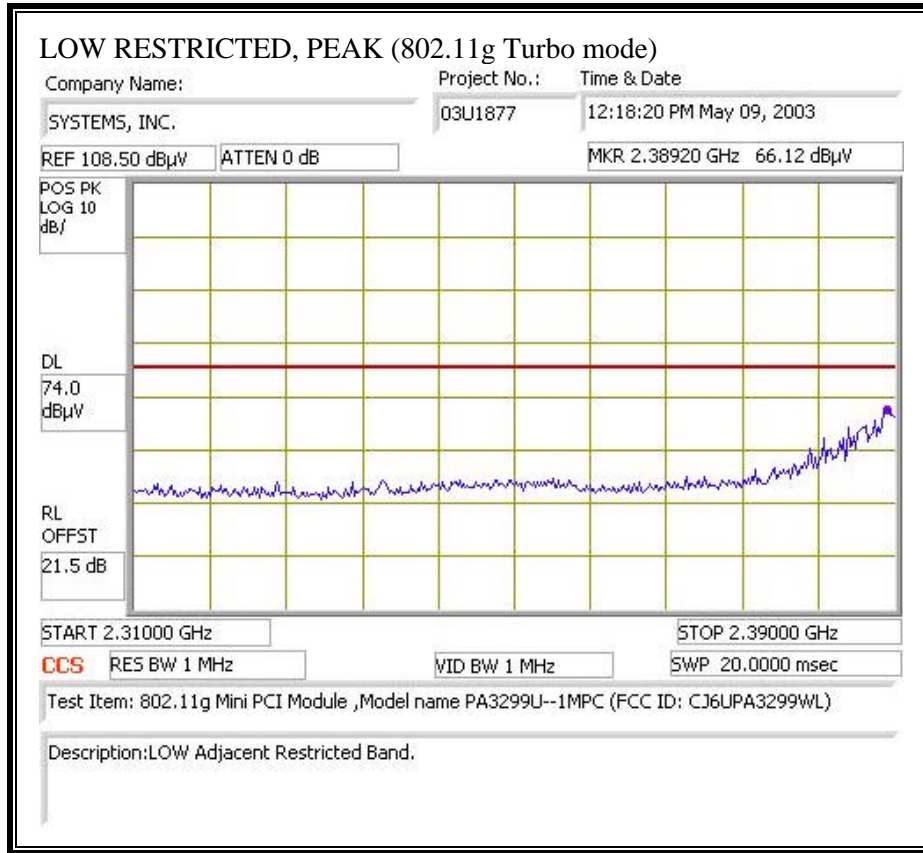
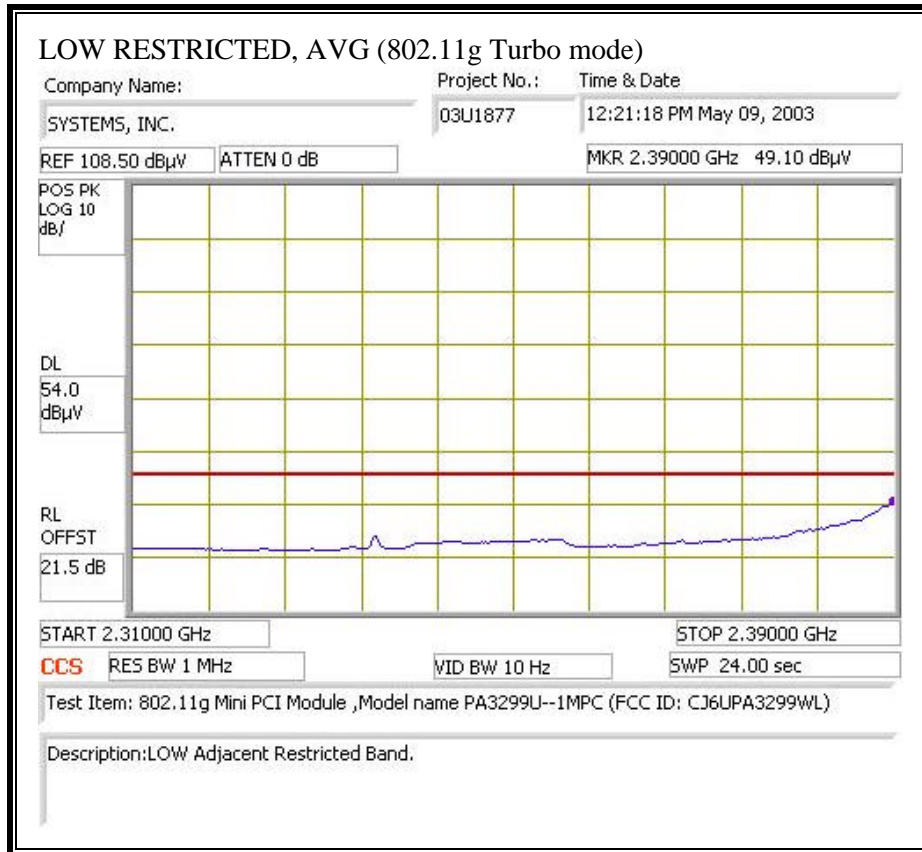
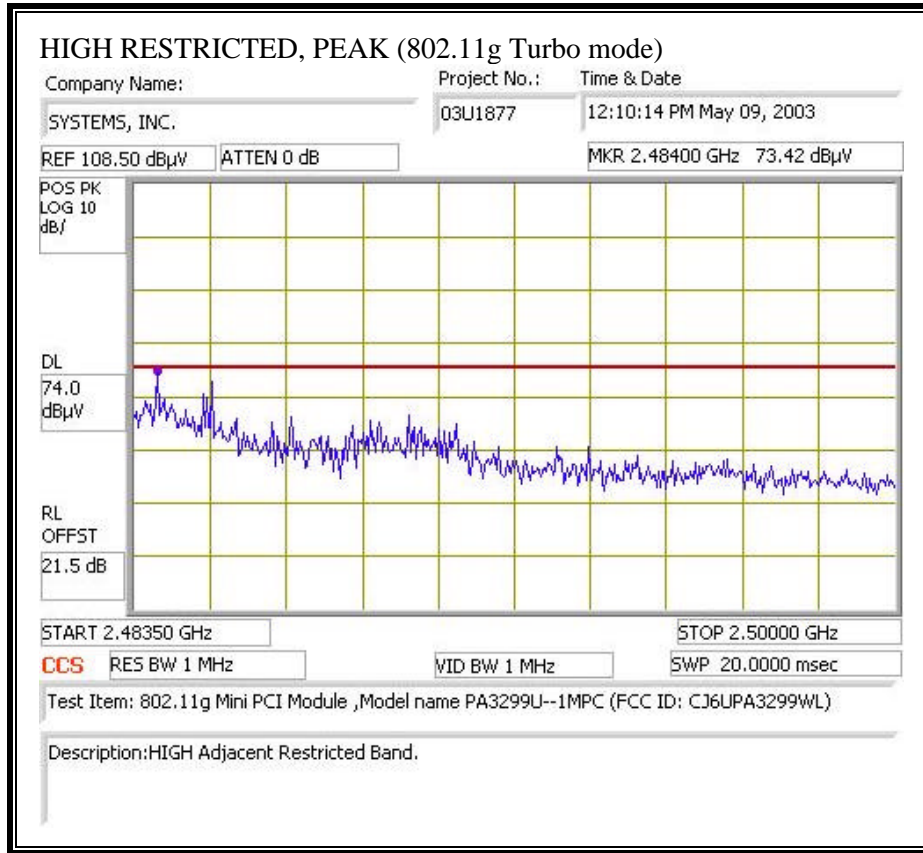


