



## Test Report

Product Name	Smart Handheld
Model No	M900
FCC ID.	HLZSHM900

Applicant	Acer Incorporated
Address	8F, 88, Sec. 1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan

Date of Receipt	Feb. 05, 2009
Issue Date	Mar. 11, 2009
Report No.	092307R-RFUSP13V01
Version	V1.0

The test results relate only to the samples tested.

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# Test Report Certification

Issue Date: Mar. 11, 2009

Report No.: 092307R-RFUSP13V01



**Accredited by NIST (NVLAP)**  
NVLAP Lab Code: 200533-0

Product Name	Smart Handheld
Applicant	Acer Incorporated
Address	8F, 88, Sec. 1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan
Manufacturer	Arima Communication (JiangSu) Co.,Ltd
Model No.	M900
Rated Voltage	AC 120V/60Hz
Working Voltage	DC 3.7V
Trade Name	acer & glofiish
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2007 ANSI C63.4: 2003
Test Result	Complied



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## 1. GENERAL INFORMATION

### 1.1. EUT Description

Product Name	Smart Handheld
Trade Name	acer & glofiish
Model No.	M900
FCC ID.	HLZSHM900
Frequency Range	2412-2462MHz
Number of Channels	802.11b/g: 11
Data Speed	802.11b: 1 - 11Mbps, 802.11g: 6 - 54Mbps
Type of Modulation	802.11b:DSSS DBPSK, DQPSK, CCK 802.11g: OFDM BPSK, QPSK, 16QAM, 64QAM
Antenna Type	Monopole
Antenna Gain	Refer to the table "Antenna List"
Channel Control	Auto
Power Adapter	MFR: PHIHONG, M/N: PSC05R-050 Input: AC 100-240V~0.2A, 50-60Hz 13-19VA Output: DC 5V, 1.0A Cable Out: Non-Shielded, 1.8m with one ferrite core bonded.

#### Antenna List

No.	Manufacturer	Part No.	Peak Gain
1	acer	N/A	-3.56 dBi for 2.4 GHz

## 802.11b/g Center Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 01:	2412 MHz	Channel 02:	2417 MHz	Channel 03:	2422 MHz	Channel 04:	2427 MHz
Channel 05:	2432 MHz	Channel 06:	2437 MHz	Channel 07:	2442 MHz	Channel 08:	2447 MHz
Channel 09:	2452 MHz	Channel 10:	2457 MHz	Channel 11:	2462 MHz		

## Note:

1. The EUT is an Smart Handheld with a built-in 2.4GHz WLAN transceiver.
2. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
3. Lowest and highest data rates are tested in each mode. Only worst case is shown in the report. (802.11b is 1Mbps 、 802.11g is 6Mbps)
4. These tests are conducted on a sample for the purpose of demonstrating compliance of 802.11b/g transmitter with Part 15 Subpart C Paragraph 15.247 of spread spectrum devices
5. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

## 1.2. Operational Description

The EUT is a Smart Handheld , The EUT Contains functions and so on WiFi · Bluetooth · GPS · GSM/WCDMA, this report for WiFi. This device provided four kinds of transmitting speed 1, 2, 5.5 and 11Mbps. The device of RF carrier is DBPSK, DQPSK and CCK (IEEE 802.11b) or eight kinds of transmitting speed 6, 9, 12, 18, 24, 36, 48 and 54Mbps. The device of RF carrier is OFDM (IEEE 802.11g).

The device adapts direct sequence spread spectrum modulation. The antenna provides diversity function to improve the receiving function.

This Smart Handheld, compliant with IEEE 802.11b and IEEE 802.11g, is a high-efficiency Wireless LAN adapter. It allows your computer to connect to a wireless network and to share resources, such as files or printers without being bound to the network wires. Operation in 2.4GHz Direct Sequence Spread Spectrum (DSSS) radio transmission, the Smart Handheld Wired Equivalent Protection (WEP) algorithm is used. In addition, its standard compliance ensures that it can communicate with any IEEE 802.11b and IEEE 802.11g network.

Test Mode:	Mode 1: Transmitter -802.11b 1Mbps
	Mode 2: Transmitter -802.11g 6Mbps
	Mode 3: Transmitter -802.11b 1Mbps+Bluetooth (hopping)
	Mode 4: Transmitter -802.11g 6Mbps+Bluetooth (hopping)

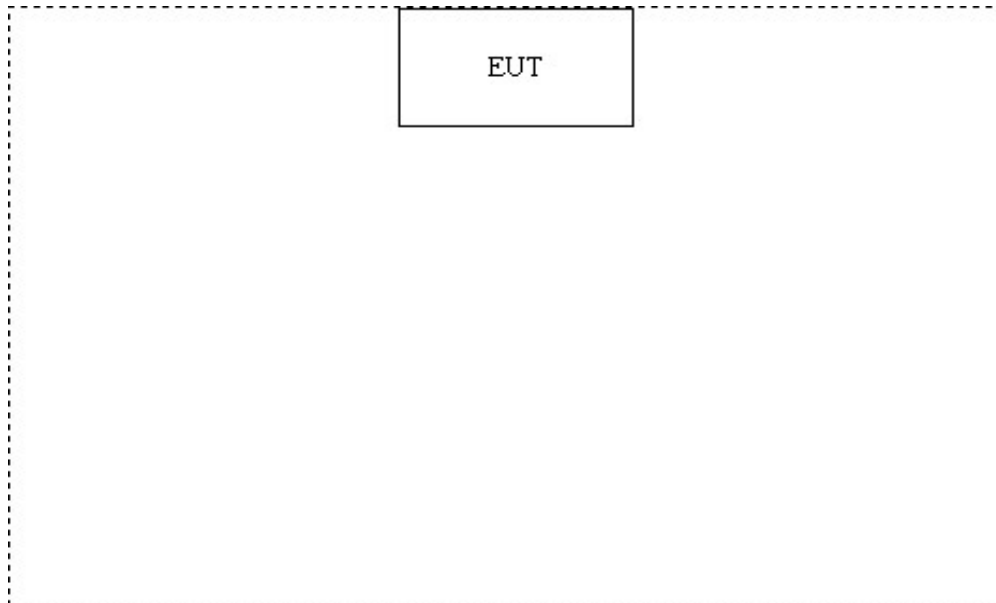
**1.3. Tested System Details**

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

	Signal Cable Type	Signal cable Description
A	N/A	N/A

**1.4. Configuration of Tested System**



**1.5. EUT Exercise Software**

- (1) Setup the EUT as shown in section 1.4
- (2) Power on the EUT.
- (3) Execute Azurewave GH-600 Program.
- (4) Configure the test channel and the data rate.
- (5) Click on “Start” to transmit continuously.
- (6) Verify that the EUT works properly.



**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	50-65
Barometric pressure (mbar)	860-1060	950-1000

The related certificate for our laboratories about the test site and management system can be downloaded from Quietek Corporation’s Web Site : <http://tw.quietek.com/modules/myalbum/>  
 The address and introduction of Quietek Corporation’s laboratories can be founded in our Web site : <http://www.quietek.com/>

Site Description: File on  
 Federal Communications Commission  
 FCC Engineering Laboratory  
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 Registration Number: 92195



Accreditation on NVLAP  
 NVLAP Lab Code: 200533-0



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FCC Accreditation Number: TW1014



## 2. Conducted Emission

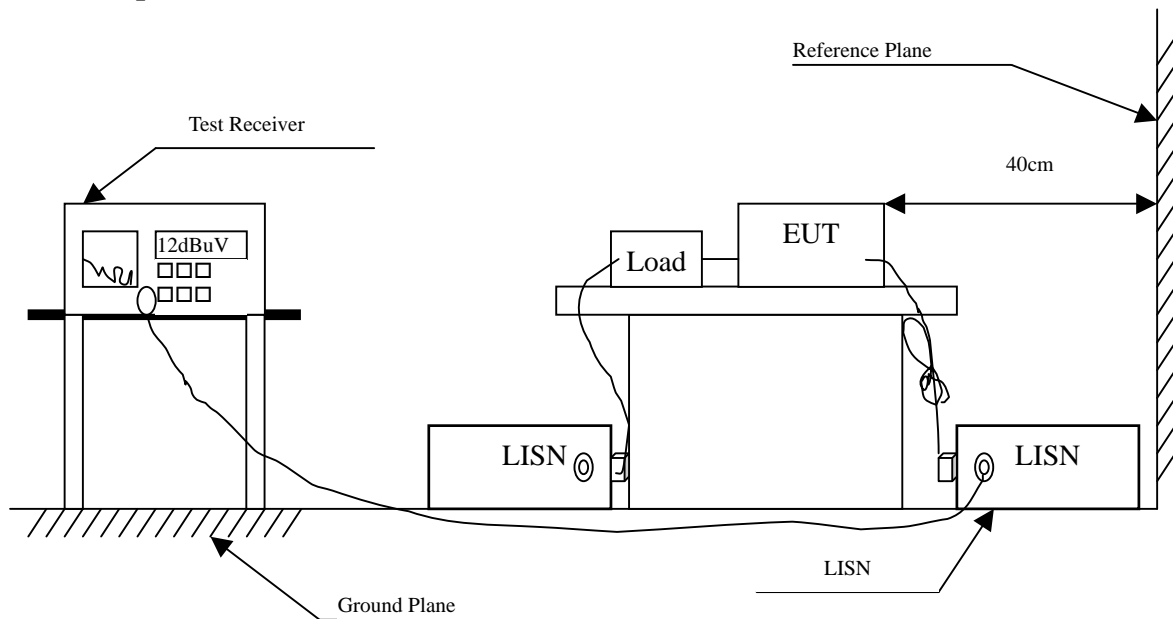
### 2.1. Test Equipment

The following test equipment are used during the conducted emission test:

Item	Instrument	Manufacturer	Type No./Serial No	Last Cal.	Remark
1	Test Receiver	R & S	ESCS 30/825442/17	May, 2008	
2	L.I.S.N.	R & S	ESH3-Z5/825016/6	May, 2008	EUT
3	L.I.S.N.	Kyoritsu	KNW-407/8-1420-3	May, 2008	Peripherals
4	Pulse Limiter	R & S	ESH3-Z2	May, 2008	
5	No.1 Shielded Room			N/A	

Note: All instruments are calibrated every one year.

### 2.2. Test Setup



**2.3. Limits**

<b>FCC Part 15 Subpart C Paragraph 15.207 (dBuV) Limit</b>		
Frequency MHz	Limits	
	QP	AVG
0.15 - 0.50	66-56	56-46
0.50-5.0	56	46
5.0 - 30	60	50

**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**

± 2.26 dB

## 2.6. Test Result of Conducted Emission

Product : Smart Handheld  
 Test Item : Conducted Emission Test  
 Power Line : Line 1  
 Test Mode : Mode 1: Transmitter -802.11b 1Mbps (2437MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
<b>Line 1</b>					
<b>Quasi-Peak</b>					
0.162	9.750	32.950	42.700	-22.957	65.657
0.263	9.667	30.290	39.957	-22.814	62.771
0.545	9.640	37.060	46.700	-9.300	56.000
0.689	9.630	32.140	41.770	-14.230	56.000
1.244	9.670	28.050	37.720	-18.280	56.000
2.834	9.690	28.090	37.780	-18.220	56.000
<b>Average</b>					
0.162	9.750	17.600	27.350	-28.307	55.657
0.263	9.667	19.700	29.367	-23.404	52.771
0.545	9.640	30.110	39.750	-6.250	46.000
0.689	9.630	20.850	30.480	-15.520	46.000
1.244	9.670	20.450	30.120	-15.880	46.000
2.834	9.690	20.910	30.600	-15.400	46.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Smart Handheld  
 Test Item : Conducted Emission Test  
 Power Line : Line 2  
 Test Mode : Mode 1: Transmitter -802.11b 1Mbps (2437MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
<b>Line 2</b>					
<b>Quasi-Peak</b>					
0.166	9.748	33.370	43.117	-22.426	65.543
0.201	9.716	32.240	41.956	-22.587	64.543
0.537	9.640	35.720	45.360	-10.640	56.000
0.666	9.650	29.220	38.870	-17.130	56.000
3.068	9.690	25.290	34.980	-21.020	56.000
4.564	9.700	22.580	32.280	-23.720	56.000
<b>Average</b>					
0.166	9.748	15.360	25.107	-30.436	55.543
0.201	9.716	18.740	28.456	-26.087	54.543
0.537	9.640	28.740	38.380	-7.620	46.000
0.666	9.650	18.220	27.870	-18.130	46.000
3.068	9.690	17.460	27.150	-18.850	46.000
4.564	9.700	15.480	25.180	-20.820	46.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Smart Handheld  
 Test Item : Conducted Emission Test  
 Power Line : Line 1  
 Test Mode : Mode 2: Transmitter -802.11g 6Mbps (2437MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
<b>Line 1</b>					
<b>Quasi-Peak</b>					
0.197	9.850	26.170	36.020	-28.637	64.657
0.459	9.830	27.620	37.450	-19.721	57.171
0.783	9.820	19.090	28.910	-27.090	56.000
2.052	9.840	15.860	25.700	-30.300	56.000
2.744	9.850	13.840	23.690	-32.310	56.000
7.896	9.910	8.470	18.380	-41.620	60.000
<b>Average</b>					
0.197	9.850	17.500	27.350	-27.307	54.657
0.459	9.830	21.940	31.770	-15.401	47.171
0.783	9.820	13.130	22.950	-23.050	46.000
2.052	9.840	10.680	20.520	-25.480	46.000
2.744	9.850	8.860	18.710	-27.290	46.000
7.896	9.910	3.390	13.300	-36.700	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Smart Handheld  
 Test Item : Conducted Emission Test  
 Power Line : Line 2  
 Test Mode : Mode 2: Transmitter -802.11g 6Mbps (2437MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
<b>Line 2</b>					
<b>Quasi-Peak</b>					
0.193	9.860	24.690	34.550	-30.221	64.771
0.267	9.854	21.230	31.084	-31.573	62.657
0.459	9.830	27.010	36.840	-20.331	57.171
0.755	9.840	17.770	27.610	-28.390	56.000
2.087	9.840	12.110	21.950	-34.050	56.000
7.213	9.890	6.900	16.790	-43.210	60.000
<b>Average</b>					
0.193	9.860	11.740	21.600	-33.171	54.771
0.267	9.854	11.540	21.394	-31.263	52.657
0.459	9.830	21.360	31.190	-15.981	47.171
0.755	9.840	8.960	18.800	-27.200	46.000
2.087	9.840	6.710	16.550	-29.450	46.000
7.213	9.890	1.830	11.720	-38.280	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

