FCC RADIO TEST REPORT
FCC ID: 2ABGJMNBWS100

Product：	BLUETOOTH BODY SCALE
Trade Name：	N/A
Model Number：	MN-BWS100
Serial Model：	N/A
Report No.：	STS1704192F01

Prepared for

Portal 724, LLC

275 Hartz Way:: 105, Secaucus, New Jersey, United States 07094

Prepared by

BZT Testing Technology Co., Ltd.

1/F, Building E, Fenda Science Park, Sanwei Community,Xixiang Street
Bao'an District, Shenzhen P.R. China

TEST RESULT CERTIFICATION

Applicant's name ..... Portal 724, LLC

Address ..... 275 Hartz Way:: 105, Secaucus, New Jersey, United States 07094

Manufacture's Name ..... Portal 724, LLC

Address ..... 275 Hartz Way:: 105, Secaucus, New Jersey, United States 07094

Product description

Product name ..... BLUETOOTH BODY SCALE

Model and/or type reference MN-BWS100

Serial Model： N/A

Ratings DC 3V form by 4 AA battery

Standards ..... FCC Part15.247

Test procedure ..... ANSI C63.4-2009

This device described above has been tested by BZT, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Date of Test .....

Date (s) of performance of tests..... Apr 28, 2017 - May 10, 2017

Date of Issue ..... May 10, 2017

Test Result ..... **Pass**

Testing Engineer **:** 

(Leo li)

Technical Manager **:** 

(Tony liu)

Authorized Signatory **:** 

(Vita Li)

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1. SUMMARY OF TEST RESULTS

FCC Part 15.247,Subpart C

Standard Section	Test Item	Judgment	Remark
15.207	Conducted Emission	N/A	--
15.247 (a)(2)	6dB Bandwidth	PASS	--
15.247 (b)(3)	Output Power	PASS	--
15.247 (c)	Radiated Spurious Emission	PASS	--
15.247 (d)	Conducted Spurious & Band Edge Emission	PASS	--
15.247 (e)	Power Spectral Density	PASS	--
15.205	Restricted Band Edge Emission	PASS	--
Part 15.247(d)/part 15.209(a)	Band Edge Emission	PASS	--
15.203	Antenna Requirement	PASS	--

NOTE:

(1) ”N/A” denotes test is not applicable in this Test Report

(2) All tests are according to ANSI C63.10-2013

NOTE:

(1)” N/A” denotes test is not applicable in this Test Report

1.1 TEST FACILITY

BZT Testing Technology Co., Ltd
Add. : 1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen P.R. China.
FCC Registration No.: 701733

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y ± U**，where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**，providing a level of confidence of approximately **95** %。

No.	Item	Uncertainty
1	Conducted Emission Test	±1.38dB
2	RF power,conducted	±0.16dB
3	Spurious emissions,conducted	±0.21dB
4	All emissions,radiated(<1G)	±4.68dB
5	All emissions,radiated(>1G)	±4.89dB
6	Temperature	±0.5°C
7	Humidity	±2%

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	BLUETOOTH BODY SCALE
Trade Name	N/A
Model Name	MN-BWS100
Serial Model	N/A
Model Difference	N/A
Product Description	The EUT is a BLUETOOTH BODY SCALE Operation Frequency: 2402~2480 MHz Modulation Type: FHSS Bit Rate of Transmitter GFSK Number Of Channel 40 CH Antenna Designation: Please see Note 3. Antenna Gain(Peak) 3.6dBi Output Power(Conducted): -10.73 dBm (Max.) Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.
Channel List	Please refer to the Note 2.
Adapter	N/A
Battery	DC 3 V form by 4 AA battery
Connecting I/O Port(s)	Please refer to the User's Manual

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
2.

Channel List

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2402	11	2422	21	2442	31	2462
02	2404	12	2424	22	2444	32	2464
03	2406	13	2426	23	2446	33	2466
04	2408	14	2428	24	2448	34	2468
05	2410	15	2430	25	2450	35	2470
06	2412	16	2432	26	2452	36	2472
07	2414	17	2434	27	2454	37	2474
08	2416	18	2436	28	2456	38	2476
09	2418	19	2438	29	2458	39	2478
10	2420	20	2442	30	2460	40	2480

3.

Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	NOTE
1	N/A	N/A	PIFA Antenna	NA	3.60	BT 4.0 ANT

The EUT antenna is integral Antenna. no antenna other than that furnished by the responsible party shall be used with the device.

2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	TX CH01(2402MHz)
Mode 2	TX CH21(2442MHz)
Mode 3	TX CH40(2480MHz)

For Radiated Emission	
Final Test Mode	Description
Mode 1	TX CH01(2402MHz)
Mode 2	TX CH21(2442MHz)
Mode 3	TX CH40(2480MHz)
Mode4	Link mode

Note:

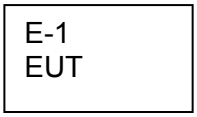
(1) The measurements are performed at the highest, middle, lowest available channels.

2.3 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of FHSS

Test software Version	Test program: ActivePerl		
Frequency	2402 MHz	2442 MHz	2480 MHz
Parameters(1Mbps)	DEF	DEF	DEF

2.4 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



2.5 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	iPhone	iPhone	iPhone 6 plus	N/A	/

Item	Shielded Type	Ferrite Core	Length	Note

Note:

(1) The support equipment was authorized by Declaration of Confirmation.
(2) For detachable type I/O cable should be specified the length in cm in『Length』column.
(3) “YES” is means “shielded” “with core”; “NO” is means “unshielded” “without core”.

2.6 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation Test equipment

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
Spectrum Analyzer	Agilent	E4407B	MY50140340	2016.10.23	2017.10.22
Test Receiver	R&S	ESCI	101427	2016.10.23	2017.10.22
Bilog Antenna	TESEQ	CBL6111D	34678	2014.11.24	2017.11.23
Horn Antenna	Schwarzbeck	BBHA 9120D(1201)	9120D-1343	2015.03.05	2018.03.04
Horn Antenna	Schwarzbeck	BBHA 9170	9170-0741	2016.03.06	2019.03.05
50Ω Coaxial Switch	Anritsu	MP59B	6200264416	2016.06.06	2017.06.05
PreAmplifier	Agilent	8449B	60538	2016.10.23	2017.10.22
Loop Antenna	EMCO	6502	9003-2485	2016.03.06	2019.03.05
Preamplifier	Agilent	8449B	60538	2016.10.23	2017.10.22
Low frequency cable	EM	R01	N/A	NCR	NCR
High frequency cable	SCHWARZBECK	AK9515H	SN-96286/96287	NCR	NCR
Semi-anechoic chamber	Changling	966	N/A	2016.10.23	2017.10.22

Conduction Test equipment

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
EMI Test Receiver	R&S	ESPI	102086	2016.10.23	2017.10.22
LISN	R&S	ENV216	101242	2016.10.23	2017.10.22
LISN	EMCO	3810/2NM	000-23625	2016.10.23	2017.10.22
Conduction Cable	EM	C01	N/A	NCR	NCR
Shielding Room	Changling	854	N/A	2016.10.23	2017.10.22

RF Connected Test

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
USB RF power sensor	DARE	RPR3006W	15I00041SNO03	2016.10.23	2017.10.22
Spectrum Analyzer	Agilent	E4407B	MY50140340	2016.10.23	2017.10.22
Signal Analyzer	Agilent	N9020A	MY49100060	2016.10.23	2017.10.22

Note: The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.

3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)		Standard
	Quasi-peak	Average	Quasi-peak	Average	
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	CISPR
0.50 -5.0	73.00	60.00	56.00	46.00	CISPR
5.0 -30.0	73.00	60.00	60.00	50.00	CISPR
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	73.00	60.00	56.00	46.00	FCC
5.0 -30.0	73.00	60.00	60.00	50.00	FCC

Note:

(1) The tighter limit applies at the band edges.

