FCC Part 15C

Measurement and Test Report

For

PISMO LABS TECHNOLOGY LIMITED

Room 1703A, 17/F, Park Building, 476 Castle Peak Road, Cheung Sha Wan,

Kowloon, Hong Kong

FCC ID: U8GSF200BG

Report Concerns:	**Equipment Type:**
Original Report	PePWave Surf200BG PePWave Surf200BG-AP

Model:	PePWave Surf200BG PePWave Surf200BG-AP
Report No.:	STR07048029I
Test/Witness Engineer:	Lahm Peng
Test Date:	2007-04-11

Prepared By:

Shenzhen SEM.Test Compliance Service Co., Ltd
Room 609-610, Baotong Building, Baomin 1st Road, Baoan District, Shenzhen, Guangdong, P.R.C. (518133)

Approved & Authorized By:

Jandy So / PSQ Manager

Note: This test report is limited to the above client company and the product model only. It may not be duplicated without prior permitted by SEM.Test Compliance Service Co., Ltd.

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	PISMO LABS TECHNOLOGY LIMITED
Address of applicant:	Room 1703A, 17/F, Park Building, 476 Castle Peak Road, Cheung Sha Wan, Kowloon, Hong Kong
Manufacturer:	PISMO LABS TECHNOLOGY LIMITED
Address of manufacturer:	Room 1703A, 17/F, Park Building, 476 Castle Peak Road, Cheung Sha Wan, Kowloon, Hong Kong

General Description of E.U.T

Items	Description
EUT Description:	PePWave Surf200BG PePWave Surf200BG-AP
Trade Name:	/
Model No.:	PePWave Surf200BG PePWave Surf200BG-AP
Rated Voltage:	DC 5V Adaptor
Max. Output Power	≤30dBm
Frequency range:	2412-2462MHz
Number of channels:	11
Channel Separation:	5MHz
Type of Antenna:	Unique Antenna
Antenna gain	9dBi
Size:	13.0x13.6x4.0cm

Note: The test data gathered are from a production sample with the adaptor, model S024EM0500300.It is provided by the manufacturer. The model name and product description are referring to the same EUT.

1.2 Test Standards

The following report of is prepared on behalf of PISMO LABS TECHNOLOGY LIMITED in accordance with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.207, 15.209 and 15.247 of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.207, 15.209 and 15.247 of the Federal Communication Commissions rules.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product, which result in lowering the emission, should be checked to ensure compliance has been maintained.

1.3 Related Submittal(s)/Grant(s)

No Related Submittal(s).

1.4 Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

The equipment under test (EUT) was configured to measure its highest possible emission level. The test modes were adapted with Low Channel, Middle Channel and High Channel, accordingly in reference to the Operating Instructions.

1.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

United States of American Federal Communications Commission (**FCC**), and the registration number is **274801**(semi anechoic chamber).

Industry Canada (**IC**), and the registration number is **IC4174**.

All measurement required was performed at laboratory of Shenzhen Academy of Metrology and Quality Inspection, Bldg. of Metrology & Quality Inspection, Longzhu Road, Nanshan District, Shenzhen, Guangdong, China.

1.6 EUT Exercise Software

The EUT exercise program used during the testing was designed to exercise the system components.

1.7 Accessories Equipment List and Details

Manufacturer	Description	Model	Serial Number
PePwave	Adaptor	S024EM0500300	N/A

1.8 EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Cord/Without Cord
DC Power Cable	1.5	Shielded	With Core

2. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§ 15.203; § 15.247(c)(1)(i)	Antenna Requirement	Compliant
§ 15.207	Conducted Emission	Compliant
§ 15.247(e)	Power Spectral Density	Compliant
§ 15.247(a)(2)	6 dB Bandwidth	Compliant
§ 15.247(b)(3)	Power Output	Compliant
§ 15.209(a)(d)	Radiated Emission	Compliant
§ 15.247(d)	Band edge	Compliant

3. §15.203 - ANTENNA REQUIREMENT

3.1 Standard Applicable

According to FCC 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

3.2 Test Result

This product has an external unique coupling antenna, fulfill the requirement of this section.

4. CONDUCTED EMISSIONS

4.1 Measurement Uncertainty

Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement is ± 0.5 dB.

4.2 Test Equipment List and Details

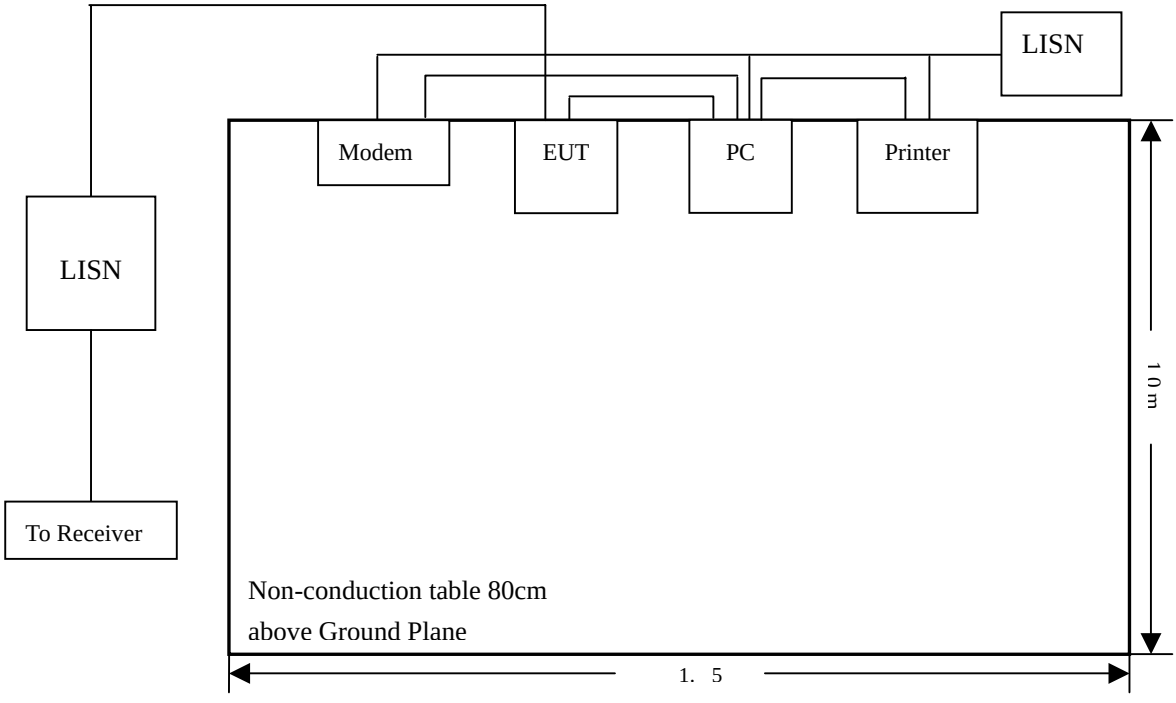
Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
EMI Test Receiver	Rohde & Schwarz	ESCS30	830245/009	2007-01-26	2008-01-25
AMN	Rohde & Schwarz	ESH2-Z5	100002	2007-01-26	2008-01-25
Limiter	Rohde & Schwarz	ESH3-Z2	357.8810.52	2007-01-26	2008-01-25
AMN	Rohde & Schwarz	ESH3-Z5	828304/014	2007-01-26	2008-01-25

Statement of Traceability: All calibrations have been performed per the NVLAP requirements traceable to the NIST.

4.3 Test Procedure

Test is conducting under the description of ANSI C63.4-2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

4.4 Basic Test Setup Block Diagram



4.5 Environmental Conditions

Temperature:	20° C
Relative Humidity:	52%
ATM Pressure:	1011 mbar

4.6 Summary of Test Results/Plots

According to the data in section 3.7, the EUT complied with the FCC 15.207 Conducted margin for a Class B device, with the *worst* margin reading of:

-10.40 dBμV at **0.58 MHz** in the **Line**, 0.15-30MHz

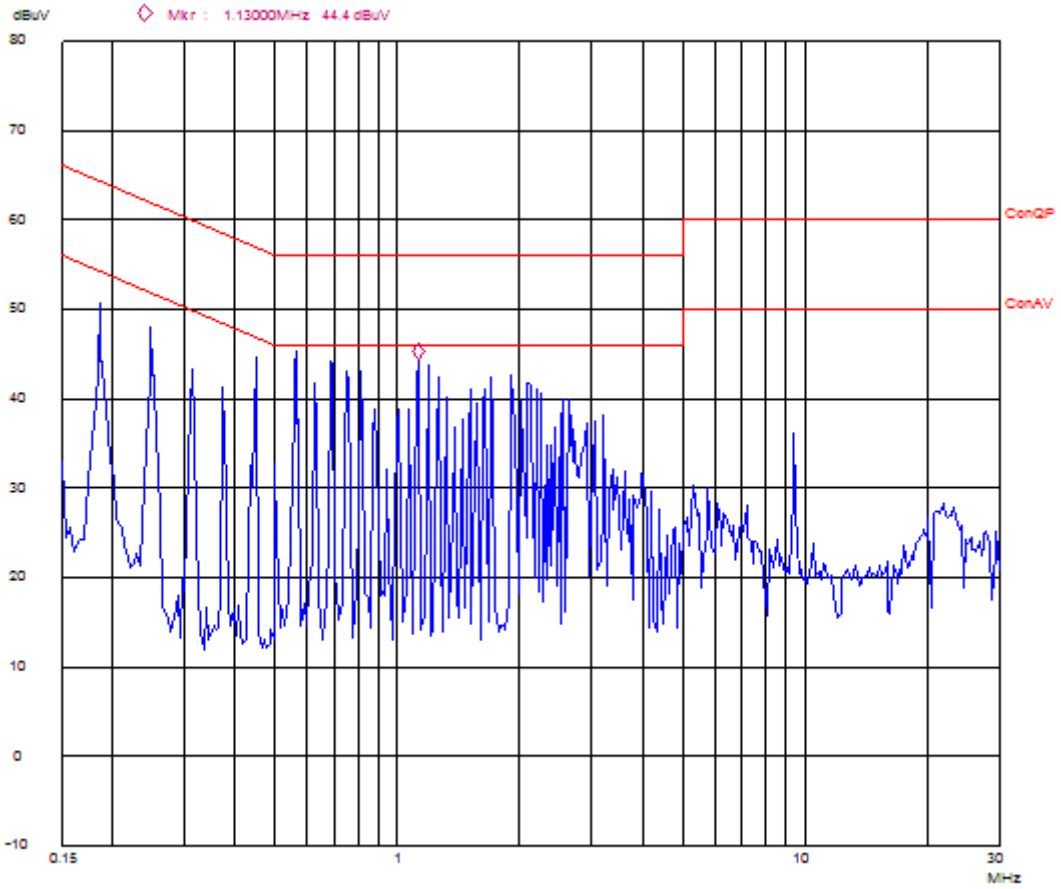
4.7 Conducted Emissions Test Data

LINE CONDUCTED EMISSIONS				FCC 15.207	
Frequency	Amplitude	Detector	Phase	Limit	Margin
MHz	dBμV	QP/Ave/Pk	Line/Neutral	dBμV	dB
0.58	45.6	PK	Line	56	-10.4
0.19	53.4	PK	Line	64.04	-10.6
0.58	45.3	PK	Neutral	56	-10.7
1.13	44.4	PK	Neutral	56	-11.6
0.19	51.0	PK	Neutral	64.04	-13.0
9.42	46.7	PK	Line	60	-13.3

