FCC 47 CFR PART 15 SUBPART C

TEST REPORT

For

Wireless-G Broadband Router With 4-Port Switch

Model: WRT54G V8.2

Trade Name: Linksys

Issued to

Cisco-Linksys LLC

121 Theory Drive
Irvine, CA 92617(USA)

Issued by

Compliance Certification Services Inc.
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0240

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1. TEST RESULT CERTIFICATION

Applicant:	Cisco-Linksys LLC 121 Theory Drive Irvine, CA 92617(USA)
Equipment Under Test:	Wireless-G Broadband Router With 4-Port Switch
Trade Name:	Linksys
Model:	WRT54G V8.2
Date of Test:	September 28 ~ October 26, 2007

APPLICABLE STANDARDS
FCC 47 CFR Part 15 Subpart C
Deviation from Applicable Standard
N/A

We hereby certify that:

The above equipment was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4: 2003 and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules Part 15.207, 15.209, 15.247.

The test results of this report relate only to the tested sample EUT identified in this report.

Approved by: ***Reviewed by:***

S. B. Lu
Manager of Hsinchu Laboratory
Compliance Certification Services Inc.

Jerry Chang
Test Engineer of Hsinchu Laboratory
Compliance Certification Services Inc.

2. SUMMARY OF TEST RESULTS

THE EUT has been tested according to the following specifications:

Applied Standard: FCC Part 15, Subpart C			
Standard Paragraph	**Test Parameter**	**Result**	**Remark**
8.1 15.247(a)(2)	6dB Bandwidth	Pass	Meet the requirement of limit.
8.2 15.247(b)	Peak Power	Pass	Meet the requirement of limit.
8.3 15.247(d)	Band Edges Measurement	Pass	Meet the requirement of limit.
8.4 15.247(e)	Peak Power Spectral Density	Pass	Meet the requirement of limit.
8.5.1 15.247(d)	Conducted Measurement	Pass	Meet the requirement of limit.
8.5.2.1 15.247(d)	Radiated Emissions (Above 1 GHz)	Pass	Above 1 GHz: Minimum passing margin is – 0.89dB at 9855.00MHz
8.5.2.4 15.247(d)	Radiated Emissions (Below 1 GHz)	Pass	Below 1 GHz: Minimum passing margin is – 1.97dB at 62.98MHz
8.6 15.207	Powerline Conducted Emissions	Pass	Meet the requirement of limit. Minimum passing margin is – 2.67dB at 0.244MHz.

3. EUT DESCRIPTION

Product	Wireless-G Broadband Router With 4-Port Switch
Trade Name	Linksys
Model Number	WRT54G V8.2
FCC ID	Q87-WRT54GV82
Power Supply	DC 12V (from Power Adapter)
Frequency Range	2.4GHz: 2400 ~ 2483.5MHz
Number of Channels	IEEE 802.11b/g mode: 11 Channels
Modulation Technique	IEEE 802.11b mode: DSSS IEEE 802.11g mode: OFDM
Data Rate	IEEE 802.11b mode: 1, 2, 5.5, 11 Mpbs IEEE 802.11g mode: 6, 9, 12, 18, 24, 36, 48, 54 Mpbs
Transmit Power	IEEE 802.11b mode: 20.30 dBm IEEE 802.11g mode: 22.60 dBm
Antenna Specification	Fix Dipole Antenna, Antenna Gain : 2dBi
I/O Port	LAN Port × 4; WAN Port × 1

Power Adapter

No.	Brand (Manufacturer)	Model No.	Power Input	Power Output
1	LINKSYS	LS120V05AE	100V-240V ~ 0.5A 50-60 Hz	12VDC 0.5A MAX
2	LINKSYS (ENERTRONIX)	AD12V/0.5A-SW	100V-240V ~ 0.5A 50-60 Hz	12VDC 0.5A MAX
3	LINKSYS	ADA12050UA05	100V-240V ~ 0.5A 50-60 Hz	12VDC 0.5A MAX
4	LINKSYS	LS120V05A	100V-240V ~ 0.5A 50-60 Hz	12VDC 0.5A MAX
5	LINKSYS (ENG)	AD12V/0.5A-SW	100V-240V ~ 0.5A 50-60 Hz	12VDC 0.5A MAX
6	LINKSYS (ENG)	AD12V/0.5A-SW (special version)	100V-240V ~ 0.5A 50-60 Hz	12VDC 0.5A MAX
7	LINKSYS	HK-X106-A12	100V-240V ~ 0.22A 50-60 Hz	12VDC 0.5A MAX
8	LINKSYS	AMS1-1200500FU	100V-240V ~ 0.2A 50-60 Hz	12VDC 0.5A MAX

Remark:

1. *The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.*
2. *This submittal(s) (test report) is intended for FCC ID: **Q87-WRT54GV82** filing to comply with Section 15.207, 15.209 and 15.247 of the FCC Part 15, Subpart C Rules.*

4. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4 and FCC CFR 47 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055, 2.1057, 15.207, 15.209 and 15.247.

4.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

4.2 EUT EXERCISE

The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements.

According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209 and 15.247 under the FCC Rules Part 15 Subpart C.

4.3 GENERAL TEST PROCEDURES

Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.4.

4.4 FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	([2])
13.36 - 13.41			

[1] Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

[2] Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

4.5 DESCRIPTION OF TEST MODES

Channel	Frequency	Channel	Frequency (MHz)
1	2412MHz	7	2442MHz
2	2417MHz	8	2447MHz
3	2422MHz	9	2452MHz
4	2427MHz	10	2457MHz
5	2432MHz	11	2462MHz
6	2437MHz		

There are three channels have been tested as following 2412MHz (CH1), 2437MHz(CH6) and 2462MHz(CH11).
IEEE 802.11b : 1Mbps data rate (worst case) were chosen for full testing.
IEEE 802.11g : 6Mbps data rate (worst case) were chosen for full testing.

5. INSTRUMENT CALIBRATION

5.1 MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

5.2 MEASUREMENT EQUIPMENT USED

Equipment Used for Emissions Measurement

Remark: *Each piece of equipment is scheduled for calibration once a year.*

Conducted Emissions Test Site				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Spectrum Analyzer	Agilent	E4446A	MY433601.32	06/06/2008
Oscilloscope	Agilent	54642A	MY42001367 JH	06/04/2008

3m OATS				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
BILOG ANTENNA	CHASE	CBL6112B	2817	10/18/2008
SPECTRUM ANALYZER	Rohde & Schwarz	FSEK30	835253/002	10/18/2008
SPECTRUM ANALYZER	AGILENT	E4446A	MY433601.32	06/06/2008
EMI TEST RECEIVER	Rohde & Schwarz	ESCS30	835418/008	10/16/2008
OPEN SITE	----------	----------	No.2	05/07/2008
N TYPE COAXIAL CABLE	MIYAZAKI	8D-FB	02	05/16/2008
Horn-Antenna	----------	AH-118	10089	10/18/2008
Horn-Antenna	----------	AH-840	03077	02/25/2008
Pre-amplifier	Agilent	8449B	3008A01471	12/25/2007
Amplifier	HP	8447D	1937A02748	12/25/2007
High pass filter	HP	84300/80038	002	N.C.R.
High pass filter	HP	84300/80039	003	N.C.R.
Loop Antenna	ETS-LINDGREN	6502	2356	06/15/2008
Test S/W	LABVIEW (V 6.1)			

Remark: *The measurement uncertainty is less than +/-3.2dB (30MHz ~ 1GHz), +/-3.2dB (Above 1GHz) which is evaluated as per the NAMAS NIS 81 and CISPR/A/291/CDV.*

Powerline Conducted Emissions Test Site				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
L.I.S.N.	SCHWARZBECK	NNLK 8121	8121-446	10/31/2007 For Insertion loss
	Rohde & Schwarz	ESH 3-Z5	840062/021	
TEST RECEIVER	Rohde & Schwarz	ESCS 30	100348	06/28/2008
TYPE N COAXIAL CABLE	SUHNER	--------	----------	02/26/2008
Test S/W	e-3 (5.04211c) R&S (2.27)			

Remark: *The measurement uncertainty is less than +/- 2.05dB, which is evaluated as per the NAMAS NIS 81 and CISPR/A/291/CDV.*

6. FACILITIES AND ACCREDITATIONS

6.1 FACILITIES

All measurement facilities used to collect the measurement data are located at

Rm.258, Bldg.17, NO.195 , Sec. 4, Chung Hsing Rd., Chu-Tung Chen. Hsin-Chu,
Taiwan 310 R.O.C.
Tel: 886-3-591-0068 / Fax: 886-3-582-55720

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

6.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, “Radio Interference Measuring Apparatus and Measurement Methods.”

6.3 TABLE OF ACCREDITATIONS AND LISTINGS

Country	Agency	Scope of Accreditation	Logo
USA	NVLAP	EN 55014-1, AS/NZS 1044, CNS 13783-1, IEC/CISPR 14-1, IEC/CISPR 22, EN 55022, EN 61000-3-2, EN 61000-3-3, ANSI C63.4, AS/NZS CISPR 22, AS/NZS 3548, IEC 61000-4-2/3/4/5/6/8/11	200118-0
USA	FCC	3/10 meter Open Area Test Sites to perform FCC Part 15/18 measurements	90585, 90584
Japan	VCCI	3/10 meter Open Area Test Sites to perform conducted/radiated measurements	R-1229/1189 C-1250/1294
Taiwan	TAF	FCC Method-47 CFR Part 15 Subpart C,D,E CISPR 11, FCC METHOD-47 CFR Part 18, EN 55011, CNS 13803, CISPR 13, CNS 13439, FCC Method-47 CFR Part 15 Subpart B, CISPR 14-1, EN 55014-1, CNS 13783-1, EN 55015, CNS 14115, CISPR 22, EN 55022, VCCI CNS 13438, EN 61000-4-2/3/4/5/6/8/11	Testing Laboratory 0240
Taiwan	BSMI	CNS 13803, CNS 13438, CNS 13439, CNS 13783-1, CNS 14115	SL2-IS-E-0002 SL2-IN-E-0002 SL2-A1-E-0002 SL2-R1-E-0002 SL2-R2-E-0002 SL2-L1-E-0002
Canada	Industry Canada	RSS-GEN Issue 2	IC 4417-1

** No part of this report may be used to claim or imply product endorsement by NVLAP or any agency of the US Government.*

7. SETUP OF EQUIPMENT UNDER TEST

7.1 SETUP CONFIGURATION OF EUT

See test photographs attached in Appendix II for the actual connections between EUT and support equipment.

7.2 SUPPORT EQUIPMENT

No.	Product	Manufacturer	Model No.	Serial No.	FCC ID
1	Notebook PC	DELL	Latitude D610	CN-0XD762-48643-637-1743	E2K24BNHM
2	Notebook PC	DELL	Latitude D610	CN-0C4708-48643-625-5565	E2K24BNHM
3	Notebook PC	HP	nx6130	CNU543274R	CNTWM3B2200BGA

Remark:

1. *All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.*
2. *Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.*

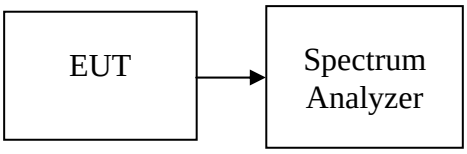
8. FCC PART 15.247 REQUIREMENTS

8.1 6dB BANDWIDTH

8.1.1 LIMIT

According to §15.247(a)(2), systems using digital modulation techniques may operate in the 2400 - 2483.5 MHz. The minimum 6dB bandwidth shall be at least 500 kHz.

Test Configuration



8.1.2 TEST PROCEDURE

1. Place the EUT on the table and set it in the transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as RBW = 100kHz, VBW = RBW, Span = 50 MHz, Sweep = auto.
4. Mark the peak frequency and –6dB (upper and lower) frequency.
5. Repeat until all the rest channels are investigated.

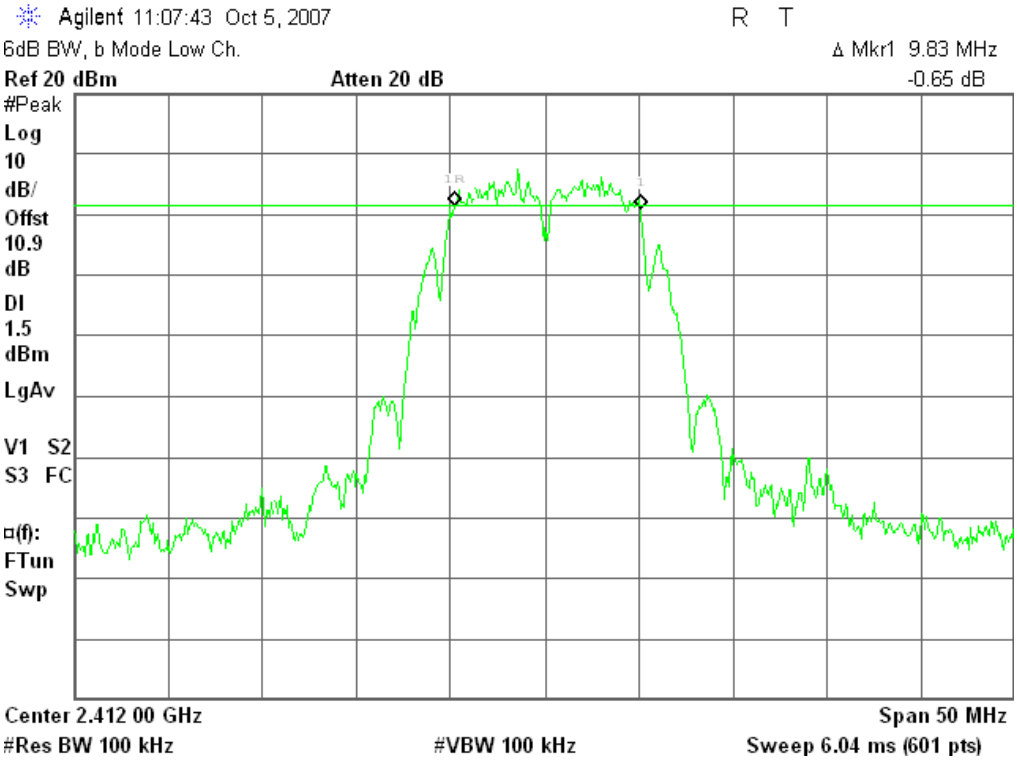
8.1.3 TEST RESULTS

No non-compliance noted

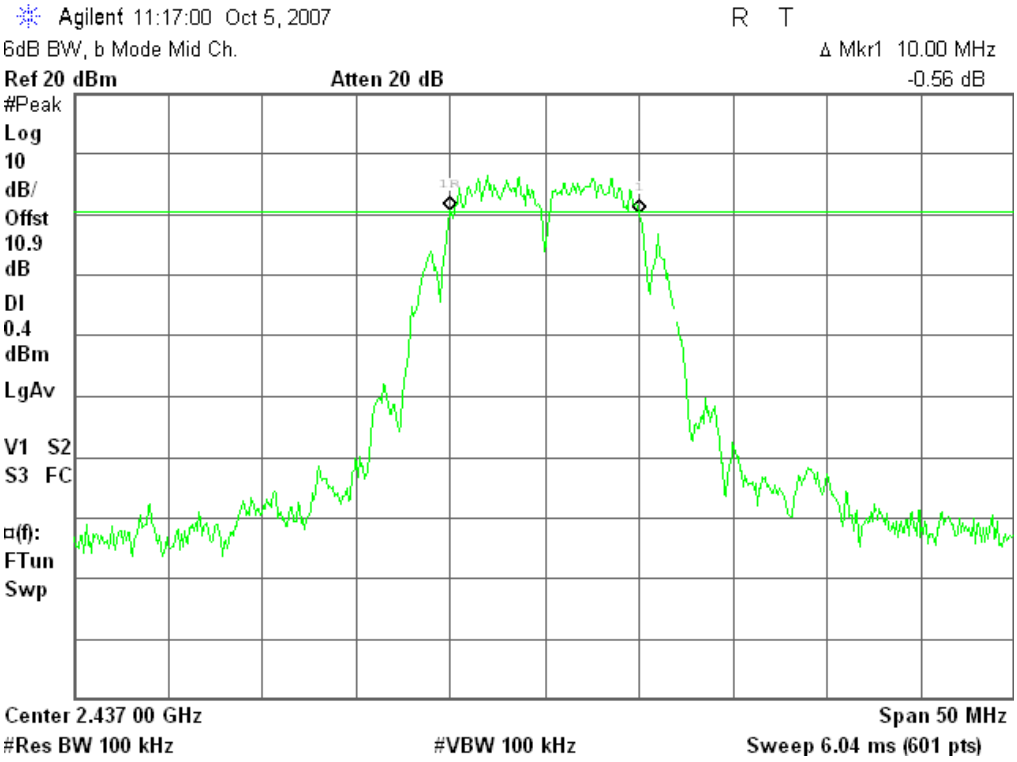
Test Data

Test mode: IEEE 802.11b mode				
Channel	**Frequency (MHz)**	**Bandwidth (MHz)**	**Limit (MHz)**	**Result**
1	2412	9.83	>0.5	PASS
6	2437	10.00		PASS
11	2462	9.17		PASS

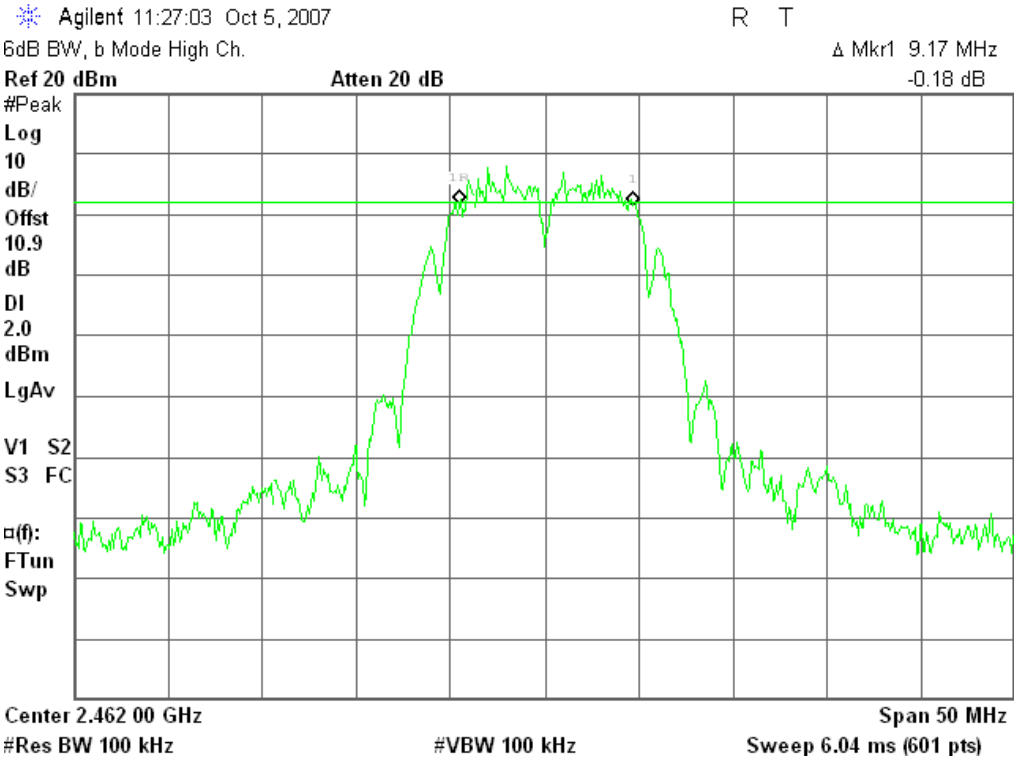
6dB Bandwidth (CH 1)



6dB Bandwidth (CH 6)



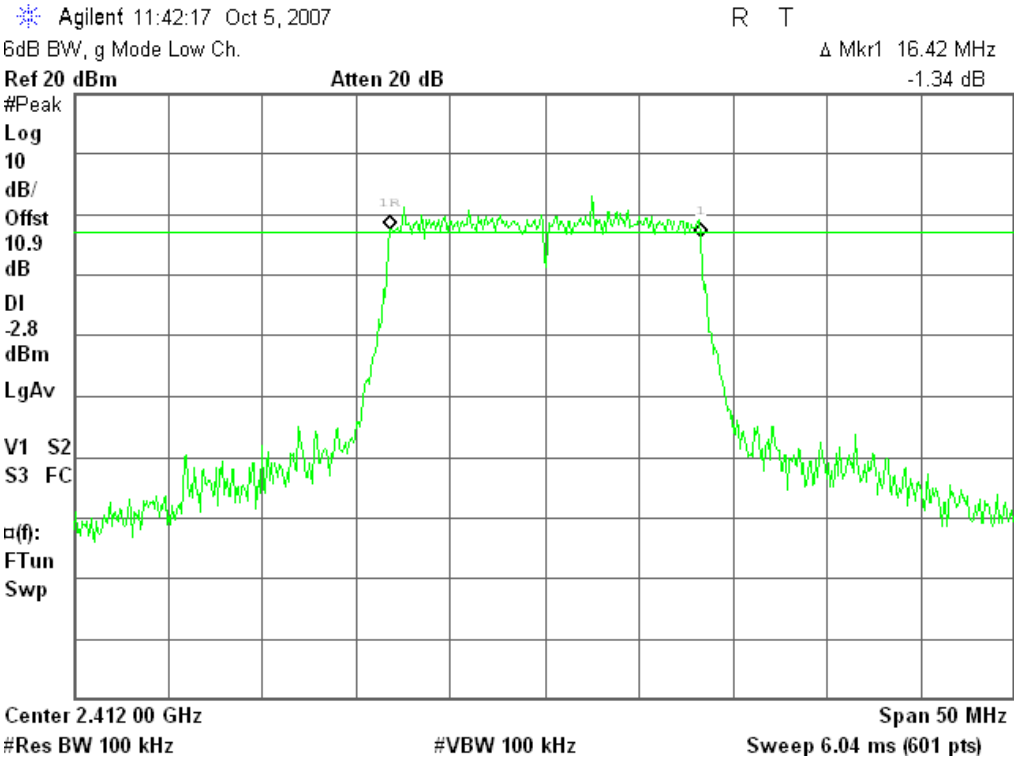
6dB Bandwidth (CH 11)



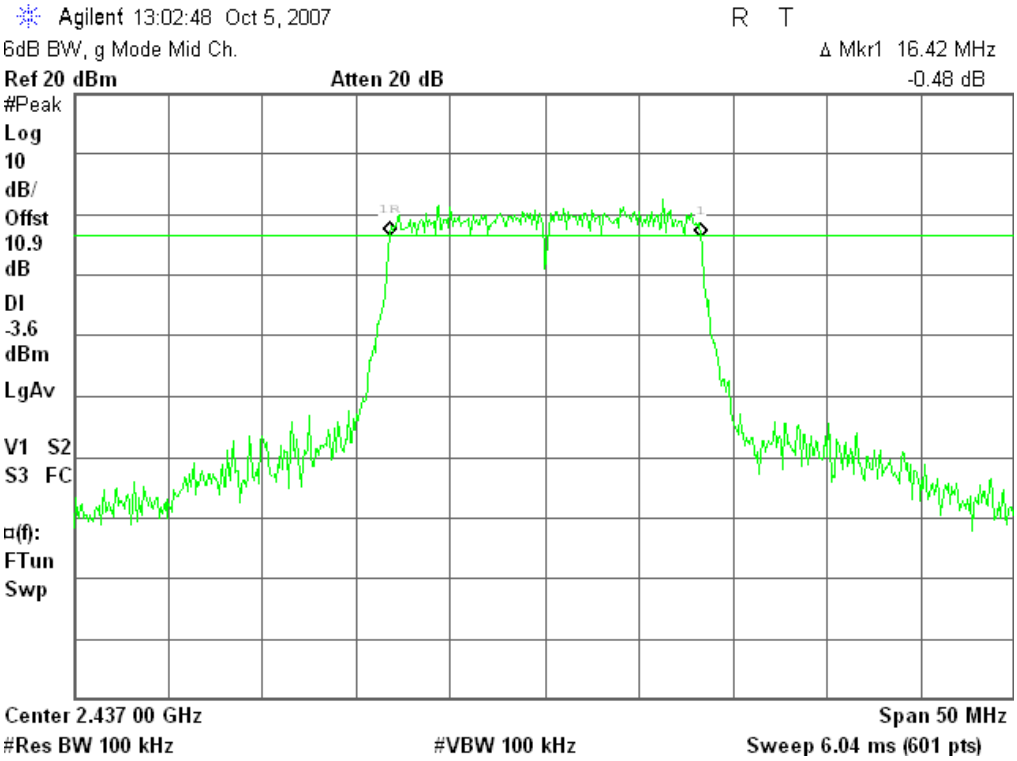
Test Data

Test mode: IEEE 802.11g mode				
Channel	**Frequency (MHz)**	**Bandwidth (MHz)**	**Limit (MHz)**	**Result**
1	2412	16.42	>0.5	PASS
6	2437	16.42		PASS
11	2462	16.33		PASS

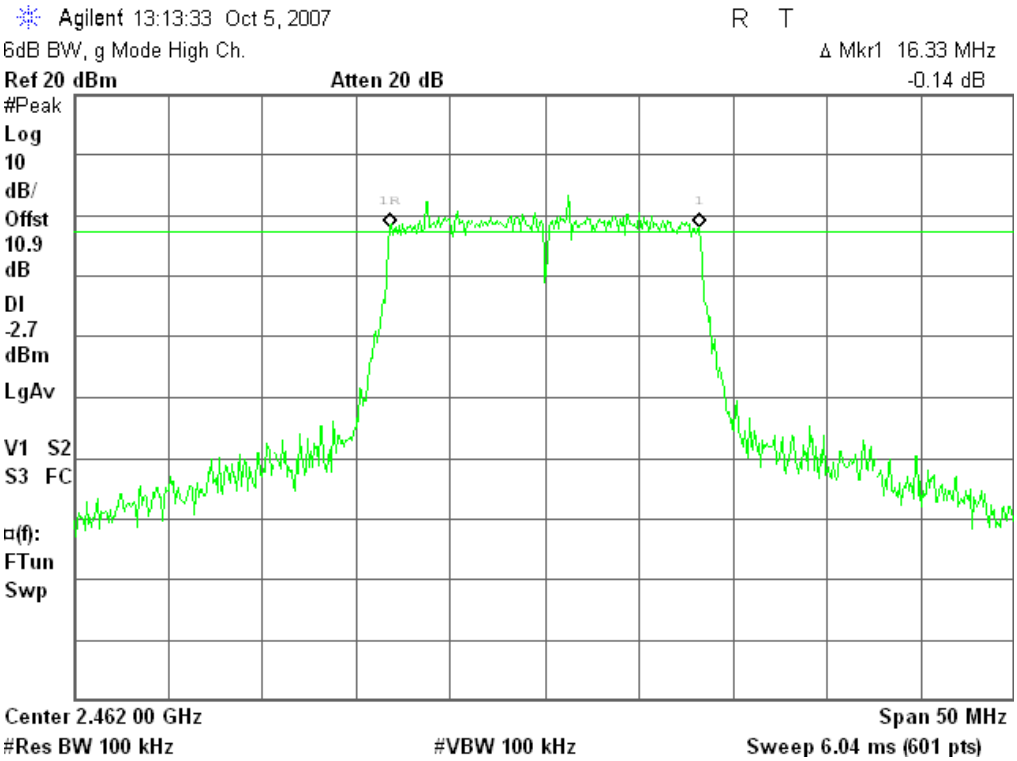
6dB Bandwidth (CH 1)



6dB Bandwidth (CH 6)



6dB Bandwidth (CH 11)



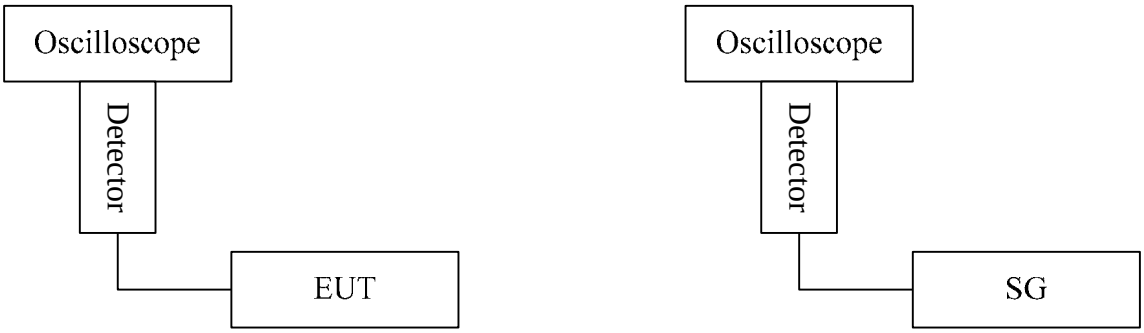
8.2 PEAK POWER

8.2.1 LIMIT

The maximum peak output power of the intentional radiator shall not exceed the following:

1. According to §15.247(b)(3), for systems using digital modulation in the bands of 2400-2483.5 MHz: 1 Watt.
2. According to §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.

