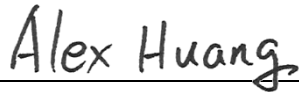


FCC Test Report

FCC ID : SQG-LYRA24S
Equipment : Bluetooth v5.3 Module, SIP, LYRA 24S,
Integrated Antenna
Model No. : Lyra 24S
Brand Name : Laird Connectivity
Applicant : Laird Connectivity LLC
Address : W66N220 Commerce Court, Cedarburg, WI
53012 United States Of America
Standard : 47 CFR FCC Part 15.247
Received Date : Apr. 18, 2023
Tested Date : Apr. 24 ~ May 15, 2023

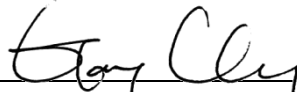
We, International Certification Corporation, would like to declare that the tested sample has been evaluated and in compliance with the requirement of the above standards. The test results contained in this report refer exclusively to the product. It shall not be reproduced except in full without the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

Reviewed by:



Alex Huang / Supervisor

Approved by:



Gary Chang / Manager

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Appendix A. 6dB and Occupied Bandwidth

Appendix B. Conducted Output Power

Appendix C. Power Spectral Density

Appendix D. Unwanted Emissions into Restricted Frequency Bands

Appendix E. Emissions in Non-Restricted Frequency Bands

Appendix F. AC Power Line Conducted Emissions

Release Record

Report No.	Version	Description	Issued Date
FR341803	Rev. 01	Initial issue	Jul. 11, 2023

Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	AC Power Line Conducted Emissions	[dBuV]: 0.538MHz 30.19 (Margin -15.81dB) - AV	Pass
15.247(d) 15.209	Unwanted Emissions	[dBuV/m at 3m]: 48.43MHz 33.85 (Margin -6.15dB) - PK	Pass
15.247(b)(3)	Conducted Output Power	Power [dBm]: 10.33	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

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	LE	2402-2480	0-39 [40]	125kbps
				500kbps
				1Mbps
		2404-2478	37	2Mbps
Note 1: RF output power specifies that Maximum Peak Conducted output Power				
Note 2: Bluetooth LE (Low energy) uses GFSK modulation.				

1.1.2 Antenna Details

Ant. No.	Brand	Model	Type	Connector	2400-2500MHz	2400-2480MHz	Cable loss (dB)
					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 24S PCB Trace Antenna	Internal PCB	---	---	1.48	N/A

1.1.3 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	3Vdc from host
--------------------------	----------------

1.1.4 Accessories

N/A

1.1.5 Channel List

BT-LE(125 kbps / 500 kbps / 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(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	--	--

1.1.6 Test Tool and Duty Cycle

Test Tool	Simplicity Studio, Version: 5.6.0.0	
Modulation Mode	Duty Cycle Of Test Signal (%)	Duty Factor (dB)
BT-LE(125kbps)	98.35%	0.07
BT-LE(500kbps)	92.17%	0.35
BT-LE(1Mbps)	90.18%	0.45
BT-LE(2Mbps)	59.90%	2.23

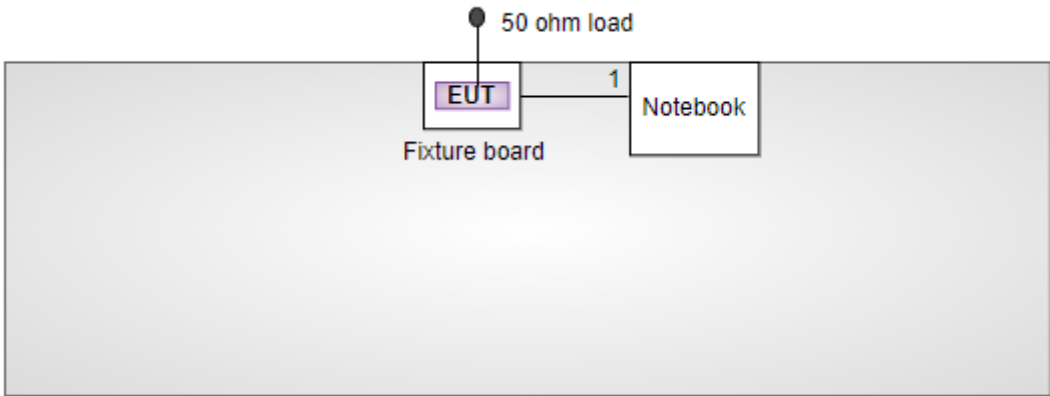
1.1.7 Power Index of Test Tool

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

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	
 The diagram illustrates the test setup. A 50 ohm load is connected to a Fixture board (labeled EUT) via a cable labeled 1. The Fixture board is connected to a Notebook.	
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 15, 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
RF Cable-CON	Woken	CFD200-NL	CFD200-NL-001	Oct. 17, 2022	Oct. 16, 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 chamber1 / (03CH01-WS)				
Tested Date	Apr. 24, 2023				
Instrument	Brand	Model No.	Serial No.	Calibration Date	Calibration Until
Receiver	R&S	ESR3	101657	Mar. 03, 2023	Mar. 02, 2024
Spectrum Analyzer	R&S	FSV40	101498	Nov. 21, 2022	Nov. 20, 2023
Loop Antenna	R&S	HFH2-Z2	100330	Nov. 01, 2022	Oct. 31, 2023
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-522	Aug. 03, 2022	Aug. 02, 2023
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1096	Nov. 25, 2022	Nov. 24, 2023
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Oct. 27, 2022	Oct. 26, 2023
Preamplifier	EMC	EMC02325	980225	Jun. 28, 2022	Jun. 27, 2023
Preamplifier	EMC	EMC118A45SE	980898	Jul. 16, 2022	Jul. 15, 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 3M	Woken	CFD400NL-LW	CFD400NL-001	Oct. 04, 2022	Oct. 03, 2023
LF cable 11M	EMC	EMCCFD400-NW-N W-11000	200801	Oct. 04, 2022	Oct. 03, 2023
LF cable 1M	EMC	EMCCFD400-NM-N M-1000	160502	Oct. 04, 2022	Oct. 03, 2023
RF Cable	EMC	EMC104-35M-35M-8000	210920	Oct. 04, 2022	Oct. 03, 2023
RF Cable	EMC	EMC104-35M-35M-3000	210922	Oct. 04, 2022	Oct. 03, 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	May 12, 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
Measurement Software	Sporton	SENSE-15247_FS	V5.10.8	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

1.5 Test Standards

47 CFR FCC Part 15.247
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	± 3.41 dB
Unwanted Emission > 1 GHz	± 4.59 dB

2 Test Configuration

2.1 Testing Facility

Test Laboratory	International Certification Corporation
Test Site	CO01-WS, 03CH01-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.)

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

2.2 The Worst Test Modes and Channel Details

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

NOTE:

- The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement – X, Y, and Z-plane. The **Y-plane** results were found as the worst case and were shown in this report.
- 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

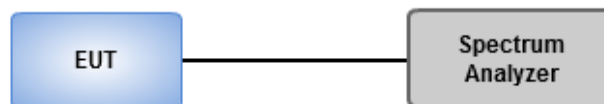
6dB Bandwidth

1. Set resolution bandwidth (RBW) = 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



3.1.4 Test Results

Ambient Condition	23°C / 64%	Tested By	Brad Wu
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Refer to Appendix A.

3.2 Conducted Output Power

3.2.1 Limit of Conducted Output Power

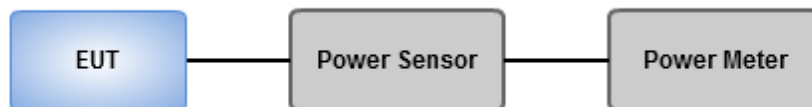
Conducted power shall not exceed 1Watt.

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	23°C / 64%	Tested By	Brad Wu
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Refer to Appendix B.

3.3 Power Spectral Density

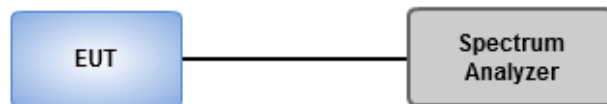
3.3.1 Limit of Power Spectral Density

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	23°C / 64%	Tested By	Brad Wu
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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:

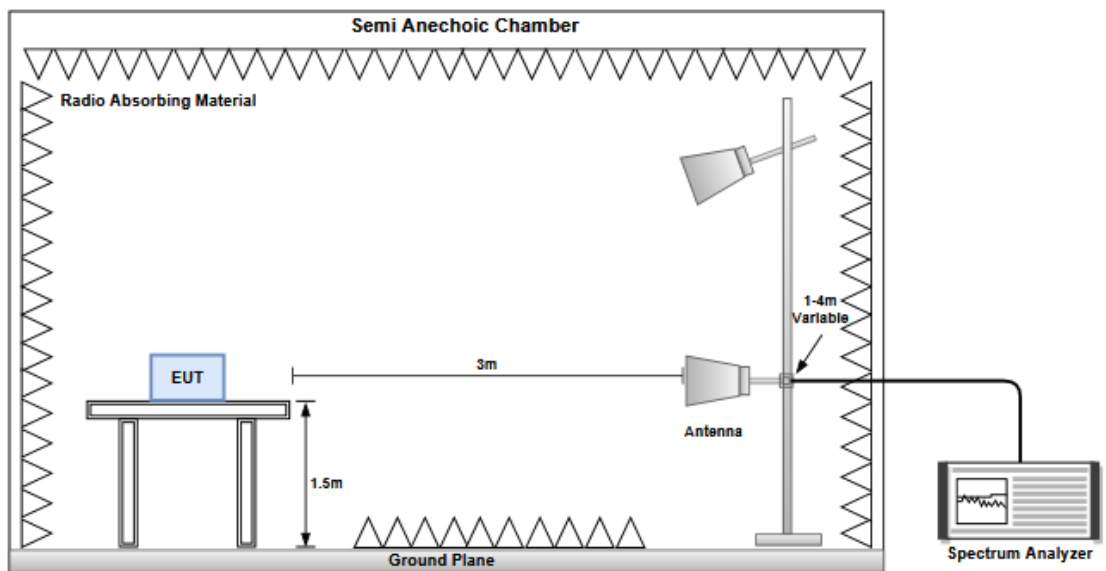
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above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

3.4.3 Test Setup

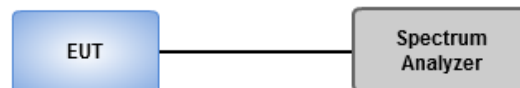
Radiated Emissions below 1 GHz



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

3.5.2 Test Procedures

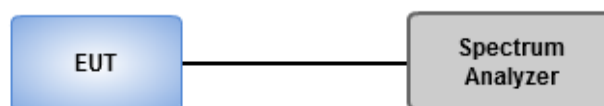
Reference level measurement

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



3.5.4 Test Results

Ambient Condition	23°C / 64%	Tested By	Brad Wu
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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

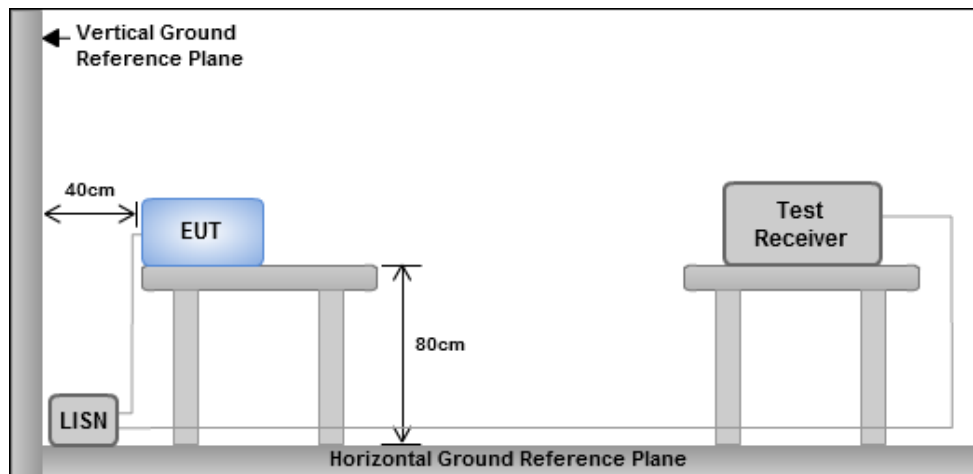
Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

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==

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
BT-LE(125kbps)	598.75k	1.053M	1M05F1D	597.5k	1.051M
BT-LE(500kbps)	656.25k	1.022M	1M02F1D	655k	1.021M
BT-LE(1Mbps)	658.75k	1.022M	1M02F1D	656.25k	1.019M
BT-LE(2Mbps)	1.098M	2.089M	2M09F1D	1.095M	2.081M

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

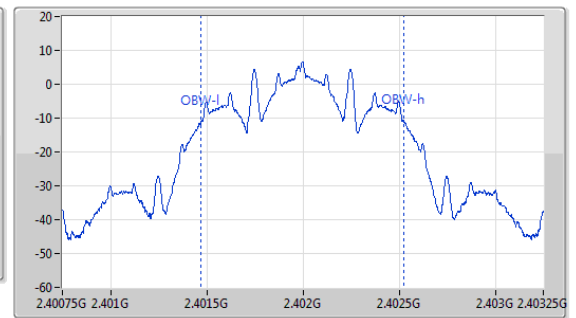
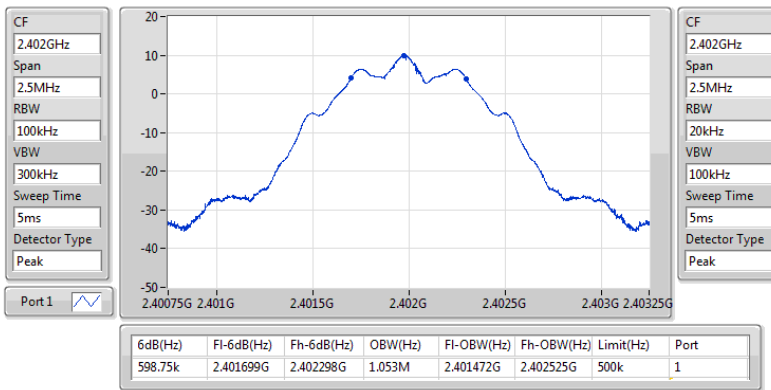
Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(125kbps)	-	-	-	-
2402MHz	Pass	500k	598.75k	1.053M
2440MHz	Pass	500k	597.5k	1.052M
2480MHz	Pass	500k	597.5k	1.051M
BT-LE(500kbps)	-	-	-	-
2402MHz	Pass	500k	656.25k	1.021M
2440MHz	Pass	500k	656.25k	1.021M
2480MHz	Pass	500k	655k	1.022M
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	658.75k	1.019M
2440MHz	Pass	500k	656.25k	1.022M
2480MHz	Pass	500k	657.5k	1.021M
BT-LE(2Mbps)	-	-	-	-
2404MHz	Pass	500k	1.098M	2.081M
2440MHz	Pass	500k	1.095M	2.086M
2478MHz	Pass	500k	1.095M	2.089M

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

2.4-2.4835GHz_BT-LE(125kbps)

EBW-DTS

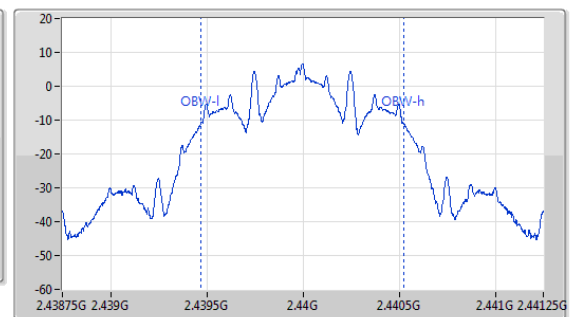
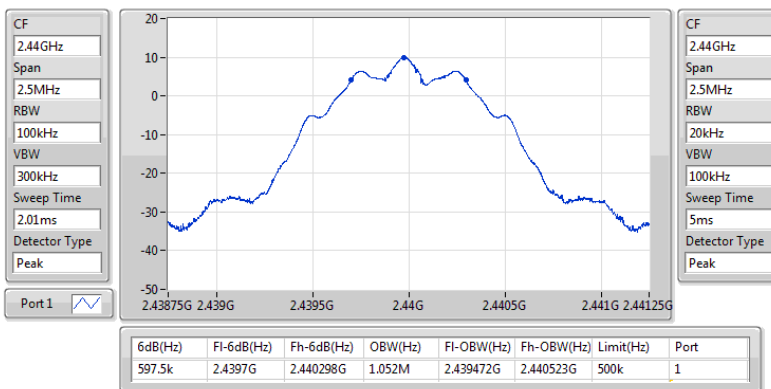
2402MHz



2.4-2.4835GHz_BT-LE(125kbps)

EBW-DTS

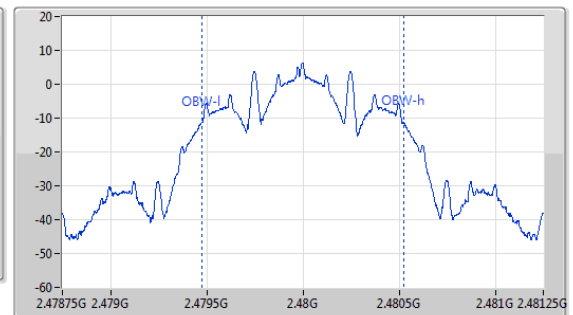
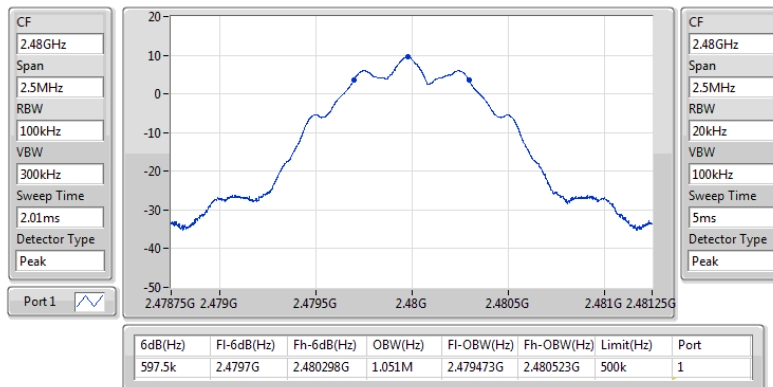
2440MHz



2.4-2.4835GHz_BT-LE(125kbps)

EBW-DTS

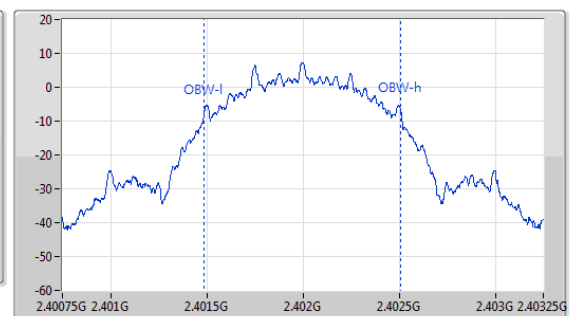
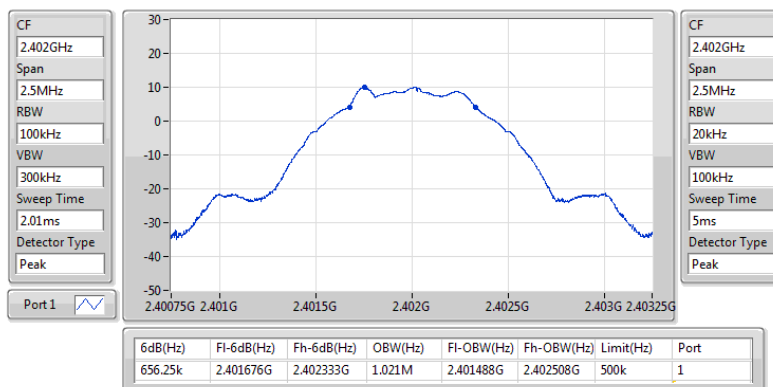
2480MHz