The PK reading is lower than the Limit, so the AV reading is omitted

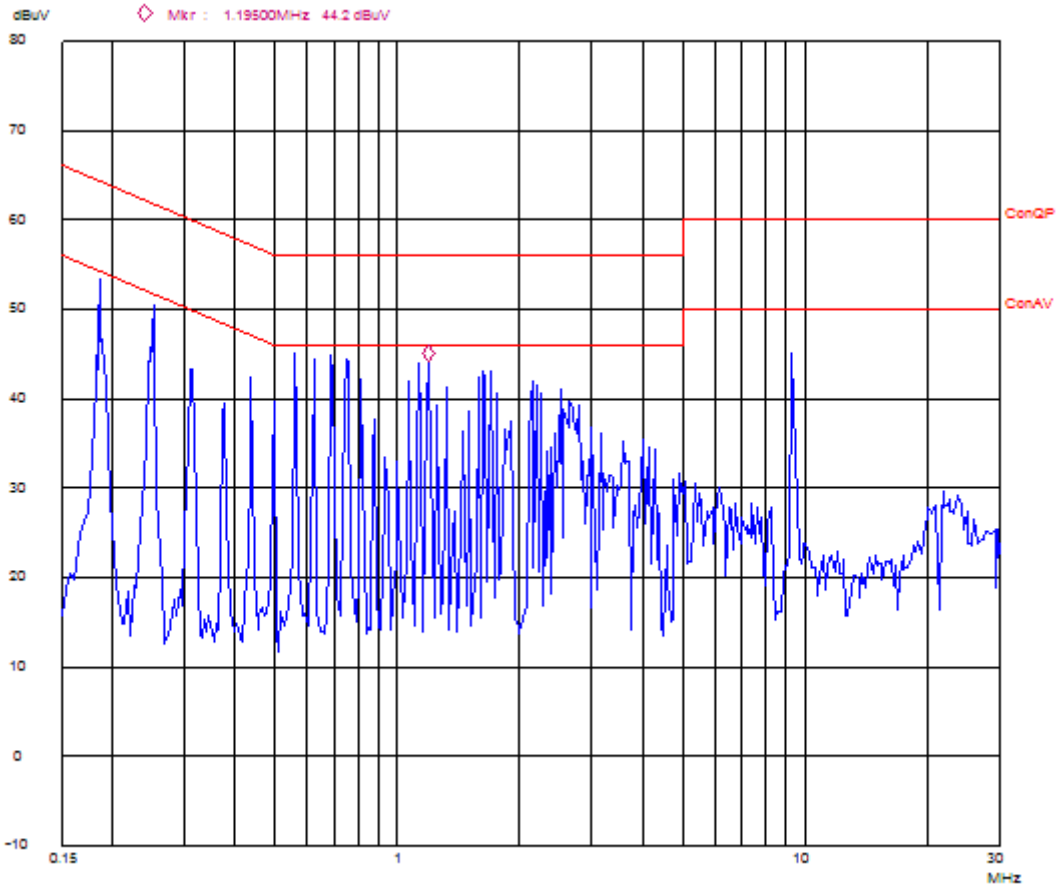
Plot of Conducted Emissions Test Data

Conducted Disturbance
EUT: PePWave Surf200BG
M/N: PePWave Surf200BG
Operating Condition: Running
Test Specification: N
Comment: AC120V/60Hz



Plot of Conducted Emissions Test Data

Conducted Disturbance
EUT: PePWave Surf200BG
M/N: PePWave Surf200BG
Operating Condition: Running
Test Specification: L
Comment: AC120V/60Hz



5. POWER SPECTRAL DENSITY

5.1 Standard Applicable

According to 15.247(a)(1)(iii), For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

5.2 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Cal. Date	Due. Date
Agilent	Spectrum Analyzer	E4402B	US41192821	2006-06-30	2007-06-29
ETS	50 ohm Coaxial Cable	SUCOFLEX 104	25498514	2007-01-26	2008-01-25

Statement of Traceability: All calibrations have been performed per the NVLAP requirements traceable to the NIST.

5.3 Test Procedure

1. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
2. Set center frequency of spectrum analyzer = operating frequency.
3. Set the spectrum analyzer as RBW, VBW=3KHz, Span = 20MHz.
4. Repeat above procedures until all frequency measured was complete.

5.4 Environmental Conditions

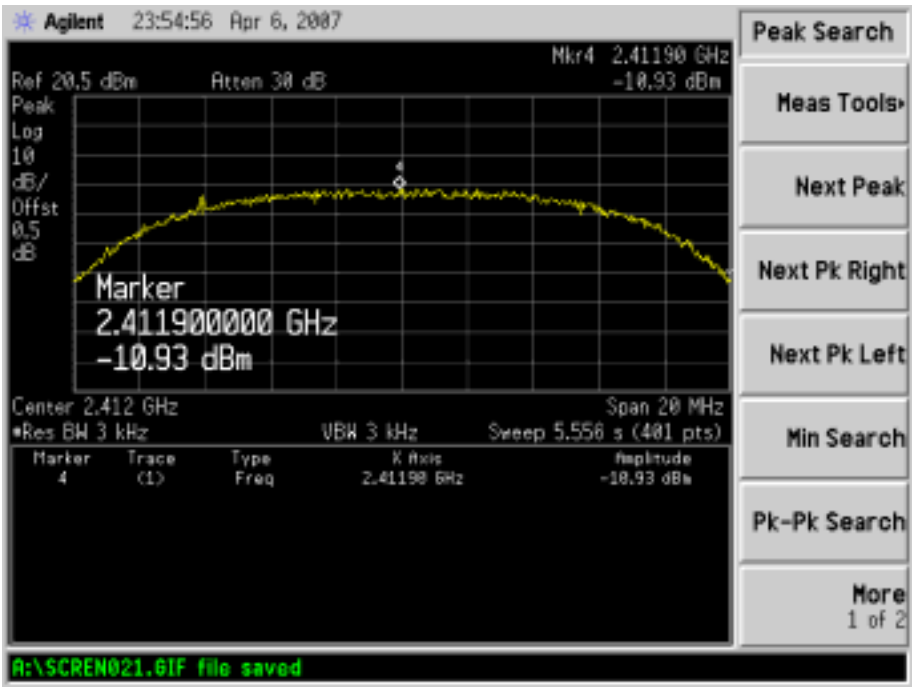
Temperature:	20° C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

5.5 Summary of Test Results/Plots

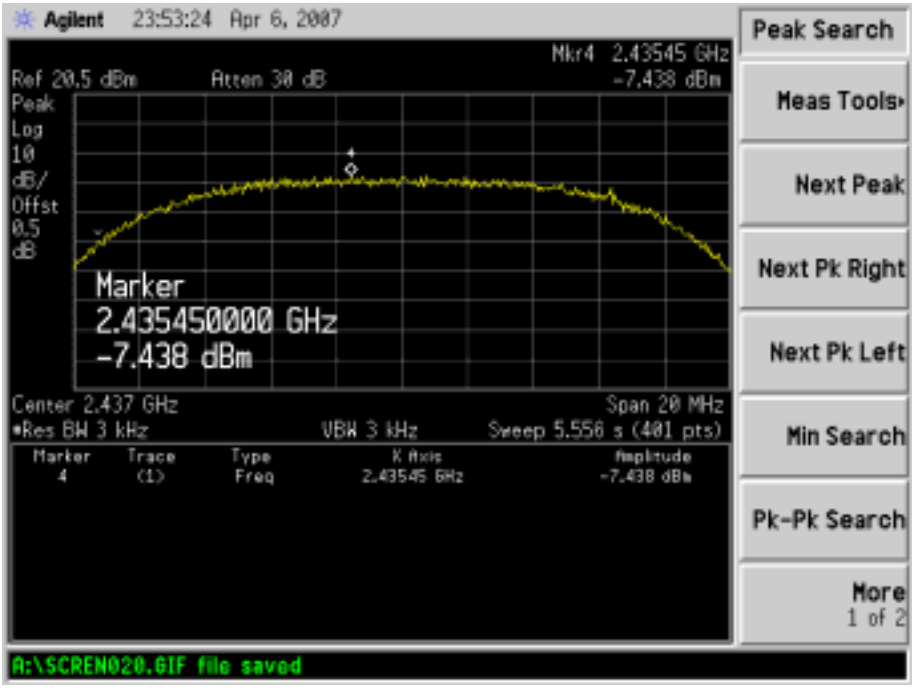
Test mode	Test channel	Reading dBm/3kHz	Limit dBm/3kHz
802.11b	Low channel (2412MHz)	-10.93	8
	Middle channel (2437MHz)	-7.438	8
	High channel (2462MHz)	-6.493	8
802.11g	Low channel (2412MHz)	-8.865	8
	Middle channel (2437MHz)	-2.813	8
	High channel (2462MHz)	-8.479	8

For 802.11b

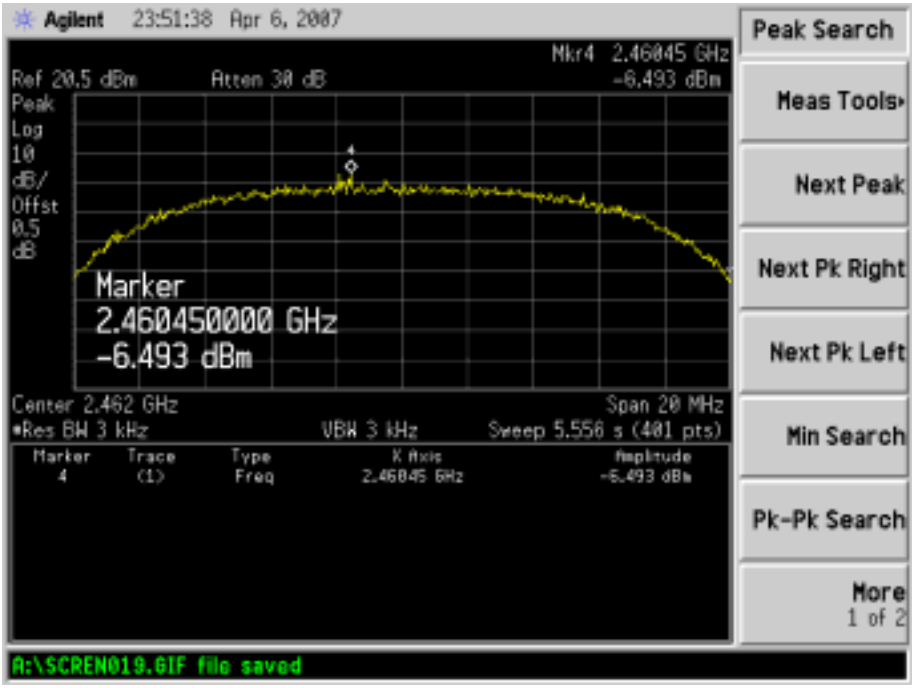
Low Channel:



Middle Channel:

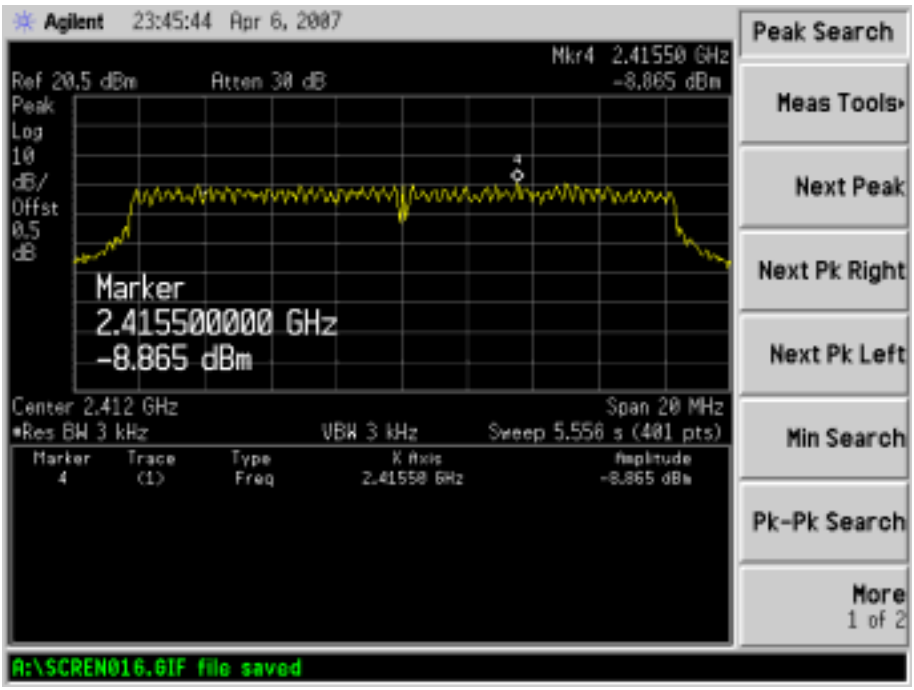


High Channel:

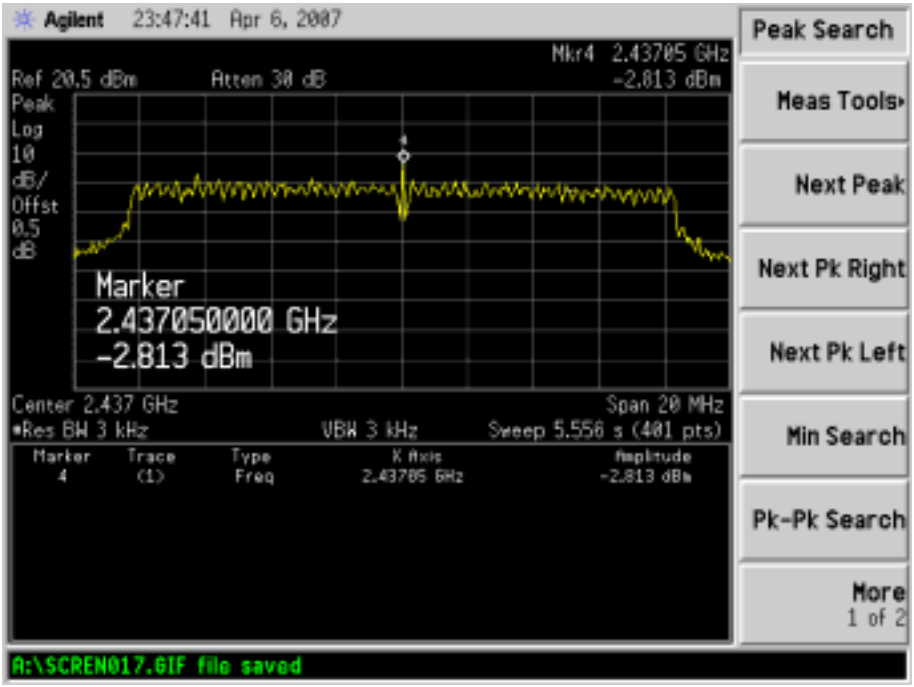


For 802.11g

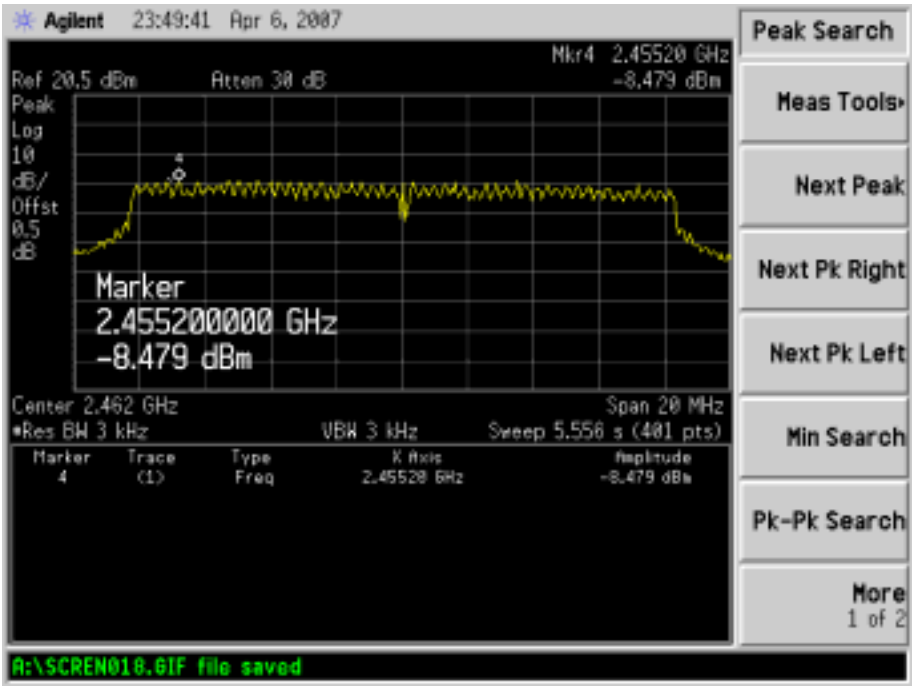
Low Channel:



Middle Channel:



High Channel:



6. 6-dB BANDWIDTH

6.1 Standard Applicable

According to 15.247(a)(2). Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

6.2 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Cal. Date	Due. Date
Agilent	Spectrum Analyzer	E4402B	US41192821	2006-06-30	2007-06-29
ETS	50 ohm Coaxial Cable	SUCOFLEX 104	25498514	2007-01-26	2008-01-25

Statement of Traceability: All calibrations have been performed per the NVLAP requirements traceable to the NIST.

6.3 Test Procedure

1. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
2. Set center frequency of spectrum analyzer = operating frequency.
3. The spectrum analyzer as RBW=300KHz (1 % of Bandwidth.), Sweep=auto
4. Mark the peak frequency and –6dB (upper and lower) frequency.

6.4 Environmental Conditions

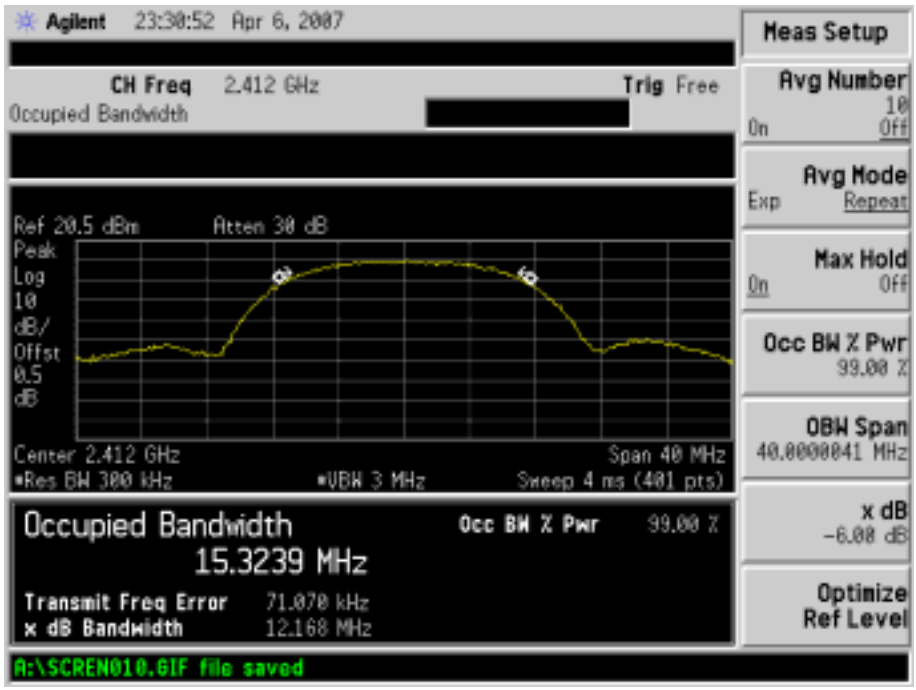
Temperature:	24° C
Relative Humidity:	53%
ATM Pressure:	1011 mbar

6.5 Summary of Test Results/Plots

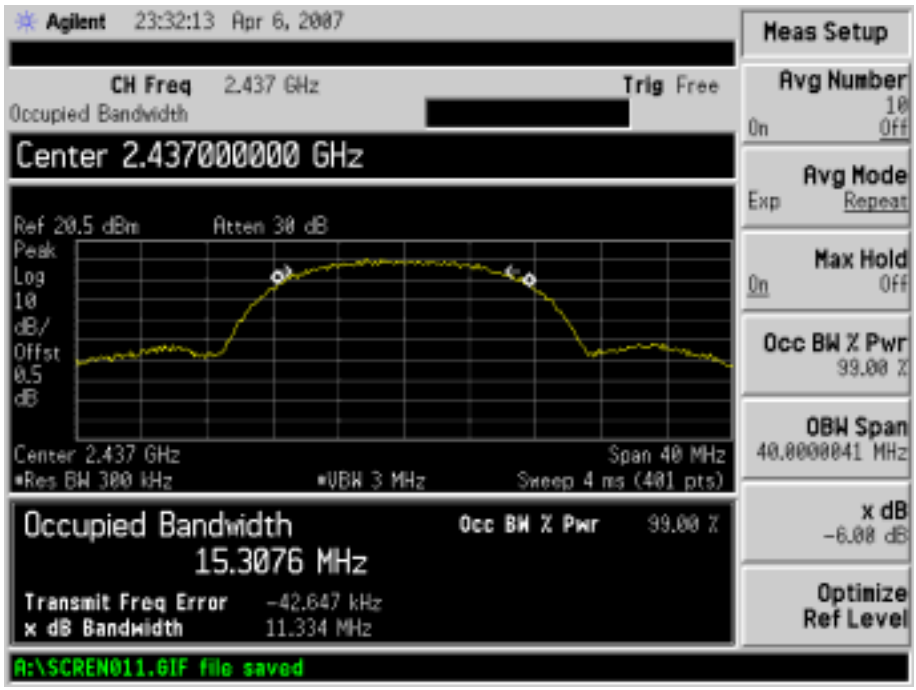
Test mode	Frequency MHz	6 dB Bandwidth kHz	Limit kHz
802.11b	2412	12168	500
	2437	11334	500
	2462	11819	500
802.11g	2412	16593	500
	2437	16555	500
	2462	16535	500

For 802.11b

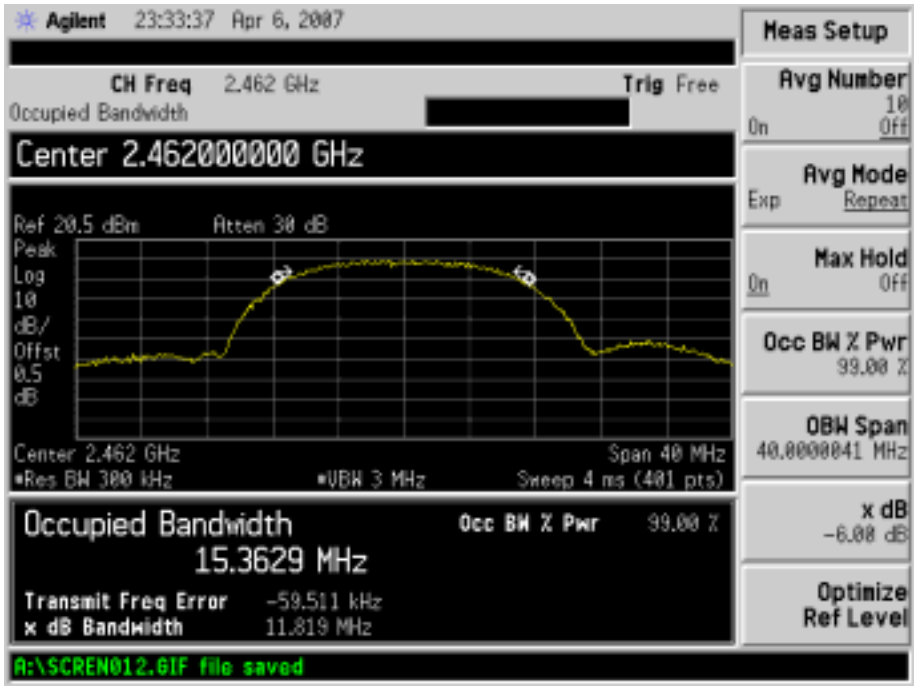
Low Channel:



Mid Channel:

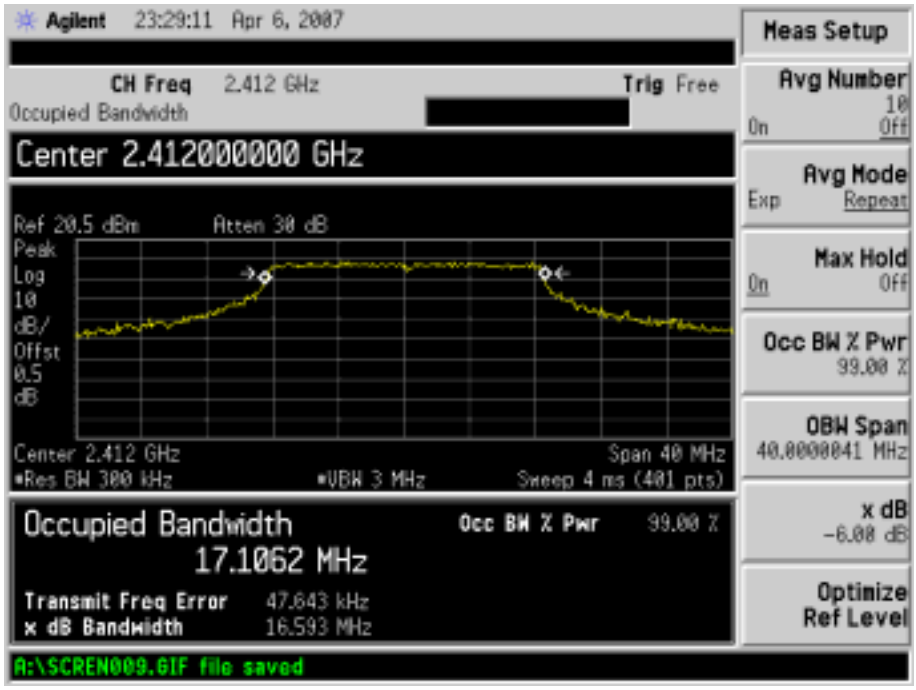


High Channel:

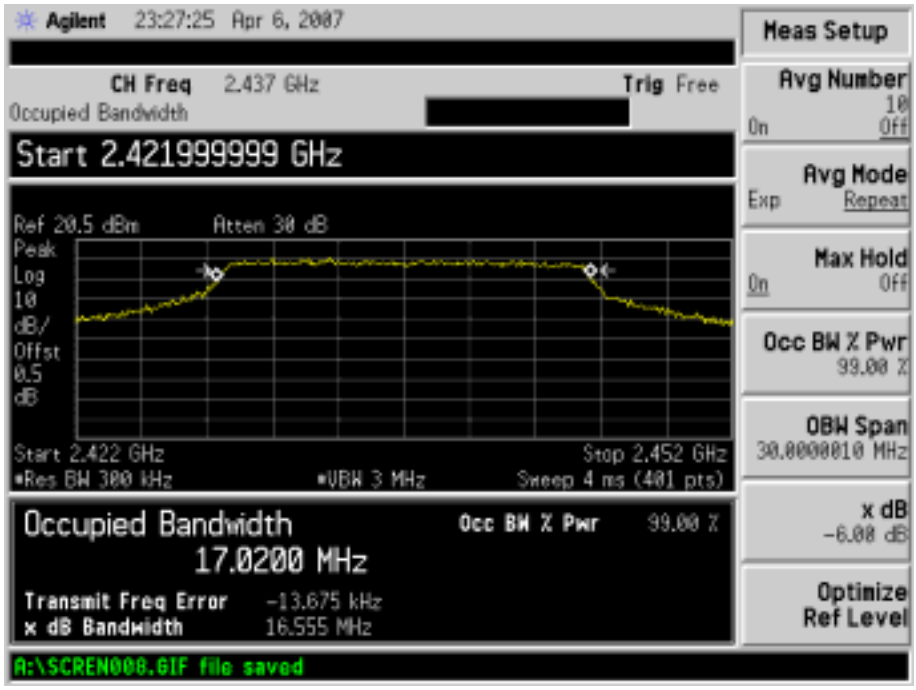


For 802.11g

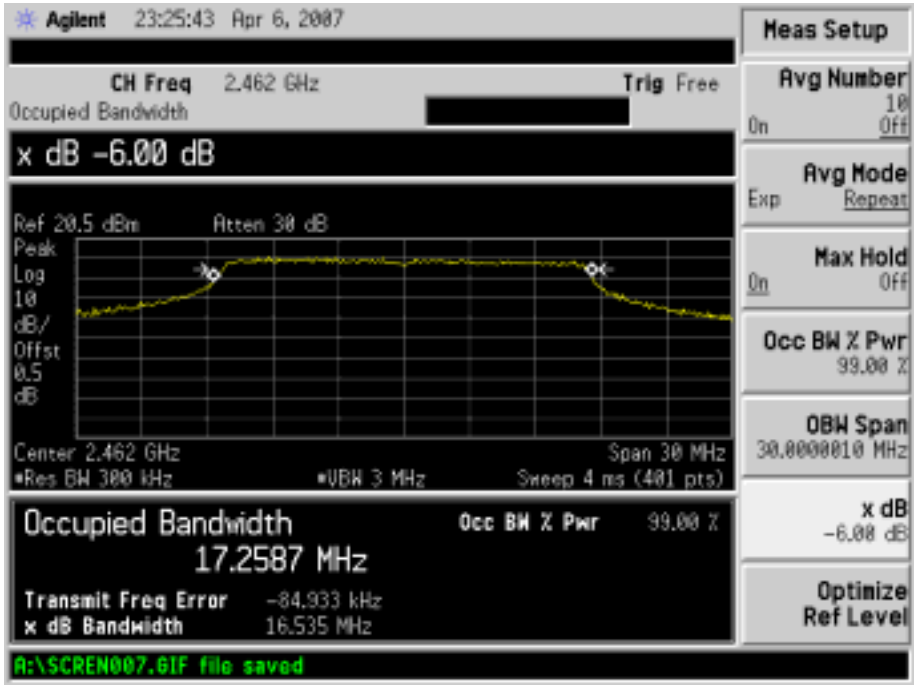
Low Channel:



Mid Channel:



High Channel:



7. POWER OUTPUT

7.1 Standard Applicable

According to FCC 15.247 b (4) the conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
(i) Systems operating in the 2400–2483.5 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum peak output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

7.2 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Cal. Date	Due. Date
Agilent	Spectrum Analyzer	E4402B	US41192821	2006-06-30	2007-06-29
ETS	50 ohm Coaxial Cable	SUCOFLEX 104	25498514	2007-01-26	2008-01-25

Statement of Traceability: All calibrations have been performed per the NVLAP requirements traceable to the NIST.

7.3 Test Procedure

1. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
2. Set center frequency of spectrum analyzer = operating frequency.
3. Set the Channel internal BW > 99%Bandwidth.
4. Active the Channel Power Measurement Option.

7.4 Environmental Conditions

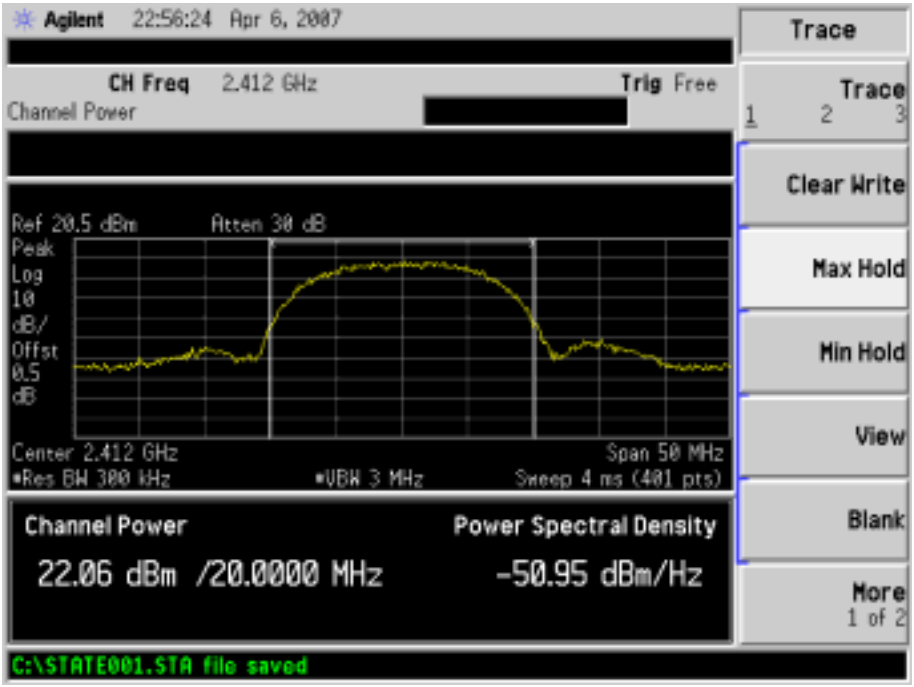
Temperature:	21° C
Relative Humidity:	55%
ATM Pressure:	1011 mbar

7.5 Summary of Test Results/Plots

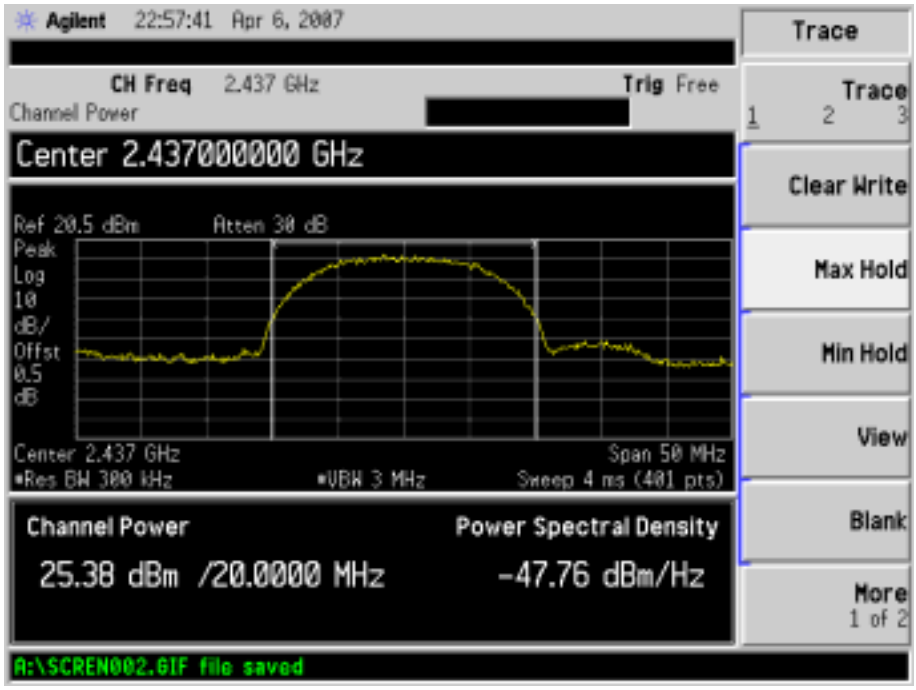
Test mode (Conducted)	Frequency MHz	Reading dBm	Limit dBm
802.11b	2412	22.06	27dBm
	2437	25.38	27dBm
	2462	22.88	27dBm
802.11g	2412	22.85	27dBm
	2437	24.14	27dBm
	2462	23.25	27dBm

For 802.11b

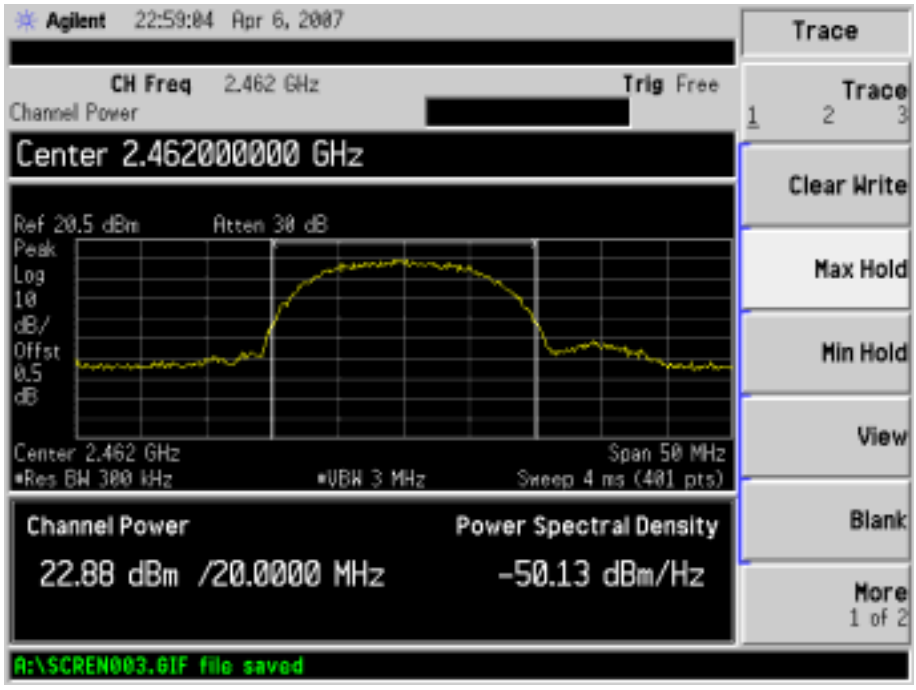
Low Channel:



Middle Channel:

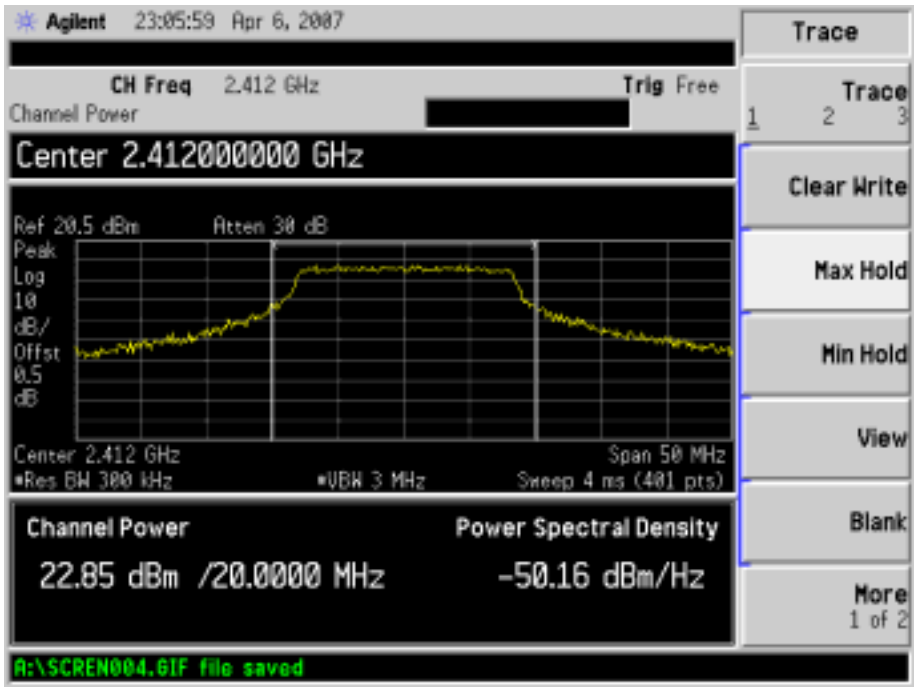


High Channel:

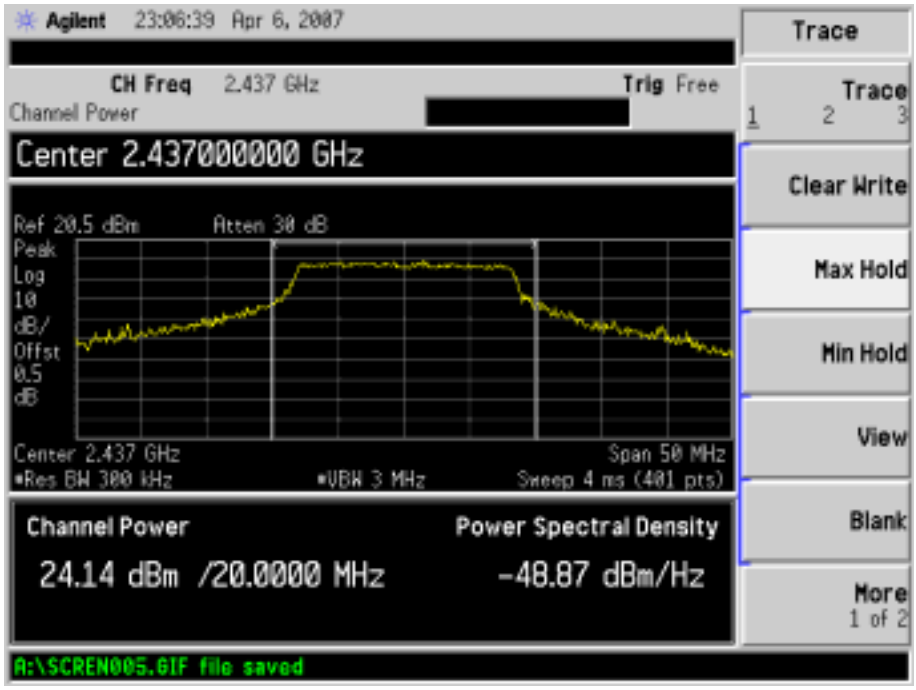


For 802.11g

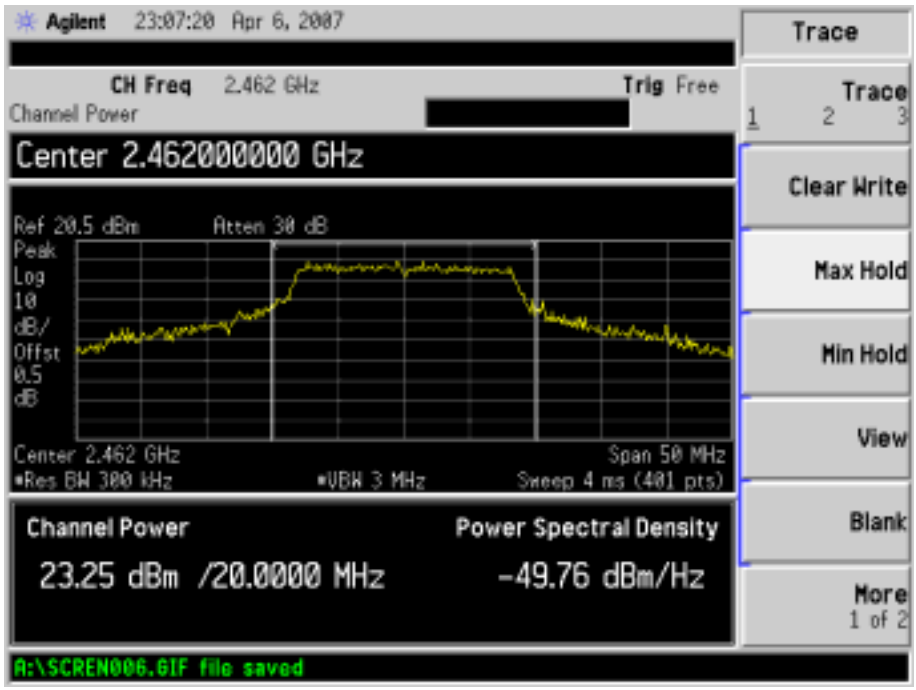
Low Channel:



Middle Channel:



High Channel:



8. FIELD STRENGTH OF SPURIOUS EMISSIONS

8.1 Measurement Uncertainty

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement is ±3.0 dB.

8.2 Standard Applicable

According to §15.247(c), 15.205 15.209(b) &15.35 (b), the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

FIELD STRENGTH	FIELD STRENGTH	Section 15.209:
of Fundamental:	of Harmonics:	30 - 88 MHz 40 dBuV/m @3M
902-928MHz		88 -216 MHz 43.5 dBuV/m @3M
2.4-2.4835GHz	127.37dBuV/m @3m	216 -960 MHz 46 dBuV/m @3M
127.38dBuV/m @3m	54 dBuV/m @3m	Above 960 MHz 54dBuV/m @3M

The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in §15.35 for limiting peak emissions apply.

EMISSIONS RADIATED OUTSIDE OF THE SPECIFIED FREQUENCY BANDS, EXCEPT FOR HARMONICS, SHALL BE ATTENUATED BY AT LEAST 20 dB BELOW THE LEVEL OF THE FUNDAMENTAL OR TO THE GENERAL RADIATED EMISSION LIMITS IN 15.209,WHICHEVER IS THE LESSER ATTENUATION.

Emissions that fall in the restricted bands (15.205) must be less than 54dBuV/m otherwise the spurious and harmonics must be attenuated by at least 20dB.

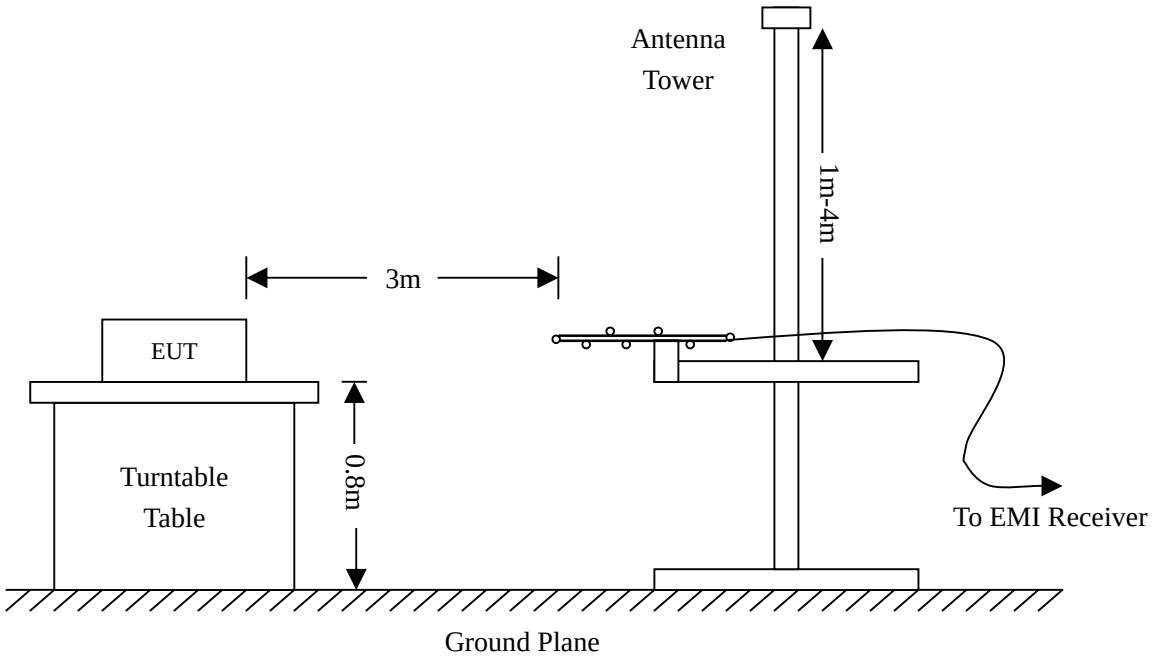
8.3 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Cal. Date	Due. Date
Rohde & Schwarz	EMI Test Receiver	ESI26	830245/009	2007-1-26	2008-1-25
ETS	Multi_Device Controller	2090	57230	2007-1-26	2008-1-25
ETS	Receiver Antenna	2175	57337	2007-1-26	2008-1-25
ETS	50 ohm Coaxial Cable	SUCOFLEX 104	25498514	2007-1-26	2008-1-25
Rohde & Schwarz	Horn Antenna	HF906	100014	2007-1-26	2008-1-25

Statement of Traceability: All calibrations have been performed per the NVLAP requirements traceable to the NIST.

8.4 Test Procedure

The setup of EUT is according with per ANSI C63.4-2003 measurement procedure. The specification used was with the FCC Part 15.205 15.247(a) and FCC Part 15.209 Limit.
The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.
The spacing between the peripherals was 10 cm.



8.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and the Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading + Ant. Factor + Cable Loss – Ampl. Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dBμV means the emission is 6dBμV below the maximum limit for Class B. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – FCC Part 15 Limit

8.6 Environmental Conditions

Temperature:	22° C
Relative Humidity:	52%
ATM Pressure:	1012 mbar

8.7 Summary of Test Results/Plots

According to the data below, the FCC Part 15.205, 15.209 and 15.247 standards, and had the worst margin of:

-2.20 dBμV at **456.10 MHz** in the **Vertical** polarization, **30 MHz to 1 GHz, 3Meters**

-0.40 dBμV at **7311.0 MHz** in the **Vertical** polarization, **1 MHz to 18 GHz, 3Meters 802.11b Mode**

-0.30 dBμV at **7206.0 MHz** in the **Vertical** polarization, **1 MHz to 18 GHz, 3Meters 802.11g Mode**

Frequency MHz	Detector	Meter Reading dBuV	Direction Degree	Polar H / V	Antenna Loss dB	Cable loss dB	Amplifier dB	Correction Amplitude dBuV/m	Limit dBuV/m	Margin dB
802.11b Low Channel (1G to 18GHz)										
7206.0	AV	43.3	60	V	37.4	6.1	33.5	53.30	54	-0.7
4824.0	AV	45.5	135	V	34.1	5.2	33.0	51.80	54	-2.2
7206.0	AV	39.2	45	H	37.4	6.1	33.5	49.20	54	-4.8
4824.0	AV	42.8	66	H	34.1	5.2	33.0	49.10	54	-4.9
2412.0	AV	85.5	45	H	29.1	3.7	34.0	84.30		(Fund.)
2412.0	AV	90.9	98	V	29.1	3.7	34.0	89.70		(Fund.)
7206.0	PK	49.2	60	V	37.4	6.1	33.5	59.20	74	-14.8
4824.0	PK	52.1	135	V	34.1	5.2	33.0	58.40	74	-15.6
4824.0	PK	50.0	66	H	34.1	5.2	33.0	56.30	74	-17.7
7206.0	PK	46.1	45	H	37.4	6.1	33.5	56.10	74	-17.9
2412.0	PK	104.6	45	H	29.1	3.7	34.0	103.40		(Fund.)
2412.0	PK	117.7	98	V	29.1	3.7	34.0	116.50		(Fund.)
802.11b Middle Channel (1G to 18GHz)										
7311.0	AV	43.6	60	V	37.4	6.1	33.5	53.60	54	-0.4
4874.0	AV	46.7	135	V	34.1	5.2	33.0	53.00	54	-1.0
7311.0	AV	41.2	45	H	37.4	6.1	33.5	51.20	54	-2.8
4874.0	AV	44.3	66	H	34.1	5.2	33.0	50.60	54	-3.4
2437.0	AV	87.9	45	H	29.1	3.7	34.0	86.70		(Fund.)
2437.0	AV	91.1	98	V	29.1	3.7	34.0	89.90		(Fund.)
7311.0	PK	51.1	60	V	37.4	6.1	33.5	61.10	74	-12.9
4874.0	PK	53.1	135	V	34.1	5.2	33.0	59.40	74	-14.6
4874.0	PK	51.0	66	H	34.1	5.2	33.0	57.30	74	-16.7
7311.0	PK	45.6	45	H	37.4	6.1	33.5	55.60	74	-18.4
2437.0	PK	109.6	45	H	29.1	3.7	34.0	108.40		(Fund.)
2437.0	PK	120.8	98	V	29.1	3.7	34.0	119.60		(Fund.)

