FCC 47 CFR PART 15 SUBPART E

TEST REPORT

For

ProCurve Wireless Access Point 530

Model: RSVLC-0501

Trade Name: HP-ProCurve Networking

Issued to

Hewlett-Packard Company ProCurve Networking
8000 Foothills Blvd. Roseville,
CA 95747 U.S.A.

Issued by

Compliance Certification Services Inc.
No. 81-1, Lane 210, Bade Rd. 2, Luchu Hsiang,
Taoyuan Hsien, (338) Taiwan, R.O.C.
http://www.ccsemc.com.tw
service@tw.ccsemc.com

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1. TEST RESULT CERTIFICATION

Applicant: Hewlett-Packard Company ProCurve Networking
8000 Foothills Blvd. Roseville,
CA 95747 U.S.A.

Equipment Under Test: ProCurve Wireless Access Point 530

Trade Name: HP-ProCurve Networking

Model: RSVLC-0501

Date of Test: November 14 ~ December 15, 2005

APPLICABLE STANDARDS	
STANDARD	**TEST RESULT**
FCC 47 CFR 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: 2003 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:

Gavin Lim
Section Manager
Compliance Certification Services Inc.

Reviewed by:

Amanda Wu
Section Manager
Compliance Certification Services Inc.

2. EUT DESCRIPTION

<table>
<tr><td>Product</td><td>ProCurve Wireless Access Point 530</td></tr>
<tr><td>Trade Name</td><td>HP-ProCurve Networking</td></tr>
<tr><td>Model Number</td><td>RSVLC-0501</td></tr>
<tr><td>Model Discrepancy</td><td>N/A</td></tr>
<tr><td>Power Supply</td><td>Power Adapter:
LISTED / PSA18U-480C
I/P: 100V-240V, 0.5A, 50-60Hz
O/P: 48V, 0.38A</td></tr>
<tr><td>Frequency Range</td><td>5.15~5.35 GHz</td></tr>
<tr><td>Transmit Power</td><td>
<table>
<tr><td>Test mode</td><td>(dBm)</td></tr>
<tr><td>Mode 1: Antenna 1+ Module 2</td><td>18.48</td></tr>
<tr><td>Mode 2: Antenna 2+ Module 2</td><td>12.87</td></tr>
<tr><td>Mode 3: Antenna 3+ Module 2</td><td>15.48</td></tr>
<tr><td>Mode 4: Antenna 4+ Module 2</td><td>12.18</td></tr>
<tr><td>Mode 5: Antenna 6+ Module 2</td><td>18.19</td></tr>
</table>
</td></tr>
<tr><td>Modulation Technique</td><td>OFDM (QPSK, BPSK, 16-QAM, 64-QAM)</td></tr>
<tr><td>Transmit Data Rate</td><td>54, 48, 36, 24, 18, 12, 9, 6 Mbps</td></tr>
<tr><td>Number of Channels</td><td>8 Channels</td></tr>
<tr><td>Antenna Specification</td><td>Antenna 1: Diversity Antenna / J8997A / 2.4 ~ 2.5GHz / 3.0dBi
4.9 ~ 5.99GHz / 4.0dBi
Antenna 2: Directional Antenna / J8999A / 2.4 ~ 2.5GHz / 6.9dBi
4.9 ~ 5.99GHz / 7.7dBi
Antenna 3: Omni Antenna / J8998A / 5.15 ~ 5.875GHz / 6.3dBi
Antenna 4: Directional Antenna / J9000A / 5.15 ~ 5.875GHz / 13.3dBi
Antenna 5: PIFA Antenna / 5.15 ~ 5.875GHz / 5.95dBi
Antenna 6: PIFA Antenna / 5.15 ~ 5.875GHz / 5.95dBi</td></tr>
<tr><td>Cable Loss</td><td>1.26 dB</td></tr>
</table>

Operation Frequency:

UNLICENSED NATIONAL INFORMATION INFRASTRUCTURE (U-NII)	
CHANNEL	**MHz**
1	5180
2	5200
3	5220
4	5240
5	5260
6	5280
7	5300
8	5320

Remark:

1. *The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.*
2. *This submittal(s) (test report) is intended for FCC ID: B94RSVLC-0501 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 emissions, exploratory radiated emission measurements were made 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 (model: RSVLC-0501) comes with two modules: module 1 & module 2.

"Module 1" refers to IEEE 802.11 b/g transmitter.

"Module 2" refers to IEEE 802.11 a/b/g transmitter.

The EUT was set with following configurations for test.

Mode 1: Antenna 1+ Module 2

Mode 2: Antenna 2+ Module 2

Mode 3: Antenna 3+ Module 2

Mode 4: Antenna 4+ Module 2

Mode 5: Antenna 6+ Module 2

Software used to control the EUT for staying in continuous transmitting mode was programmed.

After verification, all tests were carried out with the worst case test modes as shown below except radiated spurious emission below 1GHz, which worst case was in normal link mode only.

Channel Low (5180MHz), Channel Mid (5260MHz) and Channel High (5320MHz) with 6Mbps data rate were chosen for full testing

4. INSTRUMENT CALIBRATION

4.1 MEASURING INSTRUMENT CALIBRATION

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

4.2 MEASUREMENT EQUIPMENT USED

Equipment Used for Emissions Measurement

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

Conducted Emissions Test Site				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Spectrum Analyzer	Agilent	E4446A	MY43360131	01/10/2006
Spectrum Analyzer	R&S	FSP30	100112	08/03/2006

3M Semi Anechoic Chamber				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Spectrum Analyzer	Agilent	E4446A	US42510252	07/25/2006
Test Receiver	Rohde&Schwarz	ESCI	100064	06/28/2006
Switch Controller	TRC	Switch Controller	SC94050010	05/05/2006
4 Port Switch	TRC	4 Port Switch	SC94050020	05/05/2006
Horn-Antenna	TRC	HA-0502	06	06/02/2006
Horn-Antenna	TRC	HA-0801	04	05/05/2006
Bilog- Antenna	Sunol Sciences	JB3	A030205	03/09/2006
Turn Table	Max-Full	MFT-120S	T120S940302	N.C.R.
Antenna Tower	Max-Full	MFA-430	A440940302	N.C.R.
Controller	Max-Full	MF-CM886	CC-C-1F-13	N.C.R.
Site NSA	CCS	N/A	FCC: 965860 IC: IC 6106	09/26/2008
Test S/W	LABVIEW (V 6.1)			

Remark: *The measurement uncertainty is less than +/-2.0065dB (30MHz ~ 1GHz), +/-3.0958dB (Above 1GHz) which is evaluated as per the NAMAS NIS 81 and CISPR/A/291/CDV.*

Powerline Conducted Emissions Test Site				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
EMI TEST RECEIVER 9kHz-30MHz	ROHDE & SCHWARZ	ESHS30	828144/003	09/24/2006
TWO-LINE V-NETWORK 9kHz-30MHz	SCHAFFNER	NNB41	03/10013	06/11/2006
LISN 10kHz-100MHz	EMCO	3825/2	9106-1809	02/17/2006
Test S/W	LABVIEW (V 6.1)			

Remark: *The measurement uncertainty is less than +/- 2.81dB, which is evaluated as per the NAMAS NIS 81 and CISPR/A/291/CDV.*

5. FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

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

☐ No.199, Chunghsen Road, Hsintien City, Taipei Hsien, Taiwan, R.O.C.
Tel: 886-2-2217-0894 / Fax: 886-2-2217-1029

☒ No.11, Wugong 6th Rd., Wugu Industrial Park, Taipei Hsien 248, Taiwan
Tel: 886-2-2299-9720 / Fax: 886-2-2298-4045

☒ No.81-1, Lane 210, Bade 2nd Rd., Luchu Hsiang, Taoyuan Hsien 338, Taiwan
Tel: 886-3-324-0332 / Fax: 886-3-324-5235

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 (93105, 90471) / 3M Semi Anechoic Chamber (965860) to perform FCC Part 15/18 measurements	93105, 90471 965860
Japan	VCCI	3/10 meter Open Area Test Sites to perform conducted/radiated measurements	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
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	3/10 meter Open Area Test Sites (IC 3991-3, IC 3991-4) / 3M Semi Anechoic Chamber (IC 6106) to perform RSS 212 Issue 1	IC 3991-3 IC 3991-4 IC 6106

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

** Australia: MRA of NVLAP AS/NZS 4771 &AS/NZS 4268.*

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	2672(X31)	99PBTKB	FCC DoC	N/A	AC I/P: Unshielded, 1.8m DC O/P: Unshielded, 1.8m with a core
2.	Notebook PC (Remote)	DELL	PP10L	50XP51J	FCC DoC	N/A	AC I/P: Unshielded, 1.8m DC O/P: Unshielded, 1.8m with a core

Remark:

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

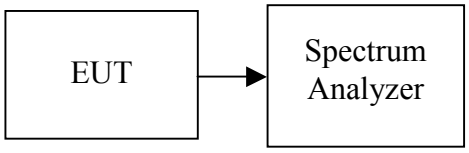
7. FCC PART 15 REQUIREMENTS

7.1 26 dB EMISSION BANDWIDTH

LIMIT

According to §15.303(c), 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. Compliance with the emissions limits 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.

Test Configuration



TEST PROCEDURE

1. Place the EUT on the table and set it in the transmitting mode.
2. Remove the antenna from the EUT and then connect a low-loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as RBW = 1%EBW, VBW = RBW, Span = 50MHz, and Sweep = auto.
   Or Set the spectrum analyzer as RBW > 1%EBW, VBW > RBW, Span >26dB bandwidth, 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

Mode 1: Antenna 1+ Module 2

Channel	Frequency (MHz)	Bandwidth (B) (MHz)
Low	5180	27.60
Mid	5260	32.91
High	5320	32.12

Mode 2: Antenna 2+ Module 2

Channel	Frequency (MHz)	Bandwidth (B) (MHz)
Low	5180	28.78
Mid	5260	24.61
High	5320	28.91

Mode 3: Antenna 3+ Module 2

Channel	Frequency (MHz)	Bandwidth (B) (MHz)
Low	5180	28.61
Mid	5260	25.17
High	5320	26.73

Mode 4: Antenna 4+ Module 2

Channel	Frequency (MHz)	Bandwidth (B) (MHz)
Low	5180	30.43
Mid	5260	25.21
High	5320	27.47

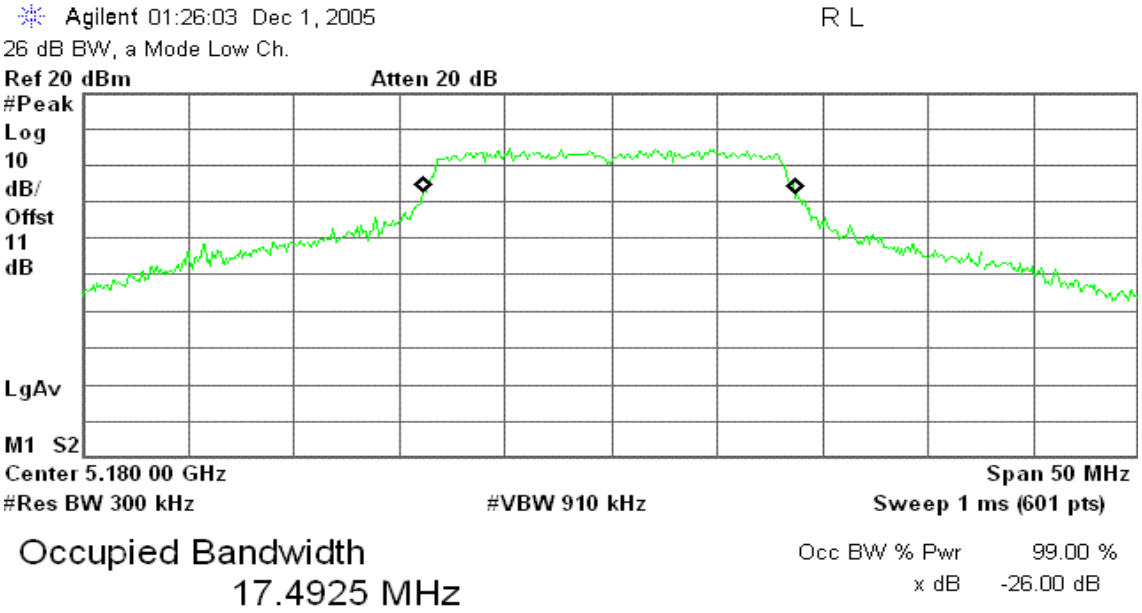
Mode 5: Antenna 6+ Module 2

Channel	Frequency (MHz)	Bandwidth (B) (MHz)
Low	5180	30.99
Mid	5260	32.07
High	5320	32.29

Test Plot

Mode 1: Antenna 1+ Module 2

CH Low

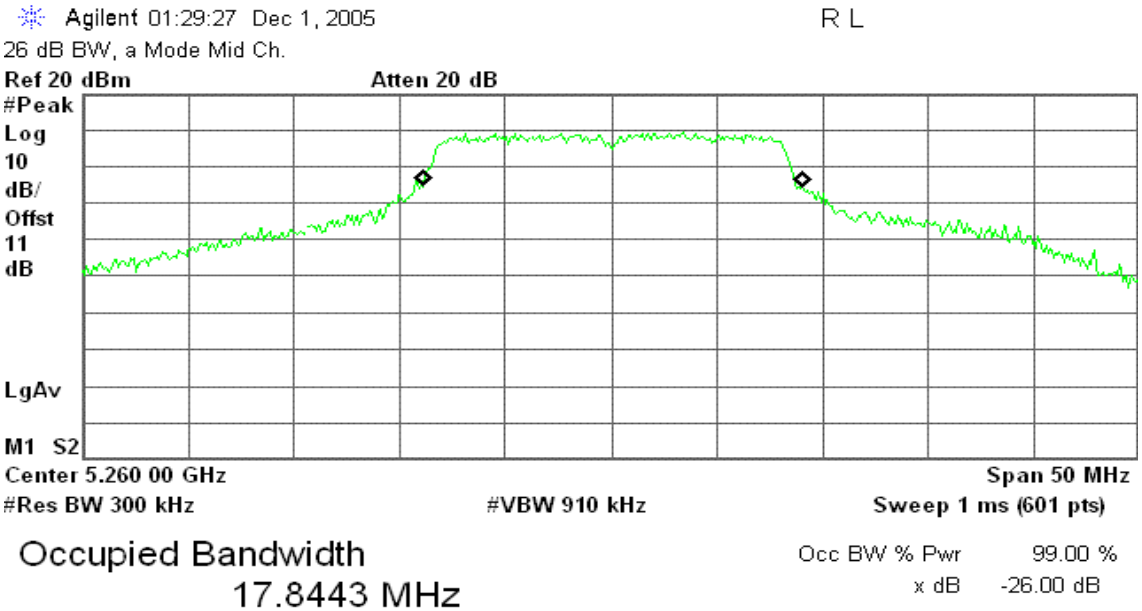


Occupied Bandwidth
17.4925 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -98.348 kHz
x dB Bandwidth 27.597 MHz

CH Mid

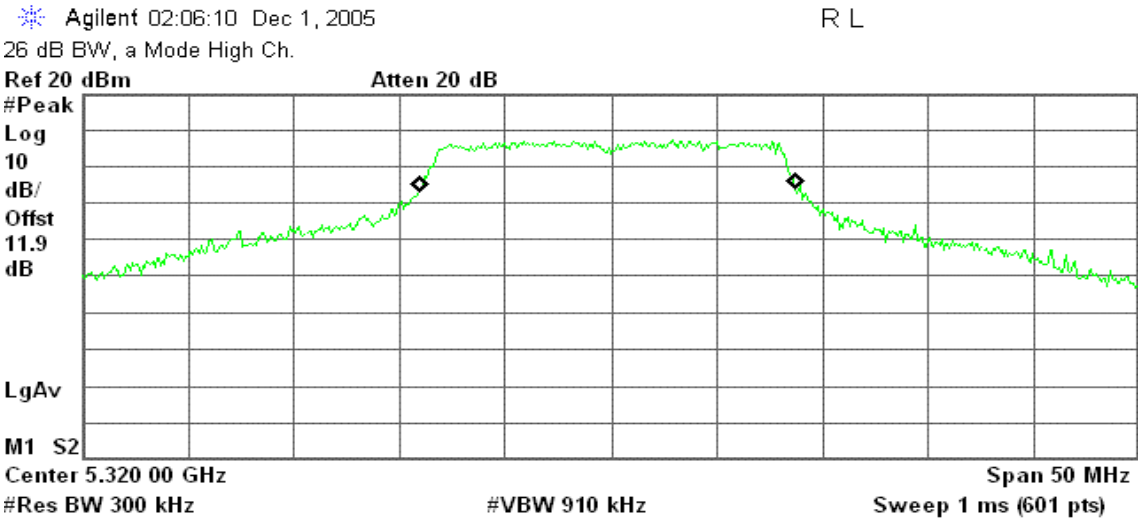


Occupied Bandwidth
17.8443 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 98.842 kHz
x dB Bandwidth 32.905 MHz

CH High



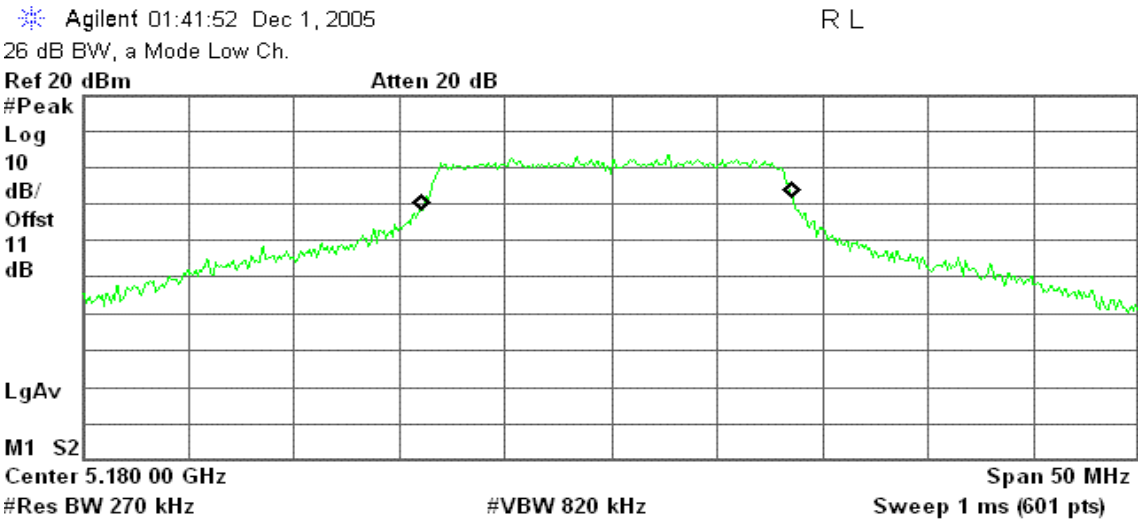
Occupied Bandwidth
17.6704 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error	-138.650 kHz
x dB Bandwidth	32.116 MHz

Mode 2: Antenna 2+ Module 2

CH Low

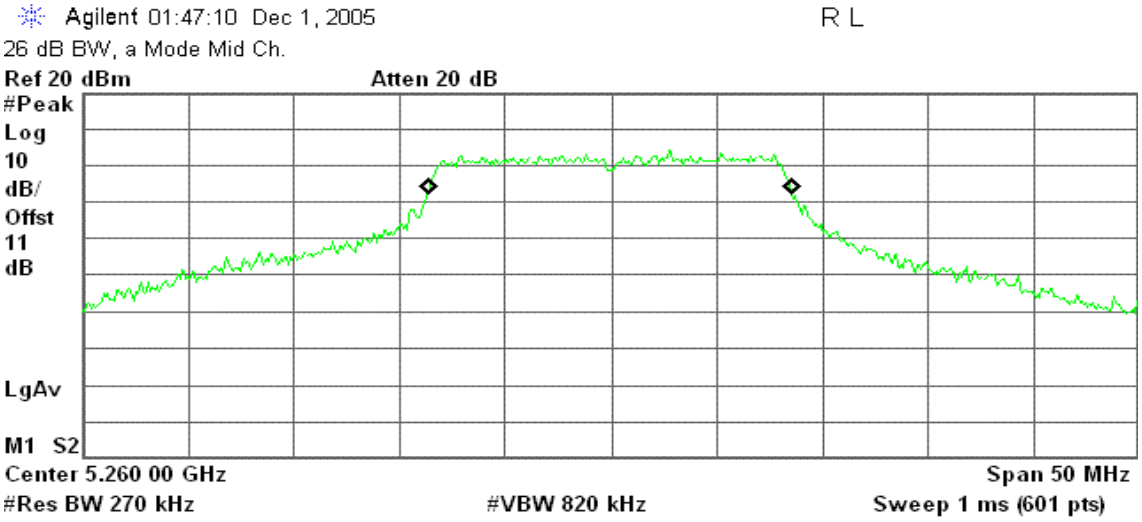


Occupied Bandwidth
17.4369 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -177.986 kHz
x dB Bandwidth 28.780 MHz

CH Mid

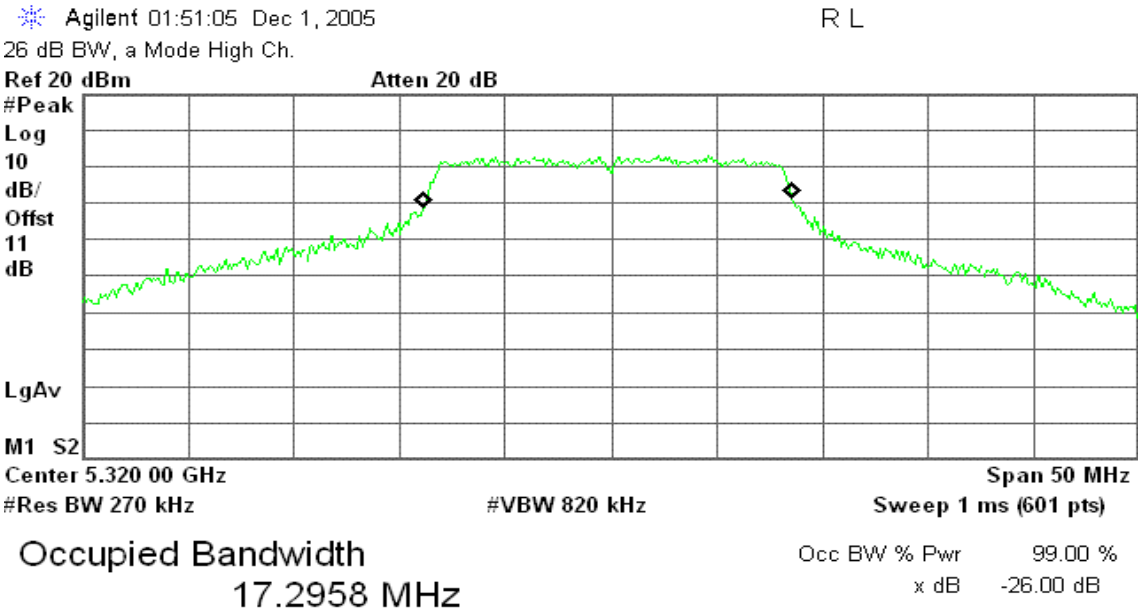


Occupied Bandwidth
17.1439 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -42.506 kHz
x dB Bandwidth 24.609 MHz

CH High



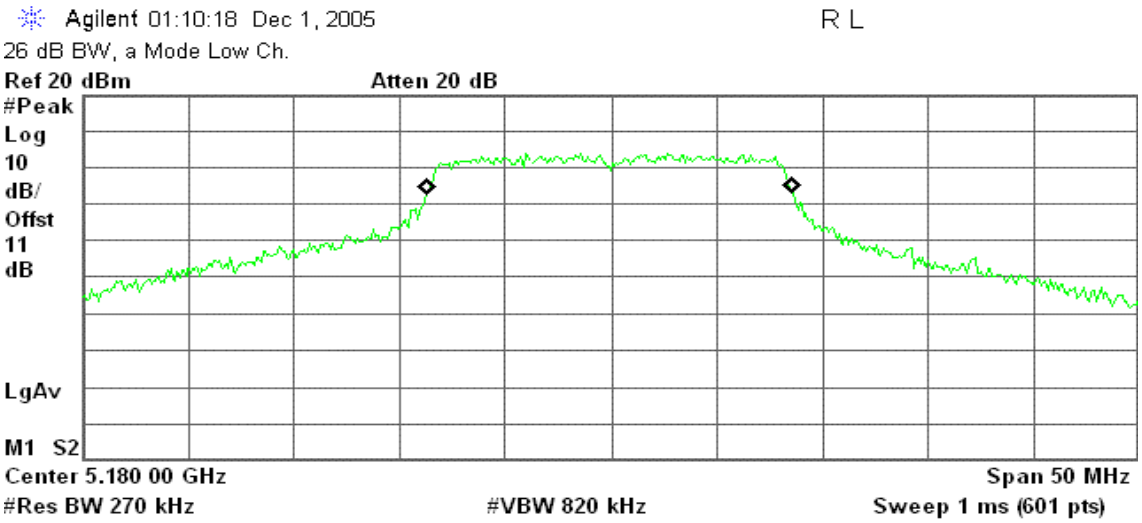
Occupied Bandwidth
17.2958 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error	-145.915 kHz
x dB Bandwidth	28.906 MHz

Mode 3: Antenna 3+ Module 2

CH Low

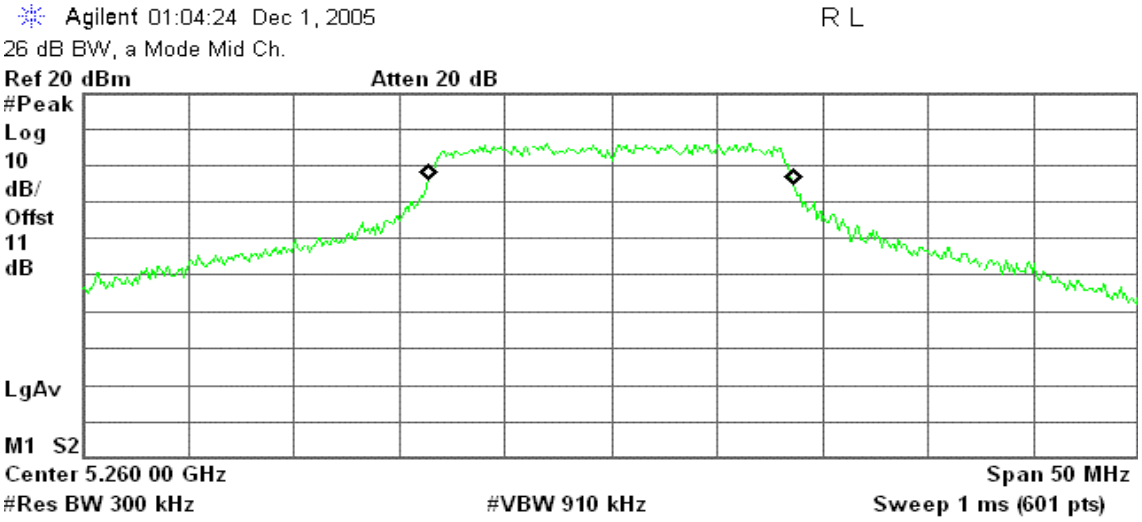


Occupied Bandwidth
17.2312 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -79.301 kHz
x dB Bandwidth 28.608 MHz

CH Mid

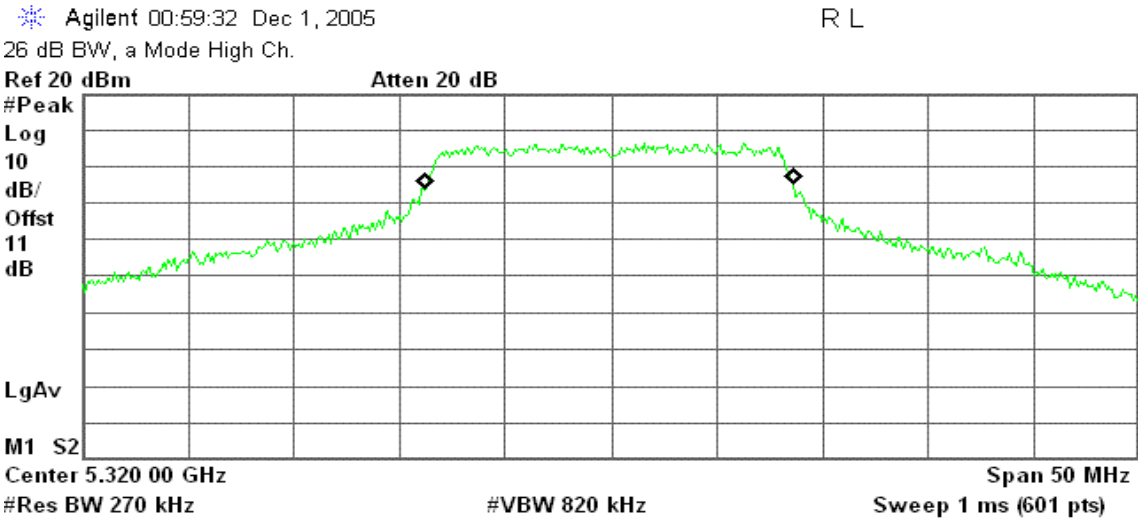


Occupied Bandwidth
17.1681 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -22.187 kHz
x dB Bandwidth 25.171 MHz

CH High



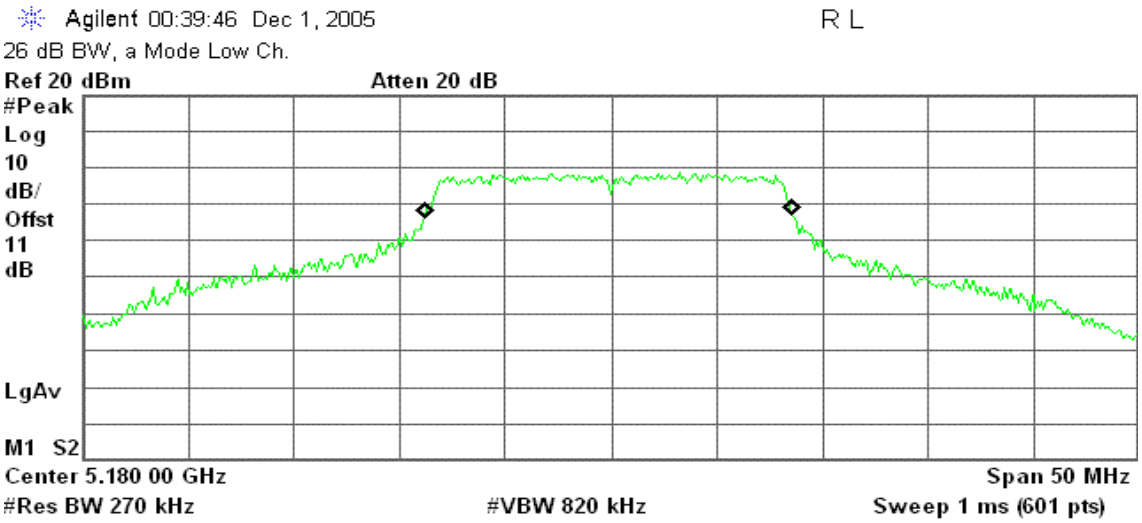
Occupied Bandwidth
17.3767 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error	-98.609 kHz
x dB Bandwidth	26.728 MHz

Mode 4: Antenna 4+ Module 2

CH Low

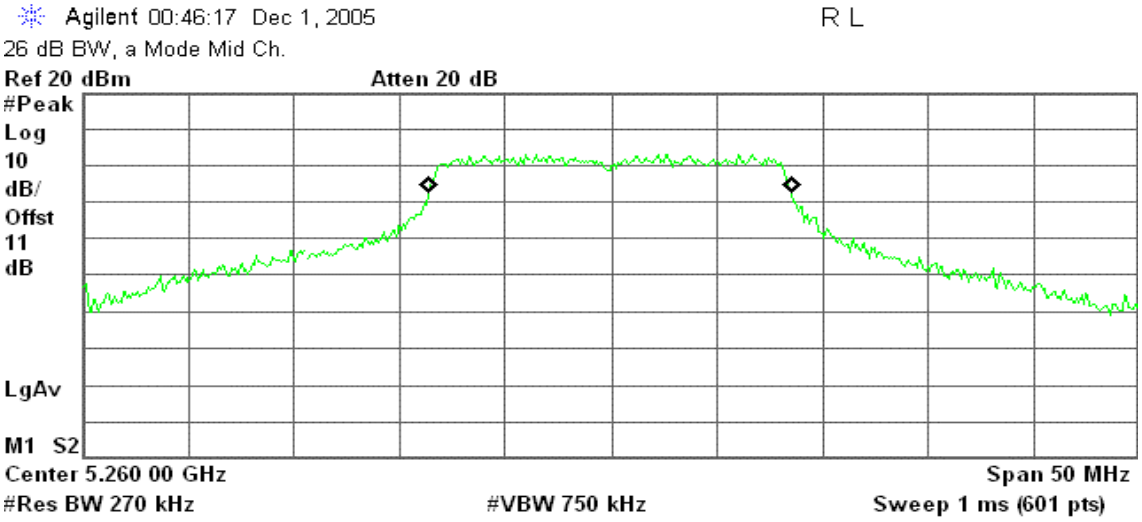


Occupied Bandwidth
17.2751 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -132.705 kHz
x dB Bandwidth 30.431 MHz

CH Mid

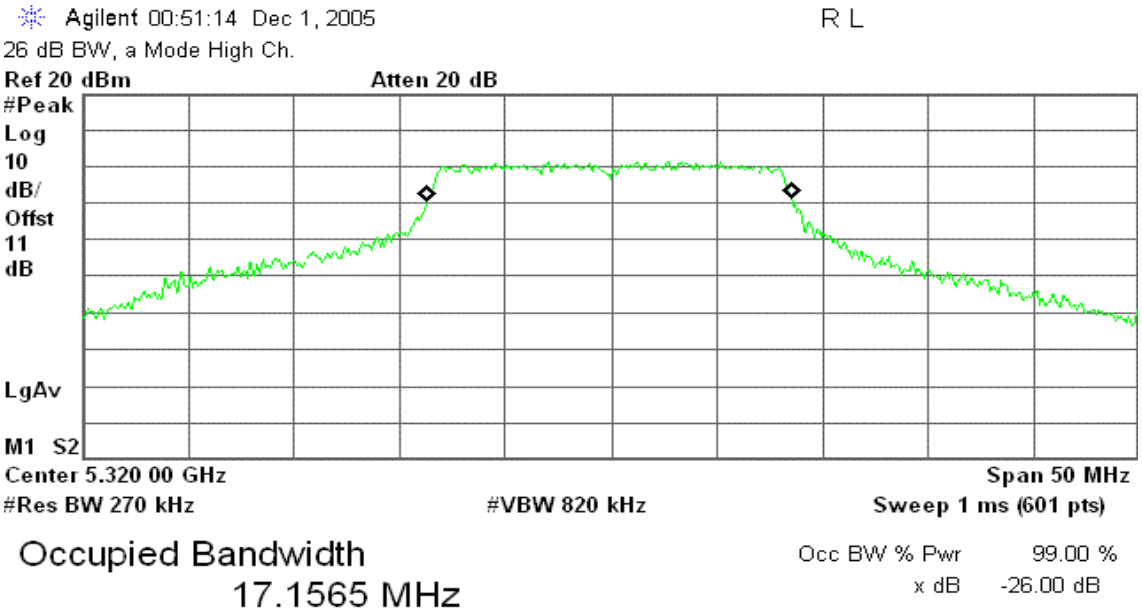


Occupied Bandwidth
17.0216 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -35.316 kHz
x dB Bandwidth 25.210 MHz

CH High



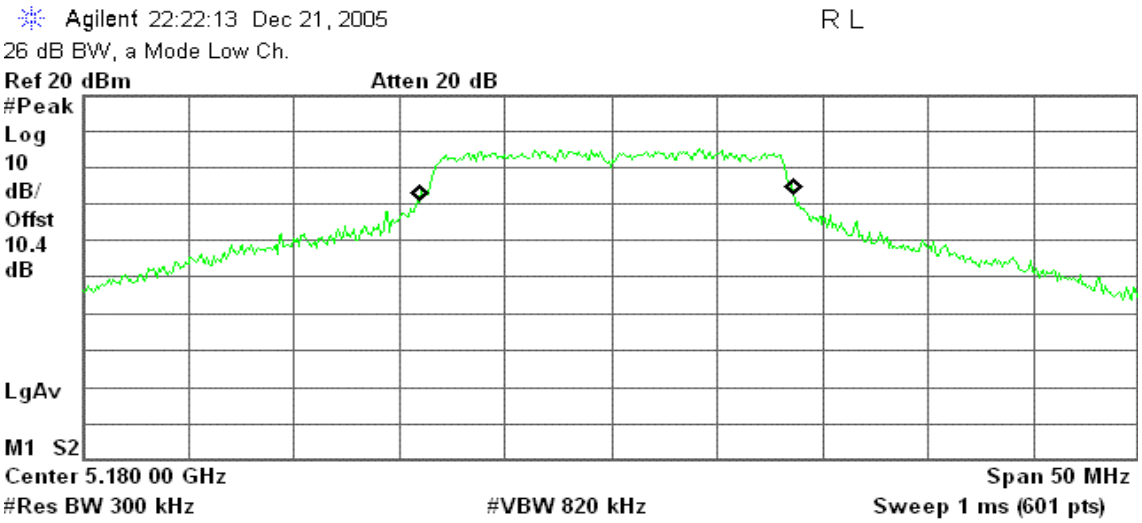
Occupied Bandwidth
17.1565 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error	-62.416 kHz
x dB Bandwidth	27.466 MHz

Mode 5: Antenna 6+ Module 2

CH Low

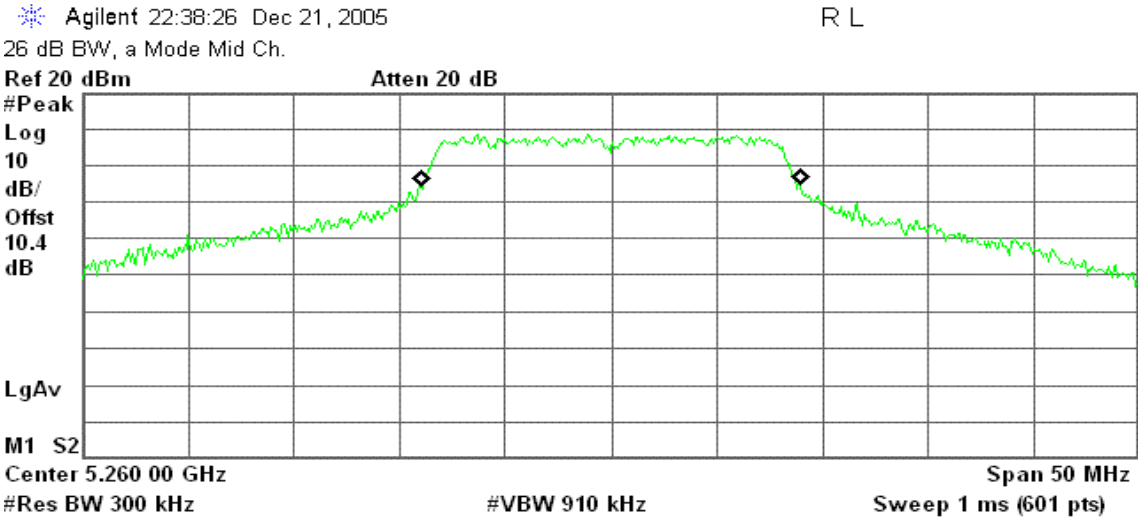


Occupied Bandwidth
17.6460 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error	-216.194 kHz
x dB Bandwidth	30.993 MHz

CH Mid

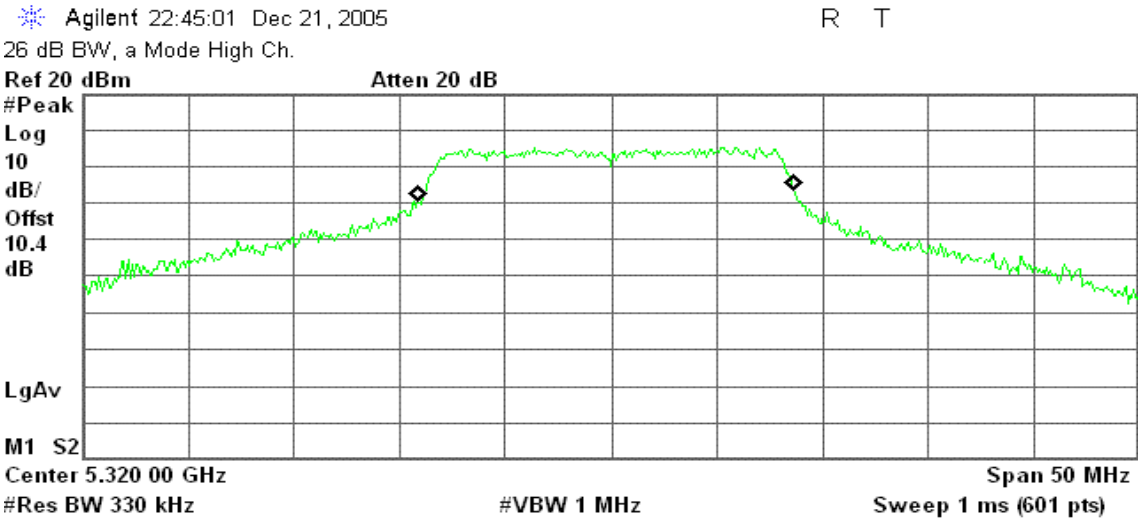


Occupied Bandwidth
17.7892 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error	2.526 kHz
x dB Bandwidth	32.072 MHz

CH High



Occupied Bandwidth
17.6269 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error	-228.649 kHz
x dB Bandwidth	32.286 MHz

7.2 PEAK POWER

LIMIT

According to §15.407(a),

(1) For the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10log B, where B is the 26 dB emission bandwidth in MHz.

(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10log B, where B is the 26 dB emission bandwidth in MHz.

