Shenzhen CTL Testing Technology Co., Ltd.
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TEST REPORT

FCC PART 15.247

Report Reference No. ..... :	**CTL1611232301-WF**	
Compiled by: (position+printed name+signature)	Allen Wang (File administrators)	Allen Wang
Tested by: (position+printed name+signature)	Nice Nong (Test Engineer)	Nice Nong
Approved by: (position+printed name+signature)	Tracy Qi (Manager)	Tracy Qi

Product Name..... :	Graphene Physical Therapy Smart Bra
Model/Type reference ..... :	NM-WX001
List Model(s)..... :	N/A
Trade Mark..... :	Graphene/哥悦妃妮
FCC ID ..... :	**2AKN2-NM-WX001**
Applicant's name ..... :	**SHENZHEN T&M HEALTH TECHNOLOGY CO., LTD.**
Address of applicant ..... :	Room B510, No.19, Gaoxin South 7th Rd, Shenzhen High-Tech Industrial Park, Nanshan District, Shenzhen, China
Prepared by ..... :	**Shenzhen CTL Testing Technology Co., Ltd.**
Address..... :	Floor 1-A, Baisha Technology Park, No.3011, Shahexi Road, Nanshan District, Shenzhen, China 518055
Test specification..... :	
Standard..... :	**FCC Part 15.247:** Operation within the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz.
TRF Originator ..... :	Shenzhen CTL Testing Technology Co., Ltd.
Master TRF ..... :	Dated 2011-01
Date of Receipt..... :	Nov. 28, 2016
Date of Test Date..... :	Nov. 29, 2016–Jan. 05, 2017
Data of Issue..... :	Jan. 06, 2017
Result..... :	Pass

TEST REPORT

Test Report No. :	CTL1611232301-WF	Jan. 06, 2017 Date of issue

Equipment under Test	:	Graphene Physical Therapy Smart Bra
Model /Type	:	NM-WX001
Listed Models	:	N/A
Applicant	:	**SHENZHEN T&M HEALTH TECHNOLOGY CO., LTD.**
Address	:	Room B510, No.19, Gaoxin South 7th Rd, Shenzhen High-Tech Industrial Park, Nanshan District, Shenzhen, China
Manufacturer	:	**SHENZHEN T&M HEALTH TECHNOLOGY CO., LTD.**
Address	:	Room B510, No.19, Gaoxin South 7th Rd, Shenzhen High-Tech Industrial Park, Nanshan District, Shenzhen, China

Test result	**Pass ***

* In the configuration tested, the EUT complied with the standards specified page 5.

The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

** Modified History **

Revisions	Description	Issued Data	Report No.	Remark
Version 1.0	Initial Test Report Release	2017-01-06	CTL1611232301-WF	Tracy Qi

Table of Contents Page

1. SUMMARY

1.1. TEST STANDARDS

The tests were performed according to following standards:

FCC Rules Part 15.247: Frequency Hopping, Direct Spread Spectrum and Hybrid Systems that are in operation within the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz

ANSI C63.10: 2013: American National Standard for Testing Unlicensed Wireless Devices

ANSI C63.4: 2014: –American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40GHz Range of 9 kHz to 40GHz

KDB558074 D01 V03r05: Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247

1.2. Test Description

FCC PART 15.247		
FCC Part 15.207	AC Power Conducted Emission	PASS
FCC Part 15.247(a)(2)	6dB Bandwidth	PASS
FCC Part 15.247(d)	Spurious RF Conducted Emission	PASS
FCC Part 15.247(b)	Maximum Conducted Output Power	PASS
FCC Part 15.247(e)	Power Spectral Density	PASS
FCC Part 15.109/ 15.205/ 15.209	Radiated Emissions	PASS
FCC Part 15.247(d)	Band Edge	PASS
FCC Part 15.203/15.247 (b)	Antenna Requirement	PASS

1.3. Test Firm

1.3.1 Address of the test laboratory

Shenzhen BALUN Technology Co., Ltd.
Block B, 1st FL, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China

1.3.2 Laboratory accreditation

The test facility is recognized, certified, or accredited by the following organizations:

FCC-Registration No.:832625

Shenzhen BALUN Technology Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 832625

1.4. Statement of the measurement uncertainty

The following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2.

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Measurement	Value
Occupied Channel Bandwidth	±4%
RF output power, conducted	±1.4dB
Power Spectral Density, conducted	±2.5dB
Unwanted Emissions, conducted	±2.8dB
All emissions, radiated	±5.4dB
Temperature	±1℃
Humidity	±4%

2. GENERAL INFORMATION

2.1. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Normal Temperature:	25°C
Relative Humidity:	55 %
Air Pressure:	101 kPa

2.2. General Description of EUT

Product Name:	Graphene Physical Therapy Smart Bra
Model/Type reference:	NM-WX001
Power supply:	DC 5.0V from Power Bank
Bluetooth:	
Supported type:	Version 4.0 for low Energy
Modulation:	GFSK
Operation frequency:	2402MHz to 2480MHz
Channel number:	40
Channel separation:	2 MHz
Antenna type:	Integrated Antenna
Antenna gain:	0dBi

Note: For more details, please refer to the user's manual of the EUT.

2.3. Description of Test Modes and Test Frequency

The Applicant provides communication tools software to control the EUT for staying in continuous transmitting (Duty Cycle more than 98%) and receiving mode for testing.

There are 39 channels provided to the EUT and Channel 00/19/39 were selected for BT4.0 test.

Operation Frequency List BT4.0：

Channel	Frequency (MHz)
00	**2402**
02	2404
03	2406
⋮	⋮
19	**2440**
⋮	⋮
37	2476
38	2478
39	**2480**

Note: The line display in grey were the channel selected for testing

2.4. Equipments Used during the Test

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer	ROHDE&SCHWAR	ZFSV-30	103118	2016.07.13	2017.07.12
Switch Unit with OSP-B157	ROHDE&SCHWARZ	OSP120	1012	2016.07.13	2017.07.12
Spectrum Analyzer	AGILENT	E4440A4	MY4530443	2016.10.15	2017.10.14
EMI Receiver	ROHDE&SCHWARZ	ESRP	101036	2016.07.05	2017.07.04
LISN	SCHWARZBECK	NSLK	81278127-687	2016.07.05	2017.07.04
Test Antenna-Loop(9kHz-30MHz)	SCHWARZBECK	FMZB	15191519-037	2016.07.22	2017.07.21
Test Antenna-Bi-Log(30MHz-3GHz)	SCHWARZBECK	VULB 9163	9163-624	2016.07.22	2017.07.21
Test Antenna-Horn(1-18 GHz)	SCHWARZBECK	BBHA 9120D	9120D-1148	2016.07.22	2017.07.21
Test Antenna-Horn(15-26.5GHz)	SCHWARZBECK	BBHA 9170	9170-305	2016.07.22	2017.07.21
Anechoic Chamber	RAINFORD	9m*6m*6m	N/A	2016.02.28	2017.02.27
Shielded Enclosure	ChangNing	CN-1307013	13070	--	--
Power Splitter	KMW	DCPD-LDC	1305003215	2016.07.13	2017.07.12
Spectrum Analyzer	Agilent	N9020	US46220290	2016/01/17	2017/01/16
Power Meter	Anritsu	ML2487B	110553	2016/06/02	2017/06/01
Power Sensor	Anritsu	MA2411B	100345	2016/05/21	2017/05/20
RF Cable	Megalon	RF-A303	N/A	2016/06/02	2017/06/01

The calibration interval was one year

2.5. Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended to comply with Section 15.247 of the FCC Part 15, Subpart C Rules.

2.6. Modifications

No modifications were implemented to meet testing criteria.