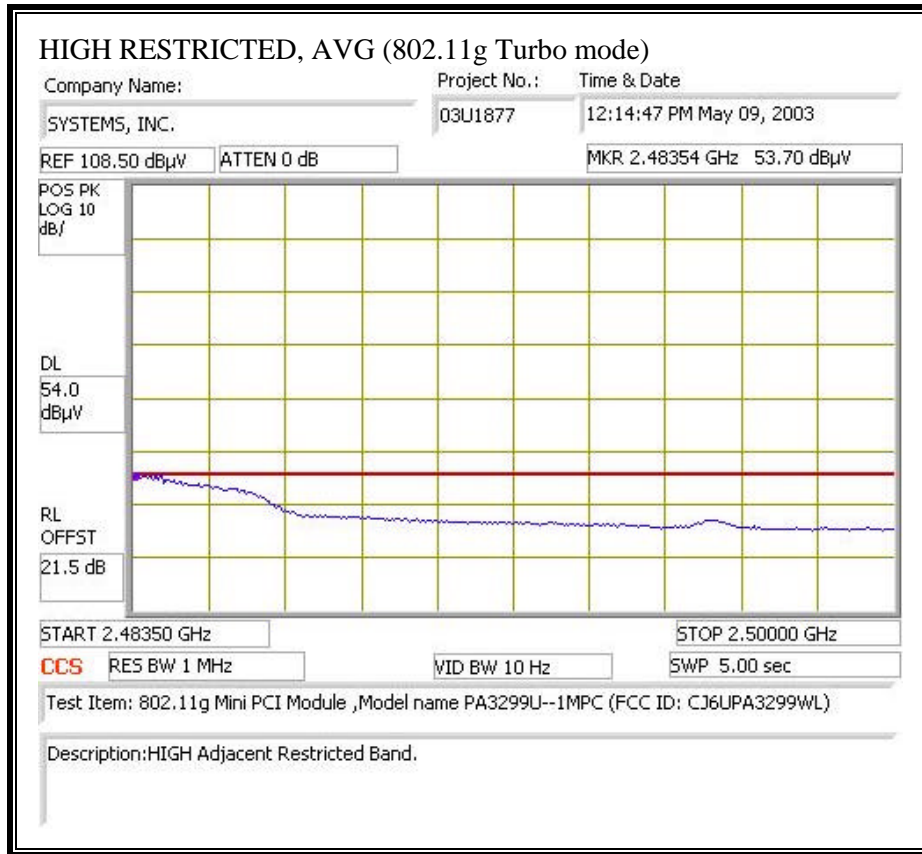
LOW RESTRICTED BANDEGE (g TURBO MODE)





HIGH RESTRICTED BANDEDGE (g TURBO MODE)





HARMONICS AND SPURIOUS EMISSIONS

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 T73; S/N: 6717 @3m	Pre-amplifier 1-26GHz T63 Miteq 646456	Spectrum Analyzer HP 8593EM Analyzer	Horn > 18GHz T87; ARA 18-26GHz; S/N:1049
--	--	--	---

Hi Frequency Cables
 (2 ft) (2 ~ 3 ft) (4 ~ 6 ft) (12 ft)

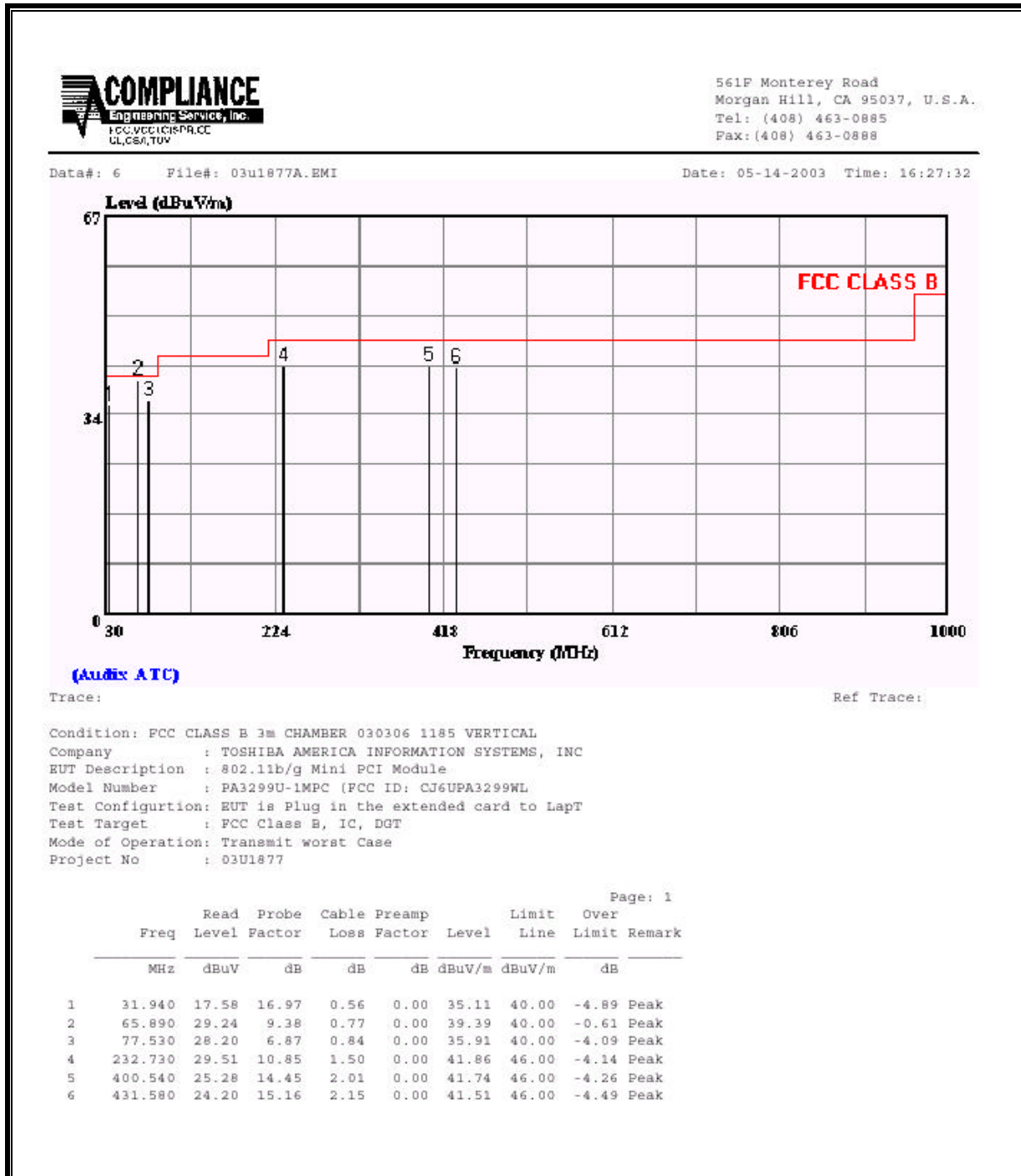
Peak Measurements:
 1 MHz Resolution Bandwidth
 1MHz Video Bandwidth