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 exceed the limit as follow:

Specified Limit of the Peak Power

Mode 1: Antenna 1+ Module 2

Remark: *The maximum antenna gain is 4.0dBi- cable loss 1.26dB= 2.74dBi. (For a mode); Therefore there is no reduction due to antenna gain.*

Channel	Frequency (MHz)	26 dB Bandwidth (B) (MHz)	10 Log B (dB)	Conducted Output Power 4 + 10 Log B – reduction gain or 11 + 10 Log B – reduction gain (dBm)	Conducted Output Power Limit (dBm)
Low	5180	27.60	14.41	18.41	17
Mid	5260	32.91	15.17	26.17	24
High	5320	32.12	15.07	26.07	24

Mode 2: Antenna 2+ Module 2

Remark: *The maximum antenna gain is 7.7dBi- cable loss 1.26dB= 6.44dBi. (For a mode); therefore the reduction due to antenna gain is 0.44dB.*

Channel	Frequency (MHz)	26 dB Bandwidth (B) (MHz)	10 Log B (dB)	Conducted Output Power 4 + 10 Log B – reduction gain or 11 + 10 Log B – reduction gain (dBm)	Conducted Output Power Limit (dBm)
Low	5180	28.78	14.59	18.15	16.56
Mid	5260	24.61	13.91	24.47	23.56
High	5320	28.91	14.61	25.17	23.56

Mode 3: Antenna 3+ Module 2

Remark: *The maximum antenna gain is 6.3dBi- cable loss 1.26dB= 5.04dBi; therefore there is no reduction due to antenna gain.*

Channel	Frequency (MHz)	26 dB Bandwidth (B) (MHz)	10 Log B (dB)	Conducted Output Power 4 + 10 Log B – reduction gain or 11 + 10 Log B – reduction gain (dBm)	Conducted Output Power Limit (dBm)
Low	5180	28.61	14.57	18.57	17
Mid	5260	25.17	14.01	25.01	24
High	5320	26.73	14.27	25.27	24

Mode 4: Antenna 4+ Module 2

Remark: *The maximum antenna gain is 13.3dBi- cable loss 1.26dB= 12.04dBi; therefore the reduction due to antenna gain is 6.04dB.*

Channel	Frequency (MHz)	26 dB Bandwidth (B) (MHz)	10 Log B (dB)	Conducted Output Power 4 + 10 Log B – reduction gain or 11 + 10 Log B – reduction gain (dBm)	Conducted Output Power Limit (dBm)
Low	5180	30.43	14.83	12.79	10.96
Mid	5260	25.21	14.02	18.98	17.96
High	5320	27.47	14.39	19.35	17.96

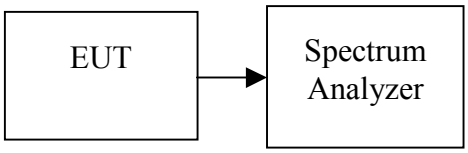
Mode 5: Antenna 6+ Module 2

Remark: *The maximum antenna gain is 5.95dBi; therefore there is no reduction due to antenna gain.*

Channel	Frequency (MHz)	26 dB Bandwidth (B) (MHz)	10 Log B (dB)	Conducted Output Power 4 + 10 Log B – reduction gain or 11 + 10 Log B – reduction gain (dBm)	Conducted Output Power Limit (dBm)
Low	5180	30.99	14.91	18.91	17
Mid	5260	32.07	15.06	26.06	24
High	5320	32.29	15.09	26.09	24

Test Configuration

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



TEST PROCEDURE

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

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

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

TEST RESULTS

No non-compliance noted

Test Data

Mode 1: Antenna 1+ Module 2

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Conducted Output Power Limit (dBm)
Low	5180	13.73	17
Mid	5260	18.48	24
High	5320	16.71	24

Mode 2: Antenna 2+ Module 2

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Conducted Output Power Limit (dBm)
Low	5180	12.41	16.56
Mid	5260	12.75	23.56
High	5320	12.87	23.56

Mode 3: Antenna 3+ Module 2

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Conducted Output Power Limit (dBm)
Low	5180	13.68	17
Mid	5260	15.37	24
High	5320	15.48	24

Mode 4: Antenna 4+ Module 2

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Conducted Output Power Limit (dBm)
Low	5180	8.32	10.96
Mid	5260	12.18	17.96
High	5320	11.16	17.96

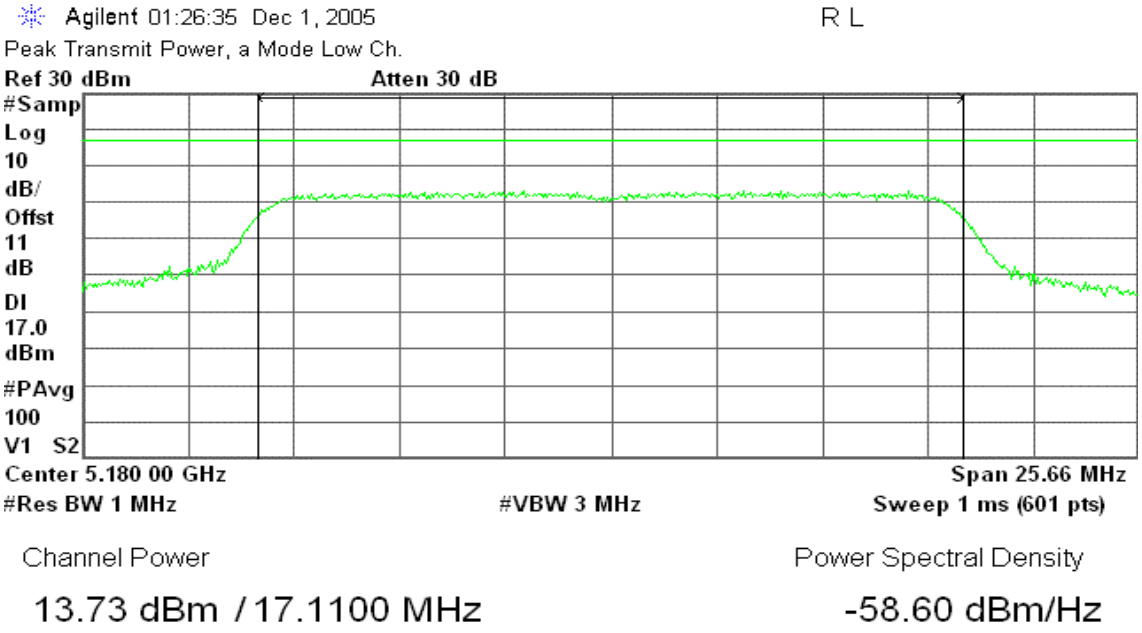
Mode 5: Antenna 6+ Module 2

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Conducted Output Power Limit (dBm)
Low	5180	14.59	17
Mid	5260	18.19	24
High	5320	14.11	24

Test Plot

Mode 1: Antenna 1+ Module 2

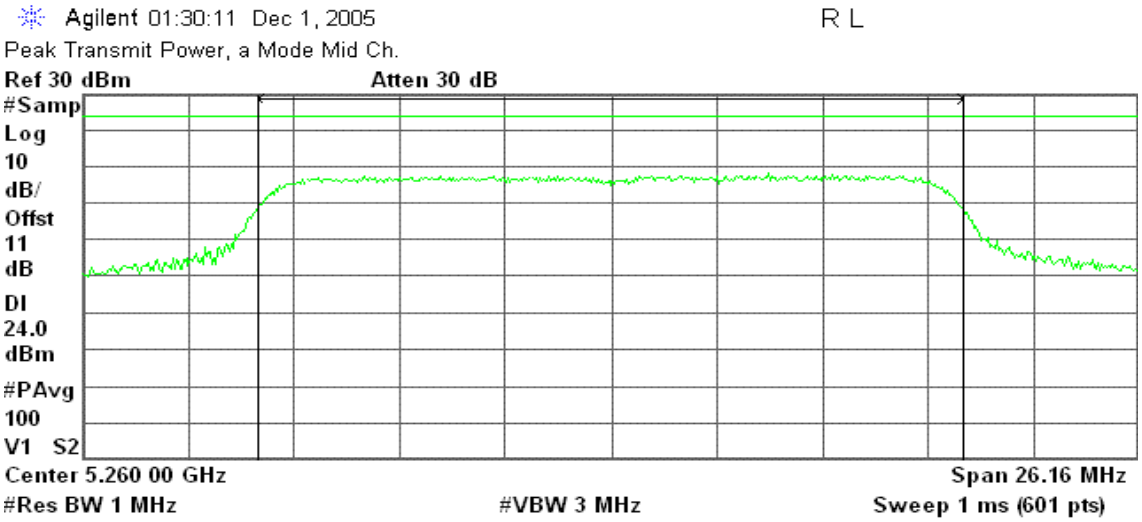
CH Low



Channel Power
13.73 dBm / 17.1100 MHz

Power Spectral Density
-58.60 dBm/Hz

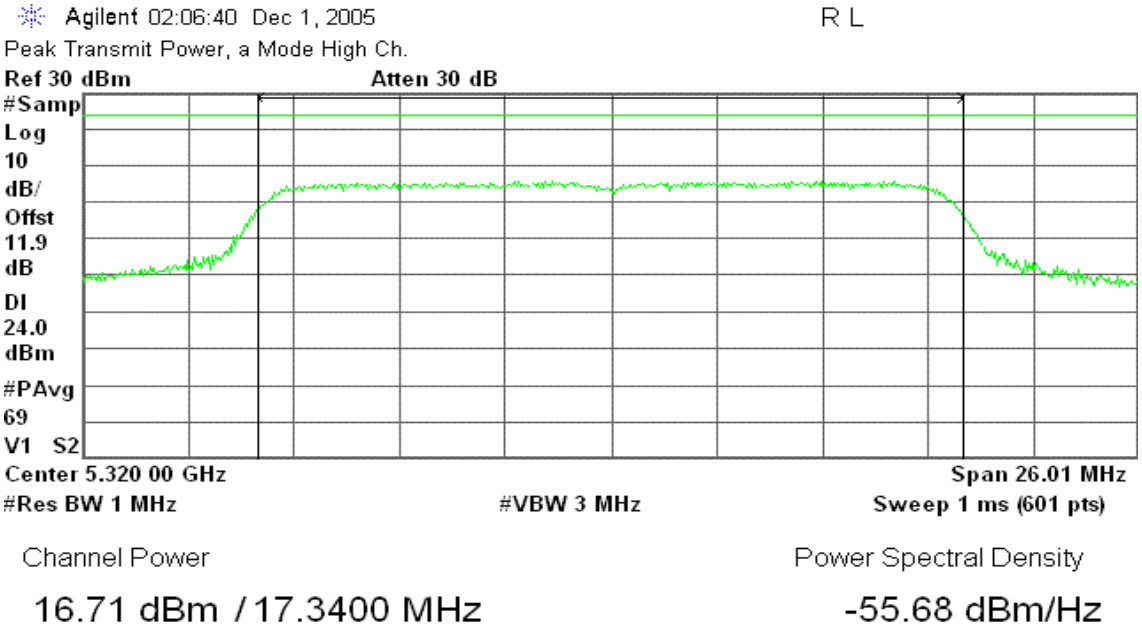
CH Mid



Channel Power
18.48 dBm / 17.4400 MHz

Power Spectral Density
-53.94 dBm/Hz

CH High



Channel Power

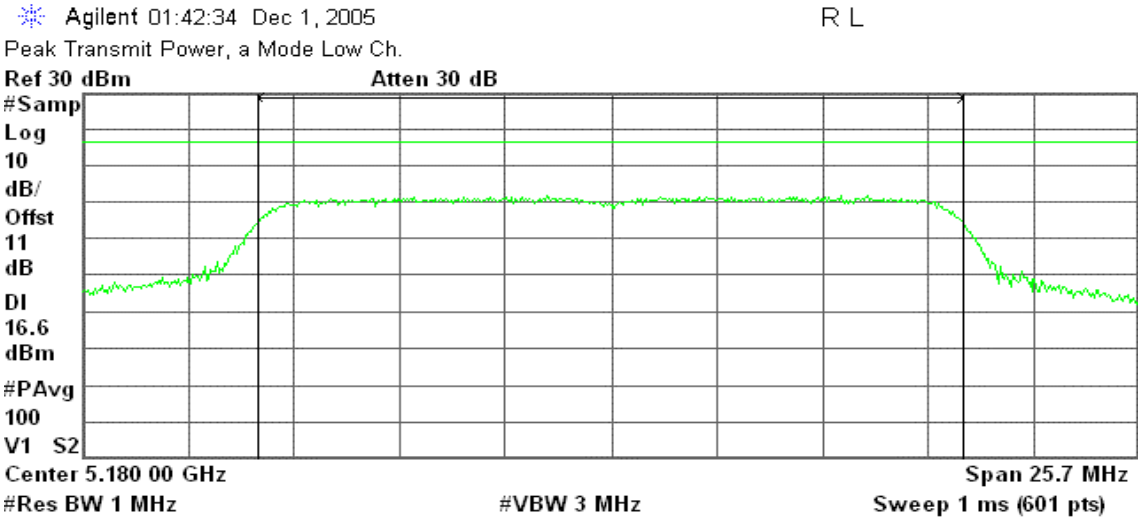
16.71 dBm / 17.3400 MHz

Power Spectral Density

-55.68 dBm/Hz

Mode 2: Antenna 2+ Module 2

CH Low



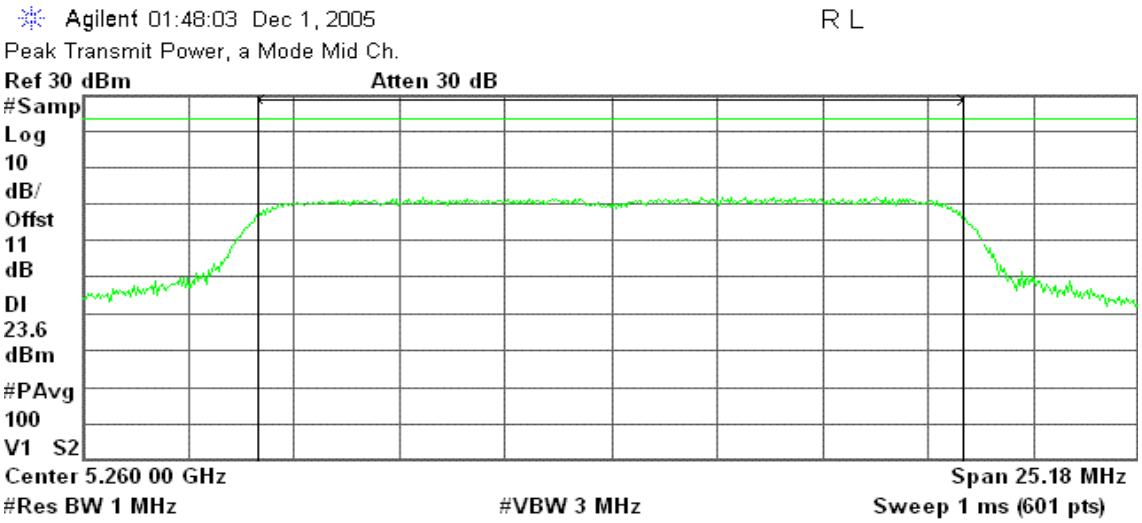
Channel Power

12.41 dBm / 17.1300 MHz

Power Spectral Density

-59.93 dBm/Hz

CH Mid



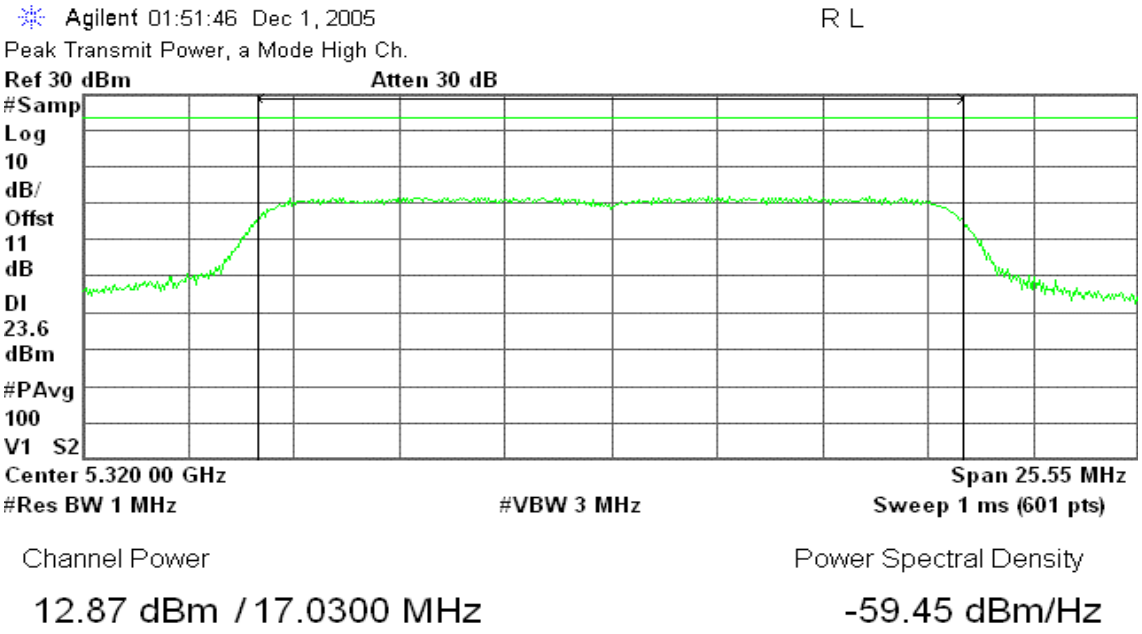
Channel Power

12.75 dBm / 16.7900 MHz

Power Spectral Density

-59.50 dBm/Hz

CH High



Channel Power

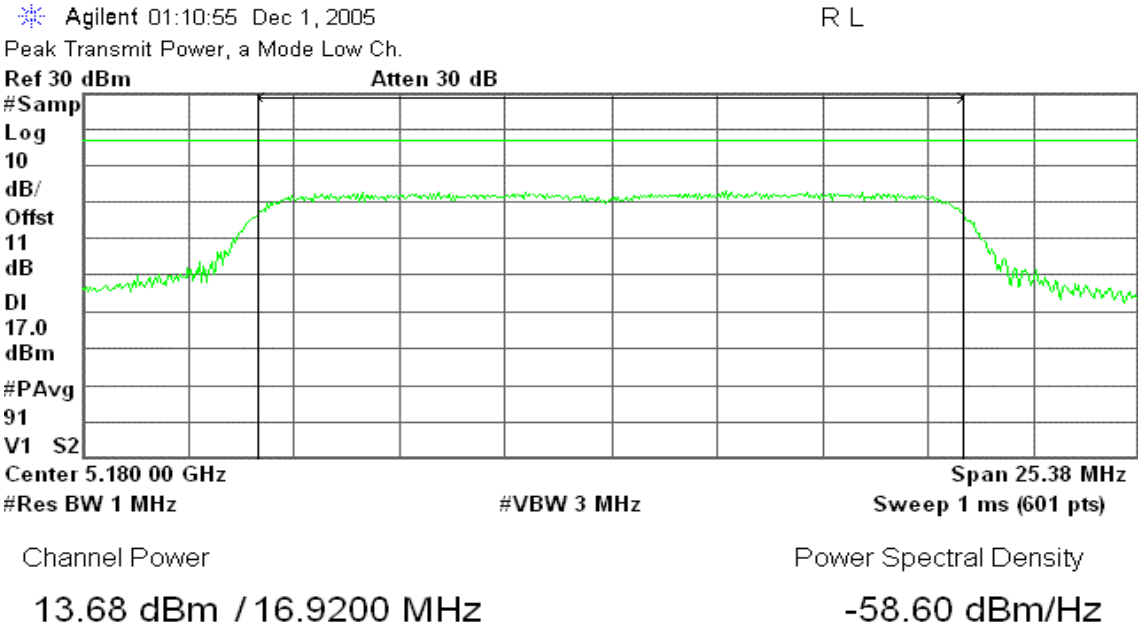
12.87 dBm / 17.0300 MHz

Power Spectral Density

-59.45 dBm/Hz

Mode 3: Antenna 3+ Module 2

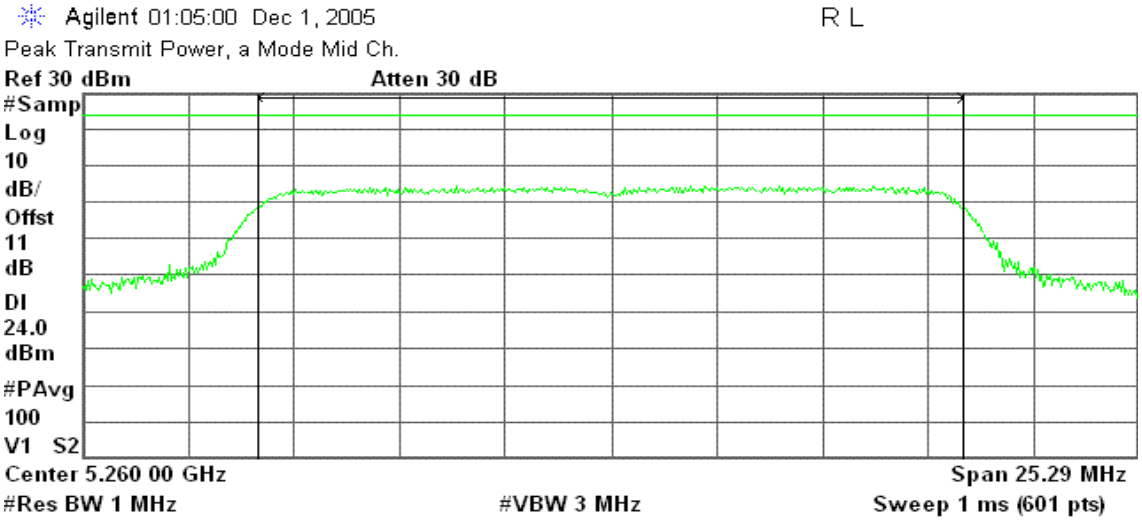
CH Low



Channel Power
13.68 dBm / 16.9200 MHz

Power Spectral Density
-58.60 dBm/Hz

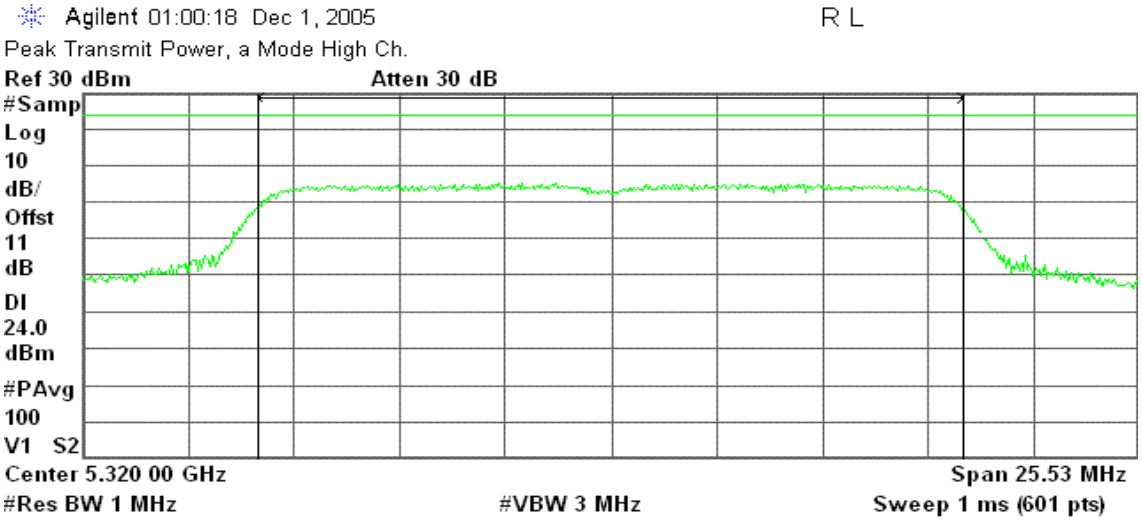
CH Mid



Channel Power
15.37 dBm / 16.8600 MHz

Power Spectral Density
-56.90 dBm/Hz

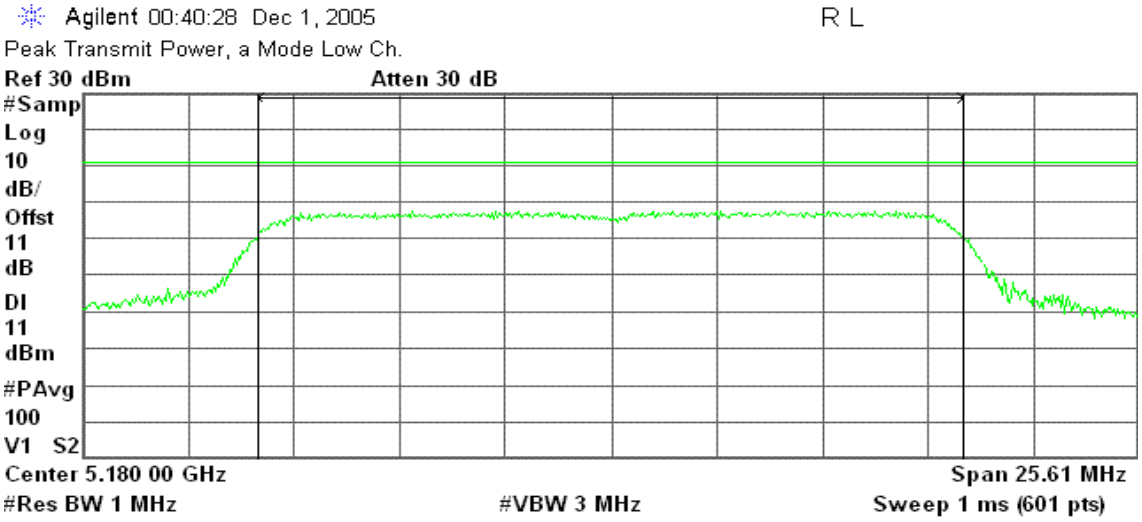
CH High



Channel Power	Power Spectral Density
15.48 dBm / 17.0200 MHz	-56.83 dBm/Hz

Mode 4: Antenna 4+ Module 2

CH Low



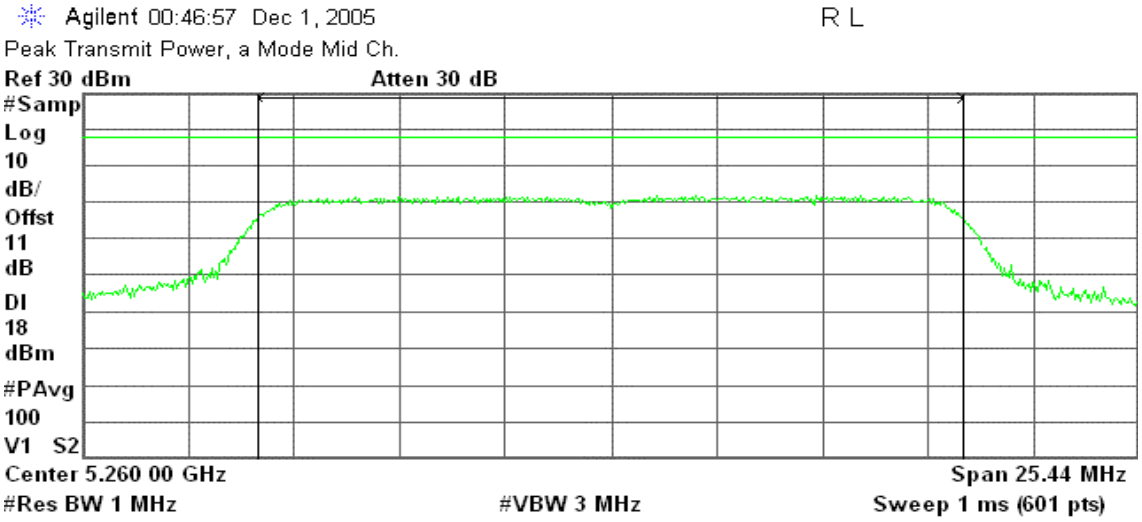
Channel Power

8.32 dBm /17.0700 MHz

Power Spectral Density

-64.00 dBm/Hz

CH Mid



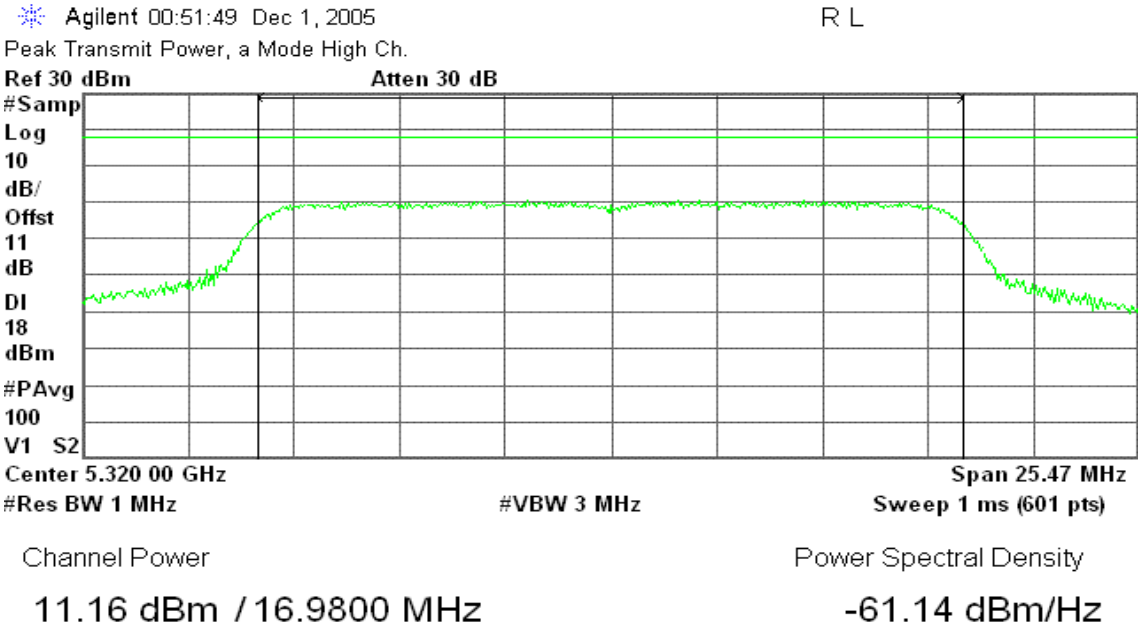
Channel Power

12.18 dBm /16.9600 MHz

Power Spectral Density

-60.11 dBm/Hz

CH High



Channel Power

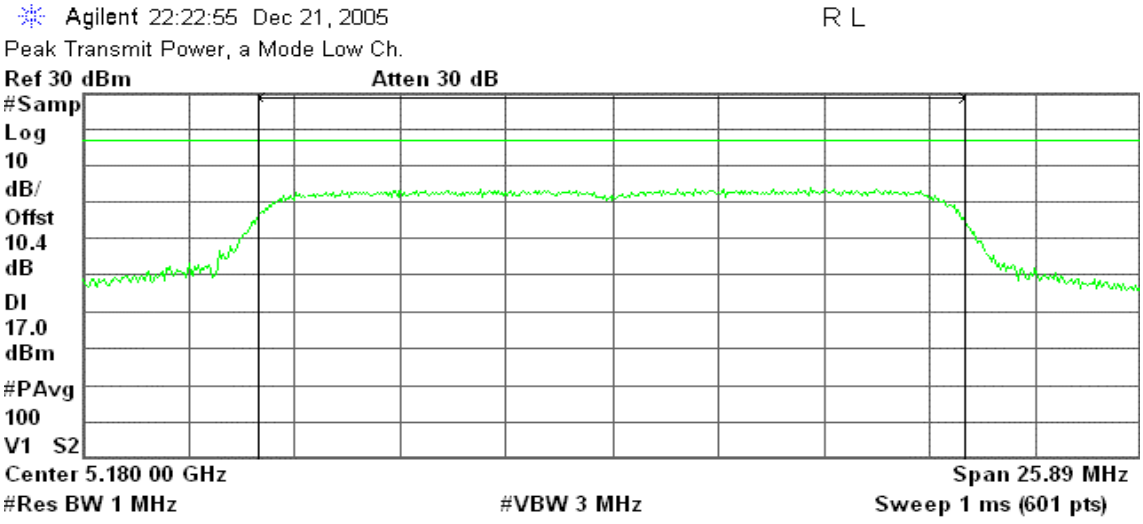
11.16 dBm / 16.9800 MHz

Power Spectral Density

-61.14 dBm/Hz

Mode 5: Antenna 6+ Module 2

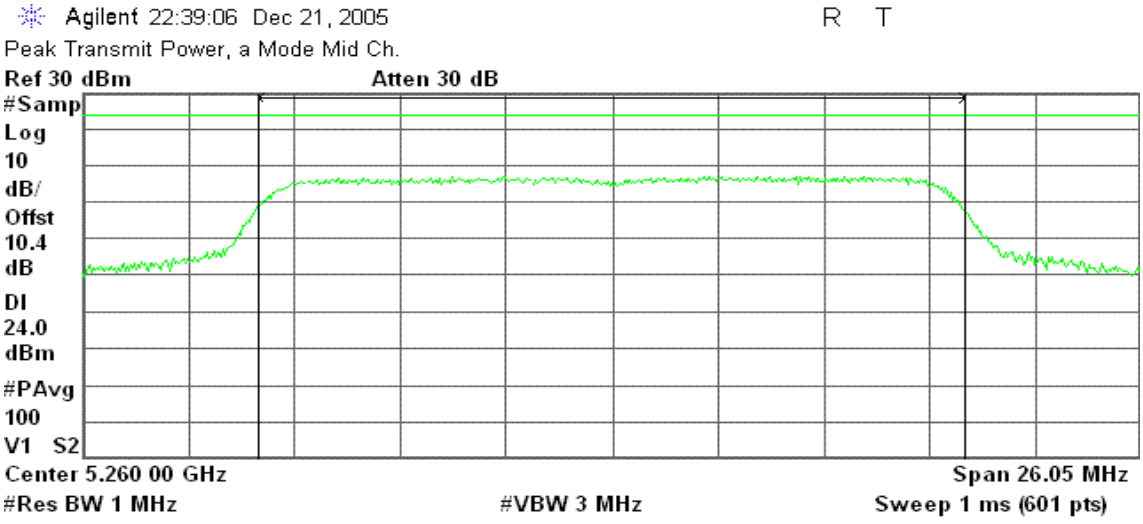
CH Low



Channel Power
14.59 dBm / 17.2600 MHz

Power Spectral Density
-57.78 dBm/Hz

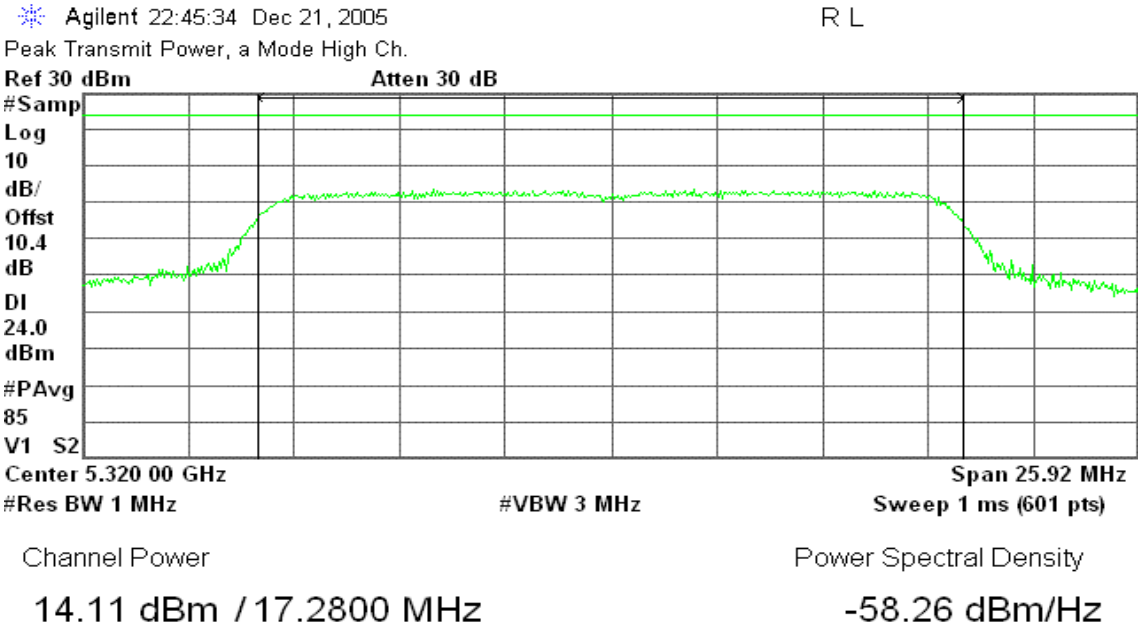
CH Mid



Channel Power
18.19 dBm / 17.3700 MHz

Power Spectral Density
-54.20 dBm/Hz

CH High



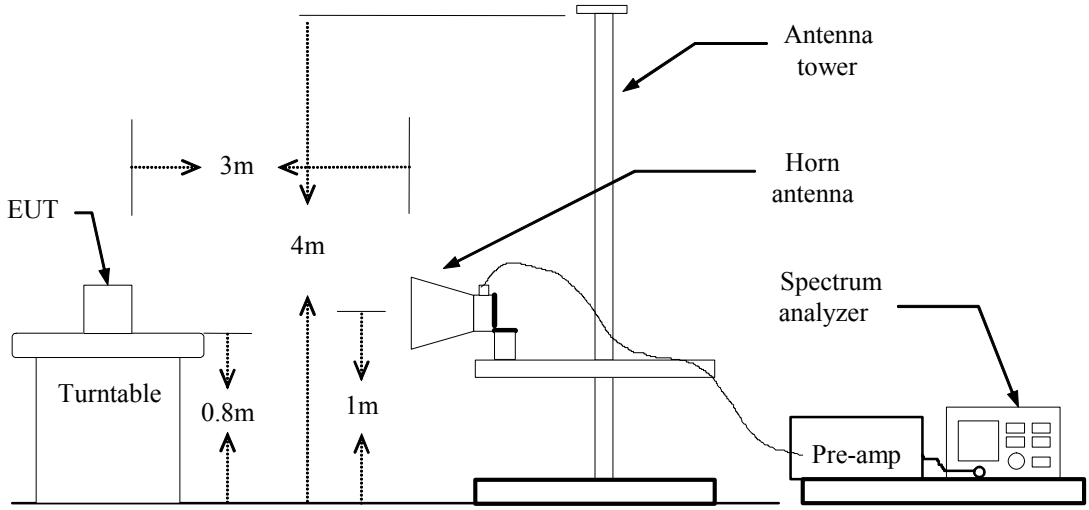
Channel Power	Power Spectral Density
14.11 dBm / 17.2800 MHz	-58.26 dBm/Hz

7.3 BAND EDGES MEASUREMENT

LIMIT

According to §15.247(d), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in 15.209(a) (see Section 15.205(c)).

Test Configuration



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

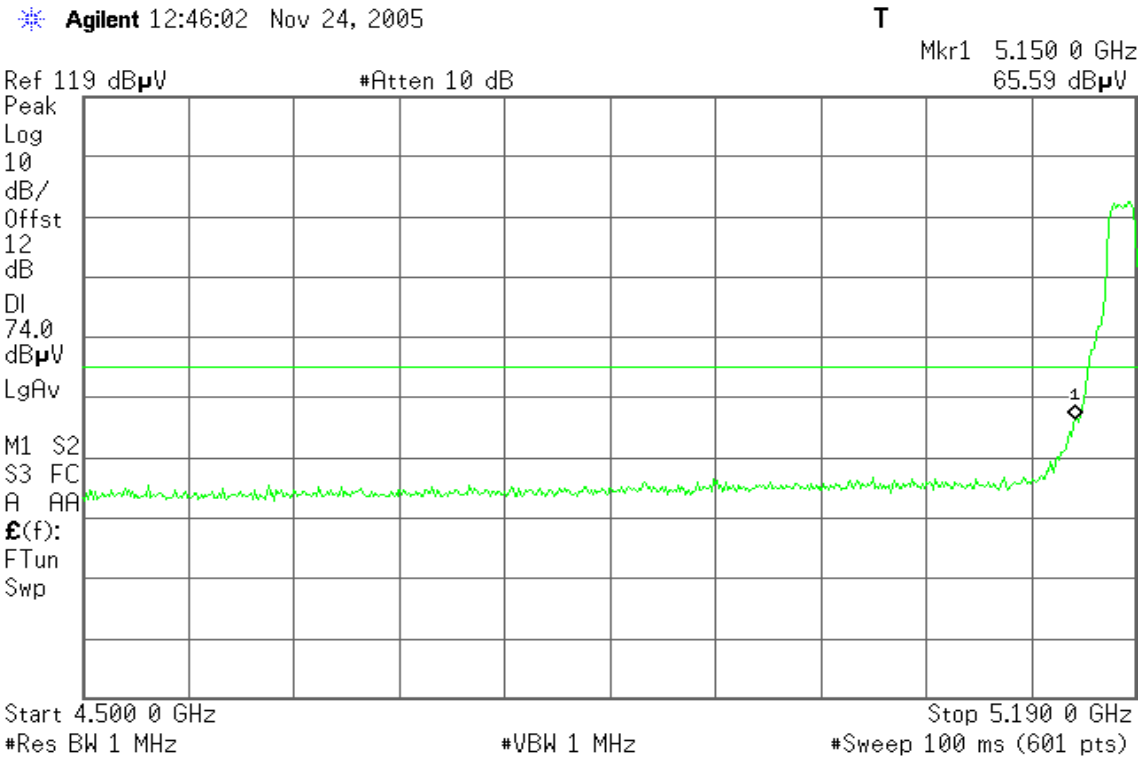
Refer to attach spectrum analyzer data chart.

