


# Japan Test Report

**Equipment** : Bluetooth 5.1 Data Module  
**Model No.** : BL653  
**Brand Name** : Laird Connectivity  
**Applicant** : Laird Connectivity, Inc.  
**Address** : W66N220 Commerce Court, Cedarburg,  
Wisconsin 53012, USA  
**Standard** : Article 2 Paragraph 1 Item 19  
**Received Date** : Jan. 30, 2020  
**Tested Date** : Feb. 20, 2020

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

We, International Certification 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:

  
James Fan / Assistant Manager

Approved by:

  
Gary Chang / Manager

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## Release Record

Report No.	Version	Description	Issued Date
JR013002	Rev. 01	Initial issue	May 11, 2020
JR013002	Rev. 02	Changing brand	May 26, 2020

## Summary of Test Results

Ref. Std. Clause	Description	Result
3.2(2)(3)	Antenna Power	Pass
3.2(4)	Frequency Tolerance	Pass
3.2(6)	Transmitter Spurious Emission	Pass
3.2(7)	Occupied Bandwidth	Pass
3.3(1)	Receiver Emission	Pass
3.4.1	Interference prevention function	Pass

**Declaration of Conformity:**

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

**Comments and Explanations:**

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

# 1 General Description

## 1.1 Information

### 1.1.1 Product Details

The following models are provided to this EUT.

Brand Name	Model Name	Product Name	Description
Laird Connectivity	BL653	Bluetooth 5.1 Data Module	With Printed PCB antenna
			With MHF4 connector antenna

### 1.1.2 Specification of the Equipment under Test (EUT)

Power Supply Type	DC 5V, DC 1.8V, DC 3.3V from host
Type(s) of Modulation / Technology	GFSK = 125 kbps / 500 kbps / 1Mbps / 2Mbps
Frequency Range (MHz)	2402 ~ 2480 MHz
Total Channel Number	40
HW Version	Rev 1
SW Version	v30.1.0.1

### 1.1.3 Antenna Details

Manufacturer	Model	Laird Part Number	Type	Connector	Gain (dBi)
Laird	NanoBlue	EBL2400A1-10 MH4L	PCB Dipole	IPEX MHF4	2
Laird	FlexPIFA	001-0022	PCB Dipole	IPEX MHF4	2
Mag.Layers	EDA-8709-2G4 C1-B27-CY	0600-00057	Dipole	IPEX MHF4	2
Laird	mFlexPIFA	EFA2400A3S-10 MH4L	PIFA	IPEX MHF4	2
Laird	Laird NFC	0600-00061	NFC	N/A	--
Laird	BL653-SA PCB printed antenna	NA	Printed PCB	N/A	1.28

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

### 1.1.4 Antenna Power

*with Printed PCB antenna*

Operating Mode	Rated Power (mW)	Measured Conducted Power (mW)	Radiated Power (mW)
GFSK/125kbps	6.00	6.095	8.185
GFSK/500kbps	6.00	6.095	8.185
GFSK/1Mbps	6.00	6.095	8.185
GFSK/2Mbps	6.00	6.081	8.166

*with MHF4 connector antenna*

Operating Mode	Rated Power (mW)	Measured Conducted Power (mW)	Radiated Power (mW)
GFSK/125kbps	6.00	5.715	9.057
GFSK/500kbps	6.00	5.715	9.057
GFSK/1Mbps	6.00	5.715	9.057
GFSK/2Mbps	6.00	5.715	9.057

### 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 Power Index

Test Tool
UwTerminal, Version: 7.94

Modulation Mode	Test Frequency (MHz)		
	2402	2440	2480
GFSK/125kbps	8	8	8
GFSK/500kbps	8	8	8
GFSK/1Mbps	8	8	8
GFSK/2Mbps	8	8	8

### 1.1.7 Test Voltage

Test Voltage	<input checked="" type="checkbox"/> Vnom (3.3 Vdc)	<input checked="" type="checkbox"/> Vmax (5.5 Vdc)	<input checked="" type="checkbox"/> Vmin (1.7 Vdc)
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### 1.1.8 Protection Method for High Frequency and Modulation Section

Protected Method	Description
Shielding Case	RF and Modulation components are covered with shielding case and this shielding case is soldered

## 1.2 Test Equipment and Calibration Data

Test Item	RF Conducted				
Test Site	(TH01-WS)				
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	1241001	Aug. 01, 2019	Jul. 31, 2020
Power Sensor	Anritsu	MA2411B	1207362	Aug. 01, 2019	Jul. 31, 2020
DC POWER SOURCE	GW INSTEK	GPC-6030D	GES855395	Oct. 29, 2019	Oct. 28, 2020
Measurement Software	Sporton	SENSE-T66_FS	V5.10.2	NA	NA
Note 1: Calibration Interval of instruments listed above is one year. Note 2: Above instruments are calibrated by Electronics Testing Center					

## 1.3 Testing Applied Standards

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

Article 2 Paragraph 1 Item 19

## 1.4 Deviation from Test Standard and Measurement Procedure

None

## 1.5 Measurement Uncertainty

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	$\pm 34.139$ Hz
Conducted power	$\pm 0.808$ dB
Frequency error	$\pm 1 \times 10^{-9}$
TX Conducted emission	$\pm 2.680$ dB
RX Conducted emission	$\pm 3.034$ dB



## 2 Test Configuration

### 2.1 Testing Location and Conditions

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

### 2.2 Supporting Units

Support Unit	Brand	Model	FCC ID
Notebook	DELL	Latitude E5420	DoC

### 2.3 The Worst Test Modes and Channel Details

Test item	Mode	Test Frequency (MHz)	Data Rate	Test Configuration
Antenna Power	BT LE	2402 / 2440 / 2480	125kbps 500kbps 1Mbps 2Mbps	1, 2
Frequency Tolerance Occupied Bandwidth Transmitter Spurious Emission Interference prevention function Receiver Spurious Emissions	BT LE	2402 / 2440 / 2480	125kbps 500kbps 1Mbps 2Mbps	1
<b>NOTE:</b> 1. Test configurations are listed as follows: 1) Test configuration 1: with Printed PCB antenna 2) Test configuration 2: with MHF4 connector antenna				

### 3 Transmitter Test Results

#### 3.1 Antenna Power

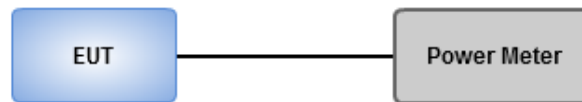
##### 3.1.1 Limit of Antenna Power

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

##### 3.1.2 Test Procedures

Measure the total power by Power Meter

##### 3.1.3 Test Setup



##### 3.1.4 Test Result of Maximum Transmit Power

Refer to Appendix A1, A2

## 3.2 Frequency Tolerance

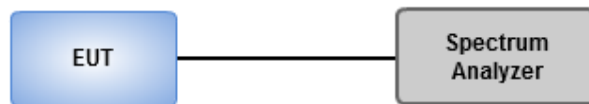
### 3.2.1 Limit of Frequency Tolerance

Frequency tolerance shall be +/- 50ppm.

### 3.2.2 Test Procedures

1. Set Span = 150kHz, RBW = 1kHz, VBW = 30kHz, Sweep time = Auto, detector = Peak.
2. Use Peak search function to find the max peak value and record this value (RF).
3. Calculate frequency tolerance by below formula  
$$FT(ppm) = \{ (RF) - (MF) / (MF) \} \times 1000000$$
  
(FT: Frequency Tolerance, RF: Reading Frequency, MF: Measurement Frequency.)

### 3.2.3 Test Setup



### 3.2.4 Test Result of Frequency Tolerance

Refer to Appendix B

### 3.3 Occupied Bandwidth

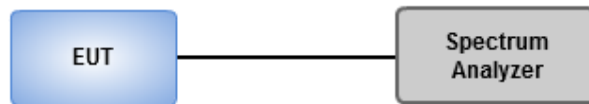
#### 3.3.1 Limit of Occupied Bandwidth

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

#### 3.3.2 Test Procedures

1. Set Span = 40MHz, RBW = VBW = 300kHz, detector = Peak, Sweep time = Auto.
2. Enable OBW function of spectrum analyzer to measure OBW and capture test plot.

#### 3.3.3 Test Setup



#### 3.3.4 Test Result of Occupied Bandwidth

Refer to Appendix C

### 3.4 Transmitter Spurious Emissions

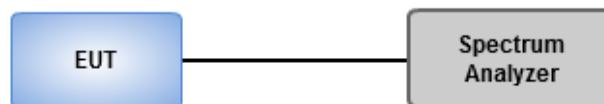
#### 3.4.1 Limit of Transmitter Spurious Emissions

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

#### 3.4.2 Test Procedures

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

#### 3.4.3 Test Setup



#### 3.4.4 Test Result of Transmitter Spurious Emissions

Refer to Appendix D

## 3.5 Interference Prevention Function

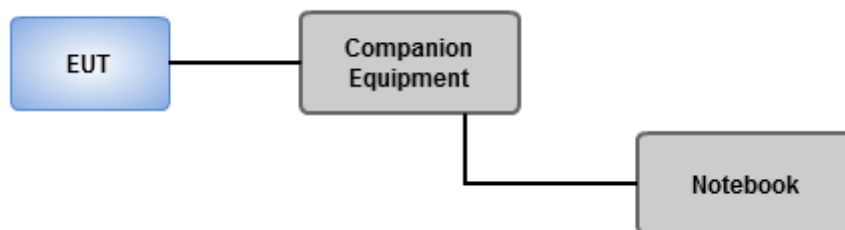
### 3.5.1 Limit of Interference Prevention Function

Limits
The identification code shall be 48 bits long

### 3.5.2 Test Procedures

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

### 3.5.3 Test Setup



### 3.5.4 Test Result of Interference Prevention Function

Refer to Appendix E

## 4 Receiver Test Results

### 4.1 Receiver Spurious Emissions

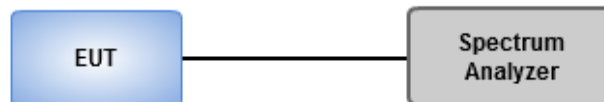
#### 4.1.1 Limit of Receiver Spurious Emissions

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

#### 4.1.2 Test Procedures

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

#### 4.1.3 Test Setup



#### 4.1.4 Test Result of Receiver Spurious Emissions

Refer to Appendix F

## 5 Test laboratory information

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

International Certification 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**

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

### **Kwei Shan**

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St., Kwei Shan District, Tao Yuan  
City 333, Taiwan, R.O.C.

### **Kwei Shan Site II**

Tel: 886-3-271-8640

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

==END==



**125kbps\_BL653-SA\_with Printed PCB antenna**



## Total Power-DTS Result

Appendix A.1

### Summary

Mode	Power (dBm)	Power (mW)	EIRP (dBm)	EIRP (mW)
2.4-2.4835GHz	-	-	-	-
BT-LE0.125_Nss1_1TX	7.85	6.095	9.13	8.185

### Result

Mode	Result	Gain (dBi)	Power (dBm)	Power (mW)	Power Lim. (mW)	EIRP (dBm)	EIRP (mW)	EIRP Lim. (mW)
BT-LE0.125_Nss1_1TX	-	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	1.28	7.58	5.728	10	8.86	7.691	16.368
2402MHz_TnomVmin	Pass	1.28	7.46	5.572	10	8.74	7.482	16.368
2402MHz_TnomVmax	Pass	1.28	7.47	5.585	10	8.75	7.499	16.368
2440MHz_TnomVnom	Pass	1.28	7.74	5.943	10	9.02	7.980	16.368
2440MHz_TnomVmin	Pass	1.28	7.55	5.689	10	8.83	7.638	16.368
2440MHz_TnomVmax	Pass	1.28	7.57	5.715	10	8.85	7.674	16.368
2480MHz_TnomVnom	Pass	1.28	7.85	6.095	10	9.13	8.185	16.368
2480MHz_TnomVmin	Pass	1.28	7.76	5.970	10	9.04	8.017	16.368
2480MHz_TnomVmax	Pass	1.28	7.77	5.984	10	9.05	8.035	16.368



## Power Tolerance-DTS Result

## Appendix A.2

### Summary

Mode	Result	Power (dBm)	Power (mW)	Declare (mW)	Tolerance (%)	Limit+ (%)	Limit- (%)
2.4-2.4835GHz	-	-	-	-	-	-	-
BT-LE0.125_Nss1_1TX	Pass	7.85	6.095	6.00	1.58	20	-80

### Result

Mode	Result	Power (dBm)	Power (mW)	Declare (mW)	Tolerance (%)	Limit+ (%)	Limit- (%)
BT-LE0.125_Nss1_1TX	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	7.58	5.728	6.00	-4.53	20	-80
2402MHz_TnomVmin	Pass	7.46	5.572	6.00	-7.13	20	-80
2402MHz_TnomVmax	Pass	7.47	5.585	6.00	-6.92	20	-80
2440MHz_TnomVnom	Pass	7.74	5.943	6.00	-0.95	20	-80
2440MHz_TnomVmin	Pass	7.55	5.689	6.00	-5.18	20	-80
2440MHz_TnomVmax	Pass	7.57	5.715	6.00	-4.75	20	-80
2480MHz_TnomVnom	Pass	7.85	6.095	6.00	1.58	20	-80
2480MHz_TnomVmin	Pass	7.76	5.970	6.00	-0.50	20	-80
2480MHz_TnomVmax	Pass	7.77	5.984	6.00	-0.27	20	-80



## Frequency Tolerance-DTS Result

## Appendix B

### Summary

Mode	Result	Ch (Hz)	Center (Hz)	ppm	Limit (ppm)	Port	Remark
2.4-2.4835GHz	-	-	-	-	-	-	-
BT-LE0.125_Nss1_1TX	Pass	2.402G	2.40199332G	-2.779	±50	1	-

### Result

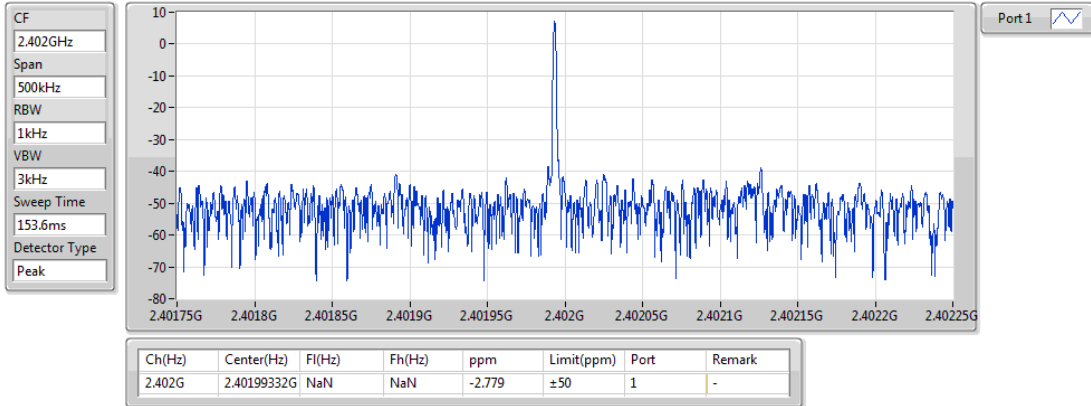
Mode	Result	Ch (Hz)	Center (Hz)	ppm	Limit (ppm)	Port	Remark
BT-LE0.125_Nss1_1TX	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.402G	2.40199332G	-2.779	±50	1	-
2402MHz_TnomVmin	Pass	2.402G	2.40199333G	-2.778	±50	1	-
2402MHz_TnomVmax	Pass	2.402G	2.40199333G	-2.777	±50	1	-
2440MHz_TnomVnom	Pass	2.44G	2.4399933G	-2.744	±50	1	-
2440MHz_TnomVmin	Pass	2.44G	2.4399933G	-2.747	±50	1	-
2440MHz_TnomVmax	Pass	2.44G	2.4399933G	-2.747	±50	1	-
2480MHz_TnomVnom	Pass	2.48G	2.47999336G	-2.679	±50	1	-
2480MHz_TnomVmin	Pass	2.48G	2.47999332G	-2.695	±50	1	-
2480MHz_TnomVmax	Pass	2.48G	2.47999331G	-2.698	±50	1	-



BT-LE0.125\_Nss1\_1TX

Freq. Stability

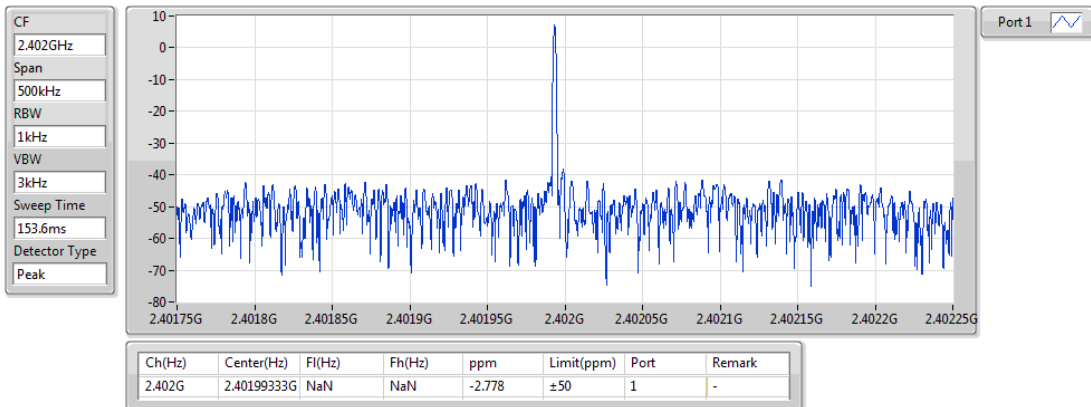
2402MHz\_TnomVnom



BT-LE0.125\_Nss1\_1TX

Freq. Stability

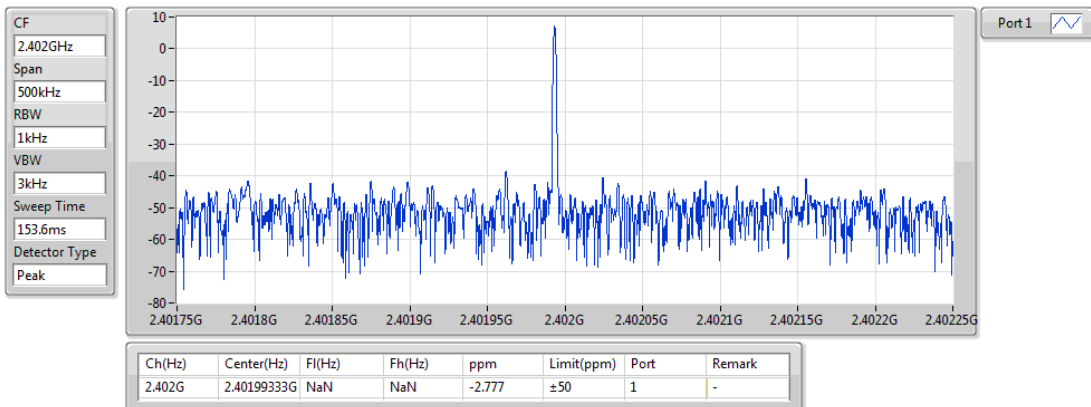
2402MHz\_TnomVmin



BT-LE0.125\_Nss1\_1TX

Freq. Stability

2402MHz\_TnomVmax





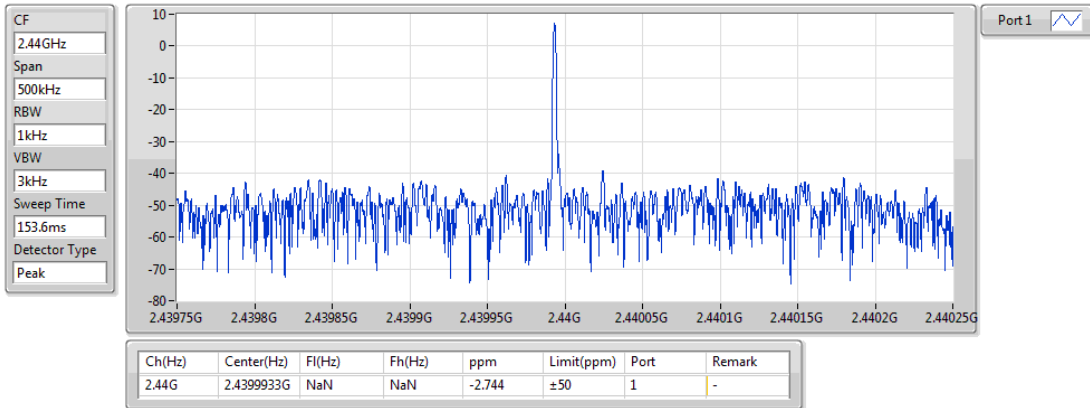
## Frequency Tolerance-DTS Result

Appendix B

BT-LE0.125\_Nss1\_1TX

Freq. Stability

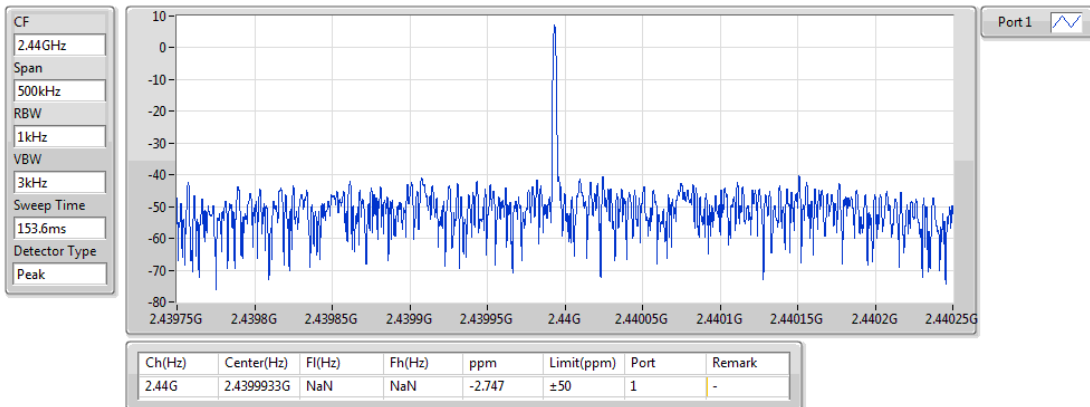
2440MHz\_TnomVnom



BT-LE0.125\_Nss1\_1TX

Freq. Stability

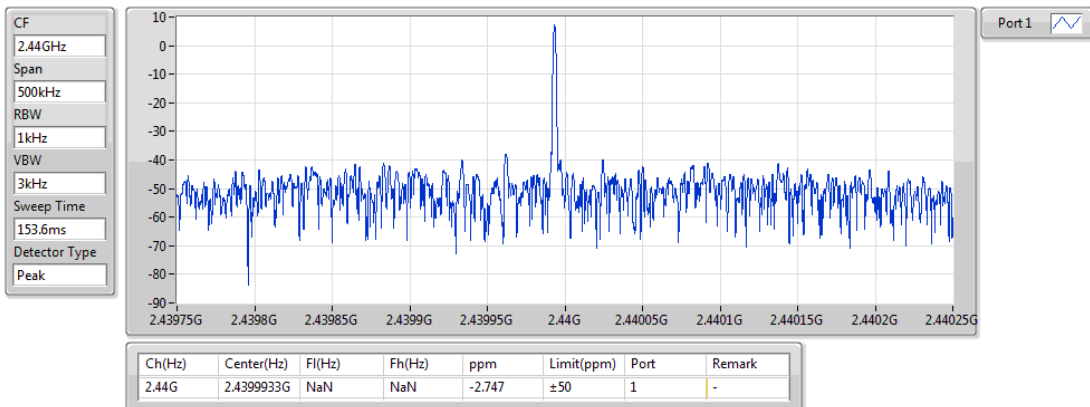
2440MHz\_TnomVmin



BT-LE0.125\_Nss1\_1TX

Freq. Stability

2440MHz\_TnomVmax

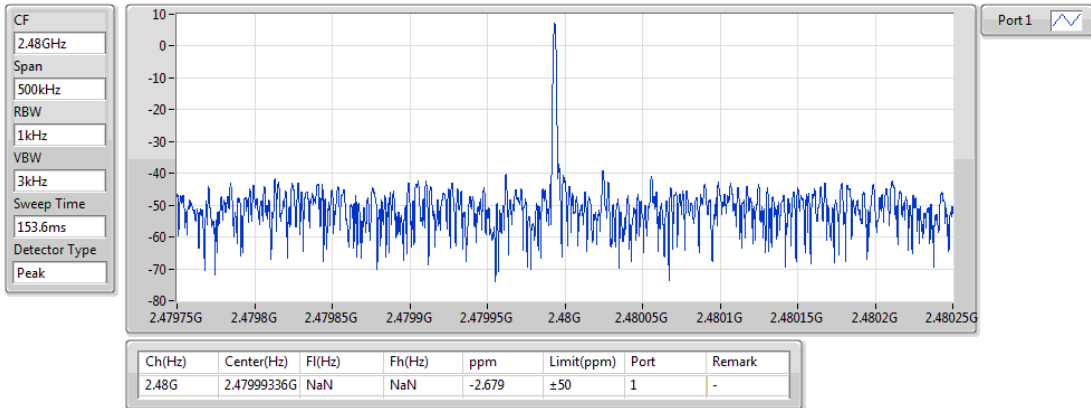




BT-LE0.125\_Nss1\_1TX

Freq. Stability

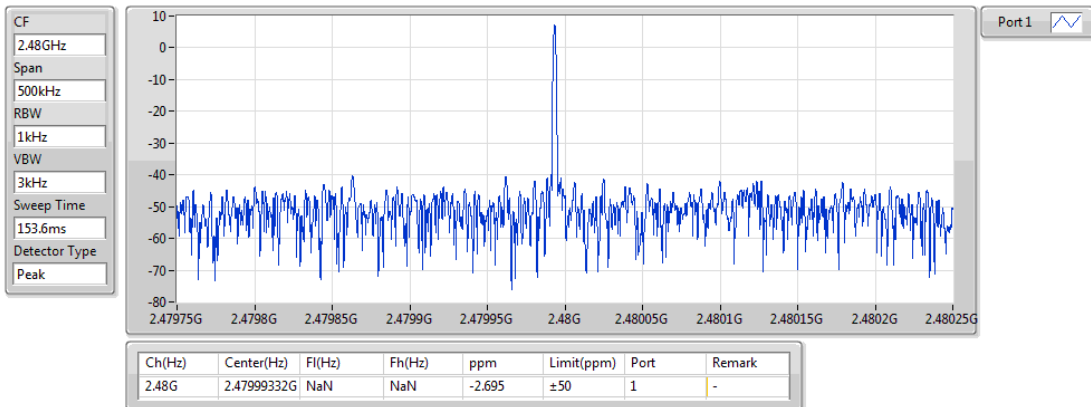
2480MHz\_TnomVnom



BT-LE0.125\_Nss1\_1TX

Freq. Stability

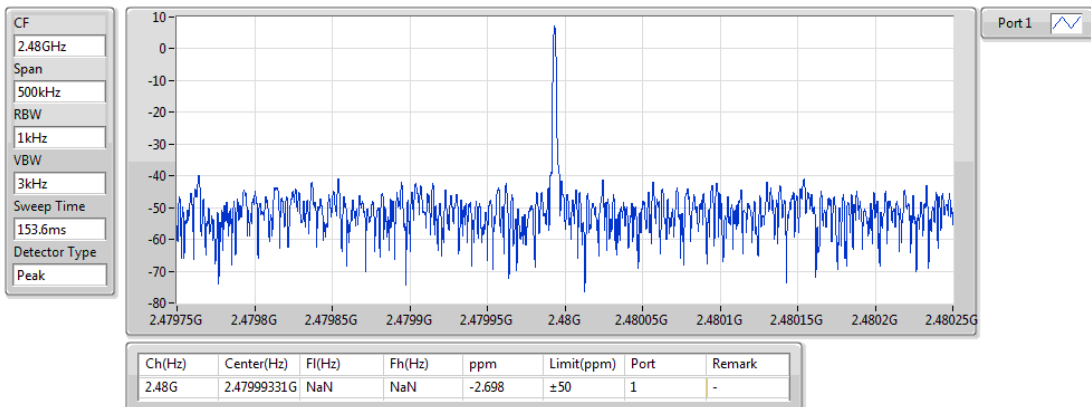
2480MHz\_TnomVmin



BT-LE0.125\_Nss1\_1TX

Freq. Stability

2480MHz\_TnomVmax





## Occupied Bandwidth-DTS Result

## Appendix C

### Summary

Mode	Max-OBW (Hz)	ITU-Code	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-
BT-LE0.125_Nss1_1TX	1.278M	1M27F1D	1.266M

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

### Result

Mode	Result	Limit (Hz)	P1-OBW (Hz)
BT-LE0.125_Nss1_1TX	-	-	-
2402MHz_TnomVnom	Pass	26M	1.266M
2402MHz_TnomVmin	Pass	26M	1.268M
2402MHz_TnomVmax	Pass	26M	1.266M
2440MHz_TnomVnom	Pass	26M	1.276M
2440MHz_TnomVmin	Pass	26M	1.276M
2440MHz_TnomVmax	Pass	26M	1.276M
2480MHz_TnomVnom	Pass	26M	1.278M
2480MHz_TnomVmin	Pass	26M	1.278M
2480MHz_TnomVmax	Pass	26M	1.278M

