FCC Test Report

FCC ID	:	**Q9DARBT0035**
Equipment	:	**Location Beacon / Tag**
Model No.	:	**ARBT0035**
Brand Name	:	**Aruba**
Applicant	:	**Hewlett Packard Enterprise company**
Address	:	**3333 Scott Blvd, Santa Clara, CA 95054, USA**
Standard	:	**47 CFR FCC Part 15.247**
Received Date	:	**Nov. 28, 2019**
Tested Date	:	**Dec. 05 ~ Dec. 12, 2019**

We, International Certification Corp., 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 may be duplicated completely for legal use with the approval of the applicant. 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**

Testing Laboratory 2732

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Release Record

Report No.	Version	Description	Issued Date
FR9N2801	Rev. 01	Initial issue	Mar. 12, 2020

Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	AC Power Line Conducted Emissions	Note	N/A
15.247(d) 15.209	Radiated Emissions	[dBuV/m at 3m]: 36.79MHz 31.62 (Margin -8.38dB) - PK	Pass
15.247(b)(3)	Maximum Output Power	Power [dBm]: -0.19	Pass
15.247(a)(2)	6dB Bandwidth	Meet the requirement of limit	Pass
15.247(e)	Power Spectral Density	Meet the requirement of limit	Pass
15.203	Antenna Requirement	Meet the requirement of limit	Pass
N/A means Not Applicable. Note: The EUT consumes DC power from battery, so the test is not required.			

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 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	V5.0 LE	2402-2480	0-39 [40]	125 kbps
				500 kbps
				1 Mbps
				2 Mbps
Note 1: Bluetooth LE (Low energy) uses GFSK modulation.				

1.1.2 Antenna Details

Ant. No.	Type	Connector	Gain (dBi)
1	PIFA	N/A	3.1
2	PIFA	N/A	2.4

1.1.3 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	DC 3V from battery

1.1.4 Accessories

Accessories		
No.	**Equipment**	**Description**
1	Battery	Brand: Wuhan Fanso Technology Co.,Ltd Model: CP505050 Power Rating: 3V, 3000mAH

1.1.5 Channel List

Frequency band (MHz)				2400~2483.5			
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

1.1.6 Test Tool and Duty Cycle

Test Tool	nRFgo Studio, version: 1.21.2.10		
Duty Cycle and Duty Factor	Modulation Mode	Duty Cycle (%)	Duty Factor (dB)
	GFSK/125kbps	83.82%	0.77
	GFSK/500kbps	87.93%	0.56
	GFSK/1Mbps	64.53%	1.90
	GFSK/2Mbps	34.30%	4.65

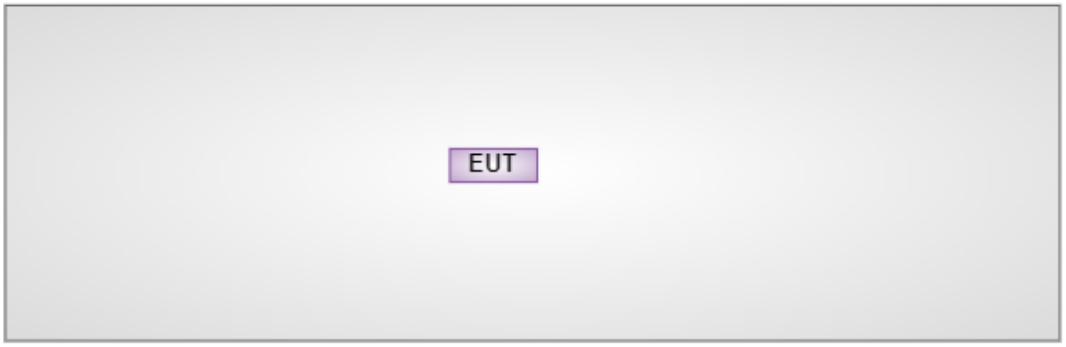
1.1.7 Power Index of Test Tool

Modulation Mode	Test Frequency (MHz)		
	2402	2440	2480
GFSK/125kbps	default	default	default
GFSK/500kbps	default	default	default
GFSK/1Mbps	default	default	default
GFSK/2Mbps	default	default	default

1.2 Local Support Equipment List

Support Equipment List					
No.	**Equipment**	**Brand**	**Model**	**FCC ID**	**Remarks**
1	Notebook	DELL	Latitude E5470	DoC	---

1.3 Test Setup Chart

Test Setup Diagram


The support notebook was disconnected from EUT and removed from test table when EUT is set to transmit/receive continuously.

1.4 Test Equipment List and Calibration Data

Test Item	Radiated Emission				
Test Site	966 chamber1 / (03CH01-WS)				
Tested Date	Dec. 05 ~ Dec. 12, 2019				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV40	101498	Dec. 27, 2018	Dec. 26, 2019
Receiver	R&S	ESR3	101657	Jan. 08, 2019	Jan. 07, 2020
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-522	Jul. 12, 2019	Jul. 11, 2020
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1096	Dec. 18, 2018	Dec. 17, 2019
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Nov. 15, 2019	Nov. 14, 2020
Loop Antenna	R&S	HFH2-Z2	100330	Nov. 13, 2019	Nov. 12, 2020
Loop Antenna Cable	KOAX KABEL	101354-BW	101354-BW	Oct. 07, 2019	Oct. 06, 2020
Preamplifier	EMC	EMC02325	980225	Jul. 09, 2019	Jul. 08, 2020
Preamplifier	Agilent	83017A	MY39501308	Oct. 08, 2019	Oct. 07, 2020
Preamplifier	EMC	EMC184045B	980192	Aug. 01, 2019	Jul. 31, 2020
RF Cable	EMC	EMC104-SM-SM-8000	181106	Oct. 07, 2019	Oct. 06, 2020
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16019/4	Oct. 07, 2019	Oct. 06, 2020
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16014/4	Oct. 07, 2019	Oct. 06, 2020
LF cable 1M	EMC	EMCCFD400-NM-NM-1000	160502	Oct. 07, 2019	Oct. 06, 2020
LF cable 3M	Woken	CFD400NL-LW	CFD400NL-001	Oct. 07, 2019	Oct. 06, 2020
LF cable 10M	Woken	CFD400NL-LW	CFD400NL-002	Oct. 07, 2019	Oct. 06, 2020
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	Dec. 06 ~ Dec. 11, 2019				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV40	101063	Apr. 17, 2019	Apr. 16, 2020
Power Meter	Anritsu	ML2495A	1241002	Oct. 23, 2019	Oct. 22, 2020
Power Sensor	Anritsu	MA2411B	1207366	Oct. 23, 2019	Oct. 22, 2020
DC POWER SOURCE	GW INSTEK	GPC-6030D	GES855395	Oct. 29, 2019	Oct. 28, 2020
Measurement Software	Sporton	Sporton_1	1.3.30	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

1.5 Test Standards

According to the specification of EUT, the EUT must comply with following standards and KDB documents.

47 CFR FCC Part 15.247
ANSI C63.10-2013
FCC KDB 558074 D01 15.247 Meas Guidance v05r02

1.6 Deviation from Test Standard and Measurement Procedure

None

1.7 Measurement Uncertainty

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

Measurement Uncertainty	
Parameters	**Uncertainty**
Bandwidth	±34.130 Hz
Conducted power	±0.808 dB
Power density	±0.583 dB
Conducted emission	±2.715 dB
Radiated emission ≤ 1GHz	±3.41 dB
Radiated emission > 1GHz	±4.59 dB

2 Test Configuration

2.1 Testing Condition

Test Item	Test Site	Ambient Condition	Tested By
Radiated Emissions	03CH01-WS	20-22°C / 65-69%	Akun Chung Aska Huang
RF Conducted	TH01-WS	22°C / 63-64%	Brad Wu

- FCC Designation No.: TW2732
- FCC site registration No.: 181692
- ISED#: 10807A
- CAB identifier: TW2732

2.2 The Worst Test Modes and Channel Details

Test item	Mode	Test Frequency (MHz)	Data Rate	Test Configuration
Radiated Emissions ≤ 1GHz	BT LE	2440 2440 2480 2480	1Mbps 2Mbps 1Mbps 2Mbps	1 1 2 2
Maximum Output Power 6dB bandwidth Power spectral density	BT LE	2402, 2440, 2480 2402, 2440, 2480 2402, 2440, 2480 2402, 2440, 2480	125kbps 500kbps 1Mbps 2Mbps	1, 2
Radiated Emissions > 1GHz	BT LE	2402, 2440, 2480 2402, 2440, 2480	1Mbps 2Mbps	1, 2

NOTE:

1. 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.
2. Test configurations are listed as below:
   1) Configuration 1: Ant1
   2) Configuration 2: Ant2

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

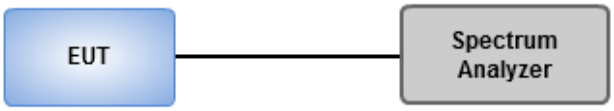
6dB Bandwidth

1. Set resolution bandwidth (RBW) = 100 kHz, Video bandwidth = 300 kHz.
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



Configuration 1: Ant1

3.1.4 Test Result of 6dB and Occupied Bandwidth

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
BT-LE0.125_Nss1_1TX	623.188k	1.075M	1M08F1D	608.696k	1.071M
BT-LE0.5_Nss1_1TX	702.899k	1.046M	1M05F1D	681.159k	1.035M
BT-LE(1Mbps)	688.406k	1.042M	1M04F1D	684.783k	1.038M
BT-LE(2Mbps)	1.138M	2.041M	2M04F1D	1.116M	2.033M

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;

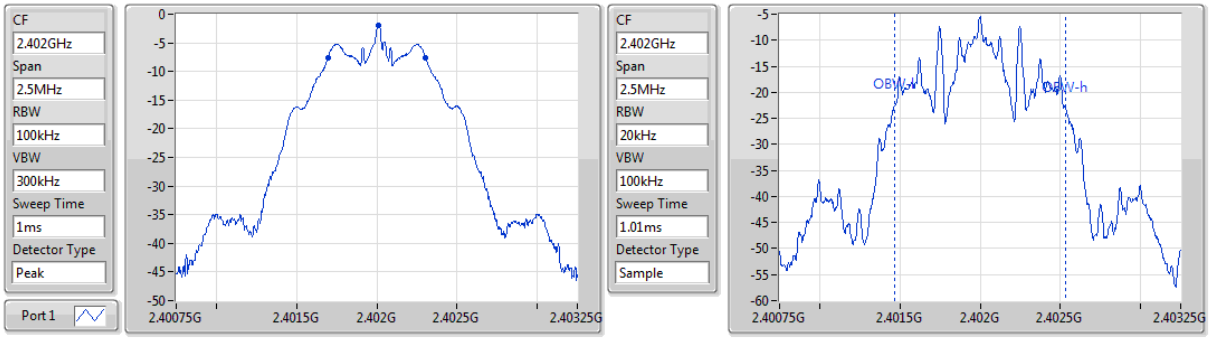
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE0.125_Nss1_1TX	-	-	-	-
2402MHz	Pass	500k	608.696k	1.071M
2440MHz	Pass	500k	623.188k	1.075M
2480MHz	Pass	500k	608.696k	1.075M
BT-LE0.5_Nss1_1TX	-	-	-	-
2402MHz	Pass	500k	692.029k	1.035M
2440MHz	Pass	500k	681.159k	1.046M
2480MHz	Pass	500k	702.899k	1.042M
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	688.406k	1.038M
2440MHz	Pass	500k	684.783k	1.042M
2480MHz	Pass	500k	684.783k	1.042M
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	500k	1.13M	2.033M
2440MHz	Pass	500k	1.116M	2.041M
2480MHz	Pass	500k	1.138M	2.033M

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

BT-LE0.125_Nss1_1TX **EBW**

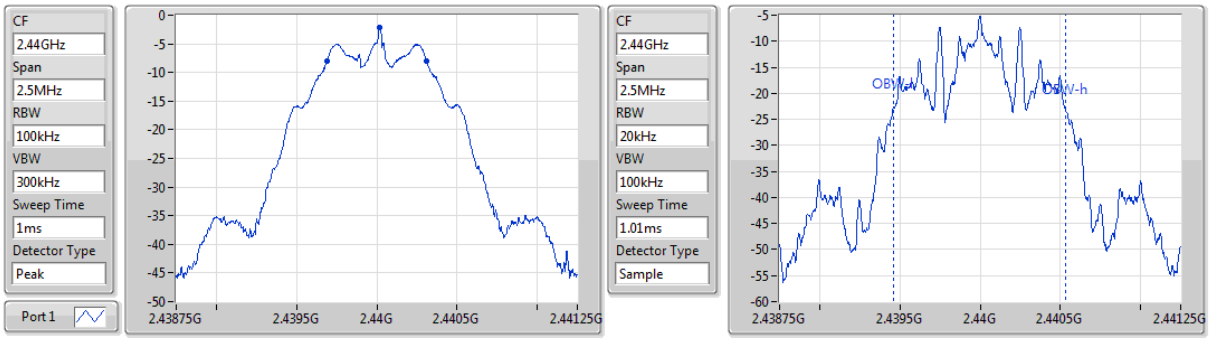
2402MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
608.696k	2.401696G	2.402304G	1.071M	2.401465G	2.402535G	500k	1

BT-LE0.125_Nss1_1TX **EBW**

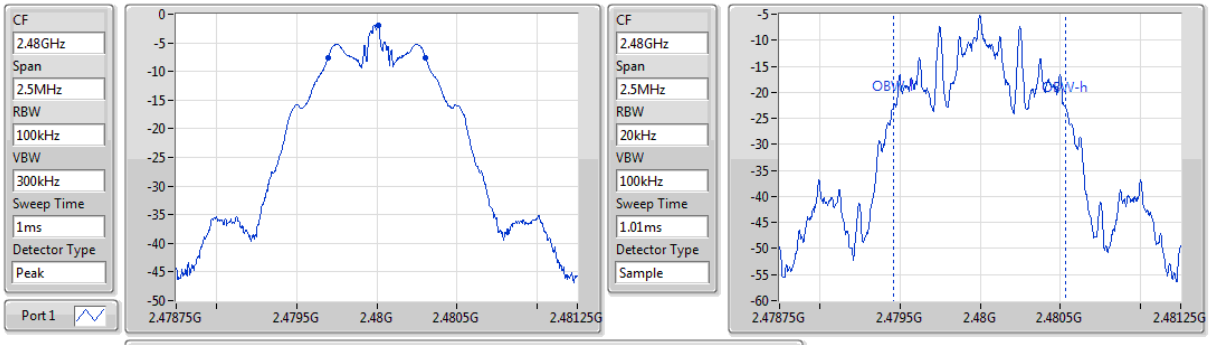
2440MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
623.188k	2.439688G	2.440312G	1.075M	2.439461G	2.440535G	500k	1

BT-LE0.125_Nss1_1TX **EBW**

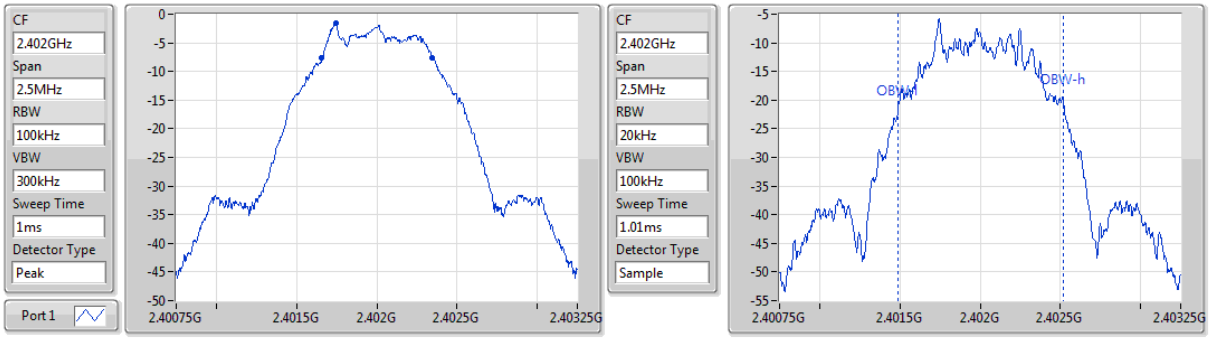
2480MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
608.696k	2.479696G	2.480304G	1.075M	2.479461G	2.480535G	500k	1

BT-LE0.5_Nss1_1TX **EBW**

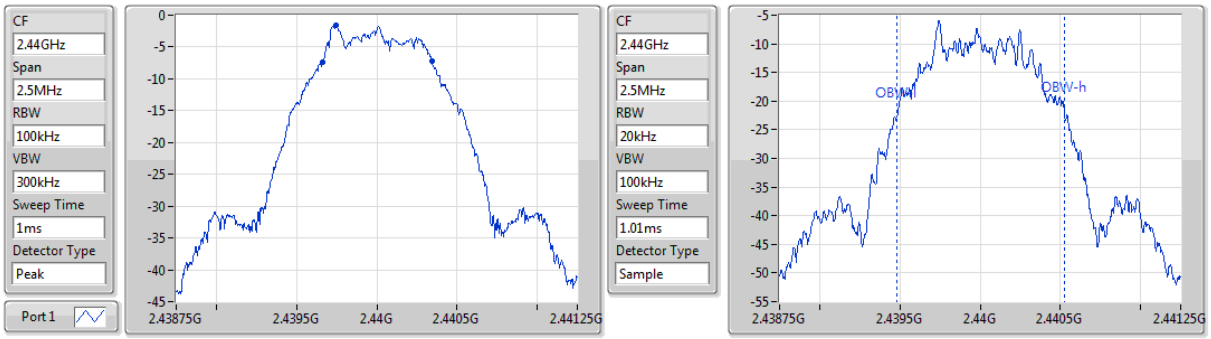
2402MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
692.029k	2.401656G	2.402348G	1.035M	2.401486G	2.402521G	500k	1

BT-LE0.5_Nss1_1TX **EBW**

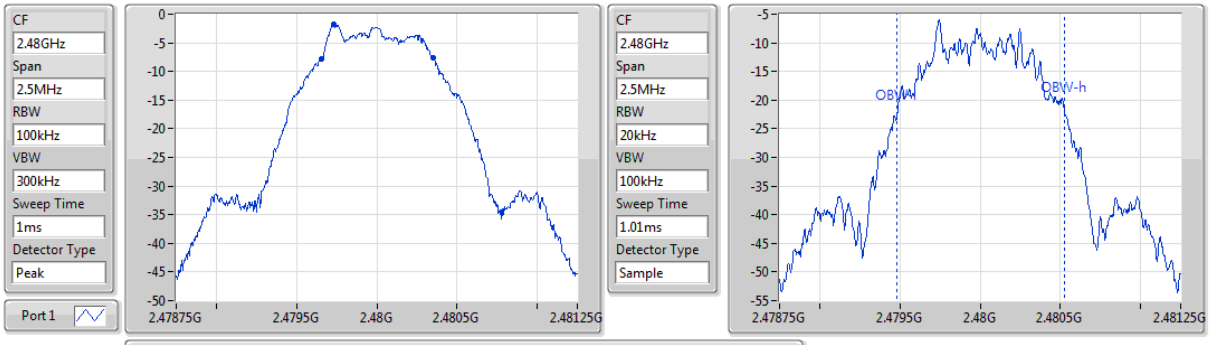
2440MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
681.159k	2.439663G	2.440344G	1.046M	2.439479G	2.440525G	500k	1

BT-LE0.5_Nss1_1TX **EBW**

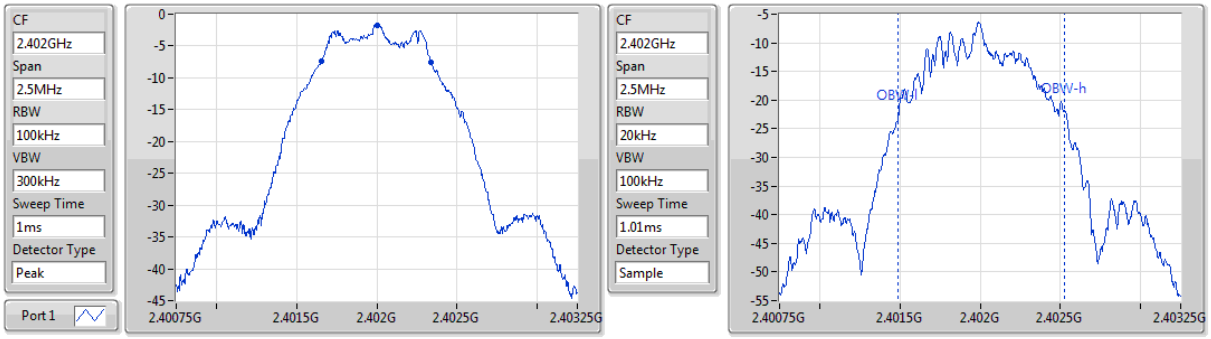
2480MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
702.899k	2.479652G	2.480355G	1.042M	2.479483G	2.480525G	500k	1

BT-LE(1Mbps) **EBW**

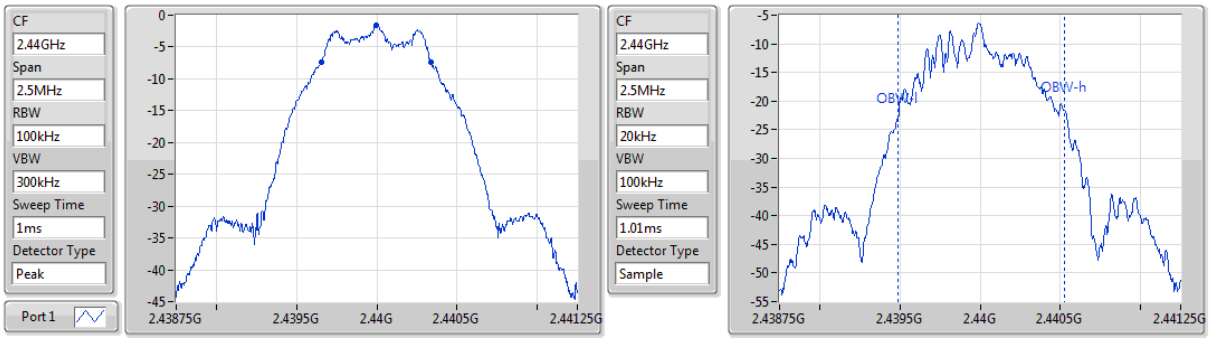
2402MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
688.406k	2.401652G	2.402341G	1.038M	2.40149G	2.402528G	500k	1

BT-LE(1Mbps) **EBW**

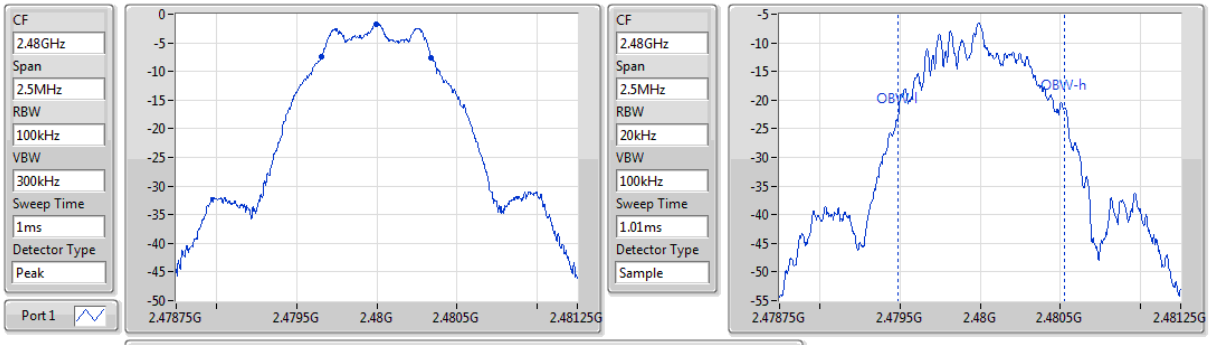
2440MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
684.783k	2.439656G	2.440341G	1.042M	2.439486G	2.440528G	500k	1

BT-LE(1Mbps) **EBW**

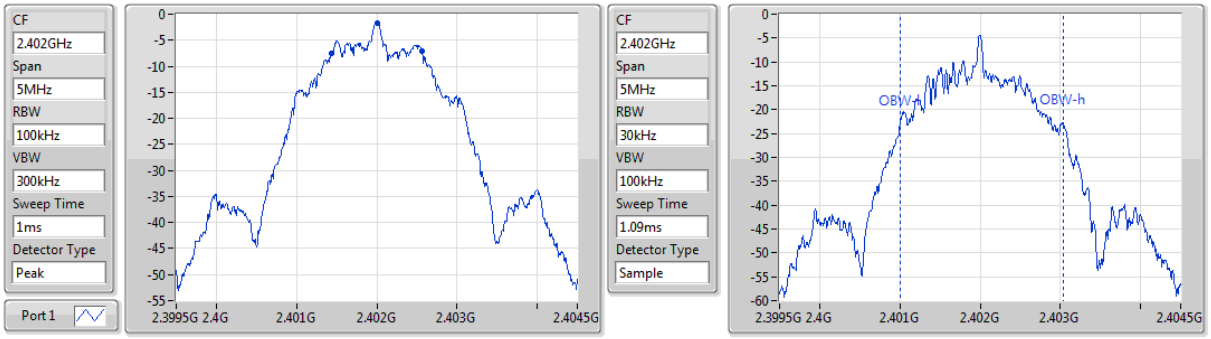
2480MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
684.783k	2.479656G	2.480341G	1.042M	2.479486G	2.480528G	500k	1

