



FCC 47 CFR PART 15 SUBPART E

TEST REPORT

For

WLAN 802.11a MiniPCI Card

Model: WMP-A13

Trade Name: Alpha

Issued to

**Alpha Networks Inc.
No.8, Li Hsing Rd. VII, Science-Based, Industrial Park,
Hsinchu, Taiwan, R.O.C.**

Issued by

**Compliance Certification Services Inc.
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1. TEST RESULT CERTIFICATION

Applicant: Alpha Networks Inc.
No.8, Li Hsing Rd. Vii, Science-Based, Industrial Park,
Hsinchu, Taiwan, R.O.C.

Equipment Under Test: WLAN 802.11a MiniPCI Card

Trade Name: Alpha

Model: WMP-A13

Date of Test: October 1 ~ December 28, 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 802.11a MiniPCI Card
Trade Name	Alpha
Model Number	WMP-A13
Model Discrepancy	1. The EUT have two types, three different gain's antennas for sales: one is Dual-Band Omni-Directional antenna and other one is Panel Directional Antenna, the detail descriptions please refer antenna specification and user manual. 2. The EUT may be sale combination with 802.11g Outdoor Access Point (FCC ID: KA22002090027-1) with the possible configurations below, so co-location tests have also been performed and recorded in this report. 1) WMP-A13/ 5dBi dual band antenna, AP/4.5dBi dual band antenna. 2) WMP-A13/14dBi panel directional antenna, AP/16dBi panel directional antenna. 3) WMP-A13/18dBi panel directional antenna, AP/16dBi panel directional antenna.
Power Supply	DC 3.3V from host device
Frequency Range	IEEE 802.11a: Base mode: 5.150 ~ 5.350 GHz Turbo mode: 5.210 GHz / 5.250 GHz / 5.290 GHz Base mode: 5.725 ~ 5.850 GHz Turbo mode: 5.760 GHz / 5.800 GHz
Transmit Power	IEEE 802.11a: 5.150 ~ 5.350 GHz: Dual-Band Omni-Directional antenna: 13.88dBm Panel Directional antenna / 14dBi: 14.14dBm
	IEEE 802.11a: 5.725 ~ 5.850 GHz: Dual-Band Omni-Directional antenna / 5dBi: 15.70dBm Panel Directional antenna / 18dBi: 15.36dBm
Modulation Technique	IEEE 802.11a: 5.150 ~ 5.350 GHz: OFDM 5.725 ~ 5.850 GHz: DSSS
Transmit Data Rate	IEEE802.11a: 6, 9, 12, 18, 24, 36, 48, 54, 108Mbps
Number of Channels	IEEE802.11a: 5.150 ~ 5.350 GHz: 8 Channels 5.725 ~ 5.850 GHz: 5 Channels
Antenna Specification/ Applicable Frequency	Dual-Band Omni-Directional Antenna Gain: 5dBi (5.150~5.350 / 5.725~5.850GHz) Panel Directional Antenna Gain: 18dBi (5.725 ~ 5.850 GHz) 14dBi (5.250 ~ 5.350 GHz)

Note: This submittal(s) (test report) is intended for FCC ID: RRK2004090192-1 filing to comply with Section 15.407 of the FCC Part 15, Subpart E Rules.



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 set in continuous transmitting/ receiving with following test modes/ configurations:

1. Stand-alone test:

The EUT is 802.11a mini PCI radio. It was connected to a laptop via a cardbus-to-mini PCI adapter / extension board with the configurations below for testing.

- EUT with 5dBi Dual-Band Omni-Directional Antenna/ test frequency range: 5.150-5.350GHz.
- EUT with 14dBi Panel Directional Antenna/ test frequency range: 5.250-5.350 GHz.

2. Co-location test:

The EUT was set at the approved 802.11g AP and selected one channel of the worst case from the mode /configuration 1) to test with L/M/H channels of 802.11g AP with the configurations indicated in section 2 of test report for 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	 200600-0
USA	FCC	3/10 meter Open Area Test Sites to perform FCC Part 15/18 measurements	 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	 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	 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	 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

No.	Device Type	Brand	Model	Series No.	FCC ID	Data Cable	Power Cord
1.	Notebook PC	IBM	2656	AK-VF0HT	FCC DoC	N/A	AC I/P Cable: Unshielded, 1.8m DC O/P Cable Unshielded, 1.8m
2.	USB Mouse	HP	MO19UCA	020440964	FCC DoC	Shielded, 1.8m	N/A
3.	802.11g Outdoor Access Point	D-Link	DWL-2600AP	N/A	KA22002090027-1	N/A	AC I/P Cable: Unshielded, 1.8m DC O/P Cable 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 15.407 REQUIREMENTS

7.1 26 dB EMISSION BANDWIDTH

LIMIT

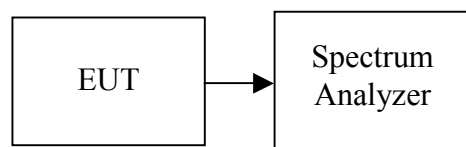
For purposes of this subpart, the emission bandwidth shall be determined by measuring the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, that are 26 dB down relative to the maximum level of the modulated carrier. Determination 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

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 >26dB bandwidth (Base Mode) / >26dB bandwidth (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****Dual-Band Omni-Directional Antenna**

Frequency (MHz)			Antenna Gain (dBi)	Bandwidth (B) (MHz)
Base mode	Channel 1	5180	5	28.42
	Channel 5	5260		30.75
	Channel 8	5320		25.92
Turbo mode		5210		68.20
		5250		59.80
		5290		61.70

Panel Directional Antenna

Frequency (MHz)			Antenna Gain (dBi)	Bandwidth (B) (MHz)
Base mode	Channel 6	5280	14	22.33
	Channel 7	5300		21.07
	Channel 8	5320		19.73
Turbo mode		5290		73.80



Test Plot / Dual-Band Omni-Directional Antenna

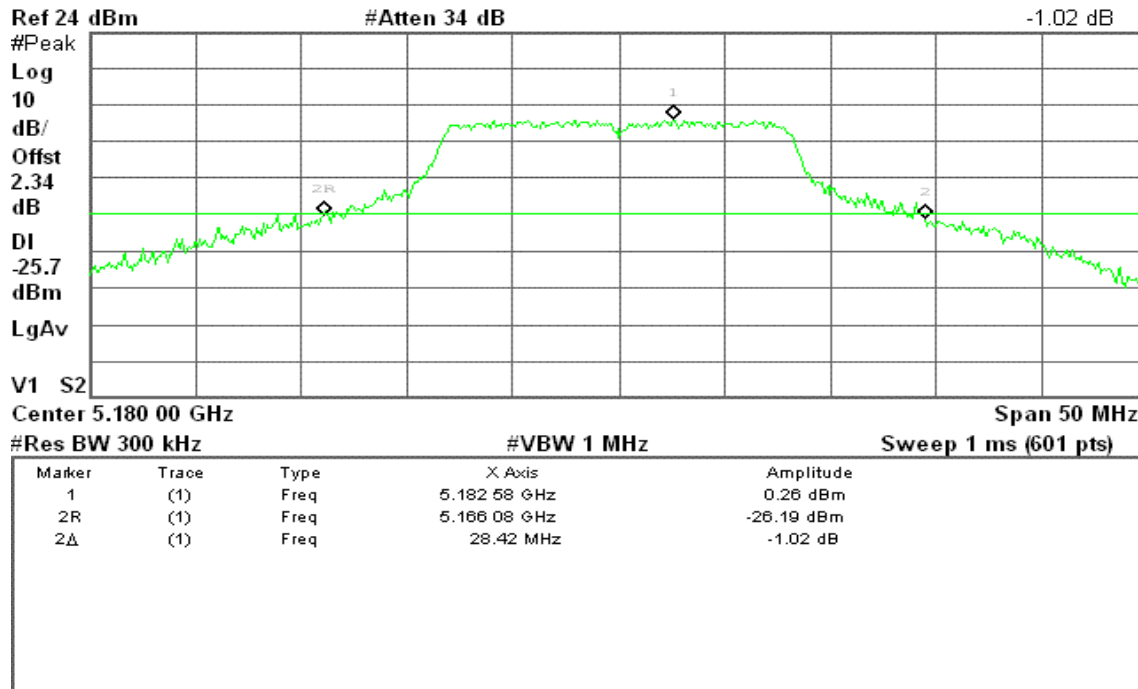
IEEE 802.11a Base mode

CH 5180 / 5dBi

Agilent 10:41:43 Dec 28, 2004

R T

Δ Mkr2 28.42 MHz

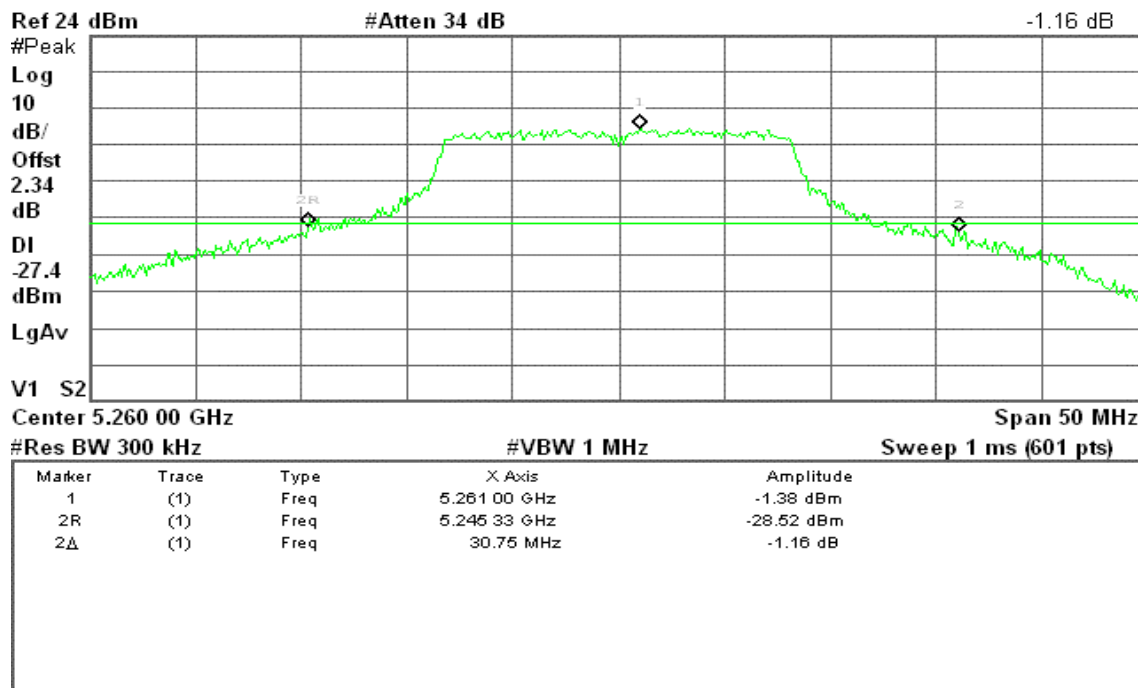


CH 5260 / 5dBi

Agilent 10:44:00 Dec 28, 2004

R T

Δ Mkr2 30.75 MHz





CH 5320 / 5dBi

Agilent 10:46:11 Dec 28, 2004

R T

Δ Mkr2 25.92 MHz

Ref 24 dBm

#Atten 34 dB

-0.27 dB

#Peak

Log

10

dB/

Offst

2.34

dB

DI

-27.9

dBm

LgAv

V1 S2

Center 5.320 00 GHz

Span 50 MHz

#Res BW 300 kHz

#VBW 1 MHz

Sweep 1 ms (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	5.325 25 GHz	-1.92 dBm
2R	(1)	Freq	5.307 08 GHz	-29.81 dBm
2Δ	(1)	Freq	25.92 MHz	-0.27 dB



IEEE 802.11a Turbo mode

CH 5210 / 5dBi

Agilent 10:55:06 Dec 28, 2004

R T

Δ Mkr2 68.2 MHz

-0.07 dB

Ref 24 dBm

#Atten 34 dB

#Peak

Log

10

dB/

Offst

2.34

dB

DI

-23.6

dBm

LgAv

V1 S2

Center 5.210 0 GHz

Span 100 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	5.207 3 GHz	2.40 dBm
2R	(1)	Freq	5.178 2 GHz	-24.78 dBm
2Δ	(1)	Freq	68.2 MHz	-0.07 dB

CH 5250 / 5dBi

Agilent 10:57:18 Dec 28, 2004

R T

Δ Mkr2 59.8 MHz

-0.64 dB

Ref 24 dBm

#Atten 34 dB

#Peak

Log

10

dB/

Offst

2.34

dB

DI

-26.4

dBm

LgAv

V1 S2

Center 5.250 0 GHz

Span 100 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	5.244 8 GHz	-0.35 dBm
2R	(1)	Freq	5.222 5 GHz	-28.25 dBm
2Δ	(1)	Freq	59.8 MHz	-0.64 dB



CH 5290 / 5dBi

Agilent 10:59:18 Dec 28, 2004

R T

Δ Mkr2 61.7 MHz

Ref 24 dBm

#Atten 34 dB

-5.53 dB

#Peak

Log

10

dB/

Offst

2.34

dB

DI

-26.8

dBm

LgAv

V1 S2

Center 5.290 0 GHz

Span 100 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	5.298 8 GHz	-0.77 dBm
2R	(1)	Freq	5.260 5 GHz	-27.05 dBm
2Δ	(1)	Freq	61.7 MHz	-5.53 dB



Test Plot / Panel Directional Antenna

IEEE 802.11a Base mode

CH 5280 / 14dBi

Agilent 11:11:14 Dec 28, 2004

R T

Δ Mkr2 22.33 MHz

-1.09 dB

Ref 28.44 dBm

#Atten 30 dB

#Peak

Log

10

dB/

Offst

8.44

dB

DI

-27.7

dBm

LgAv

V1 S2

Center 5.280 00 GHz

Span 40 MHz

#Res BW 300 kHz

#VBW 1 MHz

Sweep 1 ms (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	5.279 33 GHz	-1.66 dBm
2R	(1)	Freq	5.269 07 GHz	-31.47 dBm
2Δ	(1)	Freq	22.33 MHz	-1.09 dB

CH 5300 / 14dBi

Agilent 11:13:51 Dec 28, 2004

R T

Δ Mkr2 21.07 MHz

-4.57 dB

Ref 28.44 dBm

#Atten 30 dB

#Peak

Log

10

dB/

Offst

8.44

dB

DI

-27.0

dBm

LgAv

V1 S2

Center 5.300 00 GHz

Span 40 MHz

#Res BW 300 kHz

#VBW 1 MHz

Sweep 1 ms (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	5.298 73 GHz	-1.00 dBm
2R	(1)	Freq	5.289 47 GHz	-27.54 dBm
2Δ	(1)	Freq	21.07 MHz	-4.57 dB



CH 5320 / 14dBi

Agilent 11:15:56 Dec 28, 2004

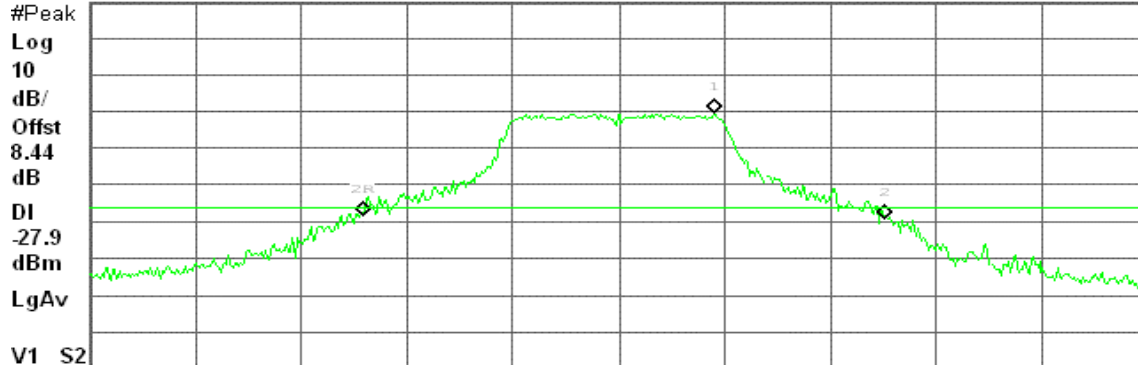
R T

Δ Mkr2 19.73 MHz

Ref 28.44 dBm

#Atten 30 dB

-0.56 dB



Center 5.320 00 GHz

Span 40 MHz

#Res BW 300 kHz

#VBW 1 MHz

Sweep 1 ms (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	5.323 60 GHz	-1.90 dBm
2R	(1)	Freq	5.310 33 GHz	-30.15 dBm
2Δ	(1)	Freq	19.73 MHz	-0.56 dB

IEEE 802.11a Turbo mode

CH 5290 / 14dBi

Agilent 11:21:05 Dec 28, 2004

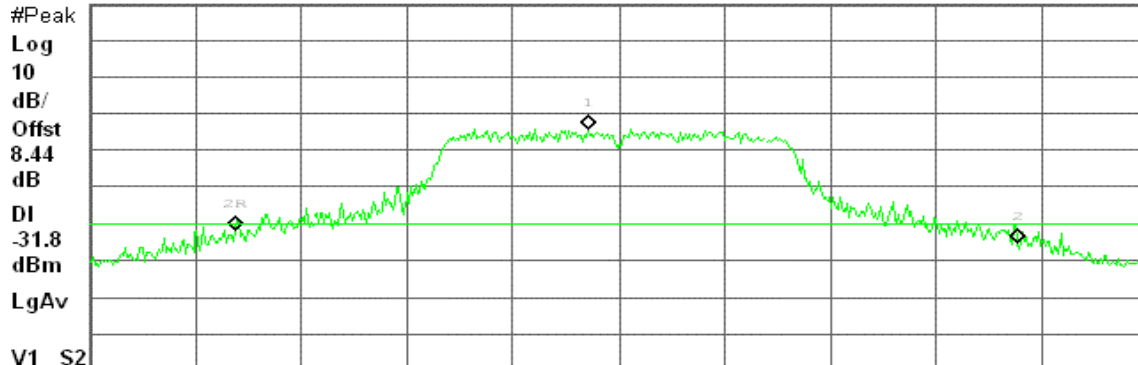
R T

Δ Mkr2 73.8 MHz

Ref 28.44 dBm

#Atten 30 dB

-3.25 dB



Center 5.290 0 GHz

Span 100 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	5.287 0 GHz	-5.78 dBm
2R	(1)	Freq	5.253 8 GHz	-33.53 dBm
2Δ	(1)	Freq	73.8 MHz	-3.25 dB



7.2 PEAK POWER

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 $4\text{dBm} + 10\log B$, 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 $11\text{dBm} + 10\log B$, 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 $17\text{dBm} + 10\log B$, 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

Dual-Band Omni-Directional Antenna

Frequency (MHz)			B	10 Log B (dB)	Limit 4 + 10 Log B or 11 + 10 Log B (dBm)	Antenna Gain (dBi)	Power Limit (dBm)
Base mode	Channel 1	5180	28.42	14.54	18.54	5	17
	Channel 5	5260	30.75	14.88	25.88		24
	Channel 8	5320	25.92	14.14	25.14		24
Turbo mode		5210	68.20	18.33	22.33		17
		5250	59.80	17.77	21.77		17
		5290	61.70	17.90	28.90		24

(Note: Maximum antenna gain = 5dBi, therefore there is no reduction due to antenna gain.)

Panel Directional Antenna

Frequency (MHz)			B	10 Log B (dB)	Limit 4 + 10 Log B or 11 + 10 Log B (dBm)	Antenna Gain (dBi)	Power Limit (dBm)
Base mode	Channel 6	5280	22.33	13.49	17.49	14	16
	Channel 7	5300	21.07	13.24	24.23		
	Channel 8	5320	19.73	12.95	23.95		
Turbo mode		5290	73.80	18.68	29.68		



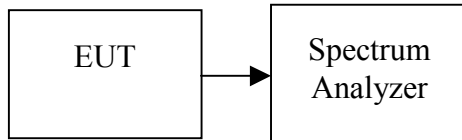
MEASUREMENT EQUIPMENT USED

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY43360131	01/10/2005

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

Test Configuration

The EUT was connected to a spectrum analyzer through a 50 Ω 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 26dB 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****Dual-Band Omni-Directional Antenna**

Frequency (MHz)			Reading (dBm)	Cable Loss (dB)	Output Power (dBm)	Antenna Gain (dBi)	Limit (dBm)	Result
Base mode	Channel 1	5180	10.86	2.34	13.20	5	17	Pass
	Channel 5	5260	11.54	2.34	13.88		24	
	Channel 8	5320	11.10	2.34	13.44		24	
Turbo mode		5210	11.17	2.34	13.51		17	
		5250	10.16	2.34	12.50		17	
		5290	10.07	2.34	12.41		24	

Panel Directional Antenna

Frequency (MHz)			Reading (dBm)	Cable Loss (dB)	Output Power (dBm)	Antenna Gain (dBi)	Limit (dBm)	Result
Base mode	Channel 6	5280	11.73	2.34	14.07	14	16	Pass
	Channel 7	5300	11.68	2.34	14.02			
	Channel 8	5320	11.80	2.34	14.14			
Turbo mode		5290	10.19	2.34	12.53			

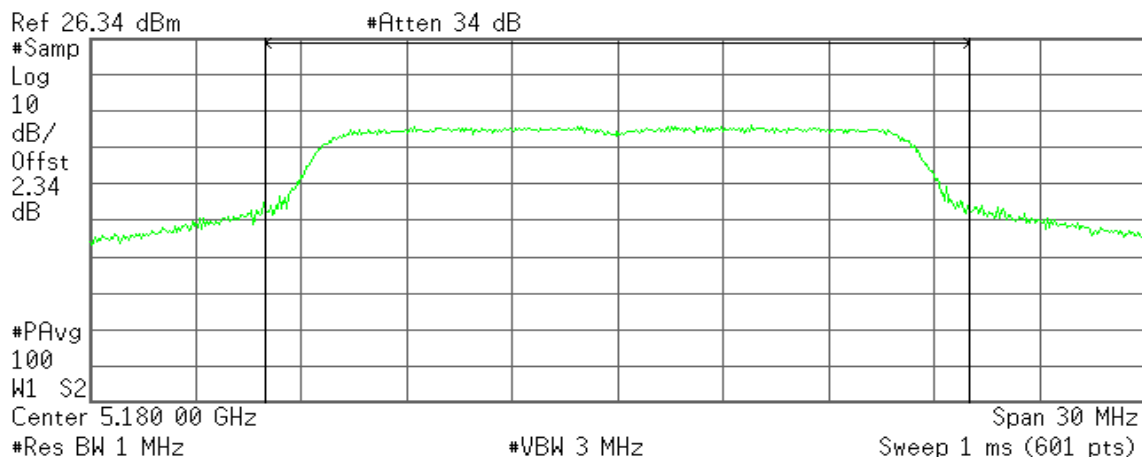


Test Plot / Dual-Band Omni-Directional Antenna

IEEE 802.11a Base mode

CH 5180 / 5dBi

Agilent 20:30:47 Oct 12, 2004



Channel Power

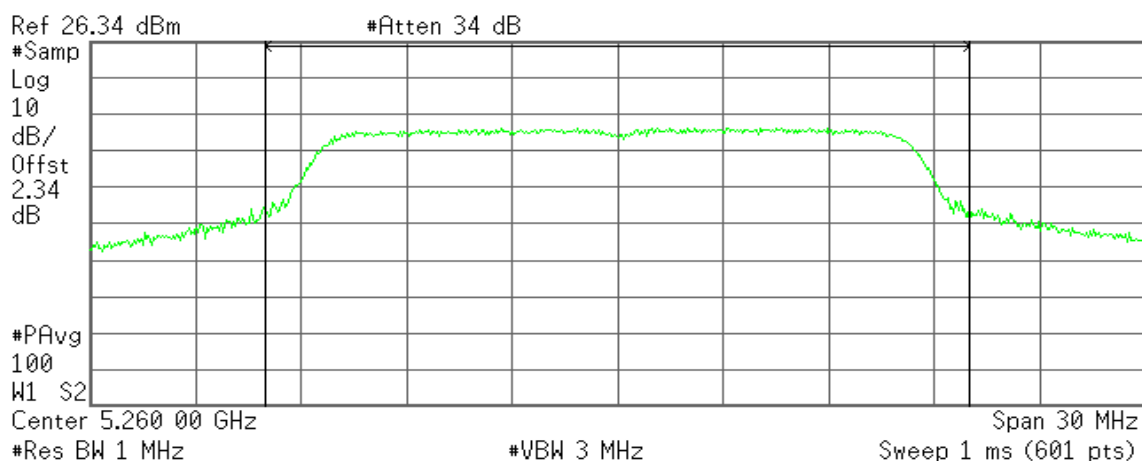
13.20 dBm /20.0000 MHz

Power Spectral Density

-59.81 dBm/Hz

CH 5260 / 5dBi

Agilent 20:34:31 Oct 12, 2004



Channel Power

13.88 dBm /20.0000 MHz

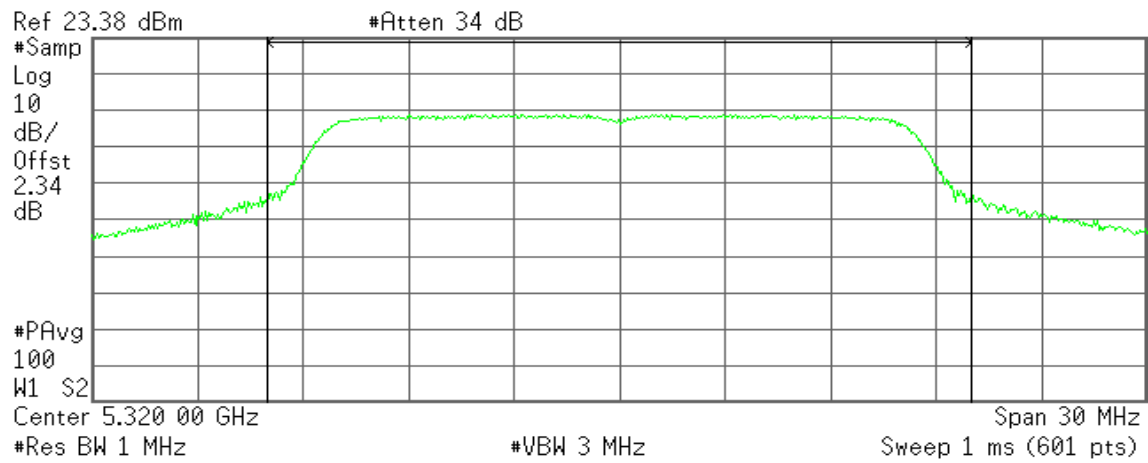
Power Spectral Density

-59.13 dBm/Hz



CH 5320 / 5dBi

Agilent 10:41:56 Oct 14, 2004



Channel Power

13.44 dBm /20.0000 MHz

Power Spectral Density

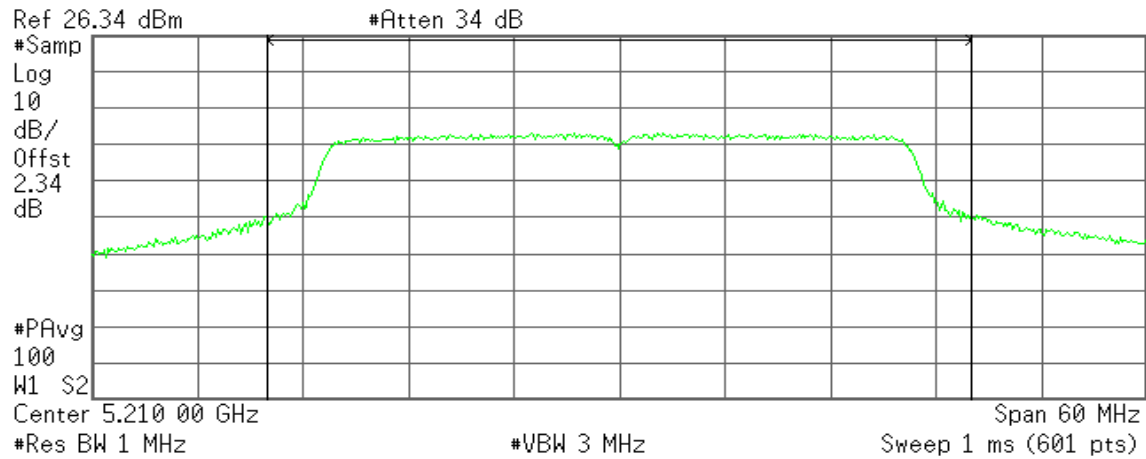
-59.57 dBm/Hz



IEEE 802.11a Turbo mode

CH 5210 / 5dBi

Agilent 21:16:00 Oct 12, 2004



Channel Power

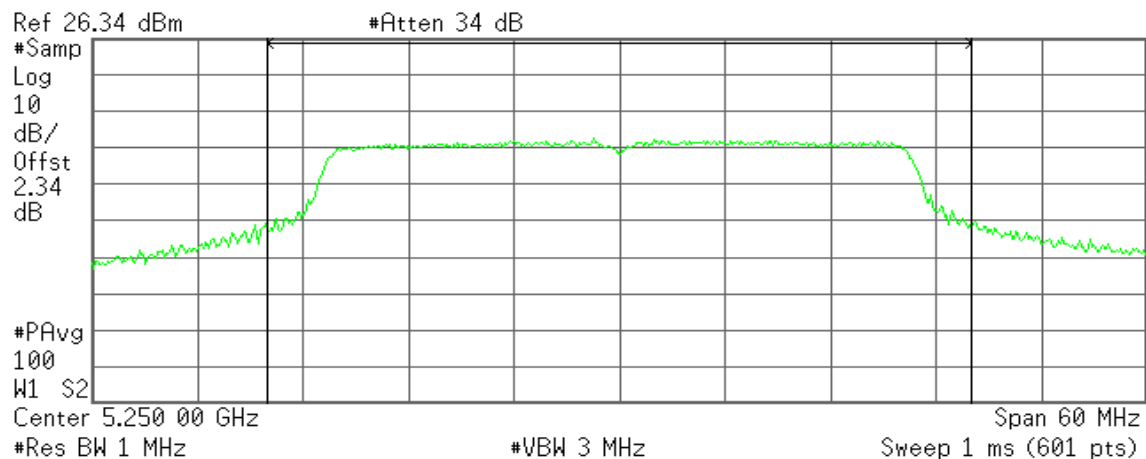
13.51 dBm /40.00000 MHz

Power Spectral Density

-62.51 dBm/Hz

CH 5250 / 5dBi

Agilent 21:21:22 Oct 12, 2004



Channel Power

12.50 dBm /40.00000 MHz

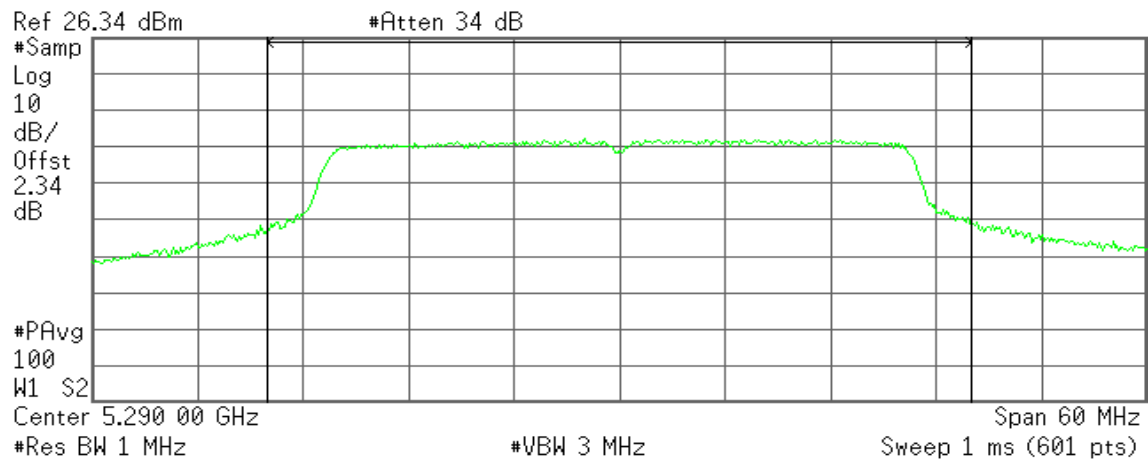
Power Spectral Density

-63.52 dBm/Hz



CH 5290 / 5dBi

Agilent 21:22:49 Oct 12, 2004



Channel Power

12.41 dBm /40.0000 MHz

Power Spectral Density

-63.61 dBm/Hz



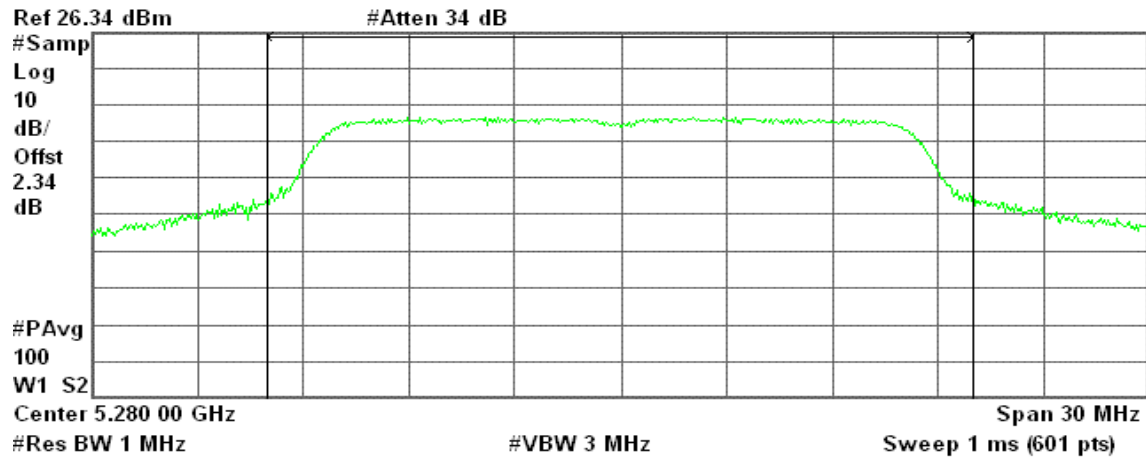
Panel Directional Antenna

IEEE 802.11a Base mode

CH 5280 / 14dBi

Agilent 11:38:22 Dec 17, 2004

T



Channel Power

14.07 dBm / 20.0000 MHz

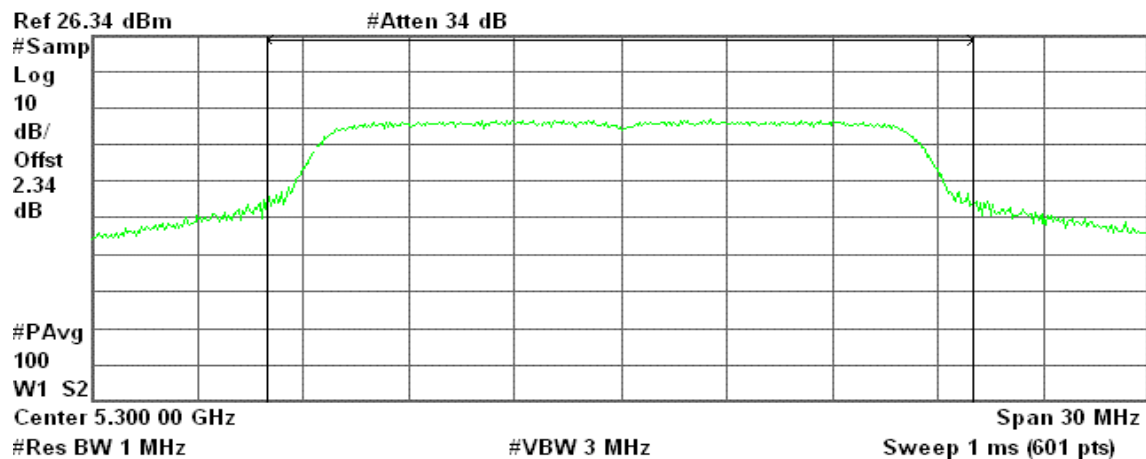
Power Spectral Density

-58.94 dBm/Hz

CH 5300 / 14dBi

Agilent 11:37:35 Dec 17, 2004

T



Channel Power

14.02 dBm / 20.0000 MHz

Power Spectral Density

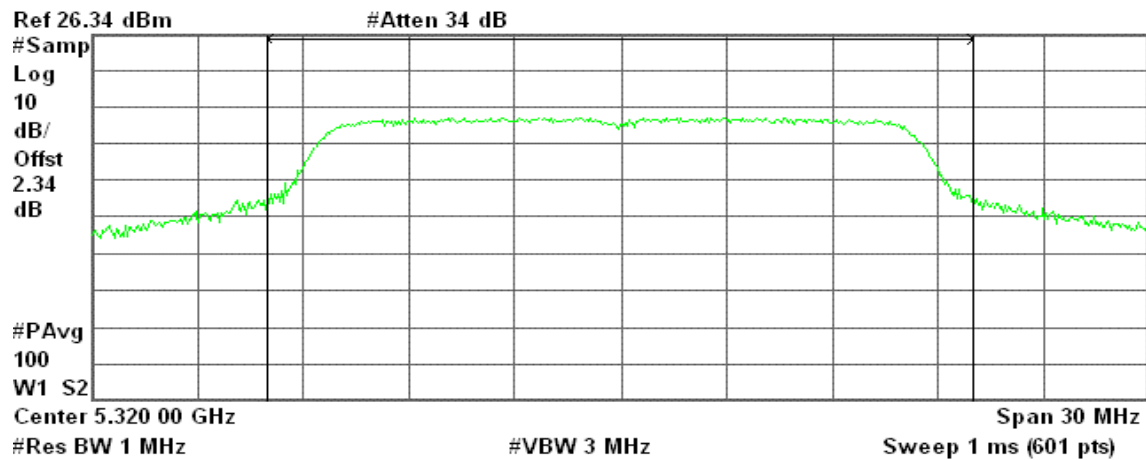
-59.00 dBm/Hz



CH 5320 / 14dBi

Agilent 11:36:30 Dec 17, 2004

L



Channel Power

14.14 dBm / 20.0000 MHz

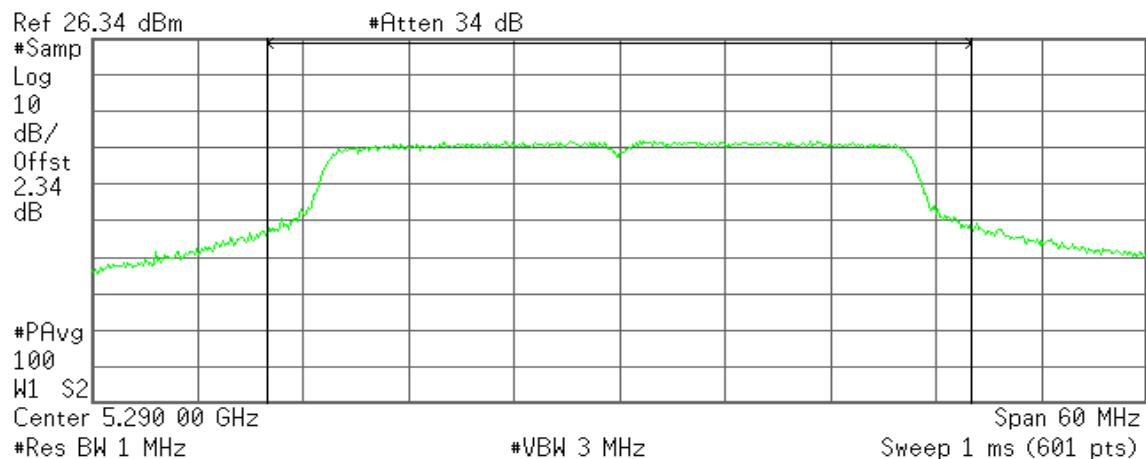
Power Spectral Density

-58.87 dBm/Hz

IEEE 802.11a Turbo mode

CH 5290 / 14dBi

Agilent 11:21:17 Oct 6, 2004



Channel Power

12.53 dBm / 40.00000 MHz

Power Spectral Density

-63.50 dBm/Hz

7.3 BAND EDGES MEASUREMENT

LIMIT

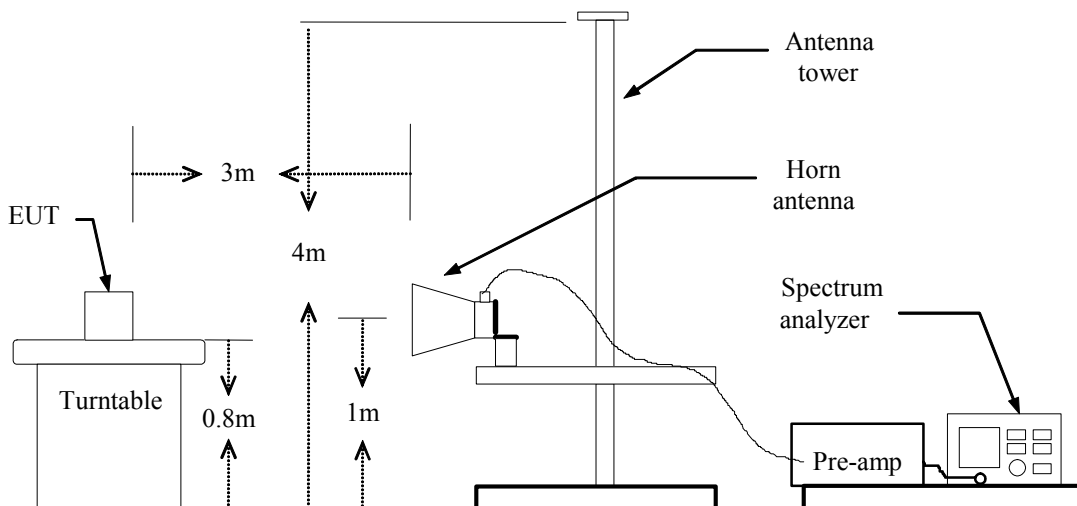
According to §15.407(c), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains 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 in §15.209(a).