Average Measurements:
 1 MHz Resolution Bandwidth
 10Hz Video Bandwidth

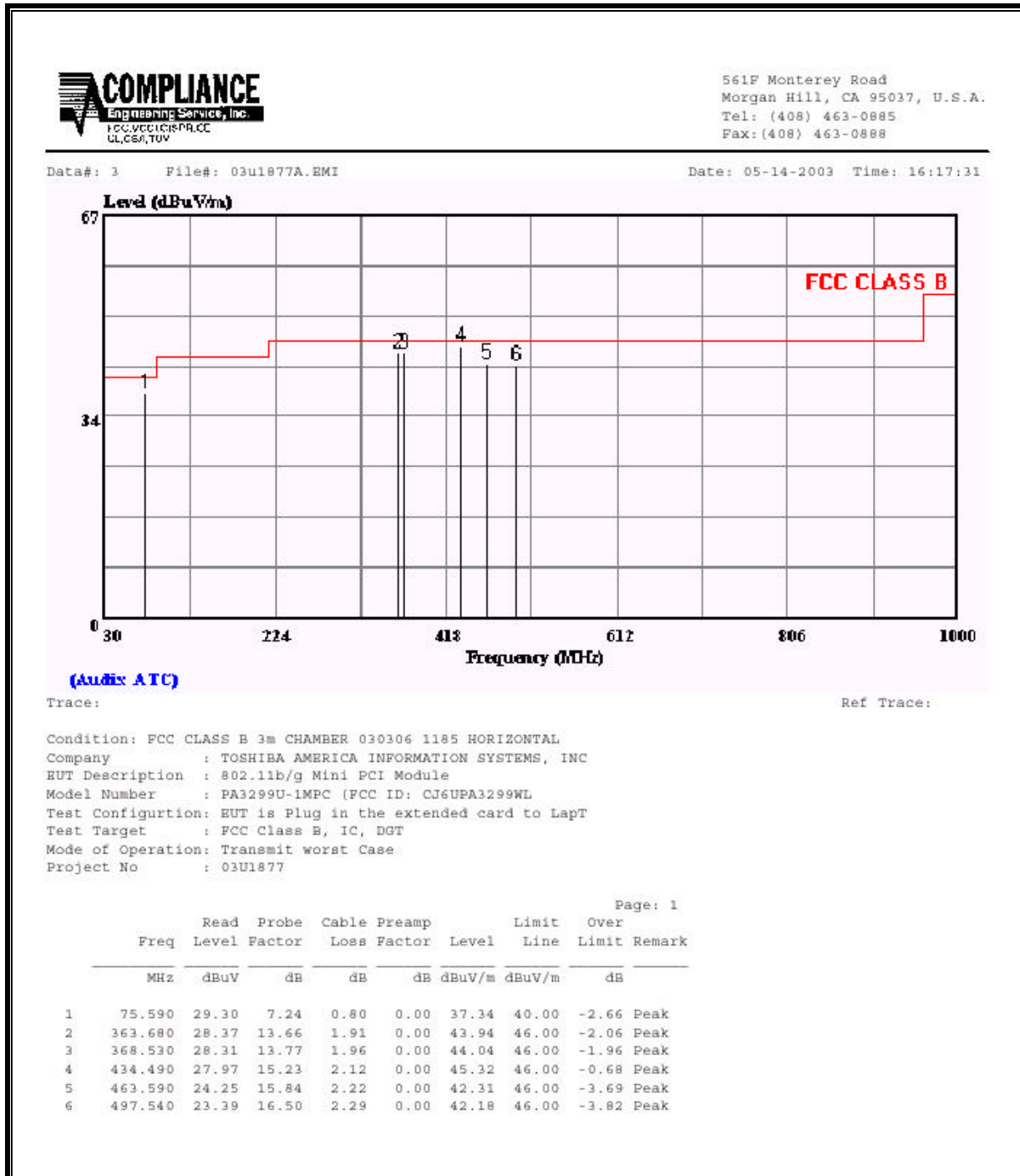
f GHz	Dist feet	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	HPF	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes
No Spurious Emissions was detected up to 10th Harmonic, above the system noise floor.															

f Measurement Frequency Amp Preamp Gain Avg Lim Average Field Strength Limit
 Dist Distance to Antenna D Corr Distance Correct to 3 meters Pk Lim Peak Field Strength Limit
 Read Analyzer Reading Avg Average Field Strength @ 3 m Avg Mar Margin vs. Average Limit
 AF Antenna Factor Peak Calculated Peak Field Strength Pk Mar Margin vs. Peak Limit
 CL Cable Loss HPF High Pass Filter

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)



SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)



7.7. CO-LOCATED RADIATED EMISSIONS

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.

