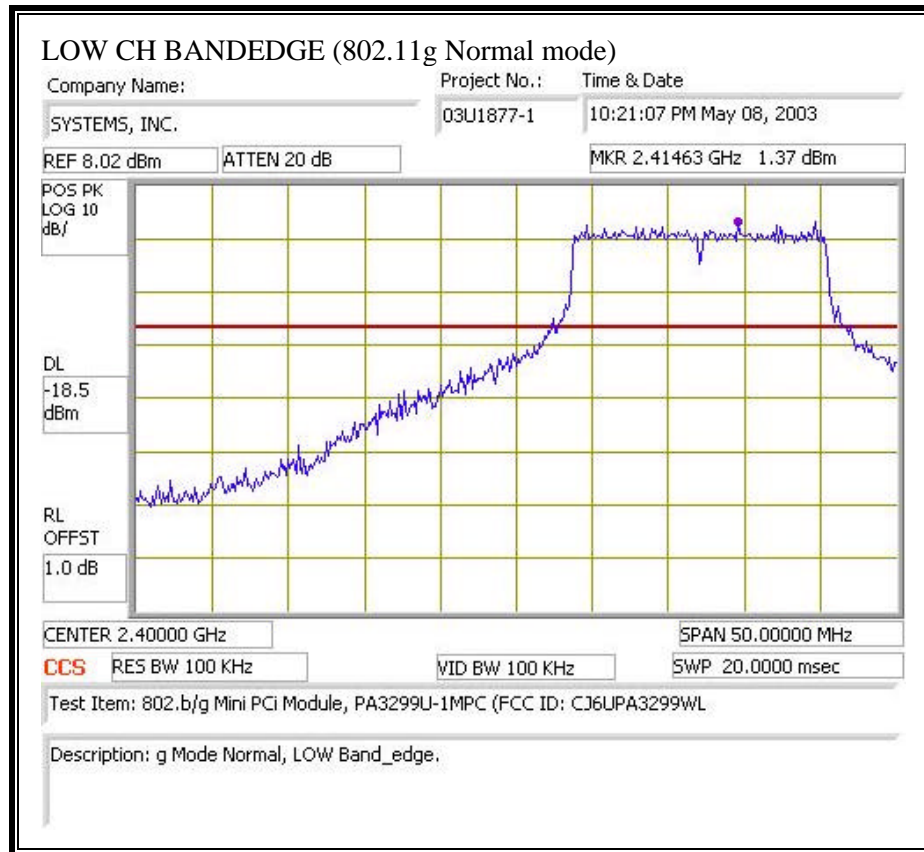
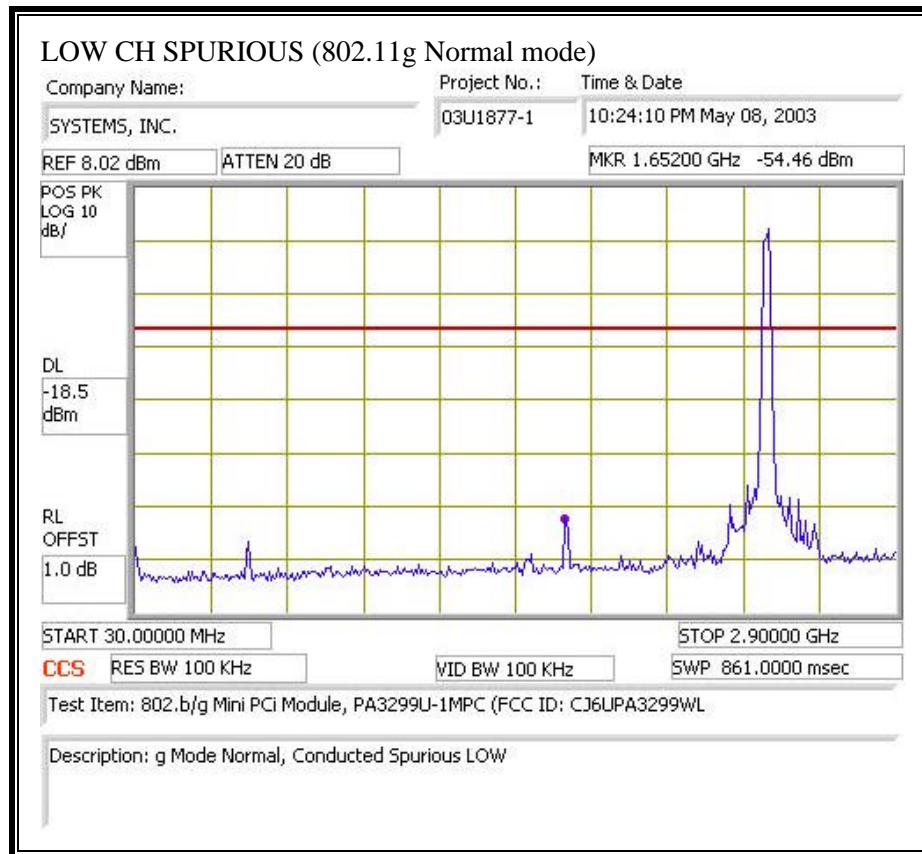
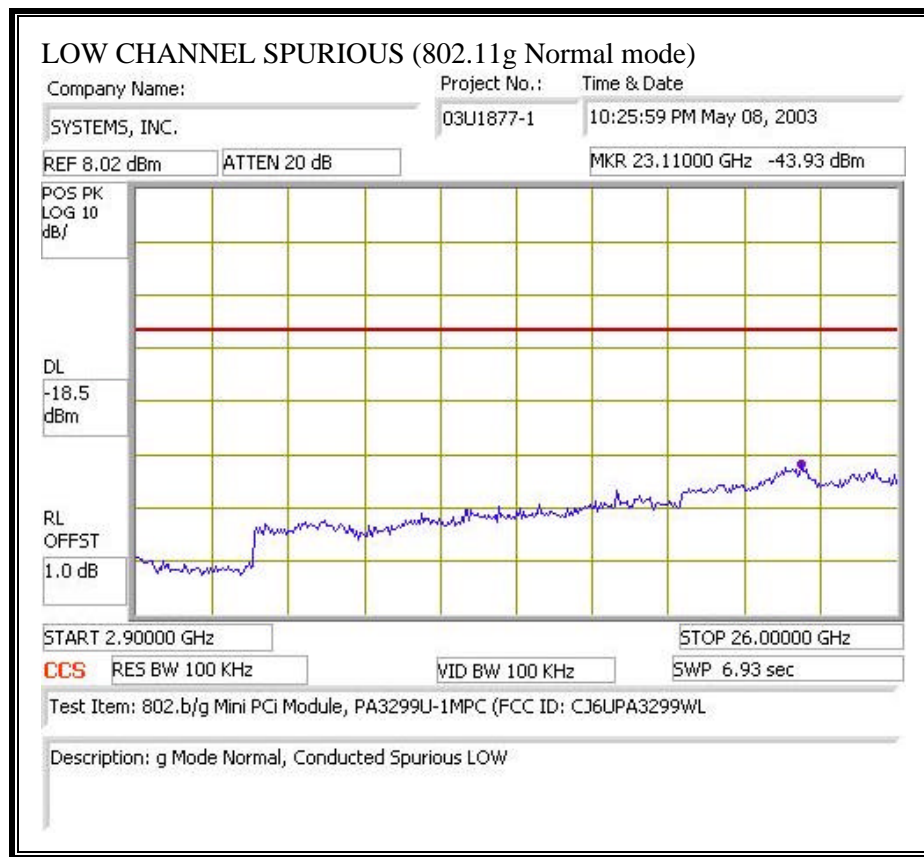