### 3. Peak Power Output

#### 3.1. Test Equipment

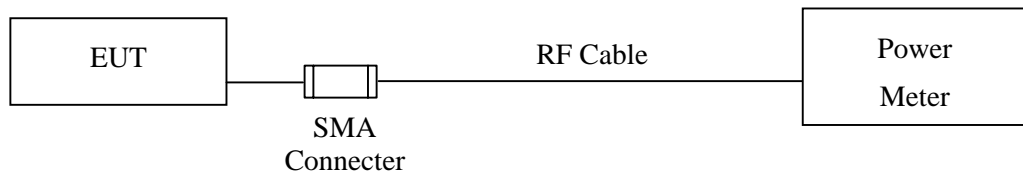
The following test equipments are used during the radiated emission tests:

Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X Power Meter	Anritsu	ML2495A/6K00003357	May, 2008
X Power Sensor	Anritsu	MA2491A/034457	May, 2008

Note: 1. All instruments are calibrated every one year.  
 2. The test instruments marked by “X” are used to measure the final test results.

#### 3.2. Test Setup

Conducted Measurement



#### 3.3. Limits

The maximum peak power shall be less 1 Watt.

#### 3.4. Test Procedure

The EUT was tested according to DTS test procedure of Mar. 2005 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

#### 3.5. Uncertainty

± 1.27 dB



### 3.6. Test Result of Peak Power Output

Product : Smart Handheld  
 Test Item : Peak Power Output Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter -802.11b 1Mbps

Cable Loss=0.5dB		Peak Power Output				Required Limit
Channel No.	Frequency (MHz)	Data Rate				
		1	2	5.5	11	
1	2412.00	17.01	--	--	--	1Watt= 30 dBm
6	2437.00	16.68	16.63	16.58	16.52	1Watt= 30 dBm
11	2462.00	16.16	--	--	--	1Watt= 30 dBm

Note: Peak Power Output Value =Reading value on peak power meter + cable loss

Product : Smart Handheld  
 Test Item : Peak Power Output Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmitter -802.11g 6Mbps

Cable Loss=0.5dB		Peak Power Output								
Channel No.	Frequency (MHz)	Data Rate								Required Limit
		6	9	12	18	24	36	48	54	
1	2412.00	21.37	--	--	--	--	--	--	--	1Watt= 30 dBm
6	2437.00	21.09	21.01	20.88	20.82	20.76	20.71	20.68	20.61	1Watt= 30 dBm
11	2462.00	20.42	--	--	--	--	--	--	--	1Watt= 30 dBm

Note: Peak Power Output Value =Reading value on peak power meter + cable loss

#### 4. Radiated Emission

##### 4.1. Test Equipment

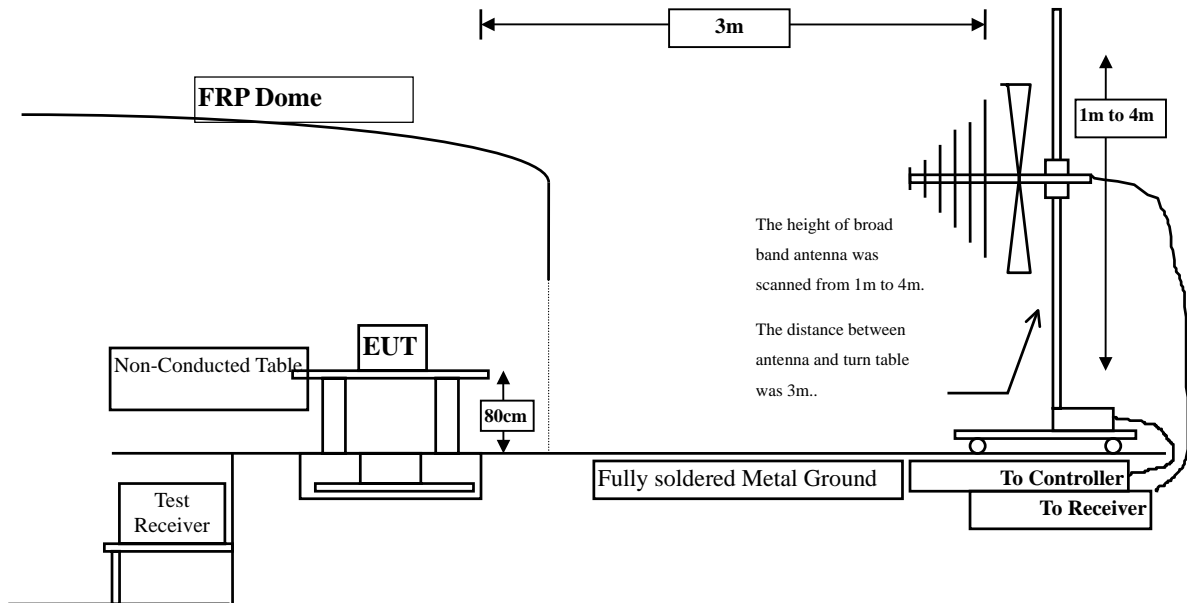
The following test equipment are used during the radiated emission test:

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒ Site # 3	X	Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2008
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2008
	X	Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2008
	X	Pre-Amplifier	AGILENT	8447D/2944A09549	Sep., 2008
	X	Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2008
	X	Spectrum Analyzer	Advantest	R3162/91700283	Oct., 2008
	X	Coaxial Cable	Quietek	QTK-CABLE/ CAB5	Feb., 2009
	X	Controller	Quietek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

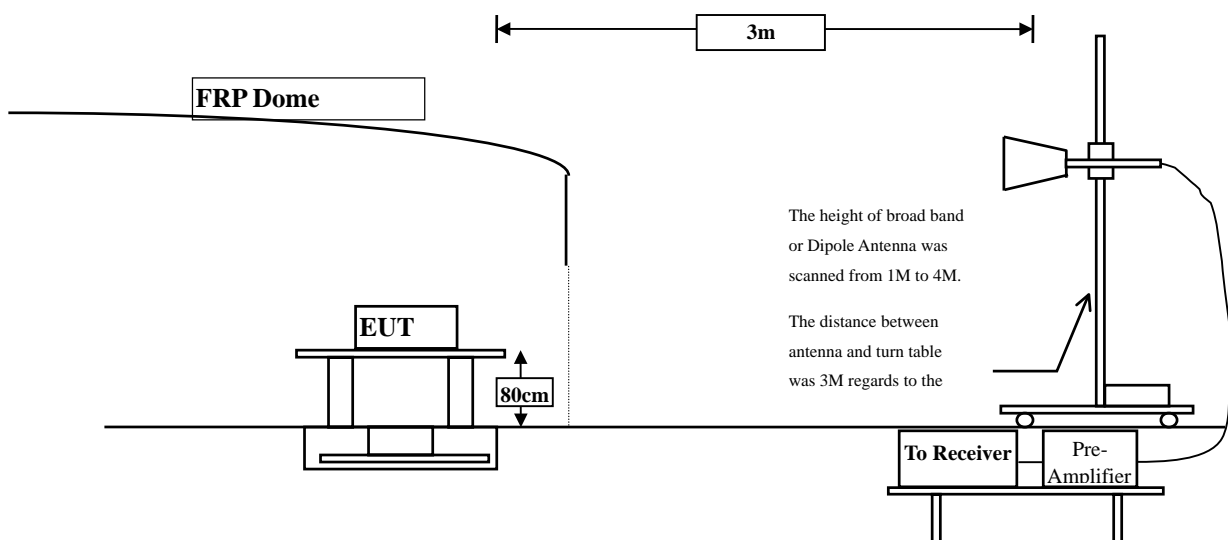
- Note:
1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
  2. The test instruments marked with "X" are used to measure the final test results.

## 4.2. Test Setup

### Radiated Emission Below 1GHz



### Radiated Emission Above 1GHz



### 4.3. 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.

<b>FCC Part 15 Subpart C Paragraph 15.209(a) Limits</b>		
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: E field strength (dBuV/m) = 20 log E field strength (uV/m)

#### 4.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2003 and tested according to DTS test procedure of Mar. 2005 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 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 is scanned between 1 meter and 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4:2003 on radiated measurement.

The resolution bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.

Radiated emission measurements below 1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB beamwidth of the antenna.

The worst radiated emission is measured in the Open Area Test Site on the Final Measurement.

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

#### 4.5. Uncertainty

± 3.9 dB above 1GHz

± 3.8 dB below 1GHz

#### 4.6. Test Result of Radiated Emission

Product : Smart Handheld  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter -802.11b 1Mbps (2412MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4824.000	3.723	36.380	40.103	-33.897	74.000
7236.000	9.439	35.140	44.579	-29.421	74.000
9648.000	11.829	34.950	46.779	-27.221	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
4824.000	3.723	36.920	40.643	-33.357	74.000
7236.000	9.439	35.760	45.199	-28.801	74.000
9648.000	11.829	34.750	46.579	-27.421	74.000
<b>Average Detector:</b>					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, 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.

Product : Smart Handheld  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter -802.11b 1Mbps (2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4874.000	3.893	37.910	41.802	-32.198	74.000
7311.000	9.624	34.480	44.104	-29.896	74.000
9748.000	11.805	36.110	47.916	-26.084	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
4874.000	3.893	36.170	40.062	-33.938	74.000
7311.000	9.624	34.180	43.804	-30.196	74.000
9748.000	11.805	35.740	47.546	-26.454	74.000
<b>Average Detector:</b>					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, 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.



Product : Smart Handheld  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter -802.11b 1Mbps (2462 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4924.000	4.075	38.600	42.675	-31.325	74.000
7386.000	9.812	34.420	44.232	-29.768	74.000
9848.000	11.819	35.740	47.559	-26.441	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
4924.000	4.075	36.970	41.045	-32.955	74.000
7386.000	9.812	33.990	43.802	-30.198	74.000
9848.000	11.819	36.140	47.959	-26.041	74.000
<b>Average Detector:</b>					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, 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.

Product : Smart Handheld  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmitter -802.11g 6Mbps (2412MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4824.000	3.723	36.650	40.373	-33.627	74.000
7236.000	9.439	35.250	44.689	-29.311	74.000
9648.000	11.829	34.530	46.359	-27.641	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
4824.000	3.723	36.400	40.123	-33.877	74.000
7236.000	9.439	35.200	44.639	-29.361	74.000
9648.000	11.829	35.500	47.329	-26.671	74.000
<b>Average Detector:</b>					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, 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.

Product : Smart Handheld  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmitter -802.11g 6Mbps (2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBUV	Measurement Level dBUV/m	Margin dB	Limit dBUV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4874.000	3.893	36.610	40.502	-33.498	74.000
7311.000	9.624	34.610	44.234	-29.766	74.000
9748.000	11.805	35.780	47.586	-26.414	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
4874.000	3.893	35.630	39.522	-34.478	74.000
7311.000	9.624	34.330	43.954	-30.046	74.000
9748.000	11.805	36.560	48.366	-25.634	74.000
<b>Average Detector:</b>					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, 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.

Product : Smart Handheld  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmitter -802.11g 6Mbps (2462 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4924.000	4.075	36.960	41.035	-32.965	74.000
7386.000	9.812	35.060	44.872	-29.128	74.000
9848.000	11.819	35.880	47.699	-26.301	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
4924.000	4.075	36.320	40.395	-33.605	74.000
7386.000	9.812	34.860	44.672	-29.328	74.000
9848.000	11.819	36.900	48.719	-25.281	74.000
<b>Average Detector:</b>					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, 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.

Product : Smart Handheld  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmitter -802.11b 1Mbps+Bluetooth (hopping) (WLAN 2412MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4824.000	3.723	36.200	39.923	-34.077	74.000
7236.000	9.439	33.700	43.139	-30.861	74.000
9648.000	11.829	32.400	44.229	-29.771	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
4824.000	3.723	36.220	39.943	-34.057	74.000
7236.000	9.439	34.500	43.939	-30.061	74.000
9648.000	11.829	36.700	48.529	-25.471	74.000
<b>Average Detector:</b>					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, 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.