Test Configuration



8.2.2 TEST PROCEDURE

The measurement set up as above setup diagram shall be used to determine on the oscilloscope the peak of the envelope of the output signal of the transmitter, the maximum deviation of the Y-trace of the oscilloscope shall be recorded as "B".

The transmitter shall be replaced by a signal generator. The output frequency of the signal shall be made equal to the centre of the frequency range occupied by the transmitter, The output power of the signal generator shall be raised to a level such that the deviation of the Y-trace of the oscilloscope reaches level B, this output power level "C" (in dBm) of the signal generator is the peak power.

8.2.3 TEST RESULTS

No non-compliance noted.

Test Data

Test mode: IEEE 802.11b mode					
Channel	**Frequency (MHz)**	**Output Power (dBm)**	**Output Power (W)**	**Limit (dBm)**	**Result**
1	2412	20.00	0.1000	30	PASS
6	2437	19.70	0.0933		PASS
11	2462	20.30	0.1072		PASS

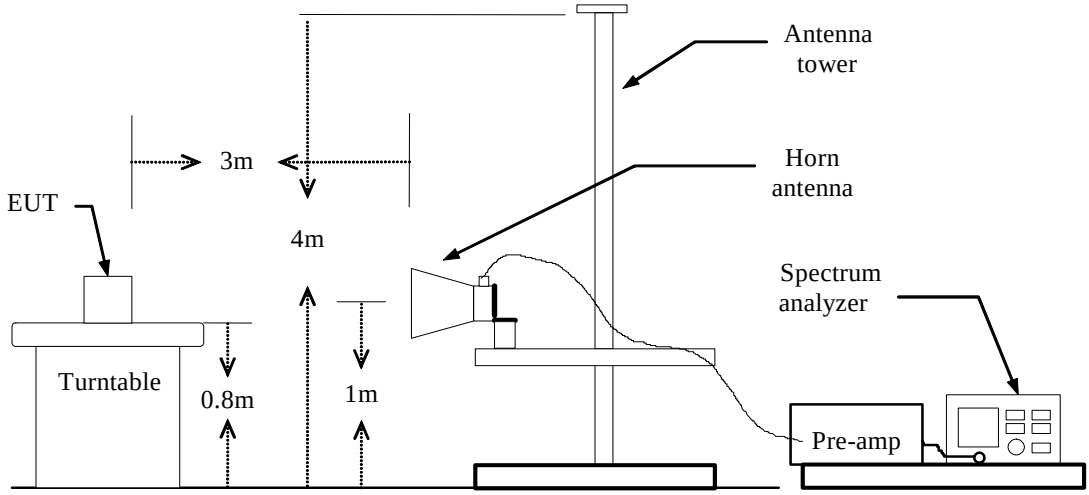
Test mode: IEEE 802.11g mode					
Channel	**Frequency (MHz)**	**Output Power (dBm)**	**Output Power (W)**	**Limit (dBm)**	**Result**
1	2412	22.60	0.1820	30	PASS
6	2437	22.00	0.1585		PASS
11	2462	21.70	0.1479		PASS

8.3 BAND EDGES MEASUREMENT

8.3.1 LIMIT

According to §15.247(d), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in 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. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in 15.209(a) (see Section 15.205(c)).

Test Configuration



8.3.2 TEST PROCEDURE

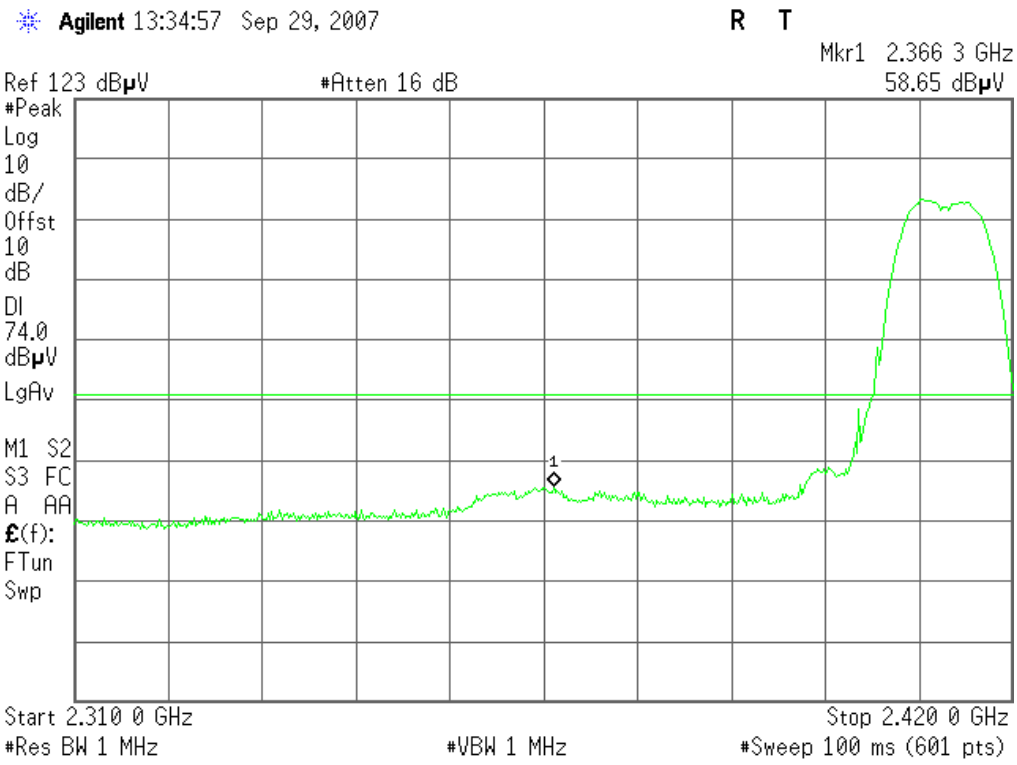
1. The EUT is placed on a turntable, which is 0.8m above the ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
   (a) PEAK: RBW=VBW=1MHz / Sweep=AUTO
   (b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO
5. Repeat the procedures until all the PEAK and AVERAGE versus POLARIZATION are measured.

8.3.3 TEST RESULTS

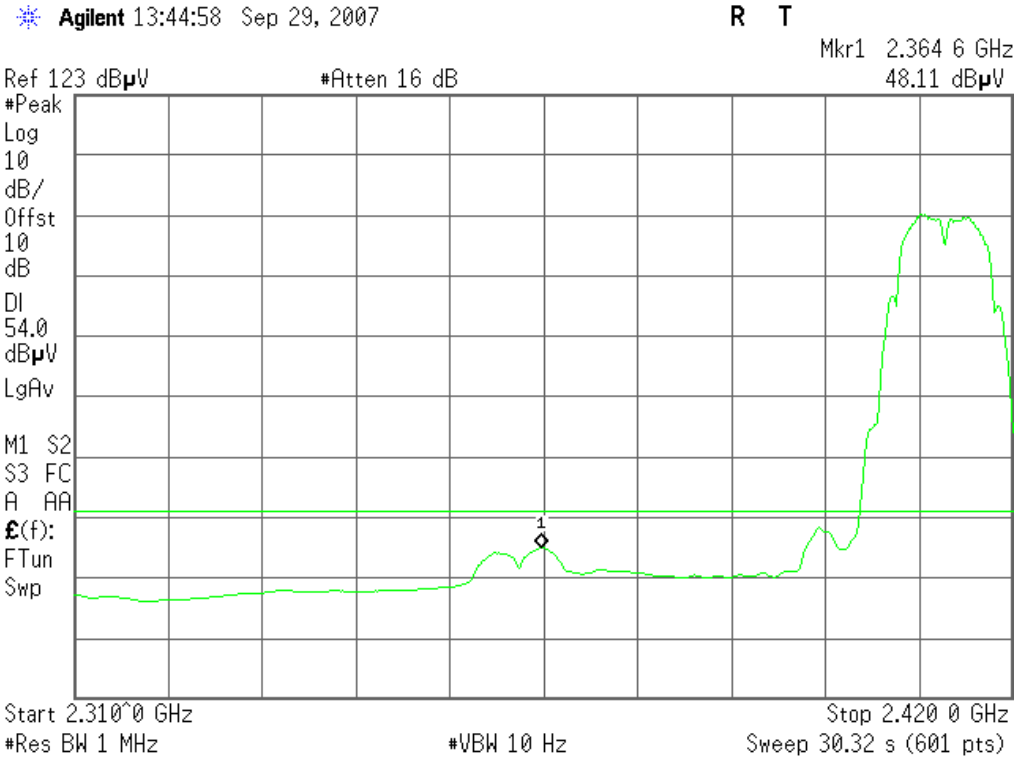
Refer to attach spectrum analyzer data chart.

Band Edges (IEEE 802.11b mode/ CH 1)

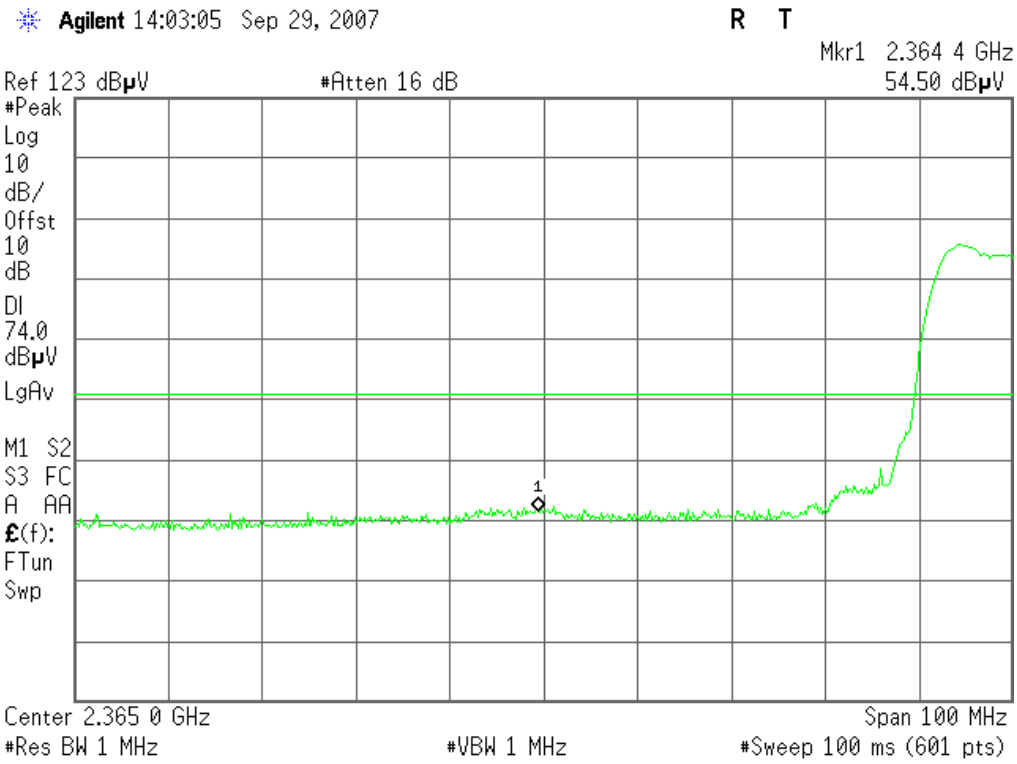
Detector mode: Peak Polarity: Vertical



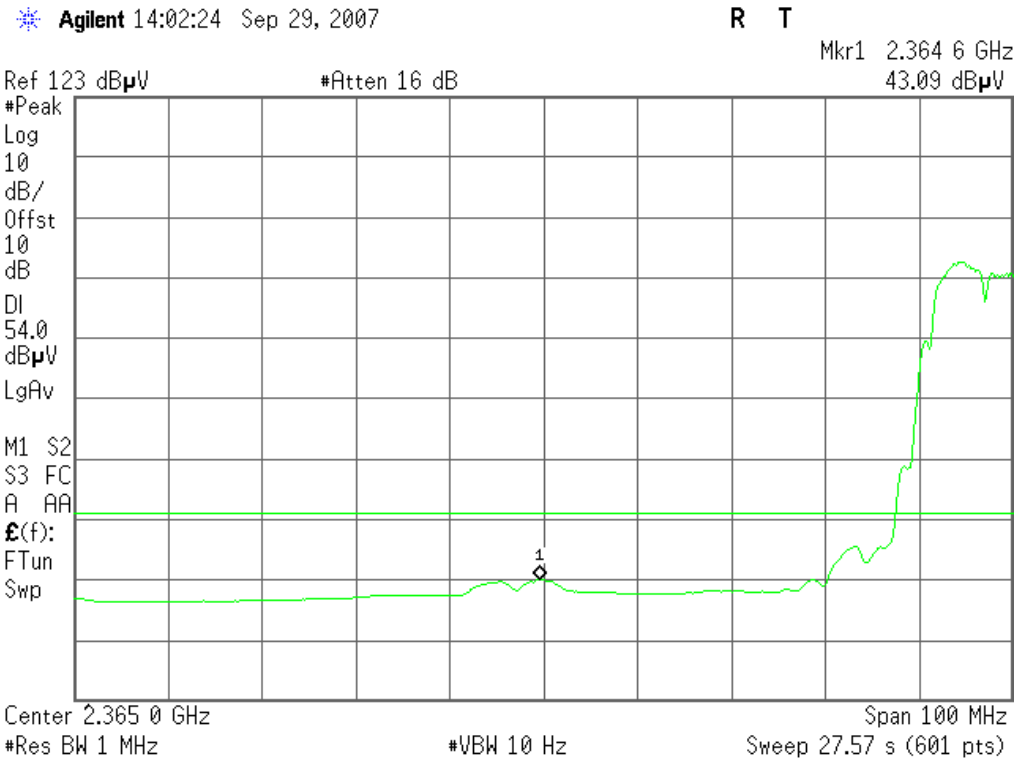
Detector mode: Average Polarity: Vertical



Detector mode: Peak **Polarity: Horizontal**

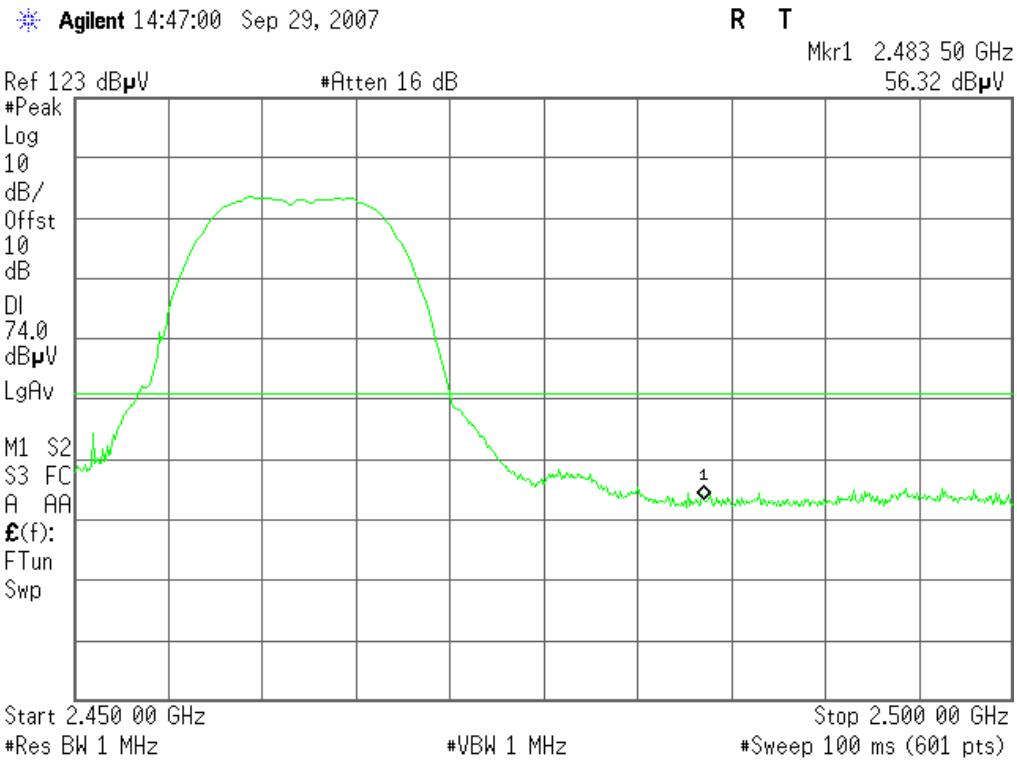


Detector mode: Average **Polarity: Horizontal**

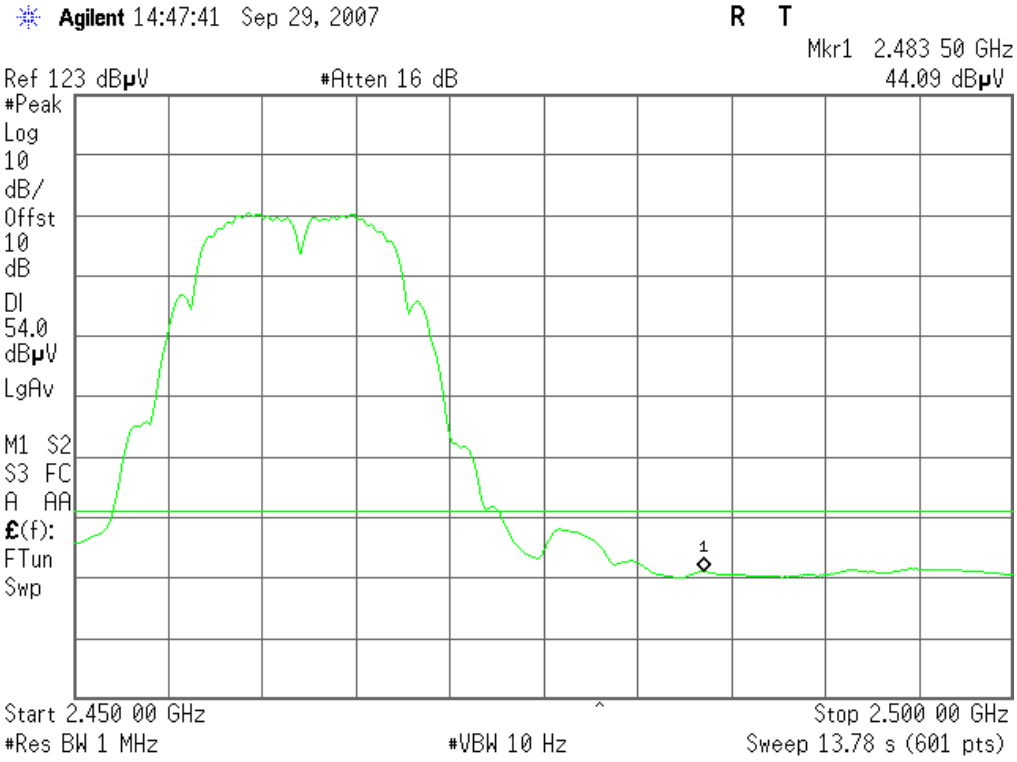


Band Edges (IEEE 802.11b mode/ CH 11)

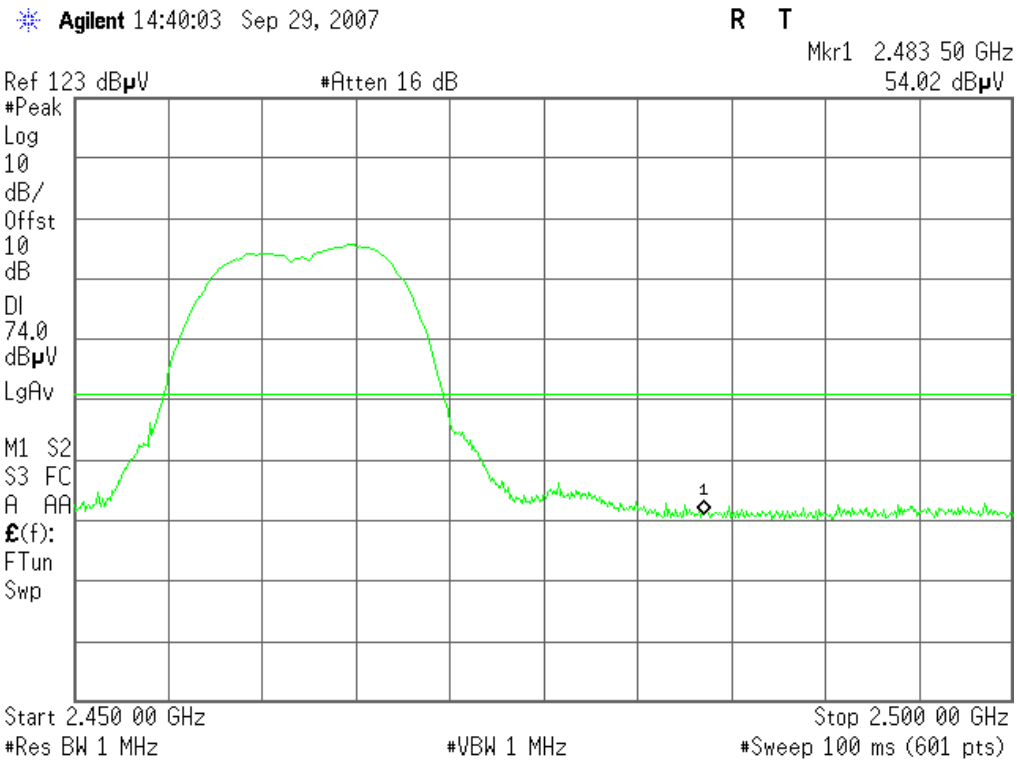
Detector mode: Peak Polarity: Vertical



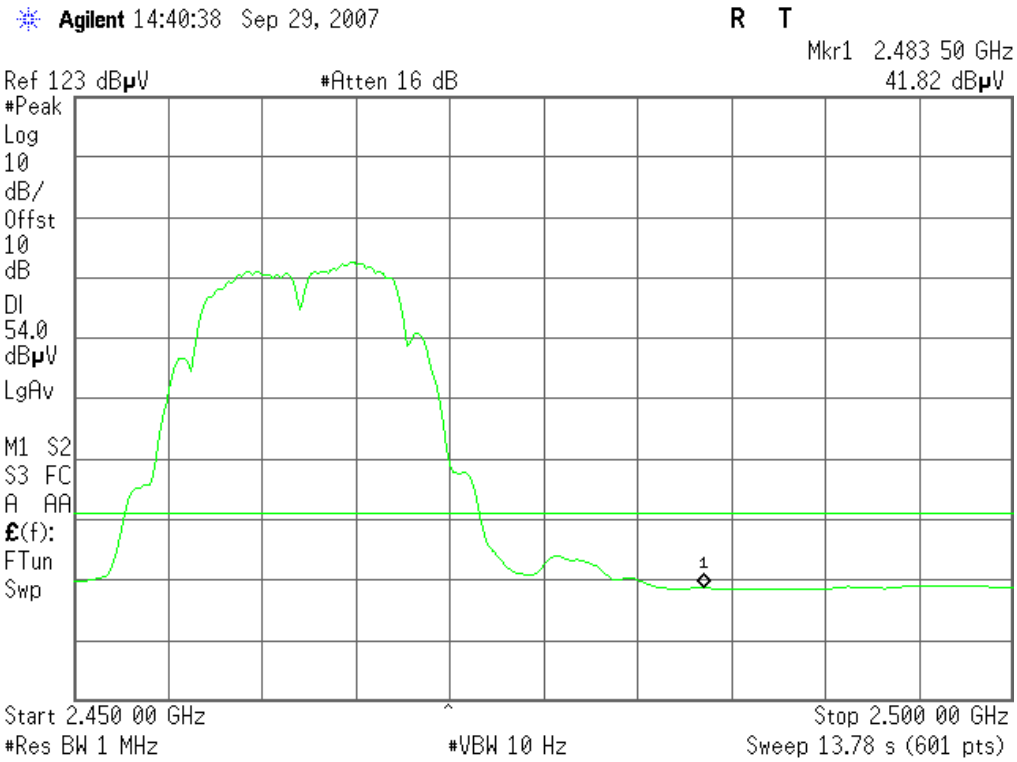
Detector mode: Average Polarity: Vertical