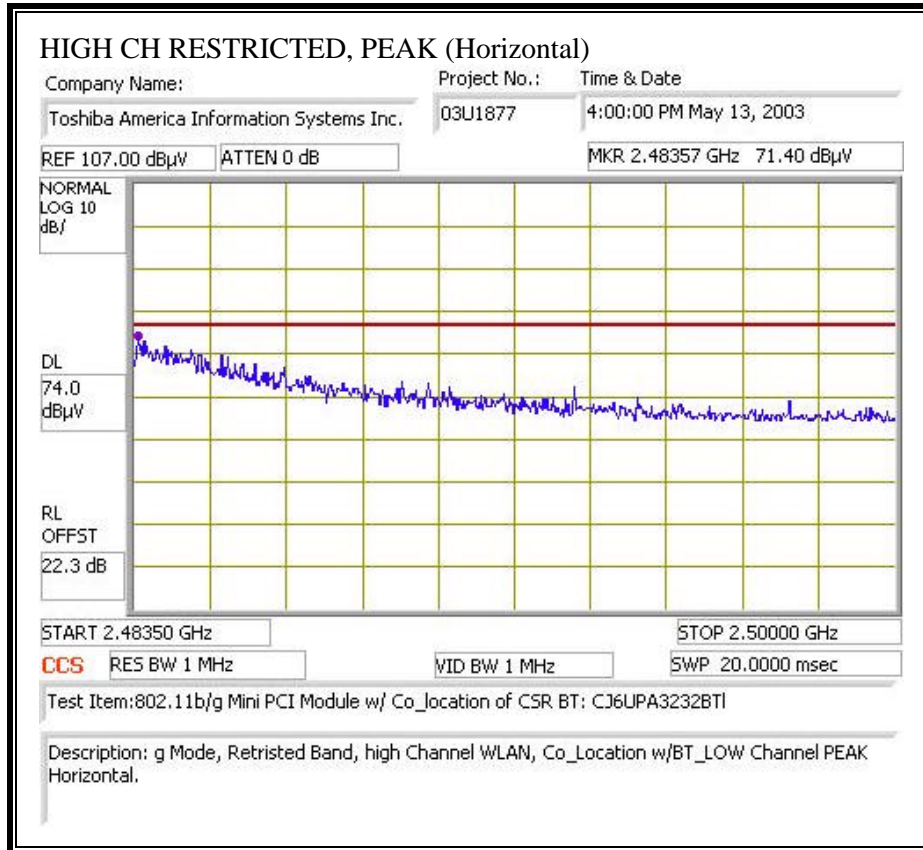
The dominant transmitter (WLAN) is set to the worst case (high) channel. The spurious emissions performance of the dominant transmitter is investigated as the non-dominant transmitter is tuned to its low, middle, and high channels.

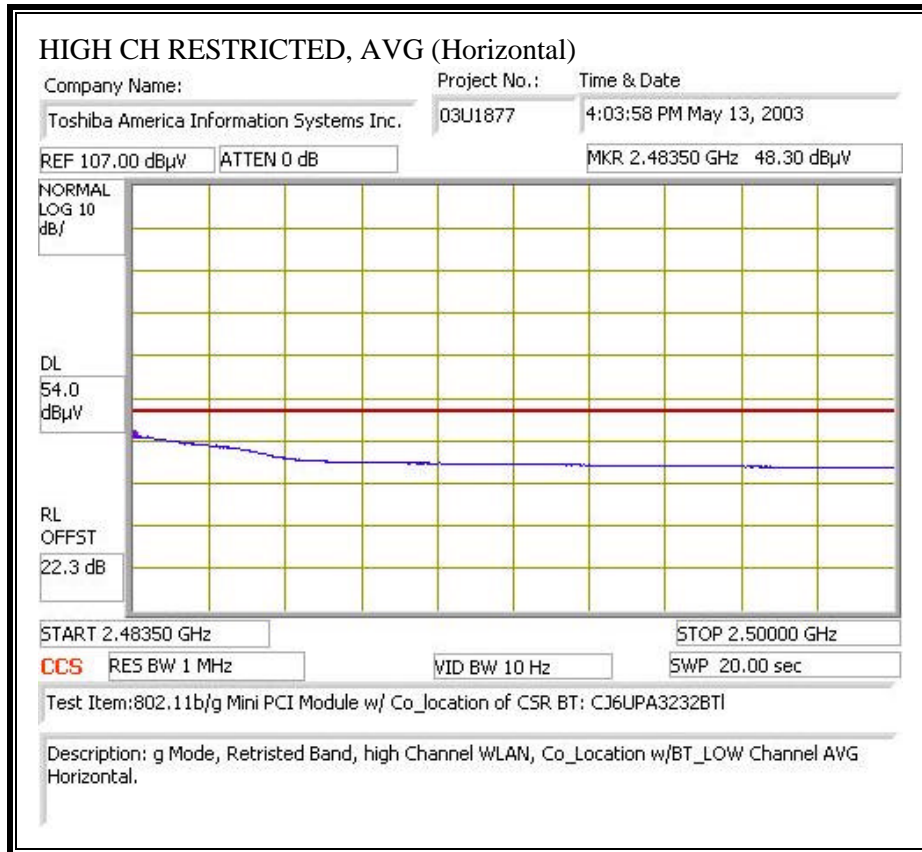
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

