EMC TEST REPORT

For

Bluetooth Headset

Model Number:BTLINK
FCC ID: U7TBTLINK

Report Number **:** WT078001536

Test Laboratory	:	Shenzhen Academy of Metrology and Quality Inspection EMC Laboratory Guangdong EMC Compliance Test Center
Site Location	:	Bldg. of Metrology &Quality Inspection, Longzhu Road, Shenzhen, Guangdong, China
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TEST REPORT DECLARATION

Applicant	:	Skullcandy, Inc.
Address	:	1910 Prospector Ave Suite 301 Park City, UT 84060
Manufacturer	:	SUNITEC ENTERPRISE CO., LTD
Address	:	No.2, Qilin Road 2, Run Tang Ind, Dan-Keng Village, Fu Ming Community, Guan-Lan Town, Bao An District, Shenzhen, GuangDong, China
EUT Description	:	Bluetooth Headset
Model Number		BTLINK
FCC ID Number		U7TBTLINK

Test Standards:

FCC Part 15 15.247

The EUT described above is tested by Shenzhen Academy of Metrology and Quality Inspection EMC Laboratory to determine the maximum emissions from the EUT. Shenzhen Academy of Metrology and Quality Inspection EMC Laboratory is assumed full responsibility for the accuracy of the test results. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in fcc test method **DA 00-705** and the energy emitted by the sample EUT tested as described in this report is in compliance with FCC Rules Part 15.247.

The test report is valid for above tested sample only and shall not be reproduced in part without written approval of the laboratory.

Tested by:	Winnie Hou	Date:	Jul.02,2007
	(Winnie Hou)		
Checked by:	Louis Lin	Date:	Jul.02,2007
	(Louis Lin)		
Approved by:	peter	Date:	Jul.02,2007
	(Peter Lin)		

1. TEST RESULTS SUMMARY

Table 1 Test Results Summary

Part 15	Requirement	Result Pass/Fail	Comments
15.207(a)	CONDUCTED Disturbance test	Pass	---
15.247(b)(1)	Maximum Peak Output Power	Pass	---
15.247(a)(1)	20 dB Bandwidth	Pass	---
15.247 (c)	100kHz Out of band & Band Edge measurements	Pass	---
15.209(a) (f)	Spurious Emission	Pass	---
15.247(a)(1)	Frequency Seperation	Pass	---
15.247(a)(1)(iii)	Number of the Hopping Frequency	Pass	---
15.247(a)(1)(iii)	Time of Occupancy	Pass	---
15.203, 15.247(b)(4)(i)	Antenna Requirement	Pass	---

2. GENERAL INFORMATION

2.1. Report information

2.1.1.This report is not a certificate of quality; it only applies to the sample of the specific product/equipment given at the time of its testing. The results are not used to indicate or imply that they are application to the similar items. In addition, such results must not be used to indicate or imply that SMQ approves recommends or endorses the manufacture, supplier or use of such product/equipment, or that SMQ in any way guarantees the later performance of the product/equipment.

2.1.2.The sample/s mentioned in this report is/are supplied by Applicant, SMQ therefore assumes no responsibility for the accuracy of information on the brand name, model number, origin of manufacture or any information supplied.

2.1.3.Additional copies of the report are available to the Applicant at an additional fee. No third part can obtain a copy of this report through SMQ, unless the applicant has authorized SMQ in writing to do so.

2.2. Laboratory Accreditation and Relationship to Customer

The testing report were performed by the Shenzhen Academy of Metrology and quality Inspection EMC Laboratory (Guangdong EMC compliance testing center), in their facilities located at Bldg. of Metrology & Quality Inspection, Longzhu Road, Nanshan District, Shenzhen, Guangdong, China. At the time of testing, Laboratory is accredited by the following organizations:
China National Accreditation Committee for Laboratories (**CNAL**) accredits the Laboratory for conformance to FCC standards, EMC international standards and EN standards. The Registration Number is L0579.

The Laboratory is listed in the United States of American Federal Communications Commission (**FCC**), and the registration number are **97379**(open area test site) and **274801**(semi anechoic chamber).
The Laboratory is listed in Voluntary Control Council for Interference by Information Technology Equipment (**VCCI**), and the registration number are **R-1974**(open area test site) , **R-1966**(semi anechoic chamber),**C-2117**(mains ports conducted interference measurement) and **T-180**(telecommunication ports conducted interference measurement).

The Laboratory is registered to perform emission tests with Industry Canada (**IC**), and the registration number is **IC4174**.

TUV Rhineland accredits the Laboratory for conformance to IEC and EN standards, the registration number is **E2024086Z02**.
Measurement Uncertainty

2.3. Measurement Uncertainty

Conducted Disturbance : 9kHz~30MHz 3.5dB

Radiated Disturbance: 30MHz~1000MHz 4.5dB
1GHz~18GHz 4.6dB

3. PRODUCT DESCRIPTION

3.1. EUT Description

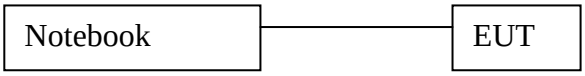
Description	:	Bluetooth Headset
Manufacturer	:	SUNITEC ENTERPRISE CO., LTD
Model Number	:	BTLINK
Input Power	:	DC 4.2V supply by Li-Polymer bettery
Operate Frequency	:	2402-2480Mhz
Channel Spacing	:	1MHz
Antenna Designation	:	integrate
Communication port	:	USB

The EUT include a bluetooth module.
A major technical descriptions of EUT is described as following:
A). Operation Frequency: 2402 – 2480MHz, 79 channels
B). Rated output power: 85 mW at 32ohmns load
C). Modulation type: Frequency Hopping Spread Spectrum (FHSS)
D). Antenna Designation: Chip Antenna, 0.85 dBi, Non-User Replaceable (Fixed)

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

This submittal(s) (test report) is intended for FCC ID: U7TBTLINK filing to comply with Section 15.247 of the FCC Part 15, Subpart C Rules.

3.3. Block Diagram of EUT Configuration



3.4. Operating Condition of EUT

Mode 1: channel low (2402MHz)
Mode 2: channel low (2441MHz)
Mode 3: channel low (2480MHz)
Mode 4: Connect to pc(charge)

3.5. Support Equipment List

Name	Model No	S/N	Manufacturer	Used "√"
Notebook	1829-CEC	99-ANX35	IBM	√
Adaptor for Notebook	08K8210	---	IBM	√
Printer	BJC-1000SP	10307TT4	CANON	√

3.6. Test Conditions

Date of test： Jun.29-Jul.2, 2007
Date of EUT Receive：Jun.29, 2007
Temperature: 24-26 ℃
Relative Humidity: 55-60%

4. TEST EQUIPMENT USED

4.1. Test Equipment Used to Measure Conducted Disturbance

Table 2 Test Equipment List

No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
SB2603	EMI Test Receiver	Rohde & Schwarz	ESCS30	Jan.25, 2007	1 Year
SB3321	AMN	Rohde & Schwarz	ESH2-Z5	Jan.25, 2007	1 Year
SB2604	AMN	Rohde & Schwarz	ESH3-Z5	Jan.25, 2007	1 Year
SB3436	EMI Test Receiver	Rohde & Schwarz	ESI26	Jan.25, 2007	1 Year
SB3440	Bilog Antenna	Chase	CBL6112B	Jan.25, 2007	1 Year
SB3435	Horn Antenna	Rohde & Schwarz	HF906	Jan.25, 2007	1 Year
SB3434	Horn Antenna	Rohde & Schwarz	HF906	Jan.25, 2007	1 Year
SB3435/01	Amplifier(1-18GHz)	Rohde & Schwarz	---	Jan.25, 2007	1 Year
SB3435/02	Amplifier(18-40GHz)	Rohde & Schwarz	---	May.05, 2007	1 Year
SB3435/03	Horn Antenna	Rohde & Schwarz	AT4560	May.05, 2007	1 Year
SB3450/01	3m Semi-anechoic chamber	Albatross Projects	9X6X6	Jan 25,2007	1 Year
SB2597/01	Dipole Antenna	Schwarzbeck	VHAP	Jan 30,2005	3 Years
SB2597/02	Dipole Antenna	Schwarzbeck	UHAP	Jan 30,2005	3 Years
SB3438	Signal generator	Rohde & Schwarz	SMR20	Jan.25, 2007	1Year
SB3732	Tem Chamber	Qingsheng	THS-C7C±100	Sep 25,2006	1Year
SB2599	Spectrum Analyzer	Anritsu	MS2661C	Jan 26,2006	1 Year
SB3174	Antenna	Schwarzbeck	VUBA9117	Jan 26,2006	3 Year
SB3441	Communication tester	Rohde & Schwarz	CMU200	Apr.10,2007	1 Year

5. CONDUCTED DISTURBANCE TEST

5.1. Test Standard and Limit

5.1.1.Test Standard

FCC Part 15:2006

5.1.2.Test Limit

Table 4 Conducted Disturbance Test Limit (Class B)

Frequency	Maximum RF Line Voltage (dBμV)	
	Quasi-peak Level	Average Level
150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
500kHz~5MHz	56	46
5MHz~30MHz	60	50

③ Decreasing linearly with logarithm of the frequency

③ The lower limit shall apply at the transition frequency.

5.2. Test Procedure

The EUT is put on a table of non-conducting material that is 80cm high. The vertical conducting wall of shielding is located 40cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI test receiver (R&S Test Receiver ESCS30) is used to test the emissions form both sides of AC line. According to the requirements in Section 7 and 13 of ANSI C63.4-2003.Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak and average detector mode.The bandwidth of EMI test receiver is set at 9kHz.

5.3. Test Arrangement

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application. The detailed information refers to test picture.

5.4. Test Data

Table 4 Conducted Disturbance Test Data

Model：BTLINK

Mode: 4

Line							
Frequency (MHz)	Correction Factor (dB)	Quasi-Peak			Average		
		Reading (dBμV)	Emission Level (dBμV)	Limits (dBμV)	Reading (dBμV)	Emission Level (dBμV)	Limits (dBμV)
0.150	10.1	37.7	47.8	66	20.0	30.1	56
0.246	10.2	28.8	39.0	61.8	25.6	35.8	51.8
0.366	10.2	16.8	27.0	58.5	12.0	22.2	48.5
0.616	10.2	18.5	28.7	56	13.3	23.5	46
0.732	10.2	16.7	26.9	56	9.4	19.6	46
1.720	10.2	21.6	31.8	56	12.5	22.7	46

REMARKS: 1. Emission level(dBuV)=Read Value(dBuV) + Correction Factor(dB)
2. Correction Factor(dB) =LISN Factor (dB) + Cable Factor (dB)+Limiter Factor(dB)
3. The other emission levels were very low against the limit.

