

# VERIFICATION OF COMPLIANCE

- **Equipment** : SiP  
**Model No.** : M904S  
**Applicant** : **MtM Technology Corporation**  
8F, 178 MinQuan East Road Section 3, Taipei,  
Taiwan (R.O.C.)



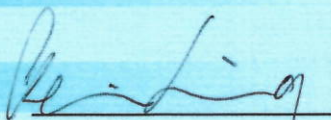
I HEREBY

DECLARE THAT :

The following technical requirements and test specifications are relevant to the presumption of conformity under the **R&TTE Directive 1999/5/EC**.

The equipment was **Passed** the test performed according to **ETSI EN 300 328 V1.9.1(2015-02)**

The test was carried out on **Aug. 12, 2016** at **SPORTON INTERNATIONAL INC. LAB.**

  
Kevin Liang  
Assistant Manager

# CE Radio Test Report

**Equipment** : SiP  
**Brand Name** : MtM  
**Model No.** : M904S  
**Standard** : EN 300 328 V1.9.1 (2015-02)  
**Operating Band** : 2400 MHz – 2483.5 MHz  
**Type Modulation** :  FHSS;  Other forms of modulation  
**Applicant** : **MtM Technology Corporation**  
8F, 178 MinQuan East Road Section 3, Taipei, Taiwan  
(R.O.C.)  
**Manufacturer** : **ASE Group.**  
No. 26, Chin 3rd Rd., N.E.P.Z., Nantze, Kaohsiung, Taiwan  
(R.O.C.)

The product sample received on Jul. 28, 2016 and completely tested on Aug. 12, 2016. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with the procedures given in EN 300 328 V1.9.1 (2015-02) and shown compliance with the applicable technical standards. The object of the declaration described above is in conformity with the relevant Union harmonization legislation: Directive 1999/5/EC.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by:

  
Kevin Liang / Assistant Manager





## **Table of Contents**

<b>1</b>	<b>GENERAL DESCRIPTION .....</b>	<b>5</b>
1.1	Information.....	5
1.2	Accessories and Support Equipment .....	8
1.3	Testing Applied Standards .....	8
1.4	Testing Location Information .....	8
1.5	Measurement Uncertainty .....	9
<b>2</b>	<b>TEST CONFIGURATION OF EUT.....</b>	<b>10</b>
2.1	Test Condition .....	10
2.2	Test Channel Mode .....	10
2.3	The Worst Case Measurement Configuration.....	11
2.4	Test Setup Diagram .....	12
<b>3</b>	<b>TRANSMITTER TEST RESULT .....</b>	<b>13</b>
3.1	RF Output Power.....	13
3.2	Power Density .....	15
3.3	Occupied Channel Bandwidth .....	16
3.4	Transmitter Unwanted Emissions in the Out-of-band Domain.....	17
3.5	Transmitter Unwanted Emissions in the Spurious Domain .....	19
3.6	Duty cycle, Tx-Sequence, Tx-gap and Medium Utilisation .....	21
<b>4</b>	<b>RECEIVER TEST RESULT .....</b>	<b>22</b>
4.1	Receiver Spurious Emissions.....	22
<b>5</b>	<b>TEST EQUIPMENT AND CALIBRATION DATA .....</b>	<b>24</b>

**Appendix A. Test Result of Occupied Channel Bandwidth**

**Appendix B. Test Result of RF Output Power**

**Appendix C. Test Result of Power Density**

**Appendix D. Test Result of Transmitter Unwanted Emissions in the Out-of-band Domain**

**Appendix E.1~E.2 Transmitter Unwanted Emissions**

**Appendix G.1~G.2 Receiver Radiated Spurious Emissions**

**Appendix H. Test Photos**

**Appendix I. Photographs of EUT**

## Summary of Test Result

Harmonized Standard Requirements and Conformance Test Specifications				
Report Clause	Ref. Std. Clause	Description	Limit	Result
3.1	4.3.2.2	RF Output Power	20 dBm	Complied
3.2	4.3.2.3	Power Density	10 dBm/MHz	Complied
3.6	4.3.2.4	Duty cycle, Tx-Sequence, Tx-gap	EN 300 328 C4.3.2.4.2	N/A
3.6	4.3.2.5	Medium Utilisation	MU < 10 %	N/A
-	4.3.2.6	Adaptivity	EN300 328 Clause 4.3.1.7.2	N/A
3.3	4.3.2.7	Occupied Channel Bandwidth	Fall in band	Complied
3.4	4.3.2.8	Transmitter Unwanted Emissions in the OOB Domain	EN 300 328 Figure 3	Complied
3.5	4.3.2.9	Transmitter Unwanted Emissions in the Spurious domain	EN 300 328 Table 4	Complied
4.1	4.3.2.10	Receiver Spurious Emissions	EN 300 328 Table 5	Complied
-	4.3.2.11	Receiver Blocking	EN300 328 Clause 4.3.1.7.2	N/A
1.1.6	4.3.2.12	Geo-location Capability	4.3.2.12	N/A



### Revision History

Report No.	Version	Description	Issued Date
ER591721-01	Rev. 01	Initial issue of report	Aug. 19, 2016

# 1 General Description

## 1.1 Information

### 1.1.1 RF General Information

Band	Bluetooth Mode	BWch (MHz)	Channel Number	Nss-Min	Nant
2.4G	LE	1	0-39 [40]	1	1

Note:

- ◆ Bluetooth LE uses a GFSK (1Mbps) modulation for wide band modulations other than FHSS.
- ◆ This type of EUT only supports Bluetooth Version v4.0 LE and can't be downward compatible with another.
- ◆ BWch is the nominal channel bandwidth.
- ◆ Nss-Min is the minimum number of spatial streams.
- ◆ Nant is the number of outputs. e.g., 2(2,3) means have 2 outputs for port 2 and port 3. 2 means have 2 outputs for port 1 and port 2.

### 1.1.2 Antenna Information

Antenna Category	
<input checked="" type="checkbox"/>	Integral antenna (antenna permanently attached)
<input checked="" type="checkbox"/>	Temporary RF connector provided
<input type="checkbox"/>	No temporary RF connector provided Transmit chains bypass antenna and soldered temporary RF connector provided for connected measurement. In case of conducted measurements the transmitter shall be connected to the measuring equipment via a suitable attenuator and correct for all losses in the RF path.
<input type="checkbox"/>	External antenna (dedicated antennas)
<input type="checkbox"/>	Single power level with corresponding antenna(s).
<input type="checkbox"/>	Multiple power level and corresponding antenna(s).

Antenna General Information			
No.	Ant. Cat.	Ant. Type	Gain (dBi)
1	Integral	PCB	3.88

**1.1.3 Type of EUT**

Identify EUT	
EUT Serial Number	N/A
Presentation of Equipment	<input checked="" type="checkbox"/> Production ; <input type="checkbox"/> Pre-Production ; <input type="checkbox"/> Prototype
Type of EUT	
<input checked="" type="checkbox"/>	Stand-alone
<input type="checkbox"/>	Combined (EUT where the radio part is fully integrated within another device) Combined Equipment - Brand Name / Model No.: ...
<input type="checkbox"/>	Plug-in radio (EUT intended for a variety of host systems) Host System - Brand Name / Model No.: ...
<input type="checkbox"/>	Other:

**1.1.4 Duty Cycle, Tx-Sequence, Tx-gap**

Band	Mode	BWch (MHz)	Nss-Min	Nant	DC	DCF (dB)	EIRP (dBm)	MU (%)	Tx -sequence (s)	Tx -gap (s)
2.4G	BT-LE	1	1	1	0.696	1.57	-	-	437.5u	187.5u

**1.1.5 EUT Operational Condition**

<b>Supply Voltage</b>	<input checked="" type="checkbox"/> AC mains	<input type="checkbox"/> DC	
<b>Type of DC Source</b>	<input type="checkbox"/> Internal DC supply	<input checked="" type="checkbox"/> External AC adapter	<input type="checkbox"/> Battery
<b>Test Voltage</b>	<input checked="" type="checkbox"/> Vnom (3.0 V)		
<b>Test Climatic</b>	<input checked="" type="checkbox"/> Tnom (20°C)	<input checked="" type="checkbox"/> Tmax (75°C)	<input checked="" type="checkbox"/> Tmin (-25°C)

**1.1.6 Geo-location Capability**

Geo-location capability supported by the equipment	
<input type="checkbox"/>	Yes, The geographical location determined by the equipment as defined in EN 300 328 clause 4.3.2.12.2 is not accessible to the user.
<input checked="" type="checkbox"/>	No



1.1.7 Adaptive Equipment

Adaptive Equipment	
<input checked="" type="checkbox"/>	non-Adaptive Equipment:
	The maximum RF Output Power (e.i.r.p.): <10dBm
	The maximum (corresponding) Duty Cycle: <10%
<input type="checkbox"/>	Adaptive Equipment without the possibility to switch to a non-adaptive mode:
<input type="checkbox"/>	The equipment has implemented an LBT based DAA mechanism:
	<input type="checkbox"/> The equipment is Frame Based equipment
	<input type="checkbox"/> The equipment is Load Based equipment
	<input type="checkbox"/> The equipment can switch dynamically between Frame Based and Load Based equipment
<input type="checkbox"/>	The equipment has implemented an non-LBT based DAA mechanism
<input type="checkbox"/>	The equipment can operate in more than one adaptive mode





### 1.2 Accessories and Support Equipment

Accessories Information		
-	-	-

Support Equipment - RF Conducted				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Notebook	lenovo	-	-
2	Adapter for NB	lenovo	-	-

Note: Testing equipment provided by the customer

Support Equipment - Radiated Emission				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Fixture	-	-	-

Note: Testing equipment provided by the customer

### 1.3 Testing Applied Standards

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

- EN 300 328 V1.9.1 (2015-02)

### 1.4 Testing Location Information

Testing Location				
<input checked="" type="checkbox"/>	HWA YA	ADD : No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Taoyuan City, Taiwan, R.O.C.		
		TEL : 886-3-327-3456	FAX : 886-3-327-0973	
Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
RF Conducted	TH01-HY	Ryan	22.5°C / 64%	12/08/2016
Radiated	05CH01-HY	Monday Lin	23.7°C / 66%	09/08/2016

## 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))

<b>Measurement Uncertainty</b>			
<b>Test Item</b>		<b>Uncertainty</b>	<b>Limit</b>
Radio Frequency		$\pm 8.7 \times 10^{-7}$	$\pm 1 \times 10^{-5}$
RF output power, conducted		$\pm 0.6$ dB	$\pm 1.5$ dB
Power density, conducted		$\pm 1.2$ dB	$\pm 3$ dB
Unwanted emissions, conducted	30 – 1000 MHz	$\pm 0.56$ dB	$\pm 3$ dB
	1 – 12.75 GHz	$\pm 0.5$ dB	$\pm 3$ dB
All emissions, radiated	30 – 1000 MHz	$\pm 2.3$ dB	$\pm 6$ dB
	1 – 12.75 GHz	$\pm 2.6$ dB	$\pm 6$ dB
Temperature		$\pm 0.8$ °C	$\pm 1$ °C
Humidity		$\pm 3$ %	$\pm 5$ %
DC and low frequency voltages		$\pm 3$ %	$\pm 3$ %
Time		$\pm 1.4$ %	$\pm 5$ %
Duty Cycle		$\pm 0.6$ %	$\pm 5$ %

## 2 Test Configuration of EUT

### 2.1 Test Condition

RF Conducted	Abbreviation	Remark
TN,VN	TN	20°C
TL,VN	TL	-25°C
TH,VN	TH	75°C
	VN	3.0V
TX-Radiated < 1G	Remark	-
Adapter	-	-
TX-Radiated > 1G	Remark	-
Adapter	-	-
TX-Radiated Cabinet	Remark	-
Radiated Cabinet-TX	Antenna Terminal	-
RX-Radiated < 1G	Remark	-
Adapter	-	-
RX-Radiated > 1G	Remark	-
Adapter	-	-
RX-Radiated Cabinet	Remark	-
Radiated Cabinet-RX	Antenna Terminal	-

### 2.2 Test Channel Mode

<b>Test Software Version</b>	nRFgo Studio V1.17.0.3211
------------------------------	---------------------------




Band	Mode	BWch (MHz)	Nss-Min	Nant	Ch. (MHz)	Range	Power Setting
2.4G	LE	20	1	1	2402	L	default
2.4G	LE	20	1	1	2440	M	default
2.4G	LE	20	1	1	2480	H	default