(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

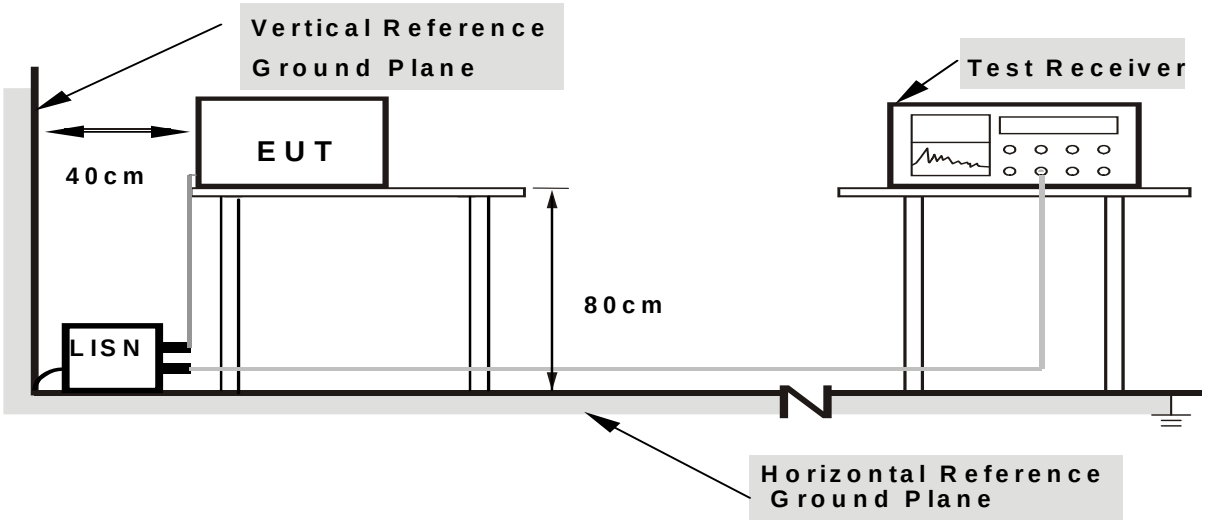
3.1.2 TEST PROCEDURE

a. The EUT was placed 0.4 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.1.3 DEVIATION FROM TEST STANDARD

No deviation

3.1.4 TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

3.1.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

3.1.6 TEST RESULTS

EUT：	BLUETOOTH BODY SCALE	Model Name. ：	MN-BWS100
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1010hPa	Phase：	L
Test Voltage ：	N/A	Test Mode：	N/A
Note: EUT power supply by battery, so the test not applicable.			

3.2 RADIATED EMISSION MEASUREMENT

3.2.1 RADIATED EMISSION LIMITS (Frequency Range 9kHz-1000MHz)

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/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

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	Class A (dBuV/m) (at 3M)		Class B (dBuV/m) (at 3M)	
	PEAK	AVERAGE	PEAK	AVERAGE
Above 1000	80	60	74	54

Notes:

(1) The limit for radiated test was performed according to FCC PART 15C.

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

3.2.2 TEST PROCEDURE

a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

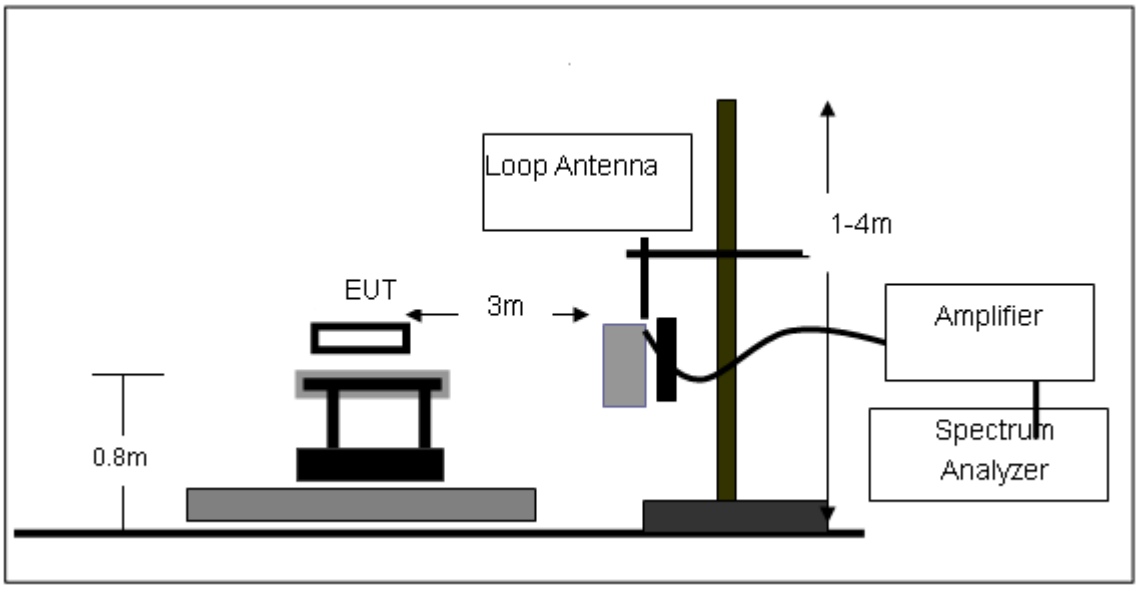
Both horizontal and vertical antenna polarities were tested
and performed pretest to three orthogonal axis. The worst case emissions were reported