Table 5 Conducted Disturbance Test Data

Model：BTLINK

Mode: 4

Neutral							
Frequency (MHz)	Correction Factor (dB)	Quasi-Peak			Average		
		Reading (dBμV)	Emission Level (dBμV)	Limits (dBμV)	Reading (dBμV)	Emission Level (dBμV)	Limits (dBμV)
0.150	10.1	41.6	51.8	66	23.8	33.9	56
0.246	10.2	41.8	42.0	61.8	24.8	35.0	51.8
0.382	10.2	28.0	38.2	58.2	9.9	20.1	48.2
0.736	10.2	24.7	24.9	56	8.2	18.4	46
1.230	10.2	19.3	29.5	56	9.6	19.8	46
1.710	10.2	22.2	32.4	56	10.4	20.6	46

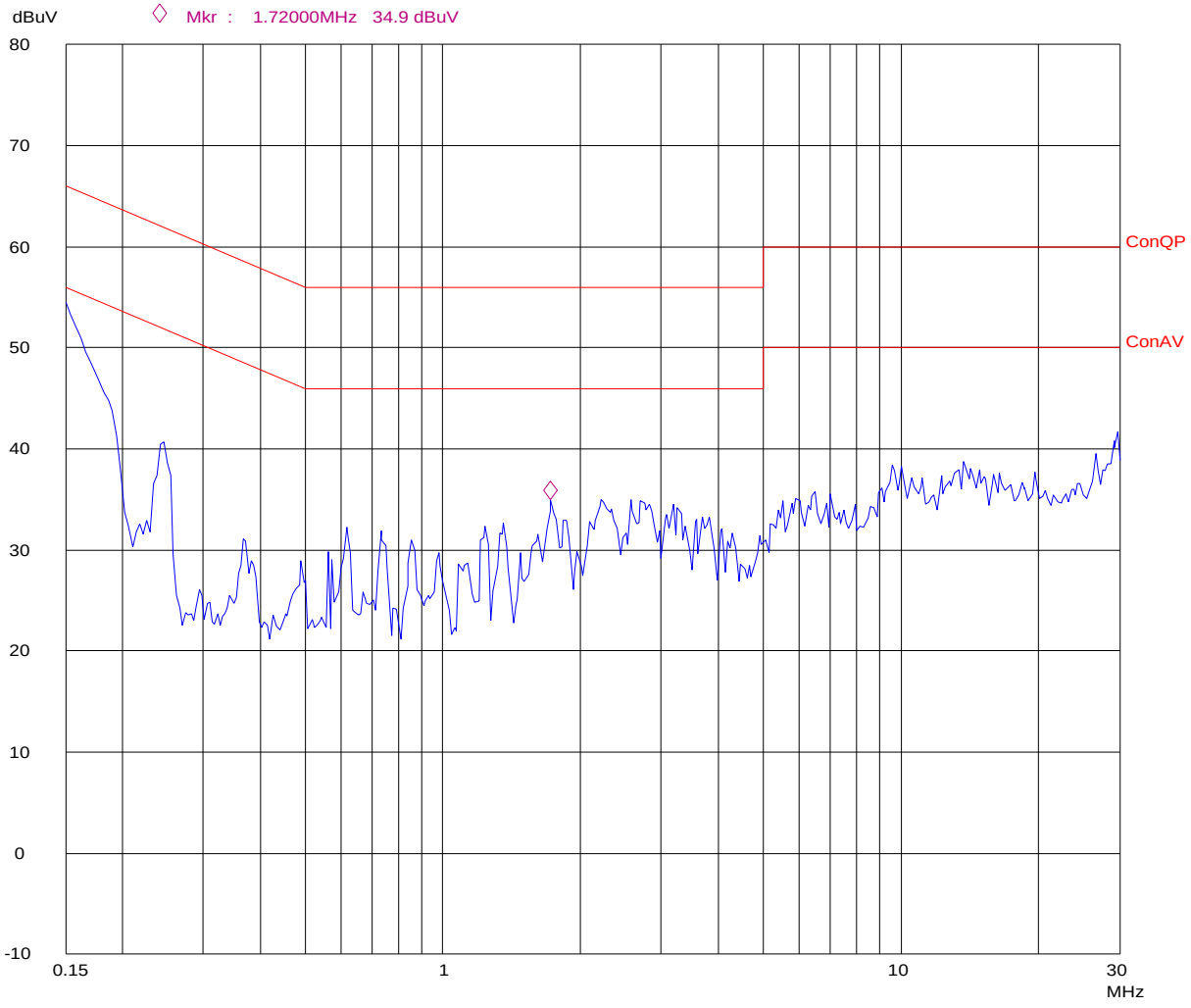
REMARKS: 1. Emission level(dBuV)=Read Value(dBuV) + Correction Factor(dB)

2. Correction Factor(dB) =LISN Factor (dB) + Cable Factor (dB)+Limiter Factor(dB)

3. The other emission levels were very low against the limit.

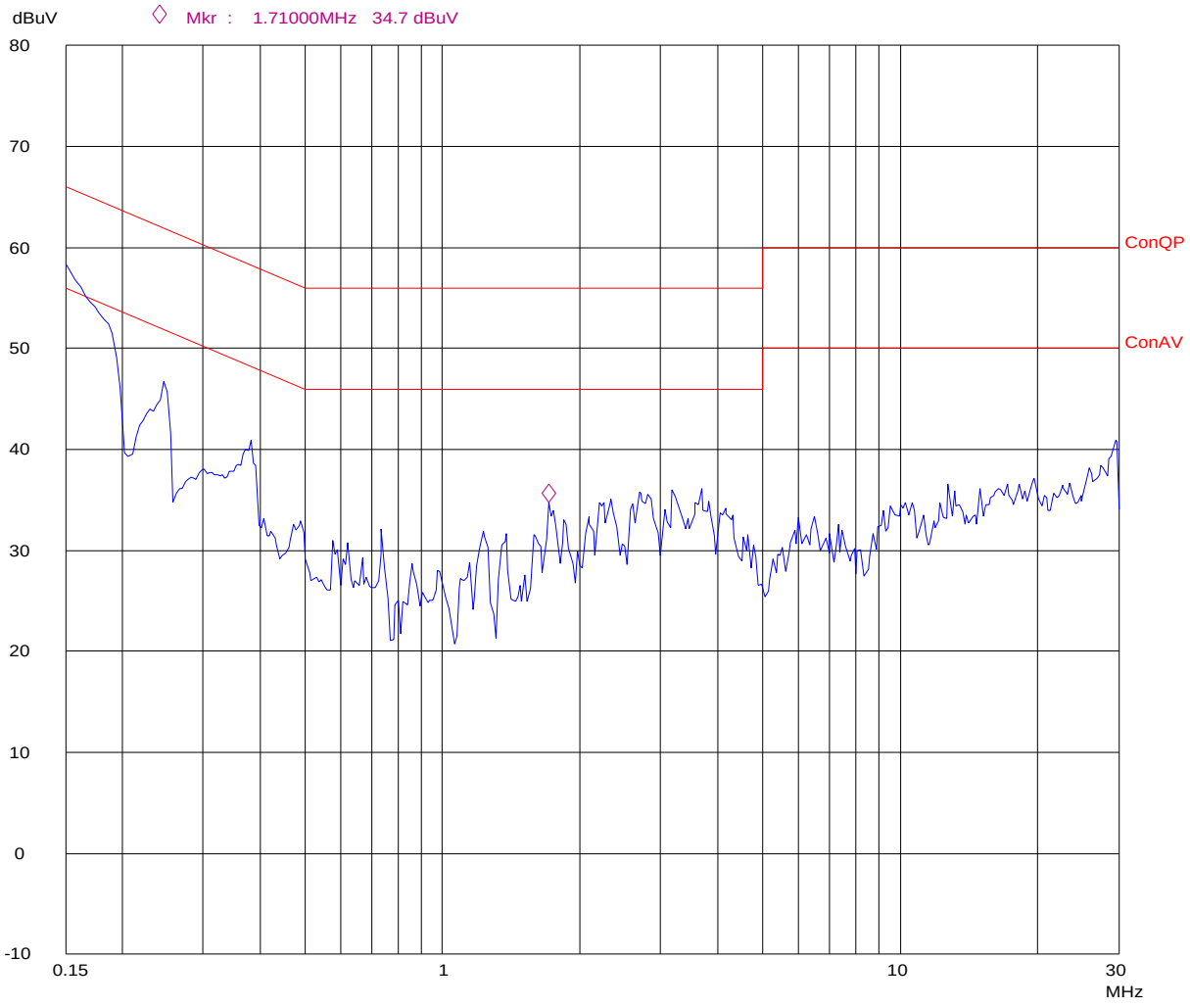
Conducted Disturbance

EUT:	M/N:BTLINK
Op Cond:	Connect to PC
Test Spec:	L
Comment:	AC 120V/60Hz



Conducted Disturbance

EUT:	M/N:BTLINK
Op Cond:	Connect to PC
Test Spec:	N
Comment:	AC 120V/60Hz



6. MAXIMUM PEAK OUTPUT POWER

6.1. Test Standard and Limit

6.1.1.Test Standard

FCC 15.247 (b) :2006

6.1.2.Test Limit

Table 9 Bandwidth Limit

Frequency MHz	Channels	Types of Devices	Power
2400-2483.5	>= 75	Hopping	1 Watt

6.2. Test Procedure

Remove the antenna from the EUT and then connect the transmitter output to the power meter via a suitable attenuator. Set the EUT transmitting continuously to each of low, middle, and high frequency.

6.3. Test Arrangement

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application. The detailed information refers to test picture.

6.4. Test Data

Channel	Frequency (MHz)	Reading (dBm)	Limit	Result
Low	2402	-4.2	1W (30dBm)	Pass
Middle	2441	-4.6	1W (30dBm)	Pass
High	2480	-4.8	1W (30dBm)	Pass

7. HOPPING CHANNEL 20 DB BANDWIDTH

7.1. Test Standard and Limit

7.1.1.Test Standard

FCC 15.247 (a) :2006

7.1.2.Test Limit

For frequency hopping systems operating in the 2400MHz-2483.5 MHz no limit for 20dB bandwidth.

7.2. Test Procedure

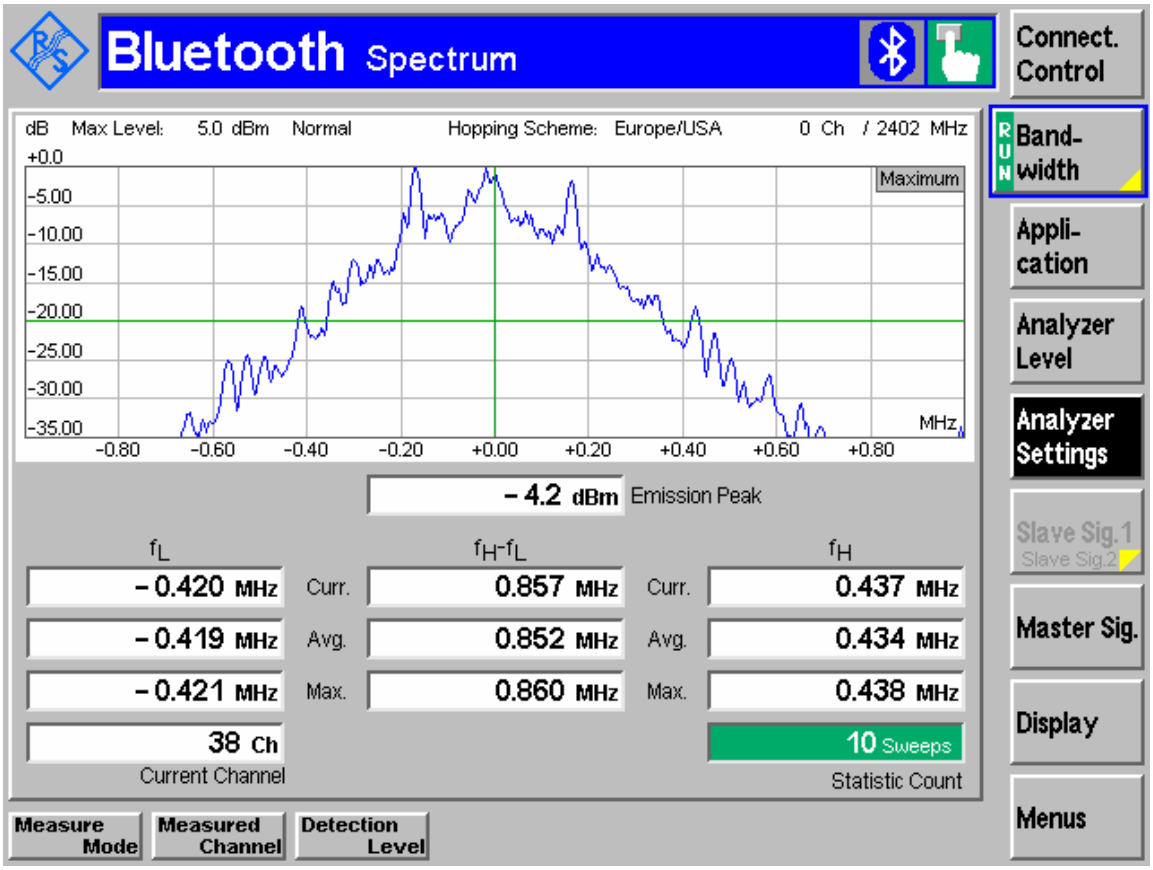
1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as RBW=10KHz (1 % of Bandwidth.), Span= 3MHz, Sweep=auto
4. Mark the peak frequency and –20dB (upper and lower) frequency.
5. Repeat above procedures until all frequency measured were complete.