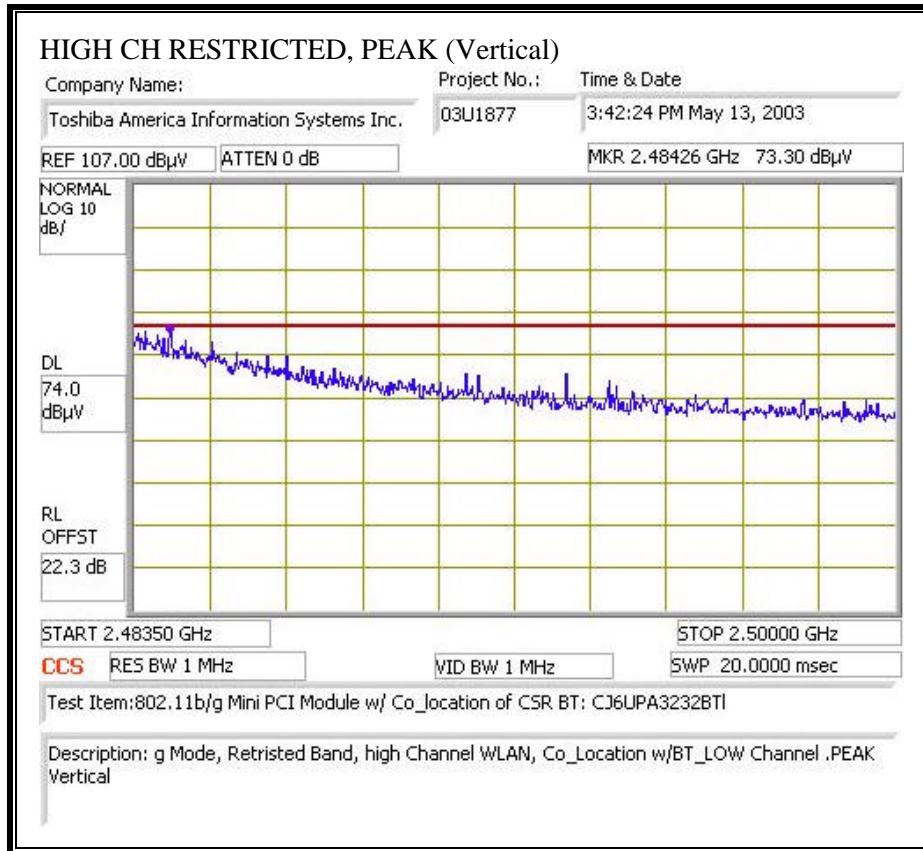
RESULTS

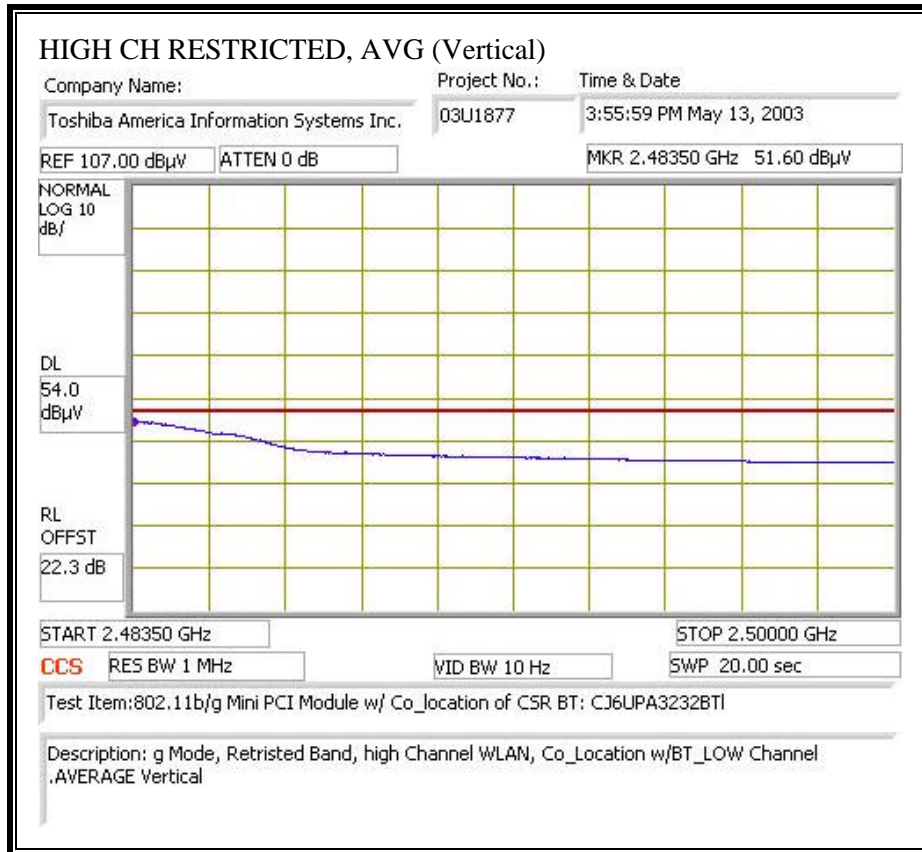
No non-compliance noted:

WORST-CASE RESTRICTED BANDEDGE (WITH BLUETOOTH AT LOW CHANNEL)