BT-LE(2Mbps) **EBW**

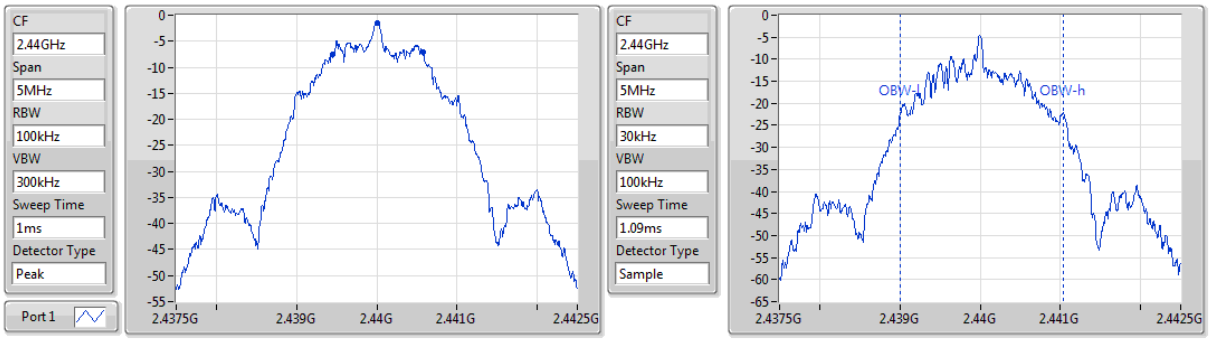
2402MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.13M	2.401435G	2.402565G	2.033M	2.401001G	2.403035G	500k	1

BT-LE(2Mbps) **EBW**

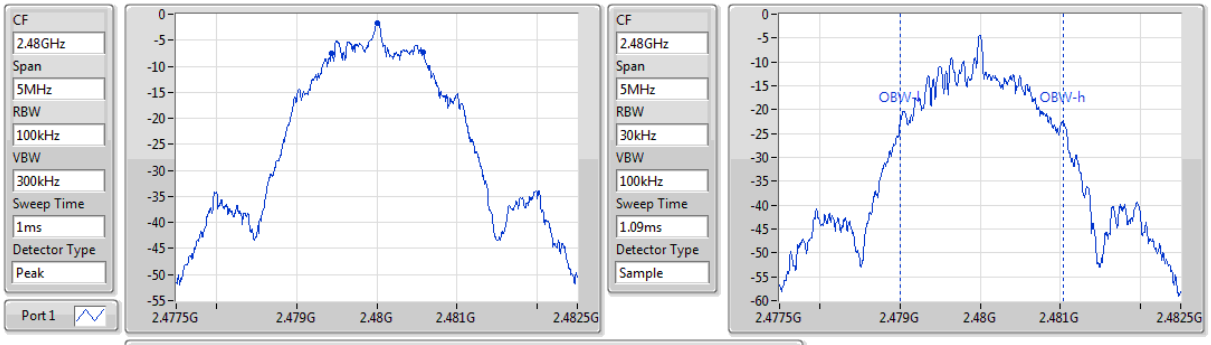
2440MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.116M	2.439457G	2.440572G	2.041M	2.439001G	2.441042G	500k	1

BT-LE(2Mbps) **EBW**

2480MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.138M	2.479442G	2.48058G	2.033M	2.479001G	2.481035G	500k	1

Configuration 2: Ant2

3.1.5 Test Result of 6dB and Occupied Bandwidth

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
BT-LE0.125_Nss1_1TX	724.638k	1.078M	1M08F1D	608.696k	1.071M
BT-LE0.5_Nss1_1TX	702.899k	1.046M	1M05F1D	681.159k	1.038M
BT-LE(1Mbps)	684.783k	1.042M	1M04F1D	677.536k	1.035M
BT-LE(2Mbps)	1.138M	2.033M	2M03F1D	1.13M	2.026M

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;

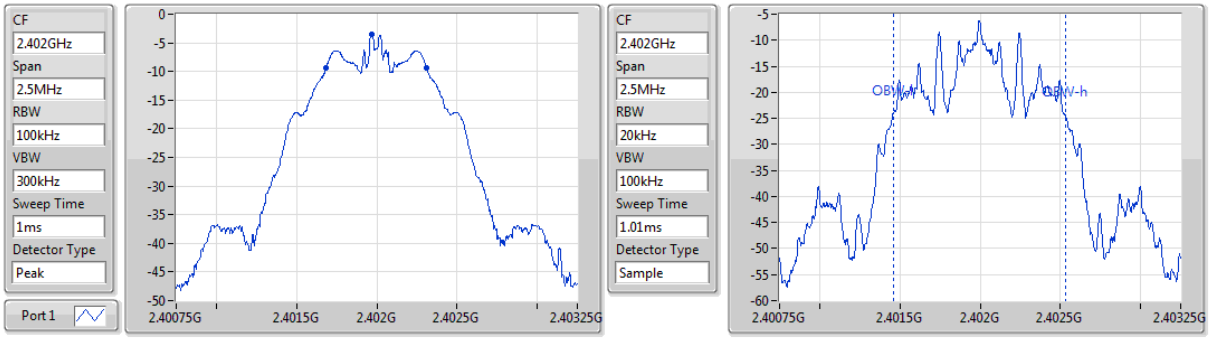
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE0.125_Nss1_1TX	-	-	-	-
2402MHz	Pass	500k	626.812k	1.071M
2440MHz	Pass	500k	724.638k	1.075M
2480MHz	Pass	500k	608.696k	1.078M
BT-LE0.5_Nss1_1TX	-	-	-	-
2402MHz	Pass	500k	688.406k	1.038M
2440MHz	Pass	500k	681.159k	1.046M
2480MHz	Pass	500k	702.899k	1.042M
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	681.159k	1.035M
2440MHz	Pass	500k	677.536k	1.038M
2480MHz	Pass	500k	684.783k	1.042M
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	500k	1.13M	2.026M
2440MHz	Pass	500k	1.138M	2.033M
2480MHz	Pass	500k	1.138M	2.033M

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

BT-LE0.125_Nss1_1TX **EBW**

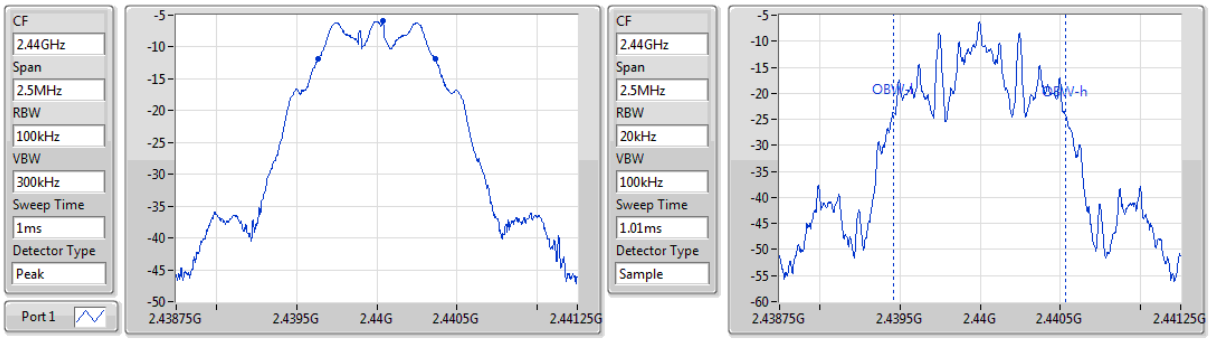
2402MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
626.812k	2.401681G	2.402308G	1.071M	2.401461G	2.402532G	500k	1

BT-LE0.125_Nss1_1TX **EBW**

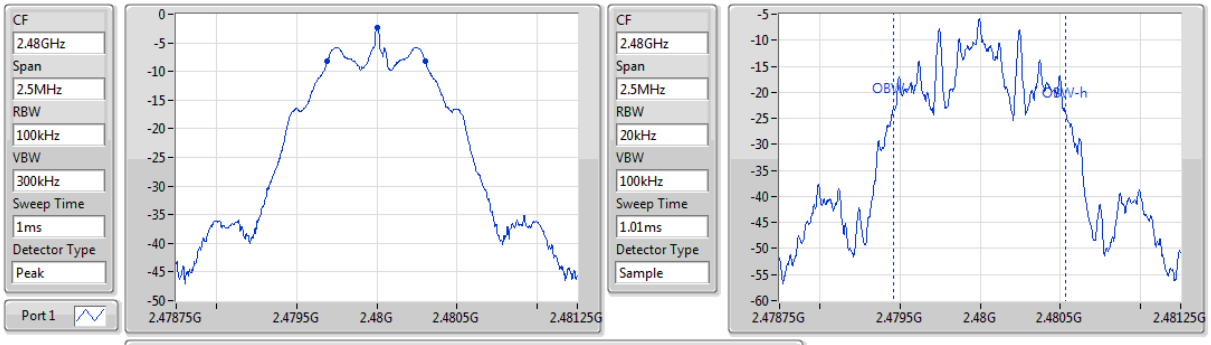
2440MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
724.638k	2.439638G	2.440362G	1.075M	2.439457G	2.440532G	500k	1

BT-LE0.125_Nss1_1TX **EBW**

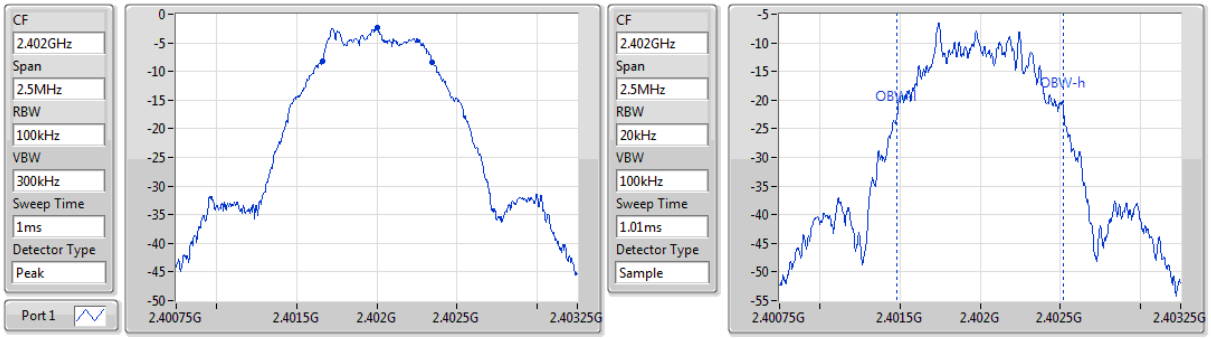
2480MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
608.696k	2.479692G	2.480301G	1.078M	2.479457G	2.480535G	500k	1

BT-LE0.5_Nss1_1TX **EBW**

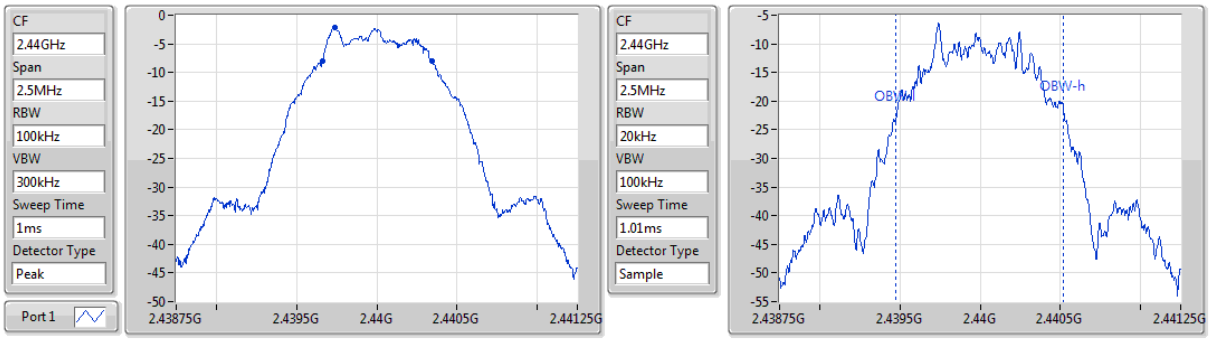
2402MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
688.406k	2.401659G	2.402348G	1.038M	2.401479G	2.402517G	500k	1

BT-LE0.5_Nss1_1TX **EBW**

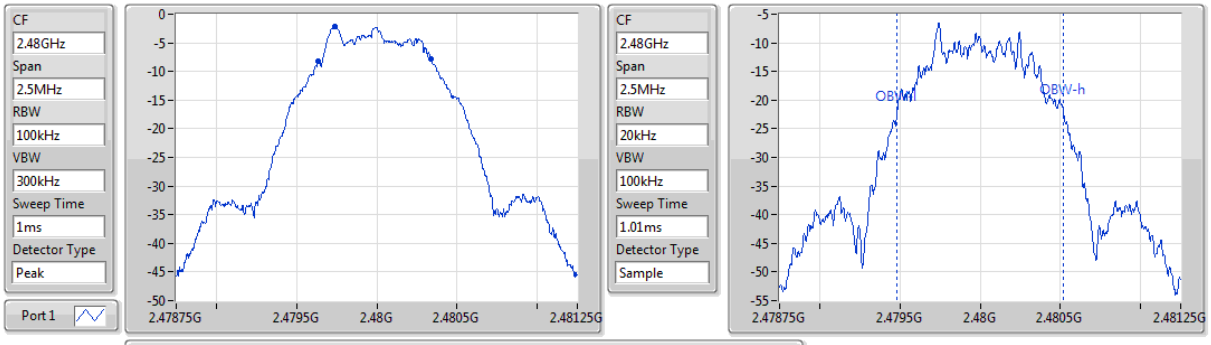
2440MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
681.159k	2.439663G	2.440344G	1.046M	2.439475G	2.440521G	500k	1

BT-LE0.5_Nss1_1TX **EBW**

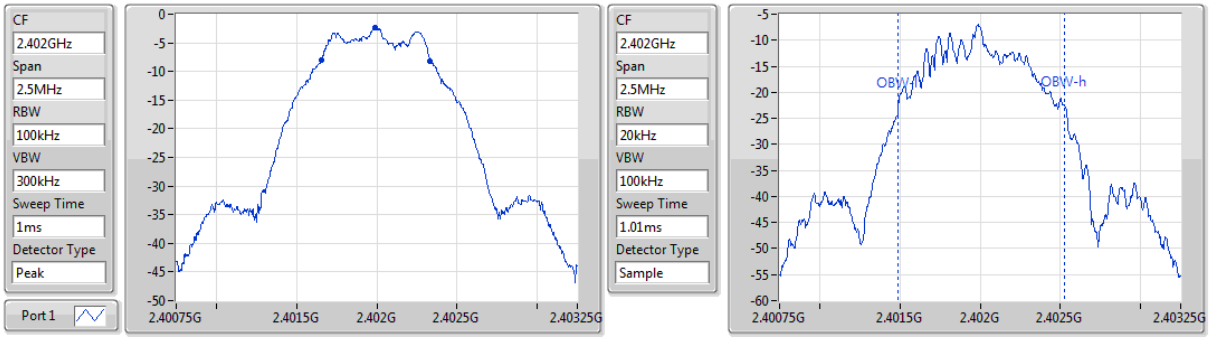
2480MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
702.899k	2.479638G	2.480341G	1.042M	2.479479G	2.480521G	500k	1

BT-LE(1Mbps) **EBW**

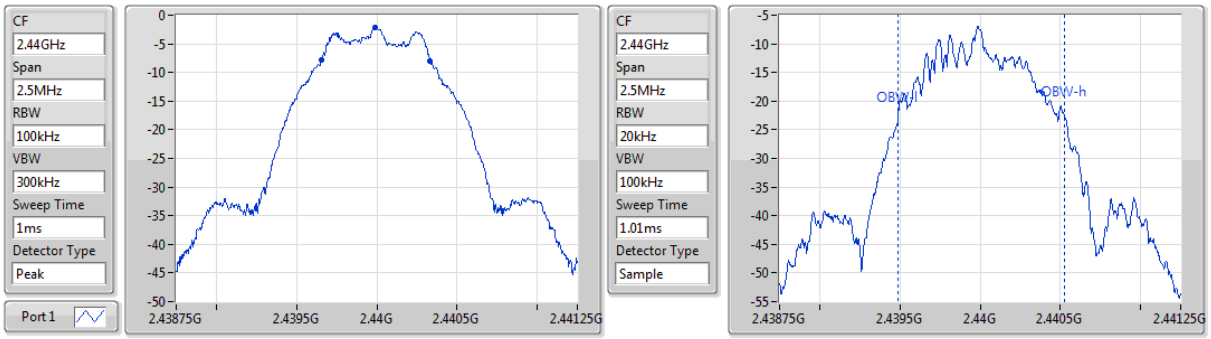
2402MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
681.159k	2.401652G	2.402333G	1.035M	2.40149G	2.402525G	500k	1

BT-LE(1Mbps) **EBW**

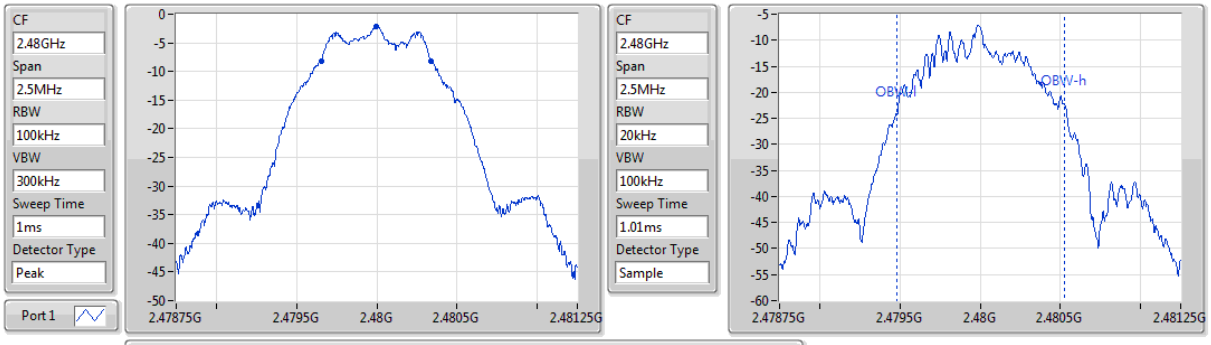
2440MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
677.536k	2.439656G	2.440333G	1.038M	2.439486G	2.440525G	500k	1

BT-LE(1Mbps) **EBW**

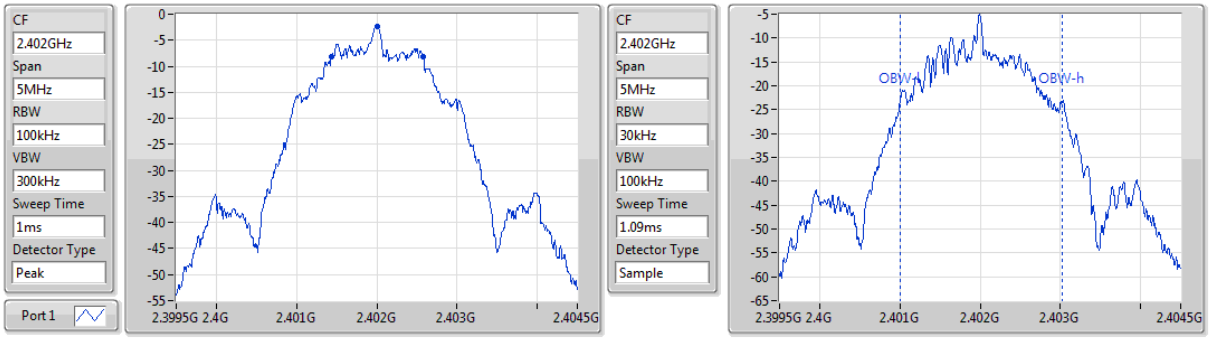
2480MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
684.783k	2.479652G	2.480337G	1.042M	2.479483G	2.480525G	500k	1

BT-LE(2Mbps) **EBW**

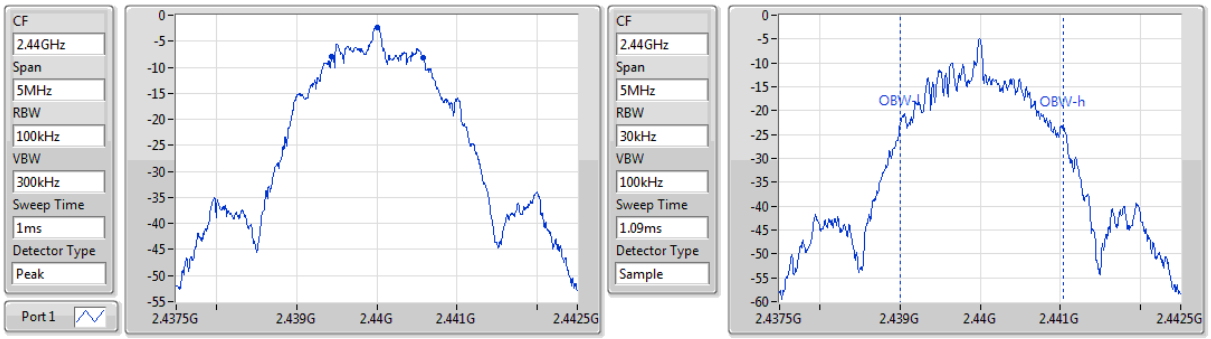
2402MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.13M	2.401442G	2.402572G	2.026M	2.401001G	2.403027G	500k	1

BT-LE(2Mbps) **EBW**

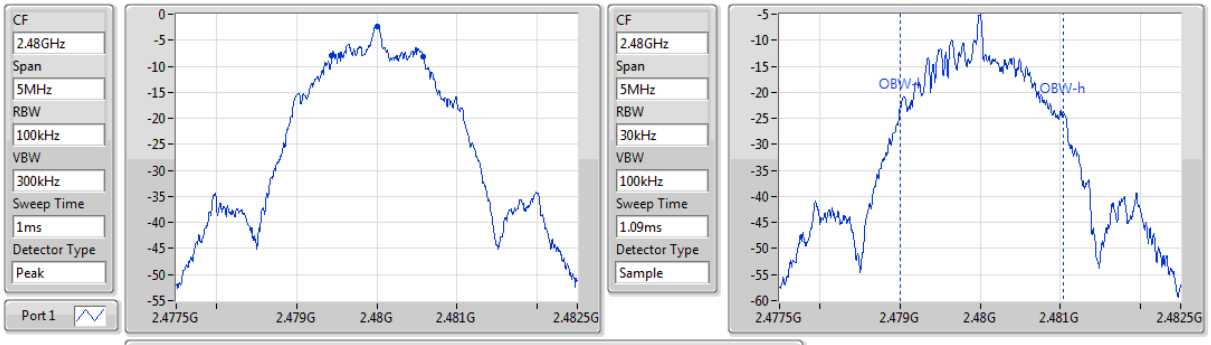
2440MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.138M	2.439442G	2.44058G	2.033M	2.439001G	2.441035G	500k	1

BT-LE(2Mbps) **EBW**

2480MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.138M	2.479442G	2.48058G	2.033M	2.479001G	2.481035G	500k	1

3.2 RF Output Power

3.2.1 Limit of RF Output Power

Conducted power shall not exceed 1Watt.

Antenna gain <= 6dBi, 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 Result of Maximum Output Power

Configuration 1: Ant1

Summary of Peak Conducted Output Power

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-LE0.125_Nss1_1TX	-0.26	0.00094
BT-LE0.5_Nss1_1TX	-0.24	0.00095
BT-LE(1Mbps)	-0.19	0.00096
BT-LE(2Mbps)	-0.22	0.00095

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE0.125_Nss1_1TX	-	-	-	-
2402MHz	Pass	3.10	-0.28	30.00
2440MHz	Pass	3.10	-0.26	30.00
2480MHz	Pass	3.10	-0.29	30.00
BT-LE0.5_Nss1_1TX	-	-	-	-
2402MHz	Pass	3.10	-0.27	30.00
2440MHz	Pass	3.10	-0.24	30.00
2480MHz	Pass	3.10	-0.29	30.00
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	3.10	-0.22	30.00
2440MHz	Pass	3.10	-0.19	30.00
2480MHz	Pass	3.10	-0.28	30.00
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	3.10	-0.25	30.00
2440MHz	Pass	3.10	-0.22	30.00
2480MHz	Pass	3.10	-0.29	30.00

Configuration 2: Ant2

Summary of Peak Conducted Output Power

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-LE0.125_Nss1_1TX	-0.51	0.00089
BT-LE0.5_Nss1_1TX	-0.50	0.00089
BT-LE(1Mbps)	-0.47	0.00090
BT-LE(2Mbps)	-0.49	0.00089

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE0.125_Nss1_1TX	-	-	-	-
2402MHz	Pass	2.40	-0.61	30.00
2440MHz	Pass	2.40	-0.52	30.00
2480MHz	Pass	2.40	-0.51	30.00
BT-LE0.5_Nss1_1TX	-	-	-	-
2402MHz	Pass	2.40	-0.62	30.00
2440MHz	Pass	2.40	-0.51	30.00
2480MHz	Pass	2.40	-0.50	30.00
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	2.40	-0.59	30.00
2440MHz	Pass	2.40	-0.50	30.00
2480MHz	Pass	2.40	-0.47	30.00
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	2.40	-0.61	30.00
2440MHz	Pass	2.40	-0.52	30.00
2480MHz	Pass	2.40	-0.49	30.00

Configuration 1: Ant1

Summary of Conducted (Average) Output Power

Mode	Power	Power
	(dBm)	(W)
2.4-2.4835GHz	-	-
BT-LE0.125_Nss1_1TX	-0.31	0.00093
BT-LE0.5_Nss1_1TX	-0.29	0.00094
BT-LE(1Mbps)	-0.26	0.00094
BT-LE(2Mbps)	-0.28	0.00094

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE0.125_Nss1_1TX	-	-	-	-
2402MHz	Pass	3.10	-0.33	-
2440MHz	Pass	3.10	-0.31	-
2480MHz	Pass	3.10	-0.35	-
BT-LE0.5_Nss1_1TX	-	-	-	-
2402MHz	Pass	3.10	-0.32	-
2440MHz	Pass	3.10	-0.29	-
2480MHz	Pass	3.10	-0.34	-
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	3.10	-0.29	-
2440MHz	Pass	3.10	-0.26	-
2480MHz	Pass	3.10	-0.32	-
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	3.10	-0.31	-
2440MHz	Pass	3.10	-0.28	-
2480MHz	Pass	3.10	-0.33	-

Note: Average power is for reference only.

