

FCC PART 15.247

EMI MEASUREMENT AND TEST REPORT

For

BLUE BAMBOO (HK) LIMITED

Unit 1001, Luck Building, No.39 Wellington Street, Hong Kong, China

Model No: H50-CM08-B2
FCC ID: UWJH50CM08B2

This Report Concerns: <input checked="" type="checkbox"/> Original Report	Equipment Type: Bluetooth Module
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Report No.:	BTR07092601-1
Sample Receiving Date	Sep 24 2007
Report Date:	Oct 09 2007
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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The BLUE BAMBOO (HK) LIMITED's Model: H50-CM08-B2 or the "EUT" as referred to in this report is a Bluetooth Module, which measures approximately 13cmL x 4.6cmW x 2.1cmH, powered by DC 7.4V.

The EUT operates between 2400MHz to 2483.5MHz with frequency hopping system, have 79 channels and channel separation is 1MHz.

**The test data gathered are from production sample serial number 060918743 provided by the manufacturer.*

Objective

This report is prepared on behalf of BLUE BAMBOO (HK) LIMITED In accordance with Part15.203, 15.205, 15.209 and 15.247 of the Federal Communication Commissions rules.

The objective of the manufacturer is to demonstrate compliance with FCC Part 15.247

Related Grant/Submission

No Related Submittals.

Test Methodology

All tests and measurements indicated in this document were performed in accordance with the Code of federal Regulations Title 47 Part 2, Sub-part J as well as ANSI 63.4-2003, American National Standard for Method of Measurement of Radio -Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

Test Facility

All measurement facilities used to collect the data are located at Huatongwei Building, Keji Rd, 12 S, high-Tech Park, Nanshan District, Shenzhen, China. The sites are constructed in conformance with the requirements of ANSI C63.7/634 and CISPR 22. The site was accredited by FCC (662850), A2LA (2243.01) and CNAL (L1225)

Test Equipment List

Manufacturer	Description	Model	Serial Number	Cal. Date	Cal. Due. Date
ESPEC	Climate Chamber	EL-10KV	05107008	2007-08-05	2008-08-05
Rohde & Schwarz	EMI Test RECEIVER	ESIB26	100009	2007-08-05	2008-08-05
HP	Modulation Analyzer	8901B	3104A03367	2007-08-05	2008-08-05
Agilent	Service Simulator	E5515C	GB43130124	2007-08-05	2009-08-05
Agilent	Spectrum Analyzer	E4440A	5386247	2007-08-05	2008-08-05
Rohde & Schwarz	Audio Generator	SMT03	100059	2007-08-05	2008-08-05
ROHDE & SCHWARZ	Ultra-Broadband Antenna	HL562	100015	2007-08-05	2008-08-05
ROHDE & SCHWARZ	EMI TEST RECEIVER	ESI 26	100009	2007-08-05	2008-08-05
ROHDE & SCHWARZ	RF TEST PANEL	TS / RSP	335015/ 0017	N/A	N/A
ETS	TURNTABLE	2088	2149	N/A	N/A
ETS	ANTENNA MAST	2075	2346	N/A	N/A
ROHDE & SCHWARZ	EMI TEST SOFTWARE	ES-K1 V1.71	NA	N/A	N/A
SUNOL SCIENCE	Horn Antenna	DRH-118	A052605	2007-08-05	2008-08-05
SUNOL SCIENCE	Horn Antenna	DRH-118	A052607	2007-08-05	2008-08-05
Tektronix	Storage Oscilloscope	TDS3052	B017447	2007-08-05	2008-08-05
HP	Communication Tester	HP8920B	US35010135	2007-08-05	2008-08-05

*** Statement of Traceability:** All calibration has been performed using suitable standards traceable to NIM China.

SYSTEM TEST CONFIGURATION

Justification

The EUT was tested under typical operating modes to represent the worst-case results during the final qualification test.

EUT Test Configuration

Set up the EUT as typical normal use status to test.

The EUT was Lie/ Stand/Side On the test table, and Lie is the worst mode, and the worst mode's data was included in this report.

Equipment Modifications

BEST Test Service (Shenzhen) Co., Ltd has not done any modification to the EUT.

TEST MODE

For spurious emission test, Normal/ EDR 2M/EDR 3M are tested and EDR 3M was the worst model, so this model was used for all tests and the worst data was included in this report.

SUMMARY OF TEST RESULT

FCC Rules	Description of Test	Test Result
15.203	Antenna Requirement	Complied
15.205	Restricted Band	Complied
15.207	Conducted Limit	Complied
15.247 (a)(1)	20 dB Bandwidth	Complied
15.247 (a)(1)	Channel Separation Test	Complied
15.247(a)(1)(iii)	Time of occupancy (Dwell Time)	Complied
15.247(a)(1)(iii)	Quantity of hopping channel Test	Complied
15.247(b)(1)	Peak Output Power Test	Complied
15.247(d)	Band Edges Test	Complied
15.205/15.207/15.247(d)	Radiation Emission Test	Complied

§ 15.203 Antenna Requirements

Applicable Standard

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.

According to § 15.247 (b) (4), if transmitting antennas of directional gain greater than 6 dBi are used the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Antenna Connected Construction

The EUT was a permanently attached antenna which, in accordance to the above sections, is considered sufficient to comply with the provisions of these sections. Please see EUT photo for details.

15.207 Conducted Limits

Applicable Standard

Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN).

Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequencies ranges.

Frequency of emission (MHz)	Conducted limit (dB μ V)	
	Quasi-peak	Average
0.15–0.5	66 to 56*	56 to 46*
0.5–5	56	46
5–30	60	50

*Decreases with the logarithm of the frequency.

Test Procedure

1. During the conducted emission test, the adaptor power cord was connected to the auxiliary outlet of the first LISN with the monitor and all other support equipment power cords connected to the auxiliary outlet of the second LISN. Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance using all installation combination.
2. All data was recorded in the quasi-peak and average detection mode. Quasi-peak readings are distinguished with a "QP", average readings are distinguished with a "AV".

Summary of Test Results

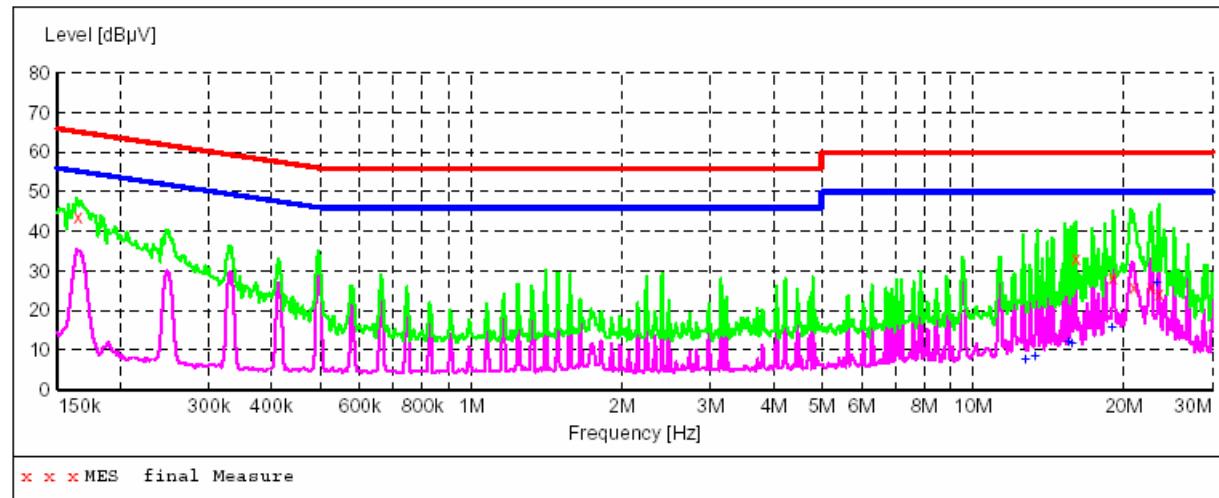
According to the data in section 3.6, the EUT complied with the FCC 15.207 Conducted margin for intentional Radiator, with the worst margin reading of:

8.6 dB μ V (Quasi-Peak) at 0.1677 MHz in the Neutral mode, 0.15-30MHz

Test Result: Pass

Disturbance Voltage at AC Mains FCC Part 15.207

EUT: Bluetooth Module Model:H50-CM05
 Manufacturer: BLUE BAMBOO
 Operating Condition: Running
 Test Site: SHIELDED ROOM
 Operator: Smart
 Test Specification: AC 120V/60Hz
 Comment:
 Start of Test: 9/30/2007

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

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.165000	43.90	10.1	65	21.1	QP	L1	GND
15.994218	33.10	11.0	60	26.9	QP	L1	GND
18.907500	28.40	11.2	60	31.6	QP	L1	GND
20.804652	25.90	11.3	60	34.1	QP	L1	GND
22.530240	26.00	11.4	60	34.0	QP	L1	GND
23.445989	24.40	11.4	60	35.6	QP	L1	GND

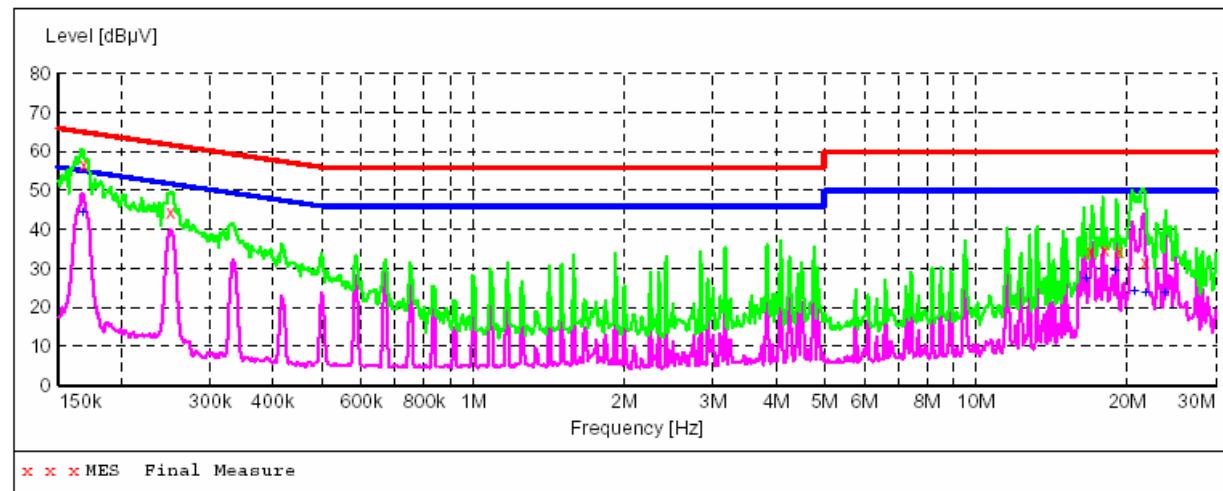
MEASUREMENT RESULT:

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
12.694260	7.90	10.8	50	42.1	AV	L1	GND
13.315900	8.60	10.9	50	41.4	AV	L1	GND
15.492476	12.30	11.0	50	37.7	AV	L1	GND
15.741341	11.70	11.0	50	38.3	AV	L1	GND
18.907500	15.90	11.2	50	34.1	AV	L1	GND
23.259910	27.10	11.4	50	22.9	AV	L1	GND

Disturbance Voltage at AC Mains FCC Part 15.207

EUT: Bluetooth Module Model: H50-CM05
 Manufacturer: BLUE BAMBOO
 Operating Condition: Running
 Test Site: SHIELDED ROOM
 Operator: Smart
 Test Specification: AC 120V/60Hz
 Comment:
 Start of Test: 9/30/2007

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

**MEASUREMENT RESULT:**

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.167700	56.50	10.1	65	8.6	QP	N	GND
0.249780	44.50	10.0	62	17.3	QP	N	GND
16.911680	34.40	11.1	60	25.6	QP	N	GND
18.024820	35.00	11.2	60	25.0	QP	N	GND
19.211230	34.50	11.2	60	25.5	QP	N	GND
21.650260	31.50	11.3	60	28.5	QP	N	GND

MEASUREMENT RESULT:

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.167701	44.40	10.1	55	10.7	AV	N	GND
16.512208	27.70	11.1	50	22.3	AV	N	GND
18.907500	29.40	11.2	50	20.6	AV	N	GND
20.639540	24.30	11.3	50	25.7	AV	N	GND
21.650260	23.70	11.3	50	26.3	AV	N	GND
23.633560	23.80	11.4	50	26.2	AV	N	GND

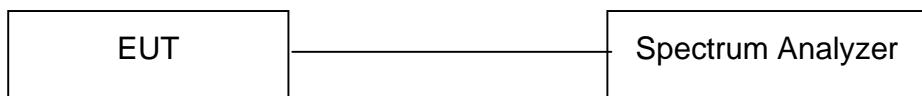
15.247 (a) (1) Channel Separation Test

Applicable Standard

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

Frequency Range (MHz)	Limit (KHz)
902 – 928	>25KHz or 20dB Bandwidth
2400-2483.5	>25KHz or 2/3 of 20dB Bandwidth
5725 - 5850	>25KHz or 20dB Bandwidth

Test Set-up



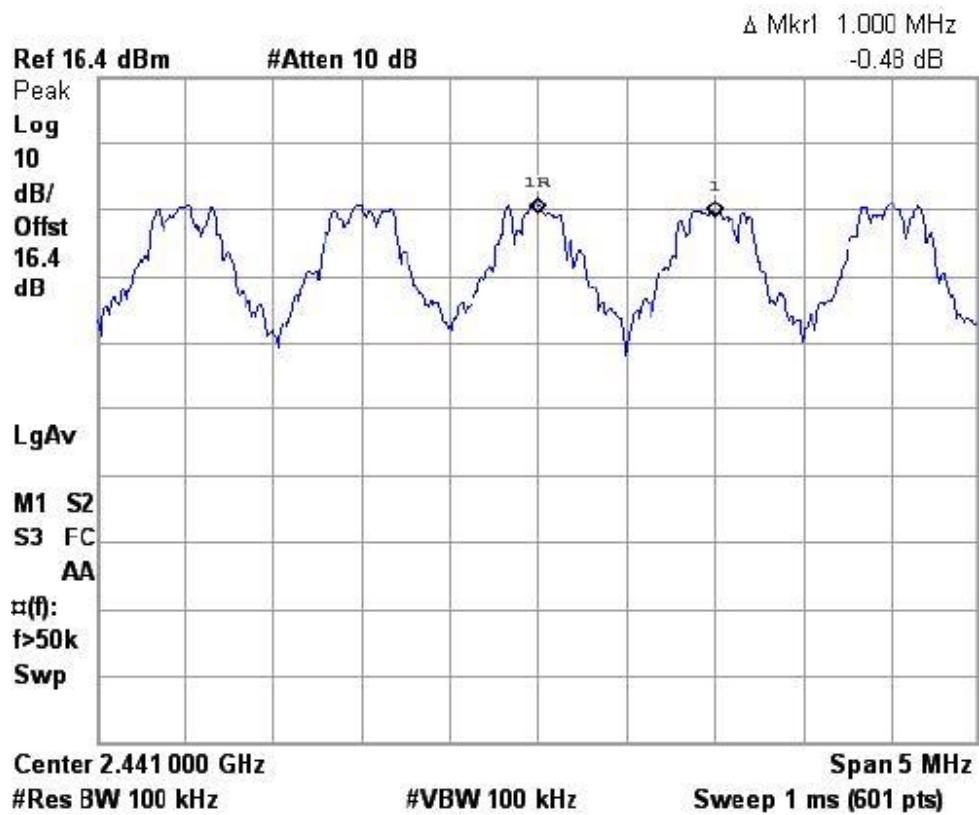
Test Procedure

1. Set the EUT in transmitting mode, spectrum analyzer was setup as follow: RBW was set to 100 KHz and VBW was set to 100 KHz, The span was set to 5 MHz, max hold the trace.
2. Sweep the test result from the spectrum analyzer to host pc.

Test Data

Channel	Channel Separation(KHz)	Limit(KHz)	Result
Low	1000.00	>609	PASS
		>25	

Test Result: Pass

Test Plots

15.247 (a) (1) 20dB BANDWIDTH

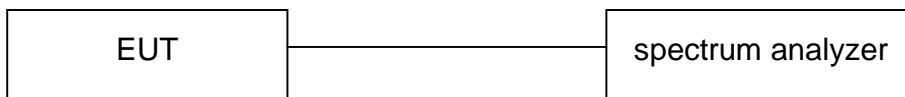
Applicable Standard

(i). For frequency hopping systems operating in the 902–928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

(ii). Frequency hopping systems operating in the 5725–5850 MHz band shall use at least 75 hopping frequencies. The maximum 20 dB bandwidth of the hopping channel is 1 MHz. The average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 30 second period.

(iii) Frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

Test Set-up



Test Procedure

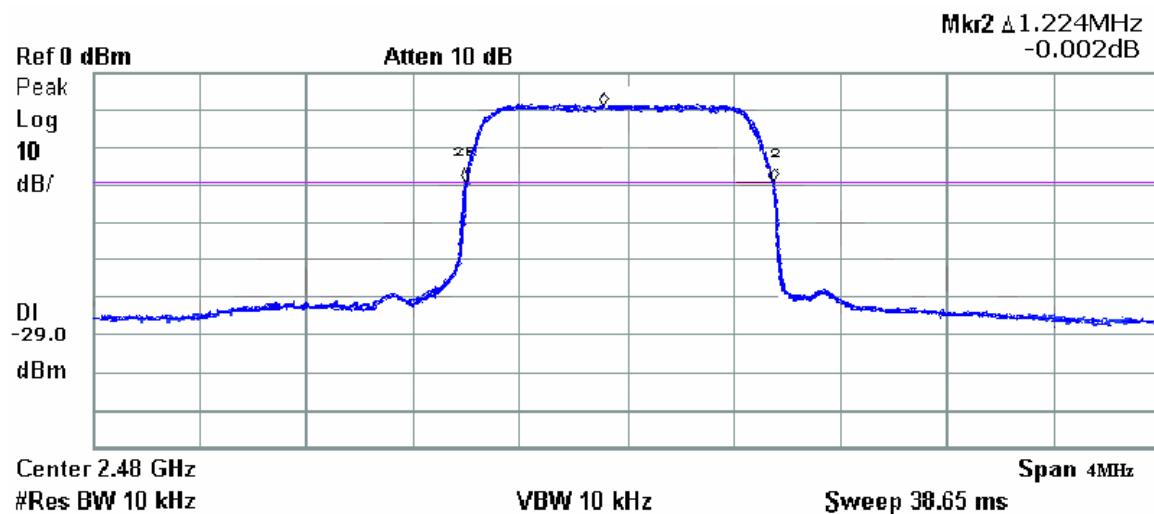
1. Set the EUT in transmitting mode, Spectrum Analyzer was setup as follow: RBW was set to 10 KHz and VBW was set to 10 KHz, The span was set to 2 MHz, max hold the trace.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 20 dB from the reference level. Record the frequency difference as the emission bandwidth.
4. Sweep the test result from the spectrum analyzer to host pc.