2.4-2.4835GHz_BT-LE(500kbps)

EBW-DTS

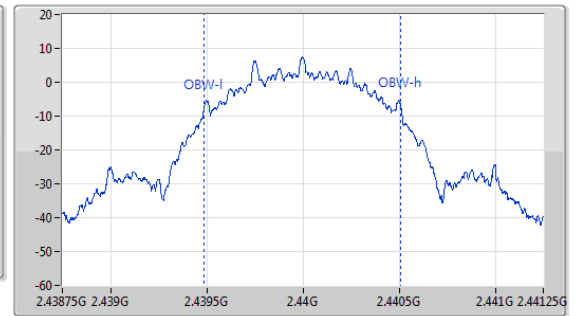
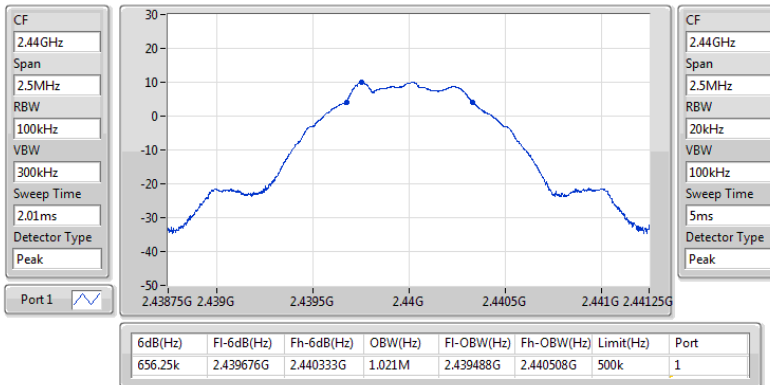
2402MHz



2.4-2.4835GHz_BT-LE(500kbps)

EBW-DTS

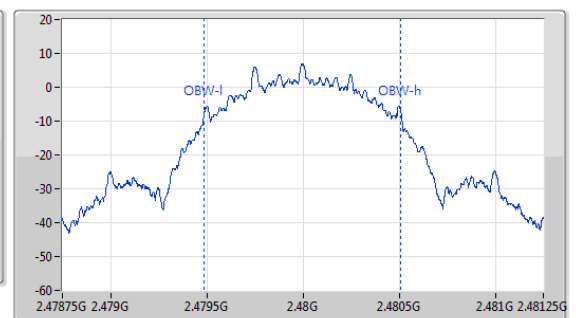
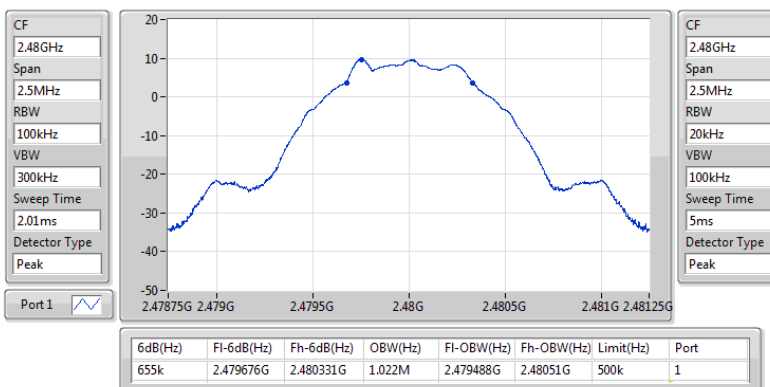
2440MHz



2.4-2.4835GHz_BT-LE(500kbps)

EBW-DTS

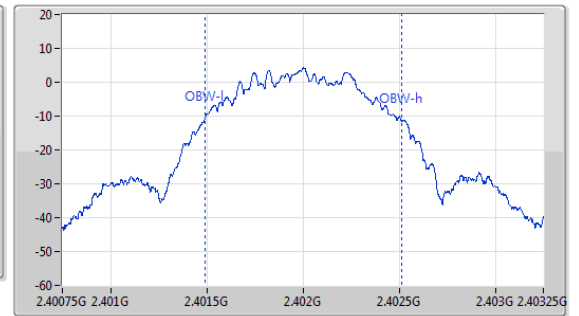
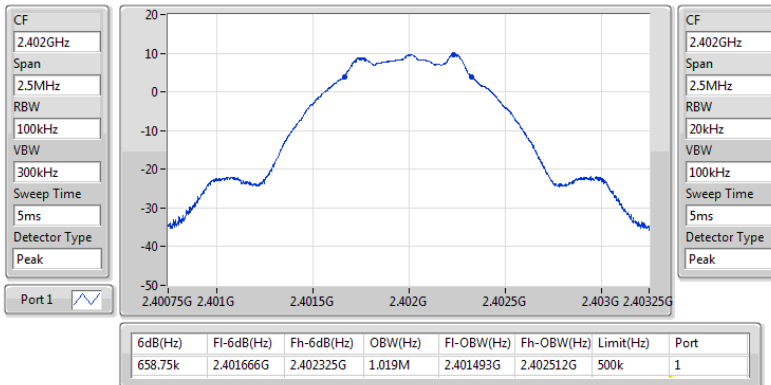
2480MHz



2.4-2.4835GHz_BT-LE(1Mbps)

EBW-DTS

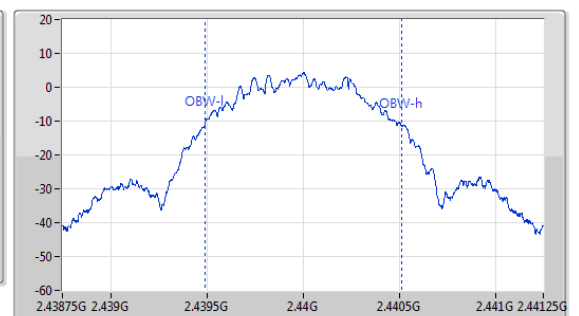
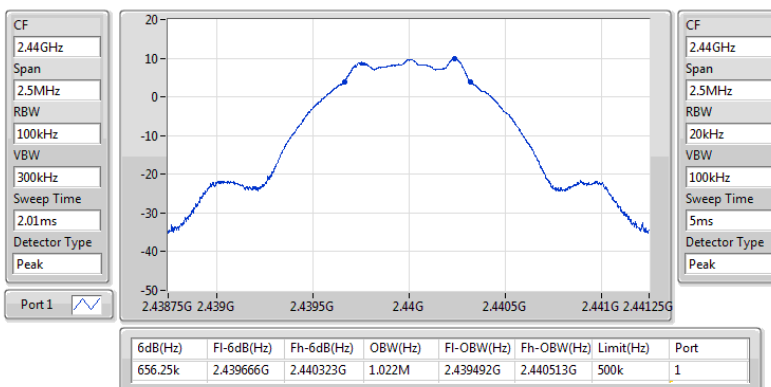
2402MHz



2.4-2.4835GHz_BT-LE(1Mbps)

EBW-DTS

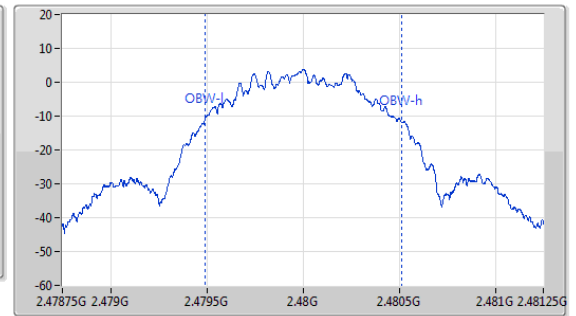
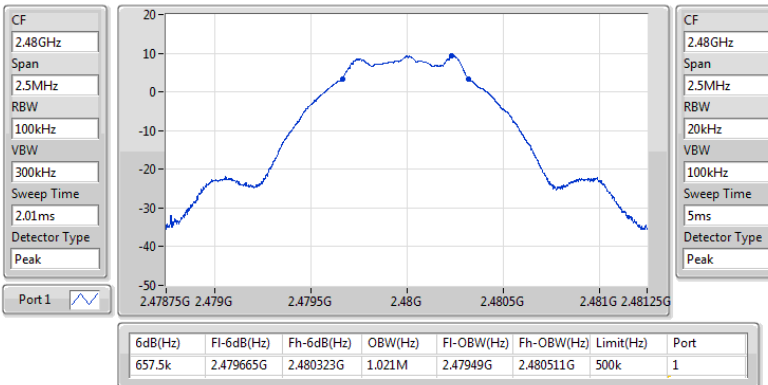
2440MHz



2.4-2.4835GHz_BT-LE(1Mbps)

EBW-DTS

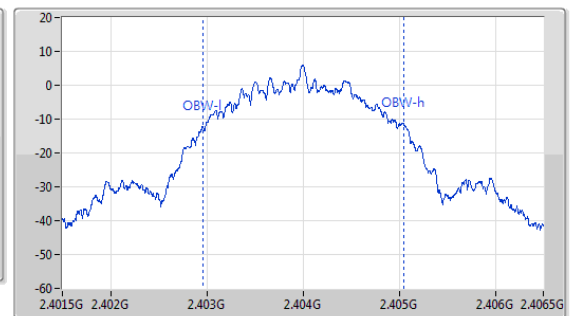
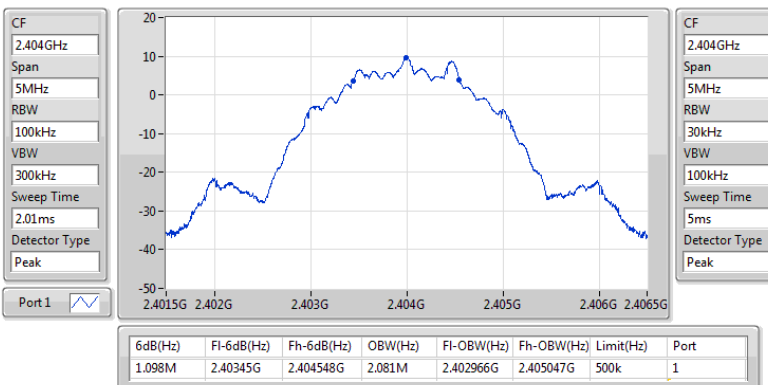
2480MHz



2.4-2.4835GHz_BT-LE(2Mbps)

EBW-DTS

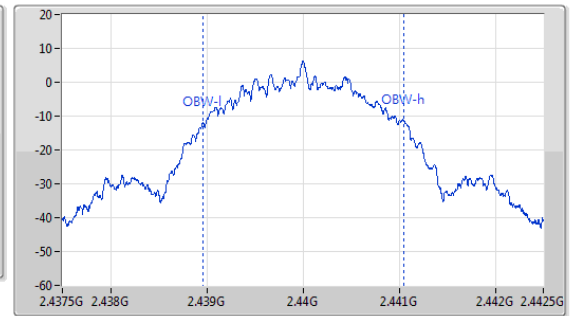
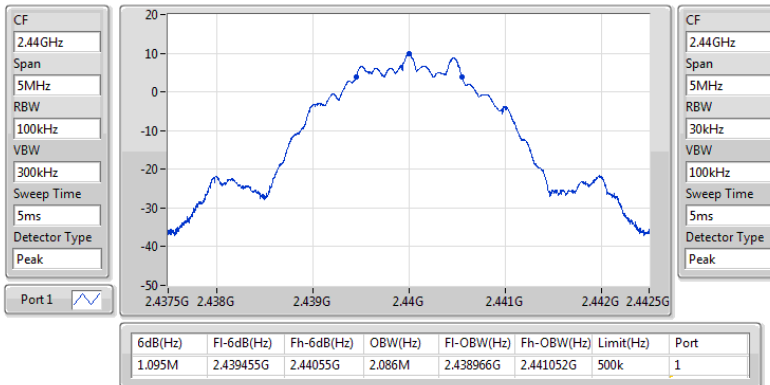
2404MHz



2.4-2.4835GHz_BT-LE(2Mbps)

EBW-DTS

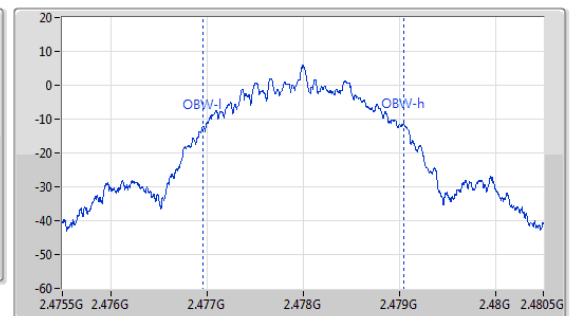
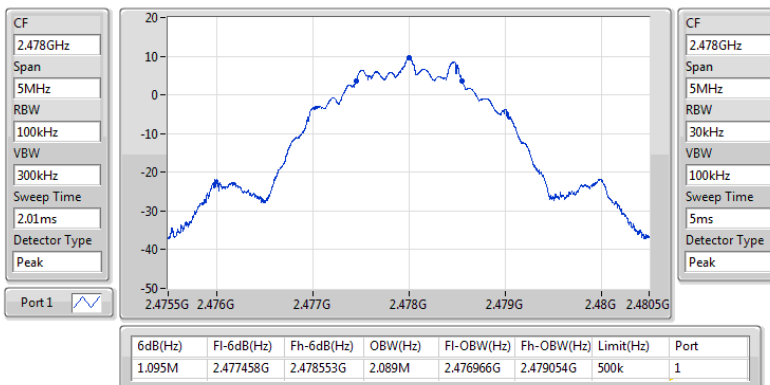
2440MHz



2.4-2.4835GHz_BT-LE(2Mbps)

EBW-DTS

2478MHz





Conducted Output Power (Peak)

Appendix B

Summary

Mode	Total Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-LE(125kbps)	10.31	0.01074
BT-LE(500kbps)	10.30	0.01072
BT-LE(1Mbps)	10.33	0.01079
BT-LE(2Mbps)	10.32	0.01076

Result

Mode	Result	Antenna Gain (dBi)	Total Power (dBm)	Power Limit (dBm)
BT-LE(125kbps)	-	-	-	-
2402MHz	Pass	2.00	10.31	30.00
2440MHz	Pass	2.00	10.11	30.00
2480MHz	Pass	2.00	9.76	30.00
BT-LE(500kbps)	-	-	-	-
2402MHz	Pass	2.00	10.30	30.00
2440MHz	Pass	2.00	10.11	30.00
2480MHz	Pass	2.00	9.76	30.00
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	2.00	10.33	30.00
2440MHz	Pass	2.00	10.13	30.00
2480MHz	Pass	2.00	9.78	30.00
BT-LE(2Mbps)	-	-	-	-
2404MHz	Pass	2.00	10.32	30.00
2440MHz	Pass	2.00	10.12	30.00
2478MHz	Pass	2.00	9.77	30.00

Summary

Mode	Total Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-LE(125kbps)	10.25	0.01059
BT-LE(500kbps)	10.24	0.01057
BT-LE(1Mbps)	10.27	0.01064
BT-LE(2Mbps)	10.26	0.01062

Result

Mode	Result	Antenna Gain (dBi)	Total Power (dBm)	Power Limit (dBm)
BT-LE(125kbps)	-	-	-	-
2402MHz	Pass	2.00	10.25	-
2440MHz	Pass	2.00	10.05	-
2480MHz	Pass	2.00	9.70	-
BT-LE(500kbps)	-	-	-	-
2402MHz	Pass	2.00	10.24	-
2440MHz	Pass	2.00	10.05	-
2480MHz	Pass	2.00	9.69	-
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	2.00	10.27	-
2440MHz	Pass	2.00	10.07	-
2480MHz	Pass	2.00	9.72	-
BT-LE(2Mbps)	-	-	-	-
2404MHz	Pass	2.00	10.26	-
2440MHz	Pass	2.00	10.06	-
2478MHz	Pass	2.00	9.71	-

Note: Average power is for reference only.

Summary

Mode	PD (dBm/3kHz)
2.4-2.4835GHz	-
BT-LE(125kbps)	4.00
BT-LE(500kbps)	3.70
BT-LE(1Mbps)	-6.31
BT-LE(2Mbps)	-7.87

Result

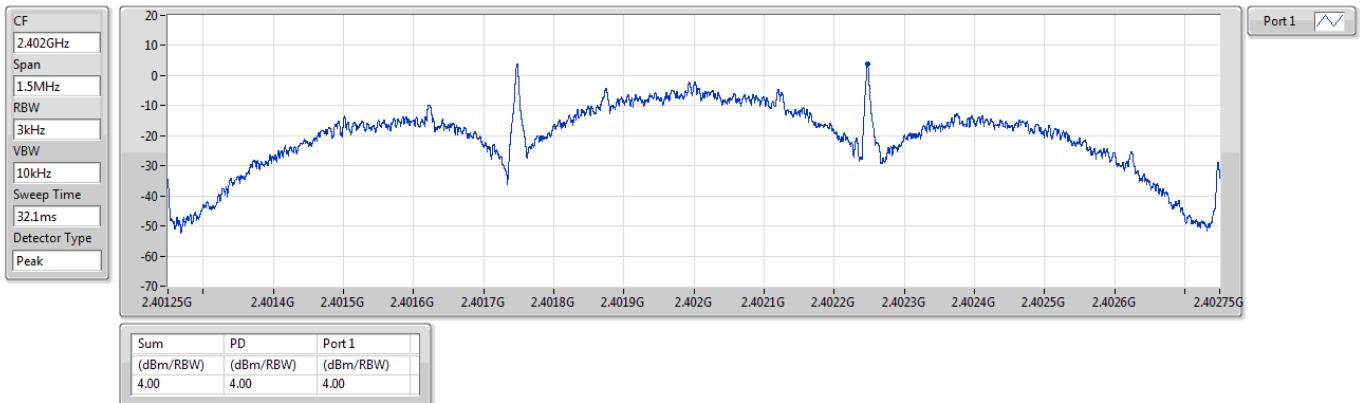
Mode	Result	Antenna Gain (dBi)	Power Density (dBm/3kHz)	Power Density Limit (dBm/3kHz)
BT-LE(125kbps)	-	-	-	-
2402MHz	Pass	2.00	4.00	8.00
2440MHz	Pass	2.00	3.98	8.00
2480MHz	Pass	2.00	3.58	8.00
BT-LE(500kbps)	-	-	-	-
2402MHz	Pass	2.00	3.66	8.00
2440MHz	Pass	2.00	3.70	8.00
2480MHz	Pass	2.00	3.25	8.00
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	2.00	-6.31	8.00
2440MHz	Pass	2.00	-6.75	8.00
2480MHz	Pass	2.00	-6.67	8.00
BT-LE(2Mbps)	-	-	-	-
2404MHz	Pass	2.00	-7.95	8.00
2440MHz	Pass	2.00	-7.87	8.00
2478MHz	Pass	2.00	-7.95	8.00