3. TEST CONDITIONS AND RESULTS

3.1. Conducted Emissions Test

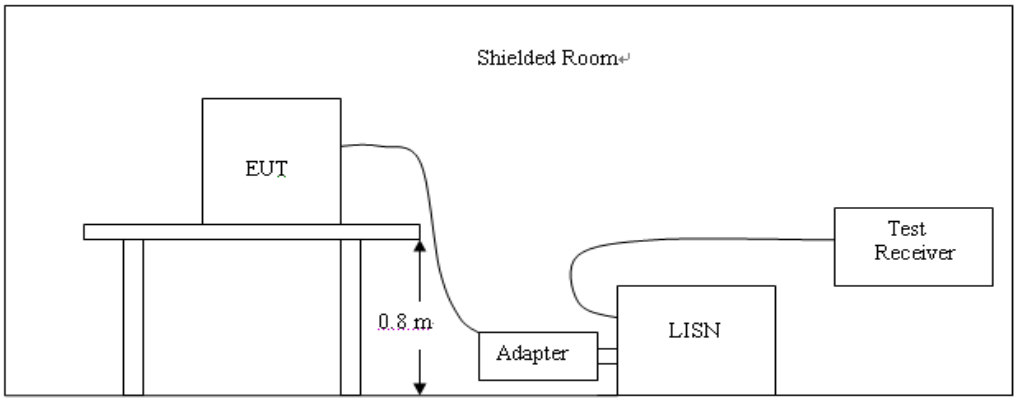
LIMIT

FCC CFR Title 47 Part 15 Subpart C Section 15.207

Frequency range (MHz)	Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

TEST CONFIGURATION

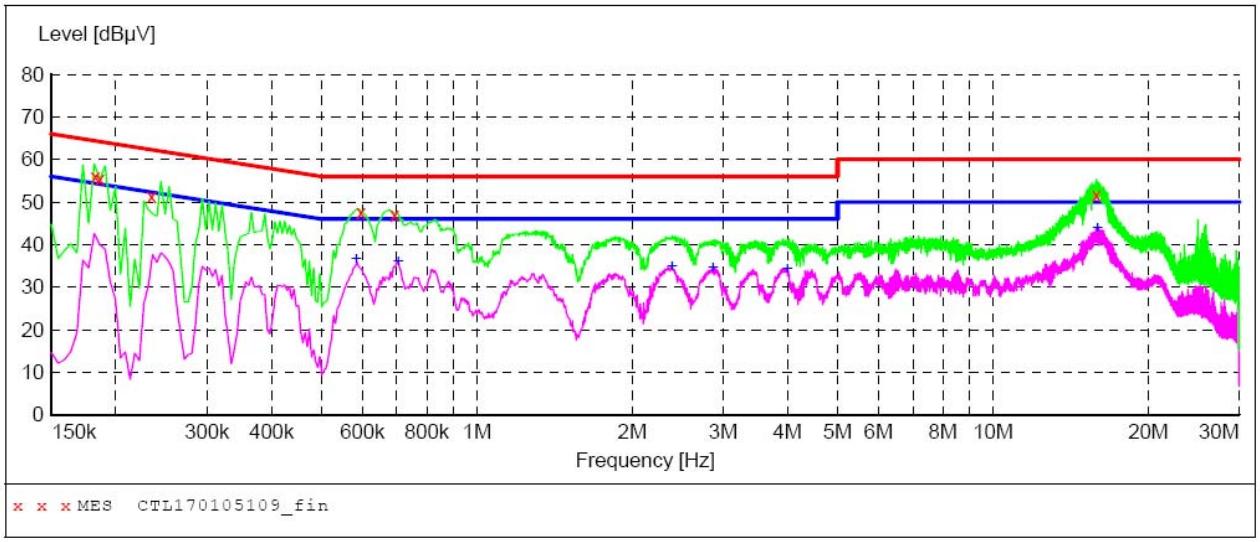


TEST PROCEDURE

1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system; a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10:2013.
2. Support equipment, if needed, was placed as per ANSI C63.10:2013.
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10:2013.
4. The adapter received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
5. All support equipments received AC power from a second LISN, if any.
6. The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7. Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.
8. During the above scans, the emissions were maximized by cable manipulation.

TEST RESULTS

SCAN TABLE: "Voltage (9K-30M)FIN"
Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "CTL170105109_fin"

1/5/2017 4:08PM

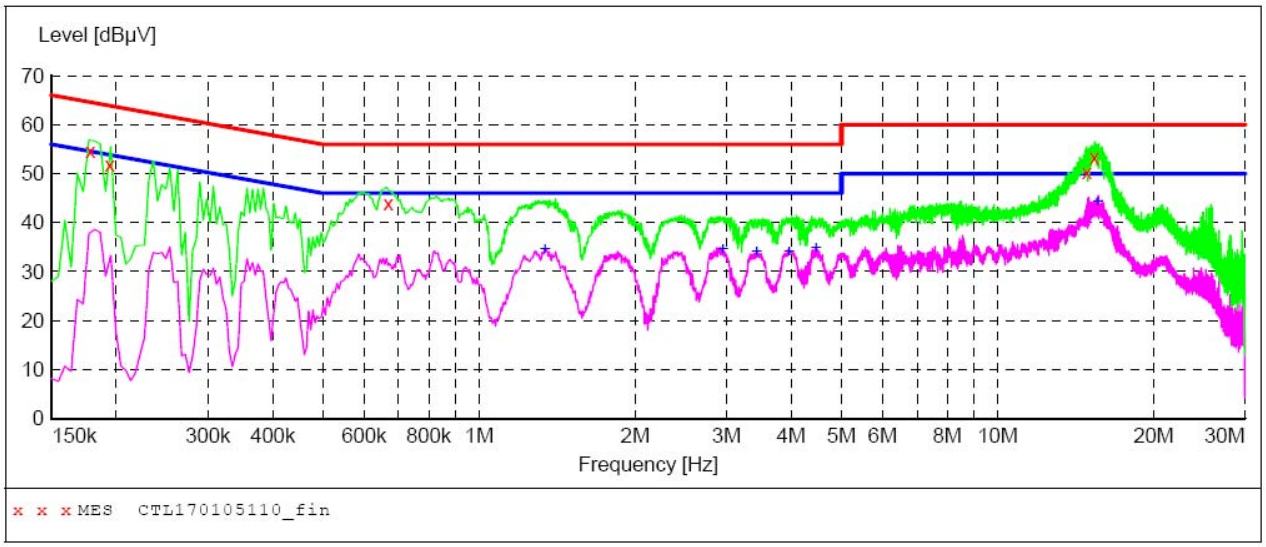
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.182000	55.90	10.2	64	8.5	QP	L1	GND
0.186000	55.40	10.2	64	8.8	QP	L1	GND
0.234000	51.50	10.2	62	10.8	QP	L1	GND
0.596000	47.50	10.2	56	8.5	QP	L1	GND
0.692000	46.90	10.2	56	9.1	QP	L1	GND
15.842000	51.70	10.7	60	8.3	QP	L1	GND

MEASUREMENT RESULT: "CTL170105109_fin2"

1/5/2017 4:08PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.584000	36.40	10.2	46	9.6	AV	L1	GND
0.704000	35.90	10.2	46	10.1	AV	L1	GND
2.390000	34.80	10.4	46	11.2	AV	L1	GND
2.870000	34.50	10.4	46	11.5	AV	L1	GND
3.998000	34.20	10.4	46	11.8	AV	L1	GND
15.962000	43.90	10.7	50	6.1	AV	L1	GND

SCAN TABLE: "Voltage (9K-30M)FIN"
Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "CTL170105110_fin"

1/5/2017 4:11PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.178000	54.50	10.2	65	10.1	QP	N	GND
0.194000	51.80	10.2	64	12.1	QP	N	GND
0.668000	44.00	10.2	56	12.0	QP	N	GND
14.864000	50.40	10.7	60	9.6	QP	N	GND
15.356000	53.40	10.7	60	6.6	QP	N	GND

MEASUREMENT RESULT: "CTL161214110_fin2"

1/5/2017 4:11PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
1.340000	34.60	10.3	46	11.4	AV	N	GND
2.954000	34.50	10.4	46	11.5	AV	N	GND
3.434000	34.10	10.4	46	11.9	AV	N	GND
3.962000	33.90	10.4	46	12.1	AV	N	GND
4.466000	34.80	10.4	46	11.2	AV	N	GND
15.626000	44.10	10.7	50	5.9	AV	N	GND

Note:
1. Margin = Limit – level
2. Peripheral device during the Testing

No.	Product	Manufacturer	Model	Length	Note
1	Adapter	ZTE	STC-A51A	--	Input: 100-240V~, 50/60Hz, 250mA Output: 5V⎓1000mA
2	USB line	--	--	80cm	Not shield

3.2. Radiated Emissions and Band Edge

Limit

For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emission out of authorized band shall not exceed the following table at a 3 meters measurement distance.

