Mode 5: Antenna 4+ Module 1

Test mode: IEEE 802.11b mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Low	2412	21.79	0.15101
Mid	2437	22.13	0.16331
High	2462	21.84	0.15276

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Low	2412	20.16	0.10375
Mid	2437	20.64	0.11588
High	2462	18.49	0.07063

Mode 6: Antenna 4+ Module 2

Test mode: IEEE 802.11b mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Low	2412	22.45	0.17579
Mid	2437	21.68	0.14723
High	2462	21.86	0.15346

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Low	2412	19.49	0.08892
Mid	2437	19.60	0.09120
High	2462	17.75	0.05957

Test mode: IEEE 802.11a mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Low	5745	16.97	0.04977
Mid	5785	16.82	0.04808
High	5825	16.59	0.04560

Mode 7: Antenna 5+ Module 1

Test mode: IEEE 802.11b mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Low	2412	22.05	0.16032
Mid	2437	21.97	0.15740
High	2462	21.90	0.15488

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Low	2412	18.21	0.06622
Mid	2437	18.58	0.07211
High	2462	16.92	0.04920

Mode 8: Antenna 5+ Module 2

Test mode: IEEE 802.11b mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Low	2412	21.75	0.14962
Mid	2437	21.35	0.13646
High	2462	21.63	0.14555

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Low	2412	18.04	0.06368
Mid	2437	18.37	0.06871
High	2462	15.96	0.03945

Test mode: IEEE 802.11a mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Low	5745	16.43	0.04395
Mid	5785	16.77	0.04753
High	5825	16.53	0.04498

Mode 9: Antenna 6+ Module 2

Test mode: IEEE 802.11a mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Low	5745	16.89	0.04887
Mid	5785	16.81	0.04797
High	5825	16.95	0.04955

Mode 10: Antenna 7+ Module 2

Test mode: IEEE 802.11a mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Low	5745	17.06	0.05082
Mid	5785	16.80	0.04786
High	5825	16.86	0.04853

Mode 11: Antenna 9+ Module 1

Test mode: IEEE 802.11b mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Low	2412	18.24	0.06668
Mid	2437	17.92	0.06194
High	2462	17.53	0.05662

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Low	2412	17.31	0.05383
Mid	2437	17.69	0.05875
High	2462	15.65	0.03673

Mode 12: Antenna 11+ Module 2

Test mode: IEEE 802.11a mode

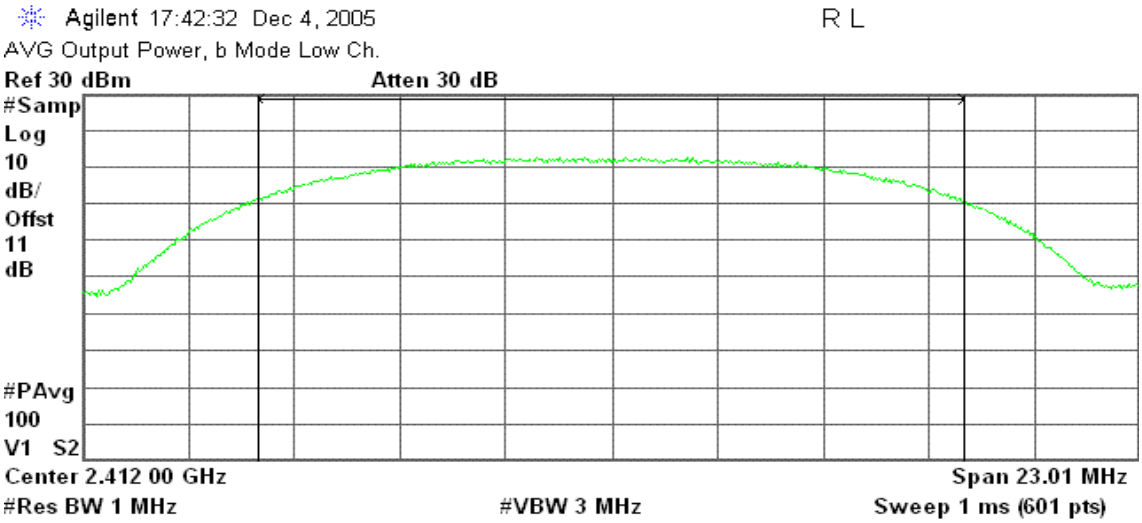
Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Low	5745	16.89	0.04887
Mid	5785	16.27	0.04236
High	5825	17.27	0.05333

Test Plot

Mode 1: Antenna 2+ Module 1

IEEE 802.11b

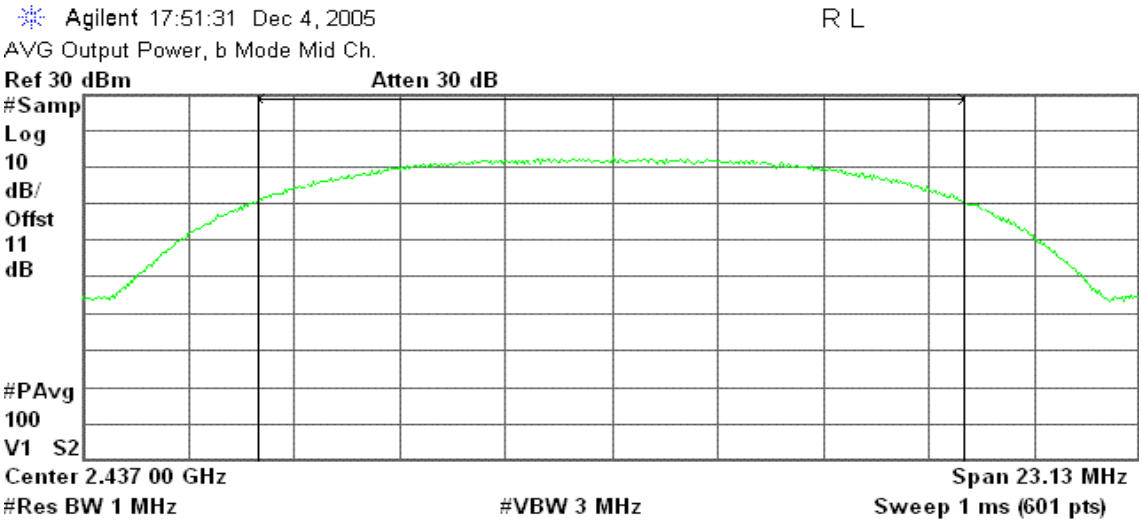
CH Low



Channel Power
21.79 dBm / 15.3420 MHz

Power Spectral Density
-50.07 dBm/Hz

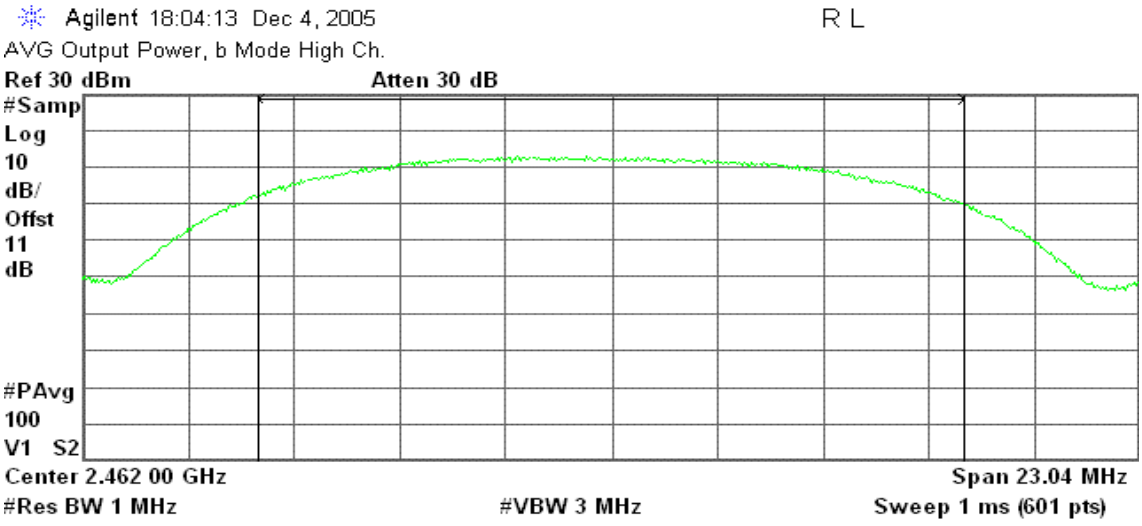
CH Mid



Channel Power
21.51 dBm / 15.4180 MHz

Power Spectral Density
-50.37 dBm/Hz

CH High

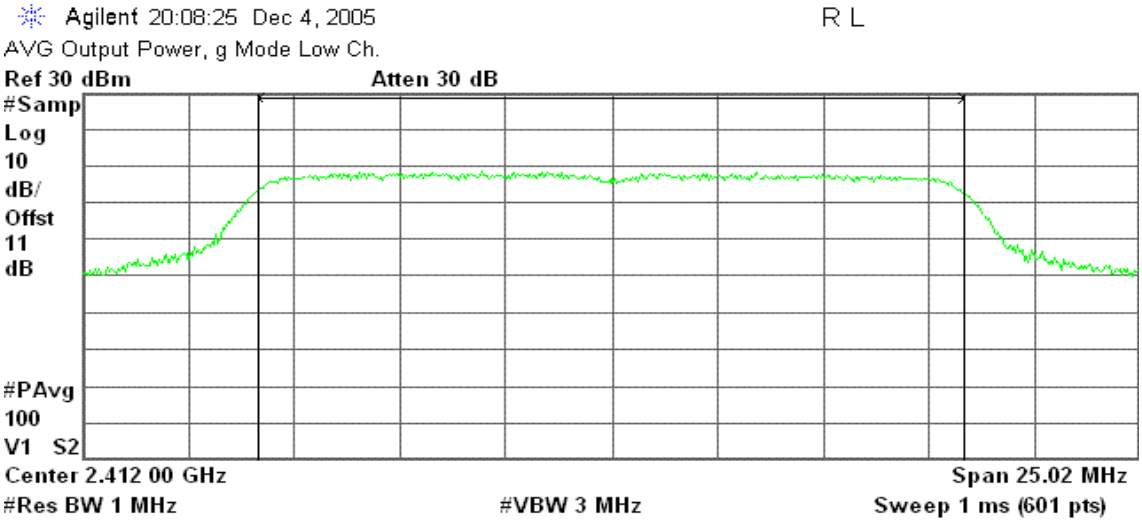


Channel Power
22.05 dBm / 15.3620 MHz

Power Spectral Density
-49.82 dBm/Hz

IEEE 802.11g

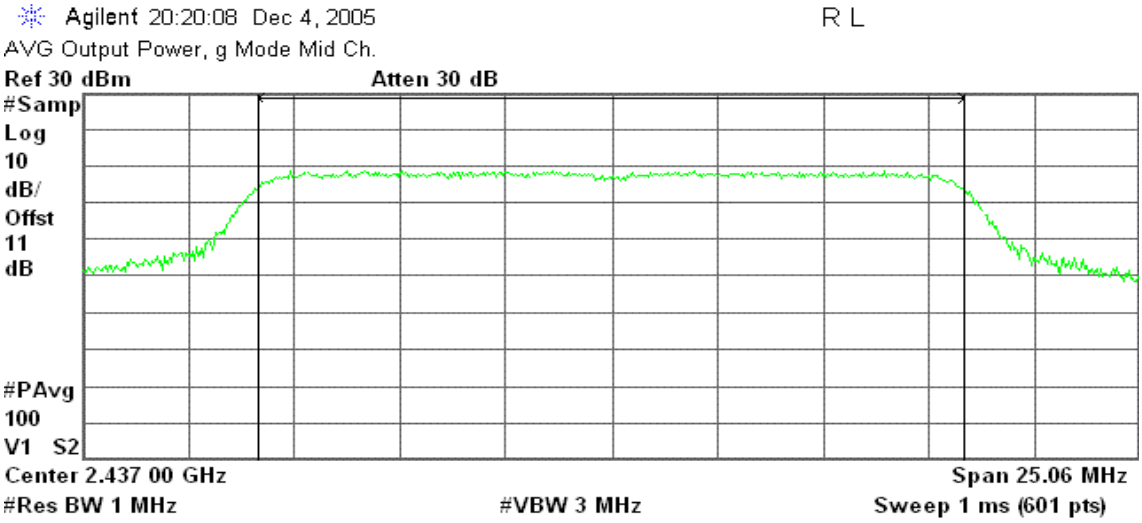
CH Low



Channel Power
18.55 dBm / 16.6790 MHz

Power Spectral Density
-53.67 dBm/Hz

CH Mid



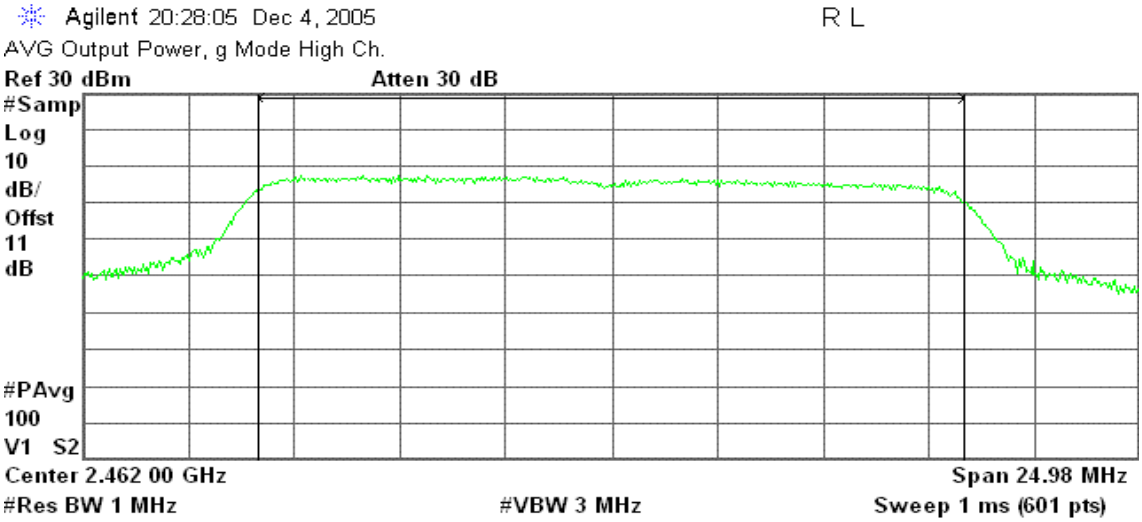
Channel Power

19.62 dBm / 16.7060 MHz

Power Spectral Density

-52.60 dBm/Hz

CH High



Channel Power

17.93 dBm / 16.6530 MHz

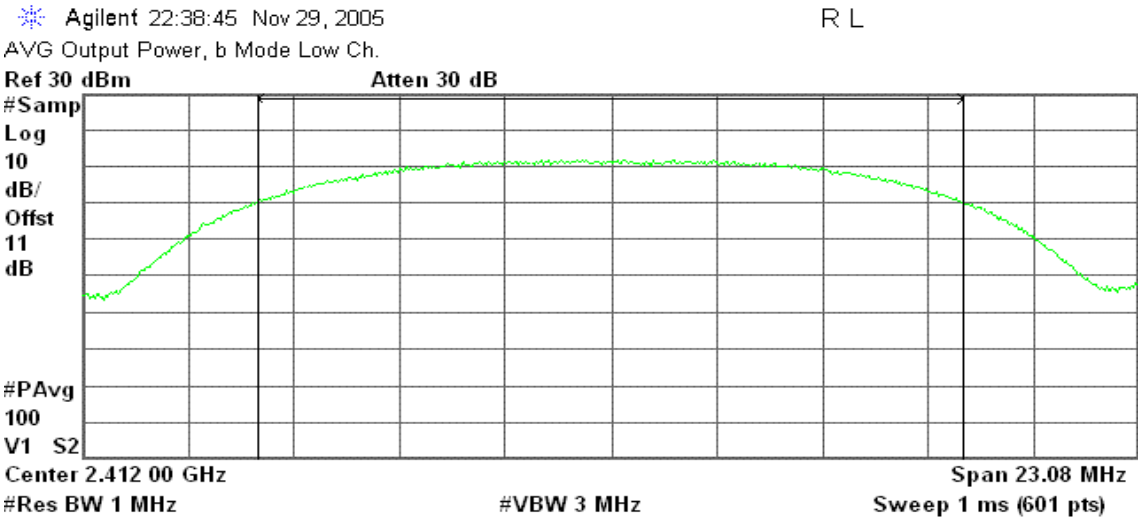
Power Spectral Density

-54.28 dBm/Hz

Mode 2: Antenna 2+ Module 2

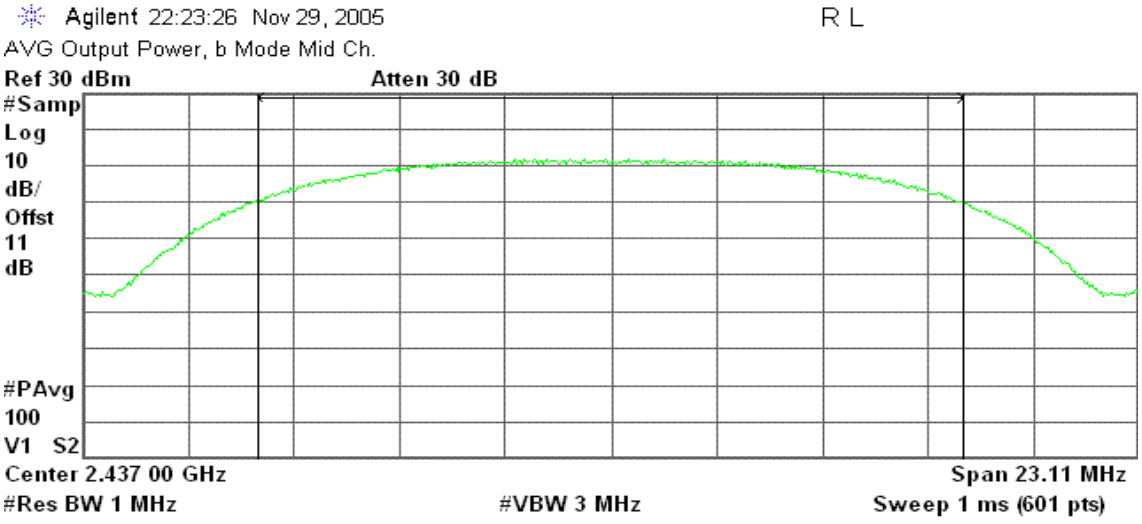
IEEE 802.11b

CH Low



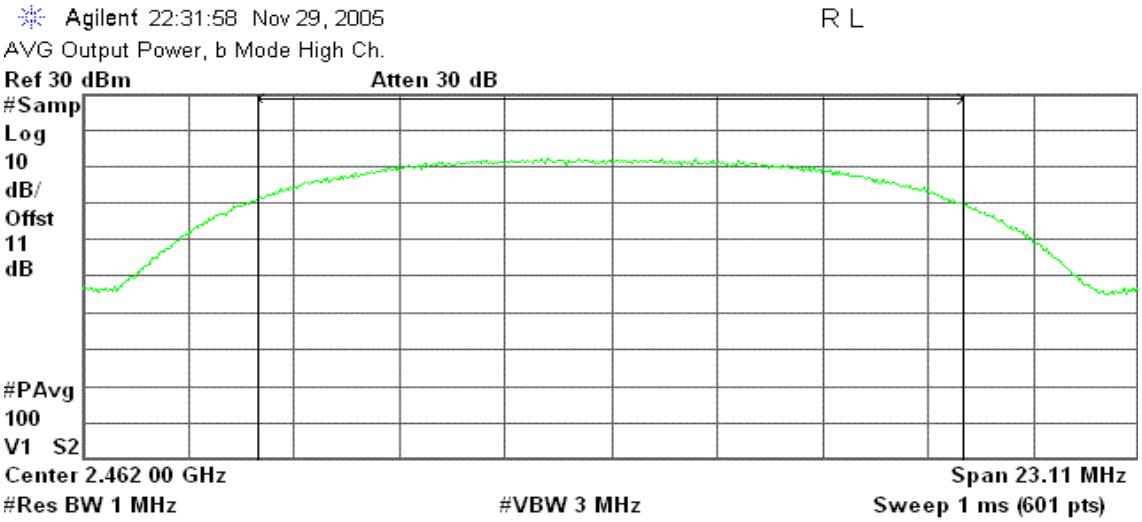
Channel Power	Power Spectral Density
21.59 dBm / 15.3840 MHz	-50.28 dBm/Hz

CH Mid



Channel Power	Power Spectral Density
21.36 dBm / 15.4060 MHz	-50.52 dBm/Hz

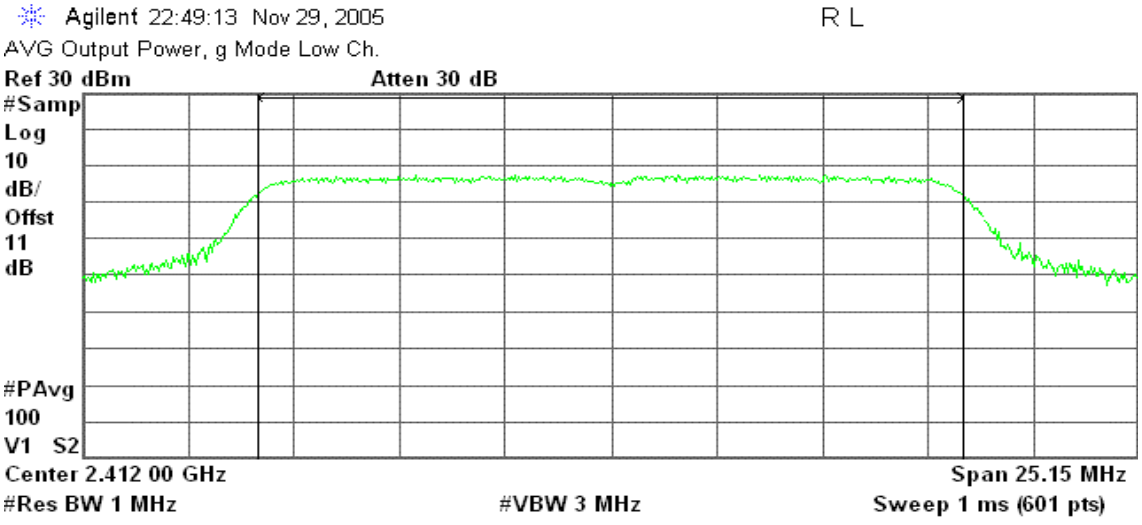
CH High



Channel Power	Power Spectral Density
21.34 dBm / 15.4090 MHz	-50.53 dBm/Hz

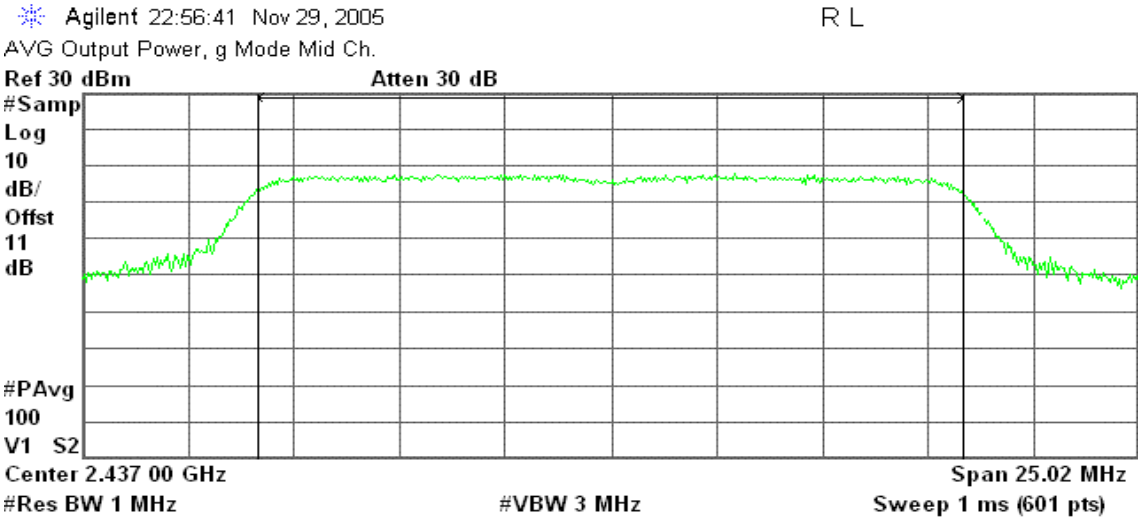
IEEE 802.11g

CH Low



Channel Power	Power Spectral Density
17.93 dBm / 16.7690 MHz	-54.31 dBm/Hz

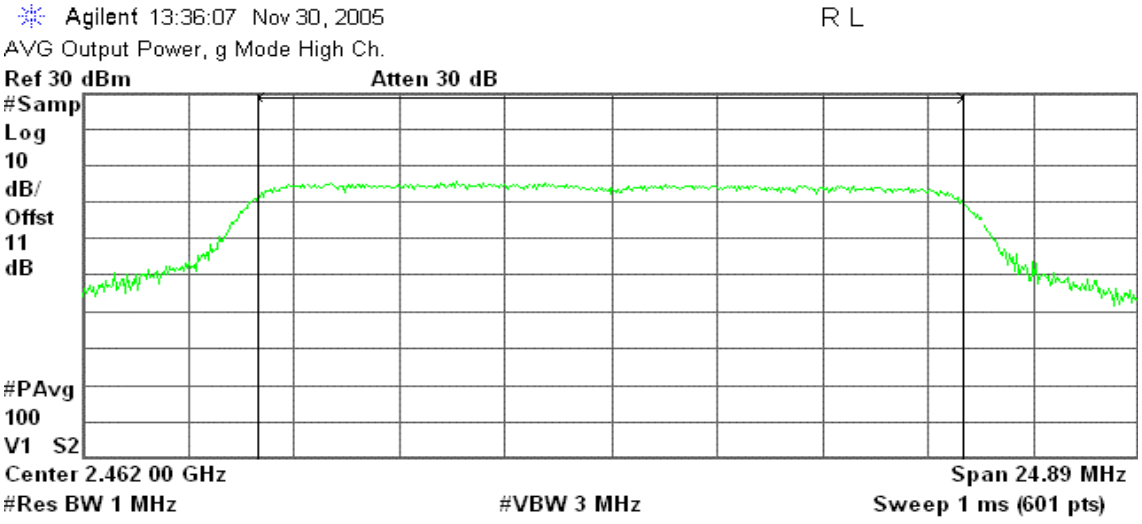
CH Mid



Channel Power
18.64 dBm / 16.6800 MHz

Power Spectral Density
-53.58 dBm/Hz

CH High



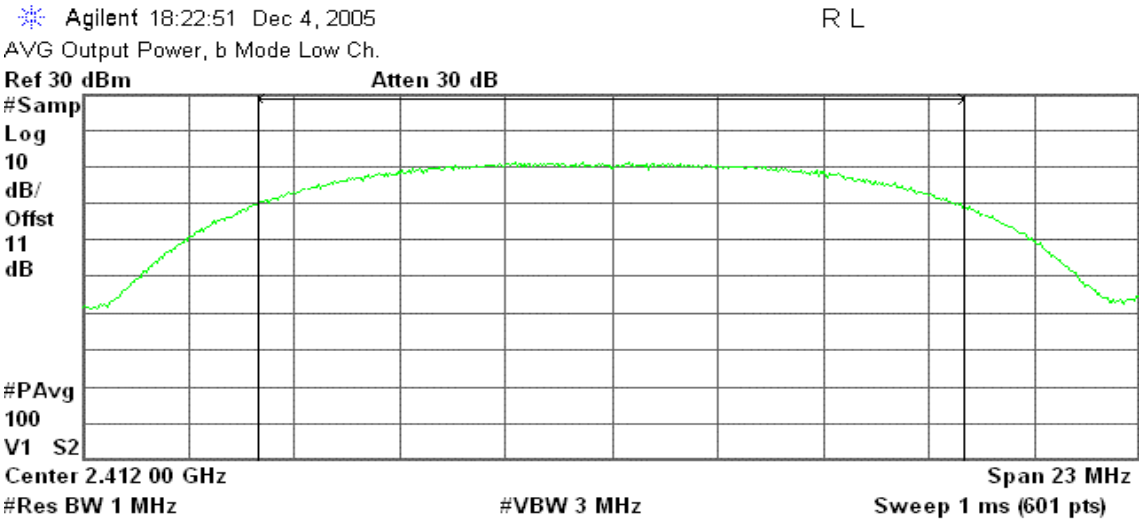
Channel Power
16.03 dBm / 16.5960 MHz

Power Spectral Density
-56.17 dBm/Hz

Mode 3: Antenna 3+ Module 1

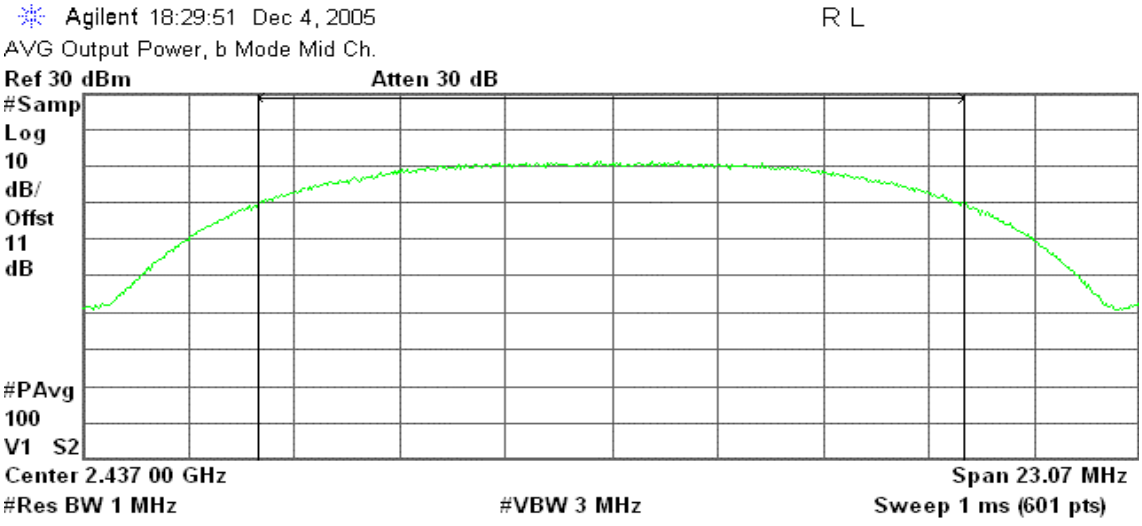
IEEE 802.11b

CH Low



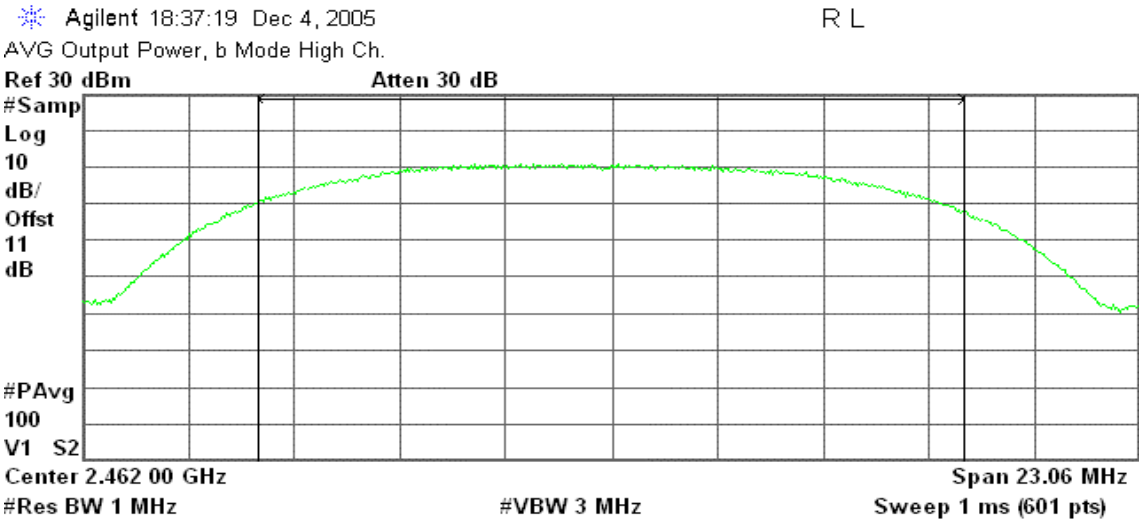
Channel Power	Power Spectral Density
20.40 dBm / 15.3350 MHz	-51.46 dBm/Hz

CH Mid



Channel Power	Power Spectral Density
20.38 dBm / 15.3810 MHz	-51.49 dBm/Hz

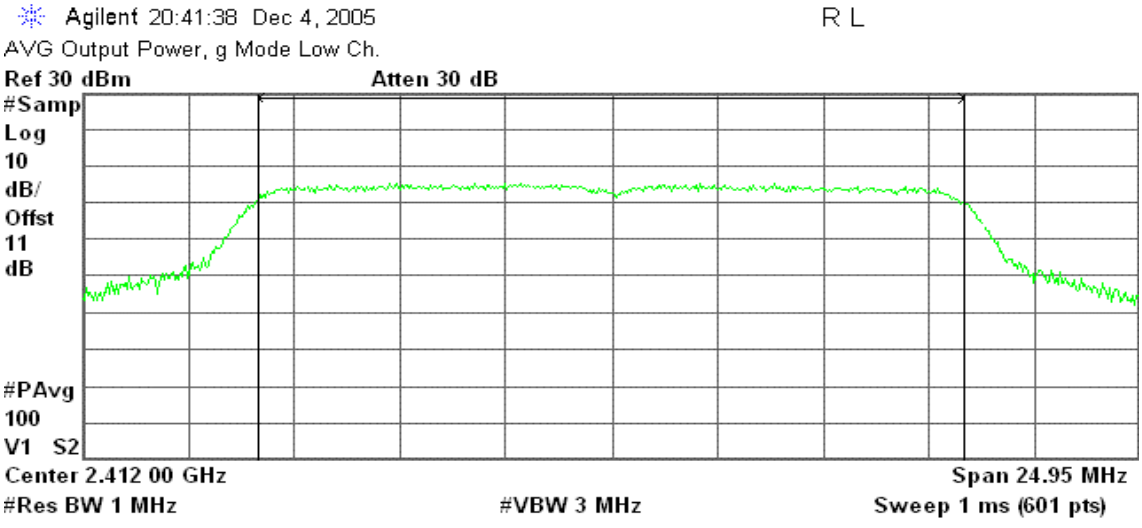
CH High



Channel Power	Power Spectral Density
20.28 dBm / 15.3740 MHz	-51.58 dBm/Hz

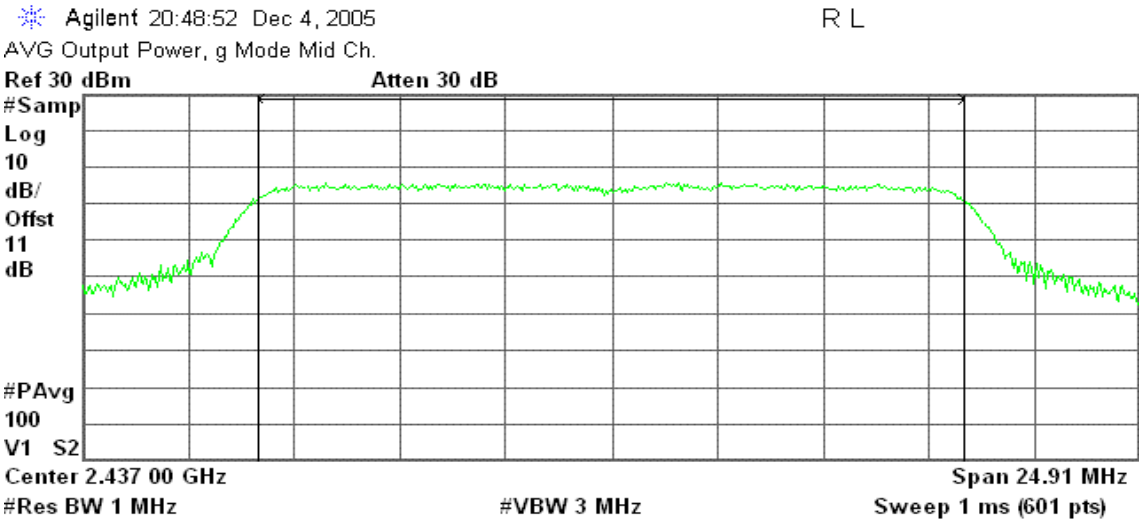
IEEE 802.11g

CH Low



Channel Power	Power Spectral Density
15.77 dBm / 16.6330 MHz	-56.44 dBm/Hz

CH Mid



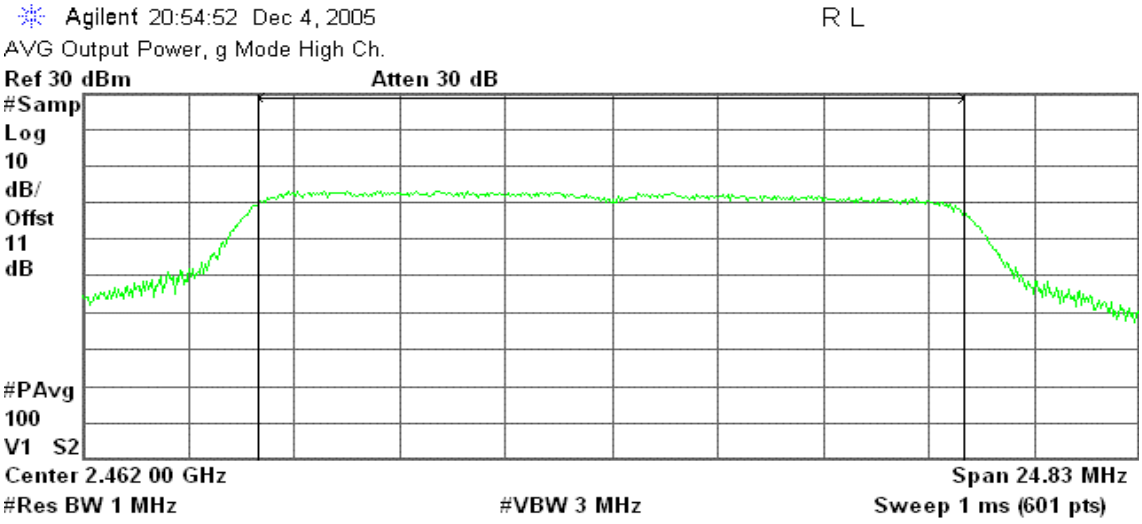
Channel Power

16.61 dBm / 16.6050 MHz

Power Spectral Density

-55.59 dBm/Hz

CH High



Channel Power

13.74 dBm / 16.5560 MHz

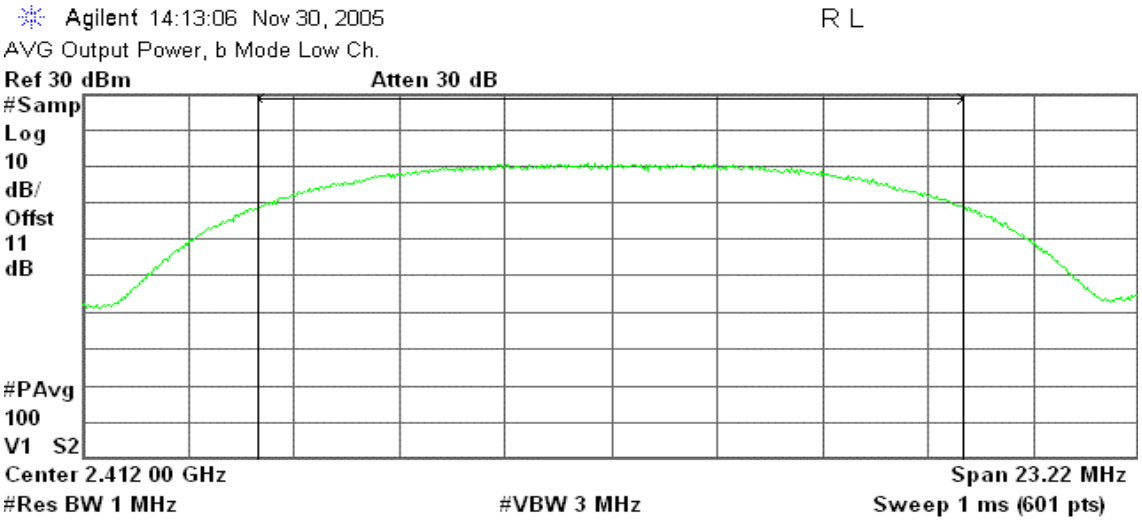
Power Spectral Density

-58.45 dBm/Hz

Mode 4: Antenna 3+ Module 2

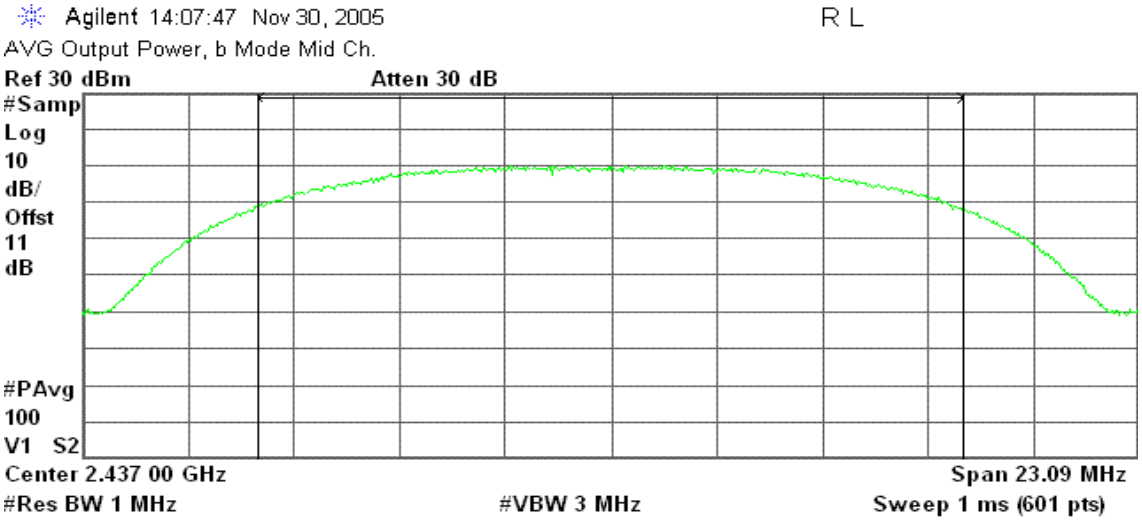
IEEE 802.11b

CH Low



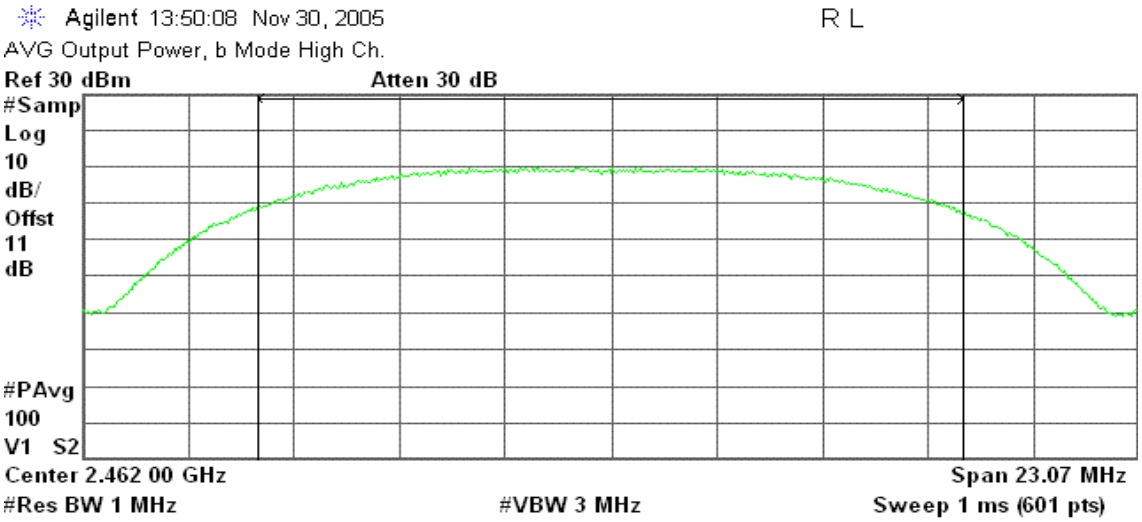
Channel Power	Power Spectral Density
19.85 dBm / 15.4820 MHz	-52.05 dBm/Hz

CH Mid



Channel Power	Power Spectral Density
19.16 dBm / 15.3900 MHz	-52.71 dBm/Hz

CH High

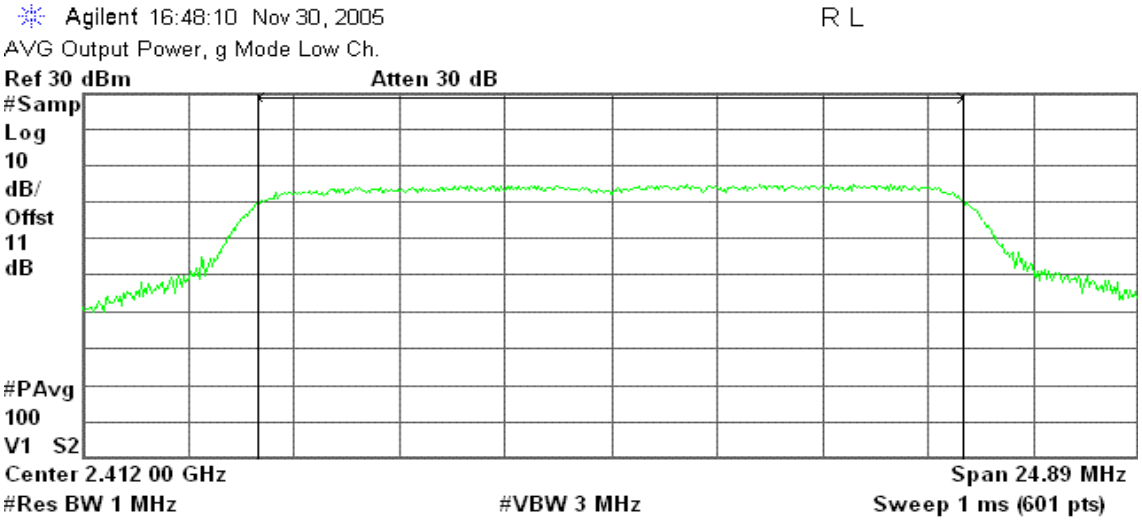


Channel Power
18.88 dBm / 15.3780 MHz

Power Spectral Density
-52.99 dBm/Hz

IEEE 802.11g

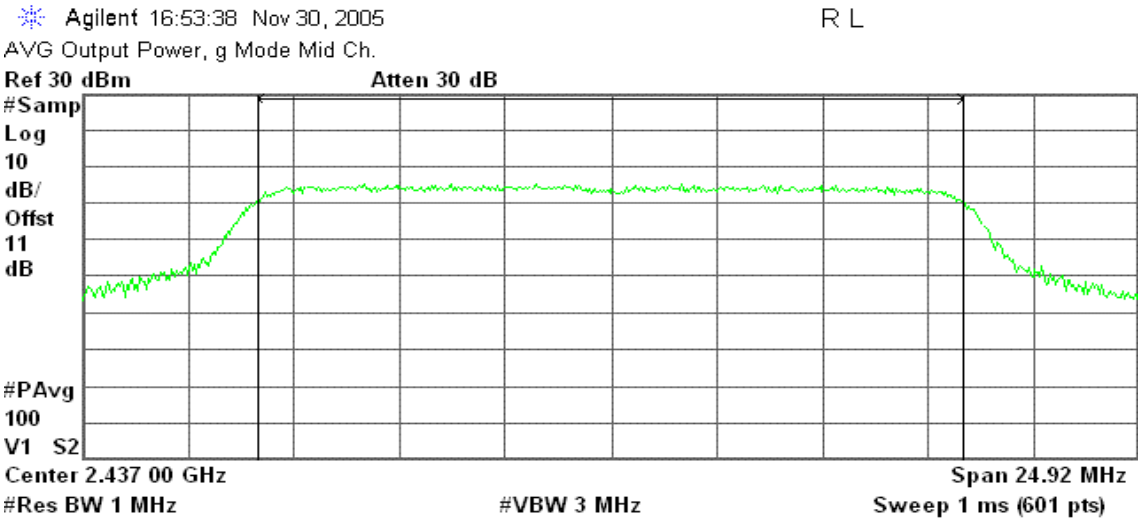
CH Low



Channel Power
15.87 dBm / 16.5910 MHz

Power Spectral Density
-56.33 dBm/Hz

CH Mid



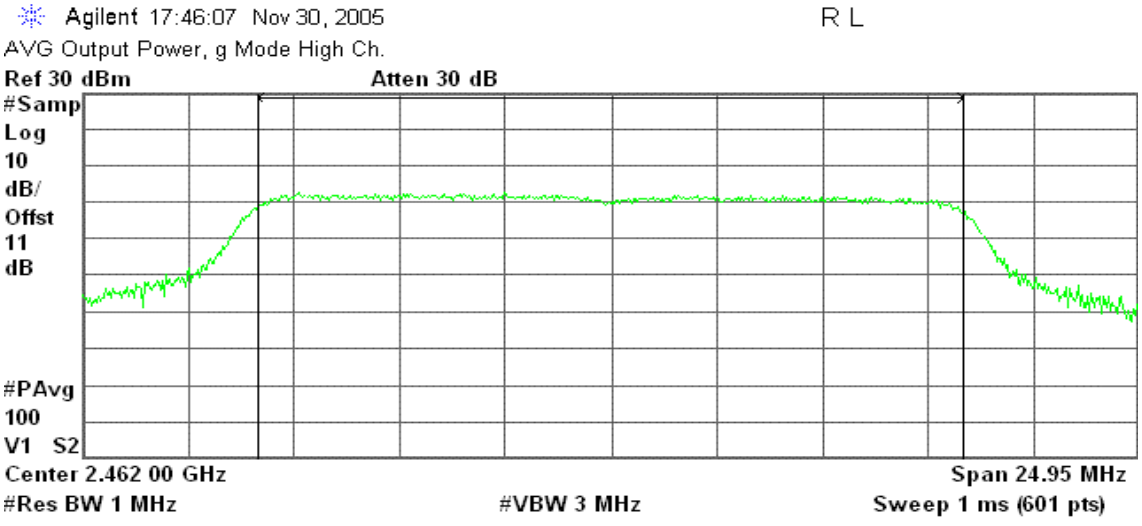
Channel Power

15.35 dBm / 16.6120 MHz

Power Spectral Density

-56.85 dBm/Hz

CH High



Channel Power

13.18 dBm / 16.6300 MHz

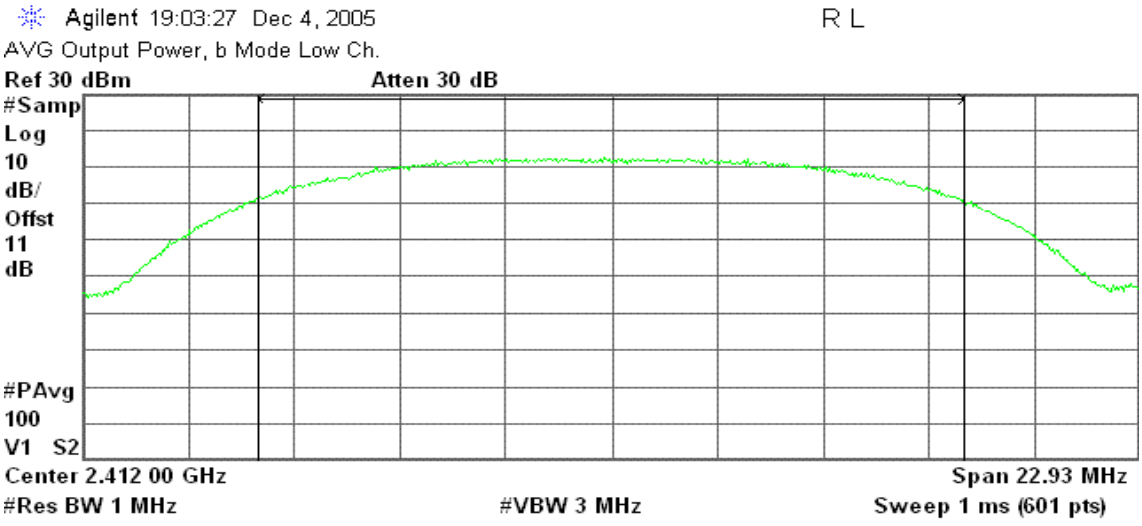
Power Spectral Density

-59.03 dBm/Hz

Mode 5: Antenna 4+ Module 1

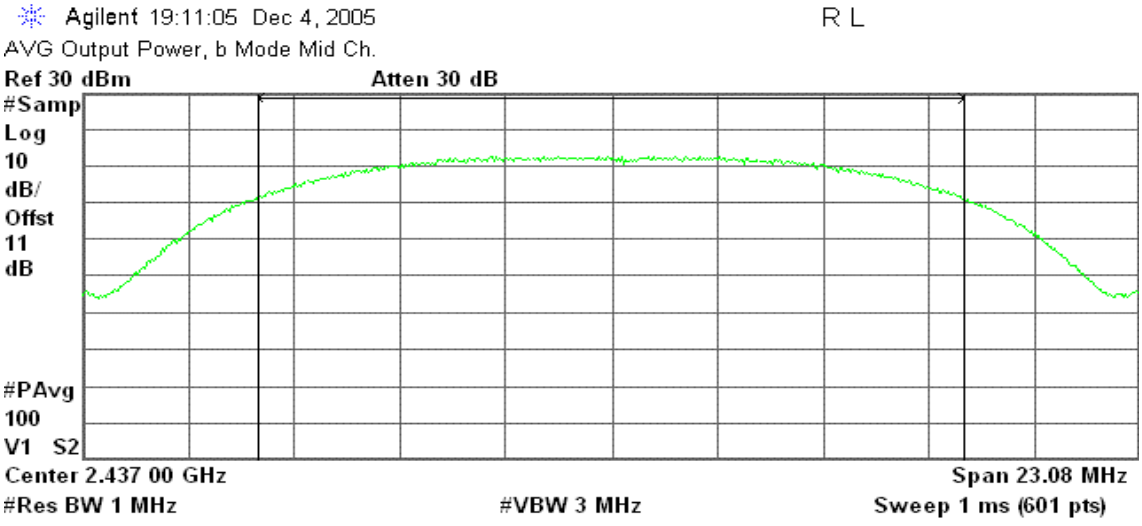
IEEE 802.11b

CH Low



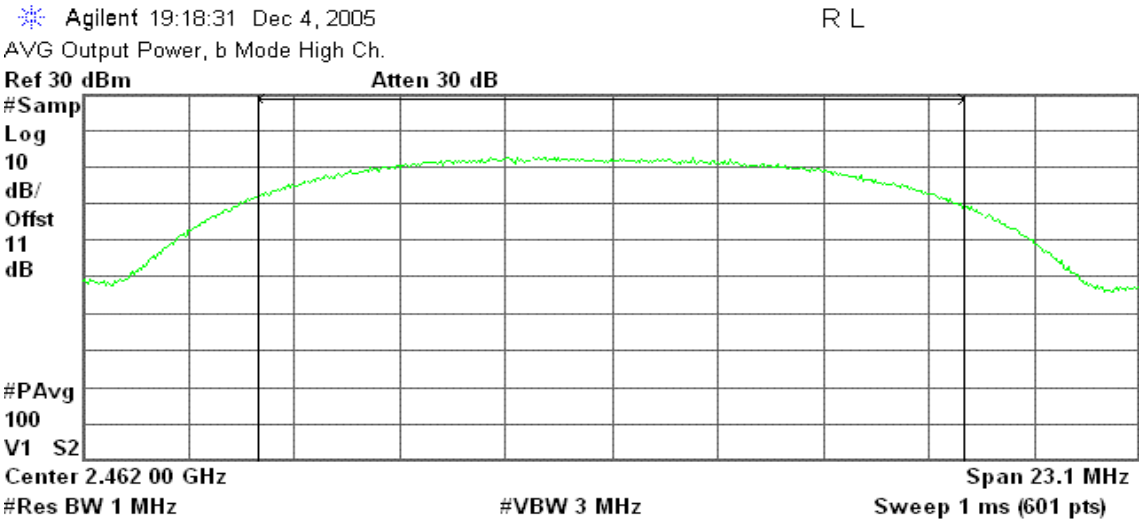
Channel Power	Power Spectral Density
21.79 dBm / 15.2900 MHz	-50.06 dBm/Hz