2.4-2.4835GHz_BT-LE(125kbps)

PSD

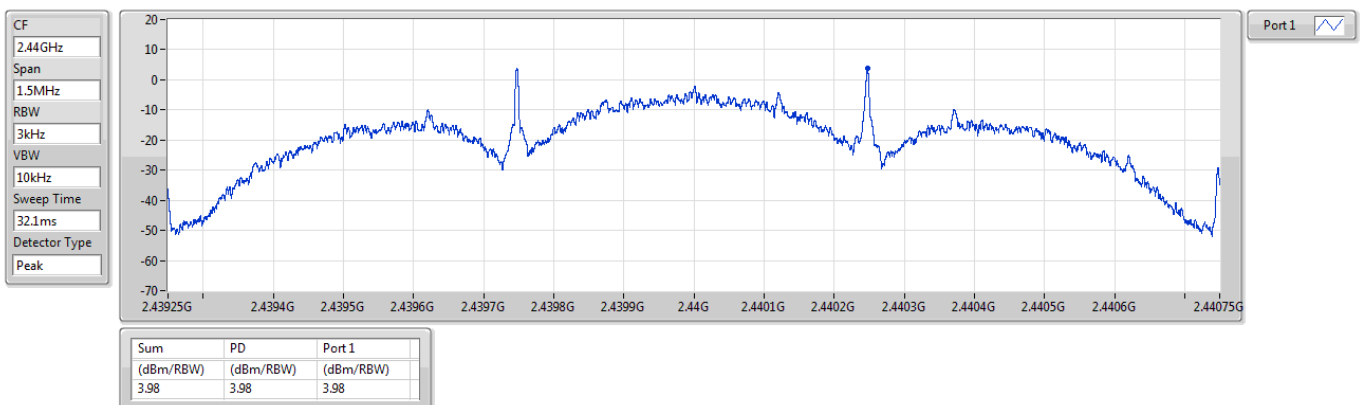
2402MHz



2.4-2.4835GHz_BT-LE(125kbps)

PSD

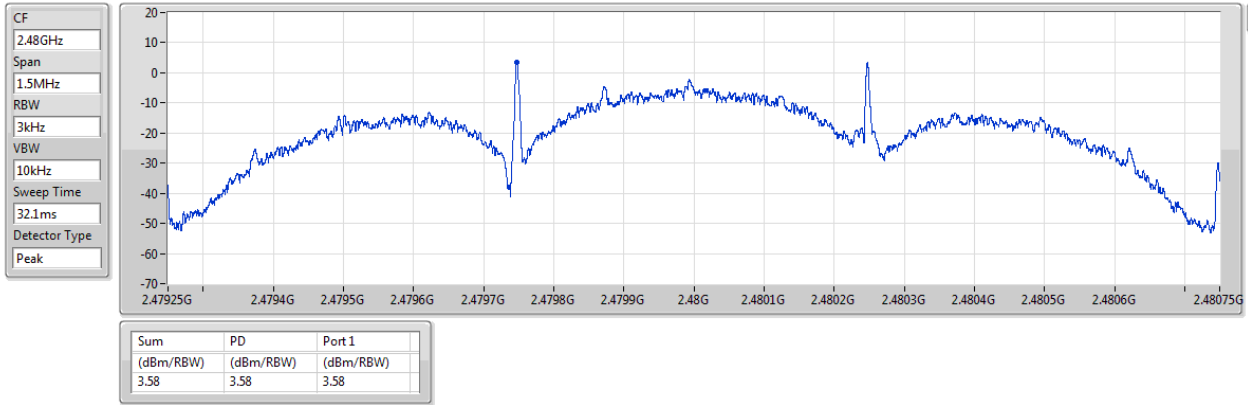
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2.4-2.4835GHz_BT-LE(125kbps)

PSD

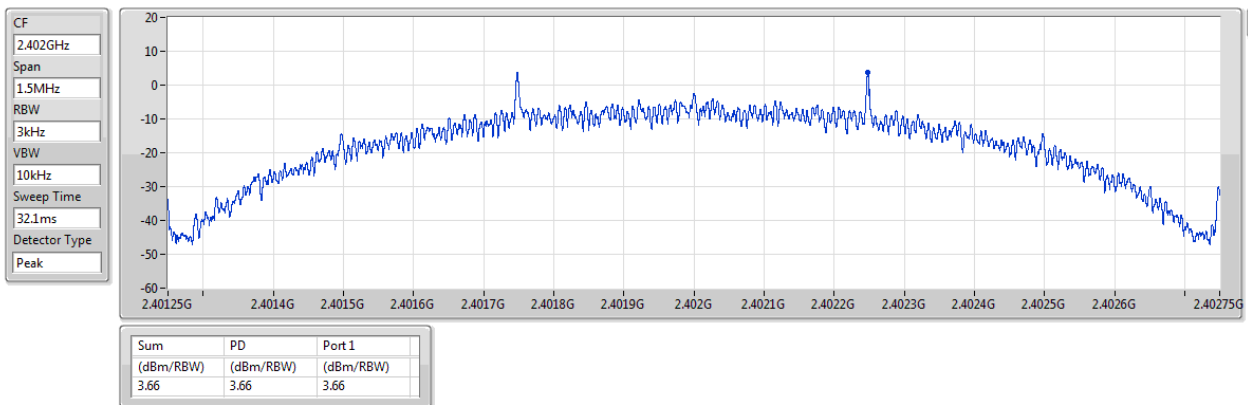
2480MHz



2.4-2.4835GHz_BT-LE(500kbps)

PSD

2402MHz

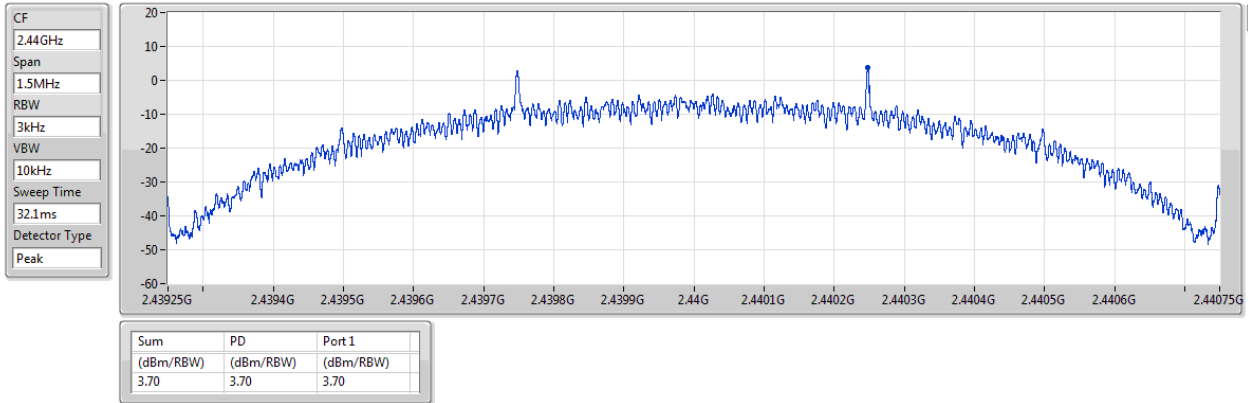




2.4-2.4835GHz_BT-LE(500kbps)

PSD

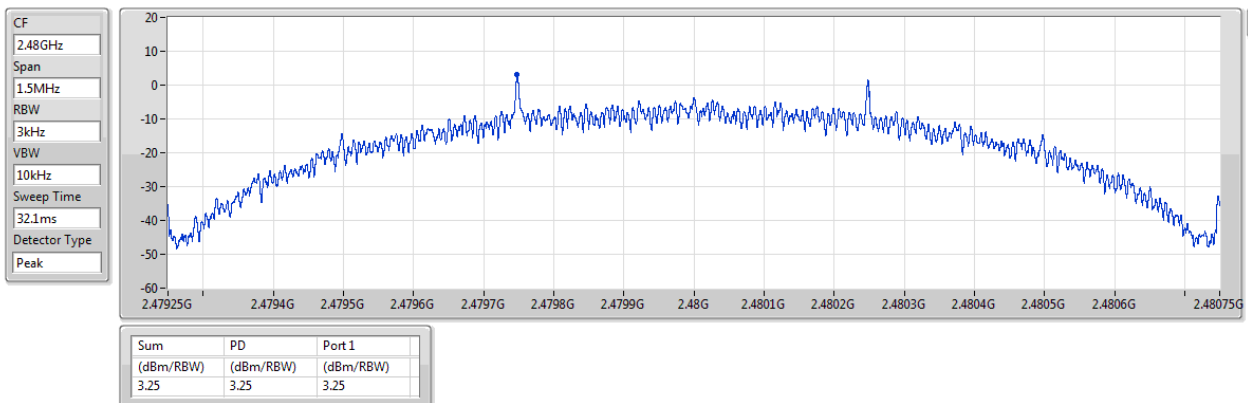
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2.4-2.4835GHz_BT-LE(500kbps)

PSD

2480MHz

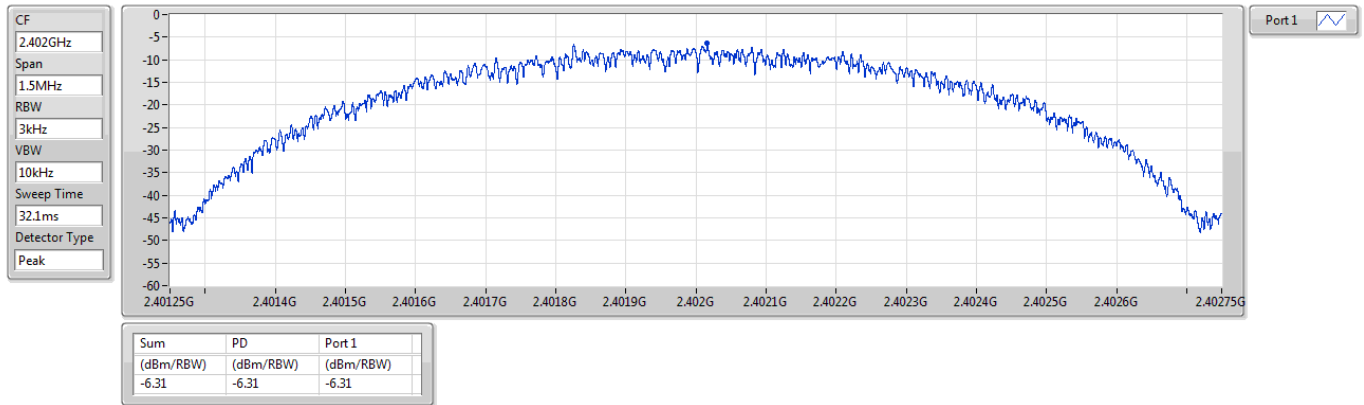




2.4-2.4835GHz_BT-LE(1Mbps)

PSD

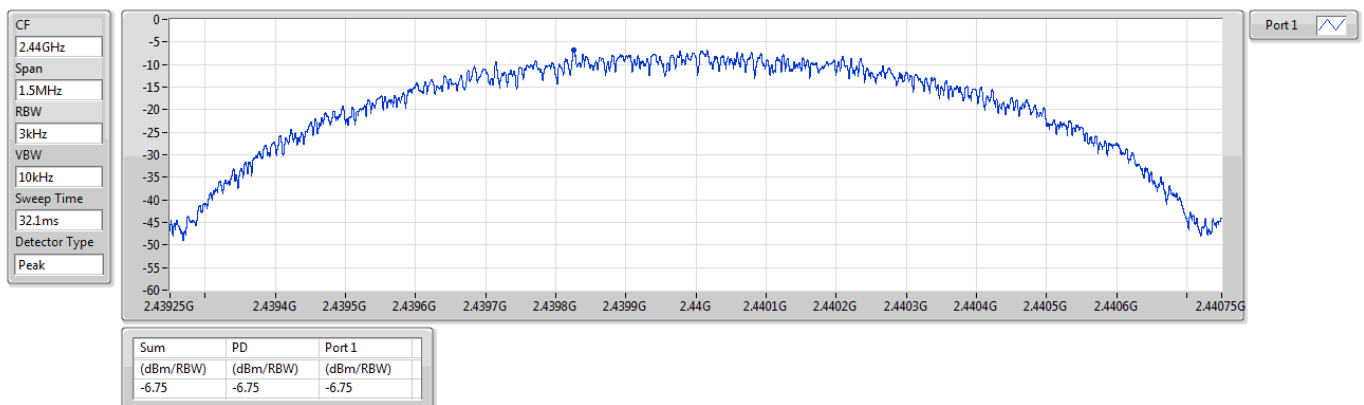
2402MHz



2.4-2.4835GHz_BT-LE(1Mbps)

PSD

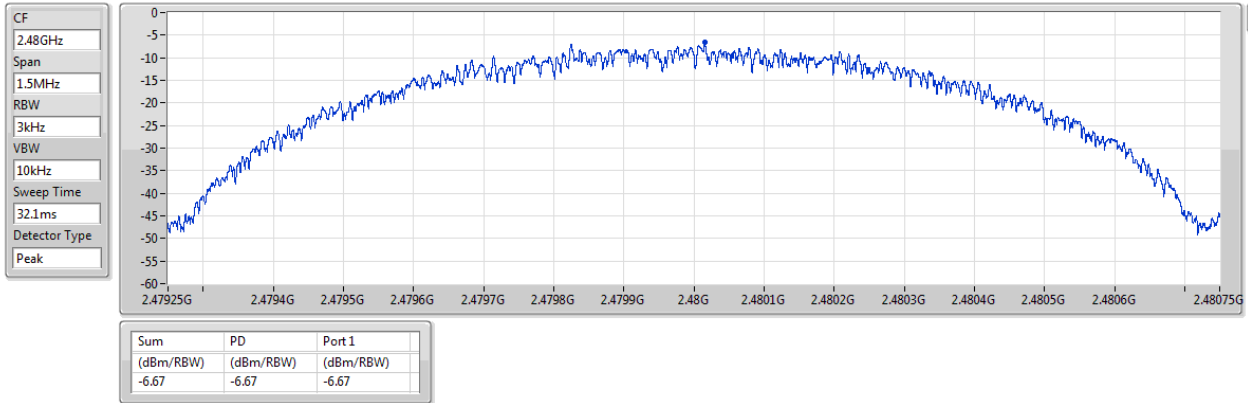
2440MHz



2.4-2.4835GHz_BT-LE(1Mbps)

PSD

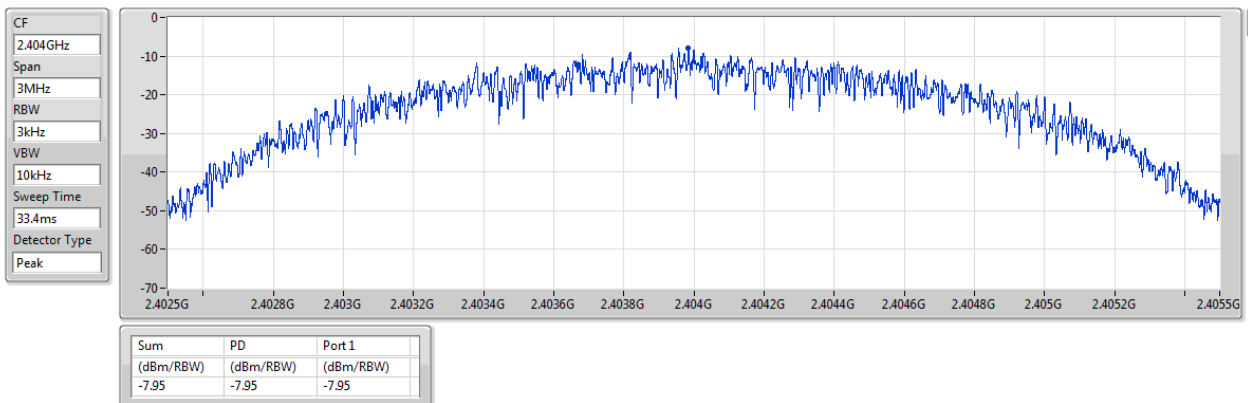
2480MHz



2.4-2.4835GHz_BT-LE(2Mbps)

PSD

2404MHz



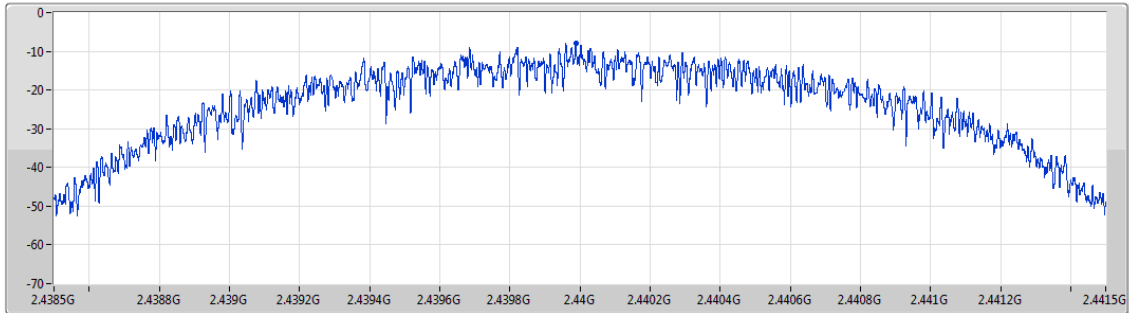


2.4-2.4835GHz_BT-LE(2Mbps)

PSD

2440MHz

CF
2.44GHz
Span
3MHz
RBW
3kHz
VBW
10kHz
Sweep Time
33.4ms
Detector Type
Peak



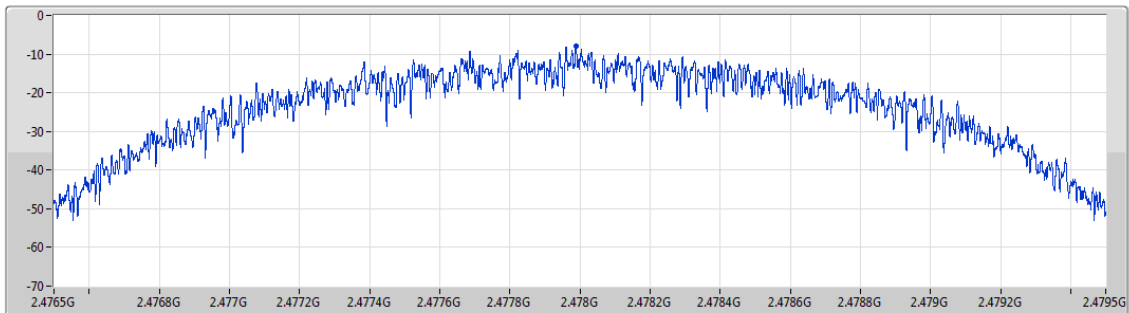
Sum	PD	Port 1
(dBm/Hz)	(dBm/Hz)	(dBm/Hz)
-7.87	-7.87	-7.87

2.4-2.4835GHz_BT-LE(2Mbps)

PSD

2478MHz

CF
2.478GHz
Span
3MHz
RBW
3kHz
VBW
10kHz
Sweep Time
33.4ms
Detector Type
Peak



Sum	PD	Port 1
(dBm/Hz)	(dBm/Hz)	(dBm/Hz)
-7.95	-7.95	-7.95



Transmitter Conducted Unwanted Emissions (30MHz ~ 1GHz)