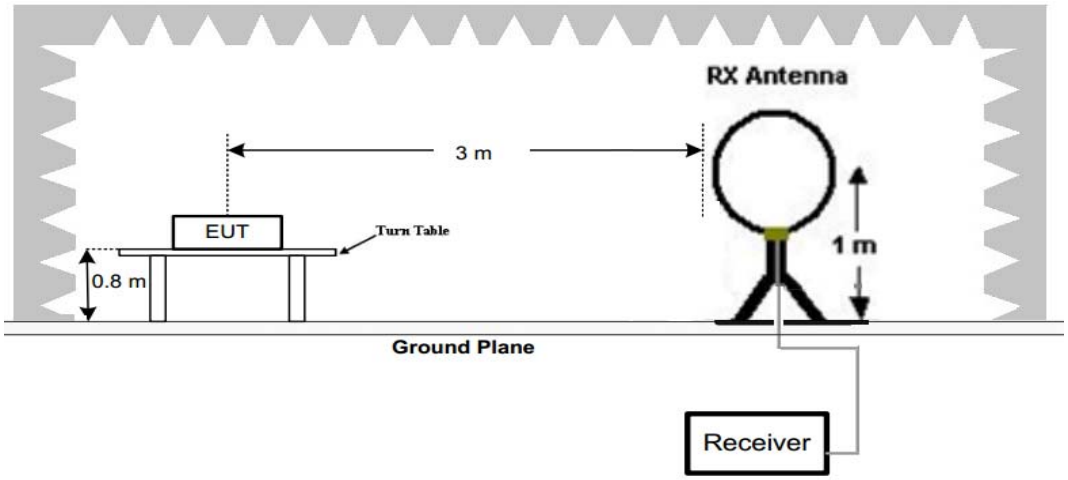
In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a)

Radiated emission limits

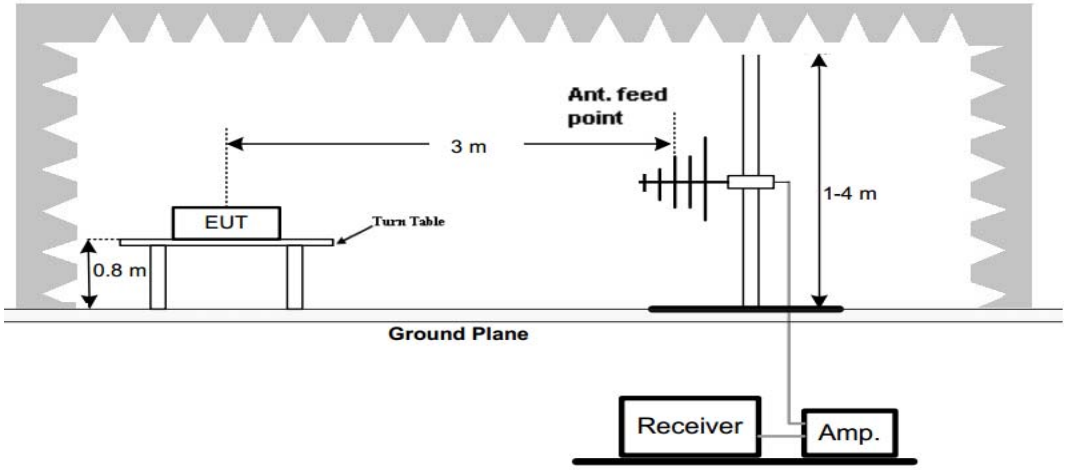
Frequency (MHz)	Distance (Meters)	Radiated (dBμV/m)	Radiated (μV/m)
0.009-0.49	3	20log(2400/F(KHz))+40log(300/3)	2400/F(KHz)
0.49-1.705	3	20log(24000/F(KHz))+ 40log(30/3)	24000/F(KHz)
1.705-30	3	20log(30)+ 40log(30/3)	30
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

TEST CONFIGURATION

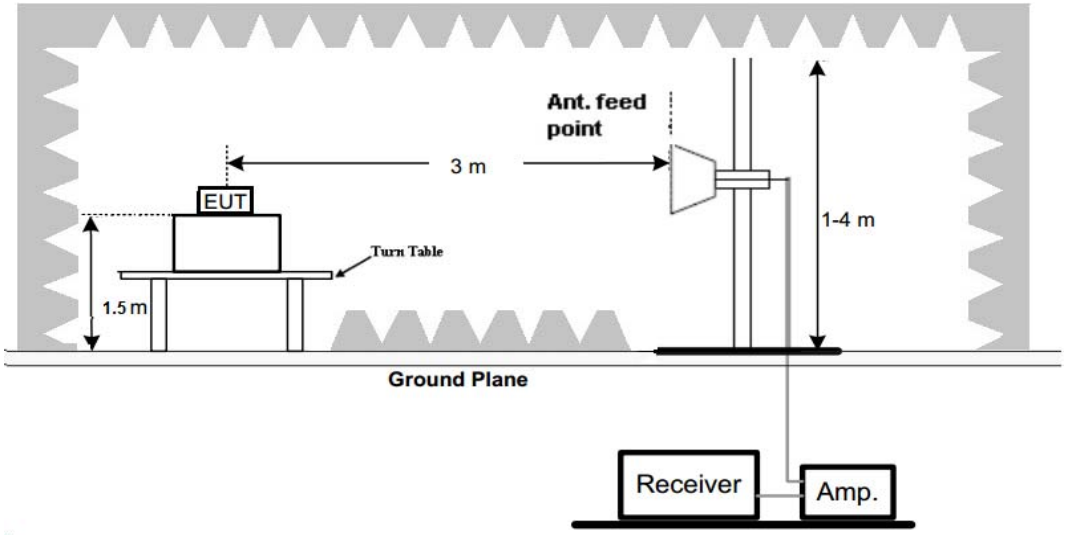
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



(B) Radiated Emission Test Set-Up, Frequency below 1000MHz



(C) Radiated Emission Test Set-Up, Frequency above 1000MHz



Test Procedure

1. Below 1GHz measurement the EUT is placed on a turntable which is 0.8m above ground plane, and above 1GHz measurement EUT was placed on a low permittivity and low loss tangent turn table which is 1.5m above ground plane.
2. Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0℃ to 360℃ to acquire the highest emissions from EUT
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measurements have been completed.

TEST RESULTS

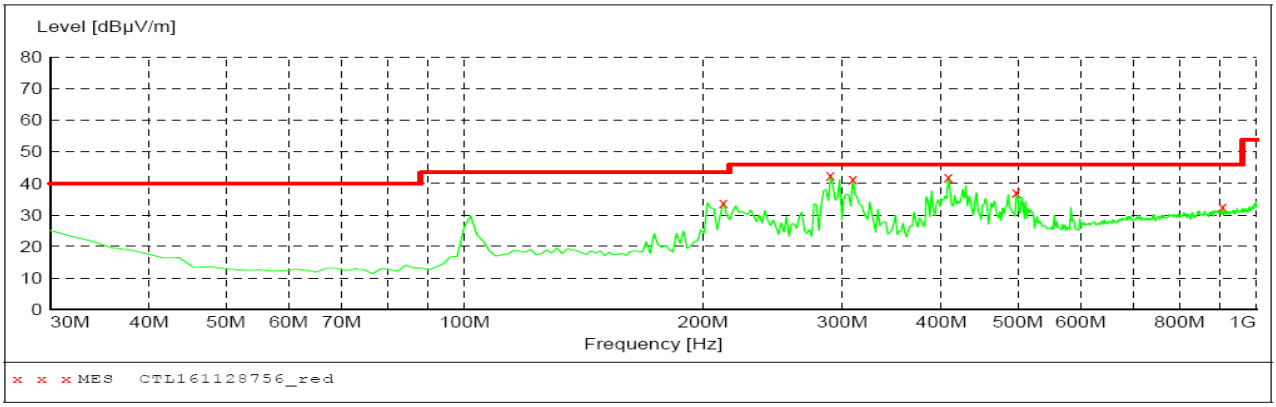
Remark:
1. For below 1GHz testing recorded worst at BLE low channel.
2. Radiated emission test from 9 KHz to 10th harmonic of fundamental was verified, and no emission found except system noise floor in 9 KHz to 30MHz and not recorded in this report.

