FCC 47 CFR PART 15 SUBPART E

TEST REPORT

For

Accton Technology Corporation

WLAN 11a+b/g Access Point

Model: WA6102X, WA6102Y, SS-200-AT

Trade Name: Accton, AirTight Networks

Prepared for

Accton Technology Corporation
1 Creation 3rd Rd., Science-based Industrial Park,
Hsinchu 300, Taiwan, R.O.C.

Prepared by

Compliance Certification Services Inc.
No. 81-1, Lane 210, Bade Rd. 2, Luchu Hsiang,
Taoyuan Hsien, (338) Taiwan, R.O.C.
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FAX: 886-3-324-5235

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1. TEST RESULT CERTIFICATION

Applicant:	Accton Technology Corporation 1 Creation 3rd Rd., Science-based Industrial Park, Hsinchu 300, Taiwan, R.O.C.
Equipment Under Test:	WLAN 11a+b/g Access Point
Trade Name:	Accton, AirTight Networks
Model:	WA6102X, WA6102Y, SS-200-AT
Date of Test:	August 23 ~ September 19, 2004

APPLICABLE STANDARDS	
STANDARD	**TEST RESULT**
FCC Part 15 Subpart E	No non-compliance noted

We hereby certify that:

Compliance Certification Services Inc. tested the above equipment. 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 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rules Part 15.407.

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

Approved by:

Harris W. Lai
Executive Vice President
Compliance Certification Services Inc.

Reviewed by:

Devin Chang
Section Manager
Compliance Certification Services Inc.

2. EUT DESCRIPTION

Product	WLAN 11a+b/g Access Point
Trade Name	Accton, AirTight Networks
Model Number	WA6102X, WA6102Y, SS-200-AT
Model Discrepancy	The difference among three models are as below: 1. Different trade name: WA6102X, WA6102Y (Accton), SS-200-AT (AirTight Networks) 2. Housing material: WA6102X, SS-200-AT: metal WA6102Y: Plastic
Power Supply	**Power Adapter** DELTA / ADP-15KB I/P: 100-240V, 0.5A, 50-60Hz O/P: 5.1V, 3.0A **Power Over Ethernet** VDC 48V
Frequency Range	IEEE 802.11a: Base mode: 5.15~5.35 GHz Turbo mode: 5210 GHz / 5250 GHz / 5290 GHz Base mode: 5.725~5.85 GHz Turbo mode: 5760 GHz / 5800 GHz IEEE 802.11b/g: 2412~2462 MHz IEEE 802.11g Turbo mode: 2437 MHz
Transmit Power	IEEE 802.11a: 5.15 ~ 5.35 GHz: 20.78 dBm 5.725~5.85 GHz: 24.50dBm IEEE 802.11b: 22.97 dBm IEEE 802.11g: 23.54 dBm
Modulation Technique	IEEE 802.11a: DSSS+ OFDM IEEE 802.11b: DSSS IEEE 802.11g: OFDM
Transmit Data Rate	IEEE802.11a: 54Mbps, 108Mbps IEEE 802.11b: 11Mbps IEEE 802.11g: 54Mbps, 108Mbps
Number of Channels	IEEE802.11a: 5.15 ~5.35 GHz: 8 Channels 5.725~5.85 GHz: 5 Channels IEEE802.11b/g: 11 Channels
Enclosure Material Type:	Plastic, metal
Antenna Specification	Antenna A: Trade name / Model name: Accton / EWP6021E Antanna Type: dual-band one feeder antanna Antanna Gain: IEEE 802.11a: 6.72dBi IEEE 802.11b/g: 2.35dBi
	Antenna B: Trade name / Model name: LCT / FIB204504-93, FIB204503-93 Antanna Type: Swivel antanna Antanna Gain: IEEE 802.11a: 4.28dBi IEEE 802.11b/g: 1.82dBi

Note:

1. *This submittal(s) (test report) is intended for FCC ID: HEDWA6102X filing to comply with Section 15.407 of the FCC Part 15, Subpart E Rules.*
2. *The 5.2 GHz U-NII band is applicable to this report; another bands of operation (2.4 GHz) is documented in a separate report.*

3. TEST METHODOLOGY

Both conducted and radiated testing was performed according to the procedures in ANSI C63.4 Radiated testing was performed at an antenna to EUT distance 3 meters.

3.1 EUT CONFIGURATION

The EUT configuration for testing is installed for RF field strength measurement to meet the Commissions requirement, and is operated in a manner intended to generate the maximum emission in a continuous normal application.

3.2 EUT EXERCISE

The EUT is operated in the engineering mode to fix the Tx frequency for the purposes of measurement.

According to its specifications, the EUT must comply with the requirements of Section 15.407 under the FCC Rules Part 15 Subpart E.

3.3 GENERAL TEST PROCEDURES

Conducted Emissions

The EUT is placed on the turntable, which is positioned at 0.8 m above the ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4, the conducted emission from the EUT is measured in the frequency range between 0.15 MHz and 30MHz, using the CISPR Quasi-Peak detector mode.

Radiated Emissions

The EUT is placed on the turntable, which is 0.8 m above the ground plane. The turntable is then rotated for 360 degrees to determine the proper orientation for the maximum emission level. The EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission level. And, each emission is to be maximized by changing the horizontal and vertical polarization of the receiving antenna. In order to find out the maximum emission level, the relative positions of the EUT was rotated in each of the three orthogonal axes, according to the requirements in Section 13.1.4.1 of ANSI C63.4.

3.4 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 -	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.52525	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	156.7 - 156.9	3260 - 3267	23.6 - 24.0
12.29 - 12.293	162.0125 - 167.17	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	167.72 - 173.2	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	240 - 285	3600 - 4400	([2])
13.36 - 13.41	322 - 335.4		

[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.

3.5 DESCRIPTION OF TEST MODES

The EUT has been tested under operating condition.

Software used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

Two enclosure material types, antennas and power supply are applied as list in section 2.

After pre-test, the configuration chosen for final testing is plastic material with power adapter and Accton antenna.

IEEE 802.11a Base mode: Channel 1 (5180MHz), Channel 5 (5260MHz), Channel 8 (5320MHz) with 54Mbps and turbo mode: Channel 1 (5210MHz), Channel 2 (5250MHz), Channel 3 (5290MHz) with 108Mbps which give the highest data rate (the worst case) are chosen for the final testing.

4. 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. FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

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

☒ No. 81-1, Lane 210, Bade Rd. 2, Luchu Hsiang, Taoyuan Hsien, Taiwan, R.O.C.

☐ No. 199, Chunghsen Road, Hsintien City, Taipei Hsien, Taiwan, R.O.C.

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

5.2 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.”

5.3 LABORATORY ACCREDITATIONS AND LISTING

The test facilities used to perform radiated and conducted emissions tests are accredited by National Voluntary Laboratory Accreditation Program for the specific scope of accreditation under Lab Code: 200600-0 to perform Electromagnetic Interference tests according to FCC PART 15 AND CISPR 22 requirements. No part of this report may be used to claim or imply product endorsement by NVLAP or any agency of the US Government. In addition, the test facilities are listed with Federal Communications Commission (Registration no: 93105 and 90471).

5.4 TABLE OF ACCREDITATIONS AND LISTINGS

Country	Agency	Scope of Accreditation	Logo
USA	NVLAP*	EN 55011, EN 55014-1, AS/NZS 1044, CNS 13783-1, EN 55022, CNS 13438, EN 61000-3-2, EN 61000-3-3, ANSI C63.4, FCC OST/MP-5, AS/NZS CISPR 22, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11	NVLAP 200600-0
USA	FCC	3/10 meter Open Area Test Sites to perform FCC Part 15/18 measurements	FC 93105, 90471
Japan	VCCI	4 3/10 meter Open Area Test Sites to perform conducted/radiated measurements	VCCI R-393/1066/725/879 C-402/747/912
Norway	NEMKO	EN 50081-1/2, EN 50082-1/2, IEC 61000-6-1/2, EN 50091-2, EN 50130-4, EN 55011, EN 55013, EN 55014-1/2, EN 55015, EN 55022, EN 55024, EN 61000-3-2/3, EN 61326-1, IEC 61000-4-2/3/4/5/6/8/11, EN 60601-1-2, EN 300 328-2, EN 300 422-2, EN 301 419-1, EN 301 489-01/03/07/08/09/17, EN 301 419-2/3, EN 300 454-2, EN 301 357-2	N ELA 124a ELA 124b ELA 124c
Taiwan	CNLA	EN 300 328-1/2, EN 300 220-1/2/3, EN 300 440-1/2, EN 61000-3-2, EN 61000-3-3, 47 CFR FCC Part 15 Subpart C/D/E, EN 55013, CNS 13439, EN 55014-1, CNS 13783-1, EN 55022, CNS 13438, CISPR 22, AS/NZS 3548, EN 61000-4-2/3/4/5/6/8/11, ENV 50204, IEEE Std 1528, FCC OET Bulletin, 65+Supplement C, EN50360, EN50361, EN50371, RSS102	CNLA 0363 ILAC MRA
Taiwan	BSMI	CNS 13438, CNS 13783-1, CNS 13439, CNS 14115	SL2-IS-E-0014 SL2-IN-E-0014 SL2-A1-E-0014 SL2-R1-E-0014 SL2-R2-E-0014 SL2-L1-E-0014
Canada	Industry Canada	RSS212, Issue 1	Canada IC 3991-3 IC 3991-4

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

6. SETUP OF EQUIPMENT UNDER TEST

6.1 SETUP CONFIGURATION OF EUT

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

6.2 SUPPORT EQUIPMENT

Device Type	Brand	Model	Series No.	FCC ID	Data Cable	Power Cord
Notebook PC (Remote)	IBM	2672 (X31)	99PBTKB	FCC DoC	N/A	Unshielded, 1.8m
Power Hub (Remote)	Symbol Technologies Inc.	WS3507-D8	00A0F85EC1B	N/A	N/A	Unshielded, 1.8m

Notes:

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.*

7. FCC PART 15 REQUIREMENTS

7.1 26 dB EMISSION BANDWITH (15.403)

LIMIT

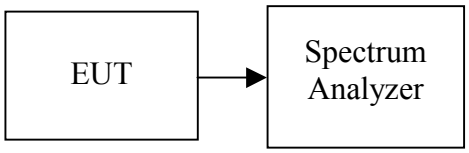
For purposes of this subpart, the emission bandwidth shall be determined by measuring the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, that are 26 dB down relative to the maximum level of the modulated carrier. Determination of the emissions bandwidth is based on the use of measurement instrumentation employing a peak detector function with an instrument resolutions bandwidth approximately equal to 1.0 percent of the emission bandwidth of the device under measurement.

MEASUREMENT EQUIPMENT USED

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY43360131	01/10/2005
Spectrum Analyzer	R&S	FSP30	100112	08/03/2005

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

Test Configuration



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 = 1%EBW, VBW = RBW, Span = 50MHz / 100MHz (Turbo Mode), and Sweep = auto.
4. Mark the peak frequency and –26dB (upper and lower) frequency.
5. Repeat until all the rest channels were investigated.

TEST RESULTS

No non-compliance noted

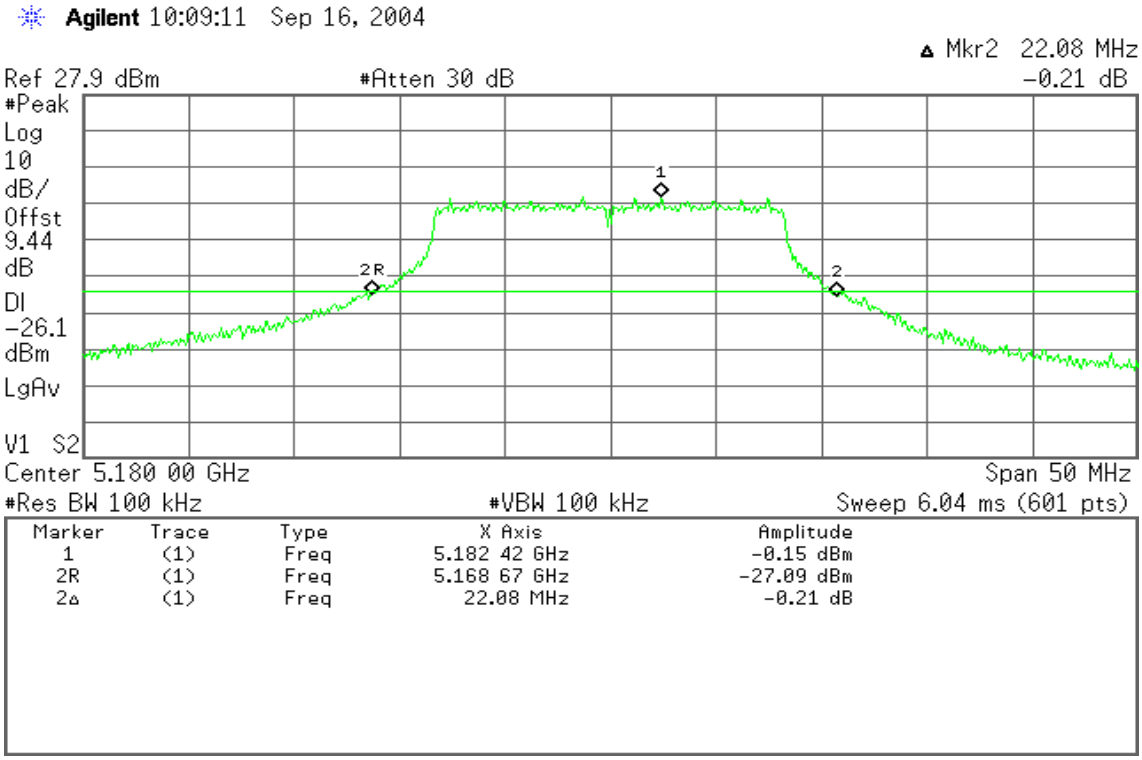
Test Data

Channel	Frequency (MHz)		Bandwidth (B) (MHz)
Low	Base mode	5180	22.08
Mid		5260	22.58
High		5320	22.33
Low	Turbo mode	5210	39.70
Mid		5250	40.20
High		5290	39.00

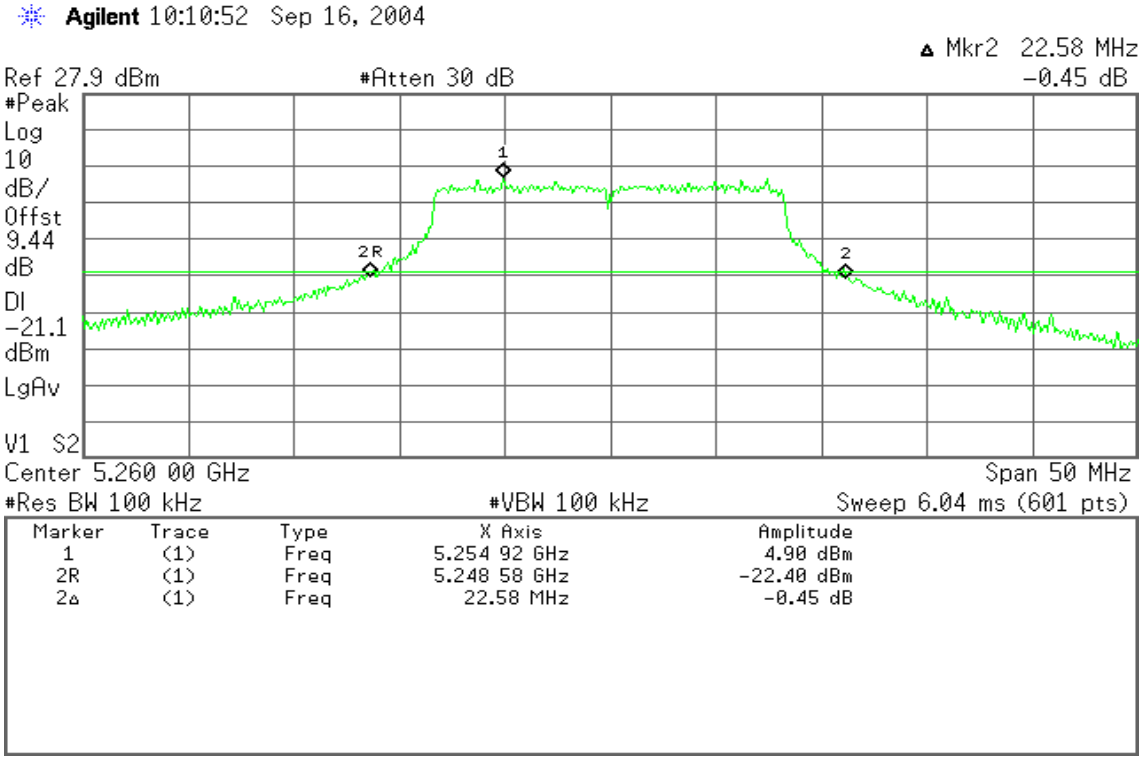
Test Plot

IEEE 802.11a Base mode

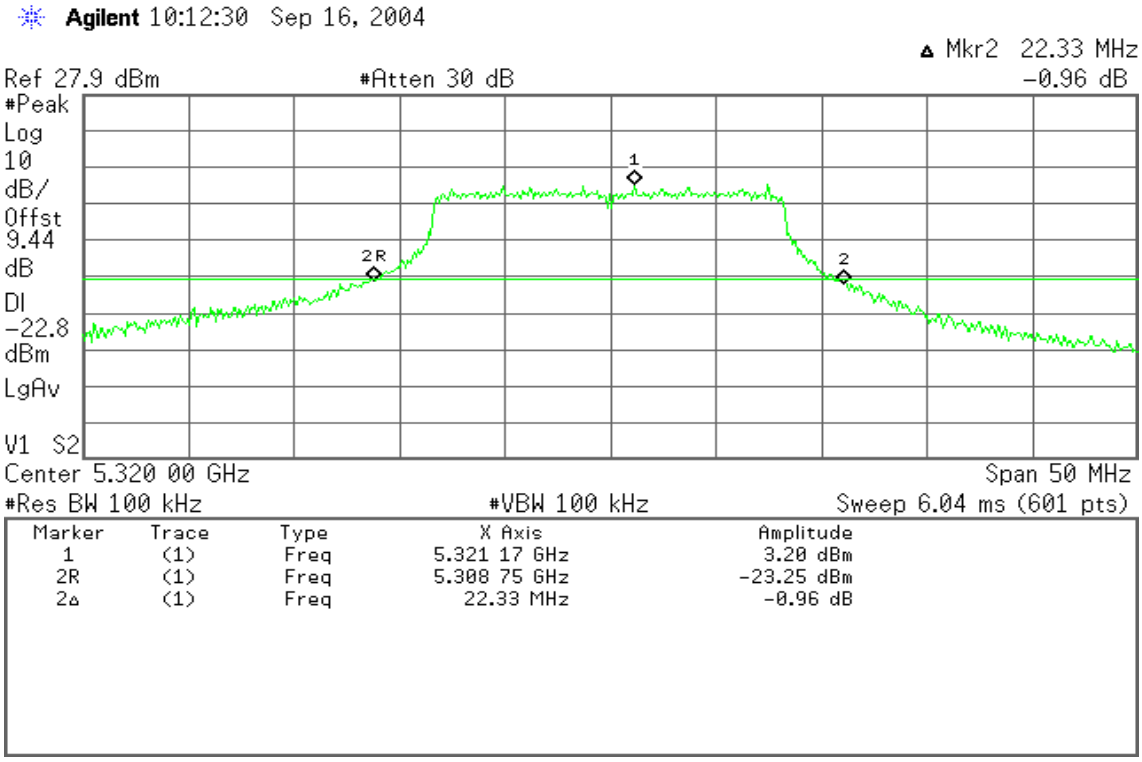
CH 5180



CH 5260

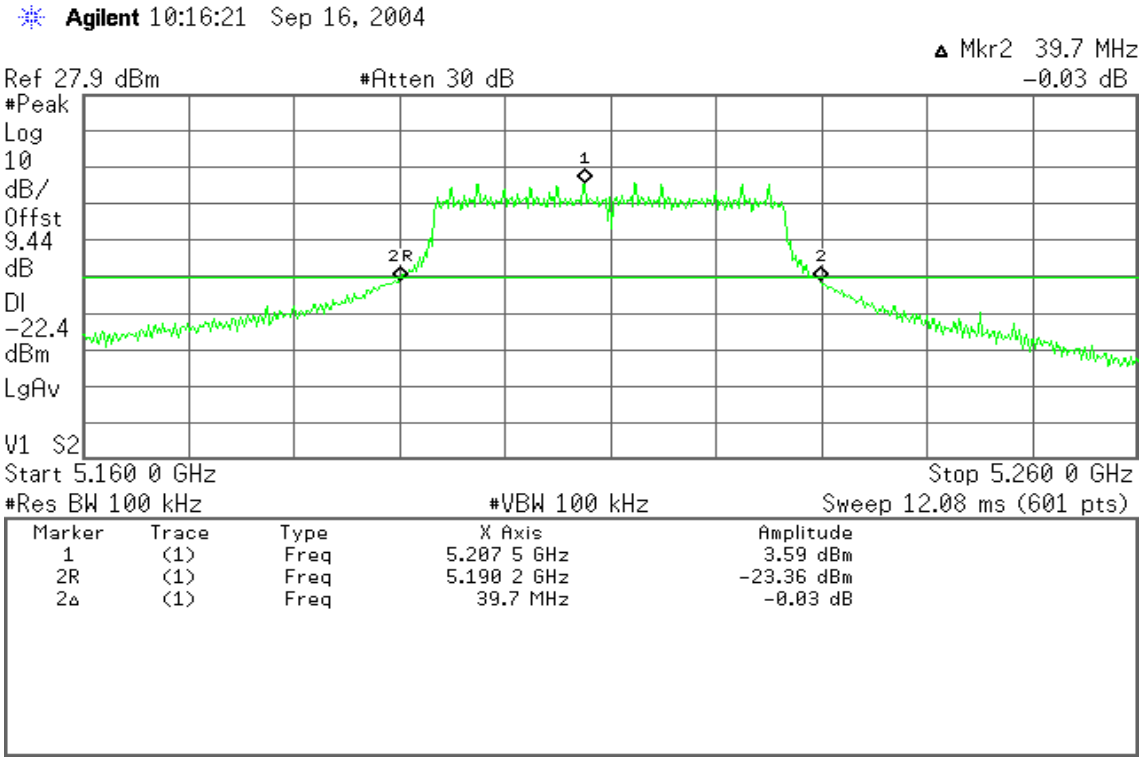


CH 5320

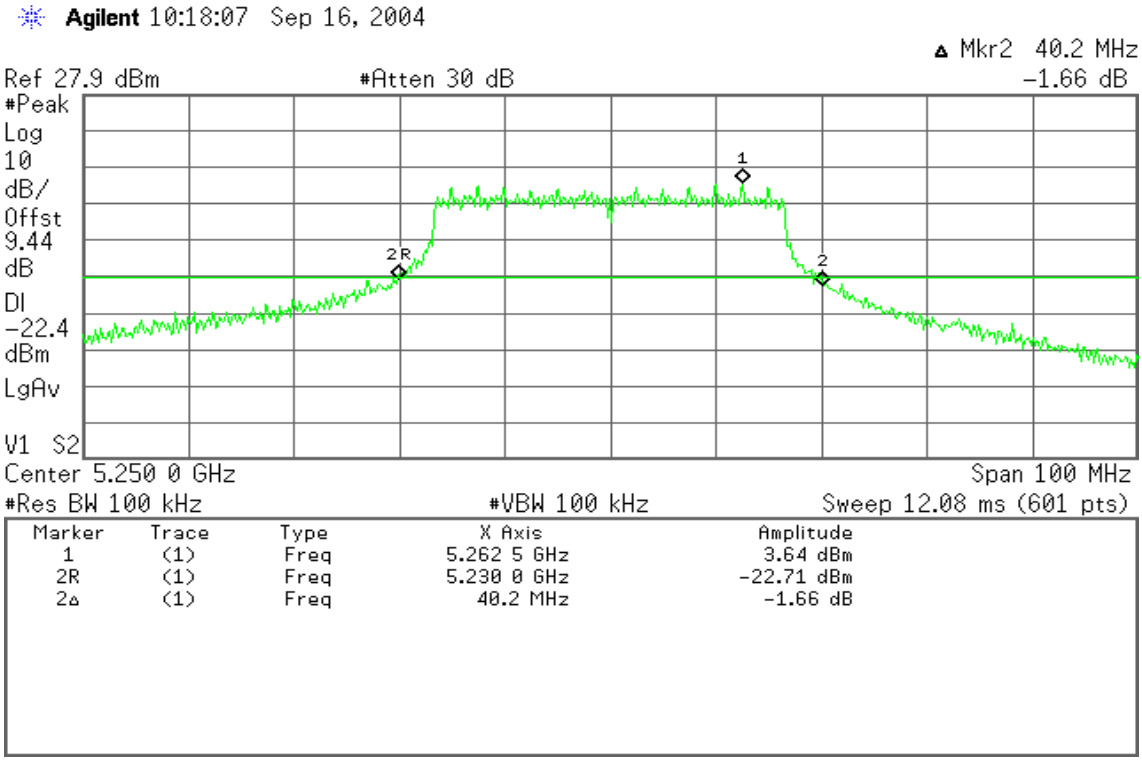


IEEE 802.11a Turbo mode

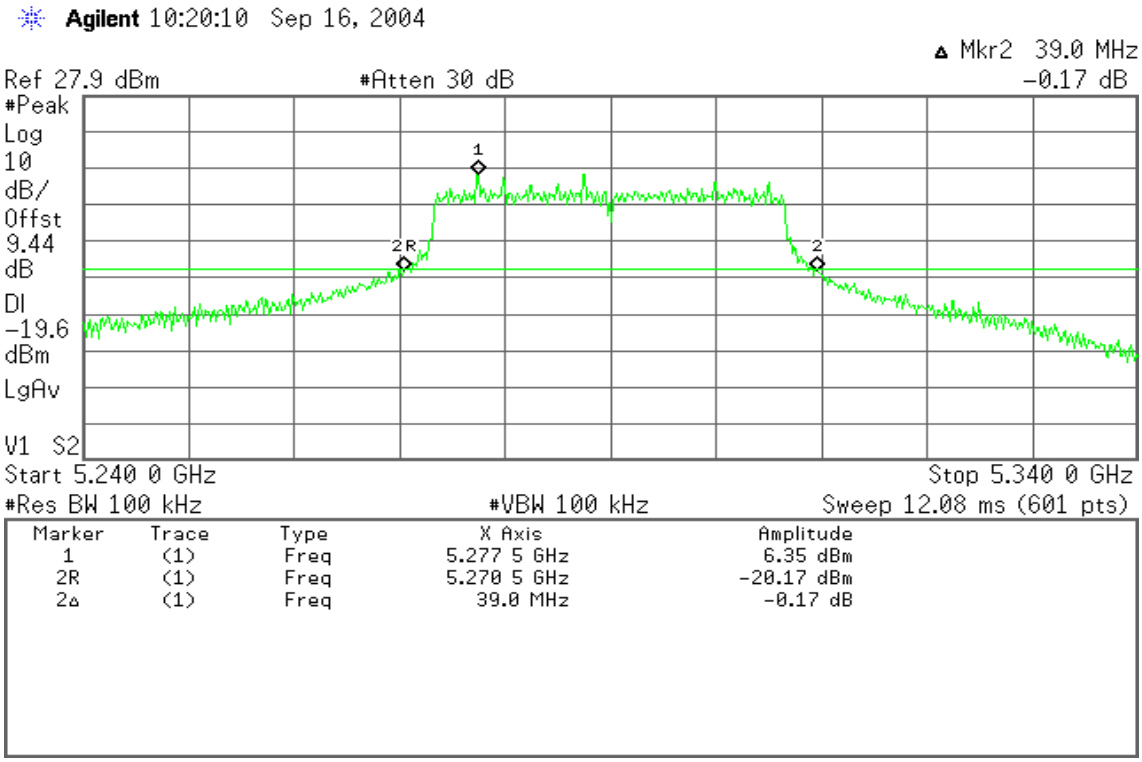
CH 5210



CH 5250



CH 5290



7.2 PEAK POWER (15.407)

LIMIT

- For the band 5.15-5.25 GHz, the peak transmit power over the frequency band of operation shall not exceed the lesser of 50mW (17dBm) or 4dBm + 10log B, where B is the 26dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4dBm in any 1 MHz band.
- For the band 5.25-5.35 GHz, the peak transmit power over the frequency band of operation shall not exceed the lesser of 250mW (24dBm) or 11dBm + 10logB, where B is the 26dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 11dBm in any 1 MHz band.
- For the band 5.725-5.825 GHz, the peak transmit power over the frequency band of operation shall not exceed the lesser of 1mW (30dBm) or 17dBm + 10logB, where B is the 26dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 17dBm in any 1 MHz band.

