FCC TEST REPORT

FCC ID : WE7BT200

Applicant : SHENZHEN LONGHORN TECHNOLOGY CO., LTD.
Address :LONGHORN HI-TECH ESTATE, DALANG STREET,BAO'AN DISTRICT,SHENZHEN CITY,CHINA.

Equipment Under Test (EUT) :

Product description : Bluetooth Hands-free Car Kit
Model No. : BT200

Standards : FCC Part 15 Paragraph 15.247

Date of Test : Sept.18, 2008

Test Engineer : Olic huang

Reviewed By : Phillo Zhong

PERPARED BY:
Waltek Services (Shenzhen) Co., Ltd.
1/F, Fukangtai Building,West Baima Rd.,Songgang Street, Baoan District, Shenzhen 518105,China

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2 Contents

3 Test Summary

Test	Test Requirement	Test Method	Class / Severity	Result
Radiated Emission (30MHz to 25GHz)	FCC PART 15: 2003	ANSI C63.4: 2003	N/A	PASS
Conducted Emission (150KHz to 30MHz)	FCC PART 15: 2003	ANSI C63.4: 2003	N/A	N/A

4 General Information

4.1 Client Information

Applicant:	SHENZHEN LONGHORN TECHNOLOGY CO., LTD
Address of Applicant:	LONGHORN HI-TECH ESTATE, DALANG STREET,BAO'AN DISTRICT,SHENZHEN CITY,CHINA

4.2 General Description of E.U.T.

Product description:	Bluetooth Hands-free Car Kit
Model No.:	BT200

4.3 Details of E.U.T.

Power Supply:	Battery, DC 3.7V Charger: Input:12/24V,Output:200-500mA

4.4 Description of Support Units

The EUT has been tested as an independent unit.

4.5 Standards Applicable for Testing

The customer requested FCC tests for a 2.4G Wireless Laser Mouse. The standards used were FCC 15 Paragraph 15.247,Paragraph 15.205, Paragraph 15.207,Paragraph 15.209, Paragraph 15.31,Paragraph 15.33, Paragraph 15.35.

4.6 Test Facility

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

- **FCC – Registration No.: 880581**

  Waltek Services(Shenzhen) 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 880581, June 24, 2008.

- **IC – Registration No.: 7760**

  Waltek Services(Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the Industry Canada. The acceptance letter from the Industry Canada is maintained in our files. Registration IC7760, July 24, 2008.

4.7 Test Location

All Emissions testswere performed at:-
1/F, Fukangtai Building,West Baima Rd.,Songgang Street, Baoan District, Shenzhen 518105, Guangdong,China.

5 Equipment Used during Test

Equipment	Brand Name	Model	Related standards	Cal.Intal Months	Last Cal. Date	Serial No
3m Semi-anechoic chamber						
EMC Analyzer	Agilent	E7405A	ISO9001:2000	12	Jan-08	MY45114943
Trilog Broadband Antenne 30-1000 MHz	SCHWARZBECK MESS-ELEKTROM	VULB9163	EN/ISO/IEC 17025 DIN EN ISO9001	12	Jan-08	336
Broad-band Horn Antenna	SCHWARZBECK MESS-ELEKTROM	BBHA 9120 D	EN/ISO/IEC 17025 DIN EN ISO9001	12	Jan-08	667
Broadband Preamplifier	SCHWARZBECK MESS-ELEKTROM	BBV 9718	EN/ISO/IEC 17025 DIN EN ISO9001	12	Jan-08	9718-148
10m Coaxial Cable with N-male Connectors usable	SCHWARZBECK MESS-ELEKTROM	AK 9515 H	EN/ISO/IEC 17025 DIN EN ISO9001	12	Jan-08	-
10m 50 Ohm Coaxial Cable with N-plug,individual length,usable up to 3(5)GHz, Connectors	SCHWARZBECK MESS-ELEKTROM	AK 9513	EN/ISO/IEC 17025 DIN EN ISO9001	12	Jan-08	-
Positioning Controller	C&C LAB	CC-C-IF	ISO9001	12	Jan-08	MF7802108
Color Monitor	SUNSPO	SP-14C	ISO9001	12	Jan-08	-
EMI Shielded Room						
Test Receiver	ROHDE&SCHWARZ	ESPI	ISO9001	12	Jan-08	101155
Two-Line V-Network	ROHDE&SCHWARZ	ENV216	ISO9001 EN/ISO/IEC 17025	12	Jan-08	100115
Absorbing Clamp	ROHDE&SCHWARZ	MDS-21	ISO9001 EN/ISO/IEC 17025	12	Jan-08	100205
10m 50 Ohm Coaxial Cable with N-plug,individual length,usable up to 3(5)GHz, Connectors	SCHWARZBECK MESS-ELEKTROM	AK 9514	EN/ISO/IEC 17025 DIN EN ISO9001	12	Jan-08	-

6 Conducted Emission Test

Test Requirement:	FCC Part15 Paragraph 15.207
Test Method:	Based on FCC Part15 Paragraph 15.207
Test Date:	…….
Frequency Range:	150kHz to 30MHz
Class:	Class B
Detector:	Peak for pre-scan (9kHz Resolution Bandwidth) Quasi-Peak & Average if maximised peak within 6dB of Average Limit

6.1 Test Equipment

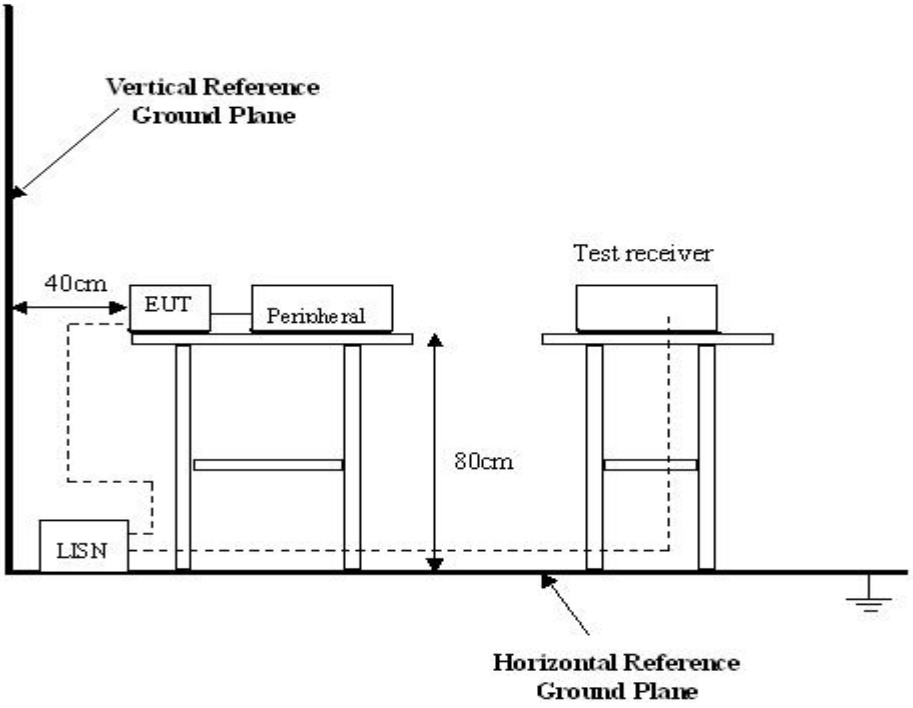
Please refer to Section 5 this report.

6.2 Test Procedure

1. The EUT was connected with signal generator and placed on a table.
2. The EUT was tested according to ANSI C63.4:2003. The frequency spectrum from 150kHz to 30MHz was investigated.
3. The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.

6.3 Conducted Test Setup

The conducted emission tests were performed using the setup accordance with the ANSI C63.4:2003, The specification used in this report was the FCC Part15 Paragraph 15.207 limits.



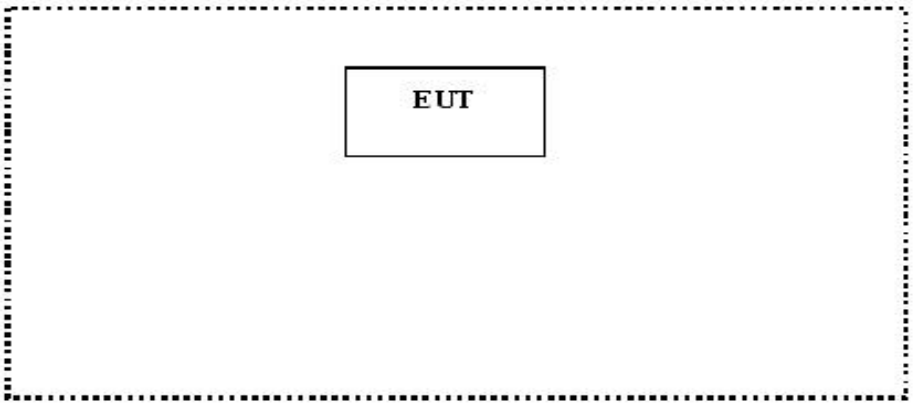
6.4 EUT Operating Condition

Operating condition is according to ANSI C63.4:2003.

A. Setup the EUT and simulators as shown on follow.

B. Enable RF signal and confirm EUT active.

C. Modulate output capacity of EUT up to specification.



6.5 Conducted Emission Limits

66-56 dBμV between 0.15MHz & 0.5MHz
56 dBμV between 0.5MHz & 5MHz
60 dBμV between 5MHz & 30MHz

Note: In the above limits, the tighter limit applies at the band edges.

6.6 Conducted Emission Test Data

Owing to the DC operation of EUT, this test is not performed.

7 Radiation Emission Test

Test Requirement:	FCC Part15 Paragraph 15.247
Test Method:	Based on ANSI 63.4: 2003
Test Date:	Sept. 18, 2008
Frequency Range:	30MHz to 25GHz
Measurement Distance:	3m
Detector:	Peak for pre-scan (120kHz resolution bandwidth)
	Quasi-Peak if maximised peak within 6dB of limit

7.1 Test Equipment

Please refer to Section 5 this report.

