



STC Test Report



Date: 2014-01-16

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No.: DM113832DT

Applicant (CHX056):

Fonegear, LLC
2139 Austin Ave. Rochester Hills, MI, Michigan, USA

Manufacturer:

Dongguan Long Prosper Electronic Products Co., Ltd.
No. 208 Sheqian Road, Yuanjiangyuan Village, Changping
Town, Dongguan, Guangdong, China.

Description of Sample(s):

Submitted sample(s) said to be
Product: CXR-002 bluetooth in-ear headphone
Brand Name: Fonegear
Model Number: 07538
FCC ID: T2I-CXR002

Date Sample(s) Received: 2013-12-24

Date Tested: 2013-12-26 to 2014-01-06

Investigation Requested:

Perform ElectroMagnetic Interference measurement in
accordance with FCC 47CFR [Codes of Federal Regulations]
Part 15: 2012. FCC KDB Publication 558074 D01 DTS
Meas Guidance v02and ANSI C63.4:2009 for FCC
Certification.

Conclusion(s):

The submitted product COMPLIED with the requirements of
Federal Communications Commission [FCC] Rules and
Regulations Part 15. The tests were performed in accordance
with the standards described above and on Section 2.2 in this
Test Report.

Remark(s):

Bluetooth 4.0 (GFSK)
For additional model(s) details, see page 3



LONG Yun Jian, Along
Authorized Signatory
ElectroMagnetic Compatibility Department
For and on behalf of
STC (Dongguan) Company Limited

The Hong Kong Standards and Testing Centre Ltd.

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1.0 General Details

1.1 Test Laboratory

STC (Dongguan) Company Limited
EMC Laboratory
68 Fumin Nan Road, Dalang, Dongguan, China

Telephone: (86 769) 81119888
Fax: (86 769) 81116222

1.2 Equipment Under Test [EUT]

Description of Sample(s)

Product:	CXR-002 bluetooth in-ear headphone
Manufacturer:	Dongguan Long Prosper Electronic Products Co., Ltd.
Brand Name:	Fonegear
Model Number:	07538
Additional Model Number(s):	07539
Rating:	5.0Vd.c. (Powered by PC USB port) / rechargeable battery x1 = 3.7Vd.c-

1.2.1 Description of EUT Operation

The Equipment Under Test (EUT) is a CXR-002 bluetooth in-ear headphone of Dongguan Long Prosper Electronic Products Co., Ltd., it is Audio System, modulation by IC; and type is frequency hopping speed spectrum Modulation.

1.3 Date of Order

2013-12-24

1.4 Submitted Sample(s):

1 Sample

1.5 Test Duration

2013-12-26 to 2014-01-06

1.6 Country of Origin

China

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1.7 RF Module Details

Module Model Number:	BLK-MD-BC8-A
Module FCC ID:	N/A
Module Transmission Type:	Bluetooth 4.0
Modulation:	GFSK
Data Rates:	1Mbps
Frequency Range:	2400-2483.5MHz
Carrier Frequencies:	2402MHz – 2480MHz

Module Specification (specification provided by manufacturer)

1.8 Antenna Details

Antenna Type:	Single dipole inverted F antenna
Antenna Length:	12mm
Antenna Gain:	0.0dBi

1.9 Channel List

Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	20	2442
1	2404	21	2444
2	2406	22	2446
3	2408	23	2448
4	2410	24	2450
5	2412	25	2452
6	2414	26	2454
7	2416	27	2456
8	2418	28	2458
9	2420	29	2460
10	2422	30	2462
11	2424	31	2464
12	2426	32	2466
13	2428	33	2468
14	2430	34	2470
15	2432	35	2472
16	2434	36	2474
17	2436	37	2476
18	2438	38	2478
19	2440	39	2480

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2.0 Technical Details

2.1 Investigations Requested

Perform Electromagnetic Interference measurements in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15: 2012 Regulations. FCC KDB Publication 558074 D01 DTS Meas Guidance v02 and ANSI C63.4:2009 for FCC Certification.

2.2 Test Standards and Results Summary Tables

EMISSION Results Summary						
Test Condition	Test Requirement	Test Method	Class / Severity	Test Result		
				Pass	Fail	N/A
Maximum Peak Output Power	FCC 47CFR 15.247(b)(3)	FCC KDB Publication 558074 D01 DTS Meas Guidance v02	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Radiated Spurious Emissions	FCC 47CFR 15.209	ANSI C63.4:2009	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AC Mains Conducted Emissions	FCC 47CFR 15.207	ANSI C63.4:2009	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Power Spectral Density	FCC 47CFR 15.247(e)	FCC KDB Publication 558074 D01 DTS Meas Guidance v02	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6dB Bandwidth	FCC 47CFR 15.247(a)(2)	FCC KDB Publication 558074 D01 DTS Meas Guidance v02	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Band Edge Emissions	FCC 47CFR 15.247(d)	FCC KDB Publication 558074 D01 DTS Meas Guidance v02	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Antenna requirement	FCC 47CFR 15.203	N/A	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
RF Exposure	FCC 47CFR 15.247(i)	N/A	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note: N/A - Not Applicable

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3.0 Test Results

3.1 Emission

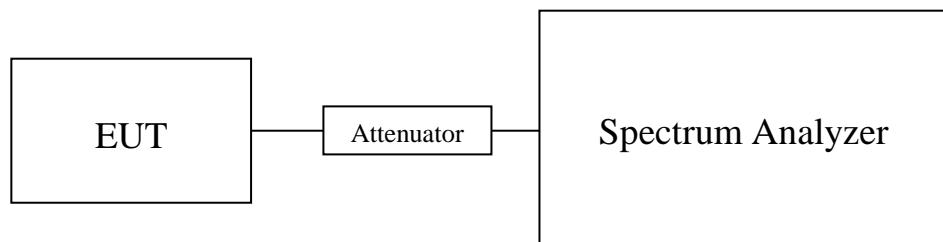
3.1.1 Maximum Peak Output Power

Test Requirement: FCC 47CFR 15.247(b)(3)
Test Method: FCC KDB Publication 558074 D01 DTS Meas Guidance v02
Test Date: 2014-01-06
Mode of Operation: Bluetooth 4.0 Tx mode

Test Method:

The RF output of the EUT was connected to the peak power meter. All the attenuation or cable loss will be added to the measured maximum output power. The results are recorded in mW.

Test Setup:



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Limits for Peak Output Power of Fundamental & Harmonics Emissions [FCC 47CFR 15.247]:

For Digital Transmission systems in 2400-2483.5 MHz Band: 1 Watt (30dBm)

Results of BT4.0 Tx Mode, (2402MHz to 2480MHz) : Pass (TX Unit) (GFSK)		
Maximum conducted output power		
Channel	Frequency(MHz)	Output Power(Watt)
0	2402	0.0000139
19	2441	0.0000138
39	2480	0.0000140

Calculated measurement uncertainty : 30MHz to 1GHz 1.7dB
1GHz to 26GHz 1.7dB

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3.1.2 Radiated Emissions

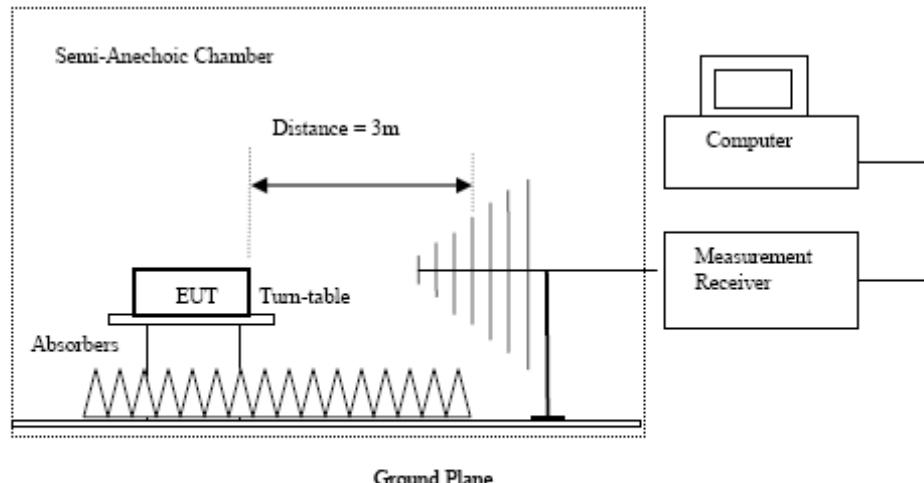
Test Requirement:	FCC 47CFR 15.209
Test Method:	ANSI C63.4:2009
Test Date:	2014-01-06
Mode of Operation:	Bluetooth 4.0 Tx mode

Test Method:

The sample was placed 0.8m above the ground plane of semi-anechoic Chamber*. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.

* Semi-anechoic chamber located on the G/F of “STC (Dongguan) Company Limited” with a metal ground plane filed with the FCC pursuant to section 2.948 of the FCC rules, with Registration Number: 629686.

Test Setup:



- Absorbers placed on top of the ground plane are for measurements above 1000MHz only.
- Measurements between 30MHz to 1000MHz made with Bi-log antennas, above 1000MHz horn antennas are used, 9kHz to 30MHz loop antennas are used.

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Limits for Radiated Emissions [FCC 47 CFR 15.247 Class B]:

Frequency Range [MHz]	Quasi-Peak Limits [μ V/m]
0.009-0.490	2400/F (kHz)
0.490-1.705	24000/F (kHz)
1.705-30	30
30-88	100
88-216	150
216-960	200
Above 960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Result of Bluetooth Communication mode (GFSK) (9kHz – 30MHz): Pass

The Low Frequency, which started from 9KHz to 30MHz, was Pre-scan and the result which was more than 20dB lower than the Limit line.