#### Abbreviation Explanation

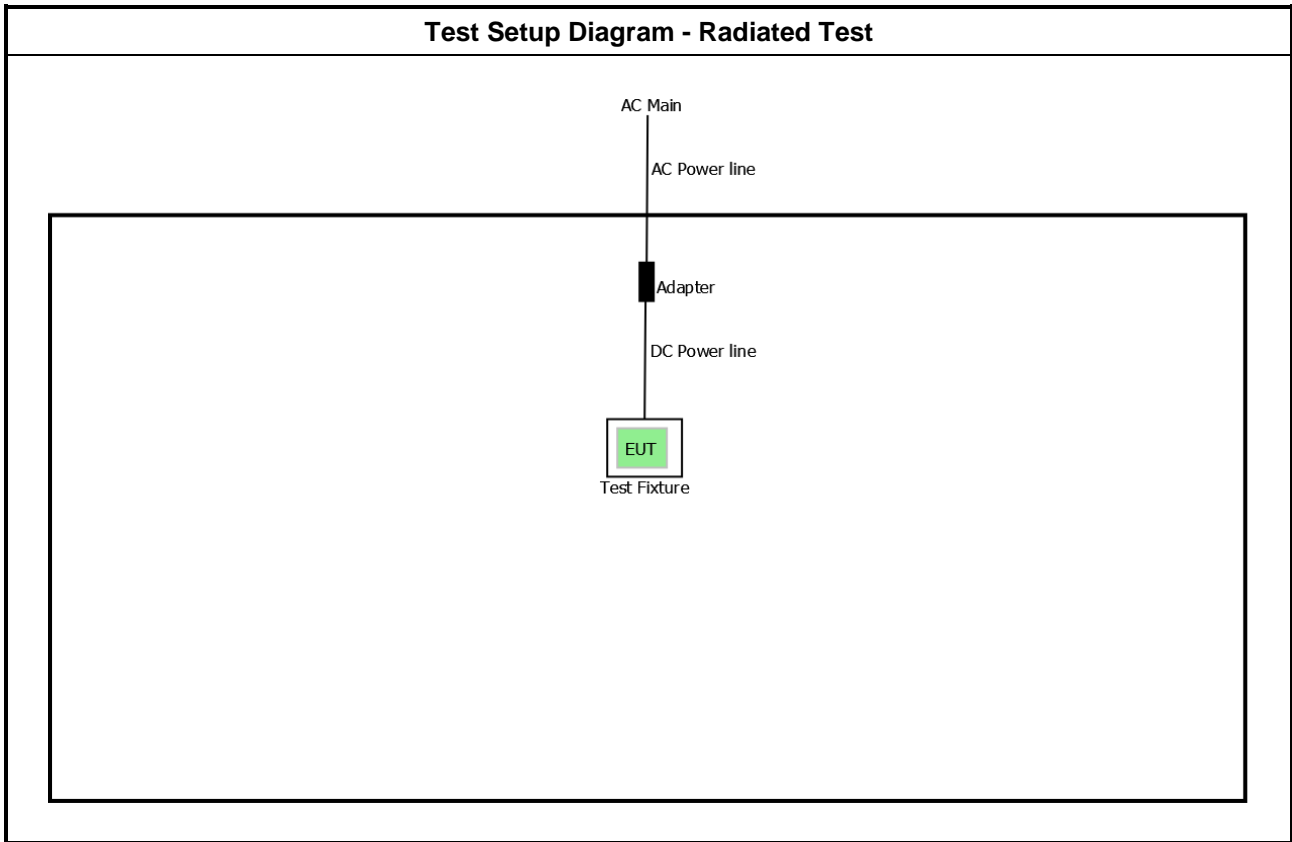
Band	Mode	BWch (MHz)	Nss-Min	Nant	Ch. (MHz)	Range	Test Cond.	Abbreviation
2.4G	HT20	20	1,(M0-15)	2	2412	L	TN,VN	2.4G;HT20;20;1,(M0-15);2;2412;L;TN,VN
2.4G	HT40	40	1,(M0-15)	2	2437	M	TN,VN	2.4G;HT40;40;1,(M0-15);2;2437;M;TN,VN

### 2.3 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
<b>Tests Item</b>	RF Output Power, Power Density, Occupied Channel Bandwidth Transmitter unwanted emissions in the OOB domain
<b>Test Condition</b>	Conducted measurement at transmit chains

The Worst Case Mode for Following Conformance Tests			
<b>Tests Item</b>	Transmitter Unwanted Emissions in The Spurious Domain, Receiver Spurious Emissions		
<b>Test Condition</b>	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.		
<b>User Position</b>	<input type="checkbox"/> EUT will be placed in fixed position.		
	<input checked="" type="checkbox"/> EUT will be placed in mobile position and operating multiple positions. EUT shall be performed three orthogonal planes.		
	<input type="checkbox"/> EUT will be a hand-held or body-worn battery-powered devices and operating multiple positions. EUT shall be performed two orthogonal planes..		
<b>Operating Mode &lt; 1GHz</b>	<input checked="" type="checkbox"/> 1. Transmit / Receive		
<b>Orthogonal Planes of EUT</b>	<b>X Plane</b>	<b>Y Plane</b>	<b>Z Plane</b>
			
<b>Worst Planes of EUT</b>		V	

## 2.4 Test Setup Diagram



### 3 Transmitter Test Result

#### 3.1 RF Output Power

##### 3.1.1 RF Output Power Limit

RF Output Power Limit
<b>Type of Equipment Using Wide Band Modulations Other than FHSS:</b>
<ul style="list-style-type: none"> <li>▪ mean equivalent isotropic radiated power (e.r.p.) ≤ 20 dBm</li> </ul>

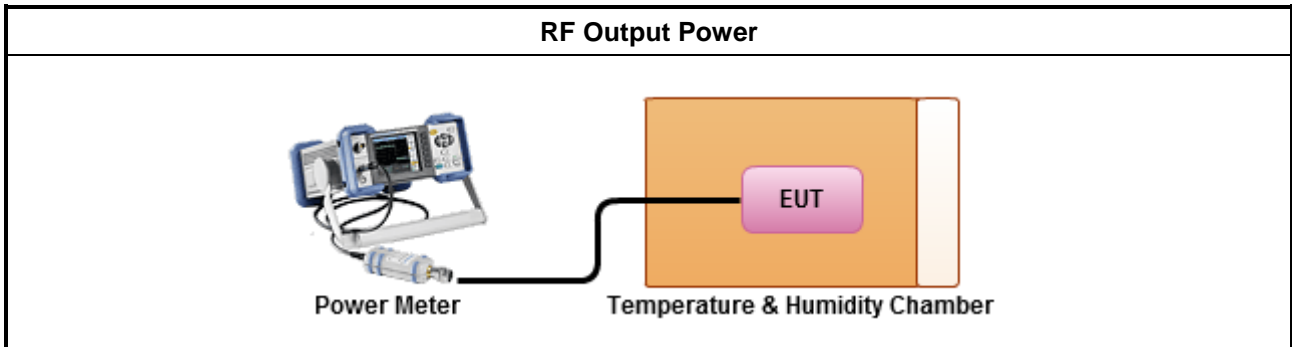
##### 3.1.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

##### 3.1.3 Test Procedures

Test Method					
<ul style="list-style-type: none"> <li>▪ The measurements shall be performed at both normal environmental conditions and at the extremes of the operating temperature range.</li> </ul>					
<input checked="" type="checkbox"/> Refer as EN 300 328, clause 5.3.2.2.1 for conducted measurement.					
	<ul style="list-style-type: none"> <li>▪ If the EUT supports multiple transmit chains using options given below:             <table border="1" style="width: 100%; margin-top: 5px;"> <tbody> <tr> <td style="width: 5%;"><input type="checkbox"/></td> <td>Option 1: Sample all transmit ports simultaneously using a power sensor for each transmit port. Sum the power of all ports for each individual sample and save them.</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Option 2: In case of conducted measurements on smart antenna systems (devices with multiple transmit chains) a power splitter/combiner shall be used to combine all the transmit chains (antenna outputs) into a single test point. The insertion loss of the power splitter/combiner shall be taken into account.</td> </tr> </tbody> </table> </li> </ul>	<input type="checkbox"/>	Option 1: Sample all transmit ports simultaneously using a power sensor for each transmit port. Sum the power of all ports for each individual sample and save them.	<input type="checkbox"/>	Option 2: In case of conducted measurements on smart antenna systems (devices with multiple transmit chains) a power splitter/combiner shall be used to combine all the transmit chains (antenna outputs) into a single test point. The insertion loss of the power splitter/combiner shall be taken into account.
<input type="checkbox"/>	Option 1: Sample all transmit ports simultaneously using a power sensor for each transmit port. Sum the power of all ports for each individual sample and save them.				
<input type="checkbox"/>	Option 2: In case of conducted measurements on smart antenna systems (devices with multiple transmit chains) a power splitter/combiner shall be used to combine all the transmit chains (antenna outputs) into a single test point. The insertion loss of the power splitter/combiner shall be taken into account.				
<ul style="list-style-type: none"> <li>▪ If multiple transmit chains, EIRP calculation could be following as methods:</li> </ul>					
	<ul style="list-style-type: none"> <li>▪ <math>P_{total} = P_1 + P_2 + \dots + P_n</math>              (calculated in linear unit [mW] and transfer to log unit [dBm])  <math>EIRP_{total} = P_{total} + G</math>              If more than one antenna assembly is intended for this power setting, the maximum overall antenna gain (G or G + Y) shall be used for EIRP.</li> </ul>				
<input type="checkbox"/> Refer as EN 300 328, clause 5.3.2.2.2 for radiated measurement.					

### 3.1.4 Test Setup



### 3.1.5 Test Result of RF Output Power

Refer as Appendix B

### 3.2 Power Density

#### 3.2.1 Power Density Limit

Power Density Limit
<b>Type of Equipment Using Wide Band Modulations Other than FHSS:</b>
<ul style="list-style-type: none"> <li>▪ mean equivalent isotropic radiated power (e.i.r.p.) density <math>\leq 10</math> dBm/MHz</li> </ul>

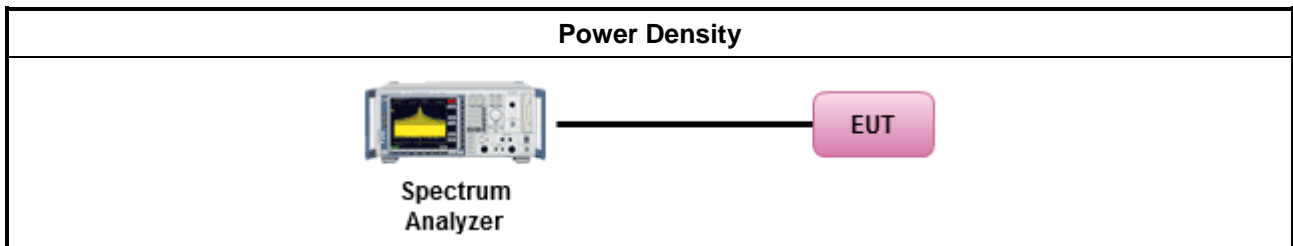
#### 3.2.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

#### 3.2.3 Test Procedures

Test Method
<input checked="" type="checkbox"/> Refer as EN 300 328, clause 5.3.3.2.1 for conducted measurement.
<ul style="list-style-type: none"> <li>▪ If the EUT supports multiple transmit chains using given below: For conducted measurements on devices with multiple transmit chains: Sample all transmit ports simultaneously using a spectrum analyzer for each transmit port. Where the trace bin-by-bin of each transmit port summing can be performed. (i.e., in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3, and so on up to the <math>N_{TX}</math> output to obtain the value for the first frequency bin of the summed spectrum.). Add up the amplitude (power) values for the different transmit chains and use this as the new data trace. The new data trace samples added 1 MHz segment and found the highest value of each 1 MHz segments.</li> <li>▪ If multiple transmit chains, EIRP calculation could be following as method: <math>EIRP_{total} = P_{total} + DG</math></li> </ul>
<input type="checkbox"/> Refer as EN 300 328, clause 5.3.3.2.2 for radiated measurement.

#### 3.2.4 Test Setup



#### 3.2.5 Test Result of Power Density

Refer as Appendix C



### 3.3 Occupied Channel Bandwidth

#### 3.3.1 Occupied Channel Bandwidth Limit

Occupied Channel Bandwidth Limit
<b>Type of Frequency Hopping Equipment:</b>
<ul style="list-style-type: none"> <li>▪ Occupied Channel Bandwidth for each hopping frequency fall completely within 2.4 GHz – 2.4835 GHz.</li> <li>▪ For non-adaptive equipment with e.i.r.p greater than 10 dBm, Occupied Channel Bandwidth <math>\leq</math> 5 MHz.</li> </ul>
<b>Type of Equipment Using Wide Band Modulations Other than FHSS:</b>
<ul style="list-style-type: none"> <li>▪ Occupied Channel Bandwidth fall completely within 2.4 GHz – 2.4835 GHz.</li> <li>▪ For non-adaptive equipment with e.i.r.p greater than 10 dBm, Occupied Channel Bandwidth <math>\leq</math> 20 MHz.</li> </ul>

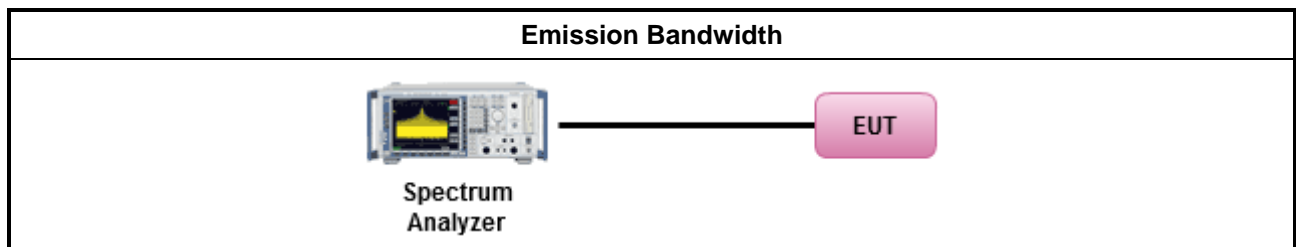
#### 3.3.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

#### 3.3.3 Test Procedures

Test Method
<input checked="" type="checkbox"/> Refer as EN 300 328, clause 5.3.8.2.1 for conducted measurement.
<input type="checkbox"/> Refer as EN 300 328, clause 5.3.8.2.1 for radiated measurement.