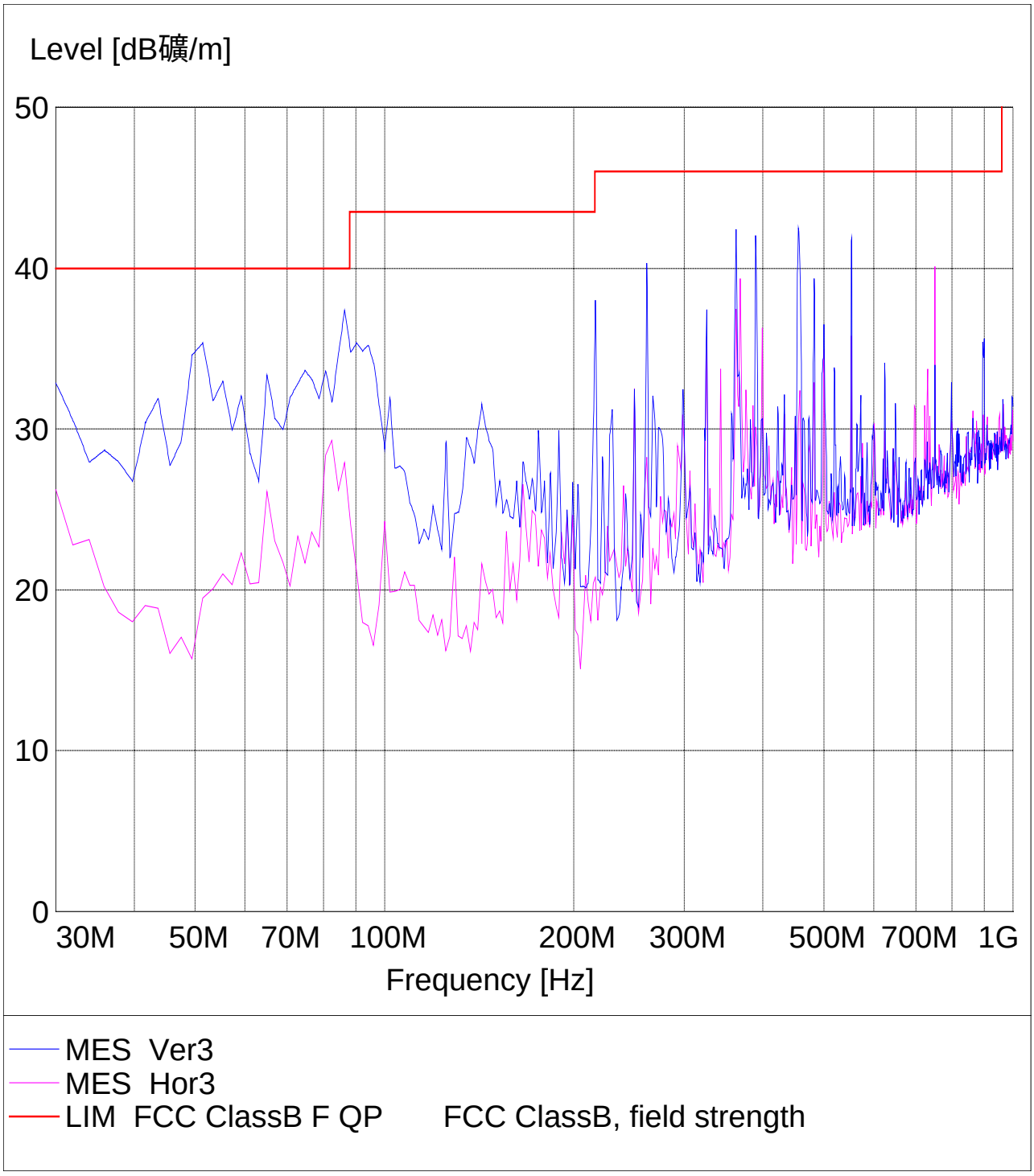
802.11b High Channel (1G to 18GHz)										
7386.0	AV	43.4	60	V	37.4	6.1	33.5	53.40	54	-0.6
4924.0	AV	46.5	135	V	34.1	5.2	33.0	52.80	54	-1.2
7386.0	AV	40.9	45	H	37.4	6.1	33.5	50.90	54	-3.1
4924.0	AV	41.7	66	H	34.1	5.2	33.0	48.00	54	-6.0
2462.0	AV	80.8	45	H	29.1	3.7	34.0	79.60		(Fund.)
2462.0	AV	89.1	98	V	29.1	3.7	34.0	87.90		(Fund.)
7386.0	PK	49.9	60	V	37.4	6.1	33.5	59.90	74	-14.1
4924.0	PK	53.0	135	V	34.1	5.2	33.0	59.30	74	-14.7
7386.0	PK	48.2	45	H	37.4	6.1	33.5	58.20	74	-15.8
4924.0	PK	49.1	66	H	34.1	5.2	33.0	55.40	74	-18.6
2462.0	PK	109.8	45	H	29.1	3.7	34.0	108.60		(Fund.)
2462.0	PK	99.6	98	V	29.1	3.7	34.0	98.40		(Fund.)
802.11g Low Channel (1G to 18GHz)										
7206.0	AV	43.7	60	V	37.4	6.1	33.5	53.70	54	-0.3
4824.0	AV	46.0	135	V	34.1	5.2	33.0	52.30	54	-1.7
7206.0	AV	39.6	45	H	37.4	6.1	33.5	49.60	54	-4.4
4824.0	AV	41.2	66	H	34.1	5.2	33.0	47.50	54	-6.5
2412.0	AV	79.7	45	H	29.1	3.7	34.0	78.50		(Fund.)
2412.0	AV	87.8	98	V	29.1	3.7	34.0	86.60		(Fund.)
7206.0	PK	51.4	60	V	37.4	6.1	33.5	61.40	74	-12.6
4824.0	PK	53.9	135	V	34.1	5.2	33.0	60.20	74	-13.8
7206.0	PK	47.3	45	H	37.4	6.1	33.5	57.30	74	-16.7
4824.0	PK	49.4	66	H	34.1	5.2	33.0	55.70	74	-18.3
2412.0	PK	90.1	45	H	29.1	3.7	34.0	88.90		(Fund.)
2412.0	PK	98.6	98	V	29.1	3.7	34.0	97.40		(Fund.)
802.11g Middle Channel (1G to 18GHz)										
7311.0	AV	43.5	60	V	37.4	6.1	33.5	53.50	54	-0.5
4874.0	AV	46.7	135	V	34.1	5.2	33.0	53.00	54	-1.0
4874.0	AV	45.3	66	H	34.1	5.2	33.0	51.60	54	-2.4
7311.0	AV	41.1	45	H	37.4	6.1	33.5	51.10	54	-2.9
2437.0	AV	85.5	45	H	29.1	3.7	34.0	84.30		(Fund.)
2437.0	AV	89.6	98	V	29.1	3.7	34.0	88.40		(Fund.)
7311.0	PK	52.5	60	V	37.4	6.1	33.5	62.50	74	-11.5
4874.0	PK	56.1	135	V	34.1	5.2	33.0	62.40	74	-11.6
4874.0	PK	53.4	66	H	34.1	5.2	33.0	59.70	74	-14.3
7311.0	PK	49.6	45	H	37.4	6.1	33.5	59.60	74	-14.4
2437.0	PK	95.5	45	H	29.1	3.7	34.0	94.30		(Fund.)
2437.0	PK	102.7	98	V	29.1	3.7	34.0	101.50		(Fund.)

802.11g High Channel (1G to 18GHz)										
7386.0	AV	43.1	60	V	37.4	6.1	33.5	53.10	54	-0.9
4924.0	AV	46.6	135	V	34.1	5.2	33.0	52.90	54	-1.1
7386.0	AV	41.0	45	H	37.4	6.1	33.5	51.00	54	-3.0
4924.0	AV	43.0	66	H	34.1	5.2	33.0	49.30	54	-4.7
2462.0	AV	81.9	45	H	29.1	3.7	34.0	80.70		(Fund.)
2462.0	AV	89.2	98	V	29.1	3.7	34.0	88.00		(Fund.)
7386.0	PK	53.7	60	V	37.4	6.1	33.5	63.70	74	-10.3
4924.0	PK	55.2	135	V	34.1	5.2	33.0	61.50	74	-12.5
7386.0	PK	49.8	45	H	37.4	6.1	33.5	59.80	74	-14.2
4924.0	PK	52.1	66	H	34.1	5.2	33.0	58.40	74	-15.6
2462.0	PK	90.6	45	H	29.1	3.7	34.0	89.40		(Fund.)
2462.0	PK	103.5	98	V	29.1	3.7	34.0	102.30		(Fund.)
(From 30MHz to 1GHz)										
456.10	PK	50.2	43	V	17.1	2.2	25.73	43.81	46	-2.2
372.22	PK	51.2	185	V	15.5	1.9	25.29	43.30	46	-2.7
87.40	PK	54.1	56	V	8.1	0.9	25.94	37.13	40	-2.9
384.51	PK	49.9	90	V	15.6	1.9	25.31	42.10	46	-3.9
264.32	PK	51.7	266	V	12.4	1.4	24.74	40.80	46	-5.2
760.50	PK	41.0	98	H	21.3	3.2	25.28	40.23	46	-5.8
372.33	PK	46.7	45	H	15.5	1.9	25.29	38.80	46	-7.2
216.02	PK	50.4	60	V	11.4	1.3	25.06	38.00	46	-8.0
396.10	PK	44.2	60	H	16.0	1.9	25.34	36.80	46	-9.2
82.30	PK	46.0	66	H	8.4	0.9	26.03	29.20	40	-10.8
504.05	PK	40.2	45	H	18.0	2.4	25.86	34.72	46	-11.3
180.12	PK	39.2	135	H	11.8	1.3	25.24	27.10	43.5	-16.4

Note: Testing is carried out with frequency rang 30MHz to the tenth harmonics, which above 5th Harmonics is close to the noise base even antenna close up to 1meter distance according the measurement of ANSI C63.4.

Test Result/Plots:

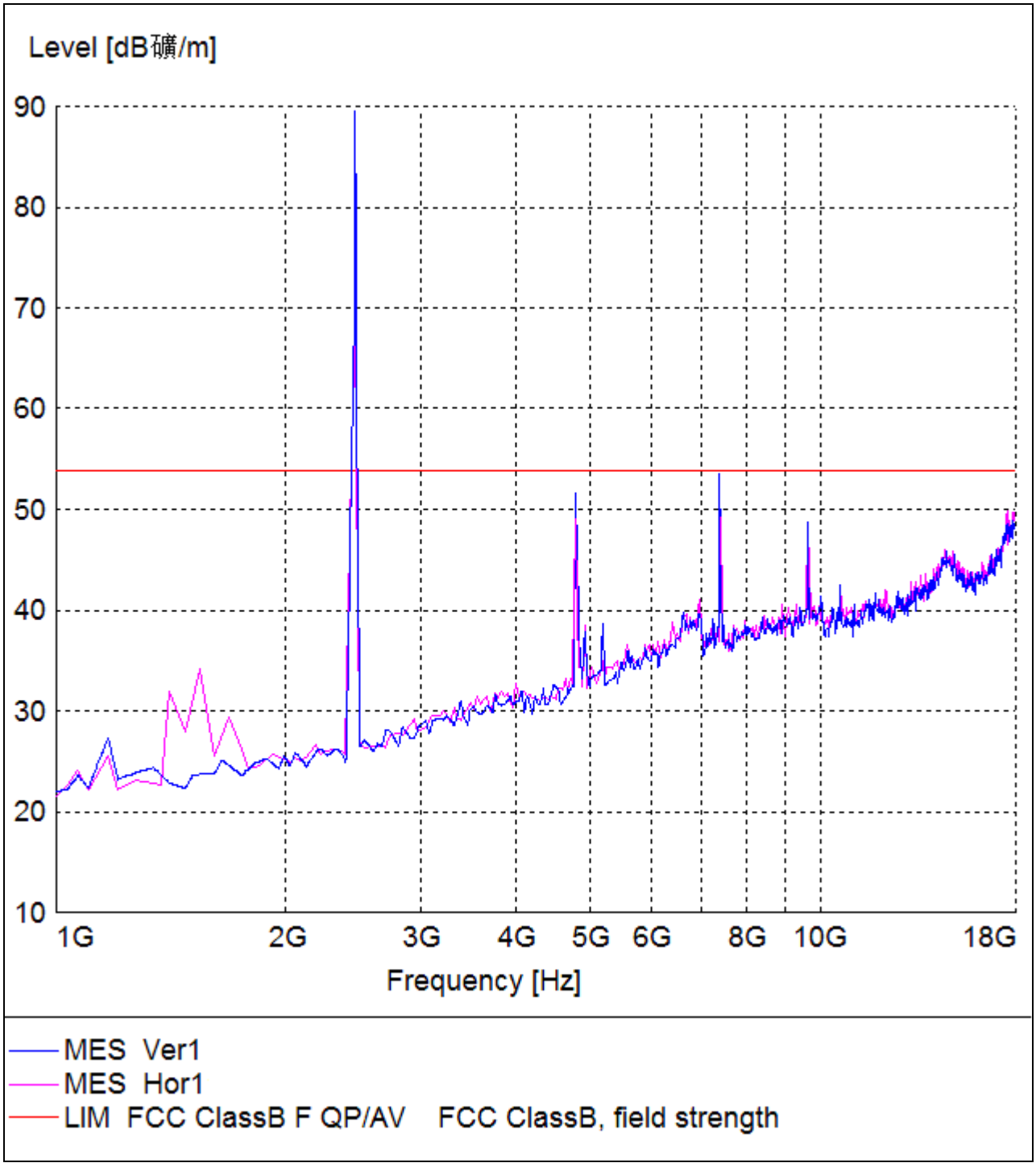
From 30 MHz to 1 GHz



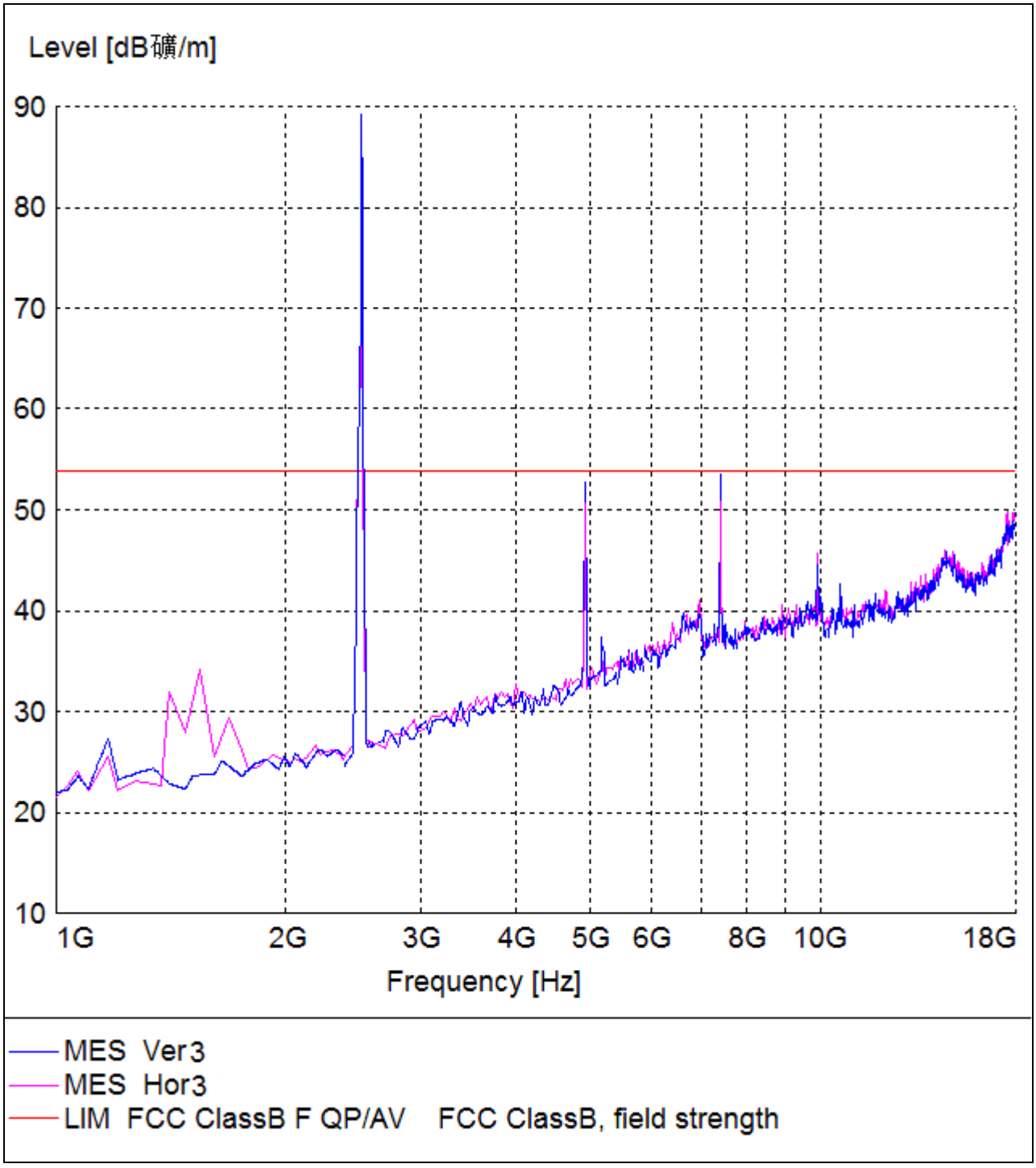
From 1 GHz to 18GHz

802.11b

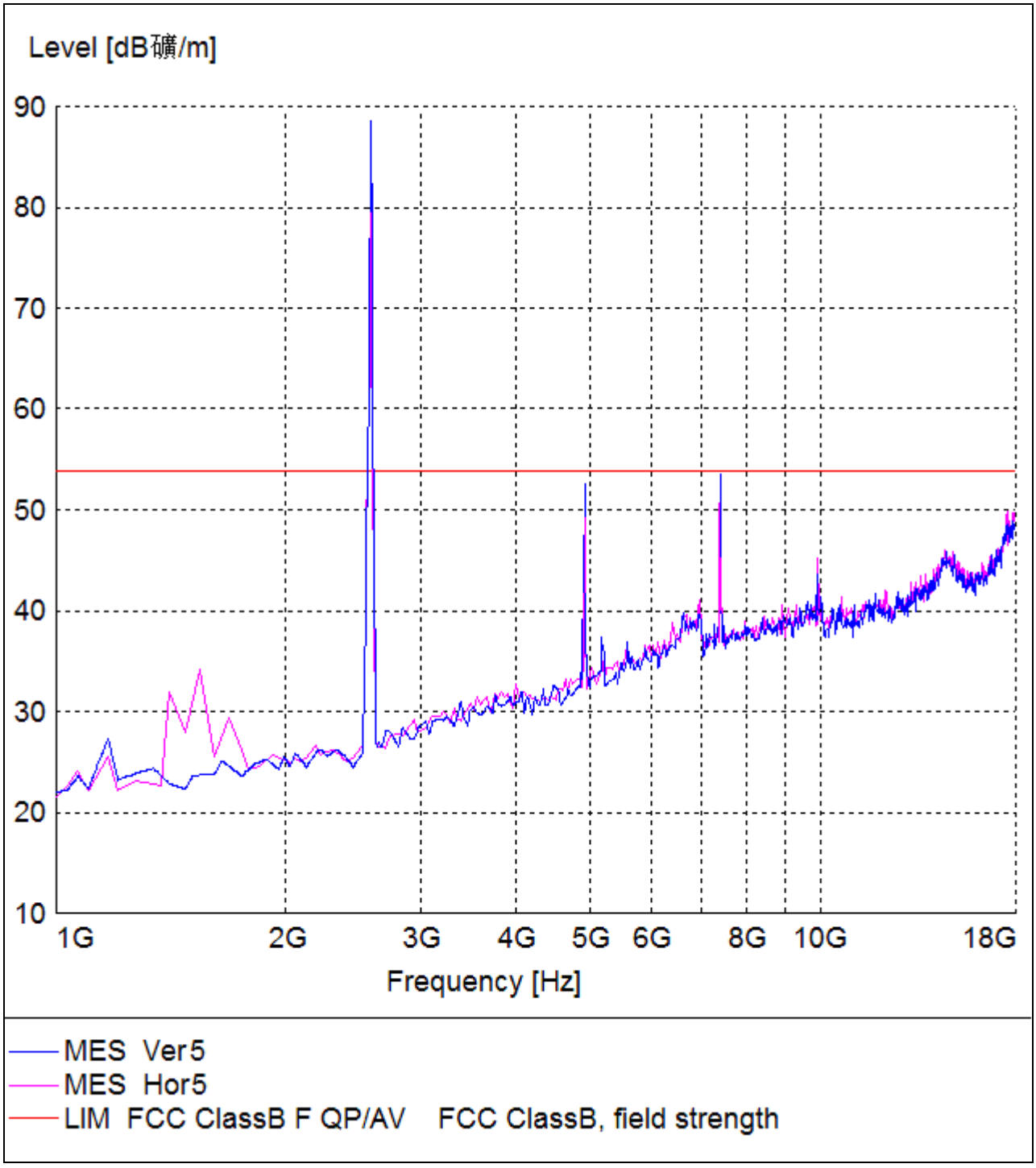
Low CH:



Middle CH:

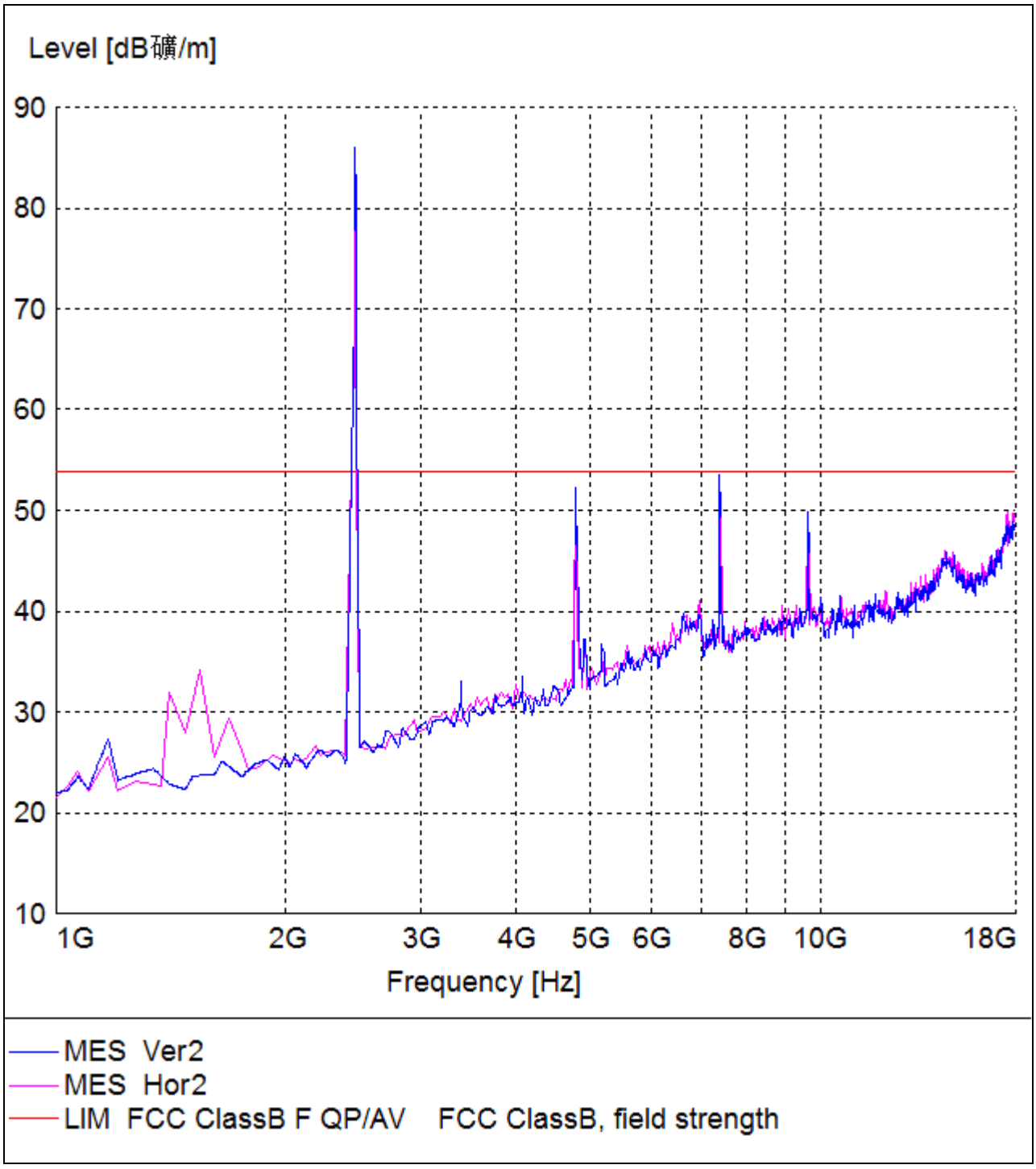

Level [dB礦/m]
90
80
70
60
50
40
30
20
10
1G
2G
3G
4G
5G
6G
8G
10G
18G
Frequency [Hz]
MES Ver3
MES Hor3
LIM FCC ClassB F QP/AV FCC ClassB, field strength

High CH:

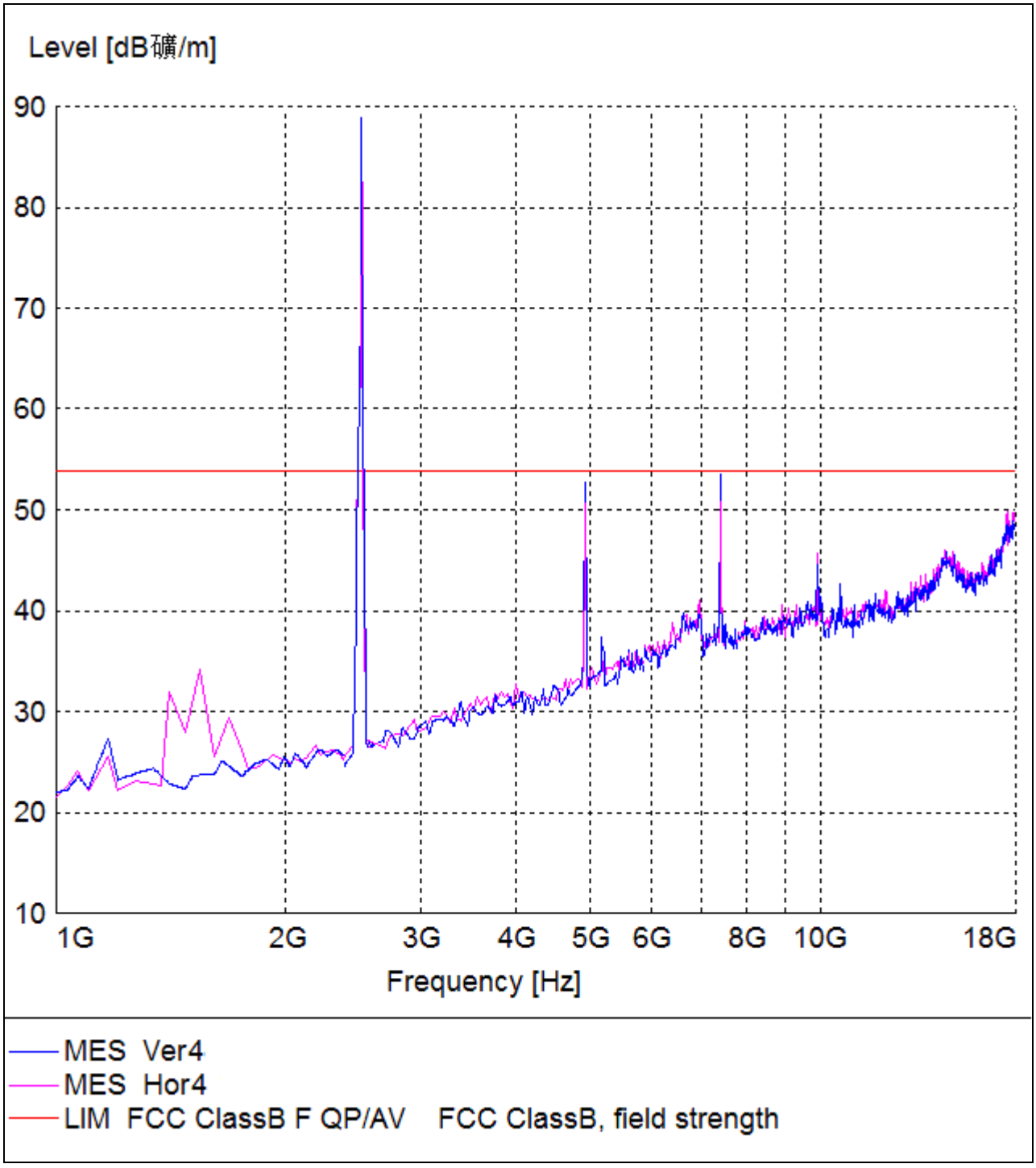

Level [dB礦/m]
90
80
70
60
50
40
30
20
10
1G
2G
3G
4G
5G
6G
8G
10G
18G
Frequency [Hz]
MES Ver5
MES Hor5
LIM FCC ClassB F QP/AV FCC ClassB, field strength