7.2 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in the field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

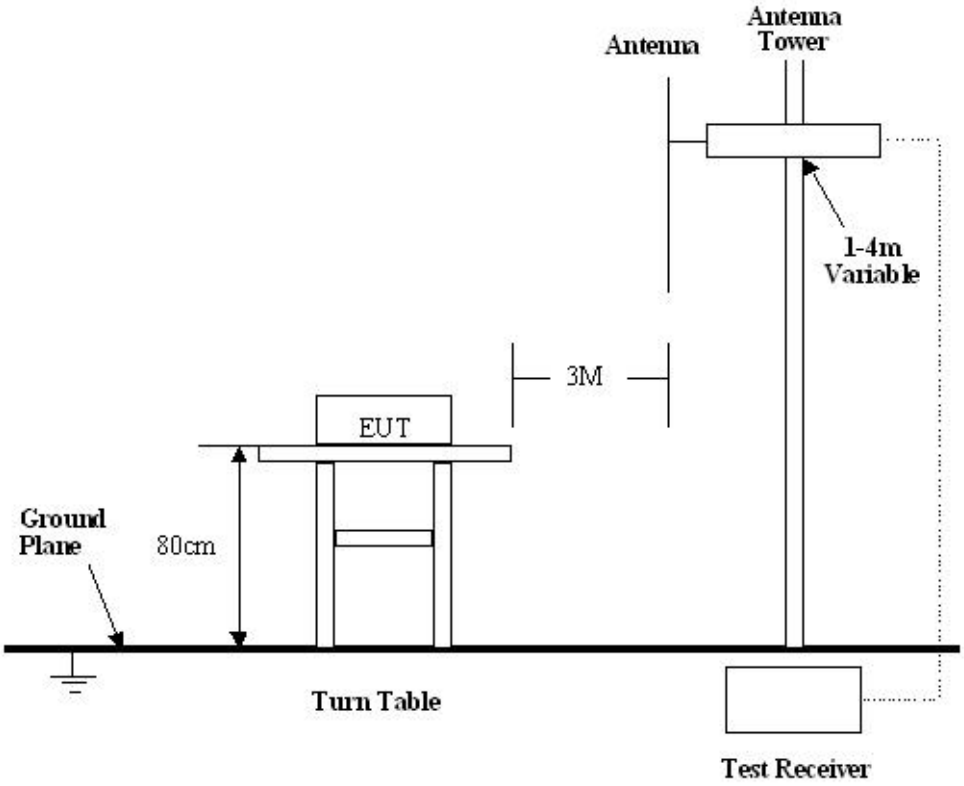
Based on ANSI C63.4:2003, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at WALTEK SERVICES EMC Lab is ±2.9 dB.

7.3 Test Procedure

1. New battery were installed in the equipment under test for radiated emissions test.
2. This is a handhold device,The radiation emission should be tested under 3-axes(X,Y,Z) position(X denotes lying on the table,Y denotes side stand and Z denotes vertical stand),After pre-test,It was found that the worse radiation emission was get at the X position. So the data shown was the X position only.
3. Maximizing procedure was performed on the six (6) highest emissions to ensure EUT is compliant with all installation combinations.
4. All data was recorded in the peak and average detection mode.
5. The EUT was under working mode during the final qualification test and the configuration was used to represent the worst case results.

7.4 Radiated Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.4:2003, The specification used in this report was the FCC Part15 Paragraph 15.209 limits and Paragraph 15.247 limits.



7.5 Spectrum Analyzer Setup

According to FCC Part15 Paragraph 15.247 Rules, the system was tested from 30MHz to 25000 MHz.

Below 1G

Start Frequency.....30 MHz
Stop Frequency .....1000 MHz
Sweep Speed Auto
IF Bandwidth.....120 kHz
Video Bandwidth.....100KHz
Quasi-Peak Adapter Bandwidth .....120 kHz
Quasi-Peak Adapter Mode.....Normal
Resolution Bandwidth 100KHz

Above 1G

Start Frequency.....1000 MHz
Stop Frequency 25000MHz
Sweep Speed Auto
IF Bandwidth.....120 kHz
Video Bandwidth.....1MHz
Quasi-Peak Adapter Bandwidth .....120 kHz
Quasi-Peak Adapter Mode.....Normal
Resolution Bandwidth 1MHz

7.6 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading + Antenna Factor + Cable Factor – Amplifier Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dBμV means the emission is 7dBμV below the maximum limit for Class B. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – Class B Limit

7.7 Summary of Test Results

According to the data in section 7.11, the EUT complied with the FCC Part15 Paragraph 15.247 standards.

7.8 EUT Operating Condition

The same as section 6.4 of this report.

Let the EUT work in test mode and test it.

7.9 Radiated Emissions Limit on Paragraph 15.209

Frequency(MHZ)	Distance(m)	Field strength(dBuV/m)
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

Note: (1) RF Voltage(dBuV)=20 log RF Voltage(uV)

(2) In the Above Table,the tighter limit applies at the band edges.

(3) Distance refers to the distance in meters between the measuring instrument antenna.

(4)The emission limit in this paragraph is based on measurement instrumentaion employing an average detector.Measurement using instrumentation with a peak detector function,corresponding to 20dB above the maximum permitted average limit.

(5)Above 1GHz, mark a Peak and average measurements for all emissions,Limit for peak is 74dBuvV/m,According to Part15.35(b) and average is 54BuvV/m.

7.10 Radiated Emissions Test Result

Formula of conversion factors:the field strength at 3m was egtablished by adding
The meter reading of the spectrum analyzer (which is set to read in units of dBuV/m)
To the antenna correction factor supplied by the antenna manufacturer. The antenna
Correction factors are stared in terms of dB.The gain of the pressletor was accounted
For in the spectrum analyser meter reading.

Example:

Freq(MHz) Meter Reading +ACF=FS
33 20dBuV+10.36dB=30.36dBuV/m @3m

7.11 Radiated Emission Data

A. Test Item: Radiated Emission Data
Test Voltage: DC 3.0V
Test Mode: TX On
Temperature: 24 °C
Humidity: 52%RH
Test Result: PASS

Remarks: 30-1000MHz radiation test no significant emissions above the equipment noise floor were detected.

And the below is the Fundamental and Harmonic .

Frequency (MHz)	Detector	Antenna Polarization	Emission Level (dBuV/m)	FCC Part15 Subpart C Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Turntable Angle (°)
Low frequency							
2402.00	AV	Vertical	91.36		(Fund.)	1.2	150
4804.00	AV	Vertical	41.02	54.00	13.98	1.2	0
7206.00	AV	Vertical	35.23	54.00	19.73	1.5	120
9608.00	AV	Vertical	32.52	54.00	21.48	1.8	60
12010.00	AV	Vertical	31.25	54.00	22.75	1.6	90
14412.00	AV	Vertical	31.01	54.00	22.99	1.4	120
16814.00	AV	Vertical	30.02	54.00	23.98	1.7	100
19216.00	AV	Vertical	30.67	54.00	23.33	1.5	180
21618.00	AV	Vertical	29.63	54.00	24.34	1.6	120
24020.00	AV	Vertical	29.01	54.00	24.99	1.2	135
2402.00	AV	Horizontal	87.36		(Fund.)	1.2	120

4804.00	AV	Horizontal	41.12	54.00	12.88	1.2	150
7206.00	AV	Horizontal	36.21	54.00	17.79	1.5	120
9608.00	AV	Horizontal	34.25	54.00	19.75	1.2	180
12010.00	AV	Horizontal	33.21	54.00	20.79	1.5	135
14412.00	AV	Horizonta	31.25	54.00	22.75	1.2	120
16814.00	AV	Horizontal	30.74	54.00	23.26	1.5	180
19216.00	AV	Horizontal	32.01	54.00	21.99	1.8	60
21618.00	AV	Horizontal	31.53	54.00	22.47	1.2	90
24020.00	AV	Horizontal	30.01	54.00	23.99	1.5	90
2402.00	PK	Vertical	103.41		(Fund.)	1.5	180
4804.00	PK	Vertical	45.21	74.00	29.64	1.8	30
7206.00	PK	Vertical	40.01	74.00	33.99	1.6	110
9608.00	PK	Vertical	37.42	74.00	36.58	1.4	100
12010.00	PK	Vertical	36.21	74.00	37.79	1.2	90
14412.00	PK	Vertical	32.01	74.00	41.99	1.2	60
16814.00	PK	Vertical	33.21	74.00	40.79	1.4	90
19216.00	PK	Vertical	30.10	74.00	43.90	1.2	120
21618.00	PK	Vertical	29.01	74.00	44.99	1.7	120
24020.00	PK	Vertical	29.01	74.00	44.99	1.4	135
2402.00	PK	Horizontal	99.32		(Fund.)	1.8	180
4804.00	PK	Horizontal	41.24	74.00	32.76	1.8	60
7206.00	PK	Horizontal	38.25	74.00	35.75	1.8	120
9608.00	PK	Horizontal	36.98	74.00	37.02	1.2	180
12010.00	PK	Horizontal	35.69	74.00	38.31	1.2	90
14412.00	PK	Horizontal	35.62	74.00	38.38	1.5	90
16814.00	PK	Horizontal	33.35	74.00	40.65	1.8	150
19216.00	PK	Horizontal	33.01	74.00	40.99	1.5	150
21618.00	PK	Horizontal	30.21	74.00	43.79	1.2	120
24020.00	PK	Horizontal	30.01	74.00	43.99	1.2	180
Middle frequency							
2441.00	AV	Vertical	88.74		(Fund.)	1.5	0
4882.00	AV	Vertical	39.02	54.00	14.98	1.2	90
7323.00	AV	Vertical	35.21	54.00	18.71	1.0	90
9764.00	AV	Vertical	33.33	54.00	20.67	1.2	0