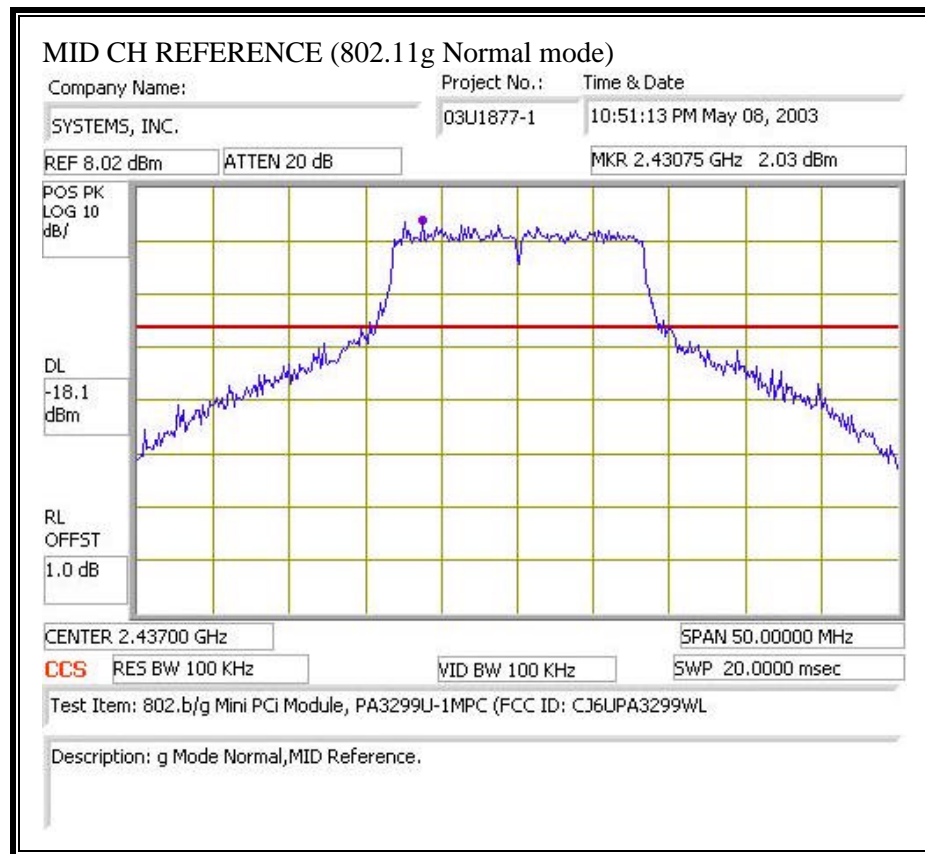
**SPURIOUS EMISSIONS, LOW CHANNEL (802.11g NORMAL MODE)**

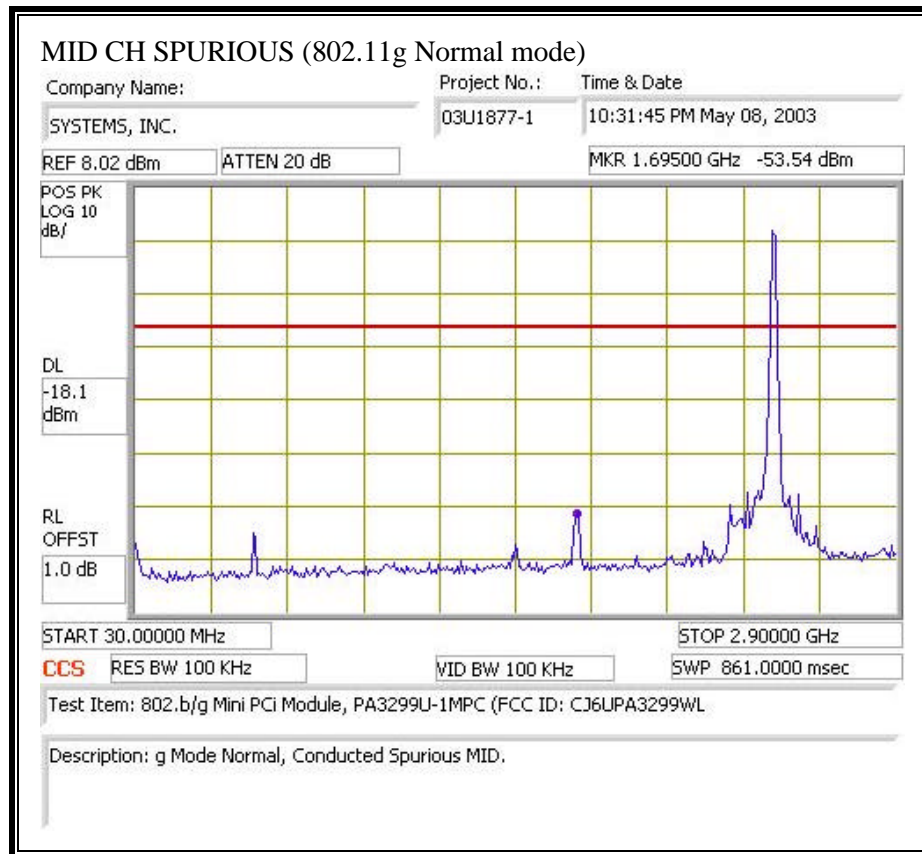


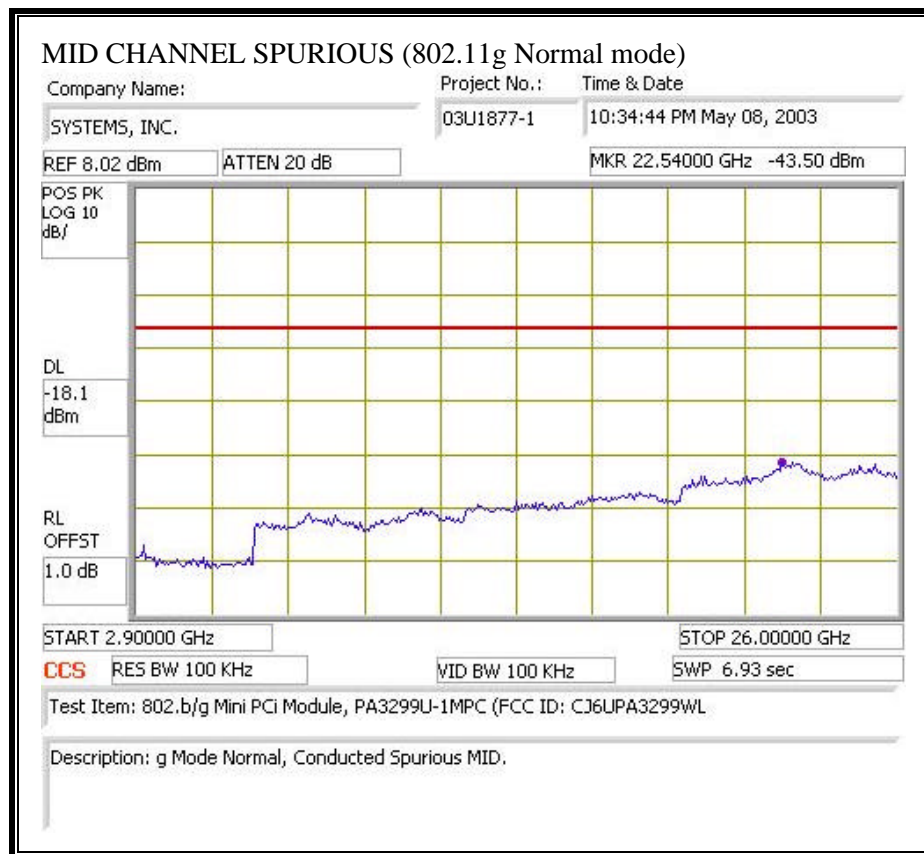




**SPURIOUS EMISSIONS, MID CHANNEL (802.11g NORMAL MODE)**

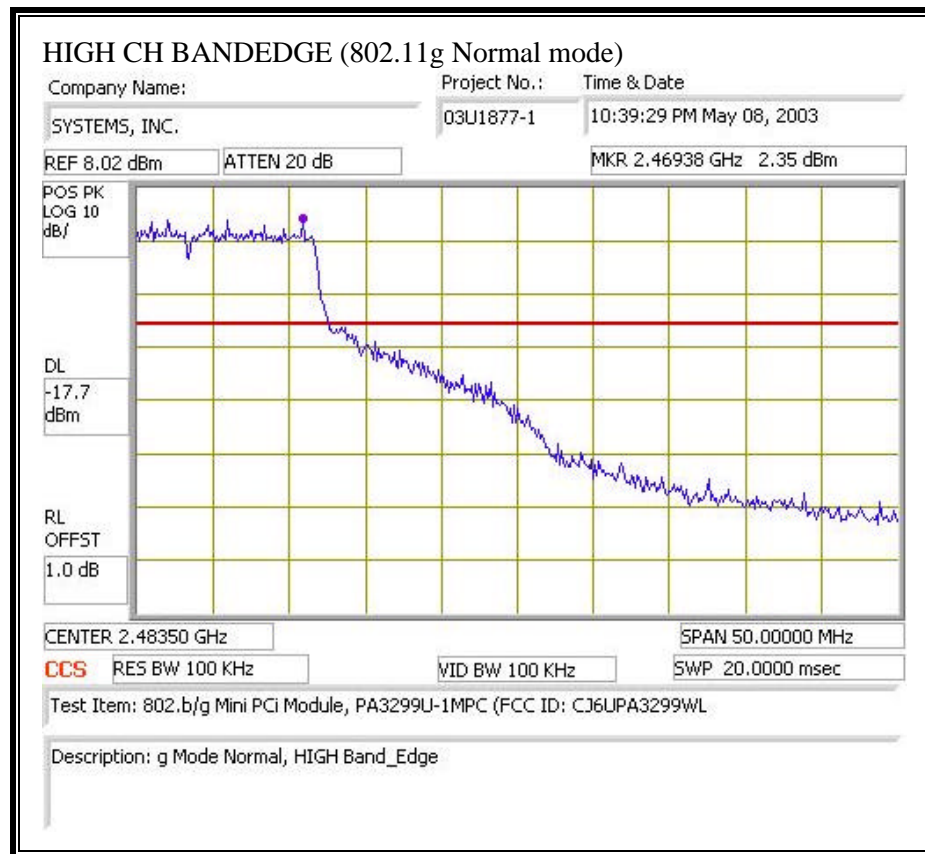




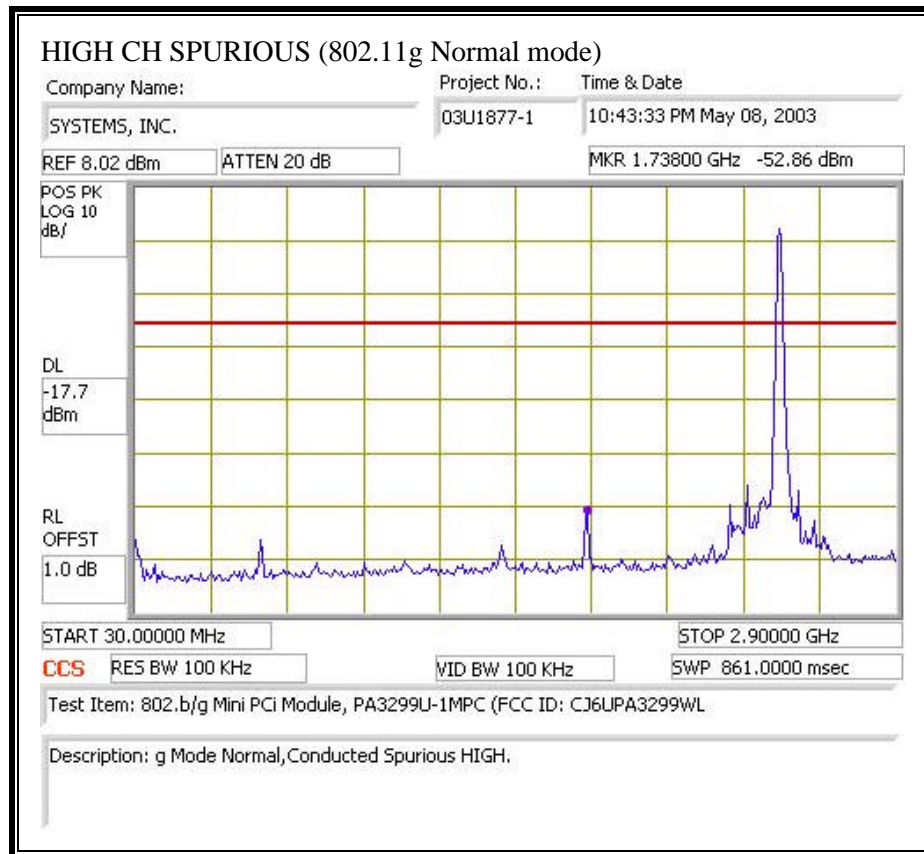


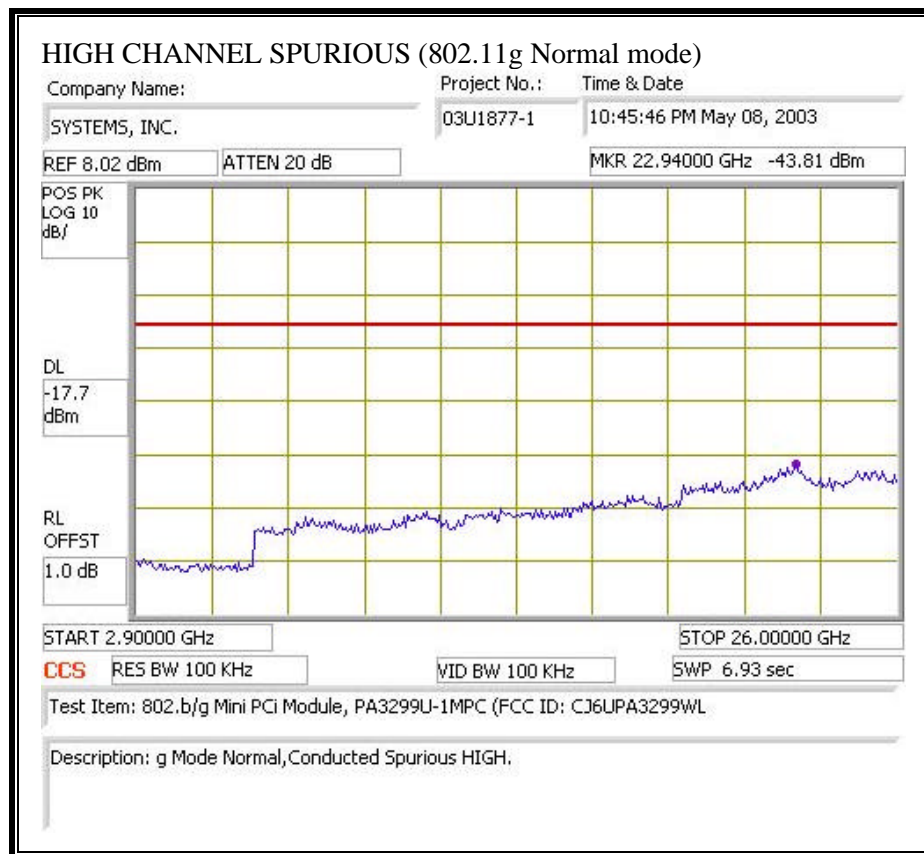