MEASUREMENT EQUIPMENT USED

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY43360131	01/10/2005

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

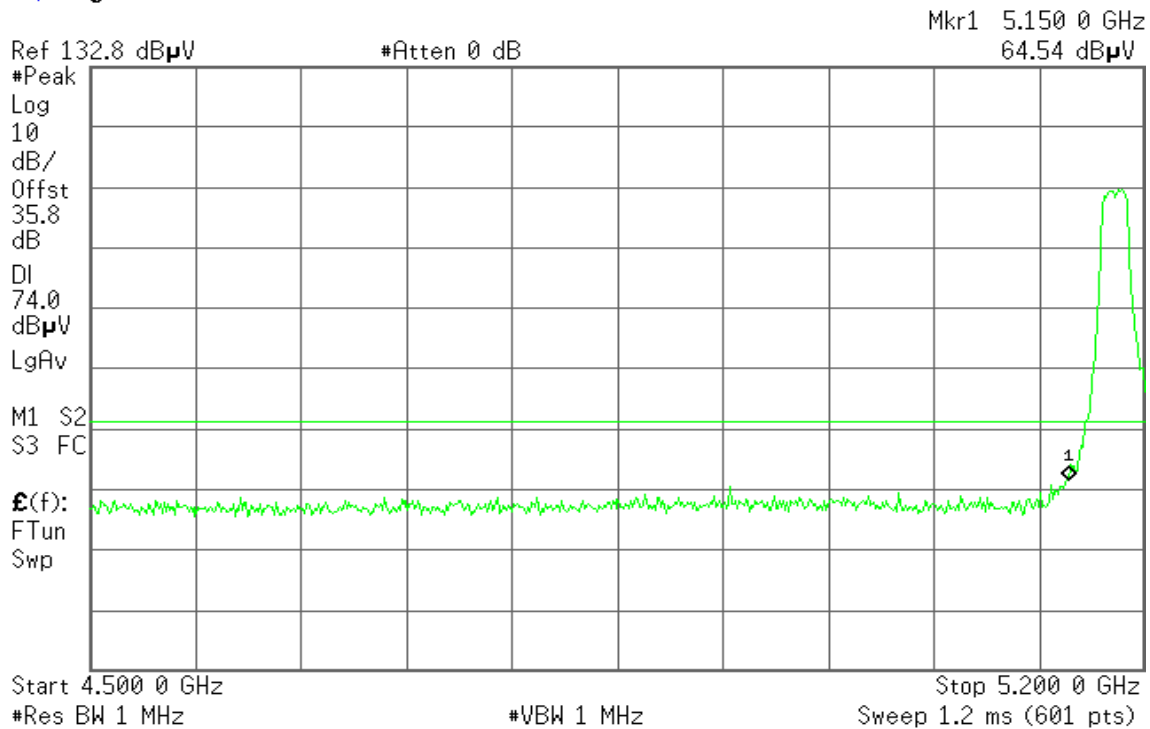
IEEE 802.11a Base mode / Dual-Band Omni-Directional Antenna

