



Test Report

Product Name : Digital Wireless Microphone
Model No. : TF-102
FCC ID. : Y63TWK

Applicant : TWINKLE.SHARE CO., LTD
Address : No.15, Ln.185, Huanhe St., Xizhi Dist., New Taipei City 221,
Taiwan (R.O.C.)

Date of Receipt : 2010/12/20
Issued Date : 2011/02/24
Report No. : 111202R-RFUSP43V01
Report Version : V1.0

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.

Test Report Certification

Issued Date : 2011/02/24

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 Applicant : TWINKLE.SHARE CO., LTD
 Address : No.15, Ln.185, Huanhe St., Xizhi Dist., New Taipei City 221,
 Taiwan (R.O.C.)
 Manufacturer : TWINKLE.SHARE CO., LTD
 Model No. : TF-102
 FCC ID. : Y63TWK
 EUT Voltage : DC 3V (Power by Battery)
 Trade Name : TWK
 Applicable Standard : FCC CFR Title 47 Part 15 Subpart C Section 15.247: 2009
 Test Result : Complied

The test results relate only to the samples tested.

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Documented By : Sandy Chuang

(Sandy Chuang / Adm. Specialist)

Tested By : Ben Huang

(Ben Huang / Engineer)

Approved By : Roy Wang

(Roy Wang / Manager)

TABLE OF CONTENTS

| Description | Page |
|---|-----------|
| 1. General Information | 5 |
| 1.1. EUT Description | 5 |
| 1.2. Operational Description | 7 |
| 1.3. Test Mode | 8 |
| 1.4. Tested System Details | 9 |
| 1.5. Configuration of tested System | 9 |
| 1.6. EUT Exercise Software | 9 |
| 1.7. Test Facility | 10 |
| 2. Peak Power Output | 12 |
| 2.1. Test Equipment | 12 |
| 2.2. Test Setup | 12 |
| 2.3. Test procedures | 12 |
| 2.4. Limits | 12 |
| 2.5. Test Specification | 12 |
| 2.6. Uncertainty | 12 |
| 2.7. Test Result | 13 |
| 3. Radiated Emission | 16 |
| 3.1. Test Equipment | 16 |
| 3.2. Test Setup | 16 |
| 3.3. Limits | 17 |
| 3.4. Test Procedure | 17 |
| 3.5. Test Specification | 18 |
| 3.6. Uncertainty | 18 |
| 3.7. Test Result | 19 |
| 3.8. Test Photo | 33 |
| 4. RF Conducted Emission | 35 |
| 4.1. Test Equipment | 35 |
| 4.2. Test Setup | 35 |
| 4.3. Limits | 36 |
| 4.4. Test Procedure | 36 |
| 4.5. Test Specification | 36 |
| 4.6. Test Result | 37 |
| 5. Band Edge | 43 |
| 5.1. Test Equipment | 43 |
| 5.2. Test Setup | 43 |
| 5.3. Limits | 44 |
| 5.4. Test Procedure | 44 |
| 5.5. Test Specification | 44 |
| 5.6. Uncertainty | 44 |
| 5.7. Test Result | 45 |
| 6. Number of hopping frequency | 53 |
| 6.1. Test Equipment | 53 |
| 6.2. Test Setup | 53 |

| | | |
|-----------|---|-----------|
| 6.3. | Limits | 54 |
| 6.4. | Test Procedures | 54 |
| 6.5. | Test Specification..... | 54 |
| 6.6. | Test Result..... | 55 |
| 7. | Carrier Frequency Separation | 57 |
| 7.1. | Test Equipment..... | 57 |
| 7.2. | Test Setup | 57 |
| 7.3. | Limits | 57 |
| 7.4. | Test Procedures | 57 |
| 7.5. | Test Specification..... | 57 |
| 7.6. | Test Result..... | 58 |
| 8. | Occupied Bandwidth | 61 |
| 8.1. | Test Equipment..... | 61 |
| 8.2. | Test Setup | 61 |
| 8.3. | Limits | 62 |
| 8.4. | Test Procedures | 62 |
| 8.5. | Test Specification..... | 62 |
| 8.6. | Test Result..... | 63 |
| 9. | Dwell Time..... | 66 |
| 9.1. | Test Equipment..... | 66 |
| 9.2. | Test Setup | 66 |
| 9.3. | Limits | 67 |
| 9.4. | Test Procedures | 67 |
| 9.5. | Test Specification..... | 67 |
| 9.6. | Test Result..... | 68 |
| | Attachement | 71 |
| | EUT Photograph..... | 71 |

1. General Information

1.1. EUT Description

| | |
|--------------------|-----------------------------|
| Product Name | Digital Wireless Microphone |
| Trade Name | TWK |
| Model No. | TF-102 |
| Frequency Range | 2408 MHz ~ 2475.5MHz |
| Channel Number | 28 |
| Type of Modulation | GFSK |
| Channel Control | Auto |
| Antenna Type | Dipole Antenna |
| Antenna Gain | 1.2dBi |

| Search for 28CH | Frequency(MHz) | Search for 28CH | Frequency(MHz) |
|-----------------|----------------|-----------------|----------------|
| CH0 | 2408 | CH14 | 2450.5 |
| CH1 | 2425.5 | CH15 | 2468 |
| CH2 | 2443 | CH16 | 2418 |
| CH3 | 2460.5 | CH17 | 2435.5 |
| CH4 | 2410.5 | CH18 | 2453 |
| CH5 | 2428 | CH19 | 2470.5 |
| CH6 | 2445.5 | CH20 | 2420.5 |
| CH7 | 2463 | CH21 | 2438 |
| CH8 | 2413 | CH22 | 2455.5 |
| CH9 | 2430.5 | CH23 | 2473 |
| CH10 | 2448 | CH24 | 2423 |
| CH11 | 2465.5 | CH25 | 2440.5 |
| CH12 | 2415.5 | CH26 | 2458 |
| CH13 | 2433 | CH27 | 2475.5 |

Note:

1. This device is a Digital Wireless Microphone included a 2.4GHz transmitting.
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, and then shown on this report.
4. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.
5. This device is a composite device in accordance with Part 15 regulations. The function receiving was measured and made a test report that the report number is 111202R-RFUSP37V02 under Declaration of Conformity.

1.3. Test Mode

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

| | |
|-----------------|--------------------------|
| Pre-Test Mode | |
| EMI | Mode 1: Transmitter (TX) |
| Final Test Mode | |
| EMI | Mode 1: Transmitter (TX) |

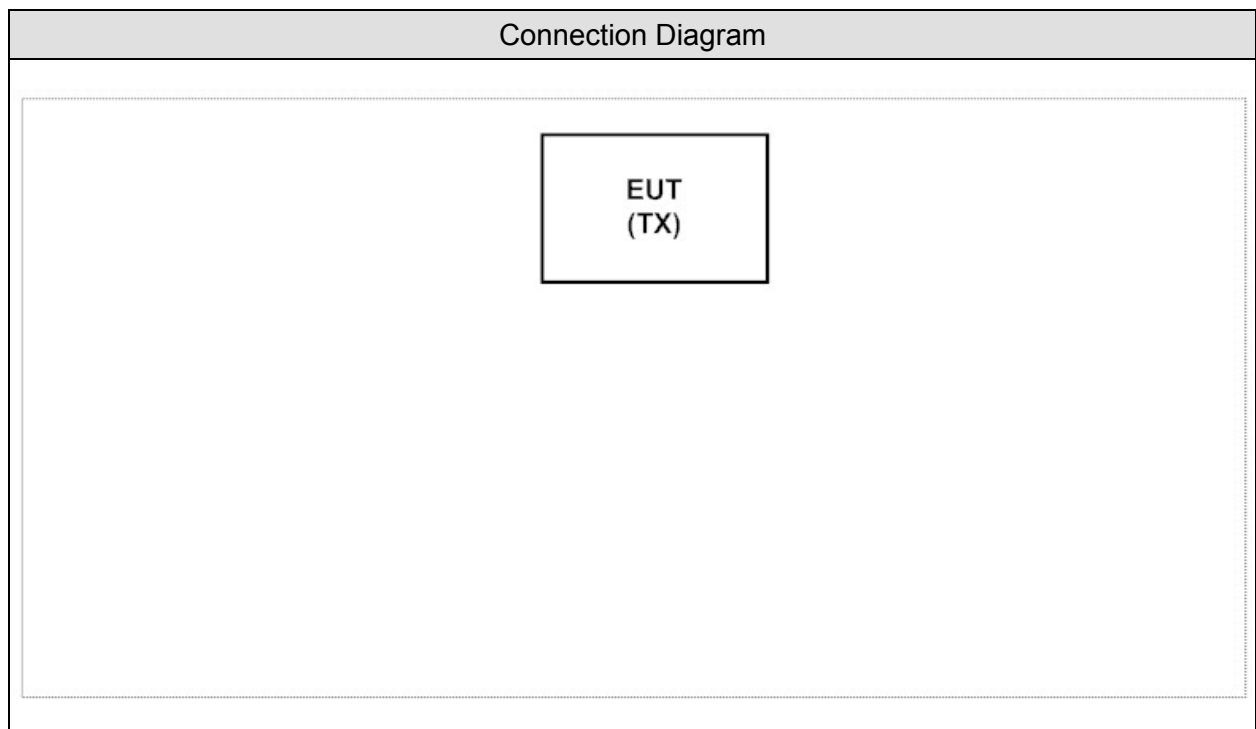
| Emission | |
|--------------------|-----|
| Conducted Emission | No |
| Peak Power Output | Yes |
| Radiated Emission | Yes |
| Band Edge | Yes |
| Channel of Number | Yes |
| Channel Separation | Yes |
| Occupied Bandwidth | Yes |
| Dwell Time | Yes |

1.4. Tested System Details

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

| | |
|-----------|--------------------------|
| Test Mode | Mode 1: Transmitter (TX) |
| N/A | |

1.5. Configuration of tested System



1.6. EUT Exercise Software

| | |
|---|---|
| 1 | Setup the EUT and simulators as shown on 1.5. |
| 2 | Turn on the power of all equipment. |
| 3 | The transmitter will continue transmit through as the receiver. |
| 4 | Repeat at the above procedure (3). |

1.7. Test Facility

Ambient conditions in the laboratory:

| Items | Test Item | Required (IEC 68-1) | Actual |
|----------------------------|---|---------------------|----------|
| Temperature (°C) | FCC PART 15 C 15.207 Conducted Emission | 15 - 35 | 25 |
| Humidity (%RH) | | 25 - 75 | 50 |
| Barometric pressure (mbar) | | 860 - 1060 | 950-1000 |
| Temperature (°C) | FCC PART 15 C 15.247 Peak Power Output (FHSS) | 15 - 35 | 25 |
| Humidity (%RH) | | 25 - 75 | 58 |
| Barometric pressure (mbar) | | 860 - 1060 | 950-1000 |
| Temperature (°C) | FCC PART 15 C 15.247 Radiated Emission (FHSS) | 15 - 35 | 25 |
| Humidity (%RH) | | 25 - 75 | 54 |
| Barometric pressure (mbar) | | 860 - 1060 | 950-1000 |
| Temperature (°C) | FCC PART 15 C 15.247 Band Edge (FHSS) | 15 - 35 | 25 |
| Humidity (%RH) | | 25 - 75 | 50 |
| Barometric pressure (mbar) | | 860 - 1060 | 950-1000 |
| Temperature (°C) | FCC PART 15 C 15.247 Channel Of Number (FHSS) | 15 - 35 | 25 |
| Humidity (%RH) | | 25 - 75 | 53 |
| Barometric pressure (mbar) | | 860 - 1060 | 950-1000 |
| Temperature (°C) | FCC PART 15 C 15.247 Channel Separation (FHSS) | 15 - 35 | 25 |
| Humidity (%RH) | | 25 - 75 | 54 |
| Barometric pressure (mbar) | | 860 - 1060 | 950-1000 |
| Temperature (°C) | FCC PART 15 C 15.247 Occupied Bandwidth (FHSS) | 15 - 35 | 24 |
| Humidity (%RH) | | 25 - 75 | 57 |
| Barometric pressure (mbar) | | 860 - 1060 | 950-1000 |
| Temperature (°C) | FCC PART 15 C 15.247 Dwell Time (FHSS) | 15 - 35 | 25 |
| Humidity (%RH) | | 25 - 75 | 58 |
| Barometric pressure (mbar) | | 860 - 1060 | 950-1000 |

Site Description: September 27, 2010 File on
Federal Communications Commission
Laboratory Division
7435 Oakland Mills Road
Columbia, MD 21046
Registration Number: 365520



Accredited by TAF
Accreditation Number: 1313
Effective through: December 27, 2013



Accredited by NVLAP
NVLAP Lab Code: 200347-0
Effective through: September 30, 2011



Site Name: Quietek Corporation

Site Address: No.75-1, Wang-Yeh Valley, Yung-Hsing,
Chiung-Lin, Hsin-Chu County,
Taiwan, R.O.C.
TEL : 886-3-592-8858 / FAX : 886-3-592-8859
E-Mail : service@quietek.com

2. Peak Power Output

2.1. Test Equipment

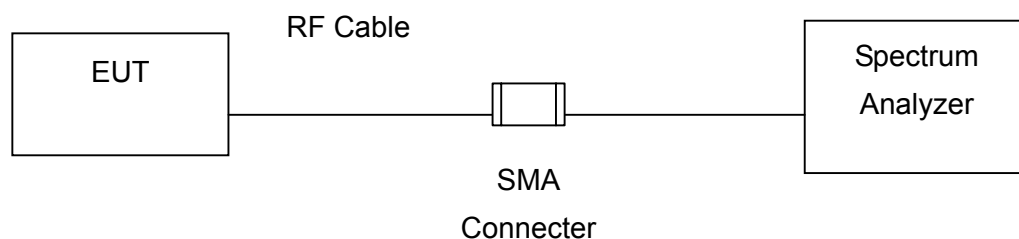
The following test equipments are used during the test:

Peak Power / SR7

| Instrument | Manufacturer | Model No. | Serial No | Next Cal. Date |
|-------------------|--------------|-----------|-----------|----------------|
| Spectrum Analyzer | R&S | FSP | 100561 | 2012/01/16 |

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

2.2. Test Setup



2.3. Test procedures

The EUT was setup according to ANSI C63.4, 2009 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements

2.4. Limits

For frequency hopping systems operating in the 902-928 MHz band: 1 Watt for systems employing at least 50 hopping channels; and, 0.25 Watts for systems employing less than 50 hopping channels.

For frequency hopping systems in the 2400-2483.5 MHz band employing at least 75 hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1Watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 Watt.

2.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2009

2.6. Uncertainty

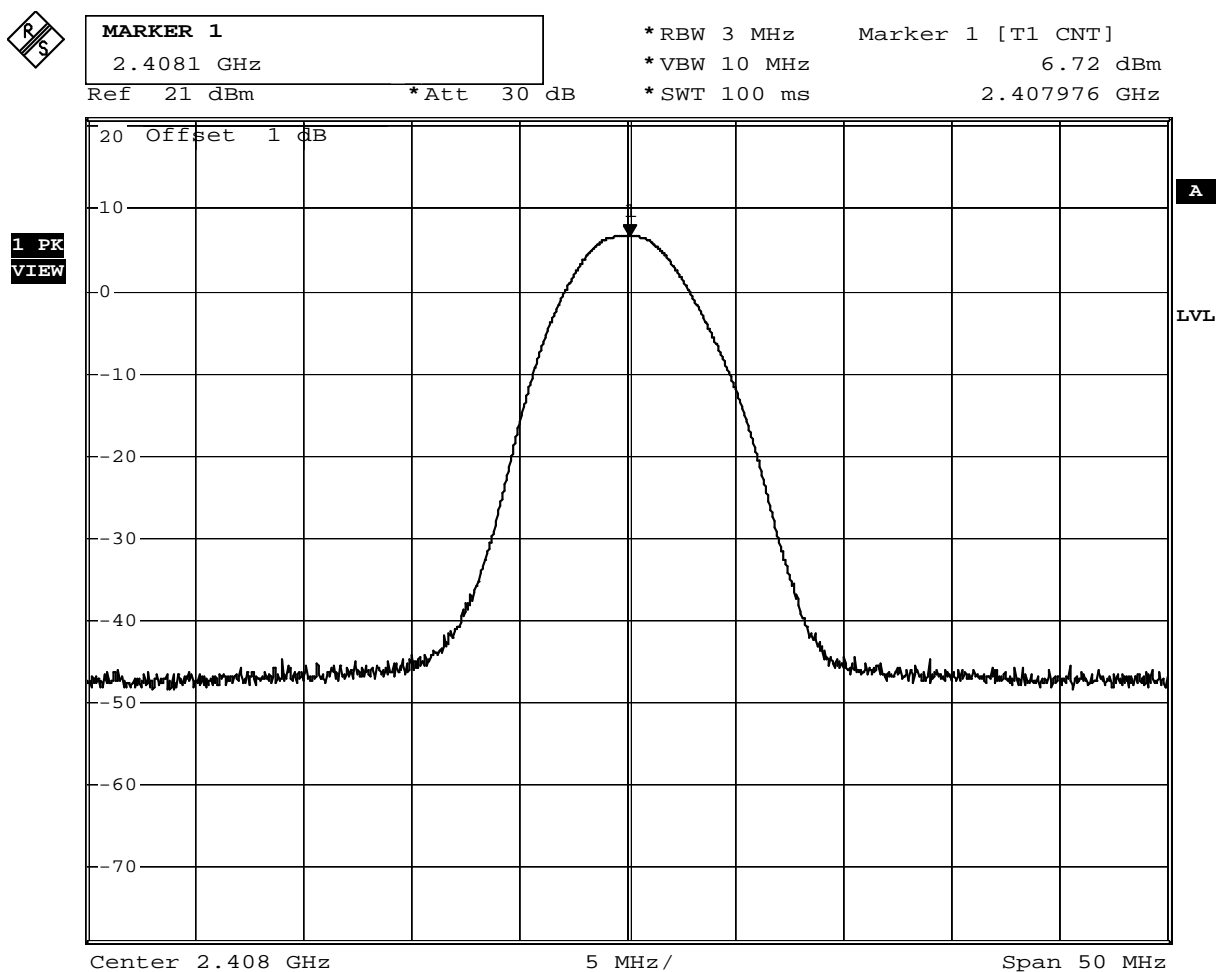
The measurement uncertainty is defined as ± 1.27 dB.

2.7. Test Result

| | | | |
|--------------|-----------------------------|-----------|-----|
| Product | Digital Wireless Microphone | | |
| Test Item | Peak Power Output | | |
| Test Mode | Mode 1: Transmitter (TX) | | |
| Date of Test | 2011/03/22 | Test Site | SR7 |

| Channel No. | Frequency (MHz) | Measure Level (dBm) | Limit (dBm) | Result |
|-------------|-----------------|---------------------|---------------|--------|
| 00 | 2408.0 | 6.72 | 1Watt= 30 dBm | Pass |
| 25 | 2440.5 | 6.78 | 1Watt= 30 dBm | Pass |
| 27 | 2475.5 | 5.89 | 1Watt= 30 dBm | Pass |

Channel 00



Date: 22.MAR.2011 13:43:11

Channel 25

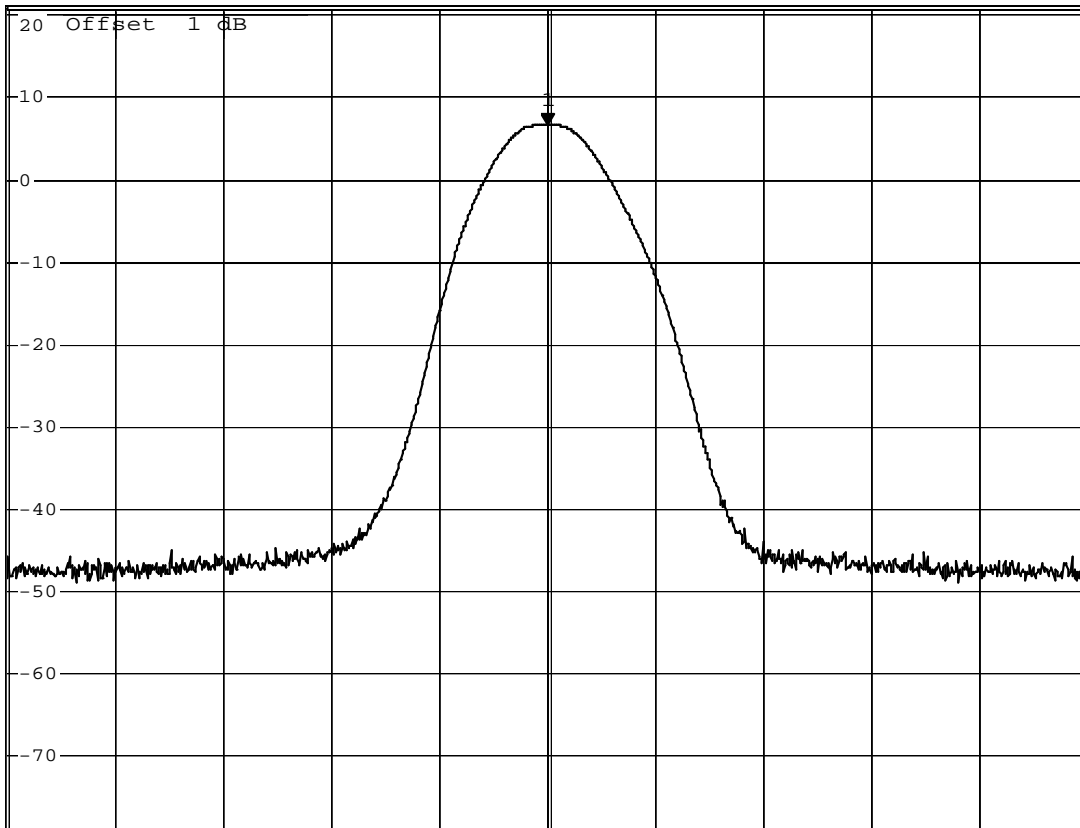


MARKER 1
2.4405 GHz

*RBW 3 MHz Marker 1 [T1 CNT]
*VBW 10 MHz 6.78 dBm
*SWT 100 ms 2.440476 GHz

Ref 21 dBm *Att 30 dB

1 PK
VIEW



Center 2.4405 GHz

5 MHz /

Span 50 MHz

Date: 22.MAR.2011 13:44:30

Channel 27

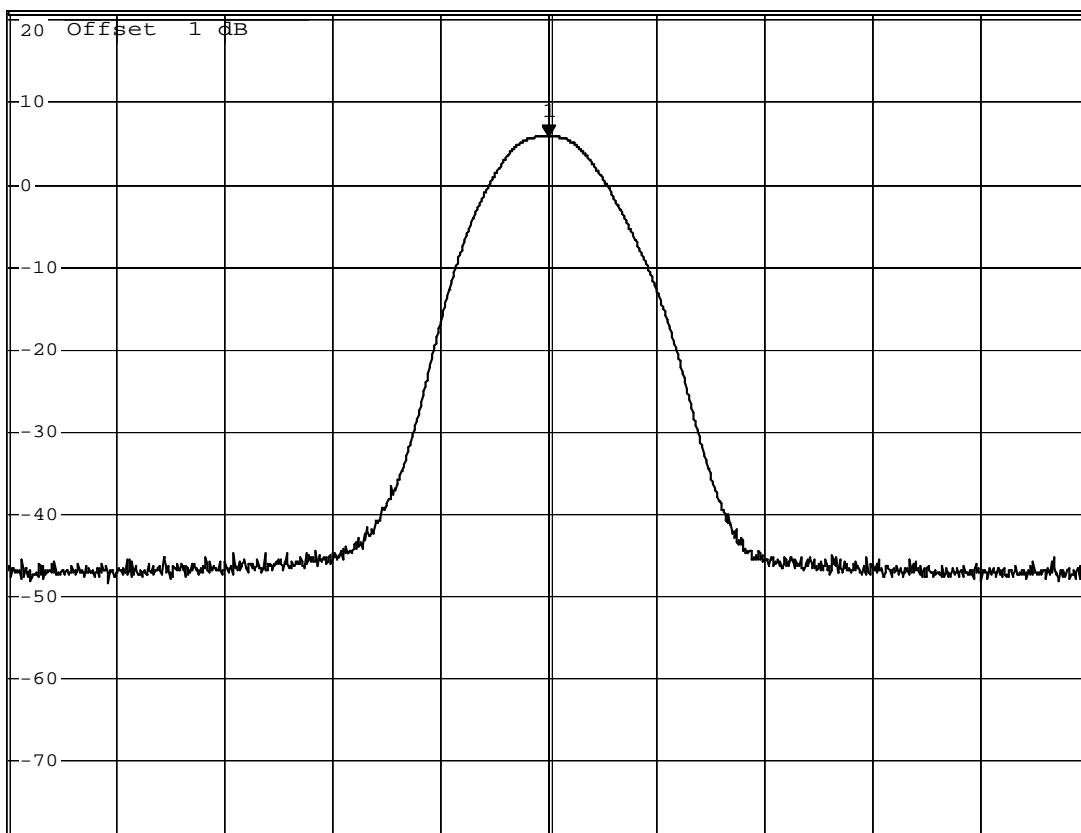


MARKER 1
2.4755 GHz

Ref 21 dBm *Att 30 dB

*RBW 3 MHz Marker 1 [T1 CNT]
*VBW 10 MHz 5.89 dBm
*SWT 100 ms 2.475476 GHz

1 PK
VIEW



Center 2.4755 GHz

5 MHz/

Span 50 MHz

Date: 22.MAR.2011 13:45:56

3. Radiated Emission

3.1. Test Equipment

The following test equipments are used during the test:

