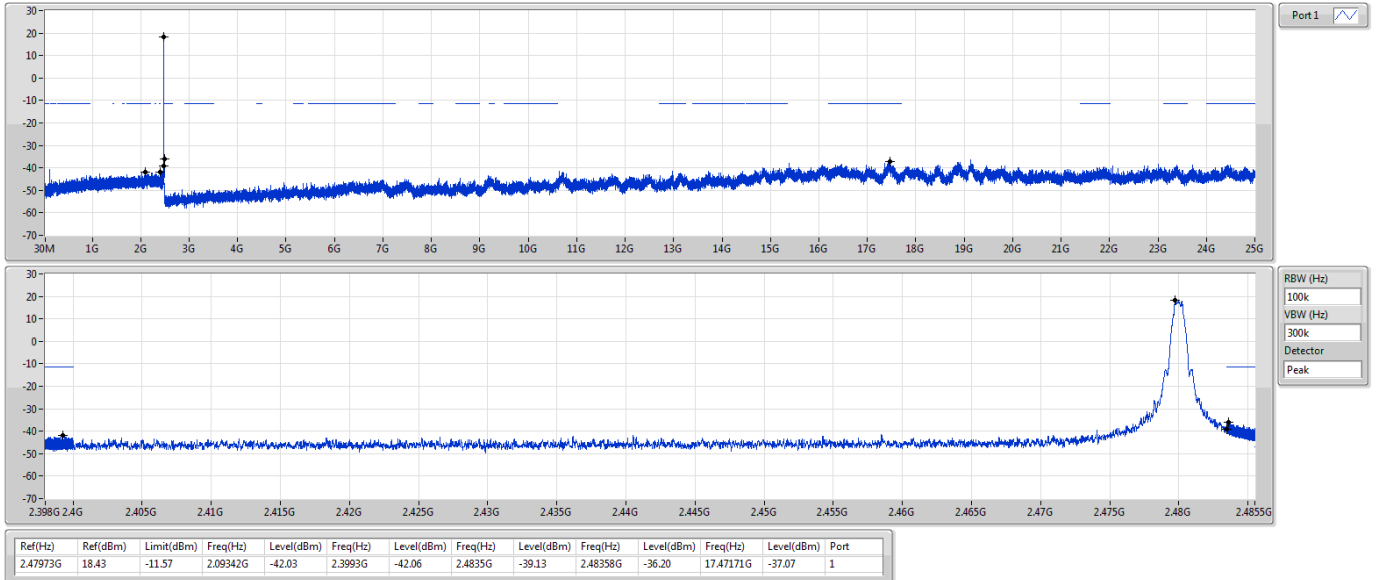
2478MHz



BT-LE(500kbps)

CSEndB-DTS

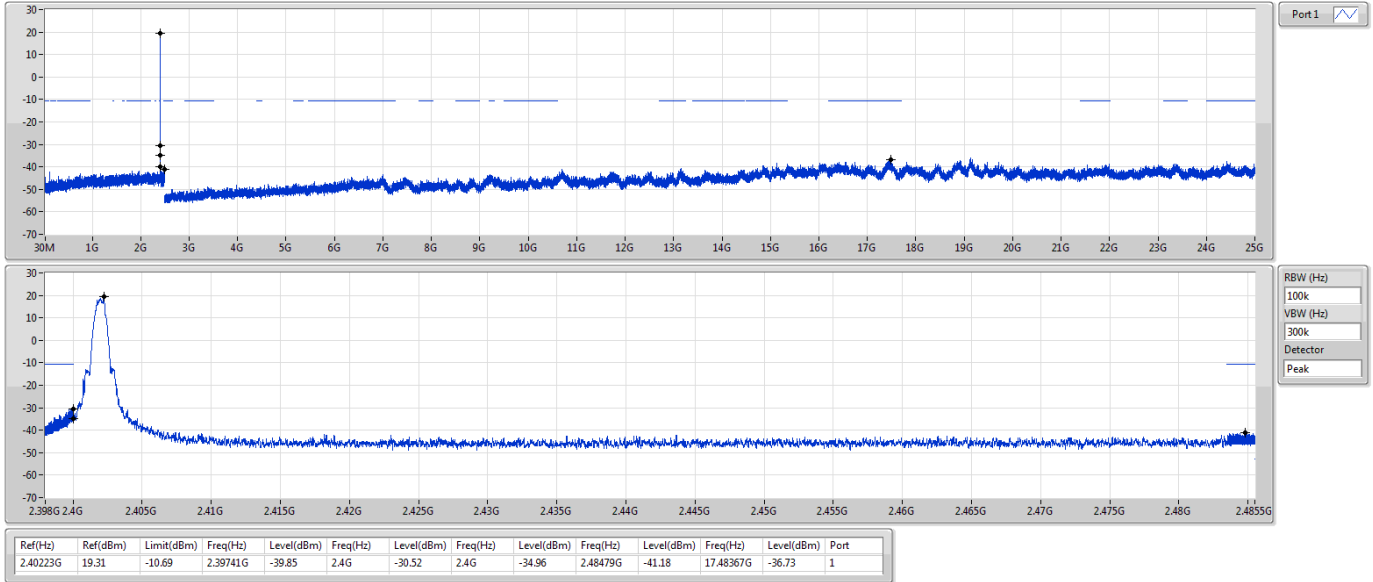
2480MHz



BT-LE(1Mbps)

CSEndB-DTS

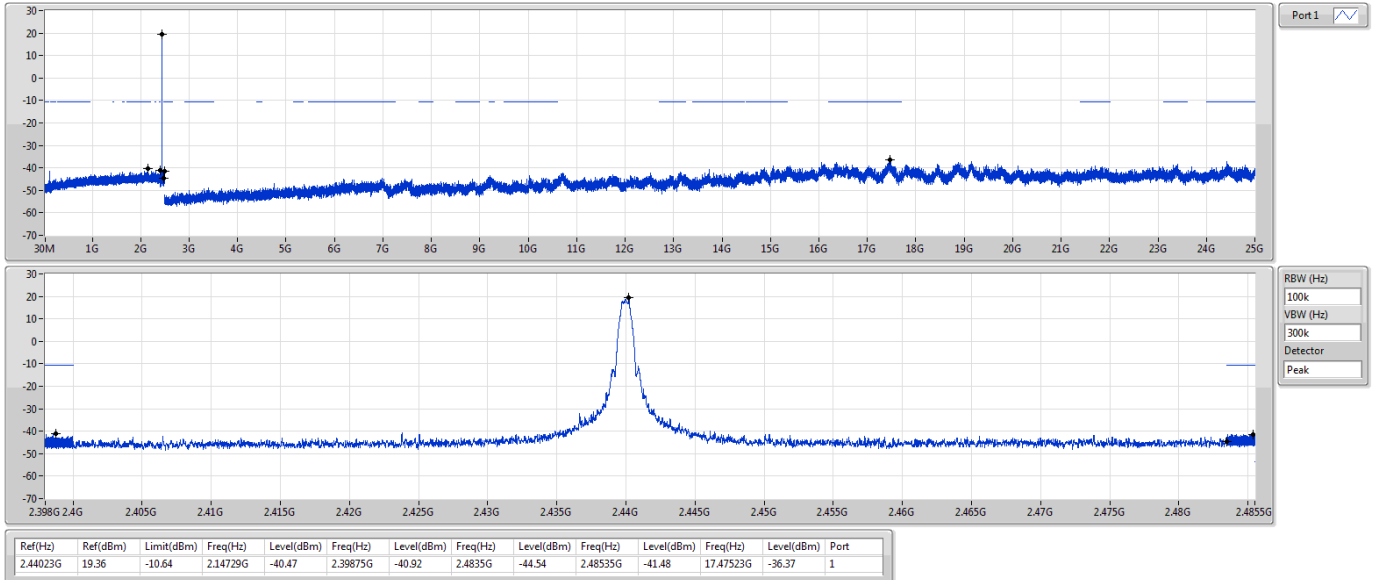
2402MHz



BT-LE(1Mbps)

CSEndB-DTS

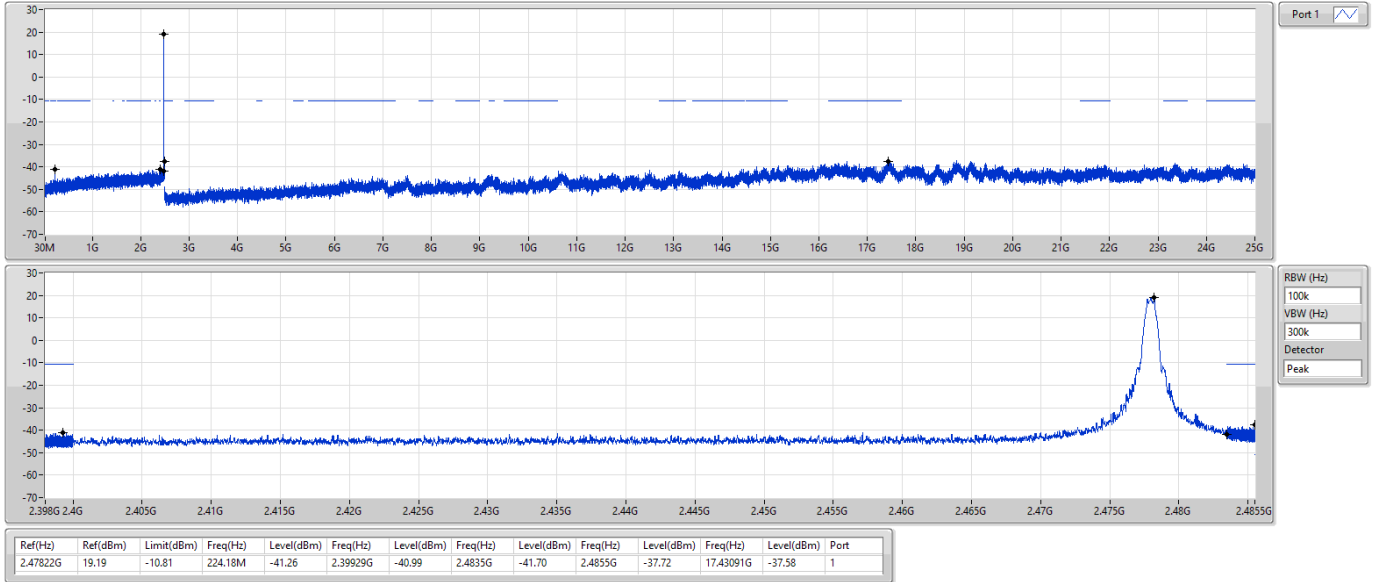
2440MHz



BT-LE(1Mbps)