3.2.3 DEVIATION FROM TEST STANDARD

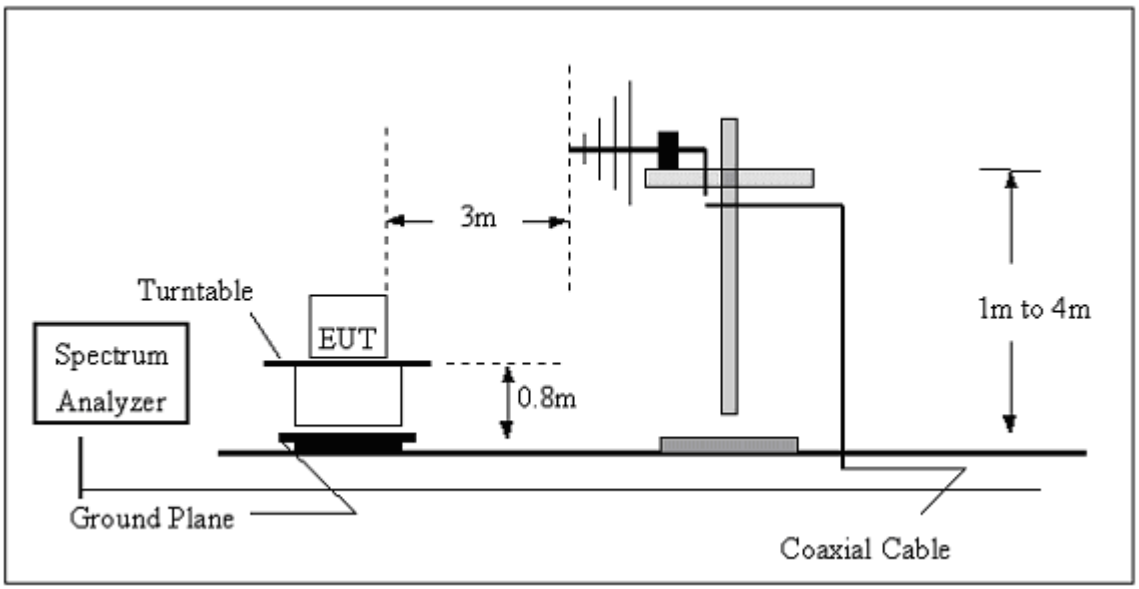
No deviation

3.2.4 TEST SETUP

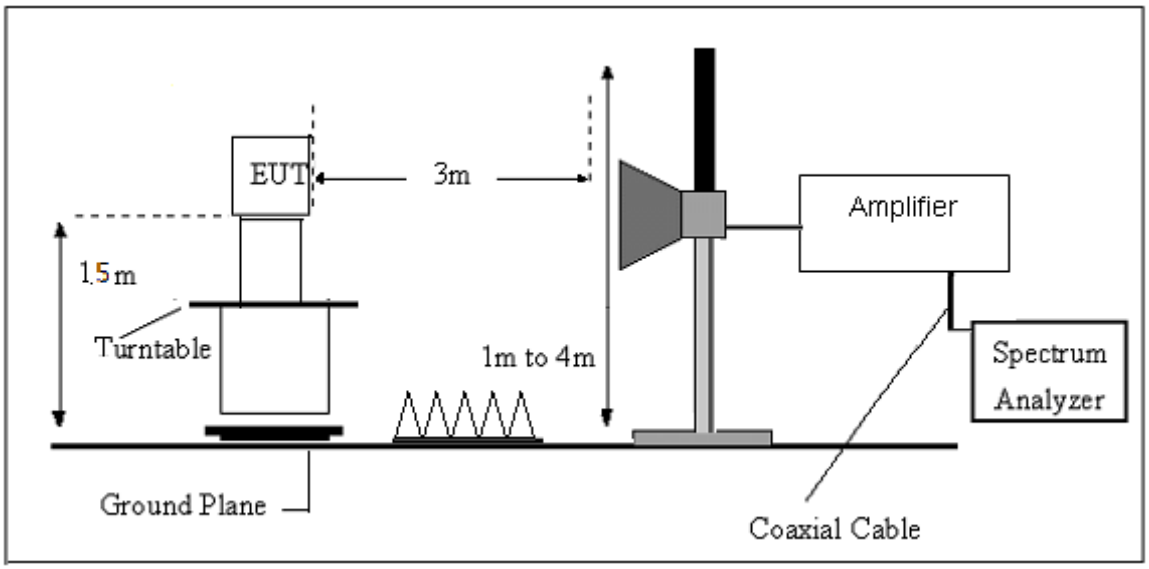
（A）Radiated Emission Test-Up Frequency Below 30MHz



（B）Radiated Emission Test-Up Frequency 30MHz~1GHz



（C）Radiated Emission Test-Up Frequency Above 1GHz



3.2.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

3.2.6 TEST RESULTS (BELOW 30 MHZ)

EUT：	BLUETOOTH BODY SCALE	Model Name ：	MN-BWS100
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Polarization :	---
Test Voltage ：	DC 3.0V from battery		
Test Mode ：	Link mode		

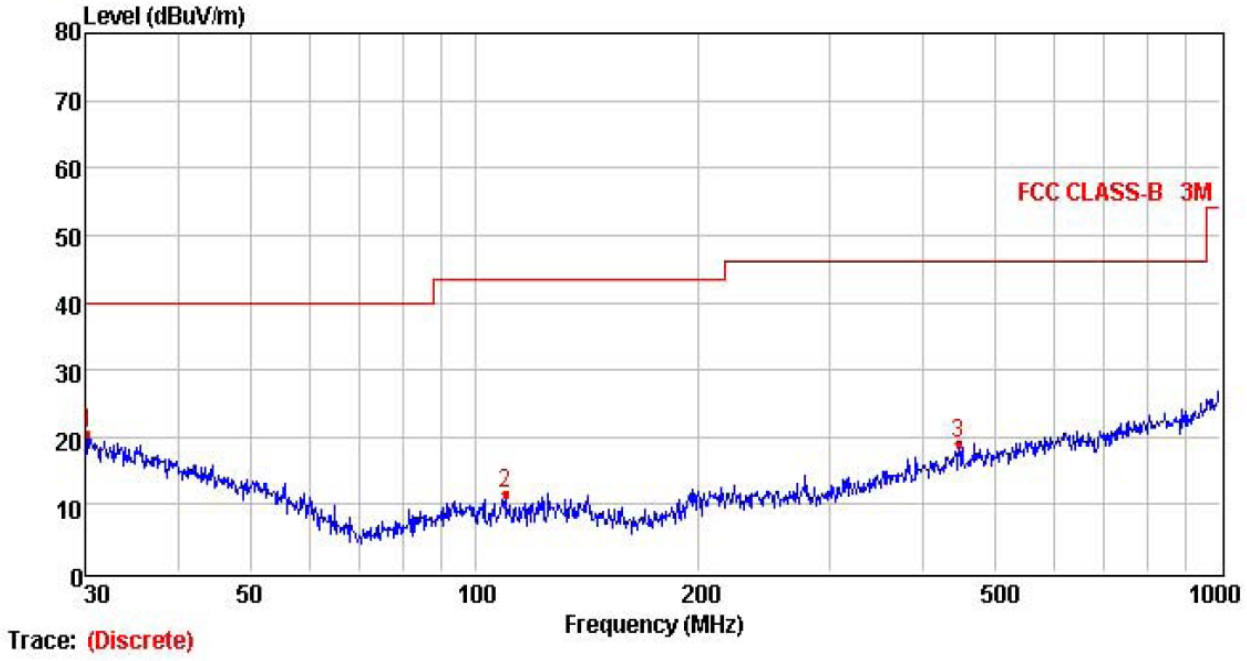
Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	PASS
--	--	--	--	PASS

NOTE:
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
Distance extrapolation factor =40 log (specific distance/test distance)(dB);
Limit line = specific limits(dBuv) + distance extrapolation factor.

3.2.7 TEST RESULTS (BETWEEN 30M – 1000 MHZ)

EUT：	BLUETOOTH BODY SCALE	Model Name ：	MN-BWS100
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Polarization：	Horizontal
Test Voltage ：	DC 3.0V from battery		
Test Mode ：	Link mode		

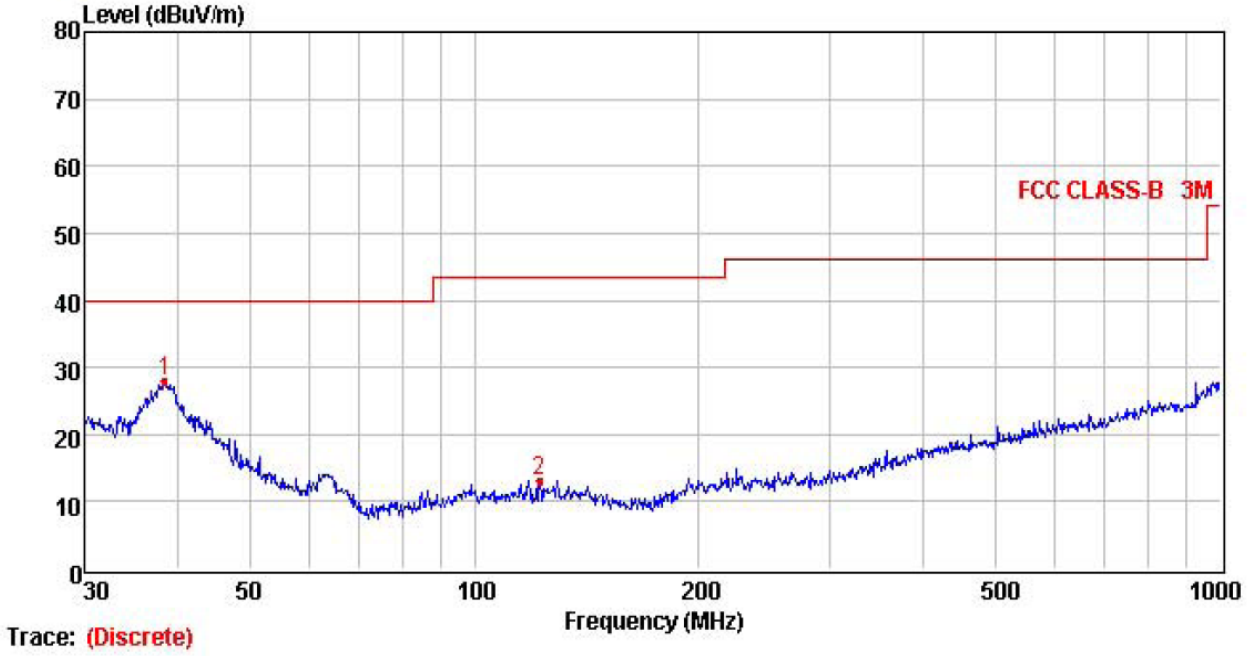
Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.