Result of Tx mode (2402.0 MHz) (GFSK) (Above 1GHz): Pass

Field Strength of Spurious Emissions Peak Value						
Frequency MHz	Measured Level @3m dB μ V	Correction Factor dB/m	Field Strength dB μ V/m	Limit @3m dB μ V/m	Margin dB μ V/m	E-Field Polarity
4804.0	11.9	41.5	53.4	74.0	20.6	Vertical
4804.0	10.1	42.4	52.5	74.0	21.5	Horizontal
7206.0	10.2	45.1	55.3	74.0	18.7	Vertical
7206.0	8.9	46.2	55.1	74.0	18.9	Horizontal
9608.0	7.4	48.0	55.4	74.0	18.6	Vertical
9608.0	6.3	48.8	55.1	74.0	18.9	Horizontal
12010.0	3.9	51.5	55.4	74.0	18.6	Vertical
12010.0	3.7	52.4	56.1	74.0	17.9	Horizontal

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Result of Tx mode (2402.0 MHz) (GFSK) (Above 1GHz): Pass

Field Strength of Spurious Emissions						
Average Value						
Frequency MHz	Measured Level @3m dB μ V	Correction Factor dB/m	Field Strength dB μ V/m	Limit @3m dB μ V/m	Margin dB μ V/m	E-Field Polarity
4804.0	-3.3	41.5	38.2	54.0	15.8	Vertical
4804.0	-4.4	42.4	38.0	54.0	16.0	Horizontal
7206.0	-4.1	45.1	41.0	54.0	13.0	Vertical
7206.0	-6.7	46.2	39.5	54.0	14.5	Horizontal
9608.0	-7.8	48.0	40.2	54.0	13.8	Vertical
9608.0	-8.5	48.8	40.3	54.0	13.7	Horizontal
12010.0	-10.9	51.5	40.6	54.0	13.4	Vertical
12010.0	-11.0	52.4	41.4	54.0	12.6	Horizontal

Result of Tx mode (2442.0 MHz) (GFSK) (Above 1GHz): Pass

Field Strength of Spurious Emissions						
Peak Value						
Frequency MHz	Measured Level @3m dB μ V	Correction Factor dB/m	Field Strength dB μ V/m	Limit @3m dB μ V/m	Margin dB μ V/m	E-Field Polarity
4882.0	10.9	41.6	52.5	74.0	21.5	Vertical
4882.0	11.3	42.5	53.8	74.0	20.2	Horizontal
7323.0	10.0	45.2	55.2	74.0	18.8	Vertical
7323.0	8.8	46.3	55.1	74.0	18.9	Horizontal
9764.0	7.9	48.1	56.0	74.0	18.0	Vertical
9764.0	6.4	48.9	55.3	74.0	18.7	Horizontal
12205.0	4.1	51.6	55.7	74.0	18.3	Vertical
12205.0	3.7	52.5	56.2	74.0	17.8	Horizontal

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Result of Tx mode (2442.0 MHz) (GFSK) (Above 1GHz): Pass

Field Strength of Spurious Emissions						
Average Value						
Frequency MHz	Measured Level @3m dBuV	Correction Factor dB/m	Field Strength dBuV/m	Limit @3m dBuV/m	Margin dBuV/m	E-Field Polarity
4882.0	-3.2	41.6	38.4	54.0	15.6	Vertical
4882.0	-4.4	42.5	38.1	54.0	15.9	Horizontal
7323.0	-4.8	45.2	40.4	54.0	13.6	Vertical
7323.0	-5.7	46.3	40.6	54.0	13.4	Horizontal
9764.0	-6.6	48.1	41.5	54.0	12.5	Vertical
9764.0	-8.8	48.9	40.1	54.0	13.9	Horizontal
12205.0	-11.0	51.6	40.6	54.0	13.4	Vertical
12205.0	-10.7	52.5	41.8	54.0	12.2	Horizontal

Result of Tx mode (2480.0 MHz) (GFSK) (Above 1GHz): Pass

Field Strength of Spurious Emissions						
Peak Value						
Frequency MHz	Measured Level @3m dBuV	Correction Factor dB/m	Field Strength dBuV/m	Limit @3m dBuV/m	Margin dBuV/m	E-Field Polarity
4960.0	11.6	41.4	53.0	74.0	21.0	Vertical
4960.0	10.2	42.7	52.9	74.0	21.1	Horizontal
7440.0	9.6	45.6	55.2	74.0	18.8	Vertical
7440.0	8.8	46.5	55.3	74.0	18.7	Horizontal
9920.0	6.4	48.6	55.0	74.0	19.0	Vertical
9920.0	5.9	49.7	55.6	74.0	18.4	Horizontal
12400.0	3.8	51.7	55.5	74.0	18.5	Vertical
12400.0	3.1	52.7	55.8	74.0	18.2	Horizontal

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Result of Tx mode (2480.0 MHz) (GFSK) (Above 1GHz): Pass

Field Strength of Spurious Emissions						
Average Value						
Frequency MHz	Measured Level @3m dBuV	Correction Factor dB/m	Field Strength dBuV/m	Limit @3m dBuV/m	Margin dBuV/m	E-Field Polarity
4960.0	-3.2	41.4	38.2	54.0	15.8	Vertical
4960.0	-4.9	42.7	37.8	54.0	16.2	Horizontal
7440.0	-4.7	45.6	40.9	54.0	13.1	Vertical
7440.0	-5.0	46.5	41.5	54.0	12.5	Horizontal
9920.0	-8.8	48.6	39.8	54.0	14.2	Vertical
9920.0	-9.6	49.7	40.1	54.0	13.9	Horizontal
12400.0	-11.2	51.7	40.5	54.0	13.5	Vertical
12400.0	-12.2	52.7	40.5	54.0	13.5	Horizontal

Remarks:

No additional spurious emissions found between lowest internal used/generated frequency and 30 MHz

* Denotes restricted band of operation.

Measurements were made using a peak detector. Any emission less than 1000MHz and falling within the restricted bands of FCC Rules Part 15 Section 15.205 and the limits of FCC Rules Part 15 Section 15.209 were applied.

Correction Factor included Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty (9kHz-30MHz): 3.3dB

(30MHz -1GHz): 4.6dB

(1GHz -26GHz): 4.4dB

Emissions in the vertical and horizontal polarizations have been investigated and the worst-case test results are recorded in this report.

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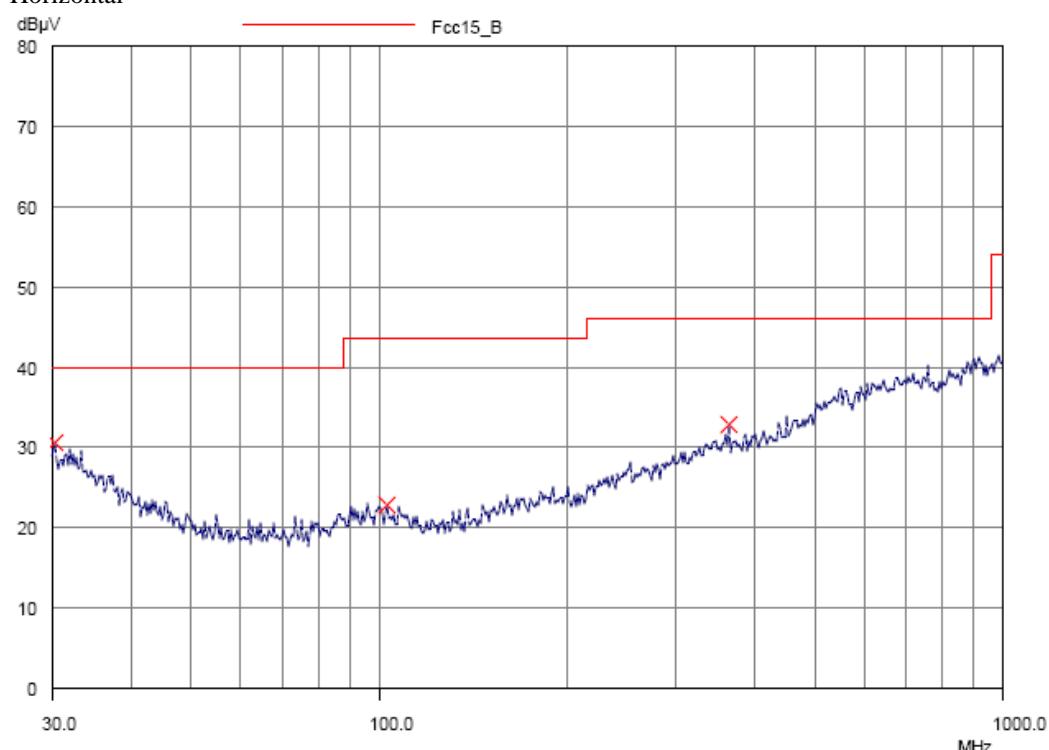
Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

Frequency Range [MHz]	Quasi-Peak Limits [μ V/m]
0.009-0.490	2400/F (kHz)
0.490-1.705	24000/F (kHz)
1.705-30	30
30-88	100
88-216	150
216-960	200
Above 960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Result of Bluetooth Communication mode (EUT paired with iPod) (30MHz – 1GHz): Pass
Please refer to the following table for result details

Horizontal



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Result of Bluetooth Communication mode (EUT paired with iPod) (30MHz – 1GHz): Pass

Radiated Emissions Quasi-Peak					
Emission Frequency MHz	E-Field Polarity	Level @3m dBμV/m	Limit @3m dBμV/m	Level @3m μV/m	Limit @3m μV/m
30.2	Horizontal	30.7	40.0	34.3	100
103.5	Horizontal	22.9	43.5	14.0	150
363.4	Horizontal	32.9	46.0	44.2	200

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Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