For 30MHz-1GHz

Horizontal

SWEEP TABLE: "test (30M-1G)"

Short Description:			Field Strength		
Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	300.0 ms	120 kHz	JB1



MEASUREMENT RESULT: "CTL161128756_red"

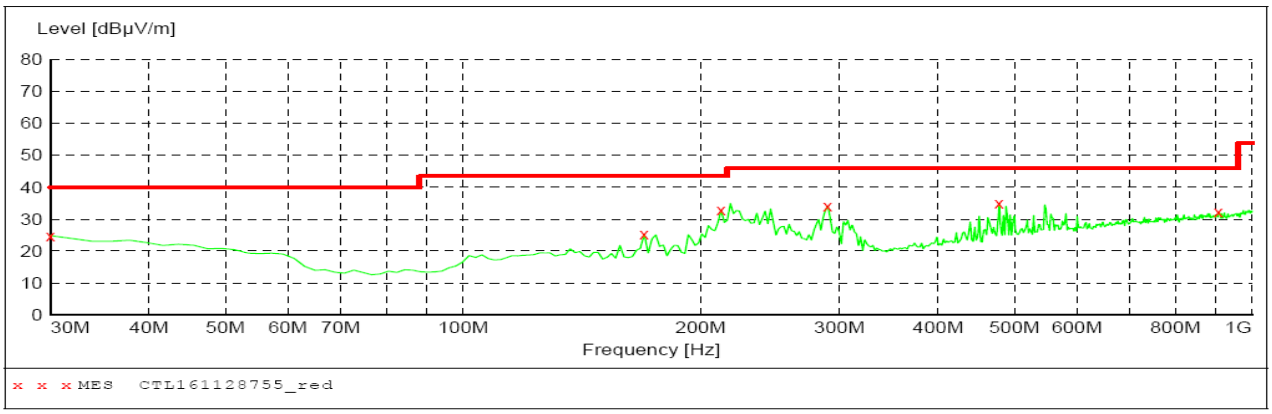
11/29/2016 9:22AM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
212.360000	33.90	14.0	43.5	9.6	---	0.0	0.00	HORIZONTAL
289.960000	42.50	15.2	46.0	3.5	---	0.0	0.00	HORIZONTAL
309.360000	41.40	15.5	46.0	4.6	---	0.0	0.00	HORIZONTAL
408.300000	42.10	18.3	46.0	3.9	---	0.0	0.00	HORIZONTAL
497.540000	37.20	20.2	46.0	8.8	---	0.0	0.00	HORIZONTAL
906.880000	32.50	26.1	46.0	13.5	---	0.0	0.00	HORIZONTAL

Vertical

SWEEP TABLE: "test (30M-1G)"

Short Description:			Field Strength		
Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	300.0 ms	120 kHz	JB1



MEASUREMENT RESULT: "CTL161128755_red"

11/29/2016 9:26AM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
30.000000	24.80	20.8	40.0	15.2	---	0.0	0.00	VERTICAL
169.680000	25.30	13.3	43.5	18.2	---	0.0	0.00	VERTICAL
212.360000	32.90	14.0	43.5	10.6	---	0.0	0.00	VERTICAL
289.960000	34.10	15.2	46.0	11.9	---	0.0	0.00	VERTICAL
478.140000	35.00	19.9	46.0	11.0	---	0.0	0.00	VERTICAL
906.880000	32.20	26.1	46.0	13.8	---	0.0	0.00	VERTICAL

For 1GHz to 25GHz

BT4.0 Mode (above 1GHz)

Frequency(MHz):			2402		Polarity:			HORIZONTAL	
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
4804.00	48.52	PK	74	25.48	44.01	33.49	6.91	35.89	4.51
4804.00	--	AV	54	--	--	--	--	--	--
5025.50	43.44	PK	74	30.56	36.56	34.07	7.05	34.24	6.88
5025.50	--	AV	54	--	--	--	--	--	--
7206.00	45.25	PK	74	28.75	34.14	36.95	9.18	35.03	11.11
7206.00	--	AV	54	--	--	--	--	--	--

Frequency(MHz):			2402		Polarity:			VERTICAL	
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
4804.00	49.50	PK	74	24.50	44.99	33.49	6.91	35.89	4.51
4804.00	--	AV	54	--	--	--	--	--	--
5112.75	43.55	PK	74	30.45	36.37	34.36	7.10	34.27	7.18
5112.75	--	AV	54	--	--	--	--	--	--
7206.00	45.74	PK	74	28.26	34.63	36.95	9.18	35.03	11.11
7206.00	--	AV	54	--	--	--	--	--	--

Frequency(MHz):			2440		Polarity:			HORIZONTAL	
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
4880.00	48.69	PK	74	25.31	44.04	33.60	6.95	35.90	4.65
4880.00	--	AV	54	--	--	--	--	--	--
5275.50	43.21	PK	74	30.79	35.74	34.62	7.19	34.33	7.47
5275.50	--	AV	54	--	--	--	--	--	--
7320.00	44.89	PK	74	29.11	33.20	37.46	9.23	35.00	11.69
7320.00	--	AV	54	--	--	--	--	--	--

Frequency(MHz):			2440		Polarity:			VERTICAL	
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
4880.00	48.98	PK	74	25.02	44.33	33.60	6.95	35.90	4.65
4880.00	--	AV	54	--	--	--	--	--	--
5052.25	44.15	PK	74	29.85	37.17	34.16	7.06	34.25	6.98
5052.25	--	AV	54	--	--	--	--	--	--
7320.00	44.77	PK	74	29.23	33.08	37.46	9.23	35.00	11.69
7320.00	--	AV	54	--	--	--	--	--	--

Frequency(MHz):			2480		Polarity:			HORIZONTAL	
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
4960.00	49.01	PK	74	24.99	44.09	33.84	7.00	35.92	4.92
4960.00	--	AV	54	--	--	--	--	--	--
5133.75	44.25	PK	74	29.75	37.02	34.40	7.11	34.28	7.23
5133.75	--	AV	54	--	--	--	--	--	--
7440.00	45.87	PK	74	28.13	33.92	37.64	9.28	34.97	11.95
7440.00	--	AV	54	--	--	--	--	--	--

Frequency(MHz):			2480		Polarity:			VERTICAL	
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
4960.00	49.14	PK	74	24.86	44.22	33.84	7.00	35.92	4.92
4960.00	--	AV	54	--	--	--	--	--	--
5212.50	44.33	PK	74	29.67	36.94	34.55	7.15	34.31	7.39
5212.50	--	AV	54	--	--	--	--	--	--
7440.00	45.97	PK	74	28.03	34.02	37.64	9.28	34.97	11.95
7440.00	--	AV	54	--	--	--	--	--	--

REMARKS:

1. Emission level (dBuV/m) =Raw Value (dBuV)+Correction Factor (dB/m)
2. Correction Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
3. Margin value = Limit value- Emission level.
4. -- Mean the PK detector measured value is below average limit.
5. The other emission levels were very low against the limit.
6. RBW1MHz VBW3MHz Peak detector is for PK value; RBW 1MHz VBW10Hz Peak detector is for AV value.