**P1-OBW** = Port 1 99% occupied bandwidth;





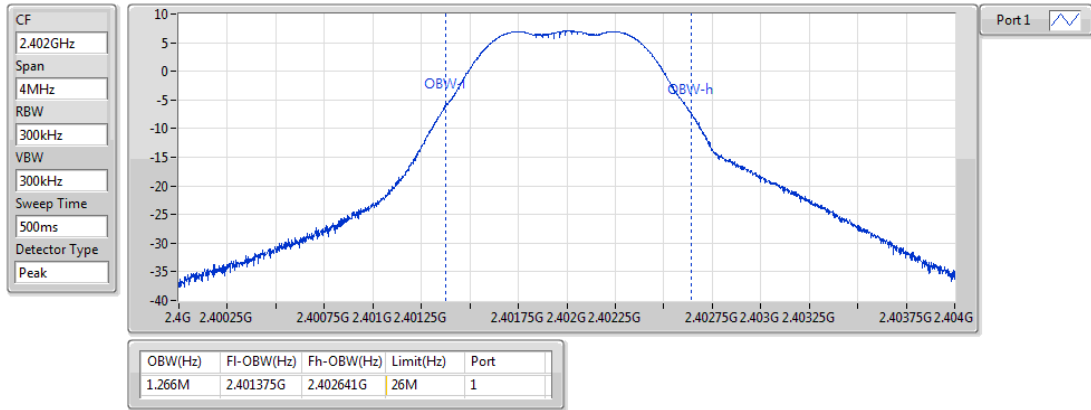
## Occupied Bandwidth-DTS Result

Appendix C

BT-LE0.125\_Nss1\_1TX

OBW

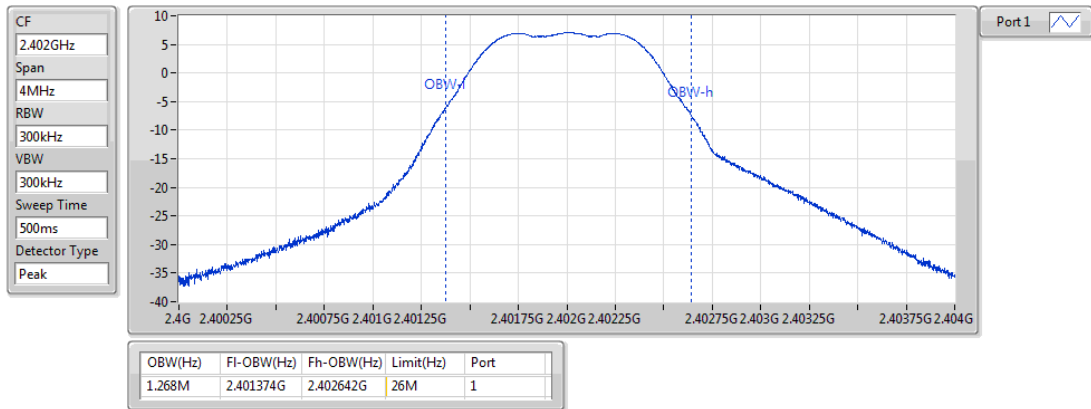
2402MHz\_TnomVnom



BT-LE0.125\_Nss1\_1TX

OBW

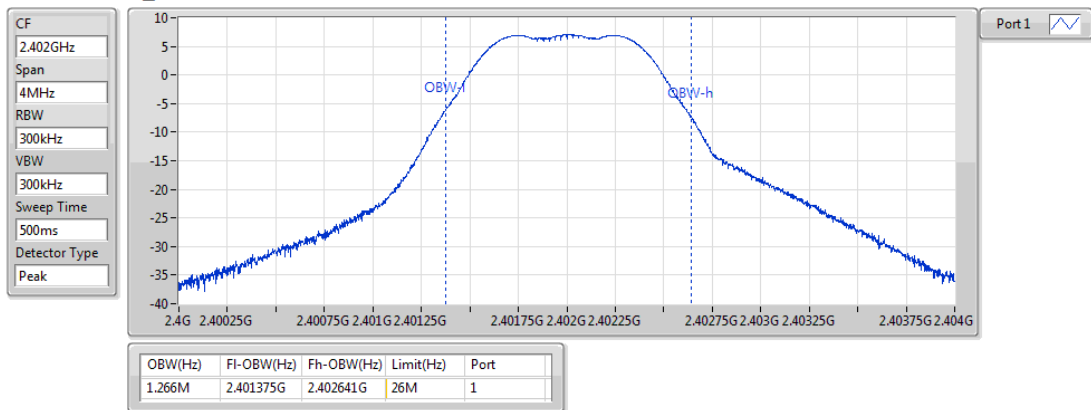
2402MHz\_TnomVmin



BT-LE0.125\_Nss1\_1TX

OBW

2402MHz\_TnomVmax





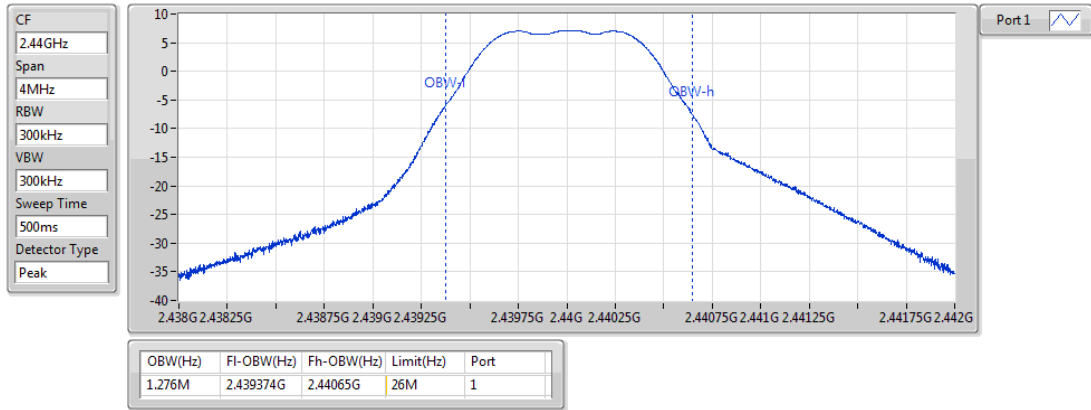
## Occupied Bandwidth-DTS Result

Appendix C

BT-LE0.125\_Nss1\_1TX

OBW

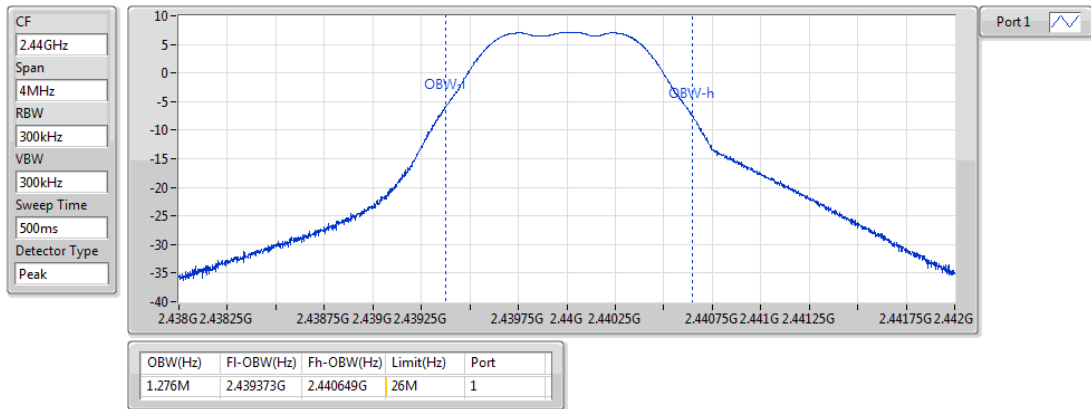
2440MHz\_TnomVnom



BT-LE0.125\_Nss1\_1TX

OBW

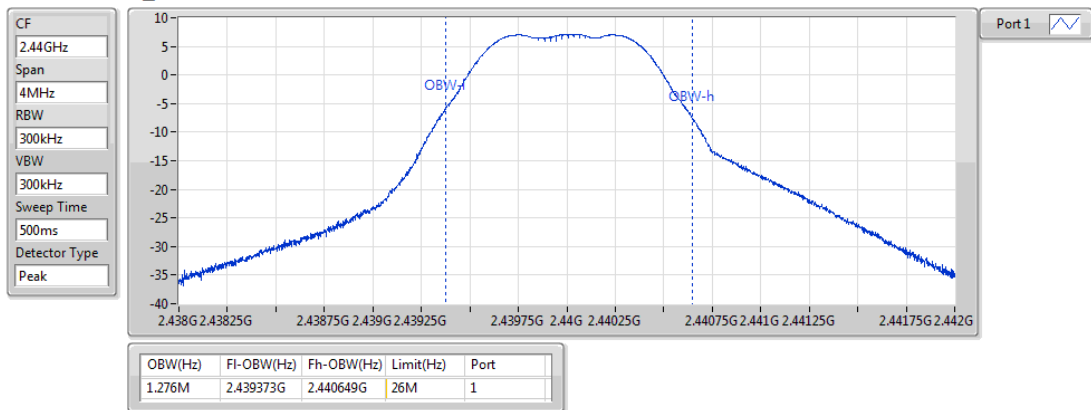
2440MHz\_TnomVmin



BT-LE0.125\_Nss1\_1TX

OBW

2440MHz\_TnomVmax





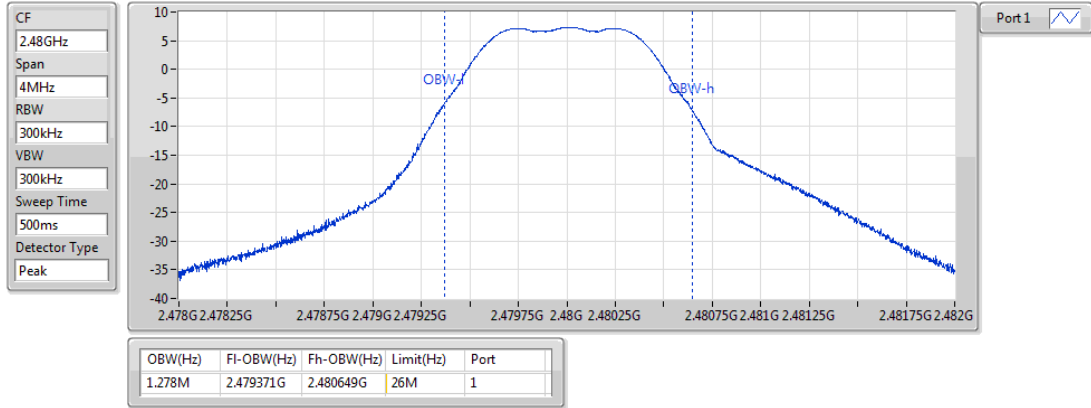
## Occupied Bandwidth-DTS Result

Appendix C

BT-LE0.125\_Nss1\_1TX

OBW

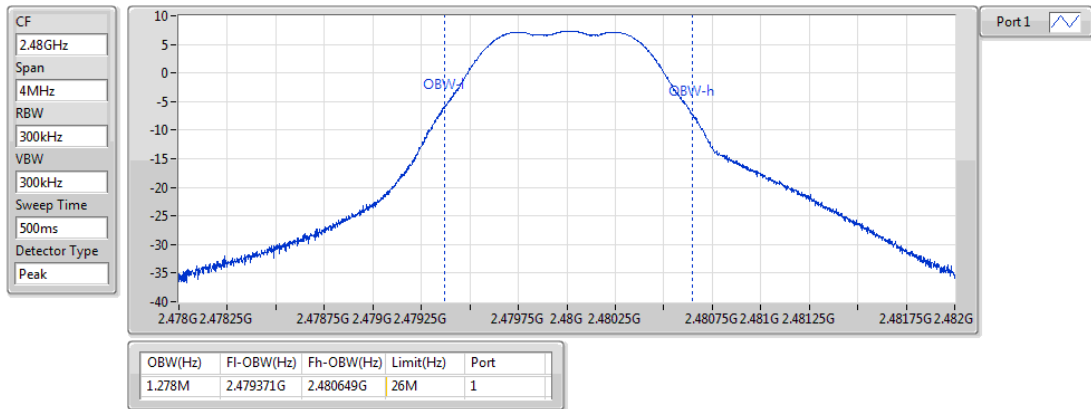
2480MHz\_TnomVnom



BT-LE0.125\_Nss1\_1TX

OBW

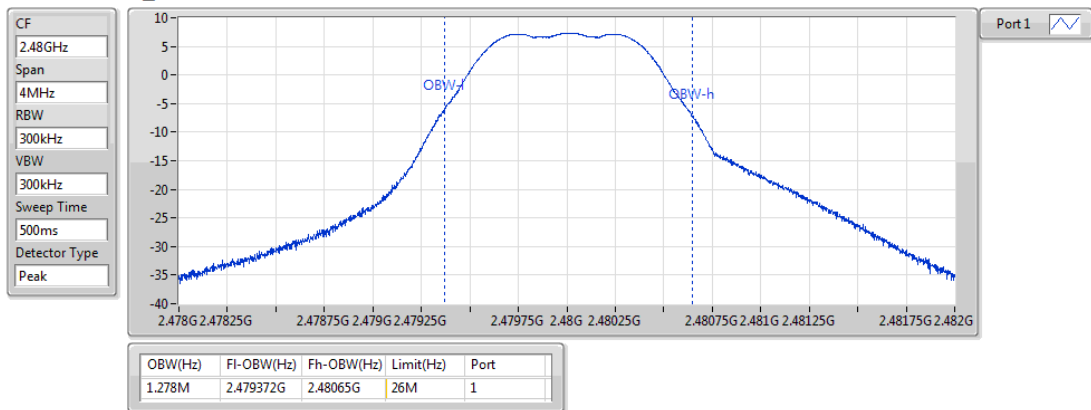
2480MHz\_TnomVmin



BT-LE0.125\_Nss1\_1TX

OBW

2480MHz\_TnomVmax



**CSE-TX Unwanted Emission Strength-DTS Result****Appendix D****Summary**

Mode	Result	F-Start (Hz)	F-Stop (Hz)	RBW (Hz)	Freq (Hz)	Psum (dBm)	Psum (uW/MHz)	Limit (dBm)	Limit (uW/MHz)
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-
BT-LE0.125_Nss1_1TX	Pass	2.387G	2.4G	1M	2.39997G	-33.99	0.39902	-16.02	25

**Result**

Mode	Result	F-Start (Hz)	F-Stop (Hz)	RBW (Hz)	Freq (Hz)	Psum (dBm)	Psum (uW/MHz)	Limit (dBm)	Limit (uW/MHz)
BT-LE0.125_Nss1_1TX	-	-	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	30M	2.387G	1M	2.3705G	-52.49	0.00564	-26.02	2.5
2402MHz_TnomVnom	Pass	2.387G	2.4G	1M	2.39997G	-34.03	0.39537	-16.02	25
2402MHz_TnomVnom	Pass	2.4835G	2.4965G	1M	2.48987G	-54.21	0.00379	-16.02	25
2402MHz_TnomVnom	Pass	2.4965G	12.5G	1M	4.80356G	-47.16	0.01923	-26.02	2.5
2402MHz_TnomVmin	Pass	30M	2.387G	1M	2.3705G	-52.27	0.00593	-26.02	2.5
2402MHz_TnomVmin	Pass	2.387G	2.4G	1M	2.39997G	-33.99	0.39902	-16.02	25
2402MHz_TnomVmin	Pass	2.4835G	2.4965G	1M	2.49G	-54.29	0.00372	-16.02	25
2402MHz_TnomVmin	Pass	2.4965G	12.5G	1M	4.80356G	-47.03	0.01982	-26.02	2.5
2402MHz_TnomVmax	Pass	30M	2.387G	1M	2.3705G	-52.34	0.00583	-26.02	2.5
2402MHz_TnomVmax	Pass	2.387G	2.4G	1M	2.39997G	-34.04	0.39446	-16.02	25
2402MHz_TnomVmax	Pass	2.4835G	2.4965G	1M	2.48992G	-54.25	0.00376	-16.02	25
2402MHz_TnomVmax	Pass	2.4965G	12.5G	1M	4.80356G	-47.21	0.01901	-26.02	2.5
2440MHz_TnomVnom	Pass	30M	2.387G	1M	2.35165G	-54.14	0.00385	-26.02	2.5
2440MHz_TnomVnom	Pass	2.387G	2.4G	1M	2.39194G	-52.82	0.00522	-16.02	25
2440MHz_TnomVnom	Pass	2.4835G	2.4965G	1M	2.488G	-52.63	0.00546	-16.02	25
2440MHz_TnomVnom	Pass	2.4965G	12.5G	1M	4.87983G	-47.37	0.01832	-26.02	2.5
2440MHz_TnomVmin	Pass	30M	2.387G	1M	2.35165G	-53.96	0.00402	-26.02	2.5
2440MHz_TnomVmin	Pass	2.387G	2.4G	1M	2.3921G	-52.89	0.00514	-16.02	25
2440MHz_TnomVmin	Pass	2.4835G	2.4965G	1M	2.48802G	-52.58	0.00552	-16.02	25
2440MHz_TnomVmin	Pass	2.4965G	12.5G	1M	4.87983G	-47.21	0.01901	-26.02	2.5
2440MHz_TnomVmax	Pass	30M	2.387G	1M	2.33632G	-53.99	0.00399	-26.02	2.5
2440MHz_TnomVmax	Pass	2.387G	2.4G	1M	2.39204G	-52.84	0.0052	-16.02	25
2440MHz_TnomVmax	Pass	2.4835G	2.4965G	1M	2.48797G	-52.55	0.00556	-16.02	25
2440MHz_TnomVmax	Pass	2.4965G	12.5G	1M	4.87983G	-47.61	0.01734	-26.02	2.5
2480MHz_TnomVnom	Pass	30M	2.387G	1M	2.37639G	-54.02	0.00396	-26.02	2.5
2480MHz_TnomVnom	Pass	2.387G	2.4G	1M	2.39197G	-54.40	0.00363	-16.02	25
2480MHz_TnomVnom	Pass	2.4835G	2.4965G	1M	2.48353G	-48.82	0.01312	-16.02	25
2480MHz_TnomVnom	Pass	2.4965G	12.5G	1M	4.95986G	-49.57	0.01104	-26.02	2.5

**CSE-TX Unwanted Emission Strength-DTS Result****Appendix D**

Mode	Result	F-Start (Hz)	F-Stop (Hz)	RBW (Hz)	Freq (Hz)	Psum (dBm)	Psum (uW/MHz)	Limit (dBm)	Limit (uW/MHz)
2480MHz_TnomVmin	Pass	30M	2.387G	1M	2.35165G	-54.19	0.00381	-26.02	2.5
2480MHz_TnomVmin	Pass	2.387G	2.4G	1M	2.39197G	-54.43	0.00361	-16.02	25
2480MHz_TnomVmin	Pass	2.4835G	2.4965G	1M	2.48353G	-49.00	0.01259	-16.02	25
2480MHz_TnomVmin	Pass	2.4965G	12.5G	1M	11.43963G	-49.34	0.01164	-26.02	2.5
2480MHz_TnomVmax	Pass	30M	2.387G	1M	2.37639G	-53.82	0.00415	-26.02	2.5
2480MHz_TnomVmax	Pass	2.387G	2.4G	1M	2.39199G	-54.45	0.00359	-16.02	25
2480MHz_TnomVmax	Pass	2.4835G	2.4965G	1M	2.48353G	-48.94	0.01276	-16.02	25
2480MHz_TnomVmax	Pass	2.4965G	12.5G	1M	4.95986G	-49.44	0.01138	-26.02	2.5



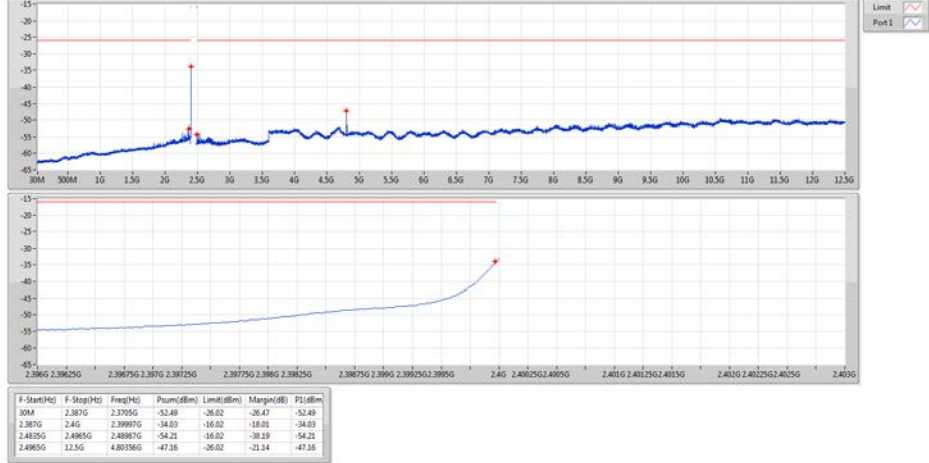
## CSE-TX Unwanted Emission Strength-DTS Result

Appendix D

BT-LE0.125\_Nss1\_1TX

CSE-TX-DTS

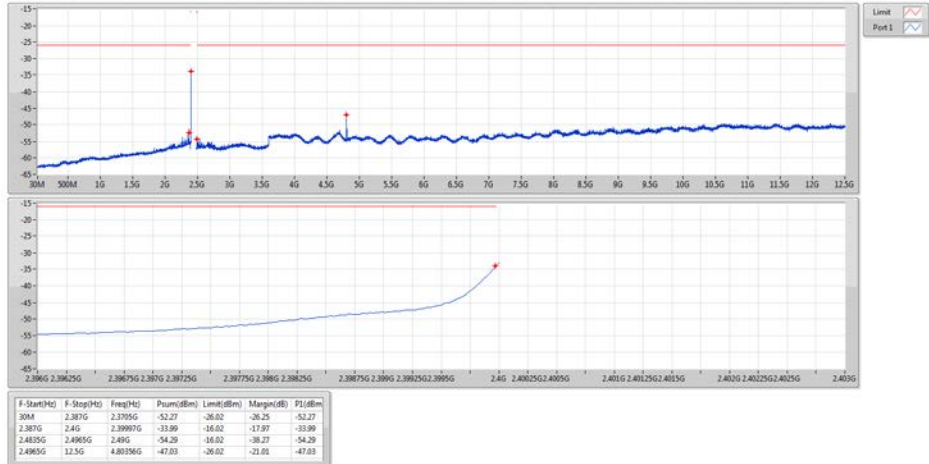
2402MHz\_TnomVnom



BT-LE0.125\_Nss1\_1TX

CSE-TX-DTS

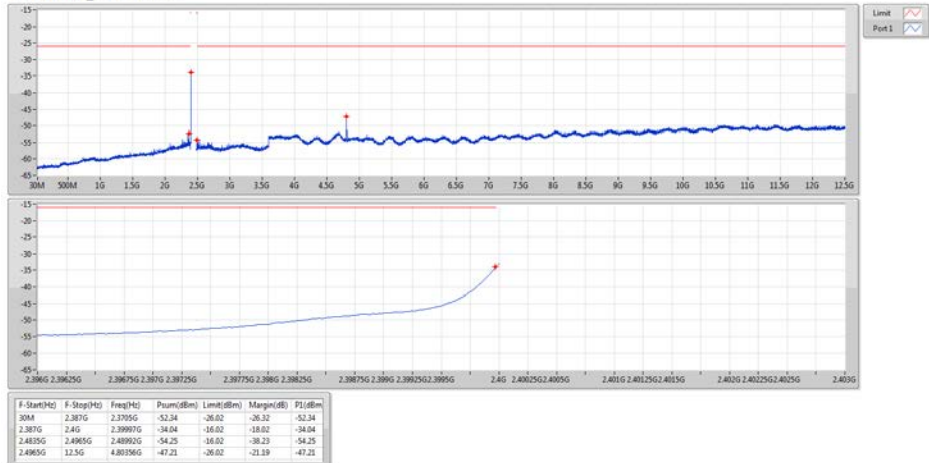
2402MHz\_TnomVmin



BT-LE0.125\_Nss1\_1TX

CSE-TX-DTS

2402MHz\_TnomVmax





## CSE-TX Unwanted Emission Strength-DTS Result

## Appendix D

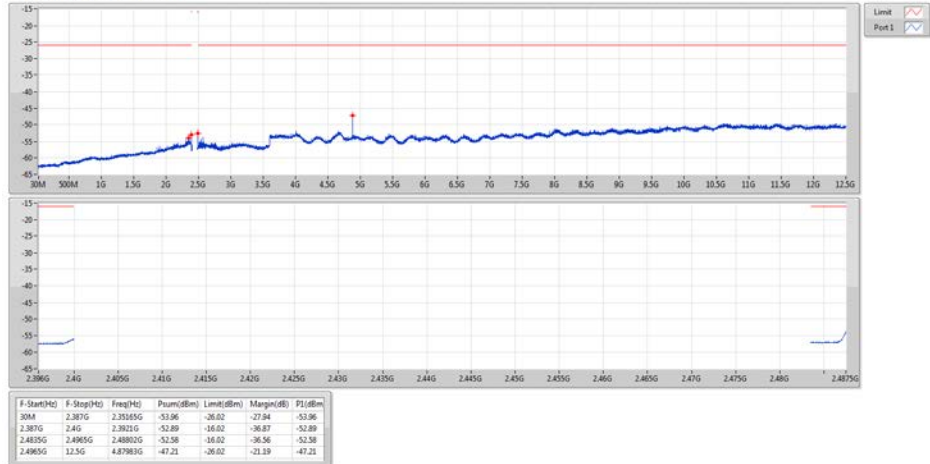
BT-LE0.125\_Nss1\_1TX  
2440MHz\_TnomVnom

CSE-TX-DTS



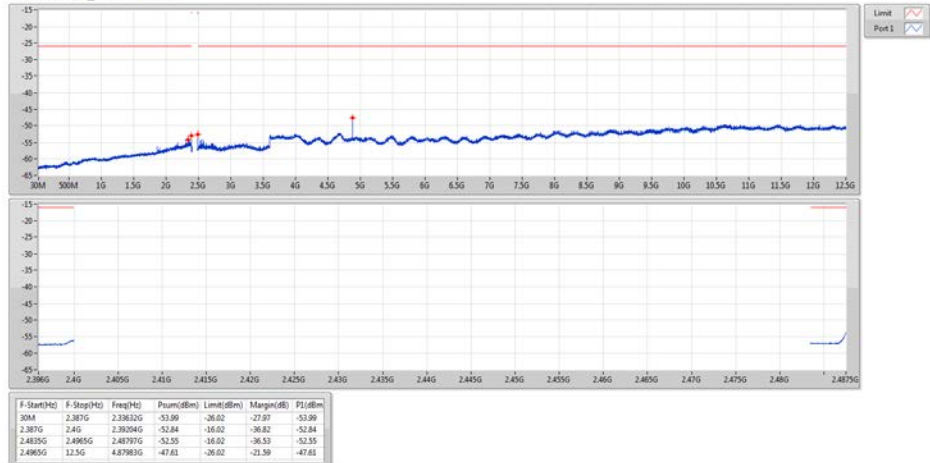
BT-LE0.125\_Nss1\_1TX  
2440MHz\_TnomVmin

CSE-TX-DTS



BT-LE0.125\_Nss1\_1TX  
2440MHz\_TnomVmax

CSE-TX-DTS





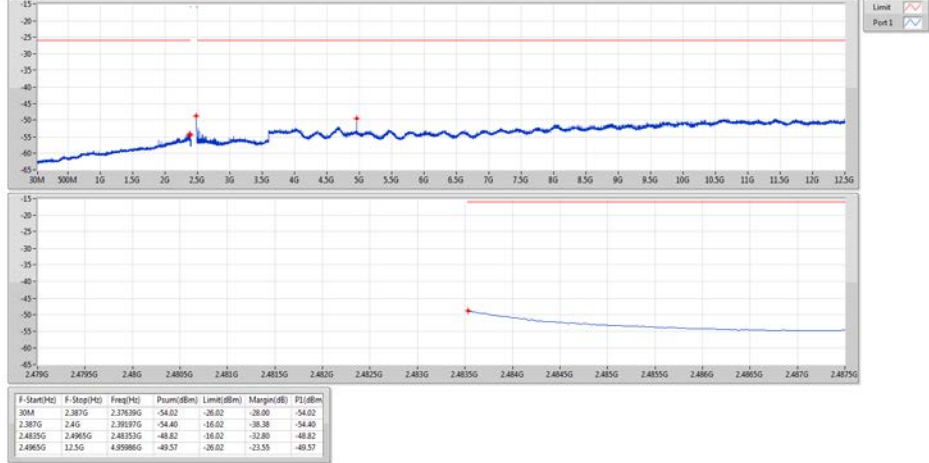
## CSE-TX Unwanted Emission Strength-DTS Result

## Appendix D

BT-LE0.125\_Nss1\_1TX

CSE-TX-DTS

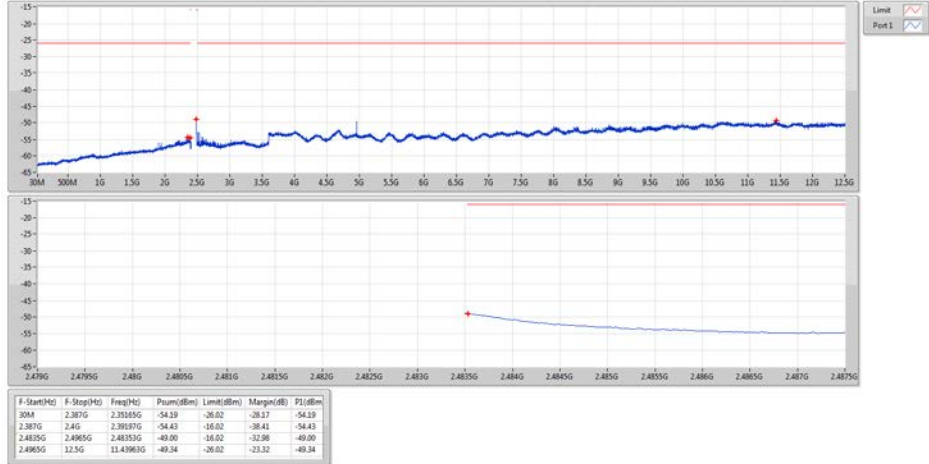
2480MHz\_TnomVnom



BT-LE0.125\_Nss1\_1TX

CSE-TX-DTS

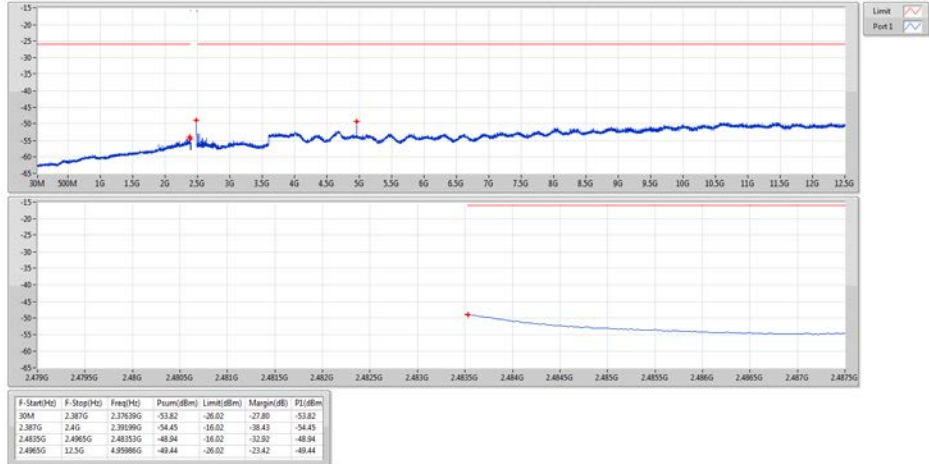
2480MHz\_TnomVmin



BT-LE0.125\_Nss1\_1TX

CSE-TX-DTS

2480MHz\_TnomVmax







## Interference Prevention Function-DTSResult

## Appendix E

### Summary

Mode	Result	ID Length	ID Limit	Function
2.4-2.4835GHz	-	-	-	-
BT-LE0.125_Nss1_1TX	Pass	DF:5A:5C:EE:5F:D9	48 bits	Good

### Result

Mode	Result	ID Length	ID Limit	Function
BT-LE0.125_Nss1_1TX	-	-	-	-
2402MHz_TnomVnom	Pass	DF:5A:5C:EE:5F:D9	48 bits	Good
2402MHz_TnomVmin	Pass	DF:5A:5C:EE:5F:D9	48 bits	Good
2402MHz_TnomVmax	Pass	DF:5A:5C:EE:5F:D9	48 bits	Good
2440MHz_TnomVnom	Pass	DF:5A:5C:EE:5F:D9	48 bits	Good
2440MHz_TnomVmin	Pass	DF:5A:5C:EE:5F:D9	48 bits	Good
2440MHz_TnomVmax	Pass	DF:5A:5C:EE:5F:D9	48 bits	Good
2480MHz_TnomVnom	Pass	DF:5A:5C:EE:5F:D9	48 bits	Good
2480MHz_TnomVmin	Pass	DF:5A:5C:EE:5F:D9	48 bits	Good
2480MHz_TnomVmax	Pass	DF:5A:5C:EE:5F:D9	48 bits	Good

**CSE-RX Secondary Radiated Emissions-DTS Result**

Appendix F

**Summary**

Mode	Result	F-Start (Hz)	F-Stop (Hz)	RBW (Hz)	Freq (Hz)	Psum (dBm)	Psum (nW/MHz)	Limit (dBm)	Limit (nW/MHz)
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-
BT-LE0.125_Nss1_1TX	Pass	1G	12.5G	1M	4.80219G	-78.13	0.01538	-46.99	20

**Result**

Mode	Result	F-Start (Hz)	F-Stop (Hz)	RBW (Hz)	Freq (Hz)	Psum (dBm)	Psum (nW/MHz)	Limit (dBm)	Limit (nW/MHz)
BT-LE0.125_Nss1_1TX	-	-	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	30M	1G	100k	640.13M	-95.69	0.00027	-53.98	4
2402MHz_TnomVnom	Pass	1G	12.5G	1M	4.80219G	-78.34	0.01466	-46.99	20
2402MHz_TnomVmin	Pass	30M	1G	100k	640.13M	-95.87	0.00026	-53.98	4
2402MHz_TnomVmin	Pass	1G	12.5G	1M	4.80219G	-78.13	0.01538	-46.99	20
2402MHz_TnomVmax	Pass	30M	1G	100k	640.13M	-95.61	0.00027	-53.98	4
2402MHz_TnomVmax	Pass	1G	12.5G	1M	4.80219G	-78.41	0.01442	-46.99	20
2440MHz_TnomVnom	Pass	30M	1G	100k	640.13M	-96.34	0.00023	-53.98	4
2440MHz_TnomVnom	Pass	1G	12.5G	1M	4.87838G	-79.87	0.0103	-46.99	20
2440MHz_TnomVmin	Pass	30M	1G	100k	640.13M	-96.38	0.00023	-53.98	4
2440MHz_TnomVmin	Pass	1G	12.5G	1M	4.87838G	-79.61	0.01094	-46.99	20
2440MHz_TnomVmax	Pass	30M	1G	100k	640.13M	-96.24	0.00024	-53.98	4
2440MHz_TnomVmax	Pass	1G	12.5G	1M	4.87838G	-79.63	0.01089	-46.99	20
2480MHz_TnomVnom	Pass	30M	1G	100k	640.13M	-95.77	0.00026	-53.98	4
2480MHz_TnomVnom	Pass	1G	12.5G	1M	10.63556G	-80.41	0.0091	-46.99	20
2480MHz_TnomVmin	Pass	30M	1G	100k	640.13M	-96.09	0.00025	-53.98	4
2480MHz_TnomVmin	Pass	1G	12.5G	1M	10.57088G	-80.49	0.00893	-46.99	20
2480MHz_TnomVmax	Pass	30M	1G	100k	640.13M	-95.33	0.00029	-53.98	4
2480MHz_TnomVmax	Pass	1G	12.5G	1M	12.31169G	-80.58	0.00875	-46.99	20



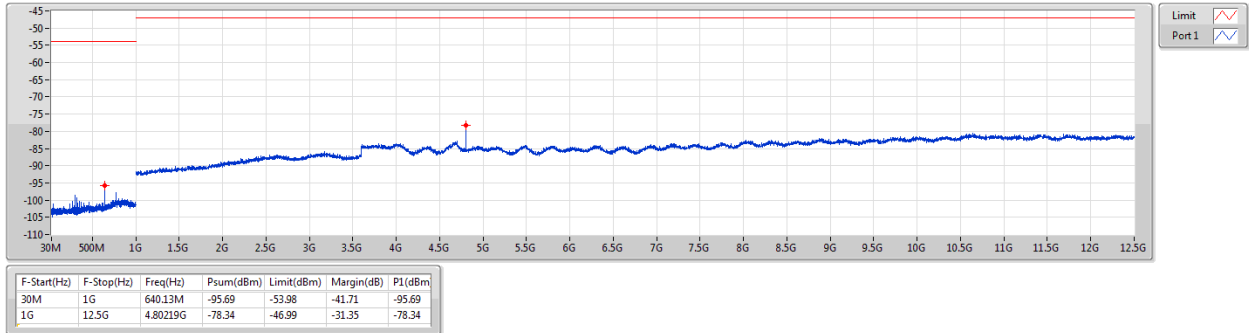
## CSE-RX Secondary Radiated Emissions-DTS Result

Appendix F

BT-LE0.125\_Nss1\_1TX

CSE-RX-DTS

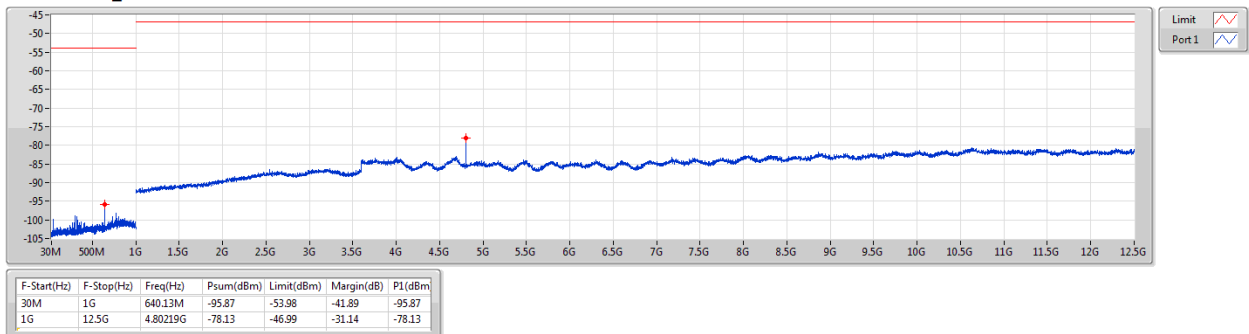
2402MHz\_TnomVnom



BT-LE0.125\_Nss1\_1TX

CSE-RX-DTS

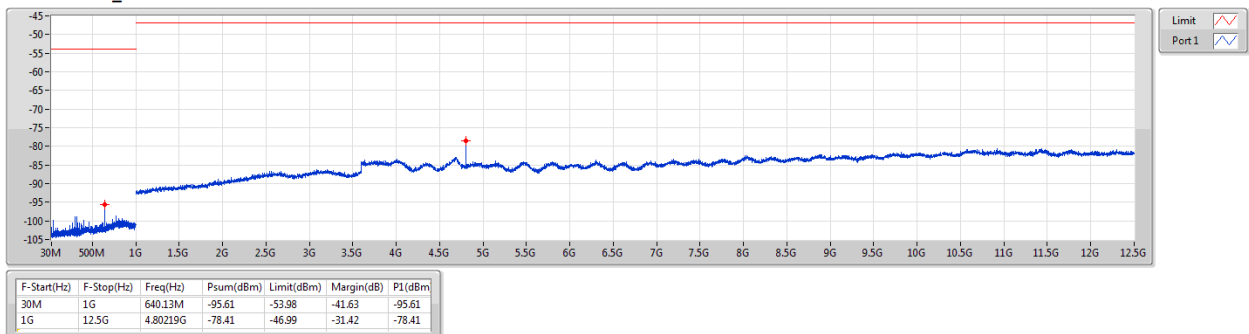
2402MHz\_TnomVmin



BT-LE0.125\_Nss1\_1TX

CSE-RX-DTS

2402MHz\_TnomVmax





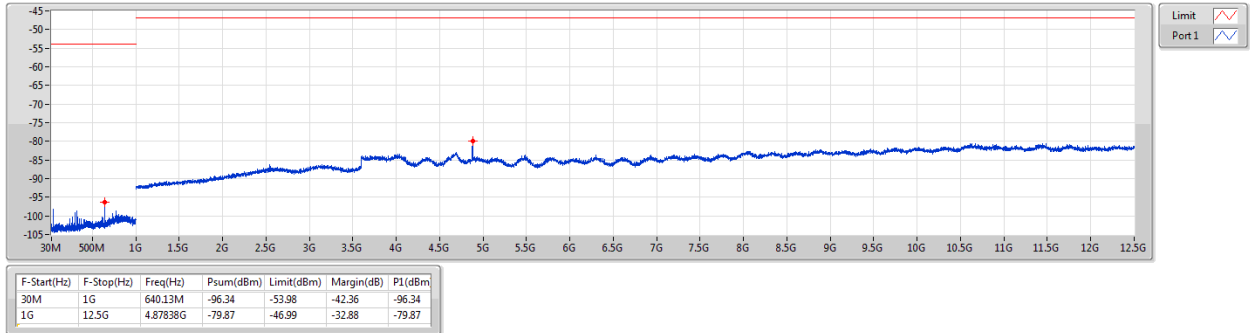
## CSE-RX Secondary Radiated Emissions-DTS Result

