# Test Report

Product Name : Bluetooth handsfree speaker

Model No. : BTHF260

FCC ID. : TQ6BTHF260

Applicant : Shanghai Flaircomm Inc

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

Date of Receipt : 2006/09/22

Issued Date : 2006/010/13

Report No. : 06AS001-RF-US-P06V01

The Test Results relate only to the samples tested.
The test report shall not be reproduced except in full without the written approval of QuieTek Corporation.
This report must not be used to claim product endorsement by NVLAP any agency of the U.S. Government

# Test Report Certification

Issued Date: 2006/10/13
Report No.: 06AS001-RF-US-P06V01

QuieTek Corporation

| | | |
|---|---|---|
| Product Name | : | Bluetooth handsfree speaker |
| Applicant | : | Shanghai Flaircomm Inc |
| Address | : | No211 North Urumqi Road, Suite 616, Shanghai 200040 P.R. China |
| Manufacturer | : | Shanghai Flaircomm Inc |
| Model No. | : | BTHF260 |
| FCC ID. | : | TQ6BTHF260 |
| Rated Voltage | : | AC 120V/60Hz |
| Working Voltage | : | DC 3.7V |
| Trade Name | : | Flaircomm |
| Applicable Standard | : | FCC CFR Title 47 Part 15 Subpart C: 2005<br>ANSI C63.4: 2003<br>CISPR 22: 2005 |
| Test Result | : | Complied |

The Test Results relate only to the samples tested.
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Documented By : Mandy liu

( Mandy Liu )

Reviewed By : Dream Cao

( Dream Cao )

Approved By : Gene Zhang

(Gene Zhang)

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# 1. GENERAL INFORMATION

## 1.1. EUT Description

| | |
|---|---|
| Product Name | Bluetooth handsfree speaker |
| Trade Name | Flaircomm |
| Model No. | BTHF260 |
| 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 | Chip |

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 | | |

The system receivers have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shift frequencies in synchronization with the transmitted signals

Frequency hopping spread spectrum systems are not required to employ all available hopping channels during each transmission. The transmitter is presented with a continuous data stream. In addition, a system employing short transmission bursts must comply with the definition of a frequency hopping system and must distribute its 79 channels and over the minimum number of hopping channels (75 channels).

The incorporation of intelligence within a frequency hopping spread spectrum system that permits the system to recognize other users within the spectrum band so that it individually and independently chooses and adapts its hopsets to avoid hopping on occupied channels is permitted. The coordination of frequency hopping systems in any other manner for the express purpose of avoiding the simultaneous occupancy of individual hopping frequencies by multiple transmitters is not permitted.

Note:

1. This device is a Bluetooth Headset including a 2.4GHz transceiver.
2. These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15 Subpart C Paragraph 15.247 for spread spectrum devices.
3. 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.
4. 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 06AS001-RF-US-P01V02, certified under Declaration of Conformity.
5. QuieTek verified among construction and function in typical operation, then shown in this test report.

## 1.2. Operational Description

The EUT is a Bluetooth Headset with 79 channels.

This device provides wireless technology that revolutionizes personal connectivity. It is the solution for the seamless integration of Bluetooth technology into personal computer enabling short-range wireless connections between desktop/laptop computers, Bluetooth-enabled peripherals, and portable handheld devices.

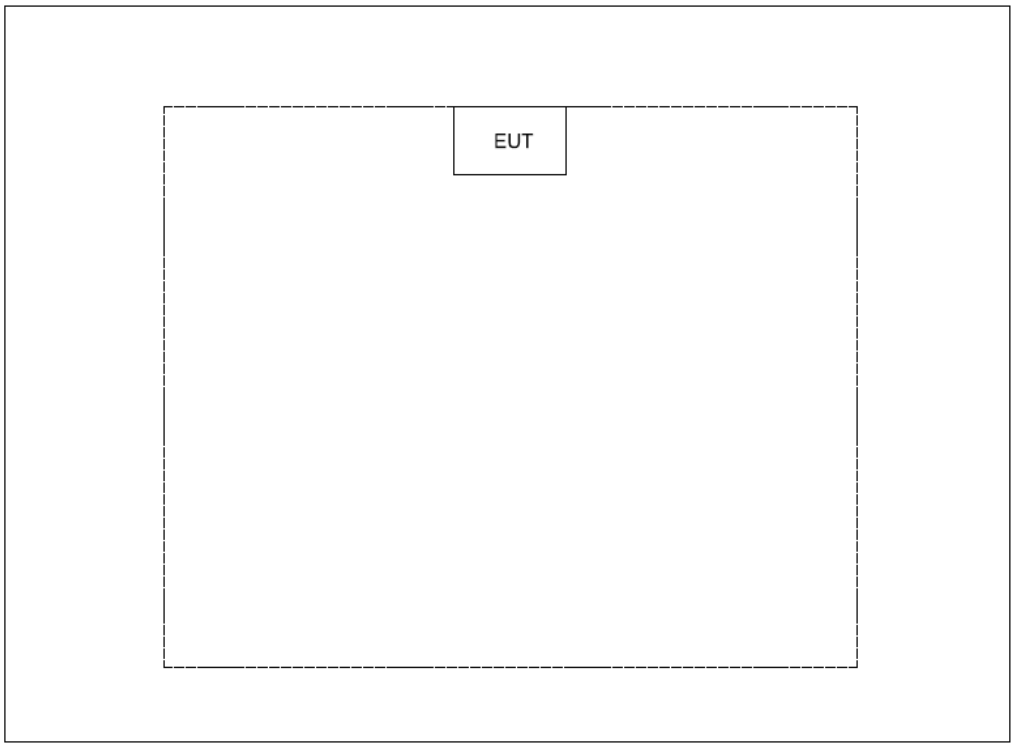
| | |
|---|---|
| Test Mode: | Mode 1: Transmit |

## 1.3. Tested System Details

The types for all equipment, 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

| Connection Diagram | |
|---|---|
|  | |
| Signal Cable Type | Signal cable Description |

## 1.5. EUT Exercise Software

(1) Setup the EUT as shown in Section 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 transmission.

## 1.6. Test Facility

Ambient conditions in the laboratory:

| Items | Required (IEC 68-1) | Actual |
|---|---|---|
| Temperature (°C) | 15-35 | 20-35 |
| Humidity (%RH) | 25-75 | 30-65 |
| Barometric pressure (mbar) | 860-1060 | 950-1000 |

Site Description: April 28, 2006 Accreditation on NVLAP
NVLAP Lab Code: 200743-0

Accredited by CNLA
Accredited Number: 1596

1596

Site Name: Quietek Corporation

Site Address: No.99 Hongye Rd., Suzhou Industrial Park Loufeng
Hi-Tech Development Zone., SuZhou, China
TEL: +86-512-6251-5088 / FAX : 86-512-6251-5098
E-Mail : service@quietek.com

NVLAP Lab Code : 200743-0

# 2. Conducted Emission

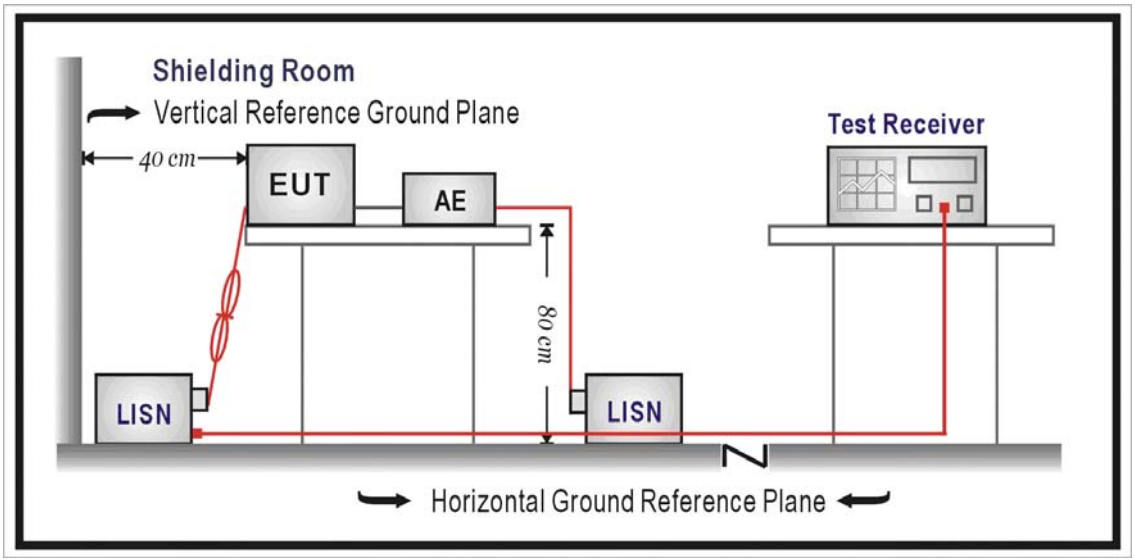
## 2.1. Test Equipment

Conducted Emission / SR-1

| Instrument | Manufacturer | Type No. | Serial No | Cal. Date |
|---|---|---|---|---|
| EMI Test Receiver | R&S | ESCI | 100175 | 2005/11/25 |
| Two-Line V-Network | R&S | ENV216 | 100013 | 2005/11/25 |
| Two-Line V-Network | R&S | ENV216 | 100014 | 2005/11/25 |
| V-Network | R&S | ESH3-Z6 | 100248 | 2005/11/25 |
| V-Network | R&S | ESH3-Z6 | 100249 | 2005/11/25 |
| ISN | Schaffner | ISN T400 | 21648 | 2005/11/25 |
| Current Probe | R&S | EZ-17 | 100252 | 2006/04/18 |
| 50ohm Coaxial Switch | ANRITSU | MP59B | 6200447305 | 2005/11/25 |
| 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 |

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

## 2.2. Test Setup



## 2.3. Limits

| FCC Part 15 Subpart C Paragraph 15.207 (dBuV) Limit | | |
|---|---|---|
| Frequency MHz | Limits | |
| | QP | AV |
| 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.

## 2.4. 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 according to ANSI C63.4: 2003 on conducted measurement.

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

## 2.5. Uncertainty

The measurement uncertainty is defined as ± 2.02 dB

## 2.6. Test Result of Conducted Emission

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

# 3. Peak Power Output

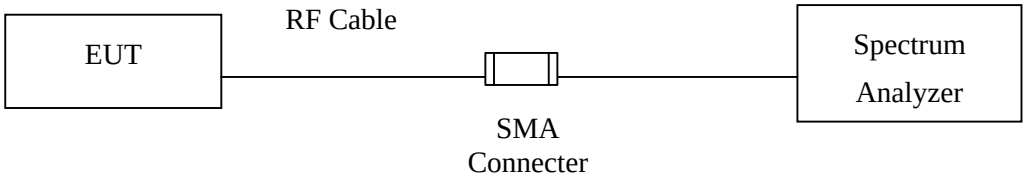
## 3.1. Test Equipment

Radiated Emission / AC-3

| Instrument | Manufacturer | Type No. | Serial No | Cal. Date |
|---|---|---|---|---|
| Spectrum Analyzer | Agilent | E4446A | MY45300103 | 2006/03/23 |

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

## 3.2. Test Setup




## 3.3. Limit

The maximum peak power shall be less 1Watt.

## 3.4. Uncertainty

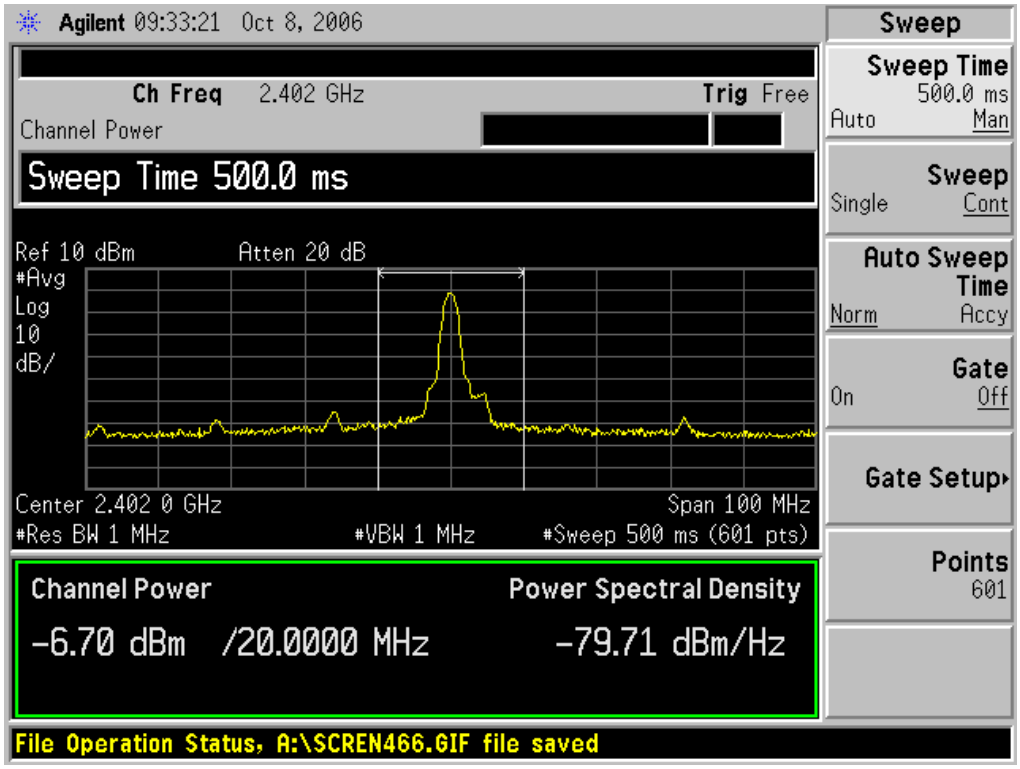
The measurement uncertainty is defined as ± 1.27 dB

## 3.5. Test Result of Peak Power Output

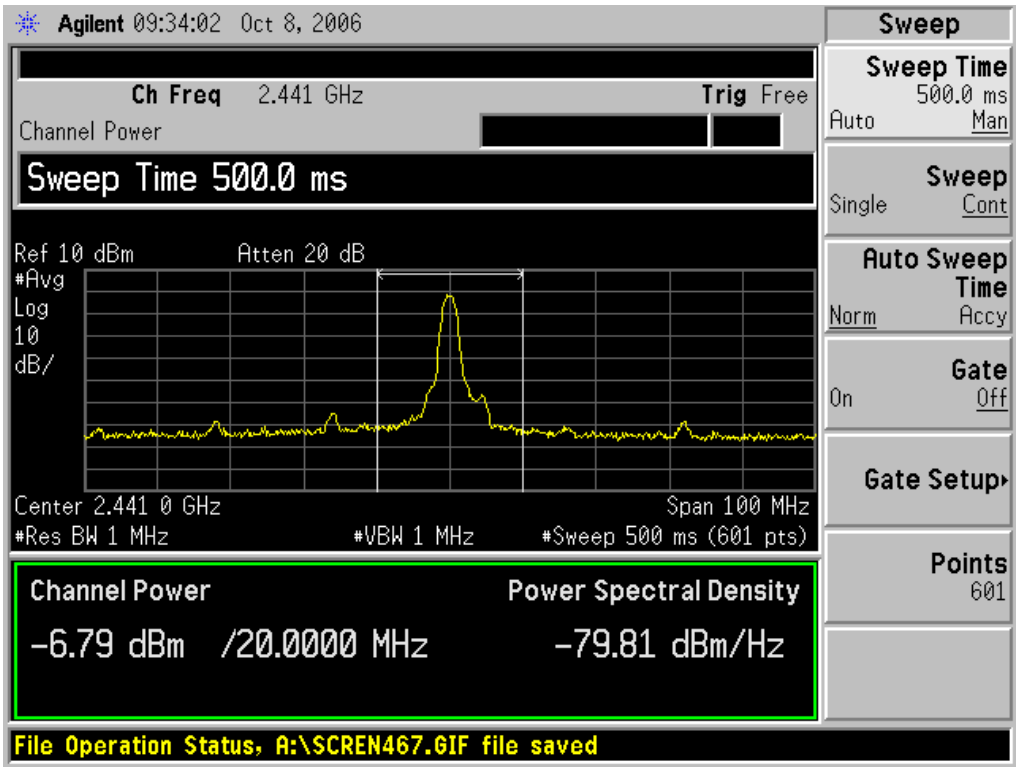
Product : Bluetooth handsfree car kit
Test Item : Peak Power Output
Test Site : AC-3
Test Mode : Mode 1: Transmitter

| Channel No. | Frequency (MHz) | Measurement (dBm) | Required Limit (dBm) | Result |
|---|---|---|---|---|
| Channel 00 | 2402.00 | -6.70 | 1 Watt= 30 dBm | Pass |
| Channel 39 | 2441.00 | -6.79 | 1 Watt= 30 dBm | Pass |
| Channel 78 | 2480.00 | -6.74 | 1 Watt= 30 dBm | Pass |