12205.00	AV	Vertical	32.02	54.00	21.98	1.2	0
14646.00	AV	Vertical	32.01	54.00	21.99	1.2	150
17087.00	AV	Vertical	30.26	54.00	23.74	1.5	0
19528.00	AV	Vertical	30.01	54.00	23.99	1.5	0
21969.00	AV	Vertical	29.02	54.00	24.98	1.8	180
24410.00	AV	Vertical	28.23	54.00	25.77	1.2	90
2441.00	AV	Horizontal	89.96		(Fund.)	1.0	120
4882.00	AV	Horizontal	35.69	54.00	18.31	1.0	90
7323.00	AV	Horizontal	34.25	54.00	19.75	1.5	270
9764.00	AV	Horizontal	33.52	54.00	20.48	1.2	120
12205.00	AV	Horizontal	31.21	54.00	22.79	1.2	150
14646.00	AV	Horizontal	30.25	54.00	23.75	1.4	180
17087.00	AV	Horizontal	29.25	54.00	24.75	1.6	135
19528.00	AV	Horizontal	28.36	54.00	25.64	1.4	90
21969.00	AV	Horizontal	28.02	54.00	25.98	1.2	150
24410.00	AV	Horizontal	28.02	54.00	25.98	1.7	120
2441.00	PK	Vertical	103.41		(Fund.)	1.0	0
4882.00	PK	Vertical	44.21	74.00	29.79	1.1	90
7323.00	PK	Vertical	38.25	74.00	35.75	1.4	100
9764.00	PK	Vertical	37.94	74.00	36.06	1.3	120
12205.00	PK	Vertical	37.87	74.00	36.13	1.7	180
14646.00	PK	Vertical	36.10	74.00	38.90	1.2	0
17087.00	PK	Vertical	32.03	74.00	41.97	1.4	0
19528.00	PK	Vertical	30.21	74.00	43.79	1.5	120
21969.00	PK	Vertical	28.30	74.00	45.70	1.5	135
24410.00	PK	Vertical	28.30	74.00	45.70	1.2	120
2441.00	PK	Horizontal	100.01		(Fund.)	1.0	0
4882.00	PK	Horizontal	43.56	74.00	30.44	1.7	45
7323.00	PK	Horizontal	41.51	74.00	32.49	1.6	90
9764.00	PK	Horizontal	40.14	74.00	33.86	1.5	60
12205.00	PK	Horizontal	39.36	74.00	34.64	1.4	150
14646.00	PK	Horizontal	37.44	74.00	36.56	1.2	150
17087.00	PK	Horizontal	34.21	74.00	39.79	1.1	120
19528.00	PK	Horizontal	38.86	74.00	35.14	1.5	150

21969.00	PK	Horizontal	34.21	74.00	39.79	1.1	0
24410.00	PK	Horizontal	33.33	74.00	40.67	1.6	135
High frequency							
2480.00	AV	Vertical	88.79		(Fund.)	1.0	0
4960.00	AV	Vertical	36.25	54.00	17.75	1.2	45
7440.00	AV	Vertical	32.25	54.00	21.75	1.2	120
9920.00	AV	Vertical	30.26	54.00	23.74	1.4	60
12400.00	AV	Vertical	30.55	54.00	23.45	1.5	135
14880.00	AV	Vertical	30.34	54.00	23.66	1.8	120
17360.00	AV	Vertical	30.62	54.00	23.38	1.1	100
19840.00	AV	Vertical	30.13	54.00	23.87	1.1	60
22320.00	AV	Vertical	30.27	54.00	23.73	1.4	0
24800.00	AV	Vertical	28.25	54.00	25.75	1.5	60
2480.00	AV	Horizontal	90.54		(Fund.)	1.0	0
4960.00	AV	Horizontal	34.56	54.00	19.44	1.8	120
7440.00	AV	Horizontal	30.35	54.00	23.65	1.2	60
9920.00	AV	Horizontal	31.47	54.00	22.53	1.5	100
12400.00	AV	Horizontal	31.89	54.00	22.11	1.2	60
14880.00	AV	Horizontal	32.42	54.00	21.58	1.2	120
17360.00	AV	Horizontal	31.17	54.00	22.83	1.4	100
19840.00	AV	Horizontal	32.55	54.00	21.45	1.8	100
22320.00	AV	Horizontal	32.86	54.00	21.14	1.3	100
24800.00	AV	Horizontal	33.25	54.00	20.75	1.7	0
2480.00	PK	Vertical	102.12		(Fund.)	1.0	0
4960.00	PK	Vertical	44.21	74.00	29.79	1.2	60
7440.00	PK	Vertical	35.62	74.00	38.38	1.8	90
9920.00	PK	Vertical	35.35	74.00	38.65	1.5	180
12400.00	PK	Vertical	35.56	74.00	38.44	1.4	60
14880.00	PK	Vertical	34.21	74.00	39.79	1.2	60
17360.00	PK	Vertical	33.54	74.00	40.46	1.2	135
19840.00	PK	Vertical	36.26	74.00	37.74	1.2	120
22320.00	PK	Vertical	36.73	74.00	37.27	1.6	60
24800.00	PK	Vertical	30.21	74.00	43.99	1.4	90
2480.00	PK	Horizontal	99.66		(Fund.)	1.1	60

4960.00	PK	Horizontal	42.58	74.00	31.42	1.4	90
7440.00	PK	Horizontal	38.64	74.00	35.36	1.5	60
9920.00	PK	Horizontal	35.37	74.00	38.63	1.3	0
12400.00	PK	Horizontal	35.52	74.00	38.48	1.2	135
14880.00	PK	Horizontal	35.26	74.00	38.74	1.7	0
17360.00	PK	Horizontal	36.41	74.00	37.59	1.8	180
19840.00	PK	Horizontal	32.41	74.00	41.59	1.5	60
22320.00	PK	Horizontal	31.11	74.00	42.89	1.8	120
24800.00	PK	Horizontal	28.21	74.00	45.79	1.0	60

8 Maximum Peak Output Power

Test Requirement: FCC Part15 Paragraph 15.247

Test Method: Based on ANSI 63.4: 2003

Test Date: Sept. 18, 2008

Test mode: Compliance test in the worse case: Tx Lower/Tx Middle/Tx Upper

Requirements: Regulation 15.247(b) The limit of Maximum Peak Output Power Measurement is 1W(30dBm)

Test procedure:

The following test procedure as below:

The transmitter output (antenna port) was connected to the spectrum analyzer.EUT and its simulators are placed on a table, let EUT working in test mode,then test it.

The bandwidth of the fundamental frequency was measured with the spectrum analyser using 1MHz RBW and 1MHz VBW.

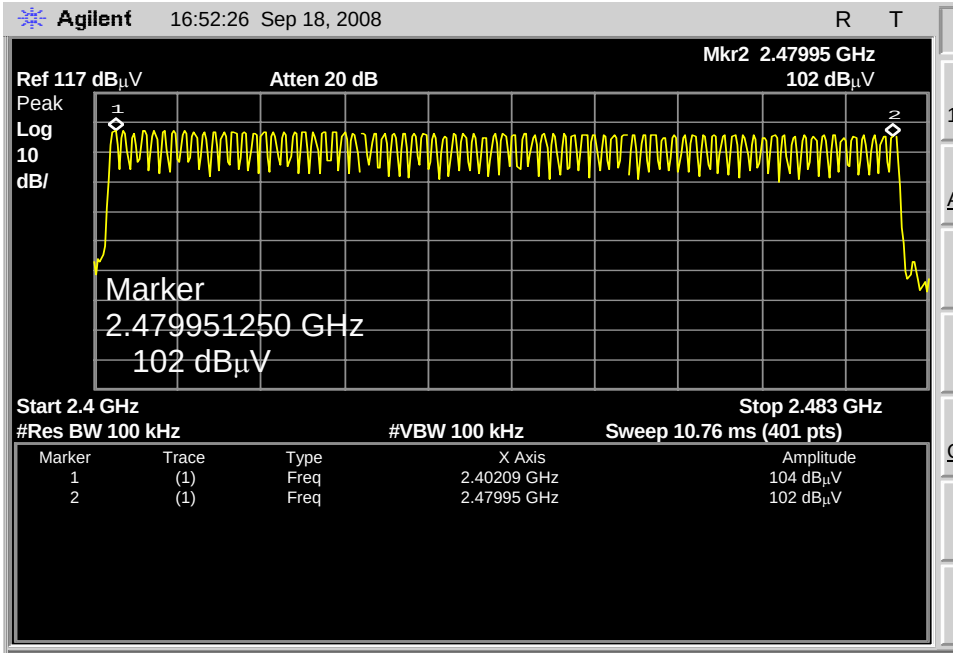
Test Result: The unit does meet the FCC requirements.

Test Channel	Fundamental Frequency(GHz)	Output Power (mW)	Limit (W)	Power output level
Lower	2.402	0.503	1	ERP
Middle	2.441	0.401	1	ERP
Upper	2.480	0.349	1	ERP

9 Hopping Channel Number

Test Requirement:	FCC Part15 C
Test Method:	Based on FCC Part15 Paragraph 15.247
Test Date:	Sept . 18, 2008
Test mode:	The EUT work in test mode(Tx) and test it
Requirements:	Regulation 15.247(b) For frequency hopping systems operating In the 2400-2483.5MHz band employing at least 15 hopping channels.
Test result:	The total number of channels would be 79 channels. The unit does meet the FCC requirements.

Please refer the graph as below:



10 Frequency Separated

The requirements in this clause are only applicable to equipment using frequency hopping spread spectrum (FHSS) modulation.

Channel Separated

Definition:

A hopping channel is any of the centre frequencies defined within the hopping sequence of a FHSS system.

Limit:

Non-adaptive frequency hopping system shall make use of non-overlapping channels separated by the channel bandwidth as measured at 20dB below peak power.

The hopping channels defined within a hopping sequence shall be at least 1MHz apart(channel separation)

Operating Environment:

Temperature: 22.0 °C

Humidity: 55 % RH

Barometric Pressure: 1012 mbar

EUT Operation Condition:

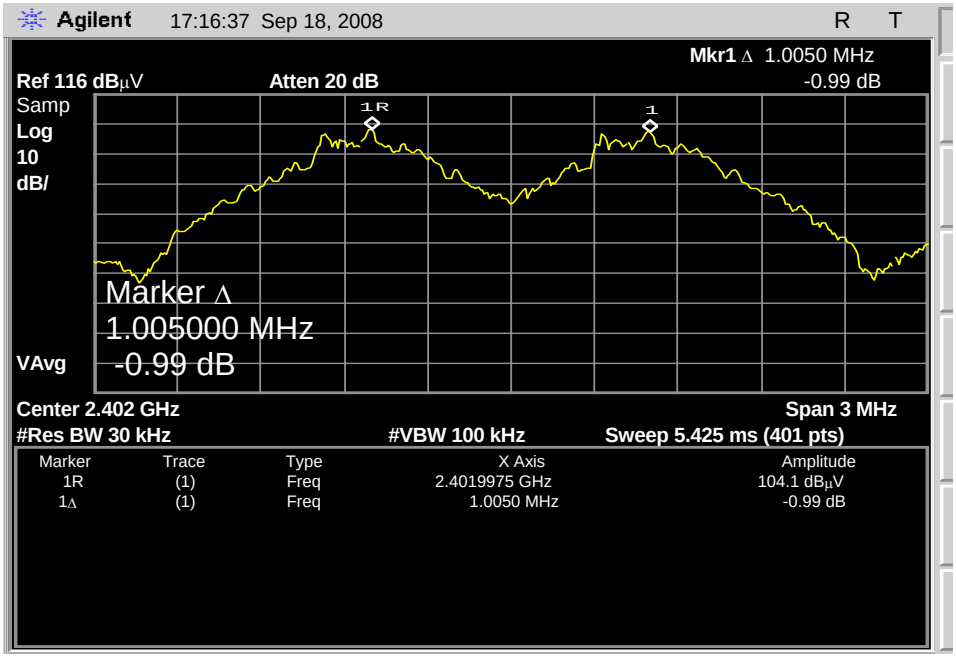
The EUT was programmed to be in continuously transmitting mode.