Appendix F

BT-LE0.125\_Nss1\_1TX

CSE-RX-DTS

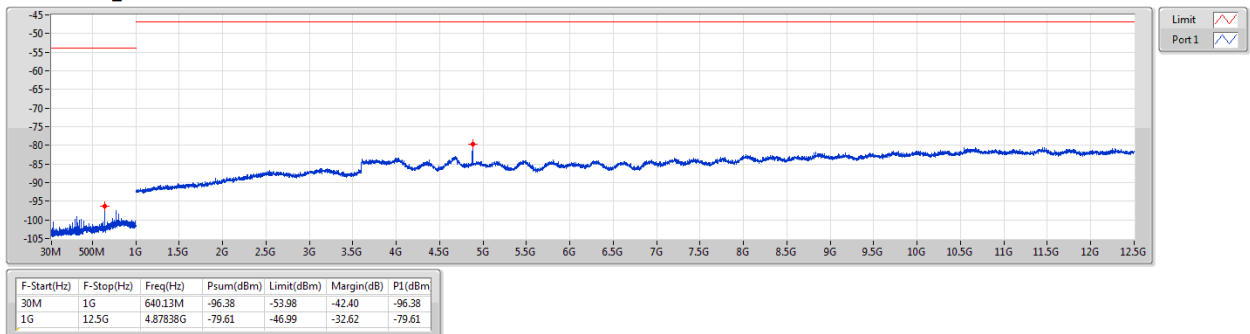
2440MHz\_TnomVnom



BT-LE0.125\_Nss1\_1TX

CSE-RX-DTS

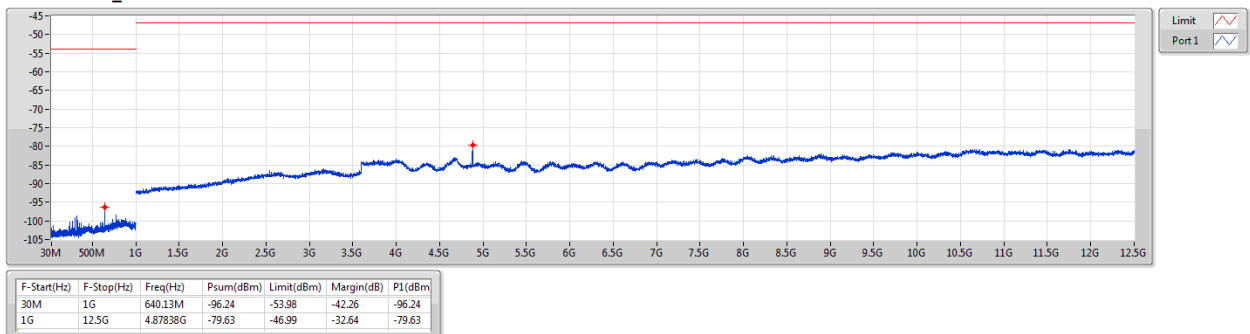
2440MHz\_TnomVmin



BT-LE0.125\_Nss1\_1TX

CSE-RX-DTS

2440MHz\_TnomVmax





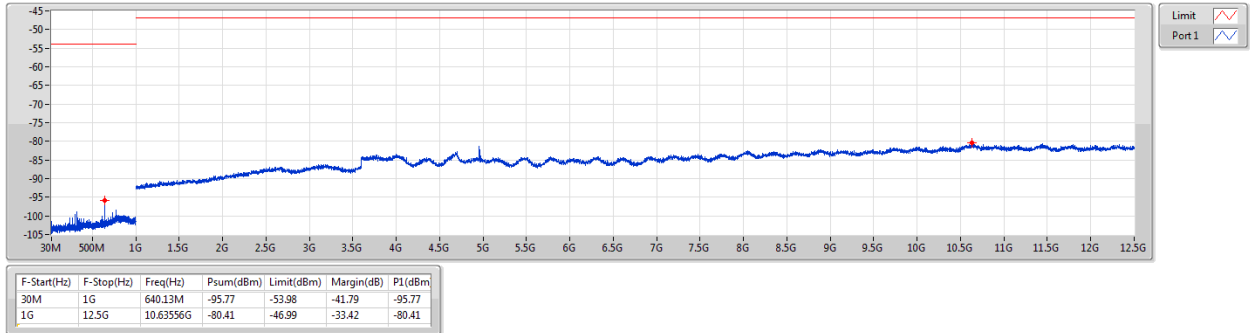
## CSE-RX Secondary Radiated Emissions-DTS Result

Appendix F

BT-LE0.125\_Nss1\_1TX

CSE-RX-DTS

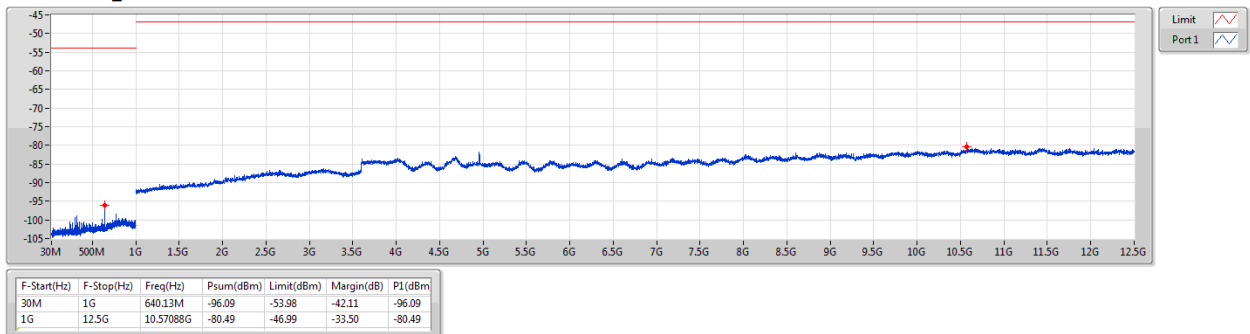
2480MHz\_TnomVnom



BT-LE0.125\_Nss1\_1TX

CSE-RX-DTS

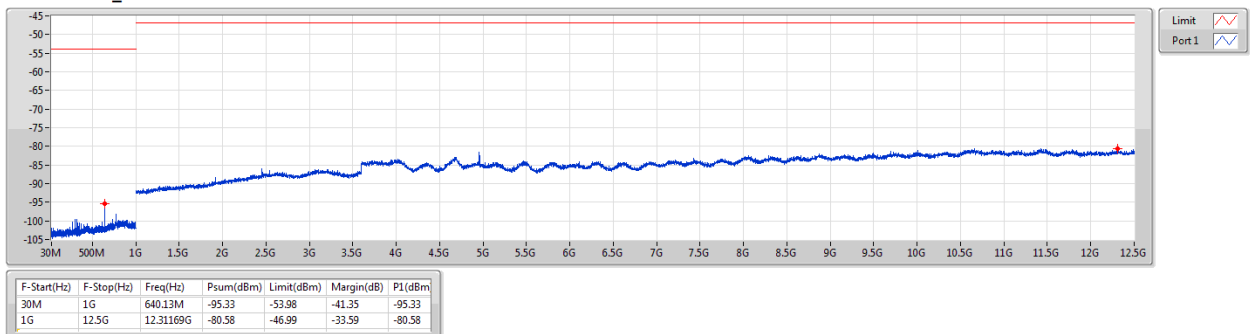
2480MHz\_TnomVmin



BT-LE0.125\_Nss1\_1TX

CSE-RX-DTS

2480MHz\_TnomVmax



**500kbps\_BL653-SA\_with Printed PCB antenna**



## Total Power-DTS Result

Appendix A.1

### Summary

Mode	Power (dBm)	Power (mW)	EIRP (dBm)	EIRP (mW)
2.4-2.4835GHz	-	-	-	-
BT-LE0.5_Nss1_1TX	7.85	6.095	9.13	8.185

### Result

Mode	Result	Gain (dBi)	Power (dBm)	Power (mW)	Power Lim. (mW)	EIRP (dBm)	EIRP (mW)	EIRP Lim. (mW)
BT-LE0.5_Nss1_1TX	-	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	1.28	7.58	5.728	10	8.86	7.691	16.368
2402MHz_TnomVmin	Pass	1.28	7.46	5.572	10	8.74	7.482	16.368
2402MHz_TnomVmax	Pass	1.28	7.48	5.598	10	8.76	7.516	16.368
2440MHz_TnomVnom	Pass	1.28	7.74	5.943	10	9.02	7.980	16.368
2440MHz_TnomVmin	Pass	1.28	7.56	5.702	10	8.84	7.656	16.368
2440MHz_TnomVmax	Pass	1.28	7.57	5.715	10	8.85	7.674	16.368
2480MHz_TnomVnom	Pass	1.28	7.85	6.095	10	9.13	8.185	16.368
2480MHz_TnomVmin	Pass	1.28	7.76	5.970	10	9.04	8.017	16.368
2480MHz_TnomVmax	Pass	1.28	7.78	5.998	10	9.06	8.054	16.368



## Power Tolerance-DTS Result

## Appendix A.2

### Summary

Mode	Result	Power (dBm)	Power (mW)	Declare (mW)	Tolerance (%)	Limit+ (%)	Limit- (%)
2.4-2.4835GHz	-	-	-	-	-	-	-
BT-LE0.5_Nss1_1TX	Pass	7.85	6.095	6.00	1.58	20	-80

### Result

Mode	Result	Power (dBm)	Power (mW)	Declare (mW)	Tolerance (%)	Limit+ (%)	Limit- (%)
BT-LE0.5_Nss1_1TX	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	7.58	5.728	6.00	-4.53	20	-80
2402MHz_TnomVmin	Pass	7.46	5.572	6.00	-7.13	20	-80
2402MHz_TnomVmax	Pass	7.48	5.598	6.00	-6.70	20	-80
2440MHz_TnomVnom	Pass	7.74	5.943	6.00	-0.95	20	-80
2440MHz_TnomVmin	Pass	7.56	5.702	6.00	-4.97	20	-80
2440MHz_TnomVmax	Pass	7.57	5.715	6.00	-4.75	20	-80
2480MHz_TnomVnom	Pass	7.85	6.095	6.00	1.58	20	-80
2480MHz_TnomVmin	Pass	7.76	5.970	6.00	-0.50	20	-80
2480MHz_TnomVmax	Pass	7.78	5.998	6.00	-0.03	20	-80





## Frequency Tolerance-DTS Result

## Appendix B

### Summary

Mode	Result	Ch (Hz)	Center (Hz)	ppm	Limit (ppm)	Port	Remark
2.4-2.4835GHz	-	-	-	-	-	-	-
BT-LE0.5_Nss1_1TX	Pass	2.402G	2.40199386G	-2.554	±50	1	-

### Result

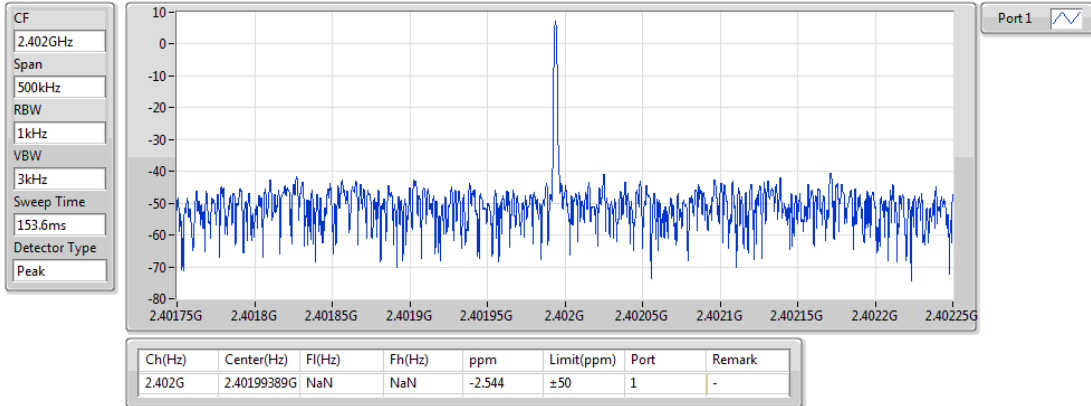
Mode	Result	Ch (Hz)	Center (Hz)	ppm	Limit (ppm)	Port	Remark
BT-LE0.5_Nss1_1TX	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.402G	2.40199389G	-2.544	±50	1	-
2402MHz_TnomVmin	Pass	2.402G	2.40199387G	-2.552	±50	1	-
2402MHz_TnomVmax	Pass	2.402G	2.40199386G	-2.554	±50	1	-
2440MHz_TnomVnom	Pass	2.44G	2.43999382G	-2.534	±50	1	-
2440MHz_TnomVmin	Pass	2.44G	2.43999379G	-2.547	±50	1	-
2440MHz_TnomVmax	Pass	2.44G	2.43999378G	-2.551	±50	1	-
2480MHz_TnomVnom	Pass	2.48G	2.4799937G	-2.541	±50	1	-
2480MHz_TnomVmin	Pass	2.48G	2.47999367G	-2.551	±50	1	-
2480MHz_TnomVmax	Pass	2.48G	2.47999367G	-2.554	±50	1	-



BT-LE0.5\_Nss1\_1TX

Freq. Stability

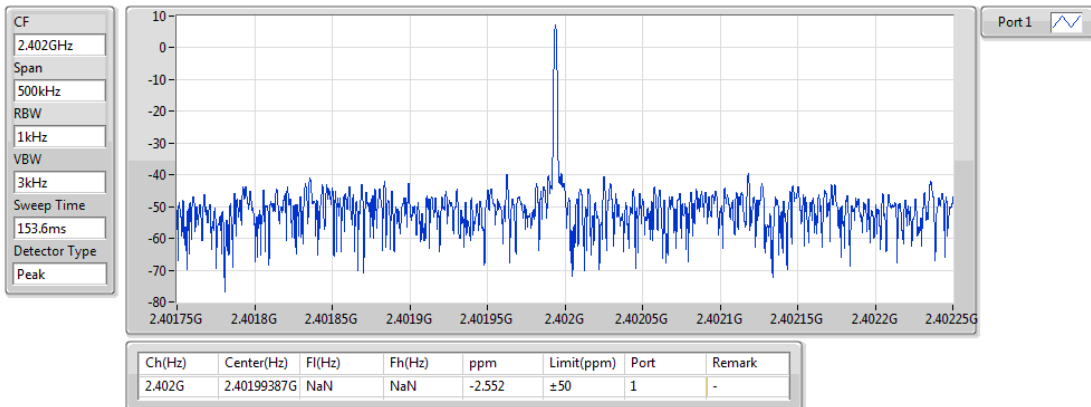
2402MHz\_TnomVnom



BT-LE0.5\_Nss1\_1TX

Freq. Stability

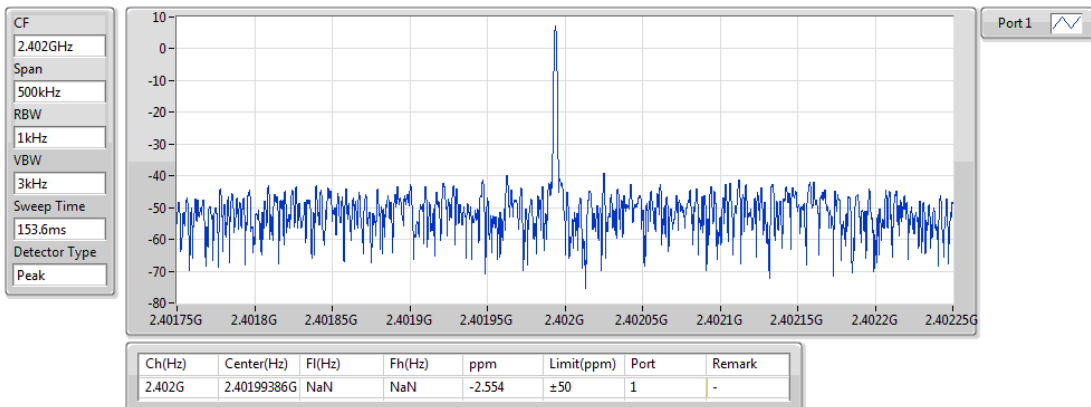
2402MHz\_TnomVmin



BT-LE0.5\_Nss1\_1TX

Freq. Stability

2402MHz\_TnomVmax

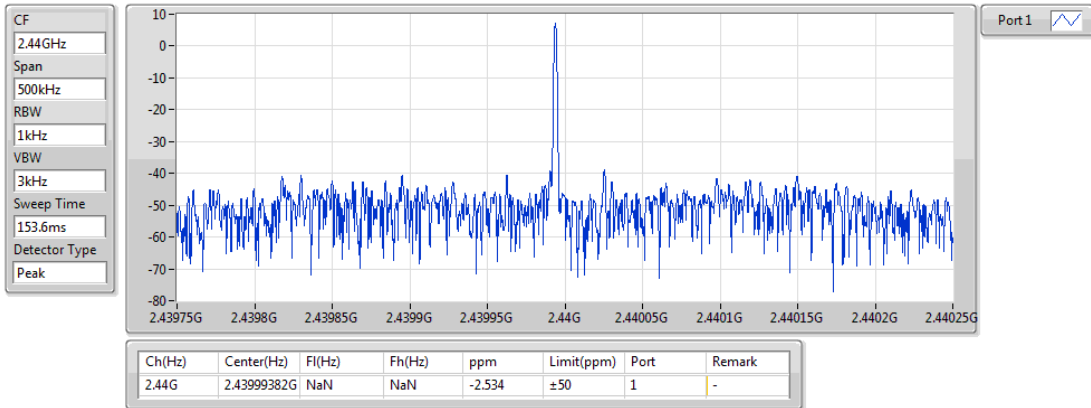




BT-LE0.5\_Nss1\_1TX

Freq. Stability

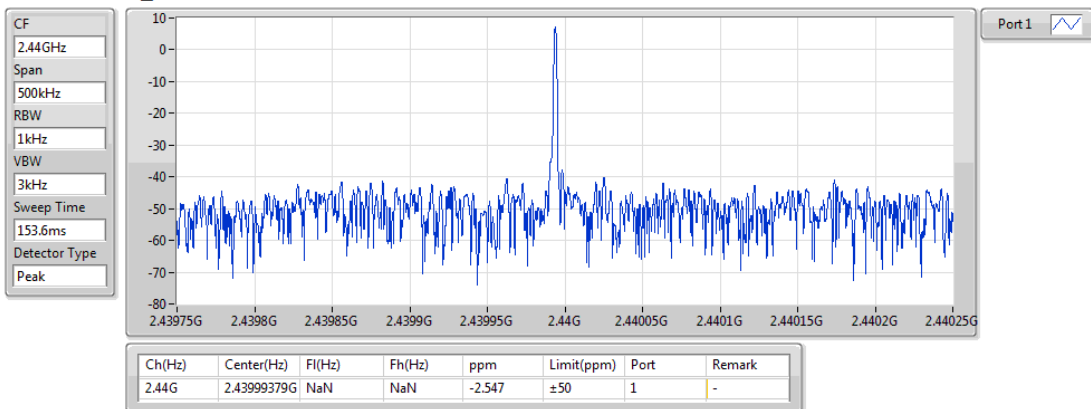
2440MHz\_TnomVnom



BT-LE0.5\_Nss1\_1TX

Freq. Stability

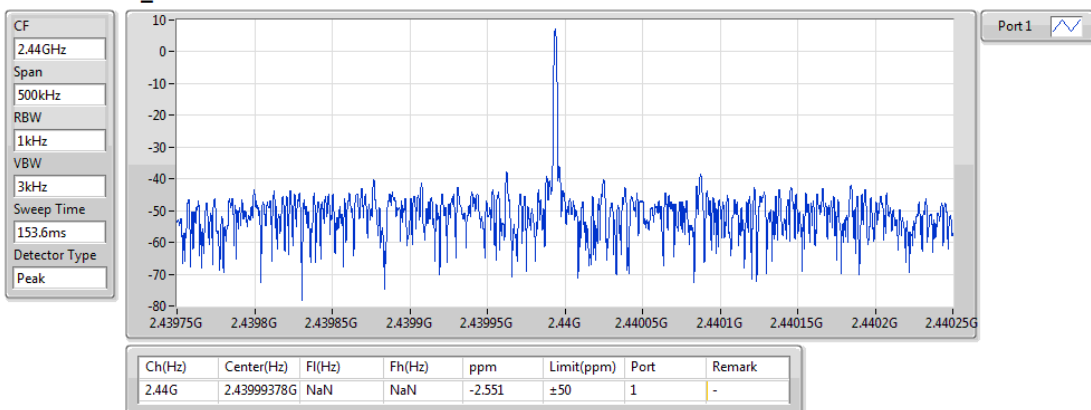
2440MHz\_TnomVmin



BT-LE0.5\_Nss1\_1TX

Freq. Stability

2440MHz\_TnomVmax





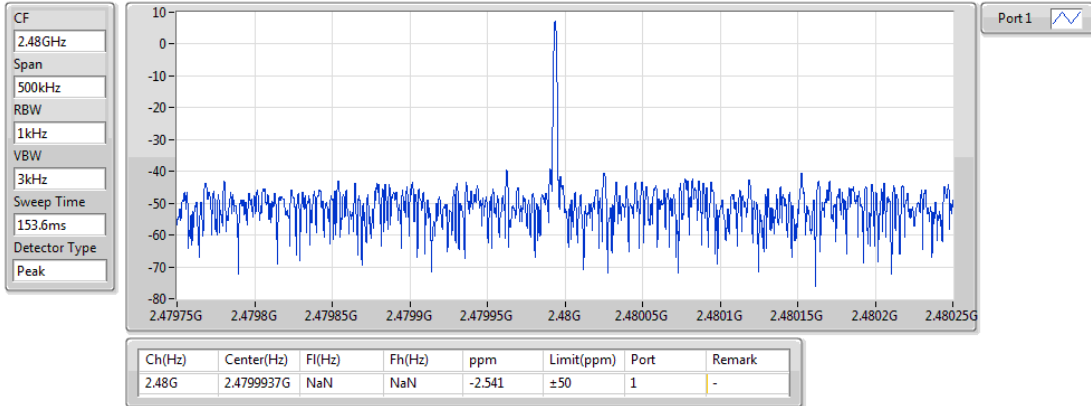
## Frequency Tolerance-DTS Result

Appendix B

BT-LE0.5\_Nss1\_1TX

Freq. Stability

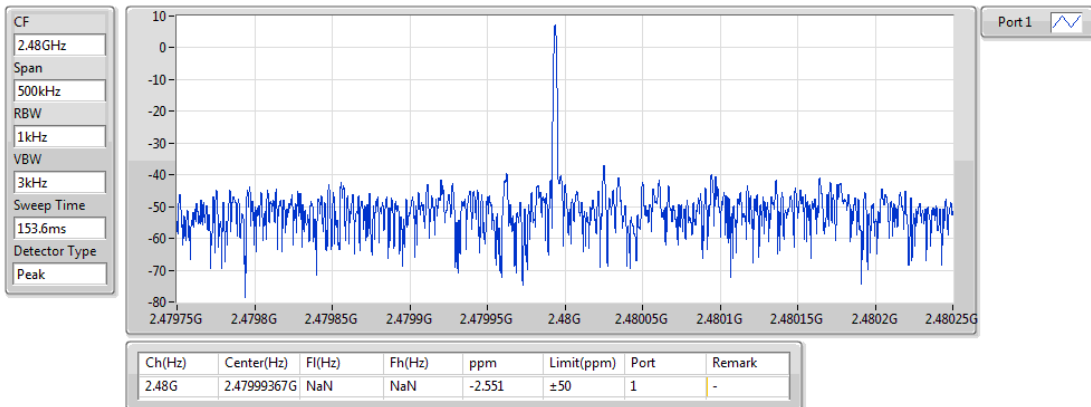
2480MHz\_TnomVnom



BT-LE0.5\_Nss1\_1TX

Freq. Stability

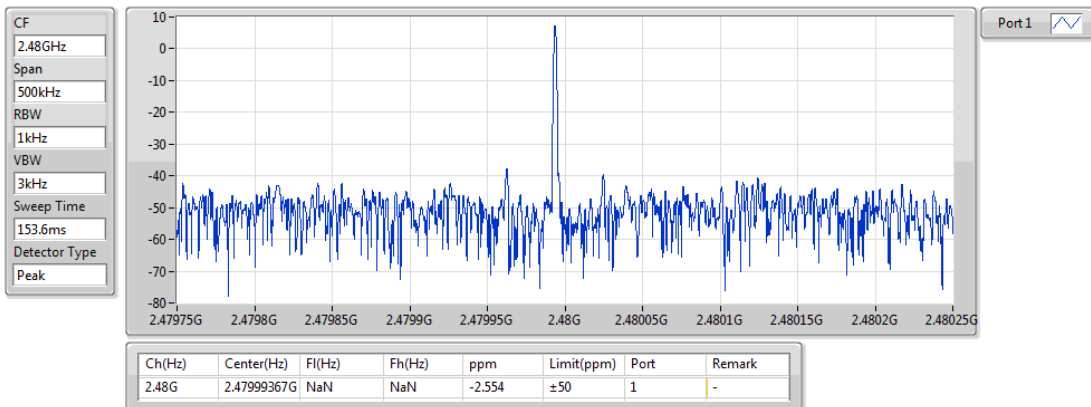
2480MHz\_TnomVmin



BT-LE0.5\_Nss1\_1TX

Freq. Stability

2480MHz\_TnomVmax





## Occupied Bandwidth-DTS Result

## Appendix C

### Summary

Mode	Max-OBW (Hz)	ITU-Code	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-
BT-LE0.5_Nss1_1TX	1.31M	1M31F1D	1.296M

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

### Result

Mode	Result	Limit (Hz)	P1-OBW (Hz)
BT-LE0.5_Nss1_1TX	-	-	-
2402MHz_TnomVnom	Pass	26M	1.298M
2402MHz_TnomVmin	Pass	26M	1.296M
2402MHz_TnomVmax	Pass	26M	1.296M
2440MHz_TnomVnom	Pass	26M	1.304M
2440MHz_TnomVmin	Pass	26M	1.305M
2440MHz_TnomVmax	Pass	26M	1.305M
2480MHz_TnomVnom	Pass	26M	1.31M
2480MHz_TnomVmin	Pass	26M	1.31M
2480MHz_TnomVmax	Pass	26M	1.31M

**P1-OBW** = Port 1 99% occupied bandwidth;



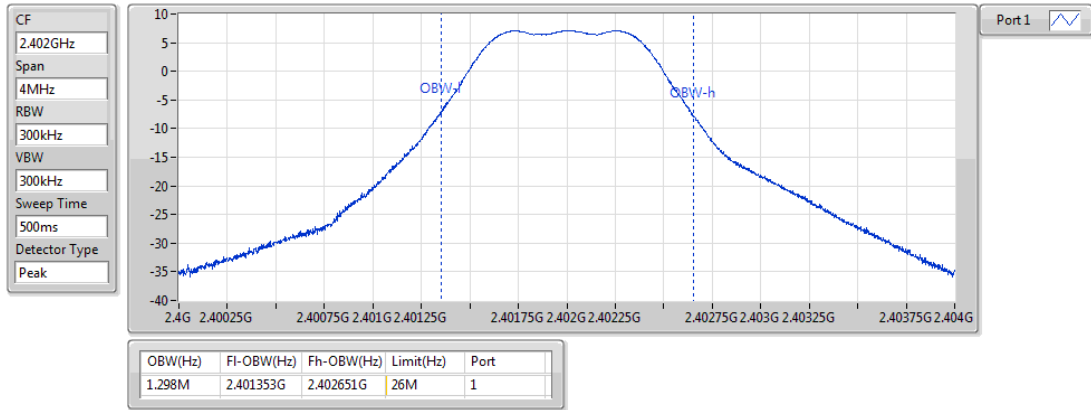
## Occupied Bandwidth-DTS Result

Appendix C

### BT-LE0.5\_Nss1\_1TX

OBW

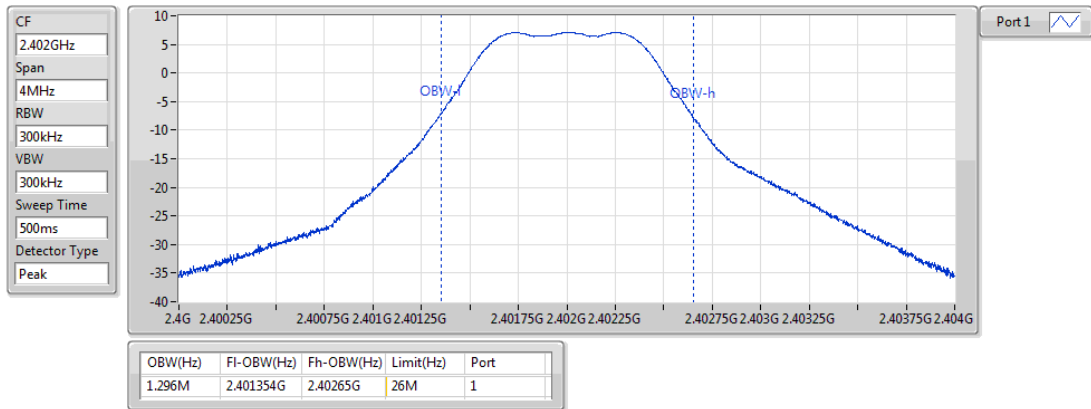
#### 2402MHz\_TnomVnom



### BT-LE0.5\_Nss1\_1TX

OBW

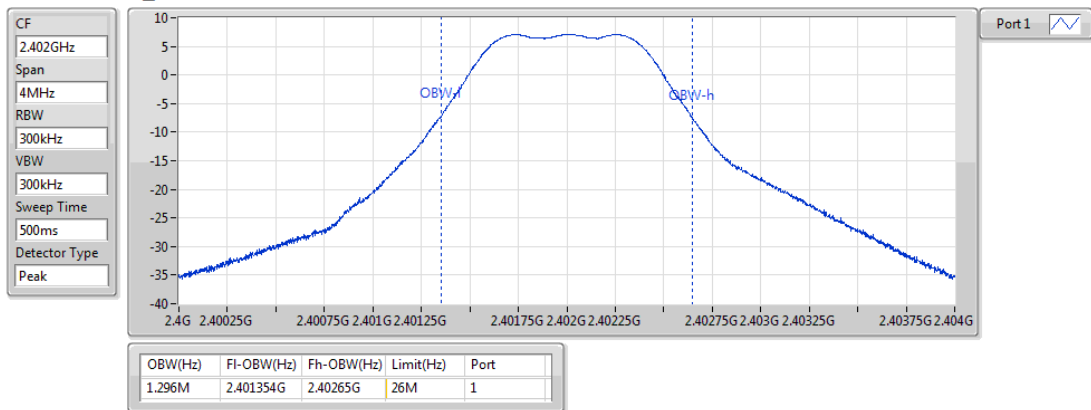
#### 2402MHz\_TnomVmin



### BT-LE0.5\_Nss1\_1TX

OBW

#### 2402MHz\_TnomVmax





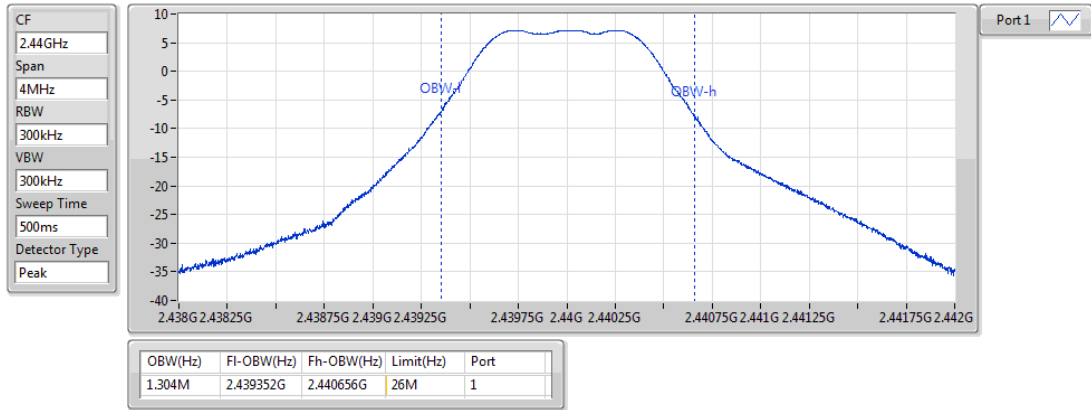
## Occupied Bandwidth-DTS Result

Appendix C

BT-LE0.5\_Nss1\_1TX

OBW

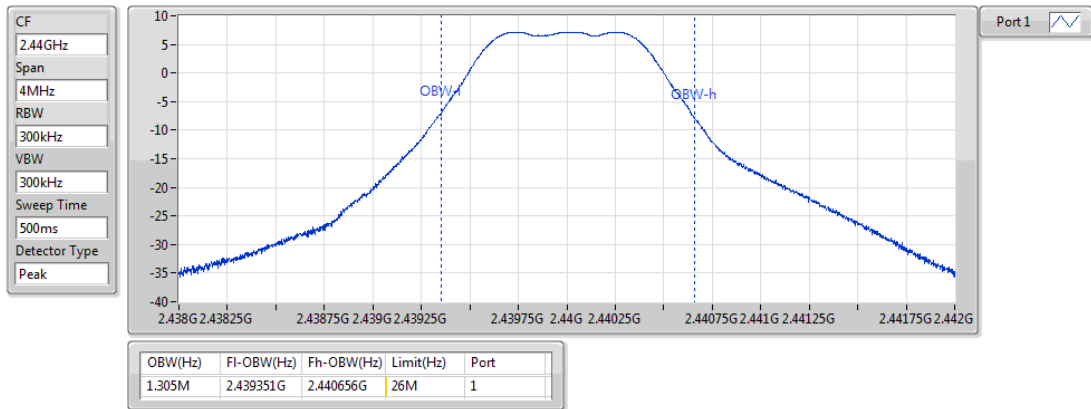
2440MHz\_TnomVnom



BT-LE0.5\_Nss1\_1TX

OBW

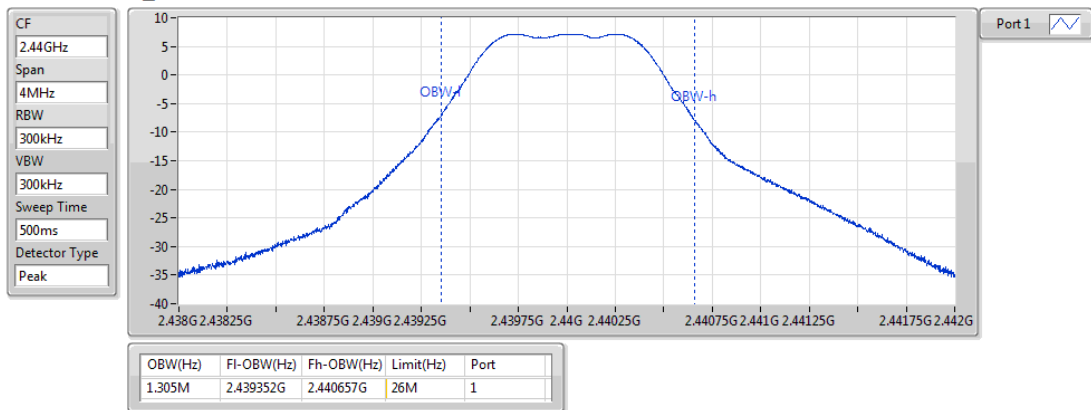
2440MHz\_TnomVmin



BT-LE0.5\_Nss1\_1TX

OBW

2440MHz\_TnomVmax





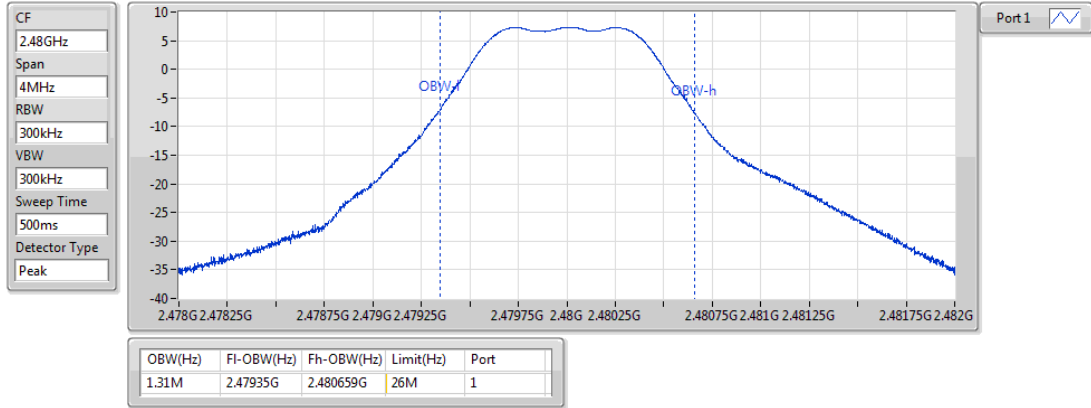
## Occupied Bandwidth-DTS Result

Appendix C

BT-LE0.5\_Nss1\_1TX

OBW

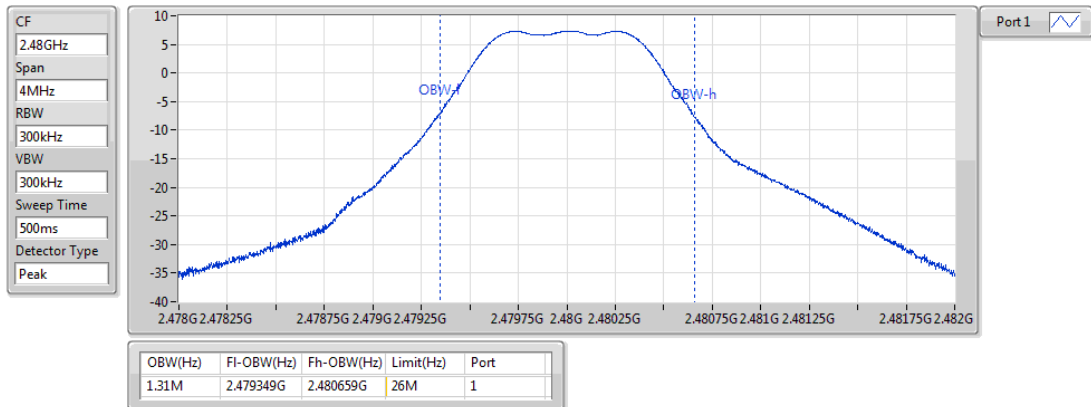
2480MHz\_TnomVnom



BT-LE0.5\_Nss1\_1TX

OBW

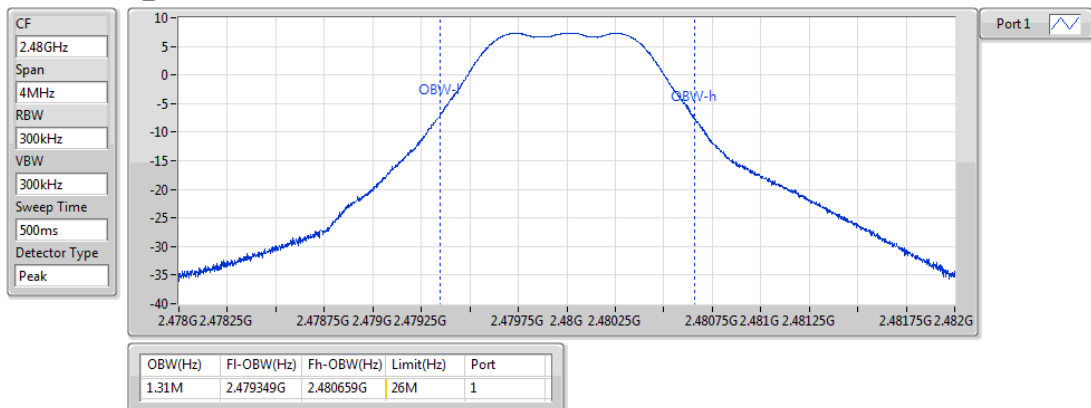
2480MHz\_TnomVmin



BT-LE0.5\_Nss1\_1TX

OBW

2480MHz\_TnomVmax





**CSE-TX Unwanted Emission Strength-DTS Result****Appendix D****Summary**

Mode	Result	F-Start (Hz)	F-Stop (Hz)	RBW (Hz)	Freq (Hz)	Psum (dBm)	Psum (uW/MHz)	Limit (dBm)	Limit (uW/MHz)
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-
BT-LE0.5_Nss1_1TX	Pass	2.387G	2.4G	1M	2.39997G	-31.92	0.64269	-16.02	25

