

RF TEST REPORT



Report No.: 16070845-FCC-R

Supersede Report No.: N/A

Applicant	Shenzhen Kingsun Enterprises Co., Ltd.	
Product Name	BLUETOOTH HEADPHONE	
Model No.	MA-1097-A	
Serial No.	N/A	
Test Standard	FCC Part 15.249: 2015, ANSI C63.10: 2013	
Test Date	July 13 to 29, 2016	
Issue Date	July 29, 2016	
Test Result	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail
Equipment complied with the specification	<input checked="" type="checkbox"/>	
Equipment did not comply with the specification	<input type="checkbox"/>	
Loren Luo	David Huang	
Loren Luo Test Engineer	David Huang Checked By	
<p>This test report may be reproduced in full only Test result presented in this test report is applicable to the tested sample only</p>		

Issued by:

SIEMIC (SHENZHEN-CHINA) LABORATORIES

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Laboratories Introduction

SIEMIC, headquartered in the heart of Silicon Valley, with superior facilities in US and Asia, is one of the leading independent testing and certification facilities providing customers with one-stop shop services for Compliance Testing and Global Certifications.



In addition to testing and certification, SIEMIC provides initial design reviews and compliance management throughout a project. Our extensive experience with China, Asia Pacific, North America, European, and International compliance requirements, assures the fastest, most cost effective way to attain regulatory compliance for the global markets.

Accreditations for Conformity Assessment

Country/Region	Scope
USA	EMC, RF/Wireless, SAR, Telecom
Canada	EMC, RF/Wireless, SAR, Telecom
Taiwan	EMC, RF, Telecom, SAR, Safety
Hong Kong	RF/Wireless, SAR, Telecom
Australia	EMC, RF, Telecom, SAR, Safety
Korea	EMI, EMS, RF, SAR, Telecom, Safety
Japan	EMI, RF/Wireless, SAR, Telecom
Singapore	EMC, RF, SAR, Telecom
Europe	EMC, RF, SAR, Telecom, Safety

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1. Report Revision History

Report No.	Report Version	Description	Issue Date
16070845-FCC-R	NONE	Original	July 29, 2016

2. Customer information

Applicant Name	Shenzhen Kingsun Enterprises Co., Ltd.
Applicant Add	25 / F, CEC information Building Xinwen Rd., Shenzhen, Guangdong, China
Manufacturer	Shenzhen Kingsun Enterprises Co., Ltd.
Manufacturer Add	25 / F, CEC information Building Xinwen Rd., Shenzhen, Guangdong, China

3. Test site information

Lab performing tests	SIEMIC (Shenzhen-China) LABORATORIES
Lab Address	Zone A, Floor 1, Building 2 Wan Ye Long Technology Park South Side of Zhoushi Road, Bao'an District, Shenzhen, Guangdong China 518108
FCC Test Site No.	718246
IC Test Site No.	4842E-1
Test Software	Radiated Emission Program-To Shenzhen v2.0

4. Equipment under Test (EUT) Information

Description of EUT: BLUETOOTH HEADPHONE

Main Model: MA-1097-A

Serial Model: N/A

Date EUT received: July 12, 2016

Test Date(s): July 13 to 29, 2016

Equipment Category : DXX

Antenna Gain: 0.944dBi

Antenna Type: Monopole antenna

Type of Modulation: GFSK, π /4DQPSK, 8DPSK

RF Operating Frequency (ies): 2402-2480 MHz(RX/TX)

Number of Channels: 79CH

Port: Micro-USB Port,USB Port

Battery:

Spec:3.70V,55mAh

Input Power: Charge upper limit voltage:4.2V

USB: 5V

Trade Name : N/A

FCC ID: 2AAPKMA-1097-A

5. Test Summary

The product was tested in accordance with the following specifications.

All testing has been performed according to below product classification:

FCC Rules	Description of Test	Result
§15.203	Antenna Requirement	Compliance
§15.249©	20 dB Bandwidth	Compliance
§15.247(d)	Band Edge	Compliance
§15.207(a)	AC Line Conducted Emissions	N/A
§15.205, §15.209, §15.249(a), §15.249(d)	Radiated Fundamental / Radiated Spurious Emissions	Compliance
§15.249(a)	Field Strength Measurement	Compliance

Measurement Uncertainty

Emissions		
Test Item	Description	Uncertainty
Band Edge and Radiated Spurious Emissions	Confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2 (for EUTs < 0.5m X 0.5m X 0.5m)	+5.6dB/-4.5dB
-	-	-

6. Measurements, Examination And Derived Results

6.1 Antenna Requirement

Applicable Standard

According to § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

- a. Antenna must be permanently attached to the unit.
- b. Antenna must use a unique type of connector to attach to the EUT.
- c. Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

Antenna Connector Construction

The EUT has 1 antenna:

A permanently attached monopole antenna for Bluetooth, the gain is 0.944dBi for Bluetooth.

The antenna meets up with the ANTENNA REQUIREMENT.

Result: Compliance.

6.2 20dB Bandwidth

Temperature	23°C
Relative Humidity	55%
Atmospheric Pressure	1022mbar
Test date :	July 22, 2016
Tested By :	Loren Luo

Requirement(s):

Result	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail
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 Test Data Yes N/A

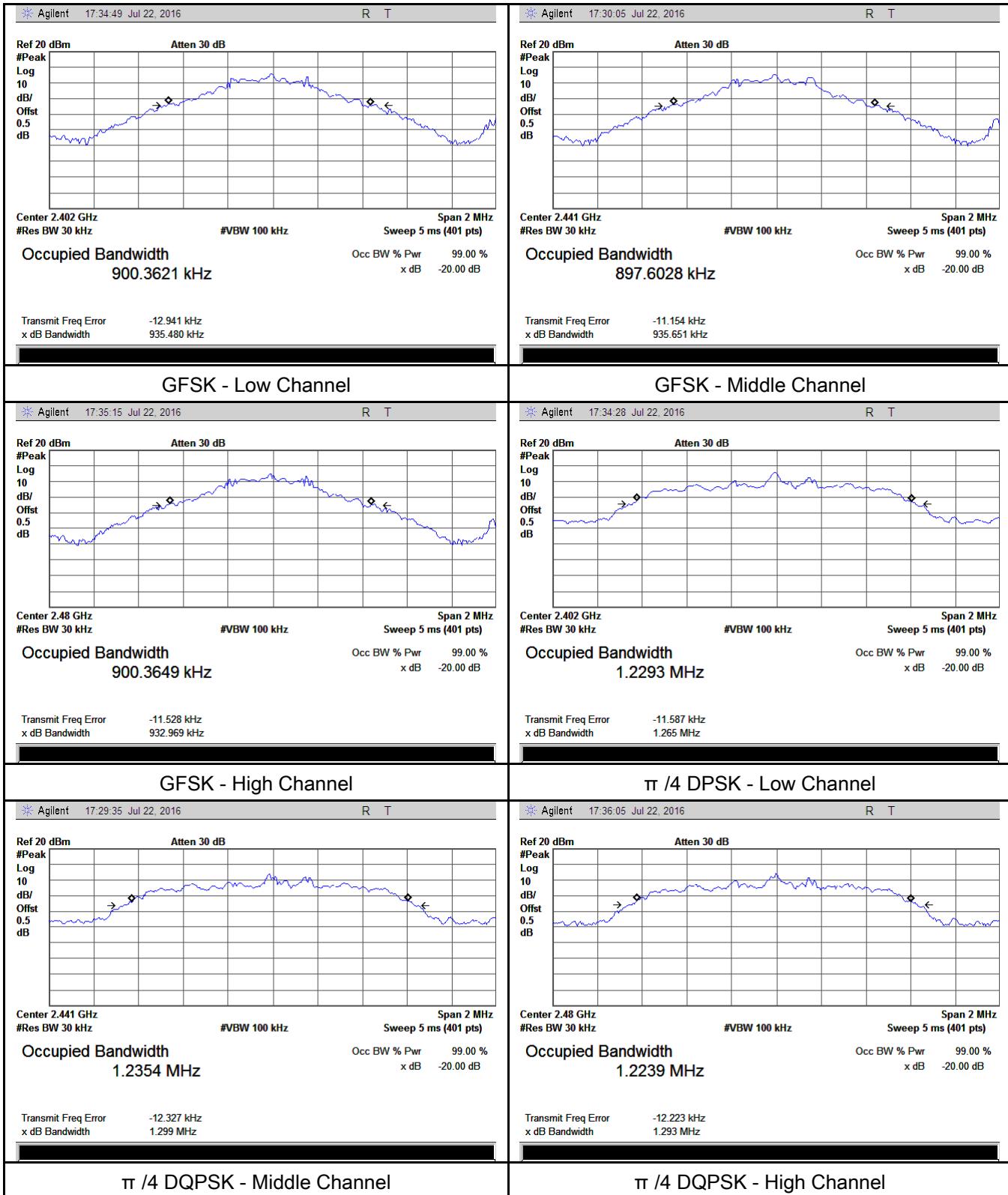
 Test Plot Yes (See below) N/A

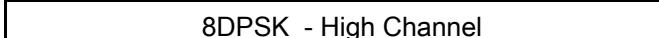
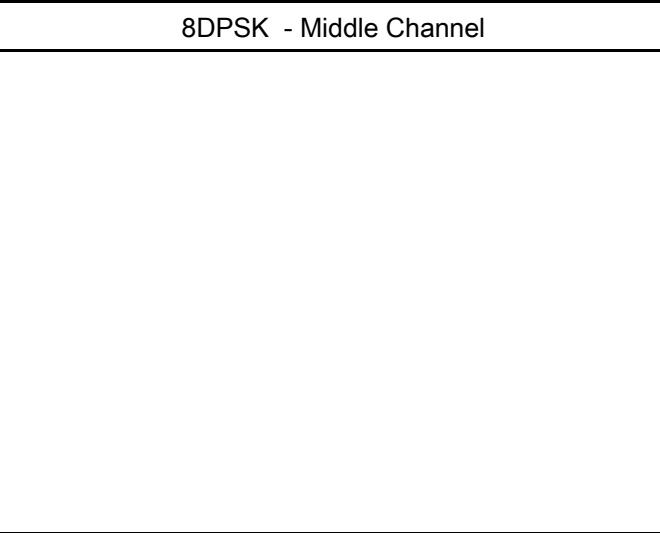
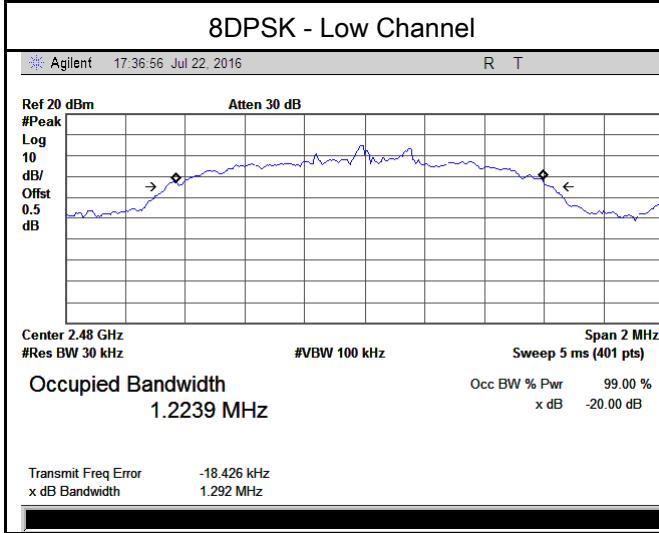
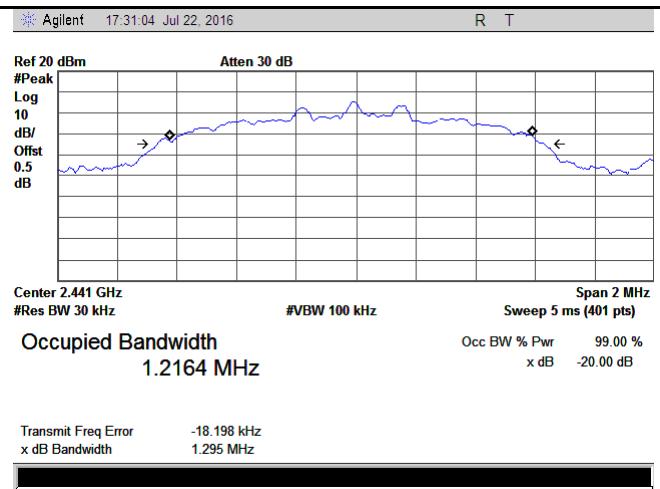
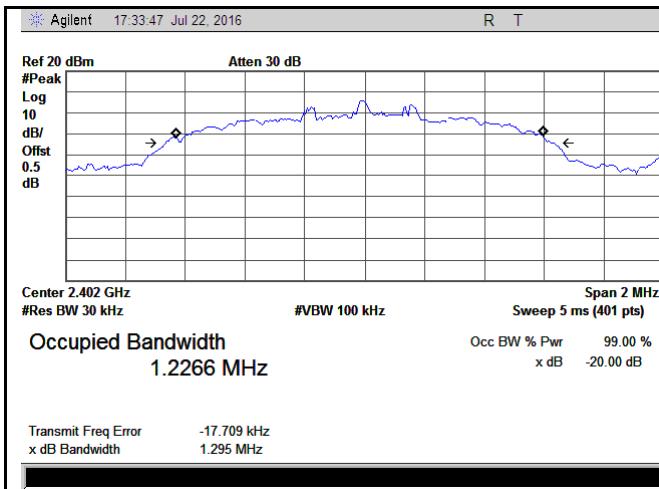
Measurement result