Configuration 2: Ant2

Summary of Conducted (Average) Output Power

Mode	Power	Power
	(dBm)	(W)
2.4-2.4835GHz	-	-
BT-LE0.125_Nss1_1TX	-0.55	0.00088
BT-LE0.5_Nss1_1TX	-0.55	0.00088
BT-LE(1Mbps)	-0.52	0.00089
BT-LE(2Mbps)	-0.54	0.00088

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE0.125_Nss1_1TX	-	-	-	-
2402MHz	Pass	2.40	-0.65	-
2440MHz	Pass	2.40	-0.55	-
2480MHz	Pass	2.40	-0.55	-
BT-LE0.5_Nss1_1TX	-	-	-	-
2402MHz	Pass	2.40	-0.66	-
2440MHz	Pass	2.40	-0.56	-
2480MHz	Pass	2.40	-0.55	-
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	2.40	-0.63	-
2440MHz	Pass	2.40	-0.54	-
2480MHz	Pass	2.40	-0.52	-
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	2.40	-0.66	-
2440MHz	Pass	2.40	-0.57	-
2480MHz	Pass	2.40	-0.54	-

Note: Average power is for reference only.

3.3 Power Spectral Density

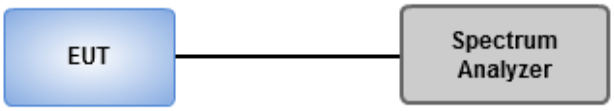
3.3.1 Limit of Power Spectral Density

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



Configuration 1: Ant1

3.3.4 Test Result of Power Spectral Density

Summary

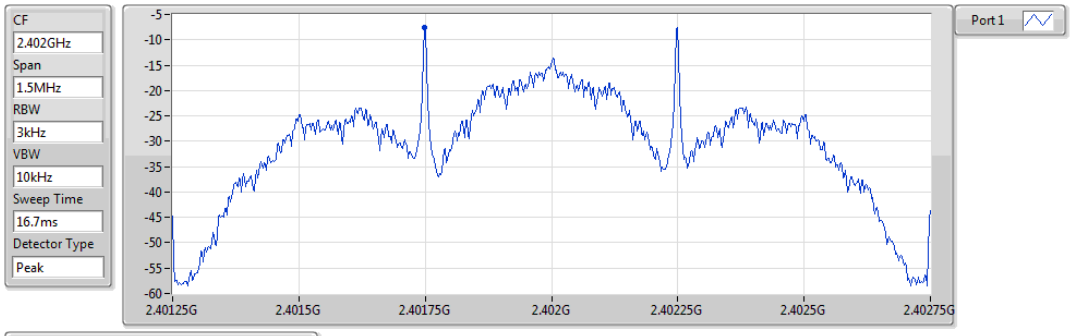
Mode	PD (dBm/3kHz)
2.4-2.4835GHz	-
BT-LE0.125_Nss1_1TX	-7.43
BT-LE0.5_Nss1_1TX	-7.67
BT-LE(1Mbps)	-16.71
BT-LE(2Mbps)	-19.42

Result

Mode	Result	Gain (dBi)	PD (dBm/3kHz)	PD Limit (dBm/3kHz)
BT-LE0.125_Nss1_1TX	-	-	-	-
2402MHz	Pass	3.10	-7.58	8.00
2440MHz	Pass	3.10	-7.43	8.00
2480MHz	Pass	3.10	-7.53	8.00
BT-LE0.5_Nss1_1TX	-	-	-	-
2402MHz	Pass	3.10	-7.84	8.00
2440MHz	Pass	3.10	-7.67	8.00
2480MHz	Pass	3.10	-7.79	8.00
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	3.10	-16.73	8.00
2440MHz	Pass	3.10	-16.71	8.00
2480MHz	Pass	3.10	-16.94	8.00
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	3.10	-19.53	8.00
2440MHz	Pass	3.10	-19.42	8.00
2480MHz	Pass	3.10	-19.64	8.00

BT-LE0.125_Nss1_1TX **PSD**

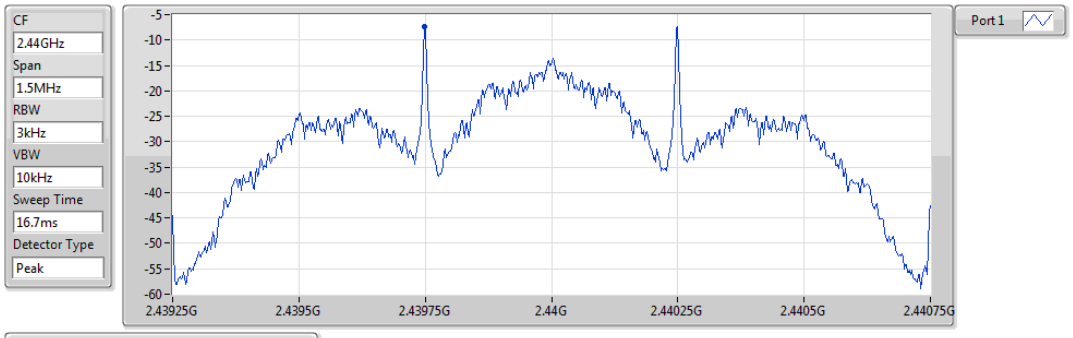
2402MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-7.58	-7.58	-7.58

BT-LE0.125_Nss1_1TX **PSD**

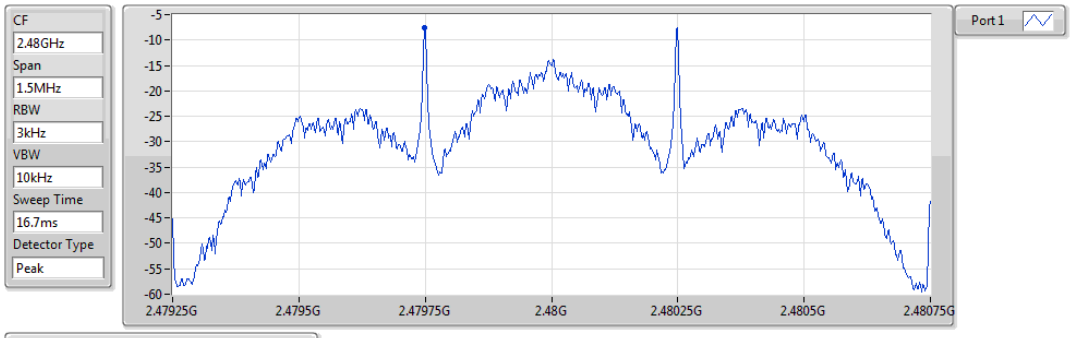
2440MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-7.43	-7.43	-7.43

BT-LE0.125_Nss1_1TX **PSD**

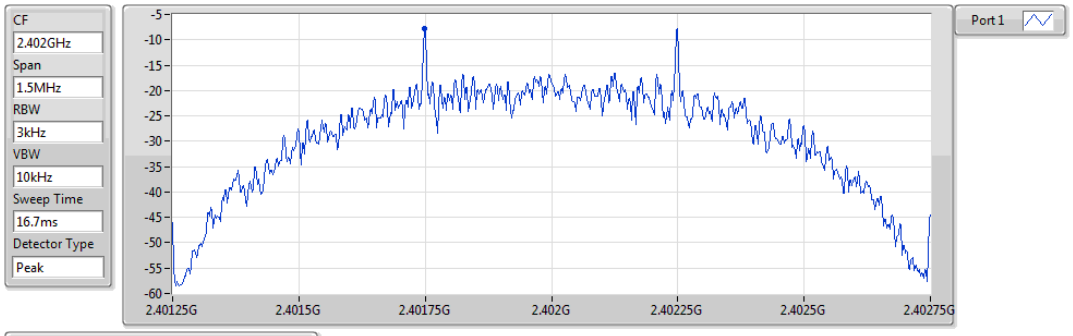
2480MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-7.53	-7.53	-7.53

BT-LE0.5_Nss1_1TX **PSD**

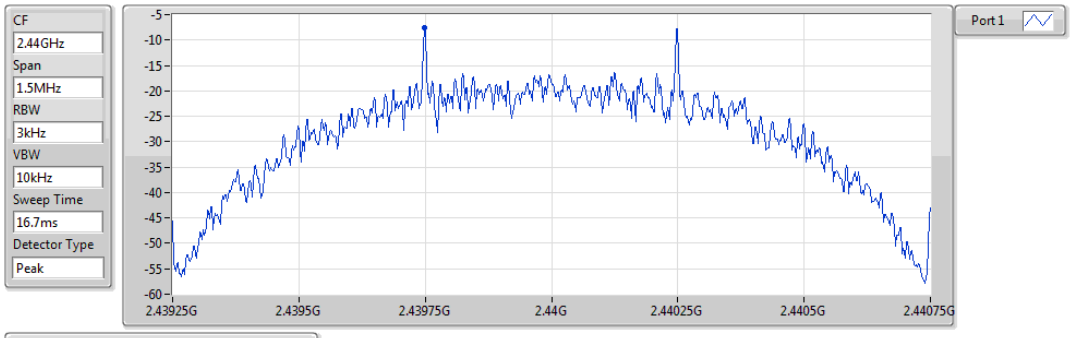
2402MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-7.84	-7.84	-7.84

BT-LE0.5_Nss1_1TX **PSD**

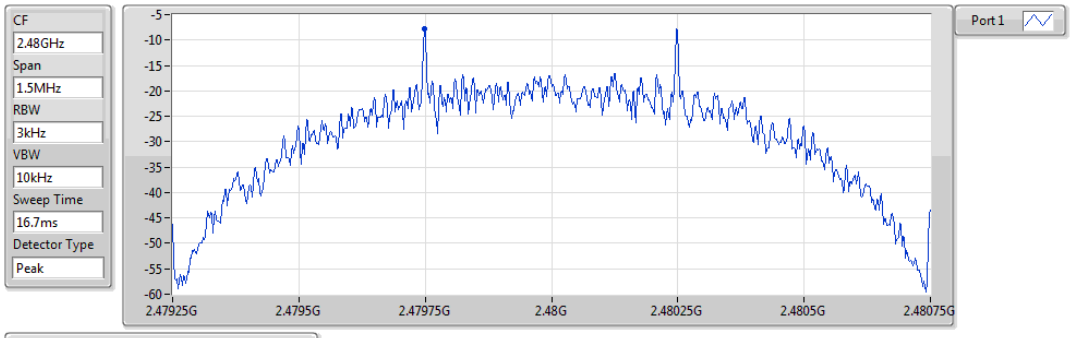
2440MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-7.67	-7.67	-7.67

BT-LE0.5_Nss1_1TX **PSD**

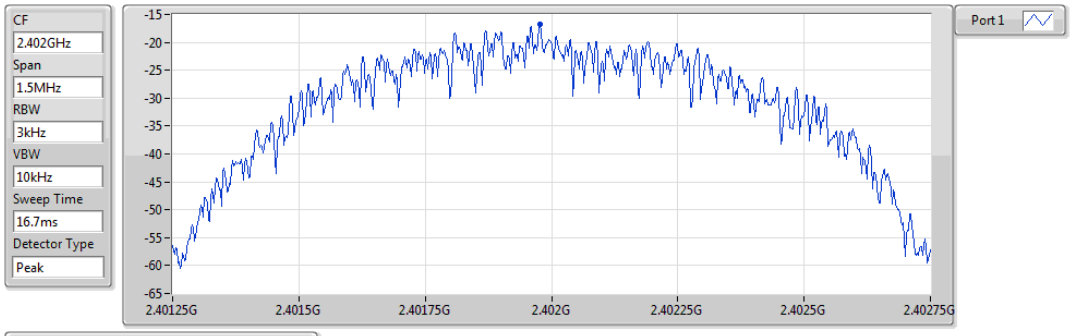
2480MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-7.79	-7.79	-7.79

BT-LE(1Mbps) **PSD**

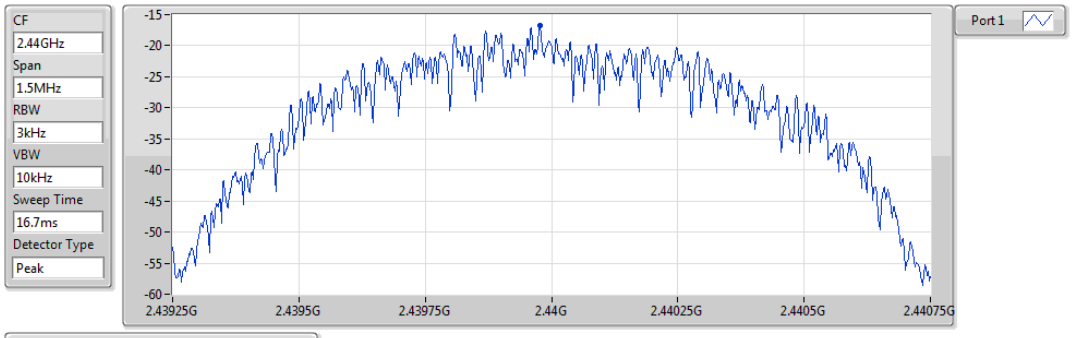
2402MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-16.73	-16.73	-16.73

BT-LE(1Mbps) **PSD**

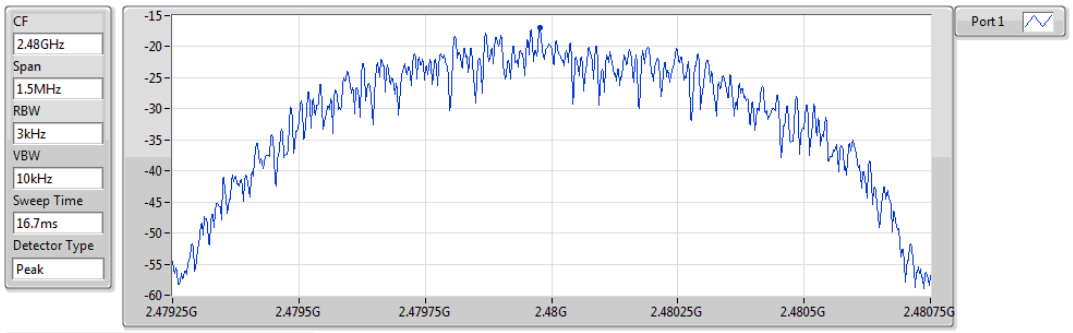
2440MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-16.71	-16.71	-16.71

BT-LE(1Mbps) **PSD**

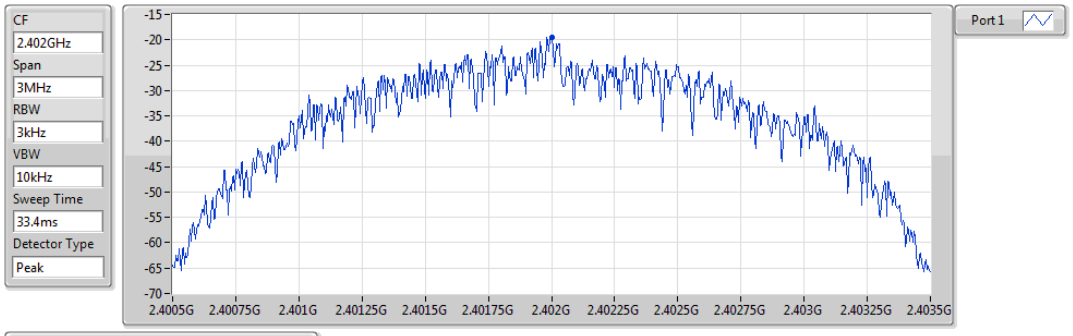
2480MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-16.94	-16.94	-16.94

BT-LE(2Mbps) **PSD**

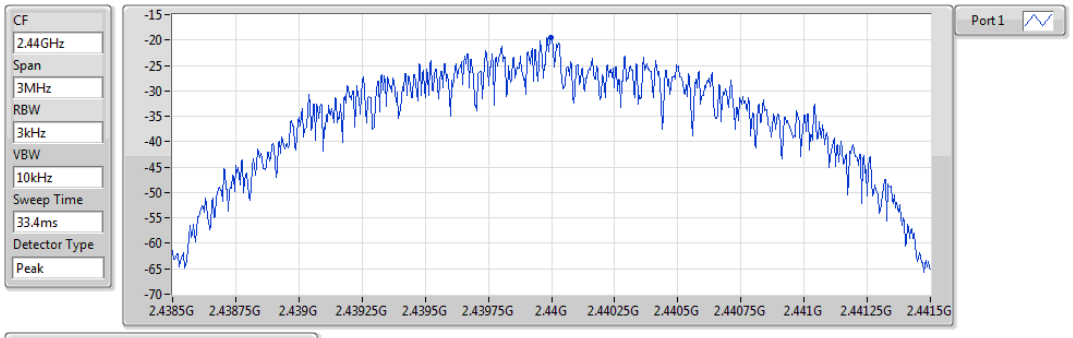
2402MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-19.53	-19.53	-19.53

BT-LE(2Mbps) **PSD**

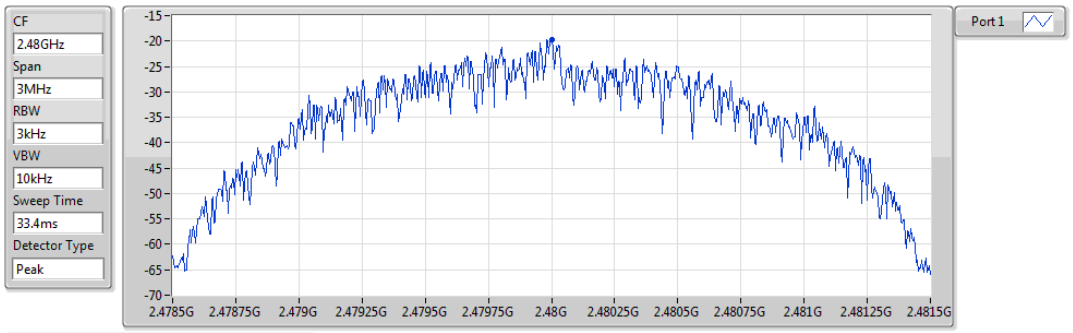
2440MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-19.42	-19.42	-19.42

BT-LE(2Mbps) **PSD**

2480MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-19.64	-19.64	-19.64

Configuration 2: Ant2

3.3.5 Test Result of Power Spectral Density

Summary

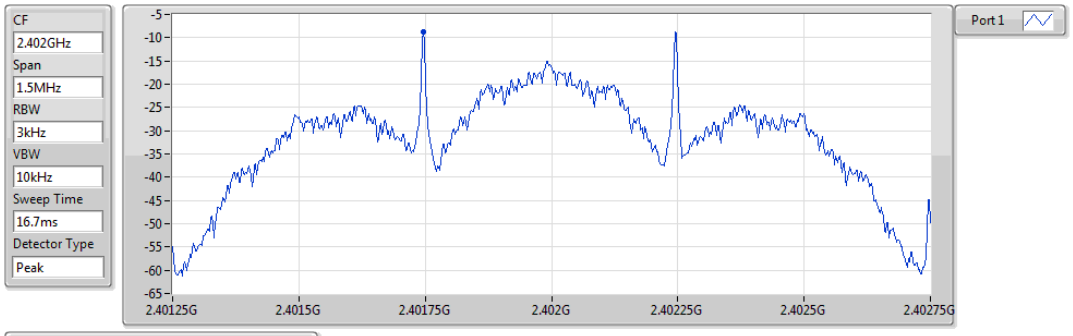
Mode	PD (dBm/3kHz)
2.4-2.4835GHz	-
BT-LE0.125_Nss1_1TX	-8.12
BT-LE0.5_Nss1_1TX	-8.27
BT-LE(1Mbps)	-17.37
BT-LE(2Mbps)	-20.05

Result

Mode	Result	Gain (dBi)	PD (dBm/3kHz)	PD Limit (dBm/3kHz)
BT-LE0.125_Nss1_1TX	-	-	-	-
2402MHz	Pass	2.40	-8.70	8.00
2440MHz	Pass	2.40	-8.54	8.00
2480MHz	Pass	2.40	-8.12	8.00
BT-LE0.5_Nss1_1TX	-	-	-	-
2402MHz	Pass	2.40	-8.46	8.00
2440MHz	Pass	2.40	-8.27	8.00
2480MHz	Pass	2.40	-8.39	8.00
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	2.40	-17.37	8.00
2440MHz	Pass	2.40	-17.39	8.00
2480MHz	Pass	2.40	-17.48	8.00
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	2.40	-20.16	8.00
2440MHz	Pass	2.40	-20.05	8.00
2480MHz	Pass	2.40	-20.15	8.00

BT-LE0.125_Nss1_1TX **PSD**

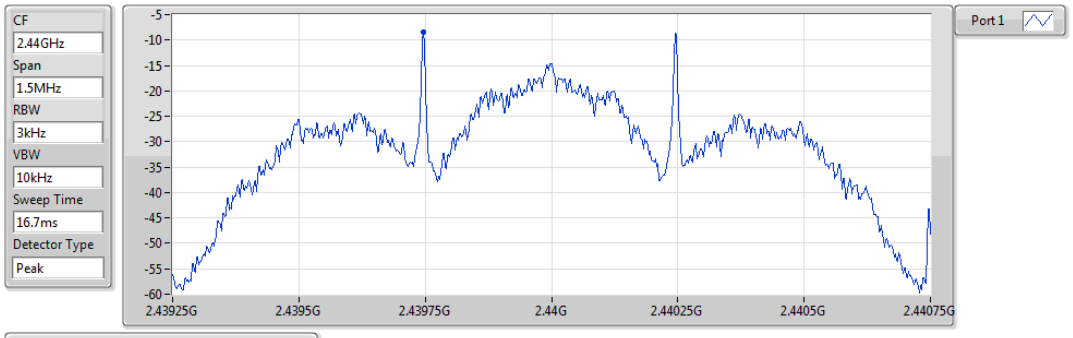
2402MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-8.70	-8.70	-8.70

BT-LE0.125_Nss1_1TX **PSD**

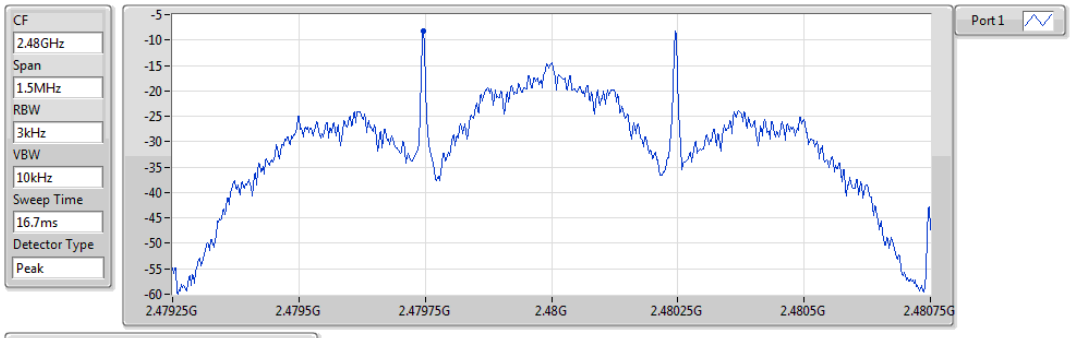
2440MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-8.54	-8.54	-8.54

BT-LE0.125_Nss1_1TX **PSD**

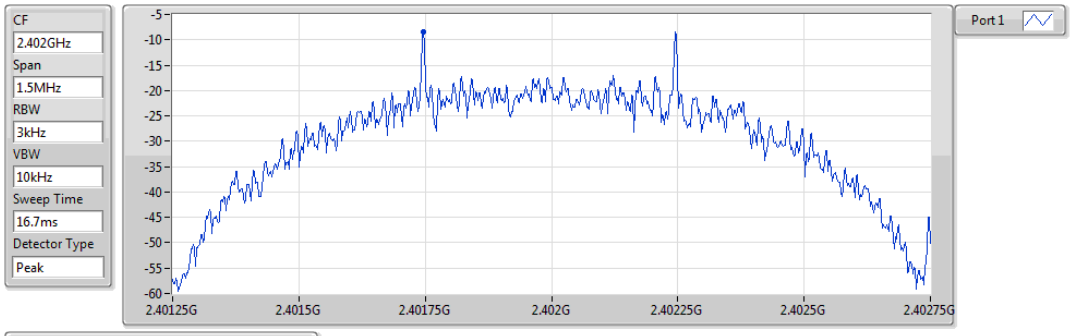
2480MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-8.12	-8.12	-8.12

BT-LE0.5_Nss1_1TX **PSD**

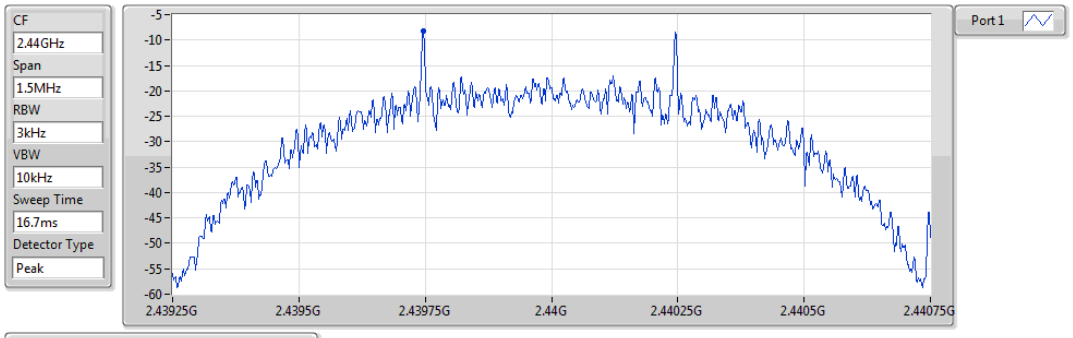
2402MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-8.46	-8.46	-8.46