CH 5180 / 5dBi

Detector mode: Peak

Polarity: Vertical

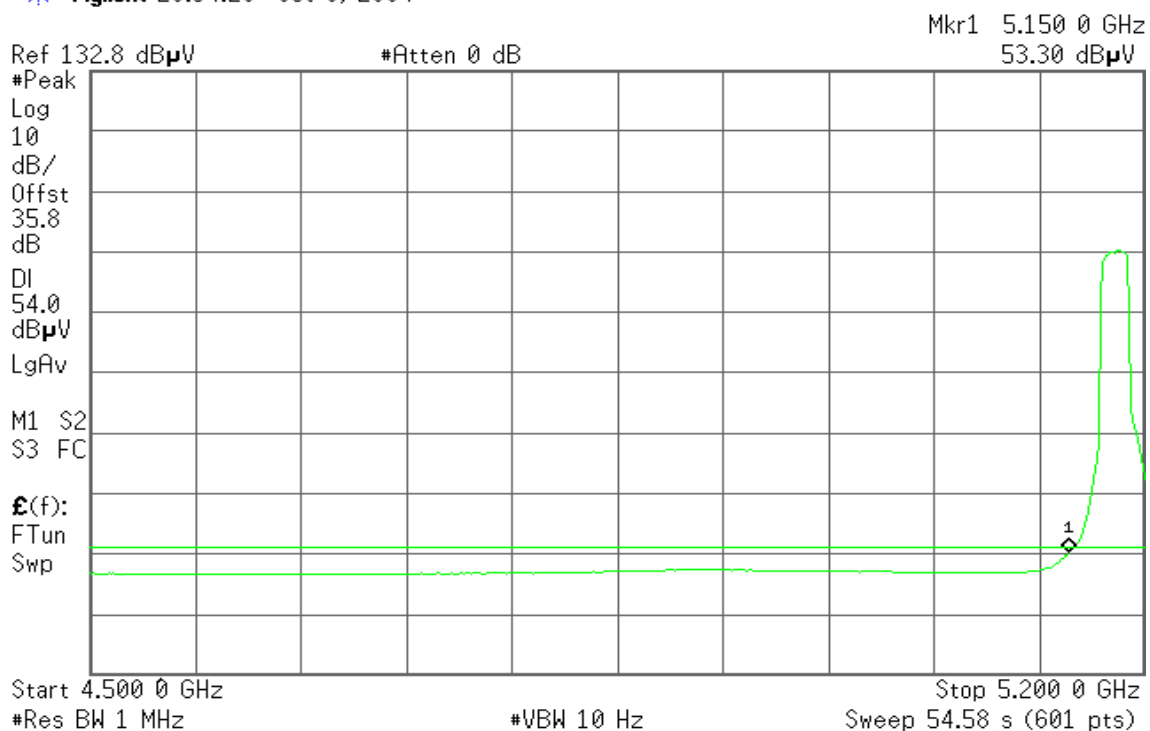
Agilent 20:33:09 Oct 6, 2004



Detector mode: Average

Polarity: Vertical

Agilent 20:34:26 Oct 6, 2004

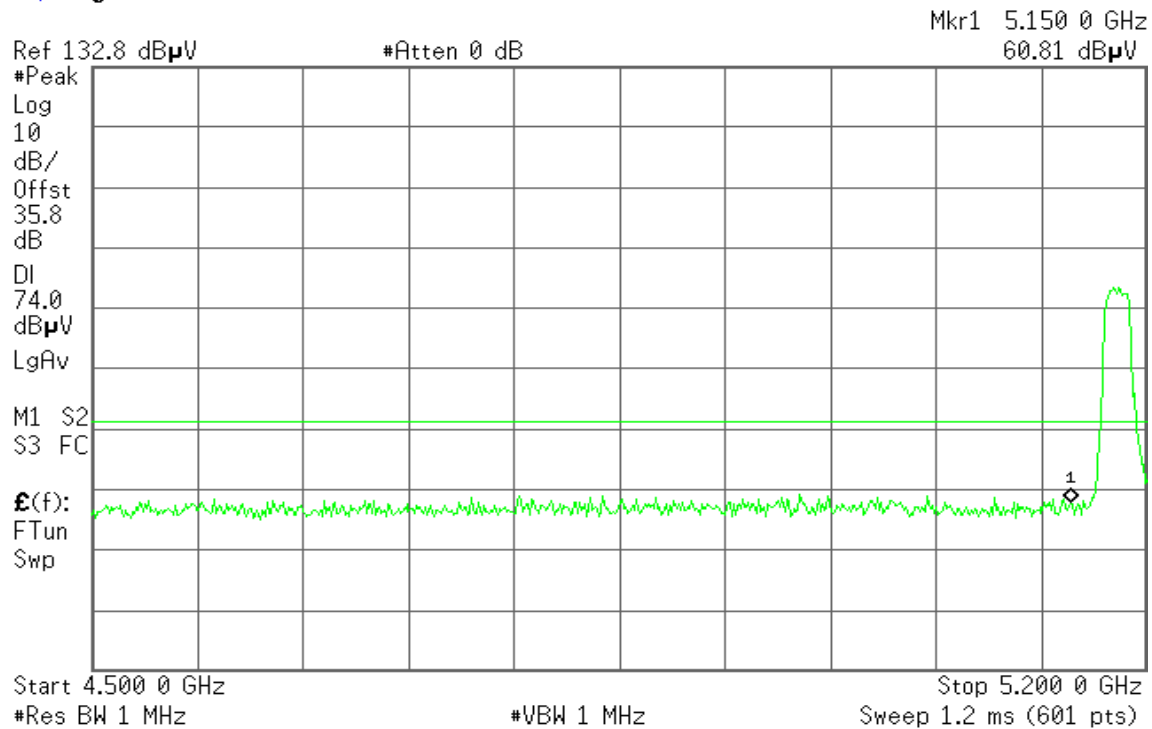




Detector mode: Peak

Polarity: Horizontal

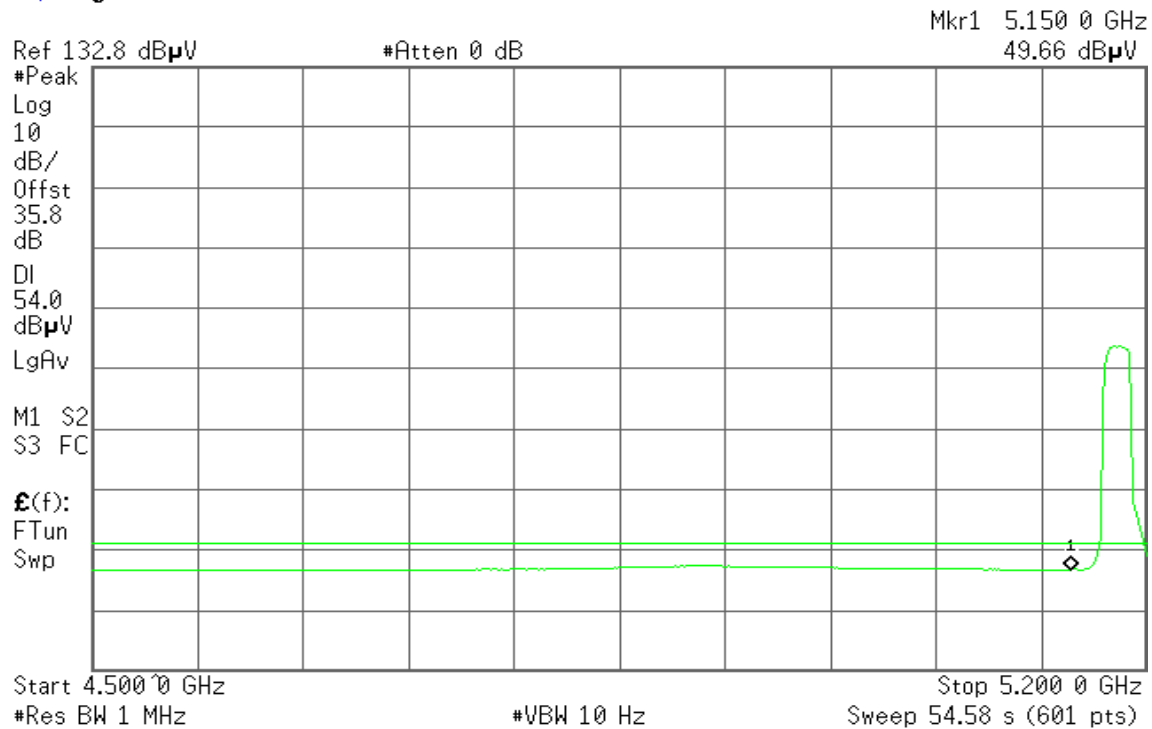
Agilent 20:40:33 Oct 6, 2004



Detector mode: Average

Polarity: Horizontal

Agilent 20:40:07 Oct 6, 2004





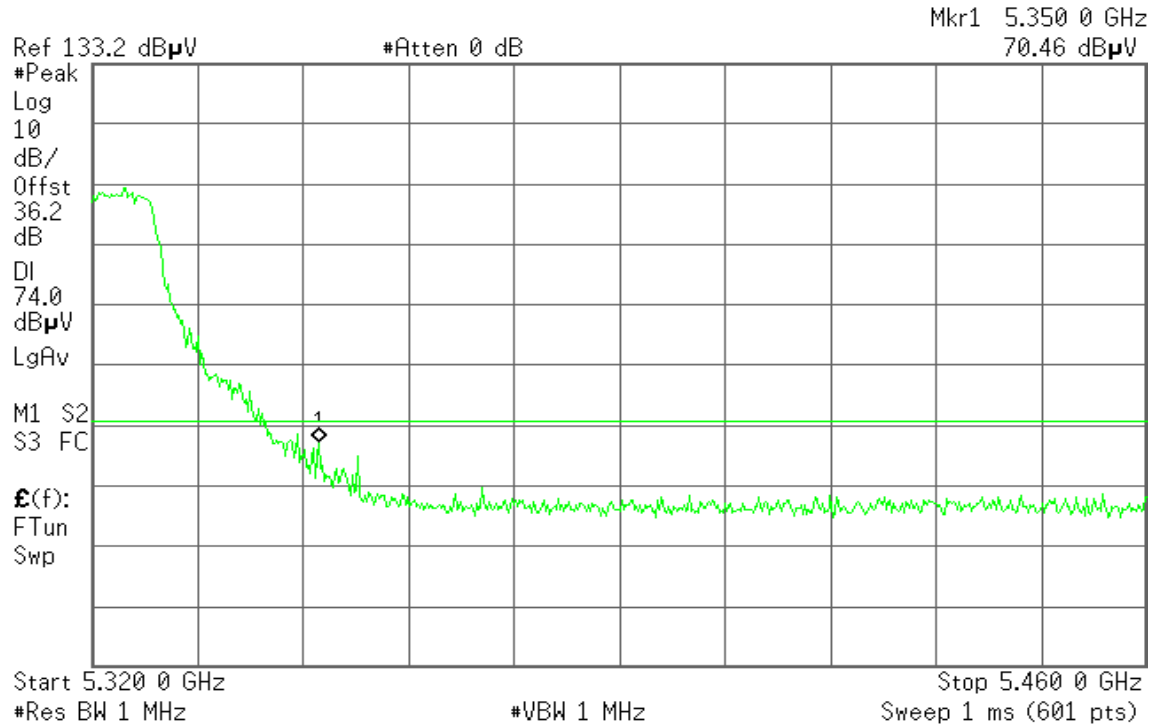
IEEE 802.11a Base mode

CH 5320 / 5dBi

Detector mode: Peak

Polarity: Vertical

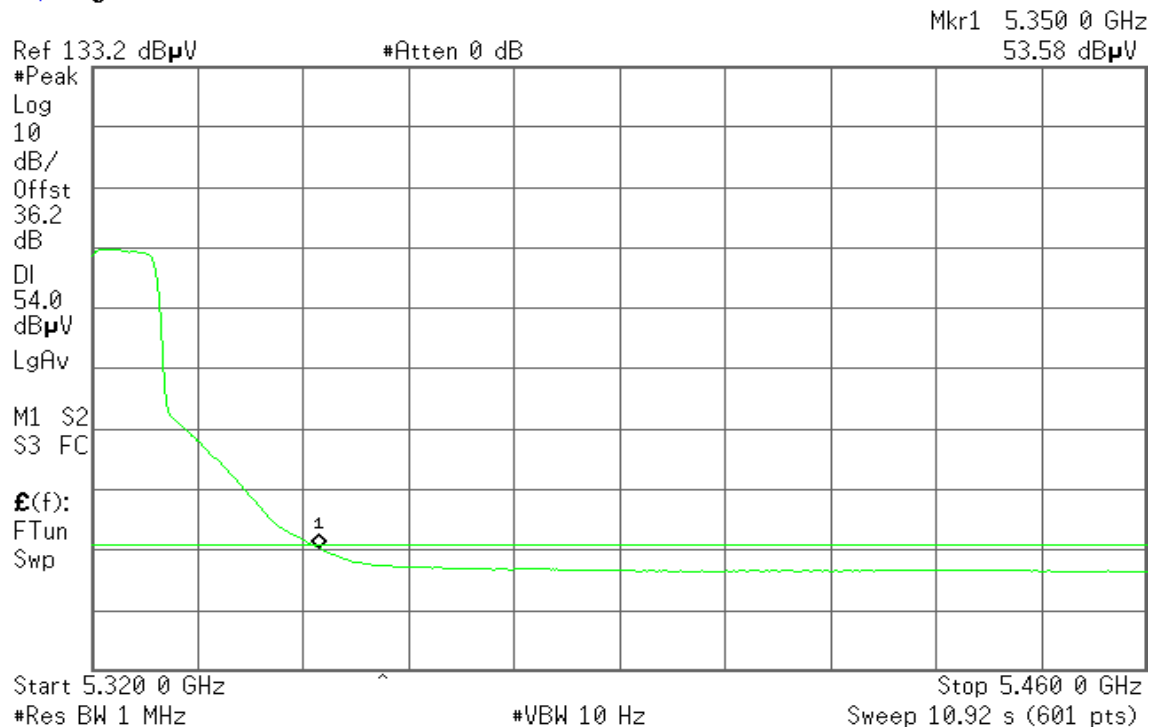
Agilent 20:47:54 Oct 6, 2004



Detector mode: Average

Polarity: Vertical

Agilent 20:47:25 Oct 6, 2004

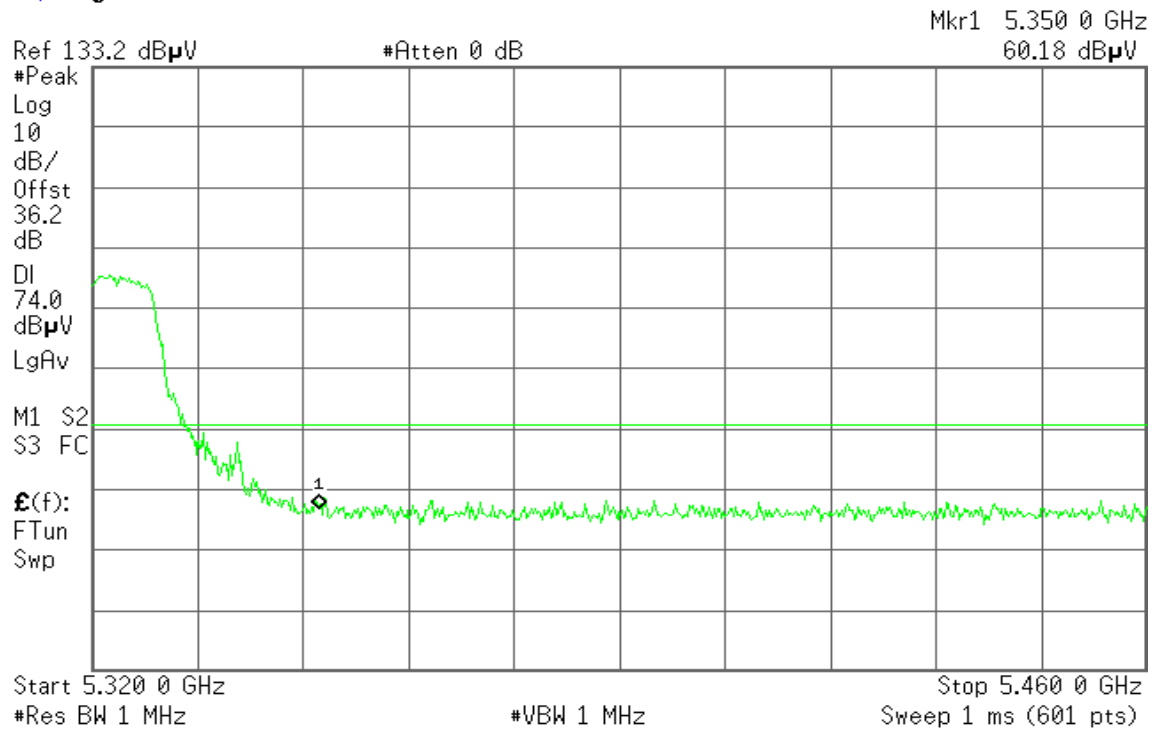




Detector mode: Peak

Polarity: Horizontal

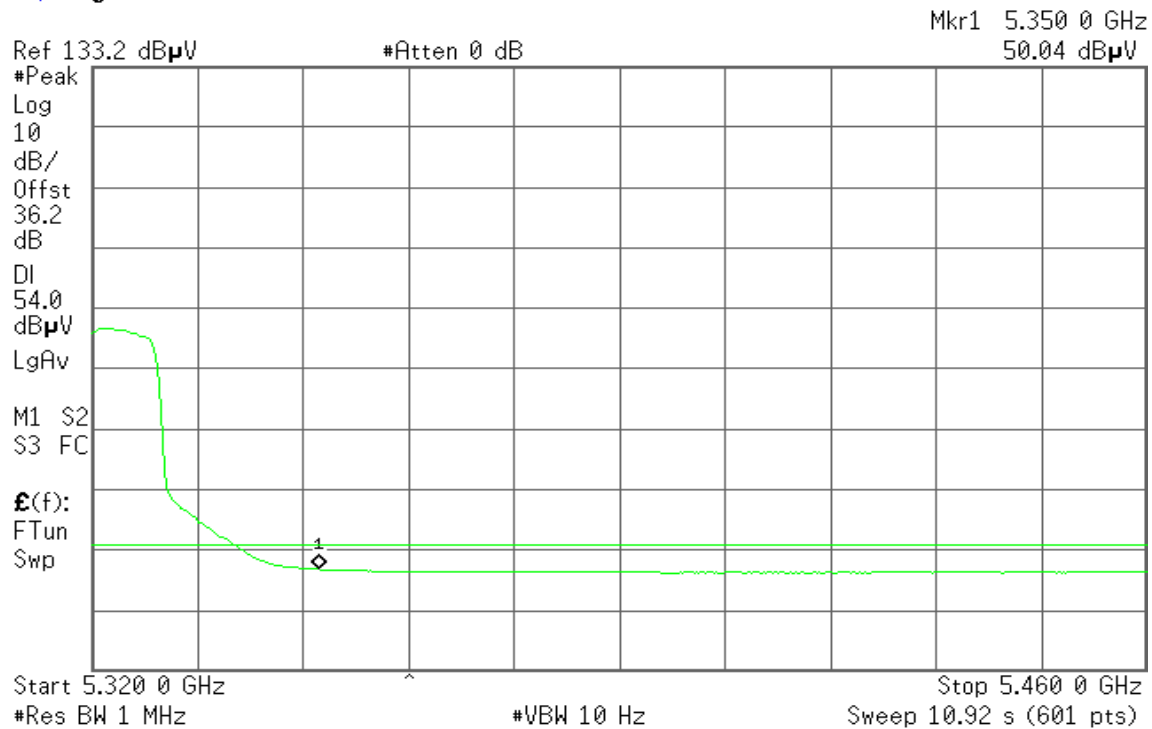
Agilent 20:53:31 Oct 6, 2004



Detector mode: Average

Polarity: Horizontal

Agilent 20:53:10 Oct 6, 2004





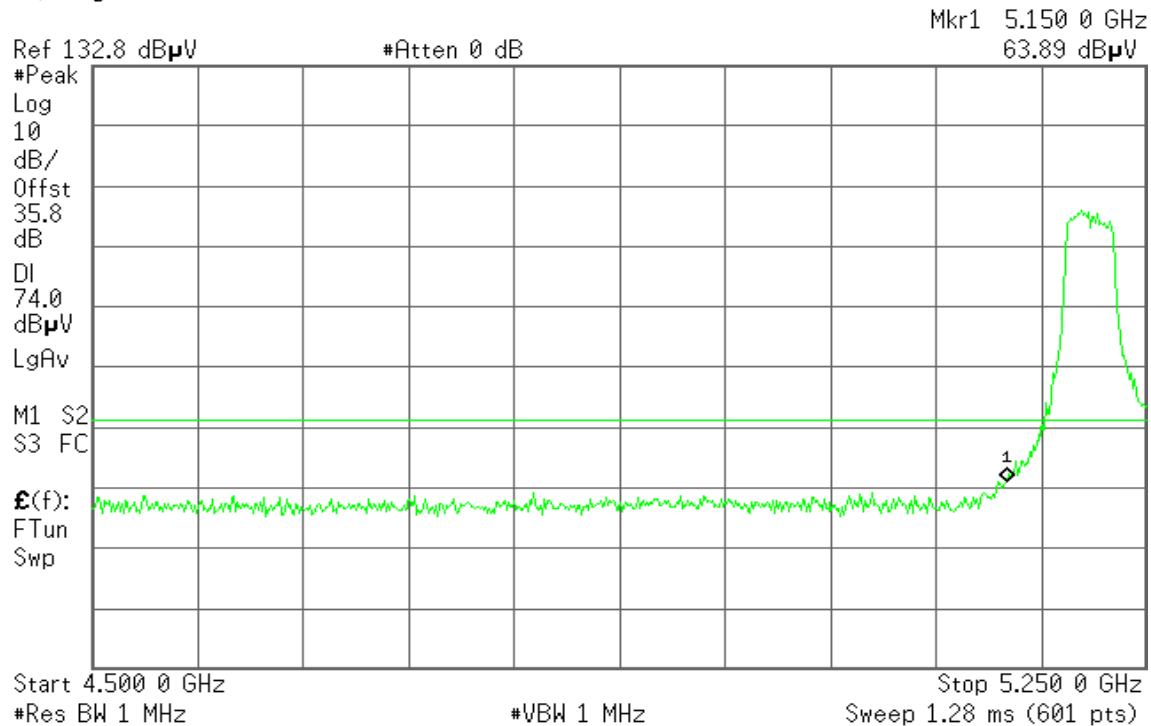
IEEE 802.11a Turbo mode

CH 5210 / 5dBi

Detector mode: Peak

Polarity: Vertical

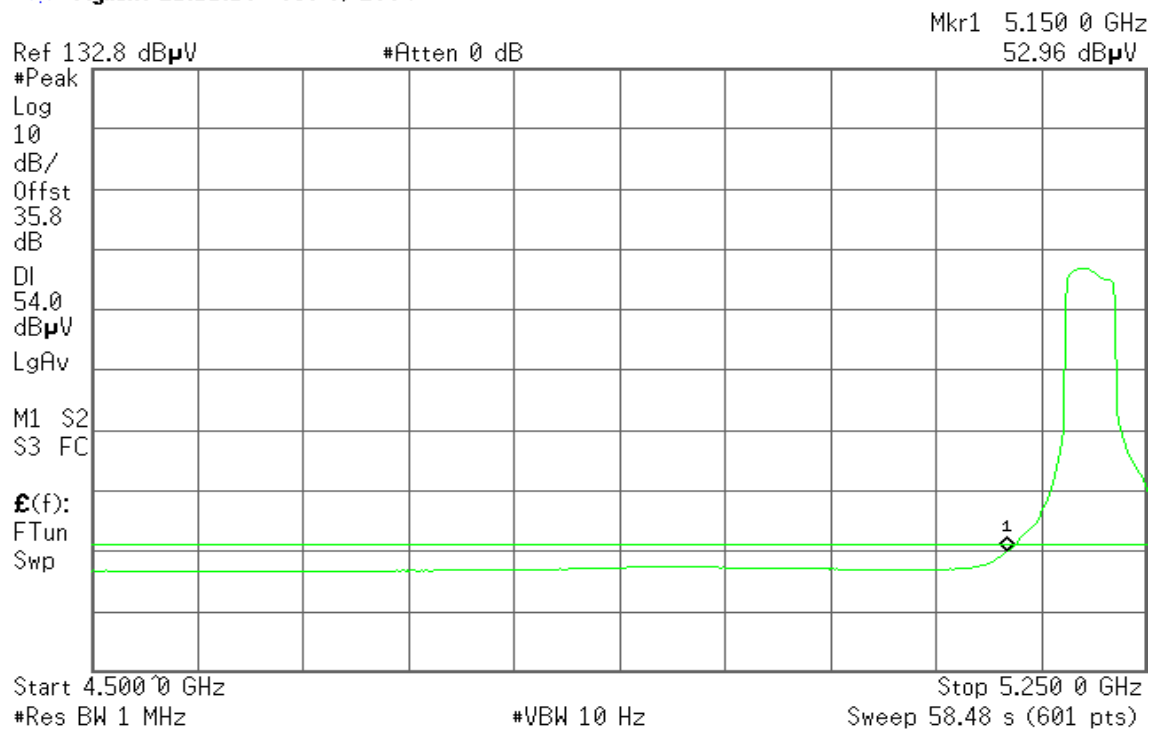
Agilent 21:11:39 Oct 6, 2004



Detector mode: Average

Polarity: Vertical

Agilent 21:11:10 Oct 6, 2004

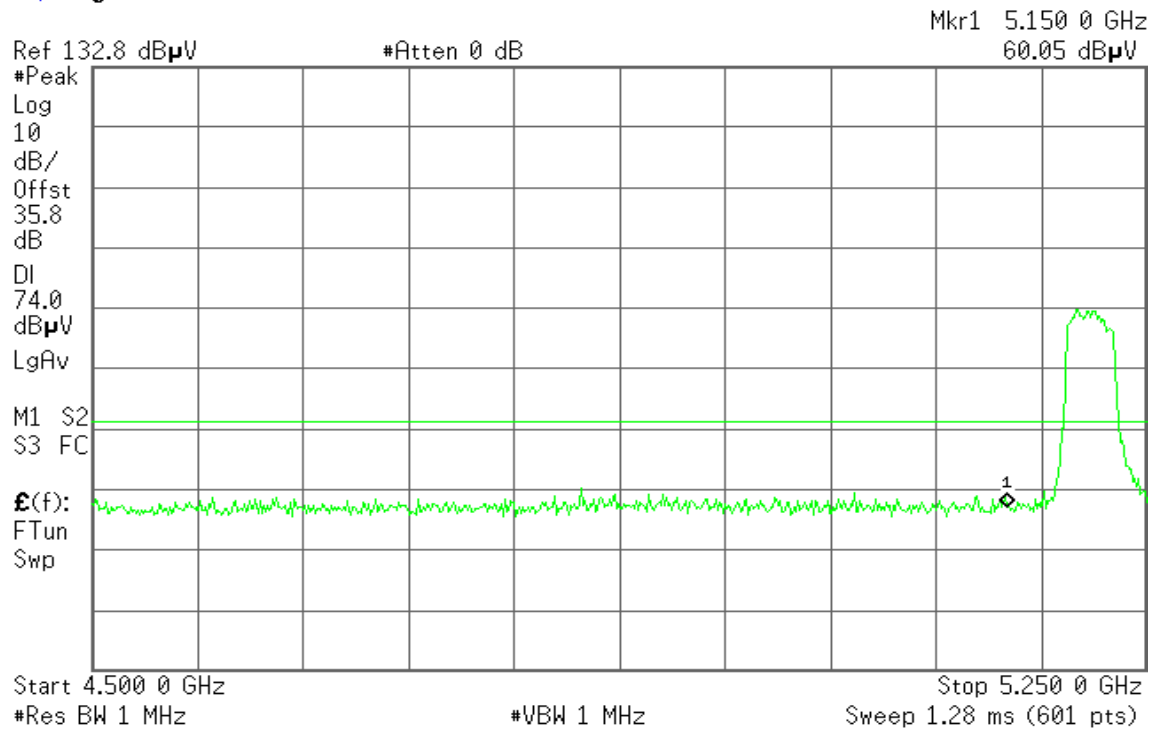




Detector mode: Peak

Polarity: Horizontal

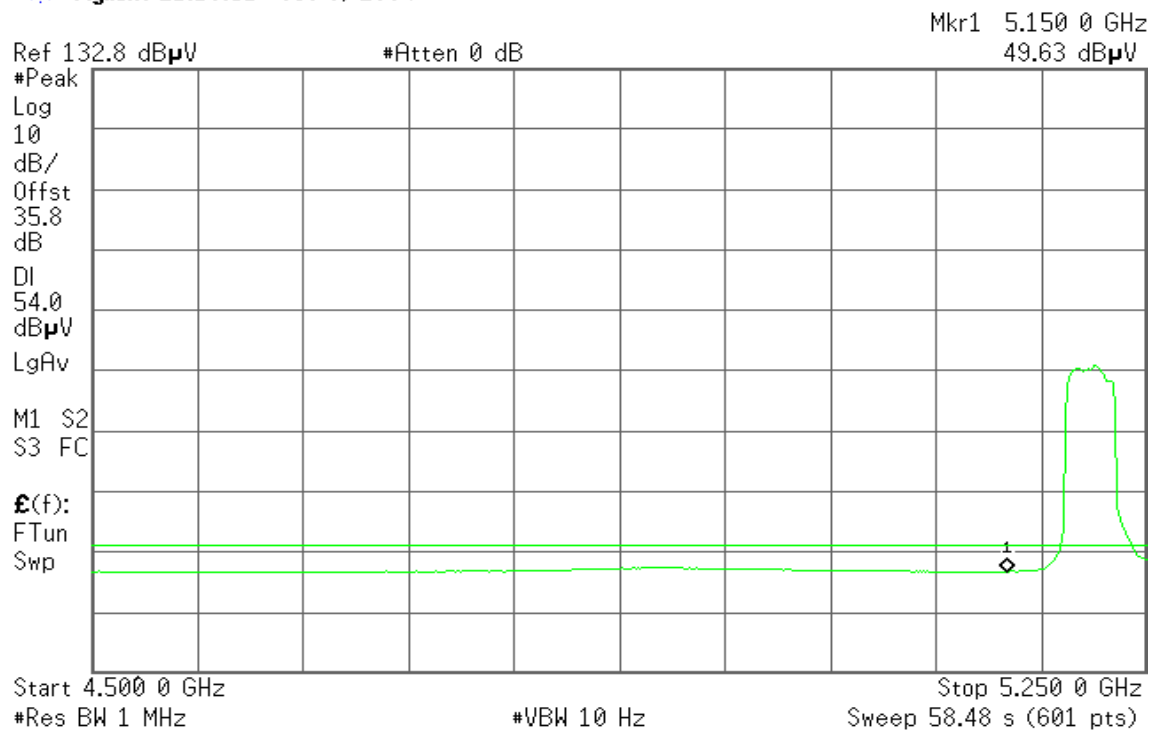
Agilent 21:17:18 Oct 6, 2004



Detector mode: Average

Polarity: Horizontal

Agilent 21:16:51 Oct 6, 2004





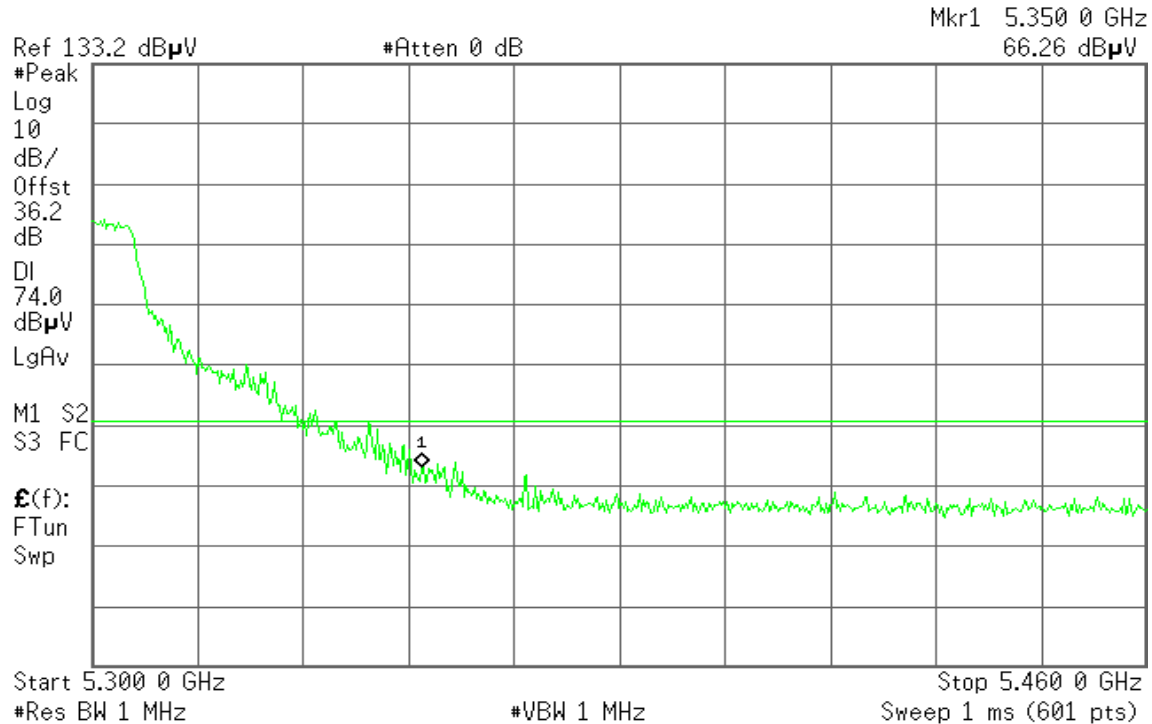
IEEE 802.11a Turbo mode

CH 5290 / 5dBi

Detector mode: Peak

Polarity: Vertical

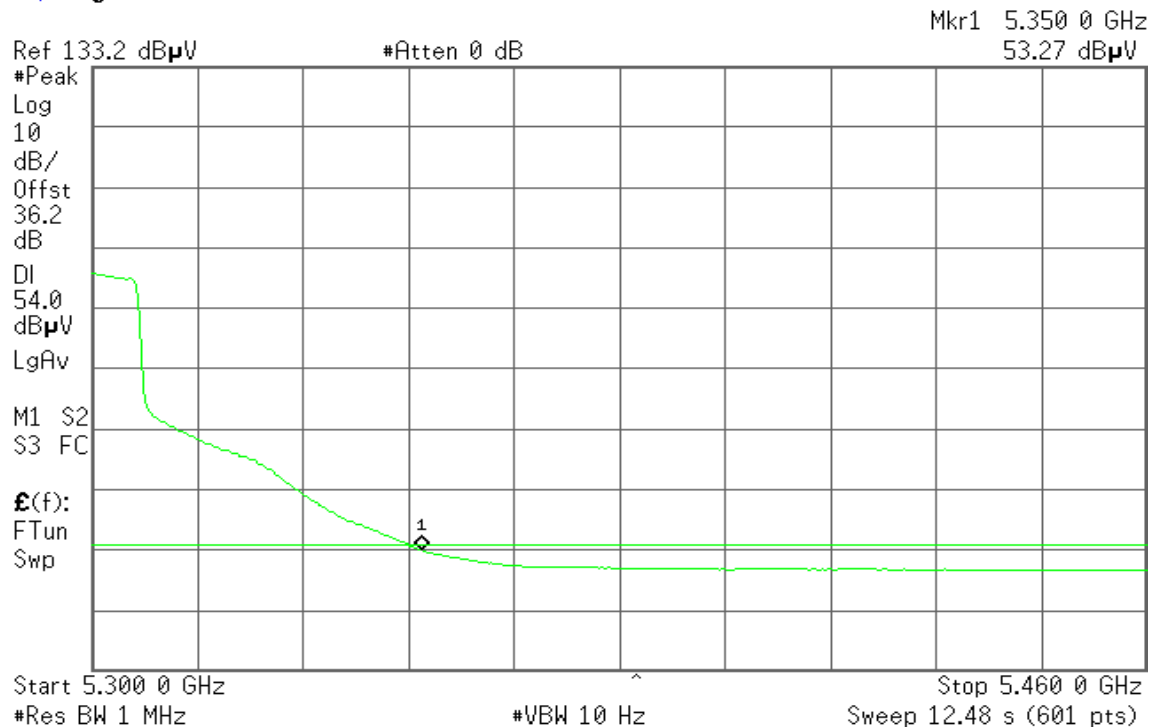
Agilent 20:59:34 Oct 6, 2004



Detector mode: Average

Polarity: Vertical

Agilent 20:59:14 Oct 6, 2004

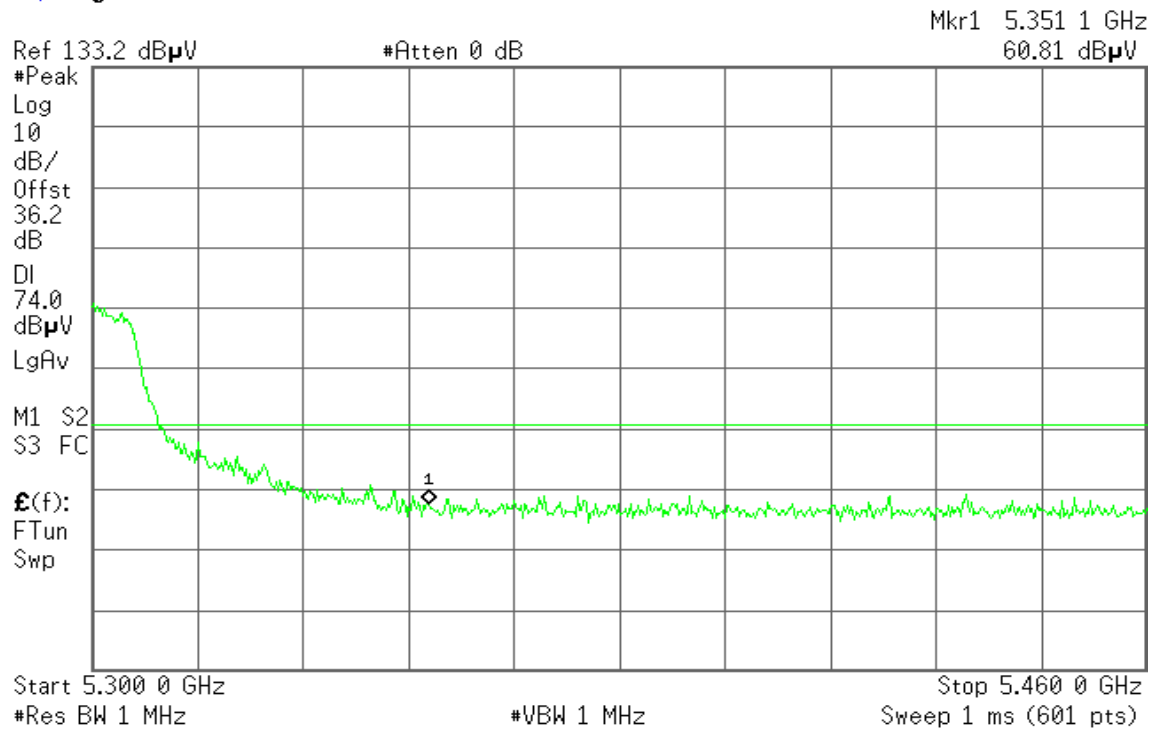




Detector mode: Peak

Polarity: Horizontal

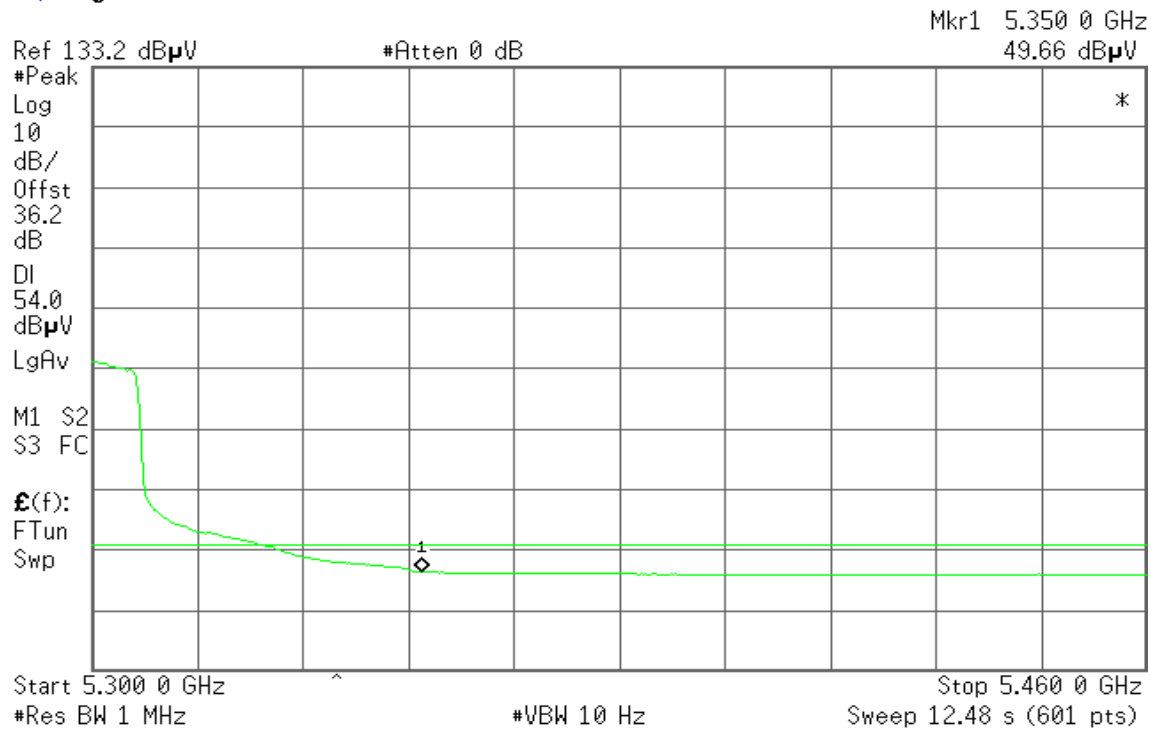
Agilent 21:05:20 Oct 6, 2004



Detector mode: Average

Polarity: Horizontal

Agilent 21:04:49 Oct 6, 2004





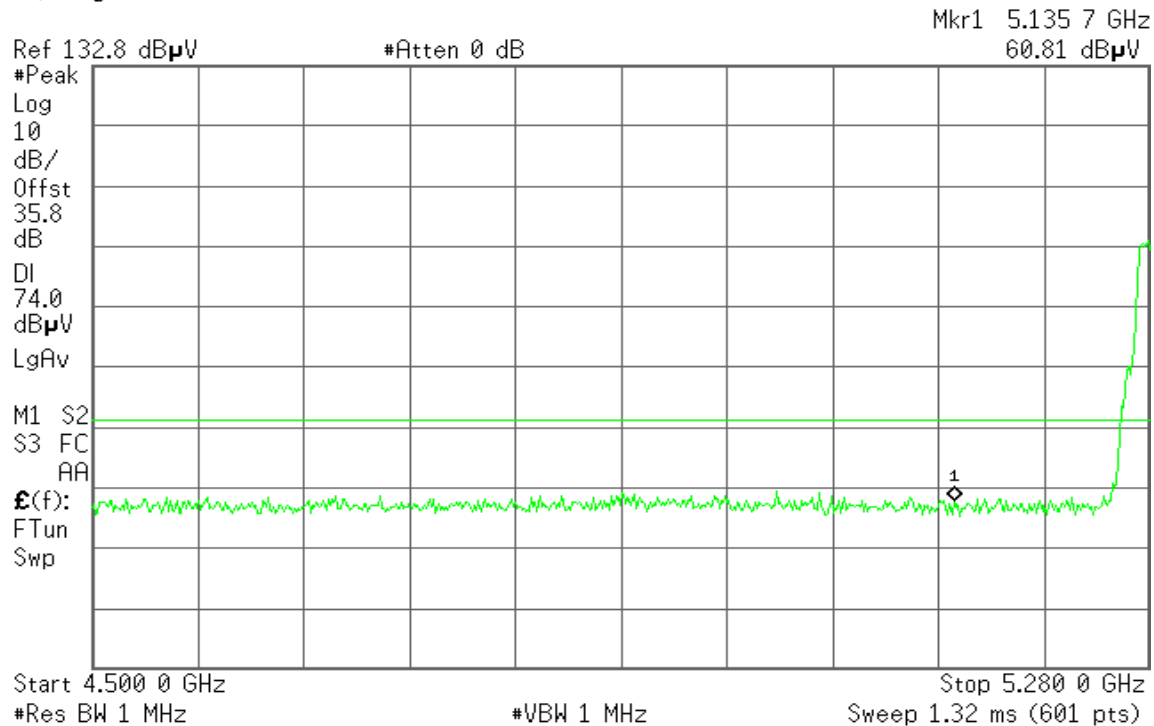
IEEE 802.11a Base mode / Panel Directional Antenna