Test Data

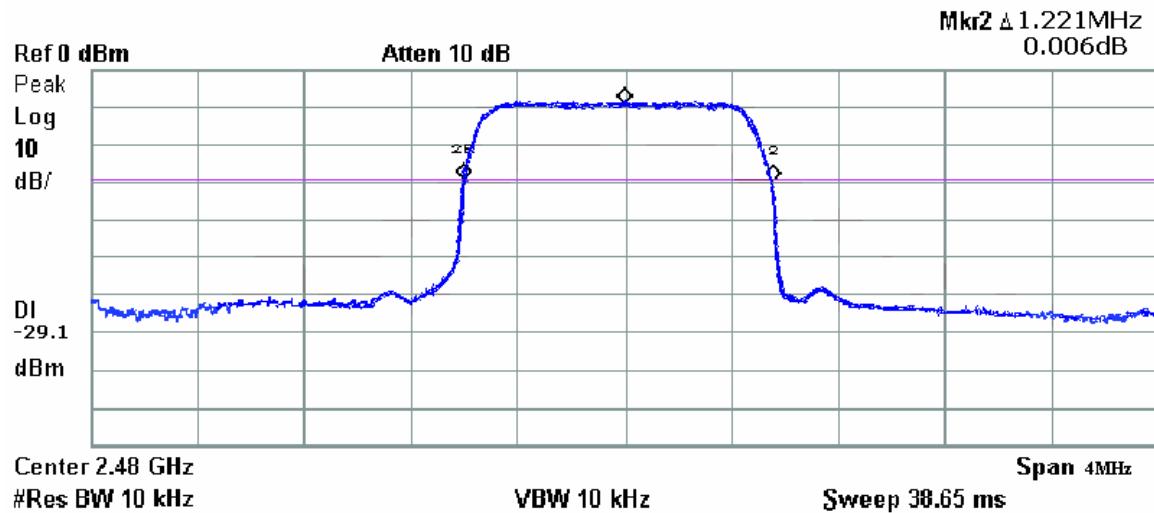
Model	Channel	20dB Bandwidth (KHz)	Result
Normal	Low	939.4	PASS
Normal	Middle	938.4	PASS
Normal	High	930.4	PASS
EDR 2M	Low	1.198	PASS
EDR 2M	Middle	1.220	PASS
EDR 2M	High	1.221	PASS
EDR 3M	Low	1.196	PASS
EDR 3M	Middle	1.221	PASS
EDR 3M	High	1.224	PASS

Test Results: Pass**Test Plots**

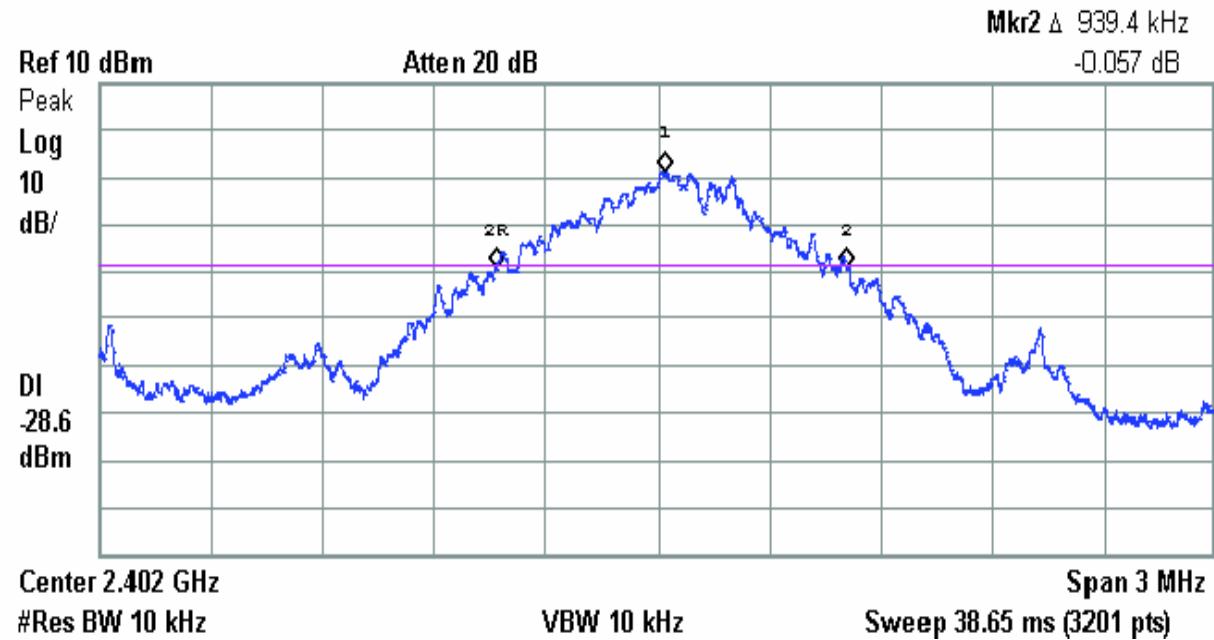
EDR 3M Model



EDR 2M Model



Normal Model



15.247 QUANTITY OF HOPPING CHANNEL TEST

Provision Applicable

Frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

Frequency Range(MHz)	Limit(Quantity of hopping channel)			
	20dB BW<250KHz	20dB BW>250KHz	20dB BW<1MHz	20dB BW>1MHz
902 - 928	50	25	N/A	N/A
2400 – 2483.5	N/A	N/A	15	15
5725 - 5850	N/A	N/A	N/A	N/A

Test Procedure

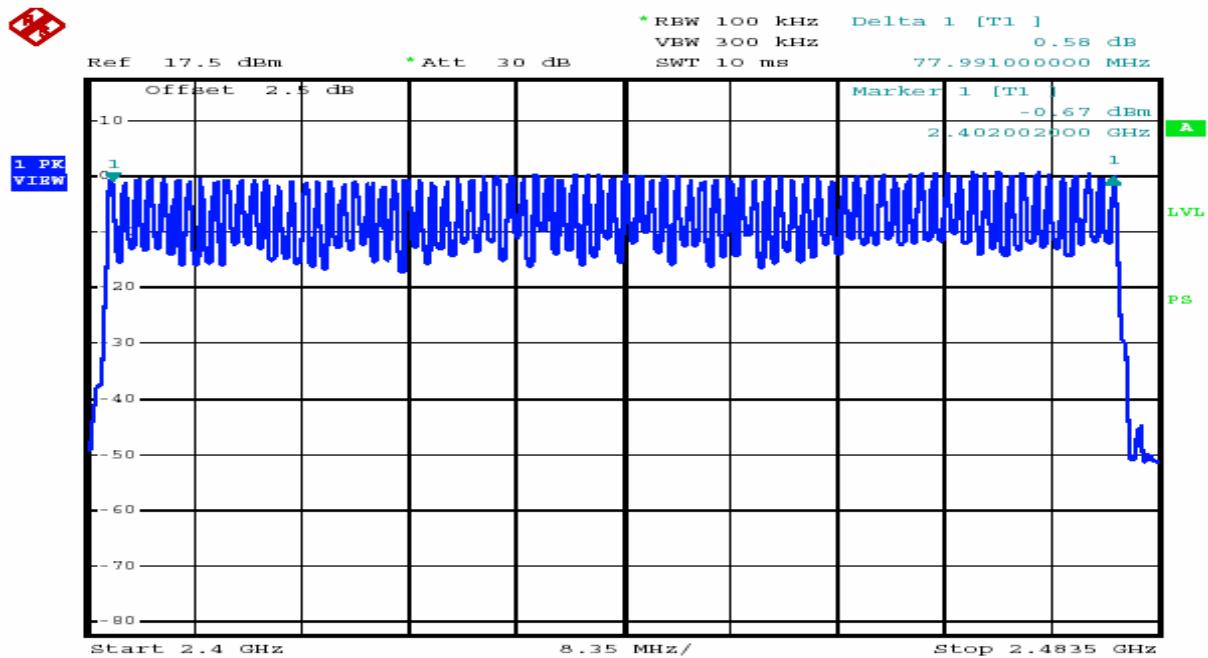
1. Set the EUT in transmitting mode, EMI test receiver was setup as follow: RBW was set to 100 KHz and VBW was set to 300 KHz, The start frequency is 2400MHz and stop frequency is 2483.5MHz.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set the frequency scan from the first channel to last channel frequency within its operating range.
3. Measure the first frequency and last frequency and divide the channel separation.
4. Printed out the test result from the EMI test receiver by hard copy function.
5. Count the channel from the plots

Test Data

Quantity of Channel	Result
79	PASS

Test Result

PASS

Test Plots

15.247 TIME of OCCUPIED (DEWELL TIME)

Standard Applicable

Frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

Test Procedure

- 1 . The Bluetooth has 3 type of payload, DH1, DH3, DH5. The hopping rate is 1600 per second
- 2 . Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- 3 . Position the EUT as shown in test setup without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable..
- 4 . Adjust the center frequency of spectrum analyzer on any frequency be measured and set spectrum analyzer to zero span mode. And then, set RBW and VBW of spectrum analyzer to proper value.
- 5 . Measure the time duration of one transmission on the measured frequency. And then plot the result with time difference of this time duration.
- 6 . Repeat the test for low/middle/high channel under DH1/DH3/DH5 Model