CSEndB-DTS

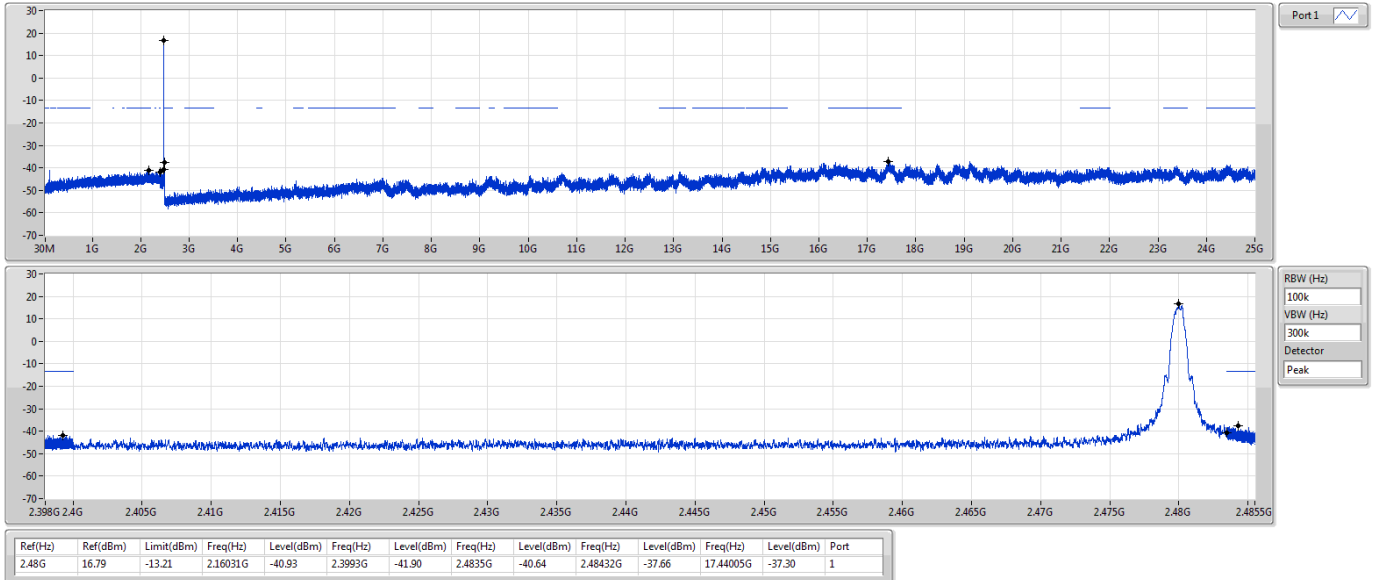
2478MHz



BT-LE(1Mbps)

CSEndB-DTS

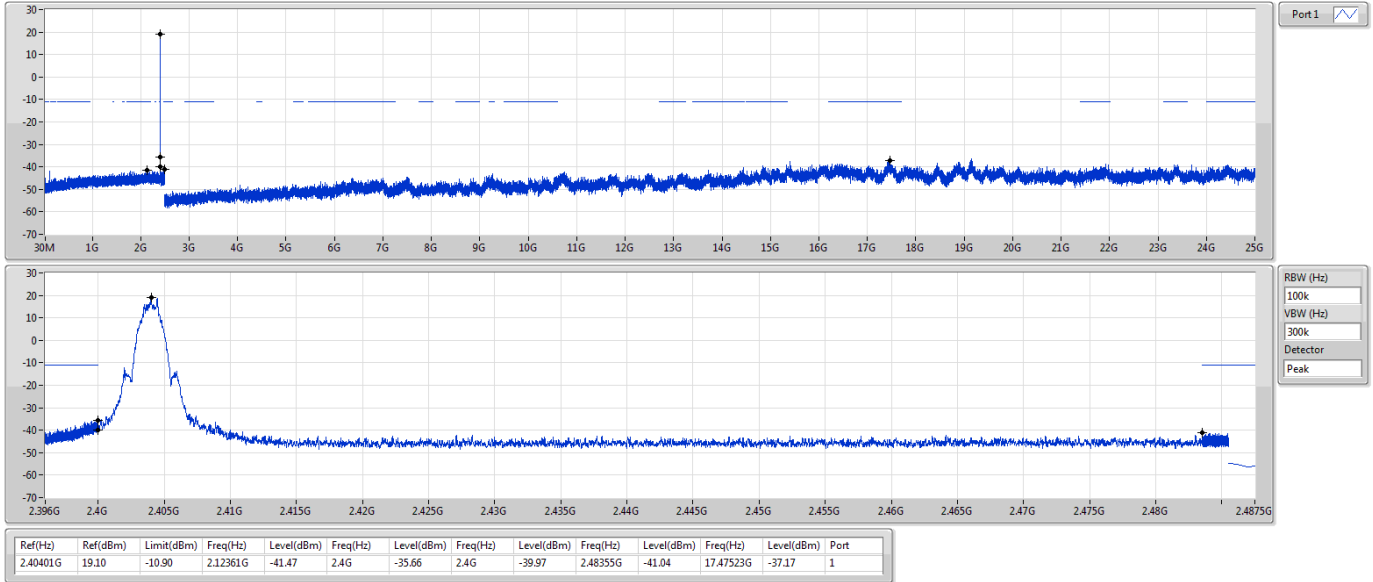
2480MHz



BT-LE(2Mbps)

CSEndB-DTS

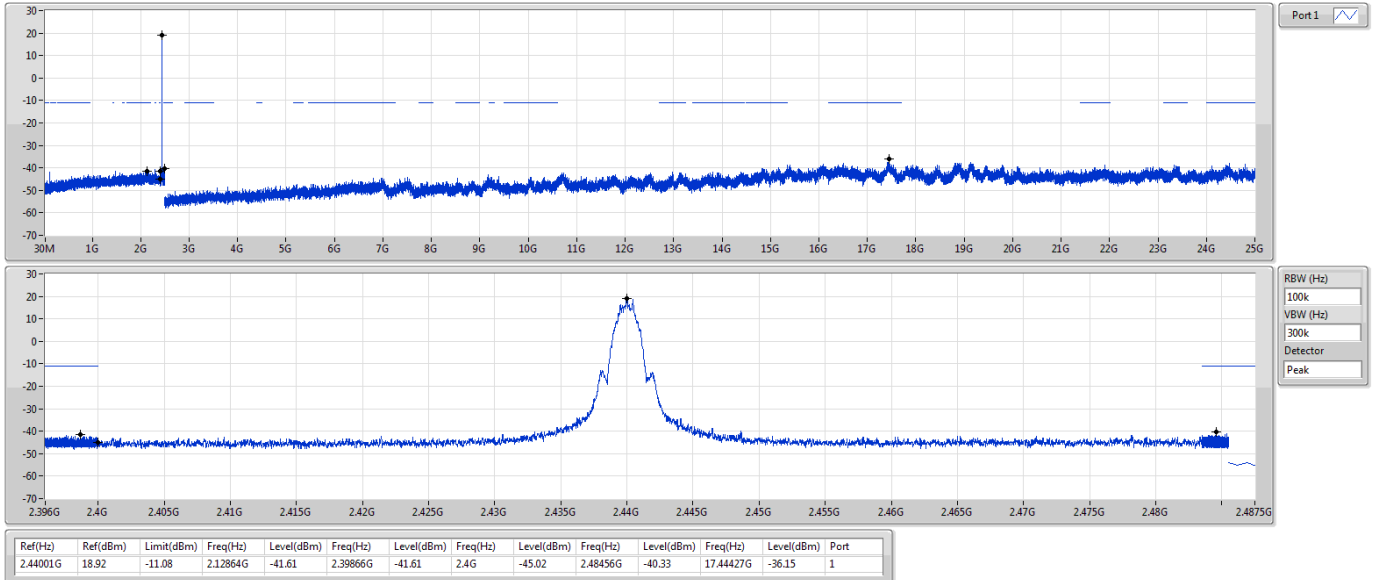
2404MHz



BT-LE(2Mbps)