If transmitting antennas of directional gain greater than 6dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi. The peak power shall not exceeded the limit as follows:

Specified Limit of the Peak Power

Frequency (MHz)		10 Log B (dB)	Limit 4 + 10 Log B or 11 + 10 Log B (dBm)	Power Limit (dBm)
Base mode	5180	13.44	17.44	17
	5260	13.56	24.56	24
	5320	13.49	24.49	24
Turbo mode	5210	15.99	19.99	17
	5250	16.04	20.04	17
	5290	15.91	26.91	24

(Note: Maximum antenna gain = 6.72dBi, therefore there is no reduction due to antenna gain.)

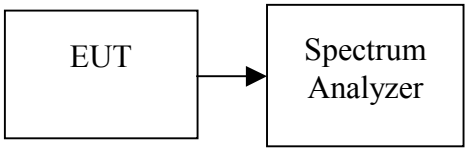
MEASUREMENT EQUIPMENT USED

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY43360131	01/10/2005
Spectrum Analyzer	R&S	FSP30	100112	08/03/2005

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

Test Configuration

The EUT was connected to a spectrum analyzer through a 50Ω RF cable.



TEST PROCEDURE

Set span to encompass the entire emission bandwidth (EBW) of the signal.

Set RBW = 1 MHz / Set VBW = 3 MHz.

Use sample detector mode if bin width (i.e., span/number of points in spectrum display) < 0.5 RBW. Otherwise use peak detector mode. Use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at full control power for entire sweep of every sweep. If the device transmits continuously, with no off intervals or reduced power intervals, the trigger may be set to "free run".·Trace average 100 traces in power averaging mode. Compute power by integrating the spectrum across the 26 dB EBW of the signal. The integration can be performed using the spectrum analyzer's band power measurement function with band limits set equal to the EBW band edges or by summing power levels in each 1 MHz band in linear power terms. The 1 MHz band power levels to be summed can be obtained by averaging, in linear power terms, power levels in each frequency bin across the 1 MHz.

TEST RESULTS

No non-compliance noted

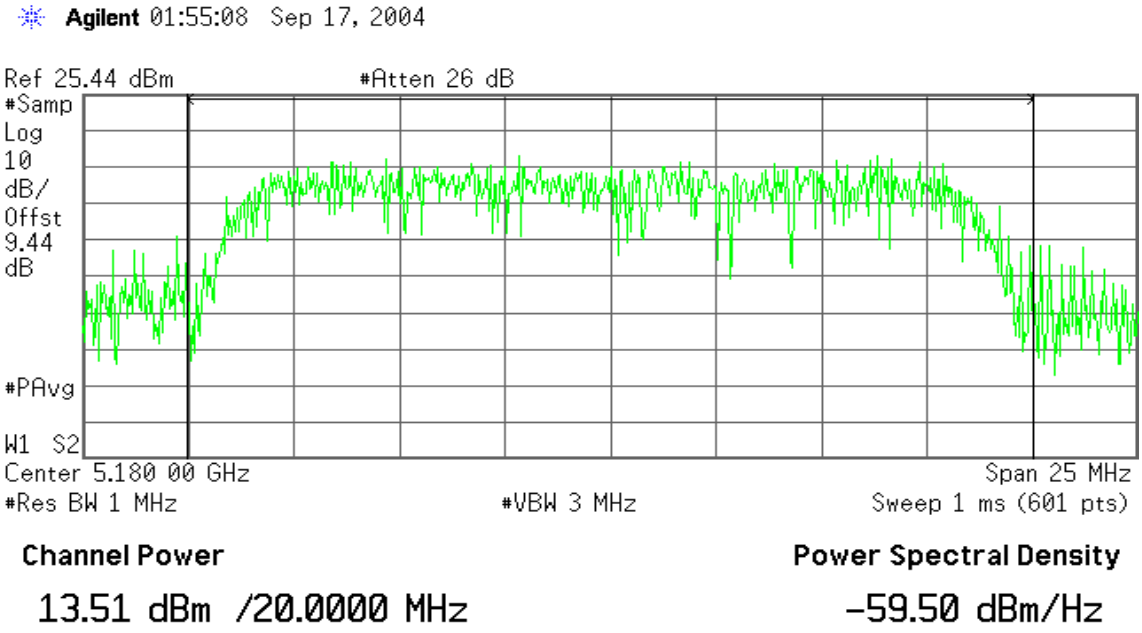
Test Data

Channel	Frequency (MHz)		Reading (dBm)	Cable Loss (dB)	Output Power (dBm)	Limit (dBm)
1	Base mode	5180	4.07	9.44	13.51	17
2		5200	4.89	9.44	14.33	17
3		5220	4.89	9.44	14.33	17
4		5240	5.25	9.44	14.69	17
5		5260	11.10	9.44	20.54	24
6		5280	10.86	9.44	20.30	24
7		5300	10.93	9.44	20.37	24
8		5320	9.70	9.44	19.14	24
1	Turbo mode	5210	7.37	9.44	16.81	17
2		5250	7.44	9.44	16.88	17
3		5290	11.34	9.44	20.78	24