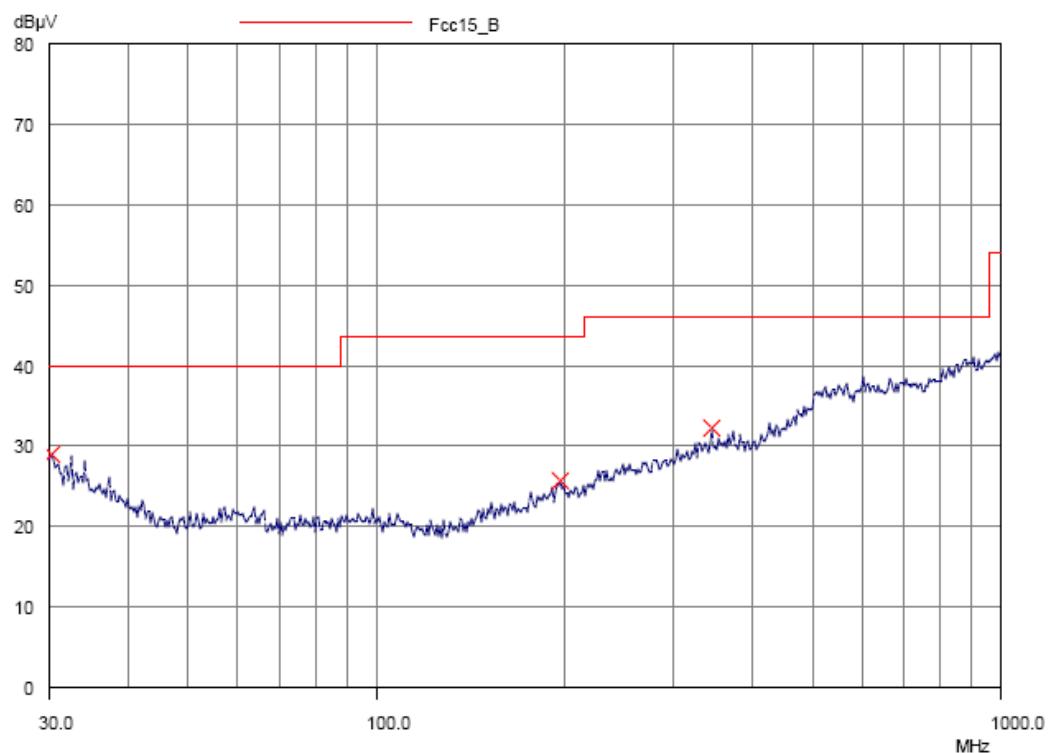
Frequency Range [MHz]	Quasi-Peak Limits [μ V/m]
0.009-0.490	2400/F (kHz)
0.490-1.705	24000/F (kHz)
1.705-30	30
30-88	100
88-216	150
216-960	200
Above960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Result of Bluetooth Communication mode (EUT paired with iPod) (30MHz – 1GHz): Pass

Please refer to the following table for result details

Vertical



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Result of Bluetooth Communication mode (EUT paired with iPod) (30MHz – 1GHz): Pass

Radiated Emissions Quasi-Peak					
Emission Frequency MHz	E-Field Polarity	Level @3m dB μ V/m	Limit @3m dB μ V/m	Level @3m μ V/m	Limit @3m μ V/m
30.3	Vertical	29.1	40.0	28.5	100
197.3	Vertical	25.7	43.5	19.3	150
344.4	Vertical	32.2	46.0	40.7	200

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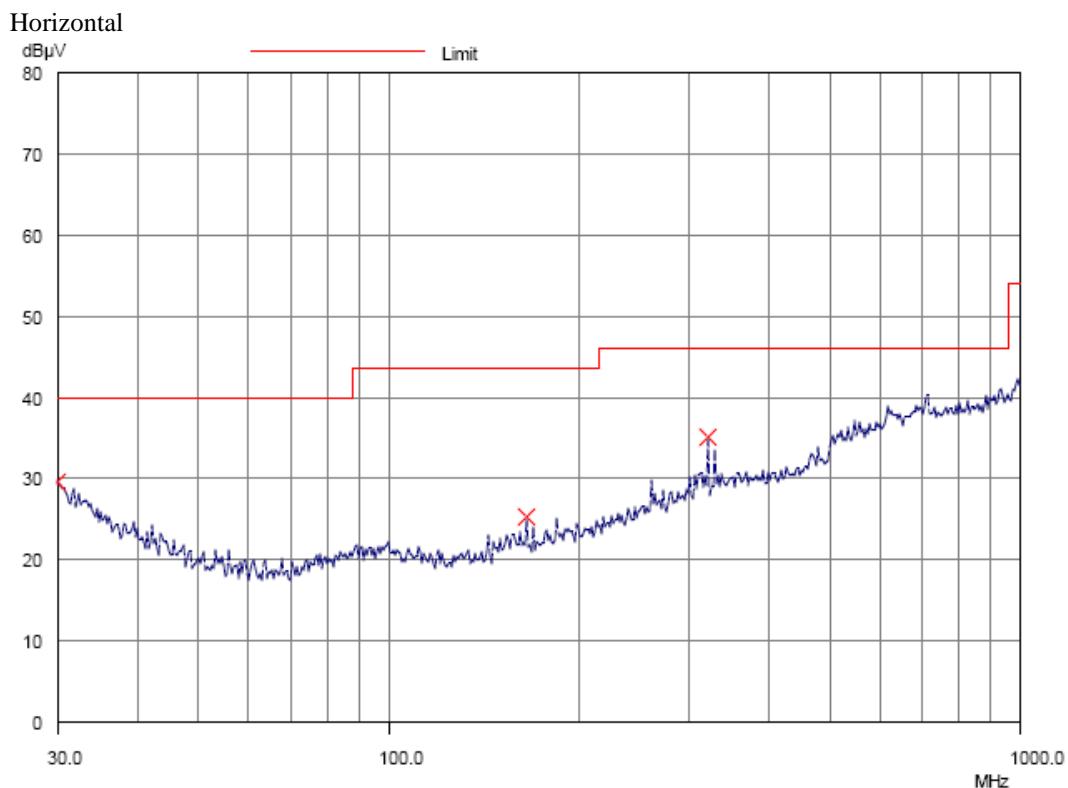
Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

Frequency Range [MHz]	Quasi-Peak Limits [μ V/m]
0.009-0.490	2400/F (kHz)
0.490-1.705	24000/F (kHz)
1.705-30	30
30-88	100
88-216	150
216-960	200
Above 960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Result of Bluetooth Communication + Charging mode (EUT paired with iPod, USB port connected to PC) (30MHz – 1GHz): Pass

Please refer to the following table for result details



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Result of Bluetooth Communication + Charging mode (EUT paired with iPod, USB port connected to PC) (30MHz – 1GHz): Pass

Radiated Emissions Quasi-Peak					
Emission Frequency MHz	E-Field Polarity	Level @3m dB μ V/m	Limit @3m dB μ V/m	Level @3m μ V/m	Limit @3m μ V/m
30.0	Horizontal	29.6	40.0	30.2	100
166.2	Horizontal	25.4	43.5	18.6	150
320.1	Horizontal	35.1	46.0	56.9	200

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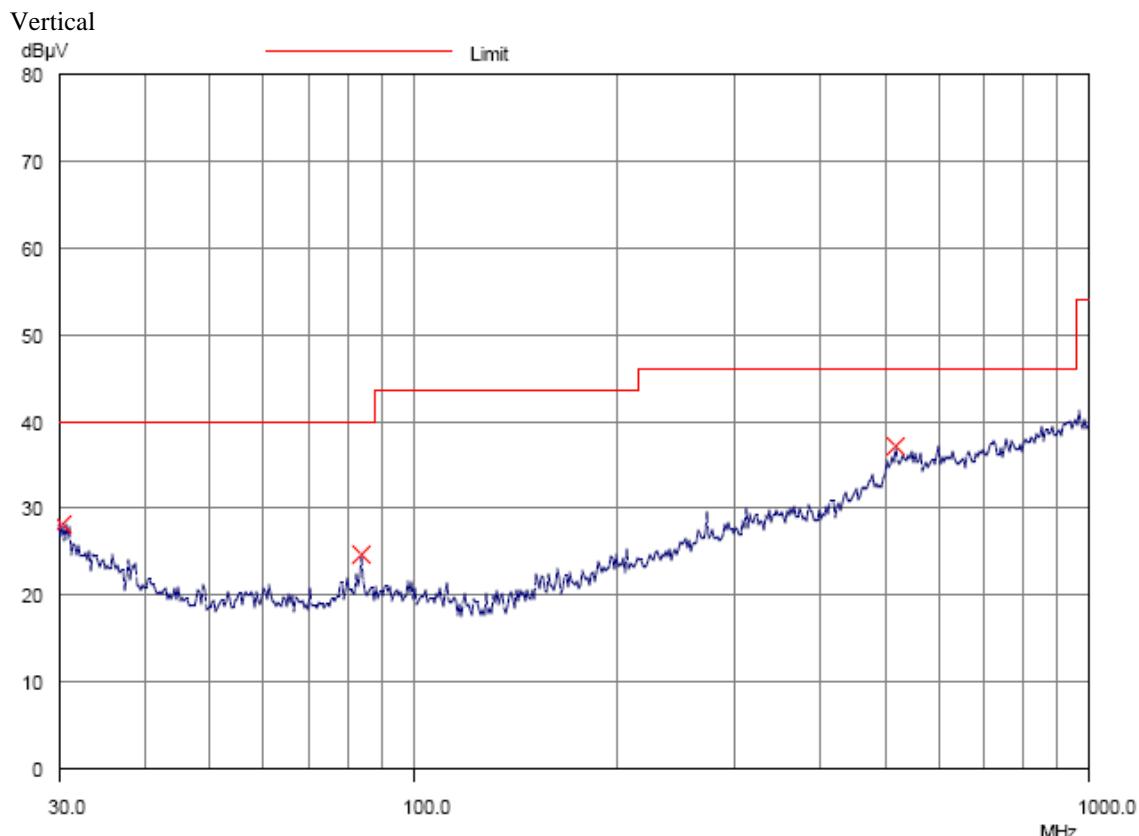
Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

Frequency Range [MHz]	Quasi-Peak Limits [μ V/m]
0.009-0.490	2400/F (kHz)
0.490-1.705	24000/F (kHz)
1.705-30	30
30-88	100
88-216	150
216-960	200
Above960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Result of Bluetooth Communication + Charging mode (EUT paired with iPod, USB port connected to PC) (30MHz – 1GHz): Pass

Please refer to the following table for result details



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Result of Bluetooth Communication + Charging mode (EUT paired with iPod, USB port connected to PC) (30MHz – 1GHz): Pass

Radiated Emissions Quasi-Peak					
Emission Frequency MHz	E-Field Polarity	Level @3m dB μ V/m	Limit @3m dB μ V/m	Level @3m μ V/m	Limit @3m μ V/m
30.3	Vertical	28.3	40.0	26.0	100
84.0	Vertical	24.7	40.0	17.2	100
517.1	Vertical	37.2	46.0	72.4	200

Remarks:

Calculated measurement uncertainty (30MHz – 1GHz): 4.6dB

Emissions in the vertical and horizontal polarizations have been investigated and the worst-case test results are recorded in this report.