Test Plot

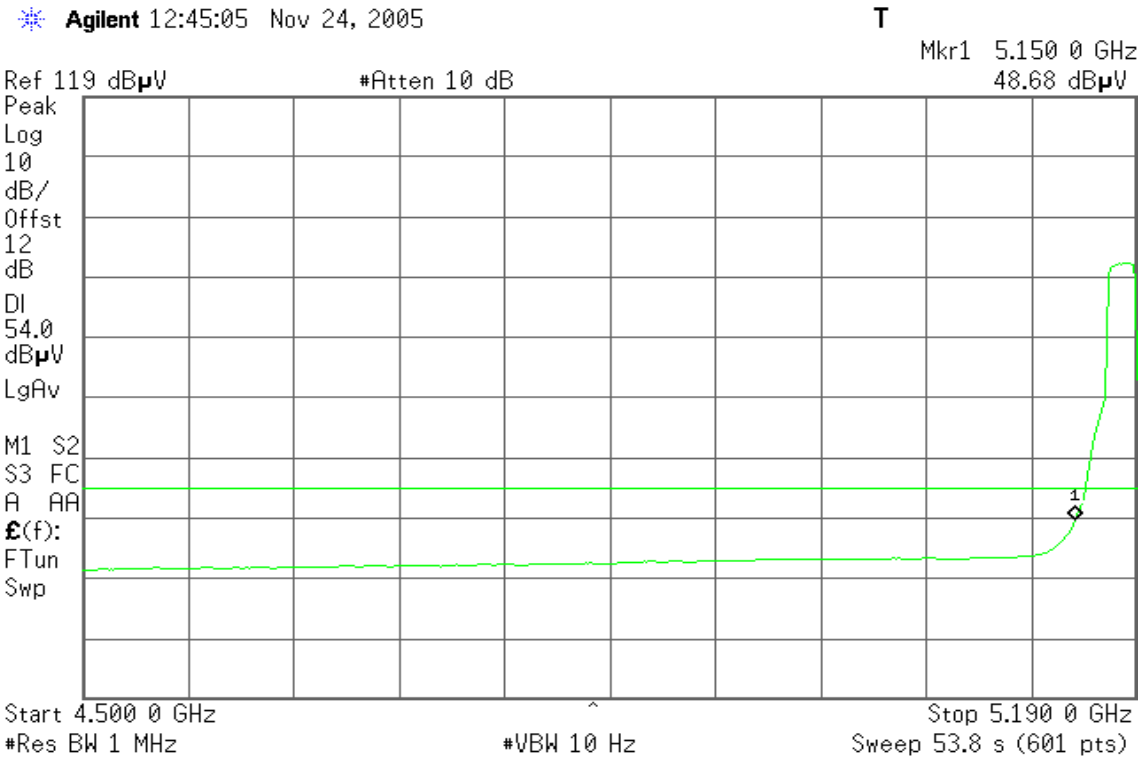
Mode 1: Antenna 1+ Module 2

Band Edges (CH Low)

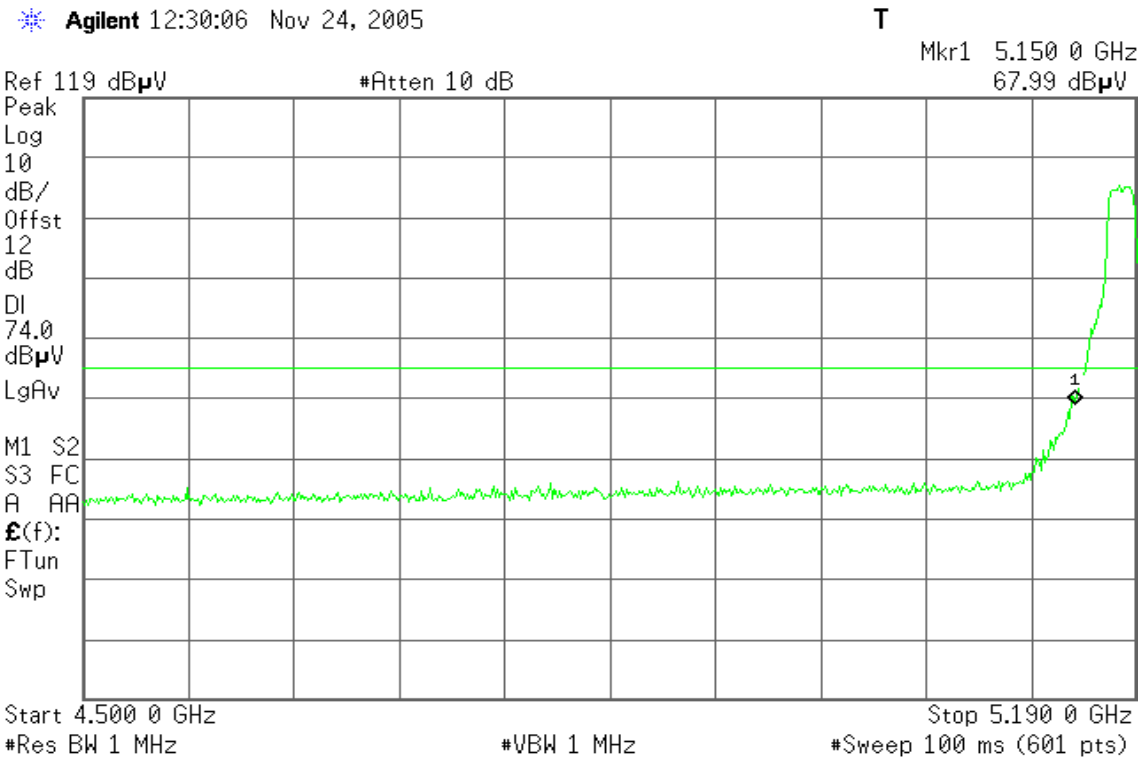
Detector mode: Peak **Polarity: Vertical**



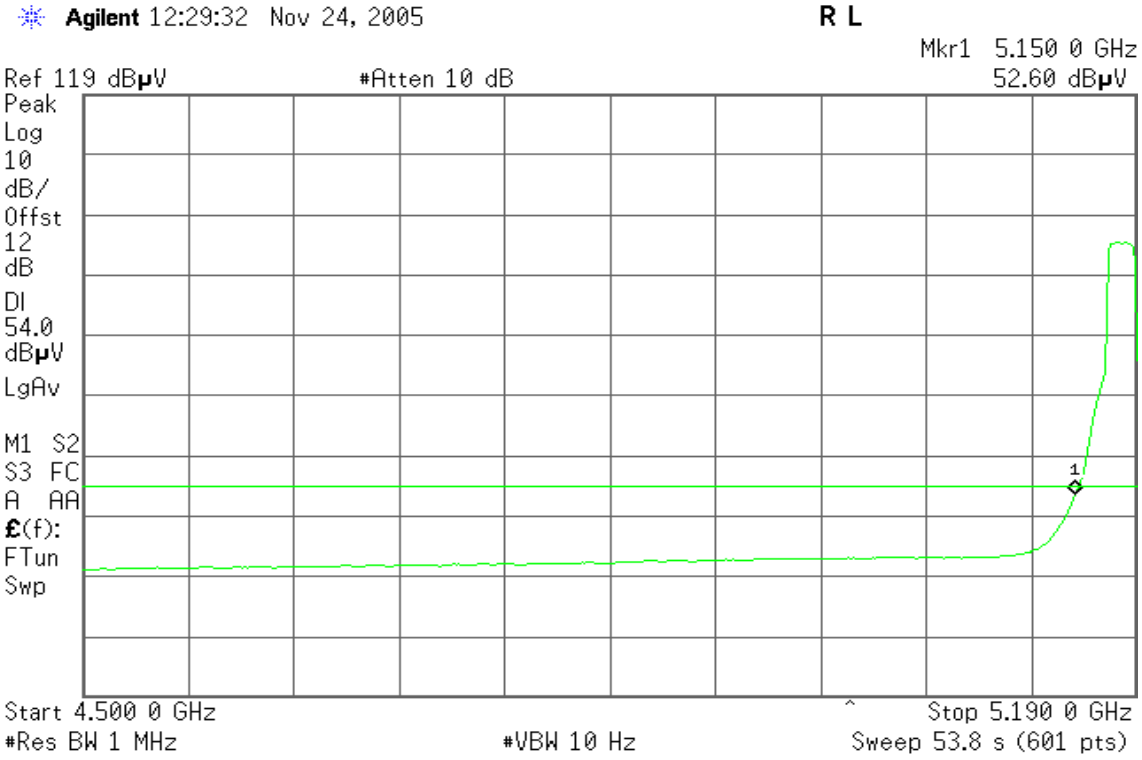
Detector mode: Average **Polarity: Vertical**



Detector mode: Peak **Polarity: Horizontal**

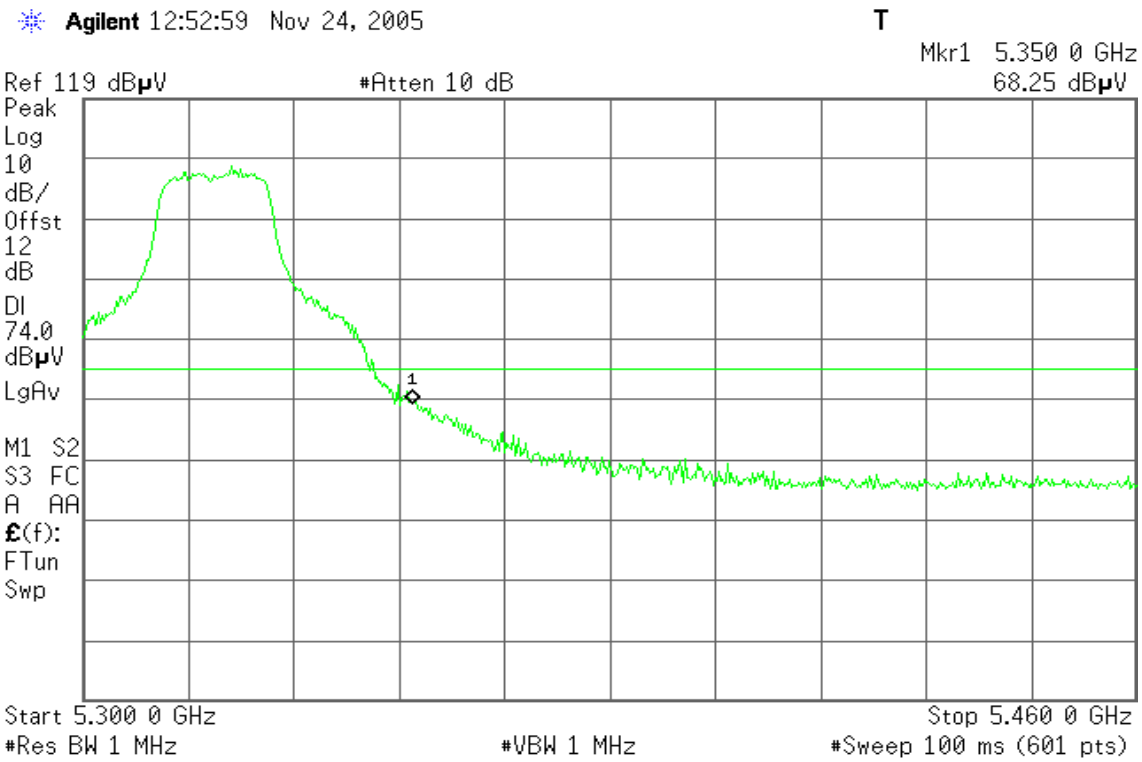


Detector mode: Average **Polarity: Horizontal**

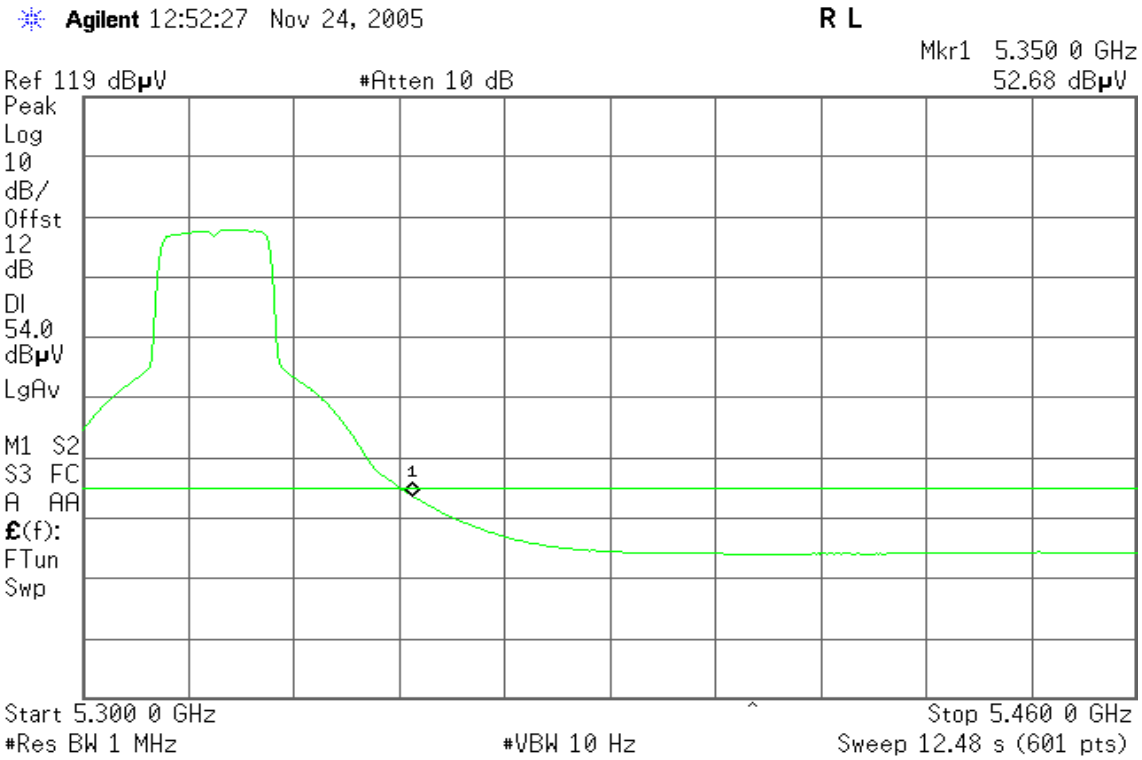


Band Edges (CH High)

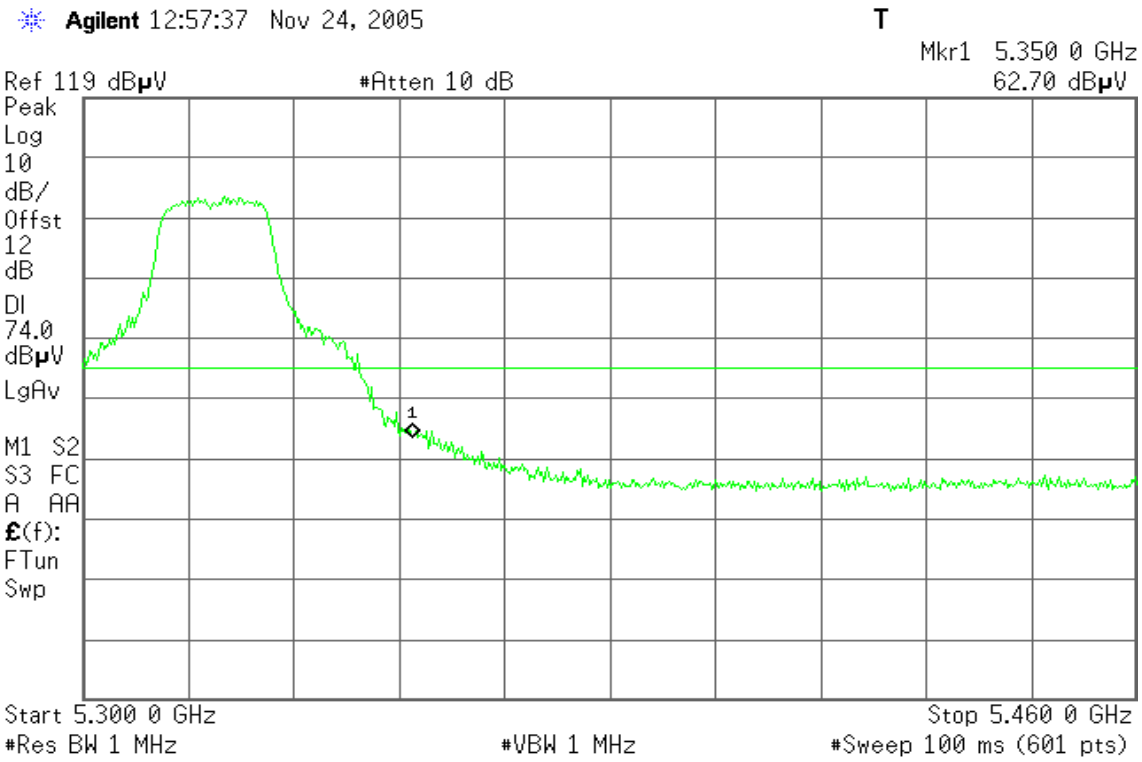
Detector mode: Peak Polarity: Vertical



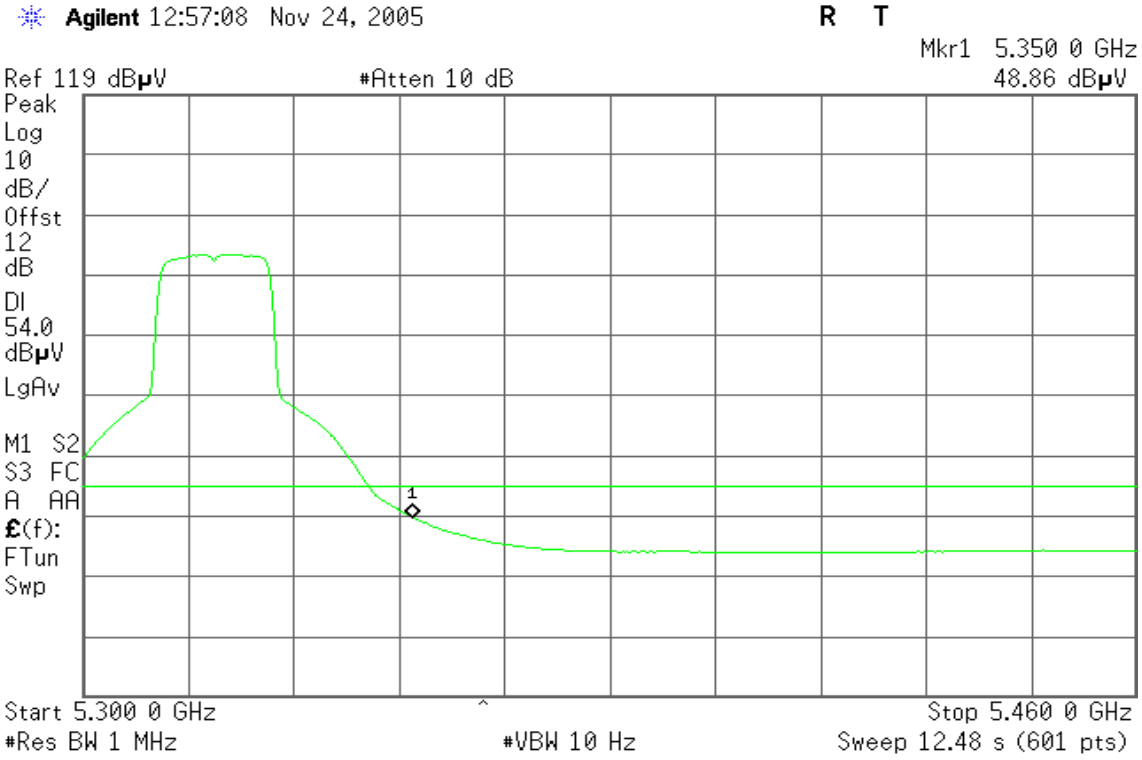
Detector mode: Average Polarity: Vertical



Detector mode: Peak **Polarity: Horizontal**



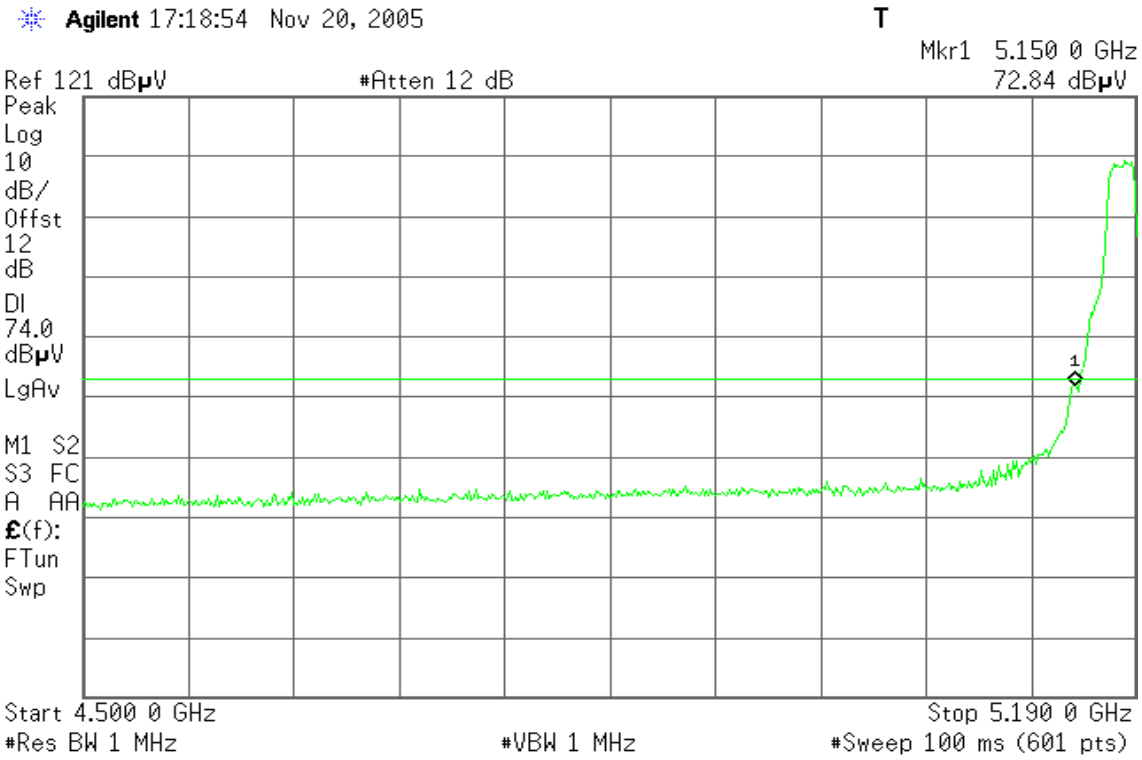
Detector mode: Average **Polarity: Horizontal**



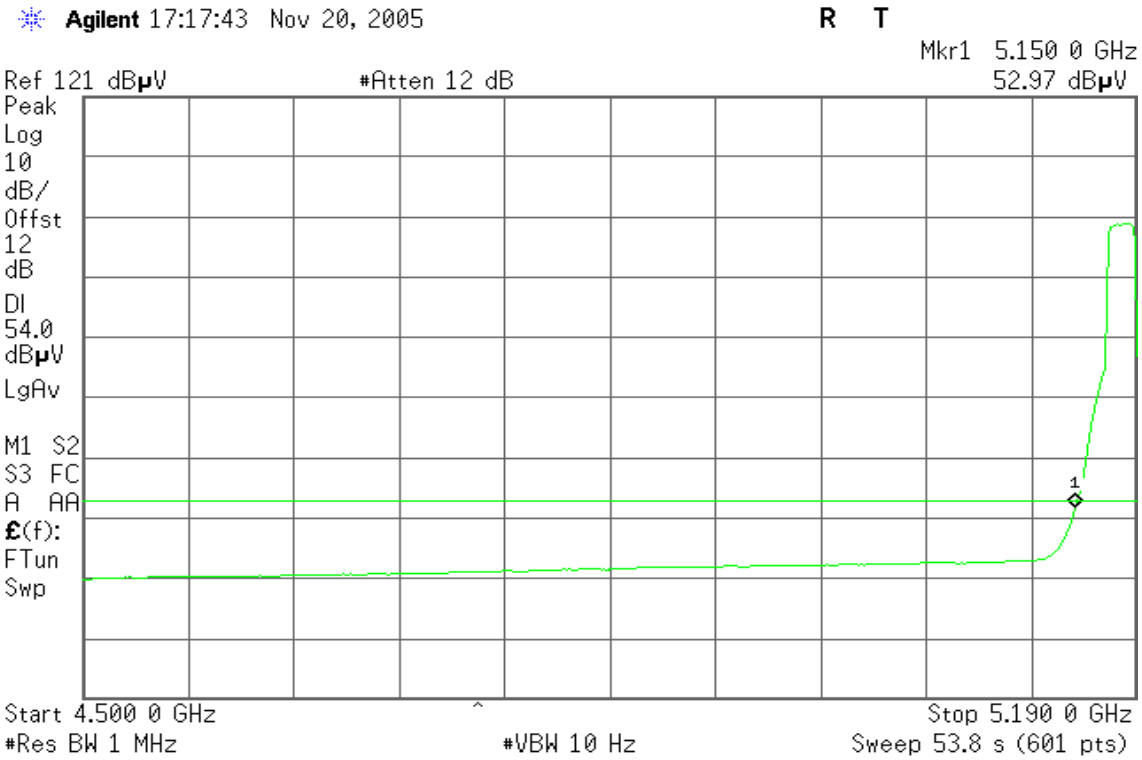
Mode 2: Antenna 2+ Module 2

Band Edges (CH Low)

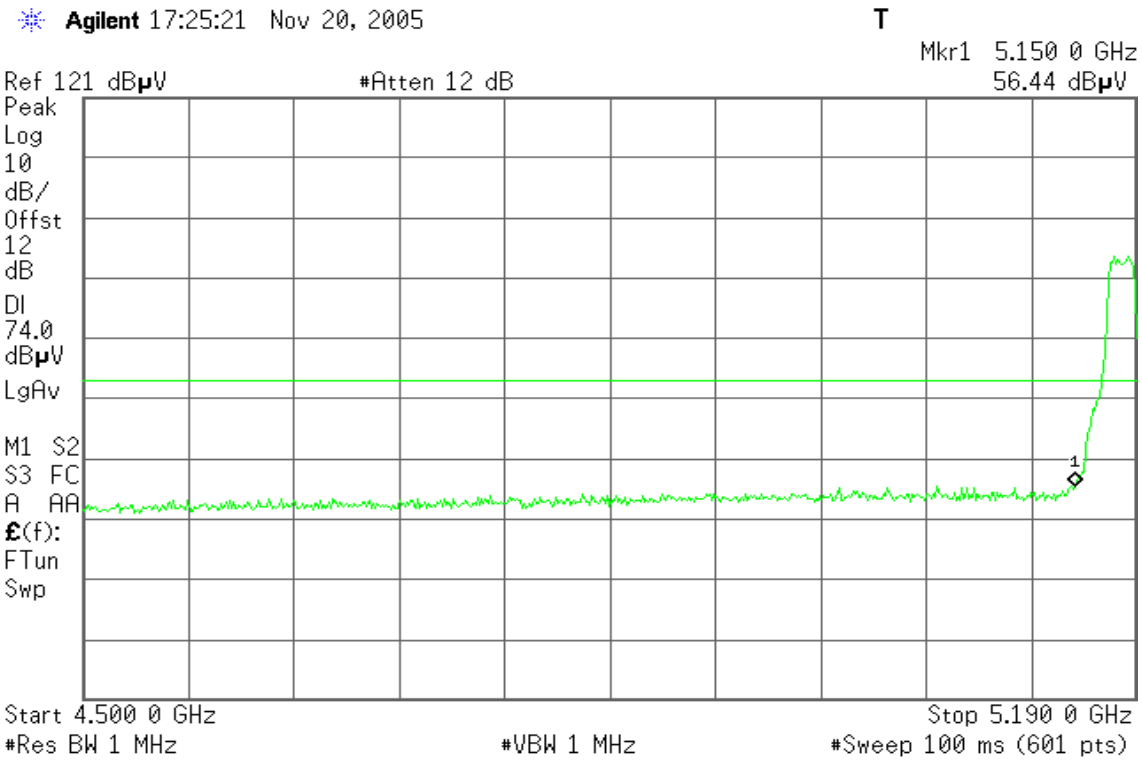
Detector mode: Peak **Polarity: Vertical**



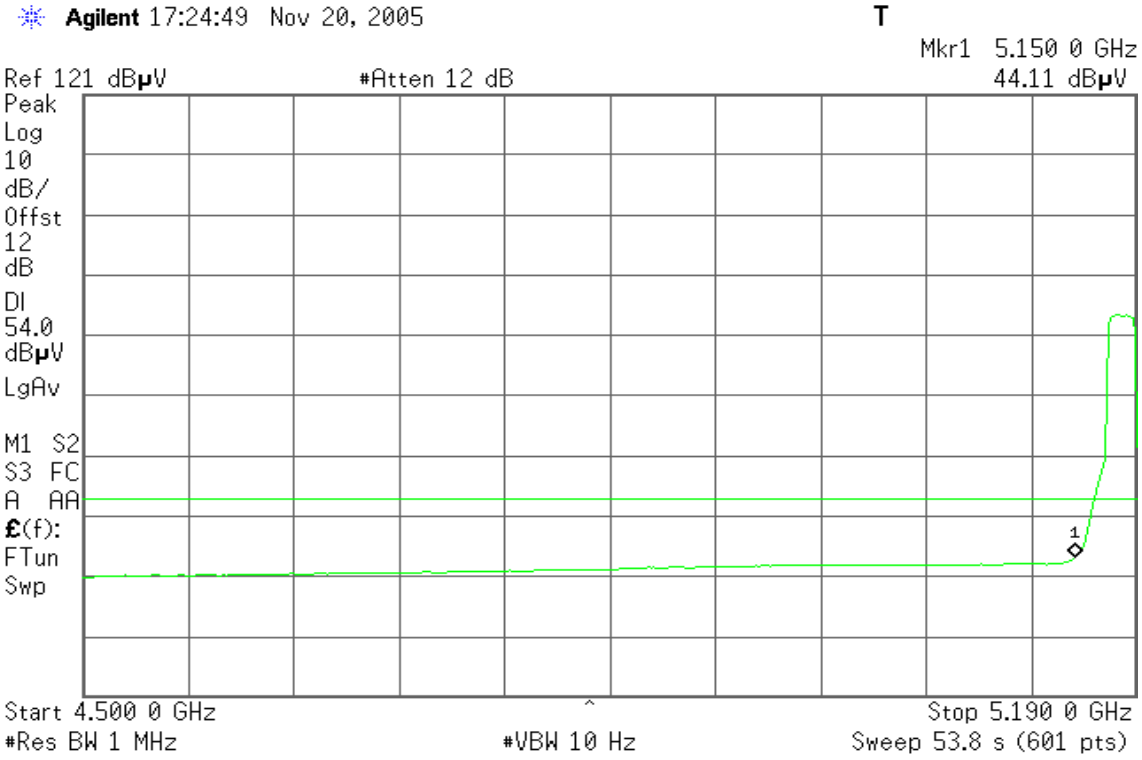
Detector mode: Average **Polarity: Vertical**



Detector mode: Peak **Polarity: Horizontal**

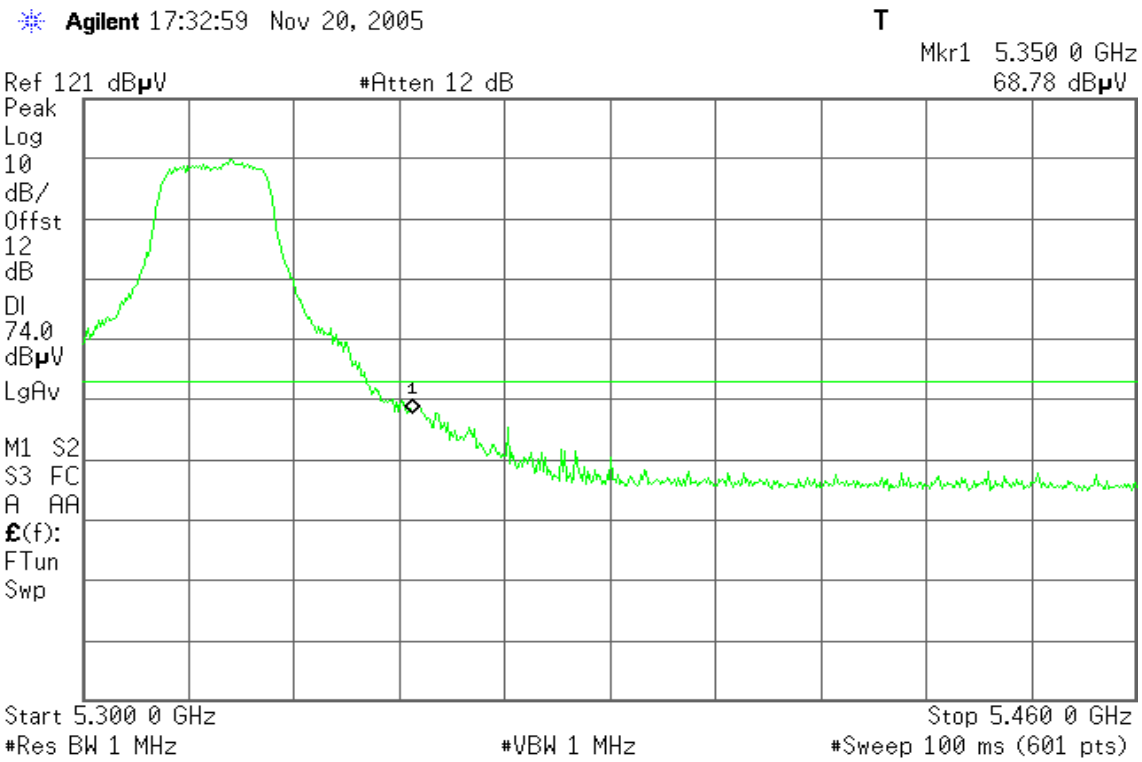


Detector mode: Average **Polarity: Horizontal**

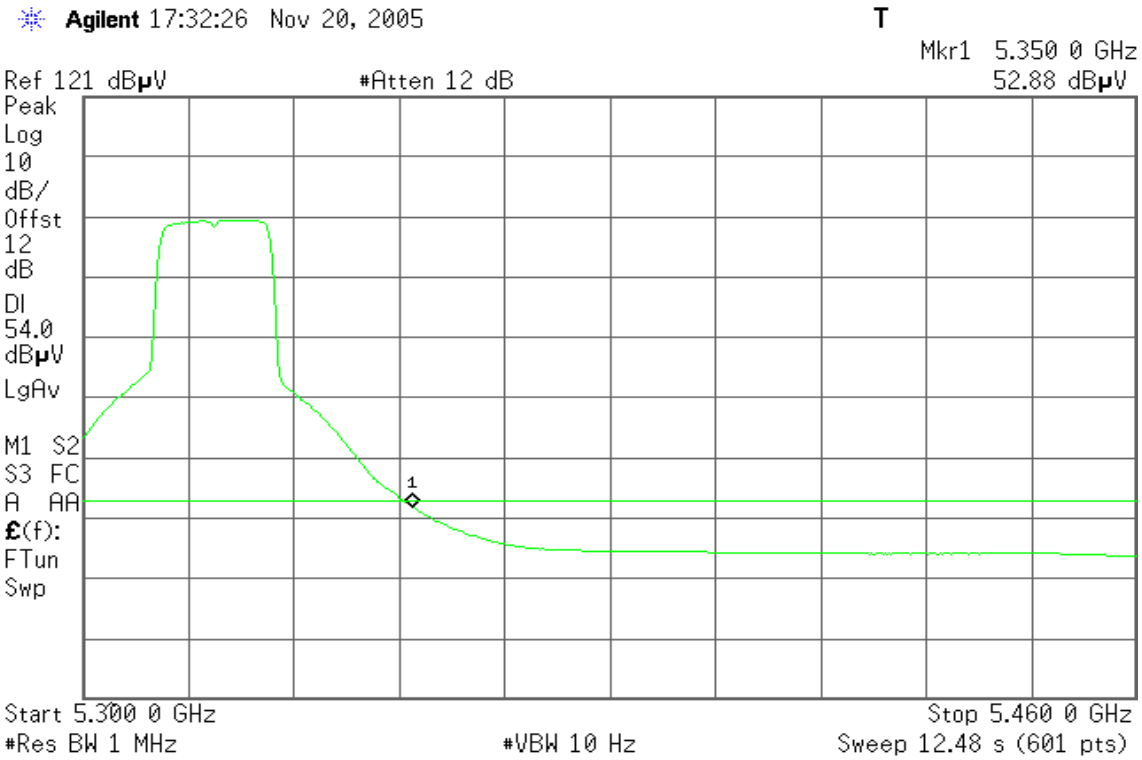


Band Edges (CH High)

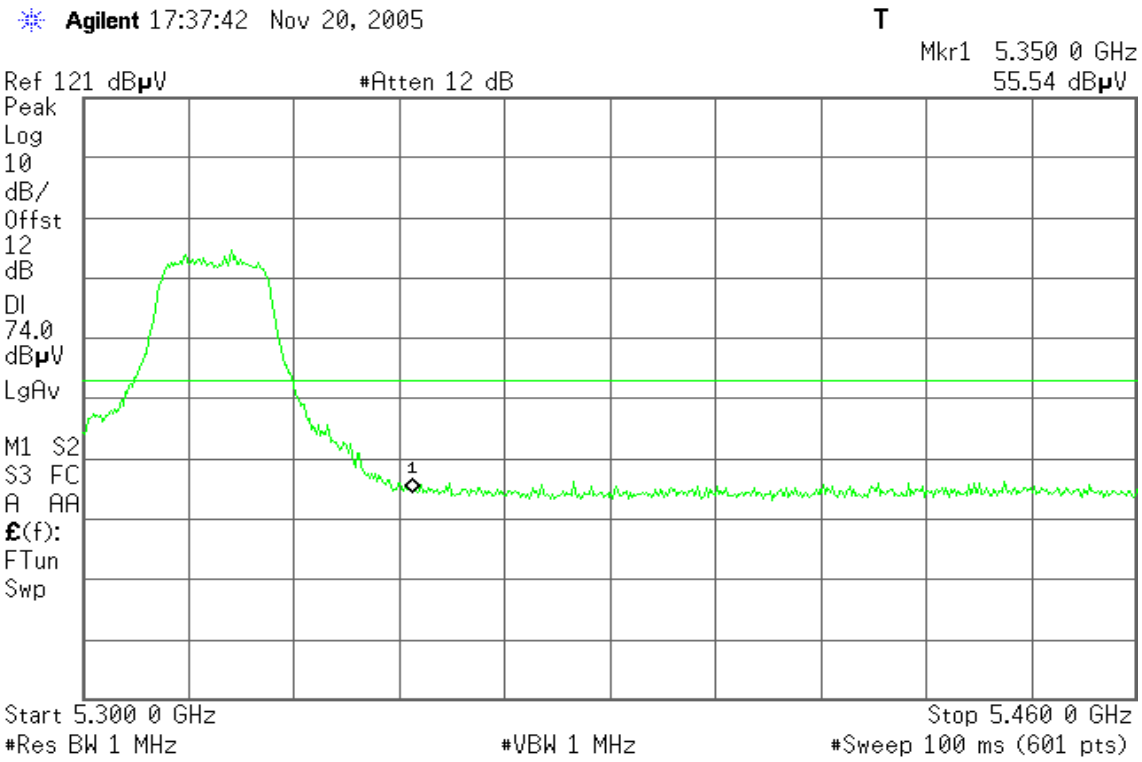
Detector mode: Peak Polarity: Vertical



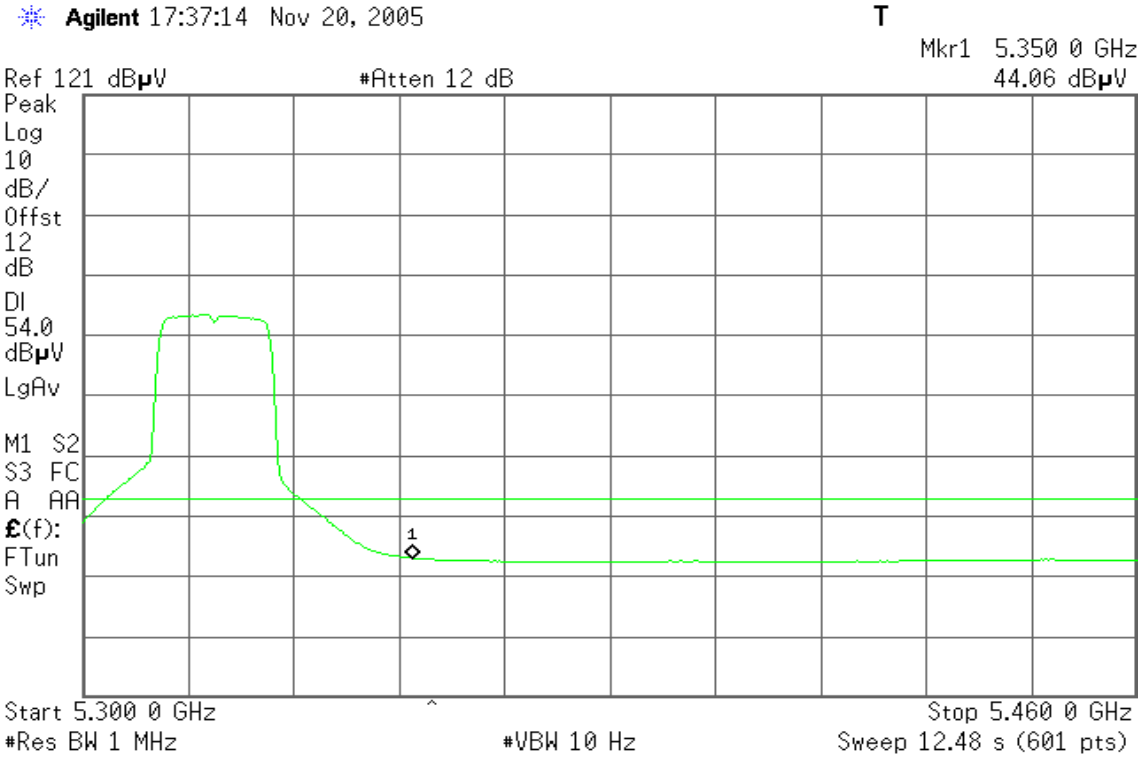
Detector mode: Average Polarity: Vertical



