

Test Report

Product Name : Bluetooth handsfree speaker

Model No. : BTHF107

FCC ID : TQ6BTHF107

Applicant : Shanghai Flaircomm Technologies

Address : No211 North Urumqi Road, Suite 616, Shanghai
200040 P.R.China

Date of Receipt : 2006/11/16

Issued Date : 2006/12/13

Report No. : 06BS010-RF-US-P06V01

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

This report must not be used to claim product endorsement by CNLA, NVLAP, NIST or any agency of the Government.

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Test Report Certification

Issued Date : 2006/12/13

Report No. : 06BS010-RF-US-P06V01



Product Name : Bluetooth handsfree speaker
 Applicant : Shanghai Flaircomm Technologies
 Address : No211 North Urumqi Road, Suite 616, Shanghai 200040
 P.R. China
 Manufacturer : Shanghai Flaircomm Technologies
 Model No. : BTHF107
 FCC ID : TQ6BTHF107
 Rated Voltage : AC 120 V / 60 Hz
 EUT Voltage : DC 3.7V
 Trade Name : Flaircomm
 Applicable Standard : FCC CFR Title 47 Part 15 Subpart C: 2006
 ANSI C63.4: 2003
 Test Result : Complied
 Performed Location : SuZhou EMC laboratory
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 Hi-Tech Development Zone., SuZhou, China
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Laboratory Information

We , **QuietTek Corporation**, are an independent EMC and safety consultancy that was established the whole facility in our laboratories. The test facility has been accredited by the following accreditation Bodies in compliance with ISO 17025, EN 45001 and Guide 25:

Taiwan R.O.C.	:	BSMI, DGT, CNLA
Germany	:	TUV Rheinland
Norway	:	Nemko, DNV
USA	:	FCC, NVLAP
Japan	:	VCCI

The related certificate for our laboratories about the test site and management system can be downloaded from QuietTek Corporation's Web Site : <http://tw.quietek.com/modules/myalbum/>

The address and introduction of QuietTek Corporation's laboratories can be founded in our Web site : <http://www.quietek.com/>

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1. General Information

1.1. EUT Description

Product Name	Bluetooth handsfree speaker
Trade Name	Flaircomm
Model No.	BTHF107
FCC ID	TQ6BTHF107
Working Voltage	DC 3.7V
Frequency Range	2400 - 2483.5MHz
Channel Number	79
Antenna Gain	-3.5dBi
Type of Modulation	Frequency Hopping Spread Spectrum
Channel Control	Auto
Antenna type	Printed PCB

Component	
Vehicular Adapter	Manufacturer: Shanghai Fant Industrial Trading Co.,Ltd M/N: TTX-06500 Input: DC12~24V, 0.3A Max Output: DC5V±5%
USB Cable	Shielded, 1.6m

Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 00:	2402 MHz	Channel 01:	2403 MHz	Channel 02:	2404 MHz	Channel 03:	2405 MHz
Channel 04:	2406 MHz	Channel 05:	2407 MHz	Channel 06:	2408 MHz	Channel 07:	2409 MHz
Channel 08:	2410 MHz	Channel 09:	2411 MHz	Channel 10:	2412 MHz	Channel 11:	2413 MHz
Channel 12:	2414 MHz	Channel 13:	2415 MHz	Channel 14:	2416 MHz	Channel 15:	2417 MHz
Channel 16:	2418 MHz	Channel 17:	2419 MHz	Channel 18:	2420 MHz	Channel 19:	2421 MHz
Channel 20:	2422 MHz	Channel 21:	2423 MHz	Channel 22:	2424 MHz	Channel 23:	2425 MHz
Channel 24:	2426 MHz	Channel 25:	2427 MHz	Channel 26:	2428 MHz	Channel 27:	2429 MHz
Channel 28:	2430 MHz	Channel 29:	2431 MHz	Channel 30:	2432 MHz	Channel 31:	2433 MHz
Channel 32:	2434 MHz	Channel 33:	2435 MHz	Channel 34:	2436 MHz	Channel 35:	2437 MHz
Channel 36:	2438 MHz	Channel 37:	2439 MHz	Channel 38:	2440 MHz	Channel 39:	2441 MHz
Channel 40:	2442 MHz	Channel 41:	2443 MHz	Channel 42:	2444 MHz	Channel 43:	2445 MHz
Channel 44:	2446 MHz	Channel 45:	2447 MHz	Channel 46:	2448 MHz	Channel 47:	2449 MHz
Channel 48:	2450 MHz	Channel 49:	2451 MHz	Channel 50:	2452 MHz	Channel 51:	2453 MHz
Channel 52:	2454 MHz	Channel 53:	2455 MHz	Channel 54:	2456 MHz	Channel 55:	2457 MHz
Channel 56:	2458 MHz	Channel 57:	2459 MHz	Channel 58:	2460 MHz	Channel 59:	2461 MHz
Channel 60:	2462 MHz	Channel 61:	2463 MHz	Channel 62:	2464 MHz	Channel 63:	2465 MHz
Channel 64:	2466 MHz	Channel 65:	2467 MHz	Channel 66:	2468 MHz	Channel 67:	2469 MHz
Channel 68:	2470 MHz	Channel 69:	2471 MHz	Channel 70:	2472 MHz	Channel 71:	2473 MHz
Channel 72:	2474 MHz	Channel 73:	2475 MHz	Channel 74:	2476 MHz	Channel 75:	2477 MHz
Channel 76:	2478 MHz	Channel 77:	2479 MHz	Channel 78:	2480 MHz		

1.2. Mode of Operation

QuieTek has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Test Mode
Mode 1: Transmit

Note:

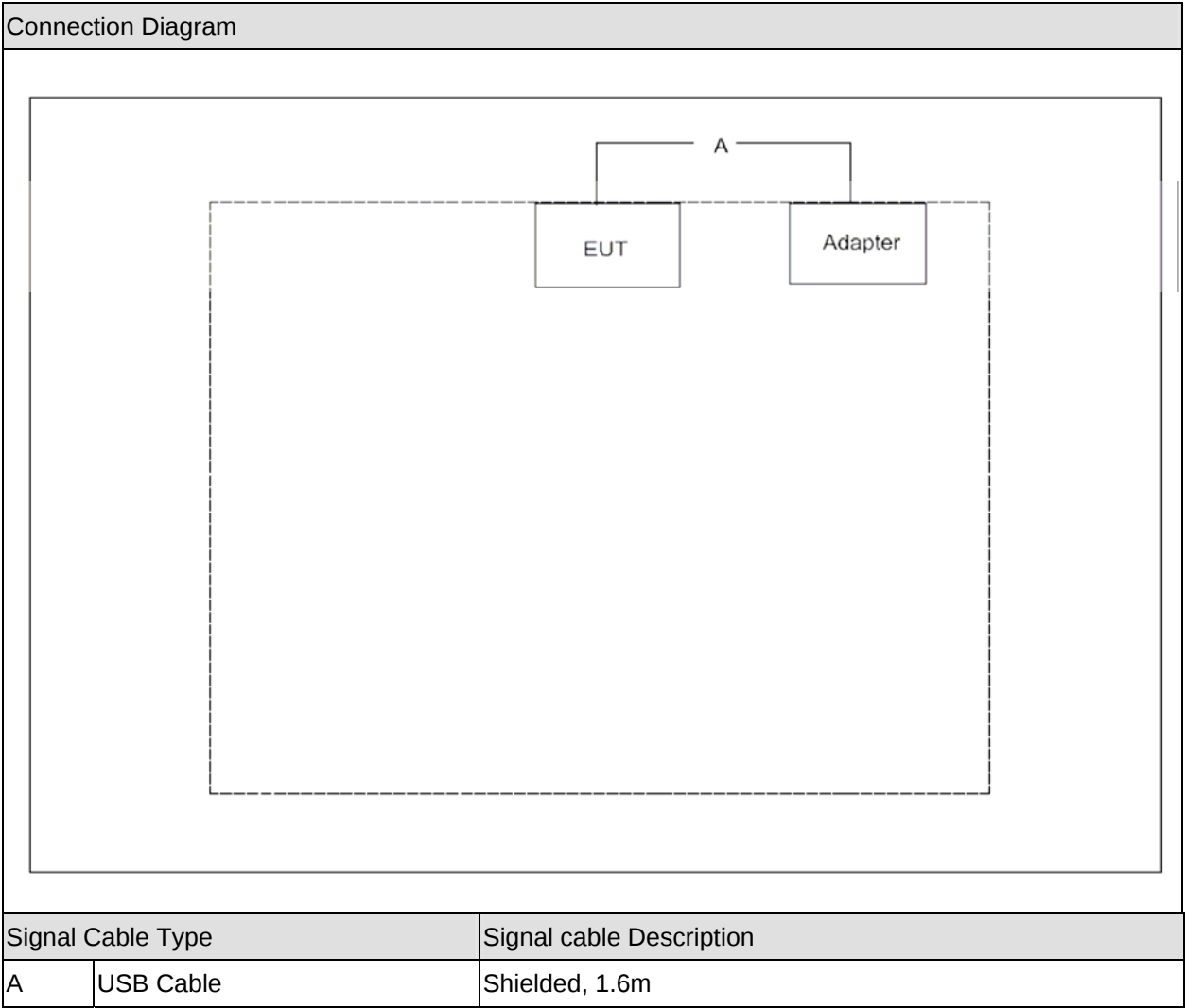
1. Regards to the frequency band operation: the lowest, middle and highest frequency of channel were selected to perform the test, then shown on this report.
2. This device is a composite device in accordance with Part 15 Subpart B regulations. The function for the receiver was measured and made a test report that the report number is 06BS010-RF-US-P01V02, certified under Declaration of Conformity.

1.3. Tested System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	N/A	N/A	N/A	N/A	N/A

1.4. Configuration of Tested System



1.5. EUT Exercise Software

1	Setup the EUT and simulators as shown on 1.4.
2	Connect the EUT to PC via a control board and a RS232 cable.
3	Execute the Blue Test program on the PC.
4	Setup the test channel and the test mode press ok to start the Continue Transmit.

2. Technical Test

2.1. Summary of Test Result

- ☒ No deviations from the test standards
- ☐ Deviations from the test standards as below description:

Performed Test Item	Normative References	Test Performed	Deviation
Conducted Emission	FCC CFR Title 47 Part 15 Subpart C: 2006 Section 15.207	No	No
Radiated Emission	FCC CFR Title 47 Part 15 Subpart C: 2006 Section 15.209	Yes	No
Peak Power Output	FCC CFR Title 47 Part 15 Subpart C: 2006 Section 15.247(b)(1)	Yes	No
Occupied Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2006 Section 15.247(a)(1)	Yes	No
Band Edge	FCC CFR Title 47 Part 15 Subpart C: 2006 Section 15.247(d)	Yes	No
Channel Number	FCC CFR Title 47 Part 15 Subpart C: 2006 Section 15.247(a)(1)(iii)	Yes	No
Channel Separation	FCC CFR Title 47 Part 15 Subpart C: 2006 Section 15.247(a)(1)	Yes	No
Dwell Time	FCC CFR Title 47 Part 15 Subpart C: 2006 Section 15.247(a)(1)(iii)	Yes	No

2.2. Test Environment

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	21
Humidity (%RH)	25-75	50
Barometric pressure (mbar)	860-1060	950-1000

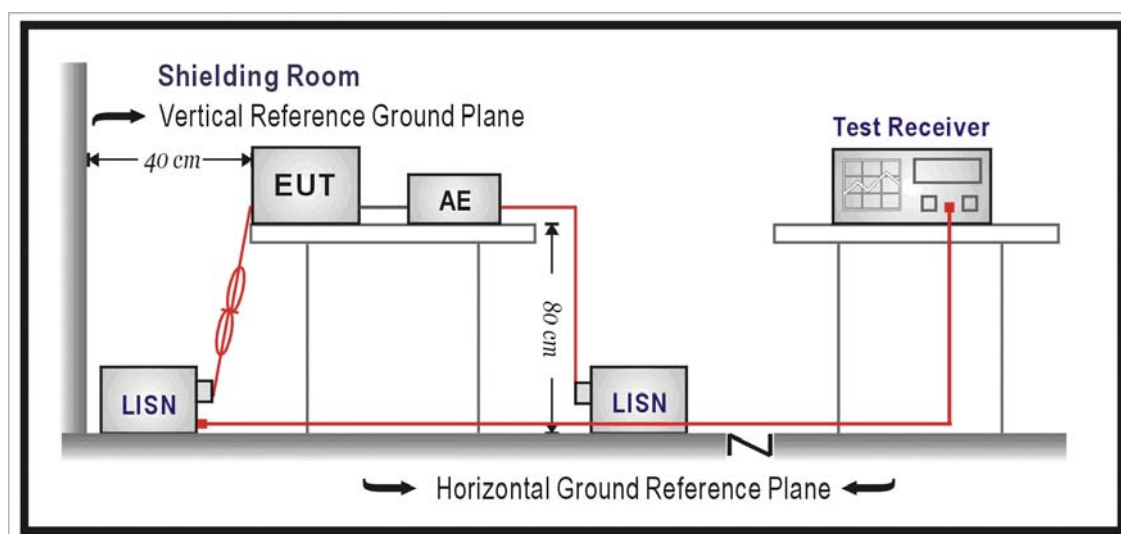
3. Conducted Emission

3.1. Test Equipment

Conducted Emission / SR-1

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
EMI Test Receiver	R&S	ESCI	100175	2006/11/20
Two-Line V-Network	R&S	ENV216	100013	2006/11/20
Two-Line V-Network	R&S	ENV216	100014	2006/11/20
V-Network	R&S	ESH3-Z6	100248	2006/11/20
V-Network	R&S	ESH3-Z6	100249	2006/11/20
ISN	Schaffner	ISN T400	21648	2006/11/20
Current Probe	R&S	EZ-17	100252	2006/04/18
50ohm Coaxial Switch	ANRITSU	MP59B	6200447305	2006/11/25
50ohm Impedance	SHX	50ohmI	QT-IM001	2006/03/20
Matching network	SHX	TZ25	06062901	N/A
Matching network	SHX	TZ25	06062902	N/A
Matching network	SHX	TZ25	06062903	N/A
Combining network	SHX	N-50KKK	N/A	N/A
Temperature/Humidity Meter	zhicheng	ZC1-2	QT-TH004	2006/03/30

3.2. Test Setup



3.3. Limit

FCC Part 15 Subpart C Paragraph 15.207 Limits (dBuV)		
Frequency (MHz)	QP (dBuV)	AV (dBuV)
0.15 - 0.50	66 - 56	56 – 46
0.50-5.0	56	46
5.0 - 30	60	50

Remarks: In the above table, the tighter limit applies at the band edges.

3.4. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination.

(Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed on conducted measurement.

Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

3.5. Uncertainty

The measurement uncertainty is defined as ± 2.02 dB

3.6. Test Result

EUT is a DC(12V) power device, so the test item is not necessary performed.

4. Radiated Emission

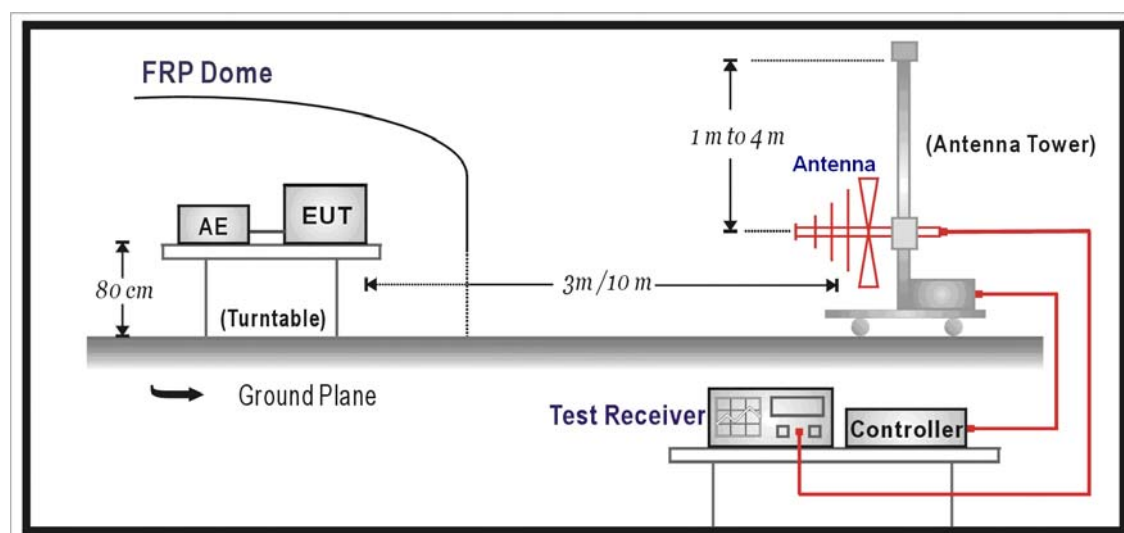
4.1. Test Equipment

Radiated Emission / AC-2

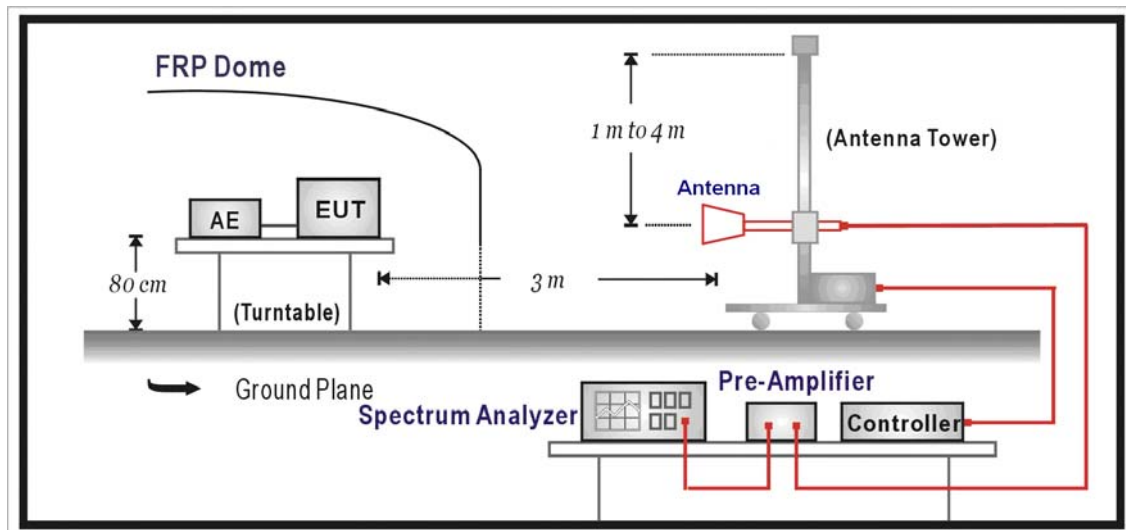
Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Spectrum Analyzer	Agilent	E4408B	MY45102679	2006/11/20
EMI Test Receiver	R&S	ESCI	100175	2006/11/25
Preamplifier	Quietek	AP-025C	QT-AP003	2006/11/25
Preamplifier	Quietek	AP-180C	CHM-0602013	2006/03/20
Bilog Type Antenna	Schaffner	CBL6112B	2932	2006/10/26
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	496	2006/11/30
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2006/11/30
Temperature/Humidity Meter	zhicheng	ZC1-2	QT-TH002	2006/03/30

4.2. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:



4.3. Limit

FCC Part 15 Subpart C Paragraph 15.209 Limits (dBuV/m)		
Frequency (MHz)	Distance (m)	dBuV/m
30-88	3	40
88-216	3	43.5
216-960	3	46
Above 960	3	54

Remark:

1. The tighter limit shall apply at the edge between two frequency bands.
2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
3. $\text{RF Voltage (dBuV/m)} = 20 \log \text{RF Voltage (uV/m)}$

4.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground.

The turn table can rotate 360 degrees to determine the position of the maximum emission level and the antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated on radiated measurement.

The additional latch filter below 1GHz was used to measure the level of harmonics radiated emission during field strength of harmonics measurement.

The bandwidth below 1GHz setting on the field strength meter (R&S Test Receiver ESCI) is 120 kHz and above 1GHz is 1MHz.