#### 3.3.4 Test Setup

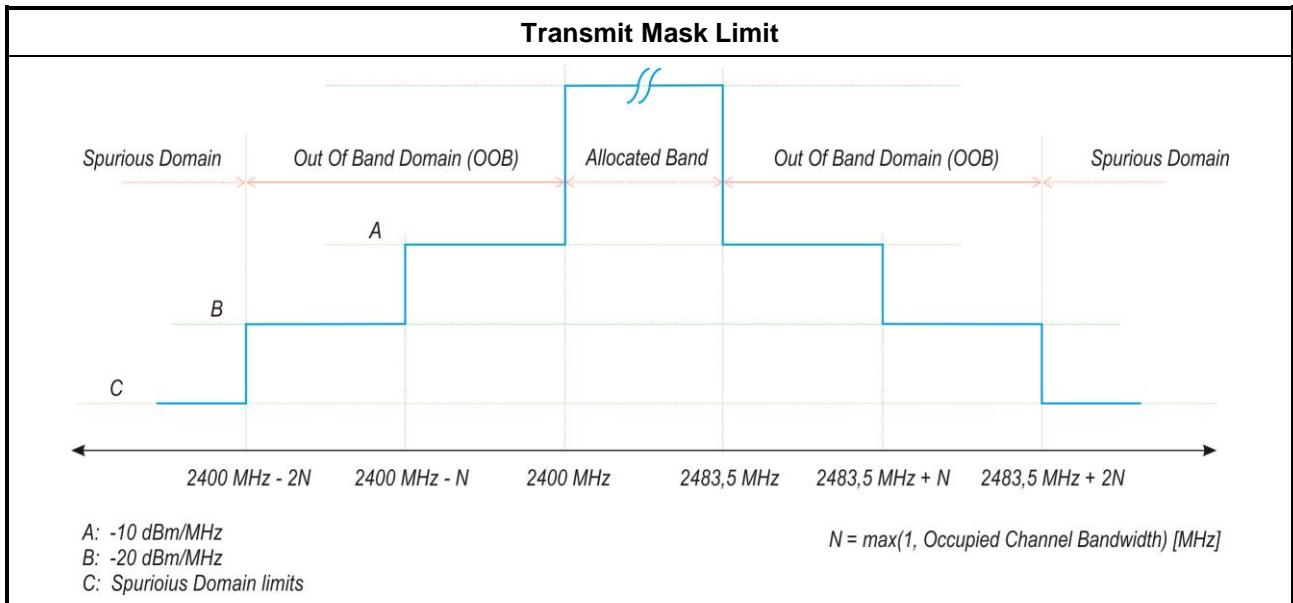


#### 3.3.5 Test Result of Occupied Channel Bandwidth

Refer as Appendix A

### 3.4 Transmitter Unwanted Emissions in the Out-of-band Domain

#### 3.4.1 Transmitter Unwanted Emissions in the Out-of-band Domain Limit



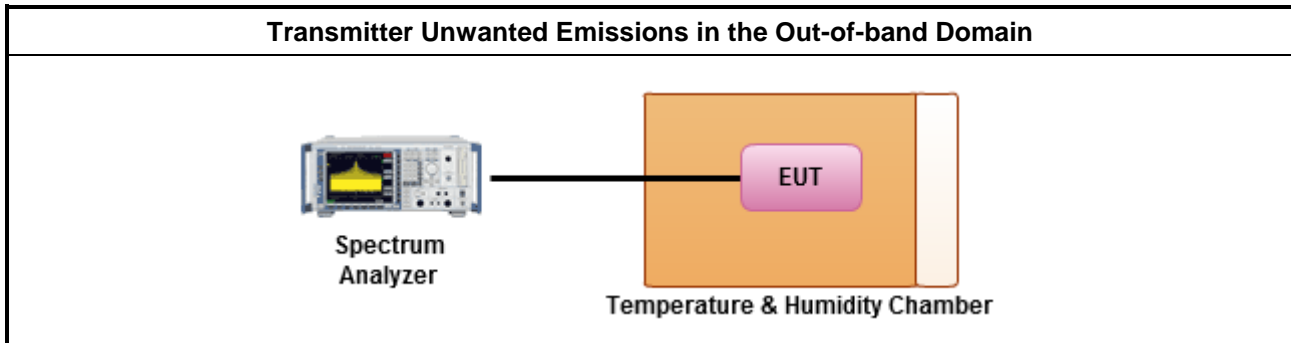
#### 3.4.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

#### 3.4.3 Test Procedures

Test Method					
<ul style="list-style-type: none"> <li>▪ The measurements shall be performed at both normal environmental conditions and at the extremes of the operating temperature range.</li> </ul>					
<input checked="" type="checkbox"/> Refer as EN 300 328, clause 5.3.9.2.1 for conducted measurement.					
	<ul style="list-style-type: none"> <li>▪ If the EUT supports multiple transmit chains using options given below:             <table border="1" style="width: 100%; border-collapse: collapse; margin-left: 20px;"> <tr> <td style="width: 5%;"></td> <td> <input checked="" type="checkbox"/> Option 1: the results for each of the transmit chains for the corresponding 1 MHz segments shall be added and compared with the transmit mask limit.               </td> </tr> <tr> <td></td> <td> <input type="checkbox"/> Option 2: the results for each of the transmit chains shall be individually compared with the transmit mask limit. After that these limits have been reduced with <math>10 \times \log_{10} (A_{ch})</math>. (Number of active transmits chains).               </td> </tr> </table> </li> </ul>		<input checked="" type="checkbox"/> Option 1: the results for each of the transmit chains for the corresponding 1 MHz segments shall be added and compared with the transmit mask limit.		<input type="checkbox"/> Option 2: the results for each of the transmit chains shall be individually compared with the transmit mask limit. After that these limits have been reduced with $10 \times \log_{10} (A_{ch})$ . (Number of active transmits chains).
	<input checked="" type="checkbox"/> Option 1: the results for each of the transmit chains for the corresponding 1 MHz segments shall be added and compared with the transmit mask limit.				
	<input type="checkbox"/> Option 2: the results for each of the transmit chains shall be individually compared with the transmit mask limit. After that these limits have been reduced with $10 \times \log_{10} (A_{ch})$ . (Number of active transmits chains).				
<input type="checkbox"/> Refer as EN 300 328, clause 5.3.9.2.2 for radiated measurement.					

### 3.4.4 Test Setup



### 3.4.5 Test Result of Transmitter Unwanted Emissions in the Out-of-band Domain

Refer as Appendix D

### 3.5 Transmitter Unwanted Emissions in the Spurious Domain

#### 3.5.1 Transmitter Unwanted Emissions in the Spurious Domain Limit

Frequency Range	Maximum Power e.r.p. ( $\leq 1$ GHz) ; e.r.p. ( $> 1$ GHz)	Bandwidth
30 MHz to 47 MHz	-36 dBm	100 kHz
47 MHz to 74 MHz	-54 dBm	100 kHz
74 MHz to 87,5 MHz	-36 dBm	100 kHz
87,5 MHz to 118 MHz	-54 dBm	100 kHz
118 MHz to 174 MHz	-36 dBm	100 kHz
174 MHz to 230 MHz	-54 dBm	100 kHz
230 MHz to 470 MHz	-36 dBm	100 kHz
470 MHz to 862 MHz	-54 dBm	100 kHz
862 MHz to 1 GHz	-36 dBm	100 kHz
1 GHz to 12,75 GHz	-30 dBm	1 MHz

Note 1: spurious domain  $\leq (2400 \text{ MHz} - 2N)$  and spurious domain  $\geq (2483.5 \text{ MHz} + 2N)$ ;  
 $N = \text{MAX}(1, \text{Occupied Channel Bandwidth}) \text{ MHz}$

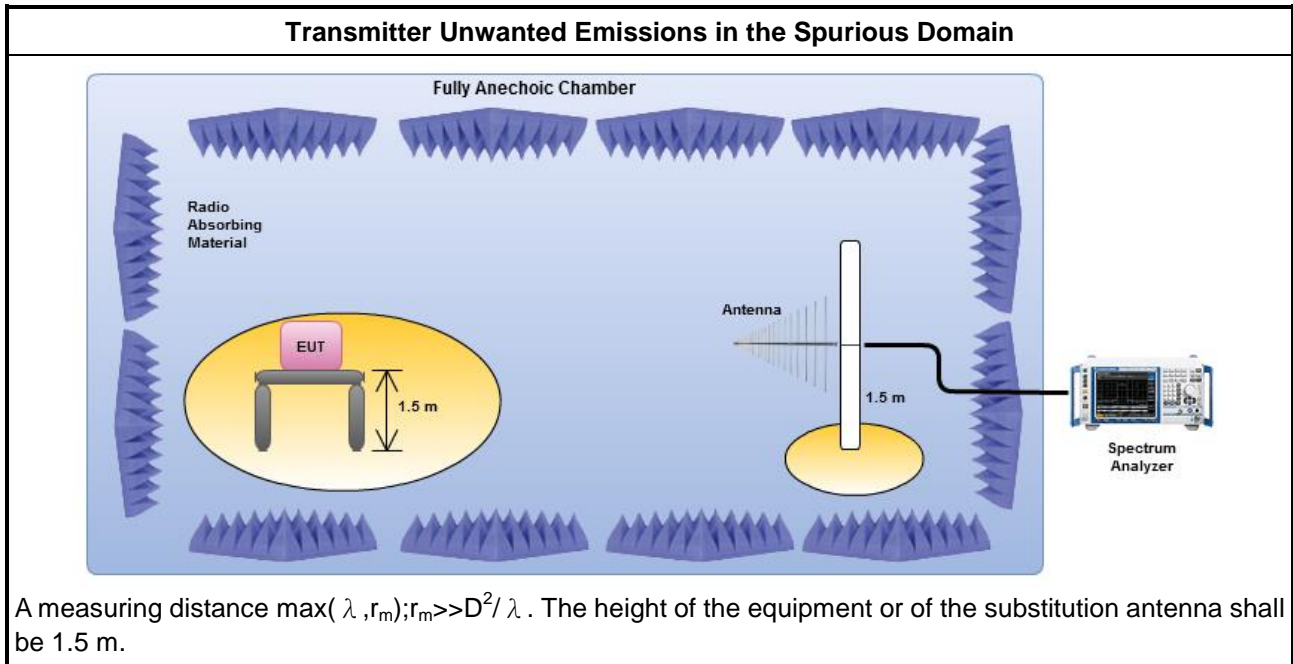
#### 3.5.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

#### 3.5.3 Test Procedures

Test Method					
<input type="checkbox"/>	Refer as EN 300 328, clause 5.3.10.2.1 for conducted measurement. Conducted spurious emissions and radiated by the cabinet with the antenna connector(s) terminated by a specified load (cabinet radiation).				
<input type="checkbox"/>	<ul style="list-style-type: none"> <li>▪ If the EUT supports multiple transmit chains using options given below:               <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20px;"><input checked="" type="checkbox"/></td> <td>Option 1: The trace data for each transmit chain has to be individually recorded and each transmit chain trace data shall be added and compared with the transmitter spurious emissions limit.</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Option 2: the results for each of the transmit chains shall be individually compared with the transmitter spurious emissions limit. After that these limits have been reduced with <math>10 \times \log_{10}(A_{ch})</math>. (Number of active transmit chains).</td> </tr> </table> </li> <li>▪ Equipment with single transmit chain. All measurement had be performed on this transmit chain.</li> </ul>	<input checked="" type="checkbox"/>	Option 1: The trace data for each transmit chain has to be individually recorded and each transmit chain trace data shall be added and compared with the transmitter spurious emissions limit.	<input type="checkbox"/>	Option 2: the results for each of the transmit chains shall be individually compared with the transmitter spurious emissions limit. After that these limits have been reduced with $10 \times \log_{10}(A_{ch})$ . (Number of active transmit chains).
<input checked="" type="checkbox"/>	Option 1: The trace data for each transmit chain has to be individually recorded and each transmit chain trace data shall be added and compared with the transmitter spurious emissions limit.				
<input type="checkbox"/>	Option 2: the results for each of the transmit chains shall be individually compared with the transmitter spurious emissions limit. After that these limits have been reduced with $10 \times \log_{10}(A_{ch})$ . (Number of active transmit chains).				
<input checked="" type="checkbox"/>	Refer as EN 300 328, clause 5.3.10.2.2 for radiated measurement.				

### 3.5.4 Test Setup



### 3.5.5 Transmitter Unwanted Emissions

Refer as Appendix E.1~E.2

### 3.6 Duty cycle, Tx-Sequence, Tx-gap and Medium Utilisation

#### 3.6.1 Duty cycle, Tx-Sequence, Tx-gap, MU Limit

Duty cycle, Tx-Sequence, Tx-gap, MU Limit
<b>Type of Equipment Using Wide Band Modulations Other than FHSS:</b>
<ul style="list-style-type: none"> <li>▪ Maximum Tx-Sequence Time = Minimum Tx-gap Time = M</li> <li>▪ Duty Cycle is defined as the ratio of the total transmitter 'on'-time to a 1 second observation period.</li> <li>▪ the maximum Medium Utilisation factor shall be 10 %</li> </ul>

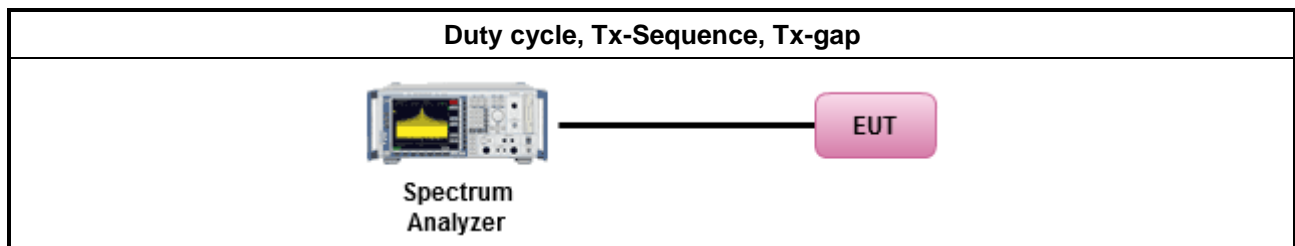
#### 3.6.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

#### 3.6.3 Test Procedures

Test Method
<ul style="list-style-type: none"> <li>▪ Refer as EN 300 328, clause 5.3.2.2.1.2 for duty cycle, Tx-Sequence, Tx-gap.</li> <li>▪ Refer as EN 300 328, clause 5.3.2.2.1.3 for Medium Utilisation.</li> <li>▪ <math>MU = (P/100 \text{ mW}) \times DC</math>; <math>DC \text{ limit} = MU [10\%] / (P/100 \text{ mW})</math></li> </ul>

#### 3.6.4 Test Setup



#### 3.6.5 Test Result of Duty cycle, Tx-Sequence, Tx-gap, Medium Utilisation

Refer as Clause 1.1.4

## 4 Receiver Test Result

### 4.1 Receiver Spurious Emissions

#### 4.1.1 Receiver Spurious Emissions Limit

Frequency Range	Maximum Power e.r.p. ( $\leq 1$ GHz) ; e.r.p. ( $> 1$ GHz)	Bandwidth
30 MHz to 1 GHz	-57 dBm	100 kHz
1 GHz to 12,75 GHz	-47 dBm	1 MHz