Test Plot

IEEE 802.11a Base mode

CH 5180



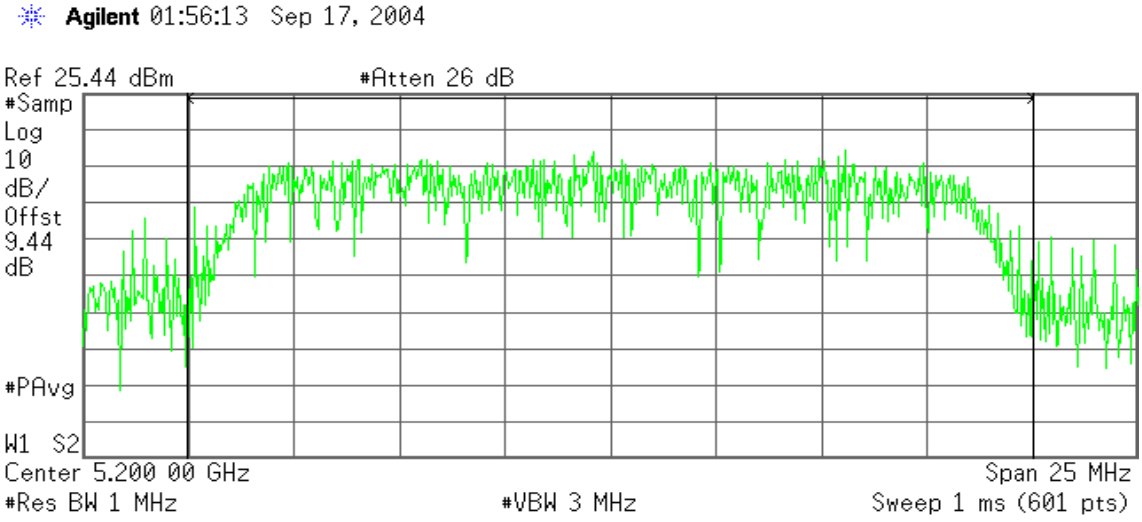
Channel Power

13.51 dBm /20.0000 MHz

Power Spectral Density

-59.50 dBm/Hz

CH 5200



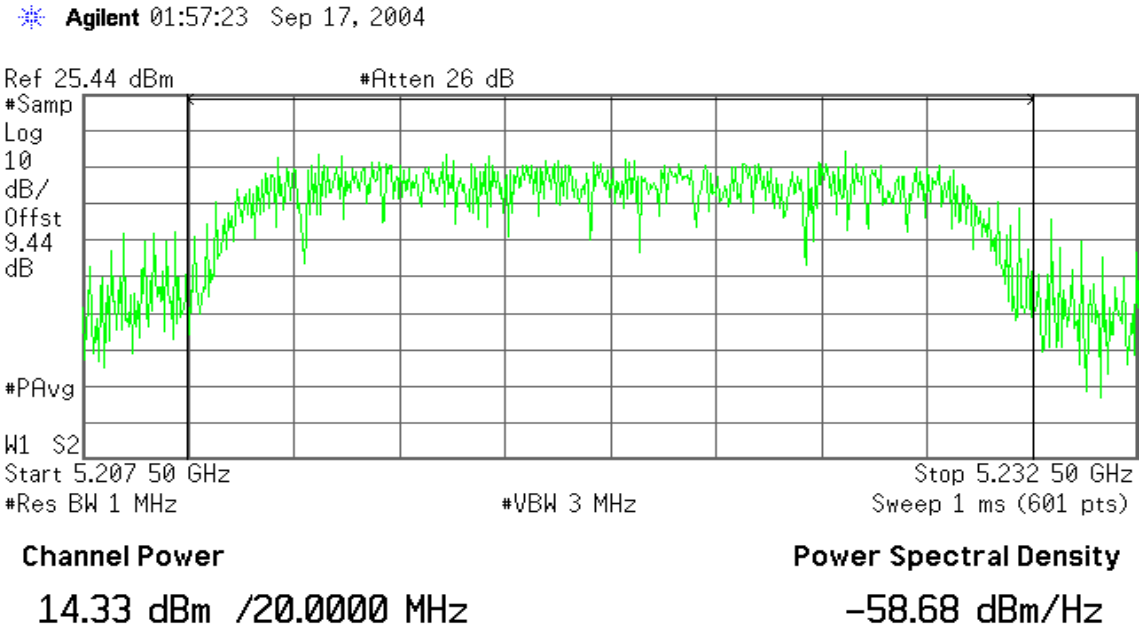
Channel Power

14.33 dBm /20.0000 MHz

Power Spectral Density

-58.68 dBm/Hz

CH 5220



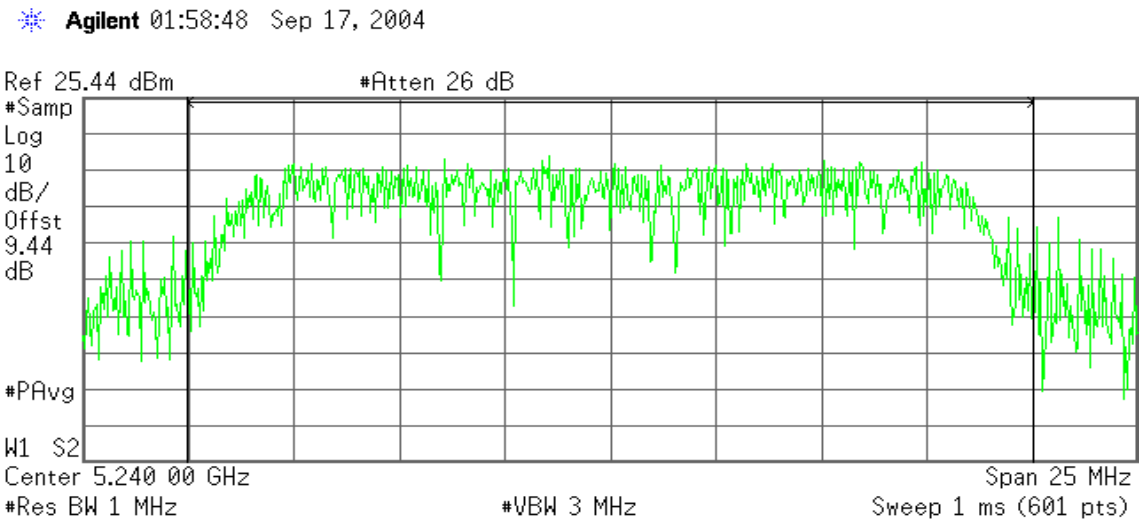
Channel Power

14.33 dBm /20.0000 MHz

Power Spectral Density

-58.68 dBm/Hz

CH 5240



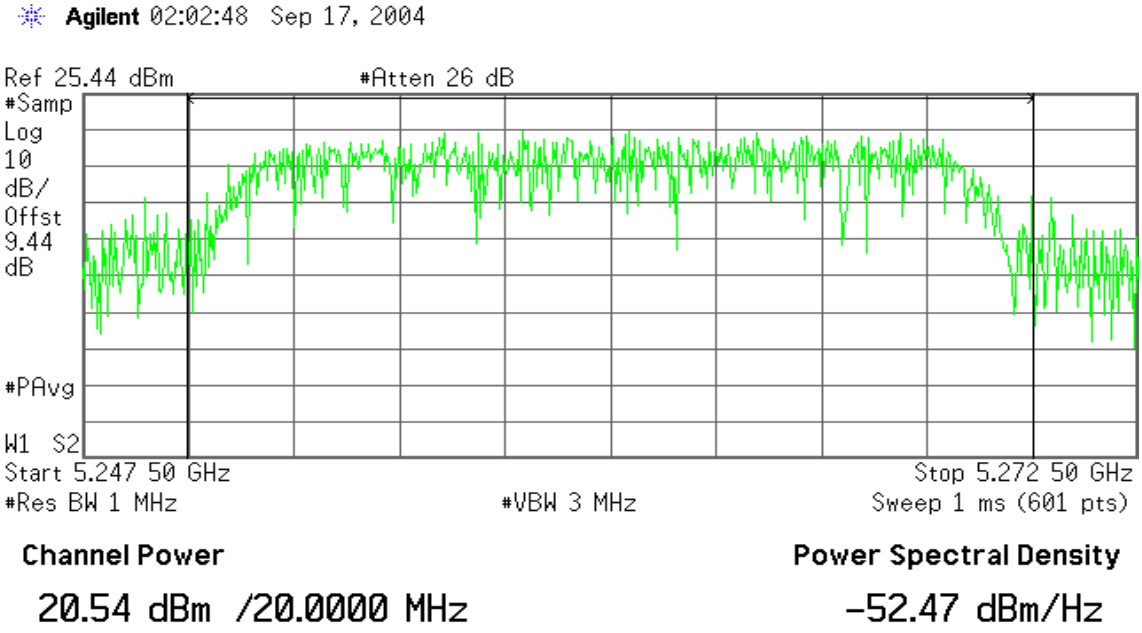
Channel Power

14.69 dBm /20.0000 MHz

Power Spectral Density

-58.32 dBm/Hz

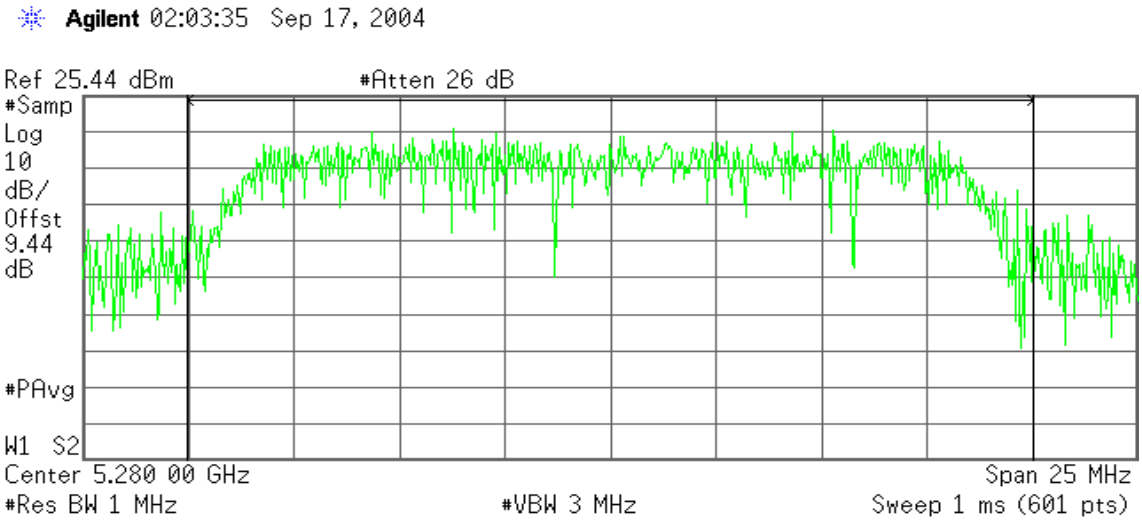
CH 5260



Channel Power
20.54 dBm /20.0000 MHz

Power Spectral Density
-52.47 dBm/Hz

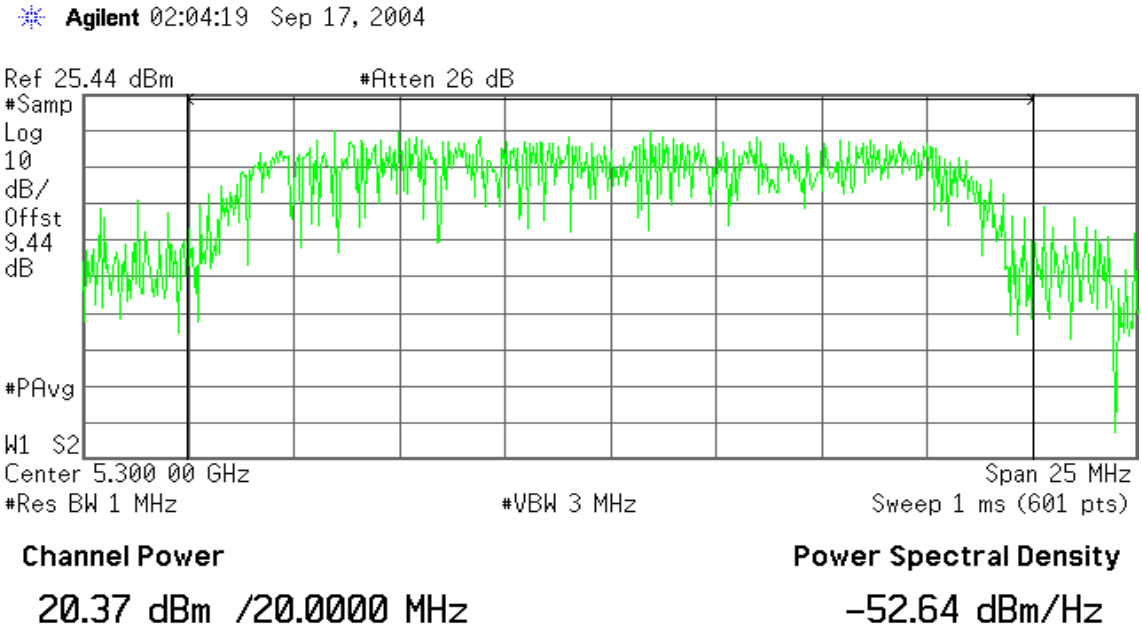
CH 5280



Channel Power
20.30 dBm /20.0000 MHz

Power Spectral Density
-52.71 dBm/Hz

CH 5300



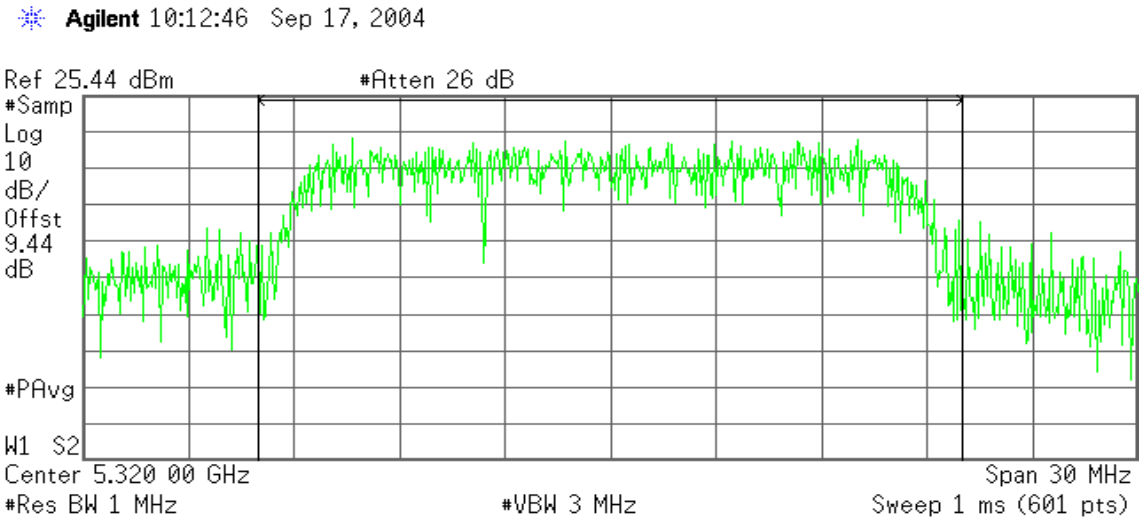
Channel Power

20.37 dBm /20.0000 MHz

Power Spectral Density

-52.64 dBm/Hz

CH 5320



Channel Power

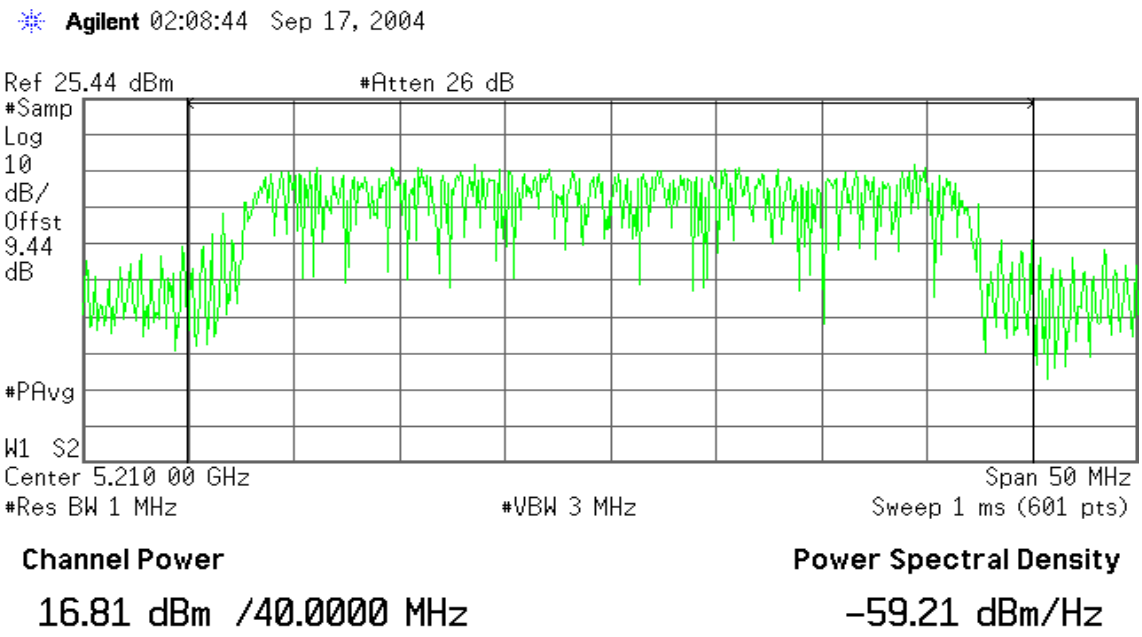
19.14 dBm /20.0000 MHz

Power Spectral Density

-53.88 dBm/Hz

IEEE 802.11a Turbo mode

CH 5210



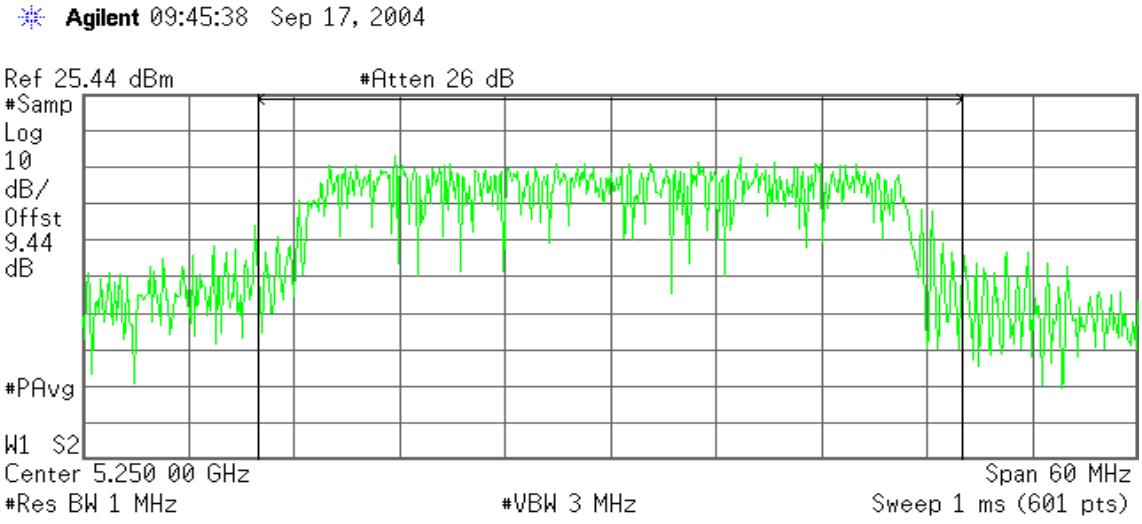
Channel Power

16.81 dBm /40.0000 MHz

Power Spectral Density

-59.21 dBm/Hz

CH 5250



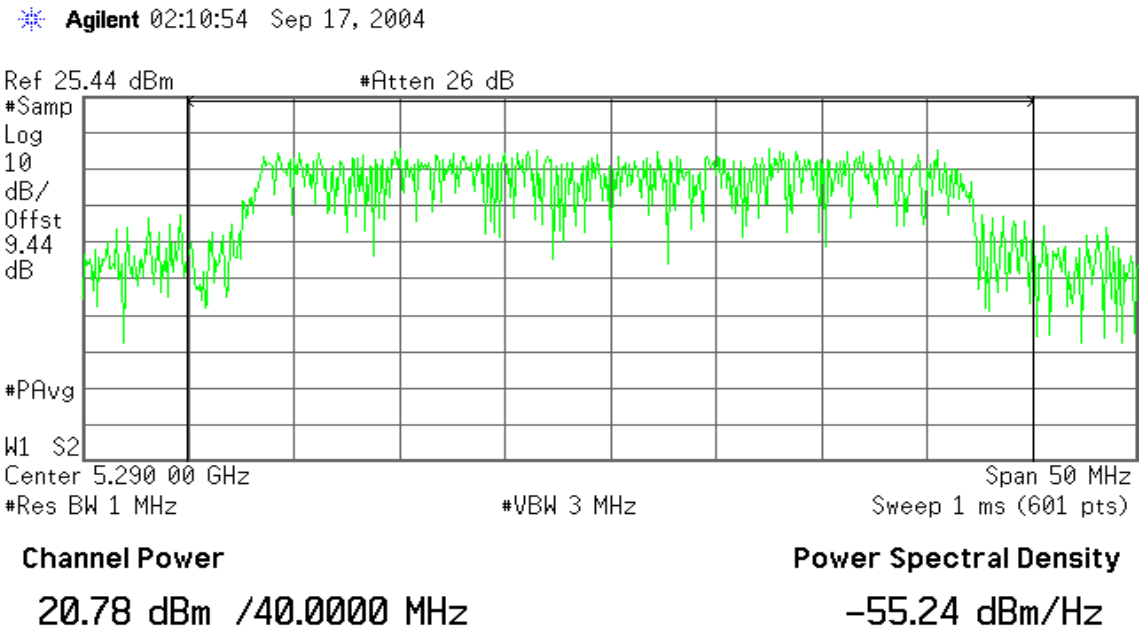
Channel Power

16.88 dBm /40.0000 MHz

Power Spectral Density

-59.14 dBm/Hz

CH 5290


Agilent 02:10:54 Sep 17, 2004
Ref 25.44 dBm
#Atten 26 dB
#Samp
Log
10
dB/
Offst
9.44
dB
#PAvg
W1 S2
Center 5.290 00 GHz
Span 50 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
Channel Power
20.78 dBm /40.0000 MHz
Power Spectral Density
-55.24 dBm/Hz

7.3 BAND EDGES MEASUREMENT

LIMIT

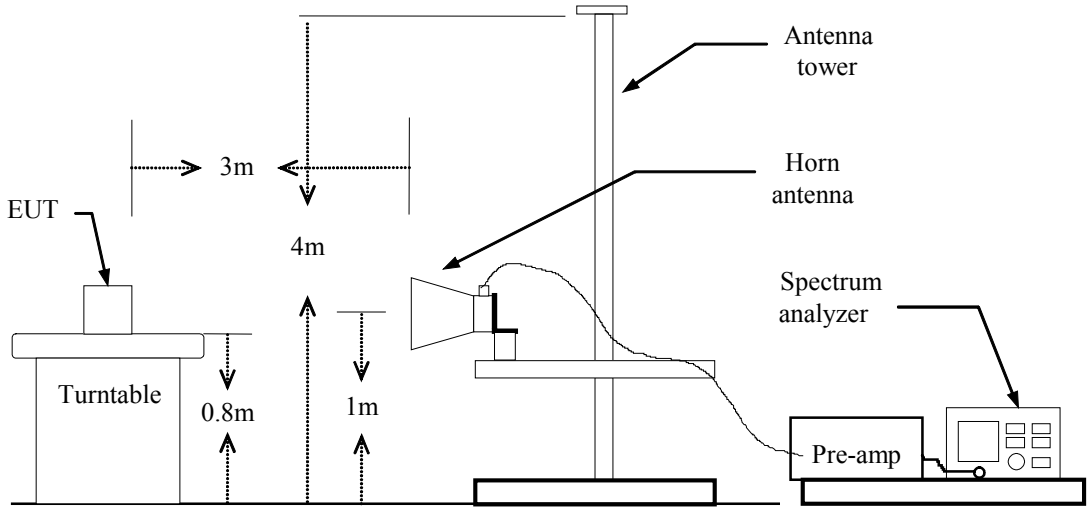
According to §15.407(c), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, 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 in15.209(a).

MEASUREMENT EQUIPMENT USED

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY43360131	01/10/2005
Spectrum Analyzer	R&S	FSP30	100112	08/03/2005

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

Test Configuration



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.

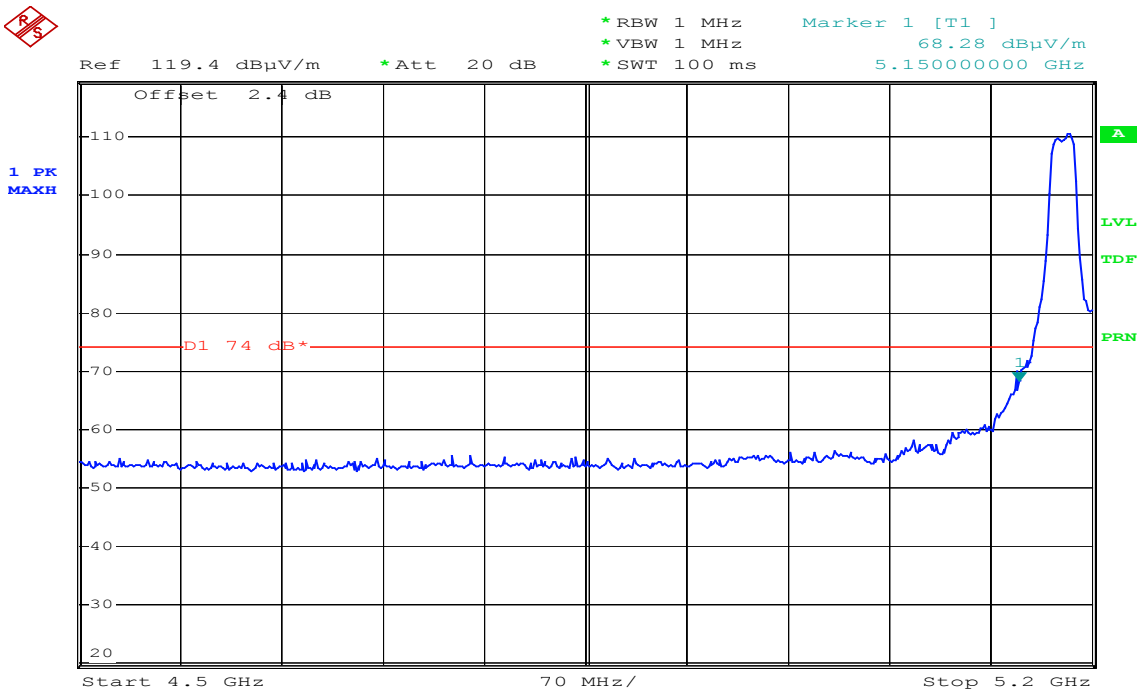
TEST RESULTS

Refer to attach spectrum analyzer data chart.

Test Plot

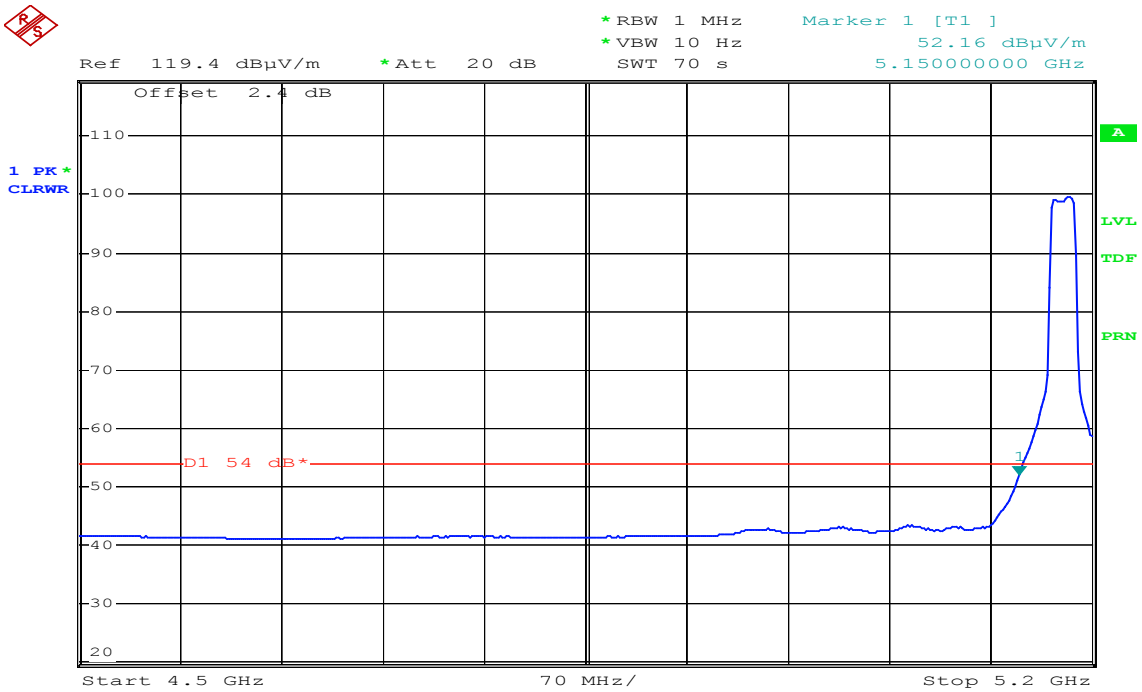
IEEE 802.11a Base mode / CH 5180

Detector mode: Peak Polarity: Vertical



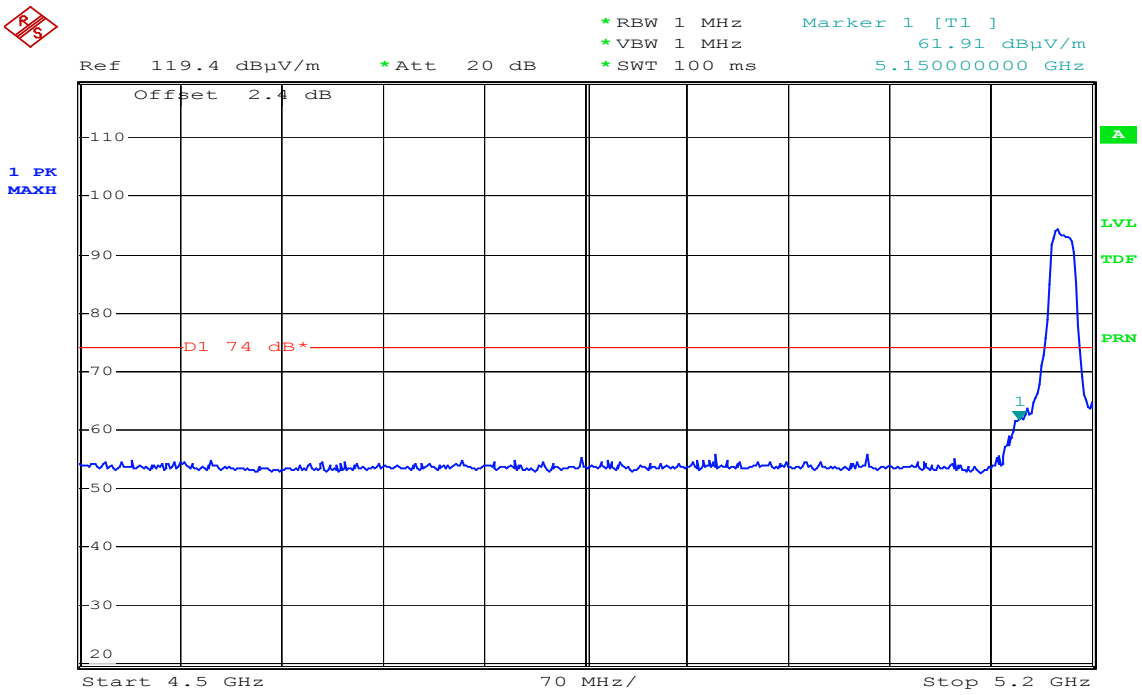
Date: 23.AUG.2004 12:44:07

Detector mode: Average Polarity: Vertical



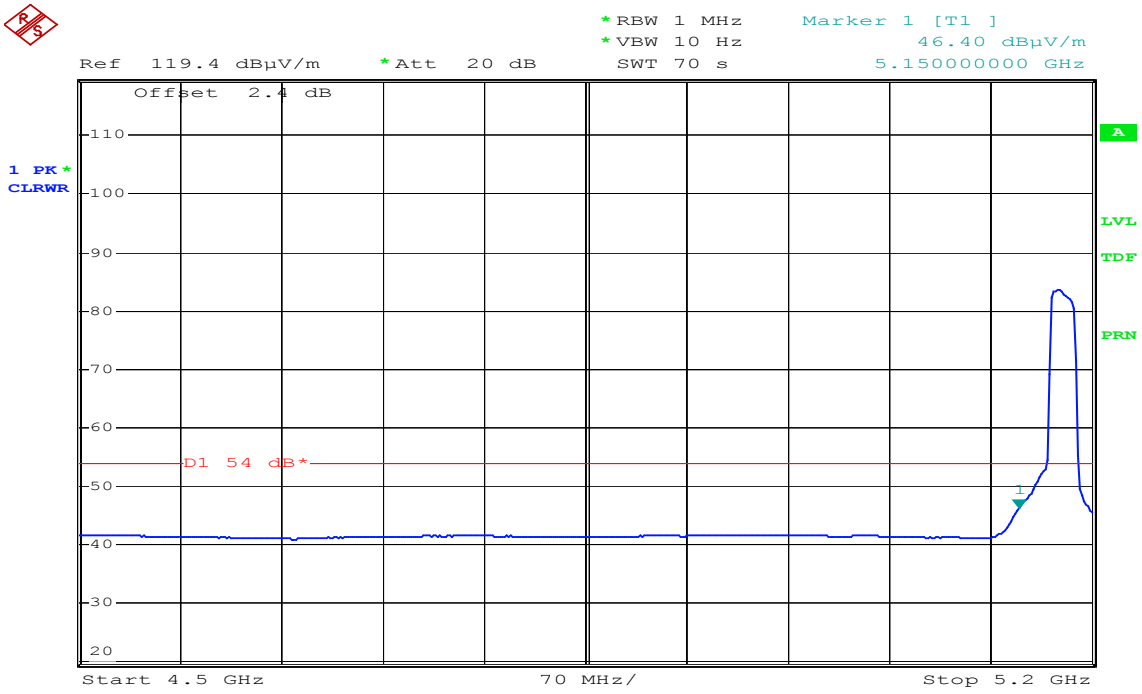
Date: 23.AUG.2004 12:40:15

Detector mode: Peak Polarity: Horizontal



Date: 23.AUG.2004 13:38:47

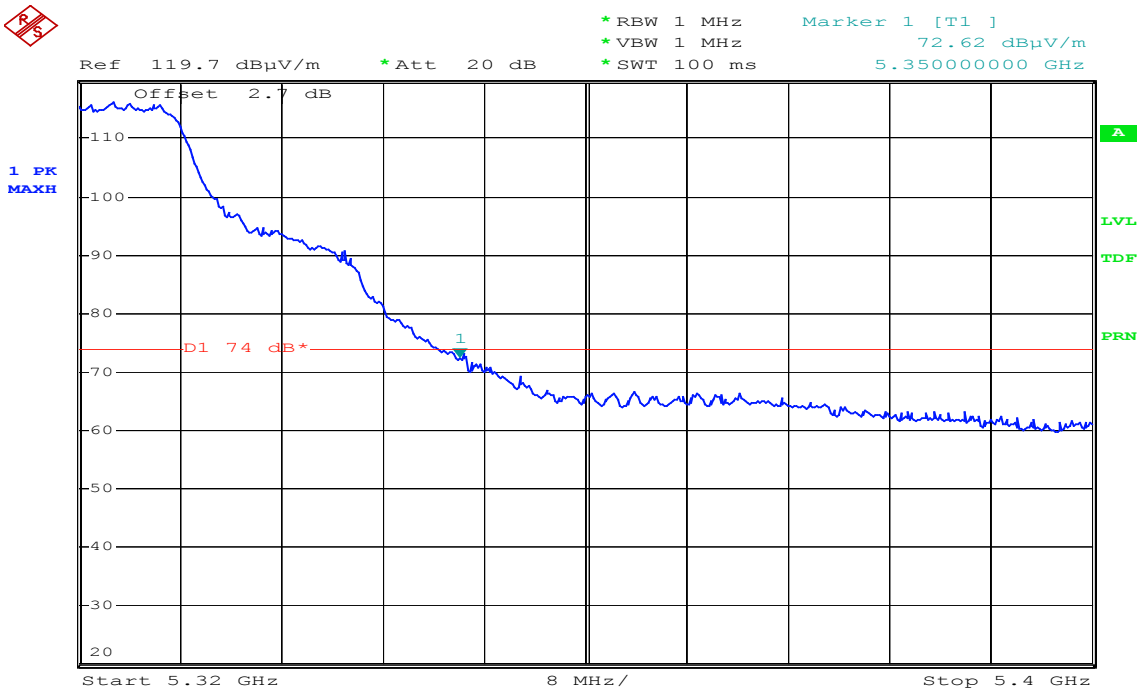
Detector mode: Average Polarity: Horizontal