Results of Band Edges Test (Radiated)

Frequency(MHz):			2402		Polarity:			HORIZONTAL	
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
2402.00	88.58	PK	--	25.42	55.18	28.78	4.61	0.00	33.40
2402.00	79.24	AV	--	14.76	45.84	28.78	4.61	0.00	33.40
2387.50	38.25	PK	74	35.75	4.95	28.70	4.60	0.00	33.30
2387.50	--	AV	54	--	--	--	--	--	--
2390.00	45.25	PK	74	28.75	11.93	28.72	4.60	0.00	33.32
2390.00	--	AV	54	--	--	--	--	--	--
2400.00	47.52	PK	74	26.48	14.13	28.78	4.61	0.00	33.39
2400.00	--	AV	54	--	--	--	--	--	--

Frequency(MHz):			2402		Polarity:			VERTICAL	
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
2402.00	88.41	PK	--	25.59	55.01	28.78	4.61	0.00	33.40
2402.00	79.69	AV	--	14.31	46.29	28.78	4.61	0.00	33.40
2385.75	38.47	PK	74	35.53	5.18	28.69	4.59	0.00	33.29
2385.75	--	AV	54	--	--	--	--	--	--
2390.00	46.44	PK	74	27.56	13.12	28.72	4.60	0.00	33.32
2390.00	--	AV	54	--	--	--	--	--	--
2400.00	48.01	PK	74	25.99	14.62	28.78	4.61	0.00	33.39
2400.00	--	AV	54	--	--	--	--	--	--

Frequency(MHz):			2480		Polarity:			HORIZONTAL	
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
2480.00	88.98	PK	--	25.02	55.36	28.92	4.70	0.00	33.62
2480.00	79.65	AV	--	14.35	46.03	28.92	4.70	0.00	33.62
2483.50	38.41	PK	74	35.59	4.78	28.93	4.70	0.00	33.63
2483.50	--	AV	54	--	--	--	--	--	--
2485.75	44.58	PK	74	29.42	10.94	28.93	4.70	0.00	33.64
2485.75	--	AV	54	--	--	--	--	--	--
2500.00	47.12	PK	74	26.88	13.44	28.96	4.72	0.00	33.68
2500.00	--	AV	54	--	--	--	--	--	--

Frequency(MHz):			2480		Polarity:			VERTICAL	
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
2480.00	88.91	PK	--	25.09	55.29	28.92	4.70	0.00	33.62
2480.00	79.76	AV	--	14.24	46.14	28.92	4.70	0.00	33.62
2483.50	39.22	PK	74	34.78	5.59	28.93	4.70	0.00	33.63
2483.50	--	AV	54	--	--	--	--	--	--
2484.50	44.66	PK	74	29.34	11.02	28.93	4.70	0.00	33.64
2484.50	--	AV	54	--	--	--	--	--	--
2500.00	48.04	PK	74	25.96	14.36	28.96	4.72	0.00	33.68
2500.00	--	AV	54	--	--	--	--	--	--

REMARKS:

1. Emission level (dBuV/m) =Raw Value (dBuV)+Correction Factor (dB/m)
2. Correction Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
3. Margin value = Limit value- Emission level.
4. -- Mean the PK detector measured value is below average limit.
5. The other emission levels were very low against the limit.
6. RBW1MHz VBW3MHz Peak detector is for PK value; RBW 1MHz VBW10Hz Peak detector is for AV value.
7. For fundamental frequency, RBW 3MHz VBW 3MHz Peak detector is for PK Value; RMS detector is for AV value.

3.3. Maximum Conducted Output Power

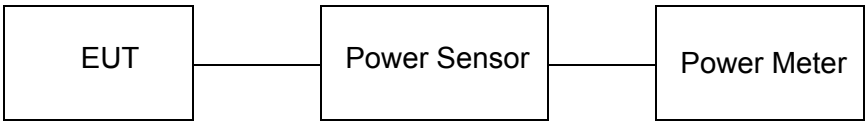
Limit

The Maximum Peak Output Power Measurement is 30dBm.

Test Procedure

Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power sensor.

Test Configuration



Test Results

BT4.0

Type	Channel	Output power (dBm)	Limit (dBm)	Result
GFSK	00	-1.628	30.00	Pass
	19	-2.542		
	39	-3.403		

Note: 1.The test results including the cable lose.

3.4. Power Spectral Density

Limit

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

Test Procedure

1. Use this procedure when the maximum peak conducted output power in the fundamental emission is used to demonstrate compliance.
2. Set the RBW ≥ 3 kHz.
3. Set the VBW ≥ 3× RBW.
4. Set the span to 1.5 times the DTS channel bandwidth.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum power level.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.
11. The resulting peak PSD level must be 8dBm.

Test Configuration

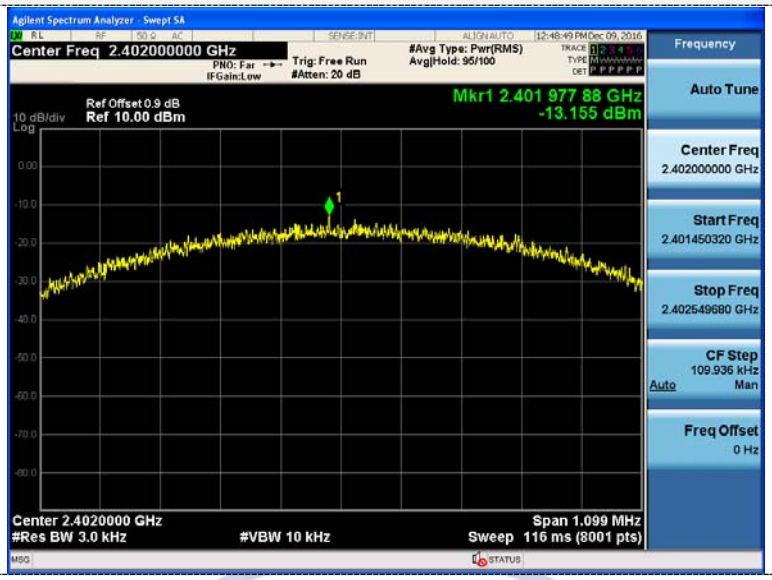
Test Results

BT4.0

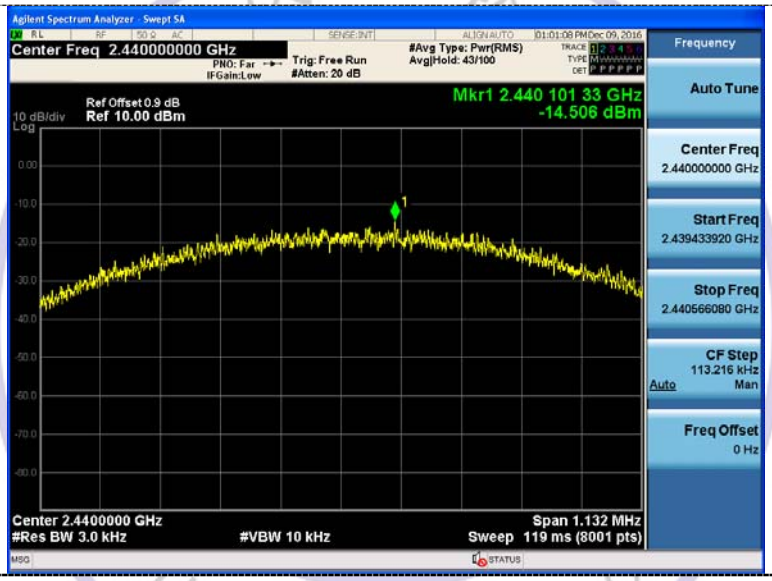
Type	Channel	Power Spectral Density (dBm/3KHz)	Limit (dBm/3KHz)	Result
GFSK	00	-13.155	8.00	Pass
	19	-14.506		
	39	-16.299		

Test plot as follows:

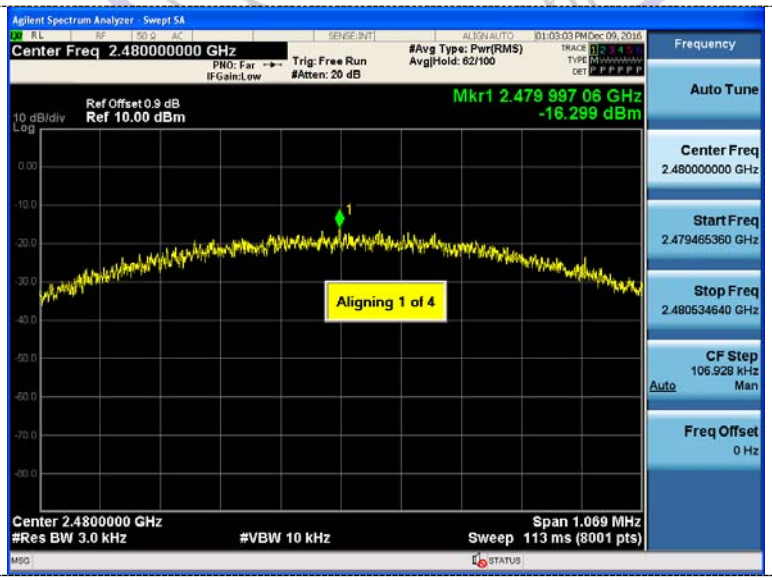
BT4.0



CH00



CH19



CH39

3.5. 6dB Bandwidth

Limit

For digital modulation systems, the minimum 6 dB bandwidth shall be at least 500 kHz

Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100 KHz RBW and 300 KHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

Test Configuration

Test Results

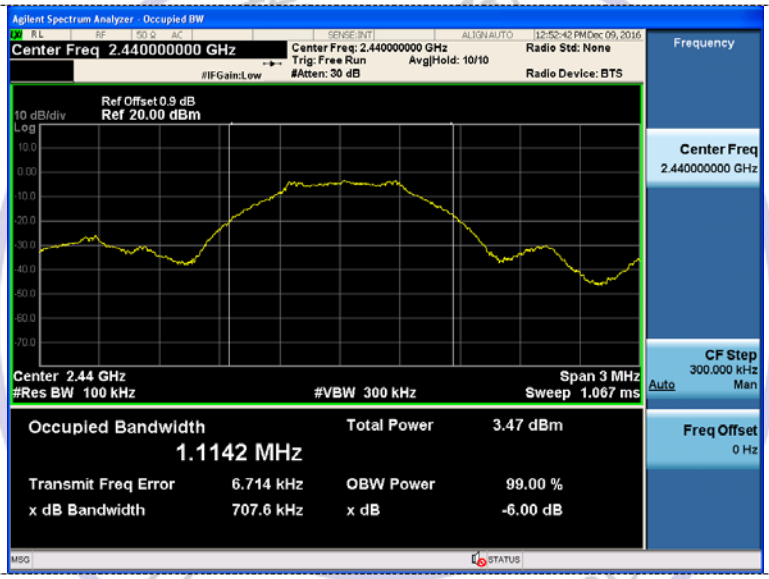
BT4.0

Type	Channel	6dB Bandwidth (MHz)	99% OBW (MHz)	Limit (KHz)	Result
GFSK	00	0.6871	1.2140	≥500	Pass
	19	0.7076	1.1142		
	39	0.6683	1.0897		

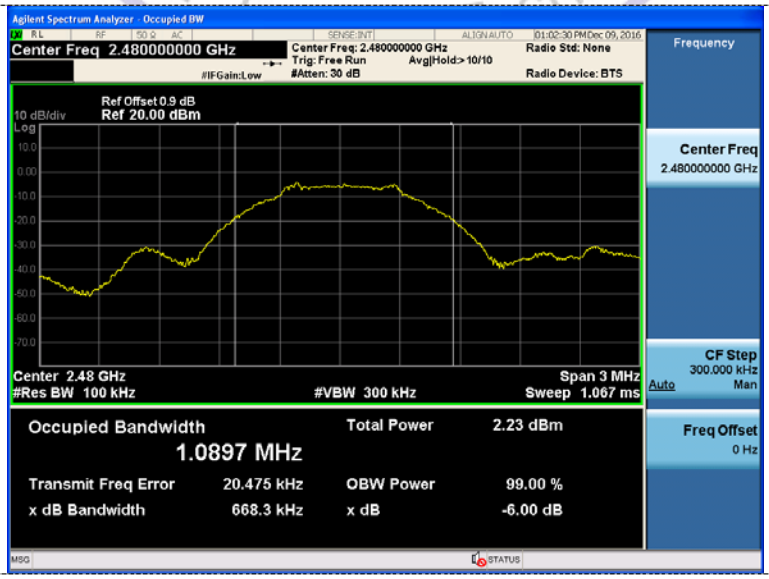
Test plot as follows:

BT4.0

CH00



CH19



CH39

3.6. Out-of-band Emissions

Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF con-ducted or a radiated measurement, pro-vided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter com-plies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

Test Procedure

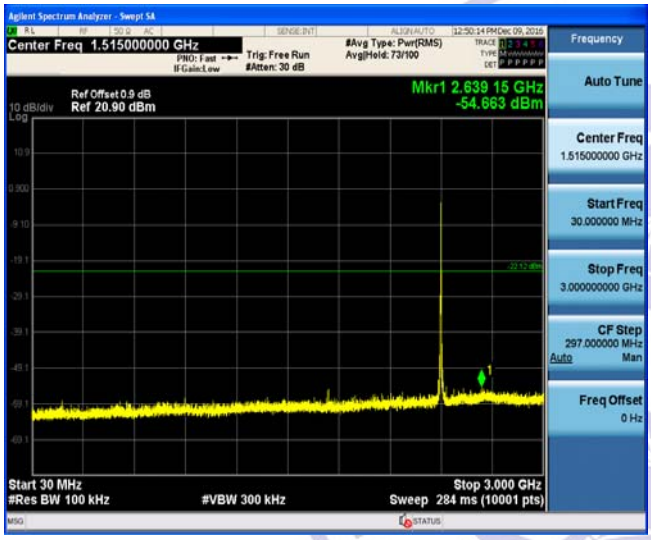
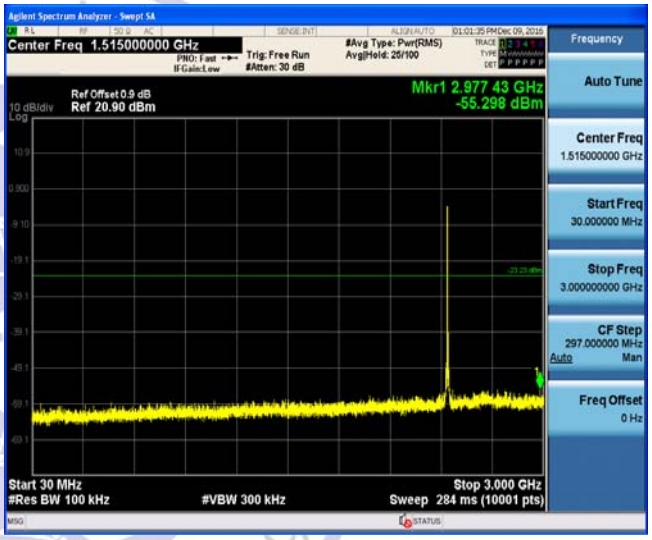
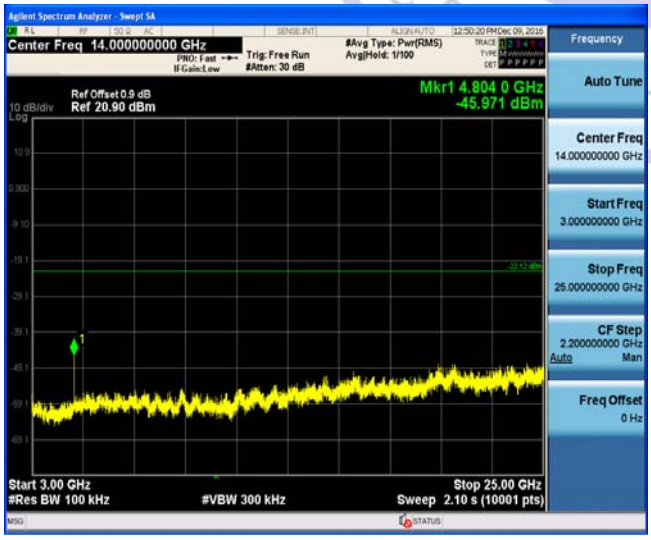
Connect the transmitter output to spectrum analyzer using a low loss RF cable, and set the spectrum analyzer to RBW=100 kHz, VBW= 300 kHz, peak detector , and max hold. Measurements utilizing these setting are made of the in-band reference level, bandedge and out-of-band emissions.