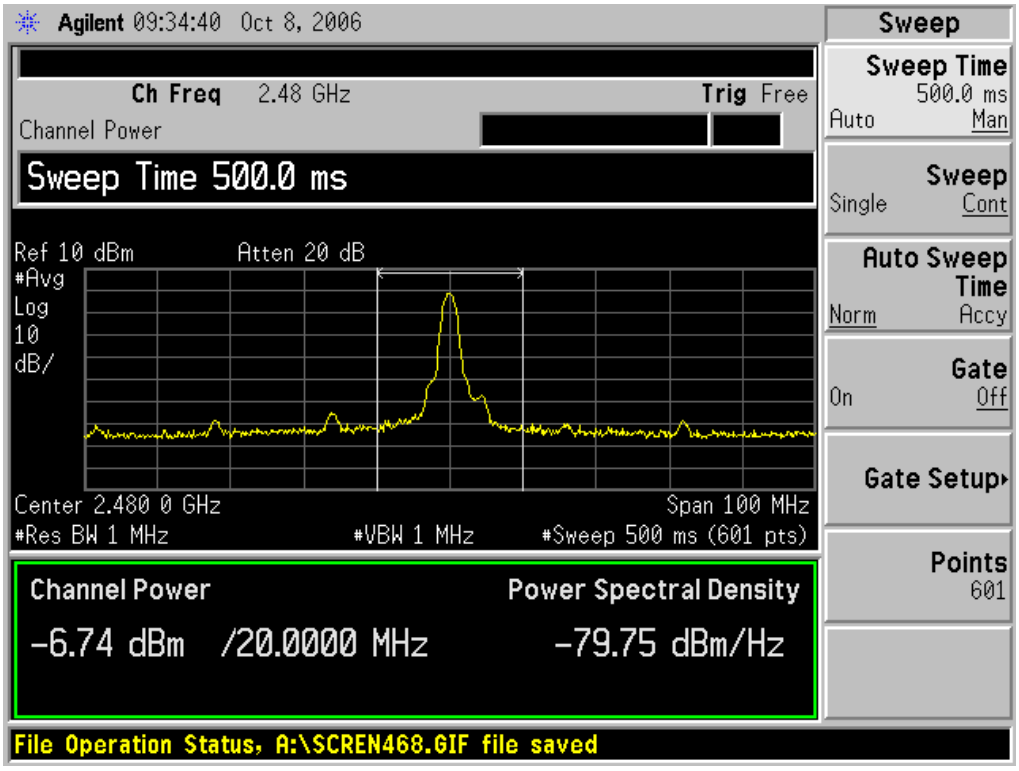
**Channel 00 (2402MHz)**



**Channel 39 (2441MHz)**




**Channel 78 (2480MHz)**



# 4. Radiated Emission

## 4.1. Test Equipment

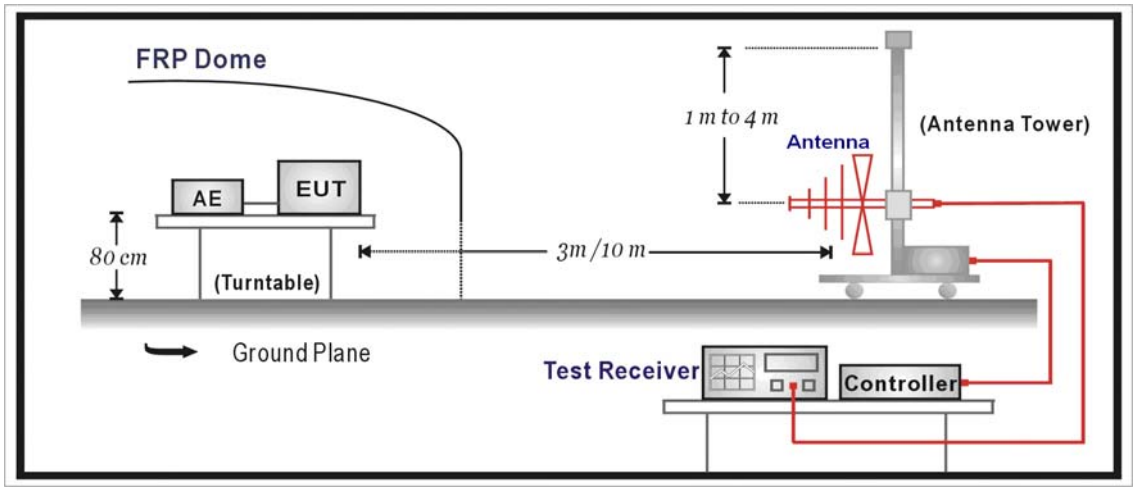
Radiated Emission / AC-2

| Instrument | Manufacturer | Type No. | Serial No | Cal. Date |
|---|---|---|---|---|
| Spectrum Analyzer | Agilent | E4446A | MY45300103 | 2006/03/11 |
| EMI Test Receiver | R&S | ESCI | 100175 | 2005/11/25 |
| Preamplifier | Quietek | AP-025C | QT-AP003 | 2005/11/25 |
| Preamplifier | Quietek | AP-180C | CHM-0602013 | 2006/03/20 |
| Bilog Type Antenna | Schaffner | CBL6112B | 2932 | 2005/10/26 |
| Broad-Band Horn Antenna | Schwarzbeck | BBHA9120D | 499 | 2005/11/25 |
| Temperature/Humidity Meter | zhicheng | ZC1-2 | QT-TH002 | 2006/03/30 |

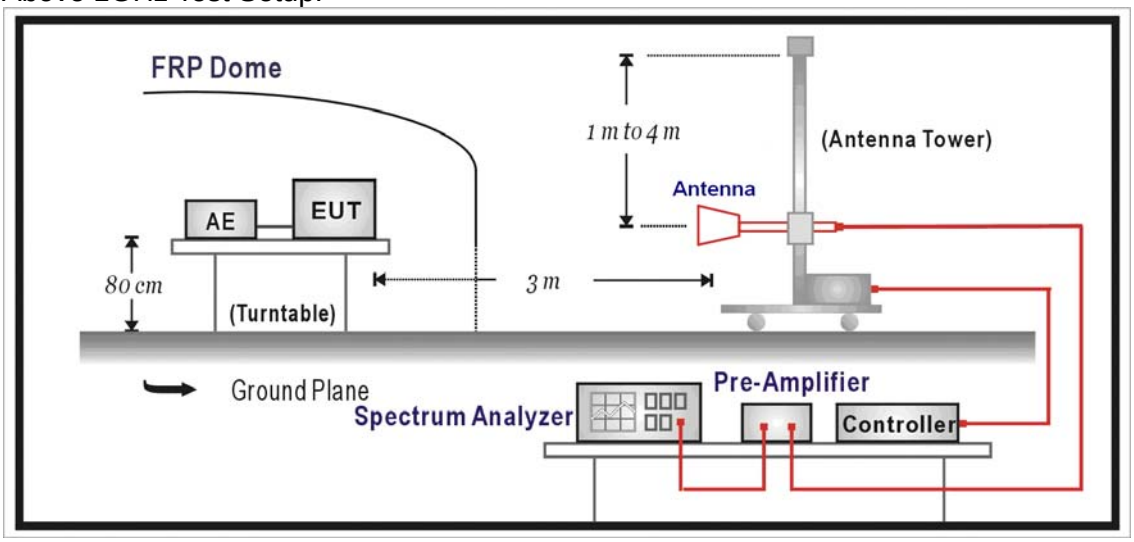
Note: All equipment upon which need to calibrated are with calibration period of 1 year.

## 4.2. Test Setup

Under 1GHz Test Setup:




Above 1GHz Test Setup:



## 4.3. Limits

➢ **General Radiated Emission Limits**

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

| **FCC Part 15 Subpart C Paragraph 15.209 Limits** | | |
|---|---|---|
| Frequency MHz | uV/m @3m | dBuV/m@3m |
| 30-88 | 100 | 40 |
| 88-216 | 150 | 43.5 |
| 216-960 | 200 | 46 |
| Above 960 | 500 | 54 |

Remarks:
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 and the closed point of any part of the device or system.

## 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. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

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 according to ANSI C63.4: 2003 on radiated measurement.

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

The bandwidth below 1GHz setting on the field strength meter (R&S Test Receiver ESCS 30 )is 120 kHz, above 1GHz are 1 MHz.

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

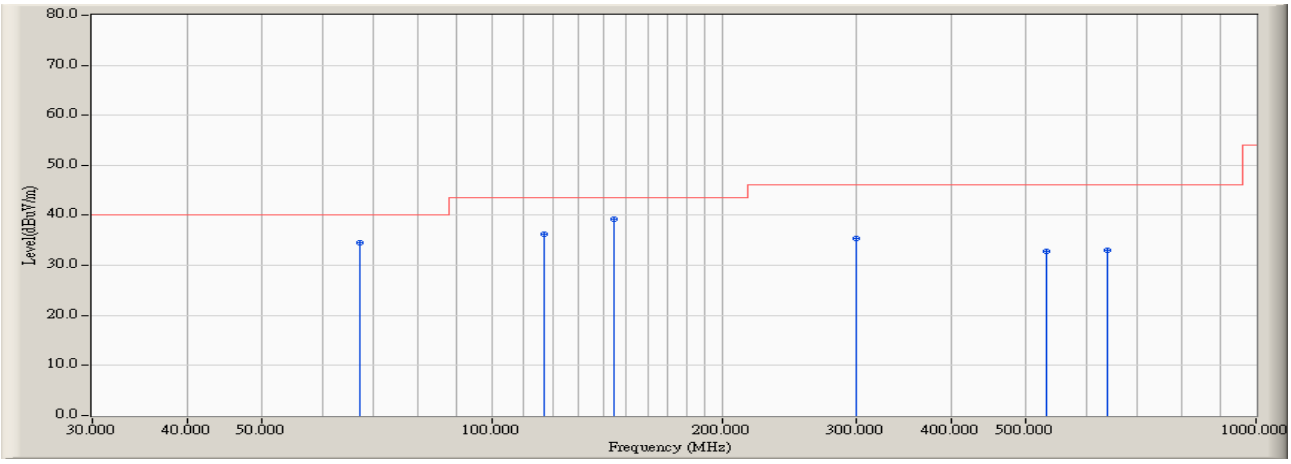
## 4.5. Uncertainty

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

under 1G is defined as ± 3.8 dB

## 4.6. Test Result of Radiated Emission

| | |
|---|---|
| **Engineer : Johnwang** | |
| **Site : AC-2** | **Time : 2006/10/11 - 10:10** |
| **Limit : FCC_SpartC_15.209_03M_QP** | **Margin : 0** |
| **EUT : BTHF206** | **Probe : CBL6141A_4278(30-2000MHz) - HORIZONTAL** |
| **Power : DC 3.7V** | **Note : Mode1: Transmit (2402MHz)** |

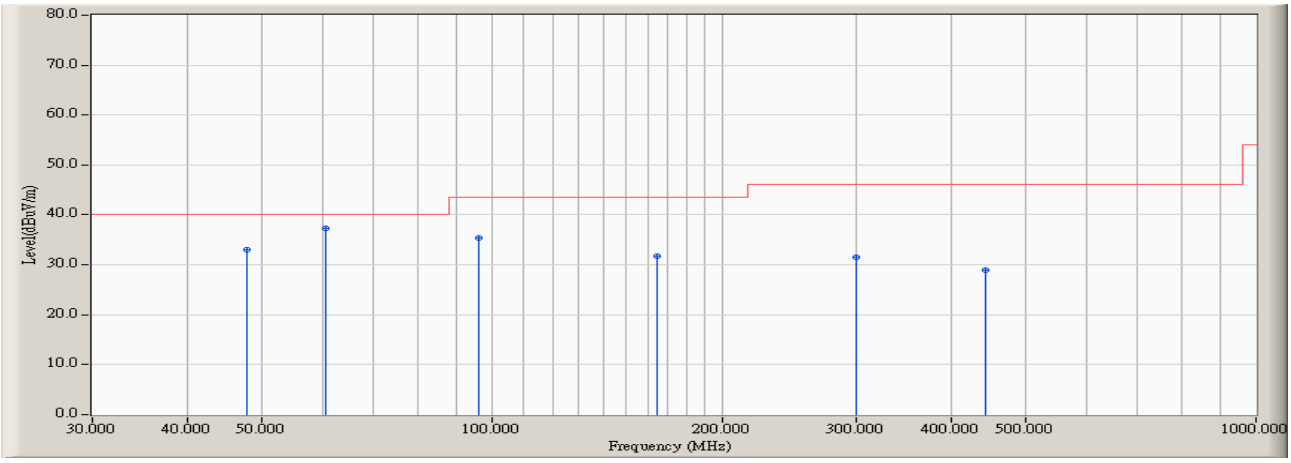



| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 67.183 | -16.919 | 51.353 | 34.434 | -5.566 | 40.000 | QUASIPEAK |
| 2 | | 117.300 | -12.751 | 48.910 | 36.159 | -7.361 | 43.520 | QUASIPEAK |
| 3 | * | 144.783 | -11.616 | 50.912 | 39.296 | -4.224 | 43.520 | QUASIPEAK |
| 4 | | 299.983 | -10.132 | 45.436 | 35.304 | -10.716 | 46.020 | QUASIPEAK |
| 5 | | 531.167 | -5.328 | 38.174 | 32.847 | -13.173 | 46.020 | QUASIPEAK |
| 6 | | 639.483 | -2.513 | 35.573 | 33.060 | -12.960 | 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 : 2006/10/11 - 10:12** |
| **Limit : FCC_SpartC_15.209_03M_QP** | **Margin : 0** |
| **EUT : BTHF206** | **Probe : CBL6141A_4278(30-2000MHz) - VERTICAL** |
| **Power : DC 3.7V** | **Note : Mode1: Transmit (2402MHz)** |

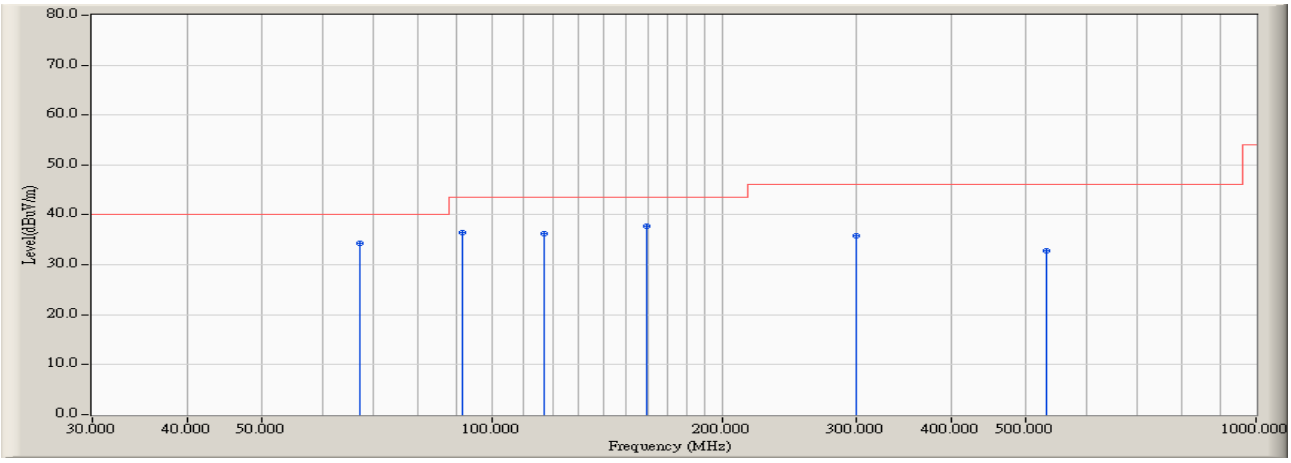



| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 47.783 | -10.102 | 43.102 | 33.000 | -7.000 | 40.000 | QUASIPEAK |
| 2 | * | 60.717 | -15.655 | 52.993 | 37.337 | -2.663 | 40.000 | QUASIPEAK |
| 3 | | 96.283 | -14.519 | 49.924 | 35.405 | -8.115 | 43.520 | QUASIPEAK |
| 4 | | 164.183 | -12.616 | 44.376 | 31.760 | -11.760 | 43.520 | QUASIPEAK |
| 5 | | 299.983 | -10.132 | 41.654 | 31.522 | -14.498 | 46.020 | QUASIPEAK |
| 6 | | 442.250 | -6.819 | 35.786 | 28.967 | -17.053 | 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 : 2006/10/11 - 10:13** |
| **Limit : FCC_SpartC_15.209_03M_QP** | **Margin : 0** |
| **EUT : BTHF206** | **Probe : CBL6141A_4278(30-2000MHz) - HORIZONTAL** |
| **Power : DC 3.7V** | **Note : Mode1: Transmit (2441MHz)** |

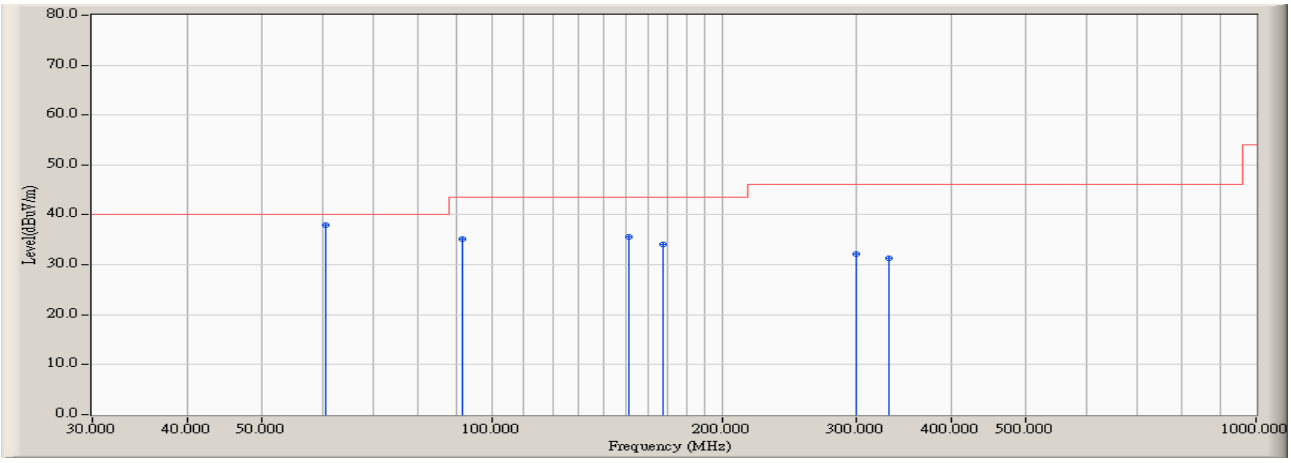



| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 67.183 | -16.919 | 51.129 | 34.210 | -5.790 | 40.000 | QUASIPEAK |
| 2 | | 91.433 | -15.001 | 51.474 | 36.473 | -7.047 | 43.520 | QUASIPEAK |
| 3 | | 117.300 | -12.751 | 48.958 | 36.207 | -7.313 | 43.520 | QUASIPEAK |
| 4 | * | 159.333 | -12.239 | 50.035 | 37.796 | -5.724 | 43.520 | QUASIPEAK |
| 5 | | 299.983 | -10.132 | 45.949 | 35.817 | -10.203 | 46.020 | QUASIPEAK |
| 6 | | 531.167 | -5.328 | 38.124 | 32.797 | -13.223 | 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 : 2006/10/11 - 10:16** |
| **Limit : FCC_SpartC_15.209_03M_QP** | **Margin : 0** |
| **EUT : BTHF206** | **Probe : CBL6141A_4278(30-2000MHz) - VERTICAL** |
| **Power : DC 3.7V** | **Note : Mode1: Transmit (2441MHz)** |