**Result**

Mode	Result	F-Start (Hz)	F-Stop (Hz)	RBW (Hz)	Freq (Hz)	Psum (dBm)	Psum (uW/MHz)	Limit (dBm)	Limit (uW/MHz)
BT-LE0.5_Nss1_1TX	-	-	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	30M	2.387G	1M	2.3705G	-50.86	0.0082	-26.02	2.5
2402MHz_TnomVnom	Pass	2.387G	2.4G	1M	2.39997G	-32.23	0.59841	-16.02	25
2402MHz_TnomVnom	Pass	2.4835G	2.4965G	1M	2.49003G	-52.65	0.00543	-16.02	25
2402MHz_TnomVnom	Pass	2.4965G	12.5G	1M	4.80356G	-45.53	0.02799	-26.02	2.5
2402MHz_TnomVmin	Pass	30M	2.387G	1M	2.3705G	-50.51	0.00889	-26.02	2.5
2402MHz_TnomVmin	Pass	2.387G	2.4G	1M	2.39997G	-32.67	0.54075	-16.02	25
2402MHz_TnomVmin	Pass	2.4835G	2.4965G	1M	2.48997G	-52.57	0.00553	-16.02	25
2402MHz_TnomVmin	Pass	2.4965G	12.5G	1M	4.80356G	-45.13	0.03069	-26.02	2.5
2402MHz_TnomVmax	Pass	30M	2.387G	1M	2.3705G	-50.83	0.00826	-26.02	2.5
2402MHz_TnomVmax	Pass	2.387G	2.4G	1M	2.39997G	-31.92	0.64269	-16.02	25
2402MHz_TnomVmax	Pass	2.4835G	2.4965G	1M	2.48992G	-52.72	0.00535	-16.02	25
2402MHz_TnomVmax	Pass	2.4965G	12.5G	1M	4.80356G	-45.45	0.02851	-26.02	2.5
2440MHz_TnomVnom	Pass	30M	2.387G	1M	2.35165G	-52.26	0.00594	-26.02	2.5
2440MHz_TnomVnom	Pass	2.387G	2.4G	1M	2.39194G	-51.22	0.00755	-16.02	25
2440MHz_TnomVnom	Pass	2.4835G	2.4965G	1M	2.48797G	-50.92	0.00809	-16.02	25
2440MHz_TnomVnom	Pass	2.4965G	12.5G	1M	4.87983G	-45.60	0.02754	-26.02	2.5
2440MHz_TnomVmin	Pass	30M	2.387G	1M	2.33632G	-52.36	0.00581	-26.02	2.5
2440MHz_TnomVmin	Pass	2.387G	2.4G	1M	2.39199G	-51.22	0.00755	-16.02	25
2440MHz_TnomVmin	Pass	2.4835G	2.4965G	1M	2.48787G	-51.01	0.00793	-16.02	25
2440MHz_TnomVmin	Pass	2.4965G	12.5G	1M	4.87983G	-45.10	0.0309	-26.02	2.5
2440MHz_TnomVmax	Pass	30M	2.387G	1M	2.35165G	-52.11	0.00615	-26.02	2.5
2440MHz_TnomVmax	Pass	2.387G	2.4G	1M	2.39184G	-51.25	0.0075	-16.02	25
2440MHz_TnomVmax	Pass	2.4835G	2.4965G	1M	2.48802G	-50.96	0.00802	-16.02	25
2440MHz_TnomVmax	Pass	2.4965G	12.5G	1M	4.87983G	-45.25	0.02985	-26.02	2.5
2480MHz_TnomVnom	Pass	30M	2.387G	1M	2.37639G	-52.51	0.00561	-26.02	2.5
2480MHz_TnomVnom	Pass	2.387G	2.4G	1M	2.39199G	-52.76	0.0053	-16.02	25
2480MHz_TnomVnom	Pass	2.4835G	2.4965G	1M	2.48355G	-47.47	0.01791	-16.02	25
2480MHz_TnomVnom	Pass	2.4965G	12.5G	1M	10.62684	-47.49	0.01782	-26.02	2.5

**CSE-TX Unwanted Emission Strength-DTS Result****Appendix D**

Mode	Result	F-Start (Hz)	F-Stop (Hz)	RBW (Hz)	Freq (Hz)	Psum (dBm)	Psum (uW/MHz)	Limit (dBm)	Limit (uW/MHz)
					G				
2480MHz_TnomVmin	Pass	30M	2.387G	1M	2.37639G	-52.67	0.00541	-26.02	2.5
2480MHz_TnomVmin	Pass	2.387G	2.4G	1M	2.39189G	-52.86	0.00518	-16.02	25
2480MHz_TnomVmin	Pass	2.4835G	2.4965G	1M	2.48355G	-47.24	0.01888	-16.02	25
2480MHz_TnomVmin	Pass	2.4965G	12.5G	1M	4.95986G	-47.54	0.01762	-26.02	2.5
2480MHz_TnomVmax	Pass	30M	2.387G	1M	2.31983G	-52.47	0.00566	-26.02	2.5
2480MHz_TnomVmax	Pass	2.387G	2.4G	1M	2.39199G	-52.80	0.00525	-16.02	25
2480MHz_TnomVmax	Pass	2.4835G	2.4965G	1M	2.48355G	-47.28	0.01871	-16.02	25
2480MHz_TnomVmax	Pass	2.4965G	12.5G	1M	11.46089 G	-47.68	0.01706	-26.02	2.5



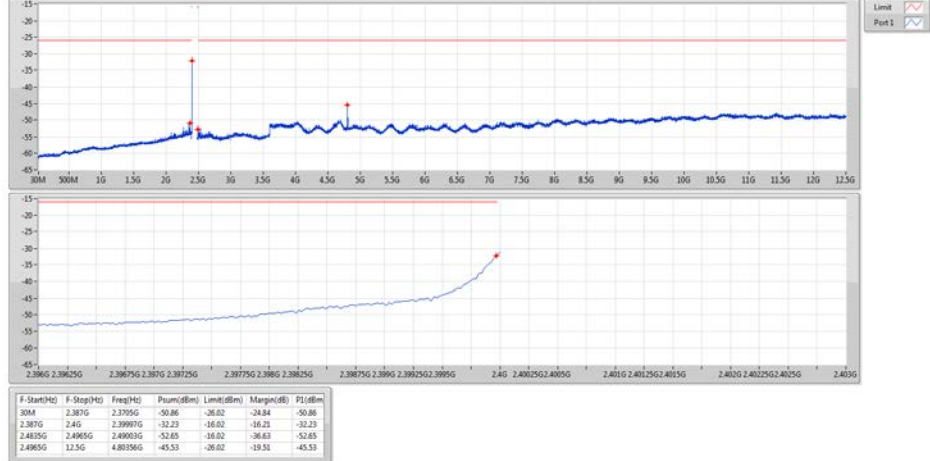
## CSE-TX Unwanted Emission Strength-DTS Result

## Appendix D

BT-LE0.5\_Nss1\_1TX

CSE-TX-DTS

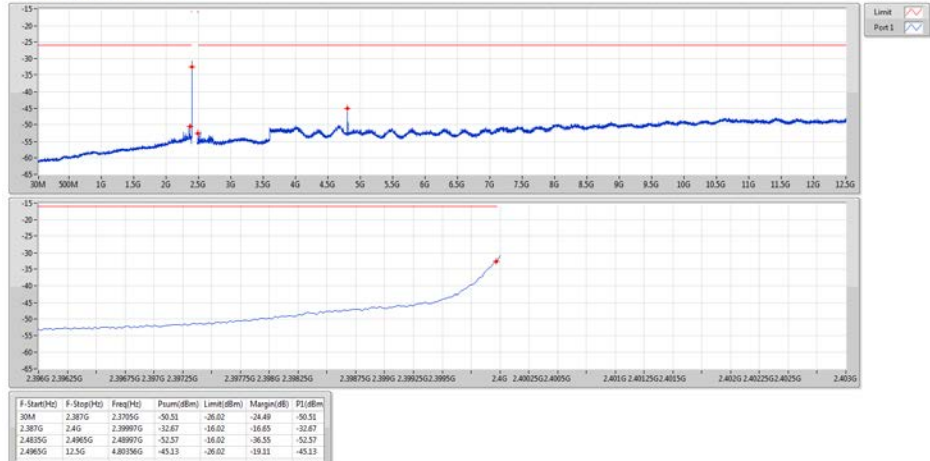
2402MHz\_TnomVnom



BT-LE0.5\_Nss1\_1TX

CSE-TX-DTS

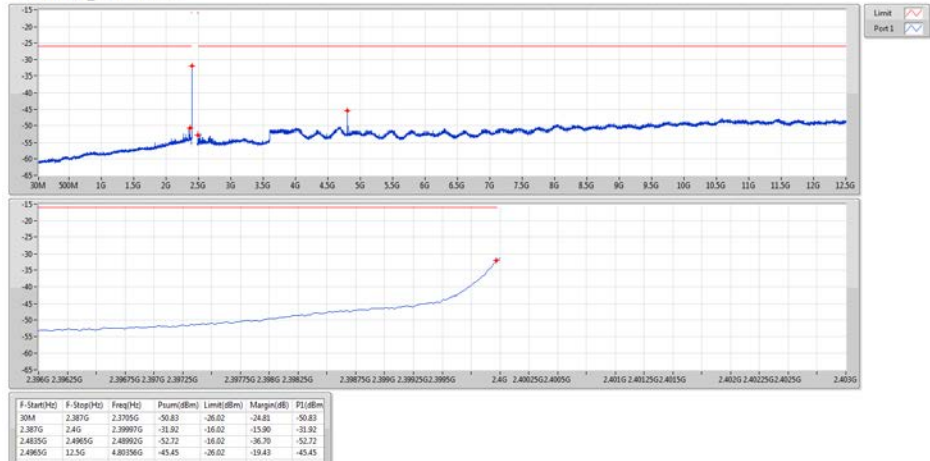
2402MHz\_TnomVmin



BT-LE0.5\_Nss1\_1TX

CSE-TX-DTS

2402MHz\_TnomVmax





## CSE-TX Unwanted Emission Strength-DTS Result

## Appendix D

BT-LE0.5\_Nss1\_1TX  
2440MHz\_TnomVnom

CSE-TX-DTS



BT-LE0.5\_Nss1\_1TX  
2440MHz\_TnomVmin

CSE-TX-DTS



BT-LE0.5\_Nss1\_1TX  
2440MHz\_TnomVmax

CSE-TX-DTS



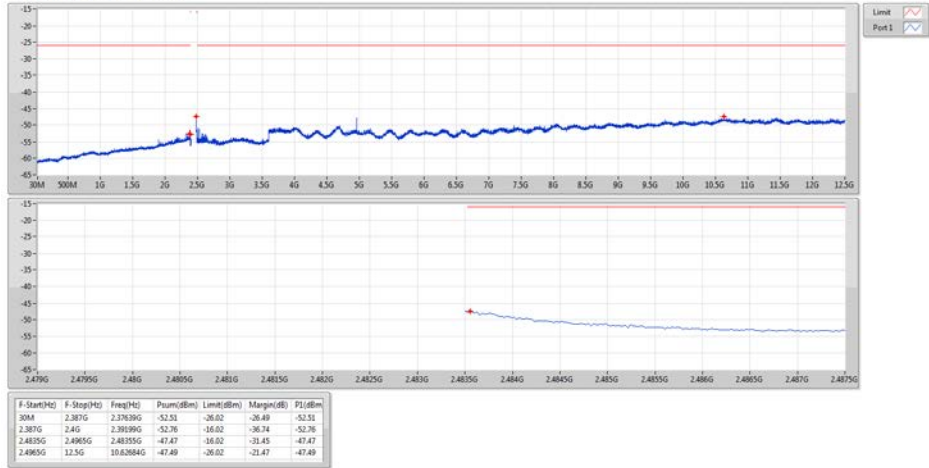


## CSE-TX Unwanted Emission Strength-DTS Result

Appendix D

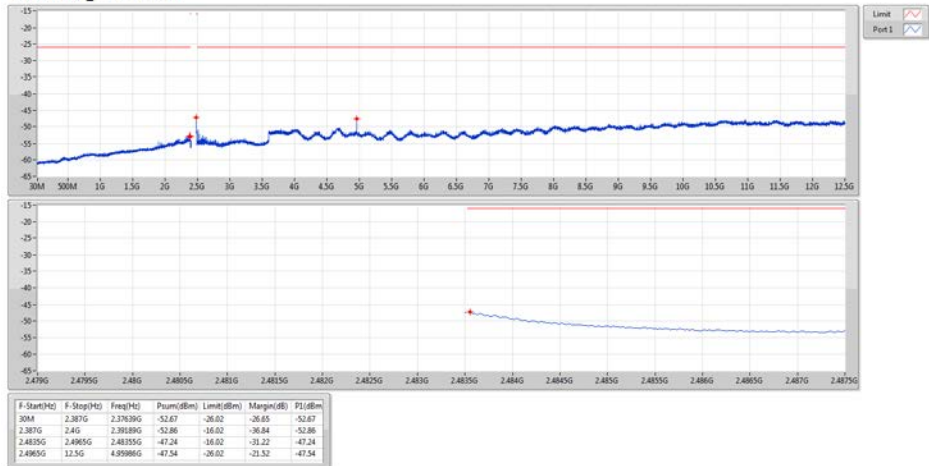
BT-LE0.5\_Nss1\_1TX  
2480MHz\_TnomVnom

CSE-TX-DTS



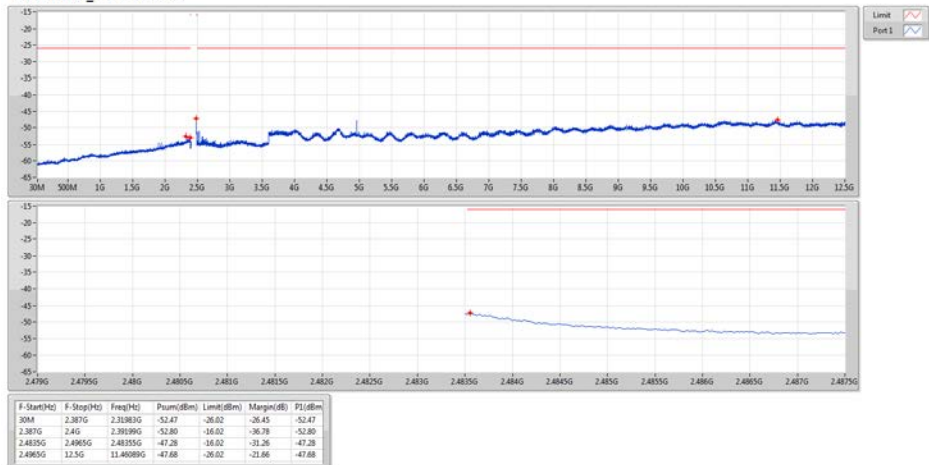
BT-LE0.5\_Nss1\_1TX  
2480MHz\_TnomVmin

CSE-TX-DTS



BT-LE0.5\_Nss1\_1TX  
2480MHz\_TnomVmax

CSE-TX-DTS





## Interference Prevention Function-DTSResult

## Appendix E

### Summary

Mode	Result	ID Length	ID Limit	Function
2.4-2.4835GHz	-	-	-	-
BT-LE0.5_Nss1_1TX	Pass	DF:5A:5C:EE:5F:D9	48 bits	Good

### Result

Mode	Result	ID Length	ID Limit	Function
BT-LE0.5_Nss1_1TX	-	-	-	-
2402MHz_TnomVnom	Pass	DF:5A:5C:EE:5F:D9	48 bits	Good
2402MHz_TnomVmin	Pass	DF:5A:5C:EE:5F:D9	48 bits	Good
2402MHz_TnomVmax	Pass	DF:5A:5C:EE:5F:D9	48 bits	Good
2440MHz_TnomVnom	Pass	DF:5A:5C:EE:5F:D9	48 bits	Good
2440MHz_TnomVmin	Pass	DF:5A:5C:EE:5F:D9	48 bits	Good
2440MHz_TnomVmax	Pass	DF:5A:5C:EE:5F:D9	48 bits	Good
2480MHz_TnomVnom	Pass	DF:5A:5C:EE:5F:D9	48 bits	Good
2480MHz_TnomVmin	Pass	DF:5A:5C:EE:5F:D9	48 bits	Good
2480MHz_TnomVmax	Pass	DF:5A:5C:EE:5F:D9	48 bits	Good

**CSE-RX Secondary Radiated Emissions-DTS Result****Appendix F****Summary**

Mode	Result	F-Start (Hz)	F-Stop (Hz)	RBW (Hz)	Freq (Hz)	Psum (dBm)	Psum (nW/MHz)	Limit (dBm)	Limit (nW/MHz)
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-
BT-LE0.5_Nss1_1TX	Pass	1G	12.5G	1M	4.80219G	-78.25	0.01496	-46.99	20

**Result**

Mode	Result	F-Start (Hz)	F-Stop (Hz)	RBW (Hz)	Freq (Hz)	Psum (dBm)	Psum (nW/MHz)	Limit (dBm)	Limit (nW/MHz)
BT-LE0.5_Nss1_1TX	-	-	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	30M	1G	100k	640.13M	-95.87	0.00026	-53.98	4
2402MHz_TnomVnom	Pass	1G	12.5G	1M	4.80219G	-78.26	0.01493	-46.99	20
2402MHz_TnomVmin	Pass	30M	1G	100k	640.13M	-95.76	0.00027	-53.98	4
2402MHz_TnomVmin	Pass	1G	12.5G	1M	4.80219G	-78.25	0.01496	-46.99	20
2402MHz_TnomVmax	Pass	30M	1G	100k	640.13M	-95.87	0.00026	-53.98	4
2402MHz_TnomVmax	Pass	1G	12.5G	1M	4.80219G	-78.29	0.01483	-46.99	20
2440MHz_TnomVnom	Pass	30M	1G	100k	640.13M	-96.01	0.00025	-53.98	4
2440MHz_TnomVnom	Pass	1G	12.5G	1M	4.87838G	-79.55	0.01109	-46.99	20
2440MHz_TnomVmin	Pass	30M	1G	100k	640.13M	-95.91	0.00026	-53.98	4
2440MHz_TnomVmin	Pass	1G	12.5G	1M	4.87838G	-79.62	0.01091	-46.99	20
2440MHz_TnomVmax	Pass	30M	1G	100k	640.13M	-96.36	0.00023	-53.98	4
2440MHz_TnomVmax	Pass	1G	12.5G	1M	4.87838G	-79.75	0.01059	-46.99	20
2480MHz_TnomVnom	Pass	30M	1G	100k	640.13M	-95.76	0.00027	-53.98	4
2480MHz_TnomVnom	Pass	1G	12.5G	1M	10.61113G	-80.65	0.00861	-46.99	20
2480MHz_TnomVmin	Pass	30M	1G	100k	640.13M	-95.98	0.00025	-53.98	4
2480MHz_TnomVmin	Pass	1G	12.5G	1M	10.63988G	-80.73	0.00845	-46.99	20
2480MHz_TnomVmax	Pass	30M	1G	100k	746.83M	-85.57	0.00277	-53.98	4
2480MHz_TnomVmax	Pass	1G	12.5G	1M	10.65138G	-80.41	0.0091	-46.99	20



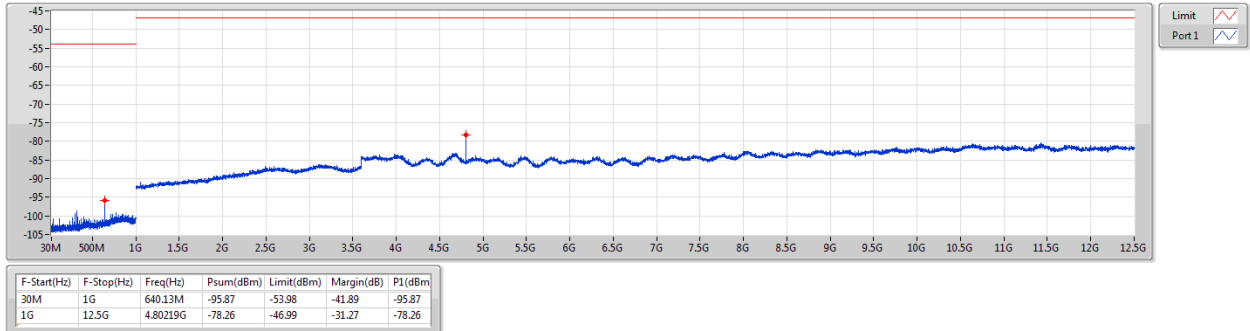
## CSE-RX Secondary Radiated Emissions-DTS Result

Appendix F

BT-LE0.5\_Nss1\_1TX

CSE-RX-DTS

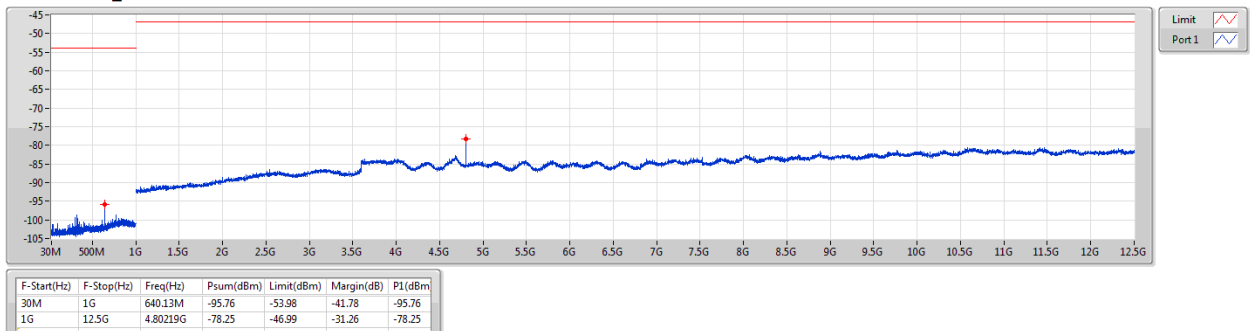
2402MHz\_TnomVnom



BT-LE0.5\_Nss1\_1TX

CSE-RX-DTS

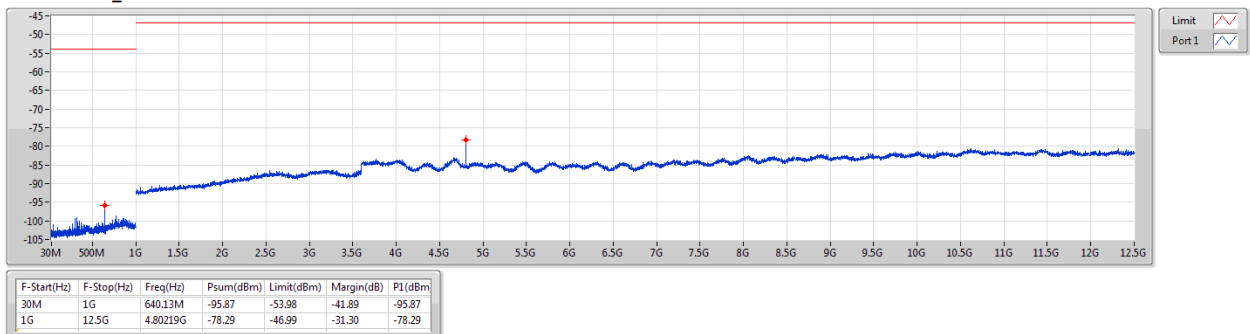
2402MHz\_TnomVmin



BT-LE0.5\_Nss1\_1TX

CSE-RX-DTS

2402MHz\_TnomVmax







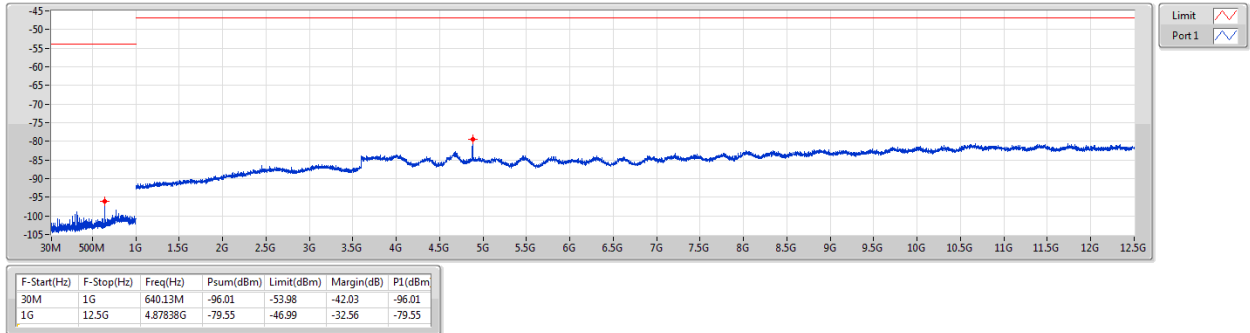
## CSE-RX Secondary Radiated Emissions-DTS Result

Appendix F

BT-LE0.5\_Nss1\_1TX

CSE-RX-DTS

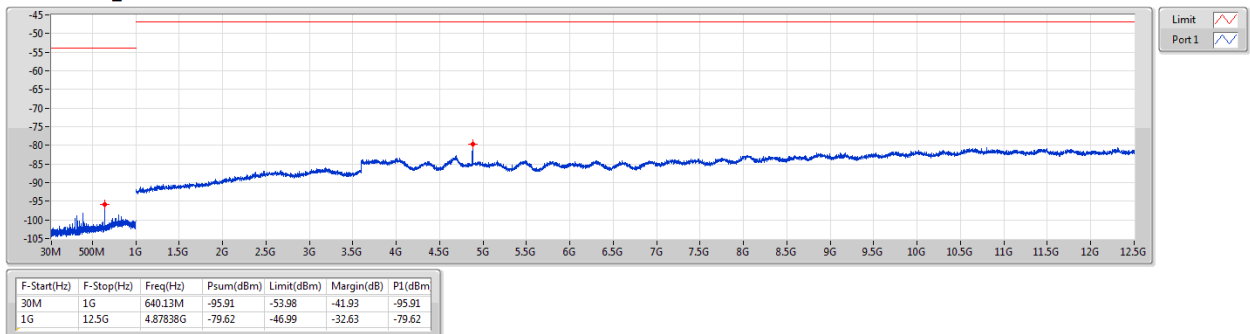
2440MHz\_TnomVnom



BT-LE0.5\_Nss1\_1TX

CSE-RX-DTS

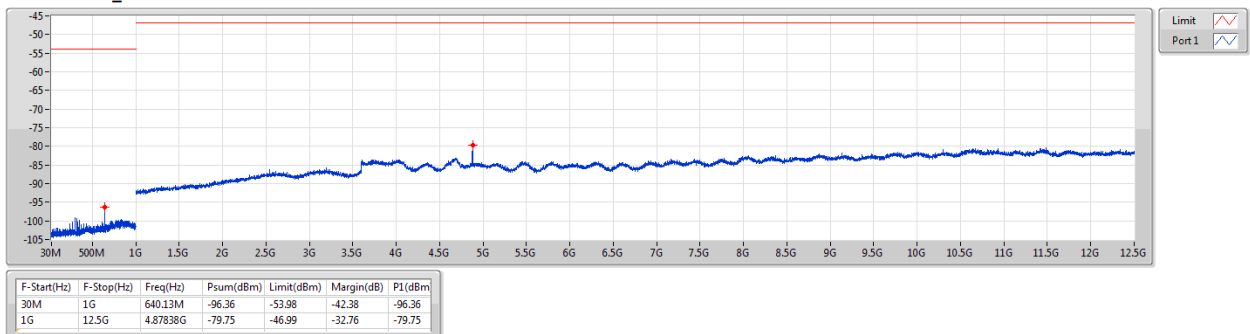
2440MHz\_TnomVmin



BT-LE0.5\_Nss1\_1TX

CSE-RX-DTS

2440MHz\_TnomVmax





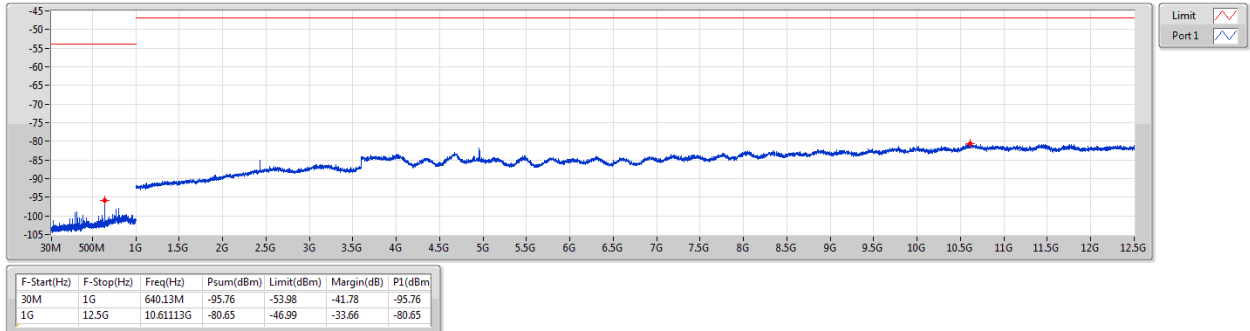
## CSE-RX Secondary Radiated Emissions-DTS Result

Appendix F

BT-LE0.5\_Nss1\_1TX

CSE-RX-DTS

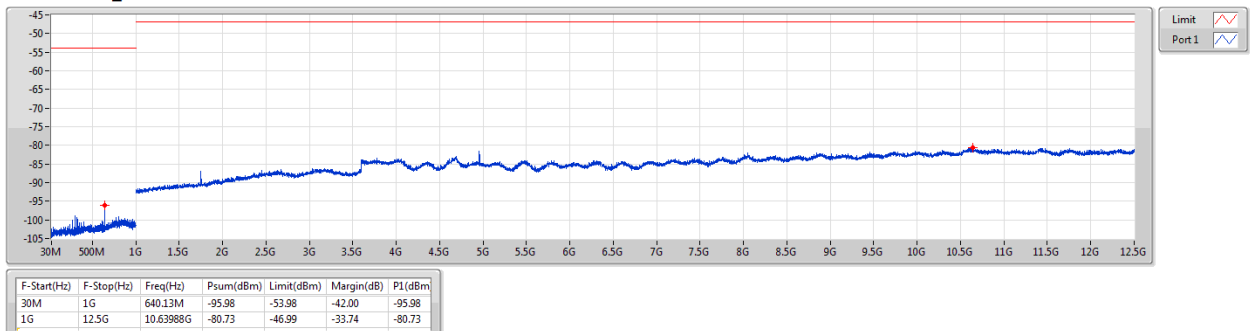
2480MHz\_TnomVnom



BT-LE0.5\_Nss1\_1TX

CSE-RX-DTS

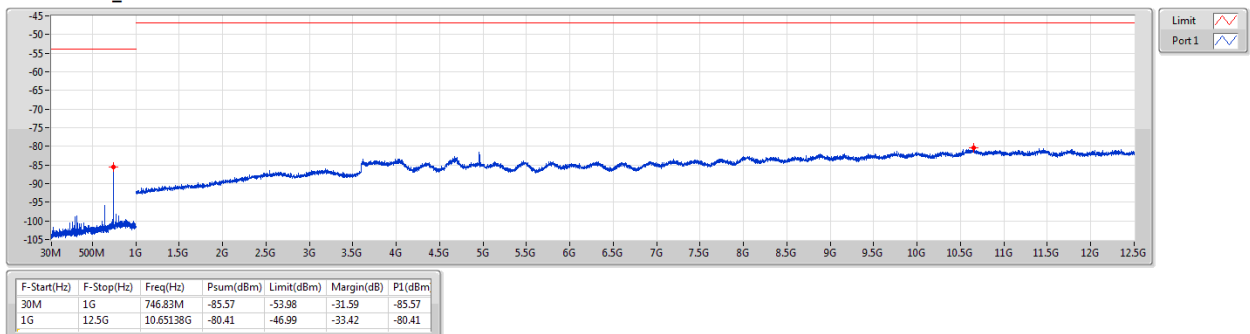
2480MHz\_TnomVmin



BT-LE0.5\_Nss1\_1TX

CSE-RX-DTS

2480MHz\_TnomVmax



**1Mbps\_BL653-SA\_with Printed PCB antenna**



## Total Power-DTS Result

Appendix A.1

### Summary

Mode	Power (dBm)	Power (mW)	EIRP (dBm)	EIRP (mW)
2.4-2.4835GHz	-	-	-	-
BT-LE(1Mbps)	7.85	6.095	9.13	8.185

### Result

Mode	Result	Gain (dBi)	Power (dBm)	Power (mW)	Power Lim. (mW)	EIRP (dBm)	EIRP (mW)	EIRP Lim. (mW)
BT-LE(1Mbps)	-	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	1.28	7.58	5.728	10	8.86	7.691	16.368
2402MHz_TnomVmin	Pass	1.28	7.47	5.585	10	8.75	7.499	16.368
2402MHz_TnomVmax	Pass	1.28	7.48	5.598	10	8.76	7.516	16.368
2440MHz_TnomVnom	Pass	1.28	7.75	5.957	10	9.03	7.998	16.368
2440MHz_TnomVmin	Pass	1.28	7.56	5.702	10	8.84	7.656	16.368
2440MHz_TnomVmax	Pass	1.28	7.59	5.741	10	8.87	7.709	16.368
2480MHz_TnomVnom	Pass	1.28	7.85	6.095	10	9.13	8.185	16.368
2480MHz_TnomVmin	Pass	1.28	7.75	5.957	10	9.03	7.998	16.368
2480MHz_TnomVmax	Pass	1.28	7.78	5.998	10	9.06	8.054	16.368