Date: 23.AUG.2004 13:37:27

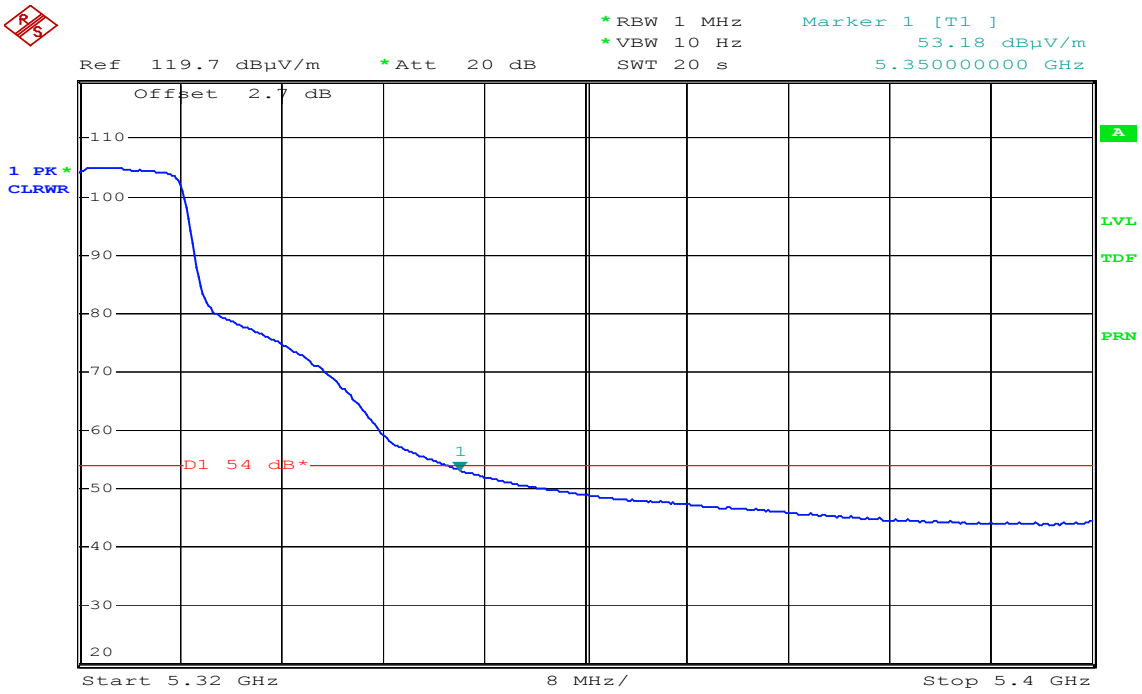
IEEE 802.11a Base mode / CH 5320

Detector mode: Peak Polarity: Vertical



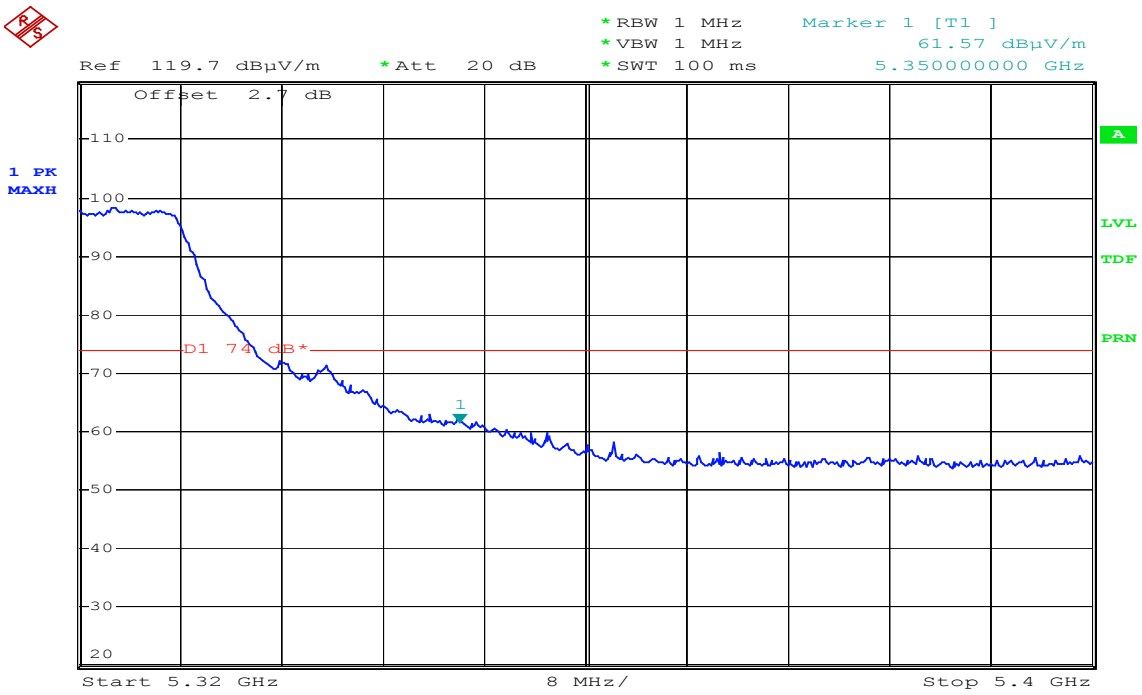
Date: 23.AUG.2004 13:53:34

Detector mode: Average Polarity: Vertical



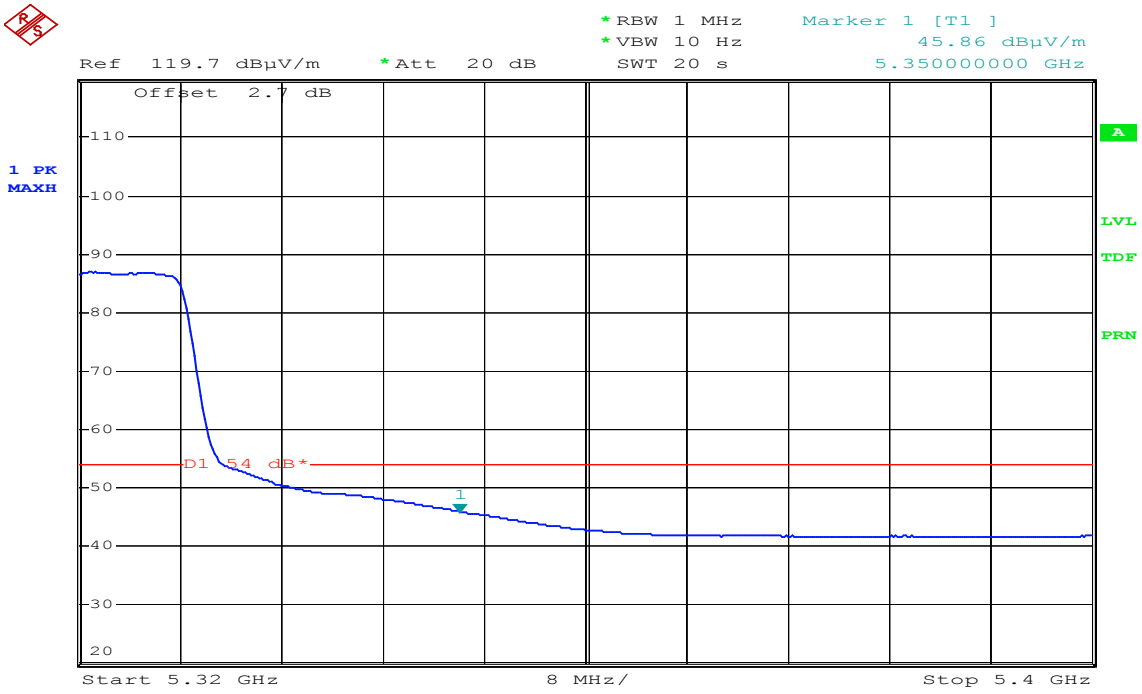
Date: 23.AUG.2004 13:52:08

Detector mode: Peak Polarity: Horizontal



Date: 23.AUG.2004 14:00:47

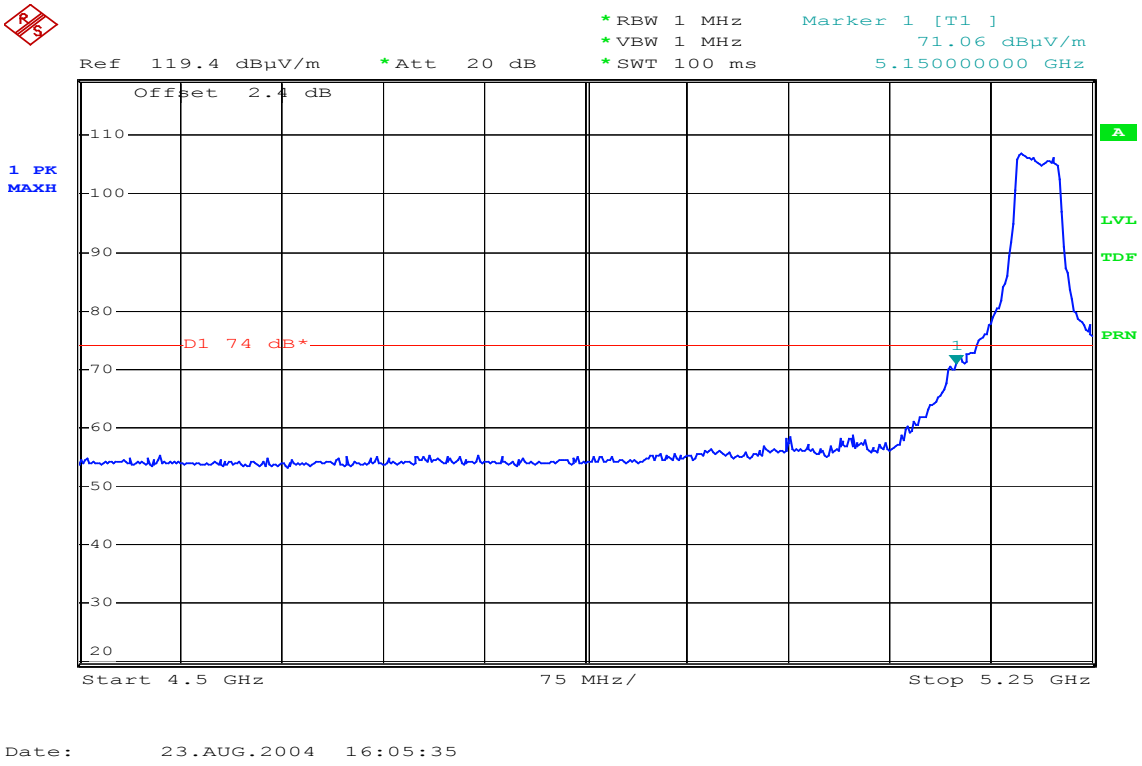
Detector mode: Average Polarity: Horizontal



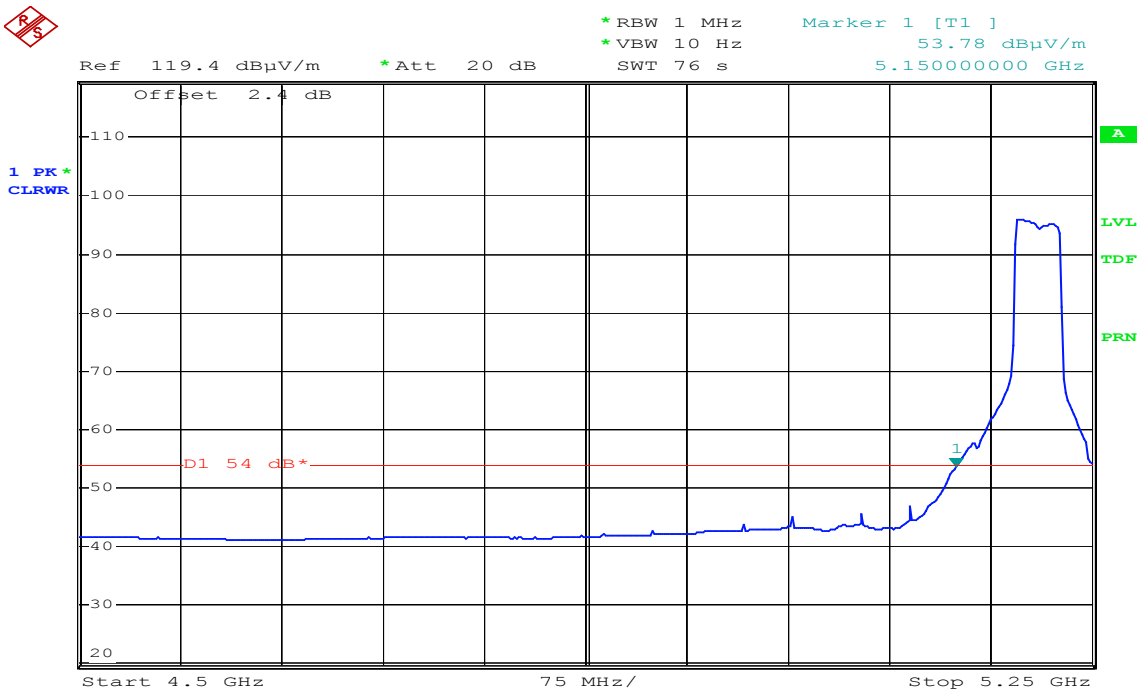
Date: 23.AUG.2004 14:02:57

IEEE 802.11a Turbo mode / CH 5150

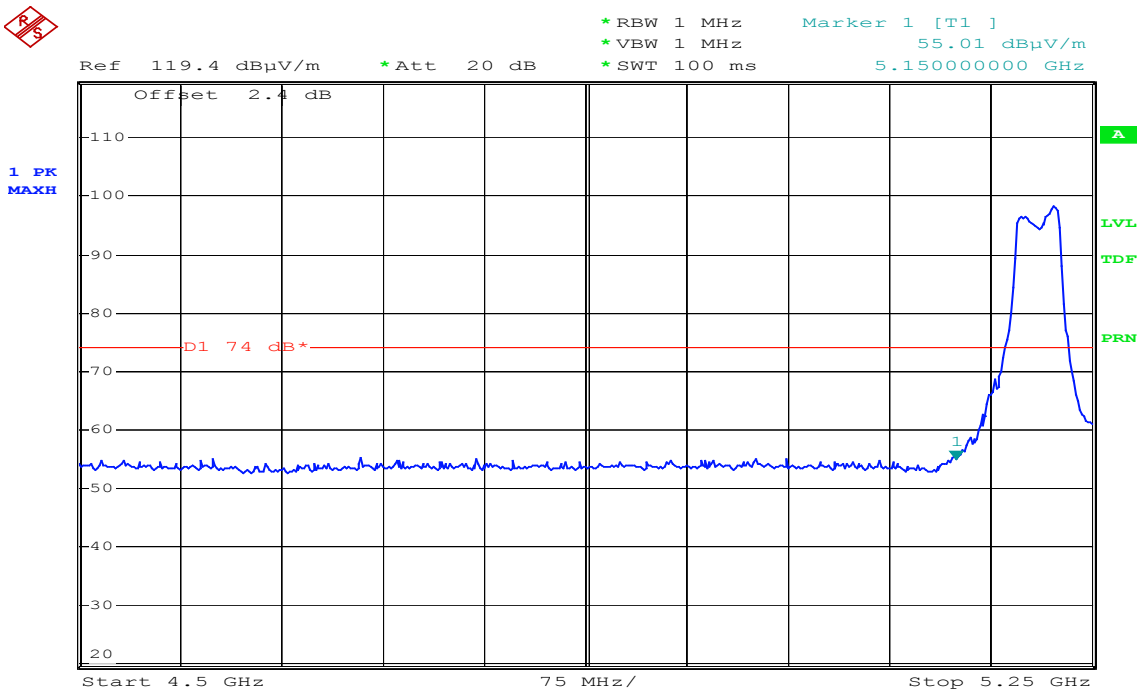
Detector mode: Peak Polarity: Vertical



Detector mode: Average Polarity: Vertical

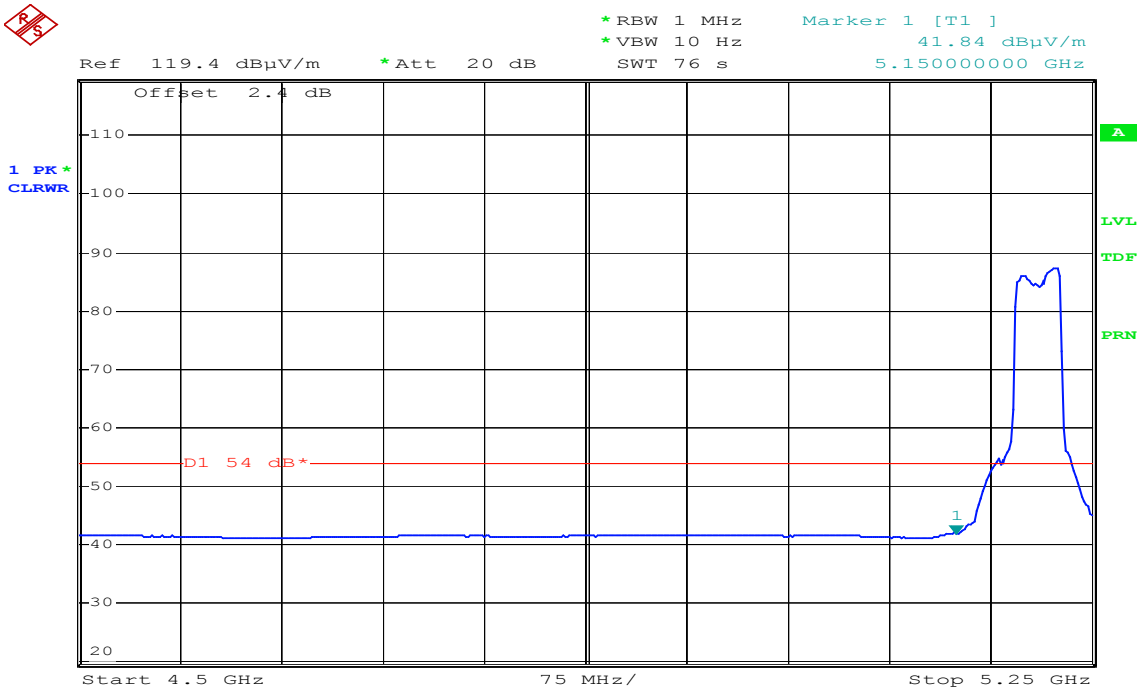


Detector mode: Peak Polarity: Horizontal



Date: 23.AUG.2004 16:33:09

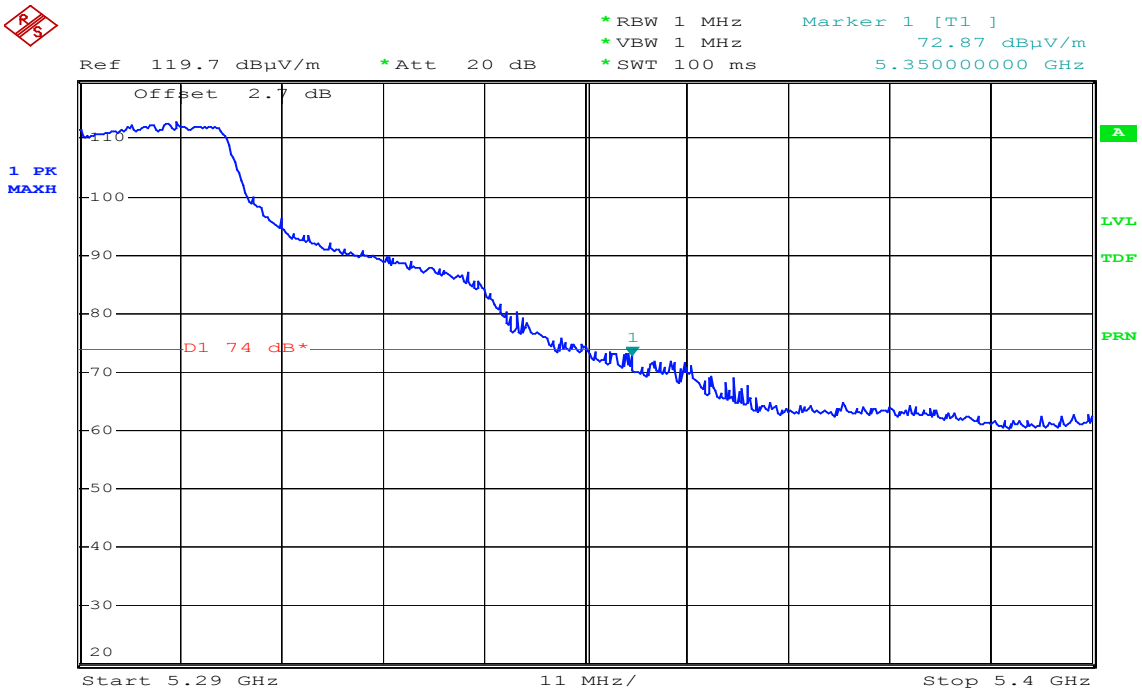
Detector mode: Average Polarity: Horizontal



Date: 23.AUG.2004 16:31:41

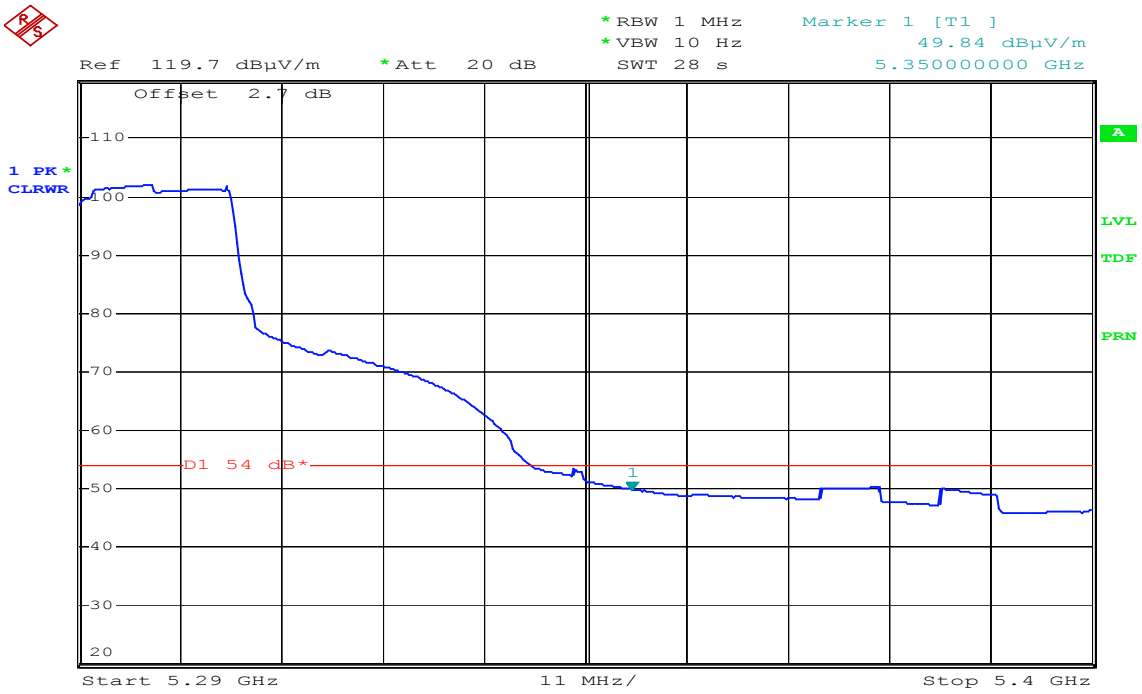
IEEE 802.11a Turbo mode / CH 5350

Detector mode: Peak Polarity: Vertical



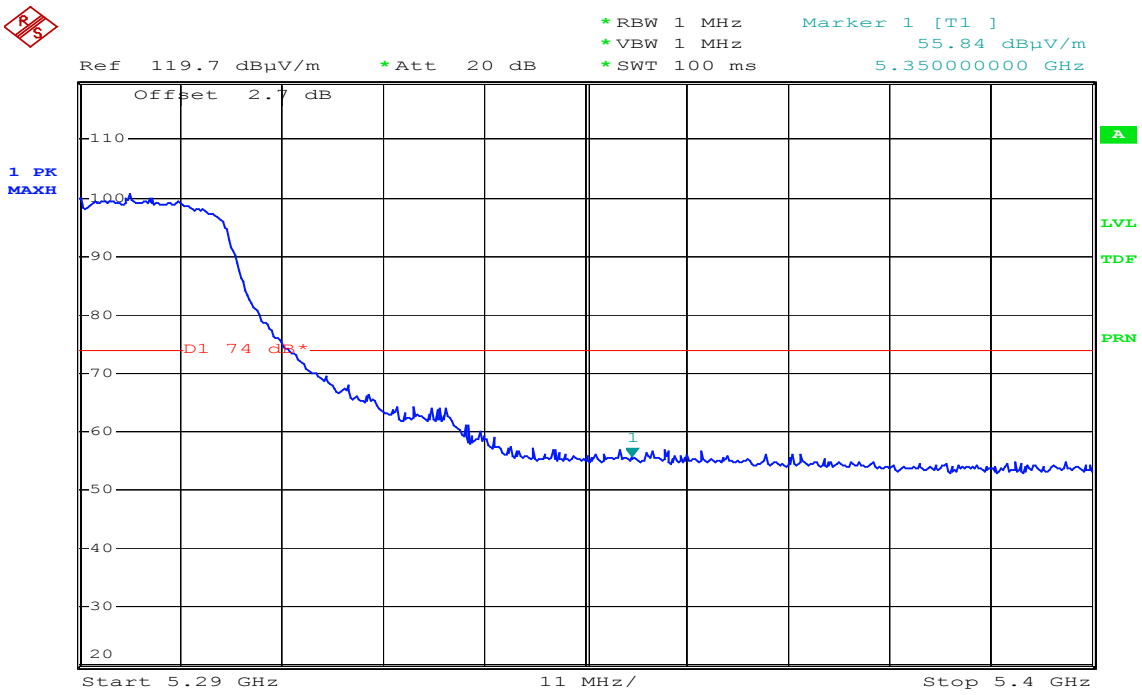
Date: 23.AUG.2004 17:20:30

Detector mode: Average Polarity: Vertical



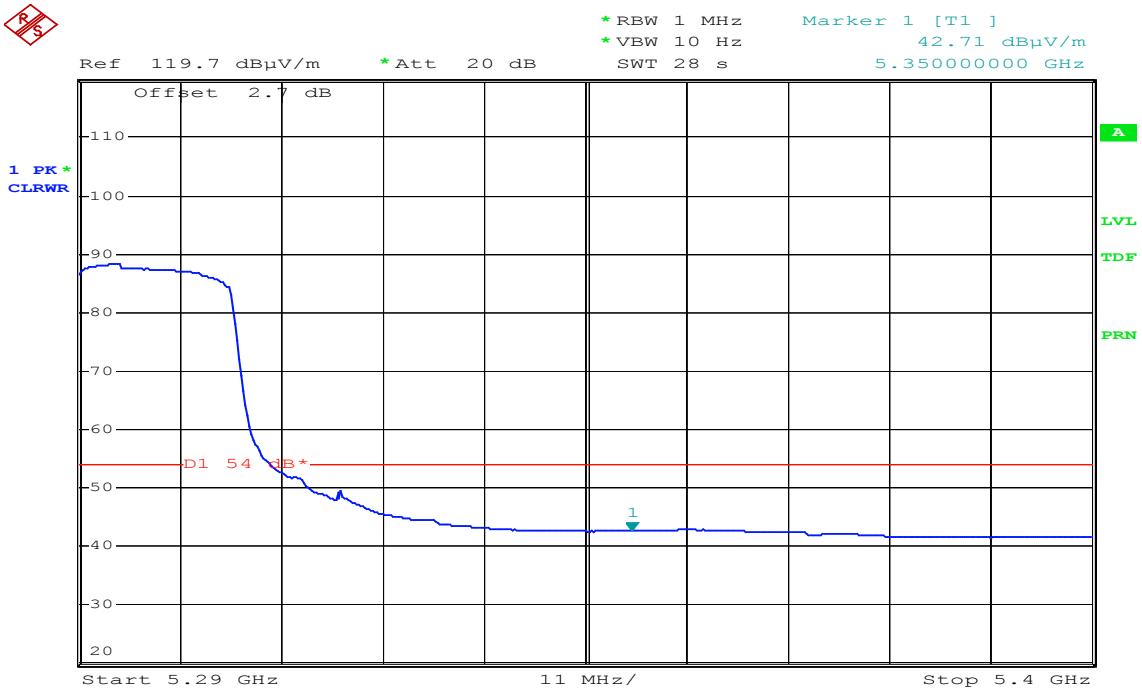
Date: 23.AUG.2004 17:28:31

Detector mode: Peak Polarity: Horizontal



Date: 23.AUG.2004 17:35:46

Detector mode: Average Polarity: Horizontal



Date: 23.AUG.2004 17:34:40

7.4 PEAK POWER SPECTRAL DENSITY (15.407)

LIMIT

- For the band 5.15-5.25 GHz, the peak power spectral density shall not exceed 4dBm in any 1MHz band.
- For the band 5.25-5.35 GHz, the peak power spectral density shall not exceed 11dBm in any 1MHz band.

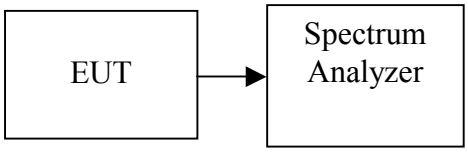
If transmitting antennas of directional gain greater than 6dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

MEASUREMENT EQUIPMENT USED

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY43360131	01/10/2005
Spectrum Analyzer	R&S	FSP30	100112	08/03/2005

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

Test Configuration



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 = 1MHz, VBW = 3MHz, Span = 50MHz, Sweep=1ms
3. Record the max. reading.
4. Repeat the above procedure until the measurements for all frequencies are completed..