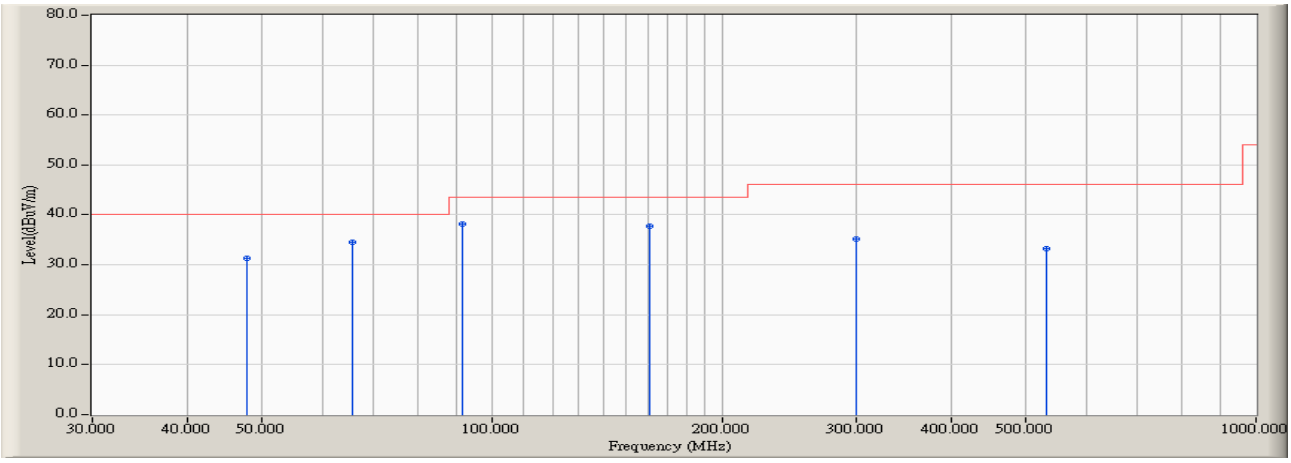



| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 60.717 | -15.655 | 53.647 | 37.991 | -2.009 | 40.000 | QUASIPEAK |
| 2 | | 91.433 | -15.001 | 50.267 | 35.266 | -8.254 | 43.520 | QUASIPEAK |
| 3 | | 151.250 | -11.899 | 47.417 | 35.518 | -8.002 | 43.520 | QUASIPEAK |
| 4 | | 167.417 | -12.893 | 46.985 | 34.092 | -9.428 | 43.520 | QUASIPEAK |
| 5 | | 299.983 | -10.132 | 42.277 | 32.145 | -13.875 | 46.020 | QUASIPEAK |
| 6 | | 330.700 | -8.892 | 40.159 | 31.267 | -14.753 | 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 : 2006/10/11 - 10:20** |
| **Limit : FCC_SpartC_15.209_03M_QP** | **Margin : 0** |
| **EUT : BTHF206** | **Probe : CBL6141A_4278(30-2000MHz) - HORIZONTAL** |
| **Power : DC 3.7V** | **Note : Mode1: Transmit (2480MHz)** |

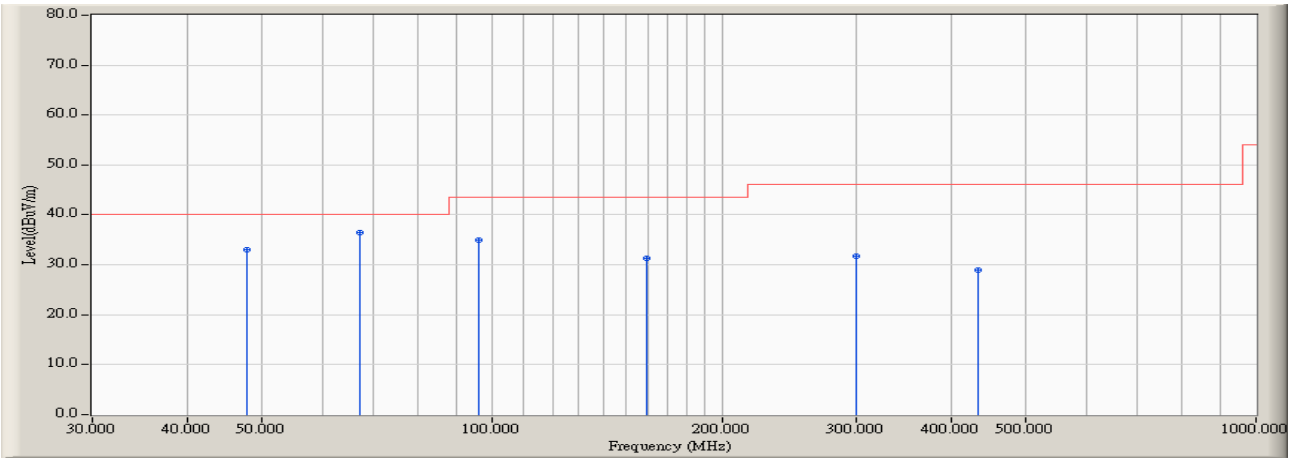



| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 47.783 | -10.102 | 41.520 | 31.418 | -8.582 | 40.000 | QUASIPEAK |
| 2 | | 65.567 | -16.689 | 51.209 | 34.519 | -5.481 | 40.000 | QUASIPEAK |
| 3 | * | 91.433 | -15.001 | 53.123 | 38.122 | -5.398 | 43.520 | QUASIPEAK |
| 4 | | 160.950 | -12.345 | 50.019 | 37.674 | -5.846 | 43.520 | QUASIPEAK |
| 5 | | 299.983 | -10.132 | 45.387 | 35.255 | -10.765 | 46.020 | QUASIPEAK |
| 6 | | 532.783 | -5.321 | 38.590 | 33.269 | -12.751 | 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 : 2006/10/11 - 10:23** |
| **Limit : FCC_SpartC_15.209_03M_QP** | **Margin : 0** |
| **EUT : BTHF206** | **Probe : CBL6141A_4278(30-2000MHz) - VERTICAL** |
| **Power : DC 3.7V** | **Note : Mode1: Transmit (2480MHz)** |

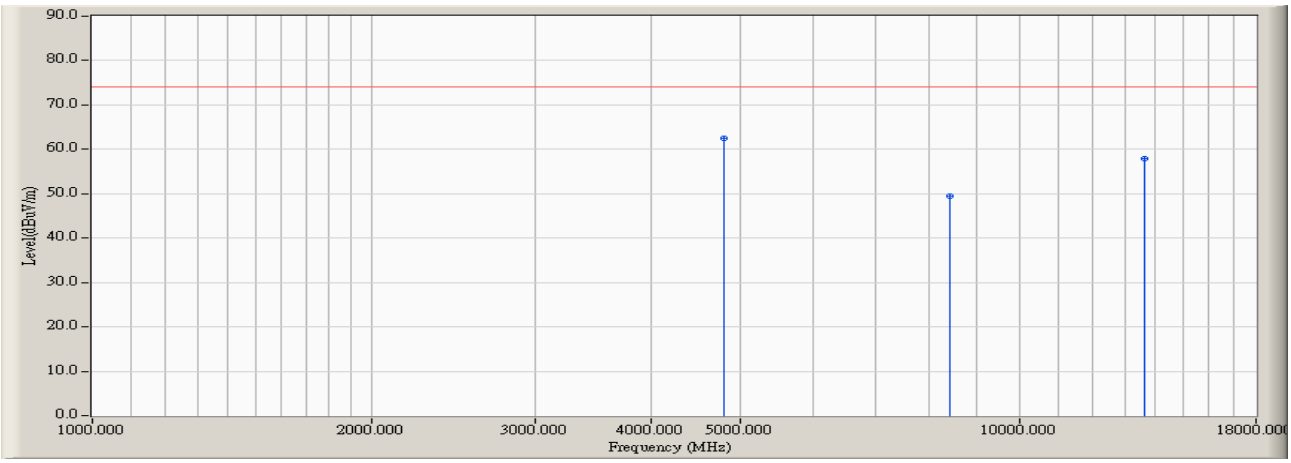



| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 47.783 | -10.102 | 43.075 | 32.973 | -7.027 | 40.000 | QUASIPEAK |
| 2 | * | 67.183 | -16.919 | 53.355 | 36.436 | -3.564 | 40.000 | QUASIPEAK |
| 3 | | 96.283 | -14.519 | 49.472 | 34.953 | -8.567 | 43.520 | QUASIPEAK |
| 4 | | 159.333 | -12.239 | 43.461 | 31.222 | -12.298 | 43.520 | QUASIPEAK |
| 5 | | 299.983 | -10.132 | 41.798 | 31.666 | -14.354 | 46.020 | QUASIPEAK |
| 6 | | 432.550 | -6.920 | 35.845 | 28.925 | -17.095 | 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 : 2006/10/10 - 15:54** |
| **Limit : FCC_SpartC_15.209_03M_PK** | **Margin : 0** |
| **EUT : BTHF206** | **Probe : 9120D_(1G-18G) - HORIZONTAL** |
| **Power : DC 3.7V** | **Note : Mode1: Transmit (2402MHz)** |

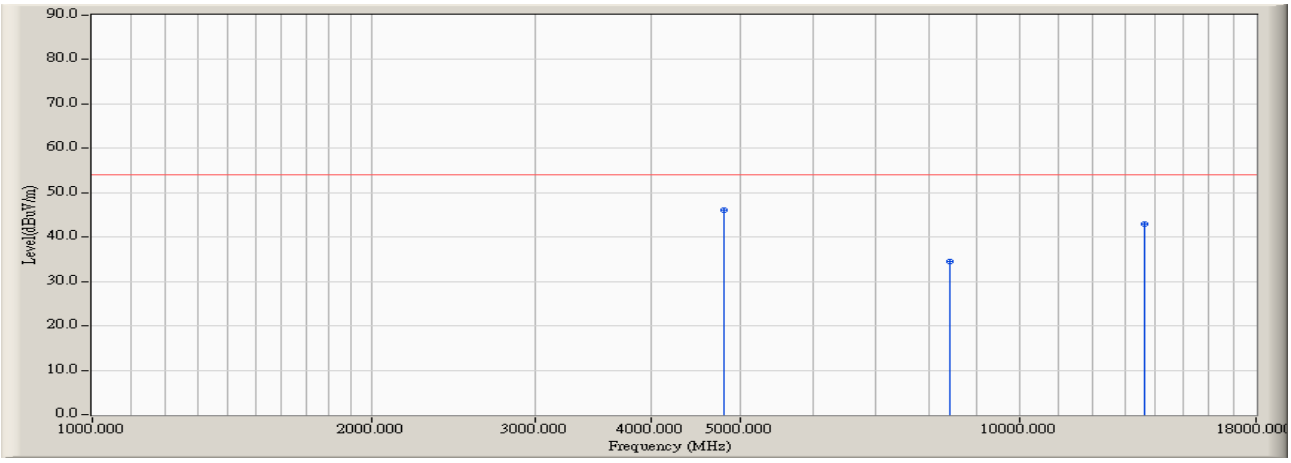



| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 4796.667 | 4.834 | 57.604 | 62.437 | -11.533 | 73.970 | PEAK |
| 2 | | 8423.333 | 14.297 | 35.059 | 49.356 | -24.614 | 73.970 | PEAK |
| 3 | | 13665.000 | 23.470 | 34.539 | 58.009 | -15.961 | 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 : 2006/10/10 - 15:54** |
| **Limit : FCC_SpartC_15.209_03M_AV** | **Margin : 0** |
| **EUT : BTHF206** | **Probe : 9120D_(1G-18G) - HORIZONTAL** |
| **Power : DC 3.7V** | **Note : Mode1: Transmit (2402MHz)** |

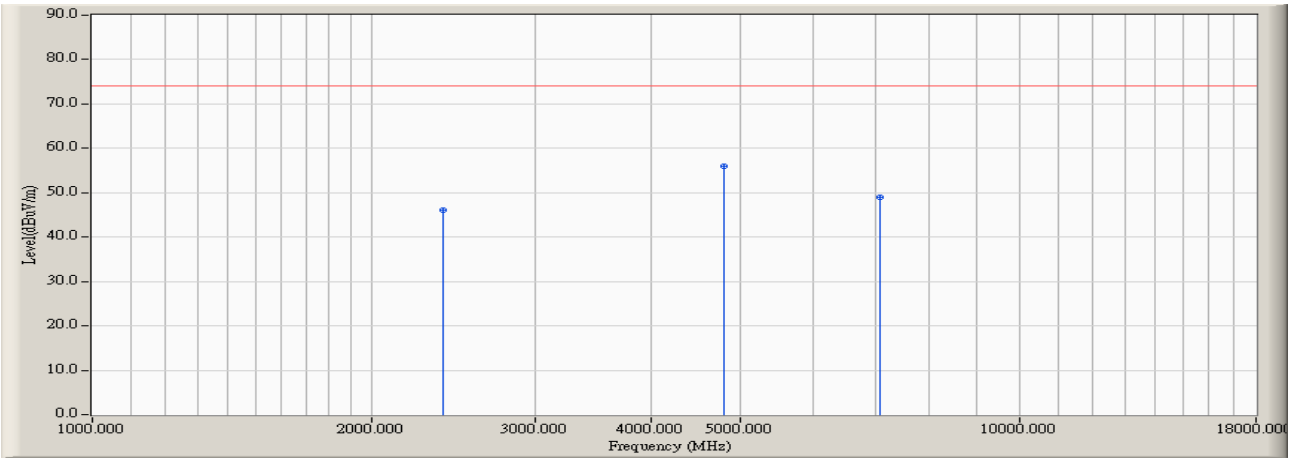



| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 4796.667 | 4.834 | 41.260 | 46.093 | -7.877 | 53.970 | AVERAGE |
| 2 | | 8423.333 | 14.297 | 20.180 | 34.477 | -19.493 | 53.970 | AVERAGE |
| 3 | | 13665.000 | 23.470 | 19.478 | 42.948 | -11.022 | 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 : 2006/10/10 - 16:00** |
| **Limit : FCC_SpartC_15.209_03M_PK** | **Margin : 0** |
| **EUT : BTHF206** | **Probe : 9120D_(1G-18G) - VERTICAL** |
| **Power : DC 3.7V** | **Note : Mode1: Transmit (2402MHz)** |

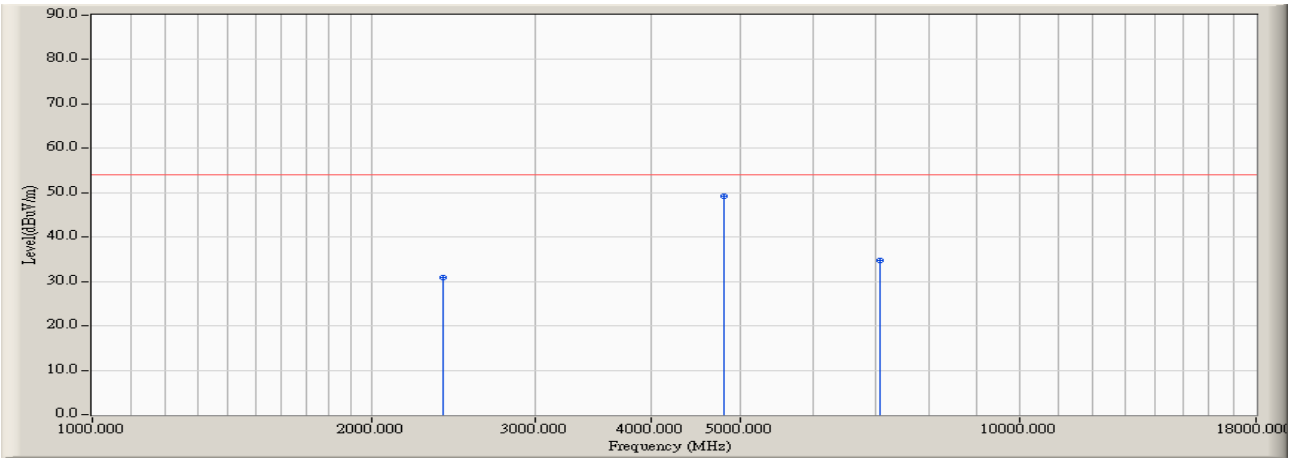



| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 2388.333 | -1.664 | 47.756 | 46.093 | -27.877 | 73.970 | PEAK |
| 2 | * | 4796.667 | 4.834 | 51.071 | 55.904 | -18.066 | 73.970 | PEAK |
| 3 | | 7063.333 | 14.896 | 34.155 | 49.052 | -24.918 | 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 : 2006/10/10 - 16:00** |
| **Limit : FCC_SpartC_15.209_03M_AV** | **Margin : 0** |
| **EUT : BTHF206** | **Probe : 9120D_(1G-18G) - VERTICAL** |
| **Power : DC 3.7V** | **Note : Mode1: Transmit (2402MHz)** |