CH Mid



Channel Power	Power Spectral Density
22.13 dBm / 15.3890 MHz	-49.74 dBm/Hz

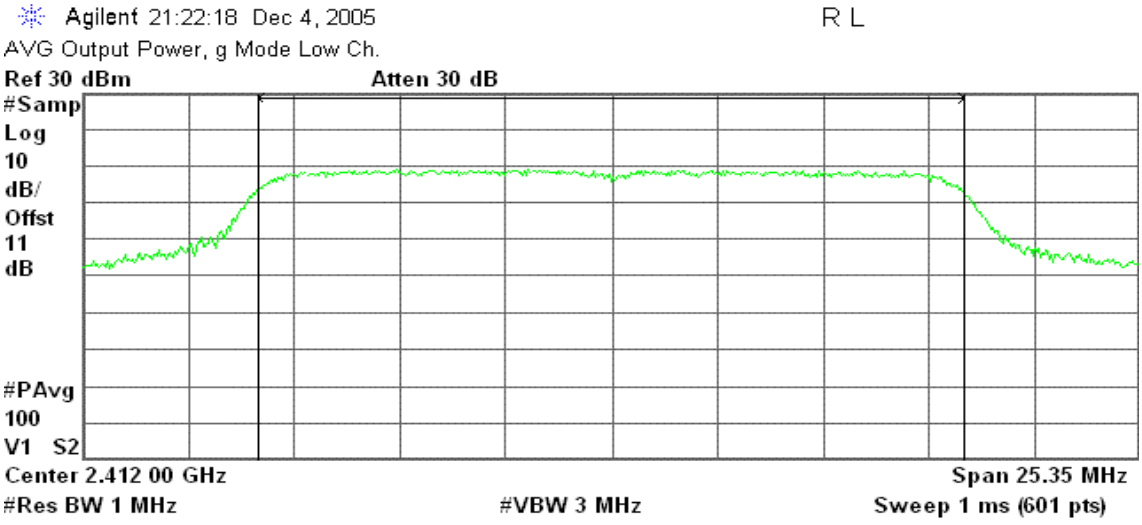
CH High



Channel Power	Power Spectral Density
21.84 dBm / 15.4030 MHz	-50.03 dBm/Hz

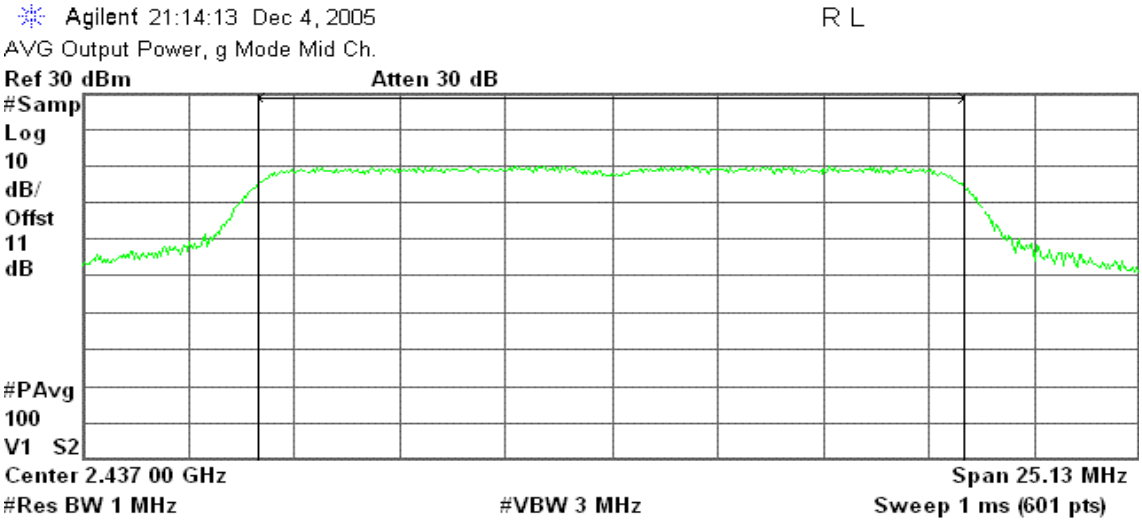
IEEE 802.11g

CH Low



Channel Power	Power Spectral Density
20.16 dBm / 16.8990 MHz	-52.12 dBm/Hz

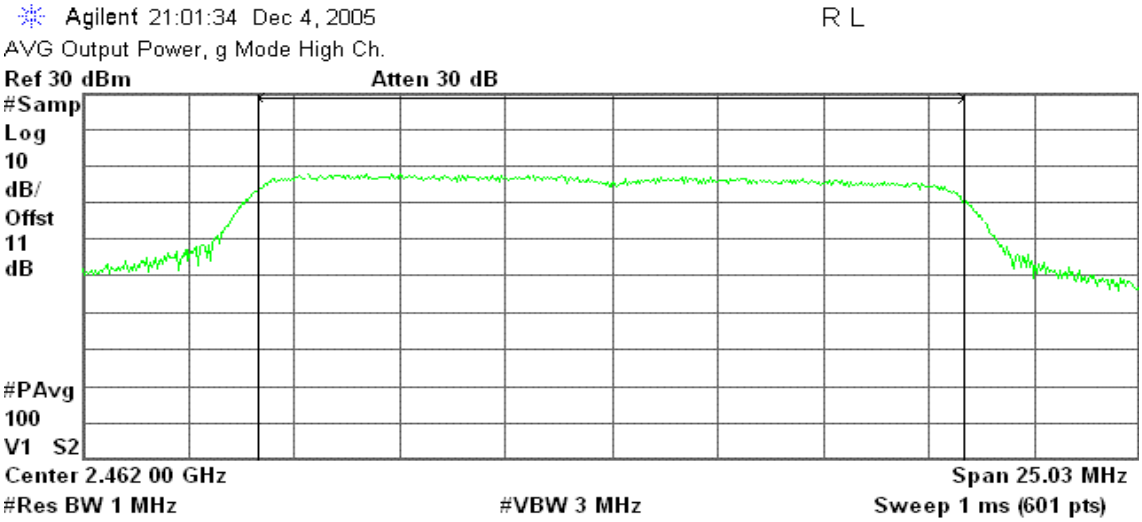
CH Mid



Channel Power
20.64 dBm / 16.7540 MHz

Power Spectral Density
-51.60 dBm/Hz

CH High



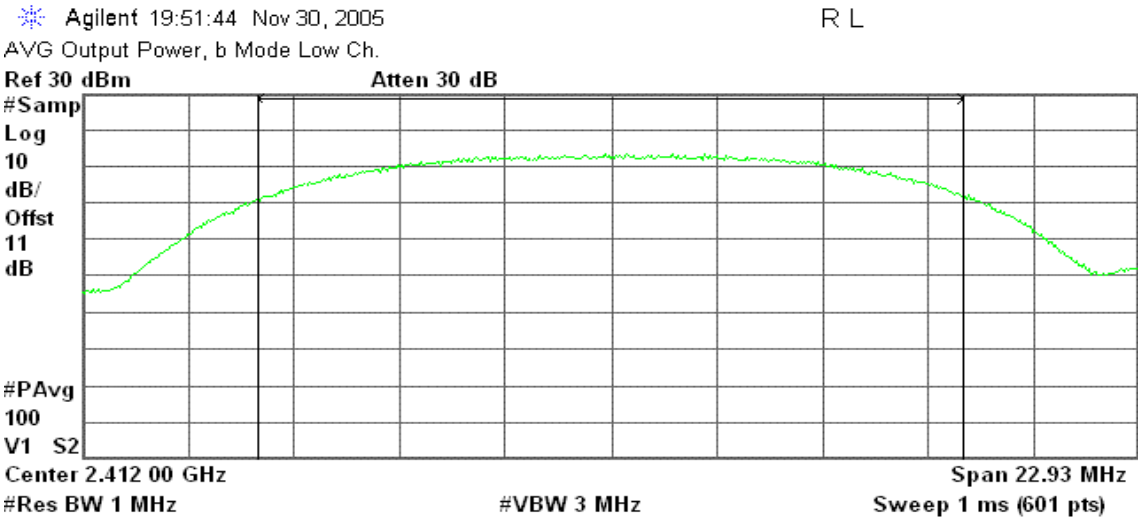
Channel Power
18.49 dBm / 16.6870 MHz

Power Spectral Density
-53.74 dBm/Hz

Mode 6: Antenna 4+ Module 2

IEEE 802.11b

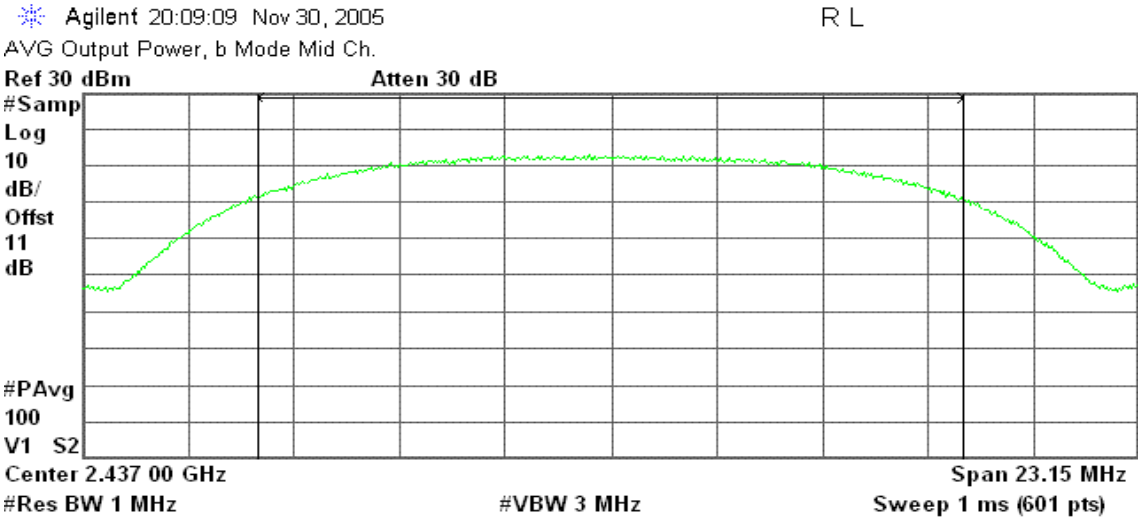
CH Low



Channel Power
22.45 dBm / 15.2860 MHz

Power Spectral Density
-49.39 dBm/Hz

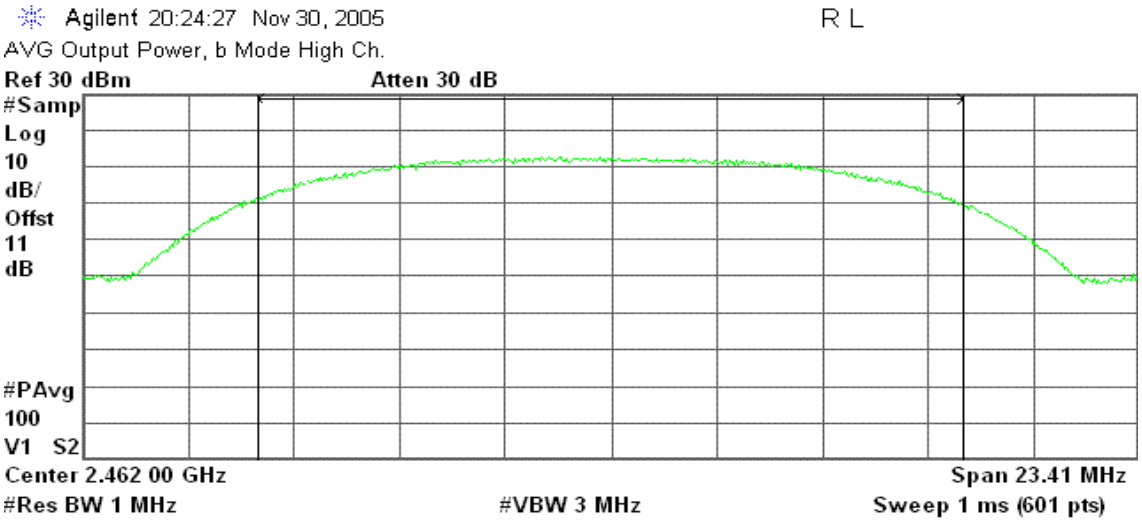
CH Mid



Channel Power
21.68 dBm / 15.4350 MHz

Power Spectral Density
-50.20 dBm/Hz

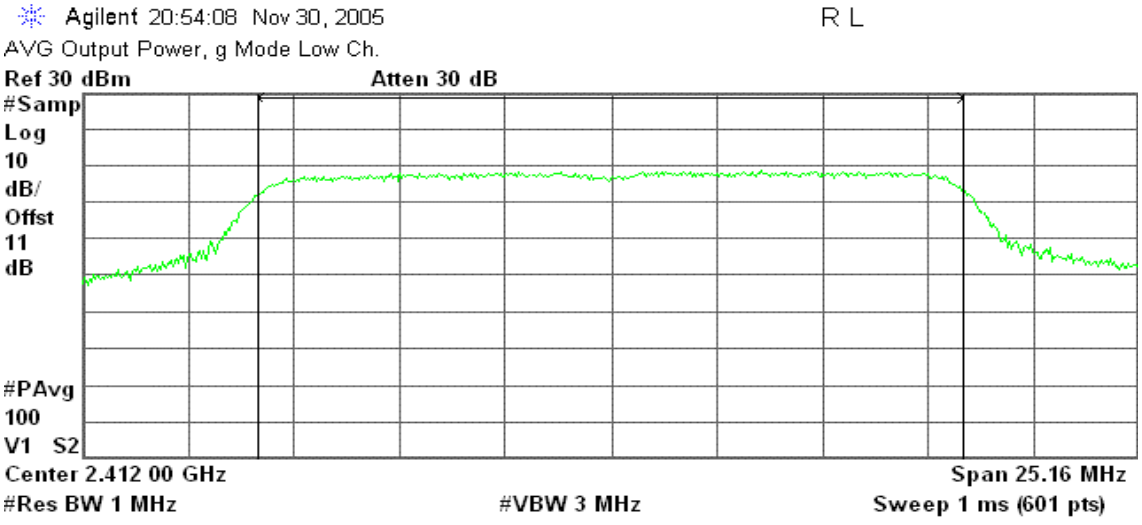
CH High



Channel Power	Power Spectral Density
21.86 dBm / 15.6100 MHz	-50.08 dBm/Hz

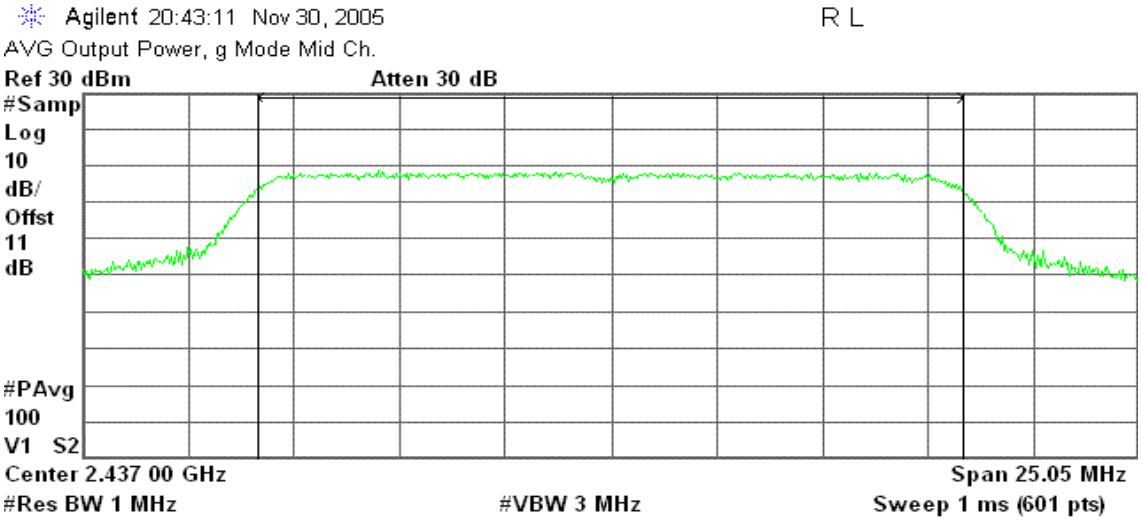
IEEE 802.11g

CH Low



Channel Power	Power Spectral Density
19.49 dBm / 16.7720 MHz	-52.75 dBm/Hz

CH Mid



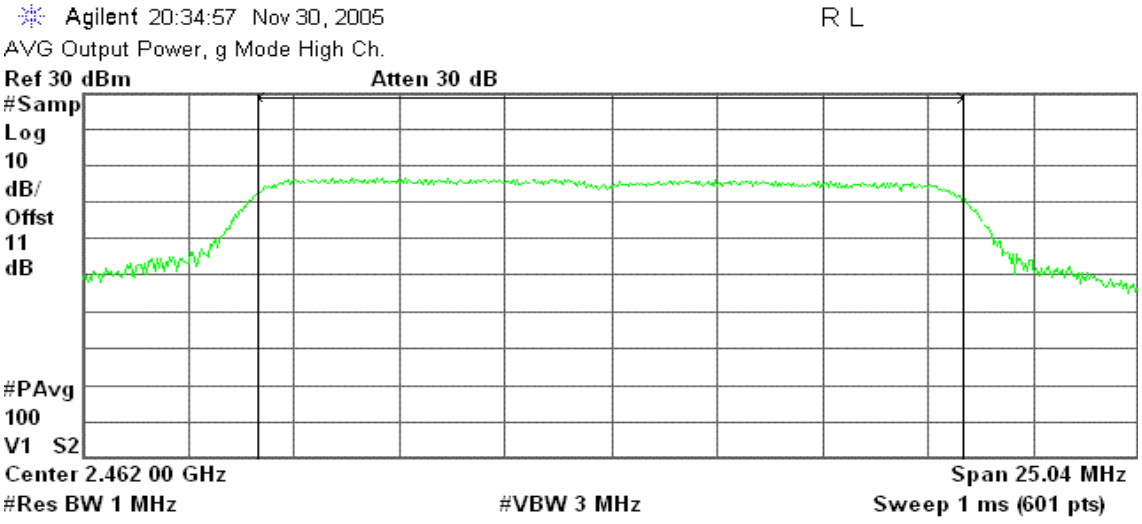
Channel Power

19.60 dBm / 16.6990 MHz

Power Spectral Density

-52.62 dBm/Hz

CH High



Channel Power

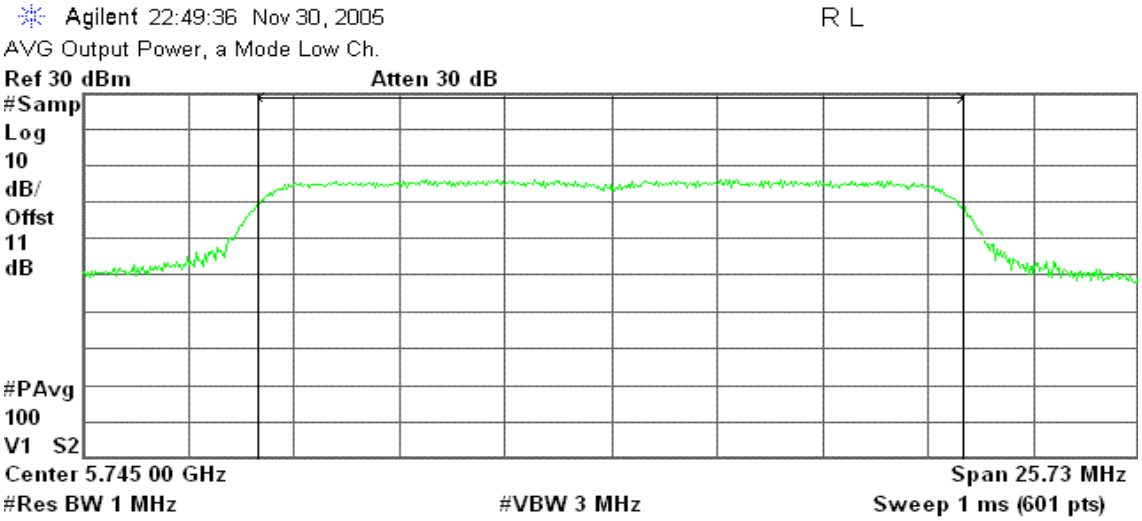
17.75 dBm / 16.6950 MHz

Power Spectral Density

-54.48 dBm/Hz

IEEE 802.11a

CH Low



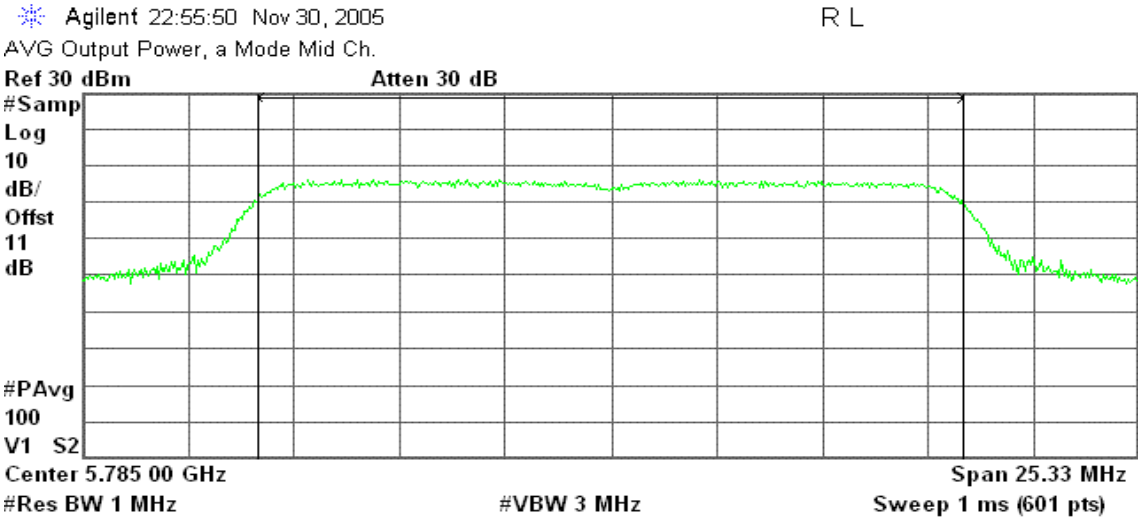
Channel Power

16.97 dBm / 17.1520 MHz

Power Spectral Density

-55.37 dBm/Hz

CH Mid



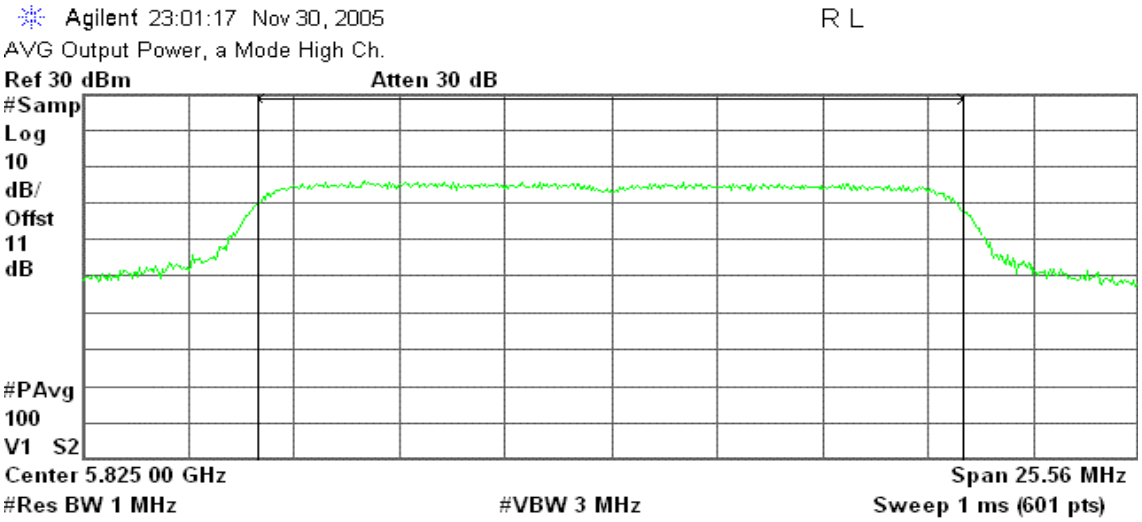
Channel Power

16.82 dBm / 16.8870 MHz

Power Spectral Density

-55.45 dBm/Hz

CH High



Channel Power

16.59 dBm / 17.0380 MHz

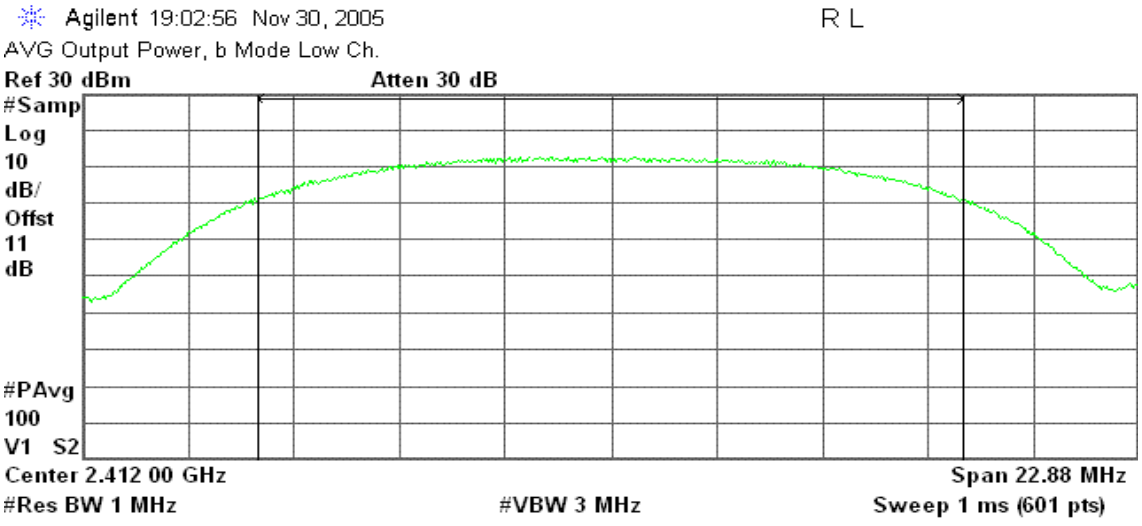
Power Spectral Density

-55.72 dBm/Hz

Mode 7: Antenna 5+ Module 1

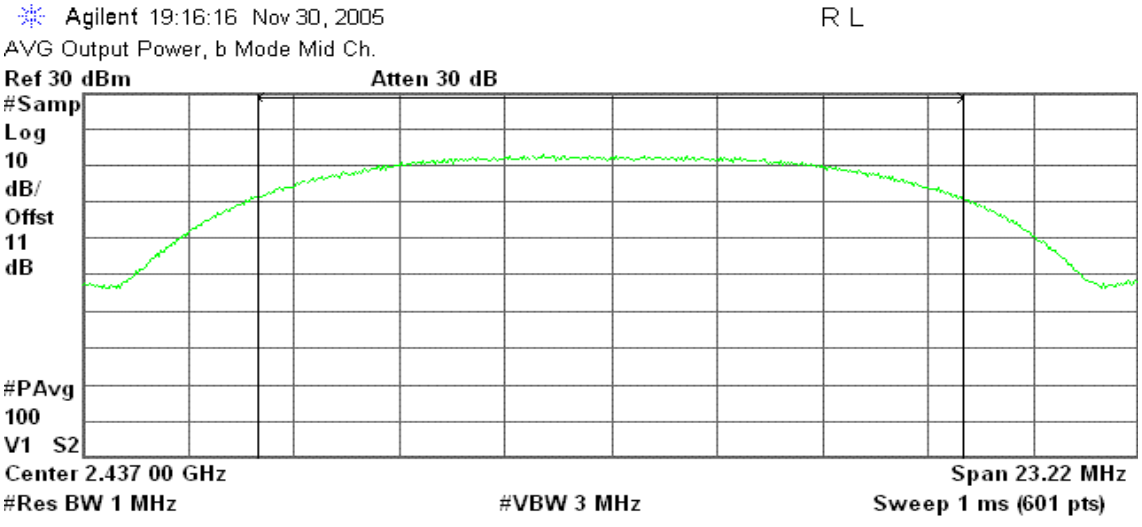
IEEE 802.11b

CH Low



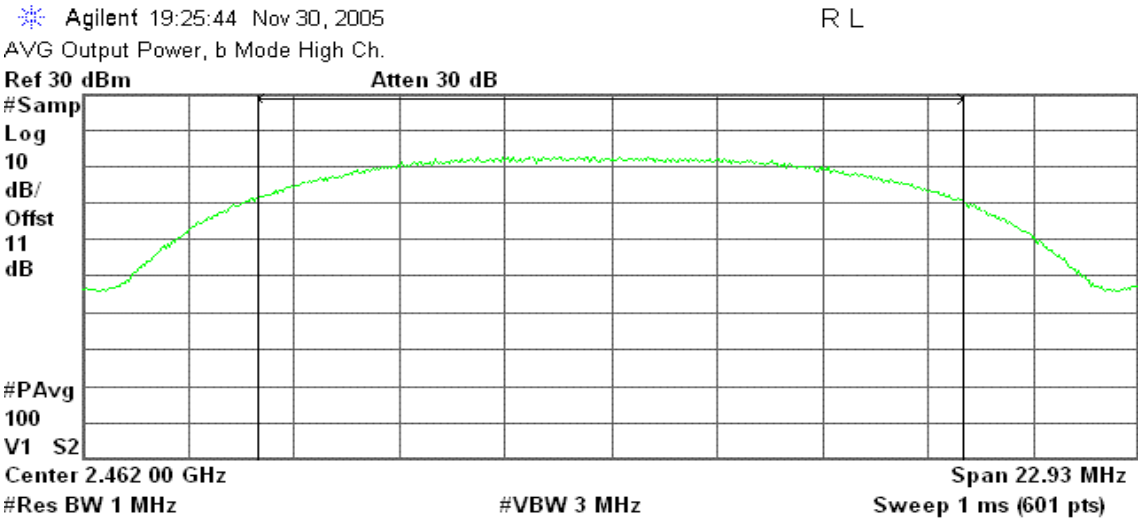
Channel Power	Power Spectral Density
22.05 dBm / 15.2510 MHz	-49.78 dBm/Hz

CH Mid



Channel Power	Power Spectral Density
21.97 dBm / 15.4780 MHz	-49.93 dBm/Hz

CH High

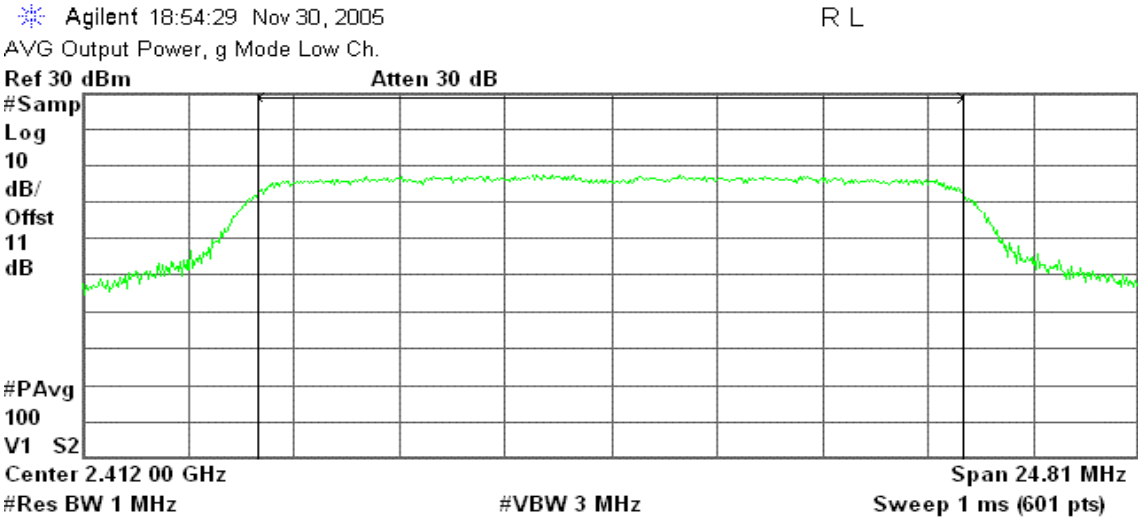


Channel Power
21.90 dBm / 15.2870 MHz

Power Spectral Density
-49.94 dBm/Hz

IEEE 802.11g

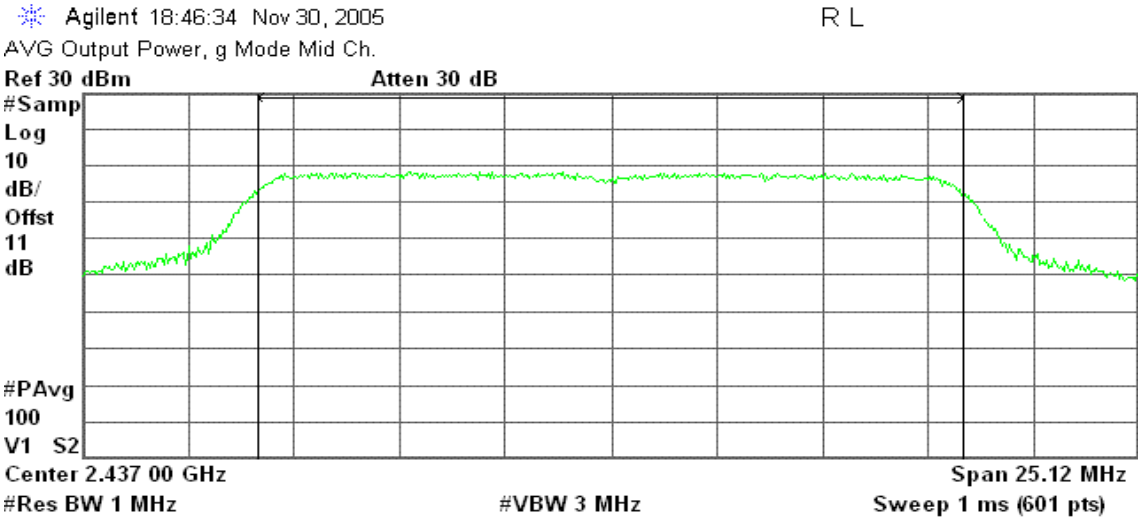
CH Low



Channel Power
18.21 dBm / 16.5410 MHz

Power Spectral Density
-53.98 dBm/Hz

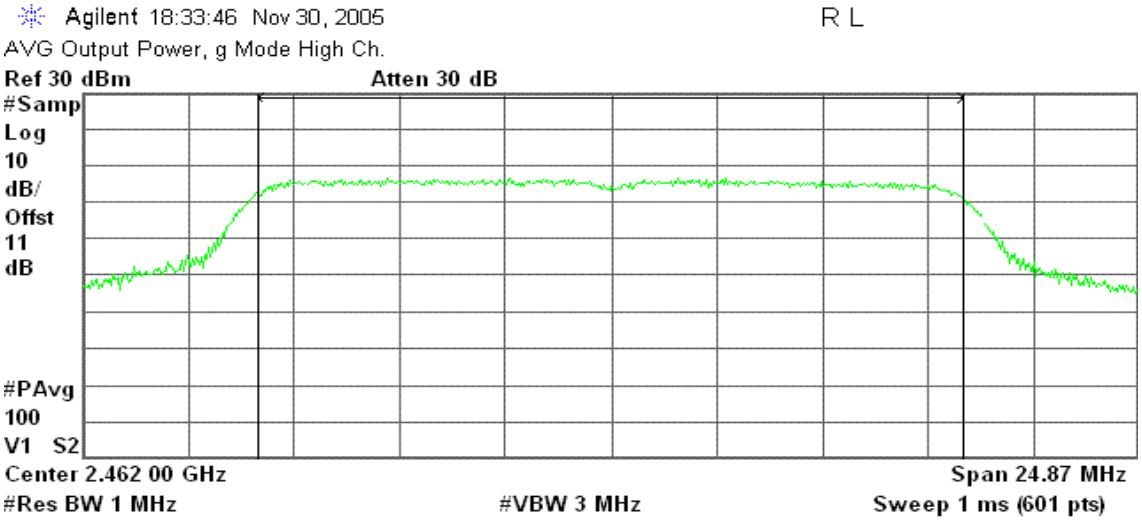
CH Mid



Channel Power
18.58 dBm / 16.7450 MHz

Power Spectral Density
-53.65 dBm/Hz

CH High



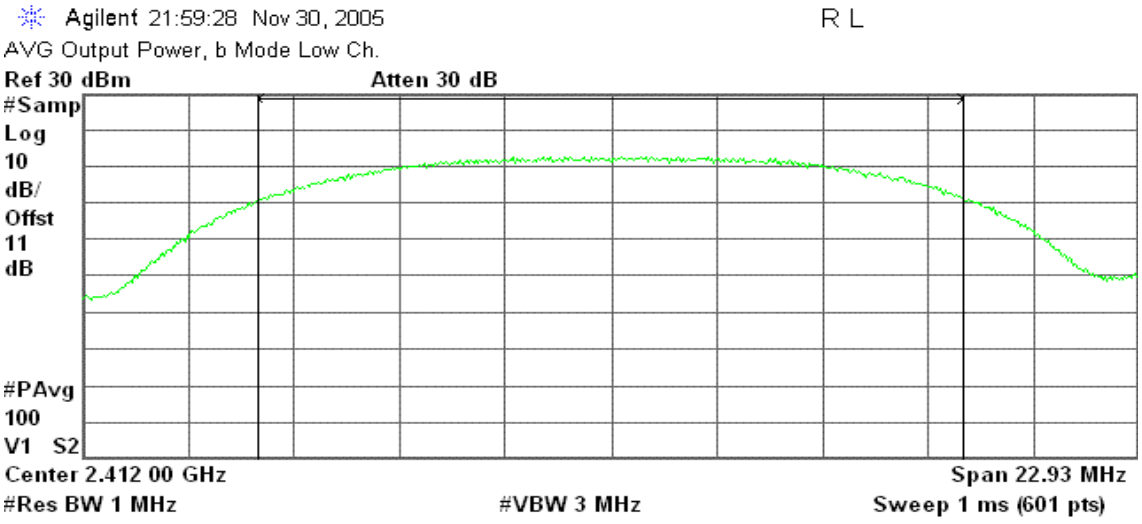
Channel Power
16.92 dBm / 16.5800 MHz

Power Spectral Density
-55.28 dBm/Hz

Mode 8: Antenna 5+ Module 2

IEEE 802.11b

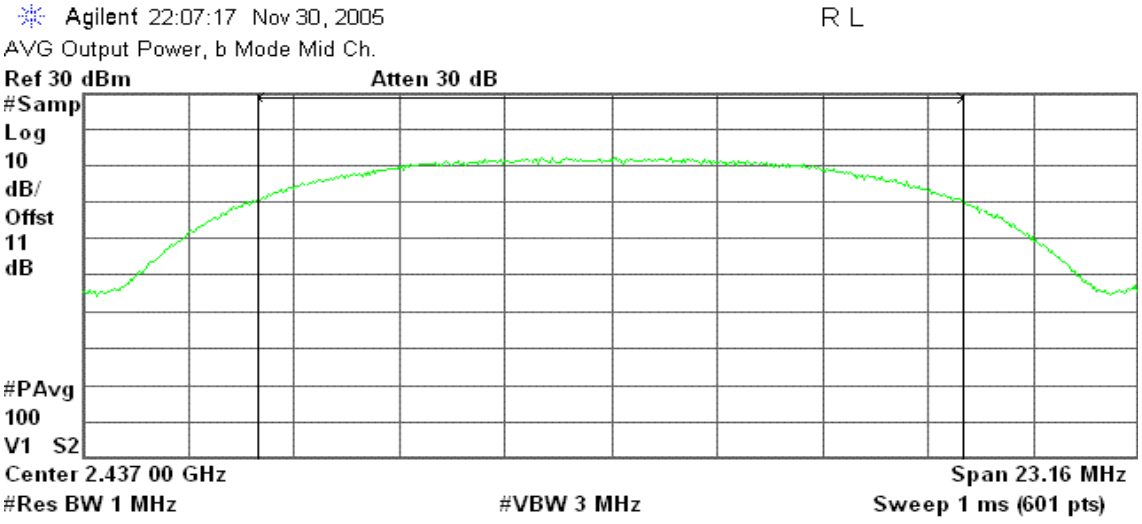
CH Low



Channel Power
21.75 dBm / 15.2850 MHz

Power Spectral Density
-50.09 dBm/Hz

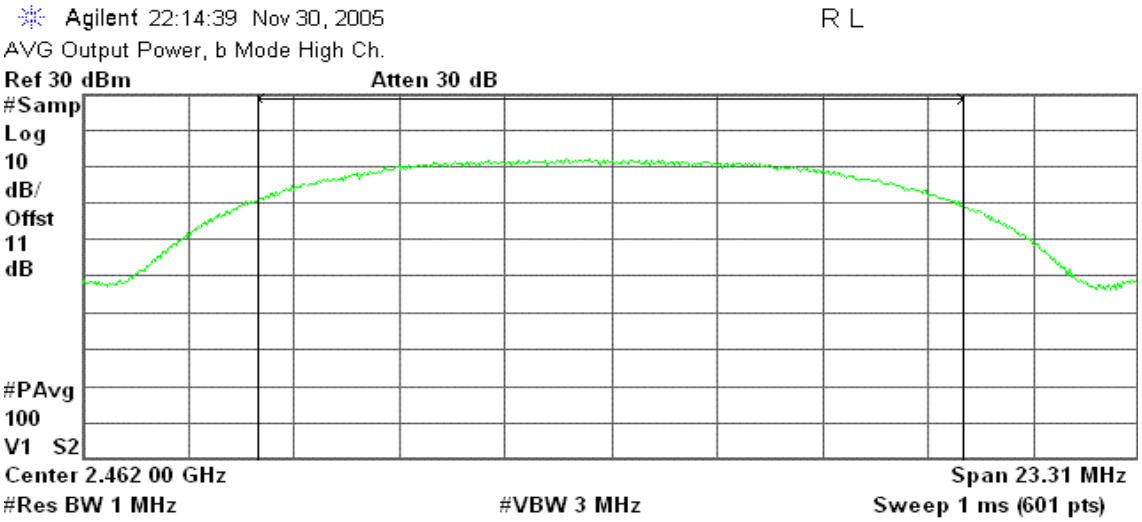
CH Mid



Channel Power
21.35 dBm / 15.4370 MHz

Power Spectral Density
-50.53 dBm/Hz

CH High

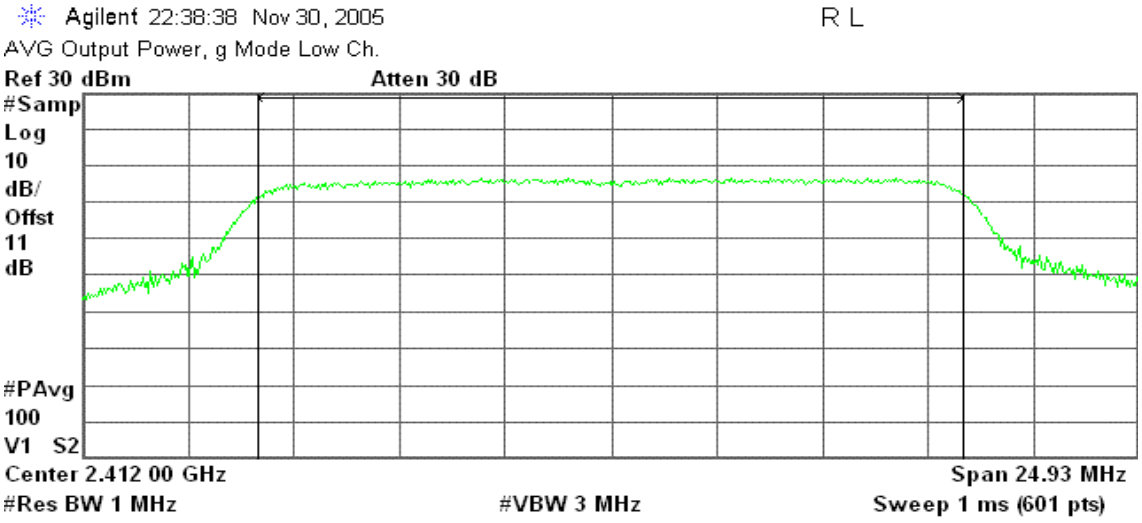


Channel Power
21.63 dBm / 15.5400 MHz

Power Spectral Density
-50.28 dBm/Hz

IEEE 802.11g

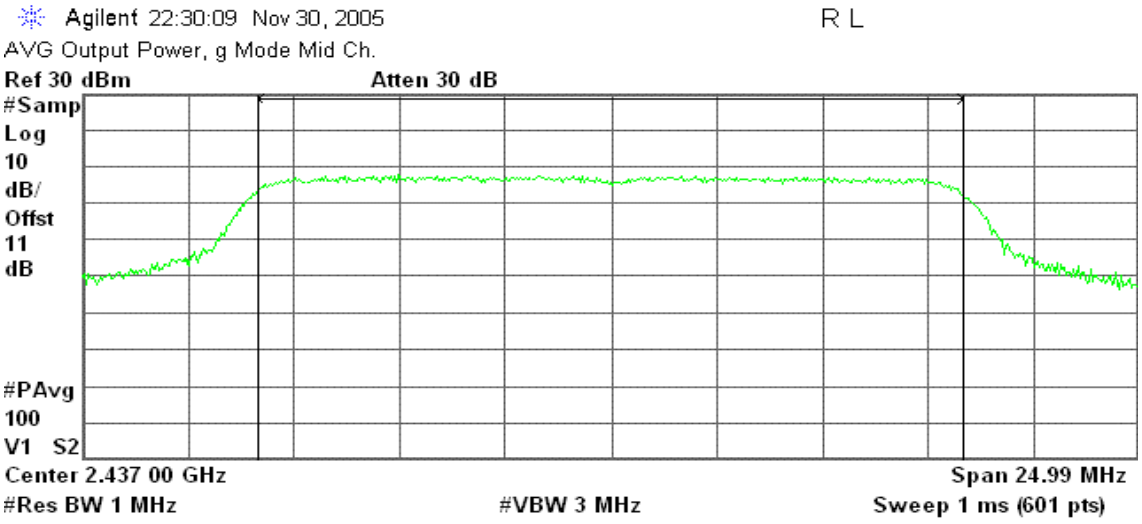
CH Low



Channel Power
18.04 dBm / 16.6220 MHz

Power Spectral Density
-54.17 dBm/Hz

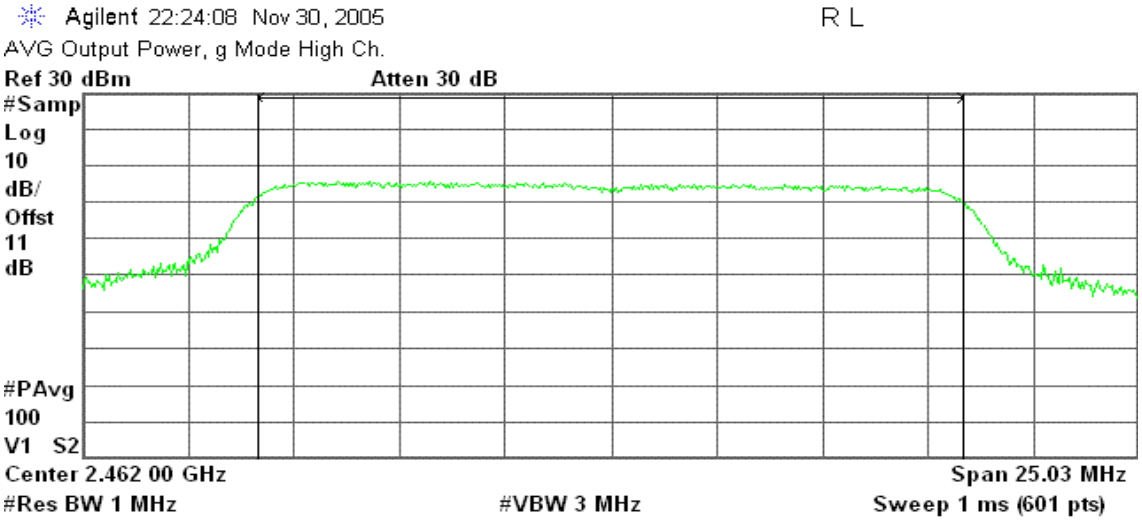
CH Mid



Channel Power
18.37 dBm / 16.6580 MHz

Power Spectral Density
-53.85 dBm/Hz

CH High

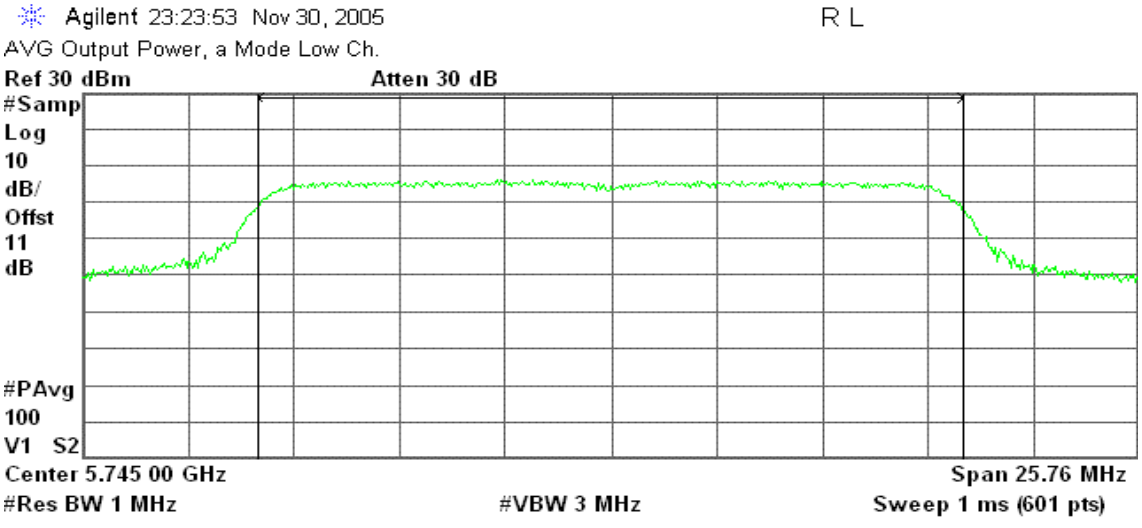


Channel Power
15.96 dBm / 16.6860 MHz

Power Spectral Density
-56.26 dBm/Hz

IEEE 802.11a

CH Low



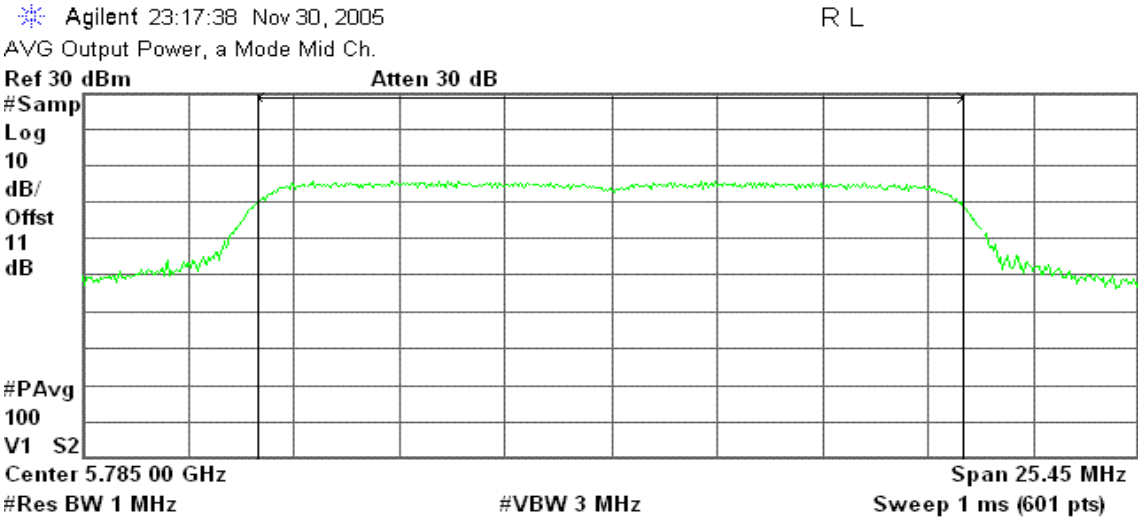
Channel Power

16.43 dBm / 17.1730 MHz

Power Spectral Density

-55.92 dBm/Hz

CH Mid



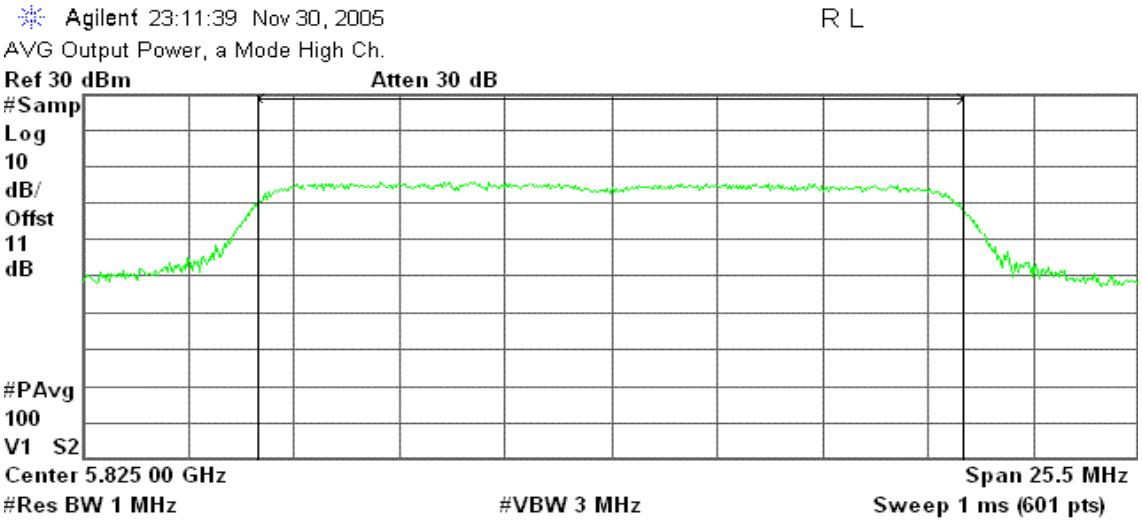
Channel Power

16.77 dBm / 16.9700 MHz

Power Spectral Density

-55.52 dBm/Hz

CH High

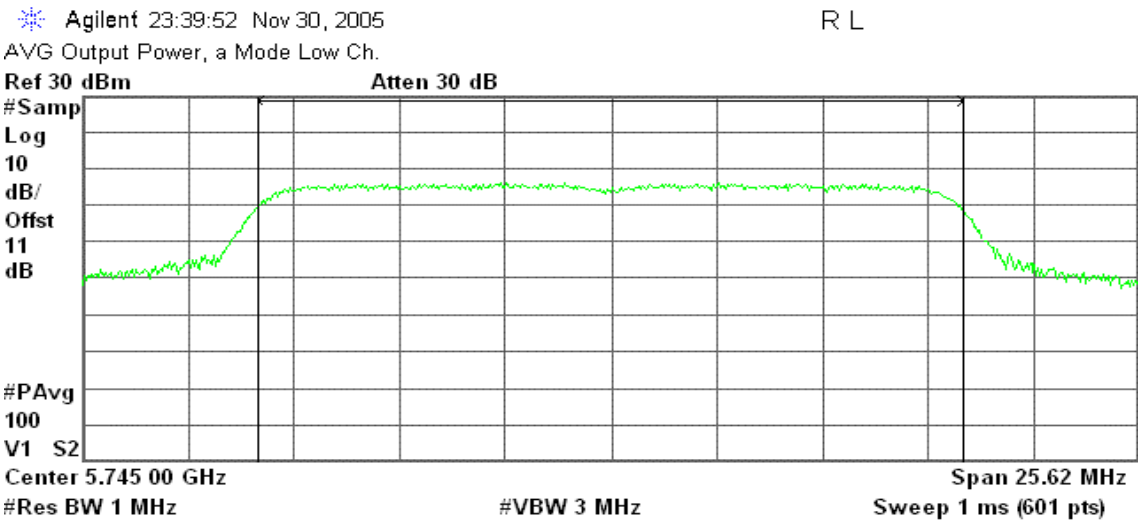


Channel Power	Power Spectral Density
16.53 dBm / 16.9970 MHz	-55.77 dBm/Hz

Mode 9: Antenna 6+ Module 2

IEEE 802.11a

CH Low



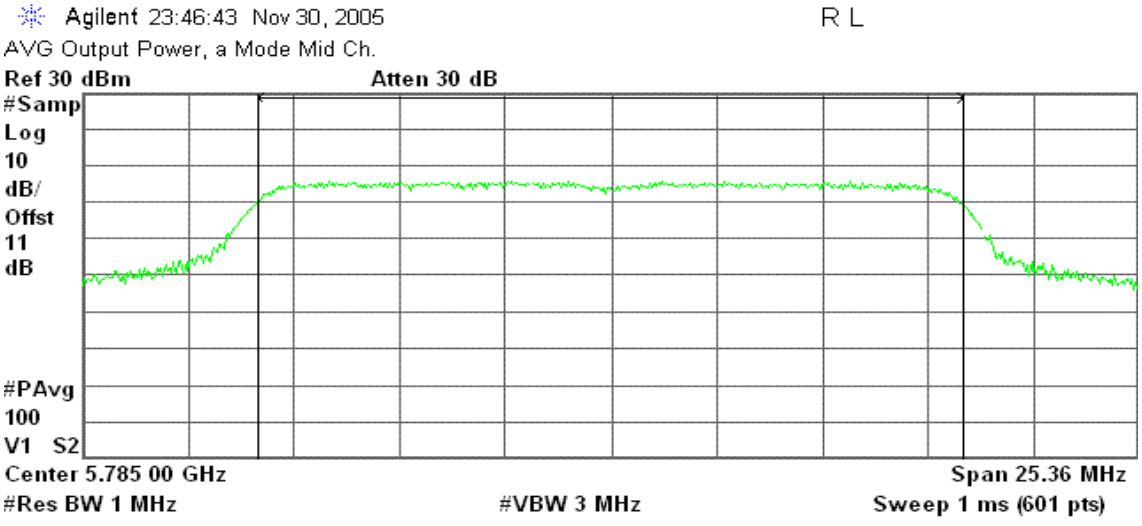
Channel Power

16.89 dBm / 17.0800 MHz

Power Spectral Density

-55.43 dBm/Hz

CH Mid



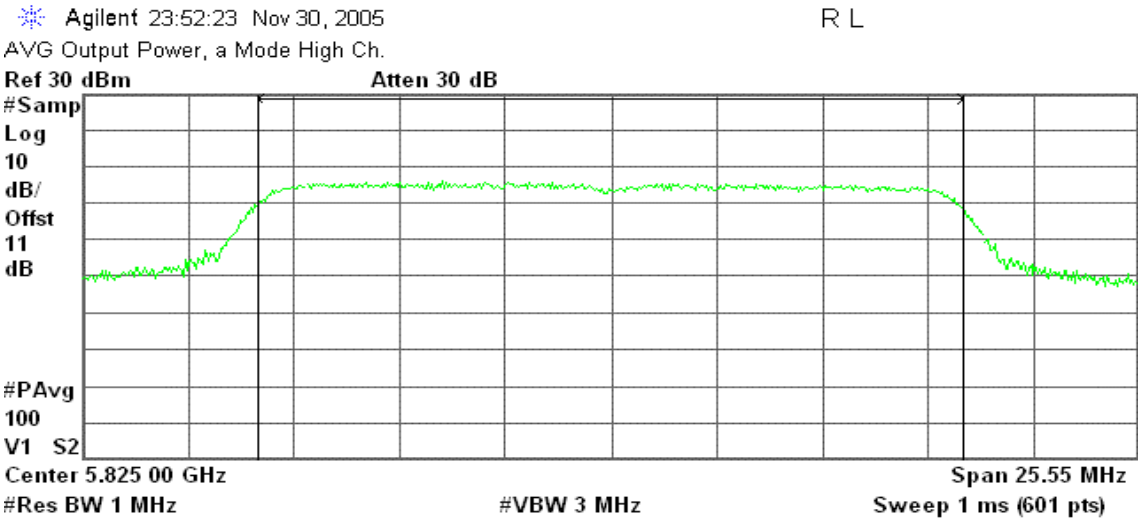
Channel Power

16.81 dBm / 16.9060 MHz

Power Spectral Density

-55.48 dBm/Hz

CH High



Channel Power

16.95 dBm / 17.0340 MHz

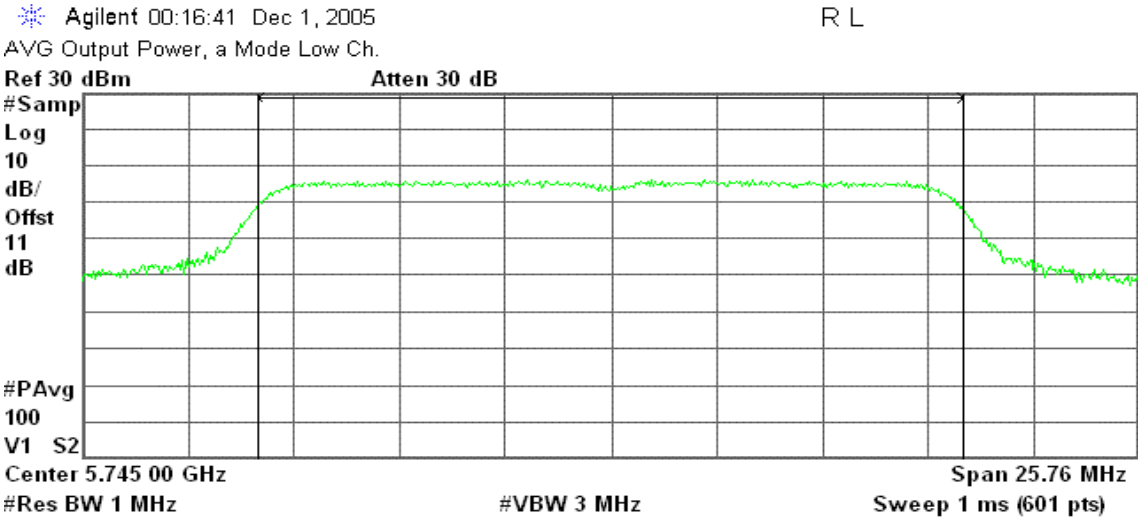
Power Spectral Density

-55.36 dBm/Hz

Mode 10: Antenna 7+ Module 2

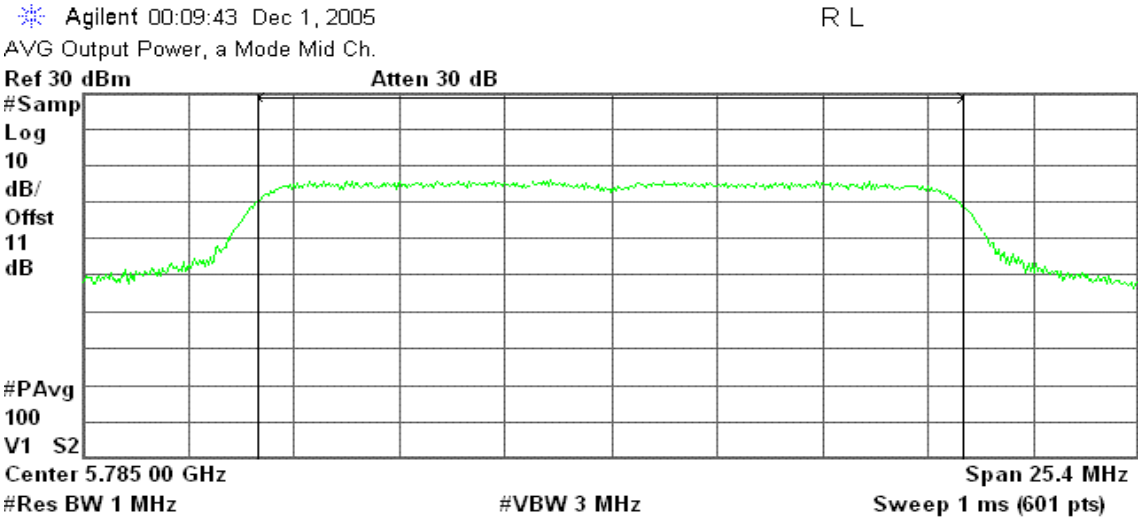
IEEE 802.11a

CH Low



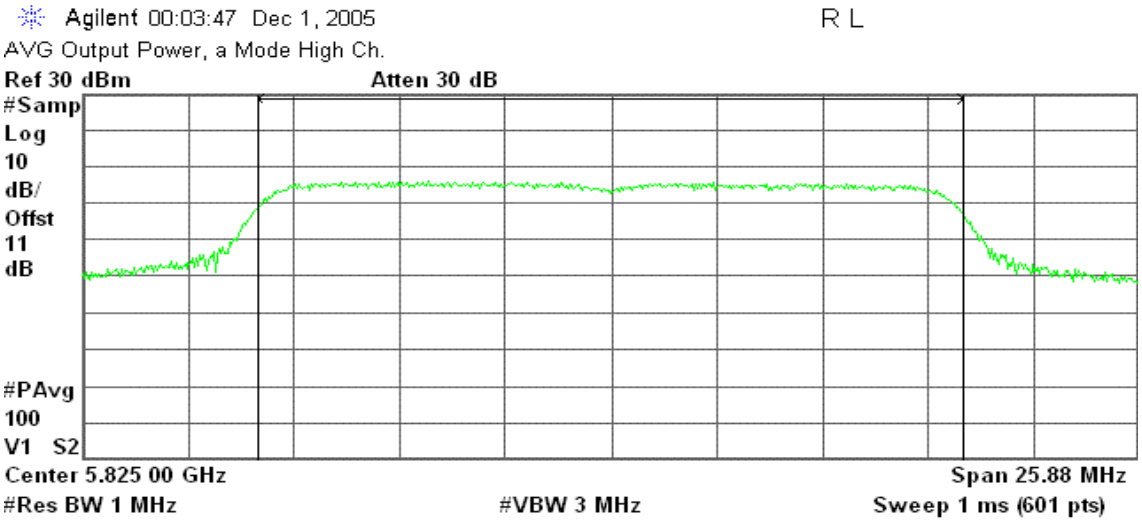
Channel Power	Power Spectral Density
17.06 dBm / 17.1720 MHz	-55.28 dBm/Hz