BT-LE0.5_Nss1_1TX **PSD**

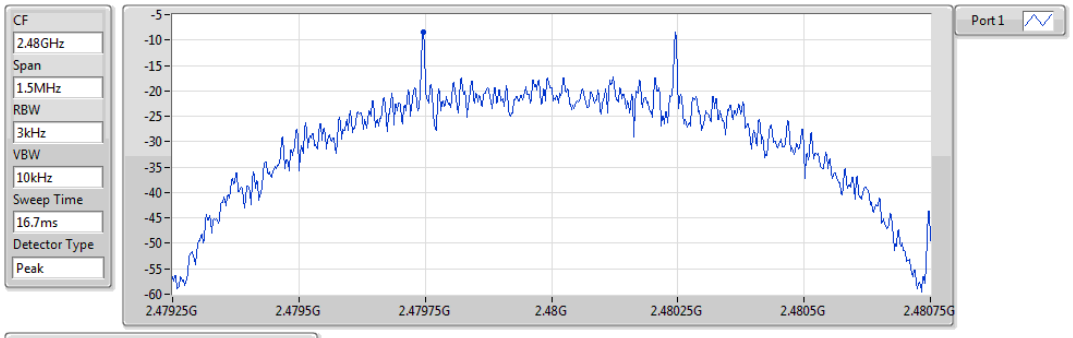
2440MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-8.27	-8.27	-8.27

BT-LE0.5_Nss1_1TX **PSD**

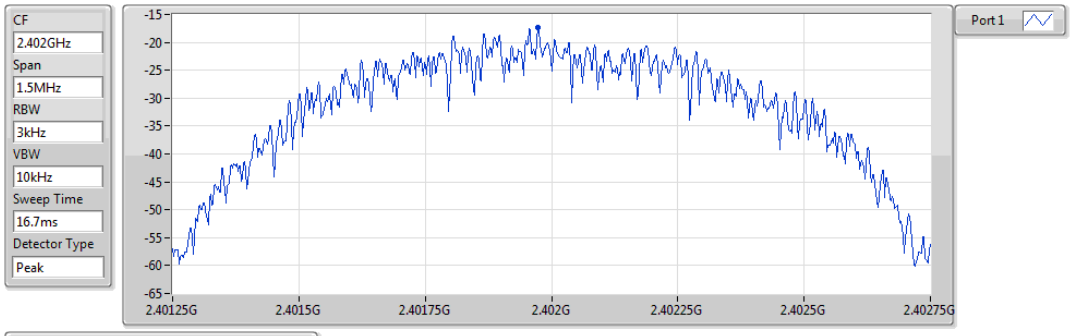
2480MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-8.39	-8.39	-8.39

BT-LE(1Mbps) **PSD**

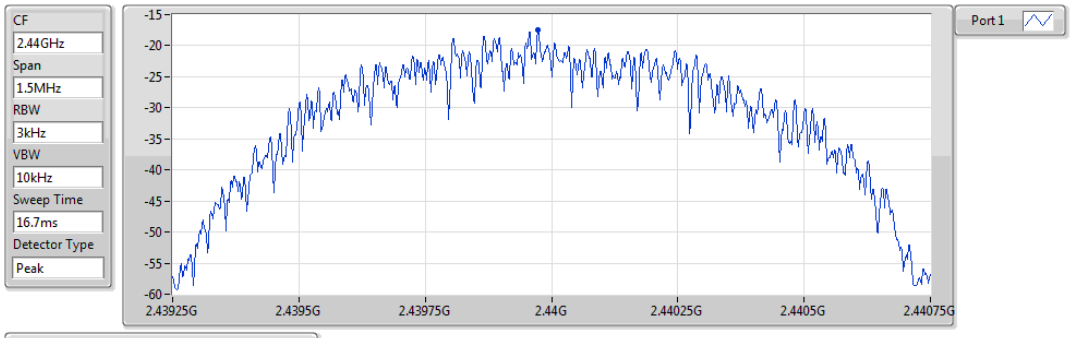
2402MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-17.37	-17.37	-17.37

BT-LE(1Mbps) **PSD**

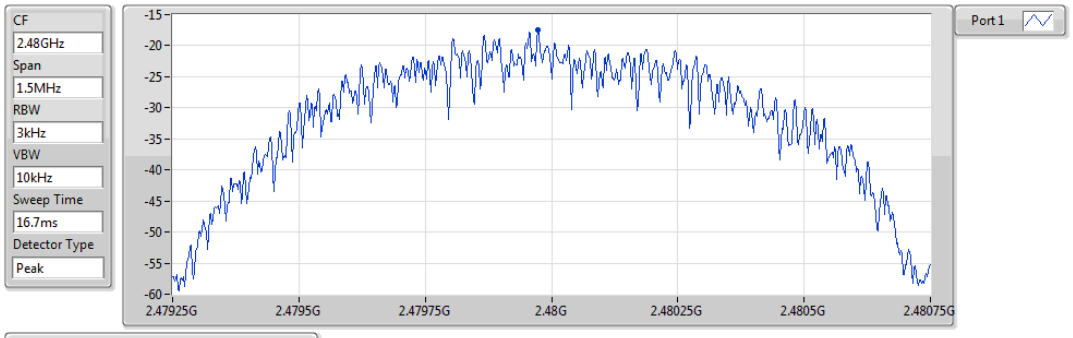
2440MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-17.39	-17.39	-17.39

BT-LE(1Mbps) **PSD**

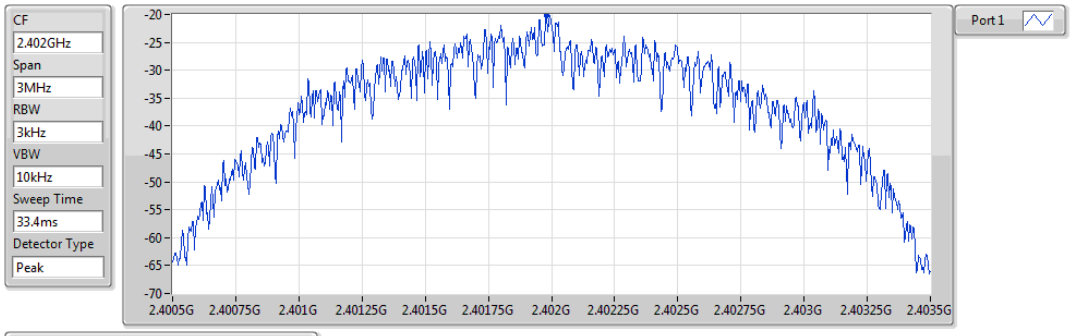
2480MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-17.48	-17.48	-17.48

BT-LE(2Mbps) **PSD**

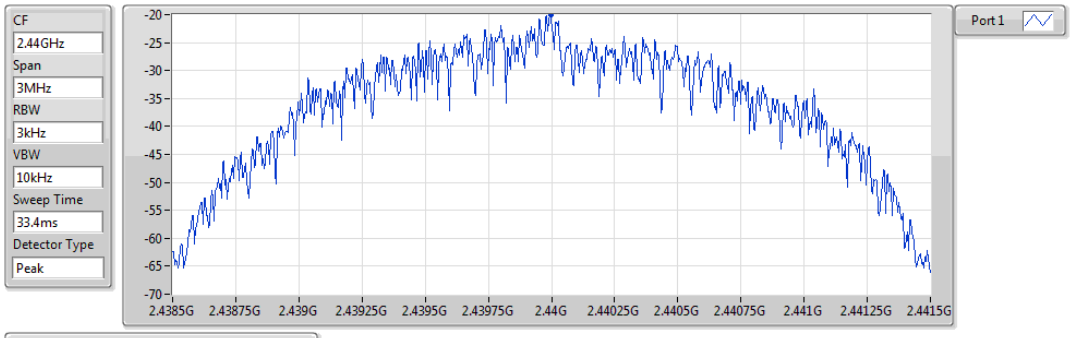
2402MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-20.16	-20.16	-20.16

BT-LE(2Mbps) **PSD**

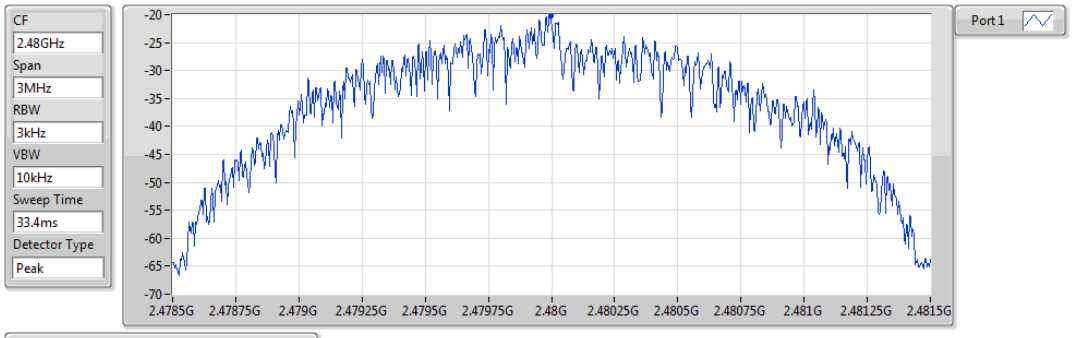
2440MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-20.05	-20.05	-20.05

BT-LE(2Mbps) **PSD**

2480MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-20.15	-20.15	-20.15

3.4 Emissions in Restricted Frequency Bands

3.4.1 Limit of 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:
Qusai-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

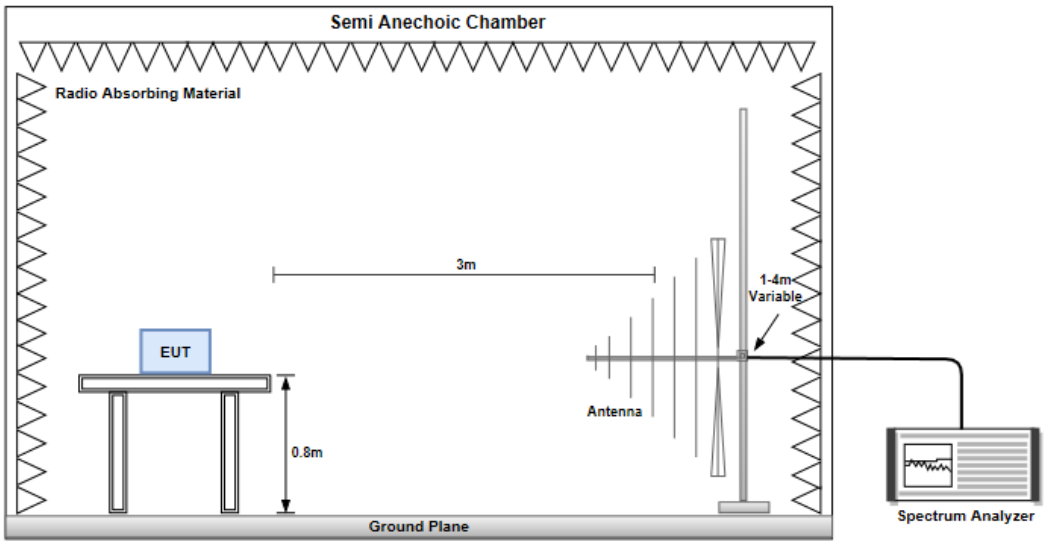
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission 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:

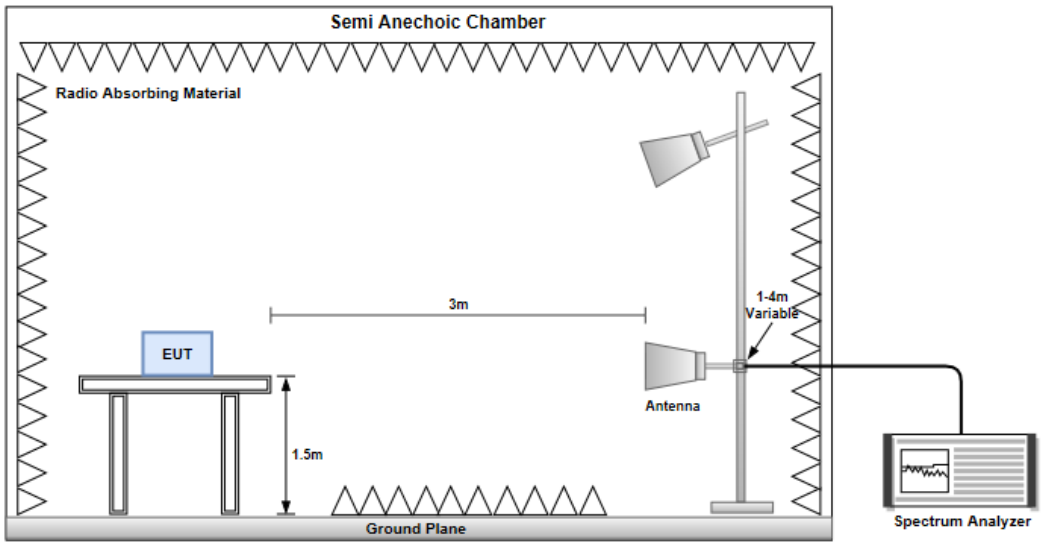
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above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

3.4.3 Test Setup

Radiated Emissions below 1 GHz



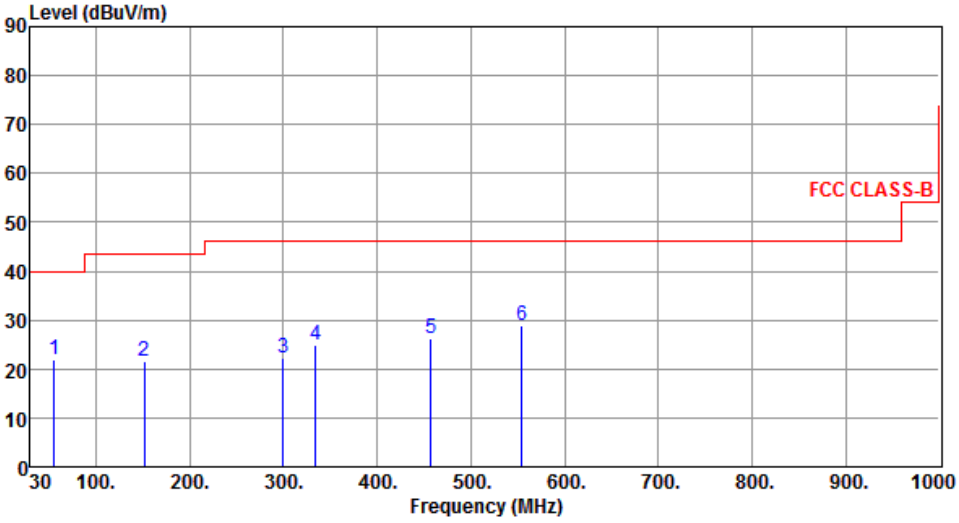
Radiated Emissions above 1 GHz



Configuration 1: Ant1

3.4.4 Transmitter Radiated Unwanted Emissions (Below 1GHz)

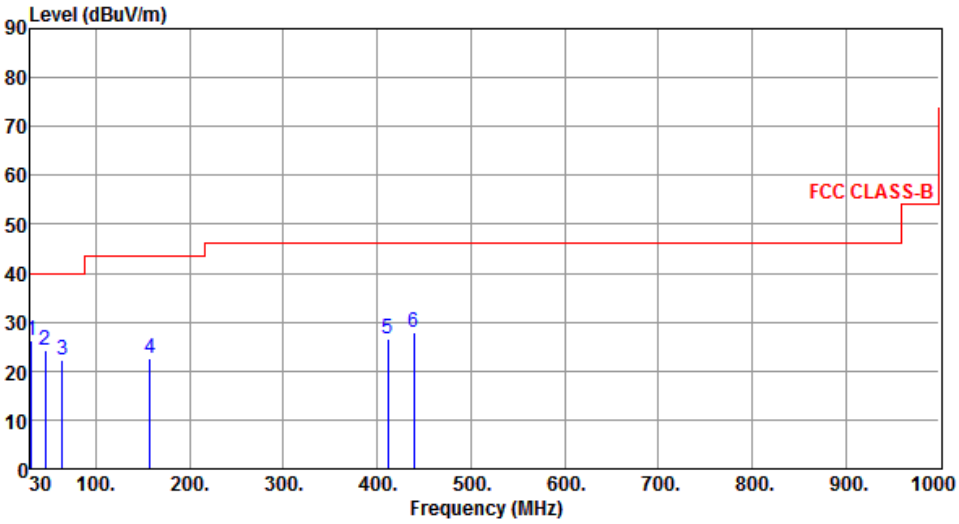
Modulation	BT-LE (1Mbps)	**Test Freq. (MHz)**	2440
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	55.22	21.86	40.00	-18.14	30.73	-8.87	Peak	---	---
2	151.25	21.70	43.50	-21.80	30.34	-8.64	Peak	---	---
3	299.66	22.19	46.00	-23.81	30.79	-8.60	Peak	---	---
4	334.58	25.02	46.00	-20.98	32.46	-7.44	Peak	---	---
5	457.77	26.31	46.00	-19.69	30.52	-4.21	Peak	---	---
6	554.77	28.86	46.00	-17.14	31.60	-2.74	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*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.

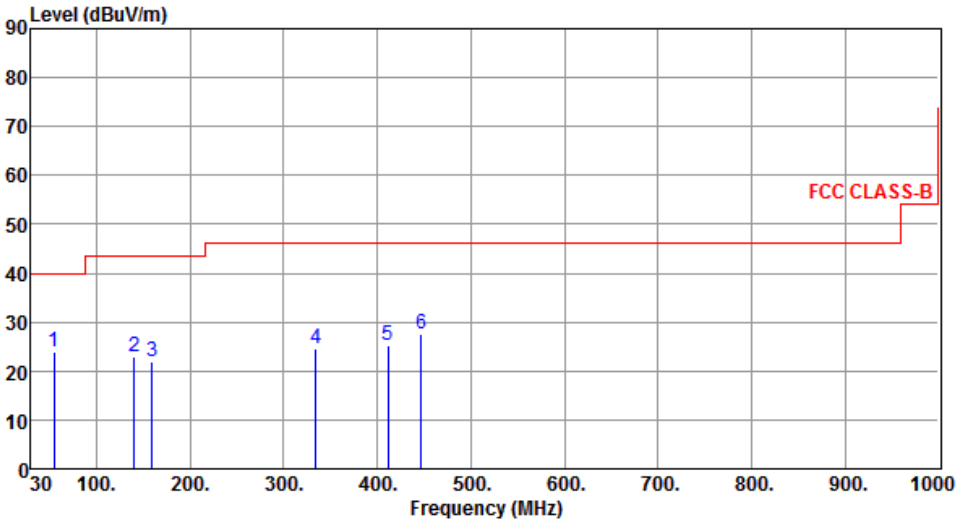
Modulation	BT-LE (1Mbps)	Test Freq. (MHz)	2440
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	30.97	26.09	40.00	-13.91	35.99	-9.90	Peak	---	---
2	45.52	24.20	40.00	-15.80	32.82	-8.62	Peak	---	---
3	63.95	22.32	40.00	-17.68	32.00	-9.68	Peak	---	---
4	158.04	22.47	43.50	-21.03	31.10	-8.63	Peak	---	---
5	411.21	26.69	46.00	-19.31	32.39	-5.70	Peak	---	---
6	439.34	27.98	46.00	-18.02	32.64	-4.66	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*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.

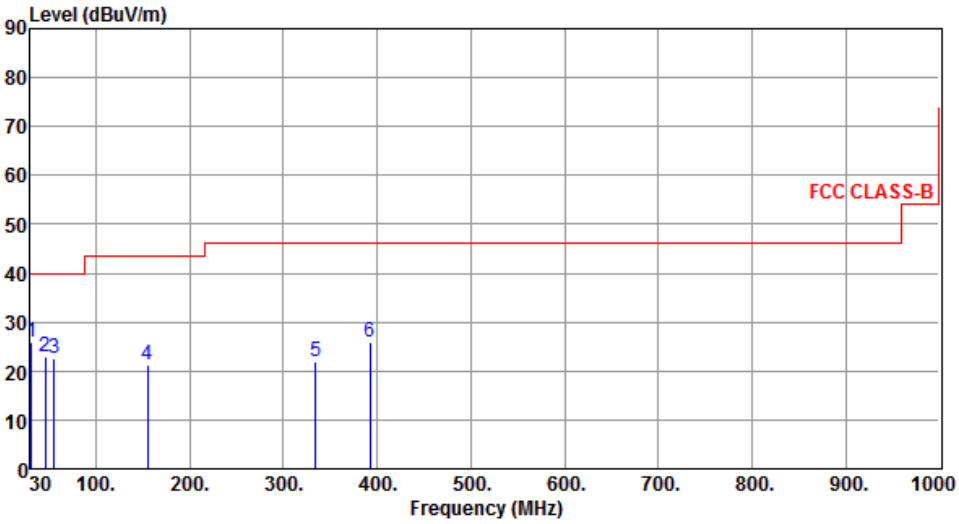
Modulation	BT-LE (2Mbps)	**Test Freq. (MHz)**	2440
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	54.25	23.76	40.00	-16.24	32.50	-8.74	Peak	---	---
2	140.58	22.90	43.50	-20.60	32.10	-9.20	Peak	---	---
3	159.01	22.00	43.50	-21.50	30.52	-8.52	Peak	---	---
4	334.58	24.50	46.00	-21.50	31.94	-7.44	Peak	---	---
5	411.21	25.36	46.00	-20.64	31.06	-5.70	Peak	---	---
6	447.10	27.53	46.00	-18.47	31.99	-4.46	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*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 (2Mbps)	Test Freq. (MHz)	2440
Polarization	Vertical		

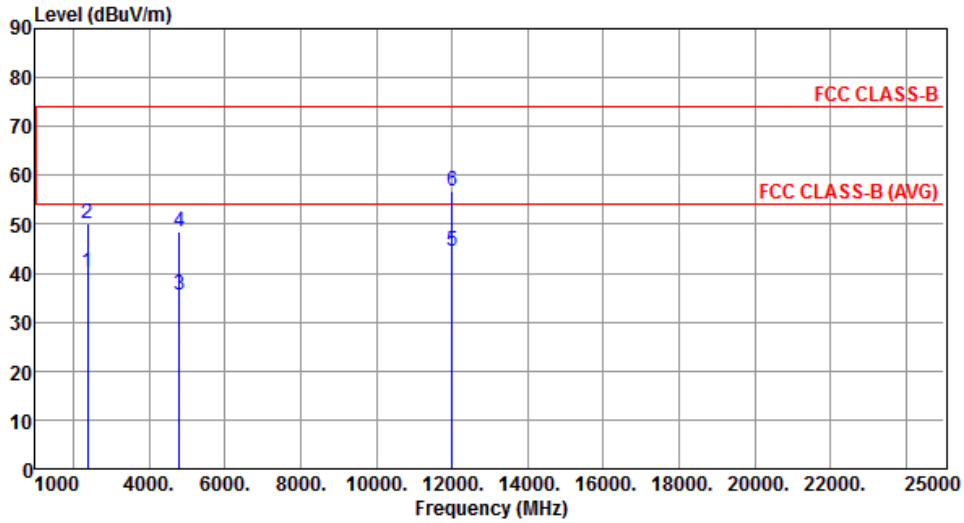


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	30.97	25.95	40.00	-14.05	35.85	-9.90	Peak	---	---
2	45.52	22.90	40.00	-17.10	31.52	-8.62	Peak	---	---
3	55.22	22.44	40.00	-17.56	31.31	-8.87	Peak	---	---
4	155.13	21.40	43.50	-22.10	29.93	-8.53	Peak	---	---
5	334.58	21.84	46.00	-24.16	29.28	-7.44	Peak	---	---
6	392.78	26.03	46.00	-19.97	32.06	-6.03	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*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.