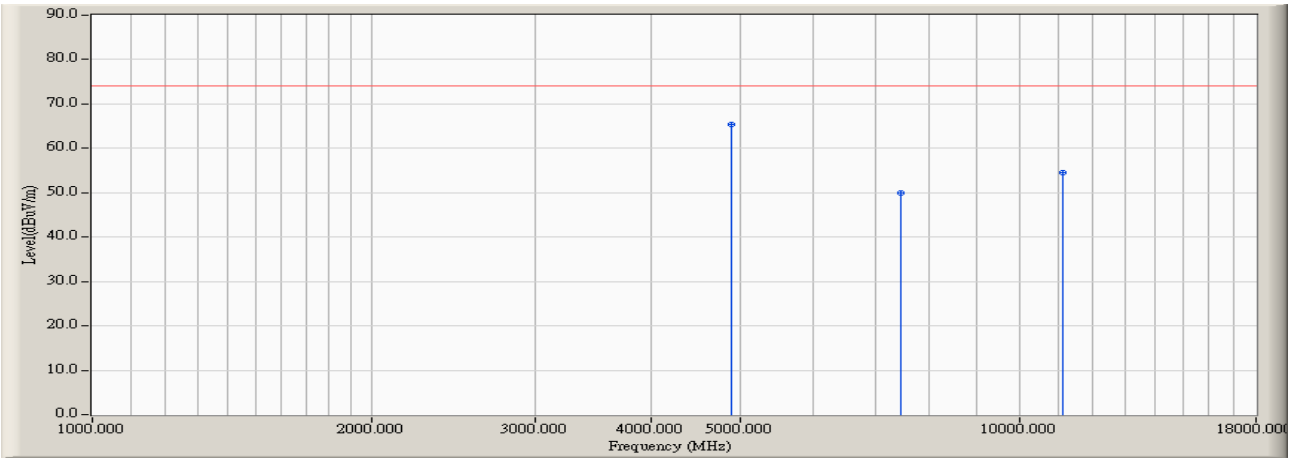



| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 2388.333 | -1.664 | 32.554 | 30.891 | -23.079 | 53.970 | AVERAGE |
| 2 | * | 4796.667 | 4.834 | 44.286 | 49.119 | -4.851 | 53.970 | AVERAGE |
| 3 | | 7063.333 | 14.896 | 19.884 | 34.781 | -19.189 | 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 : 2006/10/10 - 16:11** |
| **Limit : FCC_SpartC_15.209_03M_PK** | **Margin : 0** |
| **EUT : BTHF206** | **Probe : 9120D_(1G-18G) - HORIZONTAL** |
| **Power : DC 3.7V** | **Note : Mode1: Transmit (2441MHz)** |

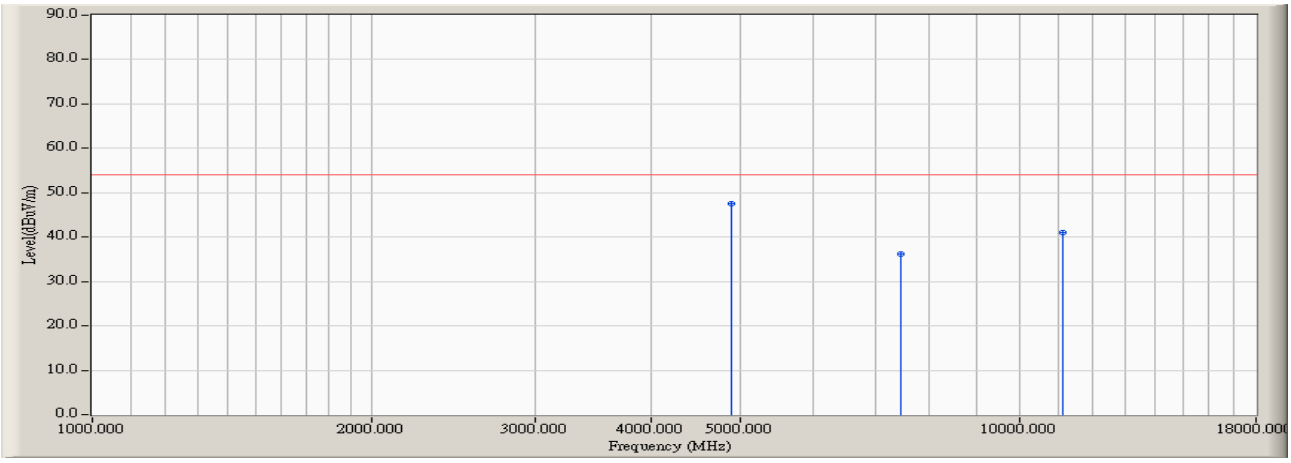



| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 4881.667 | 5.034 | 60.253 | 65.286 | -8.684 | 73.970 | PEAK |
| 2 | | 7460.000 | 15.090 | 34.760 | 49.850 | -24.120 | 73.970 | PEAK |
| 3 | | 11143.333 | 20.044 | 34.597 | 54.640 | -19.330 | 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 : 2006/10/10 - 16:11** |
| **Limit : FCC_SpartC_15.209_03M_AV** | **Margin : 0** |
| **EUT : BTHF206** | **Probe : 9120D_(1G-18G) - HORIZONTAL** |
| **Power : DC 3.7V** | **Note : Mode1: Transmit (2441MHz)** |

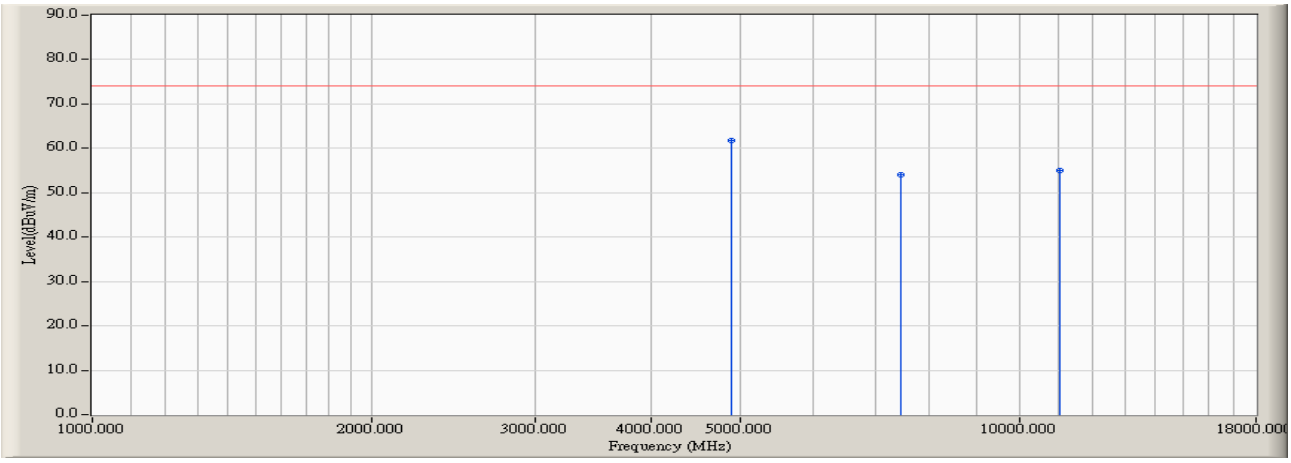



| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 4881.667 | 5.034 | 42.576 | 47.609 | -6.361 | 53.970 | AVERAGE |
| 2 | | 7450.000 | 15.107 | 21.166 | 36.274 | -17.696 | 53.970 | AVERAGE |
| 3 | | 11143.333 | 20.044 | 21.008 | 41.051 | -12.919 | 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 : 2006/10/10 - 16:17** |
| **Limit : FCC_SpartC_15.209_03M_PK** | **Margin : 0** |
| **EUT : BTHF206** | **Probe : 9120D_(1G-18G) - VERTICAL** |
| **Power : DC 3.7V** | **Note : Mode1: Transmit (2441MHz)** |

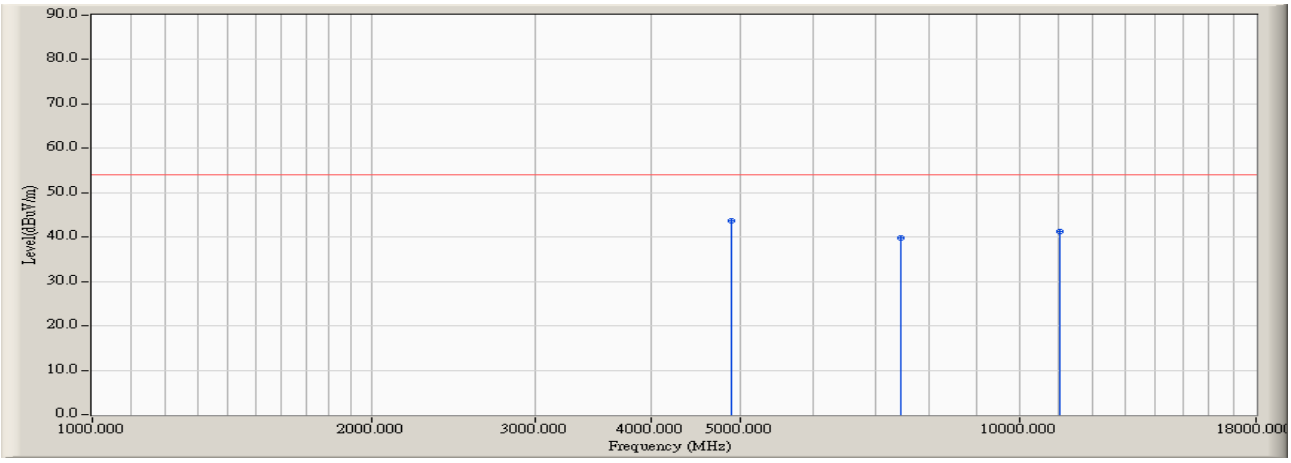



| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 4881.667 | 5.034 | 56.672 | 61.705 | -12.265 | 73.970 | PEAK |
| 2 | | 7460.000 | 15.090 | 39.010 | 54.100 | -19.870 | 73.970 | PEAK |
| 3 | | 11058.333 | 20.170 | 34.838 | 55.008 | -18.962 | 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 : 2006/10/10 - 16:17** |
| **Limit : FCC_SpartC_15.209_03M_AV** | **Margin : 0** |
| **EUT : BTHF206** | **Probe : 9120D_(1G-18G) - VERTICAL** |
| **Power : DC 3.7V** | **Note : Mode1: Transmit (2441MHz)** |

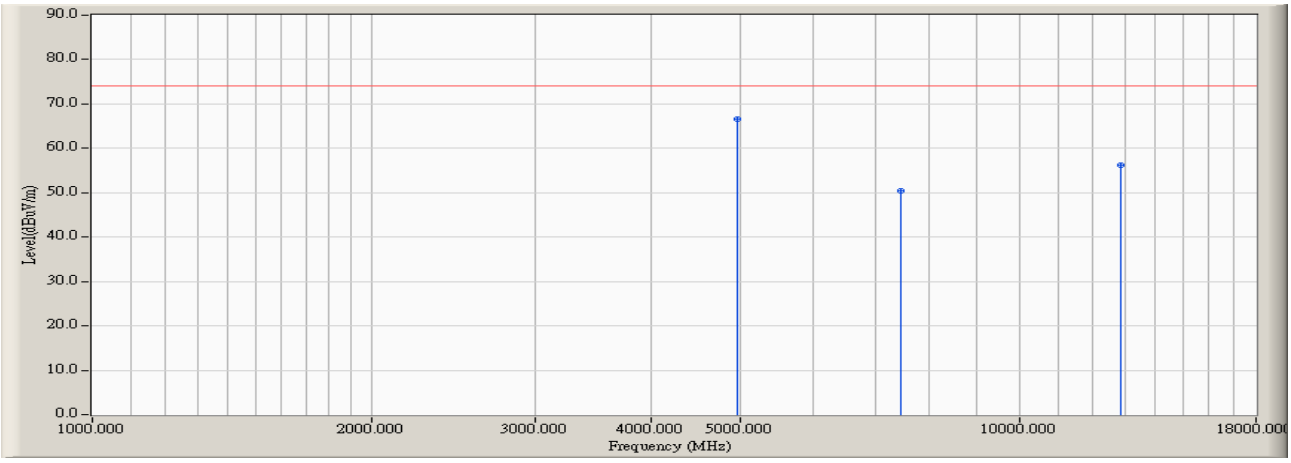



| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 4881.667 | 5.034 | 38.552 | 43.585 | -10.385 | 53.970 | AVERAGE |
| 2 | | 7460.000 | 15.090 | 24.785 | 39.875 | -14.095 | 53.970 | AVERAGE |
| 3 | | 11053.333 | 20.179 | 21.154 | 41.333 | -12.637 | 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 : 2006/10/10 - 16:23** |
| **Limit : FCC_SpartC_15.209_03M_PK** | **Margin : 0** |
| **EUT : BTHF206** | **Probe : 9120D_(1G-18G) - HORIZONTAL** |
| **Power : DC 3.7V** | **Note : Mode1: Transmit (2480MHz)** |

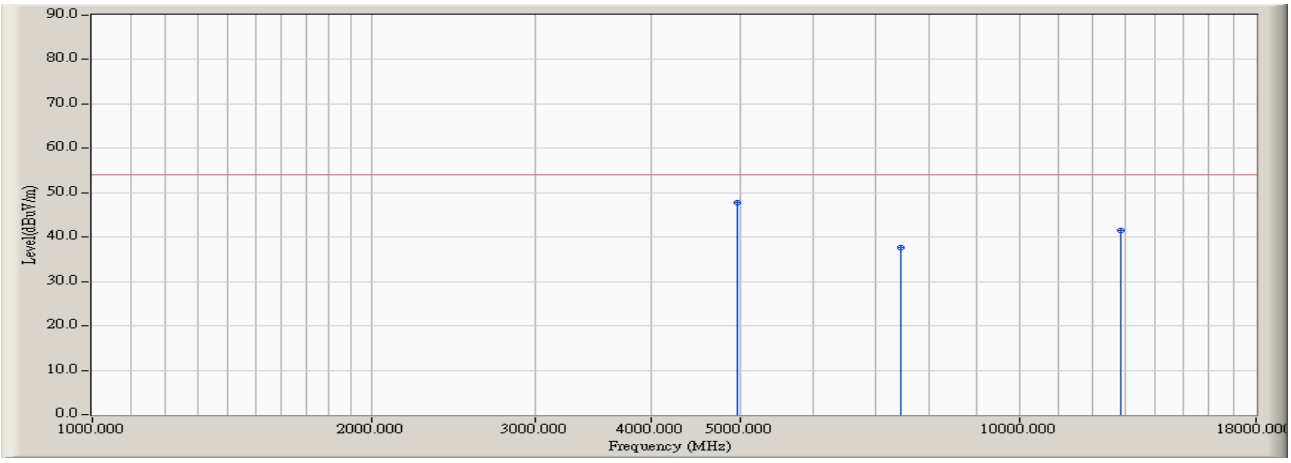



| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 4966.667 | 5.234 | 61.252 | 66.485 | -7.485 | 73.970 | PEAK |
| 2 | | 7460.000 | 15.090 | 35.300 | 50.390 | -23.580 | 73.970 | PEAK |
| 3 | | 12871.667 | 20.834 | 35.400 | 56.233 | -17.737 | 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 : 2006/10/10 - 16:23** |
| **Limit : FCC_SpartC_15.209_03M_AV** | **Margin : 0** |
| **EUT : BTHF206** | **Probe : 9120D_(1G-18G) - HORIZONTAL** |
| **Power : DC 3.7V** | **Note : Mode1: Transmit (2480MHz)** |

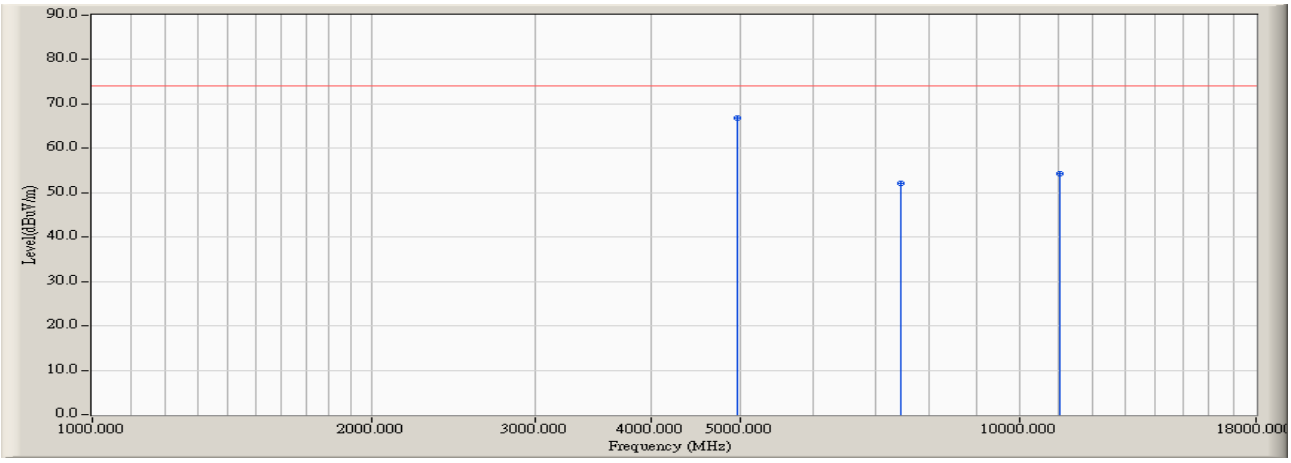



| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 4966.667 | 5.234 | 42.578 | 47.811 | -6.159 | 53.970 | AVERAGE |
| 2 | | 7460.000 | 15.090 | 22.547 | 37.637 | -16.333 | 53.970 | AVERAGE |
| 3 | | 12871.667 | 20.834 | 20.655 | 41.488 | -12.482 | 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 : 2006/10/10 - 16:26** |
| **Limit : FCC_SpartC_15.209_03M_PK** | **Margin : 0** |
| **EUT : BTHF206** | **Probe : 9120D_(1G-18G) - VERTICAL** |
| **Power : DC 3.7V** | **Note : Mode1: Transmit (2480MHz)** |