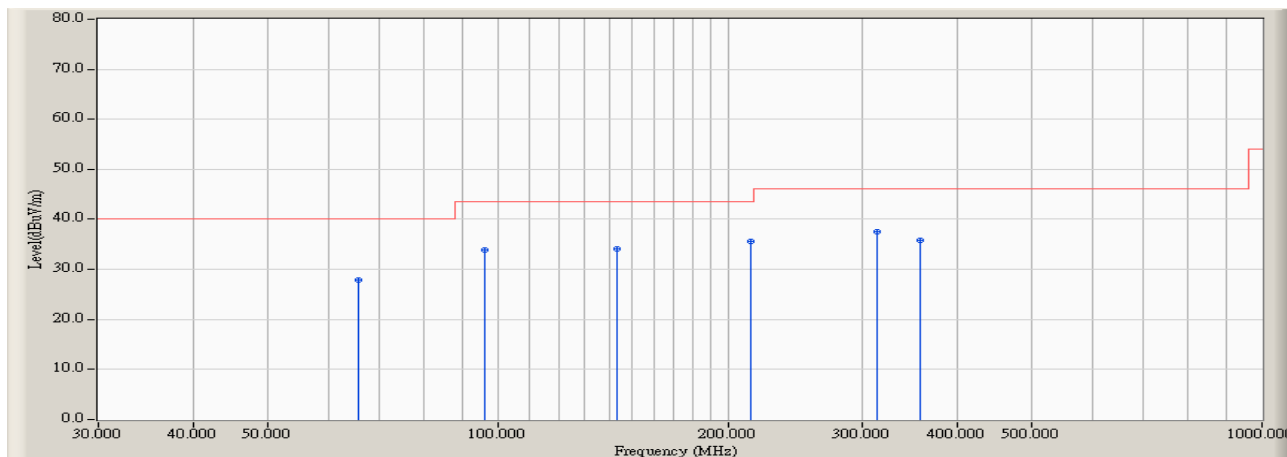
The frequency range from 30MHz to 10th harmonic is checked.

4.5. Uncertainty

The measurement uncertainty above 1G is defined as ± 3.9 dB
under 1G is defined as ± 3.8 dB

4.6. Test Result

Engineer : Johnwang	
Site : AC-2	Time : 2006/12/02 - 13:07
Limit : FCC_SpartC_15.209_03M_QP	Margin : 0
EUT : BTHF107	Probe : CBL6141A_4278(30-2000MHz) - HORIZONTAL
Power : DC 3.7V	Note : Mode 1: Transmit (2402MHz)

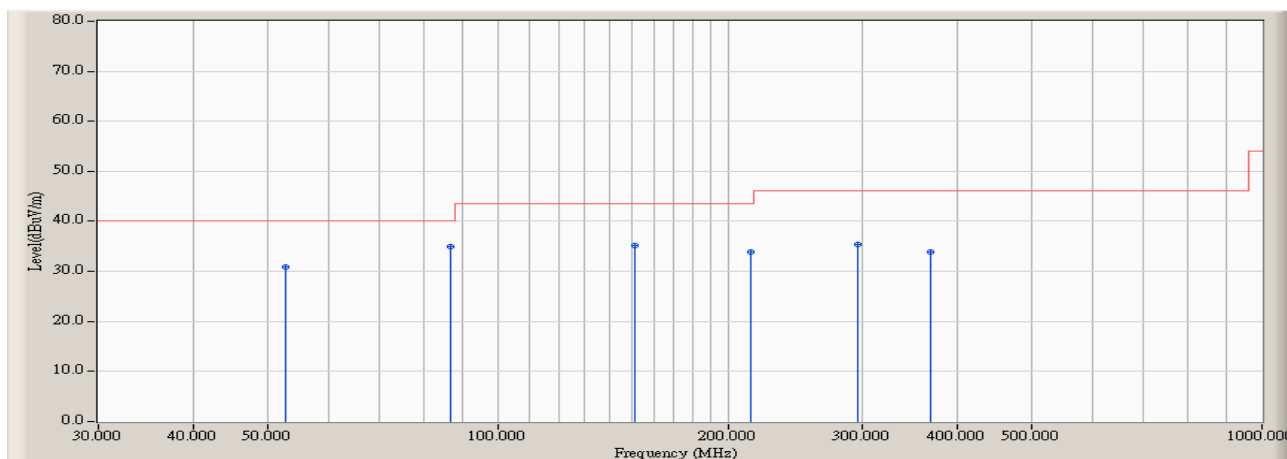


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		65.567	-16.689	44.544	27.854	-12.146	40.000	QUASIPeAK
2		96.283	-14.519	48.349	33.830	-9.690	43.520	QUASIPeAK
3		143.167	-11.662	45.802	34.140	-9.380	43.520	QUASIPeAK
4	*	214.300	-12.038	47.565	35.527	-7.993	43.520	QUASIPeAK
5		312.917	-9.262	46.762	37.501	-8.519	46.020	QUASIPeAK
6		356.567	-8.252	44.150	35.898	-10.122	46.020	QUASIPeAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Engineer : Johnwang	
Site : AC-2	Time : 2006/12/02 - 13:22
Limit : FCC_SpartC_15.209_03M_QP	Margin : 0
EUT : BTHF107	Probe : CBL6141A_4278(30-2000MHz) - VERTICAL
Power : DC 3.7V	Note : Mode 1: Transmit (2402MHz)

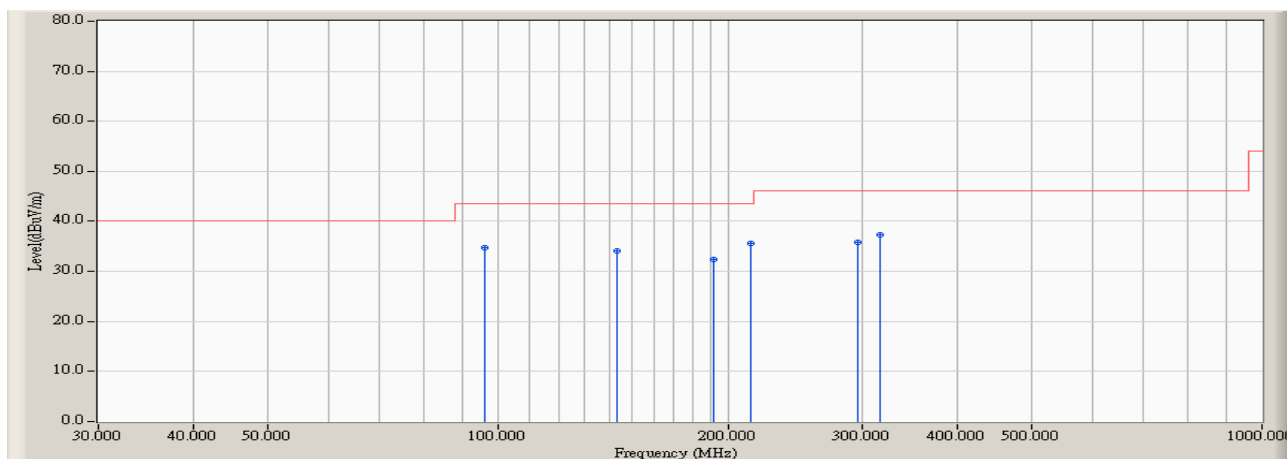


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		52.633	-12.297	43.101	30.805	-9.195	40.000	QUASIPeAK
2	*	86.583	-15.616	50.570	34.954	-5.046	40.000	QUASIPeAK
3		151.250	-11.899	47.074	35.175	-8.345	43.520	QUASIPeAK
4		214.300	-12.038	46.009	33.971	-9.549	43.520	QUASIPeAK
5		295.133	-10.466	45.876	35.410	-10.610	46.020	QUASIPeAK
6		367.883	-8.210	42.053	33.843	-12.177	46.020	QUASIPeAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Engineer : Johnwang	
Site : AC-2	Time : 2006/12/02 - 13:09
Limit : FCC_SpartC_15.209_03M_QP	Margin : 0
EUT : BTHF107	Probe : CBL6141A_4278(30-2000MHz) - HORIZONTAL
Power : DC 3.7V	Note : Mode 1: Transmit (2441MHz)

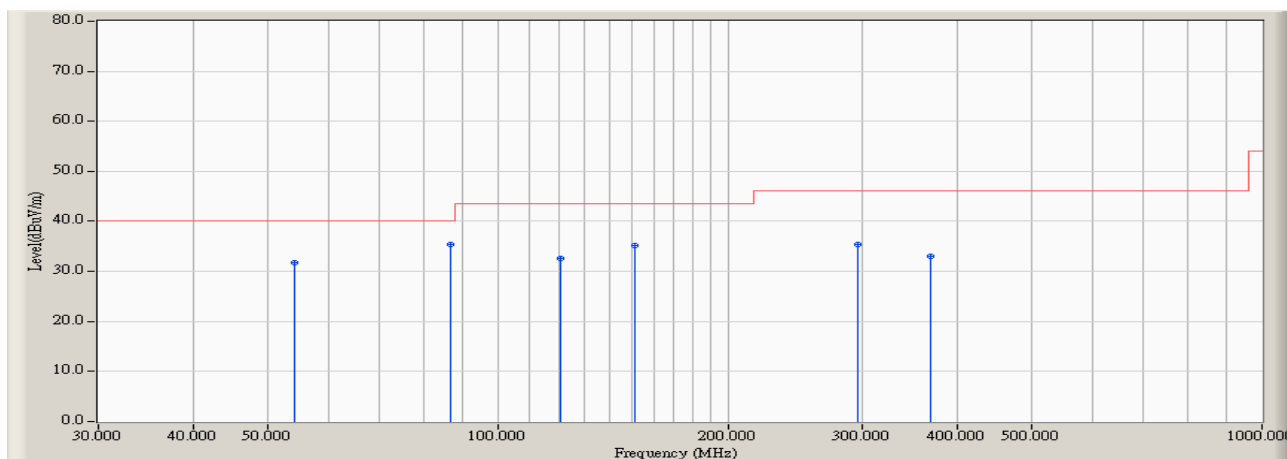


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		96.283	-14.519	49.209	34.690	-8.830	43.520	QUASIPeAK
2		143.167	-11.662	45.785	34.123	-9.397	43.520	QUASIPeAK
3		191.667	-13.654	46.005	32.351	-11.169	43.520	QUASIPeAK
4	*	214.300	-12.038	47.646	35.608	-7.912	43.520	QUASIPeAK
5		295.133	-10.466	46.332	35.866	-10.154	46.020	QUASIPeAK
6		316.150	-9.300	46.611	37.311	-8.709	46.020	QUASIPeAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Engineer : Johnwang	
Site : AC-2	Time : 2006/12/02 - 13:24
Limit : FCC_SpartC_15.209_03M_QP	Margin : 0
EUT : BTHF107	Probe : CBL6141A_4278(30-2000MHz) - VERTICAL
Power : DC 3.7V	Note : Mode 1: Transmit (2441MHz)

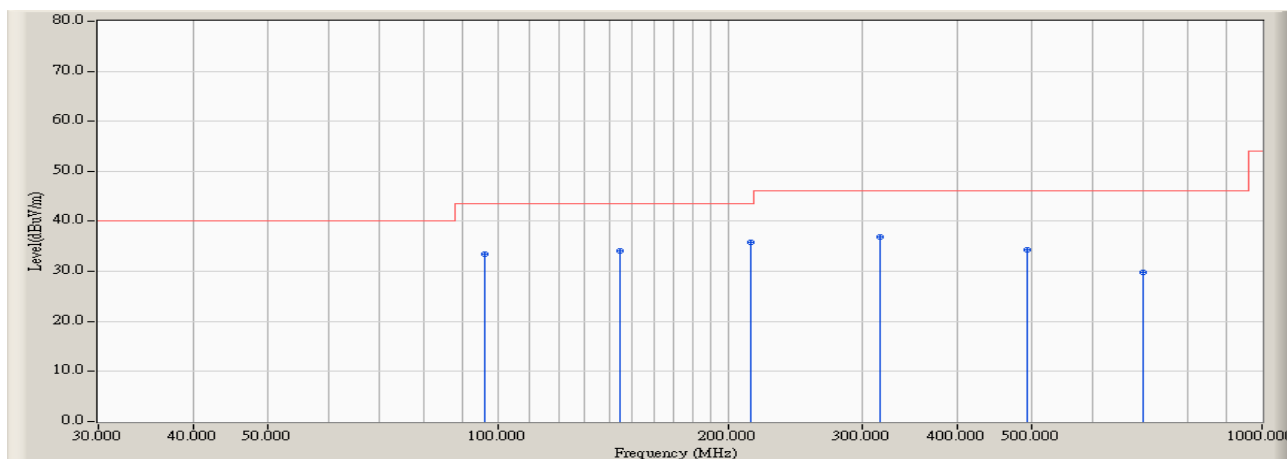


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		54.250	-13.047	44.860	31.813	-8.187	40.000	QUASIPeAK
2	*	86.583	-15.616	50.922	35.306	-4.694	40.000	QUASIPeAK
3		120.533	-12.561	45.153	32.592	-10.928	43.520	QUASIPeAK
4		151.250	-11.899	47.042	35.143	-8.377	43.520	QUASIPeAK
5		295.133	-10.466	45.920	35.454	-10.566	46.020	QUASIPeAK
6		367.883	-8.210	41.325	33.115	-12.905	46.020	QUASIPeAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Engineer : Johnwang	
Site : AC-2	Time : 2006/12/02 - 13:11
Limit : FCC_SpartC_15.209_03M_QP	Margin : 0
EUT : BTHF107	Probe : CBL6141A_4278(30-2000MHz) - HORIZONTAL
Power : DC 3.7V	Note : Mode 1: Transmit (2480MHz)

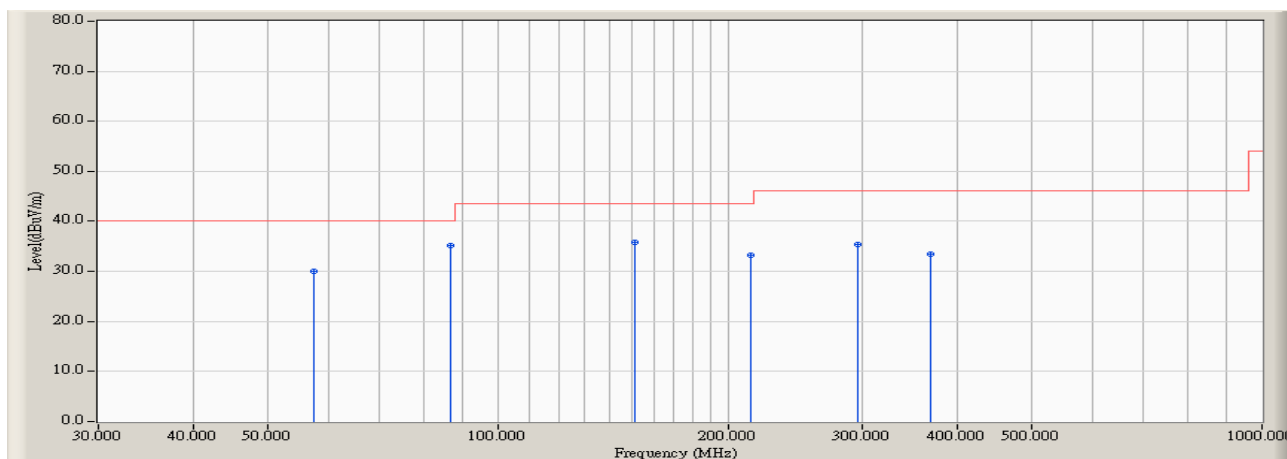


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		96.283	-14.519	47.896	33.377	-10.143	43.520	QUASIPeAK
2		144.783	-11.616	45.702	34.086	-9.434	43.520	QUASIPeAK
3	*	214.300	-12.038	47.797	35.759	-7.761	43.520	QUASIPeAK
4		316.150	-9.300	46.147	36.847	-9.173	46.020	QUASIPeAK
5		492.367	-5.650	39.902	34.252	-11.768	46.020	QUASIPeAK
6		697.683	-1.731	31.521	29.790	-16.230	46.020	QUASIPeAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Engineer : Johnwang	
Site : AC-2	Time : 2006/12/02 - 13:26
Limit : FCC_SpartC_15.209_03M_QP	Margin : 0
EUT : BTHF107	Probe : CBL6141A_4278(30-2000MHz) - VERTICAL
Power : DC 3.7V	Note : Mode 1: Transmit (2480MHz)

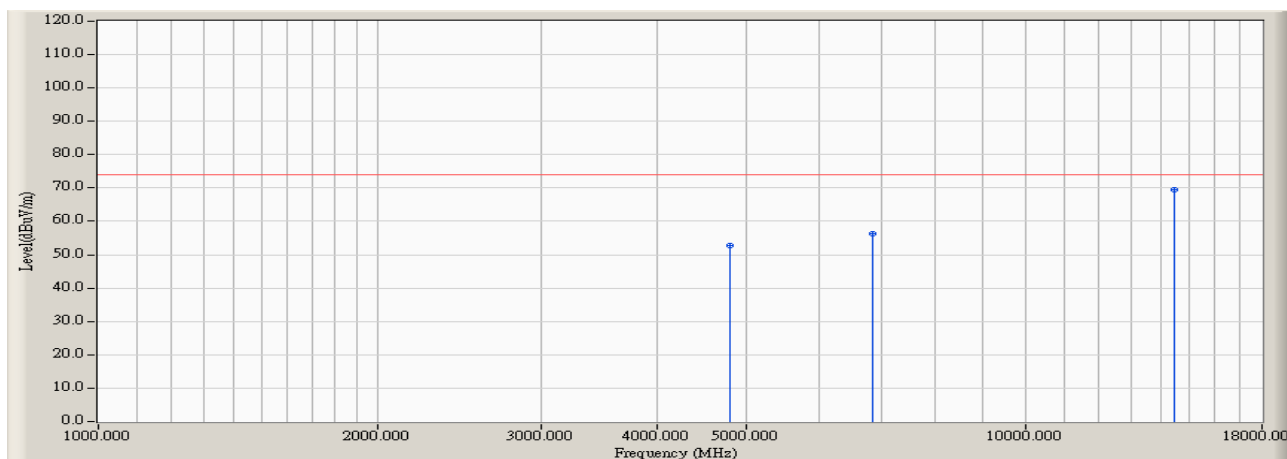


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		57.483	-14.485	44.416	29.932	-10.068	40.000	QUASIPeAK
2	*	86.583	-15.616	50.872	35.256	-4.744	40.000	QUASIPeAK
3		151.250	-11.899	47.686	35.787	-7.733	43.520	QUASIPeAK
4		214.300	-12.038	45.309	33.271	-10.249	43.520	QUASIPeAK
5		295.133	-10.466	45.942	35.476	-10.544	46.020	QUASIPeAK
6		367.883	-8.210	41.606	33.396	-12.624	46.020	QUASIPeAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Engineer : Johnwang	
Site : AC-2	Time : 2006/11/29 - 11:16
Limit : FCC_SpartC_15.209_03M_PK	Margin : 0
EUT : BTHF107	Probe : 9120D_(1G-18G) - HORIZONTAL
Power : DC 3.7V	Note : Mode 1: Transmit (2402MHz)

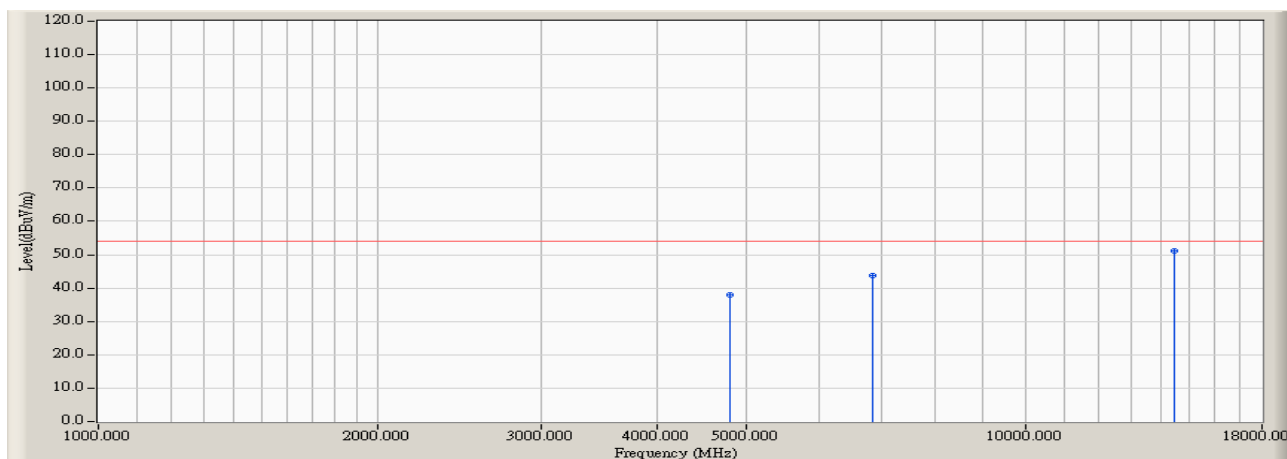


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4796.667	4.834	47.772	52.605	-21.365	73.970	PEAK
2		6836.667	14.174	42.268	56.441	-17.529	73.970	PEAK
3	*	14458.333	26.043	43.302	69.345	-4.625	73.970	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Engineer : Johnwang	
Site : AC-2	Time : 2006/11/29 - 11:16
Limit : FCC_SpartC_15.209_03M_AV	Margin : 0
EUT : BTHF107	Probe : 9120D_(1G-18G) - HORIZONTAL
Power : DC 3.7V	Note : Mode 1: Transmit (2402MHz)