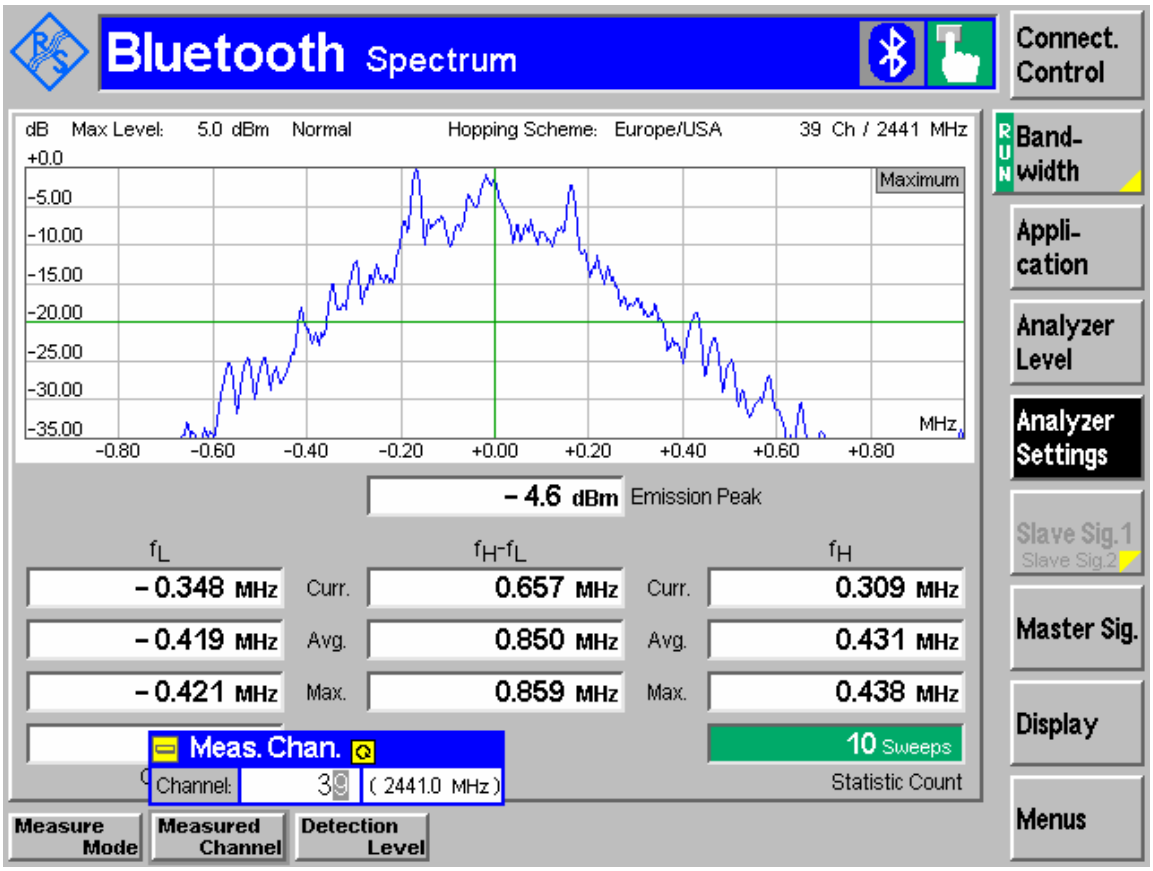
7.3. Test Arrangement

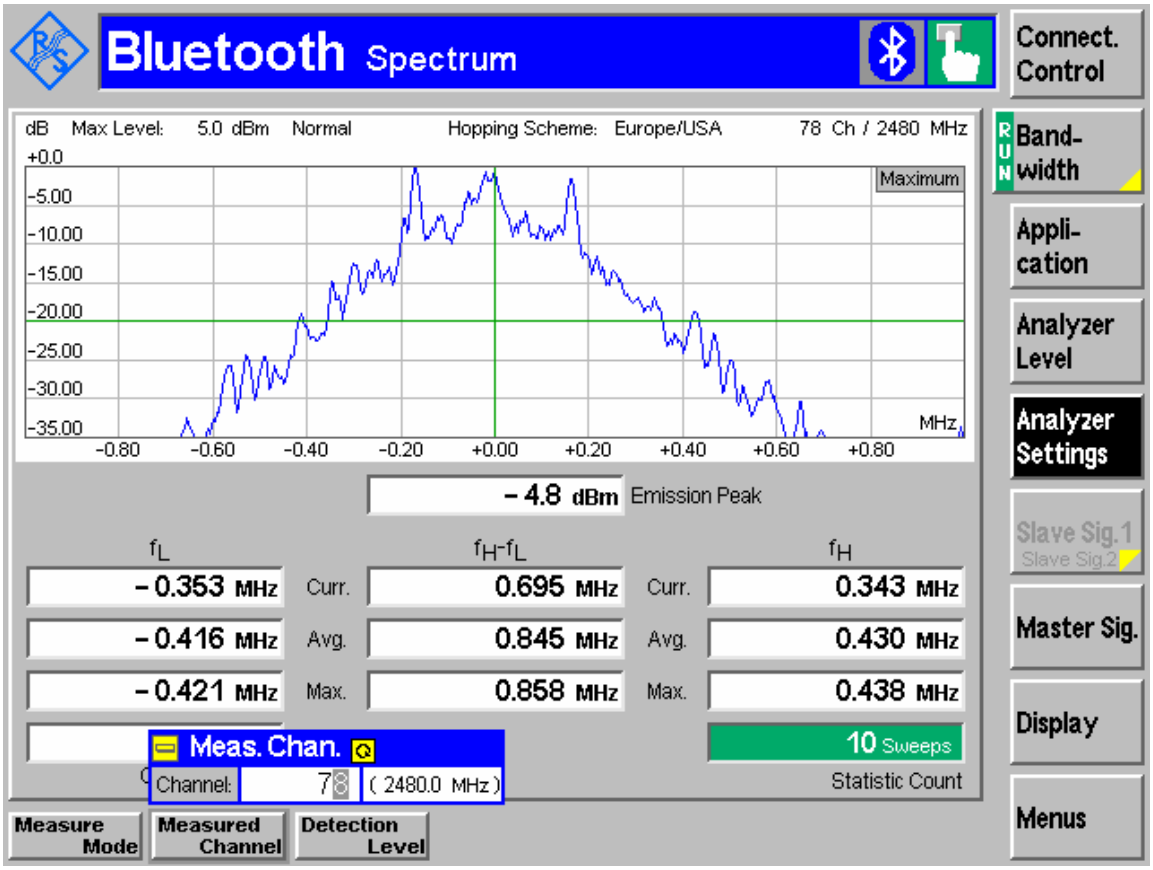
The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application. The detailed information refers to test picture.

7.4. Test Data

Channel	Frequency (MHz)	20 dB Bandwidth
Low	2402	0.860MHz
Mid	2441	0.859MHz
High	2480	0.858MHz


Bluetooth Spectrum
dB Max Level: 5.0 dBm Normal Hopping Scheme: Europe/USA 0 Ch / 2402 MHz
+0.0
-5.00
-10.00
-15.00
-20.00
-25.00
-30.00
-35.00
Maximum
MHz
-0.80 -0.60 -0.40 -0.20 +0.00 +0.20 +0.40 +0.60 +0.80
-4.2 dBm Emission Peak
fL
fH-fL
fH
-0.420 MHz Curr. 0.857 MHz Curr. 0.437 MHz
-0.419 MHz Avg. 0.852 MHz Avg. 0.434 MHz
-0.421 MHz Max. 0.860 MHz Max. 0.438 MHz
38 Ch
Current Channel
10 Sweeps
Statistic Count
Measure Mode
Measured Channel
Detection Level
Connect. Control
RUN Band-width
Appli-cation
Analyzer Level
Analyzer Settings
Slave Sig.1
Slave Sig.2
Master Sig.
Display
Menus


Bluetooth Spectrum
dB Max Level: 5.0 dBm Normal Hopping Scheme: Europe/USA 39 Ch / 2441 MHz
+0.0
-5.00
-10.00
-15.00
-20.00
-25.00
-30.00
-35.00
Maximum
MHz
-0.80 -0.60 -0.40 -0.20 +0.00 +0.20 +0.40 +0.60 +0.80
-4.6 dBm Emission Peak
fL
fH-fL
fH
-0.348 MHz Curr. 0.657 MHz Curr. 0.309 MHz
-0.419 MHz Avg. 0.850 MHz Avg. 0.431 MHz
-0.421 MHz Max. 0.859 MHz Max. 0.438 MHz
Meas. Chan.
Channel: 39 (2441.0 MHz)
10 Sweeps
Statistic Count
Measure Mode
Measured Channel
Detection Level
Connect. Control
RUN Band-width
Appli-cation
Analyzer Level
Analyzer Settings
Slave Sig.1
Slave Sig.2
Master Sig.
Display
Menus


Bluetooth Spectrum
Connect. Control
dB Max Level: 5.0 dBm Normal
Hopping Scheme: Europe/USA
78 Ch / 2480 MHz
+0.0
-5.00
-10.00
-15.00
-20.00
-25.00
-30.00
-35.00
Maximum
MHz
-0.80 -0.60 -0.40 -0.20 +0.00 +0.20 +0.40 +0.60 +0.80
Band-width
Appli-cation
Analyzer Level
Analyzer Settings
-4.8 dBm Emission Peak
fL
fH-fL
fH
-0.353 MHz Curr.
0.695 MHz Curr.
0.343 MHz
-0.416 MHz Avg.
0.845 MHz Avg.
0.430 MHz
-0.421 MHz Max.
0.858 MHz Max.
0.438 MHz
Slave Sig.1
Slave Sig.2
Master Sig.
Display
Menus
Meas. Chan.
Channel: 78 (2480.0 MHz)
10 Sweeps
Statistic Count
Measure Mode
Measured Channel
Detection Level

8. 100KHZ BANDWIDTH OF BAND EDGES MEASUREMENT

8.1. Test Standard and Limit

8.1.1.Test Standard

FCC Part 15 15.247(c) :2006

8.2. Band Edge FCC 15.247(c) Limit

According to § 15.247(c), in any 100 KHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in 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, 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 in15.209(a).