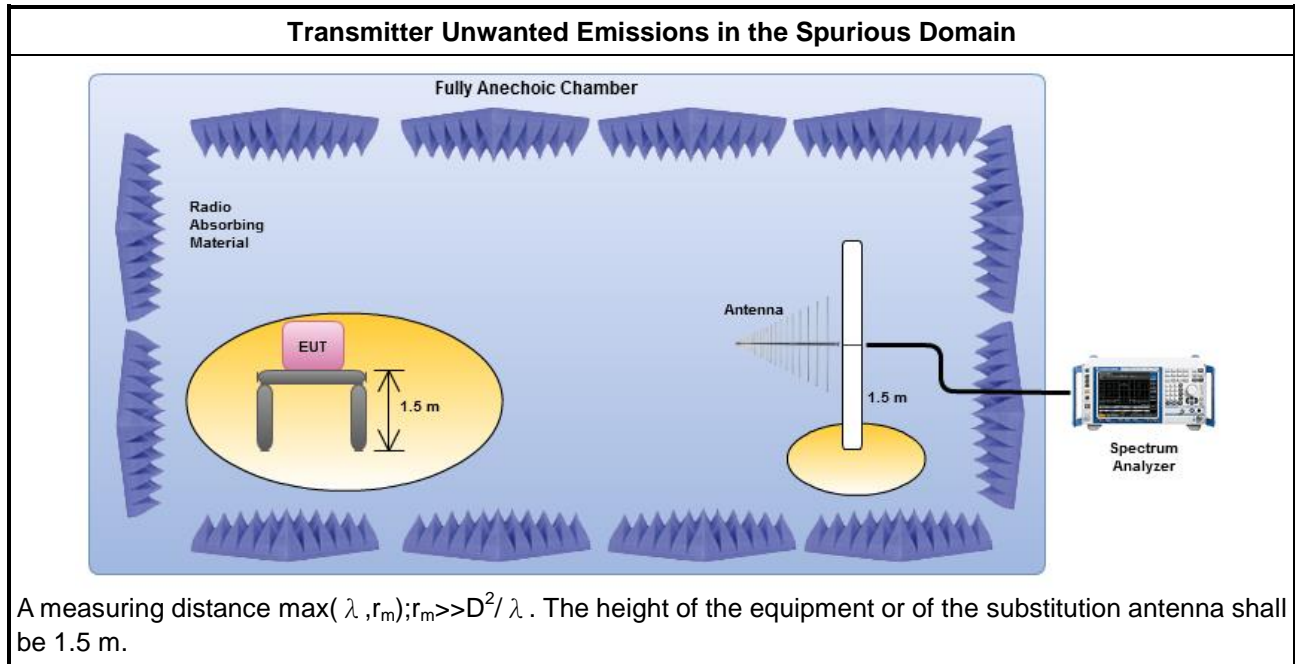
#### 4.1.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

#### 4.1.3 Test Procedures

Test Method					
<input type="checkbox"/>	Refer as EN 300 328, clause 5.3.11.2.1 for conducted measurement. Conducted spurious emissions and radiated by the cabinet with the antenna connector(s) terminated by a specified load (cabinet radiation).				
<input type="checkbox"/>	<ul style="list-style-type: none"> <li>▪ If The EUT supports multiple receive chains using options given below:               <table border="1" style="margin-left: 20px;"> <tbody> <tr> <td><input type="checkbox"/></td> <td>Option 1: The trace data for each receive chain has to be individually recorded and each receive chain trace data shall be added and compared with the receiver spurious emissions limit.</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Option 2: the results for each of the receive chains shall be individually compared with the receiver spurious emissions limit. After that these limits have been reduced with <math>10 \times \log_{10}(A_{ch})</math>. (Number of active receive chains).</td> </tr> </tbody> </table> </li> </ul>	<input type="checkbox"/>	Option 1: The trace data for each receive chain has to be individually recorded and each receive chain trace data shall be added and compared with the receiver spurious emissions limit.	<input type="checkbox"/>	Option 2: the results for each of the receive chains shall be individually compared with the receiver spurious emissions limit. After that these limits have been reduced with $10 \times \log_{10}(A_{ch})$ . (Number of active receive chains).
<input type="checkbox"/>	Option 1: The trace data for each receive chain has to be individually recorded and each receive chain trace data shall be added and compared with the receiver spurious emissions limit.				
<input type="checkbox"/>	Option 2: the results for each of the receive chains shall be individually compared with the receiver spurious emissions limit. After that these limits have been reduced with $10 \times \log_{10}(A_{ch})$ . (Number of active receive chains).				
<input checked="" type="checkbox"/>	Refer as EN 300 328, clause 5.3.11.2.2 for radiated measurement.				

#### 4.1.4 Test Setup



#### 4.1.5 Receiver Radiated Spurious Emissions

Refer as Appendix G.1~G.2





## 5 Test Equipment and Calibration Data

### Instrument for Conducted Test

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Last Cal.	Calibration Due Date
Spectrum Analyzer	R&S	FSV 40	101013	9KHz~40GHz	16/02/2016	15/02/ 2017
Power Sensor	Anritsu	MA2411B	917017	300MHz ~ 40GHz	04/02/2016	03/02/2017
Power Meter	Anritsu	ML2495A	949003	300MHz ~ 40GHz	04/02/2016	03/02/2017
Signal Generator	R&S	SMR40	100116	10MHz ~ 40GHz	21/07/2016	20/07/2017
Temp. and Humidity Chamber	Giant Force	GTH-225-20-S	MAB0103-00 1	-20 ~ 100°C	25/04/2016	24/04/2017

### Instrument for Radiated Test

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Last Cal.	Calibration Due Date
Spectrum Analyzer	R&S	FSV 40	101514	10Hz ~ 40GHz	16/09/2015	15/09/2016
Amplifier	Agilent	8447D	2944A11146	0.1M ~ 1.3G	16/09/2015	15/09/2016
Amplifier	EMCI	EMC051845BE	980241	1GHz ~ 18GHz	14/03/2016	13/03/2017
Bilog Antenna	SCHAFFNER	CBL6111C	2737	25MHz ~ 1GHz	18/09/2015	17/09/2016
Horn Antenna	COM-POWER	AH-118	10094	1GHz ~ 18GHz	26/05/2016	25/05/2017



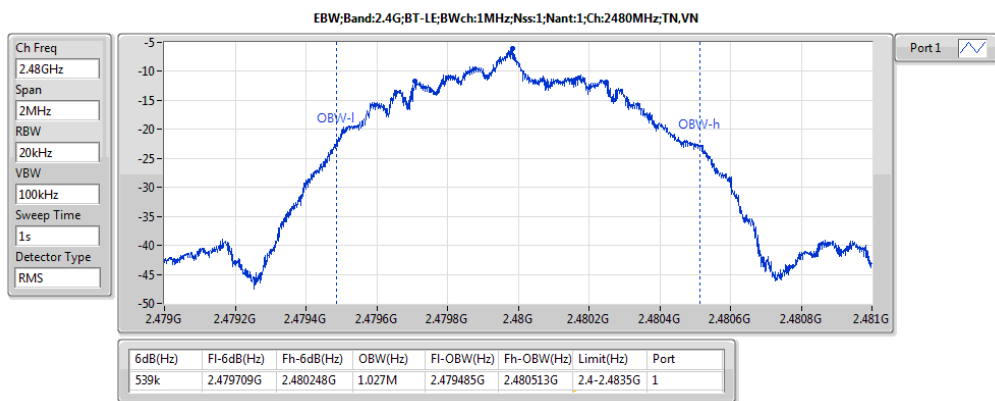
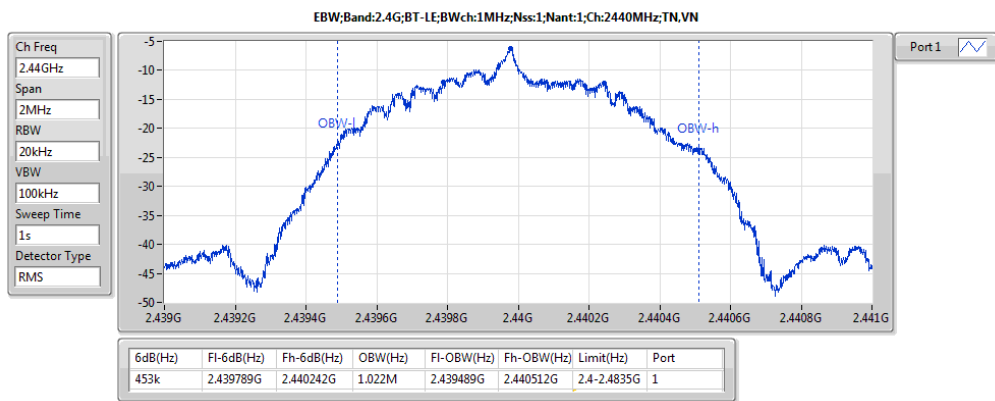
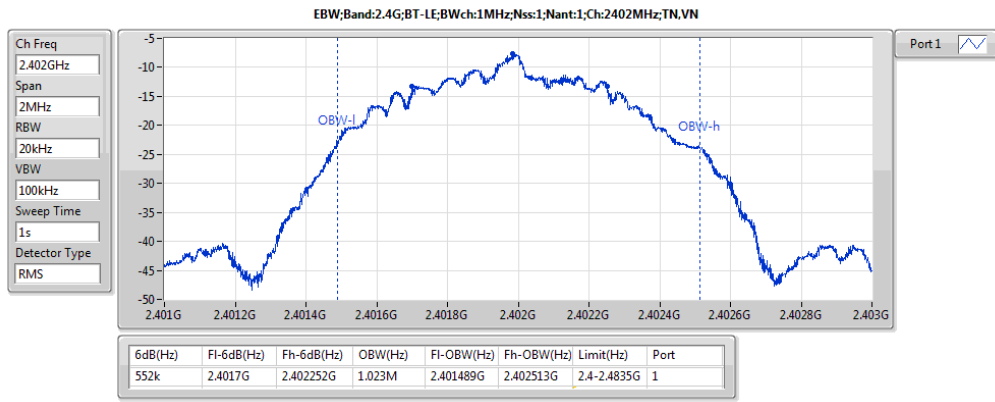
**Summary**

Mode	OBW (Hz)	ITU-Code
2.4G:BT-LE;1;1;1	1.027M	1M03F1D



Result

Mode	Result	Limit (Hz)	f1-OBW (Hz)	f1-OBW (Hz)	OBW (Hz)	N dB (Hz)
2.4G;BT-LE;1;1;1;2402;L;TN,VN	Pass	2.4-2.4835G	2.401489G	2.402513G	1.023M	552k
2.4G;BT-LE;1;1;1;2440;M;TN,VN	Pass	2.4-2.4835G	2.439489G	2.440512G	1.022M	453k
2.4G;BT-LE;1;1;1;2480;H;TN,VN	Pass	2.4-2.4835G	2.479485G	2.480513G	1.027M	539k