Summary

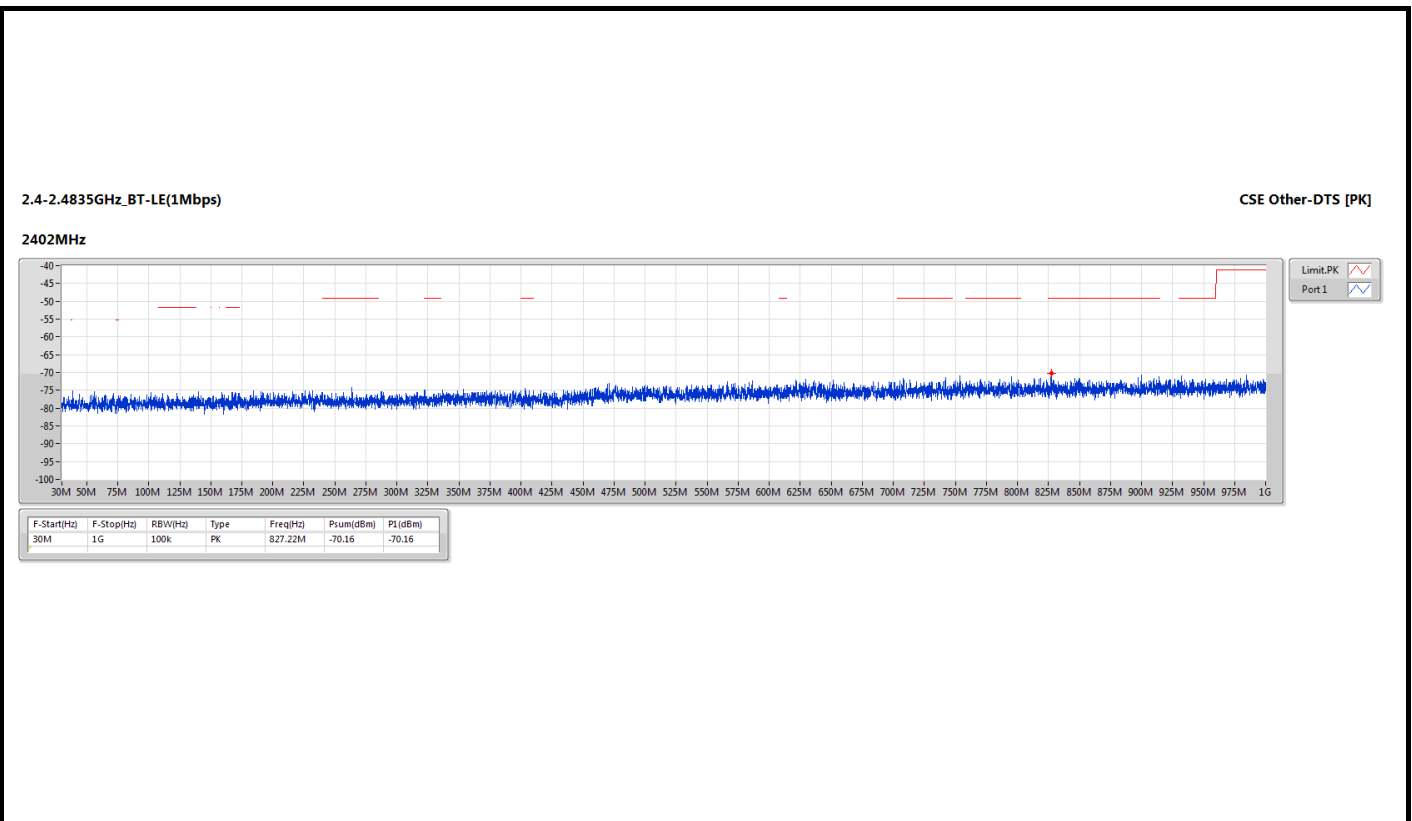
Mode	Result	F-Start (Hz)	F-Stop (Hz)	Type	Freq (Hz)	DG (dBi)	Psum (dBm)	GRF (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	30M	1G	PK	827.22M	2.00	-70.16	4.7	-63.46	-49.20	-14.26

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(1Mbps)	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	30M	1G	PK	827.22M	2.00	-70.16	4.7	-63.46	-49.20	-14.26

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



**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(1Mbps)	Pass	2.4835G	2.5G	AV	2.4835G	2.00	-49.57	-47.57	-41.20	-6.37
BT-LE(2Mbps)	Pass	2.4835G	2.5G	AV	2.48354G	2.00	-50.92	-48.92	-41.20	-7.72

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(1Mbps)	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	1G	2.31G	AV	2.13741G	2.00	-68.46	-66.46	-41.20	-25.26
2402MHz	Pass	2.31G	2.39G	AV	2.36292G	2.00	-60.39	-58.39	-41.20	-17.19
2402MHz	Pass	2.4835G	2.5G	AV	2.49926G	2.00	-67.91	-65.91	-41.20	-24.71
2402MHz	Pass	2.5G	3.1G	AV	2.58745G	2.00	-65.34	-63.34	-41.20	-22.14
2402MHz	Pass	1G	2.31G	PK	2.26612G	2.00	-54.52	-52.52	-21.20	-31.32
2402MHz	Pass	2.31G	2.39G	PK	2.38256G	2.00	-39.08	-37.08	-21.20	-15.88
2402MHz	Pass	2.4835G	2.5G	PK	2.4994G	2.00	-50.23	-48.23	-21.20	-27.03
2402MHz	Pass	2.5G	3.1G	PK	2.518G	2.00	-51.86	-49.86	-21.20	-28.66
2440MHz	Pass	1G	2.31G	AV	2.2147G	2.00	-67.36	-65.36	-41.20	-24.16
2440MHz	Pass	2.31G	2.39G	AV	2.3816G	2.00	-66.51	-64.51	-41.20	-23.31
2440MHz	Pass	2.4835G	2.5G	AV	2.49848G	2.00	-66.69	-64.69	-41.20	-23.49
2440MHz	Pass	2.5G	3.1G	AV	2.58295G	2.00	-66.48	-64.48	-41.20	-23.28
2440MHz	Pass	1G	2.31G	PK	2.28446G	2.00	-54.30	-52.30	-21.20	-31.10
2440MHz	Pass	2.31G	2.39G	PK	2.38144G	2.00	-46.24	-44.24	-21.20	-23.04
2440MHz	Pass	2.4835G	2.5G	PK	2.49831G	2.00	-47.11	-45.11	-21.20	-23.91
2440MHz	Pass	2.5G	3.1G	PK	2.5048G	2.00	-52.72	-50.72	-21.20	-29.52
2480MHz	Pass	1G	2.31G	AV	2.11596G	2.00	-68.33	-66.33	-41.20	-25.13
2480MHz	Pass	2.31G	2.39G	AV	2.3182G	2.00	-68.43	-66.43	-41.20	-25.23
2480MHz	Pass	2.4835G	2.5G	AV	2.4835G	2.00	-49.57	-47.57	-41.20	-6.37
2480MHz	Pass	2.5G	3.1G	AV	2.5189G	2.00	-61.29	-59.29	-41.20	-18.09
2480MHz	Pass	1G	2.31G	PK	2.28577G	2.00	-56.97	-54.97	-21.20	-33.77
2480MHz	Pass	2.31G	2.39G	PK	2.38252G	2.00	-49.48	-47.48	-21.20	-26.28
2480MHz	Pass	2.4835G	2.5G	PK	2.49935G	2.00	-36.30	-34.30	-21.20	-13.10
2480MHz	Pass	2.5G	3.1G	PK	2.5G	2.00	-41.34	-39.34	-21.20	-18.14
BT-LE(2Mbps)	-	-	-	-	-	-	-	-	-	-
2404MHz	Pass	1G	2.31G	AV	2.21339G	2.00	-67.64	-65.64	-41.20	-24.44
2404MHz	Pass	2.31G	2.39G	AV	2.36516G	2.00	-61.18	-59.18	-41.20	-17.98
2404MHz	Pass	2.4835G	2.5G	AV	2.49915G	2.00	-67.47	-65.47	-41.20	-24.27
2404MHz	Pass	2.5G	3.1G	AV	2.57965G	2.00	-65.96	-63.96	-41.20	-22.76
2404MHz	Pass	1G	2.31G	PK	2.26808G	2.00	-54.23	-52.23	-21.20	-31.03
2404MHz	Pass	2.31G	2.39G	PK	2.38464G	2.00	-39.05	-37.05	-21.20	-15.85
2404MHz	Pass	2.4835G	2.5G	PK	2.48697G	2.00	-53.81	-51.81	-21.20	-30.61
2404MHz	Pass	2.5G	3.1G	PK	2.5012G	2.00	-51.66	-49.66	-21.20	-28.46
2440MHz	Pass	1G	2.31G	AV	2.21224G	2.00	-67.64	-65.64	-41.20	-24.44
2440MHz	Pass	2.31G	2.39G	AV	2.3814G	2.00	-66.51	-64.51	-41.20	-23.31
2440MHz	Pass	2.4835G	2.5G	AV	2.49842G	2.00	-66.45	-64.45	-41.20	-23.25
2440MHz	Pass	2.5G	3.1G	AV	2.58085G	2.00	-66.99	-64.99	-41.20	-23.79
2440MHz	Pass	1G	2.31G	PK	2.20127G	2.00	-57.10	-55.10	-21.20	-33.90
2440MHz	Pass	2.31G	2.39G	PK	2.38168G	2.00	-46.03	-44.03	-21.20	-22.83
2440MHz	Pass	2.4835G	2.5G	PK	2.49823G	2.00	-46.96	-44.96	-21.20	-23.76
2440MHz	Pass	2.5G	3.1G	PK	2.5G	2.00	-53.20	-51.20	-21.20	-30.00

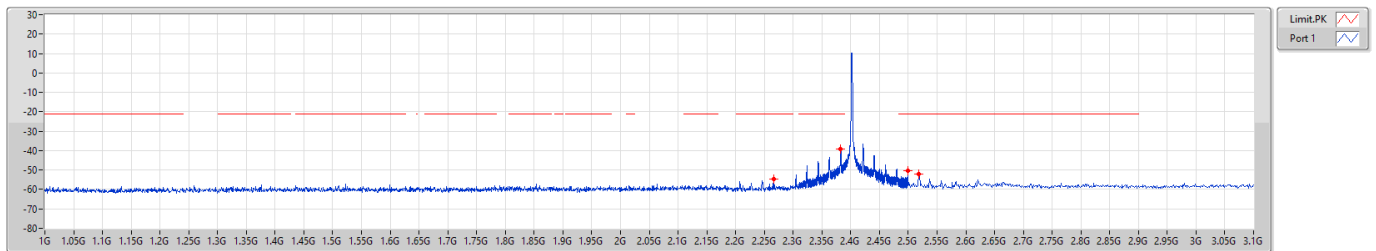
Mode	Result	F-Start (Hz)	F-Stop (Hz)	Type	Freq (Hz)	DG (dBi)	Psum (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dB)
2478MHz	Pass	1G	2.31G	AV	2.1284G	2.00	-68.47	-66.47	-41.20	-25.27
2478MHz	Pass	2.31G	2.39G	AV	2.38036G	2.00	-68.10	-66.10	-41.20	-24.90
2478MHz	Pass	2.4835G	2.5G	AV	2.48354G	2.00	-50.92	-48.92	-41.20	-7.72
2478MHz	Pass	2.5G	3.1G	AV	2.5171G	2.00	-62.98	-60.98	-41.20	-19.78
2478MHz	Pass	1G	2.31G	PK	2.26415G	2.00	-57.11	-55.11	-21.20	-33.91
2478MHz	Pass	2.31G	2.39G	PK	2.38036G	2.00	-49.83	-47.83	-21.20	-26.63
2478MHz	Pass	2.4835G	2.5G	PK	2.49728G	2.00	-36.31	-34.31	-21.20	-13.11
2478MHz	Pass	2.5G	3.1G	PK	2.5168G	2.00	-43.26	-41.26	-21.20	-20.06

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

2.4-2.4835GHz_BT-LE(1Mbps)

CSE Bandedge-DTS [PK]

2402MHz

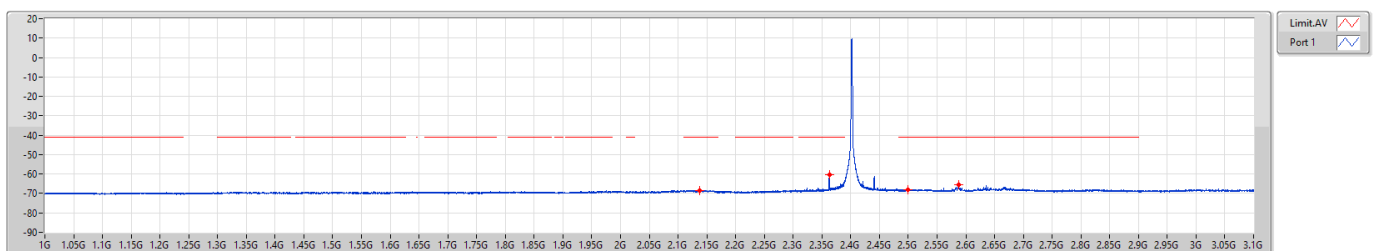


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	Psum(dBm)	P1(dBm)
1G	2.31G	1M	PK	2.26612G	-54.52	-54.52
2.31G	2.39G	1M	PK	2.38256G	-39.08	-39.08
2.4835G	2.5G	1M	PK	2.4994G	-50.23	-50.23
2.5G	3.1G	1M	PK	2.518G	-51.86	-51.86

2.4-2.4835GHz_BT-LE(1Mbps)

CSE Bandedge-DTS [AV]

2402MHz

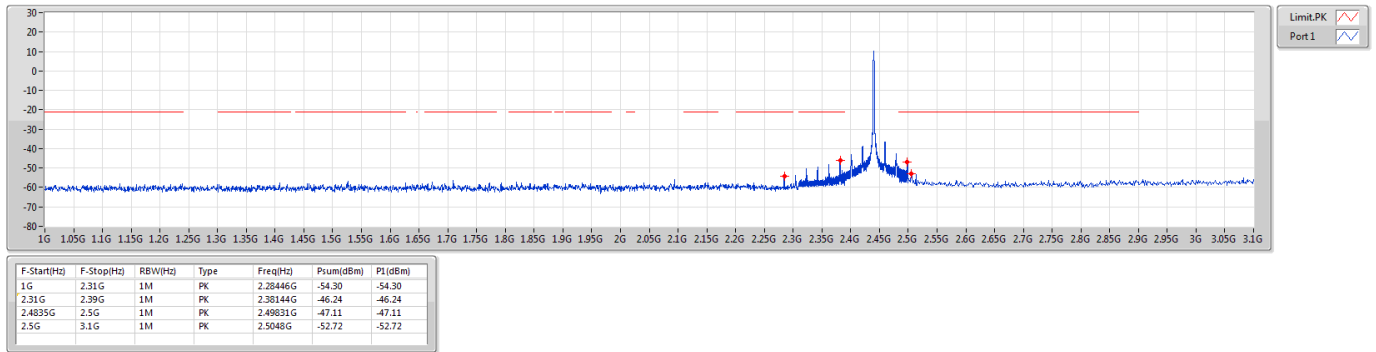


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	Psum(dBm)	P1(dBm)
1G	2.31G	1M	AV	2.13741G	-68.46	-68.46
2.31G	2.39G	1M	AV	2.36292G	-60.39	-60.39
2.4835G	2.5G	1M	AV	2.49926G	-67.91	-67.91
2.5G	3.1G	1M	AV	2.58745G	-65.34	-65.34

2.4-2.4835GHz_BT-LE(1Mbps)

CSE Bandedge-DTS [PK]

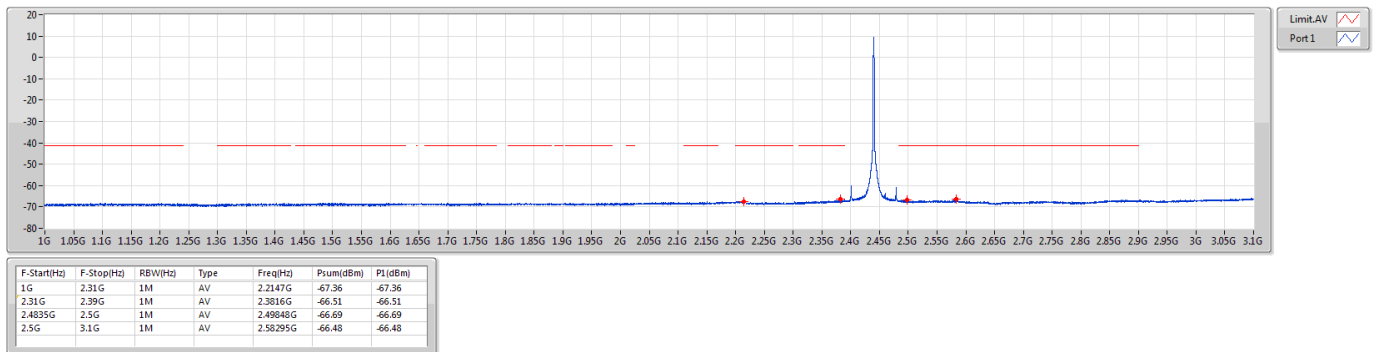
2440MHz



2.4-2.4835GHz_BT-LE(1Mbps)

CSE Bandedge-DTS [AV]

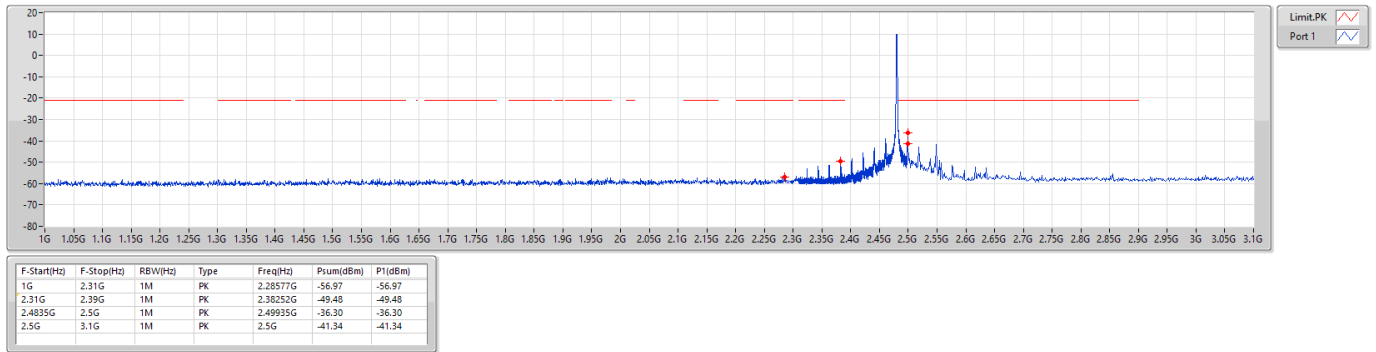
2440MHz



2.4-2.4835GHz_BT-LE(1Mbps)

CSE Bandedge-DTS [PK]