Test Result: PASS

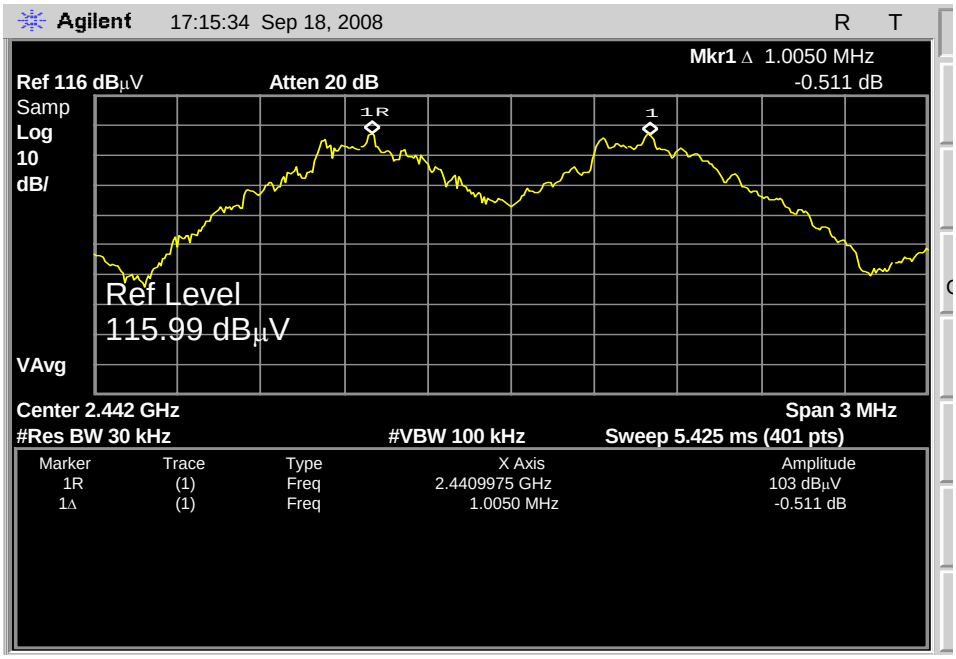
Test Channel	Channel Separation	PASS/FAIL
Lower Channels (channel 00 and channel 01)	1MHz	Pass
Middle Channels (channel 39 and channel 40)	1MHz	Pass
Upper Channels (channel 77 and channel 78)	1MHz	Pass

Please refer to the below photos for more details

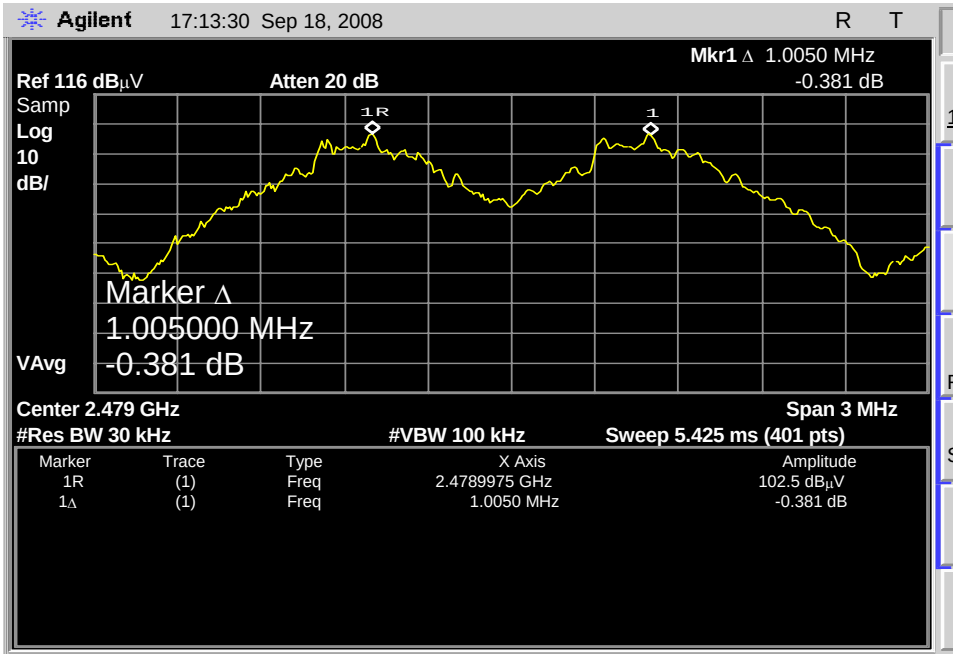
Lower Channel 2402MHz



Middle Channel 2441MHz



Upper Channel 2480MHz



11 Dwell time

11.1 Definition:

The dwell time is the time spent at a particular frequency during any single hop.

Limit: the maximum dwell time shall be less than 0.4s.

Operating Environment:

Temperature: 22.0 °C

Humidity: 55 % RH

Barometric Pressure: 1012 mbar

EUT Operation Condition:

The EUT was programmed to be in continuously transmitting mode.

11.2 Test Procedure

The EUT output antenna port was connected to the spectrum analyzer. Set RBW of spectrum analyzer to 1MHz and VBW to 1MHz,and the frequency span to 0 Hz,measure the maximum time duration of one single pulse.Set the EUT for DH5, DH3 and DH1 packet transmitting.

DH5 Packet permit maximum 1600/ 79 / 6 hops per second in each channel (5 time slots RX, 1 time slot TX).

DH3 Packet permit maximum 1600 / 79 / 4 hops per second in each channel (3 time slots RX, 1 time slot TX).

DH1 Packet permit maximum 1600 / 79 /2 hops per second in each channel (1 time slot RX, 1 time slot TX). So,the Dwell Time can be calculated as follows:

Data Packet	Dwell Time(s)
DH5	1600/79/6*31.6*(MkrDelta)/1000
DH3	1600/79/4*31.6*(MkrDelta)/1000
DH1	1600/79/2*31.6*(MkrDelta)/1000

Note : Mkr Delta is once pulse time .

11.3 Test Result: PASS

Please refer to the below photos for more details.

Channel 00 2402MHz

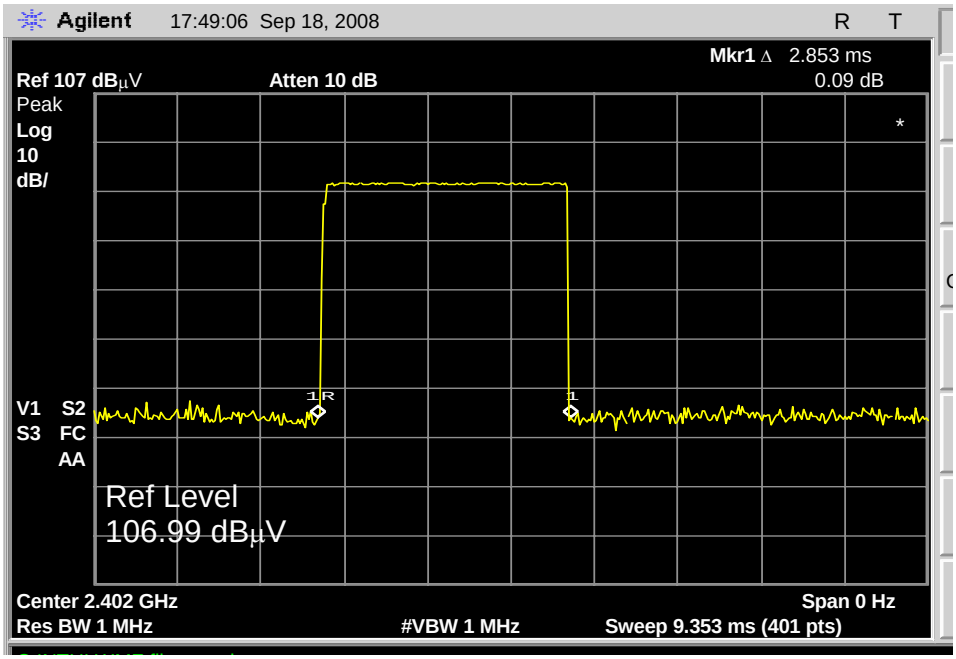
Dwell time of each occupation in this channel as follows:

Data Packet	Frequency	Mkr Delta(ms)	Dwell Time(s)	Limits(s)
DH5	2402 MHz	2.853	0.305	0.400
DH3	2402 MHz	1. 847	0.296	0.400
DH1	2402 MHz	0.613	0.197	0.400

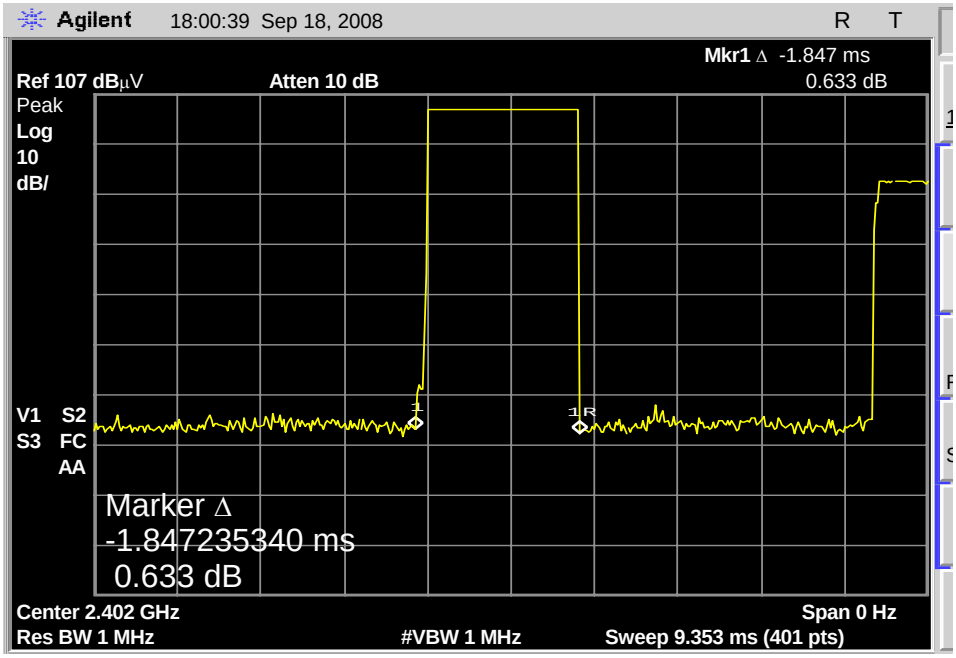
Test Result: PASS

The Results are not be greater than 0.4 seconds.