Modulation	CH	CH Freq (MHz)	20dB Bandwidth (MHz)	Result
GFSK	Low	2402	0.935	Pass
	Mid	2441	0.936	Pass
	High	2480	0.933	Pass
$\pi/4$ DQPSK	Low	2402	1.265	Pass
	Mid	2441	1.299	Pass
	High	2480	1.293	Pass
8DPSK	Low	2402	1.295	Pass
	Mid	2441	1.295	Pass
	High	2480	1.292	Pass

Test Plots

20dB Bandwidth measurement result

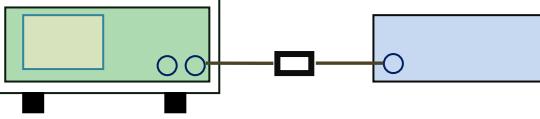




6.3 Band Edge

Temperature	23°C
Relative Humidity	59%
Atmospheric Pressure	1026mbar
Test date :	July 26, 2016
Tested By :	Loren Luo

Requirement(s):

Spec	Item	Requirement	Applicable
§15.249(d)	a)	Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.	<input checked="" type="checkbox"/>
Test Setup		 <p style="text-align: center;">Spectrum Analyzer EUT</p>	
Test Procedure		<ul style="list-style-type: none"> - Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator. - Position the EUT without connection to measurement instrument. Put it on the Rotated table and turn on the EUT and make it operate in transmitting mode. Then set it to Low Channel and High Channel within its operating range, and make sure the instrument is operated in its linear range. - Set both RBW and VBW of spectrum analyzer to 1MHz. - Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency. - Repeat above procedures until all measured frequencies were complete. 	
Remark			
Result		<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail	

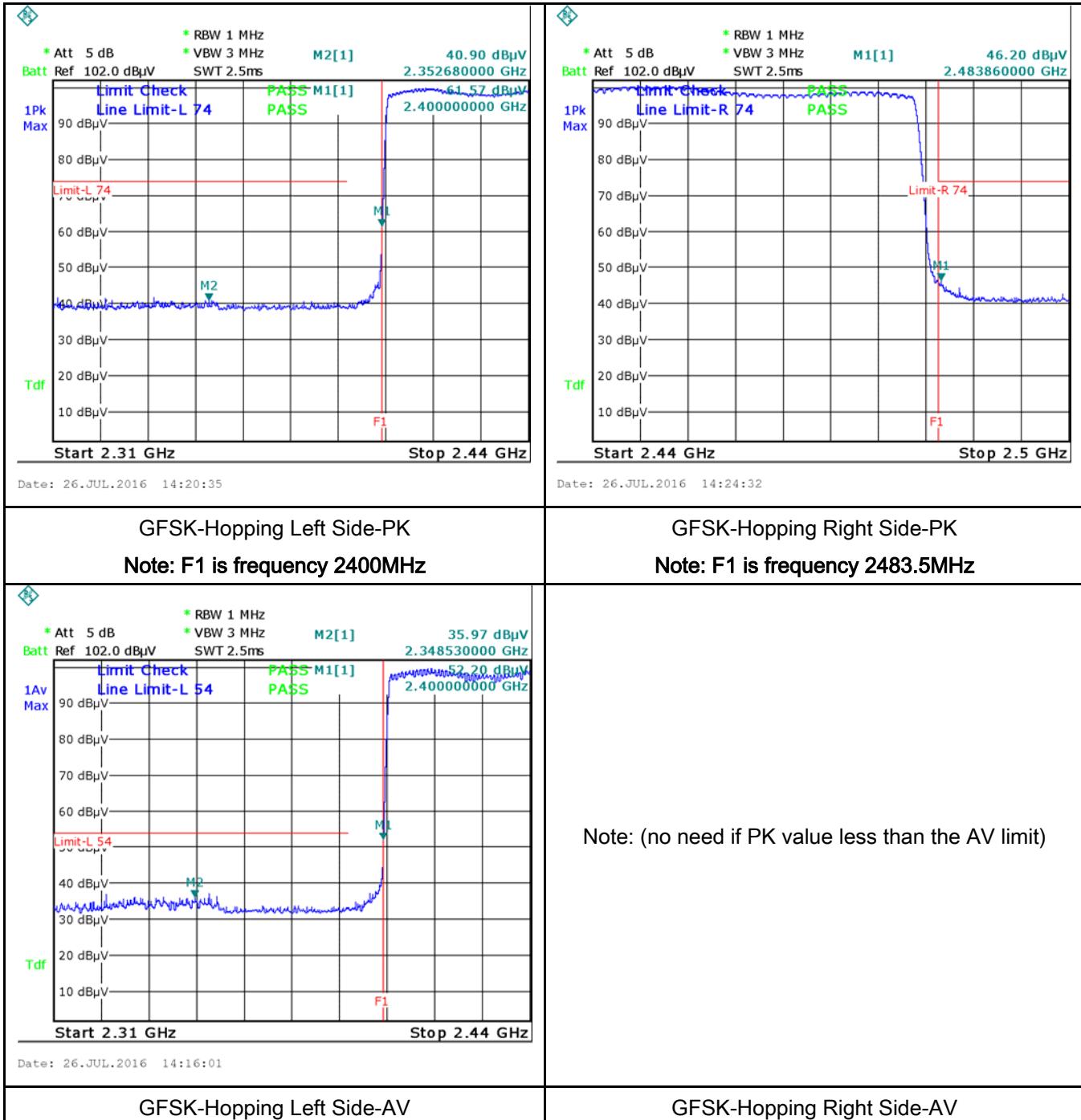
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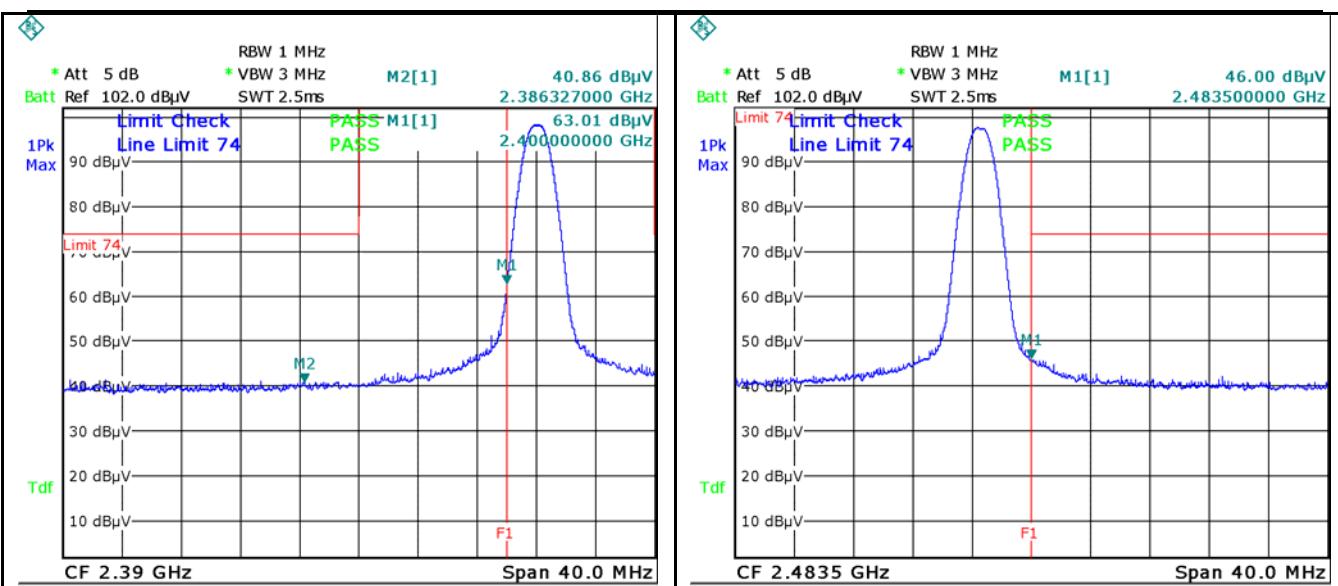
Test Data Yes N/A

Test Plot Yes (See below) N/A

Test Plots

GFSK Mode:





Date: 26.JUL.2016 12:09:49

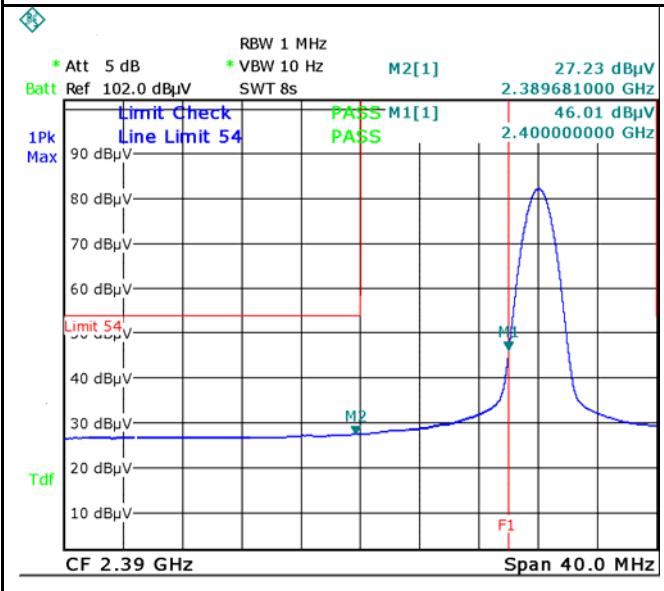
Date: 26.JUL.2016 12:15:53

GFSK-Left Side-PK

Note: F1 is frequency 2400MHz

GFSK-Right Side-PK

Note: F1 is frequency 2483.5MHz

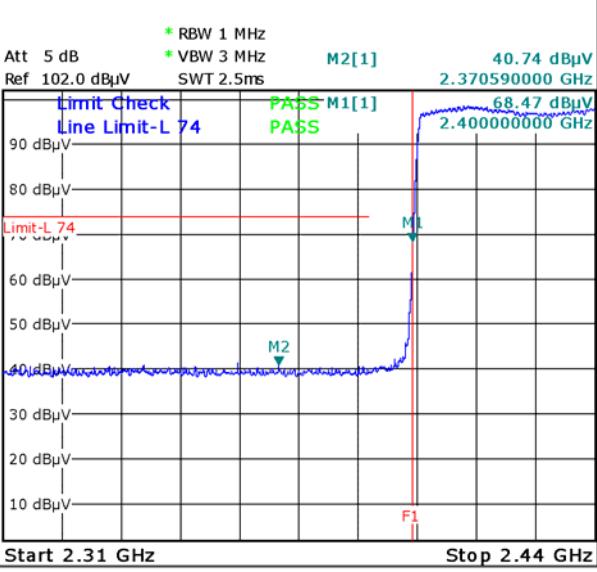
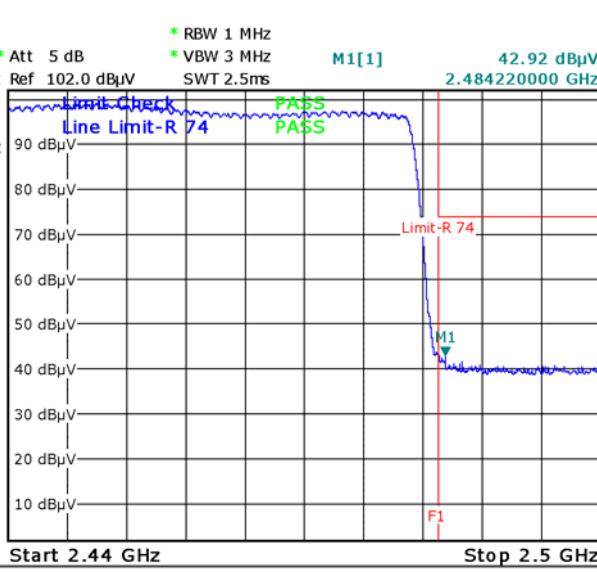
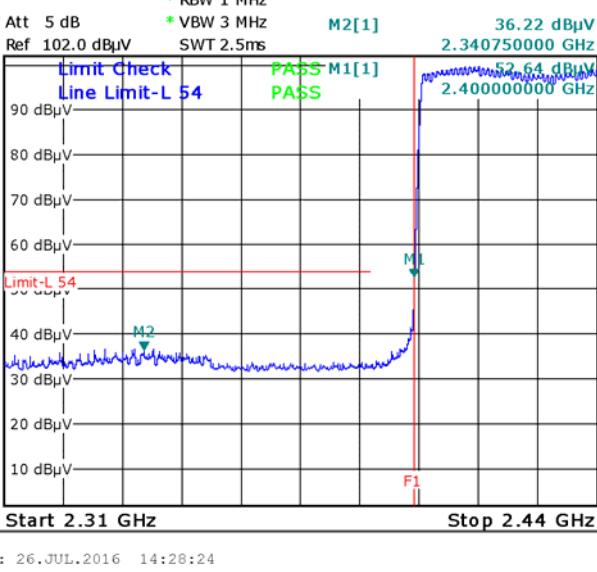