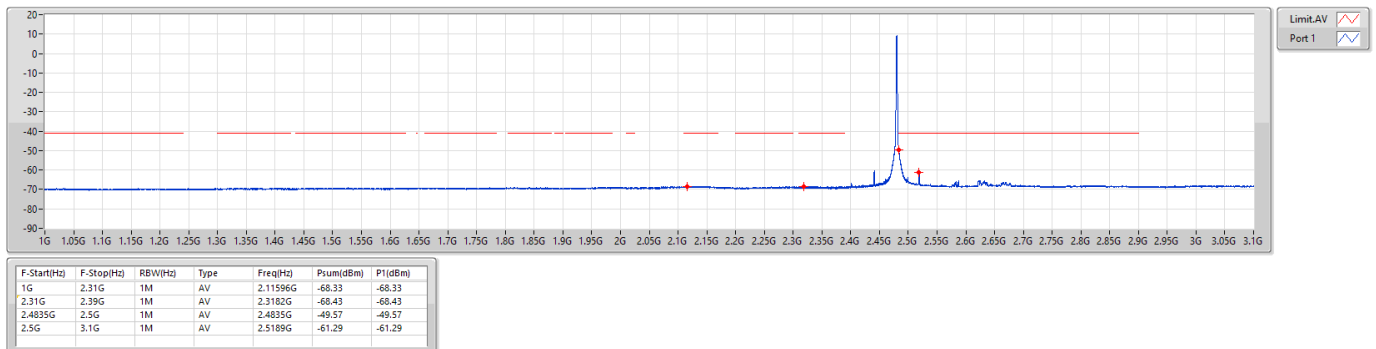
2480MHz



2.4-2.4835GHz_BT-LE(1Mbps)

CSE Bandedge-DTS [AV]

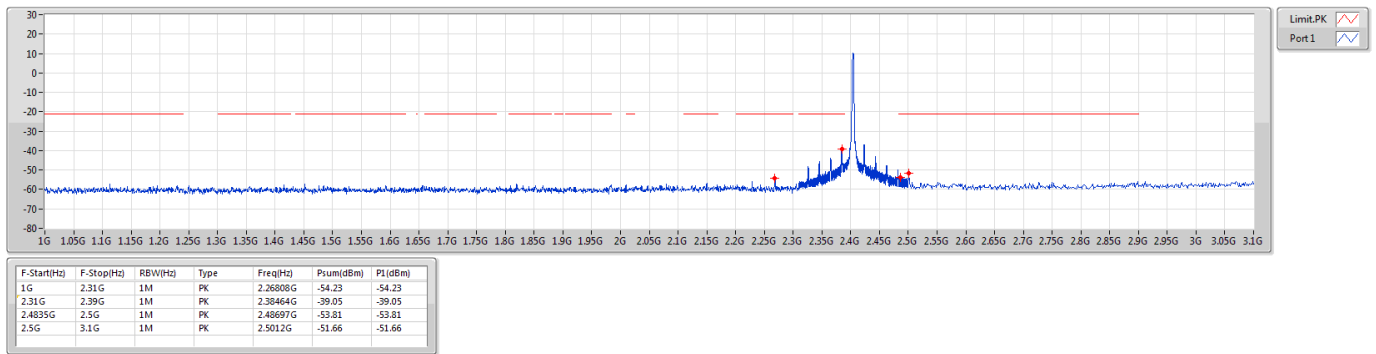
2480MHz



2.4-2.4835GHz_BT-LE(2Mbps)

CSE Bandedge-DTS [PK]

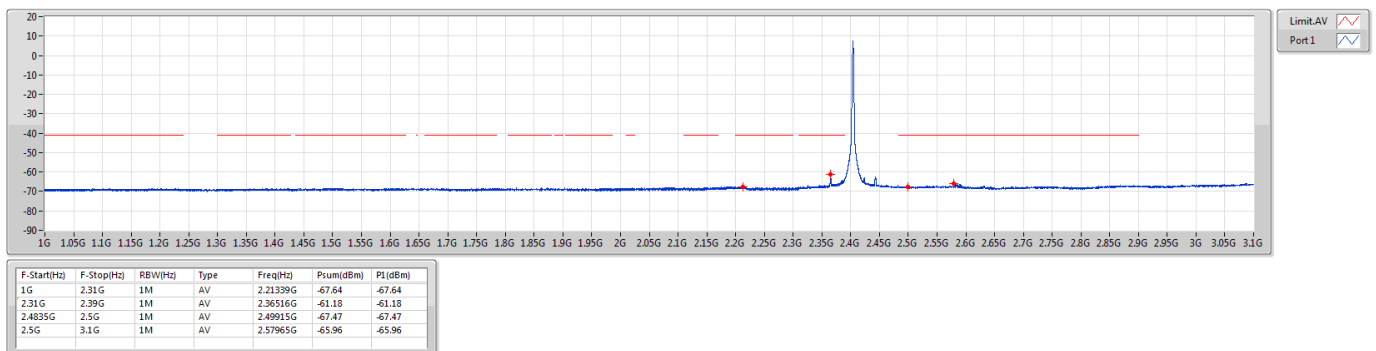
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2.4-2.4835GHz_BT-LE(2Mbps)

CSE Bandedge-DTS [AV]

2404MHz

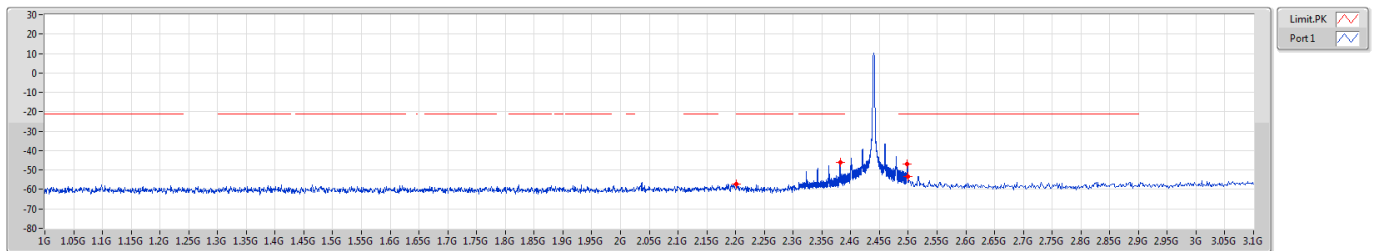




2.4-2.4835GHz_BT-LE(2Mbps)

CSE Bandedge-DTS [PK]

2440MHz

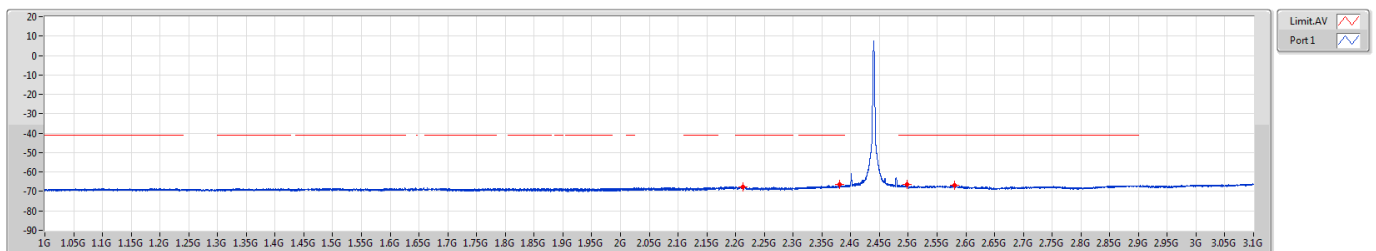


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	Psum(dBm)	P1(dBm)
1G	2.31G	1M	PK	2.20127G	-57.10	-57.10
2.31G	2.39G	1M	PK	2.38168G	-46.03	-46.03
2.4835G	2.5G	1M	PK	2.49823G	-46.96	-46.96
2.5G	3.1G	1M	PK	2.5G	-53.20	-53.20

2.4-2.4835GHz_BT-LE(2Mbps)

CSE Bandedge-DTS [AV]

2440MHz



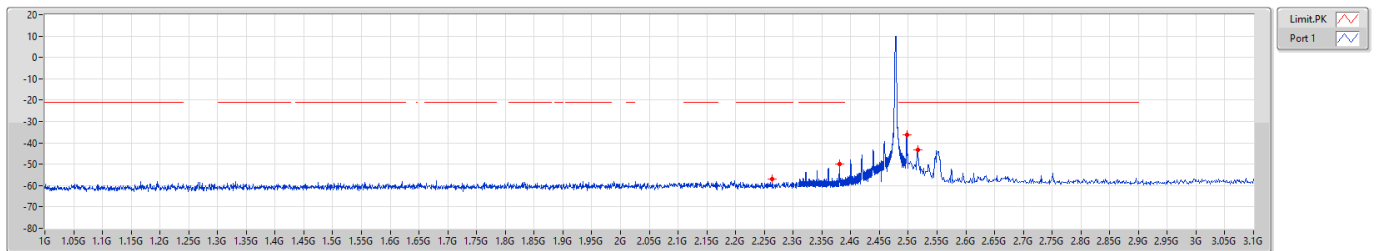
F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	Psum(dBm)	P1(dBm)
1G	2.31G	1M	AV	2.21224G	-67.64	-67.64
2.31G	2.39G	1M	AV	2.3814G	-66.51	-66.51
2.4835G	2.5G	1M	AV	2.49842G	-66.45	-66.45
2.5G	3.1G	1M	AV	2.58085G	-66.99	-66.99



2.4-2.4835GHz_BT-LE(2Mbps)

CSE Bandedge-DTS [PK]

2478MHz

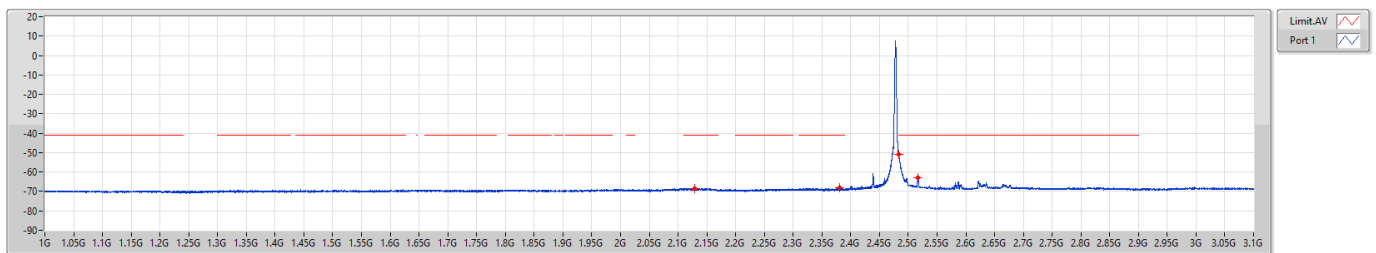


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	Psum(dBm)	P1(dBm)
1G	2.31G	1M	PK	2.26415G	-57.11	-57.11
2.31G	2.39G	1M	PK	2.38036G	-49.83	-49.83
2.4835G	2.5G	1M	PK	2.49728G	-36.31	-36.31
2.5G	3.1G	1M	PK	2.5168G	-43.26	-43.26

2.4-2.4835GHz_BT-LE(2Mbps)

CSE Bandedge-DTS [AV]

2478MHz



F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	Psum(dBm)	P1(dBm)
1G	2.31G	1M	AV	2.1284G	-68.47	-68.47
2.31G	2.39G	1M	AV	2.38036G	-68.10	-68.10
2.4835G	2.5G	1M	AV	2.48354G	-50.92	-50.92
2.5G	3.1G	1M	AV	2.5171G	-62.98	-62.98

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(1Mbps)	Pass	4G	5G	AV	4.80425G	2.00	-52.98	-50.98	-41.20	-9.78
BT-LE(2Mbps)	Pass	4G	5G	AV	4.809G	2.00	-55.64	-53.64	-41.20	-12.44

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(1Mbps)	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	3.1G	4G	AV	3.26358G	2.00	-74.41	-72.41	-41.20	-31.21
2402MHz	Pass	4G	5G	AV	4.80425G	2.00	-52.98	-50.98	-41.20	-9.78
2402MHz	Pass	5G	7G	AV	5.4195G	2.00	-73.53	-71.53	-41.20	-30.33
2402MHz	Pass	7G	8G	AV	7.729G	2.00	-73.13	-71.13	-41.20	-29.93
2402MHz	Pass	8G	25G	AV	12.00881G	2.00	-64.20	-62.20	-41.20	-21.00
2402MHz	Pass	3.1G	4G	PK	3.3502G	2.00	-64.31	-62.31	-21.20	-41.11
2402MHz	Pass	4G	5G	PK	4.80475G	2.00	-49.13	-47.13	-21.20	-25.93
2402MHz	Pass	5G	7G	PK	5.212G	2.00	-63.22	-61.22	-21.20	-40.02
2402MHz	Pass	7G	8G	PK	7.68575G	2.00	-63.77	-61.77	-21.20	-40.57
2402MHz	Pass	8G	25G	PK	18.42472G	2.00	-56.51	-54.51	-21.20	-33.31
2440MHz	Pass	3.1G	4G	AV	3.26335G	2.00	-74.42	-72.42	-41.20	-31.22
2440MHz	Pass	4G	5G	AV	4.88025G	2.00	-57.55	-55.55	-41.20	-14.35
2440MHz	Pass	5G	7G	AV	5.392G	2.00	-73.55	-71.55	-41.20	-30.35
2440MHz	Pass	7G	8G	AV	7.3205G	2.00	-66.01	-64.01	-41.20	-22.81
2440MHz	Pass	8G	25G	AV	12.19847G	2.00	-65.12	-63.12	-41.20	-21.92
2440MHz	Pass	3.1G	4G	PK	3.2638G	2.00	-63.80	-61.80	-21.20	-40.60
2440MHz	Pass	4G	5G	PK	4.88075G	2.00	-53.36	-51.36	-21.20	-30.16
2440MHz	Pass	5G	7G	PK	5.151G	2.00	-63.43	-61.43	-21.20	-40.23
2440MHz	Pass	7G	8G	PK	7.32025G	2.00	-58.73	-56.73	-21.20	-35.53
2440MHz	Pass	8G	25G	PK	18.40931G	2.00	-55.80	-53.80	-21.20	-32.60
2480MHz	Pass	3.1G	4G	AV	3.2656G	2.00	-74.36	-72.36	-41.20	-31.16
2480MHz	Pass	4G	5G	AV	4.96G	2.00	-63.01	-61.01	-41.20	-19.81
2480MHz	Pass	5G	7G	AV	5.3845G	2.00	-73.56	-71.56	-41.20	-30.36
2480MHz	Pass	7G	8G	AV	7.4405G	2.00	-67.09	-65.09	-41.20	-23.89
2480MHz	Pass	8G	25G	AV	12.39875G	2.00	-64.69	-62.69	-41.20	-21.49
2480MHz	Pass	3.1G	4G	PK	3.6544G	2.00	-64.47	-62.47	-21.20	-41.27
2480MHz	Pass	4G	5G	PK	4.96075G	2.00	-57.51	-55.51	-21.20	-34.31
2480MHz	Pass	5G	7G	PK	5.229G	2.00	-62.98	-60.98	-21.20	-39.78
2480MHz	Pass	7G	8G	PK	7.441G	2.00	-60.93	-58.93	-21.20	-37.73
2480MHz	Pass	8G	25G	PK	19.46331G	2.00	-55.41	-53.41	-21.20	-32.21
BT-LE(2Mbps)	-	-	-	-	-	-	-	-	-	-
2404MHz	Pass	3.1G	4G	AV	3.3322G	2.00	-74.44	-72.44	-41.20	-31.24

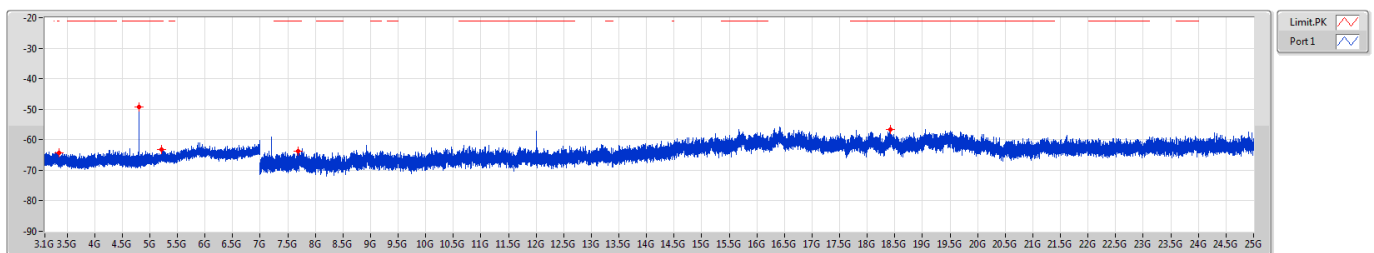
Mode	Result	F-Start (Hz)	F-Stop (Hz)	Type	Freq (Hz)	DG (dBi)	Psum (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dB)
2404MHz	Pass	4G	5G	AV	4.809G	2.00	-55.64	-53.64	-41.20	-12.44
2404MHz	Pass	5G	7G	AV	5.222G	2.00	-73.53	-71.53	-41.20	-30.33
2404MHz	Pass	7G	8G	AV	7.74775G	2.00	-73.08	-71.08	-41.20	-29.88
2404MHz	Pass	8G	25G	AV	19.07284G	2.00	-65.96	-63.96	-41.20	-22.76
2404MHz	Pass	3.1G	4G	PK	3.50365G	2.00	-63.58	-61.58	-21.20	-40.38
2404MHz	Pass	4G	5G	PK	4.80925G	2.00	-49.37	-47.37	-21.20	-26.17
2404MHz	Pass	5G	7G	PK	5.246G	2.00	-62.31	-60.31	-21.20	-39.11
2404MHz	Pass	7G	8G	PK	7.733G	2.00	-62.26	-60.26	-21.20	-39.06
2404MHz	Pass	8G	25G	PK	19.49306G	2.00	-56.52	-54.52	-21.20	-33.32
2440MHz	Pass	3.1G	4G	AV	3.2665G	2.00	-74.34	-72.34	-41.20	-31.14
2440MHz	Pass	4G	5G	AV	4.87925G	2.00	-59.94	-57.94	-41.20	-16.74
2440MHz	Pass	5G	7G	AV	5.224G	2.00	-73.52	-71.52	-41.20	-30.32
2440MHz	Pass	7G	8G	AV	7.32125G	2.00	-67.08	-65.08	-41.20	-23.88
2440MHz	Pass	8G	25G	AV	12.20219G	2.00	-65.74	-63.74	-41.20	-22.54
2440MHz	Pass	3.1G	4G	PK	3.93318G	2.00	-63.23	-61.23	-21.20	-40.03
2440MHz	Pass	4G	5G	PK	4.88025G	2.00	-53.18	-51.18	-21.20	-29.98
2440MHz	Pass	5G	7G	PK	5.413G	2.00	-62.64	-60.64	-21.20	-39.44
2440MHz	Pass	7G	8G	PK	7.31875G	2.00	-58.36	-56.36	-21.20	-35.16
2440MHz	Pass	8G	25G	PK	19.44897G	2.00	-56.40	-54.40	-21.20	-33.20
2478MHz	Pass	3.1G	4G	AV	3.26605G	2.00	-74.35	-72.35	-41.20	-31.15
2478MHz	Pass	4G	5G	AV	4.955G	2.00	-64.84	-62.84	-41.20	-21.64
2478MHz	Pass	5G	7G	AV	5.1955G	2.00	-73.43	-71.43	-41.20	-30.23
2478MHz	Pass	7G	8G	AV	7.43525G	2.00	-68.22	-66.22	-41.20	-25.02
2478MHz	Pass	8G	25G	AV	15.74191G	2.00	-65.62	-63.62	-41.20	-22.42
2478MHz	Pass	3.1G	4G	PK	3.52818G	2.00	-63.91	-61.91	-21.20	-40.71
2478MHz	Pass	4G	5G	PK	4.95725G	2.00	-57.50	-55.50	-21.20	-34.30
2478MHz	Pass	5G	7G	PK	5.0065G	2.00	-63.17	-61.17	-21.20	-39.97
2478MHz	Pass	7G	8G	PK	7.43575G	2.00	-61.84	-59.84	-21.20	-38.64
2478MHz	Pass	8G	25G	PK	19.51538G	2.00	-56.53	-54.53	-21.20	-33.33