Product : Smart Handheld  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmitter -802.11b 1Mbps+Bluetooth (hopping) (WLAN 2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
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**Horizontal**

**Peak Detector:**

4874.000	3.893	36.170	40.062	-33.938	74.000
7311.000	9.624	34.380	44.004	-29.996	74.000
9748.000	11.805	36.090	47.896	-26.104	74.000

**Average**

**Detector:**

--

**Vertical**

**Peak Detector:**

4874.000	3.893	36.310	40.202	-33.798	74.000
7311.000	9.624	34.830	44.454	-29.546	74.000
9748.000	11.805	35.720	47.526	-26.474	74.000

**Average**

**Detector:**

--

Note:

1. All Readings below 1GHz are Quasi-Peak, 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.

Product : Smart Handheld  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmitter -802.11b 1Mbps+Bluetooth (hopping) (WLAN 2462 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4924.000	4.075	35.650	39.725	-34.275	74.000
7386.000	9.812	35.950	45.762	-28.238	74.000
9848.000	11.819	34.850	46.669	-27.331	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
4924.000	4.075	36.230	40.305	-33.695	74.000
7386.000	9.812	33.730	43.542	-30.458	74.000
9848.000	11.819	35.420	47.239	-26.761	74.000
<b>Average Detector:</b>					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, 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.

Product : Smart Handheld  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 4: Transmitter -802.11g 6Mbps+Bluetooth (hopping) (WLAN 2412MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4824.000	3.723	36.760	40.483	-33.517	74.000
7236.000	9.439	35.080	44.519	-29.481	74.000
9648.000	11.829	34.880	46.709	-27.291	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
4824.000	3.723	35.660	39.383	-34.617	74.000
7236.000	9.439	34.760	44.199	-29.801	74.000
9648.000	11.829	32.580	44.409	-29.591	74.000
<b>Average Detector:</b>					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, 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.



Product : Smart Handheld  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 4: Transmitter -802.11g 6Mbps+Bluetooth (hopping) (WLAN 2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4824.000	3.723	36.450	40.173	-33.827	74.000
7236.000	9.439	34.500	43.939	-30.061	74.000
9648.000	11.829	35.650	47.479	-26.521	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
4824.000	3.723	35.660	39.383	-34.617	74.000
7236.000	9.439	34.310	43.749	-30.251	74.000
9648.000	11.829	35.900	47.729	-26.271	74.000
<b>Average Detector:</b>					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, 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.

Product : Smart Handheld  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 4: Transmitter -802.11g 6Mbps+Bluetooth (hopping) (WLAN 2462 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4824.000	3.723	36.280	40.003	-33.997	74.000
7236.000	9.439	35.000	44.439	-29.561	74.000
9648.000	11.829	35.160	46.989	-27.011	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
4824.000	3.723	36.020	39.743	-34.257	74.000
7236.000	9.439	34.830	44.269	-29.731	74.000
9648.000	11.829	35.200	47.029	-26.971	74.000
<b>Average Detector:</b>					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, 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.

Product : Smart Handheld  
 Test Item : General Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter -802.11b 1Mbps(2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
515.000	1.104	24.693	25.797	-20.203	46.000
544.100	2.992	24.630	27.622	-18.378	46.000
608.120	3.877	22.479	26.356	-19.644	46.000
776.900	3.744	23.517	27.261	-18.739	46.000
854.500	6.234	22.694	28.928	-17.072	46.000
947.620	6.106	22.340	28.446	-17.554	46.000
<b>Vertical</b>					
357.860	-4.159	23.740	19.581	-26.419	46.000
515.000	-1.596	22.118	20.522	-25.478	46.000
683.780	1.529	21.309	22.839	-23.161	46.000
778.840	2.457	21.089	23.546	-22.454	46.000
846.740	2.210	22.155	24.365	-21.635	46.000
970.900	6.782	21.361	28.143	-25.857	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, 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.

Product : Smart Handheld  
 Test Item : General Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmitter -802.11g 6Mbps(2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
515.000	1.104	24.274	25.378	-20.622	46.000
544.100	2.992	24.270	27.262	-18.738	46.000
608.120	3.877	22.639	26.516	-19.484	46.000
776.900	3.744	23.545	27.289	-18.711	46.000
854.500	6.234	22.541	28.775	-17.225	46.000
947.620	6.106	22.690	28.796	-17.204	46.000
<b>Vertical</b>					
357.860	-4.159	23.980	19.821	-26.179	46.000
515.000	-1.596	22.228	20.632	-25.368	46.000
683.780	1.529	21.005	22.535	-23.465	46.000
778.840	2.457	21.021	23.478	-22.522	46.000
846.740	2.210	22.976	25.186	-20.814	46.000
970.900	6.782	21.252	28.034	-25.966	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, 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.

**5. RF antenna conducted test**

**5.1. Test Equipment**

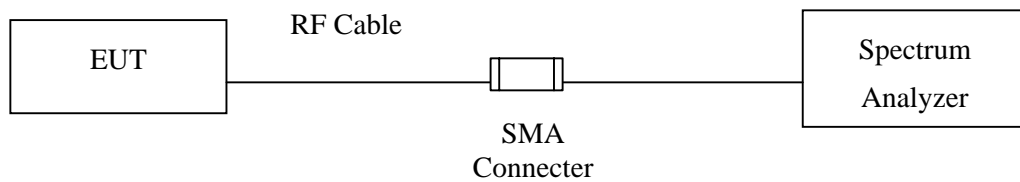
The following test equipments are used during the radiated emission tests:

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Nov, 2008
X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2008
	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2008

- Note:
1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
  2. The test instruments marked with “X” are used to measure the final test results.

**5.2. Test Setup**

**RF antenna Conducted Measurement:**



**5.3. 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)).

**5.4. Test Procedure**

The EUT was tested according to DTS test procedure of Mar. 2005 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Set RBW = 100 kHz, Set VBW > RBW, scan up through 10th harmonic.

## 5.5. Uncertainty

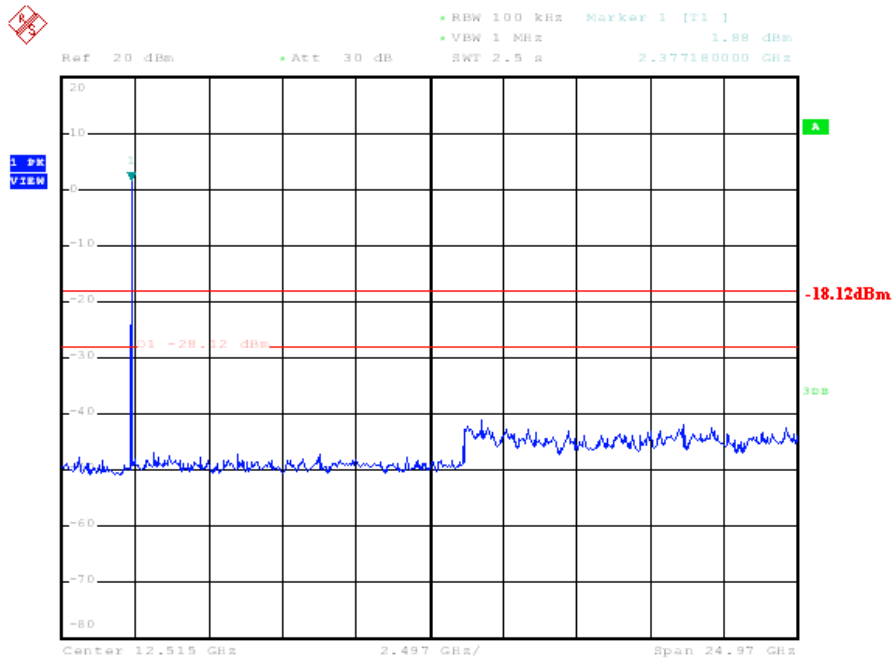
The measurement uncertainty

Conducted is defined as  $\pm 1.27\text{dB}$

### 5.6. Test Result of RF antenna conducted test

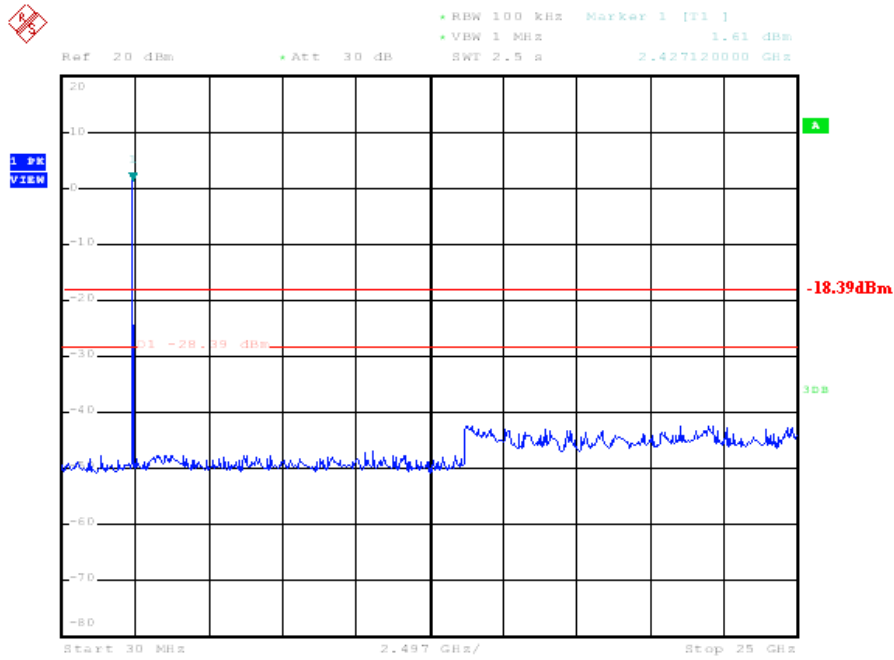
Product : Smart Handheld  
Test Item : RF antenna conducted test  
Test Site : No.3 OATS  
Test Mode : Mode 1: Transmitter -802.11b 1Mbps