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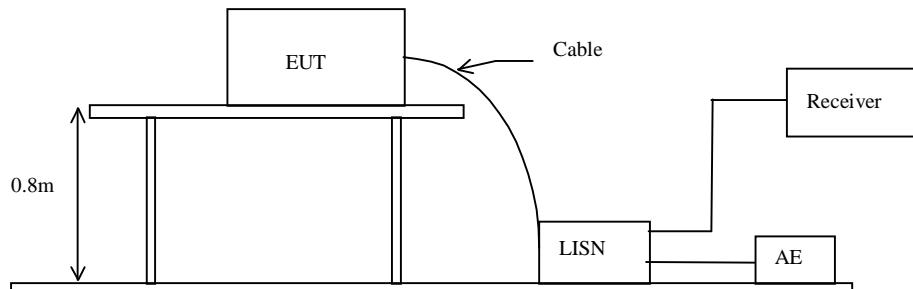
3.1.3 Conducted Emissions (0.15MHz to 30MHz)

Test Requirement:	FCC 47CFR 15.207
Test Method:	ANSI C63.4:2009
Test Date:	2013-12-26
Mode of Operation:	Bluetooth Communication mode (GFSK)
Test Voltage:	117V a.c., 60Hz

Test Method:

The test was performed in accordance with ANSI C63.4: 2009, with the following: an initial measurement was performed in peak and average detection mode on the live line, any emissions recorded within 30dB of the relevant limit line were re-measured using quasi-peak and average detection on the live and neutral lines with the worst case recorded in the table of results.

Test Setup:



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Limit for Conducted Emissions (FCC 47 CFR 15.207):

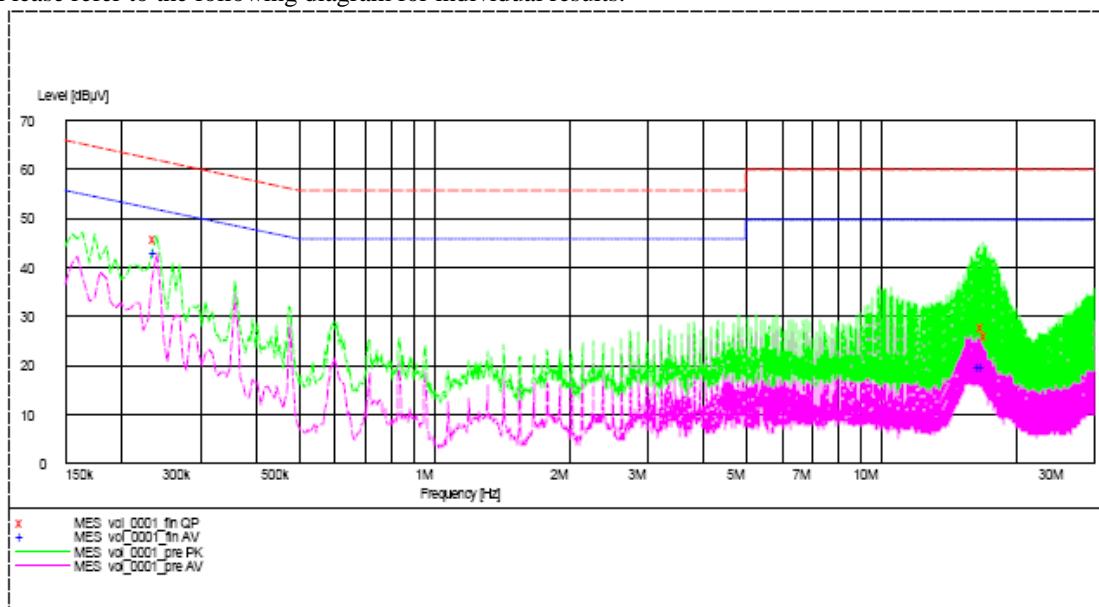
Frequency Range [MHz]	Quasi-Peak Limits [dB μ V]	Average [dB μ V]
0.15-0.5	66 to 56*	56 to 46*
0.5-5.0	56	46
5.0-30.0	60	50

* Decreases with the logarithm of the frequency.

Limits for Conducted Emissions Test, please refer to limit lines (Quasi-Peak and Average) in the following diagram.

Results of Bluetooth Communication + Charging mode (EUT paired with iPod, USB port connected to PC) (L): PASS

Please refer to the following diagram for individual results.



Conductor Live or Neutral	Frequency MHz	Quasi-peak		Average	
		Level dB μ V	Limit dB μ V	Level dB μ V	Limit dB μ V
Live	0.240	46.0	62.0	43.2	52.0
Live	16.905	27.9	60.0	19.8	50.0
Live	17.265	26.3	60.0	-*-	-*-
Live	16.665	-*-	-*-	19.9	50.0

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Limit for Conducted Emissions (FCC 47 CFR 15.207):

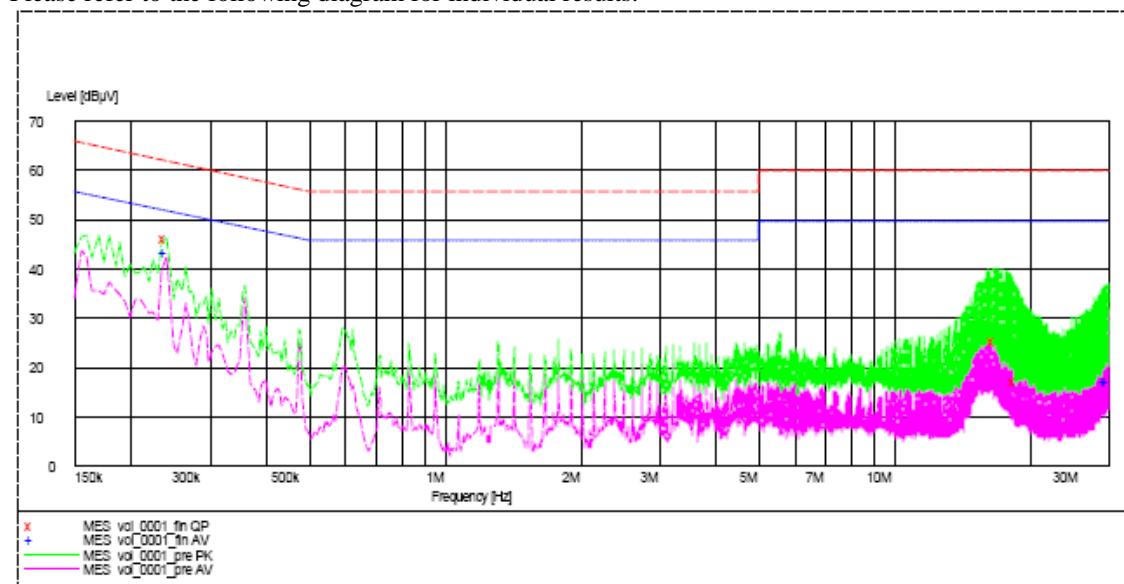
Frequency Range [MHz]	Quasi-Peak Limits [dB μ V]	Average [dB μ V]
0.15-0.5	66 to 56*	56 to 46*
0.5-5.0	56	46
5.0-30.0	60	50

* Decreases with the logarithm of the frequency.

Limits for Conducted Emissions Test, please refer to limit lines (Quasi-Peak and Average) in the following diagram.

Results of Bluetooth Communication + Charging mode (EUT paired with iPod, USB port connected to PC) (N): PASS

Please refer to the following diagram for individual results.



Conductor Live or Neutral	Frequency MHz	Quasi-peak		Average	
		Level dB μ V	Limit dB μ V	Level dB μ V	Limit dB μ V
Neutral	0.240	46.1	62.0	43.4	52.0
Neutral	16.605	25.4	60.0	-*-	-*-
Neutral	18.515	17.2	60.0	-*-	-*-
Neutral	29.406	-*	-*	17.3	50.0
Neutral	29.645	-*-	-*-	17.5	50.0

Remarks:

Calculated measurement uncertainty (0.15MHz – 30MHz): 3.2dB

-*- Emission(s) that is far below the corresponding limit line.

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3.1.3 Power Spectral Density

Test Requirement: FCC 47CFR 15.247(e)
Test Method: FCC KDB Publication 558074 D01 DTS Meas Guidance v02
Test Date: 2014-01-06
Mode of Operation: Bluetooth 4.0 Tx mode

Test Method:

The RF output of the EUT was connected to the spectrum analyzer. Set the fundamental frequency as the center frequency of the spectral analyzer. Use RBW=3kHz , VBW= 10KHz , Set the span to 1.5 times the DTS channel bandwidth. Detector = peak, Sweep time = auto couple , Trace mode = max hold. Measure the Power Spectral Density (PSD) and record the results in dBm.