CH Mid



Channel Power	Power Spectral Density
16.80 dBm / 16.9340 MHz	-55.48 dBm/Hz

CH High

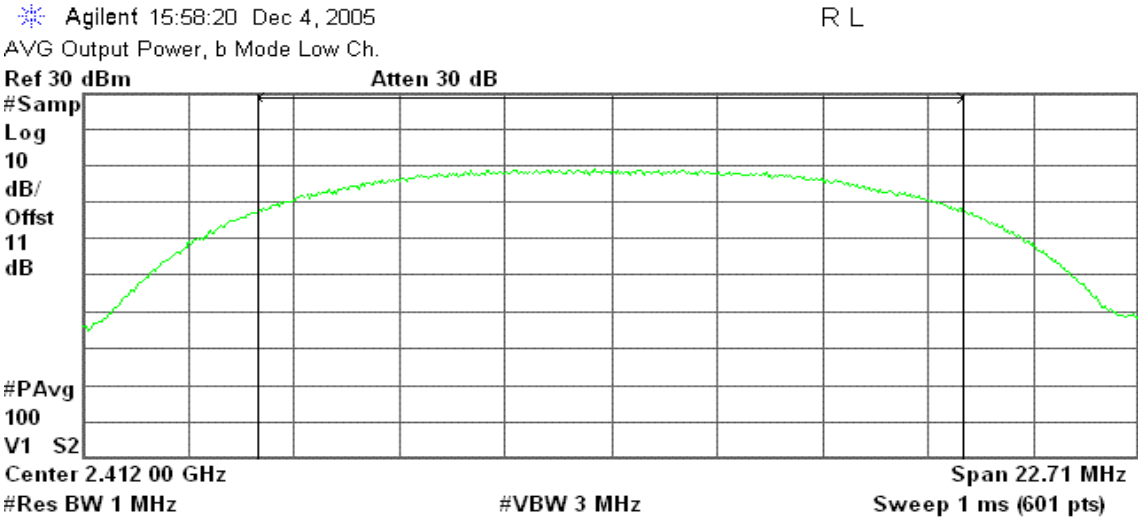


Channel Power	Power Spectral Density
16.86 dBm / 17.2500 MHz	-55.50 dBm/Hz

Mode 11: Antenna 9+ Module 1

IEEE 802.11b

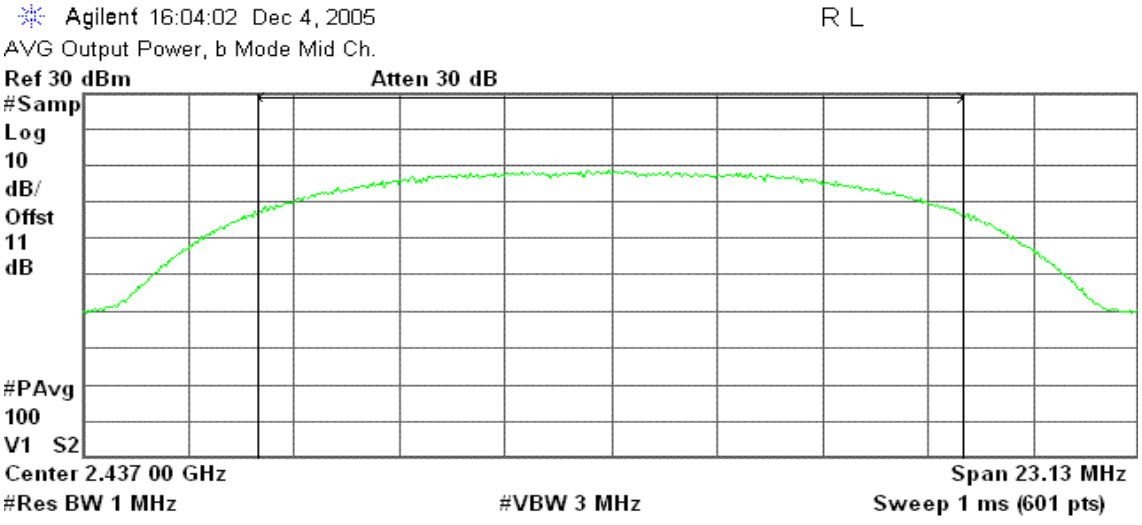
CH Low



Channel Power
18.24 dBm / 15.1380 MHz

Power Spectral Density
-53.56 dBm/Hz

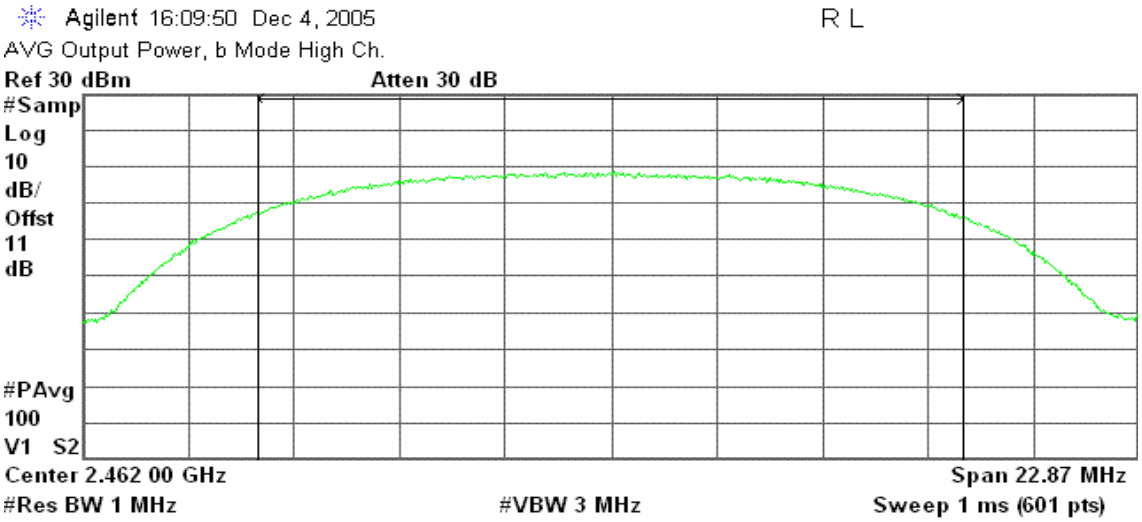
CH Mid



Channel Power
17.92 dBm / 15.4230 MHz

Power Spectral Density
-53.96 dBm/Hz

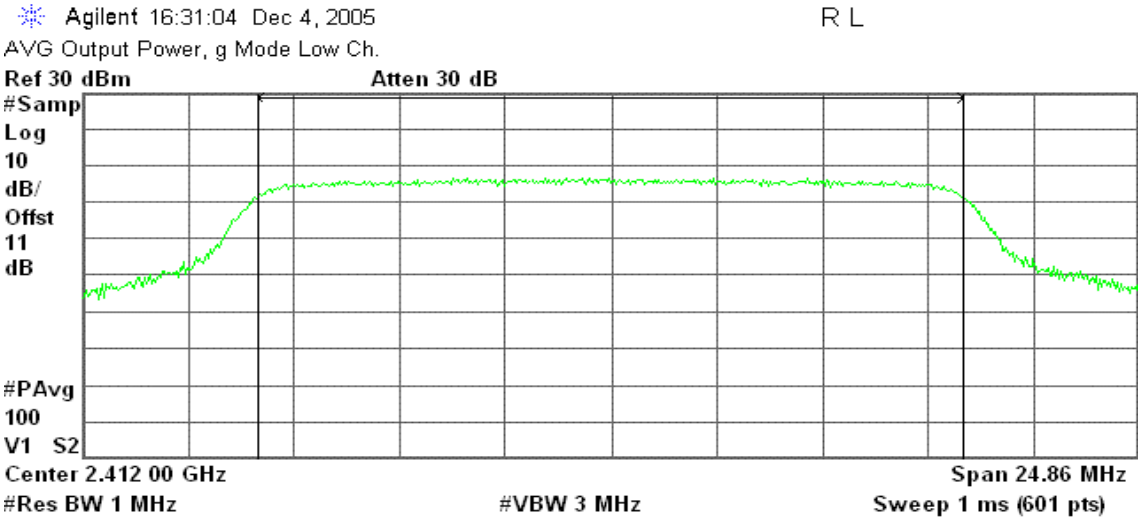
CH High



Channel Power	Power Spectral Density
17.53 dBm / 15.2450 MHz	-54.31 dBm/Hz

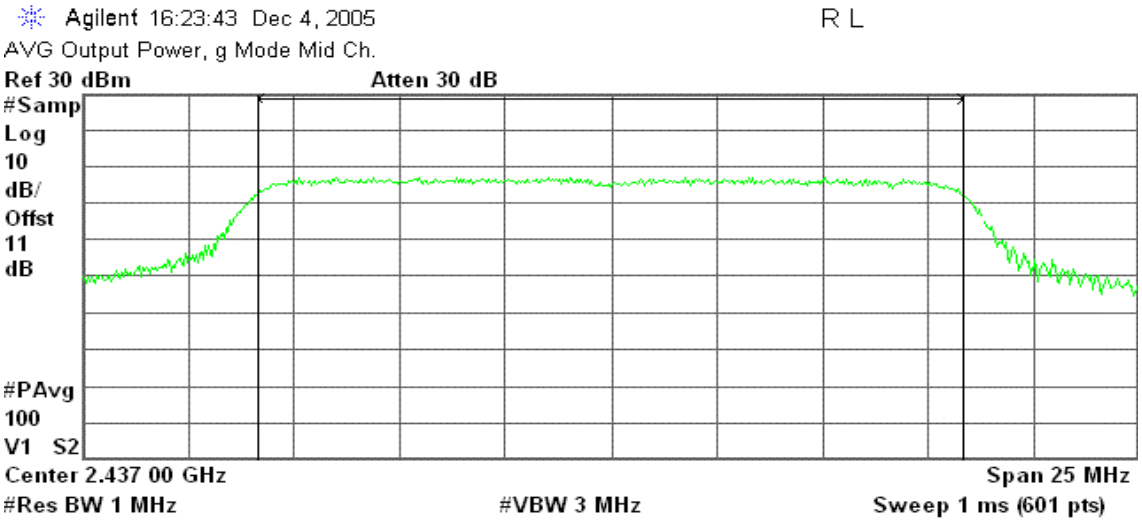
IEEE 802.11g

CH Low



Channel Power	Power Spectral Density
17.31 dBm / 16.5740 MHz	-54.88 dBm/Hz

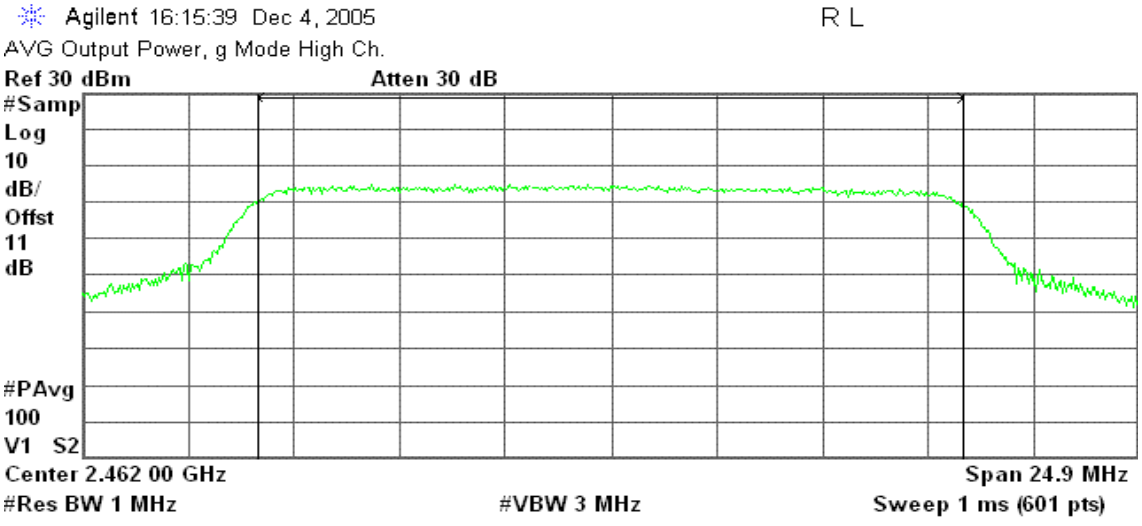
CH Mid



Channel Power
17.69 dBm / 16.6660 MHz

Power Spectral Density
-54.53 dBm/Hz

CH High



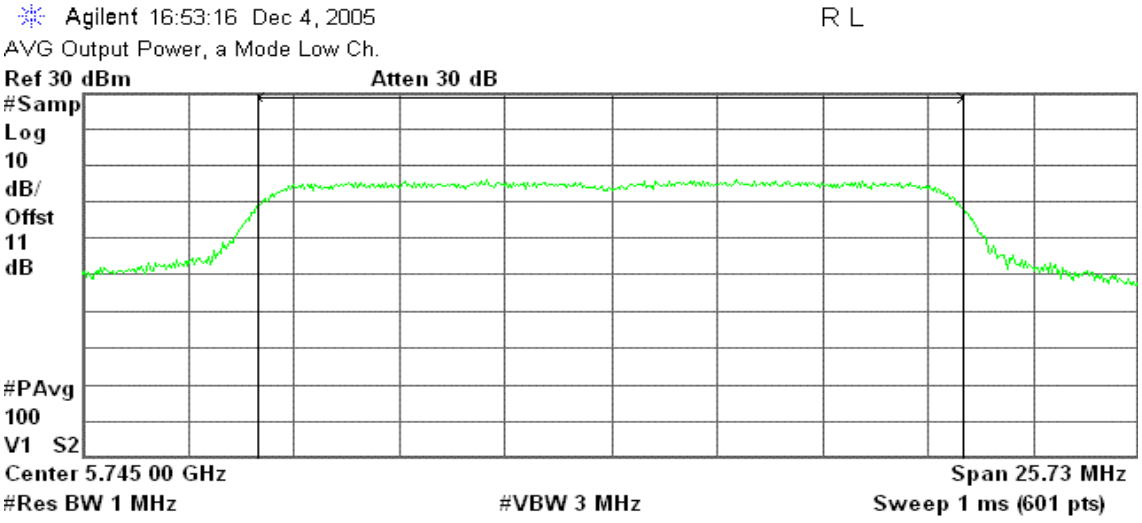
Channel Power
15.65 dBm / 16.6020 MHz

Power Spectral Density
-56.55 dBm/Hz

Mode 12: Antenna 11+ Module 2

IEEE 802.11a

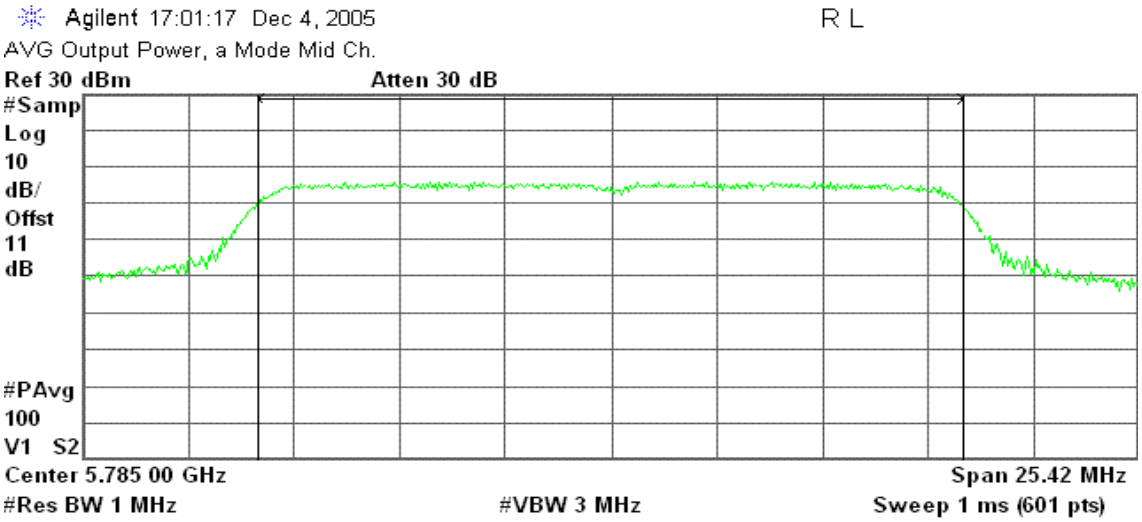
CH Low



Channel Power
16.89 dBm / 17.1540 MHz

Power Spectral Density
-55.45 dBm/Hz

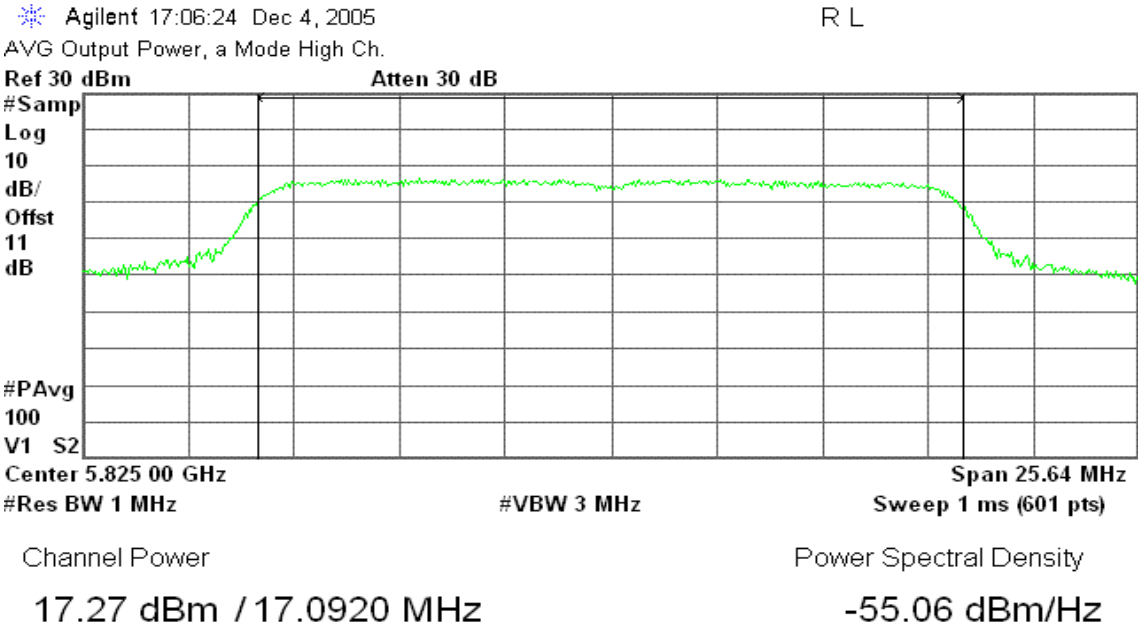
CH Mid



Channel Power
16.27 dBm / 16.9460 MHz

Power Spectral Density
-56.02 dBm/Hz

CH High



Channel Power

17.27 dBm / 17.0920 MHz

Power Spectral Density

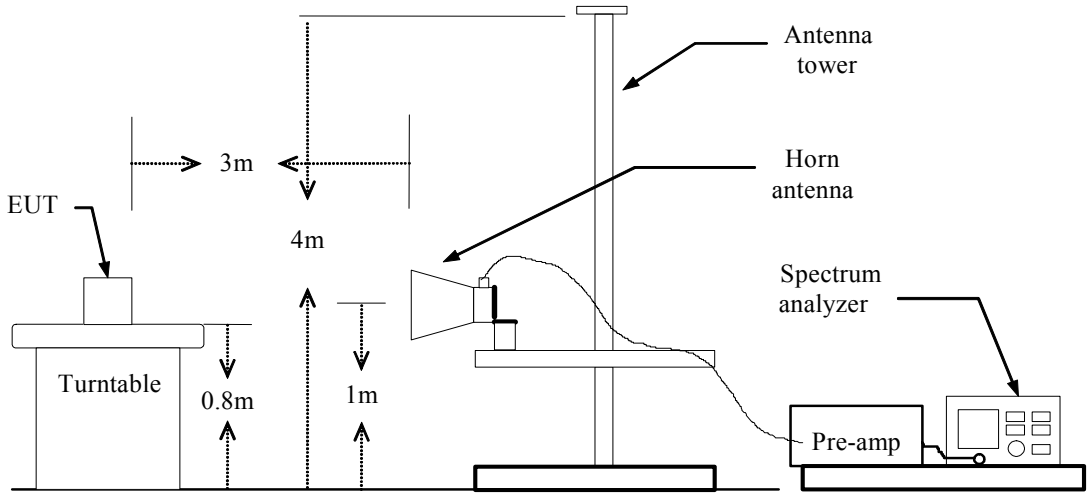
-55.06 dBm/Hz

7.4 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

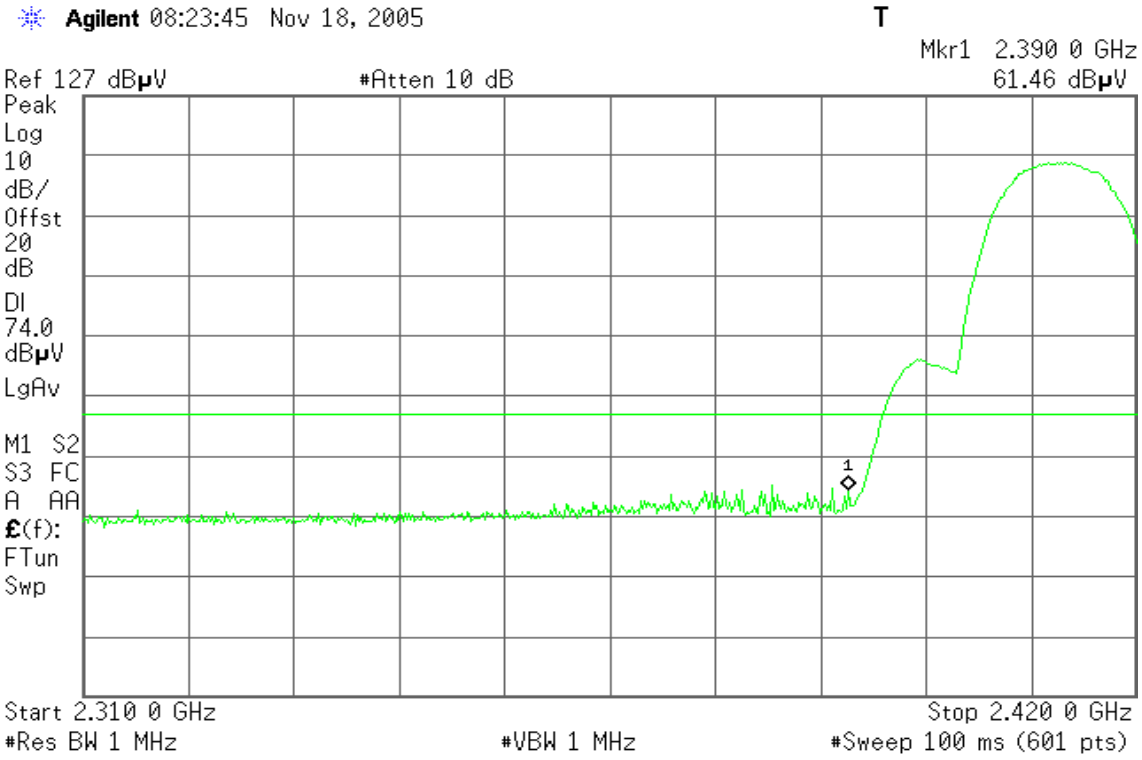
1. The EUT is placed on a turntable, which is 0.8m above the ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4. Set the 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

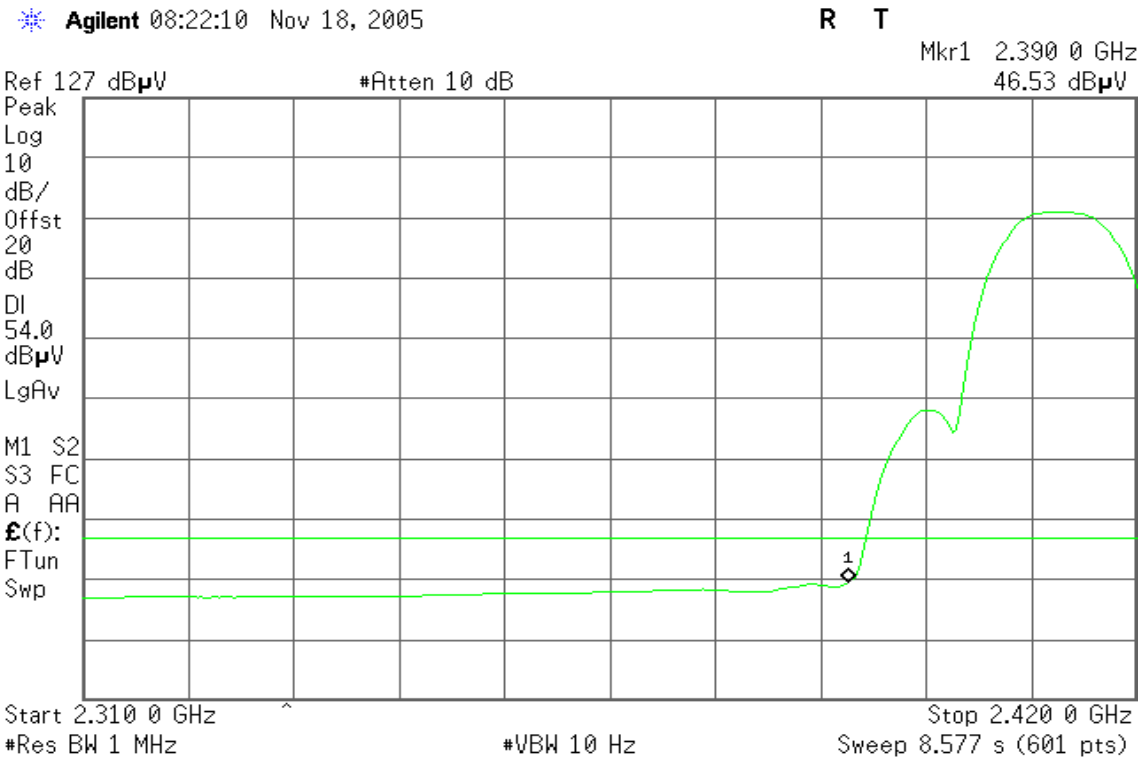
Refer to attach spectrum analyzer data chart.

Mode 1: Antenna 2+ Module 1
Band Edges (IEEE 802.11b / CH Low)

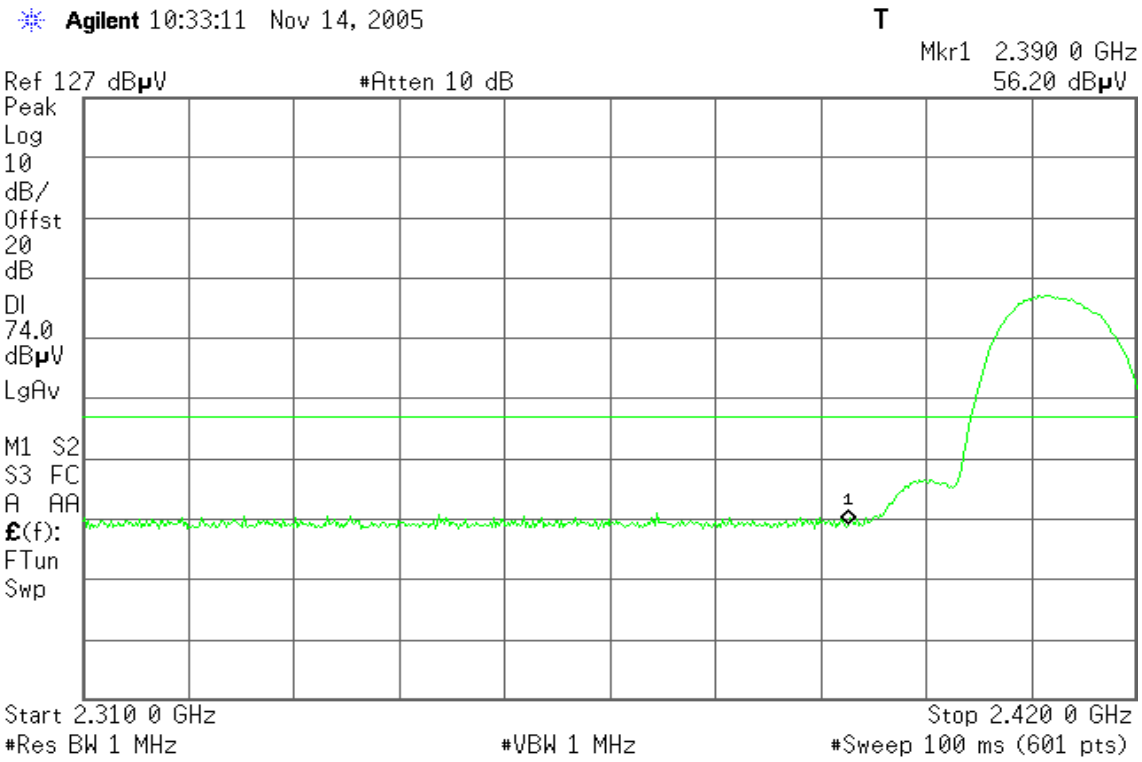
Detector mode: Peak **Polarity: Vertical**



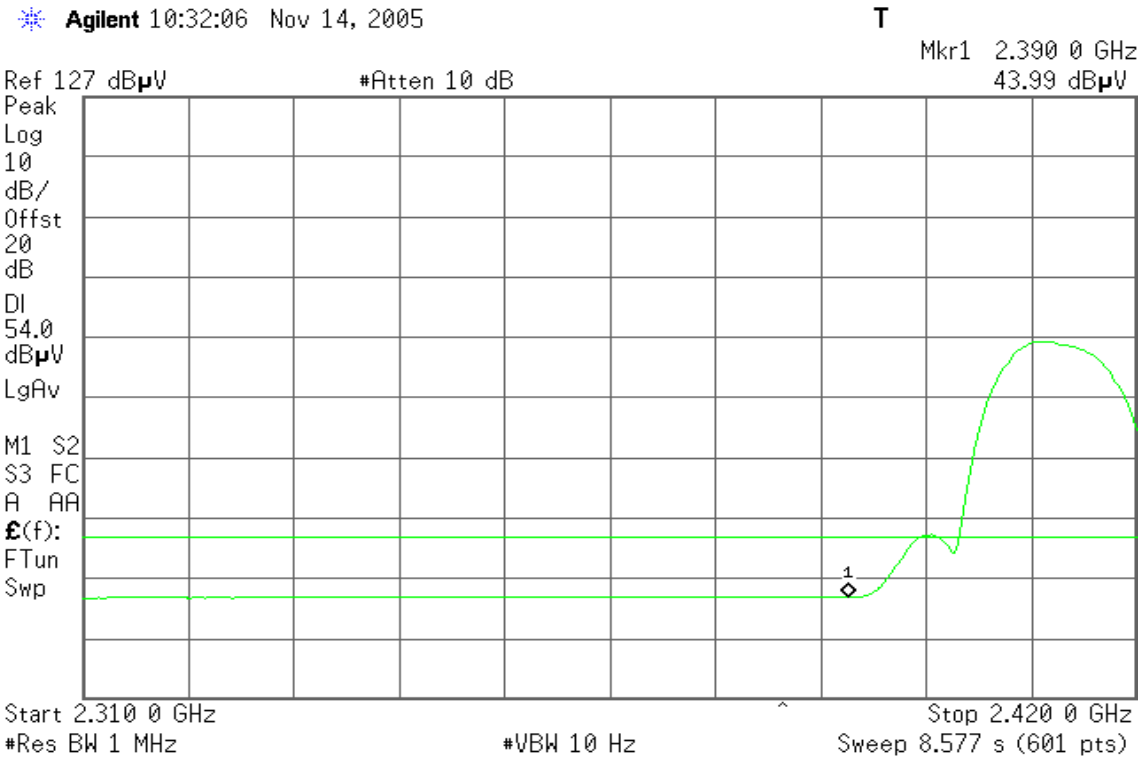
Detector mode: Average **Polarity: Vertical**



Detector mode: Peak **Polarity: Horizontal**

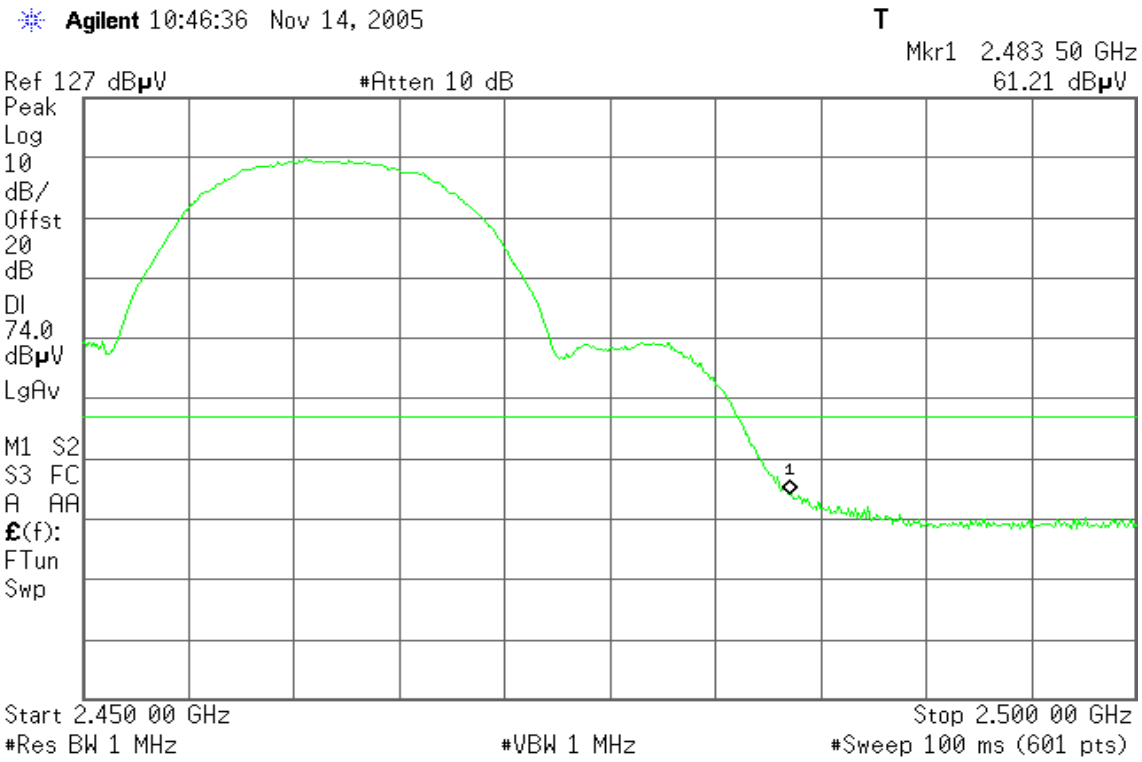


Detector mode: Average **Polarity: Horizontal**

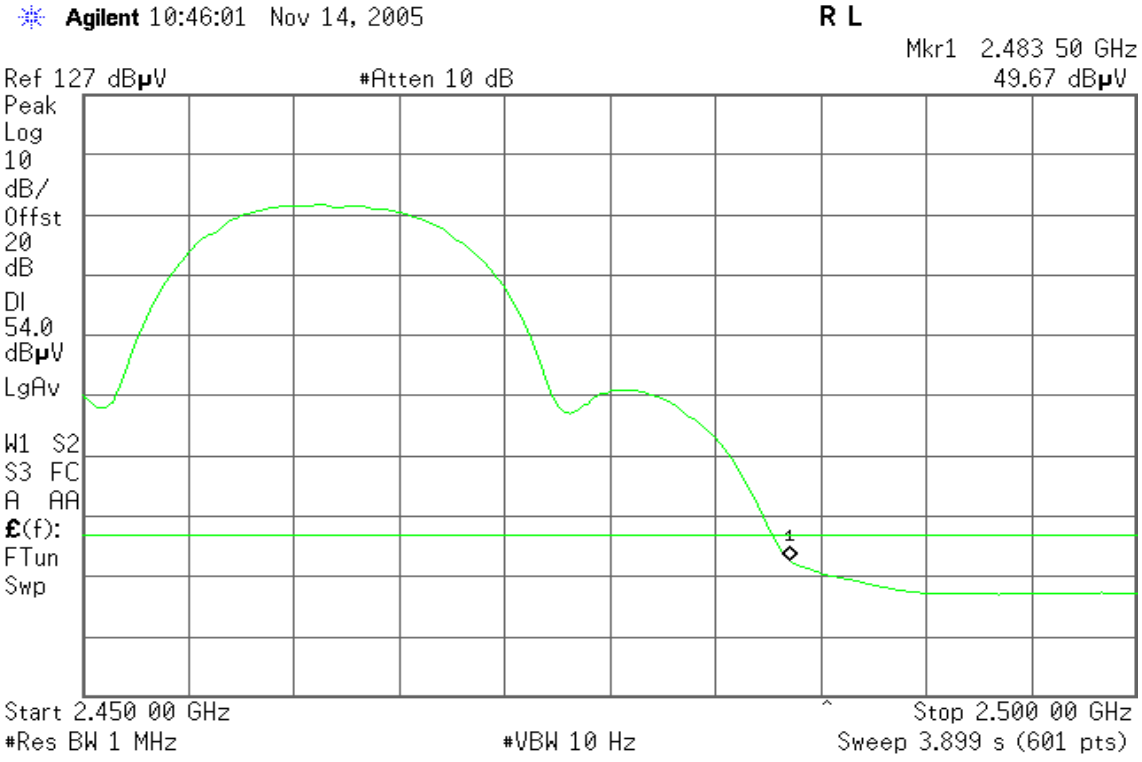


Band Edges (IEEE 802.11b / CH High)

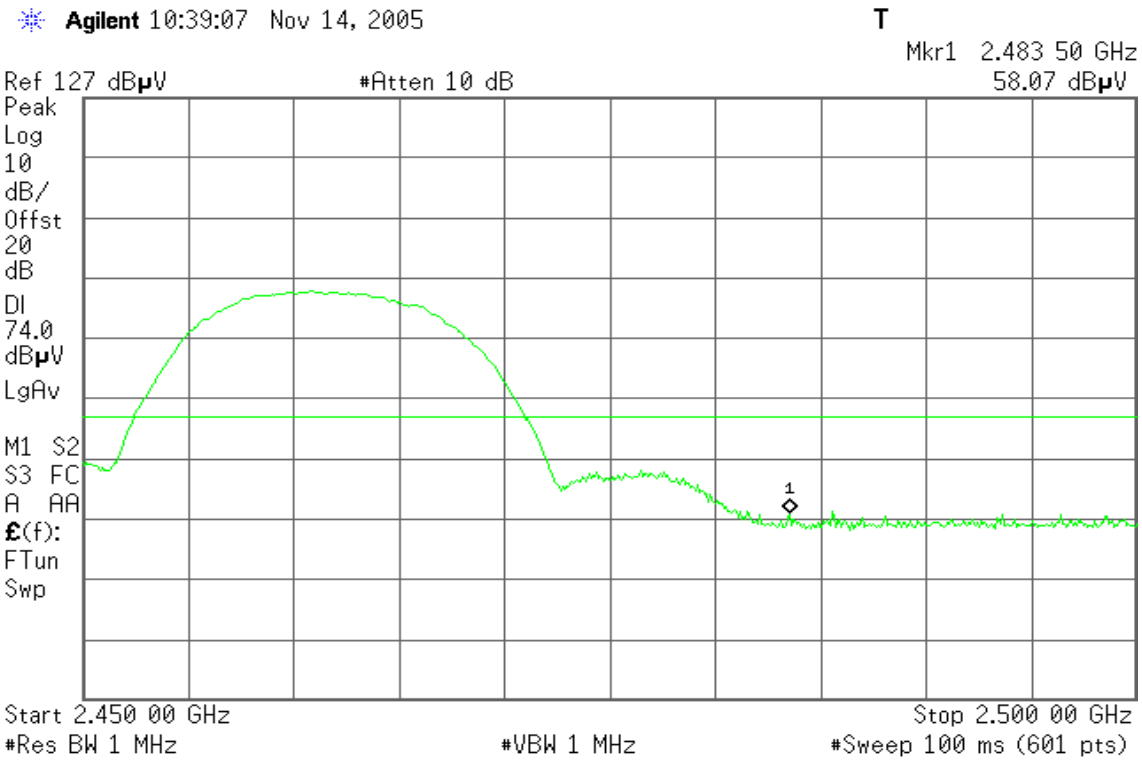
Detector mode: Peak Polarity: Vertical



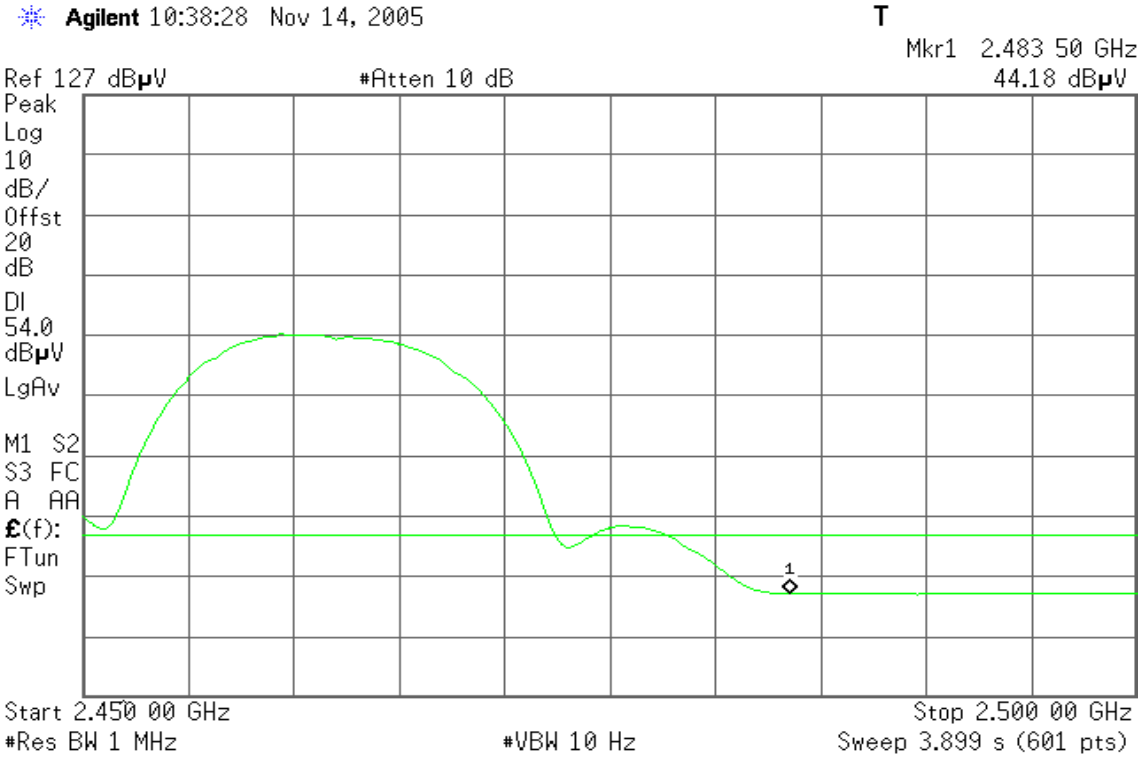
Detector mode: Average Polarity: Vertical



Detector mode: Peak **Polarity: Horizontal**

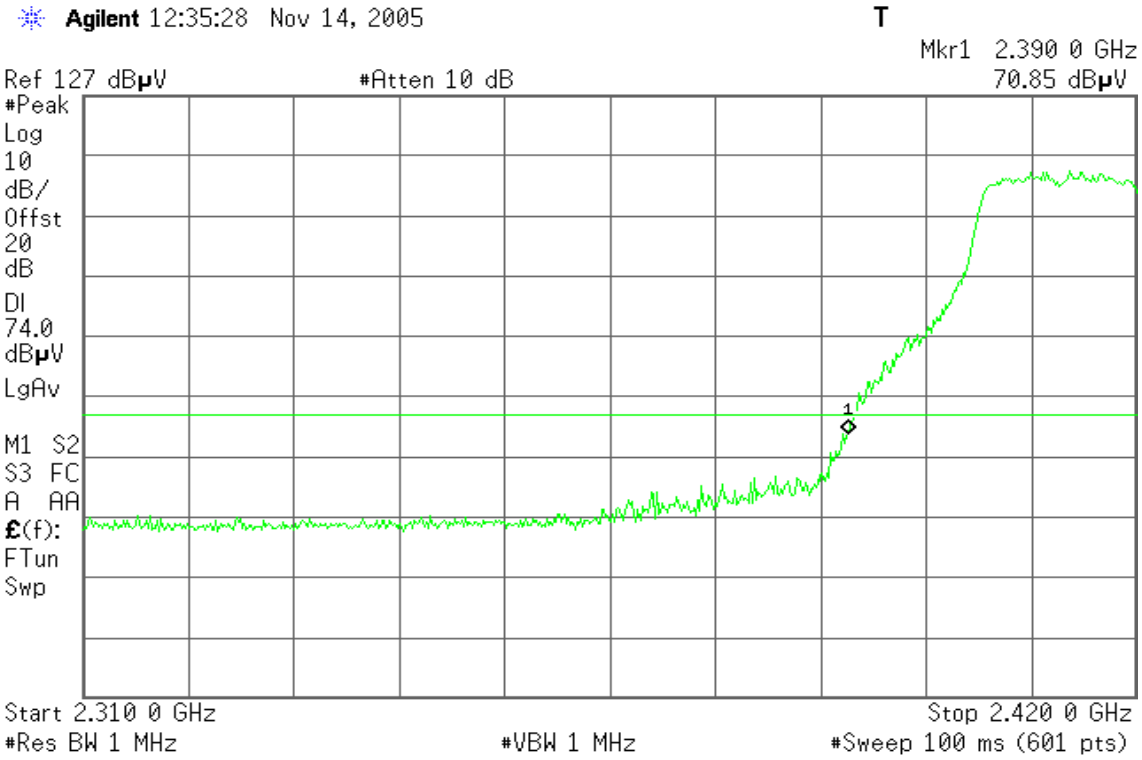


Detector mode: Average **Polarity: Horizontal**

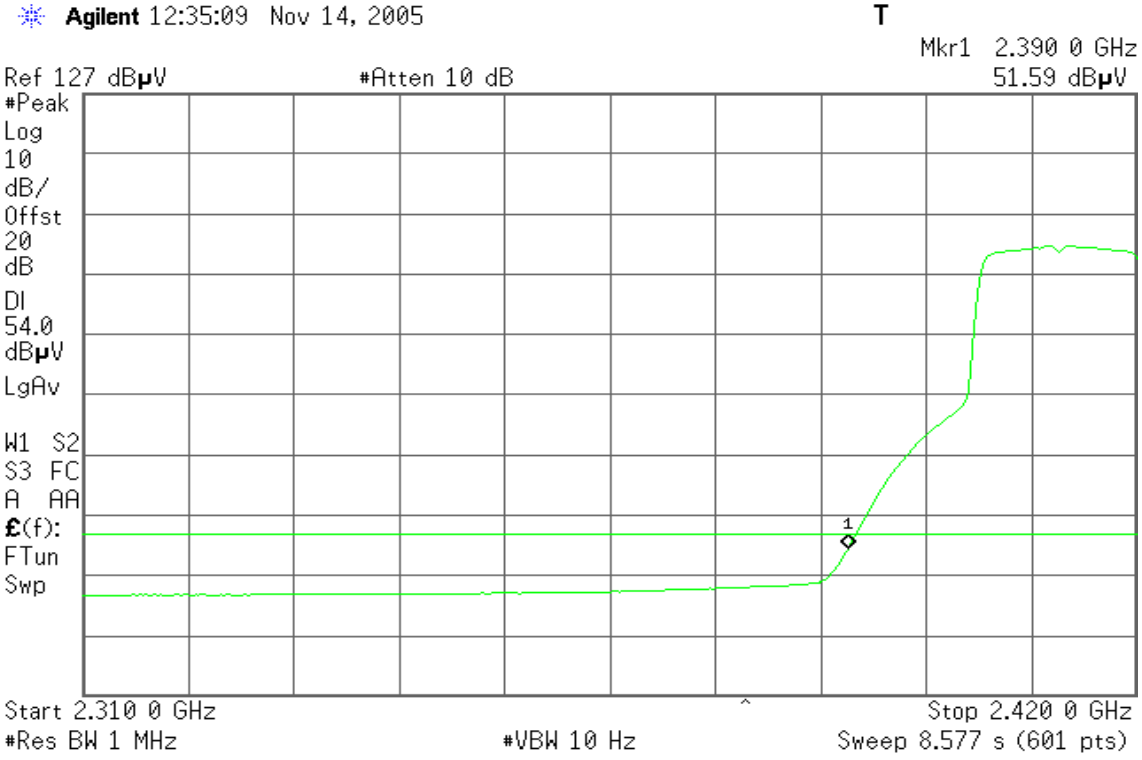


Band Edges (IEEE 802.11g / CH Low)