#### Channel 01 (2412MHz) 30-25GHz



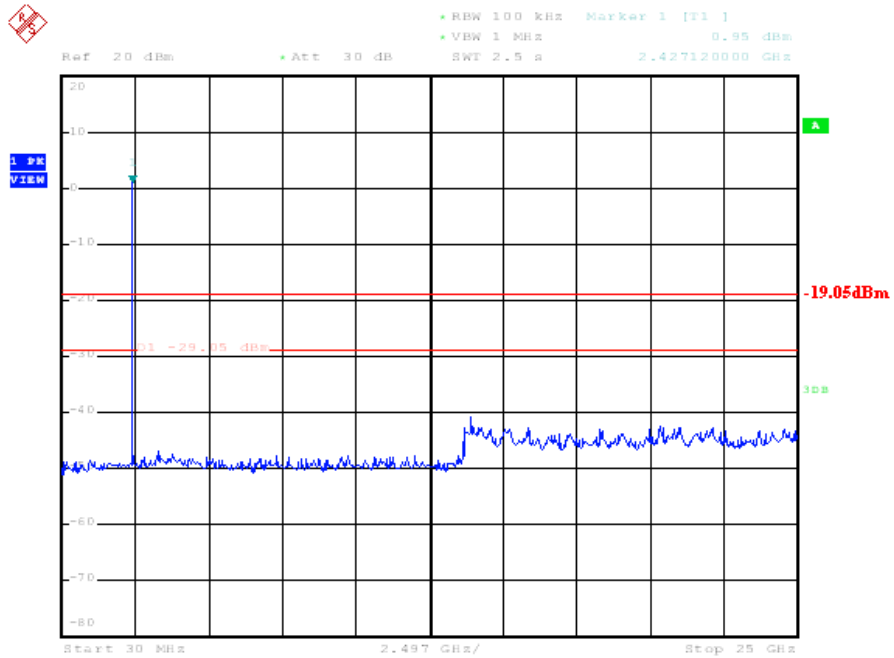
Date: 5.FEB.2009 05:44:50

### Channel 06 (2437MHz) 30-25GHz



Date: 5.FEB.2009 05:46:04

### Channel 11 (2462MHz) 30-25GHz

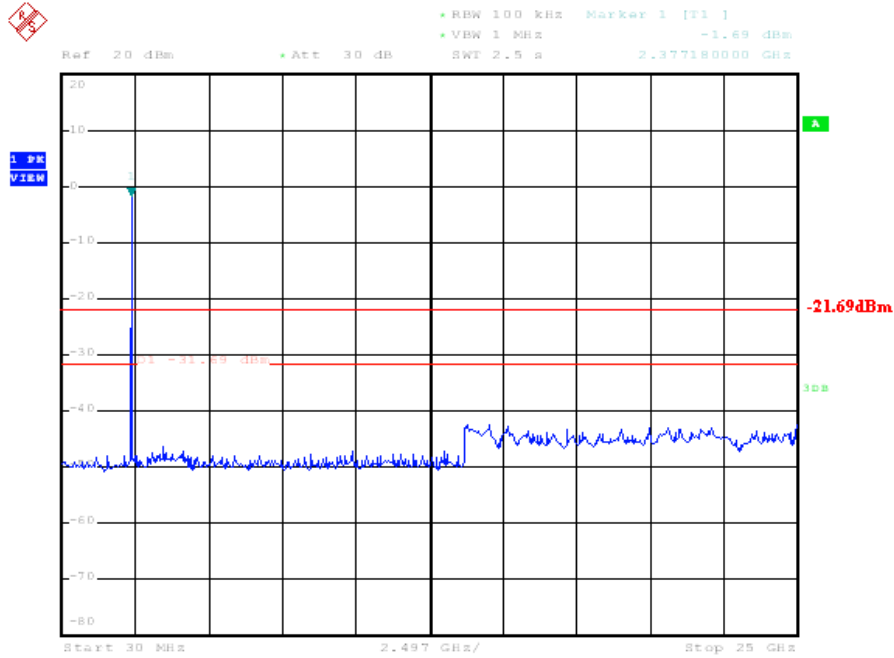


Date: 5.FEB.2009 05:46:52



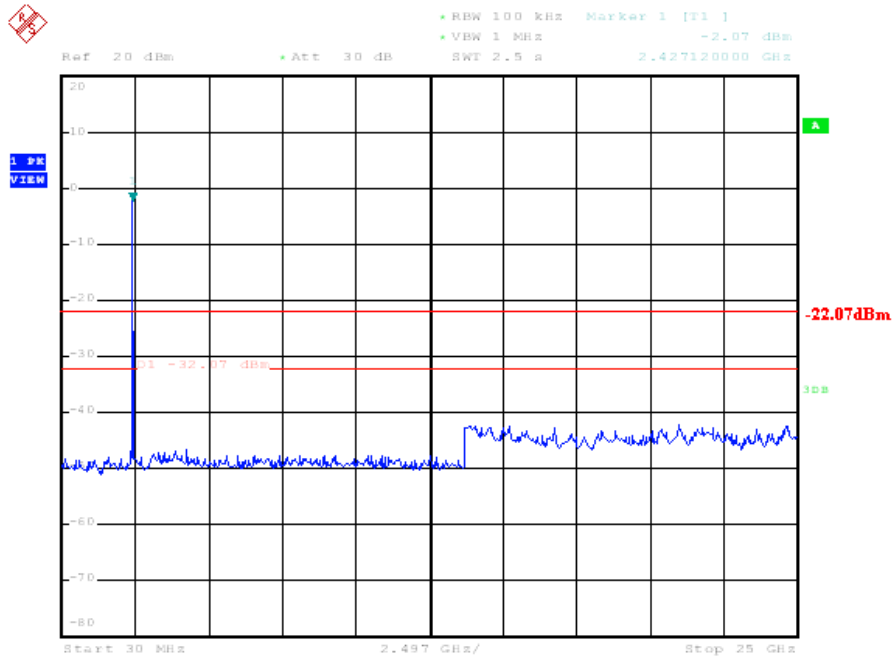
Product : Smart Handheld  
Test Item : RF Antenna Conducted Spurious  
Test Site : No.3 OATS  
Test Mode : Mode 2: Transmitter -802.11g 6Mbps

**Channel 01 (2412MHz) 30-25GHz**



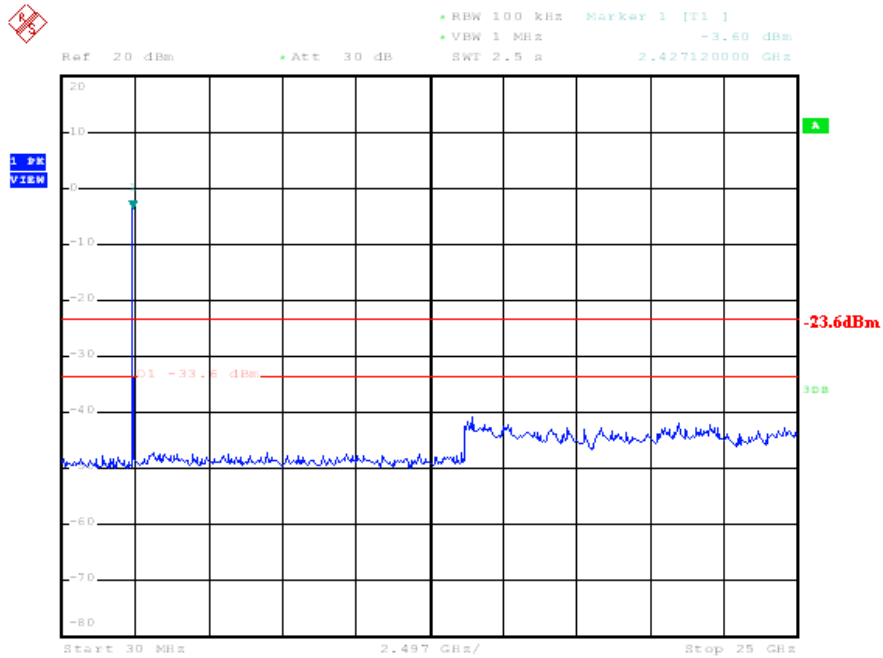
Date: 5.FEB.2009 05:47:57

### Channel 06 (2437MHz) 30-25GHz



Date: 5.FEB.2009 05:48:50

### Channel 11 (2462MHz) 30-25GHz



Date: 5.FEB.2009 05:50:07

## 6. Band Edge

### 6.1. Test Equipment

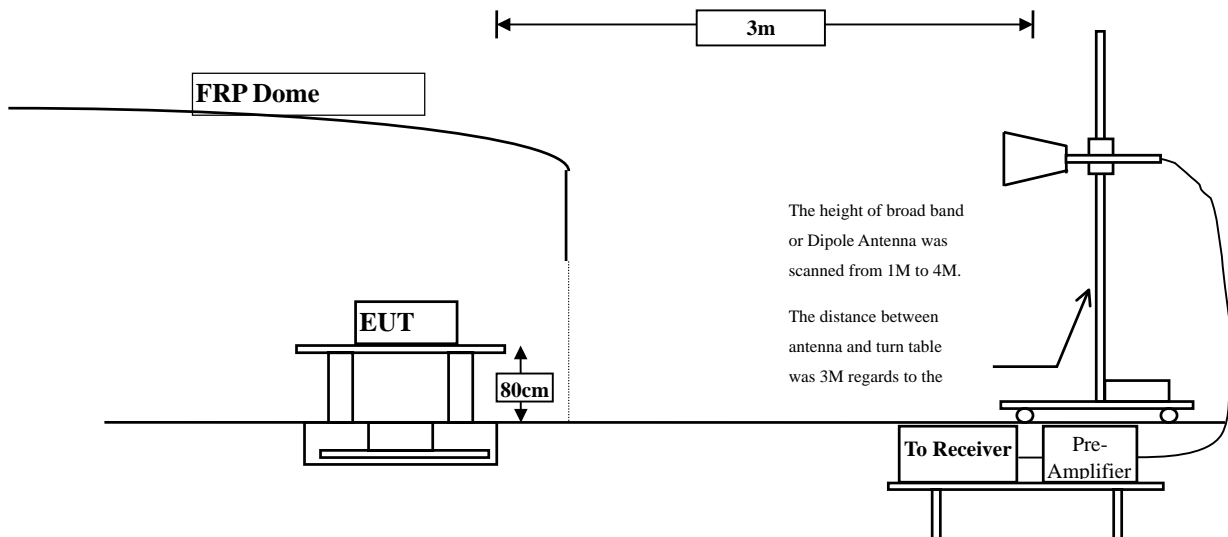
The following test equipments are used during the band edge tests:

Test Site	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒ Site # 3	X Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2008
	X Pre-Amplifier	AGILENT	8447D/2944A09549	Sep., 2008
	X Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2008
	X Spectrum Analyzer	Advantest	R3162/91700283	Oct., 2008
	X Coaxial Cable	Quietek	QTK-CABLE/ CAB5	Feb., 2009
	X Controller	Quietek	QTK-CONTROLLER/ CTRL3	N/A
	X Coaxial Switch	Anritsu	MP59B/6200265729	N/A

- Note:
1. All instruments are calibrated every one year.
  2. The test instruments marked by “X” are used to measure the final test results.

### 6.2. Test Setup

#### RF Radiated Measurement:



### 6.3. 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.

#### **6.4. Test Procedure**

The EUT was setup according to ANSI C63.4, 2003 and tested according to DTS test procedure of Mar. 2005 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 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 is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4:2003 on radiated measurement.

#### **6.5. Uncertainty**

± 3.9 dB above 1GHz

± 3.8 dB below 1GHz

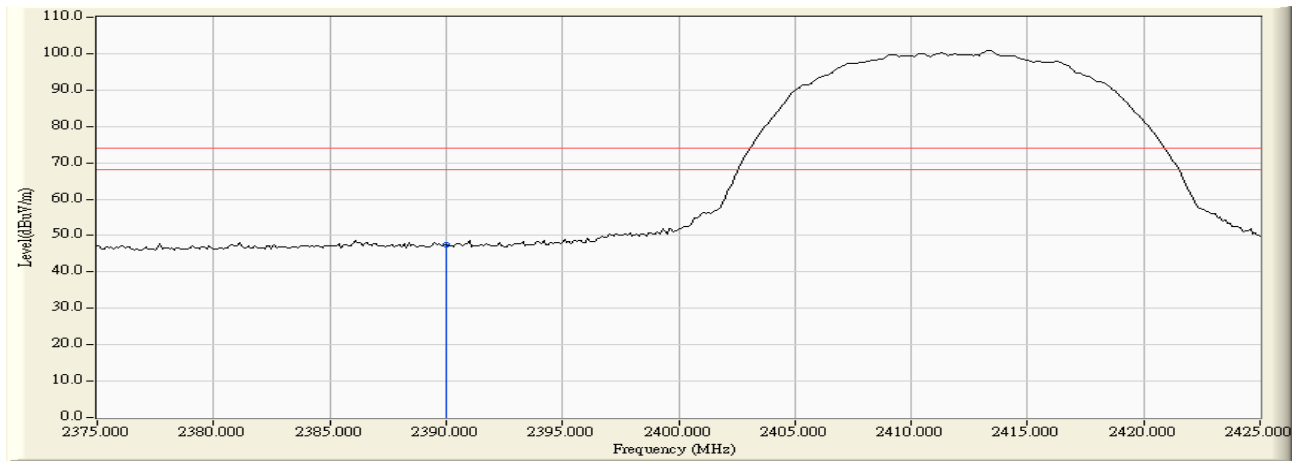
### 6.6. Test Result of Band Edge

Product : Smart Handheld  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter -802.11b 1Mbps

#### RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2390.000	-2.378	49.940	47.563	74.00	54.00	Pass
01 (Average)	--	--	--	--	74.00	54.00	Pass

**Figure Channel 01: Horizontal (Peak)**



Note:

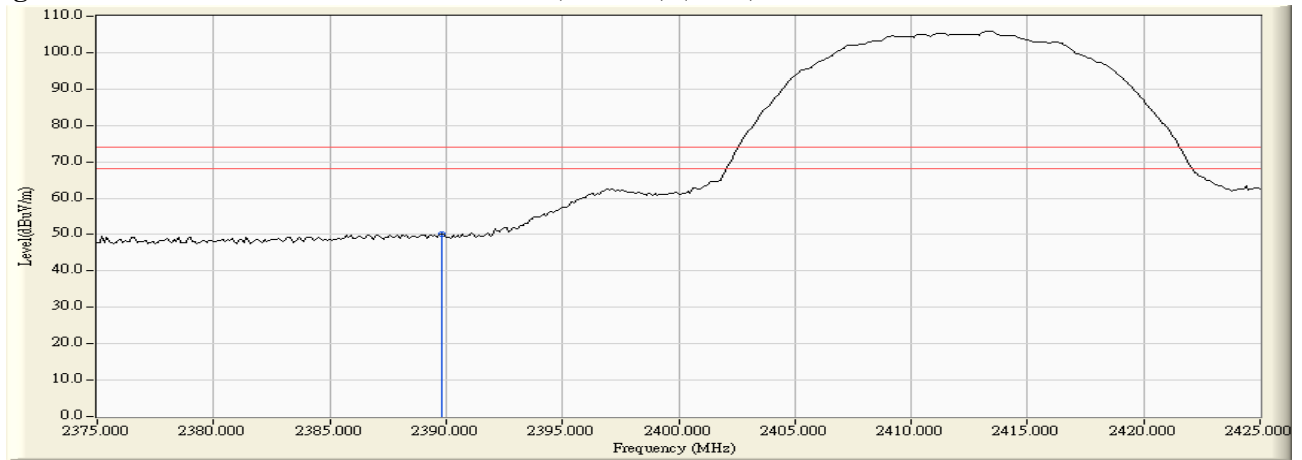
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading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

Product : Smart Handheld  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter -802.11b 1Mbps

**RF Radiated Measurement (Vertical):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2389.800	-2.378	52.604	50.226	74.00	54.00	Pass
01 (Average)	--	--	--	--	74.00	54.00	Pass

**Figure Channel 01: (Vertical) (Peak)**



**Note:**

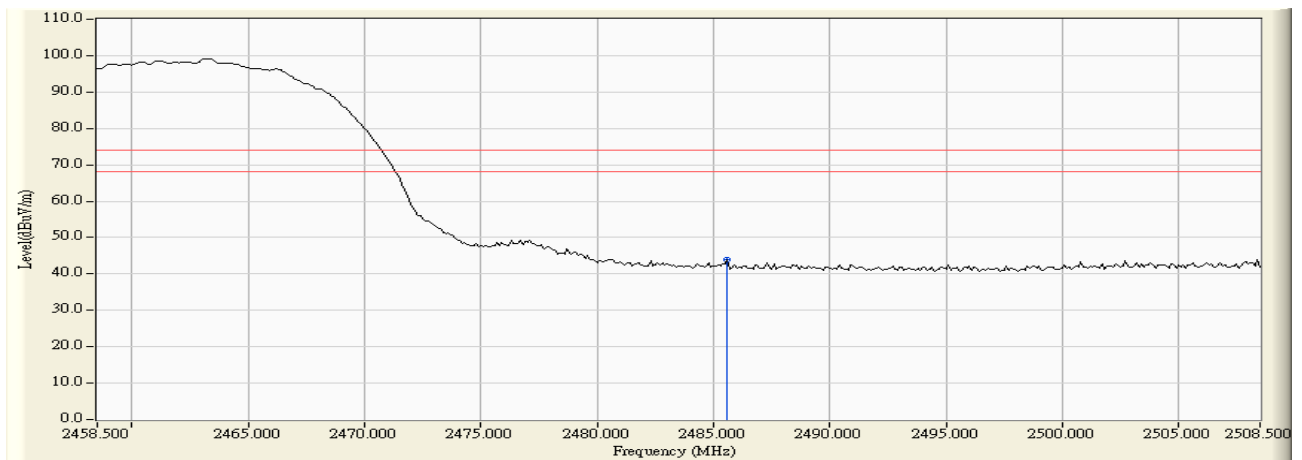
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading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