Test Setup:

As Test Setup of clause 3.1.1 in this test report.

Test Limit:

The maximum power spectral density (PSD) shall not exceed 8dBm in any 3kHz band.

Results of BT 4.0 Mode (Tx:2402MHz to 2480MHz) : Pass (TX Unit)

Maximum power spectral density

Transmitter Frequency (MHz)	Maximum Power spectral density level / 3kHz band (dBm)	Maximum Power spectral density / 3kHz band limit
2402.0	-42.46	8dBm
2442.0	-42.26	8dBm
2480.0	-42.12	8dBm

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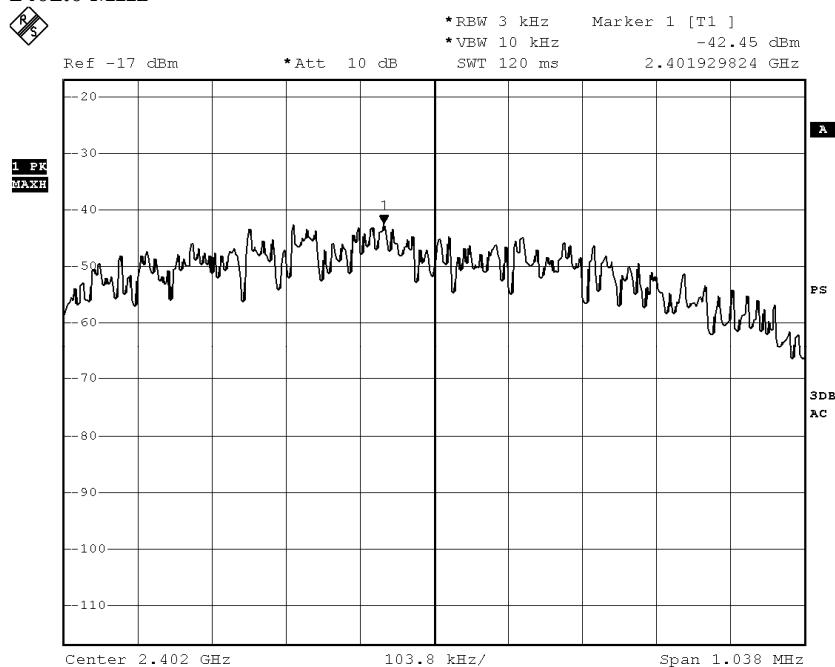
Date: 2014-01-16

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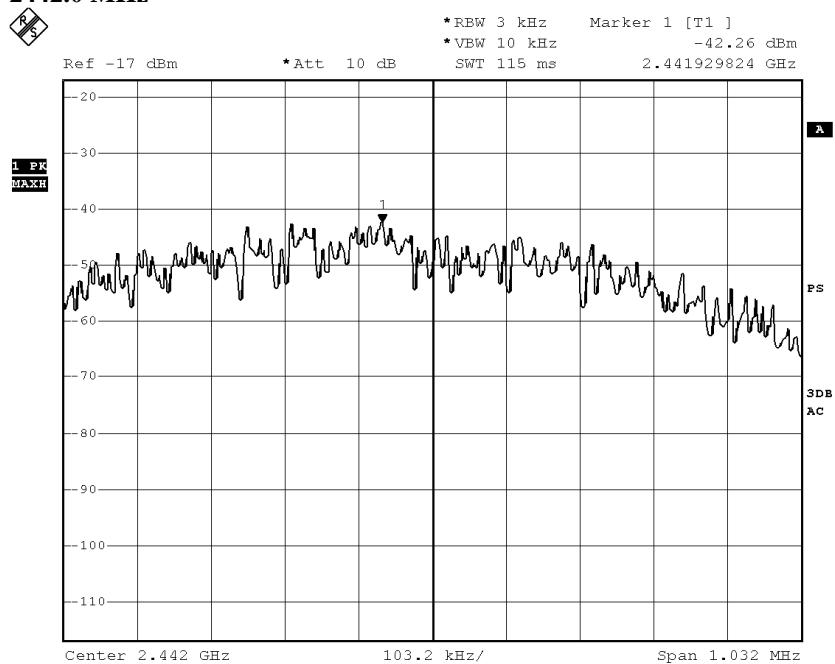
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Bluetooth 4.0 mode (Tx: 2402MHz to 2480MHz)

2402.0 MHz



2442.0 MHz



2480.0 MHz

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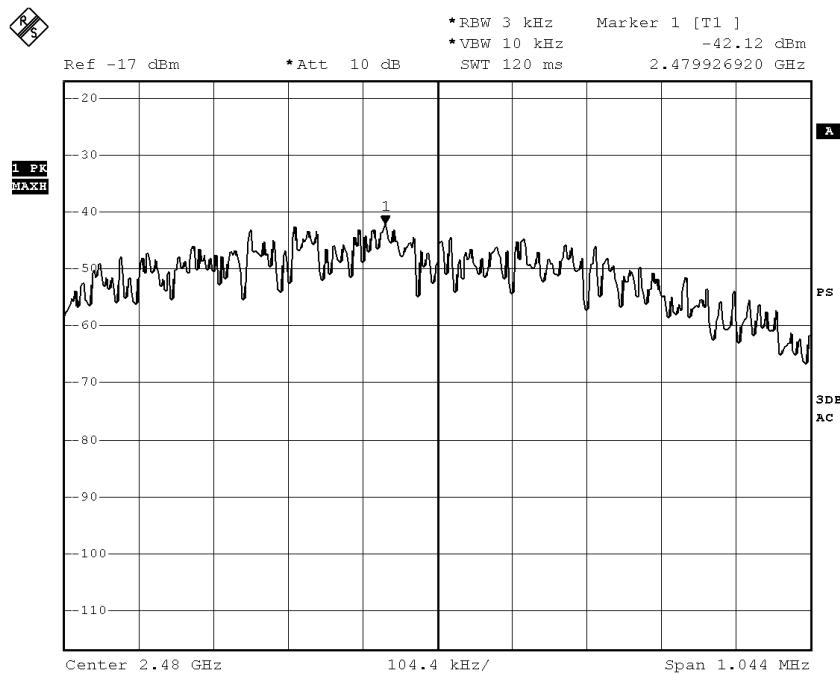


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3.1.4 6dB Bandwidth Measurement

Test Requirement:	FCC 47CFR 15.247(a)(2)
Test Method:	FCC KDB Publication 558074 D01 DTS Meas Guidance v02
Test Date:	2013-12-27
Mode of Operation:	Bluetooth 4.0 Tx mode

Test Method:

The bandwidth is measured at an amplitude level reduced from the reference level by a specified ratio. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst-case (i.e. the widest) bandwidth.

Test Setup:

As Test Setup of clause 3.1.1 in this test report.

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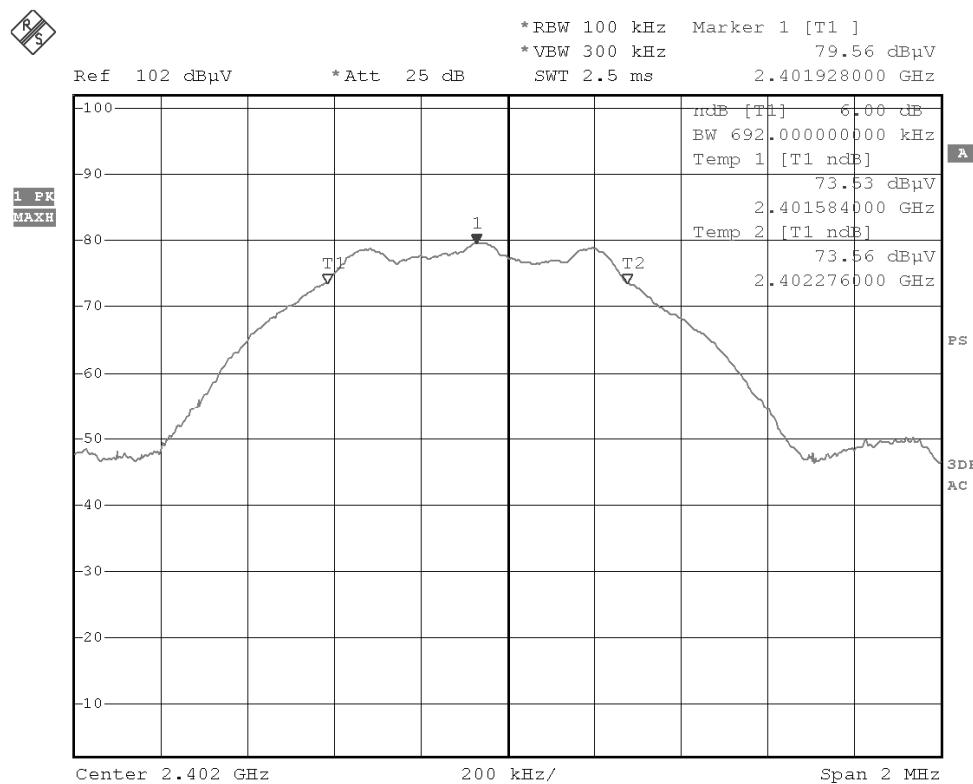
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Limits for 6dB Bandwidth Measurement:

Center Frequency [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2402.0	0.692	> 500

6 dB Bandwidth Plot on Configuration BT 4.0 (GFSK: 2402MHz)