;



## Power Tolerance-DTS Result

## Appendix A.2

### Summary

Mode	Result	Power (dBm)	Power (mW)	Declare (mW)	Tolerance (%)	Limit+ (%)	Limit- (%)
2.4-2.4835GHz	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	7.85	6.095	6.00	1.58	20	-80

### Result

Mode	Result	Power (dBm)	Power (mW)	Declare (mW)	Tolerance (%)	Limit+ (%)	Limit- (%)
BT-LE(1Mbps)	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	7.58	5.728	6.00	-4.53	20	-80
2402MHz_TnomVmin	Pass	7.47	5.585	6.00	-6.92	20	-80
2402MHz_TnomVmax	Pass	7.48	5.598	6.00	-6.71	20	-80
2440MHz_TnomVnom	Pass	7.75	5.957	6.00	-0.72	20	-80
2440MHz_TnomVmin	Pass	7.56	5.702	6.00	-4.97	20	-80
2440MHz_TnomVmax	Pass	7.59	5.741	6.00	-4.31	20	-80
2480MHz_TnomVnom	Pass	7.85	6.095	6.00	1.58	20	-80
2480MHz_TnomVmin	Pass	7.75	5.957	6.00	-0.72	20	-80
2480MHz_TnomVmax	Pass	7.78	5.998	6.00	-0.03	20	-80



## Frequency Tolerance-DTS Result

## Appendix B

### Summary

Mode	Result	Ch (Hz)	Center (Hz)	ppm	Limit (ppm)	Port	Remark
2.4-2.4835GHz	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	2.402G	2.40199344G	-2.733	±50	1	-

### Result

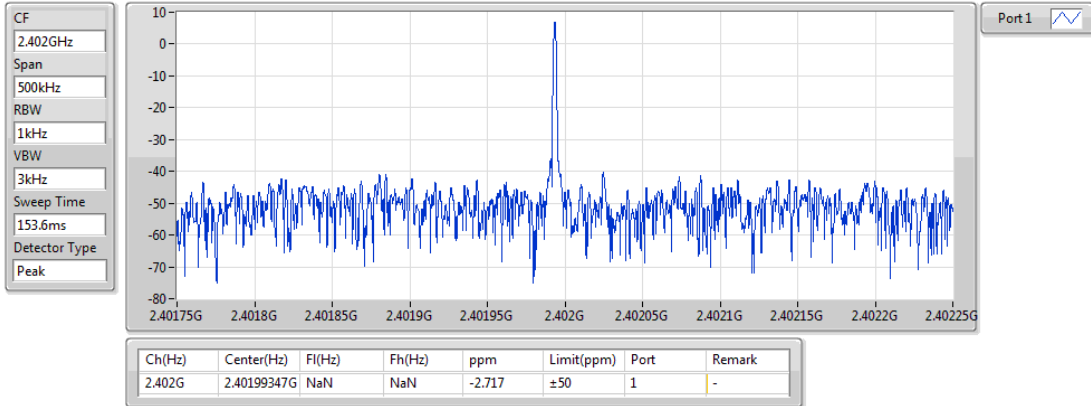
Mode	Result	Ch (Hz)	Center (Hz)	ppm	Limit (ppm)	Port	Remark
BT-LE(1Mbps)	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.402G	2.40199347G	-2.717	±50	1	-
2402MHz_TnomVmin	Pass	2.402G	2.40199345G	-2.726	±50	1	-
2402MHz_TnomVmax	Pass	2.402G	2.40199344G	-2.733	±50	1	-
2440MHz_TnomVnom	Pass	2.44G	2.43999339G	-2.709	±50	1	-
2440MHz_TnomVmin	Pass	2.44G	2.43999339G	-2.707	±50	1	-
2440MHz_TnomVmax	Pass	2.44G	2.43999338G	-2.712	±50	1	-
2480MHz_TnomVnom	Pass	2.48G	2.47999325G	-2.723	±50	1	-
2480MHz_TnomVmin	Pass	2.48G	2.47999322G	-2.733	±50	1	-
2480MHz_TnomVmax	Pass	2.48G	2.47999322G	-2.733	±50	1	-



BT-LE(1Mbps)

Freq. Stability

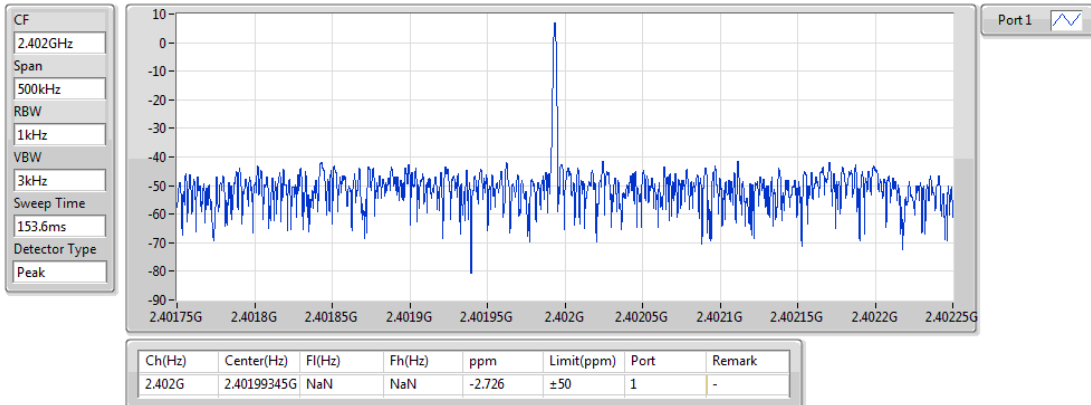
2402MHz\_TnomVnom



BT-LE(1Mbps)

Freq. Stability

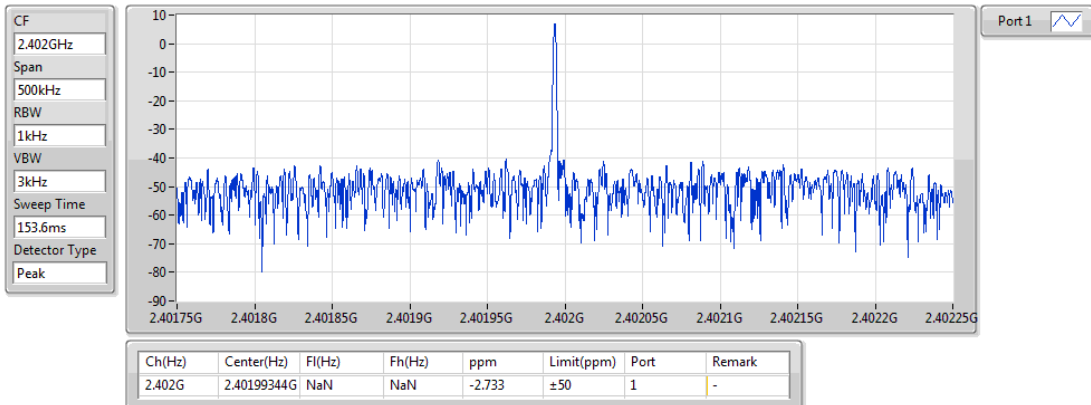
2402MHz\_TnomVmin



BT-LE(1Mbps)

Freq. Stability

2402MHz\_TnomVmax

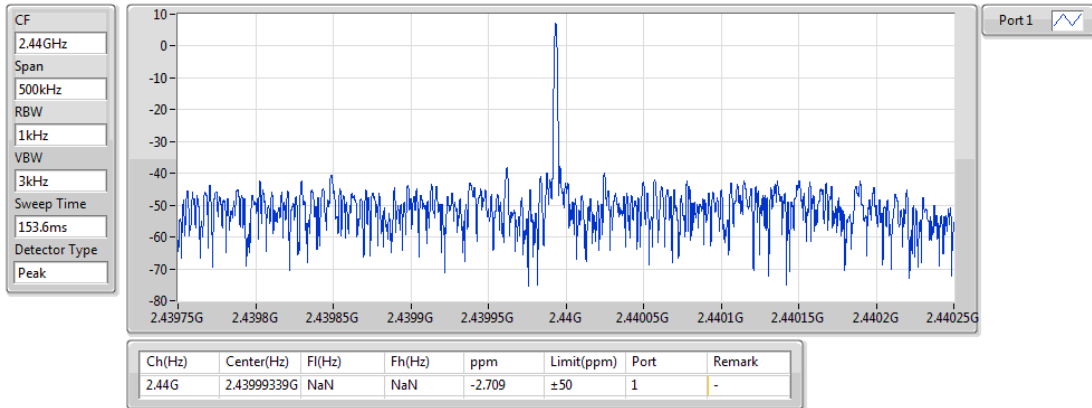




BT-LE(1Mbps)

Freq. Stability

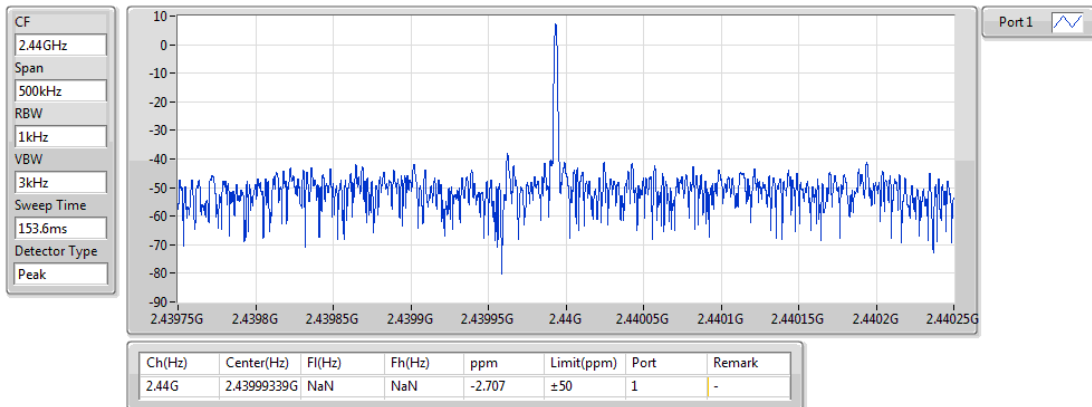
2440MHz\_TnomVnom



BT-LE(1Mbps)

Freq. Stability

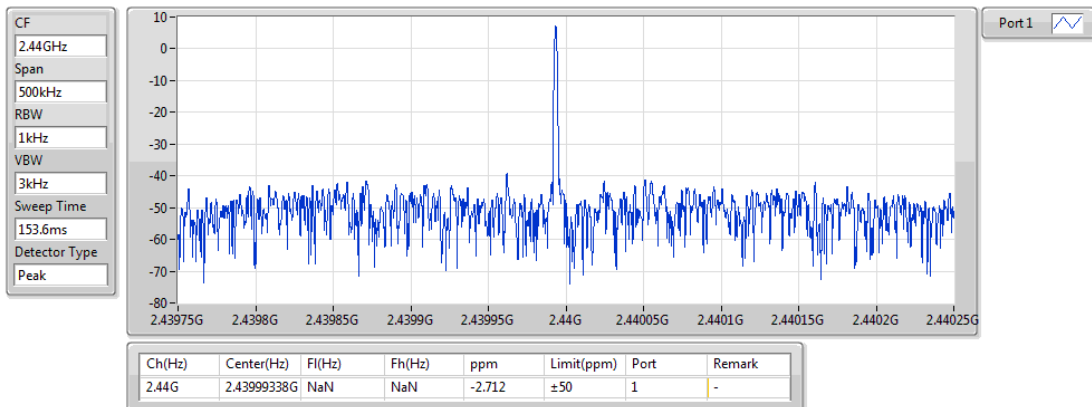
2440MHz\_TnomVmin



BT-LE(1Mbps)

Freq. Stability

2440MHz\_TnomVmax



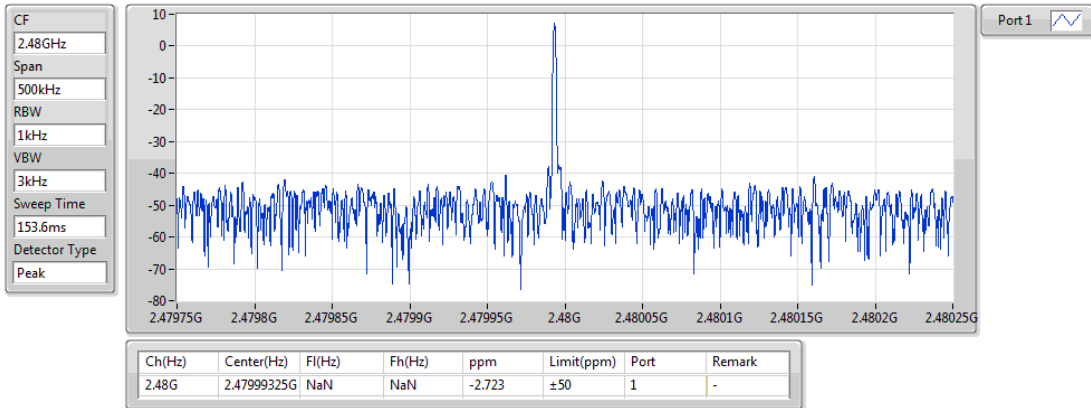




BT-LE(1Mbps)

Freq. Stability

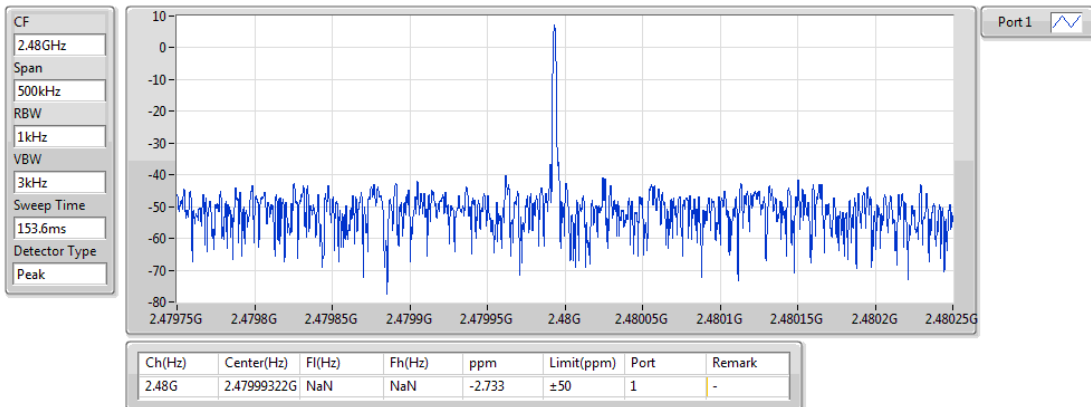
2480MHz\_TnomVnom



BT-LE(1Mbps)

Freq. Stability

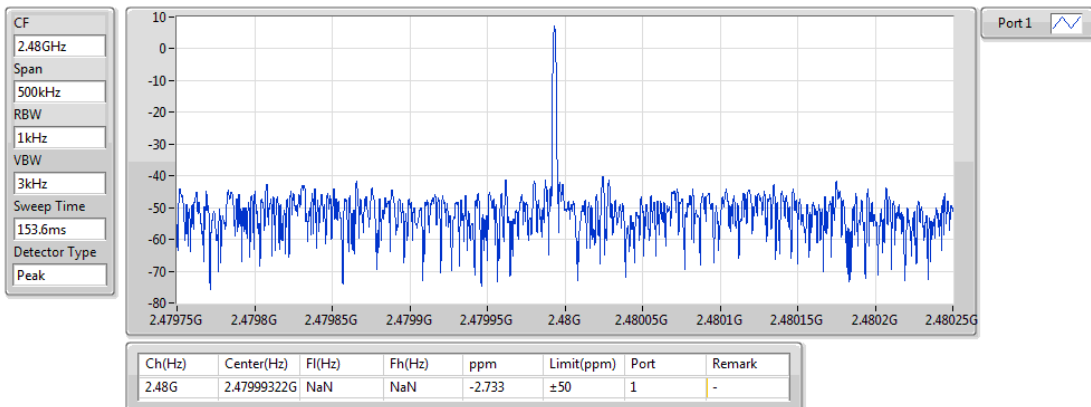
2480MHz\_TnomVmin



BT-LE(1Mbps)

Freq. Stability

2480MHz\_TnomVmax





## Occupied Bandwidth-DTS Result

## Appendix C

### Summary

Mode	Max-OBW (Hz)	ITU-Code	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-
BT-LE(1Mbps)	1.276M	1M27F1D	1.267M

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

### Result

Mode	Result	Limit (Hz)	P1-OBW (Hz)
BT-LE(1Mbps)	-	-	-
2402MHz_TnomVnom	Pass	26M	1.268M
2402MHz_TnomVmin	Pass	26M	1.268M
2402MHz_TnomVmax	Pass	26M	1.267M
2440MHz_TnomVnom	Pass	26M	1.273M
2440MHz_TnomVmin	Pass	26M	1.273M
2440MHz_TnomVmax	Pass	26M	1.272M
2480MHz_TnomVnom	Pass	26M	1.275M
2480MHz_TnomVmin	Pass	26M	1.276M
2480MHz_TnomVmax	Pass	26M	1.275M

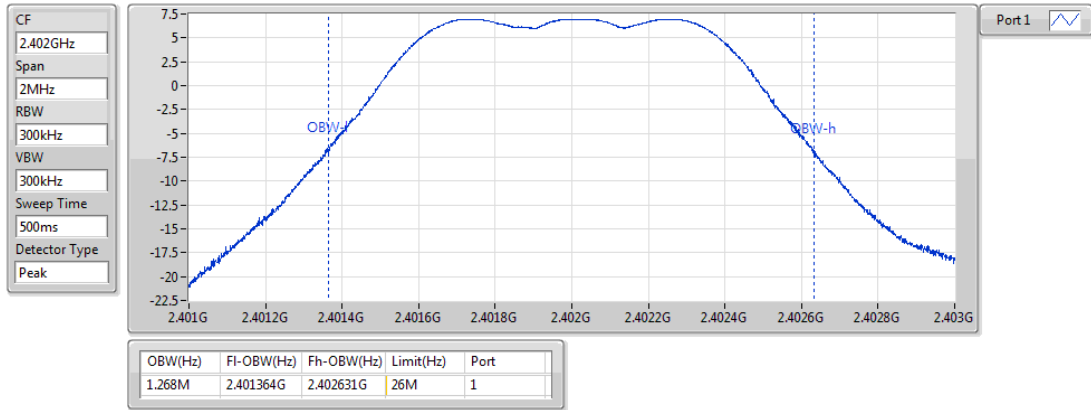
**P1-OBW** = Port 1 99% occupied bandwidth;



BT-LE(1Mbps)

OBW

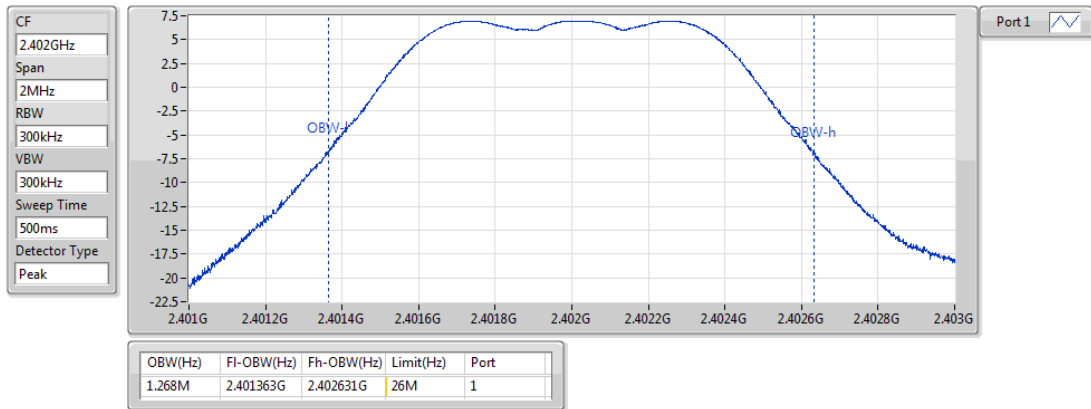
2402MHz\_TnomVnom



BT-LE(1Mbps)

OBW

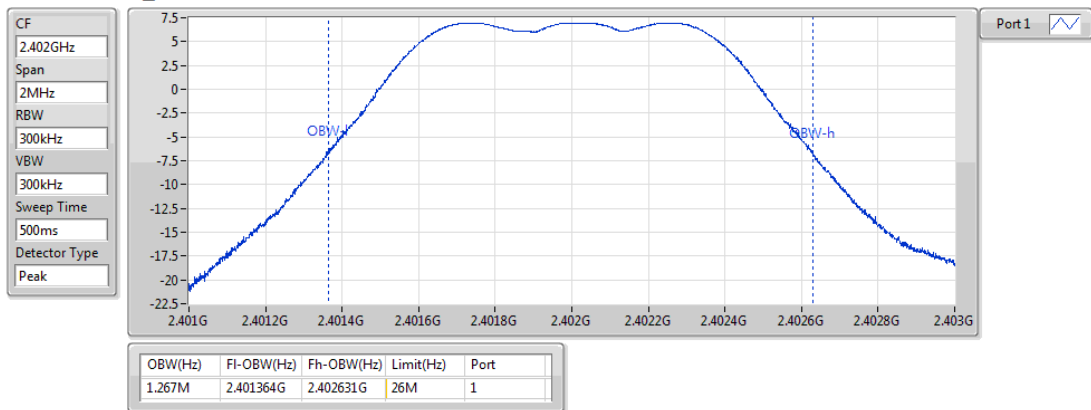
2402MHz\_TnomVmin



BT-LE(1Mbps)

OBW

2402MHz\_TnomVmax

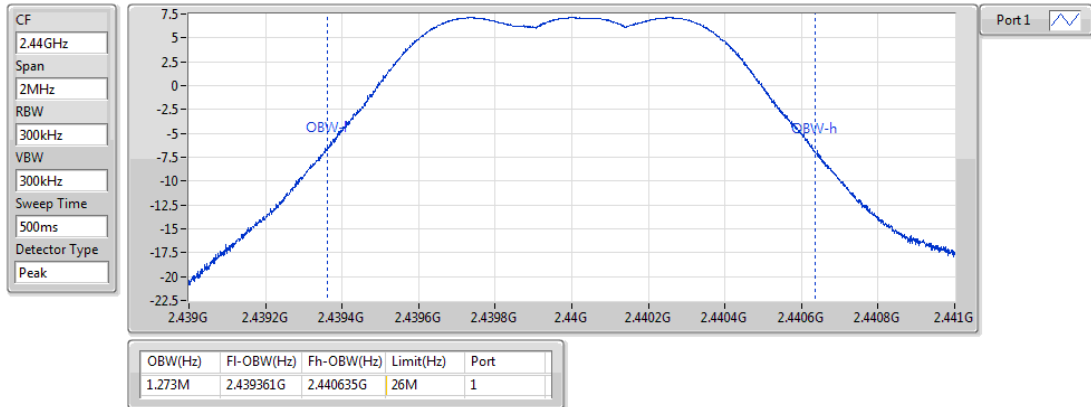




BT-LE(1Mbps)

OBW

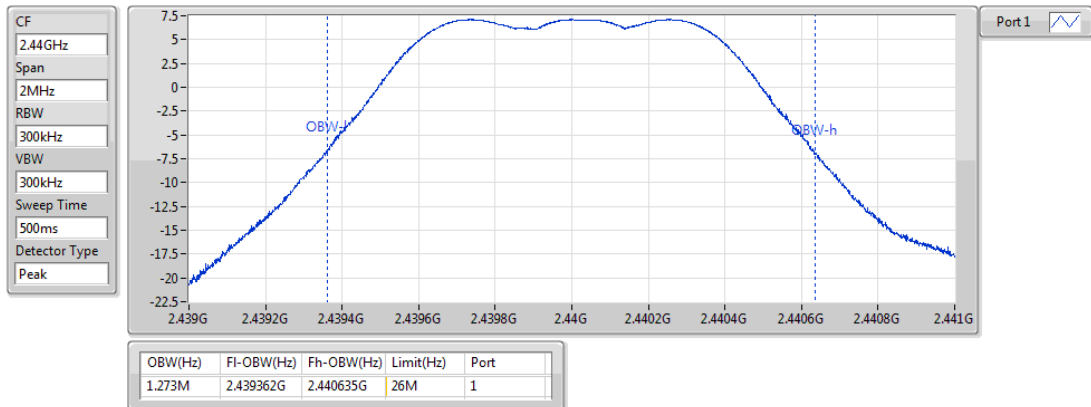
2440MHz\_TnomVnom



BT-LE(1Mbps)

OBW

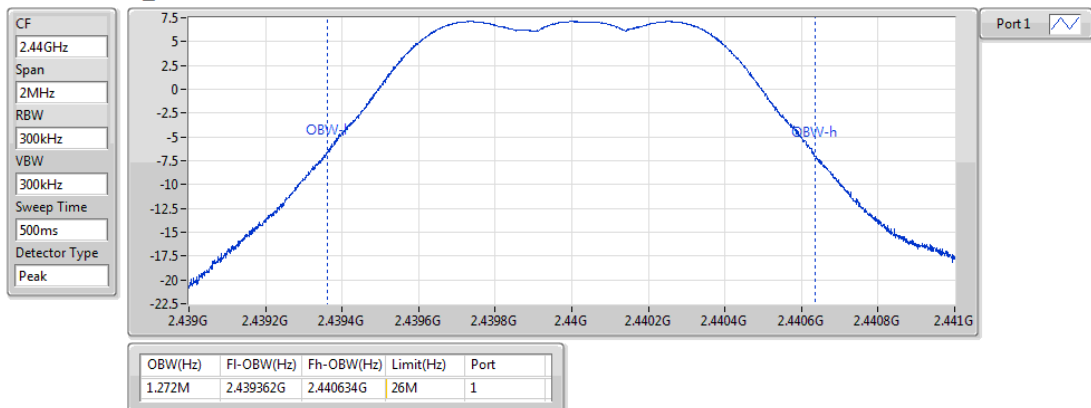
2440MHz\_TnomVmin



BT-LE(1Mbps)

OBW

2440MHz\_TnomVmax

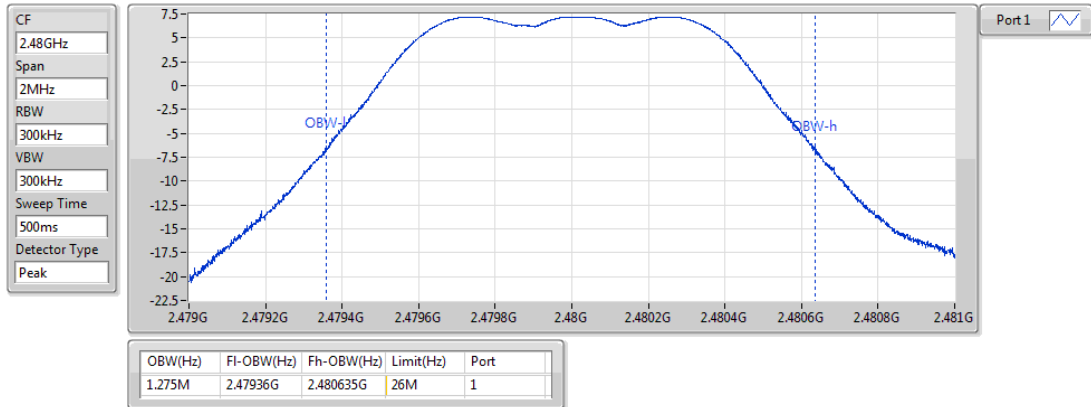




BT-LE(1Mbps)

OBW

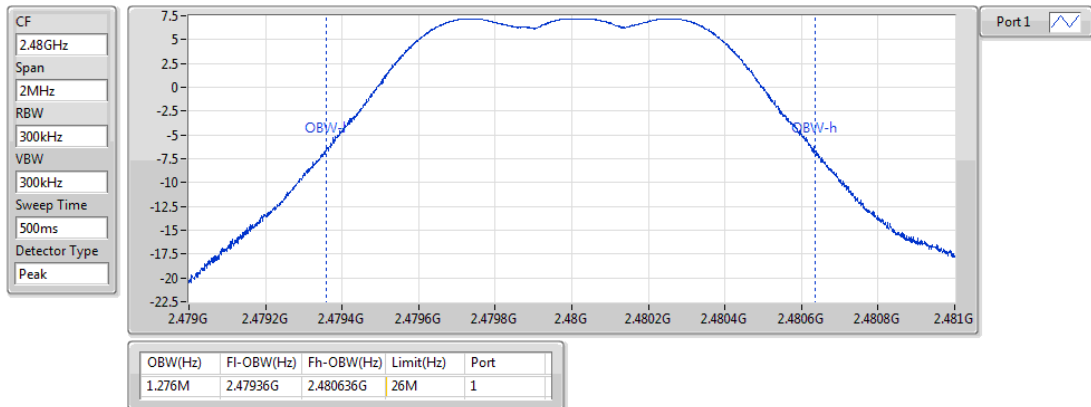
2480MHz\_TnomVnom



BT-LE(1Mbps)

OBW

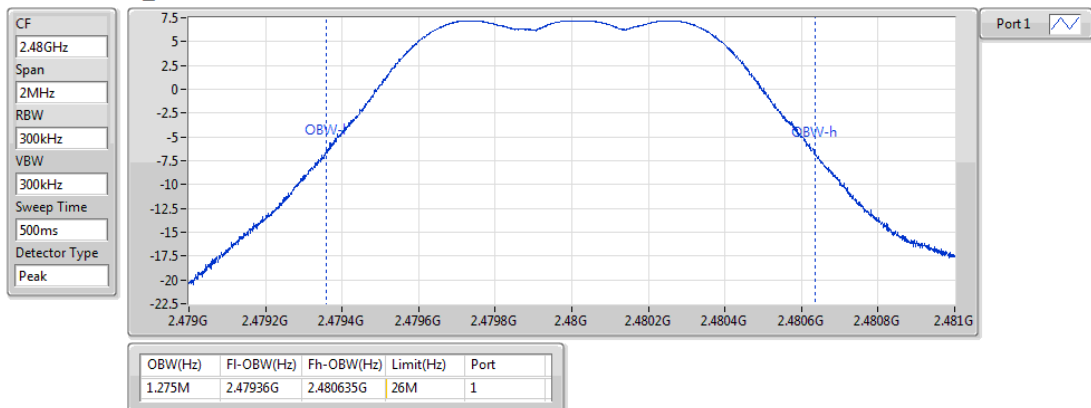
2480MHz\_TnomVmin



BT-LE(1Mbps)

OBW

2480MHz\_TnomVmax





## CSE-TX Unwanted Emission Strength-DTS Result

## Appendix D

### Summary

Mode	Result	F-Start (Hz)	F-Stop (Hz)	RBW (Hz)	Freq (Hz)	Psum (dBm)	Psum (uW/MHz)	Limit (dBm)	Limit (uW/MHz)
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	2.387G	2.4G	1M	2.39997G	-33.33	0.46452	-16.02	25

### Result

Mode	Result	F-Start (Hz)	F-Stop (Hz)	RBW (Hz)	Freq (Hz)	Psum (dBm)	Psum (uW/MHz)	Limit (dBm)	Limit (uW/MHz)
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	30M	2.387G	1M	2.3705G	-51.23	0.00753	-26.02	2.5
2402MHz_TnomVnom	Pass	2.387G	2.4G	1M	2.39997G	-33.33	0.46452	-16.02	25
2402MHz_TnomVnom	Pass	2.4835G	2.4965G	1M	2.48982G	-53.69	0.00428	-16.02	25
2402MHz_TnomVnom	Pass	2.4965G	12.5G	1M	4.80356G	-46.35	0.02317	-26.02	2.5
2402MHz_TnomVmin	Pass	30M	2.387G	1M	2.3705G	-51.30	0.00741	-26.02	2.5
2402MHz_TnomVmin	Pass	2.387G	2.4G	1M	2.39997G	-33.38	0.4592	-16.02	25
2402MHz_TnomVmin	Pass	2.4835G	2.4965G	1M	2.49008G	-53.56	0.00441	-16.02	25
2402MHz_TnomVmin	Pass	2.4965G	12.5G	1M	4.80356G	-45.86	0.02594	-26.02	2.5
2402MHz_TnomVmax	Pass	30M	2.387G	1M	2.3705G	-51.42	0.00721	-26.02	2.5
2402MHz_TnomVmax	Pass	2.387G	2.4G	1M	2.39997G	-33.60	0.43652	-16.02	25
2402MHz_TnomVmax	Pass	2.4835G	2.4965G	1M	2.49G	-53.60	0.00437	-16.02	25
2402MHz_TnomVmax	Pass	2.4965G	12.5G	1M	4.80356G	-45.40	0.02884	-26.02	2.5
2440MHz_TnomVnom	Pass	30M	2.387G	1M	2.31158G	-52.85	0.00519	-26.02	2.5
2440MHz_TnomVnom	Pass	2.387G	2.4G	1M	2.39189G	-52.40	0.00575	-16.02	25
2440MHz_TnomVnom	Pass	2.4835G	2.4965G	1M	2.48805G	-52.17	0.00607	-16.02	25
2440MHz_TnomVnom	Pass	2.4965G	12.5G	1M	4.87983G	-46.35	0.02317	-26.02	2.5
2440MHz_TnomVmin	Pass	30M	2.387G	1M	2.35165G	-53.08	0.00492	-26.02	2.5
2440MHz_TnomVmin	Pass	2.387G	2.4G	1M	2.39197G	-52.48	0.00565	-16.02	25
2440MHz_TnomVmin	Pass	2.4835G	2.4965G	1M	2.488G	-52.18	0.00605	-16.02	25
2440MHz_TnomVmin	Pass	2.4965G	12.5G	1M	4.87983G	-45.92	0.02559	-26.02	2.5
2440MHz_TnomVmax	Pass	30M	2.387G	1M	2.31158G	-52.78	0.00527	-26.02	2.5
2440MHz_TnomVmax	Pass	2.387G	2.4G	1M	2.39202G	-52.46	0.00568	-16.02	25
2440MHz_TnomVmax	Pass	2.4835G	2.4965G	1M	2.48795G	-52.13	0.00612	-16.02	25
2440MHz_TnomVmax	Pass	2.4965G	12.5G	1M	4.87983G	-46.36	0.02312	-26.02	2.5
2480MHz_TnomVnom	Pass	30M	2.387G	1M	2.37639G	-53.04	0.00497	-26.02	2.5
2480MHz_TnomVnom	Pass	2.387G	2.4G	1M	2.39197G	-53.90	0.00407	-16.02	25
2480MHz_TnomVnom	Pass	2.4835G	2.4965G	1M	2.48353G	-48.68	0.01355	-16.02	25
2480MHz_TnomVnom	Pass	2.4965G	12.5G	1M	11.46839G	-48.25	0.01496	-26.02	2.5

**CSE-TX Unwanted Emission Strength-DTS Result****Appendix D**

Mode	Result	F-Start (Hz)	F-Stop (Hz)	RBW (Hz)	Freq (Hz)	Psum (dBm)	Psum (uW/MHz)	Limit (dBm)	Limit (uW/MHz)
2480MHz_TnomVmin	Pass	30M	2.387G	1M	2.31983G	-52.86	0.00518	-26.02	2.5
2480MHz_TnomVmin	Pass	2.387G	2.4G	1M	2.39197G	-53.81	0.00416	-16.02	25
2480MHz_TnomVmin	Pass	2.4835G	2.4965G	1M	2.48353G	-48.70	0.01349	-16.02	25
2480MHz_TnomVmin	Pass	2.4965G	12.5G	1M	11.42963G	-48.40	0.01445	-26.02	2.5
2480MHz_TnomVmax	Pass	30M	2.387G	1M	2.31983G	-53.24	0.00474	-26.02	2.5
2480MHz_TnomVmax	Pass	2.387G	2.4G	1M	2.39184G	-53.86	0.00411	-16.02	25
2480MHz_TnomVmax	Pass	2.4835G	2.4965G	1M	2.48353G	-48.64	0.01368	-16.02	25
2480MHz_TnomVmax	Pass	2.4965G	12.5G	1M	10.63685G	-48.16	0.01528	-26.02	2.5