3.4.5 Transmitter Radiated Unwanted Emissions (Above 1GHz)

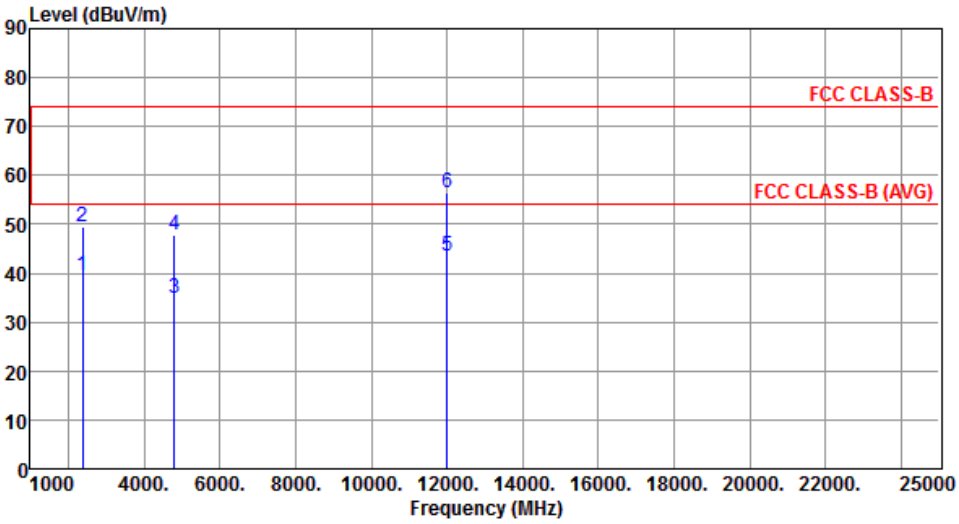
Modulation	BT-LE (1Mbps)	Test Freq. (MHz)	2402
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	40.02	54.00	-13.98	42.84	-2.82	Average	133	166
2	2390.00	50.02	74.00	-23.98	52.84	-2.82	Peak	133	166
3	4804.00	35.47	54.00	-18.53	31.96	3.51	Average	100	55
4	4804.00	48.55	74.00	-25.45	45.04	3.51	Peak	100	55
5	12010.00	44.65	54.00	-9.35	30.73	13.92	Average	100	50
6	12010.00	56.62	74.00	-17.38	42.70	13.92	Peak	100	50

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

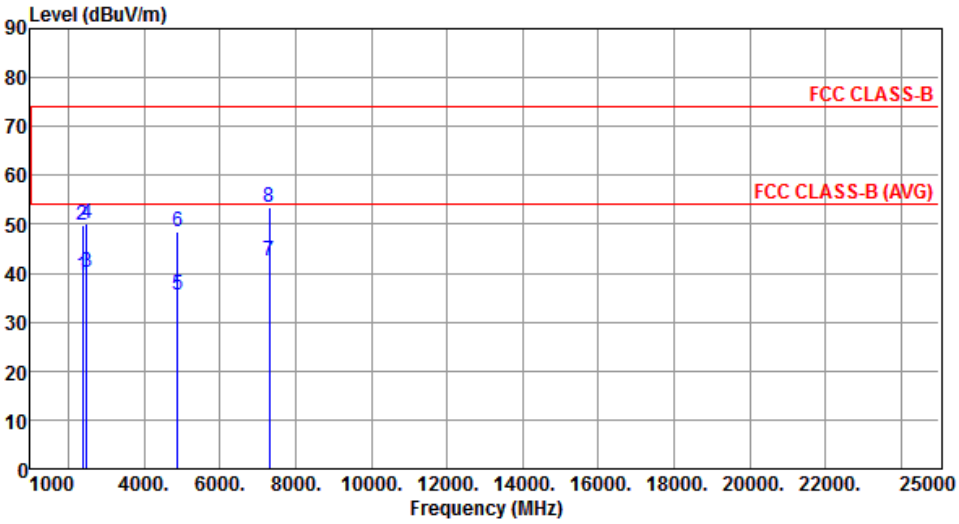
Modulation	BT-LE (1Mbps)	Test Freq. (MHz)	2402
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	39.38	54.00	-14.62	42.20	-2.82	Average	138	125
2	2390.00	49.49	74.00	-24.51	52.31	-2.82	Peak	138	125
3	4804.00	34.80	54.00	-19.20	31.29	3.51	Average	100	52
4	4804.00	47.95	74.00	-26.05	44.44	3.51	Peak	100	52
5	12010.00	43.34	54.00	-10.66	29.42	13.92	Average	100	56
6	12010.00	56.34	74.00	-17.66	42.42	13.92	Peak	100	56

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

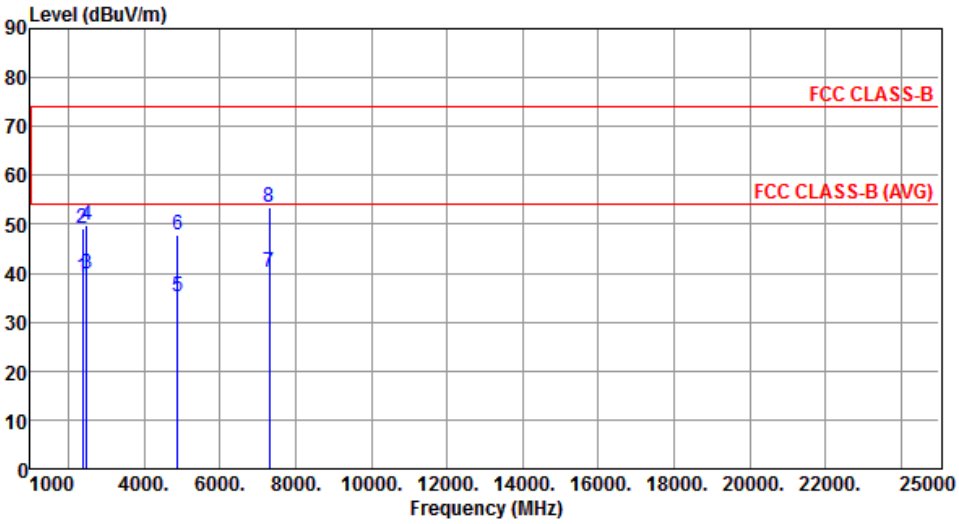
Modulation	BT-LE (1Mbps)	**Test Freq. (MHz)**	2440
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	39.66	54.00	-14.34	42.48	-2.82	Average	100	282
2	2390.00	49.70	74.00	-24.30	52.52	-2.82	Peak	100	282
3	2483.50	40.19	54.00	-13.81	43.09	-2.90	Average	100	282
4	2483.50	50.18	74.00	-23.82	53.08	-2.90	Peak	100	282
5	4880.00	35.40	54.00	-18.60	31.97	3.43	Average	100	54
6	4880.00	48.58	74.00	-25.42	45.15	3.43	Peak	100	54
7	7320.00	42.35	54.00	-11.65	33.11	9.24	Average	100	56
8	7320.00	53.63	74.00	-20.37	44.39	9.24	Peak	100	56

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

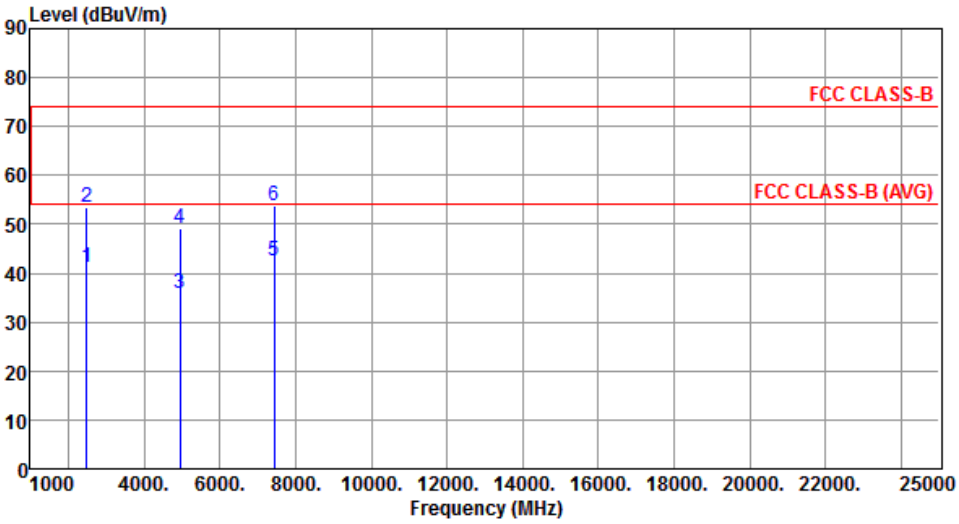
Modulation	BT-LE (1Mbps)	**Test Freq. (MHz)**	2440
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	39.19	54.00	-14.81	42.01	-2.82	Average	132	120
2	2390.00	49.23	74.00	-24.77	52.05	-2.82	Peak	132	120
3	2483.50	39.73	54.00	-14.27	42.63	-2.90	Average	132	120
4	2483.50	49.78	74.00	-24.22	52.68	-2.90	Peak	132	120
5	4880.00	35.07	54.00	-18.93	31.64	3.43	Average	100	44
6	4880.00	47.74	74.00	-26.26	44.31	3.43	Peak	100	44
7	7320.00	40.11	54.00	-13.89	30.87	9.24	Average	100	50
8	7320.00	53.34	74.00	-20.66	44.10	9.24	Peak	100	50

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

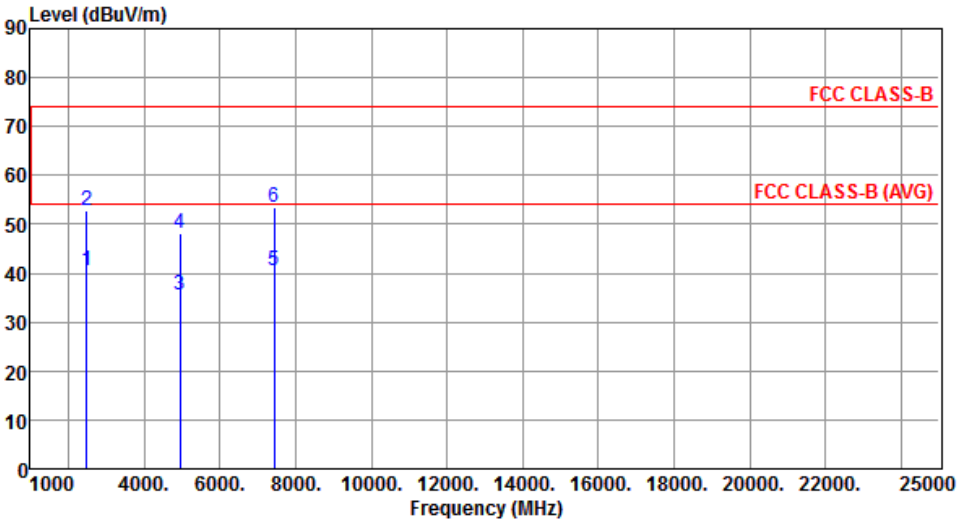
Modulation	BT-LE (1Mbps)	**Test Freq. (MHz)**	2480
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	41.15	54.00	-12.85	44.05	-2.90	Average	142	171
2	2483.50	53.55	74.00	-20.45	56.45	-2.90	Peak	142	171
3	4960.00	35.77	54.00	-18.23	31.96	3.81	Average	100	57
4	4960.00	48.99	74.00	-25.01	45.18	3.81	Peak	100	57
5	7440.00	42.52	54.00	-11.48	33.45	9.07	Average	100	62
6	7440.00	53.92	74.00	-20.08	44.85	9.07	Peak	100	62

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

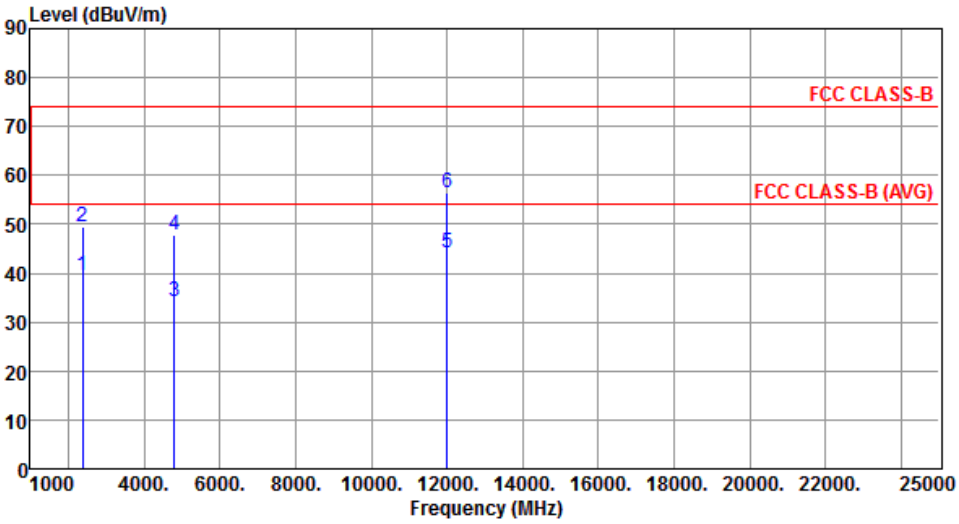
Modulation	BT-LE (1Mbps)	Test Freq. (MHz)	2480
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	40.50	54.00	-13.50	43.40	-2.90	Average	135	122
2	2483.50	52.65	74.00	-21.35	55.55	-2.90	Peak	135	122
3	4960.00	35.40	54.00	-18.60	31.59	3.81	Average	100	52
4	4960.00	48.25	74.00	-25.75	44.44	3.81	Peak	100	52
5	7440.00	40.40	54.00	-13.60	31.33	9.07	Average	100	48
6	7440.00	53.44	74.00	-20.56	44.37	9.07	Peak	100	48

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

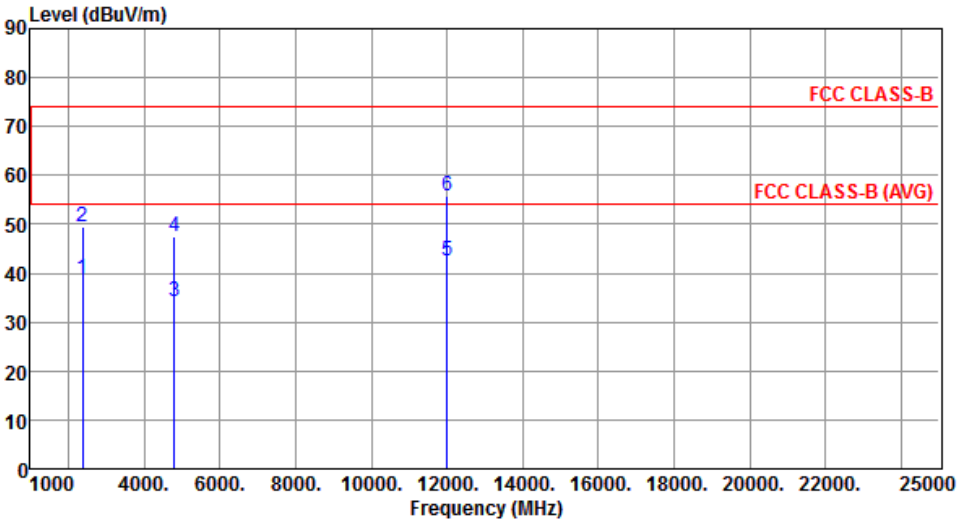
Modulation	BT-LE (2Mbps)	Test Freq. (MHz)	2402
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	39.44	54.00	-14.56	42.26	-2.82	Average	144	269
2	2390.00	49.39	74.00	-24.61	52.21	-2.82	Peak	144	269
3	4804.00	34.36	54.00	-19.64	30.85	3.51	Average	100	57
4	4804.00	47.86	74.00	-26.14	44.35	3.51	Peak	100	57
5	12010.00	44.24	54.00	-9.76	30.32	13.92	Average	100	62
6	12010.00	56.35	74.00	-17.65	42.43	13.92	Peak	100	62

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

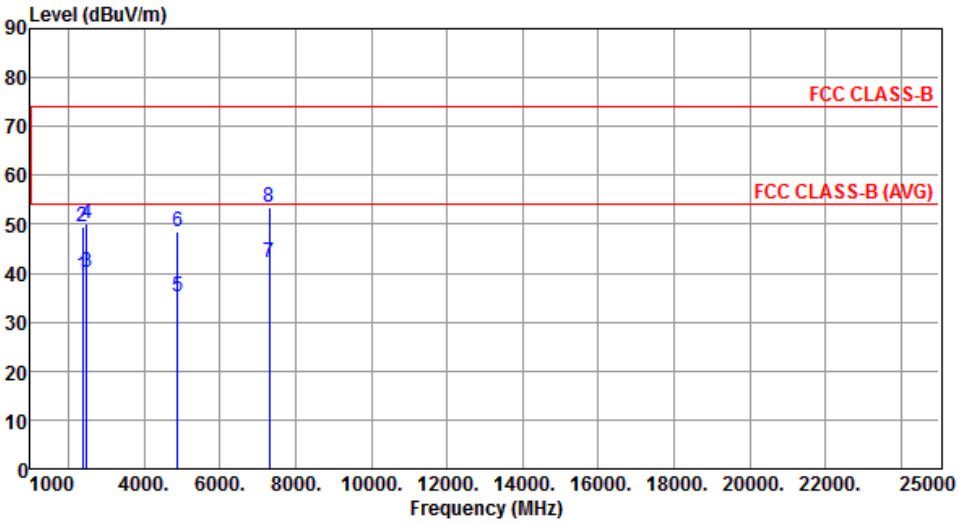
Modulation	BT-LE (2Mbps)	Test Freq. (MHz)	2402
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	38.80	54.00	-15.20	41.62	-2.82	Average	133	125
2	2390.00	49.50	74.00	-24.50	52.32	-2.82	Peak	133	125
3	4804.00	34.35	54.00	-19.65	30.84	3.51	Average	100	41
4	4804.00	47.47	74.00	-26.53	43.96	3.51	Peak	100	41
5	12010.00	42.65	54.00	-11.35	28.73	13.92	Average	100	51
6	12010.00	55.75	74.00	-18.25	41.83	13.92	Peak	100	51

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

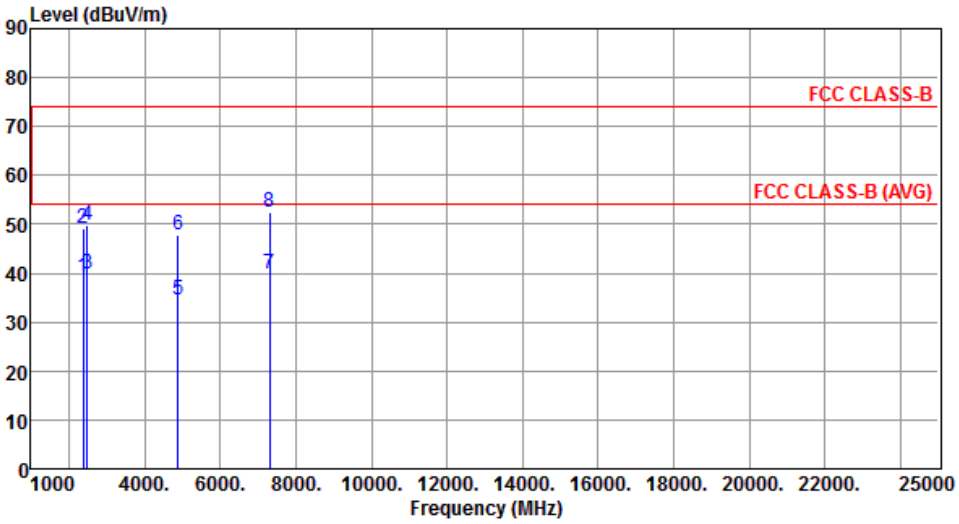
Modulation	BT-LE (2Mbps)	**Test Freq. (MHz)**	2440
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	39.39	54.00	-14.61	42.21	-2.82	Average	142	266
2	2390.00	49.44	74.00	-24.56	52.26	-2.82	Peak	142	266
3	2483.50	40.20	54.00	-13.80	43.10	-2.90	Average	142	266
4	2483.50	50.05	74.00	-23.95	52.95	-2.90	Peak	142	266
5	4880.00	35.20	54.00	-18.80	31.77	3.43	Average	100	55
6	4880.00	48.47	74.00	-25.53	45.04	3.43	Peak	100	55
7	7320.00	42.10	54.00	-11.90	32.86	9.24	Average	100	58
8	7320.00	53.49	74.00	-20.51	44.25	9.24	Peak	100	58

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

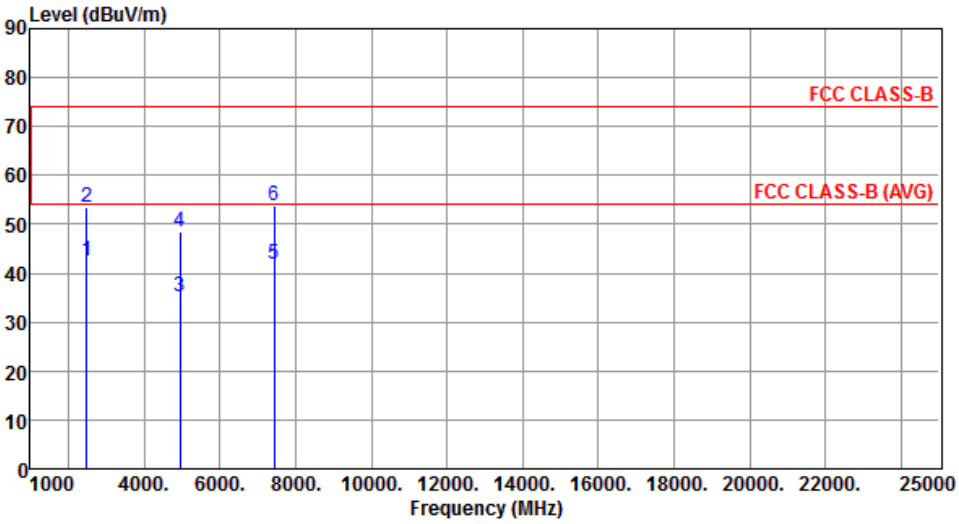
Modulation	BT-LE (2Mbps)	Test Freq. (MHz)	2440
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	39.35	54.00	-14.65	42.17	-2.82	Average	135	122
2	2390.00	49.19	74.00	-24.81	52.01	-2.82	Peak	135	122
3	2483.50	39.94	54.00	-14.06	42.84	-2.90	Average	135	122
4	2483.50	49.92	74.00	-24.08	52.82	-2.90	Peak	135	122
5	4880.00	34.67	54.00	-19.33	31.24	3.43	Average	100	45
6	4880.00	47.81	74.00	-26.19	44.38	3.43	Peak	100	45
7	7320.00	39.93	54.00	-14.07	30.69	9.24	Average	100	47
8	7320.00	52.62	74.00	-21.38	43.38	9.24	Peak	100	47

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

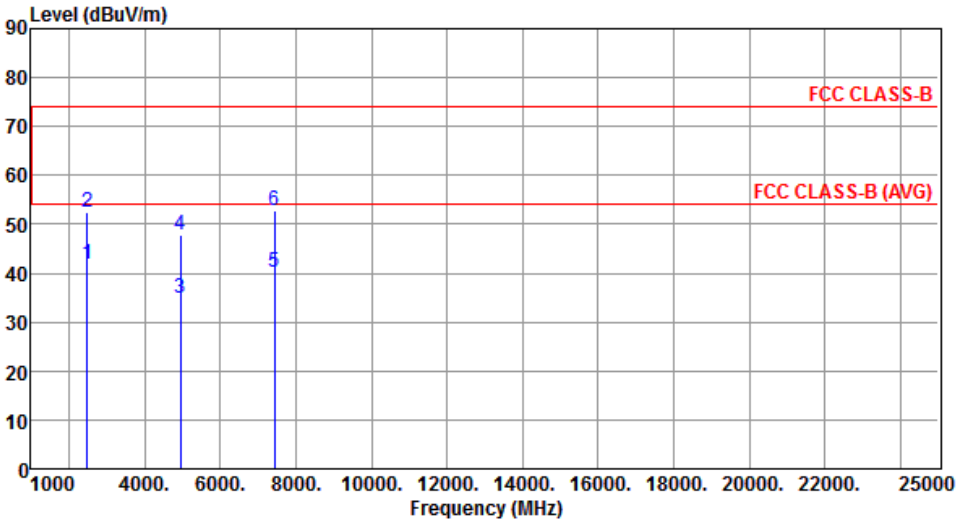
Modulation	BT-LE (2Mbps)	Test Freq. (MHz)	2480
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	42.42	54.00	-11.58	45.32	-2.90	Average	145	269
2	2483.50	53.52	74.00	-20.48	56.42	-2.90	Peak	145	269
3	4960.00	35.32	54.00	-18.68	31.51	3.81	Average	100	59
4	4960.00	48.64	74.00	-25.36	44.83	3.81	Peak	100	59
5	7440.00	41.78	54.00	-12.22	32.71	9.07	Average	100	48
6	7440.00	53.75	74.00	-20.25	44.68	9.07	Peak	100	48

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

Modulation	BT-LE (2Mbps)	Test Freq. (MHz)	2480
Polarization	Vertical		



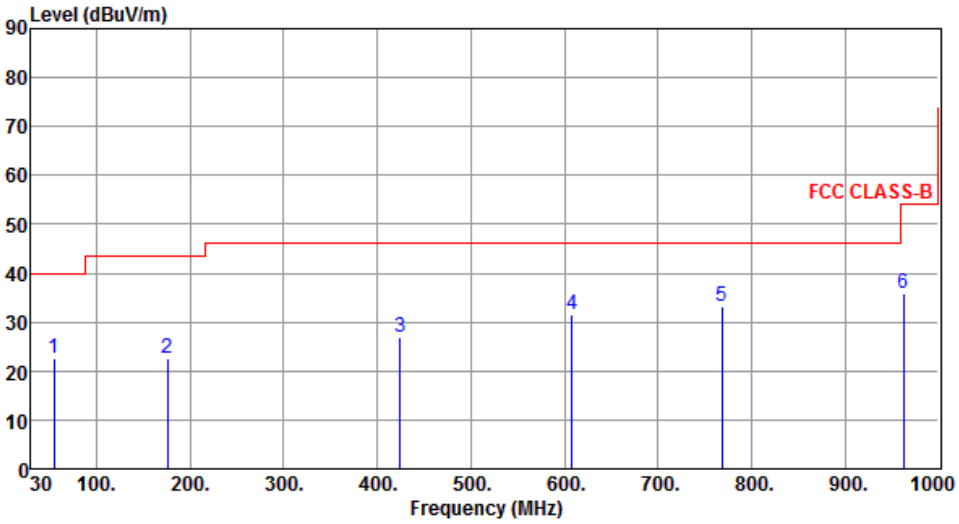
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	41.81	54.00	-12.19	44.71	-2.90	Average	137	119
2	2483.50	52.48	74.00	-21.52	55.38	-2.90	Peak	137	119
3	4960.00	34.99	54.00	-19.01	31.18	3.81	Average	100	40
4	4960.00	47.77	74.00	-26.23	43.96	3.81	Peak	100	40
5	7440.00	40.16	54.00	-13.84	31.09	9.07	Average	100	51
6	7440.00	52.89	74.00	-21.11	43.82	9.07	Peak	100	51

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

Configuration 2: Ant2

3.4.6 Transmitter Radiated Unwanted Emissions (Below 1GHz)

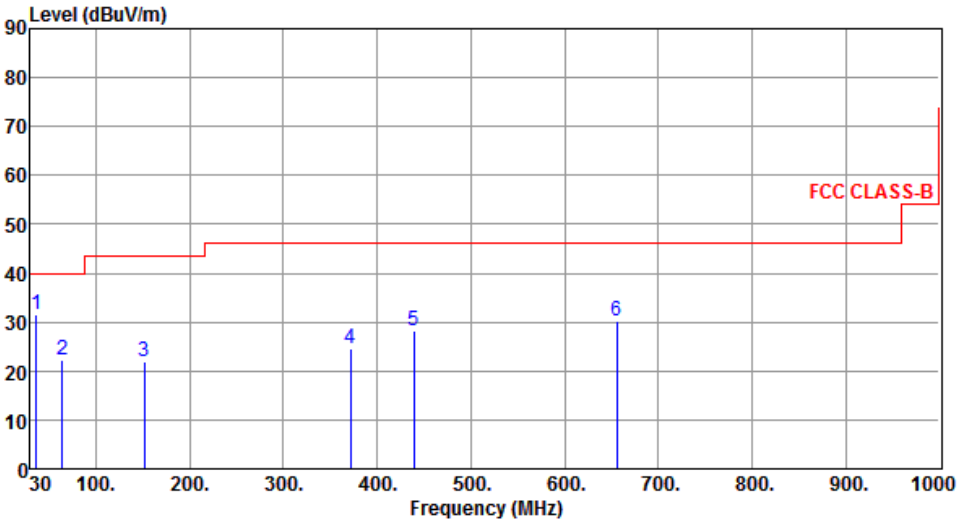
Modulation	BT-LE (1Mbps)	**Test Freq. (MHz)**	2480
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	54.25	22.47	40.00	-17.53	31.01	-8.54	Peak	---	---
2	175.50	22.64	43.50	-20.86	31.98	-9.34	Peak	---	---
3	424.79	26.81	46.00	-19.19	31.60	-4.79	Peak	---	---
4	608.12	31.46	46.00	-14.54	32.24	-0.78	Peak	---	---
5	768.17	33.32	46.00	-12.68	31.21	2.11	Peak	---	---
6	962.17	35.94	54.00	-18.06	31.10	4.84	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*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.