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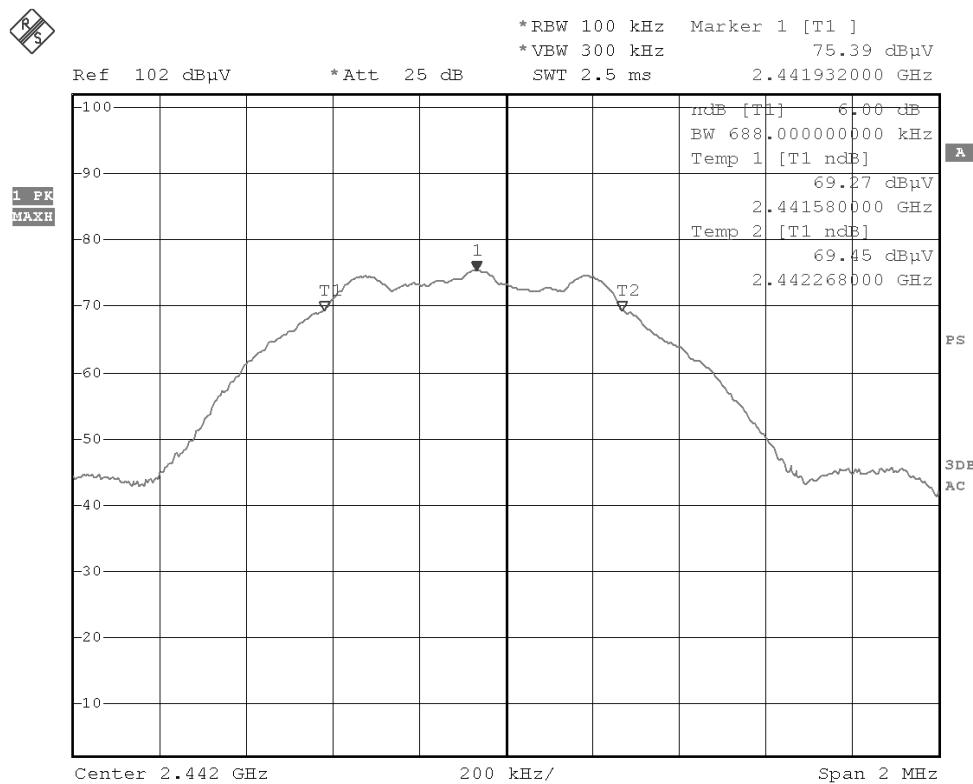
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Limits for 6dB Bandwidth Measurement:

Center Frequency [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2442.0	0.688	> 500

6 dB Bandwidth Plot on Configuration BT 4.0 (GFSK: 2441MHz)



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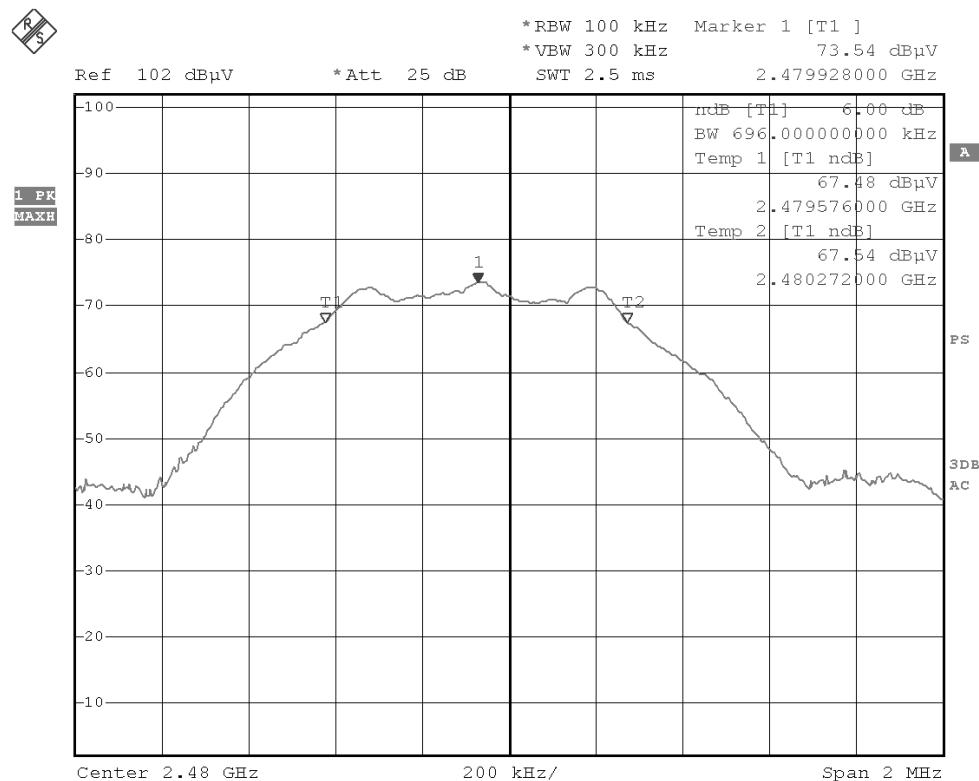
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Limits for 6dB Bandwidth Measurement:

Center Frequency [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2480.0	0.696	> 500

6 dB Bandwidth Plot on Configuration BT 4.0 (GFSK: 2480MHz)



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3.1.5 Band Edges Measurement

Test Requirement:	FCC 47CFR 15.247
Test Method:	FCC KDB Publication 558074 D01 DTS Meas Guidance v02
Test Date:	2013-12-27
Mode of Operation:	Bluetooth 4.0 Tx mode

Test Method:

The band edge is measured at an amplitude level reduced from the reference level by a specified ratio. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. The RBW and VBW are set to 100kHz for this measurement.

Test Setup:

As Test Setup of clause 3.1.2 in this test report.

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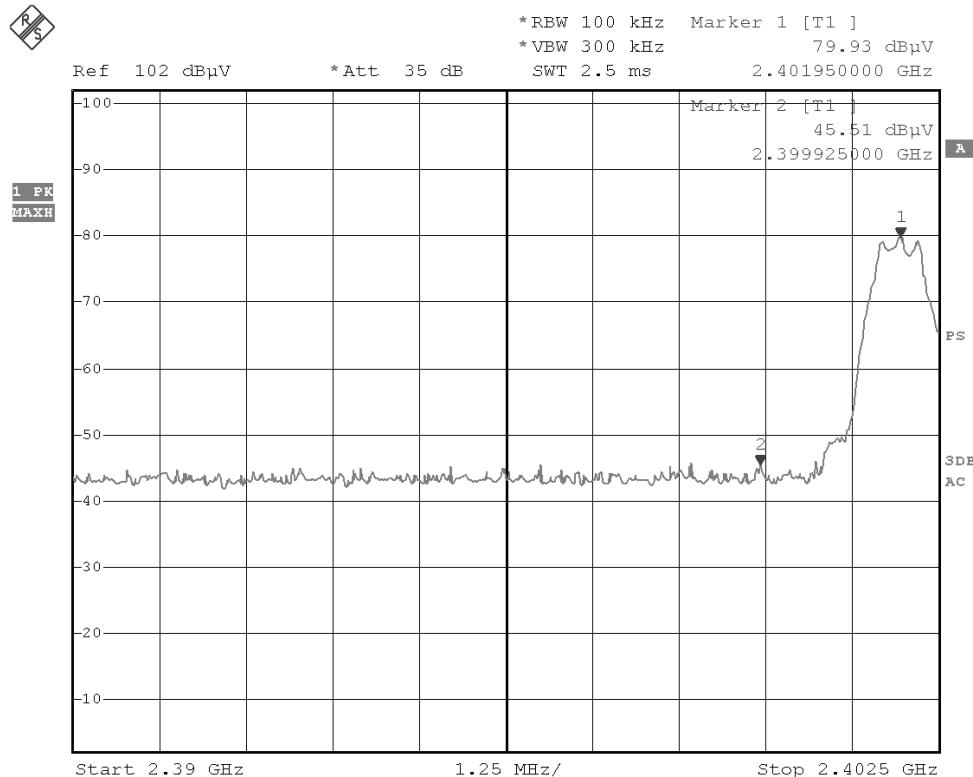
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Band-edge Compliance of RF Emissions – Lowest (GFSK: BT4.0 mode 2402MHz)



Field Strength of Band-edge Compliance Peak Value						
Frequency MHz	Measured Level @3m dBµV	Correction Factor dB/m	Field Strength dBµV/m	Limit @3m dBµV/m	Margin dBµV/m	E-Field Polarity
2400.0	19.4	35.4	54.8	74.0	19.2	Vertical
Field Strength of Band-edge Compliance Average Value						
Frequency MHz	Measured Level @3m dBµV	Correction Factor dB/m	Field Strength dBµV/m	Limit @3m dBµV/m	Margin dBµV/m	E-Field Polarity
2400.0	5.2	35.4	40.6	54.0	13.4	Vertical

