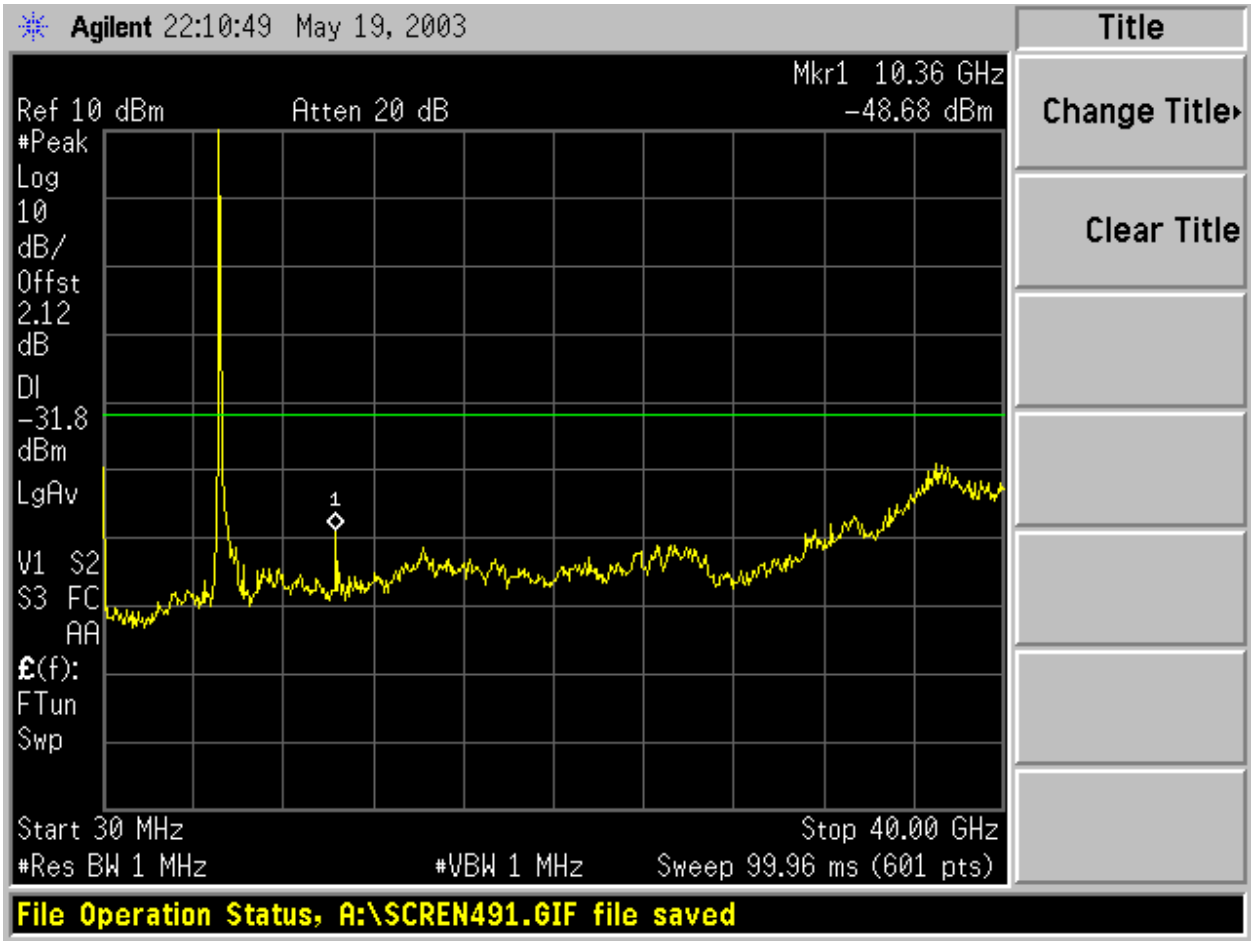
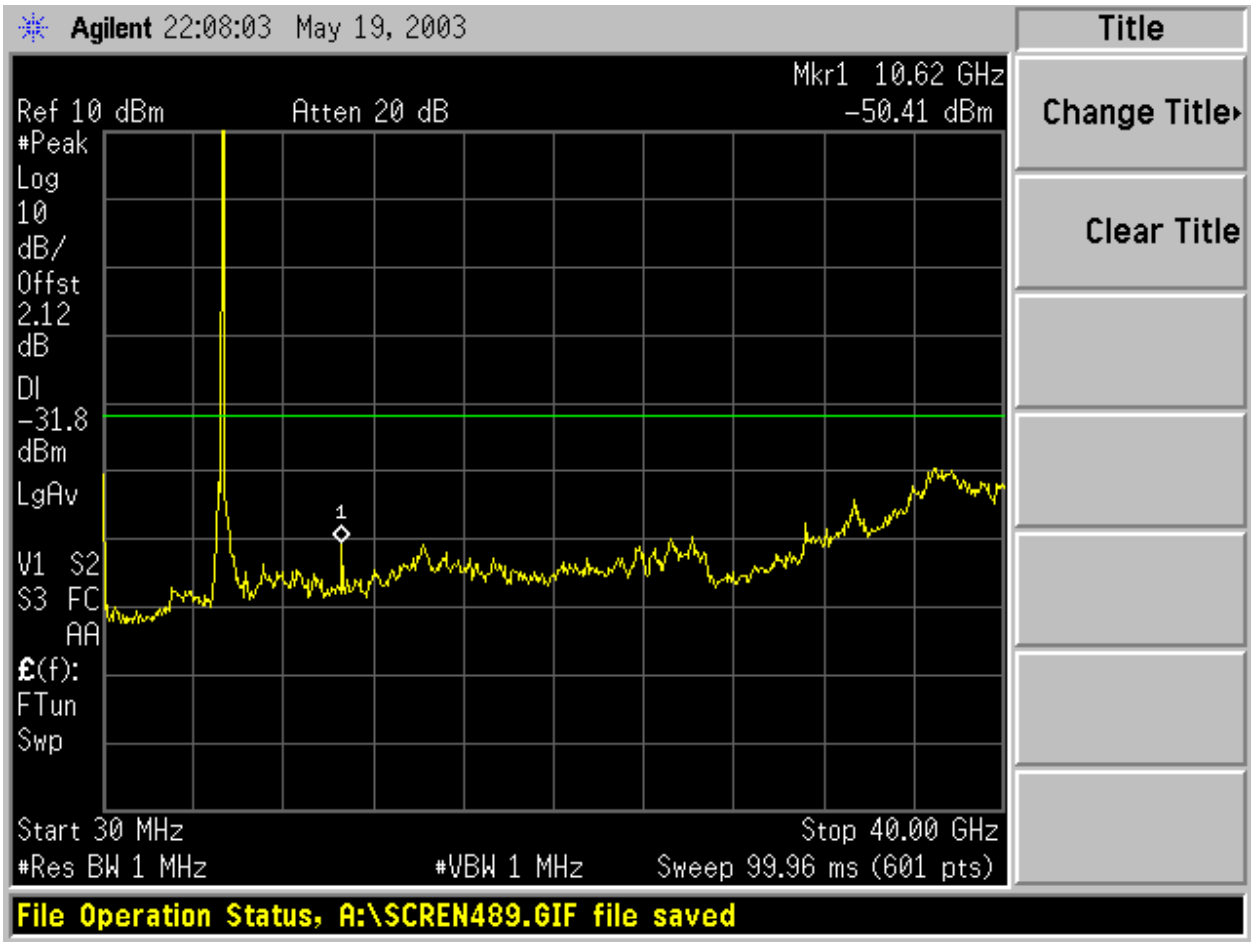
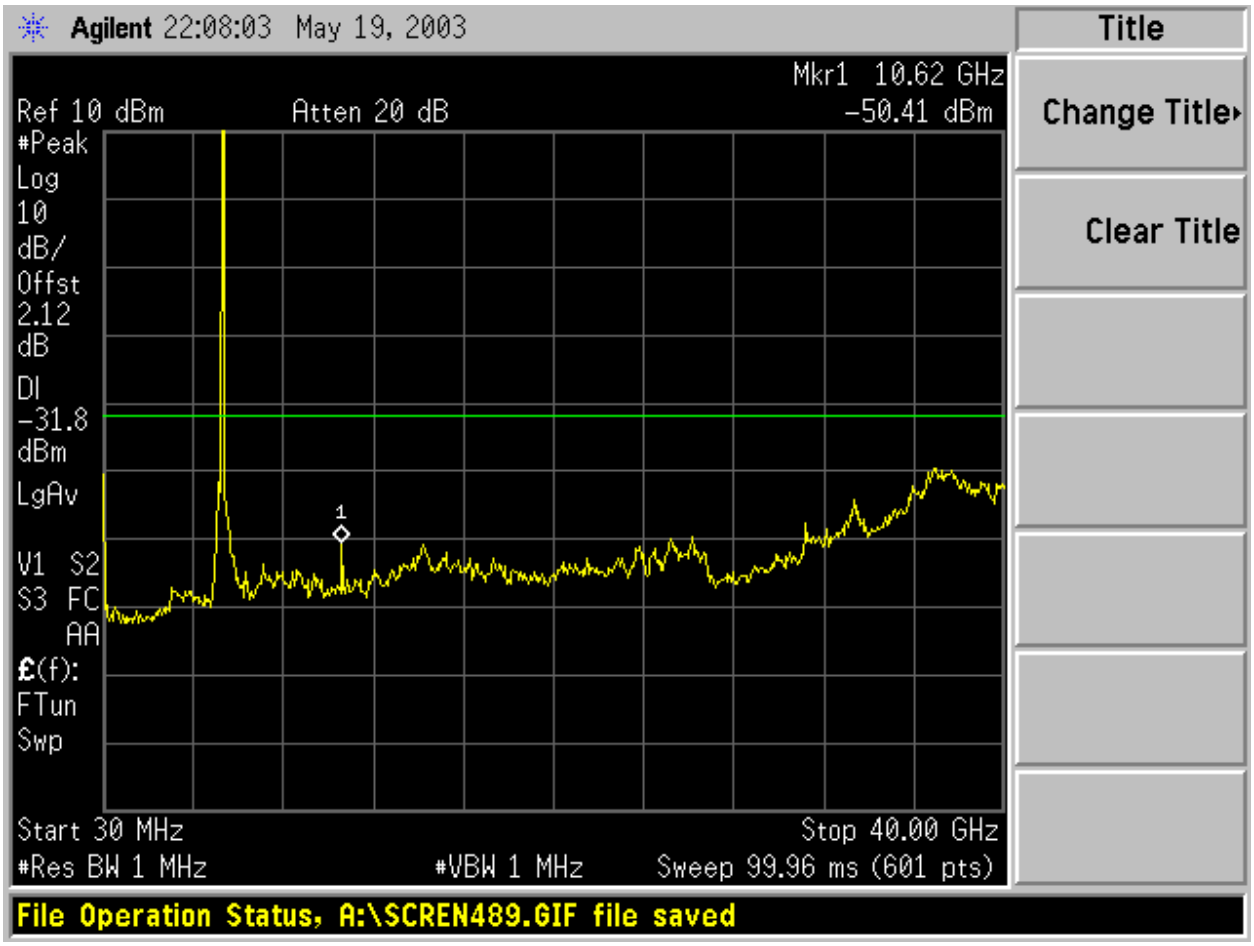
CONDUCTED SPURIOUS EMISSIONS (BASE MODE)