Detector mode: Peak **Polarity: Horizontal**



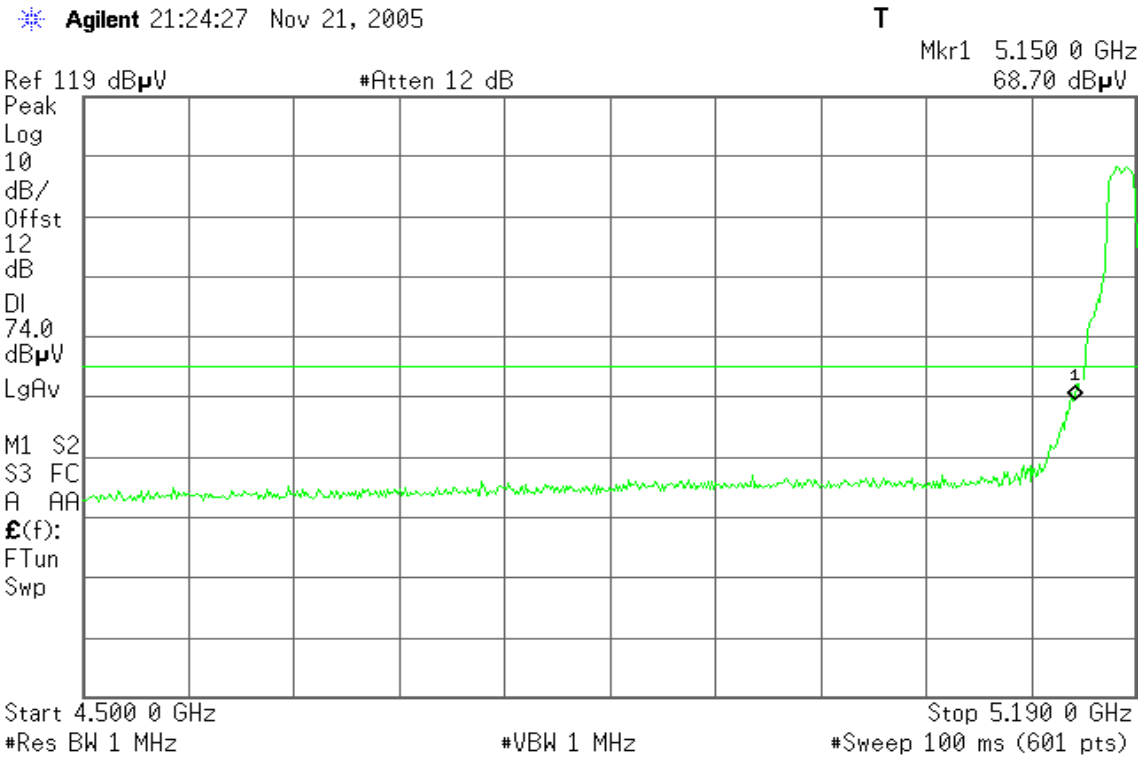
Detector mode: Average **Polarity: Horizontal**



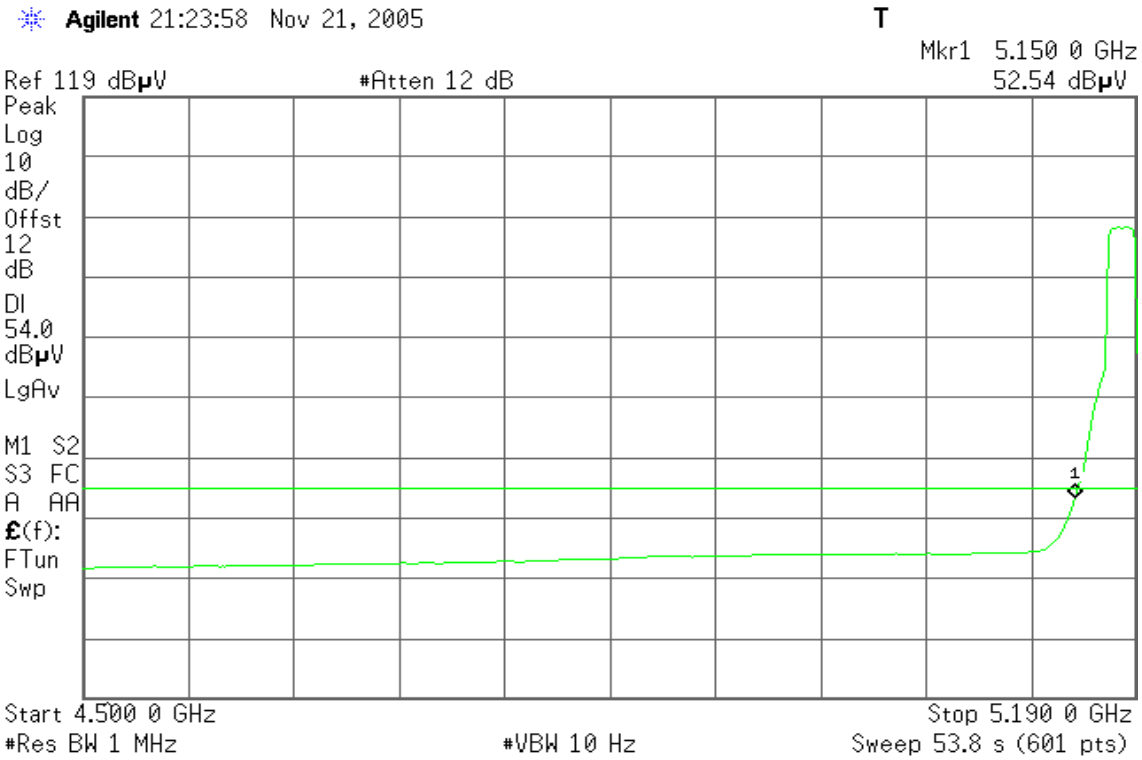
Mode 3: Antenna 3+ Module 2

Band Edges (CH Low)

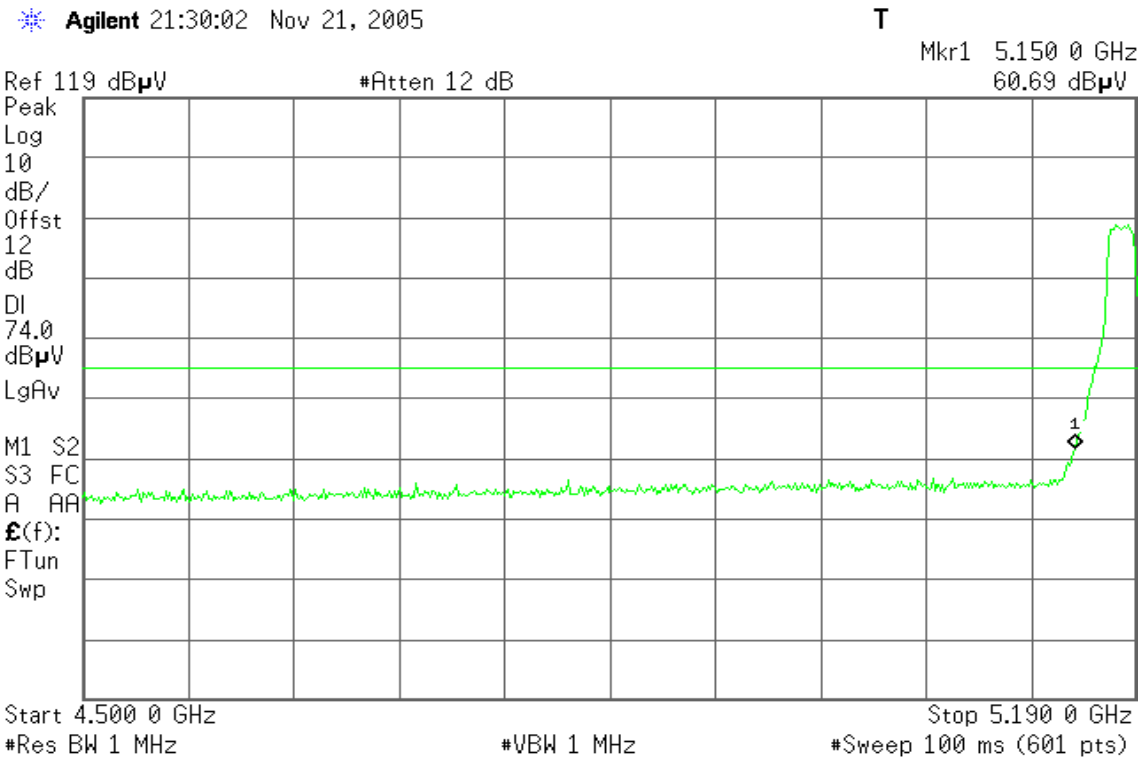
Detector mode: Peak **Polarity: Vertical**



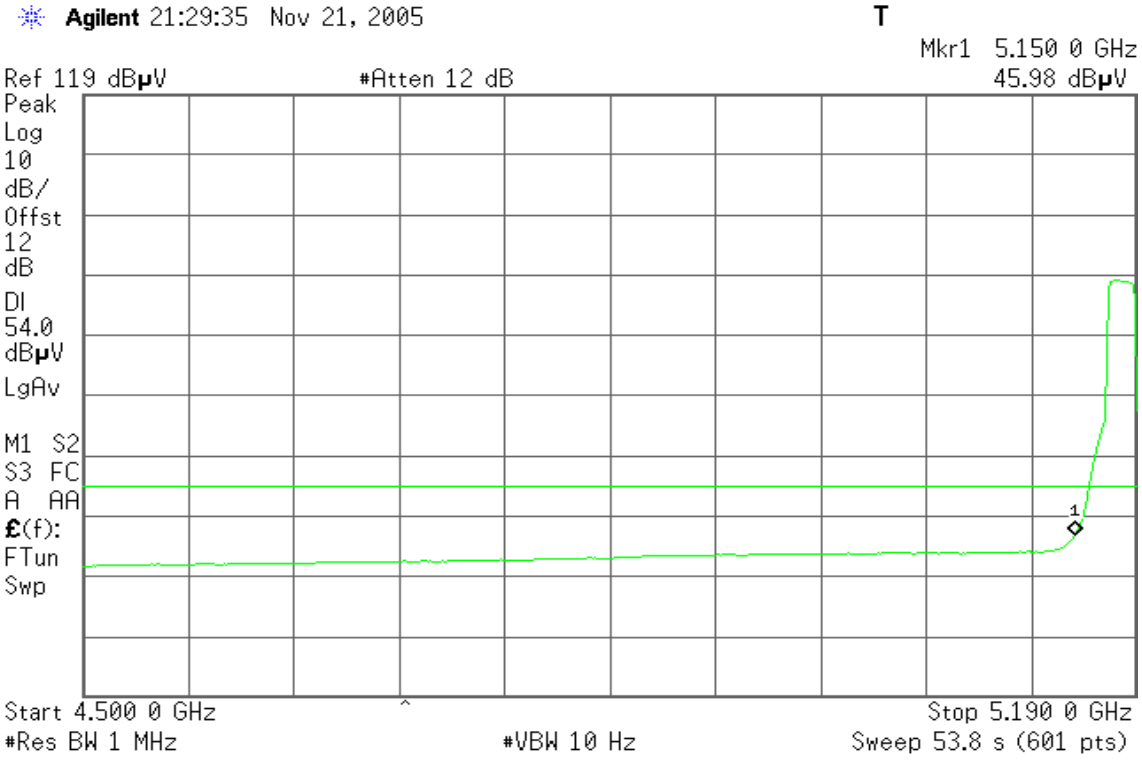
Detector mode: Average **Polarity: Vertical**



Detector mode: Peak **Polarity: Horizontal**

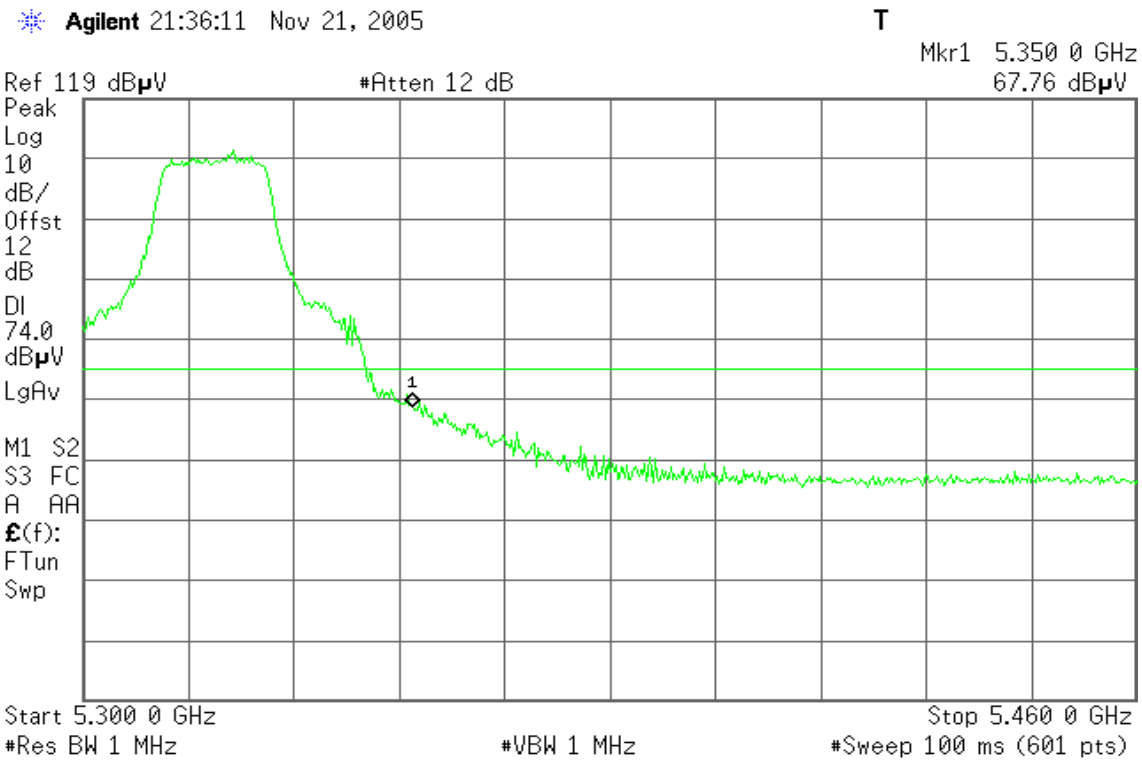


Detector mode: Average **Polarity: Horizontal**

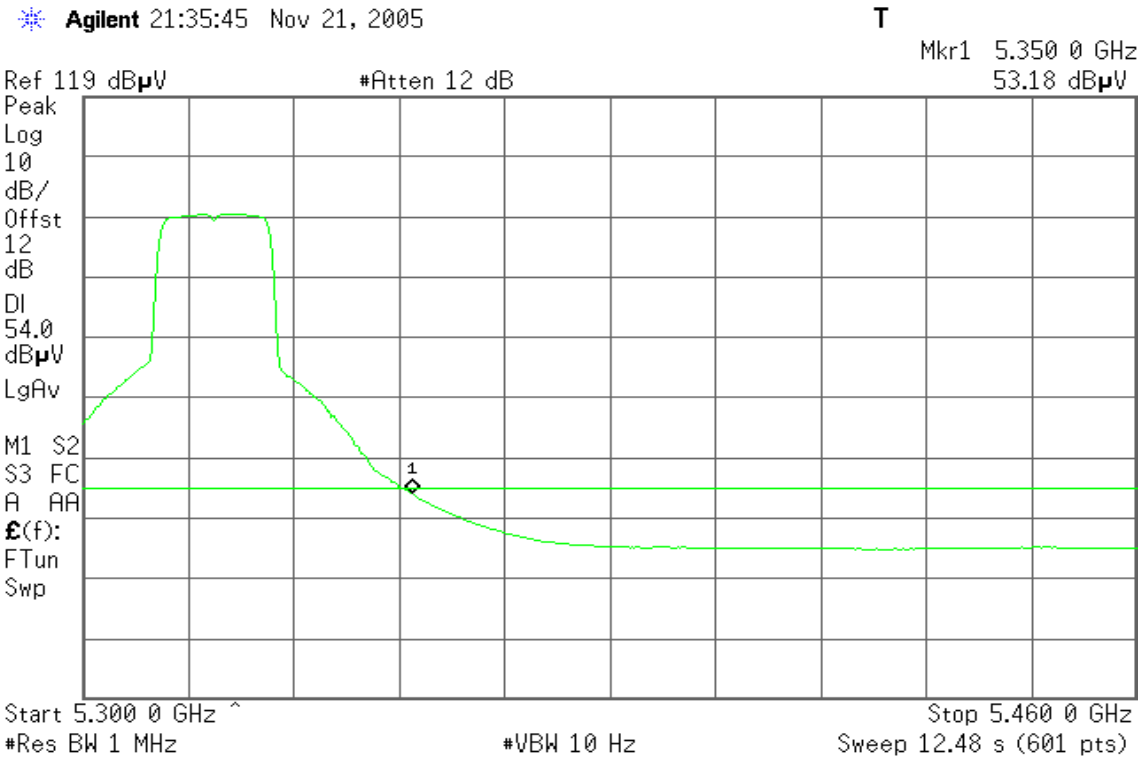


Band Edges (CH High)

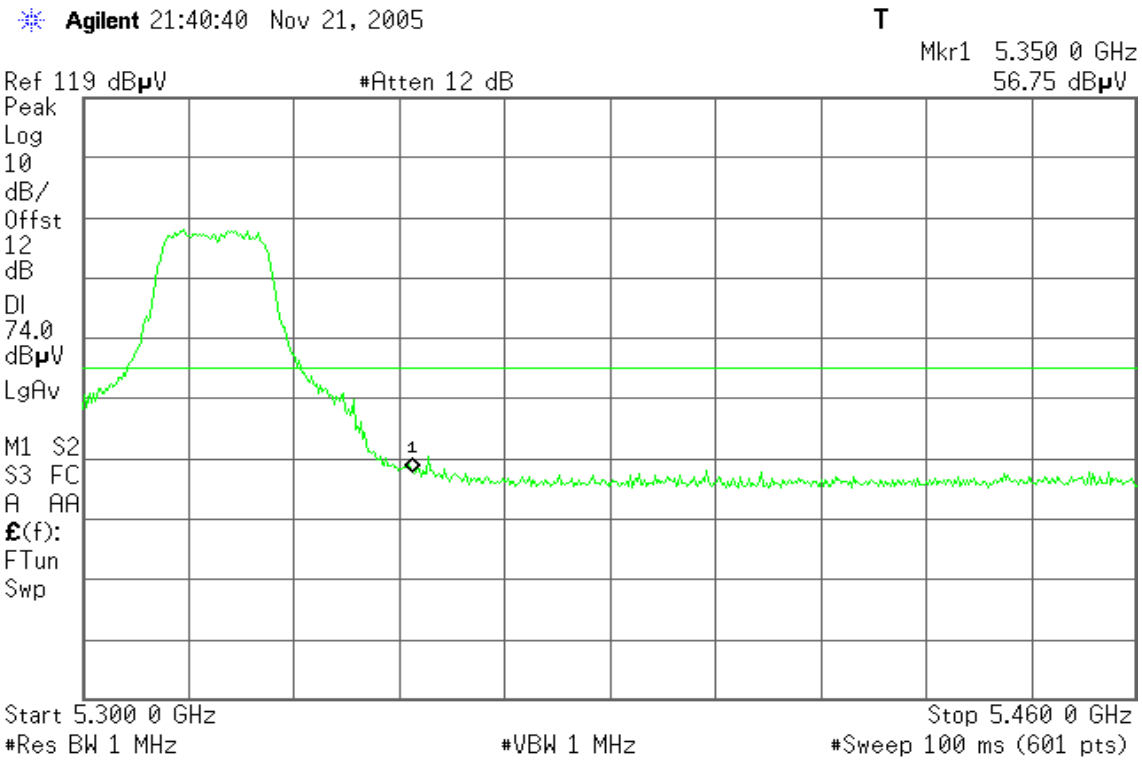
Detector mode: Peak Polarity: Vertical



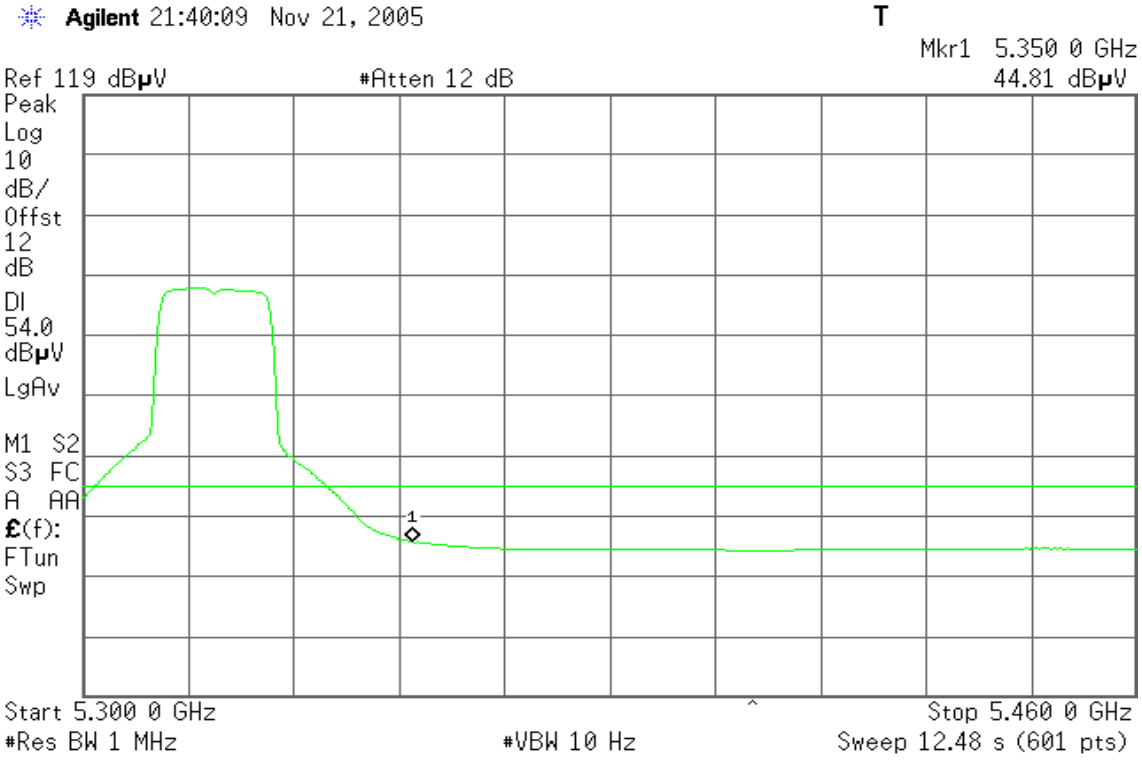
Detector mode: Average Polarity: Vertical



Detector mode: Peak **Polarity: Horizontal**



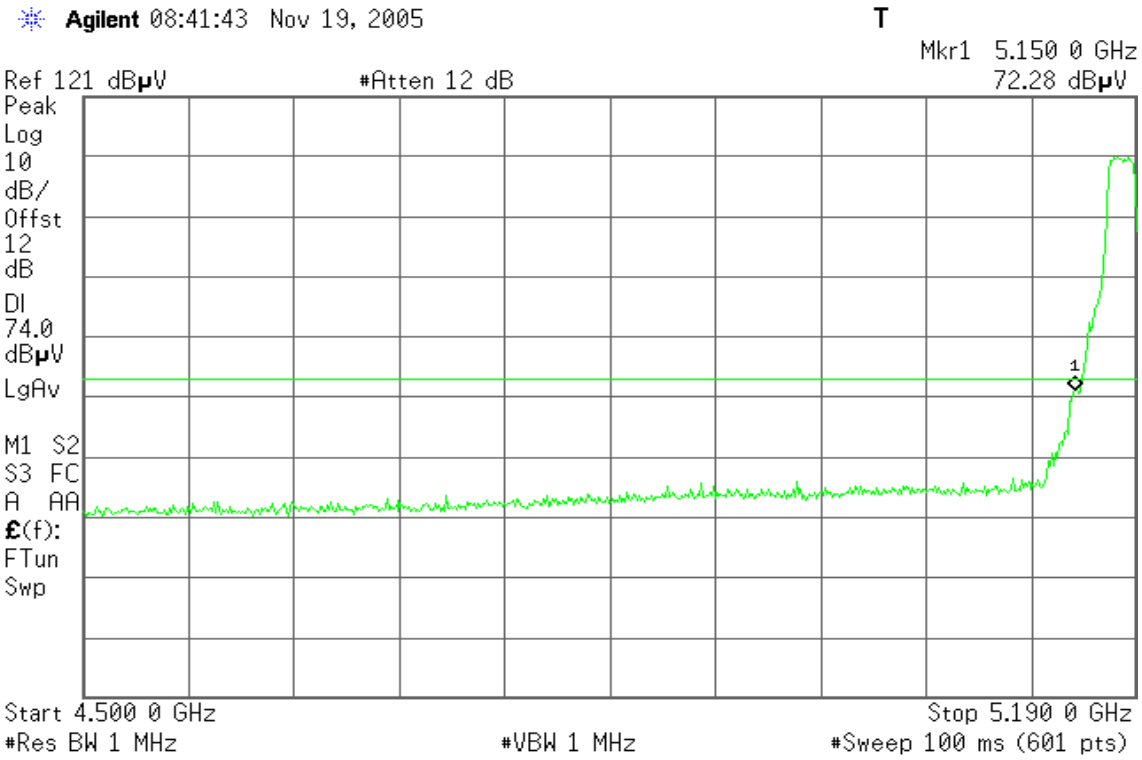
Detector mode: Average **Polarity: Horizontal**



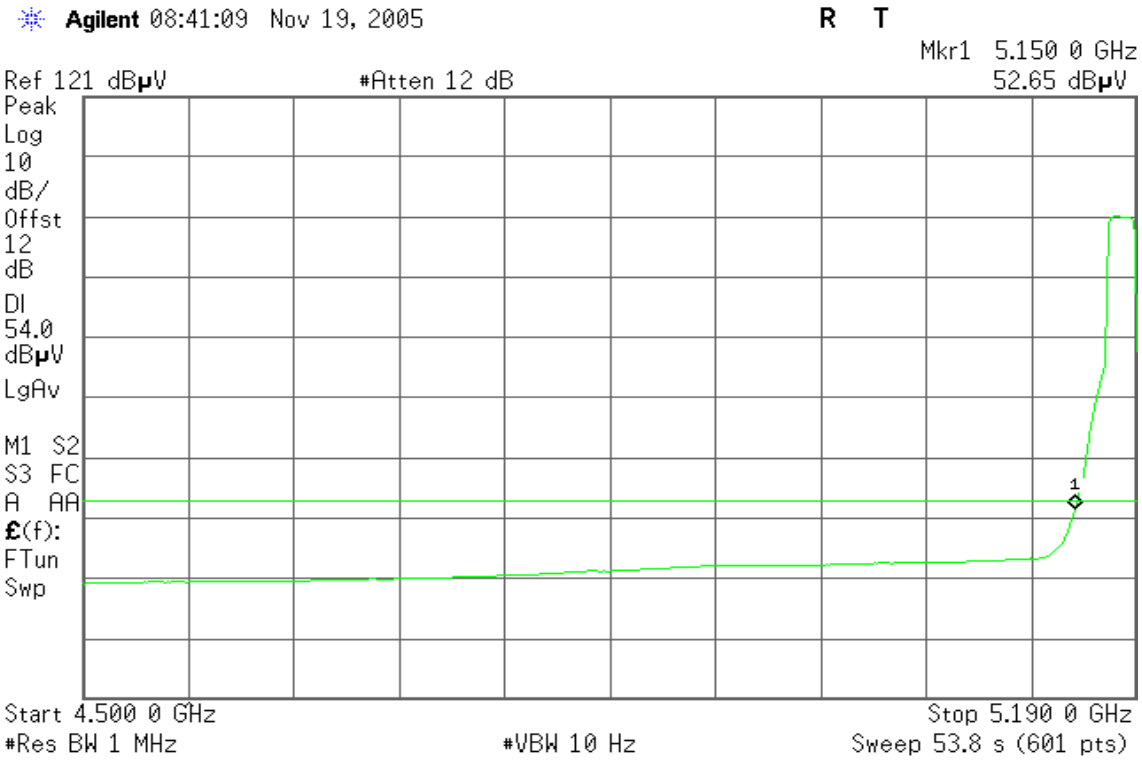
Mode 4: Antenna 4+ Module 2

Band Edges (CH Low)

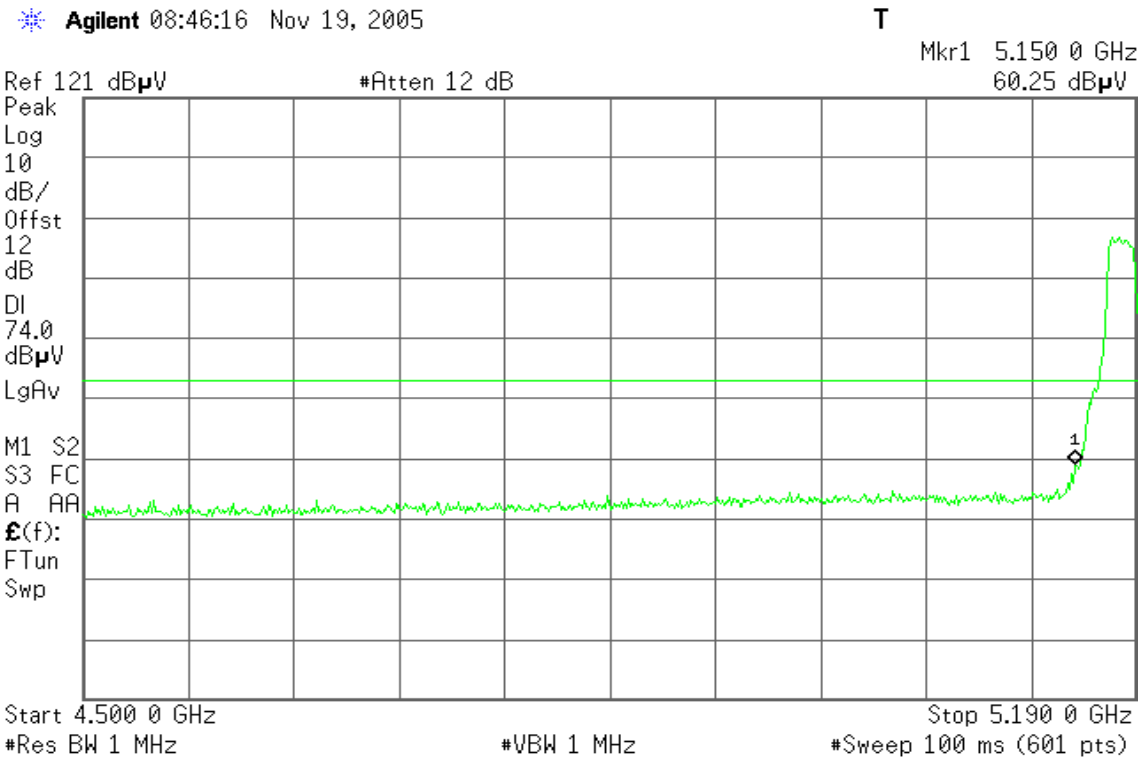
Detector mode: Peak Polarity: Vertical



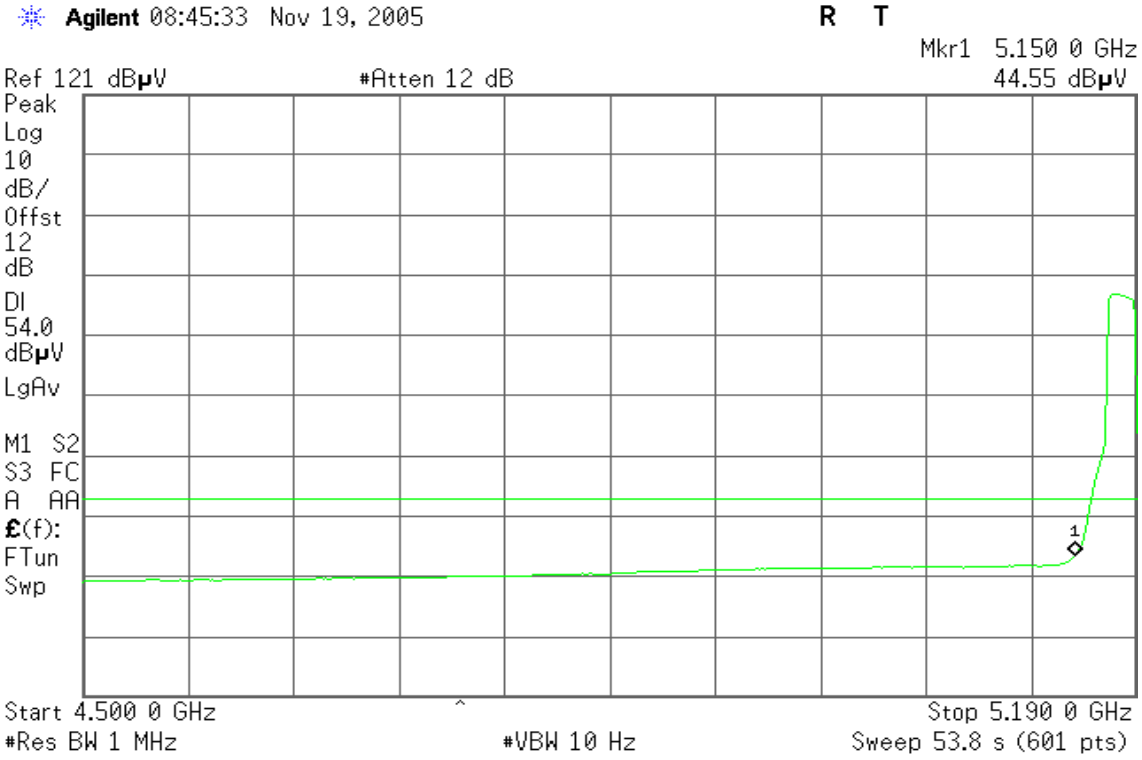
Detector mode: Average Polarity: Vertical



Detector mode: Peak **Polarity: Horizontal**

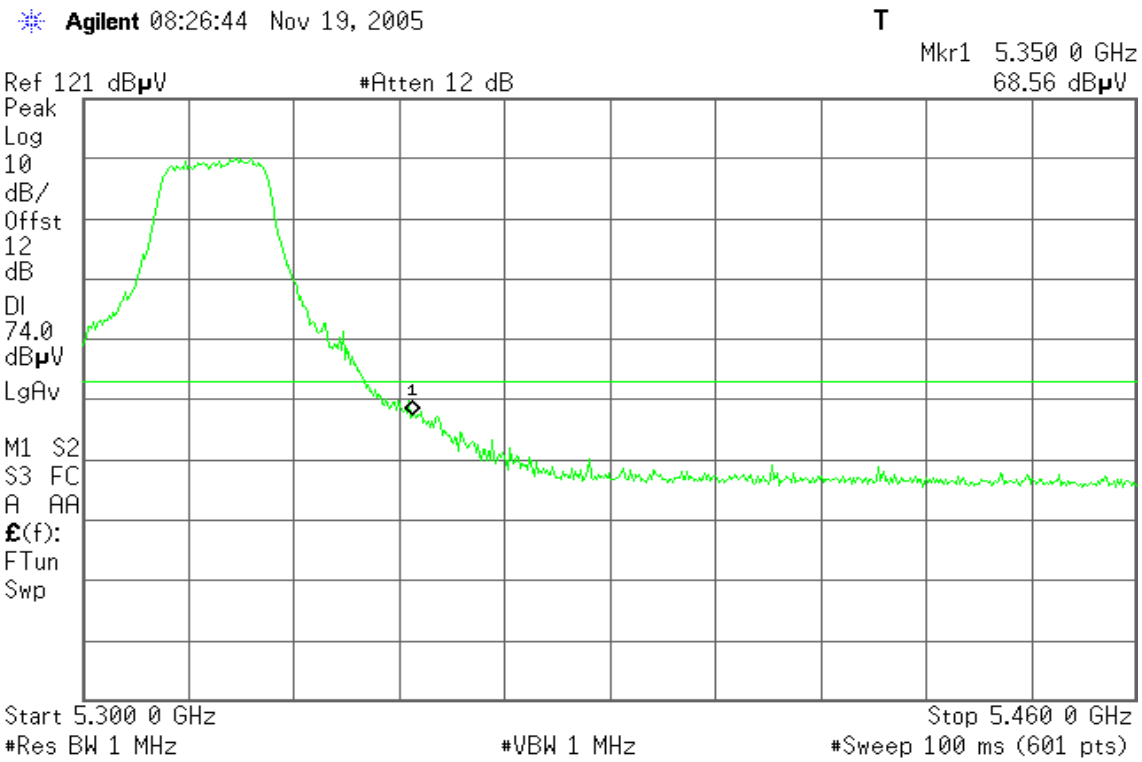


Detector mode: Average **Polarity: Horizontal**

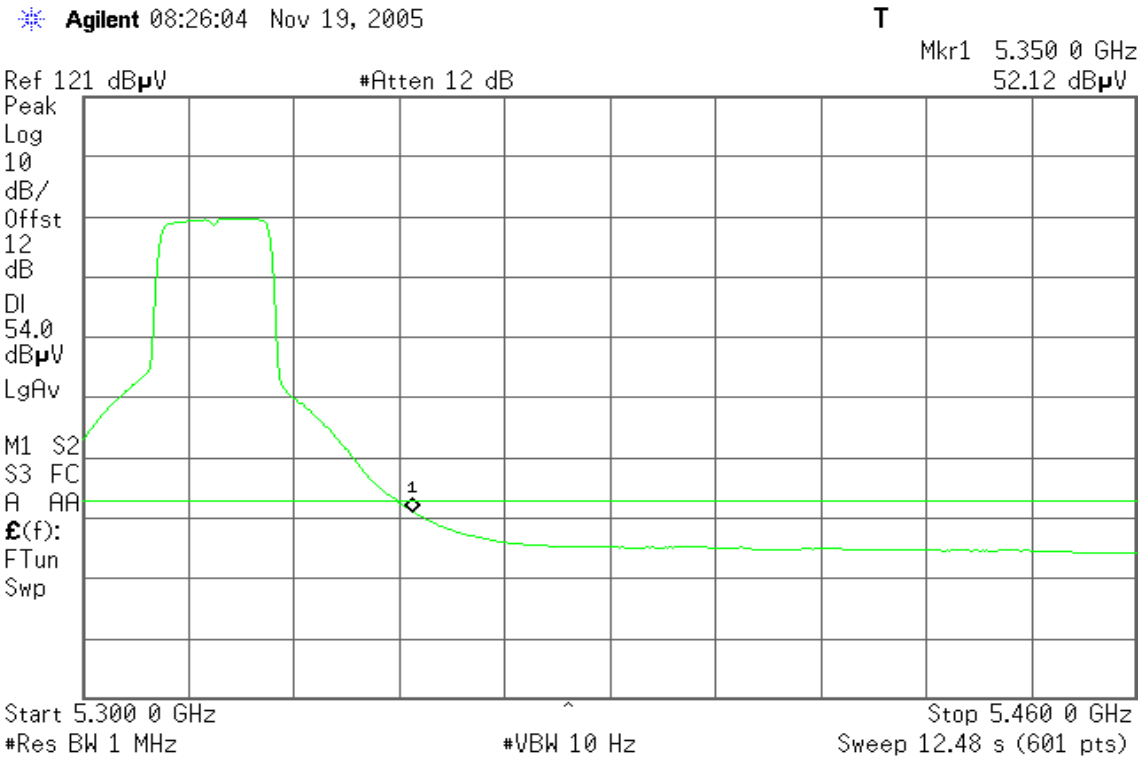


Band Edges (CH High)

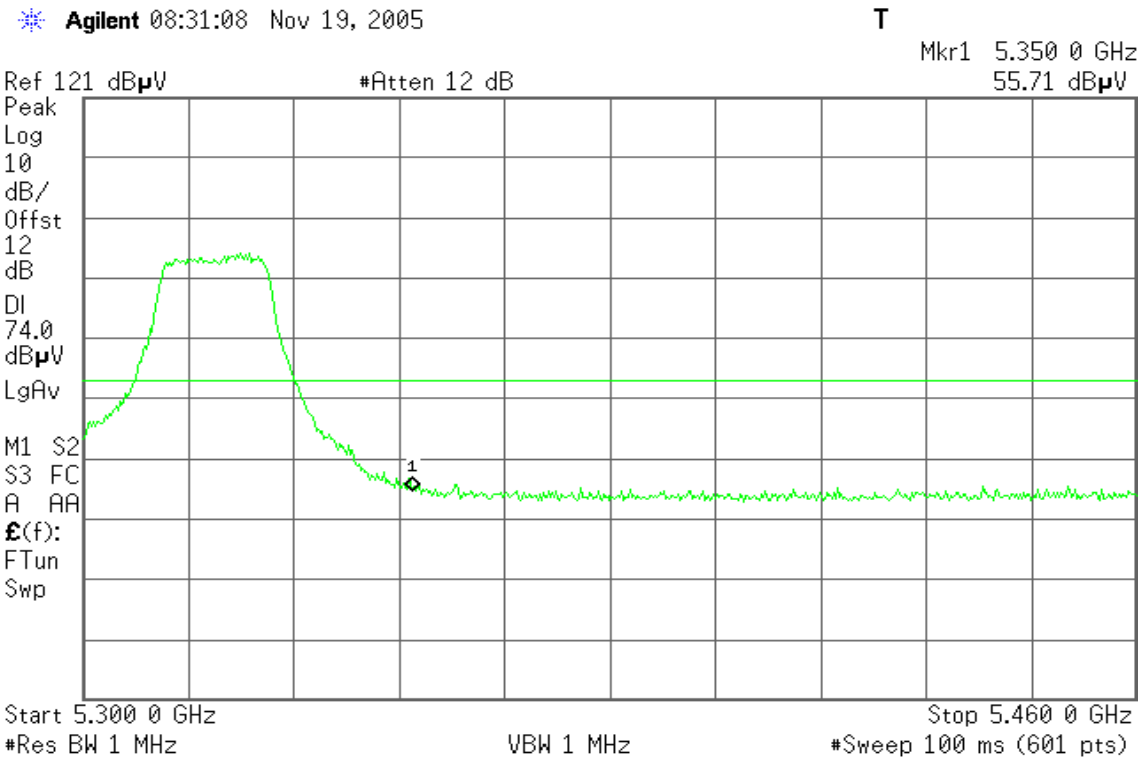
Detector mode: Peak Polarity: Vertical



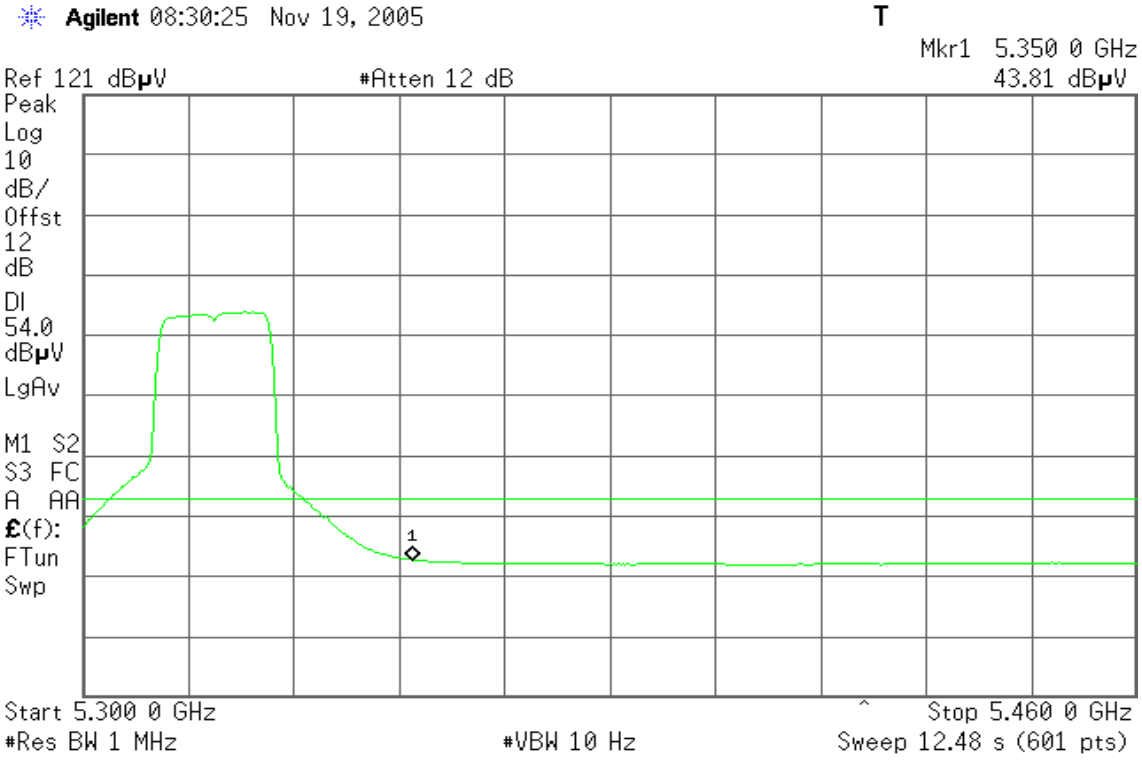
Detector mode: Average Polarity: Vertical