Mark	Frequency MHz	Level dBuV	Factor dB	Reading dBuV	Limit dB	Margin dB	Polarization	Detector
1	30.21	20.55	-4.58	25.13	40.00	19.45	HORIZONTAL	Peak
2	109.80	11.55	-14.95	26.50	43.50	31.95	HORIZONTAL	Peak
3	446.41	19.14	-8.79	27.93	46.00	26.86	HORIZONTAL	Peak

EUT：	BLUETOOTH BODY SCALE	Model Name ：	MN-BWS100
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Polarization：	Vertical
Test Voltage ：	DC 3.0V from battery		
Test Mode ：	Link mode		

Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.



Mark	Frequency MHz	Level dBuV	Factor dB	Reading dBuV	Limit dB	Margin dB	Polarization	Detector
1	38.48	27.94	-8.13	36.07	40.00	12.06	VERTICAL	Peak
2	122.40	13.18	-14.57	27.75	43.50	30.32	VERTICAL	Peak

3.2.8 TEST RESULTS (ABOVE 1000 MHZ)

EUT：	BLUETOOTH BODY SCALE	Model Name ：	MN-BWS100
Temperature：	25 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 3.0V from battery
Test Mode ：	TX 2402MHz – CH 01(1Mbps)	Polarization :	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4804	54.21	-3.64	50.57	74	-23.43	peak
4804	46.14	-3.64	42.5	54	-11.5	AVG
7206	53.37	-0.95	52.42	74	-21.58	peak
7206	45.28	-0.95	44.33	54	-9.67	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT：	BLUETOOTH BODY SCALE	Model Name ：	MN-BWS100
Temperature：	25 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 3.0V from battery
Test Mode ：	TX 2402MHz – CH 01(1Mbps)	Polarization :	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4804	54.7	-3.64	51.06	74	-22.94	peak
4804	46.62	-3.64	42.98	54	-11.02	AVG
7206	52.16	-0.95	51.21	74	-22.79	peak
7206	43.91	-0.95	42.96	54	-11.04	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT：	BLUETOOTH BODY SCALE	Model Name ：	MN-BWS100
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 3.0V from battery
Test Mode ：	TX 2442MHz – CH 21(1Mbps)	Polarization :	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4884	55.47	-3.68	51.79	74	-22.21	peak
4884	47.82	-3.68	44.14	54	-9.86	AVG
7326	50.25	-0.82	49.43	74	-24.57	peak
7326	43.17	-0.82	42.35	54	-11.65	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT：	BLUETOOTH BODY SCALE	Model Name ：	MN-BWS100
Temperature：	25 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 3.0V from battery
Test Mode ：	TX 2442MHz – CH 21(1Mbps)	Polarization :	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4884	52.19	-3.68	48.51	74	-25.49	peak
4884	42.47	-3.68	38.79	54	-15.21	AVG
7326	48.65	-0.82	47.83	74	-26.17	peak
7326	41.33	-0.82	40.51	54	-13.49	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT：	BLUETOOTH BODY SCALE	Model Name ：	MN-BWS100
Temperature：	25 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 3.0V from battery
Test Mode ：	TX 2480MHz – CH 40(1Mbps)	Polarization :	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4960	58.72	-3.59	55.13	74	-18.87	peak
4960	47.25	-3.59	43.66	54	-10.34	AVG
7440	52.23	-0.69	51.54	74	-22.46	peak
7440	41.62	-0.69	40.93	54	-13.07	AVG

Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

EUT：	BLUETOOTH BODY SCALE	Model Name ：	MN-BWS100
Temperature：	25 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 3.0V from battery
Test Mode ：	TX 2480MHz – CH 40(1Mbps)	Polarization :	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4960	55.62	-3.59	52.03	74	-21.97	peak
4960	43.23	-3.59	39.64	54	-14.36	AVG
7440	48.37	-0.69	47.68	74	-26.32	peak
7440	42.55	-0.69	41.86	54	-12.14	AVG

Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

3.2.9 TEST RESULTS (RESTRICTED BANDS REQUIREMENTS)

EUT：	BLUETOOTH BODY SCALE	Model Name ：	MN-BWS100
Temperature：	25 ℃	Relative Humidity：	60%
Pressure：	1012 hPa	Polarization：	Horizontal
Test Voltage ：	DC 3.0V from battery		
Test Mode ：	CH01 /CH40 (1Mbps Mode)		

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector	Comment
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	Type	
GFSK- non-hopping							
2390	62.14	-12.99	49.15	74	-24.85	peak	Vertical
2390	61.13	-12.99	48.14	74	-25.86	peak	Horizontal
2483.5	52.45	-12.78	39.67	74	-34.33	peak	Vertical
2483.5	53.34	-12.78	40.56	74	-33.44	peak	Horizontal
GFSK- hopping							
2390	58.25	-12.99	45.26	74	-28.74	peak	Vertical
2390	58.07	-12.99	45.08	74	-28.92	peak	Horizontal
2483.5	51.23	-12.78	38.45	74	-35.55	peak	Vertical
2483.5	50.34	-12.78	37.56	74	-36.44	peak	Horizontal

NOTE: The result(PK) less than AV limite,No need shown AV result.

4. CONDUCTED SPURIOUS & BAND EDGE EMISSION

4.1 APPLIED PROCEDURES / LIMIT

According to FCC section 15.247(d), in any 100kHz 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 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

4.1.1 TEST PROCEDURE

Spectrum Parameter	Setting
Detector	Peak
Start/Stop Frequency	30 MHz to 10th carrier harmonic
RB / VB (emission in restricted band)	100 KHz/300 KHz
Trace-Mode:	Max hold

.

For Band edge

Spectrum Parameter	Setting
Detector	Peak
Start/Stop Frequency	Lower Band Edge: 2310 – 2404 MHz Upper Band Edge: 2478 – 2500 MHz
RB / VB (emission in restricted band)	100 KHz/300 KHz
Trace-Mode:	Max hold

4.1.2 DEVIATION FROM STANDARD

No deviation.

4.1.3 TEST SETUP

4.1.4 EUT OPERATION CONDITIONS

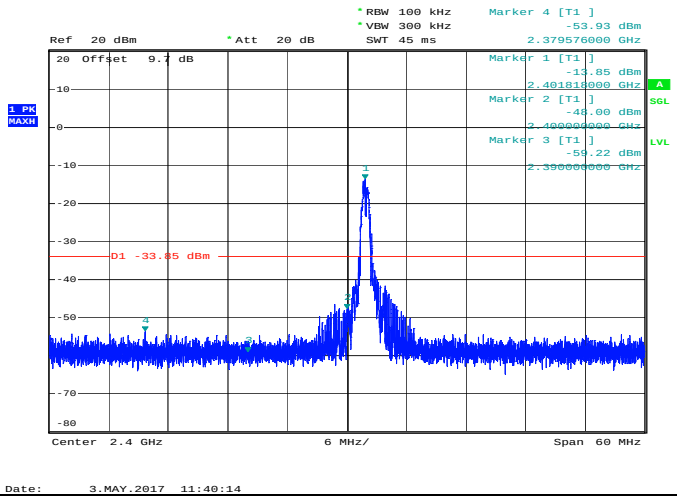
The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

4.1.5 TEST RESULTS

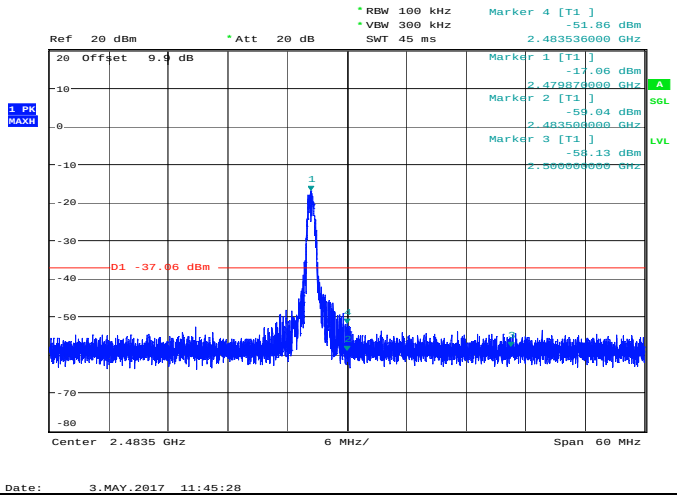
EUT：	BLUETOOTH BODY SCALE	Model Name ：	MN-BWS100
Temperature：	25 ℃	Relative Humidity：	60%
Pressure：	1015 hPa	Test Voltage ：	DC 3.0V from battery
Test Mode ：	CH01 / CH21 /CH40 (1Mbps Mode)		