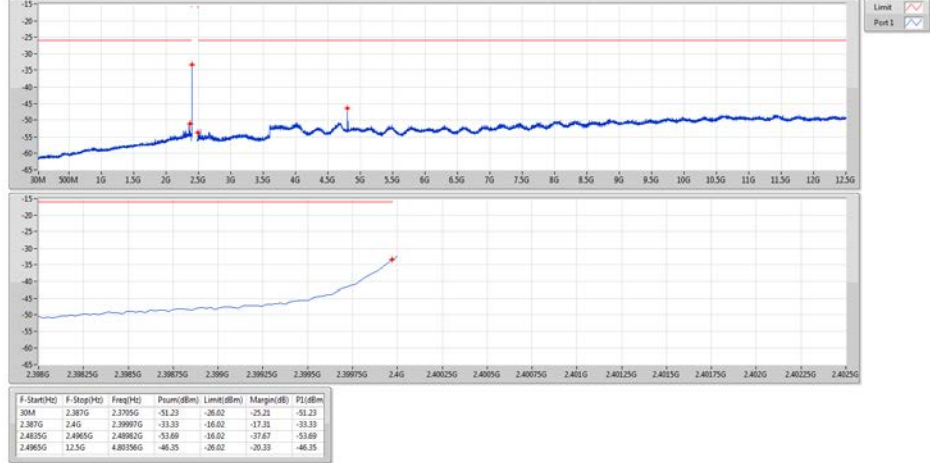
## CSE-TX Unwanted Emission Strength-DTS Result

## Appendix D

BT-LE(1Mbps)

CSE-TX-DTS

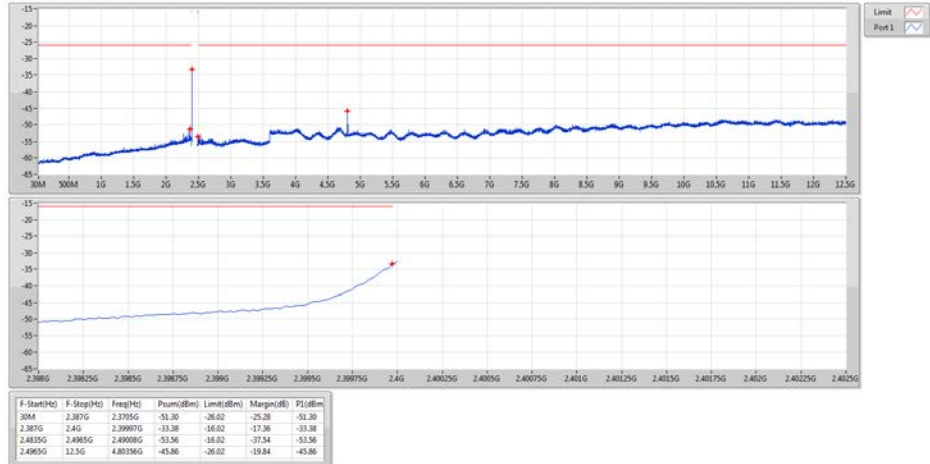
2402MHz\_TnomVnom



BT-LE(1Mbps)

CSE-TX-DTS

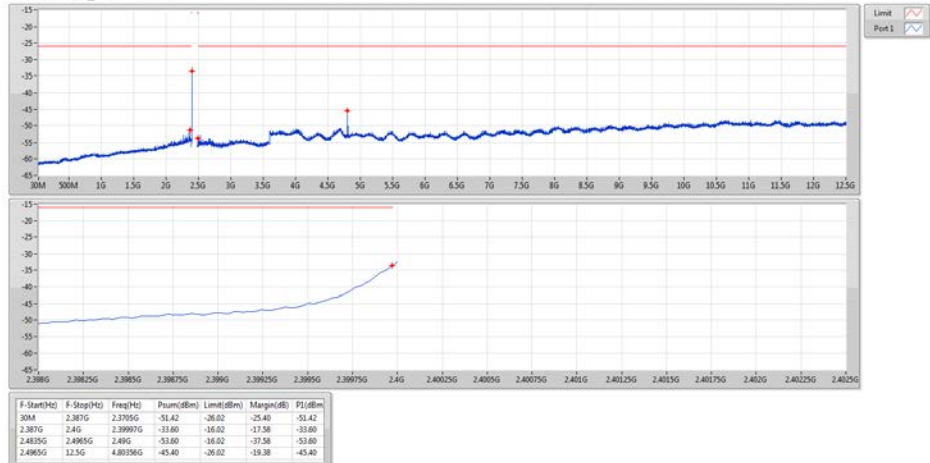
2402MHz\_TnomVmin



BT-LE(1Mbps)

CSE-TX-DTS

2402MHz\_TnomVmax

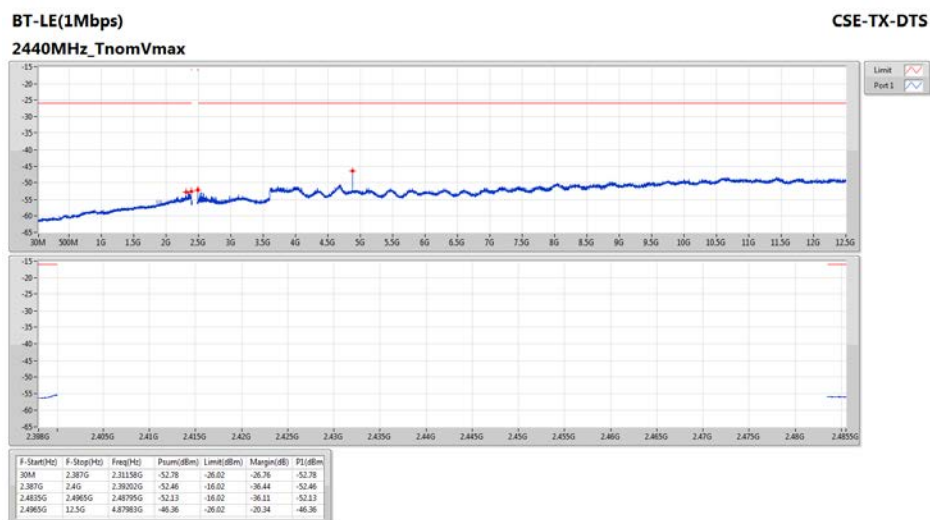
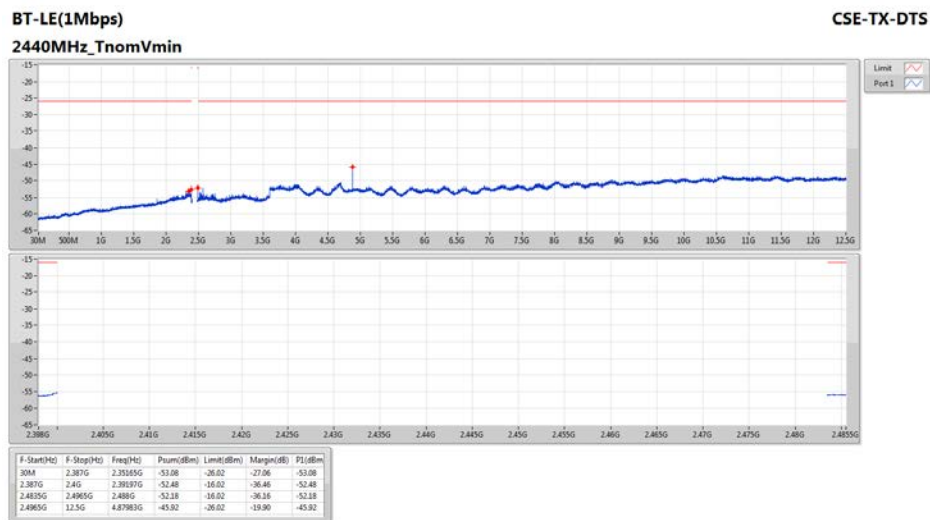
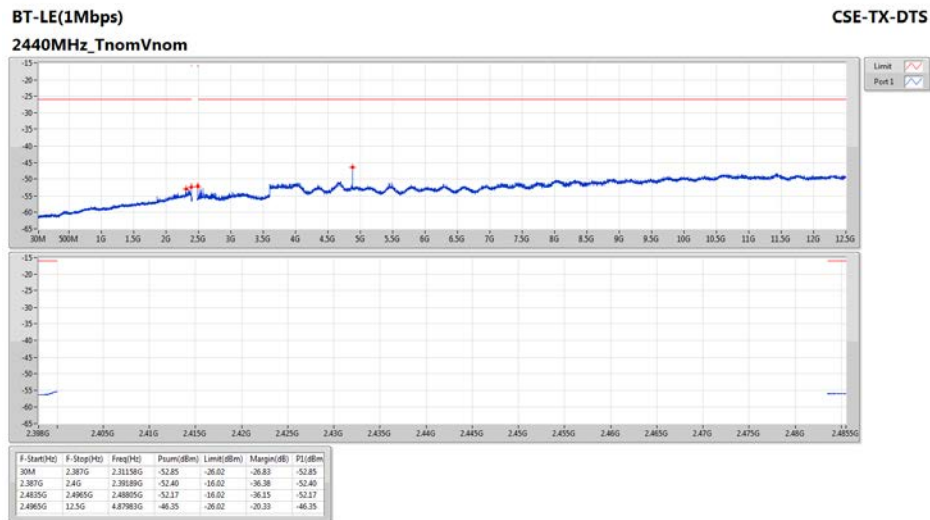






## CSE-TX Unwanted Emission Strength-DTS Result

## Appendix D





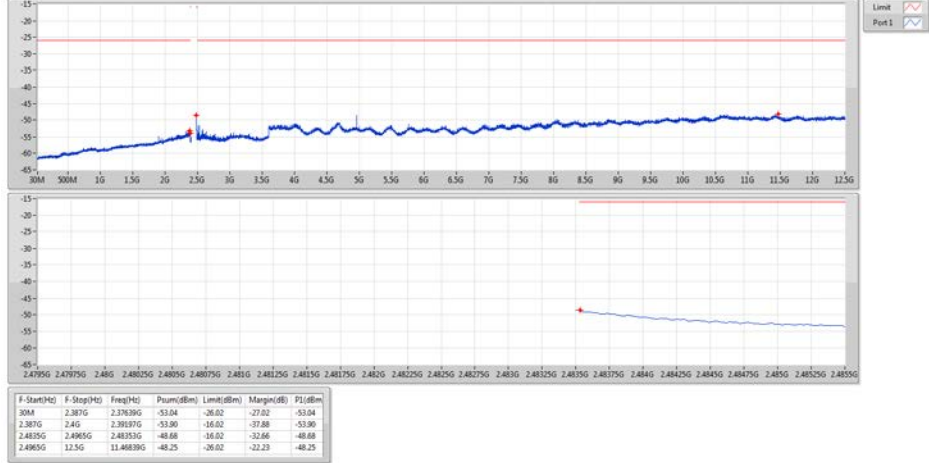
## CSE-TX Unwanted Emission Strength-DTS Result

## Appendix D

BT-LE(1Mbps)

CSE-TX-DTS

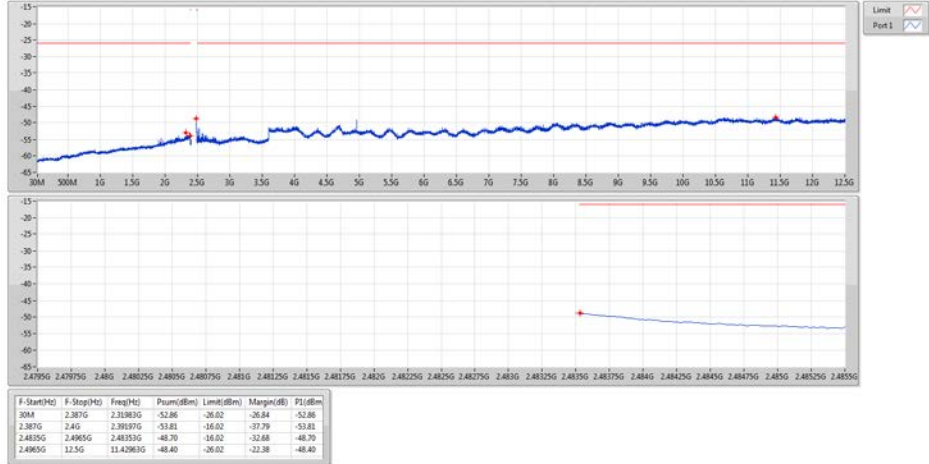
2480MHz\_TnomVnom



BT-LE(1Mbps)

CSE-TX-DTS

2480MHz\_TnomVmin



BT-LE(1Mbps)

CSE-TX-DTS

2480MHz\_TnomVmax





## Interference Prevention Function-DTSResult

## Appendix E

### Summary

Mode	Result	ID Length	ID Limit	Function
2.4-2.4835GHz	-	-	-	-
BT-LE(1Mbps)	Pass	DF:5A:5C:EE:5F:D9	48 bits	Good

### Result

Mode	Result	ID Length	ID Limit	Function
BT-LE(1Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	DF:5A:5C:EE:5F:D9	48 bits	Good
2402MHz_TnomVmin	Pass	DF:5A:5C:EE:5F:D9	48 bits	Good
2402MHz_TnomVmax	Pass	DF:5A:5C:EE:5F:D9	48 bits	Good
2440MHz_TnomVnom	Pass	DF:5A:5C:EE:5F:D9	48 bits	Good
2440MHz_TnomVmin	Pass	DF:5A:5C:EE:5F:D9	48 bits	Good
2440MHz_TnomVmax	Pass	DF:5A:5C:EE:5F:D9	48 bits	Good
2480MHz_TnomVnom	Pass	DF:5A:5C:EE:5F:D9	48 bits	Good
2480MHz_TnomVmin	Pass	DF:5A:5C:EE:5F:D9	48 bits	Good
2480MHz_TnomVmax	Pass	DF:5A:5C:EE:5F:D9	48 bits	Good

**CSE-RX Secondary Radiated Emissions-DTS Result****Appendix F****Summary**

Mode	Result	F-Start (Hz)	F-Stop (Hz)	RBW (Hz)	Freq (Hz)	Psum (dBm)	Psum (nW/MHz)	Limit (dBm)	Limit (nW/MHz)
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	1G	12.5G	1M	4.80219G	-78.05	0.01567	-46.99	20

**Result**

Mode	Result	F-Start (Hz)	F-Stop (Hz)	RBW (Hz)	Freq (Hz)	Psum (dBm)	Psum (nW/MHz)	Limit (dBm)	Limit (nW/MHz)
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	30M	1G	100k	640.13M	-96.05	0.00025	-53.98	4
2402MHz_TnomVnom	Pass	1G	12.5G	1M	4.80219G	-78.36	0.01459	-46.99	20
2402MHz_TnomVmin	Pass	30M	1G	100k	640.13M	-95.76	0.00027	-53.98	4
2402MHz_TnomVmin	Pass	1G	12.5G	1M	4.80219G	-78.05	0.01567	-46.99	20
2402MHz_TnomVmax	Pass	30M	1G	100k	640.13M	-95.88	0.00026	-53.98	4
2402MHz_TnomVmax	Pass	1G	12.5G	1M	4.80219G	-78.13	0.01538	-46.99	20
2440MHz_TnomVnom	Pass	30M	1G	100k	640.13M	-96.22	0.00024	-53.98	4
2440MHz_TnomVnom	Pass	1G	12.5G	1M	4.87838G	-80.25	0.00944	-46.99	20
2440MHz_TnomVmin	Pass	30M	1G	100k	640.13M	-95.89	0.00026	-53.98	4
2440MHz_TnomVmin	Pass	1G	12.5G	1M	4.87838G	-79.87	0.0103	-46.99	20
2440MHz_TnomVmax	Pass	30M	1G	100k	640.13M	-94.98	0.00032	-53.98	4
2440MHz_TnomVmax	Pass	1G	12.5G	1M	4.87838G	-79.95	0.01012	-46.99	20
2480MHz_TnomVnom	Pass	30M	1G	100k	640.13M	-96.11	0.00024	-53.98	4
2480MHz_TnomVnom	Pass	1G	12.5G	1M	11.41613G	-80.69	0.00853	-46.99	20
2480MHz_TnomVmin	Pass	30M	1G	100k	640.13M	-96.08	0.00025	-53.98	4
2480MHz_TnomVmin	Pass	1G	12.5G	1M	11.419G	-80.69	0.00853	-46.99	20
2480MHz_TnomVmax	Pass	30M	1G	100k	640.13M	-96.35	0.00023	-53.98	4
2480MHz_TnomVmax	Pass	1G	12.5G	1M	11.40606G	-80.59	0.00873	-46.99	20



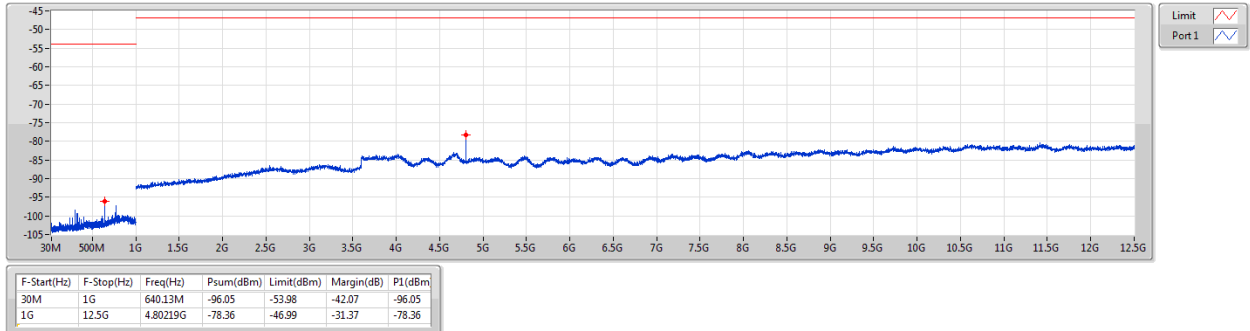
## CSE-RX Secondary Radiated Emissions-DTS Result

Appendix F

BT-LE(1Mbps)

CSE-RX-DTS

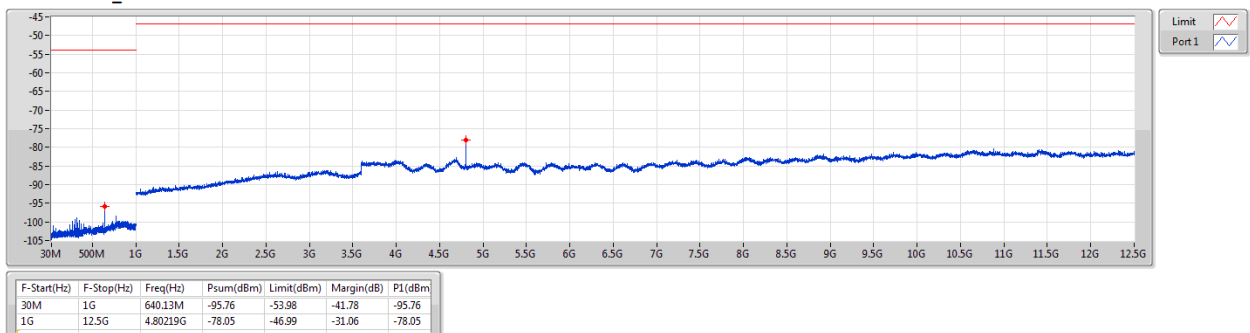
2402MHz\_TnomVnom



BT-LE(1Mbps)

CSE-RX-DTS

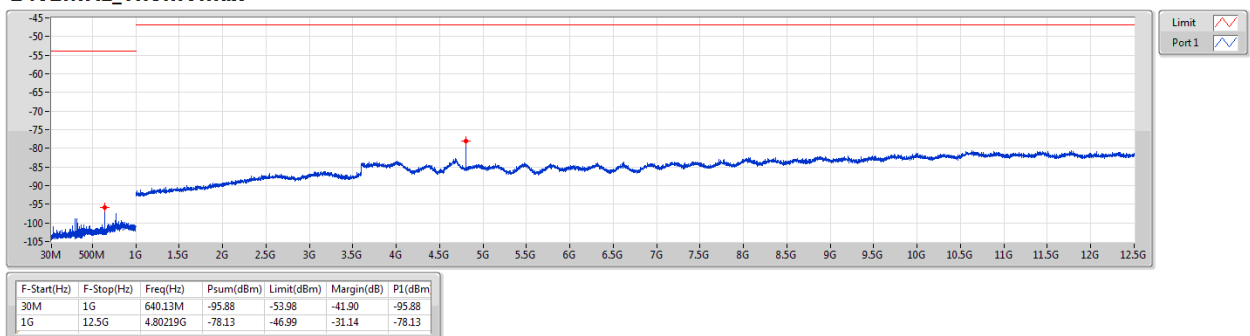
2402MHz\_TnomVmin



BT-LE(1Mbps)

CSE-RX-DTS

2402MHz\_TnomVmax





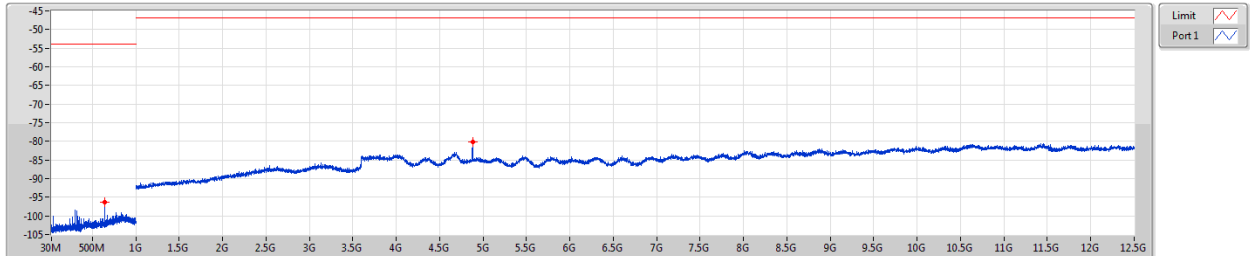
## CSE-RX Secondary Radiated Emissions-DTS Result

Appendix F

BT-LE(1Mbps)

CSE-RX-DTS

2440MHz\_TnomVnom

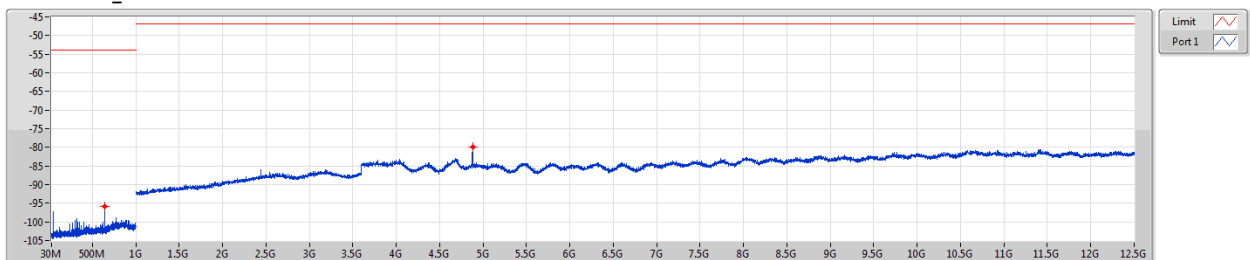


F-Start(Hz)	F-Stop(Hz)	Freq(Hz)	Psum(dBm)	Limit(dBm)	Margin(dB)	P1(dBm)
30M	1G	640.13M	-96.22	-53.98	-42.24	-96.22
1G	12.5G	4.87838G	-80.25	-46.99	-33.26	-80.25

BT-LE(1Mbps)

CSE-RX-DTS

2440MHz\_TnomVmin

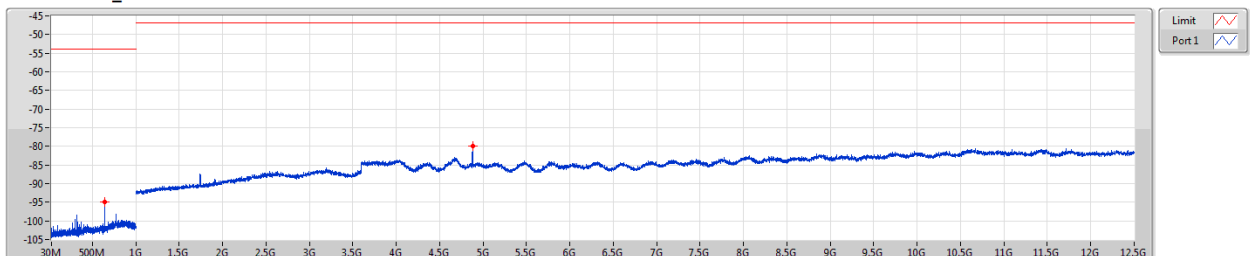


F-Start(Hz)	F-Stop(Hz)	Freq(Hz)	Psum(dBm)	Limit(dBm)	Margin(dB)	P1(dBm)
30M	1G	640.13M	-95.89	-53.98	-41.91	-95.89
1G	12.5G	4.87838G	-79.87	-46.99	-32.88	-79.87

BT-LE(1Mbps)

CSE-RX-DTS

2440MHz\_TnomVmax



F-Start(Hz)	F-Stop(Hz)	Freq(Hz)	Psum(dBm)	Limit(dBm)	Margin(dB)	P1(dBm)
30M	1G	640.13M	-94.98	-53.98	-41.00	-94.98
1G	12.5G	4.87838G	-79.95	-46.99	-32.96	-79.95



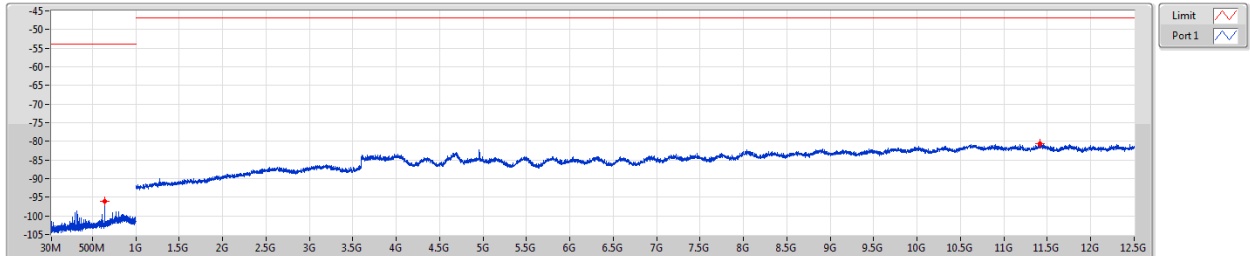
## CSE-RX Secondary Radiated Emissions-DTS Result

Appendix F

BT-LE(1Mbps)

CSE-RX-DTS

2480MHz\_TnomVnom

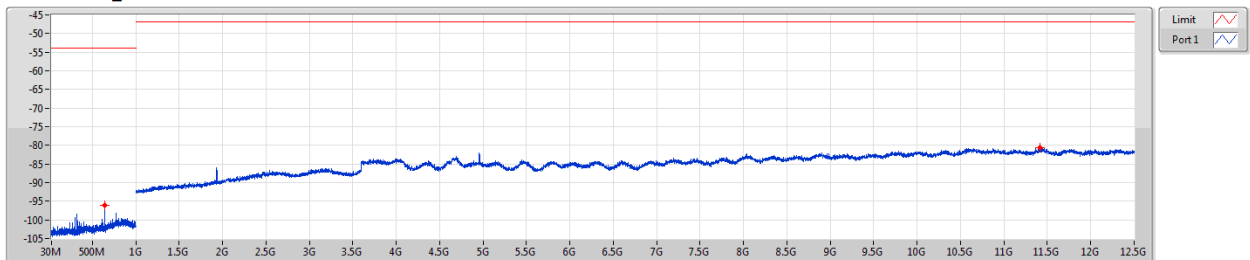


F-Start(Hz)	F-Stop(Hz)	Freq(Hz)	Psum(dBm)	Limit(dBm)	Margin(dB)	P1(dBm)
30M	1G	640.13M	-96.11	-53.98	-42.13	-96.11
1G	12.5G	11.41613G	-80.69	-46.99	-33.70	-80.69

BT-LE(1Mbps)

CSE-RX-DTS

2480MHz\_TnomVmin

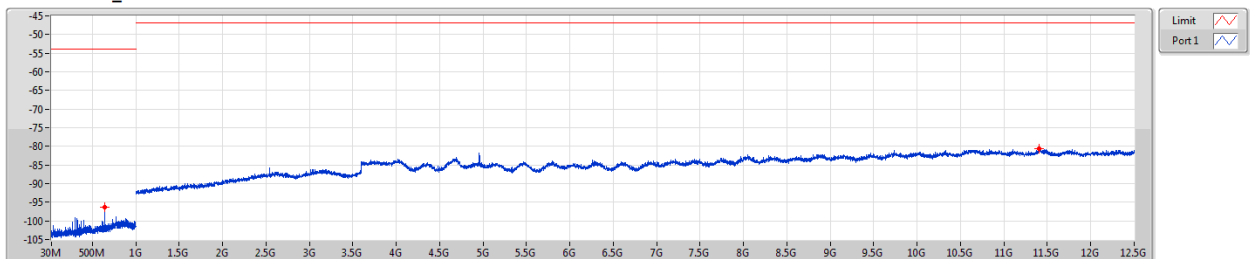


F-Start(Hz)	F-Stop(Hz)	Freq(Hz)	Psum(dBm)	Limit(dBm)	Margin(dB)	P1(dBm)
30M	1G	640.13M	-96.08	-53.98	-42.10	-96.08
1G	12.5G	11.419G	-80.69	-46.99	-33.70	-80.69

BT-LE(1Mbps)

CSE-RX-DTS

2480MHz\_TnomVmax



F-Start(Hz)	F-Stop(Hz)	Freq(Hz)	Psum(dBm)	Limit(dBm)	Margin(dB)	P1(dBm)
30M	1G	640.13M	-96.35	-53.98	-42.37	-96.35
1G	12.5G	11.40606G	-80.59	-46.99	-33.60	-80.59

**2Mbps\_BL653-SA\_with Printed PCB antenna**





## Total Power-DTS Result

Appendix A.1

### Summary

Mode	Power (dBm)	Power (mW)	EIRP (dBm)	EIRP (mW)
2.4-2.4835GHz	-	-	-	-
BT-LE(2Mbps)	7.84	6.081	9.12	8.166

### Result

Mode	Result	Gain (dBi)	Power (dBm)	Power (mW)	Power Lim. (mW)	EIRP (dBm)	EIRP (mW)	EIRP Lim. (mW)
BT-LE(2Mbps)	-	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	1.28	7.57	5.715	10	8.85	7.674	16.368
2402MHz_TnomVmin	Pass	1.28	7.45	5.559	10	8.73	7.464	16.368
2402MHz_TnomVmax	Pass	1.28	7.47	5.585	10	8.75	7.499	16.368
2440MHz_TnomVnom	Pass	1.28	7.74	5.943	10	9.02	7.980	16.368
2440MHz_TnomVmin	Pass	1.28	7.54	5.675	10	8.82	7.621	16.368
2440MHz_TnomVmax	Pass	1.28	7.58	5.728	10	8.86	7.691	16.368
2480MHz_TnomVnom	Pass	1.28	7.84	6.081	10	9.12	8.166	16.368
2480MHz_TnomVmin	Pass	1.28	7.73	5.929	10	9.01	7.962	16.368
2480MHz_TnomVmax	Pass	1.28	7.77	5.984	10	9.05	8.035	16.368

;



## Power Tolerance-DTS Result

## Appendix A.2

### Summary

Mode	Result	Power (dBm)	Power (mW)	Declare (mW)	Tolerance (%)	Limit+ (%)	Limit- (%)
2.4-2.4835GHz	-	-	-	-	-	-	-
BT-LE(2Mbps)	Pass	7.84	6.081	6.00	1.36	20	-80

### Result

Mode	Result	Power (dBm)	Power (mW)	Declare (mW)	Tolerance (%)	Limit+ (%)	Limit- (%)
BT-LE(2Mbps)	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	7.57	5.715	6.00	-4.75	20	-80
2402MHz_TnomVmin	Pass	7.45	5.559	6.00	-7.35	20	-80
2402MHz_TnomVmax	Pass	7.47	5.585	6.00	-6.92	20	-80
2440MHz_TnomVnom	Pass	7.74	5.943	6.00	-0.95	20	-80
2440MHz_TnomVmin	Pass	7.54	5.675	6.00	-5.41	20	-80
2440MHz_TnomVmax	Pass	7.58	5.728	6.00	-4.53	20	-80
2480MHz_TnomVnom	Pass	7.84	6.081	6.00	1.36	20	-80
2480MHz_TnomVmin	Pass	7.73	5.929	6.00	-1.18	20	-80
2480MHz_TnomVmax	Pass	7.77	5.984	6.00	-0.26	20	-80



## Frequency Tolerance-DTS Result

## Appendix B

### Summary

Mode	Result	Ch (Hz)	Center (Hz)	ppm	Limit (ppm)	Port	Remark
2.4-2.4835GHz	-	-	-	-	-	-	-
BT-LE(2Mbps)	Pass	2.402G	2.40199342G	-2.741	±50	1	-

### Result

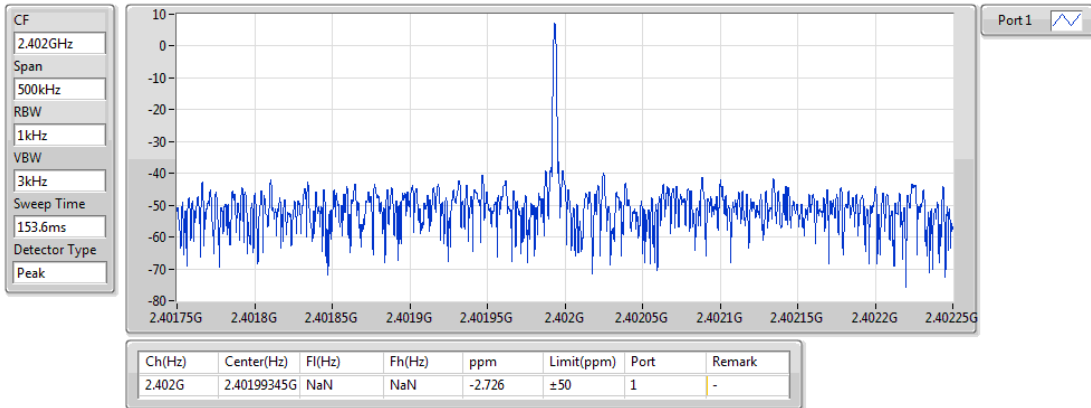
Mode	Result	Ch (Hz)	Center (Hz)	ppm	Limit (ppm)	Port	Remark
BT-LE(2Mbps)	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.402G	2.40199345G	-2.726	±50	1	-
2402MHz_TnomVmin	Pass	2.402G	2.40199343G	-2.736	±50	1	-
2402MHz_TnomVmax	Pass	2.402G	2.40199342G	-2.741	±50	1	-
2440MHz_TnomVnom	Pass	2.44G	2.43999339G	-2.709	±50	1	-
2440MHz_TnomVmin	Pass	2.44G	2.43999336G	-2.72	±50	1	-
2440MHz_TnomVmax	Pass	2.44G	2.43999335G	-2.726	±50	1	-
2480MHz_TnomVnom	Pass	2.48G	2.47999347G	-2.634	±50	1	-
2480MHz_TnomVmin	Pass	2.48G	2.47999339G	-2.665	±50	1	-
2480MHz_TnomVmax	Pass	2.48G	2.47999335G	-2.683	±50	1	-



BT-LE(2Mbps)