CSEndB-DTS

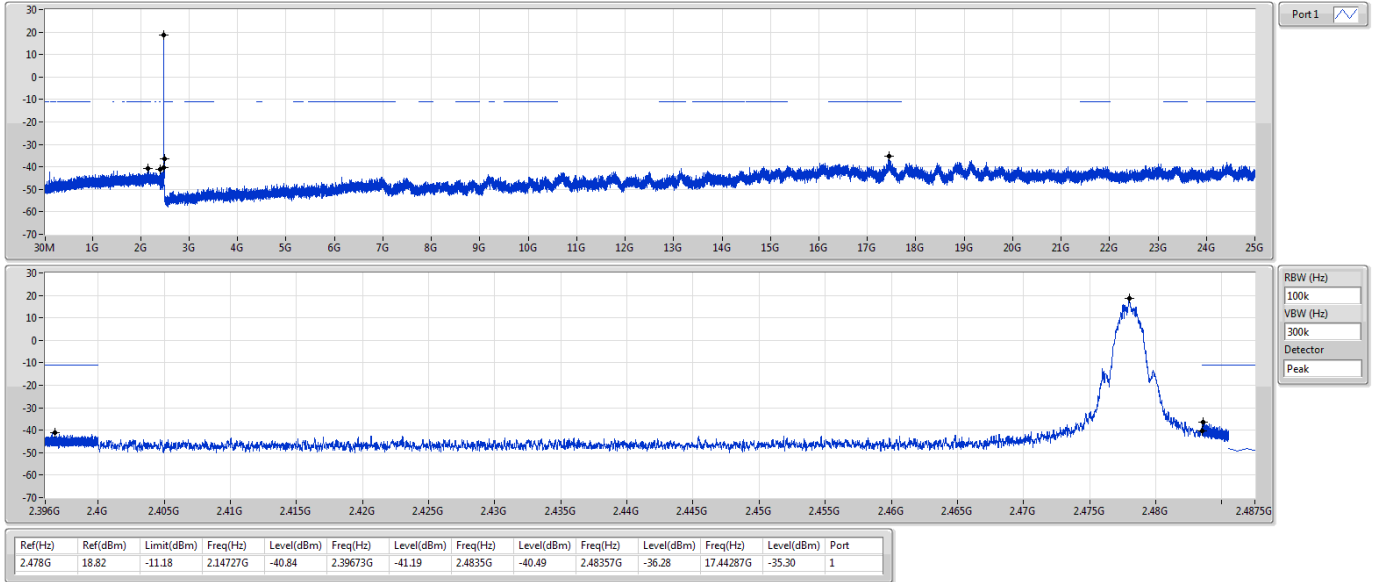
2440MHz



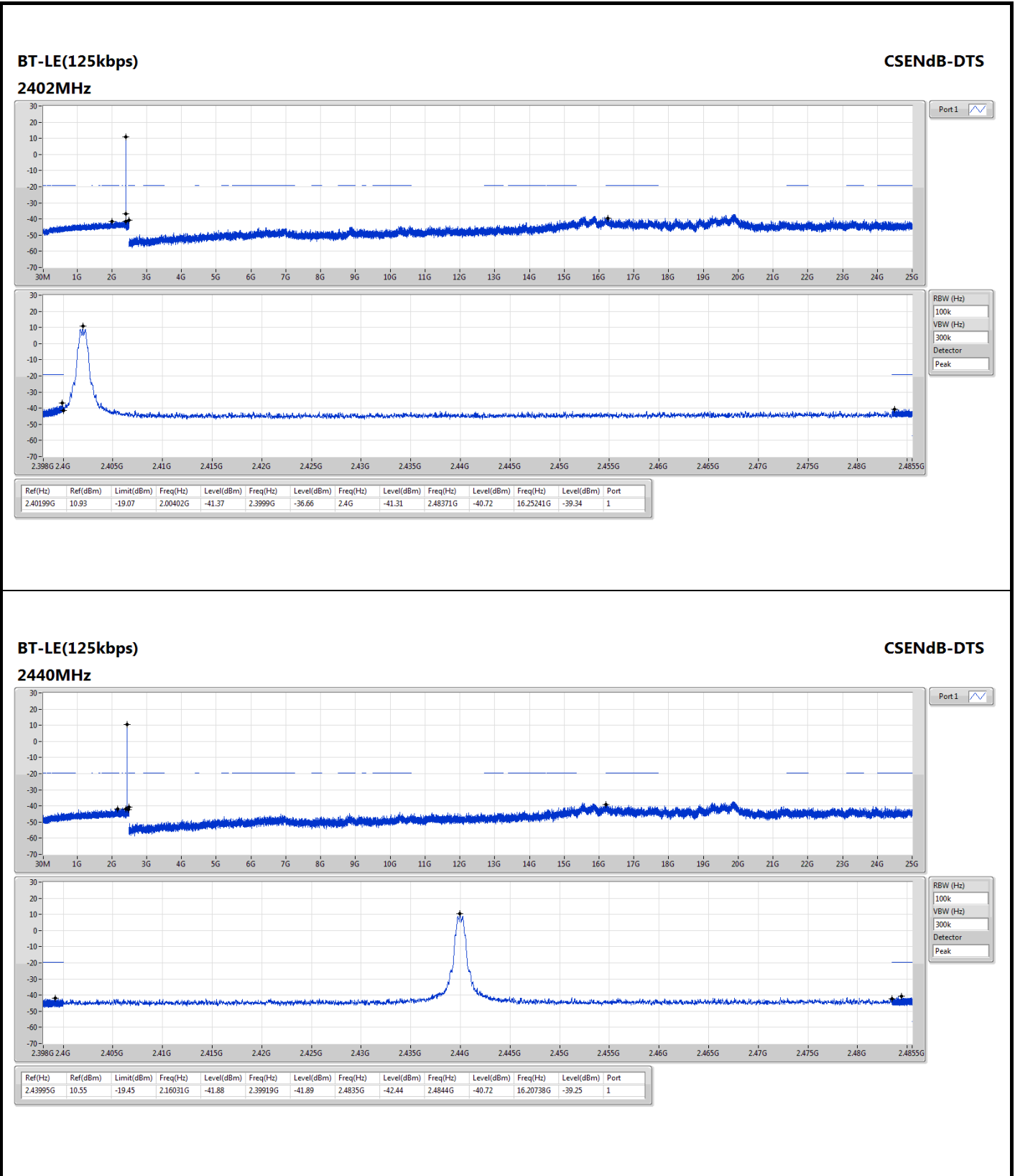
BT-LE(2Mbps)

CSEndB-DTS

2478MHz



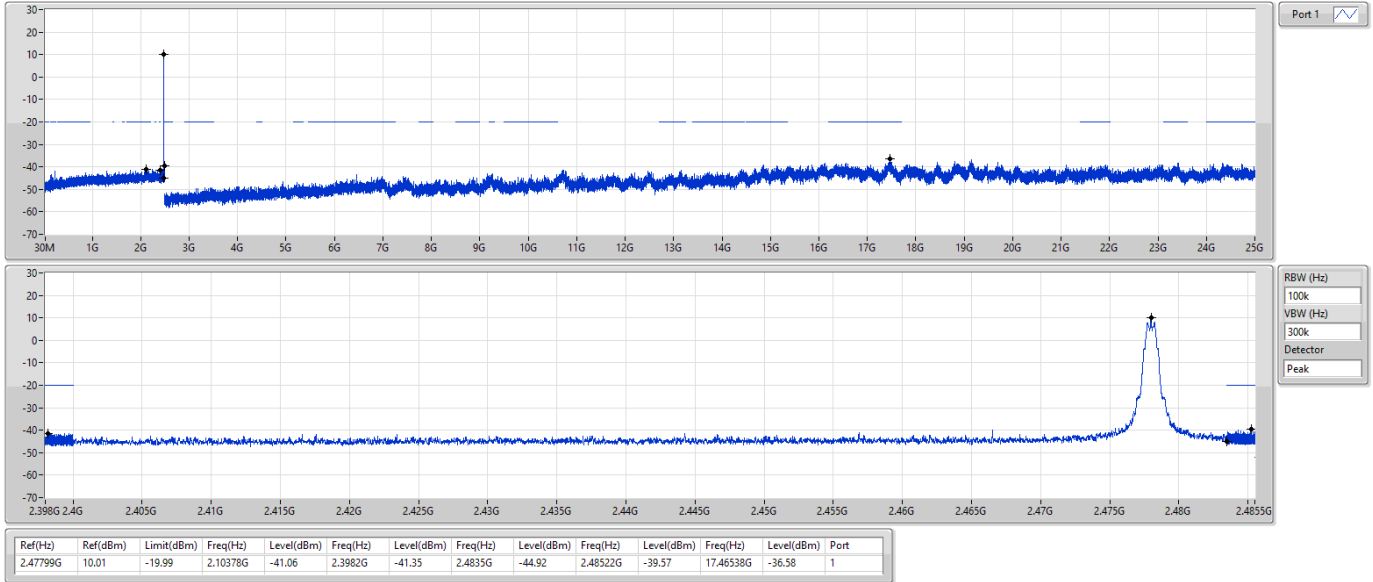
3) Configuration 3: Laird part number: 453-00148, 20dBm, RF Trace Pad (External antenna)



BT-LE(125kbps)

CSEndB-DTS

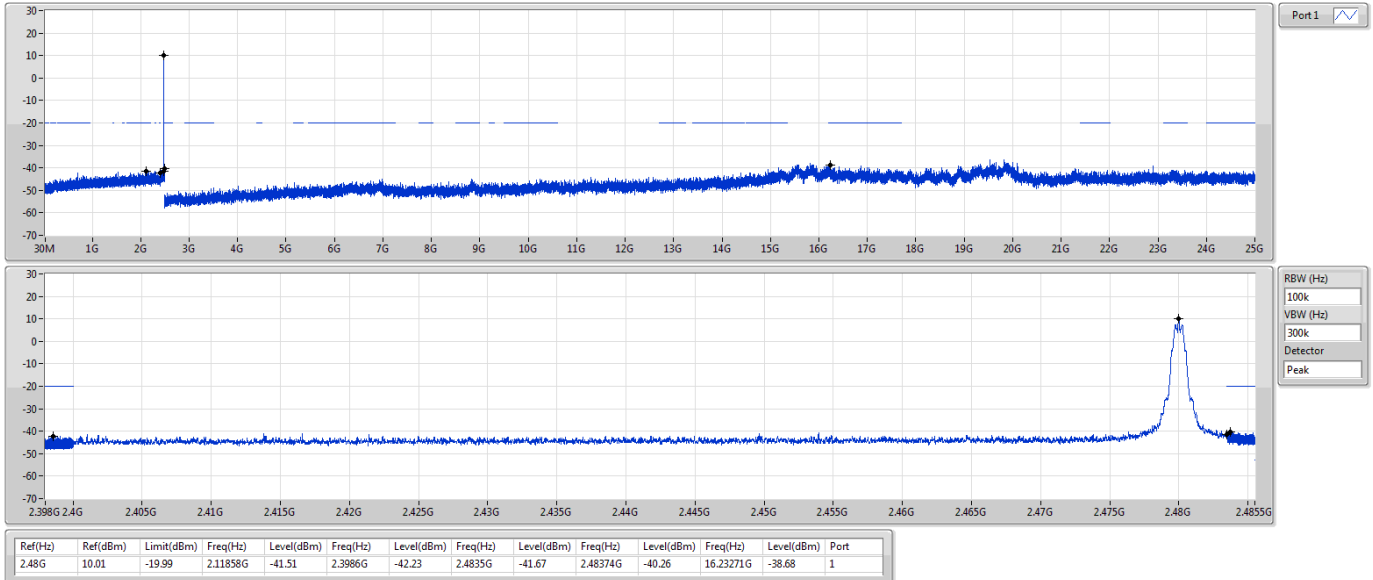
2478MHz



BT-LE(125kbps)