8.3. Test Procedure

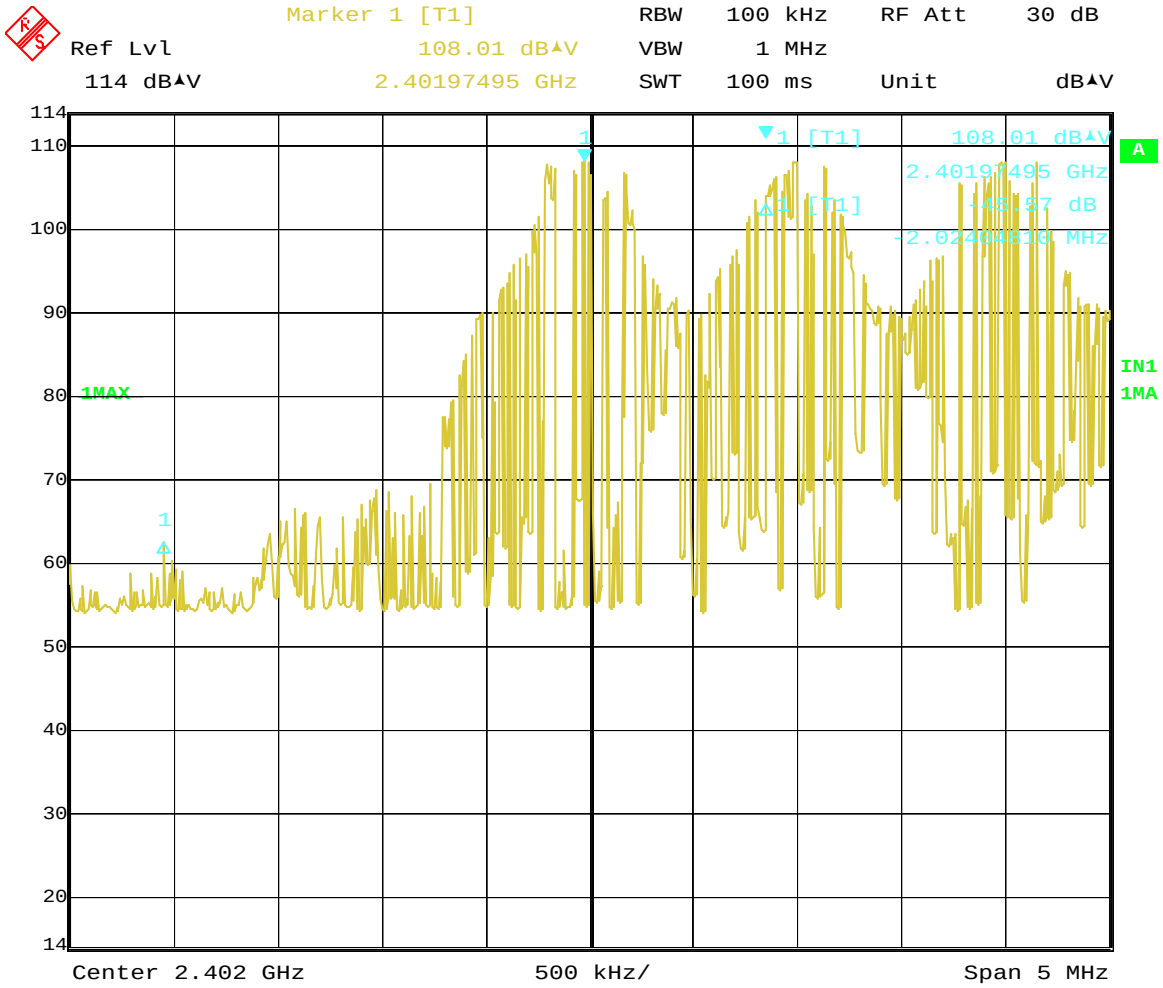
1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set center frequency of spectrum analyzer = operating frequency.
4. Set the spectrum analyzer as RBW, VBW=1MHz, Span=20MHz, Sweep = auto Mark Peak, .
5. Repeat above procedures until all frequency measured were complete.

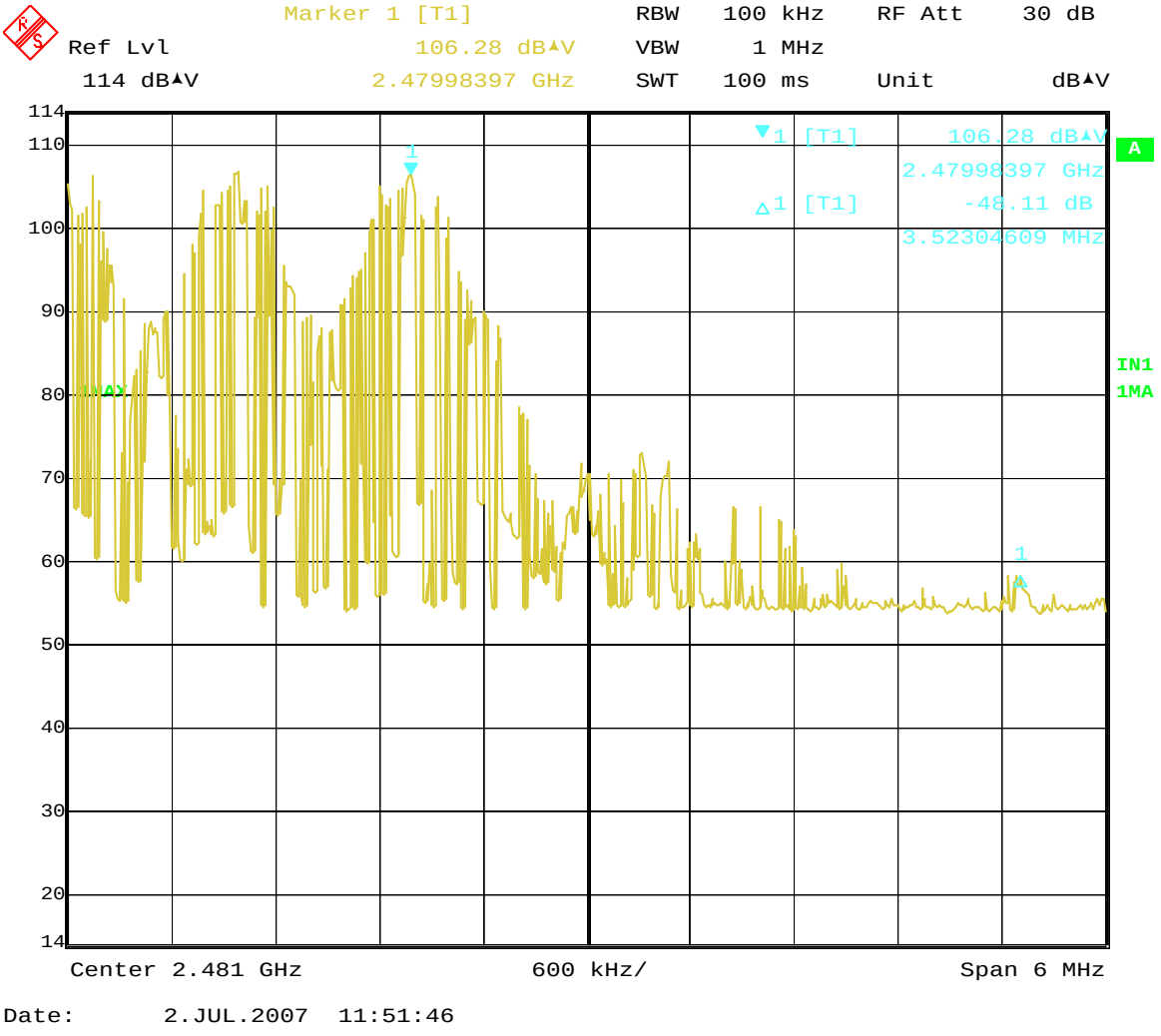
8.4. Test Arrangement

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application. The detailed information refers to test picture.