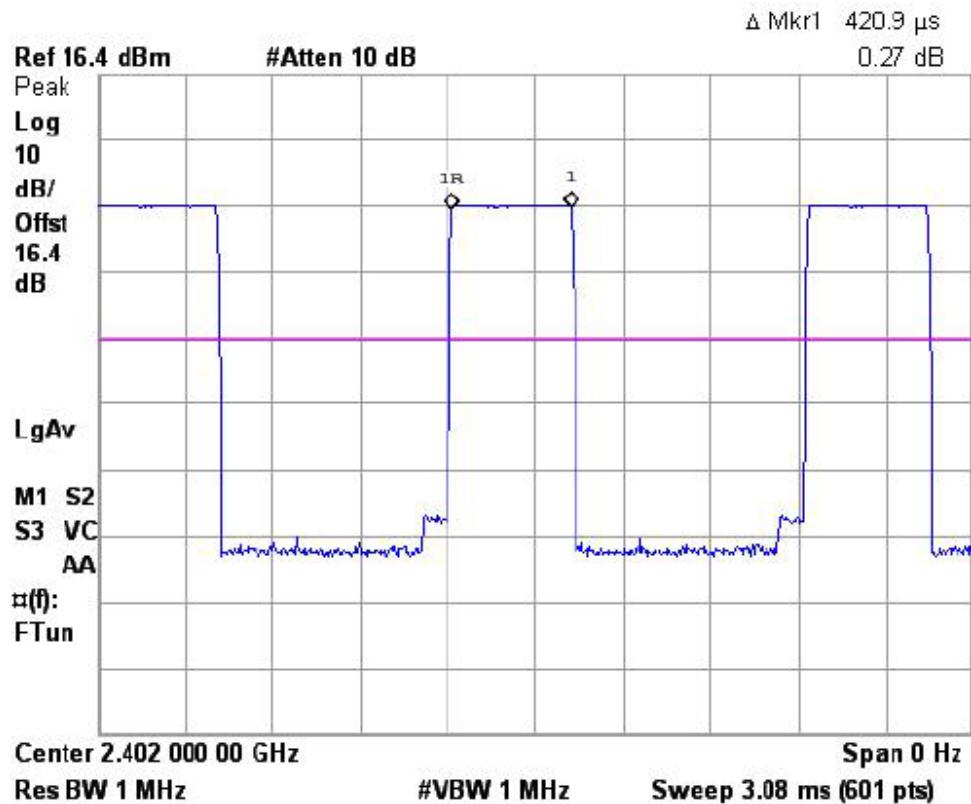
Test Result

PASS

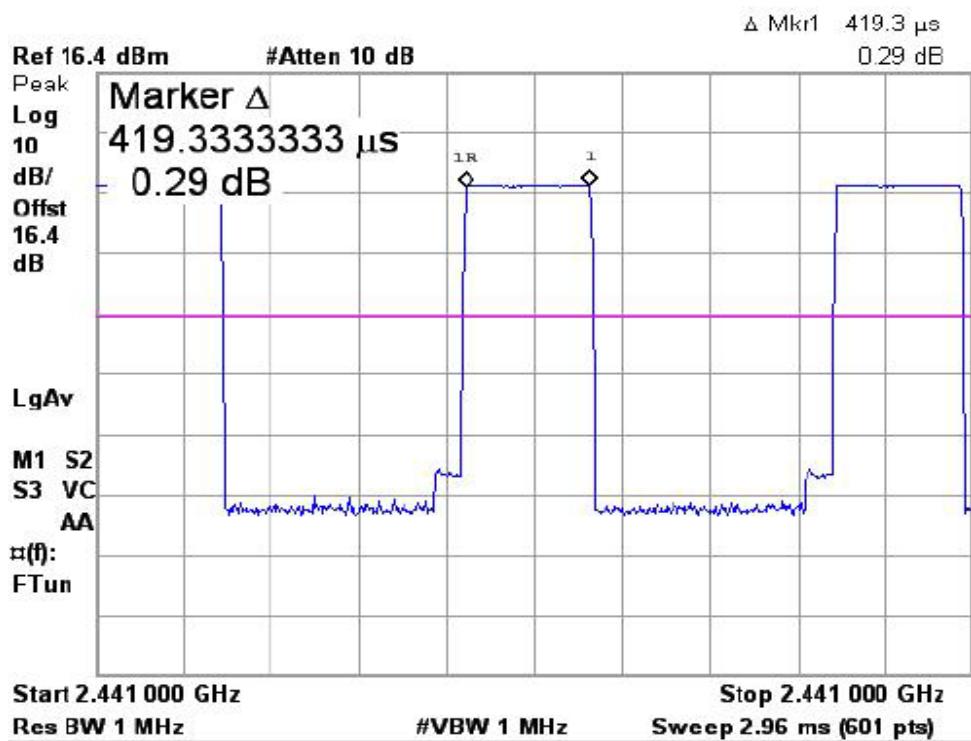
DH1 Model

Channel	Pulse Wide(mS)	Dwell Time(S)	Limit(S)	Result
Low	0.420	0.134	0.4	PASS
Middle	0.419	0.134	0.4	PASS
High	0.409	0.131	0.4	PASS

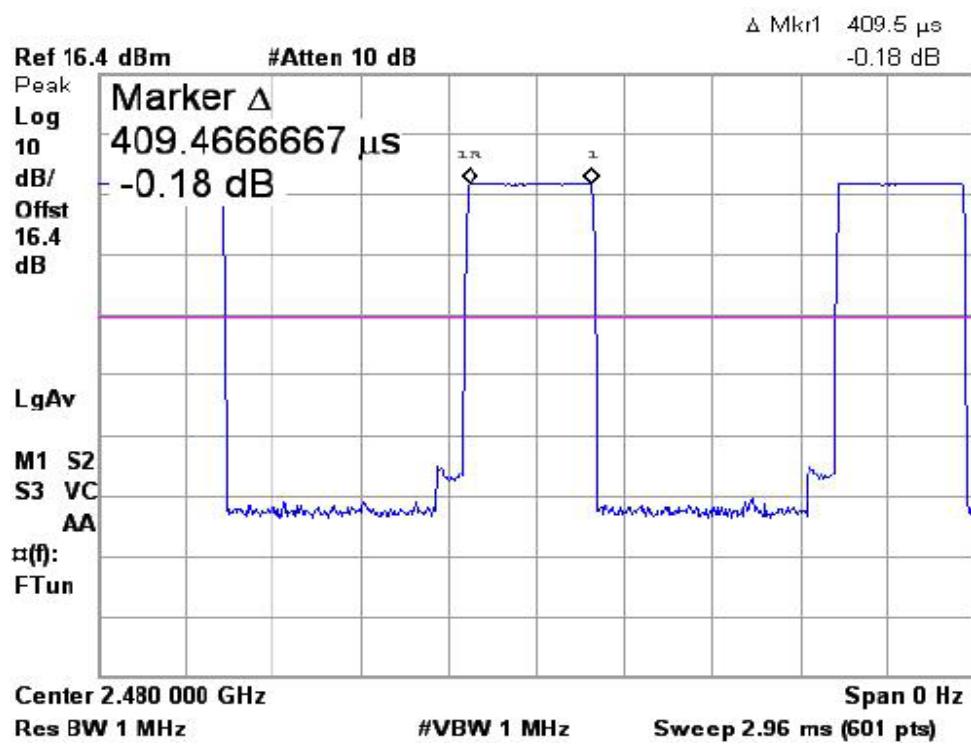
Low Channel



Middle Channel



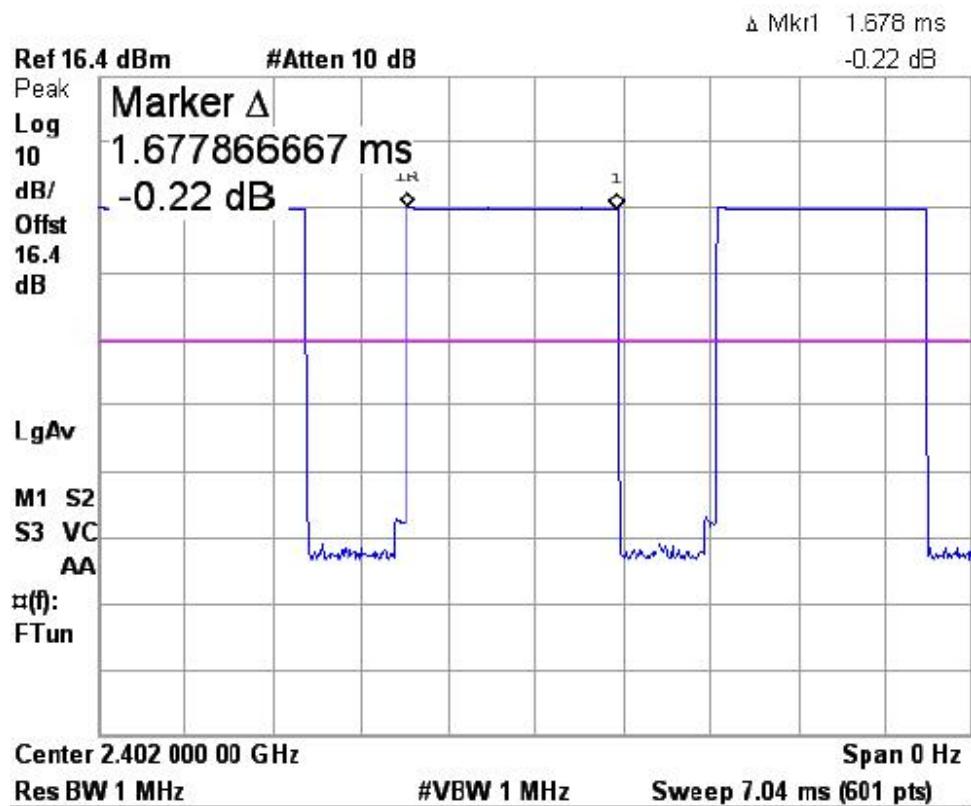
High Channel



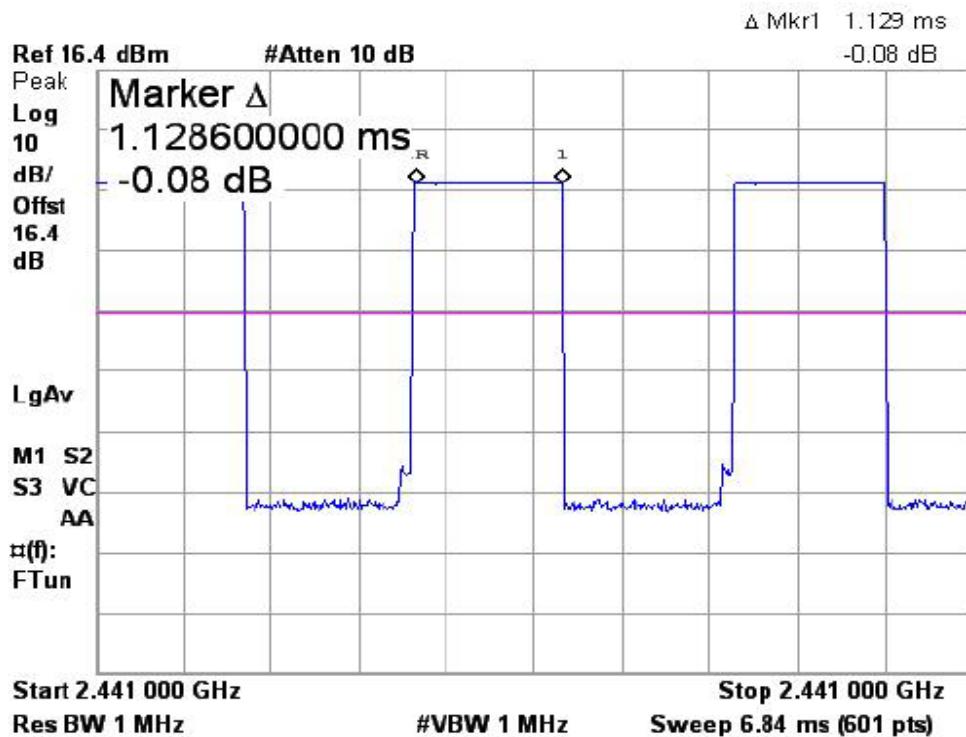
DH3 Model

Channel	Pulse Wide(mS)	Dwell Time(S)	Limit(S)	Result
Low	1.678	0.268	0.4	PASS
Middle	1.129	0.180	0.4	PASS
High	1.134	0.181	0.4	PASS