Detector mode: Peak **Polarity: Horizontal**

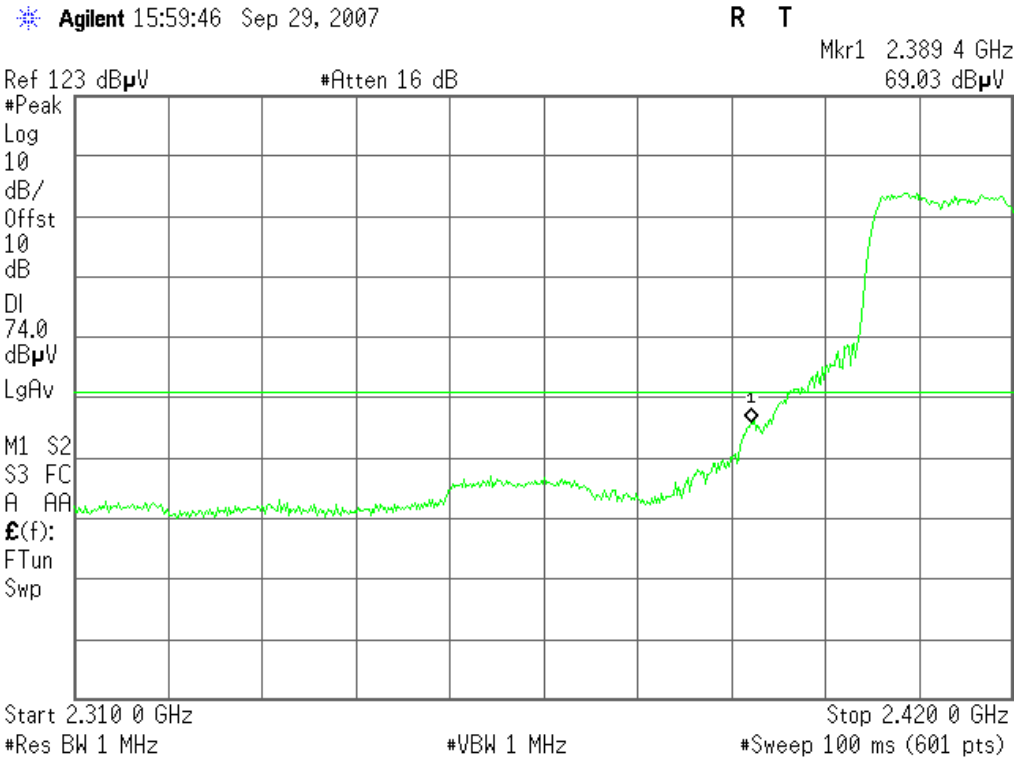


Detector mode: Average **Polarity: Horizontal**

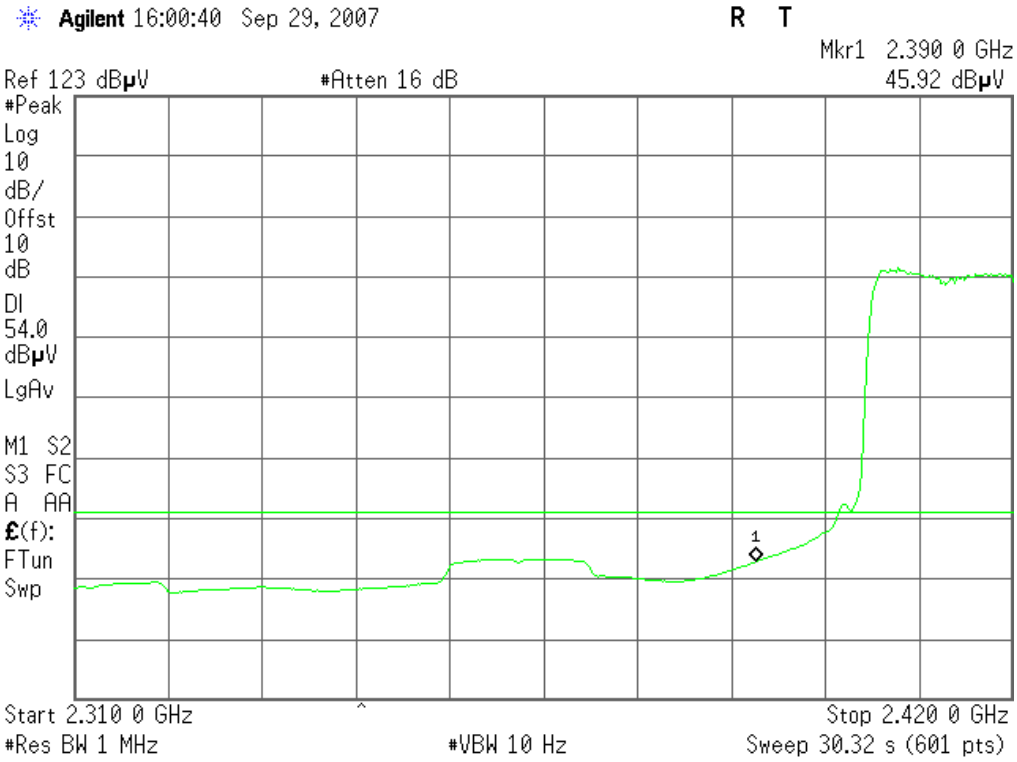


Band Edges (IEEE 802.11g mode / CH 1)

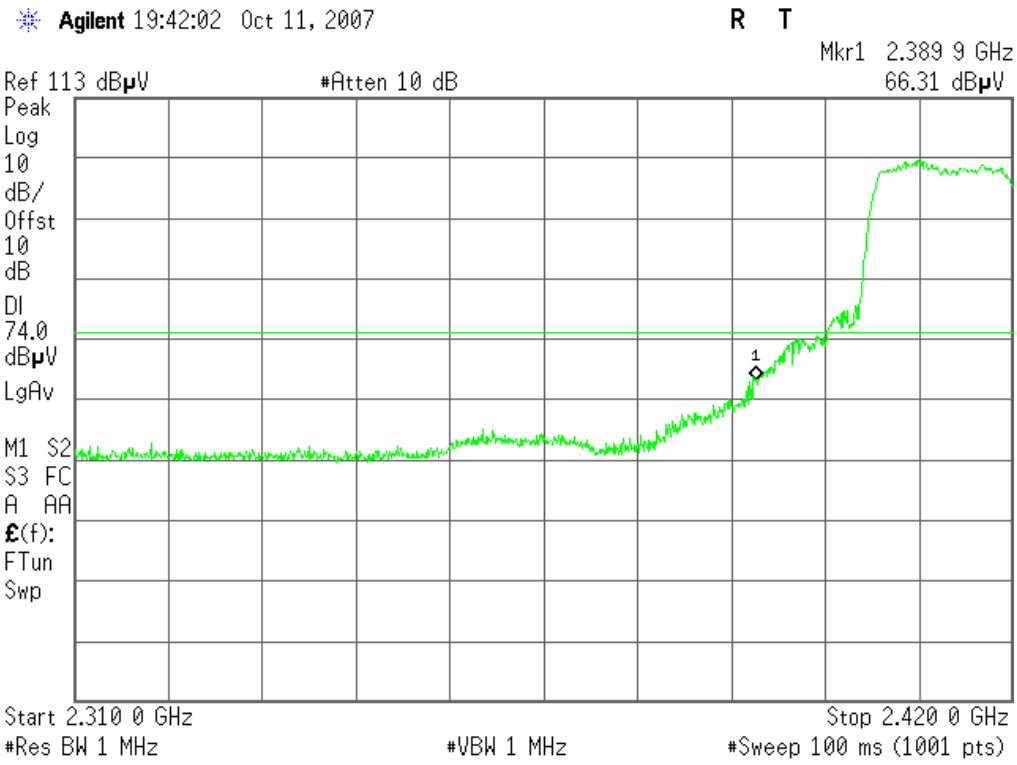
Detector mode: Peak Polarity: Vertical



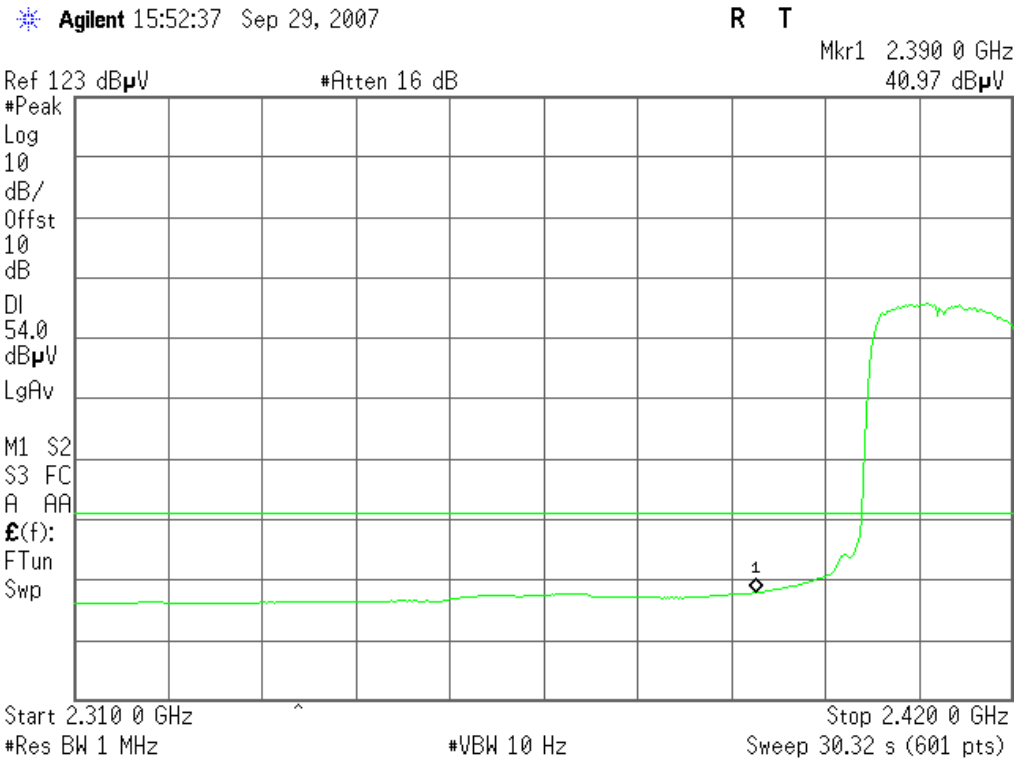
Detector mode: Average Polarity: Vertical



Detector mode: Peak **Polarity: Horizontal**

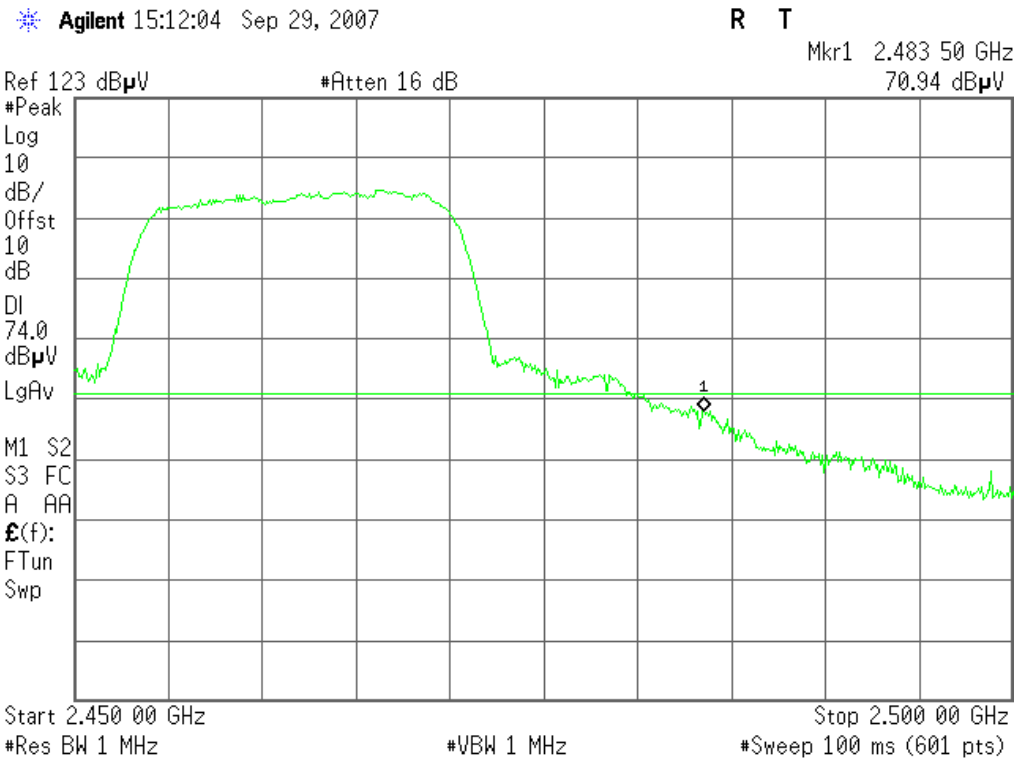


Detector mode: Average **Polarity: Horizontal**

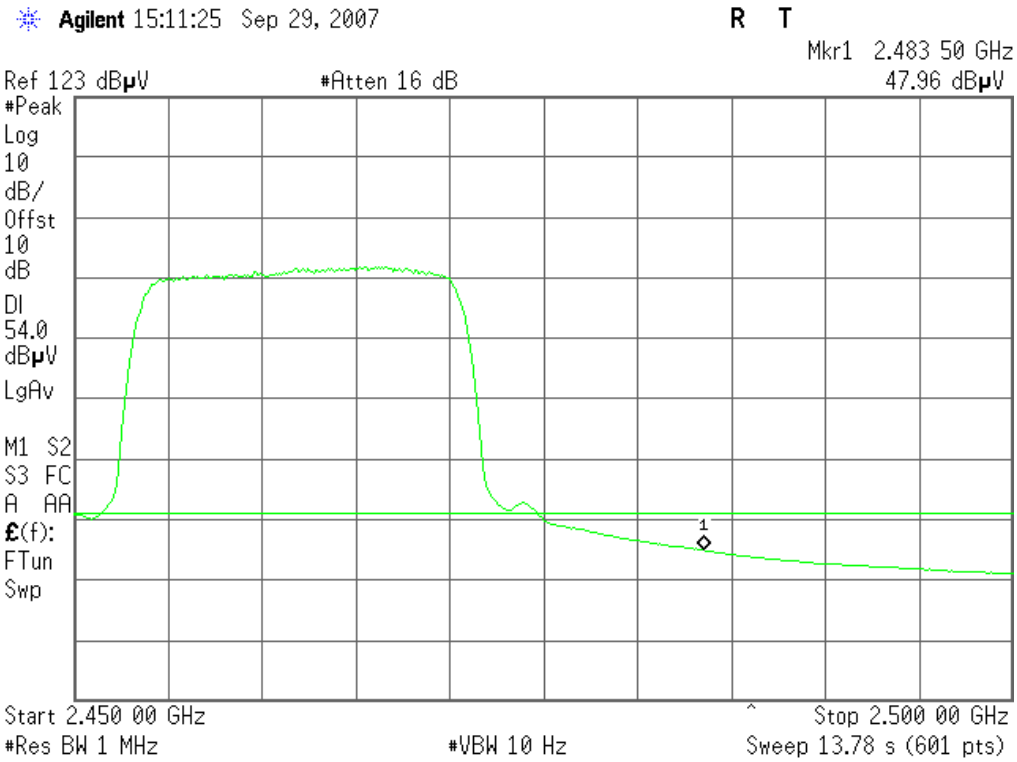


Band Edges (IEEE 802.11g mode / CH 11)

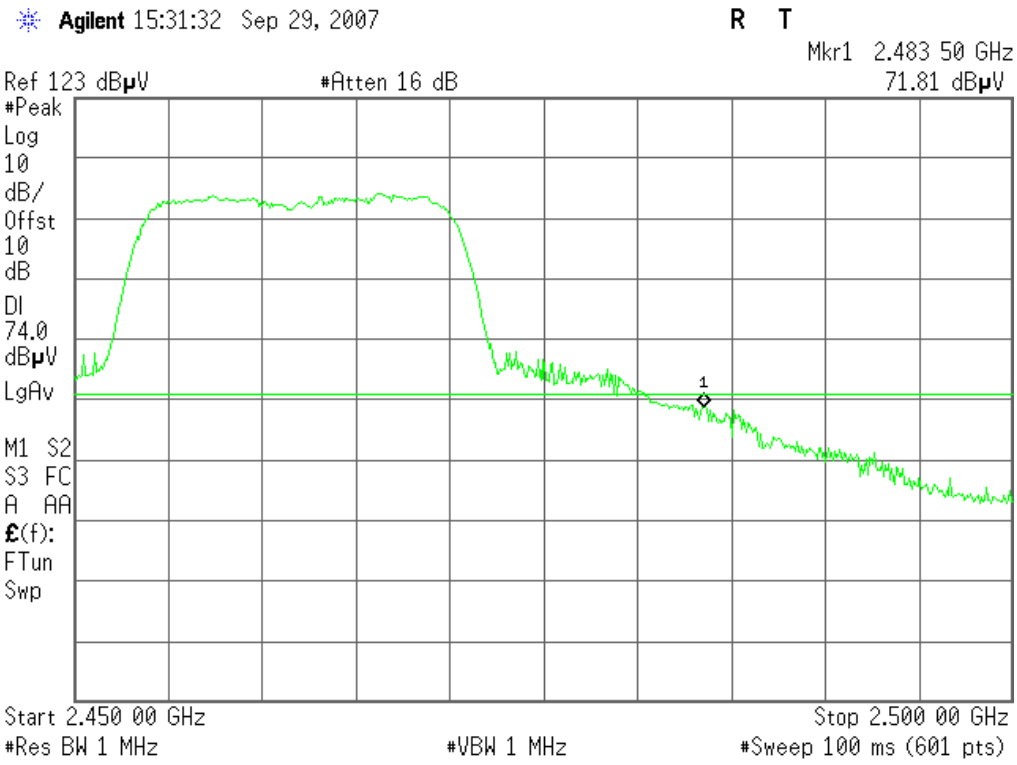
Detector mode: Peak Polarity: Vertical



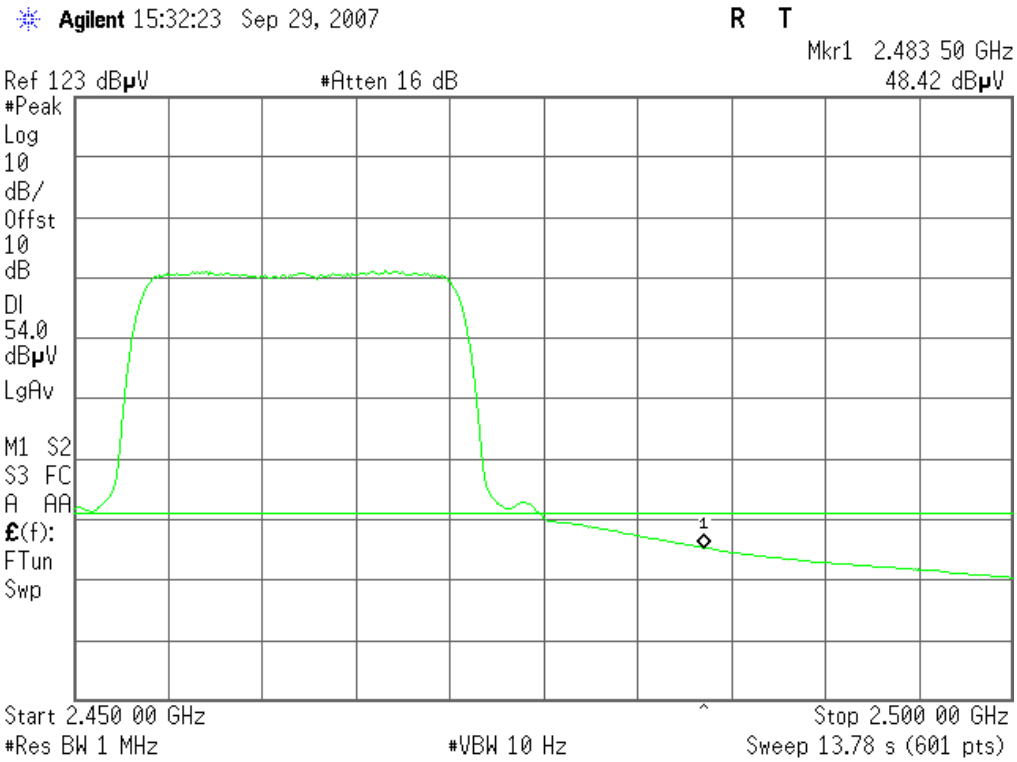
Detector mode: Average Polarity: Vertical



Detector mode: Peak **Polarity: Horizontal**



Detector mode: Average **Polarity: Horizontal**



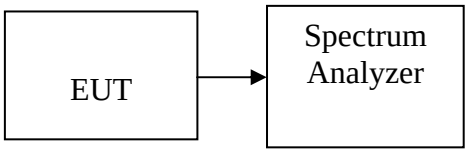
8.4 PEAK POWER SPECTRAL DENSITY

8.4.1 LIMIT

1. According to §15.247(e), 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.

2. According to §15.247(f), the digital modulation operation of the hybrid system, with the frequency hopping turned off, shall comply with the power density requirements of paragraph (d) of this section.

Test Configuration



8.4.2 TEST PROCEDURE

1. Place the EUT on the table and set it in transmitting mode.
   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 = 3kHz, VBW = 10kHz, Span = 300kHz, Sweep=100s.