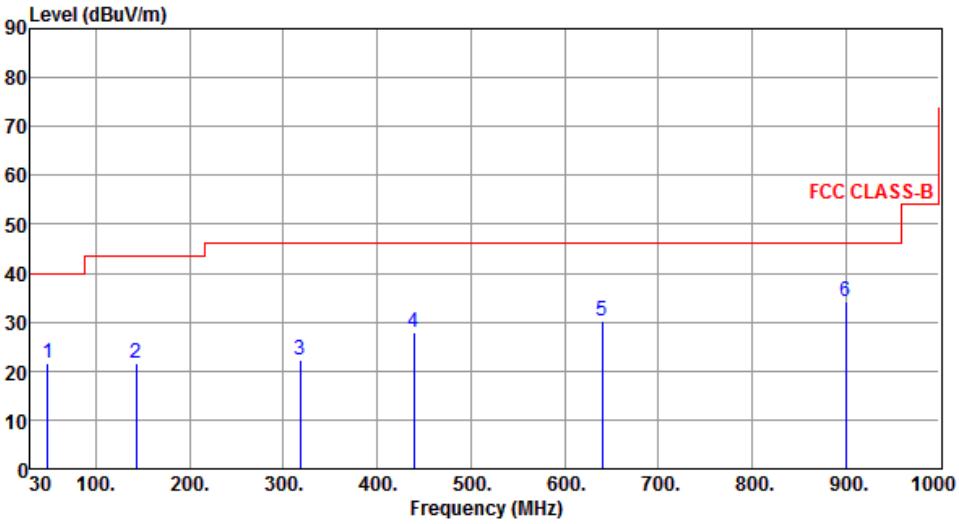
Modulation	BT-LE (1Mbps)	Test Freq. (MHz)	2480
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	36.79	31.62	40.00	-8.38	40.69	-9.07	Peak	---	---
2	63.95	22.33	40.00	-17.67	31.61	-9.28	Peak	---	---
3	151.25	21.94	43.50	-21.56	30.31	-8.37	Peak	---	---
4	371.44	24.56	46.00	-21.44	30.71	-6.15	Peak	---	---
5	439.34	28.22	46.00	-17.78	32.56	-4.34	Peak	---	---
6	655.65	30.14	46.00	-15.86	30.31	-0.17	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*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.

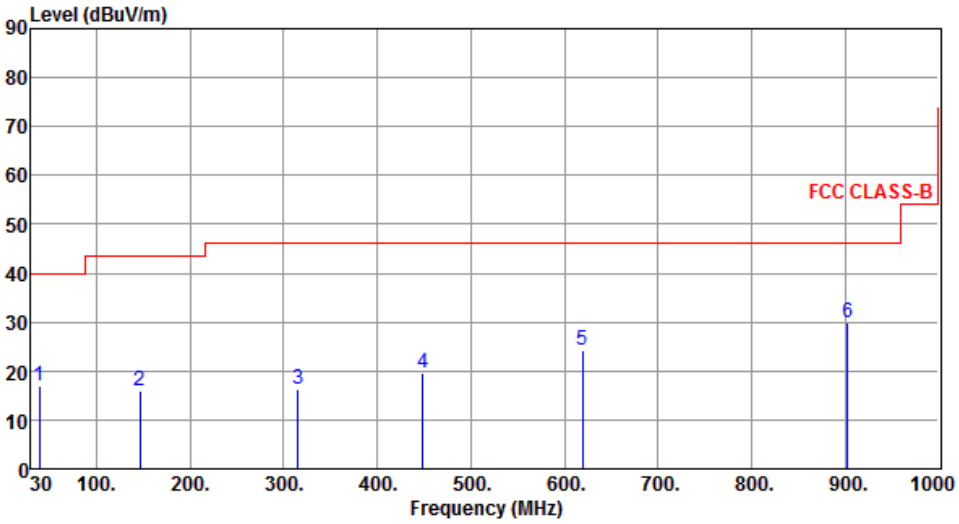
Modulation	BT-LE (2Mbps)	Test Freq. (MHz)	2480
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	48.43	21.67	40.00	-18.33	30.03	-8.36	Peak	---	---
2	142.52	21.52	43.50	-21.98	30.22	-8.70	Peak	---	---
3	318.09	22.11	46.00	-23.89	29.56	-7.45	Peak	---	---
4	439.34	28.03	46.00	-17.97	32.37	-4.34	Peak	---	---
5	640.13	30.36	46.00	-15.64	30.59	-0.23	Peak	---	---
6	900.09	34.27	46.00	-11.73	30.19	4.08	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*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 (2Mbps)	Test Freq. (MHz)	2480
Polarization	Vertical		

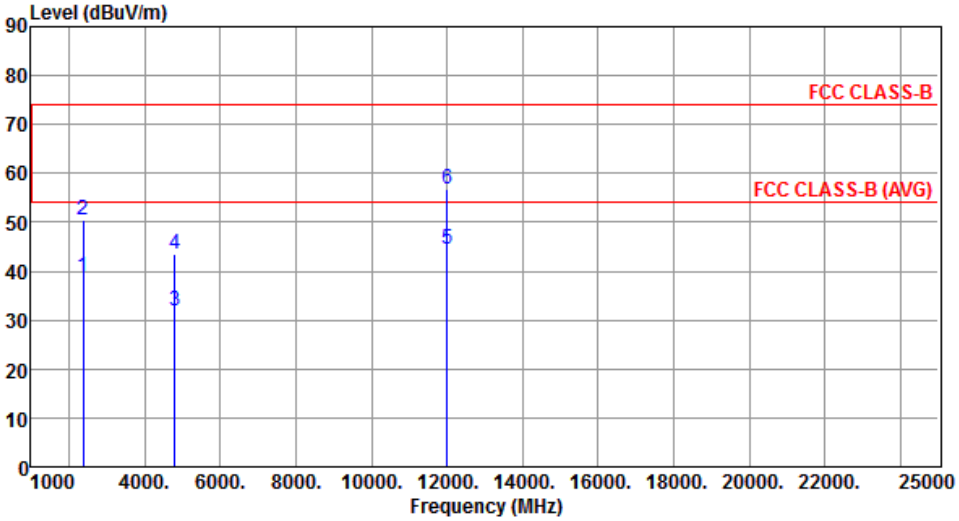


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	38.73	16.95	40.00	-23.05	25.71	-8.76	Peak	---	---
2	146.40	15.91	43.50	-27.59	24.41	-8.50	Peak	---	---
3	315.18	16.13	46.00	-29.87	23.65	-7.52	Peak	---	---
4	449.04	19.61	46.00	-26.39	23.70	-4.09	Peak	---	---
5	619.76	24.15	46.00	-21.85	24.75	-0.60	Peak	---	---
6	903.00	29.74	46.00	-16.26	25.60	4.14	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*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.

3.4.7 Transmitter Radiated Unwanted Emissions (Above 1GHz)

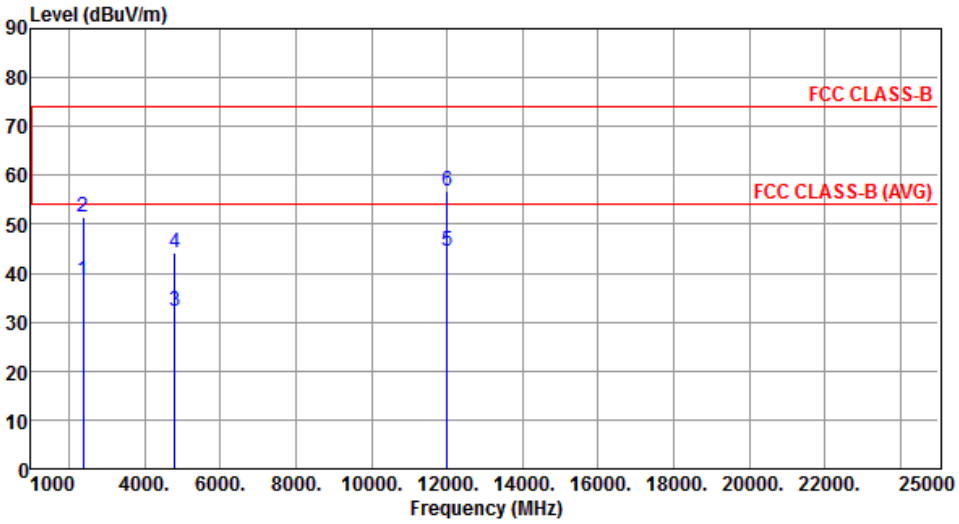
Modulation	BT-LE (1Mbps)	**Test Freq. (MHz)**	2402
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	38.84	54.00	-15.16	41.66	-2.82	Average	390	358
2	2390.00	50.63	74.00	-23.37	53.45	-2.82	Peak	390	358
3	4804.00	31.73	54.00	-22.27	28.22	3.51	Average	100	56
4	4804.00	43.61	74.00	-30.39	40.10	3.51	Peak	100	56
5	12010.00	44.43	54.00	-9.57	30.51	13.92	Average	100	53
6	12010.00	56.91	74.00	-17.09	42.99	13.92	Peak	100	53

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

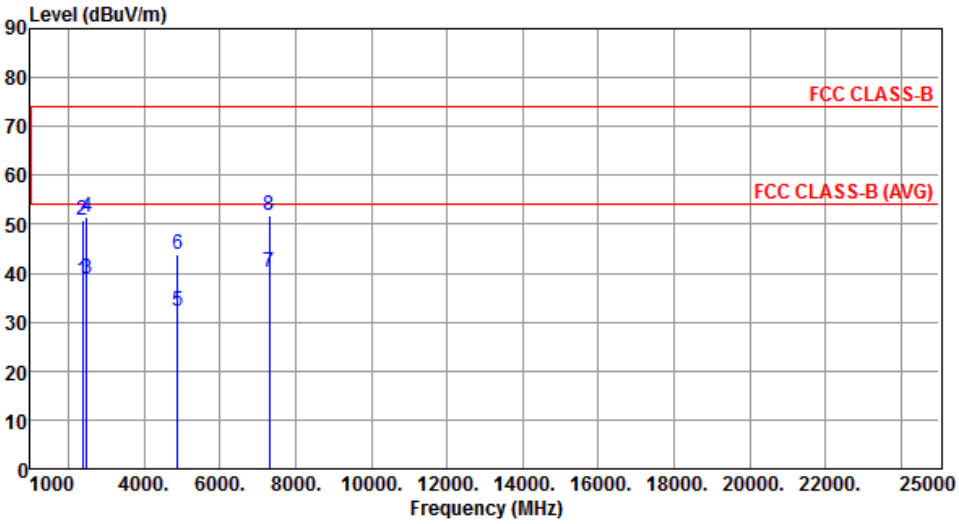
Modulation	BT-LE (1Mbps)	Test Freq. (MHz)	2402
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	38.66	54.00	-15.34	41.48	-2.82	Average	382	30
2	2390.00	51.50	74.00	-22.50	54.32	-2.82	Peak	382	30
3	4804.00	32.07	54.00	-21.93	28.56	3.51	Average	100	55
4	4804.00	44.15	74.00	-29.85	40.64	3.51	Peak	100	55
5	12010.00	44.40	54.00	-9.60	30.48	13.92	Average	100	57
6	12010.00	56.67	74.00	-17.33	42.75	13.92	Peak	100	57

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

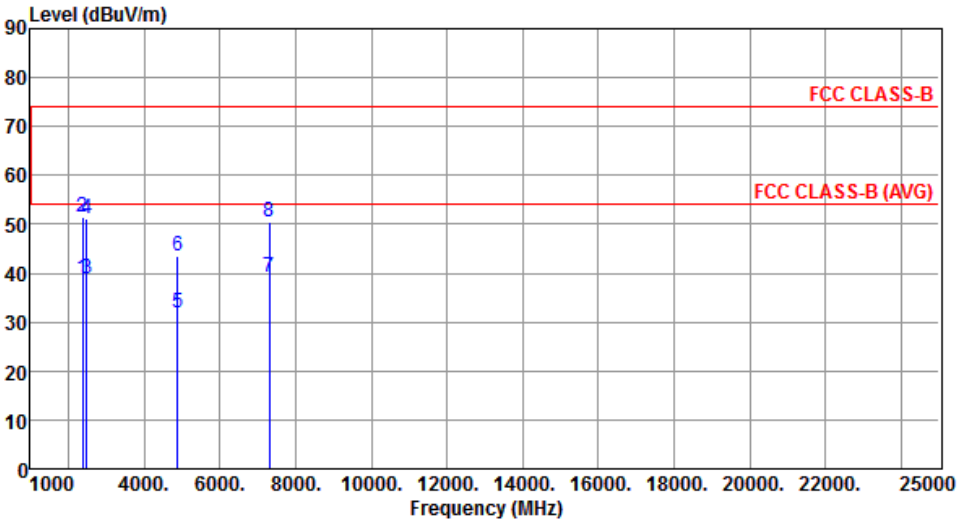
Modulation	BT-LE (1Mbps)	Test Freq. (MHz)	2440
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	38.50	54.00	-15.50	41.32	-2.82	Average	383	0
2	2390.00	50.97	74.00	-23.03	53.79	-2.82	Peak	383	0
3	2483.50	38.73	54.00	-15.27	41.63	-2.90	Average	383	0
4	2483.50	51.33	74.00	-22.67	54.23	-2.90	Peak	383	0
5	4880.00	32.20	54.00	-21.80	28.77	3.43	Average	100	51
6	4880.00	43.91	74.00	-30.09	40.48	3.43	Peak	100	51
7	7320.00	40.14	54.00	-13.86	30.90	9.24	Average	100	61
8	7320.00	51.65	74.00	-22.35	42.41	9.24	Peak	100	61

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

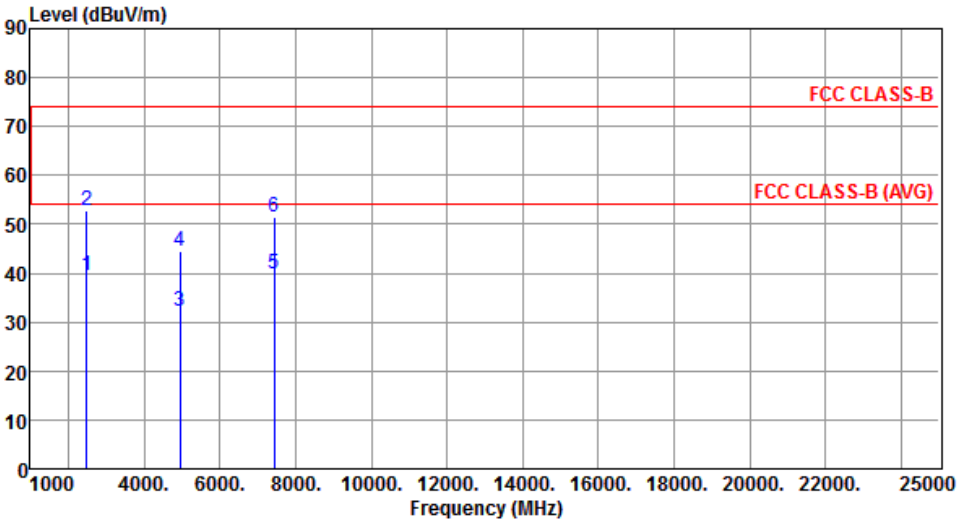
Modulation	BT-LE (1Mbps)	Test Freq. (MHz)	2440
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	38.90	54.00	-15.10	41.72	-2.82	Average	310	51
2	2390.00	51.34	74.00	-22.66	54.16	-2.82	Peak	310	51
3	2483.50	38.82	54.00	-15.18	41.72	-2.90	Average	310	51
4	2483.50	51.07	74.00	-22.93	53.97	-2.90	Peak	310	51
5	4880.00	32.05	54.00	-21.95	28.62	3.43	Average	100	46
6	4880.00	43.66	74.00	-30.34	40.23	3.43	Peak	100	46
7	7320.00	39.29	54.00	-14.71	30.05	9.24	Average	100	61
8	7320.00	50.41	74.00	-23.59	41.17	9.24	Peak	100	61

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

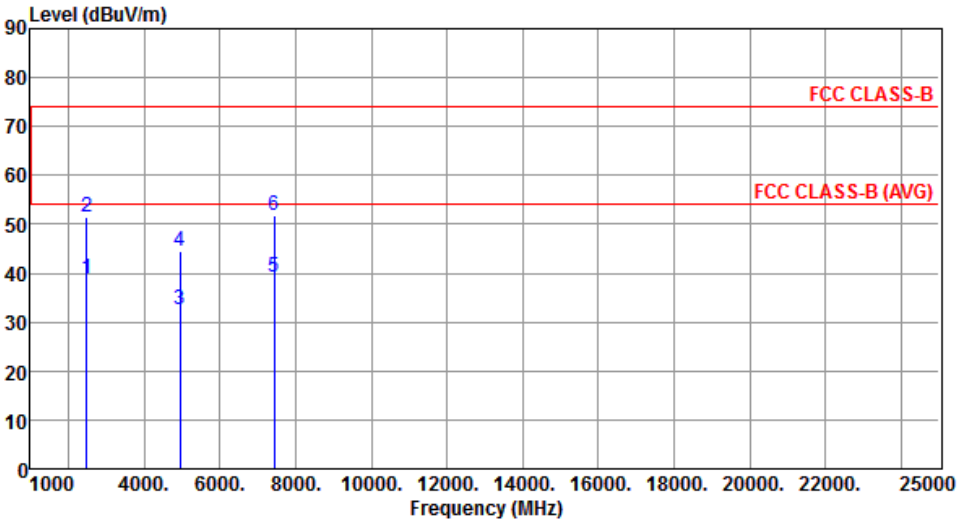
Modulation	BT-LE (1Mbps)	**Test Freq. (MHz)**	2480
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	39.52	54.00	-14.48	42.42	-2.90	Average	365	356
2	2483.50	52.86	74.00	-21.14	55.76	-2.90	Peak	365	356
3	4960.00	32.34	54.00	-21.66	28.53	3.81	Average	100	55
4	4960.00	44.64	74.00	-29.36	40.83	3.81	Peak	100	55
5	7440.00	39.75	54.00	-14.25	30.68	9.07	Average	100	61
6	7440.00	51.52	74.00	-22.48	42.45	9.07	Peak	100	61

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

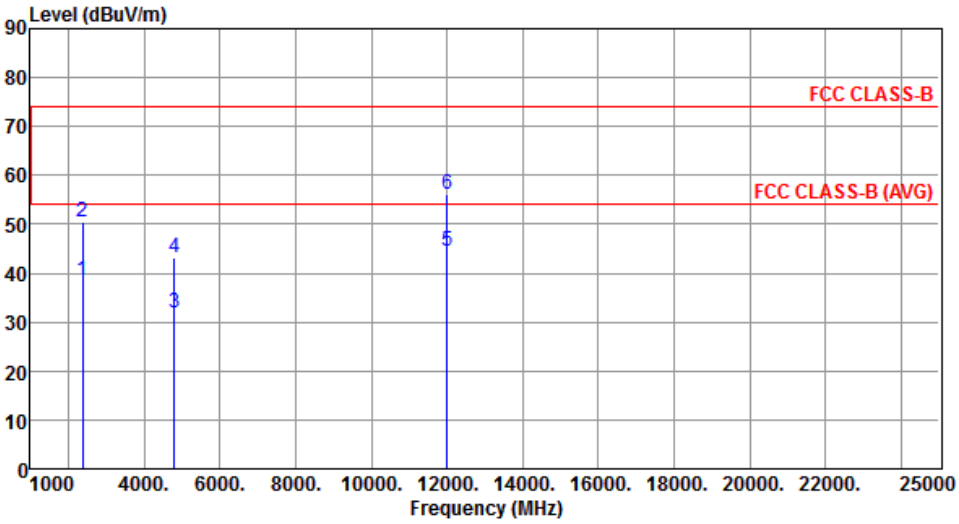
Modulation	BT-LE (1Mbps)	Test Freq. (MHz)	2480
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	38.83	54.00	-15.17	41.73	-2.90	Average	390	48
2	2483.50	51.60	74.00	-22.40	54.50	-2.90	Peak	390	48
3	4960.00	32.69	54.00	-21.31	28.88	3.81	Average	100	34
4	4960.00	44.52	74.00	-29.48	40.71	3.81	Peak	100	34
5	7440.00	39.14	54.00	-14.86	30.07	9.07	Average	100	52
6	7440.00	51.94	74.00	-22.06	42.87	9.07	Peak	100	52

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

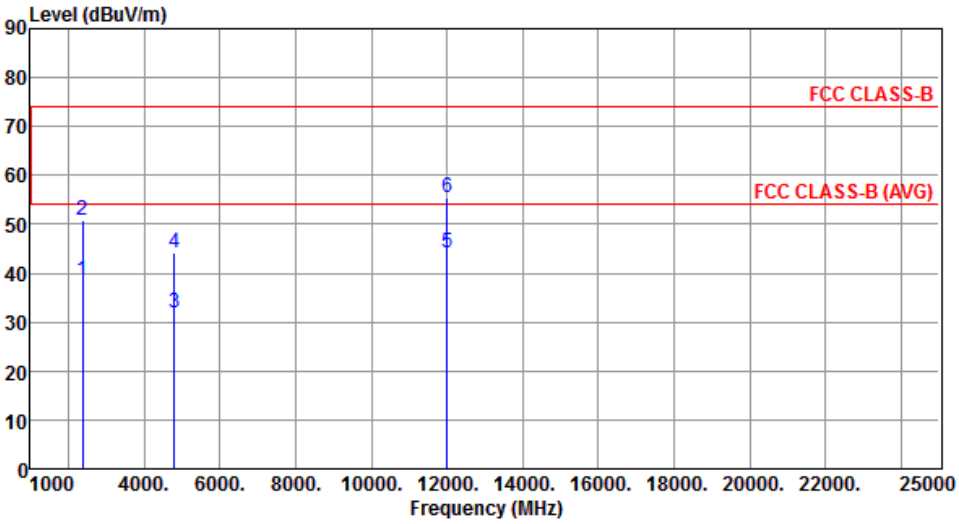
Modulation	BT-LE (2Mbps)	**Test Freq. (MHz)**	2402
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	38.46	54.00	-15.54	41.28	-2.82	Average	301	11
2	2390.00	50.46	74.00	-23.54	53.28	-2.82	Peak	301	11
3	4804.00	31.86	54.00	-22.14	28.35	3.51	Average	100	61
4	4804.00	43.02	74.00	-30.98	39.51	3.51	Peak	100	61
5	12010.00	44.49	54.00	-9.51	30.57	13.92	Average	100	50
6	12010.00	56.01	74.00	-17.99	42.09	13.92	Peak	100	50

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

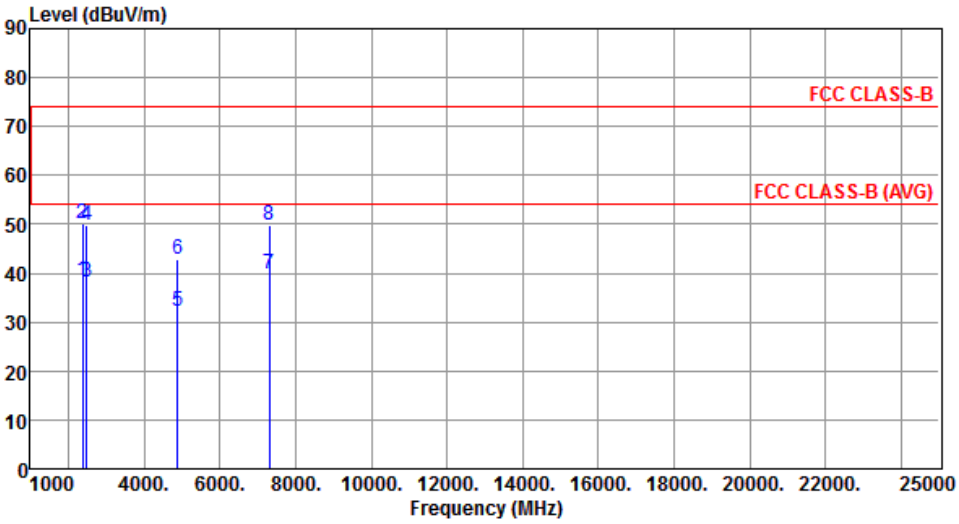
Modulation	BT-LE (2Mbps)	Test Freq. (MHz)	2402
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	38.43	54.00	-15.57	41.25	-2.82	Average	390	29
2	2390.00	50.84	74.00	-23.16	53.66	-2.82	Peak	390	29
3	4804.00	31.99	54.00	-22.01	28.48	3.51	Average	100	42
4	4804.00	44.23	74.00	-29.77	40.72	3.51	Peak	100	42
5	12010.00	44.25	54.00	-9.75	30.33	13.92	Average	100	53
6	12010.00	55.57	74.00	-18.43	41.65	13.92	Peak	100	53