**SPURIOUS EMISSIONS, HIGH CHANNEL (802.11g NORMAL MODE)**

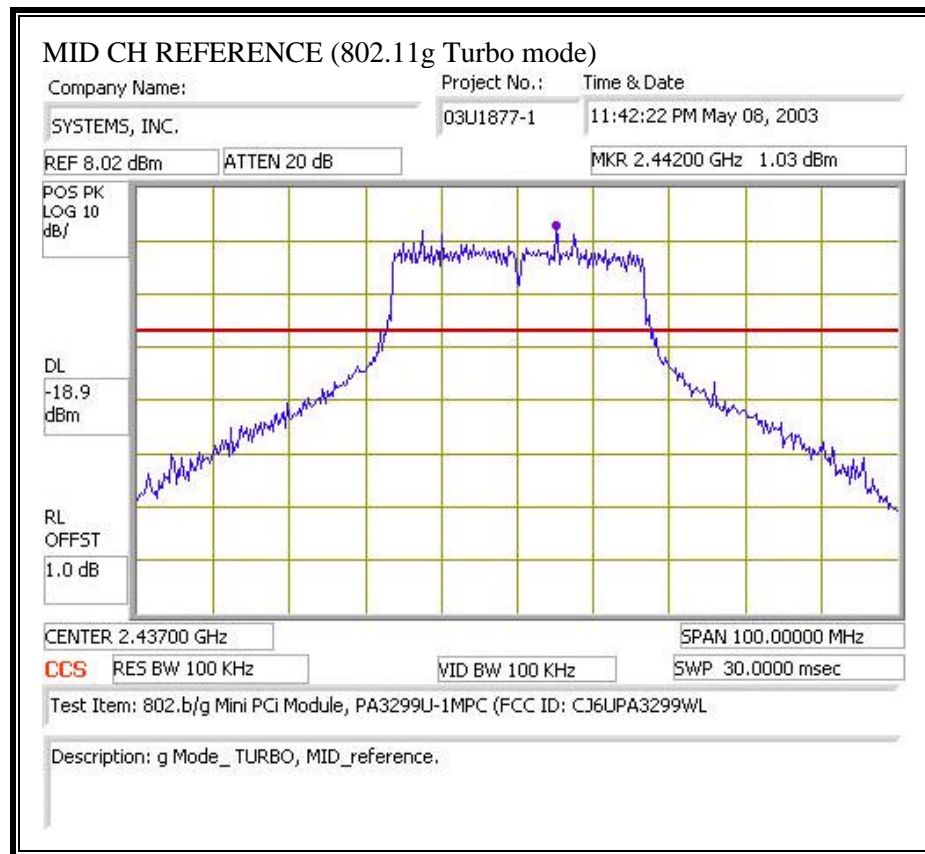


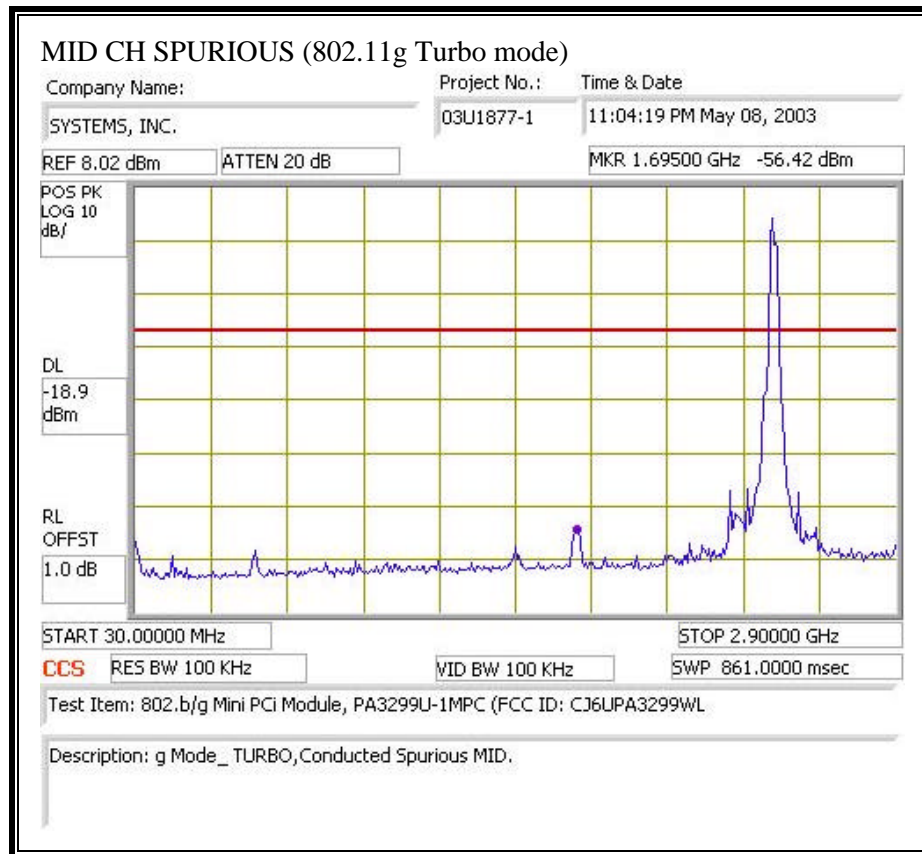


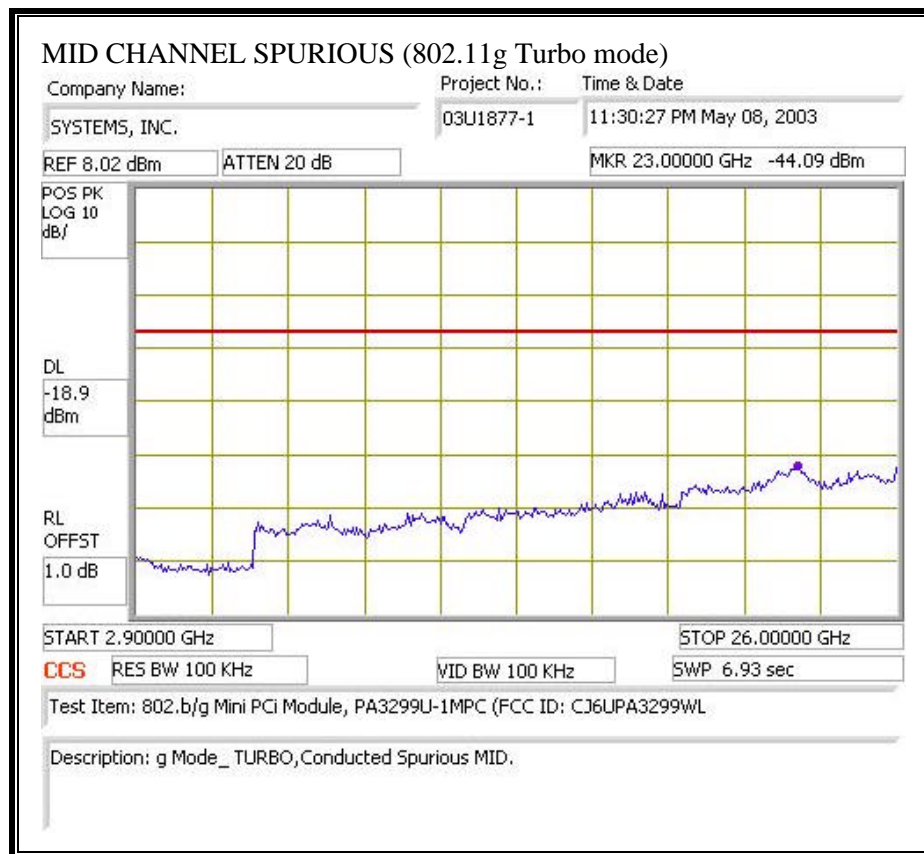




**SPURIOUS EMISSIONS, MID CHANNEL (802.11g TURBO MODE)**







## 7.6. RADIATED EMISSIONS

### LIMITS

§15.205 (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