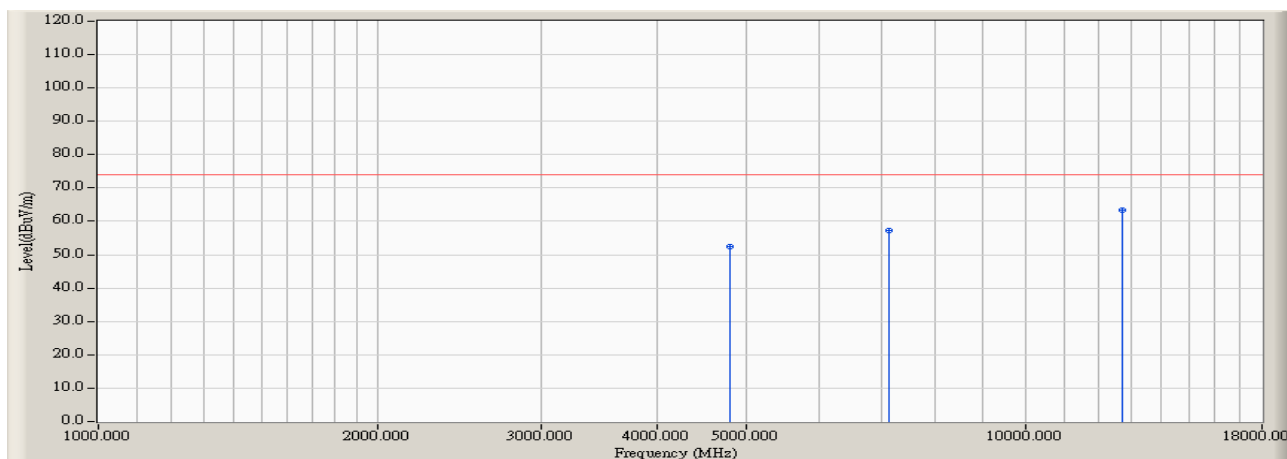


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4796.667	4.834	33.268	38.101	-15.869	53.970	AVERAGE
2		6836.667	14.174	29.652	43.825	-10.145	53.970	AVERAGE
3	*	14458.333	26.043	25.205	51.248	-2.722	53.970	AVERAGE

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Engineer : Johnwang	
Site : AC-2	Time : 2006/11/29 - 11:22
Limit : FCC_SpartC_15.209_03M_PK	Margin : 0
EUT : BTHF107	Probe : 9120D_(1G-18G) - VERTICAL
Power : DC 3.7V	Note : Mode 1: Transmit (2402MHz)

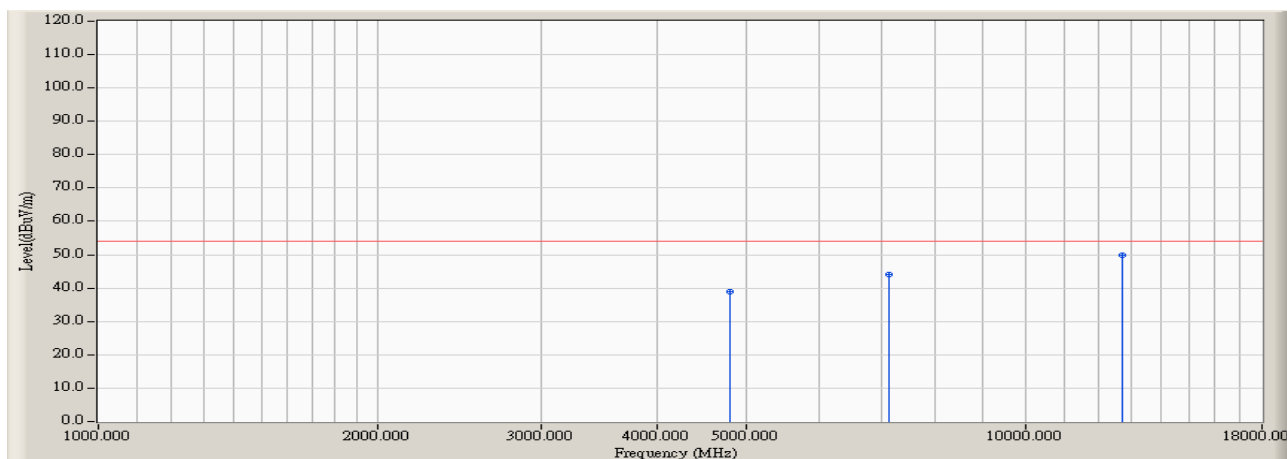


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4796.667	4.834	47.467	52.300	-21.670	73.970	PEAK
2		7120.000	15.120	42.173	57.293	-16.677	73.970	PEAK
3	*	12701.667	20.447	42.880	63.327	-10.643	73.970	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Engineer : Johnwang	
Site : AC-2	Time : 2006/11/29 - 11:22
Limit : FCC_SpartC_15.209_03M_AV	Margin : 0
EUT : BTHF107	Probe : 9120D_(1G-18G) - VERTICAL
Power : DC 3.7V	Note : Mode 1: Transmit (2402MHz)

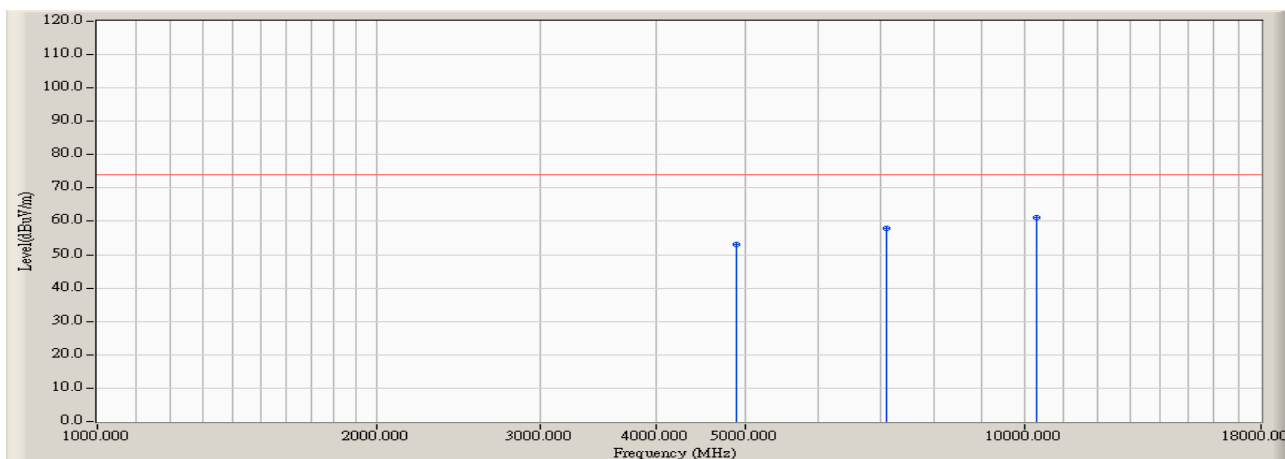


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4796.667	4.834	34.226	39.059	-14.911	53.970	AVERAGE
2		7120.000	15.120	28.795	43.915	-10.055	53.970	AVERAGE
3	*	12701.667	20.447	29.335	49.782	-4.188	53.970	AVERAGE

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Engineer : Johnwang	
Site : AC-2	Time : 2006/11/29 - 11:26
Limit : FCC_SpartC_15.209_03M_PK	Margin : 0
EUT : BTHF107	Probe : 9120D_(1G-18G) - HORIZONTAL
Power : DC 3.7V	Note : Mode 1: Transmit (2441MHz)

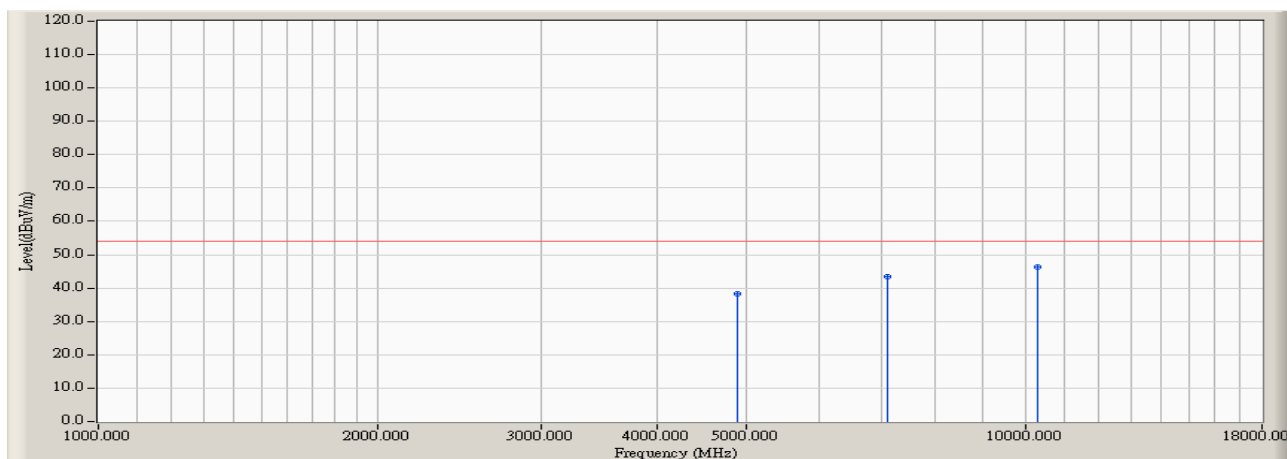


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4881.667	5.034	48.050	53.083	-20.887	73.970	PEAK
2		7091.667	15.014	42.914	57.927	-16.043	73.970	PEAK
3	*	10321.667	18.700	42.306	61.006	-12.964	73.970	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Engineer : Johnwang	
Site : AC-2	Time : 2006/11/29 - 11:26
Limit : FCC_SpartC_15.209_03M_AV	Margin : 0
EUT : BTHF107	Probe : 9120D_(1G-18G) - HORIZONTAL
Power : DC 3.7V	Note : Mode 1: Transmit (2441MHz)

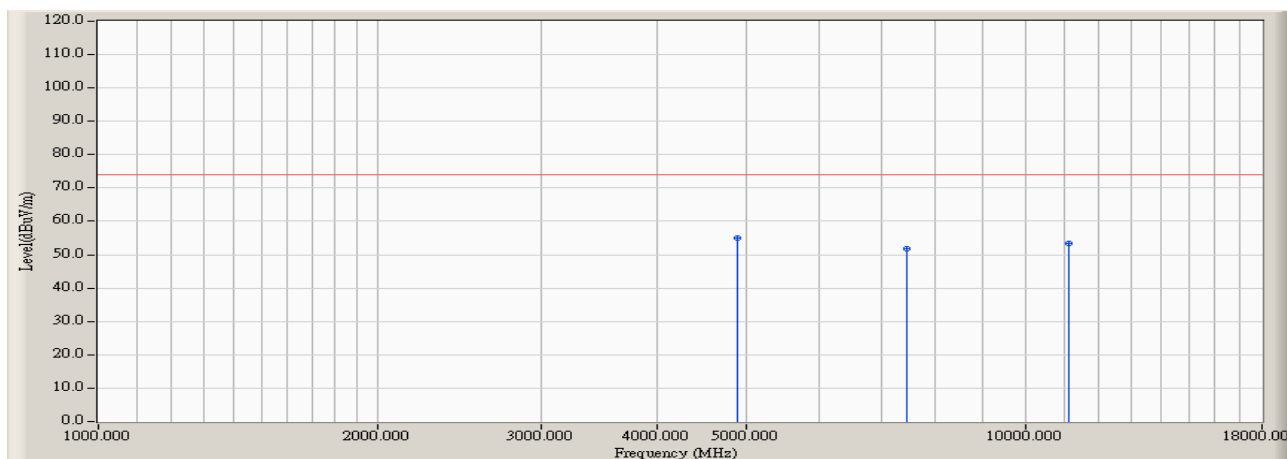


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4881.667	5.034	33.102	38.135	-15.835	53.970	AVERAGE
2		7091.667	15.014	28.554	43.567	-10.403	53.970	AVERAGE
3	*	10321.667	18.700	27.664	46.364	-7.606	53.970	AVERAGE

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Engineer : Johnwang	
Site : AC-2	Time : 2006/11/29 - 11:28
Limit : FCC_SpartC_15.209_03M_PK	Margin : 0
EUT : BTHF107	Probe : 9120D_(1G-18G) - VERTICAL
Power : DC 3.7V	Note : Mode 1: Transmit (2441MHz)

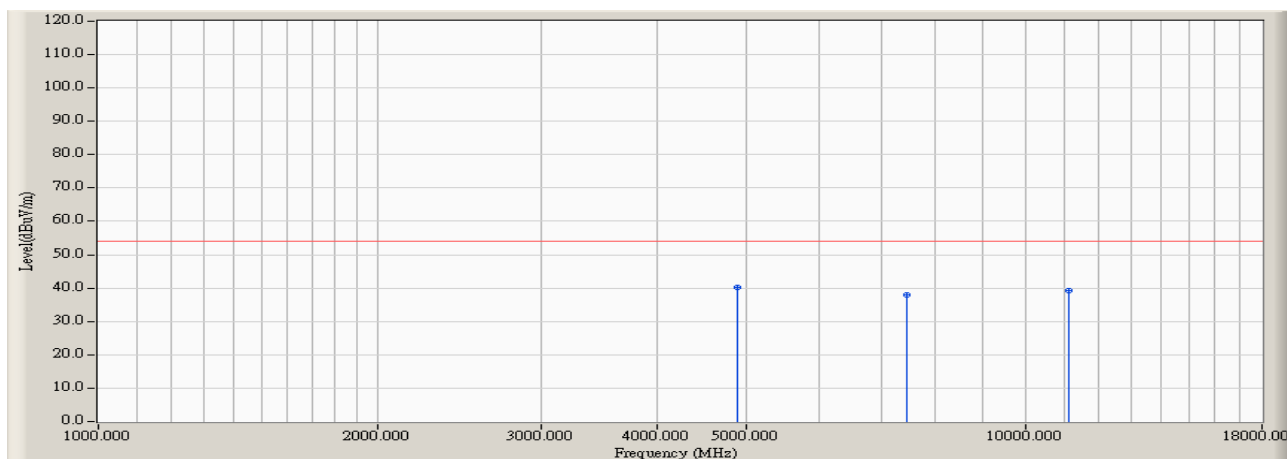


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	4881.667	5.034	49.908	54.941	-19.029	73.970	PEAK
2		7460.000	15.090	36.846	51.936	-22.034	73.970	PEAK
3		11143.333	20.044	33.470	53.513	-20.457	73.970	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Engineer : Johnwang	
Site : AC-2	Time : 2006/11/29 - 11:28
Limit : FCC_SpartC_15.209_03M_AV	Margin : 0
EUT : BTHF107	Probe : 9120D_(1G-18G) - VERTICAL
Power : DC 3.7V	Note : Mode 1: Transmit (2441MHz)

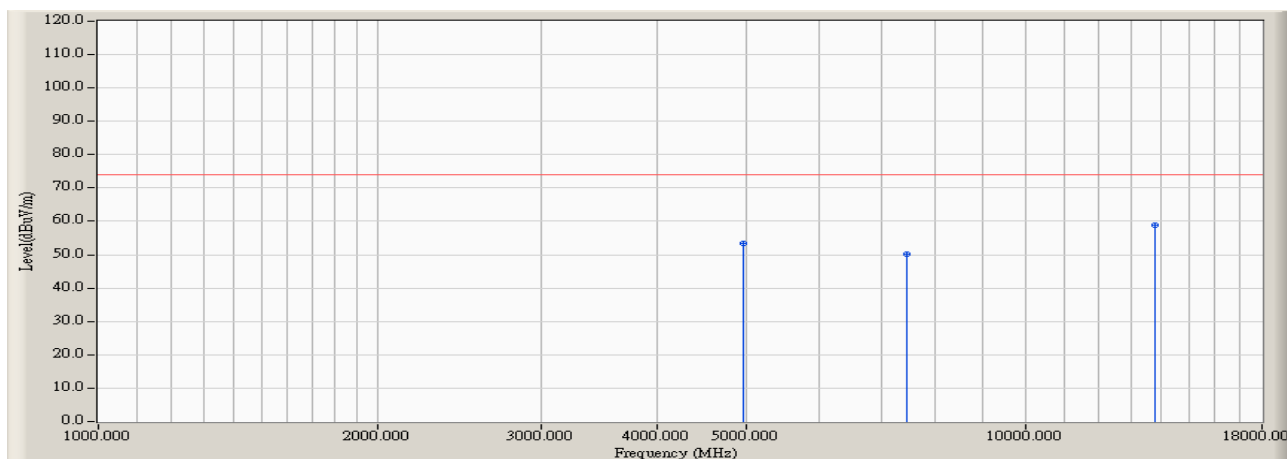


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	4881.667	5.034	35.300	40.333	-13.637	53.970	AVERAGE
2		7460.000	15.090	22.887	37.977	-15.993	53.970	AVERAGE
3		11143.333	20.044	19.226	39.269	-14.701	53.970	AVERAGE

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Engineer : Johnwang	
Site : AC-2	Time : 2006/11/29 - 11:34
Limit : FCC_SpartC_15.209_03M_PK	Margin : 0
EUT : BTHF107	Probe : 9120D_(1G-18G) - HORIZONTAL
Power : DC 3.7V	Note : Mode 1: Transmit (2480MHz)

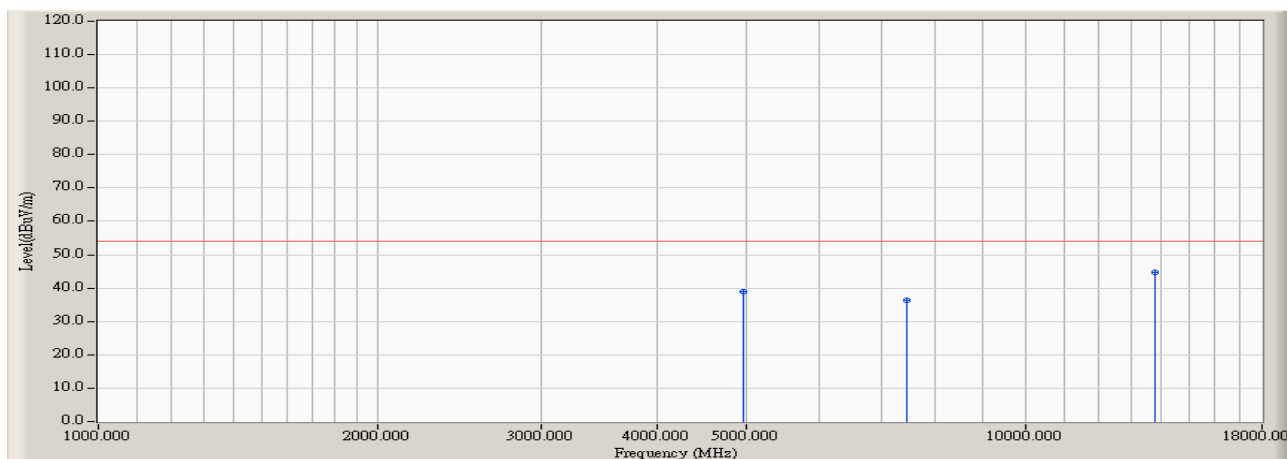


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4966.667	5.234	48.194	53.427	-20.543	73.970	PEAK
2		7460.000	15.090	35.215	50.305	-23.665	73.970	PEAK
3	*	13806.667	24.054	34.712	58.765	-15.205	73.970	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Engineer : Johnwang	
Site : AC-2	Time : 2006/11/29 - 11:34
Limit : FCC_SpartC_15.209_03M_AV	Margin : 0
EUT : BTHF107	Probe : 9120D_(1G-18G) - HORIZONTAL
Power : DC 3.7V	Note : Mode 1: Transmit (2480MHz)