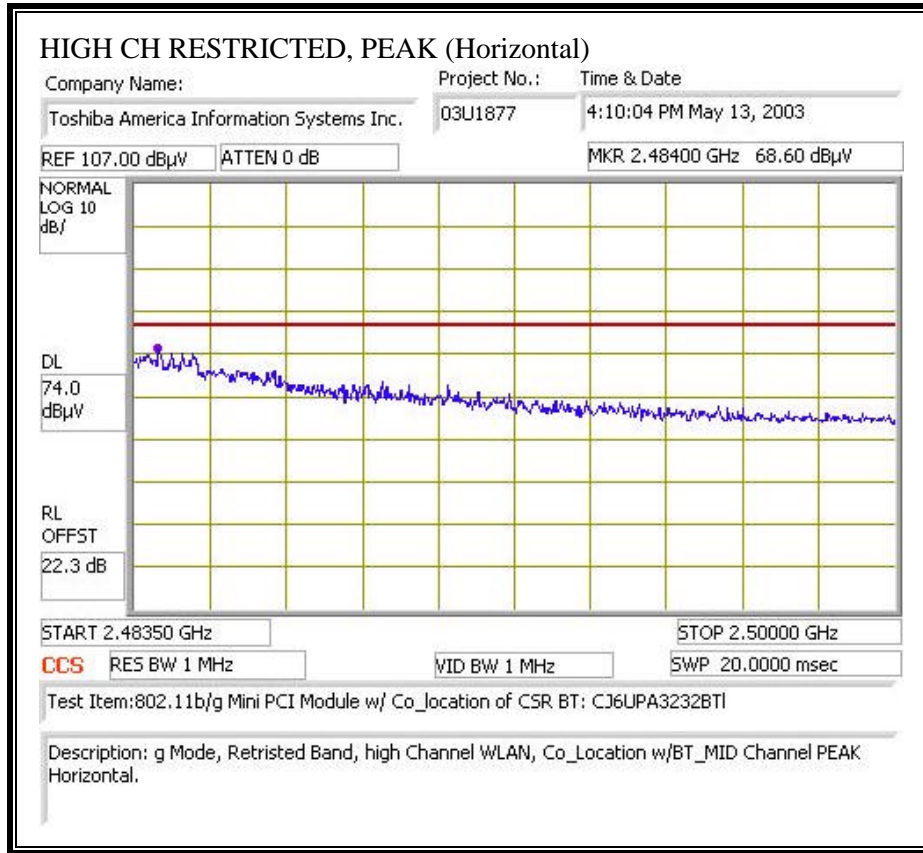


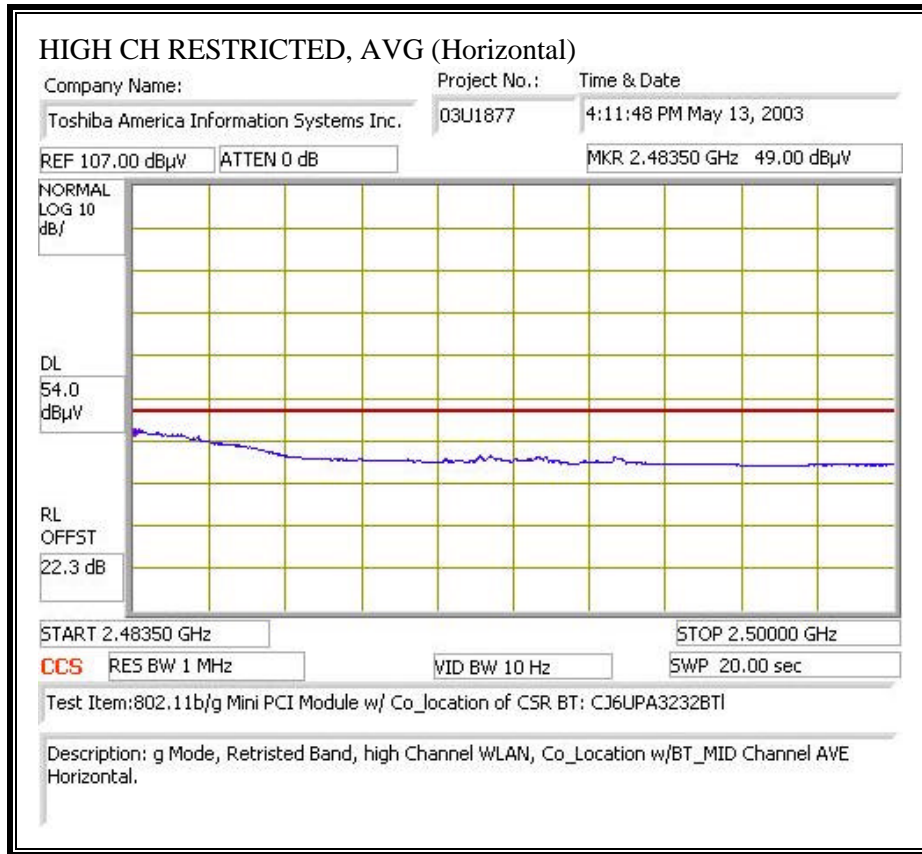


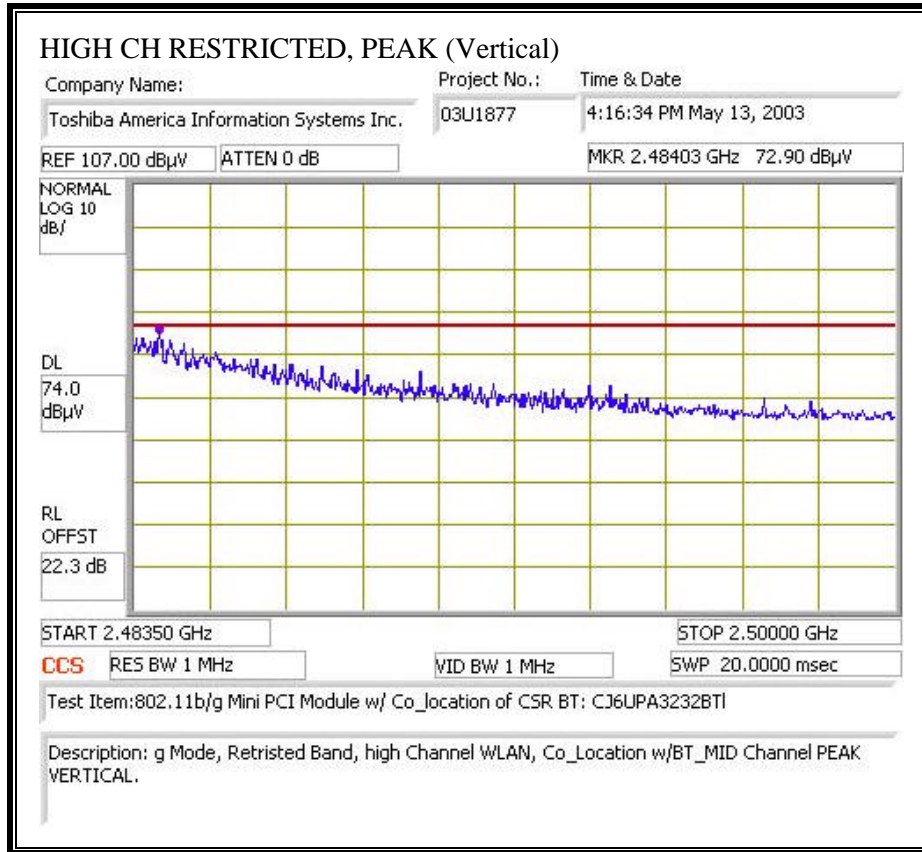


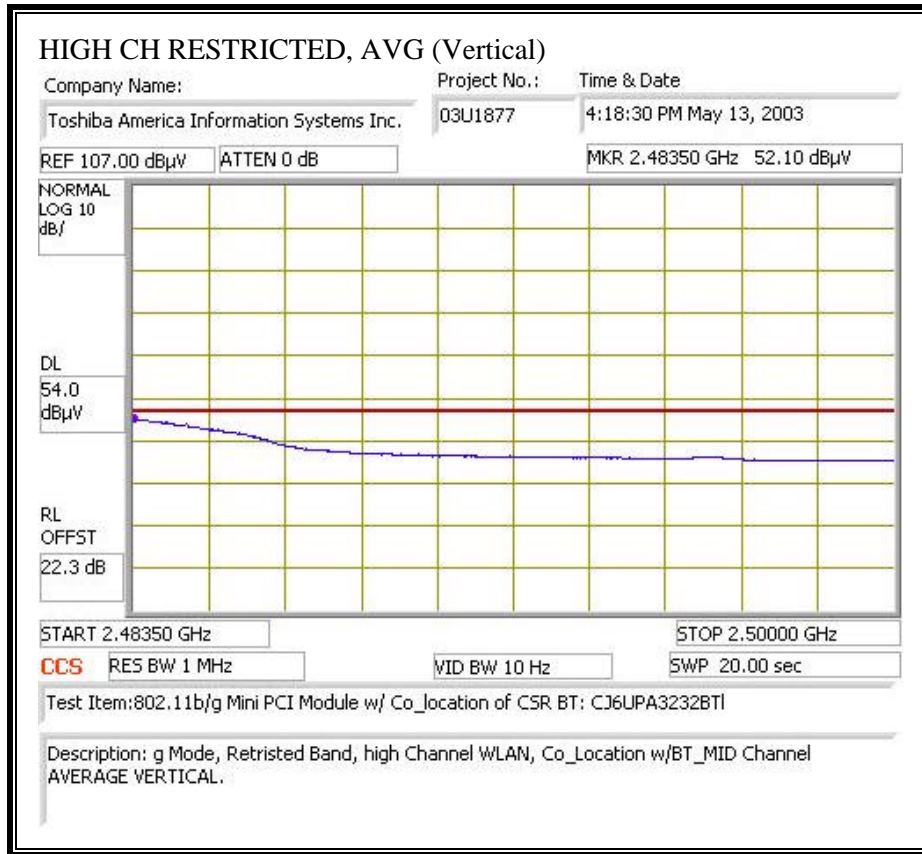


WORST-CASE RESTRICTED BANDEDGE (WITH BLUETOOTH AT MID CHANNEL)