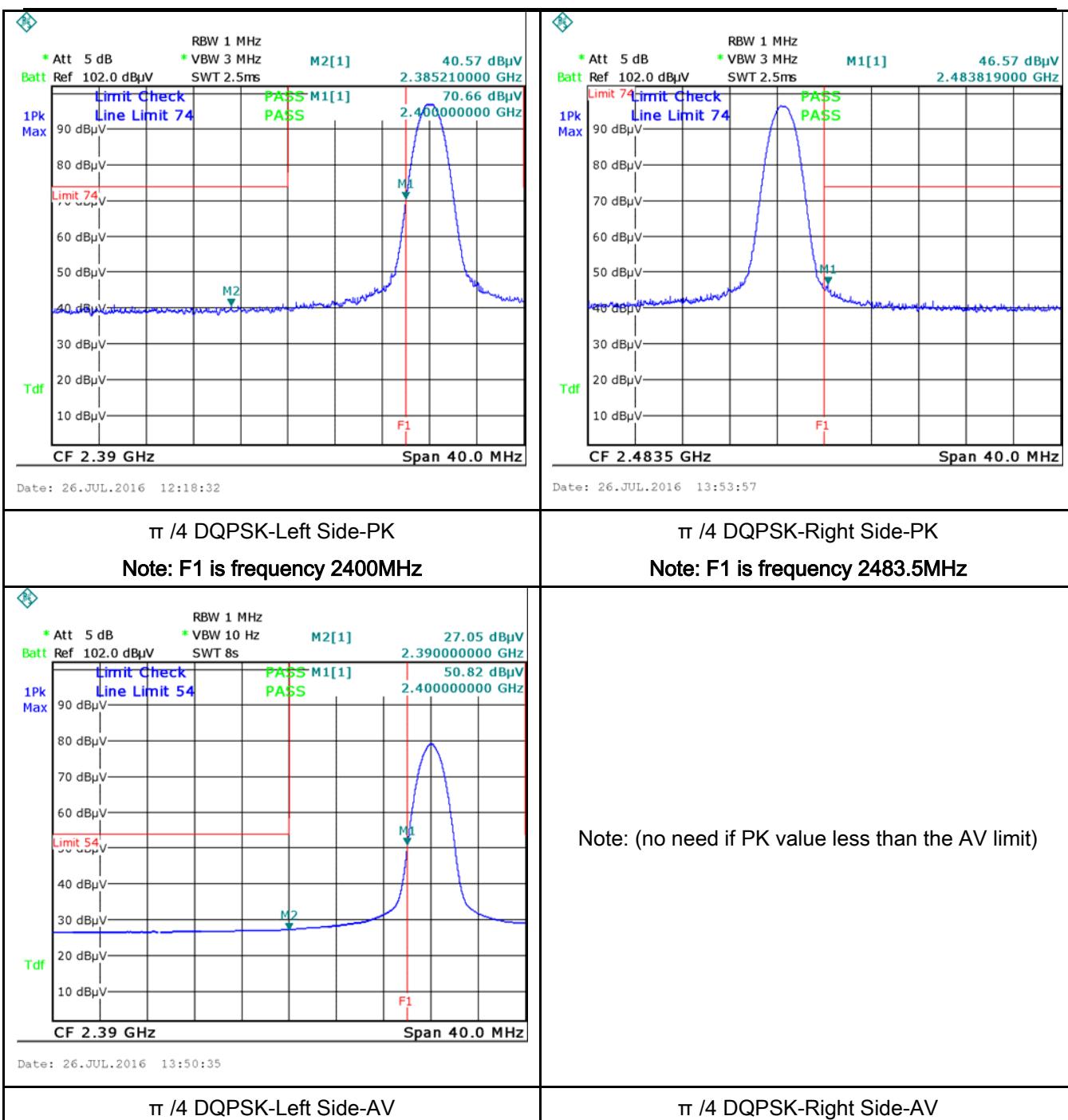
Date: 26.JUL.2016 14:04:21

GFSK-Right Side-AV

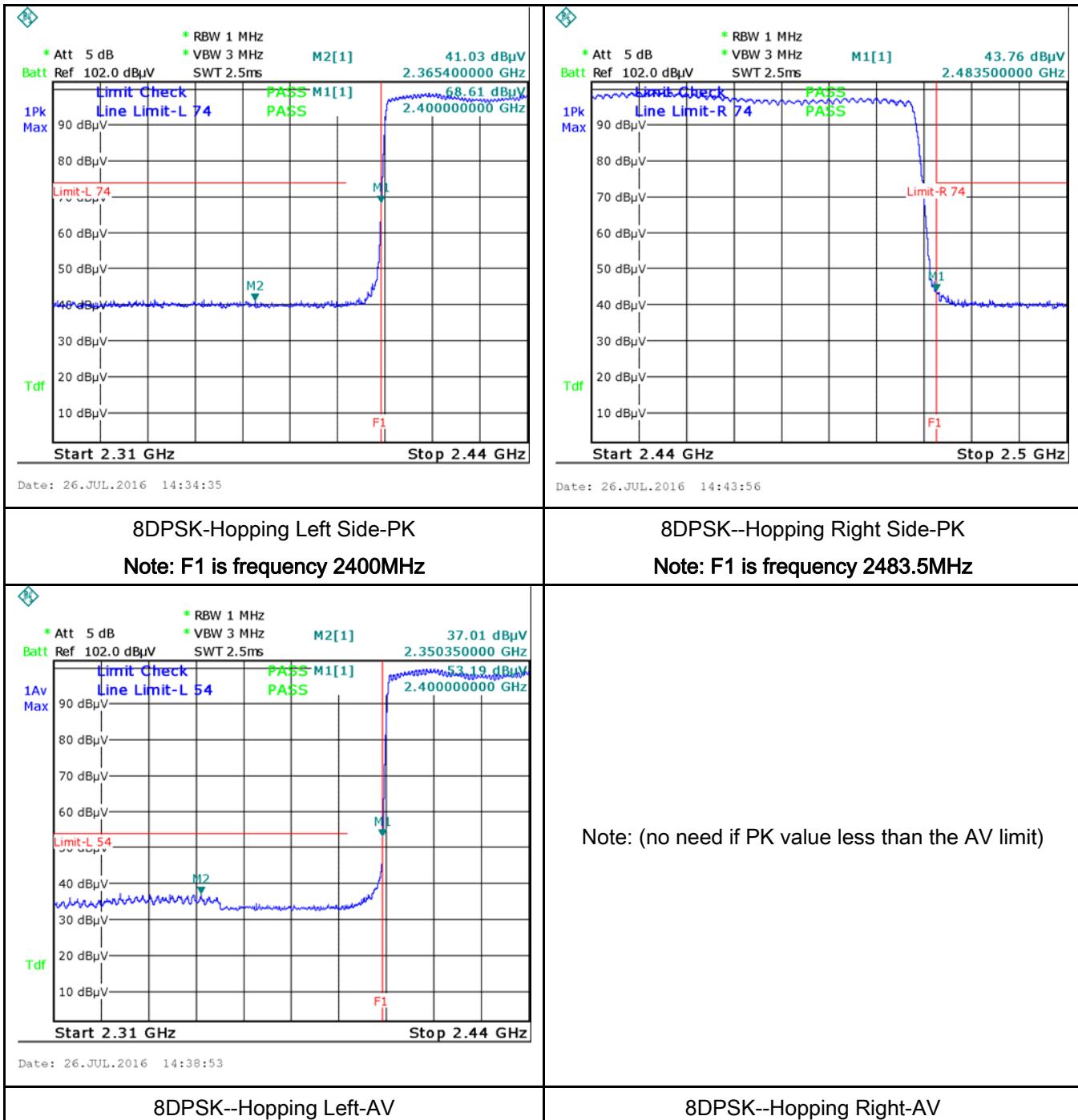
GFSK-Left Side-AV

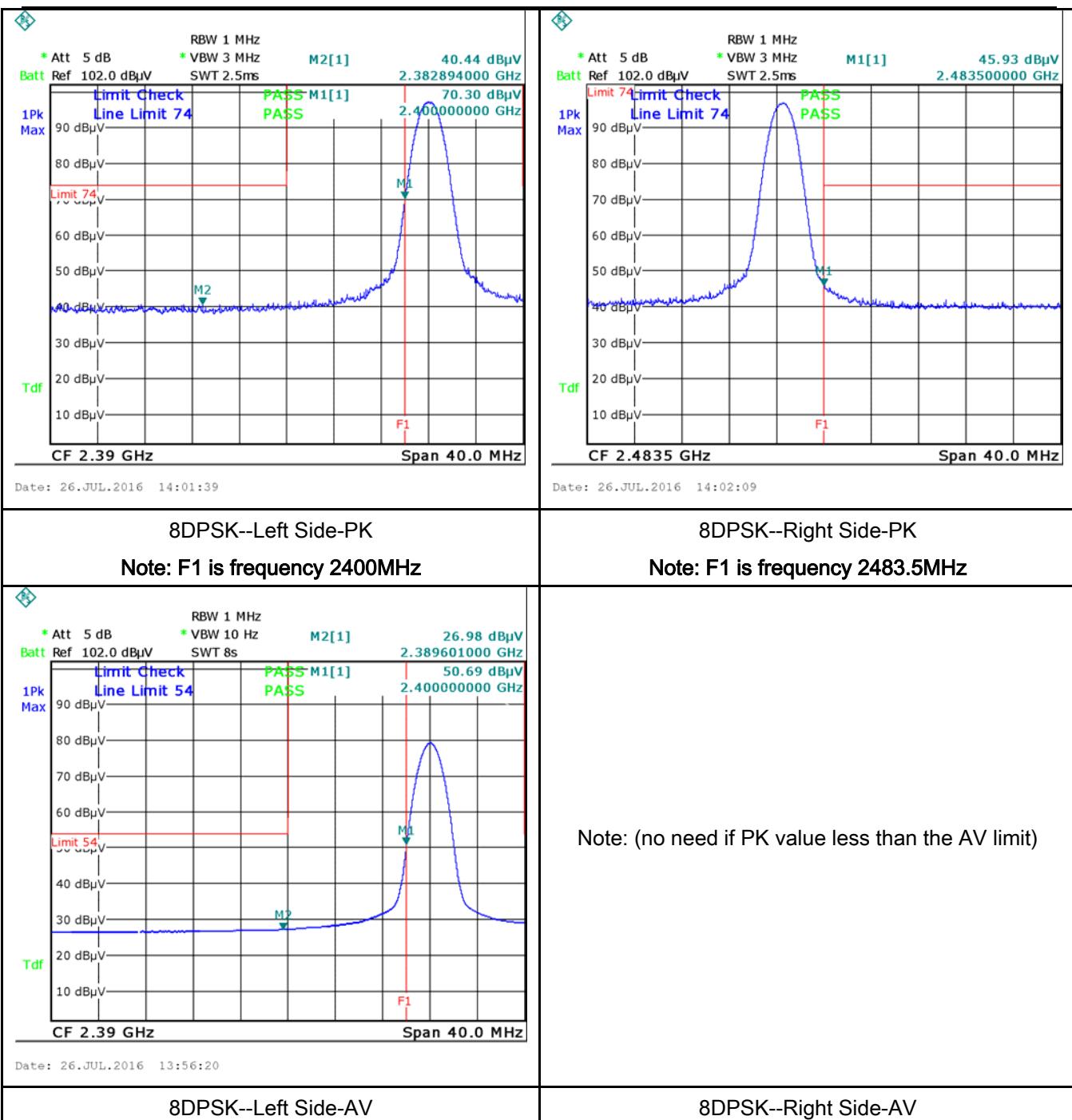
$\pi/4$ DQPSK Mode:

 <p>* Att 5 dB * RBW 1 MHz Batt Ref 102.0 dBμV * VBW 3 MHz 1Pk Max SWT 2.5ms M2[1] 40.74 dBμV 90 dBμV 80 dBμV 70 dBμV 60 dBμV 50 dBμV 40 dBμV 30 dBμV 20 dBμV 10 dBμV Tdf Start 2.31 GHz Stop 2.44 GHz</p>	 <p>* Att 5 dB * RBW 1 MHz Batt Ref 102.0 dBμV * VBW 3 MHz 1Pk Max SWT 2.5ms M1[1] 42.92 dBμV 90 dBμV 80 dBμV 70 dBμV 60 dBμV 50 dBμV 40 dBμV 30 dBμV 20 dBμV 10 dBμV Tdf Start 2.44 GHz Stop 2.5 GHz</p>
<p>Date: 26.JUL.2016 14:30:08</p>	<p>Date: 26.JUL.2016 14:32:47</p>
<p>$\pi/4$ DQPSK-Hopping Left Side-PK</p>	<p>$\pi/4$ DQPSK-Hopping Right Side-PK</p>
<p>Note: F1 is frequency 2400MHz</p>	<p>Note: F1 is frequency 2483.5MHz</p>
 <p>* Att 5 dB * RBW 1 MHz Batt Ref 102.0 dBμV * VBW 3 MHz 1Av Max SWT 2.5ms M2[1] 36.22 dBμV 90 dBμV 80 dBμV 70 dBμV 60 dBμV 50 dBμV 40 dBμV 30 dBμV 20 dBμV 10 dBμV Tdf Start 2.31 GHz Stop 2.44 GHz</p>	<p>Note: (no need if PK value less than the AV limit)</p>
<p>Date: 26.JUL.2016 14:28:24</p>	<p>$\pi/4$ DQPSK-Hopping Left-AV</p>
	<p>$\pi/4$ DQPSK-Hopping Right-AV</p>



8DPSK Mode:





6.4 AC Power Line Conducted Emissions

Temperature	25°C
Relative Humidity	58%
Atmospheric Pressure	1016mbar
Test date :	-----
Tested By :	Loren Luo

Requirement(s):

Spec	Item	Requirement	Applicable														
§15.207	a)	<p>For Low-power radio-frequency devices that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 [mu]H/50 ohms line impedance stabilization network (LISN). The lower limit applies at the boundary between the frequencies ranges.</p> <table border="1"> <thead> <tr> <th rowspan="2">Frequency ranges (MHz)</th> <th colspan="2">Limit (dBμV)</th> </tr> <tr> <th>QP</th> <th>Average</th> </tr> </thead> <tbody> <tr> <td>0.15 ~ 0.5</td> <td>66 – 56</td> <td>56 – 46</td> </tr> <tr> <td>0.5 ~ 5</td> <td>56</td> <td>46</td> </tr> <tr> <td>5 ~ 30</td> <td>60</td> <td>50</td> </tr> </tbody> </table>	Frequency ranges (MHz)	Limit (dB μ V)		QP	Average	0.15 ~ 0.5	66 – 56	56 – 46	0.5 ~ 5	56	46	5 ~ 30	60	50	<input type="checkbox"/>
Frequency ranges (MHz)	Limit (dB μ V)																
	QP	Average															
0.15 ~ 0.5	66 – 56	56 – 46															
0.5 ~ 5	56	46															
5 ~ 30	60	50															
Test Setup			<p>Vertical Ground Reference Plane</p> <p>EUT</p> <p>LISN</p> <p>40 cm</p> <p>80 cm</p> <p>Test Receiver</p> <p>Horizontal Ground Reference Plane</p> <p>Note: 1. Support units were connected to second LISN. 2. Both of LISNs (AMN) are 80cm from EUT and at least 80cm from other units and other metal planes support units.</p>														
Procedure	<ol style="list-style-type: none"> The EUT and supporting equipment were set up in accordance with the requirements of the standard on top of a 1.5m x 1m x 0.8m high, non-metallic table. The power supply for the EUT was fed through a 50W/50mH EUT LISN, connected to filtered mains. The RF OUT of the EUT LISN was connected to the EMI test receiver via a low-loss 																

	coaxial cable. 4. All other supporting equipment were powered separately from another main supply. 5. The EUT was switched on and allowed to warm up to its normal operating condition. 6. A scan was made on the NEUTRAL line (for AC mains) or Earth line (for DC power) over the required frequency range using an EMI test receiver. 7. High peaks, relative to the limit line, The EMI test receiver was then tuned to the selected frequencies and the necessary measurements made with a receiver bandwidth setting of 10 kHz. 8. Step 7 was then repeated for the LIVE line (for AC mains) or DC line (for DC power).
Remark	
Result	<input type="checkbox"/> Pass <input type="checkbox"/> Fail <input checked="" type="checkbox"/> N/A

Test Data Yes N/A

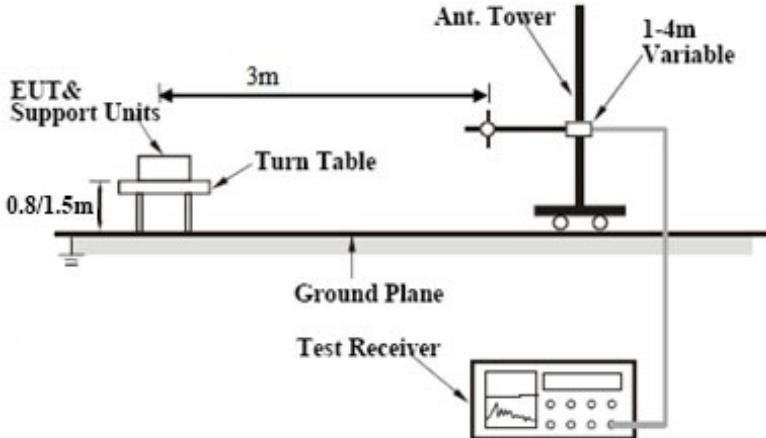
Test Plot Yes (See below) N/A

6.5 Radiated Spurious Emissions

Temperature	23°C
Relative Humidity	59%
Atmospheric Pressure	1026mbar
Test date :	July 26, 2016
Tested By :	Loren Luo

Requirement(s):

Spec	Requirement	Applicable																																							
§15.209, §15.205, §15.249(a) & §15.249(d)	<p>The emissions from the Low-power radio-frequency devices shall not exceed the field strength levels specified in the following table and the level of any unwanted emissions shall not exceed the level of the fundamental emission. The tighter limit applies at the band edges.</p> <p>The field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following tables:</p> <p>Table 1:</p> <table border="1"> <thead> <tr> <th>Fundamental frequency</th> <th>Field strength of fundamental (millivolts/meter)</th> <th>Field strength of harmonics (microvolts/meter)</th> </tr> </thead> <tbody> <tr> <td>902– 928 MHz</td> <td>50</td> <td>500</td> </tr> <tr> <td>2400– 2483.5 MHz</td> <td>50</td> <td>500</td> </tr> <tr> <td>5725– 5875 MHz</td> <td>50</td> <td>500</td> </tr> <tr> <td>24.0– 24.25 GHz</td> <td>250</td> <td>2500</td> </tr> </tbody> </table> <p>Table 2:</p> <table border="1"> <thead> <tr> <th>Frequency (MHz)</th> <th>Field strength (microvolts/meter)</th> <th>Measurement distance (meters)</th> </tr> </thead> <tbody> <tr> <td>0.009-0.490</td> <td>2400/F(kHz)</td> <td>300</td> </tr> <tr> <td>0.490-1.705</td> <td>24000/F(kHz)</td> <td>30</td> </tr> <tr> <td>1.705-30.0</td> <td>30</td> <td>30</td> </tr> <tr> <td>30-88</td> <td>100**</td> <td>3</td> </tr> <tr> <td>88-216</td> <td>150**</td> <td>3</td> </tr> <tr> <td>216-960</td> <td>200**</td> <td>3</td> </tr> <tr> <td>Above 960</td> <td>500</td> <td>3</td> </tr> </tbody> </table>	Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)	902– 928 MHz	50	500	2400– 2483.5 MHz	50	500	5725– 5875 MHz	50	500	24.0– 24.25 GHz	250	2500	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)	0.009-0.490	2400/F(kHz)	300	0.490-1.705	24000/F(kHz)	30	1.705-30.0	30	30	30-88	100**	3	88-216	150**	3	216-960	200**	3	Above 960	500	3	<input checked="" type="checkbox"/>
Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)																																							
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0.009-0.490	2400/F(kHz)	300																																							
0.490-1.705	24000/F(kHz)	30																																							
1.705-30.0	30	30																																							
30-88	100**	3																																							
88-216	150**	3																																							
216-960	200**	3																																							
Above 960	500	3																																							