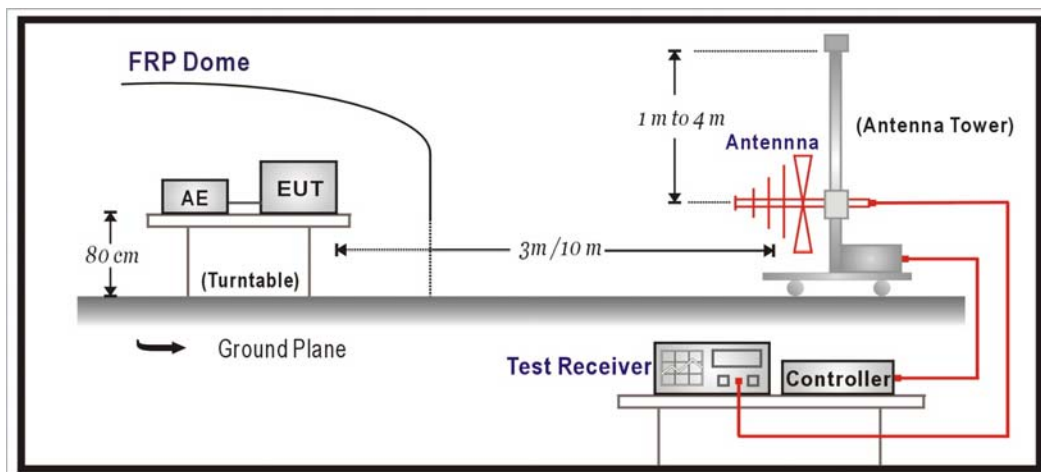
Radiated Emission / CB1

| Instrument | Manufacturer | Model No. | Serial No | Next Cal. Date |
|-------------------|-----------------|----------------------|-------------|----------------|
| Bilog Antenna | SCHAFFNER | CBL6112B | 2895 | 2011/08/14 |
| Horn Antenna | Schwarzback | BBHA 9120D | 743 | 2011/03/14 |
| Pre-Amplifier | MITEQ | AMF-4D-005180-24-10P | 888003 | 2011/12/03 |
| Pre-Amplifier | QuieTek | AP-025C | CHM-0706049 | 2011/03/25 |
| Spectrum Analyzer | Agilent | E4440A | MY46187335 | 2011/01/14 |
| Coaxial Cable | Huber+Suhner AG | Sucoflex 102 | 25623/2 | 2011/04/07 |

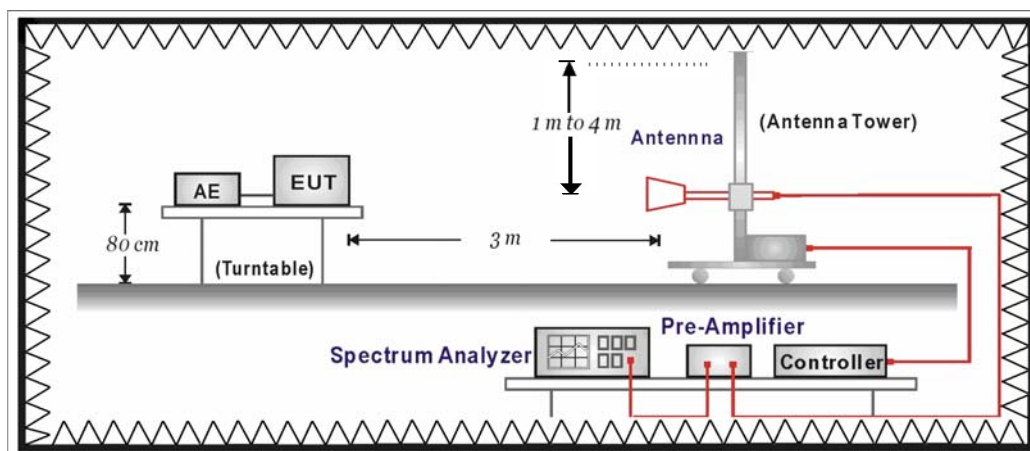
Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

3.2. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:



3.3. 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 | dBuV/m |
| 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.

3.4. 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 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 C63.4:2009 on radiated measurement.

On any frequency or frequencies below or equal to 1000 MHz, the limits shown are based on measuring equipment employing a quasi-peak detector function and on any frequency or frequencies above 1000 MHz the radiated limits shown are based upon the use of measurement instrumentation employing an average detector function. When average radiated emission measurement are included emission measurement below 1000 MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit. The bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.

3.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2009

3.6. Uncertainty

The measurement uncertainty

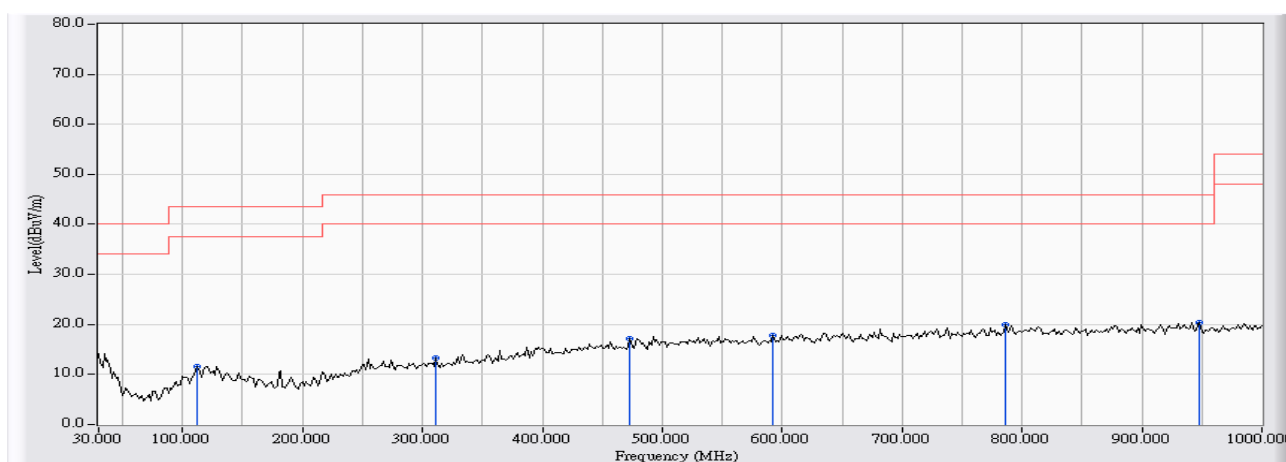
30MHz~1GHz as $\pm 3.43\text{dB}$

1GHz~26.5GHz as $\pm 3.65\text{dB}$

3.7. Test Result

Under 1GHz Spurious:

| | |
|---|---|
| Site : CB1 | Time : 2010/12/20 - 17:36 |
| Limit : FCC_CLASS_B_03M_QP | Margin : 6 |
| Probe : CB1_FCC_EFS_30-1G(2010-12) - HORIZONTAL | Power : DC 3V (Power by Battery) |
| EUT : Digital Wireless Microphone | Note : Mode 1: Transmitter (TX) -2440.5 |

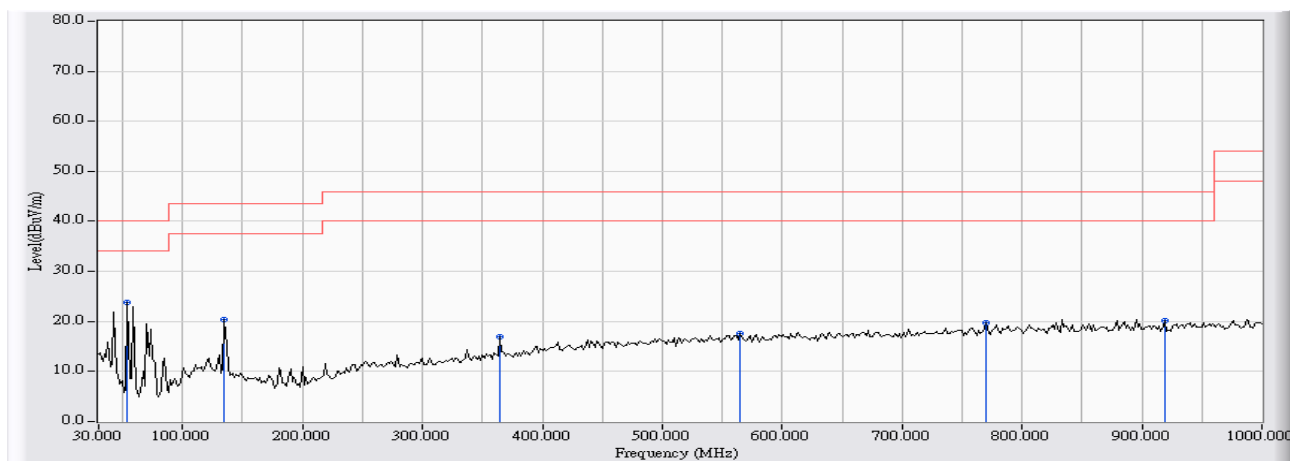


| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|--------------------|------------------------|-------------------------|---------------------------|----------------|-------------------|---------------|
| 1 | | 112.450 | -12.843 | 24.459 | 11.615 | -31.885 | 43.500 | QUASIPeAK |
| 2 | | 311.300 | -10.354 | 23.562 | 13.207 | -32.793 | 46.000 | QUASIPeAK |
| 3 | | 472.967 | -6.540 | 23.668 | 17.128 | -28.872 | 46.000 | QUASIPeAK |
| 4 | | 592.600 | -5.088 | 22.991 | 17.902 | -28.098 | 46.000 | QUASIPeAK |
| 5 | | 786.600 | -3.507 | 23.383 | 19.876 | -26.124 | 46.000 | QUASIPeAK |
| 6 | * | 948.267 | -2.463 | 22.926 | 20.463 | -25.537 | 46.000 | QUASIPeAK |

Note:

1. All Reading Levels are Quasi-Peak value.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

| | |
|---|---|
| Site : CB1 | Time : 2010/12/20 - 17:39 |
| Limit : FCC_CLASS_B_03M_QP | Margin : 6 |
| Probe : CB1_FCC_EFS_30-1G(2010-12) - VERTICAL | Power : DC 3V (Power by Battery) |
| EUT : Digital Wireless Microphone | Note : Mode 1: Transmitter (TX) -2440.5 |



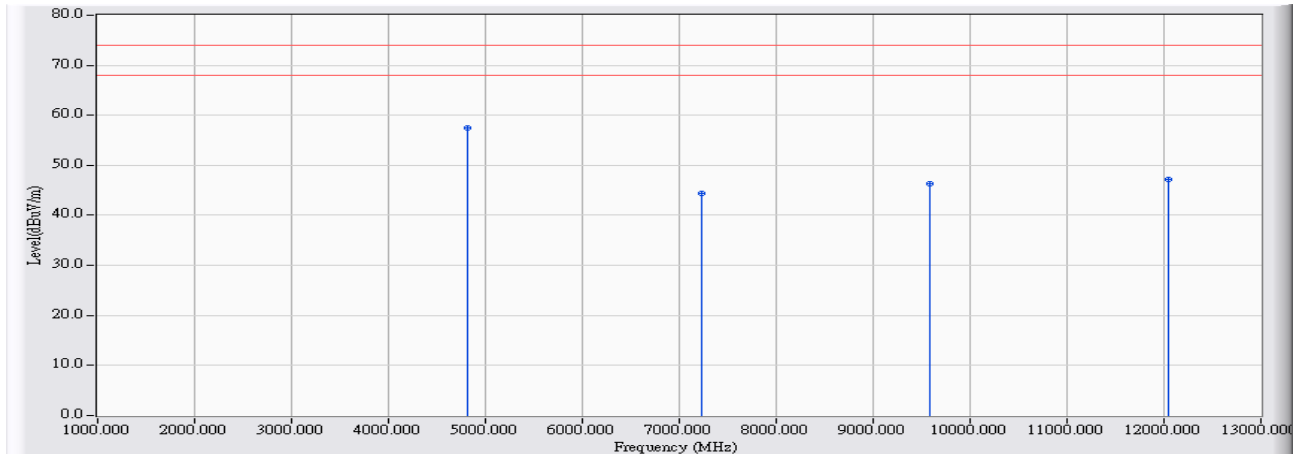
| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|--------------------|------------------------|-------------------------|---------------------------|----------------|-------------------|---------------|
| 1 | * | 54.250 | -17.364 | 41.273 | 23.910 | -16.090 | 40.000 | QUASIPeAK |
| 2 | | 135.083 | -13.062 | 33.444 | 20.383 | -23.117 | 43.500 | QUASIPeAK |
| 3 | | 364.650 | -8.855 | 25.761 | 16.905 | -29.095 | 46.000 | QUASIPeAK |
| 4 | | 565.117 | -5.308 | 22.988 | 17.680 | -28.320 | 46.000 | QUASIPeAK |
| 5 | | 770.433 | -3.699 | 23.467 | 19.769 | -26.231 | 46.000 | QUASIPeAK |
| 6 | | 919.167 | -2.733 | 22.933 | 20.201 | -25.799 | 46.000 | QUASIPeAK |

Note:

1. All Reading Levels are Quasi-Peak value.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Above 1GHz Spurious:

| | |
|---|---------------------------------------|
| Site : CB1 | Time : 2010/12/27 - 18:44 |
| Limit : FCC_SpartC_15.247_H_03M_PK | Margin : 6 |
| Probe : CB1_FCC_EFS_1-18G(2010-12) - HORIZONTAL | Power : DC 3V (Power by Battery) |
| EUT : Digital Wireless Microphone | Note : Mode 1: Transmitter (TX) -2408 |

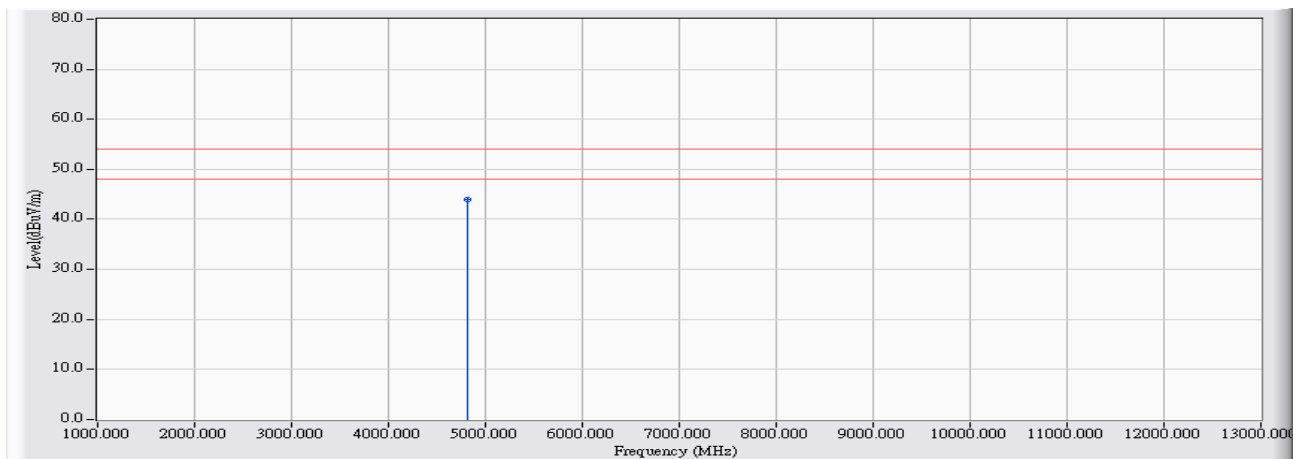


| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | Average Limit (dBuV/m) | Detector Type |
|---|---|--------------------|---------------------------|----------------------------|------------------------------|----------------|---------------------------|------------------------------|------------------|
| 1 | * | 4820.000 | -1.215 | 58.650 | 57.435 | -16.565 | 74.000 | 54.000 | PEAK |
| 2 | | 7225.130 | 3.964 | 40.521 | 44.485 | -29.515 | 74.000 | 54.000 | PEAK |
| 3 | | 9580.000 | 6.891 | 39.386 | 46.277 | -27.723 | 74.000 | 54.000 | PEAK |
| 4 | | 12039.980 | 9.439 | 37.798 | 47.237 | -26.763 | 74.000 | 54.000 | PEAK |

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

| | |
|---|---------------------------------------|
| Site : CB1 | Time : 2010/12/21 - 13:49 |
| Limit : FCC_SpartC_15.247_H_03M_AV | Margin : 6 |
| Probe : CB1_FCC_EFS_1-18G(2010-12) - HORIZONTAL | Power : DC 3V (Power by Battery) |
| EUT : Digital Wireless Microphone | Note : Mode 1: Transmitter (TX) -2408 |

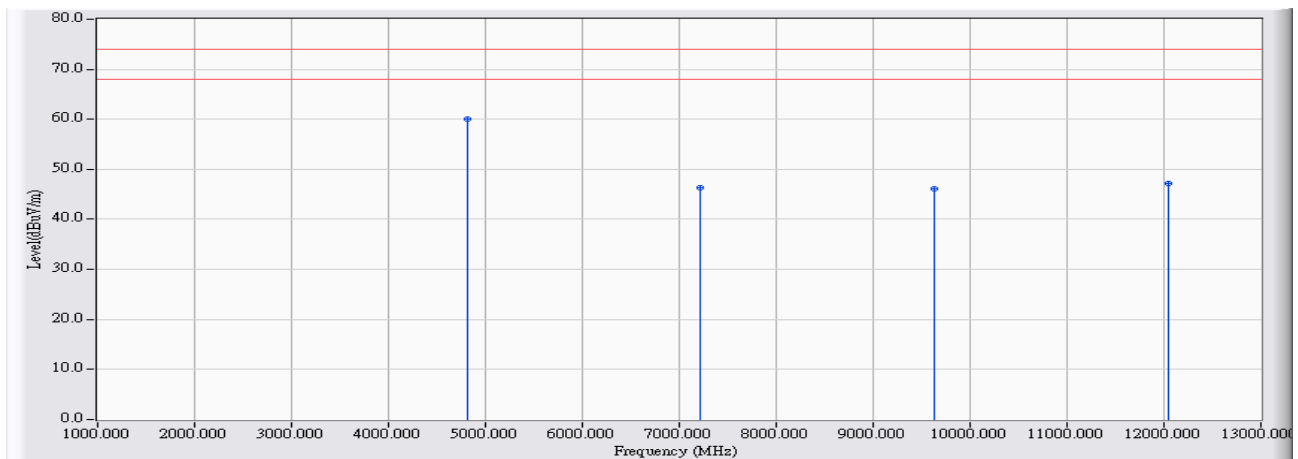


| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | Average Limit (dBuV/m) | Detector Type |
|---|---|--------------------|---------------------------|----------------------------|------------------------------|----------------|---------------------------|------------------------------|------------------|
| 1 | * | 4816.000 | -1.220 | 45.265 | 44.045 | -9.955 | 74.000 | 54.000 | AVERAGE |

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

| | |
|---|---------------------------------------|
| Site : CB1 | Time : 2010/12/27 - 18:44 |
| Limit : FCC_SpartC_15.247_H_03M_PK | Margin : 6 |
| Probe : CB1_FCC_EFS_1-18G(2010-12) - VERTICAL | Power : DC 3V (Power by Battery) |
| EUT : Digital Wireless Microphone | Note : Mode 1: Transmitter (TX) -2408 |