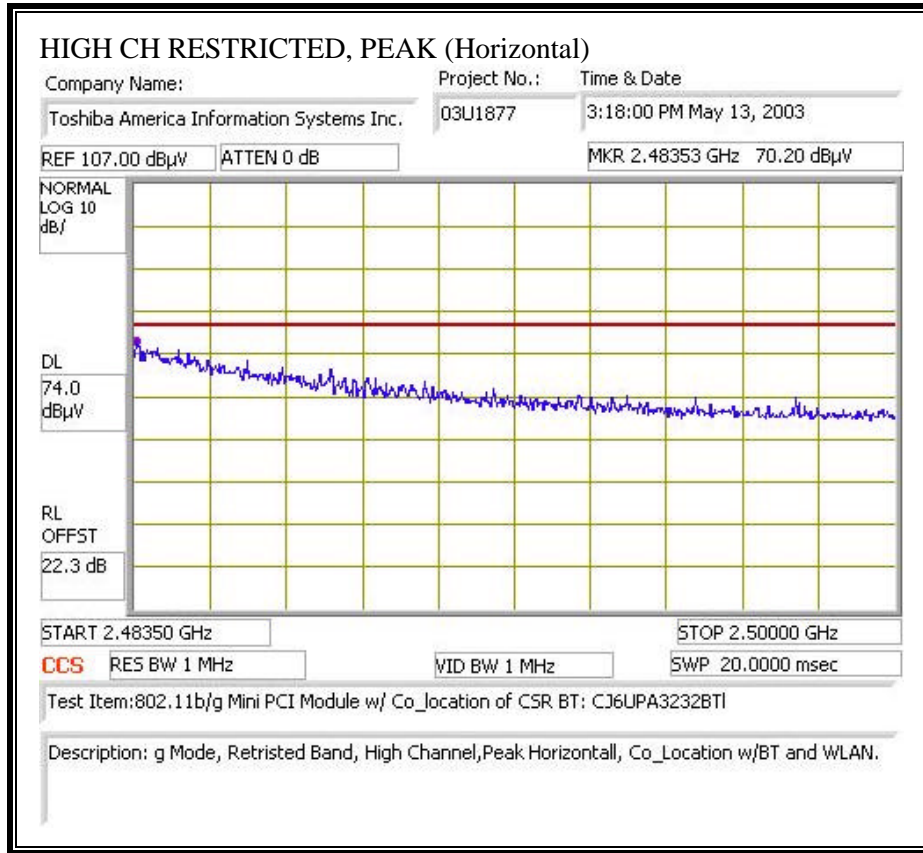


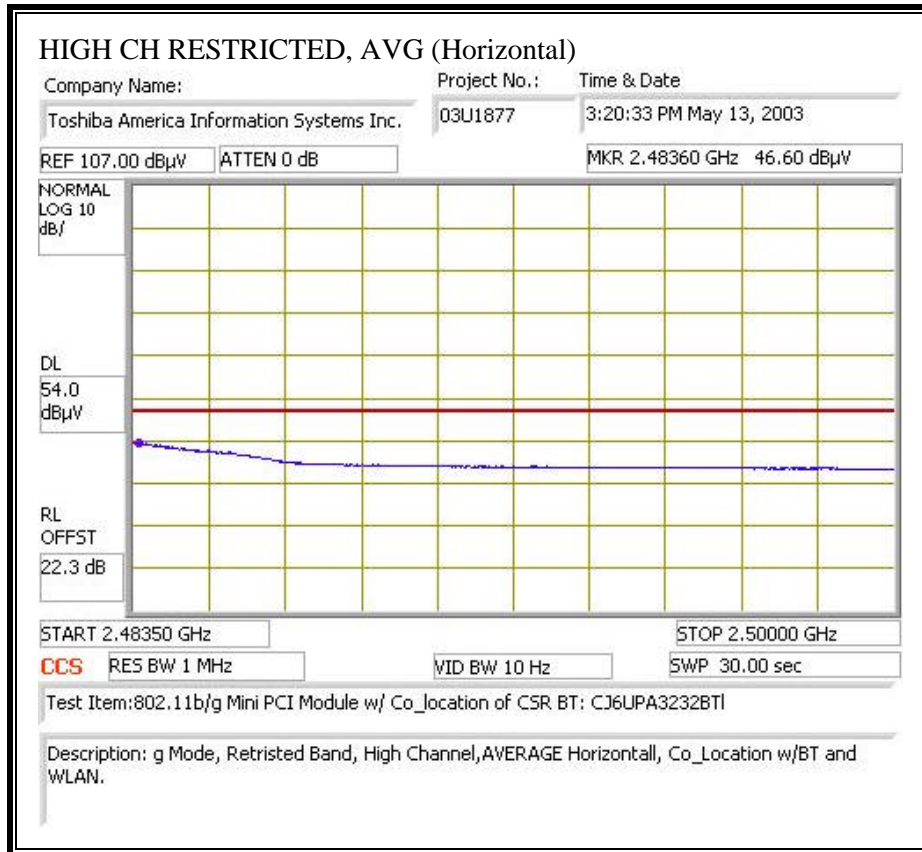


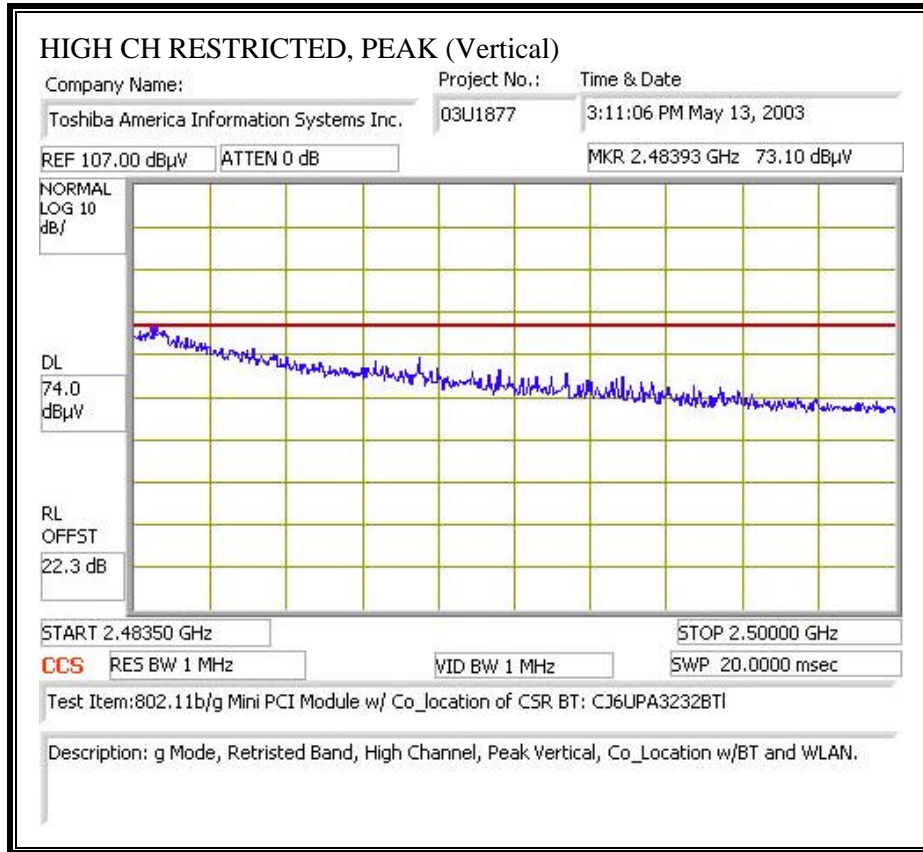


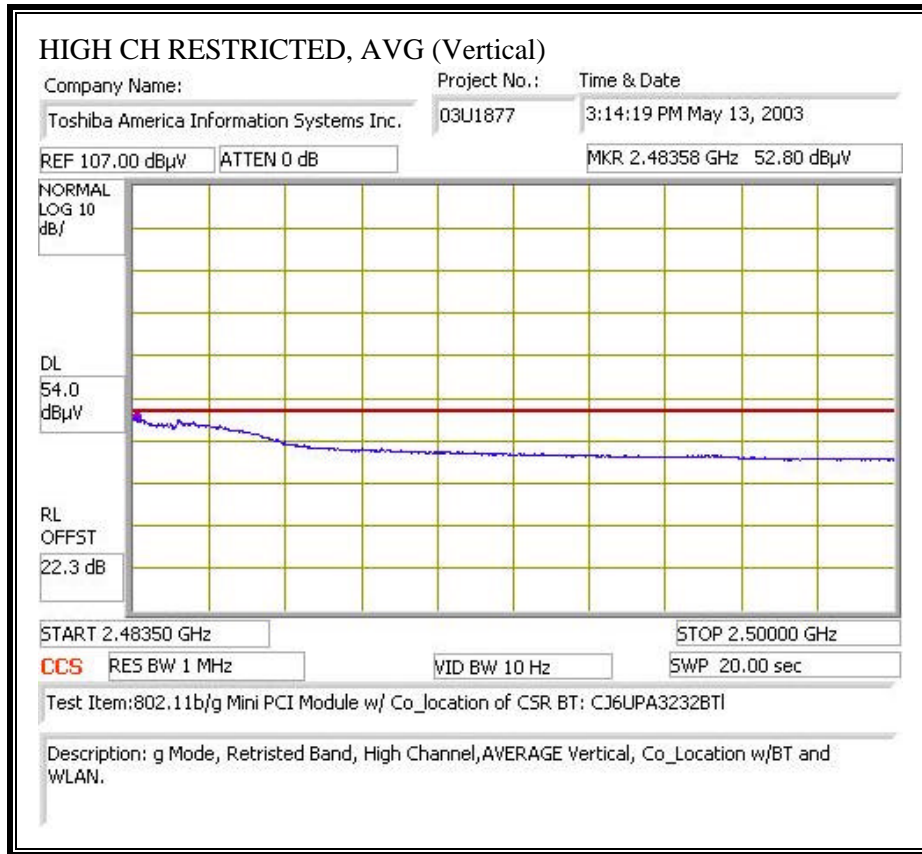


WORST-CASE RESTRICTED BANDEDGE (WITH BLUETOOTH AT HIGH CHANNEL)









WORST-CASE HARMONICS AND SPURIOUS EMISSIONS

05/15/03 High Frequency Measurement
 Compliance Certification Services, Morgan Hill Open Field Site

Test Engr: Thanj Test Target: FCC 15.247, IC, DGT.
 Project #: 03U1877
 Company: TOSHIBA AMERICA INFORMATION SYSTEMS, INC.
 EUT Descrip.: 802.11b/g Mini PCI Module with Co. Location of CSR BT: CJ6UPA3232BT.
 EUT M/N: PA3299U-1MPC (FCC ID: CJ6UPA3299WL)

Mode Oper: TX

Test Equipment:

EMCO Horn 1-18GHz Pre-amplifier 1-26GHz Spectrum Analyzer Horn > 18GHz
 T72; S/N: 6739 @1m T87 Miteq 924342 HP 8566B Analyzer

Hi Frequency Cables: (2 ft) (2 ~ 3 ft) (4 ~ 6 ft) (12 ft)

Peak Measurements: 1 MHz Resolution Bandwidth 1MHz 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
WLAN Hi with BT low, Mid, High.															
4.924	9.8	49.5	37.8	34.1	2.5	-44.8	0.0	1.0	42.3	30.6	74.0	54.0	-31.7	-23.4	Noise Floor/V
4.924	9.8	50.5	37.8	34.1	2.5	-44.8	0.0	1.0	43.3	30.6	74.0	54.0	-30.7	-23.4	Noise Floor/H
No more spurious Emissions above noise floor up to 10th Harmonic, Test BT High, Mid and Low															

f Measurement Frequency Amp Preamp Gain Avg Lim Average Field Strength Limit