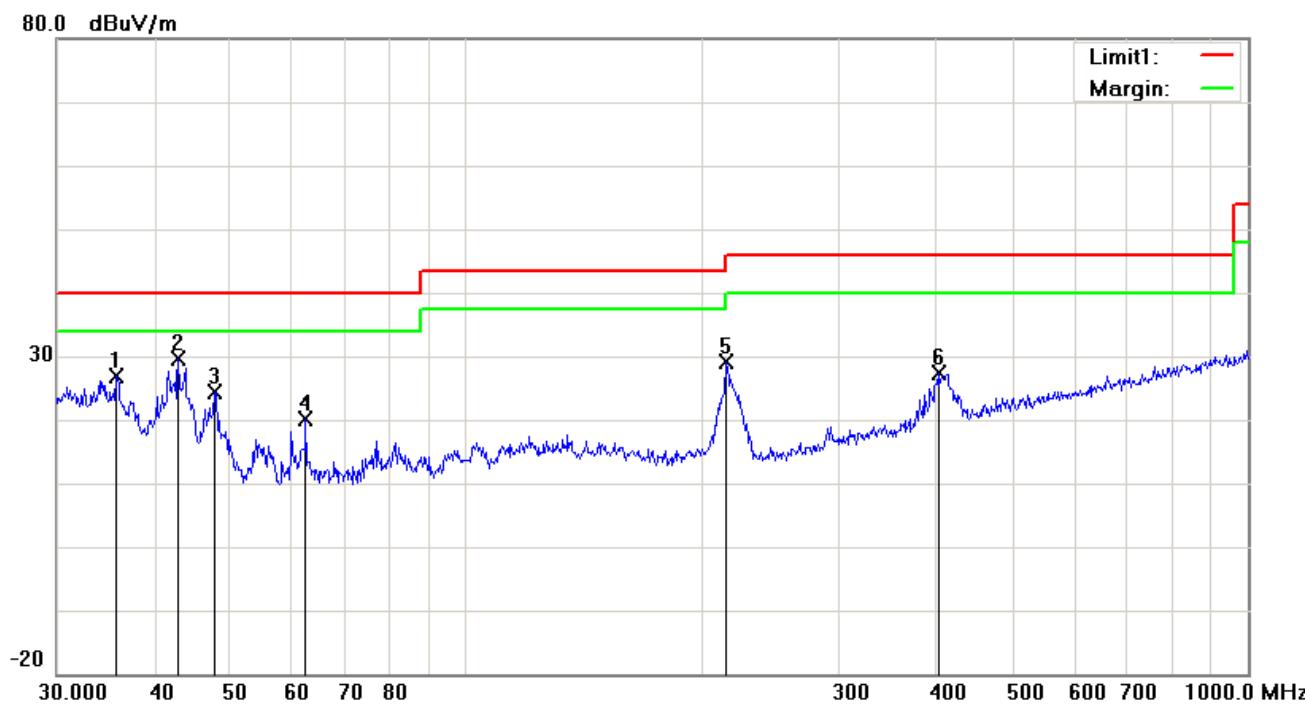
Test Setup	 <p>The diagram illustrates the test setup. An EUT & Support Units is positioned on a Turn Table, which is placed on a Ground Plane. A vertical Ant. Tower is mounted on the turn table, with a 1-4m Variable height adjustment. A Test Receiver is connected to the turn table to monitor the emissions.</p>
Procedure	<ul style="list-style-type: none"> - Setup the configuration according to figure 1. Turn on EUT and make sure that it is in normal function - For emission frequencies measured below 1GHz, a pre-scan is performed in a shielded chamber to determine the accurate frequencies of higher emissions will be checked on a open test site. As the same purpose, for emission frequencies measured above 1GHZ, a pre-scan also be performed with a meter measuring distance before final test. - For emission frequencies measured below and above 1GHz, set the spectrum analyzer on a 100kHz and 1MHz resolution bandwidth respectively for each frequency measured in step 2. - The search antenna is to be raised and lowered over a range from 1 to 4m in horizontally polarized orientation. Position the highness when the highest value is indicated on spectrum analyzer, the change the orientation of EUT on the test table over a range from 0 to 360°. With a speed as slow as possible, and keep the azimuth that highest emission is indicated on the spectrum analyzer. Vary the antenna position again and record the highest value as a final reading. - Repeat step 4 until all frequencies need to be measured was complete. - Repeat step5 with search antenna in vertical polarized orientations.
Remark	
Result	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail

Test Data Yes N/A

Test Plot Yes (See below) N/A

Test Mode: Bluetooth Mode

Below 1GHz

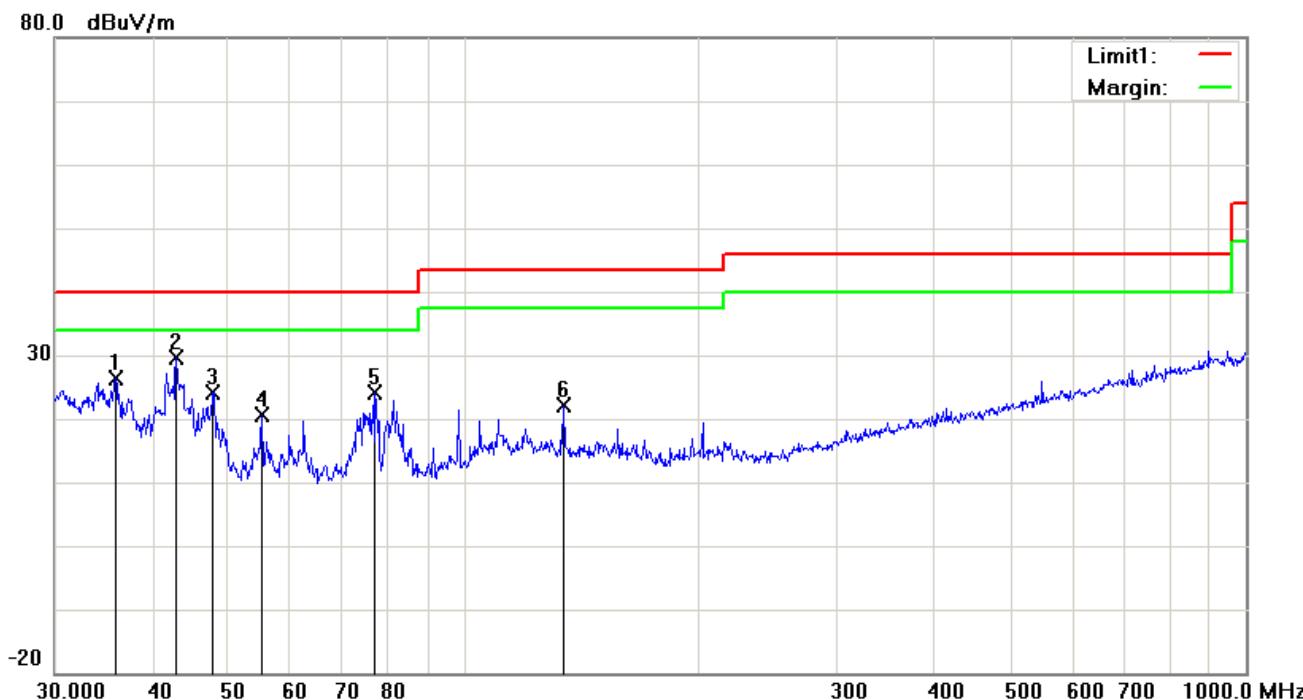


Test Data

Horizontal Polarity Plot @3m

No.	P/L	Frequency (MHz)	Reading (dBuV/ m)	Detector	Corrected (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree
1	H	35.7491	31.31	peak	-4.49	26.82	40.00	-13.18	100	68
2	H	42.8998	39.15	peak	-9.53	29.62	40.00	-10.38	100	183
3	H	47.6586	36.46	peak	-12.13	24.33	40.00	-15.67	100	256
4	H	62.4314	34.27	peak	-14.17	20.10	40.00	-19.90	100	153
5	H	215.2678	38.10	peak	-8.87	29.23	43.50	-14.27	100	170
6	H	401.8385	31.60	peak	-4.26	27.34	46.00	-18.66	100	59

Below 1GHz



Test Data

Vertical Polarity Plot @3m

No.	P/L	Frequency (MHz)	Reading (dBuV/ m)	Detector	Corrected (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree
1	V	35.8747	30.90	peak	-4.58	26.32	40.00	-13.68	100	88
2	V	42.8998	39.14	peak	-9.53	29.61	40.00	-10.39	100	186
3	V	47.8260	36.38	peak	-12.20	24.18	40.00	-15.82	100	317
4	V	55.2207	34.37	peak	-13.79	20.58	40.00	-19.42	100	149
5	V	77.0505	37.94	peak	-13.75	24.19	40.00	-15.81	100	251
6	V	134.0882	30.24	peak	-8.19	22.05	43.50	-21.45	100	162

Above 1GHz

Test Mode:	Transmitting Mode
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GFSK Mode
Low Channel: (2402 MHz)

Frequency (MHz)	S.A. Reading (dB μ V)	Detector (PK/AV)	Polarity (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
4804	38.66	AV	V	33.67	6.86	32.66	46.53	54	-7.47
4804	38.51	AV	H	33.67	6.86	32.66	46.38	54	-7.62
4804	47.95	PK	V	33.67	6.86	32.66	55.82	74	-18.18
4804	47.38	PK	H	33.67	6.86	32.66	55.25	74	-18.75
17793	24.53	AV	V	45.03	11.21	32.38	48.39	54	-5.61
17793	24.29	AV	H	45.03	11.21	32.38	48.15	54	-5.85
17793	40.91	PK	V	45.03	11.21	32.38	64.77	74	-9.23
17793	40.65	PK	H	45.03	11.21	32.38	64.51	74	-9.49

Middle Channel: (2441 MHz)

Frequency (MHz)	S.A. Reading (dB μ V)	Detector (PK/AV)	Polarity (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
4882	38.75	AV	V	33.71	6.95	32.74	46.67	54	-7.33
4882	38.63	AV	H	33.71	6.95	32.74	46.55	54	-7.45
4882	48.01	PK	V	33.71	6.95	32.74	55.93	74	-18.07
4882	47.67	PK	H	33.71	6.95	32.74	55.59	74	-18.41
17807	24.16	AV	V	45.15	11.18	32.41	48.08	54	-5.92
17807	24.02	AV	H	45.15	11.18	32.41	47.94	54	-6.06
17807	41.25	PK	V	45.15	11.18	32.41	65.17	74	-8.83
17807	40.79	PK	H	45.15	11.18	32.41	64.71	74	-9.29

High Channel: (2480 MHz)

Frequency (MHz)	S.A. Reading (dB μ V)	Detector (PK/AV)	Polarity (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
4960	38.59	AV	V	33.9	6.76	32.74	46.51	54	-7.49
4960	38.46	AV	H	33.9	6.76	32.74	46.38	54	-7.62
4960	48.12	PK	V	33.9	6.76	32.74	56.04	74	-17.96
4960	47.95	PK	H	33.9	6.76	32.74	55.87	74	-18.13
17795	24.72	AV	V	45.22	11.35	32.38	48.91	54	-5.09
17795	24.48	AV	H	45.22	11.35	32.38	48.67	54	-5.33
17795	41.35	PK	V	45.22	11.35	32.38	65.54	74	-8.46
17795	41.09	PK	H	45.22	11.35	32.38	65.28	74	-8.72

Note:

1, The testing has been conformed to $10*2480\text{MHz}=24,800\text{MHz}$

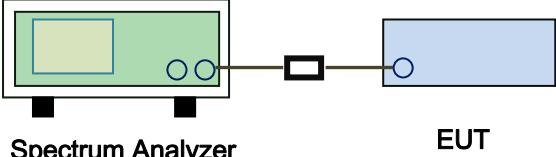
2, All other emissions more than 30 dB below the limit

3, X-Axis, Y-Axis and Z-Axis were investigated. The results above show only the worst case.