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

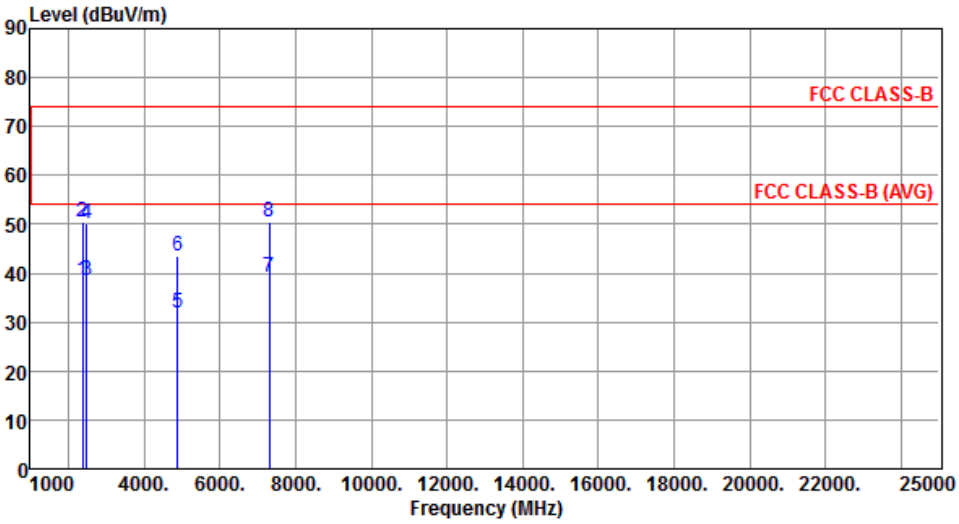
Modulation	BT-LE (2Mbps)	Test Freq. (MHz)	2440
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	38.65	54.00	-15.35	41.47	-2.82	Average	145	8
2	2390.00	50.10	74.00	-23.90	52.92	-2.82	Peak	145	8
3	2483.50	38.35	54.00	-15.65	41.25	-2.90	Average	145	8
4	2483.50	49.92	74.00	-24.08	52.82	-2.90	Peak	145	8
5	4880.00	32.14	54.00	-21.86	28.71	3.43	Average	100	55
6	4880.00	42.86	74.00	-31.14	39.43	3.43	Peak	100	55
7	7320.00	39.94	54.00	-14.06	30.70	9.24	Average	100	66
8	7320.00	49.93	74.00	-24.07	40.69	9.24	Peak	100	66

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

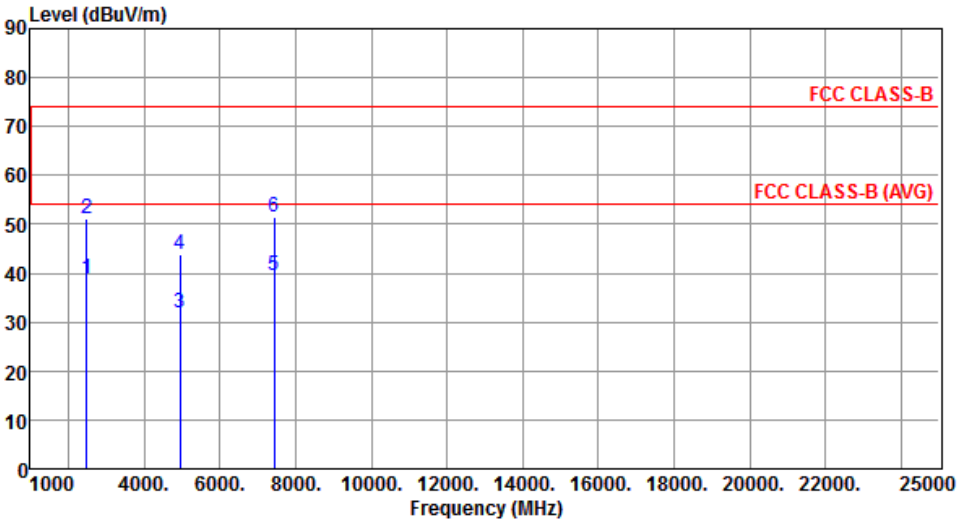
Modulation	BT-LE (2Mbps)	Test Freq. (MHz)	2440
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	38.59	54.00	-15.41	41.41	-2.82	Average	390	85
2	2390.00	50.42	74.00	-23.58	53.24	-2.82	Peak	390	85
3	2483.50	38.59	54.00	-15.41	41.49	-2.90	Average	390	85
4	2483.50	50.07	74.00	-23.93	52.97	-2.90	Peak	390	85
5	4880.00	31.90	54.00	-22.10	28.47	3.43	Average	100	43
6	4880.00	43.49	74.00	-30.51	40.06	3.43	Peak	100	43
7	7320.00	39.34	54.00	-14.66	30.10	9.24	Average	100	45
8	7320.00	50.46	74.00	-23.54	41.22	9.24	Peak	100	45

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

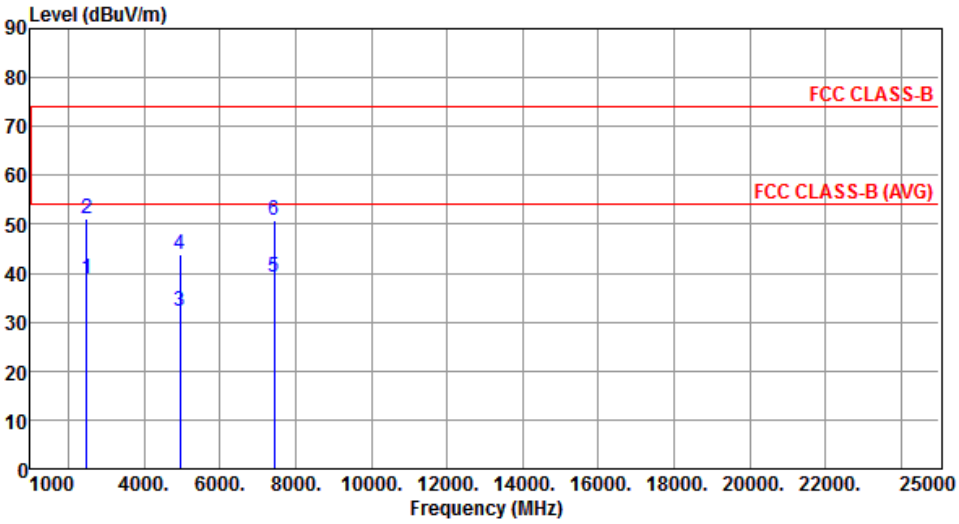
Modulation	BT-LE (2Mbps)	**Test Freq. (MHz)**	2480
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	38.92	54.00	-15.08	41.82	-2.90	Average	248	7
2	2483.50	51.23	74.00	-22.77	54.13	-2.90	Peak	248	7
3	4960.00	31.93	54.00	-22.07	28.12	3.81	Average	100	61
4	4960.00	43.91	74.00	-30.09	40.10	3.81	Peak	100	61
5	7440.00	39.44	54.00	-14.56	30.37	9.07	Average	100	67
6	7440.00	51.43	74.00	-22.57	42.36	9.07	Peak	100	67

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

Modulation	BT-LE (2Mbps)	**Test Freq. (MHz)**	2480
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	38.90	54.00	-15.10	41.80	-2.90	Average	390	50
2	2483.50	51.09	74.00	-22.91	53.99	-2.90	Peak	390	50
3	4960.00	32.35	54.00	-21.65	28.54	3.81	Average	100	45
4	4960.00	43.79	74.00	-30.21	39.98	3.81	Peak	100	45
5	7440.00	39.33	54.00	-14.67	30.26	9.07	Average	100	44
6	7440.00	50.67	74.00	-23.33	41.60	9.07	Peak	100	44

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

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 20 dB relative to the maximum in-band peak PSD level in 100 kHz.

3.5.2 Test Procedures

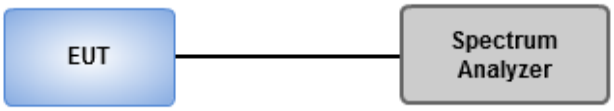
Reference level measurement

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

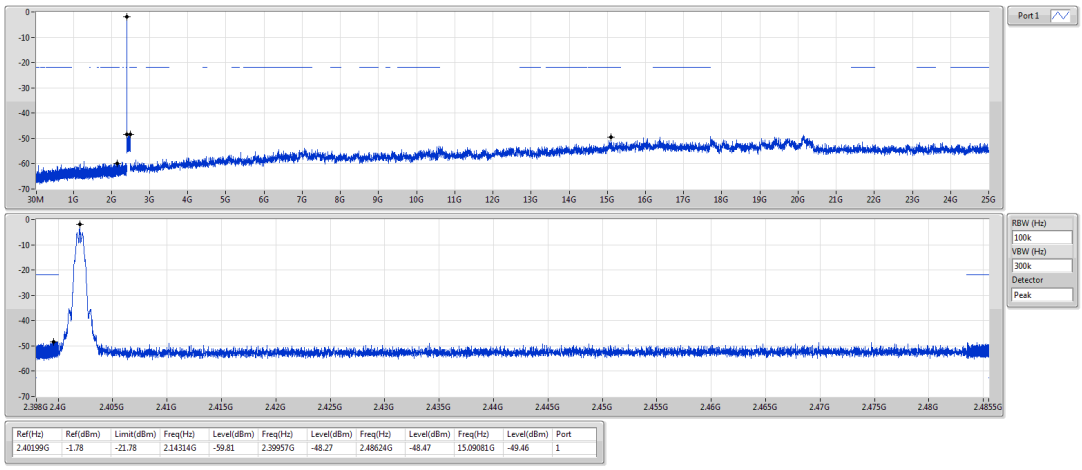


Configuration 1: Ant1

3.5.4 Test Result of Emissions in non-restricted Frequency Bands

BT-LE0.125_Nss1_1TX **CSE NdB**

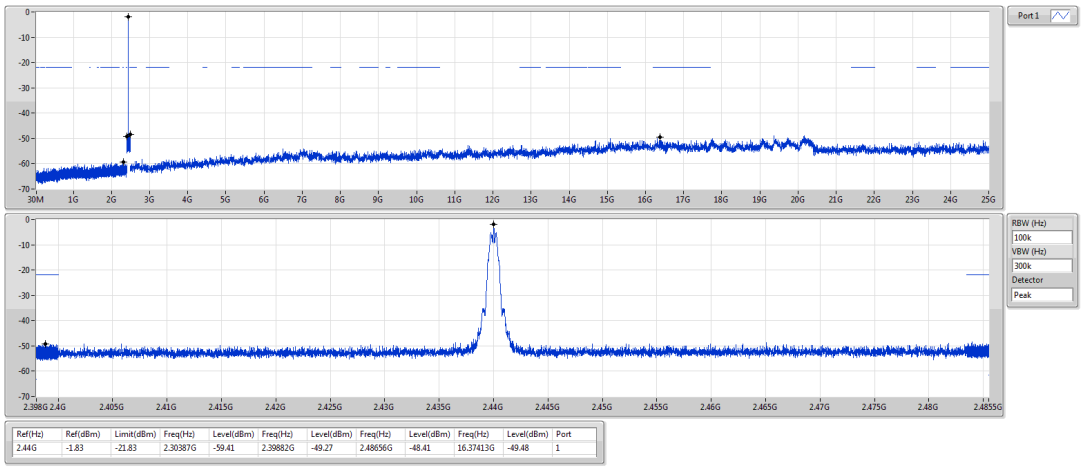
2402MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.40199G	-1.78	-21.78	2.14314G	-59.81	2.39957G	-48.27	2.48624G	-48.47	15.09081G	-49.46	1

BT-LE0.125_Nss1_1TX **CSE NdB**

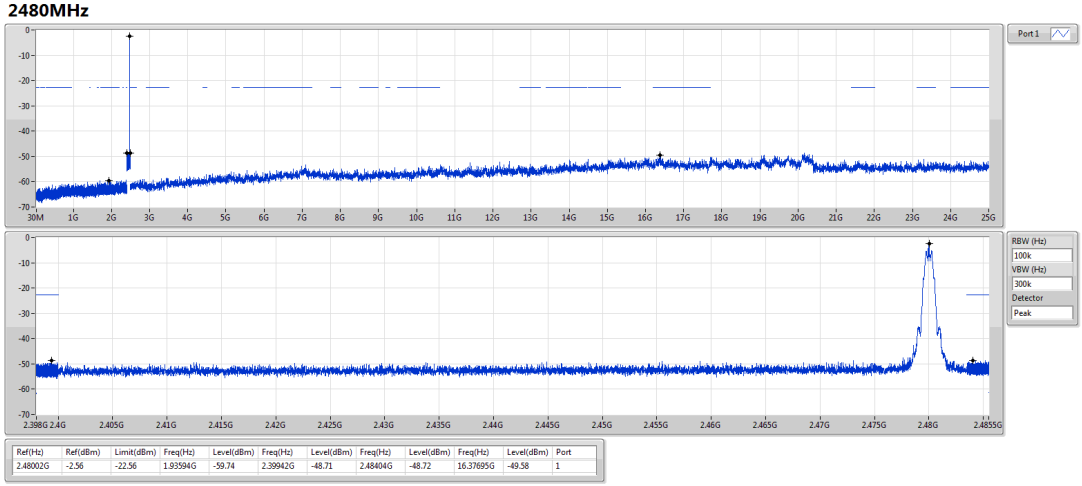
2440MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44G	-1.83	-21.83	2.30387G	-59.41	2.39882G	-49.27	2.48656G	-48.41	16.37413G	-49.48	1

BT-LE0.125_Nss1_1TX **CSE NdB**

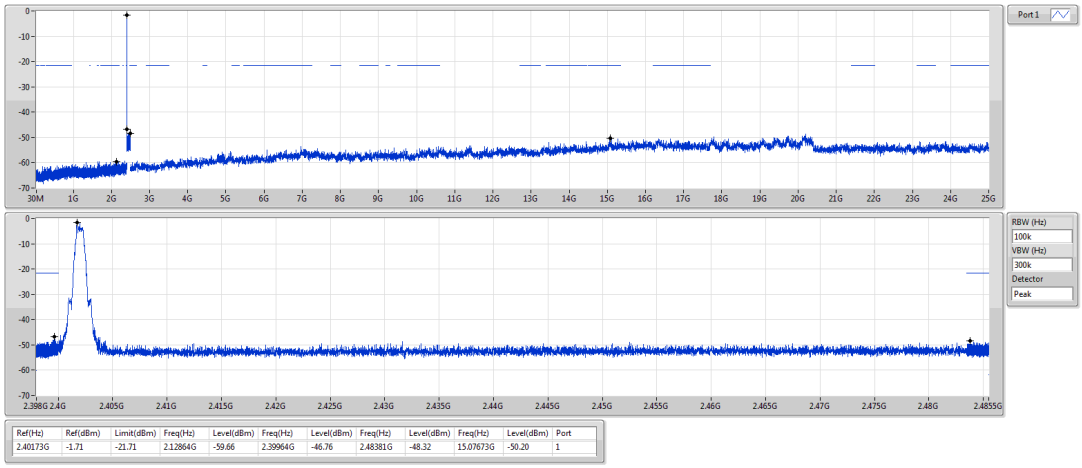
2480MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.48002G	-2.56	-22.56	1.93594G	-59.74	2.39942G	-48.71	2.48404G	-48.72	16.37695G	-49.58	1

BT-LE0.5_Nss1_1TX **CSE NdB**

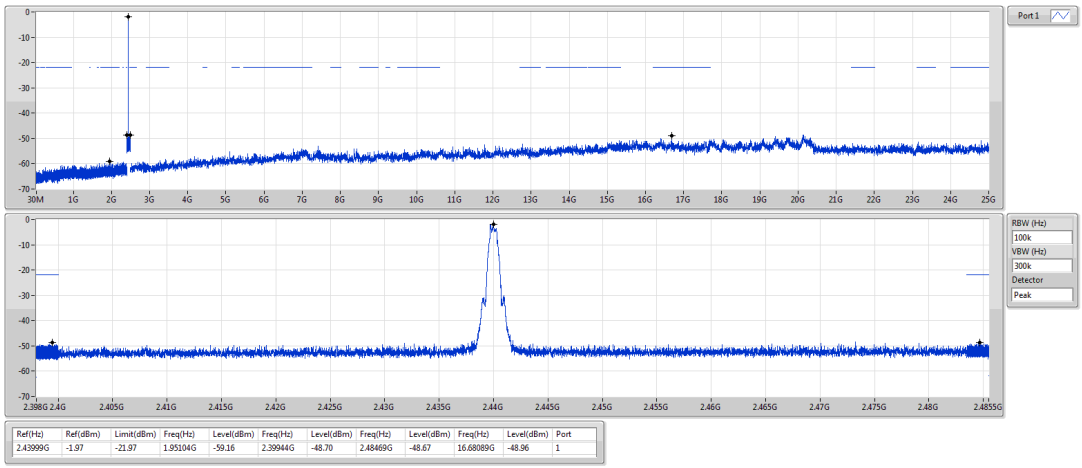
2402MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.40173G	-1.71	-21.71	2.12864G	-59.66	2.39964G	-46.76	2.48381G	-48.32	15.07673G	-50.20	1

BT-LE0.5_Nss1_1TX **CSE NdB**

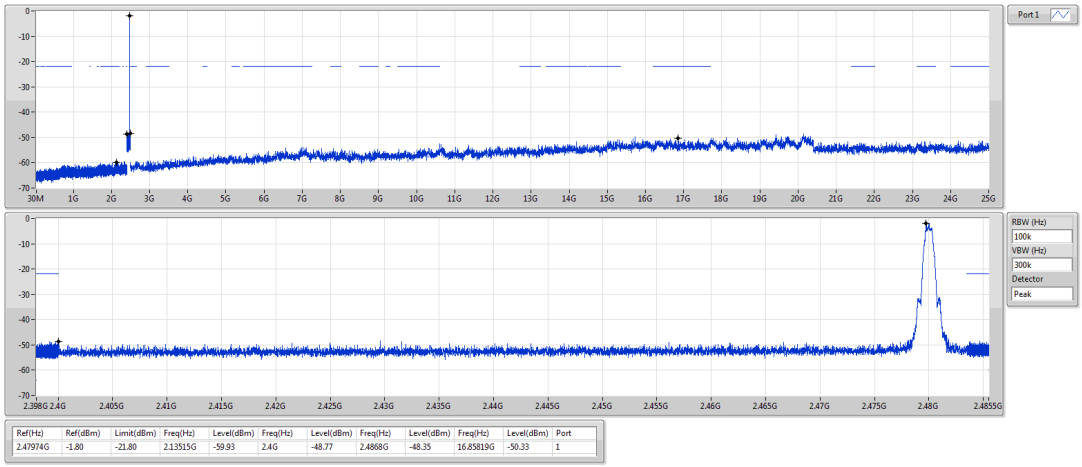
2440MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.43999G	-1.97	-21.97	1.95104G	-59.16	2.39944G	-48.70	2.48469G	-48.67	16.68089G	-48.96	1

BT-LE0.5_Nss1_1TX **CSE NdB**

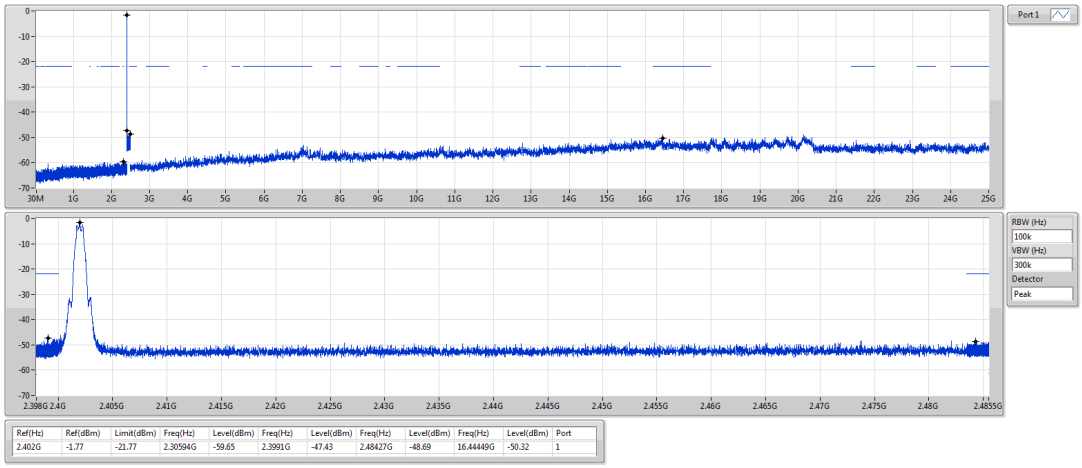
2480MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.47974G	-1.80	-21.80	2.13515G	-59.93	2.4G	-48.77	2.4868G	-48.35	16.85819G	-50.33	1

BT-LE(1Mbps) **CSE NdB**

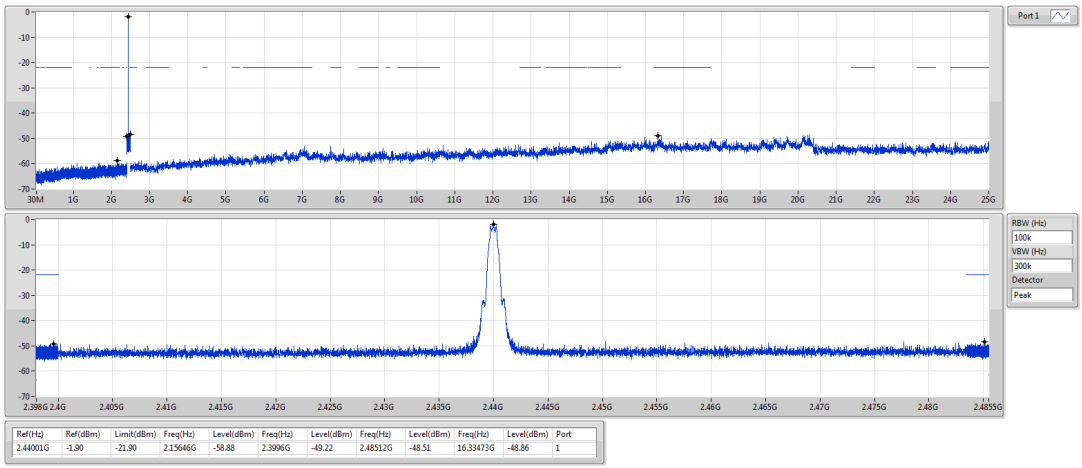
2402MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.402G	-1.77	-21.77	2.30594G	-59.65	2.3991G	-47.43	2.48427G	-48.69	16.44449G	-50.32	1

BT-LE(1Mbps) **CSE NdB**

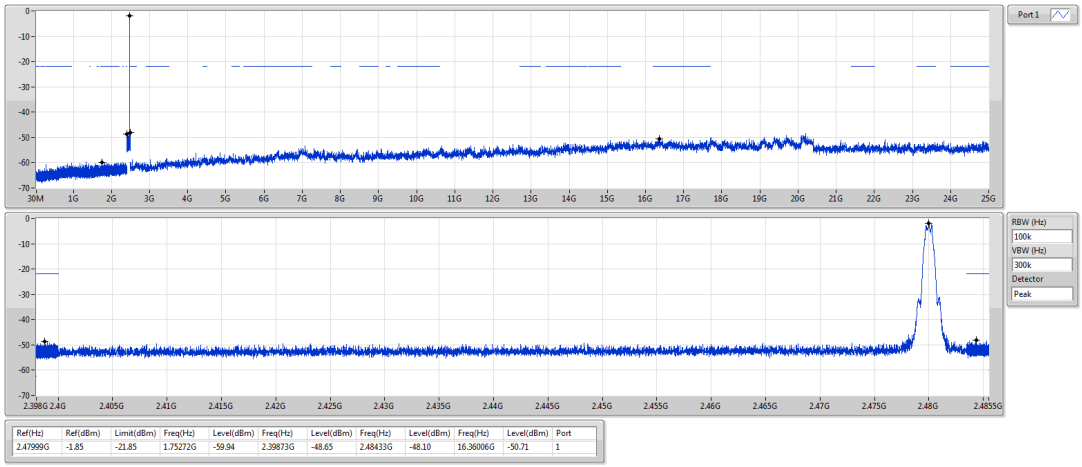
2440MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44001G	-1.90	-21.90	2.15646G	-58.88	2.3996G	-49.22	2.48512G	-48.51	16.33473G	-48.86	1

BT-LE(1Mbps) **CSE NdB**

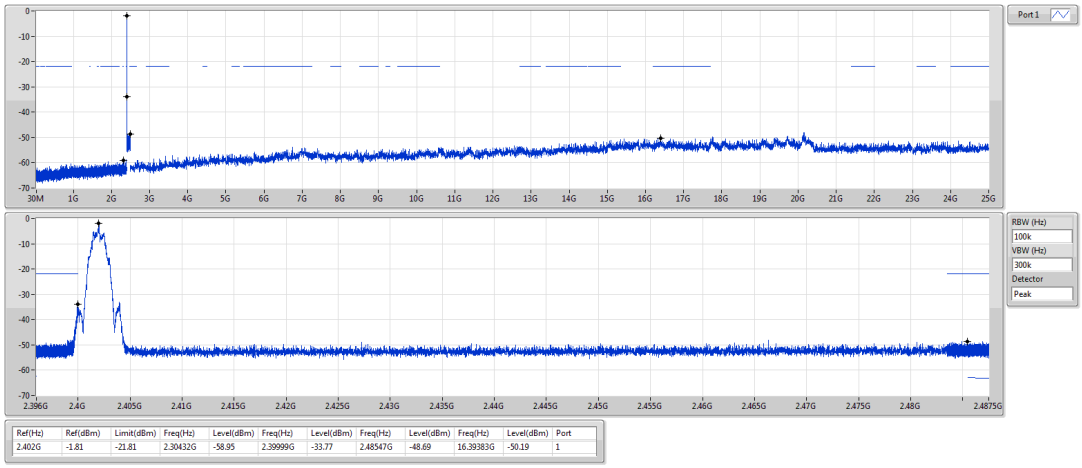
2480MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.47999G	-1.85	-21.85	1.75272G	-59.94	2.39873G	-48.65	2.48433G	-48.10	16.36006G	-50.71	1