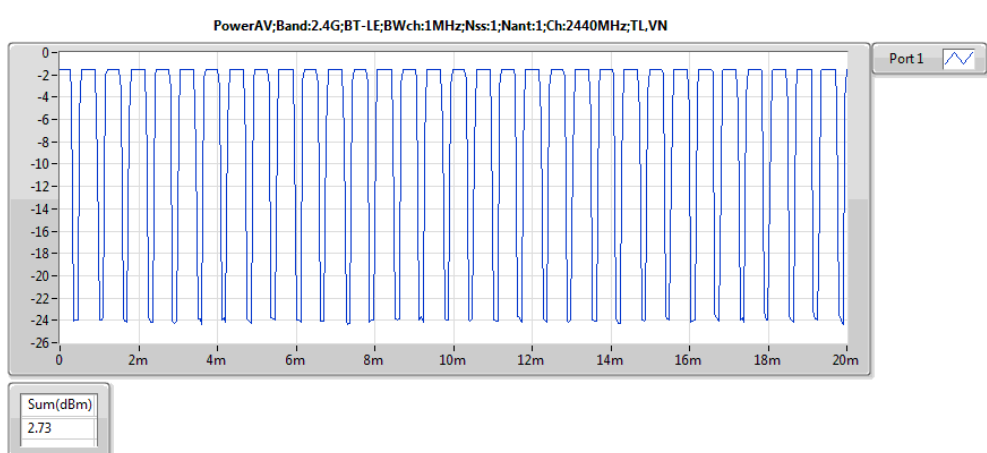
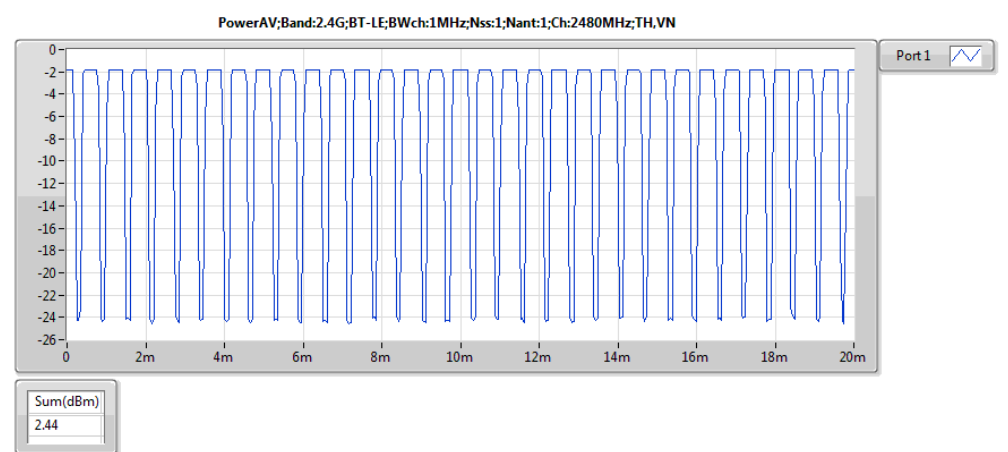
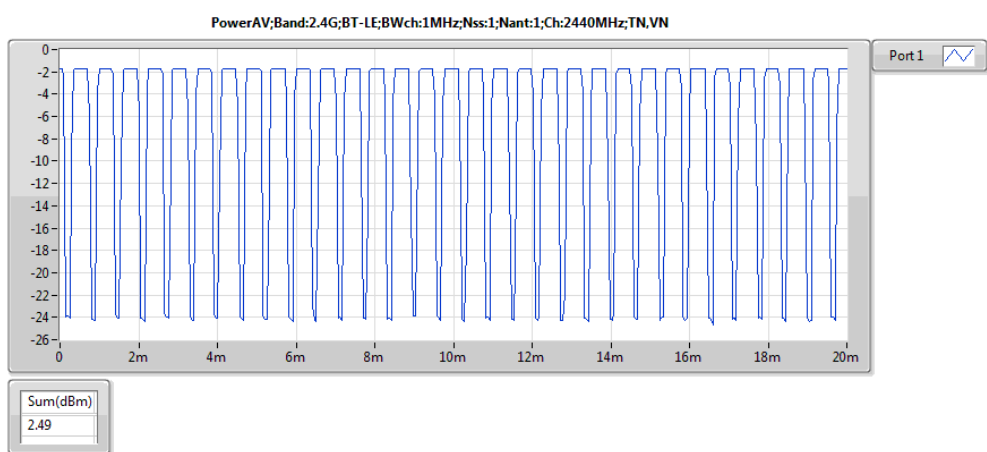
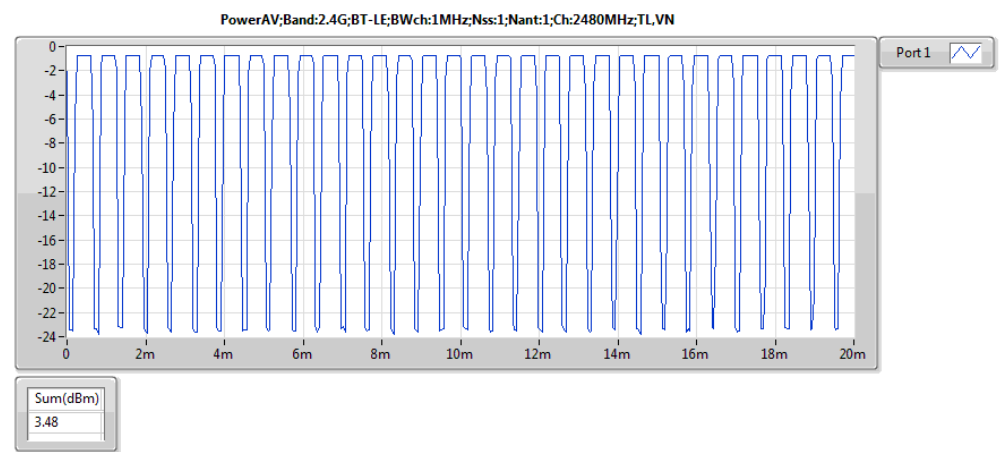
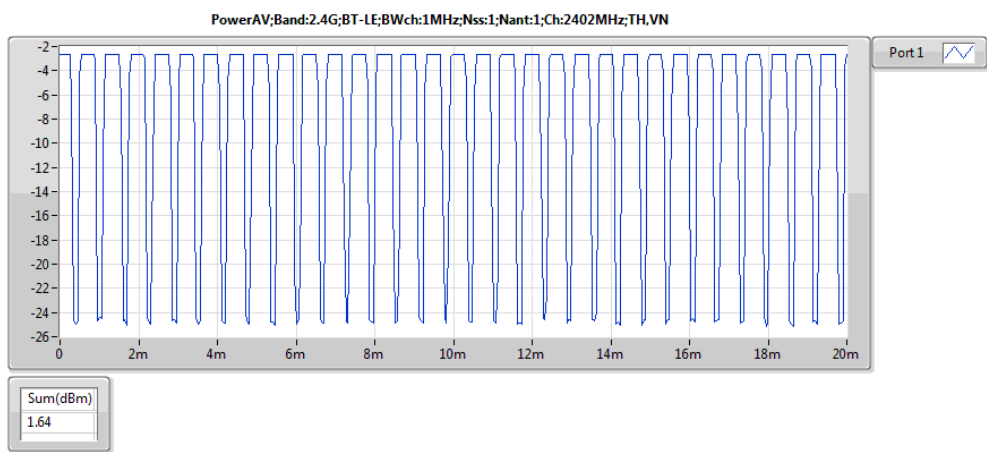
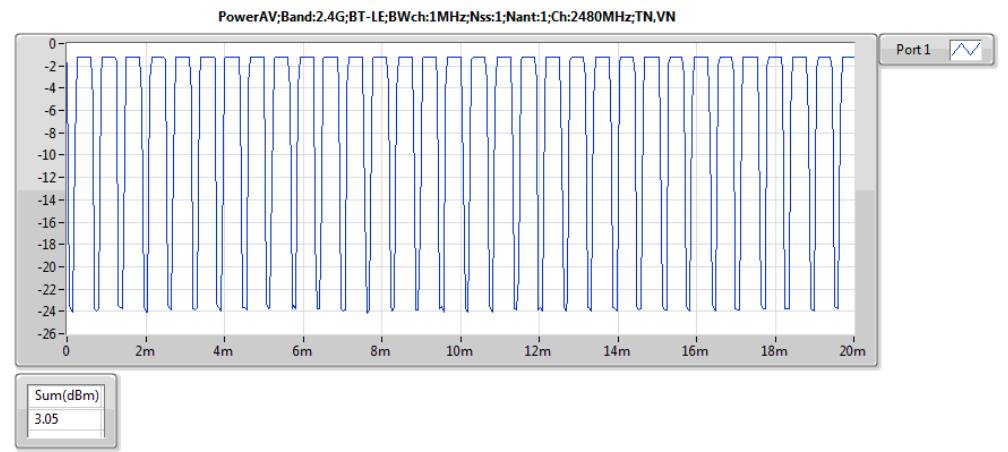
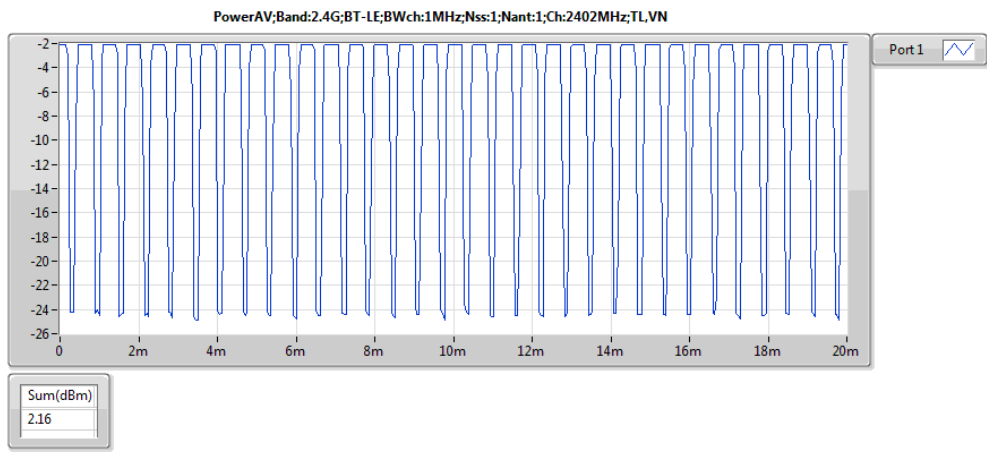
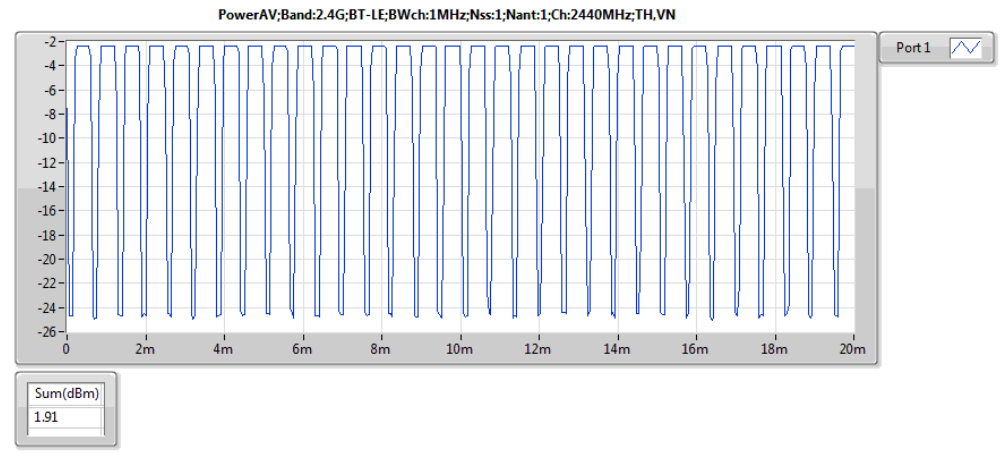
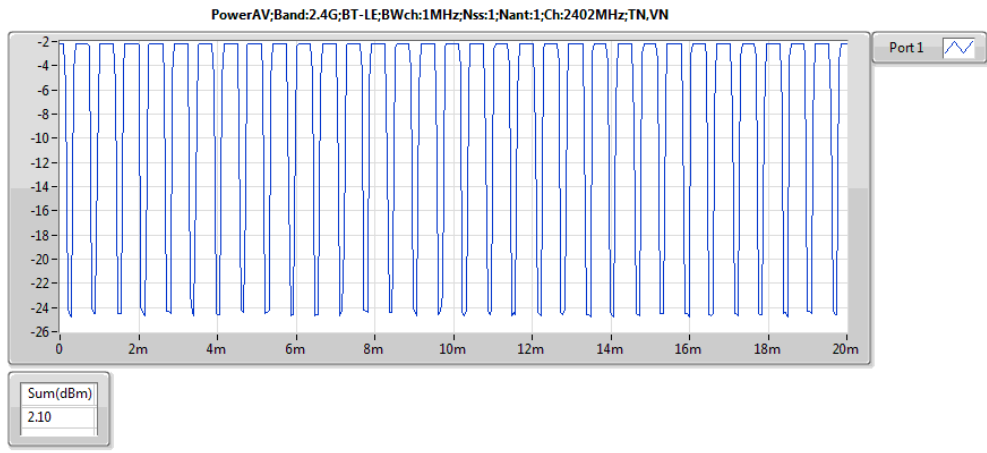


Summary

Mode	Sum (dBm)	Sum (W)	EIRP (dBm)	EIRP (W)
2.4G:BT-LE;1;1;1	3.48	0.00223	7.36	0.00545

Result

Mode	Result	DG (dBi)	EIRP (dBm)	EIRP Lim. (dBm)	Sum (dBm)	Sum Lim. (dBm)	P1 (dBm)
2.4G;BT-LE;1;1;1;2402;L;TN,VN	Pass	3.88	5.98	20.00	2.1	Inf	2.10
2.4G;BT-LE;1;1;1;2402;L;TL,VN	Pass	3.88	6.04	20.00	2.16	Inf	2.16
2.4G;BT-LE;1;1;1;2402;L;TH,VN	Pass	3.88	5.52	20.00	1.64	Inf	1.64
2.4G;BT-LE;1;1;1;2440;M;TN,VN	Pass	3.88	6.37	20.00	2.49	Inf	2.49
2.4G;BT-LE;1;1;1;2440;M;TL,VN	Pass	3.88	6.61	20.00	2.73	Inf	2.73
2.4G;BT-LE;1;1;1;2440;M;TH,VN	Pass	3.88	5.79	20.00	1.91	Inf	1.91
2.4G;BT-LE;1;1;1;2480;H;TN,VN	Pass	3.88	6.93	20.00	3.05	Inf	3.05
2.4G;BT-LE;1;1;1;2480;H;TL,VN	Pass	3.88	7.36	20.00	3.48	Inf	3.48
2.4G;BT-LE;1;1;1;2480;H;TH,VN	Pass	3.88	6.32	20.00	2.44	Inf	2.44





Summary

Mode	PD (dBm/MHz)	EIRP.PD (dBm/MHz)
2.4G:BT-LE;1;1;1	2.99	6.87





Result

Mode	Result	DG (dBi)	PD (dBm/MHz)	PD.Limit (dBm/MHz)	EIRP.PD (dBm/MHz)	EIRP.PD.Lim (dBm/MHz)	P1 (dBm/MHz)
2.4G;BT-LE;1;1;1;2402;L;TN,VN	Pass	3.88	2.04	Inf	5.92	10.00	-11.93
2.4G;BT-LE;1;1;1;2440;M;TN,VN	Pass	3.88	2.44	Inf	6.32	10.00	-9.07
2.4G;BT-LE;1;1;1;2480;H;TN,VN	Pass	3.88	2.99	Inf	6.87	10.00	-9.57



**Summary**

Mode	EIRP-A (dBm)	Limit-A (dBm)	EIRP-B (dBm)	Limit-B (dBm)
2.4G:BT-LE;1;1;1	-30.83	-10	-28.03	-20