Conducted measurements

TX CH01

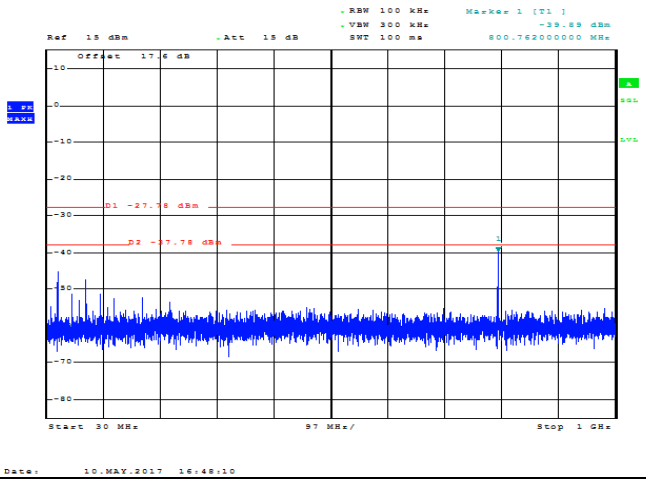


TX CH40

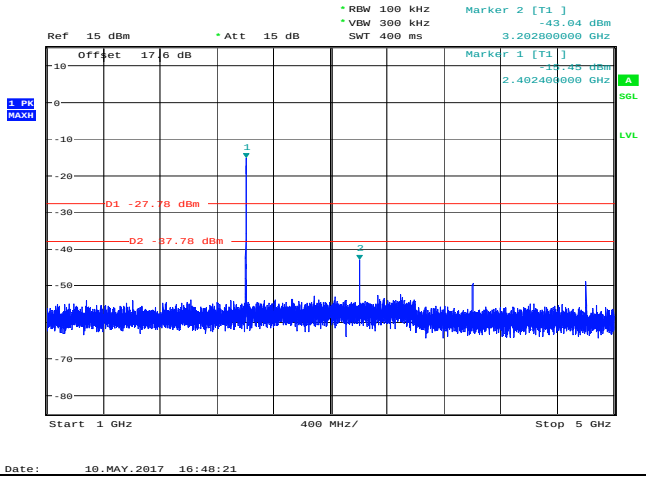


Conducted Emission

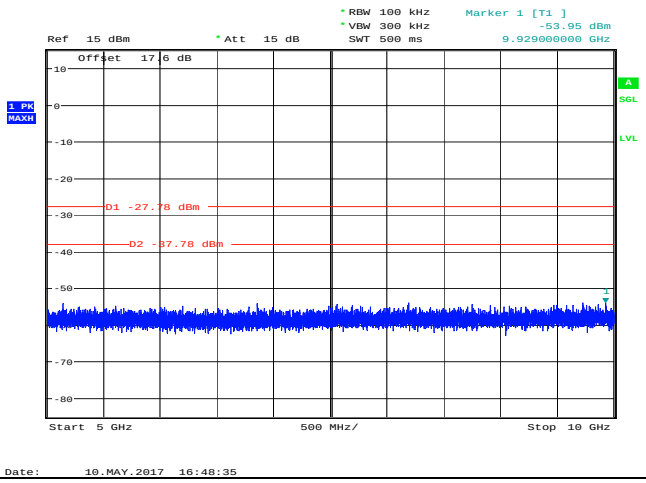
TX CH01
30MHz-1GHz



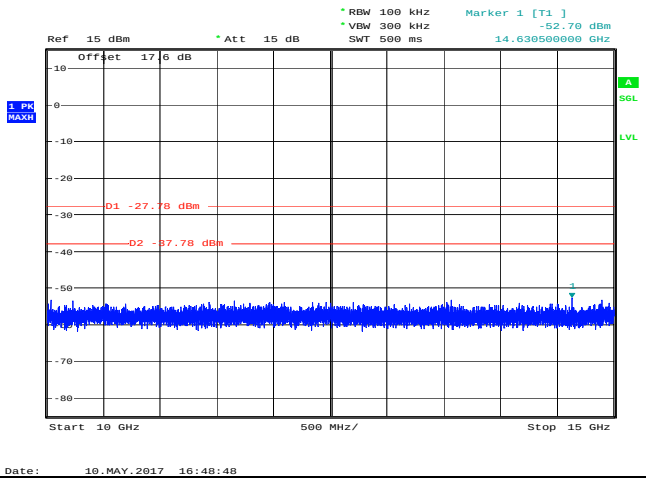
TX CH01
1GHz-5GHz



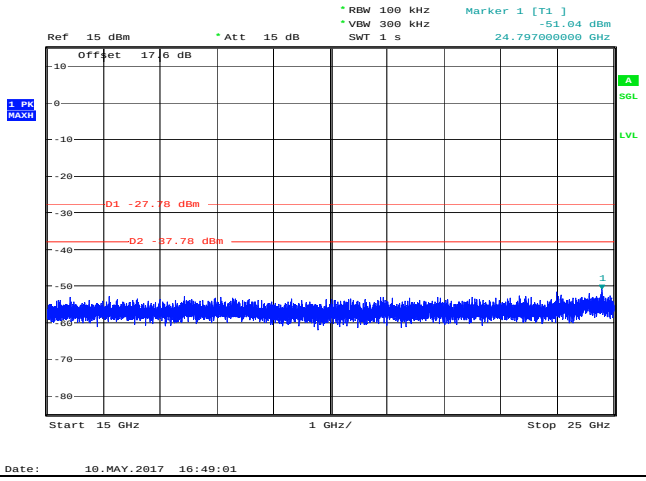
TX CH01
5GHz-10GHz



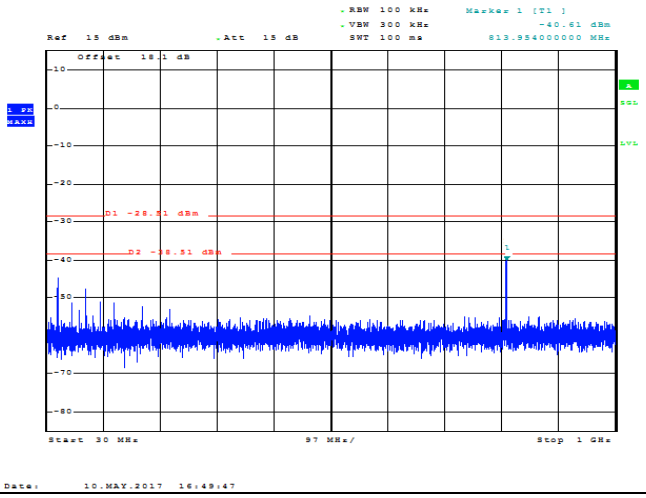
TX CH01
10GHz-15GHz



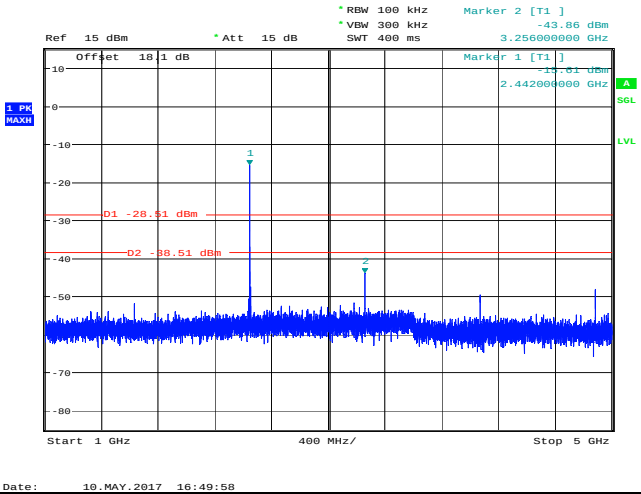
TX CH01
15GHz-25GHz



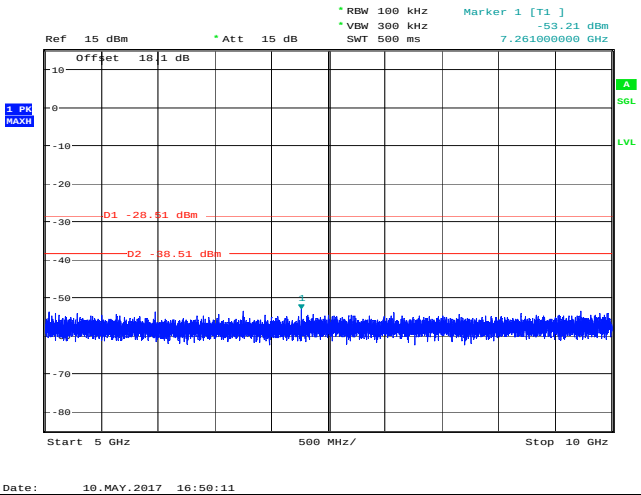
TX CH21
30MHz-1GHz



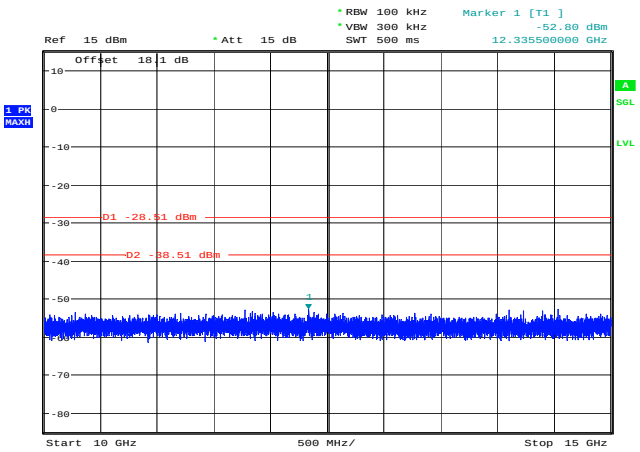
TX CH21