CSEndB-DTS

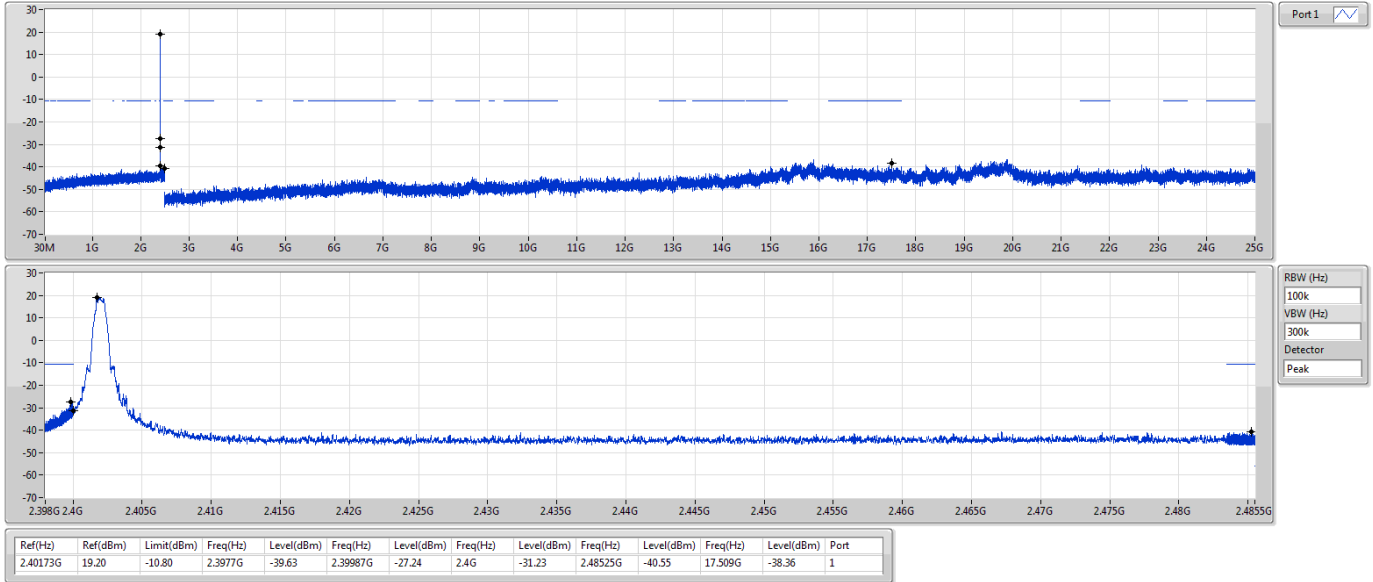
2480MHz



BT-LE(500kbps)

CSEndB-DTS

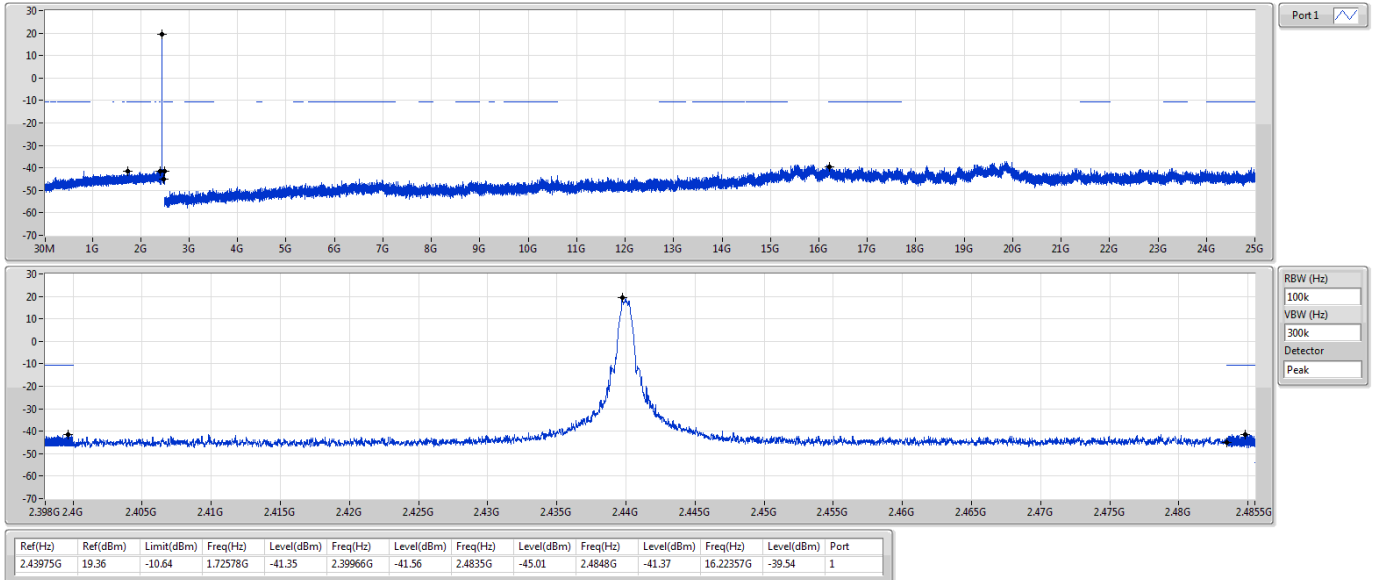
2402MHz



BT-LE(500kbps)

CSEndB-DTS

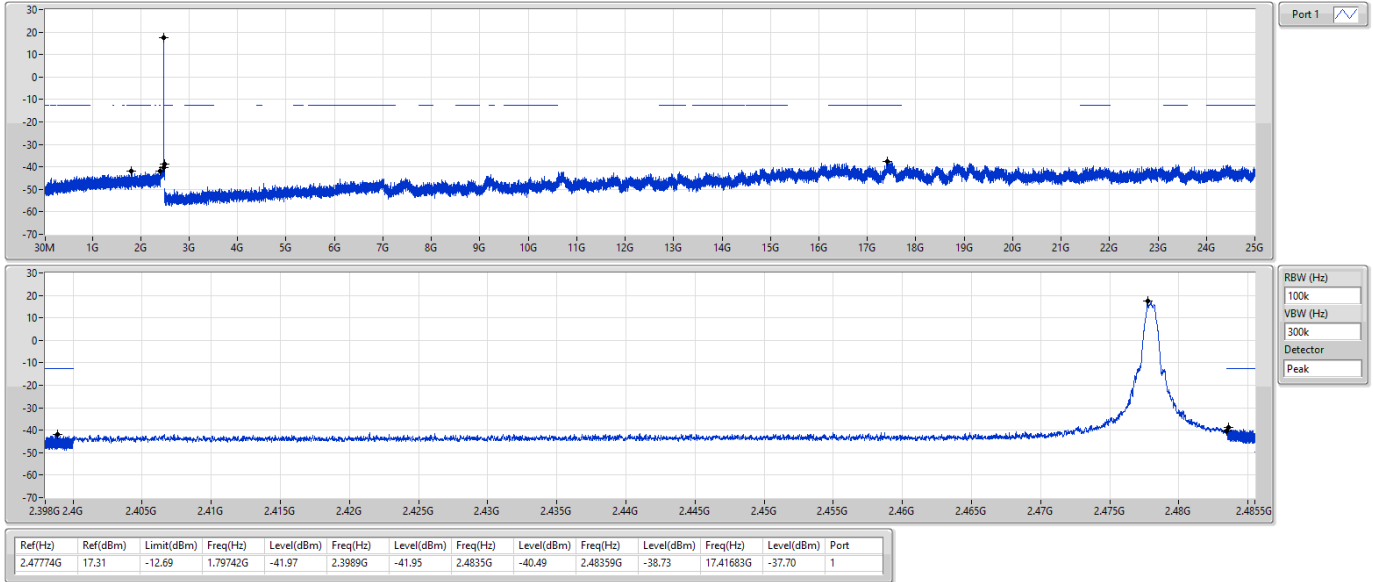
2440MHz



BT-LE(500kbps)

CSENdB-DTS

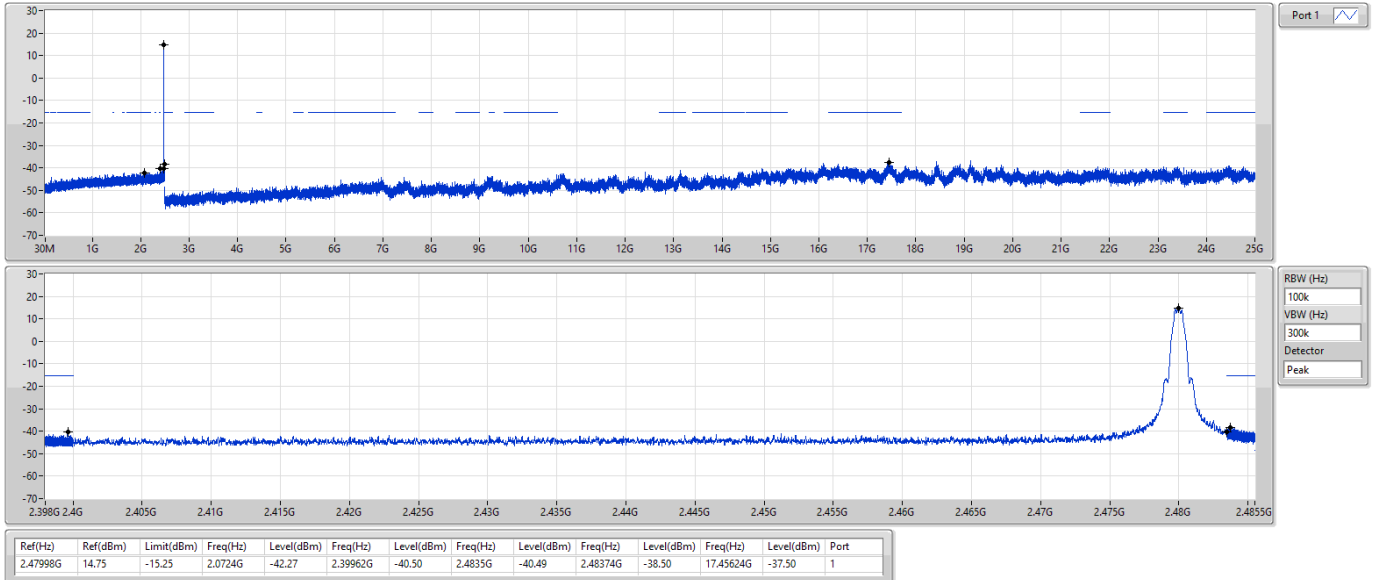
2478MHz



BT-LE(500kbps)