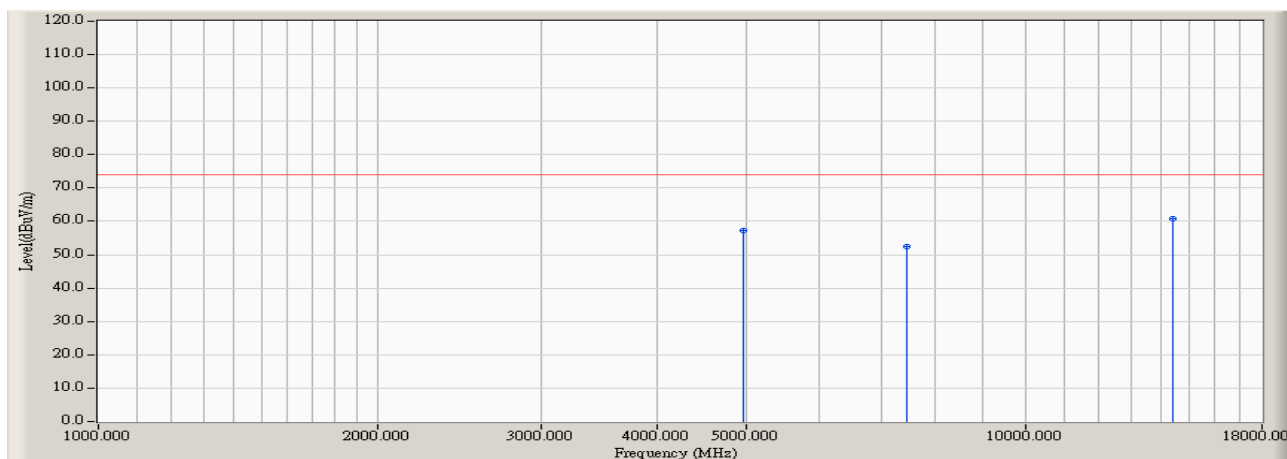


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4966.667	5.234	33.806	39.039	-14.931	53.970	AVERAGE
2		7460.000	15.090	21.338	36.428	-17.542	53.970	AVERAGE
3	*	13806.667	24.054	20.568	44.621	-9.349	53.970	AVERAGE

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Engineer : Johnwang	
Site : AC-2	Time : 2006/11/29 - 11:44
Limit : FCC_SpartC_15.209_03M_PK	Margin : 0
EUT : BTHF107	Probe : 9120D_(1G-18G) - VERTICAL
Power : DC 3.7V	Note : Mode 1: Transmit (2480MHz)

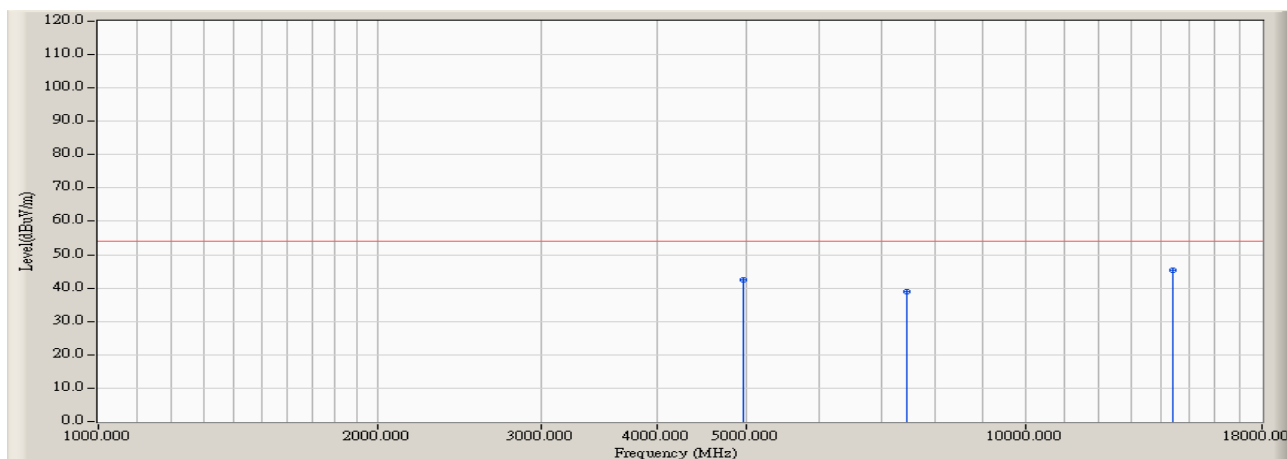


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4966.667	5.234	51.985	57.218	-16.752	73.970	PEAK
2		7460.000	15.090	37.308	52.398	-21.572	73.970	PEAK
3	*	14401.667	25.893	34.883	60.776	-13.194	73.970	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Engineer : Johnwang	
Site : AC-2	Time : 2006/11/29 - 11:44
Limit : FCC_SpartC_15.209_03M_AV	Margin : 0
EUT : BTHF107	Probe : 9120D_(1G-18G) - VERTICAL
Power : DC 3.7V	Note : Mode 1: Transmit (2480MHz)

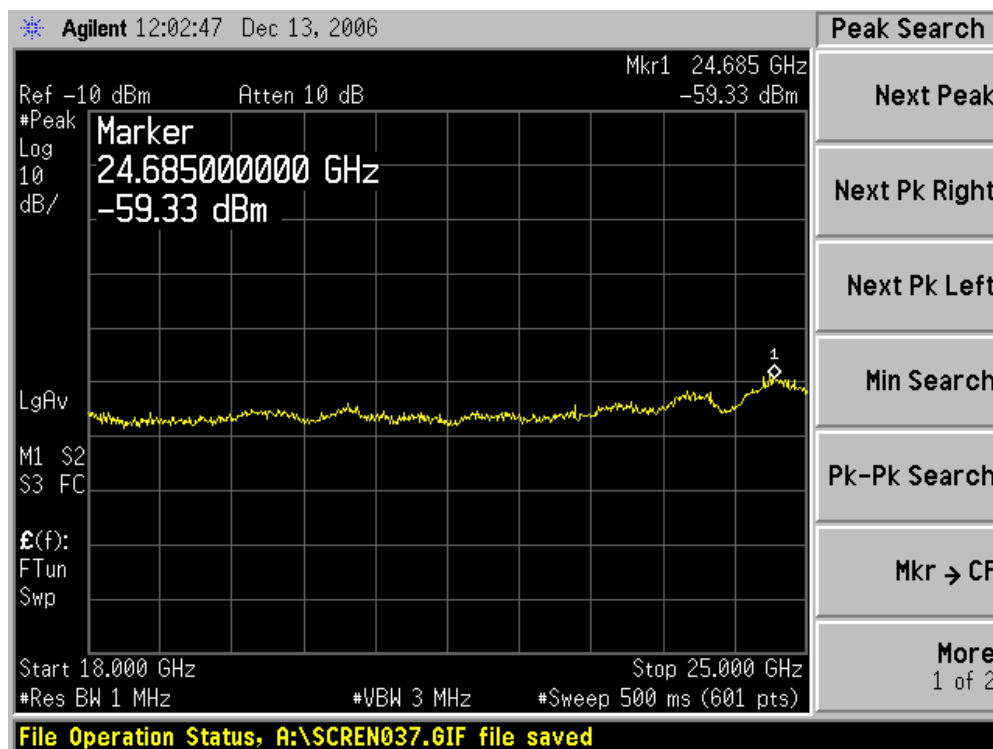


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4966.667	5.234	37.228	42.461	-11.509	53.970	AVERAGE
2		7460.000	15.090	23.874	38.964	-15.006	53.970	AVERAGE
3	*	14401.667	25.893	19.364	45.257	-8.713	53.970	AVERAGE

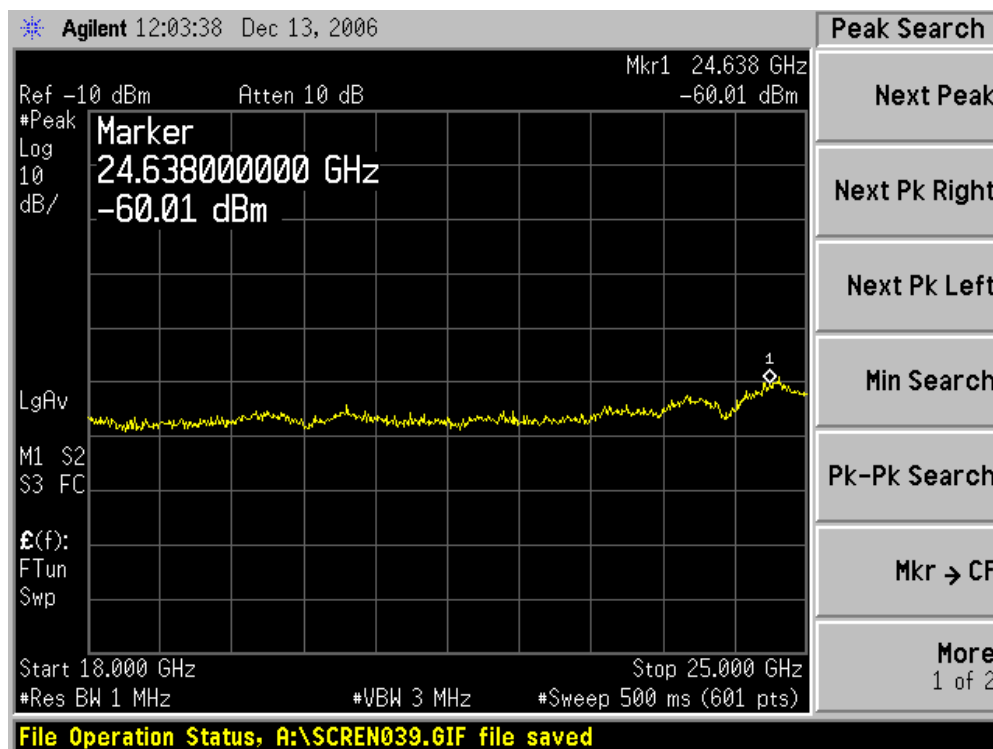
Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

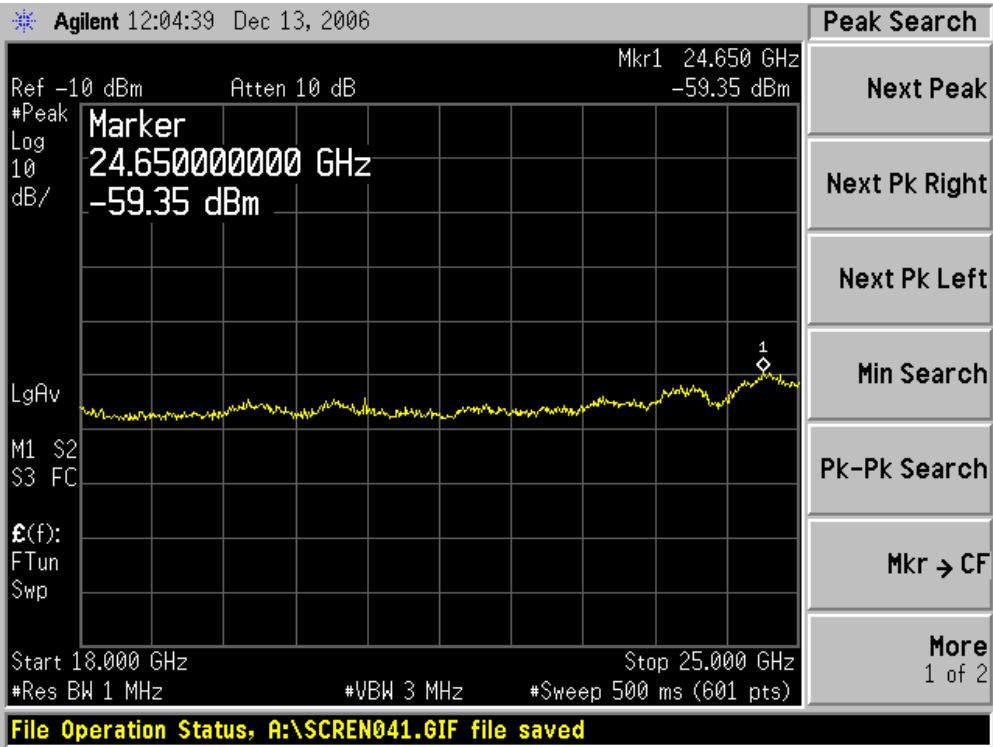
Conducted Spurious - Channel 00 (2402MHz)



Conducted Spurious - Channel 39 (2441MHz)



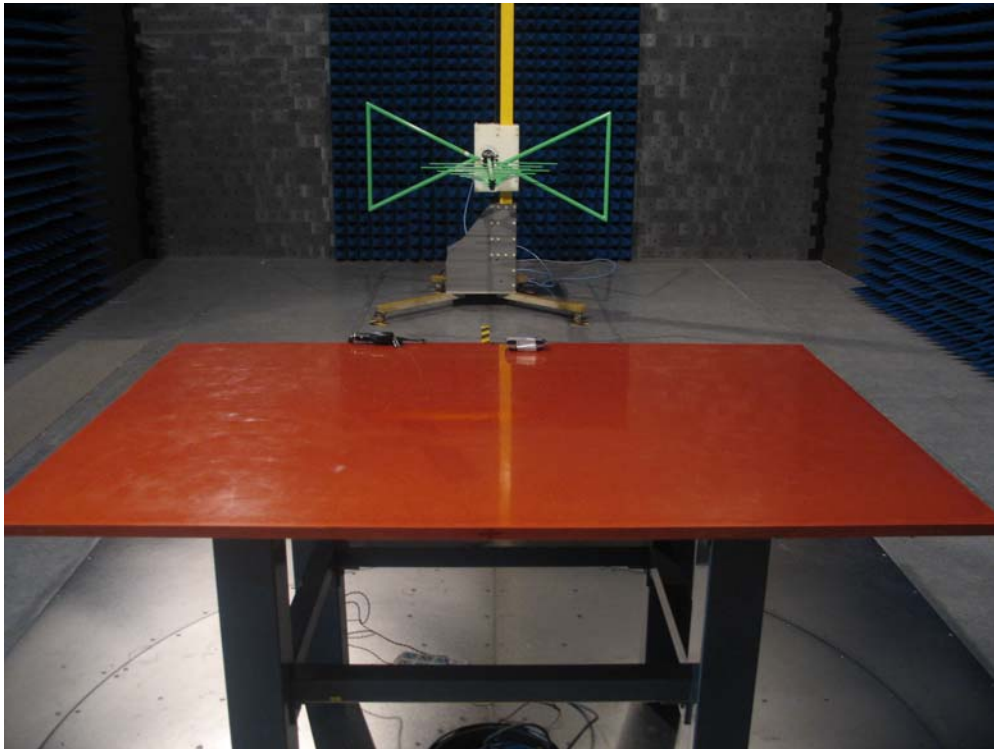
Conducted Spurious - Channel 78 (2480MHz)