<sup>1</sup> 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	( <sup>2</sup> )
13.36 - 13.41			

<sup>1</sup> Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

<sup>2</sup> Above 38.6

§15.205 (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.

§15.209 (a) Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
30 - 88	100 **	3
88 - 216	150 **	3
216 - 960	200 **	3
Above 960	500	3

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

§15.209 (b) In the emission table above, the tighter limit applies at the band edges.

## **TEST PROCEDURE**

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.4. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

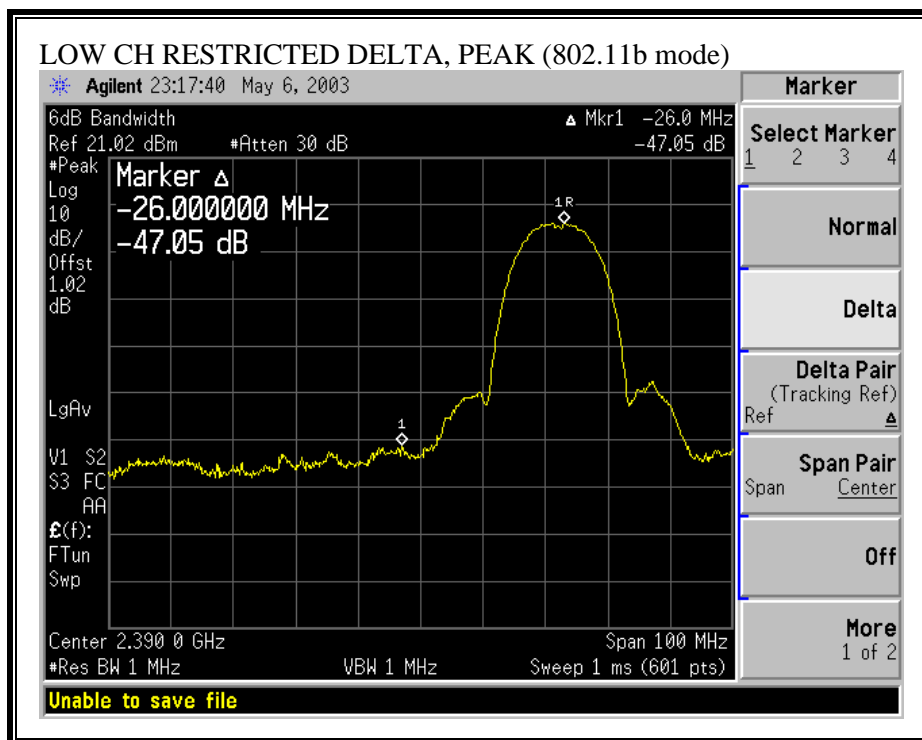
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