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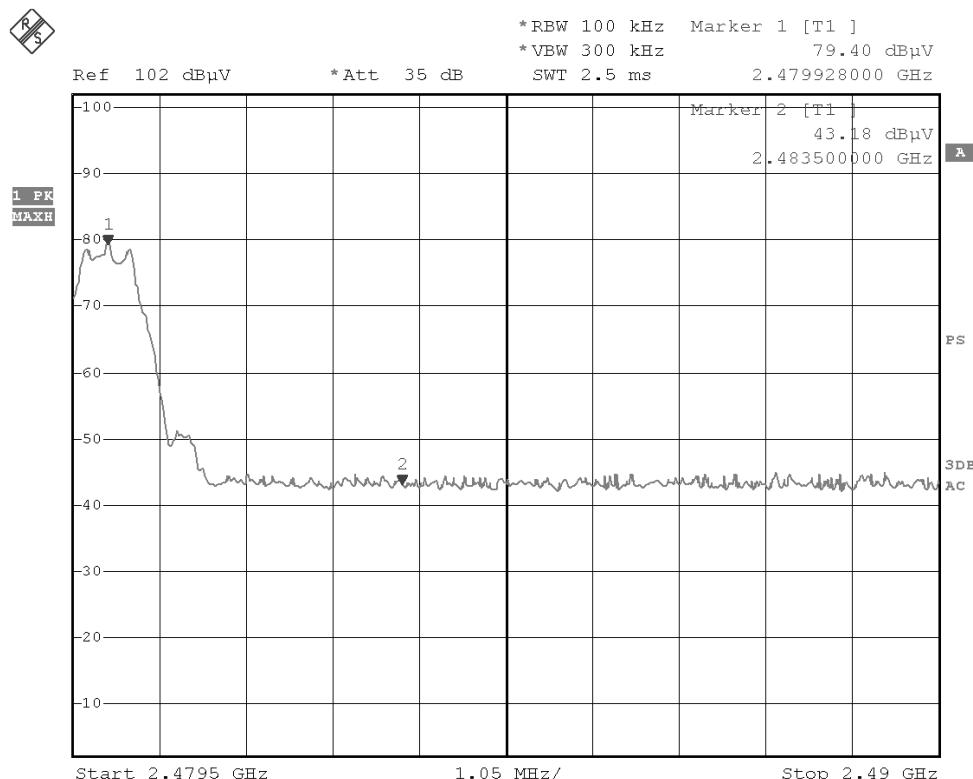
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Band-edge Compliance of RF Emissions – Highest (GFSK: BT4.0 mode 2480MHz)



Field Strength of Band-edge Compliance						
Peak Value						
Frequency MHz	Measured Level @3m dB μ V	Correction Factor dB/m	Field Strength dB μ V/m	Limit @3m dB μ V/m	Margin dB μ V/m	E-Field Polarity
2483.5	18.5	35.4	53.9	74.0	20.1	Horizontal
Field Strength of Band-edge Compliance						
Average Value						
Frequency MHz	Measured Level @3m dB μ V	Correction Factor dB/m	Field Strength dB μ V/m	Limit @3m dB μ V/m	Margin dB μ V/m	E-Field Polarity
2483.5	3.8	35.4	39.2	54.0	14.8	Horizontal

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3.1.6 Antenna Requirement

Test Requirements: § 15.203

Test Specification:

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 use of a standard antenna jack or electrical connector is prohibited.

Test Results:

This is Single dipole inverted F antenna. There is no external antenna, the antenna gain = 0.0dBi. All component install on inside of EUT. User unable to remove or changed the Antenna.

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3.1.7 RF Exposure

Test Requirement: FCC 47CFR 15.247(i)
Test Date: 2014-01-06
Mode of Operation: BT mode
Dimension of EUT: 150mm x 115mm x 60mm

Requirements:

In 15.247(i), an equipment shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the limits in §§ 1.1310 and 2.1093 of this chapter. Applications to the Commission for construction permits, licenses to transmit or renewals thereof, equipment authorizations or modifications in existing facilities must contain a statement confirming compliance with the limits unless the facility, operation, or transmitter is categorically excluded, as discussed below. Technical information showing the basis for this statement must be submitted to the Commission upon request.

According to KDB447498 D01 General RF Exposure Guidance v05, unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition.

Test Results:

RF Exposure Evaluation

The Maximum conducted output power = 0.014 mW (at frequency = 2.480 GHz)

It's Conducted source-based time-averaging output power = 0.0138 mW (at frequency = 2.480 GHz)

Since the SAR test exclusion thresholds for 2450MHz at test separation distances \leq 5 mm = 10mW and the Conducted source-based time-averaging output power is less than 10mW.

Therefore, the SAR evaluation can be exempted.

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Appendix A

List of Measurement Equipment

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL	DUE CAL
EMD004	LISN	ROHDE & SCHWARZ	ESH3-Z5	100102	2013.03.15	2014.03.14
EMD022	EMI Test Receiver	ROHDE & SCHWARZ	ESCS30	100314	2013.03.15	2014.03.14
EMD035	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	100441	2012.07.06	2013.07.05
EMD036	EMI Test Receiver	ROHDE & SCHWARZ	ESIB 26	100388	2012.07.06	2013.07.05
EMD041	TWO-LINE V-NETWORK	ROHDE & SCHWARZ	ENV216	100261	2012.07.06	2013.07.05
EMD061	Biconilog Antenna	ETS.LINDGREN	3142C	00060439	2012.11.03	2014.11.02
EMD062	Double-Ridged Waveguide (1GHz – 18GHz)	ETS.LINDGREN	3117	00075933	2012.11.28	2014.11.27
EMD084	MULTI-DVICE CONTROLLER	ETS.LINDGREN	2090	00060107	N/A	N/A
EMD088	Video Control Unit	ETS.LINDGREN	Y21953A	2601073	N/A	N/A
EMD093	Monitor	ViewSonic	VA9036	Q8X064201876	N/A	N/A
EMD102	Intelligent Frequency	Ainuo Instrument Co., Ltd	AN97005SS	79707454	N/A	N/A
EMD103	Intelligent Frequency	Ainuo Instrument Co., Ltd	AN97005SS	79707455	N/A	N/A
EMD105	FACT-3 EMC Chamber	ETS.LINDGREN	FACT-3	3803	N/A	N/A
EMD106	Shielding Room #1	ETS.LINDGREN	RFD-100	3802	N/A	N/A
EMD111	Power meter	ROHDE & SCHWARZ	NRVD	102051	2013.03.15	2014.03.14
	100V Insertion Unit	ROHDE & SCHWARZ	URV5-Z4	100464	2013.03.15	2014.03.14
EMD113	Pre-Amplifier	ROHDE & SCHWARZ	N/A	1129588	2013.03.15	2014.03.14
EMD124	Loop Antenna	ETS-Lindgren	6502	00104905	2012.03.26	2014.03.25
EMD131	Standard Gain Horn Antenna (18GHz – 26.5GHz)	Chengdu AINFO Inc.	JXTXLB-42-15-C-KF	J2021100721001	2013.01.25	2015.01.24

Remarks:-

CM Corrective Maintenance

N/A Not Applicable or Not Available

TBD To Be Determined

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Appendix B

Ancillary Equipment

ITEM NO.	DESCRIPTION	MODEL NO.	FCC ID	REMARK
1	DELL COMPUTER	DMC	N/A	N/A
2	DELL MONITOR	E177FPB	ARSCM356N	RESOLUTION 1024*768 (DURING TESTING) 1.0M UNSHIELDED POWER VORD CONNECTED TO THE COMPUTER 1.5M SHIELDED CABLE CONNECTED TO THE COMPUTER
3	DELL KEYBOARD	SK-8110	N/A	1.8M SHIELDED COILED CABLE CONNECTED TO THE COMPUTER
4	DELL MOUSE	N/A	N/A	2.4M UNSHIELDED CABLE CONNECTED TO THE COMPUTER
5	LASER PRINTER	HP LASERJET 1020 PLUS	N/A	1.8M UNSHIELDED POWER CORD 2.8M SHIELDED CABLE (BUNDLED TO 1M) CONNECTED TO THE COMPUTER
6	iPod Touch	A1367	BCG-E2407	N/A

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Appendix C

Photographs of EUT

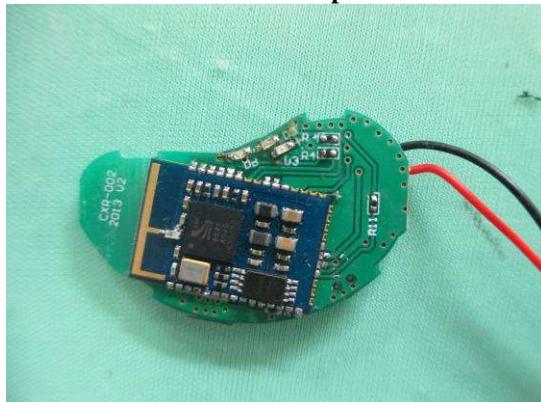
Front View of the product



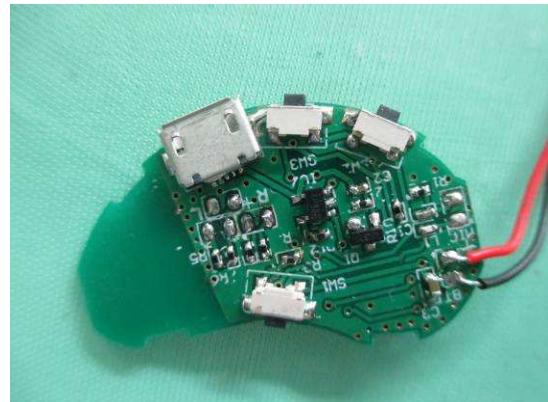
Rear View of the product



Inner Circuit Top View



Inner Circuit Bottom View



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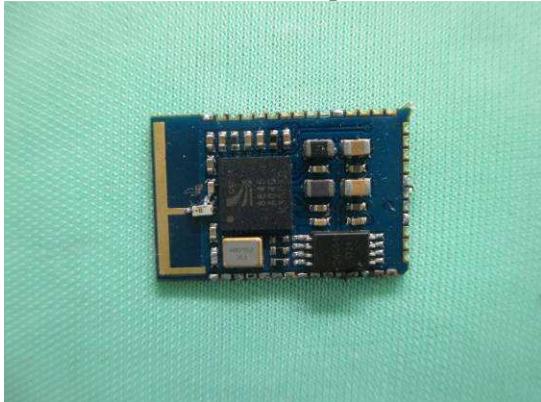
Date: 2014-01-16