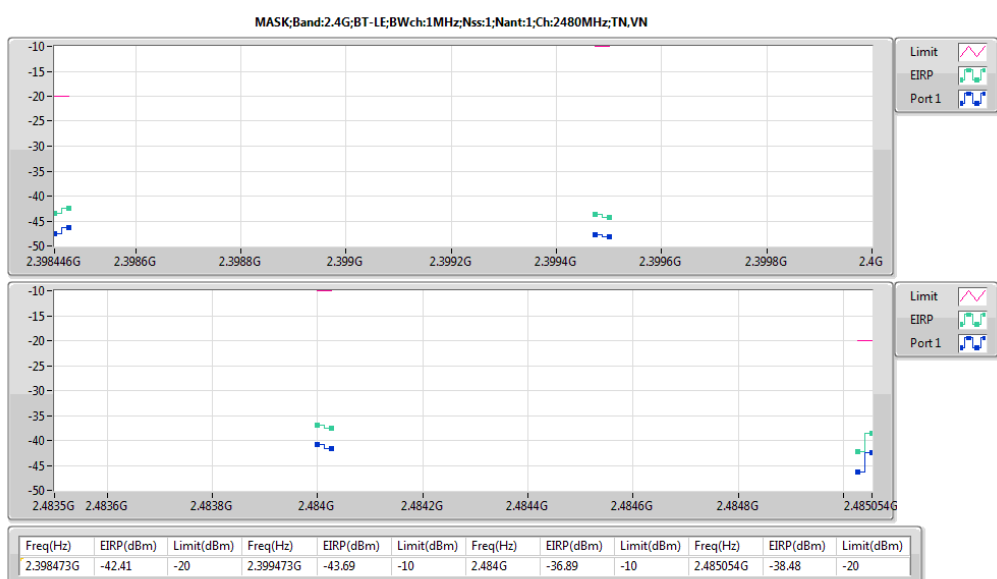
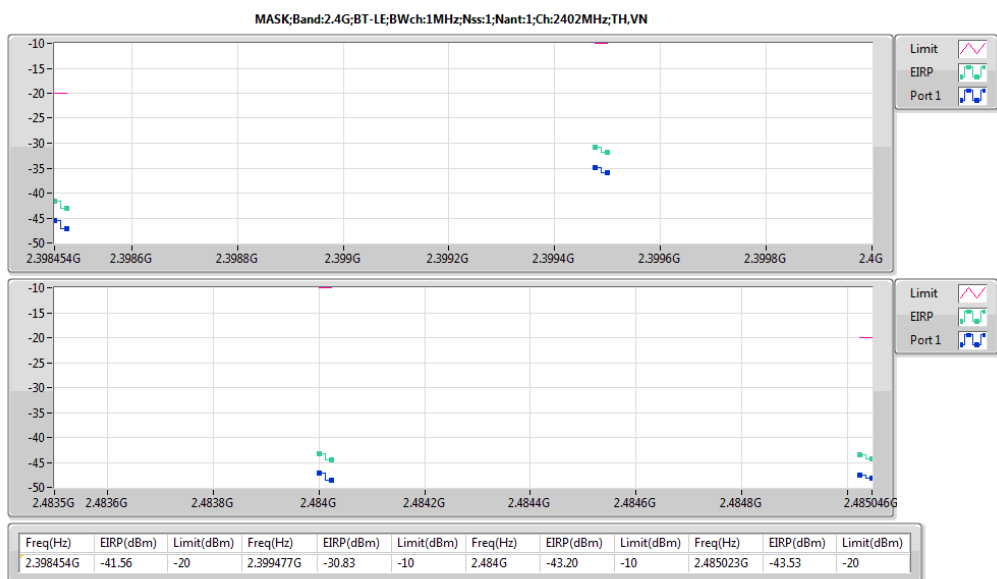
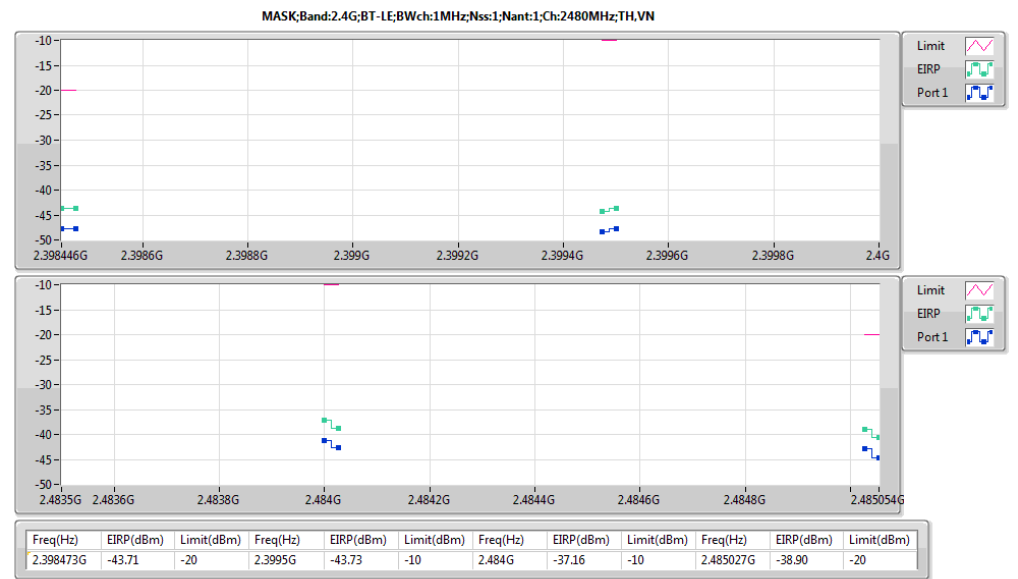
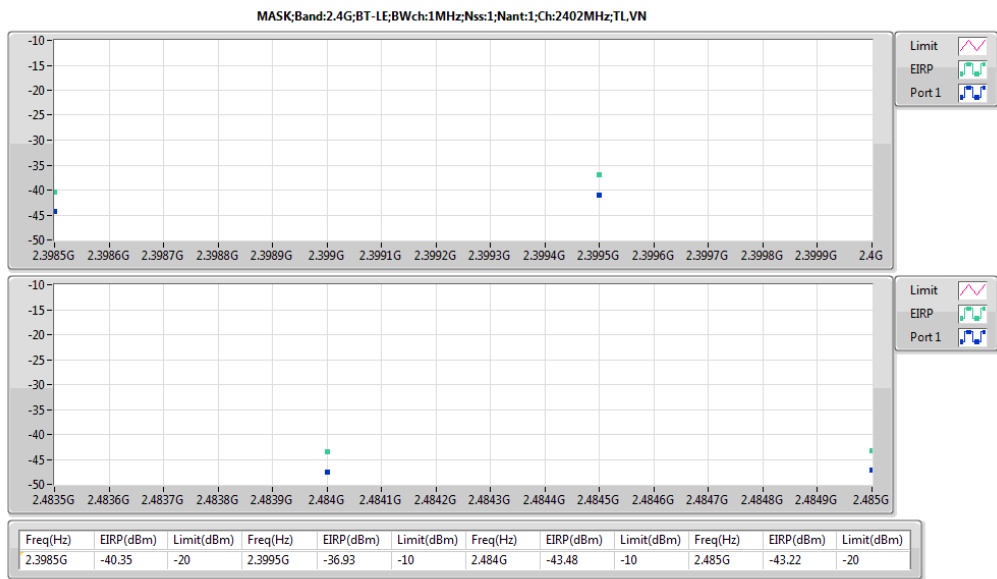
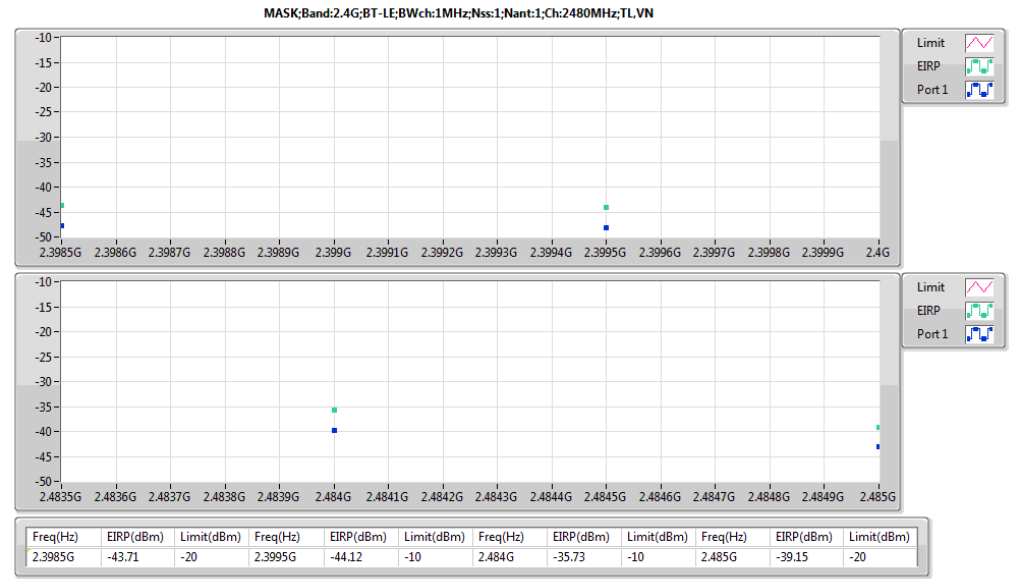
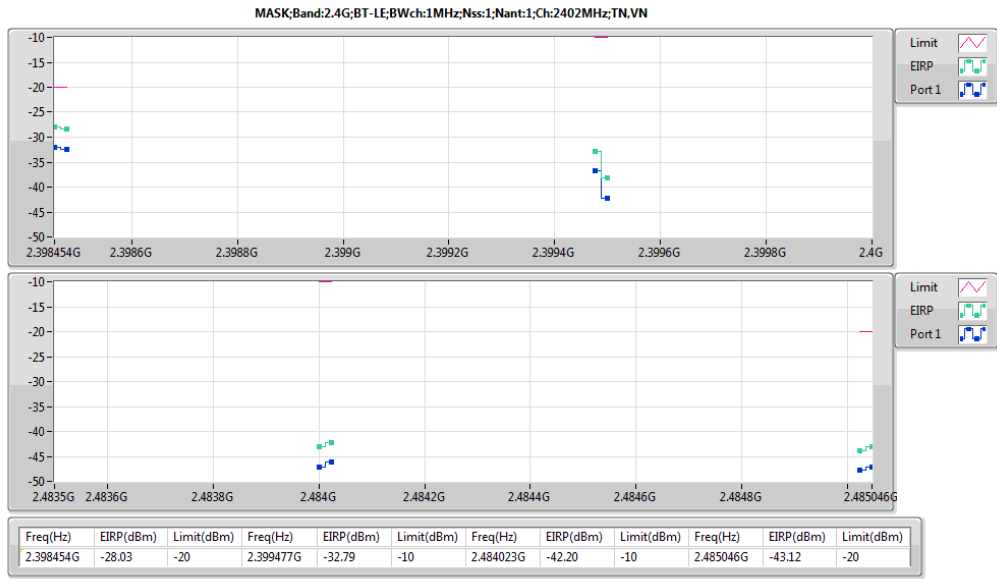


Result

Mode	Result	Freq (Hz)	EIRP (dBm)	Limit (dBm)	Freq (Hz)	EIRP (dBm)	Limit (dBm)	Freq (Hz)	EIRP (dBm)	Limit (dBm)	Freq (Hz)	EIRP (dBm)	Limit (dBm)
2.4G;BT-LE;1;1;1;2402;L;TN,VN	Pass	2.398454G	-28.03	-20	2.399477G	-32.79	-10	2.484023G	-42.20	-10	2.485046G	-43.12	-20
2.4G;BT-LE;1;1;1;2402;L;TL,VN	Pass	2.3985G	-40.35	-20	2.3995G	-36.93	-10	2.484G	-43.48	-10	2.485G	-43.22	-20
2.4G;BT-LE;1;1;1;2402;L;TH,VN	Pass	2.398454G	-41.56	-20	2.399477G	-30.83	-10	2.484G	-43.20	-10	2.485023G	-43.53	-20
2.4G;BT-LE;1;1;1;2480;H;TN,VN	Pass	2.398473G	-42.41	-20	2.399473G	-43.69	-10	2.484G	-36.89	-10	2.485054G	-38.48	-20
2.4G;BT-LE;1;1;1;2480;H;TL,VN	Pass	2.3985G	-43.71	-20	2.3995G	-44.12	-10	2.484G	-35.73	-10	2.485G	-39.15	-20
2.4G;BT-LE;1;1;1;2480;H;TH,VN	Pass	2.398473G	-43.71	-20	2.3995G	-43.73	-10	2.484G	-37.16	-10	2.485027G	-38.90	-20



# MASK Result





Summary

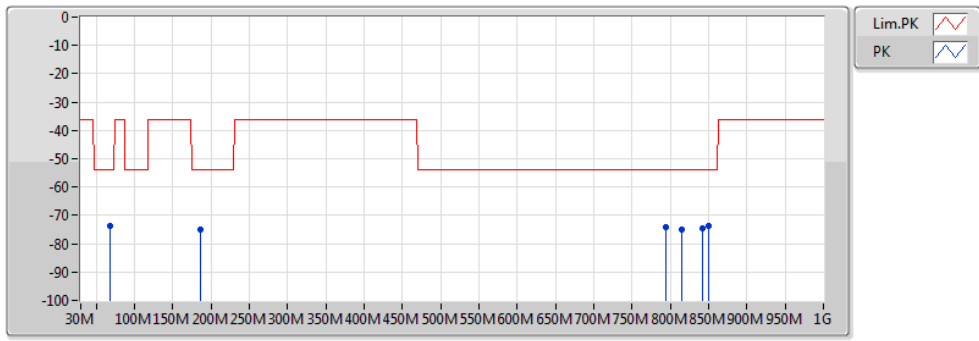
Mode	Result	Type	Freq (Hz)	Level (dBm)	Limit (dBm)	Margin (dB)	Factor (dB)	Dist (m)	Pol. (H/V)	Azimuth (°)	Height (m)	Comments
2.4G;BT-LE;1;1;1;2402;L;TX	Pass	PK	68.8M	-73.50	-54.00	-19.50	-13.45	3	V	NaN	NaN	-



Result

Mode	Result	Type	Freq (Hz)	Level (dBm)	Limit (dBm)	Margin (dB)	Factor (dB)	Dist (m)	Pol. (H/V)	Azimuth (°)	Height (m)	Comments
2.4G;BT-LE;1;1;1;2402;L;TX	Pass	PK	187.14M	-75.14	-54.00	-21.14	-6.90	3	H	NaN	NaN	-
2.4G;BT-LE;1;1;1;2402;L;TX	Pass	PK	814.73M	-74.87	-54.00	-20.87	4.70	3	H	NaN	NaN	-
2.4G;BT-LE;1;1;1;2402;L;TX	Pass	PK	841.89M	-74.69	-54.00	-20.69	5.01	3	H	NaN	NaN	-
2.4G;BT-LE;1;1;1;2402;L;TX	Pass	PK	68.8M	-73.50	-54.00	-19.50	-13.45	3	V	NaN	NaN	-
2.4G;BT-LE;1;1;1;2402;L;TX	Pass	PK	794.36M	-74.28	-54.00	-20.28	4.82	3	V	NaN	NaN	-
2.4G;BT-LE;1;1;1;2402;L;TX	Pass	PK	849.65M	-73.85	-54.00	-19.85	5.22	3	V	NaN	NaN	-