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

2.4-2.4835GHz_BT-LE(1Mbps)

CSE-DTS [PK]

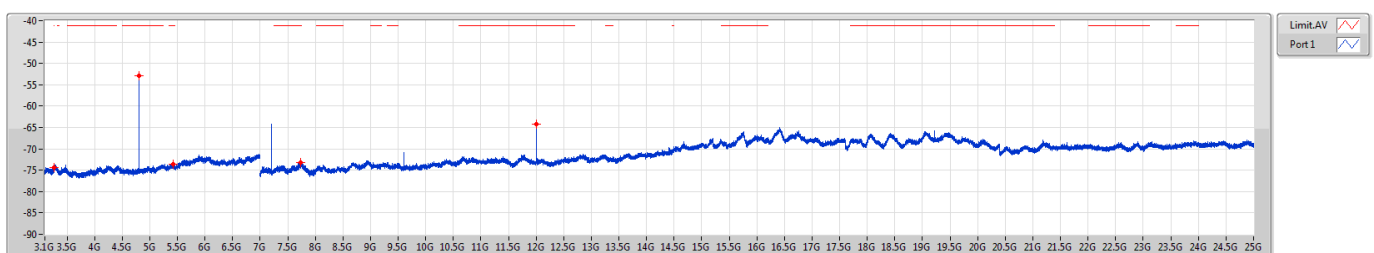
2402MHz



2.4-2.4835GHz_BT-LE(1Mbps)

CSE-DTS [AV]

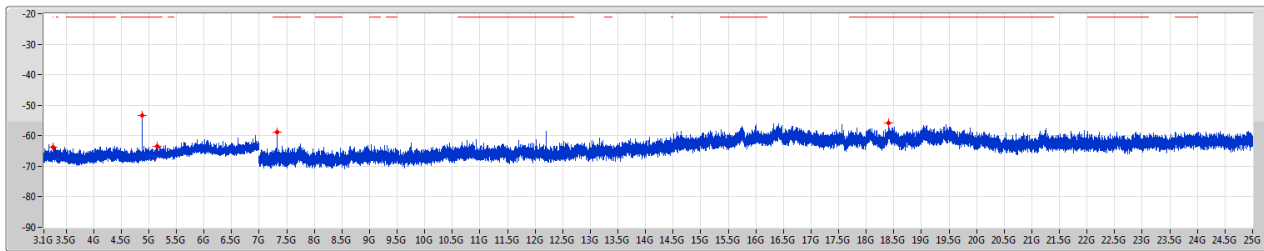
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2.4-2.4835GHz_BT-LE(1Mbps)

CSE-DTS [PK]

2440MHz



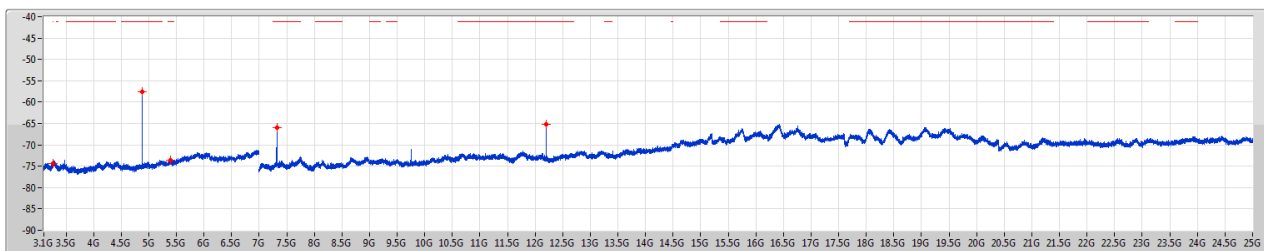
Limit.PK
Port1

F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	Psum(dBm)	P1(dBm)
3.1G	4G	1M	PK	3.2638G	-63.80	-63.80
4G	5G	1M	PK	4.88075G	-53.36	-53.36
5G	7G	1M	PK	5.151G	-63.43	-63.43
7G	8G	1M	PK	7.32025G	-58.73	-58.73
8G	25G	1M	PK	18.40931G	-55.80	-55.80

2.4-2.4835GHz_BT-LE(1Mbps)

CSE-DTS [AV]

2440MHz



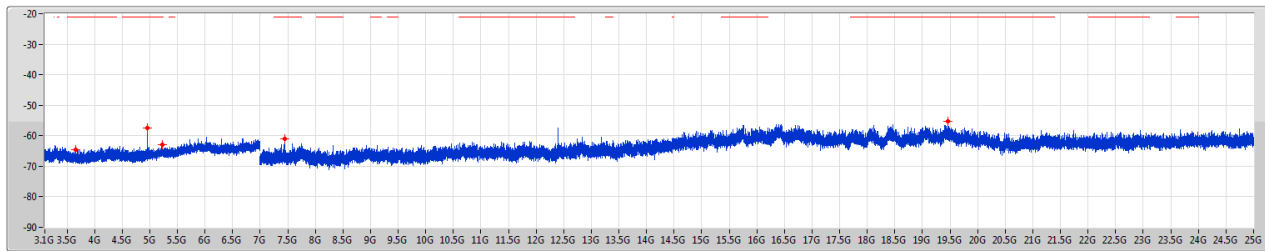
Limit.AV
Port1

F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	Psum(dBm)	P1(dBm)
3.1G	4G	1M	AV	3.26335G	-74.42	-74.42
4G	5G	1M	AV	4.88025G	-57.55	-57.55
5G	7G	1M	AV	5.392G	-73.55	-73.55
7G	8G	1M	AV	7.3205G	-66.01	-66.01
8G	25G	1M	AV	12.19847G	-65.12	-65.12

2.4-2.4835GHz_BT-LE(1Mbps)

CSE-DTS [PK]

2480MHz

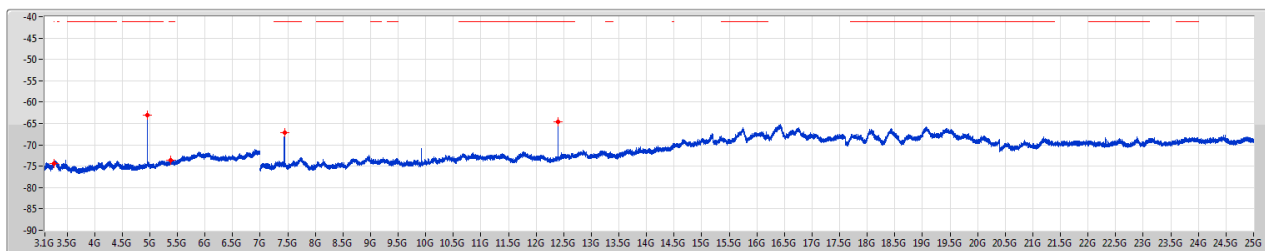


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	Psum(dBm)	P1(dBm)
3.1G	4G	1M	PK	3.6544G	-64.47	-64.47
4G	5G	1M	PK	4.96075G	-57.51	-57.51
5G	7G	1M	PK	5.229G	-62.98	-62.98
7G	8G	1M	PK	7.441G	-60.93	-60.93
8G	25G	1M	PK	19.46331G	-55.41	-55.41

2.4-2.4835GHz_BT-LE(1Mbps)

CSE-DTS [AV]

2480MHz

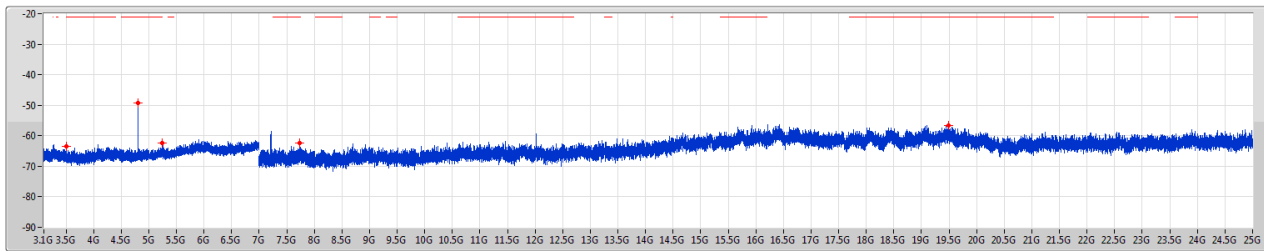


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	Psum(dBm)	P1(dBm)
3.1G	4G	1M	AV	3.2656G	-74.36	-74.36
4G	5G	1M	AV	4.96G	-63.01	-63.01
5G	7G	1M	AV	5.3845G	-73.56	-73.56
7G	8G	1M	AV	7.4405G	-67.09	-67.09
8G	25G	1M	AV	12.39875G	-64.69	-64.69

2.4-2.4835GHz_BT-LE(2Mbps)

CSE-DTS [PK]

2404MHz

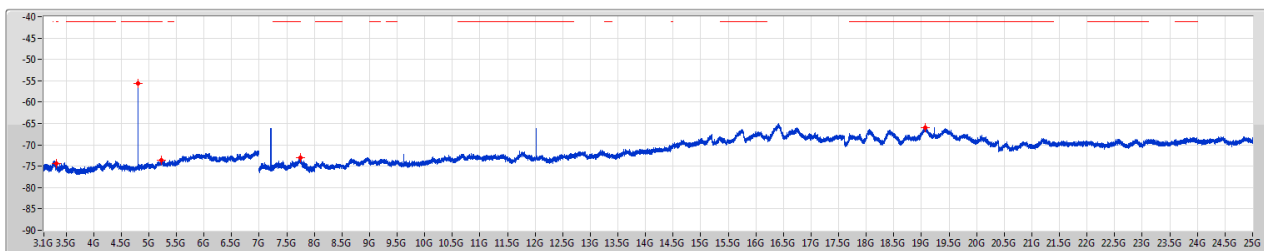


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	Psum(dBm)	P1(dBm)
3.1G	4G	1M	PK	3.50365G	-63.58	-63.58
4G	5G	1M	PK	4.80925G	-49.37	-49.37
5G	7G	1M	PK	5.246G	-62.31	-62.31
7G	8G	1M	PK	7.733G	-62.26	-62.26
8G	25G	1M	PK	19.49306G	-56.52	-56.52

2.4-2.4835GHz_BT-LE(2Mbps)

CSE-DTS [AV]

2404MHz



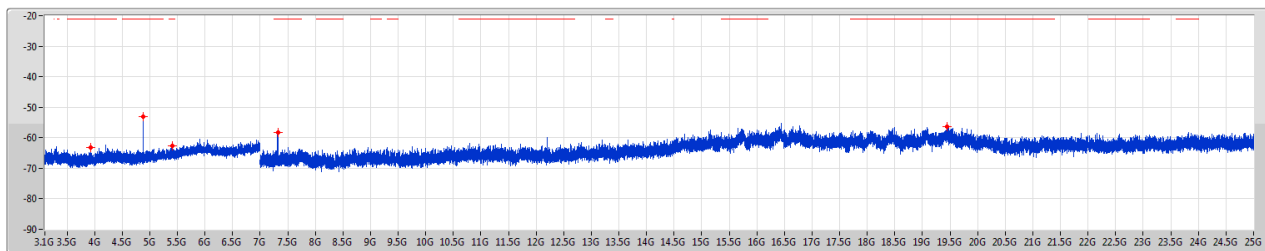
F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	Psum(dBm)	P1(dBm)
3.1G	4G	1M	AV	3.3322G	-74.44	-74.44
4G	5G	1M	AV	4.809G	-55.64	-55.64
5G	7G	1M	AV	5.222G	-73.53	-73.53
7G	8G	1M	AV	7.74775G	-73.08	-73.08
8G	25G	1M	AV	19.07284G	-65.96	-65.96



2.4-2.4835GHz_BT-LE(2Mbps)

CSE-DTS [PK]

2440MHz

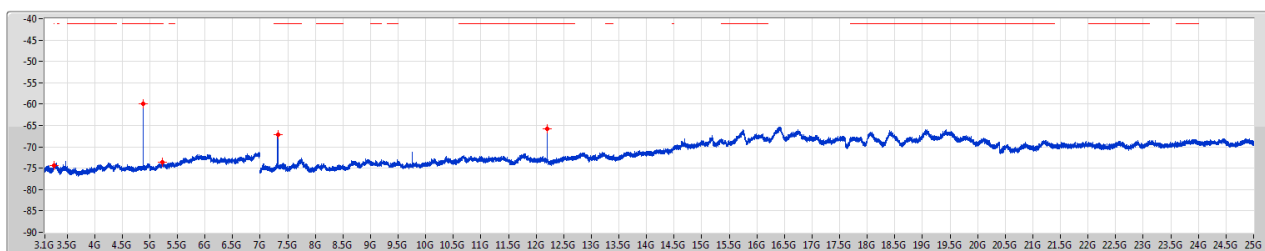


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	Psum(dBm)	P1(dBm)
3.1G	4G	1M	PK	3.93318G	-63.23	-63.23
4G	5G	1M	PK	4.88025G	-53.18	-53.18
5G	7G	1M	PK	5.413G	-62.64	-62.64
7G	8G	1M	PK	7.31875G	-58.36	-58.36
8G	25G	1M	PK	19.44897G	-56.40	-56.40

2.4-2.4835GHz_BT-LE(2Mbps)

CSE-DTS [AV]

2440MHz

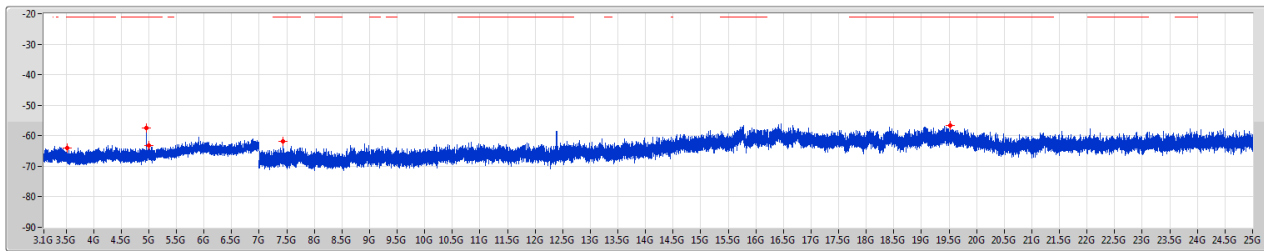


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	Psum(dBm)	P1(dBm)
3.1G	4G	1M	AV	3.2665G	-74.34	-74.34
4G	5G	1M	AV	4.87925G	-59.94	-59.94
5G	7G	1M	AV	5.224G	-73.52	-73.52
7G	8G	1M	AV	7.32125G	-67.08	-67.08
8G	25G	1M	AV	12.20219G	-65.74	-65.74

2.4-2.4835GHz_BT-LE(2Mbps)

CSE-DTS [PK]

2478MHz

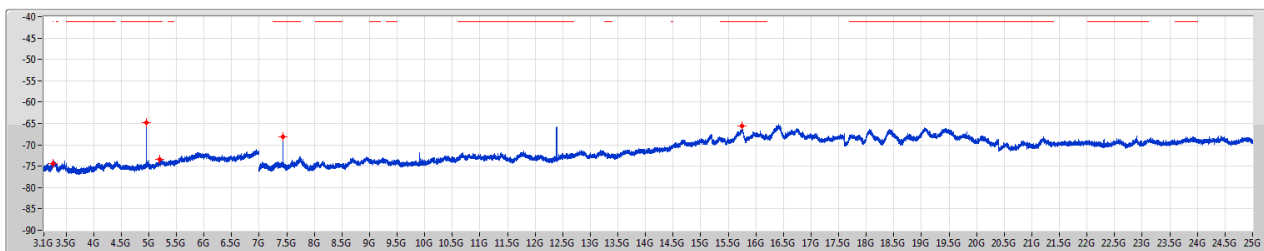


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	Psum(dBm)	P1(dBm)
3.1G	4G	1M	PK	3.52818G	-63.91	-63.91
4G	5G	1M	PK	4.95725G	-57.50	-57.50
5G	7G	1M	PK	5.0065G	-63.17	-63.17
7G	8G	1M	PK	7.43575G	-61.84	-61.84
8G	25G	1M	PK	19.51538G	-56.53	-56.53

2.4-2.4835GHz_BT-LE(2Mbps)

CSE-DTS [AV]

2478MHz



F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	Psum(dBm)	P1(dBm)
3.1G	4G	1M	AV	3.26605G	-74.35	-74.35
4G	5G	1M	AV	4.955G	-64.84	-64.84
5G	7G	1M	AV	5.1955G	-73.43	-73.43
7G	8G	1M	AV	7.43525G	-68.22	-68.22
8G	25G	1M	AV	15.74191G	-65.62	-65.62



Unwanted Emissions (Below 1GHz)

Modulation	BT-LE (1Mbps)	Test Freq. (MHz)	2402
Polarization	Horizontal		
Test By :Paul Lin Temperature(°C):26 Humidity(%):63			
Level (dBUV/m) </			



Modulation	BT-LE (1Mbps)	Test Freq. (MHz)	2402
Polarization	Vertical		
Test By :Paul Lin Temperature(°C):26 Humidity(%):63			
Level (dBUV/m)			



Unwanted Emissions (Above 1GHz)

Modulation	BT-LE (1Mbps)	Test Freq. (MHz)	2402
Polarization	Horizontal		
Test By :Paul Lin Temperature(°C):26 Humidity(%):63			
Level (dBuV/m) </			



Modulation	BT-LE (1Mbps)		Test Freq. (MHz)		2402				
Polarization	Vertical								
Test By :Paul Lin			Temperature(°C):26			Humidity(%):63			
Level (dBUV/m) </									



Modulation	BT-LE (1Mbps)		Test Freq. (MHz)		2440	
Polarization	Horizontal					
Test By :Paul Lin Temperature(°C):26 Humidity(%):63						
Level (dBuV/m)						



Modulation	BT-LE (1Mbps)		Test Freq. (MHz)		2440				
Polarization	Vertical								
Test By :Paul Lin Temperature(°C):26 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	4880.00	38.13	54.00	-15.87	38.67	-0.54	Average	100	137
2	4880.00	48.08	74.00	-25.92	48.62	-0.54	Peak	100	137
3	7320.00	40.30	54.00	-13.70	35.11	5.19	Average	114	163
4	7320.00	51.98	74.00	-22.02	46.79	5.19	Peak	114	163
5	12200.00	43.15	54.00	-10.85	36.91	6.24	Average	360	248
6	12200.00	55.72	74.00	-18.28	49.48	6.24	Peak	360	248
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 :Paul Lin Temperature(°C):26 Humidity(%):63						
Level (dBUV/m)						