3. Record the max. reading.

4. Repeat the above procedure until the measurements for all frequencies are completed.

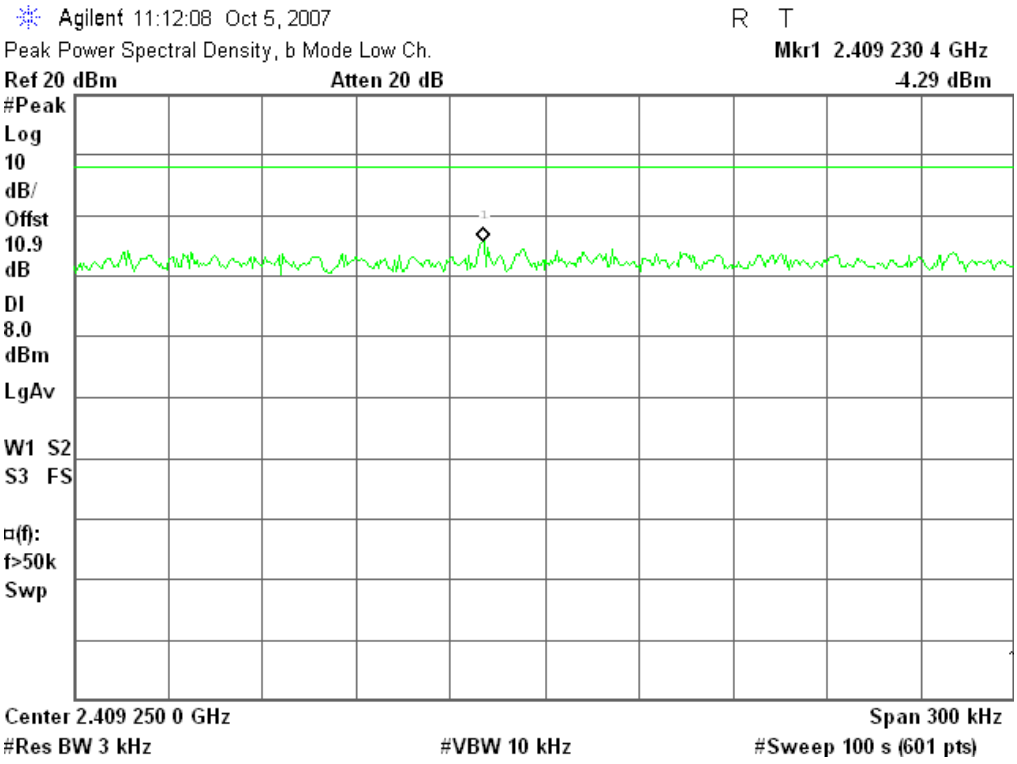
8.4.3 TEST RESULTS

No non-compliance noted

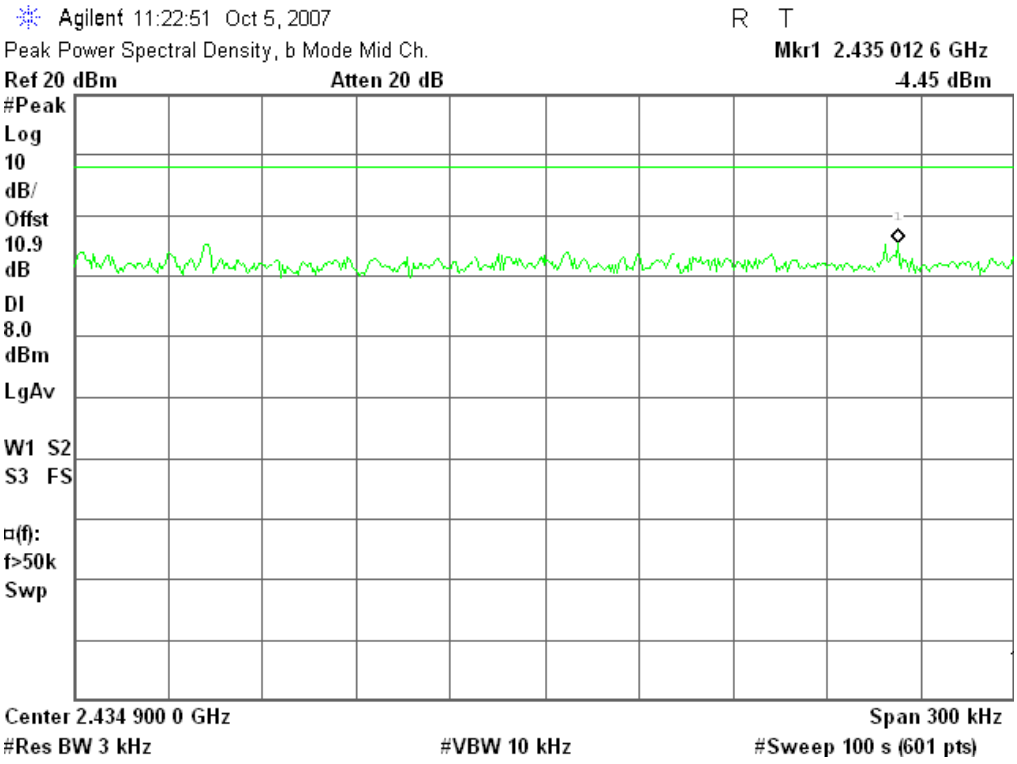
Test Data

Test mode: IEEE 802.11b mode				
Channel	**Frequency (MHz)**	**PPSD (dBm)**	**Limit (dBm)**	**Result**
1	2412	-4.29	8.00	PASS
6	2437	-4.45		PASS
11	2462	-4.94		PASS

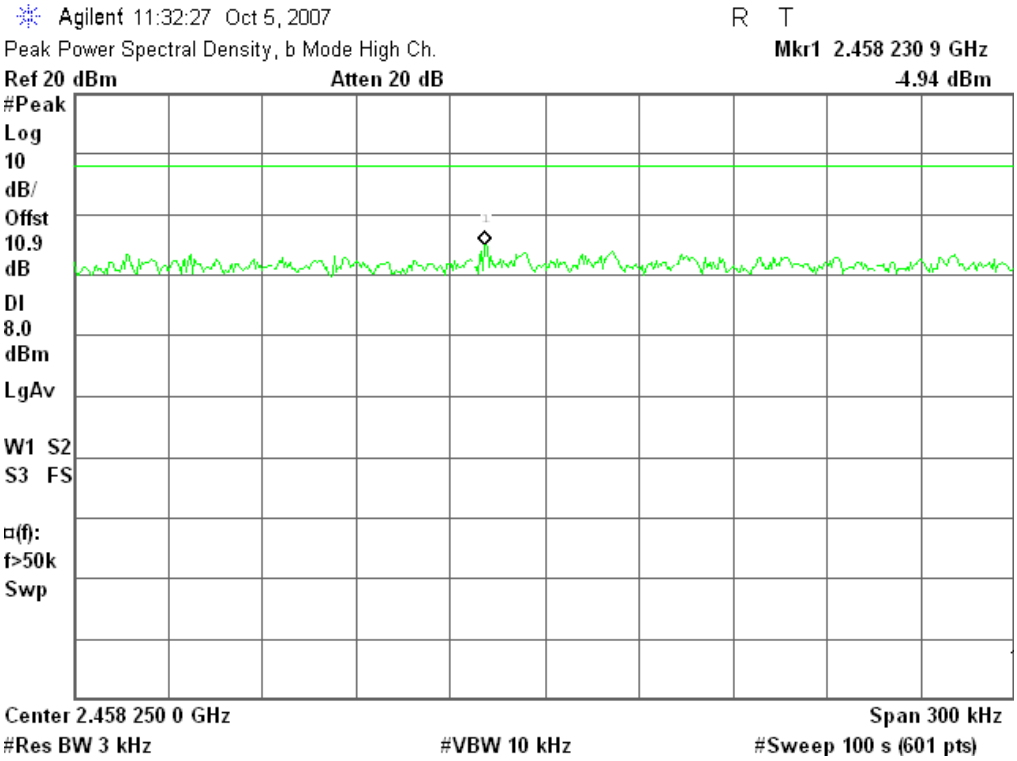
PPSD (CH 1)



PPSD (CH 6)



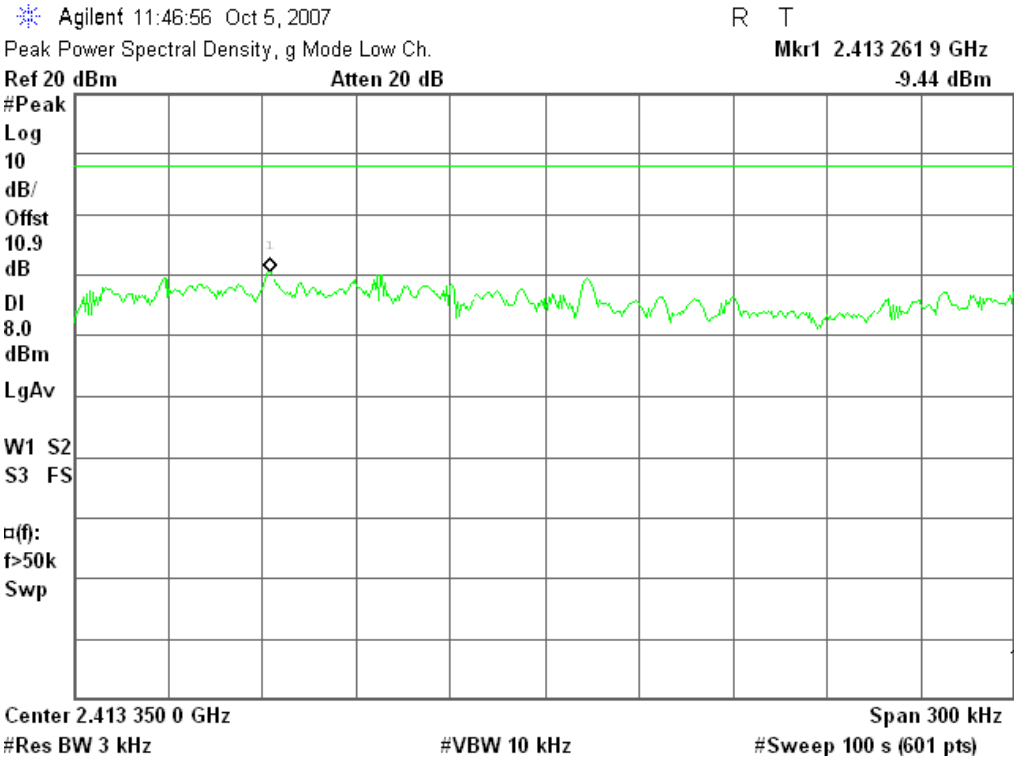
PPSD (CH 11)



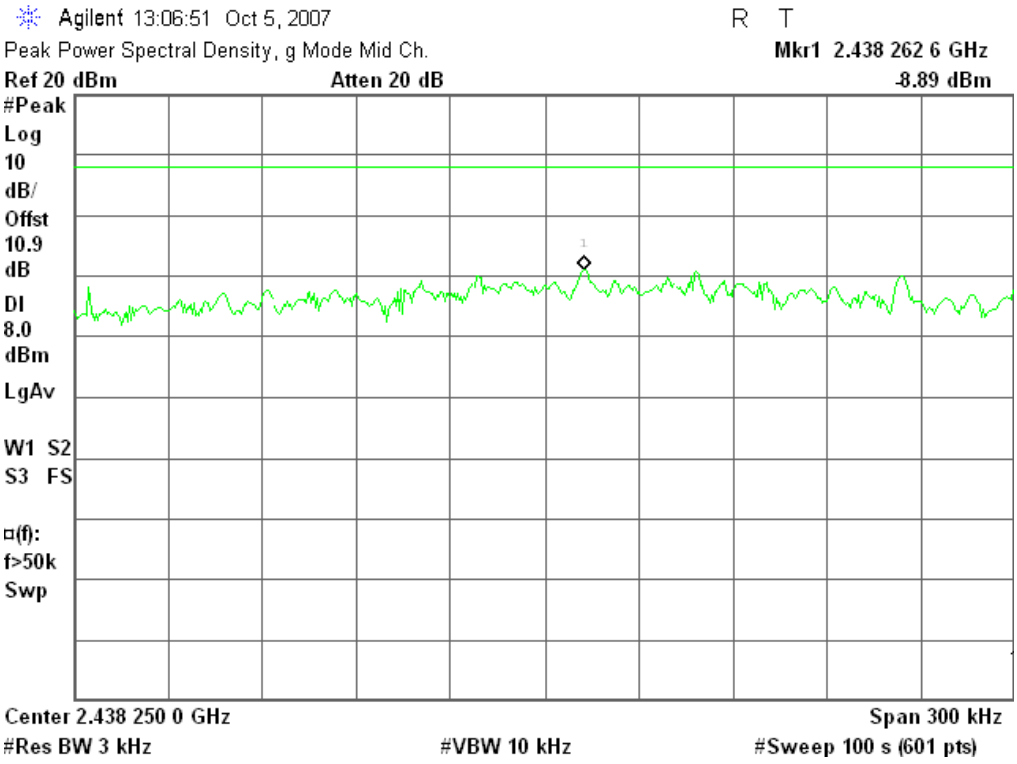
Test Data

Test mode: IEEE 802.11g mode				
Channel	**Frequency (MHz)**	**PPSD (dBm)**	**Limit (dBm)**	**Result**
1	2412	-9.44	8.00	PASS
6	2437	-8.89		PASS
11	2462	-0.54		PASS

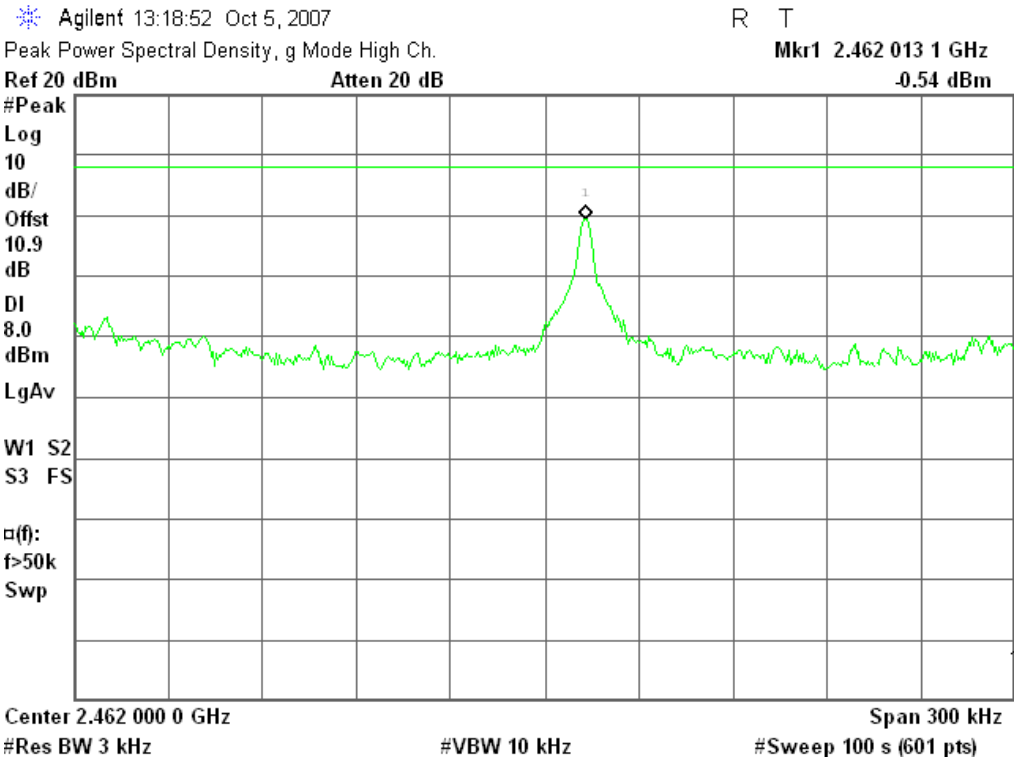
PPSD (CH 1)



PPSD (CH 6)



PPSD (CH 11)



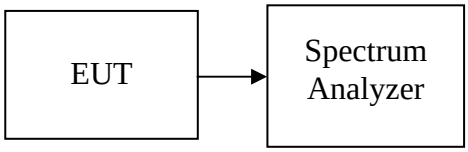
8.5 SPURIOUS EMISSIONS

8.5.1 CONDUCTED MEASUREMENT

8.5.1.1 LIMIT

According to §15.247(d), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in 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. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in 15.209(a) (see Section 15.205(c)).

Test Configuration



8.5.1.2 TEST PROCEDURE

Conducted RF measurements of the transmitter output were made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 100 & 300kHz.

Measurements are made over the 30MHz to 26GHz range for IEEE 802.11b/g, 30MHz to 40GHz range for IEEE 802.11a with the transmitter set to the lowest, middle, and highest channels.

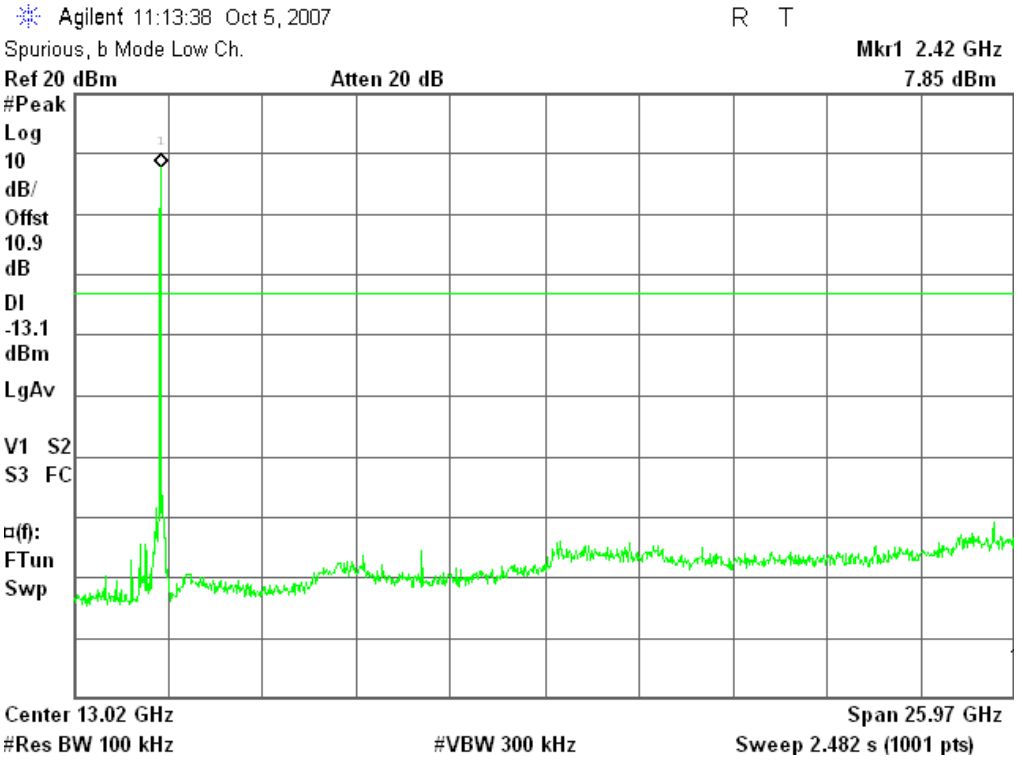
8.5.1.3 TEST RESULTS

No non-compliance noted.

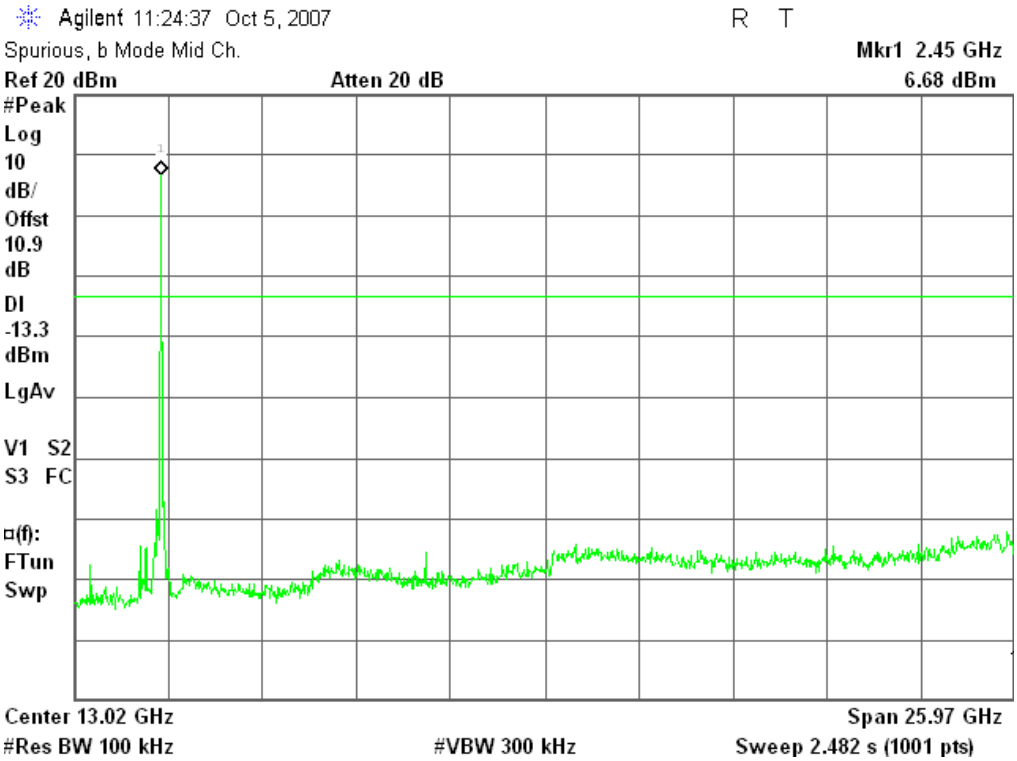
Test Plot

IEEE 802.11b mode

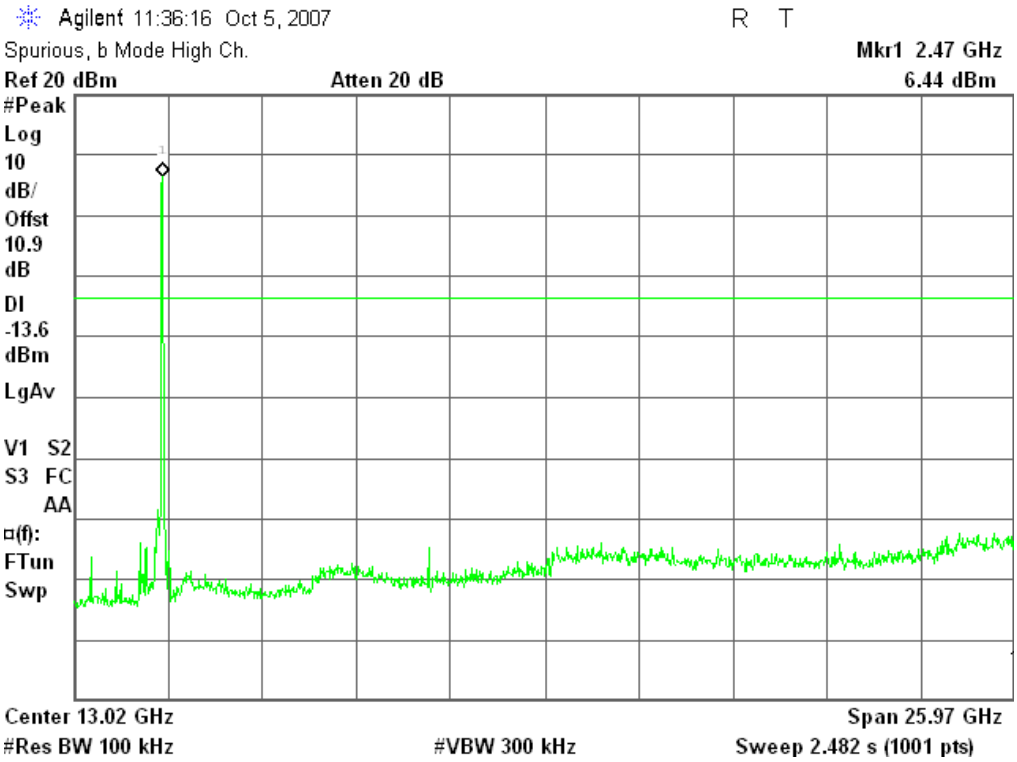
SPURIOUS EMISSIONS (CH 1)



SPURIOUS EMISSIONS (CH 6)

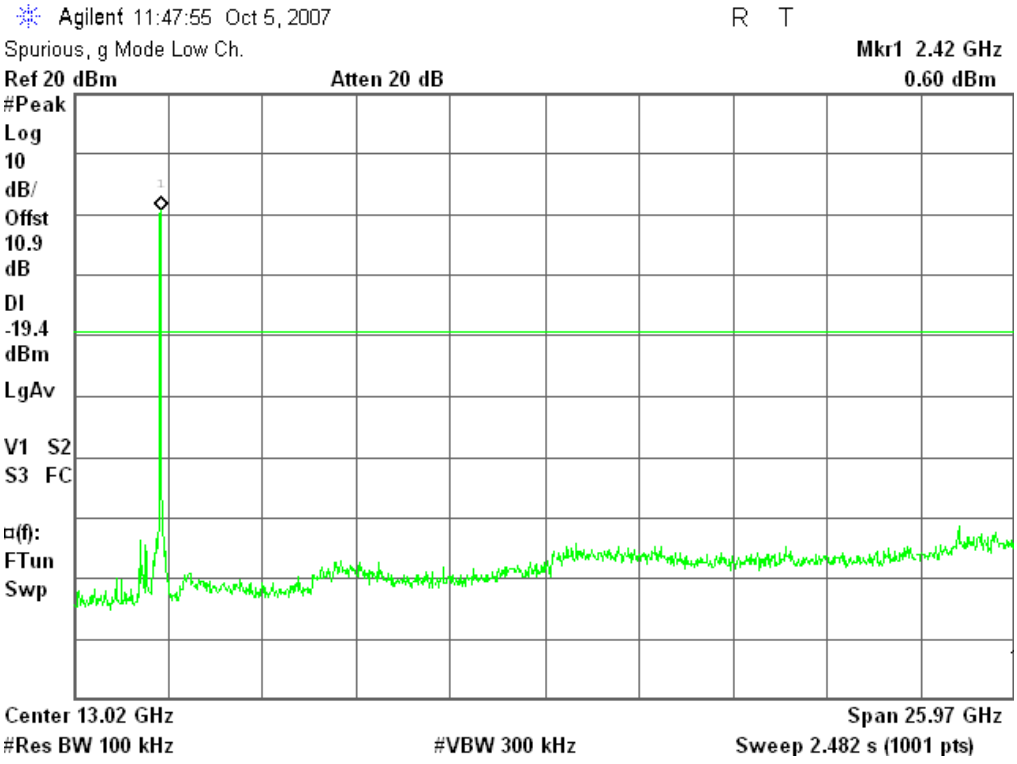


SPURIOUS EMISSIONS (CH 11)

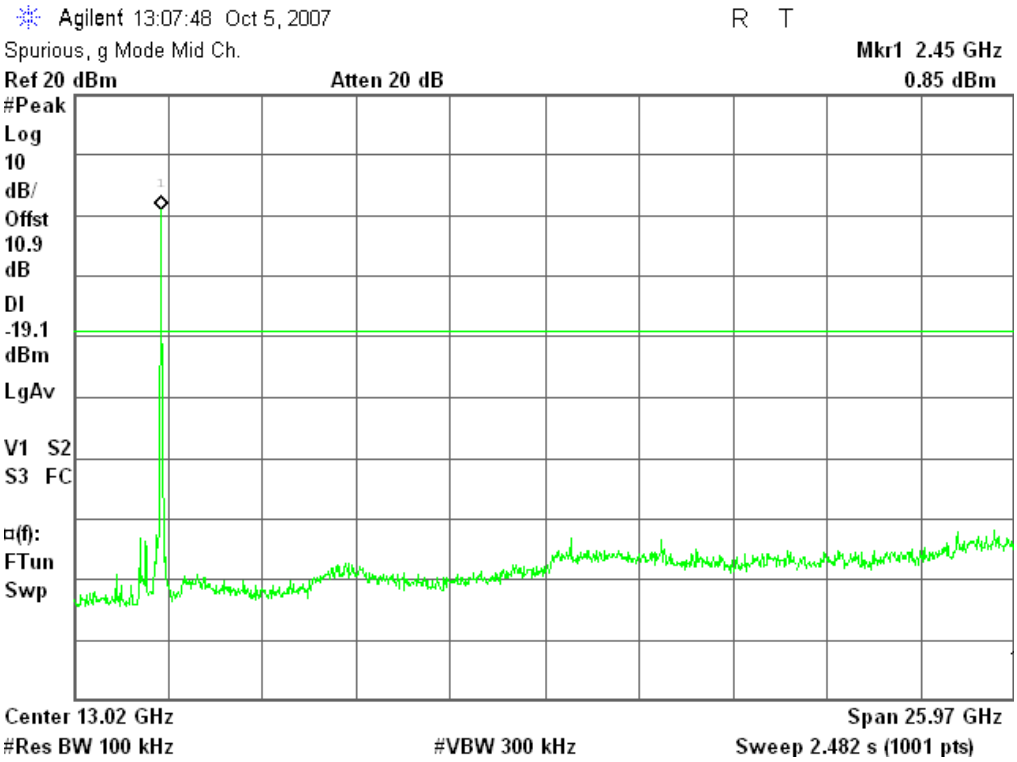


IEEE 802.11g mode

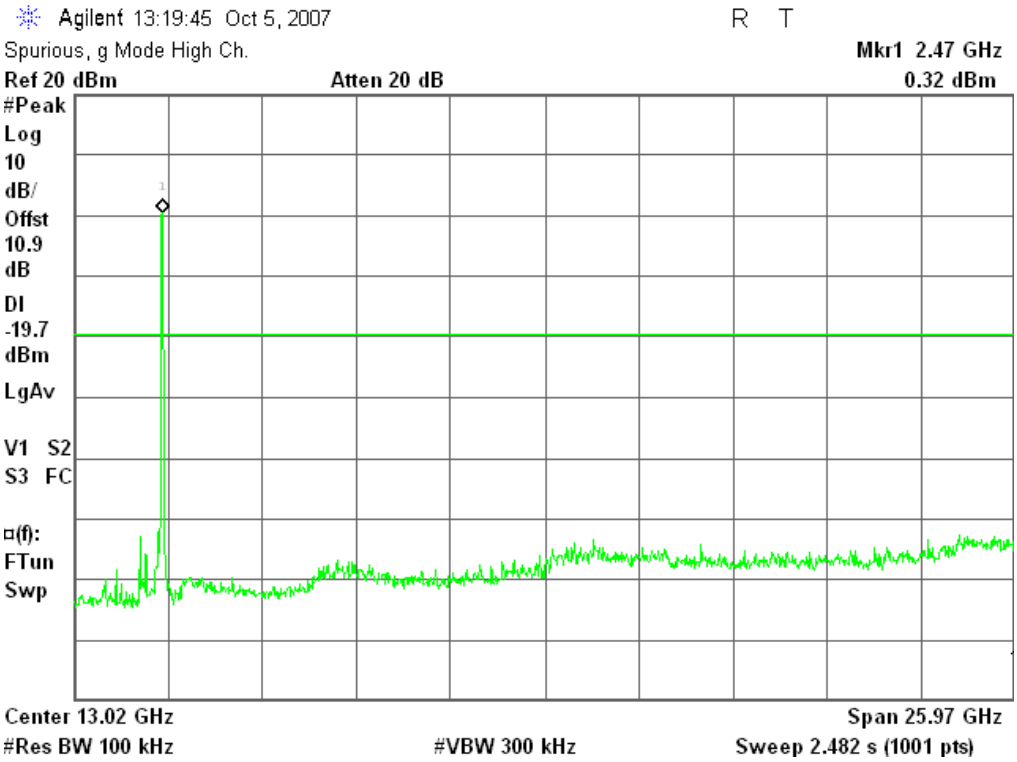
SPURIOUS EMISSIONS (CH 1)