TEST RESULTS

No non-compliance noted

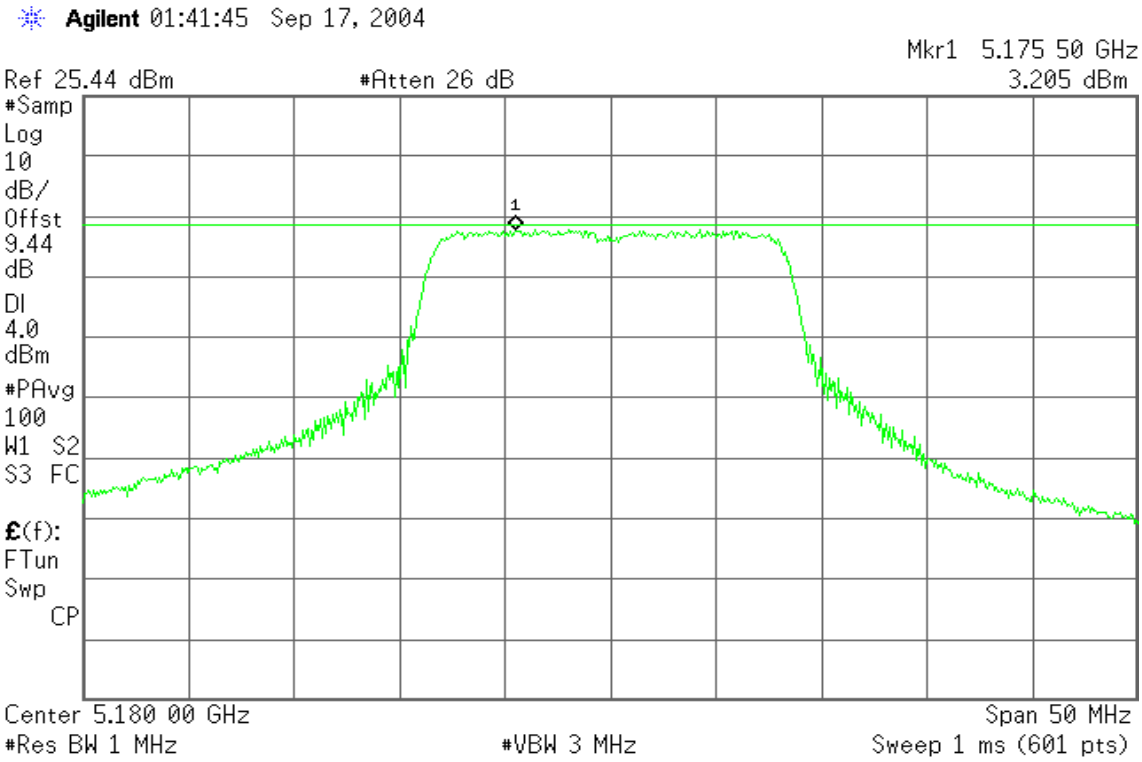
Test Data

Channel	Frequency (MHz)		PPSD (dBm)	Limit (dBm)	Margin (dB)	Result
1	Base mode	5180	3.205	4	-0.795	PASS
2		5200	3.198	4	-0.802	PASS
3		5220	3.519	4	-0.481	PASS
4		5240	3.841	4	-0.159	PASS
5		5260	9.67	11	-1.330	PASS
6		5280	9.314	11	-1.686	PASS
7		5300	9.358	11	-1.642	PASS
8		5320	6.229	11	-4.771	PASS
1	Turbo mode	5210	2.84	4	-1.160	PASS
2		5250	3.851	4	-0.149	PASS
3		5290	6.741	11	-4.259	PASS