CSENdB-DTS

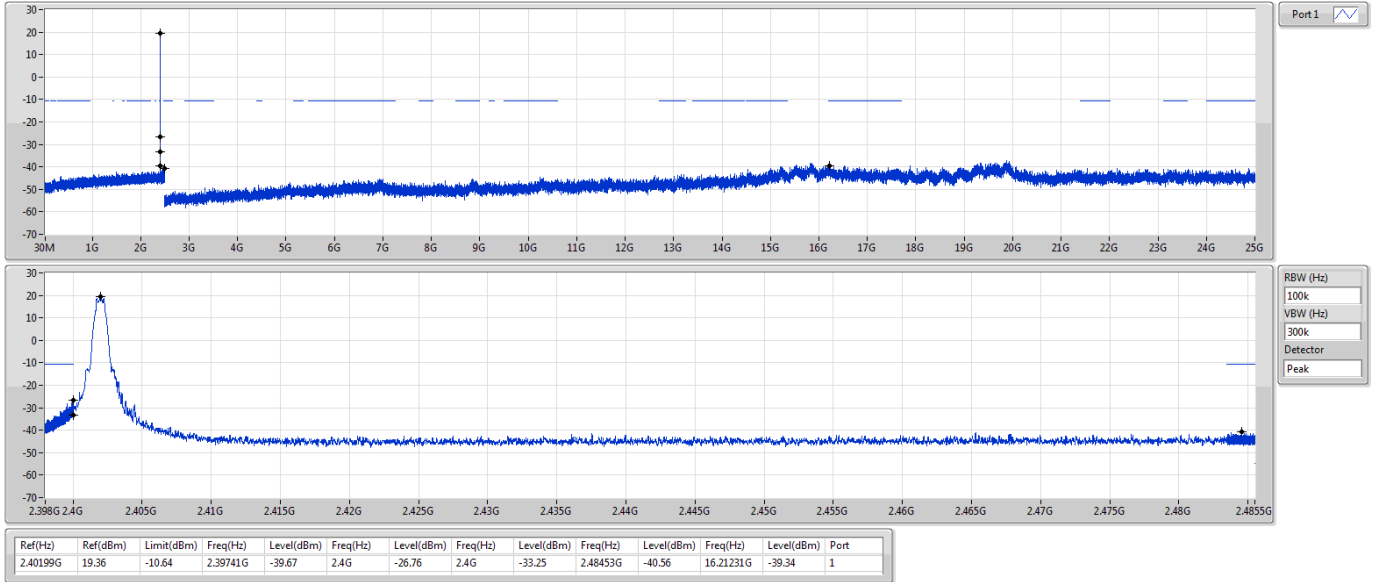
2480MHz



BT-LE(1Mbps)

CSEndB-DTS

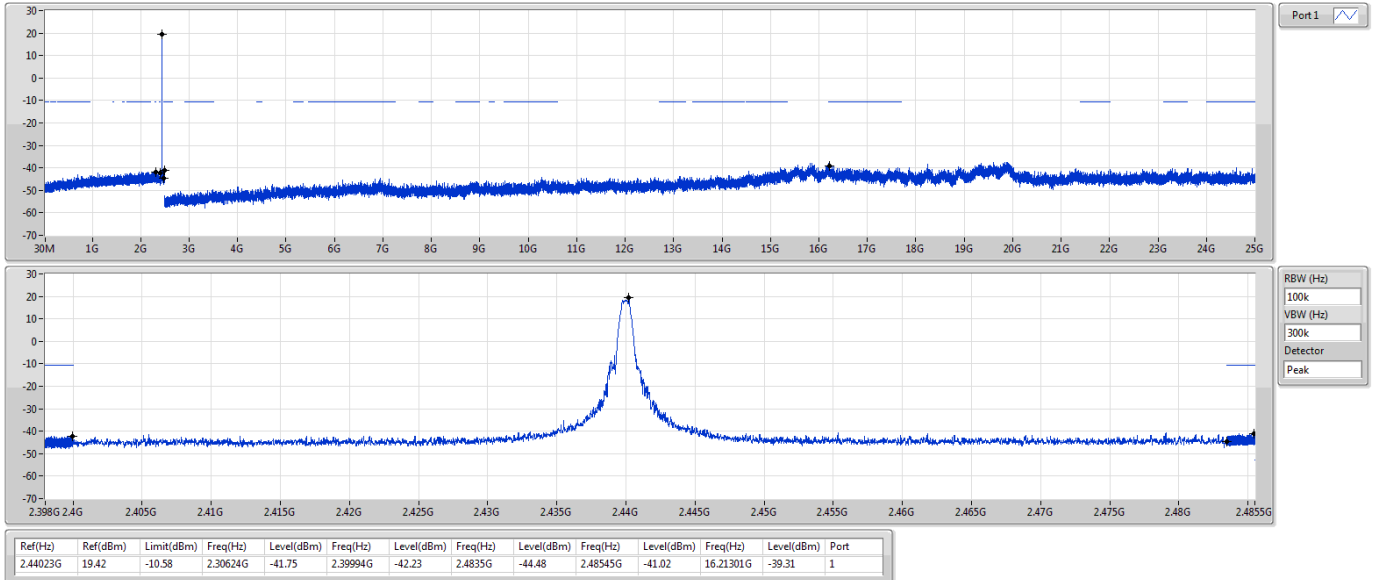
2402MHz



BT-LE(1Mbps)

CSEndB-DTS

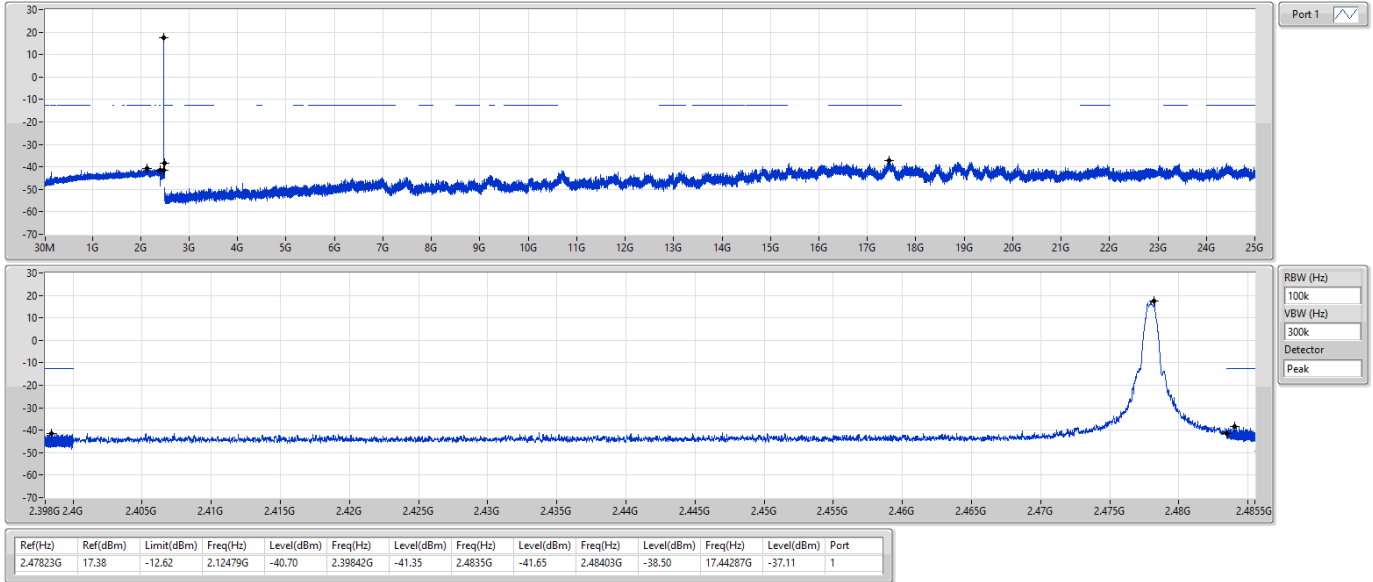
2440MHz



BT-LE(1Mbps)