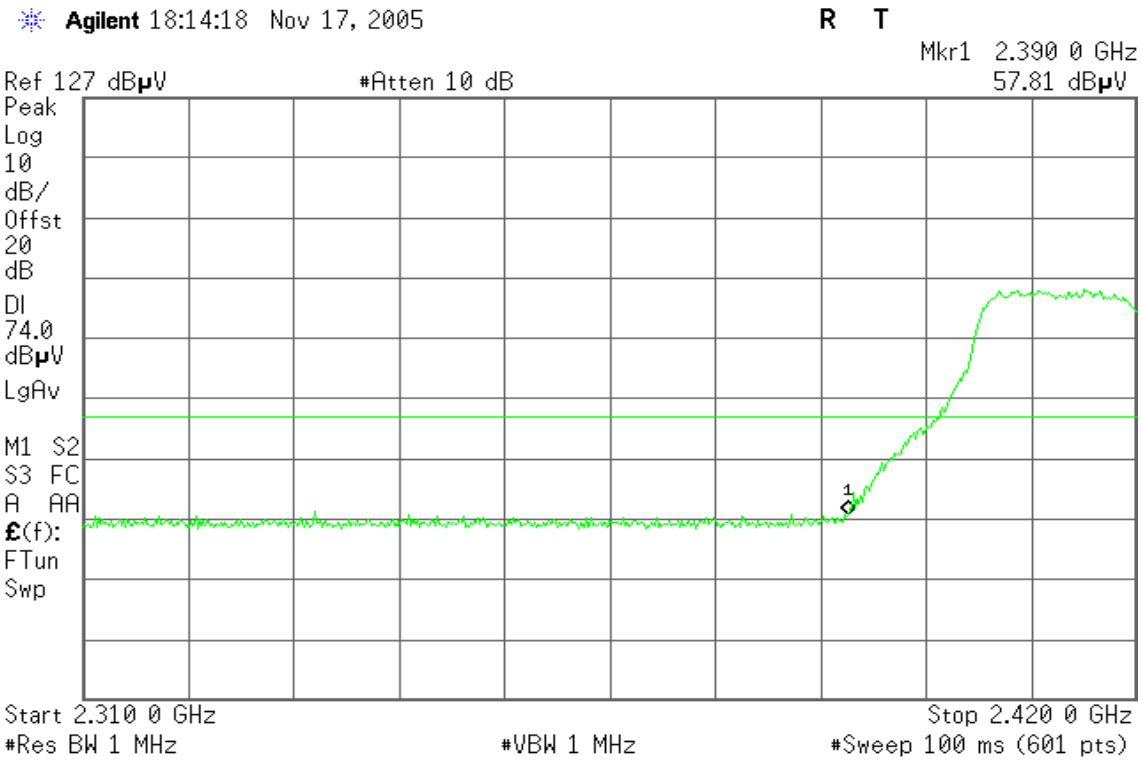
Detector mode: Peak Polarity: Vertical



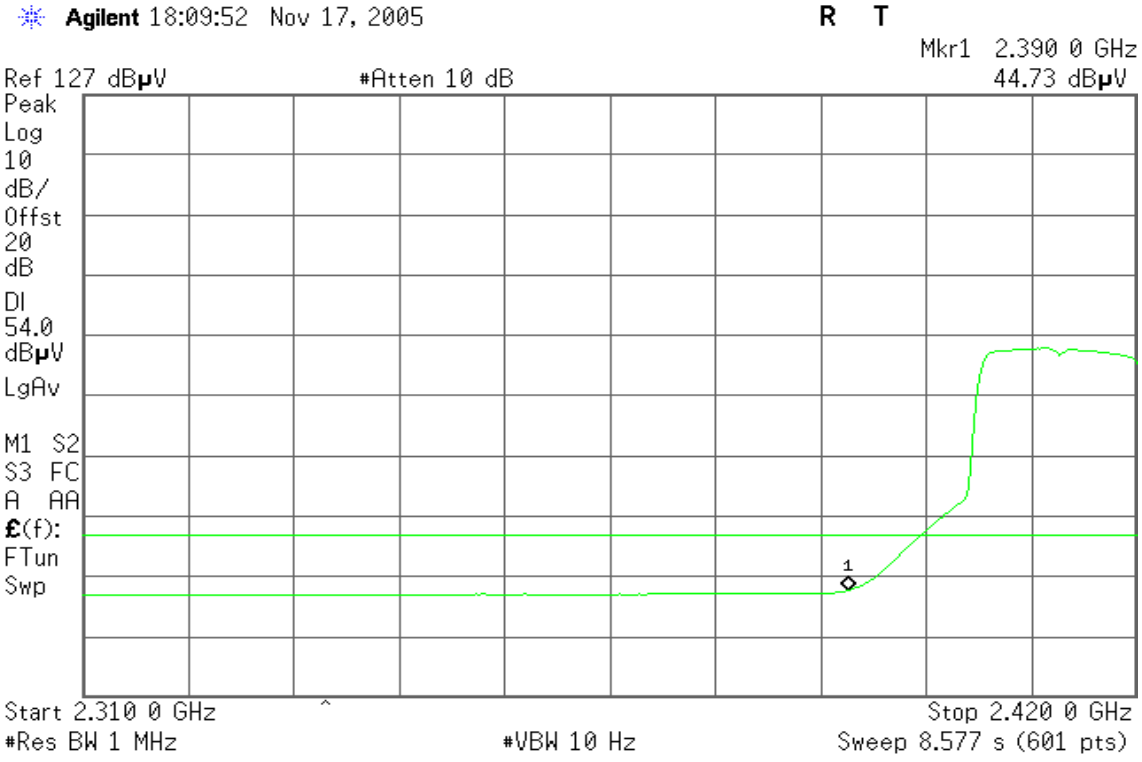
Detector mode: Average Polarity: Vertical



Detector mode: Peak **Polarity: Horizontal**

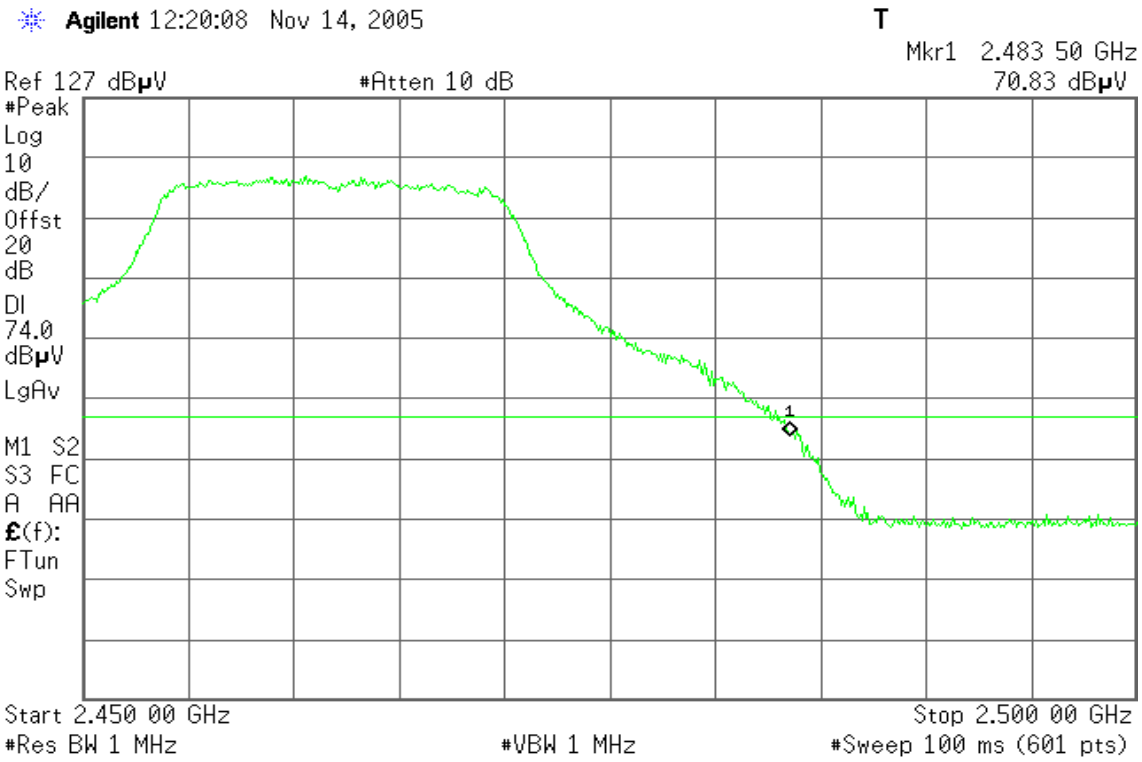


Detector mode: Average **Polarity: Horizontal**

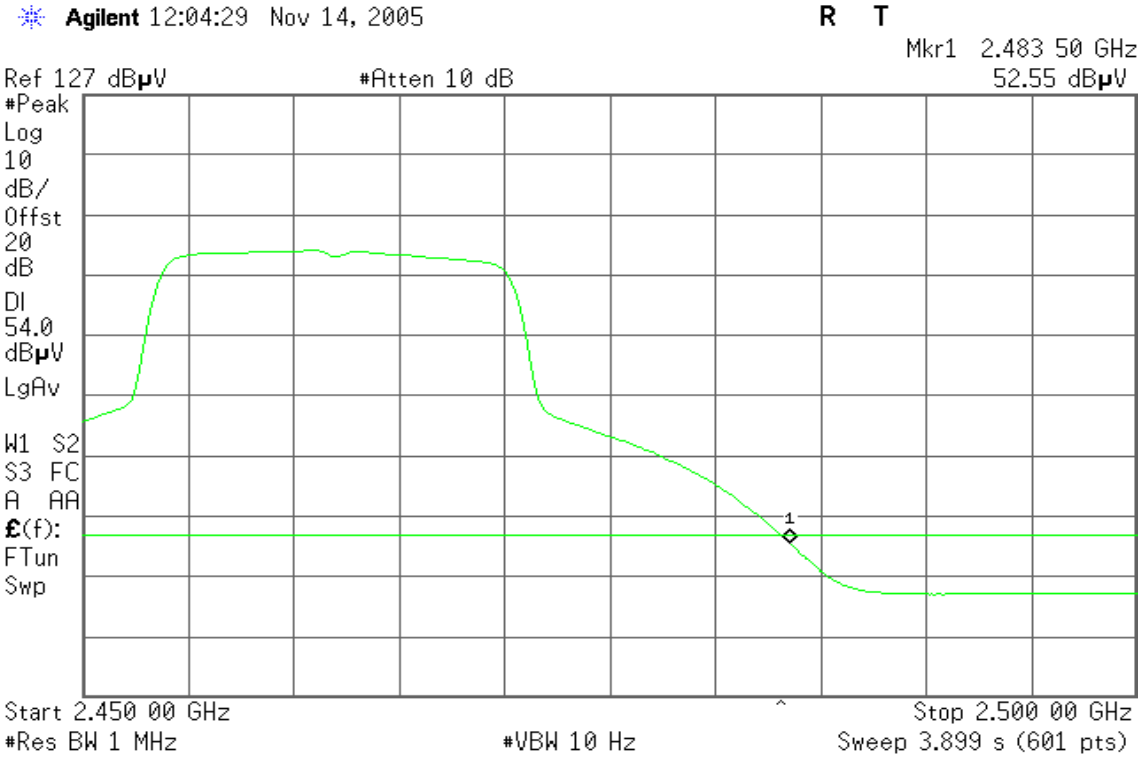


Band Edges (IEEE 802.11g / CH High)

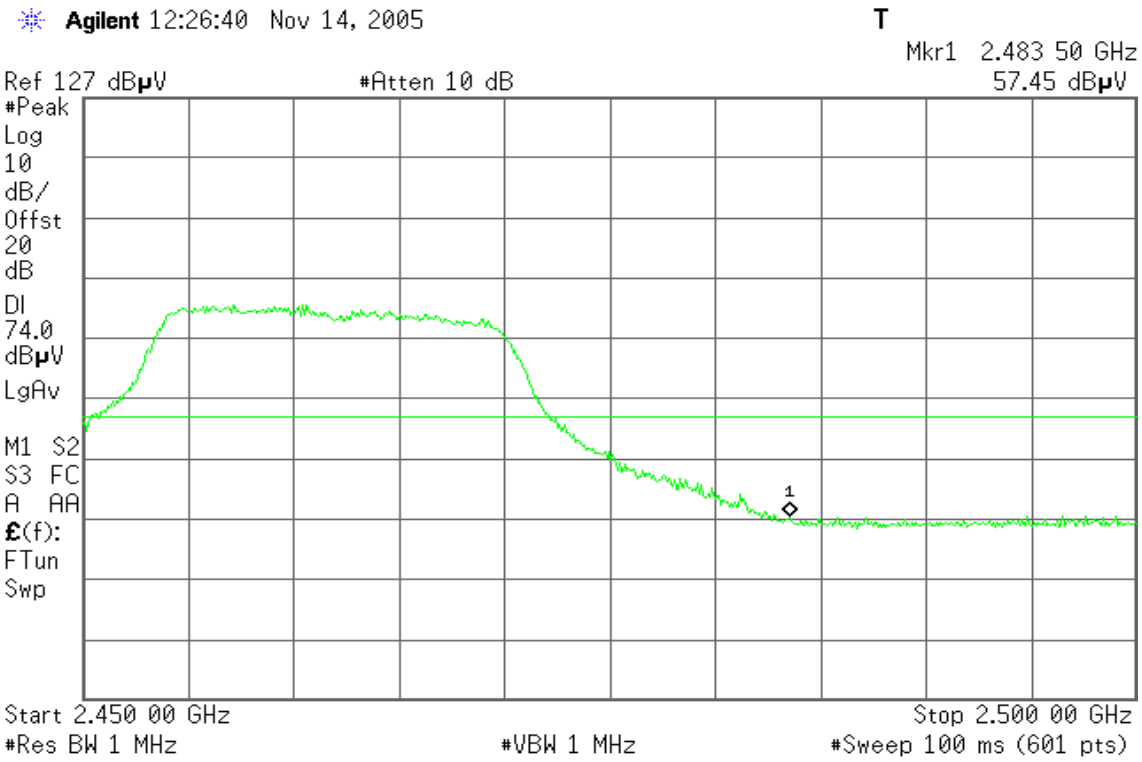
Detector mode: Peak Polarity: Vertical



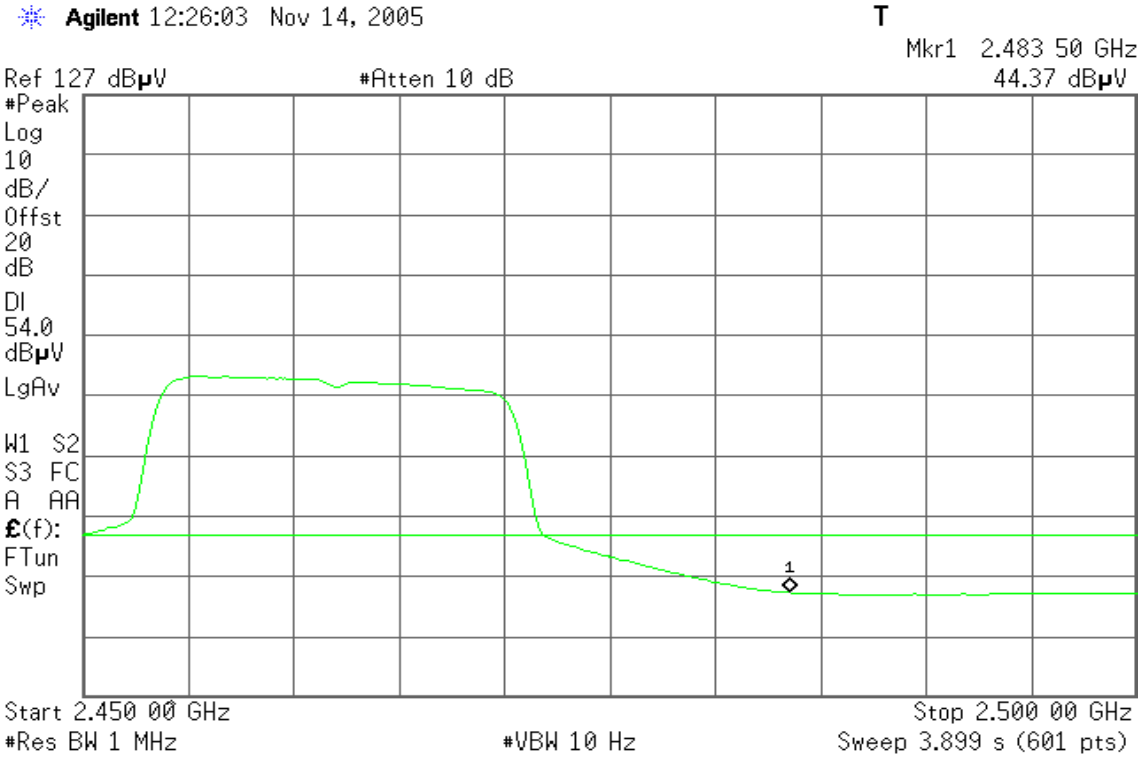
Detector mode: Average Polarity: Vertical



Detector mode: Peak **Polarity: Horizontal**

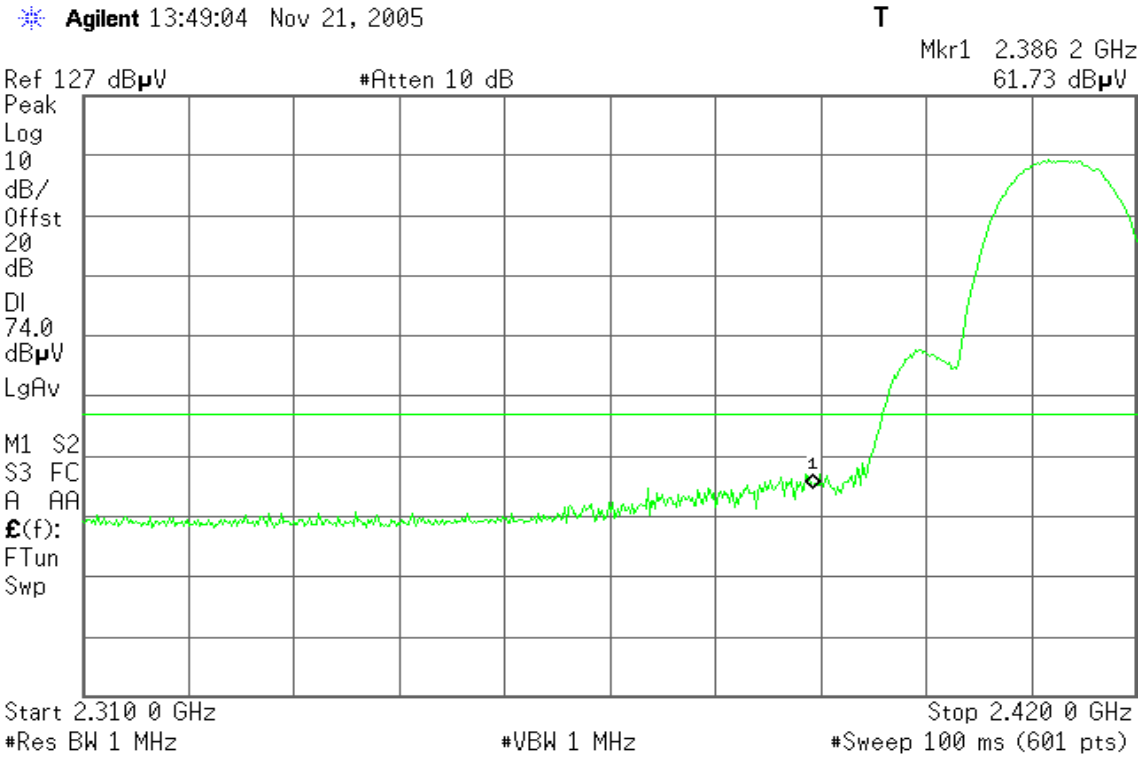


Detector mode: Average **Polarity: Horizontal**

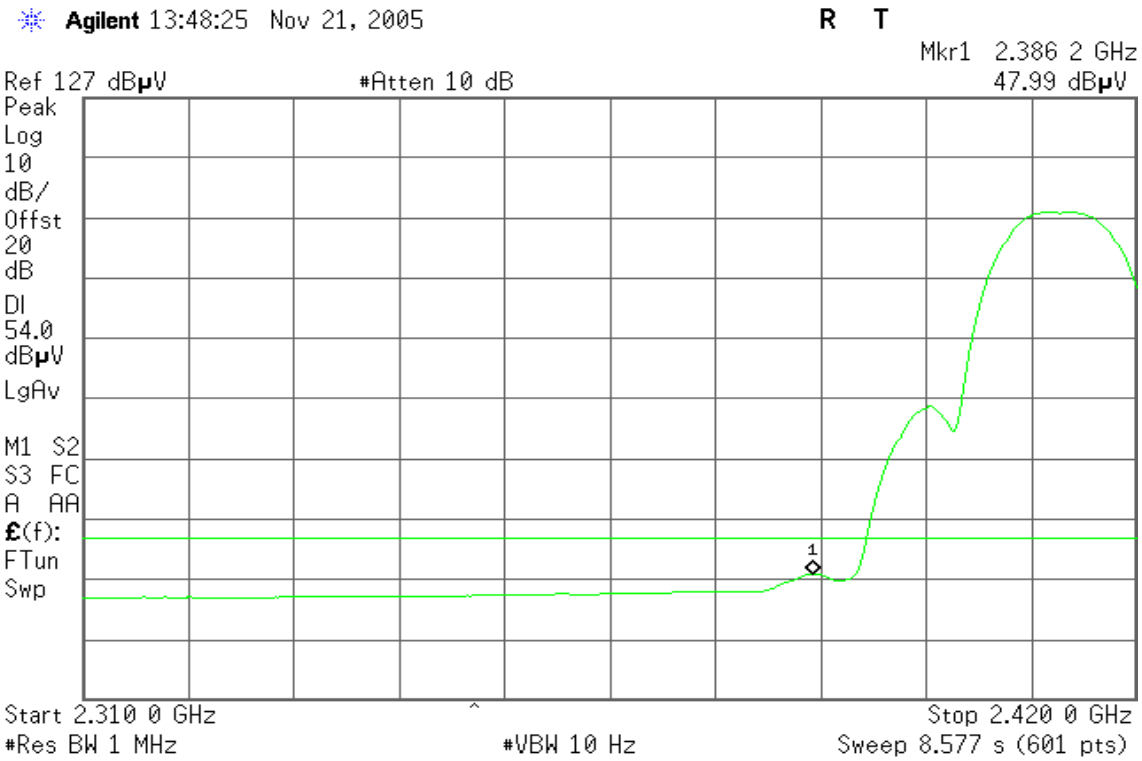


Mode 2: Antenna 2+ Module 2
Band Edges (IEEE 802.11b / CH Low)

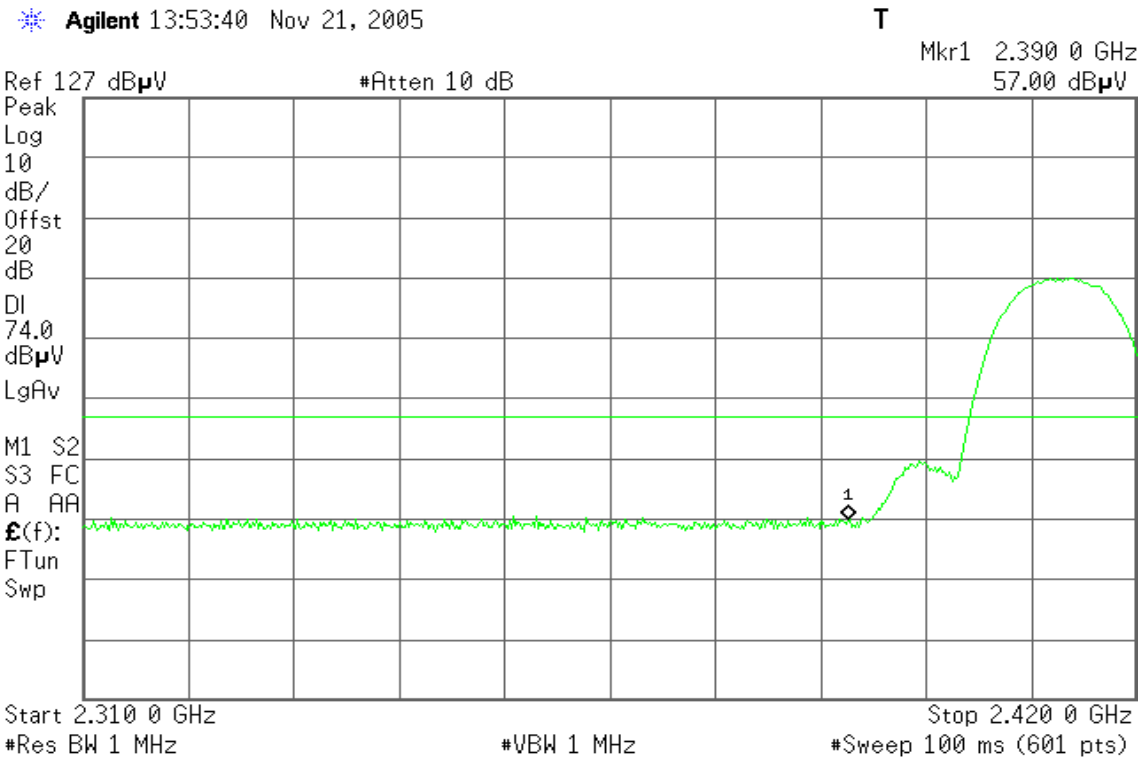
Detector mode: Peak **Polarity: Vertical**



Detector mode: Average **Polarity: Vertical**



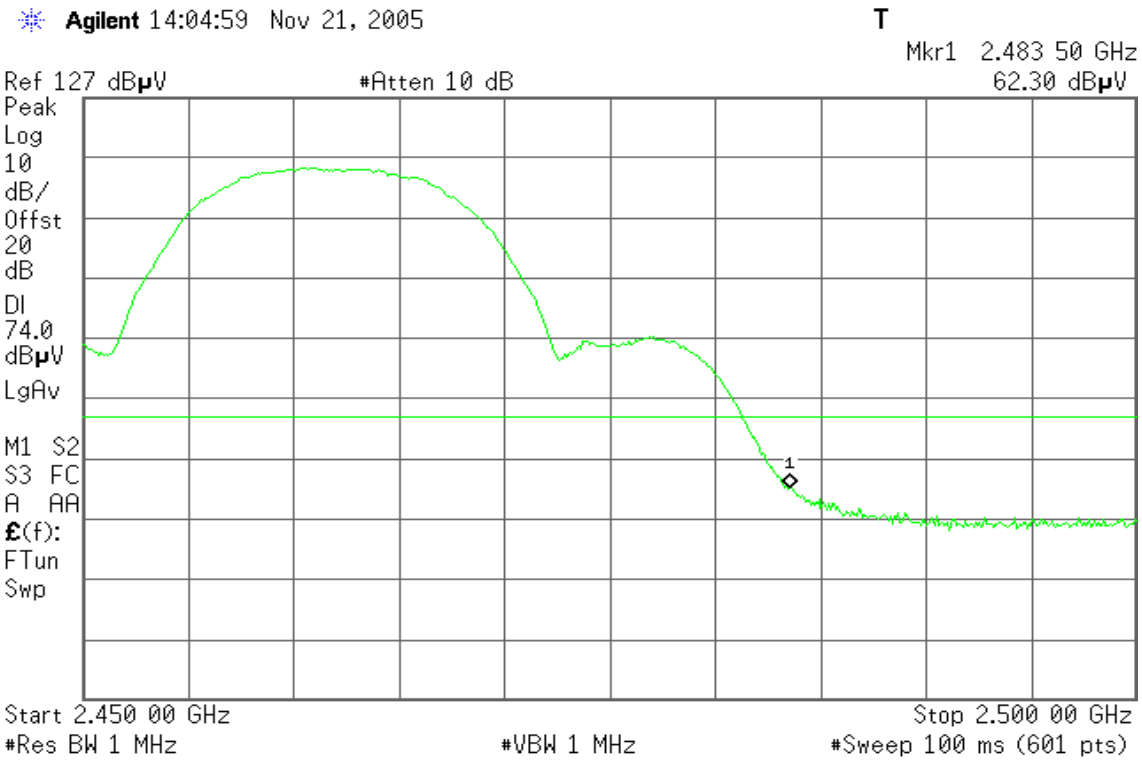
Detector mode: Peak **Polarity: Horizontal**



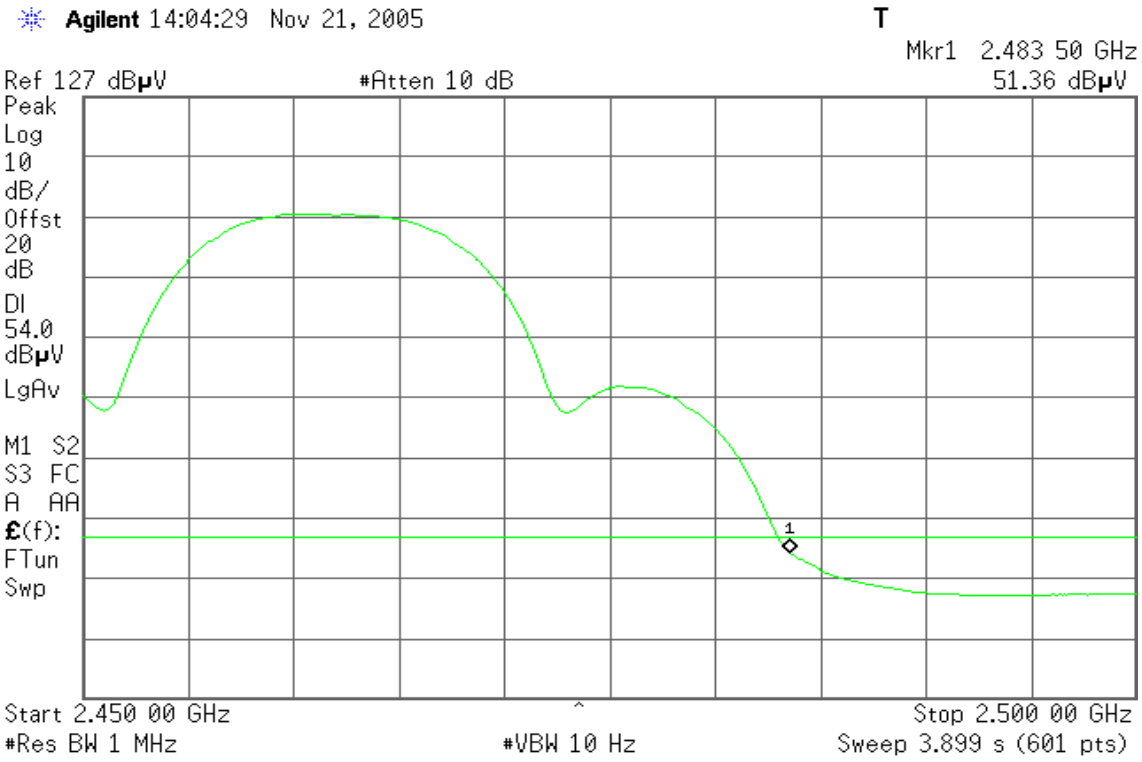
Detector mode: Average **Polarity: Horizontal**

Band Edges (IEEE 802.11b / CH High)

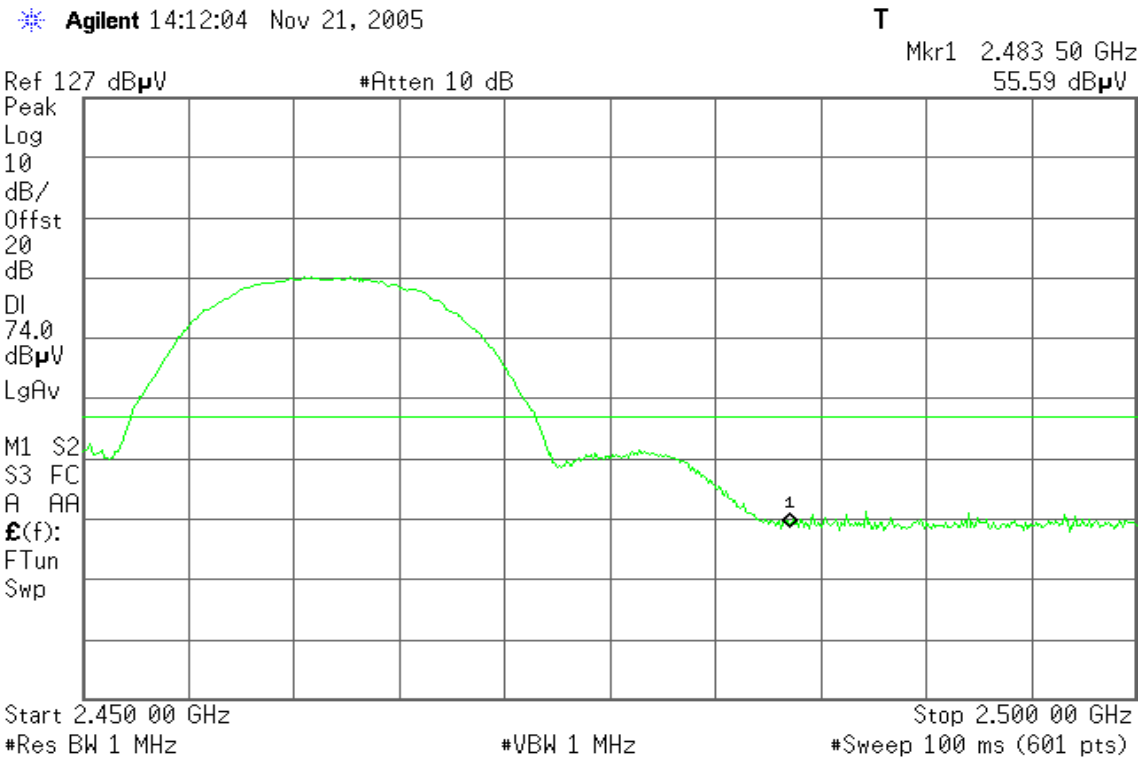
Detector mode: Peak Polarity: Vertical



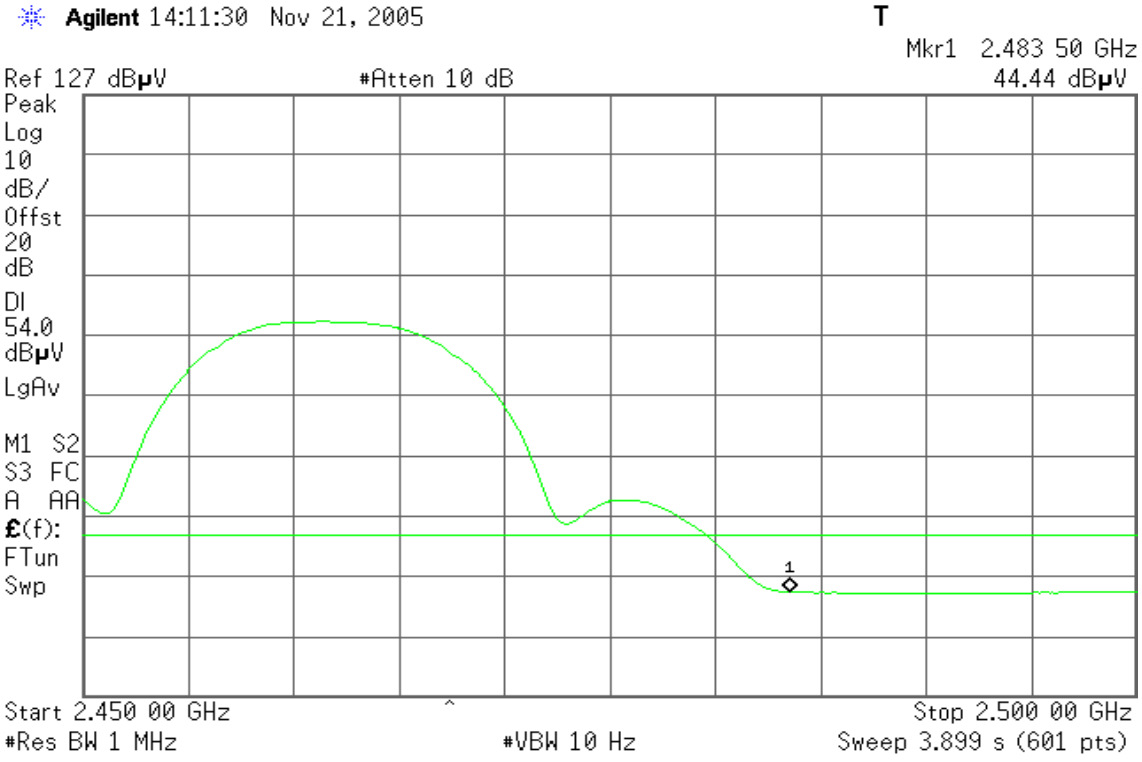
Detector mode: Average Polarity: Vertical



Detector mode: Peak **Polarity: Horizontal**

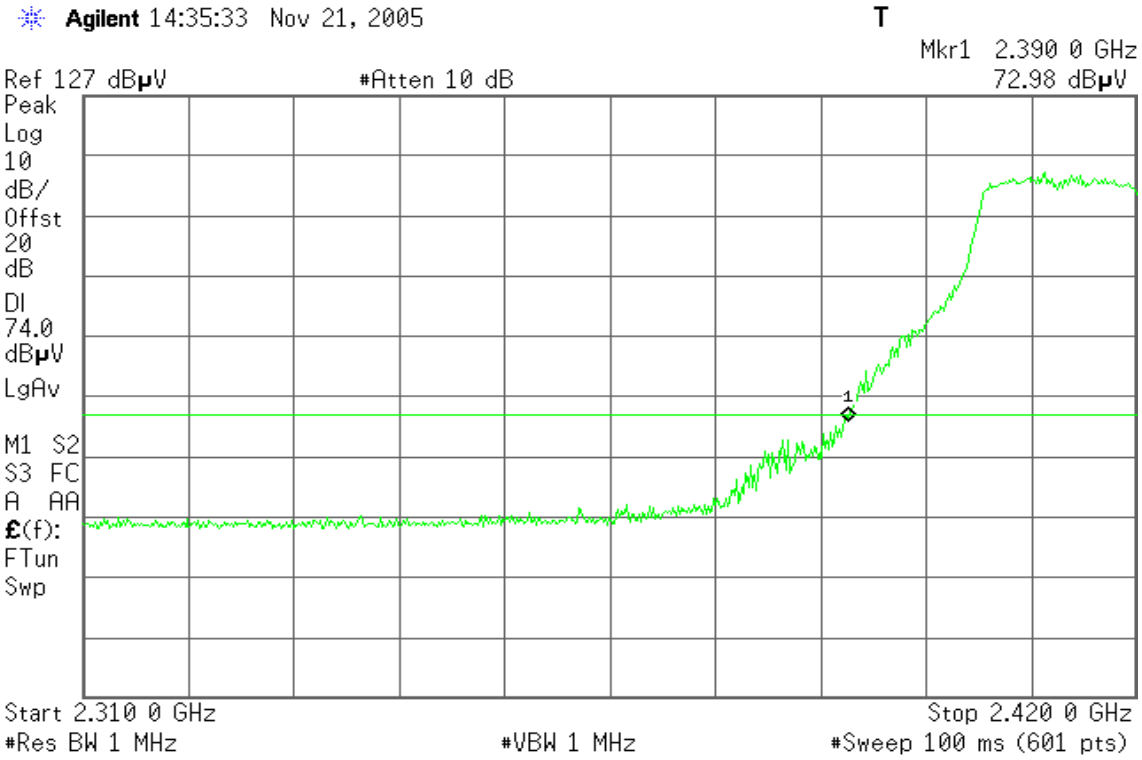


Detector mode: Average **Polarity: Horizontal**

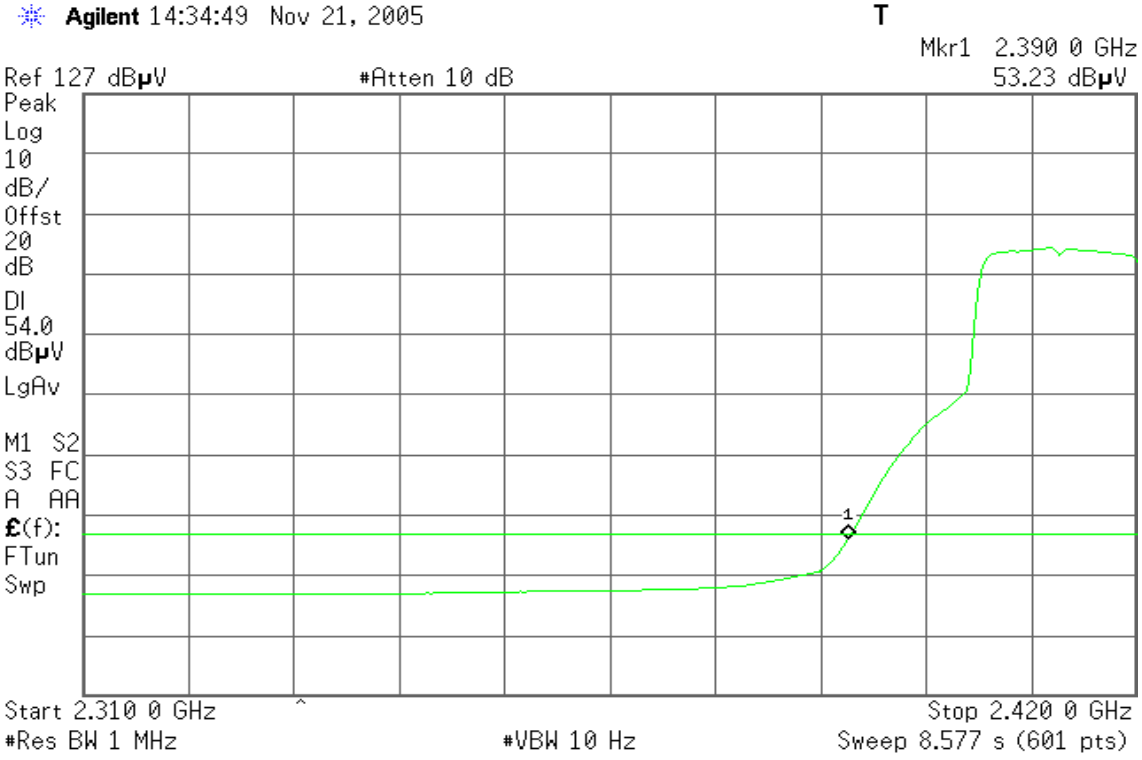


Band Edges (IEEE 802.11g / CH Low)

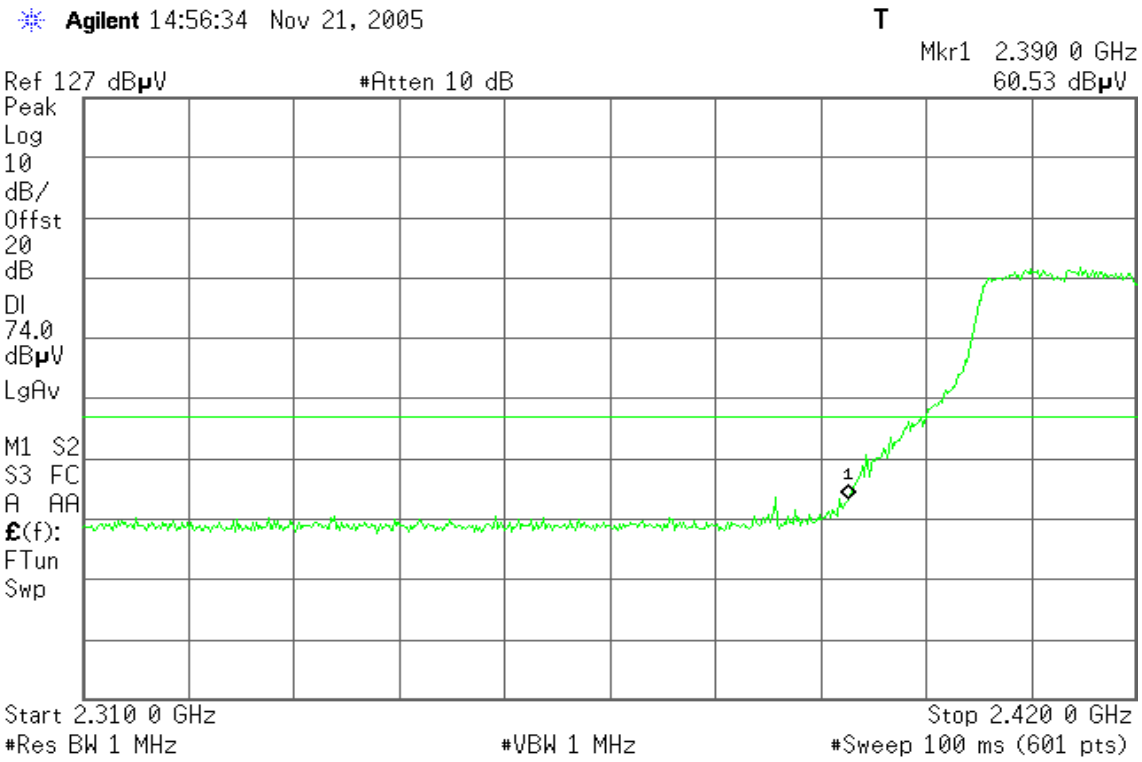
Detector mode: Peak Polarity: Vertical



Detector mode: Average Polarity: Vertical



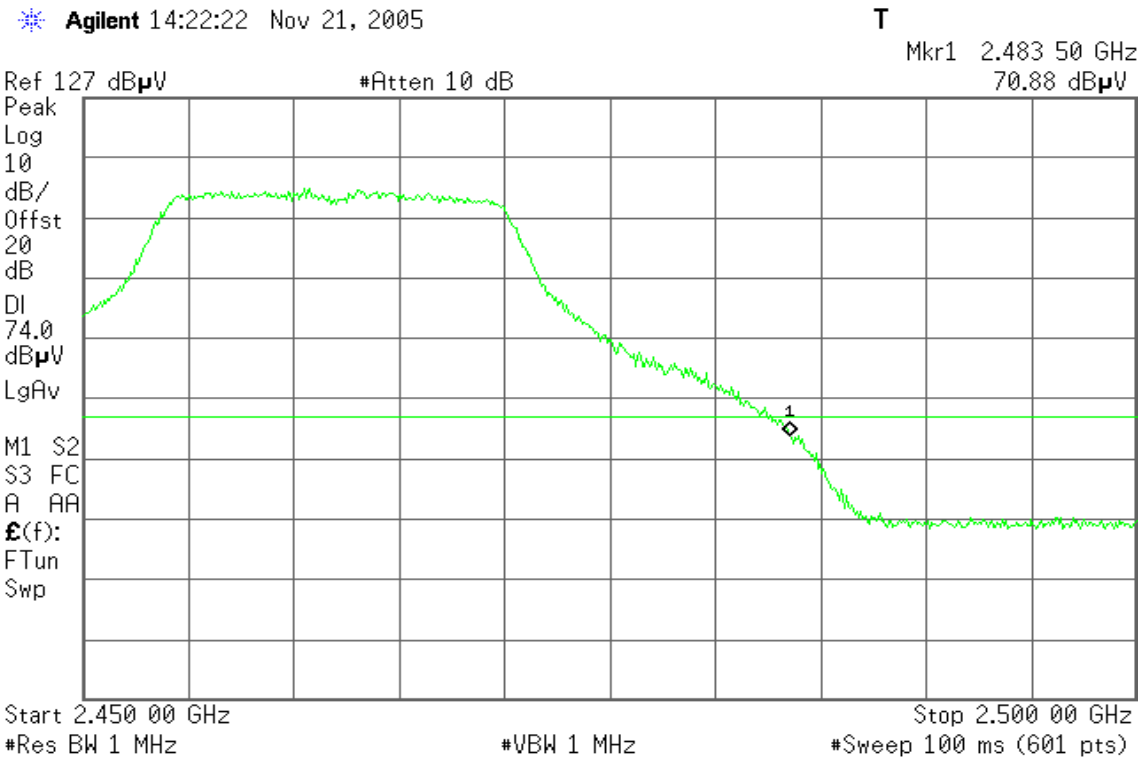
Detector mode: Peak **Polarity: Horizontal**



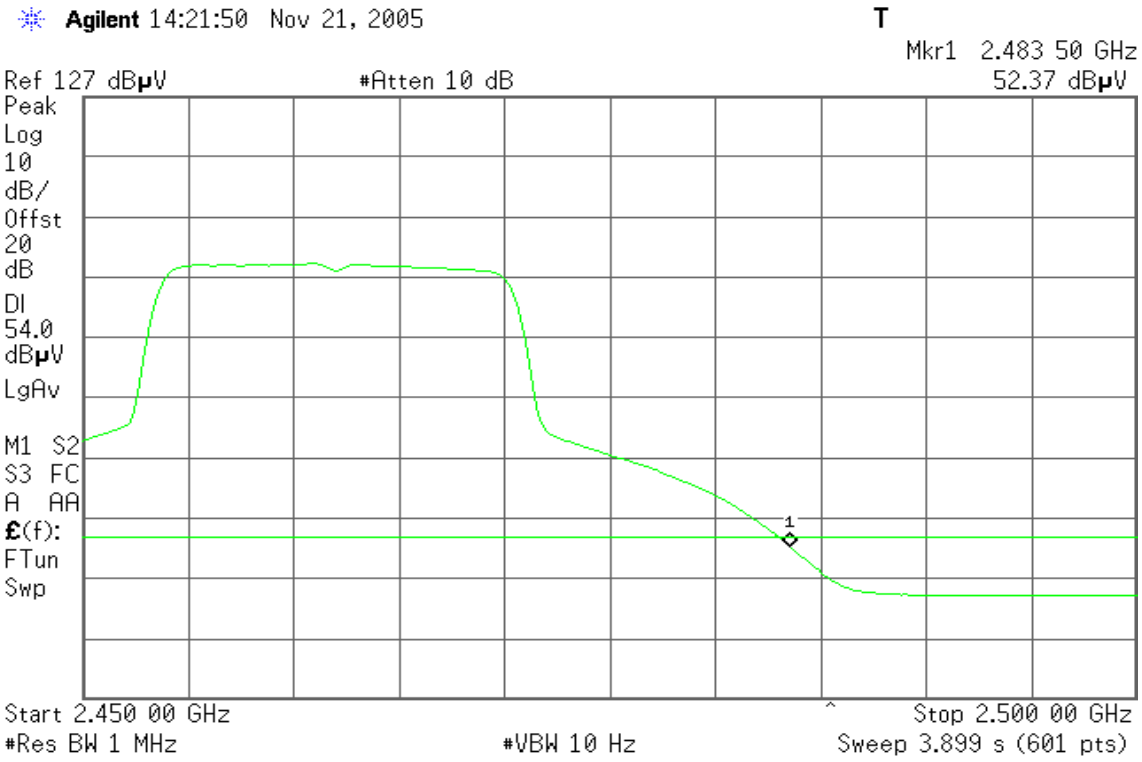
Detector mode: Average **Polarity: Horizontal**

Band Edges (IEEE 802.11g / CH High)

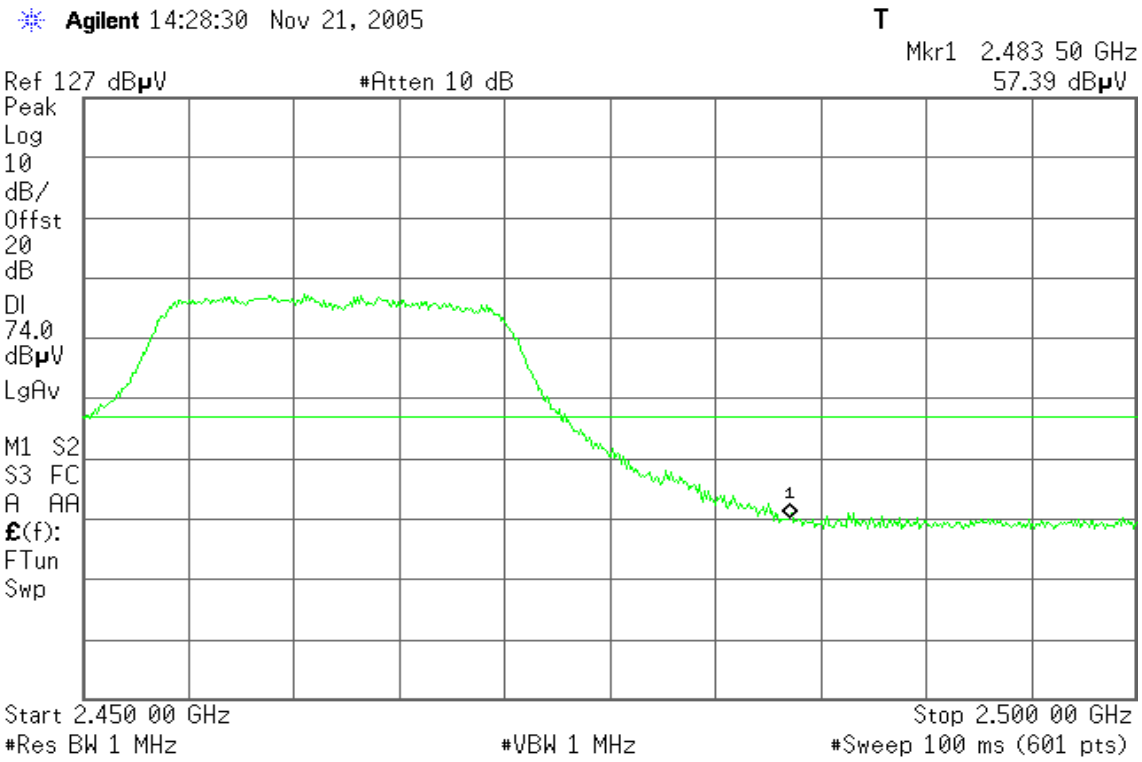
Detector mode: Peak Polarity: Vertical



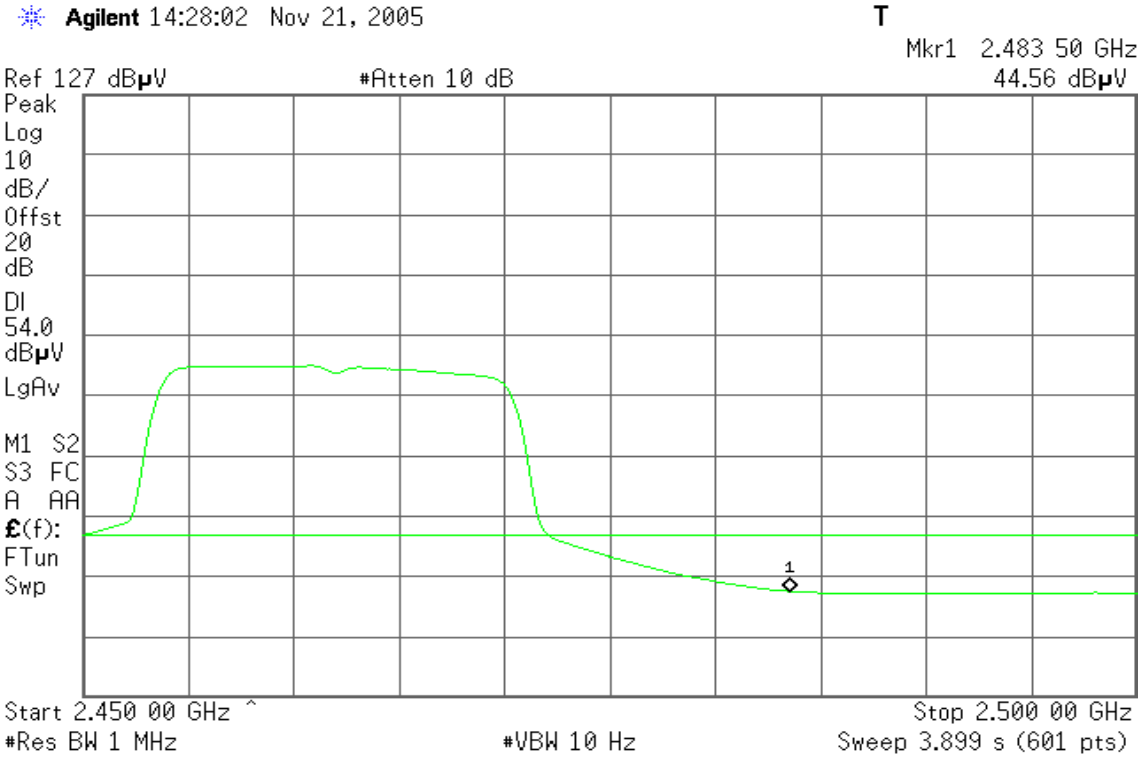
Detector mode: Average Polarity: Vertical



Detector mode: Peak **Polarity: Horizontal**

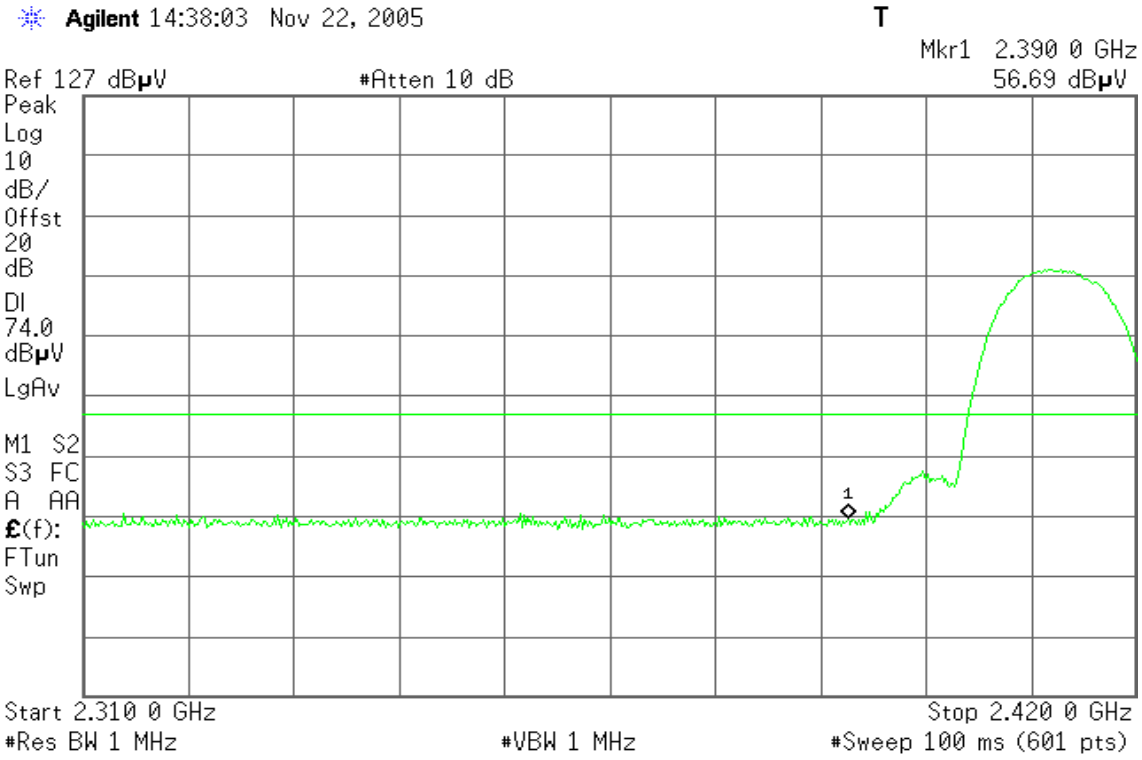


Detector mode: Average **Polarity: Horizontal**



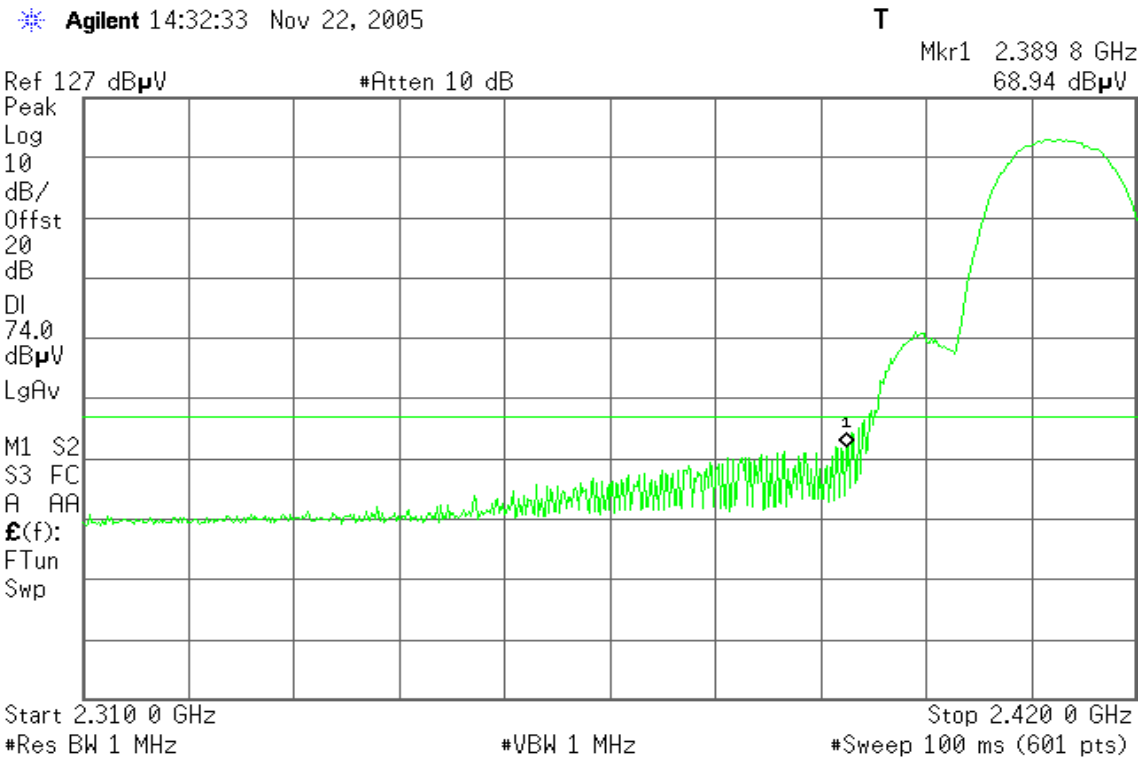
Mode 3: Antenna 3+ Module 1
Band Edges (IEEE 802.11b / CH Low)