LOW CHANNEL NORMAL

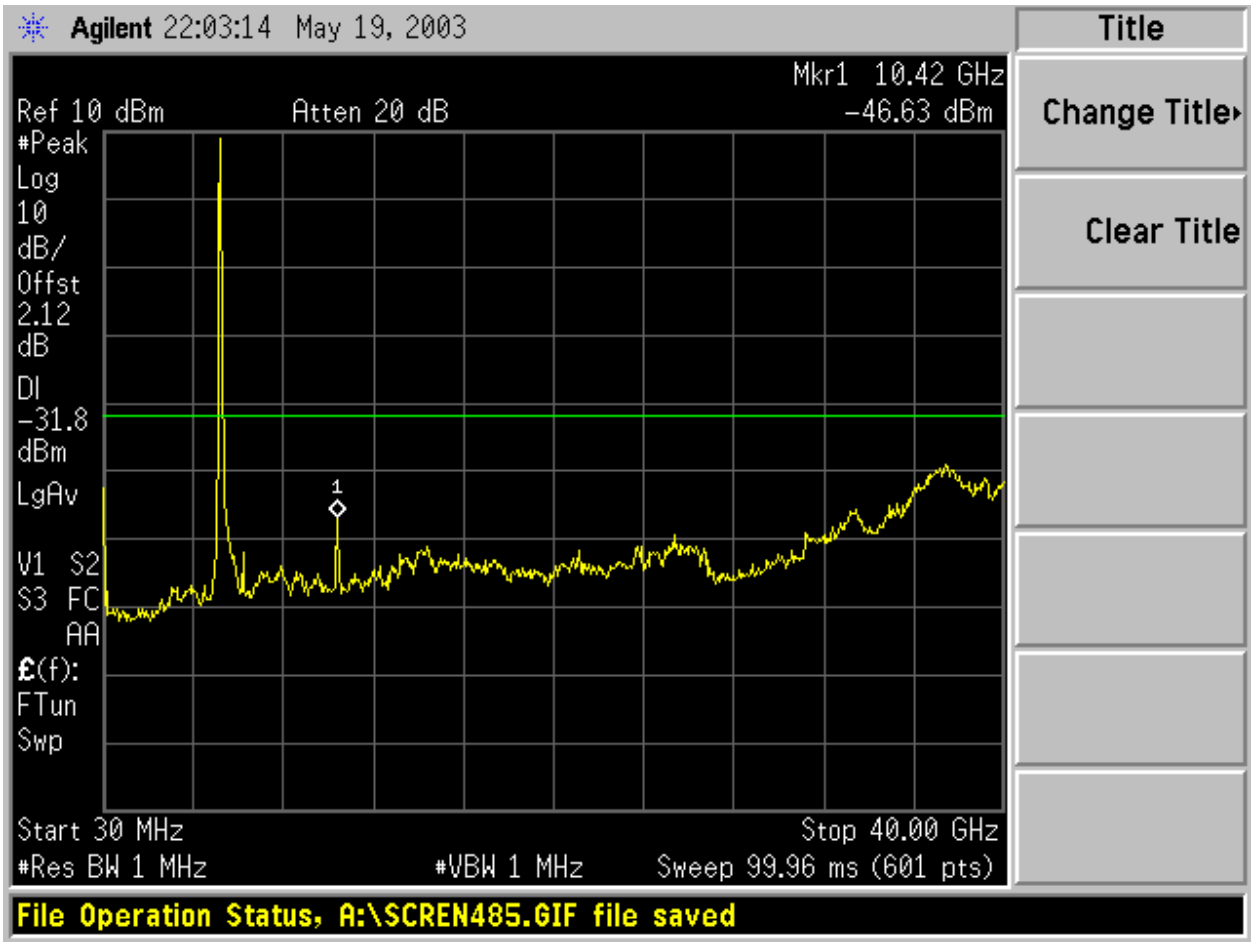


MID CHANNEL NORMAL

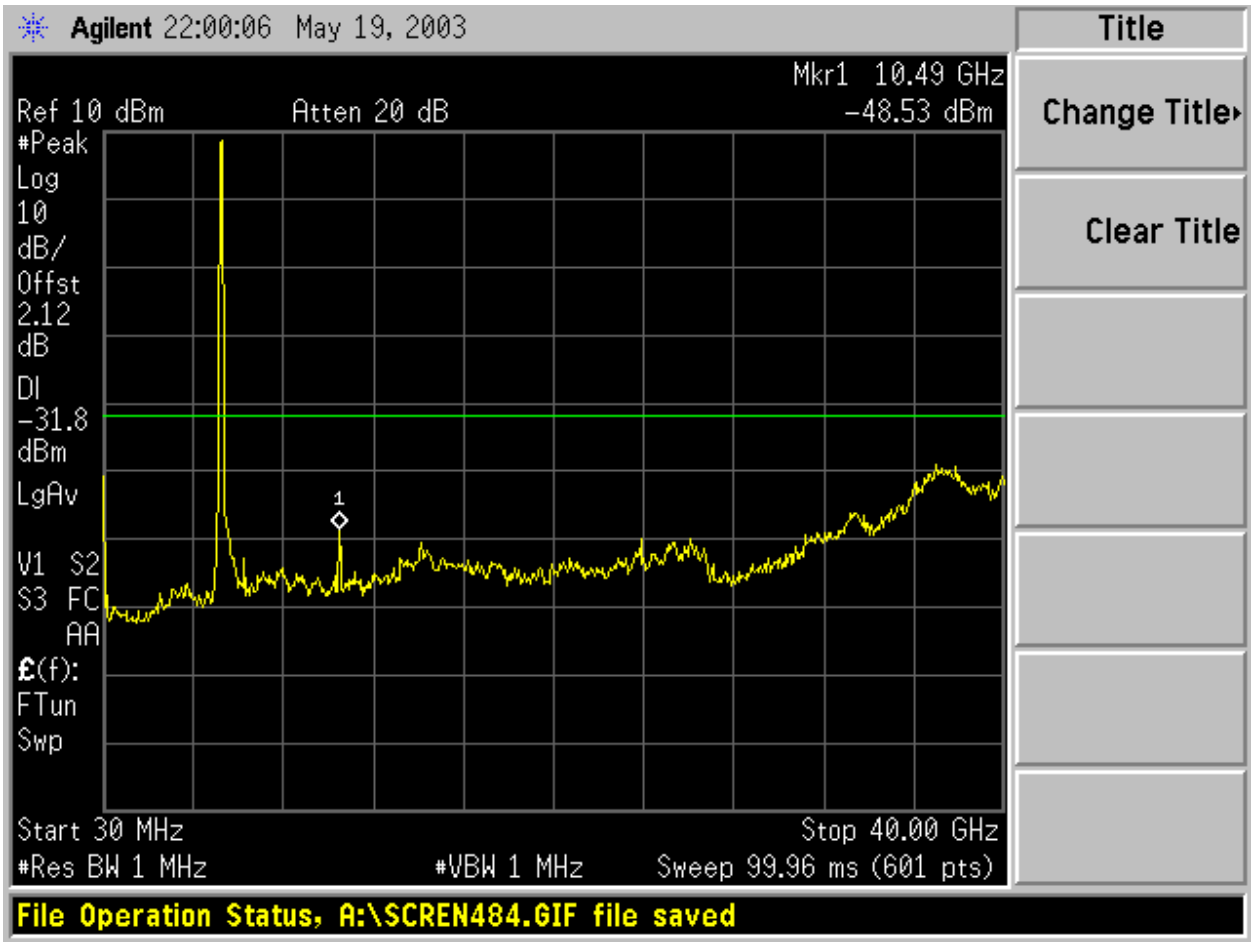


HIGH CHANNEL_NORMAL

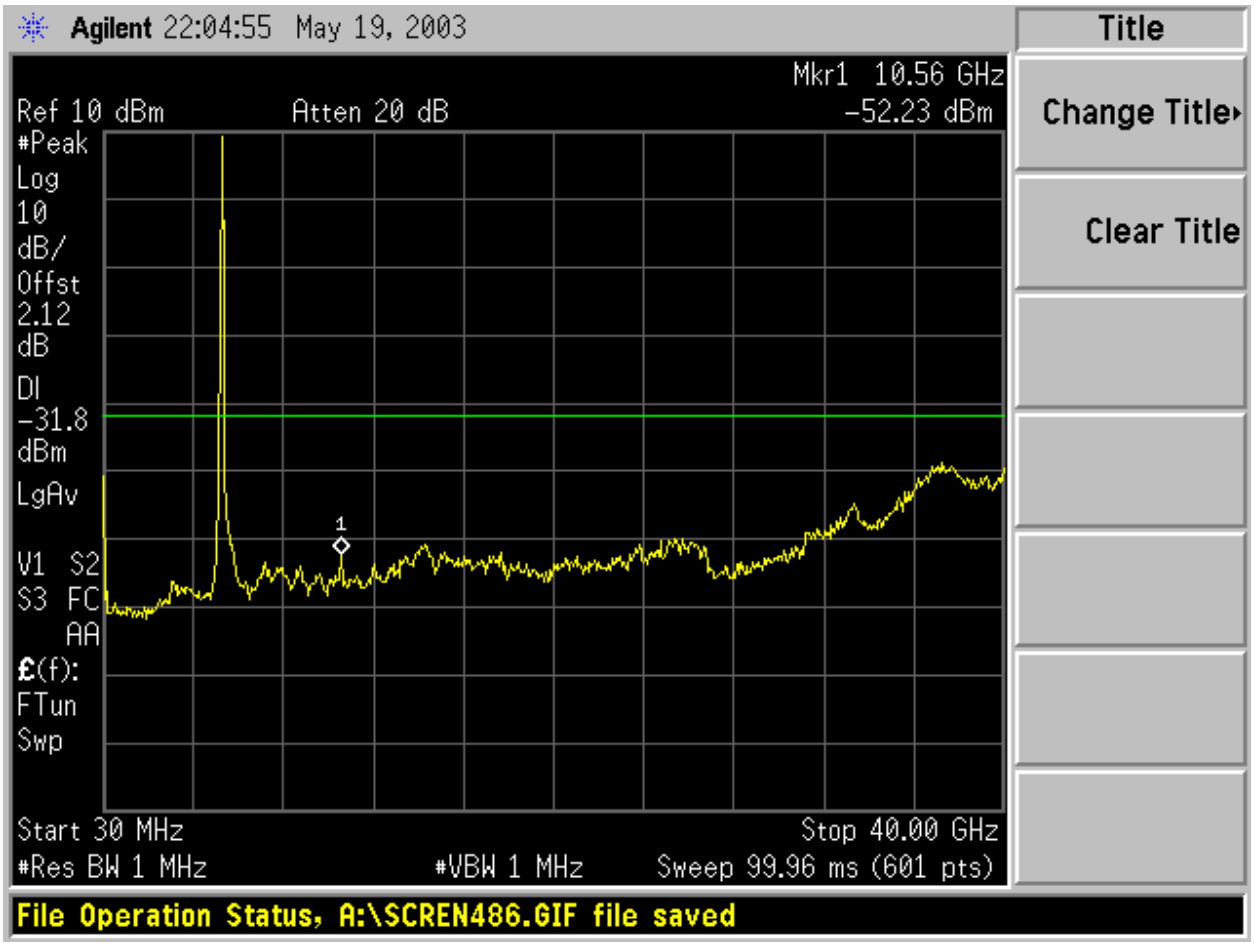
CONDUCTED SPURIOUS EMISSIONS (TURBO MODE)



LOW CHANNEL_TURBO



MID CHANNEL TURBO



HI CHANNEL TURBO

7.11. RADIATED EMISSION

LIMIT

§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
[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 - 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	([2])
13.36 - 13.41			

[1] Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.