CSEndB-DTS

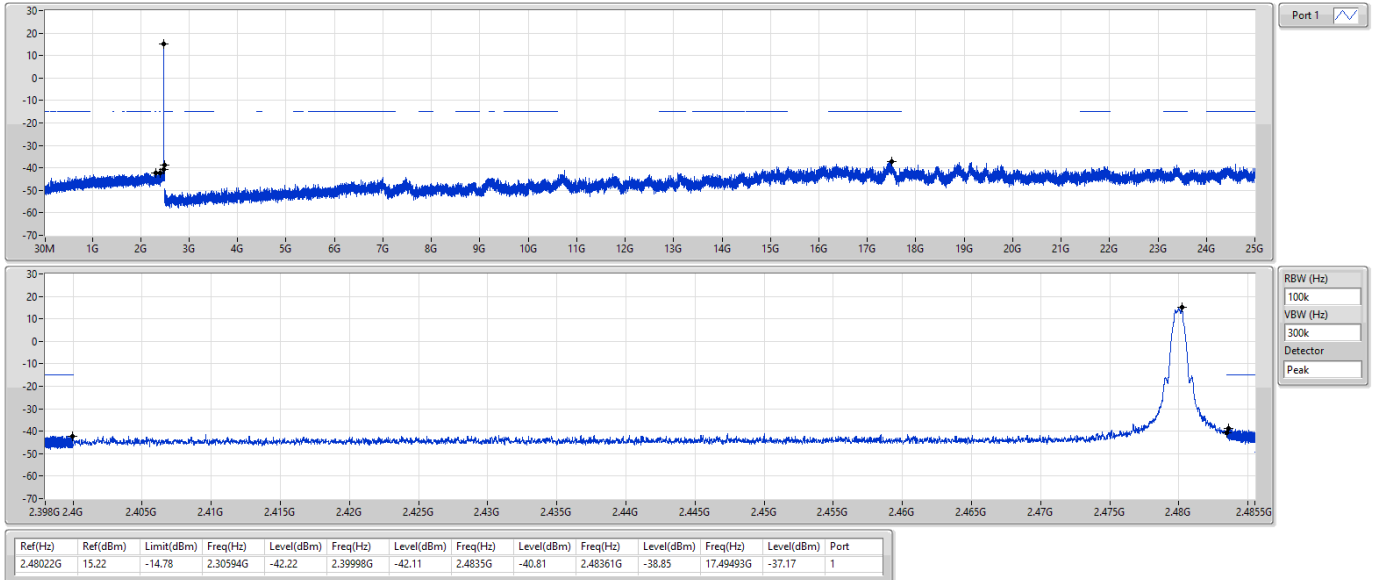
2478MHz



BT-LE(1Mbps)

CSEndB-DTS

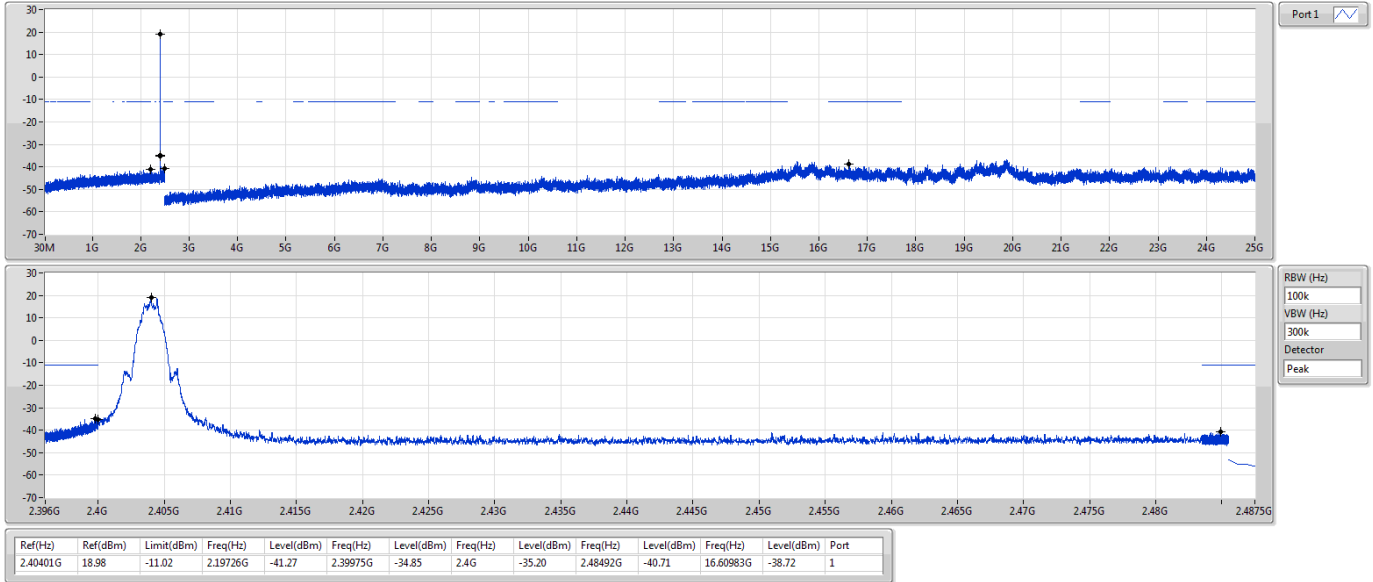
2480MHz



BT-LE(2Mbps)

CSEndB-DTS

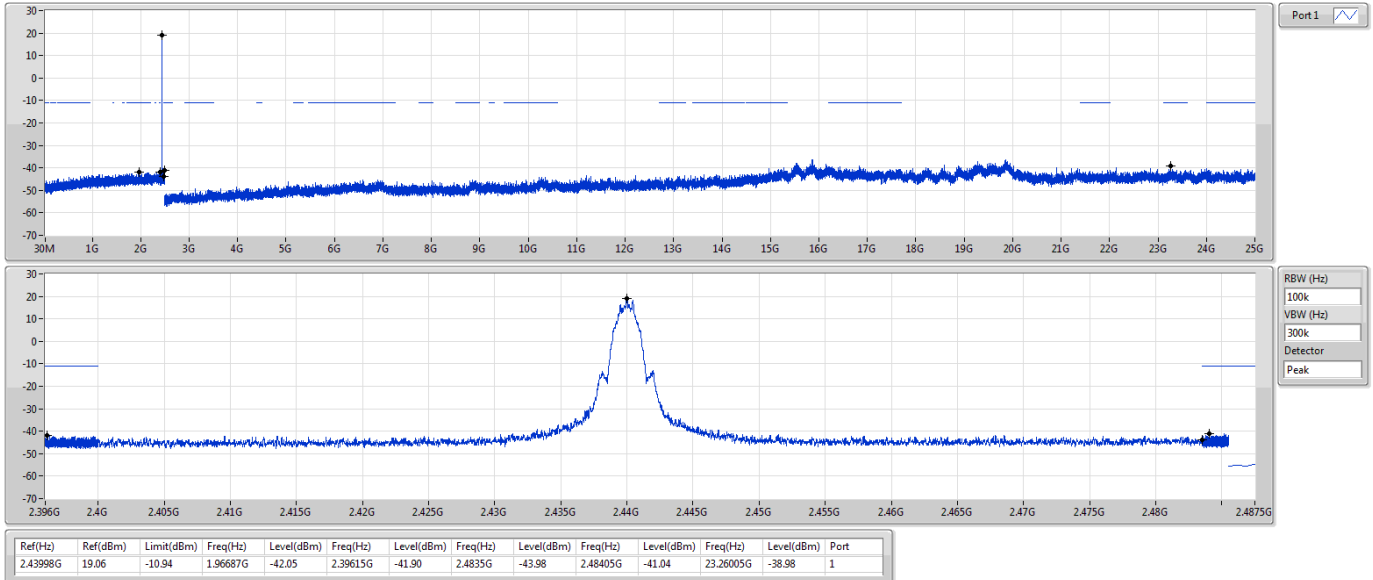
2404MHz



BT-LE(2Mbps)

CSEndB-DTS

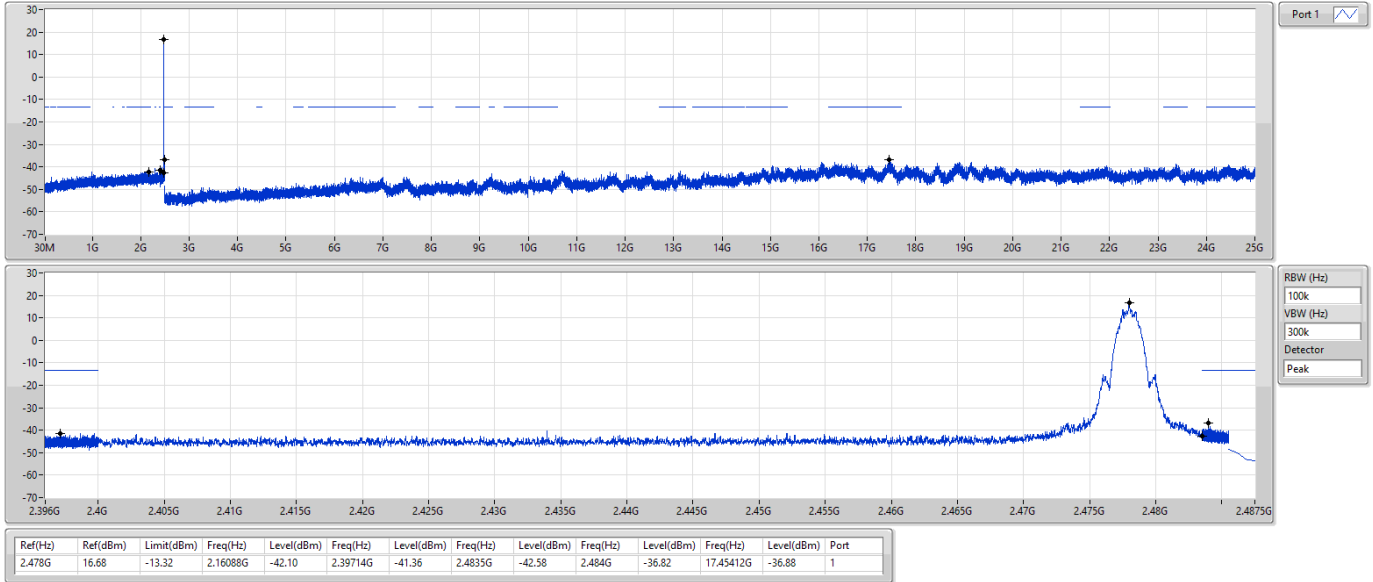
2440MHz



BT-LE(2Mbps)