Detector mode: Peak **Polarity: Vertical**

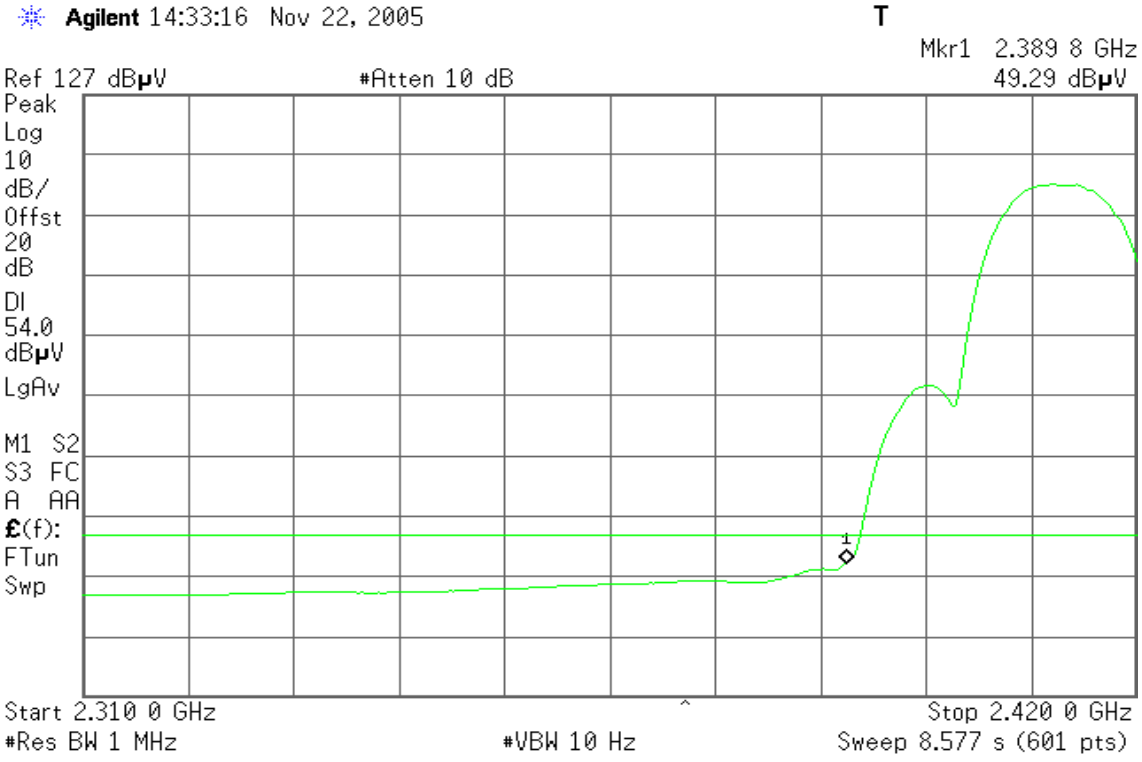


Detector mode: Average **Polarity: Vertical**

Detector mode: Peak **Polarity: Horizontal**

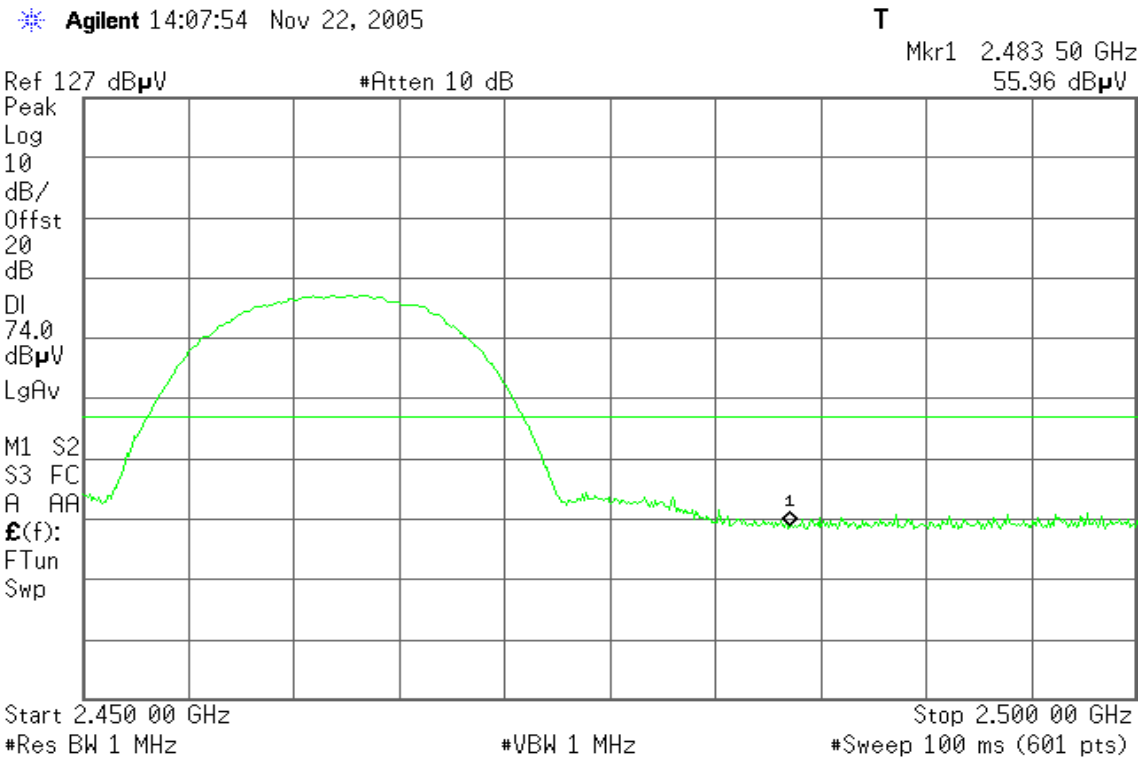


Detector mode: Average **Polarity: Horizontal**

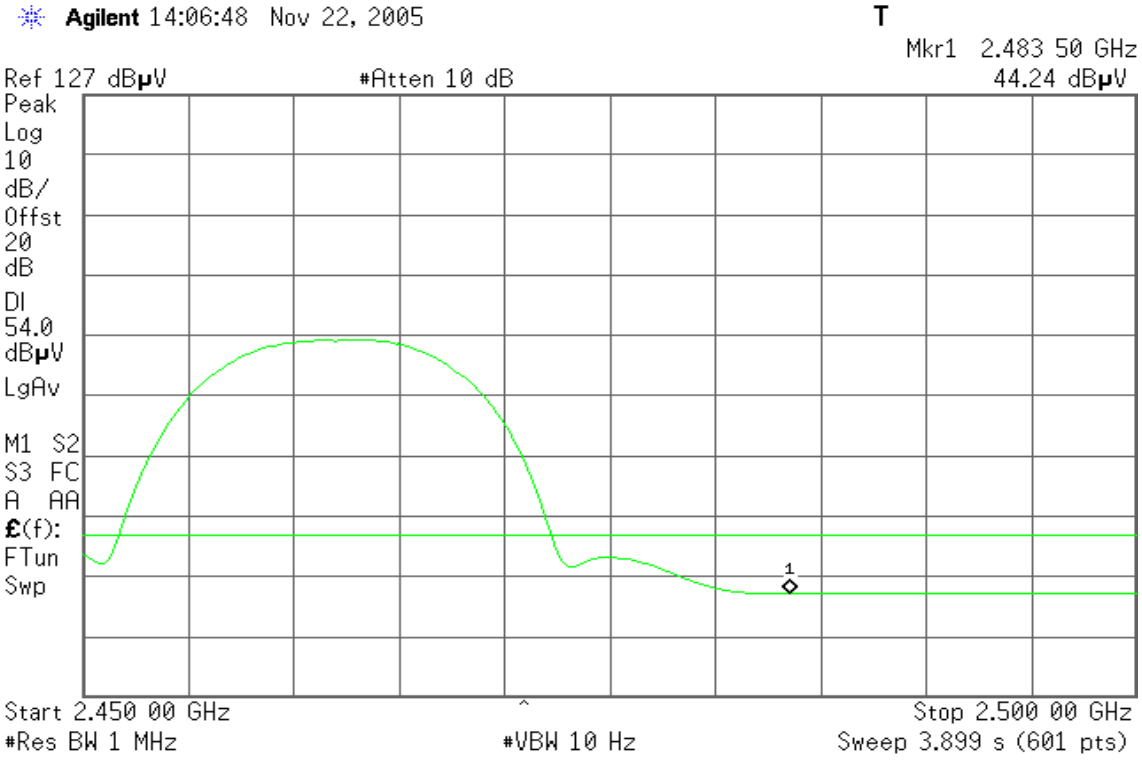


Band Edges (IEEE 802.11b / CH High)

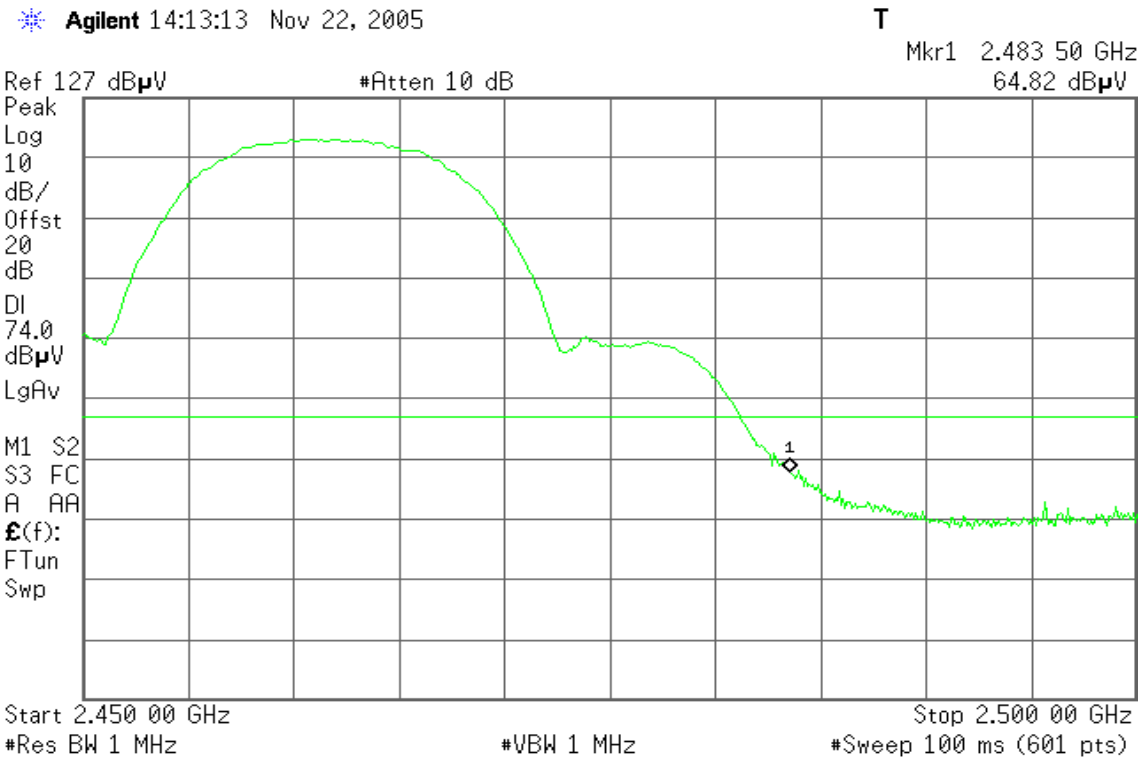
Detector mode: Peak Polarity: Vertical



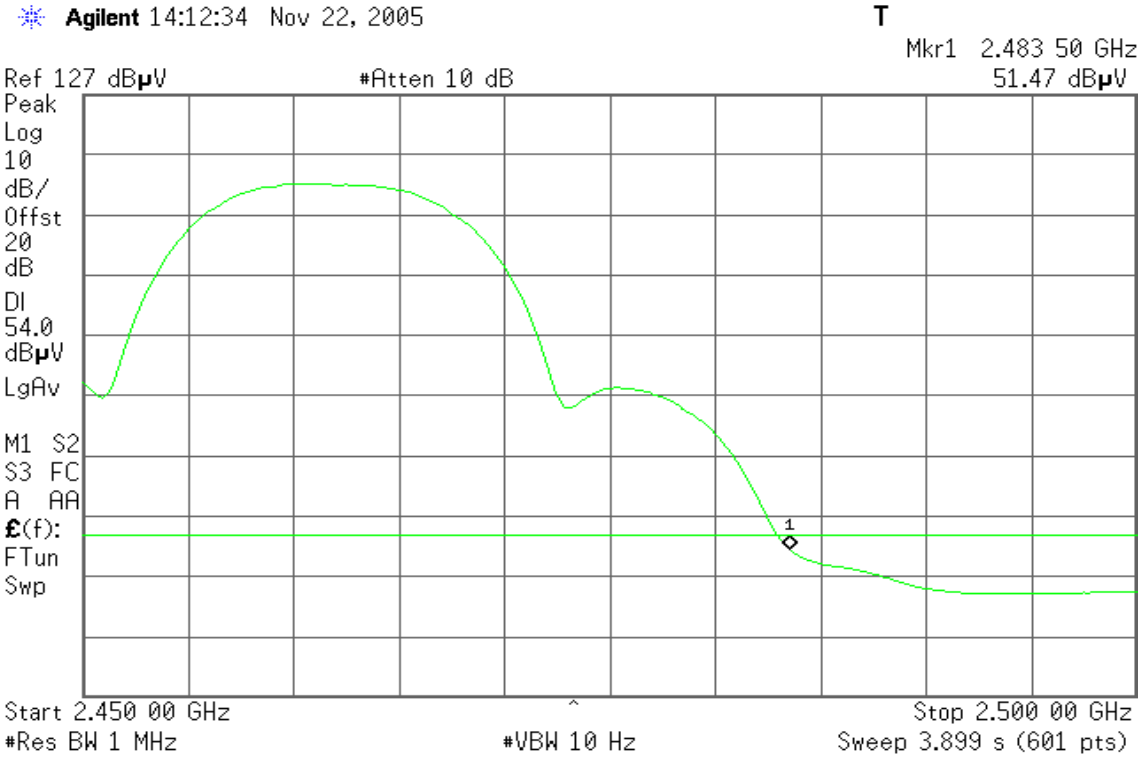
Detector mode: Average Polarity: Vertical



Detector mode: Peak **Polarity: Horizontal**

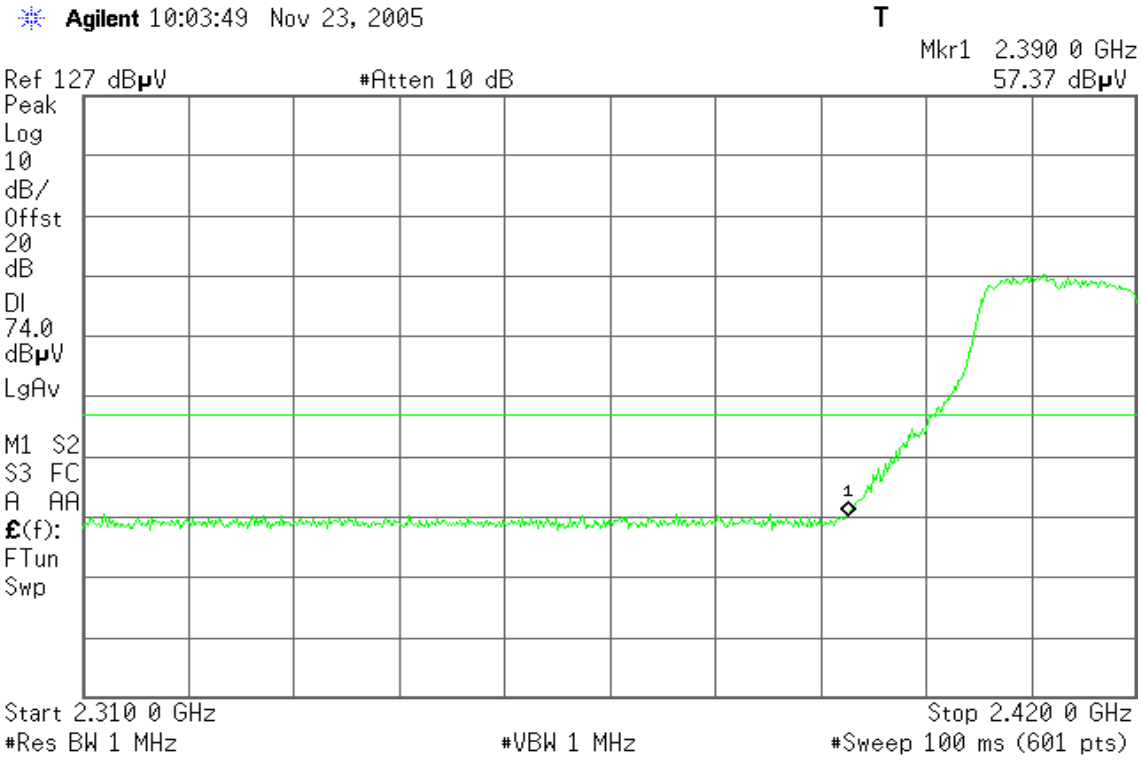


Detector mode: Average **Polarity: Horizontal**

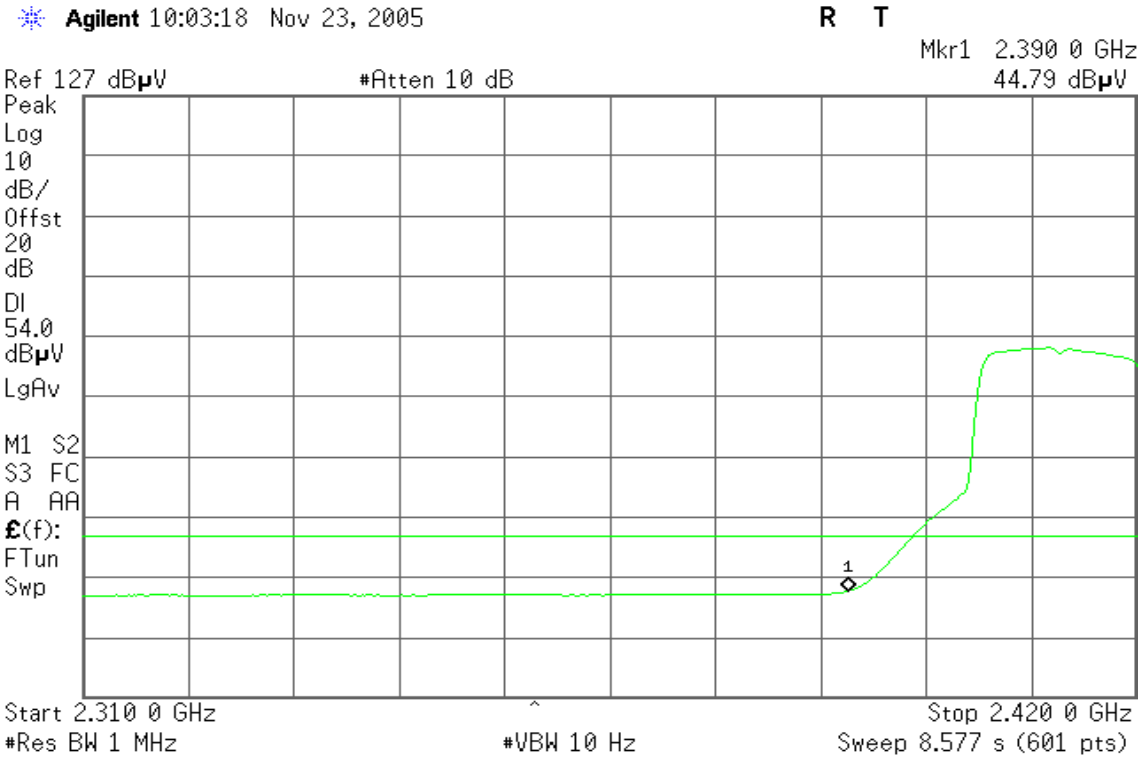


Band Edges (IEEE 802.11g / CH Low)

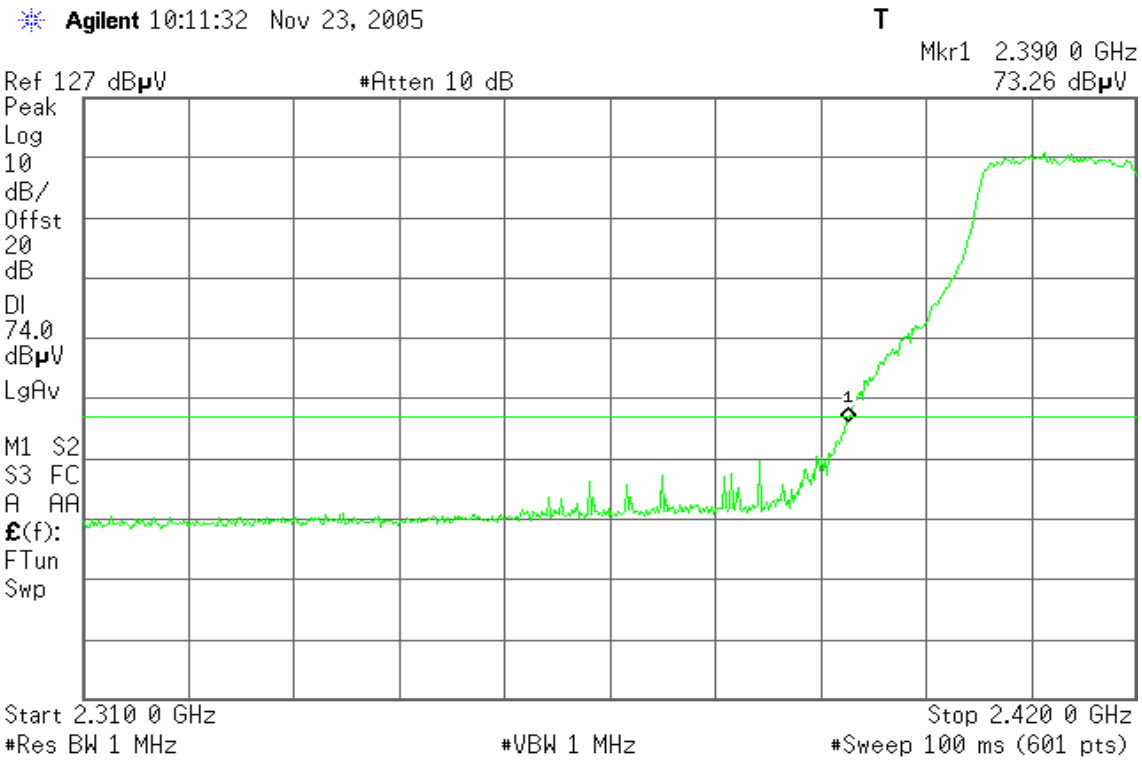
Detector mode: Peak Polarity: Vertical



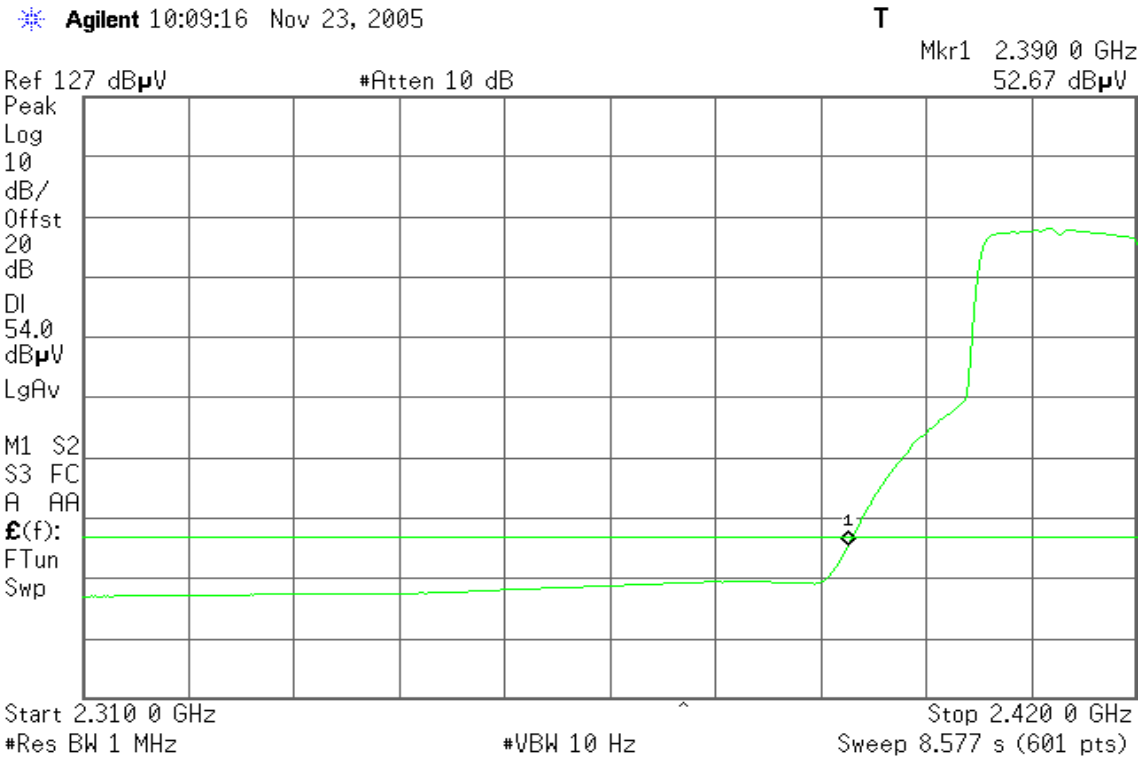
Detector mode: Average Polarity: Vertical



Detector mode: Peak **Polarity: Horizontal**

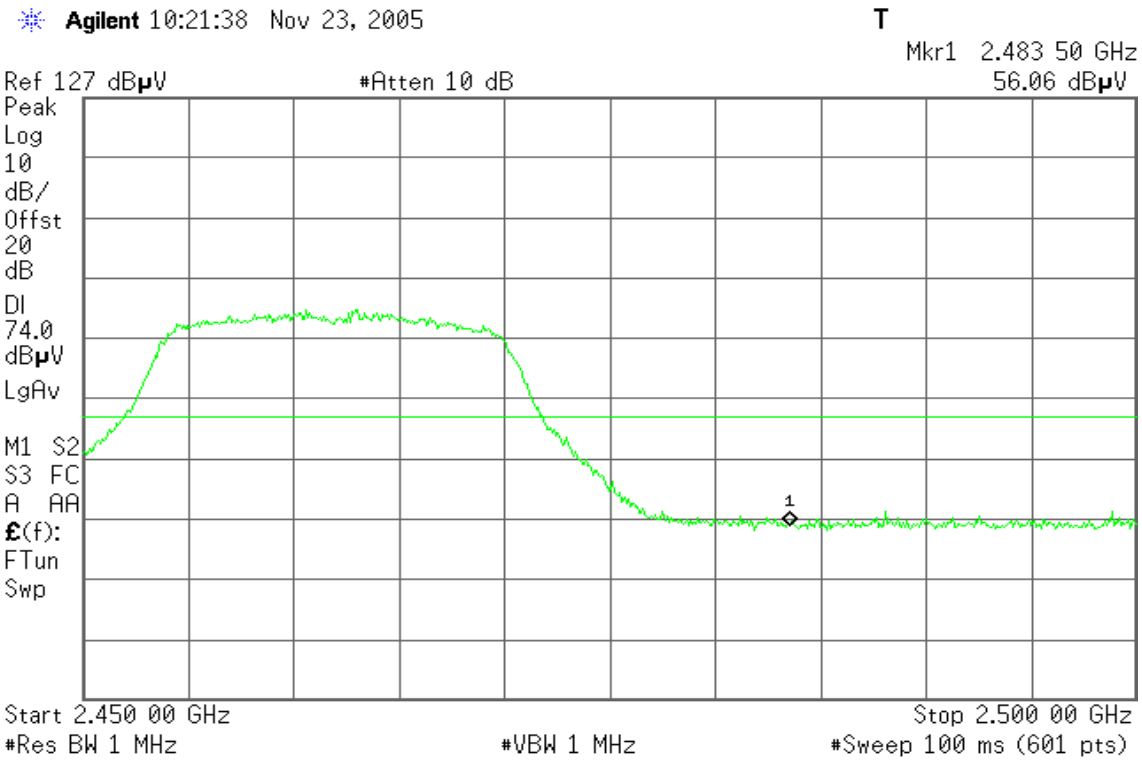


Detector mode: Average **Polarity: Horizontal**

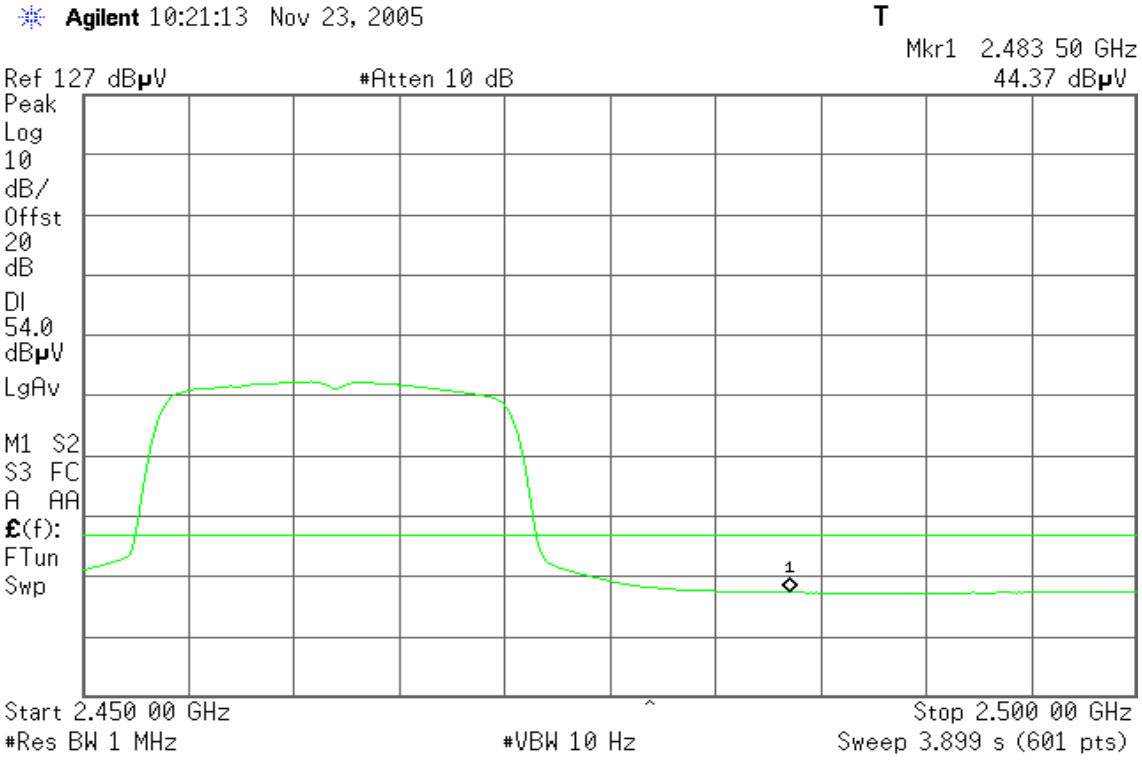


Band Edges (IEEE 802.11g / CH High)

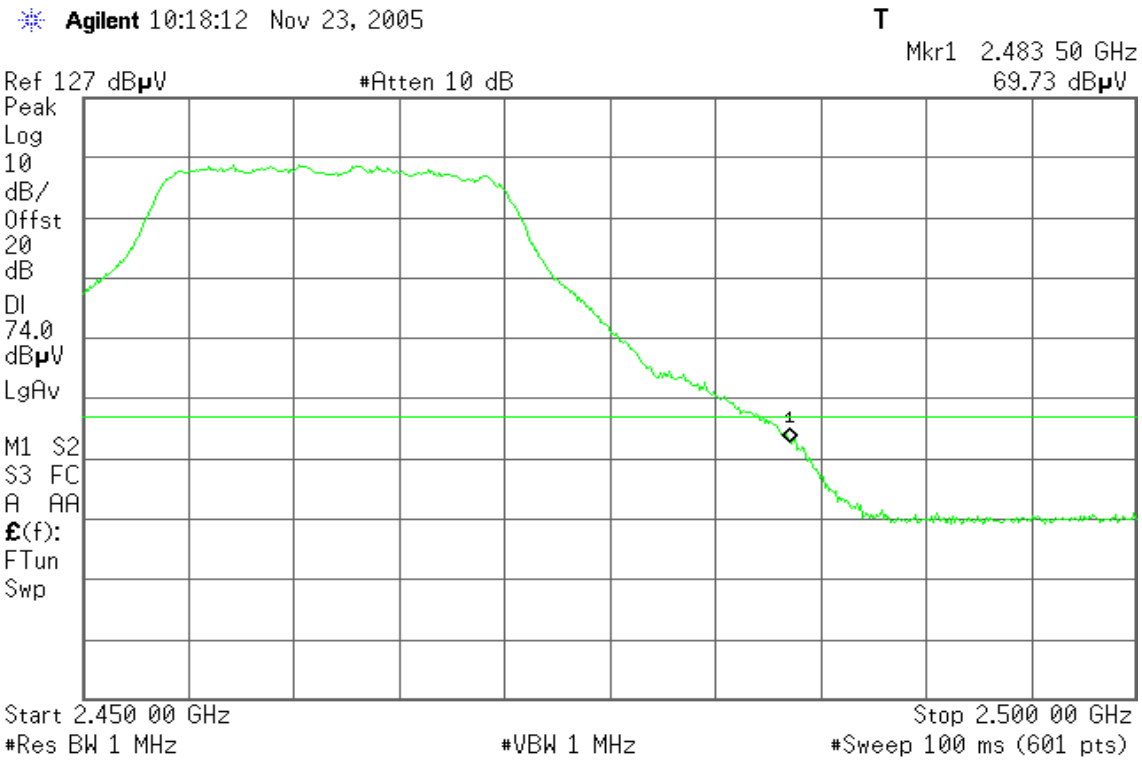
Detector mode: Peak Polarity: Vertical



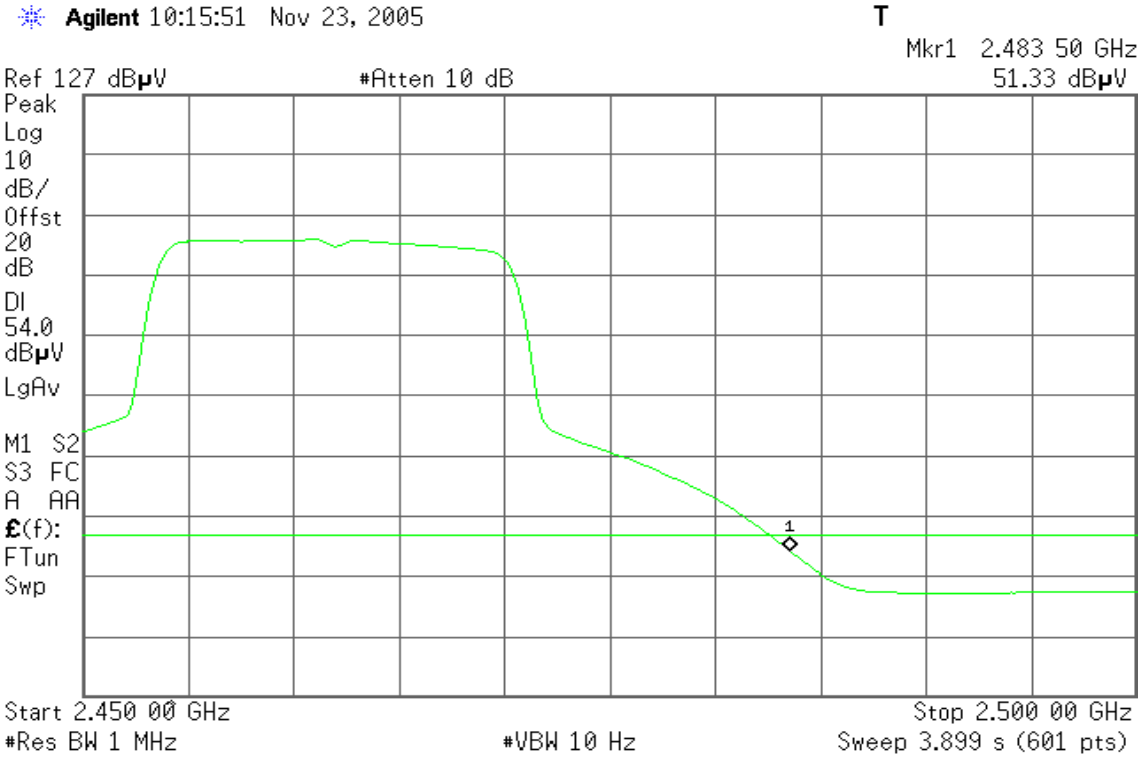
Detector mode: Average Polarity: Vertical



Detector mode: Peak **Polarity: Horizontal**



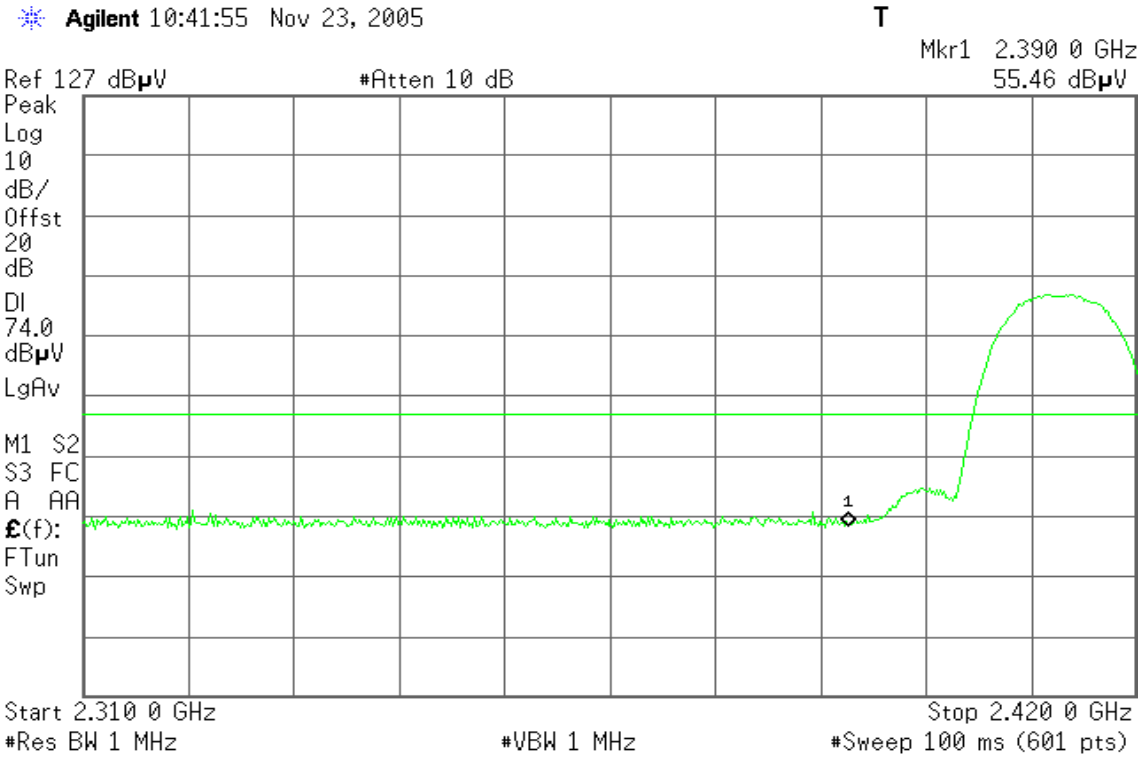
Detector mode: Average **Polarity: Horizontal**



Mode 4: Antenna 3+ Module 2

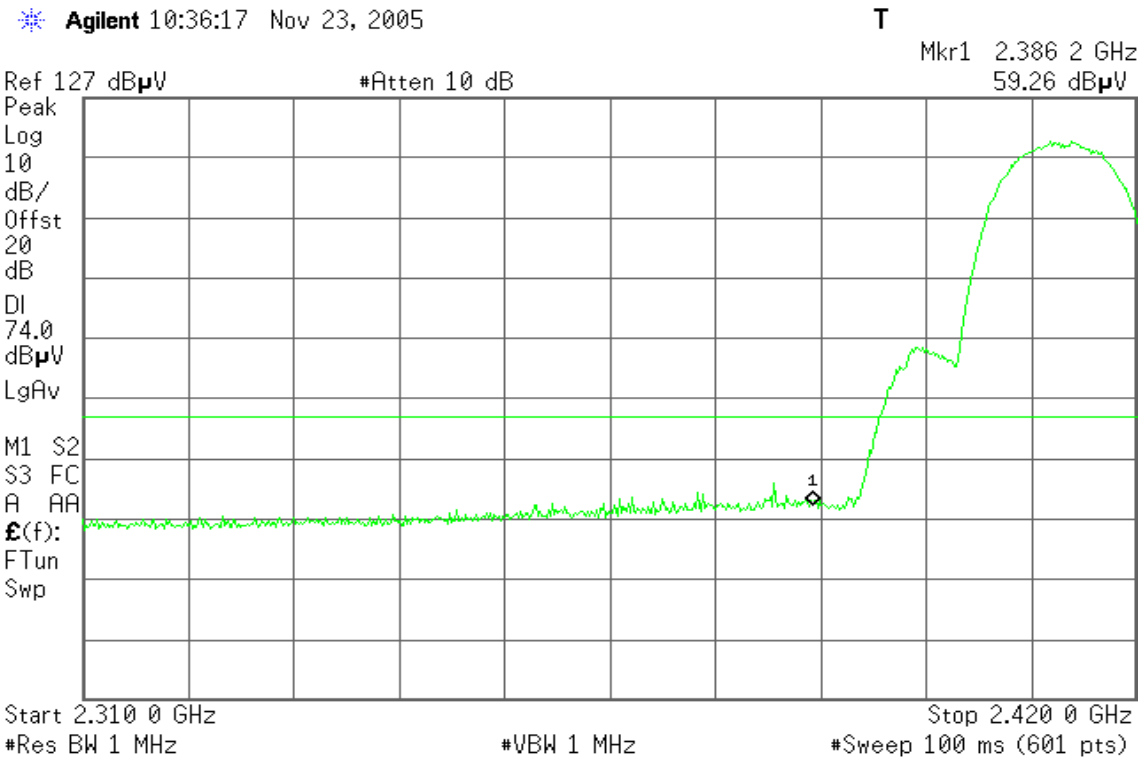
Band Edges (IEEE 802.11b / CH Low)

Detector mode: Peak **Polarity: Vertical**

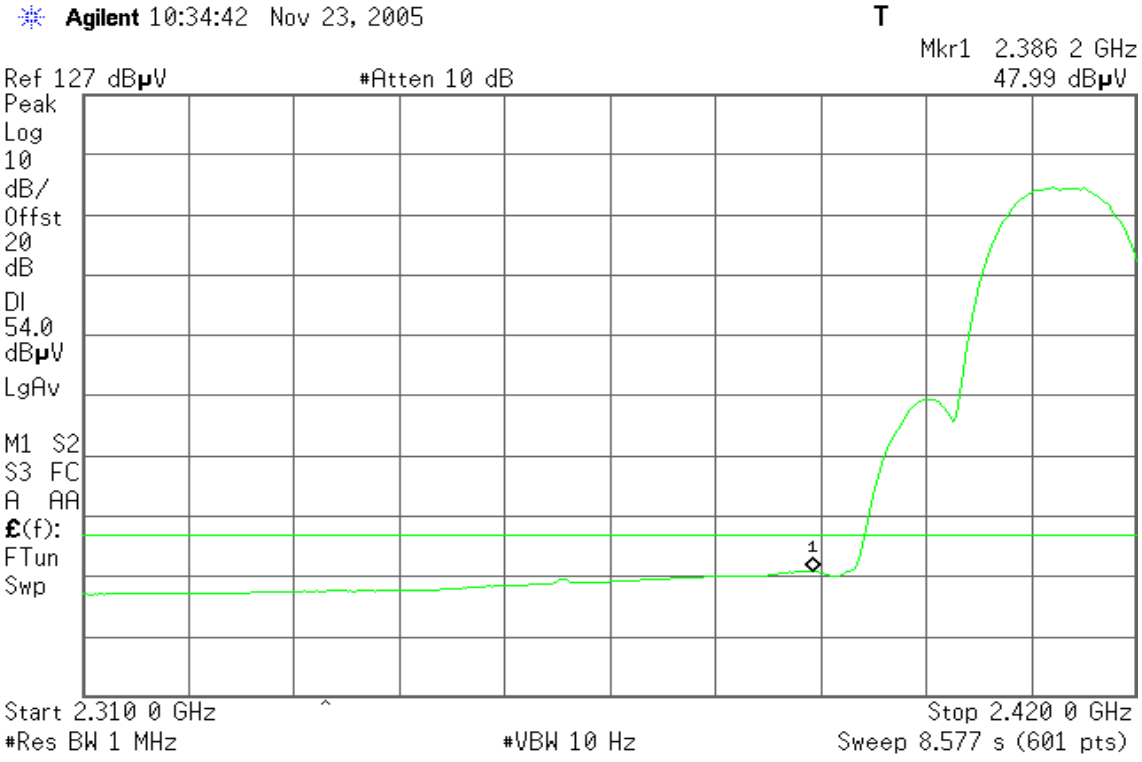


Detector mode: Average **Polarity: Vertical**

Detector mode: Peak **Polarity: Horizontal**

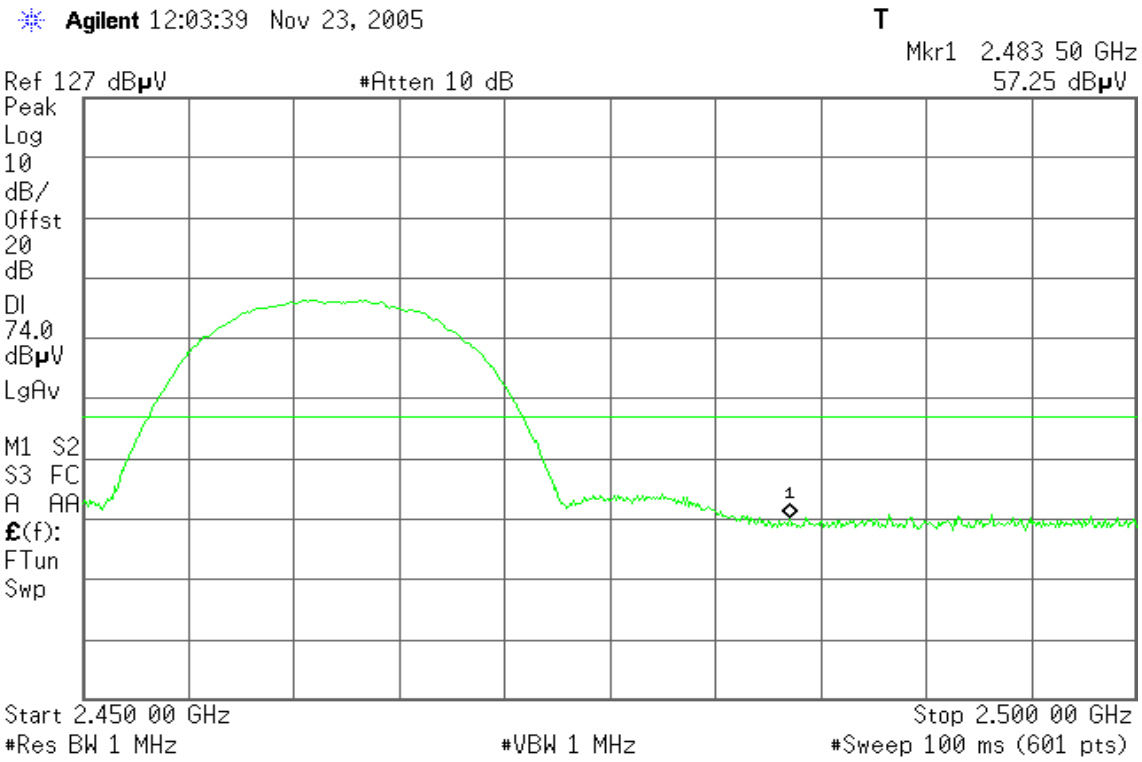


Detector mode: Average **Polarity: Horizontal**

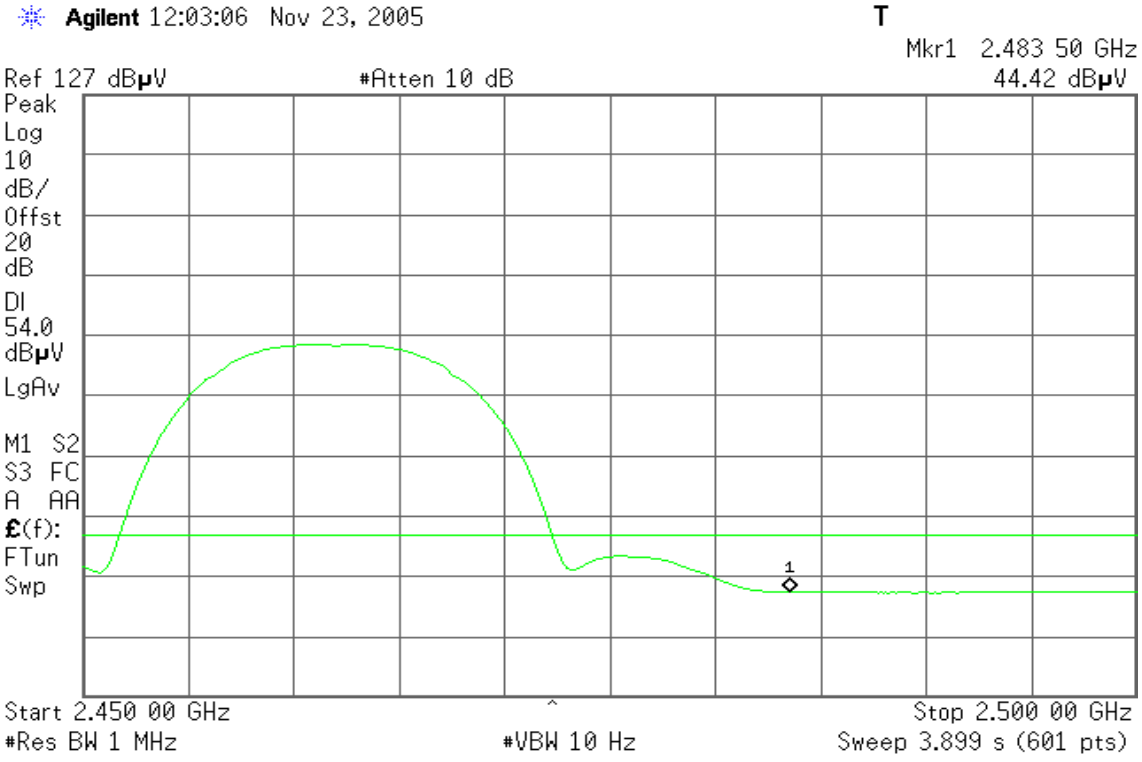


Band Edges (IEEE 802.11b / CH High)

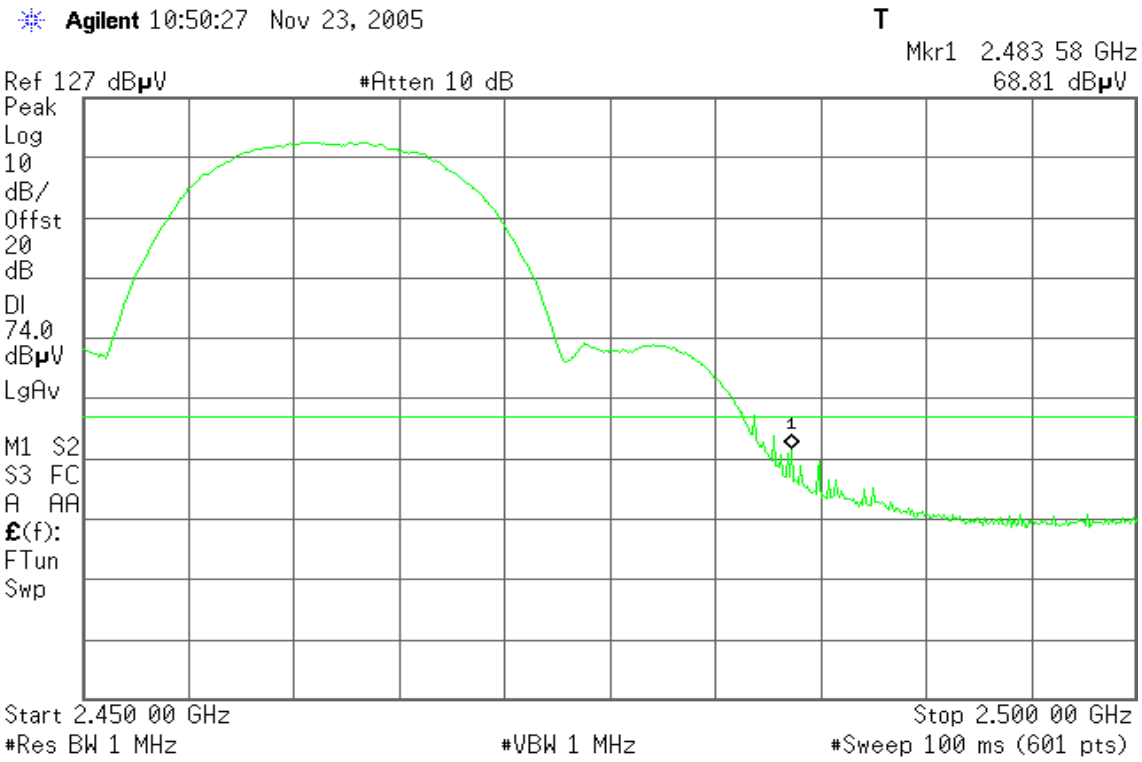
Detector mode: Peak Polarity: Vertical



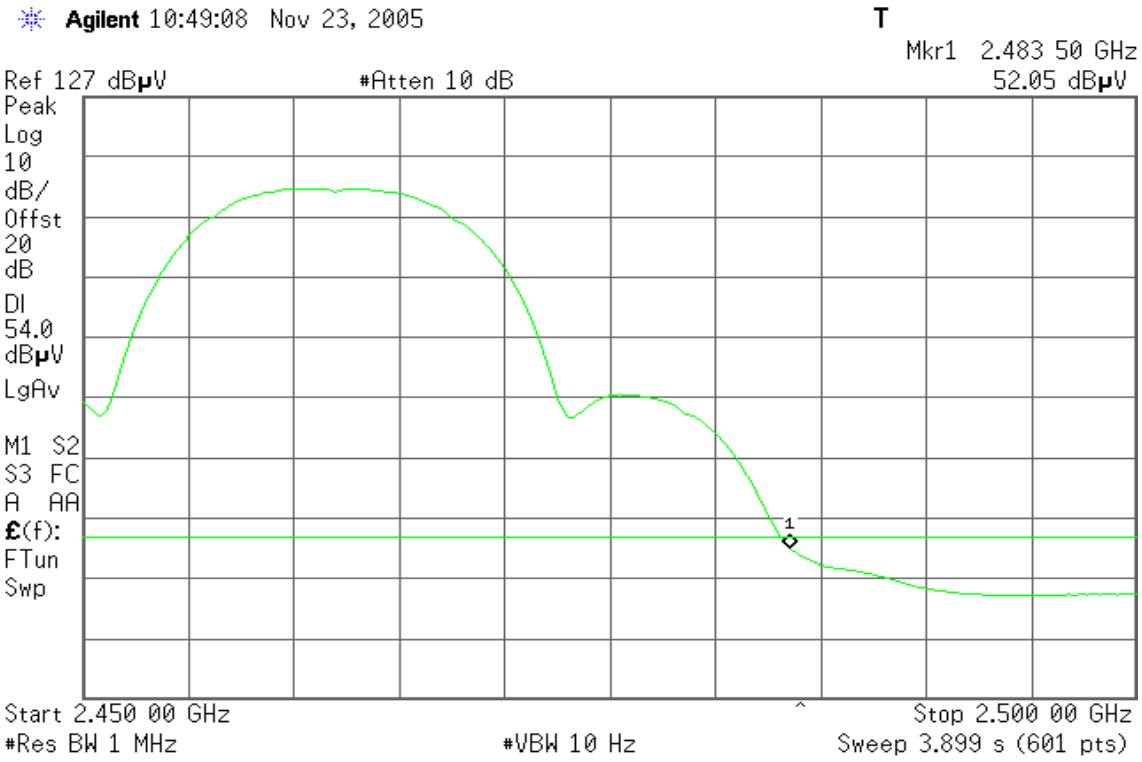
Detector mode: Average Polarity: Vertical