4.7. Test Photograph

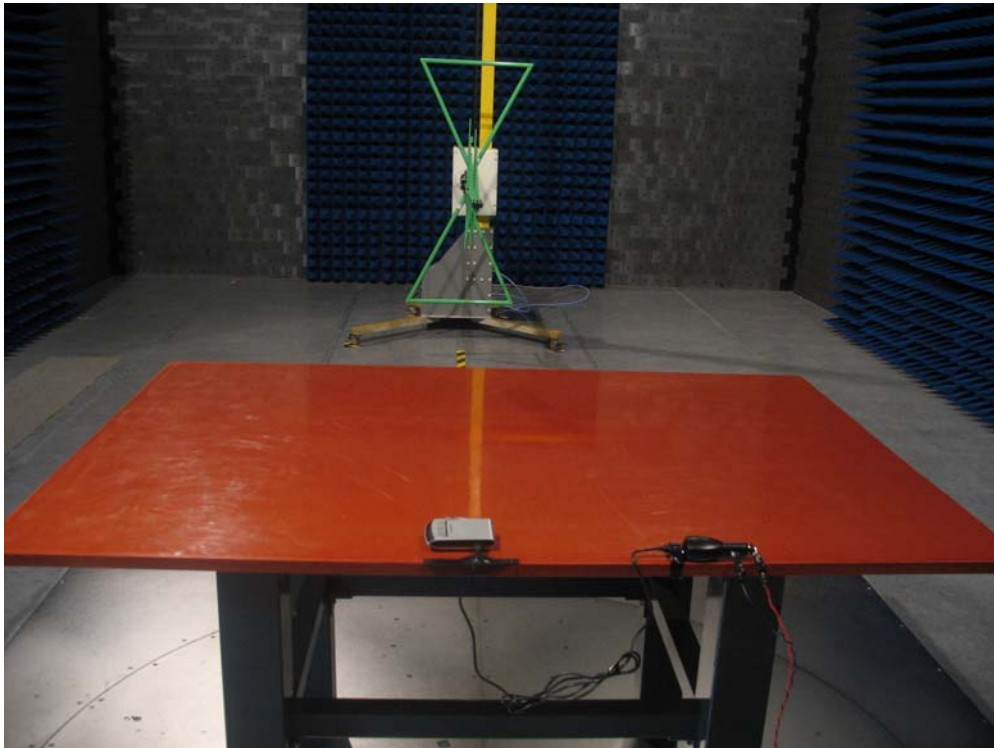
Test Mode: Mode 1: Transmit

Description: Front View of Radiated Test for Under 1GHz



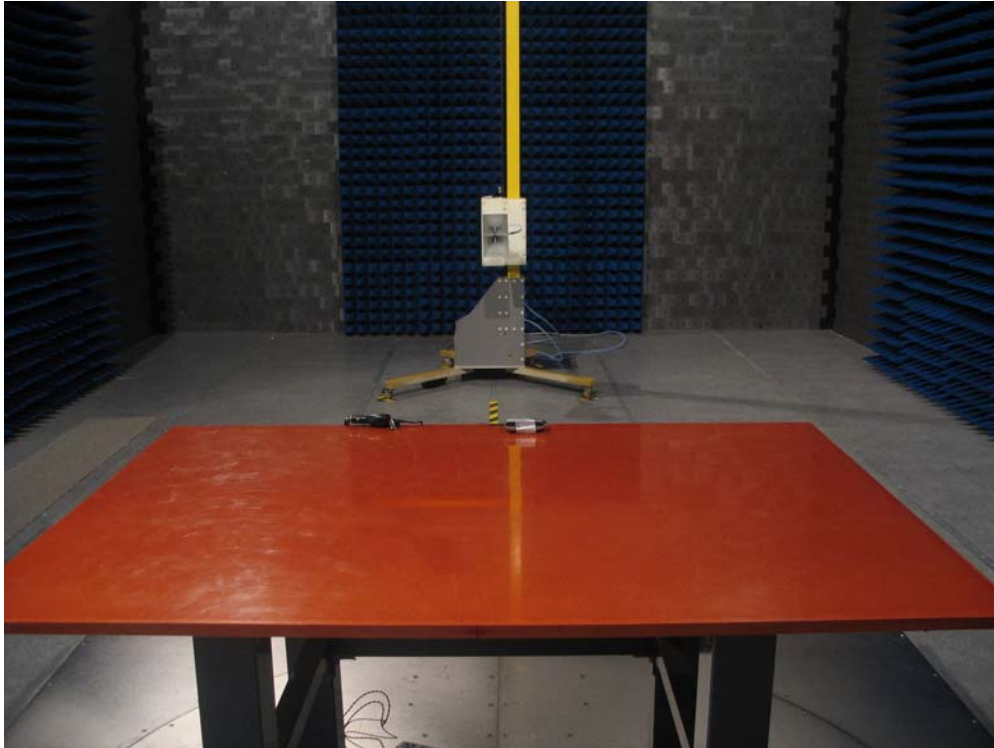
Test Mode: Mode 1: Receive

Description: Back View of Radiated Test for Under 1GHz



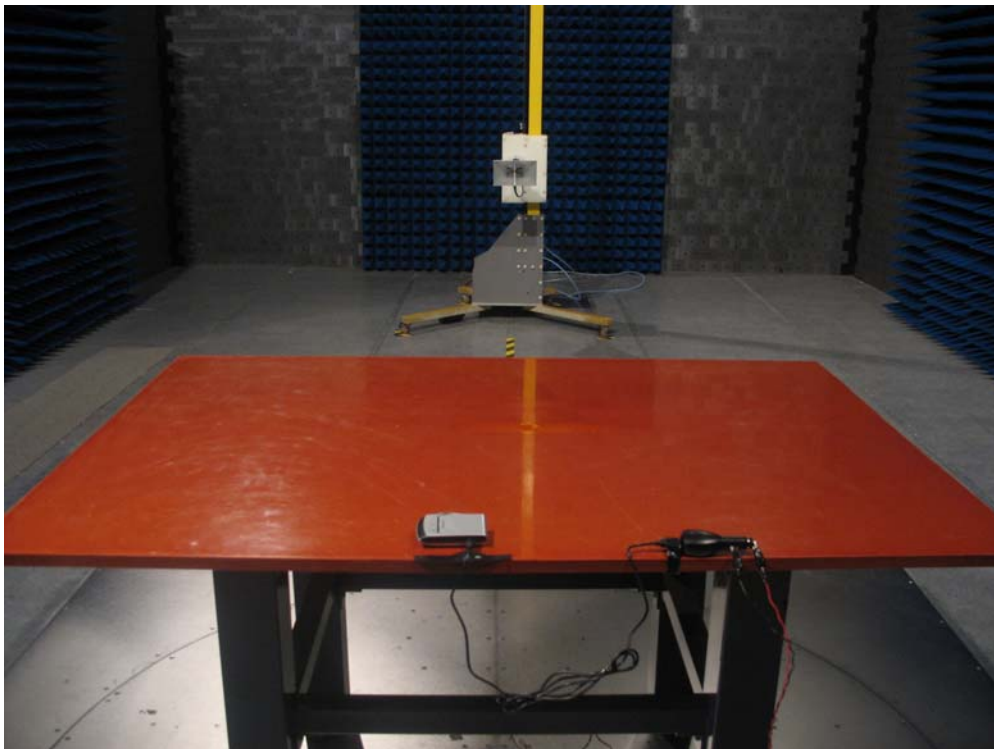
Test Mode: Mode 1: Receive

Description: Front View of Radiated Test for Above 1GHz



Test Mode: Mode 1: Receive

Description: Back View of Radiated Test for Above 1GHz



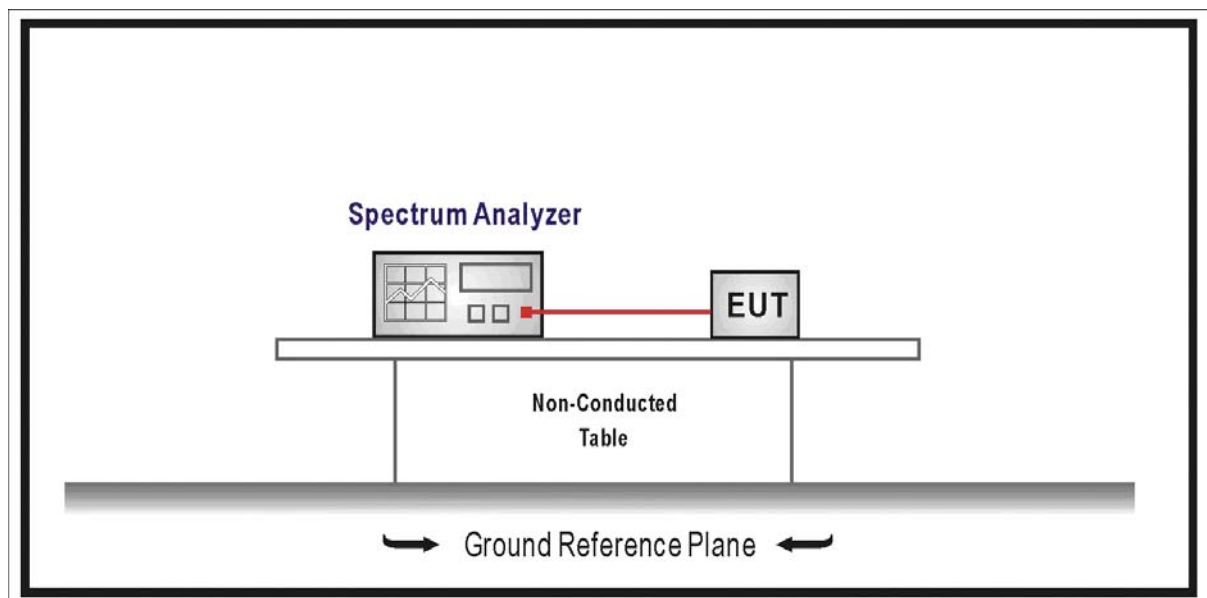
5. Peak Power Output

5.1. Test Equipment

Peak Power Output / AC-3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2006/03/23
Temperature/Humidity Meter	zhicheng	ZC1-2	QT-TH003	2006/03/30

5.2. Test Setup



5.3. Limit

The maximum peak power shall be less 1Watt.

5.4. Test Procedure

- a) Place the EUT on a bench and set it in transmitting mode.
- b) Connect a low loss RF cable from the antenna port to a spectrum analyzer.
- c) Add a correction factor to the display, and then test.

5.5. Uncertainty

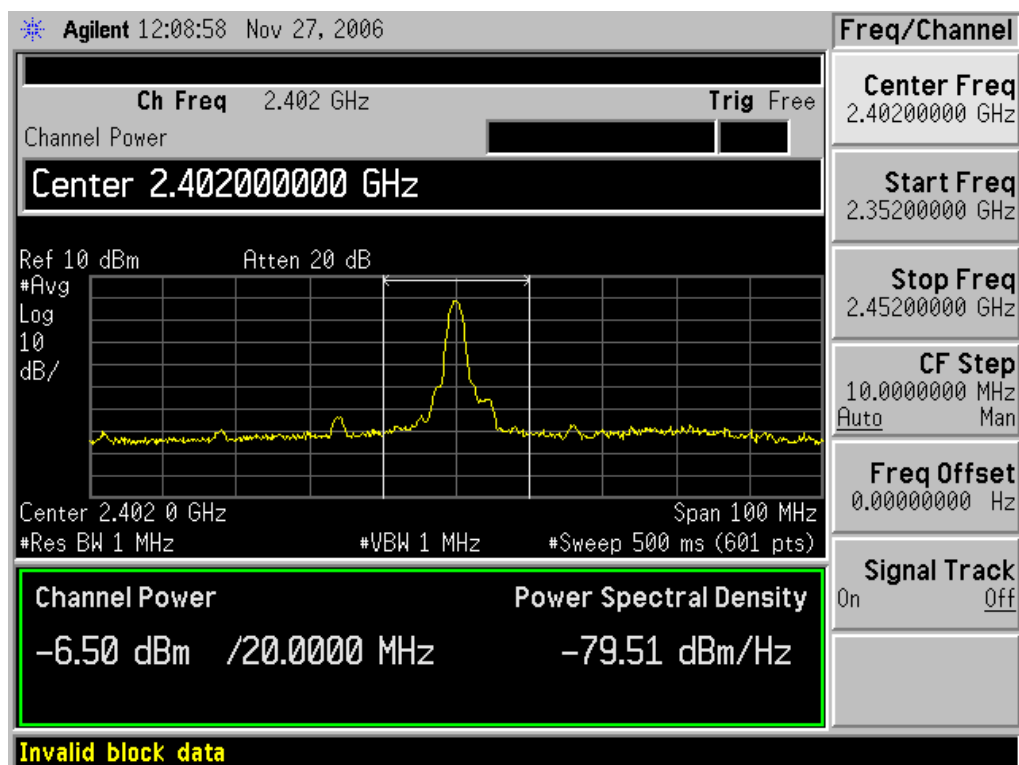
The measurement uncertainty is defined as ± 1.27 dB

5.6. Test Result

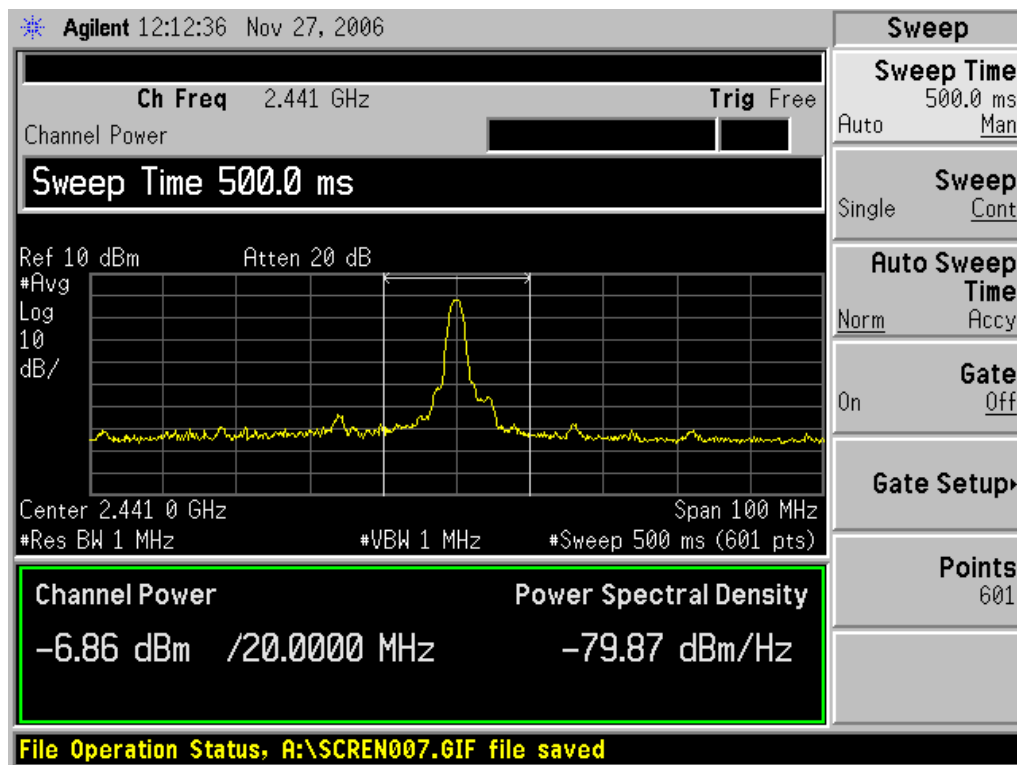
Product	:	Bluetooth handsfree speaker
Test Item	:	Peak Power Output
Test Site	:	AC-3
Test Mode	:	Mode 1: Transmitter

Channel No.	Frequency (MHz)	Measurement (dBm)	Required Limit (dBm)	Result
Channel 00	2402.00	-6.50	1 Watt= 30 dBm	Pass
Channel 39	2441.00	-6.86	1 Watt= 30 dBm	Pass
Channel 78	2480.00	-7.20	1 Watt= 30 dBm	Pass

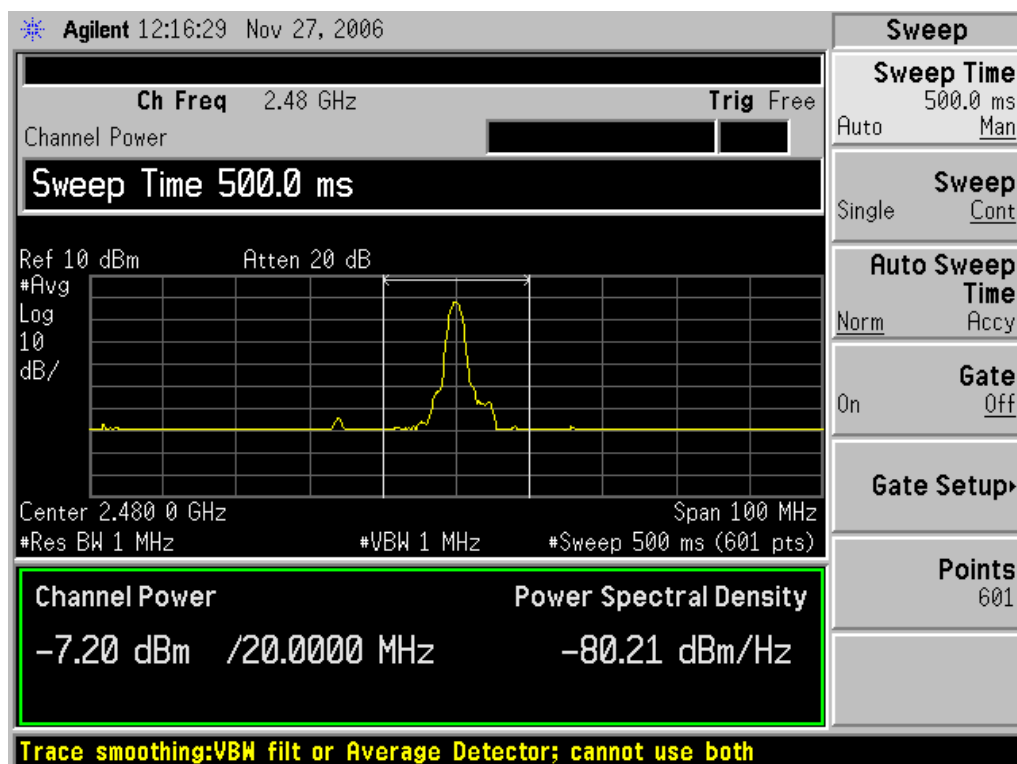
Channel 00 (2402MHz)



Channel 39 (2441MHz)



Channel 78 (2480MHz)



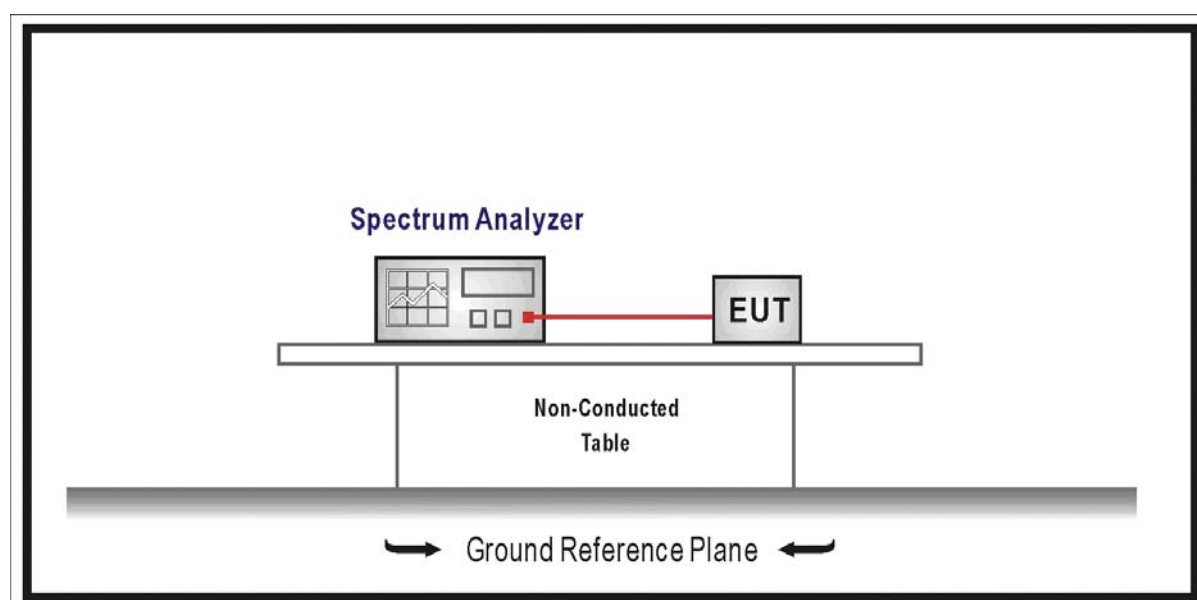
6. Occupied Bandwidth

6.1. Test Equipment

Occupied Bandwidth / AC-3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2006/03/23
Temperature/Humidity Meter	zhicheng	ZC1-2	QT-TH003	2006/03/30

6.2. Test Setup



6.3. Limit

N/A

6.4. Test Procedure

- a) Place the EUT on a bench and set it in transmitting mode.
- b) Connect a low loss RF cable from the antenna port to a spectrum analyzer.
- c) Add a correction factor to the display, and then test.

6.5. Uncertainty

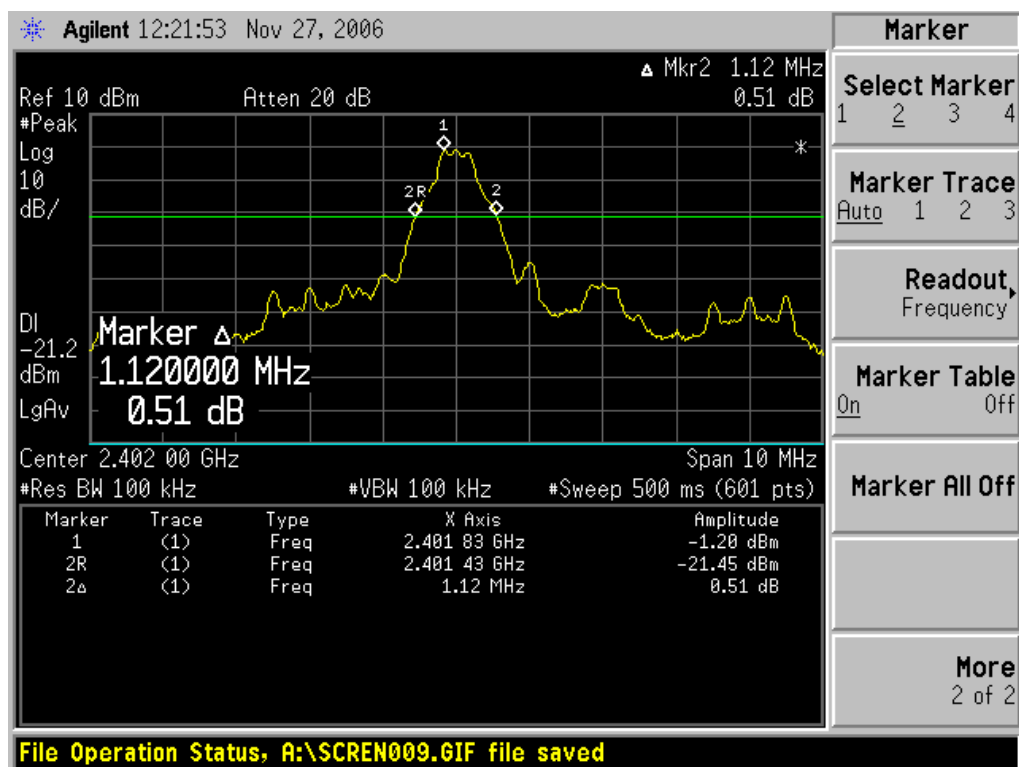
The measurement uncertainty is defined as ± 1.27 dB

6.6. Test Result

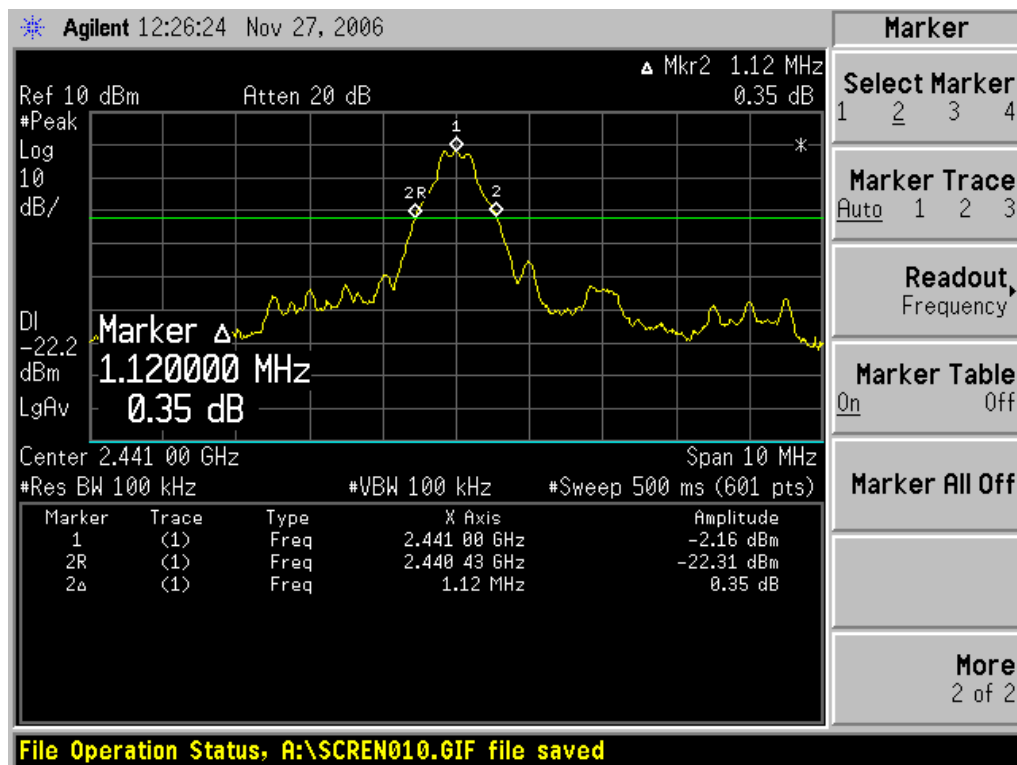
Product	:	Bluetooth handsfree speaker
Test Item	:	Occupied Bandwidth
Test Site	:	AC-3
Test Mode	:	Mode 1: Transmitter

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
00	2402	1120	N/A	Pass
39	2441	1120	N/A	Pass
78	2480	1120	N/A	Pass