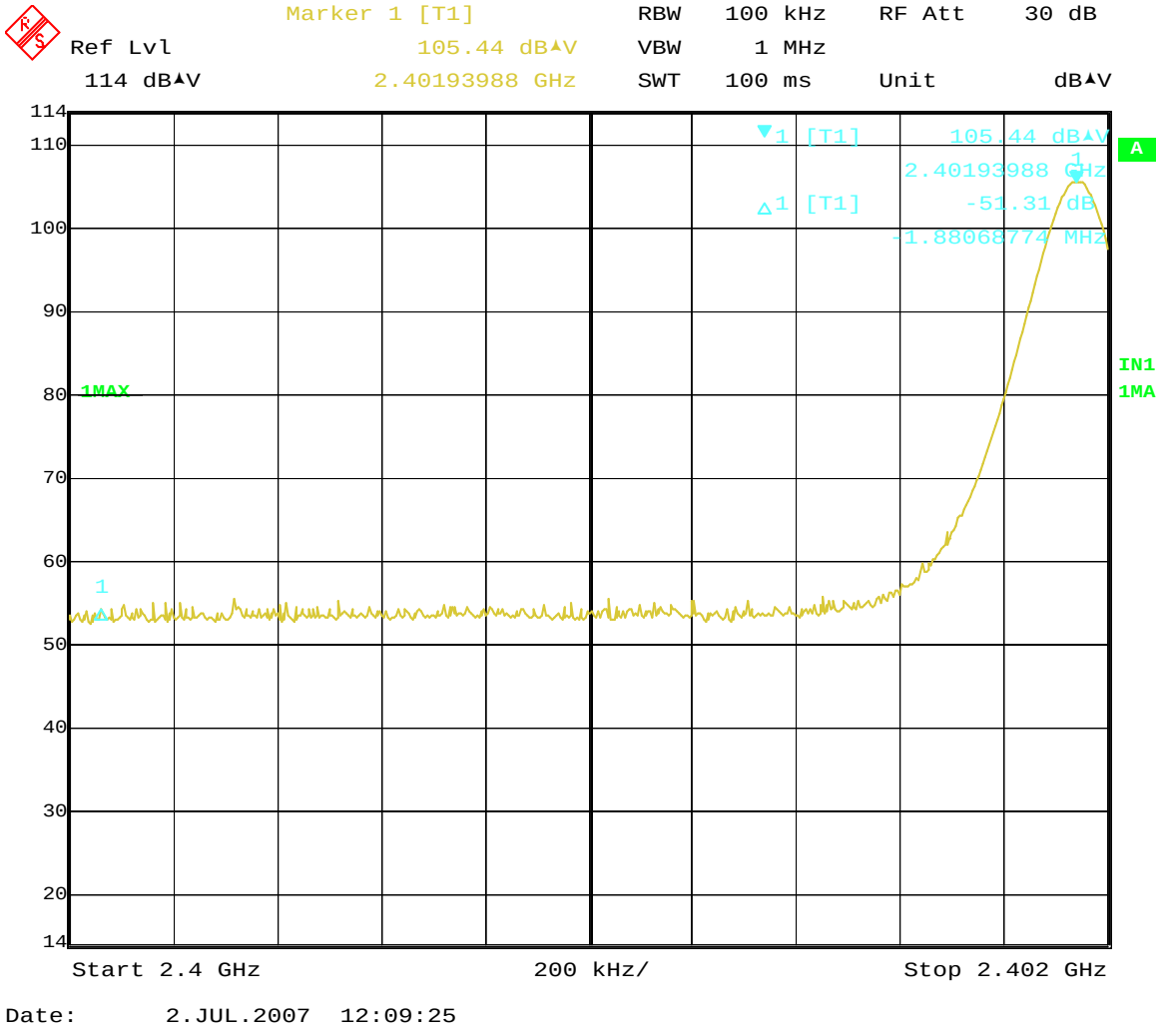
8.5. Test Data

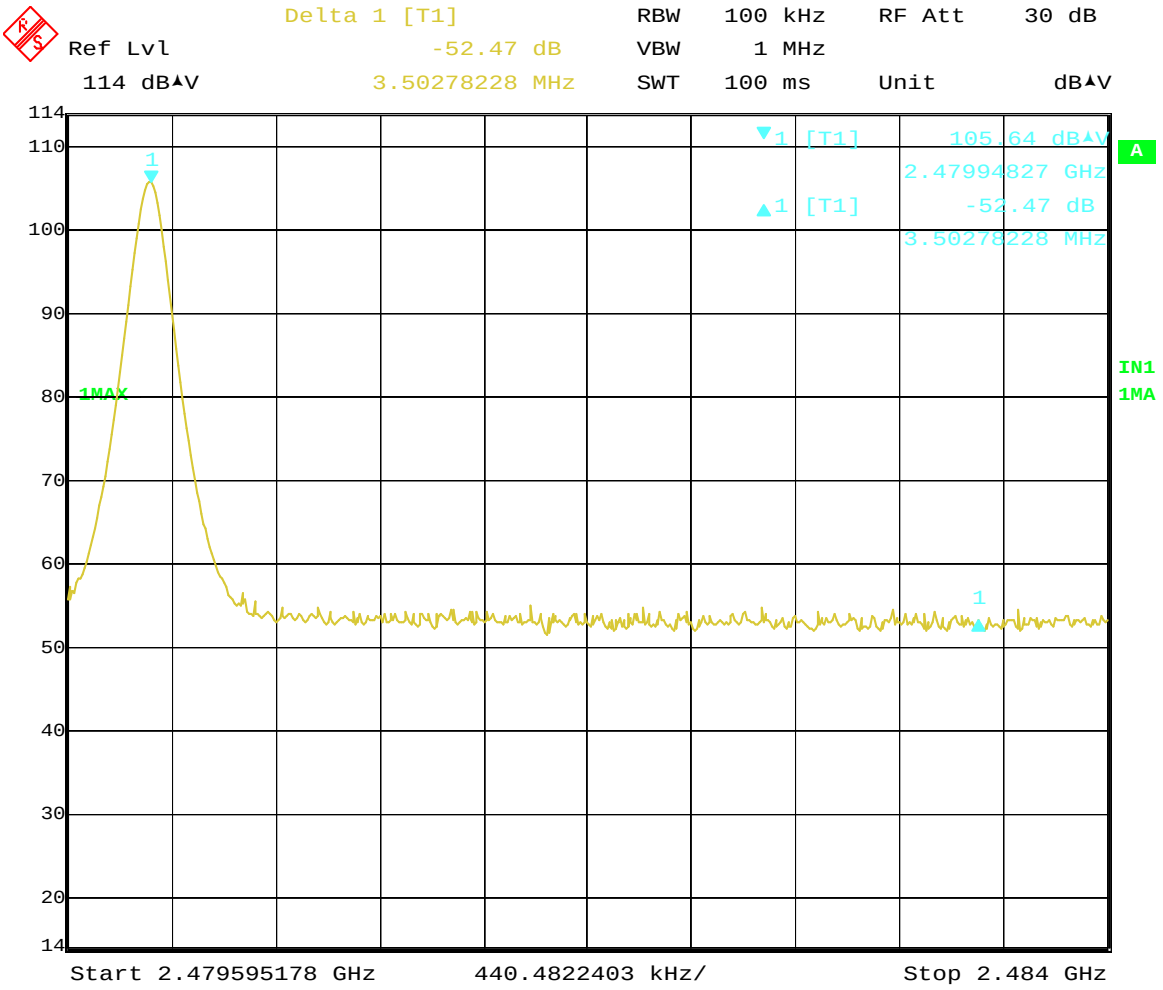
Frequency Hopping




Marker 1 [T1]
RBW 100 kHz
RF Att 30 dB
Ref Lvl
106.28 dBµV
VBW 1 MHz
114 dBµV
2.47998397 GHz
SWT 100 ms
Unit dBµV
1 [T1]
106.28 dBµV
2.47998397 GHz
Δ1 [T1]
-48.11 dB
3.52304609 MHz
A
IN1
1MA
MAX
Center 2.481 GHz
600 kHz/
Span 6 MHz
Date: 2.JUL.2007 11:51:46

Frequency Hopping Stop




Delta 1 [T1]
RBW 100 kHz
RF Att 30 dB
Ref Lvl
-52.47 dB
VBW 1 MHz
114 dBµV
3.50278228 MHz
SWT 100 ms
Unit dBµV
1 [T1]
105.64 dBµV
2.47994827 GHz
1 [T1]
-52.47 dB
3.50278228 MHz
A
IN1
1MA
1MAX
114
110
100
90
80
70
60
50
40
30
20
14
Start 2.479595178 GHz
440.4822403 kHz/
Stop 2.484 GHz
Date: 2.JUL.2007 12:01:39

9. SPURIOUS RADIATED EMISSION TEST

9.1. Test Standard and Limit

9.1.1.Test Standard

FCC Part 15 15.247(c) :2006

9.2. Band Edge FCC 15.247(c) Limit

According to § 15.247(c), all other emissions outside these bands shall not exceed the general radiated emission limits specified in § 15.209(a). And according to § 15.33(a)(1), for an intentional radiator operates below 10GHz, the frequency range of measurements: to the tenth harmonic of the highest fundamental frequency or to 40GHz, whichever is lower.

9.3. Test Procedure

1. The radiated emission tests were performed in the 3 meter open-test site, using the setup in accordance with the ANSI C63.4-2003.
2. The EUT was put in the front of the test table. The peripherals was placed on the side of the host system. The rear of the EUT and peripherals were placed flushed with the rear of the tabletop.
3. The spacing between the peripherals was 10 centimeters.
4. External I/O cables were draped along the edge of the test table and bundle when necessary.
5. The host PC system was connected with 110Vac/60Hz power source.

9.4. Test Arrangement

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application. The detailed information refers to test picture.

9.5. Test Data

Radiated Emission Data :

Low Channel (2402MHz)

Ambient temperature: 24° C Relative humidity: 53 %						
Frequency MHz	Emission (dBuV/m)	Read Value (dBuV)	Correction Factor (dB/m)	Polarization	Limits (dBuV/m)	Note
199.889	39.8	27.1	12.7	horizontal	46.0	---
364.494	42.7	23.6	19.1	horizontal	46.0	---
728.777	40.6	16.1	24.5	horizontal	54.0	---
428.737	38.3	18.0	20.3	Vertical	46.0	---
831.412	39.7	14.3	25.4	Vertical	54.0	---
4804.050	39.5	37.2	2.3	horizontal	54.0	---
4804.065	35.3	33.0	2.3	Vertical	54.0	---

Note :

1. Emission level(dBuV/m)=Read Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)+Amplifier Factor(dB)
3. The other emission levels were very low against the limit(>15dB to limit).

Mid Channel (2441MHz)

Ambient temperature: 24° C Relative humidity: 53 %						
Frequency MHz	Emission (dBuV/m)	Read Value (dBuV)	Correction Factor (dB/m)	Polarization	Limits (dBuV/m)	Note
199.889	39.4	26.7	12.7	horizontal	46.0	---
364.494	42.5	23.4	19.1	horizontal	46.0	---
728.777	40.6	16.1	24.5	horizontal	54.0	---
428.737	38.4	18.1	20.3	Vertical	46.0	---
831.412	39.5	14.1	25.4	Vertical	54.0	---
4882.650	39.0	36.7	2.3	horizontal	54.0	---
4882.650	35.0	32.7	2.3	Vertical	54.0	---

Note :

1. Emission level(dBuV/m)=Read Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)+Amplifier Factor(dB)
3. The other emission levels were very low against the limit(>15dB to limit).

High Channel (2480M)

Ambient temperature: 24° C Relative humidity: 53 %						
Frequency MHz	Emission (dBuV/m)	Read Value (dBuV)	Correction Factor (dB/m)	Polarization	Limits (dBuV/m)	Note
199.889	39.8	27.1	12.7	horizontal	46.0	---
364.494	42.7	23.6	19.1	horizontal	46.0	---
728.777	40.6	16.1	24.5	horizontal	54.0	---
428.737	38.3	18.0	20.3	Vertical	46.0	---
831.412	39.7	14.3	25.4	Vertical	54.0	---
4960.120	38.5	36.2	2.3	horizontal	54.0	---
4960.120	34.1	31.8	2.3	Vertical	54.0	---

Note :

1. Emission level(dBuV/m)=Read Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)+Amplifier Factor(dB)
3. The other emission levels were very low against the limit(>15dB to limit).

Connect to PC (charge)

Ambient temperature: 24° C Relative humidity: 53 %						
Frequency MHz	Emission (dBuV/m)	Read Value (dBuV)	Correction Factor (dB/m)	Polarization	Limits (dBuV/m)	Note
199.889	39.5	26.8	12.7	horizontal	46.0	---
364.494	42.0	22.9	19.1	horizontal	46.0	---
728.777	40.7	16.2	24.5	horizontal	54.0	---
428.737	38.5	18.2	20.3	Vertical	46.0	---
831.412	39.7	14.3	25.4	Vertical	54.0	---
456.737	39.0	18.5	20.5	Vertical	46.0	---

Note :

1. Emission level(dBuV/m)=Read Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)+Amplifier Factor(dB)
3. The other emission levels were very low against the limit(>15dB to limit).

10. NUMBER OF HOPPING FREQUENCY

10.1.Test Standard and Limit

10.1.1.Test Standard

FCC Part 15 15.247(c) :2006

10.2.Band Edge FCC 15.247(c) Limit

According to §15.247(a)(1)(iii), Frequency hopping systems operating in the 2400MHz-2483.5 MHz bands shall use at least 15 hopping frequencies.

10.3.Test Procedure

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set spectrum analyzer Start=2400MHz, Stop = 2483.5MHz, Sweep = auto.
4. Set the spectrum analyzer as RBW,VBW=100KHz,
5. Max hold, view and count how many channel in the band.