[2] 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 the wooden table. 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, and then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

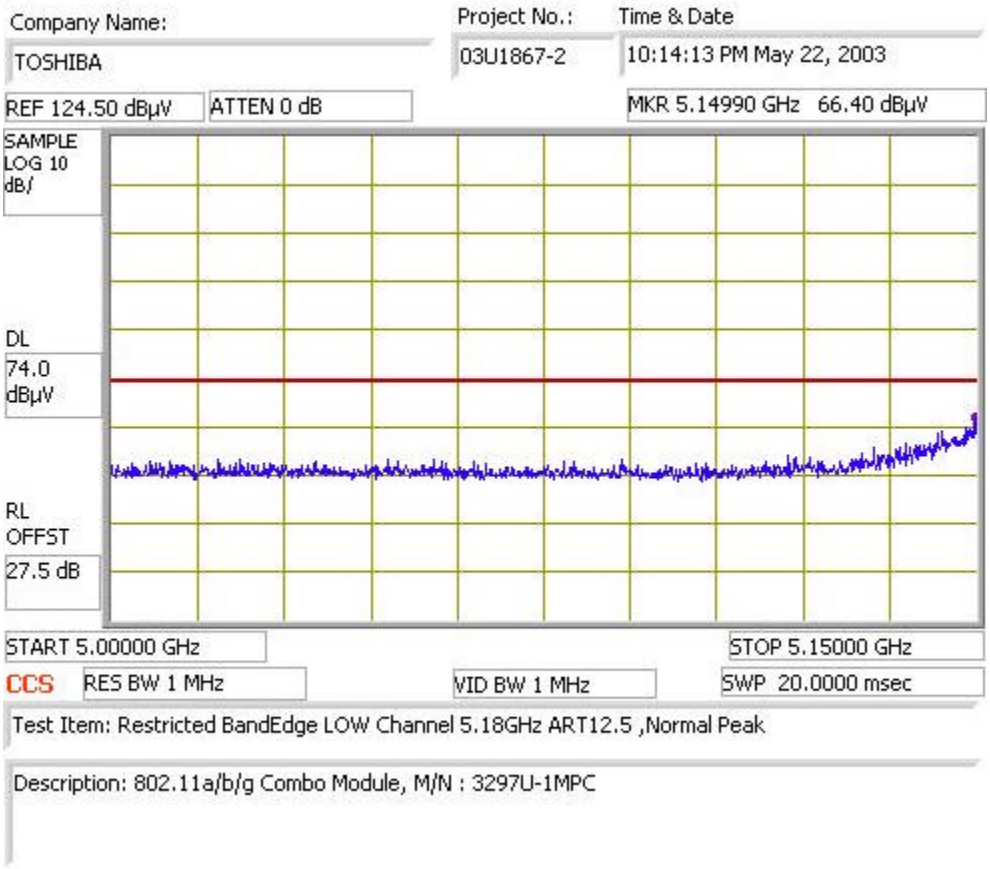
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The frequency span is set small enough to easily differentiate between broadcast stations, intermittent ambient signals and EUT emissions. 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 suspected signal. Measurements were made with the antenna polarized in both the vertical and the horizontal positions.