6.6 Field Strength Measurement

Temperature	22°C
Relative Humidity	53%
Atmospheric Pressure	1029mbar
Test date :	July 29, 2016
Tested By :	Loren Luo

Requirement(s):

Spec	Requirement	Applicable																	
§15.249(a)	<table border="1"> <tr> <td>Fundamental frequency</td> <td>Field strength of fundamental (millivolts/meter)</td> <td>Field strength of harmonics (microvolts/meter)</td> <td rowspan="5"><input checked="" type="checkbox"/></td> </tr> <tr> <td>902–928 MHz</td> <td>50</td> <td>500</td> </tr> <tr> <td>2400–2483.5 MHz</td> <td>50</td> <td>500</td> </tr> <tr> <td>5725–5875 MHz</td> <td>50</td> <td>500</td> </tr> <tr> <td>24.0–24.25 GHz</td> <td>250</td> <td>2500</td> </tr> </table>	Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)	<input checked="" type="checkbox"/>	902–928 MHz	50	500	2400–2483.5 MHz	50	500	5725–5875 MHz	50	500	24.0–24.25 GHz	250	2500		
Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)	<input checked="" type="checkbox"/>																
902–928 MHz	50	500																	
2400–2483.5 MHz	50	500																	
5725–5875 MHz	50	500																	
24.0–24.25 GHz	250	2500																	
Test Setup	 Spectrum Analyzer EUT																		
Test Procedure	Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in § 15.209, whichever is the lesser attenuation.																		
Remark																			
Result	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail																		

Test Data Yes N/A

Test Plot Yes (See below) N/A

Test Mode:	Transmitting Mode
------------	-------------------

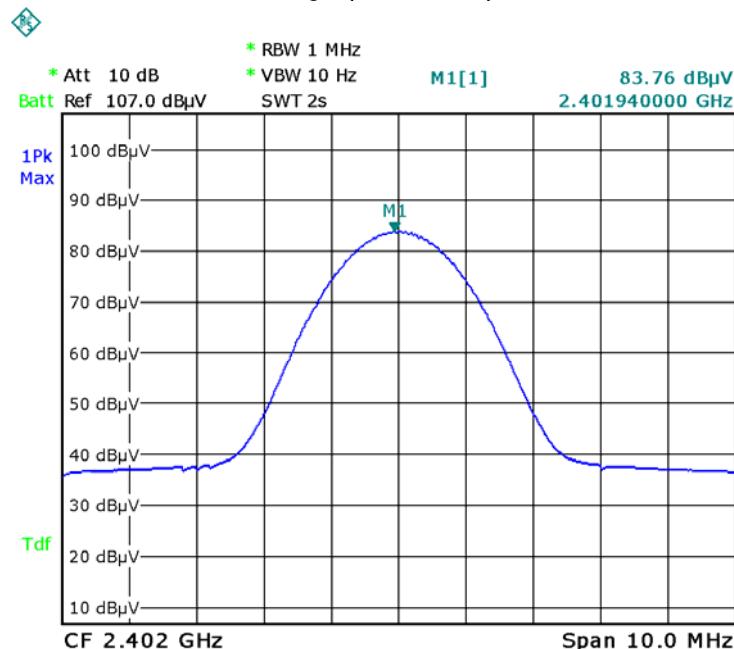
Field Strength Measurement(GFSK worst case)

Operating Frequency(MHz)	Testing Result		Limit		Result
	Pk(dB μ V/m)	AV(dB μ V/m)	Pk(dB μ V/m)	AV(dB μ V/m)	
2402	97.29	83.76	114	94	Pass
2440	93.36	80.65	114	94	Pass
2480	94.84	81.81	114	94	Pass

Test Plot :

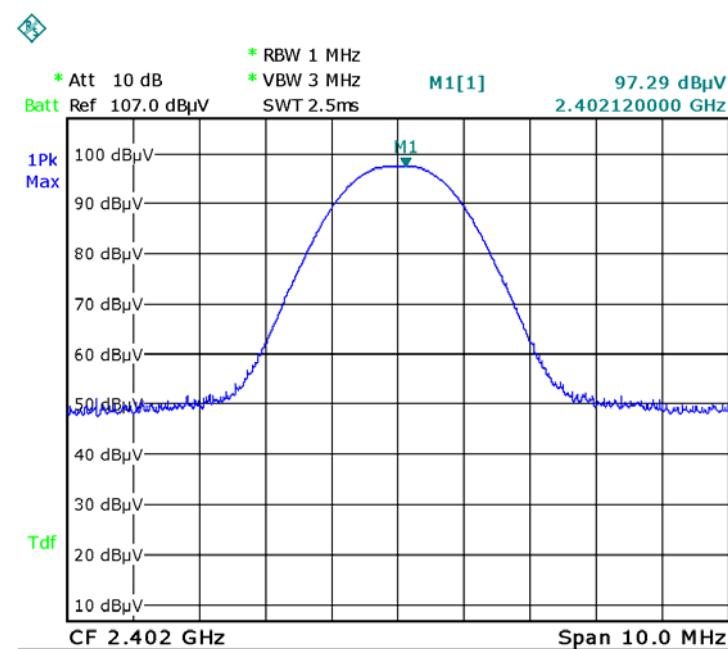
Field Strength Measurement

Average (2402MHz) :



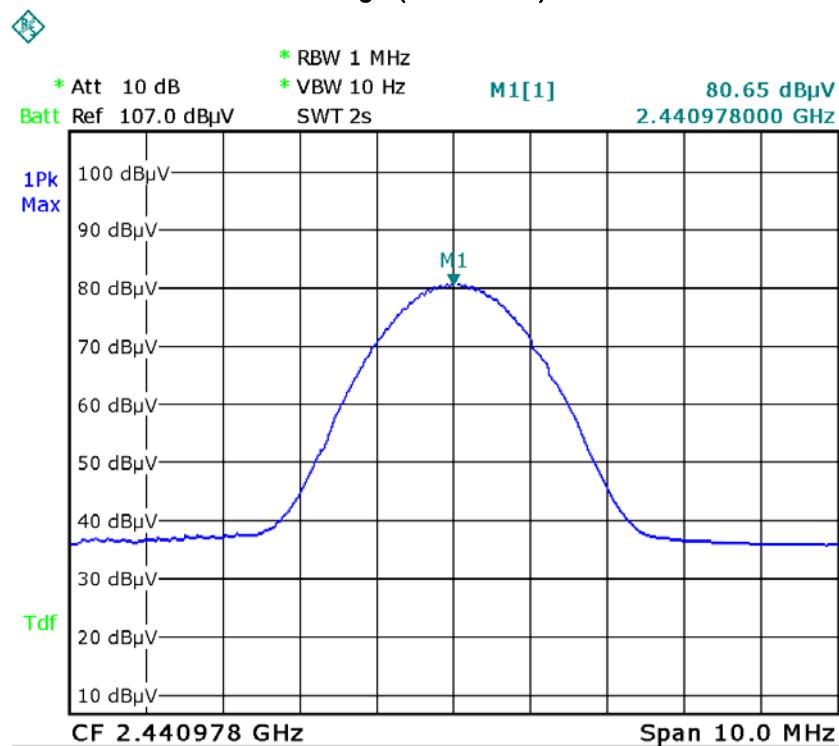
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Peak (2402MHz) :



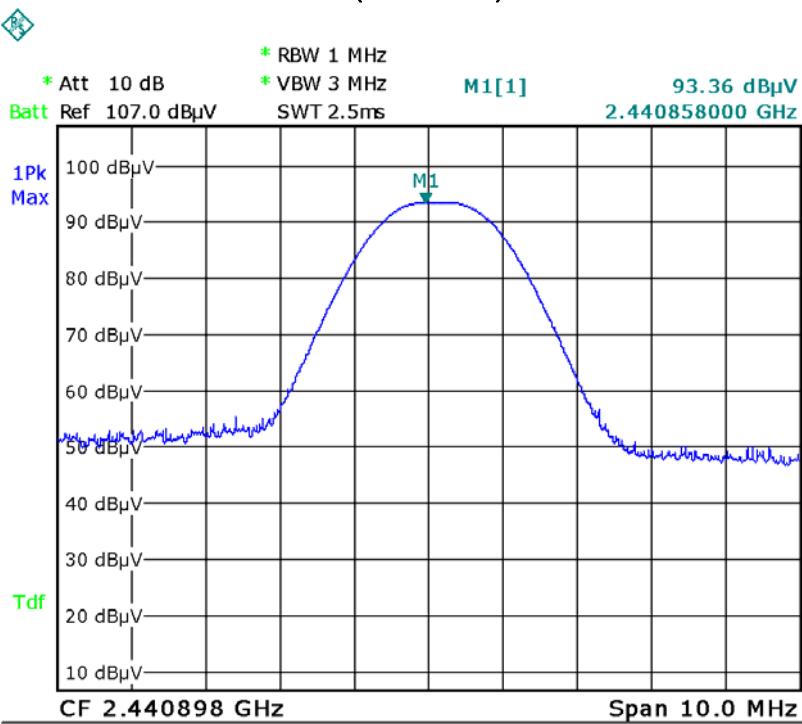
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Average (2440MHz) :