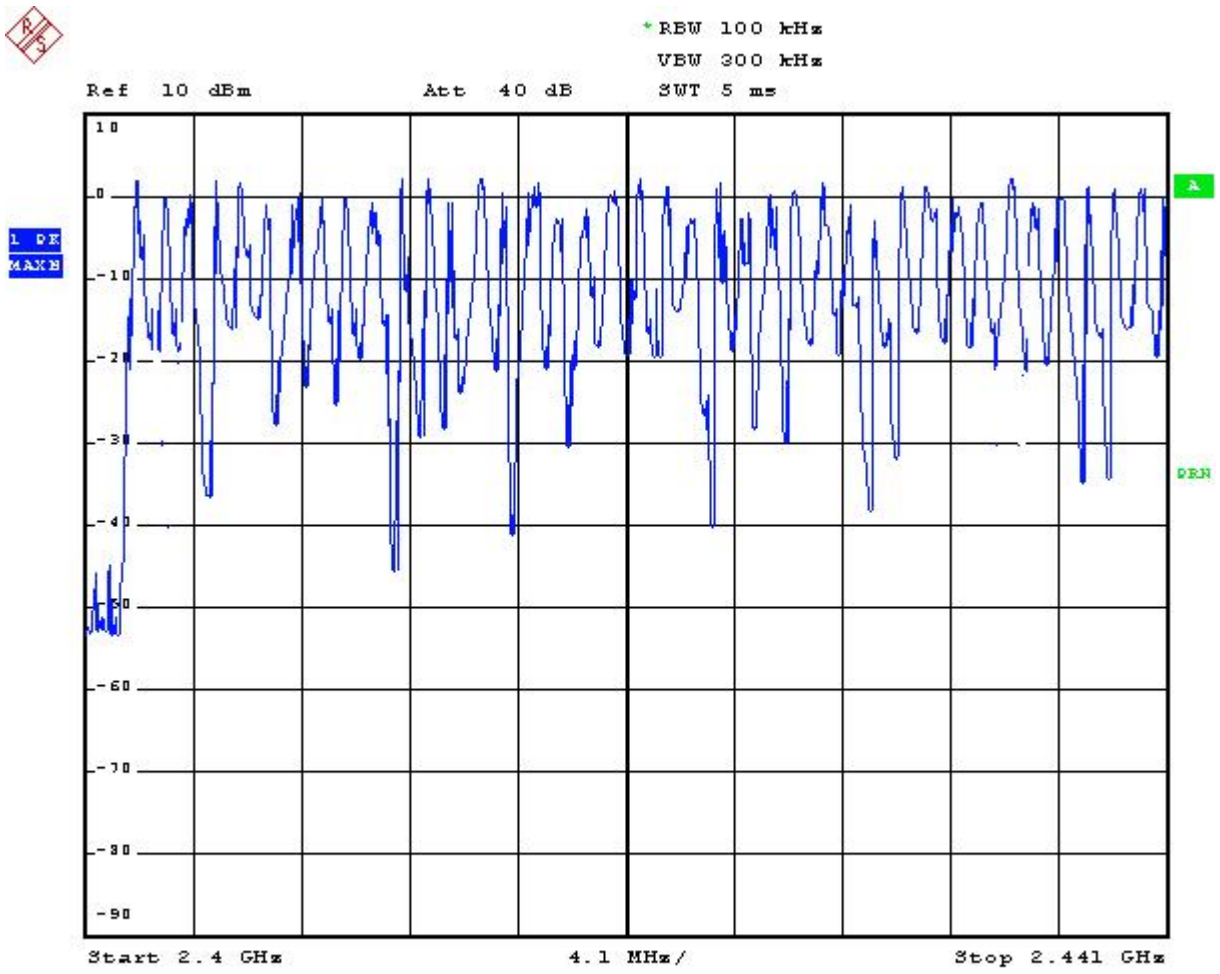
10.4.Test Arrangement

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application. The detailed information refers to test picture.

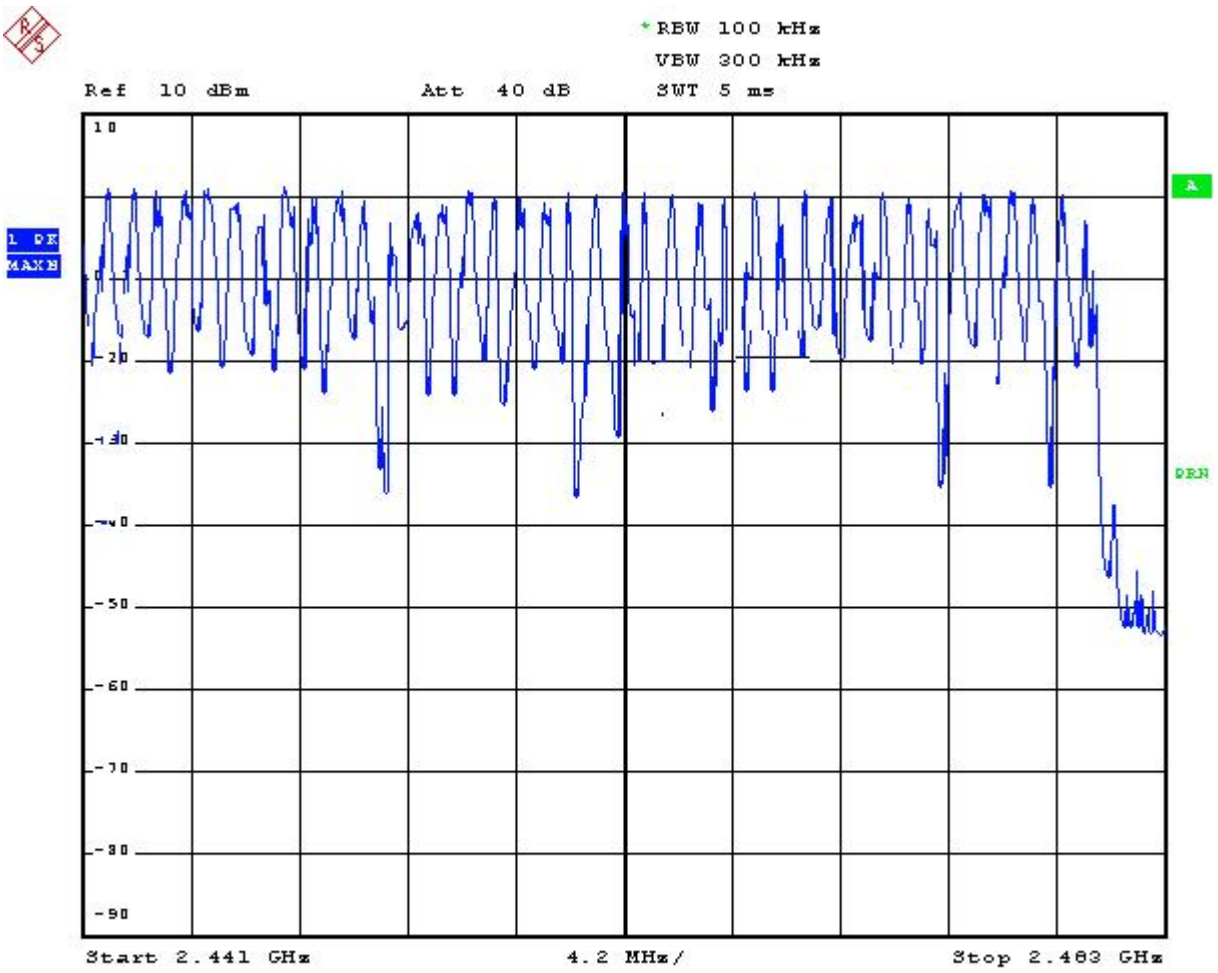
10.5.Test Data

The nominal channel spacing of the Bluetooth system is 1Mhz independent of the operating mode.
The maximum “initial carrier frequency tolerance” which is allowed for Bluetooth is fcenter = 75 kHz.
This was checked during the Bluetooth Qualification tests (Test Case: TRM/CA/07-E) for three frequencies
(2402, 2441, 2480 MHz).
Additionally an example for the channel separation is given in the test report

Total No of hopping channel	Limit (CH)	Measurement result (CH)	Result
	>15	79	Pass



Comment: Conducted Disturbance
Date: 28.JUN.2007 20:17:29



Comment: Conducted Disturbance
Date: 28.JUN.2007 20:31:44

11. FREQUENCY SEPARATION

11.1.Test Standard and Limit

11.1.1.Test Standard

FCC Part 15 15.247(c) :2006

11.2.Band Edge FCC 15.247(c) Limit

According to §15.247(a)(1), Frequency hopping systems shall have hopping channel carrier frequencies
separated by minimum of 25KHz or the 20dB bandwidth of the hopping channel, whichever is greater.

11.3.Test Procedure

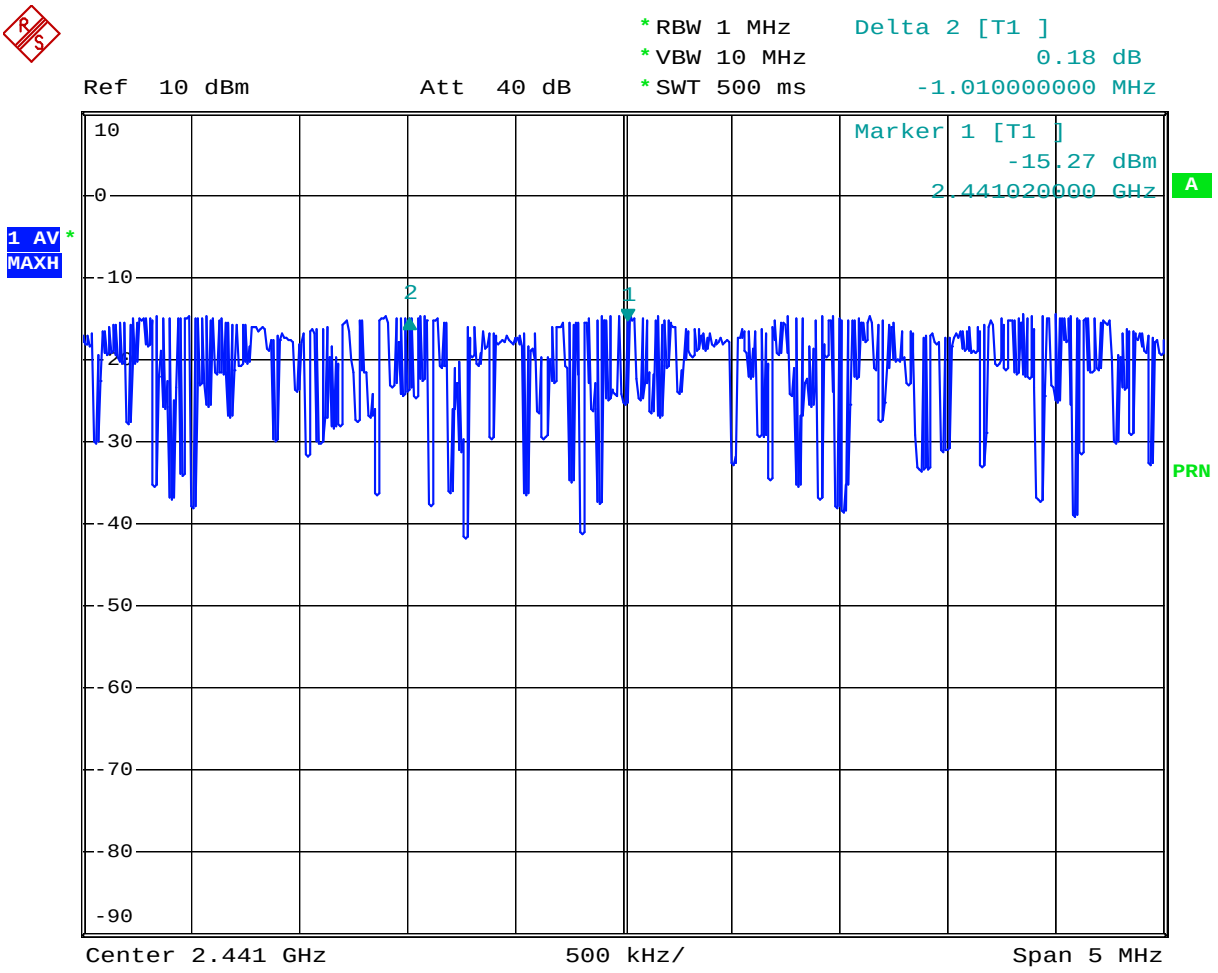
1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set center frequency of spectrum analyzer = middle of hopping channel .
4. Set the spectrum analyzer as RBW,VBW=100KHz, Adjust Span to 5 MHz, Sweep = auto.
5. Max hold. Mark 3 Peaks of hopping channel and record the 3 peaks frequency.