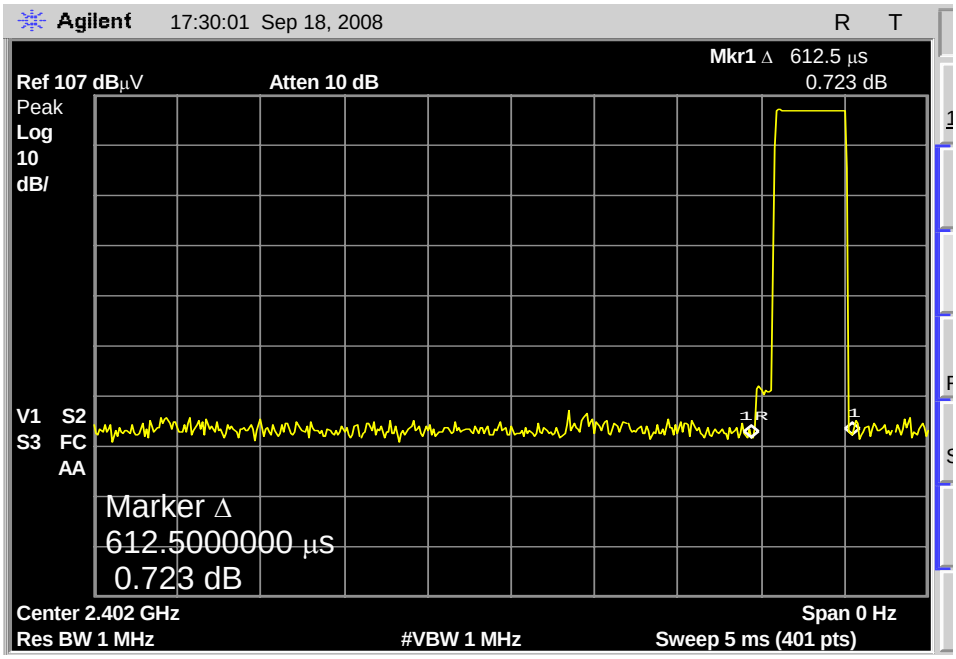
Channel 00 2402 MHz DH5



Channel 00 2402 MHz DH3



Channel 00 2402 MHz DH1



Channel 39 2441MHz

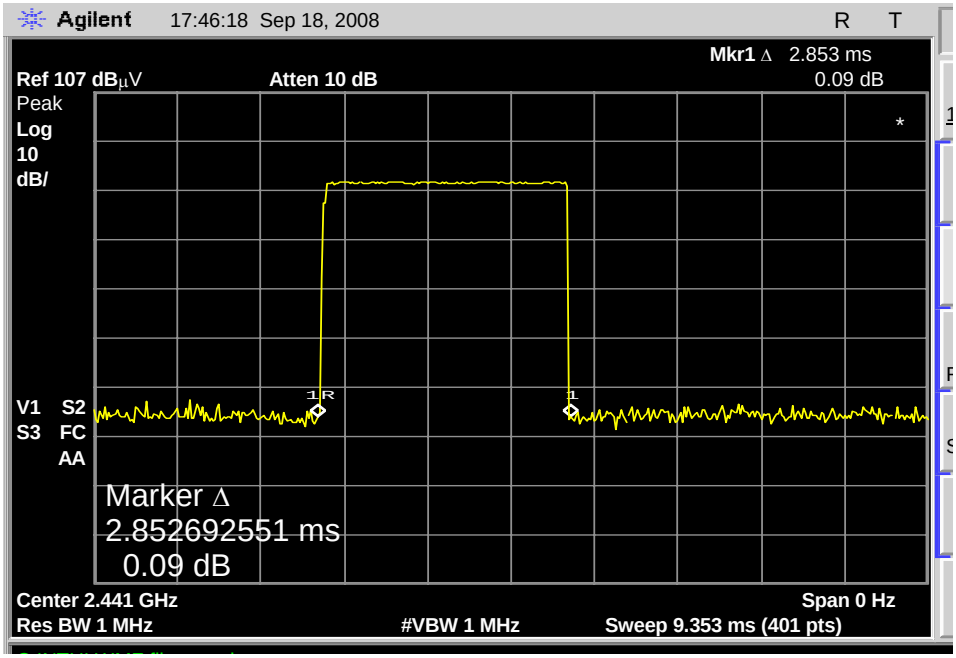
Dwell time of each occupation in this channel as follows:

Data Packet	Frequency	Mkr Delta(ms)	Dwell Time(s)	Limits(s)
DH5	2441 MHz	2.853	0.305	0.400
DH3	2441 MHz	1.871	0.299	0.400
DH1	2441 MHz	0.600	0.192	0.400

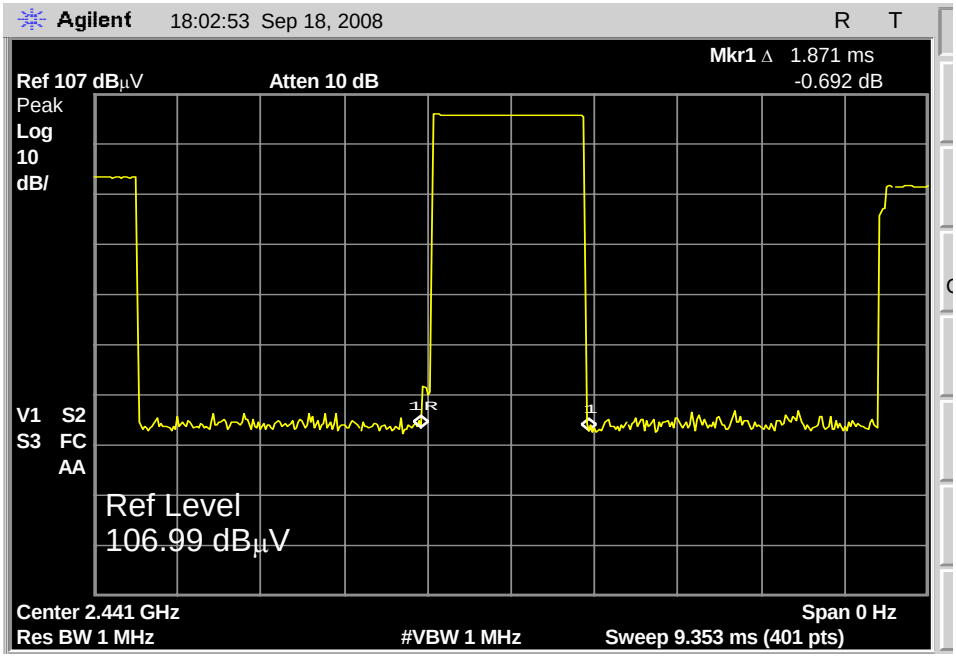
Test Result: PASS

The Results are not be greater than 0.4 seconds.

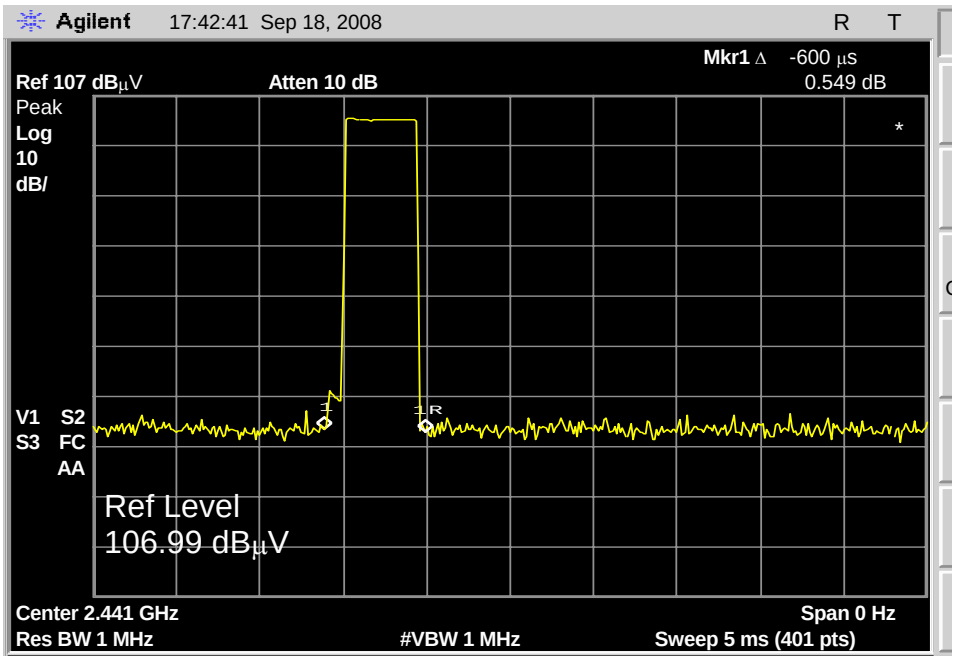
Channel 39 2441 MHz DH5



Channel 39 2441 MHz DH3



Channel 39 2441 MHz DH1



Channel 78 2480MHz

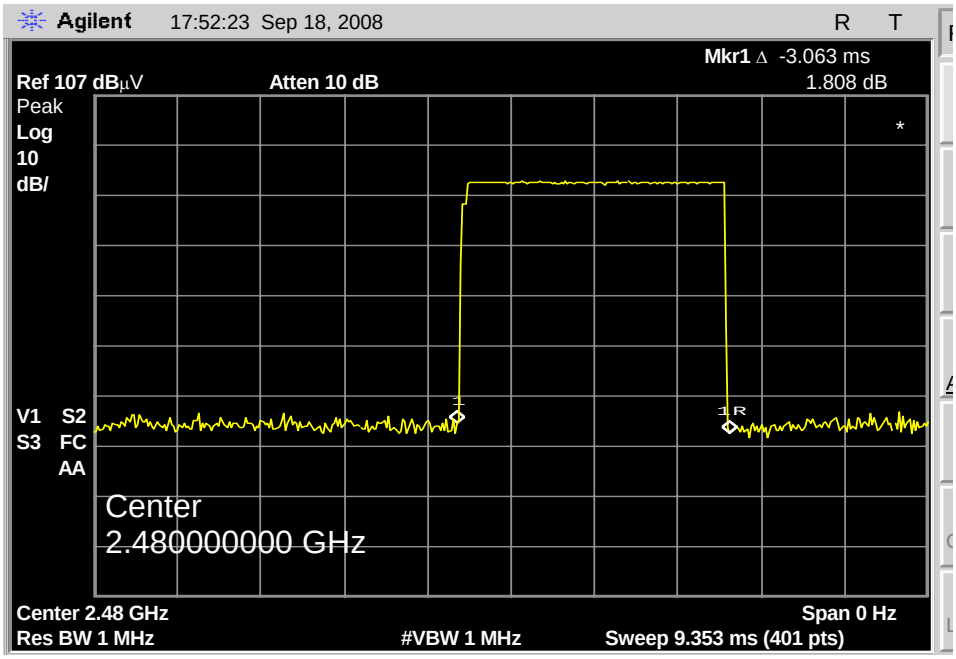
Dwell time of each occupation in this channel as follows:

Data Packet	Frequency	Mkr Delta(ms)	Dwell Time(s)	Limits(s)
DH5	2480 MHz	3.063	0.327	0.400
DH3	2480 MHz	1.917	0.306	0.400
DH1	2480 MHz	0.588	0.188	0.400

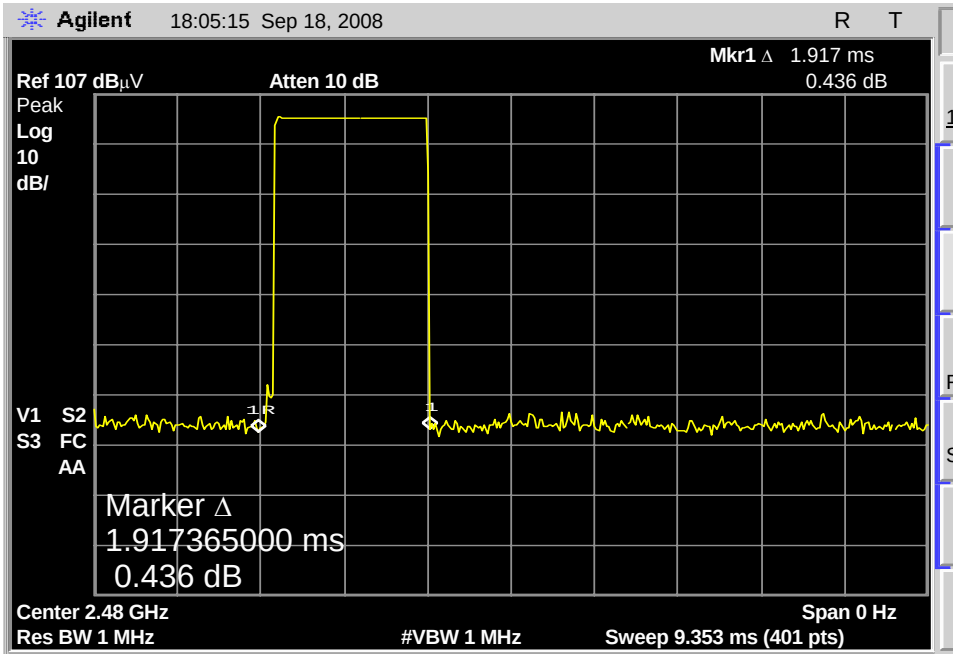
Test Result: PASS

The Results are not be greater than 0.4 seconds.

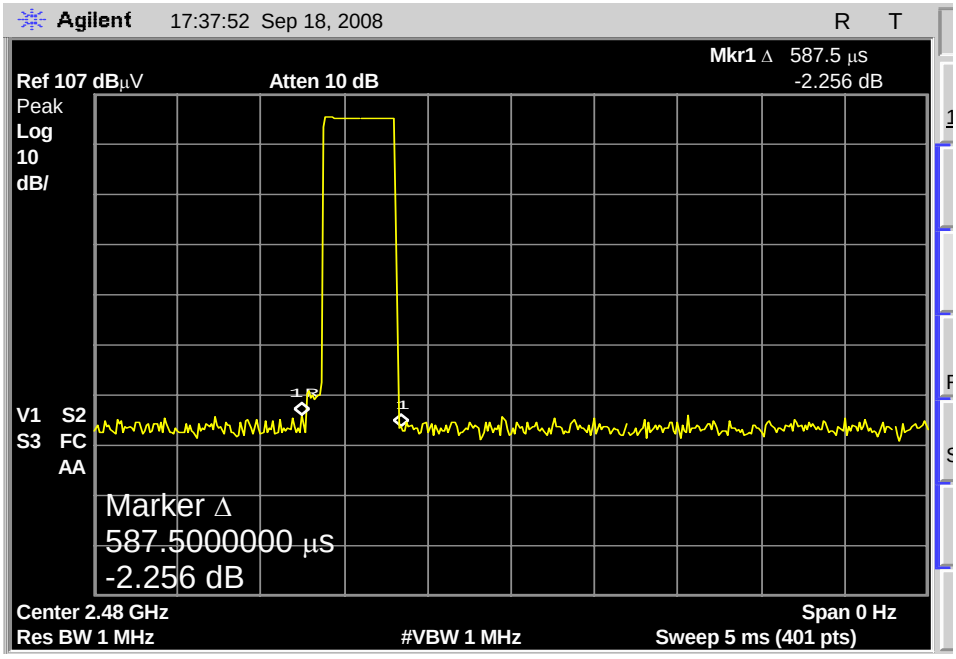
Channel 78 2480 MHz DH5



Channel 78 2480 MHz DH3



Channel 78 2480 MHz DH1



12 20-dB Bandwidth

Test Requirement:	FCC Part15 C
Test Method:	Based on FCC Part15 Paragraph 15.247
Test Date:	Sept . 18, 2008
Test mode:	The EUT work in test mode(Tx) and test it

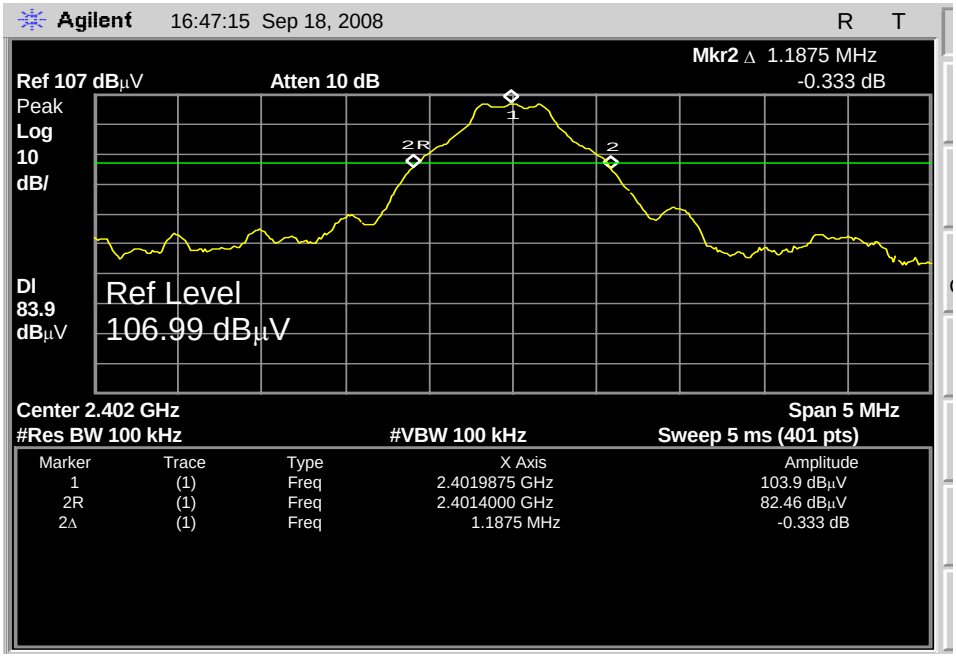
Test Procedure

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. The bandwidth of the fundamental frequency was measure by spectrum analyser with 100KHz RBW and 100KHz VBW.The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power 20dB.

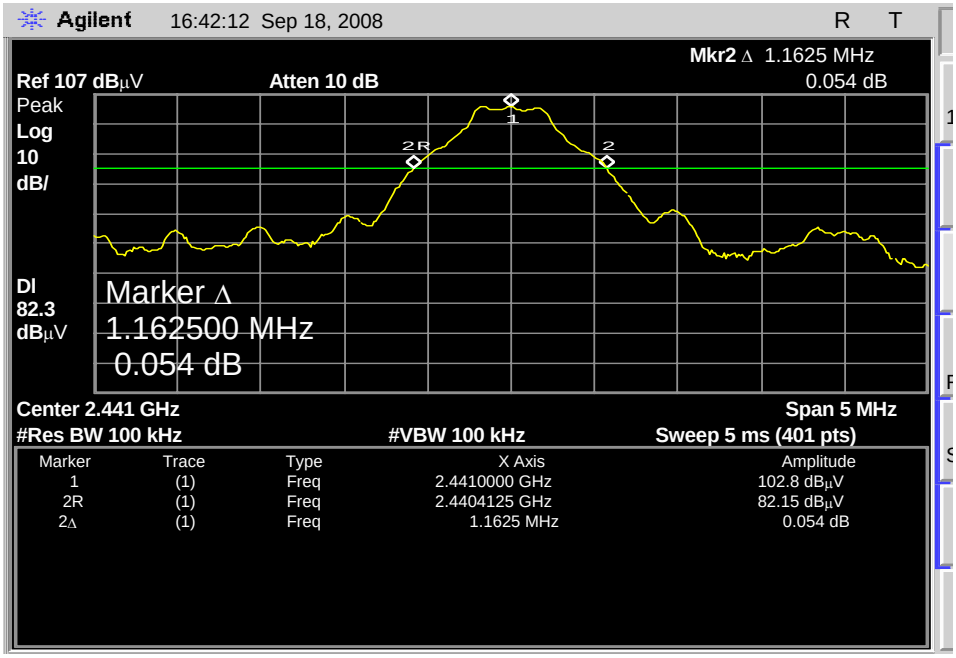
Test Result

Please refer the graph as below:

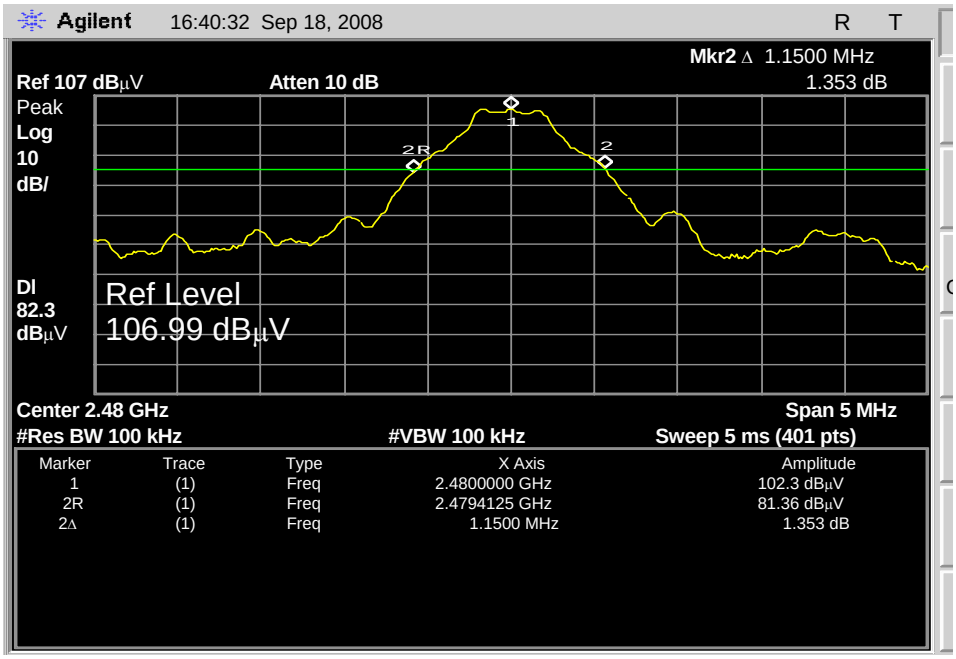
Lower Channel 2402MHz



Middle Channel 2441MHz



Upper Channel 2480MHz



13 Radiated Spurious Emissions Into Adjacent Restricted Band

Test Requirement:	FCC Part15 Paragraph 15.205
Test Method:	Based on FCC Part 15 Paragraph 15.247
Test Date:	Sept . 18, 2008
Requirements:	The EUT work in test mode(Tx) and test it

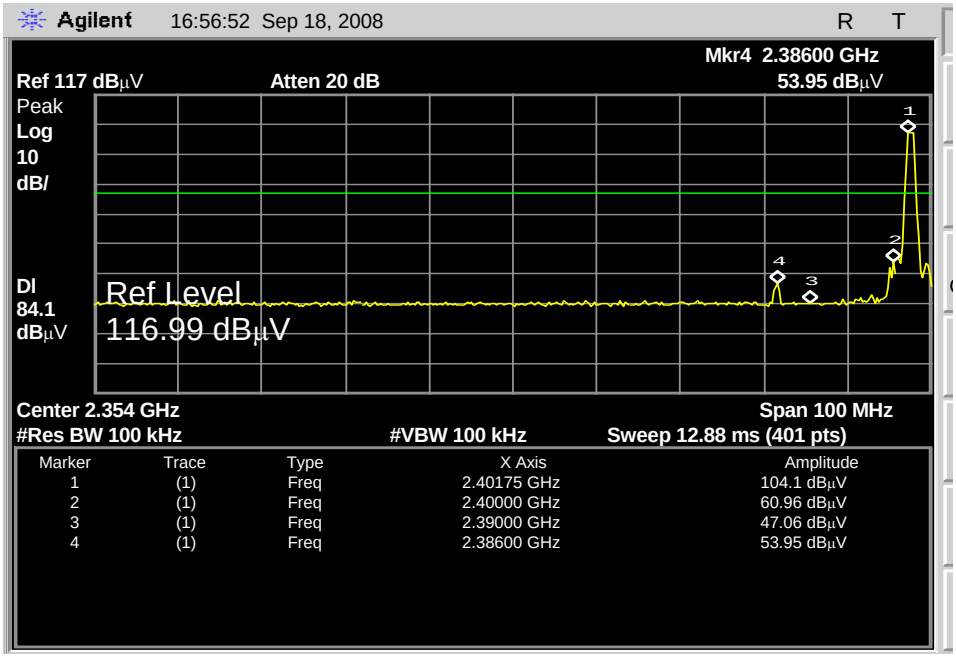
Requiments:

emissions that fall in the restricted bands(15.205).Above 1000MHz, compliance with the emissions limits in section 15.209 shall be demonstrated based on the average value of the measured emissions,The provisions in section 15.35 apply to these measurements.

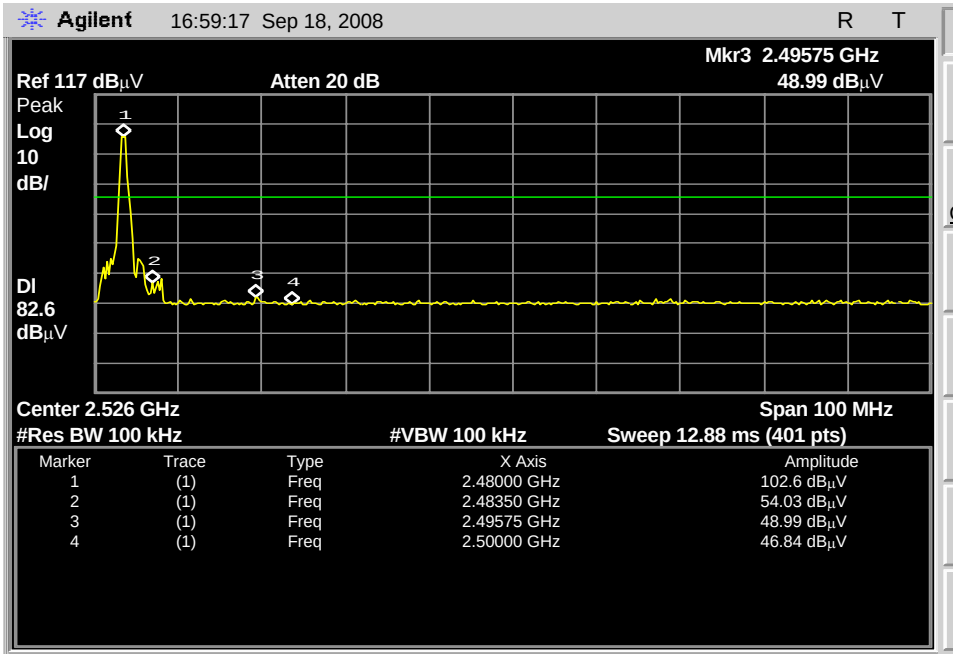
Test procedure:

An in band field strength measurement of the fundamental emission using the RBW and detector function required by C63.4-2003 and FCC Rules.The procedure was repeated with an average detector and a plot made.The calculated field strength in the adjacent restricted band is presented below.

Lower Bandedge/ Restricted Band (Peak Value)



Upper Bandedge/ Restricted Band (Peak Value)



14 RF Exposure Test

Test Requirement: FCC Part 2 Subpart J

Test Method: Based on FCC Part 15 Paragraph 15.247

Test Date: Sept . 18, 2008

Requirements: The EUT work in test mode(Tx) and test it

Requiments:

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2 m normally can be maintained between the user and the device.

The procedures / limit

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm^2)	Averaging Time $\|E\|^2$,$\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm^2)	Averaging Time $\|E\|^2$,$\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: f = frequency in MHz ; *Plane-wave equivalent power density

MPE Calculation Method

$$E\ (V/m) = \frac{\sqrt{30 \times P \times G}}{d} \qquad \text{Power Density: } Pd\ (W/m^2) = \frac{E^2}{377}$$

E = Electric field (V/m)

P = Peak RF output power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

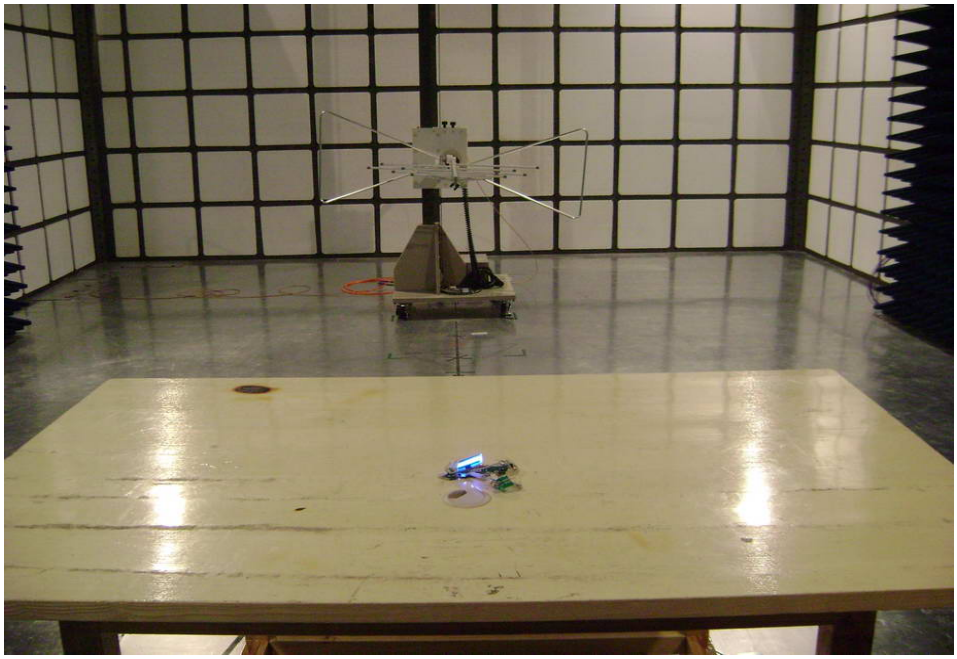
$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained

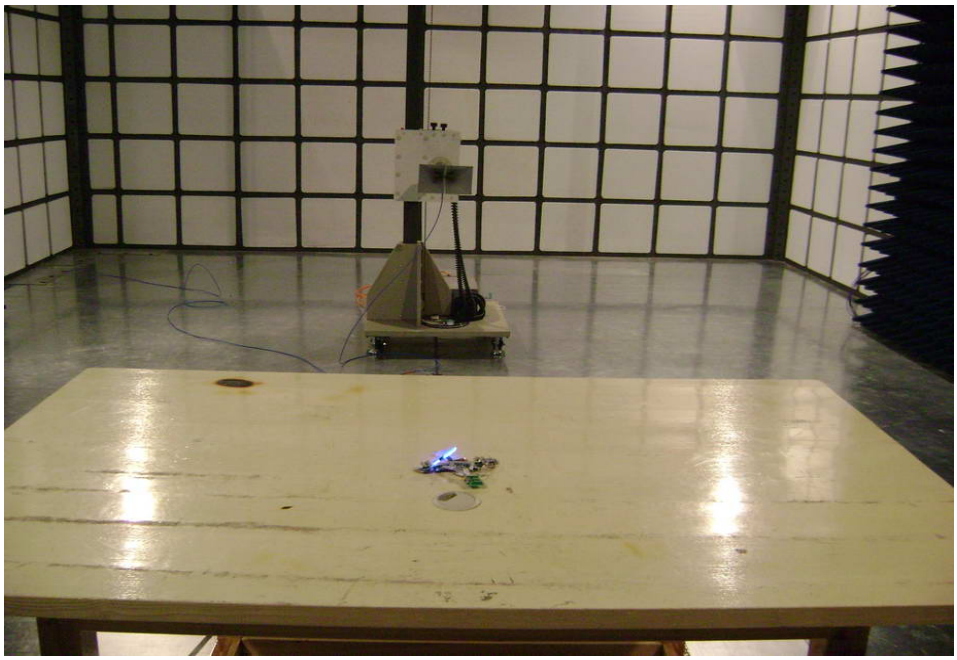
Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm2)	Limit of Power Density (S) (mW/cm2)	Test Result
-2.21	0.601	-2.983	0.503	0.000601	1	Complies
-2.21	0.601	-3.967	0.401	0.000479	1	Complies
-2.21	0.601	-4.573	0.349	0.000417	1	Complies

15 Photographs of Testing

Radiation Emission Test View For 30MHz-1000MHz



Radiation Emission Test View For 1GHz-25GHz

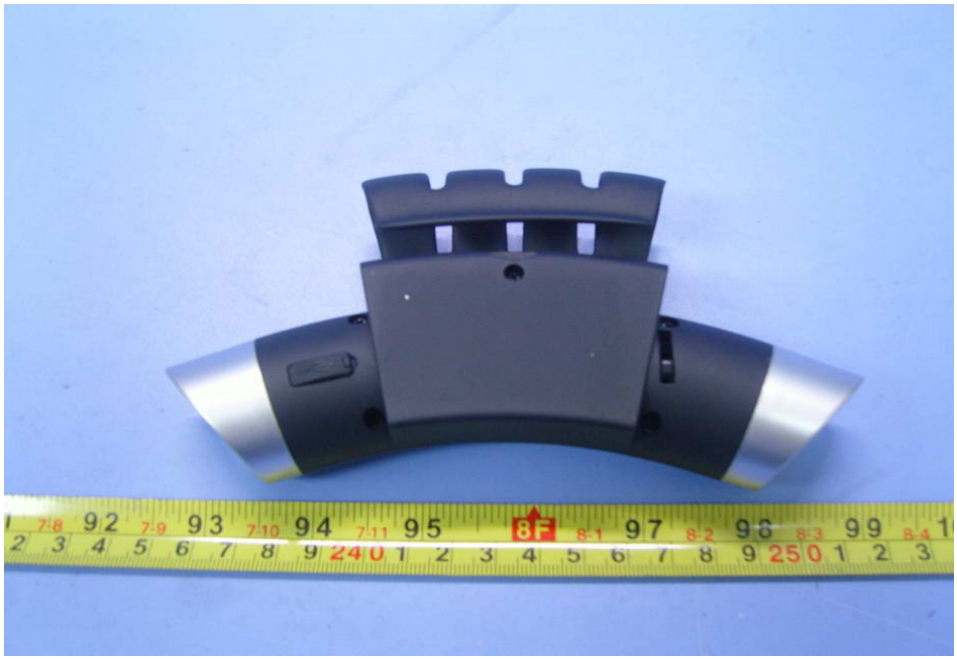


16 Photographs - Constructional Details

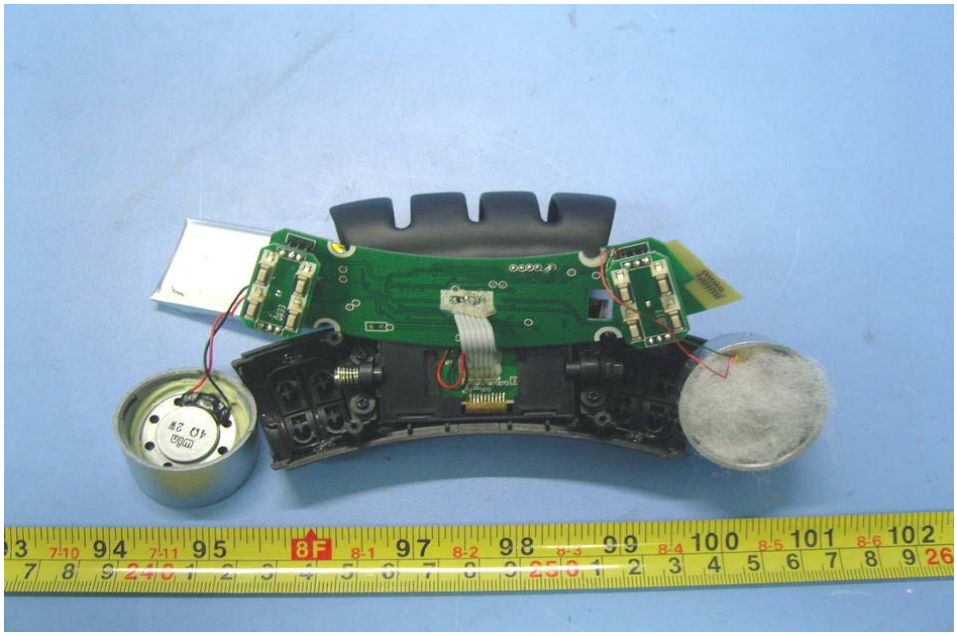
16.1 EUT - Component View

16.2 EUT - Front View

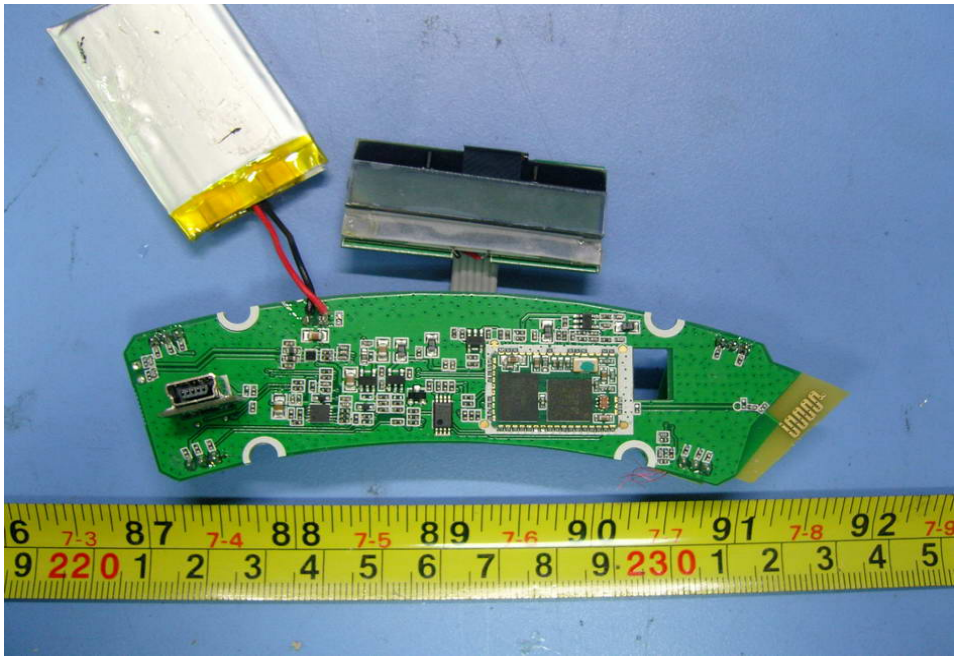
16.3 EUT - Back View



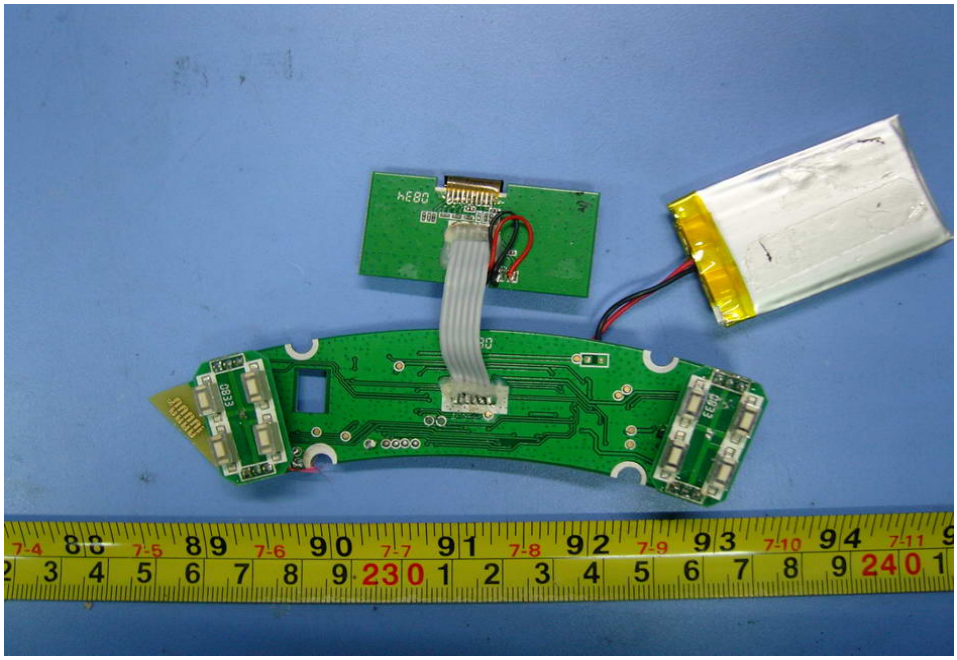
16.4 EUT – Open View



16.5 PCB – Front View



16.6 PCB - Back View



17 FCC ID Label

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:(1)this device may not cause harmful interference,and (2) this device must accept any interference received, including interference that may cause undesired operation.

The Label must not be a stick-on paper. The Label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

Proposed Label Location on EUT

EUT Bottom View/proposed FCC ID Label Location