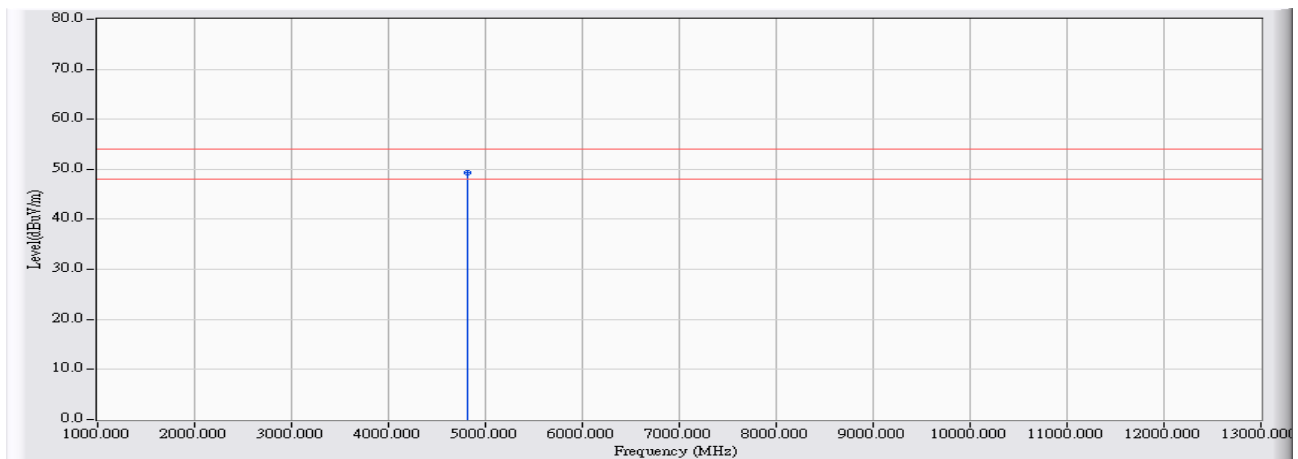


| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | Average Limit (dBuV/m) | Detector Type |
|---|---|--------------------|---------------------------|----------------------------|------------------------------|----------------|---------------------------|------------------------------|------------------|
| 1 | * | 4820.000 | -1.215 | 61.201 | 59.986 | -14.014 | 74.000 | 54.000 | PEAK |
| 2 | | 7220.000 | 3.950 | 42.332 | 46.282 | -27.718 | 74.000 | 54.000 | PEAK |
| 3 | | 9634.550 | 7.049 | 39.148 | 46.197 | -27.803 | 74.000 | 54.000 | PEAK |
| 4 | | 12040.720 | 9.438 | 37.692 | 47.131 | -26.869 | 74.000 | 54.000 | PEAK |

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

| | |
|---|---------------------------------------|
| Site : CB1 | Time : 2010/12/21 - 14:00 |
| Limit : FCC_SpartC_15.247_H_03M_AV | Margin : 6 |
| Probe : CB1_FCC_EFS_1-18G(2010-12) - VERTICAL | Power : DC 3V (Power by Battery) |
| EUT : Digital Wireless Microphone | Note : Mode 1: Transmitter (TX) -2408 |

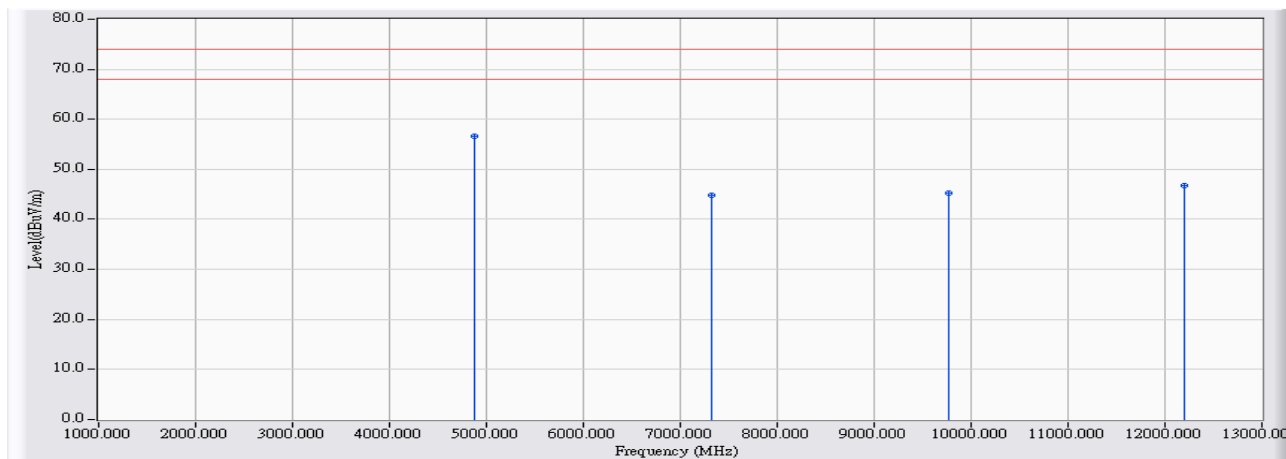


| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | Average Limit (dBuV/m) | Detector Type |
|---|---|--------------------|---------------------------|----------------------------|------------------------------|----------------|---------------------------|------------------------------|------------------|
| 1 | * | 4816.000 | -1.220 | 50.570 | 49.350 | -4.650 | 74.000 | 54.000 | AVERAGE |

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

| | |
|---|---|
| Site : CB1 | Time : 2010/12/27 - 18:45 |
| Limit : FCC_SpartC_15.247_H_03M_PK | Margin : 6 |
| Probe : CB1_FCC_EFS_1-18G(2010-12) - HORIZONTAL | Power : DC 3V (Power by Battery) |
| EUT : Digital Wireless Microphone | Note : Mode 1: Transmitter (TX) -2440.5 |

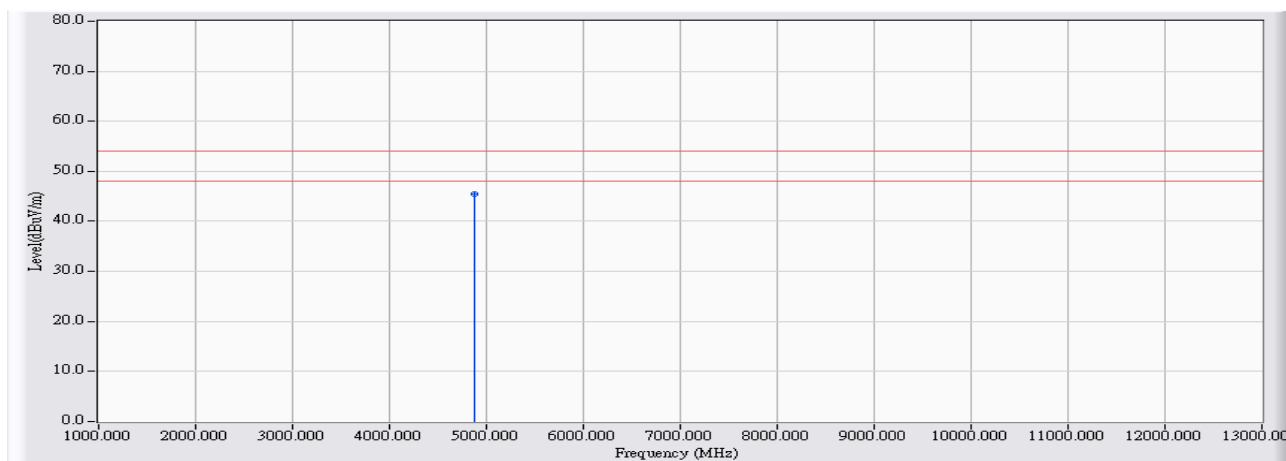


| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | Average Limit (dBuV/m) | Detector Type |
|---|---|--------------------|---------------------------|----------------------------|------------------------------|----------------|---------------------------|------------------------------|------------------|
| 1 | * | 4880.000 | -1.133 | 57.679 | 56.546 | -17.454 | 74.000 | 54.000 | PEAK |
| 2 | | 7320.000 | 4.225 | 40.584 | 44.809 | -29.191 | 74.000 | 54.000 | PEAK |
| 3 | | 9762.830 | 7.420 | 37.756 | 45.176 | -28.824 | 74.000 | 54.000 | PEAK |
| 4 | | 12206.170 | 9.379 | 37.270 | 46.650 | -27.350 | 74.000 | 54.000 | PEAK |

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

| | |
|---|---|
| Site : CB1 | Time : 2010/12/21 - 14:10 |
| Limit : FCC_SpartC_15.247_H_03M_AV | Margin : 6 |
| Probe : CB1_FCC_EFS_1-18G(2010-12) - HORIZONTAL | Power : DC 3V (Power by Battery) |
| EUT : Digital Wireless Microphone | Note : Mode 1: Transmitter (TX) -2440.5 |

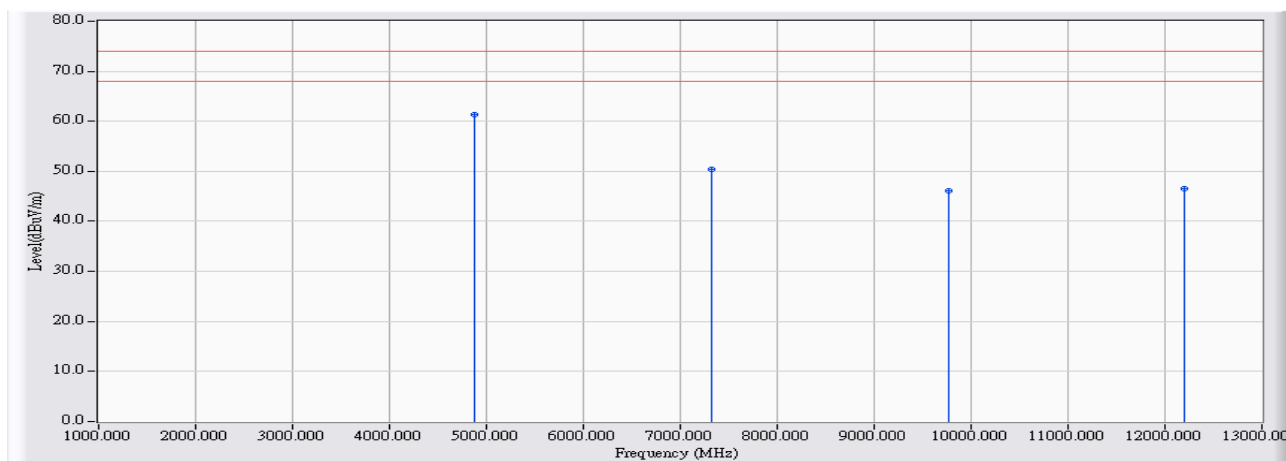


| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | Average Limit (dBuV/m) | Detector Type |
|---|---|--------------------|---------------------------|----------------------------|------------------------------|----------------|---------------------------|------------------------------|------------------|
| 1 | * | 4881.000 | -1.132 | 46.660 | 45.528 | -8.472 | 74.000 | 54.000 | AVERAGE |

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

| | |
|---|---|
| Site : CB1 | Time : 2010/12/27 - 18:45 |
| Limit : FCC_SpartC_15.247_H_03M_PK | Margin : 6 |
| Probe : CB1_FCC_EFS_1-18G(2010-12) - VERTICAL | Power : DC 3V (Power by Battery) |
| EUT : Digital Wireless Microphone | Note : Mode 1: Transmitter (TX) -2440.5 |

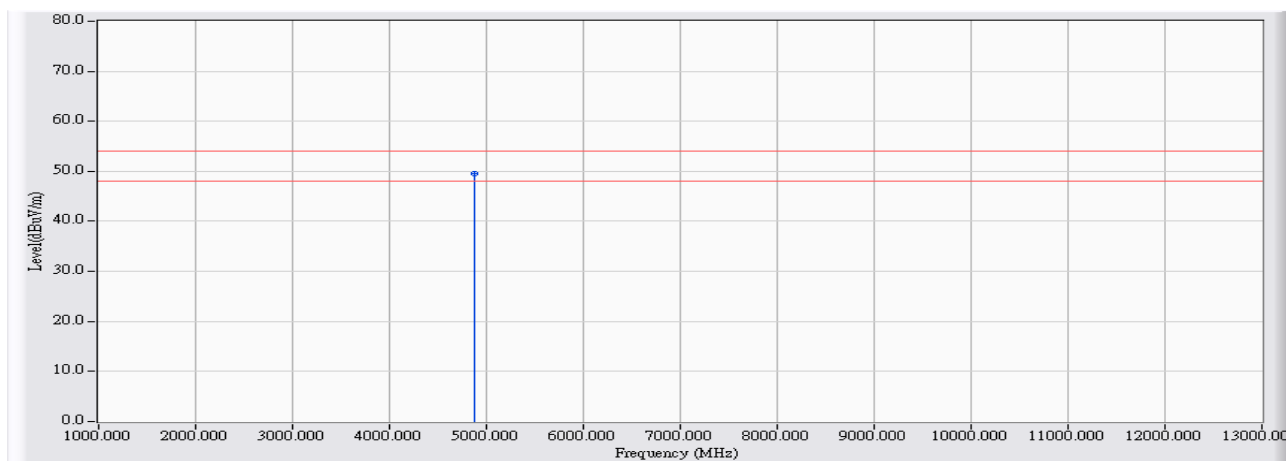


| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | Average Limit (dBuV/m) | Detector Type |
|---|---|--------------------|---------------------------|----------------------------|------------------------------|----------------|---------------------------|------------------------------|------------------|
| 1 | * | 4880.000 | -1.133 | 62.561 | 61.428 | -12.572 | 74.000 | 54.000 | PEAK |
| 2 | | 7320.000 | 4.225 | 46.171 | 50.396 | -23.604 | 74.000 | 54.000 | PEAK |
| 3 | | 9765.660 | 7.428 | 38.613 | 46.041 | -27.959 | 74.000 | 54.000 | PEAK |
| 4 | | 12206.280 | 9.380 | 37.181 | 46.561 | -27.439 | 74.000 | 54.000 | PEAK |

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

| | |
|---|---|
| Site : CB1 | Time : 2010/12/21 - 14:19 |
| Limit : FCC_SpartC_15.247_H_03M_AV | Margin : 6 |
| Probe : CB1_FCC_EFS_1-18G(2010-12) - VERTICAL | Power : DC 3V (Power by Battery) |
| EUT : Digital Wireless Microphone | Note : Mode 1: Transmitter (TX) -2440.5 |

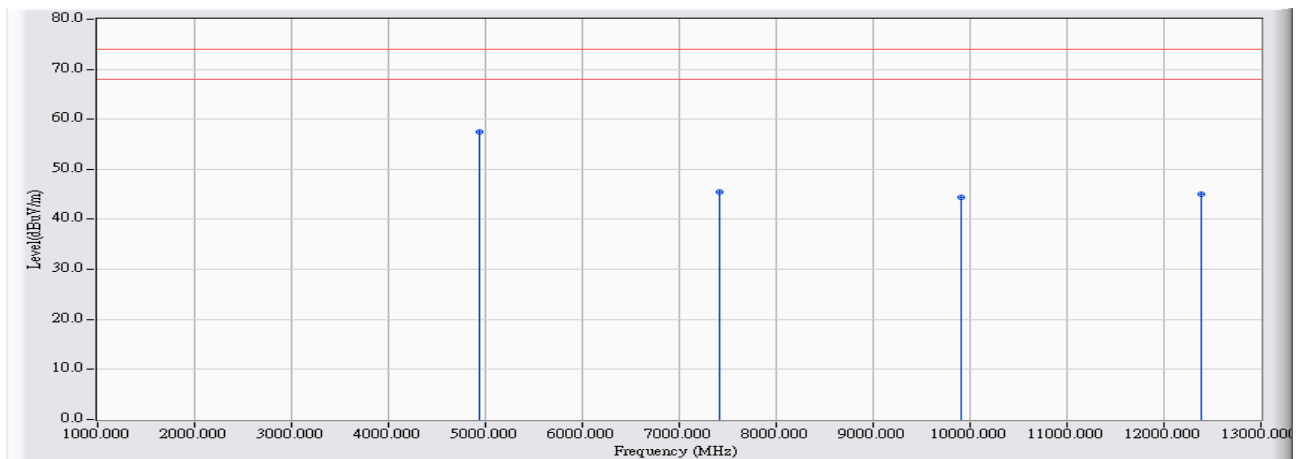


| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | Average Limit (dBuV/m) | Detector Type |
|---|---|--------------------|---------------------------|----------------------------|------------------------------|----------------|---------------------------|------------------------------|------------------|
| 1 | * | 4881.000 | -1.132 | 50.604 | 49.472 | -4.528 | 74.000 | 54.000 | AVERAGE |

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

| | |
|---|---|
| Site : CB1 | Time : 2010/12/27 - 18:45 |
| Limit : FCC_SpartC_15.247_H_03M_PK | Margin : 6 |
| Probe : CB1_FCC_EFS_1-18G(2010-12) - HORIZONTAL | Power : DC 3V (Power by Battery) |
| EUT : Digital Wireless Microphone | Note : Mode 1: Transmitter (TX) -2475.5 |

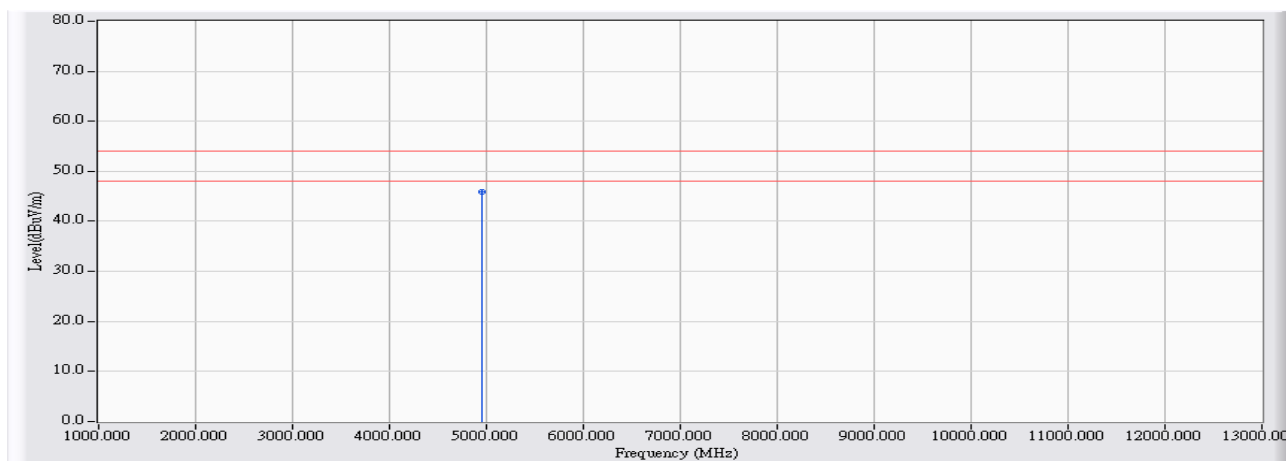


| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | Average Limit (dBuV/m) | Detector Type |
|---|---|--------------------|---------------------------|----------------------------|------------------------------|----------------|---------------------------|------------------------------|------------------|
| 1 | * | 4940.000 | -1.052 | 58.617 | 57.565 | -16.435 | 74.000 | 54.000 | PEAK |
| 2 | | 7420.000 | 4.500 | 40.997 | 45.497 | -28.503 | 74.000 | 54.000 | PEAK |
| 3 | | 9902.810 | 7.824 | 36.523 | 44.347 | -29.653 | 74.000 | 54.000 | PEAK |
| 4 | | 12381.460 | 9.318 | 35.690 | 45.007 | -28.993 | 74.000 | 54.000 | PEAK |

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

| | |
|---|---|
| Site : CB1 | Time : 2010/12/21 - 14:33 |
| Limit : FCC_SpartC_15.247_H_03M_AV | Margin : 6 |
| Probe : CB1_FCC_EFS_1-18G(2010-12) - HORIZONTAL | Power : DC 3V (Power by Battery) |
| EUT : Digital Wireless Microphone | Note : Mode 1: Transmitter (TX) -2475.5 |

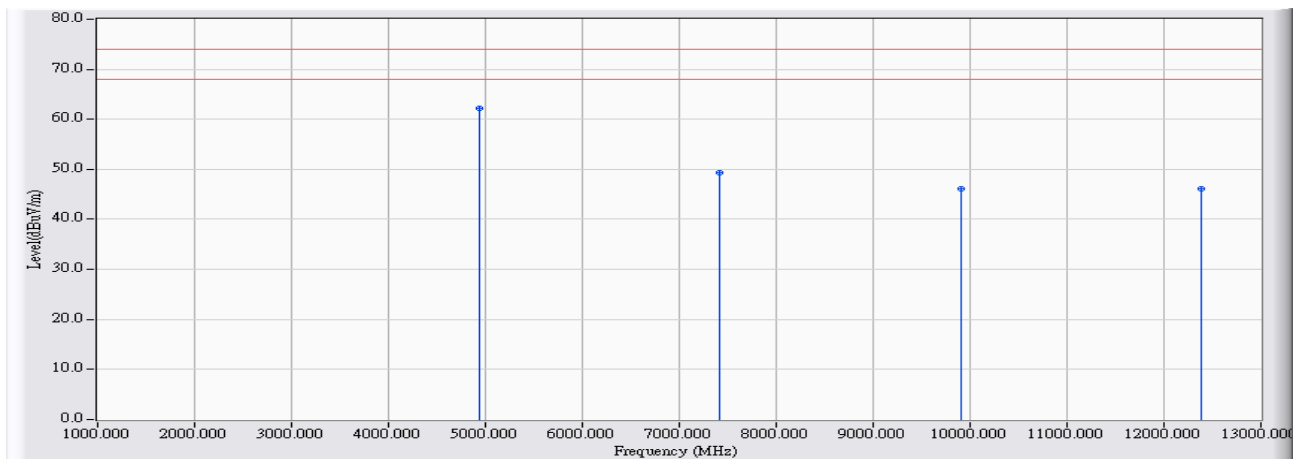


| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | Average Limit (dBuV/m) | Detector Type |
|---|---|--------------------|---------------------------|----------------------------|------------------------------|----------------|---------------------------|------------------------------|------------------|
| 1 | * | 4950.920 | -1.038 | 46.870 | 45.833 | -8.167 | 74.000 | 54.000 | AVERAGE |

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

| | |
|---|---|
| Site : CB1 | Time : 2010/12/27 - 18:45 |
| Limit : FCC_SpartC_15.247_H_03M_PK | Margin : 6 |
| Probe : CB1_FCC_EFS_1-18G(2010-12) - VERTICAL | Power : DC 3V (Power by Battery) |
| EUT : Digital Wireless Microphone | Note : Mode 1: Transmitter (TX) -2475.5 |