BT-LE(2Mbps) **CSE NdB**

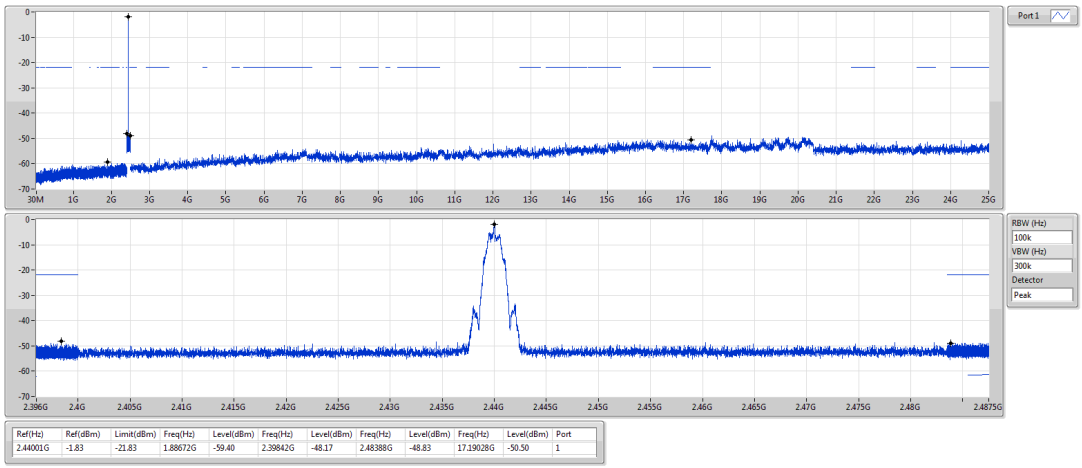
2402MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.402G	-1.81	-21.81	2.30432G	-58.95	2.39999G	-33.77	2.48547G	-48.69	16.39383G	-50.19	1

BT-LE(2Mbps) **CSE NdB**

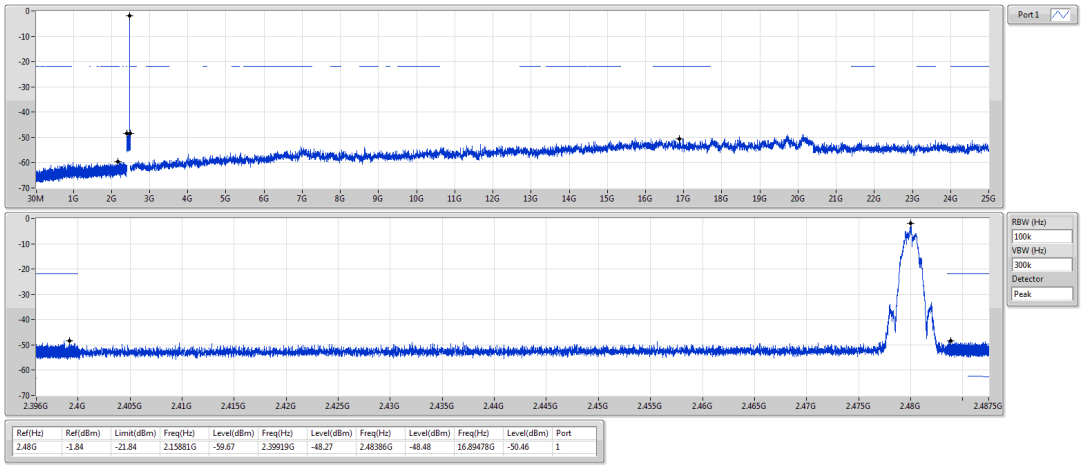
2440MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44001G	-1.83	-21.83	1.88672G	-59.40	2.39842G	-48.17	2.48388G	-48.83	17.19028G	-50.50	1

BT-LE(2Mbps) **CSE NdB**

2480MHz



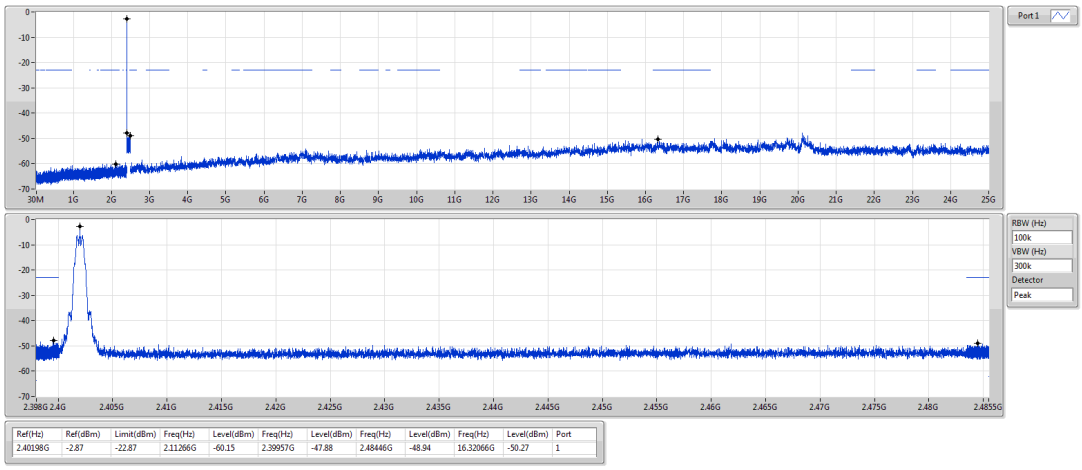
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.48G	-1.84	-21.84	2.15881G	-59.67	2.39919G	-48.27	2.48386G	-48.48	16.89478G	-50.46	1

Configuration 2: Ant2

3.5.5 Test Result of Emissions in non-restricted Frequency Bands

BT-LE0.125_Nss1_1TX **CSE NdB**

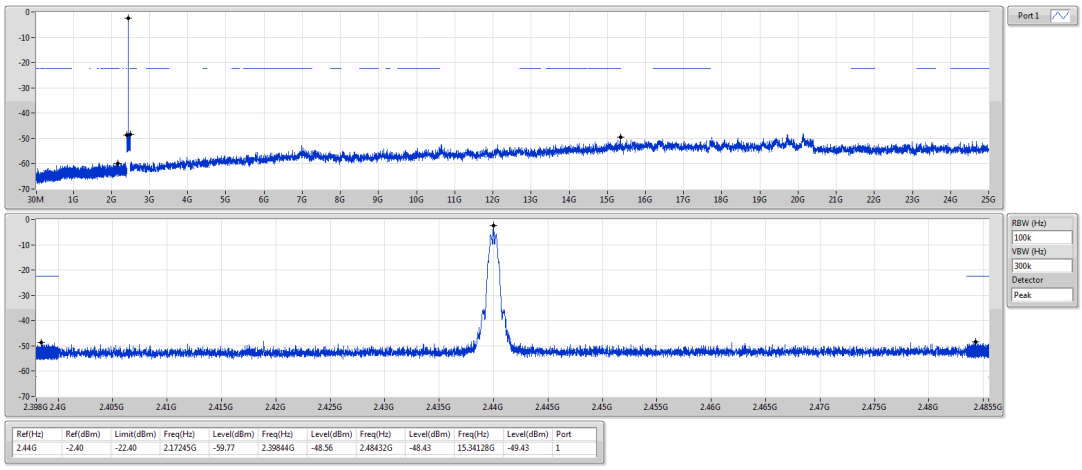
2402MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.40198G	-2.87	-22.87	2.11266G	-60.15	2.39957G	-47.88	2.48446G	-48.94	16.32066G	-50.27	1

BT-LE0.125_Nss1_1TX **CSE NdB**

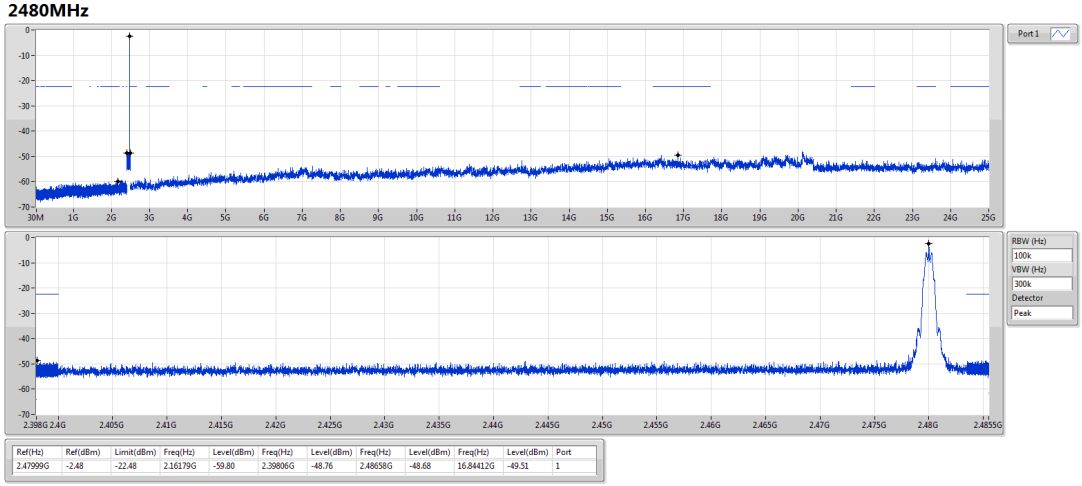
2440MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44G	-2.40	-22.40	2.17245G	-59.77	2.39844G	-48.56	2.48432G	-48.43	15.34128G	-49.43	1

BT-LE0.125_Nss1_1TX **CSE NdB**

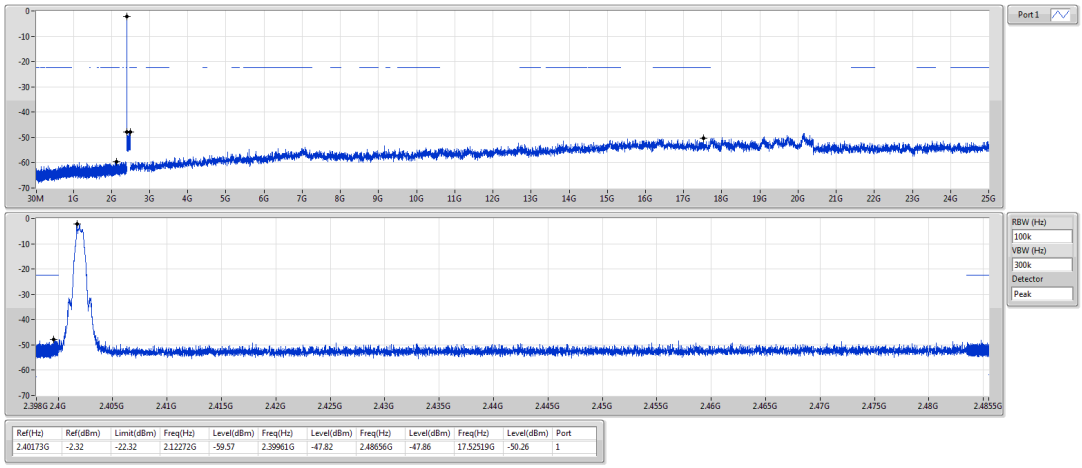
2480MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.47999G	-2.48	-22.48	2.16179G	-59.80	2.39806G	-48.76	2.48658G	-48.68	16.84412G	-49.51	1

BT-LE0.5_Nss1_1TX **CSE NdB**

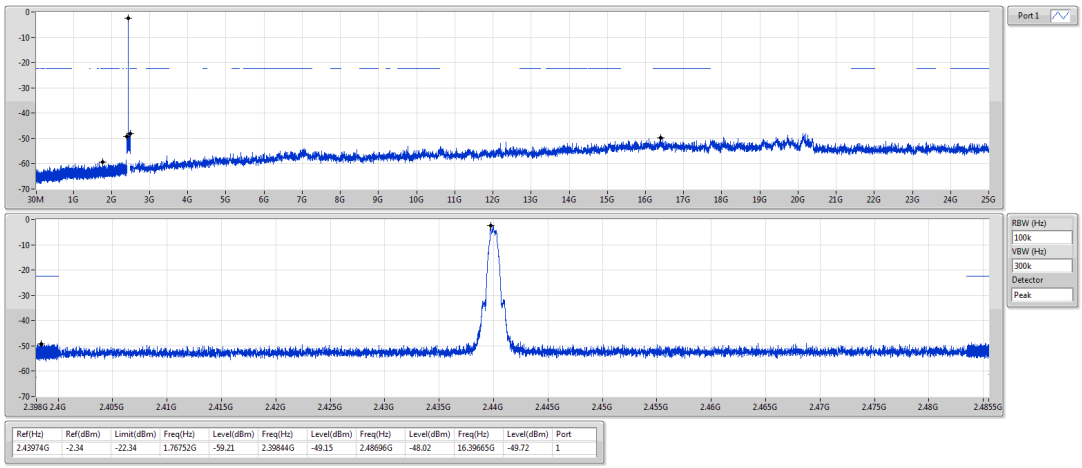
2402MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.40173G	-2.32	-22.32	2.12272G	-59.57	2.39961G	-47.82	2.48656G	-47.86	17.52519G	-50.26	1

BT-LE0.5_Nss1_1TX **CSE NdB**

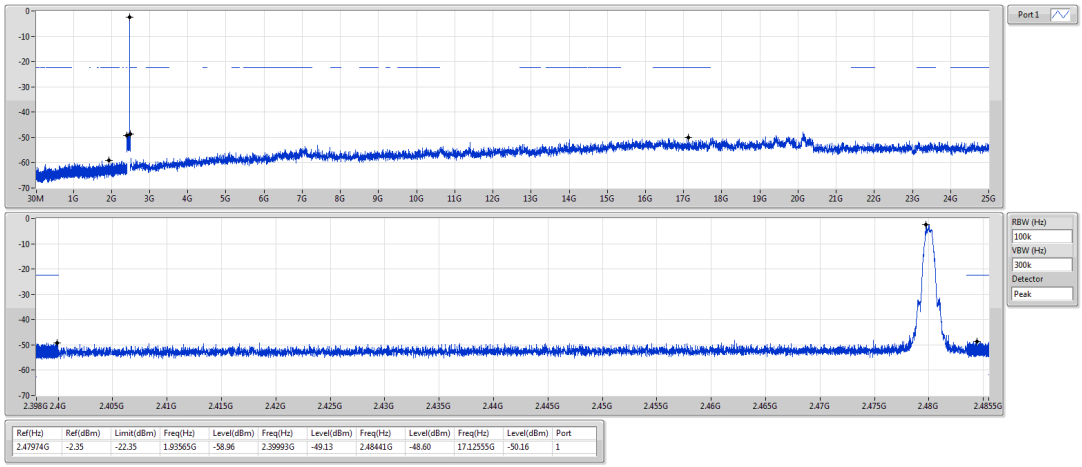
2440MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.43974G	-2.34	-22.34	1.76752G	-59.21	2.39844G	-49.15	2.48696G	-48.02	16.39665G	-49.72	1

BT-LE0.5_Nss1_1TX **CSE NdB**

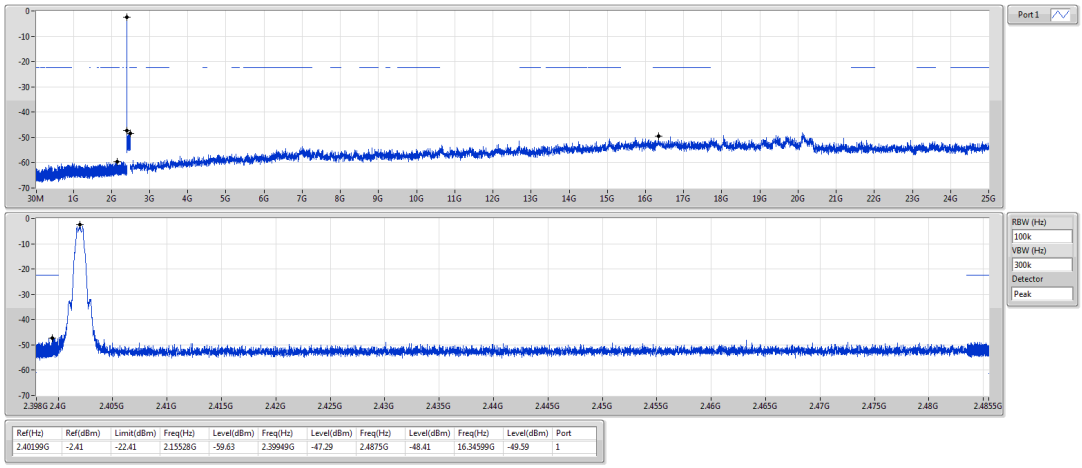
2480MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.47974G	-2.35	-22.35	1.93565G	-58.96	2.39993G	-49.13	2.48441G	-48.60	17.12555G	-50.16	1

BT-LE(1Mbps) **CSE NdB**

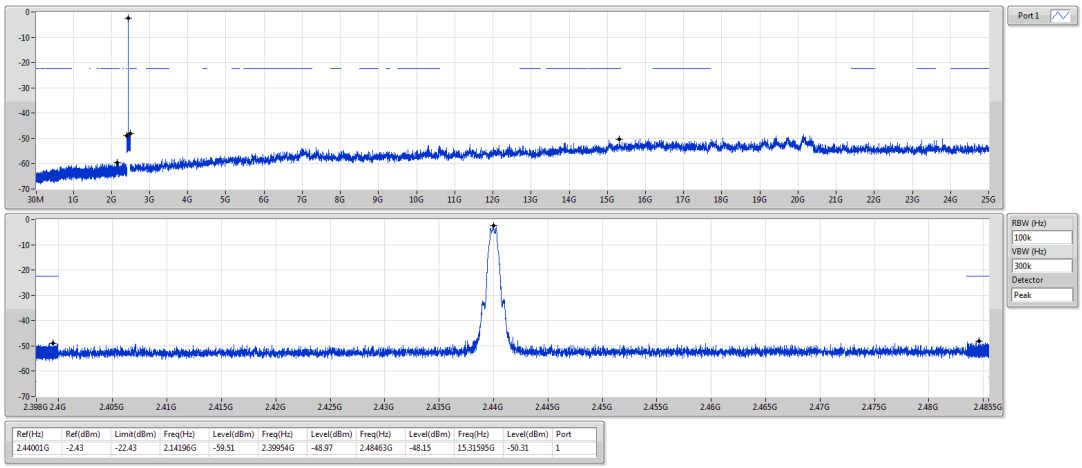
2402MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.40199G	-2.41	-22.41	2.15528G	-59.63	2.39949G	-47.29	2.4875G	-48.41	16.34599G	-49.59	1

BT-LE(1Mbps) **CSE NdB**

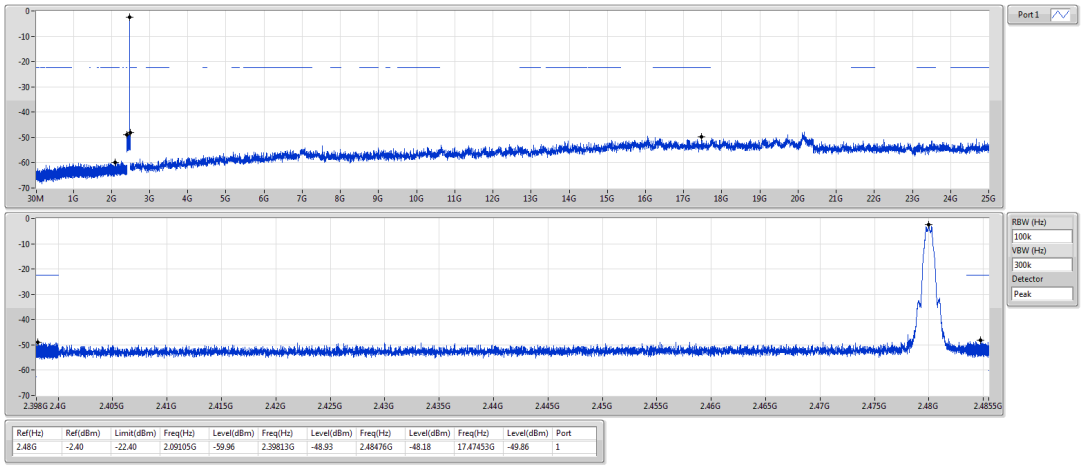
2440MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44001G	-2.43	-22.43	2.14196G	-59.51	2.39954G	-48.97	2.48463G	-48.15	15.31595G	-50.31	1

BT-LE(1Mbps) **CSE NdB**

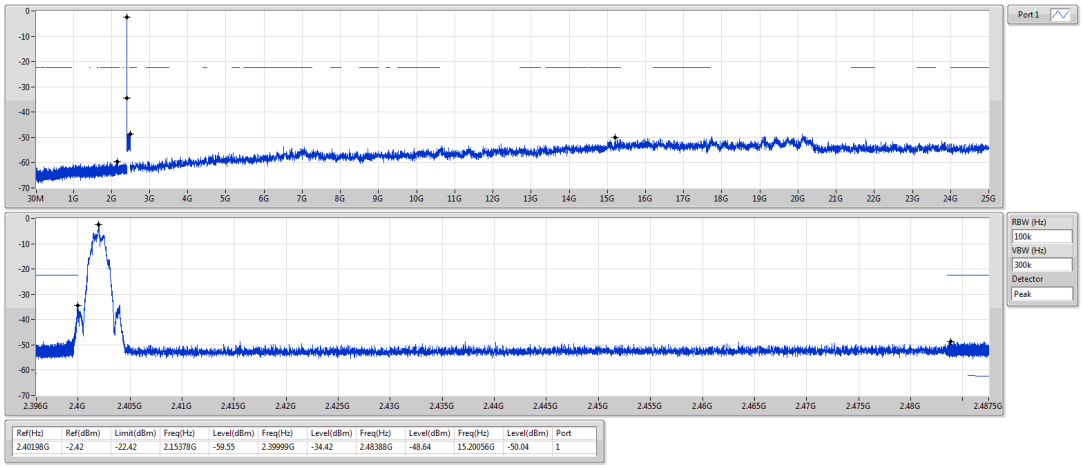
2480MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.48G	-2.40	-22.40	2.09105G	-59.96	2.39813G	-48.93	2.48476G	-48.18	17.47453G	-49.86	1

BT-LE(2Mbps) **CSE NdB**

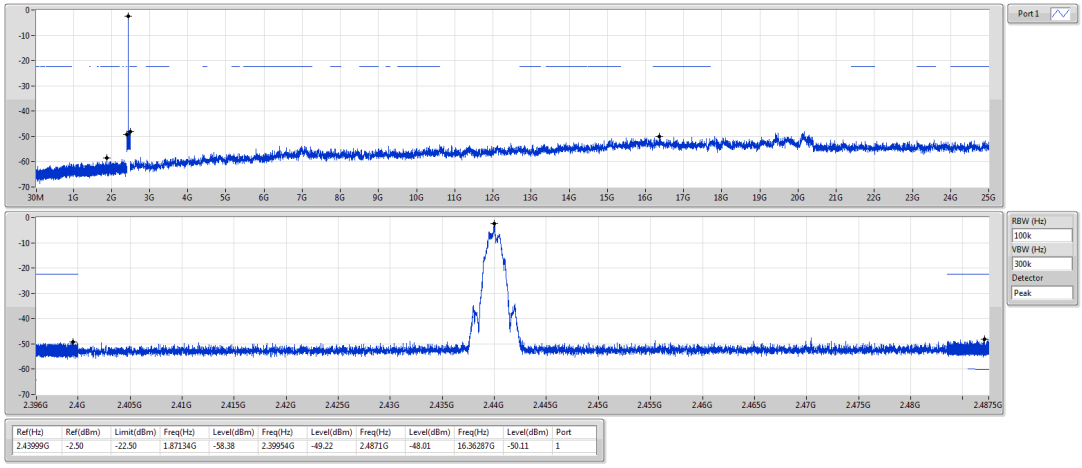
2402MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.40198G	-2.42	-22.42	2.15378G	-59.55	2.39999G	-34.42	2.48388G	-48.64	15.20056G	-50.04	1

BT-LE(2Mbps) **CSE NdB**

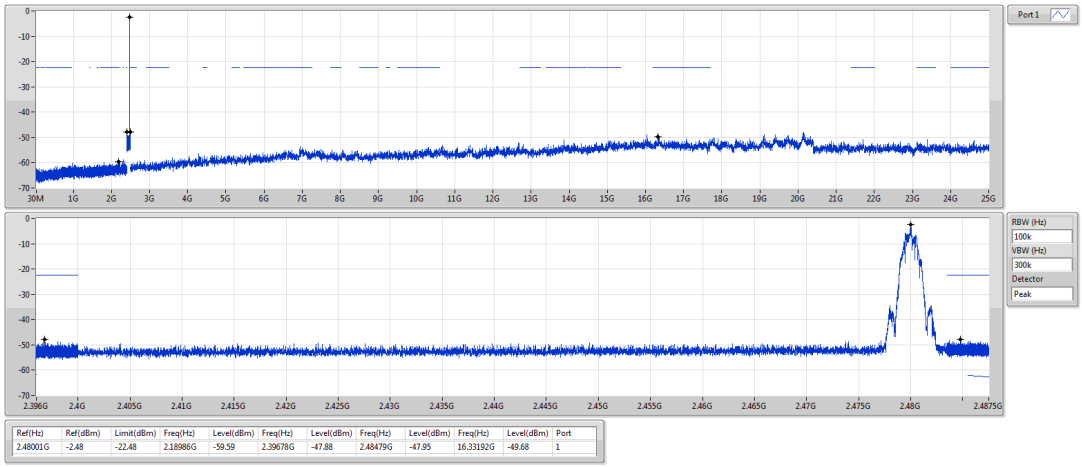
2440MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.43999G	-2.50	-22.50	1.87134G	-58.38	2.39954G	-49.22	2.4871G	-48.01	16.36287G	-50.11	1

BT-LE(2Mbps) **CSE NdB**

2480MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.48001G	-2.48	-22.48	2.18986G	-59.59	2.39678G	-47.88	2.48479G	-47.95	16.33192G	-49.68	1

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 Corp (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	**Kwei Shan**	**Kwei Shan Site II**
Tel: 886-2-2601-1640	Tel: 886-3-271-8666	Tel: 886-3-271-8640
No. 30-2, Ding Fwu Tsuen, Lin Kou District, New Taipei City, Taiwan, R.O.C.	No. 3-1, Lane 6, Wen San 3rd St., Kwei Shan District, Tao Yuan City 333, Taiwan, R.O.C.	No. 14-1, Lane 19, Wen San 3rd St., Kwei Shan District, Tao Yuan City 333, 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

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