1GHz-5GHz



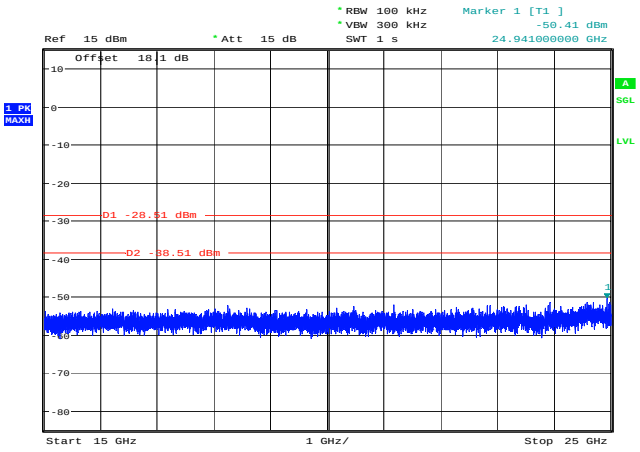
TX CH21
5GHz-10GHz



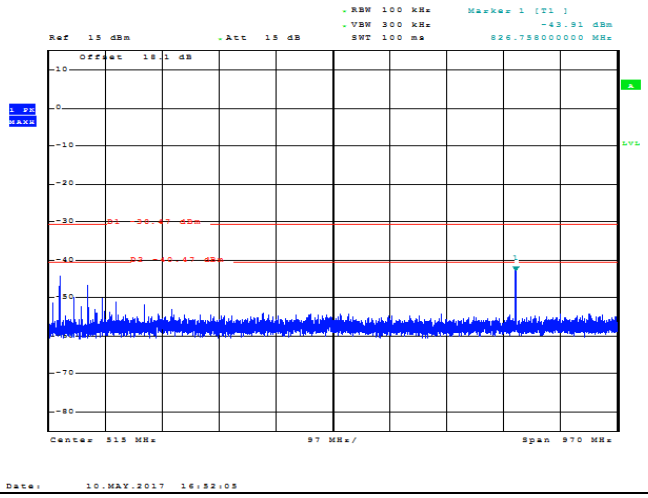
TX CH21
10GHz-15GHz



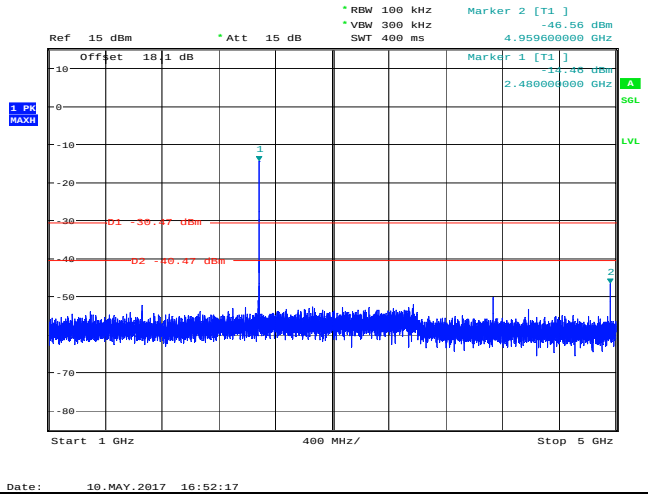
TX CH21
15GHz-25GHz



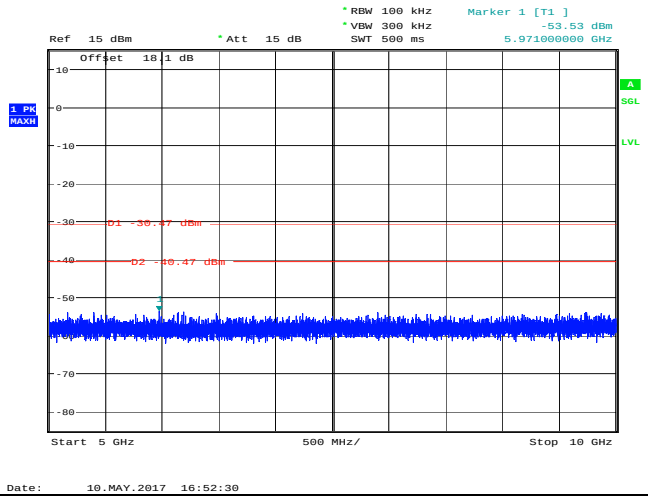
TX CH40
30MHz-1GHz



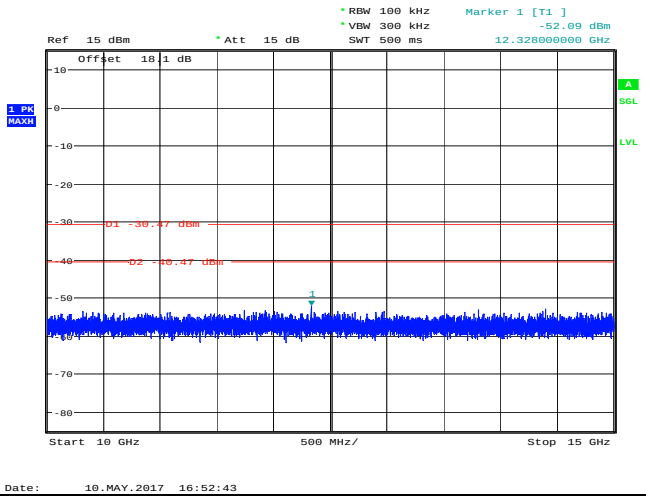
TX CH40
1GHz-5GHz



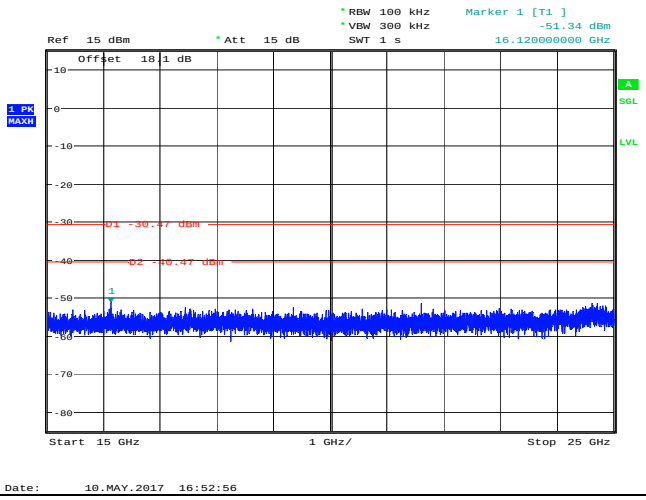
TX CH40
5GHz-10GHz



TX CH40
10GHz-15GHz



TX CH40
15GHz-25GHz



5. POWER SPECTRAL DENSITY TEST

5.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(e)	Power Spectral Density	≥15	2400-2483.5	PASS