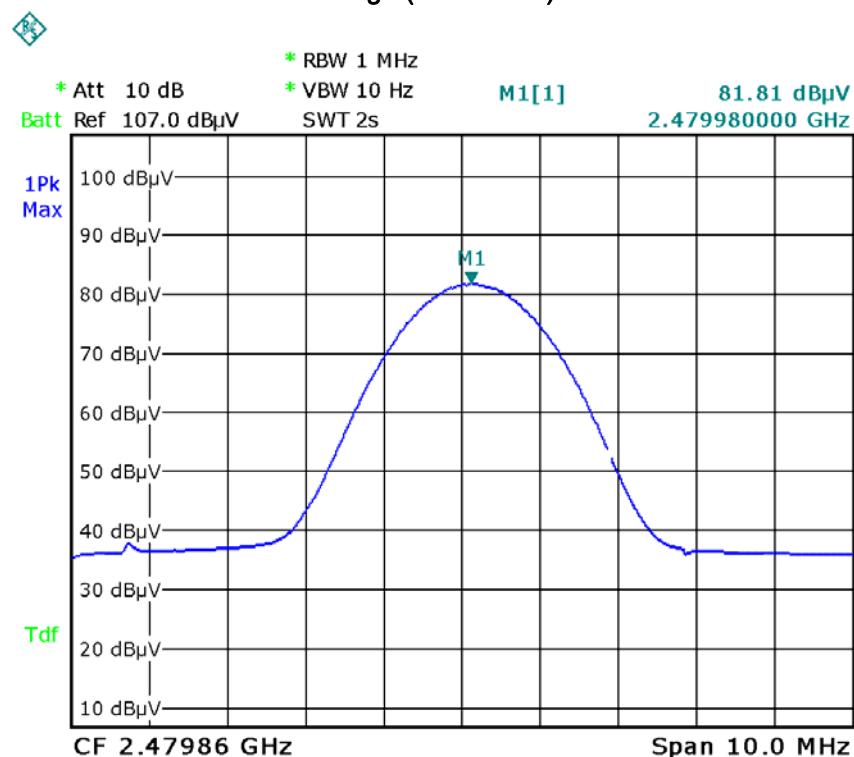
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Peak (2440MHz) :



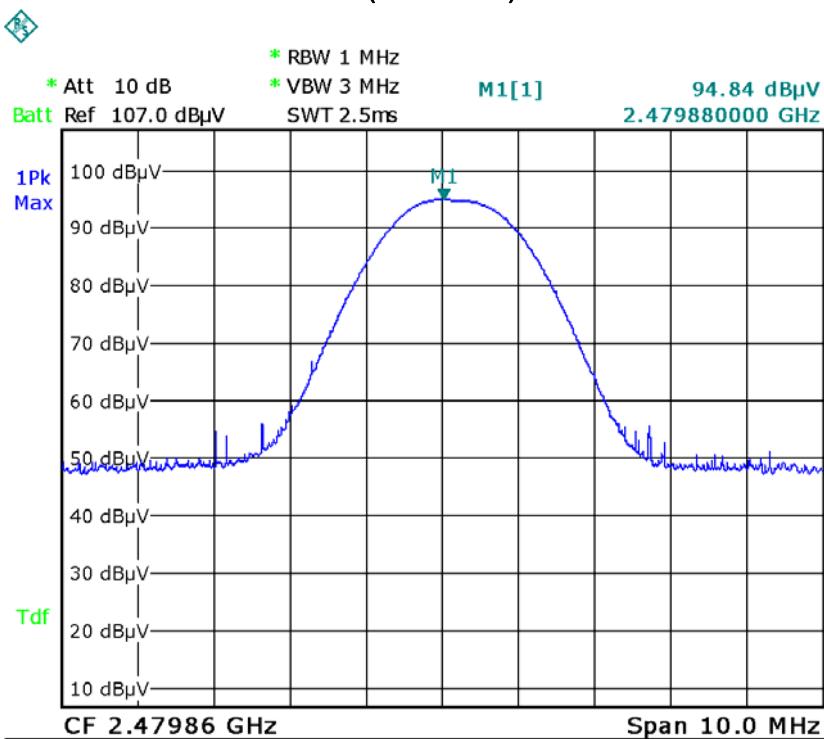
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Average (2480MHz) :



Date: 29.JUL.2016 17:47:18

Peak (2480MHz) :



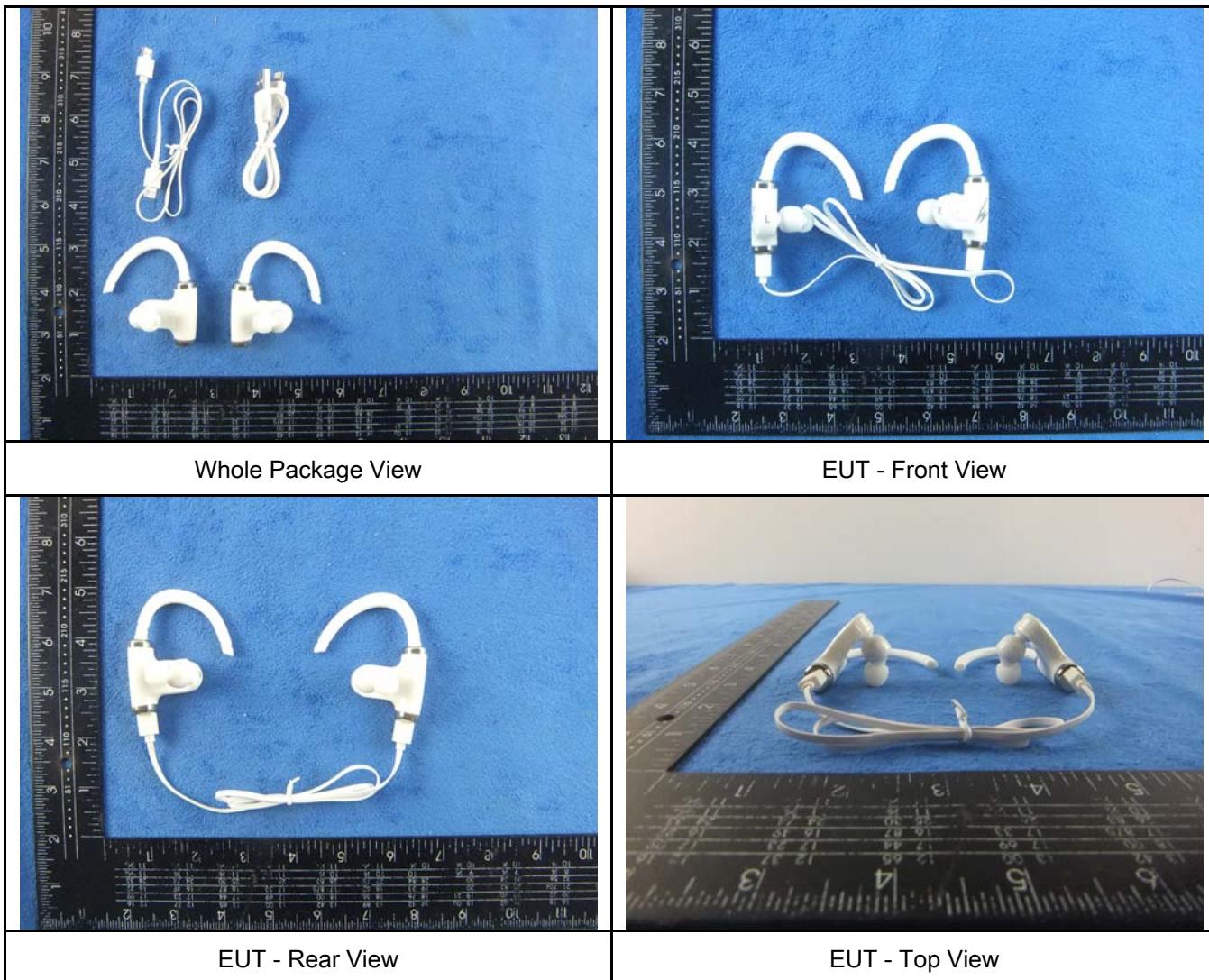
Date: 29.JUL.2016 17:46:31

Annex A. TEST INSTRUMENT

Instrument	Model	Serial #	Cal Date	Cal Due	In use
AC Line Conducted					
EMI test receiver	ESCS30	8471241027	09/17/2015	09/16/2016	<input checked="" type="checkbox"/>
Line Impedance	LI-125A	191106	09/25/2015	09/24/2016	<input checked="" type="checkbox"/>
Line Impedance	LI-125A	191107	09/25/2015	09/24/2016	<input checked="" type="checkbox"/>
LISN	ISN T800	34373	09/25/2015	09/24/2016	<input checked="" type="checkbox"/>
Double Ridge Horn Antenna (1 ~18GHz)	AH-118	71283	09/24/2015	09/23/2016	<input checked="" type="checkbox"/>
Transient Limiter	LIT-153	531118	09/01/2015	08/31/2016	<input checked="" type="checkbox"/>
RF conducted test					
Agilent ESA-E SERIES	E4407B	MY45108319	09/17/2015	09/16/2016	<input checked="" type="checkbox"/>
Power Splitter	1#	1#	09/01/2015	08/31/2016	<input checked="" type="checkbox"/>
DC Power Supply	E3640A	MY40004013	09/17/2015	09/16/2016	<input checked="" type="checkbox"/>
Radiated Emissions					
EMI test receiver	ESL6	100262	09/17/2015	09/16/2016	<input checked="" type="checkbox"/>
Positioning Controller	UC3000	MF780208282	11/19/2015	11/18/2016	<input checked="" type="checkbox"/>
OPT 010 AMPLIFIER (0.1-1300MHz)	8447E	2727A02430	09/01/2015	08/31/2016	<input checked="" type="checkbox"/>
Microwave Preamplifier (1 ~ 26.5GHz)	8449B	3008A02402	03/24/2016	03/23/2017	<input checked="" type="checkbox"/>
Bilog Antenna (30MHz~6GHz)	JB6	A110712	09/21/2015	09/20/2016	<input checked="" type="checkbox"/>
Double Ridge Horn Antenna (1 ~18GHz)	AH-118	71283	09/24/2015	09/23/2016	<input checked="" type="checkbox"/>
Universal Radio Communication Tester	CMU200	121393	09/25/2015	09/24/2016	<input checked="" type="checkbox"/>