Product : Smart Handheld  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter -802.11b 1Mbps

**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2485.600	-1.930	45.770	43.840	74.00	54.00	Pass
11(Average)	--	--	--	--	74.00	54.00	Pass

**Figure Channel 11: Horizontal (Peak)**



**Note:**

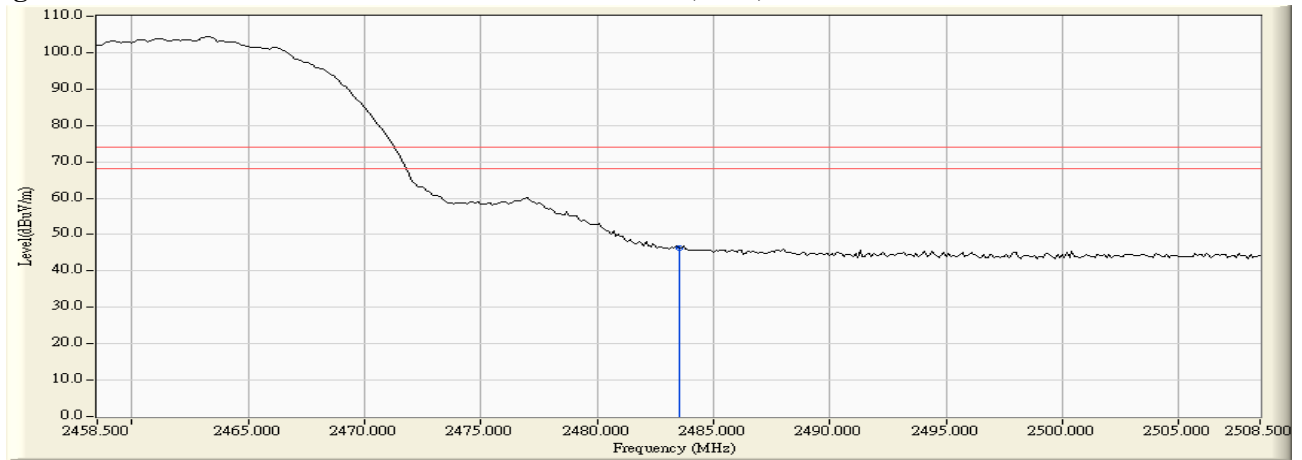
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading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

Product : Smart Handheld  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter -802.11b 1Mbps

**RF Radiated Measurement (Vertical):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2483.500	-1.937	48.251	46.314	74.00	54.00	Pass
11(Average)	--	--	--	--	74.00	54.00	Pass

**Figure Channel 11: Vertical (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.

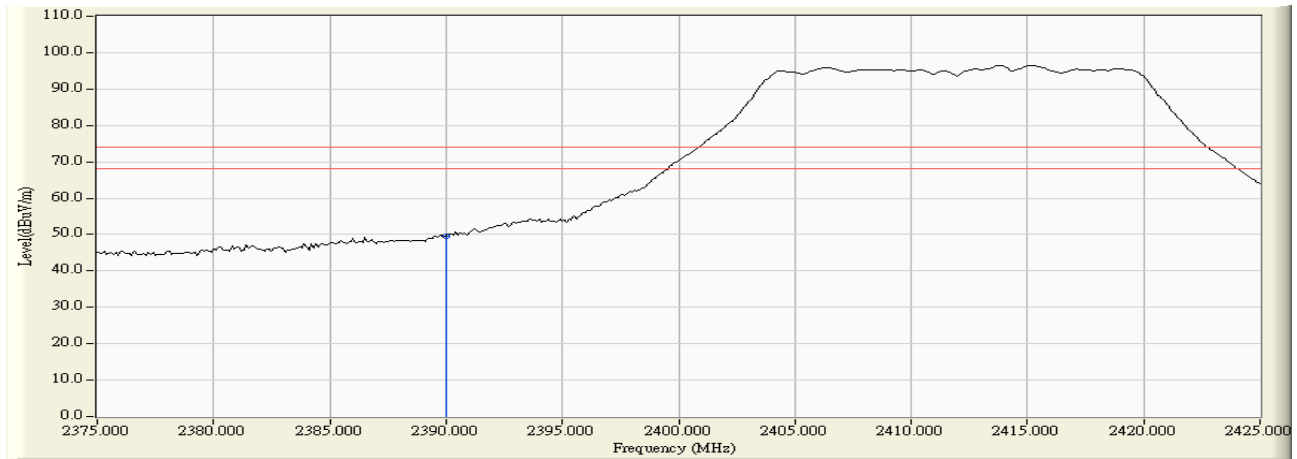


Product : Smart Handheld  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmitter -802.11g 6Mbps

**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2390.000	-2.378	51.842	49.465	74.00	54.00	Pass
01 (Average)	--	--	--	--	74.00	54.00	Pass

**Figure Channel 01: Horizontal (Peak)**



Note:

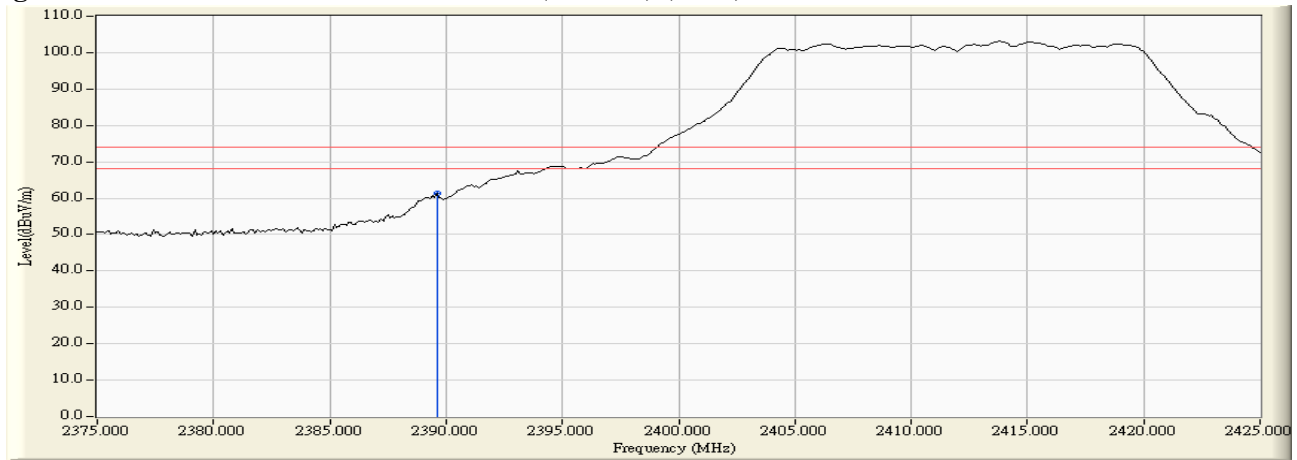
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading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

Product : Smart Handheld  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmitter -802.11g 6Mbps

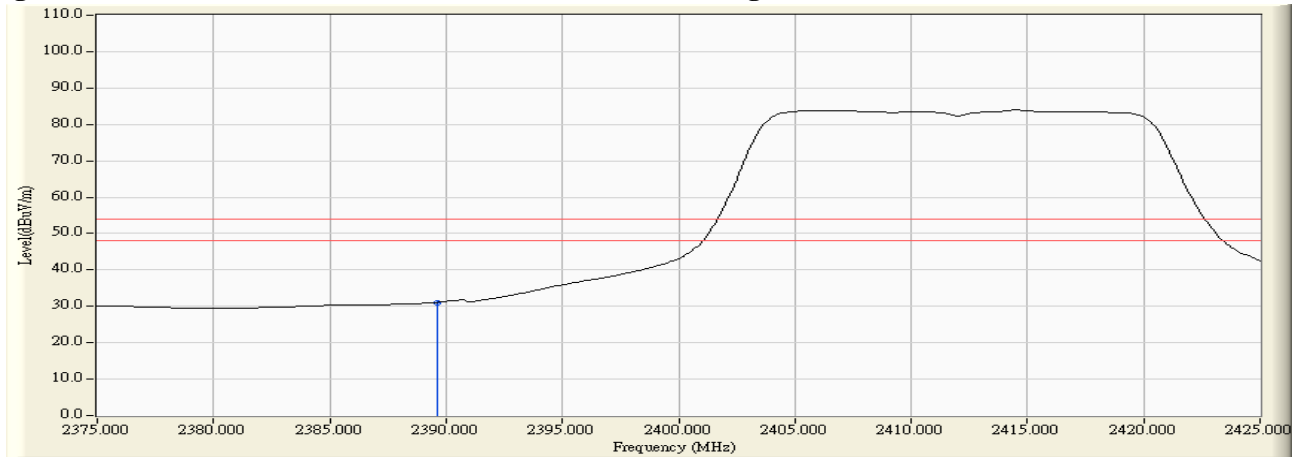
**RF Radiated Measurement (Vertical):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2389.600	-2.379	63.583	61.204	74.00	54.00	Pass
01 (Average)	2389.600	-2.379	33.481	31.102	74.00	54.00	Pass

**Figure Channel 01: (Vertical) (Peak)**



**Figure Channel 01: (Vertical) (Average)**



**Note:**

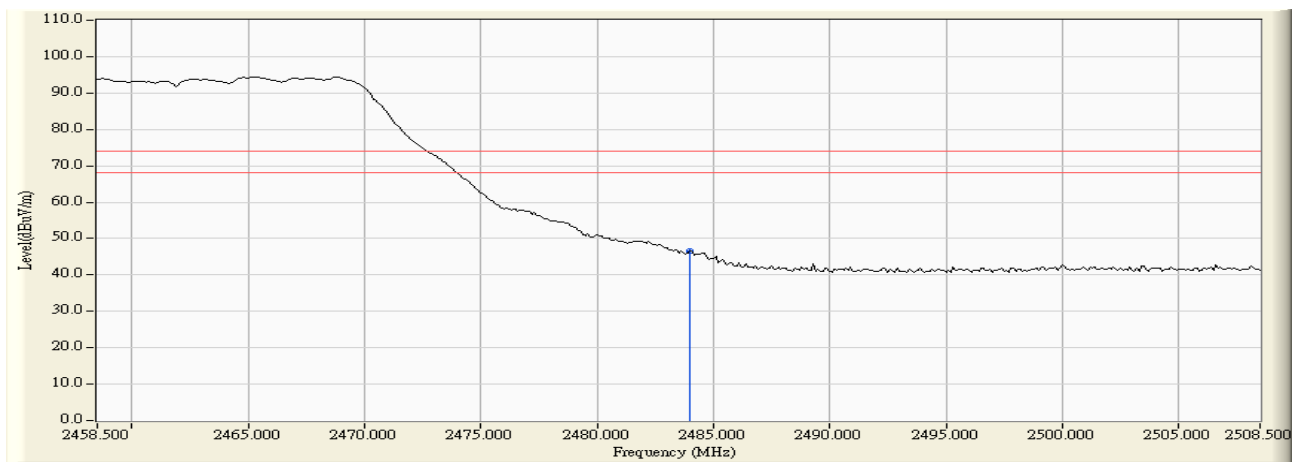
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading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

Product : Smart Handheld  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmitter -802.11g 6Mbps

**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2484.000	-1.935	48.646	46.711	74.00	54.00	Pass
11 (Average)	--	--	--	--	74.00	54.00	Pass

**Figure Channel 11: Horizontal (Peak)**



**Note:**

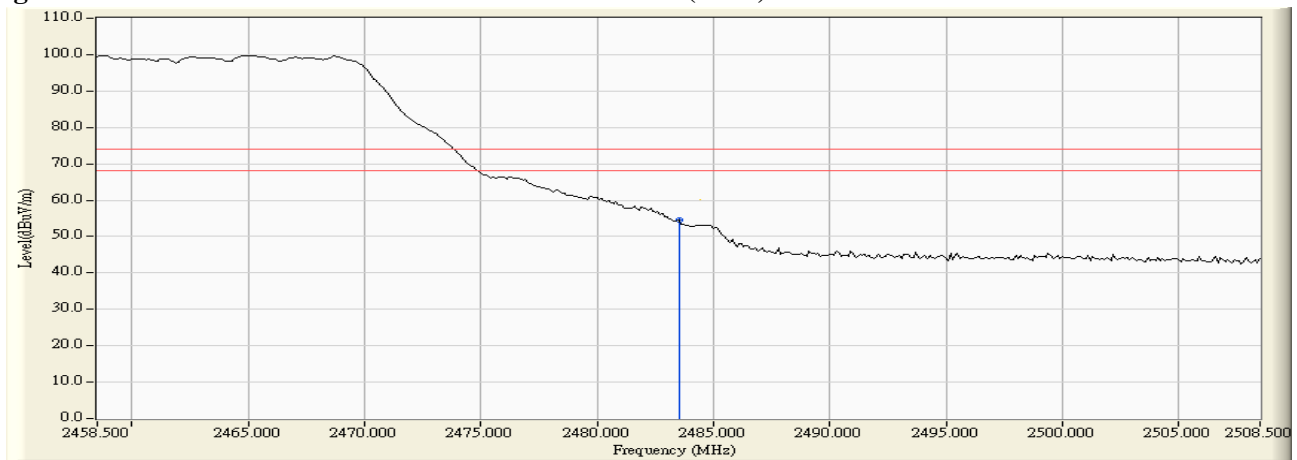
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading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