CH 5280 / 14dBi

Detector mode: Peak

Polarity: Vertical

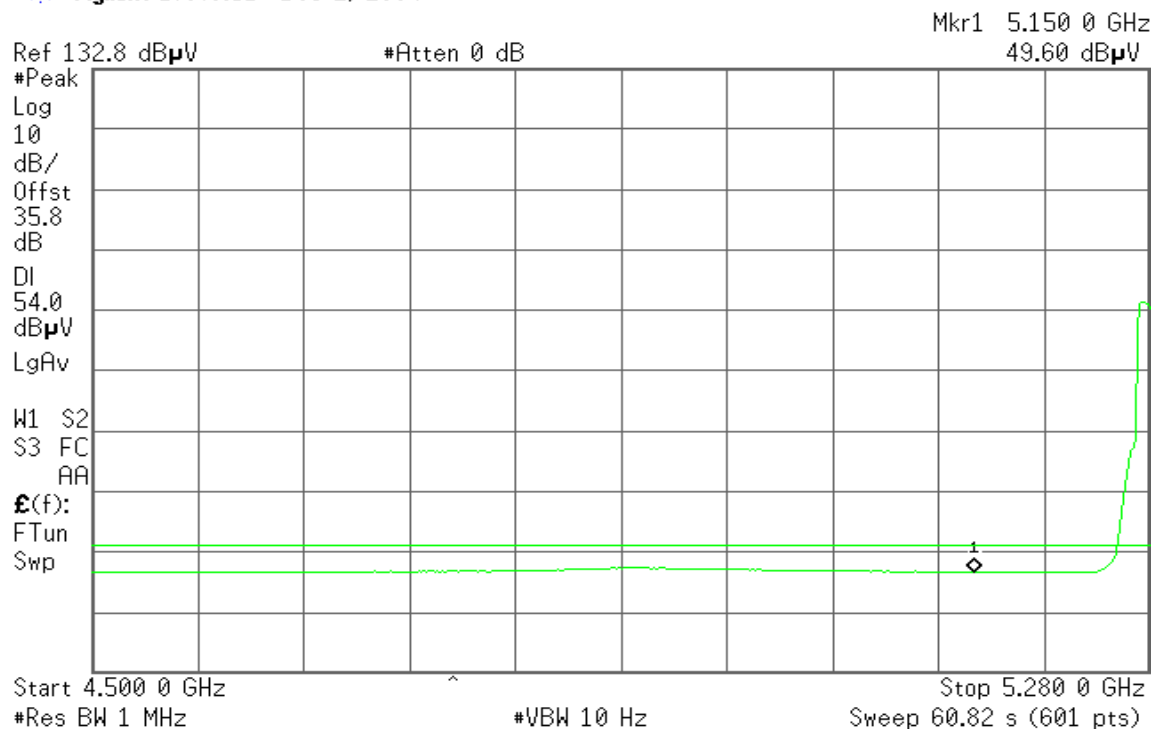
* Agilent 17:47:17 Dec 2, 2004



Detector mode: Average

Polarity: Vertical

* Agilent 17:46:51 Dec 2, 2004

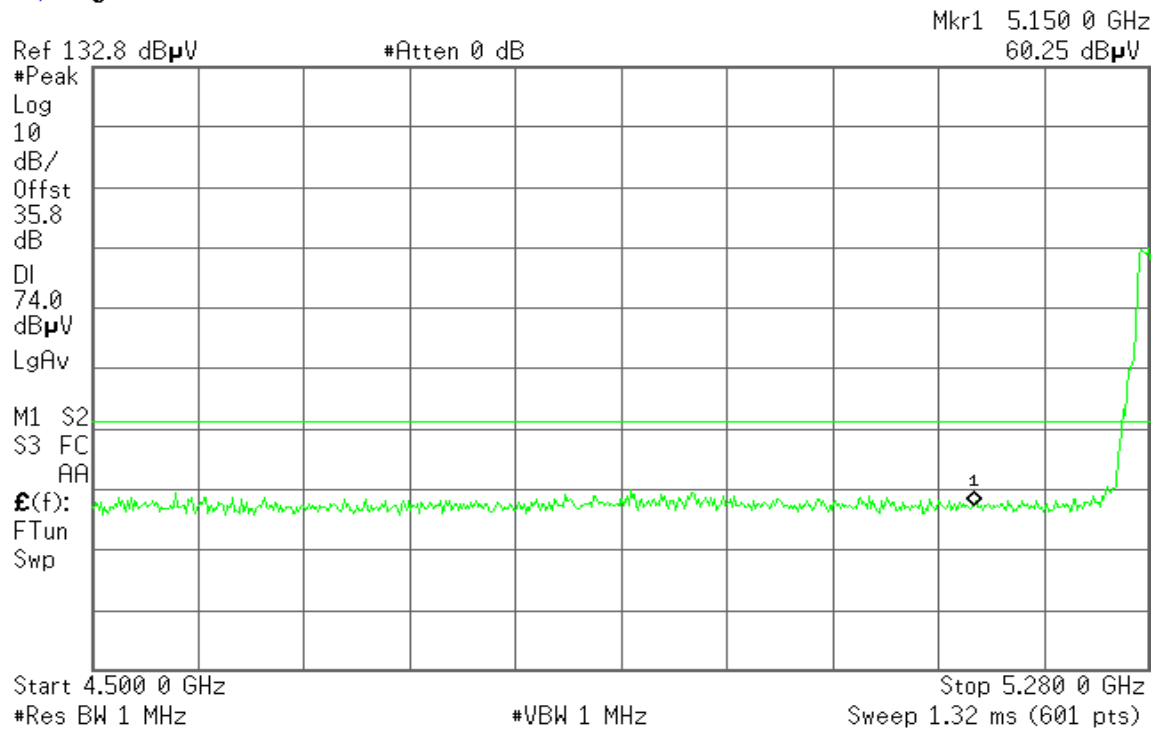




Detector mode: Peak

Polarity: Horizontal

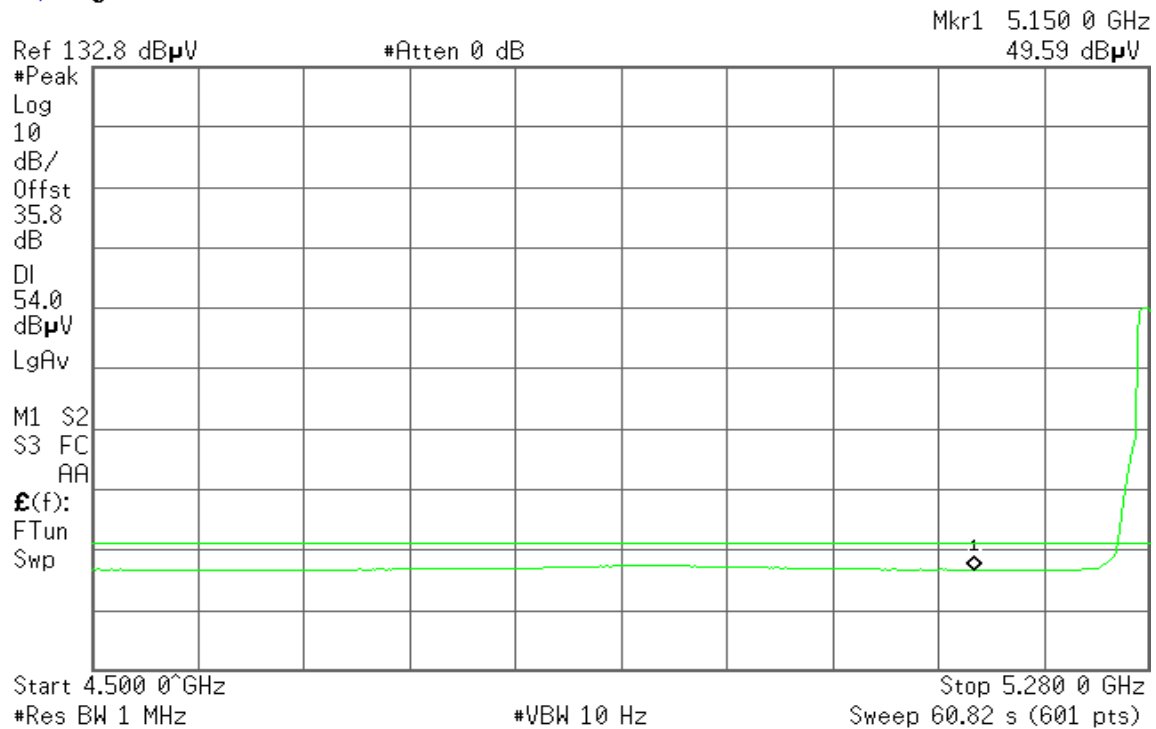
Agilent 17:53:04 Dec 2, 2004



Detector mode: Average

Polarity: Horizontal

Agilent 17:54:26 Dec 2, 2004



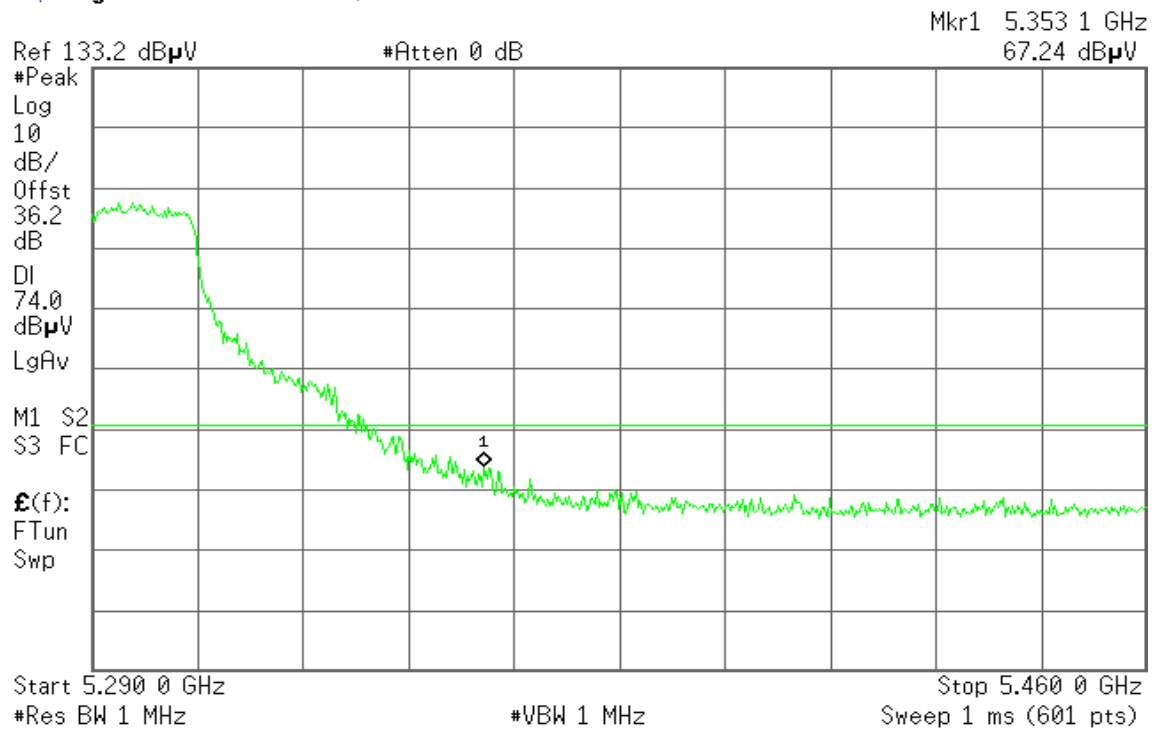


CH 5320 / 14dBi

Detector mode: Peak

Polarity: Vertical

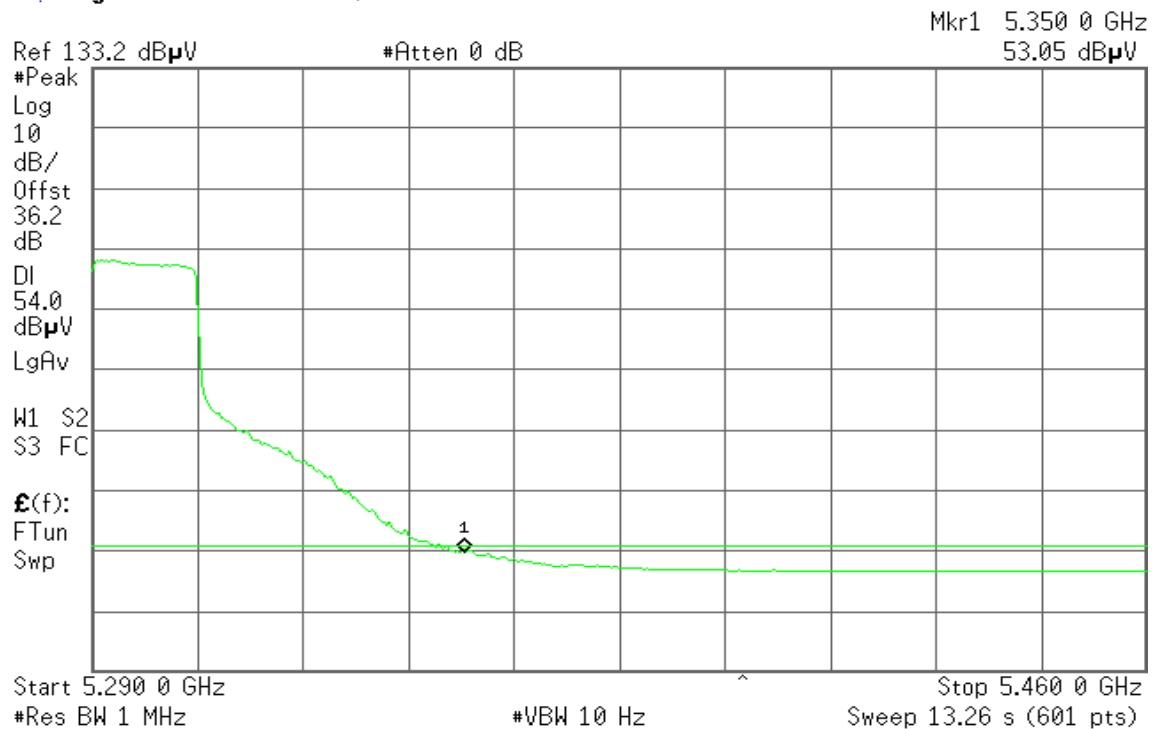
Agilent 11:49:46 Oct 18, 2004



Detector mode: Average

Polarity: Vertical

Agilent 11:49:09 Oct 18, 2004

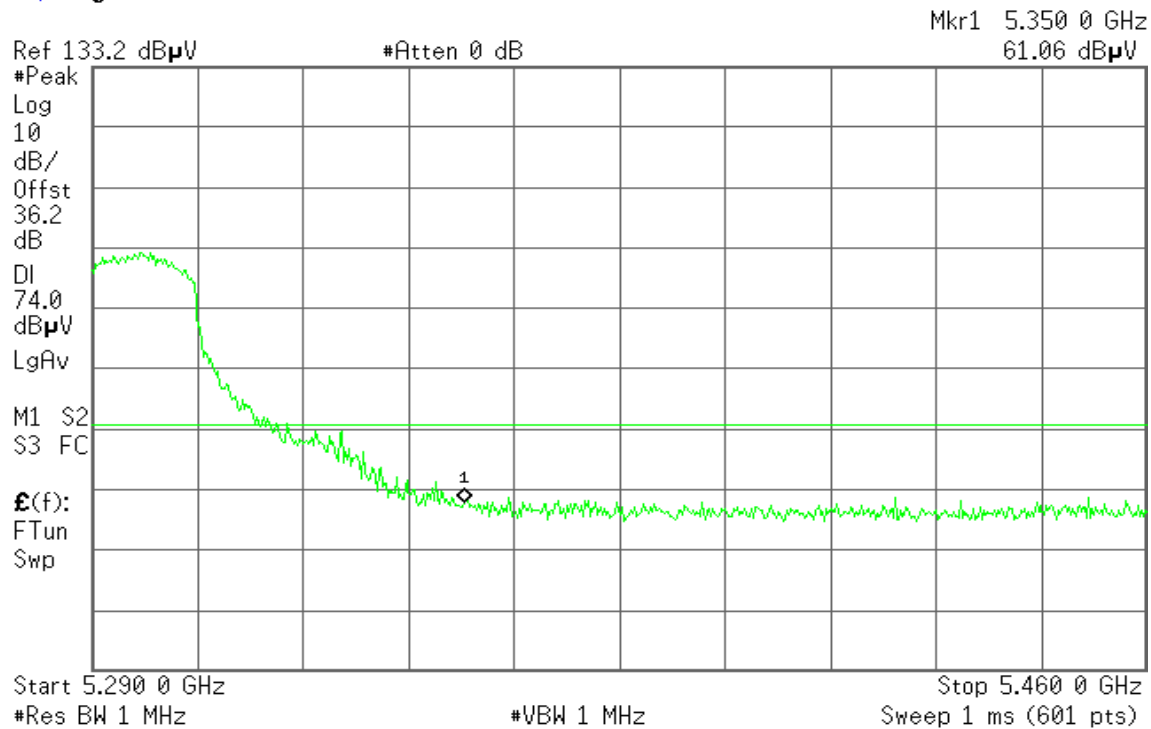




Detector mode: Peak

Polarity: Horizontal

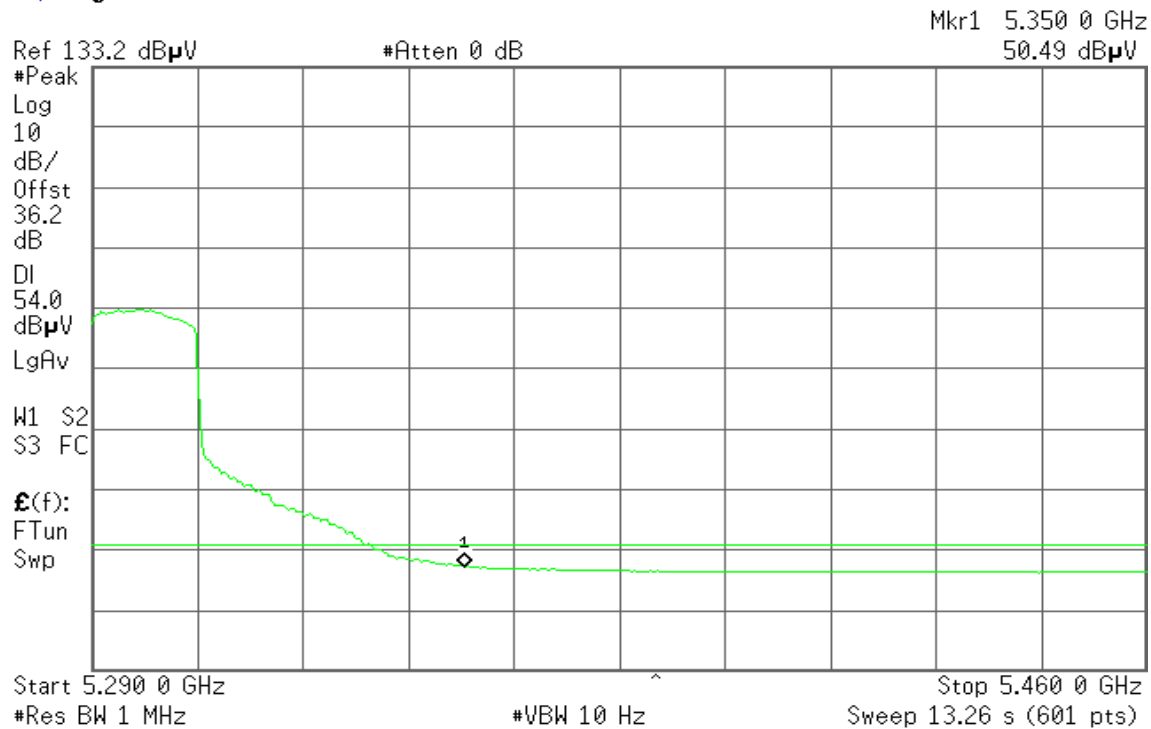
Agilent 11:53:33 Oct 18, 2004



Detector mode: Average

Polarity: Horizontal

Agilent 11:53:07 Oct 18, 2004





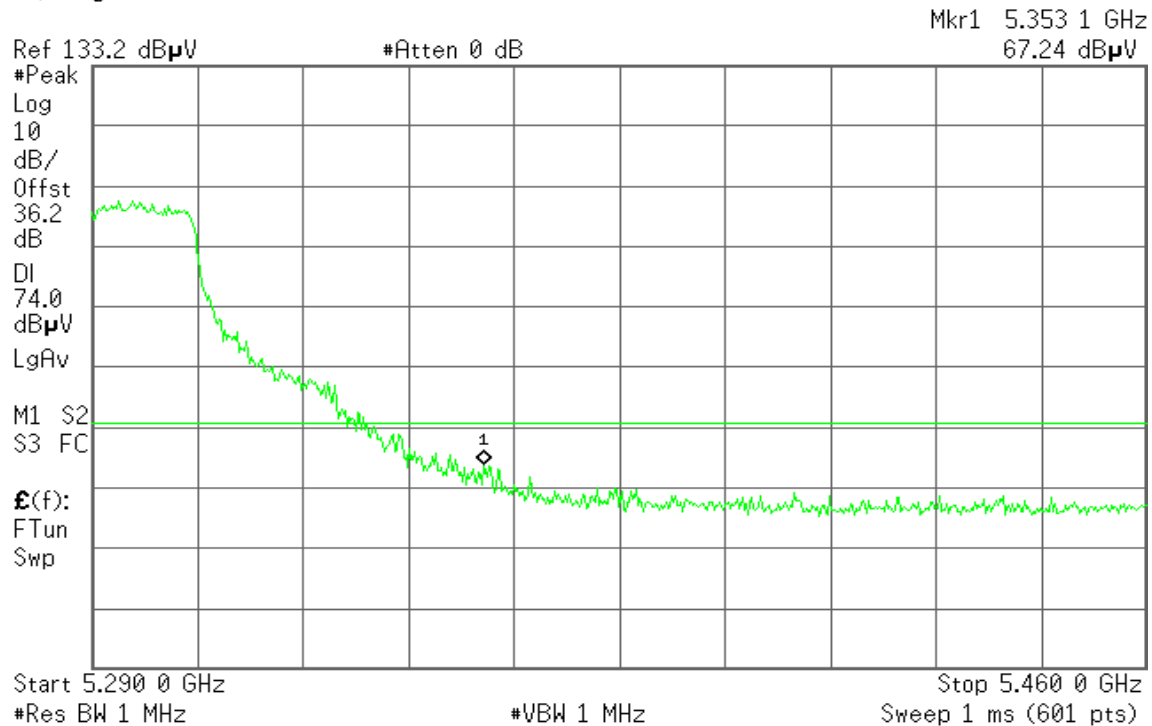
IEEE 802.11a Turbo mode

CH 5290 / 14dBi

Detector mode: Peak

Polarity: Vertical

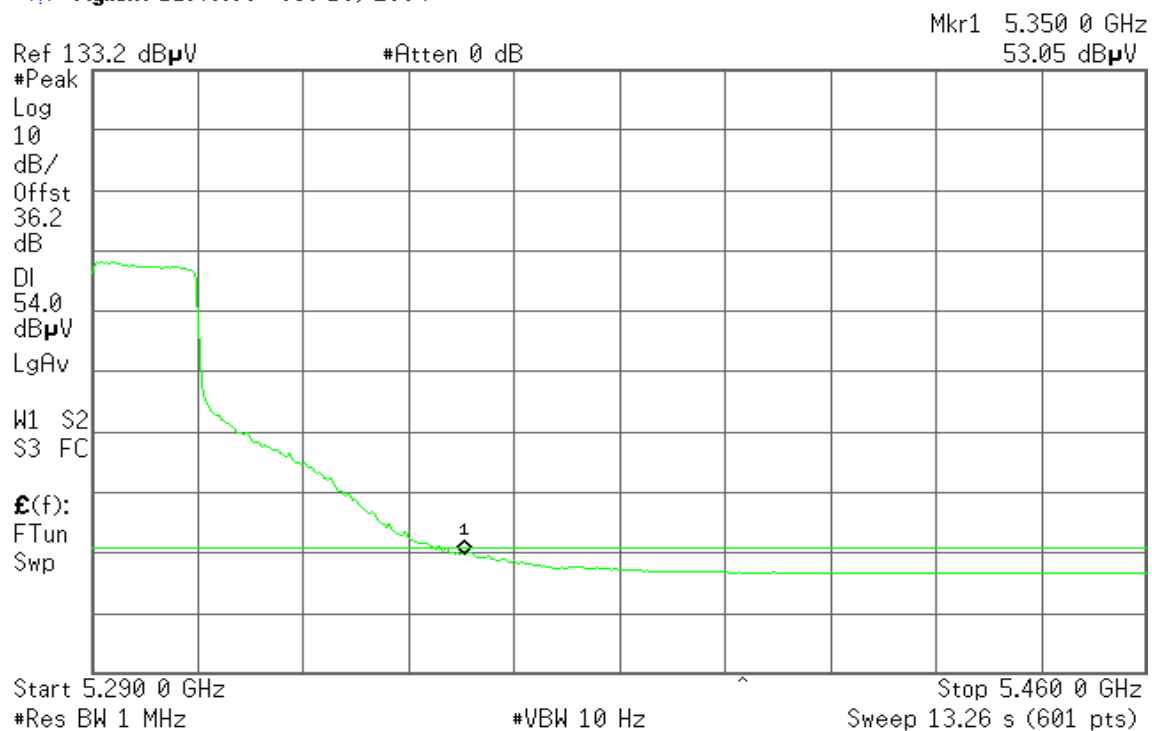
Agilent 11:49:46 Oct 18, 2004



Detector mode: Average

Polarity: Vertical

Agilent 11:49:09 Oct 18, 2004

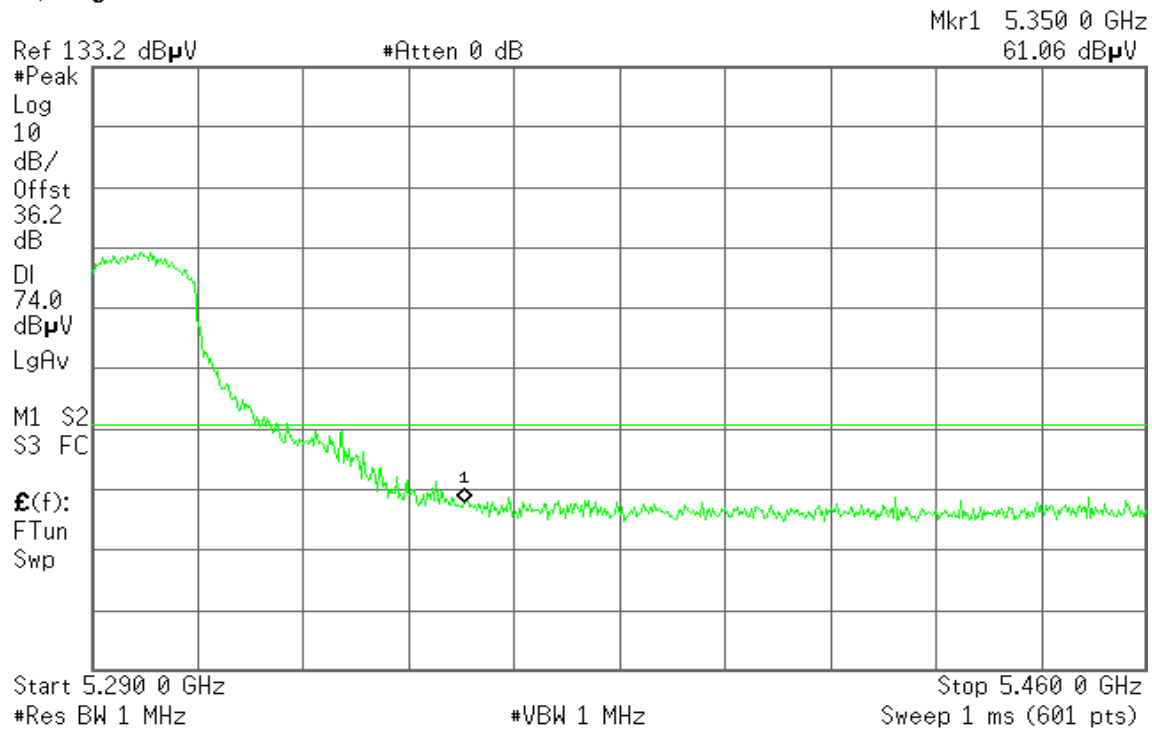




Detector mode: Peak

Polarity: Horizontal

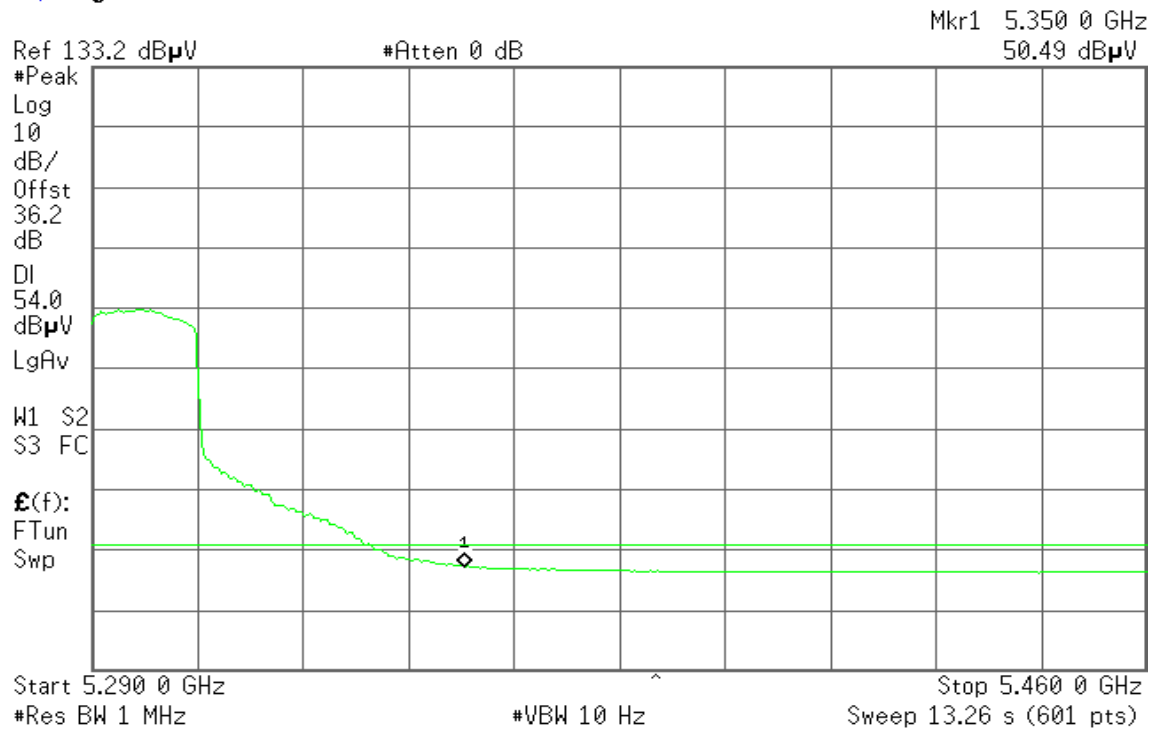
Agilent 11:53:33 Oct 18, 2004



Detector mode: Average

Polarity: Horizontal

Agilent 11:53:07 Oct 18, 2004





7.4 PEAK POWER SPECTRAL DENSITY

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.

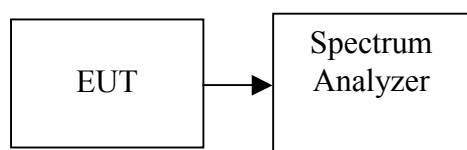
If transmitting antennas of directional gain greater than 6dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

MEASUREMENT EQUIPMENT USED

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY43360131	01/10/2005

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= Auto.
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 / Dual-Band Omni-Directional Antenna**

Frequency (MHz)			PPSD (dBm)	Limit (dBm)	Margin (dB)	Antenna Gain (dBi)	Result
Base mode	Channel 1	5180	0.549	4	-3.451	5	PASS
	Channel 5	5260	0.302	11	-10.698		
	Channel 8	5320	-1.16	11	-12.160		
Turbo mode		5210	-2.7	4	-6.700		
		5250	-2.874	11	-8.126		
		5290	4.864	11	-6.136		

Panel Directional Antenna

Frequency (MHz)			PPSD (dBm)	Limit (dBm)	Margin (dB)	Antenna Gain (dBi)	Result
Base mode	Channel 6	5280	2.703	3	-8.297	14	PASS
	Channel 7	5300	2.860		-8.14		
	Channel 8	5320	3.156		-7.844		
Turbo mode		5290	-1.762		-12.762		

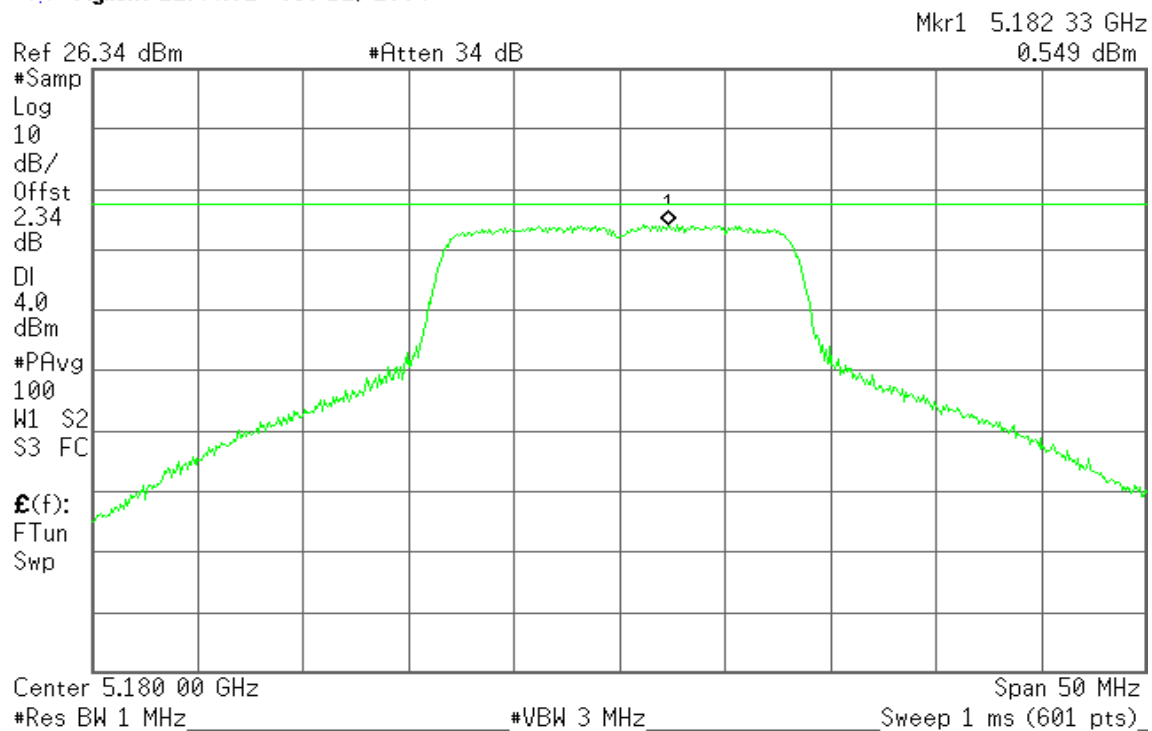


Test Plot

IEEE 802.11a Base mode / Dual-Band Omni-Directional Antenna

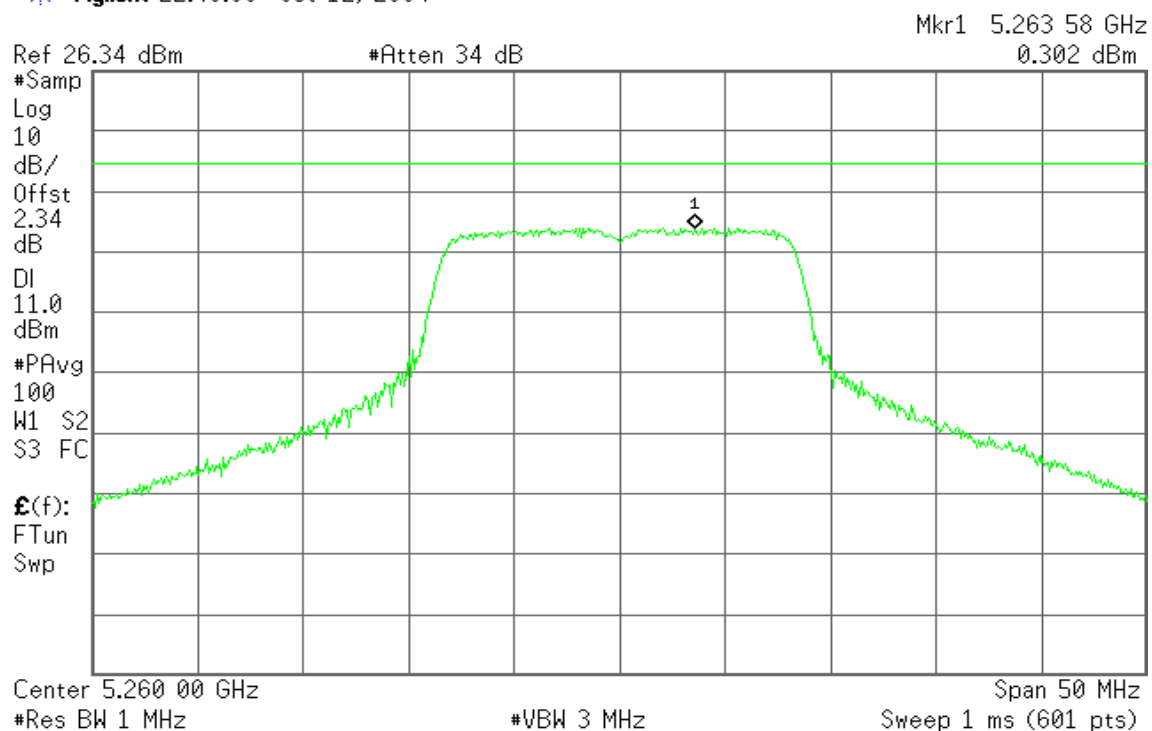
CH 5180 / 5dBi

Agilent 22:44:02 Oct 12, 2004



CH 5260 / 5dBi

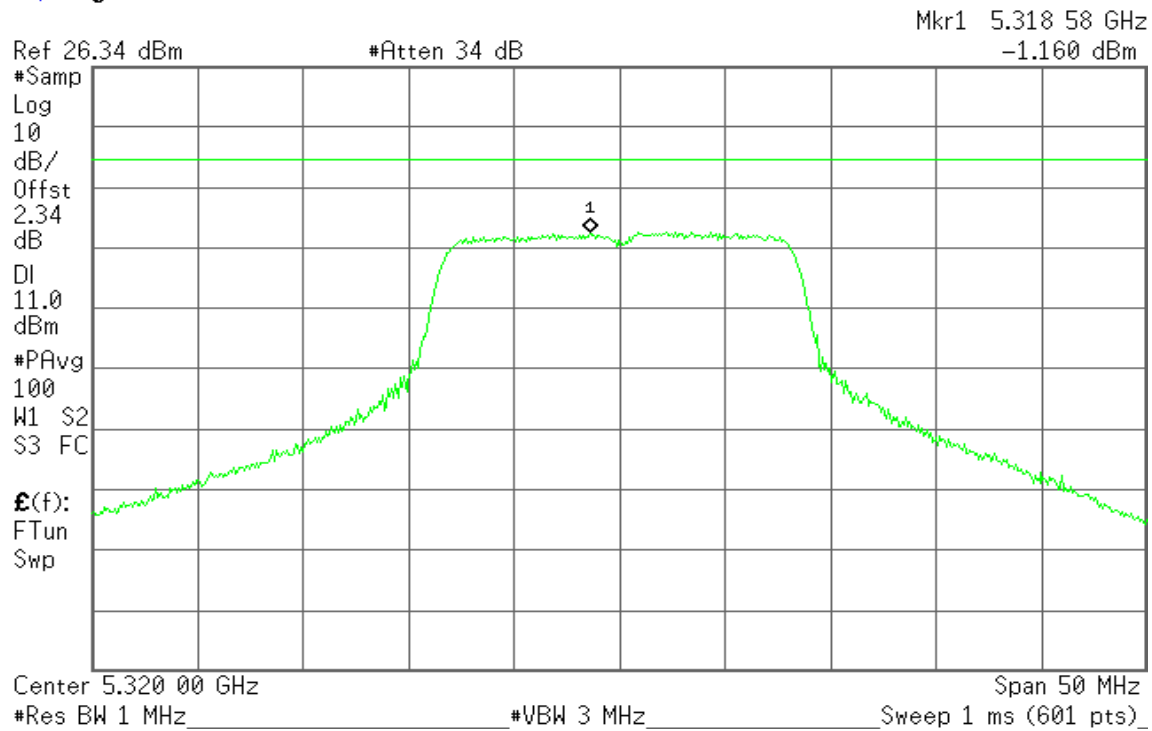
Agilent 22:46:06 Oct 12, 2004





CH 5320 / 5dBi

Agilent 22:48:41 Oct 12, 2004

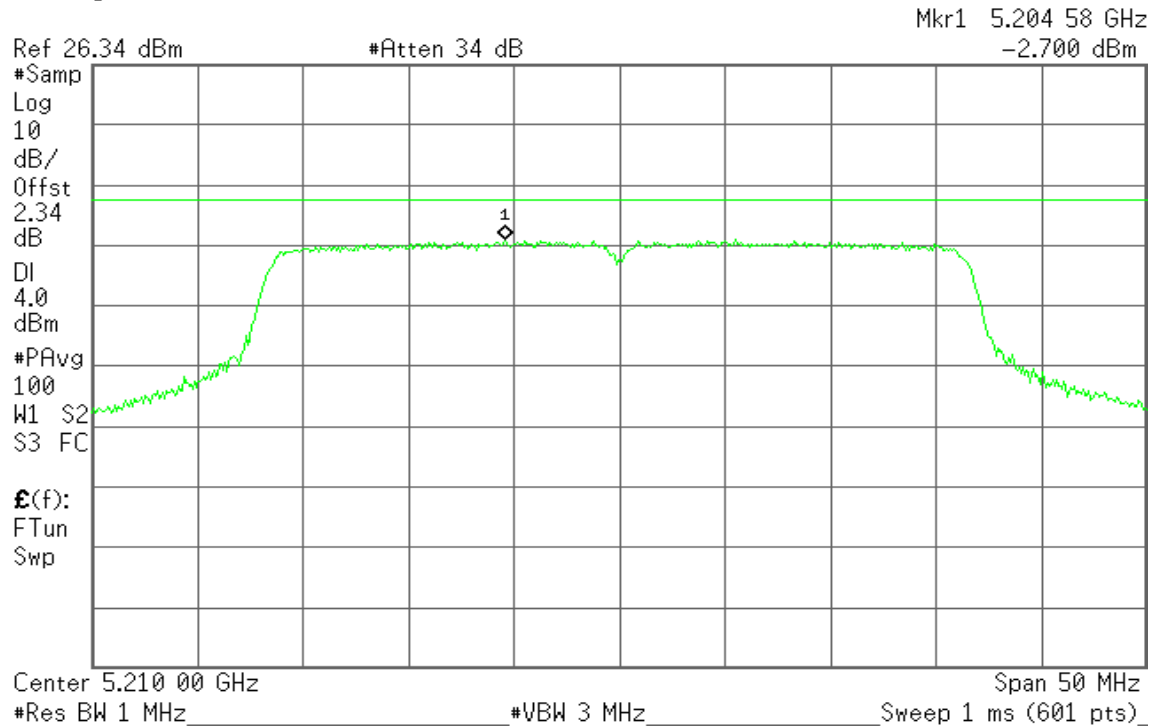




IEEE 802.11a Turbo mode

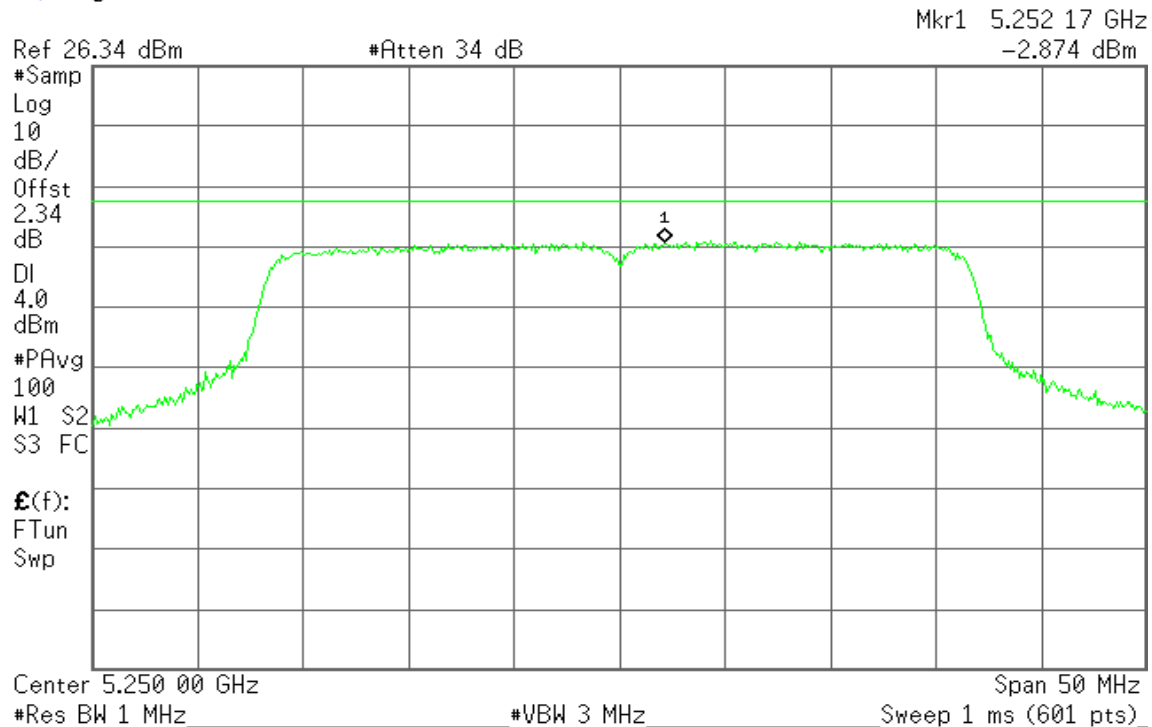
CH 5210 / 5dBi

Agilent 22:50:59 Oct 12, 2004



CH 5250 / 5dBi

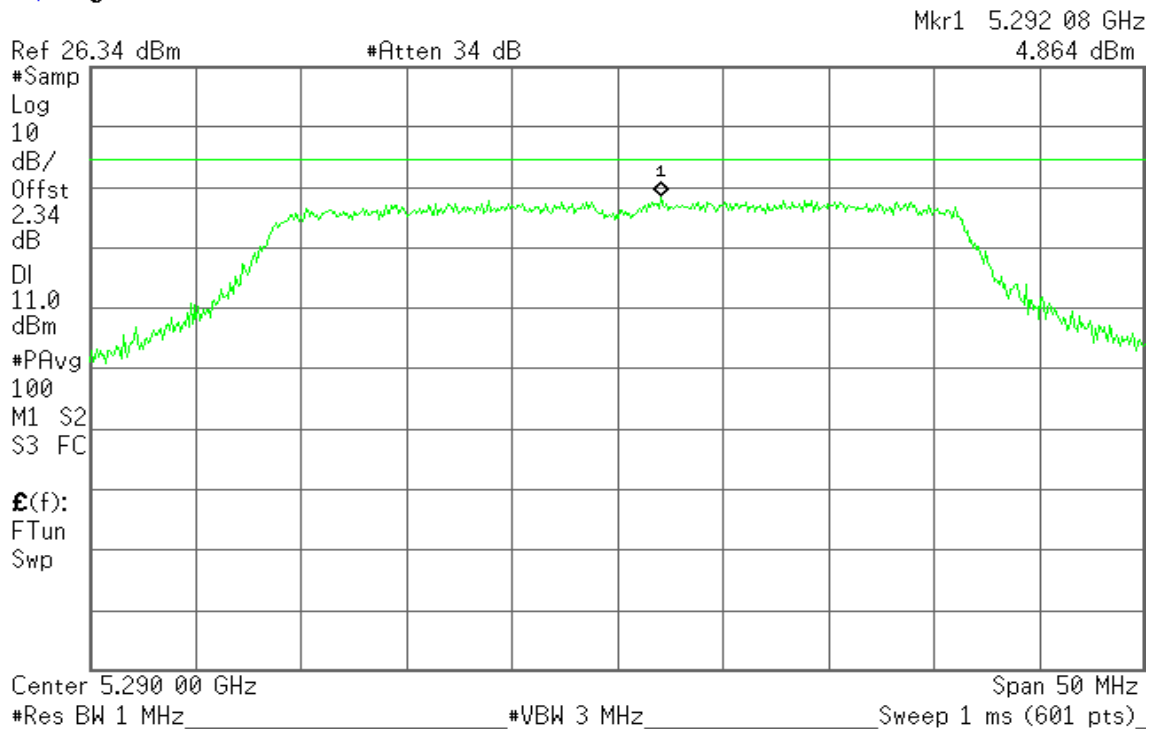
Agilent 22:52:35 Oct 12, 2004





CH 5290 / 5dBi

Agilent 22:54:37 Oct 12, 2004



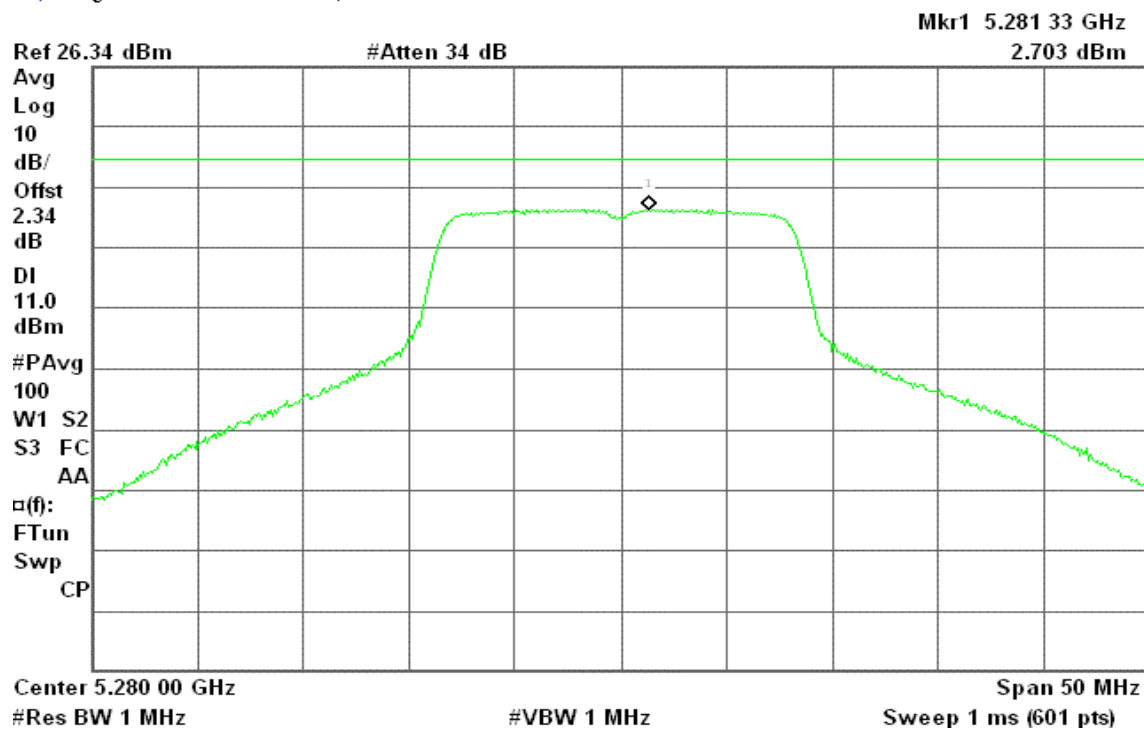


IEEE 802.11a Base mode / Panel Directional Antenna

CH 5280 / 14dBi

Agilent 11:44:00 Dec 17, 2004

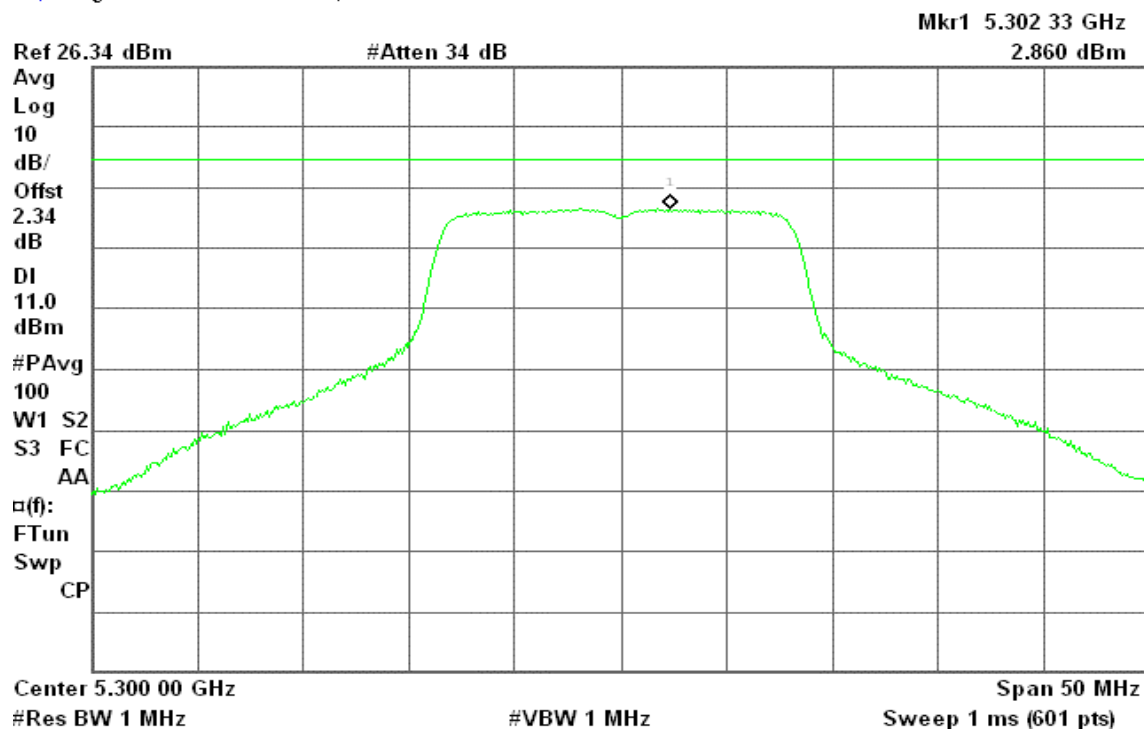
T



CH 5300 / 14dBi

Agilent 11:43:32 Dec 17, 2004

T

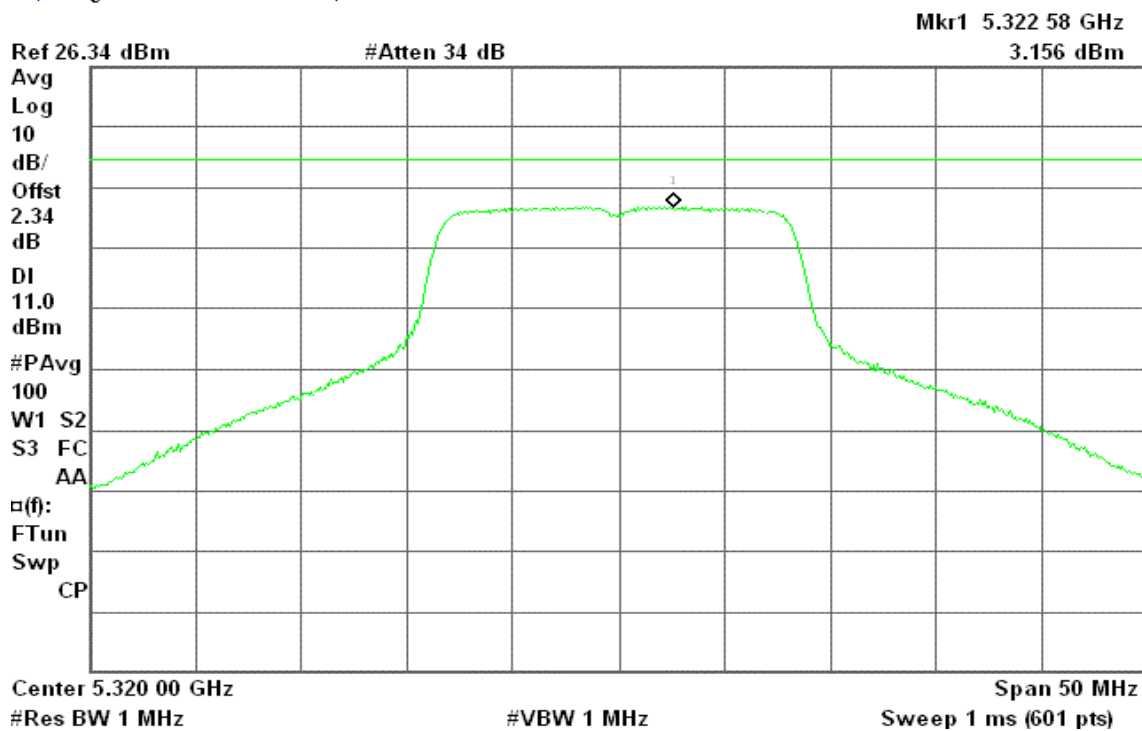




CH 5320 / 14dBi

Agilent 11:42:49 Dec 17, 2004

T

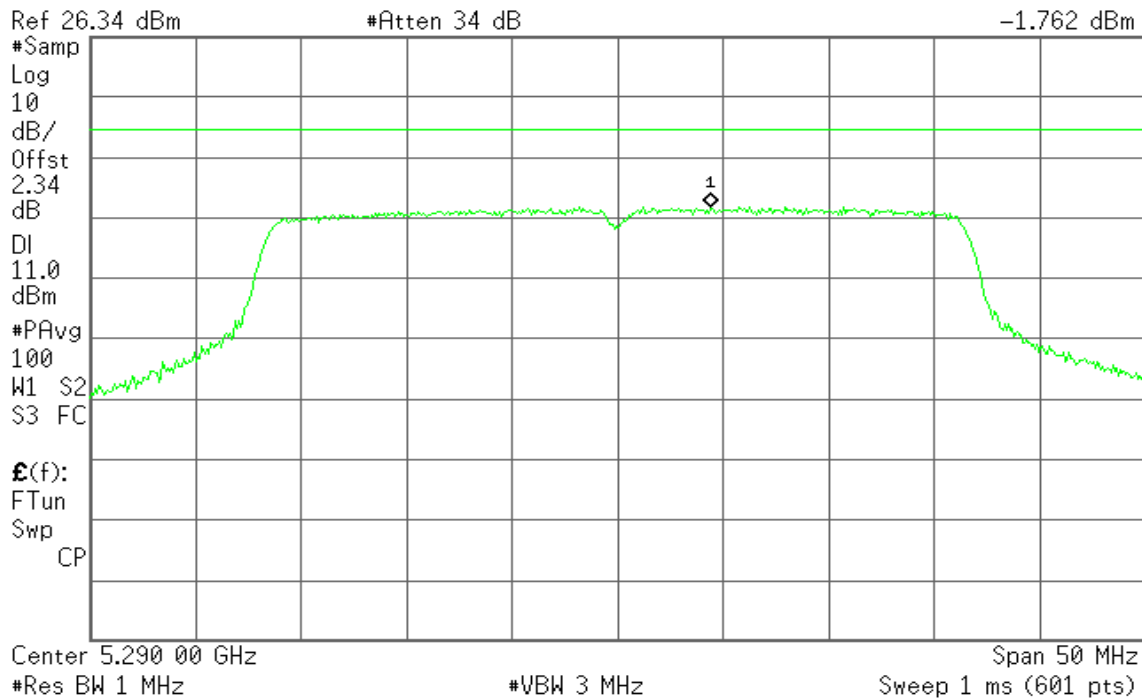


IEEE 802.11a Turbo mode

CH 5290 / 14dBi

Agilent 11:30:50 Oct 6, 2004

Mkr1 5.294 42 GHz
-1.762 dBm





7.5 PEAK EXCURSION

LIMIT

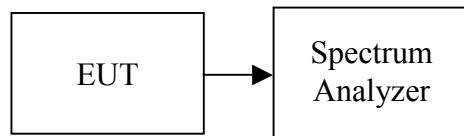
The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