Annex B. EUT And Test Setup Photographs

Annex B.i. Photograph: EUT External Photo





EUT - Bottom View

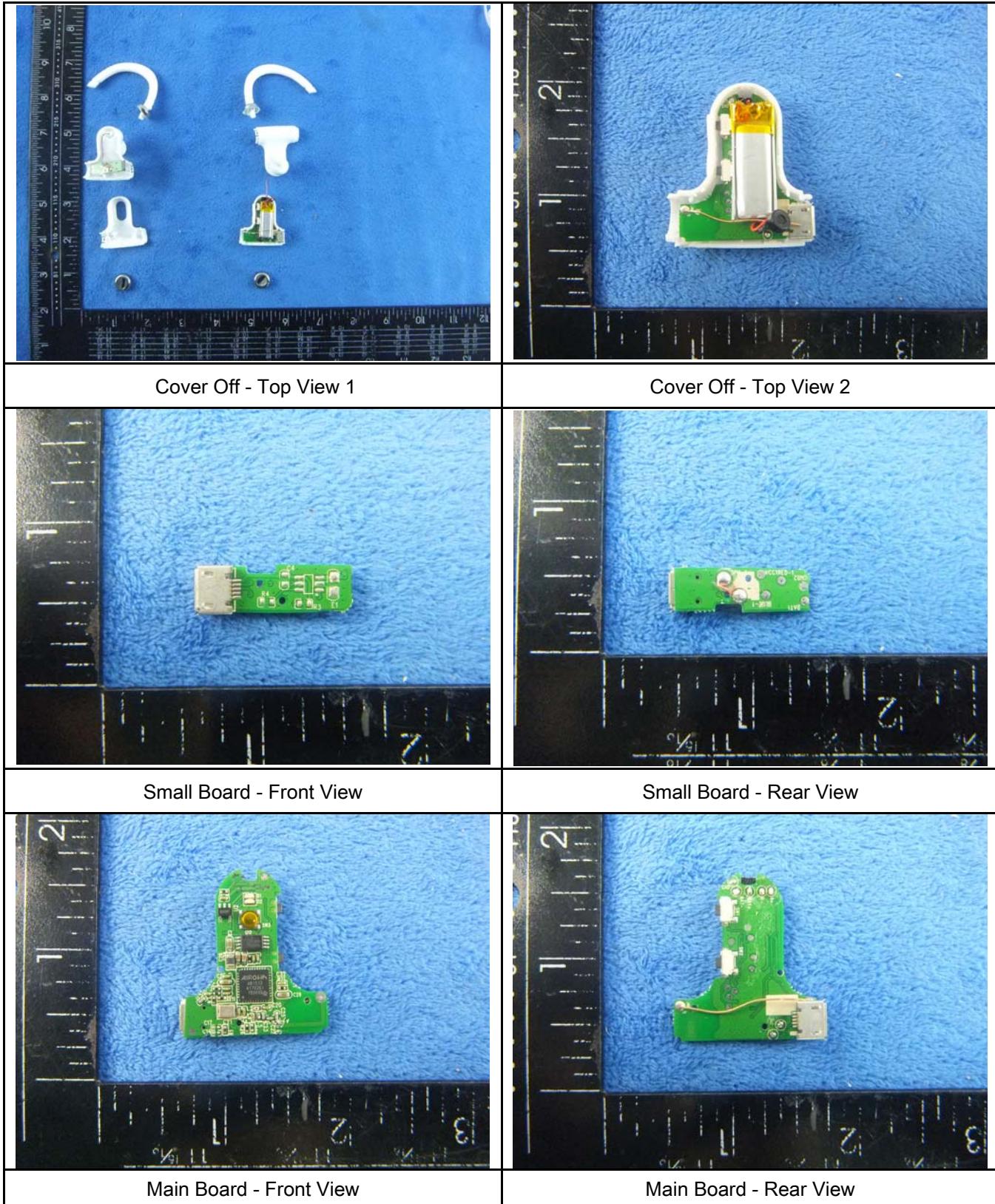


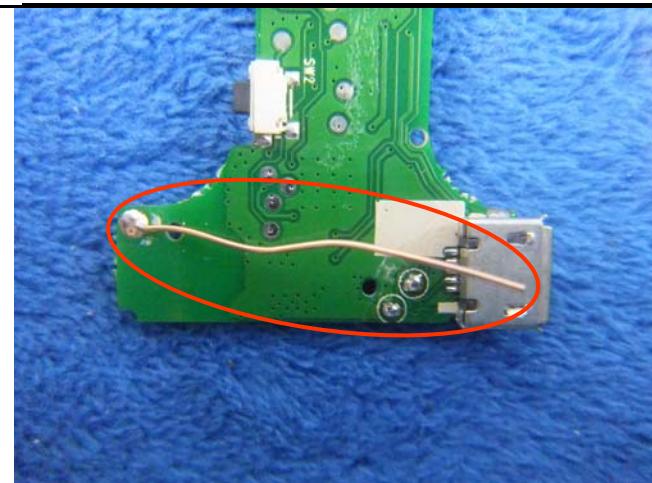
EUT - Left View



EUT - Right View

Annex B.ii. Photograph: EUT Internal Photo





BT- Antenna View

Annex B.iii. Photograph: Test Setup Photo



Radiated Spurious Emissions Test Setup Below 1GHz

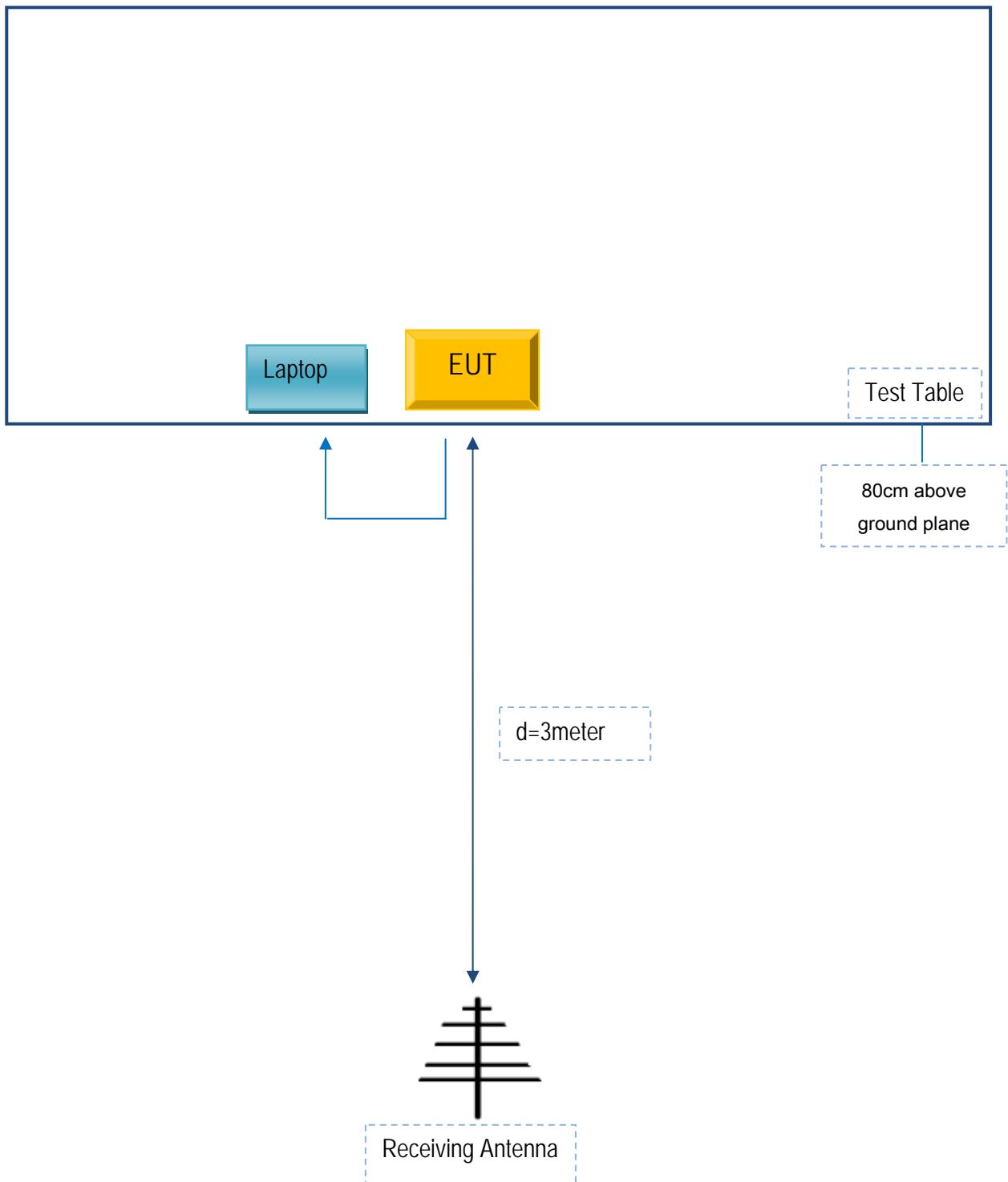


Radiated Spurious Emissions Test Above 1GHz

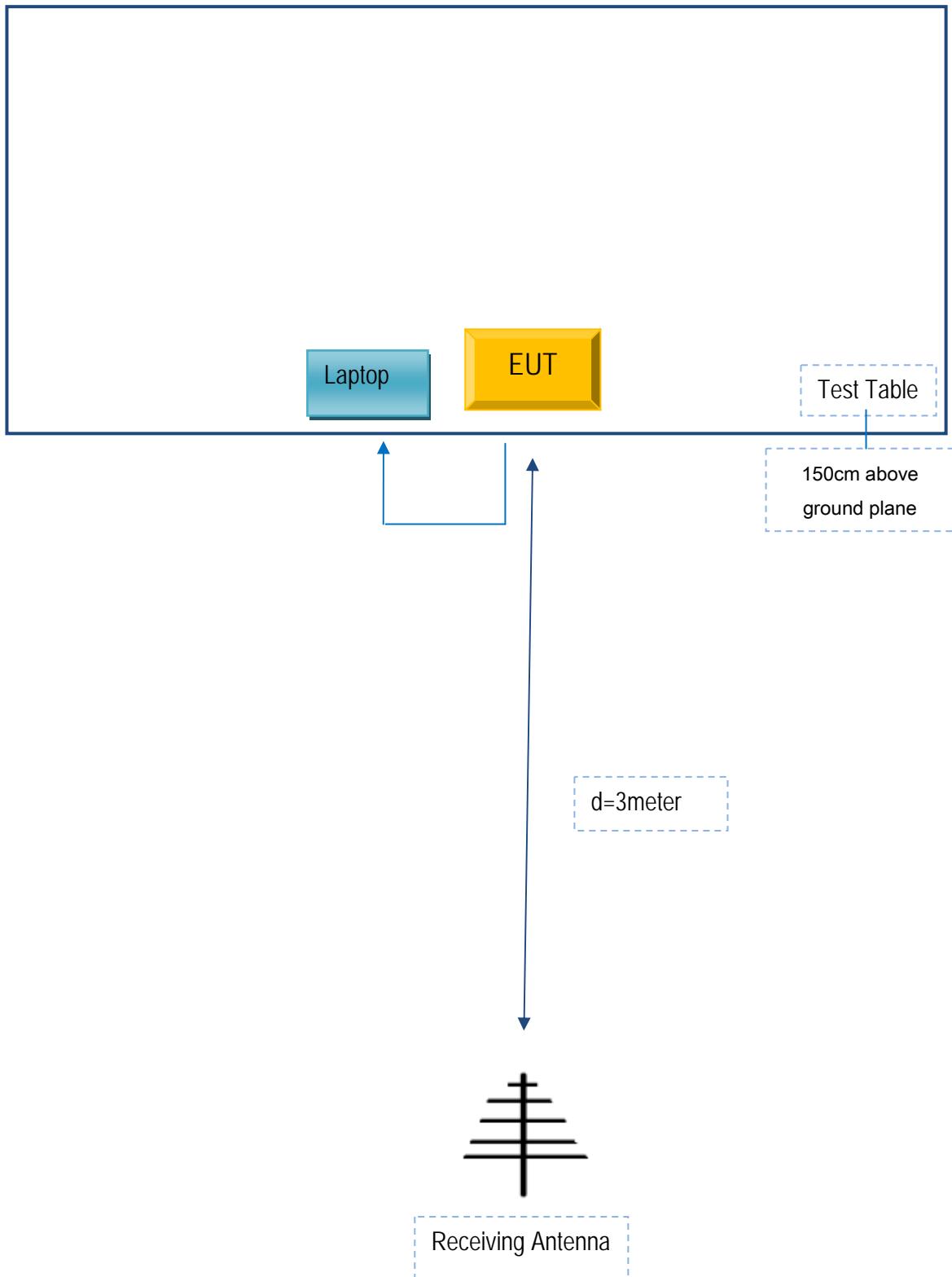
Annex C. TEST SETUP AND SUPPORTING EQUIPMENT

Annex C.ii. TEST SET UP BLOCK

Block Configuration Diagram for Radiated Emission (Below 1GHz) .



Block Configuration Diagram for Radiated Emission (Above 1GHz) .



Annex C. ii. SUPPORTING EQUIPMENT DESCRIPTION

The following is a description of supporting equipment and details of cables used with the EUT.

Supporting Equipment:

Manufacturer	Equipment Description	Model	Serial No
Lenovo	AC Adapter	42T4416	21D9JU

Supporting Cable:

Cable type	Shield Type	Ferrite Core	Length	Serial No
Control Cable	Un-shielding	No	0.1m	GT211032

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Annex D. User Manual / Block Diagram / Schematics / Partlist

N/A

Annex E. DECLARATION OF SIMILARITY

N/A