SPURIOUS EMISSIONS (CH 6)



SPURIOUS EMISSIONS (CH 11)



8.5.2 RADIATED EMISSIONS

8.5.2.1 LIMIT - ABOVE 1000 MHZ

1. Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (µV/m)	Measurement Distance (m)
Above 960	500	3

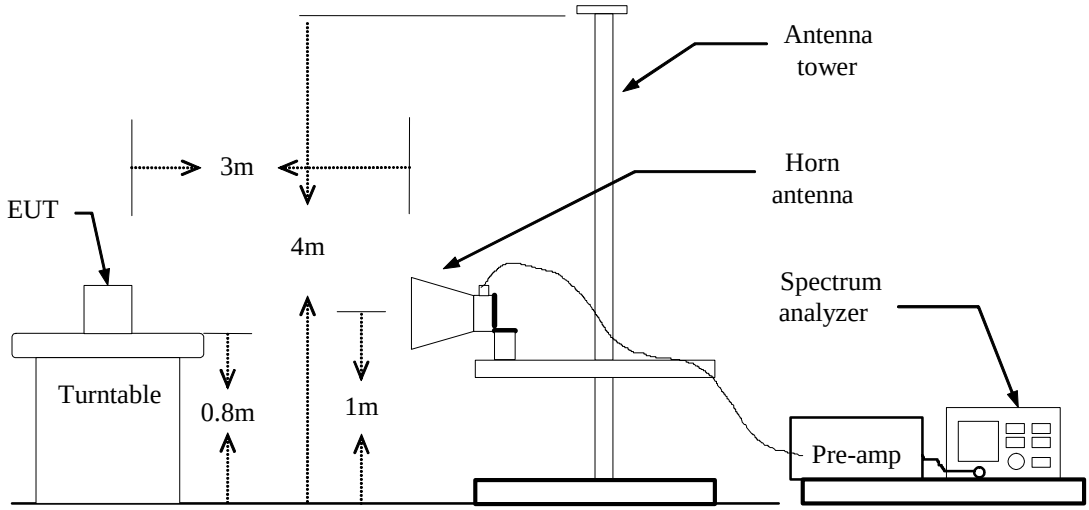
Remark: *Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.*

2. In the above emission table, the tighter limit applies at the band edges.

Frequency (MHz)	Field Strength (µV/m at 3-meter)	Field Strength (dBµV/m at 3-meter)
Above 960	500	54

Test Configuration

Above 1000 MHz



8.5.2.2 TEST PROCEDURE

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Set the spectrum analyzer in the following setting as:

   Above 1000 MHz:

   (a) PEAK: RBW=VBW=1MHz / Sweep=AUTO

   (b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO
7. Repeat above procedures until the measurements for all frequencies are complete.

8.5.2.3 TEST RESULTS

No non-compliance noted

Above 1000 MHz

Operation Mode: Tx / IEEE 802.11b mode / CH 1
Temperature: 22°C
Humidity: 51% RH
Test Mode: Worst case / Power Adapter (1)

Test Date: September 29, 2007
Tested by: Jerry Chang
Polarity: Ver. / Hor.

Vertical polarity									
Freq. (MHz)	Reading-PK (dBuV)	Reading-AV (dBuV)	Correction Factor (dB/m)	Result-PK (dBuV/m)	Result-AV (dBuV/m)	Limit-PK (dBuV/m)	Limit-AV (dBuV/m)	Margin (dB)	Mark (PK/QP/ AV)
3165.00	55.12	49.31	-7.47	47.65	41.84	74.00	54.00	-12.16	AV
4830.00	57.74	54.30	-3.26	54.48	51.04	74.00	54.00	-2.96	AV
9645.00	52.18	47.58	4.73	56.91	52.31	74.00	54.00	-1.69	AV
Horizontal polarity									
Freq. (MHz)	Reading-PK (dBuV)	Reading-AV (dBuV)	Correction Factor (dB/m)	Result-PK (dBuV/m)	Result-AV (dBuV/m)	Limit-PK (dBuV/m)	Limit-AV (dBuV/m)	Margin (dB)	Mark (PK/QP/ AV)
3210.00	52.78	47.37	-7.37	45.41	40.00	74.00	54.00	-14.00	AV
4830.00	53.51	48.23	-3.26	50.25	44.97	74.00	54.00	-9.03	AV
9645.00	51.60	45.65	4.73	56.33	50.38	74.00	54.00	-3.62	AV

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit or as required by the applicant.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Peak Remark result (dBuV/m) – Peak limit (dBuV/m) or Average Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode: Tx / IEEE 802.11b mode / CH 6 **Test Date:** September 29, 2007
Temperature: 22°C **Tested by:** Jerry Chang
Humidity: 51% RH **Polarity:** Ver. / Hor.
Test Mode: Worst case / Power Adapter (1)

Vertical polarity									
Freq. (MHz)	Reading-PK (dBuV)	Reading-AV (dBuV)	Correction Factor (dB/m)	Result-PK (dBuV/m)	Result-AV (dBuV/m)	Limit-PK (dBuV/m)	Limit-AV (dBuV/m)	Margin (dB)	Mark (PK/QP/ AV)
3255.00	57.15	51.40	-7.28	49.87	44.12	74.00	54.00	-9.88	AV
4875.00	58.05	55.05	-3.13	54.92	51.92	74.00	54.00	-2.08	AV
9750.00	53.43	48.06	4.74	58.17	52.80	74.00	54.00	-1.20	AV
Horizontal polarity									
Freq. (MHz)	Reading-PK (dBuV)	Reading-AV (dBuV)	Correction Factor (dB/m)	Result-PK (dBuV/m)	Result-AV (dBuV/m)	Limit-PK (dBuV/m)	Limit-AV (dBuV/m)	Margin (dB)	Mark (PK/QP/ AV)
3255.00	57.50	52.01	-7.28	50.22	44.73	74.00	54.00	-9.27	AV
4875.00	54.78	49.78	-3.13	51.65	46.65	74.00	54.00	-7.35	AV
9750.00	51.23	46.95	4.74	55.97	51.69	74.00	54.00	-2.31	AV

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit or as required by the applicant.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Peak Remark result (dBuV/m) – Peak limit (dBuV/m) or Average Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode: Tx / IEEE 802.11b mode / CH 11 **Test Date:** September 29, 2007

Temperature: 22°C **Tested by:** Jerry Chang

Humidity: 51% RH **Polarity:** Ver. / Hor.

Test Mode: Worst case / Power Adapter (1)

Vertical polarity									
Freq. (MHz)	Reading-PK (dBuV)	Reading-AV (dBuV)	Correction Factor (dB/m)	Result-PK (dBuV/m)	Result-AV (dBuV/m)	Limit-PK (dBuV/m)	Limit-AV (dBuV/m)	Margin (dB)	Mark (PK/QP/ AV)
4920.00	59.22	56.07	-3.01	56.21	53.06	74.00	54.00	-0.94	AV
9855.00	52.92	48.35	4.76	57.68	53.11	74.00	54.00	-0.89	AV
Horizontal polarity									
Freq. (MHz)	Reading-PK (dBuV)	Reading-AV (dBuV)	Correction Factor (dB/m)	Result-PK (dBuV/m)	Result-AV (dBuV/m)	Limit-PK (dBuV/m)	Limit-AV (dBuV/m)	Margin (dB)	Mark (PK/QP/ AV)
4927.50	53.74	46.25	-2.99	50.75	43.26	74.00	54.00	-10.74	AV
9847.50	52.81	48.26	4.76	57.57	53.02	74.00	54.00	-0.98	AV

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit or as required by the applicant.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Peak Remark result (dBuV/m) – Peak limit (dBuV/m) or Average Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode: Tx / IEEE 802.11g mode / CH 1 **Test Date:** October 04, 2007

Temperature: 22.5°C **Tested by:** Jerry Chang

Humidity: 54% RH **Polarity:** Ver. / Hor.

Test Mode: Worst case / Power Adapter (1)

Vertical polarity									
Freq. (MHz)	Reading-PK (dBuV)	Reading-AV (dBuV)	Correction Factor (dB/m)	Result-PK (dBuV/m)	Result-AV (dBuV/m)	Limit-PK (dBuV/m)	Limit-AV (dBuV/m)	Margin (dB)	Mark (PK/QP/ AV)
1260.00	60.12	57.22	-17.55	42.57	39.67	74.00	54.00	-14.13	AV
4275.00	51.22	47.68	-4.93	46.29	42.75	74.00	54.00	-11.25	AV
Horizontal polarity									
Freq. (MHz)	Reading-PK (dBuV)	Reading-AV (dBuV)	Correction Factor (dB/m)	Result-PK (dBuV/m)	Result-AV (dBuV/m)	Limit-PK (dBuV/m)	Limit-AV (dBuV/m)	Margin (dB)	Mark (PK/QP/ AV)
4815.00	50.86	48.08	-3.30	47.56	44.78	74.00	54.00	-9.22	AV

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit or as required by the applicant.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Peak Remark result (dBuV/m) – Peak limit (dBuV/m) or Average Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode: Tx / IEEE 802.11g mode/ CH 6 **Test Date:** October 04, 2007

Temperature: 22.5°C **Tested by:** Jerry Chang

Humidity: 54% RH **Polarity:** Ver. / Hor.

Test Mode: Worst case / Power Adapter (1)

Vertical polarity									
Freq. (MHz)	Reading-PK (dBuV)	Reading-AV (dBuV)	Correction Factor (dB/m)	Result-PK (dBuV/m)	Result-AV (dBuV/m)	Limit-PK (dBuV/m)	Limit-AV (dBuV/m)	Margin (dB)	Mark (PK/QP/ AV)
4875.00	51.27	48.22	-3.13	48.14	45.09	74.00	54.00	-8.91	AV
Horizontal polarity									
Freq. (MHz)	Reading-PK (dBuV)	Reading-AV (dBuV)	Correction Factor (dB/m)	Result-PK (dBuV/m)	Result-AV (dBuV/m)	Limit-PK (dBuV/m)	Limit-AV (dBuV/m)	Margin (dB)	Mark (PK/QP/ AV)
4875.00	50.22	47.68	-3.13	47.09	44.55	74.00	54.00	-9.45	AV

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit or as required by the applicant.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Peak Remark result (dBuV/m) – Peak limit (dBuV/m) or Average Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode: Tx / IEEE 802.11g mode/ CH 11 **Test Date:** October 04, 2007

Temperature: 22.5°C **Tested by:** Jerry Chang

Humidity: 54% RH **Polarity:** Ver. / Hor.

Test Mode: Worst case / Power Adapter (1)

Vertical polarity									
Freq. (MHz)	Reading-PK (dBuV)	Reading-AV (dBuV)	Correction Factor (dB/m)	Result-PK (dBuV/m)	Result-AV (dBuV/m)	Limit-PK (dBuV/m)	Limit-AV (dBuV/m)	Margin (dB)	Mark (PK/QP/ AV)
4920.00	49.75	48.25	-3.01	46.74	45.24	74.00	54.00	-8.76	AV
Horizontal polarity									
Freq. (MHz)	Reading-PK (dBuV)	Reading-AV (dBuV)	Correction Factor (dB/m)	Result-PK (dBuV/m)	Result-AV (dBuV/m)	Limit-PK (dBuV/m)	Limit-AV (dBuV/m)	Margin (dB)	Mark (PK/QP/ AV)
4920.00	48.09	46.88	-3.01	45.08	43.87	74.00	54.00	-10.13	AV

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit or as required by the applicant.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Peak Remark result (dBuV/m) – Peak limit (dBuV/m) or Average Remark result (dBuV/m) – Average limit (dBuV/m).*

8.5.2.4 LIMIT - BELOW 1000 MHZ

1. Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (µV/m)	Measurement Distance (m)
0.009 – 0.490	2400/F (kHz)	300
0.490 – 1.706	24000/F (kHz)	30
1.705 – 30.0	30	30
30-88	100*	3
88-216	150*	3
216-960	200*	3

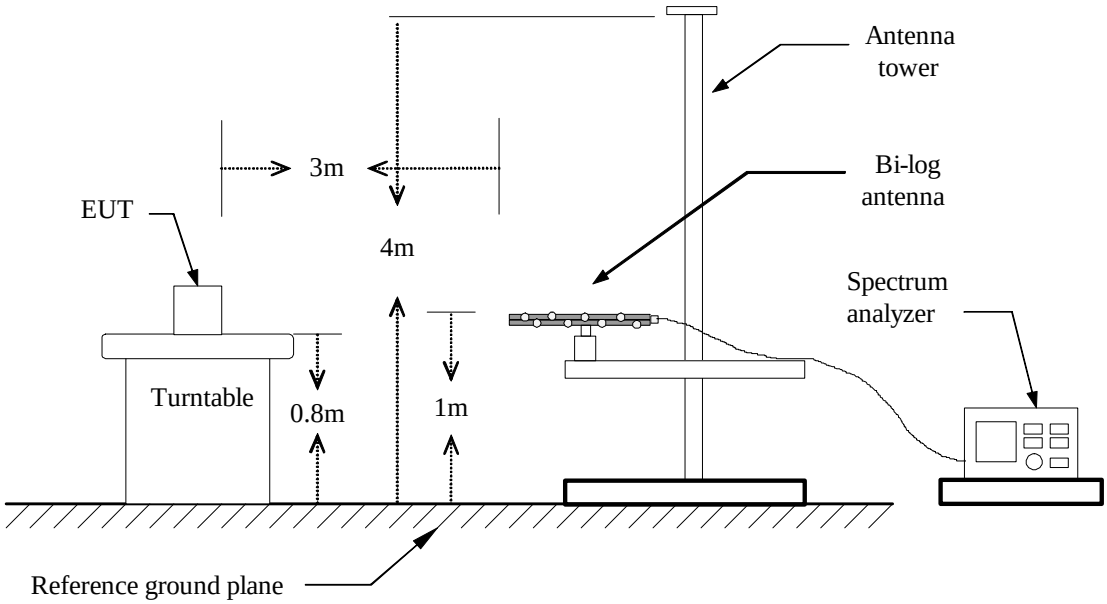
Remark: *Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.*

2. In the above emission table, the tighter limit applies at the band edges.

Frequency (MHz)	Field Strength (µV/m at 3-meter)	Field Strength (dBµV/m at 3-meter)
30-88	100	40
88-216	150	43.5
216-960	200	46

Test Configuration

Below 1000 MHz



8.5.2.5 TEST PROCEDURE

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Set the spectrum analyzer in the following setting as:

   Below 1000 MHz:

   RBW=100kHz / VBW=300kHz / Sweep=AUTO
7. Repeat above procedures until the measurements for all frequencies are complete.

8.5.2.6 TEST RESULTS

Below 1000 MHz

Operation Mode: Worst case / Power Adapter (1) **Test Date:** October 09, 2007
Temperature: 23°C **Tested by:** Jerry Chang
Humidity: 51% RH **Polarity:** Ver. / Hor.

Vertical polarity						
Frequency (MHz)	Reading (dBµV)	Correction Factor (dB/m)	Result (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Mark (PK/QP/AV)
62.98	54.16	-16.13	38.03	40.00	-1.97	PK
120.21	55.76	-15.38	40.38	43.50	-3.12	PK
143.49	54.91	-13.63	41.28	43.50	-2.22	PK
239.52	50.55	-14.84	35.71	46.00	-10.29	PK
359.80	51.69	-11.93	39.76	46.00	-6.24	PK
719.67	38.51	-5.47	33.03	46.00	-12.97	PK
Horizontal polarity						
Frequency (MHz)	Reading (dBµV)	Correction Factor (dB/m)	Result (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Mark (PK/QP/AV)
120.21	45.70	-15.38	30.32	43.50	-13.18	PK
239.52	46.84	-14.84	32.00	46.00	-14.00	PK
359.80	55.45	-11.93	43.52	46.00	-2.48	PK
480.08	44.48	-10.18	34.30	46.00	-11.70	PK
719.67	43.18	-5.47	37.71	46.00	-8.29	PK
839.95	36.45	-3.93	32.52	46.00	-13.48	PK

Remark:

1. *Measuring frequencies from 30 MHz to the 1GHz.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit or as required by the applicant.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Quasi-peak limit (dBuV/m).*

8.6 POWERLINE CONDUCTED EMISSIONS

8.6.1 LIMIT

According to §15.207(a), except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 µH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency Range (MHz)	**Limits (dBµV)**	
	Quasi-peak	**Average**
0.15 to 0.50	66 to 56*	56 to 46*
0.50 to 5	56	46
5 to 30	60	50

***** *Decreases with the logarithm of the frequency.*

Test Configuration

See test photographs attached in Appendix II for the actual connections between EUT and support equipment.

8.6.2 TEST PROCEDURE

1. The EUT was placed on a table, which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.

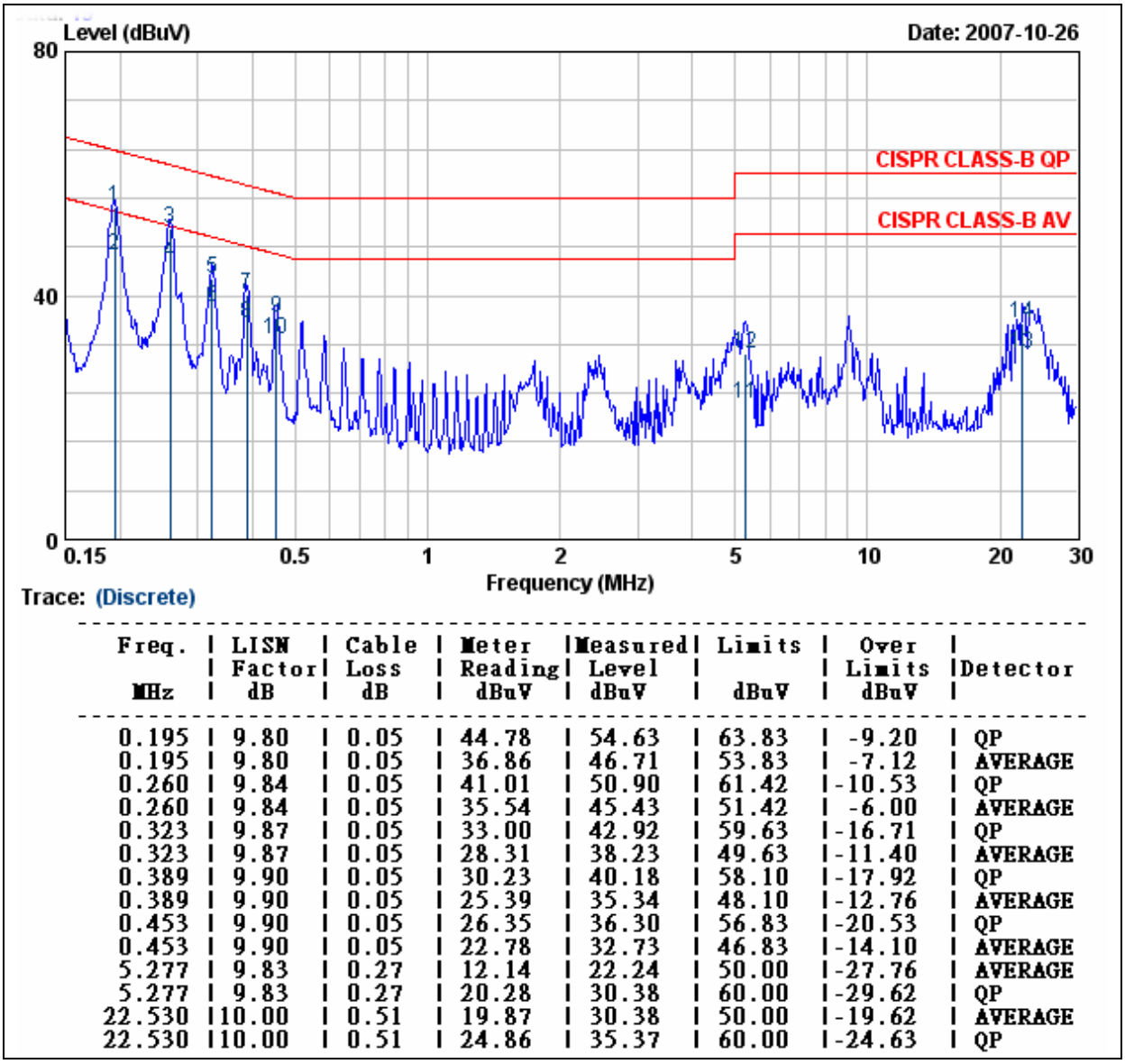
8.6.3 TEST RESULTS

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the following data page, and these signals are then quasi-peaked.