MEASUREMENT EQUIPMENT USED

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY43360131	01/10/2005

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 >26dB bandwidth (Base Mode) / >26dB bandwidth (Turbo Mode), Max. hold.
4. Trace B, Set RBW = 1MHz, VBW = 30kHz, Span >26dB bandwidth (Base Mode) / >26dB bandwidth (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 / Dual-Band Omni-Directional Antenna**

Frequency (MHz)			Peak Excursion (dB)	Margin (dB)	Limit (dB)	Antenna Gain (dBi)
Base mode	Channel 1	5180	-6.16	6.84	13	5
	Channel 5	5260	-6.09	6.91		
	Channel 8	5320	-7.03	5.97		
Turbo mode		5210	-6.25	6.75		
		5250	-5.83	7.17		
		5290	-5.73	7.27		

*(Note: Maximum antenna gain = 5dBi, therefore there is no reduction due to antenna gain.)***Panel Directional Antenna**

Frequency (MHz)			Peak Excursion (dB)	Margin (dB)	Limit (dB)	Antenna Gain (dBi)
Base mode	Channel 6	5280	7.74	-5.26	13	14
	Channel 7	5300	7.48	-5.52		
	Channel 8	5320	8.26	-4.74		
Turbo mode		5290	8.35	-4.65		

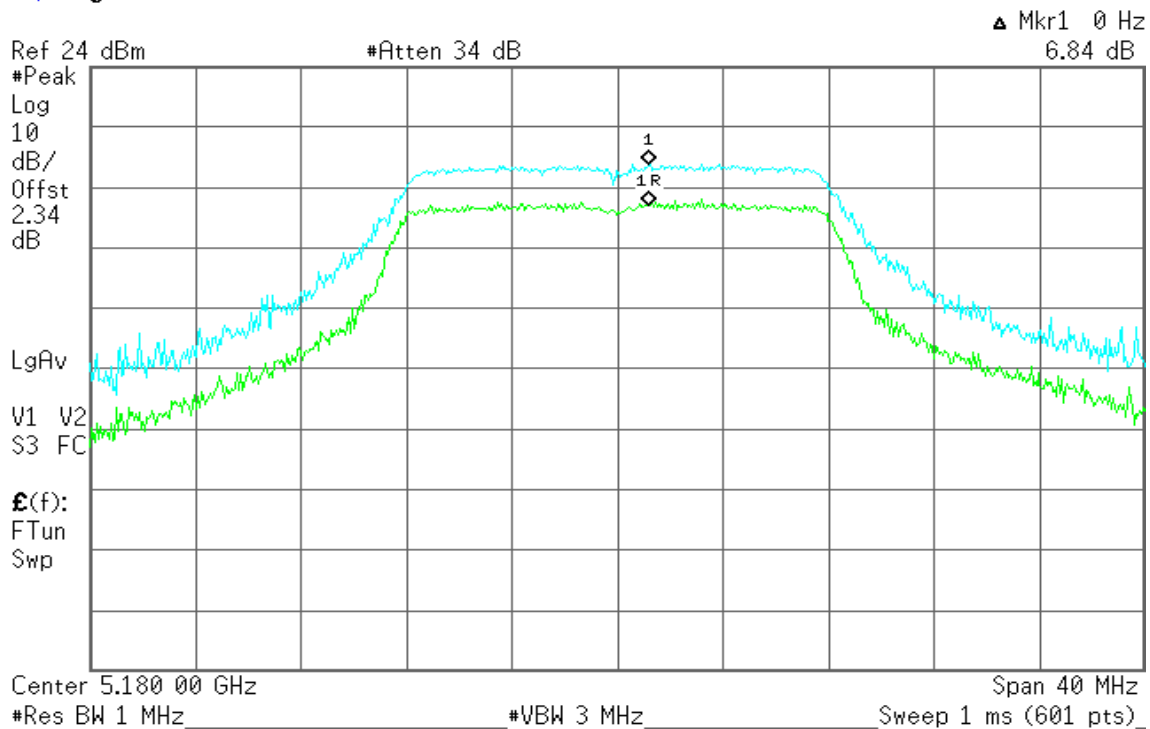


Test Plot

IEEE 802.11a Base mode / Dual-Band Omni-Directional Antenna

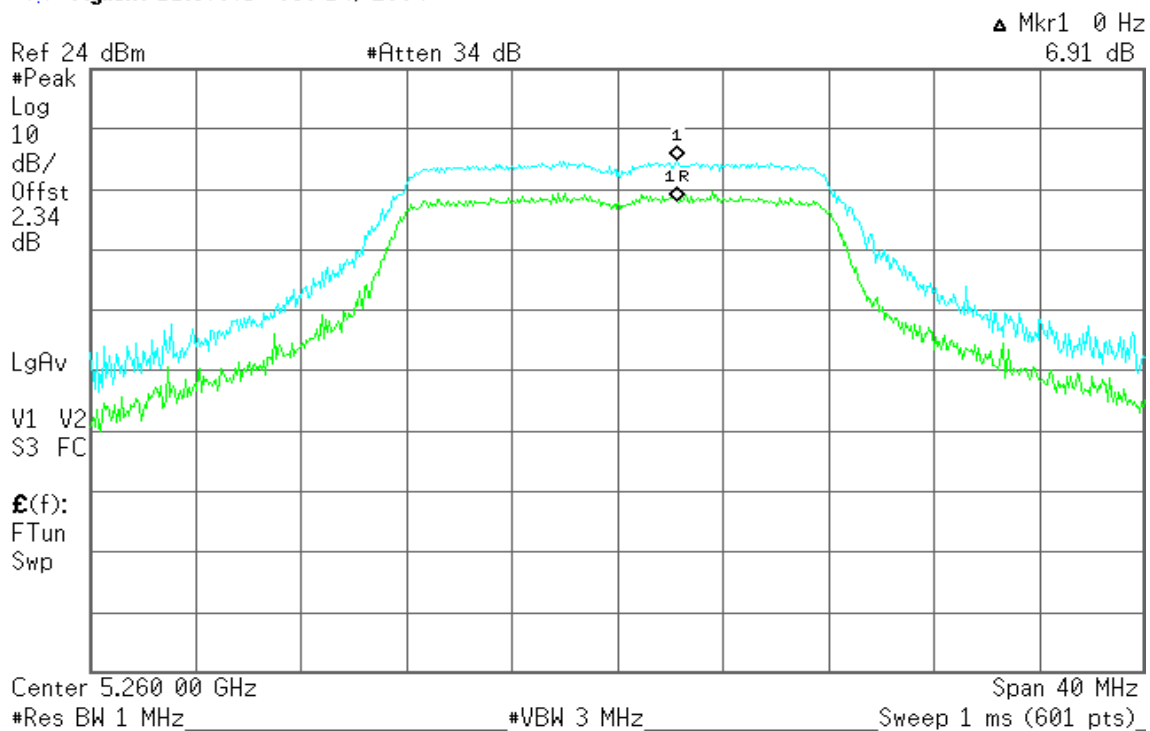
CH 5180 / 5dBi

Agilent 11:35:34 Oct 14, 2004



CH 5260 / 5dBi

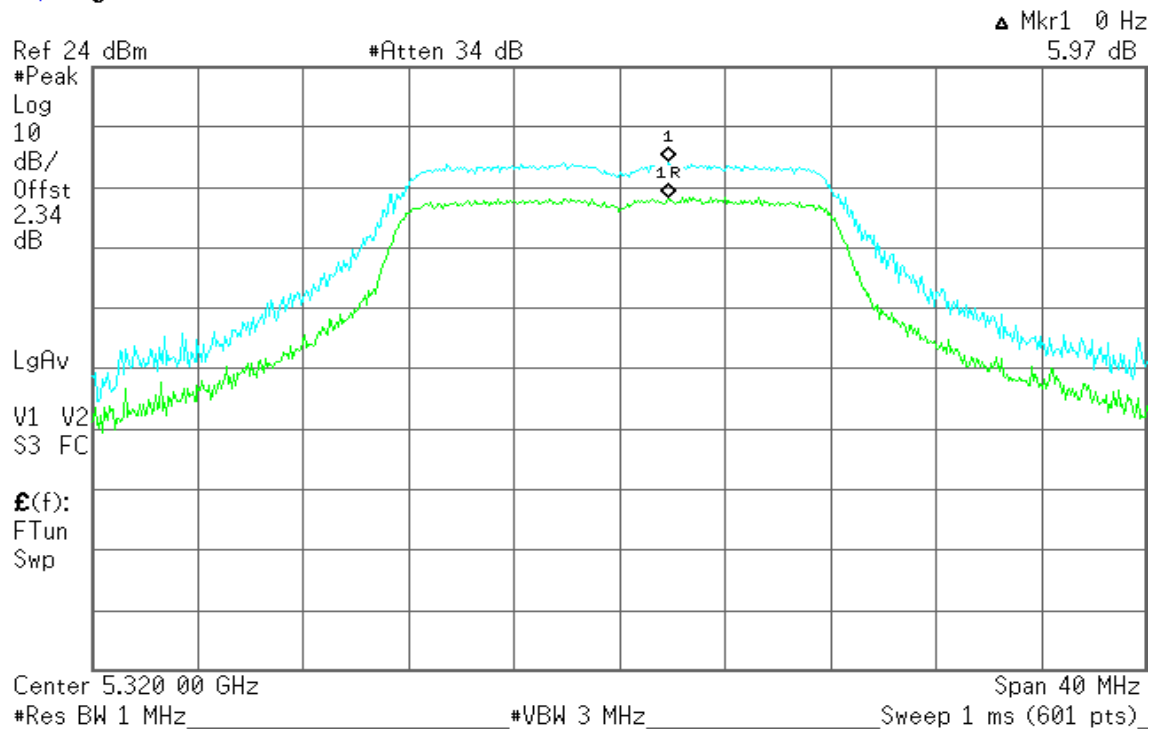
Agilent 11:37:45 Oct 14, 2004





CH 5320 / 5dBi

Agilent 11:39:19 Oct 14, 2004

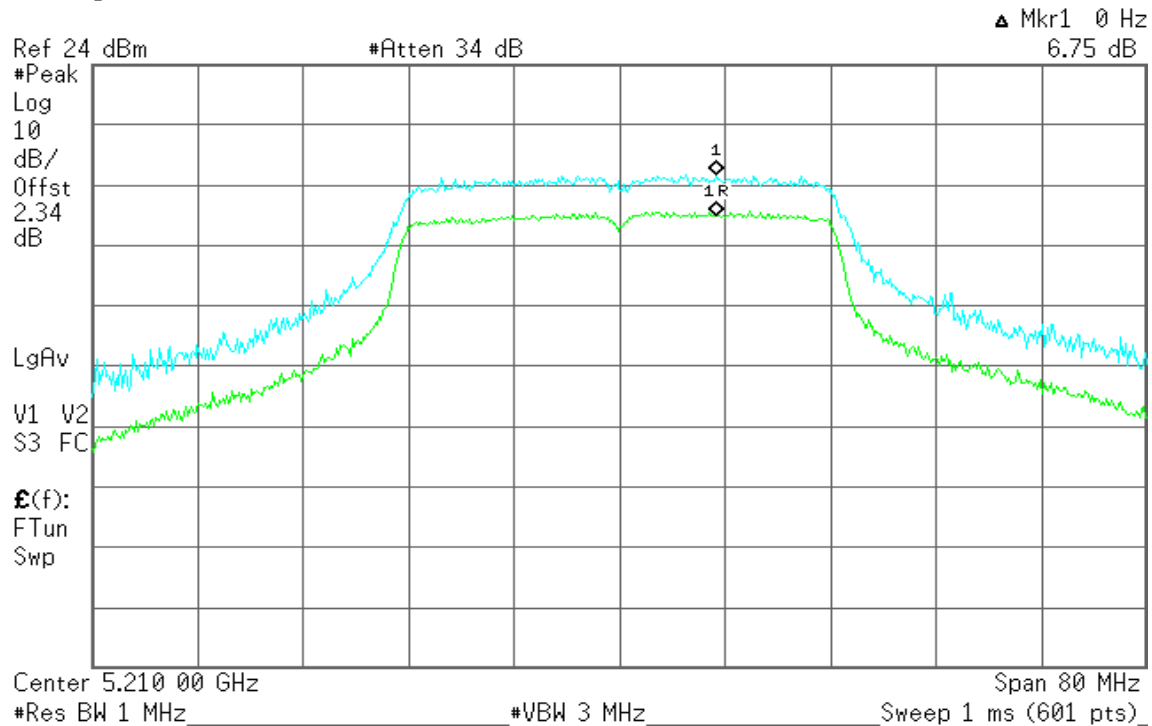




IEEE 802.11a Turbo mode

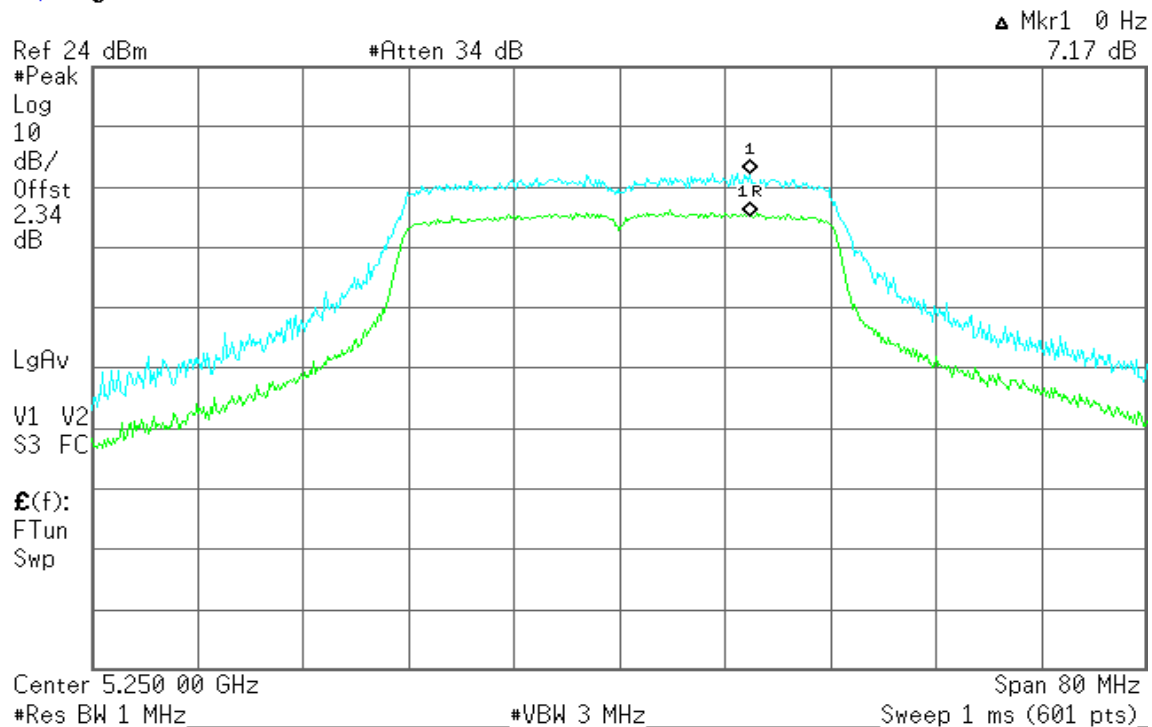
CH 5210 / 5dBi

Agilent 11:41:24 Oct 14, 2004



CH 5250 / 5dBi

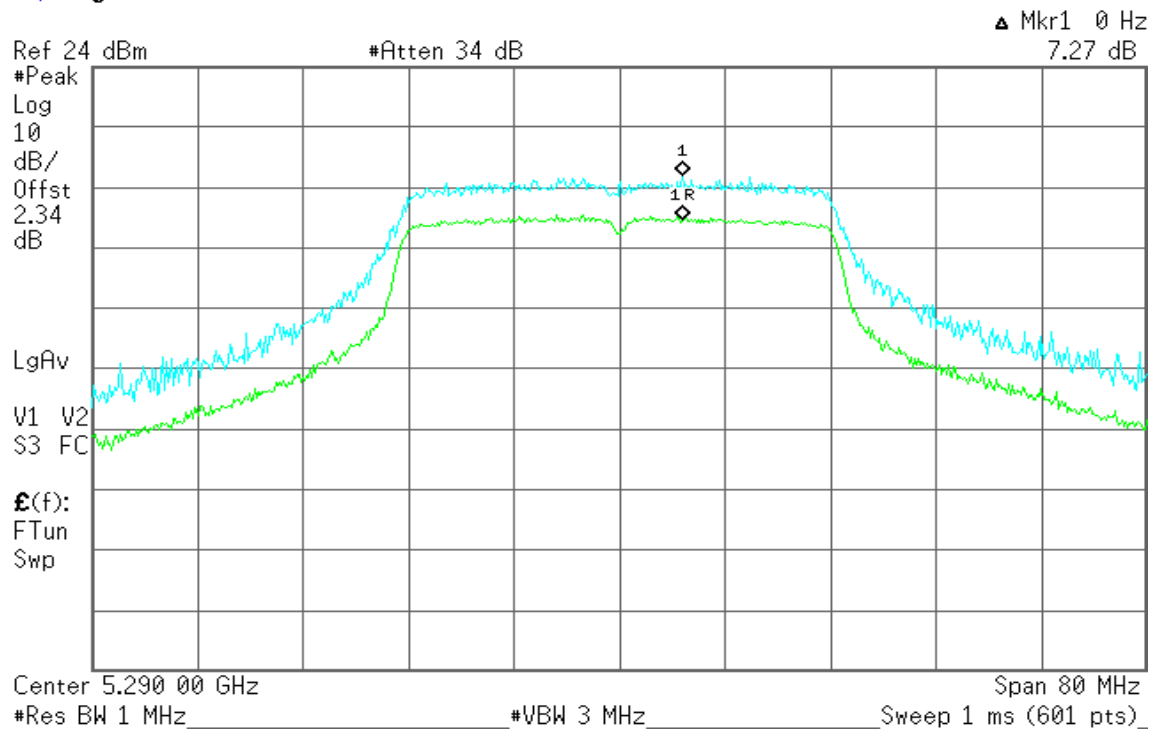
Agilent 11:42:38 Oct 14, 2004





CH 5290 / 5dBi

Agilent 11:43:47 Oct 14, 2004

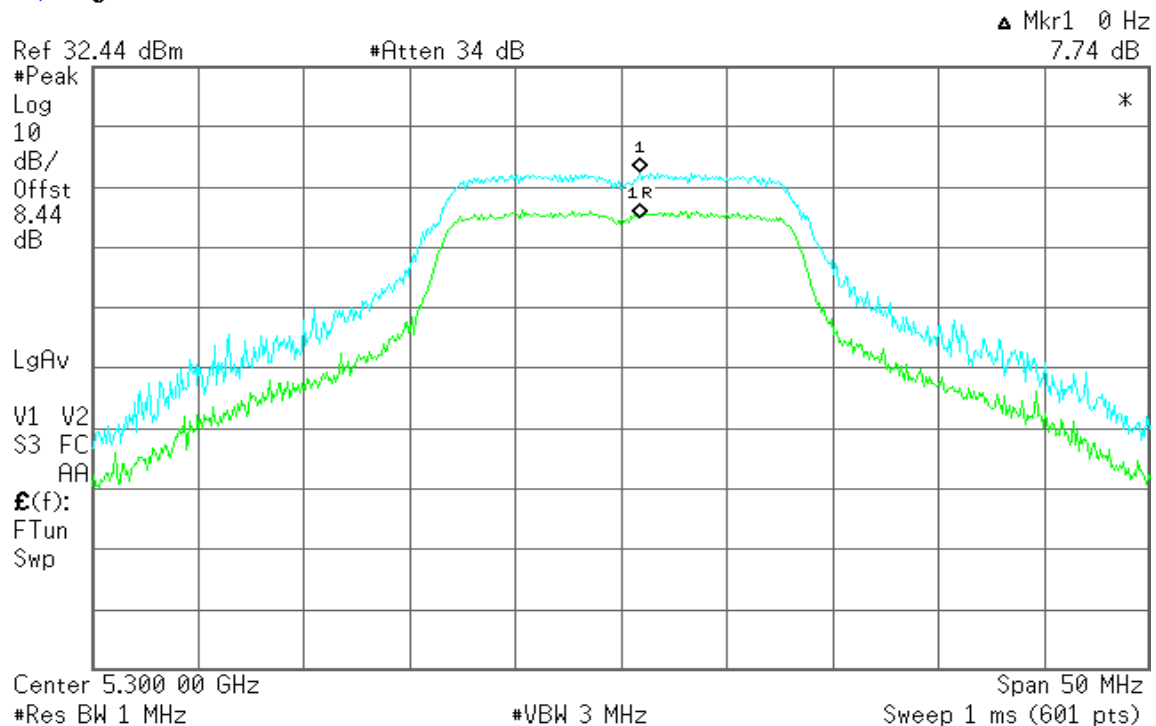




IEEE 802.11a Base mode / Panel Directional Antenna

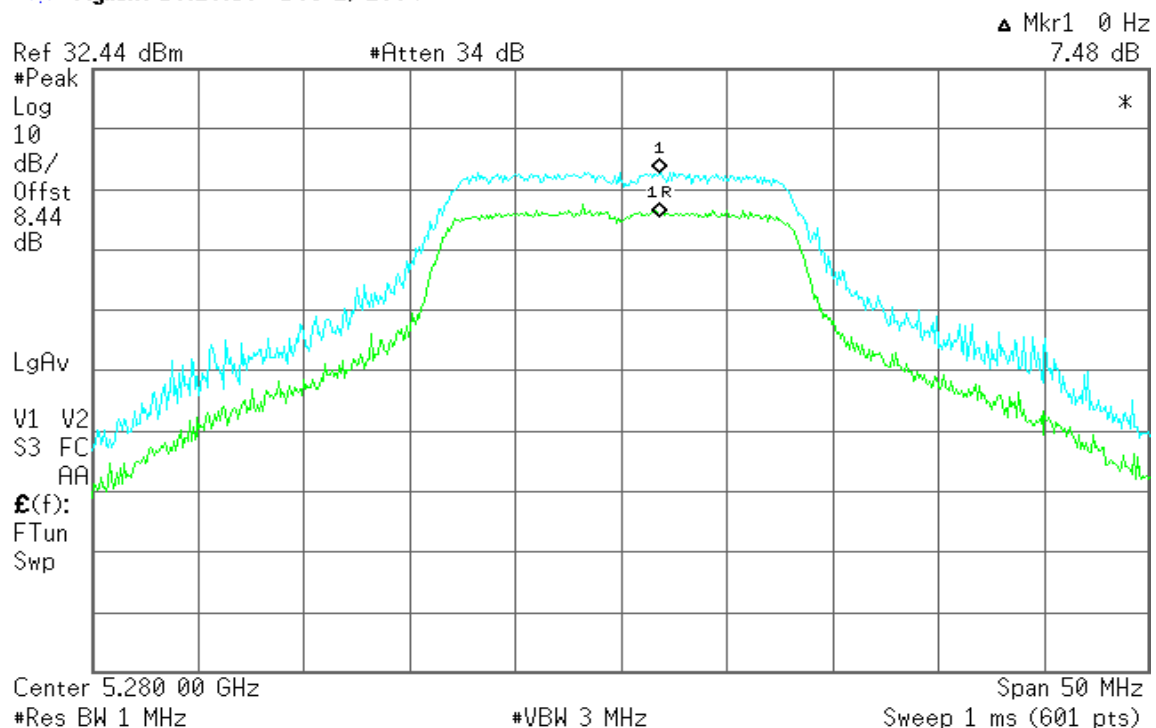
CH 5280 / 14dBi

Agilent 16:19:48 Dec 2, 2004



CH 5300 / 14dBi

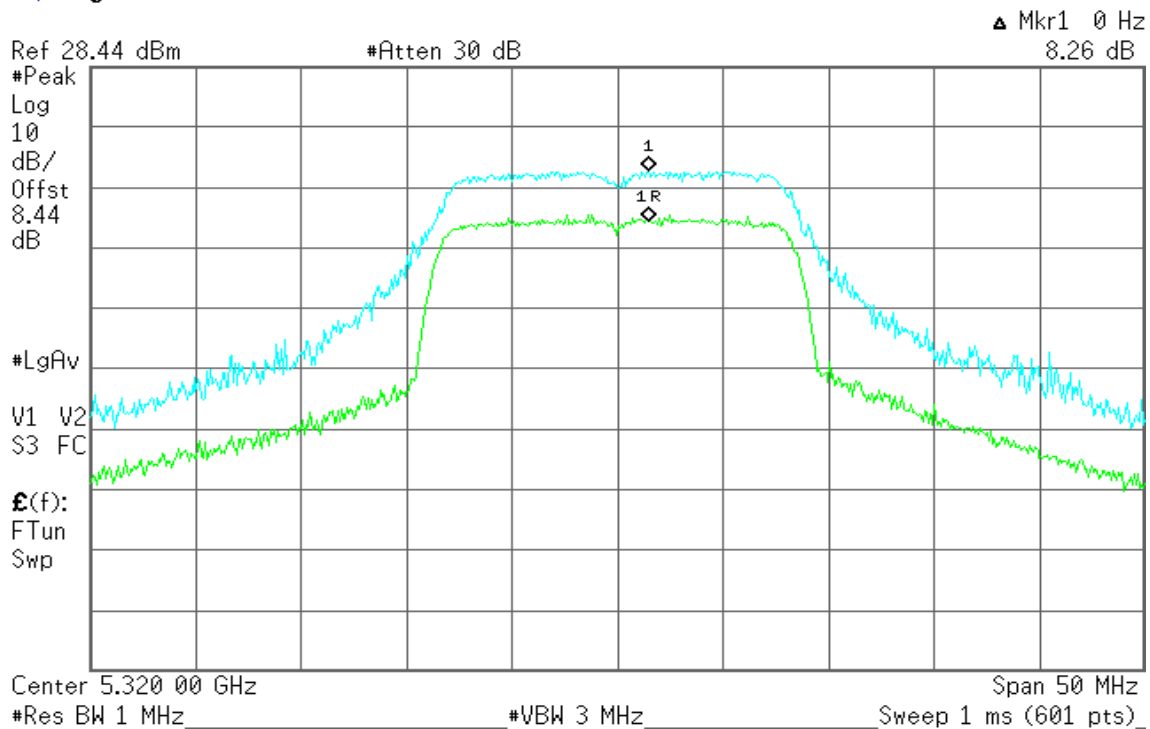
Agilent 16:20:58 Dec 2, 2004





CH 5320 / 14dBi

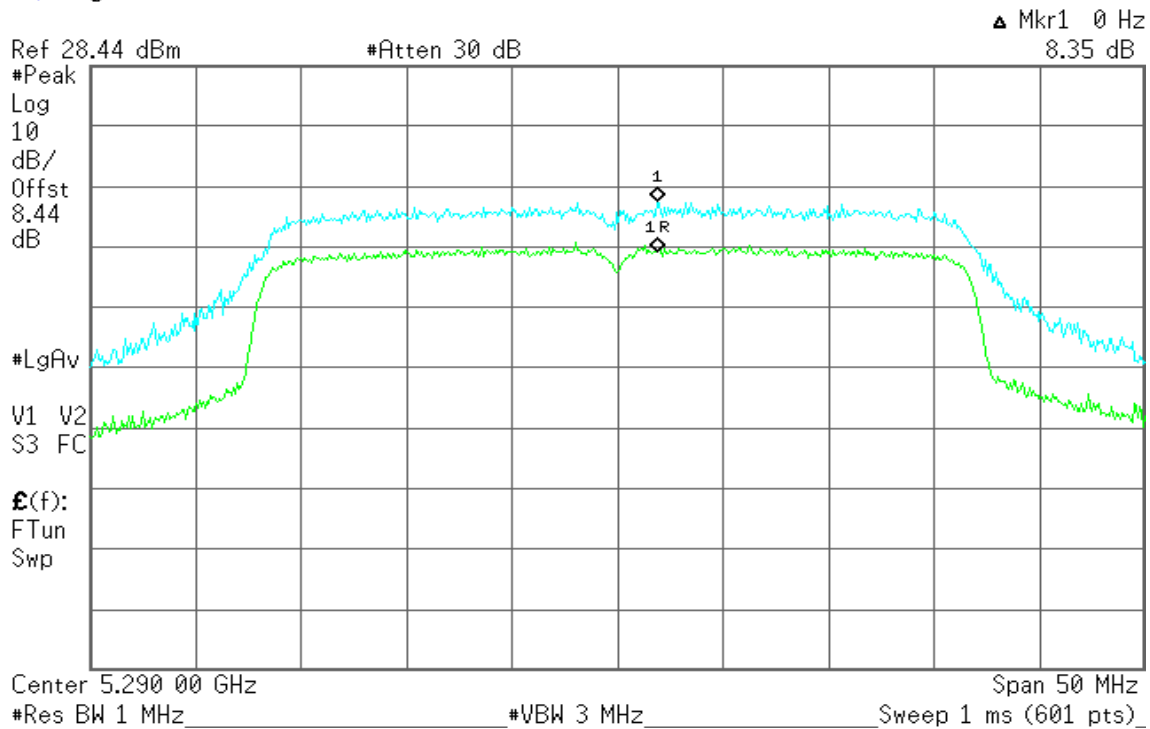
Agilent 15:56:14 Oct 1, 2004



IEEE 802.11a Turbo mode

CH 5290 / 14dBi

Agilent 16:04:15 Oct 1, 2004





7.6 RADIO FREQUENCY EXPOSURE

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 802.11a MiniPCI Card
Frequency band (Operating)	☐ WLAN: 2.412GHz ~ 2.462GHz ☒ WLAN: 5.150GHz ~ 5.350GHz ☐ WLAN: 5.725GHz ~ 5.850GHz ☐ 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	Dual-Band Omni-Directional Antenna / 5dBi: 13.88dBm (24.43mW) Panel Directional Antenna / 14dBi: 14.14dBm (25.941mW)*
Antenna gain (Max)	Dual-Band Omni-Directional Antenna: 5dBi / Numeric gain: 3.162 Panel Directional Antenna: 14dBi / Numeric gain: 25.118*
Evaluation applied	☒ MPE Evaluation* ☐ SAR Evaluation ☐ N/A

Note:

1. The maximum output power is 15.64dBm (36.64mW) at 5320Hz (with 25.118 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:

$$P (mW) = P (W) / 1000 \text{ and}$$

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

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 / cm²

Substituting the logarithmic form of power and gain using:

$$P (mW) = 10^{(P (dBm) / 10)} \text{ and}$$

$$G (\text{numeric}) = 10^{(G (dBi) / 10)}$$

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 / cm²



Maximum Permissible Exposure

EUT output power = 25.941mW

Antenna Gain = 25.118 (Numeric gain)

S = 1.0 mW / cm² from 1.1310 Table 1

Substituting these parameters into the above Equation 1:

→ MPE Safe Distance = 7.2 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

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.

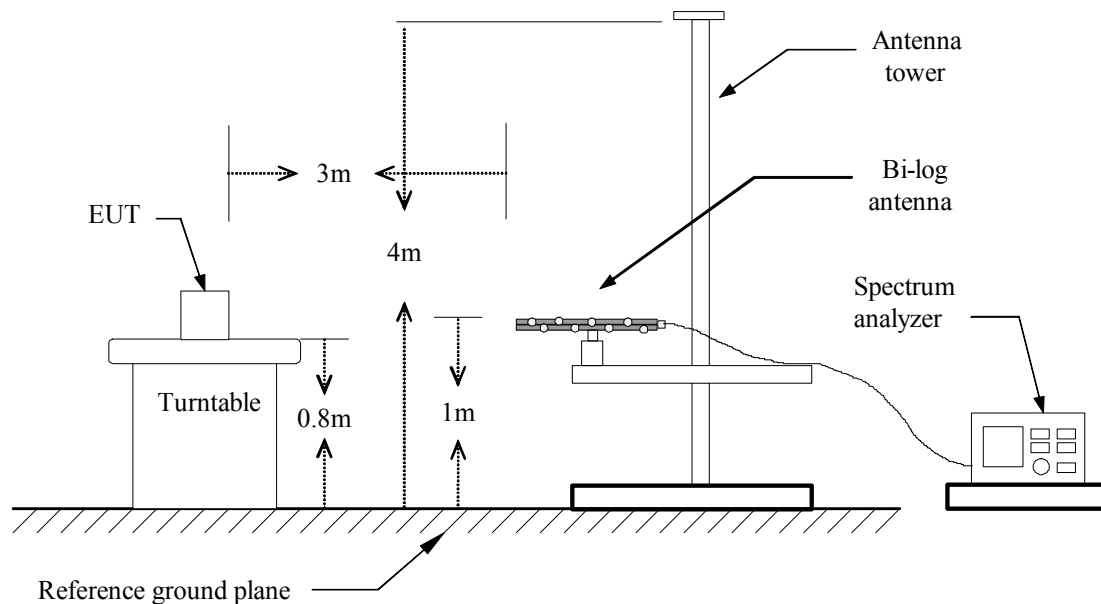
MEASUREMENT EQUIPMENT USED

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
Horn antenna	EMCO	3116	2487	11/27/2005
Loop Antenna	EMCO	6502	2356	07/10/2005
Pre-Amplifier	HP	8449B	3008B00965	10/02/2005

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****CONDITION A: EUT (Dual-Band Omni-Directional Antenna)****Operation Mode:** TX IEEE 802.11a / CH 5180 / 5dBi**Test Date:** October 13, 2004**Temperature:** 28°C**Tested by:** Max Yao**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)
66.90	V	Peak	20.52	11.16	31.68	40.00	-8.32
172.65	V	Peak	21.61	12.36	33.97	43.50	-9.53
287.85	V	Peak	27.78	16.21	43.99	46.00	-2.01
431.83	V	Peak	14.40	20.37	34.77	46.00	-11.23
455.17	V	Peak	20.12	20.41	40.53	46.00	-5.47
942.83	V	Peak	11.39	28.76	40.15	46.00	-5.85
184.35	H	Peak	26.20	13.36	39.56	43.50	-3.94
196.05	H	Peak	27.12	14.53	41.65	43.50	-1.85
217.20	H	Peak	22.66	15.20	37.86	46.00	-8.14
287.85	H	Peak	21.78	16.21	37.99	46.00	-8.01
301.17	H	Peak	17.88	16.71	34.59	46.00	-11.41
863.50	H	Peak	6.43	27.51	33.94	46.00	-12.06

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 SPN between 30MHz to 1GHz was 100kHz.*

**Operation Mode:** TX IEEE 802.11a / CH 5260 / 5dBi**Test Date:** October 13, 2004**Temperature:** 28°C**Tested by:** Max Yao**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)
78.60	V	Peak	21.51	9.60	31.11	40.00	-8.89
200.55	V	Peak	19.87	14.93	34.80	43.50	-8.70
288.30	V	Peak	27.28	16.23	43.51	46.00	-2.49
455.17	V	Peak	19.12	20.41	39.53	46.00	-6.47
667.50	V	Peak	9.82	25.19	35.01	46.00	-10.99
942.83	V	Peak	8.72	28.76	37.48	46.00	-8.52
200.10	H	Peak	27.19	14.92	42.11	43.50	-1.39
206.40	H	Peak	26.01	15.02	41.03	43.50	-2.47
288.30	H	Peak	20.78	16.23	37.01	46.00	-8.99
324.50	H	Peak	16.29	17.34	33.63	46.00	-12.37
863.50	H	Peak	10.93	27.51	38.44	46.00	-7.56
947.50	H	Peak	5.10	28.82	33.92	46.00	-12.08

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 SPN between 30MHz to 1GHz was 100kHz.