Test Configuration

Test Results

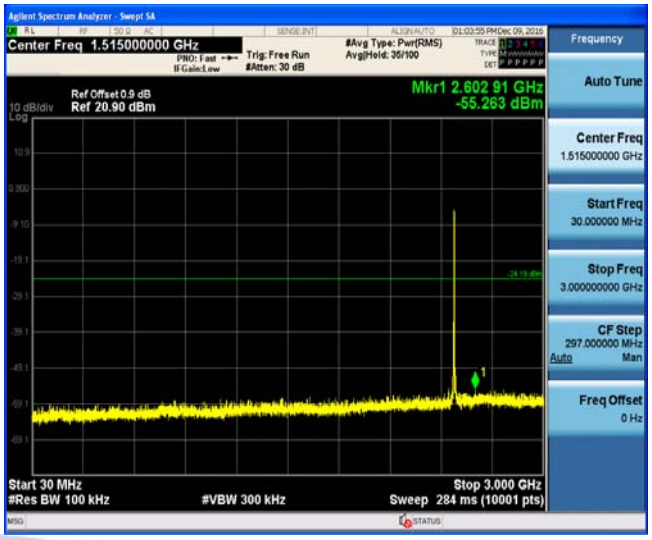
Remark: The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the spurious emissions and bandage measurement data.

Test plot as follows:

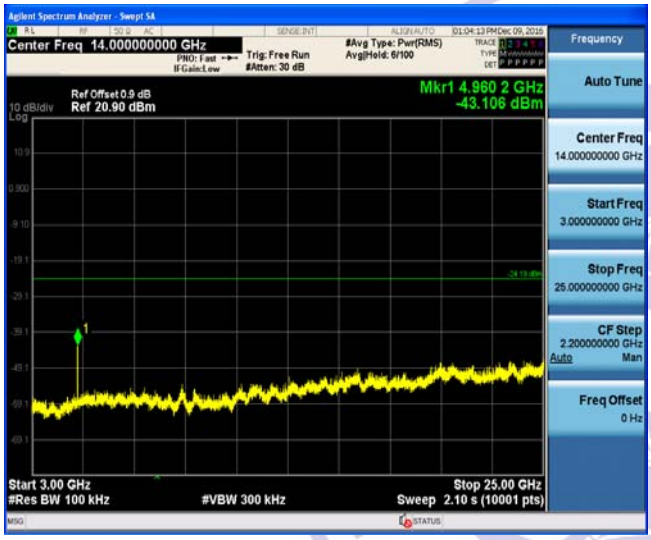
BT4.0 CH00	*BT4.0 CH19*
	
Reference	Reference
	
30MHz-3GHz	30MHz-3GHz
	
3GHz-25GHz	3GHz-25GHz

BT4.0 CH39

Reference

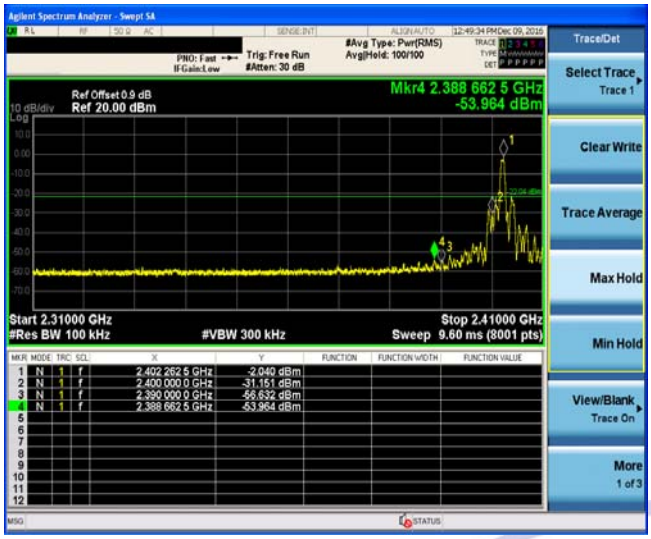
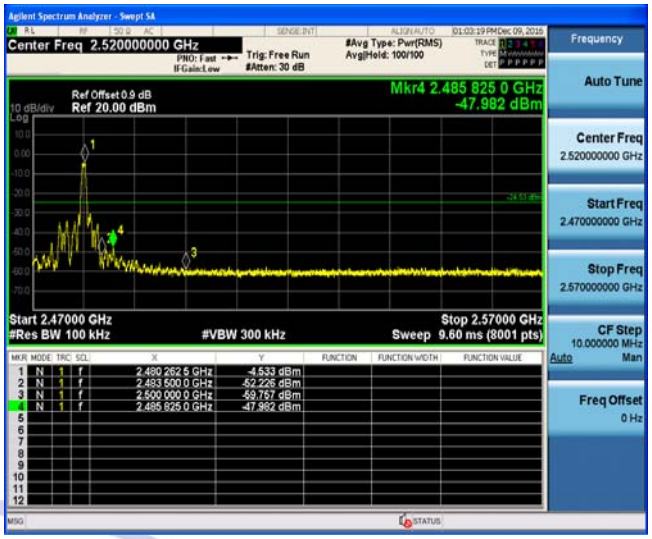


30MHz-3GHz



3GHz-25GHz

Band-edge Measurements for RF Conducted Emissions:

BT4.0	
	
Left bandedge	Right bandedge

3.7. Antenna Requirement

Standard Applicable

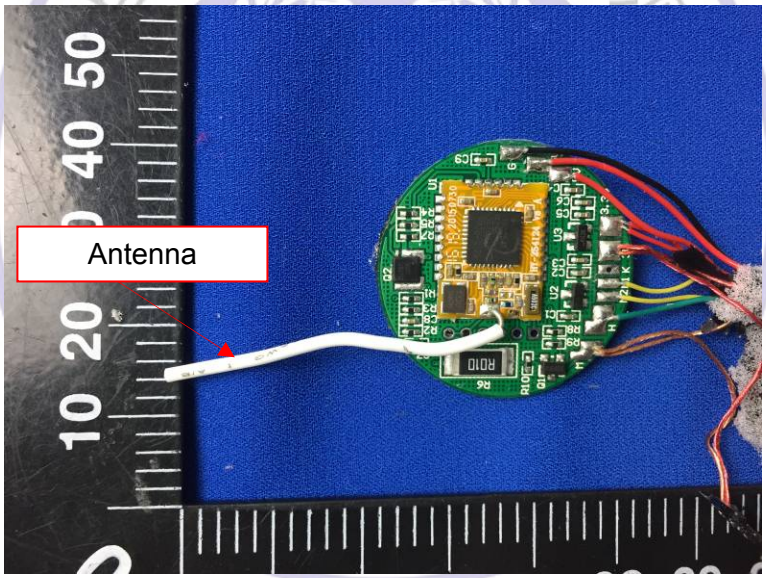
For intentional device, according to FCC 47 CFR Section 15.203:

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, 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

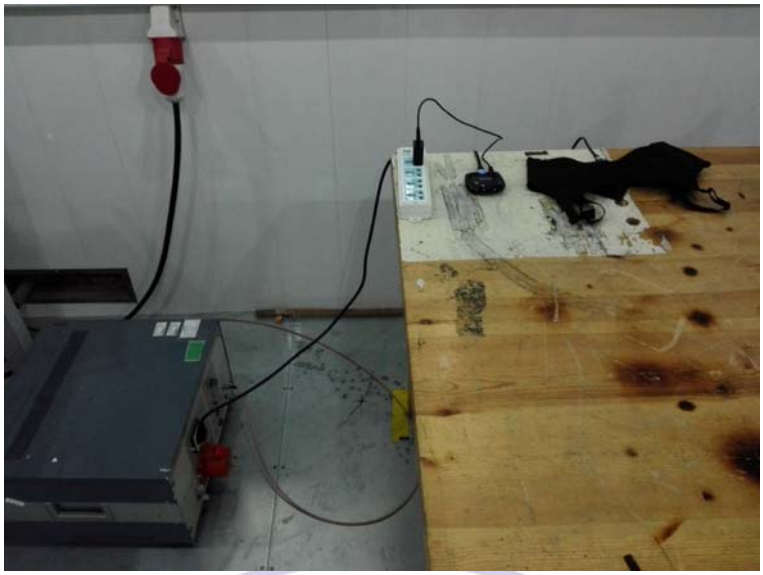
FCC CFR Title 47 Part 15 Subpart C Section 15.247(c) (1) (I):