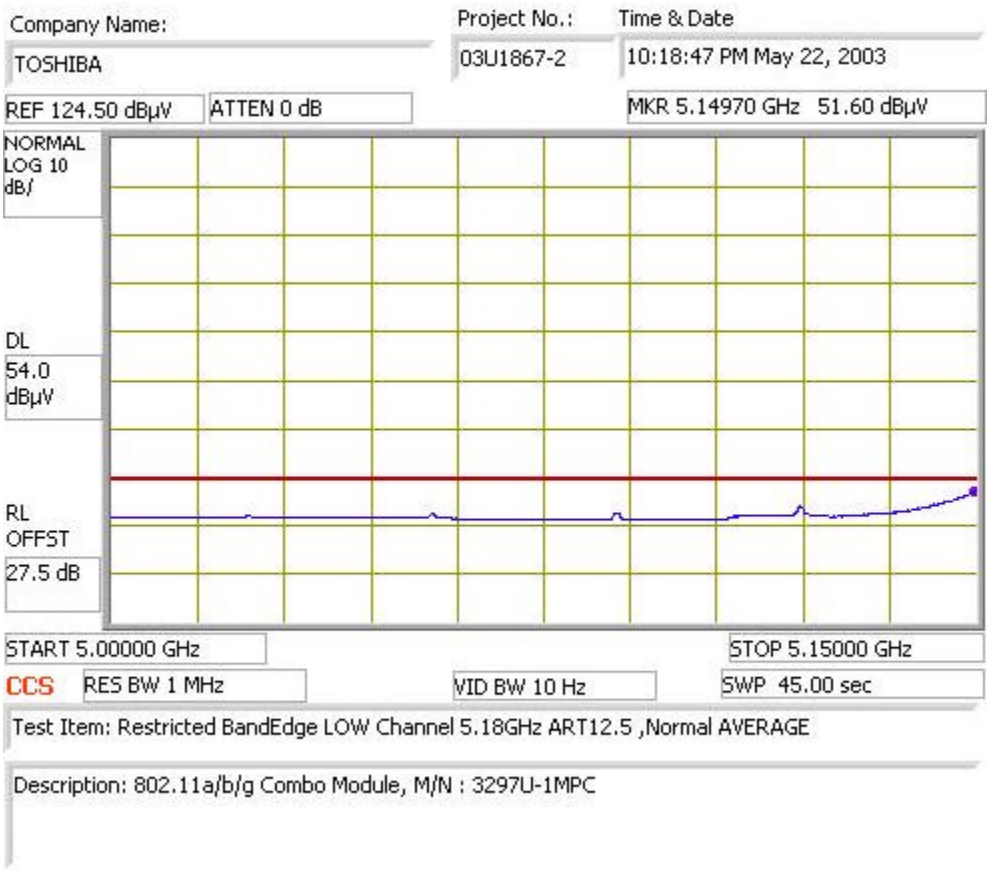
RESULTS

No non-compliance noted:

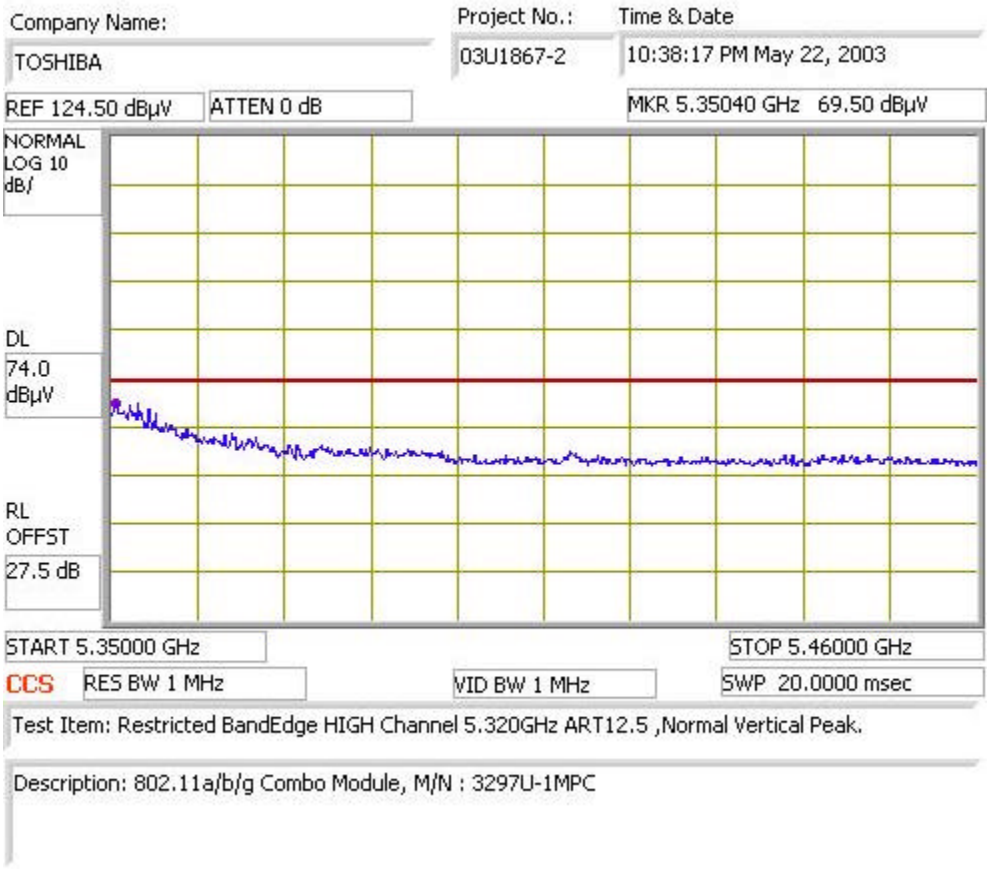
LOW ADJACENT RESTRICTED BANDEDGE – NORMAL - PEAK



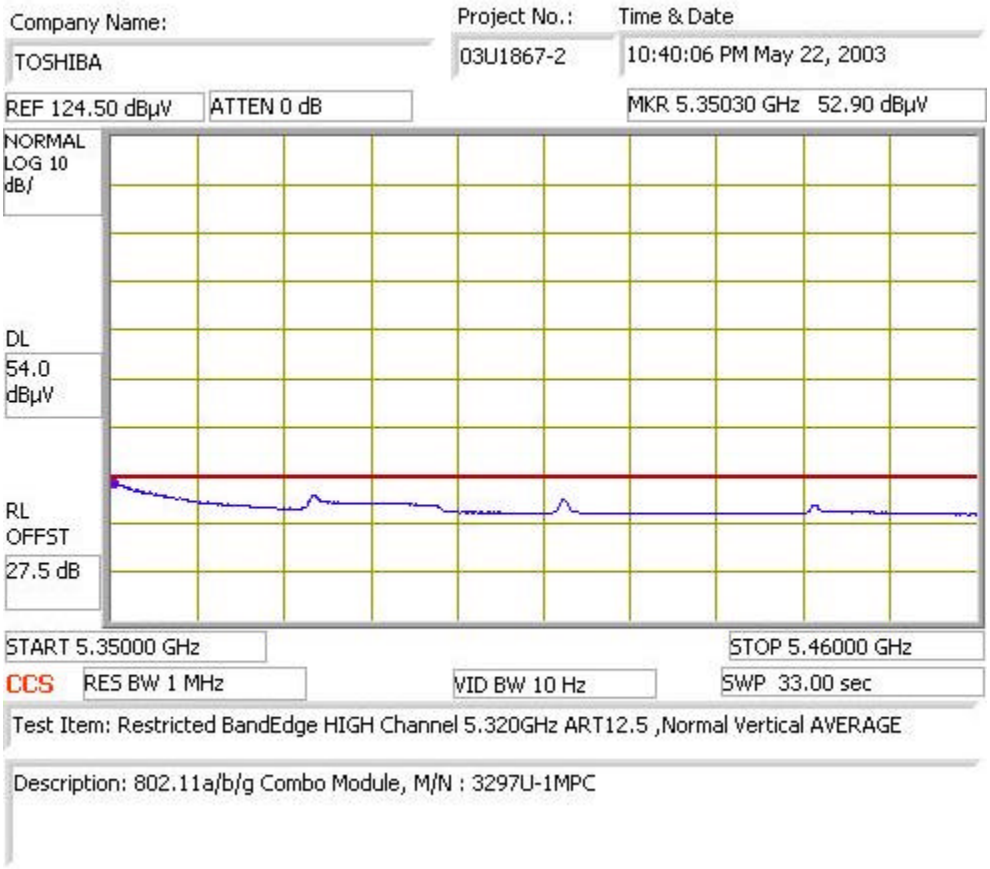
LOW ADJACENT RESTRICTED BANDEDGE – NORMAL - AVERAGE



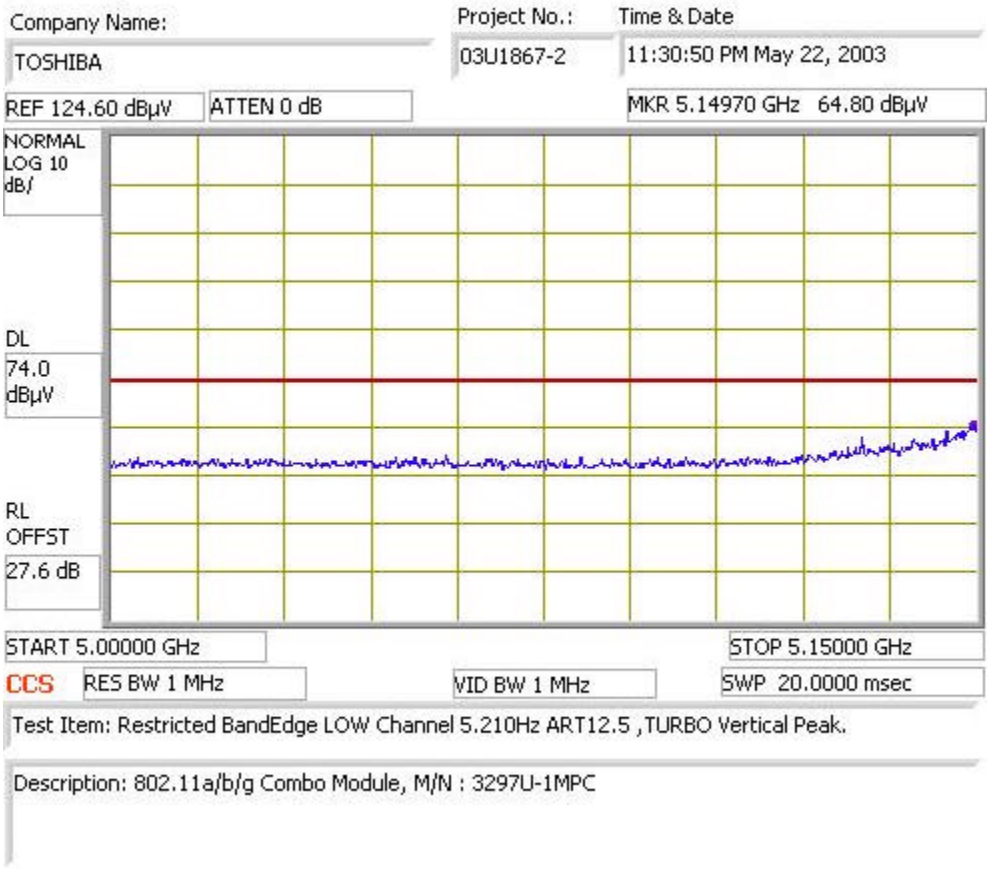
HIGH ADJACENT RESTRICTED BANDEDGE – NORMAL - PEAK



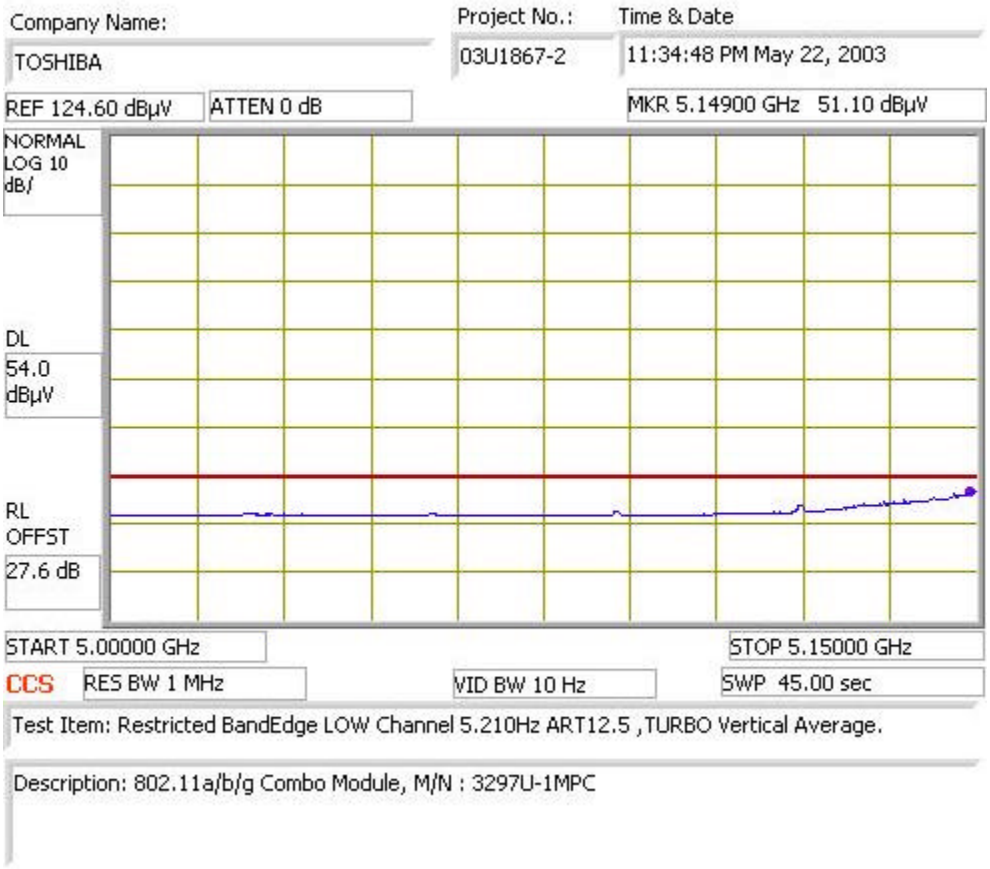
HIGH ADJACENT RESTRICTED BANDEDGE – NORMAL - AVERAGE