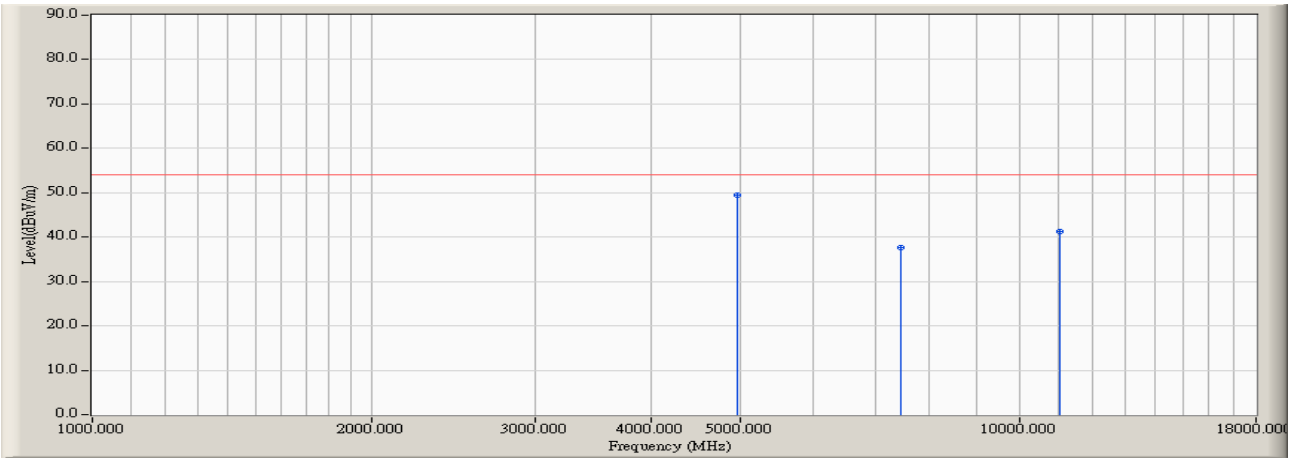



| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 4966.667 | 5.234 | 61.583 | 66.816 | -7.154 | 73.970 | PEAK |
| 2 | | 7460.000 | 15.090 | 37.005 | 52.095 | -21.875 | 73.970 | PEAK |
| 3 | | 11058.333 | 20.170 | 34.189 | 54.359 | -19.611 | 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 : 2006/10/10 - 16:26** |
| **Limit : FCC_SpartC_15.209_03M_AV** | **Margin : 0** |
| **EUT : BTHF206** | **Probe : 9120D_(1G-18G) - VERTICAL** |
| **Power : DC 3.7V** | **Note : Mode1: Transmit (2480MHz)** |

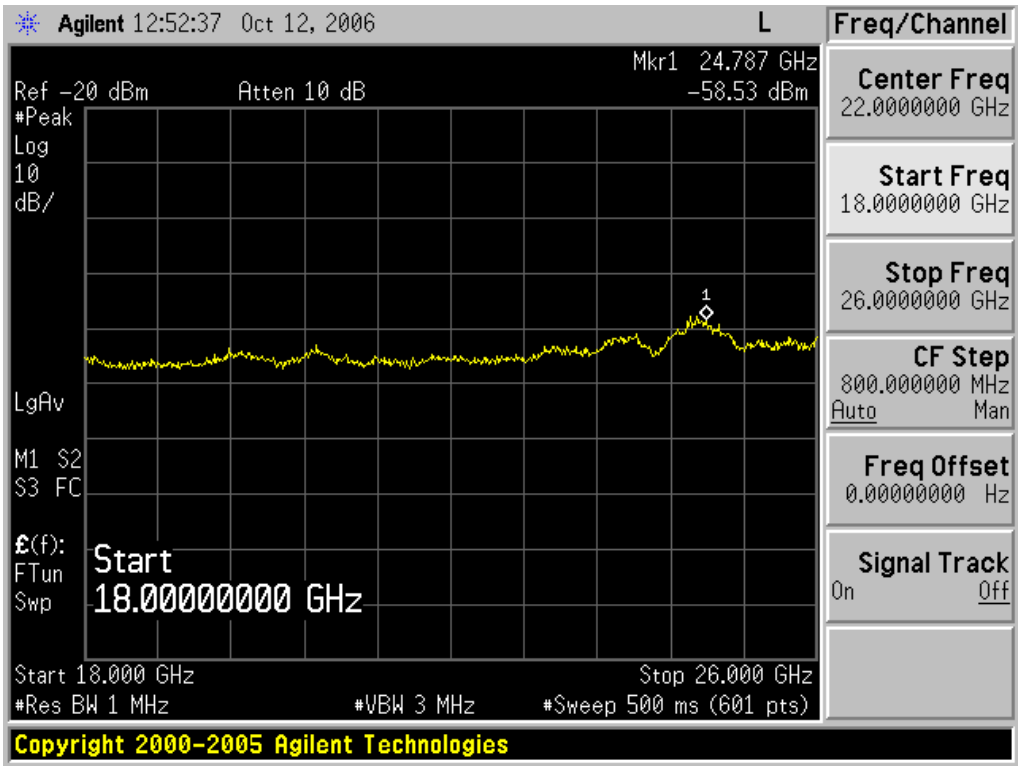



| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 4966.667 | 5.234 | 44.321 | 49.554 | -4.416 | 53.970 | AVERAGE |
| 2 | | 7460.000 | 15.090 | 22.587 | 37.677 | -16.293 | 53.970 | AVERAGE |
| 3 | | 11058.333 | 20.170 | 21.168 | 41.338 | -12.632 | 53.970 | AVERAGE |

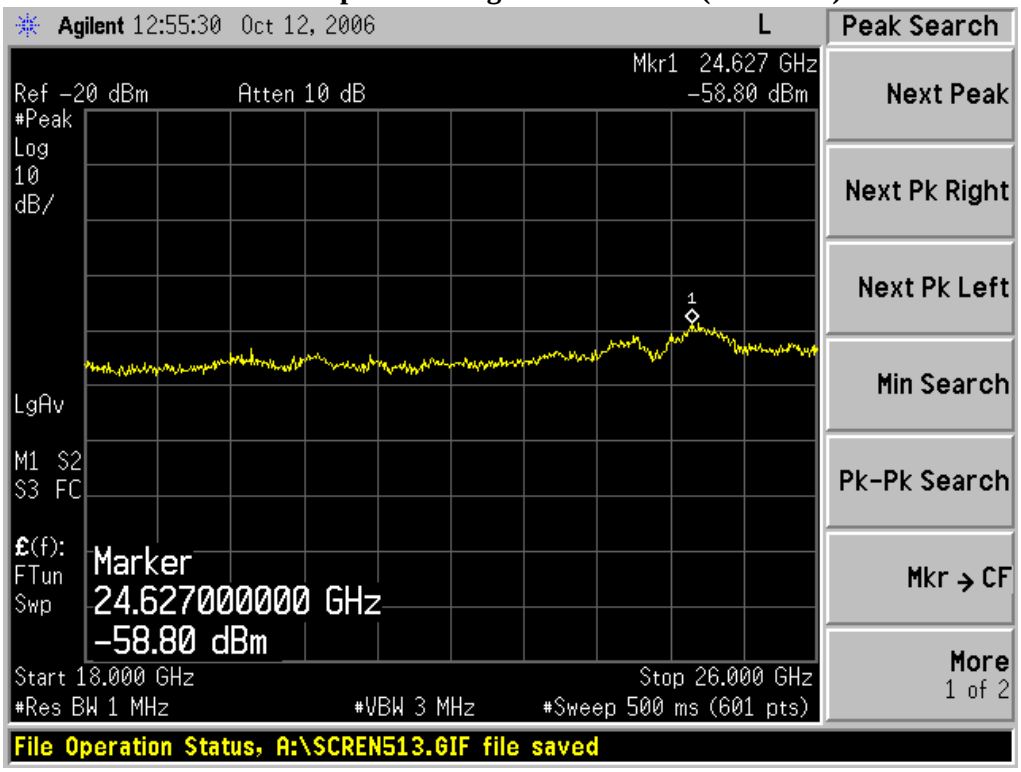
Note:

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

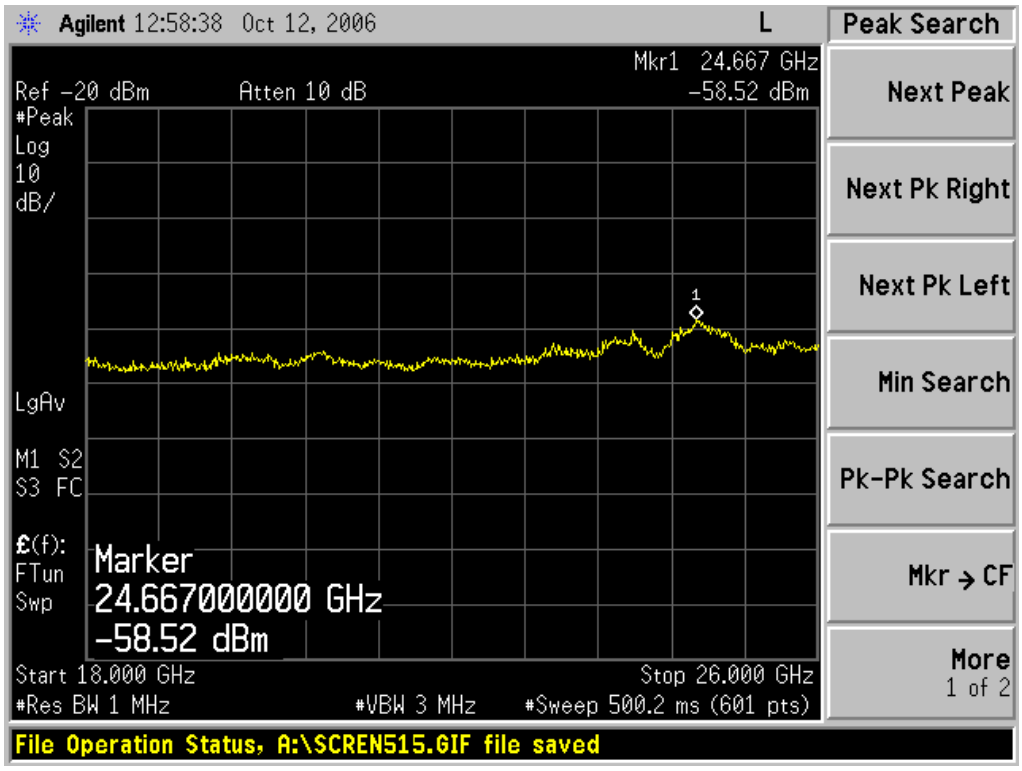
**Conducted Spurious - Figure Channel 00 (2402MHz)**




**Conducted Spurious - Figure Channel 39 (2441MHz)**



**Conducted Spurious - Figure Channel 78 (2480MHz)**



# 5. Band Edge

## 5.1. Test Equipment

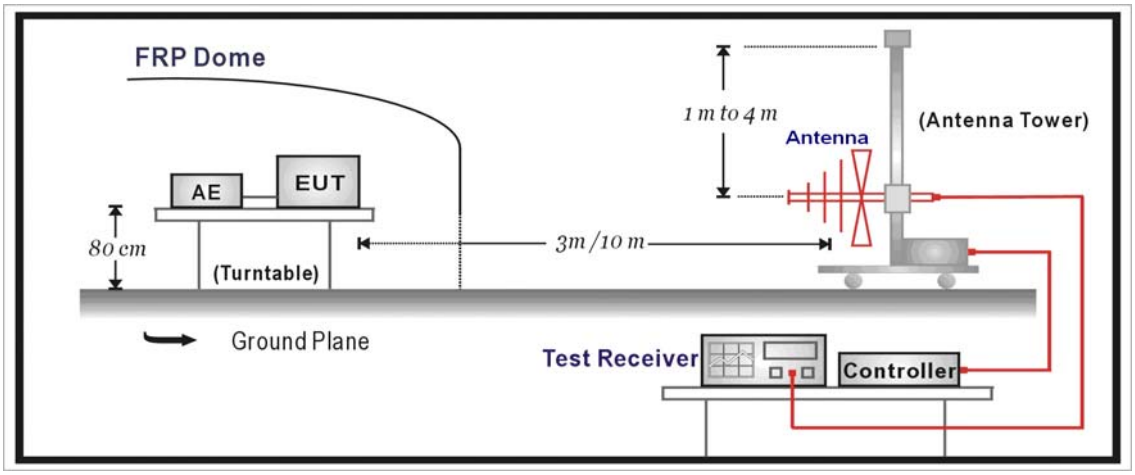
Radiated Emission / AC-2

| Instrument | Manufacturer | Type No. | Serial No | Cal. Date |
|---|---|---|---|---|
| Spectrum Analyzer | Agilent | E4446A | MY45300103 | 2006/03/11 |
| EMI Test Receiver | R&S | ESCI | 100175 | 2005/11/25 |
| Preamplifier | Quietek | AP-025C | QT-AP003 | 2005/11/25 |
| Preamplifier | Quietek | AP-180C | CHM-0602013 | 2006/03/20 |
| Bilog Type Antenna | Schaffner | CBL6112B | 2932 | 2006/10/26 |
| Broad-Band Horn Antenna | Schwarzbeck | BBHA9120D | 499 | 2005/11/25 |
| Temperature/Humidity Meter | zhicheng | ZC1-2 | QT-TH002 | 2006/03/30 |

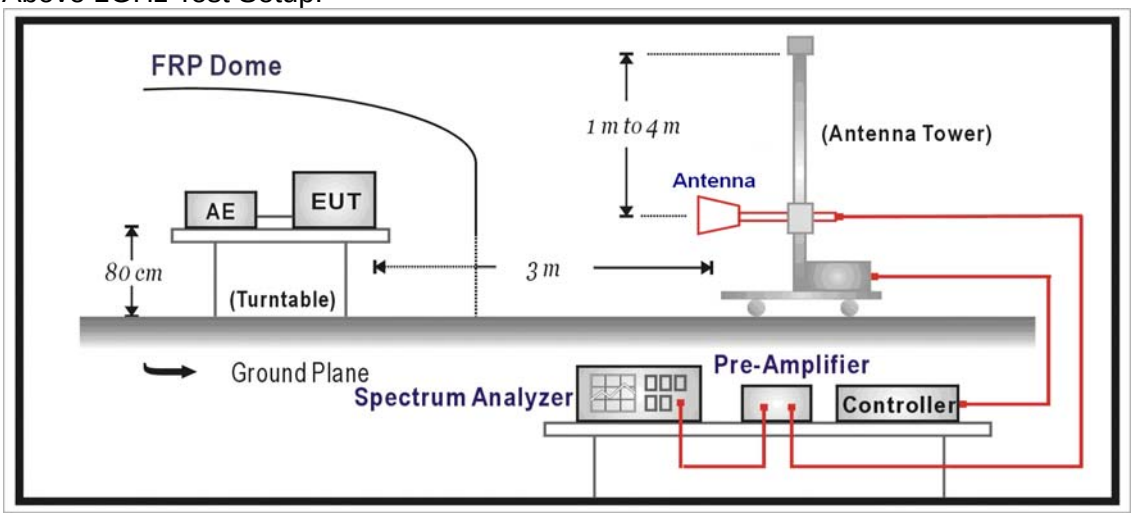
Note: All equipment upon which need to calibrated are with calibration period of 1 year.

## 5.2. Test Setup

Under 1GHz Test Setup:




Above 1GHz Test Setup:



## 5.3. 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)).

## 5.4. 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. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
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 according to ANSI C63.4:2003 on radiated measurement.
The bandwidth below 1GHz setting on the field strength meter (R&S Test Receiver ESCS 30 )is 120 kHz, above 1GHz are 1 MHz.