Modulation	BT-LE (1Mbps)		Test Freq. (MHz)		2480	
Polarization	Vertical					
Test By :Paul Lin Temperature(°C):26 Humidity(%):63						
Level (dBUV/m)						



Modulation	BT-LE (2Mbps)		Test Freq. (MHz)		2404				
Polarization	Horizontal								
Test By :Paul Lin			Temperature(°C):26			Humidity(%):63			
Level (dBUV/m) </									



Modulation	BT-LE (2Mbps)		Test Freq. (MHz)		2404	
Polarization	Vertical					
Test By :Paul Lin Temperature(°C):26 Humidity(%):63						
Level (dBUV/m) </						



Modulation	BT-LE (2Mbps)		Test Freq. (MHz)		2440				
Polarization	Horizontal								
Test By :Paul Lin			Temperature(°C):26			Humidity(%):63			
Level (dBuV/m)									



Modulation	BT-LE (2Mbps)		Test Freq. (MHz)		2440	
Polarization	Vertical					
Test By :Paul Lin Temperature(°C):26 Humidity(%):63						
Level (dBuV/m) <						



Modulation	BT-LE (2Mbps)		Test Freq. (MHz)		2478	
Polarization	Horizontal					
Test By :Paul Lin Temperature(°C):26 Humidity(%):63						
Level (dBuV/m) </						

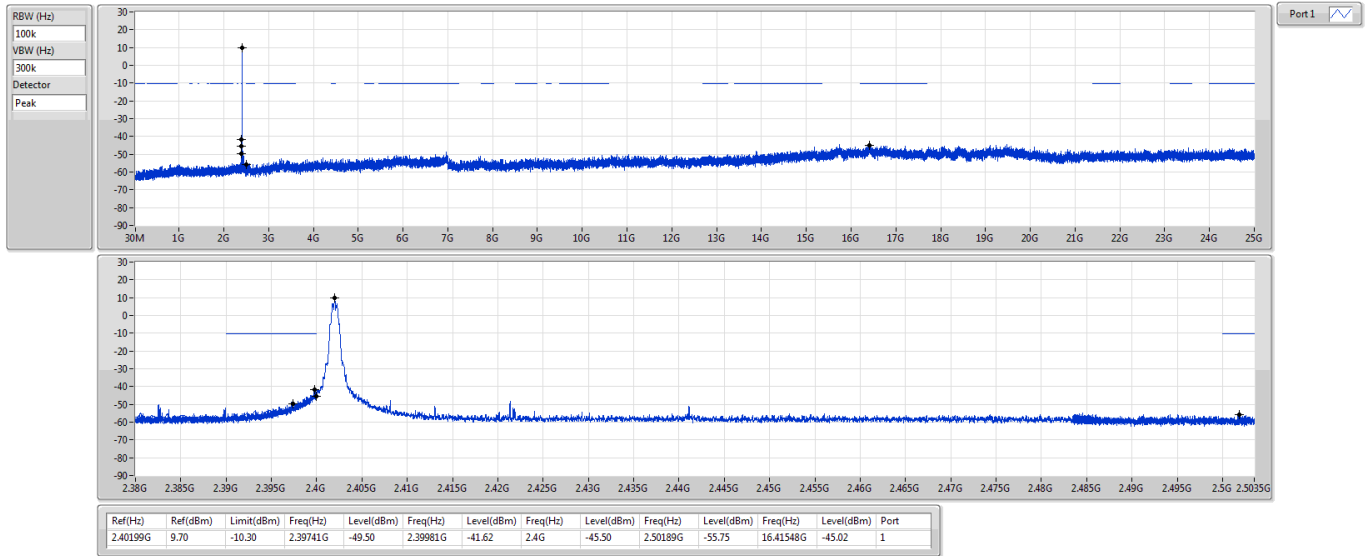


Modulation	BT-LE (2Mbps)		Test Freq. (MHz)		2478	
Polarization	Vertical					
Test By :Paul Lin Temperature(°C):26 Humidity(%):63						
Level (dBuV/m) </						

2.4-2.4835GHz_BT-LE(125kbps)

CSEndB-DTS

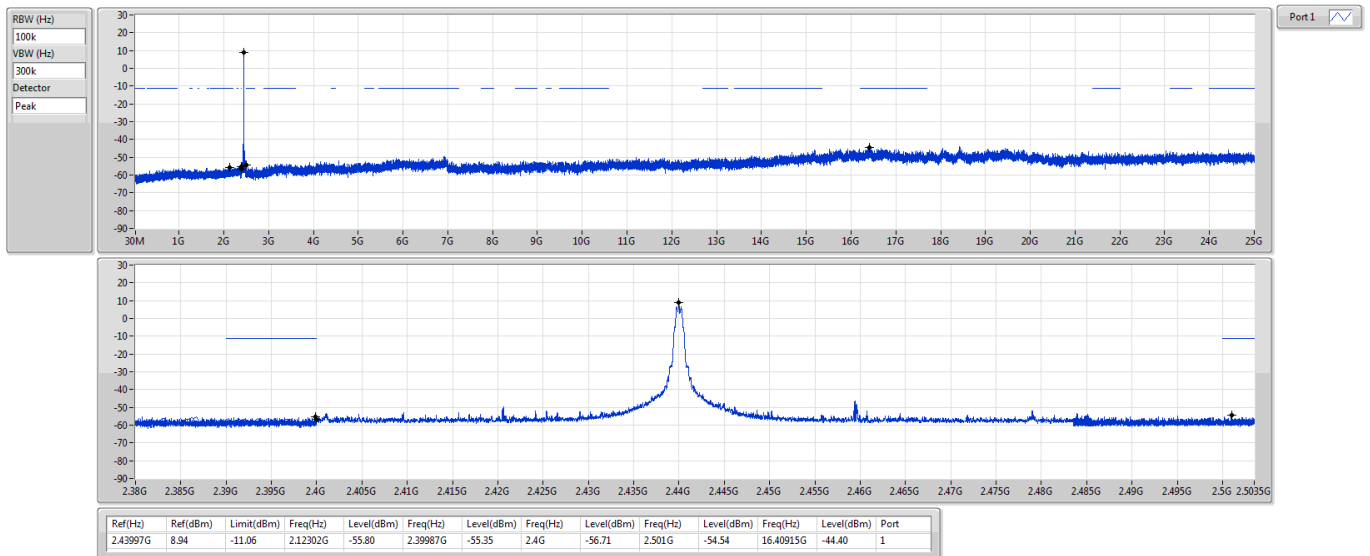
2402MHz



2.4-2.4835GHz_BT-LE(125kbps)

CSEndB-DTS

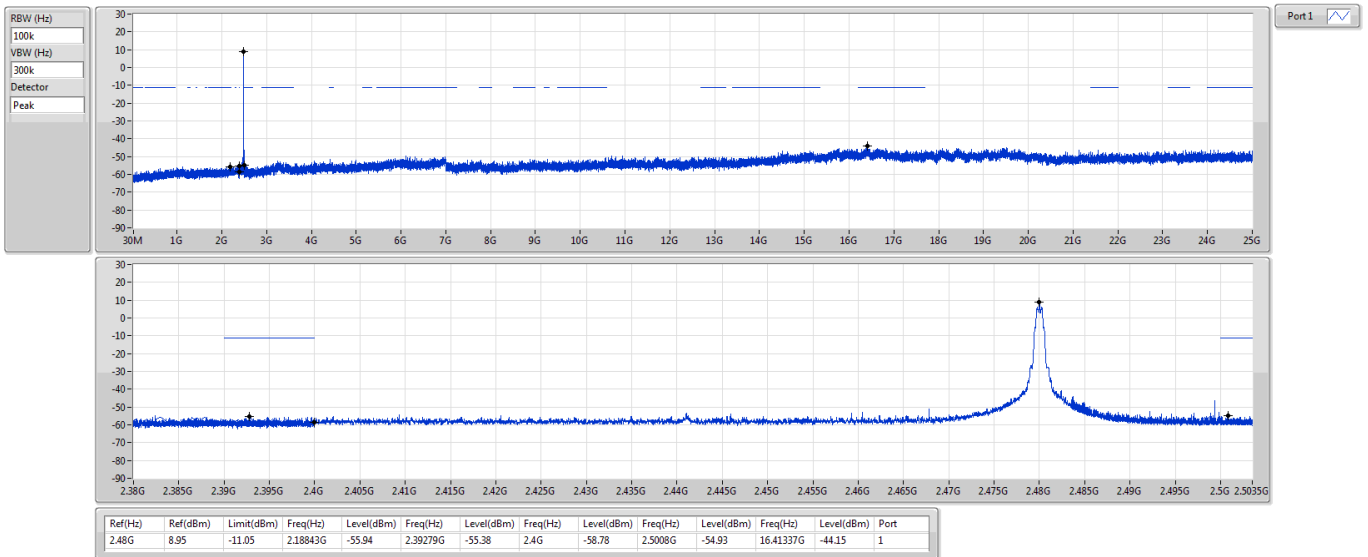
2440MHz



2.4-2.4835GHz_BT-LE(125kbps)

CSEndB-DTS

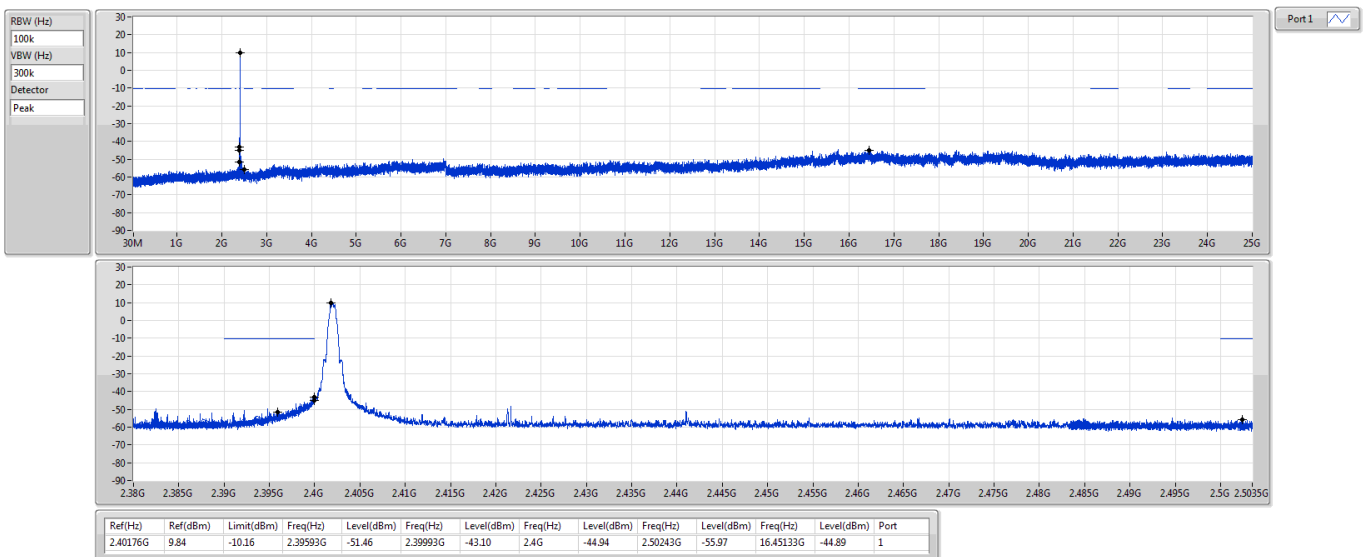
2480MHz



2.4-2.4835GHz_BT-LE(500kbps)

CSEndB-DTS

2402MHz

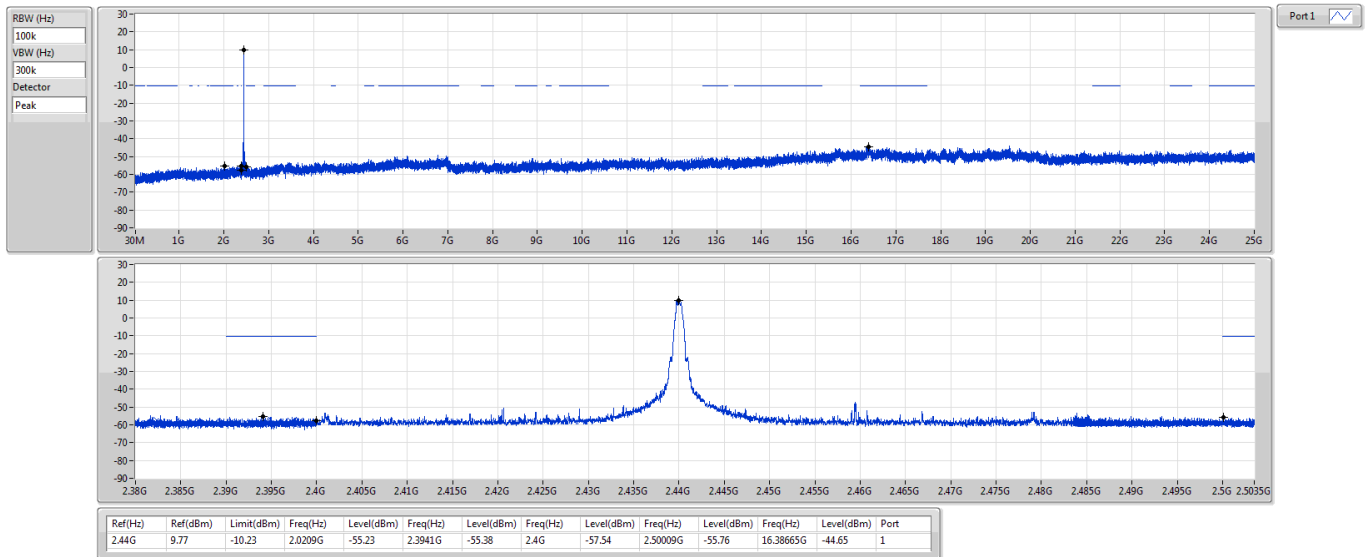




2.4-2.4835GHz_BT-LE(500kbps)

CSEndB-DTS

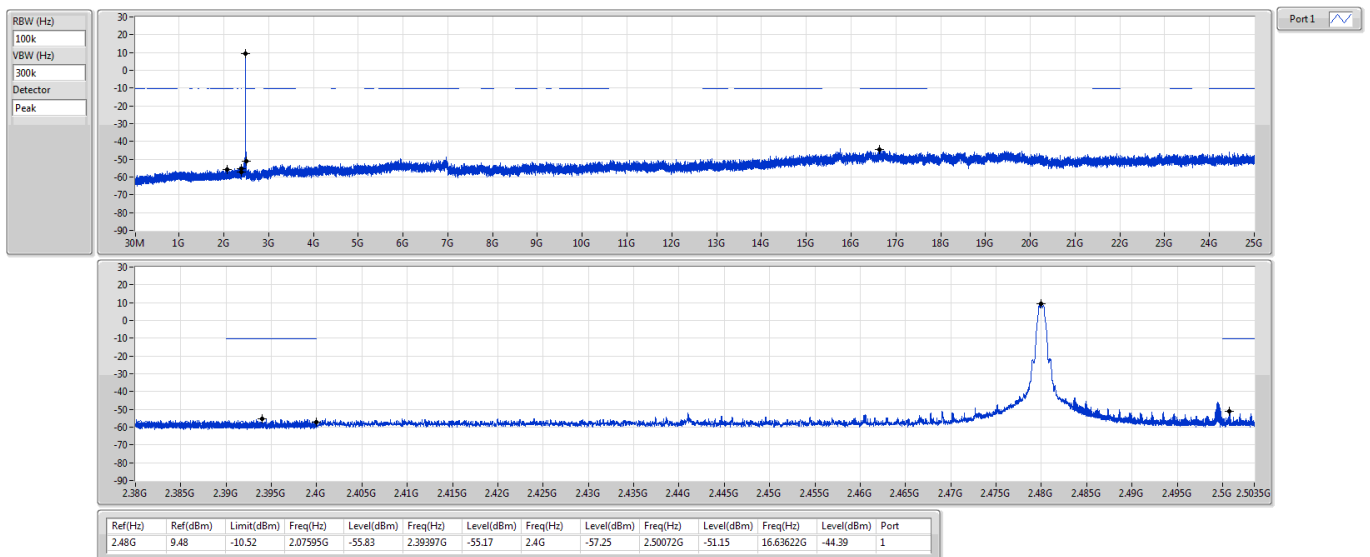
2440MHz



2.4-2.4835GHz_BT-LE(500kbps)

CSEndB-DTS

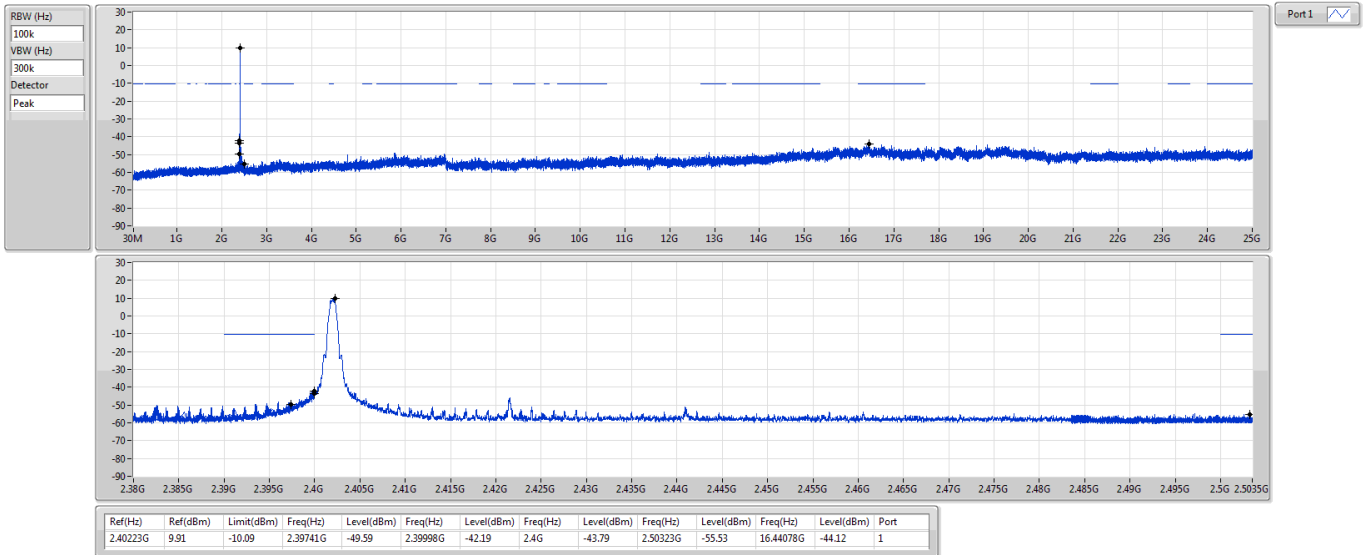
2480MHz



2.4-2.4835GHz_BT-LE(1Mbps)