Test Data

Operation Mode:	Power Adapter (1)	**Test Date:**	October 26, 2007
Temperature:	23.5°C	**Tested by:**	Jerry Chang
Humidity:	58% RH		

LINE



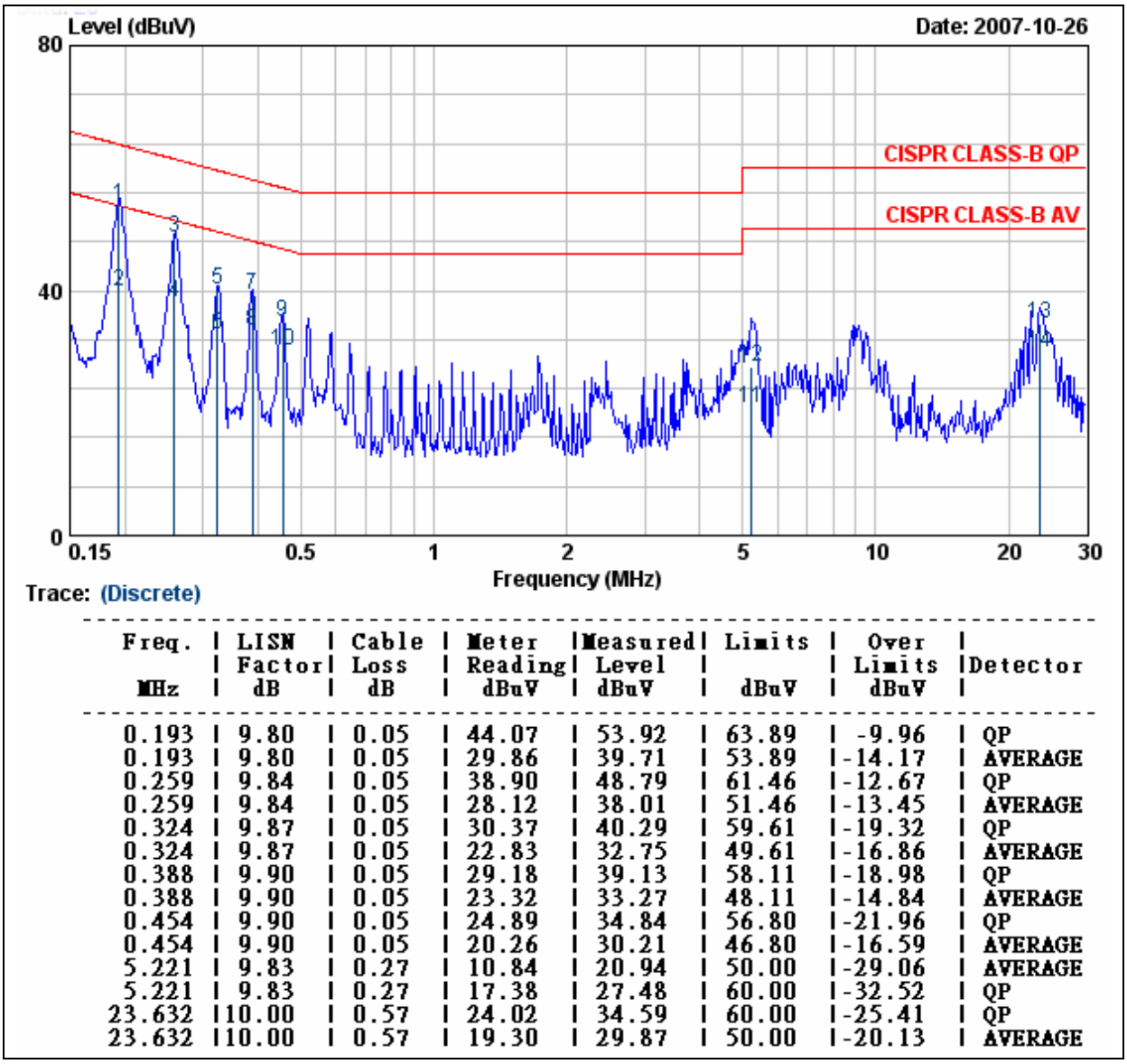
Freq. MHz	LISN Factor dB	Cable Loss dB	Meter Reading dBuV	Measured Level dBuV	Limits dBuV	Over Limits dBuV	Detector
0.195	9.80	0.05	44.78	54.63	63.83	-9.20	QP
0.195	9.80	0.05	36.86	46.71	53.83	-7.12	AVERAGE
0.260	9.84	0.05	41.01	50.90	61.42	-10.53	QP
0.260	9.84	0.05	35.54	45.43	51.42	-6.00	AVERAGE
0.323	9.87	0.05	33.00	42.92	59.63	-16.71	QP
0.323	9.87	0.05	28.31	38.23	49.63	-11.40	AVERAGE
0.389	9.90	0.05	30.23	40.18	58.10	-17.92	QP
0.389	9.90	0.05	25.39	35.34	48.10	-12.76	AVERAGE
0.453	9.90	0.05	26.35	36.30	56.83	-20.53	QP
0.453	9.90	0.05	22.78	32.73	46.83	-14.10	AVERAGE
5.277	9.83	0.27	12.14	22.24	50.00	-27.76	AVERAGE
5.277	9.83	0.27	20.28	30.38	60.00	-29.62	QP
22.530	10.00	0.51	19.87	30.38	50.00	-19.62	AVERAGE
22.530	10.00	0.51	24.86	35.37	60.00	-24.63	QP

Remark:

1. Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB)
2. Over Limit value (dB) = Level (dBuV) – Limit Line (dBuV)

Operation Mode:	Power Adapter (1)	**Test Date:**	October 26, 2007
Temperature:	23.5°C	**Tested by:**	Jerry Chang
Humidity:	58% RH		

NEUTRAL



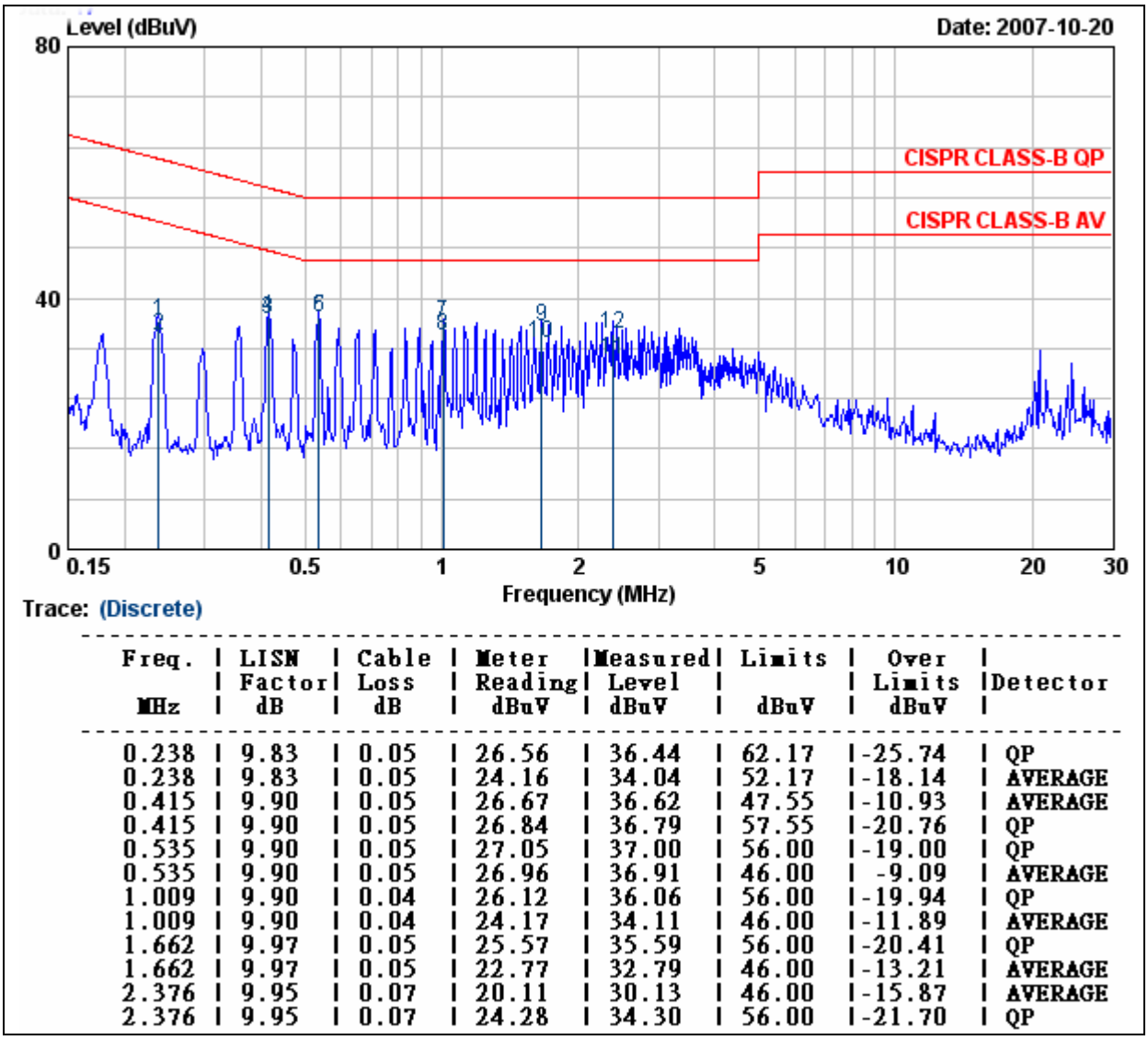
Freq. MHz	LISN Factor dB	Cable Loss dB	Meter Reading dBuV	Measured Level dBuV	Limits dBuV	Over Limits dBuV	Detector
0.193	9.80	0.05	44.07	53.92	63.89	-9.96	QP
0.193	9.80	0.05	29.86	39.71	53.89	-14.17	AVERAGE
0.259	9.84	0.05	38.90	48.79	61.46	-12.67	QP
0.259	9.84	0.05	28.12	38.01	51.46	-13.45	AVERAGE
0.324	9.87	0.05	30.37	40.29	59.61	-19.32	QP
0.324	9.87	0.05	22.83	32.75	49.61	-16.86	AVERAGE
0.388	9.90	0.05	29.18	39.13	58.11	-18.98	QP
0.388	9.90	0.05	23.32	33.27	48.11	-14.84	AVERAGE
0.454	9.90	0.05	24.89	34.84	56.80	-21.96	QP
0.454	9.90	0.05	20.26	30.21	46.80	-16.59	AVERAGE
5.221	9.83	0.27	10.84	20.94	50.00	-29.06	AVERAGE
5.221	9.83	0.27	17.38	27.48	60.00	-32.52	QP
23.632	10.00	0.57	24.02	34.59	60.00	-25.41	QP
23.632	10.00	0.57	19.30	29.87	50.00	-20.13	AVERAGE

Remark:

1. Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB)
2. Over Limit value (dB) = Level (dBuV) – Limit Line (dBuV)

Operation Mode:	Power Adapter (2)	**Test Date:**	October 20, 2007
Temperature:	23.8°C	**Tested by:**	Jerry Chang
Humidity:	55% RH		

LINE



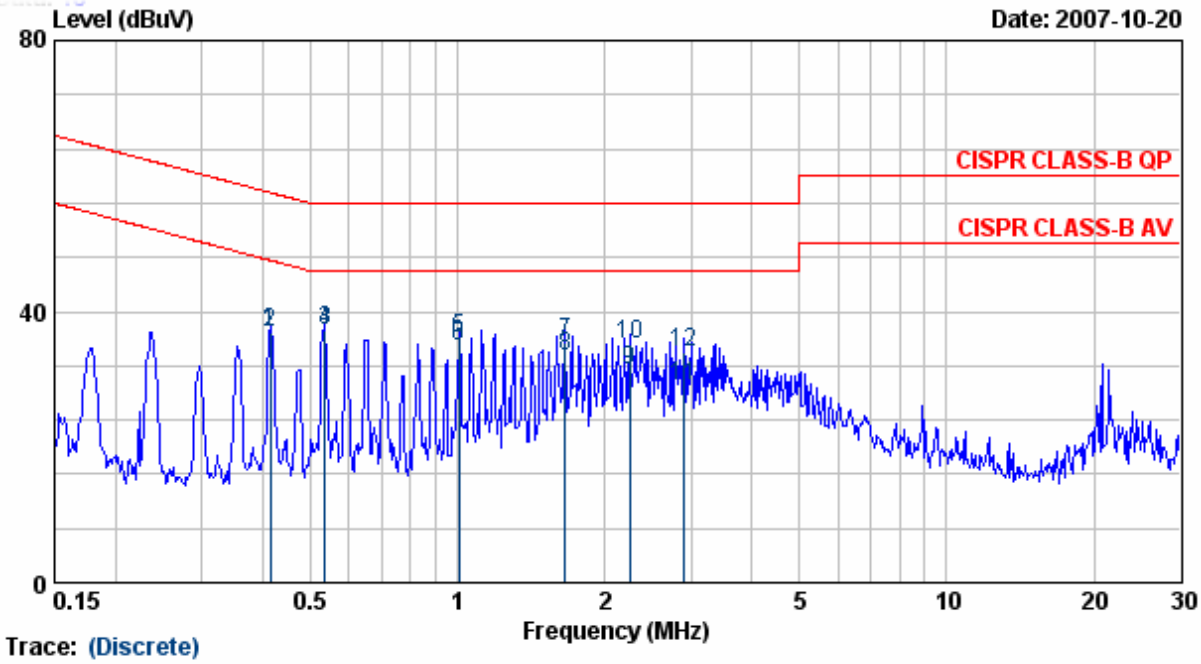
Freq. MHz	LISN Factor dB	Cable Loss dB	Meter Reading dBuV	Measured Level dBuV	Limits dBuV	Over Limits dBuV	Detector
0.238	9.83	0.05	26.56	36.44	62.17	-25.74	QP
0.238	9.83	0.05	24.16	34.04	52.17	-18.14	AVERAGE
0.415	9.90	0.05	26.67	36.62	47.55	-10.93	AVERAGE
0.415	9.90	0.05	26.84	36.79	57.55	-20.76	QP
0.535	9.90	0.05	27.05	37.00	56.00	-19.00	QP
0.535	9.90	0.05	26.96	36.91	46.00	-9.09	AVERAGE
1.009	9.90	0.04	26.12	36.06	56.00	-19.94	QP
1.009	9.90	0.04	24.17	34.11	46.00	-11.89	AVERAGE
1.662	9.97	0.05	25.57	35.59	56.00	-20.41	QP
1.662	9.97	0.05	22.77	32.79	46.00	-13.21	AVERAGE
2.376	9.95	0.07	20.11	30.13	46.00	-15.87	AVERAGE
2.376	9.95	0.07	24.28	34.30	56.00	-21.70	QP

Remark:

1. Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB)
2. Over Limit value (dB) = Level (dBuV) – Limit Line (dBuV)

Operation Mode:	Power Adapter (2)	**Test Date:**	October 20, 2007
Temperature:	23.8°C	**Tested by:**	Jerry Chang
Humidity:	55% RH		

NEUTRAL



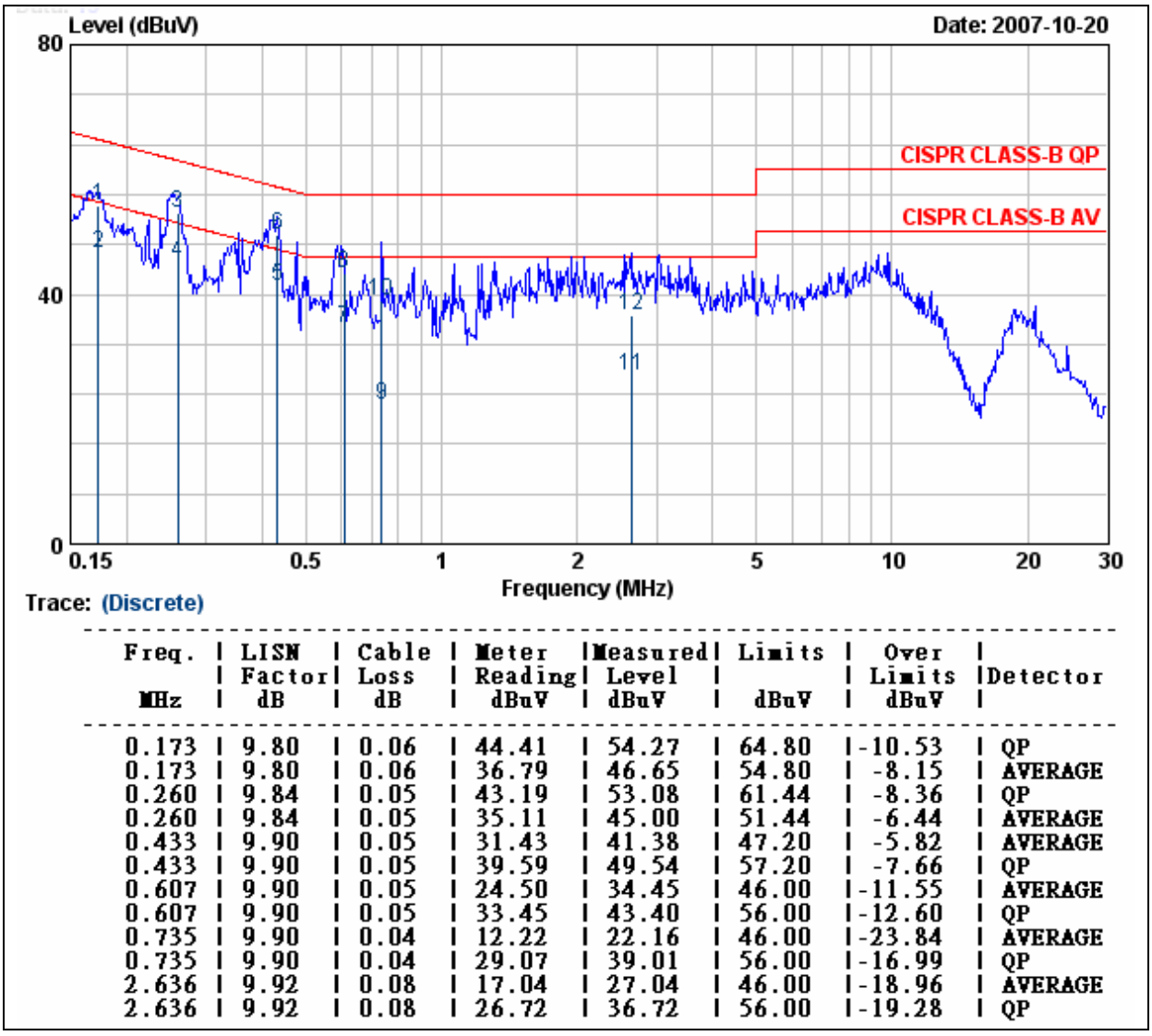
Freq. MHz	LISN Factor dB	Cable Loss dB	Meter Reading dBuV	Measured Level dBuV	Limits dBuV	Over Limits dBuV	Detector
0.415	9.90	0.05	27.11	37.06	57.55	-20.49	QP
0.415	9.90	0.05	26.93	36.88	47.55	-10.67	AVERAGE
0.535	9.90	0.05	27.34	37.29	56.00	-18.71	QP
0.535	9.90	0.05	27.31	37.26	46.00	-8.74	AVERAGE
1.008	9.90	0.04	26.11	36.05	56.00	-19.95	QP
1.008	9.90	0.04	24.92	34.86	46.00	-11.14	AVERAGE
1.661	9.97	0.05	25.57	35.59	56.00	-20.41	QP
1.661	9.97	0.05	23.26	33.28	46.00	-12.72	AVERAGE
2.254	9.97	0.06	21.23	31.26	46.00	-14.74	AVERAGE
2.254	9.97	0.06	25.21	35.24	56.00	-20.76	QP
2.906	9.89	0.09	19.07	29.05	46.00	-16.95	AVERAGE
2.906	9.89	0.09	23.97	33.95	56.00	-22.05	QP

Remark:

1. Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB)
2. Over Limit value (dB) = Level (dBuV) – Limit Line (dBuV)

Operation Mode:	Power Adapter (3)	**Test Date:**	October 20, 2007
Temperature:	23.8°C	**Tested by:**	Jerry Chang
Humidity:	55% RH		

LINE



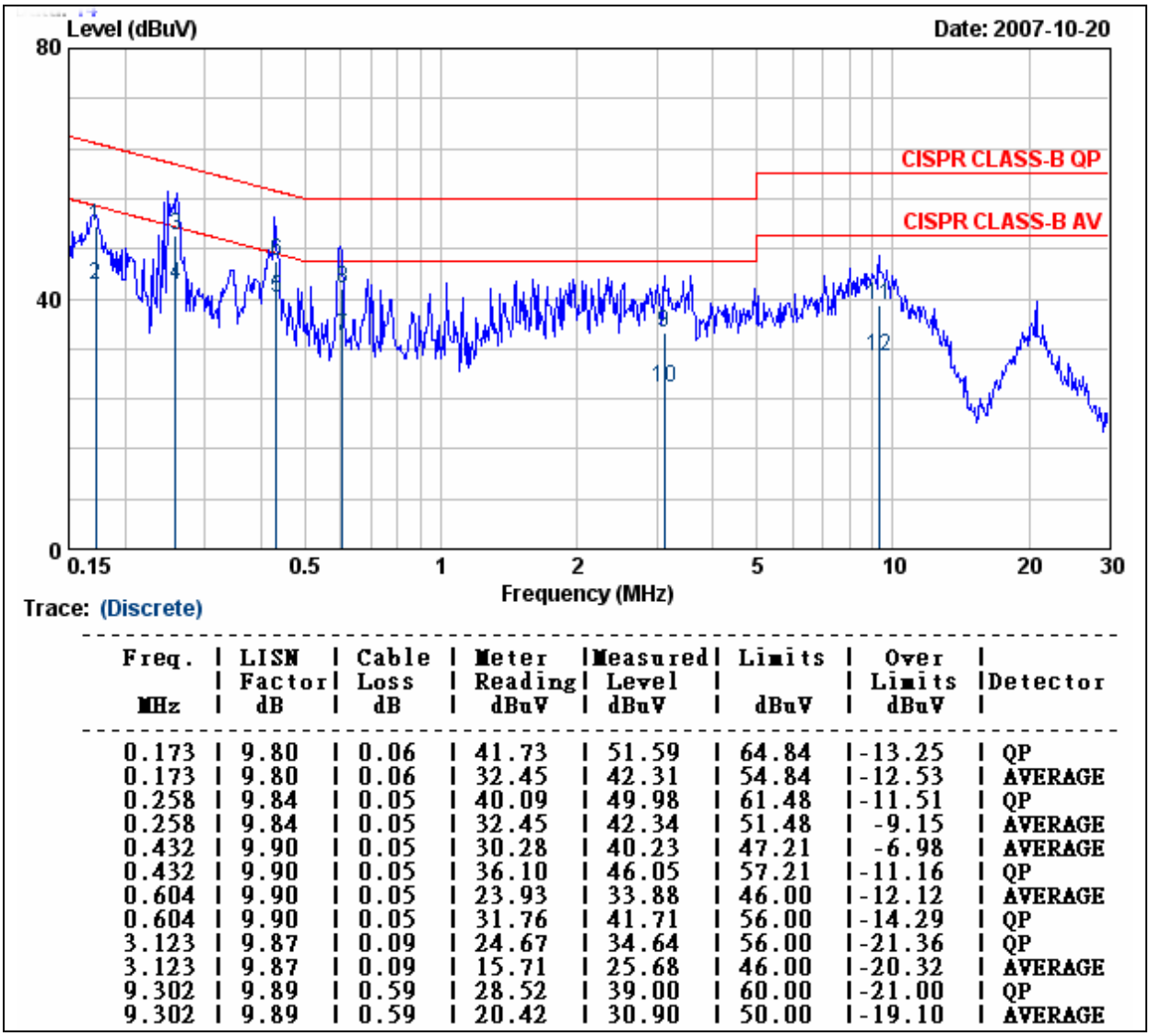
Freq. MHz	LISN Factor dB	Cable Loss dB	Meter Reading dBuV	Measured Level dBuV	Limits dBuV	Over Limits dBuV	Detector
0.173	9.80	0.06	44.41	54.27	64.80	-10.53	QP
0.173	9.80	0.06	36.79	46.65	54.80	-8.15	AVERAGE
0.260	9.84	0.05	43.19	53.08	61.44	-8.36	QP
0.260	9.84	0.05	35.11	45.00	51.44	-6.44	AVERAGE
0.433	9.90	0.05	31.43	41.38	47.20	-5.82	AVERAGE
0.433	9.90	0.05	39.59	49.54	57.20	-7.66	QP
0.607	9.90	0.05	24.50	34.45	46.00	-11.55	AVERAGE
0.607	9.90	0.05	33.45	43.40	56.00	-12.60	QP
0.735	9.90	0.04	12.22	22.16	46.00	-23.84	AVERAGE
0.735	9.90	0.04	29.07	39.01	56.00	-16.99	QP
2.636	9.92	0.08	17.04	27.04	46.00	-18.96	AVERAGE
2.636	9.92	0.08	26.72	36.72	56.00	-19.28	QP

Remark:

1. Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB)
2. Over Limit value (dB) = Level (dBuV) – Limit Line (dBuV)

Operation Mode:	Power Adapter (3)	**Test Date:**	October 20, 2007
Temperature:	23.8°C	**Tested by:**	Jerry Chang
Humidity:	55% RH		

NEUTRAL



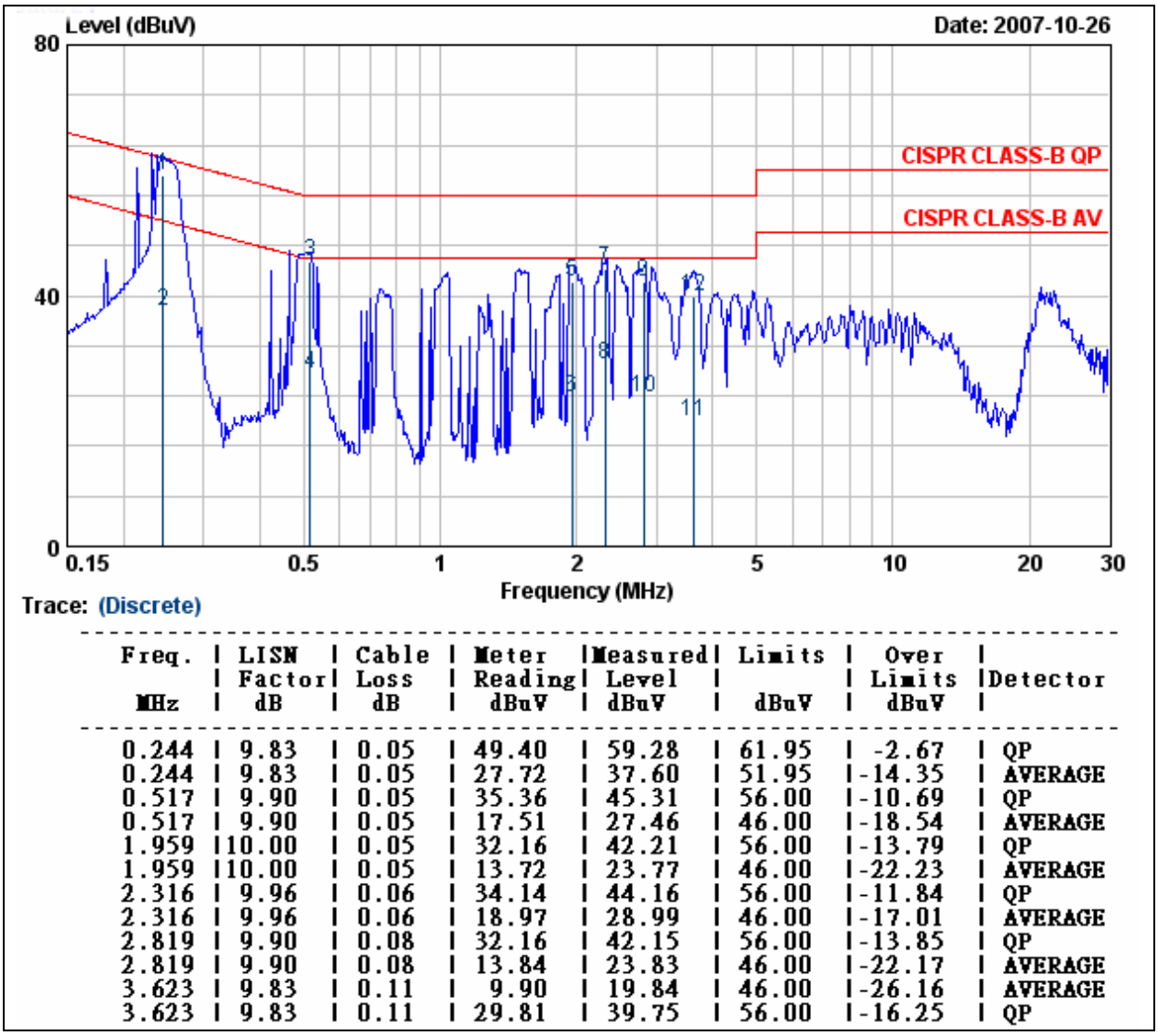
Freq. MHz	LISN Factor dB	Cable Loss dB	Meter Reading dBuV	Measured Level dBuV	Limits dBuV	Over Limits dBuV	Detector
0.173	9.80	0.06	41.73	51.59	64.84	-13.25	QP
0.173	9.80	0.06	32.45	42.31	54.84	-12.53	AVERAGE
0.258	9.84	0.05	40.09	49.98	61.48	-11.51	QP
0.258	9.84	0.05	32.45	42.34	51.48	-9.15	AVERAGE
0.432	9.90	0.05	30.28	40.23	47.21	-6.98	AVERAGE
0.432	9.90	0.05	36.10	46.05	57.21	-11.16	QP
0.604	9.90	0.05	23.93	33.88	46.00	-12.12	AVERAGE
0.604	9.90	0.05	31.76	41.71	56.00	-14.29	QP
3.123	9.87	0.09	24.67	34.64	56.00	-21.36	QP
3.123	9.87	0.09	15.71	25.68	46.00	-20.32	AVERAGE
9.302	9.89	0.59	28.52	39.00	60.00	-21.00	QP
9.302	9.89	0.59	20.42	30.90	50.00	-19.10	AVERAGE