Detector mode: Peak **Polarity: Horizontal**



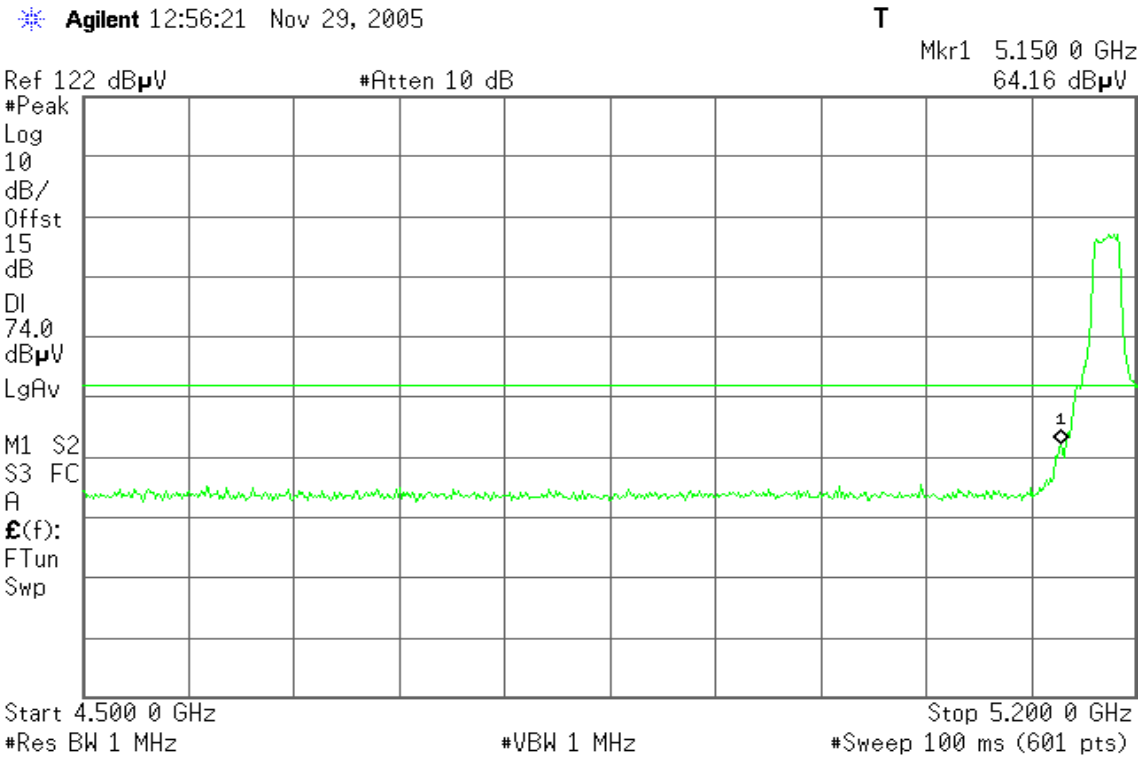
Detector mode: Average **Polarity: Horizontal**



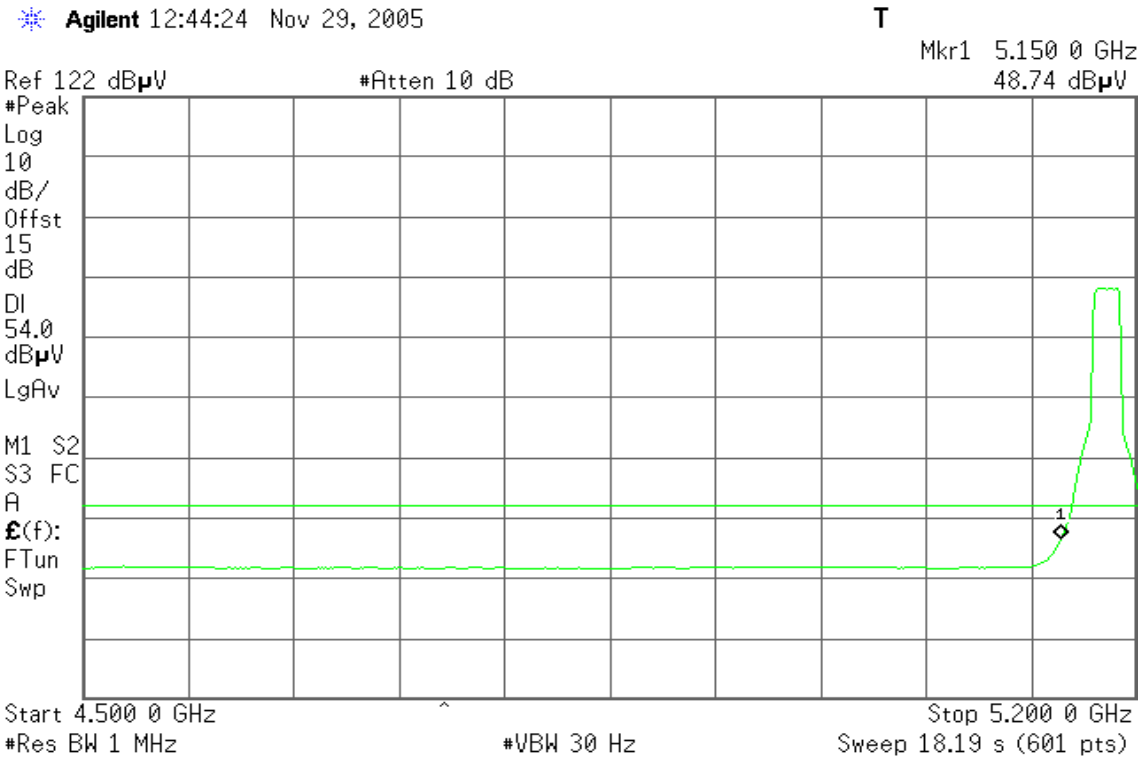
Mode 5: Antenna 6+ Module 2

Band Edges (CH Low)

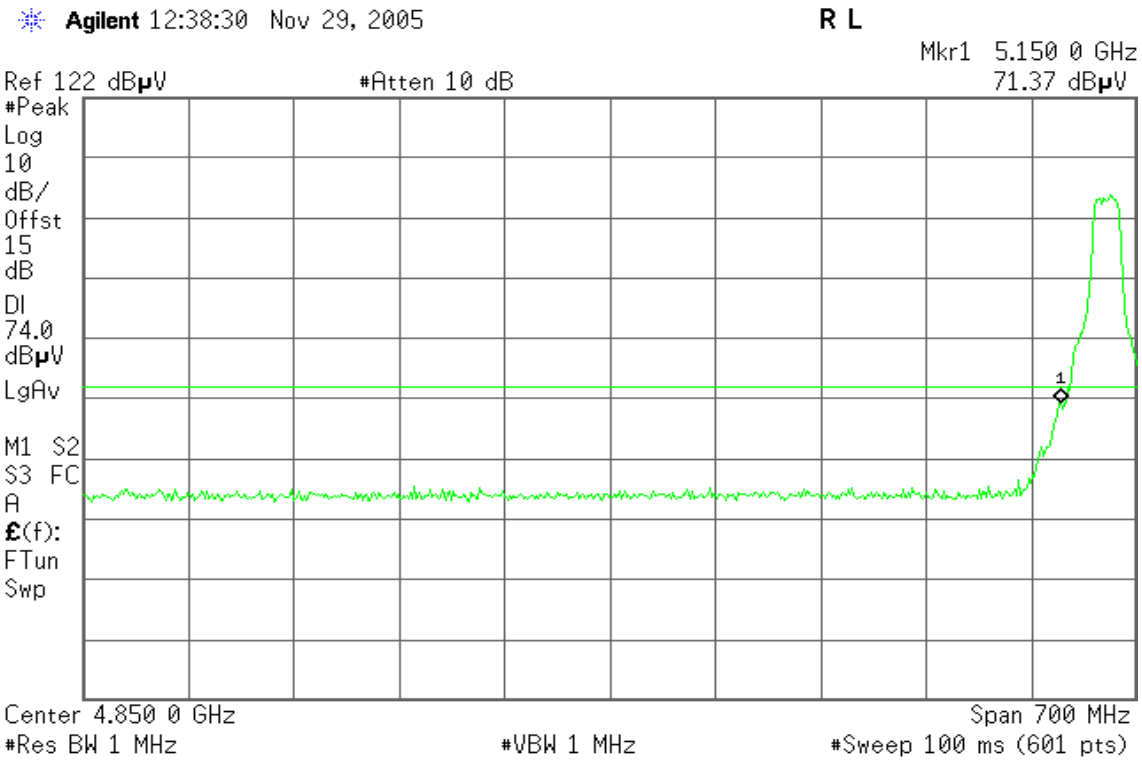
Detector mode: Peak **Polarity: Vertical**



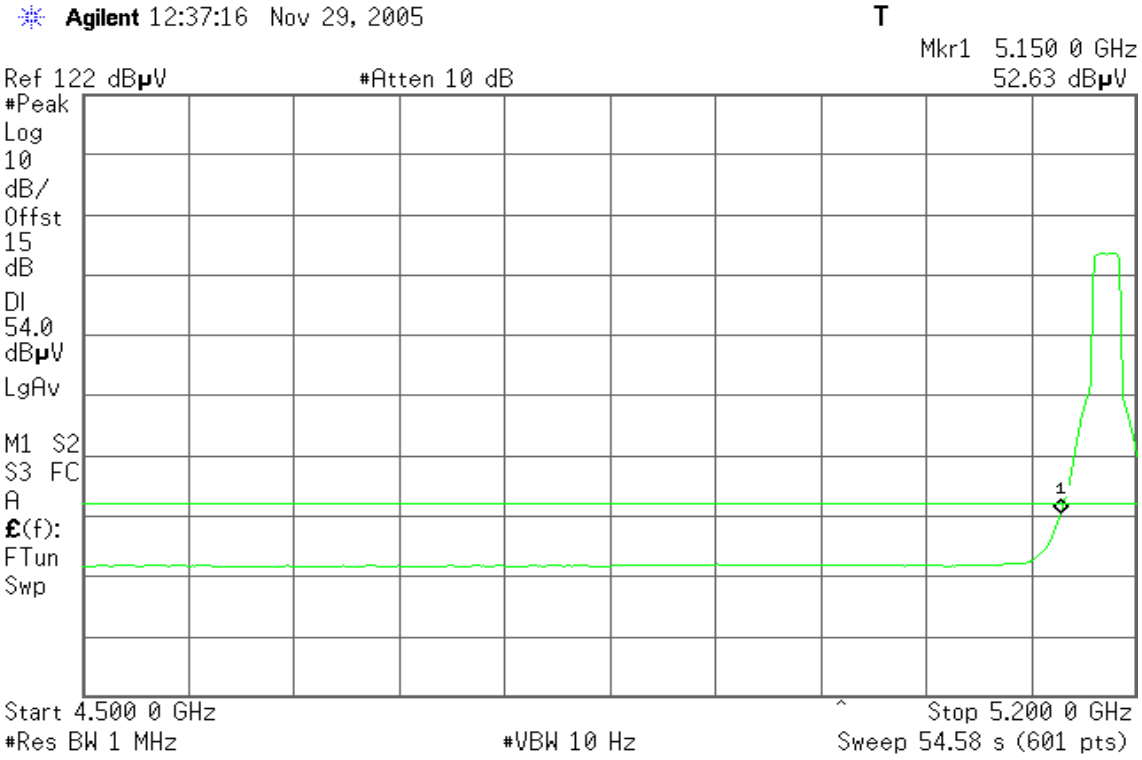
Detector mode: Average **Polarity: Vertical**



Detector mode: Peak **Polarity: Horizontal**

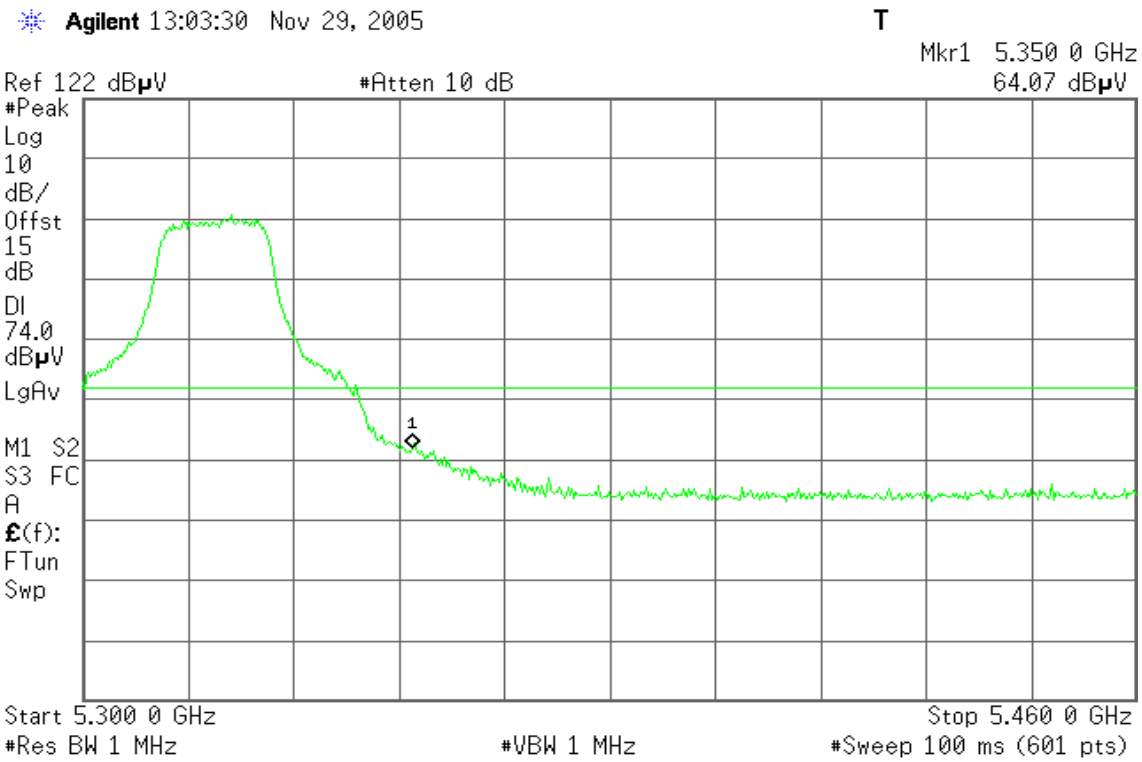


Detector mode: Average **Polarity: Horizontal**

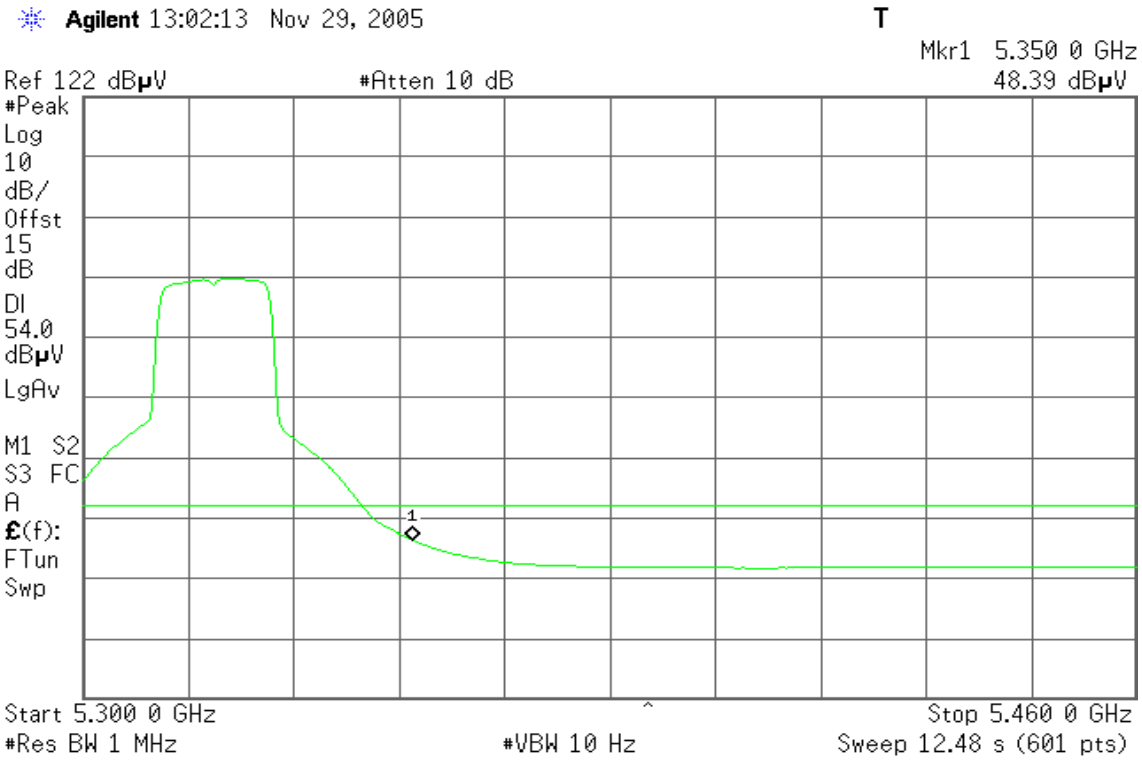


Band Edges (CH High)

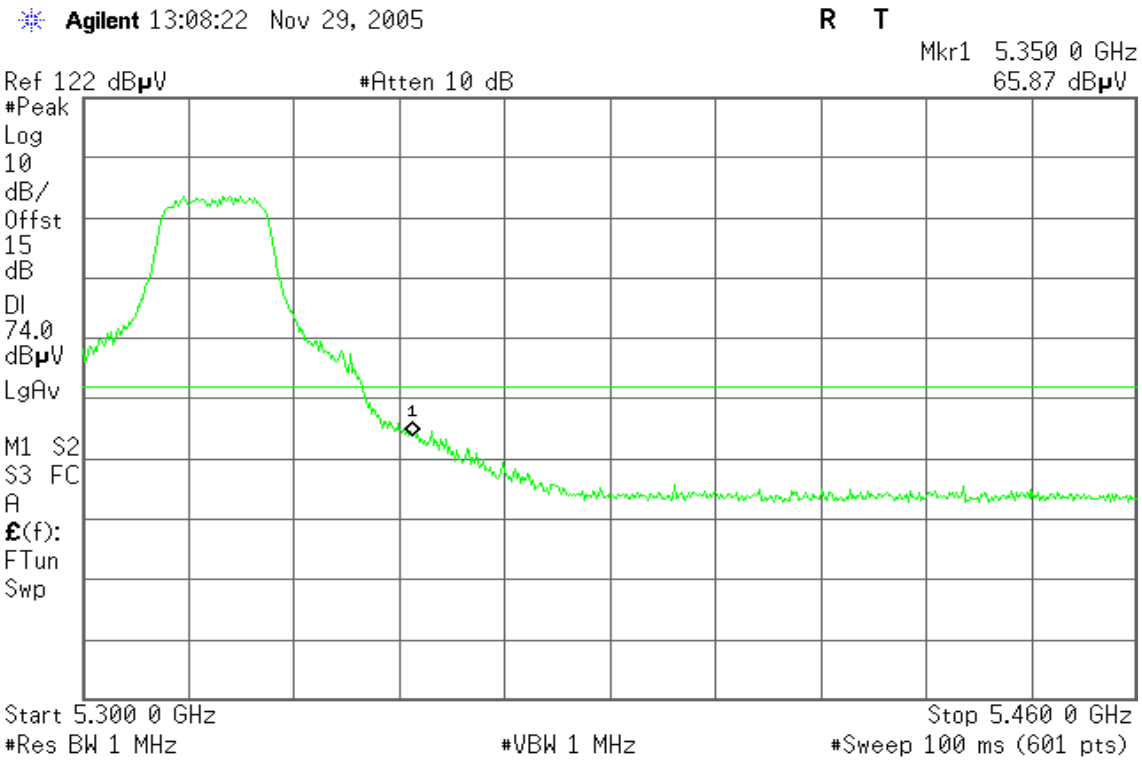
Detector mode: Peak Polarity: Vertical



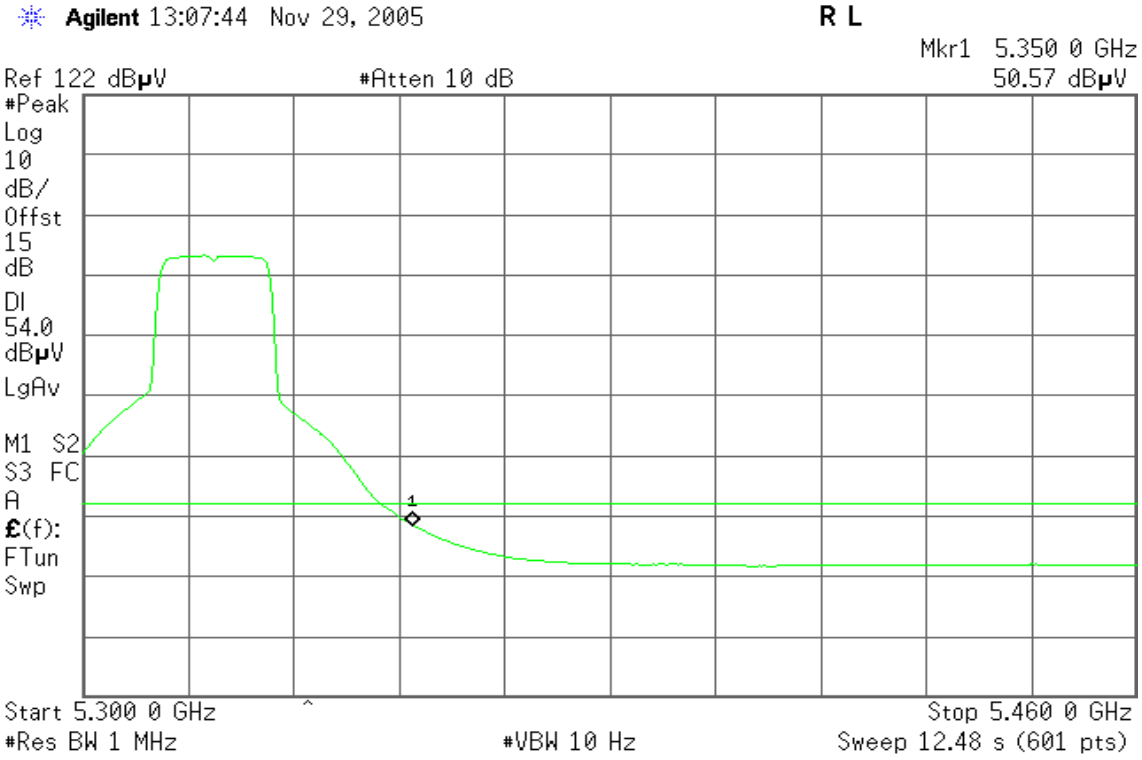
Detector mode: Average Polarity: Vertical



Detector mode: Peak **Polarity: Horizontal**



Detector mode: Average **Polarity: Horizontal**



7.4 PEAK POWER SPECTRAL DENSITY

LIMIT

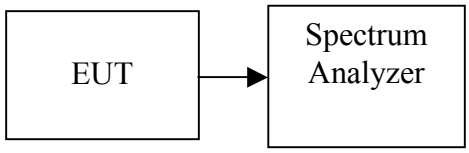
According to §15.407(a),

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

(2) 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.

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 = 25MHz, Sweep=1ms
3. Record the max. reading.
4. Repeat the above procedure until the measurements for all frequencies are completed

TEST RESULTS

No non-compliance noted

Test Data

Mode 1: Antenna 1+ Module 2

Remark: *The maximum antenna gain is 4.0dBi- cable loss 1.26dB= 2.74dBi. (For a mode) Therefore there is no reduction due to antenna gain.*

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)	Result
Low	5180	3.12	4.00	-0.88	PASS
Mid	5260	8.28	11.00	-2.72	PASS
High	5320	5.87	11.00	-5.13	PASS

Mode 2: Antenna 2+ Module 2

Remark: *The maximum antenna gain is 7.7dBi- cable loss 1.26dB= 6.44dBi. (For a mode); therefore the reduction due to antenna gain is 0.44dB.*

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)	Result
Low	5180	1.84	3.56	-1.72	PASS
Mid	5260	1.97	10.56	-8.59	PASS
High	5320	1.88	10.56	-8.68	PASS

Mode 3: Antenna 3+ Module 2

Remark: *The maximum antenna gain is 6.3dBi- cable loss 1.26dB= 5.04dBi; therefore there is no reduction due to antenna gain.*

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)	Result
Low	5180	3.08	4.00	-0.92	PASS
Mid	5260	4.59	11.00	-6.41	PASS
High	5320	5.33	11.00	-5.67	PASS

Mode 4: Antenna 4+ Module 2

Remark: *The maximum antenna gain is 13.3dBi- cable loss 1.26dB= 12.04dBi; therefore the reduction due to antenna gain is 6.04dB.*

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)	Result
Low	5180	-2.31	-2.04	-0.27	PASS
Mid	5260	1.87	4.96	-3.09	PASS
High	5320	0.73	4.96	-4.23	PASS

Mode 5: Antenna 6+ Module 2

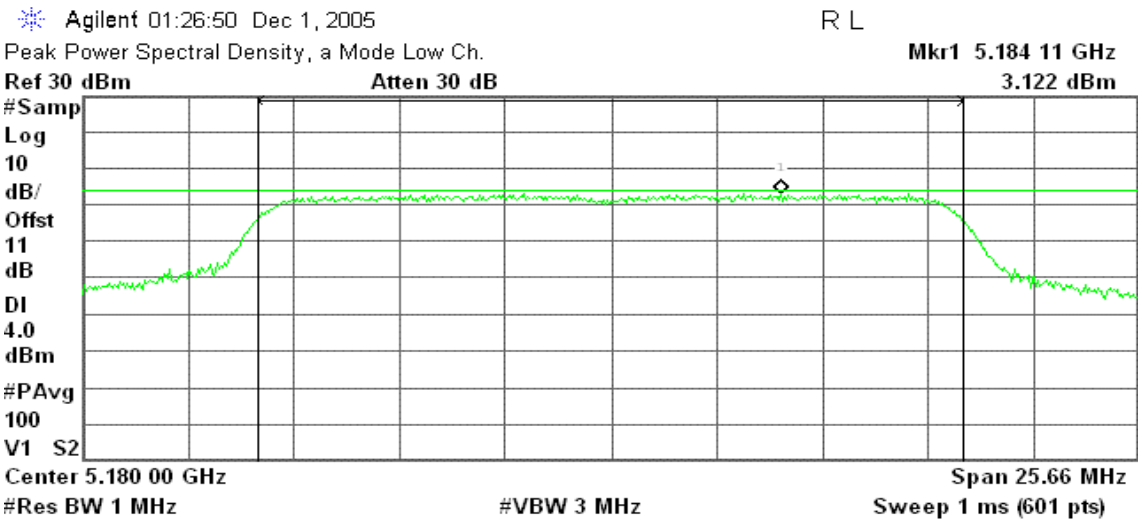
Remark: *The maximum antenna gain is 5.95dBi- cable loss 1.26dB= 4.69dBi; therefore there is no reduction due to antenna gain.*

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)	Result
Low	5180	3.88	4.00	-0.85	PASS
Mid	5260	7.20	11.00	-7.60	PASS
High	5320	3.71	11.00	-7.19	PASS