CSEndB-DTS

2478MHz



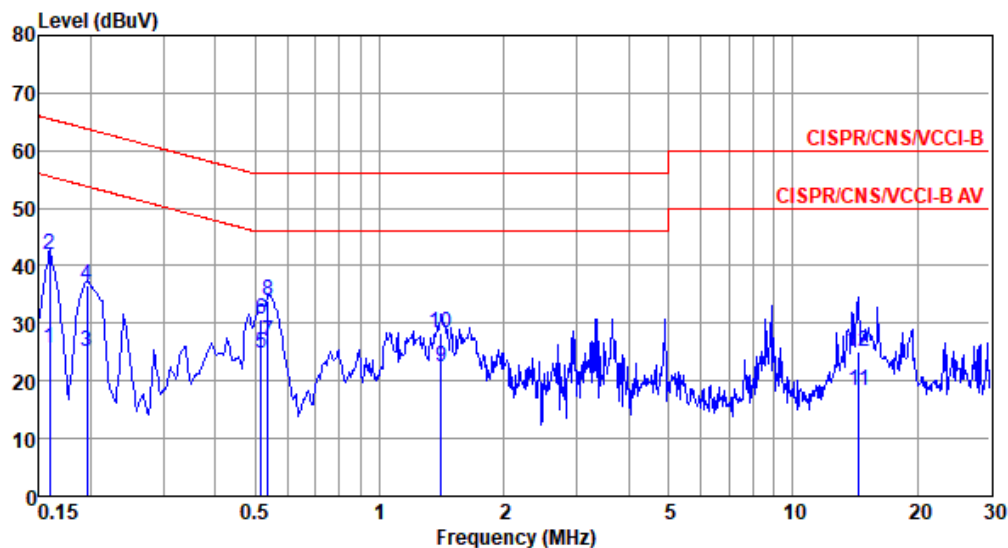
**1) Configuration 1: Laird part number: 453-00142, 10dBm, Integrated Antenna**

Modulation	BT-LE(1Mbps)	Test Freq. (MHz)	2402
Power Phase	Line		

Test by : Joe Liao

Temperature: 21°C

Humidity: 60%



	Freq	Level	Limit	Over	Read	Factor	Cable	Aux	
	MHz	dBuV	Line	Limit	Level	dB	loss	dB	Remark
			dBuV	dB	dBuV		dB		
1	0.159	25.65	55.52	-29.87	16.00	9.59	0.06	0.00	Average
2	0.159	41.81	65.52	-23.71	32.16	9.59	0.06	0.00	QP
3	0.195	25.23	53.80	-28.57	15.58	9.59	0.06	0.00	Average
4	0.195	36.69	63.80	-27.11	27.04	9.59	0.06	0.00	QP
5	0.516	24.66	46.00	-21.34	15.00	9.59	0.07	0.00	Average
6	0.516	30.83	56.00	-25.17	21.17	9.59	0.07	0.00	QP
7*	0.538	26.77	46.00	-19.23	17.10	9.59	0.08	0.00	Average
8	0.538	33.87	56.00	-22.13	24.20	9.59	0.08	0.00	QP
9	1.411	22.52	46.00	-23.48	12.80	9.60	0.12	0.00	Average
10	1.411	28.23	56.00	-27.77	18.51	9.60	0.12	0.00	QP
11	14.440	18.33	50.00	-31.67	8.28	9.62	0.43	0.00	Average
12	14.440	25.11	60.00	-34.89	15.06	9.62	0.43	0.00	QP

Note 1: Level (dBUV) = Read Level (dBUV) + LISN Factor (dB) + Cable Loss (dB) + Aux (dB).

2: Over Limit (dB) = Level (dBUV) - Limit Line (dBUV).

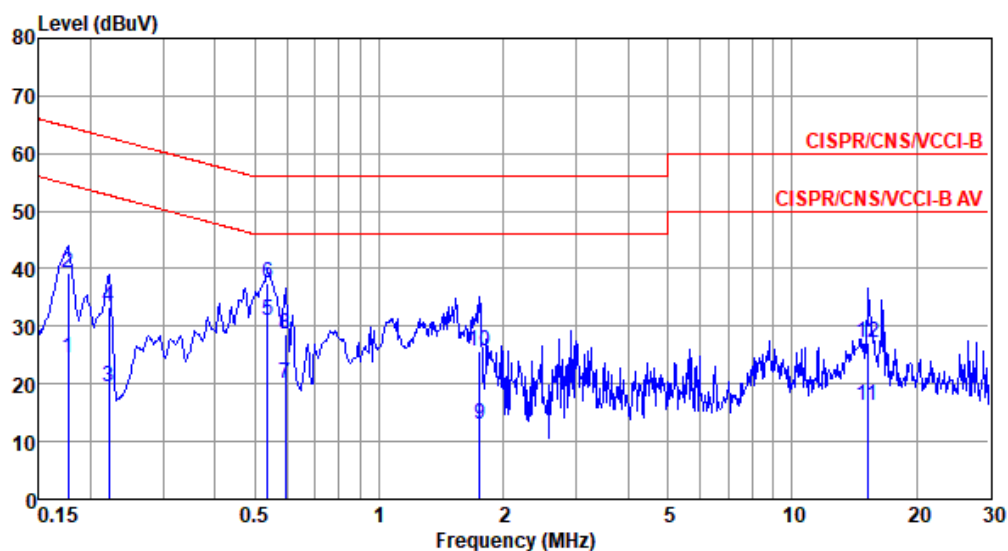


Modulation	BT-LE(1Mbps)	Test Freq. (MHz)	2402
Power Phase	Neutral		

Test by : Joe Liao

Temperature: 21°C

Humidity: 60%



	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	Factor dB	Cable loss dB	Aux dB	Remark
1	0.177	24.64	54.64	-30.00	14.98	9.60	0.06	0.00	Average
2	0.177	39.32	64.64	-25.32	29.66	9.60	0.06	0.00	QP
3	0.222	19.60	52.74	-33.14	9.94	9.60	0.06	0.00	Average
4	0.222	33.25	62.74	-29.49	23.59	9.60	0.06	0.00	QP
5*	0.538	30.90	46.00	-15.10	21.22	9.60	0.08	0.00	Average
6	0.538	37.52	56.00	-18.48	27.84	9.60	0.08	0.00	QP
7	0.592	20.10	46.00	-25.90	10.42	9.60	0.08	0.00	Average
8	0.592	28.57	56.00	-27.43	18.89	9.60	0.08	0.00	QP
9	1.753	12.93	46.00	-33.07	3.19	9.61	0.13	0.00	Average
10	1.753	25.73	56.00	-30.27	15.99	9.61	0.13	0.00	QP
11	15.226	16.18	50.00	-33.82	6.07	9.67	0.44	0.00	Average
12	15.226	27.05	60.00	-32.95	16.94	9.67	0.44	0.00	QP

Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB) + Aux (dB).

2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).



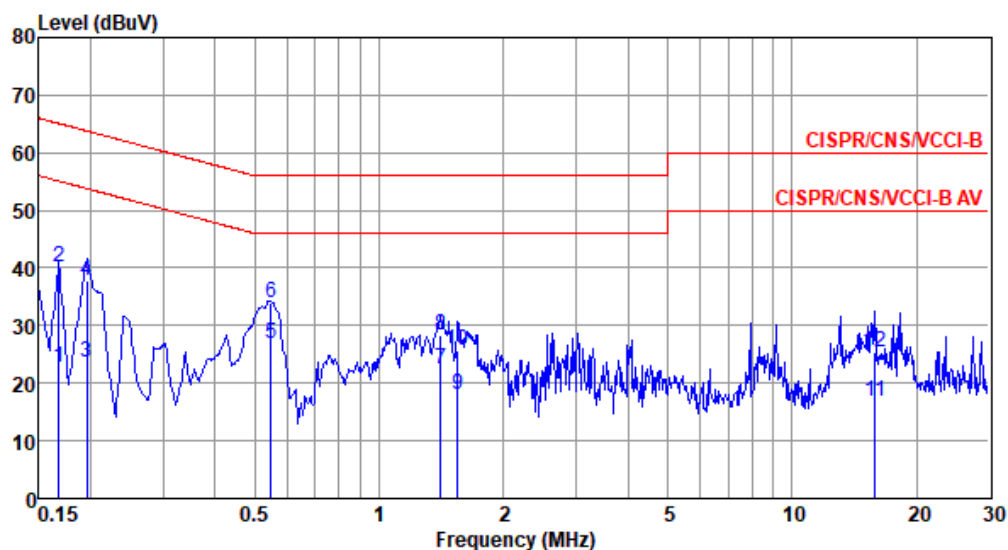
2) Configuration 2: Laird part number: 453-00145, 20dBm, Integrated Antenna

Modulation	BT-LE(1Mbps)	Test Freq. (MHz)	2402
Power Phase	Line		

Test by : Joe Liao

Temperature: 21°C

Humidity: 60%



	Freq	Level	Limit	Over	Read	Factor	Cable	Aux	
	MHz	dBuV	Line	Limit	Level	dB	loss	dB	Remark
			dBuV	dB	dBuV		dB		
1	0.168	22.76	55.08	-32.32	13.11	9.59	0.06	0.00	Average
2	0.168	40.22	65.08	-24.86	30.57	9.59	0.06	0.00	QP
3	0.195	23.72	53.80	-30.08	14.07	9.59	0.06	0.00	Average
4	0.195	37.93	63.80	-25.87	28.28	9.59	0.06	0.00	QP
5*	0.546	26.78	46.00	-19.22	17.11	9.59	0.08	0.00	Average
6	0.546	33.95	56.00	-22.05	24.28	9.59	0.08	0.00	QP
7	1.411	22.44	46.00	-23.56	12.72	9.60	0.12	0.00	Average
8	1.411	28.23	56.00	-27.77	18.51	9.60	0.12	0.00	QP
9	1.552	18.12	46.00	-27.88	8.39	9.61	0.12	0.00	Average
10	1.552	25.57	56.00	-30.43	15.84	9.61	0.12	0.00	QP
11	15.885	16.94	50.00	-33.06	6.88	9.61	0.45	0.00	Average
12	15.885	25.31	60.00	-34.69	15.25	9.61	0.45	0.00	QP

Note 1: Level (dBUV) = Read Level (dBUV) + LISN Factor (dB) + Cable Loss (dB) + Aux (dB).

2: Over Limit (dB) = Level (dBUV) - Limit Line (dBUV).