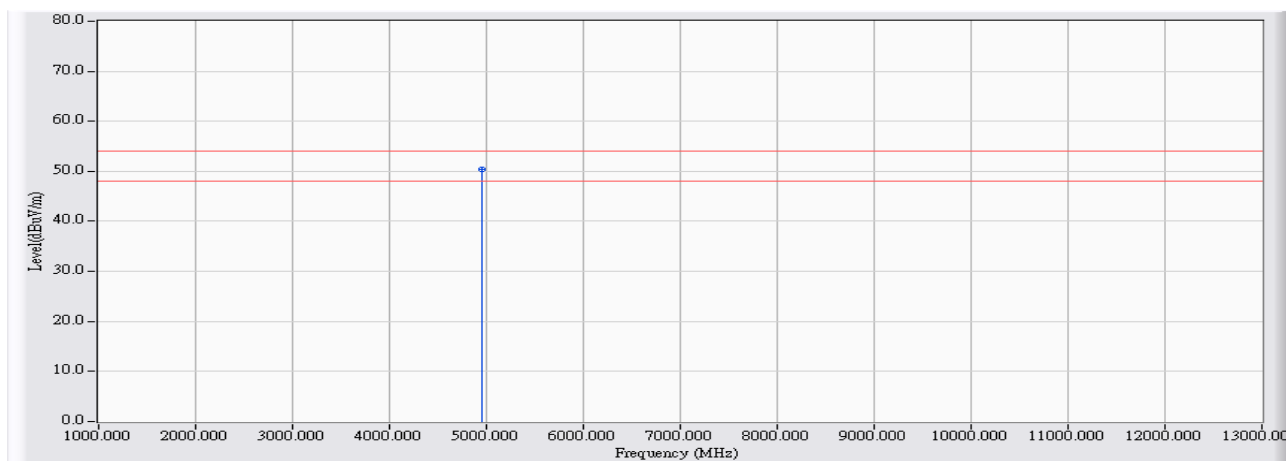


| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | Average Limit (dBuV/m) | Detector Type |
|---|---|--------------------|---------------------------|----------------------------|------------------------------|----------------|---------------------------|------------------------------|------------------|
| 1 | * | 4940.000 | -1.052 | 63.200 | 62.148 | -11.852 | 74.000 | 54.000 | PEAK |
| 2 | | 7420.000 | 4.500 | 44.848 | 49.348 | -24.652 | 74.000 | 54.000 | PEAK |
| 3 | | 9905.210 | 7.831 | 38.380 | 46.211 | -27.789 | 74.000 | 54.000 | PEAK |
| 4 | | 12381.710 | 9.317 | 36.724 | 46.041 | -27.959 | 74.000 | 54.000 | PEAK |

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

| | |
|---|---|
| Site : CB1 | Time : 2010/12/21 - 14:45 |
| Limit : FCC_SpartC_15.247_H_03M_AV | Margin : 6 |
| Probe : CB1_FCC_EFS_1-18G(2010-12) - VERTICAL | Power : DC 3V (Power by Battery) |
| EUT : Digital Wireless Microphone | Note : Mode 1: Transmitter (TX) -2475.5 |



| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | Average Limit (dBuV/m) | Detector Type |
|---|---|--------------------|---------------------------|----------------------------|------------------------------|----------------|---------------------------|------------------------------|------------------|
| 1 | * | 4950.920 | -1.038 | 51.480 | 50.443 | -3.557 | 74.000 | 54.000 | AVERAGE |

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

4. RF Conducted Emission

4.1. Test Equipment

The following test equipments are used during the test:

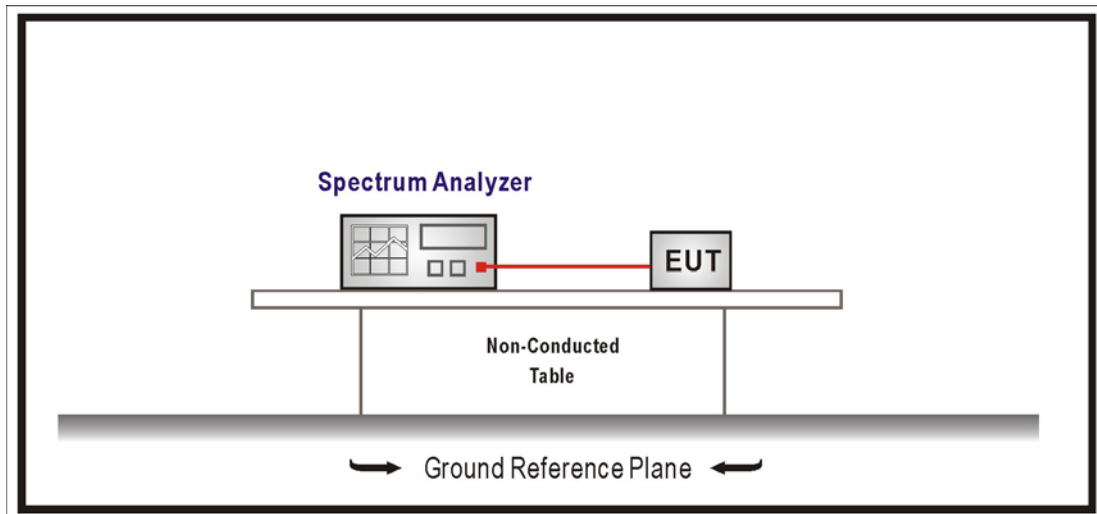
RF Antenna Conducted Test / SR7

| Instrument | Manufacturer | Model No. | Serial No | Next Cal. Date |
|-------------------|--------------|-----------|-----------|----------------|
| Spectrum Analyzer | R&S | FSP | 100561 | 2012/01/16 |

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

4.2. Test Setup

RF Conducted Measurement:



4.3. Limits

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)).

4.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2009 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

4.5. Test Specification

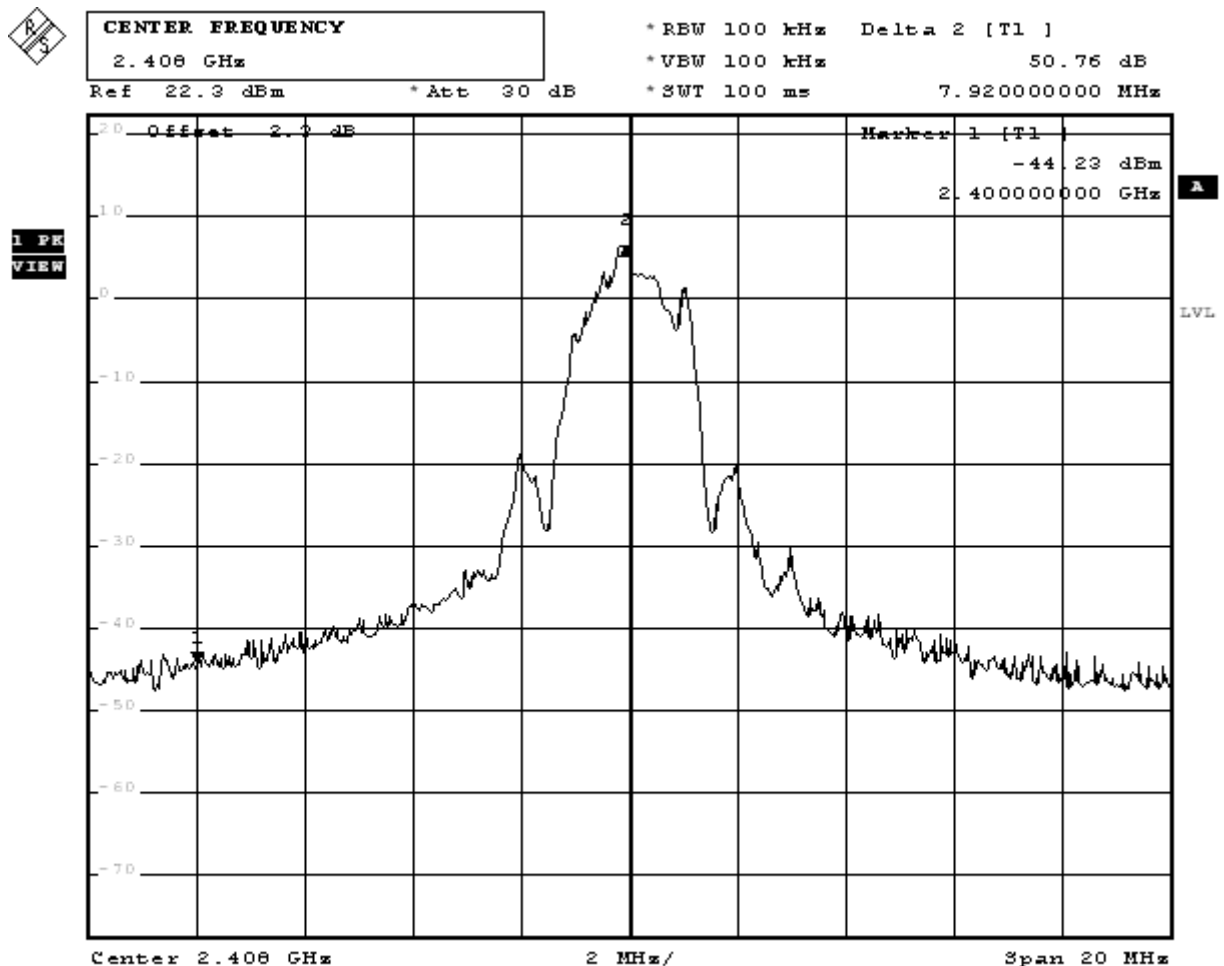
According to FCC Part 15 Subpart C Paragraph 15.247: 2009

4.6. Test Result

| | | | |
|--------------|-----------------------------|-----------|-----|
| Product | Digital Wireless Microphone | | |
| Test Item | RF Conducted Emissions | | |
| Test Mode | Mode 1: Transmit | | |
| Date of Test | 2011/01/06 | Test Site | SR7 |

| Channel No. | Frequency (MHz) | Measure Level (dBc) | Required Limit (dBc) | Result |
|-------------|-----------------|---------------------|----------------------|--------|
| 00 | 2408.0 | 50.76 | ≥ 20 | Pass |
| 27 | 2475.5 | 50.09 | ≥ 20 | Pass |

Channel 00



Date: 6.JAN.2011 01:42:26

Channel 27

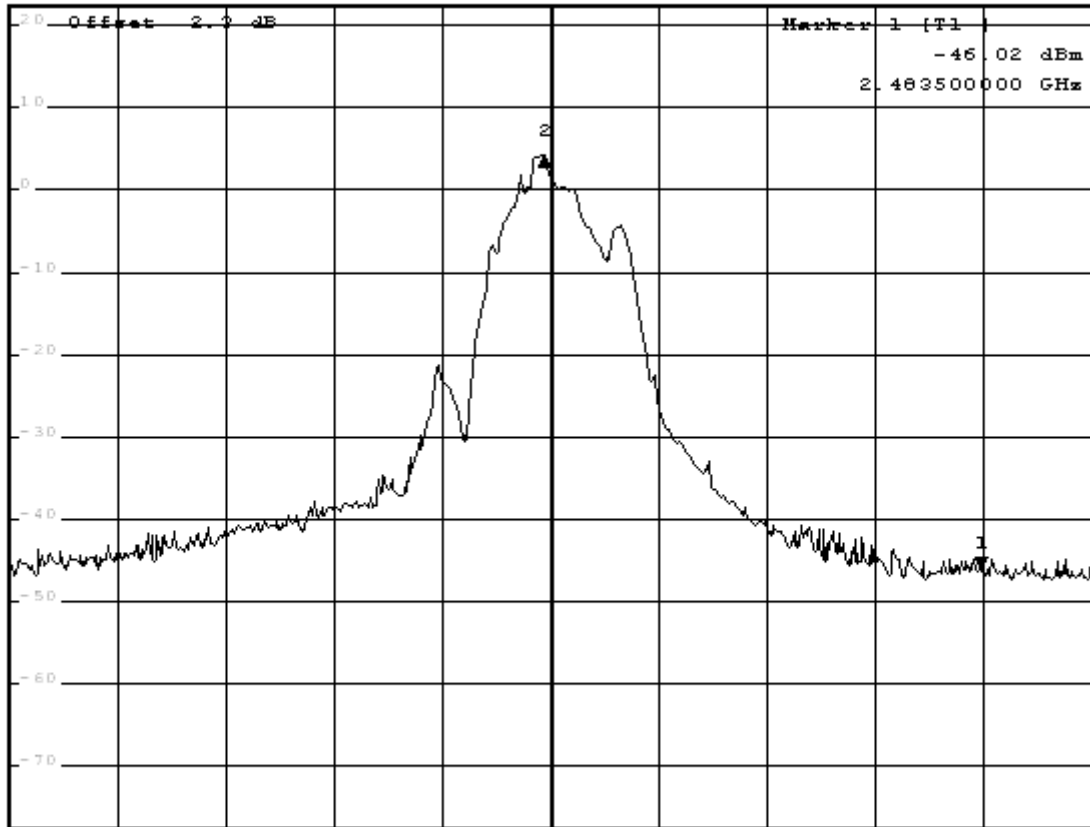


DELTA MARKER 2
-8.06 MHz

*RBW 100 kHz Delta 2 [T1]
*VBW 100 kHz 50.09 dB
*SWT 100 ms -8.060000000 MHz

Ref 22.3 dBm *Att 30 dB

1 PE
VIEW



LVL

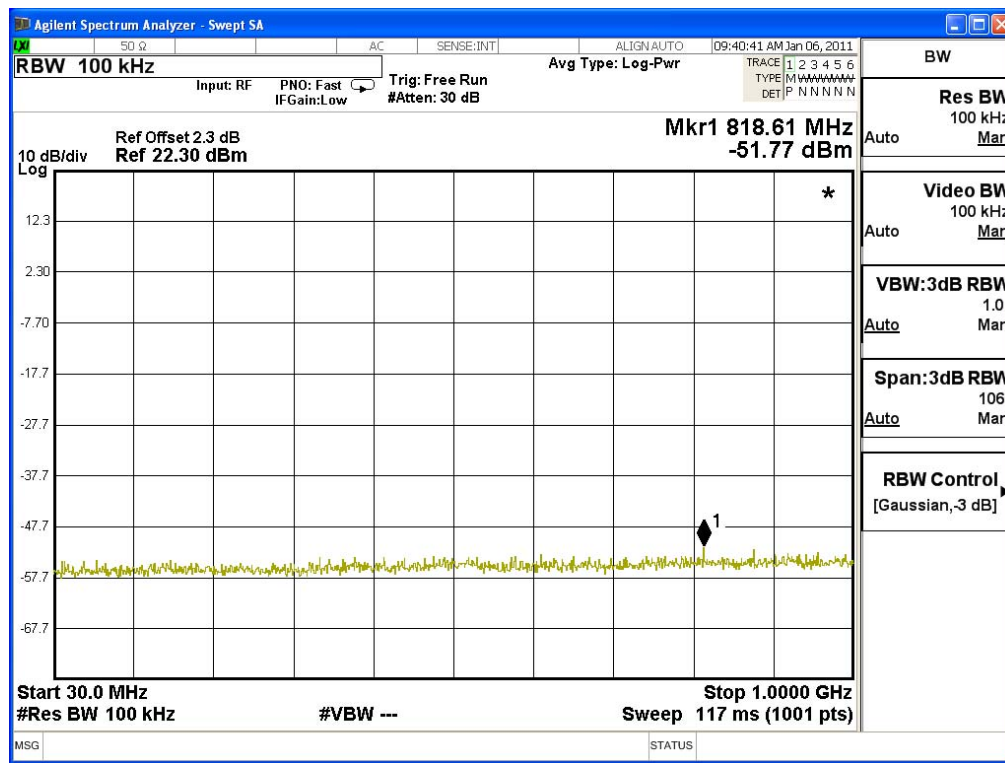
Center 2.47556 GHz

2 MHz/

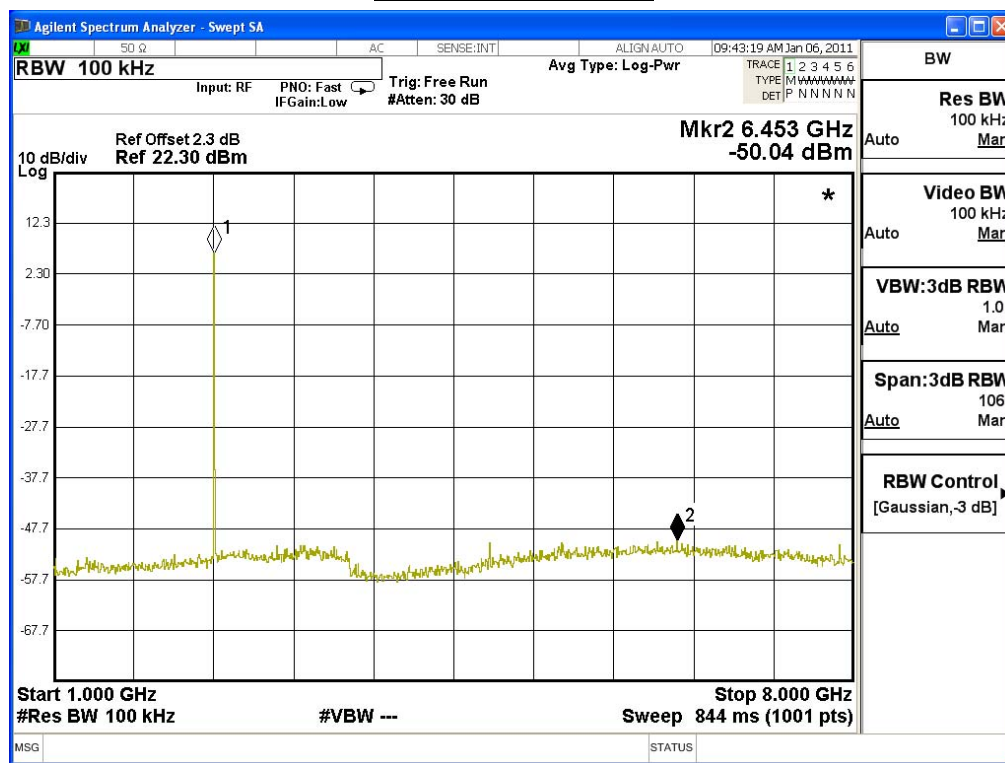
Span 20 MHz

Date: 6.JAN.2011 01:48:29

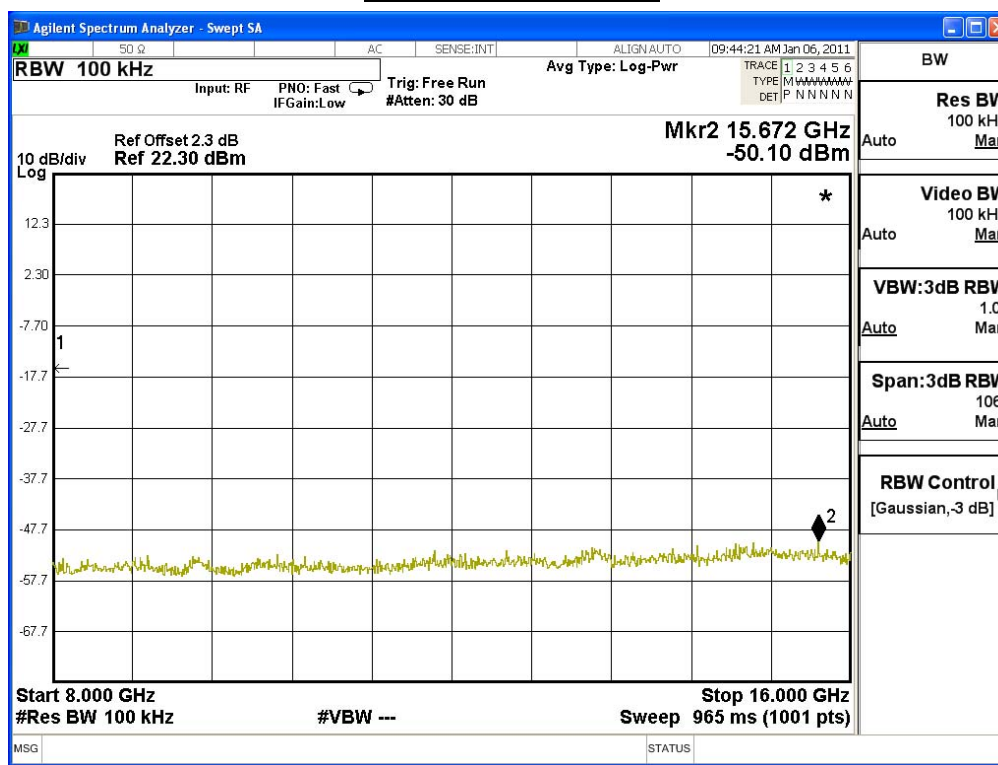
Channel 00 (30M~1G)



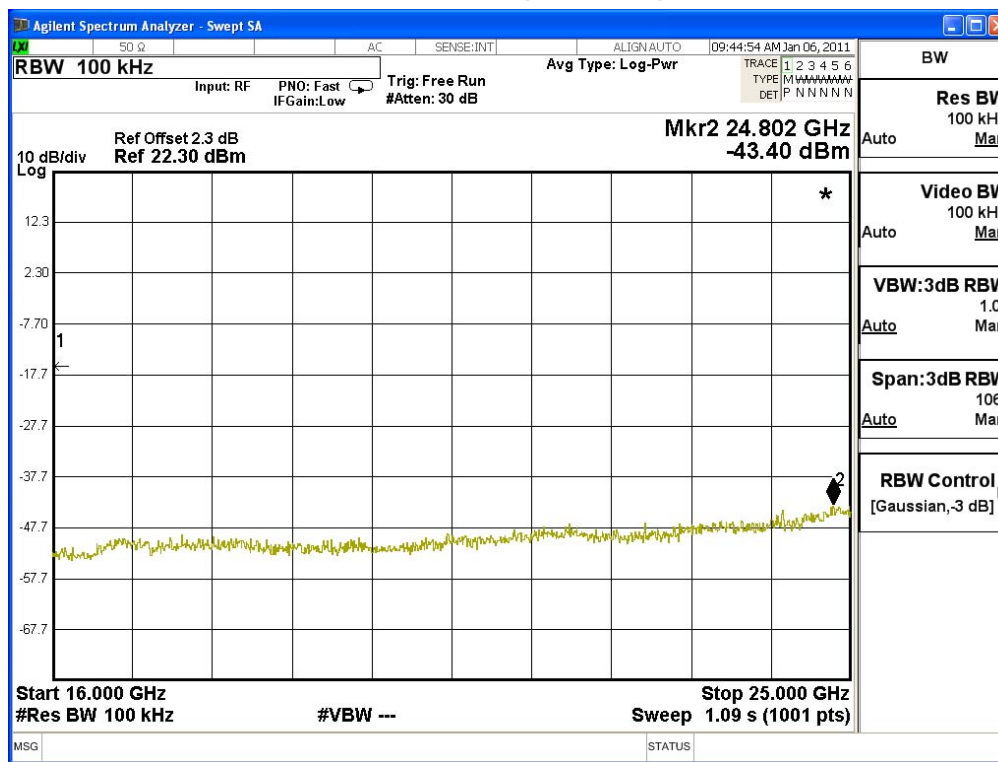
Channel 00 (1G~8G)