**Operation Mode:** TX IEEE 802.11a / CH 5320 / 5dBi**Test Date:** October 13, 2004**Temperature:** 28°C**Tested by:** Max Yao**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)
188.40	V	Peak	20.63	13.77	34.40	43.50	-9.10
200.55	V	Peak	27.03	14.93	41.96	43.50	-1.54
287.85	V	Peak	21.28	16.21	37.49	46.00	-8.51
399.17	V	Peak	13.70	20.68	34.38	46.00	-11.62
431.83	V	Peak	12.90	20.37	33.27	46.00	-12.73
942.83	V	Peak	6.39	28.76	35.15	46.00	-10.85
160.95	H	Peak	25.69	11.45	37.14	43.50	-6.36
196.05	H	Peak	25.78	14.53	40.31	43.50	-3.19
288.30	H	Peak	18.28	16.23	34.51	46.00	-11.49
431.83	H	Peak	7.90	20.37	28.27	46.00	-17.73
662.83	H	Peak	6.05	25.11	31.16	46.00	-14.84
946.33	H	Peak	5.09	28.81	33.90	46.00	-12.10

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 SPN between 30MHz to 1GHz was 100kHz.

**Operation Mode:** TX IEEE 802.11a / Turbo CH 5210 / 5dBi **Test Date:** October 13, 2004**Temperature:** 28°C**Tested by:** Max Yao**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)
196.50	V	Peak	18.92	14.57	33.49	43.50	-10.01
217.65	V	Peak	15.50	15.20	30.70	46.00	-15.30
287.85	V	Peak	22.45	16.21	38.66	46.00	-7.34
431.83	V	Peak	13.23	20.37	33.60	46.00	-12.40
668.67	V	Peak	8.30	25.21	33.51	46.00	-12.49
953.33	V	Peak	7.38	28.92	36.30	46.00	-9.70
172.65	H	Peak	25.45	12.36	37.81	43.50	-5.69
200.10	H	Peak	26.69	14.92	41.61	43.50	-1.89
288.30	H	Peak	19.45	16.23	35.68	46.00	-10.32
431.83	H	Peak	8.73	20.37	29.10	46.00	-16.90
664.00	H	Peak	4.19	25.13	29.32	46.00	-16.68
947.50	H	Peak	3.60	28.82	32.42	46.00	-13.58

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 SPN between 30MHz to 1GHz was 100kHz.

**Operation Mode:** TX IEEE 802.11a / Turbo CH 5250 / 5dBi **Test Date:** October 13, 2004**Temperature:** 28°C**Tested by:** Max Yao**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)
60.60	V	Peak	16.15	13.26	29.41	40.00	-10.59
200.10	V	Peak	20.69	14.92	35.61	43.50	-7.89
287.85	V	Peak	23.12	16.21	39.33	46.00	-6.67
431.83	V	Peak	14.40	20.37	34.77	46.00	-11.23
500.67	V	Peak	10.62	22.53	33.15	46.00	-12.85
941.67	V	Peak	7.88	28.74	36.62	46.00	-9.38
172.65	H	Peak	26.11	12.36	38.47	43.50	-5.03
194.25	H	Peak	27.74	14.35	42.09	43.50	-1.41
233.40	H	Peak	19.70	15.65	35.35	46.00	-10.65
287.85	H	Peak	20.78	16.21	36.99	46.00	-9.01
863.50	H	Peak	9.76	27.51	37.27	46.00	-8.73
946.33	H	Peak	6.09	28.81	34.90	46.00	-11.10

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 SPN between 30MHz to 1GHz was 100kHz.

**Operation Mode:** TX IEEE 802.11a / Turbo CH 5290 / 5dBi **Test Date:** October 13, 2004**Temperature:** 28°C**Tested by:** Max Yao**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)
66.90	V	Peak	21.19	11.16	32.35	40.00	-7.65
200.55	V	Peak	19.53	14.93	34.46	43.50	-9.04
288.30	V	Peak	23.62	16.23	39.85	46.00	-6.15
431.83	V	Peak	13.90	20.37	34.27	46.00	-11.73
500.67	V	Peak	9.45	22.53	31.98	46.00	-14.02
942.83	V	Peak	7.06	28.76	35.82	46.00	-10.18
187.95	H	Peak	23.79	13.72	37.51	43.50	-5.99
200.55	H	Peak	25.53	14.93	40.46	43.50	-3.04
287.85	H	Peak	19.12	16.21	35.33	46.00	-10.67
399.17	H	Peak	6.70	20.68	27.38	46.00	-18.62
575.33	H	Peak	5.12	24.83	29.95	46.00	-16.05
946.33	H	Peak	6.25	28.81	35.06	46.00	-10.94

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 SPN between 30MHz to 1GHz was 100kHz.

**CONDITION B: EUT (Panel Directional Antenna)****Operation Mode:** TX IEEE 802.11a / CH 5280 / 14dBi**Test Date:** December 2, 2004**Temperature:** 28°C**Tested by:** Max Yao**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)
66.45	V	Peak	25.71	11.31	37.02	40.00	-2.98
200.55	V	Peak	18.70	14.93	33.63	43.50	-9.87
287.85	V	Peak	17.78	16.21	33.99	46.00	-12.01
300.00	V	Peak	13.74	16.68	30.42	46.00	-15.58
500.67	V	Peak	4.45	22.53	26.98	46.00	-19.02
952.17	V	Peak	3.73	28.90	32.63	46.00	-13.37
69.15	H	Peak	25.08	10.41	35.49	40.00	-4.51
154.65	H	Peak	29.00	11.24	40.24	43.50	-3.26
288.30	H	Peak	22.28	16.23	38.51	46.00	-7.49
365.33	H	Peak	14.42	18.85	33.27	46.00	-12.73
431.83	H	Peak	16.06	20.37	36.43	46.00	-9.57
764.33	H	Peak	5.50	25.95	31.45	46.00	-14.55

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 SPN between 30MHz to 1GHz was 100kHz.

**Operation Mode:** TX IEEE 802.11a / CH 5300 / 14dBi**Test Date:** December 2, 2004**Temperature:** 28°C**Tested by:** Max Yao**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)
70.05	V	Peak	23.22	10.13	33.35	40.00	-6.65
201.00	V	Peak	18.54	14.94	33.48	43.50	-10.02
288.30	V	Peak	17.45	16.23	33.68	46.00	-12.32
669.83	V	Peak	3.96	25.23	29.19	46.00	-16.81
942.83	V	Peak	3.22	28.76	31.98	46.00	-14.02
953.33	V	Peak	3.55	28.92	32.47	46.00	-13.53
69.15	H	Peak	26.75	10.41	37.16	40.00	-2.84
78.60	H	Peak	26.45	9.60	36.05	40.00	-3.95
156.90	H	Peak	23.17	11.30	34.47	43.50	-9.03
288.30	H	Peak	19.62	16.23	35.85	46.00	-10.15
366.50	H	Peak	12.19	18.92	31.11	46.00	-14.89
431.83	H	Peak	13.56	20.37	33.93	46.00	-12.07

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 SPN between 30MHz to 1GHz was 100kHz.

**Operation Mode:** TX IEEE 802.11a / CH 5320 / 14dBi**Test Date:** December 2, 2004**Temperature:** 28°C**Tested by:** Max Yao**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)
66.45	V	Peak	25.54	11.31	36.85	40.00	-3.15
70.05	V	Peak	25.89	10.13	36.02	40.00	-3.98
155.10	V	Peak	19.86	11.26	31.12	43.50	-12.38
288.30	V	Peak	16.45	16.23	32.68	46.00	-13.32
499.50	V	Peak	8.49	22.49	30.98	46.00	-15.02
941.67	V	Peak	9.38	28.74	38.12	46.00	-7.88
68.70	H	Peak	25.09	10.56	35.65	40.00	-4.35
70.50	H	Peak	26.13	10.10	36.23	40.00	-3.77
288.30	H	Peak	16.78	16.23	33.01	46.00	-12.99
305.83	H	Peak	21.28	16.84	38.12	46.00	-7.88
367.67	H	Peak	18.80	18.98	37.78	46.00	-8.22
431.83	H	Peak	17.73	20.37	38.10	46.00	-7.90

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 SPN between 30MHz to 1GHz was 100kHz.

**Operation Mode:** TX IEEE 802.11a / Turbo CH 5290 / 14dBi **Test Date:** December 2, 2004**Temperature:** 28°C**Tested by:** Max Yao**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)
66.90	V	Peak	24.69	11.16	35.85	40.00	-4.15
70.50	V	Peak	22.66	10.10	32.76	40.00	-7.24
200.10	V	Peak	19.69	14.92	34.61	43.50	-8.89
287.85	V	Peak	16.62	16.21	32.83	46.00	-13.17
942.83	V	Peak	10.22	28.76	38.98	46.00	-7.02
954.50	V	Peak	6.68	28.94	35.62	46.00	-10.38
71.40	H	Peak	22.94	10.04	32.98	40.00	-7.02
163.20	H	Peak	20.85	11.63	32.48	43.50	-11.02
288.30	H	Peak	16.78	16.23	33.01	46.00	-12.99
365.33	H	Peak	17.75	18.85	36.60	46.00	-9.40
431.83	H	Peak	18.40	20.37	38.77	46.00	-7.23
942.83	H	Peak	5.89	28.76	34.65	46.00	-11.35

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 SPN between 30MHz to 1GHz was 100kHz.

**Co-Location:****CONDITION C: EUT (Dual-Band Omni-Directional Antenna) +
AP (Dual-Band Omni-Directional Antenna)****Operation Mode:** TX IEEE 802.11a / CH 5180 / 5dBi +
TX IEEE 802.11b / CH 2412 / 4.5dBi**Test Date:** November 2, 2004**Temperature:** 28°C**Tested by:** Max Yao**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)
63.30	V	Peak	22.20	12.36	34.56	40.00	-5.44
68.25	V	Peak	25.29	10.71	36.00	40.00	-4.00
287.85	V	Peak	21.28	16.21	37.49	46.00	-8.51
500.67	V	Peak	12.62	22.53	35.15	46.00	-10.85
658.17	V	Peak	9.77	25.03	34.80	46.00	-11.20
942.83	V	Peak	6.22	28.76	34.98	46.00	-11.02
193.80	H	Peak	23.60	14.30	37.90	43.50	-5.60
215.40	H	Peak	20.80	15.17	35.97	43.50	-7.53
245.10	H	Peak	19.12	16.12	35.24	46.00	-10.76
288.30	H	Peak	17.95	16.23	34.18	46.00	-11.82
500.67	H	Peak	11.12	22.53	33.65	46.00	-12.35
658.17	H	Peak	9.11	25.03	34.14	46.00	-11.86

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 SPN between 30MHz to 1GHz was 100kHz.



Operation Mode: TX IEEE 802.11a / CH 5180 / 5dBi +
TX IEEE 802.11b / CH 2437 / 4.5dBi

Test Date: November 2, 2004

Temperature: 28°C

Tested by: Max Yao

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)
68.25	V	Peak	25.13	10.71	35.84	40.00	-4.16
200.55	V	Peak	21.53	14.93	36.46	43.50	-7.04
288.30	V	Peak	21.62	16.23	37.85	46.00	-8.15
499.50	V	Peak	11.99	22.49	34.48	46.00	-11.52
658.17	V	Peak	9.61	25.03	34.64	46.00	-11.36
942.83	V	Peak	6.56	28.76	35.32	46.00	-10.68
166.80	H	Peak	26.76	11.91	38.67	43.50	-4.83
194.25	H	Peak	22.90	14.35	37.25	43.50	-6.25
254.55	H	Peak	20.56	16.20	36.76	46.00	-9.24
266.70	H	Peak	18.99	15.91	34.90	46.00	-11.10
500.67	H	Peak	11.78	22.53	34.31	46.00	-11.69
658.17	H	Peak	10.44	25.03	35.47	46.00	-10.53

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 SPN between 30MHz to 1GHz was 100kHz.



Operation Mode: TX IEEE 802.11a / CH 5180 / 5dBi +
TX IEEE 802.11b / CH 2462 / 4.5dBi

Test Date: November 2, 2004

Temperature: 28°C

Tested by: Max Yao

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)
68.25	V	Peak	25.13	10.71	35.84	40.00	-4.16
200.56	V	Peak	23.53	14.93	38.46	43.50	-5.04
287.85	V	Peak	23.12	16.21	39.33	46.00	-6.67
499.50	V	Peak	13.99	22.49	36.48	46.00	-9.52
658.17	V	Peak	8.61	25.03	33.64	46.00	-12.36
942.83	V	Peak	6.22	28.76	34.98	46.00	-11.02
154.65	H	Peak	27.50	11.24	38.74	43.50	-4.76
169.95	H	Peak	24.36	12.15	36.51	43.50	-6.99
200.55	H	Peak	25.87	14.93	40.80	43.50	-2.70
288.30	H	Peak	18.78	16.23	35.01	46.00	-10.99
500.67	H	Peak	13.45	22.53	35.98	46.00	-10.02
942.83	H	Peak	5.22	28.76	33.98	46.00	-12.02

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 SPN between 30MHz to 1GHz was 100kHz.



Operation Mode: TX IEEE 802.11a / CH 5180 / 5dBi +
TX IEEE 802.11g / CH 2412 / 4.5dBi

Test Date: November 2, 2004

Temperature: 28°C

Tested by: Max Yao

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)
64.65	V	Peak	21.89	11.91	33.80	40.00	-6.20
200.55	V	Peak	16.87	14.93	31.80	43.50	-11.70
288.30	V	Peak	22.45	16.23	38.68	46.00	-7.32
500.67	V	Peak	12.95	22.53	35.48	46.00	-10.52
659.33	V	Peak	9.75	25.05	34.80	46.00	-11.20
942.83	V	Peak	6.06	28.76	34.82	46.00	-11.18
154.65	H	Peak	24.34	11.24	35.58	43.50	-7.92
200.55	H	Peak	21.70	14.93	36.63	43.50	-6.87
287.85	H	Peak	18.28	16.21	34.49	46.00	-11.51
499.50	H	Peak	12.49	22.49	34.98	46.00	-11.02
659.33	H	Peak	9.92	25.05	34.97	46.00	-11.03
942.83	H	Peak	4.89	28.76	33.65	46.00	-12.35

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 SPN between 30MHz to 1GHz was 100kHz.



Operation Mode: TX IEEE 802.11a / CH 5180 / 5dBi +
TX IEEE 802.11g / CH 2437 / 4.5dBi

Test Date: November 2, 2004

Temperature: 28°C

Tested by: Max Yao

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)
64.20	V	Peak	21.99	12.06	34.05	40.00	-5.95
250.05	V	Peak	16.52	16.31	32.83	46.00	-13.17
288.30	V	Peak	21.12	16.23	37.35	46.00	-8.65
500.67	V	Peak	11.95	22.53	34.48	46.00	-11.52
659.33	V	Peak	9.25	25.05	34.30	46.00	-11.70
944.00	V	Peak	6.23	28.77	35.00	46.00	-11.00
140.25	H	Peak	26.79	10.88	37.67	43.50	-5.83
154.65	H	Peak	27.67	11.24	38.91	43.50	-4.59
174.00	H	Peak	23.75	12.46	36.21	43.50	-7.29
236.55	H	Peak	18.04	15.78	33.82	46.00	-12.18
500.67	H	Peak	11.95	22.53	34.48	46.00	-11.52
659.33	H	Peak	9.25	25.05	34.30	46.00	-11.70

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 SPN between 30MHz to 1GHz was 100kHz.



Operation Mode: TX IEEE 802.11a / CH 5180 / 5dBi +
TX IEEE 802.11g / CH 2462 / 4.5dBi

Test Date: November 2, 2004

Temperature: 28°C

Tested by: Max Yao

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)
67.80	V	Peak	24.65	10.86	35.51	40.00	-4.49
250.05	V	Peak	16.52	16.31	32.83	46.00	-13.17
288.30	V	Peak	20.28	16.23	36.51	46.00	-9.49
500.67	V	Peak	12.12	22.53	34.65	46.00	-11.35
666.33	V	Peak	12.66	25.17	37.83	46.00	-8.17
942.83	V	Peak	6.06	28.76	34.82	46.00	-11.18
167.25	H	Peak	24.89	11.94	36.83	43.50	-6.67
200.55	H	Peak	20.70	14.93	35.63	43.50	-7.87
244.65	H	Peak	17.27	16.10	33.37	46.00	-12.63
500.67	H	Peak	11.62	22.53	34.15	46.00	-11.85
658.17	H	Peak	9.77	25.03	34.80	46.00	-11.20
942.83	H	Peak	5.56	28.76	34.32	46.00	-11.68

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 SPN between 30MHz to 1GHz was 100kHz.

**Operation Mode:** TX IEEE 802.11a / CH 5180 / 5dBi +
TX IEEE 802.11g / Turbo CH 2437 / 4.5dBi**Temperature:** 28°C**Humidity:** 60% RH**Test Date:** November 2, 2004**Tested by:** Max Yao**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)
64.20	V	Peak	22.49	12.06	34.55	40.00	-5.45
250.05	V	Peak	16.85	16.31	33.16	46.00	-12.84
288.30	V	Peak	21.78	16.23	38.01	46.00	-7.99
499.50	V	Peak	11.99	22.49	34.48	46.00	-11.52
658.17	V	Peak	9.11	25.03	34.14	46.00	-11.86
942.83	V	Peak	5.89	28.76	34.65	46.00	-11.35
154.65	H	Peak	24.67	11.24	35.91	43.50	-7.59
170.85	H	Peak	24.66	12.22	36.88	43.50	-6.62
193.80	H	Peak	21.77	14.30	36.07	43.50	-7.43
288.30	H	Peak	18.62	16.23	34.85	46.00	-11.15
499.50	H	Peak	11.82	22.49	34.31	46.00	-11.69
942.83	H	Peak	5.22	28.76	33.98	46.00	-12.02

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 SPN between 30MHz to 1GHz was 100kHz.

**CONDITION D: EUT (Panel Directional Antenna) +
AP (Panel Directional Antenna)****Operation Mode:** TX IEEE 802.11a / CH 5320 / 14dBi +
TX IEEE 802.11b / CH 2412 / 16dBi**Test Date:** November 2, 2004**Temperature:** 28°C**Tested by:** Max Yao**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)
57.00	V	Peak	22.54	14.06	36.60	40.00	-3.40
287.85	V	Peak	18.12	16.21	34.33	46.00	-11.67
350.17	V	Peak	16.65	18.04	34.69	46.00	-11.31
499.50	V	Peak	16.16	22.49	38.65	46.00	-7.35
658.17	V	Peak	13.94	25.03	38.97	46.00	-7.03
952.17	V	Peak	11.40	28.90	40.30	46.00	-5.70
68.25	H	Peak	25.43	10.71	36.14	40.00	-3.86
250.05	H	Peak	20.69	16.31	37.00	46.00	-9.00
288.30	H	Peak	21.12	16.23	37.35	46.00	-8.65
350.17	H	Peak	18.65	18.04	36.69	46.00	-9.31
500.67	H	Peak	14.45	22.53	36.98	46.00	-9.02
942.83	H	Peak	7.89	28.76	36.65	46.00	-9.35

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 SPN between 30MHz to 1GHz was 100kHz.



Operation Mode: TX IEEE 802.11a / CH 5320 / 14dBi +
TX IEEE 802.11b / CH 2437 / 16dBi

Test Date: November 2, 2004

Temperature: 28°C

Tested by: Max Yao

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)
56.55	V	Peak	22.70	14.15	36.85	40.00	-3.15
287.85	V	Peak	18.12	16.21	34.33	46.00	-11.67
350.17	V	Peak	16.82	18.04	34.86	46.00	-11.14
499.50	V	Peak	15.99	22.49	38.48	46.00	-7.52
658.17	V	Peak	12.11	25.03	37.14	46.00	-8.86
942.83	V	Peak	10.06	28.76	38.82	46.00	-7.18
65.10	H	Peak	23.30	11.76	35.06	40.00	-4.94
250.05	H	Peak	20.52	16.31	36.83	46.00	-9.17
288.30	H	Peak	20.95	16.23	37.18	46.00	-8.82
350.17	H	Peak	18.65	18.04	36.69	46.00	-9.31
658.17	H	Peak	12.27	25.03	37.30	46.00	-8.70
942.83	H	Peak	8.22	28.76	36.98	46.00	-9.02

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 SPN between 30MHz to 1GHz was 100kHz.



Operation Mode: TX IEEE 802.11a / CH 5320 / 14dBi +
TX IEEE 802.11b / CH 2462 / 16dBi

Test Date: November 2, 2004

Temperature: 28°C

Tested by: Max Yao

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)
56.55	V	Peak	22.53	14.15	36.68	40.00	-3.32
287.85	V	Peak	18.95	16.21	35.16	46.00	-10.84
350.17	V	Peak	16.82	18.04	34.86	46.00	-11.14
500.67	V	Peak	16.95	22.53	39.48	46.00	-6.52
659.33	V	Peak	14.09	25.05	39.14	46.00	-6.86
942.83	V	Peak	9.06	28.76	37.82	46.00	-8.18
68.25	H	Peak	24.26	10.71	34.97	40.00	-5.03
200.55	H	Peak	20.37	14.93	35.30	43.50	-8.20
288.30	H	Peak	21.45	16.23	37.68	46.00	-8.32
350.17	H	Peak	19.15	18.04	37.19	46.00	-8.81
499.50	H	Peak	14.49	22.49	36.98	46.00	-9.02
658.17	H	Peak	13.11	25.03	38.14	46.00	-7.86

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 SPN between 30MHz to 1GHz was 100kHz.

**Operation Mode:** TX IEEE 802.11a / CH 5320 / 14dBi +
TX IEEE 802.11g / CH 2412 / 16dBi**Test Date:** November 2, 2004**Temperature:** 28°C**Tested by:** Max Yao**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)
56.55	V	Peak	23.20	14.15	37.35	40.00	-2.65
287.85	V	Peak	18.95	16.21	35.16	46.00	-10.84
304.67	V	Peak	20.65	16.81	37.46	46.00	-8.54
500.67	V	Peak	16.45	22.53	38.98	46.00	-7.02
659.33	V	Peak	14.09	25.05	39.14	46.00	-6.86
944.00	V	Peak	9.07	28.77	37.84	46.00	-8.16
67.80	H	Peak	24.44	10.86	35.30	40.00	-4.70
250.05	H	Peak	20.35	16.31	36.66	46.00	-9.34
287.85	H	Peak	21.95	16.21	38.16	46.00	-7.84
350.17	H	Peak	19.32	18.04	37.36	46.00	-8.64
500.67	H	Peak	14.62	22.53	37.15	46.00	-8.85
659.33	H	Peak	12.09	25.05	37.14	46.00	-8.86

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 SPN between 30MHz to 1GHz was 100kHz.



Operation Mode: TX IEEE 802.11a / CH 5320 / 14dBi +
TX IEEE 802.11g / CH 2437 / 16dBi

Test Date: November 2, 2004

Temperature: 28°C

Tested by: Max Yao

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)
56.10	V	Peak	22.86	14.24	37.10	40.00	-2.90
287.85	V	Peak	18.62	16.21	34.83	46.00	-11.17
500.67	V	Peak	16.62	22.53	39.15	46.00	-6.85
659.33	V	Peak	13.75	25.05	38.80	46.00	-7.20
675.67	V	Peak	11.05	25.34	36.39	46.00	-9.61
942.83	V	Peak	9.22	28.76	37.98	46.00	-8.02
68.25	H	Peak	25.26	10.71	35.97	40.00	-4.03
200.55	H	Peak	20.87	14.93	35.80	43.50	-7.70
288.30	H	Peak	20.95	16.23	37.18	46.00	-8.82
350.17	H	Peak	19.48	18.04	37.52	46.00	-8.48
500.67	H	Peak	15.28	22.53	37.81	46.00	-8.19
659.33	H	Peak	13.09	25.05	38.14	46.00	-7.86

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 SPN between 30MHz to 1GHz was 100kHz.



Operation Mode: TX IEEE 802.11a / CH 5320 / 14dBi +
TX IEEE 802.11g / CH 2462 / 16dBi

Test Date: November 2, 2004

Temperature: 28°C

Tested by: Max Yao

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)
58.80	V	Peak	19.72	13.70	33.42	40.00	-6.58
288.30	V	Peak	17.12	16.23	33.35	46.00	-12.65
400.33	V	Peak	12.51	20.72	33.23	46.00	-12.77
500.67	V	Peak	16.28	22.53	38.81	46.00	-7.19
659.33	V	Peak	12.42	25.05	37.47	46.00	-8.53
946.33	V	Peak	11.42	28.81	40.23	46.00	-5.77
68.25	H	Peak	24.76	10.71	35.47	40.00	-4.53
250.05	H	Peak	20.52	16.31	36.83	46.00	-9.17
288.30	H	Peak	21.28	16.23	37.51	46.00	-8.49
350.17	H	Peak	18.32	18.04	36.36	46.00	-9.64
500.67	H	Peak	14.95	25.03	39.98	46.00	-6.02
658.17	H	Peak	13.27	25.03	38.30	46.00	-7.70

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 SPN between 30MHz to 1GHz was 100kHz.



Operation Mode: TX IEEE 802.11a / CH 5320 / 14dBi + TX IEEE 802.11g / Turbo CH 2437 / 16dBi **Test Date:** November 2, 2004
Temperature: 28°C **Tested by:** Max Yao
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)
59.25	V	Peak	24.23	13.61	37.84	40.00	-2.16
288.30	V	Peak	21.28	16.23	37.51	46.00	-8.49
350.17	V	Peak	17.15	18.04	35.19	46.00	-10.81
499.50	V	Peak	17.49	22.49	39.98	46.00	-6.02
659.33	V	Peak	15.75	25.05	40.80	46.00	-5.20
942.83	V	Peak	9.72	28.76	38.48	46.00	-7.52
68.25	H	Peak	26.09	10.71	36.80	40.00	-3.20
141.60	H	Peak	24.45	10.91	35.36	43.50	-8.14
250.05	H	Peak	21.19	16.31	37.50	46.00	-8.50
288.30	H	Peak	20.62	16.23	36.85	46.00	-9.15
499.50	H	Peak	14.49	22.49	36.98	46.00	-9.02
658.17	H	Peak	11.61	25.03	36.64	46.00	-9.36

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 SPN between 30MHz to 1GHz was 100kHz.

**Above 1 GHz****CONDITION A: EUT (Dual-Band Omni-Directional Antenna)****Operation Mode:** TX IEEE 802.11a / CH 5180 / 5dBi**Test Date:** October 31, 2004**Temperature:** 28°C**Tested by:** Max Yao**Humidity:** 60% RH**Polarity:** Ver. / Hor.

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1593.33	V	48.00	---	-6.84	41.16	---	74.00	54.00	-12.84	Peak
1840.00	V	53.67	---	-5.47	48.20	---	74.00	54.00	-5.80	Peak
2733.33	V	45.00	---	-2.15	42.85	---	74.00	54.00	-11.15	Peak
3691.67	V	44.17	---	1.26	45.43	---	74.00	54.00	-8.57	Peak
10360.00	V	58.77	43.36	10.43	69.20	53.79	74.00	54.00	-0.21	Average
15540.00	V	54.20	42.86	7.96	62.16	50.82	74.00	54.00	-3.18	Average
1040.00	H	46.67	---	-10.17	36.50	---	74.00	54.00	-17.50	Peak
1190.00	H	48.67	---	-9.08	39.59	---	74.00	54.00	-14.41	Peak
3675.00	H	44.50	---	1.18	45.68	---	74.00	54.00	-8.32	Peak
10360.00	H	58.02	43.22	10.43	68.45	53.65	74.00	54.00	-0.35	Average
15540.00	H	53.92	41.72	7.96	61.88	49.68	74.00	54.00	-4.32	Average
N/A										

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser 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.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
 - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
 - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.

**Operation Mode:** TX IEEE 802.11a / CH 5260 / 5dBi**Test Date:** October 31, 2004**Temperature:** 28°C**Tested by:** Max Yao**Humidity:** 60% RH**Polarity:** Ver. / Hor.

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1676.67	V	48.50	---	-6.38	42.12	---	74.00	54.00	-11.88	Peak
1836.67	V	52.50	---	-5.49	47.01	---	74.00	54.00	-6.99	Peak
2733.33	V	45.17	---	-2.15	43.02	---	74.00	54.00	-10.98	Peak
3516.67	V	45.34	---	0.46	45.80	---	74.00	54.00	-8.20	Peak
10520.00	V	59.19	42.86	10.56	69.75	53.42	74.00	54.00	-0.58	Average
15780.00	V	53.25	42.16	7.49	60.74	49.65	74.00	54.00	-4.35	Average
1190.00	H	47.34	---	-9.08	38.26	---	74.00	54.00	-15.74	Peak
1553.33	H	44.00	---	-7.17	36.83	---	74.00	54.00	-17.17	Peak
3691.67	H	45.00	---	1.25	46.25	---	74.00	54.00	-7.75	Peak
11520.00	H	53.04	40.96	10.56	63.60	51.52	74.00	54.00	-2.48	Average
15780.00	H	46.92	35.20	7.49	54.41	42.69	74.00	54.00	-11.31	Average
N/A										

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser 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.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
 - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
 - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.

**Operation Mode:** TX IEEE 802.11a / CH 5320 / 5dBi**Test Date:** October 31, 2004**Temperature:** 28°C**Tested by:** Max Yao**Humidity:** 60% RH**Polarity:** Ver. / Hor.

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1596.67	V	46.34	---	-6.82	39.52	---	74.00	54.00	-14.48	Peak
1836.67	V	54.50	---	-5.49	49.01	---	74.00	54.00	-4.99	Peak
1953.33	V	44.17	---	-4.71	39.46	---	74.00	54.00	-14.54	Peak
2733.33	V	46.00	---	-2.15	43.85	---	74.00	54.00	-10.15	Peak
10640.00	V	59.58	42.56	10.65	70.23	53.21	74.00	54.00	-0.79	Average
15960.00	V	55.96	41.91	7.14	63.10	49.05	74.00	54.00	-4.95	Average
1043.33	H	46.34	---	-10.14	36.20	---	74.00	54.00	-17.80	Peak
1190.00	H	47.67	---	-9.08	38.59	---	74.00	54.00	-15.41	Peak
10640.00	H	50.71	41.07	10.65	61.36	51.72	74.00	54.00	-2.28	Average
15960.00	H	48.79	34.52	7.14	55.93	41.66	74.00	54.00	-12.34	Average
N/A										

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser 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.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
 - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
 - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.

**Operation Mode:** TX IEEE 802.11a / Turbo CH 5210 / 5dBi **Test Date:** October 31, 2004**Temperature:** 28°C**Tested by:** Max Yao**Humidity:** 60% RH**Polarity:** Ver. / Hor.

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1646.67	V	48.67	---	-6.54	42.13	---	74.00	54.00	-11.87	Peak
1836.67	V	52.34	---	-5.49	46.85	---	74.00	54.00	-7.15	Peak
2733.33	V	47.50	---	-2.15	45.35	---	74.00	54.00	-8.65	Peak
3675.00	V	44.50	---	1.18	45.68	---	74.00	54.00	-8.32	Peak
10420.00	V	54.89	42.37	10.48	65.37	52.85	74.00	54.00	-1.15	Average
15630.00	V	51.78	42.04	7.79	59.56	49.82	74.00	54.00	-4.18	Average
1060.00	H	45.50	---	-10.01	35.49	---	74.00	54.00	-18.51	Peak
1190.00	H	47.84	---	-9.08	38.76	---	74.00	54.00	-15.24	Peak
1550.00	H	44.84	---	-7.20	37.64	---	74.00	54.00	-16.36	Peak
3666.67	H	46.00	---	1.14	47.14	---	74.00	54.00	-6.86	Peak
10420.00	H	51.87	38.39	10.48	62.35	48.87	74.00	54.00	-5.13	Average
15630.00	H	45.77	37.03	7.79	53.56	44.82	74.00	54.00	-9.18	Average

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser 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.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
 - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
 - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.

**Operation Mode:** TX IEEE 802.11a / Turbo CH 5250 / 5dBi **Test Date:** October 31, 2004**Temperature:** 28°C**Tested by:** Max Yao**Humidity:** 60% RH**Polarity:** Ver. / Hor.

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1366.67	V	46.67	---	-8.39	38.28	---	74.00	54.00	-15.72	Peak
1546.67	V	47.34	---	-7.22	40.12	---	74.00	54.00	-13.88	Peak
1836.67	V	52.17	---	-5.49	46.68	---	74.00	54.00	-7.32	Peak
2733.33	V	48.00	---	-2.15	45.85	---	74.00	54.00	-8.15	Peak
10500.00	V	55.65	42.91	10.55	66.20	53.46	74.00	54.00	-0.54	Average
15750.00	V	49.14	36.07	7.55	56.69	43.62	74.00	54.00	-10.38	Average
1200.00	H	50.34	---	-9.01	41.33	---	74.00	54.00	-12.67	Peak
1366.67	H	48.84	---	-8.39	40.45	---	74.00	54.00	-13.55	Peak
1590.00	H	43.34	---	-6.87	36.47	---	74.00	54.00	-17.53	Peak
10500.00	H	53.66	42.66	10.55	64.21	53.21	74.00	54.00	-0.79	Average
N/A										

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser 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.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
 - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
 - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.

**Operation Mode:** TX IEEE 802.11a / Turbo CH 5290 / 5dBi **Test Date:** October 31, 2004**Temperature:** 28°C**Tested by:** Max Yao**Humidity:** 60% RH**Polarity:** Ver. / Hor.

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1840.00	V	52.50	---	-5.47	47.03	---	74.00	54.00	-6.97	Peak
2733.33	V	47.84	---	-2.15	45.69	---	74.00	54.00	-8.31	Peak
10580.00	V	58.11	43.05	10.61	68.72	53.66	74.00	54.00	-0.34	Average
15870.00	V	51.47	39.14	7.32	58.78	46.45	74.00	54.00	-7.55	Average
N/A										
1200.00	H	50.34	---	-9.01	41.33	---	74.00	54.00	-12.67	Peak
1366.67	H	49.00	---	-8.39	40.61	---	74.00	54.00	-13.39	Peak
2733.33	H	42.50	---	-2.15	40.35	---	74.00	54.00	-13.65	Peak
10580.00	H	51.12	40.08	10.61	61.73	50.69	74.00	54.00	-3.31	Average
15870.00	H	48.72	36.63	7.32	56.04	43.95	74.00	54.00	-10.05	Average
N/A										

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser 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.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
 - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
 - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.

**CONDITION B: EUT (Panel Directional Antenna)****Operation Mode:** TX IEEE 802.11a / CH 5280 / 14dB**Test Date:** December 2, 2004**Temperature:** 28°C**Tested by:** Max Yao**Humidity:** 60% RH**Polarity:** Ver. / Hor.

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1200.00	V	47.00	---	-9.01	37.99	---	74.00	54.00	-16.01	Peak
1750.00	V	51.00	---	-5.99	45.01	---	74.00	54.00	-8.99	Peak
1840.00	V	51.67	---	-5.47	46.20	---	74.00	54.00	-7.80	Peak
10560.00	V	50.37	38.17	10.43	60.80	48.60	74.00	54.00	-5.40	Average
15840.00	V	47.08	35.18	7.96	55.04	43.14	74.00	54.00	-10.86	Average
N/A										
1196.67	H	49.50	---	-9.03	40.47	---	74.00	54.00	-13.53	Peak
1366.67	H	46.50	---	-8.39	38.11	---	74.00	54.00	-15.89	Peak
10560.00	H	51.70	37.69	10.43	62.13	48.12	74.00	54.00	-5.88	Average
15840.00	H	47.42	34.96	7.96	55.38	42.92	74.00	54.00	-11.08	Average
N/A										

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser 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.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
 - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
 - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.

**Operation Mode:** TX IEEE 802.11a / CH 5300 / 14dBi**Test Date:** December 2, 2004**Temperature:** 28°C**Tested by:** Max Yao**Humidity:** 60% RH**Polarity:** Ver. / Hor.