Test Plot

Mode 1: Antenna 1+ Module 2

CH Low



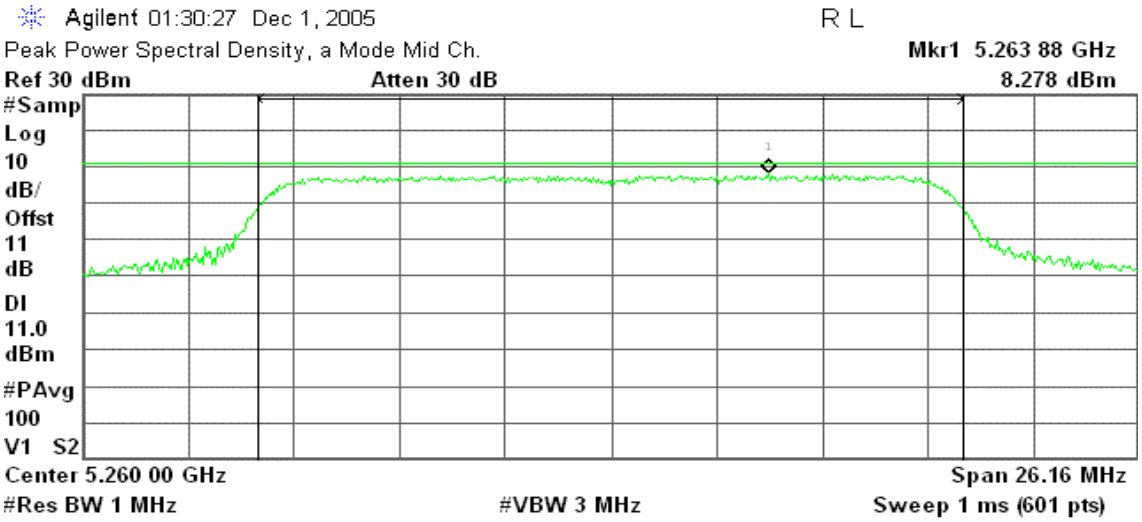
Channel Power

13.66 dBm / 17.1100 MHz

Power Spectral Density

-58.67 dBm/Hz

CH Mid



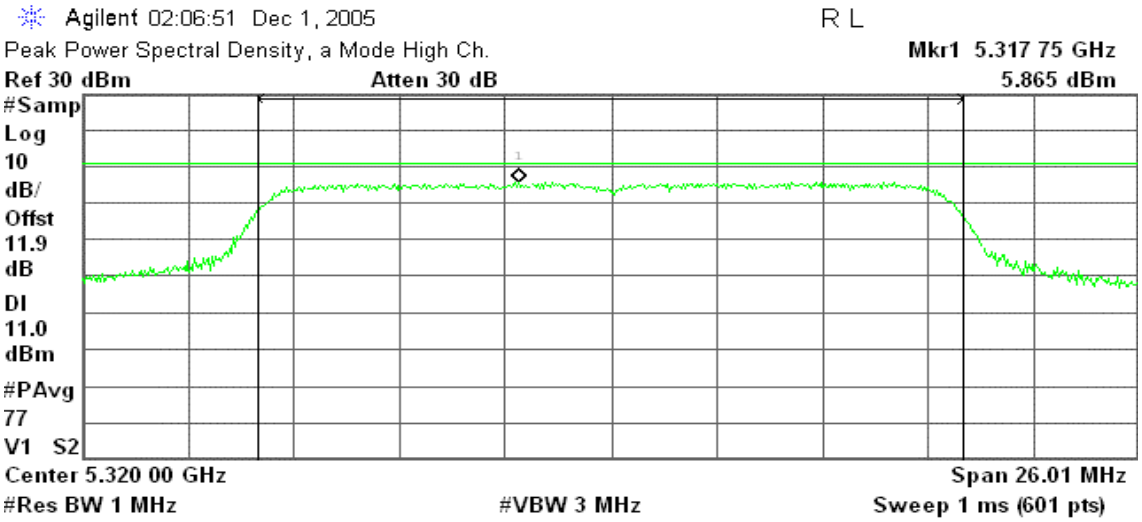
Channel Power

18.39 dBm / 17.4400 MHz

Power Spectral Density

-54.03 dBm/Hz

CH High



Channel Power

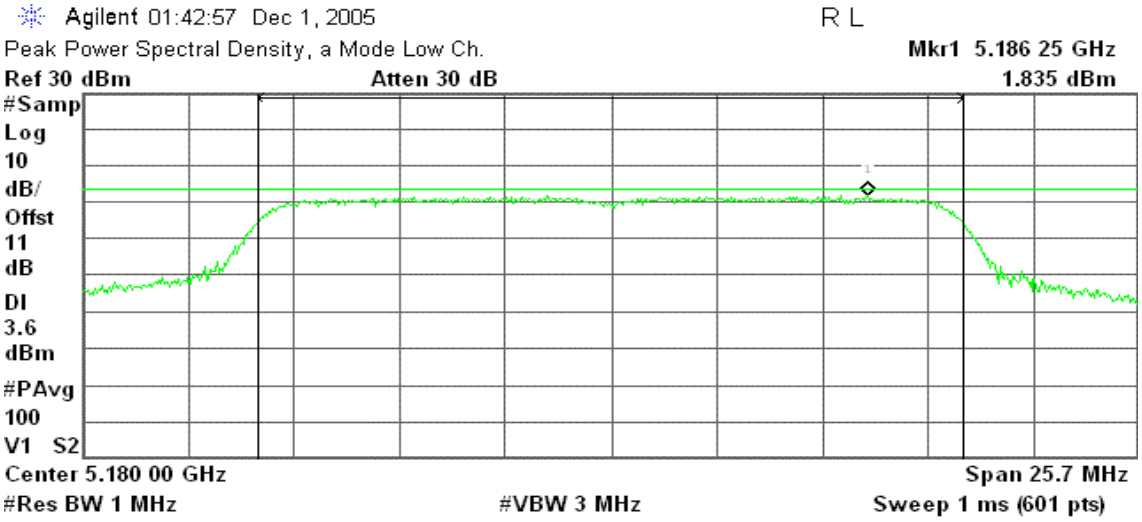
16.59 dBm / 17.3400 MHz

Power Spectral Density

-55.80 dBm/Hz

Mode 2: Antenna 2+ Module 2

CH Low



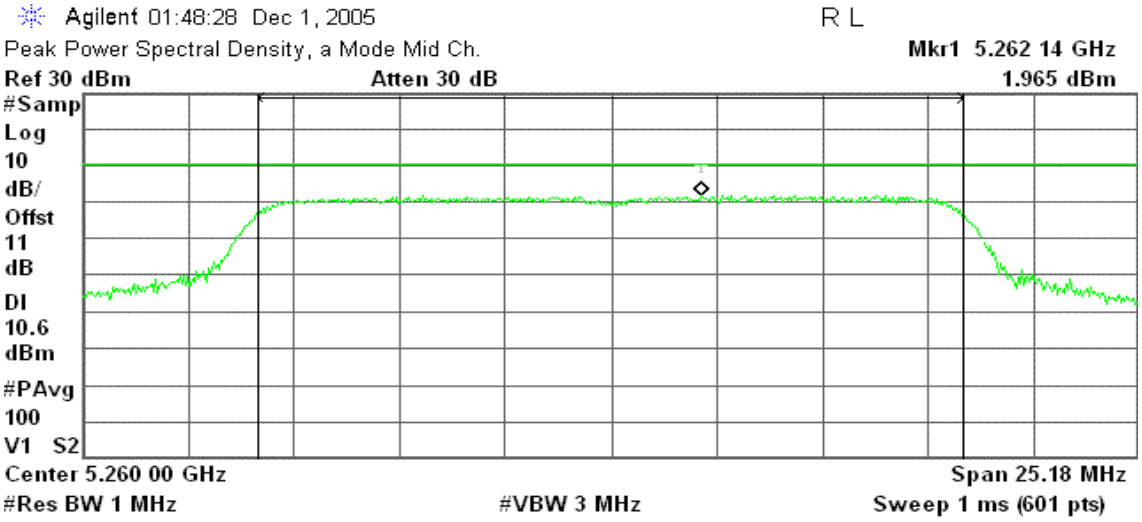
Channel Power

12.70 dBm / 17.1300 MHz

Power Spectral Density

-59.64 dBm/Hz

CH Mid



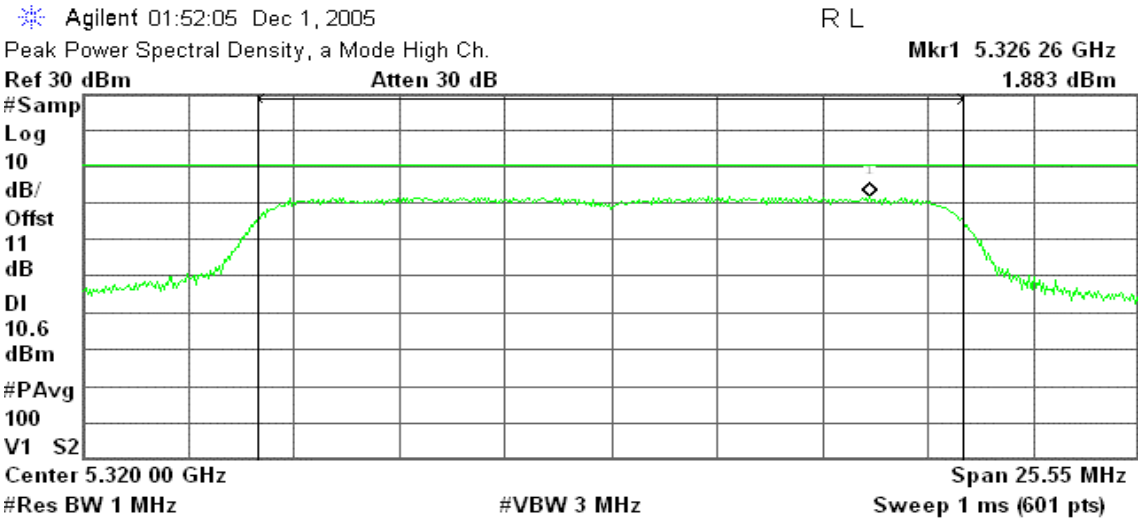
Channel Power

12.29 dBm / 16.7900 MHz

Power Spectral Density

-59.96 dBm/Hz

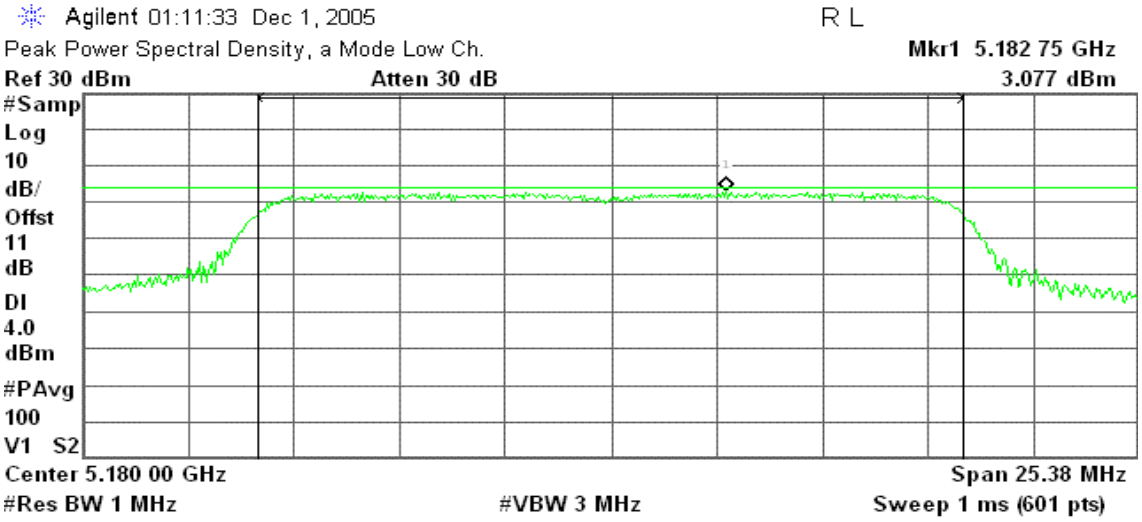
CH High



Channel Power	Power Spectral Density
12.78 dBm / 17.0300 MHz	-59.53 dBm/Hz

Mode 3: Antenna 3+ Module 2

CH Low



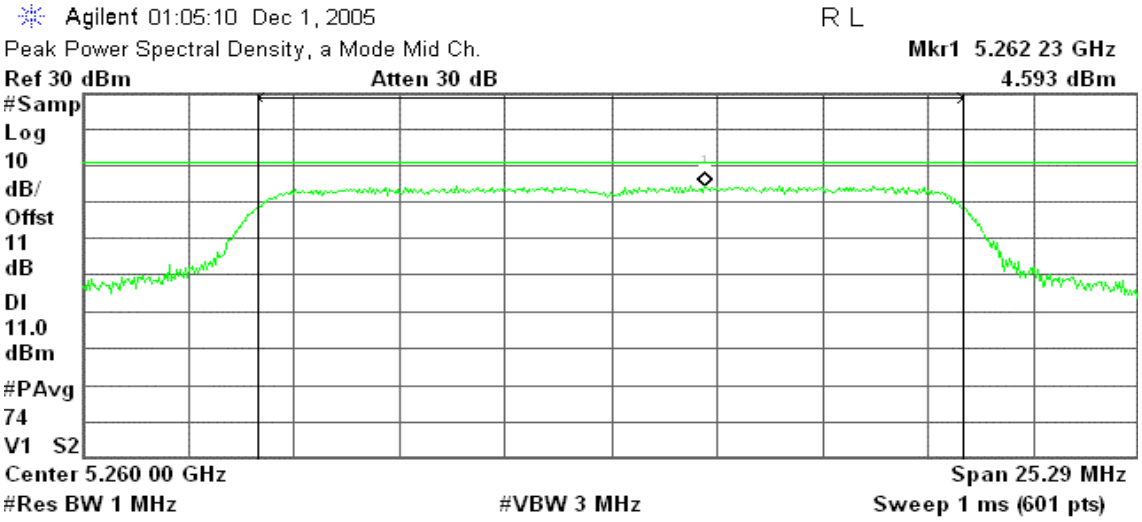
Channel Power

13.61 dBm / 16.9200 MHz

Power Spectral Density

-58.68 dBm/Hz

CH Mid



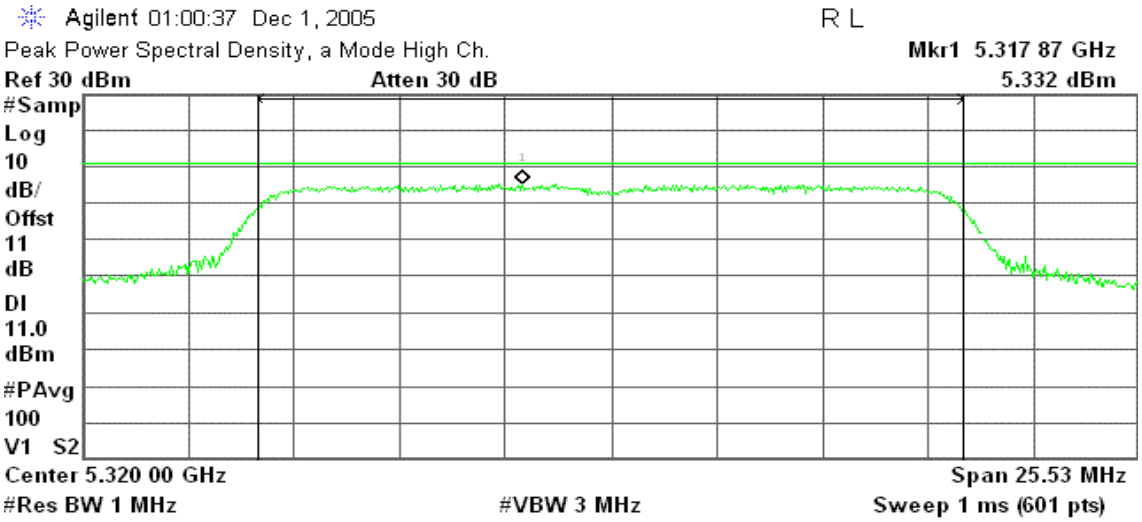
Channel Power

15.11 dBm / 16.8600 MHz

Power Spectral Density

-57.16 dBm/Hz

CH High



Channel Power

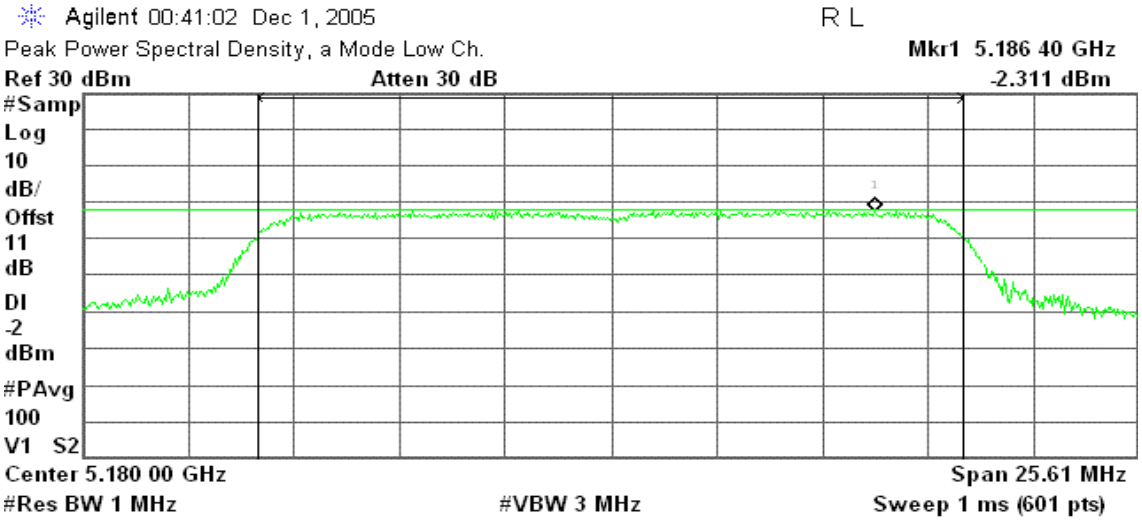
16.01 dBm / 17.0200 MHz

Power Spectral Density

-56.30 dBm/Hz

Mode 4: Antenna 4+ Module 2

CH Low



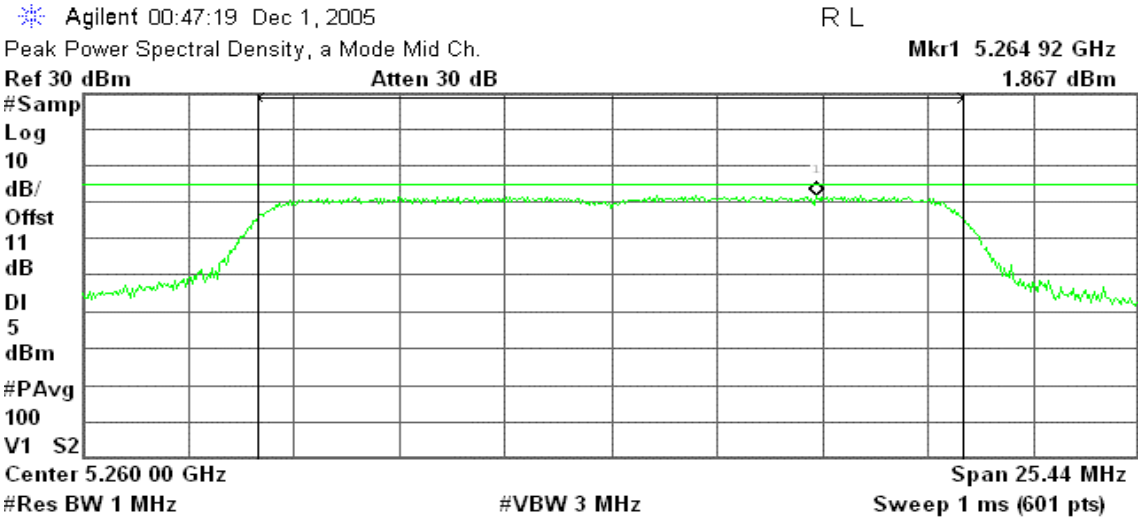
Channel Power

8.28 dBm / 17.0700 MHz

Power Spectral Density

-64.04 dBm/Hz

CH Mid



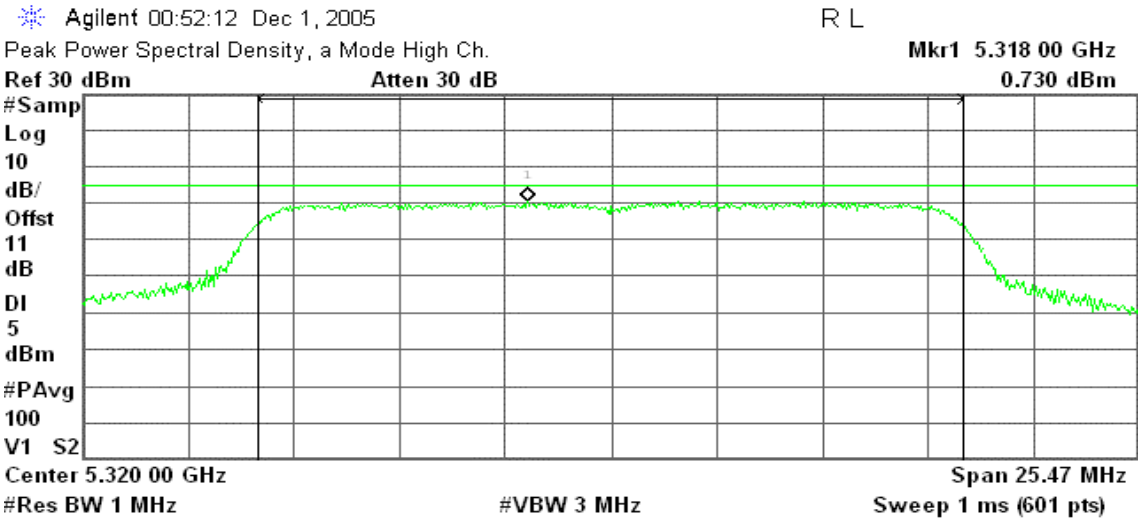
Channel Power

12.69 dBm / 16.9600 MHz

Power Spectral Density

-59.60 dBm/Hz

CH High



Channel Power

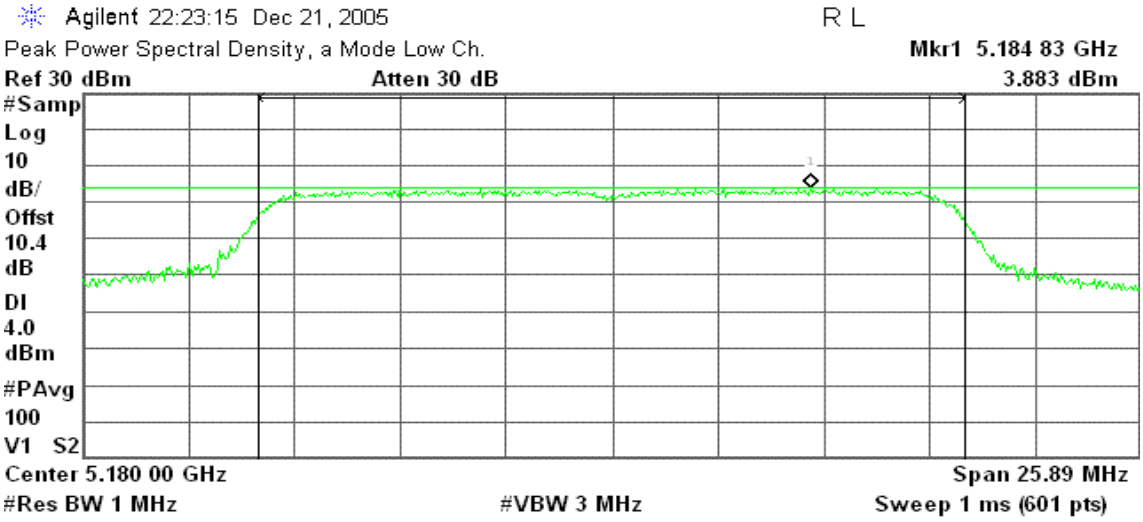
11.04 dBm / 16.9800 MHz

Power Spectral Density

-61.26 dBm/Hz

Mode 5: Antenna 6+ Module 2

CH Low



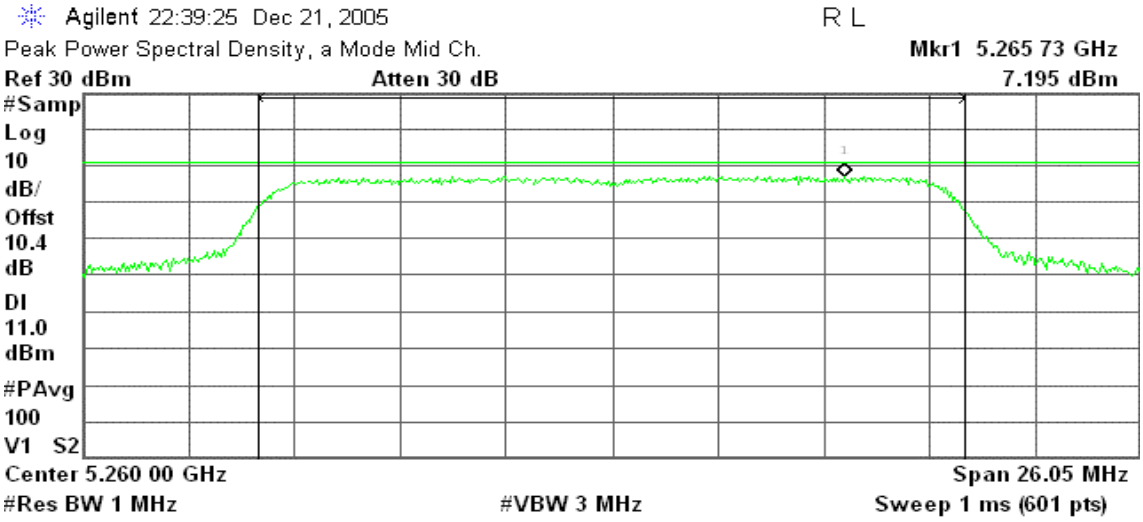
Channel Power

14.81 dBm / 17.2600 MHz

Power Spectral Density

-57.56 dBm/Hz

CH Mid



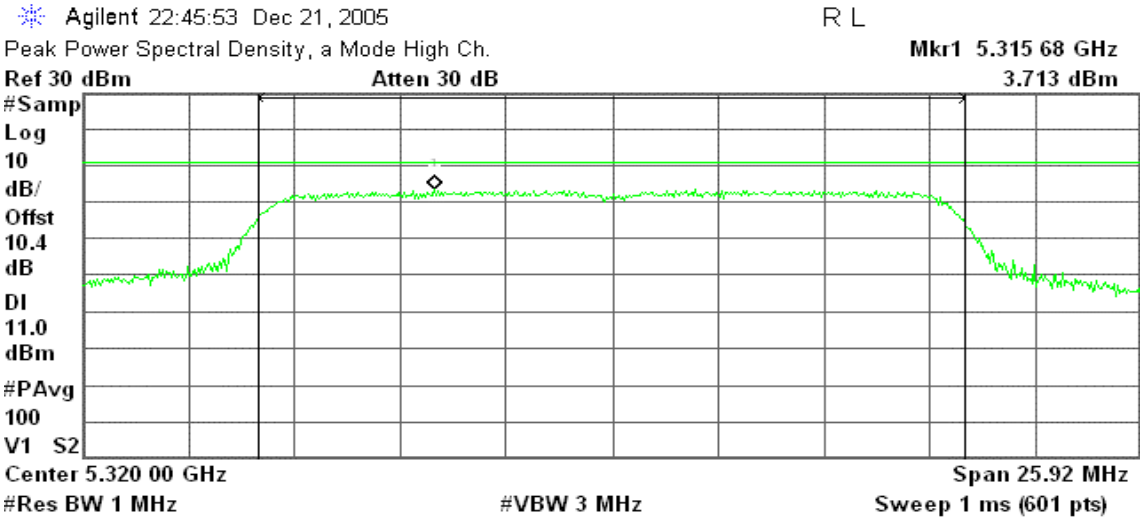
Channel Power

18.09 dBm / 17.3700 MHz

Power Spectral Density

-54.31 dBm/Hz

CH High



Channel Power

13.99 dBm / 17.2800 MHz

Power Spectral Density

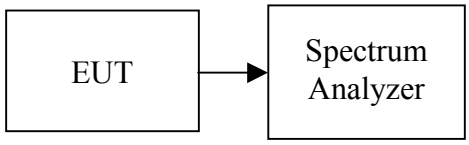
-58.39 dBm/Hz

7.5 PEAK EXCURSION

LIMIT

According to §15.407(a)(6), the ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the maximum conducted output power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

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, Max. hold.
4. Trace B, Set RBW = 1MHz, VBW = 30kHz, Span >26dB bandwidth, 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

Mode 1: Antenna 1+ Module 2

Channel	Frequency (MHz)	Peak Excursion (dB)	Limit (dB)	Margin (dB)	Result
Low	5180	9.28	13.00	-3.72	PASS
Mid	5260	9.96	13.00	-3.04	PASS
High	5320	9.09	13.00	-3.91	PASS

Mode 2: Antenna 2+ Module 2

Channel	Frequency (MHz)	Peak Excursion (dB)	Limit (dB)	Margin (dB)	Result
Low	5180	9.10	13.00	-3.90	PASS
Mid	5260	8.98	13.00	-4.02	PASS
High	5320	9.32	13.00	-3.68	PASS

Mode 3: Antenna 3+ Module 2

Channel	Frequency (MHz)	Peak Excursion (dB)	Limit (dB)	Margin (dB)	Result
Low	5180	9.05	13.00	-3.95	PASS
Mid	5260	9.85	13.00	-3.15	PASS
High	5320	9.24	13.00	-3.76	PASS

Mode 4: Antenna 4+ Module 2

Channel	Frequency (MHz)	Peak Excursion (dB)	Limit (dB)	Margin (dB)	Result
Low	5180	9.62	13.00	-3.38	PASS
Mid	5260	9.13	13.00	-3.87	PASS
High	5320	9.50	13.00	-3.50	PASS

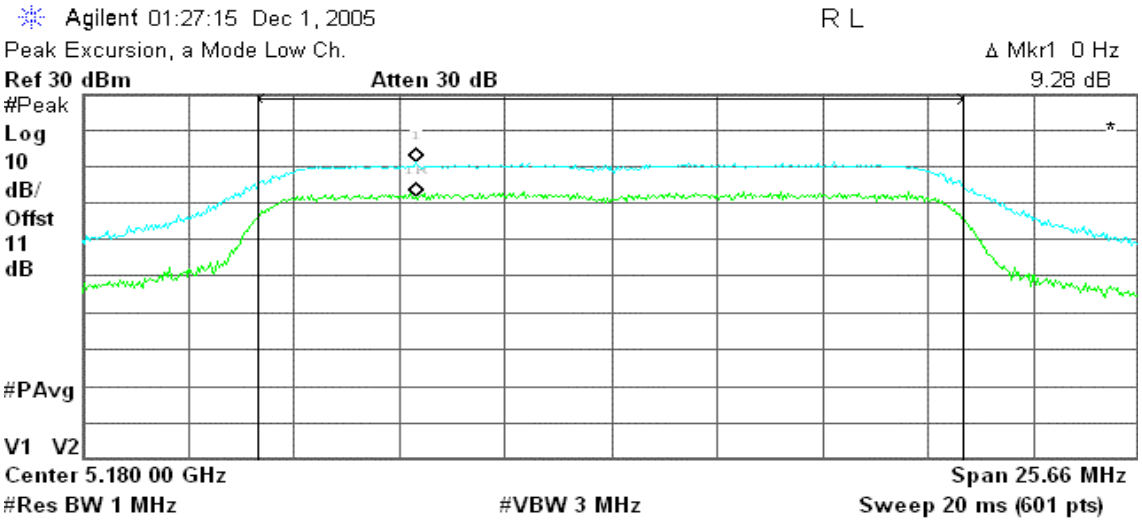
Mode 5: Antenna 6+ Module 2

Channel	Frequency (MHz)	Peak Excursion (dB)	Limit (dB)	Margin (dB)	Result
Low	5180	8.88	13.00	-4.12	PASS
Mid	5260	9.87	13.00	-3.13	PASS
High	5320	10.06	13.00	-2.94	PASS