Freq. Stability

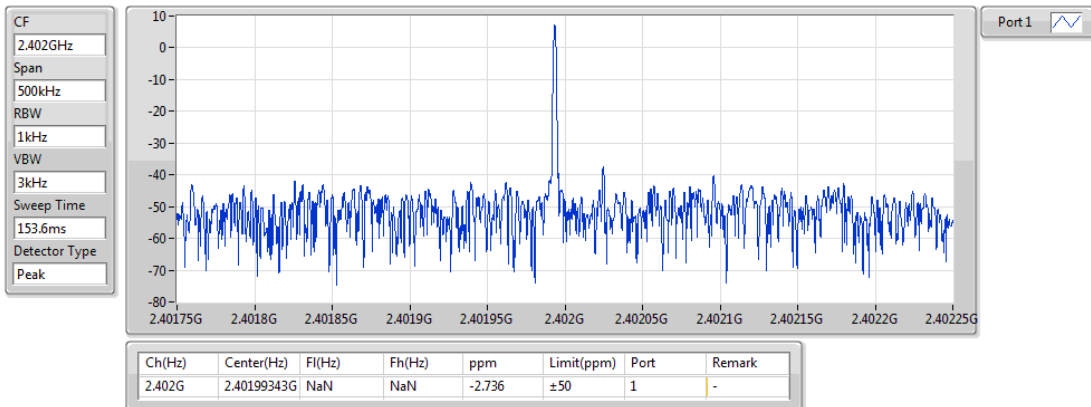
2402MHz\_TnomVnom



BT-LE(2Mbps)

Freq. Stability

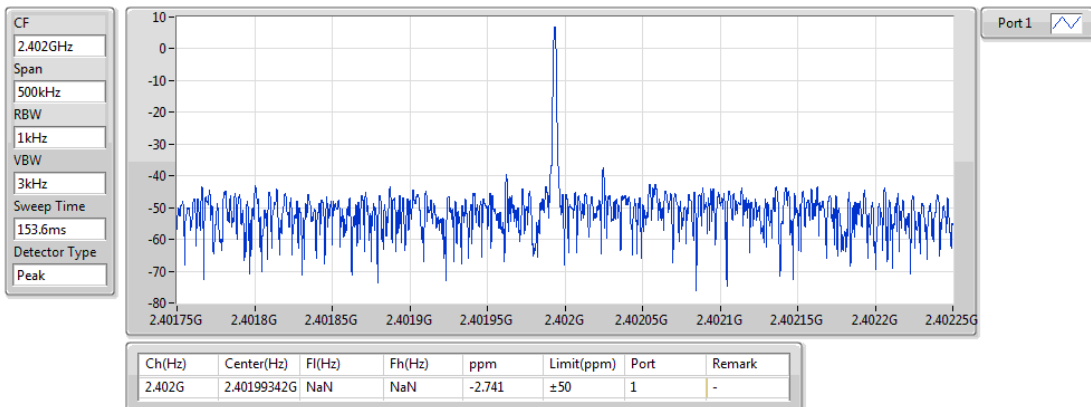
2402MHz\_TnomVmin



BT-LE(2Mbps)

Freq. Stability

2402MHz\_TnomVmax

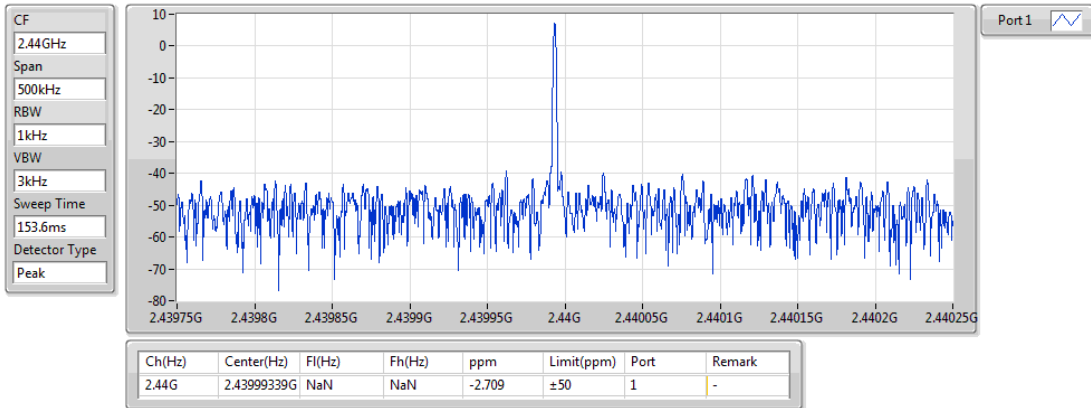




BT-LE(2Mbps)

Freq. Stability

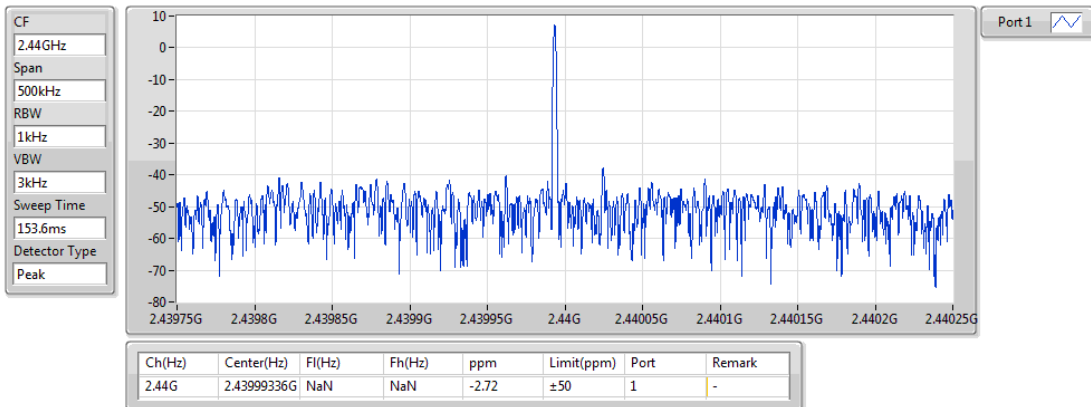
2440MHz\_TnomVnom



BT-LE(2Mbps)

Freq. Stability

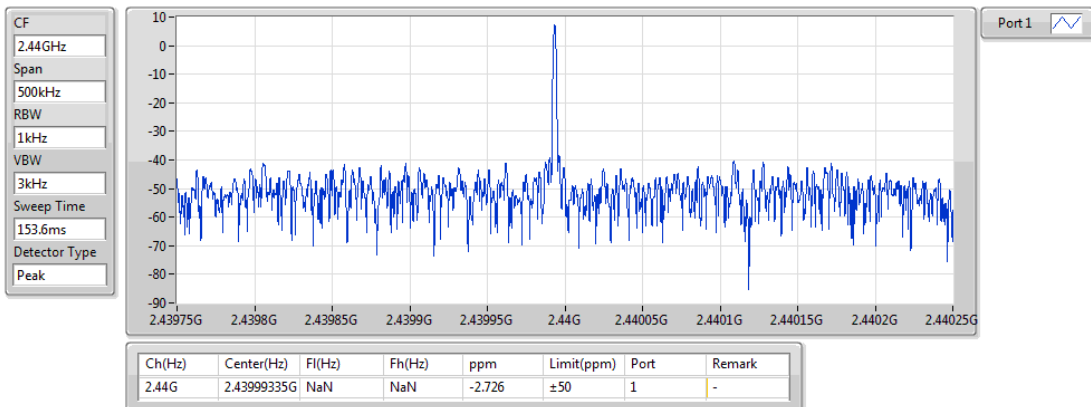
2440MHz\_TnomVmin



BT-LE(2Mbps)

Freq. Stability

2440MHz\_TnomVmax

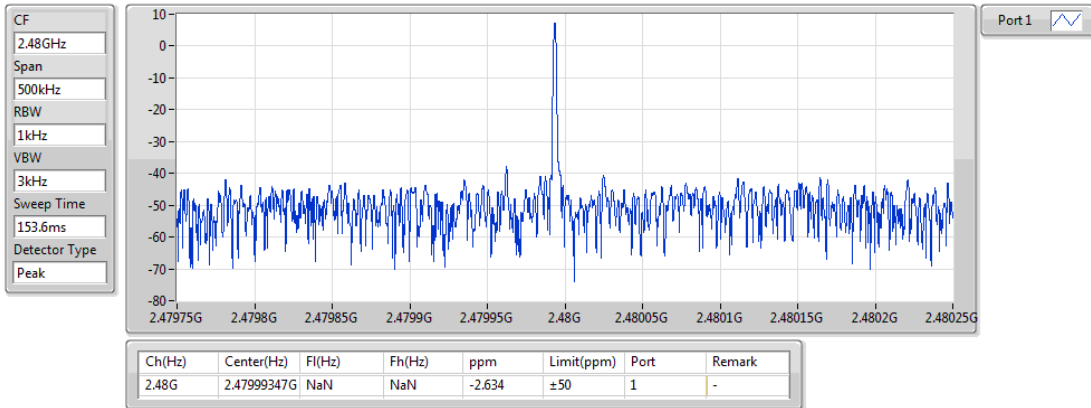




BT-LE(2Mbps)

Freq. Stability

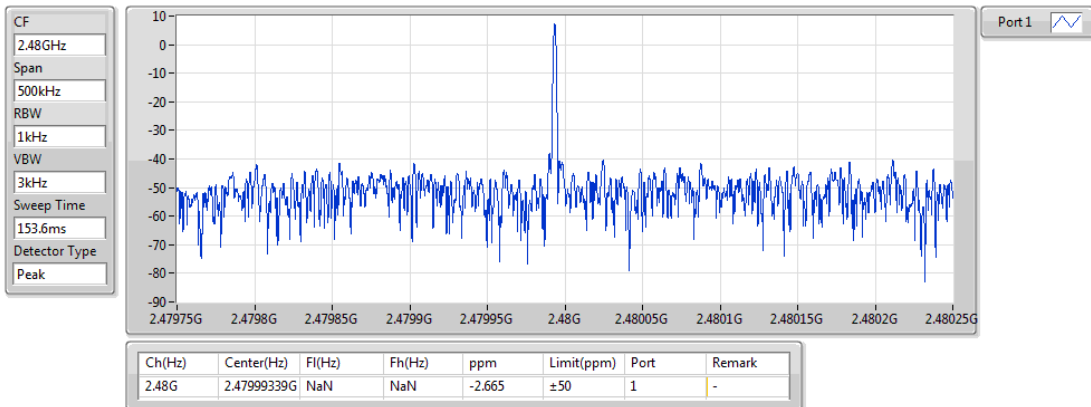
2480MHz\_TnomVnom



BT-LE(2Mbps)

Freq. Stability

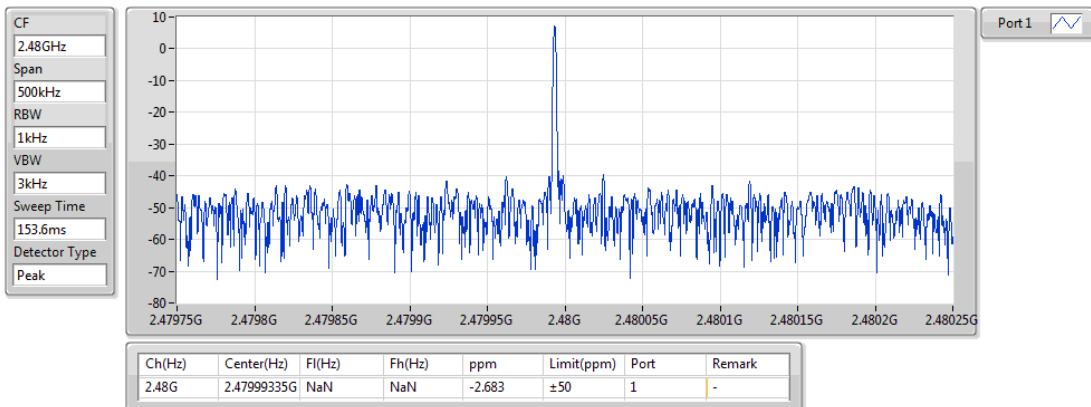
2480MHz\_TnomVmin



BT-LE(2Mbps)

Freq. Stability

2480MHz\_TnomVmax





## Occupied Bandwidth-DTS Result

## Appendix C

### Summary

Mode	Max-OBW (Hz)	ITU-Code	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-
BT-LE(2Mbps)	2.154M	2M15F1D	2.143M

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

### Result

Mode	Result	Limit (Hz)	P1-OBW (Hz)
BT-LE(2Mbps)	-	-	-
2402MHz_TnomVnom	Pass	26M	2.143M
2402MHz_TnomVmin	Pass	26M	2.143M
2402MHz_TnomVmax	Pass	26M	2.143M
2440MHz_TnomVnom	Pass	26M	2.153M
2440MHz_TnomVmin	Pass	26M	2.153M
2440MHz_TnomVmax	Pass	26M	2.154M
2480MHz_TnomVnom	Pass	26M	2.154M
2480MHz_TnomVmin	Pass	26M	2.154M
2480MHz_TnomVmax	Pass	26M	2.154M

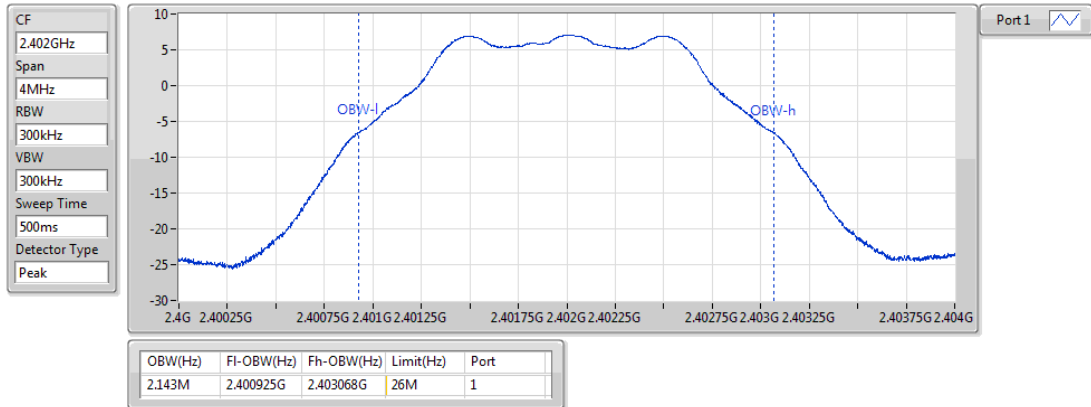
**P1-OBW** = Port 1 99% occupied bandwidth;



BT-LE(2Mbps)

OBW

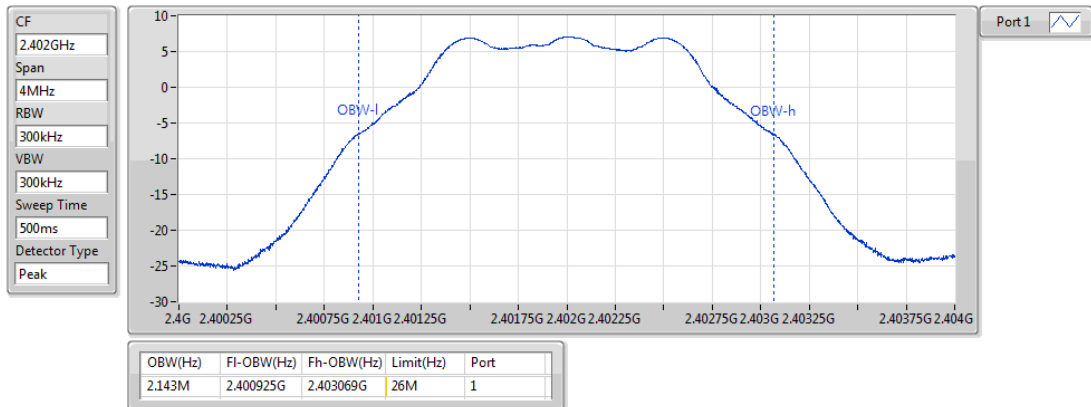
2402MHz\_TnomVnom



BT-LE(2Mbps)

OBW

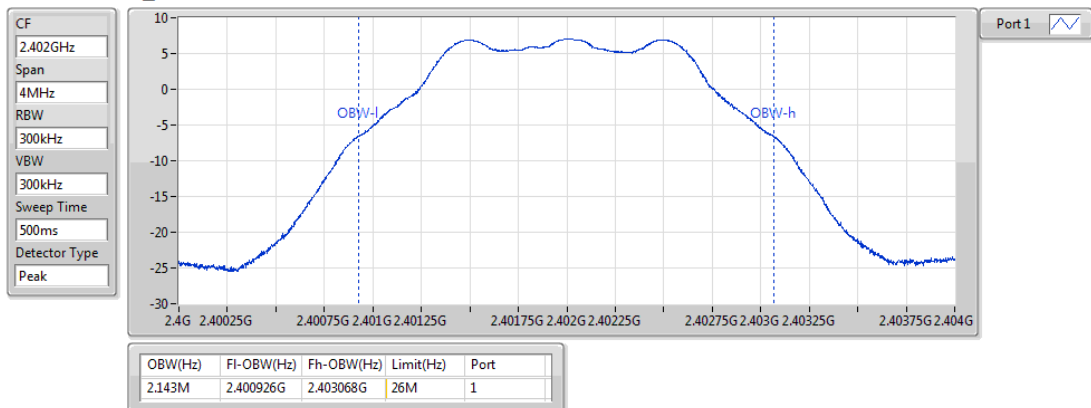
2402MHz\_TnomVmin



BT-LE(2Mbps)

OBW

2402MHz\_TnomVmax







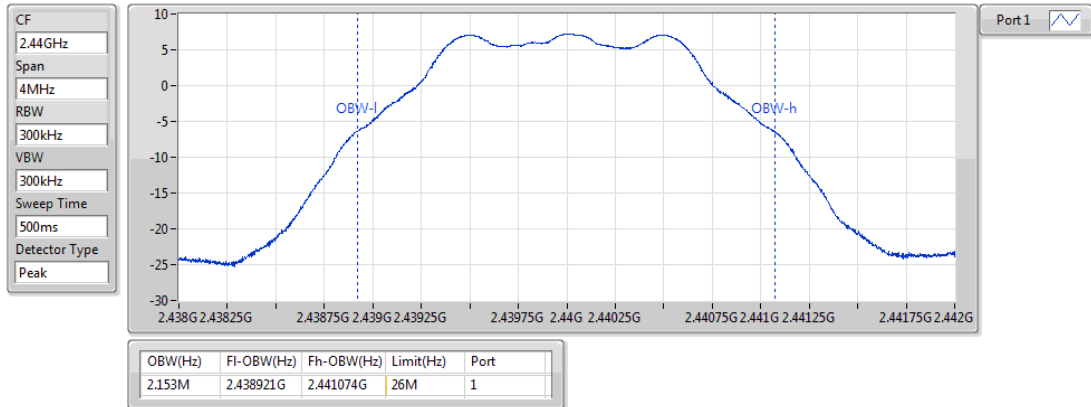
## Occupied Bandwidth-DTS Result

Appendix C

BT-LE(2Mbps)

OBW

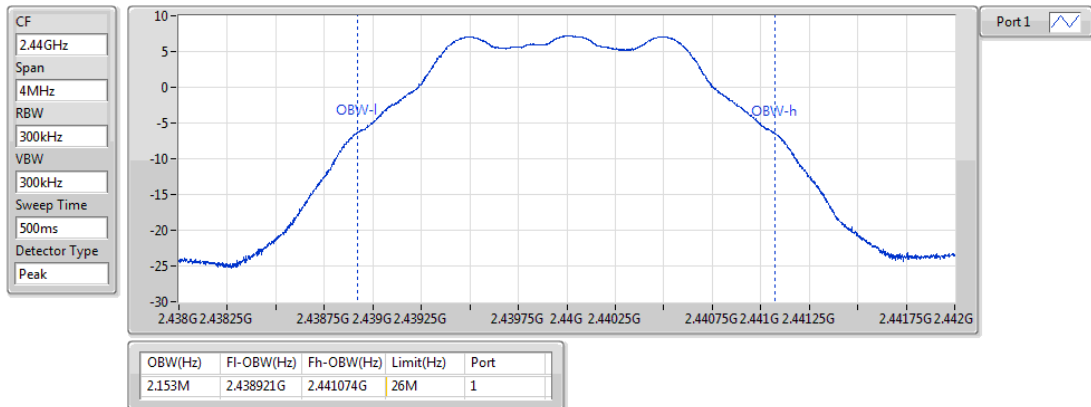
2440MHz\_TnomVnom



BT-LE(2Mbps)

OBW

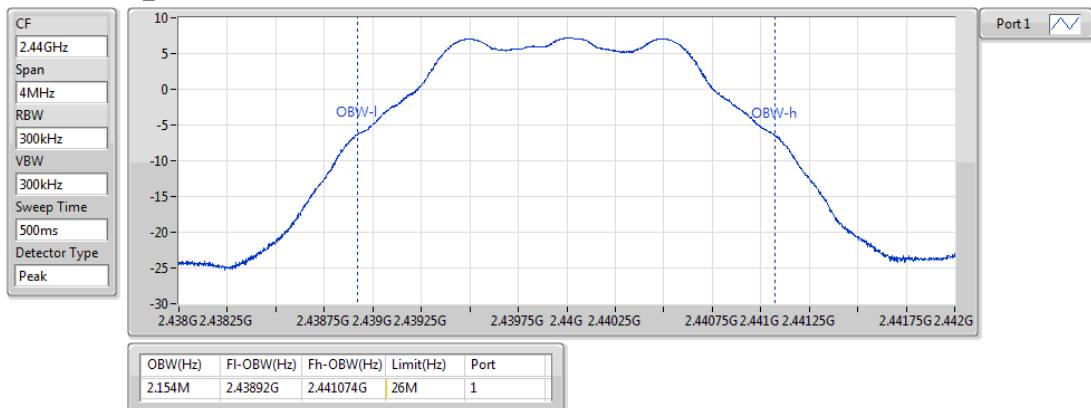
2440MHz\_TnomVmin



BT-LE(2Mbps)

OBW

2440MHz\_TnomVmax





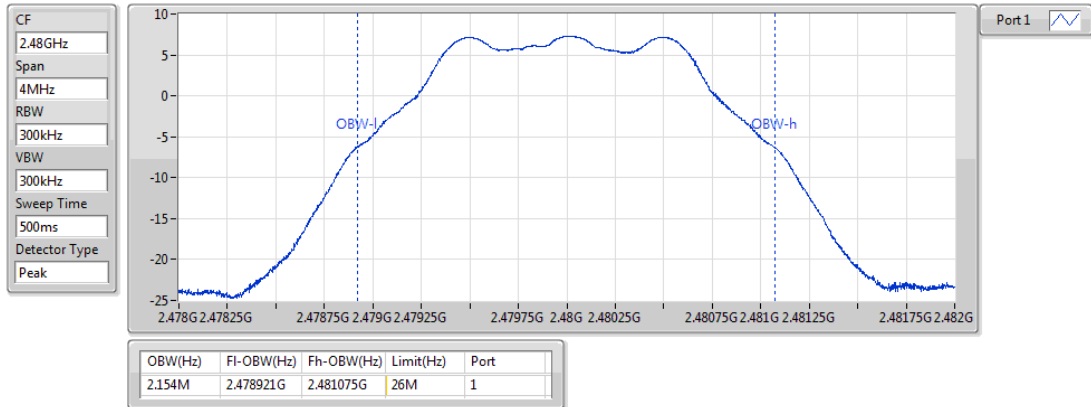
## Occupied Bandwidth-DTS Result

Appendix C

BT-LE(2Mbps)

OBW

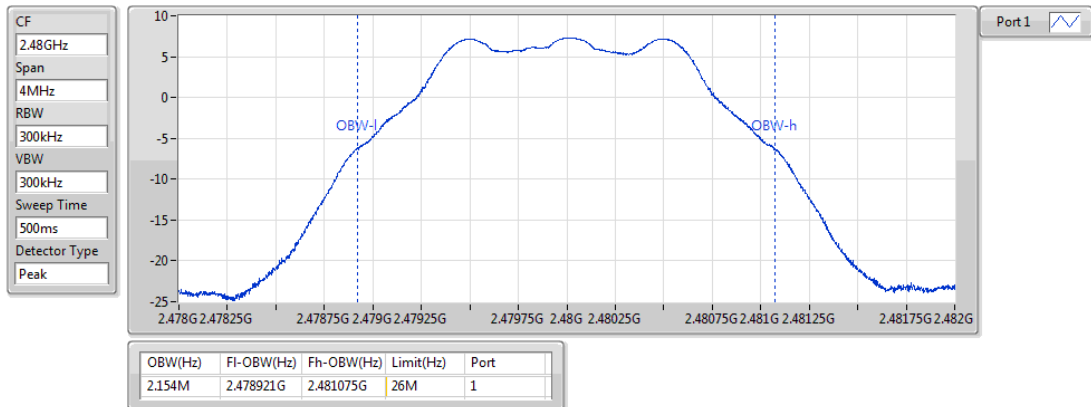
2480MHz\_TnomVnom



BT-LE(2Mbps)

OBW

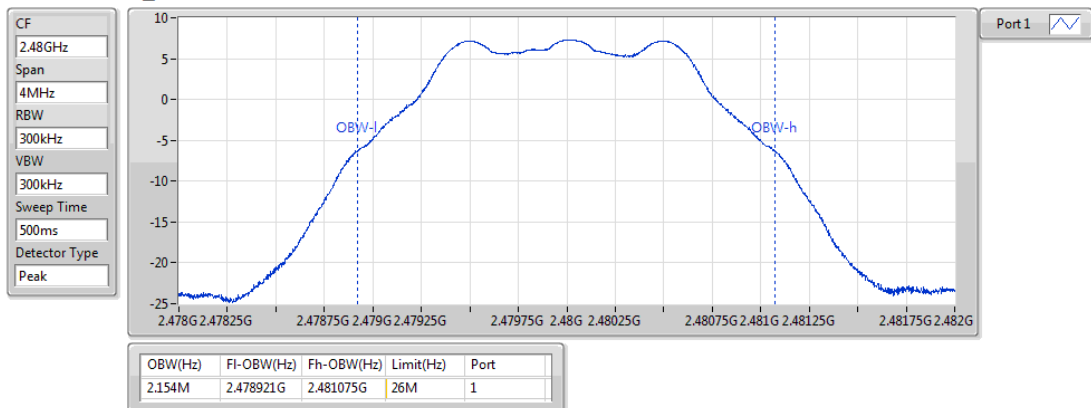
2480MHz\_TnomVmin



BT-LE(2Mbps)

OBW

2480MHz\_TnomVmax



**CSE-TX Unwanted Emission Strength-DTS Result****Appendix D****Summary**

Mode	Result	F-Start (Hz)	F-Stop (Hz)	RBW (Hz)	Freq (Hz)	Psum (dBm)	Psum (uW/MHz)	Limit (dBm)	Limit (uW/MHz)
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-
BT-LE(2Mbps)	Pass	2.387G	2.4G	1M	2.39997G	-18.62	13.74042	-16.02	25

**Result**

Mode	Result	F-Start (Hz)	F-Stop (Hz)	RBW (Hz)	Freq (Hz)	Psum (dBm)	Psum (uW/MHz)	Limit (dBm)	Limit (uW/MHz)
BT-LE(2Mbps)	-	-	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	30M	2.387G	1M	2.354G	-49.38	0.01153	-26.02	2.5
2402MHz_TnomVnom	Pass	2.387G	2.4G	1M	2.39997G	-18.62	13.74042	-16.02	25
2402MHz_TnomVnom	Pass	2.4835G	2.4965G	1M	2.49005G	-51.99	0.00632	-16.02	25
2402MHz_TnomVnom	Pass	2.4965G	12.5G	1M	4.80356G	-44.37	0.03656	-26.02	2.5
2402MHz_TnomVmin	Pass	30M	2.387G	1M	2.3705G	-48.92	0.01282	-26.02	2.5
2402MHz_TnomVmin	Pass	2.387G	2.4G	1M	2.39997G	-18.62	13.74042	-16.02	25
2402MHz_TnomVmin	Pass	2.4835G	2.4965G	1M	2.49003G	-52.04	0.00625	-16.02	25
2402MHz_TnomVmin	Pass	2.4965G	12.5G	1M	4.80481G	-44.84	0.03281	-26.02	2.5
2402MHz_TnomVmax	Pass	30M	2.387G	1M	2.3705G	-49.14	0.01219	-26.02	2.5
2402MHz_TnomVmax	Pass	2.387G	2.4G	1M	2.39997G	-18.65	13.64583	-16.02	25
2402MHz_TnomVmax	Pass	2.4835G	2.4965G	1M	2.49G	-52.07	0.00621	-16.02	25
2402MHz_TnomVmax	Pass	2.4965G	12.5G	1M	4.80356G	-44.46	0.03581	-26.02	2.5
2440MHz_TnomVnom	Pass	30M	2.387G	1M	2.35165G	-50.10	0.00977	-26.02	2.5
2440MHz_TnomVnom	Pass	2.387G	2.4G	1M	2.39181G	-51.43	0.00719	-16.02	25
2440MHz_TnomVnom	Pass	2.4835G	2.4965G	1M	2.488G	-51.11	0.00774	-16.02	25
2440MHz_TnomVnom	Pass	2.4965G	12.5G	1M	4.87983G	-45.19	0.03027	-26.02	2.5
2440MHz_TnomVmin	Pass	30M	2.387G	1M	2.31158G	-50.57	0.00877	-26.02	2.5
2440MHz_TnomVmin	Pass	2.387G	2.4G	1M	2.39207G	-51.46	0.00714	-16.02	25
2440MHz_TnomVmin	Pass	2.4835G	2.4965G	1M	2.48805G	-51.11	0.00774	-16.02	25
2440MHz_TnomVmin	Pass	2.4965G	12.5G	1M	4.87983G	-45.18	0.03034	-26.02	2.5
2440MHz_TnomVmax	Pass	30M	2.387G	1M	2.35165G	-50.23	0.00948	-26.02	2.5
2440MHz_TnomVmax	Pass	2.387G	2.4G	1M	2.39191G	-51.44	0.00718	-16.02	25
2440MHz_TnomVmax	Pass	2.4835G	2.4965G	1M	2.48805G	-51.07	0.00782	-16.02	25
2440MHz_TnomVmax	Pass	2.4965G	12.5G	1M	4.87983G	-45.16	0.03048	-26.02	2.5
2480MHz_TnomVnom	Pass	30M	2.387G	1M	2.31983G	-50.61	0.00869	-26.02	2.5
2480MHz_TnomVnom	Pass	2.387G	2.4G	1M	2.39194G	-52.36	0.00581	-16.02	25
2480MHz_TnomVnom	Pass	2.4835G	2.4965G	1M	2.48353G	-44.26	0.0375	-16.02	25
2480MHz_TnomVnom	Pass	2.4965G	12.5G	1M	11.41337G	-45.40	0.02884	-26.02	2.5

**CSE-TX Unwanted Emission Strength-DTS Result****Appendix D**

Mode	Result	F-Start (Hz)	F-Stop (Hz)	RBW (Hz)	Freq (Hz)	Psum (dBm)	Psum (uW/MHz)	Limit (dBm)	Limit (uW/MHz)
2480MHz_TnomVmin	Pass	30M	2.387G	1M	2.37639G	-50.34	0.00925	-26.02	2.5
2480MHz_TnomVmin	Pass	2.387G	2.4G	1M	2.39202G	-52.38	0.00578	-16.02	25
2480MHz_TnomVmin	Pass	2.4835G	2.4965G	1M	2.48353G	-44.13	0.03864	-16.02	25
2480MHz_TnomVmin	Pass	2.4965G	12.5G	1M	11.42462G	-45.48	0.02831	-26.02	2.5
2480MHz_TnomVmax	Pass	30M	2.387G	1M	2.37639G	-50.53	0.00885	-26.02	2.5
2480MHz_TnomVmax	Pass	2.387G	2.4G	1M	2.39202G	-52.47	0.00566	-16.02	25
2480MHz_TnomVmax	Pass	2.4835G	2.4965G	1M	2.48353G	-44.10	0.0389	-16.02	25
2480MHz_TnomVmax	Pass	2.4965G	12.5G	1M	10.60559G	-45.59	0.02761	-26.02	2.5



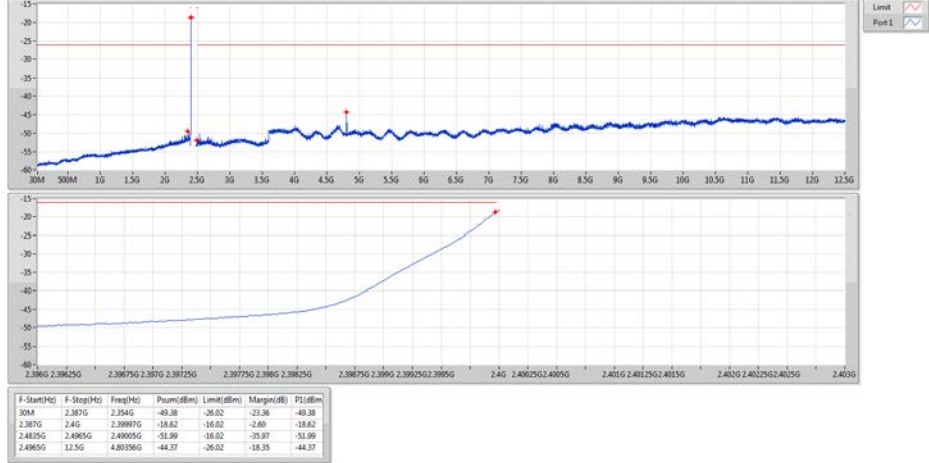
## CSE-TX Unwanted Emission Strength-DTS Result

Appendix D

BT-LE(2Mbps)

CSE-TX-DTS

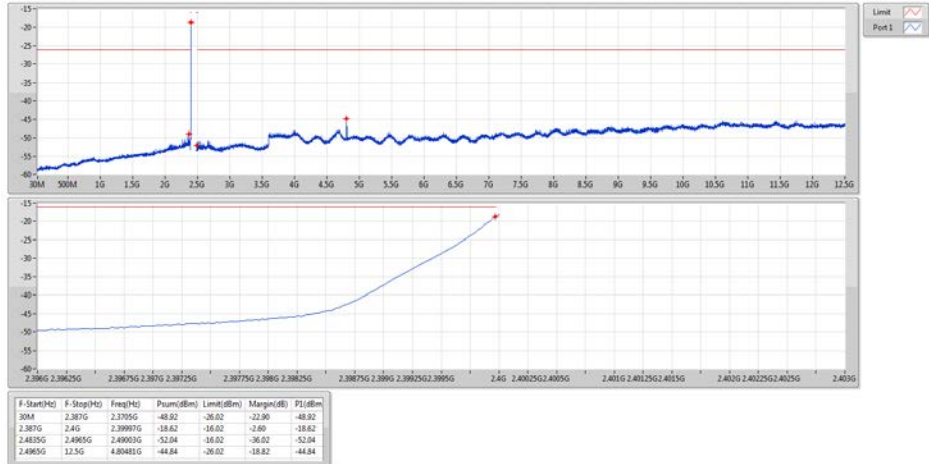
2402MHz\_TnomVnom



BT-LE(2Mbps)

CSE-TX-DTS

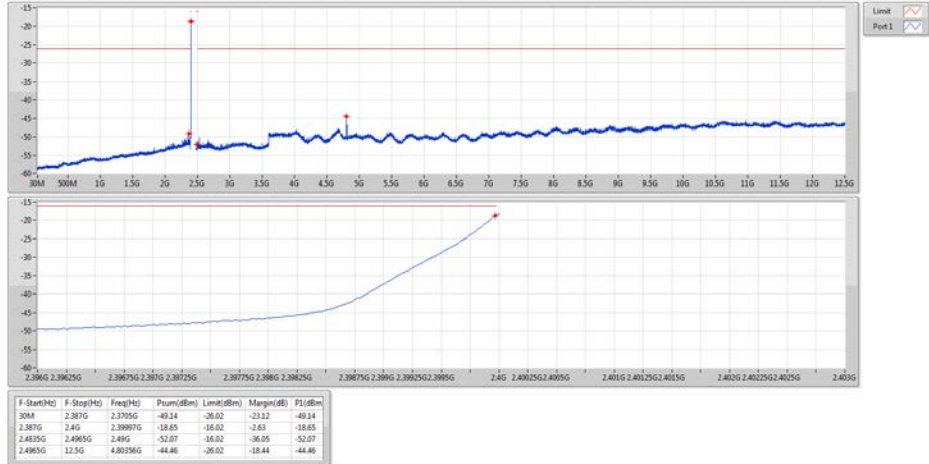
2402MHz\_TnomVmin



BT-LE(2Mbps)