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1673.33	V	49.84	---	-6.39	43.45	---	74.00	54.00	-10.55	Peak
1836.67	V	52.84	---	-5.49	47.35	---	74.00	54.00	-6.65	Peak
3658.33	V	49.67	---	1.10	50.77	---	74.00	54.00	-3.23	Peak
10600.00	V	56.33	43.01	10.56	66.89	53.57	74.00	54.00	-0.43	Average
15900.00	V	51.66	40.31	7.49	59.15	47.80	74.00	54.00	-6.20	Average
N/A										
1193.33	H	51.34	---	-9.06	42.28	---	74.00	54.00	-11.72	Peak
10600.00	H	49.33	40.86	10.56	59.89	51.42	74.00	54.00	-2.58	Average
10600.00	H	49.62	38.57	7.49	57.11	46.06	74.00	54.00	-7.94	Average
N/A										

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser 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.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
 - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
 - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.

**Operation Mode:** TX IEEE 802.11a / CH 5320 / 14dBi**Test Date:** December 2, 2004**Temperature:** 28°C**Tested by:** Max Yao**Humidity:** 60% RH**Polarity:** Ver. / Hor.

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1836.67	V	51.67	---	-5.49	46.18	---	74.00	54.00	-7.82	Peak
2733.33	V	46.84	---	-2.15	44.69	---	74.00	54.00	-9.31	Peak
3550.00	V	56.61	52.45	0.61	57.22	53.06	74.00	54.00	-0.94	Average
7091.67	V	45.17	---	6.80	51.97	---	74.00	54.00	-2.03	Peak
10640.00	V	56.90	42.97	10.65	67.55	53.62	74.00	54.00	-0.38	Average
15960.00	V	49.99	40.20	7.14	57.13	47.34	74.00	54.00	-6.66	Average
1646.67	H	52.17	---	-6.54	45.63	---	74.00	54.00	-8.37	Peak
1766.67	H	52.67	---	-5.90	46.77	---	74.00	54.00	-7.23	Peak
3541.67	H	54.67	50.32	0.57	55.24	50.89	74.00	54.00	-3.11	Average
7100.00	H	44.50	---	6.82	51.32	---	74.00	54.00	-2.68	Peak
10640.00	H	57.24	43.07	10.65	67.89	53.72	74.00	54.00	-0.28	Average
15960.00	H	49.50	38.16	7.14	56.64	45.30	74.00	54.00	-8.70	Average

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser 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.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
 - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
 - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.

**Operation Mode:** TX IEEE 802.11a / Turbo CH 5290 / 14dBi **Test Date:** December 2, 2004**Temperature:** 28°C**Tested by:** Max Yao**Humidity:** 60% RH**Polarity:** Ver. / Hor.

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1196.67	V	46.67	---	-9.03	37.64	---	74.00	54.00	-16.36	Peak
1836.67	V	52.17	---	-5.49	46.68	---	74.00	54.00	-7.32	Peak
2733.33	V	45.67	---	-2.15	43.52	---	74.00	54.00	-10.48	Peak
3525.00	V	44.34	---	0.49	44.83	---	74.00	54.00	-9.17	Peak
10580.00	V	57.44	42.86	10.61	68.05	53.47	74.00	54.00	-0.53	Average
15870.00	V	49.88	39.39	7.32	57.19	46.70	74.00	54.00	-7.30	Average
1190.00	H	50.17	---	-9.08	41.09	---	74.00	54.00	-12.91	Peak
1823.33	H	44.00	---	-5.58	38.42	---	74.00	54.00	-15.58	Peak
3525.00	H	46.50	---	0.49	46.99	---	74.00	54.00	-7.01	Peak
10580.00	H	52.36	40.31	10.61	62.97	50.92	74.00	54.00	-3.08	Average
15870.00	H	50.88	38.98	7.32	58.20	46.30	74.00	54.00	-7.70	Average
N/A										

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser 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.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
 - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
 - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.

**Co-Location:****CONDITION C: EUT (Dual-Band Omni-Directional Antenna) +
AP (Dual-Band Omni-Directional Antenna)****Operation Mode:** TX IEEE 802.11a Base mode / CH 5180 / 5dBi
+ TX IEEE 802.11b / CH 2412 / 4.5dBi**Test Date:** October 31, 2004**Temperature:** 28°C**Tested by:** Max Yao**Humidity:** 60% RH**Polarity:** Ver. / Hor.

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
2173.33	V	54.67	---	-3.81	50.86	---	74.00	54.00	-3.14	Peak
2206.67	V	53.50	---	-3.70	49.80	---	74.00	54.00	-4.20	Peak
3158.33	V	49.00	---	-0.90	48.10	---	74.00	54.00	-5.90	Peak
4816.67	V	46.34	---	3.28	49.62	---	74.00	54.00	-4.38	Peak
N/A										
2173.33	H	46.34	---	-3.81	42.53	---	74.00	54.00	-11.47	Peak
2206.67	H	47.50	---	-3.70	43.80	---	74.00	54.00	-10.20	Peak
4816.00	H	44.84	---	3.28	48.12	---	74.00	54.00	-5.88	Peak
N/A										

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser 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.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
 - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
 - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.



Operation Mode: TX IEEE 802.11a Base mode / CH 5180 / 5dBi
+ TX IEEE 802.11b / CH 2437 / 4.5dBi

Test Date: October 31, 2004

Temperature: 28°C

Tested by: Max Yao

Humidity: 60% RH

Polarity: Ver. / Hor.

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
2173.33	V	49.84	---	-3.81	46.03	---	74.00	54.00	-7.97	Peak
2206.67	V	52.17	---	-3.70	48.47	---	74.00	54.00	-5.53	Peak
3166.67	V	50.17	---	-0.91	49.26	---	74.00	54.00	-4.74	Peak
4866.00	V	49.67	44.37	3.38	53.05	47.75	74.00	54.00	-6.25	Average
N/A										
2173.33	H	46.00	---	-3.81	42.19	---	74.00	54.00	-11.81	Peak
2206.67	H	48.00	---	-3.70	44.30	---	74.00	54.00	-9.70	Peak
4866.67	H	45.34	---	3.38	48.72	---	74.00	54.00	-5.28	Peak
N/A										

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser 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.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
 - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
 - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.



Operation Mode: TX 802. IEEE 11a Base mode / CH 5180 / 5dBi
+ TX 802. IEEE 11b / CH 2462 / 4.5dBi

Test Date: October 31, 2004

Temperature: 28°C

Tested by: Max Yao

Humidity: 60% RH

Polarity: Ver. / Hor.

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
2173.33	V	50.17	---	-3.81	46.36	---	74.00	54.00	-7.64	Peak
2206.67	V	52.67	---	-3.70	48.97	---	74.00	54.00	-5.03	Peak
3158.33	V	48.84	---	-0.95	47.89	---	74.00	54.00	-6.11	Peak
4916.67	V	47.00	---	3.49	50.49	---	74.00	54.00	-3.51	Peak
N/A										
2173.33	H	46.17	---	-3.81	42.36	---	74.00	54.00	-11.64	Peak
2206.67	H	47.84	---	-3.70	44.14	---	74.00	54.00	-9.86	Peak
4916.67	H	43.84	---	3.49	47.33	---	74.00	54.00	-6.67	Peak
N/A										

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser 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.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
 - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
 - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.



Operation Mode: TX 802. IEEE 11a Base mode / CH 5180 / 5dBi
+ TX 802. IEEE 11g Base mode / CH 2412 / 4.5dBi

Test Date: October 31, 2004

Temperature: 28°C

Tested by: Max Yao

Humidity: 60% RH

Polarity: Ver. / Hor.

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
2173.33	V	48.34	---	-3.81	44.53	---	74.00	54.00	-9.47	Peak
2206.67	V	48.67	---	-3.70	44.97	---	74.00	54.00	-9.03	Peak
3166.67	V	48.00	---	-0.91	47.09	---	74.00	54.00	-6.91	Peak
5166.67	V	43.00	---	4.02	47.02	---	74.00	54.00	-6.98	Peak
N/A										
1440.00	H	45.84	---	-8.00	37.84	---	74.00	54.00	-16.16	Peak
2206.67	H	47.50	---	-3.70	43.80	---	74.00	54.00	-10.20	Peak
4966.67	H	40.84	---	3.60	44.44	---	74.00	54.00	-9.56	Peak
N/A										

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser 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.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
 - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
 - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.



Operation Mode: TX 802. IEEE 11a Base mode / CH 5180 / 5dBi
+ TX 802. IEEE 11g Base mode / CH 2437 / 4.5dBi

Test Date: October 31, 2004

Temperature: 28°C

Tested by: Max Yao

Humidity: 60% RH

Polarity: Ver. / Hor.

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
2206.67	V	52.17	---	-3.70	48.47	---	74.00	54.00	-5.53	Peak
3158.33	V	49.17	---	-0.95	48.22	---	74.00	54.00	-5.78	Peak
3408.33	V	46.84	---	0.02	46.86	---	74.00	54.00	-7.14	Peak
4866.67	V	43.00	---	3.38	46.38	---	74.00	54.00	-7.62	Peak
N/A										
2173.33	H	45.00	---	-3.81	41.19	---	74.00	54.00	-12.81	Peak
2206.67	H	46.50	---	-3.70	42.80	---	74.00	54.00	-11.20	Peak
N/A										

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser 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.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
 - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
 - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.



Operation Mode: TX IEEE 802.11a Base mode / CH 5180 / 5dBi
+ TX IEEE 802.11g Base mode / CH 2462 / 4.5dBi

Test Date: October 31, 2004

Temperature: 28°C

Tested by: Max Yao

Humidity: 60% RH

Polarity: Ver. / Hor.

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
2206.67	V	51.84	---	-3.70	48.14	---	74.00	54.00	-5.86	Peak
3166.67	V	47.84	---	-0.91	46.93	---	74.00	54.00	-7.07	Peak
3400.00	V	46.17	---	-0.01	46.16	---	74.00	54.00	-7.84	Peak
4858.33	V	43.34	---	3.37	46.71	---	74.00	54.00	-7.29	Peak
N/A										
1593.33	H	44.00	---	-6.84	37.16	---	74.00	54.00	-16.84	Peak
2206.67	H	48.34	---	-3.70	44.64	---	74.00	54.00	-9.36	Peak
4841.67	H	41.67	---	3.33	45.00	---	74.00	54.00	-9.00	Peak
N/A										

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser 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.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
 - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
 - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.



Operation Mode: TX IEEE 802.11a Base mode / CH 5180 / 5dBi
+ TX IEEE 802.11g Turbo mode / CH 2437 / 4.5dBi

Test Date: October 31, 2004

Temperature: 28°C

Tested by: Max Yao

Humidity: 60% RH

Polarity: Ver. / Hor.

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
2173.33	V	48.50	---	-3.81	44.69	---	74.00	54.00	-9.31	Peak
2206.67	V	54.17	---	-3.70	50.47	---	74.00	54.00	-3.53	Peak
3158.33	V	49.67	---	-0.95	48.72	---	74.00	54.00	-5.28	Peak
4866.67	V	44.34	---	3.38	47.72	---	74.00	54.00	-6.28	Peak
N/A										
1596.67	H	45.67	---	-6.82	38.85	---	74.00	54.00	-15.15	Peak
2206.67	H	50.17	---	-3.70	46.47	---	74.00	54.00	-7.53	Peak
4791.67	H	42.50	---	3.22	45.72	---	74.00	54.00	-8.28	Peak
N/A										

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser 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.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
 - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
 - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.



Operation Mode: TX IEEE 802.11a Base mode / CH 5320 / 14dBi
+ TX IEEE 802.11b / CH 2412 / 16dBi

Test Date: October 31, 2004

Temperature: 28°C

Tested by: Max Yao

Humidity: 60% RH

Polarity: Ver. / Hor.

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
3558.33	V	51.17	---	0.65	51.82	---	74.00	54.00	-2.18	Peak
4816.67	V	46.84	---	3.28	50.12	---	74.00	54.00	-3.88	Peak
5591.67	V	45.67	---	4.81	50.48	---	74.00	54.00	-3.52	Peak
N/A										
1440.00	H	45.50	---	-8.00	37.50	---	74.00	54.00	-16.50	Peak
1670.00	H	46.67	---	-6.41	40.26	---	74.00	54.00	-13.74	Peak
4816.67	H	41.50	---	3.28	44.78	---	74.00	54.00	-9.22	Peak
N/A										

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser 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.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
 - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
 - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.



Operation Mode: TX IEEE 802.11a Base mode / CH 5320 / 14dBi
+ TX IEEE 802.11b / CH 2437 / 16dBi

Test Date: October 31, 2004

Temperature: 28°C

Tested by: Max Yao

Humidity: 60% RH

Polarity: Ver. / Hor.

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
2173.33	V	50.50	---	-3.81	46.69	---	74.00	54.00	-7.31	Peak
2206.67	V	49.17	---	-3.70	45.47	---	74.00	54.00	-8.53	Peak
4866.67	V	42.67	---	3.38	46.05	---	74.00	54.00	-7.95	Peak
5541.67	V	45.50	---	4.76	50.26	---	74.00	54.00	-3.74	Peak
N/A										
1663.33	H	47.50	---	-6.45	41.05	---	74.00	54.00	-12.95	Peak
1780.00	H	47.17	---	-5.83	41.34	---	74.00	54.00	-12.66	Peak
4866.67	H	41.50	---	3.38	44.88	---	74.00	54.00	-9.12	Peak
N/A										

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser 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.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
 - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
 - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.



Operation Mode: TX IEEE 802.11a Base mode / CH 5320 / 14dBi
+ TX IEEE 802.11b / CH 2462 / 16dBi

Test Date: October 31, 2004

Temperature: 28°C

Tested by: Max Yao

Humidity: 60% RH

Polarity: Ver. / Hor.

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
2173.33	V	50.67	---	-3.81	46.86	---	74.00	54.00	-7.14	Peak
2206.67	V	49.84	---	-3.70	46.14	---	74.00	54.00	-7.86	Peak
3666.67	V	44.67	---	1.14	45.81	---	74.00	54.00	-8.19	Peak
4916.67	V	47.84	---	3.49	51.33	---	74.00	54.00	-2.67	Peak
N/A										
1676.67	H	47.00	---	-6.38	40.62	---	74.00	54.00	-13.38	Peak
1780.00	H	45.50	---	-5.83	39.67	---	74.00	54.00	-14.33	Peak
4916.67	H	48.50	---	3.49	51.99	---	74.00	54.00	-2.01	Peak
N/A										

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser 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.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
 - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
 - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.



Operation Mode: TX IEEE 802.11a Base mode / CH 5320 / 14dBi
+ TX IEEE 802.11g Base mode / CH 2412 / 16dBi

Test Date: October 31, 2004

Temperature: 28°C

Tested by: Max Yao

Humidity: 60% RH

Polarity: Ver. / Hor.

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
2173.33	V	49.67	---	-3.81	45.86	---	74.00	54.00	-8.14	Peak
2206.67	V	47.67	---	-3.70	43.97	---	74.00	54.00	-10.03	Peak
3666.67	V	44.34	---	1.14	45.48	---	74.00	54.00	-8.52	Peak
4816.67	V	41.67	---	3.28	44.95	---	74.00	54.00	-9.05	Peak
N/A										
1593.33	H	44.34	---	-6.84	37.50	---	74.00	54.00	-16.50	Peak
2036.67	H	43.67	---	-4.27	39.40	---	74.00	54.00	-14.60	Peak
4808.33	H	41.34	---	3.26	44.60	---	74.00	54.00	-9.40	Peak
N/A										

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser 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.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
 - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
 - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.



Operation Mode: TX IEEE 802.11a Base mode / CH 5320 / 14dBi
+ TX IEEE 802.11g Base mode / CH 2437 / 16dBi

Test Date: October 31, 2004

Temperature: 28°C

Tested by: Max Yao

Humidity: 60% RH

Polarity: Ver. / Hor.

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
2173.33	V	47.50	---	-3.81	43.69	---	74.00	54.00	-10.31	Peak
2206.67	V	48.50	---	-3.70	44.80	---	74.00	54.00	-9.20	Peak
3575.00	V	49.00	---	0.72	49.72	---	74.00	54.00	-4.28	Peak
3616.67	V	46.34	---	0.91	47.25	---	74.00	54.00	-6.75	Peak
N/A										
1693.33	H	44.67	---	-6.29	38.38	---	74.00	54.00	-15.62	Peak
4891.67	H	42.34	---	3.44	45.78	---	74.00	54.00	-8.22	Peak
N/A										

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser 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.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
 - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
 - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.



Operation Mode: TX IEEE 802.11a Base mode / CH 5320 / 14dBi
+ TX IEEE 802.11g Base mode / CH 2462 / 16dBi

Test Date: October 31, 2004

Temperature: 28°C

Tested by: Max Yao

Humidity: 60% RH

Polarity: Ver. / Hor.

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
2173.33	V	48.34	---	-3.81	44.53	---	74.00	54.00	-9.47	Peak
3616.67	V	46.00	---	0.91	46.91	---	74.00	54.00	-7.09	Peak
3666.67	V	45.50	---	1.14	46.64	---	74.00	54.00	-7.36	Peak
4916.67	V	44.00	---	3.49	47.49	---	74.00	54.00	-6.51	Peak
N/A										
1680.00	H	45.34	---	-6.36	38.98	---	74.00	54.00	-15.02	Peak
1760.00	H	46.84	---	-5.94	40.90	---	74.00	54.00	-13.10	Peak
3550.00	H	45.67	---	0.61	46.28	---	74.00	54.00	-7.72	Peak
N/A										

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser 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.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
 - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
 - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.



Operation Mode: TX IEEE 802.11a Base mode / CH 5320 / 14dBi
+ TX IEEE 802.11g Turbo mode / CH 2437 / 16dBi

Test Date: October 31, 2004

Temperature: 28°C

Tested by: Max Yao

Humidity: 60% RH

Polarity: Ver. / Hor.

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
2173.33	V	49.00	---	-3.81	45.19	---	74.00	54.00	-8.81	Peak
2206.67	V	50.34	---	-3.70	46.64	---	74.00	54.00	-7.36	Peak
3550.00	V	45.34	---	0.61	45.95	---	74.00	54.00	-8.05	Peak
3658.33	V	46.34	---	1.10	47.44	---	74.00	54.00	-6.56	Peak
N/A										
1066.67	H	47.84	---	-9.96	37.88	---	74.00	54.00	-16.12	Peak
1760.00	H	46.00	---	-5.94	40.06	---	74.00	54.00	-13.94	Peak
3583.33	H	44.84	---	0.76	45.60	---	74.00	54.00	-8.40	Peak
N/A										

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser 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.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
 - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
 - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.



7.8 CONDUCTED UNDESIRABLE EMISSION

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.

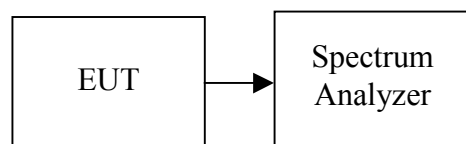
The provisions of §15.205 apply to intentional radiators operating under this section.

MEASUREMENT EQUIPMENT USED

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY43360131	01/10/2005

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.