11.4.Test Arrangement

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application. The detailed information refers to test picture.

11.5.Test Data

Channel separation	Limit	Result
MHz	kHz	
1.010	>=25KHz or 2/3*20 dB bandwidth	Pass



Comment: Conducted Disturbance
Date: 28.JUN.2007 21:10:21

12. TIME OF OCCUPANCY (DWELL TIME)

12.1.Test Standard and Limit

12.1.1.Test Standard

FCC Part 15 15.247(c):2006

12.2.Band Edge FCC 15.247(c) Limit

According to § 15.247(a)(1)(iii), Frequency hopping systems operating in the 2400MHz-2483.5 MHz.
The average time of occupancy on any frequency shall not greater than 0.4 s within period of 0.4 seconds
multiplied by the number of hopping channel employed.

12.3.Test Procedure

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set center frequency of spectrum analyzer = operating frequency.
4. Set the spectrum analyzer as RBW,VBW=100KHz, Span = 0Hz , Adjust Sweep = 30s.
5. Repeat above procedures until all frequency measured were complete.

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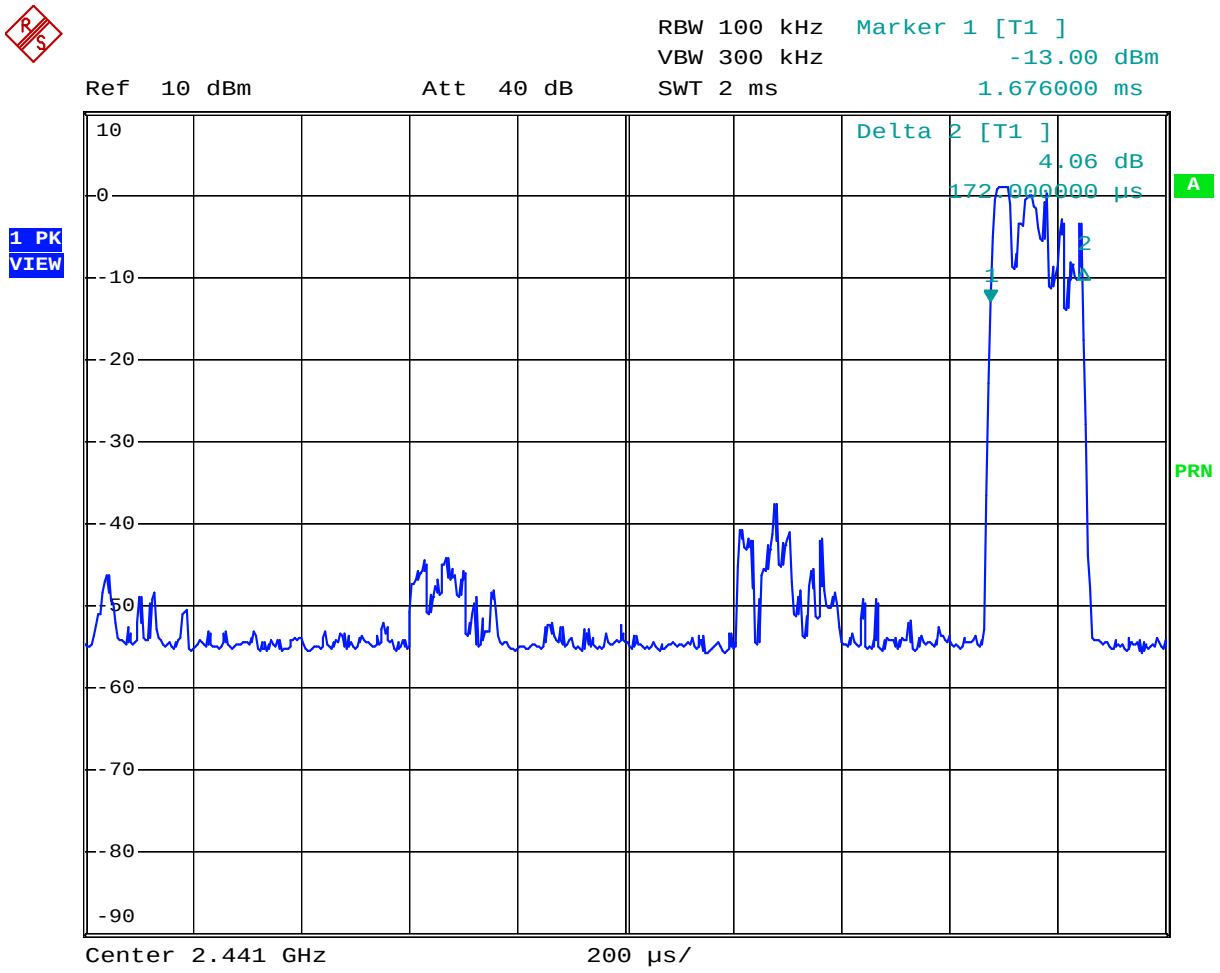
12.4.Test Arrangement

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application. The detailed information refers to test picture.

12.5.Test Data

The EUT working on DH1 mode only.
The dwell time of 0.172 s within a 30 second period in data mode is independent from the packet
type (packet length). The calculation for a 30 second period is a follows:
Dwell time = time slot length * hop rate / number of hopping channels *30s
A period time = 0.4 (ms) * 79 = 31.6 (s)
DH1 time slot = 0.172 (ms) * (1600/(2*79)) * 31.6 = 55.0 (ms)



Comment: Conducted Disturbance
Date: 28.JUN.2007 20:46:05

13. ANTENNA REQUIREMENT

13.1.Standard Applicable

For intentional device, according to § 15.203, an intentional radiator shall be designed to ensure that no
antenna other than furnished by the responsible party shall be used with the device.
And according to § 15.247(4)(1), system operating in the 2400-2483.5MHz bands that are used exclusively
for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum peak output power of the intentional radiator is reduced by 1
dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

13.2.Antenna Connected Construction

The directional gains of antenna used for transmitting is 0.85 dBi, and the antenna connector is designed with permanent attachment and no consideration of replacement. Please see EUT photo for
details.