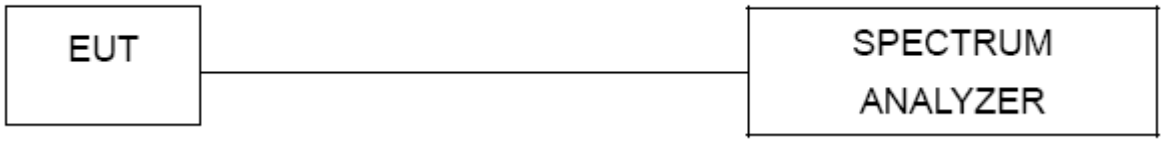
5.1.1 TEST PROCEDURE

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS channel bandwidth.
3. Set the RBW to: 100 kHz ≥ RBW ≥ 3 kHz.
4. Set the VBW ≥ 3 x RBW.
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 amplitude level.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

5.1.2 DEVIATION FROM STANDARD

No deviation.

5.1.3 TEST SETUP



5.1.4 EUT OPERATION CONDITIONS

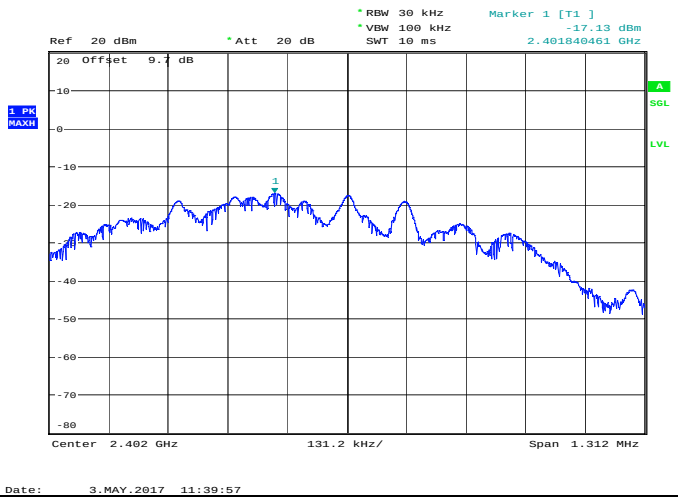
The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

5.1.5 TEST RESULTS

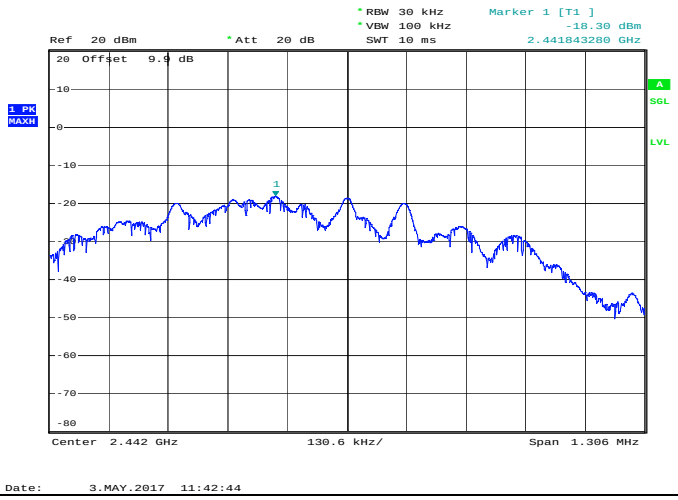
EUT：	BLUETOOTH BODY SCALE	Model Name ：	MN-BWS100
Temperature：	25 ℃	Relative Humidity：	60%
Pressure：	1015 hPa	Test Voltage ：	DC 3.0V from battery
Test Mode ：	CH01 / CH21 /CH40 (1Mbps Mode)		

Frequency		Power Density(dBm/3kHz)	Limit(dBm/3 KHz)	Result
1	2402 MHz	-17.130	≤8	PASS
2	2442 MHz	-18.300	≤8	PASS
3	2480 MHz	-20.850	≤8	PASS

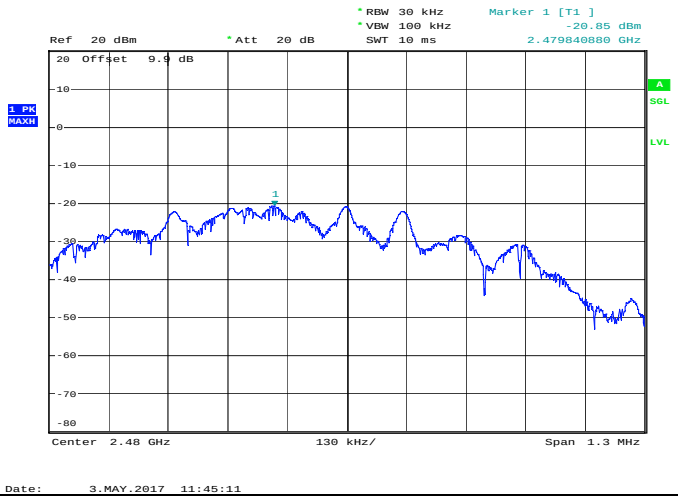
TX CH01



TX CH21



TX CH40


RBW 30 kHz
VBW 100 kHz
SWT 10 ms
Marker 1 [T1]
-20.85 dBm
2.479840880 GHz
Ref 20 dBm
Att 20 dB
Offset 9.9 dB
1 PK
MAXH
A
SGL
LVL
Center 2.48 GHz
130 kHz/
Span 1.3 MHz
Date: 3.MAY.2017 11:45:11

6. BANDWIDTH TEST

6.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(a)(2)	Bandwidth	>= 500KHz (6dB bandwidth)	2400-2483.5	PASS

6.1.1 TEST PROCEDURE

The automatic bandwidth measurement capability of an instrument may be employed using the X dB bandwidth mode with X set to 6 dB, if the functionality described above (i.e., RBW = 100 kHz, VBW≥3RBW, peak detector with maximum hold) is implemented by the instrumentation function. When using this capability, care shall be taken so that the bandwidth measurement is not influenced by any intermediate power nulls in the fundamental emission that might be≥6 dB.

6.1.2 DEVIATION FROM STANDARD

No deviation.