CSEndB-DTS

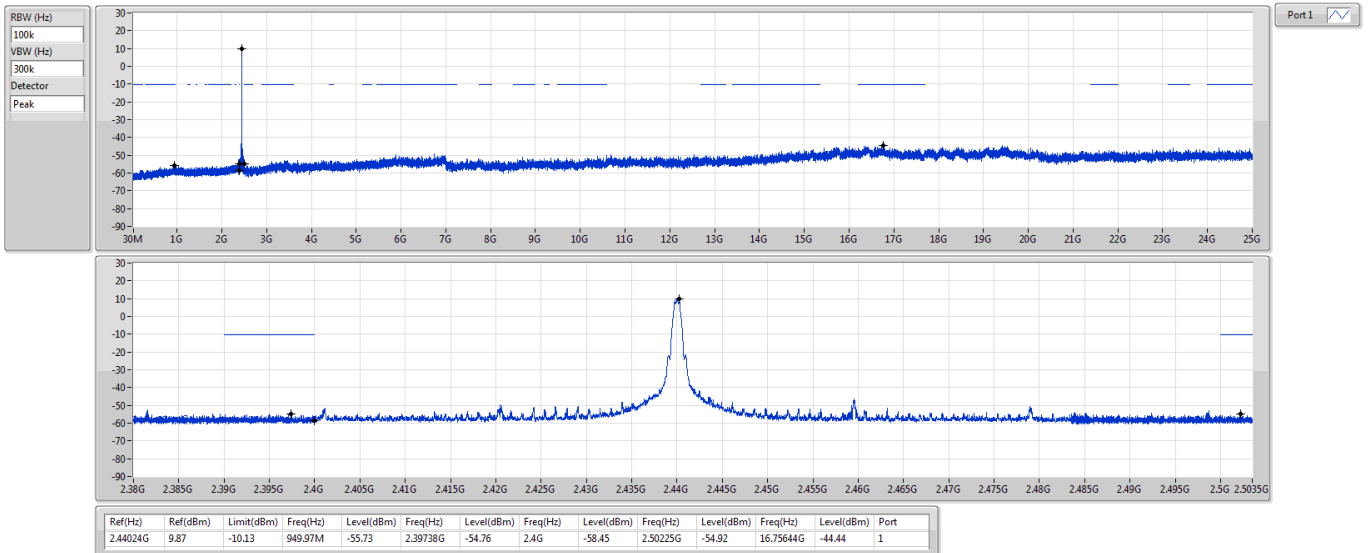
2402MHz



2.4-2.4835GHz_BT-LE(1Mbps)

CSEndB-DTS

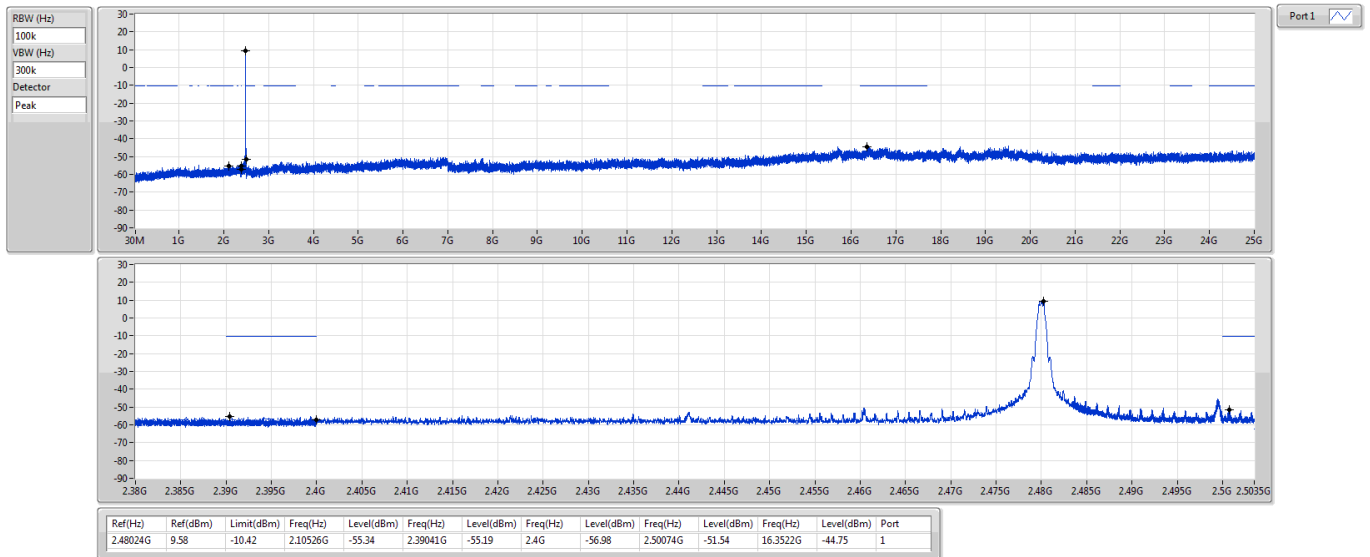
2440MHz



2.4-2.4835GHz_BT-LE(1Mbps)

CSEndB-DTS

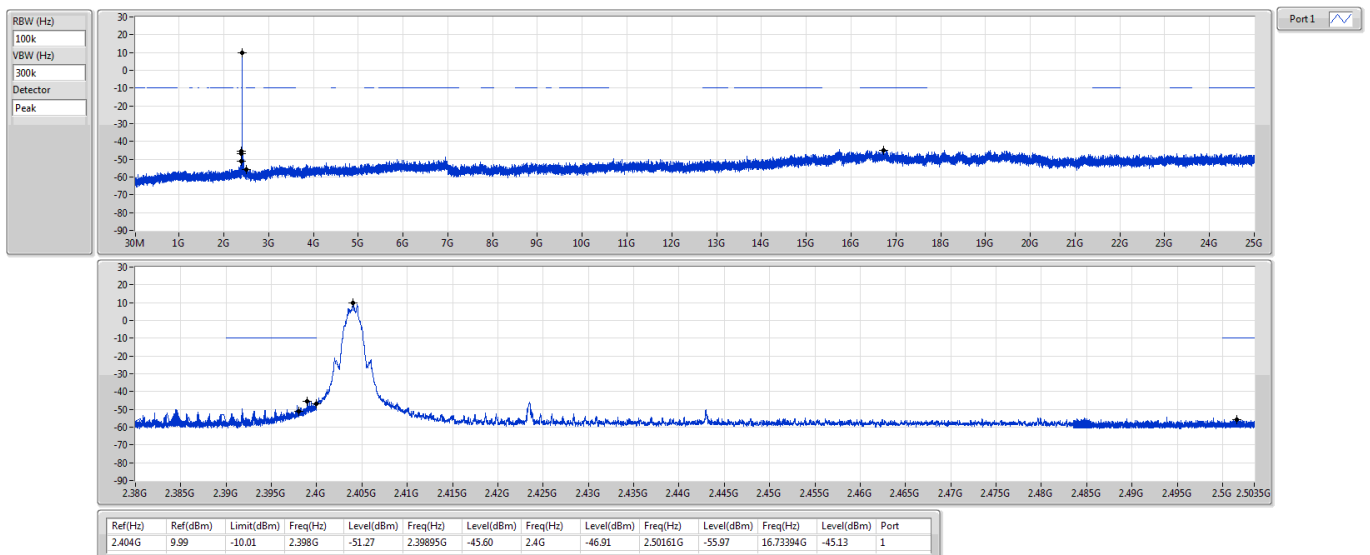
2480MHz



2.4-2.4835GHz_BT-LE(2Mbps)

CSEndB-DTS

2404MHz

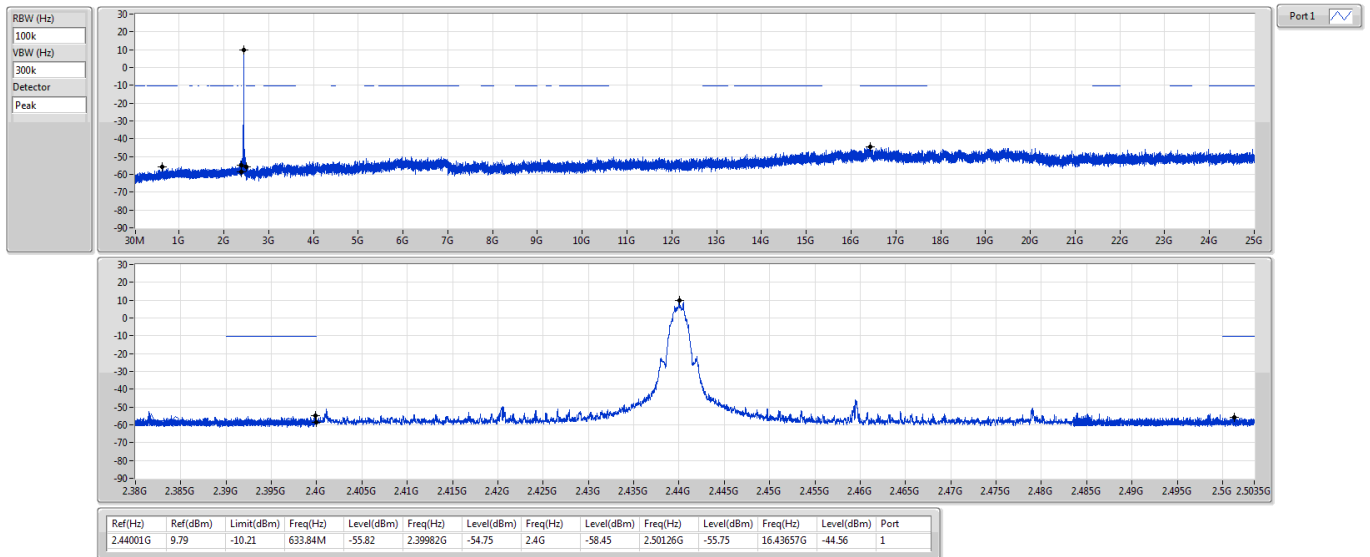




2.4-2.4835GHz_BT-LE(2Mbps)

CSEndB-DTS

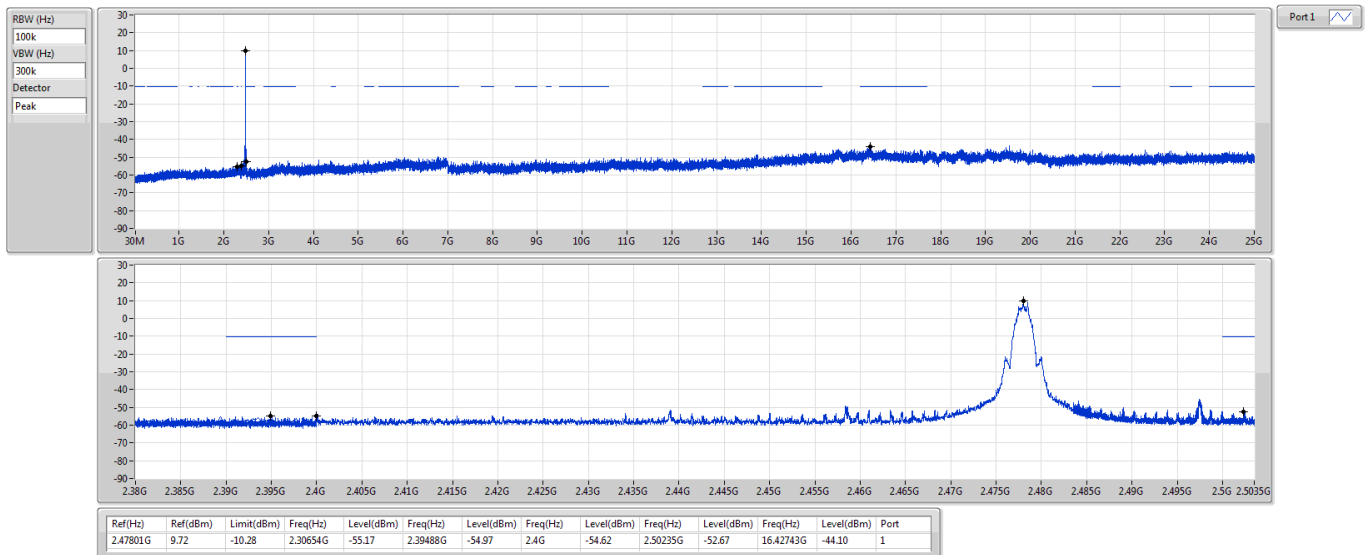
2440MHz



2.4-2.4835GHz_BT-LE(2Mbps)

CSEndB-DTS

2478MHz



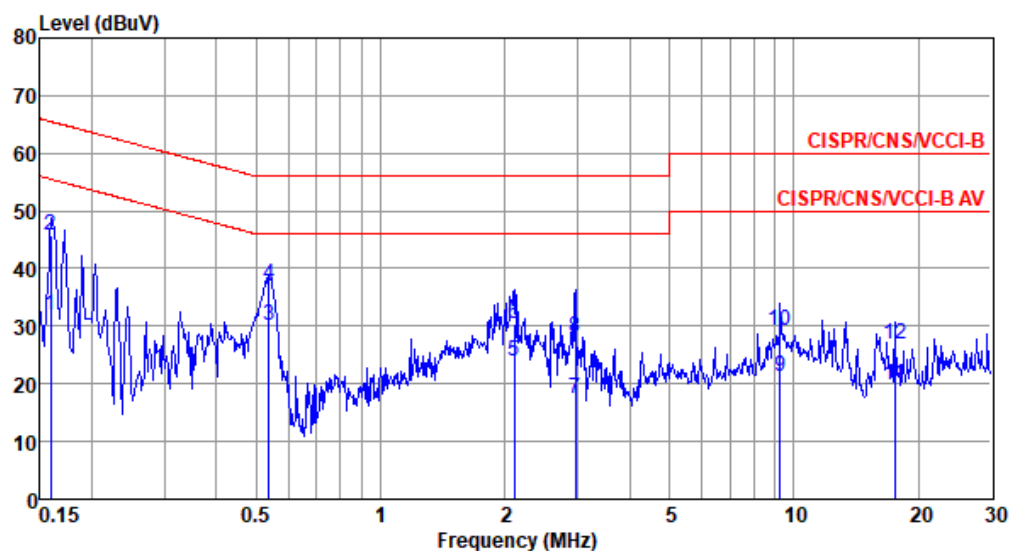


Modulation	BT-LE(1Mbps)	Test Freq. (MHz)	2402
Power Phase	Line		

Test by : Joe Liao

Temperature: 21°C

Humidity: 63%



	Freq MHz	Level dBUV	Limit Line dBUV	Over Limit dB	Read Level dBUV	Factor dB	Cable loss dB	Aux dB	Remark
1	0.159	31.98	55.52	-23.54	22.33	9.59	0.06	0.00	Average
2	0.159	45.88	65.52	-19.64	36.23	9.59	0.06	0.00	QP
3*	0.538	30.19	46.00	-15.81	20.52	9.59	0.08	0.00	Average
4	0.538	37.11	56.00	-18.89	27.44	9.59	0.08	0.00	QP
5	2.110	23.99	46.00	-22.01	14.25	9.61	0.13	0.00	Average
6	2.110	30.37	56.00	-25.63	20.63	9.61	0.13	0.00	QP
7	2.962	17.44	46.00	-28.56	7.66	9.62	0.16	0.00	Average
8	2.962	28.14	56.00	-27.86	18.36	9.62	0.16	0.00	QP
9	9.253	21.22	50.00	-28.78	11.23	9.65	0.34	0.00	Average
10	9.253	29.11	60.00	-30.89	19.12	9.65	0.34	0.00	QP
11	17.568	19.72	50.00	-30.28	9.64	9.60	0.48	0.00	Average
12	17.568	26.72	60.00	-33.28	16.64	9.60	0.48	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: 63%																																																																																																																																					
Level (dBuV) Frequency (MHz) <table><tr><th></th><th>Freq MHz</th><th>Level dBuV</th><th>Limit Line dBuV</th><th>Over Limit dB</th><th>Read Level dBuV</th><th>Factor dB</th><th>Cable loss dB</th><th>Aux dB</th><th>Remark</th></tr><tr><td>1</td><td>0.162</td><td>27.32</td><td>55.34</td><td>-28.02</td><td>17.66</td><td>9.60</td><td>0.06</td><td>0.00</td><td>Average</td></tr><tr><td>2*</td><td>0.162</td><td>45.55</td><td>65.34</td><td>-19.79</td><td>35.89</td><td>9.60</td><td>0.06</td><td>0.00</td><td>QP</td></tr><tr><td>3</td><td>0.174</td><td>18.41</td><td>54.77</td><td>-36.36</td><td>8.75</td><td>9.60</td><td>0.06</td><td>0.00</td><td>Average</td></tr><tr><td>4</td><td>0.174</td><td>42.57</td><td>64.77</td><td>-22.20</td><td>32.91</td><td>9.60</td><td>0.06</td><td>0.00</td><td>QP</td></tr><tr><td>5</td><td>0.538</td><td>22.55</td><td>46.00</td><td>-23.45</td><td>12.87</td><td>9.60</td><td>0.08</td><td>0.00</td><td>Average</td></tr><tr><td>6</td><td>0.538</td><td>29.62</td><td>56.00</td><td>-26.38</td><td>19.94</td><td>9.60</td><td>0.08</td><td>0.00</td><td>QP</td></tr><tr><td>7</td><td>6.352</td><td>20.90</td><td>50.00</td><td>-29.10</td><td>10.98</td><td>9.65</td><td>0.27</td><td>0.00</td><td>Average</td></tr><tr><td>8</td><td>6.352</td><td>26.05</td><td>60.00</td><td>-33.95</td><td>16.13</td><td>9.65</td><td>0.27</td><td>0.00</td><td>QP</td></tr><tr><td>9</td><td>9.156</td><td>28.27</td><td>50.00</td><td>-21.73</td><td>18.26</td><td>9.67</td><td>0.34</td><td>0.00</td><td>Average</td></tr><tr><td>10</td><td>9.156</td><td>33.93</td><td>60.00</td><td>-26.07</td><td>23.92</td><td>9.67</td><td>0.34</td><td>0.00</td><td>QP</td></tr><tr><td>11</td><td>11.198</td><td>26.06</td><td>50.00</td><td>-23.94</td><td>16.01</td><td>9.67</td><td>0.38</td><td>0.00</td><td>Average</td></tr><tr><td>12</td><td>11.198</td><td>30.06</td><td>60.00</td><td>-29.94</td><td>20.01</td><td>9.67</td><td>0.38</td><td>0.00</td><td>QP</td></tr></table>					Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	Factor dB	Cable loss dB	Aux dB	Remark	1	0.162	27.32	55.34	-28.02	17.66	9.60	0.06	0.00	Average	2*	0.162	45.55	65.34	-19.79	35.89	9.60	0.06	0.00	QP	3	0.174	18.41	54.77	-36.36	8.75	9.60	0.06	0.00	Average	4	0.174	42.57	64.77	-22.20	32.91	9.60	0.06	0.00	QP	5	0.538	22.55	46.00	-23.45	12.87	9.60	0.08	0.00	Average	6	0.538	29.62	56.00	-26.38	19.94	9.60	0.08	0.00	QP	7	6.352	20.90	50.00	-29.10	10.98	9.65	0.27	0.00	Average	8	6.352	26.05	60.00	-33.95	16.13	9.65	0.27	0.00	QP	9	9.156	28.27	50.00	-21.73	18.26	9.67	0.34	0.00	Average	10	9.156	33.93	60.00	-26.07	23.92	9.67	0.34	0.00	QP	11	11.198	26.06	50.00	-23.94	16.01	9.67	0.38	0.00	Average	12	11.198	30.06	60.00	-29.94	20.01	9.67	0.38	0.00	QP
	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	Factor dB	Cable loss dB	Aux dB	Remark																																																																																																																												
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Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB) + Aux (dB). 2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).																																																																																																																																					