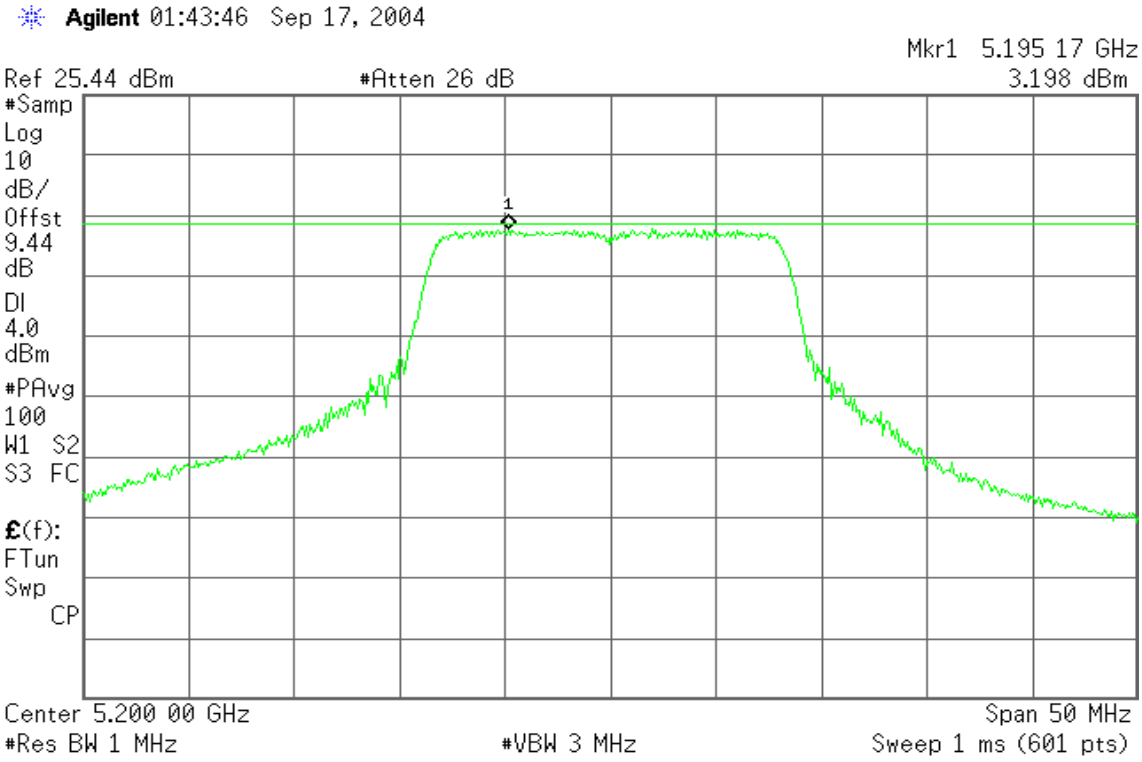
Test Plot

IEEE 802.11a Base mode

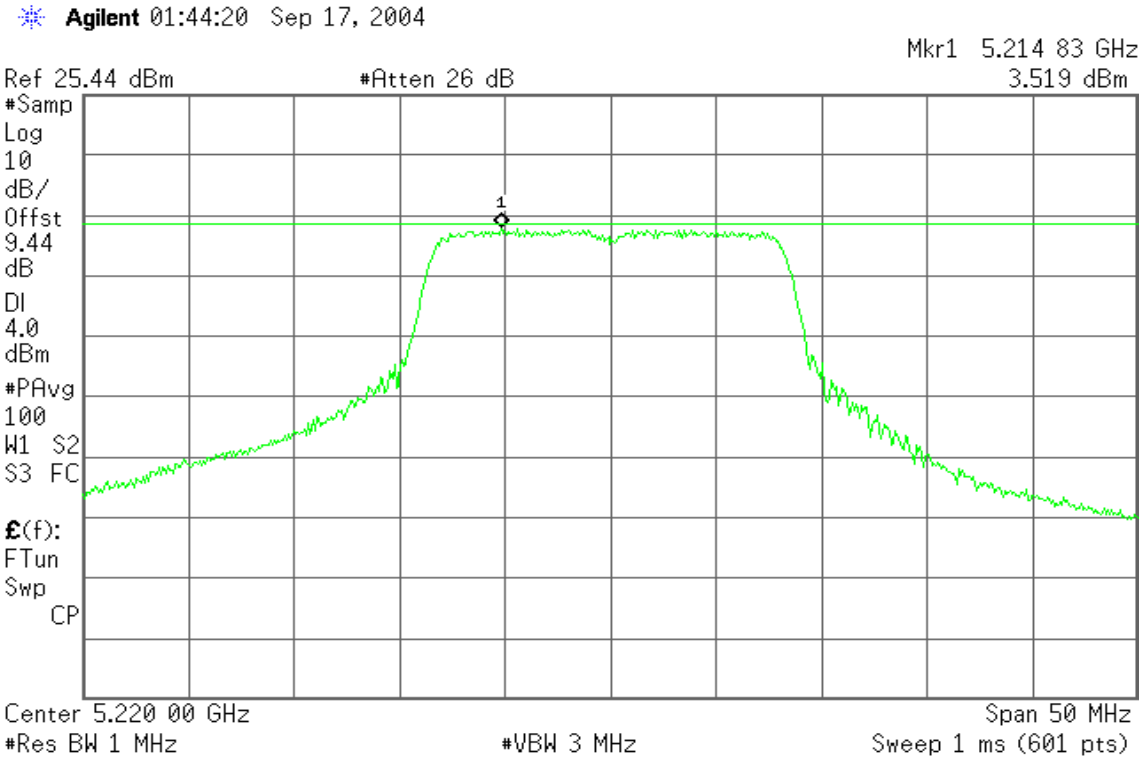
CH 5180



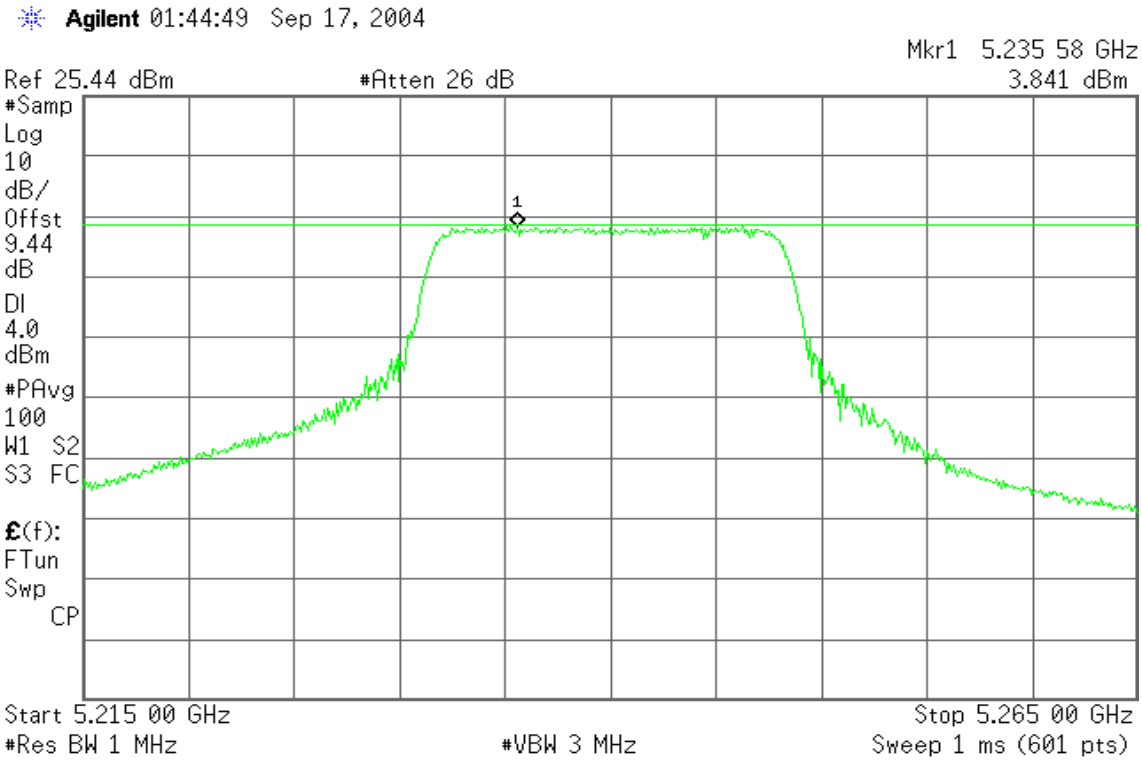
CH 5200



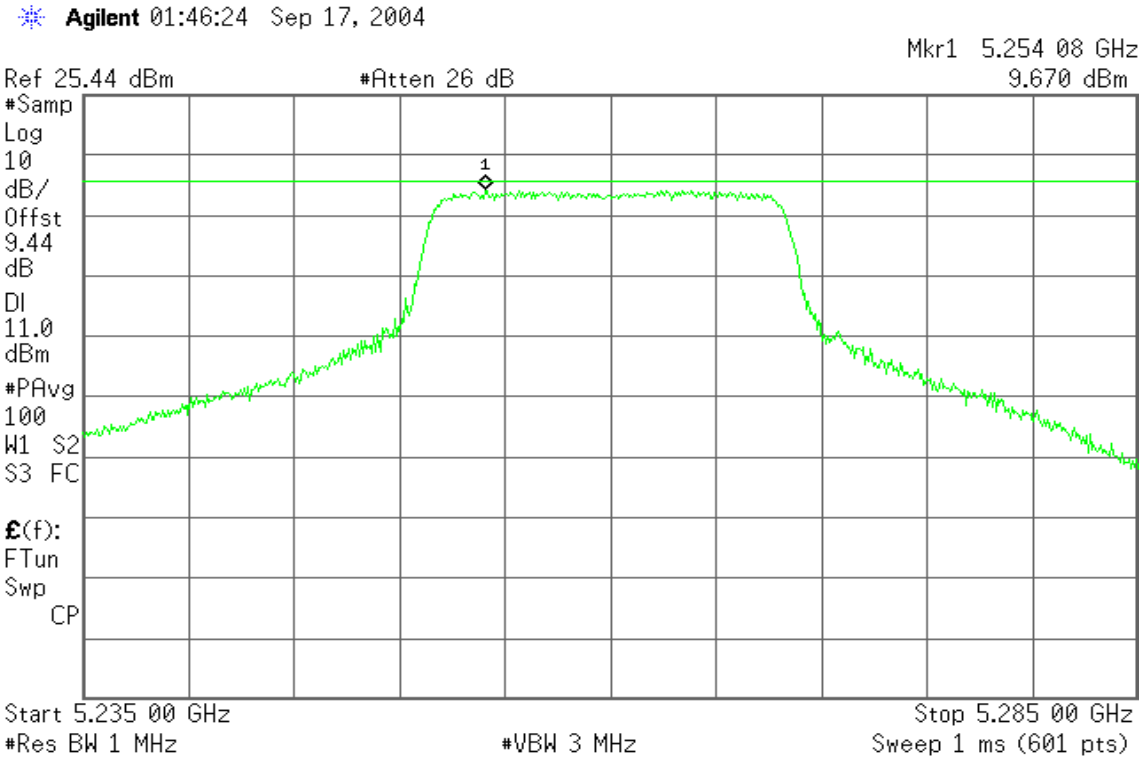
CH 5220



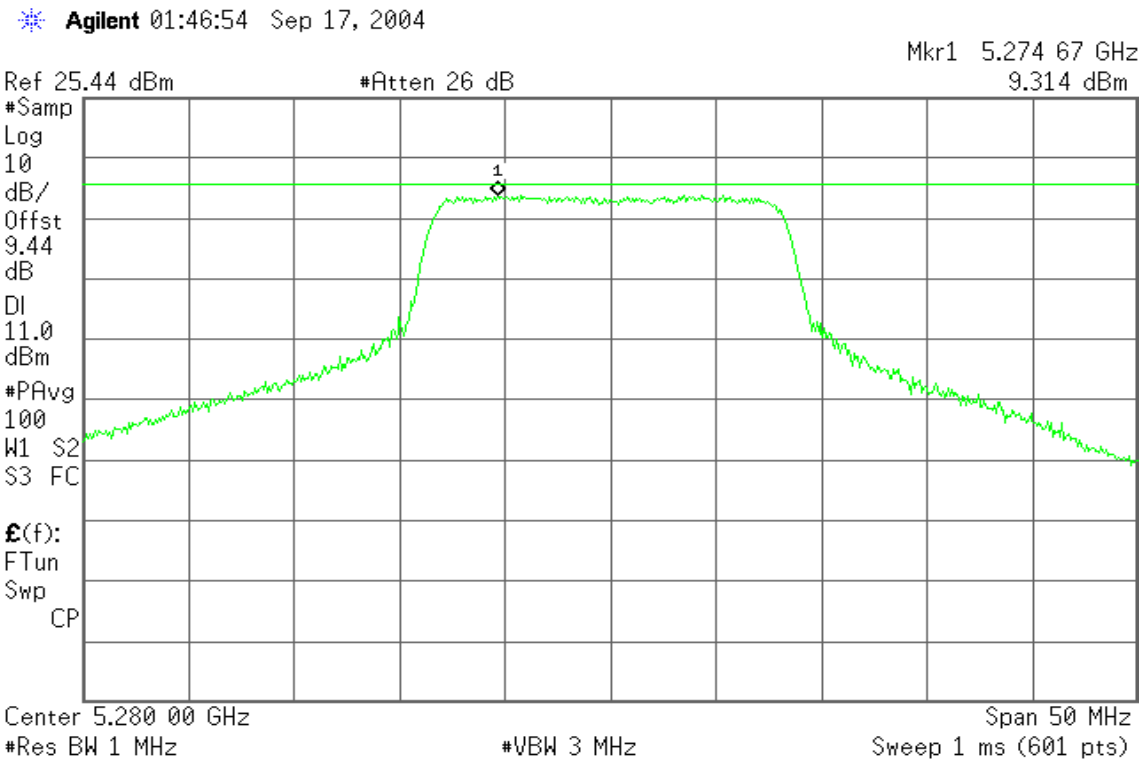
CH 5240



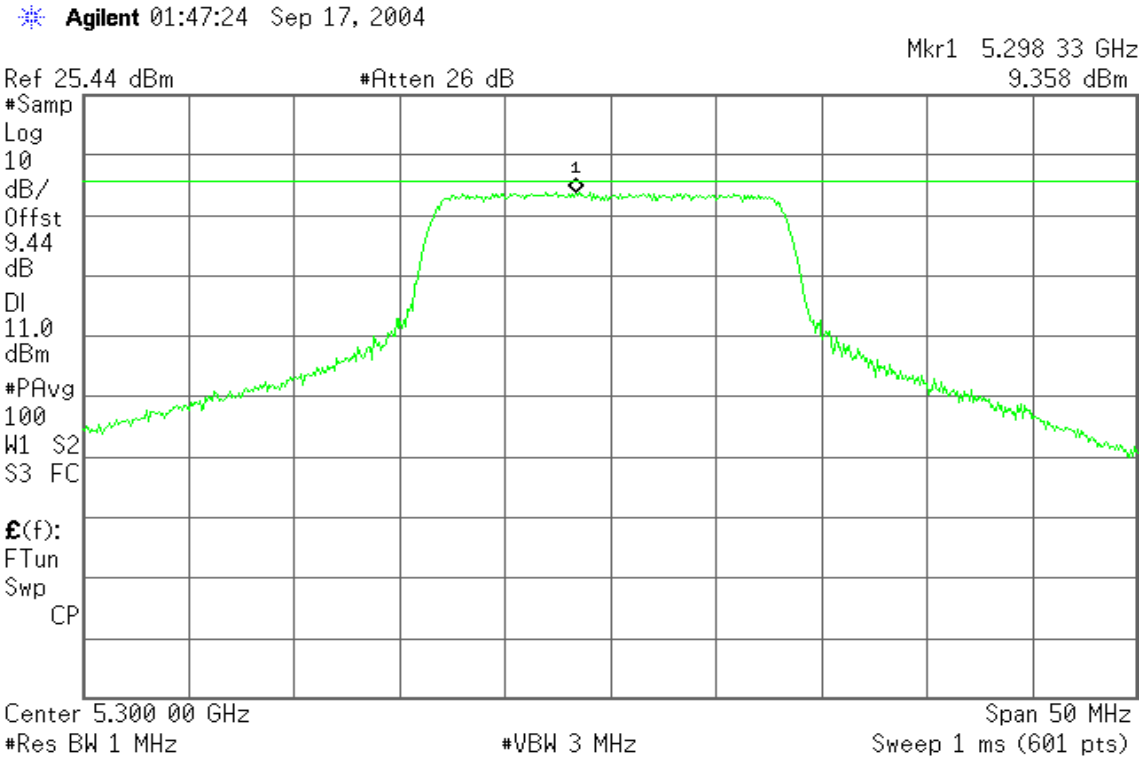
CH 5260



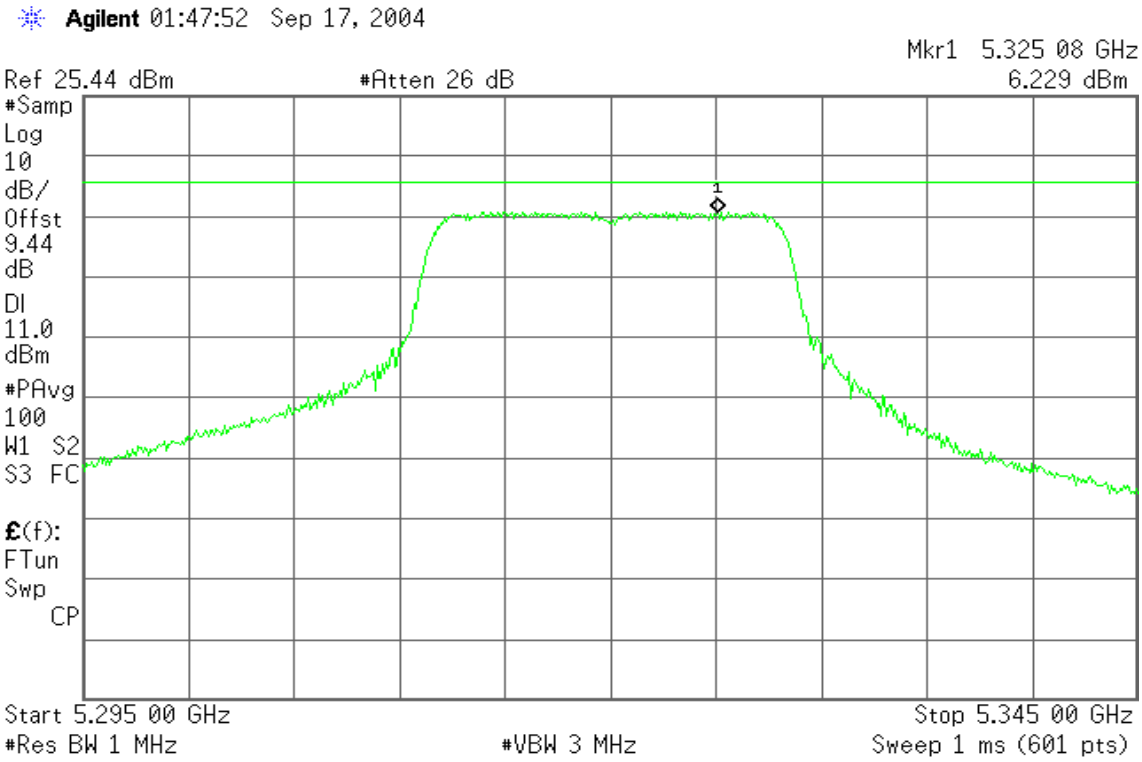
CH 5280



CH 5300

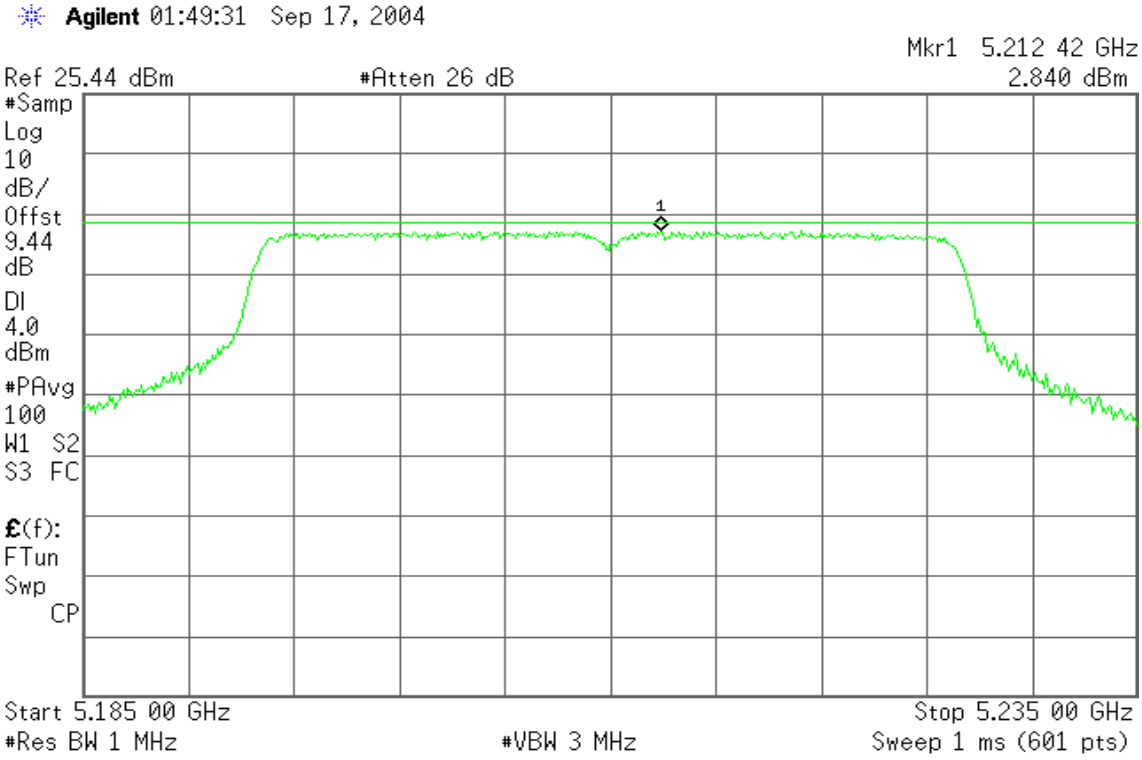


CH 5320

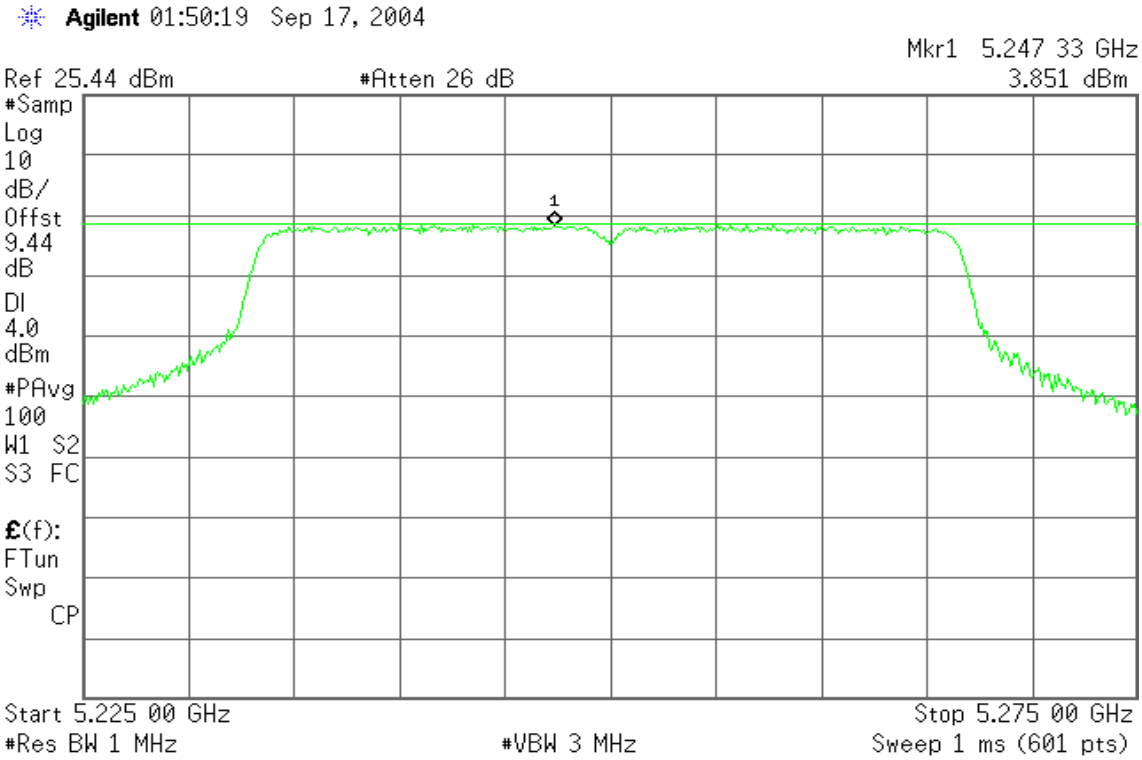


IEEE 802.11a Turbo mode

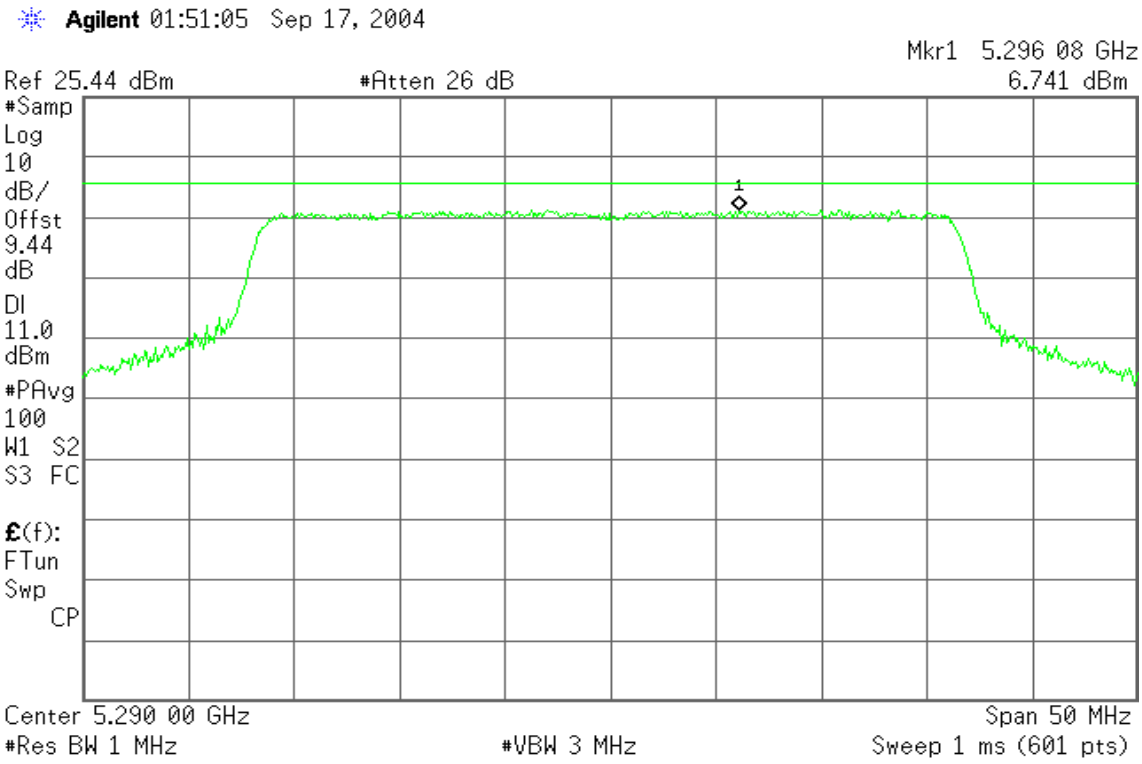
CH 5210



CH 5250



CH 5290


Agilent 01:51:05 Sep 17, 2004
Mkr1 5.296 08 GHz
Ref 25.44 dBm
#Atten 26 dB
6.741 dBm
#Samp
Log
10
dB/
Offst
9.44
dB
Dl
11.0
dBm
#PAvg
100
W1 S2
S3 FC
£(f):
FTun
Swp
CP
Center 5.290 00 GHz
Span 50 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (601 pts)

7.5 PEAK EXCURSION (15.407)

LIMIT

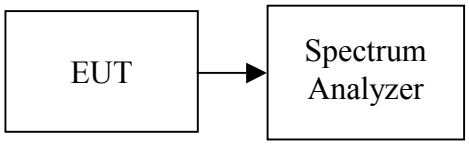
The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

MEASUREMENT EQUIPMENT USED

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY43360131	01/10/2005
Spectrum Analyzer	R&S	FSP30	100112	08/03/2005

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

Test Configuration



TEST PROCEDURE

The test is performed in accordance with <FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices> – Part 15, Subpart E, August 2002.

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to spectrum.
3. Trace A, Set RBW =1MHz, VBW = 3MHz, Span = 50MHz (Base Mode) / 50MHz (Turbo Mode), Max. hold.
4. Trace B, Set RBW = 1MHz, VBW = 30kHz, Span = 50MHz (Base Mode) / 50MHz(Turbo Mode), Max. hold.
5. Delta Mark trace A Maximum frequency and trace B same frequency.
6. Repeat the above procedure until measurements for all frequencies were complete.

TEST RESULTS

No non-compliance noted

Test Data

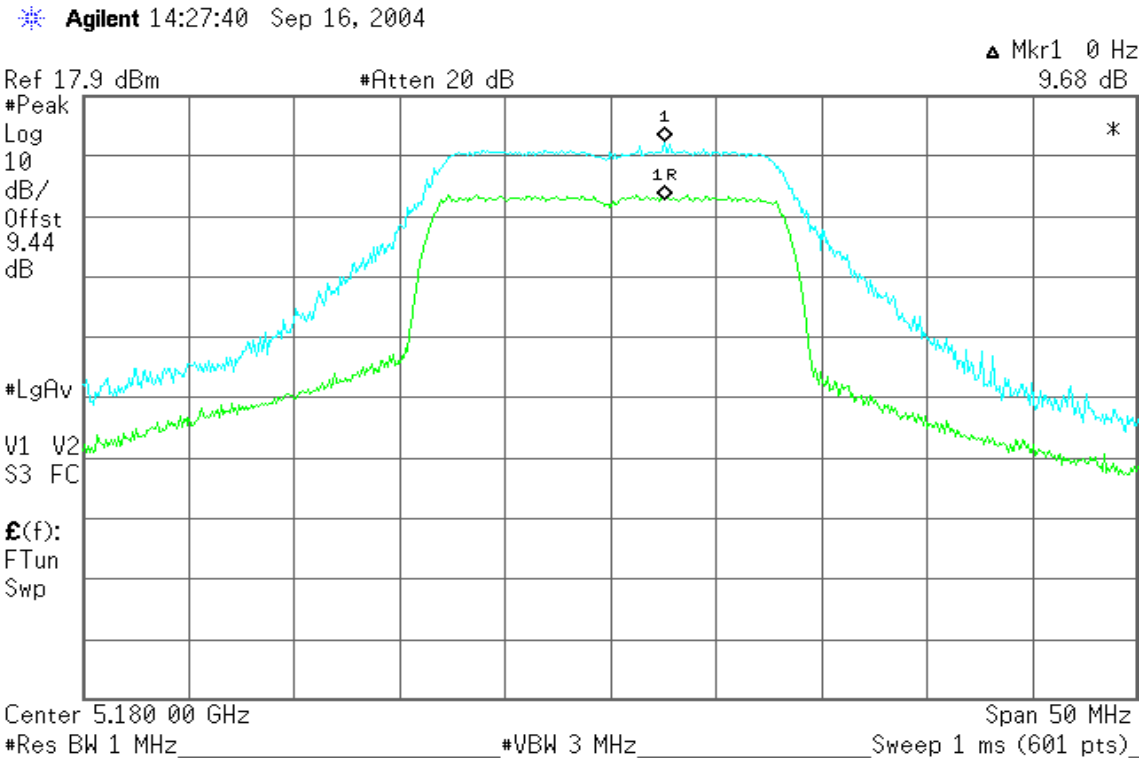
Channel	Frequency (MHz)		Peak Excursion (dB)	Limit (dB)	Margin (dB)	Result
Low	Base mode	5180	9.68	13	-3.32	PASS
Mid		5260	8.38	13	-4.62	PASS
High		5320	8.50	13	-4.50	PASS
Low	Turbo mode	5210	7.87	13	-5.13	PASS
Mid		5250	9.00	13	-4.00	PASS
High		5290	8.12	13	-4.88	PASS

(Note: Maximum antenna gain = 6.72dBi, therefore there is no reduction due to antenna gain.)

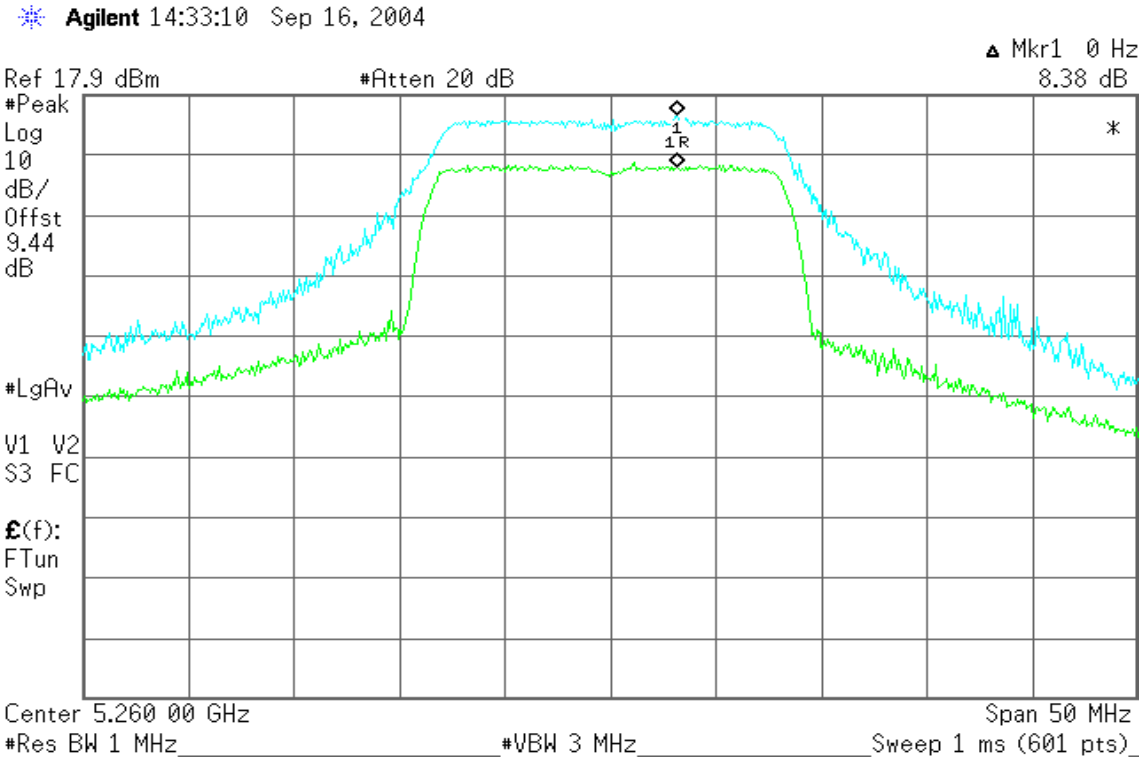
Test Plot

IEEE 802.11a Base mode

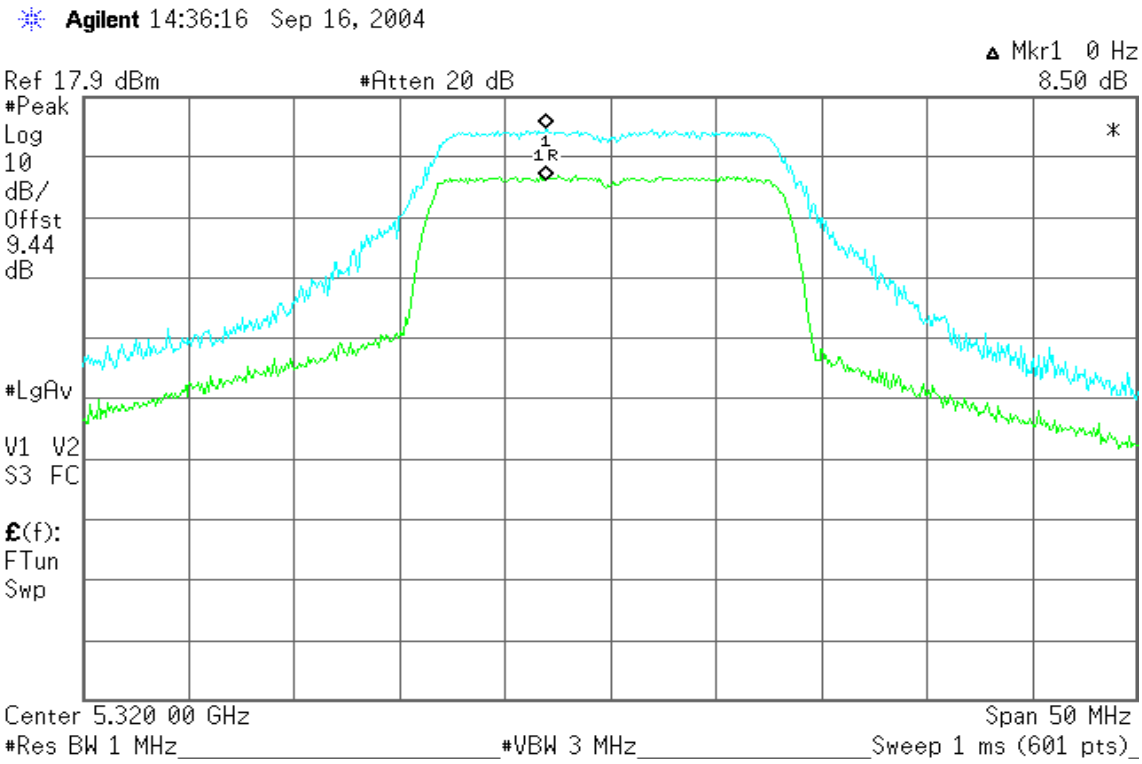
CH 5180



CH 5260

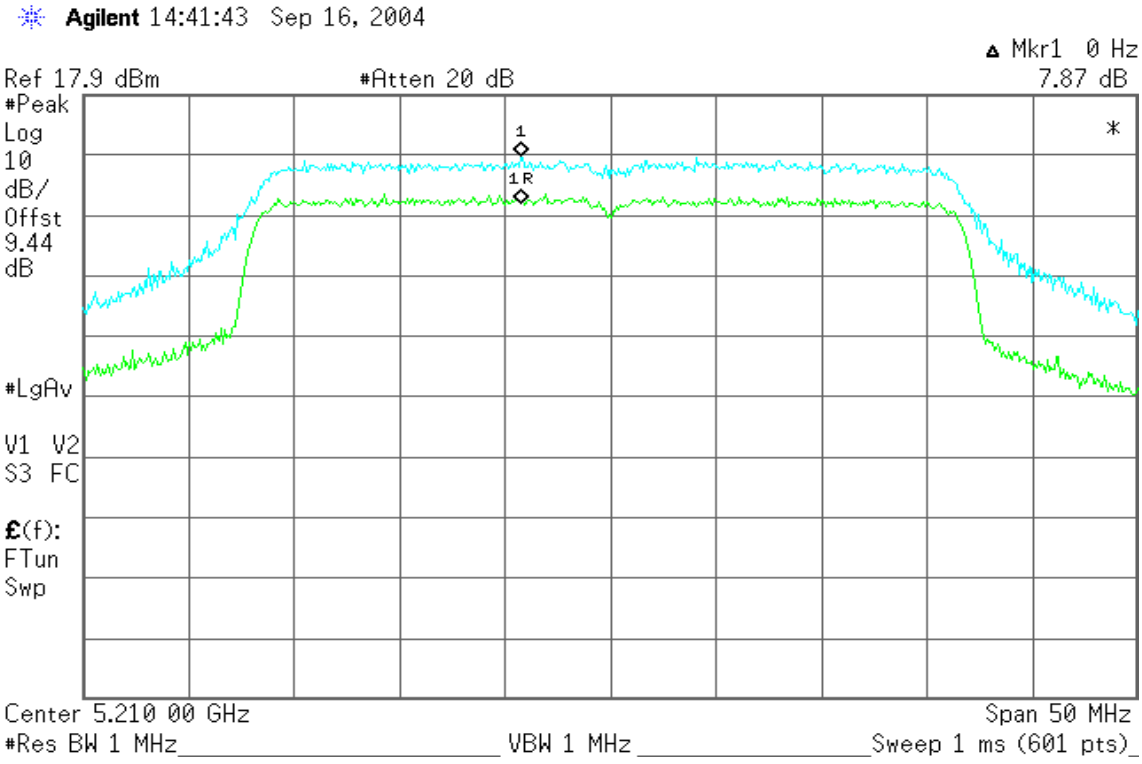


CH 5320

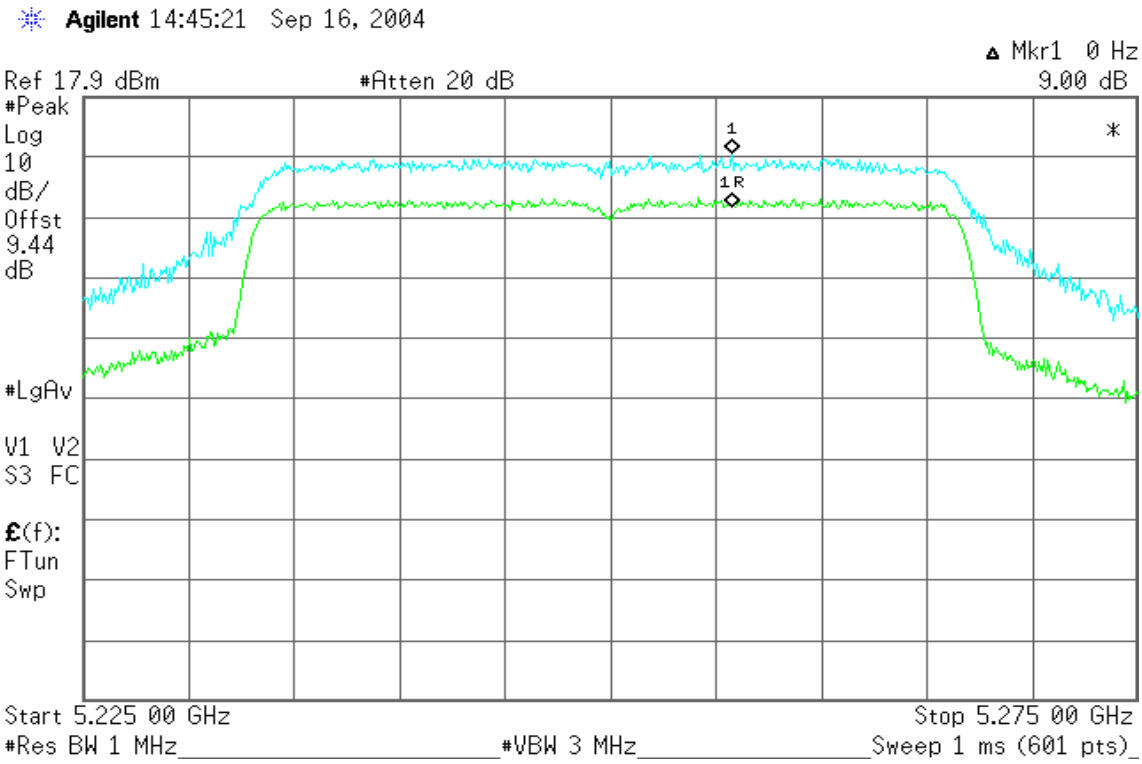


IEEE 802.11a Turbo mode

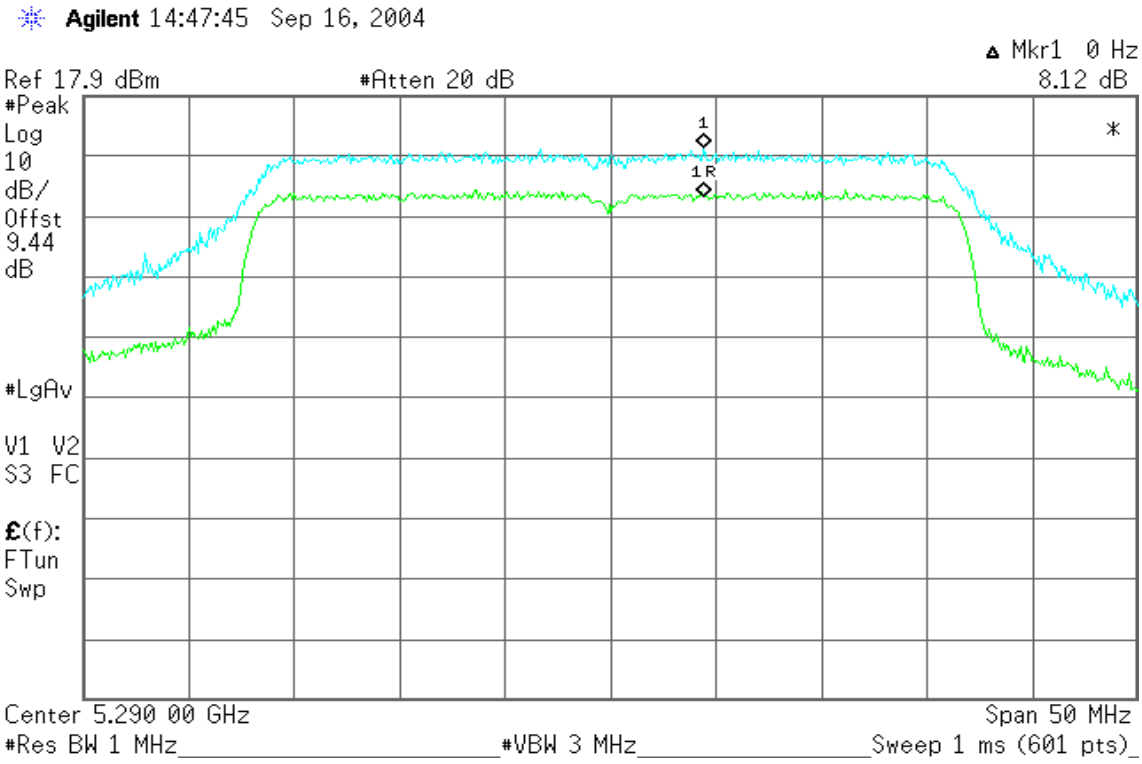
CH 5210



CH 5250



CH 5290



7.6 RADIO FREQUENCY EXPOSURE (15.407)

LIMIT

U-NII devices are subject to the radio frequency radiation exposure requirements specified in §1.1307(b), §2.1091 and §2.1093 of this chapter, as appropriate. All equipment shall be considered to operate in a "general population/uncontrolled" environment. Applications for equipment authorization of devices operating under this section must contain a statement confirming compliance with these requirements for both fundamental emissions and unwanted emissions. Technical information showing the basis for this statement must be submitted to the Commission upon request.