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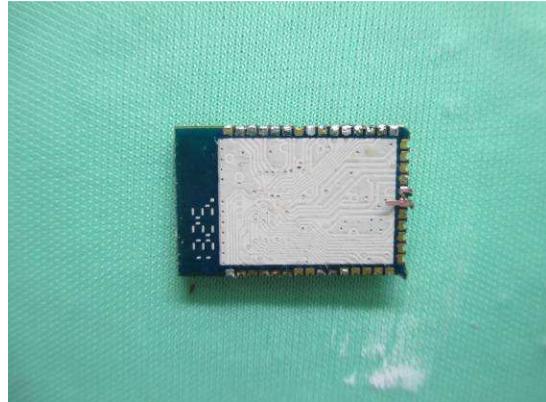
No.: DM113832DT

Photographs of EUT

Inner Circuit Top View



Inner Circuit Bottom View



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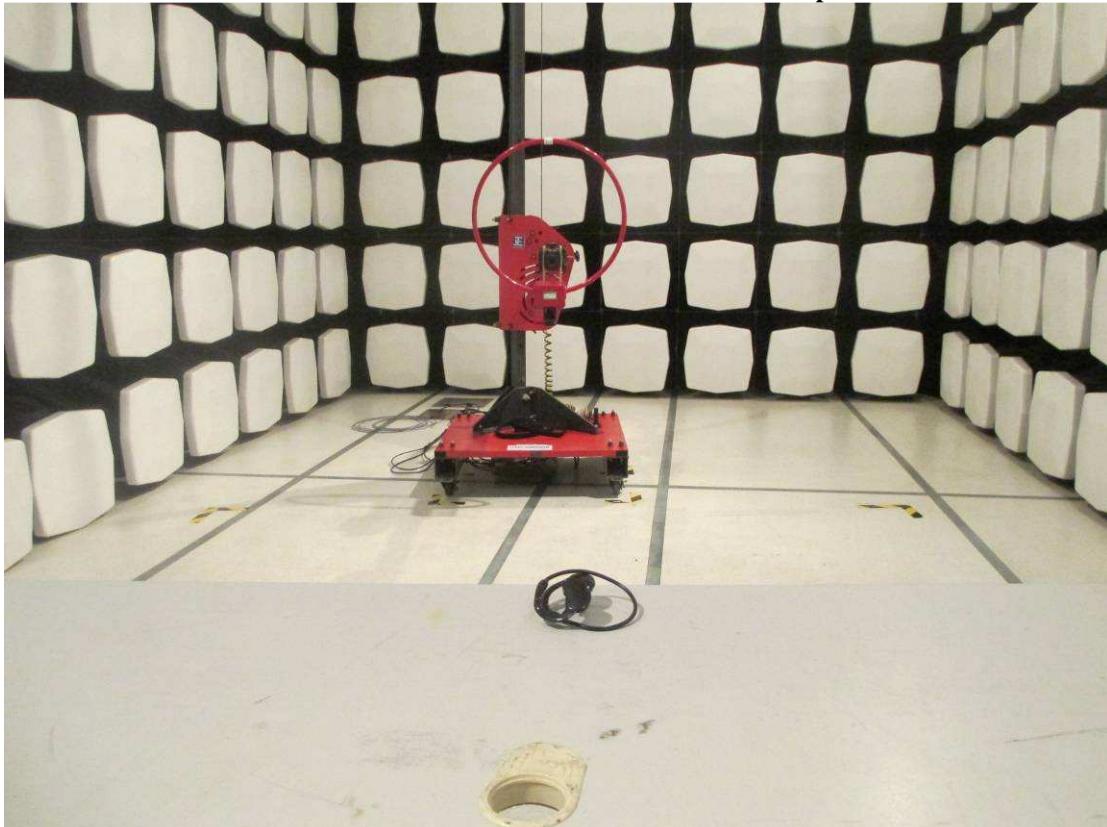
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Photographs of EUT

Measurement of Radiated Emission Test Set Up



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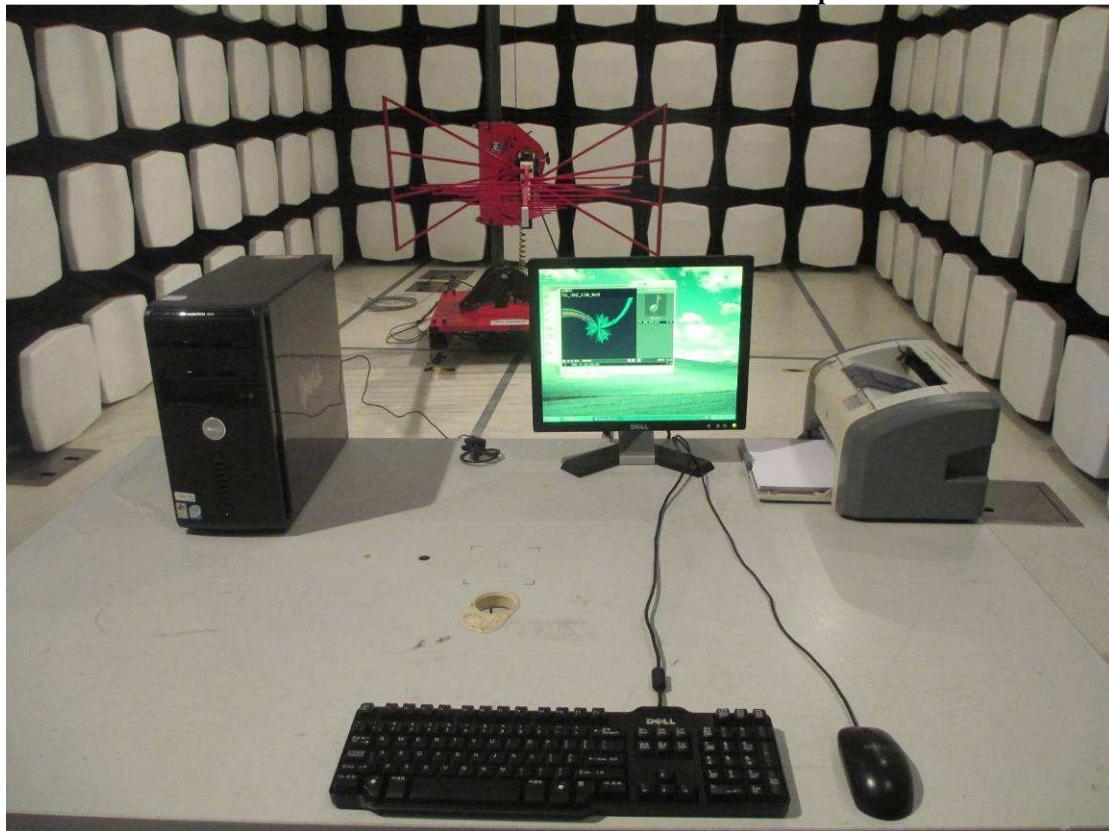
Date: 2014-01-16

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Photographs of EUT

Measurement of Radiated Emission Test Set Up



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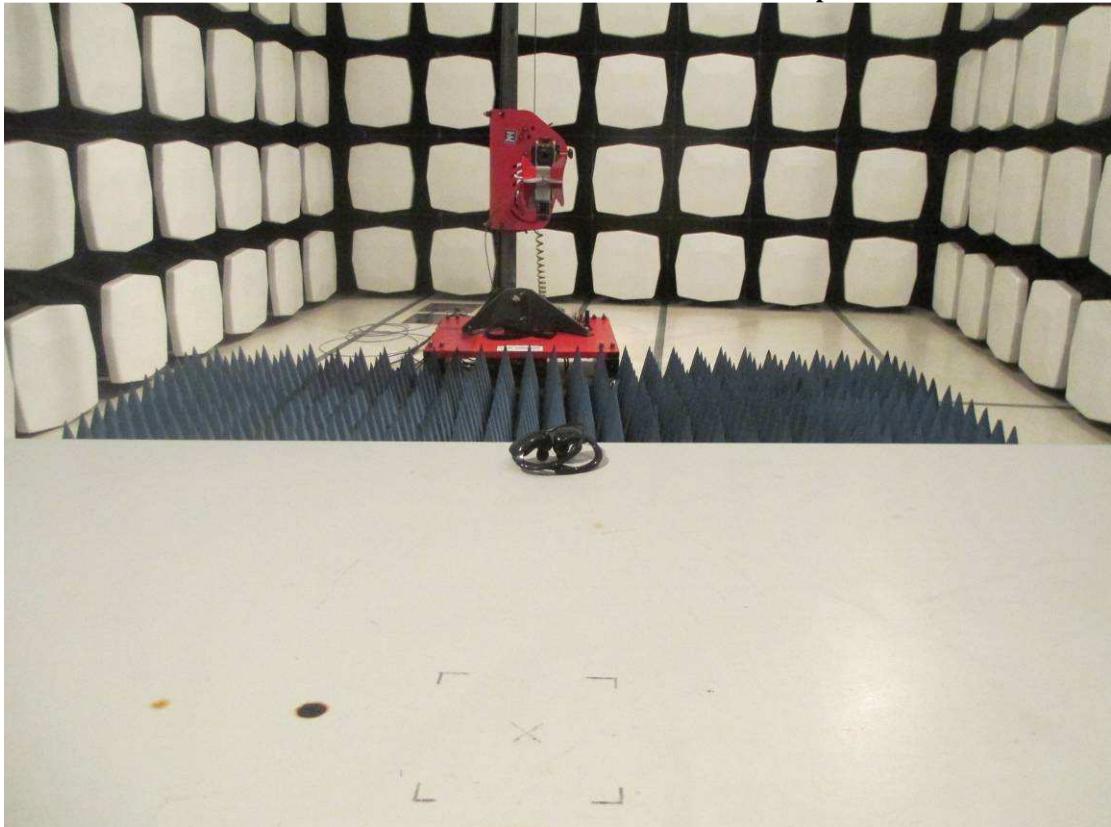
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Photographs of EUT

Measurement of Radiated Emission Test Set Up



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Photographs of EUT

Measurement of Conducted Emission Test Set Up



***** End of Test Report *****

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