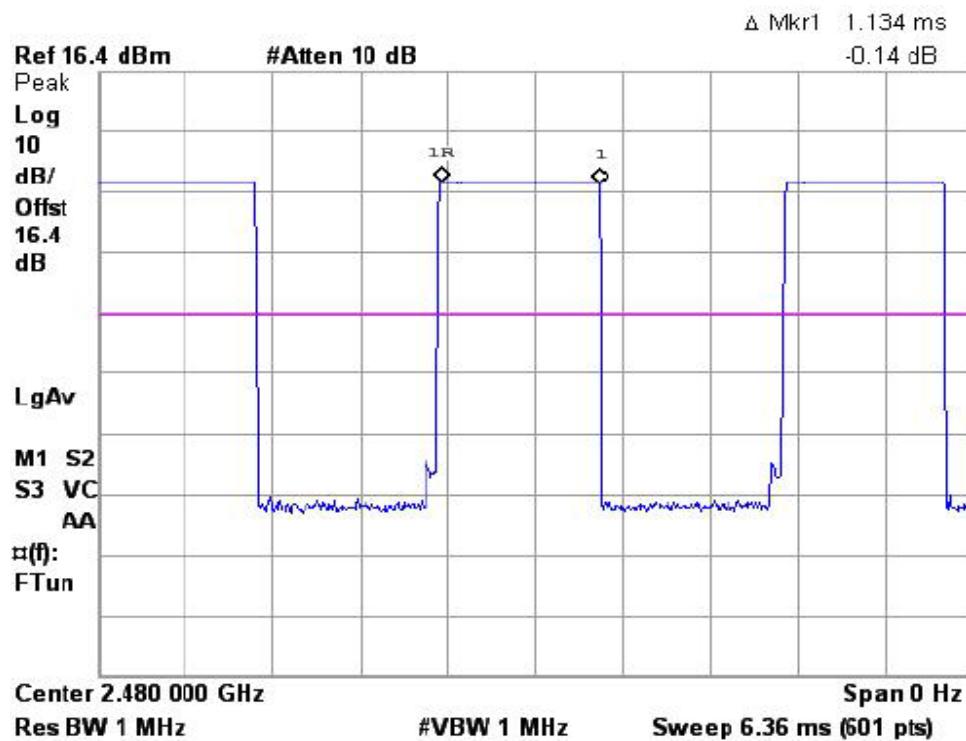
Low Channel



Middle Channle



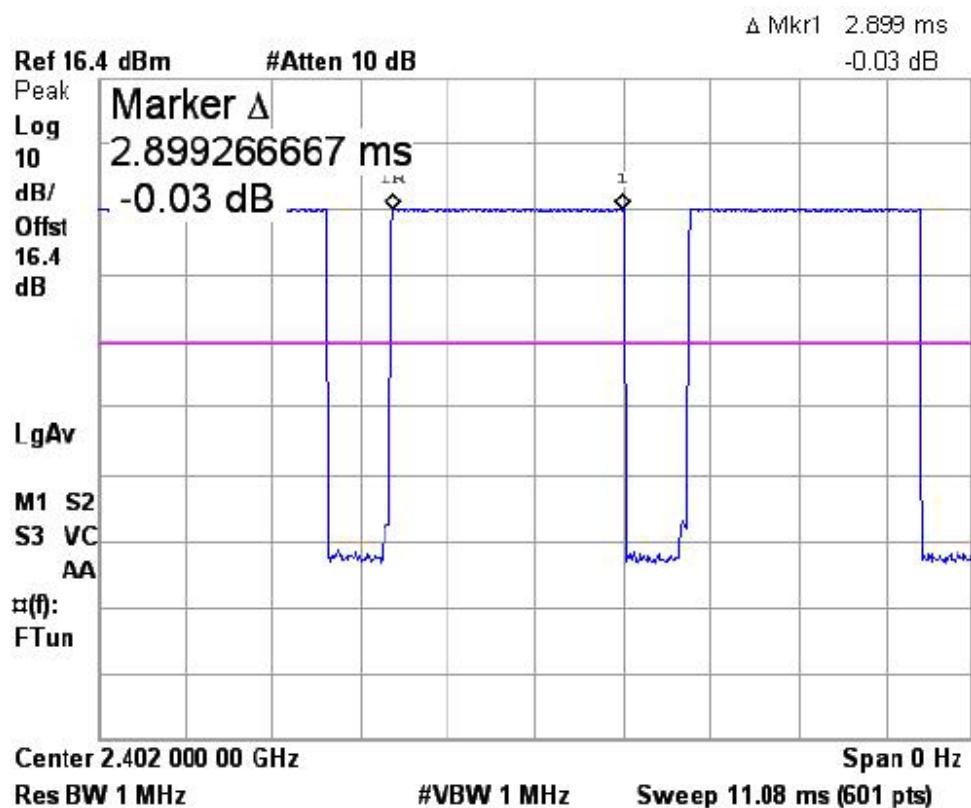
High Channel



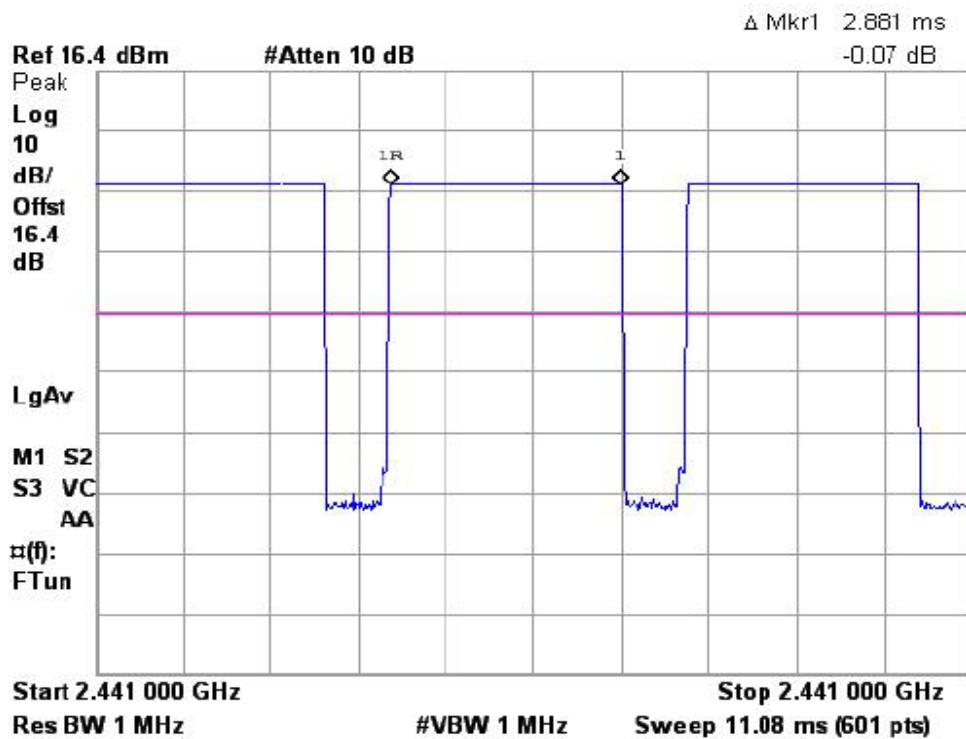
DH5 Model

Channel	Pulse Wide(mS)	Dwell Time(S)	Limit(S)	Result
Low	2.899	0.309	0.4	PASS
Middle	2.881	0.307	0.4	PASS
High	2.923	0.311	0.4	PASS