Remark:

1. Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB)
2. Over Limit value (dB) = Level (dBuV) – Limit Line (dBuV)

Operation Mode:	Power Adapter (4)	**Test Date:**	October 26, 2007
Temperature:	23.5°C	**Tested by:**	Jerry Chang
Humidity:	58% RH		

LINE



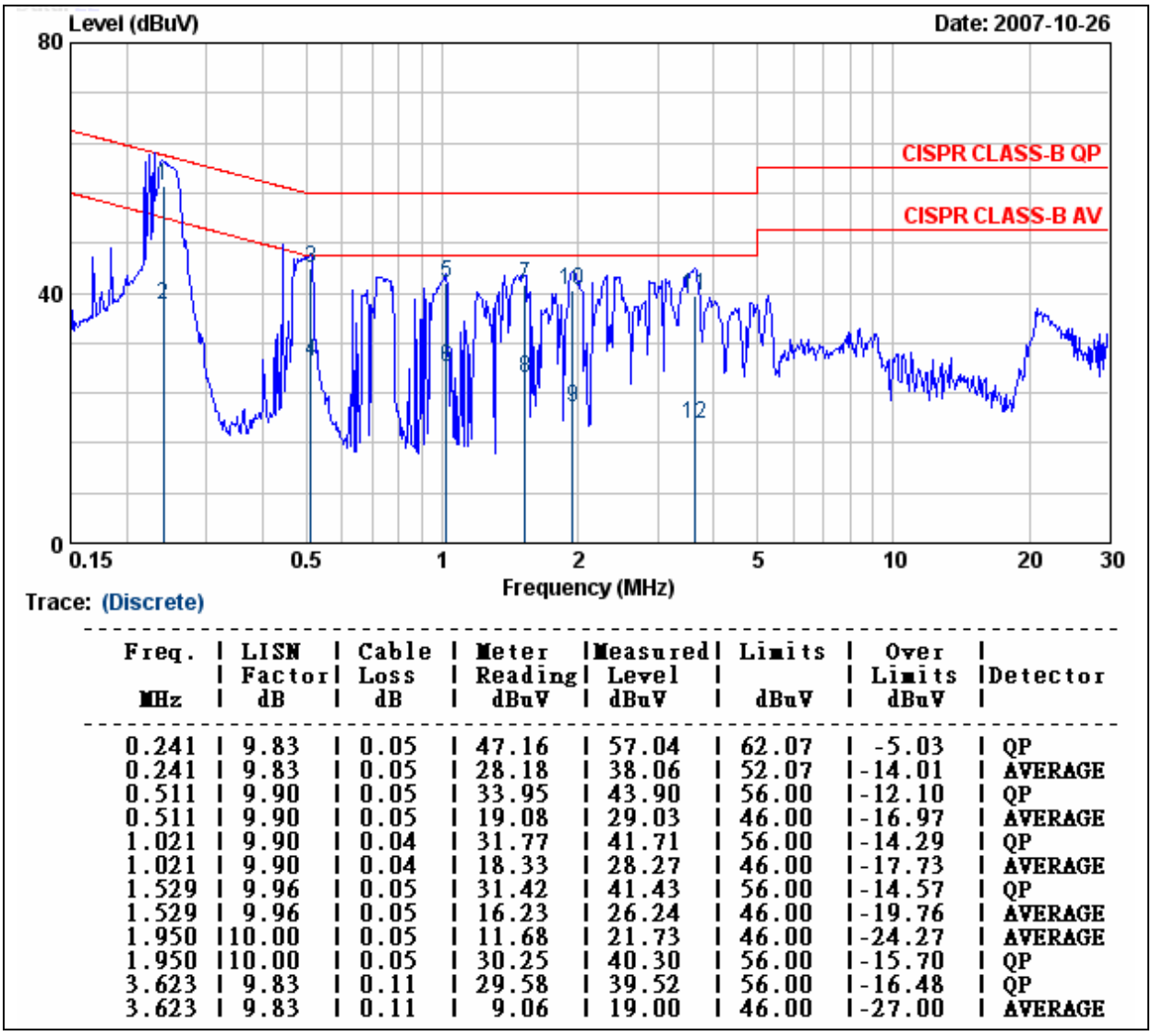
Freq. MHz	LISN Factor dB	Cable Loss dB	Meter Reading dBuV	Measured Level dBuV	Limits dBuV	Over Limits dBuV	Detector
0.244	9.83	0.05	49.40	59.28	61.95	-2.67	QP
0.244	9.83	0.05	27.72	37.60	51.95	-14.35	AVERAGE
0.517	9.90	0.05	35.36	45.31	56.00	-10.69	QP
0.517	9.90	0.05	17.51	27.46	46.00	-18.54	AVERAGE
1.959	10.00	0.05	32.16	42.21	56.00	-13.79	QP
1.959	10.00	0.05	13.72	23.77	46.00	-22.23	AVERAGE
2.316	9.96	0.06	34.14	44.16	56.00	-11.84	QP
2.316	9.96	0.06	18.97	28.99	46.00	-17.01	AVERAGE
2.819	9.90	0.08	32.16	42.15	56.00	-13.85	QP
2.819	9.90	0.08	13.84	23.83	46.00	-22.17	AVERAGE
3.623	9.83	0.11	9.90	19.84	46.00	-26.16	AVERAGE
3.623	9.83	0.11	29.81	39.75	56.00	-16.25	QP

Remark:

1. Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB)
2. Over Limit value (dB) = Level (dBuV) – Limit Line (dBuV)

Operation Mode:	Power Adapter (4)	**Test Date:**	October 26, 2007
Temperature:	23.5°C	**Tested by:**	Jerry Chang
Humidity:	58% RH		

NEUTRAL



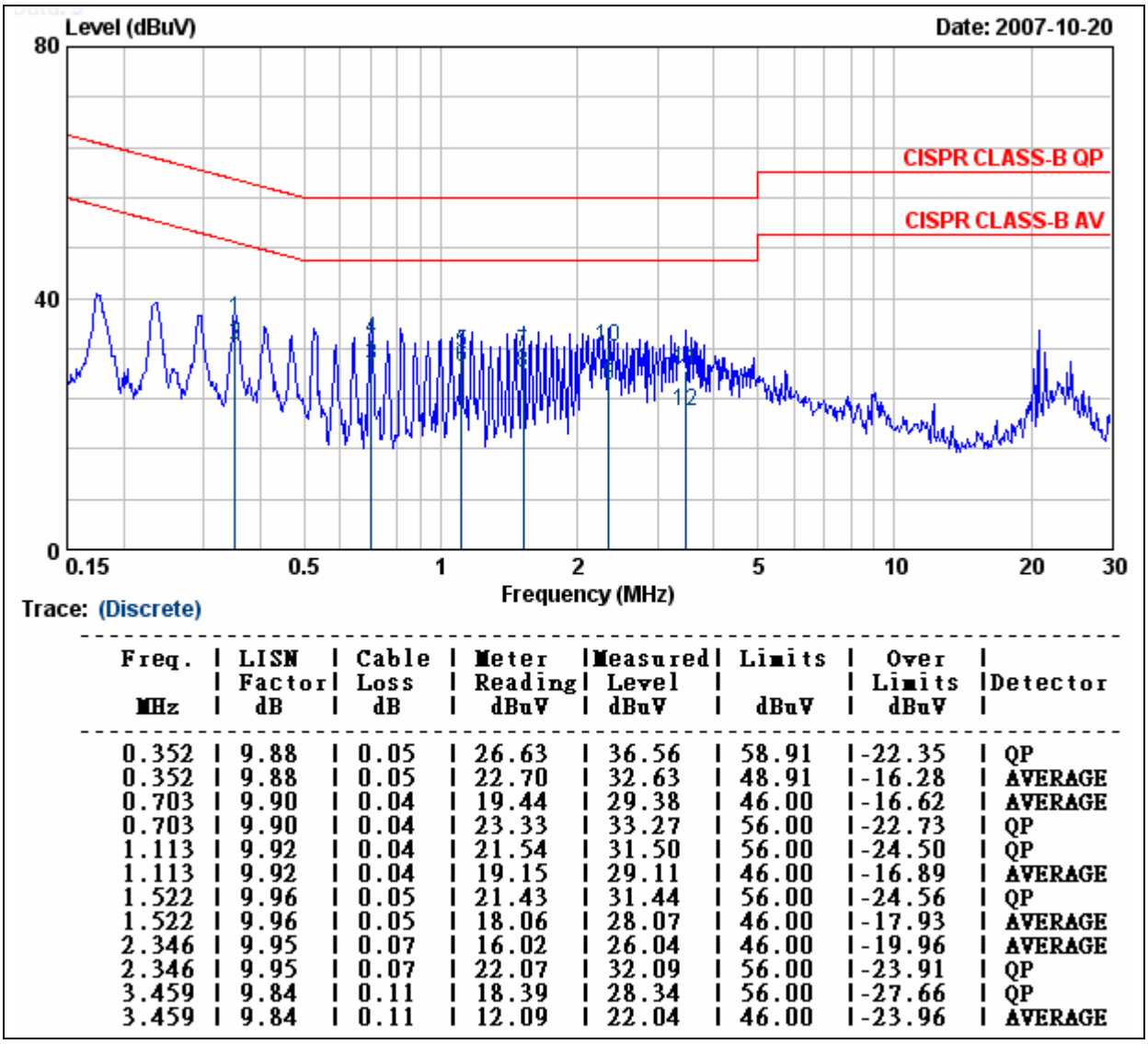
Freq. MHz	LISN Factor dB	Cable Loss dB	Meter Reading dBuV	Measured Level dBuV	Limits dBuV	Over Limits dBuV	Detector
0.241	9.83	0.05	47.16	57.04	62.07	-5.03	QP
0.241	9.83	0.05	28.18	38.06	52.07	-14.01	AVERAGE
0.511	9.90	0.05	33.95	43.90	56.00	-12.10	QP
0.511	9.90	0.05	19.08	29.03	46.00	-16.97	AVERAGE
1.021	9.90	0.04	31.77	41.71	56.00	-14.29	QP
1.021	9.90	0.04	18.33	28.27	46.00	-17.73	AVERAGE
1.529	9.96	0.05	31.42	41.43	56.00	-14.57	QP
1.529	9.96	0.05	16.23	26.24	46.00	-19.76	AVERAGE
1.950	10.00	0.05	11.68	21.73	46.00	-24.27	AVERAGE
1.950	10.00	0.05	30.25	40.30	56.00	-15.70	QP
3.623	9.83	0.11	29.58	39.52	56.00	-16.48	QP
3.623	9.83	0.11	9.06	19.00	46.00	-27.00	AVERAGE

Remark:

1. Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB)
2. Over Limit value (dB) = Level (dBuV) – Limit Line (dBuV)

Operation Mode:	Power Adapter (5)	**Test Date:**	October 20, 2007
Temperature:	23.8°C	**Tested by:**	Jerry Chang
Humidity:	55% RH		

LINE



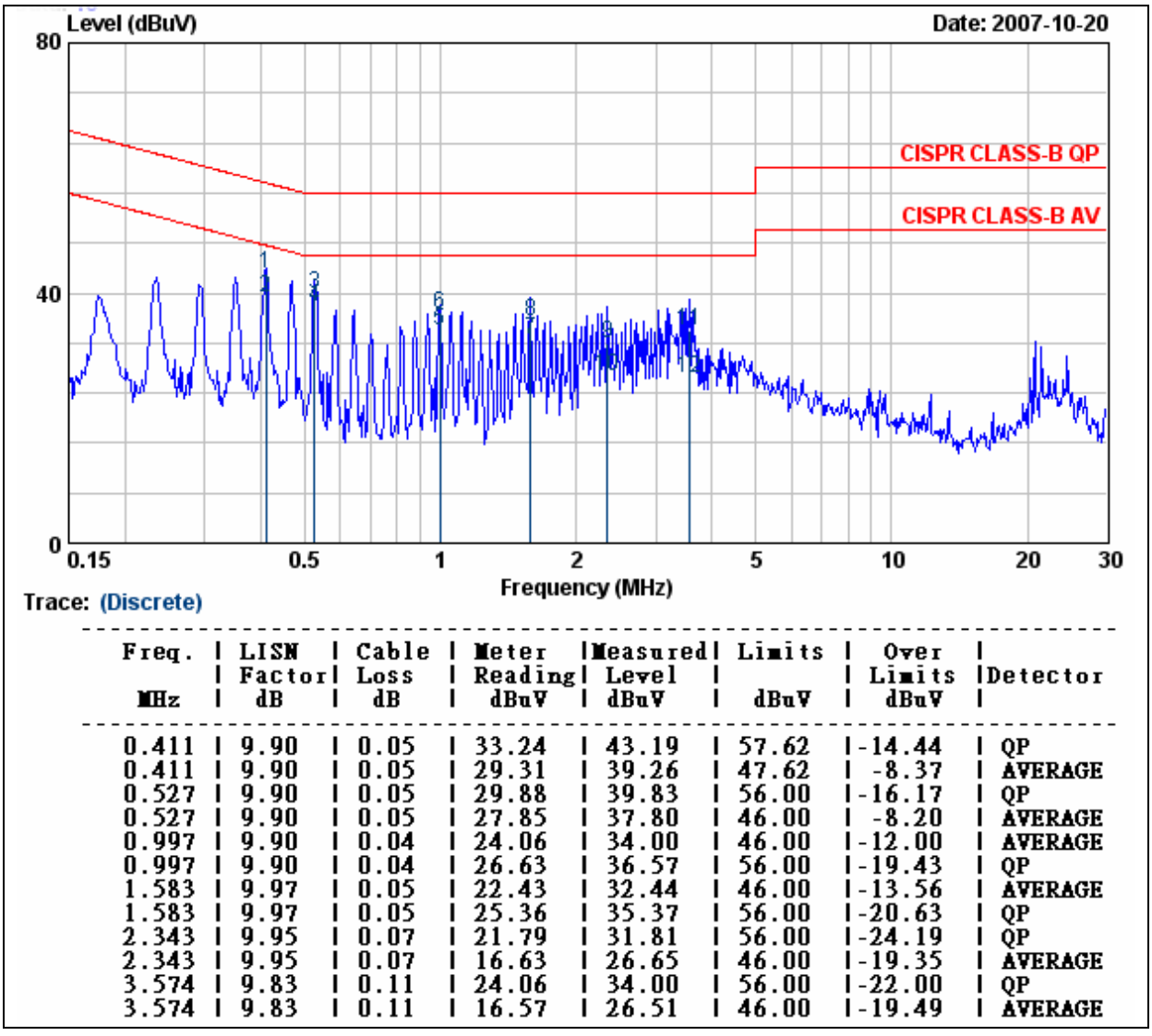
Freq. MHz	LISN Factor dB	Cable Loss dB	Meter Reading dBuV	Measured Level dBuV	Limits dBuV	Over Limits dBuV	Detector
0.352	9.88	0.05	26.63	36.56	58.91	-22.35	QP
0.352	9.88	0.05	22.70	32.63	48.91	-16.28	AVERAGE
0.703	9.90	0.04	19.44	29.38	46.00	-16.62	AVERAGE
0.703	9.90	0.04	23.33	33.27	56.00	-22.73	QP
1.113	9.92	0.04	21.54	31.50	56.00	-24.50	QP
1.113	9.92	0.04	19.15	29.11	46.00	-16.89	AVERAGE
1.522	9.96	0.05	21.43	31.44	56.00	-24.56	QP
1.522	9.96	0.05	18.06	28.07	46.00	-17.93	AVERAGE
2.346	9.95	0.07	16.02	26.04	46.00	-19.96	AVERAGE
2.346	9.95	0.07	22.07	32.09	56.00	-23.91	QP
3.459	9.84	0.11	18.39	28.34	56.00	-27.66	QP
3.459	9.84	0.11	12.09	22.04	46.00	-23.96	AVERAGE

Remark:

1. Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB)
2. Over Limit value (dB) = Level (dBuV) – Limit Line (dBuV)

Operation Mode:	Power Adapter (5)	**Test Date:**	October 20, 2007
Temperature:	23.8°C	**Tested by:**	Jerry Chang
Humidity:	55% RH		

NEUTRAL



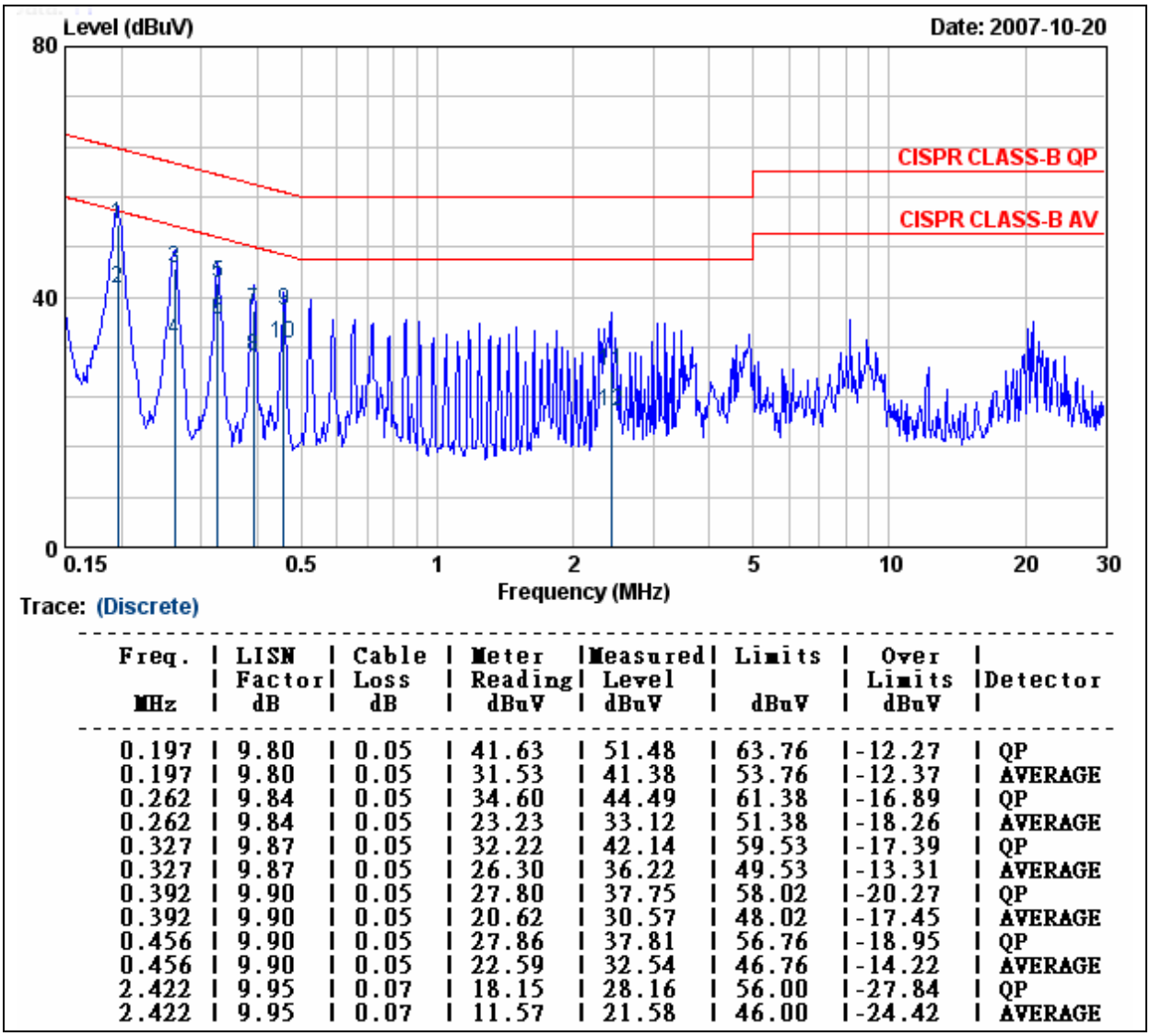
Freq. MHz	LISN Factor dB	Cable Loss dB	Meter Reading dBuV	Measured Level dBuV	Limits dBuV	Over Limits dBuV	Detector
0.411	9.90	0.05	33.24	43.19	57.62	-14.44	QP
0.411	9.90	0.05	29.31	39.26	47.62	-8.37	AVERAGE
0.527	9.90	0.05	29.88	39.83	56.00	-16.17	QP
0.527	9.90	0.05	27.85	37.80	46.00	-8.20	AVERAGE
0.997	9.90	0.04	24.06	34.00	46.00	-12.00	AVERAGE
0.997	9.90	0.04	26.63	36.57	56.00	-19.43	QP
1.583	9.97	0.05	22.43	32.44	46.00	-13.56	AVERAGE
1.583	9.97	0.05	25.36	35.37	56.00	-20.63	QP
2.343	9.95	0.07	21.79	31.81	56.00	-24.19	QP
2.343	9.95	0.07	16.63	26.65	46.00	-19.35	AVERAGE
3.574	9.83	0.11	24.06	34.00	56.00	-22.00	QP
3.574	9.83	0.11	16.57	26.51	46.00	-19.49	AVERAGE

Remark:

1. Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB)
2. Over Limit value (dB) = Level (dBuV) – Limit Line (dBuV)

Operation Mode:	Power Adapter (6)	**Test Date:**	October 20, 2007
Temperature:	23.8°C	**Tested by:**	Jerry Chang
Humidity:	55% RH		

LINE



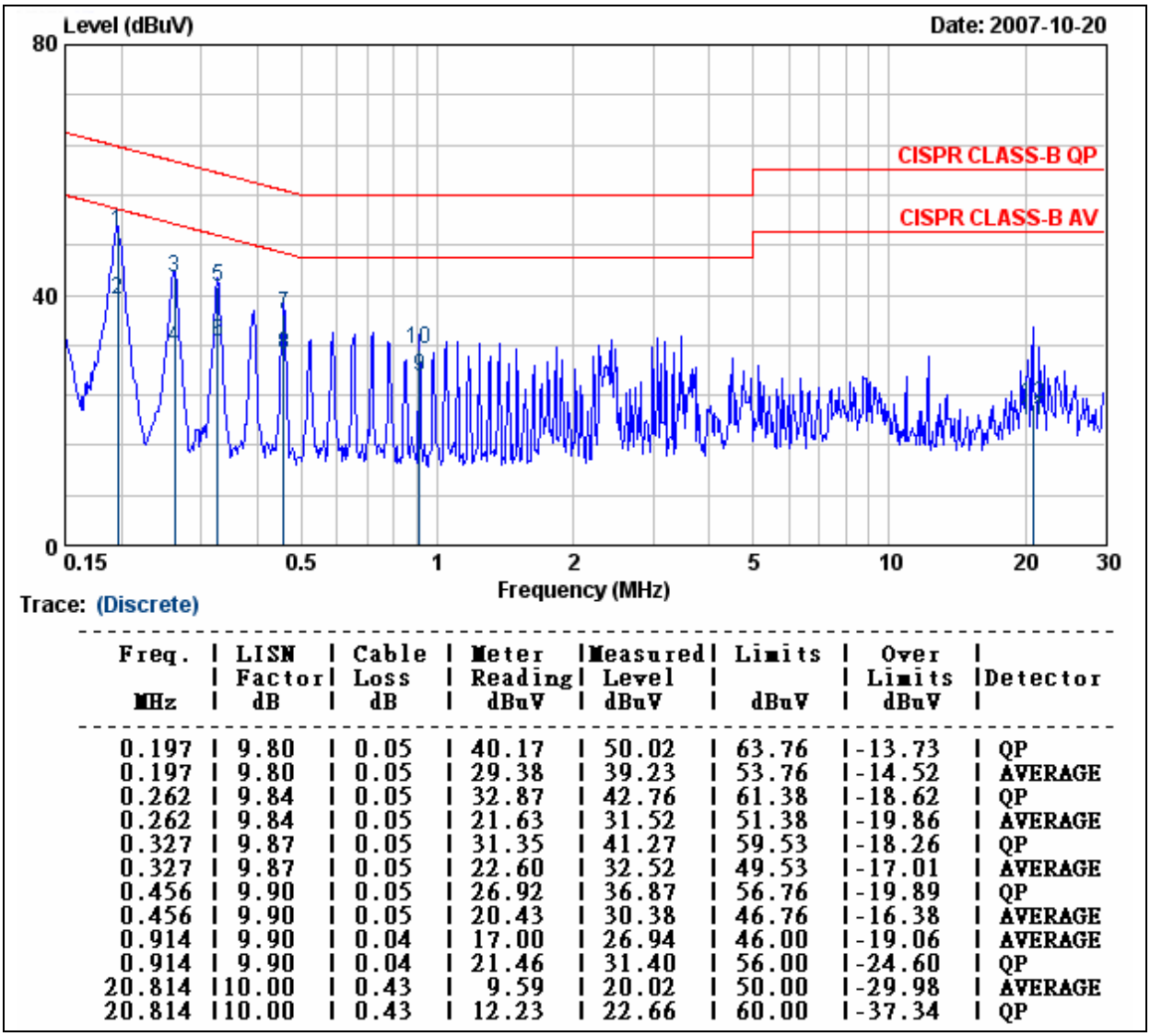
Freq. MHz	LISN Factor dB	Cable Loss dB	Meter Reading dBuV	Measured Level dBuV	Limits dBuV	Over Limits dBuV	Detector
0.197	9.80	0.05	41.63	51.48	63.76	-12.27	QP
0.197	9.80	0.05	31.53	41.38	53.76	-12.37	AVERAGE
0.262	9.84	0.05	34.60	44.49	61.38	-16.89	QP
0.262	9.84	0.05	23.23	33.12	51.38	-18.26	AVERAGE
0.327	9.87	0.05	32.22	42.14	59.53	-17.39	QP
0.327	9.87	0.05	26.30	36.22	49.53	-13.31	AVERAGE
0.392	9.90	0.05	27.80	37.75	58.02	-20.27	QP
0.392	9.90	0.05	20.62	30.57	48.02	-17.45	AVERAGE
0.456	9.90	0.05	27.86	37.81	56.76	-18.95	QP
0.456	9.90	0.05	22.59	32.54	46.76	-14.22	AVERAGE
2.422	9.95	0.07	18.15	28.16	56.00	-27.84	QP
2.422	9.95	0.07	11.57	21.58	46.00	-24.42	AVERAGE