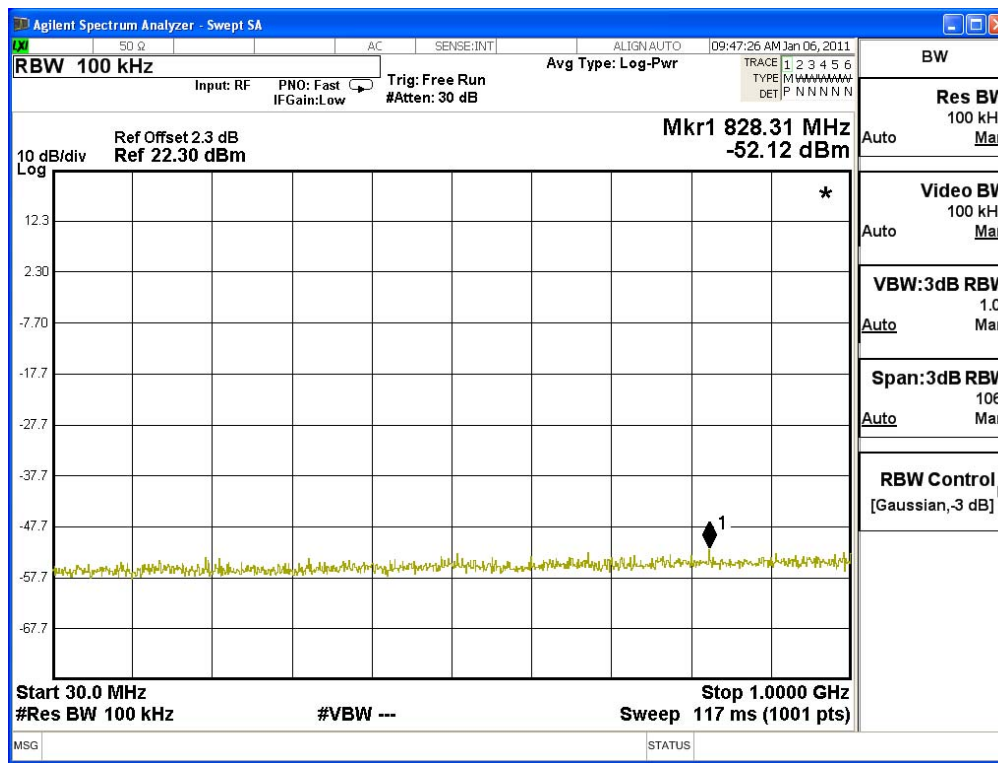
Channel 00 (8G~16G)



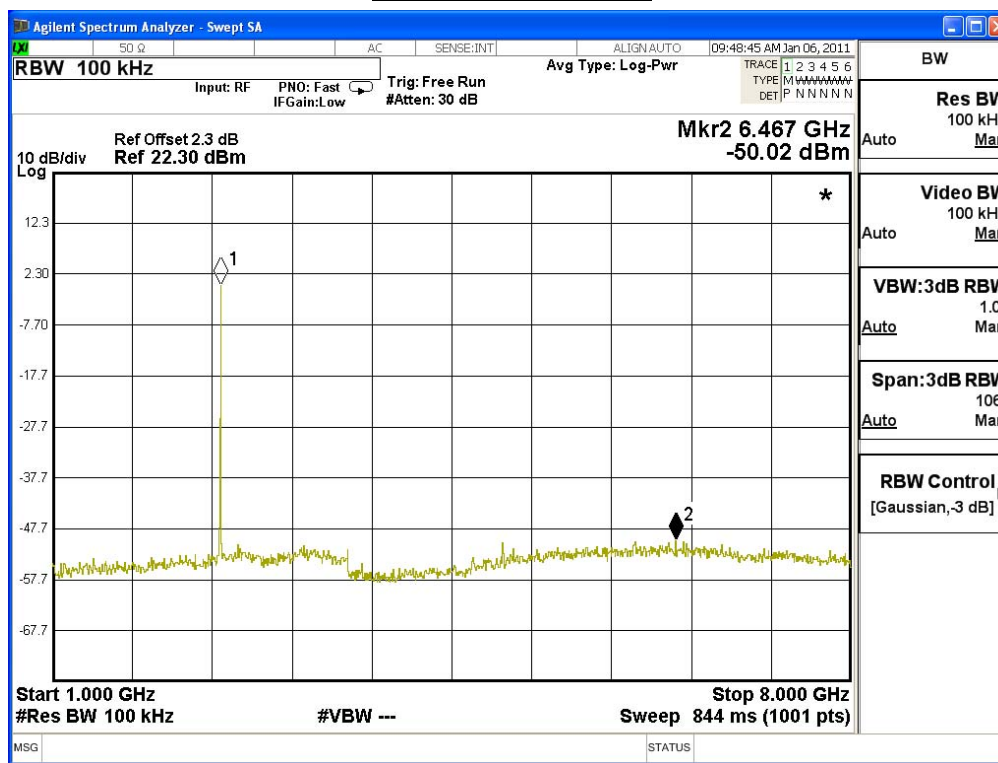
Channel 00 (16G~25G)



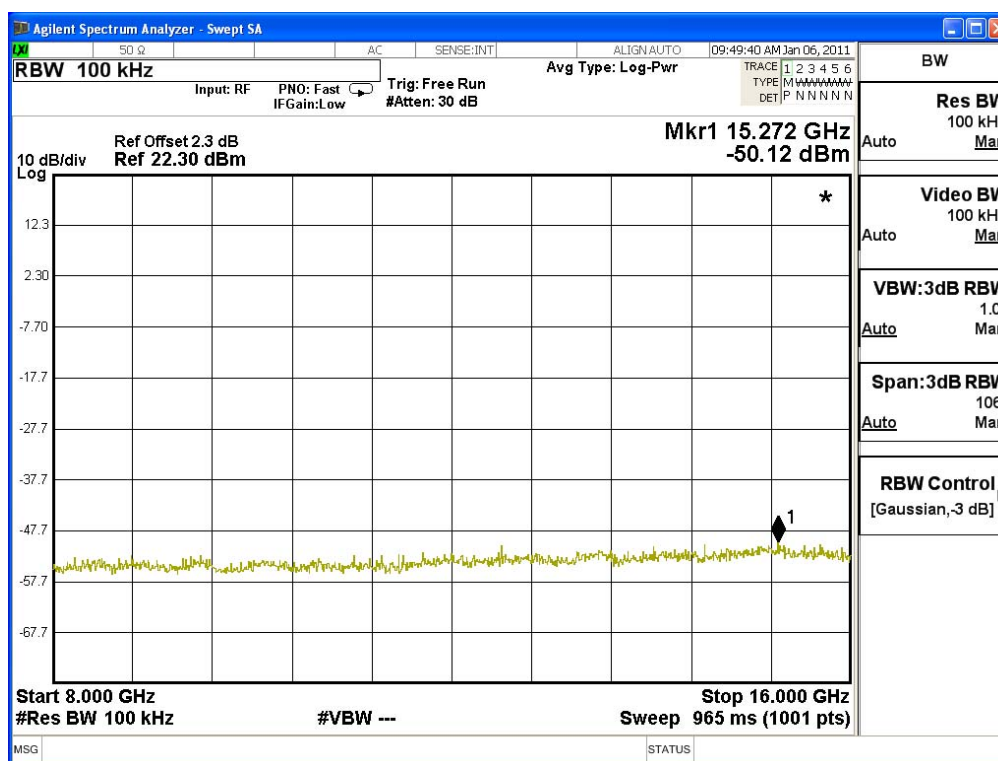
Channel 27 (30M~1G)



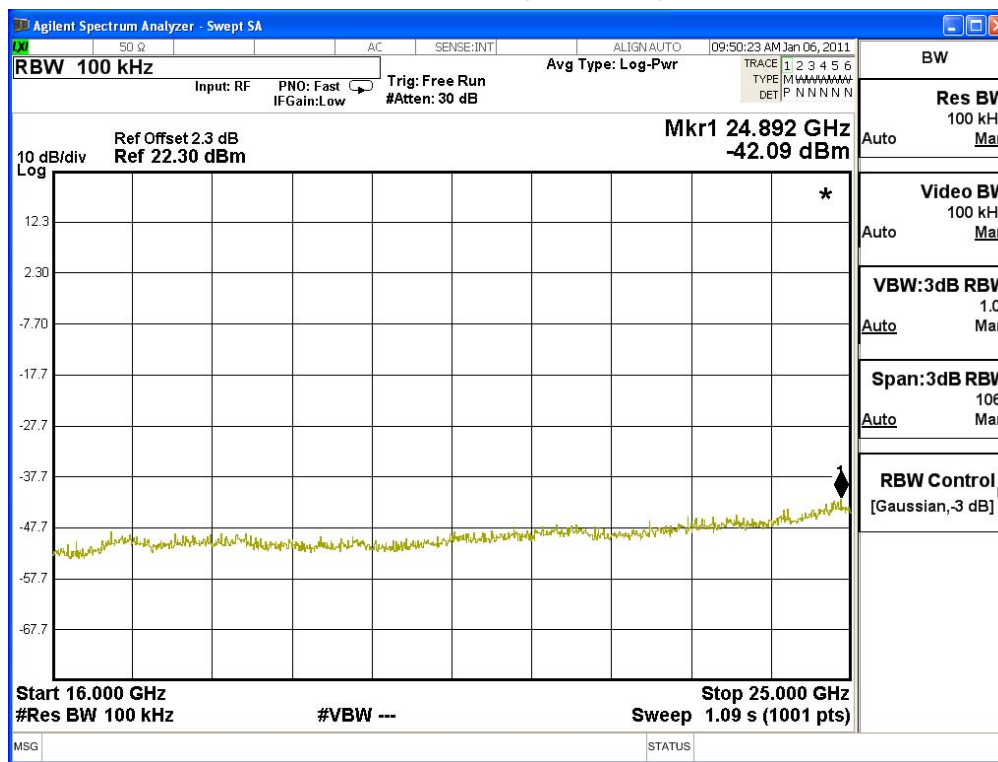
Channel 27 (1G~8G)



Channel 27 (8G~16G)



Channel 27 (16G~25G)



5. Band Edge

5.1. Test Equipment

The following test equipments are used during the test:

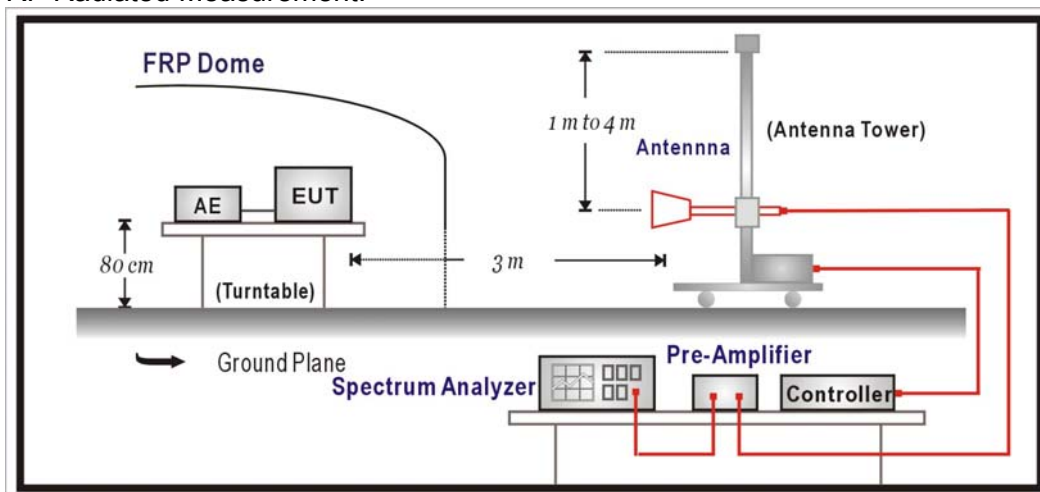
Band Edge / CB1

| Instrument | Manufacturer | Model No. | Serial No | Next Cal. Date |
|-------------------|-----------------|--------------|------------|----------------|
| Horn Antenna | Schwarzback | BBHA 9120D | 743 | 2011/03/14 |
| Spectrum Analyzer | Agilent | E4440A | MY46187335 | 2011/01/14 |
| Coaxial Cable | Huber+Suhner AG | Sucoflex 102 | 25623/2 | 2011/04/07 |

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

5.2. Test Setup

RF Radiated Measurement:



5.3. 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.

5.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2009 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements

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 C63.4:2009 on radiated measurement.

5.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2009

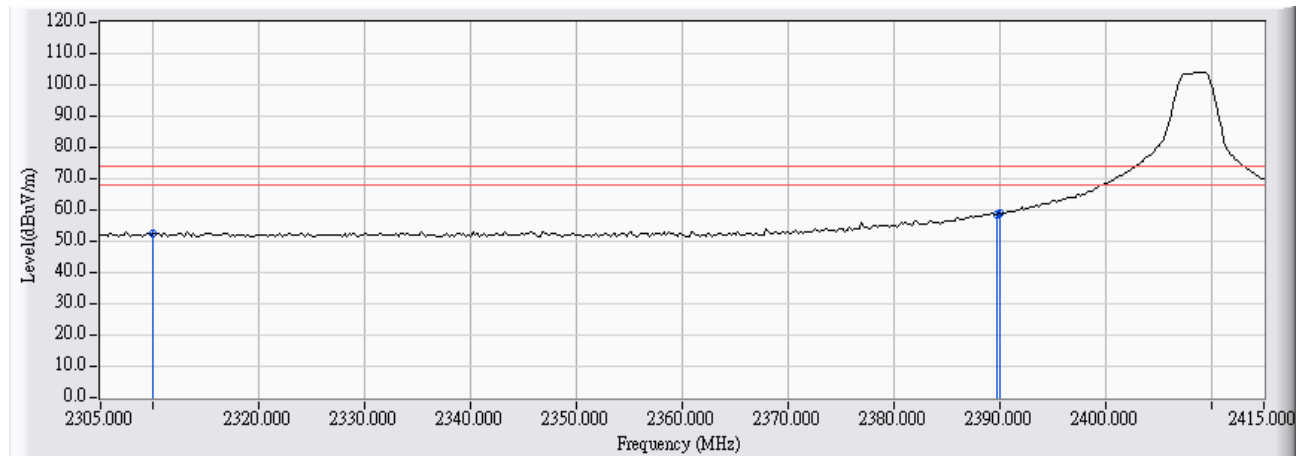
5.6. Uncertainty

The measurement uncertainty

± 3.9 dB above 1GHz

5.7. Test Result

| | |
|---|---------------------------------------|
| Site : CB1 | Time : 2010/12/29 - 16:07 |
| Limit : FCC_SpartC_15.209_03M_PK | Margin : 6 |
| Probe : CB1_FCC_EFS_1-18G(2010-12) - HORIZONTAL | Power : DC 3V (Power by Battery) |
| EUT : Digital Wireless Microphone | Note : Mode 1: Transmitter (TX) -2408 |

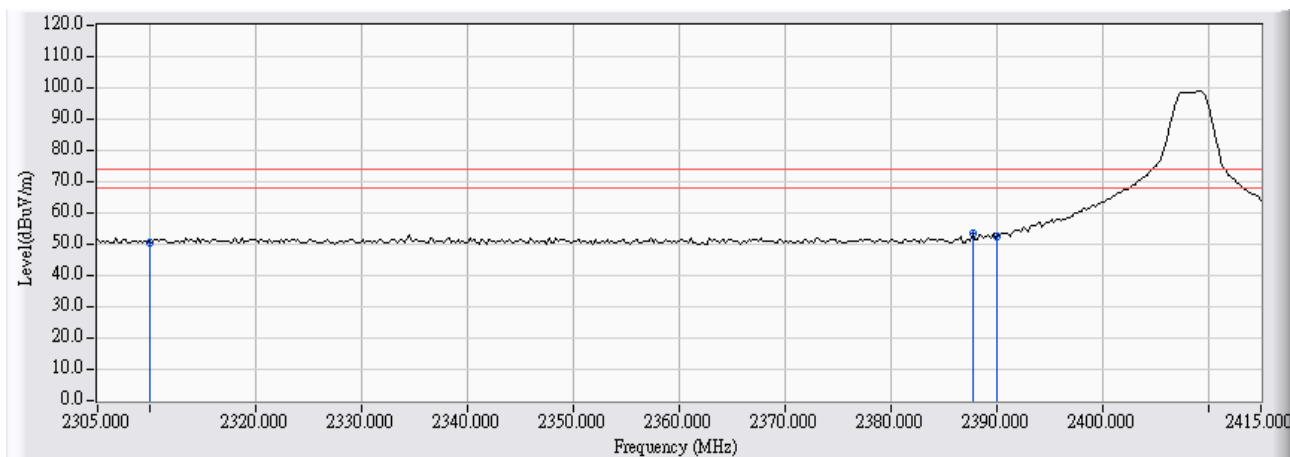


| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|--------------------|------------------------|-------------------------|---------------------------|----------------|-------------------|---------------|
| 1 | | 2310.000 | 27.336 | 25.174 | 52.510 | -21.490 | 74.000 | PEAK |
| 2 | | 2389.700 | 27.669 | 30.986 | 58.656 | -15.344 | 74.000 | PEAK |
| 3 | * | 2390.000 | 27.671 | 31.280 | 58.951 | -15.049 | 74.000 | PEAK |

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

| | |
|---|---------------------------------------|
| Site : CB1 | Time : 2010/12/29 - 16:26 |
| Limit : FCC_SpartC_15.209_03M_PK | Margin : 6 |
| Probe : CB1_FCC_EFS_1-18G(2010-12) - VERTICAL | Power : DC 3V (Power by Battery) |
| EUT : Digital Wireless Microphone | Note : Mode 1: Transmitter (TX) -2408 |

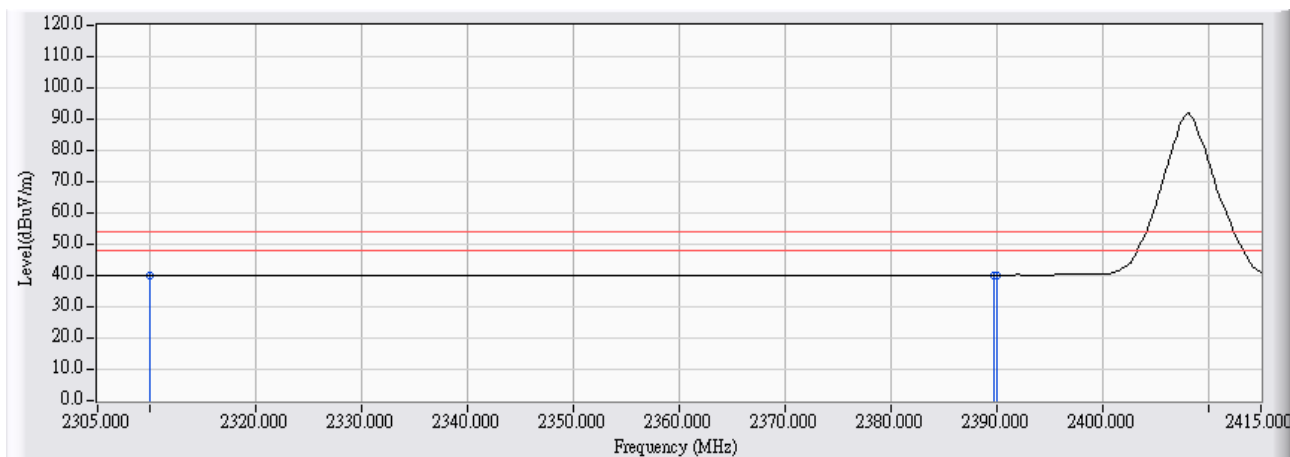


| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|--------------------|------------------------|-------------------------|---------------------------|----------------|-------------------|---------------|
| 1 | | 2310.000 | 27.336 | 23.240 | 50.576 | -23.424 | 74.000 | PEAK |
| 2 | * | 2387.720 | 27.661 | 26.020 | 53.682 | -20.318 | 74.000 | PEAK |
| 3 | | 2390.000 | 27.671 | 24.749 | 52.420 | -21.580 | 74.000 | PEAK |

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

| | |
|---|---------------------------------------|
| Site : CB1 | Time : 2010/12/29 - 16:09 |
| Limit : FCC_SpartC_15.209_03M_AV | Margin : 6 |
| Probe : CB1_FCC_EFS_1-18G(2010-12) - HORIZONTAL | Power : DC 3V (Power by Battery) |
| EUT : Digital Wireless Microphone | Note : Mode 1: Transmitter (TX) -2408 |

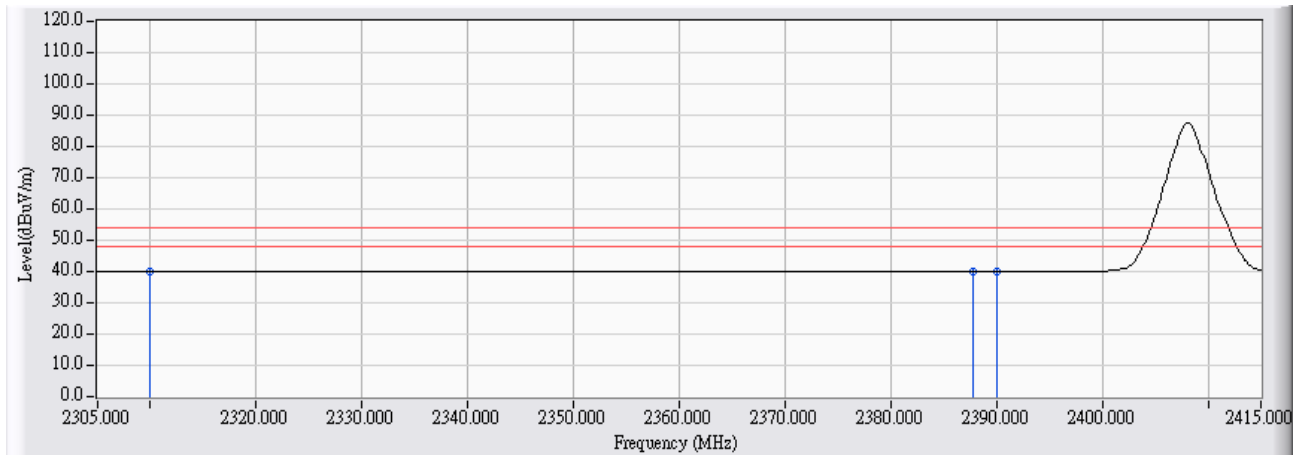


| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|--------------------|------------------------|-------------------------|---------------------------|----------------|-------------------|---------------|
| 1 | | 2310.000 | 27.336 | 12.513 | 39.849 | -14.151 | 54.000 | AVERAGE |
| 2 | | 2389.700 | 27.669 | 12.449 | 40.119 | -13.881 | 54.000 | AVERAGE |
| 3 | * | 2390.000 | 27.671 | 12.458 | 40.129 | -13.871 | 54.000 | AVERAGE |