RE TX below 1GHz;Band:2.4G;BT-LE;BWch:1MHz;Nss:1;Nant:1;Ch:2402MHz;TX



ANT : A  
 Power set : default  
 EUT = Y axis

Type	Freq(Hz)	Level(dBm)	Limit(dBm)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(*)	Height(m)	Comments
PK	187.14M	-75.14	-54.00	-21.14	-6.90	3	H	360	NaN	-
PK	814.73M	-74.87	-54.00	-20.87	4.70	3	H	360	NaN	-
PK	841.89M	-74.69	-54.00	-20.69	5.01	3	H	360	NaN	-
PK	68.8M	-73.50	-54.00	-19.50	-13.45	3	V	0	NaN	-
PK	794.36M	-74.28	-54.00	-20.28	4.82	3	V	0	NaN	-
PK	849.65M	-73.85	-54.00	-19.85	5.22	3	V	0	NaN	-



Summary

Mode	Result	Type	Freq (Hz)	Level (dBm)	Limit (dBm)	Margin (dB)	Factor (dB)	Dist (m)	Pol. (H/V)	Azimuth (°)	Height (m)	Comments
2.4G;BT-LE;1;1;1;2402;L;TX	Pass	PK	4.804G	-44.66	-30.00	-14.66	-4.16	3	V	NaN	NaN	-

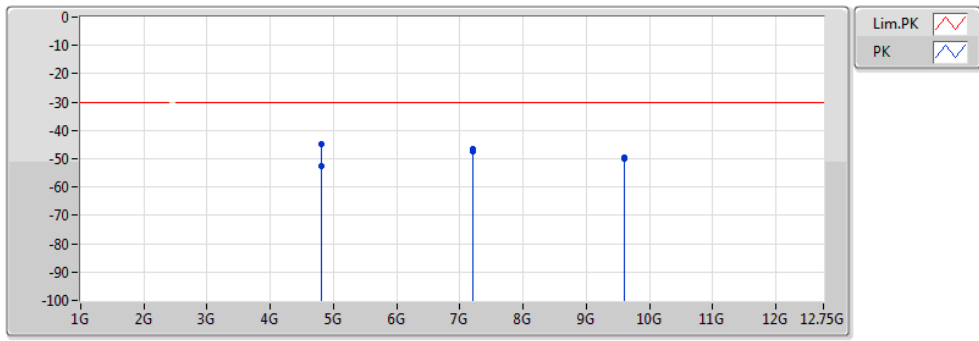




Result

Mode	Result	Type	Freq (Hz)	Level (dBm)	Limit (dBm)	Margin (dB)	Factor (dB)	Dist (m)	Pol. (H/V)	Azimuth (°)	Height (m)	Comments
2.4G;BT-LE;1;1;1;2402;L;TX	Pass	PK	4.804G	-52.78	-30.00	-22.78	-3.87	3	H	NaN	NaN	-
2.4G;BT-LE;1;1;1;2402;L;TX	Pass	PK	7.206G	-47.45	-30.00	-17.45	1.18	3	H	NaN	NaN	-
2.4G;BT-LE;1;1;1;2402;L;TX	Pass	PK	9.608G	-49.74	-30.00	-19.74	1.10	3	H	NaN	NaN	-
2.4G;BT-LE;1;1;1;2402;L;TX	Pass	PK	4.804G	-44.66	-30.00	-14.66	-4.16	3	V	NaN	NaN	-
2.4G;BT-LE;1;1;1;2402;L;TX	Pass	PK	7.206G	-46.51	-30.00	-16.51	1.39	3	V	NaN	NaN	-
2.4G;BT-LE;1;1;1;2402;L;TX	Pass	PK	9.608G	-49.94	-30.00	-19.94	1.78	3	V	NaN	NaN	-
2.4G;BT-LE;1;1;1;2480;H;TX	Pass	PK	4.960G	-54.82	-30.00	-24.82	-3.31	3	H	NaN	NaN	-
2.4G;BT-LE;1;1;1;2480;H;TX	Pass	PK	7.440G	-50.17	-30.00	-20.17	1.48	3	H	NaN	NaN	-
2.4G;BT-LE;1;1;1;2480;H;TX	Pass	PK	9.920G	-49.97	-30.00	-19.97	0.11	3	H	NaN	NaN	-
2.4G;BT-LE;1;1;1;2480;H;TX	Pass	PK	4.960G	-48.25	-30.00	-18.25	-3.71	3	V	NaN	NaN	-
2.4G;BT-LE;1;1;1;2480;H;TX	Pass	PK	7.440G	-49.75	-30.00	-19.75	1.75	3	V	NaN	NaN	-
2.4G;BT-LE;1;1;1;2480;H;TX	Pass	PK	9.920G	-50.20	-30.00	-20.20	1.03	3	V	NaN	NaN	-

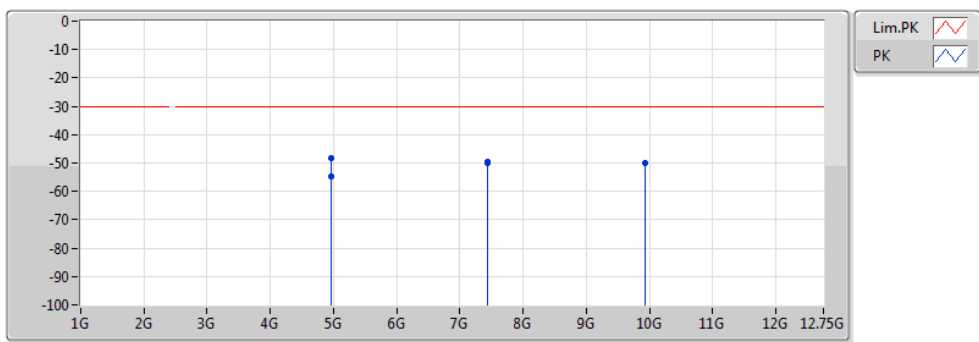
RE TX above 1GHz;Band:2.4G;BT-LE;BWch:1MHz;Nss:1;Nant:1;Ch:2402MHz;TX



ANT : A  
Power set : default  
EUT = Y axis

Type	Freq(Hz)	Level(dBm)	Limit(dBm)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
PK	4.804G	-52.78	-30.00	-22.78	-3.87	3	H	0	NaN	-
PK	7.206G	-47.45	-30.00	-17.45	1.18	3	H	0	NaN	-
PK	9.608G	-49.74	-30.00	-19.74	1.10	3	H	0	NaN	-
PK	4.804G	-44.66	-30.00	-14.66	-4.16	3	V	360	NaN	-
PK	7.206G	-46.51	-30.00	-16.51	1.39	3	V	360	NaN	-
PK	9.608G	-49.94	-30.00	-19.94	1.78	3	V	360	NaN	-

RE TX above 1GHz;Band:2.4G;BT-LE;BWch:1MHz;Nss:1;Nant:1;Ch:2480MHz;TX



ANT : A  
Power set : default  
EUT = Y axis

Type	Freq(Hz)	Level(dBm)	Limit(dBm)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
PK	4.960G	-54.82	-30.00	-24.82	-3.31	3	H	0	NaN	-
PK	7.440G	-50.17	-30.00	-20.17	1.48	3	H	0	NaN	-
PK	9.920G	-49.97	-30.00	-19.97	0.11	3	H	0	NaN	-
PK	4.960G	-48.25	-30.00	-18.25	-3.71	3	V	360	NaN	-
PK	7.440G	-49.75	-30.00	-19.75	1.75	3	V	360	NaN	-
PK	9.920G	-50.20	-30.00	-20.20	1.03	3	V	360	NaN	-



Summary

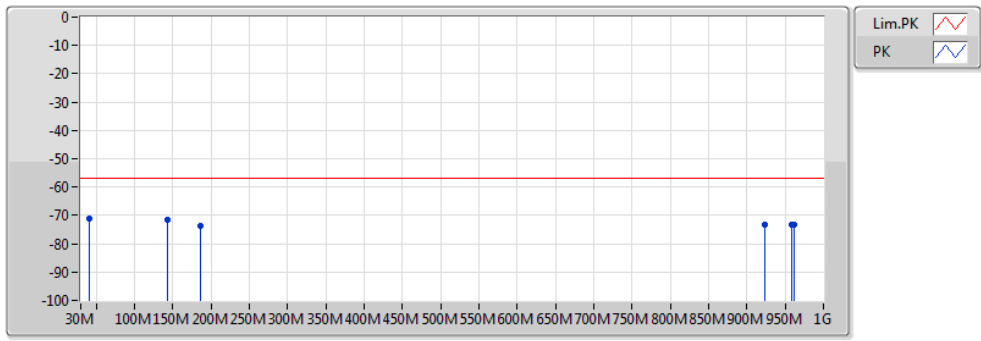
Mode	Result	Type	Freq (Hz)	Level (dBm)	Limit (dBm)	Margin (dB)	Factor (dB)	Dist (m)	Pol. (H/V)	Azimuth (°)	Height (m)	Comments
2.4G;BT-LE;1;1;1;2480;H;RX	Pass	PK	40.67M	-71.27	-57.00	-14.27	-6.12	3	V	NaN	NaN	-





Result

Mode	Result	Type	Freq (Hz)	Level (dBm)	Limit (dBm)	Margin (dB)	Factor (dB)	Dist (m)	Pol. (H/V)	Azimuth (°)	Height (m)	Comments
2.4G;BT-LE;1;1;1;2480;H;RX	Pass	PK	187.14M	-73.64	-57.00	-16.64	-6.90	3	H	NaN	NaN	-
2.4G;BT-LE;1;1;1;2480;H;RX	Pass	PK	923.37M	-73.44	-57.00	-16.44	5.91	3	H	NaN	NaN	-
2.4G;BT-LE;1;1;1;2480;H;RX	Pass	PK	961.2M	-73.42	-57.00	-16.42	6.33	3	H	NaN	NaN	-
2.4G;BT-LE;1;1;1;2480;H;RX	Pass	PK	40.67M	-71.27	-57.00	-14.27	-6.12	3	V	NaN	NaN	-
2.4G;BT-LE;1;1;1;2480;H;RX	Pass	PK	143.49M	-71.75	-57.00	-14.75	-4.72	3	V	NaN	NaN	-
2.4G;BT-LE;1;1;1;2480;H;RX	Pass	PK	958.29M	-73.19	-57.00	-16.19	6.28	3	V	NaN	NaN	-

RE RX below 1GHz;Band:2.4G;BT-LE;BWch:1MHz;Nss:1;Nant:1;Ch:2480MHz;RX



Lim.PK   
PK 

ANT : A  
EUT = Y axis

Type	Freq(Hz)	Level(dBm)	Limit(dBm)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(*)	Height(m)	Comments
PK	187.14M	-73.64	-57.00	-16.64	-6.90	3	H	360	NaN	-
PK	923.37M	-73.44	-57.00	-16.44	5.91	3	H	360	NaN	-
PK	961.2M	-73.42	-57.00	-16.42	6.33	3	H	360	NaN	-
PK	40.67M	-71.27	-57.00	-14.27	-6.12	3	V	360	NaN	-
PK	143.49M	-71.75	-57.00	-14.75	-4.72	3	V	360	NaN	-
PK	958.29M	-73.19	-57.00	-16.19	6.28	3	V	360	NaN	-



Summary

Mode	Result	Type	Freq (Hz)	Level (dBm)	Limit (dBm)	Margin (dB)	Factor (dB)	Dist (m)	Pol. (H/V)	Azimuth (°)	Height (m)	Comments
2.4G;BT-LE;1;1;1;2480;H;RX	Pass	PK	5.94471G	-50.37	-47.00	-3.37	0.38	3	H	NaN	NaN	-



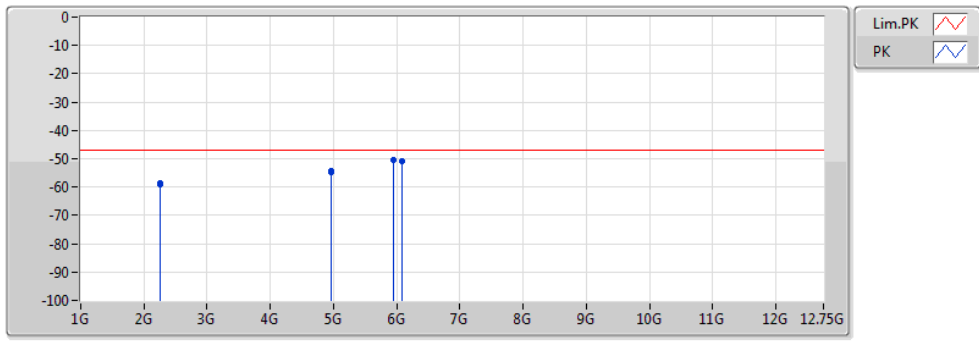
Result

Mode	Result	Type	Freq (Hz)	Level (dBm)	Limit (dBm)	Margin (dB)	Factor (dB)	Dist (m)	Pol. (H/V)	Azimuth (°)	Height (m)	Comments
2.4G;BT-LE;1;1;1;2402;L;RX	Pass	PK	2.260554G	-59.15	-47.00	-12.15	-8.59	3	H	NaN	NaN	-
2.4G;BT-LE;1;1;1;2402;L;RX	Pass	PK	4.960169G	-54.43	-47.00	-7.43	-3.31	3	H	NaN	NaN	-
2.4G;BT-LE;1;1;1;2402;L;RX	Pass	PK	5.93871G	-50.61	-47.00	-3.61	0.34	3	H	NaN	NaN	-
2.4G;BT-LE;1;1;1;2402;L;RX	Pass	PK	2.260054G	-58.65	-47.00	-11.65	-8.95	3	V	NaN	NaN	-
2.4G;BT-LE;1;1;1;2402;L;RX	Pass	PK	4.962669G	-54.58	-47.00	-7.58	-3.71	3	V	NaN	NaN	-
2.4G;BT-LE;1;1;1;2402;L;RX	Pass	PK	6.085216G	-50.89	-47.00	-3.89	-0.88	3	V	NaN	NaN	-
2.4G;BT-LE;1;1;1;2480;H;RX	Pass	PK	2.16805G	-58.07	-47.00	-11.07	-8.48	3	H	NaN	NaN	-
2.4G;BT-LE;1;1;1;2480;H;RX	Pass	PK	4.805162G	-54.27	-47.00	-7.27	-3.86	3	H	NaN	NaN	-
2.4G;BT-LE;1;1;1;2480;H;RX	Pass	PK	5.94471G	-50.37	-47.00	-3.37	0.38	3	H	NaN	NaN	-
2.4G;BT-LE;1;1;1;2480;H;RX	Pass	PK	2.250553G	-58.78	-47.00	-11.78	-8.95	3	V	NaN	NaN	-
2.4G;BT-LE;1;1;1;2480;H;RX	Pass	PK	4.710158G	-54.39	-47.00	-7.39	-4.42	3	V	NaN	NaN	-
2.4G;BT-LE;1;1;1;2480;H;RX	Pass	PK	6.371229G	-50.62	-47.00	-3.62	-0.30	3	V	NaN	NaN	-