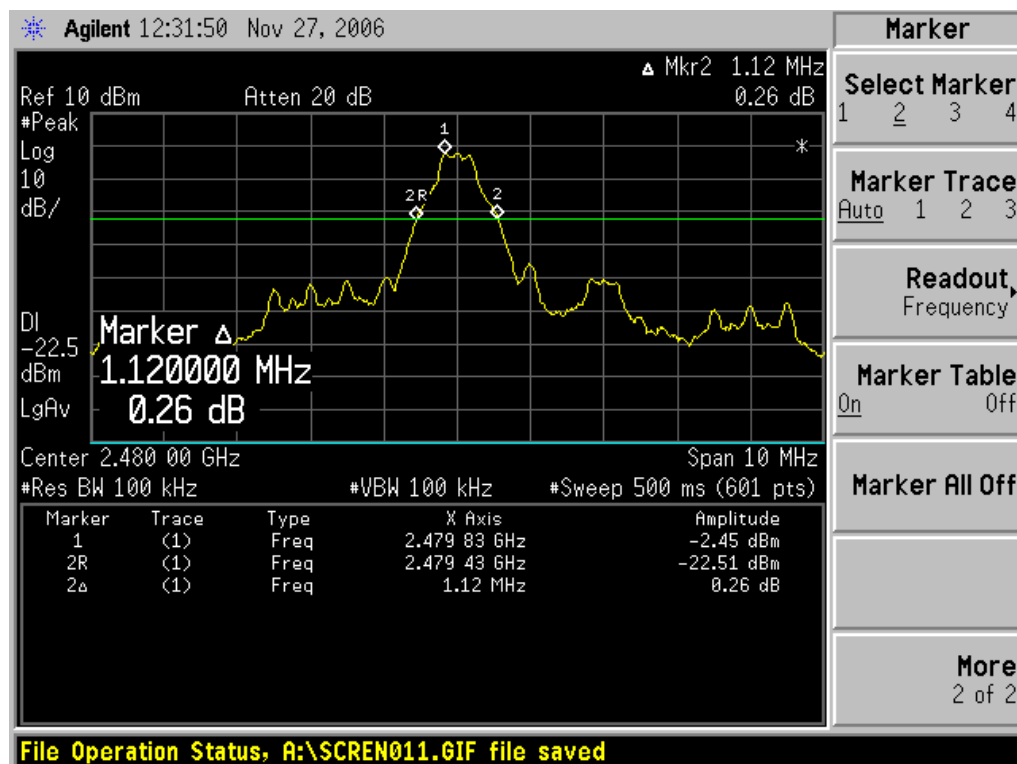
Channel 00 (2402MHz)



Channel 39 (2441MHz)



Channel 78 (2480MHz)



7. Band Edge

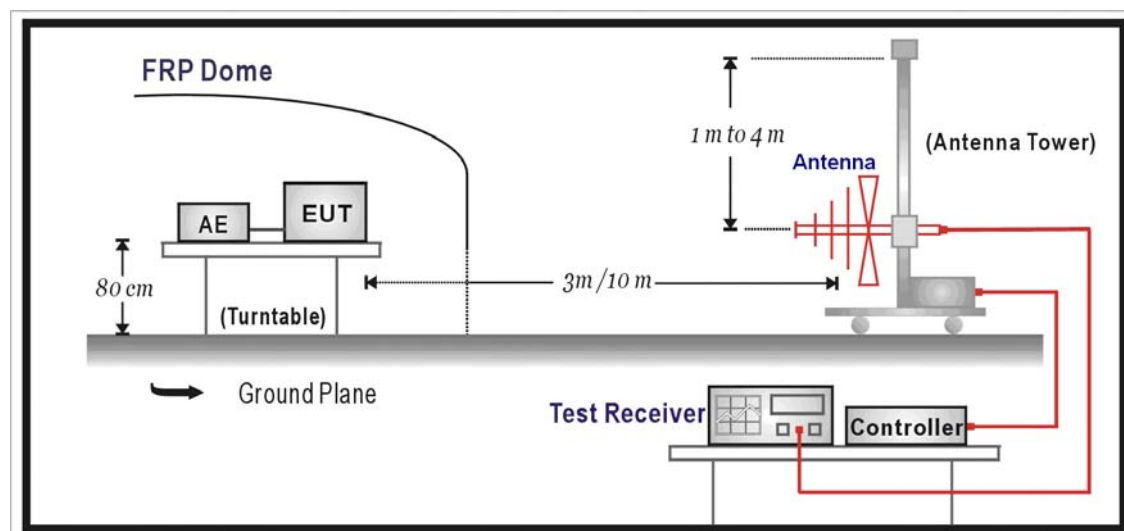
7.1. Test Equipment

Band Edge / AC-2

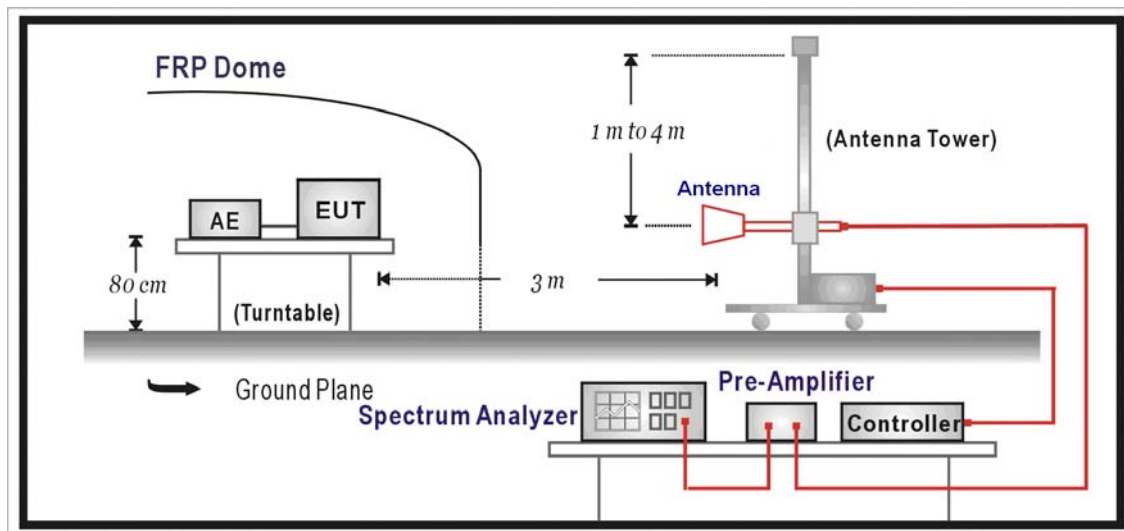
Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Spectrum Analyzer	Agilent	E4408B	MY45102679	2006/11/20
EMI Test Receiver	R&S	ESCI	100175	2006/11/25
Preamplifier	Quietek	AP-025C	QT-AP003	2006/11/25
Preamplifier	Quietek	AP-180C	CHM-0602013	2006/03/20
Bilog Type Antenna	Schaffner	CBL6112B	2932	2006/10/26
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	496	2006/11/30
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2006/11/30
Temperature/Humidity Meter	zhicheng	ZC1-2	QT-TH002	2006/03/30

7.2. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:



7.3. Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum 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. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

7.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground.

The turn table can rotate 360 degrees to determine the position of the maximum emission level and the antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated on radiated measurement.

The additional latch filter below 1GHz was used to measure the level of harmonics radiated emission during field strength of harmonics measurement.

The bandwidth below 1GHz setting on the field strength meter (R&S Test Receiver ESCI) is 120 kHz and above 1GHz is 1MHz.

7.5. Uncertainty

The measurement uncertainty above 1G is defined as ± 3.9 dB
under 1G is defined as ± 3.8 dB

7.6. Test Result

Product	:	Bluetooth handsfree speaker
Test Item	:	Band Edge
Test Site	:	AC-2
Test Mode	:	Mode 1: Transmitter (2402MHz)

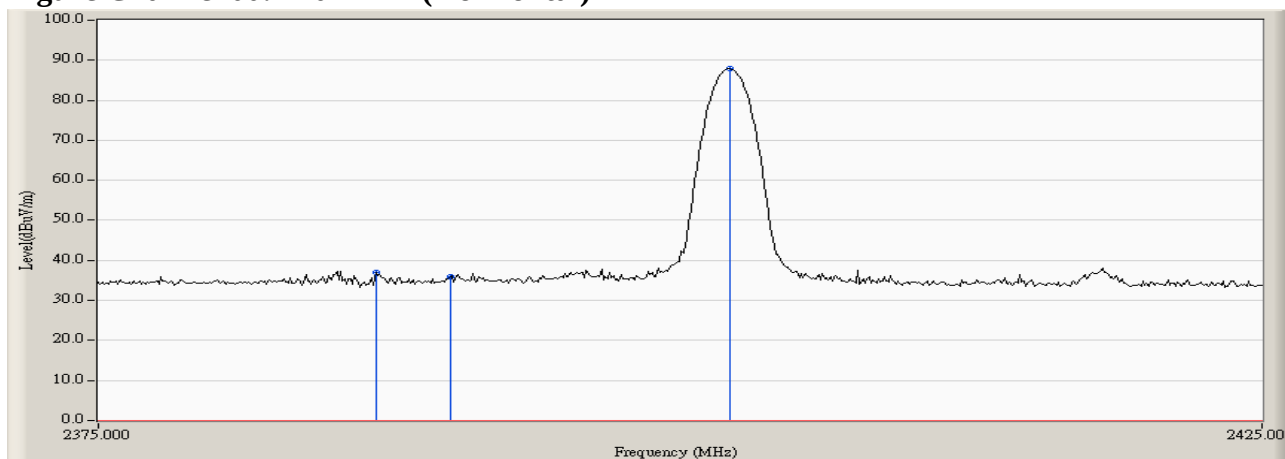
RF Radiated Measurement:

Channel No.	Frequency (MHz)	Required Limit (dBc)	Result
00	<2400	>20	Pass

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
00 (Peak)	2386.833	40.733	37.000	74.00	54.00	Pass
00 (Average)	--	--	--	74.00	54.00	Pass

Figure Channel 00: 2402MHz (Horizontal)



Note:

RBW=1MHz, VBW=1MHz, Sweep Time=500ms.

Note: The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product	:	Bluetooth handsfree speaker
Test Item	:	Band Edge
Test Site	:	AC-2
Test Mode	:	Mode 1: Transmitter (2402MHz)

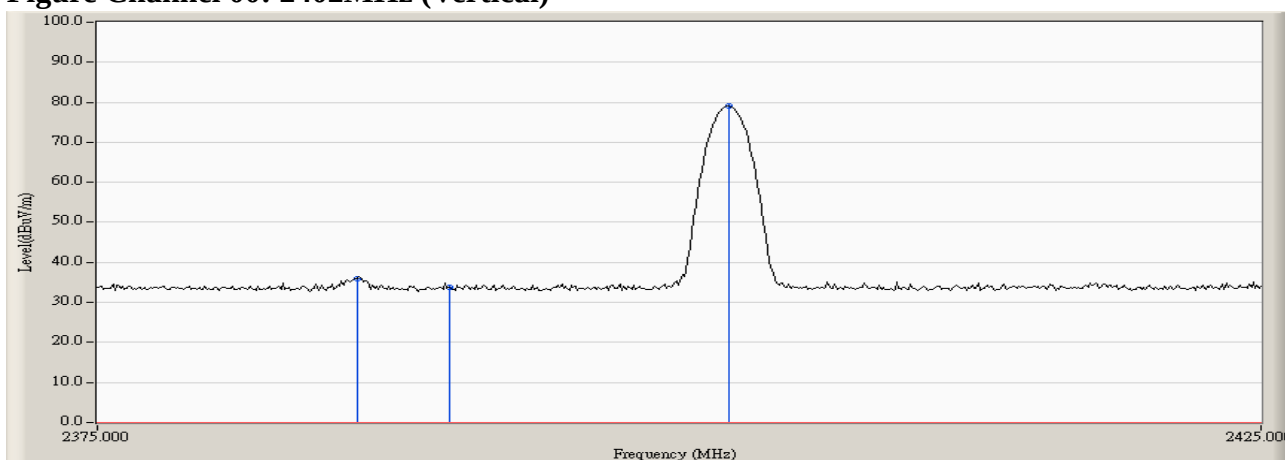
RF Radiated Measurement:

Channel No.	Frequency (MHz)	Required Limit (dBc)	Result
00	<2400	>20	Pass

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
00 (Peak)	2386.083	39.700	35.969	74.00	54.00	Pass
00 (Average)	--	--	--	74.00	54.00	Pass

Figure Channel 00: 2402MHz (Vertical)



Note:

RBW=1MHz, VBW=1MHz, Sweep Time=500ms.

Note: The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product	:	Bluetooth handsfree speaker
Test Item	:	Band Edge
Test Site	:	AC-2
Test Mode	:	Mode 1: Transmitter (2480MHz)

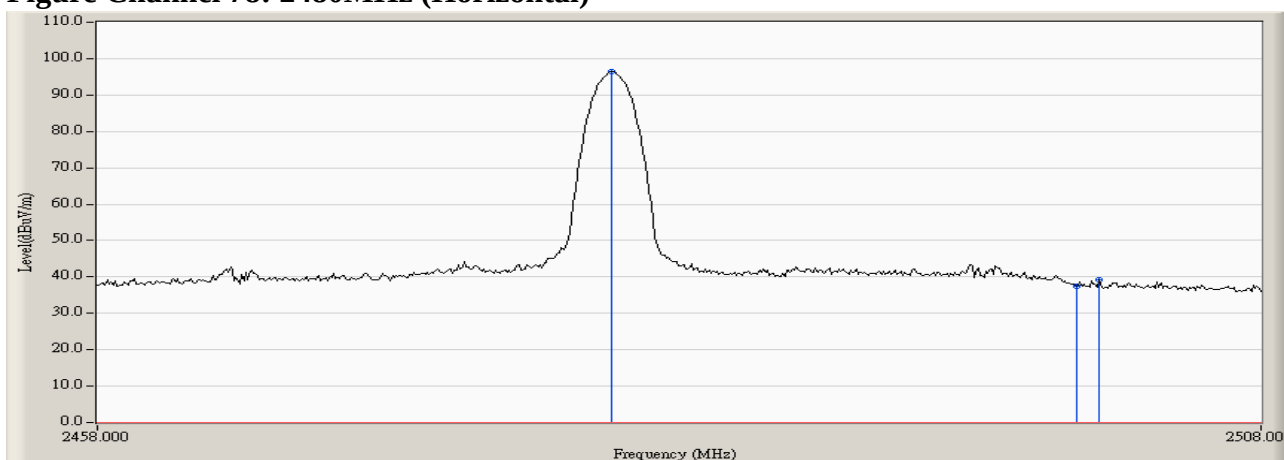
RF Radiated Measurement:

Channel No.	Frequency (MHz)	Required Limit (dBc)	Result
78	>2483.5	>20	Pass

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
78(Peak)	2483.500	38.370	34.545	74.00	54.00	Pass
78(Average)	--	--	--	74.00	54.00	Pass

Figure Channel 78: 2480MHz (Horizontal)



Note:

RBW=1MHz, VBW=1MHz, Sweep Time=500ms.

Note: The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product	:	Bluetooth handsfree speaker
Test Item	:	Band Edge
Test Site	:	AC-2
Test Mode	:	Mode 1: Transmitter (2480MHz)

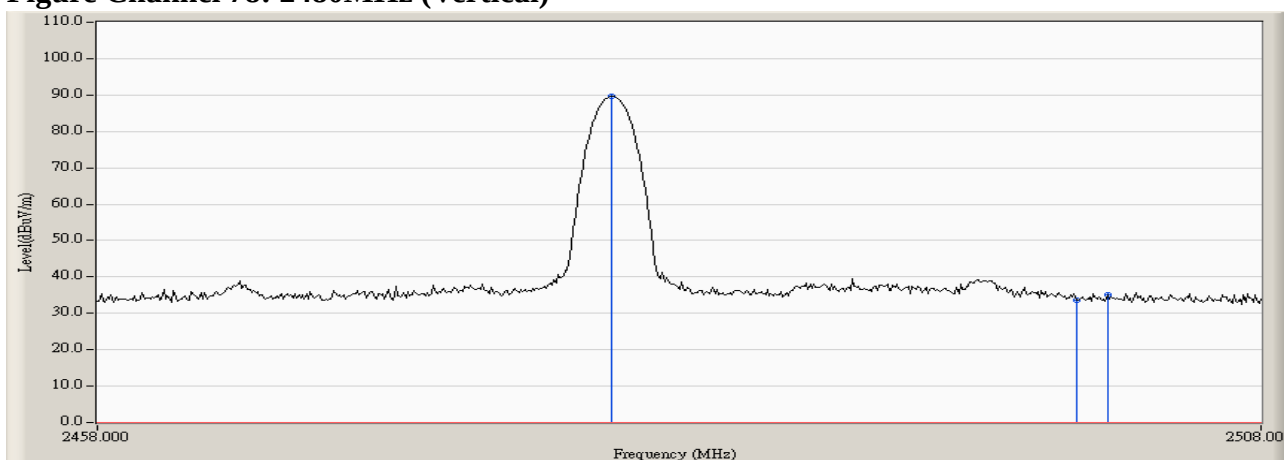
RF Radiated Measurement:

Channel No.	Frequency (MHz)	Required Limit (dBc)	Result
78	>2483.5	>20	Pass

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
78(Peak)	2483.500	36.985	33.160	74.00	54.00	Pass
78(Average)	--	--	--	74.00	54.00	Pass

Figure Channel 78: 2480MHz (Vertical)



Note:

RBW=1MHz, VBW=1MHz, Sweep Time=500ms.

Note: The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

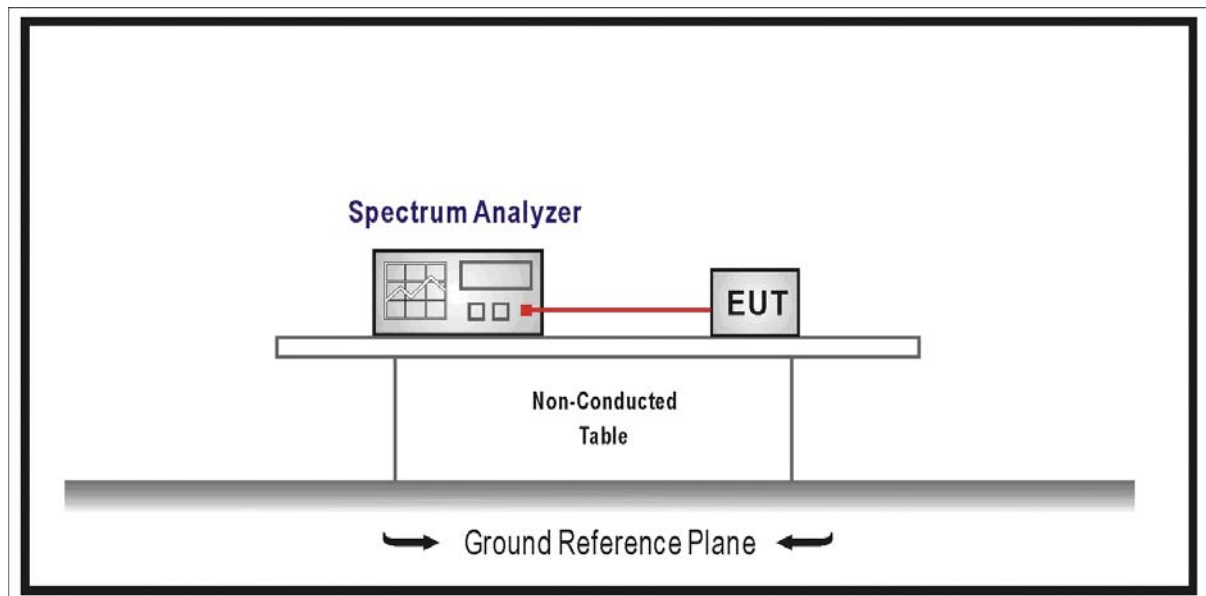
8. Channel Number

8.1. Test Equipment

Channel Number / AC-3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2006/03/23
Temperature/Humidity Meter	zhicheng	ZC1-2	QT-TH003	2006/03/30

8.2. Test Setup



8.3. Limit

Frequency hopping systems operating in the 2400-2483.5 MHz bands shall use at least 15 hopping frequencies.

8.4. Test Procedure

- a) Place the EUT on a bench and set it in transmitting mode.
- b) Connect a low loss RF cable from the antenna port to a spectrum analyzer.
- c) Add a correction factor to the display, and then test.