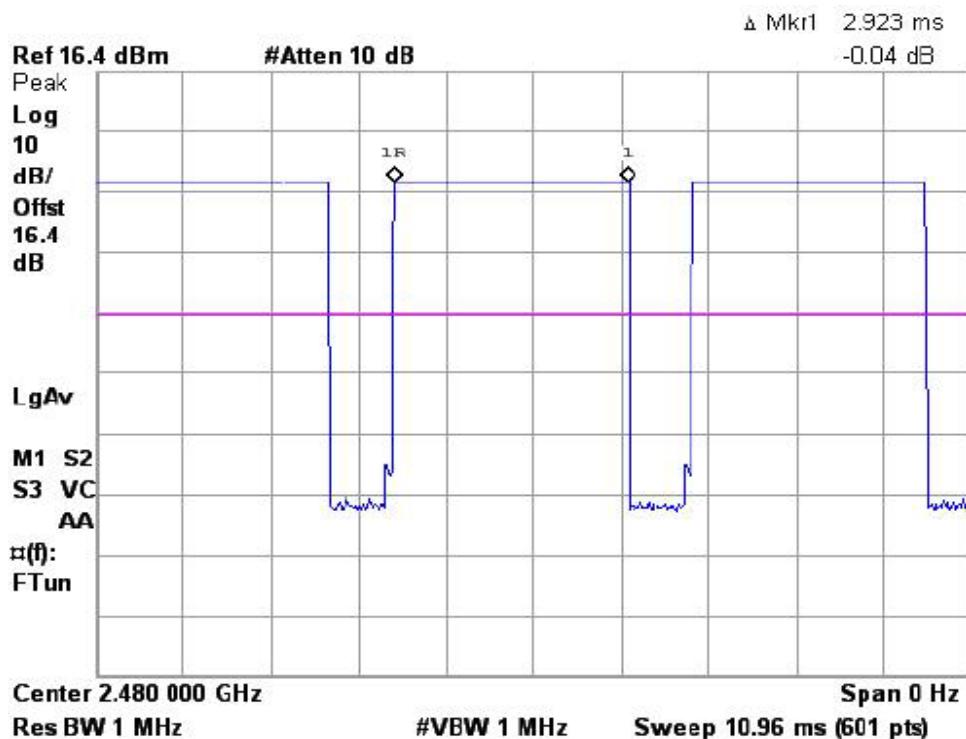
Low Channel



Middle Channel



High Channel

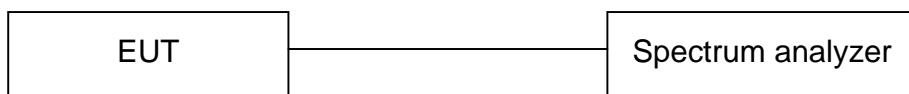


15.247 PEAK POWER TEST

Provision Applicable

For frequency hopping systems operating in the 2400–2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725–5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400–2483.5 MHz band: 0.125 watts.

Test Set-up



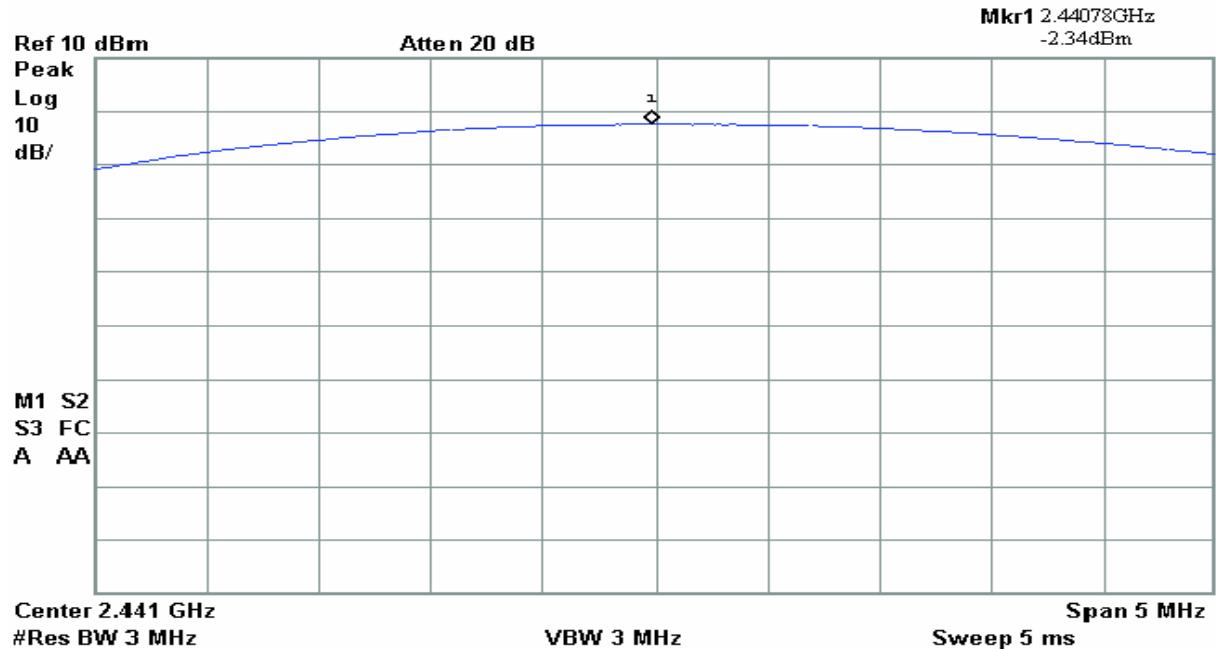
Test Procedure

1. Set the EUT in transmitting mode, Spectrum Analyzer was setup as follow: RBW was set to 1MHz and VBW was set to 3MHz, The span was set to 5 MHz, max hold the trace.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range.
3. Measure the peak value of the trace.
4. Sweep the test result from the spectrum analyzer to host pc.

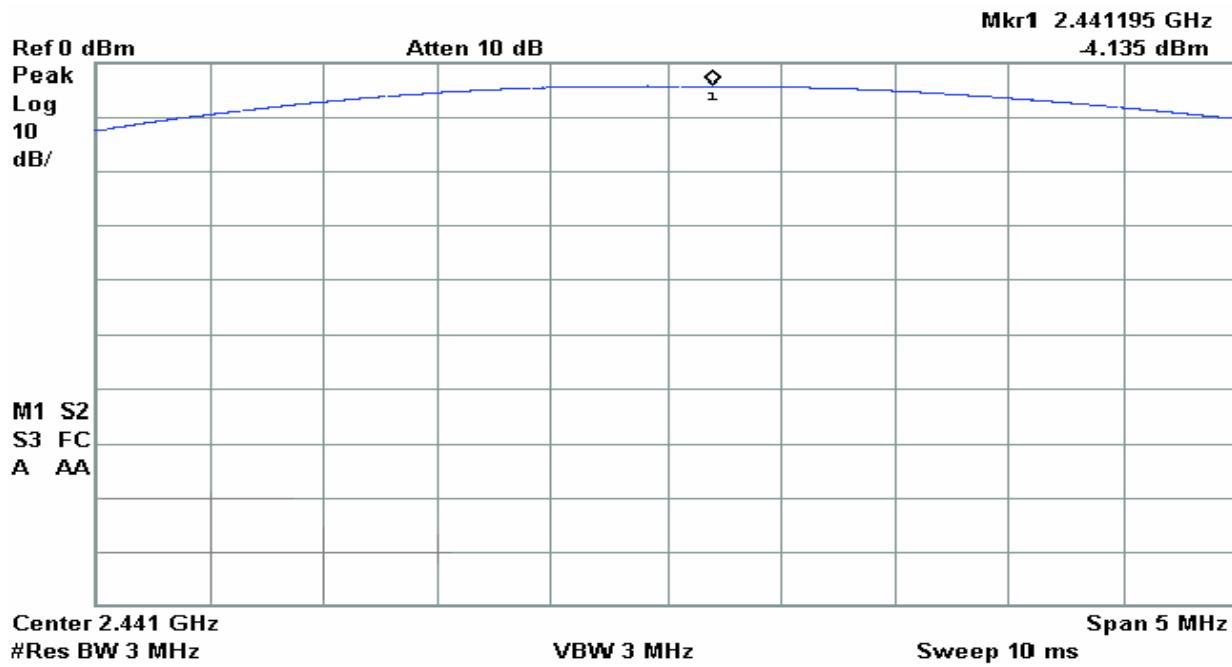
Test Results

Model	Channel	Peak Power (dBm)	Result
Normal	Low	-3.59	PASS
Normal	Middle	-2.406	PASS
Normal	High	-2.485	PASS
EDR 2M	Low	-4.604	PASS
EDR 2M	Middle	-4.135	PASS
EDR 2M	High	-4.283	PASS
EDR 3M	Low	-2.98	PASS
EDR 3M	Middle	-2.34	PASS
EDR 3M	High	-2.406	PASS