## 5.5. Uncertainty

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

## 5.6. Test Result of Band Edge

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

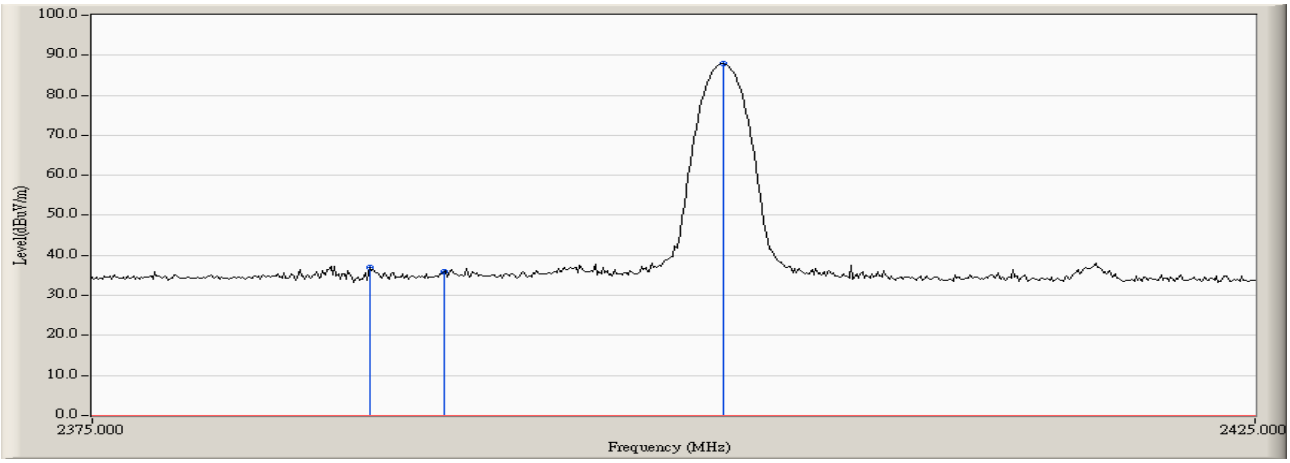
**RF Radiated Measurement:**

| 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:** (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 car kit
Test Item : Band Edge
Test Site : AC-2
Test Mode : Mode 1: Transmitter (2402MHz)

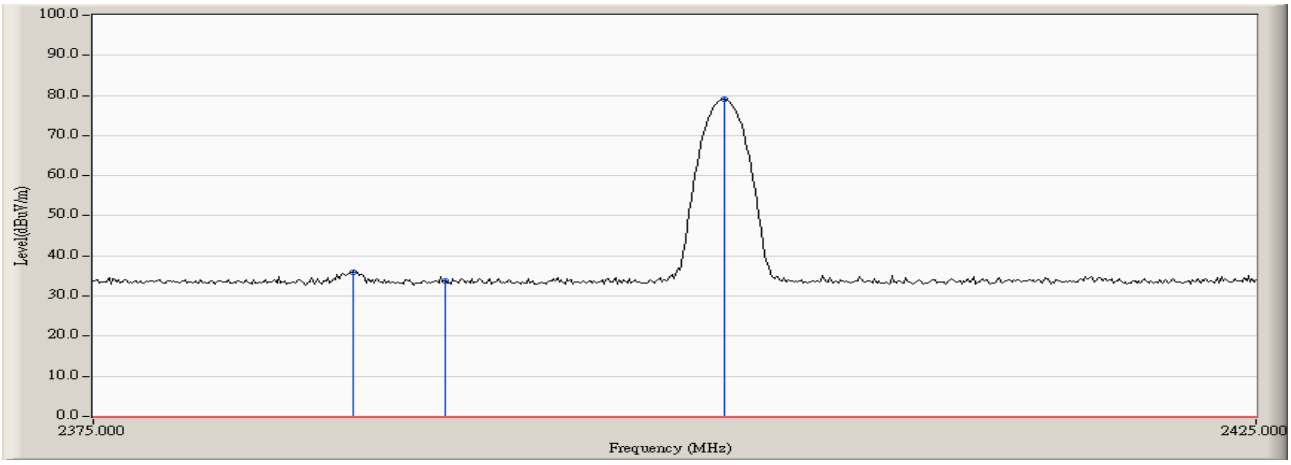
**RF Radiated Measurement:**

| 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:** (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 car kit
Test Item : Band Edge
Test Site : AC-2
Test Mode : Mode 1: Transmitter (2480MHz)

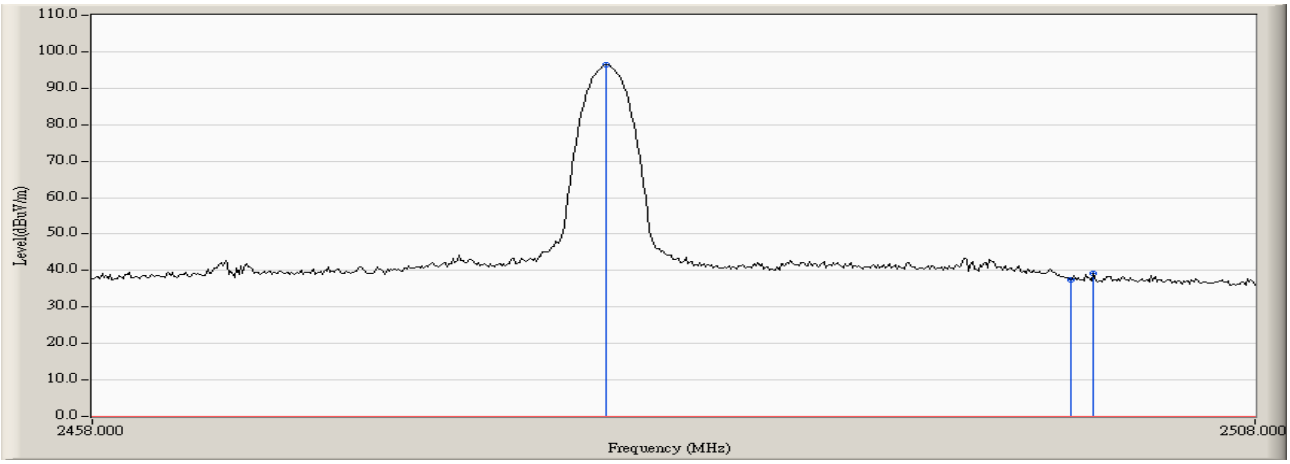
**RF Radiated Measurement:**

| 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:** (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 car kit
Test Item : Band Edge
Test Site : AC-2
Test Mode : Mode 1: Transmitter (2480MHz)

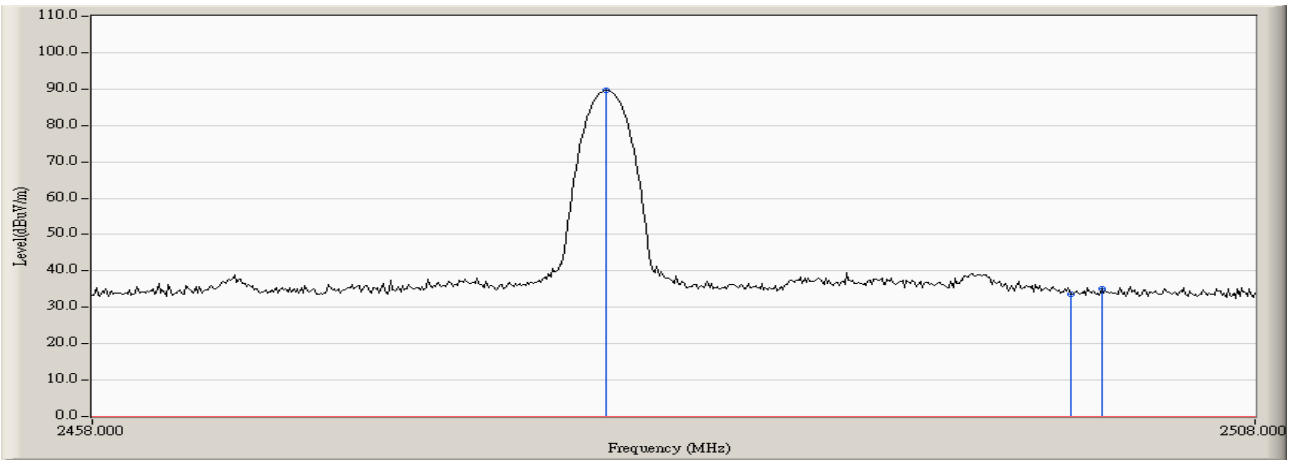
**RF Radiated Measurement:**

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

**RF Radiated Measurem**ent (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:** (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.

# 6. Channel Number

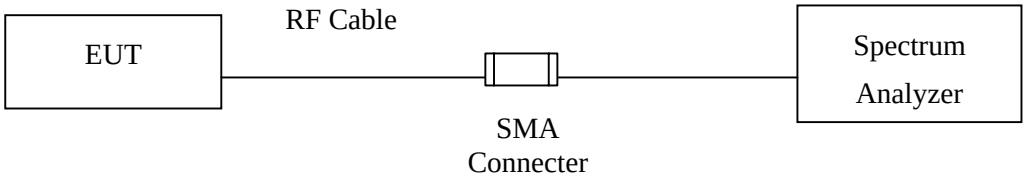
## 6.1. Test Equipment

Radiated Emission / AC-3

| Instrument | Manufacturer | Type No. | Serial No | Cal. Date |
|---|---|---|---|---|
| Spectrum Analyzer | Agilent | E4446A | MY45300103 | 2006/03/11 |

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

## 6.2. Test Setup




## 6.3. Limit

Frequency hopping systems operating in the 2400-2483.5 MHz bands shall use at least 75 hopping frequencies.

## 6.4. Uncertainty

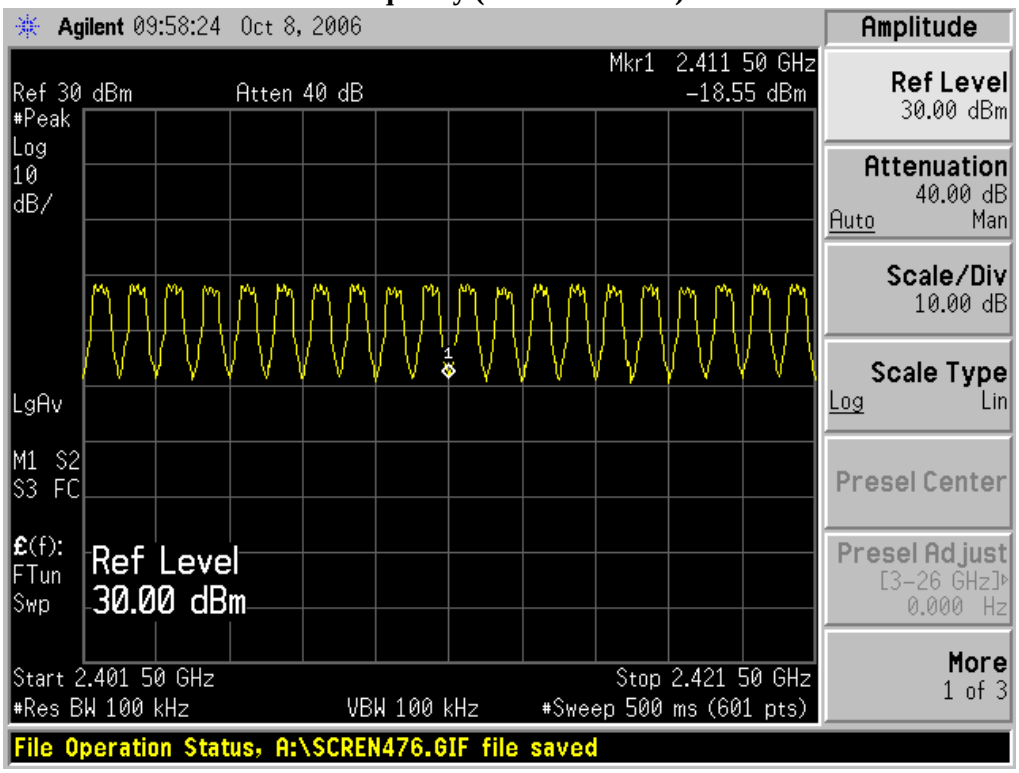
The measurement uncertainty is defined as ± 200kHz

## 6.5. Test Result of Channel Number

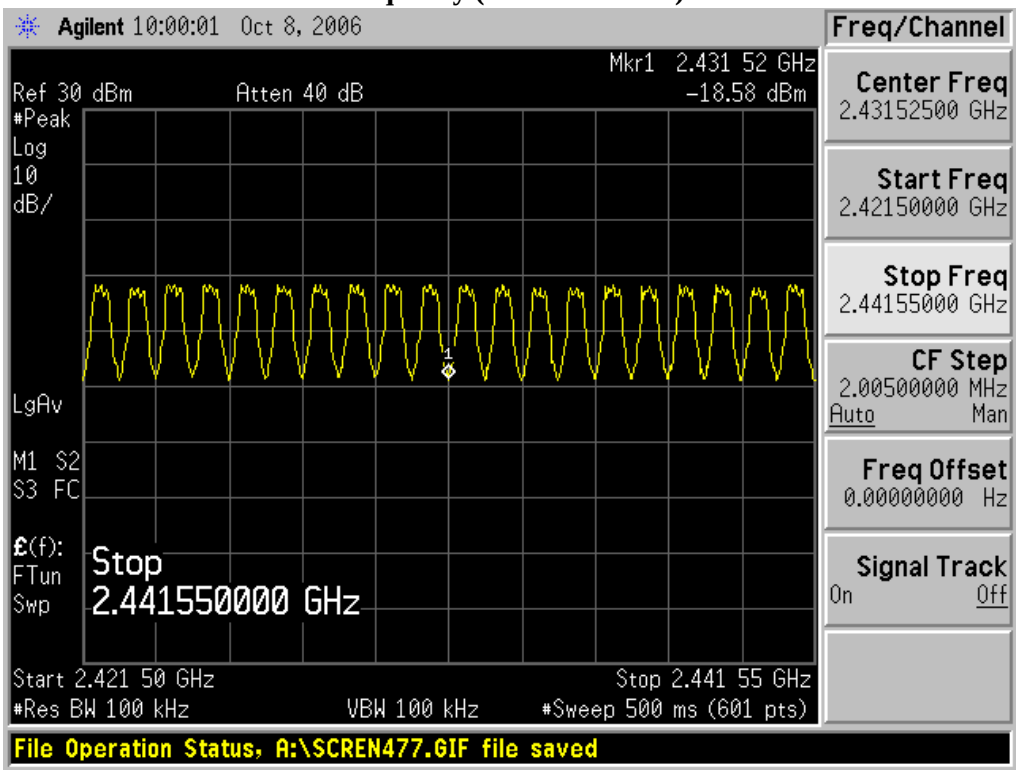
Product : Bluetooth handsfree car kit
Test Item : Channel Number
Test Site : AC-3
Test Mode : Mode 1: Transmitter

| Frequency Range (MHz) | Measurement (Hopping Channel) | Required Limit (Hopping Channel) | Result |
|---|---|---|---|
| 2402 ~ 2480 | 79 | >75 | Pass |

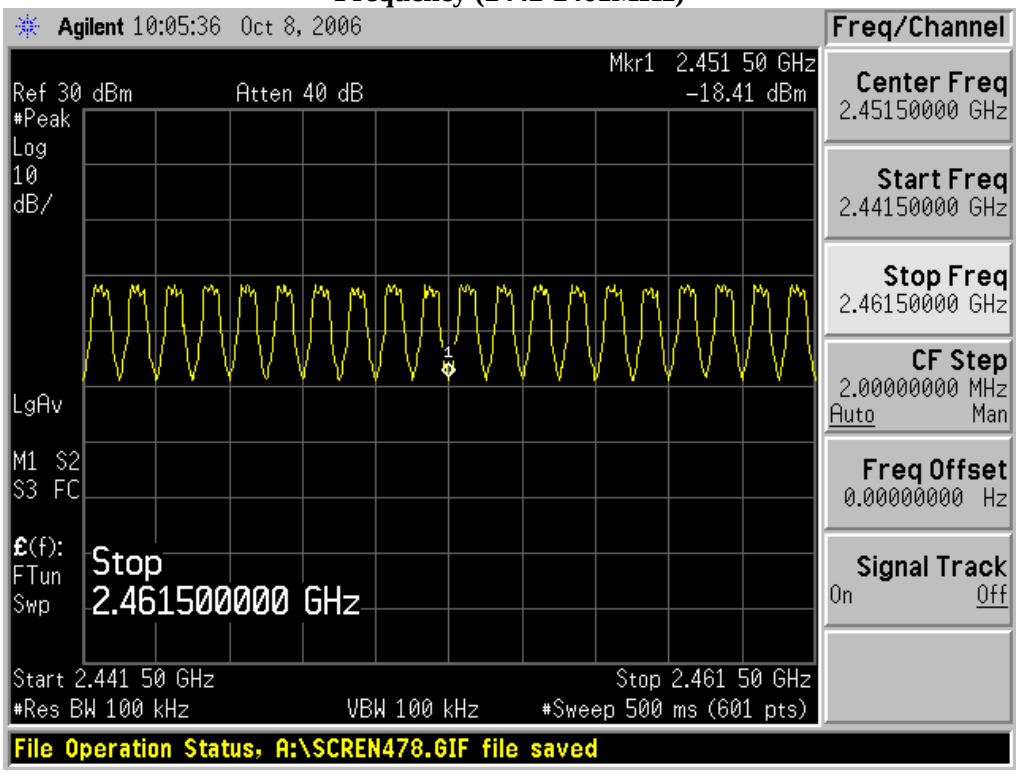
**Frequency (2402-2421MHz)**



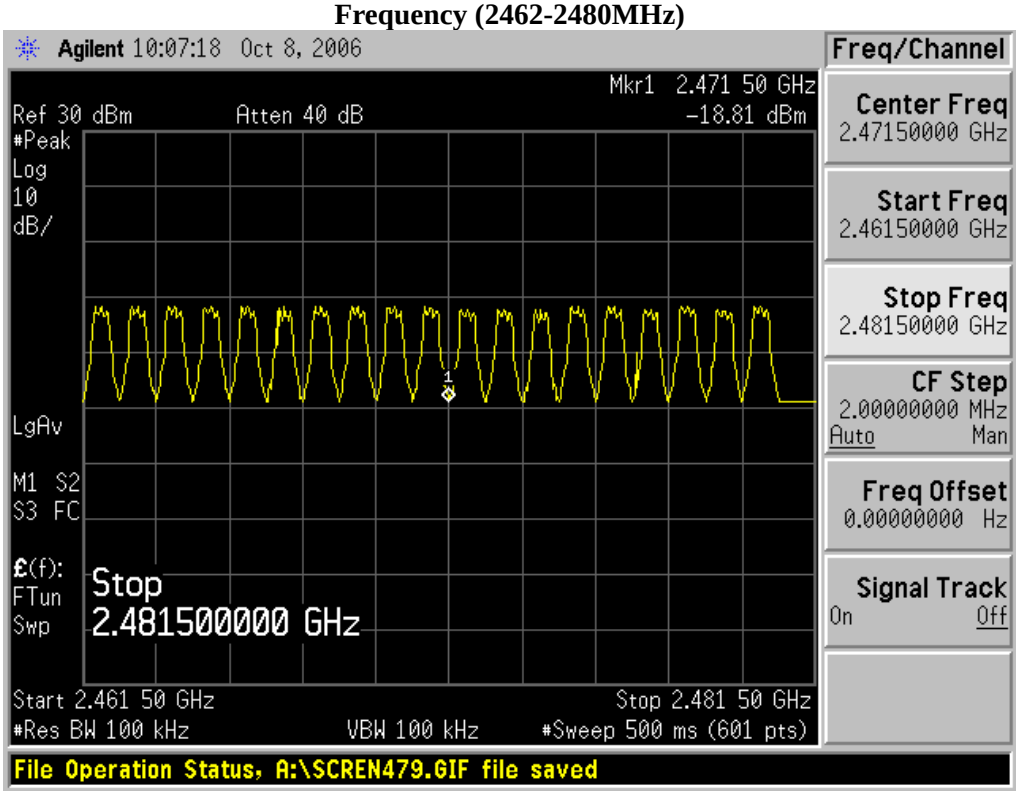
**Frequency (2422-2441MHz)**




**Frequency (2442-2461MHz)**



**Frequency (2462-2480MHz)**



# 7. Channel Separation

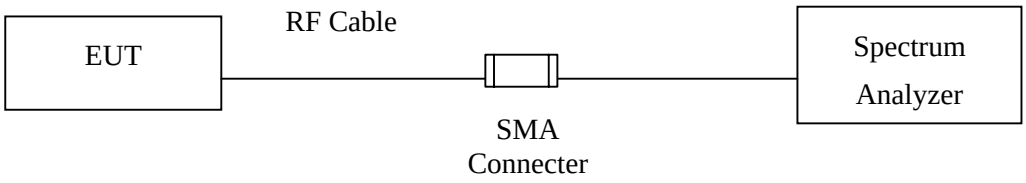
## 7.1. Test Equipment

Radiated Emission / AC-3

| Instrument | Manufacturer | Type No. | Serial No | Cal. Date |
|---|---|---|---|---|
| Spectrum Analyzer | Agilent | E4446A | MY45300103 | 2006/03/11 |