Test Plot

Mode 1: Antenna 1+ Module 2

CH Low



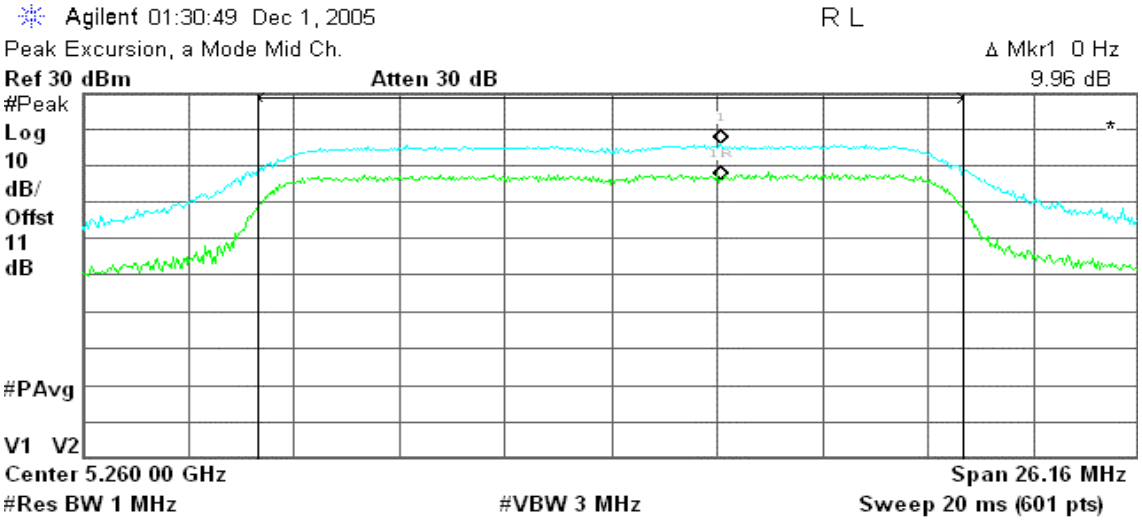
Channel Power

20.23 dBm / 17.1100 MHz

Power Spectral Density

-52.10 dBm/Hz

CH Mid



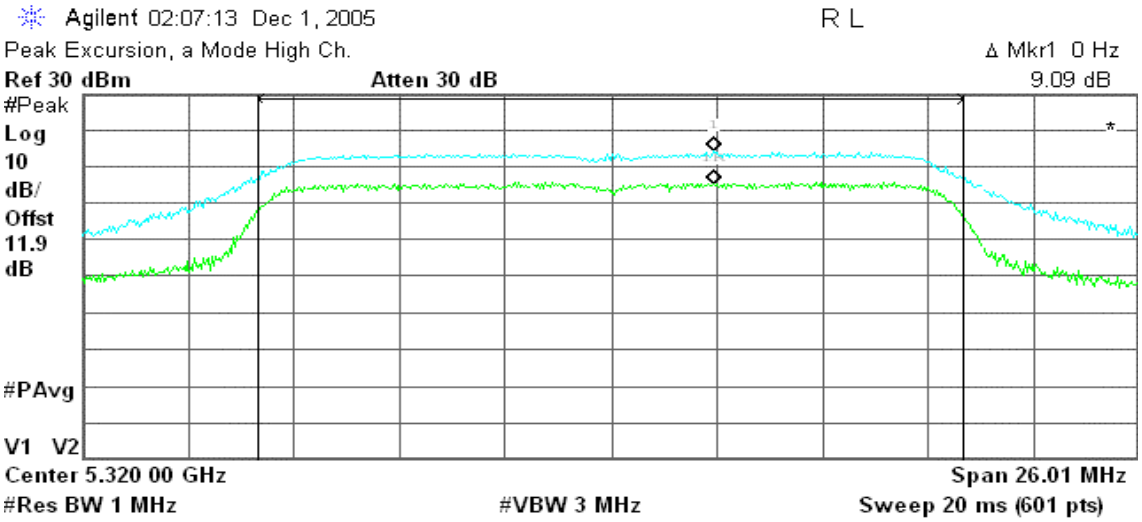
Channel Power

24.96 dBm / 17.4400 MHz

Power Spectral Density

-47.46 dBm/Hz

CH High



Channel Power

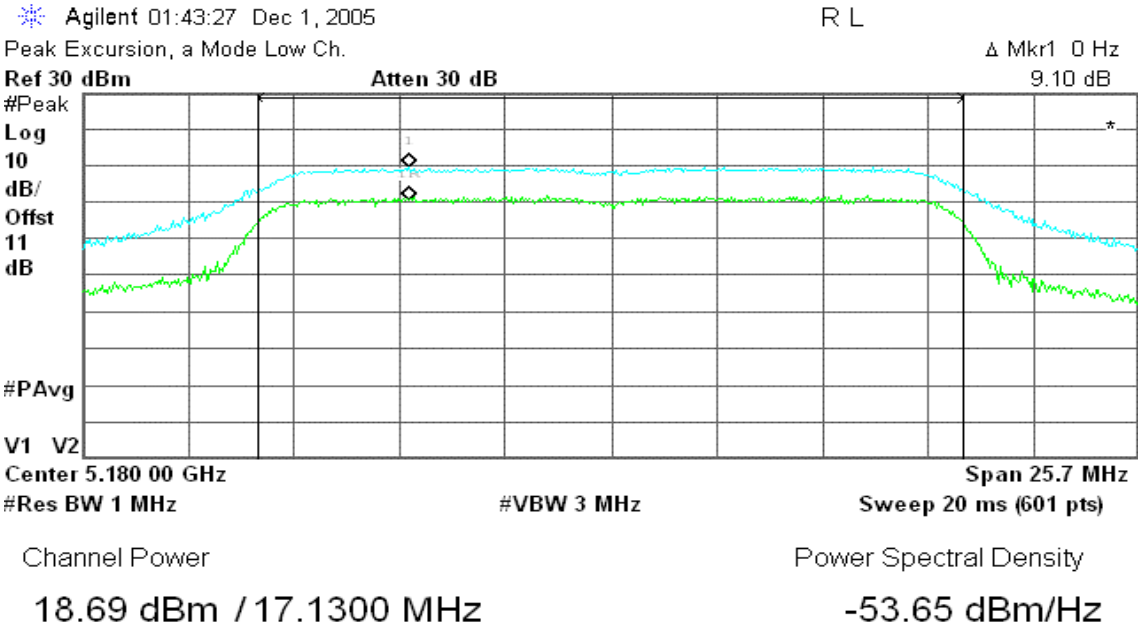
23.06 dBm / 17.3400 MHz

Power Spectral Density

-49.33 dBm/Hz

Mode 2: Antenna 2+ Module 2

CH Low



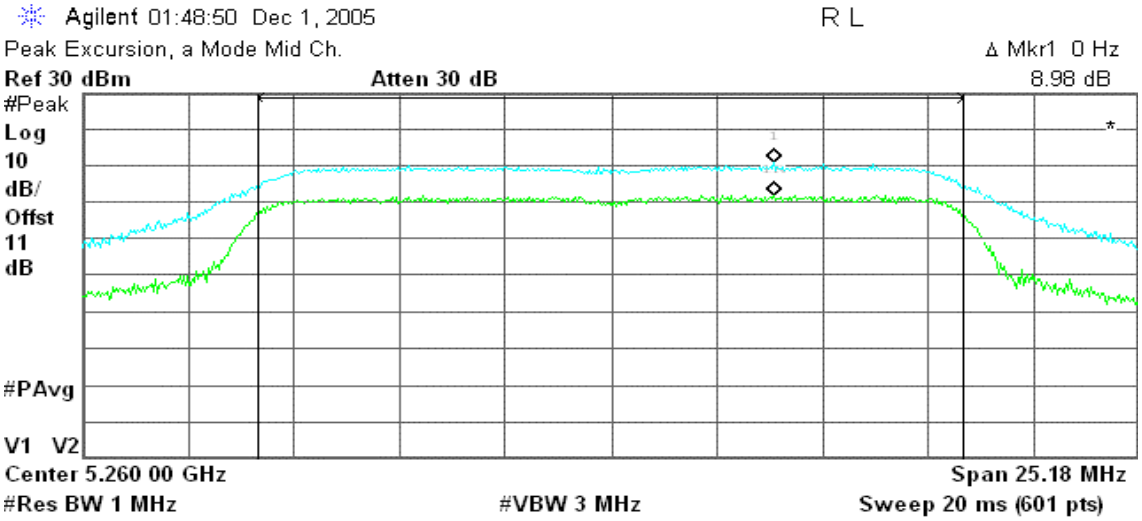
Channel Power

18.69 dBm / 17.1300 MHz

Power Spectral Density

-53.65 dBm/Hz

CH Mid



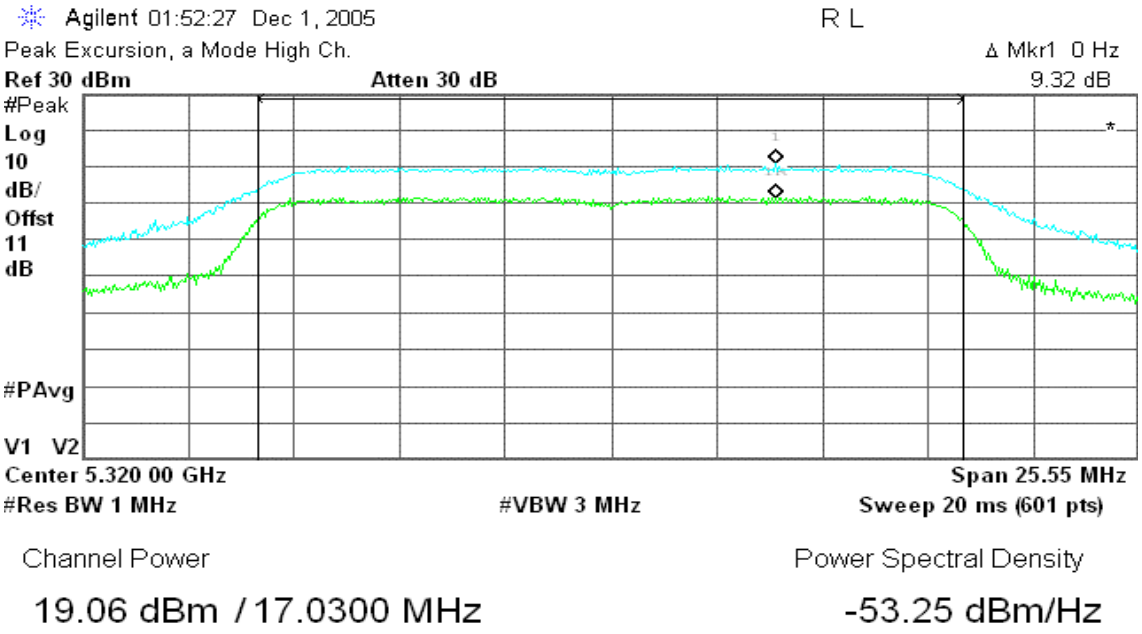
Channel Power

18.94 dBm / 16.7900 MHz

Power Spectral Density

-53.31 dBm/Hz

CH High



Channel Power

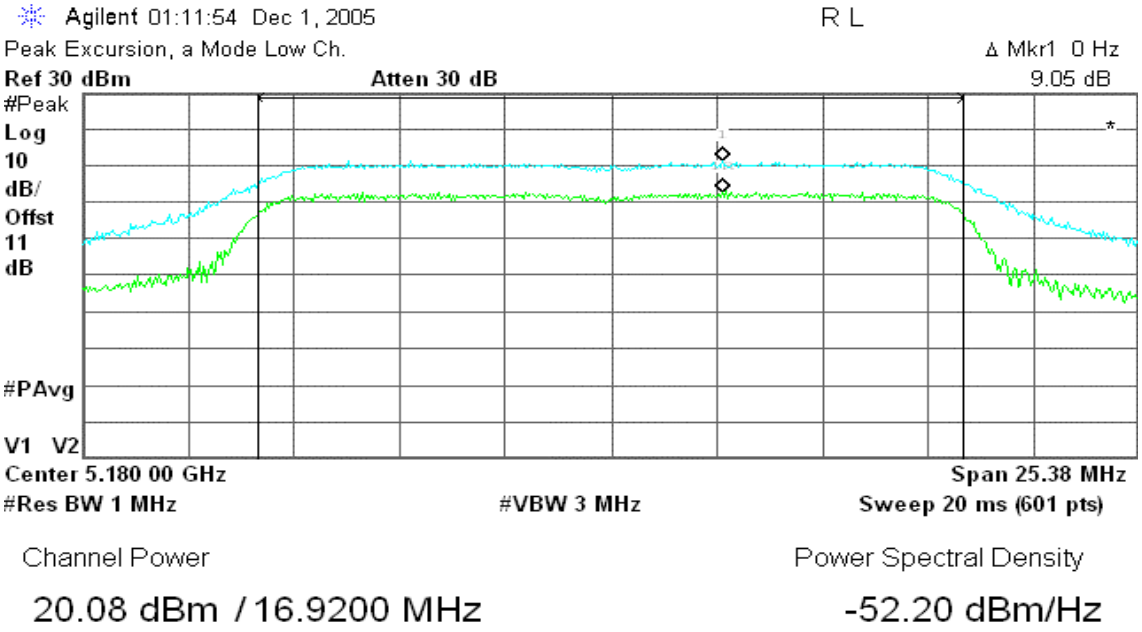
19.06 dBm / 17.0300 MHz

Power Spectral Density

-53.25 dBm/Hz

Mode 3: Antenna 3+ Module 2

CH Low



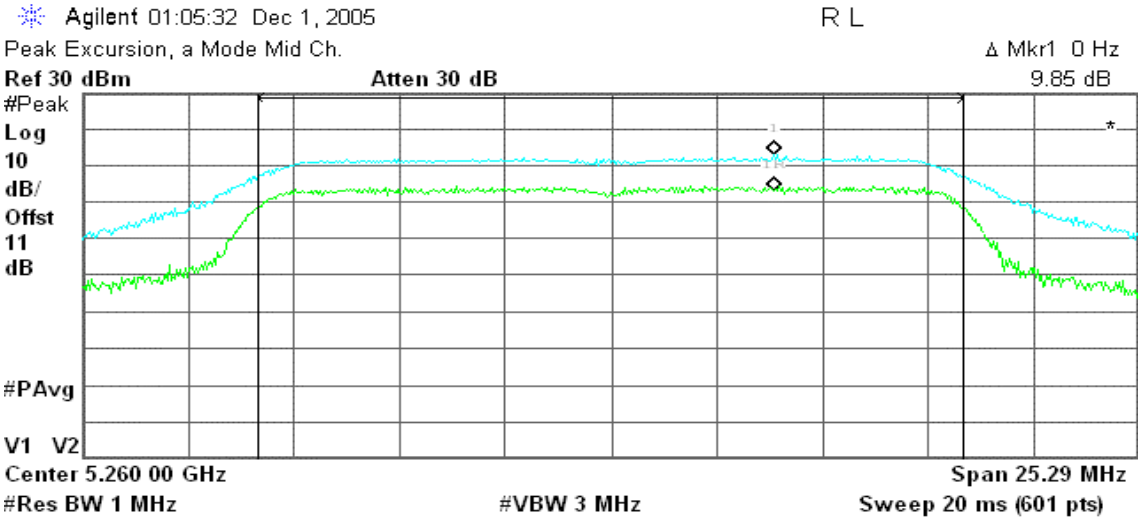
Channel Power

20.08 dBm / 16.9200 MHz

Power Spectral Density

-52.20 dBm/Hz

CH Mid



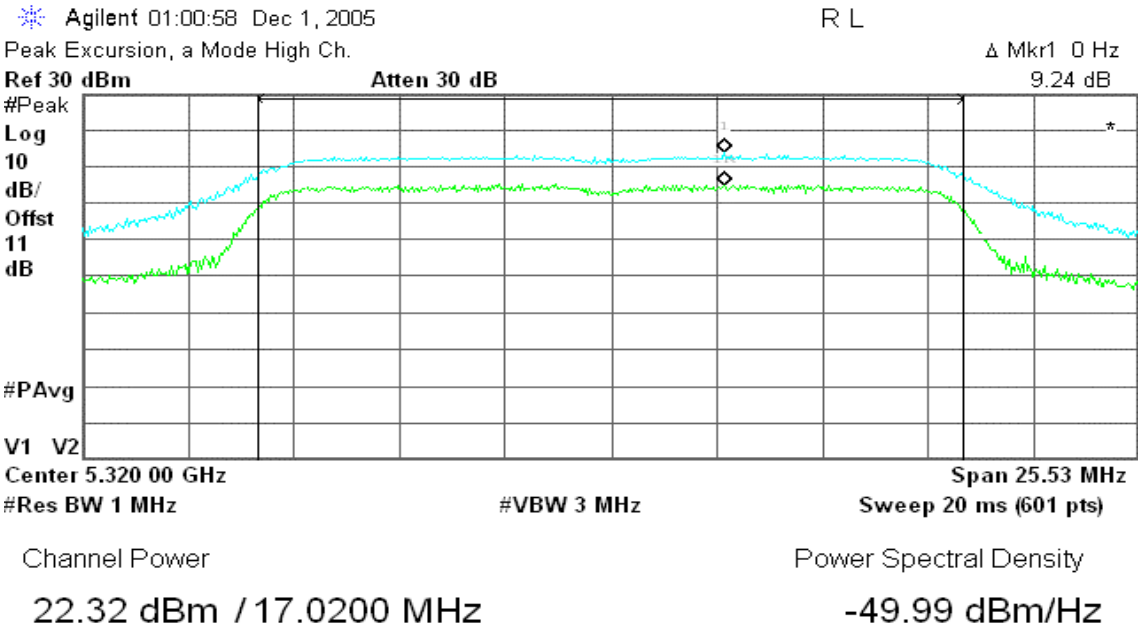
Channel Power

21.58 dBm / 16.8600 MHz

Power Spectral Density

-50.69 dBm/Hz

CH High



Channel Power

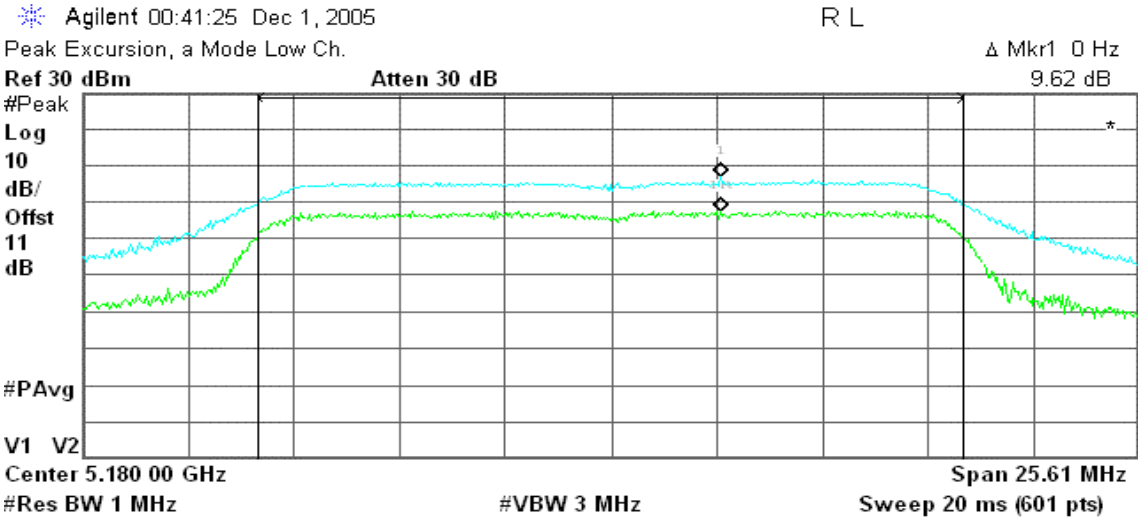
22.32 dBm / 17.0200 MHz

Power Spectral Density

-49.99 dBm/Hz

Mode 4: Antenna 4+ Module 2

CH Low



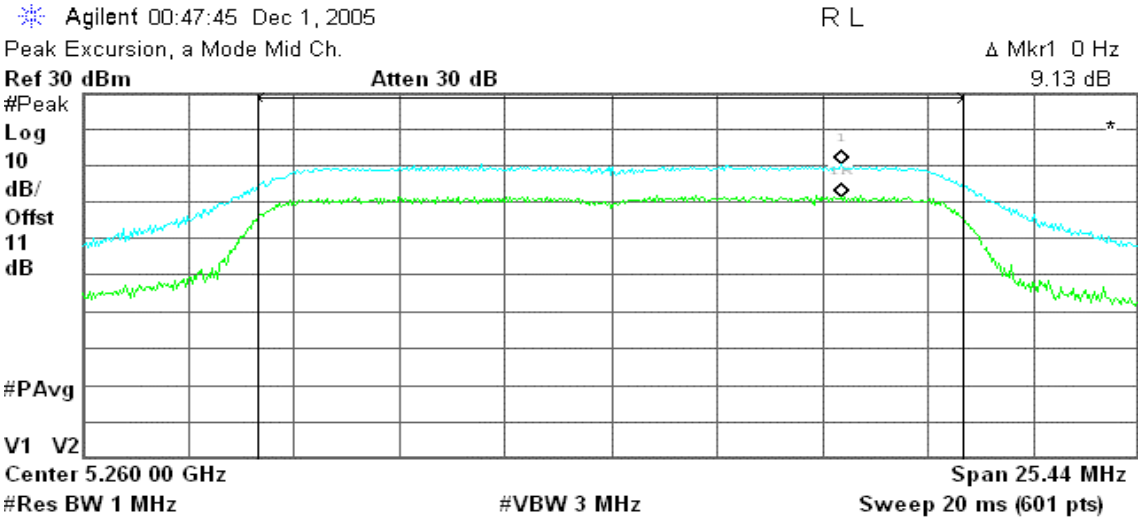
Channel Power

14.79 dBm / 17.0700 MHz

Power Spectral Density

-57.68 dBm/Hz

CH Mid



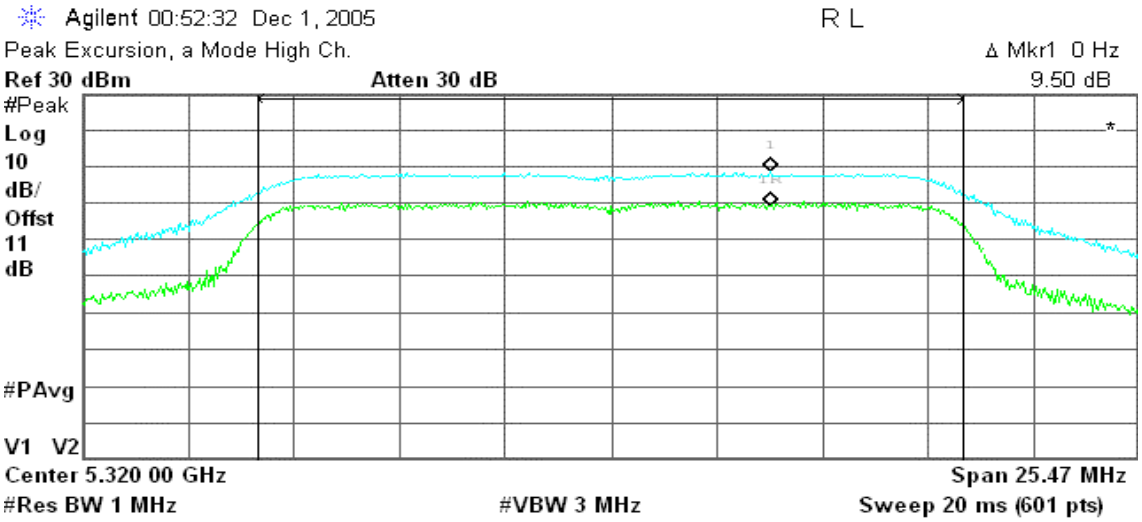
Channel Power

19.09 dBm / 16.9600 MHz

Power Spectral Density

-53.21 dBm/Hz

CH High



Channel Power

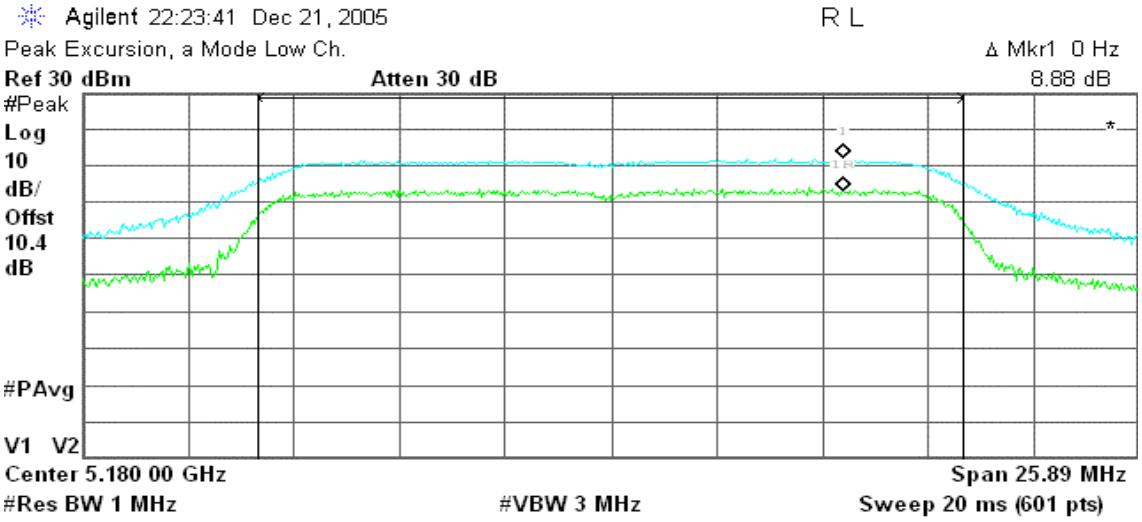
17.60 dBm / 16.9800 MHz

Power Spectral Density

-54.70 dBm/Hz

Mode 5: Antenna 6+ Module 2

CH Low



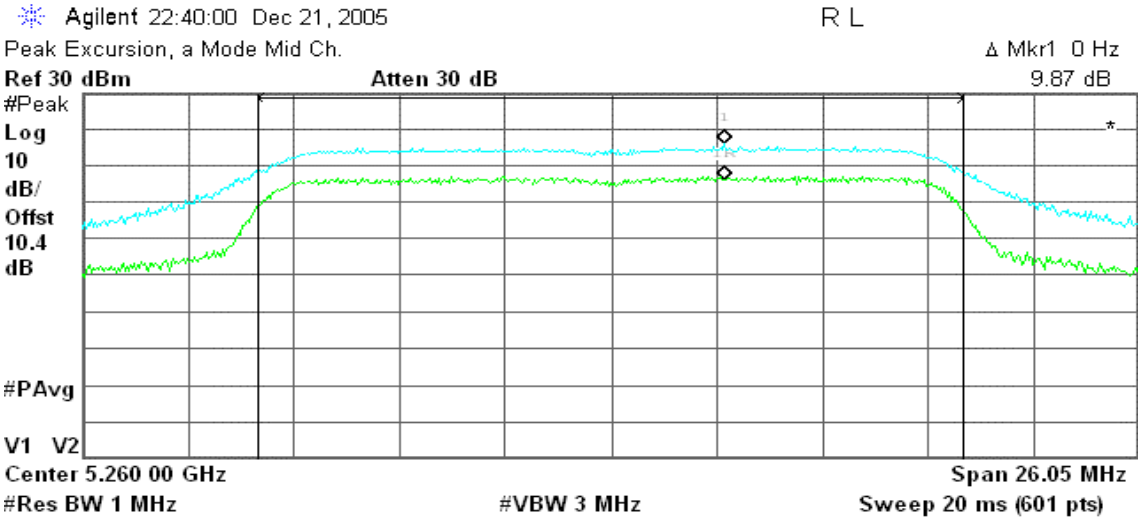
Channel Power

21.08 dBm / 17.2600 MHz

Power Spectral Density

-51.29 dBm/Hz

CH Mid



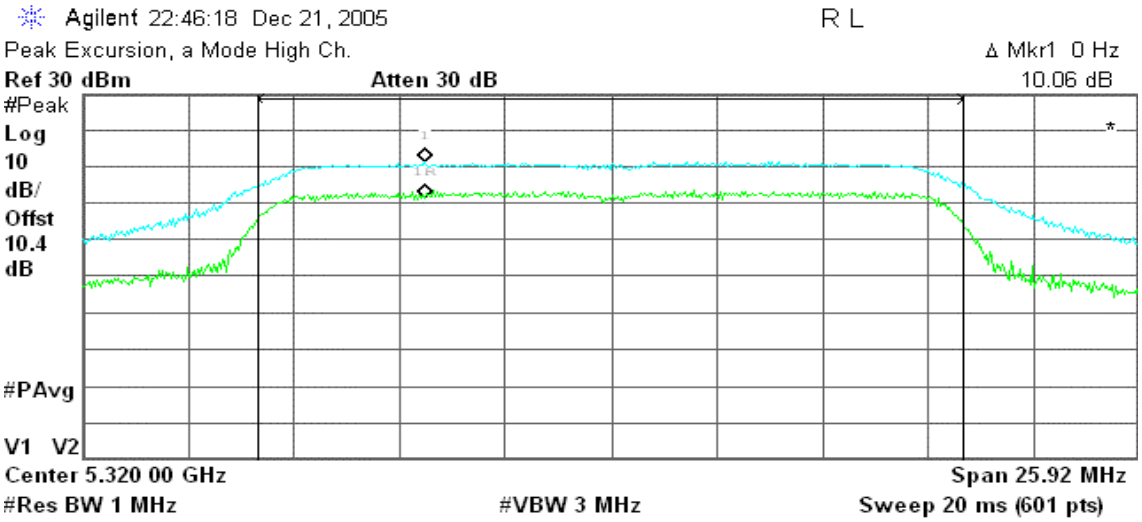
Channel Power

24.21 dBm / 17.3700 MHz

Power Spectral Density

-48.19 dBm/Hz

CH High



Channel Power

20.44 dBm / 17.2800 MHz

Power Spectral Density

-51.93 dBm/Hz

7.6 RADIATED UNDESIRABLE EMISSION

LIMIT

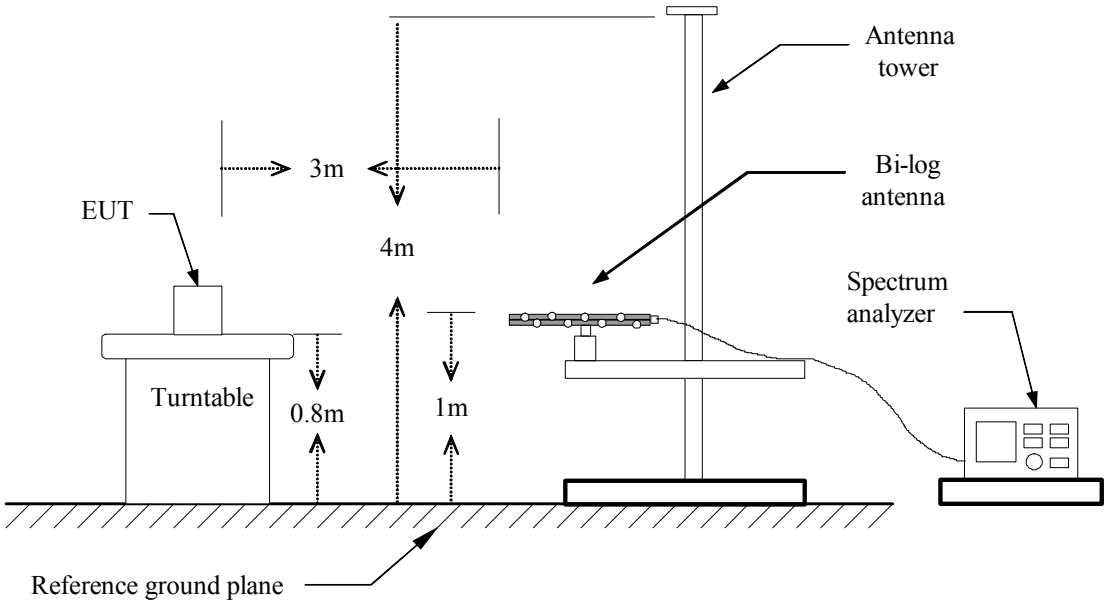
According to 15.407(b),

(1) For transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz.

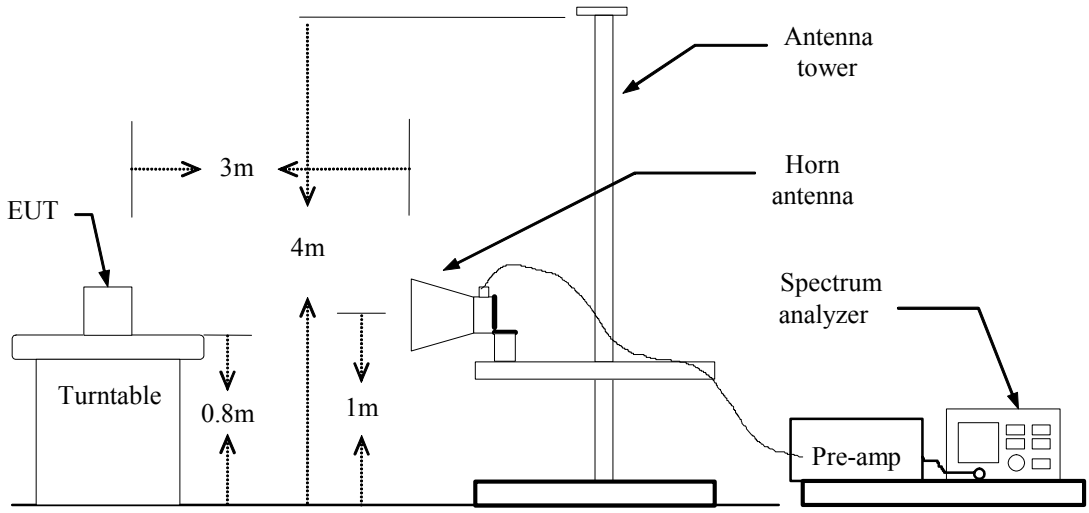
(2) For transmitters operating in the 5.25-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz. Devices operating in the 5.25-5.35 GHz band that generate emissions in the 5.15-5.25 GHz band must meet all applicable technical requirements for operation in the 5.15-5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5.15-5.25 GHz band.

Test Configuration

Below 1 GHz



Above 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. Set the spectrum analyzer in the following setting as:

   Below 1GHz:

   RBW=100kHz / VBW=300kHz / Sweep=AUTO

   Above 1GHz:

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

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

TEST RESULTS

Below 1 GHz

Operation Mode: Normal Link **Test Date:** December 2, 2005

Temperature: 25°C **Tested by:** Eric Cheng

Humidity: 55% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
81.73	V	59.51	-25.58	33.93	40.00	-6.07	Peak
400.22	V	47.61	-16.06	31.55	46.00	-14.45	Peak
500.45	V	49.03	-13.43	35.60	46.00	-10.40	Peak
600.68	V	45.08	-12.41	32.67	46.00	-13.33	Peak
699.30	V	40.97	-10.78	30.19	46.00	-15.81	Peak
1000.00	V	40.91	-6.78	34.13	74.00	-39.87	Peak
157.72	H	48.80	-20.61	28.19	43.50	-15.31	Peak
199.75	H	50.28	-19.80	30.48	43.50	-13.02	Peak
243.40	H	53.39	-20.45	32.94	46.00	-13.06	Peak
500.45	H	43.48	-13.43	30.05	46.00	-15.95	Peak
600.68	H	43.52	-12.41	31.12	46.00	-14.88	Peak
799.53	H	42.87	-9.32	33.55	46.00	-12.45	Peak

Remark:

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/Quasi-peak detector mode.*
3. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
4. *The IF bandwidth of SPA from 30MHz to 1GHz was 100 kHz.*

Above 1 GHz

Mode 1: Antenna 1+ Module 2

Operation Mode: Tx / IEEE 802.11a / CH Low **Test Date:** November 27, 2005

Temperature: 25°C **Tested by:** Eric Cheng

Humidity: 58% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
5176.67	V	105.25	94.80	1.62	106.87	96.42	Fundamental			
10366.67	V	88.14	73.97	-23.60	64.54	50.37	86.87	66.42	-16.05	30dBc AVG Fundamental
15533.33	V	70.31	---	-17.70	52.61	---	74.00	54.00	-1.39	Peak
N/A										
5188.33	H	101.55	91.39	1.65	103.20	93.04	Fundamental			
10366.67	H	74.25	---	-23.60	50.65	---	74.00	54.00	-3.35	Peak
N/A										

Remark:

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

Operation Mode: Tx / IEEE 802.11a / CH Mid **Test Date:** November 27, 2005

Temperature: 25°C **Tested by:** Eric Cheng

Humidity: 58% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
5258.33	V	104.75	94.57	1.79	106.54	96.36	Fundamental			
10516.67	V	87.99	74.15	-23.12	64.87	51.03	86.54	66.36	-15.33	30dBc AVG Fundamental
15783.33	V	78.52	64.85	-17.48	61.04	47.37	74.00	54.00	-6.63	AVG
N/A										
5258.33	H	105.55	95.05	1.79	107.34	96.84	Fundamental			
10516.67	H	82.89	68.31	-23.12	59.77	45.19	74.00	54.00	-8.81	AVG
15783.33	H	72.72	58.57	-17.48	55.24	41.09	74.00	54.00	-12.91	AVG
N/A										

Remark:

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

Operation Mode: Tx / IEEE 802.11a / CH High **Test Date:** November 27, 2005

Temperature: 25°C **Tested by:** Eric Cheng

Humidity: 58% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
10633.33	V	78.53	63.90	-22.99	55.54	40.91	74.00	54.00	-13.09	AVG
15966.67	V	81.28	67.83	-17.33	63.95	50.50	74.00	54.00	-3.50	AVG
N/A										
10650.00	H	78.86	64.53	-22.97	55.89	41.56	74.00	54.00	-12.44	AVG
15950.00	H	73.90	61.46	-17.34	56.56	44.12	74.00	54.00	-9.88	AVG
N/A										

Remark:

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

Mode 2: Antenna 2+ Module 2

Operation Mode: Tx / IEEE 802.11a / CH Low **Test Date:** November 27, 2005

Temperature: 25°C **Tested by:** Eric Cheng

Humidity: 58% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
10358.33	V	78.57	64.67	-23.63	54.94	41.04	74.00	54.00	-12.96	AVG
N/A										
10358.33	H	62.29	---	-23.63	38.67	---	74.00	54.00	-15.33	Peak
N/A	H									
	H									
	H									
	H									
	H									

Remark:

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

Operation Mode: Tx / IEEE 802.11a / CH Mid **Test Date:** November 27, 2005

Temperature: 25°C **Tested by:** Eric Cheng

Humidity: 58% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
10525.00	V	84.43	69.37	-23.11	61.32	46.26	74.00	54.00	-7.74	AVG
15775.00	V	76.74	62.26	-17.49	59.25	44.77	74.00	54.00	-9.23	AVG
N/A										
10516.67	H	62.74	---	-23.12	39.62	---	74.00	54.00	-14.38	Peak
15783.33	H	59.18	---	-17.48	41.70	---	74.00	54.00	-12.30	Peak
N/A										

Remark:

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

Operation Mode: Tx / IEEE 802.11a / CH High **Test Date:** November 27, 2005

Temperature: 25°C **Tested by:** Eric Cheng

Humidity: 58% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
10641.67	V	81.65	68.59	-22.98	58.67	45.61	74.00	54.00	-8.39	AVG
15950.00	V	76.04	61.47	-17.34	58.70	44.13	74.00	54.00	-9.87	AVG
N/A										
10641.67	H	64.38	---	-22.98	41.39	---	74.00	54.00	-12.61	Peak
15958.33	H	60.75	---	-17.33	43.41	---	74.00	54.00	-10.59	Peak
N/A										

Remark:

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

Mode 3: Antenna 3+ Module 2

Operation Mode: Tx / IEEE 802.11a / CH Low **Test Date:** November 27, 2005

Temperature: 25°C **Tested by:** Eric Cheng

Humidity: 58% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
10358.33	V	82.65	67.83	-23.63	59.02	44.20	74.00	54.00	-9.80	AVG
15533.33	V	59.31	---	-17.70	41.62	---	74.00	54.00	-12.38	Peak
N/A										
10358.33	H	65.08	---	-23.63	41.46	---	74.00	54.00	-12.54	Peak
N/A										

Remark:

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

Operation Mode: Tx / IEEE 802.11a / CH Mid **Test Date:** November 27, 2005

Temperature: 25°C **Tested by:** Eric Cheng

Humidity: 58% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
10516.67	V	85.37	71.90	-23.12	62.25	48.78	74.00	54.00	-4.22	AVG
15783.33	V	78.36	64.80	-17.48	60.88	47.32	74.00	54.00	-6.68	AVG
N/A										
10525.00	H	66.00	---	-23.11	42.90	---	74.00	54.00	-11.10	Peak
15783.33	H	60.93	---	-17.48	43.45	---	74.00	54.00	-10.55	Peak
N/A										

Remark:

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

Operation Mode: Tx / IEEE 802.11a / CH High **Test Date:** November 27, 2005

Temperature: 25°C **Tested by:** Eric Cheng

Humidity: 58% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
10641.67	V	86.75	72.18	-22.98	63.77	49.20	74.00	54.00	-4.80	AVG
15958.33	V	80.44	66.02	-17.33	63.11	48.69	74.00	54.00	-5.31	AVG
N/A										
10641.67	H	75.74	---	-22.98	52.76	---	74.00	54.00	-1.24	Peak
15966.67	H	70.34	---	-17.33	53.01	---	74.00	54.00	-0.99	Peak
N/A										

Remark:

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

Mode 4: Antenna 4+ Module 2

Operation Mode: Tx / IEEE 802.11a / CH Low **Test Date:** November 24, 2005

Temperature: 25°C **Tested by:** Eric Cheng

Humidity: 58% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
10358.33	V	80.90	66.59	-23.63	57.27	42.96	74.00	54.00	-11.04	AVG
15541.67	V	59.69	---	-17.69	42.00	---	74.00	54.00	-12.00	Peak
N/A										
10358.33	H	63.75	---	-23.63	40.12	---	74.00	54.00	-13.88	Peak
N/A										

Remark:

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

Operation Mode: Tx / IEEE 802.11a / CH Mid **Test Date:** November 24, 2005

Temperature: 25°C **Tested by:** Eric Cheng

Humidity: 58% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
10516.67	V	83.95	68.94	-23.12	60.83	45.82	74.00	54.00	-8.18	AVG
15775.00	V	75.52	61.44	-17.49	58.03	43.95	74.00	54.00	-10.05	AVG
N/A										
10525.00	H	63.02	---	-23.11	39.92	---	74.00	54.00	-14.08	Peak
15775.00	H	59.57	---	-17.49	42.08	---	74.00	54.00	-11.92	Peak
N/A										

Remark:

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

Operation Mode: Tx / IEEE 802.11a / CH High **Test Date:** November 24, 2005

Temperature: 25°C **Tested by:** Eric Cheng

Humidity: 58% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
10641.67	V	79.27	65.40	-22.98	56.29	42.42	74.00	54.00	-11.58	AVG
15966.67	V	74.50	59.72	-17.33	57.17	42.39	74.00	54.00	-11.61	AVG
N/A										
10641.67	H	60.55	---	-22.98	37.57	---	74.00	54.00	-16.43	Peak
N/A										

Remark:

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

Mode 5: Antenna 6+ Module 2

Operation Mode: Tx / IEEE 802.11a / CH Low **Test Date:** December 19, 2005

Temperature: 25°C **Tested by:** Eric Cheng

Humidity: 58% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
10366.67	V	87.67	73.52	-23.60	64.07	49.92	74.00	54.00	-4.08	AVG
15533.33	V	75.82	63.03	-17.70	58.12	45.33	74.00	54.00	-8.67	Peak
N/A										
10366.67	H	84.78	70.18	-23.60	61.18	46.58	74.00	54.00	-7.42	AVG
15533.33	H	80.07	65.61	-17.70	62.37	47.91	74.00	54.00	-6.09	Peak
N/A										

Remark:

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

Operation Mode: Tx / IEEE 802.11a / CH Mid **Test Date:** December 19, 2005

Temperature: 25°C **Tested by:** Eric Cheng

Humidity: 58% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
10533.33	V	86.52	71.96	-23.10	63.42	48.86	74.00	54.00	-5.14	AVG
15783.33	V	80.08	66.20	-17.48	62.60	48.72	74.00	54.00	-5.28	AVG
N/A										
10533.33	H	80.74	66.58	-23.10	57.64	43.48	74.00	54.00	-10.52	AVG
15783.33	H	79.52	66.35	-17.48	62.04	48.87	74.00	54.00	-5.13	AVG
N/A										

Remark:

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

Operation Mode: Tx / IEEE 802.11a / CH High **Test Date:** December 19, 2005

Temperature: 25°C **Tested by:** Eric Cheng

Humidity: 58% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
10633.33	V	87.94	72.69	-22.99	64.95	49.70	74.00	54.00	-4.30	AVG
15950.00	V	83.29	69.85	-17.34	65.95	49.99	74.00	54.00	-4.01	AVG
N/A										
10650.00	H	81.88	68.11	-22.97	58.91	45.14	74.00	54.00	-8.86	AVG
15950.00	H	81.12	67.07	-17.34	63.78	49.73	74.00	54.00	-4.27	AVG
N/A										

Remark:

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

7.7 CONDUCTED UNDESIRABLE EMISSION

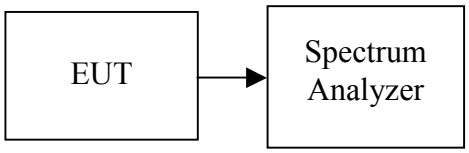
LIMIT

According to 15.407(b),

(1) For transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz.

For transmitters operating in the 5.25-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz. Devices operating in the 5.25-5.35 GHz band that generate emissions in the 5.15-5.25 GHz band must meet all applicable technical requirements for operation in the 5.15-5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5.15-5.25 GHz band.

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.

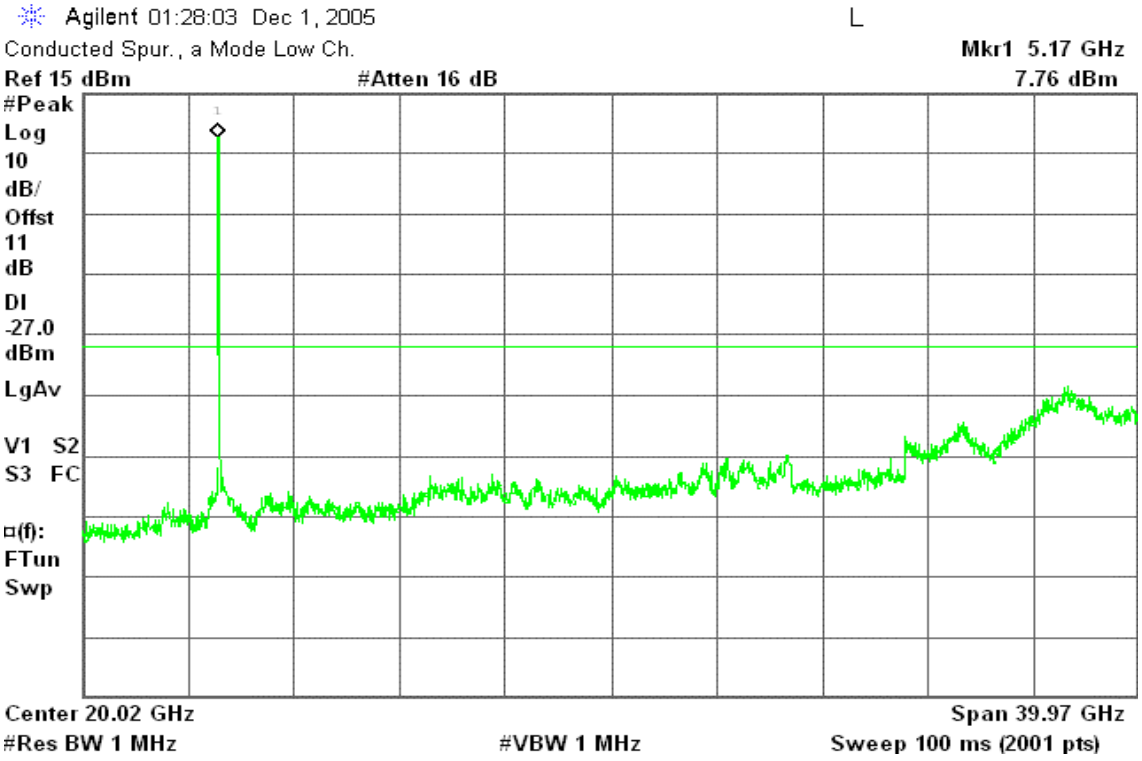
TEST RESULTS

No non-compliance noted

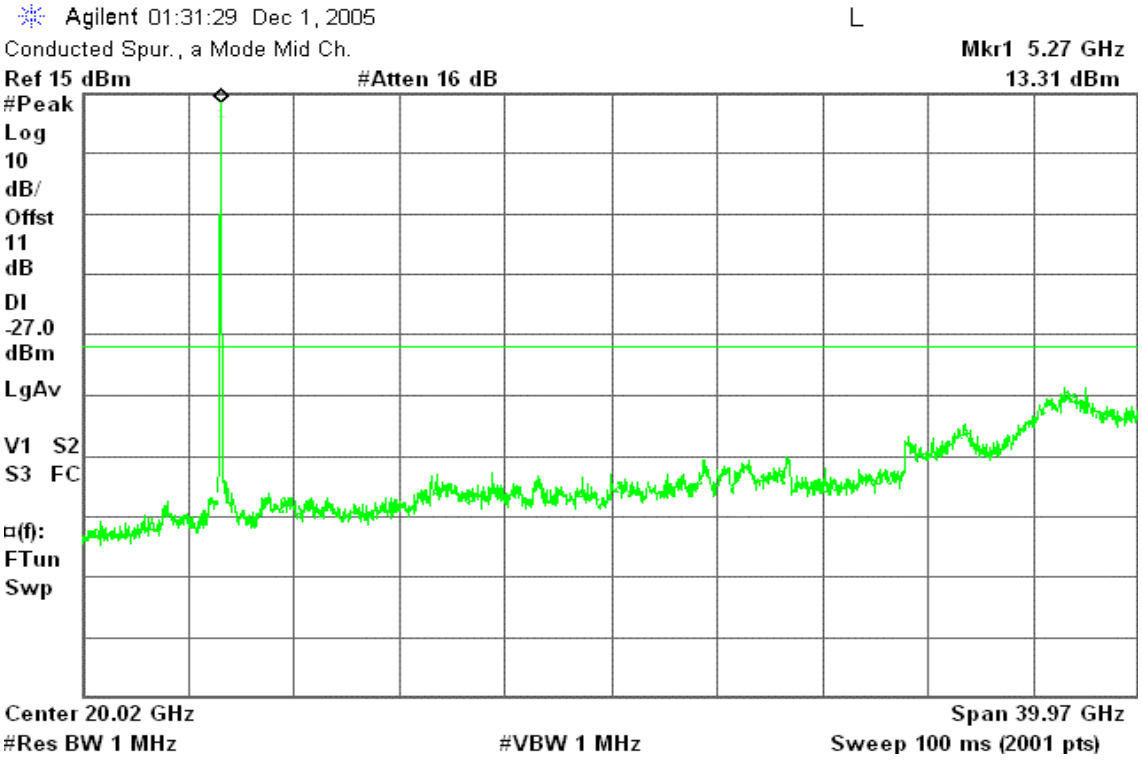
Test Plot

Mode 1: Antenna 1+ Module 2

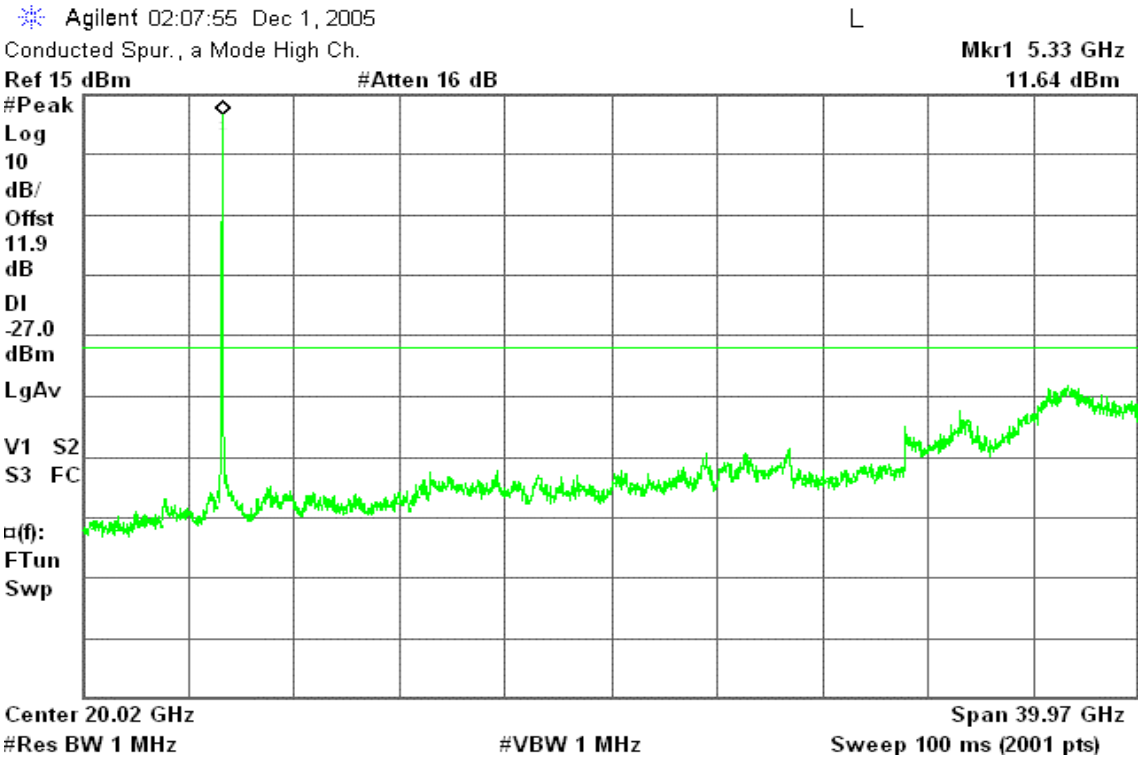
CH Low



CH Mid

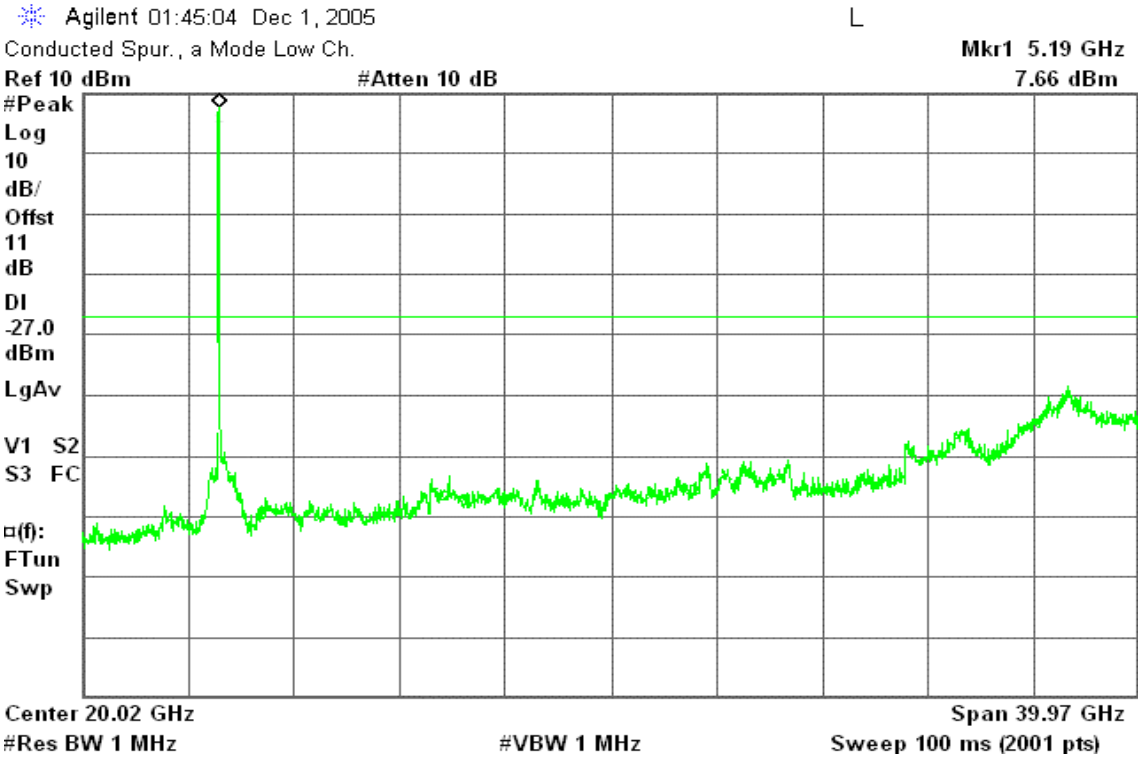


CH High

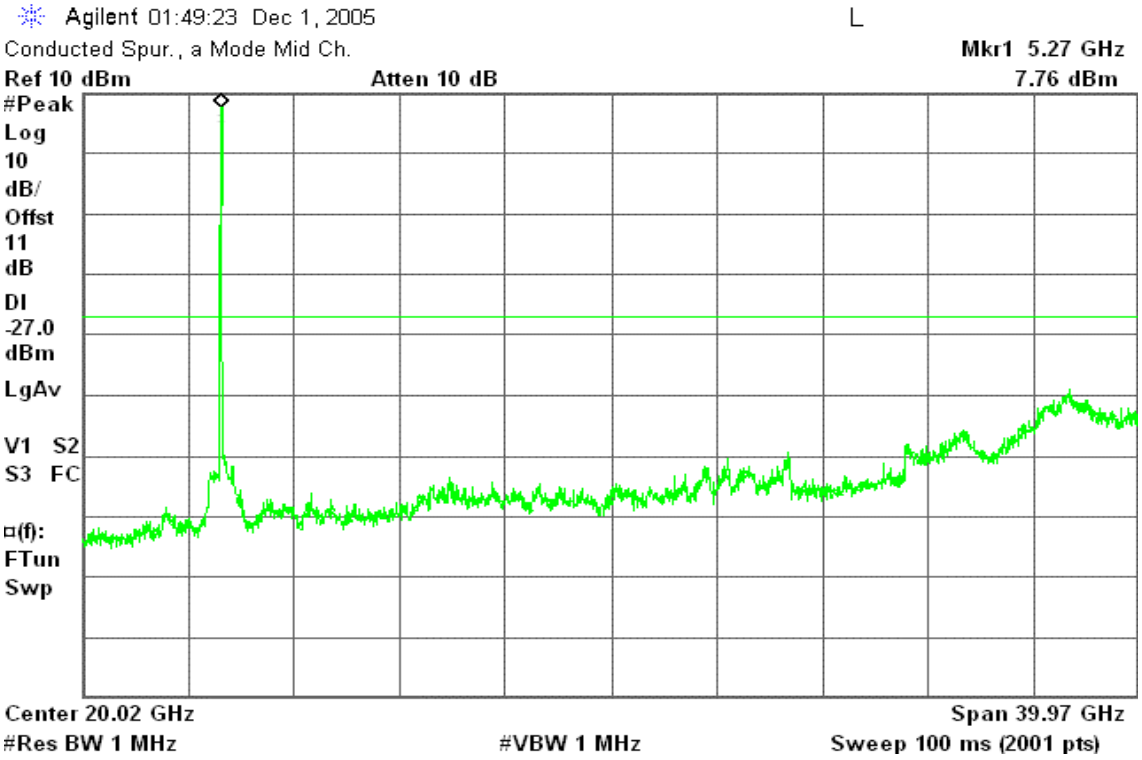

Agilent 02:07:55 Dec 1, 2005
L
Conducted Spur., a Mode High Ch.
Mkr1 5.33 GHz
Ref 15 dBm
#Atten 16 dB
11.64 dBm
#Peak
Log
10
dB/
Offst
11.9
dB
Dl
-27.0
dBm
LgAv
V1 S2
S3 FC
¤(f):
FTun
Swp
Center 20.02 GHz
Span 39.97 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 100 ms (2001 pts)

Mode 2: Antenna 2+ Module 2

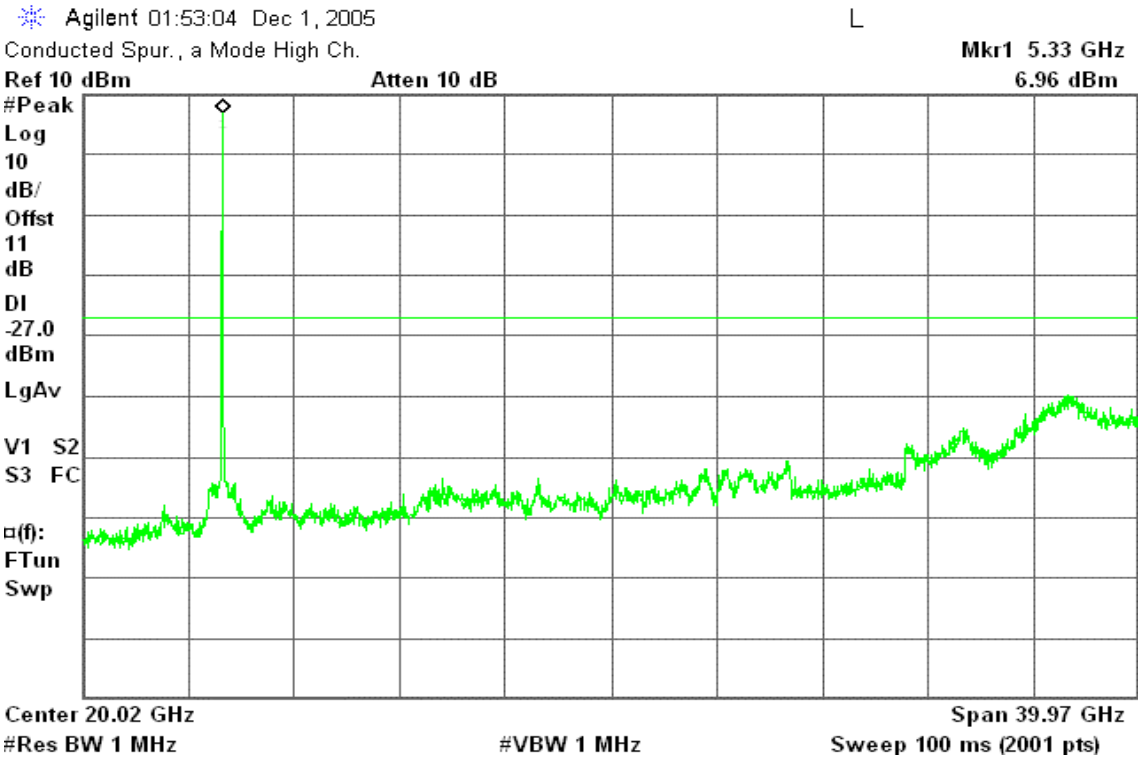
CH Low



CH Mid

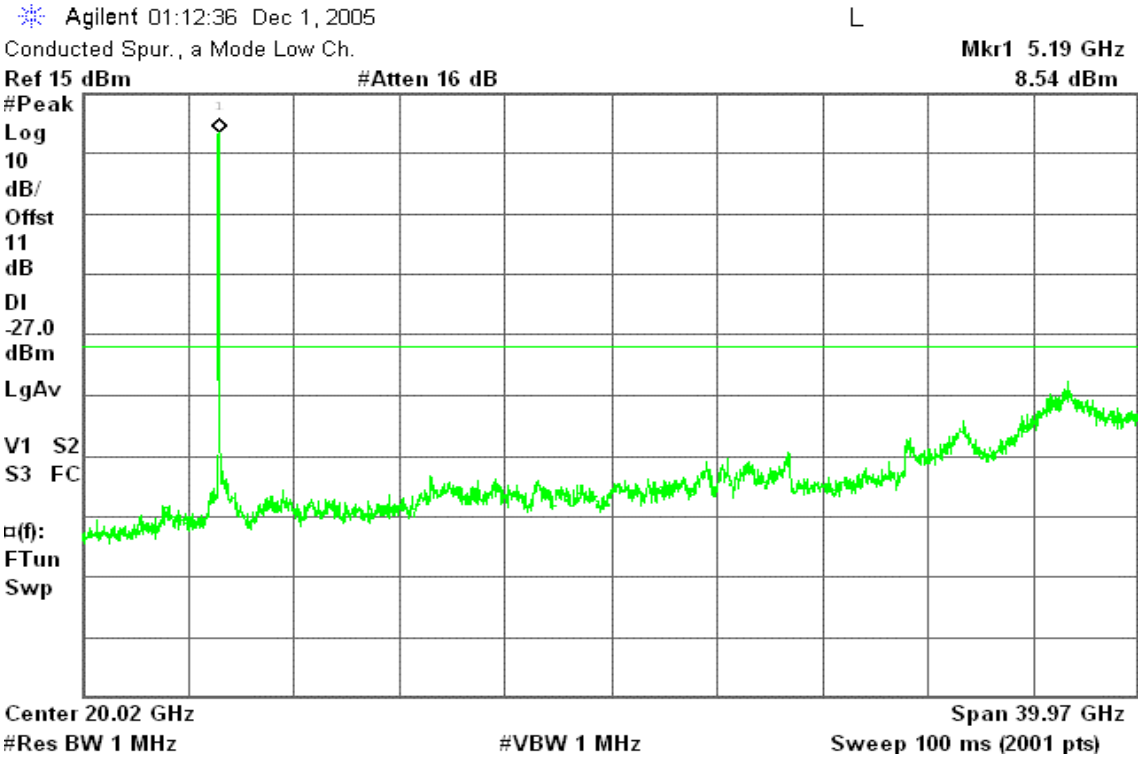


CH High

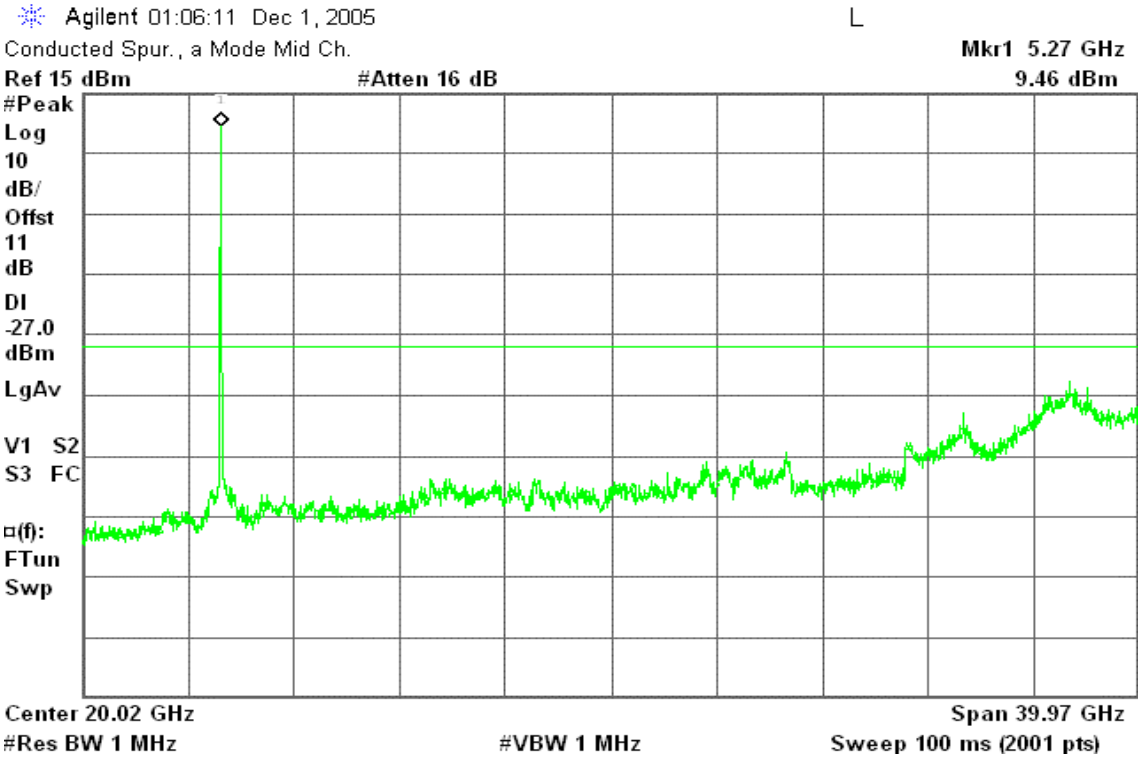

Agilent 01:53:04 Dec 1, 2005
L
Conducted Spur., a Mode High Ch.
Mkr1 5.33 GHz
Ref 10 dBm
Atten 10 dB
6.96 dBm
#Peak
Log
10
dB/
Offst
11
dB
Dl
-27.0
dBm
LgAv
V1 S2
S3 FC
¤(f):
FTun
Swp
Center 20.02 GHz
Span 39.97 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 100 ms (2001 pts)