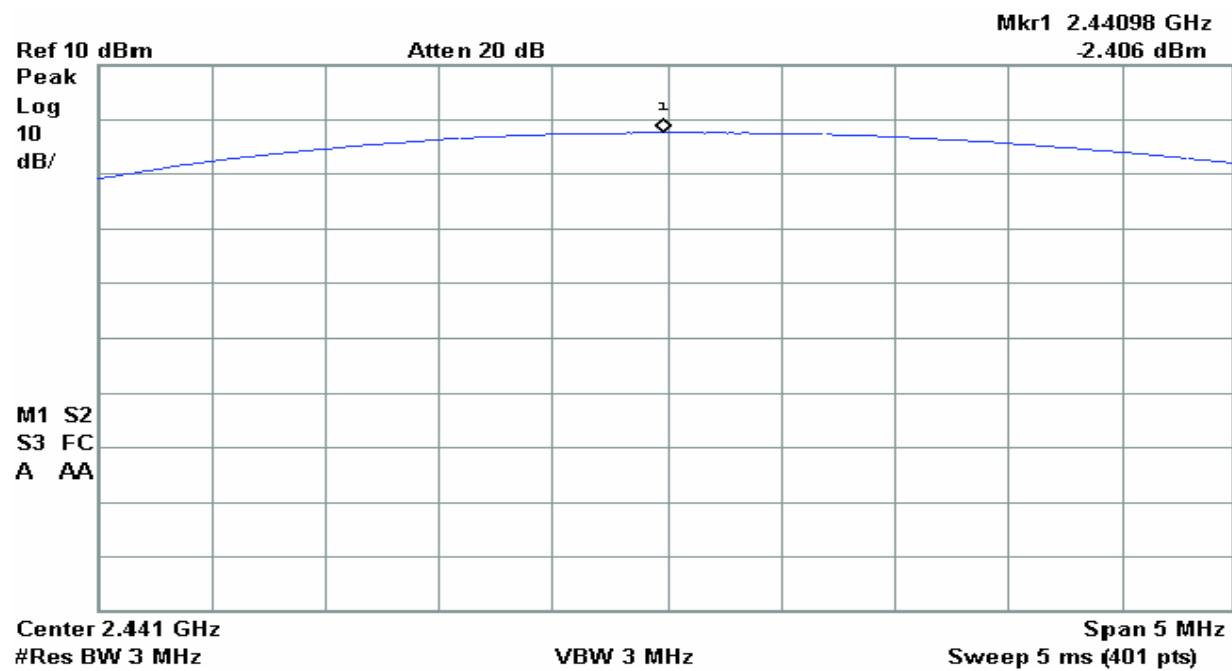
EDR 3M Model



EDR 2M Model



Normal Model



15.247 BAND EDGE TEST

Standard Applicable

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

Test Procedure

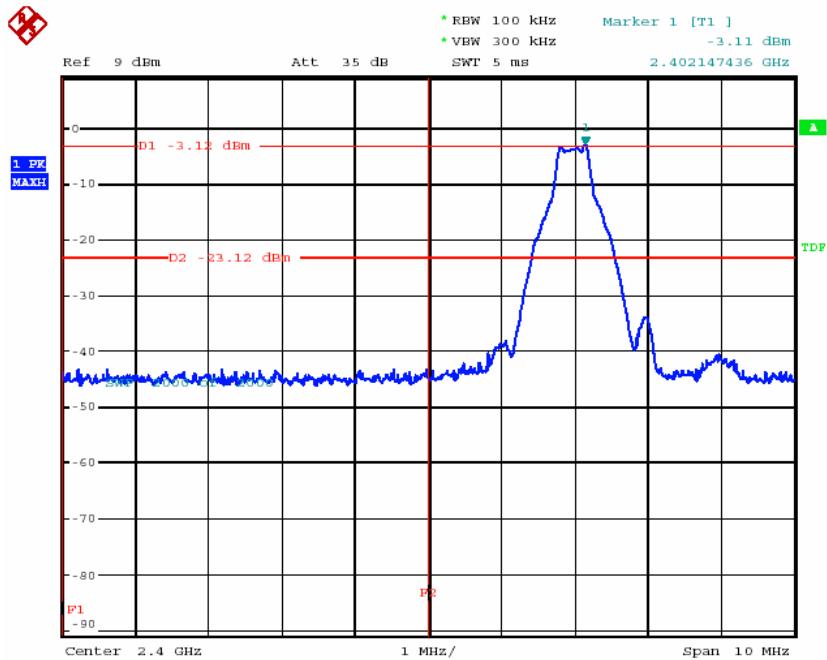
1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set both RBW and VBW of spectrum analyzer to 100 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

Test Results

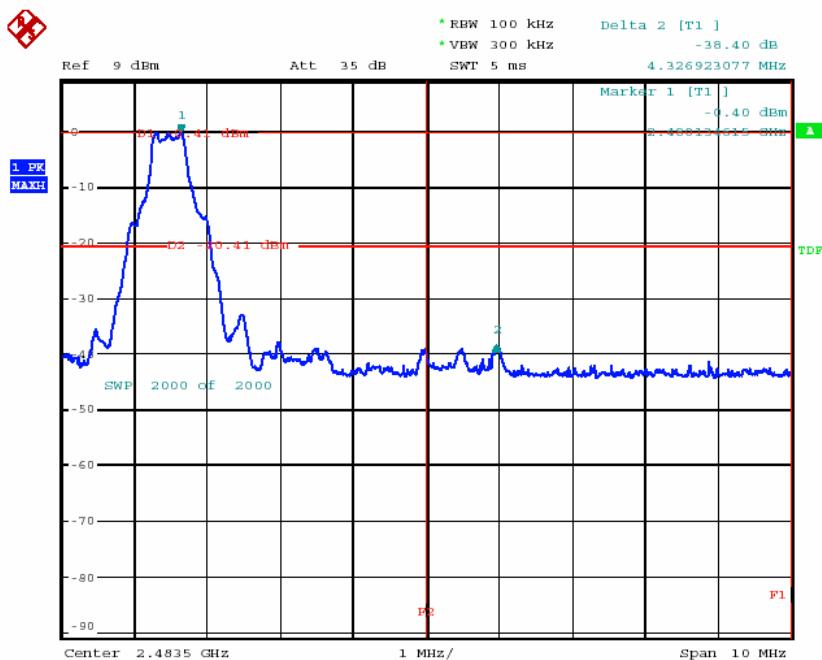
PASS

Please refer to the following plots.

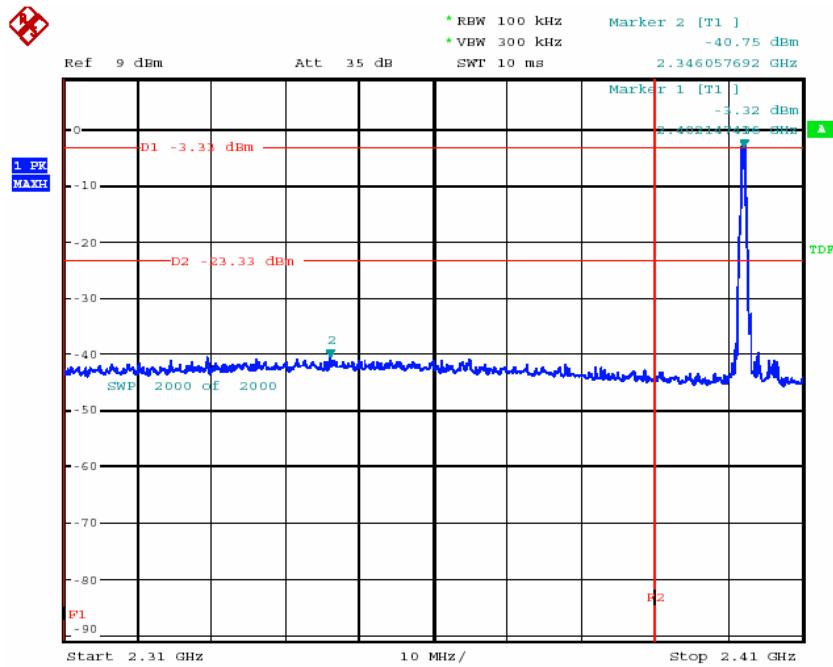
Left edge



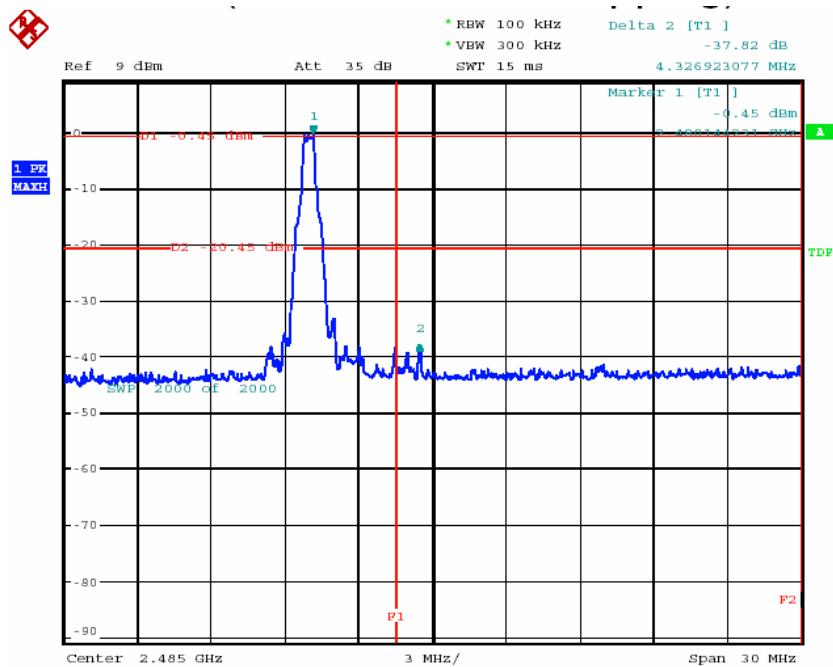
Right edge



Restrict band 2310MHz to 2390MHz



Restrict band 2483.5MHz to 2500MHz



15.247 SPURIOUS EMISSION

Provision Applicable

For frequency hopping systems operating in the 2400–2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725–5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400–2483.5 MHz band: 0.125 watts.

Test Procedure

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.

Get the emission level on the Spectrum Analyzer and record the frequency and emission data in horizontal polarization and vertical polarization direction.

All data was recorded in the peak detection mode. Quasi-peak readings performed only when an emission was found to be marginal (within -4 dB μ V of specification limits), and are distinguished with a "QP" in the data table

Test Results

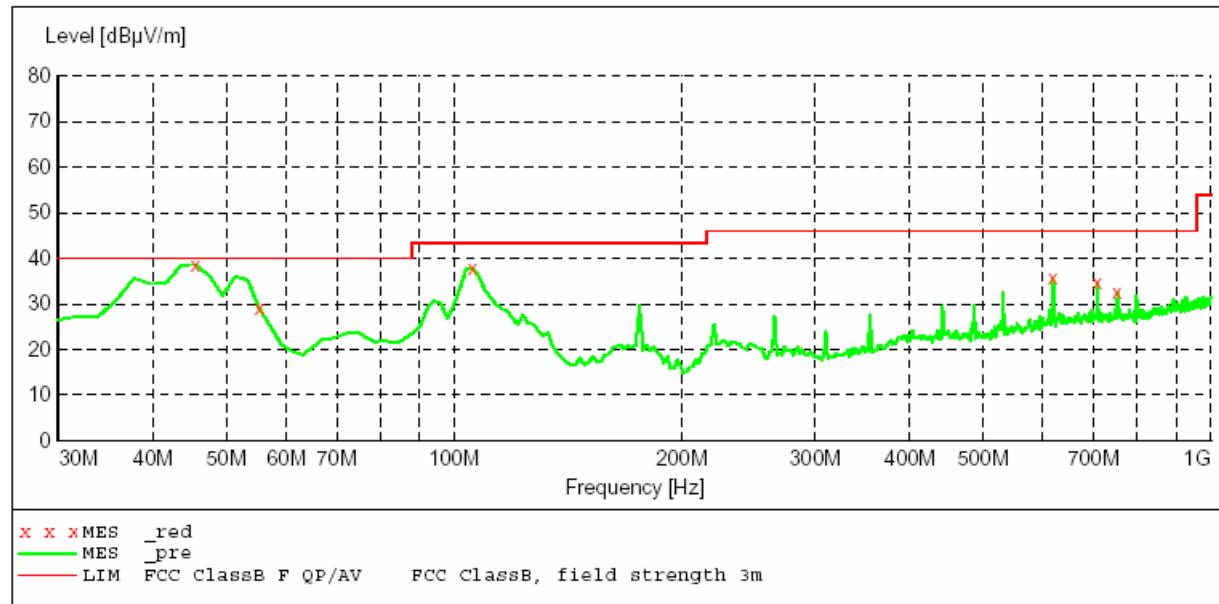
PASS

BEST TEST SERVICE SHENZHEN CO., LTD**RADIATED EMISSION FCC PART 15 B**

EUT: Bluetooth Module Model:H50-CM05
 Manufacturer: BLUE BAMBOO
 Operating Condition: Running
 Test Site: 3M CHAMBER
 Operator: Smart
 Test Specification: AC 120V/60Hz
 Comment:
 Start of Test: 9/30/2007