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

## 7.2. Test Setup




## 7.3. 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.

## 7.4. Uncertainty

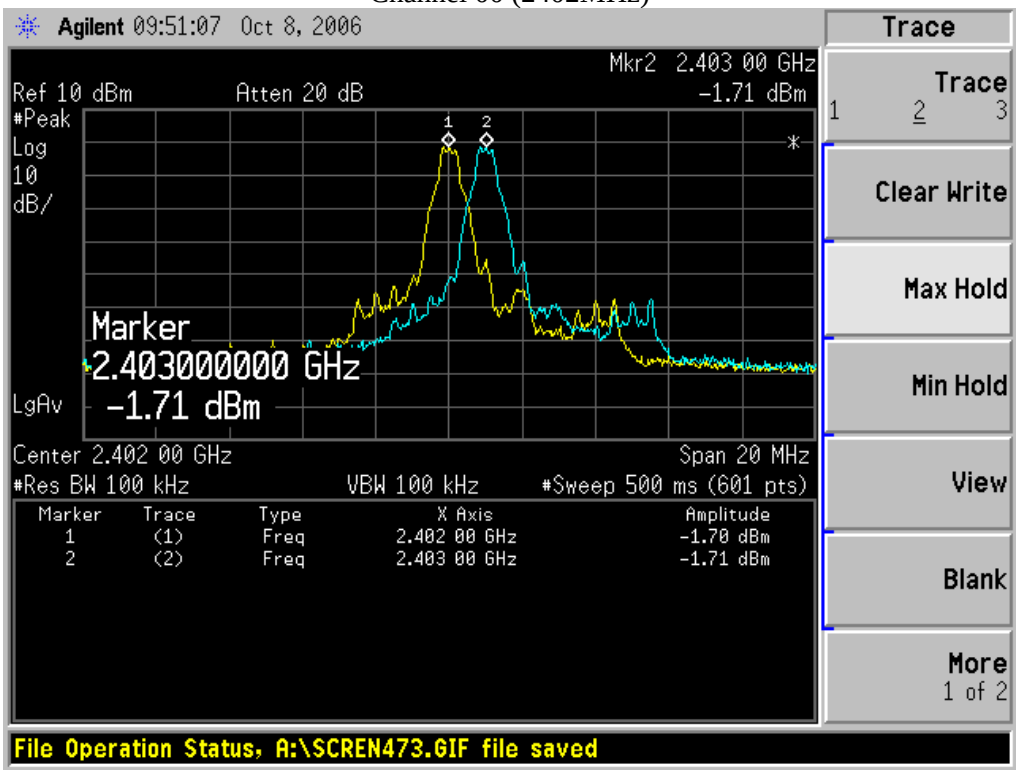
The measurement uncertainty is defined as ± 150Hz

## 7.5. Test Result of Channel Separation

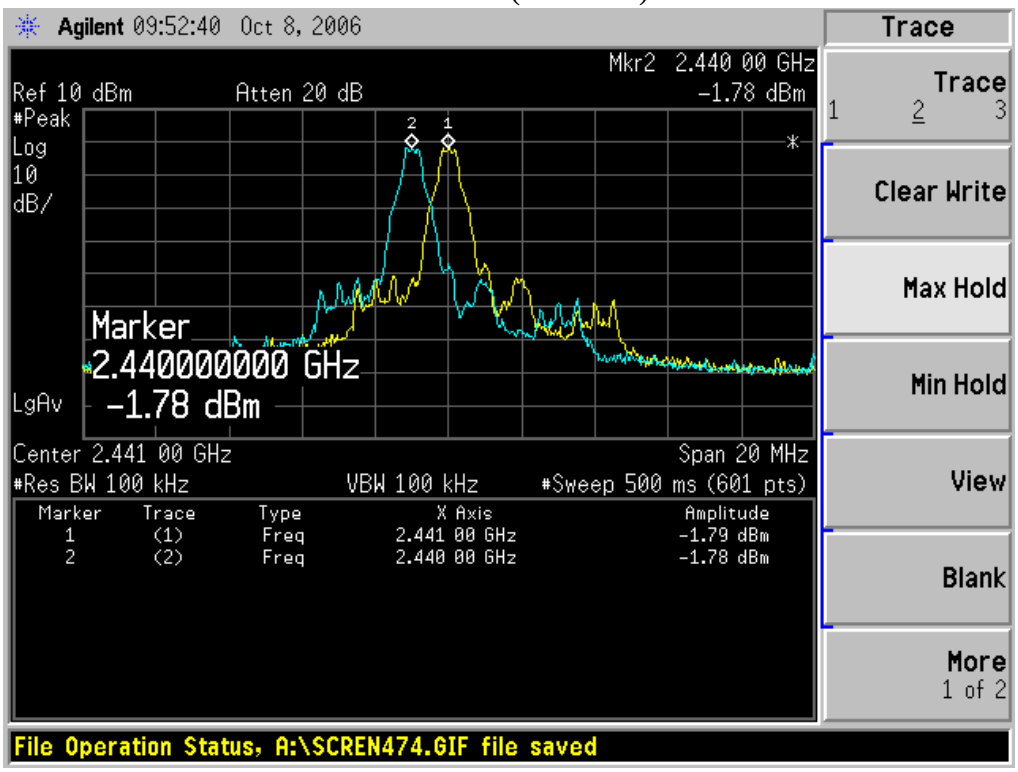
Product : Bluetooth handsfree car kit
Test Item : Channel Separation
Test Site : AC-3
Test Mode : Mode 1: Transmitter

| 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 |

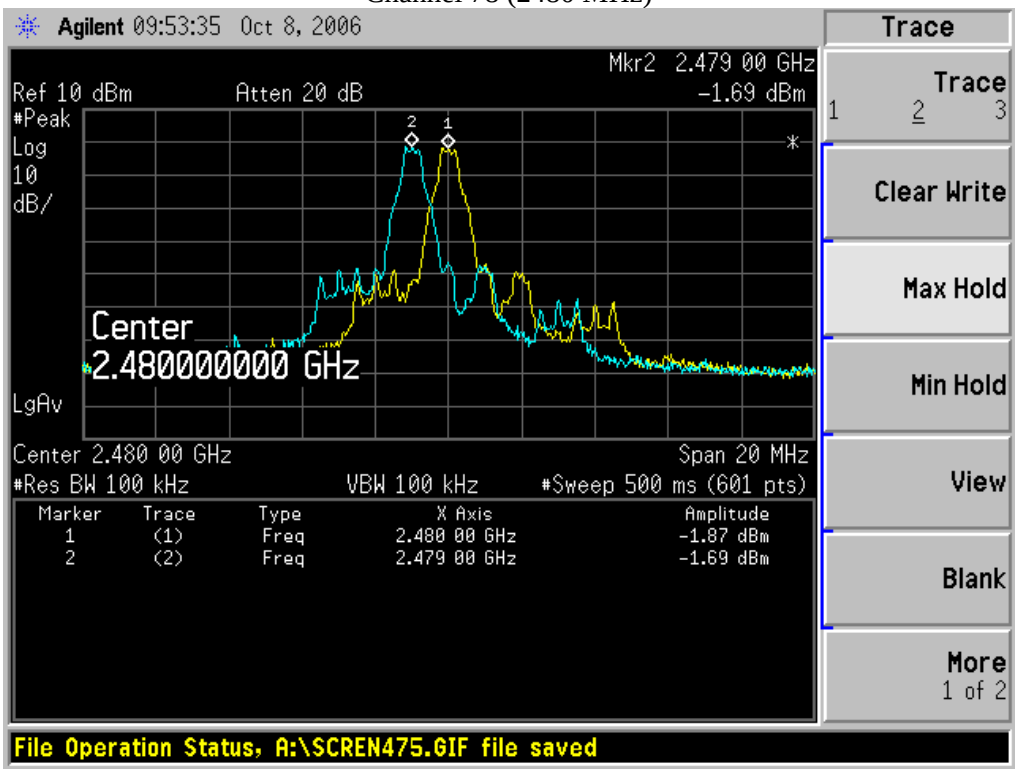
Channel 00 (2402MHz)



Channel 39 (2441MHz)




Channel 78 (2480 MHz)



# 8. Dwell Time

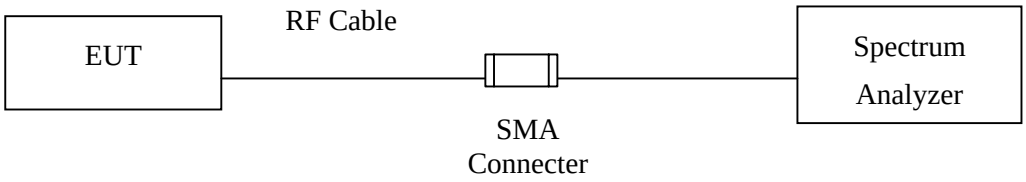
## 8.1. Test Equipment

Radiated Emission / AC-3

| Instrument | Manufacturer | Type No. | Serial No | Cal. Date |
|---|---|---|---|---|
| Spectrum Analyzer | Agilent | E4446A | MY45300103 | 2006/03/11 |

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

## 8.2. Test Setup




## 8.3. 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.

## 8.4. Uncertainty

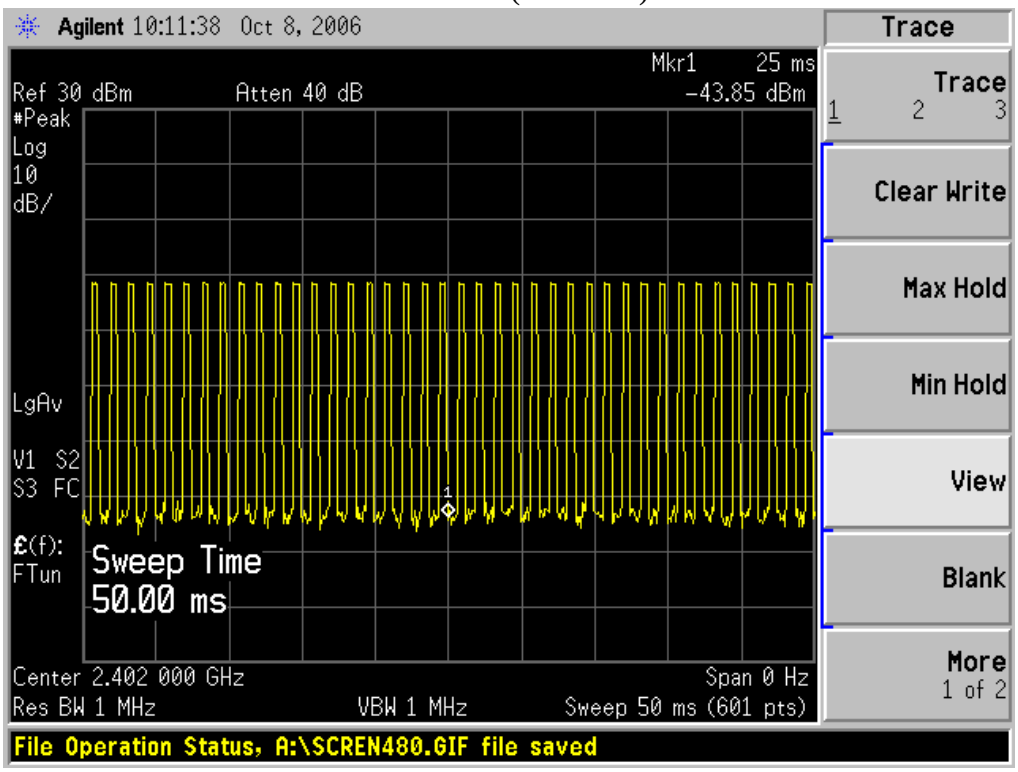
The measurement uncertainty is defined as ± 25msec

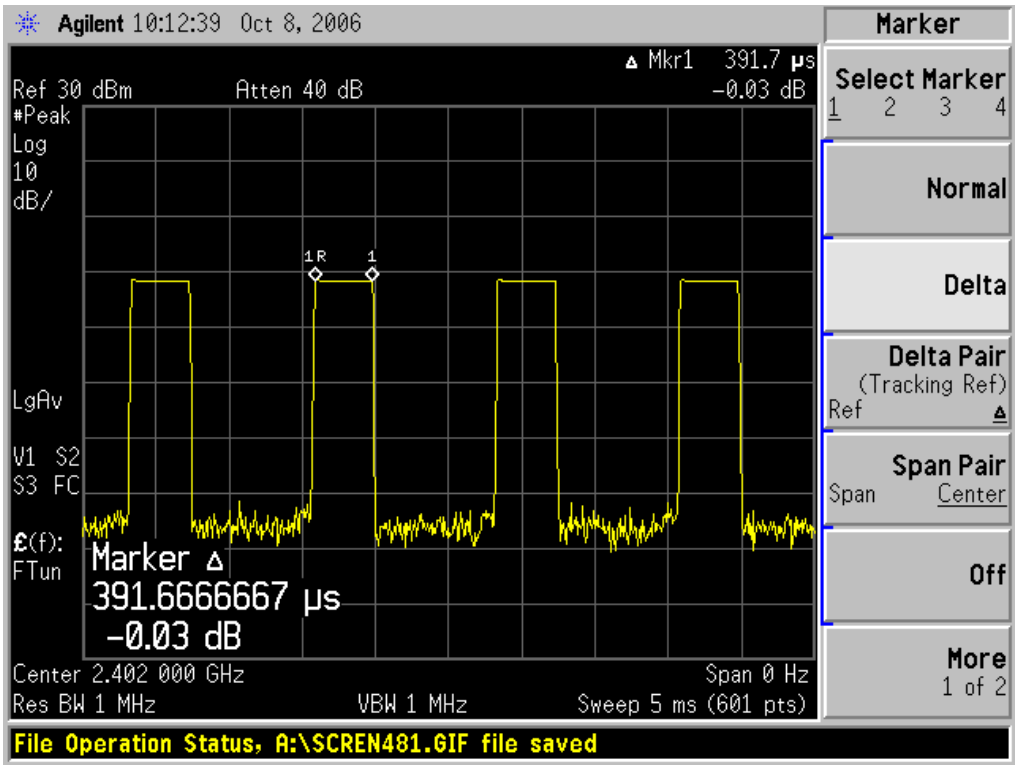
## 8.5. Test Result of Dwell Time

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

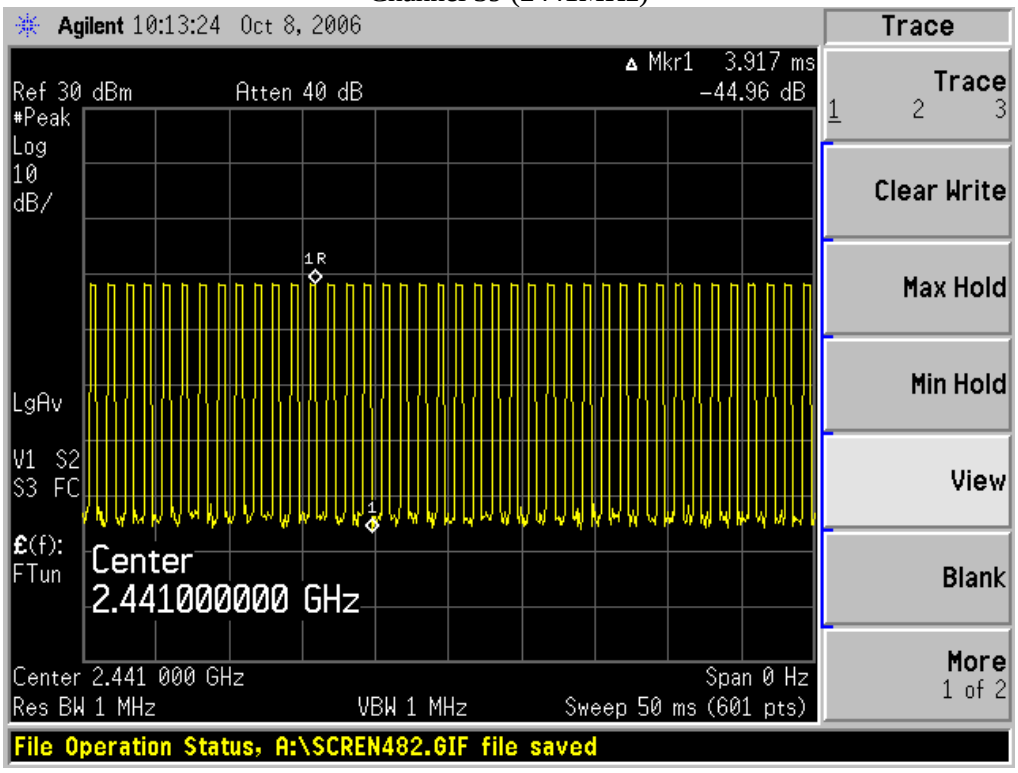
| Channel (MHz) | Measurement Level (ms) | Required Limit (sec.) | Result |
|---|---|---|---|
| CH 00 (2402) | 125.525 | < 0.4 | Pass |
| CH 39 (2441) | 125.525 | < 0.4 | Pass |
| CH 78 (2480) | 120.173 | < 0.4 | Pass |