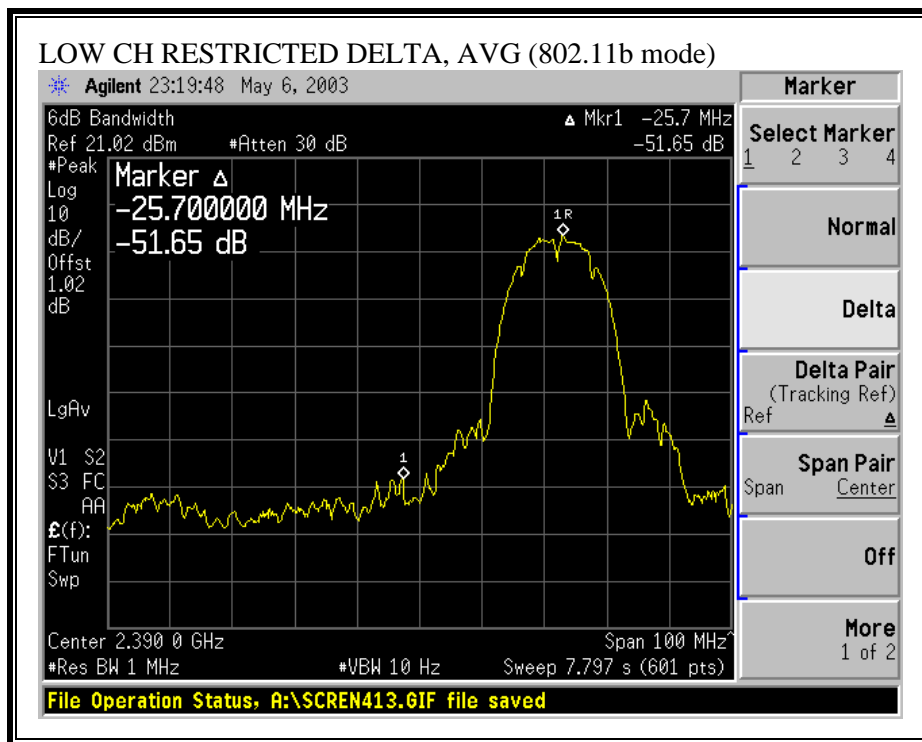
## **RESULTS**

No non-compliance noted:

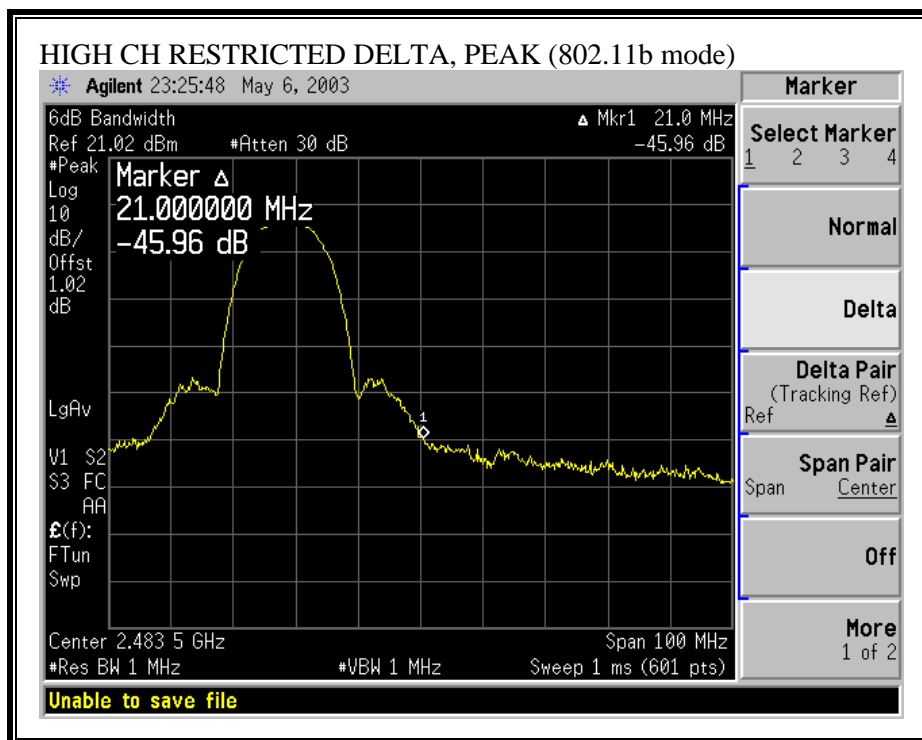


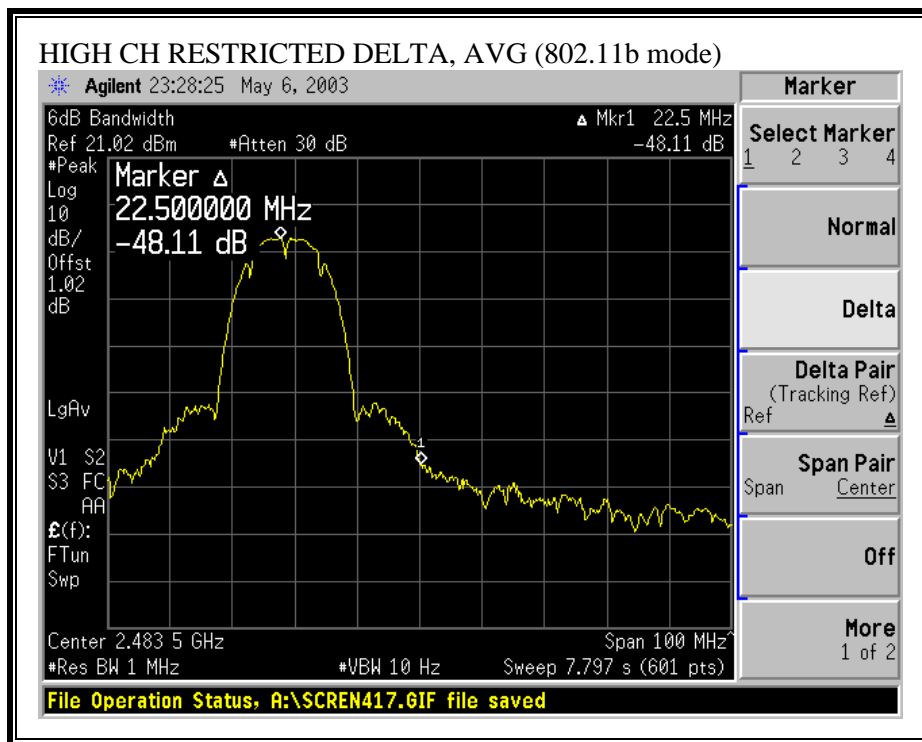
**RESTRICTED BANDEDGE DELTA (b MODE, LOW CHANNEL)**



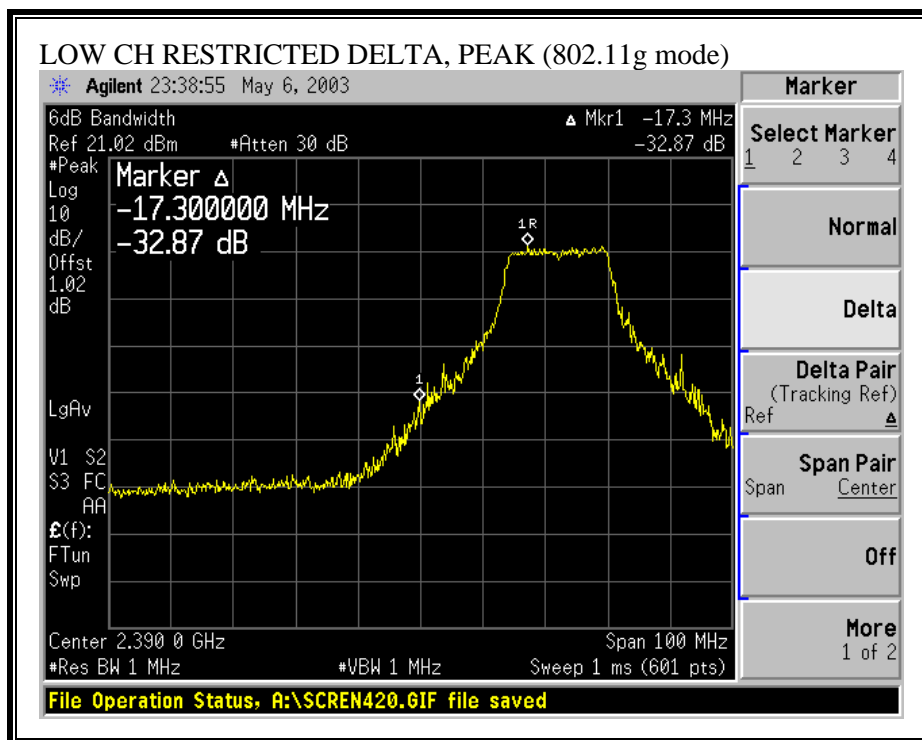


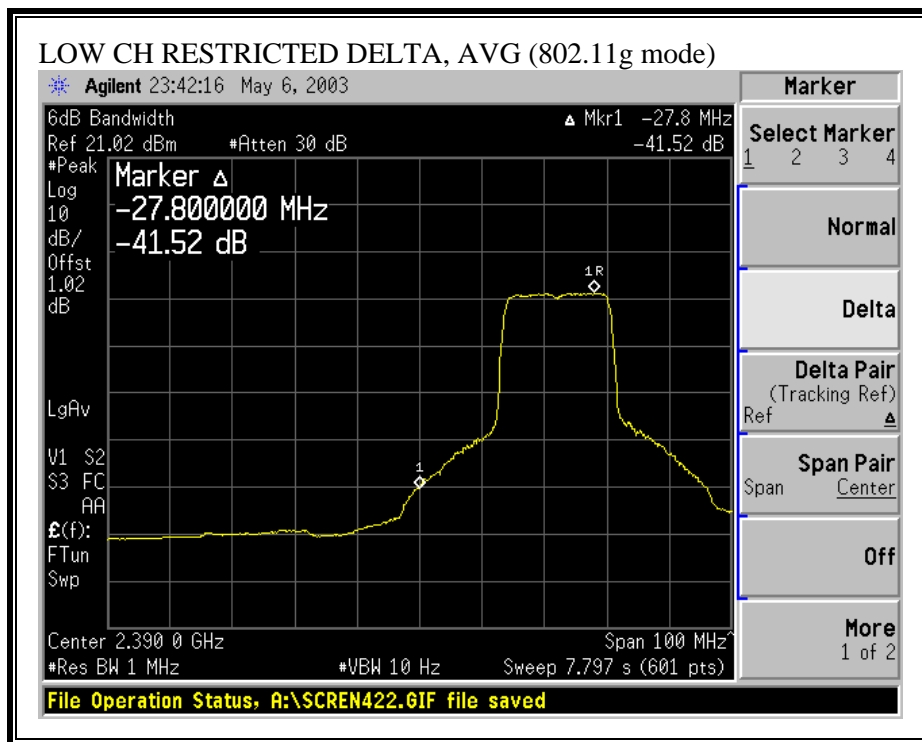
**RESTRICTED BANDEDGE DELTA (b MODE, HIGH CHANNEL)**



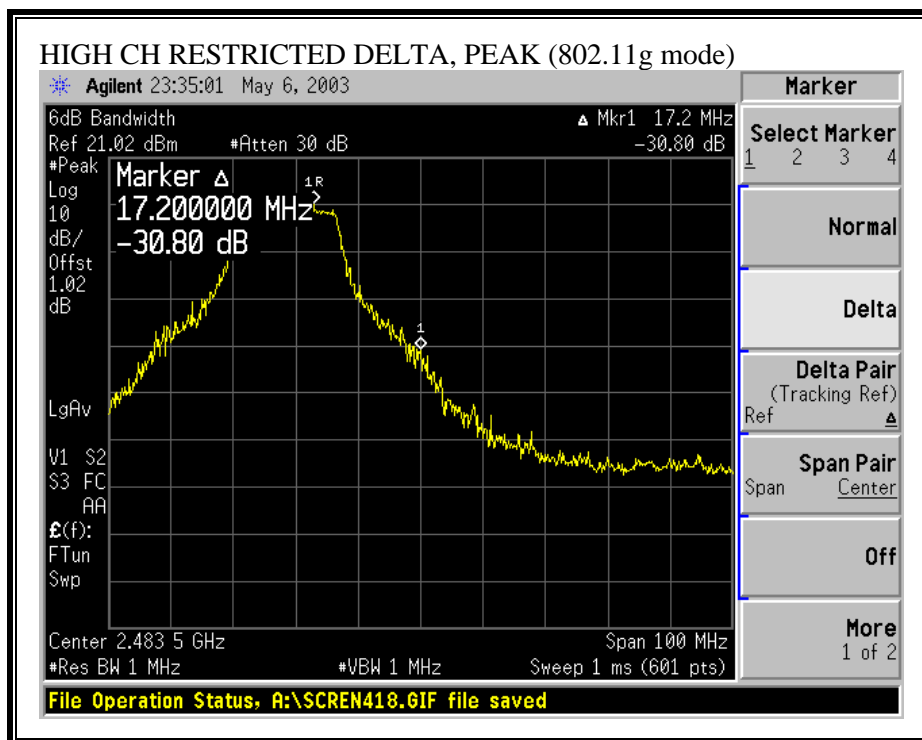


**RESTRICTED BANDEDGE DELTA (g MODE, LOW CHANNEL)**

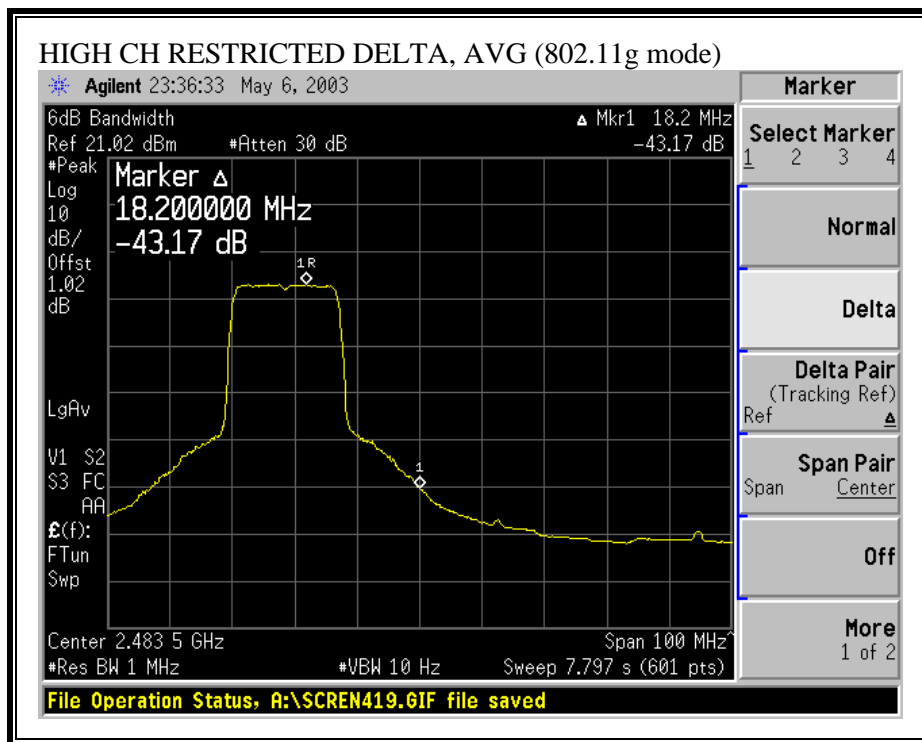




**RESTRICTED BANDEDGE DELTA (g MODE, HIGH CHANNEL)**







**ADJACENT RESTRICTED BANDEDGE EMISSIONS (802.11b/g MODES)**

05/07/03 High Frequency Measurement

Compliance Certification Services, Morgan Hill Open Field Site

Test Engr: Thanh Nguyen

Project #: 03U1877

Company: TOSHIBA AMERICA INFORMATION SYSTEMS, INC.

EUT Descrip.: 802.11b/g Mini PCI Module

EUT M/N: PA3299U-1MPC (FCC ID: CJ6UPA3299WL)

Mode Oper: Transmit at LOW, MID, HIGH Channel, b/g normal & Turbo mode.

**Test Equipment:**

EMCO Horn 1-18GHz

Pre-amplifier 1-26GHz

Spectrum Analyzer

Horn > 18GHz

T73; S/N: 6717 @3m

HP 8593EM Analyzer

T87; ARA 18-26GHz; S/N: 1049

Hi Frequency Cables

☐ (2 ft) ☐ (2 ~ 3 ft) ☐ (4 ~ 6 ft) ☒ (12 ft)

**Peak Measurements:**

1 MHz Resolution Bandwidth  
1 MHz Video Bandwidth

**Average Measurements:**

1 MHz Resolution Bandwidth  
10Hz Video Bandwidth

f GHz	Dist feet	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	HPF	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes
2.412	9.8	73.3	68.0	29.2	1.5	0.0	0.0	0.0	104.0	98.7					b Mode/ V
2.412	9.8	68.4	63.5	29.2	1.5	0.0	0.0	0.0	99.1	94.2					b Mode/ H
Bandedge Delta									-47.1	-51.7					
Lower Restricted Bandedge:									56.9	47.0	74.0	54.0	-17.1	-7.0	
2.462	9.8	71.7	66.4	29.3	1.6	0.0	0.0	0.0	102.5	97.3					b Mode/ V
2.462	9.8	65.5	60.3	29.3	1.6	0.0	0.0	0.0	96.3	91.2					b Mode/ H
Bandedge Delta									-46.0	-48.1					
Upper Restricted Bandedge:									56.6	49.2	74.0	54.0	-17.4	-4.8	
2.412	9.8	73.8	63.9	29.2	1.5	0.0	0.0	0.0	104.5	94.6					g Mode V
2.412	9.8	66.8	56.6	29.2	1.5	0.0	0.0	0.0	97.5	87.3					g Mode H
Bandedge Delta									-32.9	-41.5					
Lower Restricted Bandedge:									71.6	53.1	74.0	54.0	-2.4	-0.9	
2.462	9.8	73.3	62.1	29.3	1.6	0.0	0.0	0.0	104.2	93.0					g Mode V
2.462	9.8	66.7	56.2	29.3	1.6	0.0	0.0	0.0	97.6	87.1					g Mode H
Bandedge Delta									-30.8	-43.2					
Upper Restricted Bandedge:									73.4	49.8	74.0	54.0	-0.6	-4.2	

f Measurement Frequency  
Dist Distance to Antenna  
Read Analyzer Reading  
AF Antenna Factor  
CL Cable Loss

Amp Preamp Gain  
D Corr Distance Correct to 3 meters  
Avg Average Field Strength @ 3 m  
Peak Calculated Peak Field Strength  
HPF High Pass Filter

Avg Lim Average Field Strength Limit  
Pk Lim Peak Field Strength Limit  
Avg Mar Margin vs. Average Limit  
Pk Mar Margin vs. Peak Limit