802.11g

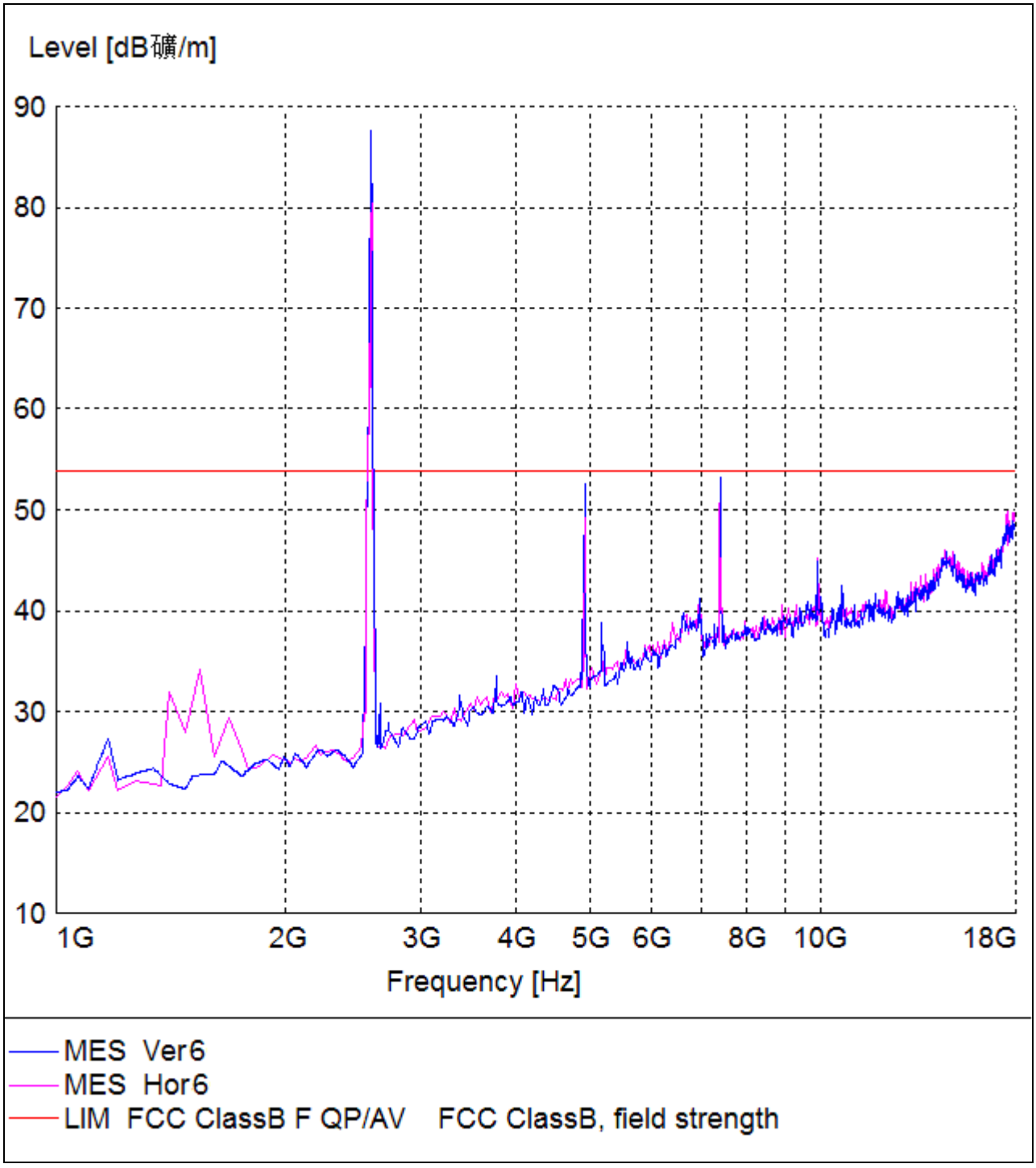
Low CH:



Middle CH:


Level [dB礦/m]
90
80
70
60
50
40
30
20
10
1G
2G
3G
4G
5G
6G
8G
10G
18G
Frequency [Hz]
MES Ver4
MES Hor4
LIM FCC ClassB F QP/AV FCC ClassB, field strength

High CH:


Level [dB礦/m]
90
80
70
60
50
40
30
20
10
1G
2G
3G
4G
5G
6G
8G
10G
18G
Frequency [Hz]
MES Ver6
MES Hor6
LIM FCC ClassB F QP/AV FCC ClassB, field strength

9. OUT OF BAND EMISSIONS

9.1 Standard Applicable

According to §15.247 (d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

9.2 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Cal. Date	Due. Date
Agilent	Spectrum Analyzer	E4402B	US41192821	2006-06-30	2007-06-29
ETS	Receiver Antenna	2175	57337	2007-01-26	2008-01-25
ETS	50 ohm Coaxial Cable	SUCOFLEX 104	25498514	2007-01-26	2008-01-25
Rohde & Schwarz	Horn Antenna	HF906	100014	2007-01-26	2008-01-25

Statement of Traceability: All calibrations have been performed per the NVLAP requirements traceable to the NIST.

9.3 Test Procedure

1. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
2. Set the spectrum analyzer as RBW, VBW=100KHz, Span=50MHz, Sweep = auto
3. Set the Lowest and Highest Transmitting Channel, observed the outside band of 2400MHz to 2438.5MHz, then mark the higher-level emission for comparing with the FCC rules.

9.4 Environmental Conditions

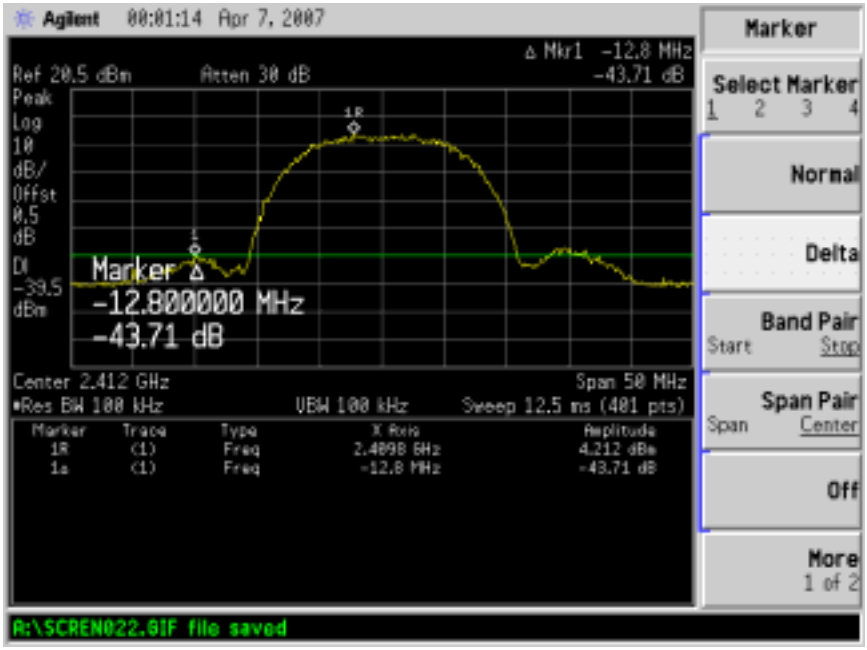
Temperature:	21° C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

9.5 Summary of Test Results/Plots

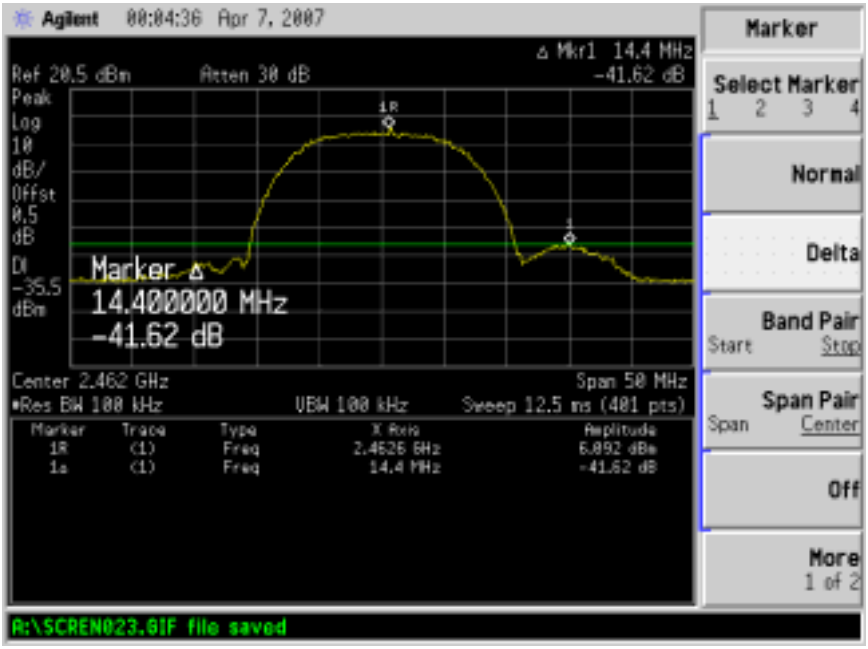
Test mode	Frequency MHz	Atten Limit dB	Field Strength (3m) dBuV/m	Field Strength Limit dBuV/m
802.11b	2400.00	>20	48.4	<54
	2483.50	>20	50.6	<54
802.11g	2400.00	>20	52.2	<54
	2483.50	>20	49.8	<54

For 802.11b

Lowest Bandedge

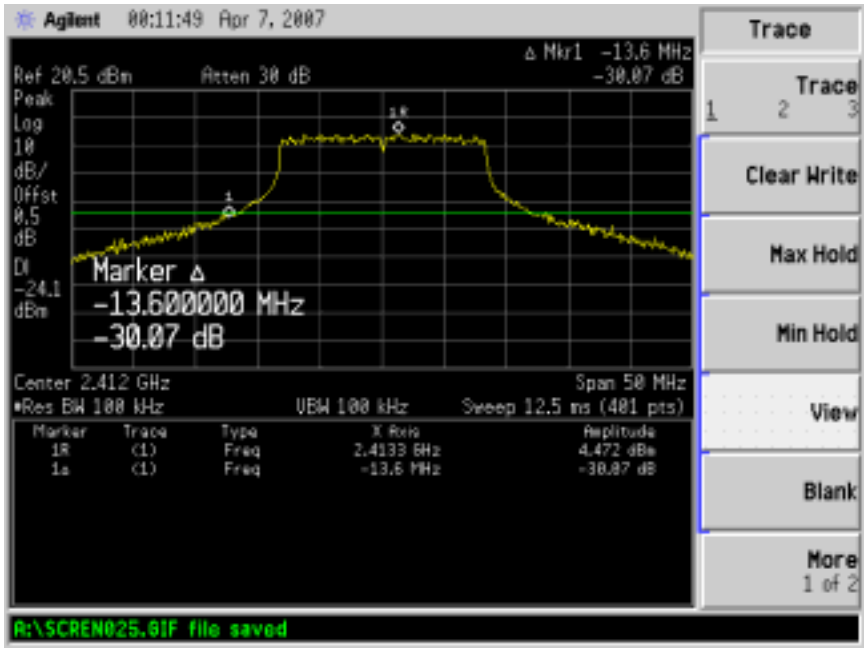


Highest Bandedge



For 802.11g

Lowest Bandedge



Highest Bandedge