Detector mode: Peak **Polarity: Horizontal**

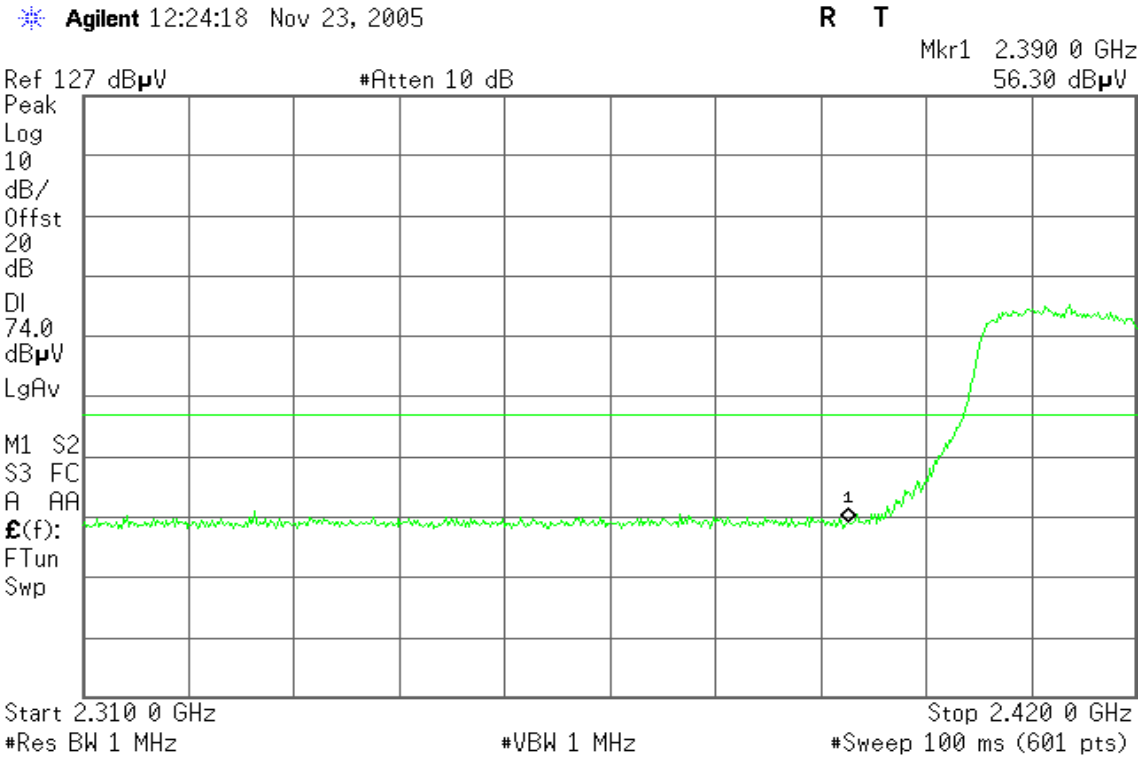


Detector mode: Average **Polarity: Horizontal**

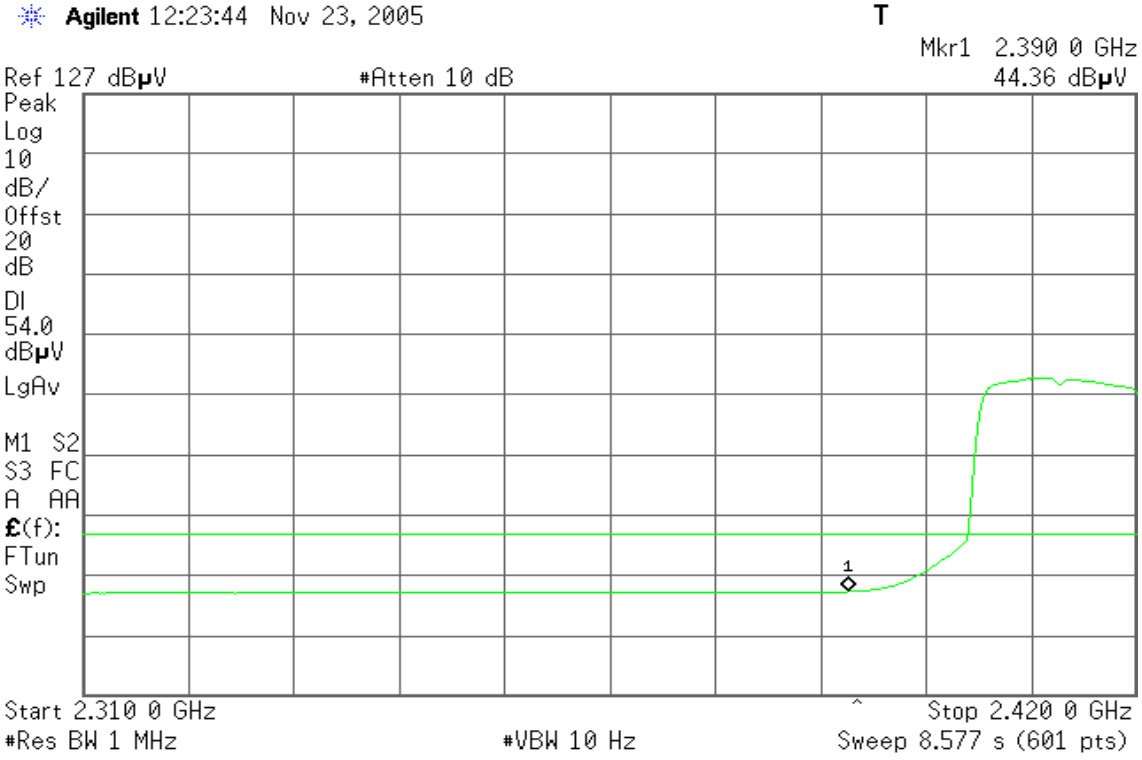


Band Edges (IEEE 802.11g / CH Low)

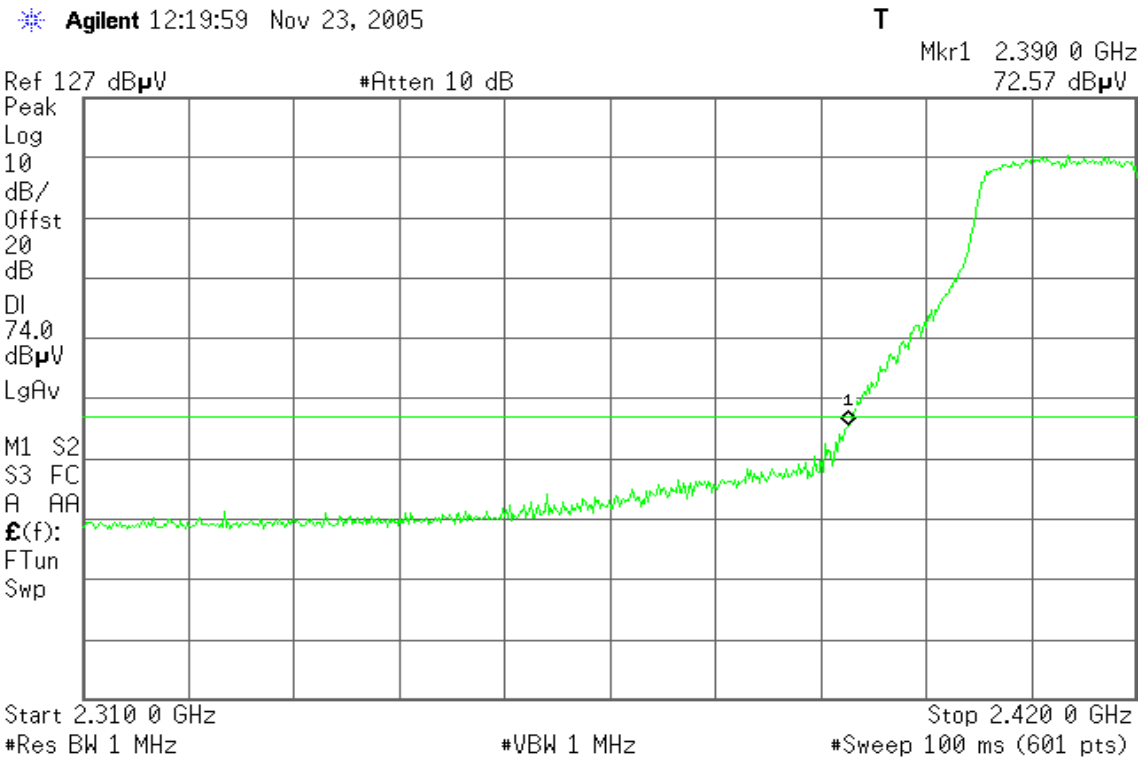
Detector mode: Peak **Polarity: Vertical**



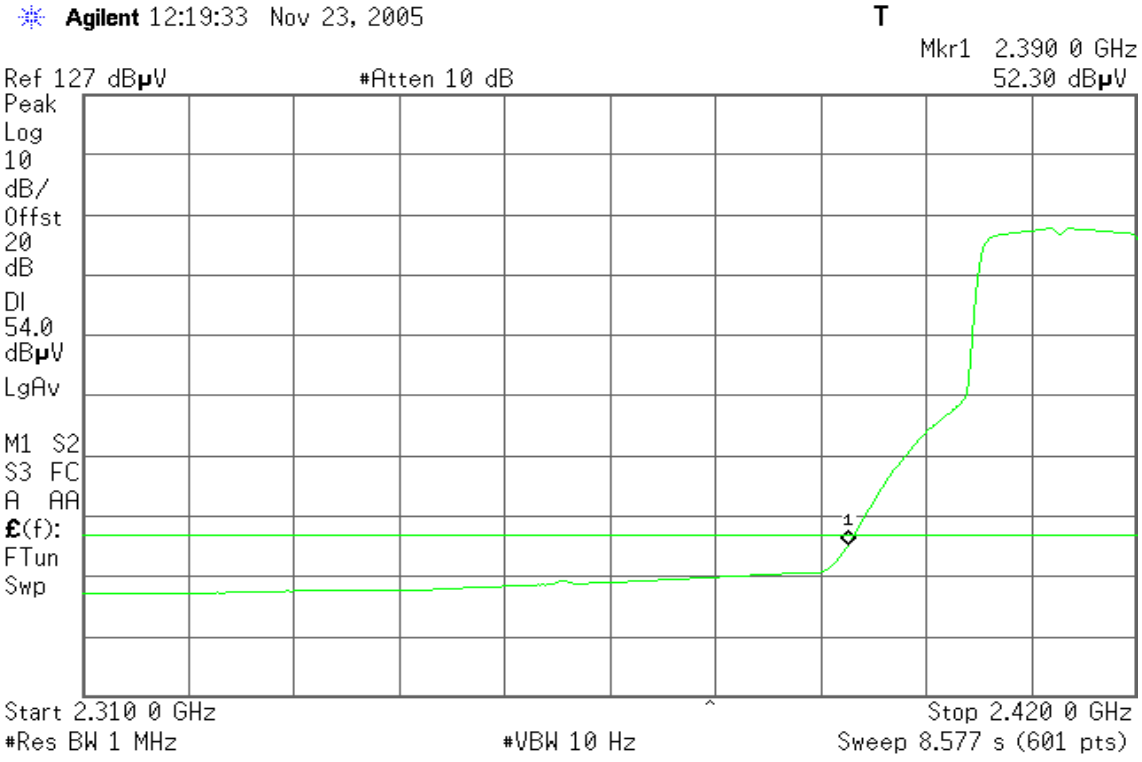
Detector mode: Average **Polarity: Vertical**



Detector mode: Peak **Polarity: Horizontal**

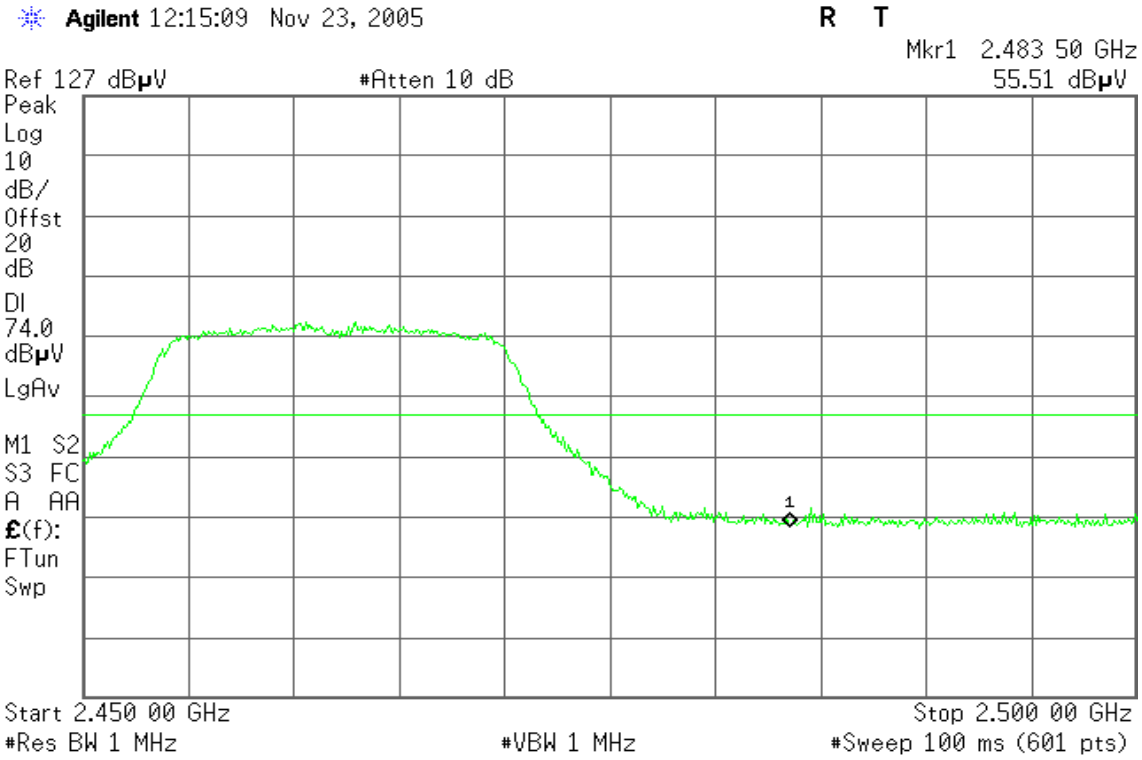


Detector mode: Average **Polarity: Horizontal**

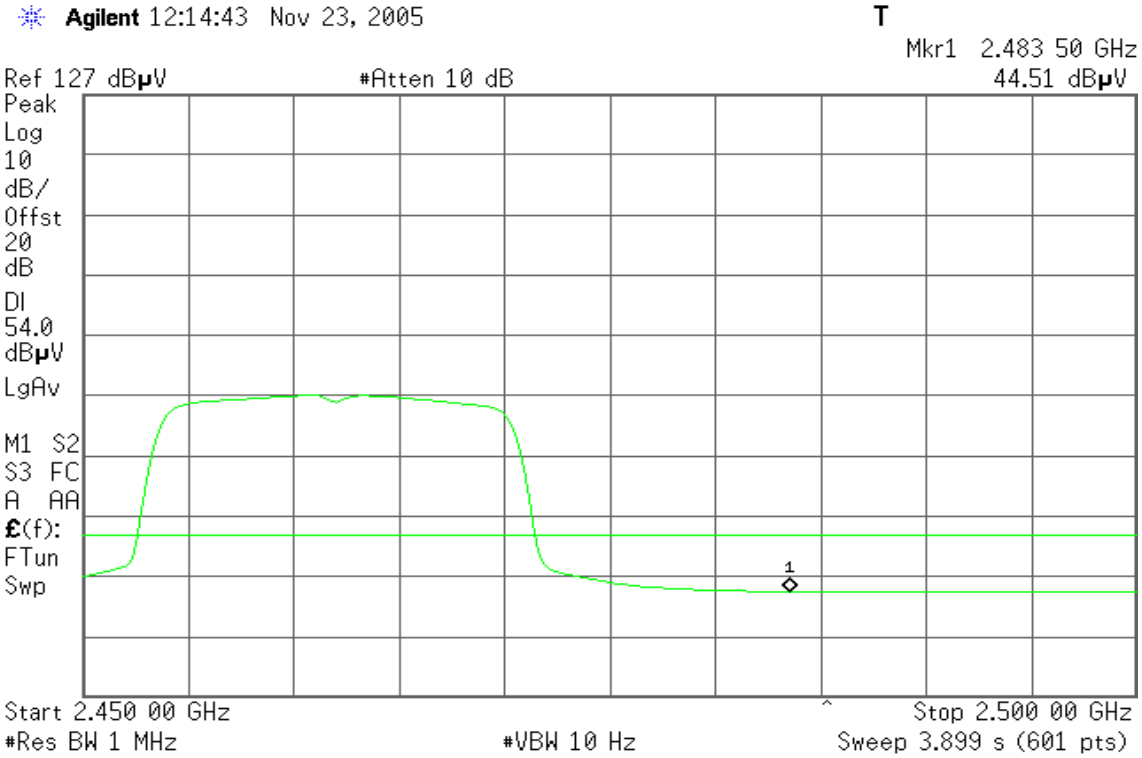


Band Edges (IEEE 802.11g / CH High)

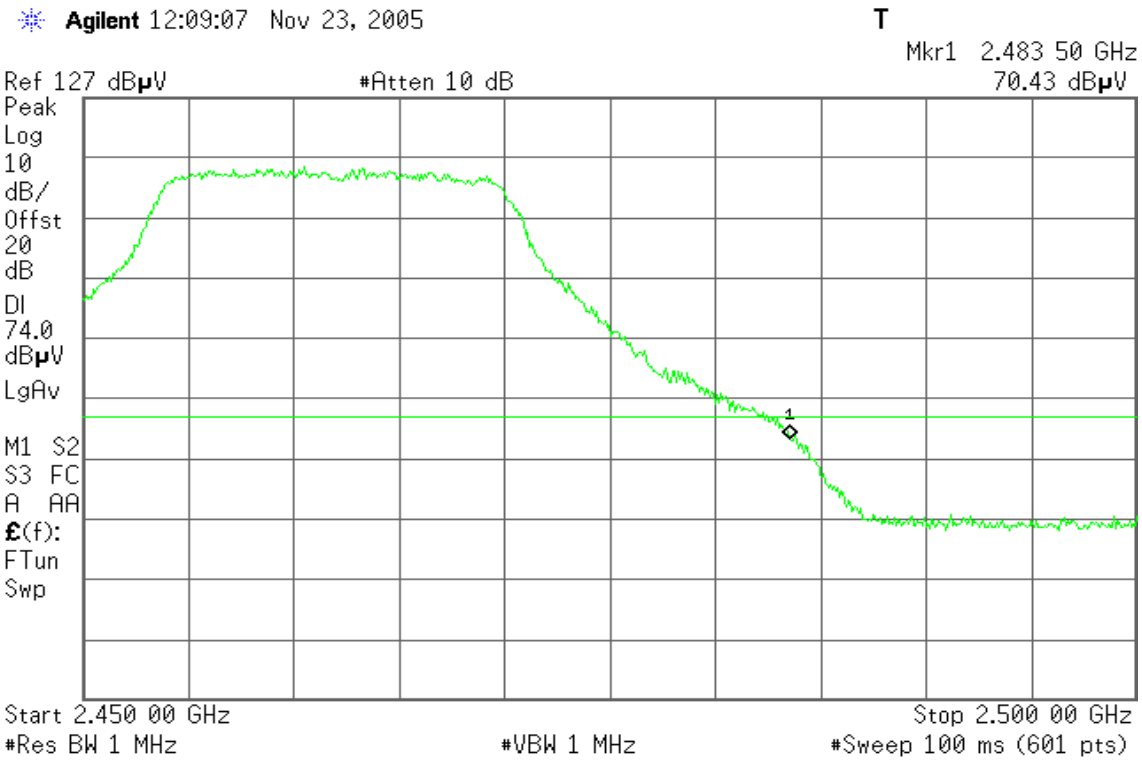
Detector mode: Peak Polarity: Vertical



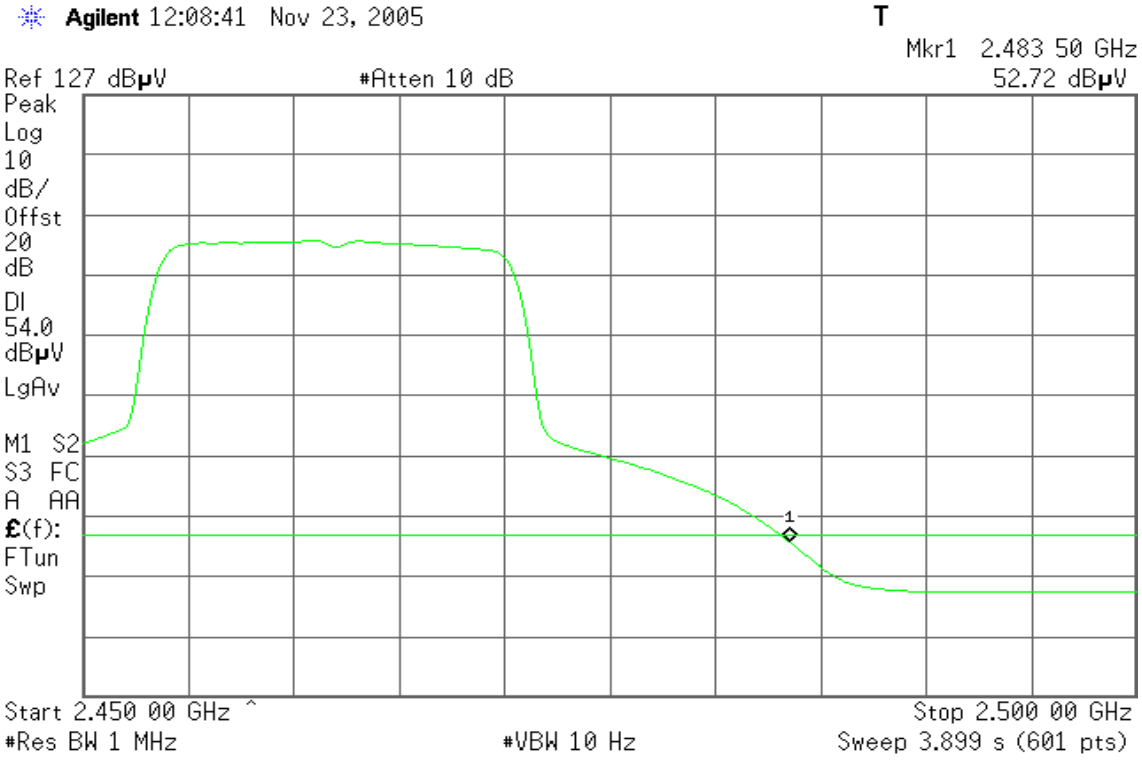
Detector mode: Average Polarity: Vertical



Detector mode: Peak **Polarity: Horizontal**

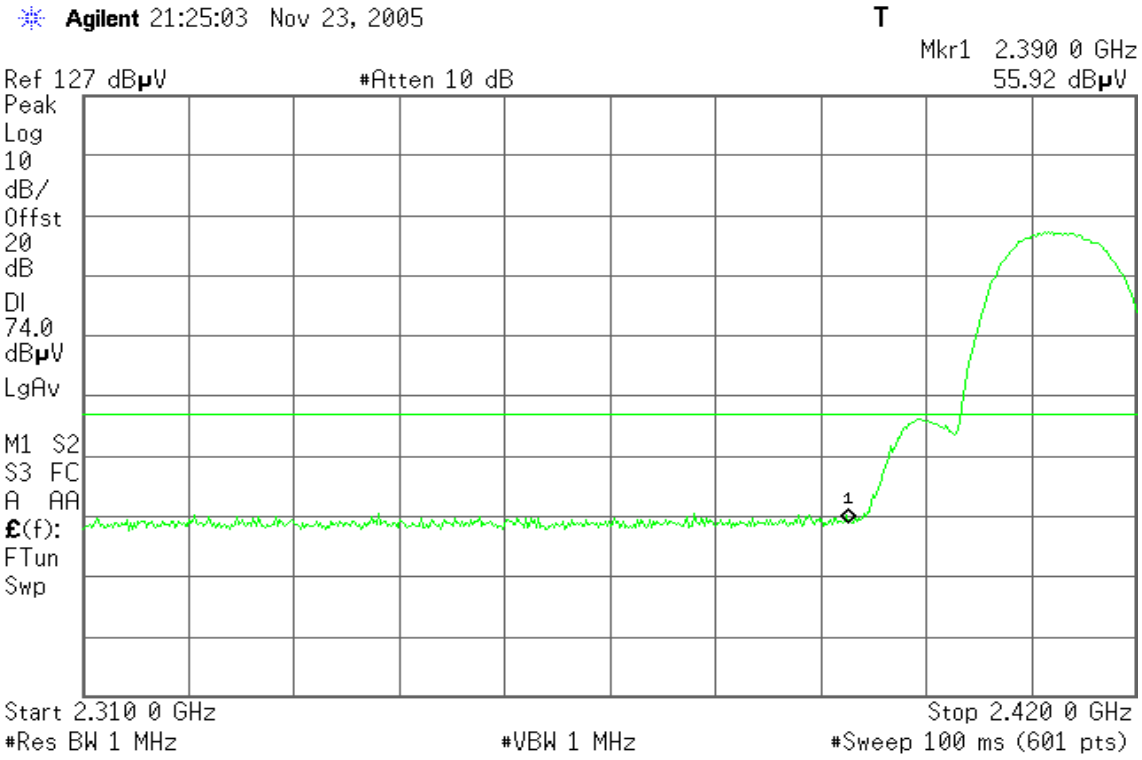


Detector mode: Average **Polarity: Horizontal**

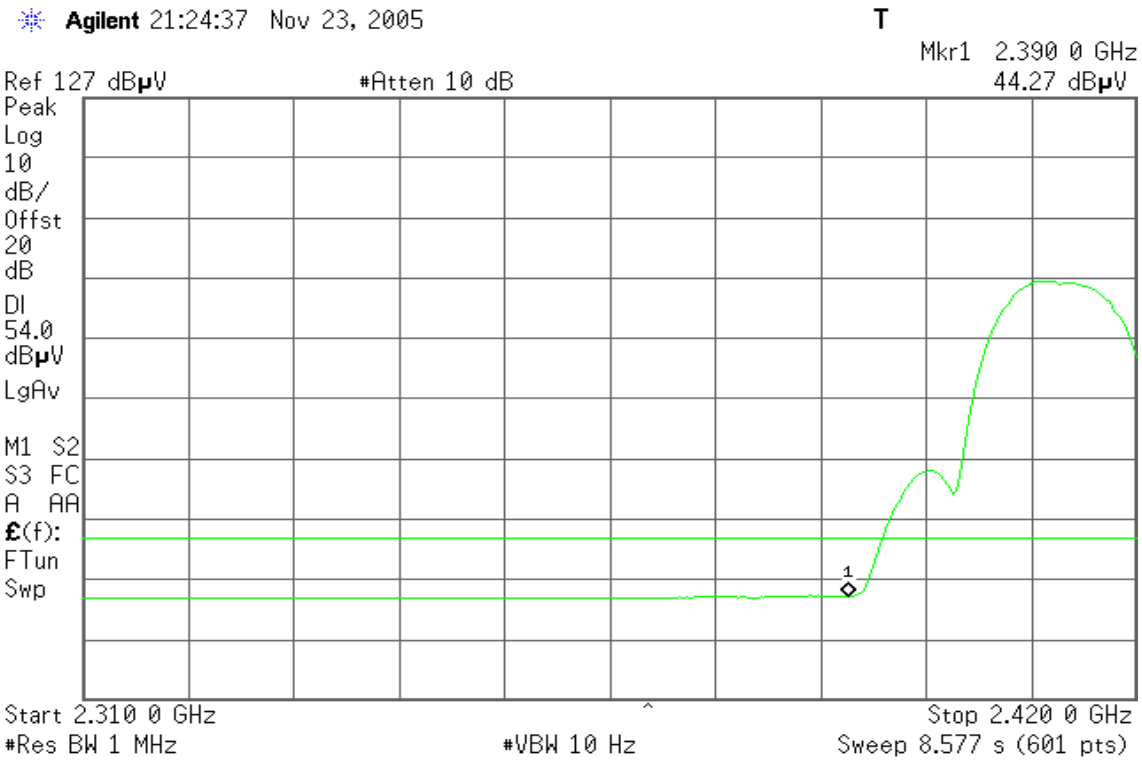


Mode 5: Antenna 4+ Module 1
Band Edges (IEEE 802.11b / CH Low)

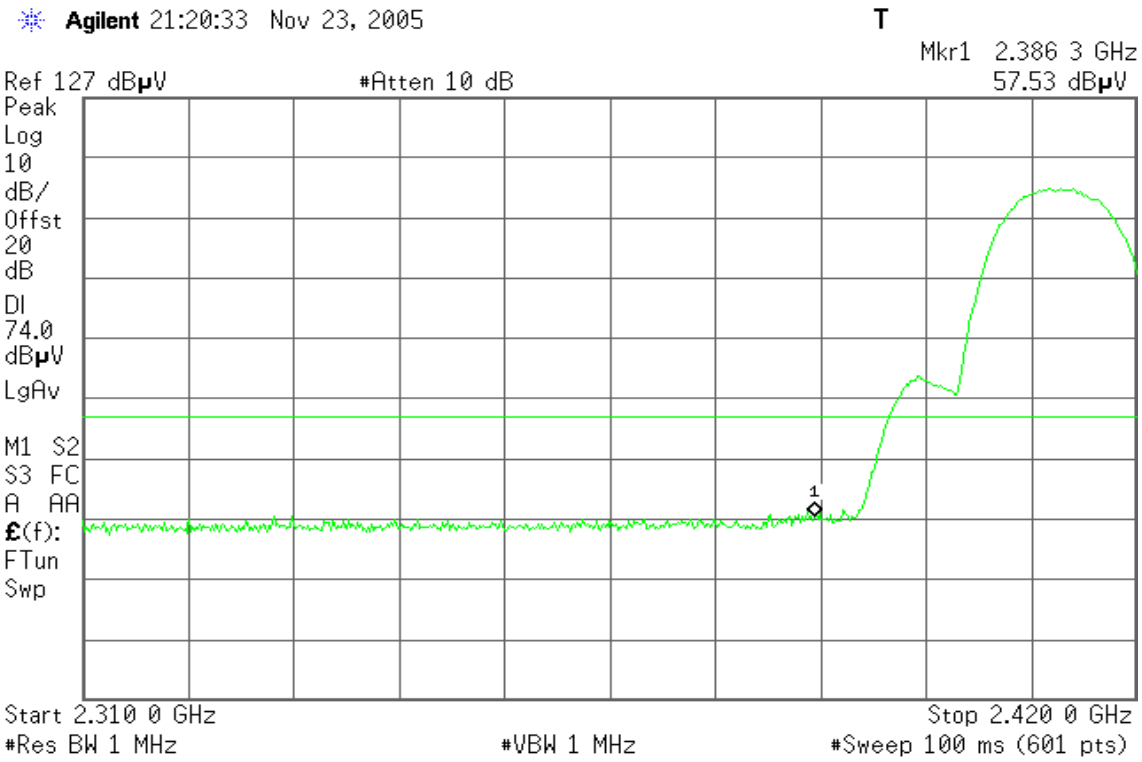
Detector mode: Peak **Polarity: Vertical**



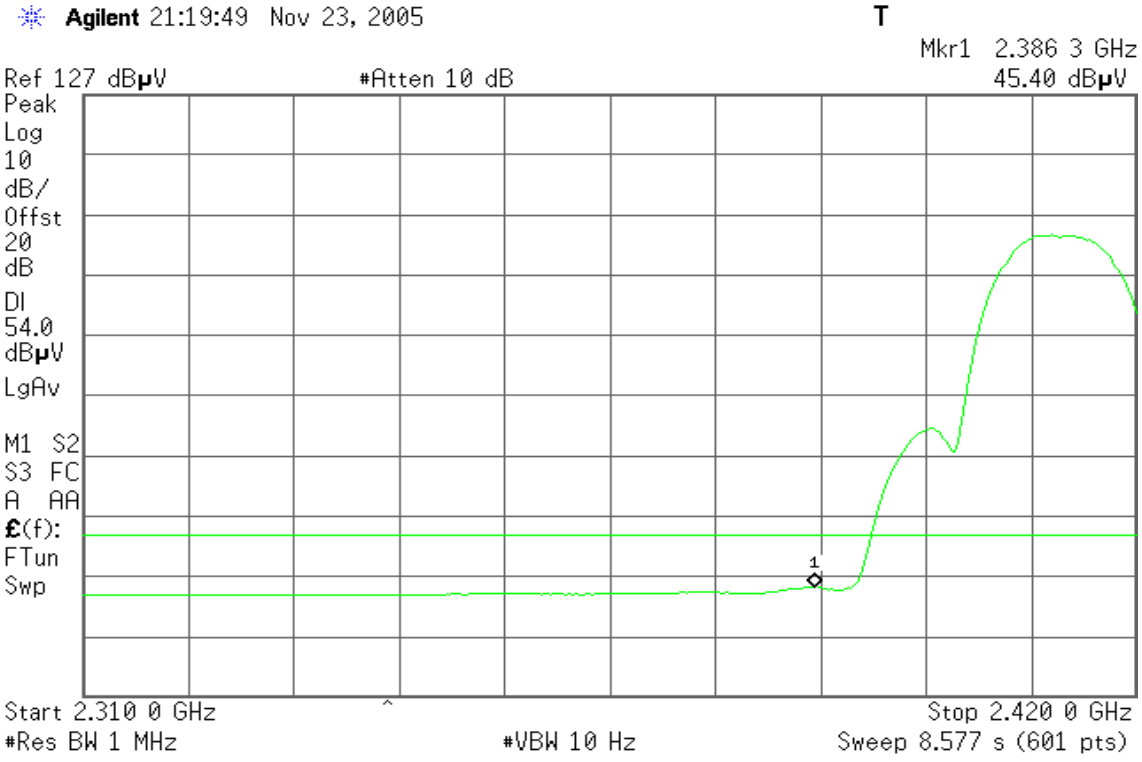
Detector mode: Average **Polarity: Vertical**



Detector mode: Peak **Polarity: Horizontal**

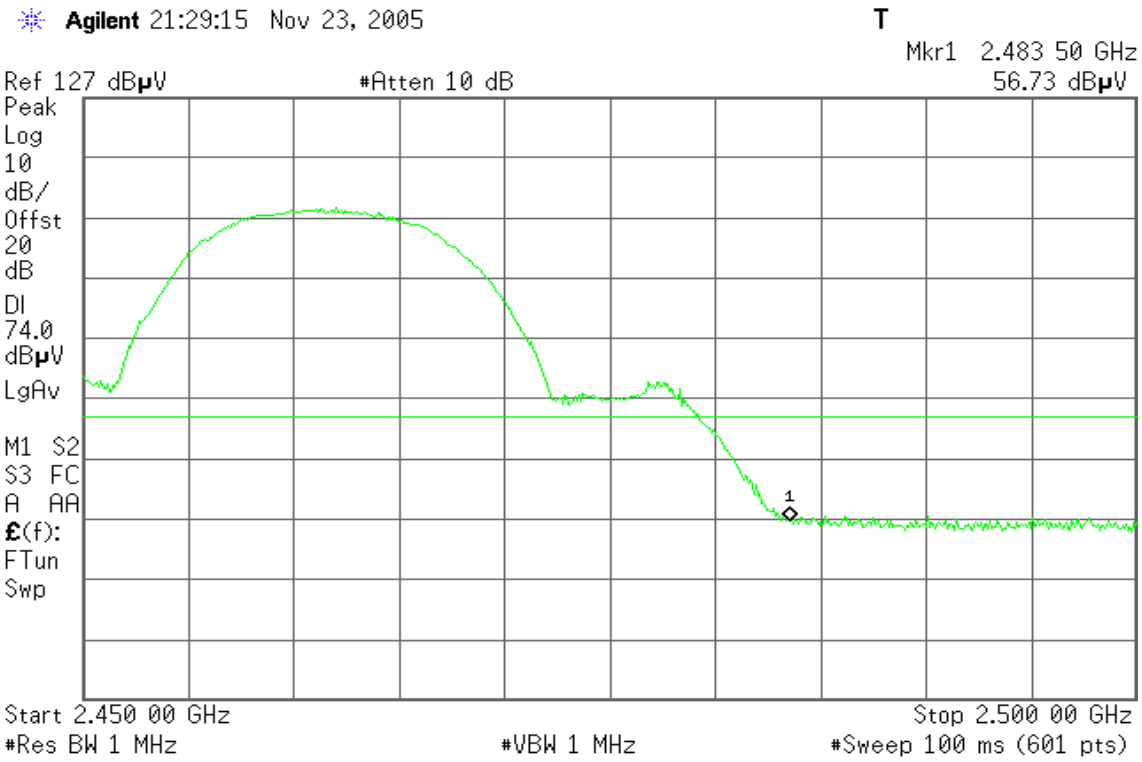


Detector mode: Average **Polarity: Horizontal**

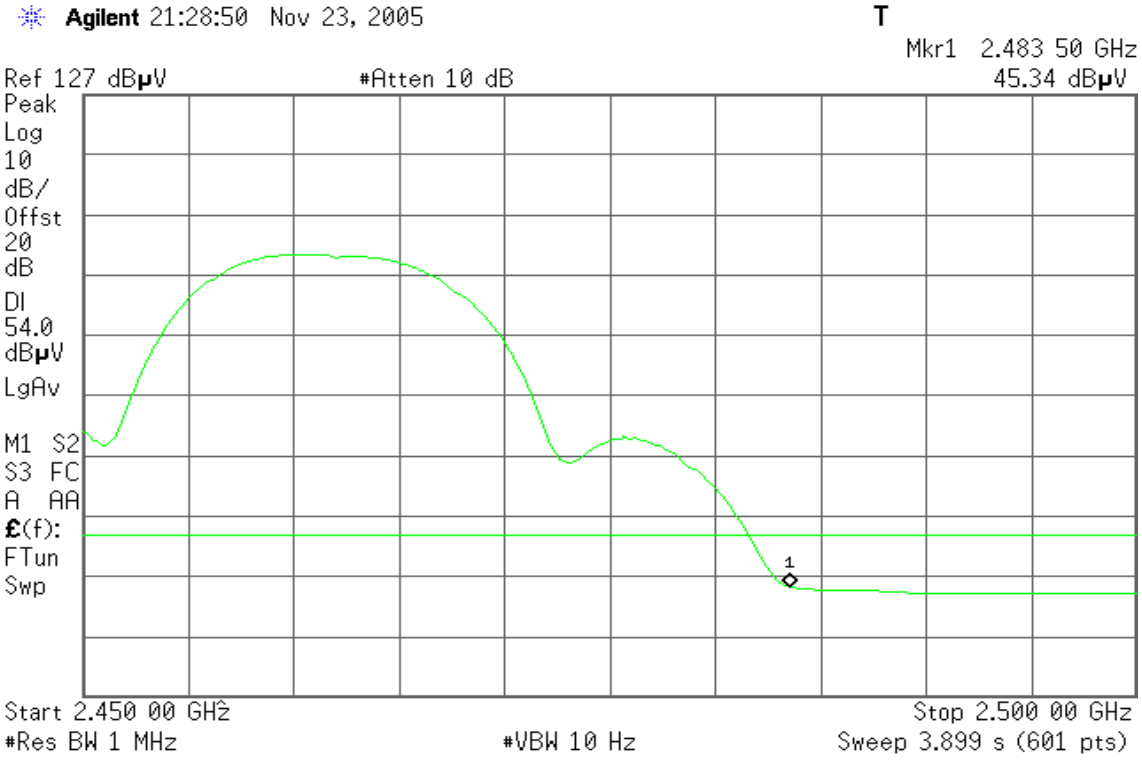


Band Edges (IEEE 802.11b / CH High)

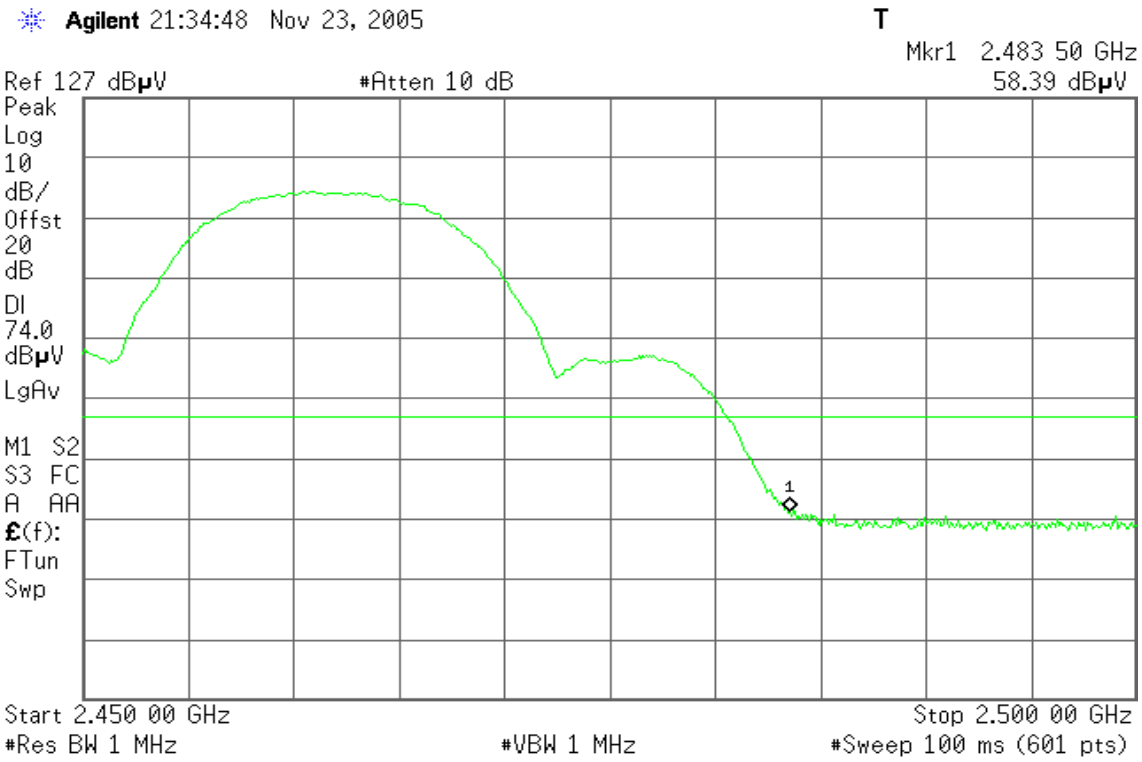
Detector mode: Peak Polarity: Vertical



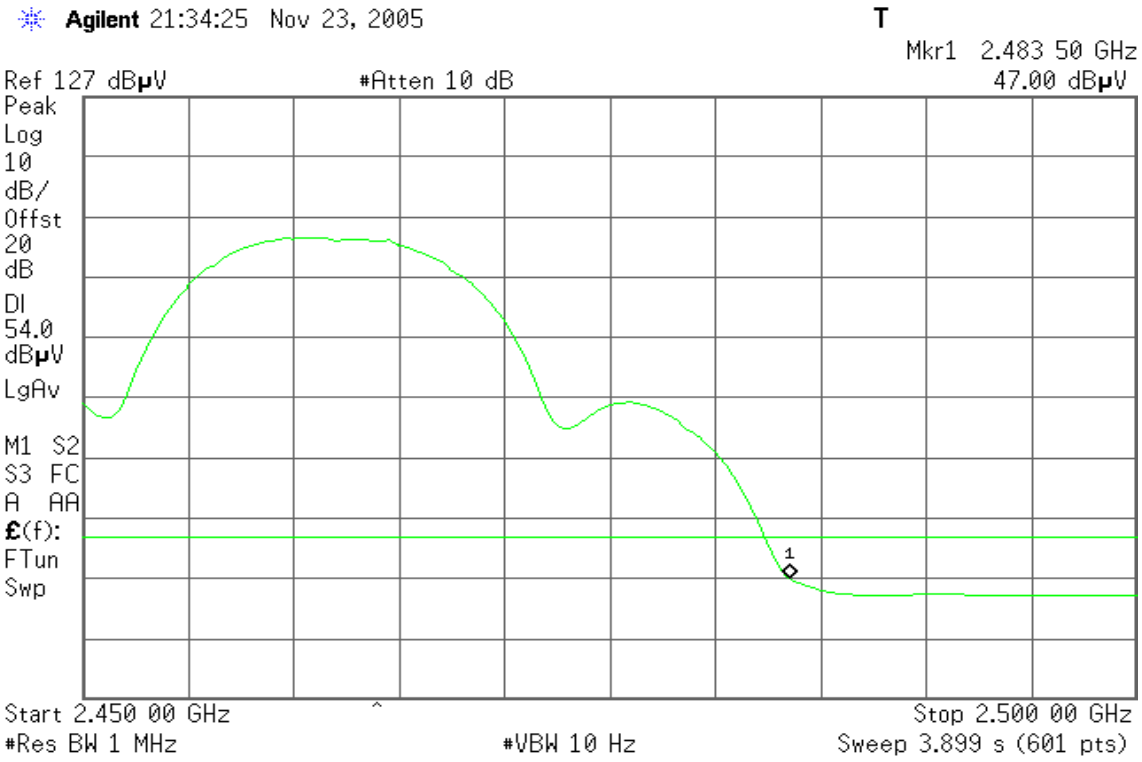
Detector mode: Average Polarity: Vertical



Detector mode: Peak **Polarity: Horizontal**

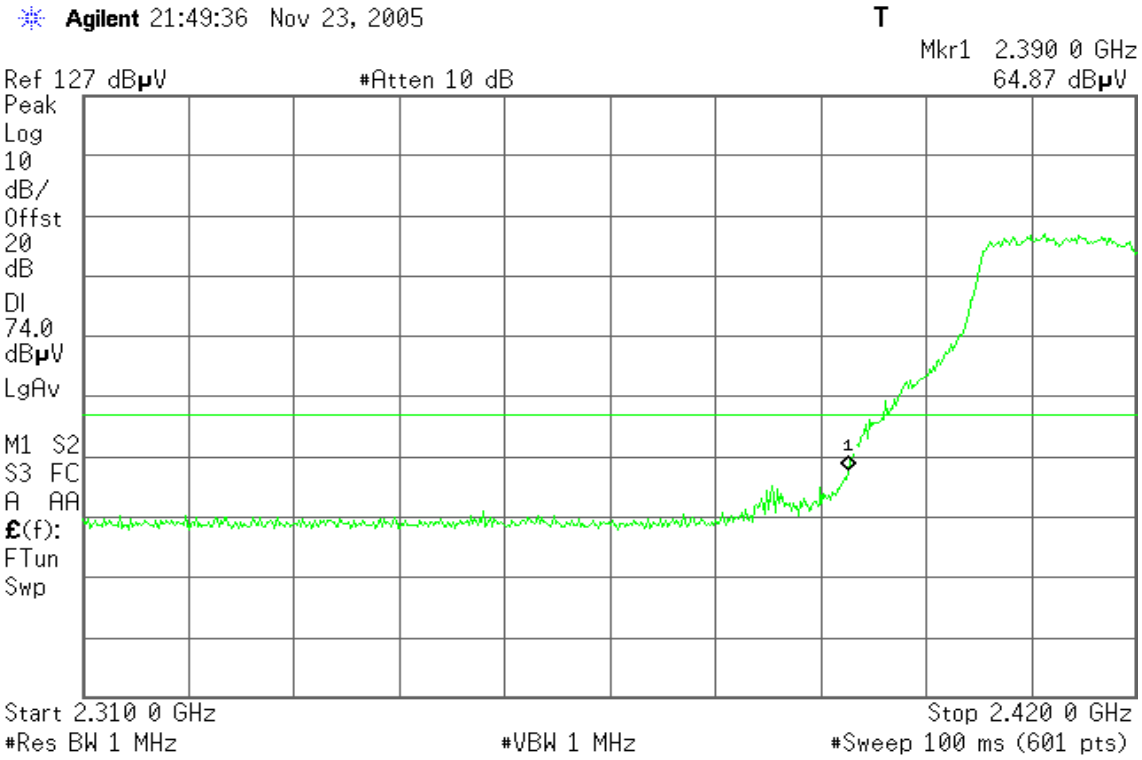


Detector mode: Average **Polarity: Horizontal**

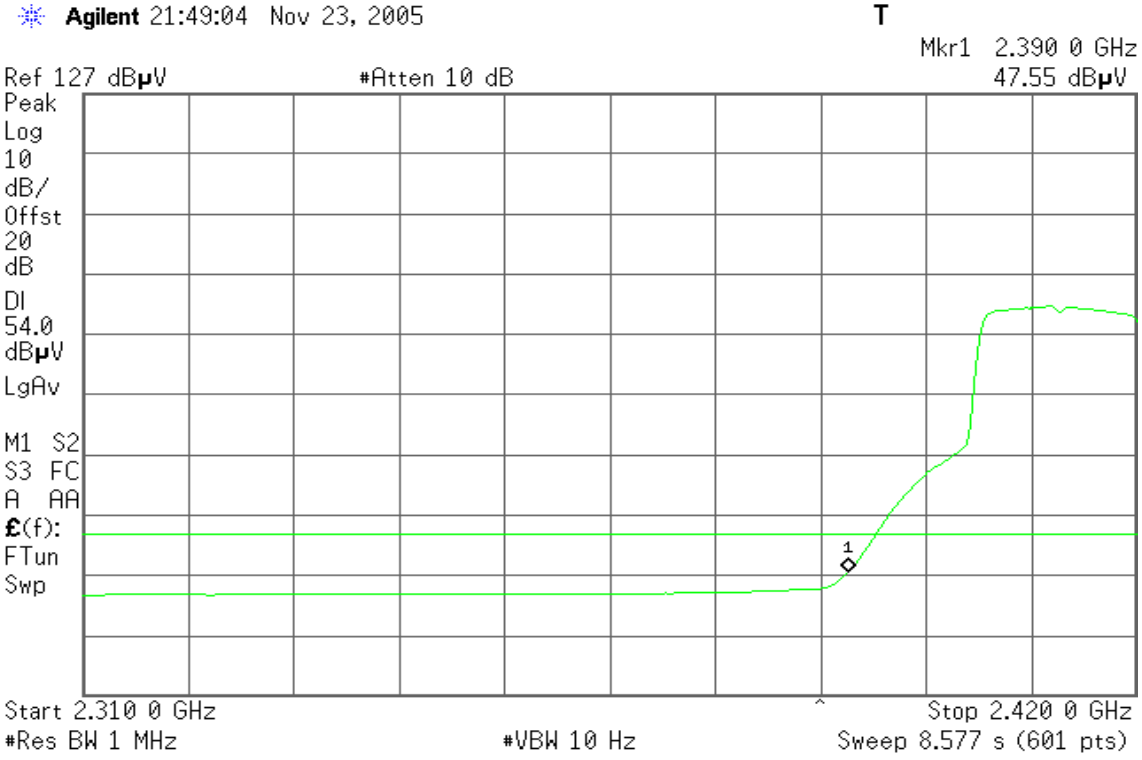


Band Edges (IEEE 802.11g / CH Low)

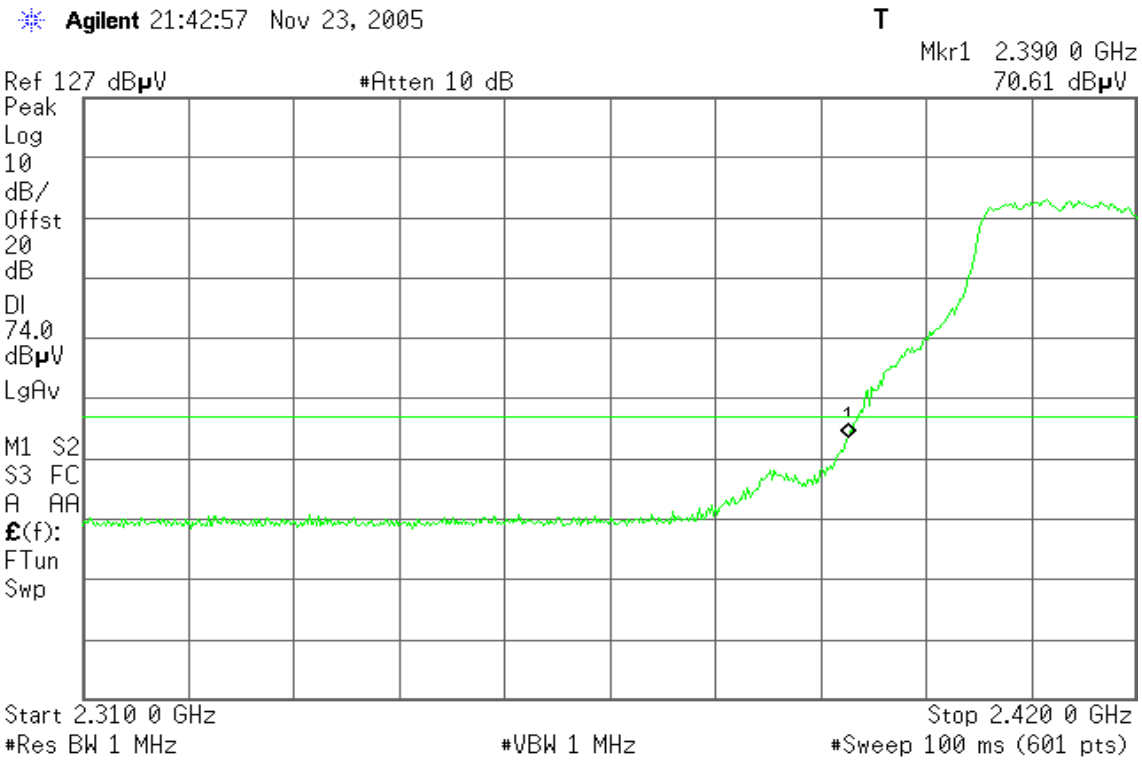
Detector mode: Peak **Polarity: Vertical**



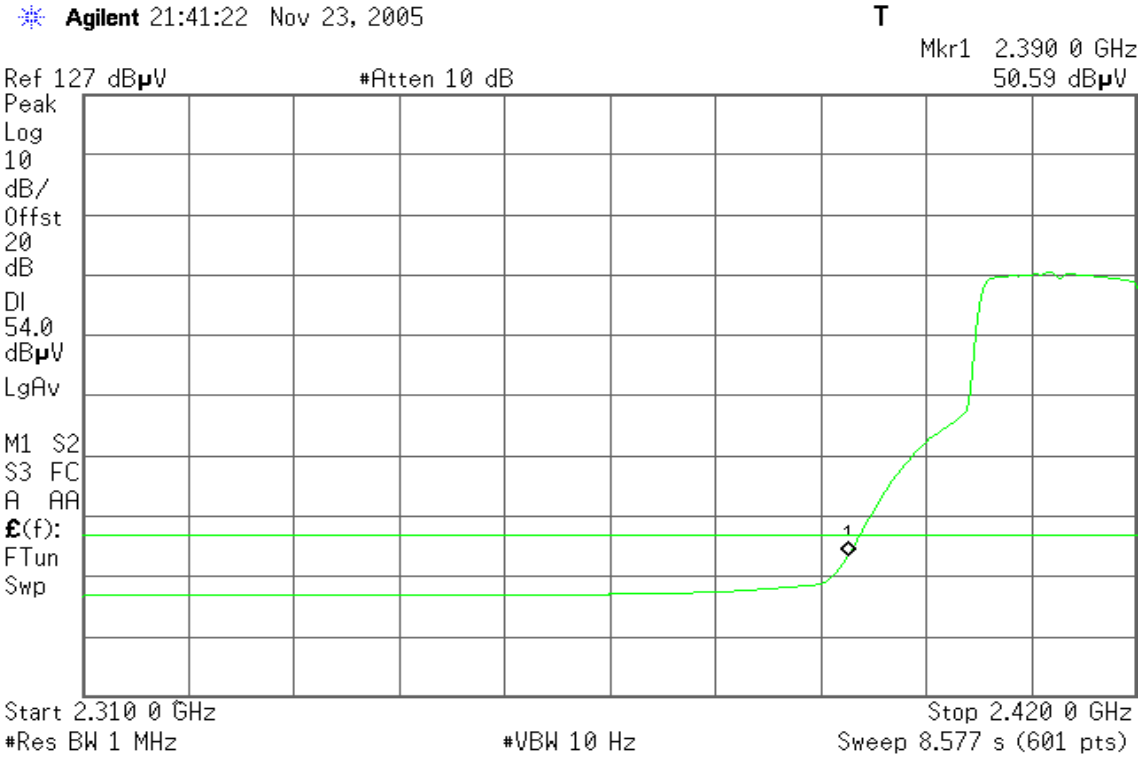
Detector mode: Average **Polarity: Vertical**