EUT Specification

EUT	WLAN 11a+b/g Access Point
Frequency band (Operating)	☒ WLAN: 5.18GHz ~ 5.32GHz / 5.50GHz ~ 5.70GHz ☐ Others _____
Device category	☐ Portable (<20cm separation) ☒ Mobile (>20cm separation) ☐ Others _____
Exposure classification	General Population/Uncontrolled exposure *(S=1mW/cm^2)*
Antenna diversity	☐ Single antenna ☒ Multiple antennas ☐ Tx diversity ☐ Rx diversity ☒ Tx/Rx diversity
Max. output power	20.78dBm (119.67mW)
Antenna gain (Max)	6.72 dBi (Numeric gain: 4.698)
Evaluation applied	☒ MPE Evaluation* ☐ SAR Evaluation
Note: *1. The maximum output power is 20.78dBm (119.67mW) at 5290MHz (with 4.698 numeric antenna gain.)* *2. For mobile or fixed location transmitters, no SAR consideration applied. The minimum separation generally be used is at least 20 cm, even if the calculations indicate that the MPE distance would be lesser.*	

TEST RESULTS

No non-compliance noted.

Calculation

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

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:

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

Changing to units of mW and cm, using:

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

*d (cm) =100 * d (m)*

Yields

$$d = 100 \times \sqrt{\frac{30 \times (P/1000) \times G}{3770 \times S}} = 0.282 \times \sqrt{\frac{P \times G}{S}}$$

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

Substituting the logarithmic form of power and gain using:

P (mW) = 10 ^ (P (dBm) / 10) and

G (numeric) = 10 ^ (G (dBi) / 10)

Yields

$$d = 0.282 \times \frac{10^{(P+G)/20}}{\sqrt{20}}$$ ***Equation 1***

Where *d = MPE safe distance in cm*
P = Power in dBm
G = Antenna Gain in dBi
S = Power Density Limit in mW / cm^2

Maximum Permissible Exposure (5GHz Band)

EUT output power = 119.67mW

Antenna Gain = 4.698 (Numeric gain)

S = 1.0 mW / cm^2 from 1.1310 Table 1

Substituting these parameters into the above Equation 1:

→ *MPE Safe Distance = 6.688 cm*

(For mobile or fixed location transmitters, the minimum separation distance is 20 cm, even if calculations indicate that the MPE distance would be less.)

7.7 RADIATED UNDESIRABLE EMISSION (15.407)

LIMIT

For transmitters operating in the 5.15-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27dBm / MHz. Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in §15.207.

The provisions of §15.205 apply to intentional radiators operating under this section. The EUT is set to transmit in a continuous mode.

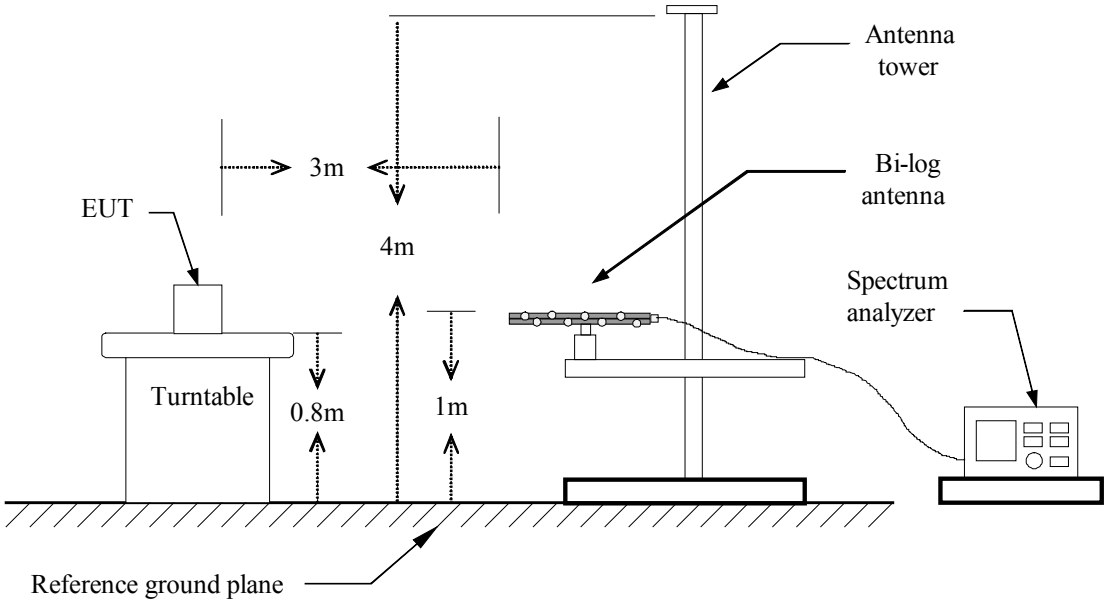
MEASUREMENT EQUIPMENT USED

Open Area Test Site # 3				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Spectrum Analyzer	ADVANTEST	R3261A	N/A	03/18/2005
EMI Test Receiver	R&S	ESVS20	838804/004	01/04/2005
Pre-Amplifier	HP	8447D	2944A09173	03/03/2005
Bilog Antenna	SCHWAZBECK	VULB9163	145	07/05/2005
Turn Table	EMCO	2081-1.21	9709-1885	N.C.R
Antenna Tower	EMCO	2075-2	9707-2060	N.C.R
Controller	EMCO	2090	9709-1256	N.C.R
RF Switch	ANRITSU	MP59B	M53867	N.C.R
Site NSA	C&C	N/A	N/A	09/06/2005
Horn antenna	Schwarzbeck	BBHA 9120	D210	02/23/2005
Loop Antenna	EMCO	6502	2356	07/10/2005
Pre-Amplifier	HP	8449B	3008B00965	10/02/2004

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

Test Configuration

Below 1 GHz



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. Repeat above procedures until the measurements for all frequencies are complete.

Note: *The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 100kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.*

TEST RESULTS

Below 1 GHz

Operation Mode: TX IEEE 802.11a Base mode / CH 5180 **Test Date:** September 10, 2004

Temperature: 28°C **Tested by:** Jason Chang

Humidity: 60% RH **Polarity:** Ver. / Hor.

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit 3m (dBuV/m)	Safe Margin (dB)
305.83	V	Peak	18.12	16.84	34.96	46.00	-11.04
330.33	V	Peak	14.61	17.50	32.11	46.00	-13.89
500.67	V	Peak	13.95	22.53	36.48	46.00	-9.52
549.67	V	Peak	10.77	24.27	35.04	46.00	-10.96
769.00	V	Peak	10.04	25.98	36.02	46.00	-9.98
879.83	V	Peak	4.92	27.80	32.72	46.00	-13.28
275.25	H	Peak	16.97	15.72	32.69	46.00	-13.31
330.33	H	Peak	15.45	17.50	32.95	46.00	-13.05
500.67	H	Peak	13.78	22.53	36.31	46.00	-9.69
549.67	H	Peak	13.27	24.27	37.54	46.00	-8.46
659.33	H	Peak	11.75	25.05	36.80	46.00	-9.20
769.00	H	Peak	7.88	25.98	33.86	46.00	-12.14

Notes:

1. *Measuring frequencies from 30 MHz to the 1GHz.*
2. *Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak detector mode.*
3. *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.*
4. *The IF bandwidth of SPA between 30MHz to 1GHz was 100kHz.*

Operation Mode: TX IEEE 802.11a Base mode / CH 5260 **Test Date:** September 10, 2004

Temperature: 28°C **Tested by:** Jason Chang

Humidity: 60% RH **Polarity:** Ver. / Hor.

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit 3m (dBuV/m)	Safe Margin (dB)
330.33	V	Peak	12.61	17.50	30.11	46.00	-15.89
500.67	V	Peak	13.78	22.53	36.31	46.00	-9.69
549.67	V	Peak	10.77	24.27	35.04	46.00	-10.96
659.33	V	Peak	8.92	25.05	33.97	46.00	-12.03
769.00	V	Peak	10.38	25.98	36.36	46.00	-9.64
879.83	V	Peak	4.75	27.80	32.55	46.00	-13.45
141.15	H	Peak	21.01	10.90	31.91	43.50	-11.59
487.83	H	Peak	14.53	21.94	36.47	46.00	-9.53
500.67	H	Peak	13.45	22.53	35.98	46.00	-10.02
549.67	H	Peak	11.10	24.27	35.37	46.00	-10.63
659.33	H	Peak	13.09	25.05	38.14	46.00	-7.86
769.00	H	Peak	10.21	25.98	36.19	46.00	-9.81

Notes:

1. *Measuring frequencies from 30 MHz to the 1GHz.*
2. *Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak detector mode.*
3. *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.*
4. *The IF bandwidth of SPA between 30MHz to 1GHz was 100kHz.*

Operation Mode: TX IEEE 802.11a Base mode / CH 5320 **Test Date:** September 10, 2004

Temperature: 28°C **Tested by:** Jason Chang

Humidity: 60% RH **Polarity:** Ver. / Hor.

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit 3m (dBuV/m)	Safe Margin (dB)
330.33	V	Peak	14.28	17.50	31.78	46.00	-14.22
440.00	V	Peak	9.67	20.28	29.95	46.00	-16.05
501.83	V	Peak	9.75	22.57	32.32	46.00	-13.68
549.67	V	Peak	12.60	24.27	36.87	46.00	-9.13
659.33	V	Peak	6.25	25.05	31.30	46.00	-14.70
769.00	V	Peak	9.04	25.98	35.02	46.00	-10.98
274.80	H	Peak	17.65	15.71	33.36	46.00	-12.64
330.33	H	Peak	16.45	17.50	33.95	46.00	-12.05
500.67	H	Peak	11.78	22.53	34.31	46.00	-11.69
550.83	H	Peak	13.24	24.30	37.54	46.00	-8.46
660.50	H	Peak	10.41	25.07	35.48	46.00	-10.52
770.17	H	Peak	10.22	25.98	36.20	46.00	-9.80

Notes:

1. *Measuring frequencies from 30 MHz to the 1GHz.*
2. *Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak detector mode.*
3. *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.*
4. *The IF bandwidth of SPA between 30MHz to 1GHz was 100kHz.*

Operation Mode: TX IEEE 802.11a Turbo mode / CH 5210 **Test Date:** September 10, 2004

Temperature: 28°C **Tested by:** Jason Chang

Humidity: 60% RH **Polarity:** Ver. / Hor.

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit 3m (dBuV/m)	Safe Margin (dB)
330.33	V	Peak	12.95	17.50	30.45	46.00	-15.55
499.50	V	Peak	9.66	22.49	32.15	46.00	-13.85
549.67	V	Peak	9.10	24.27	33.37	46.00	-12.63
659.33	V	Peak	10.42	25.05	35.47	46.00	-10.53
770.17	V	Peak	10.05	25.98	36.03	46.00	-9.97
879.83	V	Peak	5.25	27.80	33.05	46.00	-12.95
141.15	H	Peak	22.01	10.90	32.91	43.50	-10.59
311.67	H	Peak	17.86	17.00	34.86	46.00	-11.14
500.67	H	Peak	13.12	22.53	35.65	46.00	-10.35
549.67	H	Peak	12.44	24.27	36.71	46.00	-9.29
660.50	H	Peak	13.91	25.07	38.98	46.00	-7.02
770.17	H	Peak	12.72	25.98	38.70	46.00	-7.30

Notes:

1. *Measuring frequencies from 30 MHz to the 1GHz.*
2. *Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak detector mode.*
3. *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.*
4. *The IF bandwidth of SPA between 30MHz to 1GHz was 100kHz.*

Operation Mode: TX IEEE 802.11a Turbo mode / CH 5250 **Test Date:** September 10, 2004

Temperature: 28°C **Tested by:** Jason Chang

Humidity: 60% RH **Polarity:** Ver. / Hor.

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit 3m (dBuV/m)	Safe Margin (dB)
330.33	V	Peak	14.78	17.50	32.28	46.00	-13.72
500.67	V	Peak	7.45	22.53	29.98	46.00	-16.02
549.67	V	Peak	10.60	24.27	34.87	46.00	-11.13
659.33	V	Peak	8.09	25.05	33.14	46.00	-12.86
770.17	V	Peak	13.72	25.98	39.70	46.00	-6.30
879.83	V	Peak	7.75	27.80	35.55	46.00	-10.45
141.60	H	Peak	20.95	10.91	31.86	43.50	-11.64
288.30	H	Peak	20.45	16.23	36.68	46.00	-9.32
500.66	H	Peak	12.95	22.53	35.48	46.00	-10.52
549.67	H	Peak	14.27	24.27	38.54	46.00	-7.46
659.33	H	Peak	13.25	25.05	38.30	46.00	-7.70
770.17	H	Peak	9.05	25.98	35.03	46.00	-10.97

Notes:

1. *Measuring frequencies from 30 MHz to the 1GHz.*
2. *Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak detector mode.*
3. *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.*
4. *The IF bandwidth of SPA between 30MHz to 1GHz was 100kHz.*

Operation Mode: TX IEEE 802.11a Turbo mode / CH 5290 **Test Date:** September 10, 2004

Temperature: 28°C **Tested by:** Jason Chang

Humidity: 60% RH **Polarity:** Ver. / Hor.

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit 3m (dBuV/m)	Safe Margin (dB)
141.60	V	Peak	19.12	10.91	30.03	43.50	-13.47
500.67	V	Peak	8.62	22.53	31.15	46.00	-14.85
550.83	V	Peak	9.91	24.30	34.21	46.00	-11.79
660.50	V	Peak	6.91	25.07	31.98	46.00	-14.02
770.17	V	Peak	9.72	25.98	35.70	46.00	-10.30
879.83	V	Peak	5.75	27.80	33.55	46.00	-12.45
141.60	H	Peak	22.29	10.91	33.20	43.50	-10.30
330.33	H	Peak	16.61	17.50	34.11	46.00	-11.89
500.67	H	Peak	13.45	22.53	35.98	46.00	-10.02
549.67	H	Peak	12.94	24.27	37.21	46.00	-8.79
659.33	H	Peak	12.59	25.05	37.64	46.00	-8.36
772.50	H	Peak	9.57	26.00	35.57	46.00	-10.43

Notes:

1. *Measuring frequencies from 30 MHz to the 1GHz.*
2. *Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak detector mode.*
3. *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.*
4. *The IF bandwidth of SPA between 30MHz to 1GHz was 100kHz.*

7.8 CONDUCTED UNDESIRABLE EMISSION (15.407)

LIMIT

Transmitters operating in the 5.15-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27dBm / MHz. Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in §15.207.

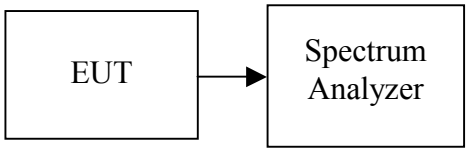
The provisions of §15.205 apply to intentional radiators operating under this section.

MEASUREMENT EQUIPMENT USED

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY43360131	01/10/2005
Spectrum Analyzer	R&S	FSP30	100112	08/03/2005

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

Test Configuration



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 1 MHz. The video bandwidth is set to 1 MHz. Peak detection measurements are compared to the average EIRP limit, adjusted for the maximum antenna gain. If necessary, additional average detection measurements are made.

Measurements are made over the 30 MHz to 40 GHz range with the transmitter set to the lowest, middle, and highest channels.

TEST RESULTS

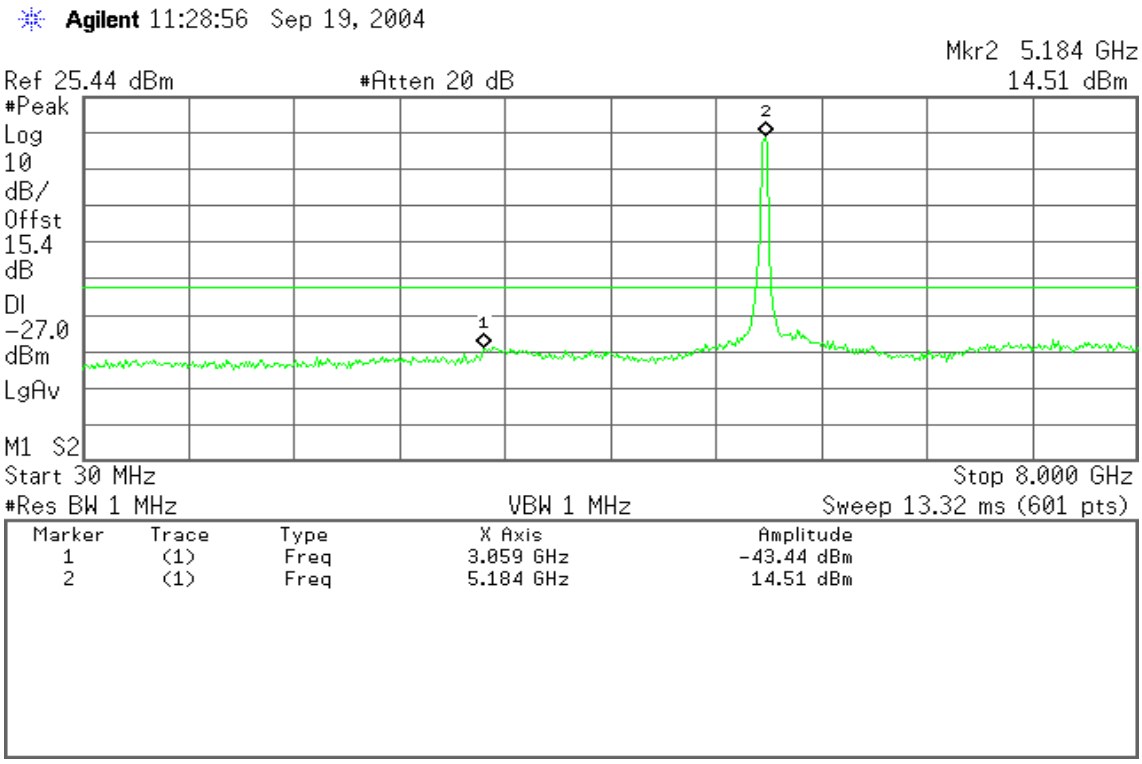
No non-compliance noted
*(**Note:** Maximum antenna gain = 6.72 dBi, therefore there is no reduction due to antenna gain.)*