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

| | |
|---|---------------------------------------|
| Site : CB1 | Time : 2010/12/29 - 16:28 |
| Limit : FCC_SpartC_15.209_03M_AV | Margin : 6 |
| Probe : CB1_FCC_EFS_1-18G(2010-12) - VERTICAL | Power : DC 3V (Power by Battery) |
| EUT : Digital Wireless Microphone | Note : Mode 1: Transmitter (TX) -2408 |

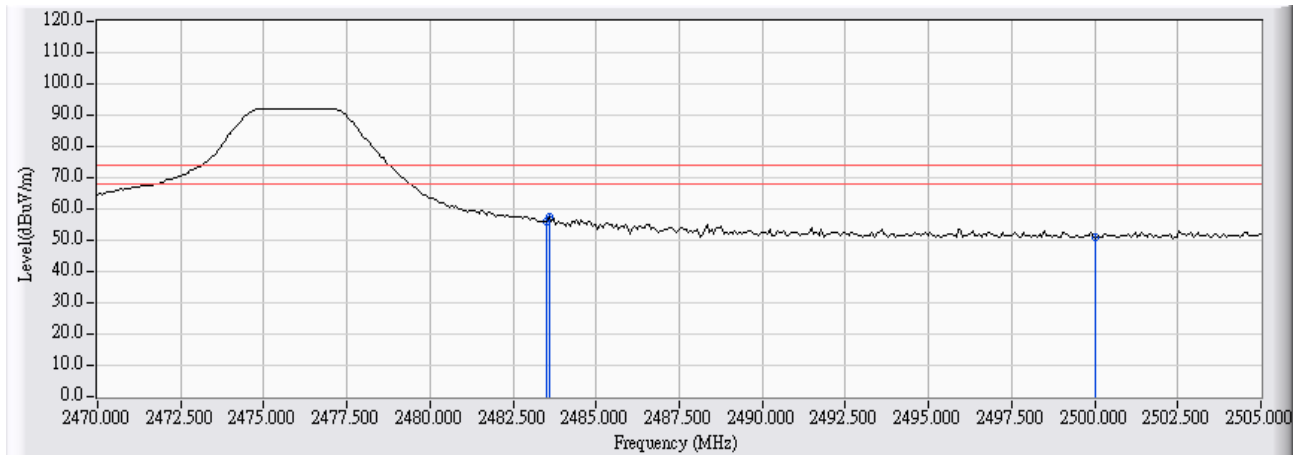


| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|--------------------|------------------------|-------------------------|---------------------------|----------------|-------------------|---------------|
| 1 | | 2310.000 | 27.336 | 12.460 | 39.796 | -14.204 | 54.000 | AVERAGE |
| 2 | | 2387.720 | 27.661 | 12.362 | 40.024 | -13.976 | 54.000 | AVERAGE |
| 3 | * | 2390.000 | 27.671 | 12.391 | 40.062 | -13.938 | 54.000 | AVERAGE |

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

| | |
|---|---|
| Site : CB1 | Time : 2010/12/29 - 16:37 |
| Limit : FCC_SpartC_15.209_03M_PK | Margin : 6 |
| Probe : CB1_FCC_EFS_1-18G(2010-12) - HORIZONTAL | Power : DC 3V (Power by Battery) |
| EUT : Digital Wireless Microphone | Note : Mode 1: Transmitter (TX) -2475.5 |

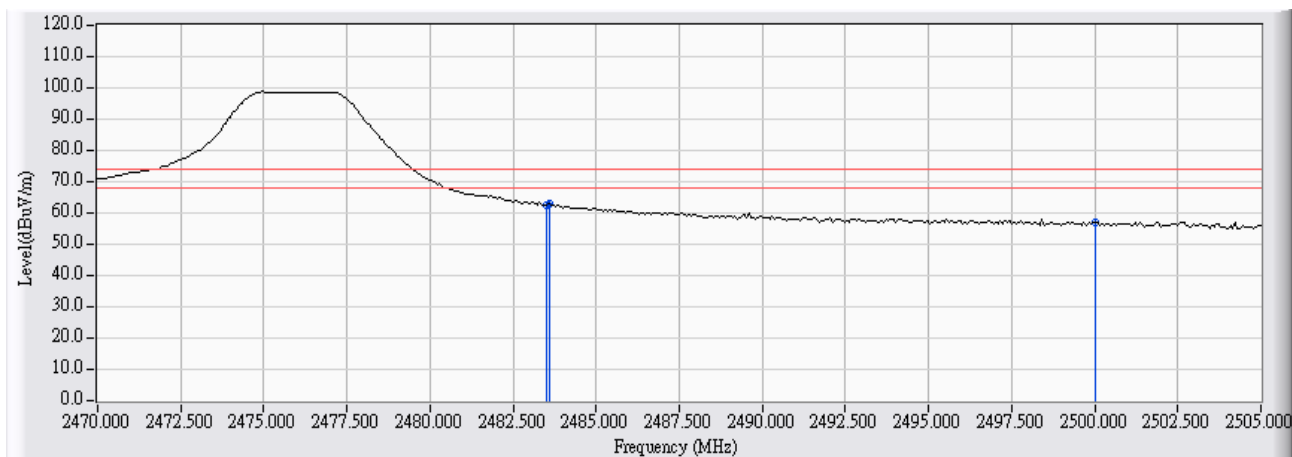


| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|--------------------|------------------------|-------------------------|---------------------------|----------------|-------------------|---------------|
| 1 | | 2483.500 | 28.059 | 28.172 | 56.231 | -17.769 | 74.000 | PEAK |
| 2 | * | 2483.580 | 28.059 | 29.242 | 57.301 | -16.699 | 74.000 | PEAK |
| 3 | | 2500.000 | 28.115 | 22.772 | 50.887 | -23.113 | 74.000 | PEAK |

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

| | |
|---|---|
| Site : CB1 | Time : 2010/12/29 - 16:47 |
| Limit : FCC_SpartC_15.209_03M_PK | Margin : 6 |
| Probe : CB1_FCC_EFS_1-18G(2010-12) - VERTICAL | Power : DC 3V (Power by Battery) |
| EUT : Digital Wireless Microphone | Note : Mode 1: Transmitter (TX) -2475.5 |

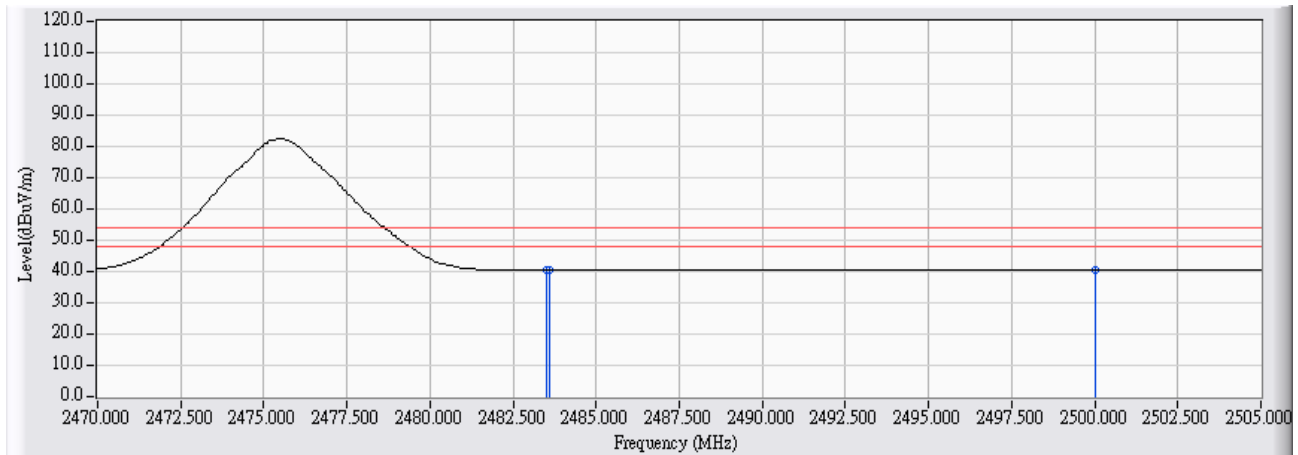


| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|--------------------|------------------------|-------------------------|---------------------------|----------------|-------------------|---------------|
| 1 | | 2483.500 | 28.059 | 34.611 | 62.670 | -11.330 | 74.000 | PEAK |
| 2 | * | 2483.580 | 28.059 | 34.722 | 62.781 | -11.219 | 74.000 | PEAK |
| 3 | | 2500.000 | 28.115 | 28.873 | 56.988 | -17.012 | 74.000 | PEAK |

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

| | |
|---|---|
| Site : CB1 | Time : 2010/12/29 - 16:38 |
| Limit : FCC_SpartC_15.209_03M_AV | Margin : 6 |
| Probe : CB1_FCC_EFS_1-18G(2010-12) - HORIZONTAL | Power : DC 3V (Power by Battery) |
| EUT : Digital Wireless Microphone | Note : Mode 1: Transmitter (TX) -2475.5 |

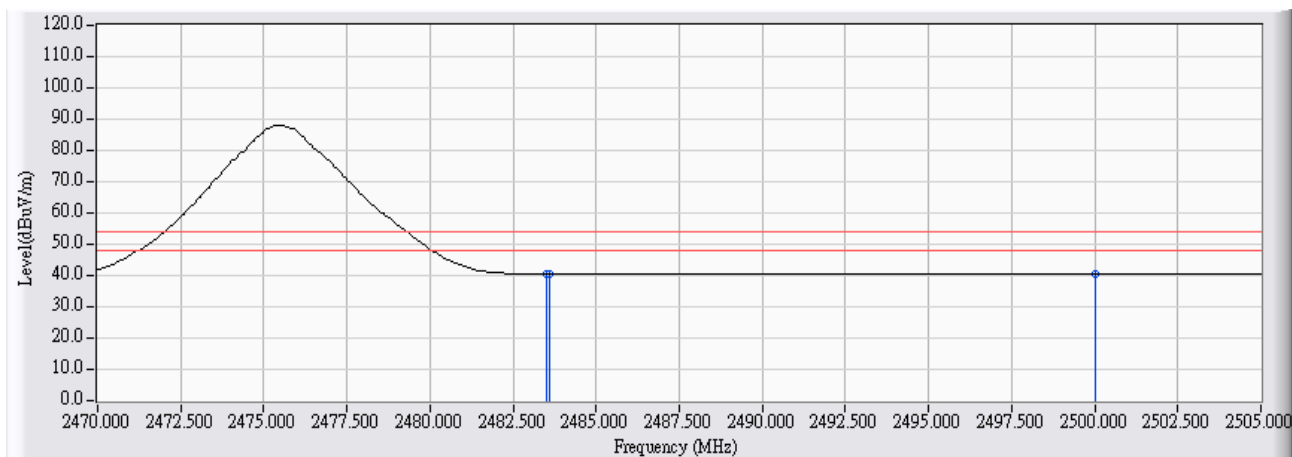


| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|--------------------|------------------------|-------------------------|---------------------------|----------------|-------------------|---------------|
| 1 | | 2483.500 | 28.059 | 12.387 | 40.446 | -13.554 | 54.000 | AVERAGE |
| 2 | * | 2483.580 | 28.059 | 12.390 | 40.449 | -13.551 | 54.000 | AVERAGE |
| 3 | | 2500.000 | 28.115 | 12.313 | 40.428 | -13.572 | 54.000 | AVERAGE |

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

| | |
|---|---|
| Site : CB1 | Time : 2010/12/29 - 16:49 |
| Limit : FCC_SpartC_15.209_03M_AV | Margin : 6 |
| Probe : CB1_FCC_EFS_1-18G(2010-12) - VERTICAL | Power : DC 3V (Power by Battery) |
| EUT : Digital Wireless Microphone | Note : Mode 1: Transmitter (TX) -2475.5 |



| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|--------------------|------------------------|-------------------------|---------------------------|----------------|-------------------|---------------|
| 1 | | 2483.500 | 28.059 | 12.500 | 40.559 | -13.441 | 54.000 | AVERAGE |
| 2 | * | 2483.580 | 28.059 | 12.501 | 40.560 | -13.440 | 54.000 | AVERAGE |
| 3 | | 2500.000 | 28.115 | 12.280 | 40.395 | -13.605 | 54.000 | AVERAGE |

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

6. Number of hopping frequency

6.1. Test Equipment

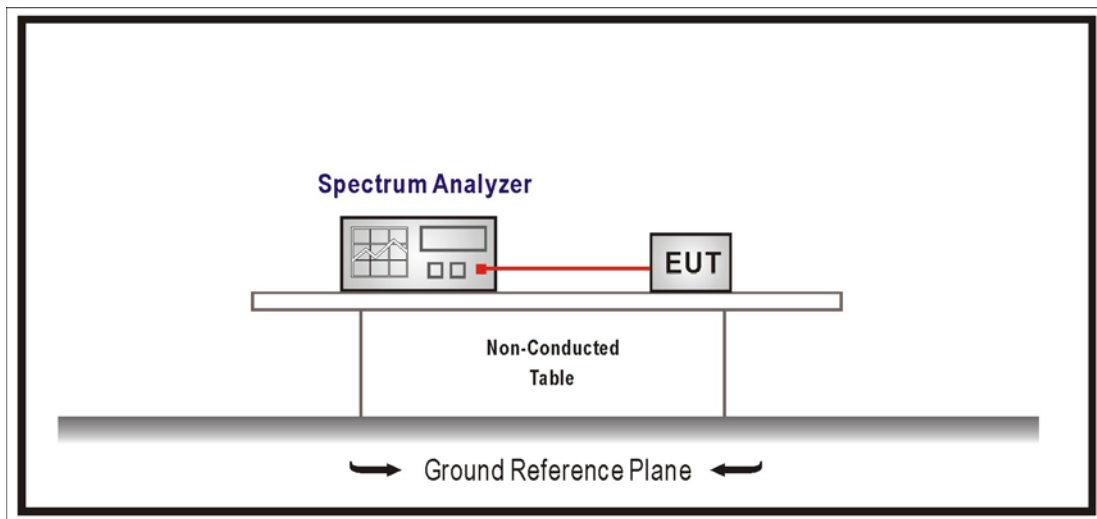
The following test equipments are used during the test:

Number Of Hopping Frequency / SR7

| Instrument | Manufacturer | Model No. | Serial No | Next Cal. Date |
|-------------------|--------------|-----------|-----------|----------------|
| Spectrum Analyzer | R&S | FSP | 100561 | 2011/02/04 |

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

6.2. Test Setup



6.3. Limits

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

For frequency hopping systems operating in the 2400-2483.5 MHz bands, which use fewer than 75 hopping frequencies, may employ intelligent hopping techniques to avoid interference to other transmissions. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 non-overlapping channels are used.

For frequency hopping systems operating in the 5725-5850 MHz band shall use at least 75 hopping frequencies.

6.4. Test Procedures

The EUT was setup according to ANSI C63.4, 2009 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements

Span = the frequency band of operation

$RBW \geq 1\%$ of the span , $VBW \geq RBW$

Sweep = auto, Detector function = peak, Trace = max hold

6.5. Test Specification

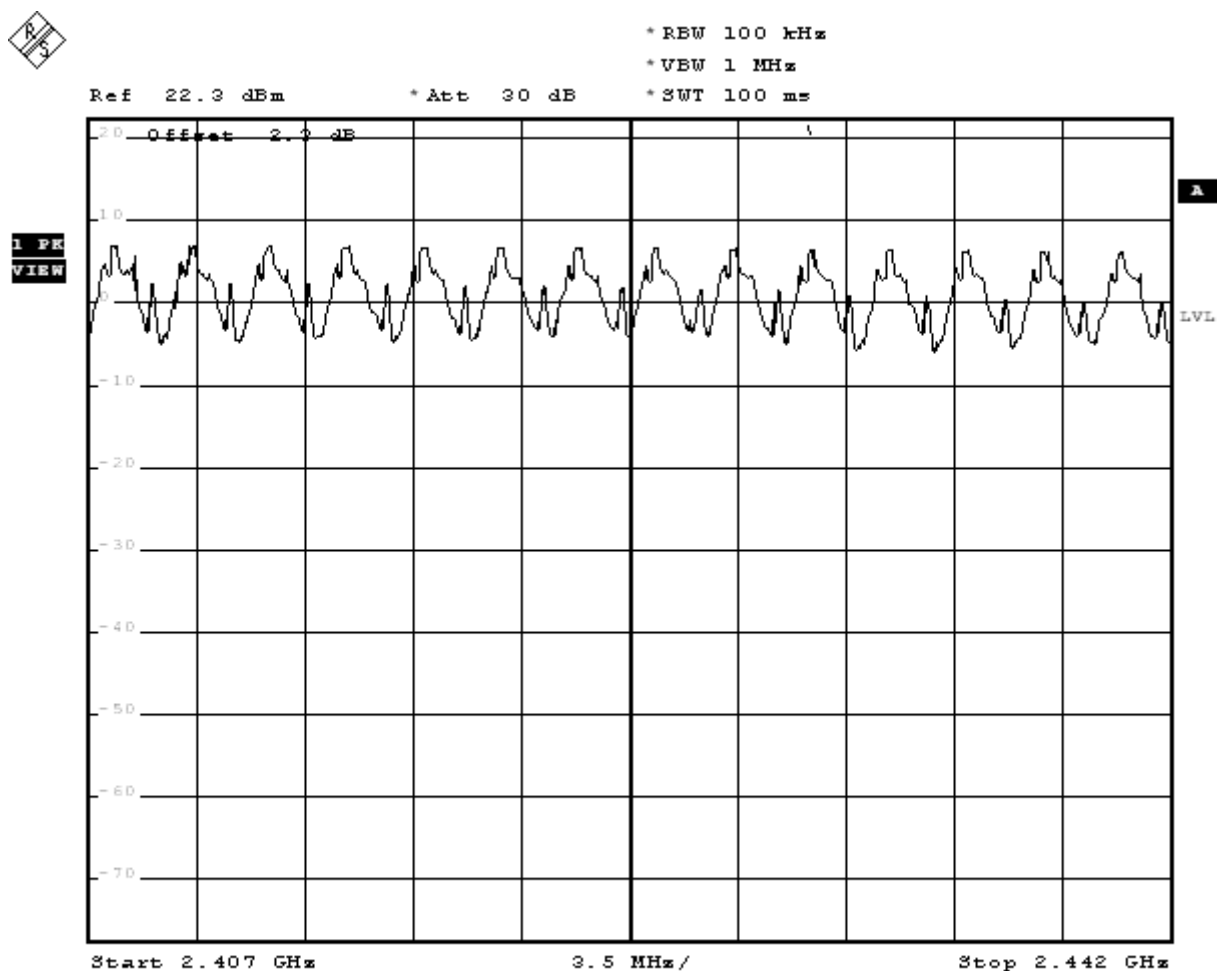
According to FCC Part 15 Subpart C Paragraph 15.247: 2009

6.6. Test Result

| | | | |
|--------------|-----------------------------|-----------|-----|
| Product | Digital Wireless Microphone | | |
| Test Item | Number of hopping frequency | | |
| Test Mode | Mode 1: Transmitter (TX) | | |
| Date of Test | 2010/12/20 | Test Site | SR7 |

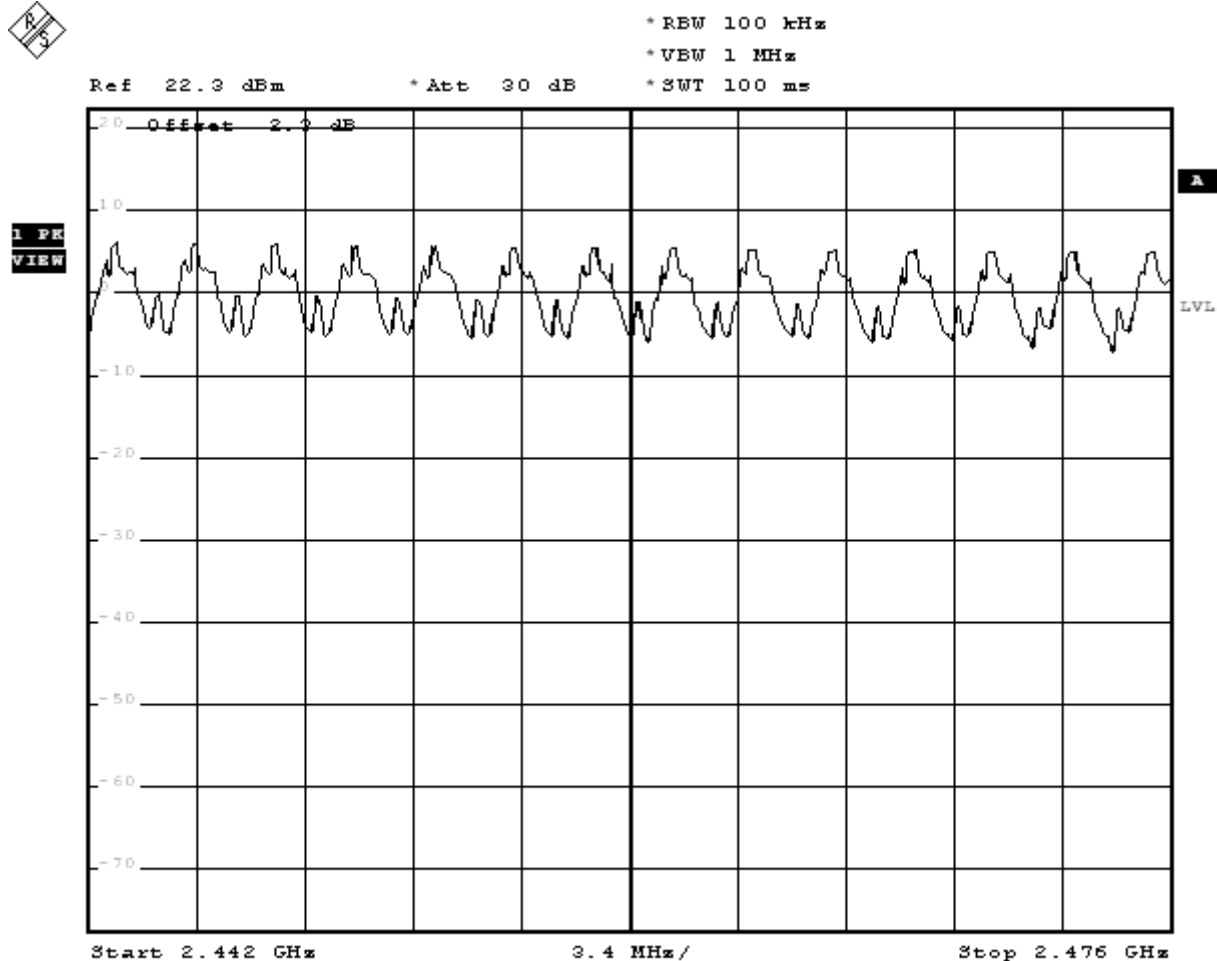
| Frequency Range (MHz) | Measure Level (Hopping Channel) | Limit (Hopping Channel) | Result |
|--------------------------|------------------------------------|----------------------------|--------|
| 2408~2475.5 | 28 | ≥ 15 | Pass |