Mode 3: Antenna 3+ Module 2

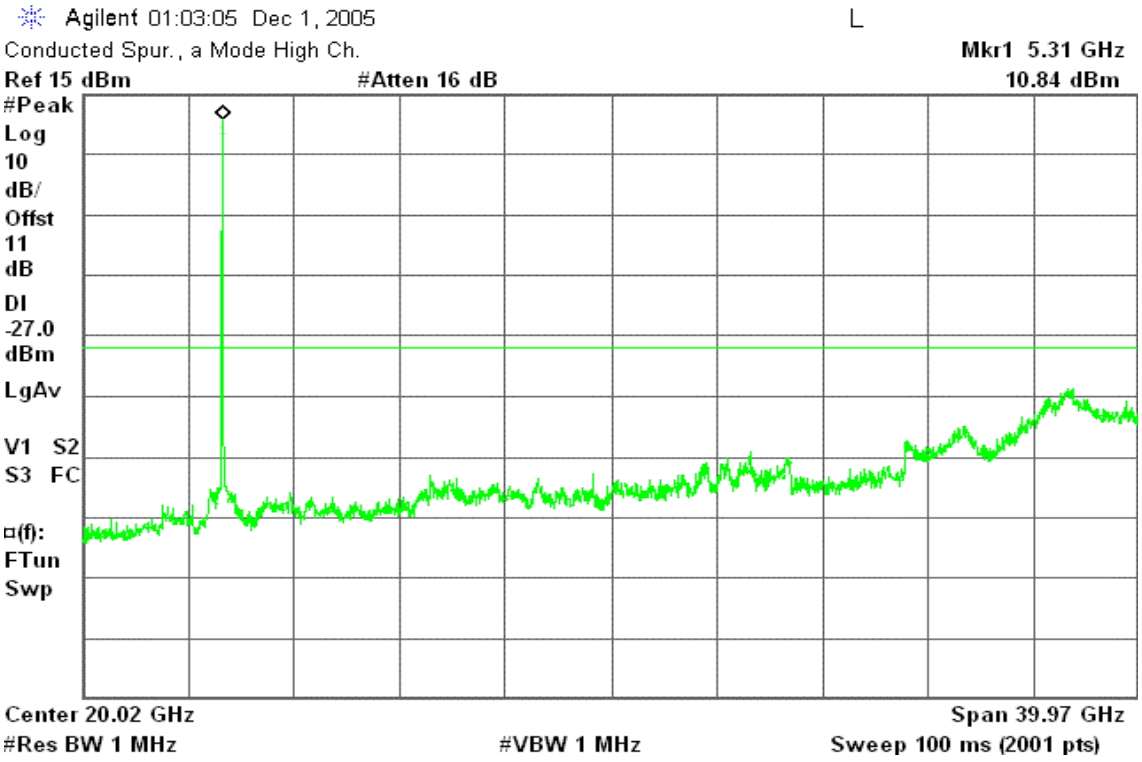
CH Low



CH Mid

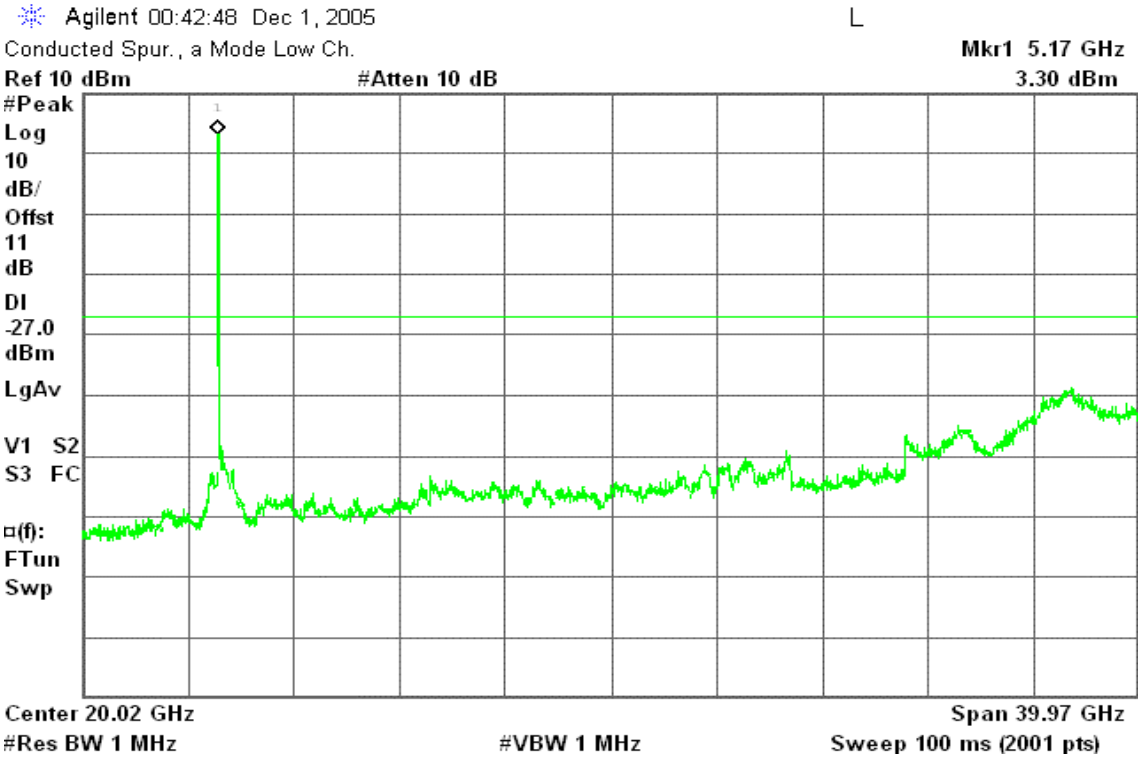


CH High

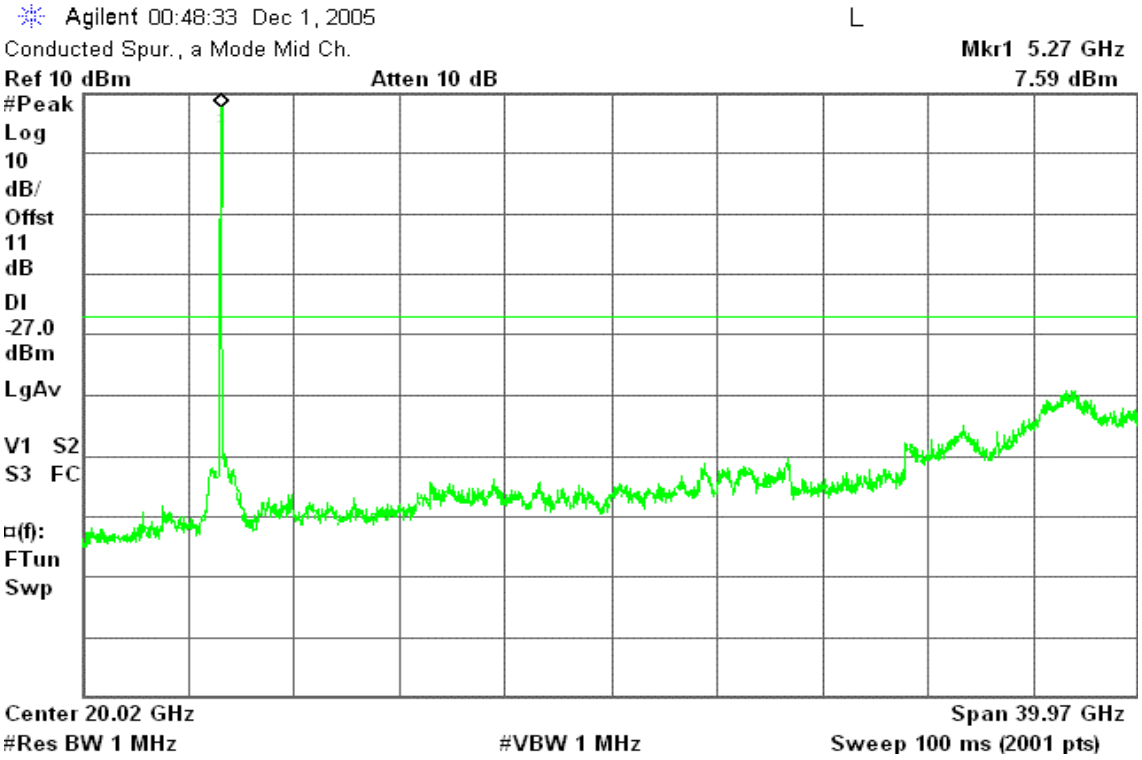

Agilent 01:03:05 Dec 1, 2005
L
Conducted Spur., a Mode High Ch.
Mkr1 5.31 GHz
Ref 15 dBm
#Atten 16 dB
10.84 dBm
#Peak
Log
10
dB/
Offst
11
dB
Dl
-27.0
dBm
LgAv
V1 S2
S3 FC
¤(f):
FTun
Swp
Center 20.02 GHz
Span 39.97 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 100 ms (2001 pts)

Mode 4: Antenna 4+ Module 2

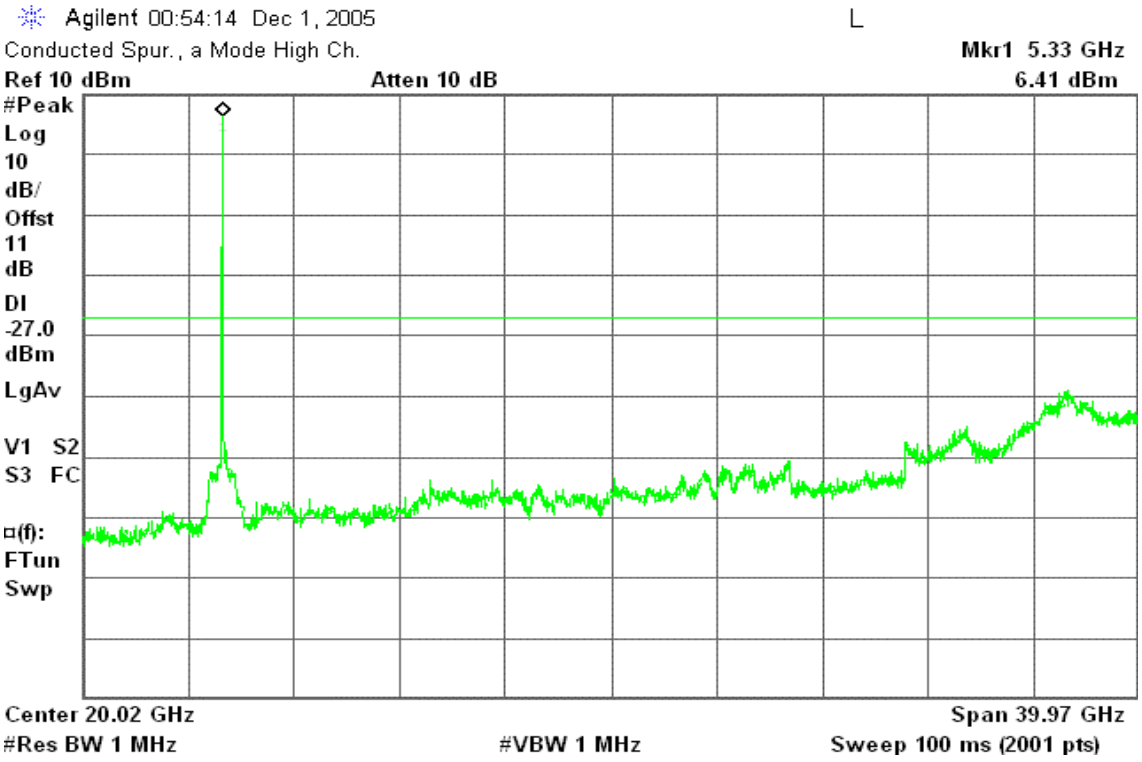
CH Low



CH Mid

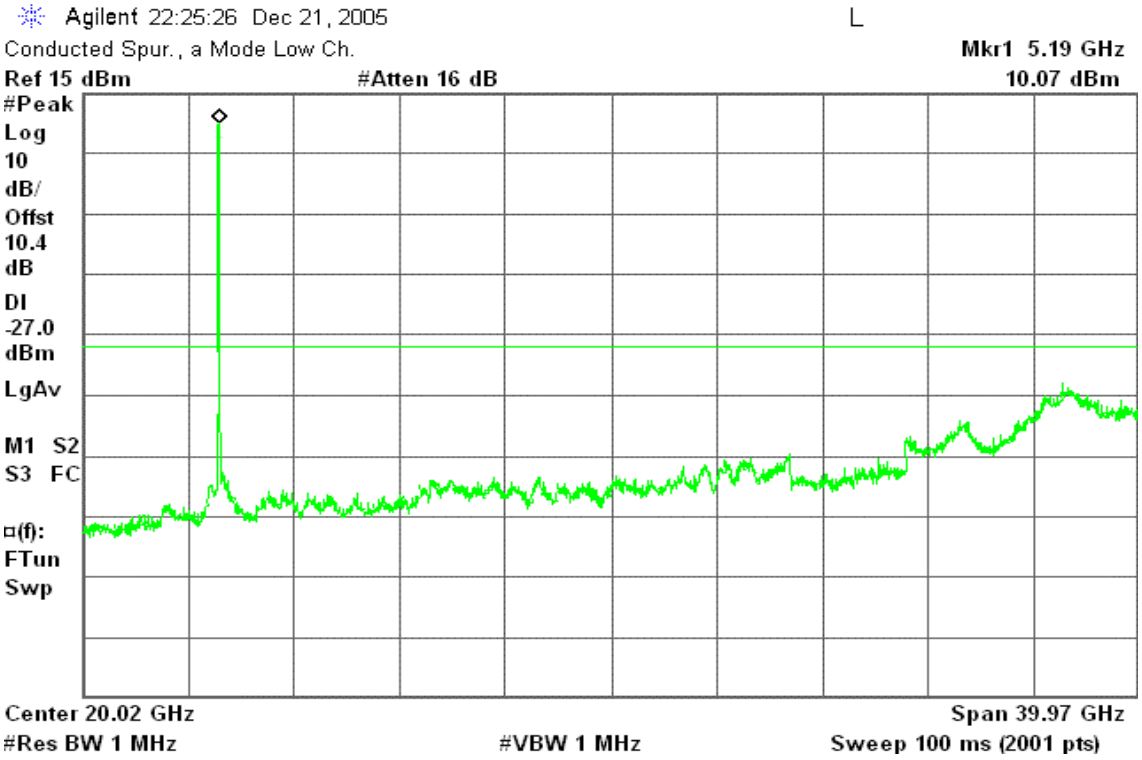


CH High

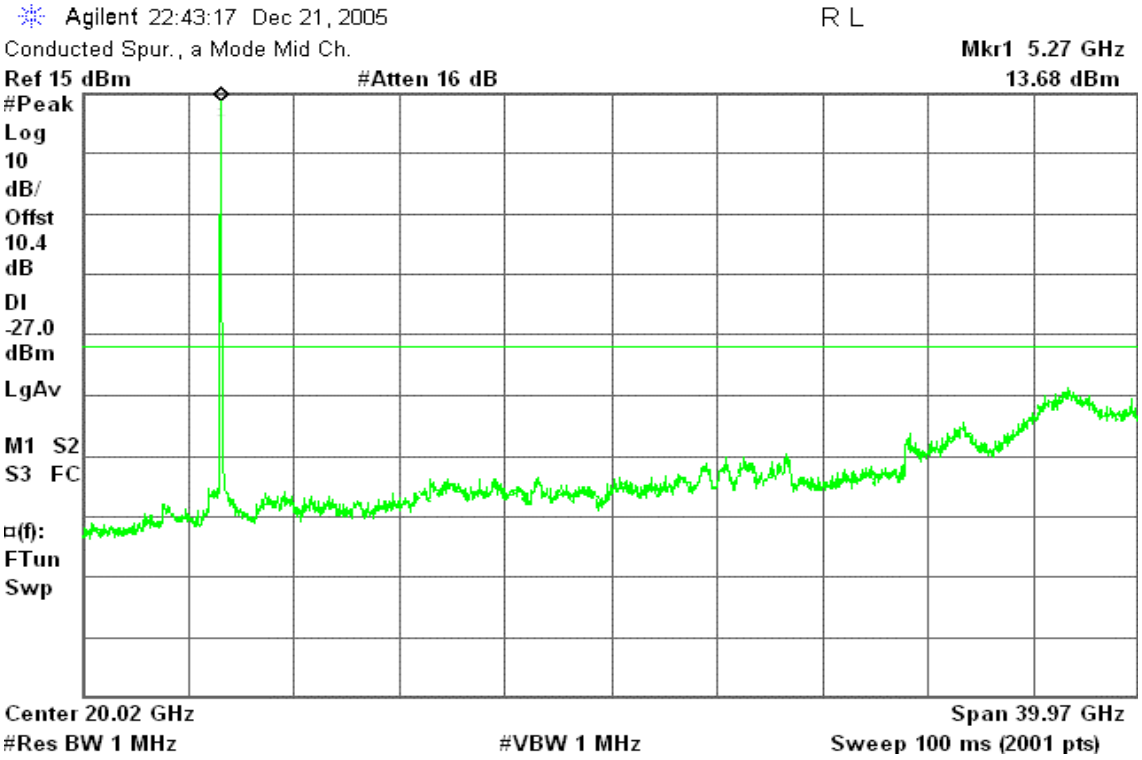

Agilent 00:54:14 Dec 1, 2005
L
Conducted Spur., a Mode High Ch.
Mkr1 5.33 GHz
Ref 10 dBm
Atten 10 dB
6.41 dBm
#Peak
Log
10
dB/
Offst
11
dB
Dl
-27.0
dBm
LgAv
V1 S2
S3 FC
¤(f):
FTun
Swp
Center 20.02 GHz
Span 39.97 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 100 ms (2001 pts)

Mode 5: Antenna 6+ Module 2

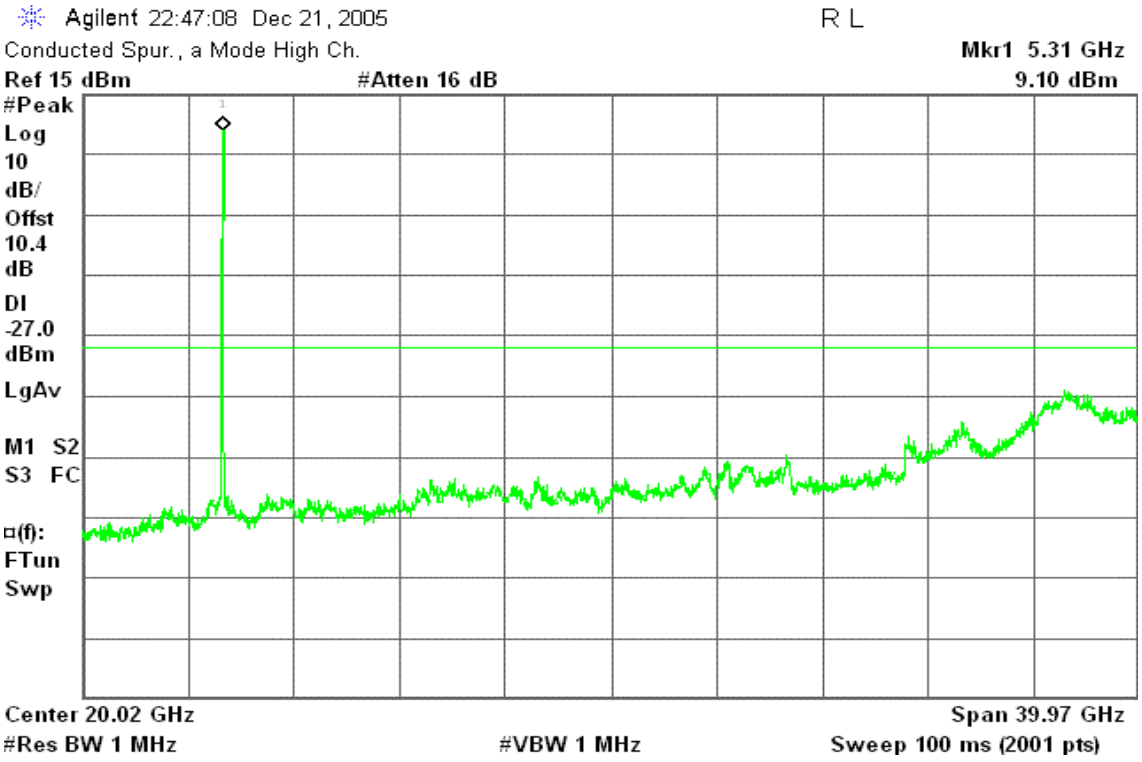
CH Low



CH Mid



CH High


Agilent 22:47:08 Dec 21, 2005
R L
Conducted Spur., a Mode High Ch.
Mkr1 5.31 GHz
Ref 15 dBm
#Atten 16 dB
9.10 dBm
#Peak
Log
10
dB/
Offst
10.4
dB
Dl
-27.0
dBm
LgAv
M1 S2
S3 FC
¤(f):
FTun
Swp
Center 20.02 GHz
Span 39.97 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 100 ms (2001 pts)

7.8 POWERLINE CONDUCTED EMISSIONS

LIMIT

For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed 250 microvolts (The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz). The limits at specific frequency range is listed as follows:

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

Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line (LINE and NEUTRAL) and ground at the power terminals.

TEST CONFIGURATION

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

TEST PROCEDURE

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

TEST RESULTS

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

Test Data

Operation Mode:	Normal Link	**Test Date:**	November 26, 2005
Temperature:	25°C	**Tested by:**	Bruce Chen
Humidity:	55% RH		

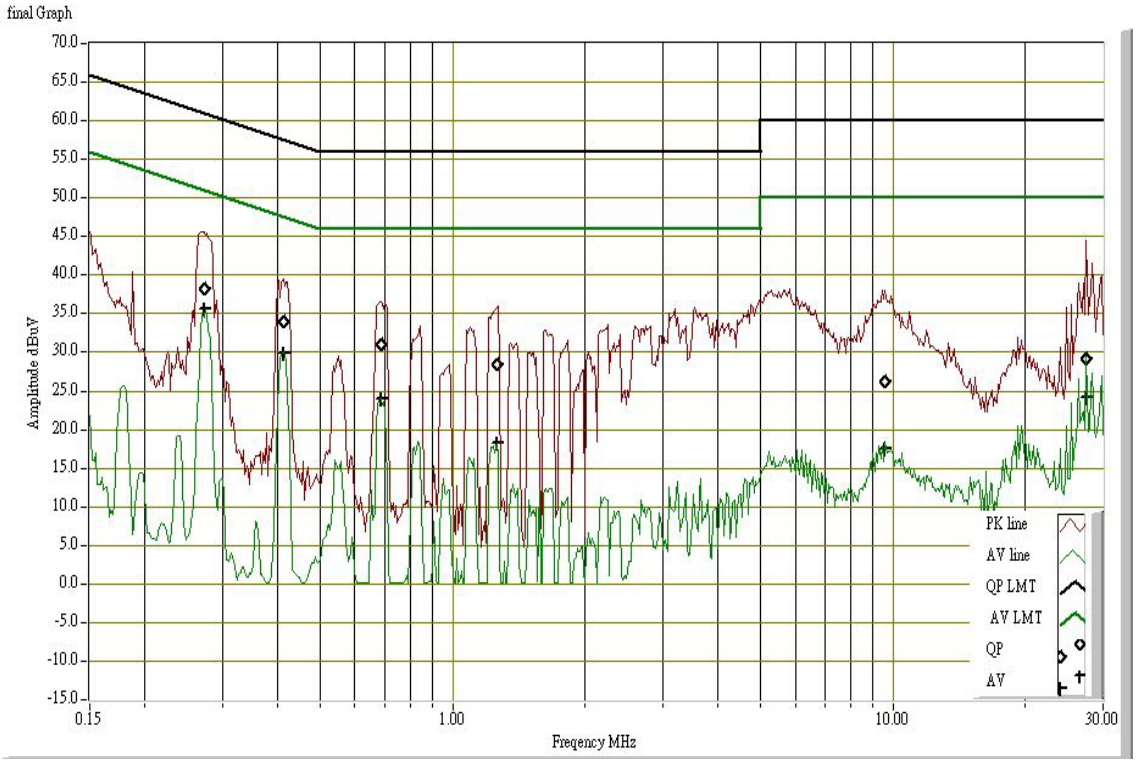
Freq. (MHz)	QP Reading (dBuV)	AV Reading (dBuV)	Corr. factor (dB)	QP Result (dBuV)	AV Result (dBuV)	QP Limit (dBuV)	AV Limit (dBuV)	QP Margin (dB)	AV Margin (dB)	Note
0.273	38.210	35.680	0.100	38.310	35.780	61.026	51.026	-22.716	-15.246	L1
0.413	33.910	29.960	0.100	34.010	30.060	57.588	47.588	-23.578	-17.528	L1
0.687	30.930	23.910	0.100	31.030	24.010	56.000	46.000	-24.970	-21.990	L1
1.259	28.390	18.220	0.100	28.490	18.320	56.000	46.000	-27.510	-27.680	L1
9.605	26.120	17.550	0.660	26.780	18.210	60.000	50.000	-33.220	-31.790	L1
27.497	29.240	24.110	1.300	30.540	25.410	60.000	50.000	-29.460	-24.590	L1
0.268	39.850	32.890	0.100	39.950	32.990	61.180	51.180	-21.230	-18.190	L2
0.403	34.250	27.570	0.100	34.350	27.670	57.791	47.791	-23.441	-20.121	L2
0.541	27.300	21.650	0.100	27.400	21.750	56.000	46.000	-28.600	-24.250	L2
0.671	28.260	18.530	0.100	28.360	18.630	56.000	46.000	-27.640	-27.370	L2
5.677	28.340	16.960	0.268	28.608	17.228	60.000	50.000	-31.392	-32.772	L2
27.497	29.600	25.020	1.300	30.900	26.320	60.000	50.000	-29.100	-23.680	L2

Remark:

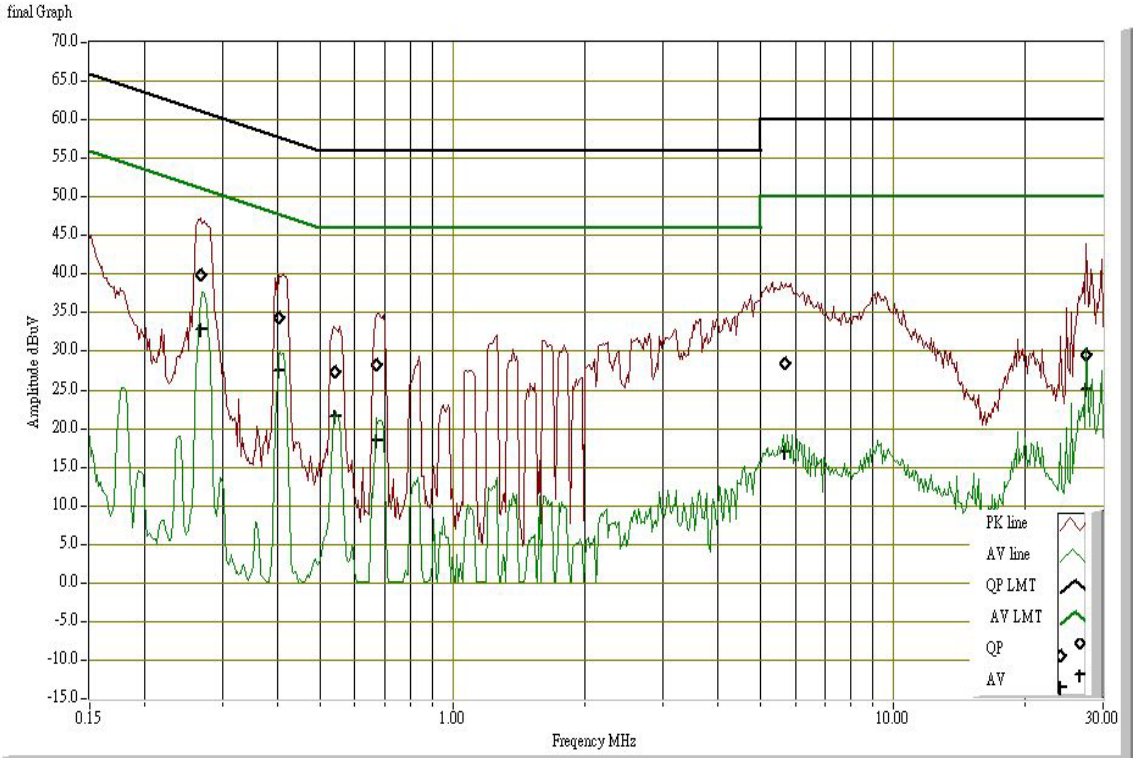
1. *Measuring frequencies from 0.15 MHz to 30MHz.*
2. *The emissions measured in frequency range from 0.15 MHz to 30MHz were made with an instrument using Quasi-peak detector and average detector.*
3. *The IF bandwidth of SPA between 0.15MHz to 30MHz was 10kHz; the IF bandwidth of Test Receiver between 0.15MHz to 30MHz was 9kHz;*
4. *L1 = Line One (Live Line) / L2 = Line Two (Neutral Line)*

Test Plots

Conducted emissions (Line 1)



Conducted emissions (Line 2)



7.9 TRANSMISSION IN ABSENCE OF DATA

LIMIT

According to §15.319(f), the device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude transmission of control and signaling information or 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.

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

7.10 FREQUENCY STABILITY

LIMIT

According to §15.407(g), 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 user's manual for further details.

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

APPENDIX I
RADIO FREQUENCY EXPOSURE

LIMIT

According to §15.407(f), 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

Mode 1: Antenna 1+ Module 2

EUT	ProCurve Wireless Access Point 530
Frequency band (Operating)	☐ WLAN: 2.412GHz ~ 2.462GHz ☒ WLAN: 5.15GHz ~ 5.35GHz ☐ WLAN: 5.725GHz ~ 5.850GHz ☐ Bluetooth: 2.402 GHz ~ 2.482 GHz ☐ 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	18.48 dBm (70.47mW)
Antenna gain (Max)	4.0 dBi (Numeric gain: 2.51)
Actual gain w/ cable loss	2.74 dBi (Numeric gain: 1.88)
Evaluation applied	☒ MPE Evaluation ☐ SAR Evaluation ☐ N/A
Remark: *1. The maximum output power is 18.48dBm (70.47mW) at 5260MHz (with 1.88 numeric antenna gain)* *2. For mobile or fixed location transmitters, no SAR consideration applied. The maximum power density is 1.0 mW/cm^2 even if the calculation indicates that the power density would be larger.*	

TEST RESULTS

No non-compliance noted.

Calculation

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

Where *E = Field strength in Volts / meter*

P = Power in Watts
G = Numeric antenna gain
d = Distance in meters

S = Power density in milliwatts / square centimeter

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

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

Changing to units of mW and cm, using:

P (mW) = P (W) / 1000 and
d (cm) = d(m) / 100

Yields

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

Where *d = Distance in cm*
P = Power in mW
G = Numeric antenna gain
S = Power density in mW / cm2

Maximum Permissible Exposure

EUT output power = 70.47mW

Numeric Antenna gain = 1.88

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

Yields

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

Where *P = Power in mW*
G = Numeric antenna gain
S = Power density in mW / cm²

→ Power density = 0.02636 mW / cm²

(For mobile or fixed location transmitters, the maximum power density is 1.0 mW/cm² even if the calculation indicates that the power density would be larger.)

Mode 2: Antenna 2+ Module 2

EUT	ProCurve Wireless Access Point 530
Frequency band (Operating)	☐ WLAN: 2.412GHz ~ 2.462GHz ☒ WLAN: 5.15GHz ~ 5.35GHz ☐ WLAN: 5.725GHz ~ 5.850GHz ☐ Bluetooth: 2.402 GHz ~ 2.482 GHz ☐ 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	12.87 dBm (19.36mW)
Antenna gain (Max)	7.7 dBi (Numeric gain: 5.89)
Actual gain w/ cable loss	6.44 dBi (Numeric gain: 4.41)
Evaluation applied	☒ MPE Evaluation ☐ SAR Evaluation ☐ N/A
Remark: *1. The maximum output power is 12.87dBm (19.36mW) at 5320MHz (with 4.41 numeric antenna gain)..* *2. For mobile or fixed location transmitters, no SAR consideration applied. The maximum power density is 1.0 mW/cm^2 even if the calculation indicates that the power density would be larger.*	

TEST RESULTS

No non-compliance noted.

Calculation

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

Where *E = Field strength in Volts / meter*

P = Power in Watts
G = Numeric antenna gain
d = Distance in meters

S = Power density in milliwatts / square centimeter

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

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

Changing to units of mW and cm, using:

P (mW) = P (W) / 1000 and
d (cm) = d(m) / 100

Yields

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

Where *d = Distance in cm*
P = Power in mW
G = Numeric antenna gain
S = Power density in mW / cm2

Maximum Permissible Exposure

EUT output power = 19.36mW

Numeric Antenna gain = 4.41

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

Yields

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

Where *P = Power in mW*
G = Numeric antenna gain
S = Power density in mW / cm²

→ Power density = 0.01699 mW / cm²

(For mobile or fixed location transmitters, the maximum power density is 1.0 mW/cm² even if the calculation indicates that the power density would be larger.)

Mode 3: Antenna 3+ Module 2+ Module 2

EUT	ProCurve Wireless Access Point 530
Frequency band (Operating)	☐ WLAN: 2.412GHz ~ 2.462GHz ☒ WLAN: 5.15GHz ~ 5.35GHz ☐ WLAN: 5.725GHz ~ 5.850GHz ☐ Bluetooth: 2.402 GHz ~ 2.482 GHz ☐ 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	15.48 dBm (35.32mW)
Antenna gain (Max)	6.3 dBi (Numeric gain: 4.27)
Actual gain w/ cable loss	5.04 dBi (Numeric gain: 3.19)
Evaluation applied	☒ MPE Evaluation ☐ SAR Evaluation ☐ N/A
Remark: *1. The maximum output power is 15.48dBm (35.32mW) at 5320MHz (with 3.19 numeric antenna gain).* *2. For mobile or fixed location transmitters, no SAR consideration applied. The maximum power density is 1.0 mW/cm^2 even if the calculation indicates that the power density would be larger.*	

TEST RESULTS

No non-compliance noted.

Calculation

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

Where *E = Field strength in Volts / meter*

P = Power in Watts
G = Numeric antenna gain
d = Distance in meters

S = Power density in milliwatts / square centimeter

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

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

Changing to units of mW and cm, using:

P (mW) = P (W) / 1000 and
d (cm) = d(m) / 100

Yields

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

Where *d = Distance in cm*
P = Power in mW
G = Numeric antenna gain
S = Power density in mW / cm2

Maximum Permissible Exposure

EUT output power = 35.32mW

Numeric Antenna gain = 3.19

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

Yields

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

Where *P = Power in mW*
G = Numeric antenna gain
S = Power density in mW / cm²

→ Power density = 0.02242 mW / cm²

(For mobile or fixed location transmitters, the maximum power density is 1.0 mW/cm² even if the calculation indicates that the power density would be larger.)

Mode 4: Antenna 4+ Module 2

EUT	ProCurve Wireless Access Point 530
Frequency band (Operating)	☐ WLAN: 2.412GHz ~ 2.462GHz ☒ WLAN: 5.15GHz ~ 5.35GHz ☐ WLAN: 5.725GHz ~ 5.850GHz ☐ Bluetooth: 2.402 GHz ~ 2.482 GHz ☐ 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	12.18 dBm (16.52mW)
Antenna gain (Max)	13.3 dBi (Numeric gain: 21.38)
Actual gain w/ cable loss	12.04 dBi (Numeric gain: 16.0)
Evaluation applied	☒ MPE Evaluation ☐ SAR Evaluation ☐ N/A
Remark: *1. The maximum output power is 12.18dBm (16.52mW) at 5260MHz (with 16.0 numeric antenna gain)..* *2. For mobile or fixed location transmitters, no SAR consideration applied. The maximum power density is 1.0 mW/cm^2 even if the calculation indicates that the power density would be larger.*	

TEST RESULTS

No non-compliance noted.

Calculation

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

Where *E = Field strength in Volts / meter*

P = Power in Watts
G = Numeric antenna gain
d = Distance in meters

S = Power density in milliwatts / square centimeter

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

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

Changing to units of mW and cm, using:

P (mW) = P (W) / 1000 and
d (cm) = d(m) / 100

Yields

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

Where *d = Distance in cm*
P = Power in mW
G = Numeric antenna gain
S = Power density in mW / cm2

Maximum Permissible Exposure

EUT output power = 16.52mW

Numeric Antenna gain = 16.0

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

Yields

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

Where *P = Power in mW*
G = Numeric antenna gain
S = Power density in mW / cm²

→ Power density = 0.05260 mW / cm²

(For mobile or fixed location transmitters, the maximum power density is 1.0 mW/cm² even if the calculation indicates that the power density would be larger.)

Mode 5: Antenna 6+ Module 2

EUT	ProCurve Wireless Access Point 530
Frequency band (Operating)	☐ WLAN: 2.412GHz ~ 2.462GHz ☒ WLAN: 5.15GHz ~ 5.35GHz ☐ WLAN: 5.725GHz ~ 5.850GHz ☐ Bluetooth: 2.402 GHz ~ 2.482 GHz ☐ 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	18.19dBm (65.92mW)
Antenna gain (Max)	5.95 dBi (Numeric gain: 3.94)
Evaluation applied	☒ MPE Evaluation ☐ SAR Evaluation ☐ N/A
Remark: *1. The maximum output power is 18.19dBm (65.92mW) at 5260MHz (with 3.94 numeric antenna gain).* *2. For mobile or fixed location transmitters, no SAR consideration applied. The maximum power density is 1.0 mW/cm^2 even if the calculation indicates that the power density would be larger.*	

TEST RESULTS

No non-compliance noted.

Calculation

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

Where *E = Field strength in Volts / meter*

P = Power in Watts
G = Numeric antenna gain
d = Distance in meters

S = Power density in milliwatts / square centimeter

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

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

Changing to units of mW and cm, using:

P (mW) = P (W) / 1000 and
d (cm) = d(m) / 100

Yields

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

Where *d = Distance in cm*
P = Power in mW
G = Numeric antenna gain
S = Power density in mW / cm2

Maximum Permissible Exposure

EUT output power = 65.92mW

Numeric Antenna gain = 3.94

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

Yields

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

Where *P = Power in mW*

G = Numeric antenna gain

S = Power density in mW / cm²

→ Power density = 0.02466 mW / cm²

(For mobile or fixed location transmitters, the maximum power density is 1.0 mW/cm² even if the calculation indicates that the power density would be larger.)