Test Plot

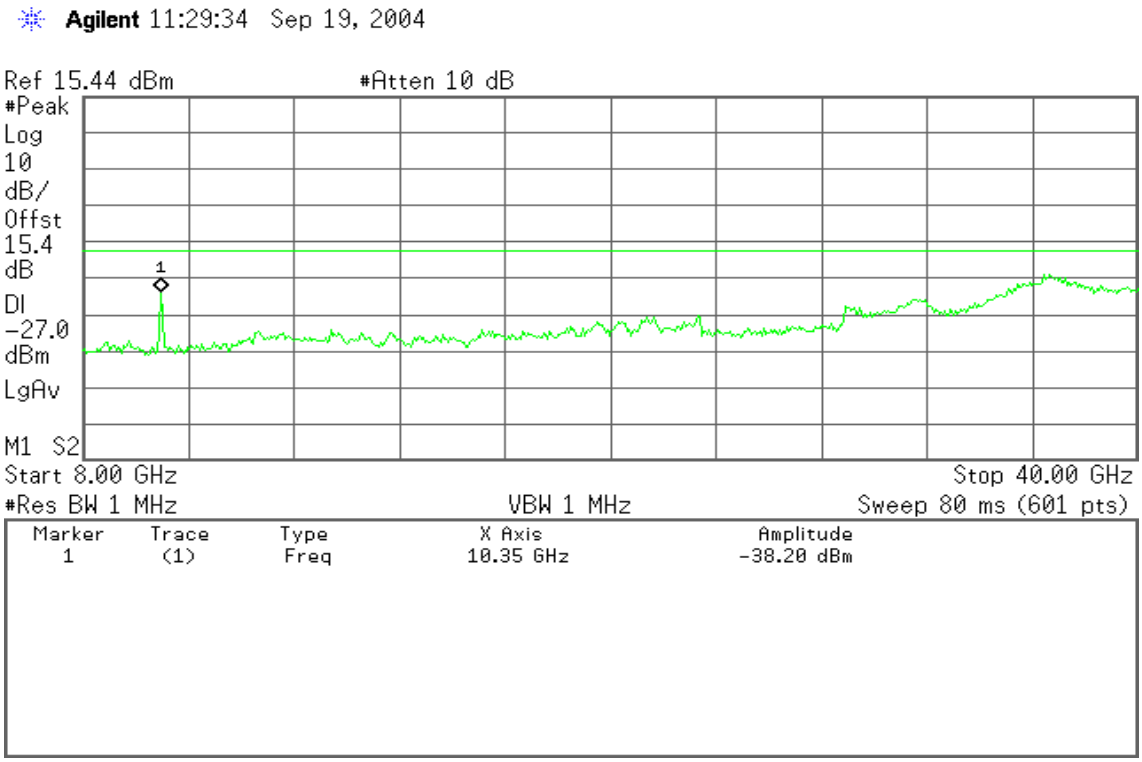
IEEE 802.11a Base mode

CH 5180

30MHz ~ 8GHz

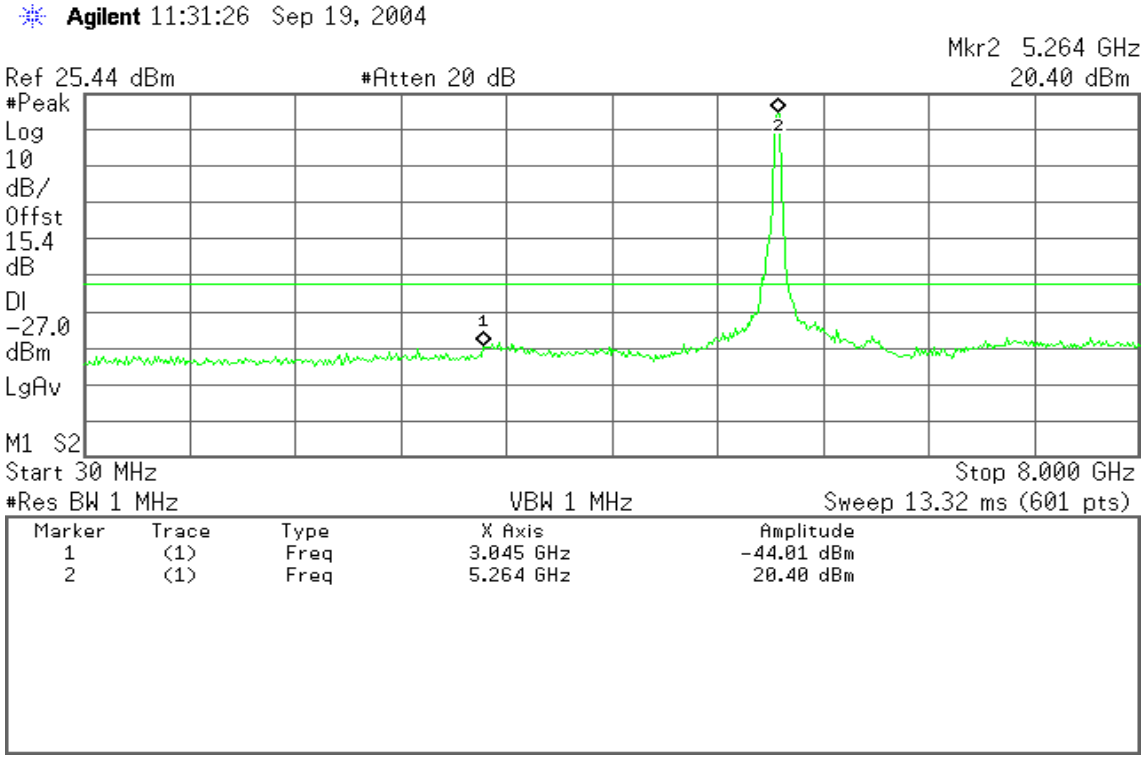


8GHz ~ 40GHz

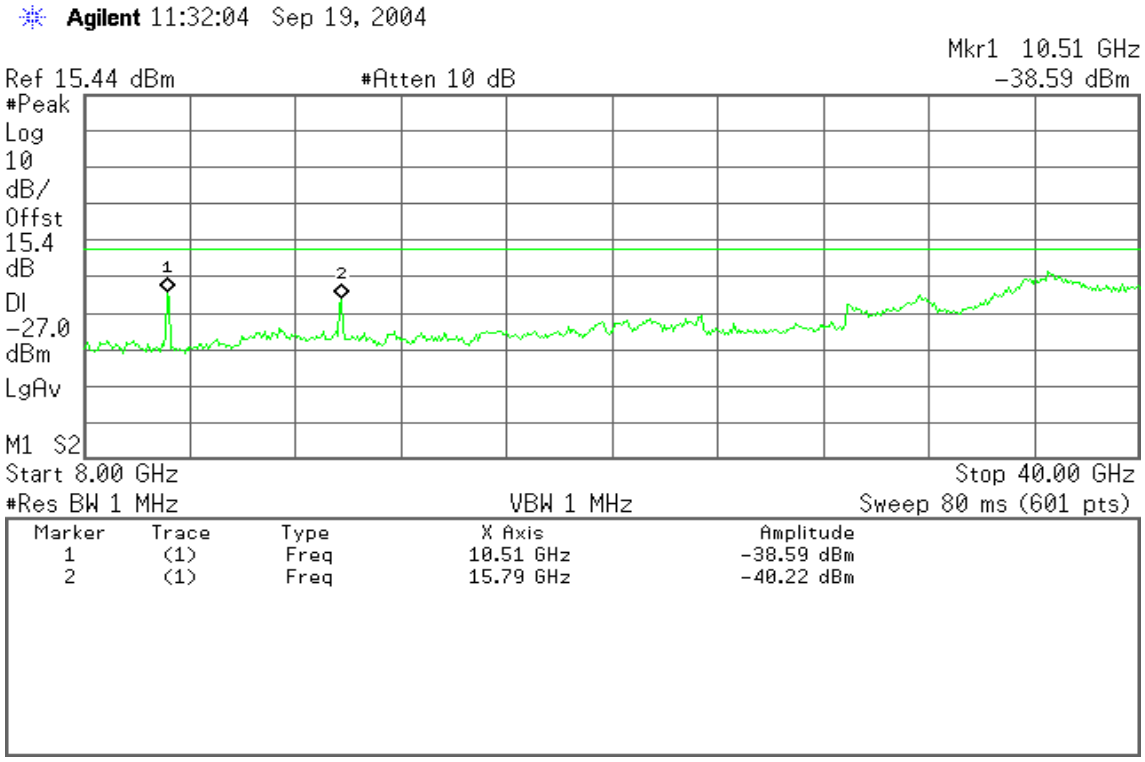


CH 5260

30MHz ~ 8GHz

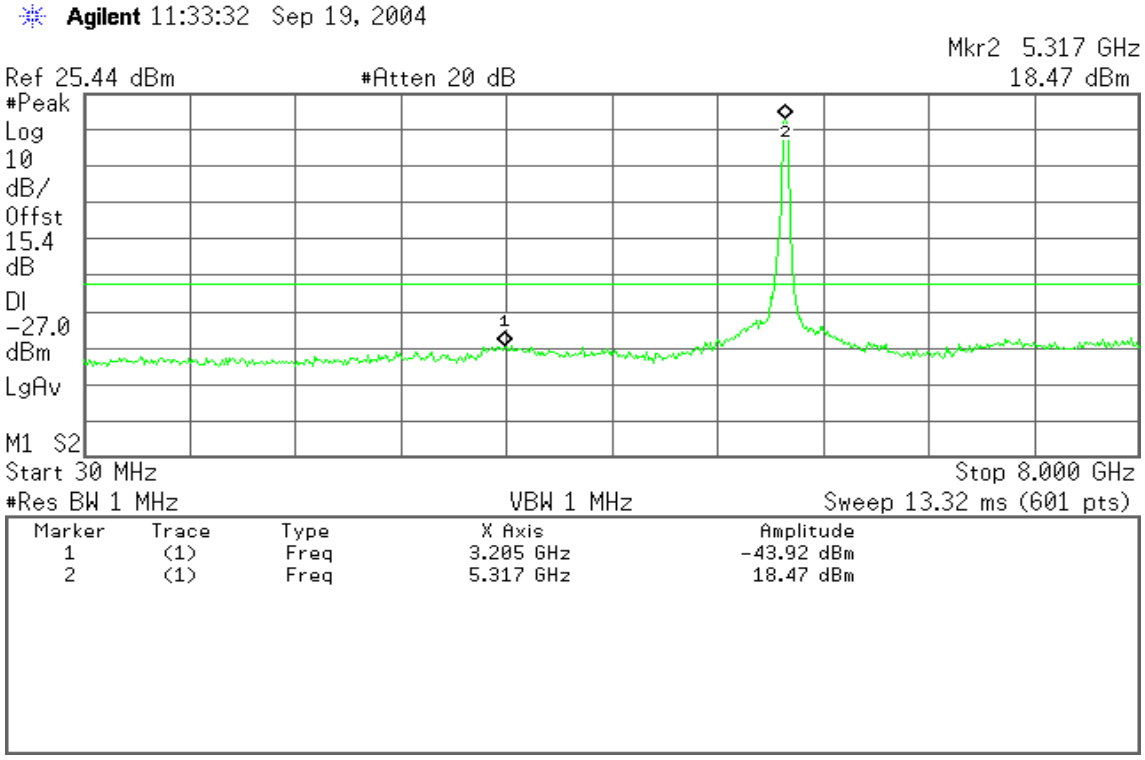


8GHz ~ 40GHz

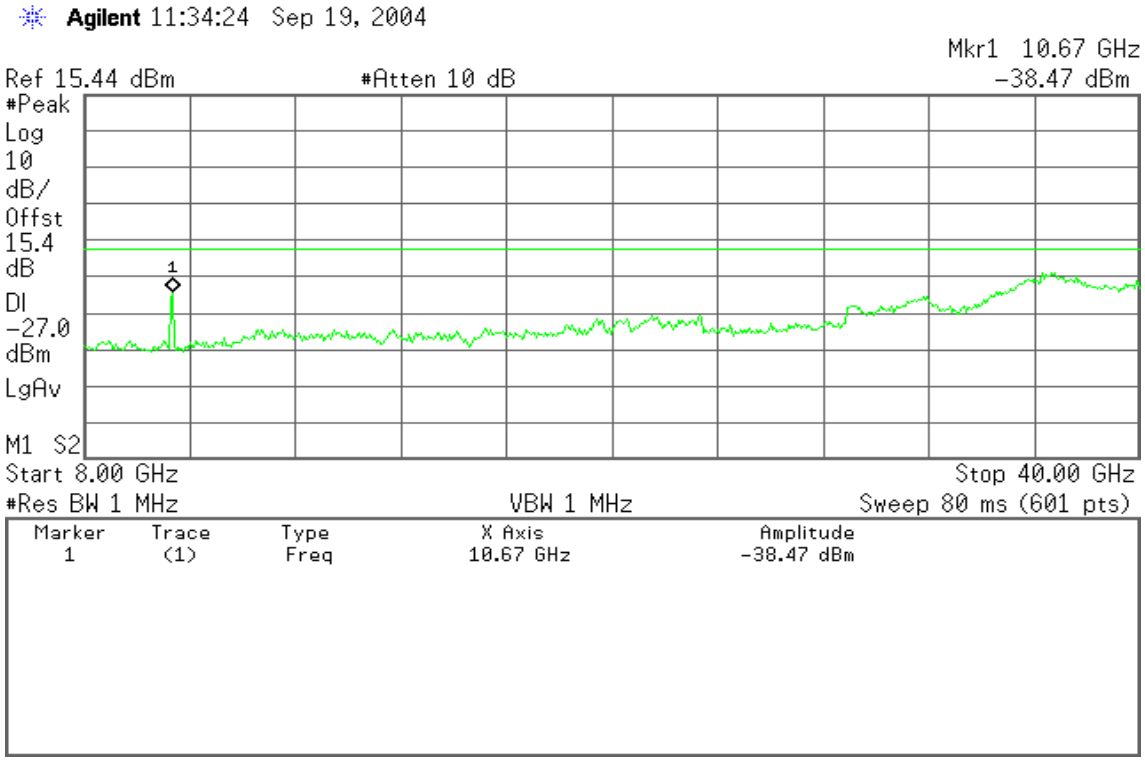


CH 5320

30MHz ~ 8GHz



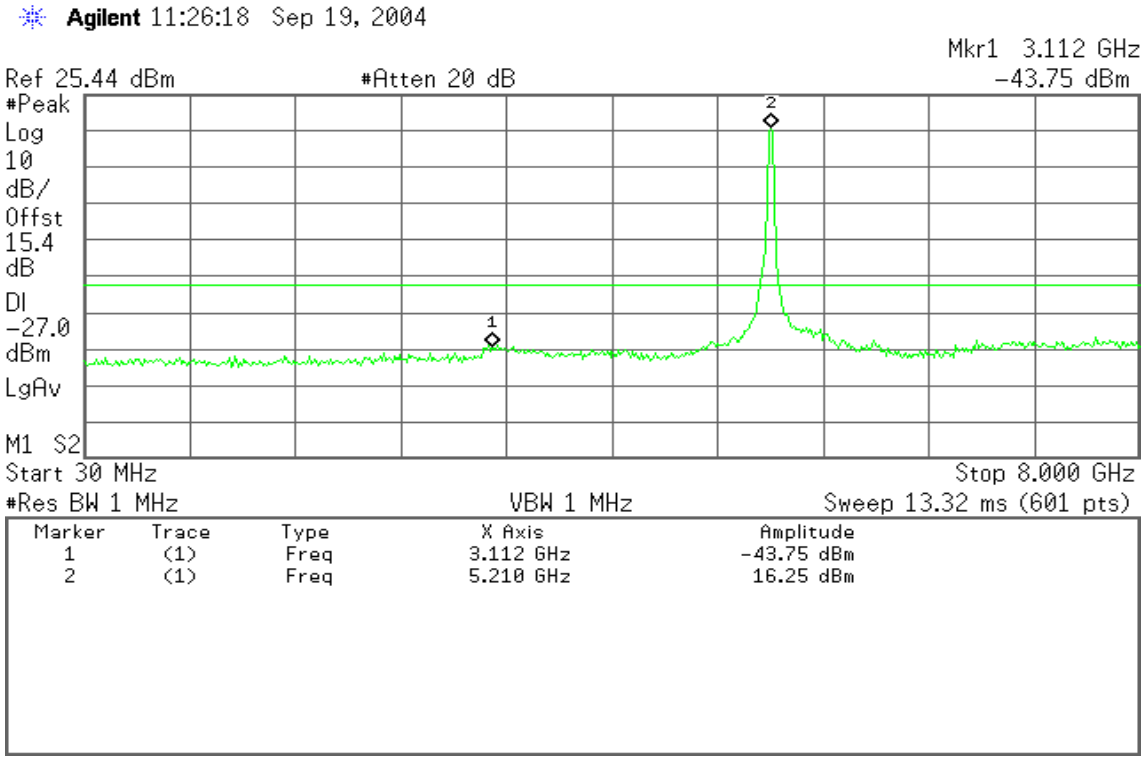
8GHz ~ 40GHz



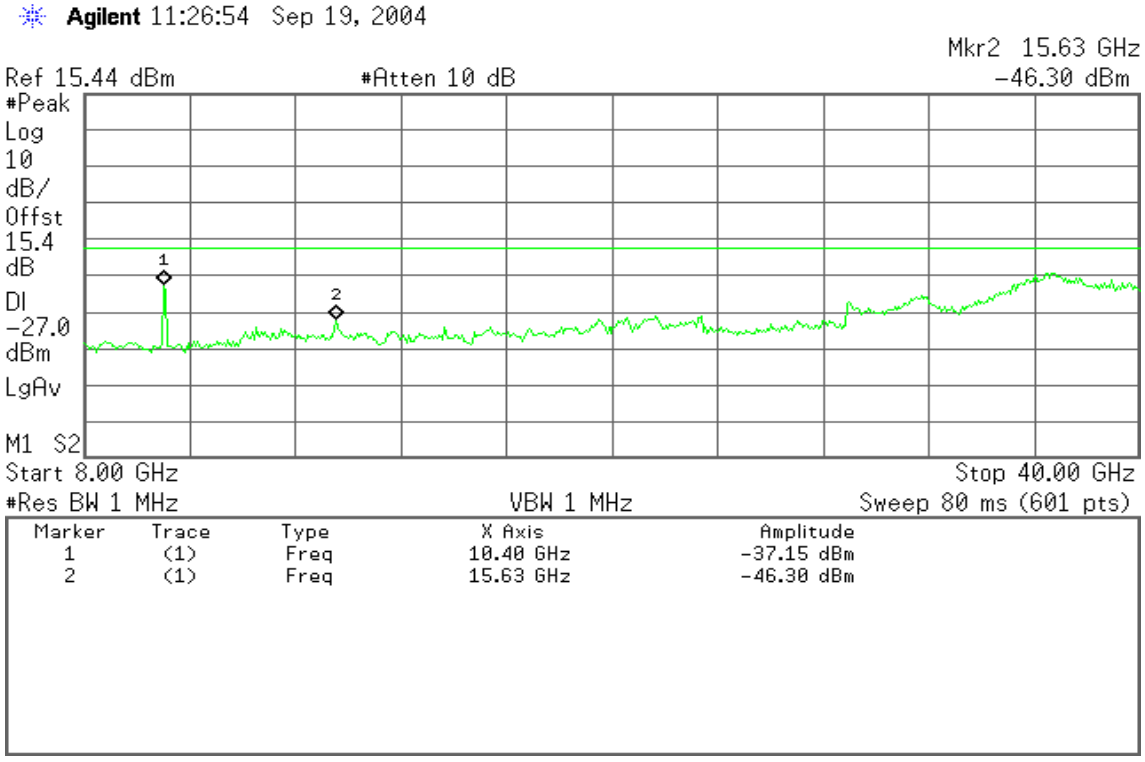
IEEE 802.11a Turbo mode

CH 5210

30MHz ~ 8GHz

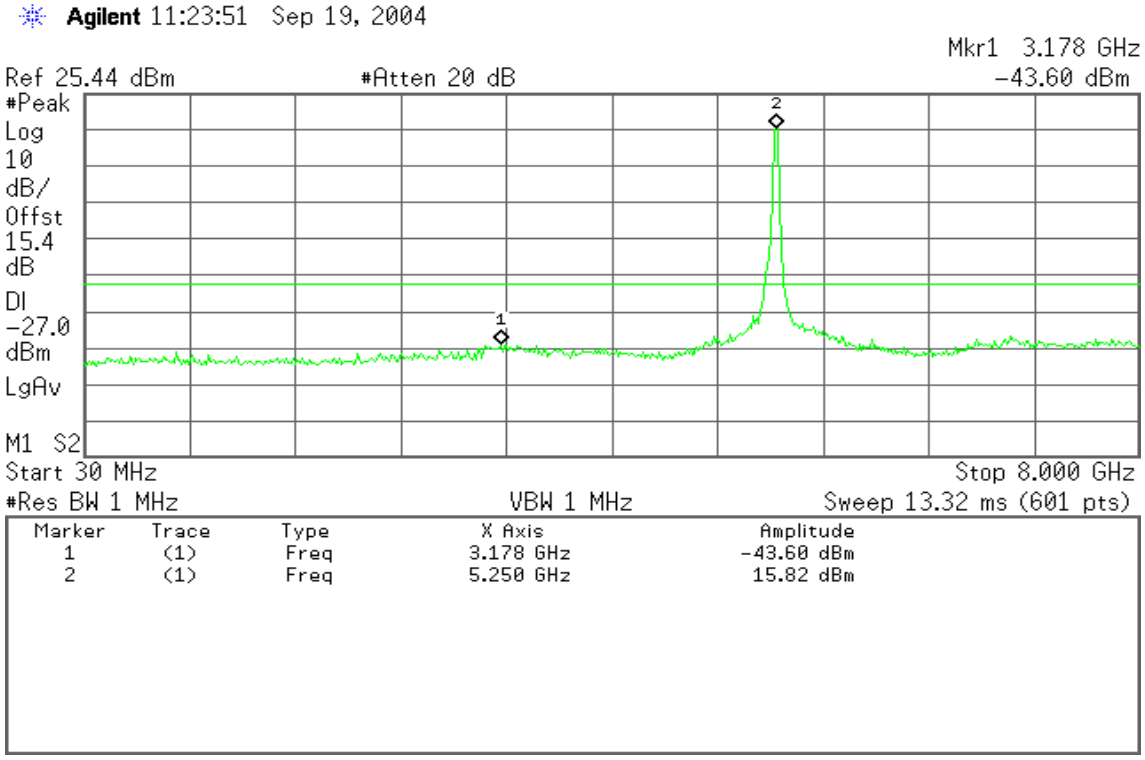


8GHz ~ 40GHz

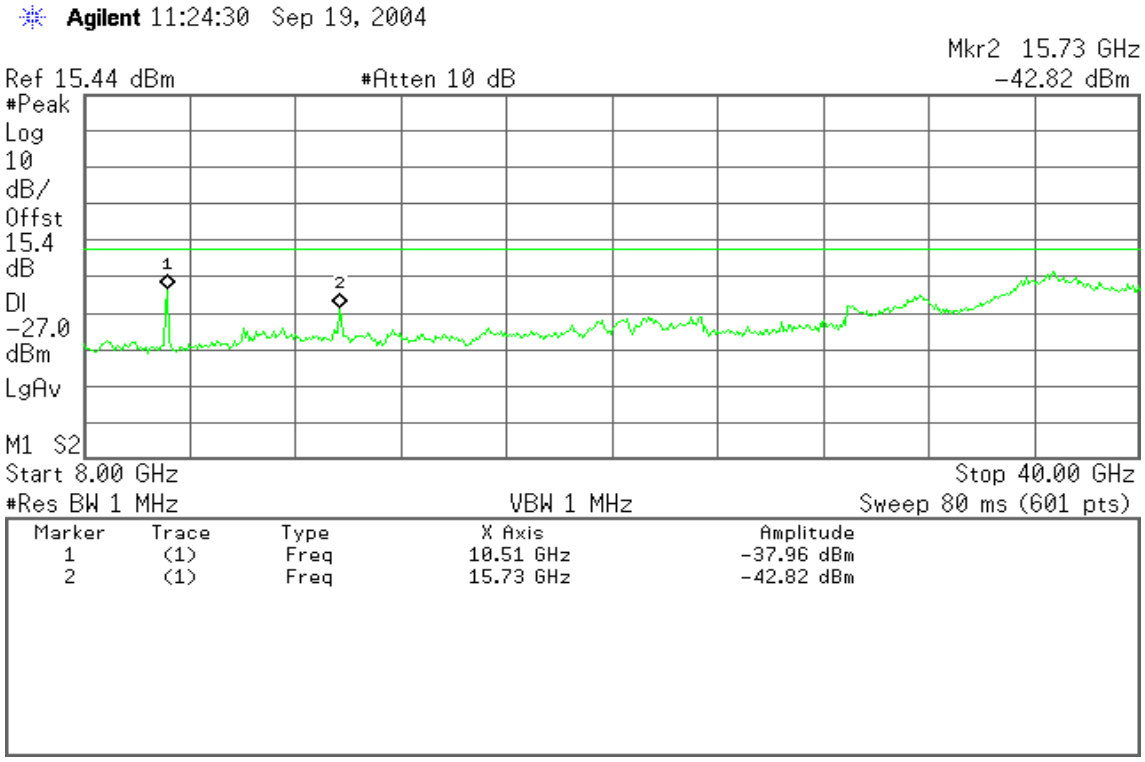


CH 5250

30MHz ~ 8GHz

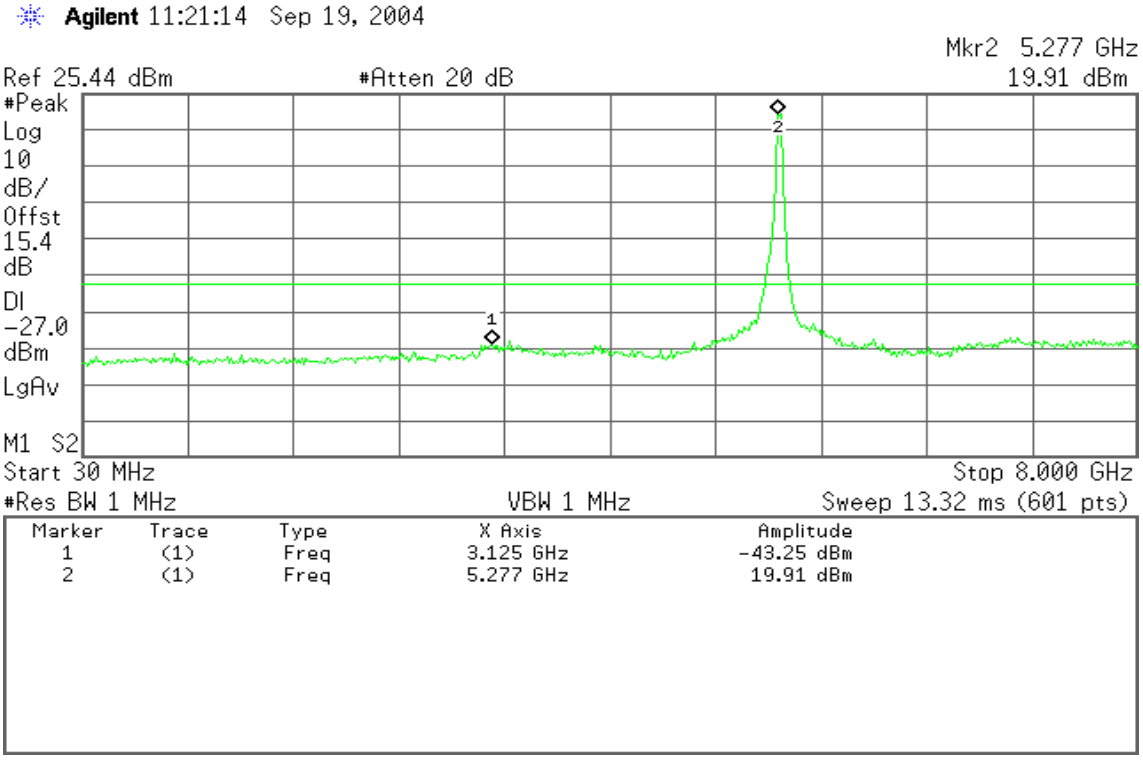


8GHz ~ 40GHz

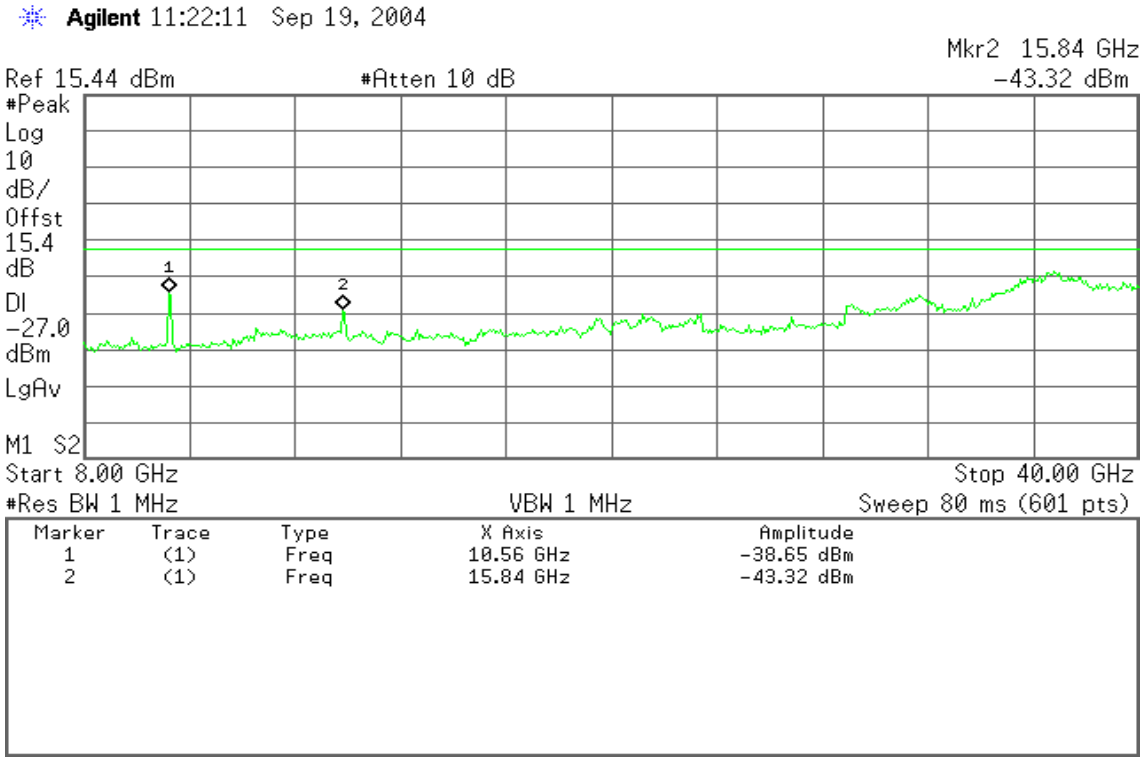


CH 5290

30MHz ~ 8GHz



8GHz ~ 40GHz



7.9 TRANSMISSION IN ABSENCE OF DATA (15.407)

LIMIT

The device shall automatically discontinue transmission in case of either absence of information to transmit or operation failure. These provisions are not intended to preclude the transmission of control or signaling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization a description of how this requirement is met.

TEST RESULTS

No non-compliance noted

Note: *For the details, refer to the theory of the operation.*

7.10 FREQUENCY STABILITY (15.407)

LIMIT

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

TEST RESULTS

Please refer to the operational description for details.

Note: *An examination of the band-edge plots shows that the emission will stay within the authorized band over the entire temperature range.*

7.11 ANTENNA REQUIREMENT (15.407)

LIMIT

According to FCC Part 15.407(d), any U-NII device that operates in the 5.15-5.25 GHz band shall use a transmitting antenna that is an integral part of the device.

TEST RESULTS

No non-compliance noted

The antenna connector is designed with a unique connector and replacement of it by the user is not considered. For details, refer to the EUT photos.