Product : Smart Handheld  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmitter -802.11g 6Mbps

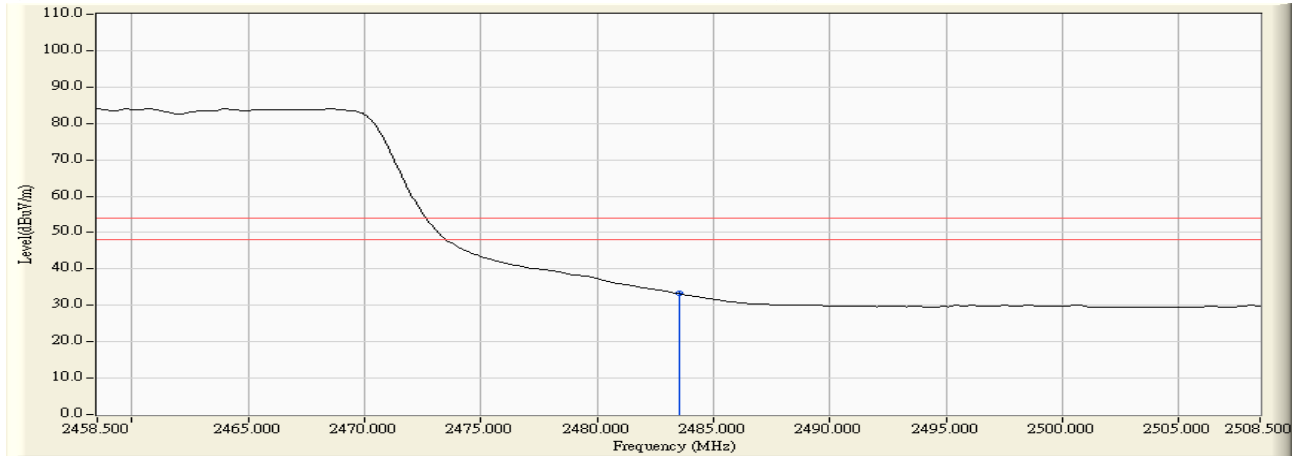
**RF Radiated Measurement (Vertical):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2483.500	-1.937	56.489	54.552	74.00	54.00	Pass
11(Average)	2483.500	-1.937	35.117	33.180	74.00	54.00	Pass

**Figure Channel 11: Vertical (Peak)**



**Figure Channel 11: Vertical (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. Occupied Bandwidth

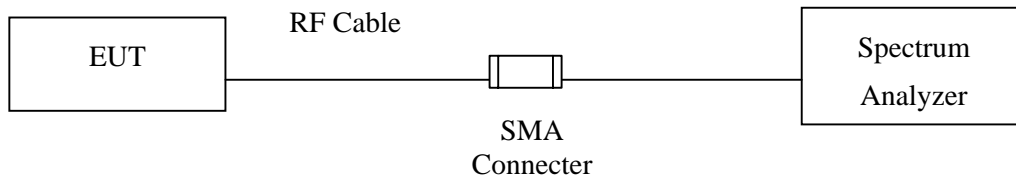
### 7.1. Test Equipment

The following test equipments are used during the radiated emission tests:

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100339	Jun, 2008
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2008
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2008

Note: 1. All instruments are calibrated every one year.  
 2. The test instruments marked by “X” are used to measure the final test results.

### 7.2. Test Setup



### 7.3. Limits

The minimum bandwidth shall be at least 500 kHz.

### 7.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2003; tested according to DTS test procedure of Mar. 2005 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Set RBW = 100 kHz, Span greater than RBW.

### 7.5. Uncertainty

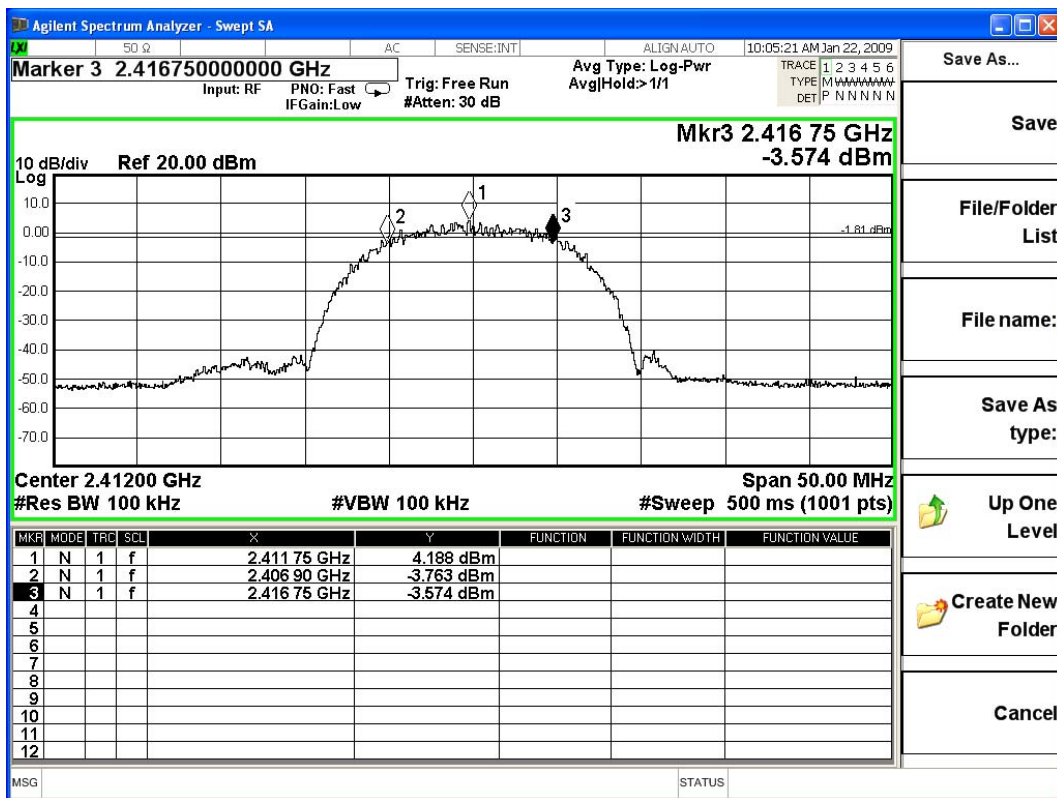
± 150Hz

### 7.6. Test Result of Occupied Bandwidth

Product : Smart Handheld  
 Test Item : Occupied Bandwidth Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter -802.11b 1Mbps (2412MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2412.00	9850	>500	Pass

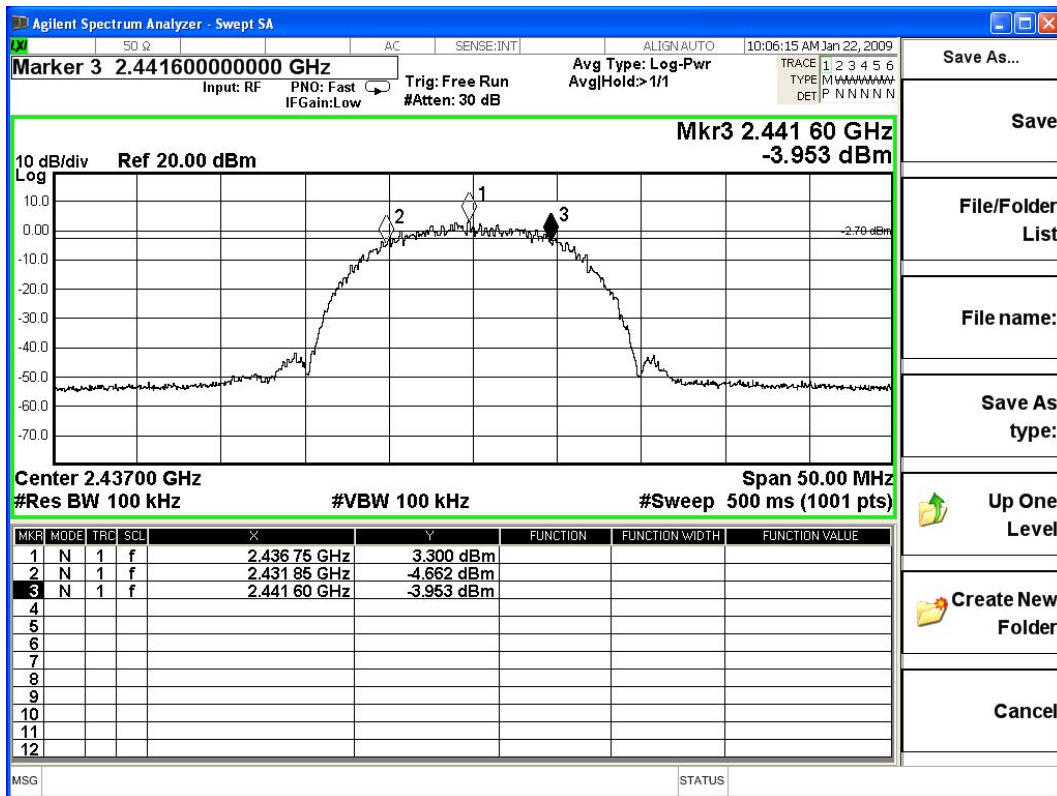
Figure Channel 1:



Product : Smart Handheld  
 Test Item : Occupied Bandwidth Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter -802.11b 1Mbps (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437.00	9750	>500	Pass

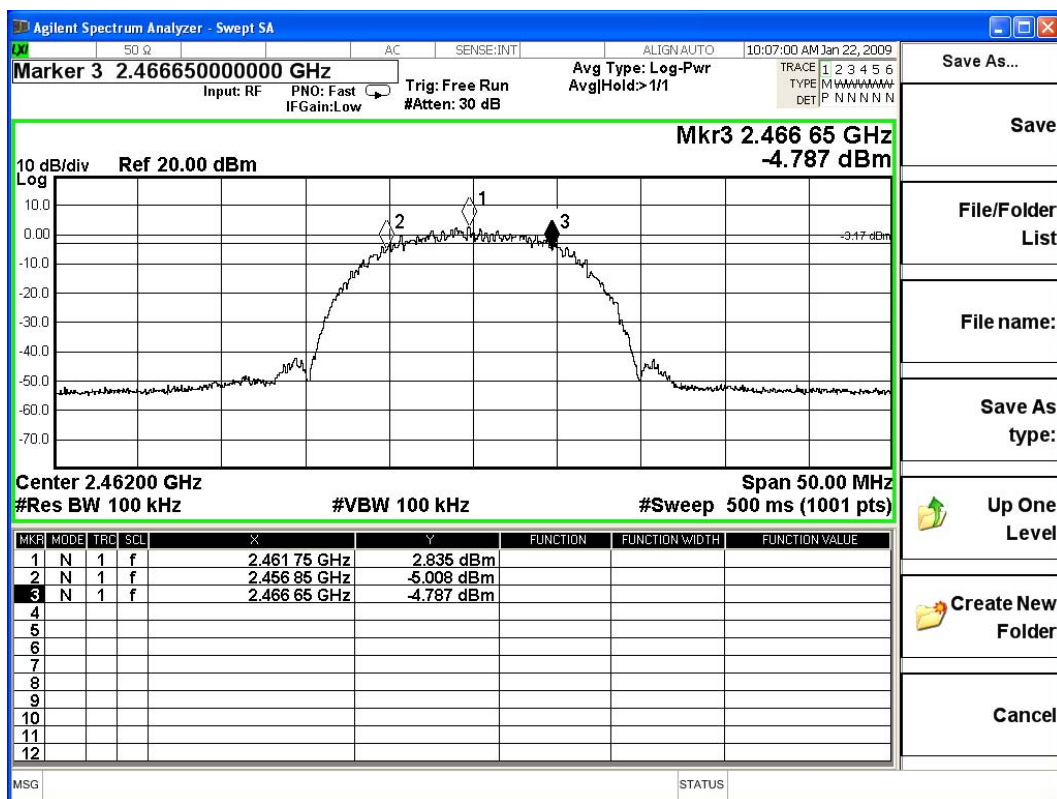
**Figure Channel 6:**



Product : Smart Handheld  
 Test Item : Occupied Bandwidth Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter -802.11b 1Mbps (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11	2462.00	9800	>500	Pass