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

Short Description: Field Strength
 Unit: dB μ V/m
 Detector: Mode:

**MEASUREMENT RESULT:**

9/30/2007 11:22AM

Frequency MHz	Level dB μ V/m	Transd dB	Limit dB μ V/m	Margin dB	Det. ---	Height cm	Azimuth deg	Polarization
45.551102	38.60	12.6	40.0	1.4	---	100.0	214.00	VERTICAL
55.270541	29.10	7.9	40.0	10.9	---	100.0	242.00	VERTICAL
105.811623	37.80	14.2	43.5	5.7	---	100.0	188.00	VERTICAL
618.997996	35.80	23.0	46.0	10.2	---	100.0	320.00	VERTICAL
708.416834	34.80	24.0	46.0	11.2	---	100.0	164.00	VERTICAL
753.126253	32.50	23.9	46.0	13.5	---	100.0	164.00	VERTICAL

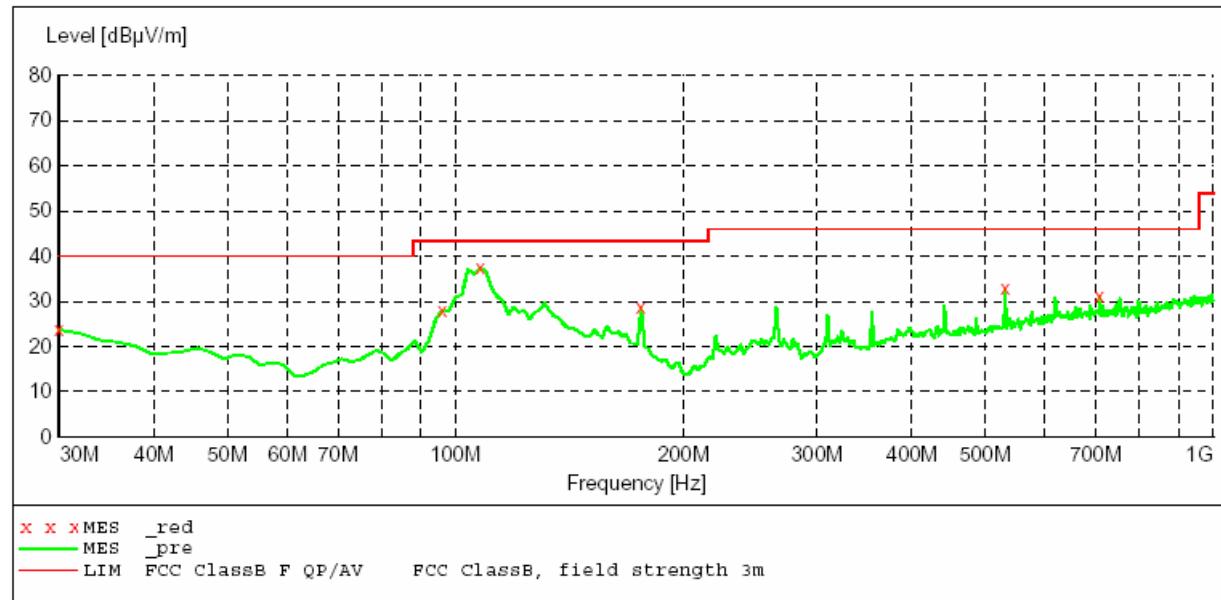
BEST TEST SERVICE SHENZHEN CO., LTD**RADIATED EMISSION FCC PART 15 B**

EUT: Bluetooth Module Model:H50-CM05
 Manufacturer: BLUE BAMBOO
 Operating Condition: Running
 Test Site: 3M CHAMBER
 Operator: Smart
 Test Specification: AC 120V/60Hz
 Comment:
 Start of Test: 9/30/2007

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

Short Description: Field Strength
 Unit: dB μ V/m

Detector: Mode:

**MEASUREMENT RESULT:**

9/30/2007 11:46AM

Frequency MHz	Level dB μ V/m	Transd dB	Limit dB μ V/m	Margin dB	Det. ---	Height cm	Azimuth deg	Polarization
30.000000	23.70	21.2	40.0	16.3	---	300.0	39.00	HORIZONTAL
96.092184	28.10	13.7	43.5	15.4	---	300.0	92.00	HORIZONTAL
107.755511	37.40	14.1	43.5	6.1	---	300.0	118.00	HORIZONTAL
175.791583	28.70	11.3	43.5	14.8	---	100.0	65.00	HORIZONTAL
531.523046	32.90	21.0	46.0	13.1	---	100.0	277.00	HORIZONTAL
708.416834	31.10	24.0	46.0	14.9	---	100.0	356.00	HORIZONTAL

Frequency MHz	INDICATED Amp. dB μ V	Detector	TABLE Angle Degree	ANTENNA Height Meter	Pol H/V	CORRECTION FACTOR Antenna dB	Cable dB	Corr. Amp. dB	FCC PART 15.247 Limit dB μ V/m	Margin dB	
Low Channel (1GHz-25GHz)											
4804.00	37.01	PK	78	1.21	H	33.60	4.90	30.4	45.11	74.00	-28.89
4804.00	35.57	AV	78	1.21	H	33.60	4.90	30.4	43.67	54.00	-10.33
4804.00	44.72	PK	192	1.00	V	33.60	4.90	30.4	50.28	74.00	-23.72
4804.00	42.67	AV	192	1.00	V	33.60	4.90	30.4	49.37	54.00	-4.63
7206.00	39.25	PK	136	1.52	H	36.90	6.00	31.6	50.55	74.00	-23.45
7206.00	38.13	AV	136	1.52	H	36.90	6.00	31.6	49.43	54.00	-4.57
7206.00	40.06	PK	164	1.00	V	36.90	6.00	31.6	51.36	74.00	-22.64
7206.00	38.83	AV	164	1.00	V	36.90	6.00	31.6	50.13	54.00	-3.87
12010.00	30.82	PK	273	1.18	H	40.10	7.90	32.8	46.02	74.00	-27.98
12010.00	28.36	AV	273	1.18	H	40.10	7.90	32.8	43.56	54.00	-10.44
12010.00	28.34	PK	305	1.02	V	40.10	7.90	32.8	43.54	74.00	-30.46
12010.00	26.04	AV	305	1.02	V	40.10	7.90	32.8	41.24	54.00	-12.76
Middle Channel (1GHz-25GHz)											
4882.00	38.85	PK	26	1.13	H	33.70	4.90	30.4	47.05	74.00	-26.95
4882.00	37.29	AV	26	1.13	H	33.70	4.90	30.4	45.49	54.00	-8.51
4882.00	43.38	PK	89	1.03	V	33.70	4.90	30.4	51.58	74.00	-22.42
4882.00	42.19	AV	89	1.03	V	33.70	4.90	30.4	50.39	54.00	-3.61
7323.00	39.54	PK	326	1.16	H	37.00	6.10	31.6	51.04	74.00	-22.96
7323.00	38.01	AV	326	1.16	H	37.00	6.10	31.6	49.51	54.00	-4.49
7323.00	39.87	PK	261	1.00	V	37.00	6.10	31.6	51.37	74.00	-22.63
7323.00	38.42	AV	261	1.00	V	37.00	6.10	31.6	49.92	54.00	-4.08
12205.00	32.87	PK	147	1.14	H	40.20	8.00	32.8	48.27	74.00	-25.73
12205.00	32.04	AV	147	1.14	H	40.20	8.00	32.8	47.44	54.00	-6.56
12205.00	29.92	PK	169	1.00	V	40.20	8.00	32.8	45.32	74.00	-28.68
12205.00	28.66	AV	169	1.00	V	40.20	8.00	32.8	44.06	54.00	-9.94
High Channel (1GHz-25GHz)											
4960.00	38.26	PK	65	1.19	H	33.60	4.90	30.4	46.36	74.00	-27.64
4960.00	37.47	AV	65	1.19	H	33.60	4.90	30.4	45.57	54.00	-8.43
4960.00	43.39	PK	118	1.01	V	33.60	4.90	30.4	51.49	74.00	-22.51
4960.00	42.2	AV	118	1.01	V	33.60	4.90	30.4	50.3	54.00	-3.70
7440.00	39.10	PK	221	1.18	H	36.90	6.00	31.6	50.4	74.00	-23.6
7440.00	38.16	AV	221	1.18	H	36.90	6.00	31.6	49.46	54.00	-4.54
7440.00	38.87	PK	289	1.00	V	36.90	6.00	31.6	50.17	74.00	-23.83
7440.00	38.25	AV	289	1.00	V	36.90	6.00	31.6	49.55	54.00	-4.45
12400.00	31.49	PK	133	1.23	H	40.10	7.90	32.8	46.69	74.00	-27.31
12400.00	30.72	AV	133	1.23	H	40.10	7.90	32.8	45.92	54.00	-8.08
12400.00	28.62	PK	27	1.01	V	40.10	7.90	32.8	43.82	74.00	-30.18
12400.00	27.81	AV	27	1.01	V	40.10	7.90	32.8	43.01	54.00	-10.99

* Emission level above 12.5GHz was not detected.