CSE-TX-DTS

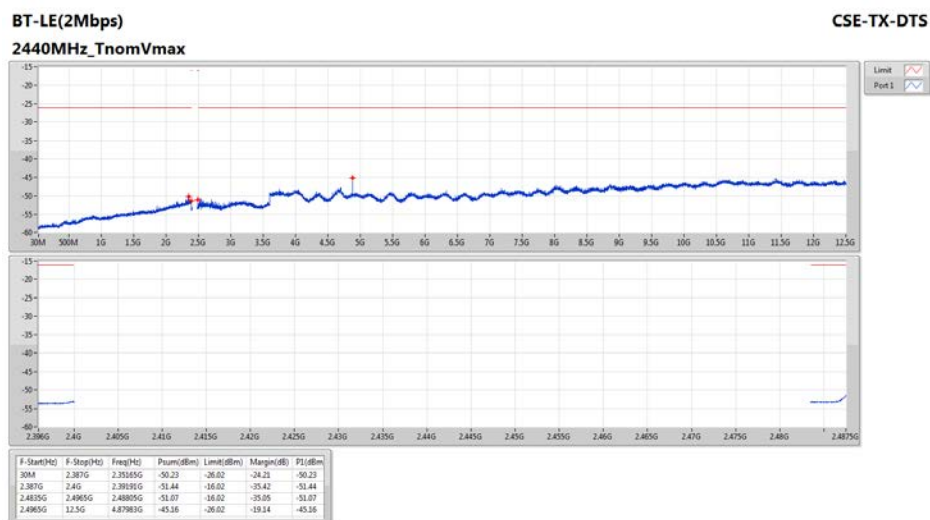
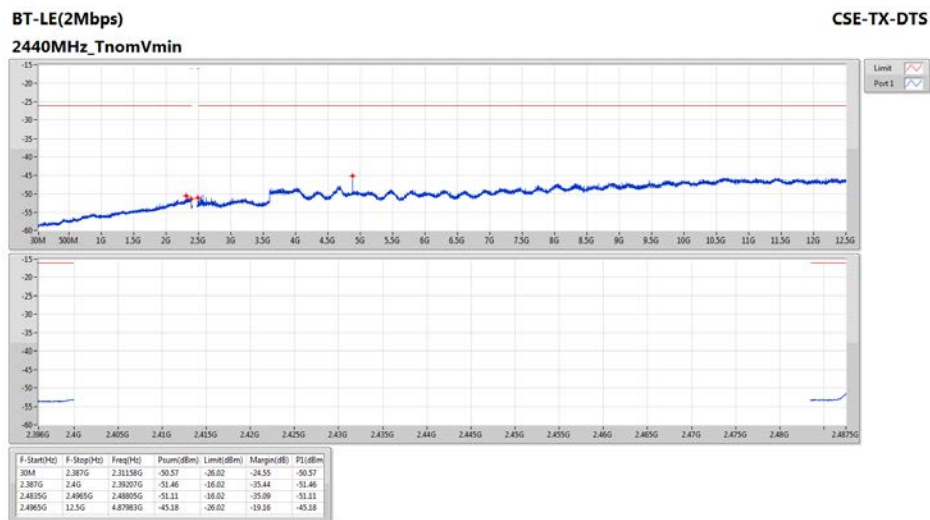
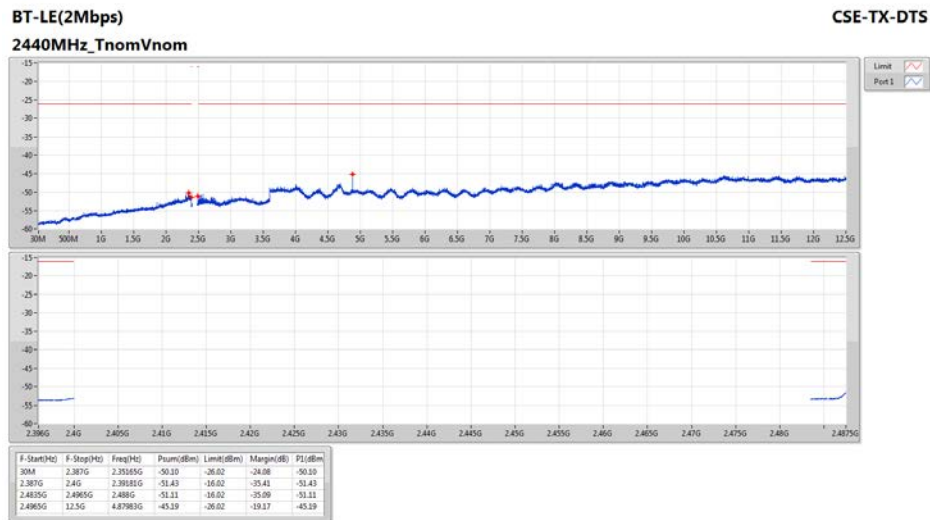
2402MHz\_TnomVmax





## CSE-TX Unwanted Emission Strength-DTS Result

Appendix D





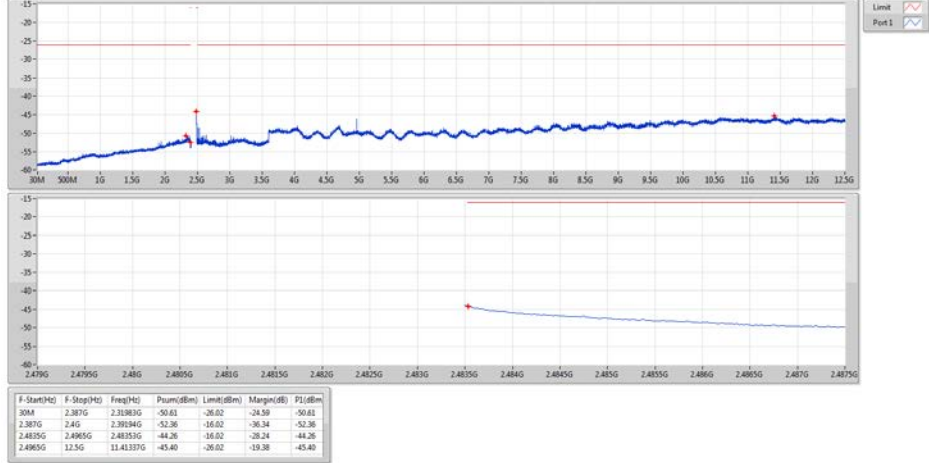
## CSE-TX Unwanted Emission Strength-DTS Result

## Appendix D

BT-LE(2Mbps)

CSE-TX-DTS

2480MHz\_TnomVnom



BT-LE(2Mbps)

CSE-TX-DTS

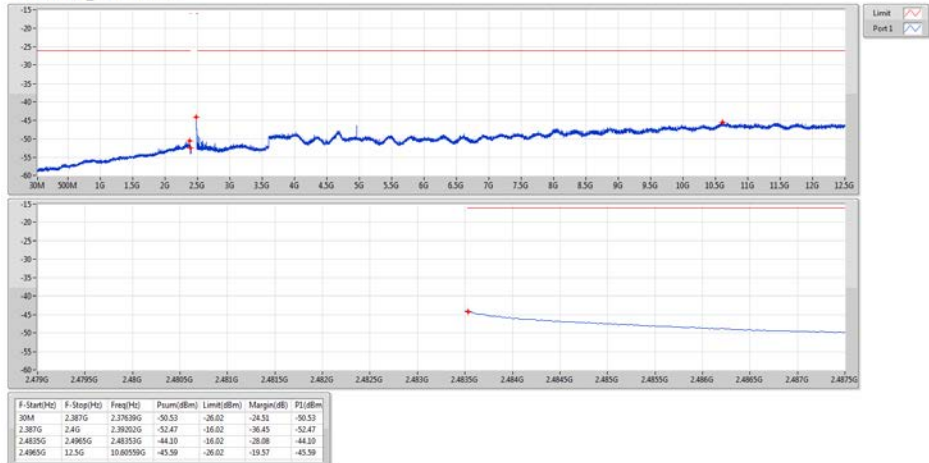
2480MHz\_TnomVmin



BT-LE(2Mbps)

CSE-TX-DTS

2480MHz\_TnomVmax





## Interference Prevention Function-DTSResult

## Appendix E

### Summary

Mode	Result	ID Length	ID Limit	Function
2.4-2.4835GHz	-	-	-	-
BT-LE(2Mbps)	Pass	DF:5A:5C:EE:5F:D9	48 bits	Good

### Result

Mode	Result	ID Length	ID Limit	Function
BT-LE(2Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	DF:5A:5C:EE:5F:D9	48 bits	Good
2402MHz_TnomVmin	Pass	DF:5A:5C:EE:5F:D9	48 bits	Good
2402MHz_TnomVmax	Pass	DF:5A:5C:EE:5F:D9	48 bits	Good
2440MHz_TnomVnom	Pass	DF:5A:5C:EE:5F:D9	48 bits	Good
2440MHz_TnomVmin	Pass	DF:5A:5C:EE:5F:D9	48 bits	Good
2440MHz_TnomVmax	Pass	DF:5A:5C:EE:5F:D9	48 bits	Good
2480MHz_TnomVnom	Pass	DF:5A:5C:EE:5F:D9	48 bits	Good
2480MHz_TnomVmin	Pass	DF:5A:5C:EE:5F:D9	48 bits	Good
2480MHz_TnomVmax	Pass	DF:5A:5C:EE:5F:D9	48 bits	Good



**CSE-RX Secondary Radiated Emissions-DTS Result****Appendix F****Summary**

Mode	Result	F-Start (Hz)	F-Stop (Hz)	RBW (Hz)	Freq (Hz)	Psum (dBm)	Psum (nW/MHz)	Limit (dBm)	Limit (nW/MHz)
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-
BT-LE(2Mbps)	Pass	1G	12.5G	1M	4.8755G	-79.80	0.01047	-46.99	20

**Result**

Mode	Result	F-Start (Hz)	F-Stop (Hz)	RBW (Hz)	Freq (Hz)	Psum (dBm)	Psum (nW/MHz)	Limit (dBm)	Limit (nW/MHz)
BT-LE(2Mbps)	-	-	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	30M	1G	100k	640.13M	-95.89	0.00026	-53.98	4
2402MHz_TnomVnom	Pass	1G	12.5G	1M	4.79931G	-80.07	0.00984		20
2402MHz_TnomVmin	Pass	30M	1G	100k	640.13M	-95.90	0.00026	-53.98	4
2402MHz_TnomVmin	Pass	1G	12.5G	1M	4.79931G	-79.86	0.01033	-46.99	20
2402MHz_TnomVmax	Pass	30M	1G	100k	640.13M	-95.94	0.00025	-53.98	4
2402MHz_TnomVmax	Pass	1G	12.5G	1M	4.79931G	-79.90	0.01023	-46.99	20
2440MHz_TnomVnom	Pass	30M	1G	100k	640.13M	-96.08	0.00025	-53.98	4
2440MHz_TnomVnom	Pass	1G	12.5G	1M	4.8755G	-79.80	0.01047	-46.99	20
2440MHz_TnomVmin	Pass	30M	1G	100k	640.13M	-96.32	0.00023	-53.98	4
2440MHz_TnomVmin	Pass	1G	12.5G	1M	4.8755G	-80.09	0.00979	-46.99	20
2440MHz_TnomVmax	Pass	30M	1G	100k	640.13M	-96.19	0.00024	-53.98	4
2440MHz_TnomVmax	Pass	1G	12.5G	1M	4.8755G	-80.27	0.0094	-46.99	20
2480MHz_TnomVnom	Pass	30M	1G	100k	640.13M	-95.99	0.00025	-53.98	4
2480MHz_TnomVnom	Pass	1G	12.5G	1M	10.61831G	-80.34	0.00925	-46.99	20
2480MHz_TnomVmin	Pass	30M	1G	100k	640.13M	-95.65	0.00027	-53.98	4
2480MHz_TnomVmin	Pass	1G	12.5G	1M	11.42619G	-80.04	0.00991	-46.99	20
2480MHz_TnomVmax	Pass	30M	1G	100k	640.13M	-96.17	0.00024	-53.98	4
2480MHz_TnomVmax	Pass	1G	12.5G	1M	11.45206G	-80.59	0.00873	-46.99	20



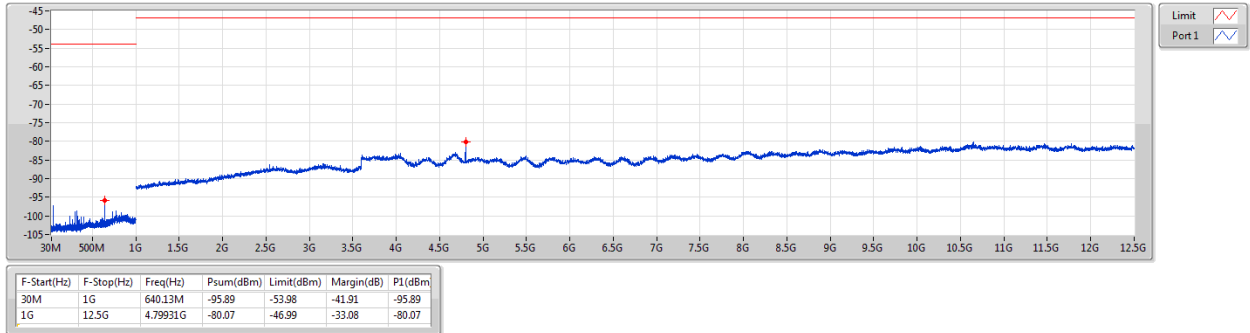
## CSE-RX Secondary Radiated Emissions-DTS Result

Appendix F

BT-LE(2Mbps)

CSE-RX-DTS

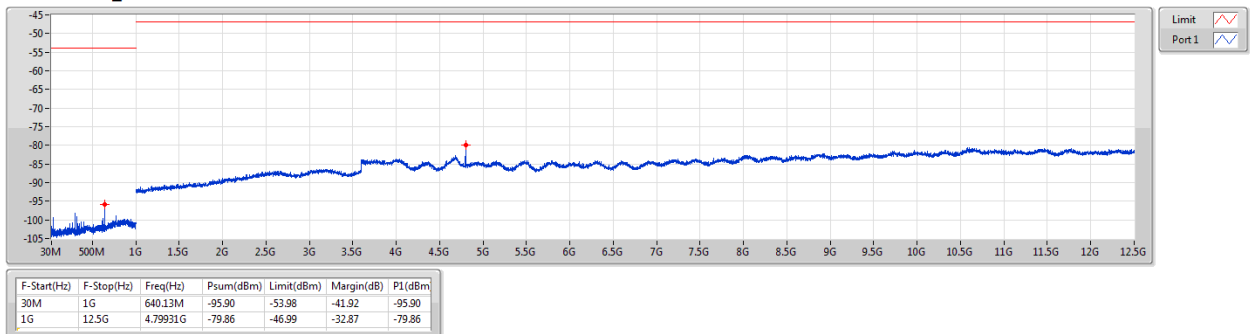
2402MHz\_TnomVnom



BT-LE(2Mbps)

CSE-RX-DTS

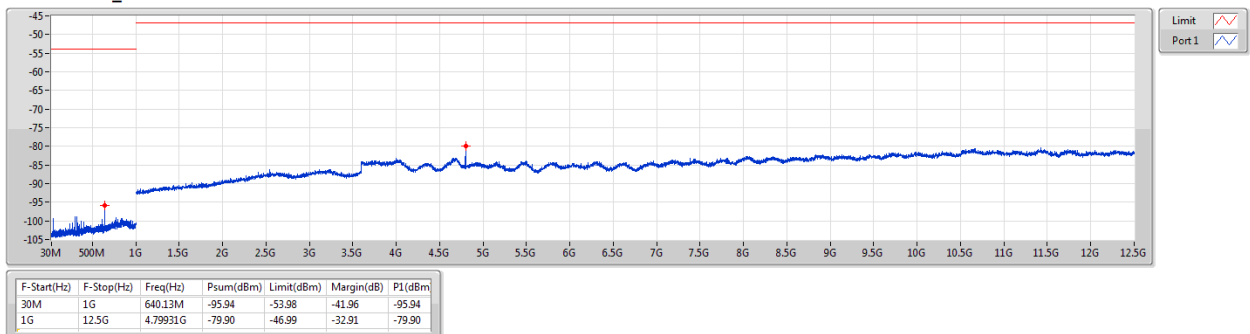
2402MHz\_TnomVmin



BT-LE(2Mbps)

CSE-RX-DTS

2402MHz\_TnomVmax





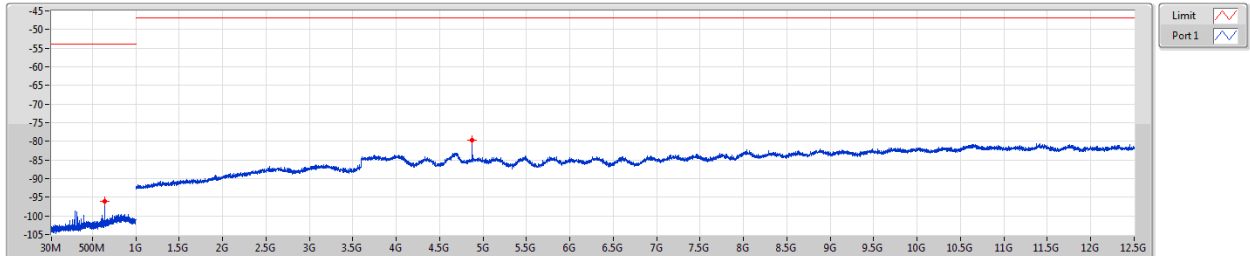
## CSE-RX Secondary Radiated Emissions-DTS Result

Appendix F

BT-LE(2Mbps)

CSE-RX-DTS

2440MHz\_TnomVnom

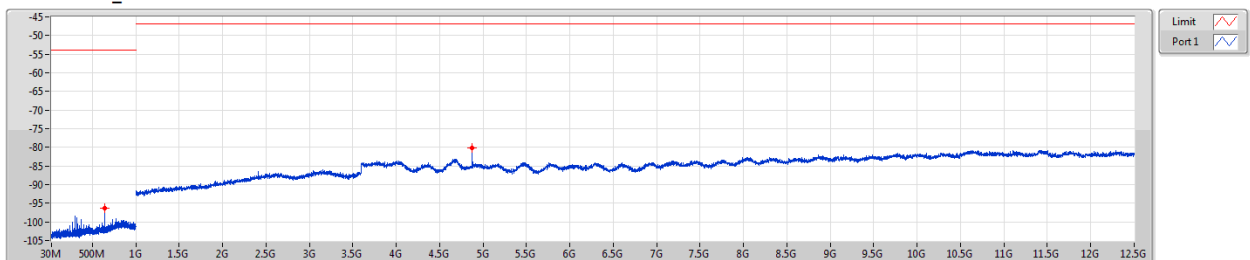


F-Start(Hz)	F-Stop(Hz)	Freq(Hz)	Psum(dBm)	Limit(dBm)	Margin(dB)	P1(dBm)
30M	1G	640.13M	-96.08	-53.98	-42.10	-96.08
1G	12.5G	4.8755G	-79.80	-46.99	-32.81	-79.80

BT-LE(2Mbps)

CSE-RX-DTS

2440MHz\_TnomVmin

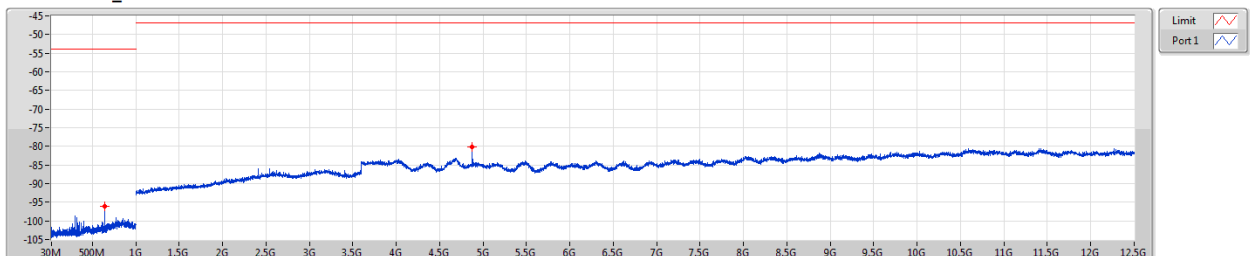


F-Start(Hz)	F-Stop(Hz)	Freq(Hz)	Psum(dBm)	Limit(dBm)	Margin(dB)	P1(dBm)
30M	1G	640.13M	-96.32	-53.98	-42.34	-96.32
1G	12.5G	4.8755G	-80.09	-46.99	-33.10	-80.09

BT-LE(2Mbps)

CSE-RX-DTS

2440MHz\_TnomVmax



F-Start(Hz)	F-Stop(Hz)	Freq(Hz)	Psum(dBm)	Limit(dBm)	Margin(dB)	P1(dBm)
30M	1G	640.13M	-96.19	-53.98	-42.21	-96.19
1G	12.5G	4.8755G	-80.27	-46.99	-33.28	-80.27



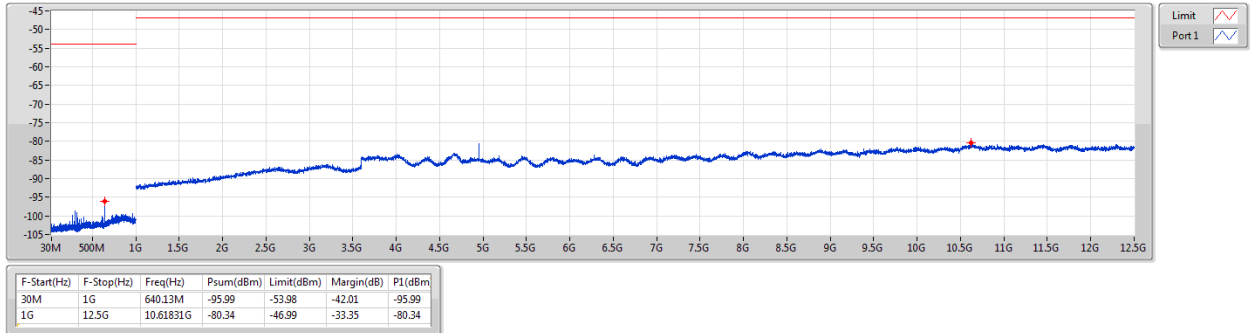
## CSE-RX Secondary Radiated Emissions-DTS Result

Appendix F

BT-LE(2Mbps)

CSE-RX-DTS

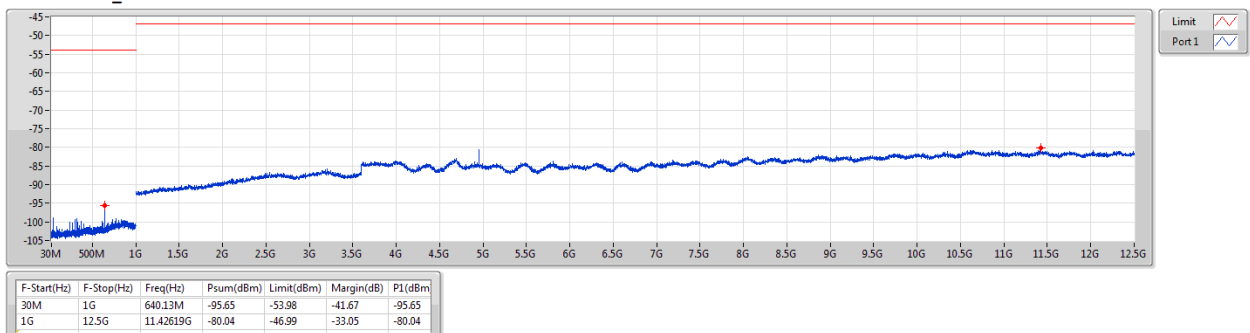
2480MHz\_TnomVnom



BT-LE(2Mbps)

CSE-RX-DTS

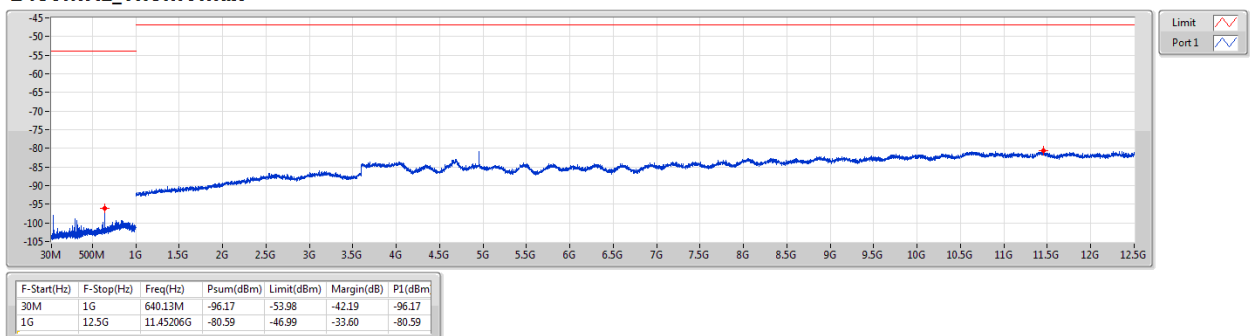
2480MHz\_TnomVmin



BT-LE(2Mbps)

CSE-RX-DTS

2480MHz\_TnomVmax



**125kbps\_BL653\_with MHF4 connector antenna**



## Total Power-DTS Result

Appendix A.1

### Summary

Mode	Power (dBm)	Power (mW)	EIRP (dBm)	EIRP (mW)
2.4-2.4835GHz	-	-	-	-
BT-LE0.125_Nss1_1TX	7.57	5.715	9.57	9.057

### Result

Mode	Result	Gain (dBi)	Power (dBm)	Power (mW)	Power Lim. (mW)	EIRP (dBm)	EIRP (mW)	EIRP Lim. (mW)
BT-LE0.125_Nss1_1TX	-	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.00	7.47	5.585	10	9.47	8.851	16.368
2402MHz_TnomVmin	Pass	2.00	7.33	5.408	10	9.33	8.570	16.368
2402MHz_TnomVmax	Pass	2.00	7.36	5.445	10	9.36	8.630	16.368
2440MHz_TnomVnom	Pass	2.00	7.57	5.715	10	9.57	9.057	16.368
2440MHz_TnomVmin	Pass	2.00	7.44	5.546	10	9.44	8.790	16.368
2440MHz_TnomVmax	Pass	2.00	7.46	5.572	10	9.46	8.831	16.368
2480MHz_TnomVnom	Pass	2.00	7.56	5.702	10	9.56	9.036	16.368
2480MHz_TnomVmin	Pass	2.00	7.42	5.521	10	9.42	8.750	16.368
2480MHz_TnomVmax	Pass	2.00	7.45	5.559	10	9.45	8.810	16.368



## Power Tolerance-DTS Result

## Appendix A.2

### Summary

Mode	Result	Power (dBm)	Power (mW)	Declare (mW)	Tolerance (%)	Limit+ (%)	Limit- (%)
2.4-2.4835GHz	-	-	-	-	-	-	-
BT-LE0.125_Nss1_1TX	Pass	7.57	5.715	6.00	-4.75	20	-80

### Result

Mode	Result	Power (dBm)	Power (mW)	Declare (mW)	Tolerance (%)	Limit+ (%)	Limit- (%)
BT-LE0.125_Nss1_1TX	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	7.47	5.585	6.00	-6.92	20	-80
2402MHz_TnomVmin	Pass	7.33	5.408	6.00	-9.87	20	-80
2402MHz_TnomVmax	Pass	7.36	5.445	6.00	-9.25	20	-80
2440MHz_TnomVnom	Pass	7.57	5.715	6.00	-4.75	20	-80
2440MHz_TnomVmin	Pass	7.44	5.546	6.00	-7.57	20	-80
2440MHz_TnomVmax	Pass	7.46	5.572	6.00	-7.13	20	-80
2480MHz_TnomVnom	Pass	7.56	5.702	6.00	-4.97	20	-80
2480MHz_TnomVmin	Pass	7.42	5.521	6.00	-7.98	20	-80
2480MHz_TnomVmax	Pass	7.45	5.559	6.00	-7.35	20	-80

**500kbps\_BL653\_with MHF4 connector antenna**





## Total Power-DTS Result

Appendix A.1

### Summary

Mode	Power (dBm)	Power (mW)	EIRP (dBm)	EIRP (mW)
2.4-2.4835GHz	-	-	-	-
BT-LE0.5_Nss1_1TX	7.57	5.715	9.57	9.057

### Result

Mode	Result	Gain (dBi)	Power (dBm)	Power (mW)	Power Lim. (mW)	EIRP (dBm)	EIRP (mW)	EIRP Lim. (mW)
BT-LE0.5_Nss1_1TX	-	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.00	7.47	5.585	10	9.47	8.851	16.368
2402MHz_TnomVmin	Pass	2.00	7.32	5.395	10	9.32	8.551	16.368
2402MHz_TnomVmax	Pass	2.00	7.36	5.445	10	9.36	8.630	16.368
2440MHz_TnomVnom	Pass	2.00	7.57	5.715	10	9.57	9.057	16.368
2440MHz_TnomVmin	Pass	2.00	7.43	5.534	10	9.43	8.770	16.368
2440MHz_TnomVmax	Pass	2.00	7.47	5.585	10	9.47	8.851	16.368
2480MHz_TnomVnom	Pass	2.00	7.56	5.702	10	9.56	9.036	16.368
2480MHz_TnomVmin	Pass	2.00	7.42	5.521	10	9.42	8.750	16.368
2480MHz_TnomVmax	Pass	2.00	7.45	5.559	10	9.45	8.810	16.368



## Power Tolerance-DTS Result

## Appendix A.2

### Summary

Mode	Result	Power (dBm)	Power (mW)	Declare (mW)	Tolerance (%)	Limit+ (%)	Limit- (%)
2.4-2.4835GHz	-	-	-	-	-	-	-
BT-LE0.5_Nss1_1TX	Pass	7.57	5.715	6.00	-4.75	20	-80

### Result

Mode	Result	Power (dBm)	Power (mW)	Declare (mW)	Tolerance (%)	Limit+ (%)	Limit- (%)
BT-LE0.5_Nss1_1TX	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	7.47	5.585	6.00	-6.92	20	-80
2402MHz_TnomVmin	Pass	7.32	5.395	6.00	-10.08	20	-80
2402MHz_TnomVmax	Pass	7.36	5.445	6.00	-9.25	20	-80
2440MHz_TnomVnom	Pass	7.57	5.715	6.00	-4.75	20	-80
2440MHz_TnomVmin	Pass	7.43	5.534	6.00	-7.77	20	-80
2440MHz_TnomVmax	Pass	7.47	5.585	6.00	-6.92	20	-80
2480MHz_TnomVnom	Pass	7.56	5.702	6.00	-4.97	20	-80
2480MHz_TnomVmin	Pass	7.42	5.521	6.00	-7.98	20	-80
2480MHz_TnomVmax	Pass	7.45	5.559	6.00	-7.35	20	-80

**1Mbps\_BL653\_with MHF4 connector antenna**



## Total Power-DTS Result

Appendix A.1

### Summary

Mode	Power (dBm)	Power (mW)	EIRP (dBm)	EIRP (mW)
2.4-2.4835GHz	-	-	-	-
BT-LE(1Mbps)	7.57	5.715	9.57	9.057

### Result

Mode	Result	Gain (dBi)	Power (dBm)	Power (mW)	Power Lim. (mW)	EIRP (dBm)	EIRP (mW)	EIRP Lim. (mW)
BT-LE(1Mbps)	-	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.00	7.48	5.598	10	9.48	8.872	16.368
2402MHz_TnomVmin	Pass	2.00	7.33	5.408	10	9.33	8.570	16.368
2402MHz_TnomVmax	Pass	2.00	7.37	5.458	10	9.37	8.650	16.368
2440MHz_TnomVnom	Pass	2.00	7.57	5.715	10	9.57	9.057	16.368
2440MHz_TnomVmin	Pass	2.00	7.44	5.546	10	9.44	8.790	16.368
2440MHz_TnomVmax	Pass	2.00	7.47	5.585	10	9.47	8.851	16.368
2480MHz_TnomVnom	Pass	2.00	7.56	5.702	10	9.56	9.036	16.368
2480MHz_TnomVmin	Pass	2.00	7.43	5.534	10	9.43	8.770	16.368
2480MHz_TnomVmax	Pass	2.00	7.46	5.572	10	9.46	8.831	16.368

;



## Power Tolerance-DTS Result

## Appendix A.2

### Summary

Mode	Result	Power (dBm)	Power (mW)	Declare (mW)	Tolerance (%)	Limit+ (%)	Limit- (%)
2.4-2.4835GHz	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	7.57	5.715	6.00	-4.75	20	-80

### Result

Mode	Result	Power (dBm)	Power (mW)	Declare (mW)	Tolerance (%)	Limit+ (%)	Limit- (%)
BT-LE(1Mbps)	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	7.48	5.598	6.00	-6.71	20	-80
2402MHz_TnomVmin	Pass	7.33	5.408	6.00	-9.87	20	-80
2402MHz_TnomVmax	Pass	7.37	5.458	6.00	-9.04	20	-80
2440MHz_TnomVnom	Pass	7.57	5.715	6.00	-4.75	20	-80
2440MHz_TnomVmin	Pass	7.44	5.546	6.00	-7.56	20	-80
2440MHz_TnomVmax	Pass	7.47	5.585	6.00	-6.92	20	-80
2480MHz_TnomVnom	Pass	7.56	5.702	6.00	-4.97	20	-80
2480MHz_TnomVmin	Pass	7.43	5.534	6.00	-7.78	20	-80
2480MHz_TnomVmax	Pass	7.46	5.572	6.00	-7.14	20	-80

**2Mbps\_BL653\_with MHF4 connector antenna**



## Total Power-DTS Result

Appendix A.1

### Summary

Mode	Power (dBm)	Power (mW)	EIRP (dBm)	EIRP (mW)
2.4-2.4835GHz	-	-	-	-
BT-LE(2Mbps)	7.57	5.715	9.57	9.057

### Result

Mode	Result	Gain (dBi)	Power (dBm)	Power (mW)	Power Lim. (mW)	EIRP (dBm)	EIRP (mW)	EIRP Lim. (mW)
BT-LE(2Mbps)	-	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.00	7.47	5.585	10	9.47	8.851	16.368
2402MHz_TnomVmin	Pass	2.00	7.33	5.408	10	9.33	8.570	16.368
2402MHz_TnomVmax	Pass	2.00	7.37	5.458	10	9.37	8.650	16.368
2440MHz_TnomVnom	Pass	2.00	7.57	5.715	10	9.57	9.057	16.368
2440MHz_TnomVmin	Pass	2.00	7.44	5.546	10	9.44	8.790	16.368
2440MHz_TnomVmax	Pass	2.00	7.47	5.585	10	9.47	8.851	16.368
2480MHz_TnomVnom	Pass	2.00	7.56	5.702	10	9.56	9.036	16.368
2480MHz_TnomVmin	Pass	2.00	7.43	5.534	10	9.43	8.770	16.368
2480MHz_TnomVmax	Pass	2.00	7.46	5.572	10	9.46	8.831	16.368



## Power Tolerance-DTS Result

## Appendix A.2

### Summary

Mode	Result	Power (dBm)	Power (mW)	Declare (mW)	Tolerance (%)	Limit+ (%)	Limit- (%)
2.4-2.4835GHz	-	-	-	-	-	-	-
BT-LE(2Mbps)	Pass	7.57	5.715	6.00	-4.75	20	-80

### Result

Mode	Result	Power (dBm)	Power (mW)	Declare (mW)	Tolerance (%)	Limit+ (%)	Limit- (%)
BT-LE(2Mbps)	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	7.47	5.585	6.00	-6.92	20	-80
2402MHz_TnomVmin	Pass	7.33	5.408	6.00	-9.87	20	-80
2402MHz_TnomVmax	Pass	7.37	5.458	6.00	-9.03	20	-80
2440MHz_TnomVnom	Pass	7.57	5.715	6.00	-4.75	20	-80
2440MHz_TnomVmin	Pass	7.44	5.546	6.00	-7.57	20	-80
2440MHz_TnomVmax	Pass	7.47	5.585	6.00	-6.92	20	-80
2480MHz_TnomVnom	Pass	7.56	5.702	6.00	-4.97	20	-80
2480MHz_TnomVmin	Pass	7.43	5.534	6.00	-7.77	20	-80
2480MHz_TnomVmax	Pass	7.46	5.572	6.00	-7.13	20	-80