**Figure Channel 11:**

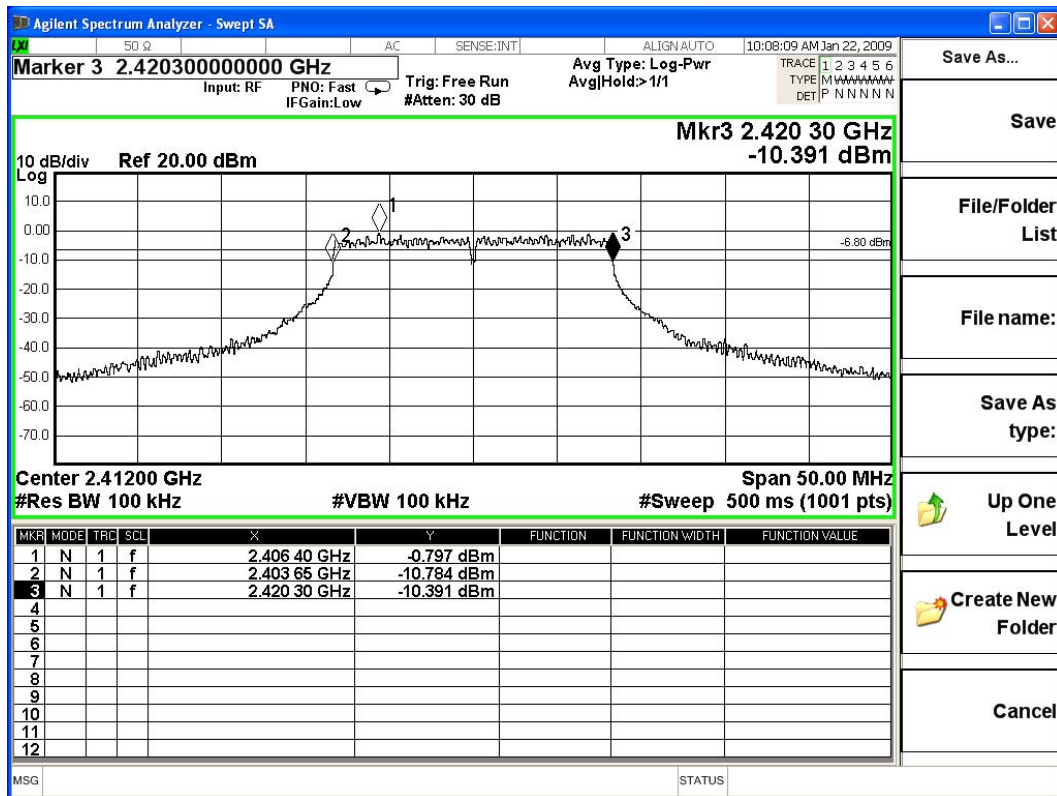




Product : Smart Handheld  
 Test Item : Occupied Bandwidth Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmitter -802.11g 6Mbps (2412MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2412.00	16650	>500	Pass

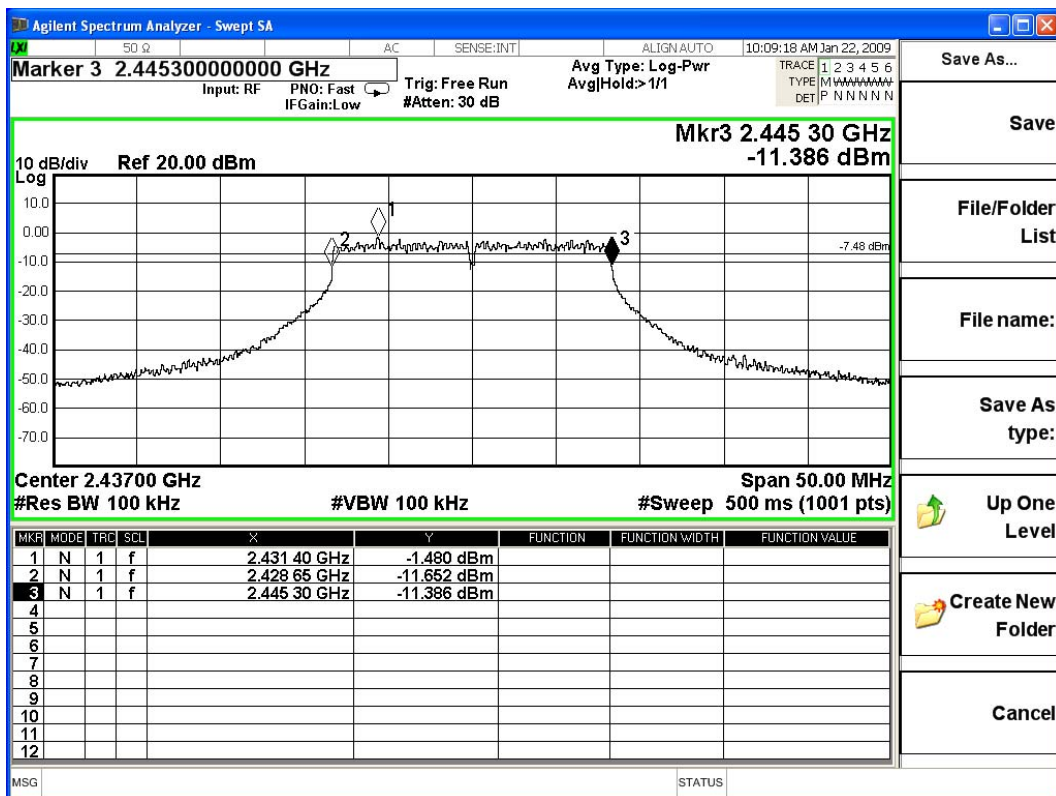
**Figure Channel 1:**



Product : Smart Handheld  
 Test Item : Occupied Bandwidth Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmitter -802.11g 6Mbps (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437.00	16650	>500	Pass

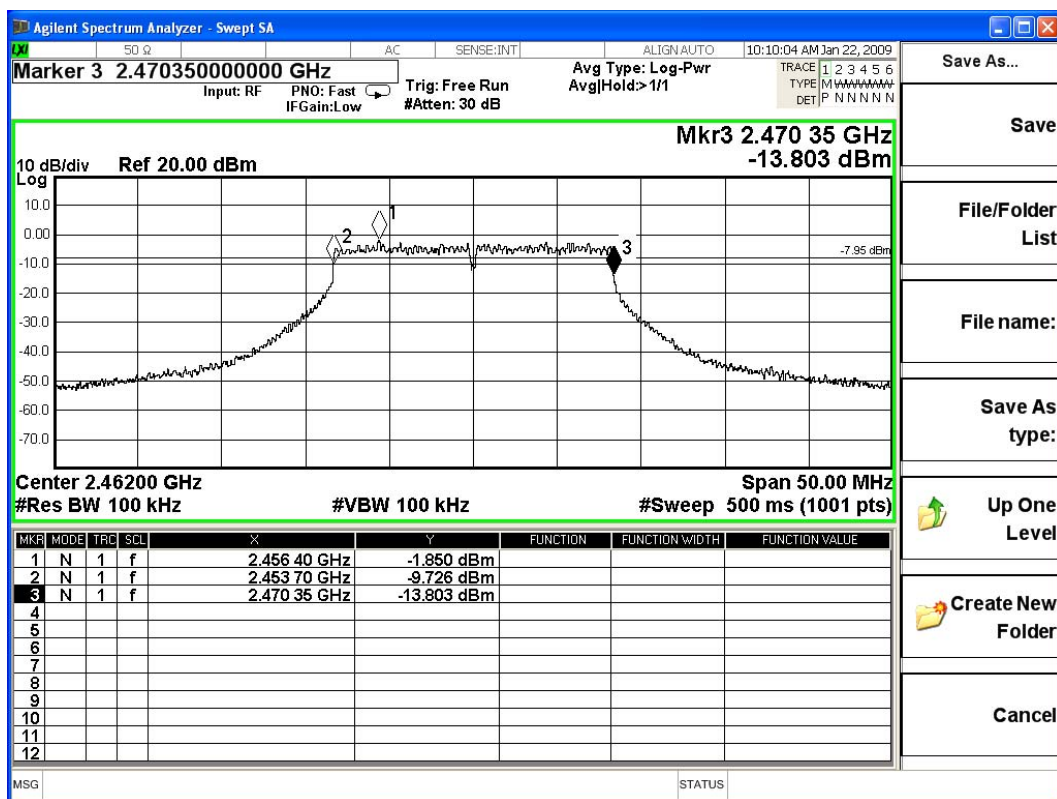
**Figure Channel 6:**



Product : Smart Handheld  
 Test Item : Occupied Bandwidth Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmitter -802.11g 6Mbps (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11	2462.00	16650	>500	Pass

**Figure Channel 11:**



## 8. Power Density

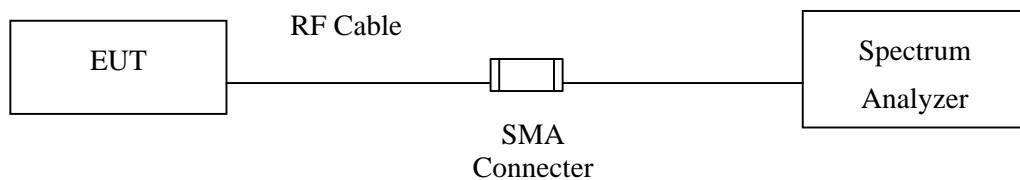
### 8.1. Test Equipment

The following test equipments are used during the radiated emission tests:

Equipment	Manufacturer	Model No./Serial No.	Last Cal.
Spectrum Analyzer	R&S	FSP40 / 100339	Jun, 2008
Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2008
X Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2008

Note: 1. All equipments are calibrated every one year.  
 2. The test instruments marked by “X” are used to measure the final test results.

### 8.2. Test Setup



### 8.3. Limits

The transmitted power density averaged over any 1 second interval shall not be greater +8dBm in any 3kHz bandwidth.

### 8.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2003; tested according to DTS test procedure of Mar. 2005 KDB558074 for compliance to FCC 47CFR 15.247 requirements.  
 Set RBW= 3 kHz, VBW=10KHz, Sweep time=(SPAN/3KHz), detector=Peak detector

### 8.5. Uncertainty

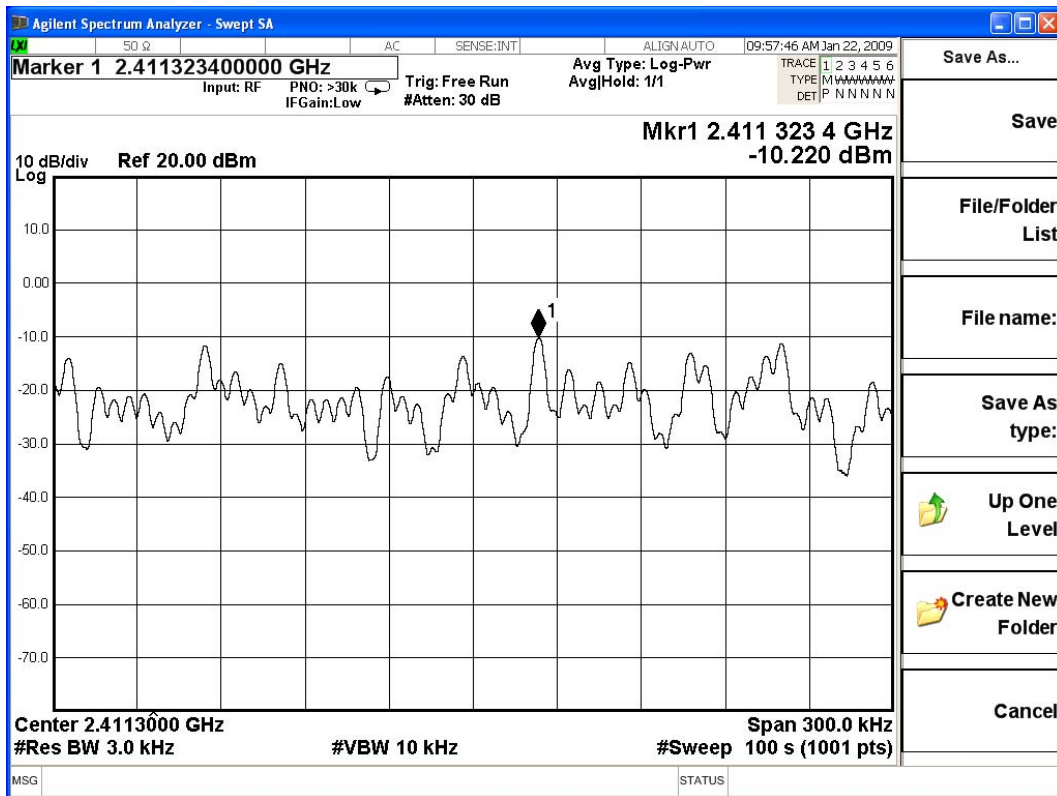
± 1.27 dB

### 8.6. Test Result of Power Density

Product : Smart Handheld  
 Test Item : Power Density Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter -802.11b 1Mbps (2412MHz)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412.00	-10.220	< 8dBm	Pass