6.1.3 TEST SETUP

6.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

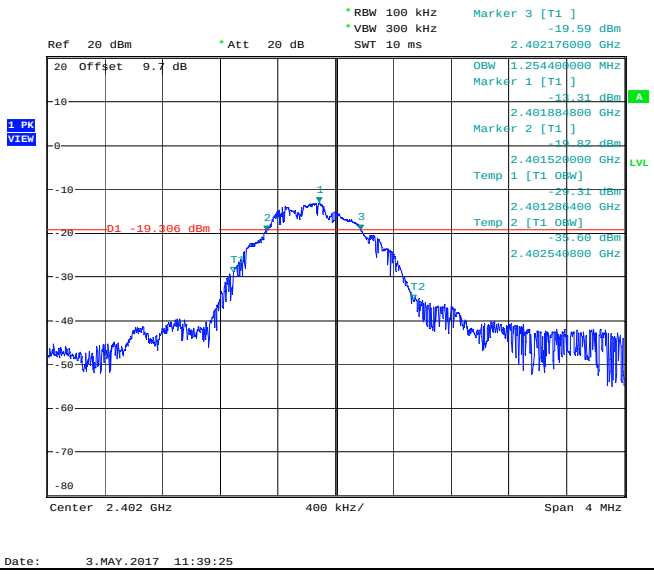
6.1.5 TEST RESULTS

EUT：	BLUETOOTH BODY SCALE	Model Name ：	MN-BWS100
Temperature：	25 ℃	Relative Humidity：	60%
Pressure：	1012 hPa	Test Voltage ：	DC 3.0V from battery
Test Mode ：	CH01 / CH21 /CH40 (1Mbps Mode)		

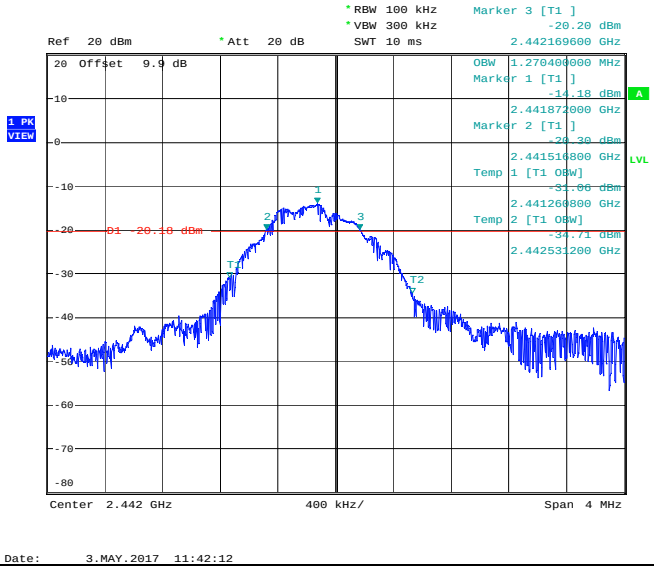
Frequency	6dB Bandwidth(MHz)	ChannelSeparation(MHz)	Result
2402 MHz	0.656	>=500KHz	PASS
2442 MHz	0.653	>=500KHz	PASS
2480 MHz	0.650	>=500KHz	PASS

Note:

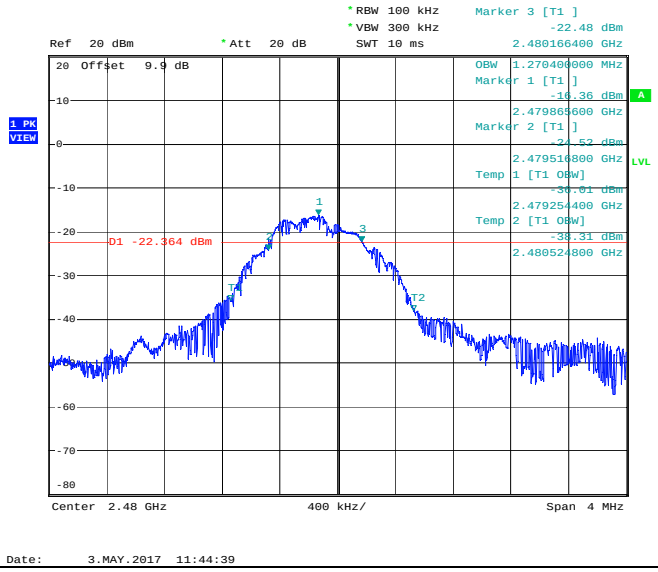
CH01



CH21



CH40


RBW 100 kHz
VBW 300 kHz
SWT 10 ms
Marker 3 [T1]
-22.48 dBm
2.480166400 GHz
Ref 20 dBm
Att 20 dB
20 Offset 9.9 dB
OBW 1.270400000 MHz
Marker 1 [T1]
-16.36 dBm
2.479865600 GHz
Marker 2 [T1]
-24.52 dBm
2.479516800 GHz
Temp 1 [T1 OBW]
-36.01 dBm
2.479254400 GHz
Temp 2 [T1 OBW]
-38.31 dBm
2.480524800 GHz
1 PK
VIEW
A
LVL
D1 -22.364 dBm
Center 2.48 GHz
400 kHz/
Span 4 MHz
Date: 3.MAY.2017 11:44:39

7. PEAK OUTPUT POWER TEST

7.1 APPLIED PROCEDURES / LIMIT

FCC Part 15.247,Subpart C

Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(b)(3)	Output Power	1 watt or 30dBm	2400-2483.5	PASS

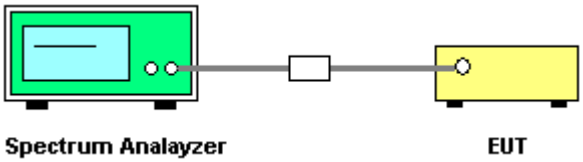
7.1.1 TEST PROCEDURE

a. The EUT was directly connected to the Power Sensor&PC

7.1.2 DEVIATION FROM STANDARD

No deviation.

7.1.3 TEST SETUP



7.1.4 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

7.1.5 TEST RESULTS

EUT：	BLUETOOTH BODY SCALE	Model Name ：	MN-BWS100
Temperature：	25 ℃	Relative Humidity：	60%
Pressure：	1012 hPa	Test Voltage ：	DC 3.0V from battery
Test Mode ：	CH01 / CH21 /CH40 (1Mbps Mode)		

TX Mode

Test Channel	Frequency (MHz)	Conducted Output Power Peak (dBm)	LIMIT dBm
CH01	2402	-10.73	30
CH21	2442	-11.84	30
CH40	2480	-13.88	30

8. ANTENNA REQUIREMENT

8.1 STANDARD REQUIREMENT

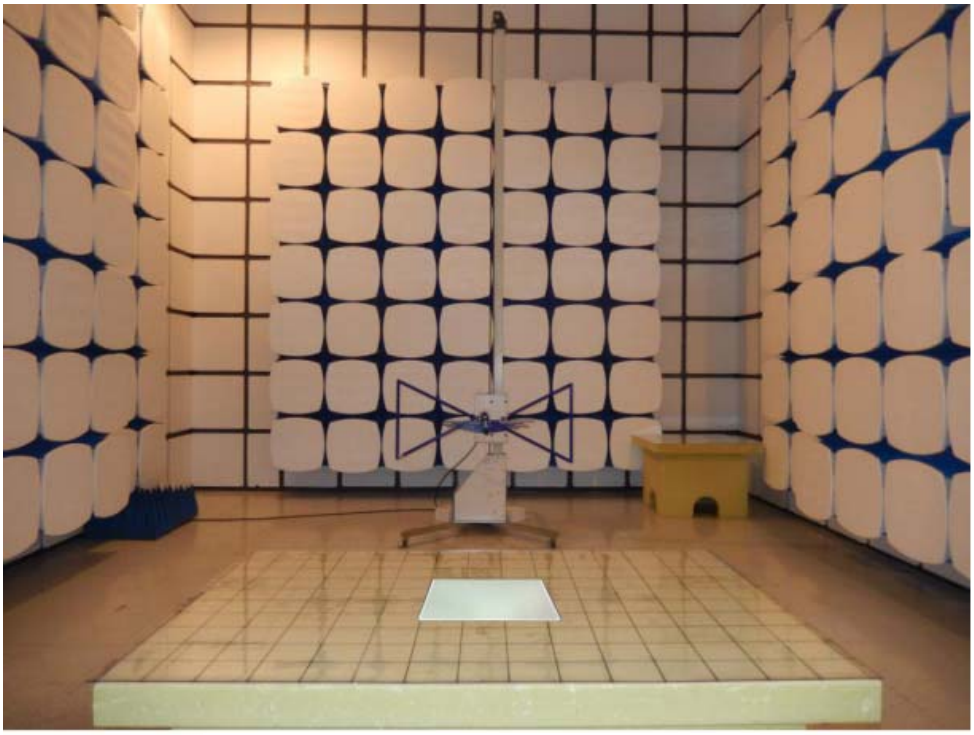
15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

8.2 EUT ANTENNA

The EUT antenna is integral Antenna. It comply with the standard requirement.

. EUT TEST PHOTO

Radiated Measurement Photos
Below 1 GHz



Above 1 GHz