APPENDIX I TEST PHOTO

Photo 1 Conducted Emission Test

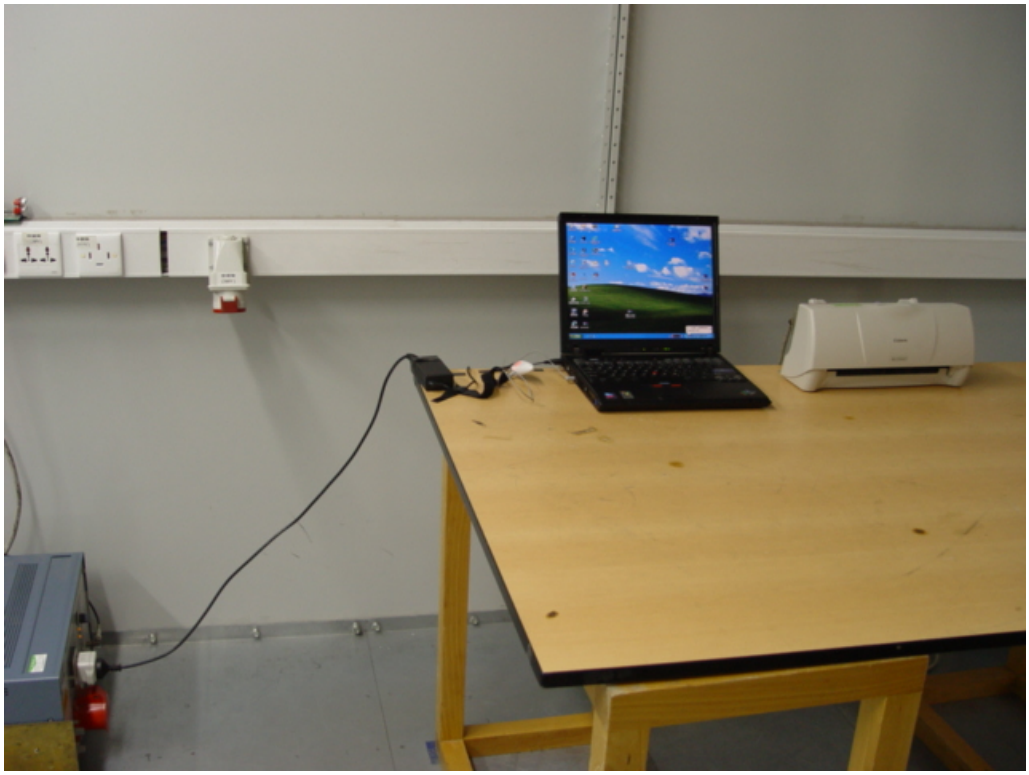


Photo 2 Conducted Emission Test

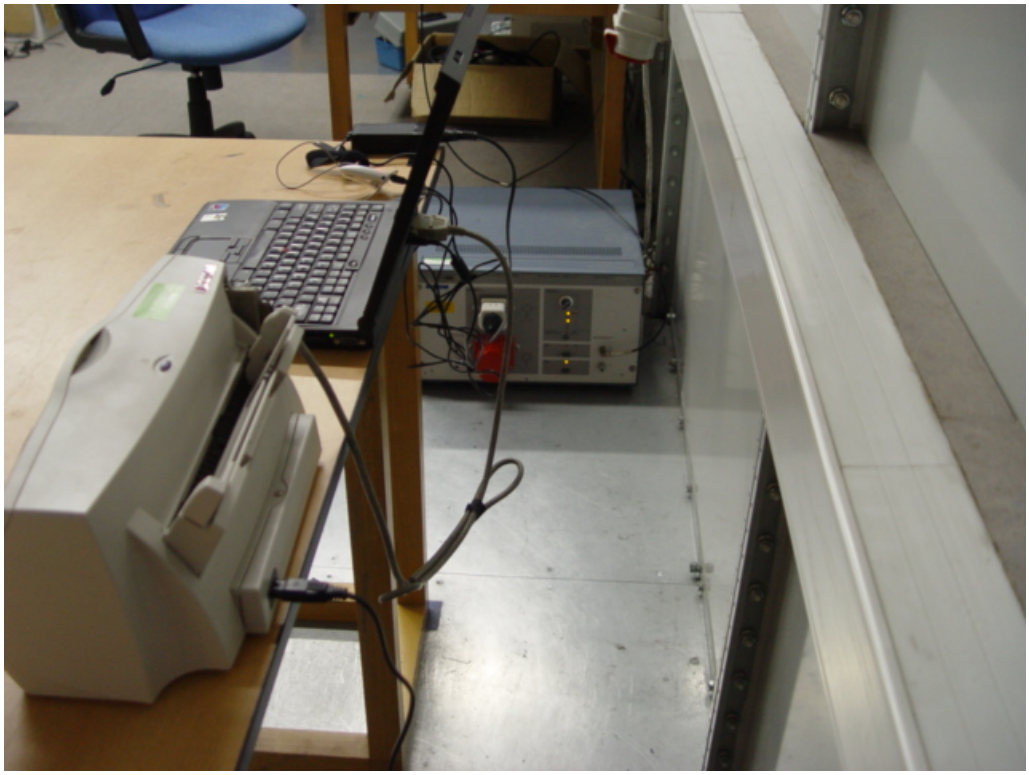


Photo 3 Radiated Emission Test

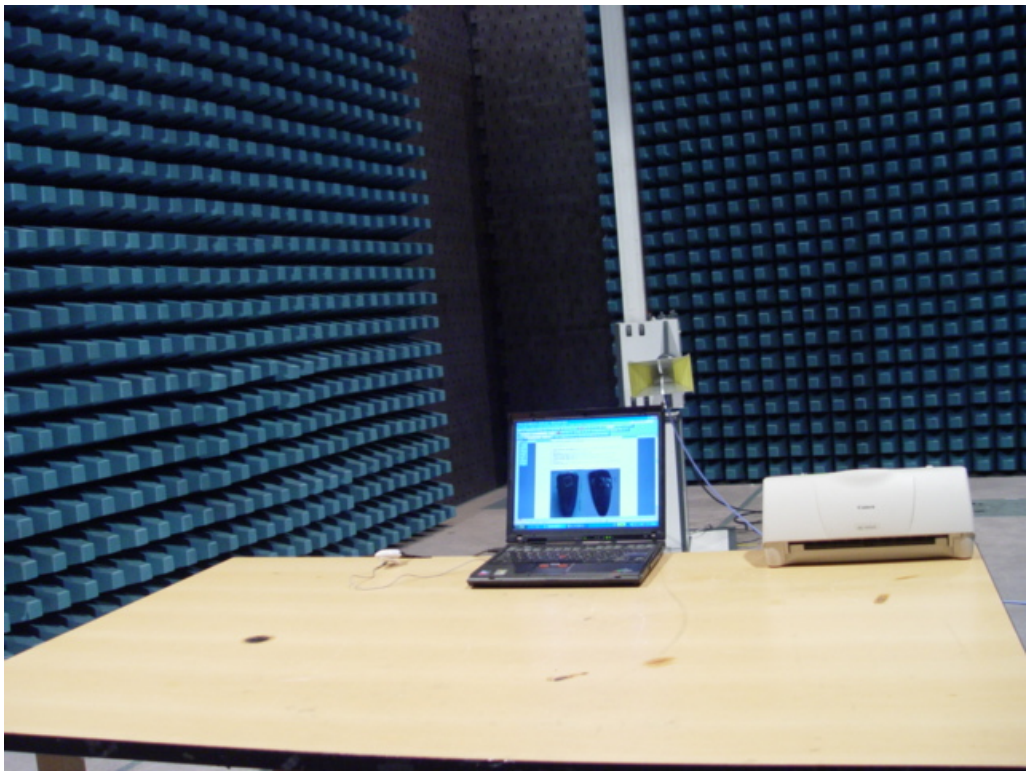
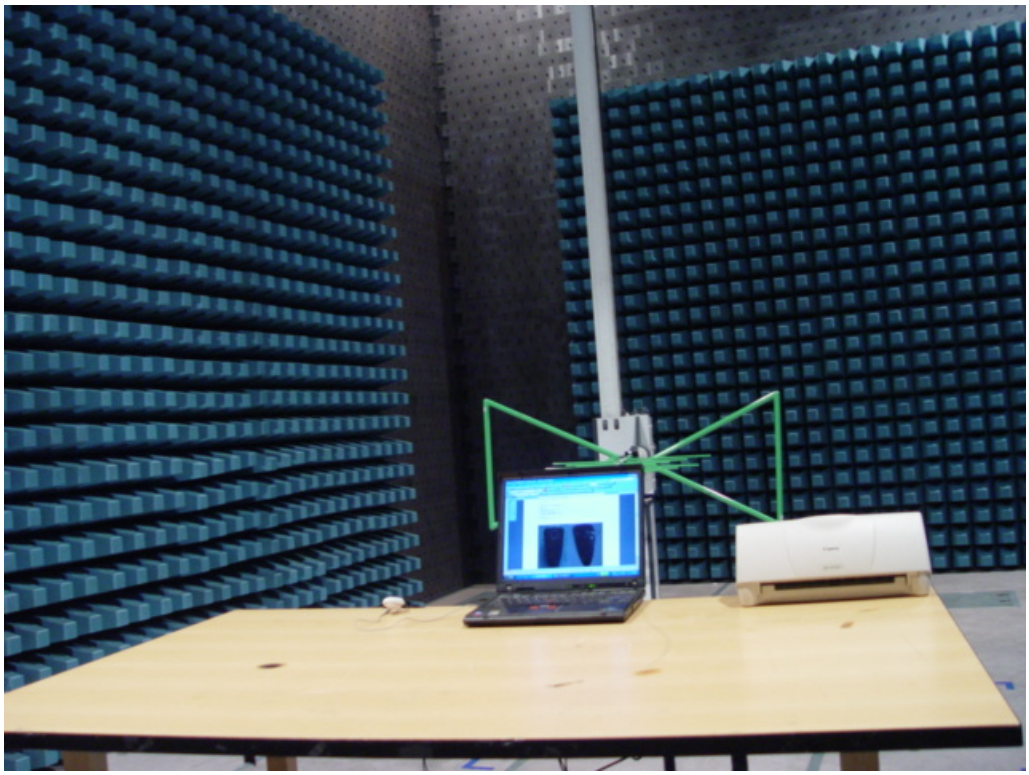


Photo 4 Radiated Emission Test



APPENDIX II EUT PHOTO

Photo 1 Appearance of EUT

Photo 2 Appearance of EUT

Photo 3 Inside of EUT

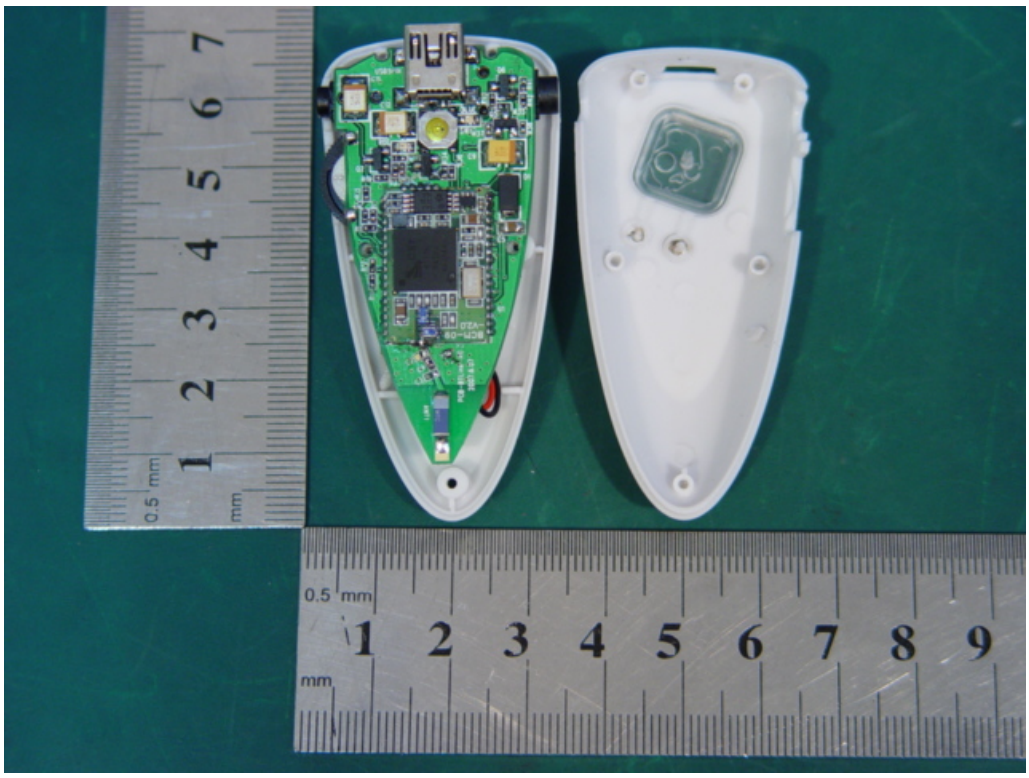


Photo 4 Inside of EUT

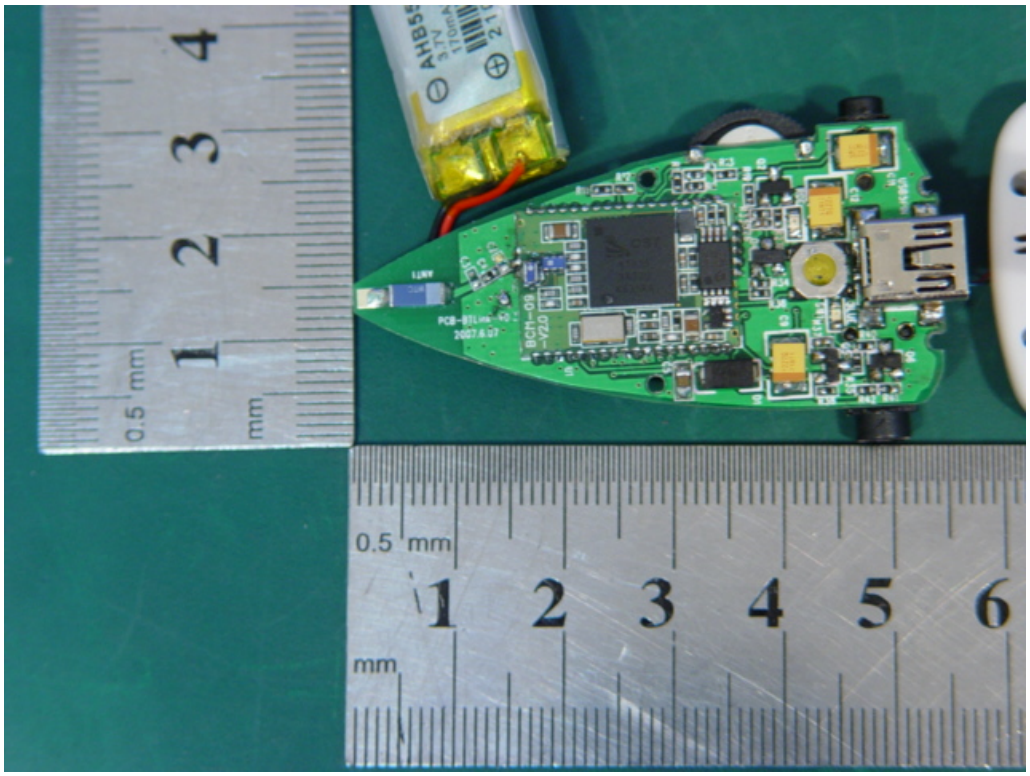


Photo 5 Inside of EUT