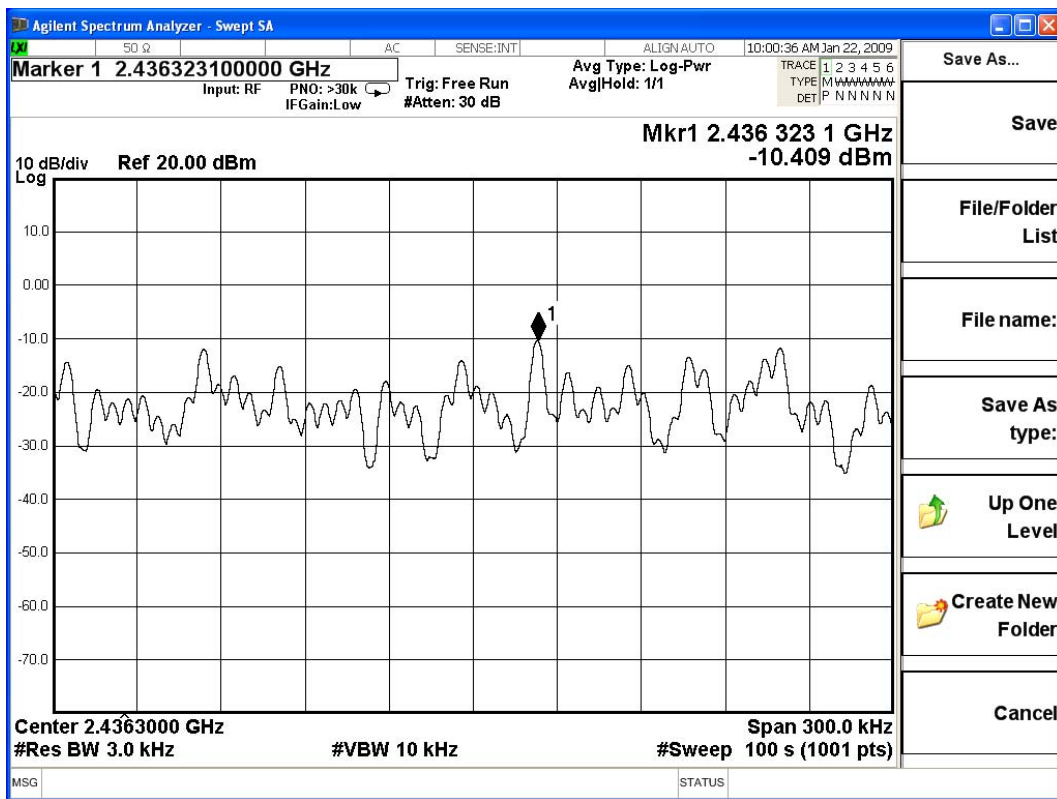
Figure Channel 1:



Product : Smart Handheld  
 Test Item : Power Density Data  
 Test Site : No.3OATS  
 Test Mode : Mode 1: Transmitter -802.11b 1Mbps (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
6	2437.000	-10.409	< 8dBm	Pass

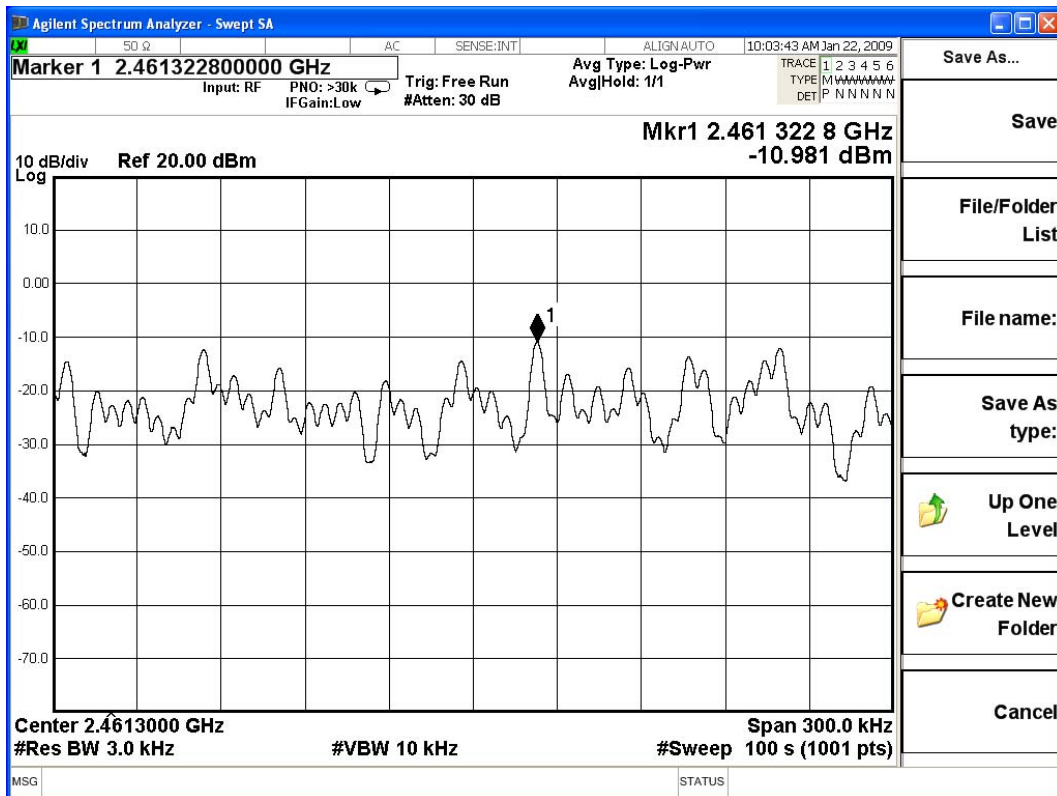
**Figure Channel 6:**



Product : Smart Handheld  
 Test Item : Power Density Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter -802.11b 1Mbps (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
11	2462.00	-10.981	< 8dBm	Pass

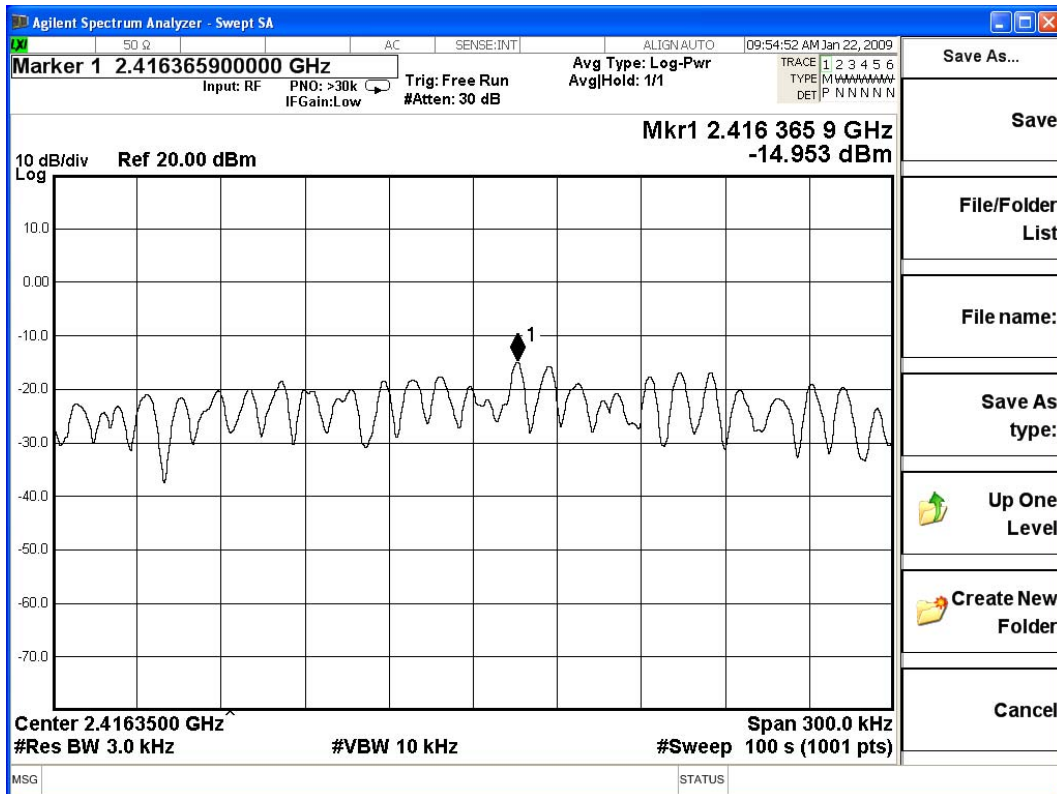
**Figure Channel 11:**



Product : Smart Handheld  
 Test Item : Power Density Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmitter -802.11g 6Mbps (2412MHz)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412.00	-14.953	< 8dBm	Pass

**Figure Channel 1:**

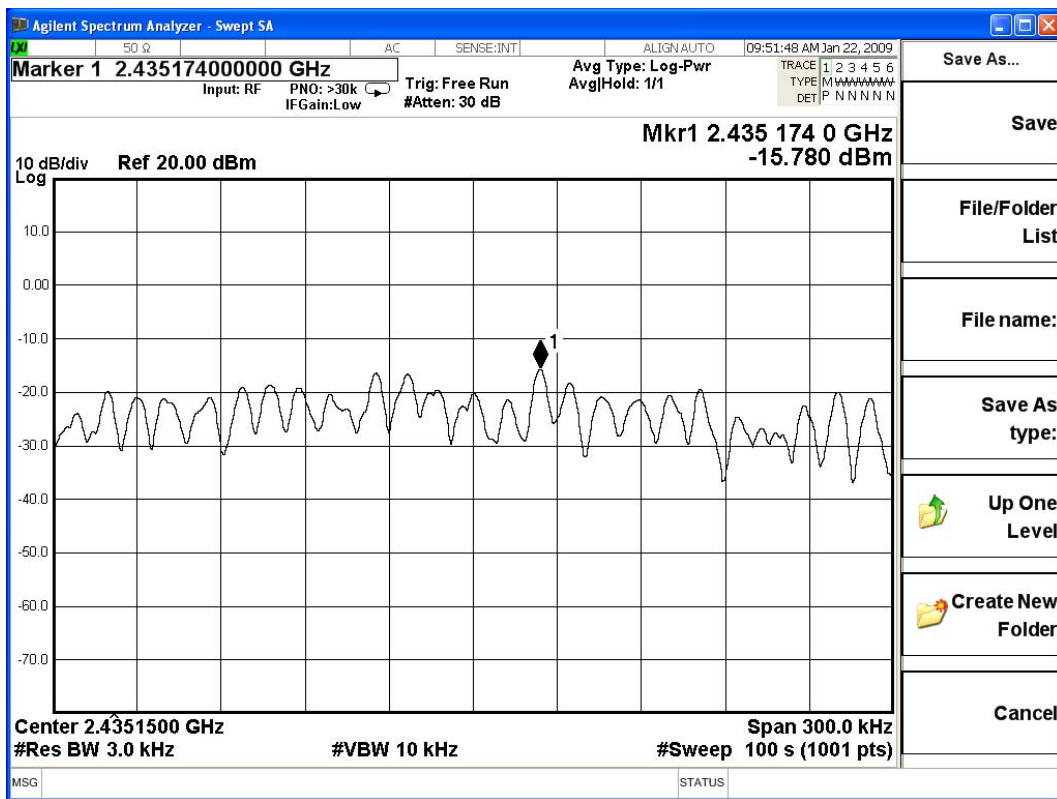




Product : Smart Handheld  
 Test Item : Power Density Data  
 Test Site : No.3OATS  
 Test Mode : Mode 2: Transmitter -802.11g 6Mbps (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
6	2437.000	-15.780	< 8dBm	Pass

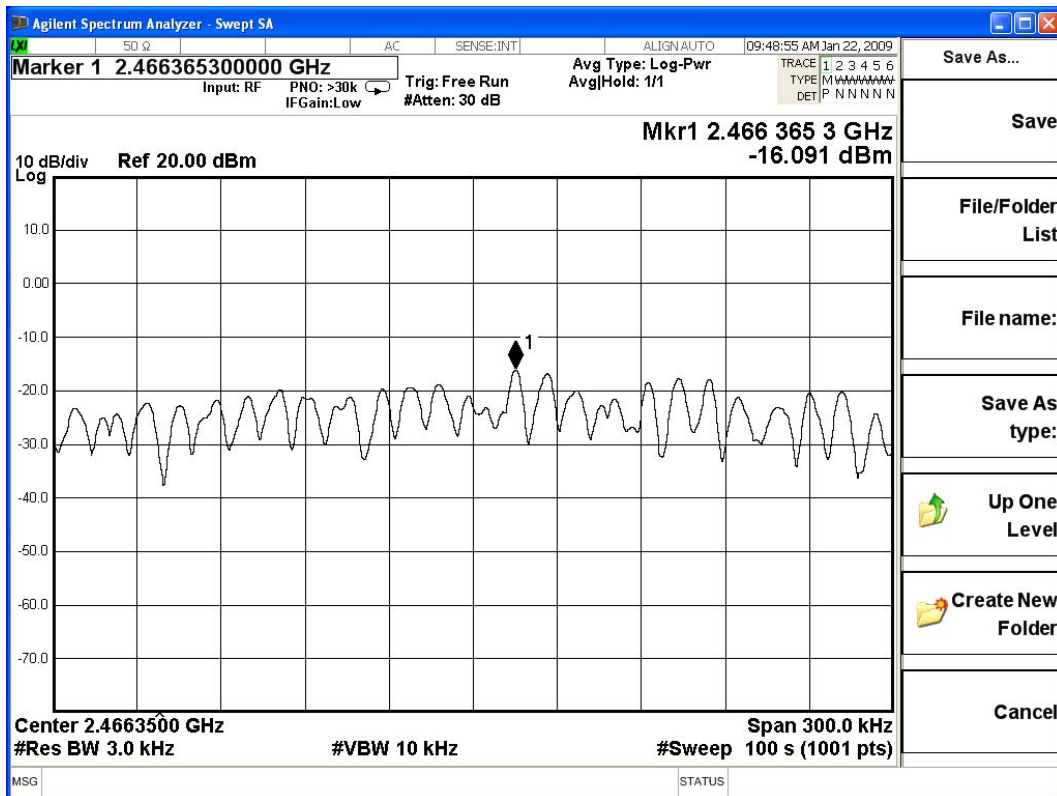
**Figure Channel 6:**



Product : Smart Handheld  
 Test Item : Power Density Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmitter -802.11g 6Mbps (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
11	2462.00	-16.091	< 8dBm	Pass

**Figure Channel 11:**



## 9. EMI Reduction Method During Compliance Testing

No modification was made during testing.