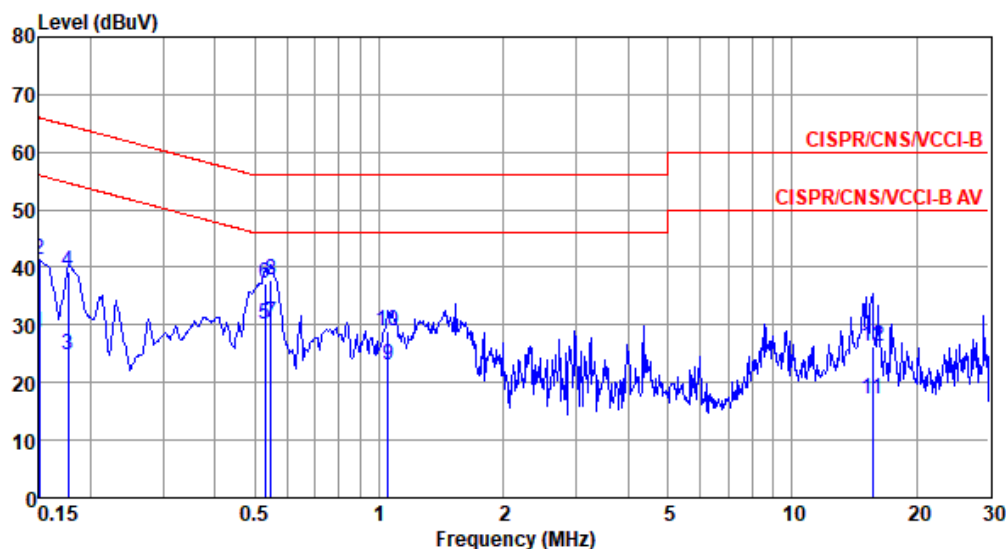


Modulation	BT-LE(1Mbps)	Test Freq. (MHz)	2402
Power Phase	Neutral		

Test by : Joe Liao

Temperature: 21°C

Humidity: 60%



	Freq MHz	Level dBUV	Limit Line dBUV	Over Limit dB	Read Level dBUV	Factor dB	Cable loss dB	Aux dB	Remark
1	0.150	28.55	56.00	-27.45	18.89	9.60	0.06	0.00	Average
2	0.150	41.27	66.00	-24.73	31.61	9.60	0.06	0.00	QP
3	0.177	24.92	54.64	-29.72	15.26	9.60	0.06	0.00	Average
4	0.177	39.39	64.64	-25.25	29.73	9.60	0.06	0.00	QP
5	0.529	30.18	46.00	-15.82	20.50	9.60	0.08	0.00	Average
6	0.529	37.22	56.00	-18.78	27.54	9.60	0.08	0.00	QP
7*	0.546	30.29	46.00	-15.71	20.61	9.60	0.08	0.00	Average
8	0.546	37.80	56.00	-18.20	28.12	9.60	0.08	0.00	QP
9	1.049	23.03	46.00	-22.97	13.32	9.60	0.11	0.00	Average
10	1.049	28.84	56.00	-27.16	19.13	9.60	0.11	0.00	QP
11	15.635	17.10	50.00	-32.90	6.98	9.67	0.45	0.00	Average
12	15.635	26.22	60.00	-33.78	16.10	9.67	0.45	0.00	QP

Note 1: Level (dBUV) = Read Level (dBUV) + LISN Factor (dB) + Cable Loss (dB) + Aux (dB).

2: Over Limit (dB) = Level (dBUV) – Limit Line (dBUV).

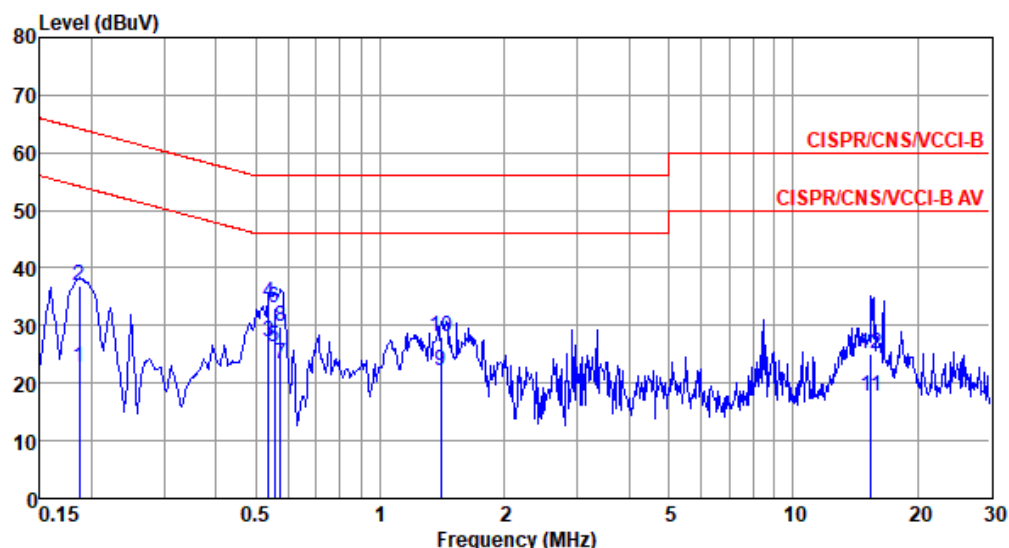
**3) Configuration 3: Laird part number: 453-00148, 20dBm, RF Trace Pad (External antenna)**

Modulation	BT-LE(1Mbps)	Test Freq. (MHz)	2402
Power Phase	Line		

Test by : Joe Liao

Temperature: 21°C

Humidity: 60%



	Freq MHz	Level dBUV	Limit Line dBUV	Over Limit dB	Read Level dBUV	Factor dB	Cable loss dB	Aux dB	Remark
1	0.186	22.62	54.20	-31.58	12.97	9.59	0.06	0.00	Average
2	0.186	36.93	64.20	-27.27	27.28	9.59	0.06	0.00	QP
3*	0.538	27.03	46.00	-18.97	17.36	9.59	0.08	0.00	Average
4	0.538	33.94	56.00	-22.06	24.27	9.59	0.08	0.00	QP
5	0.555	26.31	46.00	-19.69	16.64	9.59	0.08	0.00	Average
6	0.555	33.18	56.00	-22.82	23.51	9.59	0.08	0.00	QP
7	0.573	23.19	46.00	-22.81	13.52	9.59	0.08	0.00	Average
8	0.573	29.77	56.00	-26.23	20.10	9.59	0.08	0.00	QP
9	1.403	22.10	46.00	-23.90	12.38	9.60	0.12	0.00	Average
10	1.403	28.08	56.00	-27.92	18.36	9.60	0.12	0.00	QP
11	15.470	17.73	50.00	-32.27	7.67	9.61	0.45	0.00	Average
12	15.470	25.16	60.00	-34.84	15.10	9.61	0.45	0.00	QP

Note 1: Level (dBUV) = Read Level (dBUV) + LISN Factor (dB) + Cable Loss (dB) + Aux (dB).

2: Over Limit (dB) = Level (dBUV) – Limit Line (dBUV).

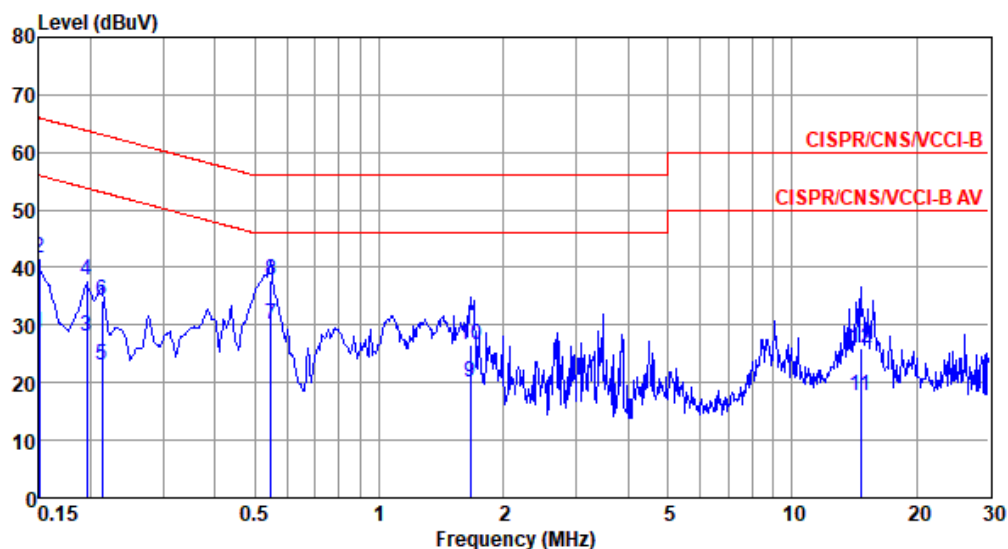


Modulation	BT-LE(1Mbps)	Test Freq. (MHz)	2402
Power Phase	Neutral		

Test by : Joe Liao

Temperature: 21°C

Humidity: 60%



	Freq MHz	Level dBUV	Limit Line dBUV	Over Limit dB	Read Level dBUV	Factor dB	Cable loss dB	Aux dB	Remark
1	0.150	28.60	56.00	-27.40	18.94	9.60	0.06	0.00	Average
2	0.150	41.59	66.00	-24.41	31.93	9.60	0.06	0.00	QP
3	0.195	27.91	53.80	-25.89	18.25	9.60	0.06	0.00	Average
4	0.195	37.80	63.80	-26.00	28.14	9.60	0.06	0.00	QP
5	0.213	23.15	53.10	-29.95	13.49	9.60	0.06	0.00	Average
6	0.213	34.18	63.10	-28.92	24.52	9.60	0.06	0.00	QP
7*	0.546	30.23	46.00	-15.77	20.55	9.60	0.08	0.00	Average
8	0.546	37.68	56.00	-18.32	28.00	9.60	0.08	0.00	QP
9	1.662	19.93	46.00	-26.07	10.20	9.61	0.12	0.00	Average
10	1.662	26.59	56.00	-29.41	16.86	9.61	0.12	0.00	QP
11	14.672	17.58	50.00	-32.42	7.47	9.67	0.44	0.00	Average
12	14.672	26.02	60.00	-33.98	15.91	9.67	0.44	0.00	QP

Note 1: Level (dBUV) = Read Level (dBUV) + LISN Factor (dB) + Cable Loss (dB) + Aux (dB).

2: Over Limit (dB) = Level (dBUV) – Limit Line (dBUV).