2407~2442MHz



Date: 6.JAN.2011 21:13:49

2442~2476MHz



Date: 6.JAN.2011 21:20:42

7. Carrier Frequency Separation

7.1. Test Equipment

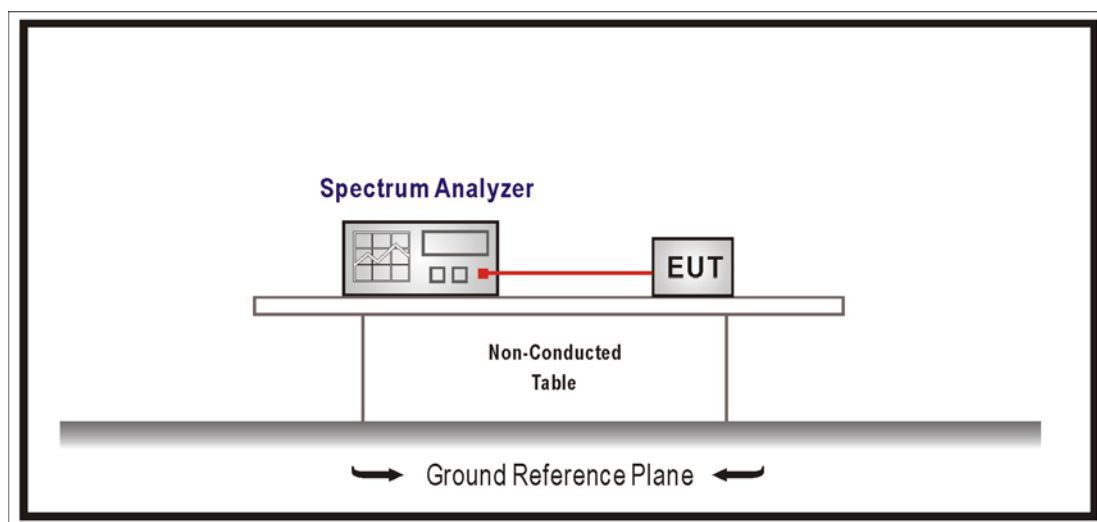
The following test equipment are used during the test:

Carrier Frequency Separation / SR7

| Instrument | Manufacturer | Model No. | Serial No | Next Cal. Date |
|-------------------|--------------|-----------|-----------|----------------|
| Spectrum Analyzer | R&S | FSP | 100561 | 2012/01/16 |

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

7.2. Test Setup



7.3. Limits

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

7.4. Test Procedures

The EUT was setup according to ANSI C63.4, 2009 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements

Span = wide enough to capture the peaks of two adjacent channels

Resolution Bandwidth (RBW) \geq 1% of the span, VBW \geq RBW

Sweep = auto, Detector function = peak, Trace = max hold

7.5. Test Specification

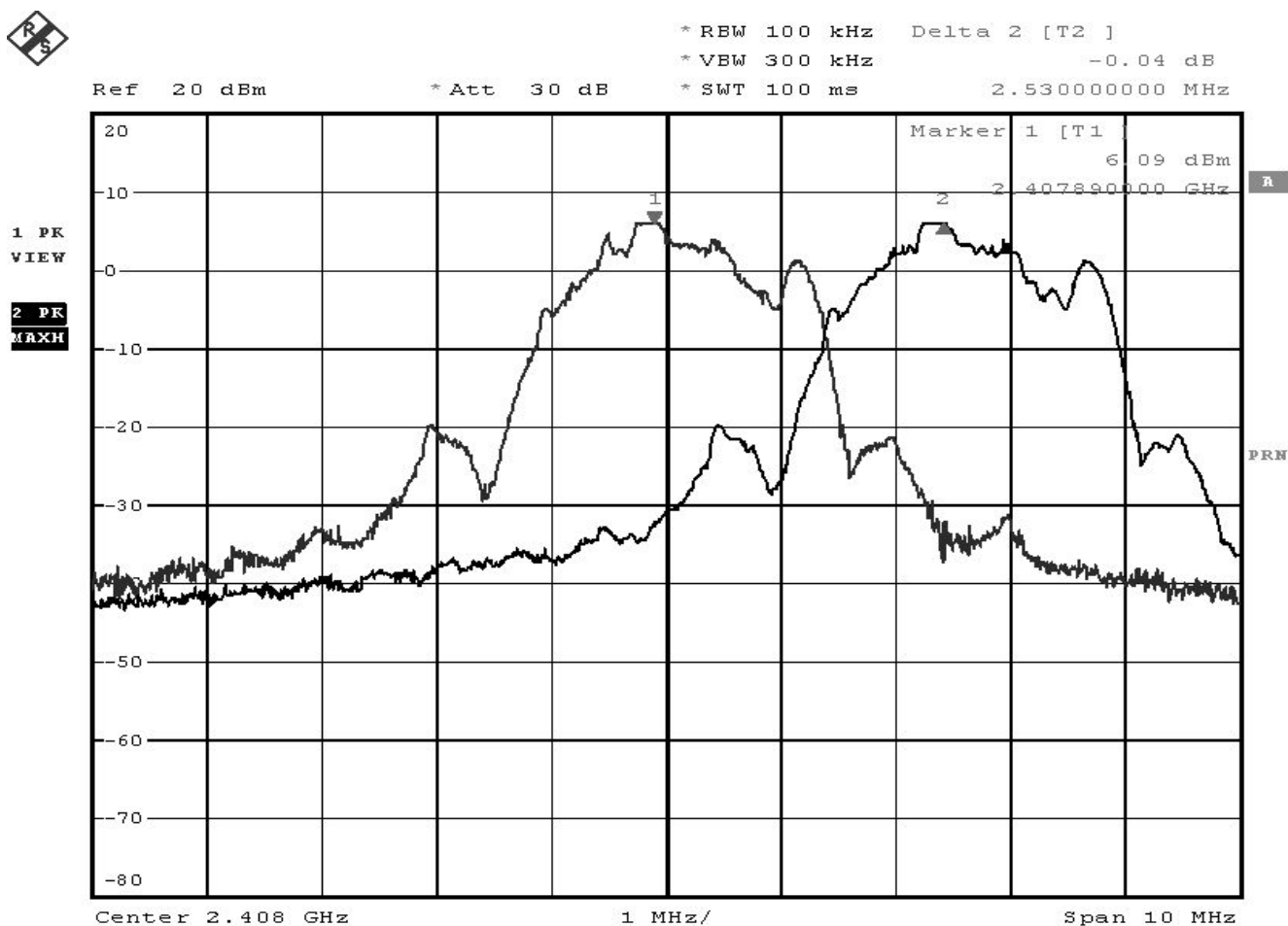
According to FCC Part 15 Subpart C Paragraph 15.247: 2009

7.6. Test Result

| | | | |
|--------------|------------------------------|-----------|-----|
| Product | Digital Wireless Microphone | | |
| Test Item | Carrier Frequency Separation | | |
| Test Mode | Mode 1: Transmitter (TX) | | |
| Date of Test | 2011/01/19 | Test Site | SR7 |

| Channel No. | Frequency (MHz) | Measure Level (kHz) | Limit (kHz) | Result |
|-------------|-----------------|---------------------|-------------|--------|
| 00 | 2408.0 | 2530 | ≥ 1653 | Pass |
| 25 | 2440.5 | 2500 | ≥ 1626 | Pass |
| 27 | 2475.5 | 2500 | ≥ 1653 | Pass |

Channel 00



Date: 19.JAN.2011 10:25:26

Channel 25



*RBW 100 kHz Delta 2 [T2]
 *VBW 300 kHz 0.06 dB
 *SWT 100 ms 2.500000000 MHz

Ref 20 dBm

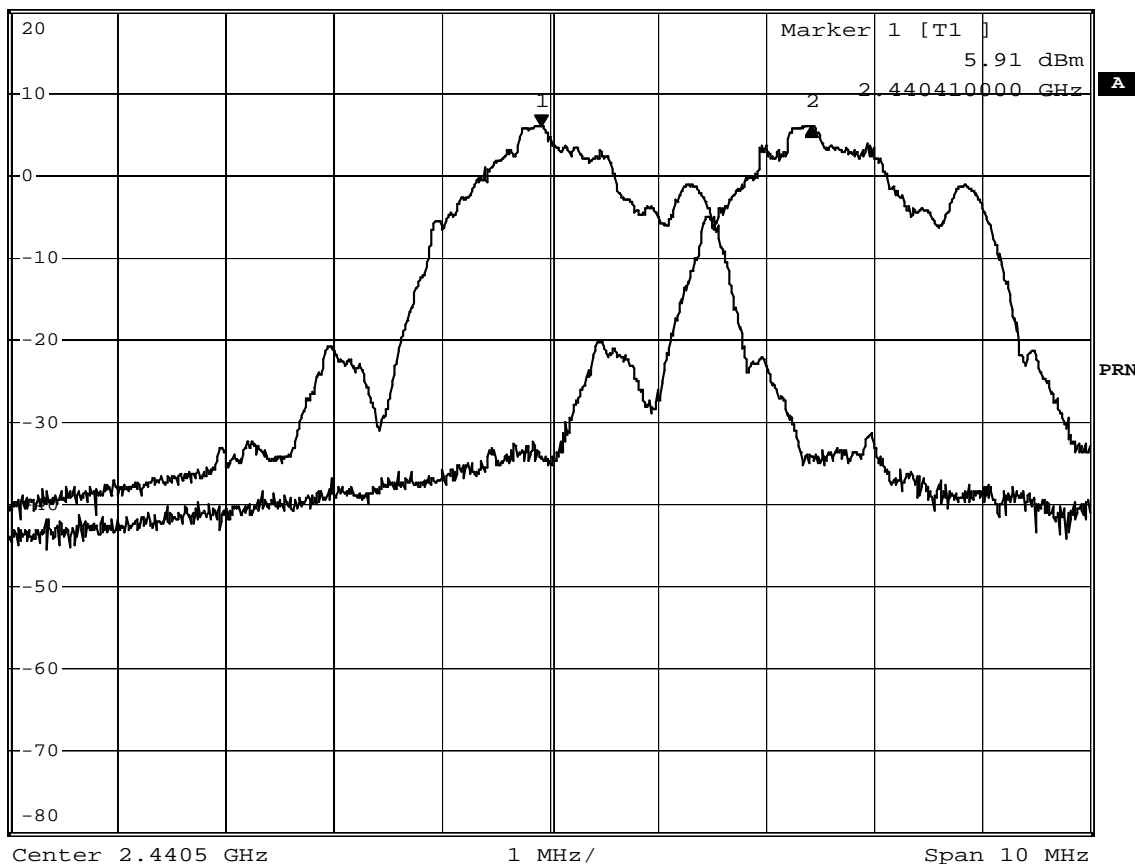
*Att 30 dB

*SWT 100 ms

2.500000000 MHz

1 PK
VIEW

2 PK
VIEW



Date: 19.JAN.2011 10:32:10

Channel 27



*RBW 100 kHz Delta 2 [T2]
 *VBW 300 kHz -0.06 dB
 *SWT 100 ms -2.500000000 MHz

Ref 20 dBm

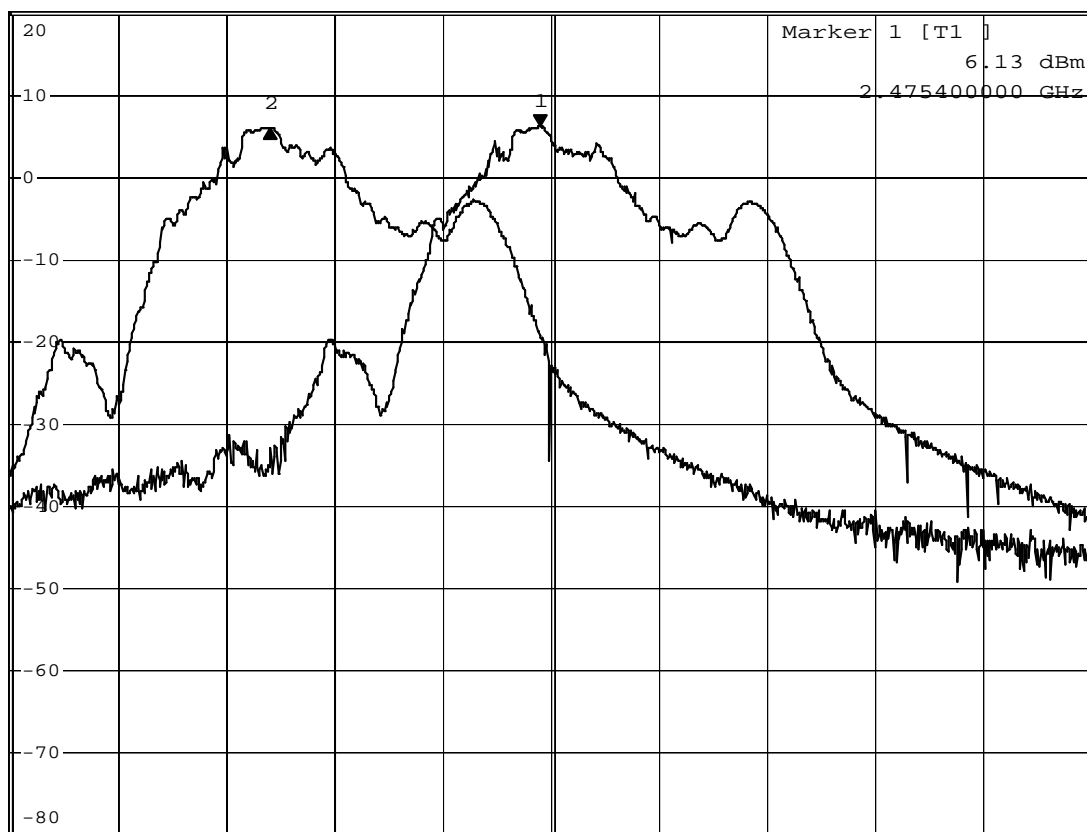
*Att 30 dB

*SWT 100 ms

-2.500000000 MHz

1 PK
VIEW

2 PK
VIEW



PRN

Center 2.4755 GHz

1 MHz/

Span 10 MHz

Date: 19.JAN.2011 10:34:43

8. Occupied Bandwidth

8.1. Test Equipment

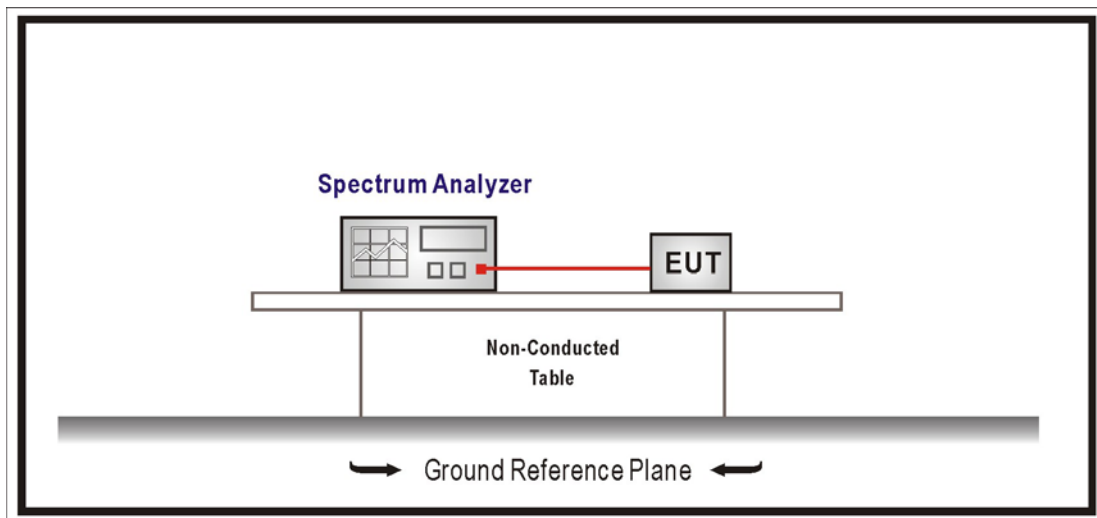
The following test equipment are used during the test:

Occupied Bandwidth / SR7

| Instrument | Manufacturer | Model No. | Serial No | Next Cal. Date |
|-------------------|--------------|-----------|-----------|----------------|
| Spectrum Analyzer | R&S | FSP | 100561 | 2012/01/16 |

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

8.2. Test Setup



8.3. Limits

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

For frequency hopping systems operating in the 5725-5850 MHz bands. The maximum 20 dB bandwidth of the hopping channel is 1 MHz.

For 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.

8.4. Test Procedures

The EUT was setup according to ANSI C63.4, 2009 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements

Use the following spectrum analyzer settings:

Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel

RBW \geq 1% of the 20 dB bandwidth, VBW \geq RBW

Sweep = auto, Detector function = peak, Trace = max hold

The EUT should be transmitting at its maximum data rate.

8.5. Test Specification

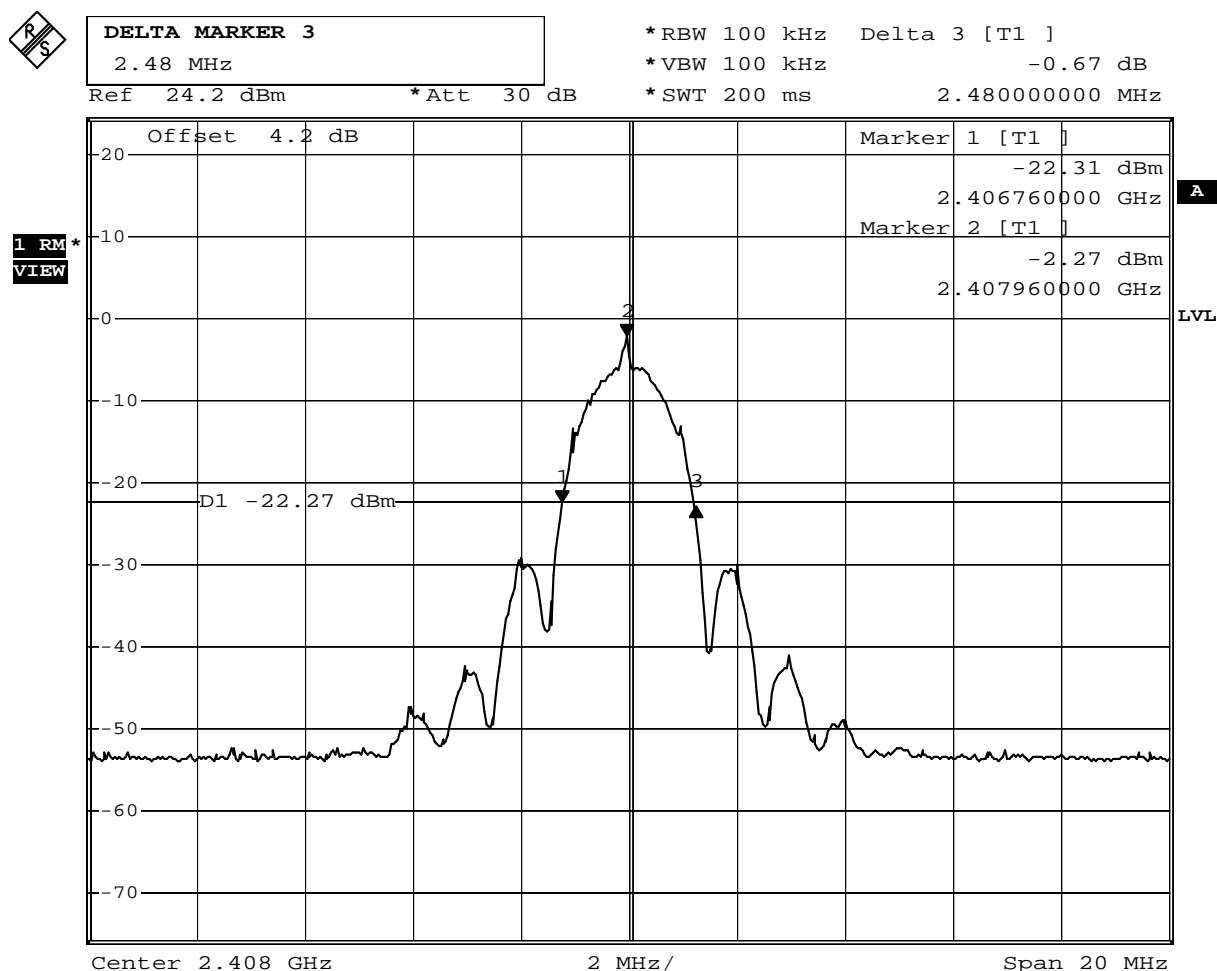
According to FCC Part 15 Subpart C Paragraph 15.247: 2009