Detector mode: Peak **Polarity: Horizontal**

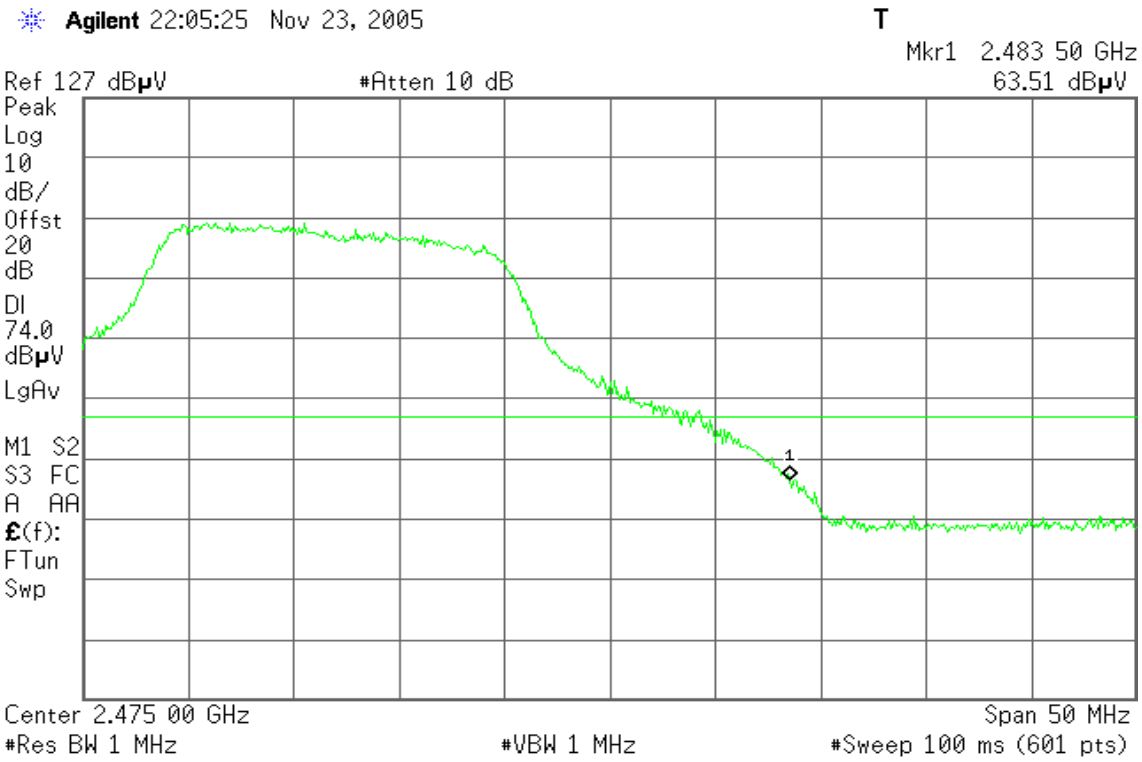


Detector mode: Average **Polarity: Horizontal**

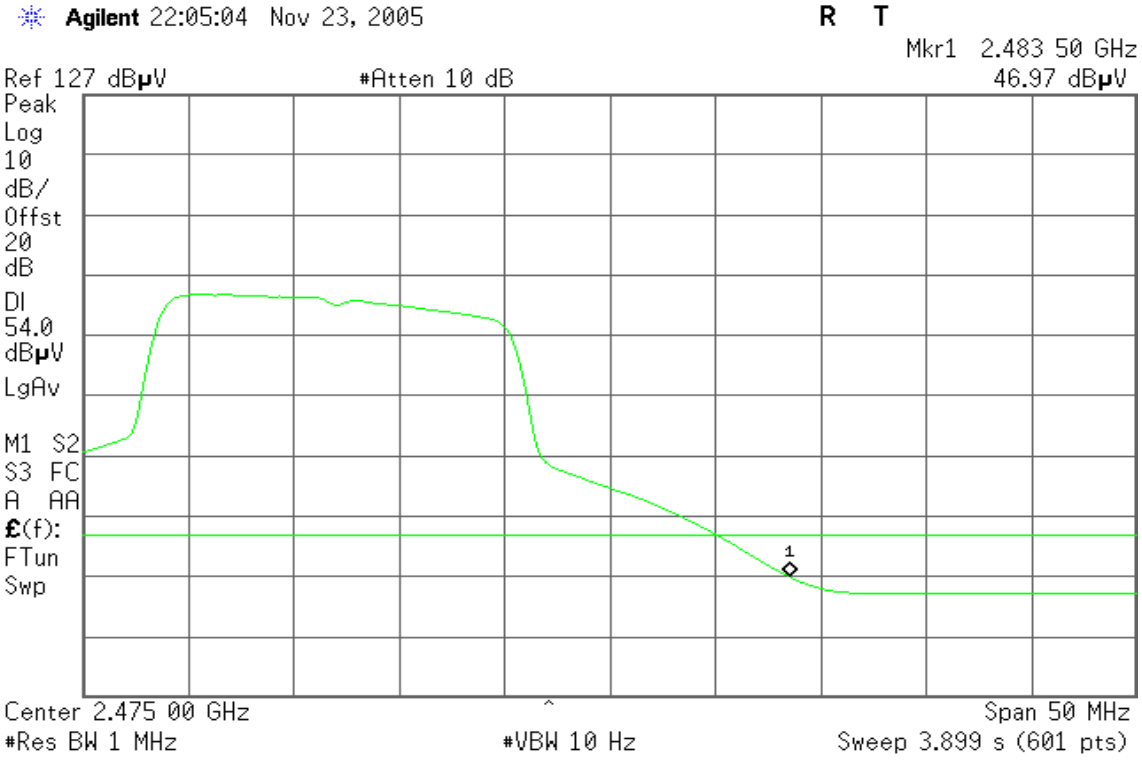


Band Edges (IEEE 802.11g / CH High)

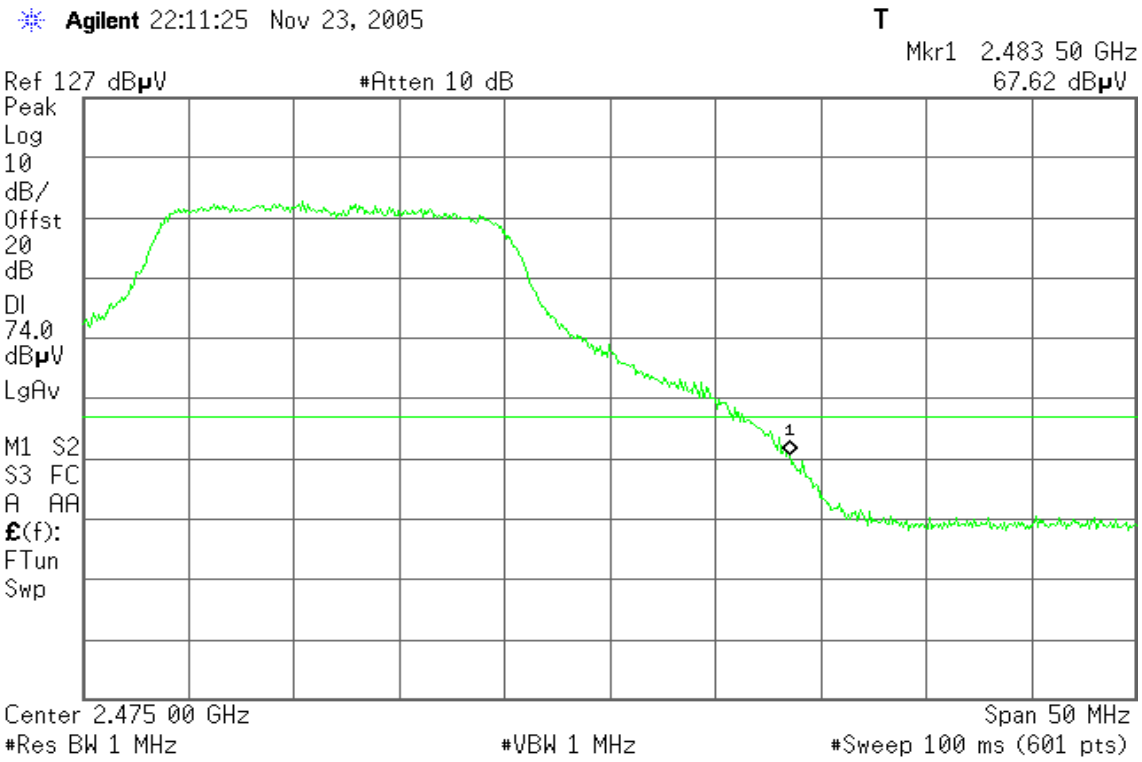
Detector mode: Peak Polarity: Vertical



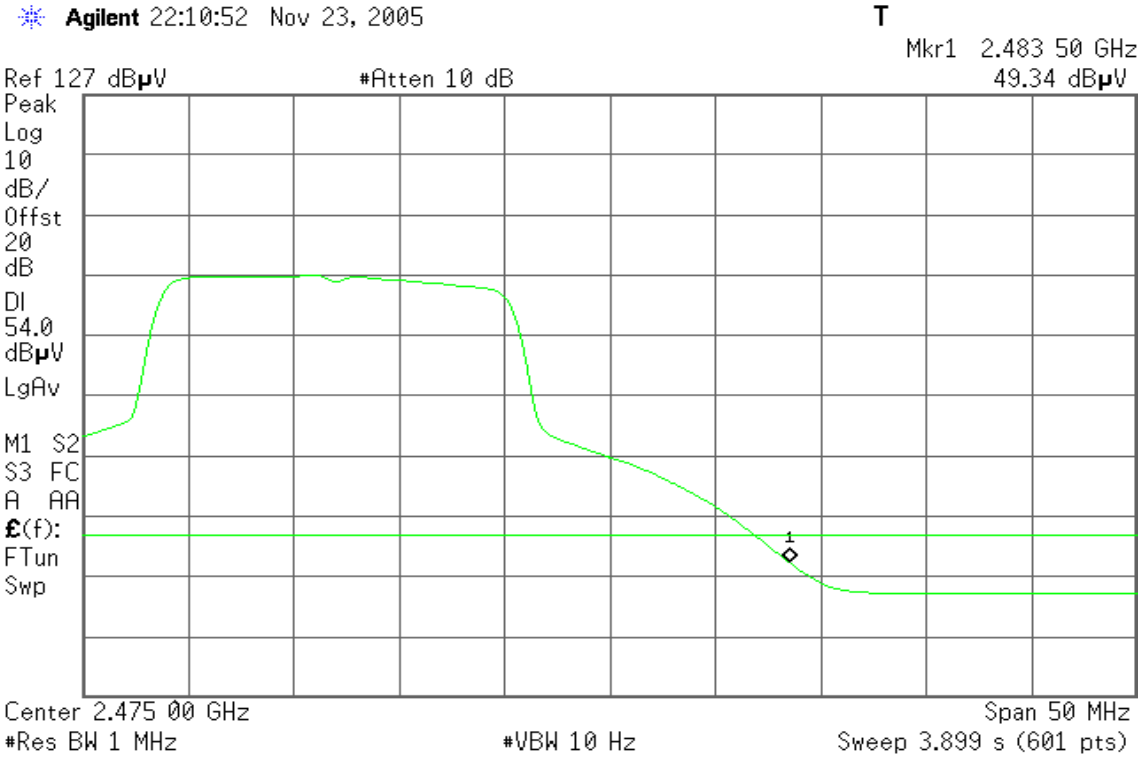
Detector mode: Average Polarity: Vertical



Detector mode: Peak **Polarity: Horizontal**



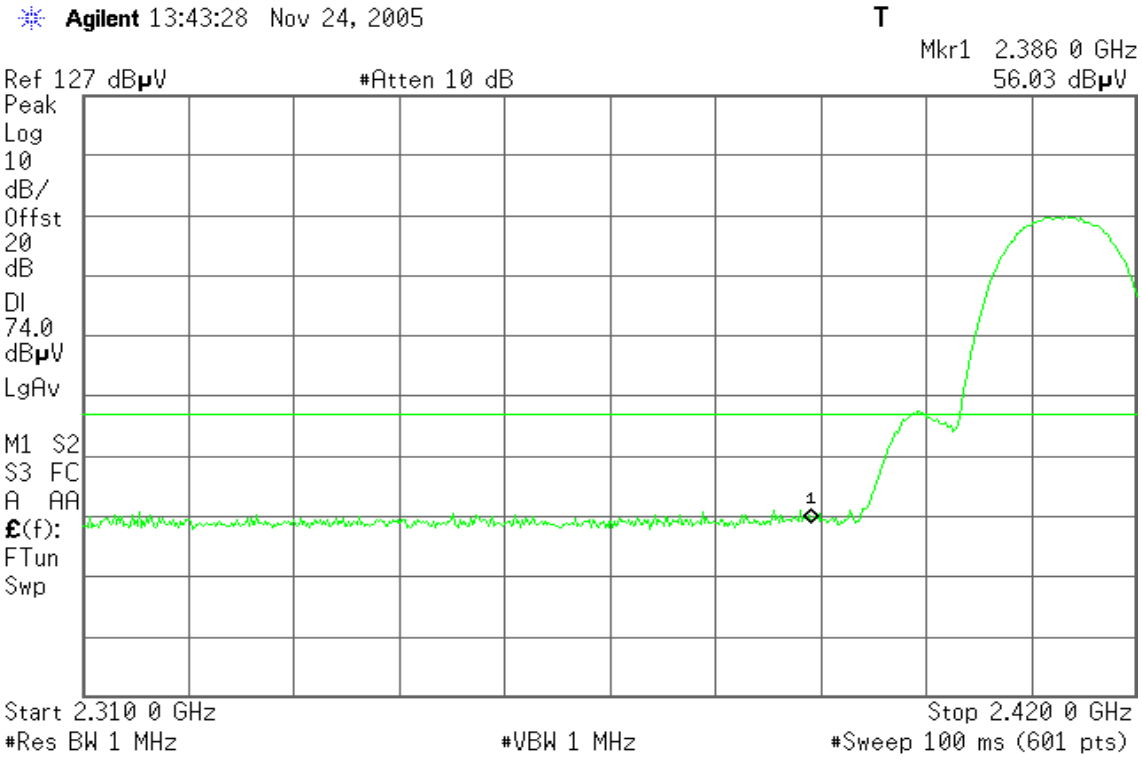
Detector mode: Average **Polarity: Horizontal**



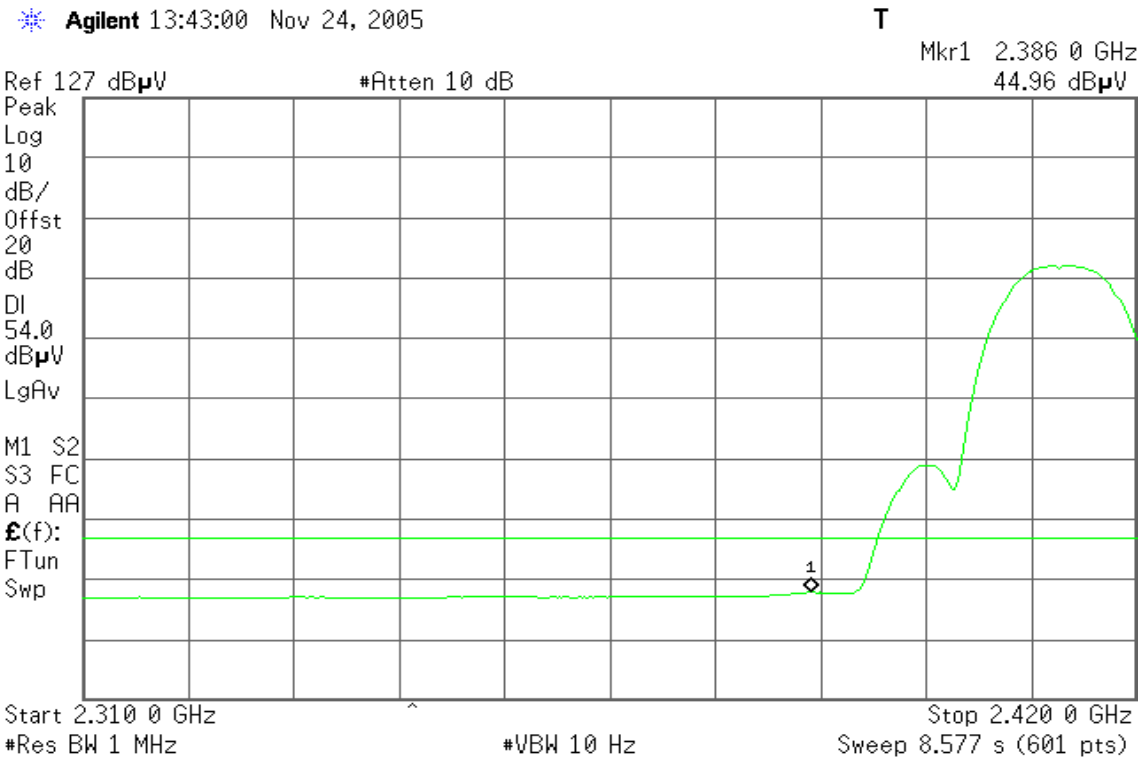
Mode 6: Antenna 4+ Module 2

Band Edges (IEEE 802.11b / CH Low)

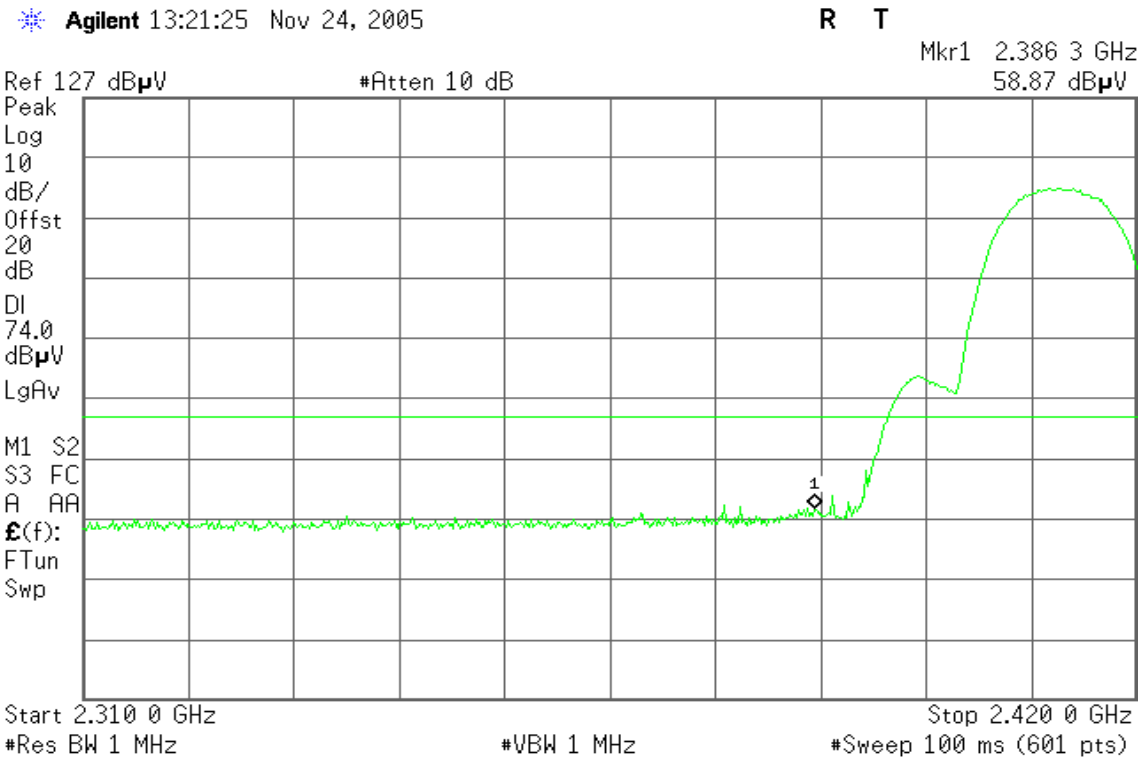
Detector mode: Peak **Polarity: Vertical**



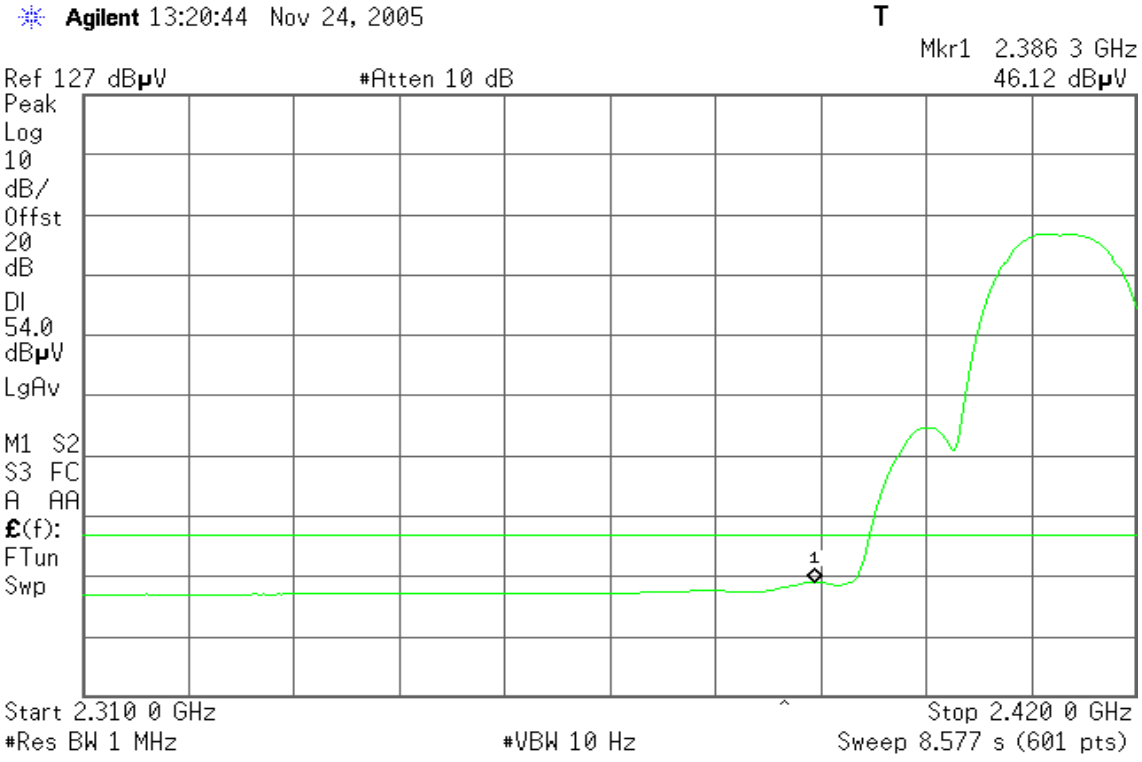
Detector mode: Average **Polarity: Vertical**



Detector mode: Peak **Polarity: Horizontal**

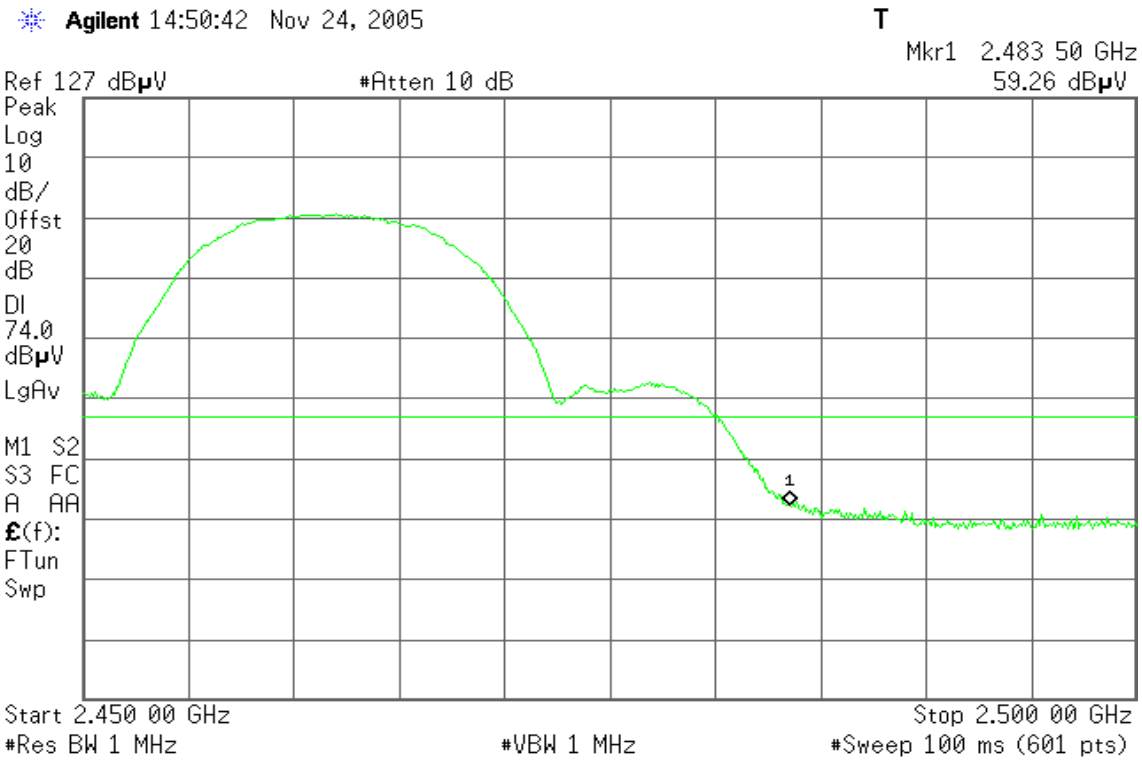


Detector mode: Average **Polarity: Horizontal**

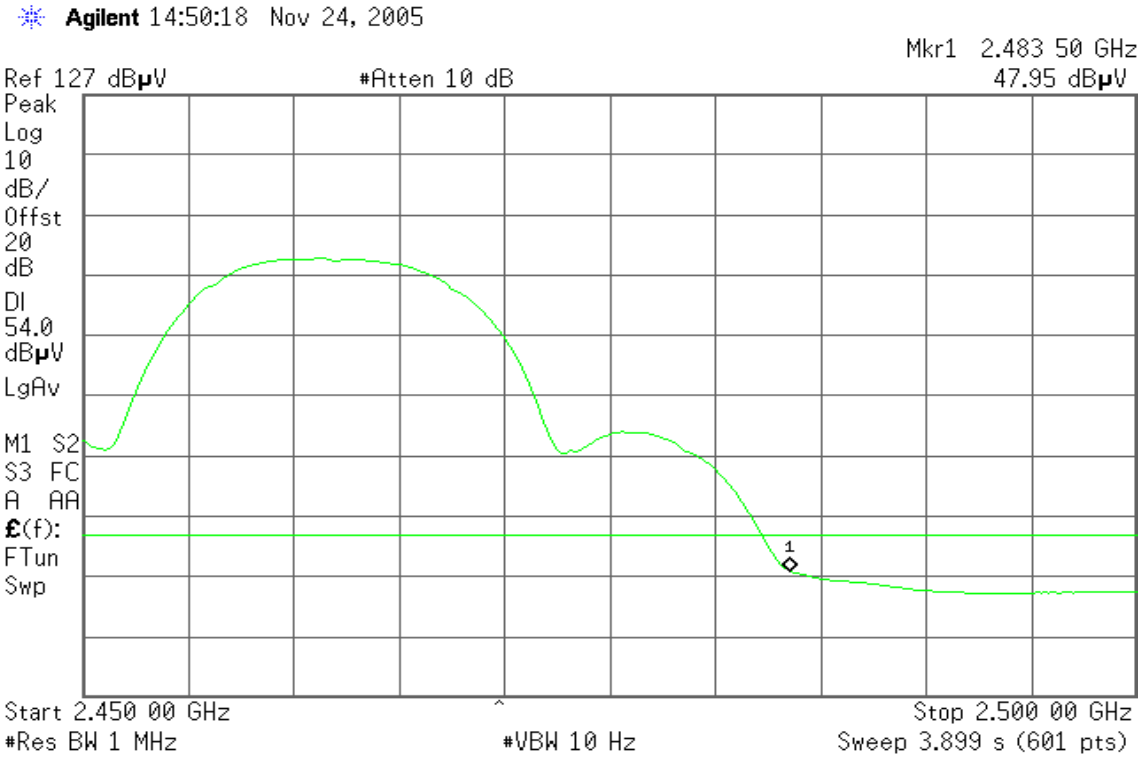


Band Edges (IEEE 802.11b / CH High)

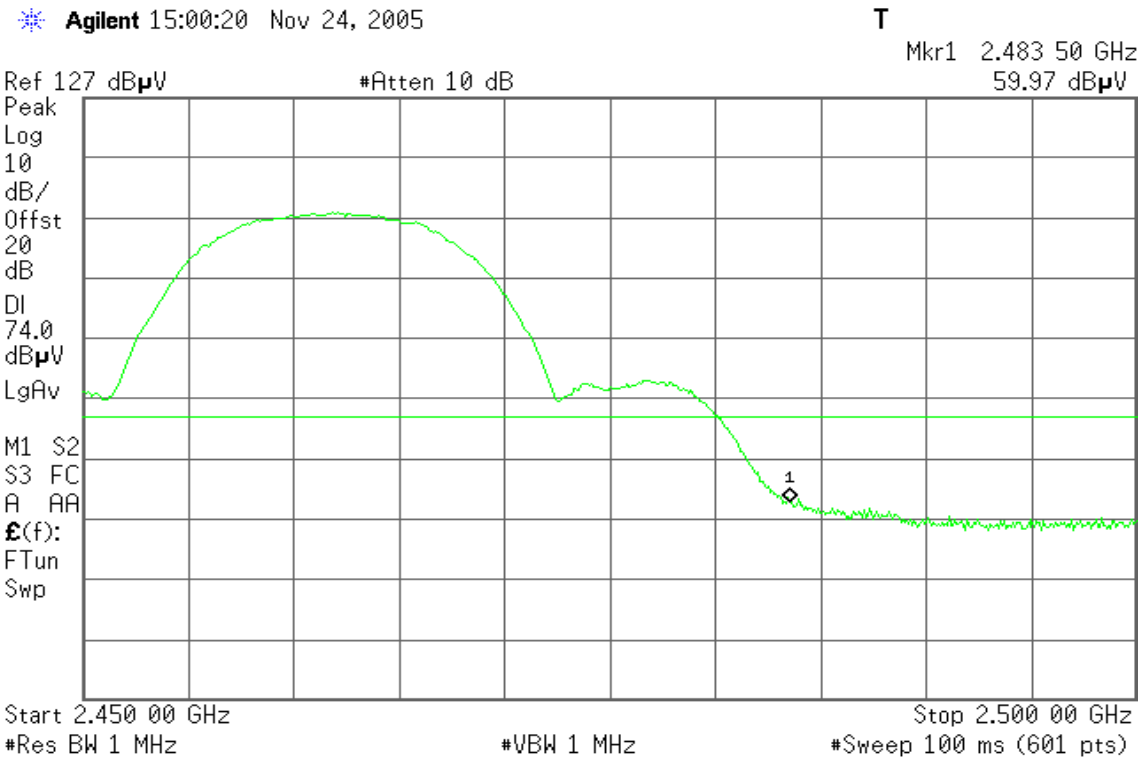
Detector mode: Peak Polarity: Vertical



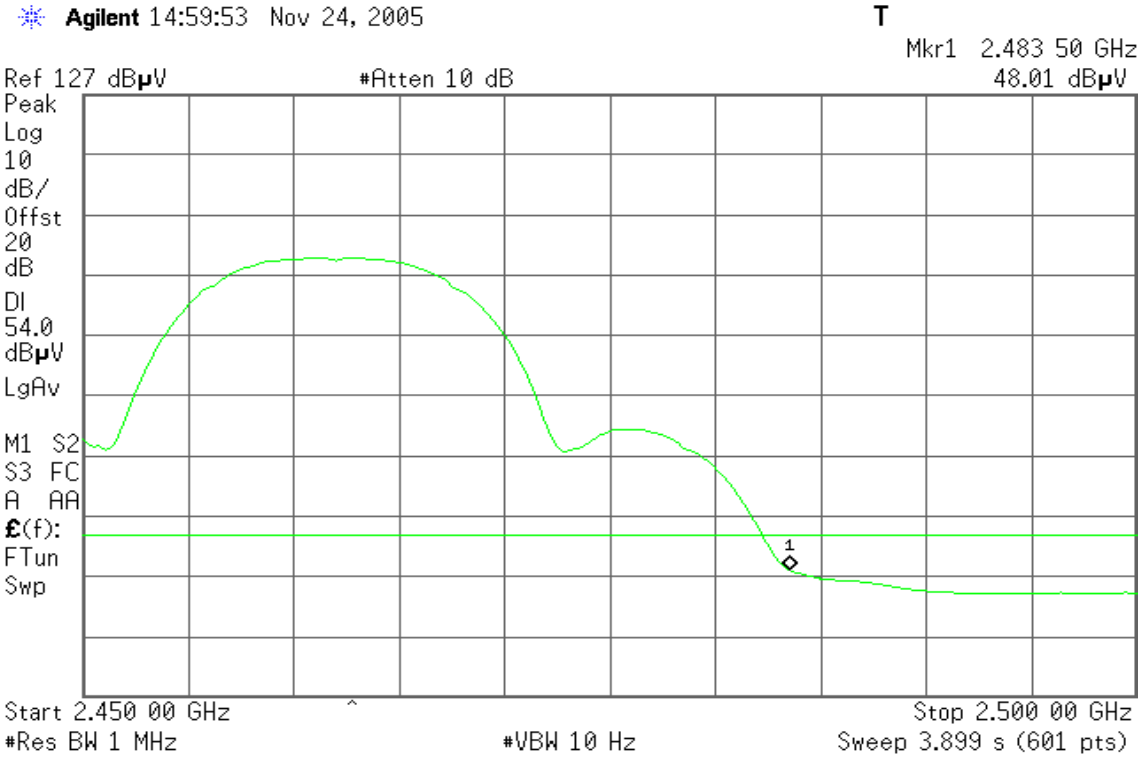
Detector mode: Average Polarity: Vertical



Detector mode: Peak **Polarity: Horizontal**

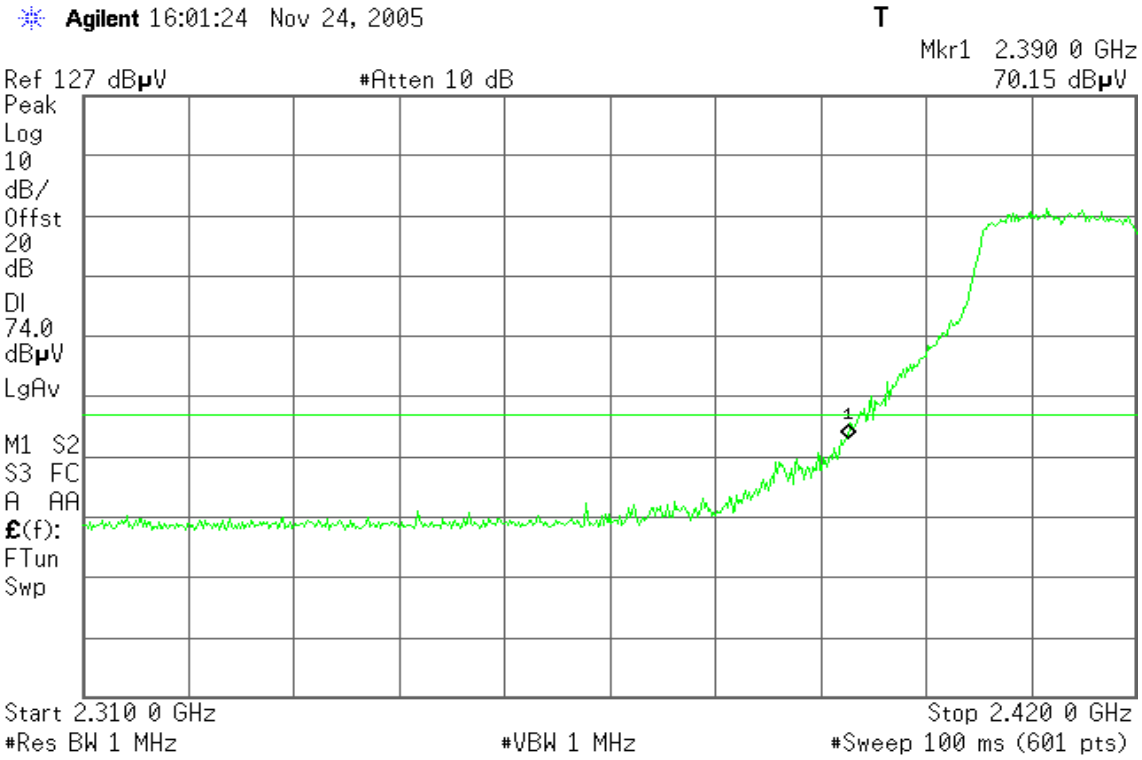


Detector mode: Average **Polarity: Horizontal**

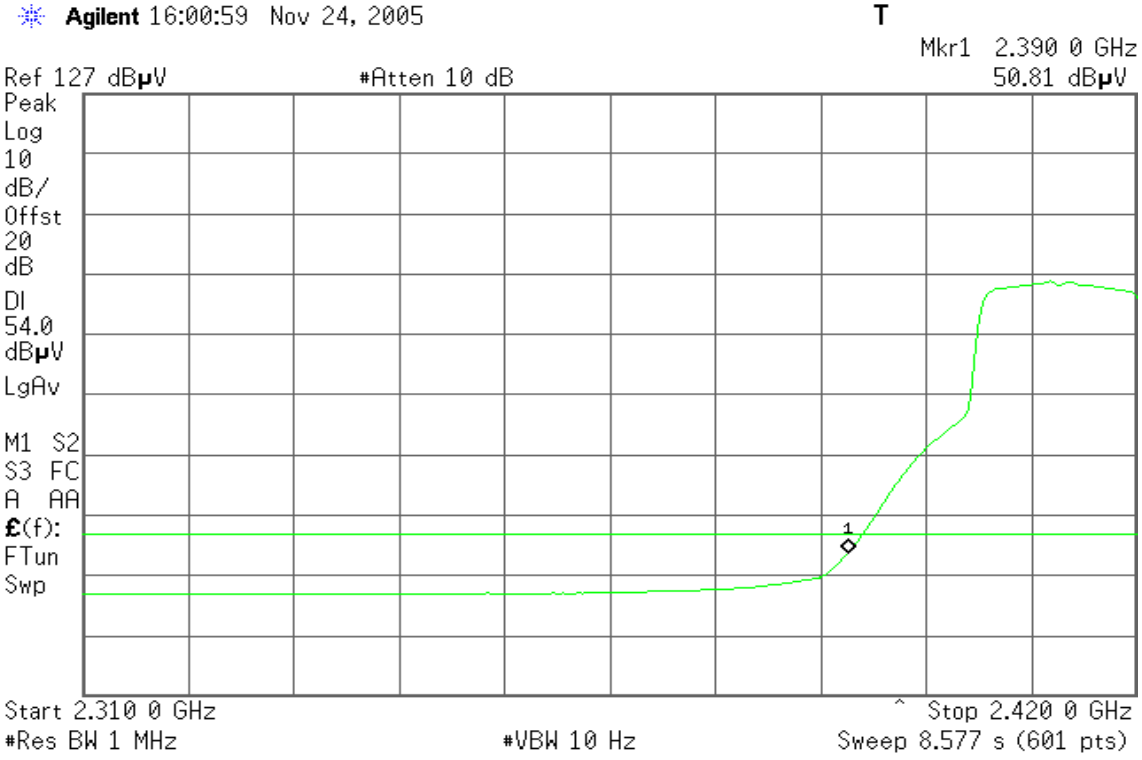


Band Edges (IEEE 802.11g / CH Low)

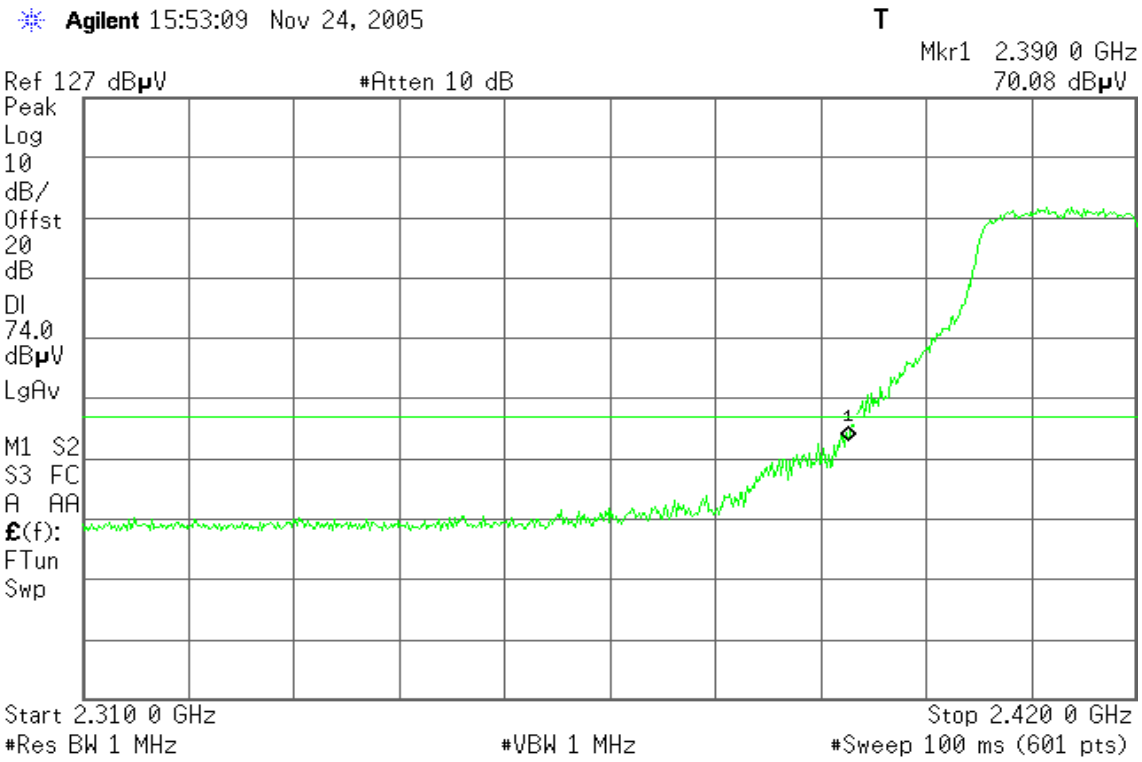
Detector mode: Peak Polarity: Vertical



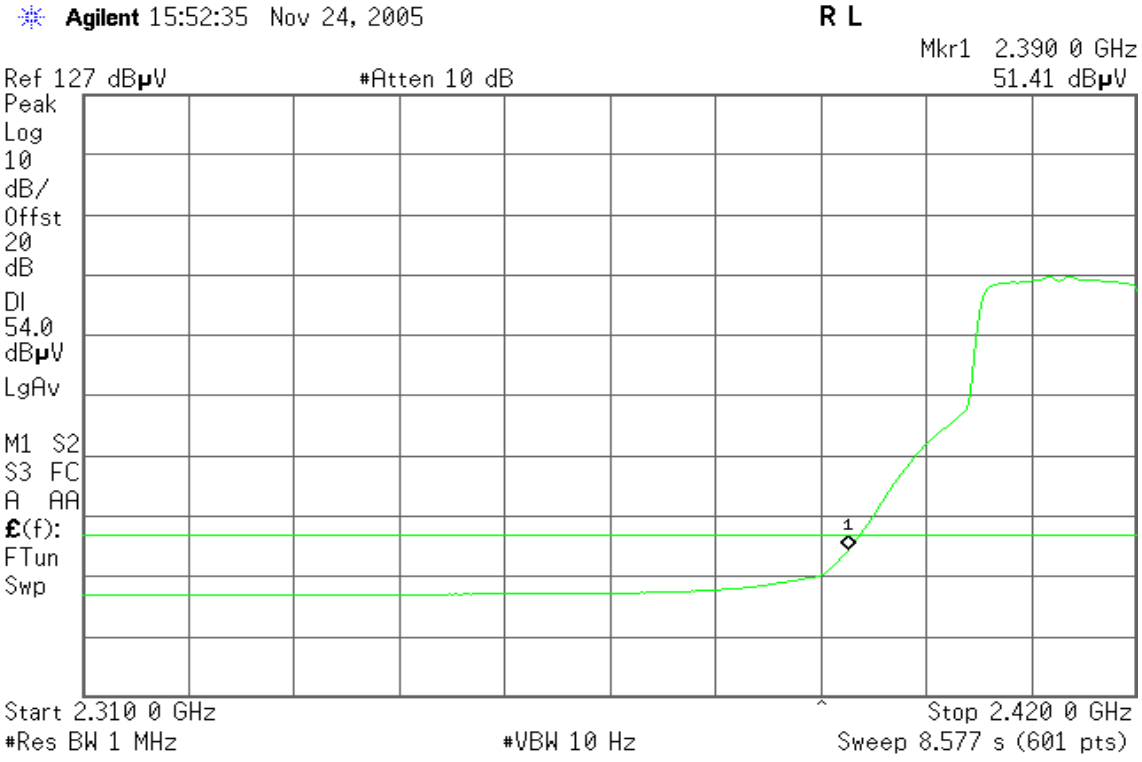
Detector mode: Average Polarity: Vertical



Detector mode: Peak **Polarity: Horizontal**

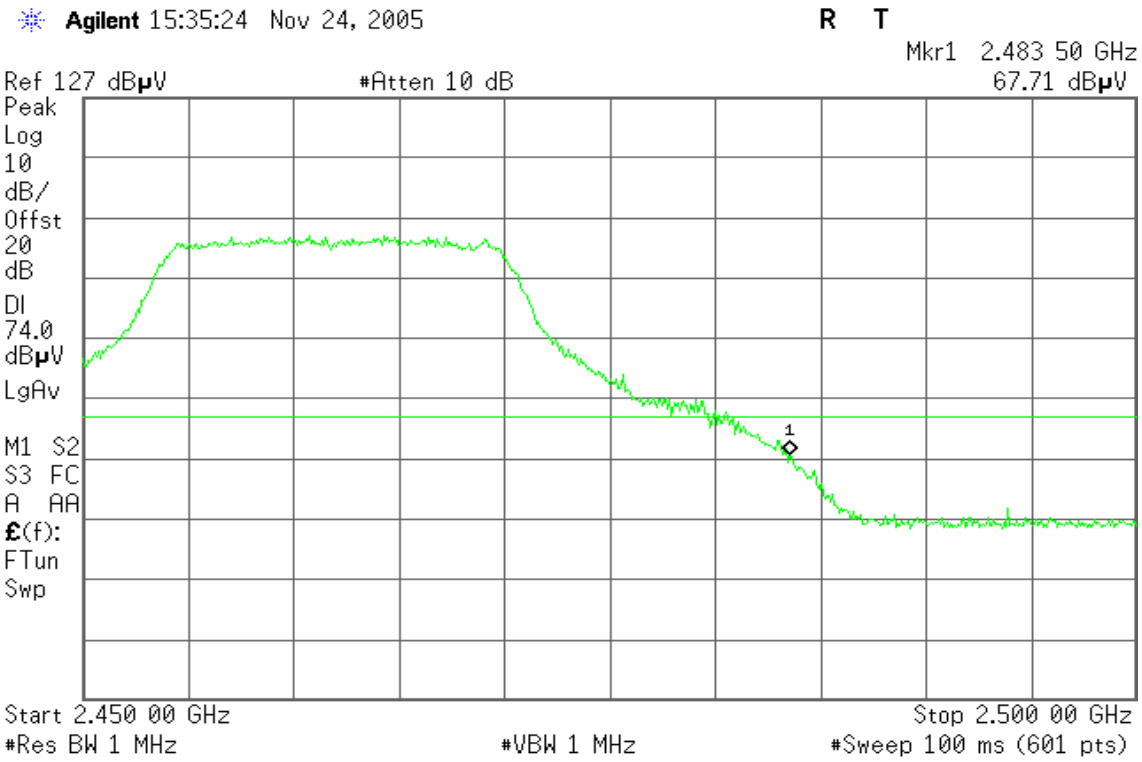


Detector mode: Average **Polarity: Horizontal**

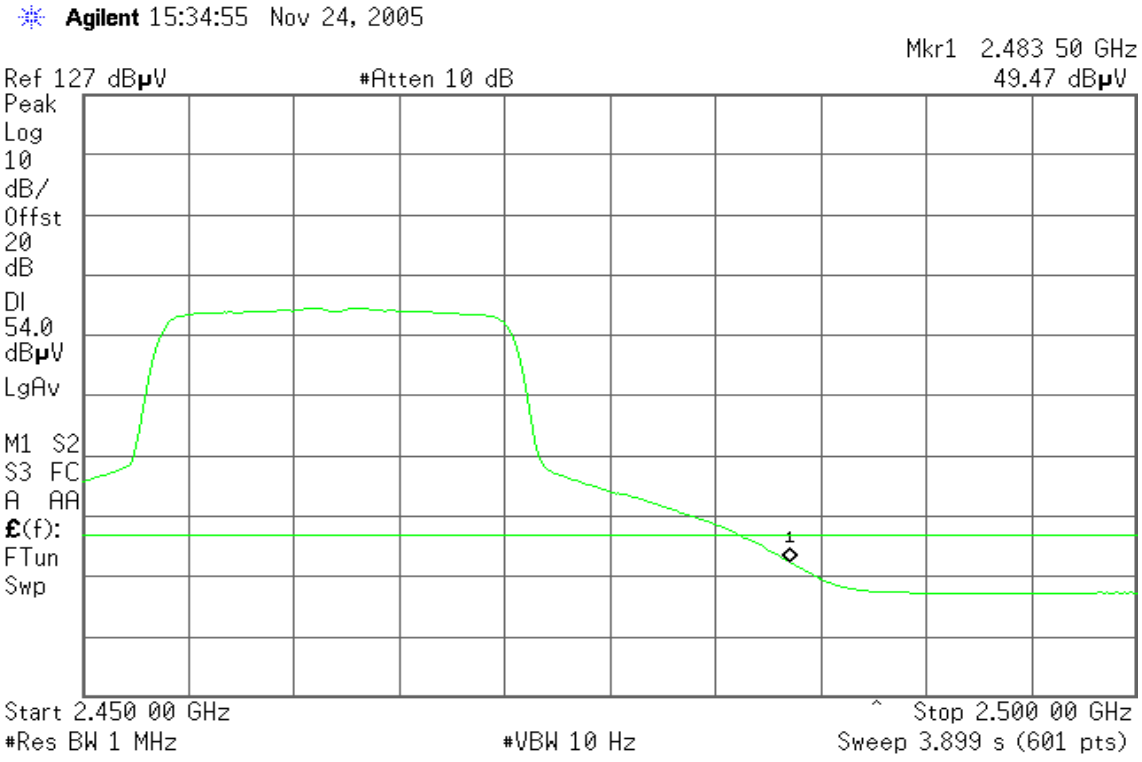


Band Edges (IEEE 802.11g / CH High)

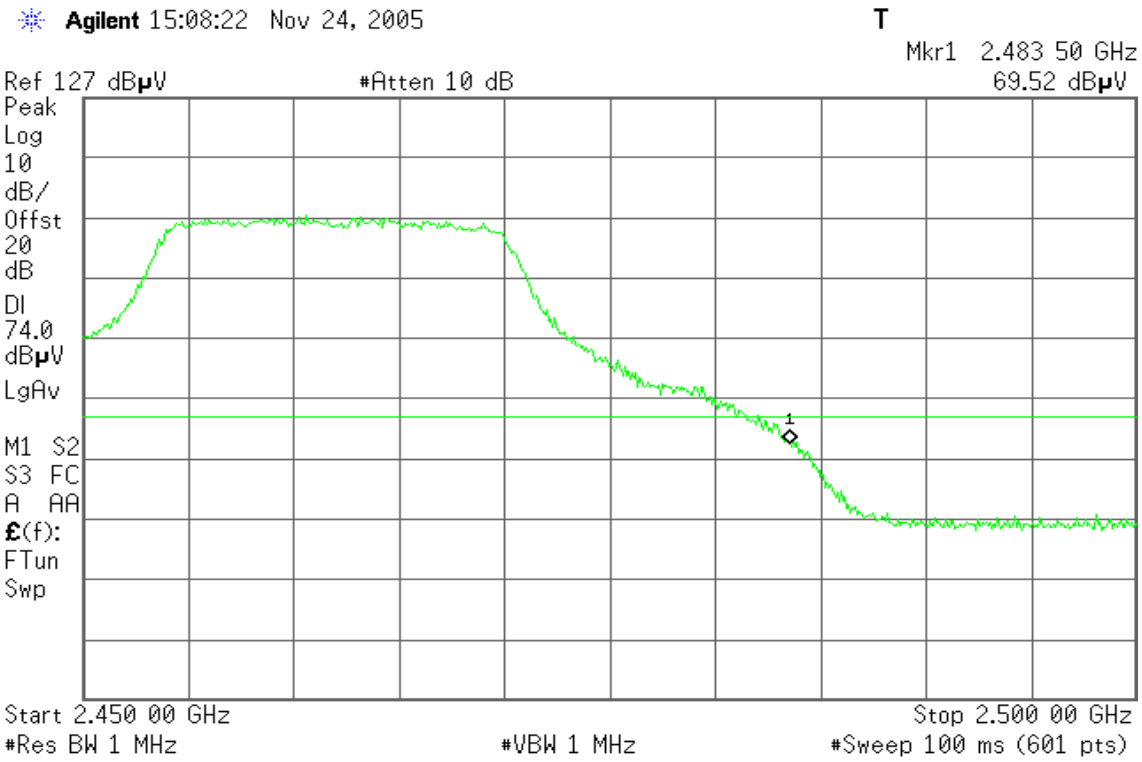
Detector mode: Peak Polarity: Vertical



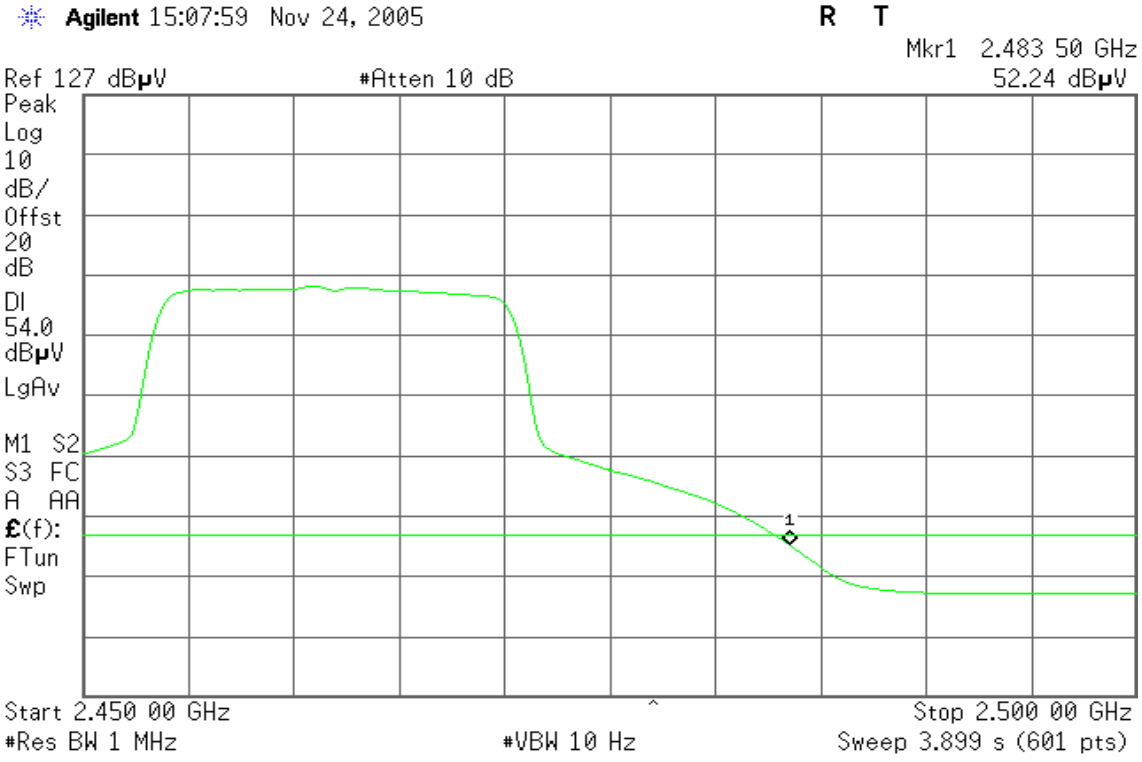
Detector mode: Average Polarity: Vertical