 Dist Distance to Antenna D Corr Distance Correct to 3 meters Pk Lim Peak Field Strength Limit
 Read Analyzer Reading Avg Average Field Strength @ 3 m Avg Mar Margin vs. Average Limit
 AF Antenna Factor Peak Calculated Peak Field Strength Pk Mar Margin vs. Peak Limit
 CL Cable Loss HPF High Pass Filter

7.8. POWERLINE CONDUCTED EMISSIONS

LIMIT

§15.207 (a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that 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 the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal.

The lower limit applies at the boundary between the frequency ranges.

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.4.

The resolution bandwidth is set to 9 kHz for both peak detection and quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

No non-compliance noted:

6 WORST EMISSIONS

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit	EN_B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
0.16	52.38	--	--	0.00	65.83	55.83	-13.45	-3.45	L1
0.25	49.56	--	--	0.00	63.26	53.26	-13.70	-3.70	L1
15.80	41.04	--	--	0.00	60.00	50.00	-18.96	-8.96	L1
0.15	55.60	--	--	0.00	65.97	55.97	-10.37	-0.37	L2
0.25	49.56	--	--	0.00	63.23	53.23	-13.67	-3.67	L2
15.31	41.74	--	--	0.00	60.00	50.00	-18.26	-8.26	L2
6 Worst Data									

LINE 1 AND LINE 2 (LINE AND NEUTRAL) RESULTS