8.6. Test Result

| | | | |
|--------------|-----------------------------|-----------|-----|
| Product | Digital Wireless Microphone | | |
| Test Item | Occupied Bandwidth | | |
| Test Mode | Mode 1: Transmitter (TX) | | |
| Date of Test | 2010/12/20 | Test Site | SR7 |

| Channel No. | Frequency (MHz) | Measure Level (MHz) | Limit (MHz) |
|-------------|-----------------|---------------------|-------------|
| 00 | 2408.0 | 2.48 | -- |
| 25 | 2440.5 | 2.44 | -- |
| 27 | 2475.5 | 2.48 | -- |

Channel 00



Date: 20.DEC.2010 13:51:22

Channel 25



DELTA MARKER 3

2.44 MHz

Ref 24.2 dBm

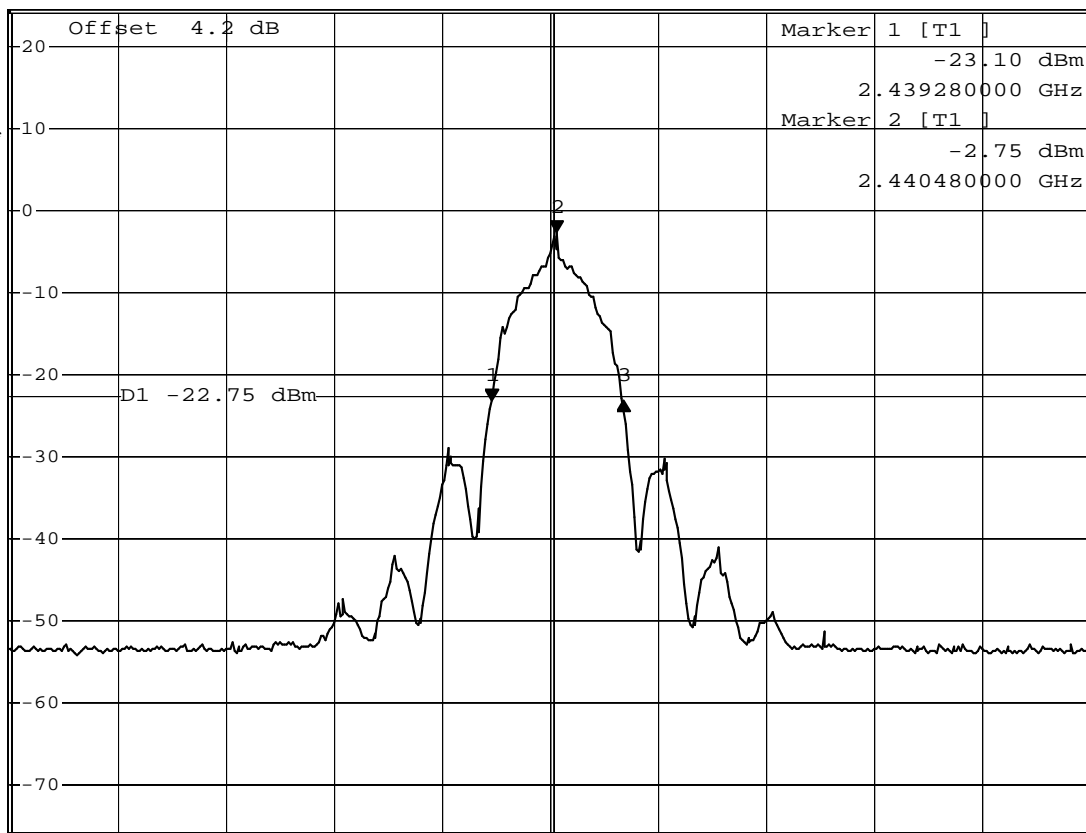
*Att 30 dB

*RBW 100 kHz Delta 3 [T1]

*VBW 100 kHz -0.09 dB

*SWT 200 ms 2.440000000 MHz

1 RM
VIEW



Center 2.44036 GHz

2 MHz/

Span 20 MHz

Date: 20.DEC.2010 13:53:17

Channel 27



DELTA MARKER 3

2.48 MHz

Ref 24.2 dBm

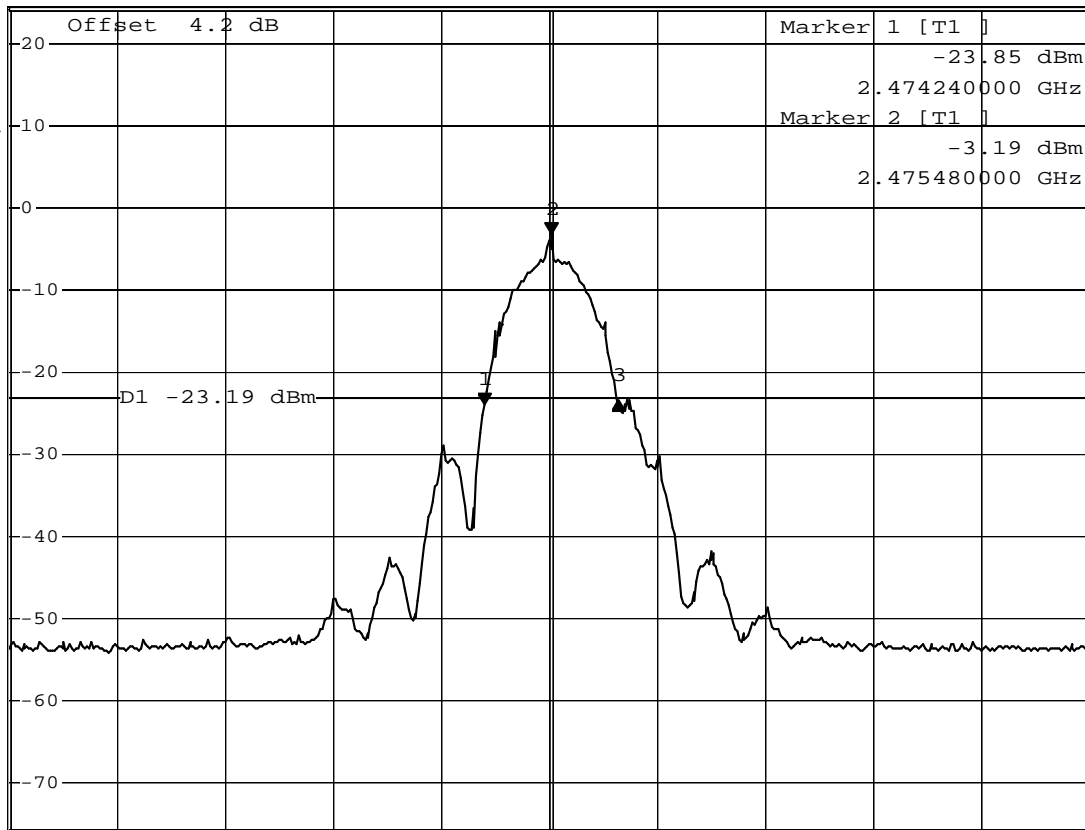
*Att 30 dB

*RBW 100 kHz Delta 3 [T1]

*VBW 100 kHz 0.43 dB

*SWT 200 ms 2.480000000 MHz

1 RM *
VIEW



Center 2.47544 GHz

2 MHz/

Span 20 MHz

Date: 20.DEC.2010 13:55:25

9. Dwell Time

9.1. Test Equipment

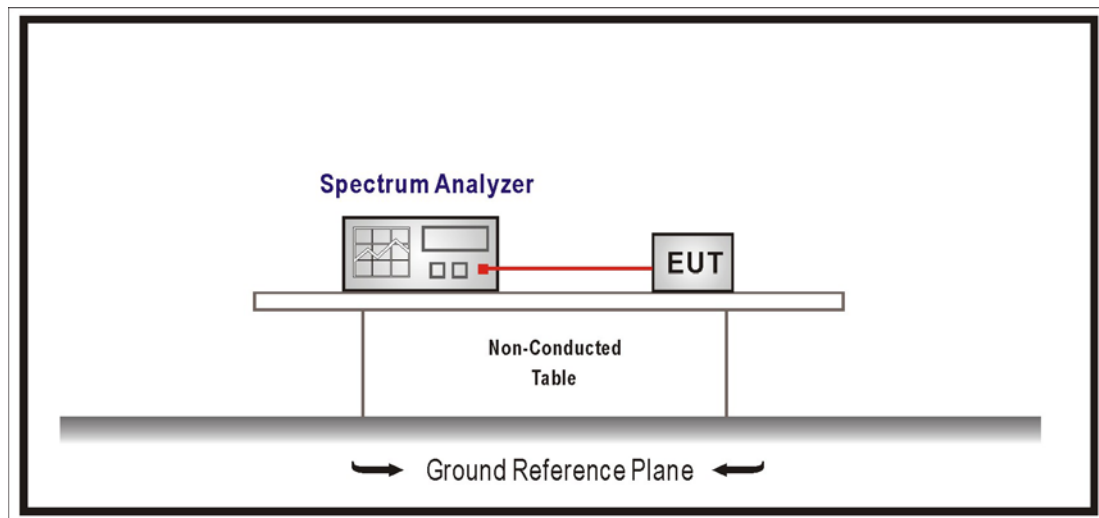
The following test equipment are used during the test:

Dwell Time / SR7

| Instrument | Manufacturer | Model No. | Serial No | Next Cal. Date |
|-------------------|--------------|-----------|-----------|----------------|
| Spectrum Analyzer | R&S | FSP | 100561 | 2012/01/16 |

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

9.2. Test Setup



9.3. Limits

For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. For frequency hopping systems operating in the 2400-2483.5 MHz bands. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. For frequency hopping systems operating in the 5725-5850 MHz bands. The average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 30 second period.

9.4. Test Procedures

The EUT was setup according to ANSI C63.4, 2009 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements

Span = zero span, centered on a hopping channel

RBW = 1 MHz, VBW \geq RBW

Sweep = as necessary to capture the entire dwell time per hopping channel

Detector function = peak, Trace = max hold

9.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2009

9.6. Test Result

| | | | |
|--------------|-----------------------------|-----------|-----|
| Product | Digital Wireless Microphone | | |
| Test Item | Dwell Time | | |
| Test Mode | Mode 1: Transmitter (TX) | | |
| Date of Test | 2011/01/05 | Test Site | SR7 |

Occupancy Time of Frequency Hopping System

A) 2408MHz Test Time Period: $0.4 \times 28 = 11.2\text{sec}$, Hopping Times Within 1sec: $7/20\text{msec} = 350/\text{sec}$

The Maximum Occupancy Time Within 11.2sec: $0.0024 \times (350/28) \times 11.2 = 0.336\text{sec}$.

B) 2440.5MHz Test Time Period: $0.4 \times 28 = 11.2\text{sec}$, Hopping Times Within 1sec: $7/20\text{msec} = 350/\text{sec}$

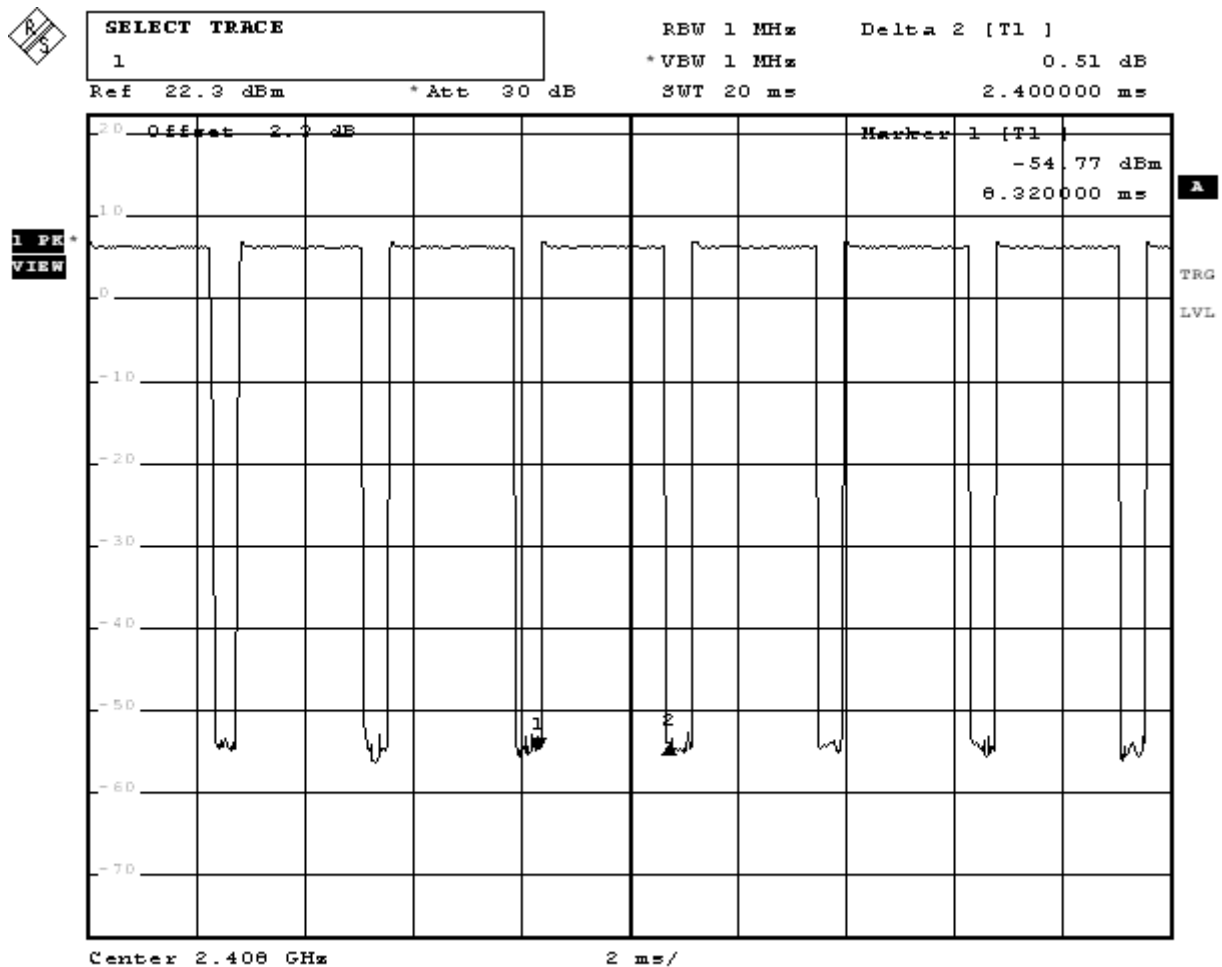
The Maximum Occupancy Time Within 11.2sec: $0.0024 \times (350/28) \times 11.2 = 0.336\text{sec}$.

C) 2475.5MHz Test Time Period: $0.4 \times 28 = 11.2\text{sec}$, Hopping Times Within 1sec: $7/20\text{msec} = 350/\text{sec}$

The Maximum Occupancy Time Within 11.2sec: $0.0024 \times (350/28) \times 11.2 = 0.336\text{sec}$.

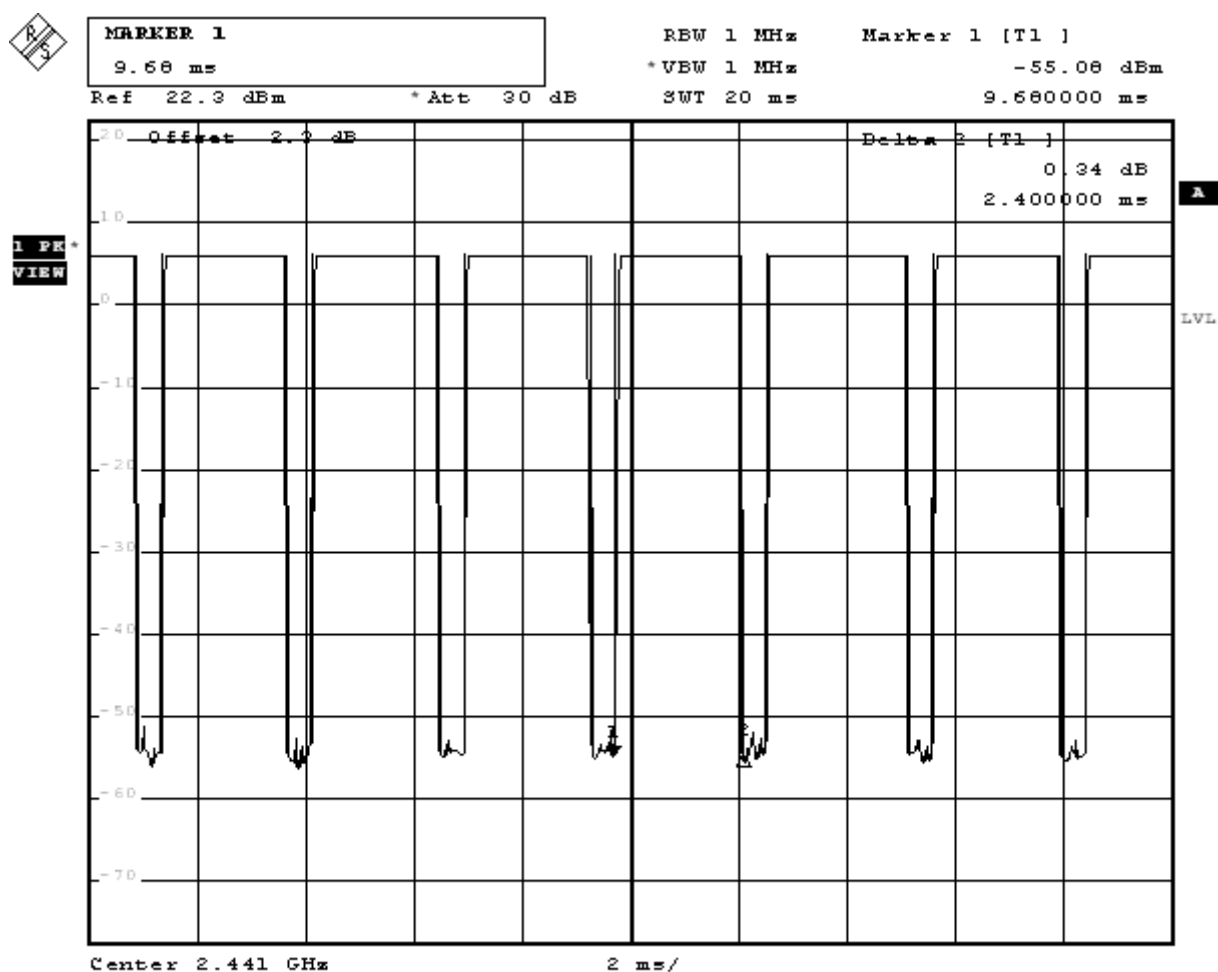
Test Result: The Average Occupancy Time of Each Highest , Middle and Lowest Channel Is Less Than 0.4sec , And Corresponds to The Standard .

Hop rate-2408MHz

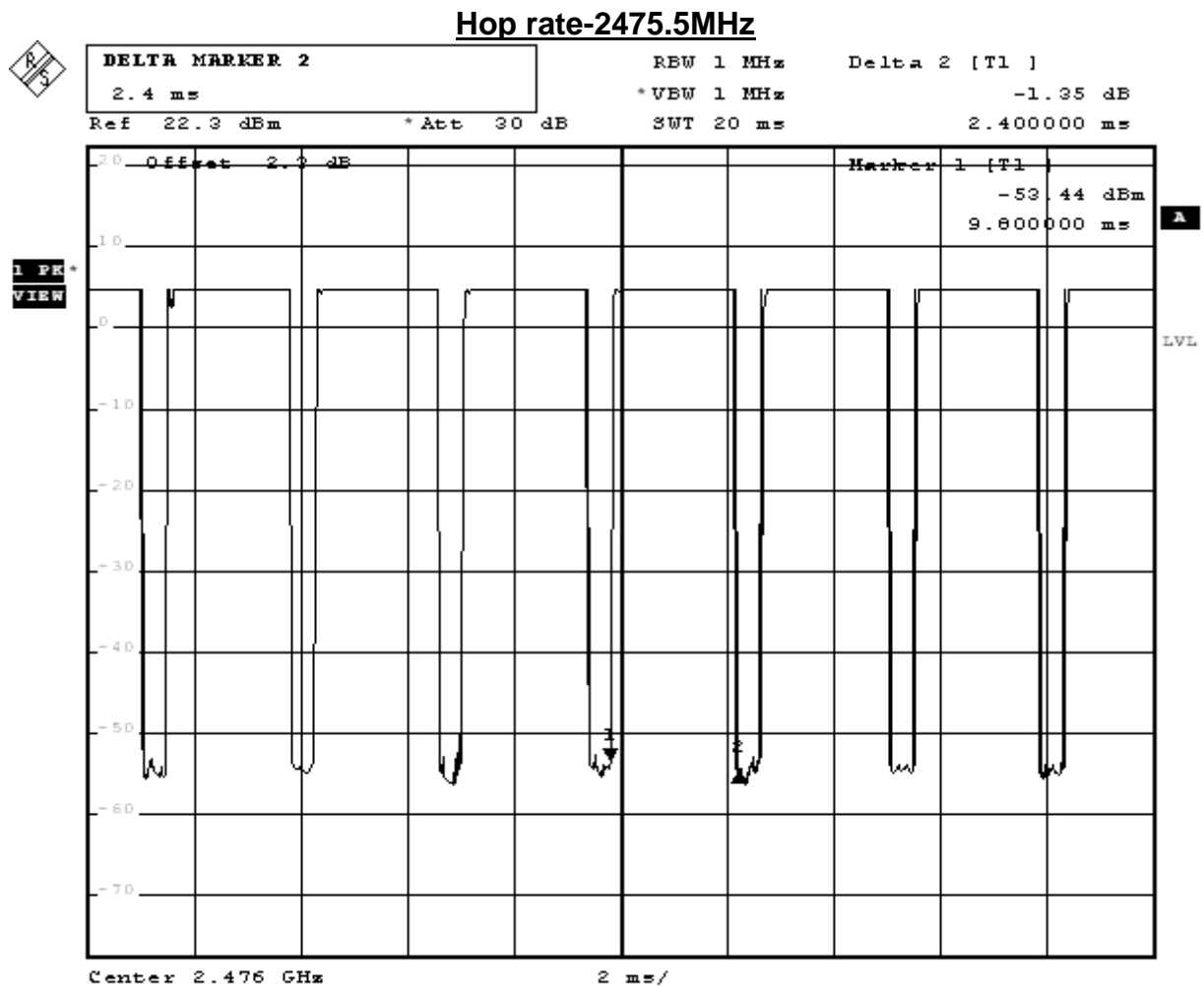


Date: 5.JAN.2011 21:58:43

Hop rate-2440.5MHz



Date: 5.JAN.2011 22:02:39



Date: 5.JAN.2011 22:04:46

Note: Dwell time = time slot length * hop rate / number of hopping channels * period