Remark:

1. Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB)
2. Over Limit value (dB) = Level (dBuV) – Limit Line (dBuV)

Operation Mode:	Power Adapter (6)	**Test Date:**	October 20, 2007
Temperature:	23.8°C	**Tested by:**	Jerry Chang
Humidity:	55% RH		

NEUTRAL



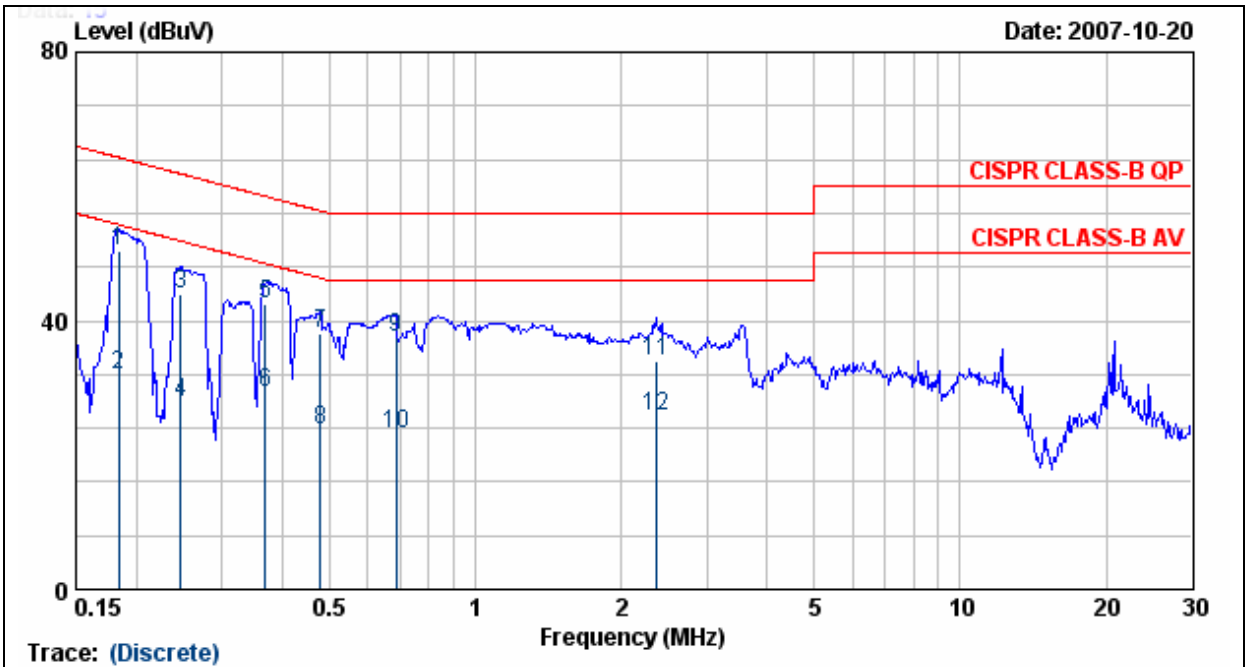
Freq. MHz	LISN Factor dB	Cable Loss dB	Meter Reading dBuV	Measured Level dBuV	Limits dBuV	Over Limits dBuV	Detector
0.197	9.80	0.05	40.17	50.02	63.76	-13.73	QP
0.197	9.80	0.05	29.38	39.23	53.76	-14.52	AVERAGE
0.262	9.84	0.05	32.87	42.76	61.38	-18.62	QP
0.262	9.84	0.05	21.63	31.52	51.38	-19.86	AVERAGE
0.327	9.87	0.05	31.35	41.27	59.53	-18.26	QP
0.327	9.87	0.05	22.60	32.52	49.53	-17.01	AVERAGE
0.456	9.90	0.05	26.92	36.87	56.76	-19.89	QP
0.456	9.90	0.05	20.43	30.38	46.76	-16.38	AVERAGE
0.914	9.90	0.04	17.00	26.94	46.00	-19.06	AVERAGE
0.914	9.90	0.04	21.46	31.40	56.00	-24.60	QP
20.814	10.00	0.43	9.59	20.02	50.00	-29.98	AVERAGE
20.814	10.00	0.43	12.23	22.66	60.00	-37.34	QP

Remark:

1. Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB)
2. Over Limit value (dB) = Level (dBuV) – Limit Line (dBuV)

Operation Mode:	Power Adapter (7)	**Test Date:**	October 20, 2007
Temperature:	23.8°C	**Tested by:**	Jerry Chang
Humidity:	55% RH		

LINE



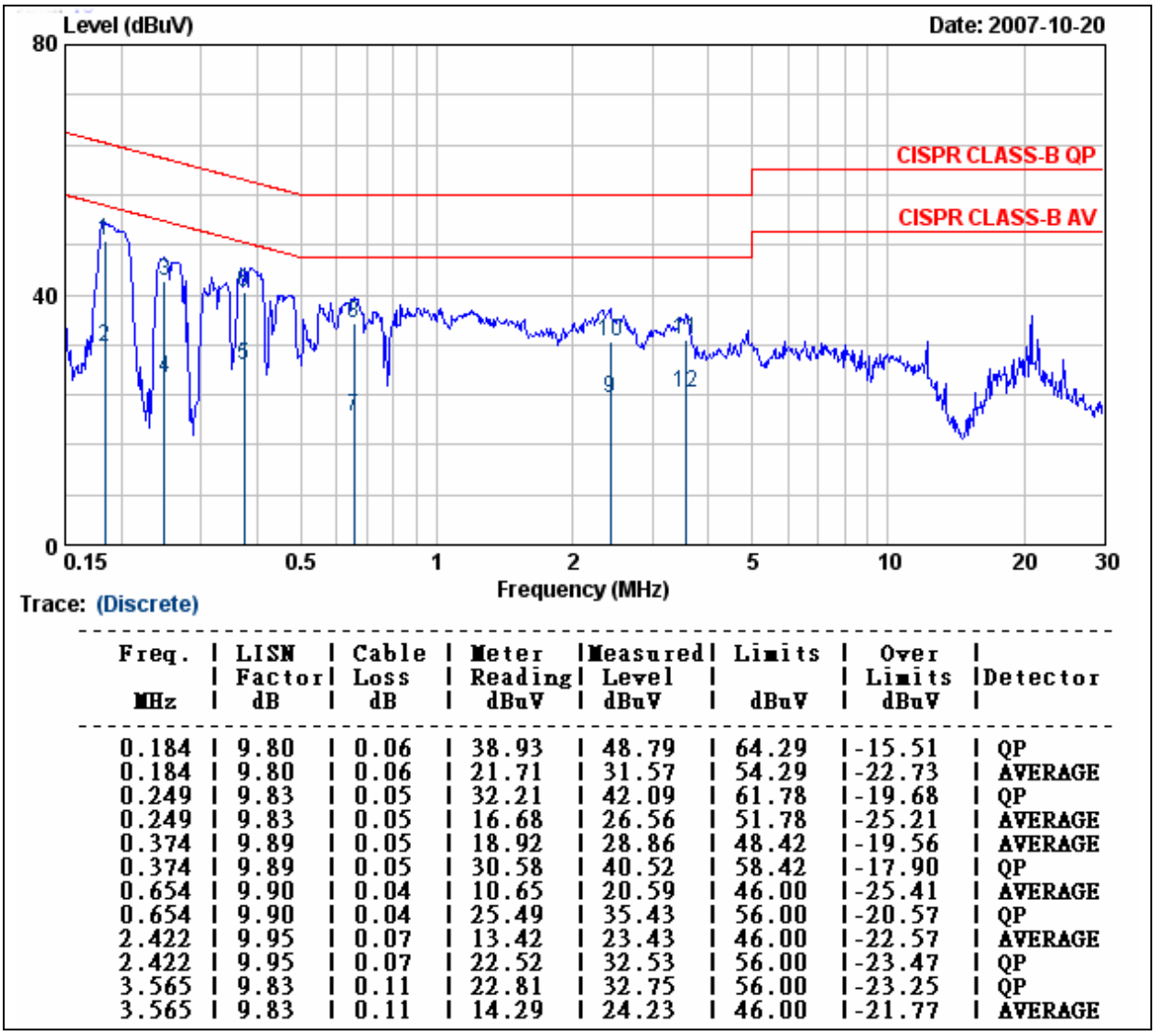
Freq. MHz	LISN Factor dB	Cable Loss dB	Meter Reading dBuV	Measured Level dBuV	Limits dBuV	Over Limits dBuV	Detector
0.184	9.80	0.06	40.56	50.42	64.30	-13.89	QP
0.184	9.80	0.06	21.99	31.85	54.30	-22.46	AVERAGE
0.246	9.83	0.05	34.08	43.96	61.88	-17.92	QP
0.246	9.83	0.05	18.02	27.90	51.88	-23.98	AVERAGE
0.368	9.89	0.05	32.50	42.44	58.55	-16.11	QP
0.368	9.89	0.05	19.39	29.33	48.55	-19.22	AVERAGE
0.478	9.90	0.05	28.04	37.99	56.37	-18.38	QP
0.478	9.90	0.05	13.73	23.68	46.37	-22.69	AVERAGE
0.686	9.90	0.04	27.58	37.52	56.00	-18.48	QP
0.686	9.90	0.04	13.08	23.02	46.00	-22.98	AVERAGE
2.358	9.95	0.07	23.89	33.91	56.00	-22.09	QP
2.358	9.95	0.07	15.73	25.75	46.00	-20.25	AVERAGE

Remark:

1. Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB)
2. Over Limit value (dB) = Level (dBuV) – Limit Line (dBuV)

Operation Mode:	Power Adapter (7)	**Test Date:**	October 20, 2007
Temperature:	23.8°C	**Tested by:**	Jerry Chang
Humidity:	55% RH		

NEUTRAL



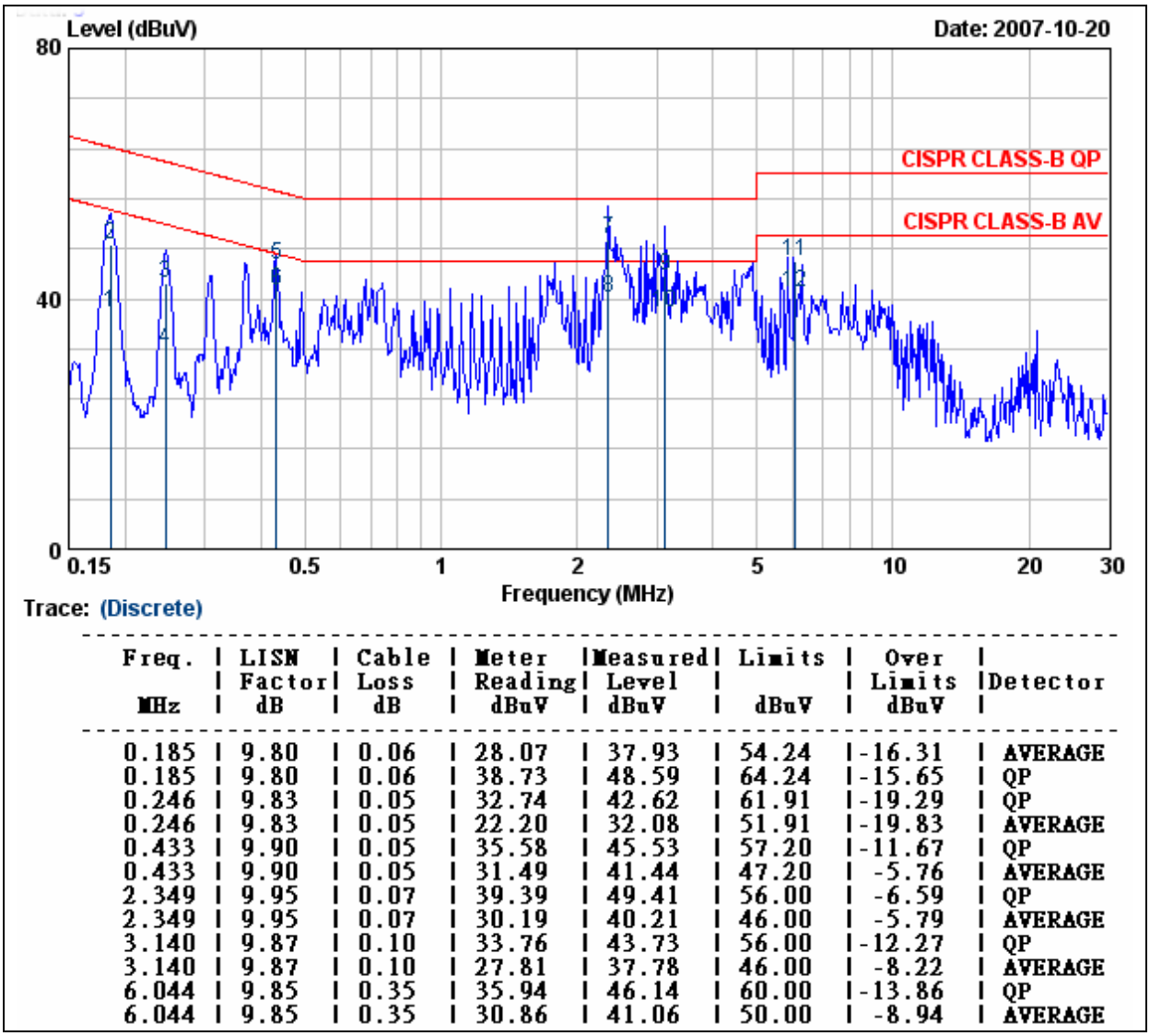
Freq. MHz	LISN Factor dB	Cable Loss dB	Meter Reading dBuV	Measured Level dBuV	Limits dBuV	Over Limits dBuV	Detector
0.184	9.80	0.06	38.93	48.79	64.29	-15.51	QP
0.184	9.80	0.06	21.71	31.57	54.29	-22.73	AVERAGE
0.249	9.83	0.05	32.21	42.09	61.78	-19.68	QP
0.249	9.83	0.05	16.68	26.56	51.78	-25.21	AVERAGE
0.374	9.89	0.05	18.92	28.86	48.42	-19.56	AVERAGE
0.374	9.89	0.05	30.58	40.52	58.42	-17.90	QP
0.654	9.90	0.04	10.65	20.59	46.00	-25.41	AVERAGE
0.654	9.90	0.04	25.49	35.43	56.00	-20.57	QP
2.422	9.95	0.07	13.42	23.43	46.00	-22.57	AVERAGE
2.422	9.95	0.07	22.52	32.53	56.00	-23.47	QP
3.565	9.83	0.11	22.81	32.75	56.00	-23.25	QP
3.565	9.83	0.11	14.29	24.23	46.00	-21.77	AVERAGE

Remark:

1. Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB)
2. Over Limit value (dB) = Level (dBuV) – Limit Line (dBuV)

Operation Mode:	Power Adapter (8)	**Test Date:**	October 20, 2007
Temperature:	23.8°C	**Tested by:**	Jerry Chang
Humidity:	55% RH		

LINE



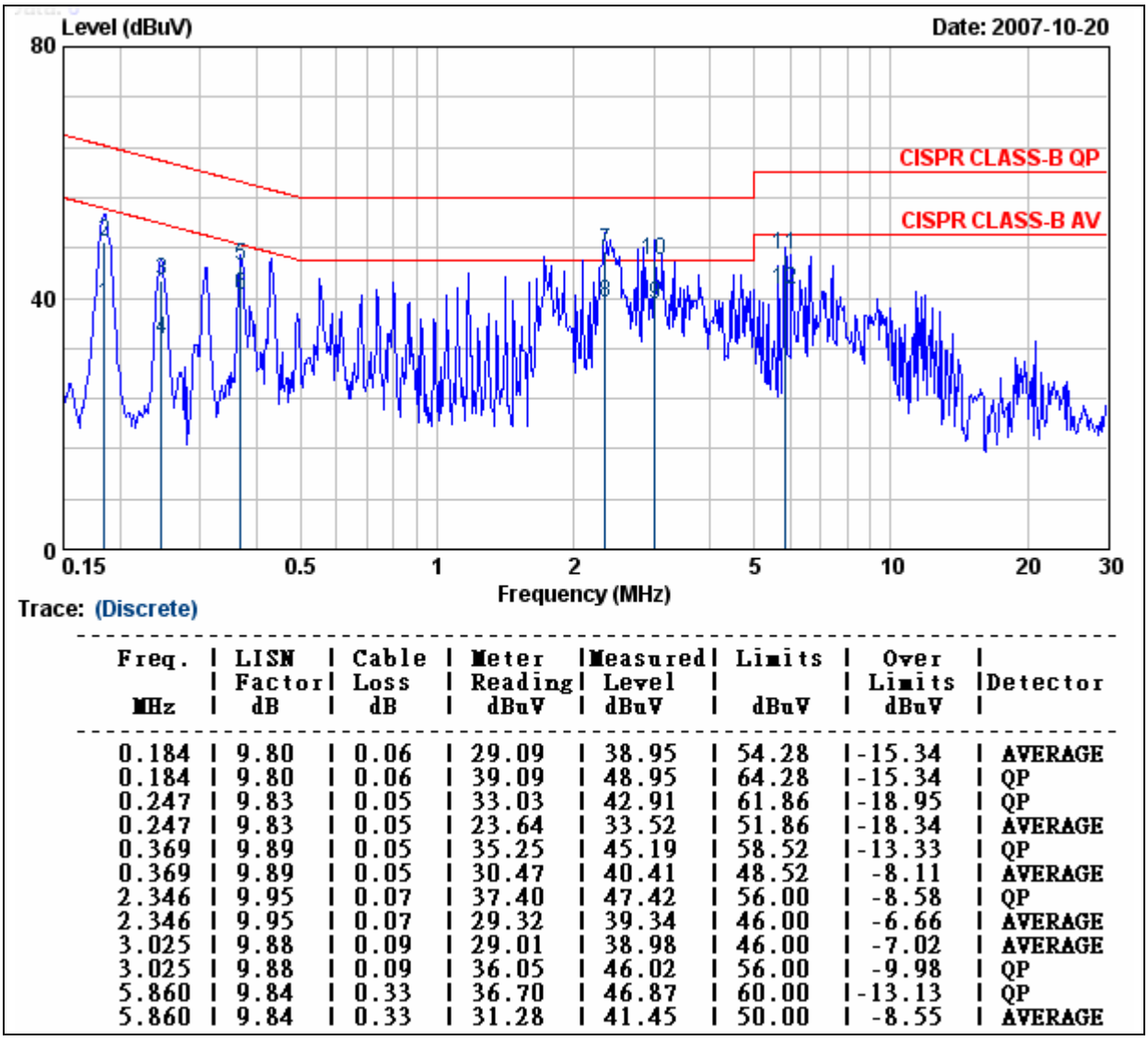
Freq. MHz	LISN Factor dB	Cable Loss dB	Meter Reading dBuV	Measured Level dBuV	Limits dBuV	Over Limits dBuV	Detector
0.185	9.80	0.06	28.07	37.93	54.24	-16.31	AVERAGE
0.185	9.80	0.06	38.73	48.59	64.24	-15.65	QP
0.246	9.83	0.05	32.74	42.62	61.91	-19.29	QP
0.246	9.83	0.05	22.20	32.08	51.91	-19.83	AVERAGE
0.433	9.90	0.05	35.58	45.53	57.20	-11.67	QP
0.433	9.90	0.05	31.49	41.44	47.20	-5.76	AVERAGE
2.349	9.95	0.07	39.39	49.41	56.00	-6.59	QP
2.349	9.95	0.07	30.19	40.21	46.00	-5.79	AVERAGE
3.140	9.87	0.10	33.76	43.73	56.00	-12.27	QP
3.140	9.87	0.10	27.81	37.78	46.00	-8.22	AVERAGE
6.044	9.85	0.35	35.94	46.14	60.00	-13.86	QP
6.044	9.85	0.35	30.86	41.06	50.00	-8.94	AVERAGE

Remark:

1. Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB)
2. Over Limit value (dB) = Level (dBuV) – Limit Line (dBuV)

Operation Mode:	Power Adapter (8)	**Test Date:**	October 20, 2007
Temperature:	23.8°C	**Tested by:**	Jerry Chang
Humidity:	55% RH		

NEUTRAL



Freq. MHz	LISN Factor dB	Cable Loss dB	Meter Reading dBuV	Measured Level dBuV	Limits dBuV	Over Limits dBuV	Detector
0.184	9.80	0.06	29.09	38.95	54.28	-15.34	AVERAGE
0.184	9.80	0.06	39.09	48.95	64.28	-15.34	QP
0.247	9.83	0.05	33.03	42.91	61.86	-18.95	QP
0.247	9.83	0.05	23.64	33.52	51.86	-18.34	AVERAGE
0.369	9.89	0.05	35.25	45.19	58.52	-13.33	QP
0.369	9.89	0.05	30.47	40.41	48.52	-8.11	AVERAGE
2.346	9.95	0.07	37.40	47.42	56.00	-8.58	QP
2.346	9.95	0.07	29.32	39.34	46.00	-6.66	AVERAGE
3.025	9.88	0.09	29.01	38.98	46.00	-7.02	AVERAGE
3.025	9.88	0.09	36.05	46.02	56.00	-9.98	QP
5.860	9.84	0.33	36.70	46.87	60.00	-13.13	QP
5.860	9.84	0.33	31.28	41.45	50.00	-8.55	AVERAGE

Remark:

1. Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB)
2. Over Limit value (dB) = Level (dBuV) – Limit Line (dBuV)

APPENDIX I
RADIO FREQUENCY EXPOSURE

LIMIT

According to §15.247(i), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines. See § 1.1307(b)(1) of this chapter.

EUT Specification

EUT	Wireless-G Broadband Router With 4-Port Switch
Frequency band (Operating)	☒ WLAN: 2.412GHz ~ 2.462GHz ☐ WLAN: 5.745GHz ~ 5.825GHz ☐ Others: Bluetooth: 2.402GHz ~ 2.480GHz
Device category	☐ Portable (<20cm separation) ☒ Mobile (>20cm separation) ☐ Others
Exposure classification	☐ Occupational/Controlled exposure (S = 5mW/cm2) ☒ General Population/Uncontrolled exposure (S=1mW/cm2)
Antenna diversity	☐ Single antenna ☒ Multiple antennas ☐ Tx diversity ☐ Rx diversity ☒ Tx/Rx diversity
Max. output power	IEEE 802.11b mode: 20.30 dBm (107.15mW) IEEE 802.11g mode: 22.60 dBm (181.97mW)
Antenna gain (Max)	Dipole Antenna, Antenna Gain : 2dBi (Numeric gain: 1.58)
Evaluation applied	☒ MPE Evaluation* ☐ SAR Evaluation ☐ N/A

Remark:

1. *The maximum output power is 22.60dBm (181.97mW) at 2412MHz (with 1.58 numeric antenna gain.)*
2. *DTS device is not subject to routine RF evaluation; MPE estimate is used to justify the compliance.*
3. *For mobile or fixed location transmitters, no SAR consideration applied. The maximum power density is 1.0 mW/cm^2 even if the calculation indicates that the power density would be larger.*

TEST RESULTS

No non-compliance noted.

Calculation

Given $E = \frac{\sqrt{30 \times P \times G}}{d}$ & $S = \frac{E^2}{3770}$

Where *E = Field strength in Volts / meter*
P = Power in Watts
G = Numeric antenna gain
d = Distance in meters
S = Power density in milliwatts / square centimeter

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{3770 d^2}$$

Changing to units of mW and cm, using:

P (mW) = P (W) / 1000 and

d (cm) = d(m) / 100

Yields

$$S = \frac{30 \times (P/1000) \times G}{3770 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2}$$ ***Equation 1***

Where *d = Distance in cm*
P = Power in mW
G = Numeric antenna gain
S = Power density in mW / cm^2

Maximum Permissible Exposure

EUT output power = 181.97mW

Numeric Antenna gain = 1.58

Substituting the MPE safe distance using d = 20 cm into Equation 1:

Yields

$$S = 0.000199 \times P \times G$$

Where *P = Power in mW*
G = Numeric antenna gain
S = Power density in mW / cm^2

IEEE 802.11b DSSS MODULATION				
Channel	**Frequency (MHz)**	**Output Power to Antenna (mW)**	**Power Density (mW/cm^2)**	**Limit of Power Density (mW/cm^2)**
1	2412	100.00	0.03144	1.0
6	2437	93.33	0.02934	1.0
11	2462	107.15	0.03369	1.0

IEEE 802.11g OFDM MODULATION				
Channel	**Frequency (MHz)**	**Output Power to Antenna (mW)**	**Power Density (mW/cm^2)**	**Limit of Power Density (mW/cm^2)**
1	2412	181.97	0.05722	1.0
6	2437	158.49	0.04983	1.0
11	2462	147.91	0.04651	1.0

Remark: *For mobile or fixed location transmitters, the maximum power density is 1.0 mW/cm^2 even if the calculation indicates that the power density would be larger.*