8.5. Uncertainty

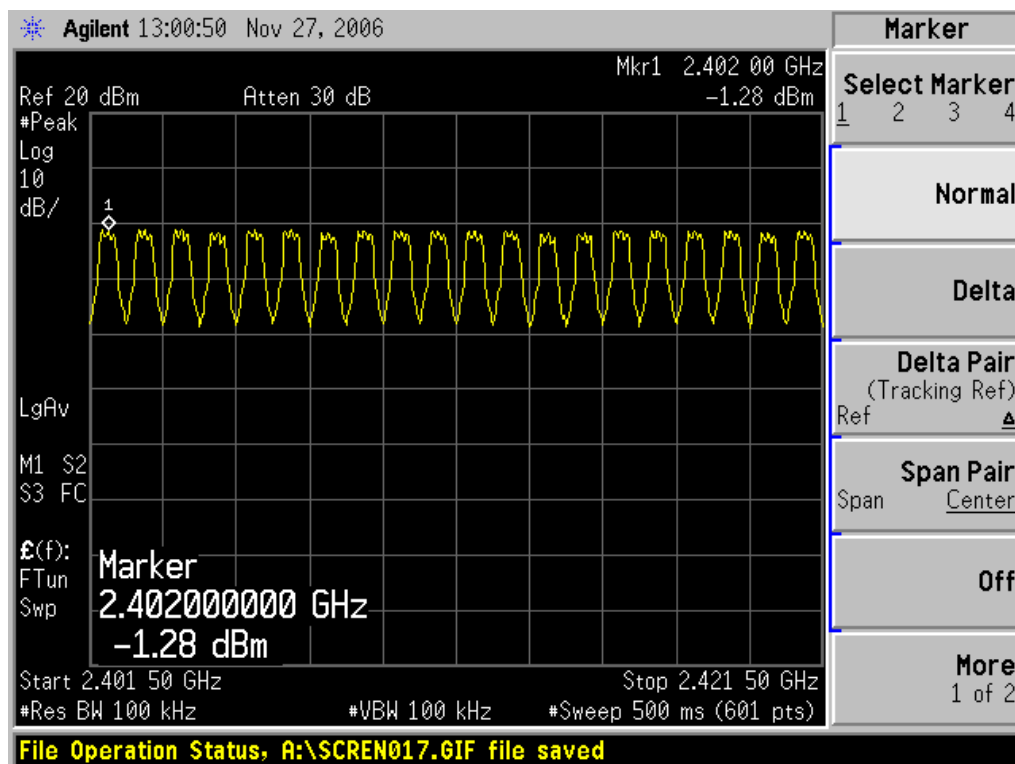
The measurement uncertainty is defined as ± 200 kHz

8.6. Test Result

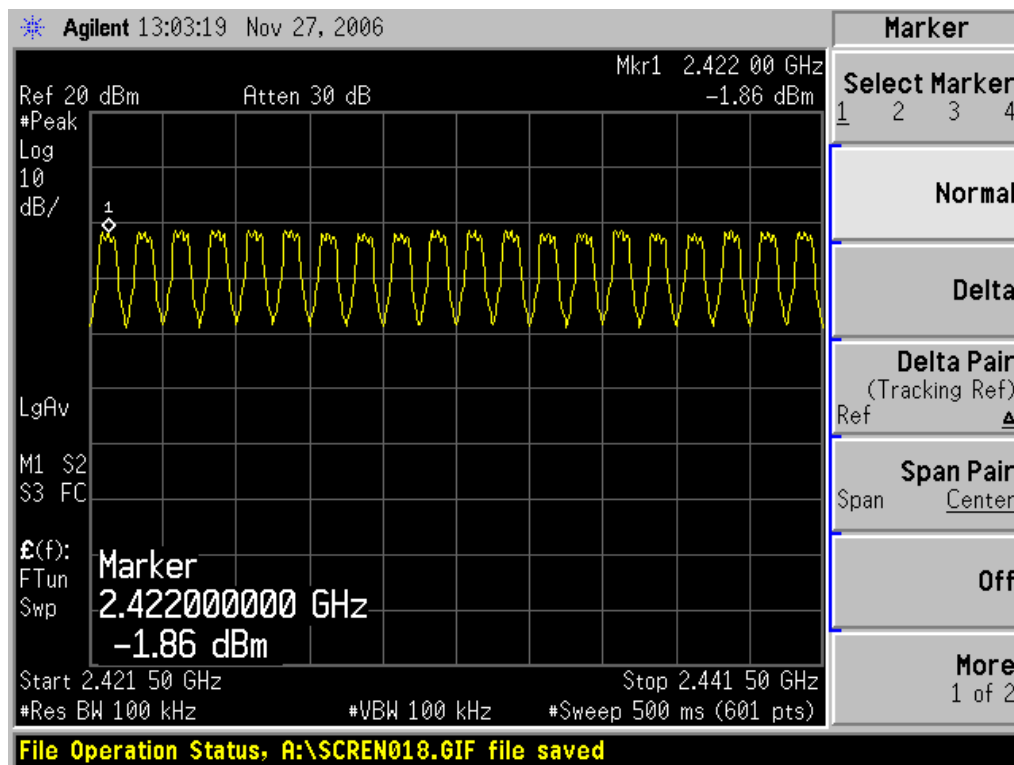
Product	:	Bluetooth handsfree speaker
Test Item	:	Channel Number
Test Site	:	AC-3
Test Mode	:	Mode 1: Transmitter

Frequency Range (MHz)	Measurement (Hopping Channel)	Required Limit (Hopping Channel)	Result
2402 ~ 2480	79	>15	Pass

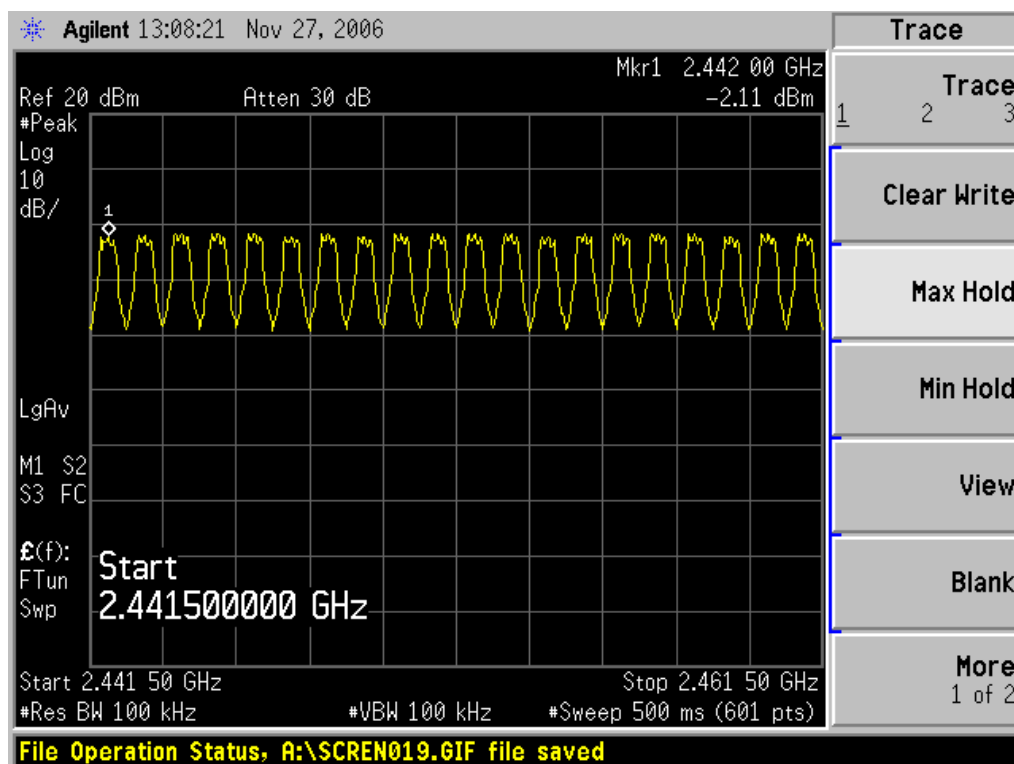
Frequency Range (2402~2421MHz)



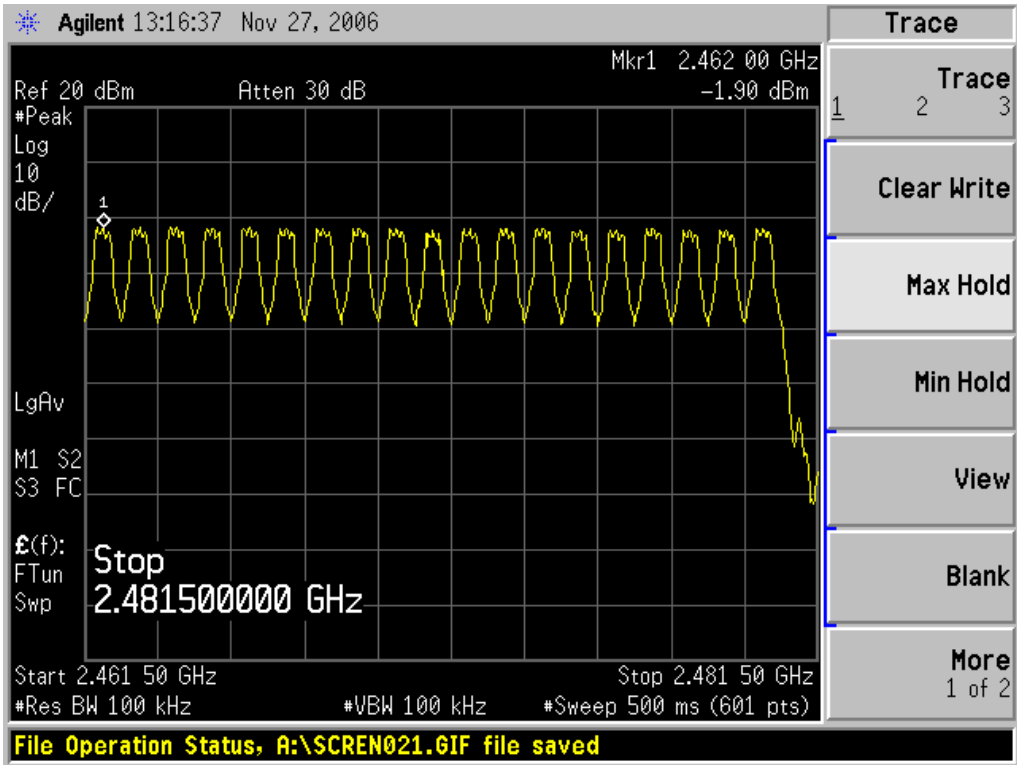
Frequency Range (2422~2441MHz)



Frequency Range (2442~2461MHz)



Frequency Range (2462~2480MHz)



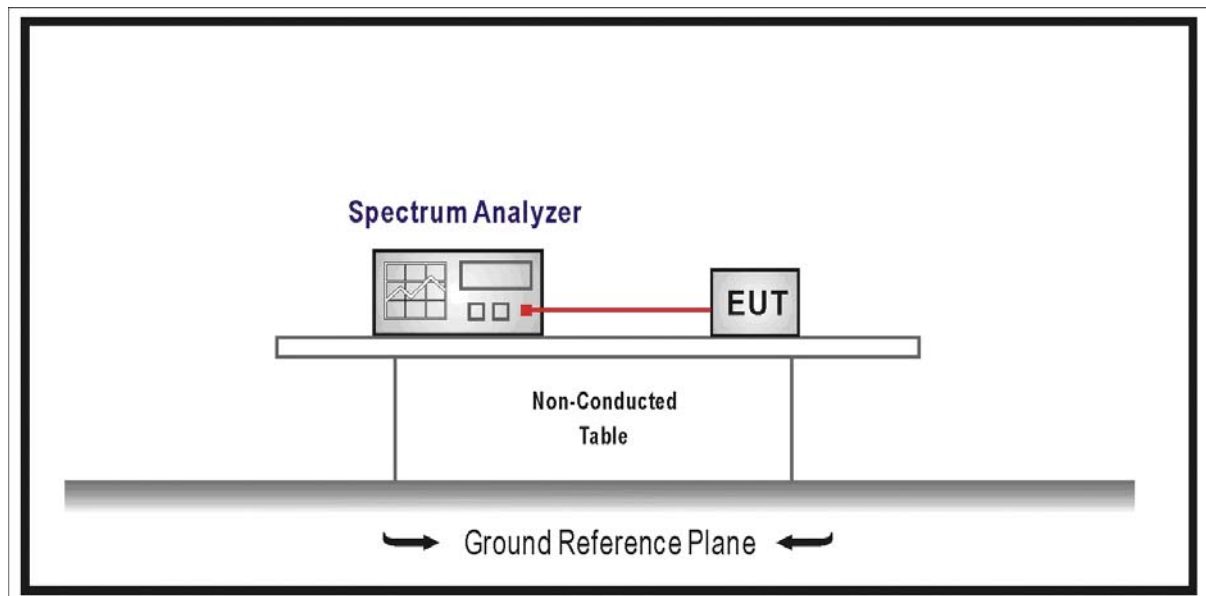
9. Channel Separation

9.1. Test Equipment

Channel Separation / AC-3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2006/03/23
Temperature/Humidity Meter	zhicheng	ZC1-2	QT-TH003	2006/03/30

9.2. Test Setup



9.3. Limit

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. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 KHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

9.4. Test Procedure

- a) Place the EUT on a bench and set it in transmitting mode.
- b) Connect a low loss RF cable from the antenna port to a spectrum analyzer.
- c) Add a correction factor to the display, and then test.

9.5. Uncertainty

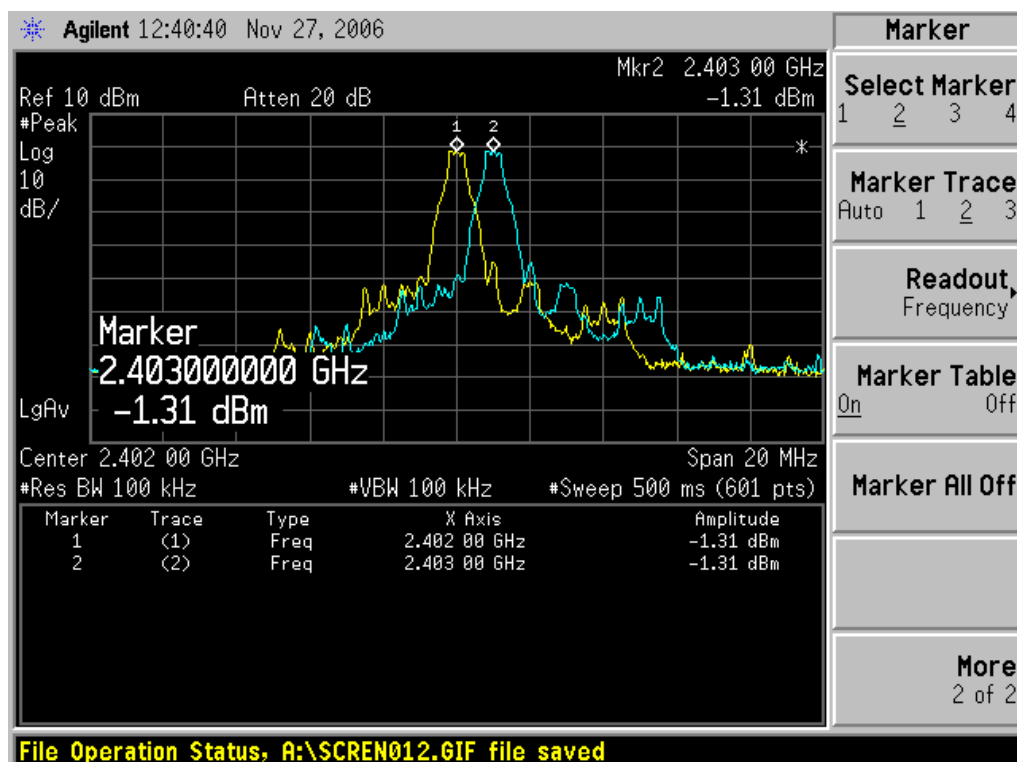
The measurement uncertainty is defined as ± 150 kHz

9.6. Test Result

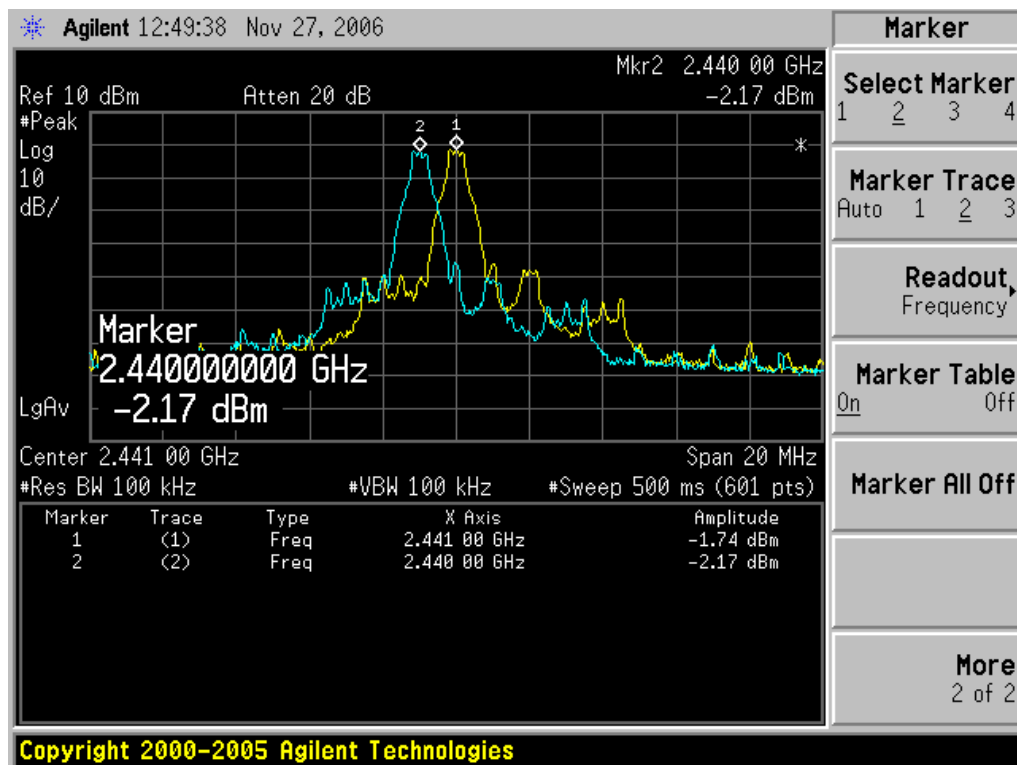
Product	:	Bluetooth handsfree speaker
Test Item	:	Channel Separation
Test Site	:	AC-3
Test Mode	:	Mode 1: Transmitter

Frequency (MHz)	Measurement Level (MHz)	Required Limit	Result
2402	1.00	>25 kHz or 2/3 * 20 dB BW	Pass
2441	1.00	>25 kHz or 2/3 * 20 dB BW	Pass
2480	1.00	>25 kHz or 2/3 * 20 dB BW	Pass

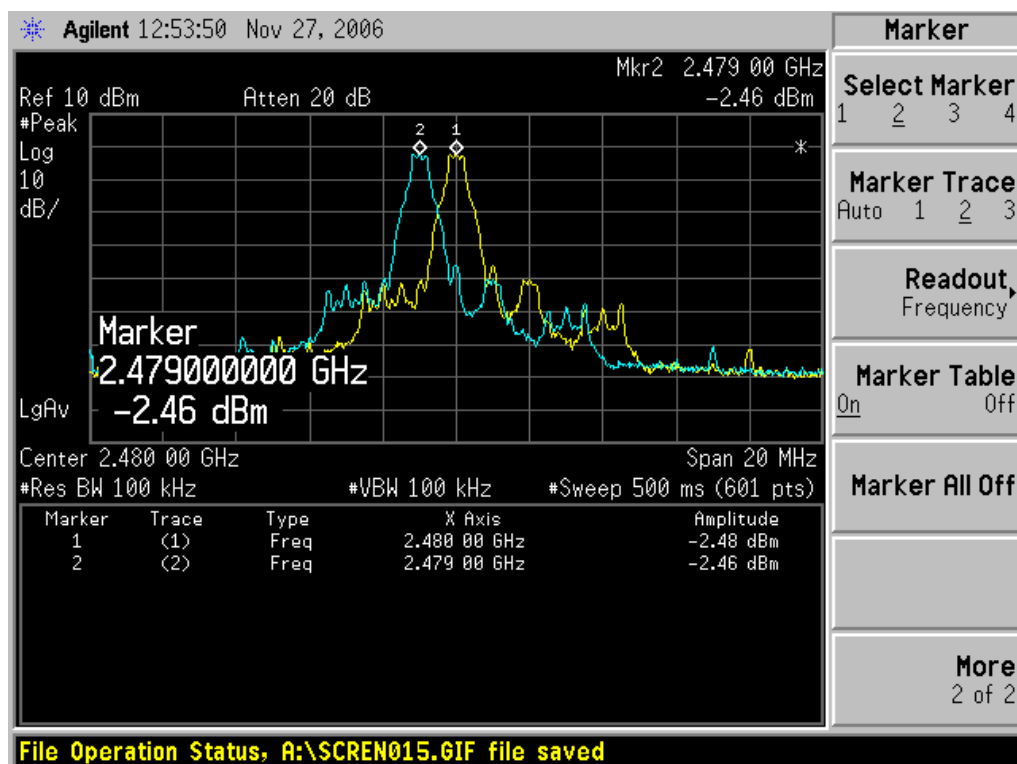
Channel 00 (2402MHz)



Channel 39 (2441MHz)



Channel 78 (2480MHz)



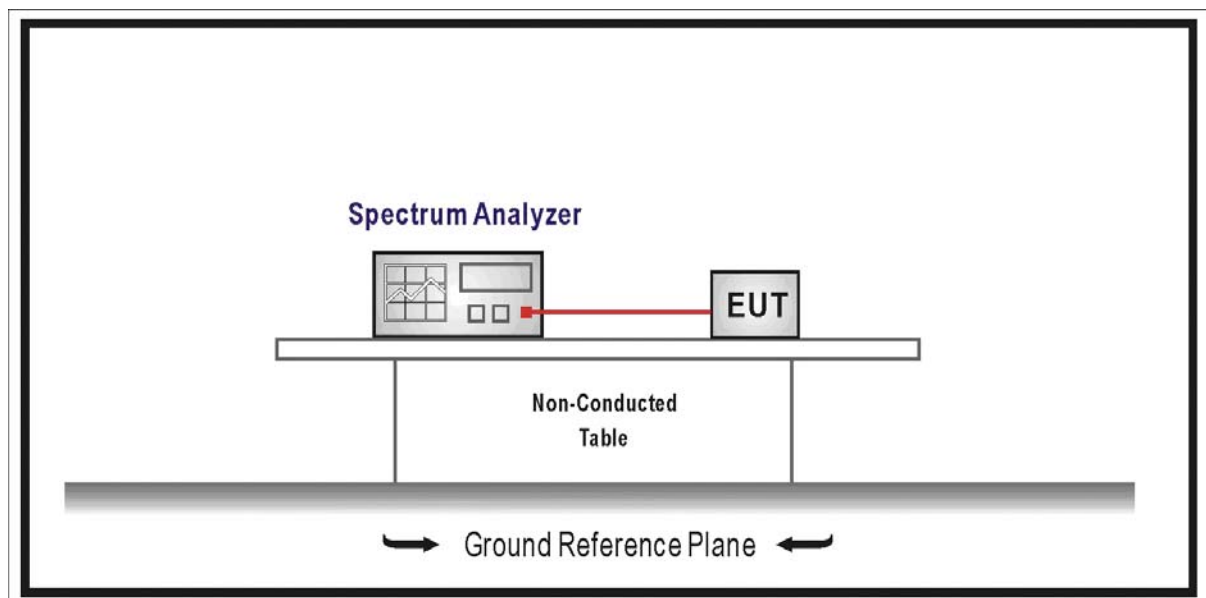
10. Dwell Time

10.1. Test Equipment

Dwell Time / AC-3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2006/03/23
Temperature/Humidity Meter	zhicheng	ZC1-2	QT-TH003	2006/03/30

10.2. Test Setup



10.3. Limit

The dwell time shall be the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

10.4. Test Procedure

- a) Place the EUT on a bench and set it in transmitting mode.
- b) Connect a low loss RF cable from the antenna port to a spectrum analyzer.
- c) Add a correction factor to the display, and then test.