# RSE RX above 1GHz Result

RE RX above 1GHz;Band:2.4G;BT-LE;BWch:1MHz;Nss:1;Nant:1;Ch:2402MHz;RX

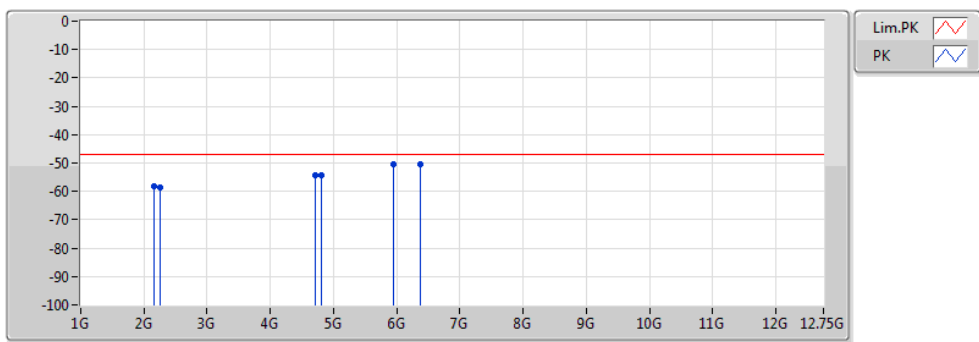


Lim.PK   
PK

ANT : A  
EUT = Y axis

Type	Freq(Hz)	Level(dBm)	Limit(dBm)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
PK	2.260554G	-59.15	-47.00	-12.15	-8.59	3	H	0	NaN	-
PK	4.960169G	-54.43	-47.00	-7.43	-3.31	3	H	0	NaN	-
PK	5.93871G	-50.61	-47.00	-3.61	0.34	3	H	0	NaN	-
PK	2.260054G	-58.65	-47.00	-11.65	-8.95	3	V	360	NaN	-
PK	4.962669G	-54.58	-47.00	-7.58	-3.71	3	V	360	NaN	-
PK	6.085216G	-50.89	-47.00	-3.89	-0.88	3	V	360	NaN	-

RE RX above 1GHz;Band:2.4G;BT-LE;BWch:1MHz;Nss:1;Nant:1;Ch:2480MHz;RX



Lim.PK   
PK

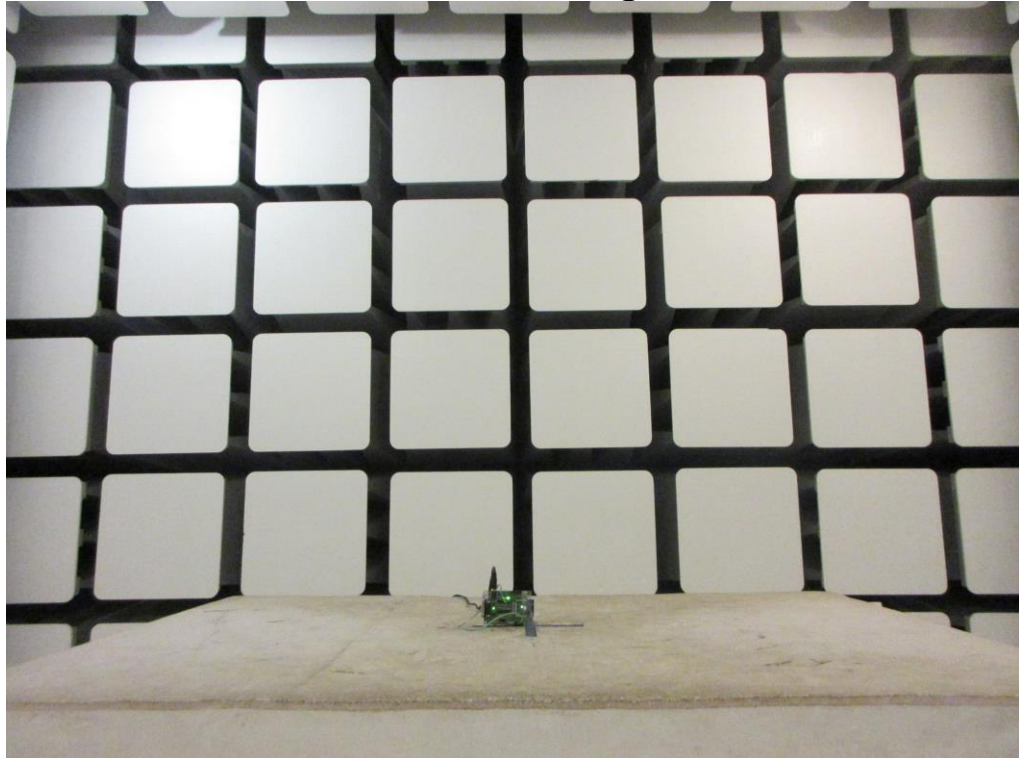
ANT : A  
EUT = Y axis

Type	Freq(Hz)	Level(dBm)	Limit(dBm)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
PK	2.16805G	-58.07	-47.00	-11.07	-8.48	3	H	360	NaN	-
PK	4.805162G	-54.27	-47.00	-7.27	-3.86	3	H	360	NaN	-
PK	5.94471G	-50.37	-47.00	-3.37	0.38	3	H	360	NaN	-
PK	2.250553G	-58.78	-47.00	-11.78	-8.95	3	V	0	NaN	-
PK	4.710158G	-54.39	-47.00	-7.39	-4.42	3	V	0	NaN	-
PK	6.371229G	-50.62	-47.00	-3.62	-0.30	3	V	0	NaN	-

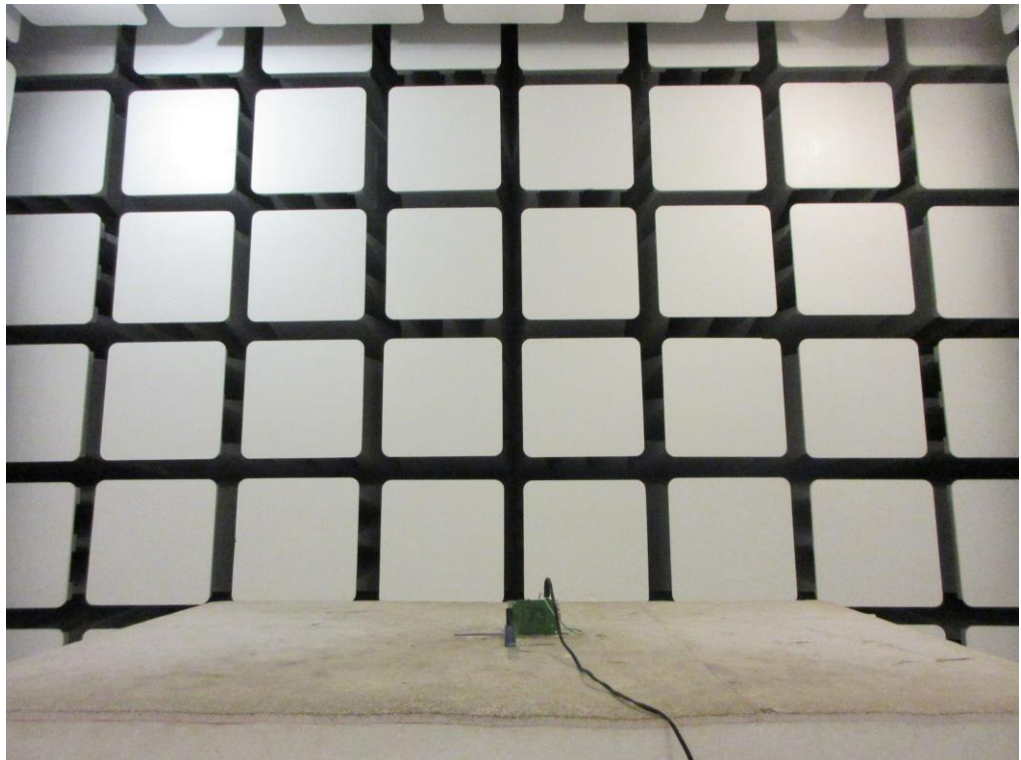


## 1. Photographs of Radiated Emissions Test Configuration

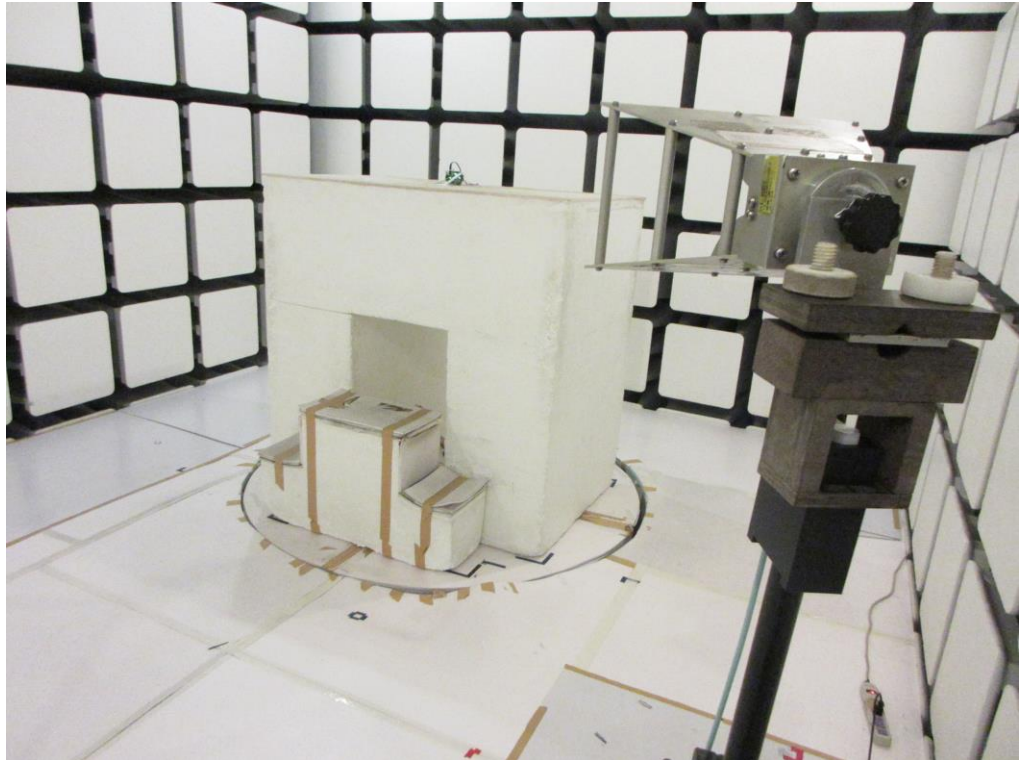
Front view



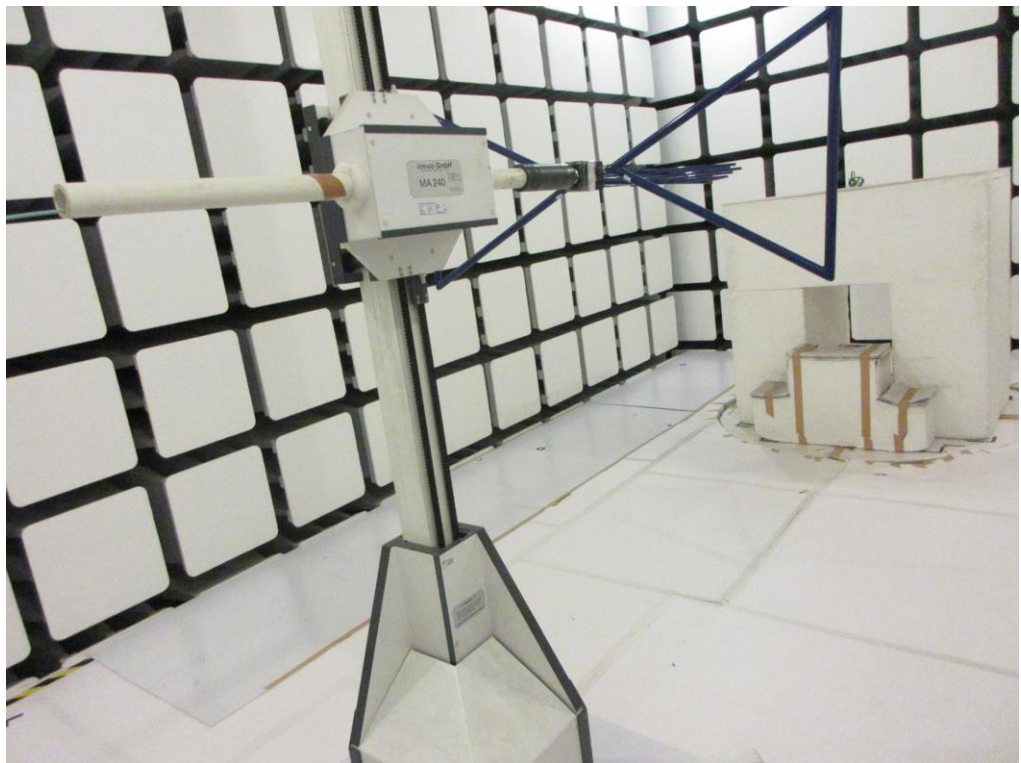
Rear view



Horn Antenna



Bilog Antenna



**EUT take a close-up**