Detector mode: Peak **Polarity: Horizontal**

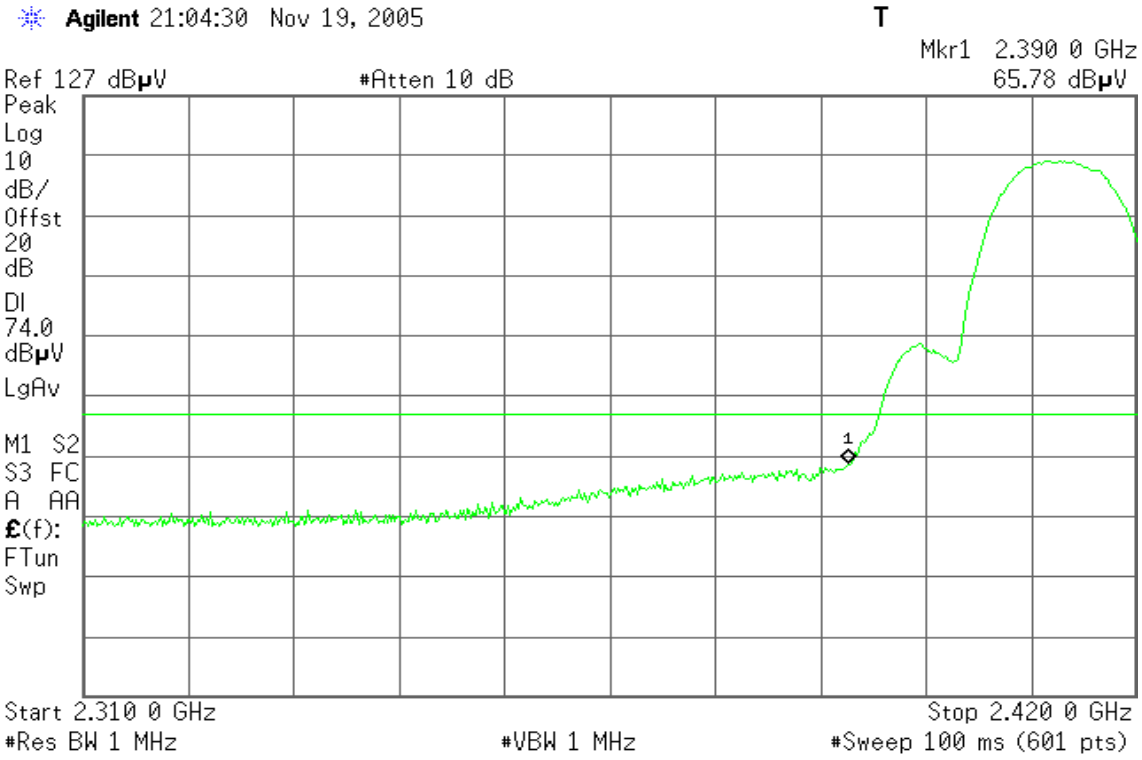


Detector mode: Average **Polarity: Horizontal**

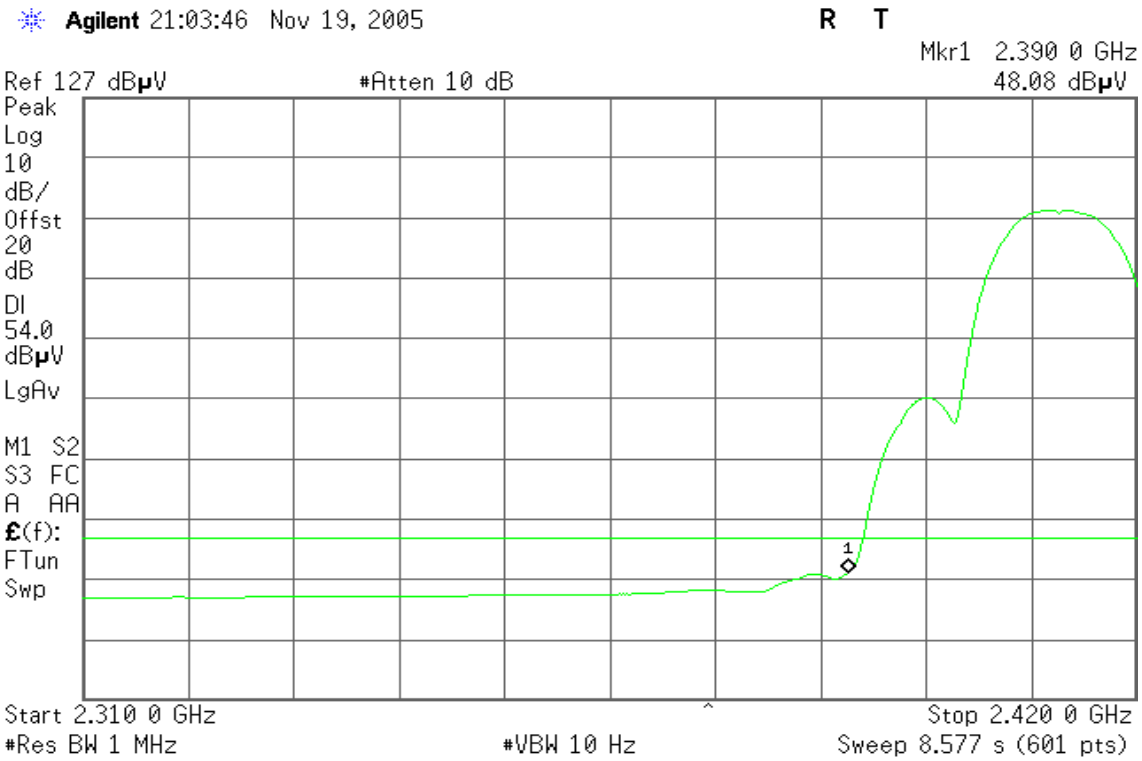


Mode 7: Antenna 5+ Module 1
Band Edges (IEEE 802.11b / CH Low)

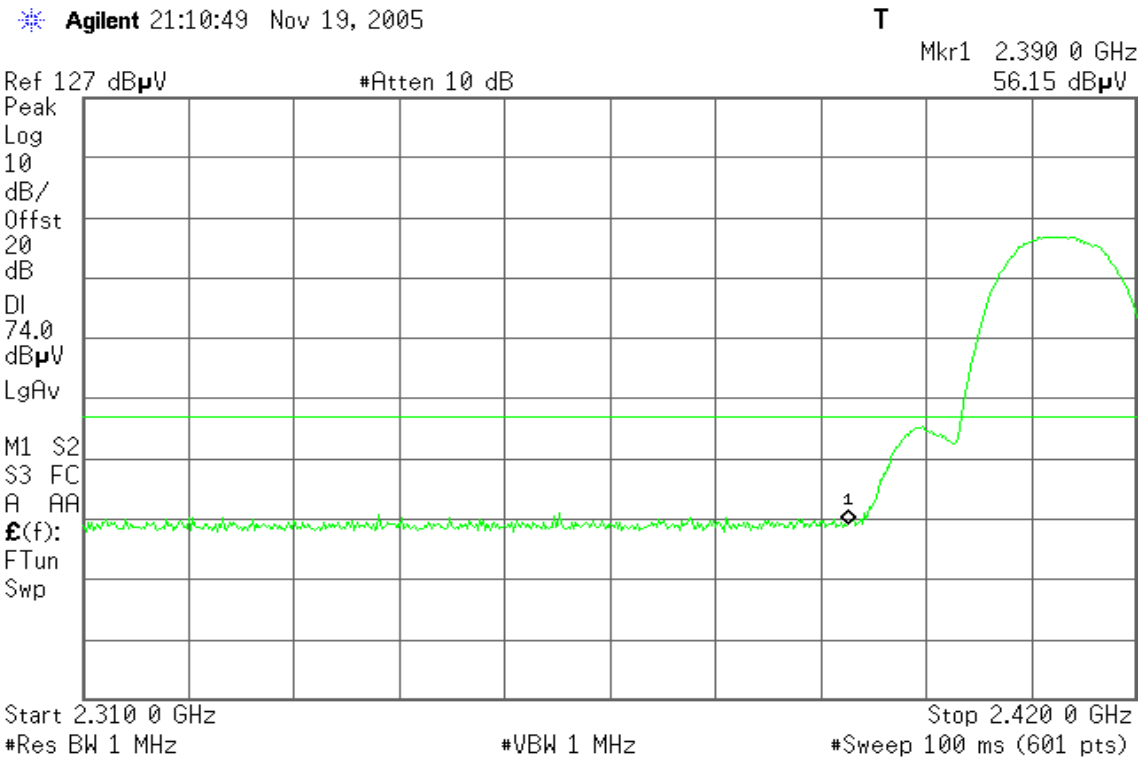
Detector mode: Peak **Polarity: Vertical**



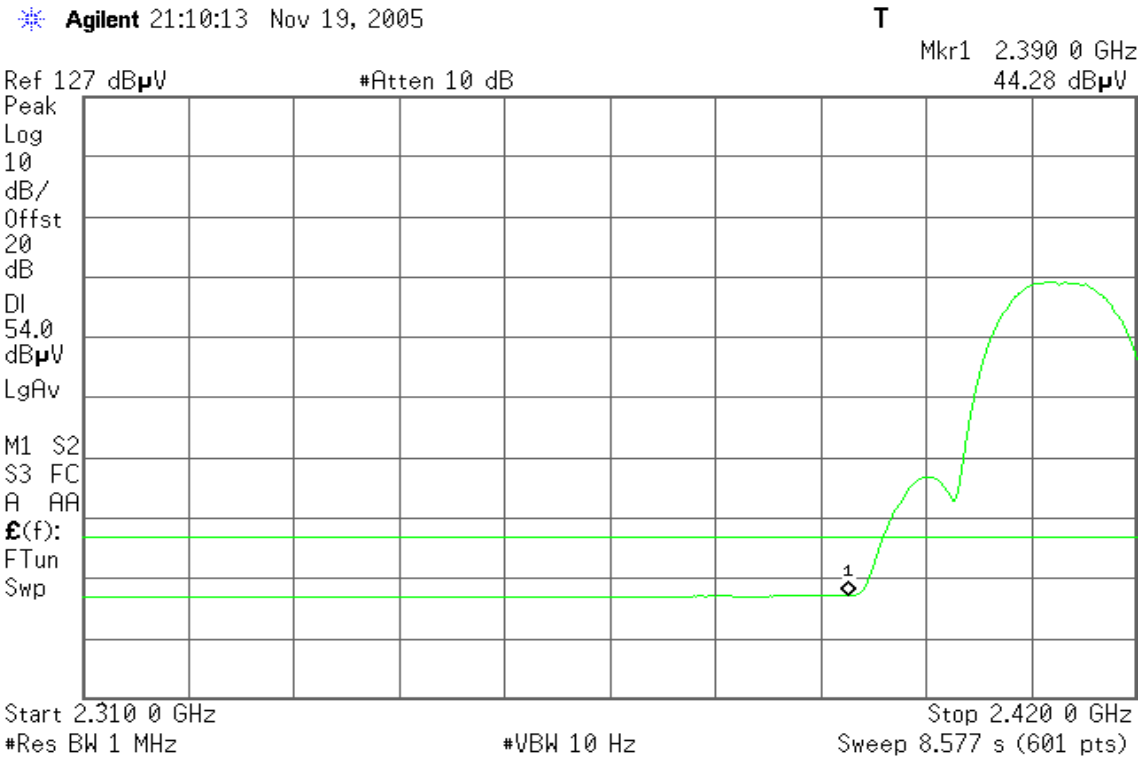
Detector mode: Average **Polarity: Vertical**



Detector mode: Peak **Polarity: Horizontal**

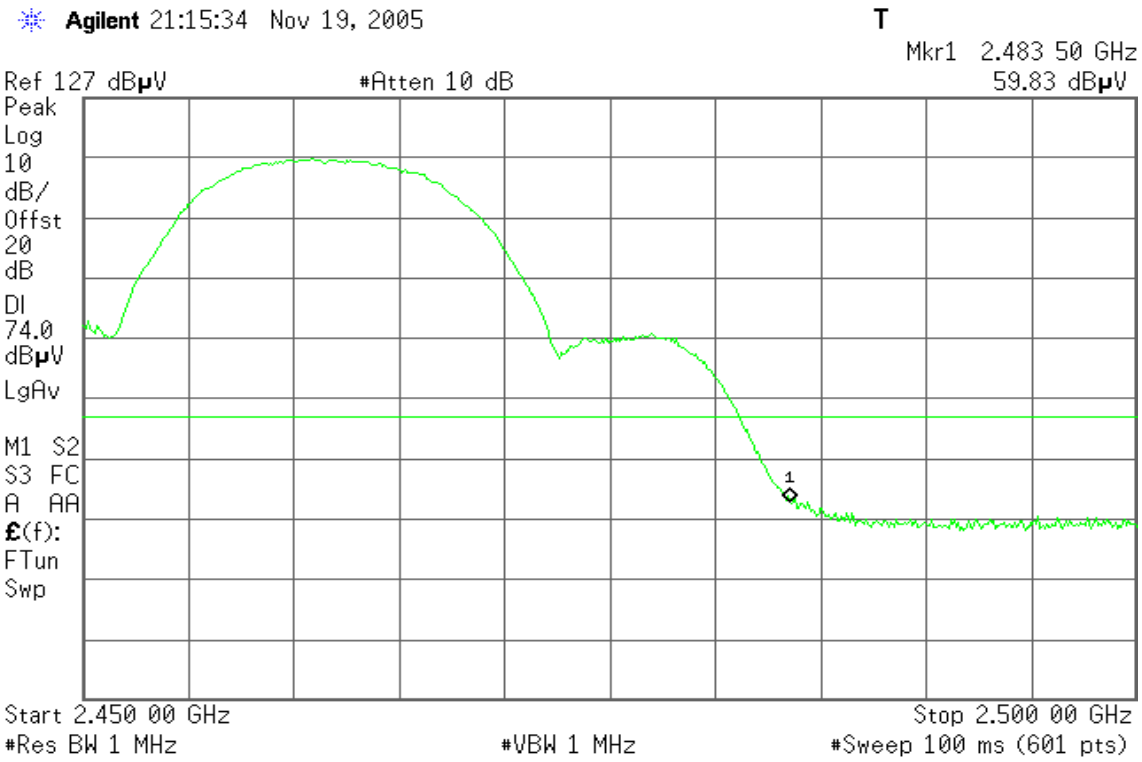


Detector mode: Average **Polarity: Horizontal**

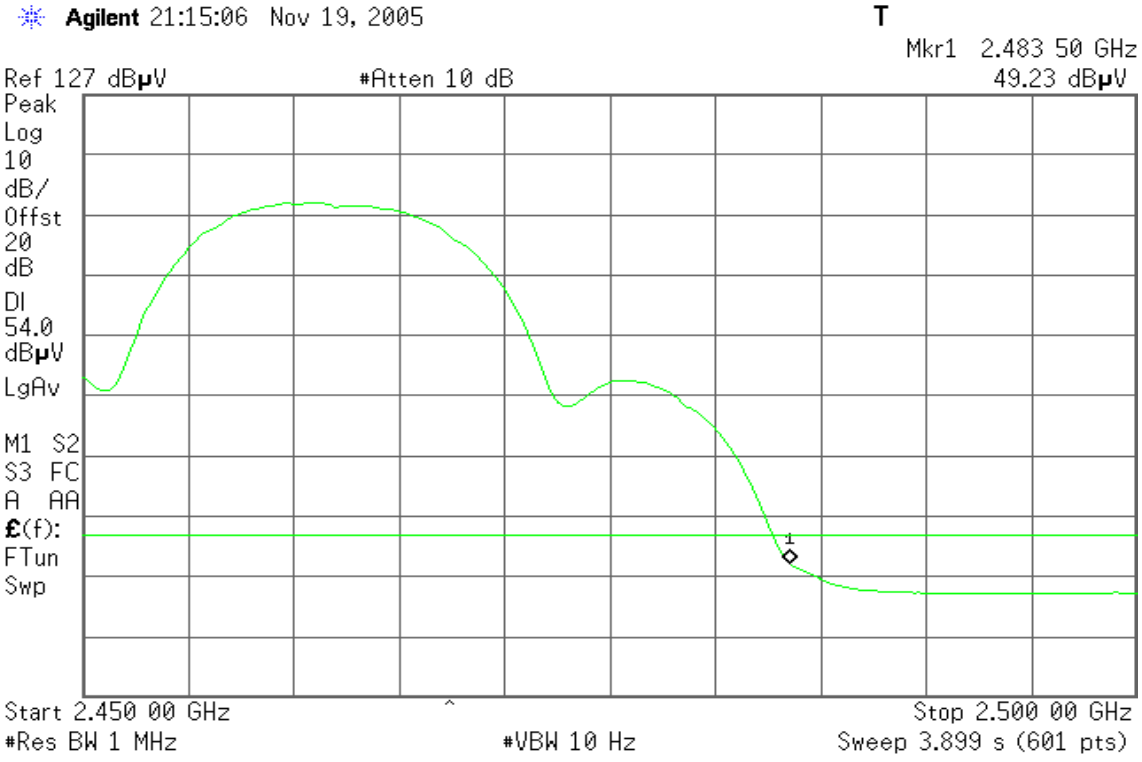


Band Edges (IEEE 802.11b / CH High)

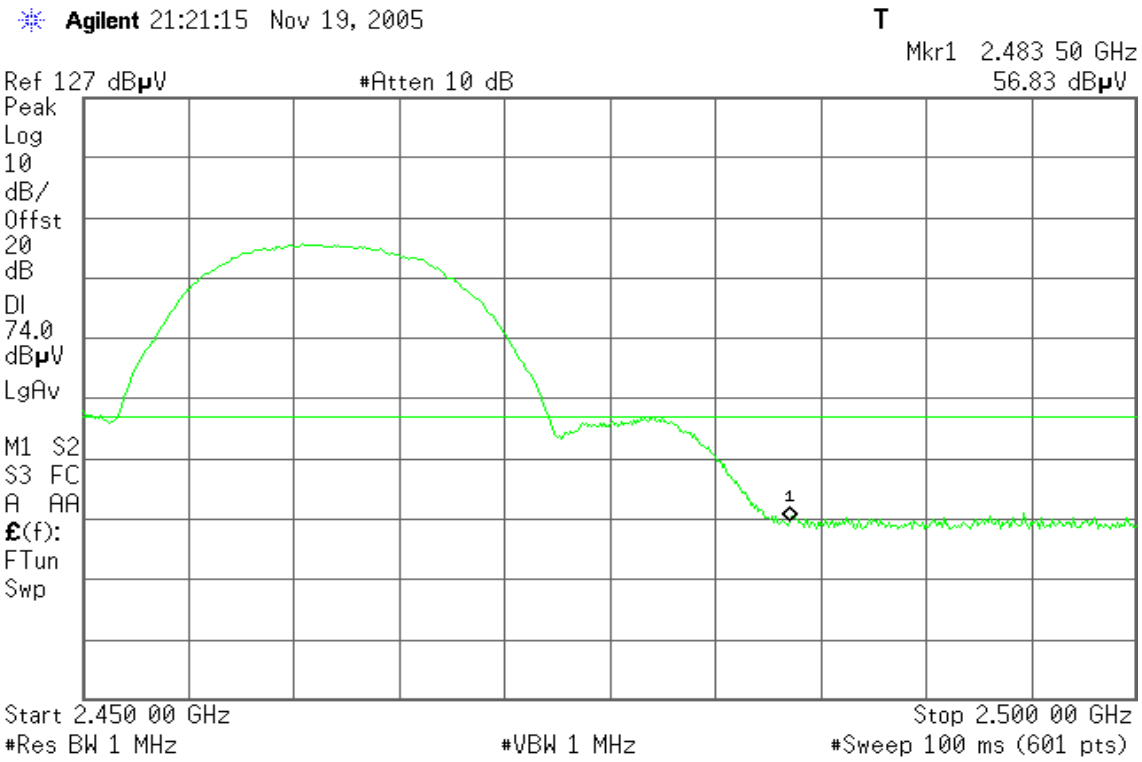
Detector mode: Peak Polarity: Vertical



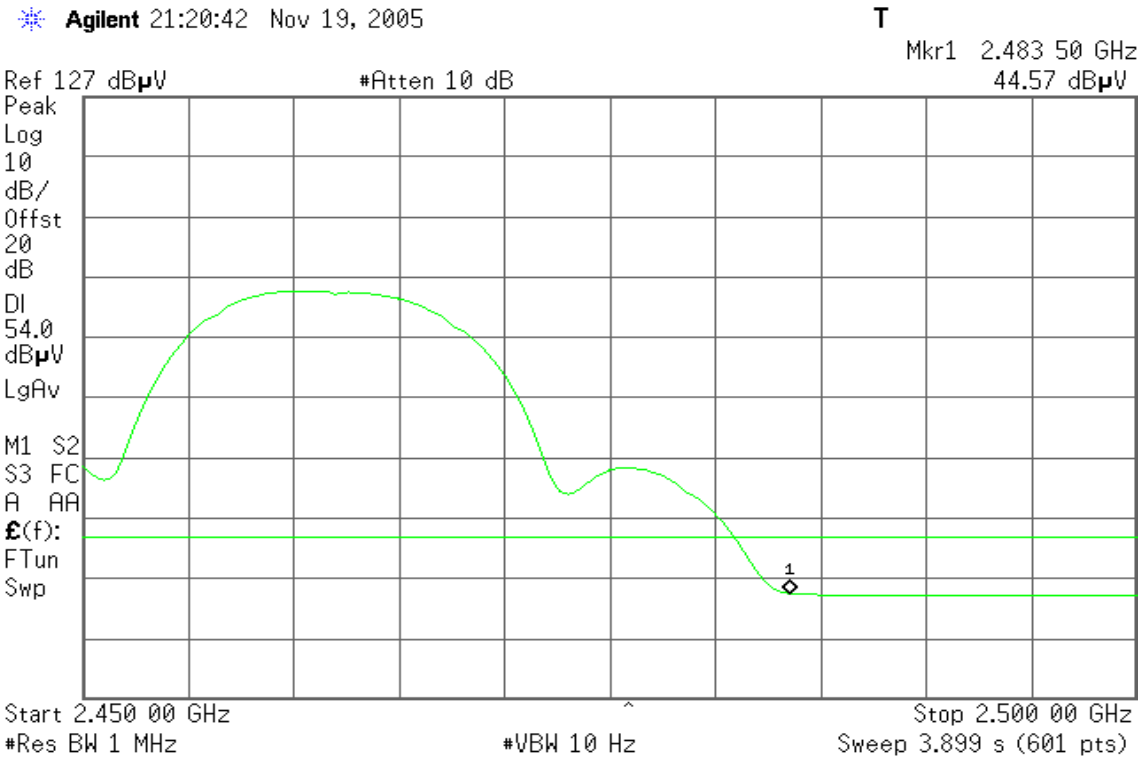
Detector mode: Average Polarity: Vertical



Detector mode: Peak **Polarity: Horizontal**

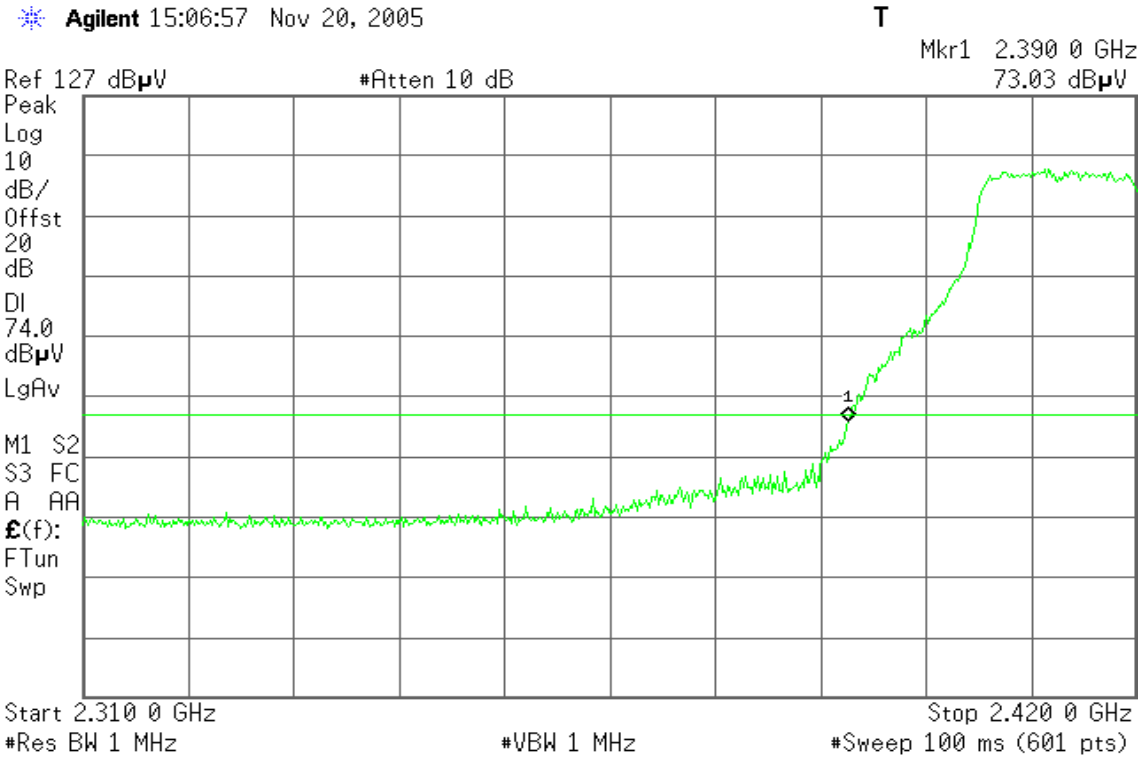


Detector mode: Average **Polarity: Horizontal**

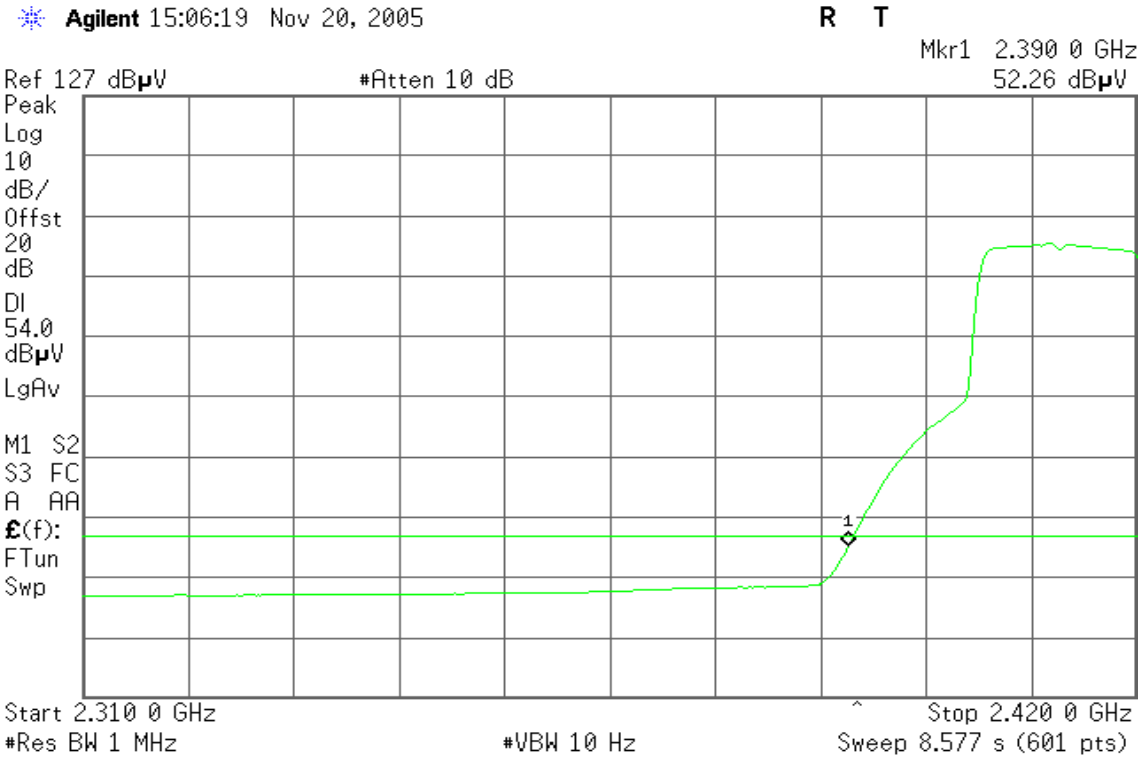


Band Edges (IEEE 802.11g / CH Low)

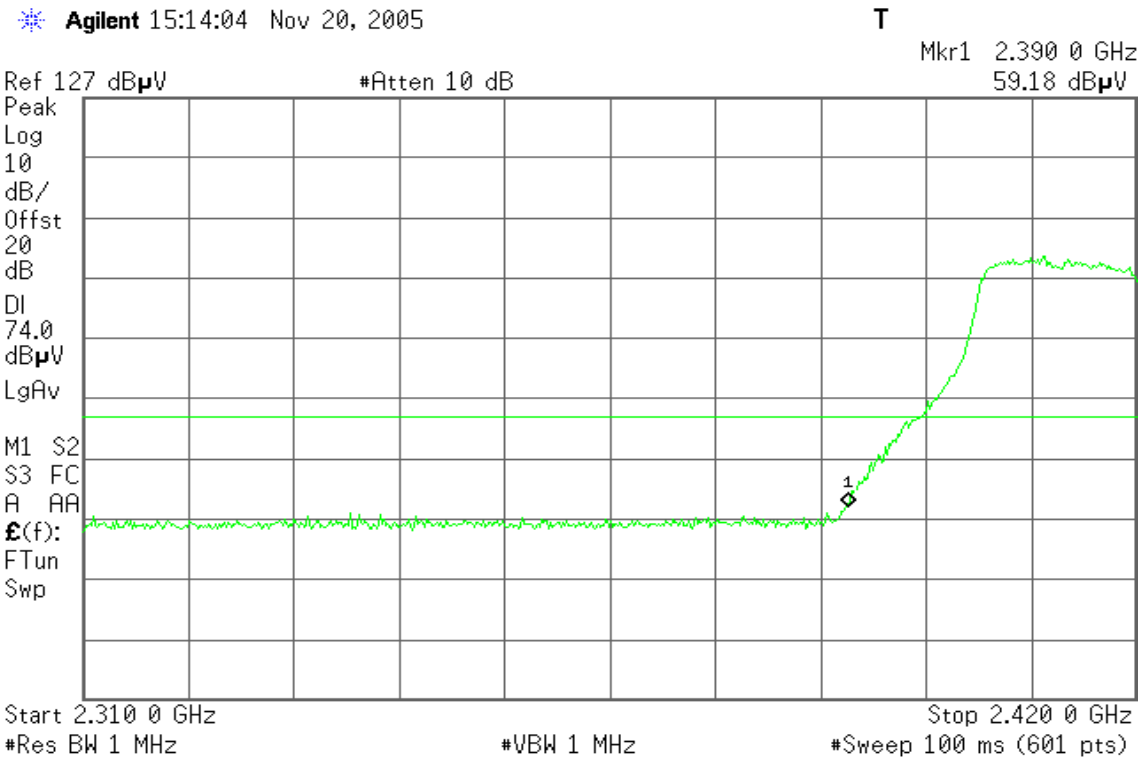
Detector mode: Peak Polarity: Vertical



Detector mode: Average Polarity: Vertical



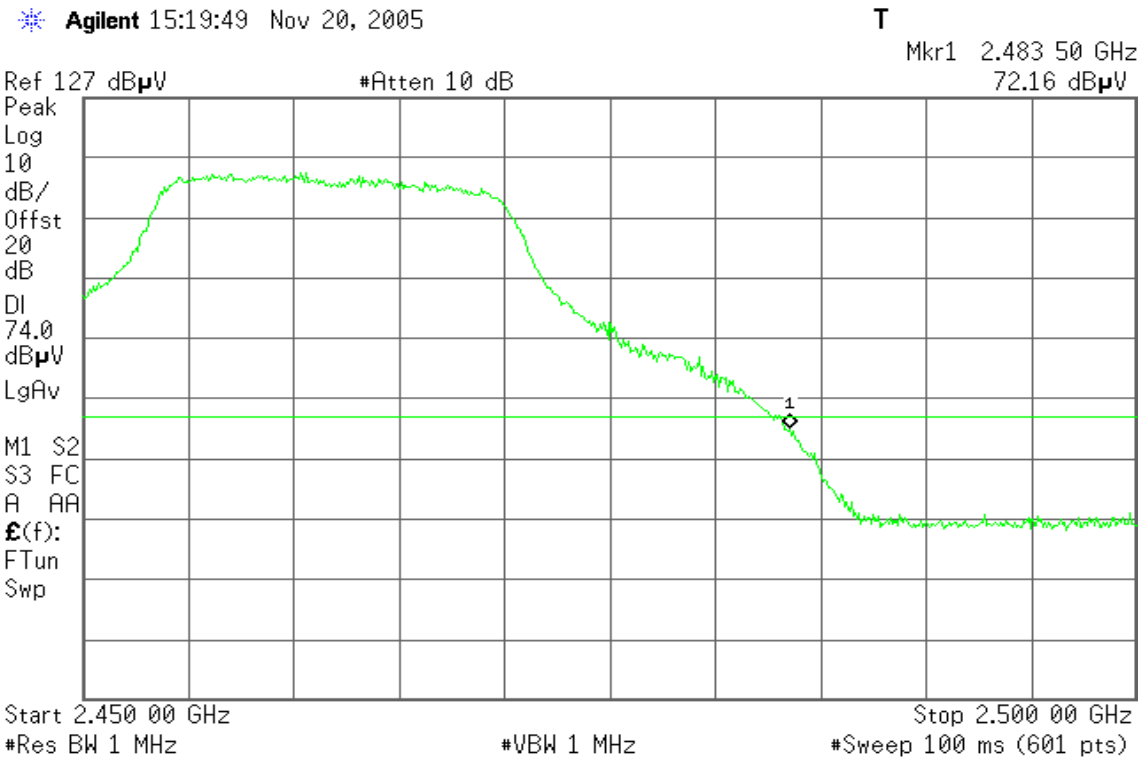
Detector mode: Peak **Polarity: Horizontal**



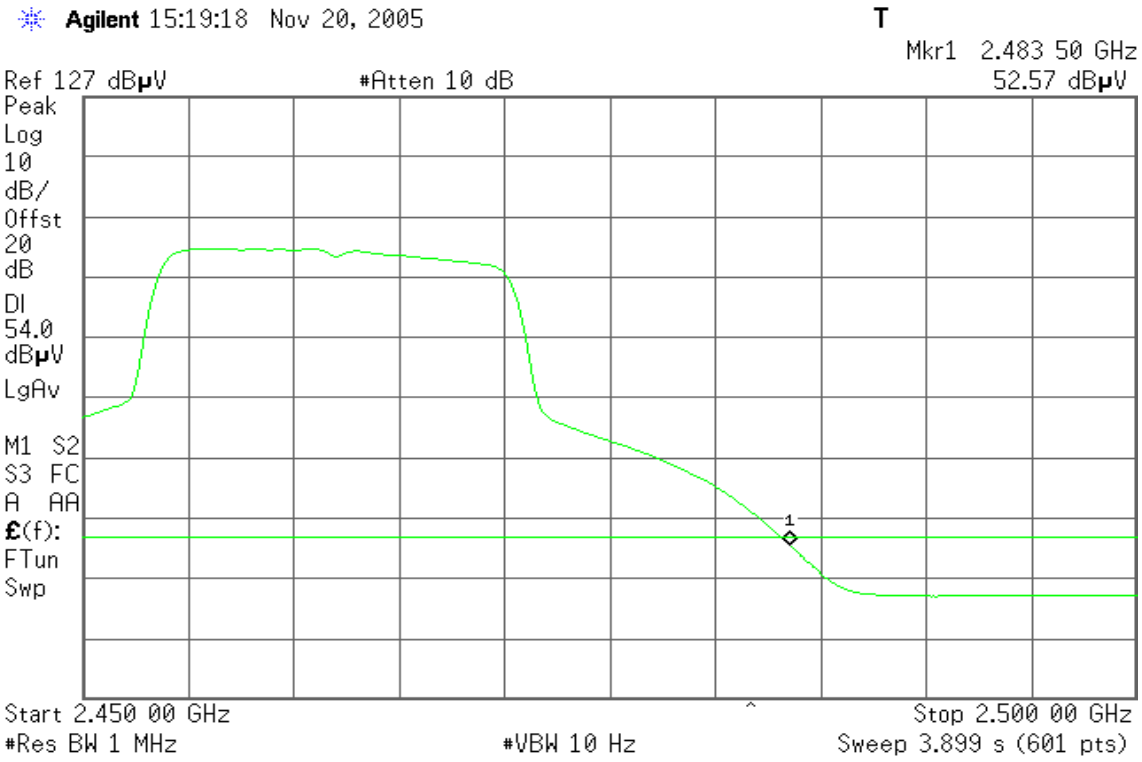
Detector mode: Average **Polarity: Horizontal**

Band Edges (IEEE 802.11g / CH High)

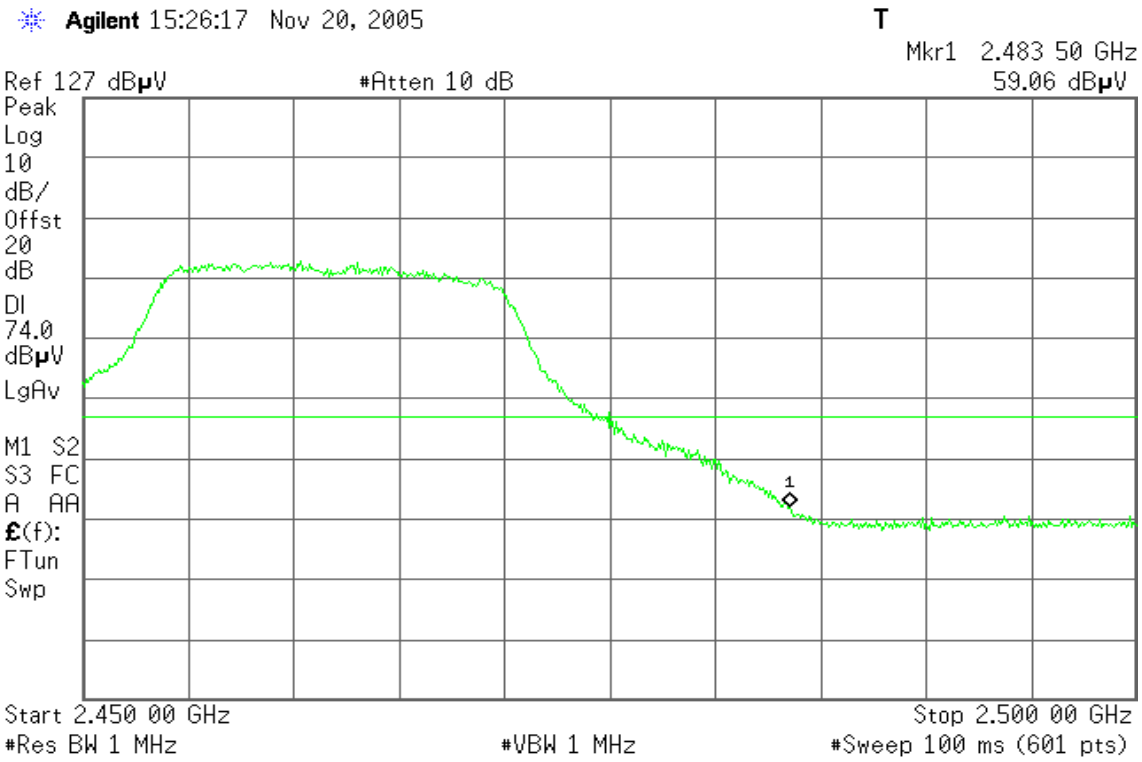
Detector mode: Peak Polarity: Vertical



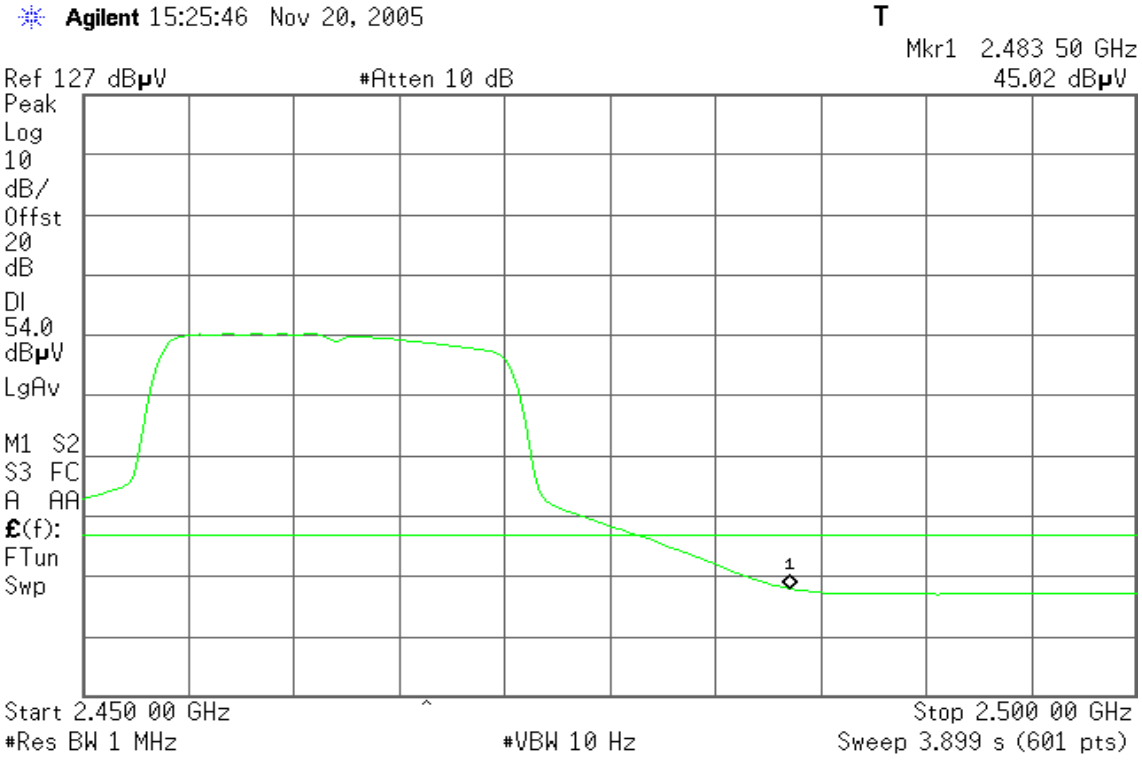
Detector mode: Average Polarity: Vertical



Detector mode: Peak **Polarity: Horizontal**



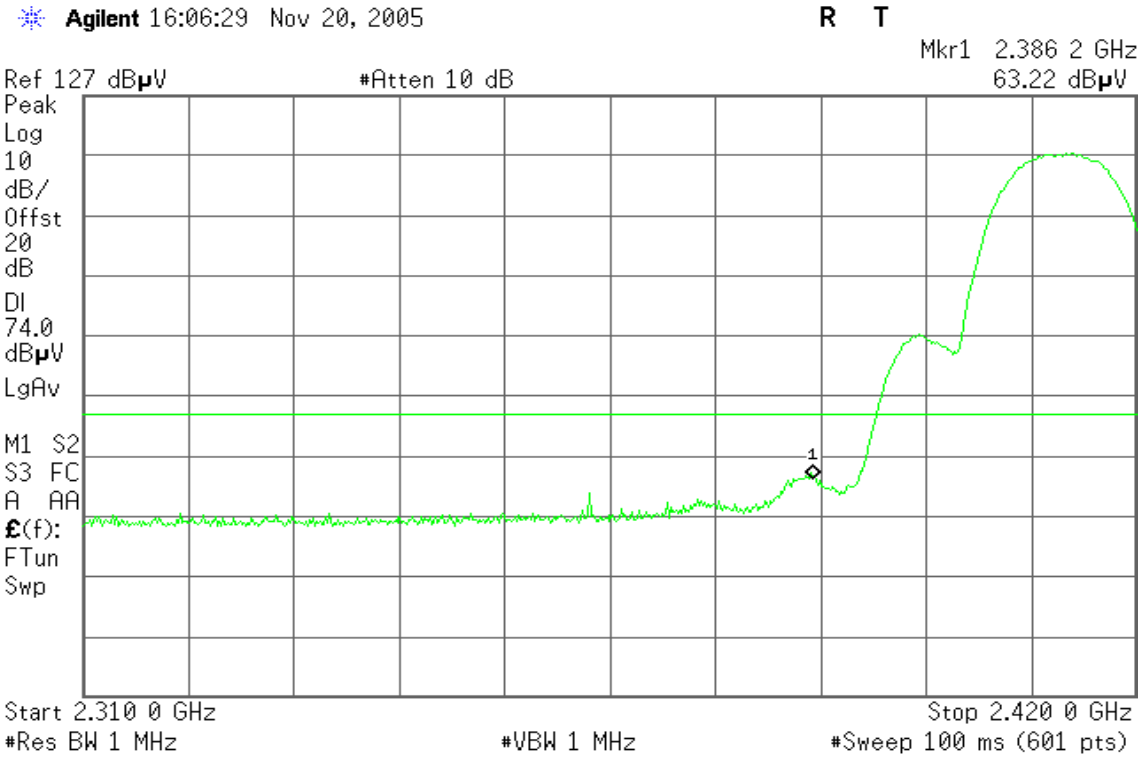
Detector mode: Average **Polarity: Horizontal**



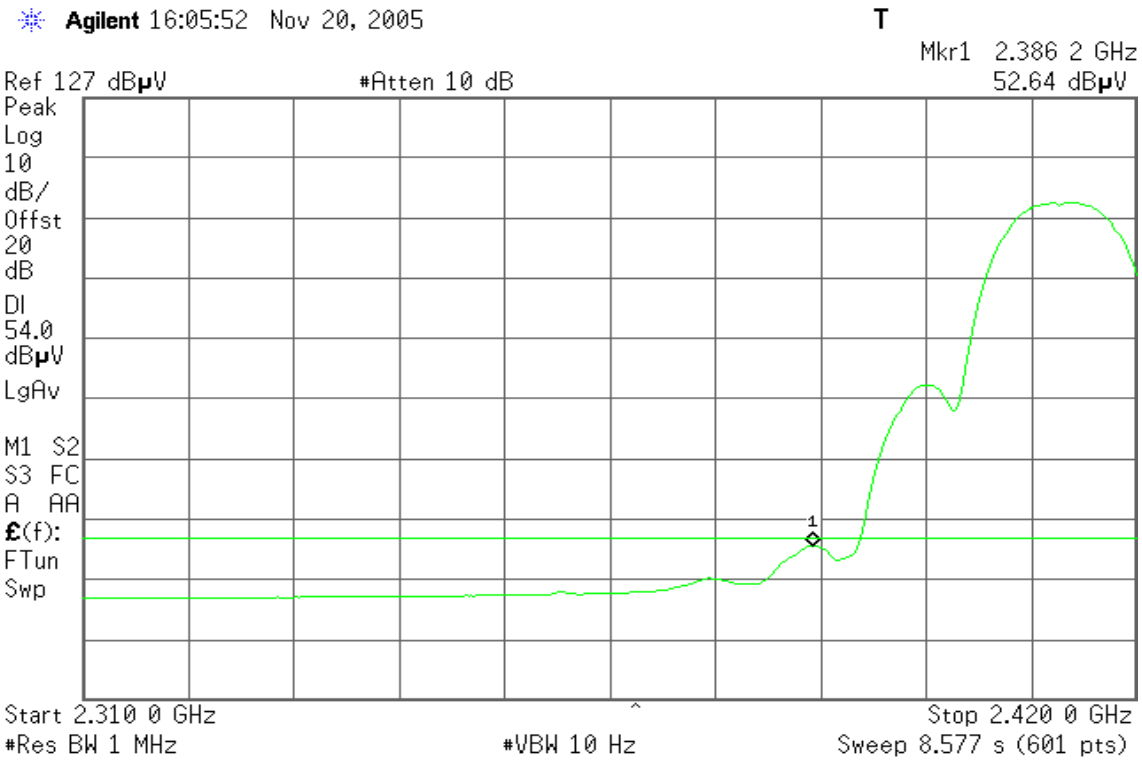
Mode 8: Antenna 5+ Module 2

Band Edges (IEEE 802.11b / CH Low)

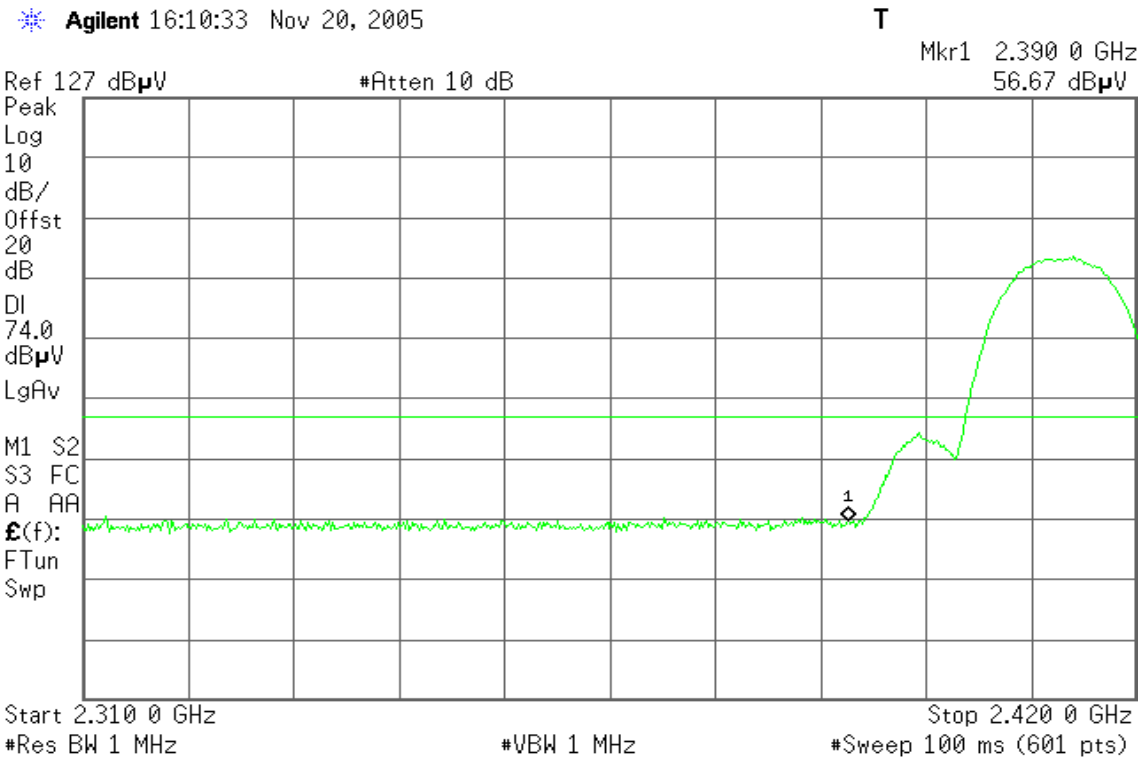
Detector mode: Peak **Polarity: Vertical**



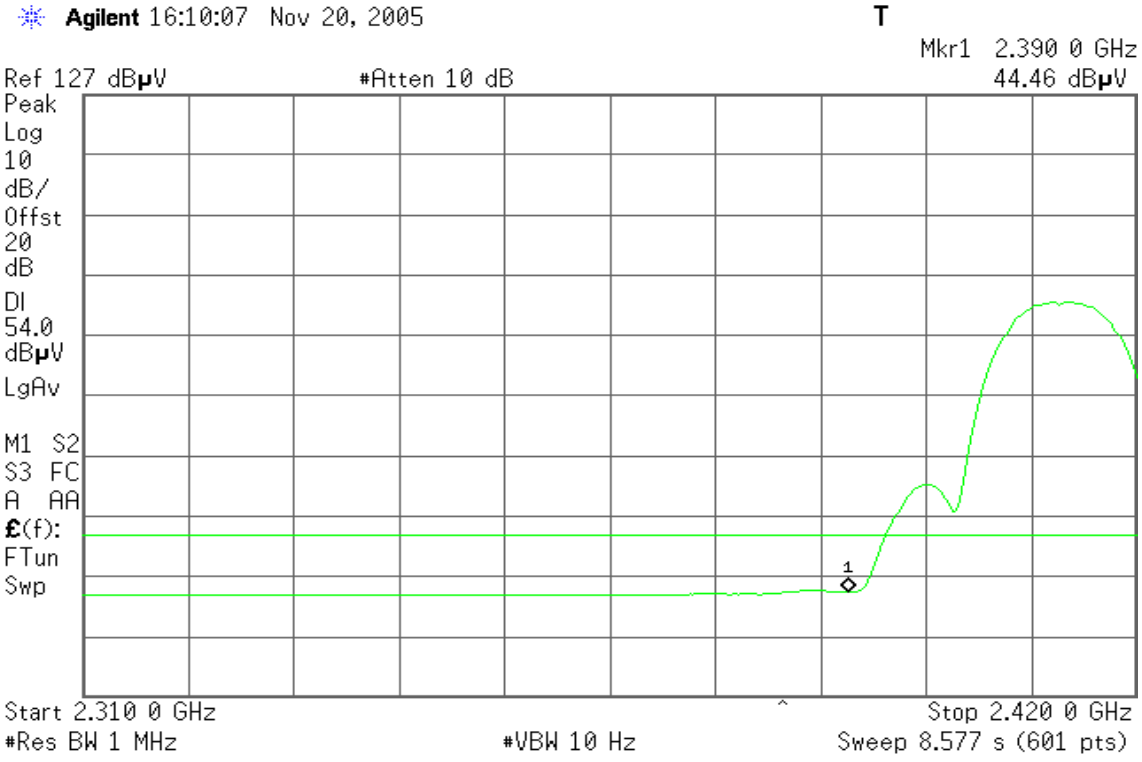
Detector mode: Average **Polarity: Vertical**



Detector mode: Peak **Polarity: Horizontal**

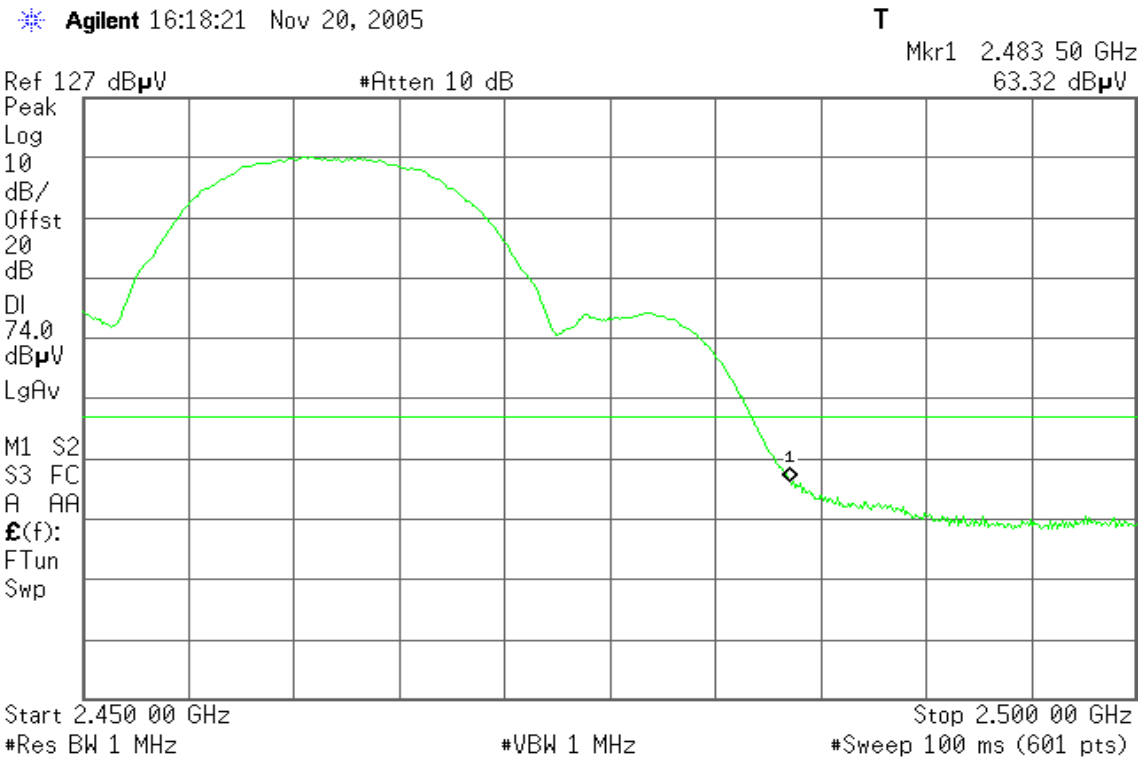
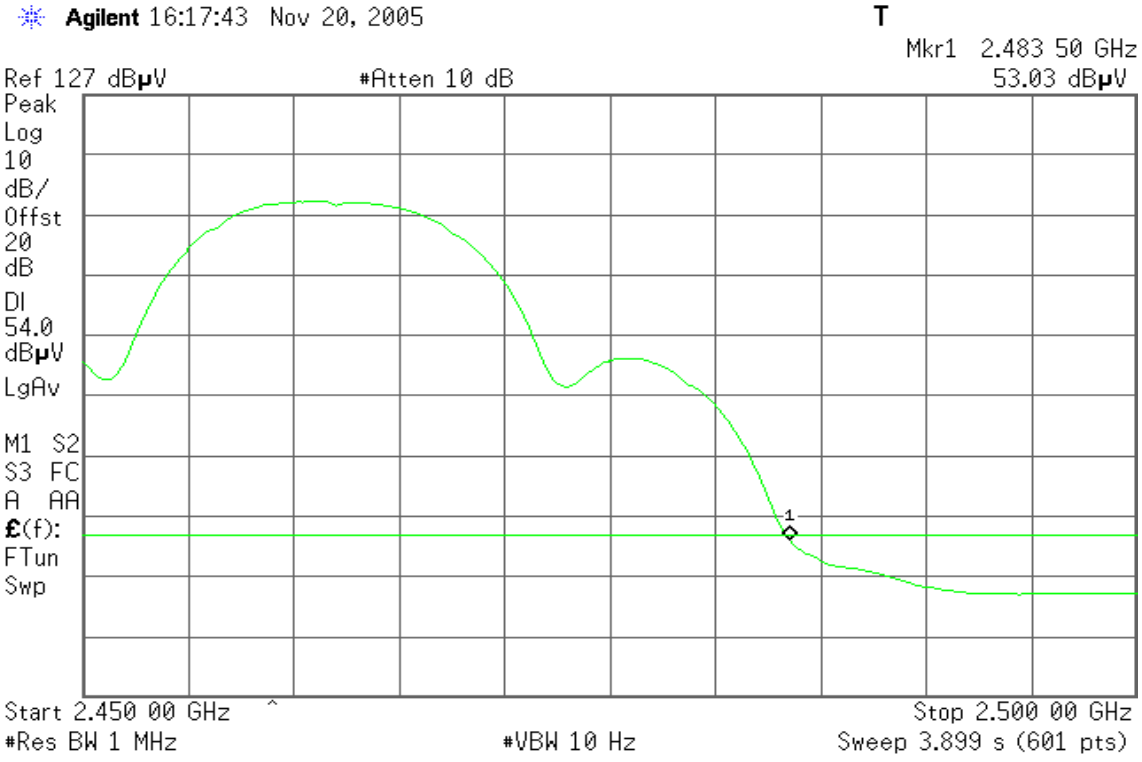


Detector mode: Average **Polarity: Horizontal**



Band Edges (IEEE 802.11b / CH High)

Detector mode: Peak Polarity: Vertical



Detector mode: Average Polarity: Vertical