10.5. Uncertainty

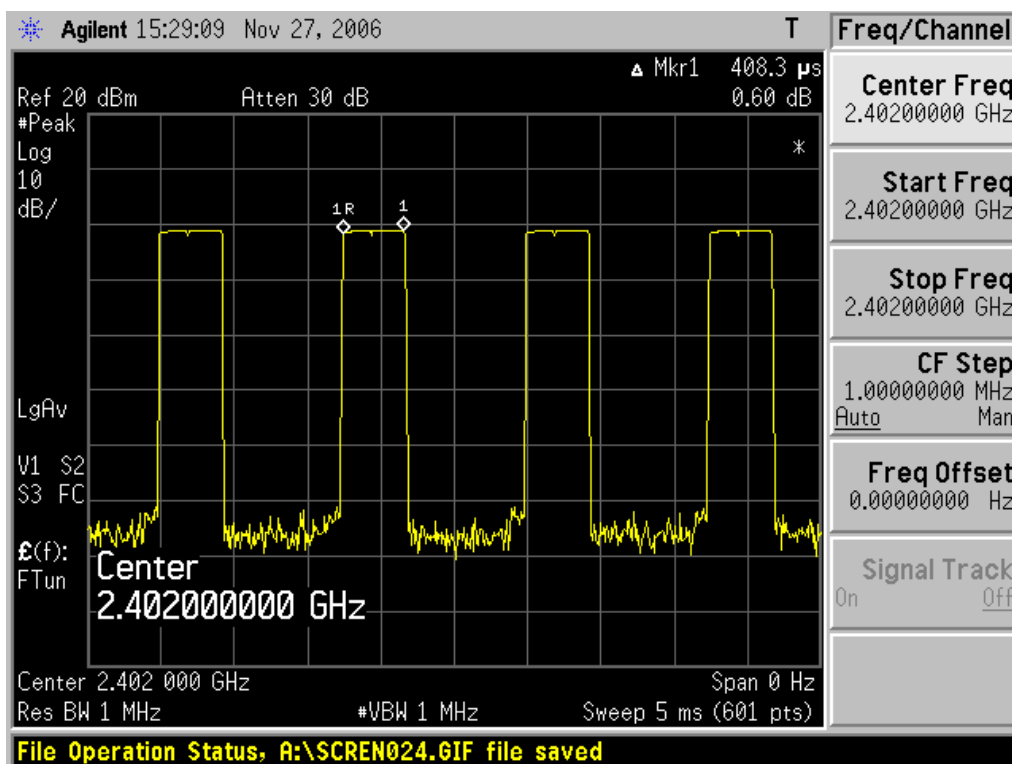
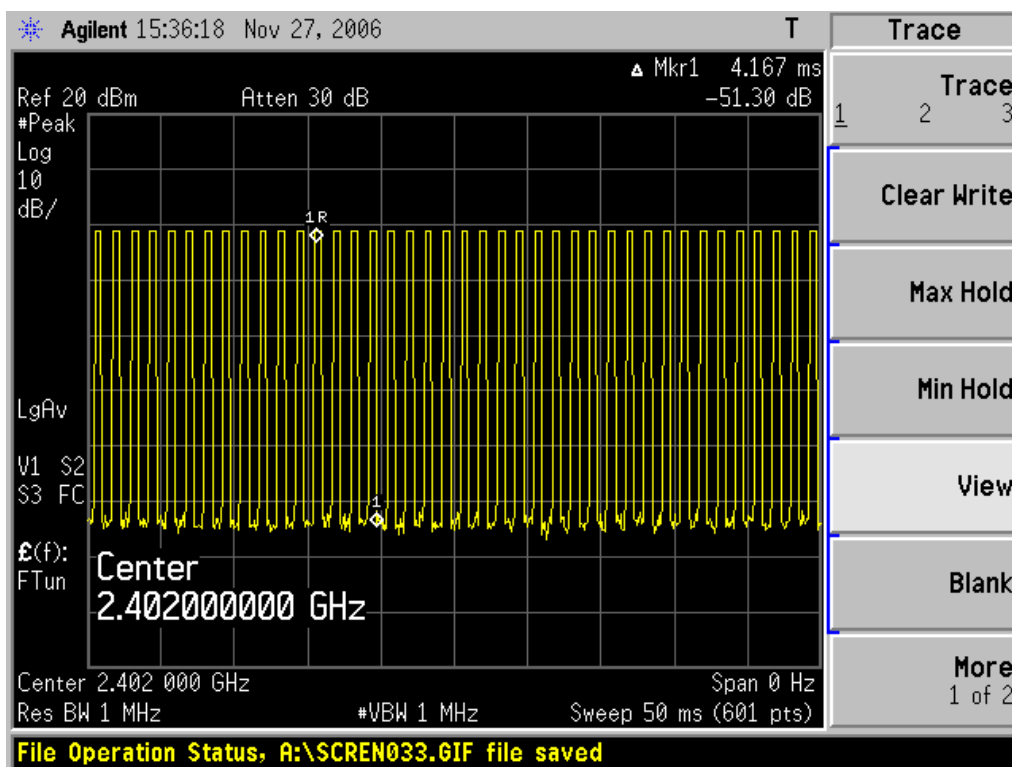
The measurement uncertainty is defined as ± 25 ms

10.6. Test Result

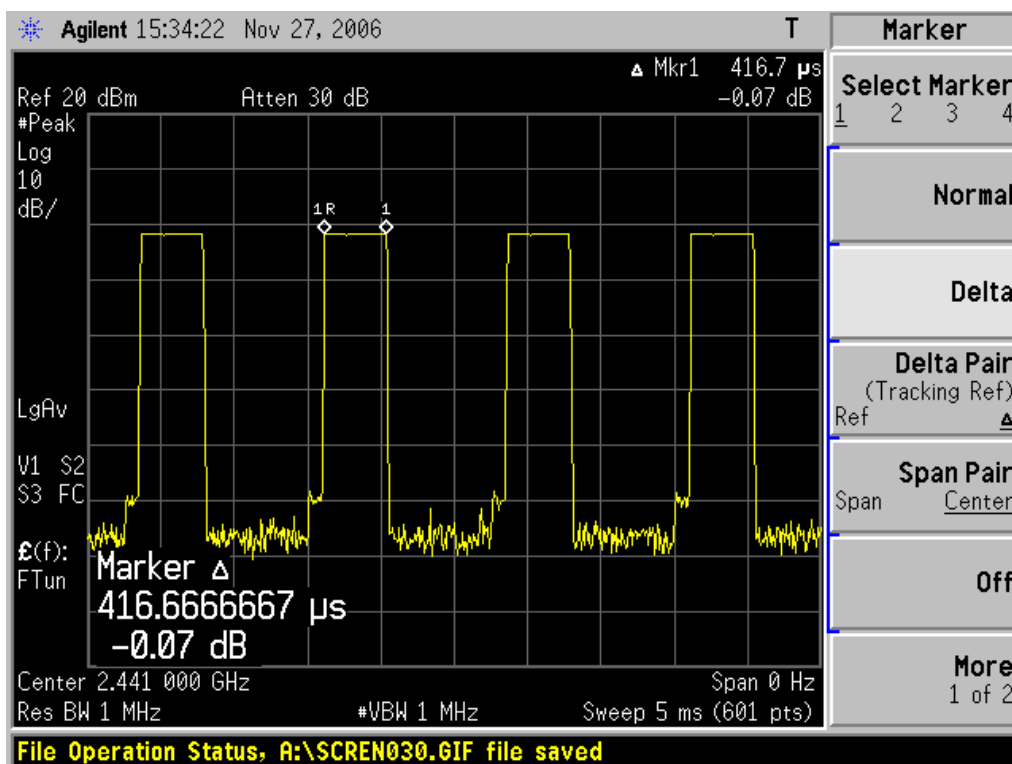
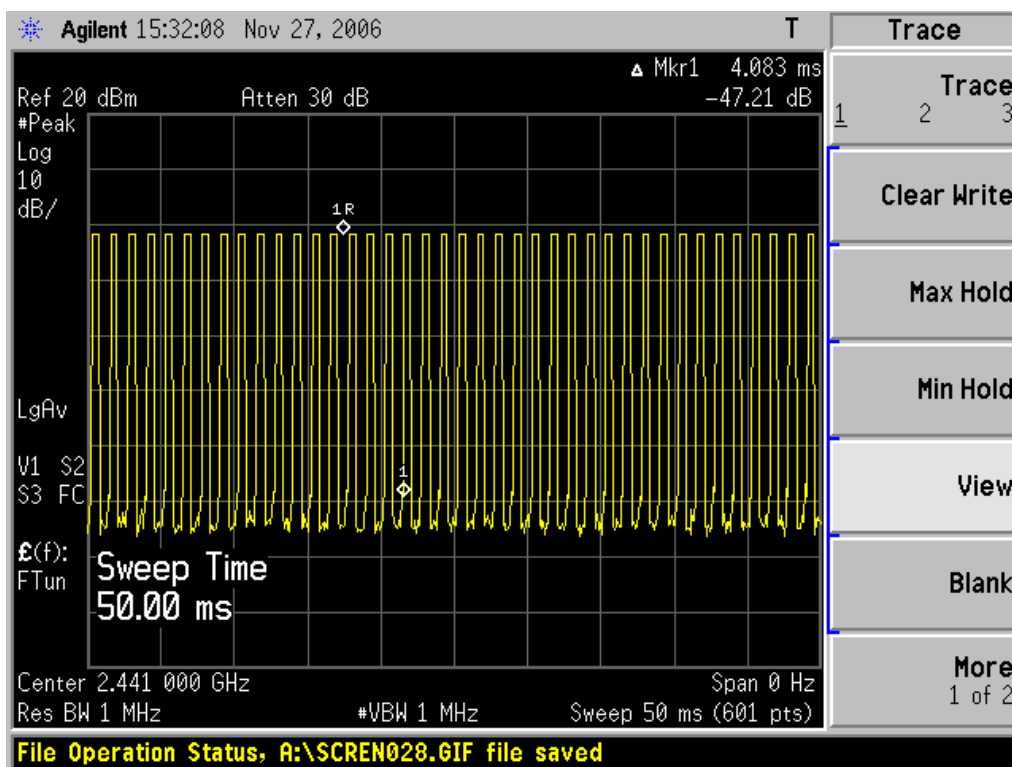
Product	:	Bluetooth handsfree speaker
Test Item	:	Dwell Time
Test Site	:	AC-3
Test Mode	:	Mode 1: Transmitter

Channel (MHz)	Measurement Level (ms)	Required Limit (sec.)	Result
CH 00 (2402)	130.844	< 0.4	Pass
CH 39 (2441)	133.536	< 0.4	Pass
CH 78 (2480)	133.536	< 0.4	Pass

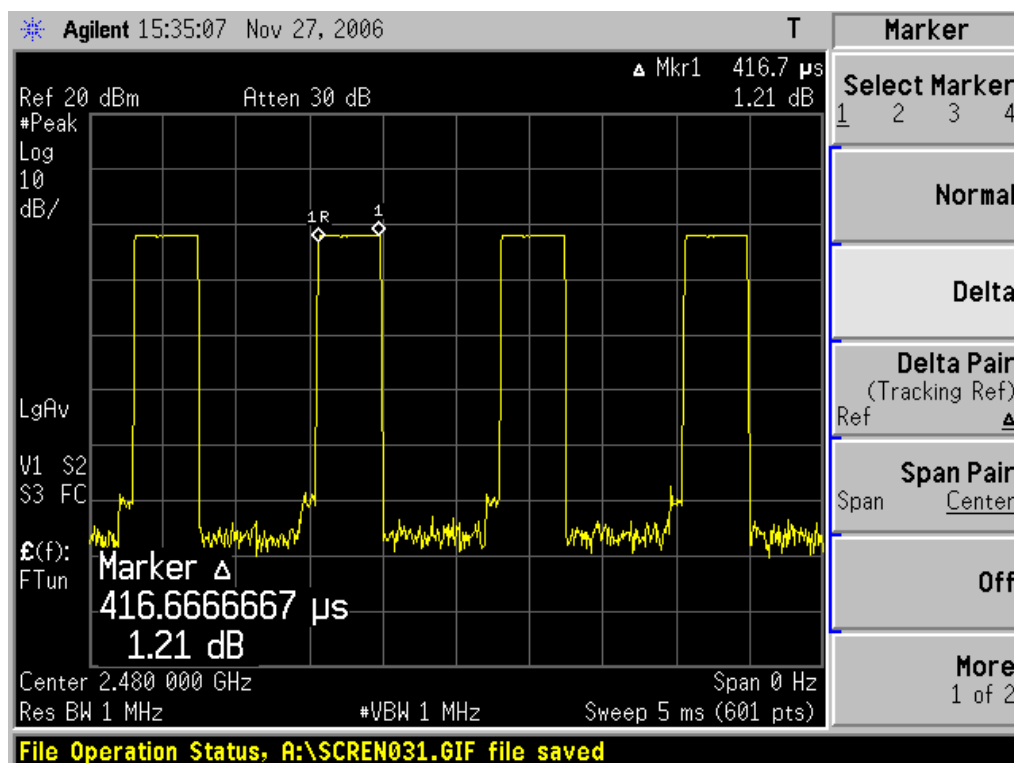
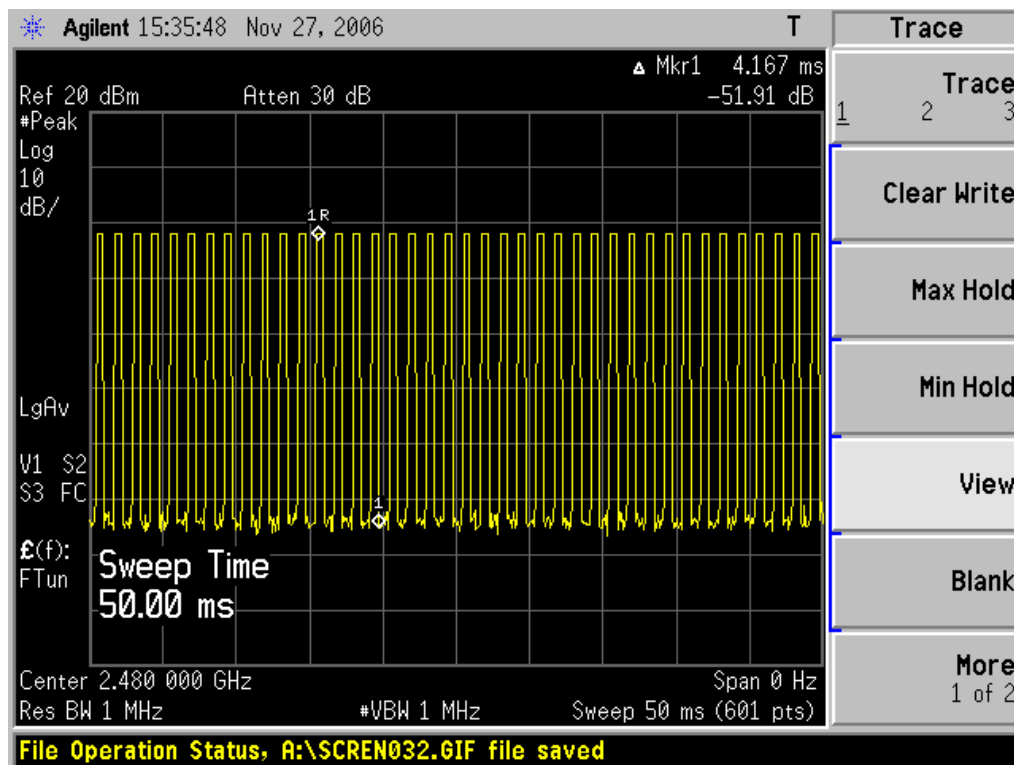
Channel 00 (2402MHz)



Channel 39 (2441MHz)



Channel 78 (2480MHz)



Occupancy Time of Frequency Hopping System

Test Time Period: $0.4 \times 79 = 31.6\text{sec}$, Hopping Times Within 1sec: $40/50\text{msec} = 800 \text{ hops/sec}$.

A) 2402MHz The Maximum Occupancy Time Within 31.6sec: $(408.3 \mu\text{s} \times 800) / (79 \times 31.6) = 130.844\text{msec}$

B) 2441MHz The Maximum Occupancy Time Within 31.6sec: $(416.7 \mu\text{s} \times 800) / (79 \times 31.6) = 133.536\text{msec}$

C) 2480MHz The Maximum Occupancy Time Within 31.6sec: $(416.7 \mu\text{s} \times 800) / (79 \times 31.6) = 133.536\text{msec}$

Test Result: The Average Occupancy Time of Each Highest , Middle and Lowest Channel Is Less Than 0.4sec , And Corresponds to The Standard

PS: (1) From Bluetooth Specification , It Hops 1640 Times in 1sec ° The Average Occupancy Time of Each 79 Channels is $1640/79$ Times , Therefore , We Calculate The Maximum Occupancy Time (worse cars)As Below:

A) 2402Mhz The Occupancy Time of Each Pulse is 0.4msec , The Maximum Occupancy Time within 31.6sec is $0.4\text{msec} \times 1640 / 79 \times 31.6 = 289.056\text{msec}$

B) 2441MHz The Occupancy Time of Each Pulse is 0.4msec , The Maximum Occupancy Time within 31.6sec is $0.4\text{msec} \times 1640 / 79 \times 31.6 = 289.056\text{msec}$

C) 2480MHz The Occupancy Time of Each Pulse is 0.4msec , The Maximum Occupancy Time within 31.6sec is $0.4\text{msec} \times 1640 / 79 \times 31.6 = 289.056\text{msec}$

Test Result: The Maximum Occupancy Time of Each Highest , Middle and Lowest Channel Is Less Than 0.4sec , And Corresponds to The Standard