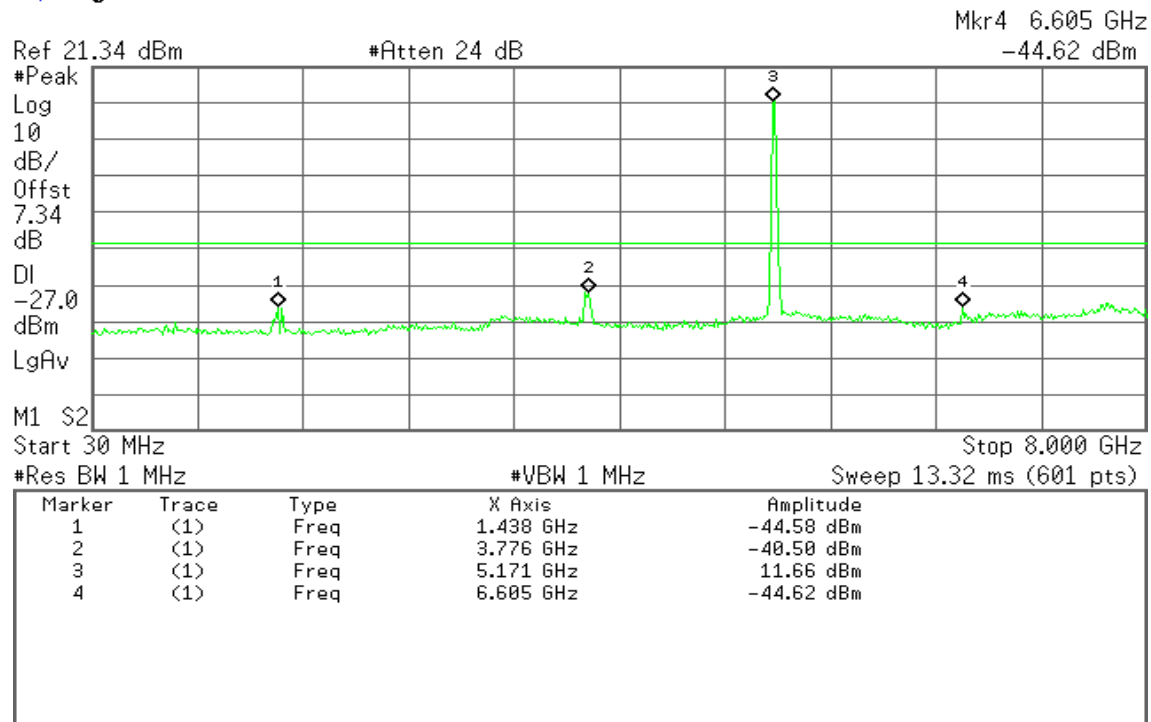


Test Plot / Dual-Band Omni-Directional Antenna

CH 5180 / 5dBi

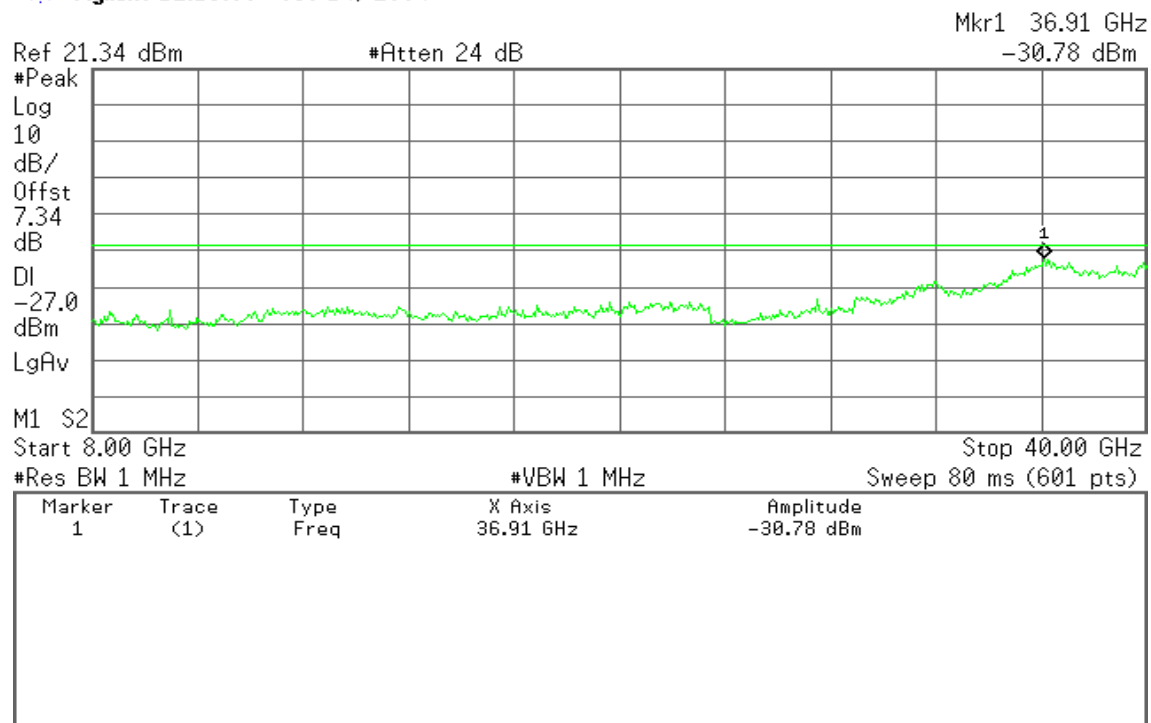
30MHz ~ 8GHz

Agilent 12:12:36 Oct 14, 2004



8GHz ~ 40GHz

Agilent 12:13:06 Oct 14, 2004

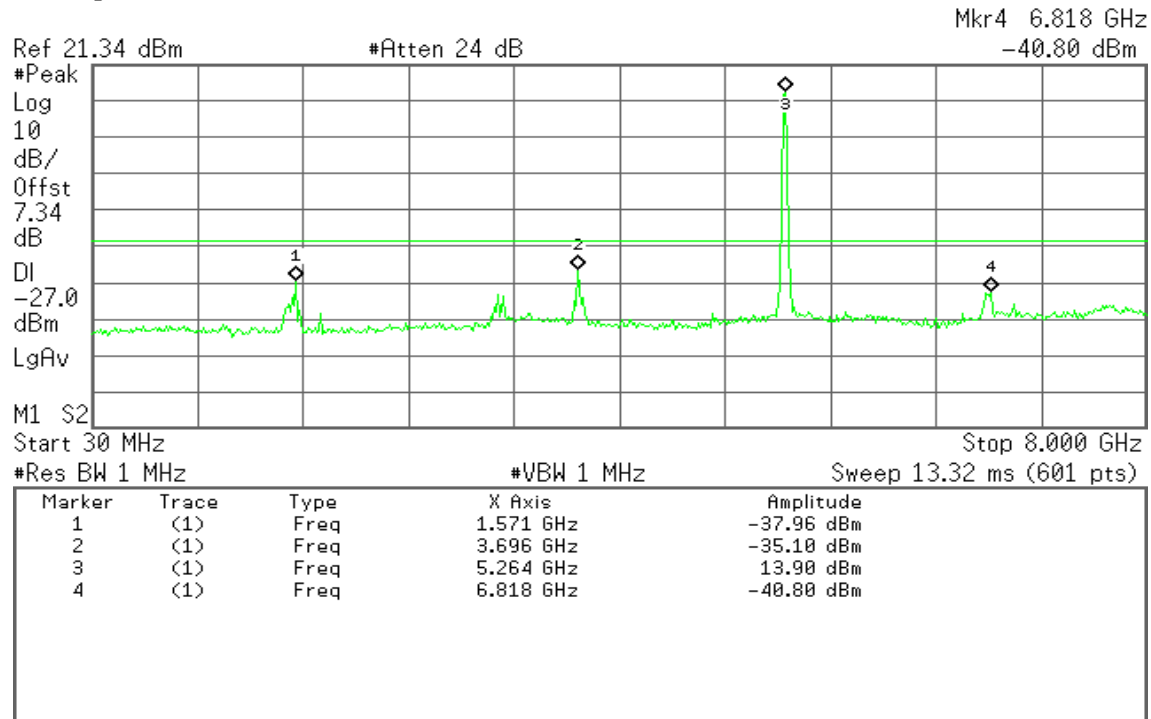




CH 5260 / 5dBi

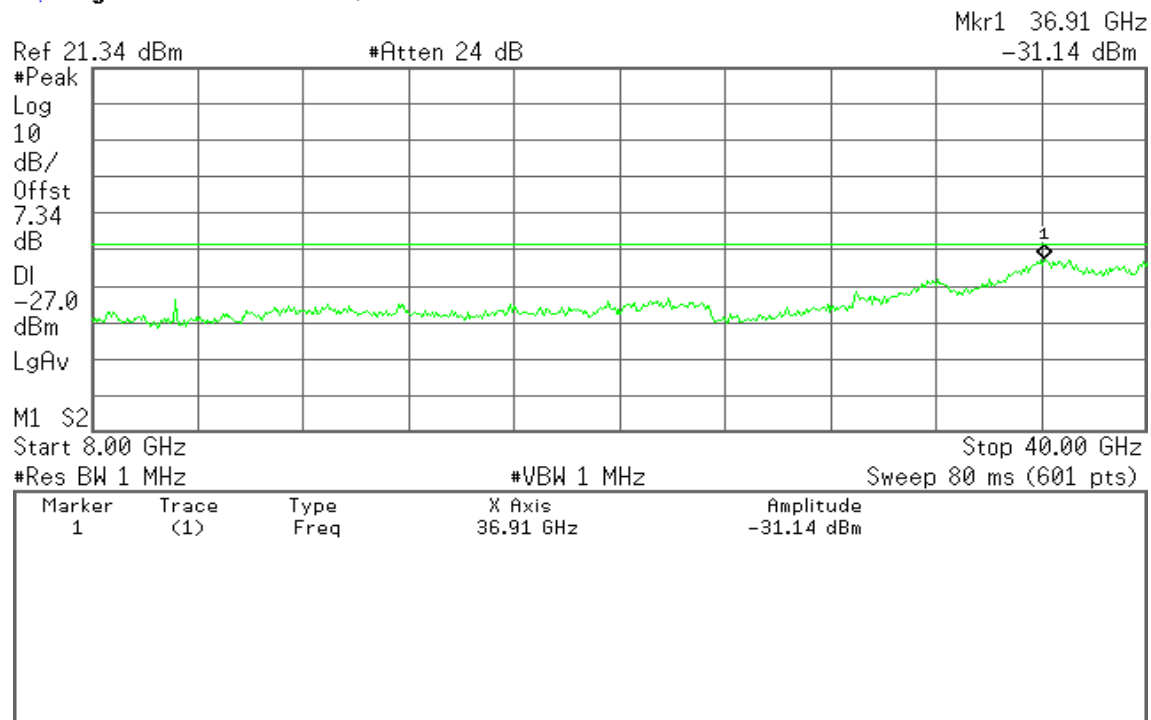
30MHz ~ 8GHz

Agilent 12:14:53 Oct 14, 2004



8GHz ~ 40GHz

Agilent 12:15:25 Oct 14, 2004

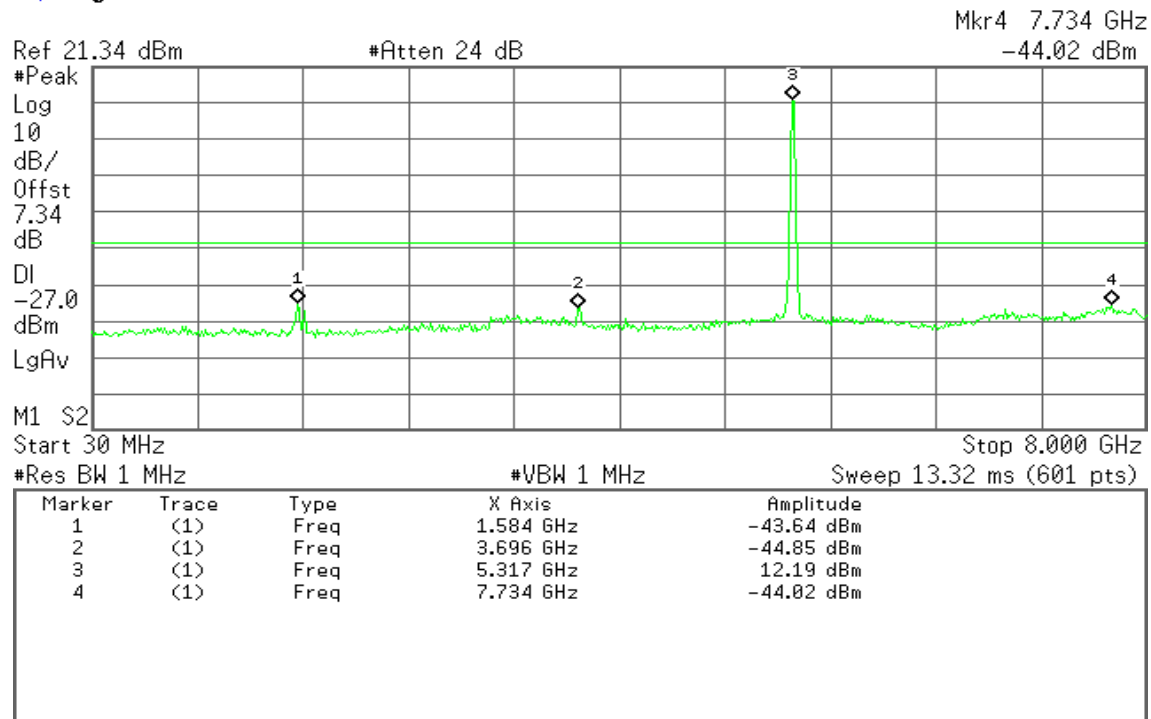




CH 5320 / 5dBi

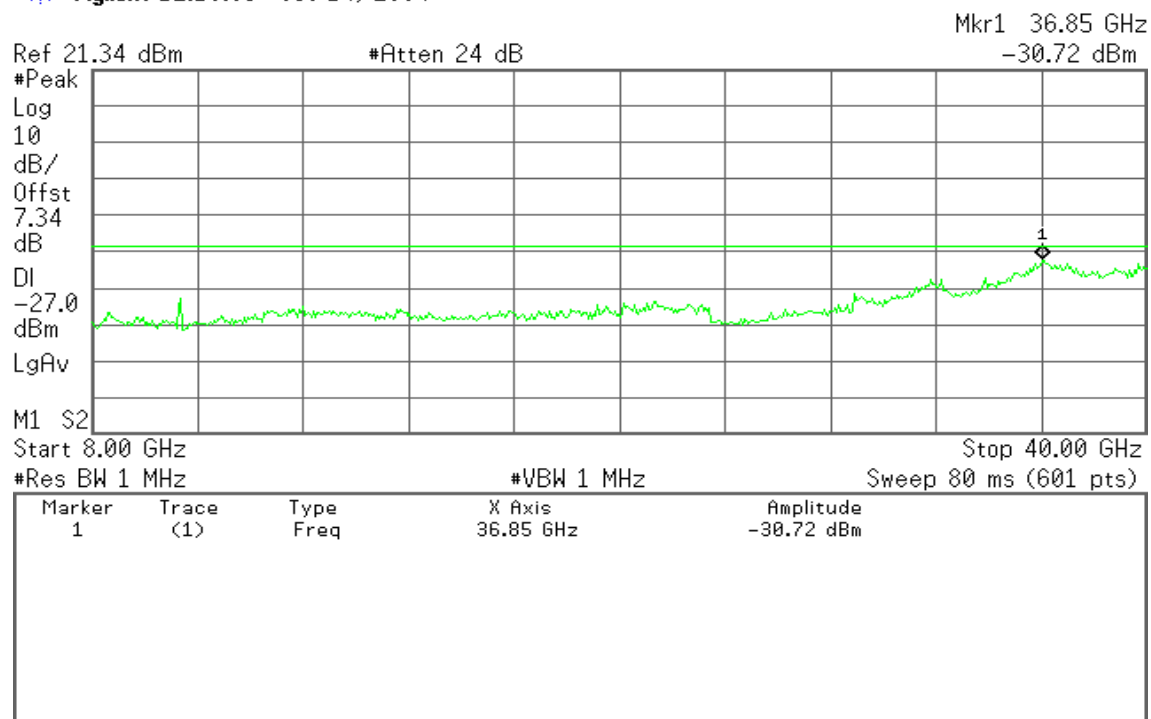
30MHz ~ 8GHz

* Agilent 12:17:30 Oct 14, 2004



8GHz ~ 40GHz

* Agilent 12:18:03 Oct 14, 2004



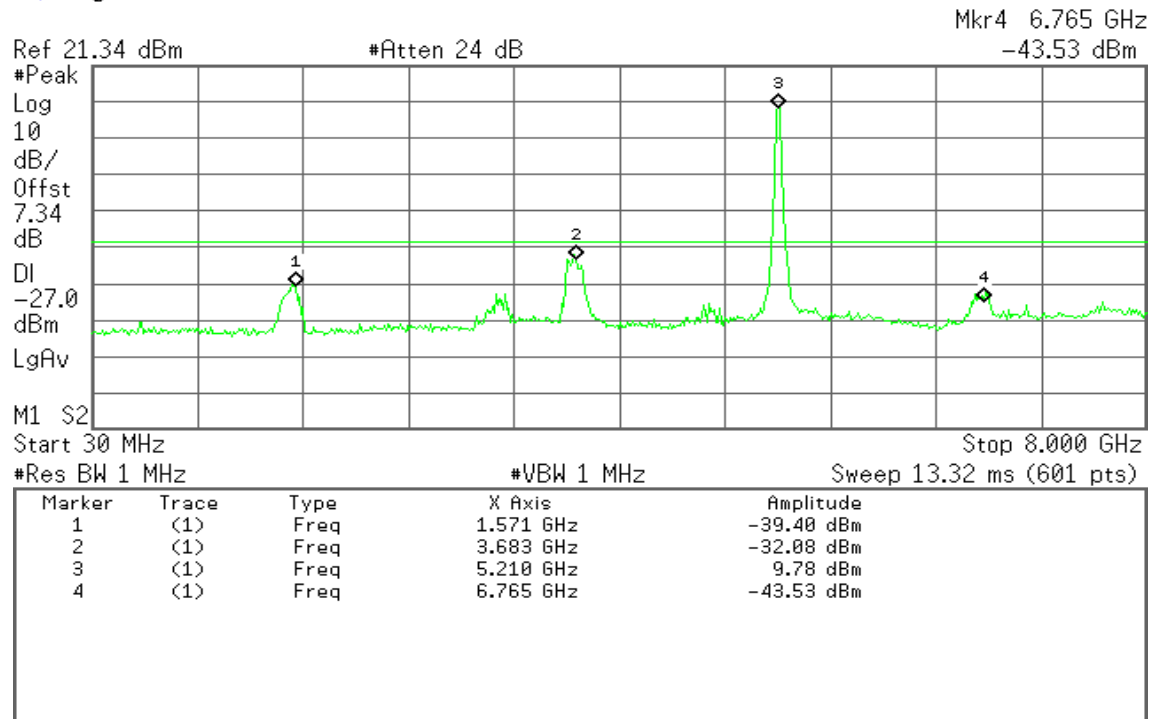


IEEE 802.11a Turbo mode

CH 5210 / 5dBi

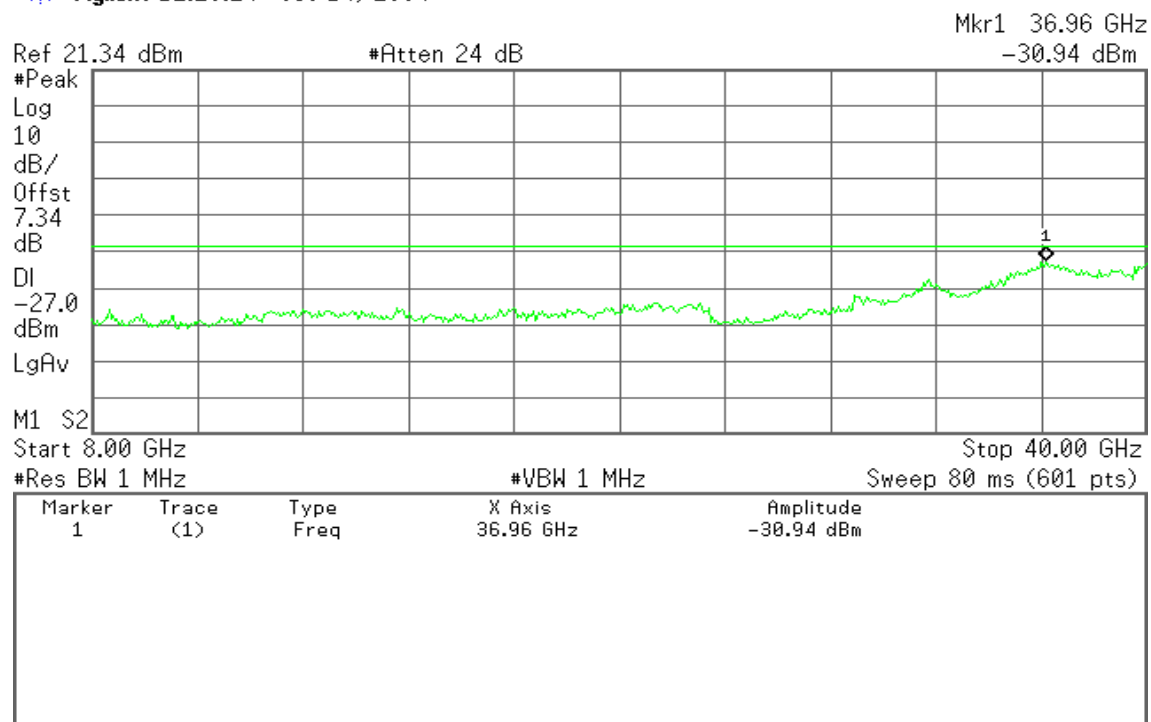
30MHz ~ 8GHz

Agilent 12:20:00 Oct 14, 2004



8GHz ~ 40GHz

Agilent 12:20:24 Oct 14, 2004

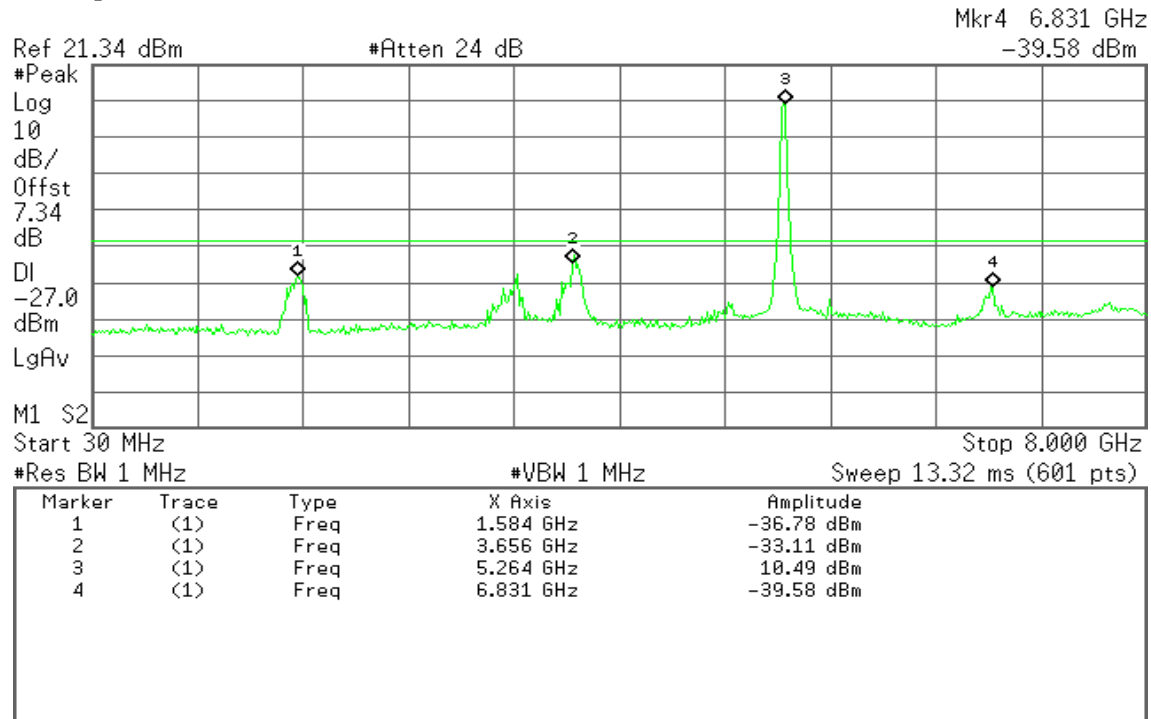




CH 5250 / 5dBi

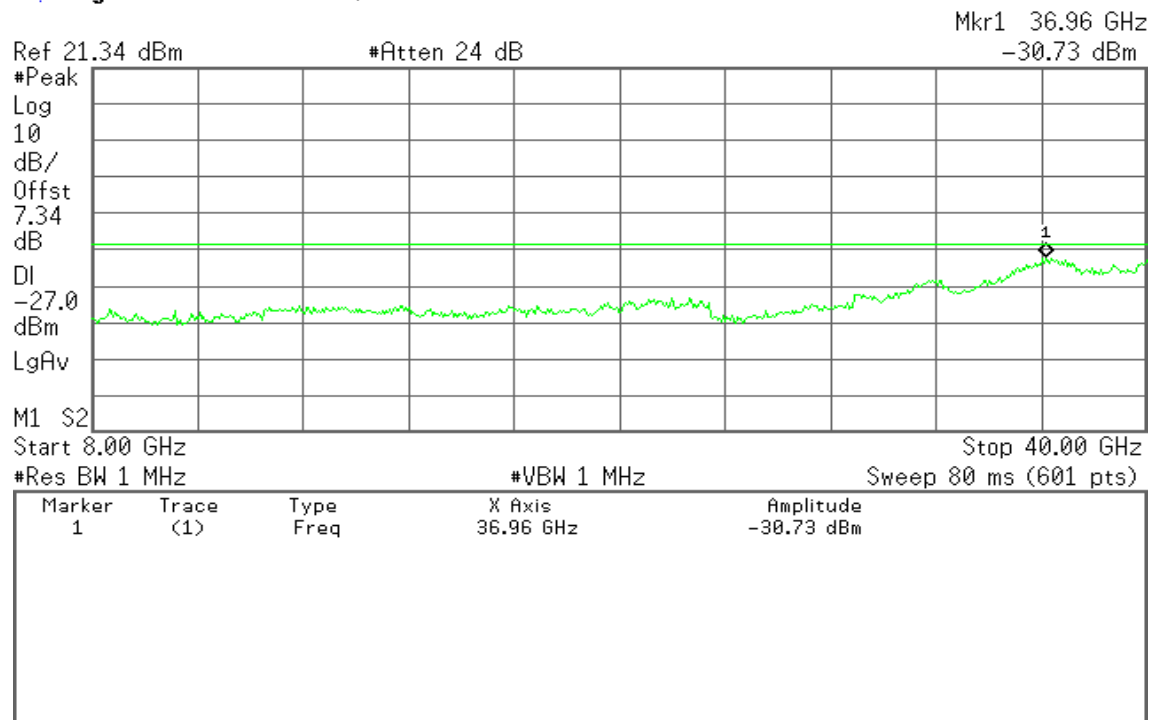
30MHz ~ 8GHz

Agilent 12:22:32 Oct 14, 2004



8GHz ~ 40GHz

Agilent 12:23:12 Oct 14, 2004

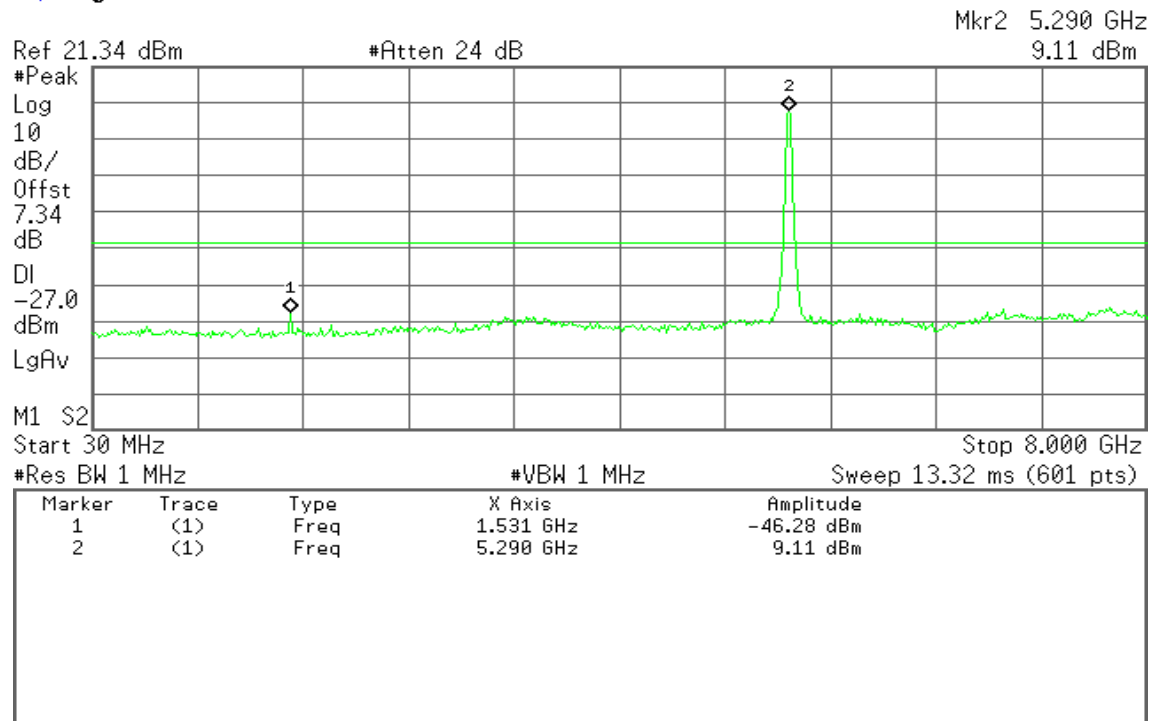




CH 5290 / 5dBi

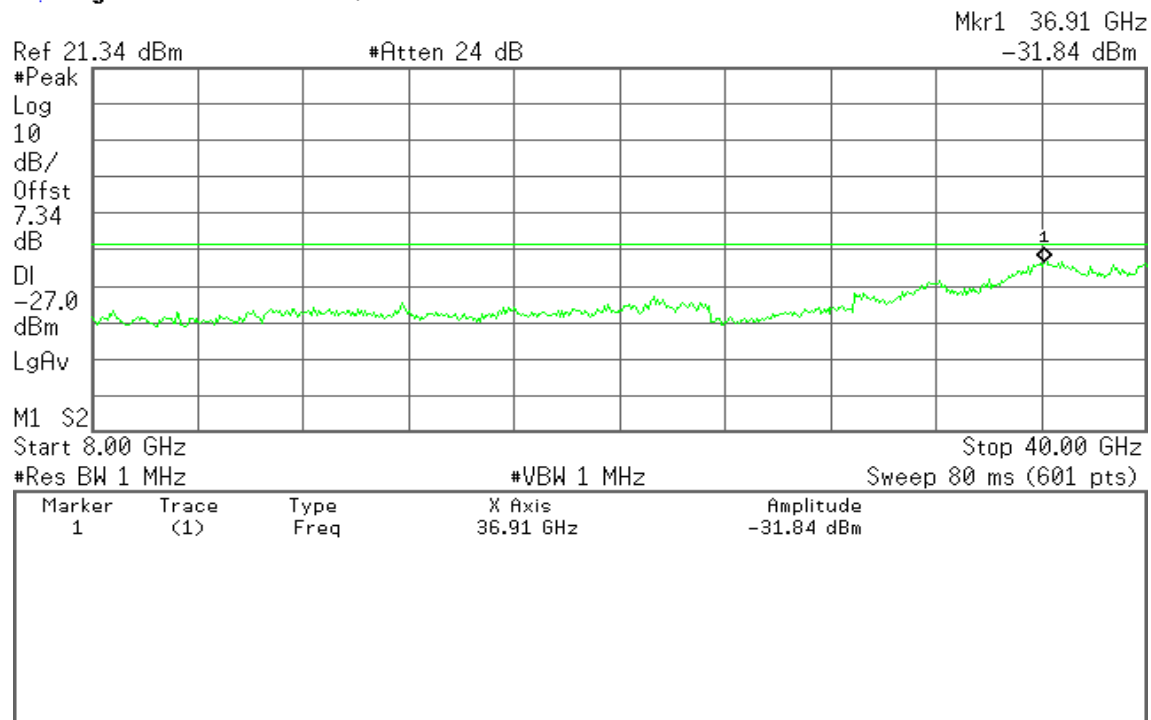
30MHz ~ 8GHz

Agilent 12:25:04 Oct 14, 2004



8GHz ~ 40GHz

Agilent 12:25:26 Oct 14, 2004



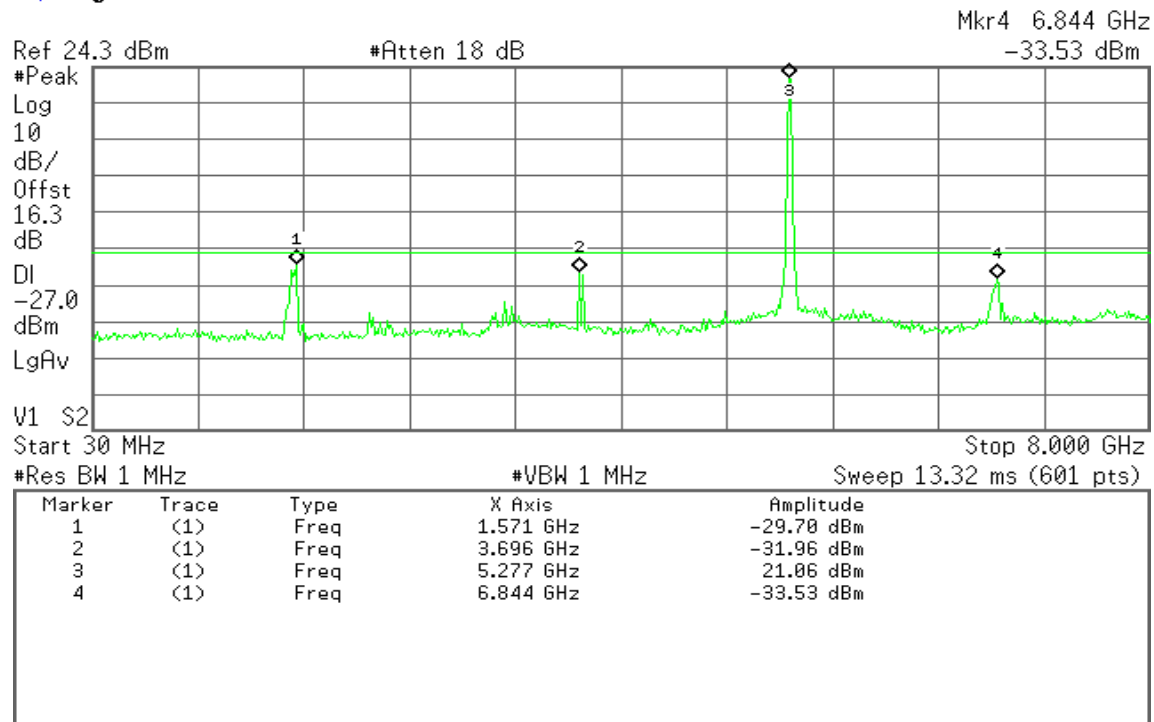


Test Plot / Panel Directional Antenna

CH 5280 / 14dBi

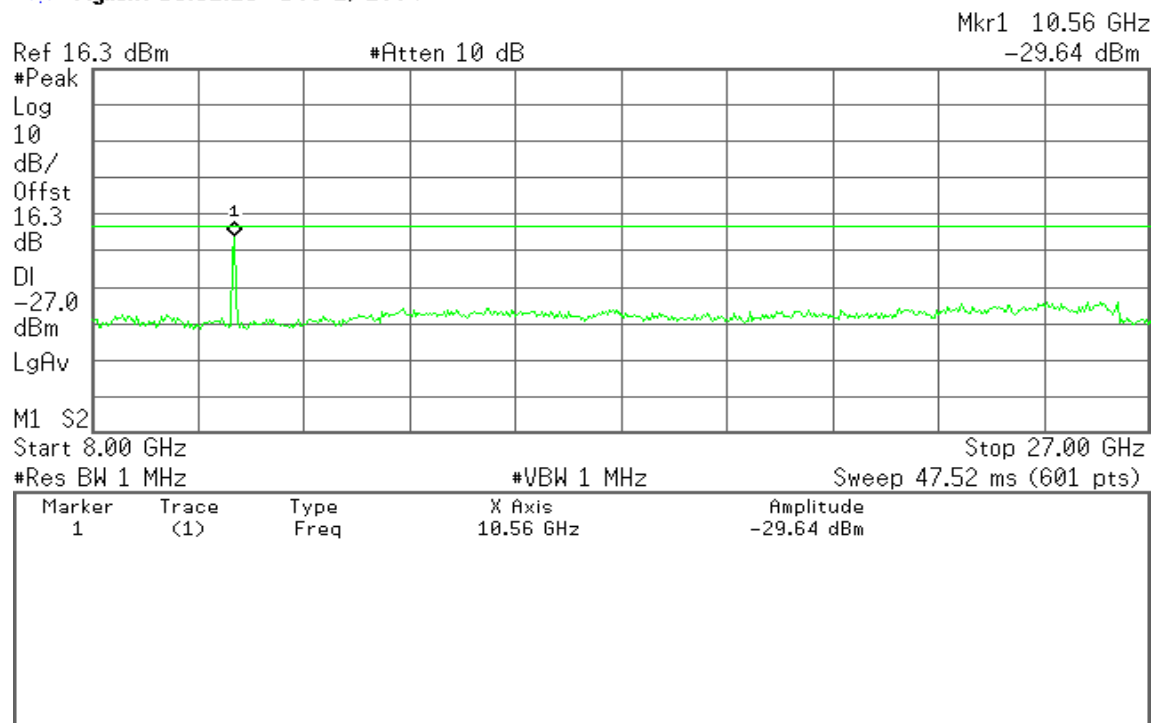
30MHz ~ 8GHz

Agilent 15:51:30 Dec 2, 2004



8GHz ~ 40GHz

Agilent 15:52:25 Dec 2, 2004

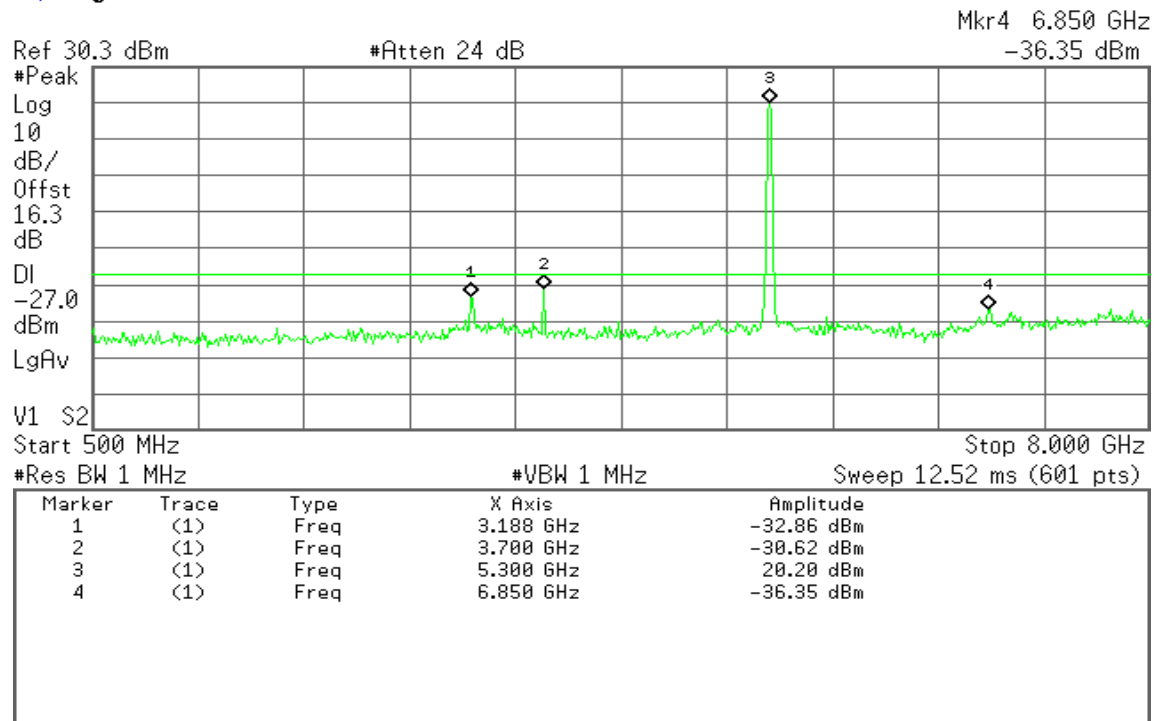




CH 5300 / 14dBi

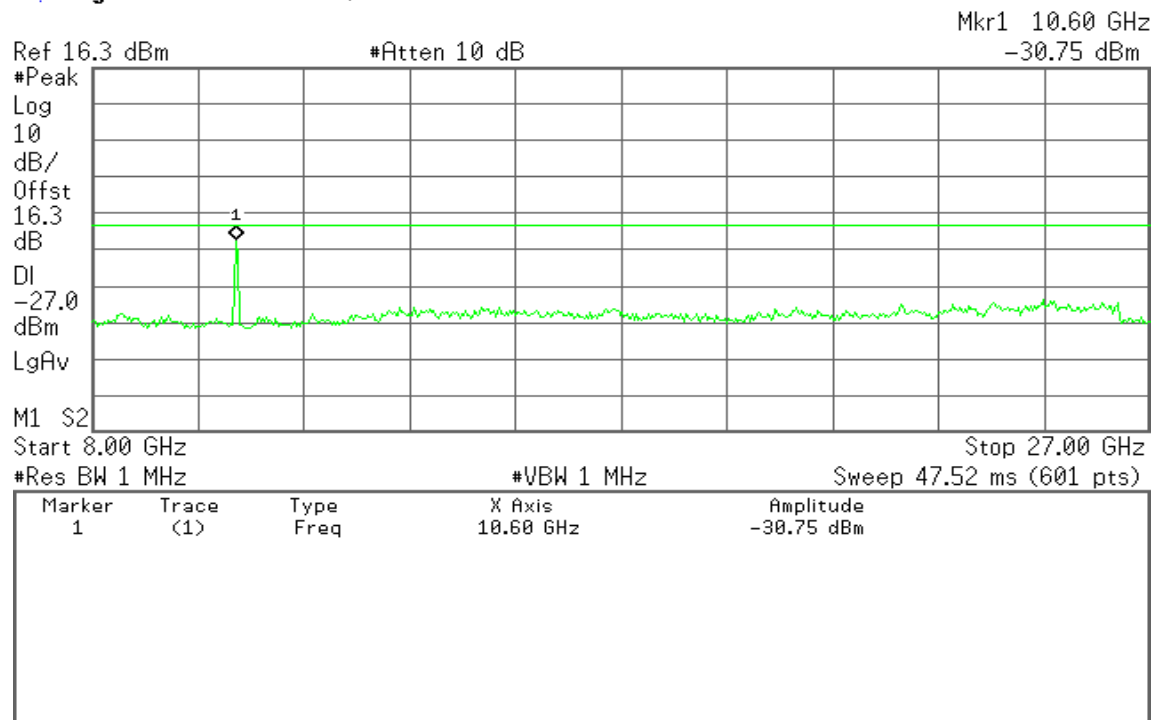
30MHz ~ 8GHz

Agilent 15:54:00 Dec 2, 2004



8GHz ~ 40GHz

Agilent 15:54:30 Dec 2, 2004

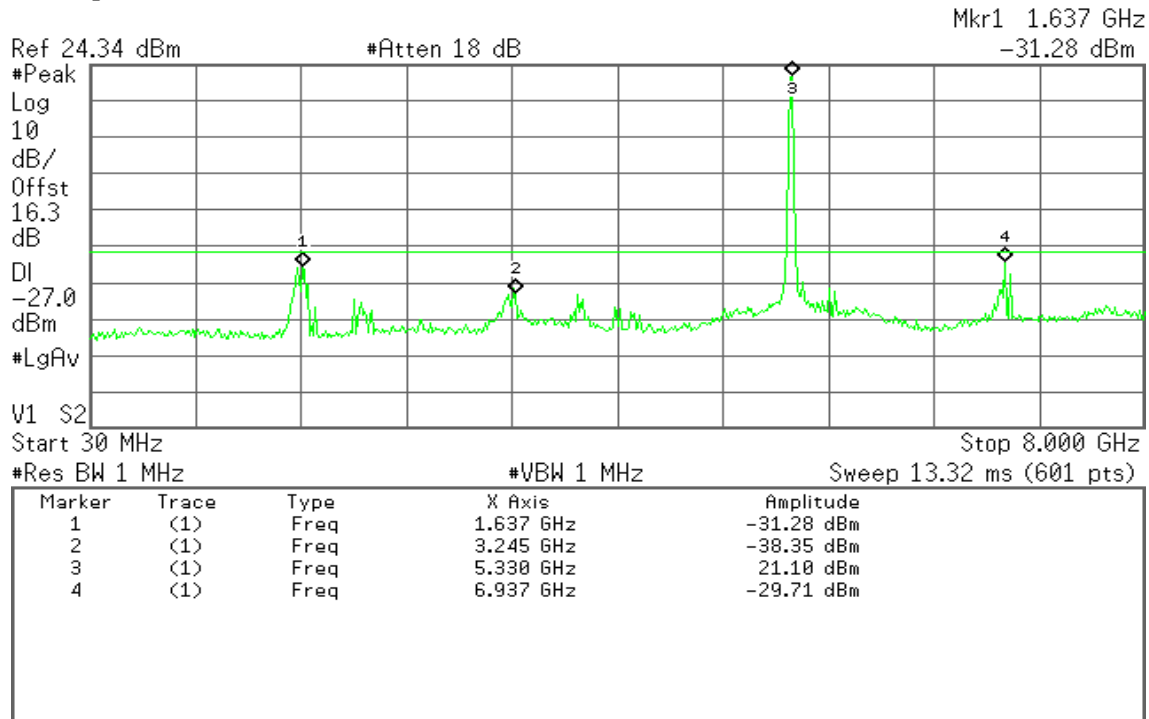




CH 5320 / 14dBi

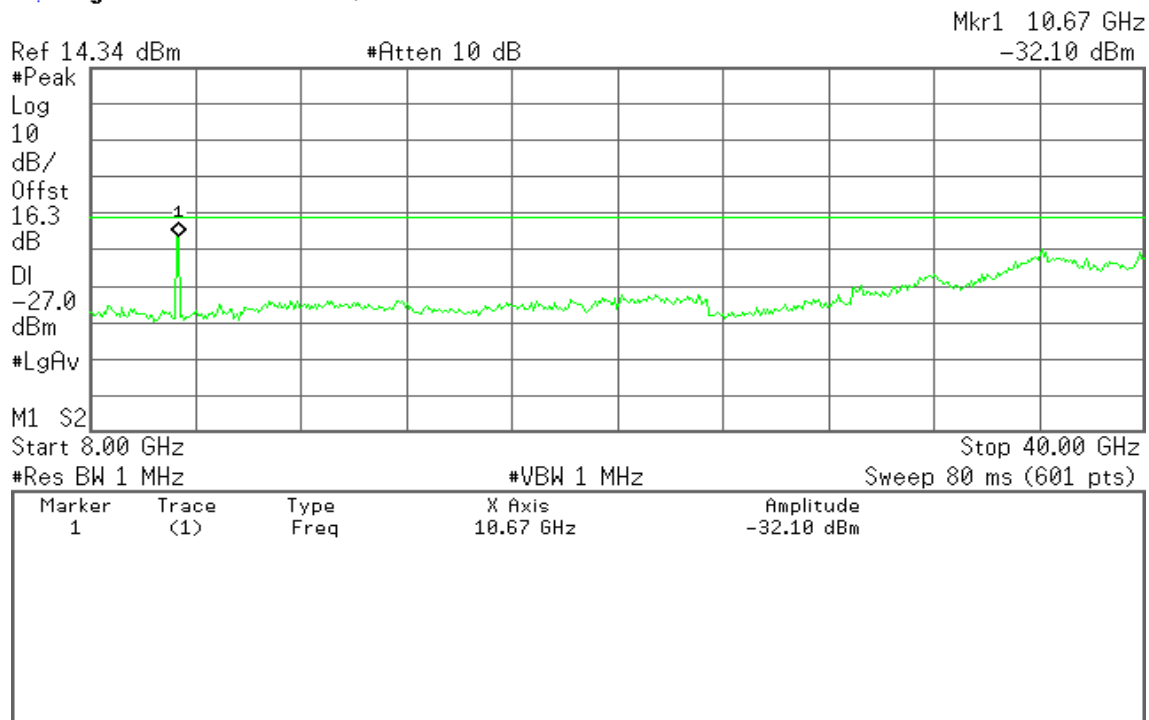
30MHz ~ 8GHz

Agilent 21:48:10 Oct 19, 2004



8GHz ~ 40GHz

Agilent 21:48:49 Oct 19, 2004



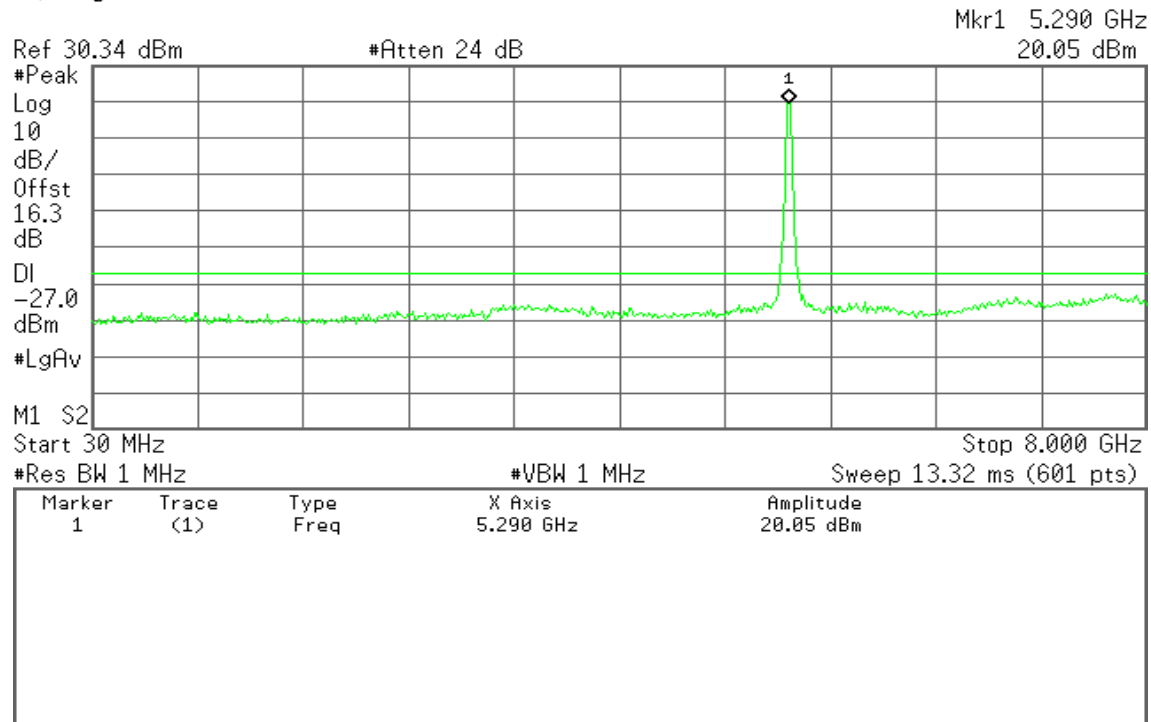


IEEE 802.11a Turbo mode

CH 5290 / 14dBi

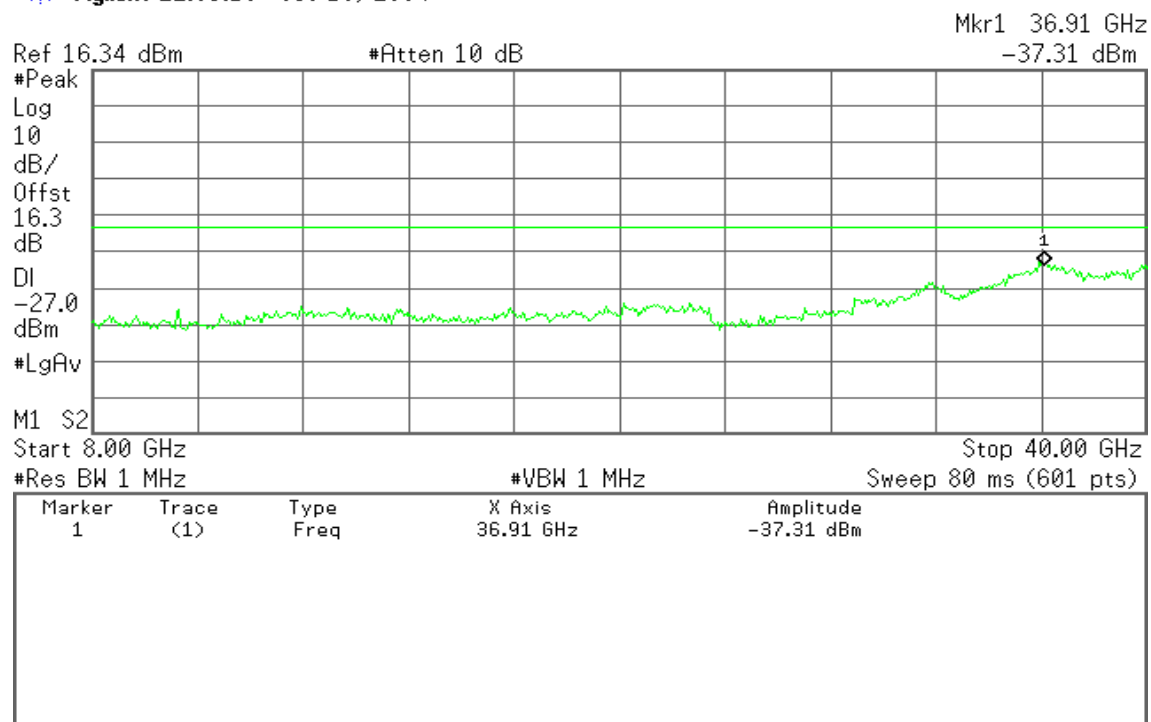
30MHz ~ 8GHz

Agilent 22:02:42 Oct 19, 2004



8GHz ~ 40GHz

Agilent 22:03:10 Oct 19, 2004





7.9 TRANSMISSION IN ABSENCE OF DATA

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

Please refer to the operational description for details.

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

7.10 FREQUENCY STABILITY

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

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.