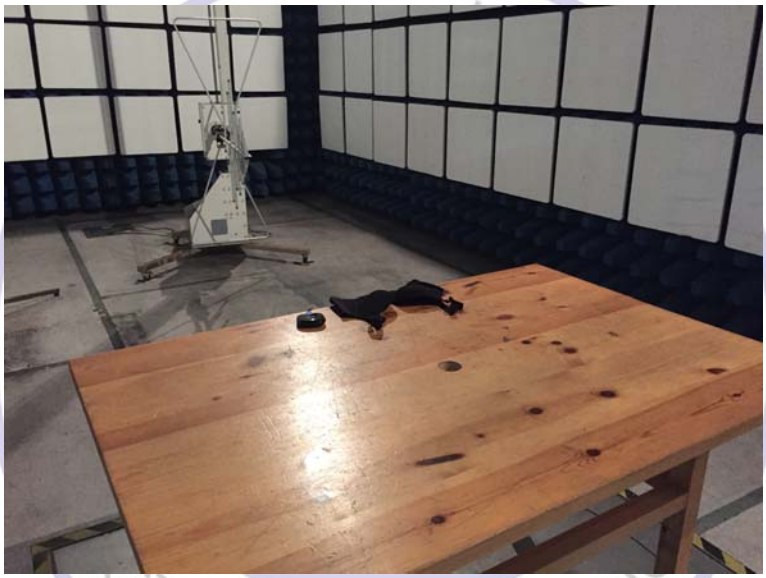
(i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

Test Result:
The maximum gain of antenna was 0dBi.



4. Test Setup Photos of the EUT



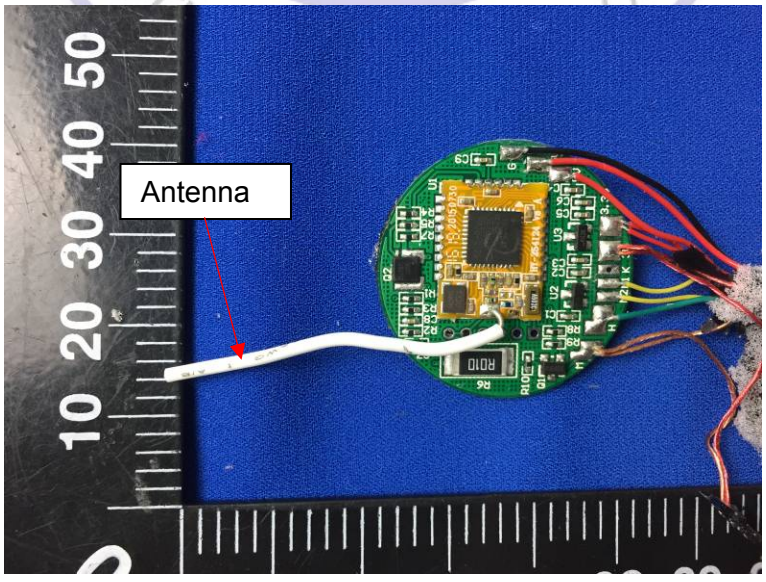


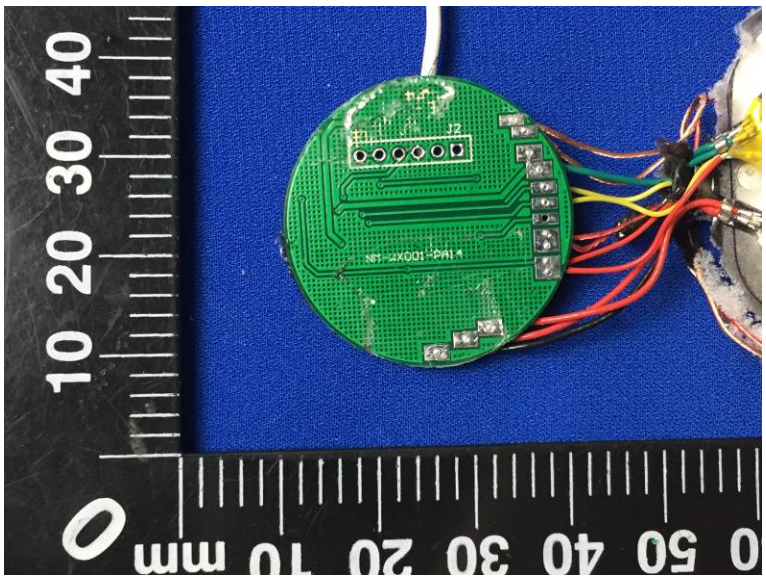
5. External and Internal Photos of the EUT

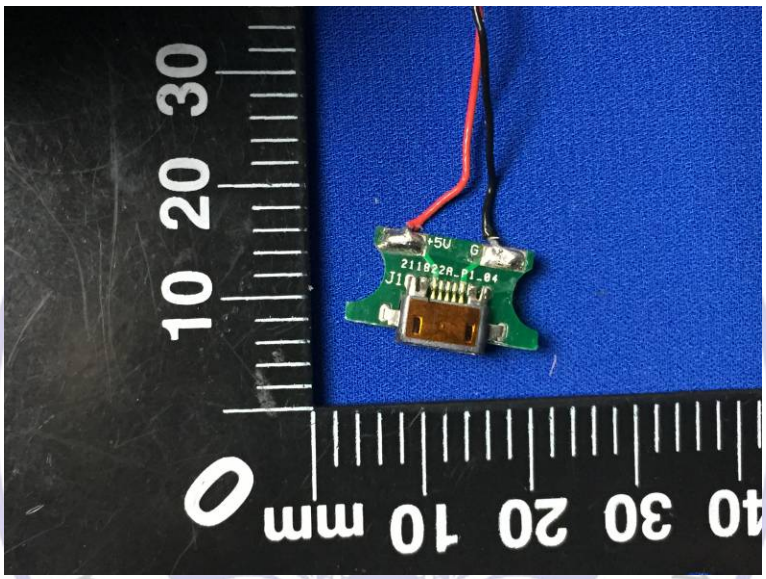
External photos

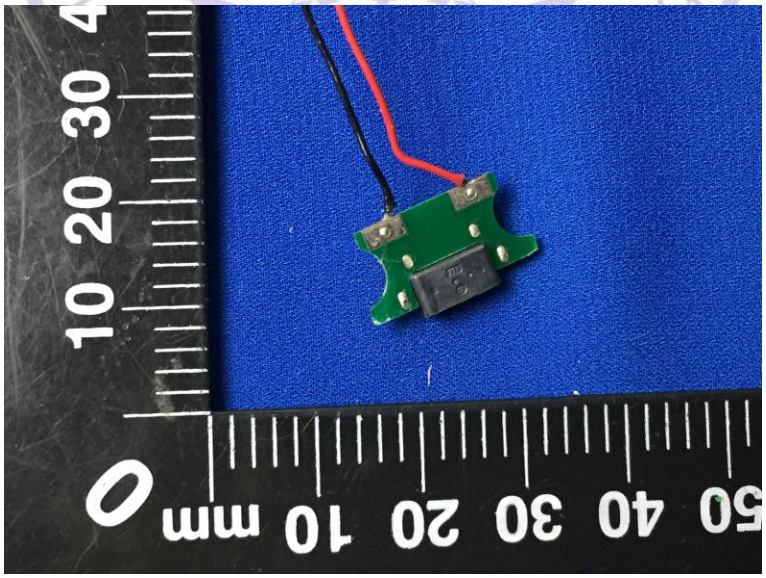

Name:Power bank Input: DC5V⎓2.0A
Capacity:3000mAh Output:DC5V⎓2.0A

Internal photos









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