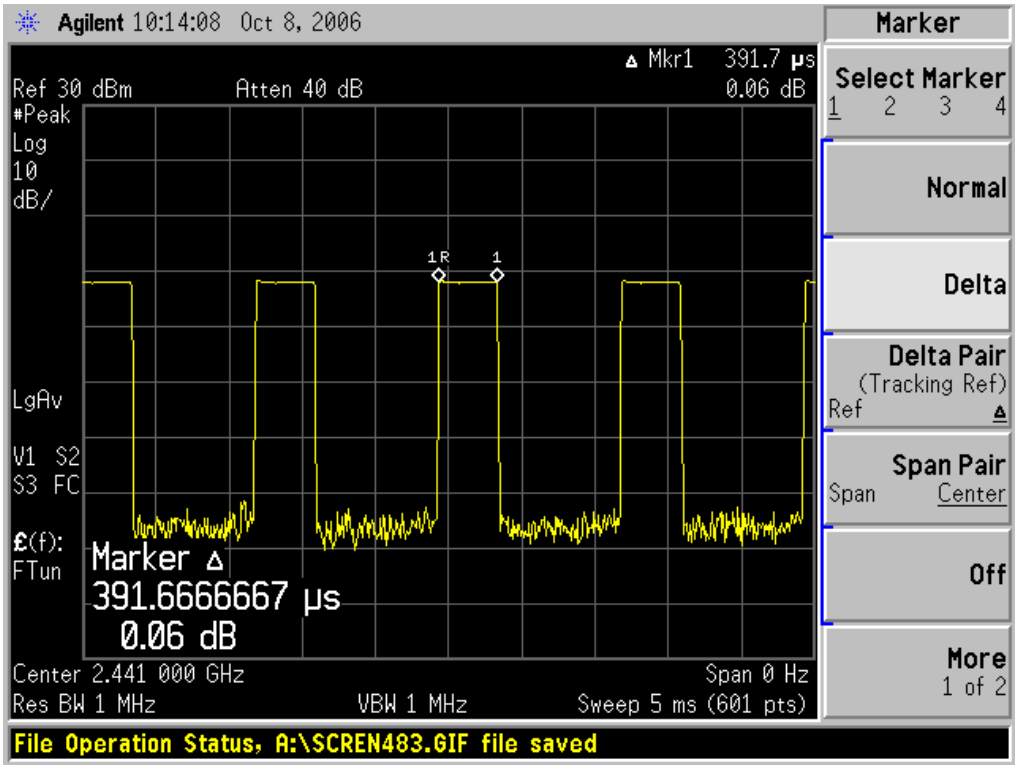
Channel 00 (2402MHz)



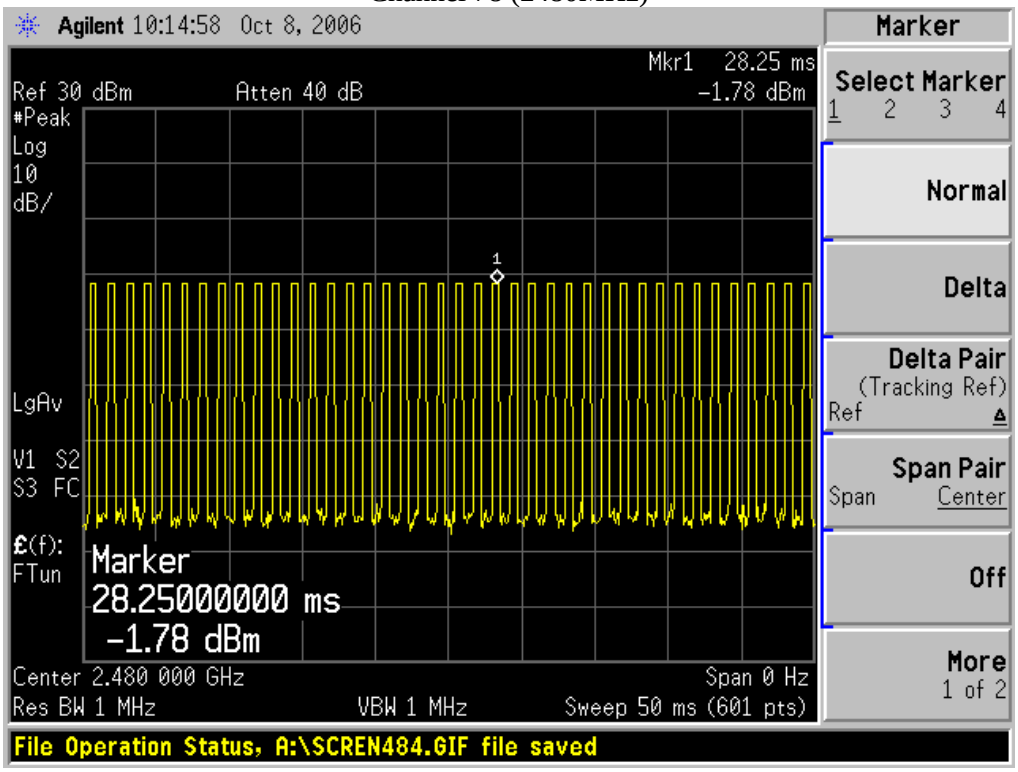



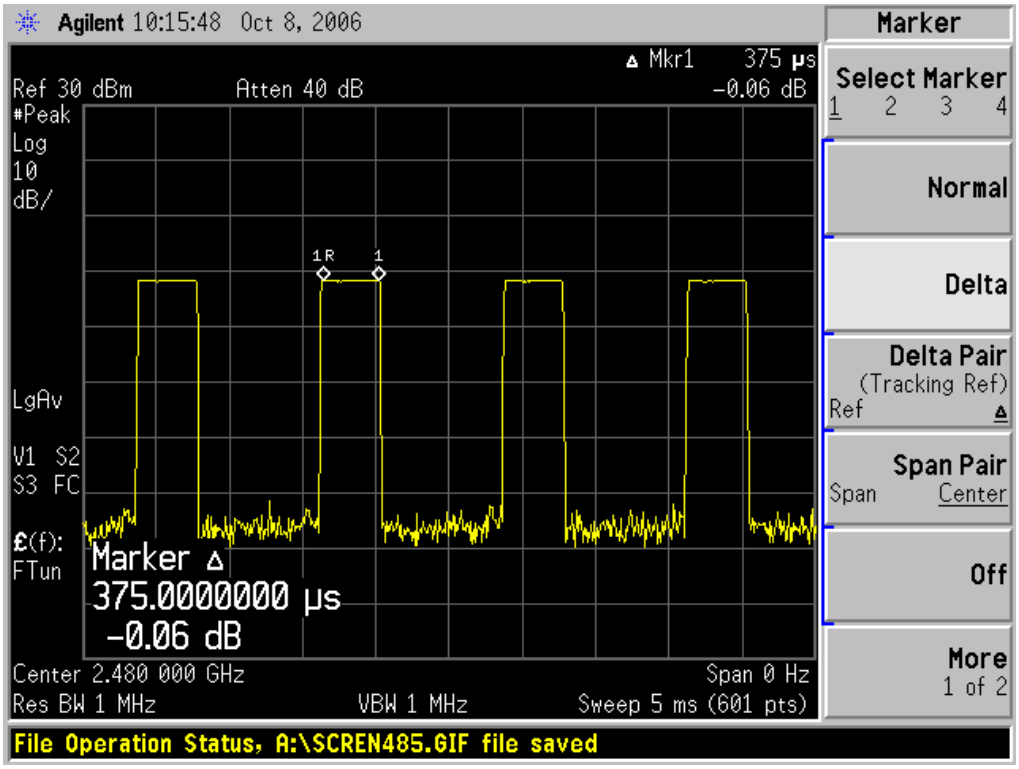
Channel 39 (2441MHz)



Channel 78 (2480MHz)



Occupancy Time of Frequency Hopping System

Test Time Period: 0.4*79=31.6sec，Hopping Times Within 1sec: 40/50msec=800 hops/sec.

A) 2402MHz The Maximum Occupancy Time Within 31.6sec: (391.7 μs*800)/79*31.6= 125.525msec。

B) 2441MHz The Maximum Occupancy Time Within 31.6sec: (391.7 μs*800)/79*31.6= 125.525msec。

C) 2480MHz The Maximum Occupancy Time Within 31.6sec: (375.0 μs*800)/79*31.6= 120.173msec。

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 0.4msec*1640/79*31.6=289.056msec

B) 2441MHz The Occupancy Time of Each Pulse is 0.4msec，The Maximum Occupancy Time within 31.6sec is 0.4msec*1640/79*31.6=289.056msec

C) 2480MHz The Occupancy Time of Each Pulse is 0.4msec，The Maximum Occupancy Time within 31.6sec is 0.4msec*1640/79*31.6=289.056msec

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

# 9. Occupied Bandwidth

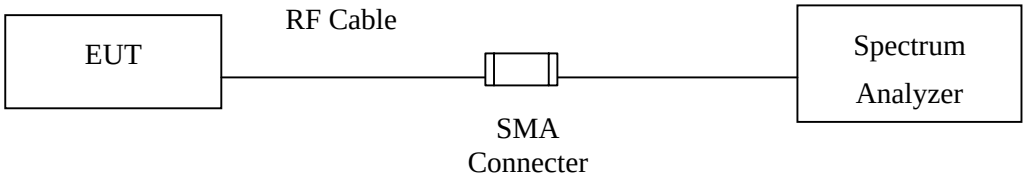
## 9.1. Test Equipment

Radiated Emission / AC-3

| Instrument | Manufacturer | Type No. | Serial No | Cal. Date |
|---|---|---|---|---|
| Spectrum Analyzer | Agilent | E4446A | MY45300103 | 2006/03/11 |

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

## 9.2. Test Setup




## 9.3. Limits

N/A

## 9.4. Uncertainty

The measurement uncertainty is defined as ± 1.27 dB

## 9.5. Test Result of Occupied Bandwidth

Product : Bluetooth handsfree carkit
Test Item : Occupied Bandwidth Data
Test Site : AC-3
Test Mode : Mode 1: Transmitter (2402MHz)

| Channel No. | Frequency (MHz) | Measurement Level (kHz) | Required Limit (kHz) | Result |
|---|---|---|---|---|
| 00 | 2402 | 1120 | N/A | Pass |
| 39 | 2441 | 1130 | N/A | Pass |
| 78 | 2480 | 1120 | N/A | Pass |

Figure Channel 00 (2402MHz)

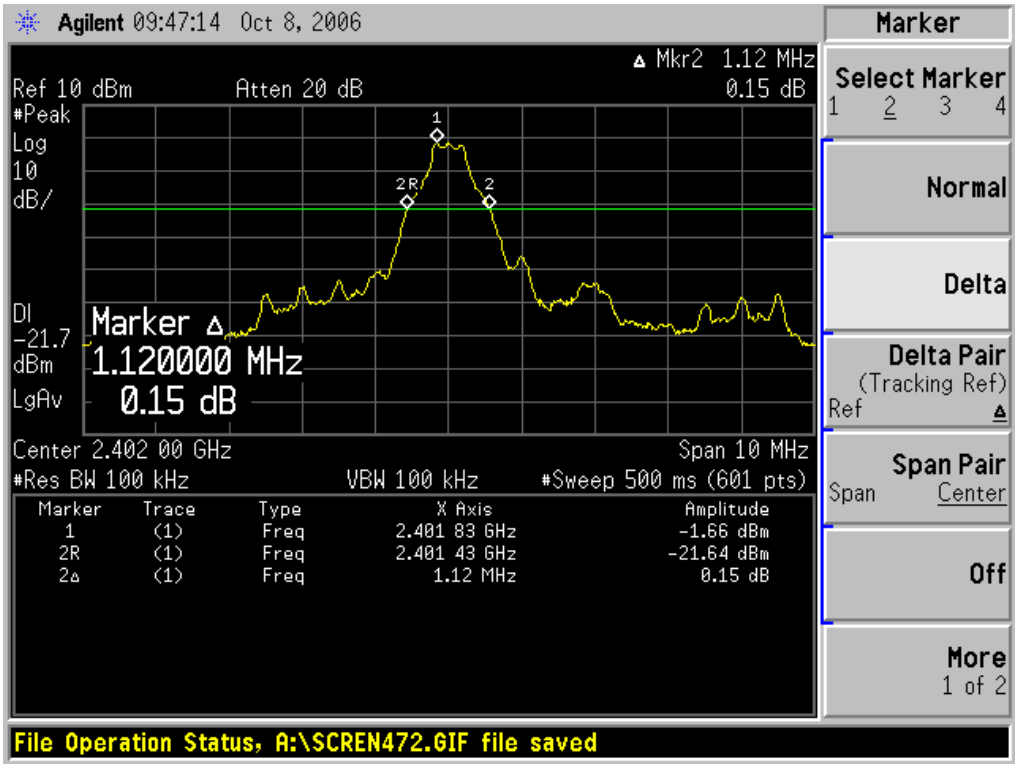


Figure Channel 39 (2441MHz)

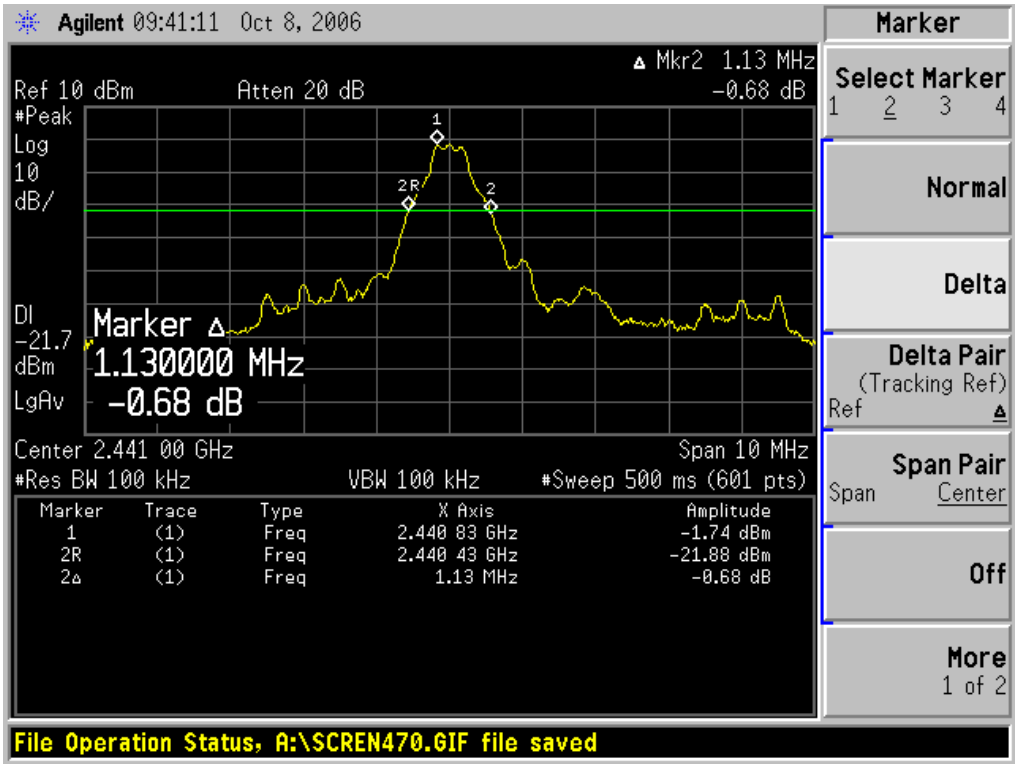
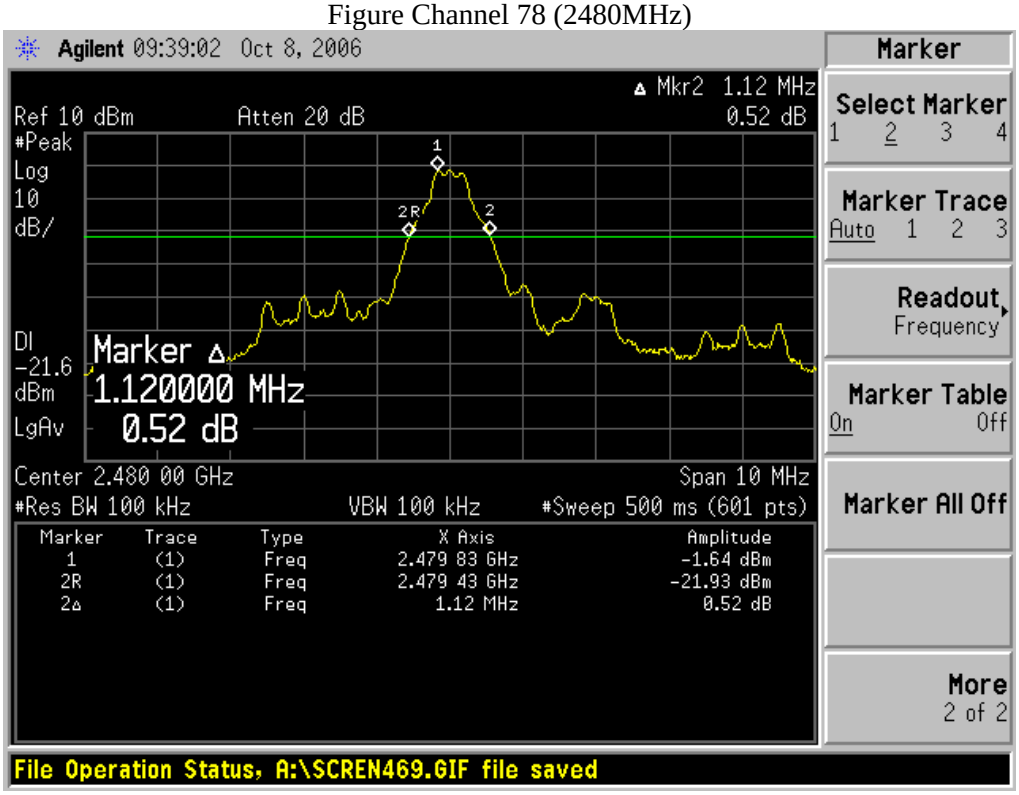



Figure Channel 78 (2480MHz)



## 10. EMI Reduction Method During Compliance Testing

No modification was made during testing.