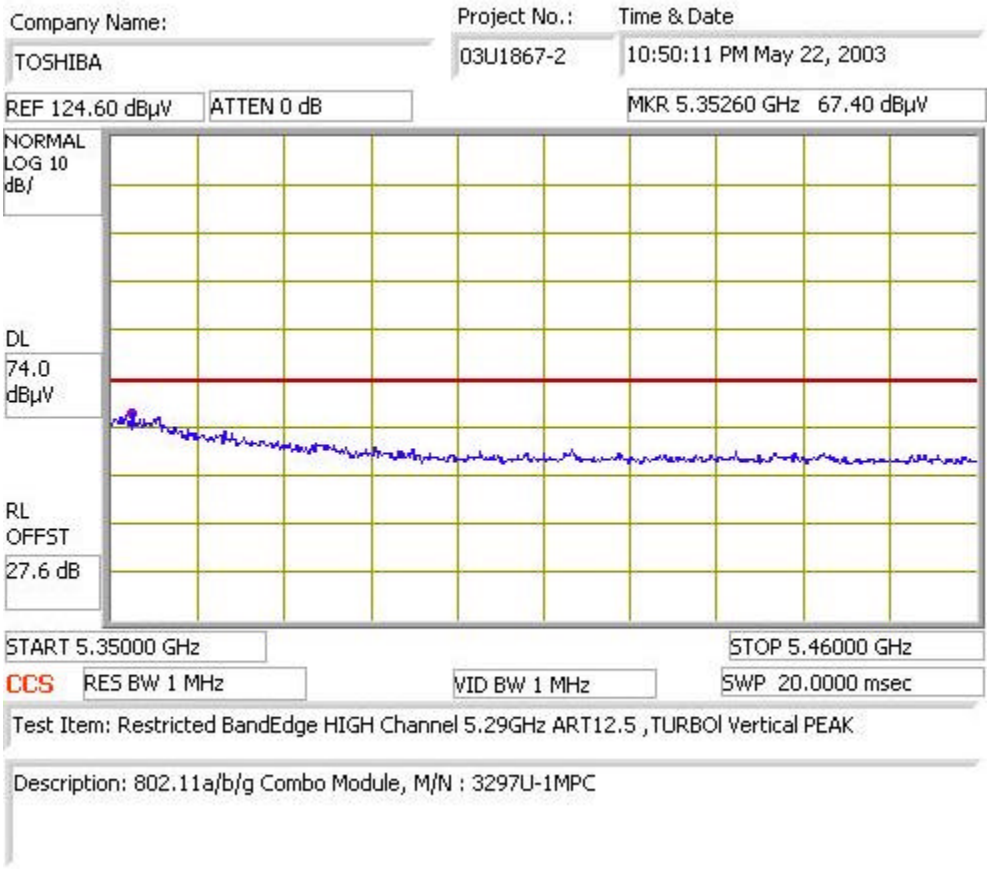
LOW ADJACENT RESTRICTED BANDEDGE – TURBO - PEAK



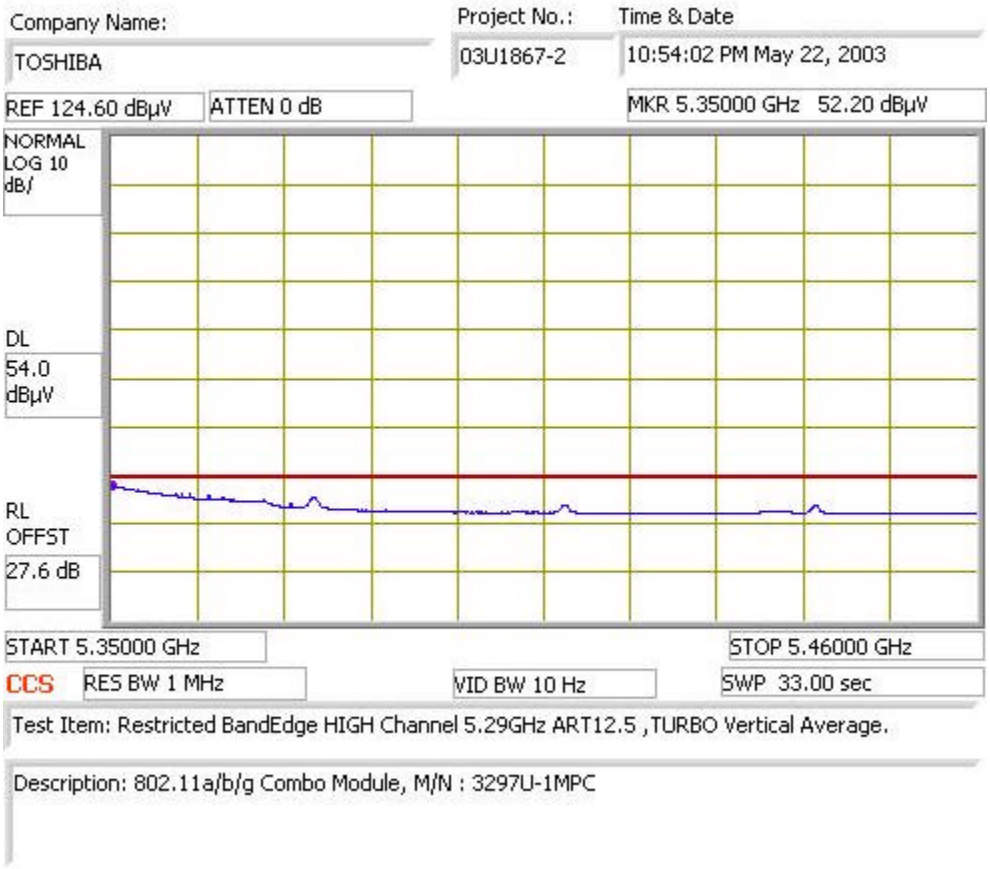
LOW ADJACENT RESTRICTED BANDEDGE – TURBO – AVERAGE



HIGH ADJACENT RESTRICTED BANDEDGE – TURBO - PEAK



HIGH ADJACENT RESTRICTED BANDEDGE – TURBO - AVERAGE



HARMONIC AND SPURIOUS RADIATED EMISSIONS (NORMAL MODE)

05/02/03 **High Frequency Measurement**
Compliance Certification Services, Morgan Hill Open Field Site

Test Engr: VIEN TRAN
Project #: 03U1867-2
Company: TOSHIBA
EUT Descrip.: 802.11a/b/g Combo Module
EUT M/N: M/N3297U-1MPC
Test Target: FCC 15.247
Mode Oper: Harmonic snd Spur Tx at L/M/H _ Normal 5.2GHz Band

Test Equipment:

EMCO Horn 1-18GHz	Pre-amplifer 1-26GHz	Spectrum Analyzer	Horn > 18GHz
T60; S/N: 2238 @3m	T34 HP 8449B	HP 8566B 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
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
LOW CH 5.18GHz NORMAL MODE:															
15.540	9.8	51.1	38.8	39.4	7.1	-33.9	0.0	1.0	64.6	52.3	74.0	54.0	-9.4	-1.7	V
15.540	9.8	50.0	37.8	39.4	7.1	-33.9	0.0	1.0	63.5	51.3	74.0	54.0	-10.5	-2.7	H
NO OTHER EMISSION FOUND AFTER 3rd HARMONIC															
MID CH 5.26GHz NORMAL MODE:															
15.780	9.8	51.3	37.6	38.7	7.2	-33.9	0.0	1.0	64.3	50.6	74.0	54.0	-9.7	-3.4	V
15.780	9.8	50.4	37.0	38.7	7.2	-33.9	0.0	1.0	63.4	50.0	74.0	54.0	-10.6	-4.0	H
NO OTHER EMISSION FOUND AFTER 3rd HARMONIC															
HI CH 5.32GHz NORMAL MODE:															
10.640	9.8	47.7	34.9	38.2	5.5	-34.3	0.0	1.0	58.1	45.3	74.0	54.0	-15.9	-8.7	V
15.960	9.8	49.9	37.2	38.3	7.2	-33.8	0.0	1.0	62.5	49.8	74.0	54.0	-11.5	-4.2	V
10.610	9.8	50.6	39.0	38.2	5.5	-34.3	0.0	1.0	61.0	49.4	74.0	54.0	-13.0	-4.6	H, spur
10.640	9.8	45.9	34.3	38.2	5.5	-34.3	0.0	1.0	56.3	44.7	74.0	54.0	-17.7	-9.3	H
15.960	9.8	49.7	37.5	38.3	7.2	-33.8	0.0	1.0	62.3	50.1	74.0	54.0	-11.7	-3.9	H
NO OTHER EMISSION FOUND AFTER 3rd HARMONIC															

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		

HARMONIC AND SPURIOUS RADIATED EMISSIONS (TURBO MODE)

05/02/03 **High Frequency Measurement**
Compliance Certification Services, Morgan Hill Open Field Site

Test Engr: VIEN TRAN
Project #: 03U1867-2
Company: TOSHIBA
EUT Descrip.: 802.11a/b/g Combo Module
EUT M/N: M/N3297U-1MPC
Test Target: FCC 15.247
Mode Oper: Harmonic snd Spur Tx at L/M/H _ Turbo Mode_5.2GHz Band

Test Equipment:

EMCO Horn 1-18GHz	Pre-amplifer 1-26GHz	Spectrum Analyzer	Horn > 18GHz
T60; S/N: 2238 @3m	T34 HP 8449B	HP 8566B 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, 1MHz Video Bandwidth
Average Measurements: 1 MHz Resolution Bandwidth, 10Hz Video Bandwidth

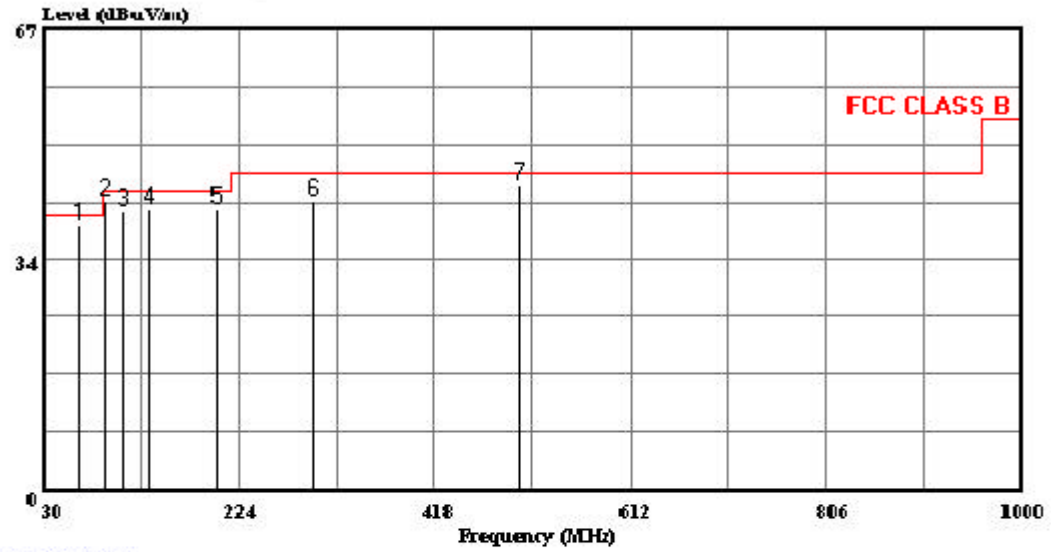
f GHz	Dist feet	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	HPF	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes
LOW CH 5.21GHz TURBO MODE:															
15.630	9.8	50.9	37.9	39.1	2.0	-33.9	0.0	1.0	59.1	46.1	74.0	54.0	-14.9	-7.9	V
15.630	9.8	50.1	37.5	39.1	2.0	-33.9	0.0	1.0	58.3	45.7	74.0	54.0	-15.7	-8.3	H
NO OTHER EMISSION FOUND AFTER 3rd HARMONIC															
MID CH 5.25GHz TURBO MODE:															
15.750	9.8	50.7	37.5	38.8	2.0	-33.9	0.0	1.0	58.6	45.4	74.0	54.0	-15.4	-8.6	V
15.750	9.8	50.3	37.7	38.8	2.0	-33.9	0.0	1.0	58.2	45.6	74.0	54.0	-15.8	-8.4	H
NO OTHER EMISSION FOUND AFTER 3rd HARMONIC															
HI CH 5.29GHz TURBO MODE:															
15.870	9.8	50.8	37.3	38.5	2.0	-33.8	0.0	1.0	58.4	44.9	74.0	54.0	-15.6	-9.1	V
10.640	9.8	54.3	41.9	38.2	1.5	-34.3	0.0	1.0	60.7	48.3	74.0	54.0	-13.3	-5.7	H
15.870	9.8	49.5	37.6	38.5	2.0	-33.8	0.0	1.0	57.1	45.2	74.0	54.0	-16.9	-8.8	H
NO OTHER EMISSION FOUND AFTER 3rd HARMONIC															

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 BELOW 1 GHZ (WORST-CASE CONFIGURATION, HORIZONTAL)

561F Monterey Road
Morgan Hill, CA 95037, U.S.A.
Tel: (408) 463-0885
Fax:(408) 463-0888

Data#: 6 File#: 051203_aMode.EMI Date: 05-12-2003 Time: 18:08:18



(Audix ATC)

Trace: Ref Trace:

Condition: FCC CLASS B 3m CHAMBER 030306 1185 HORIZONTAL
Company : TOSHIBA AMERICA INFORMATION SYSTEMS, INC
EUT Description : 802.11a Combo Module
Model Number : PA3297U-1MPC (FCC ID: CJ6UPA3297WL
Test Configuration: EUT is Plug in the extended card to LapT
Test Target : FCC Class B
Mode of Operation: Transmit worst Case
Project No : 03U1876-2

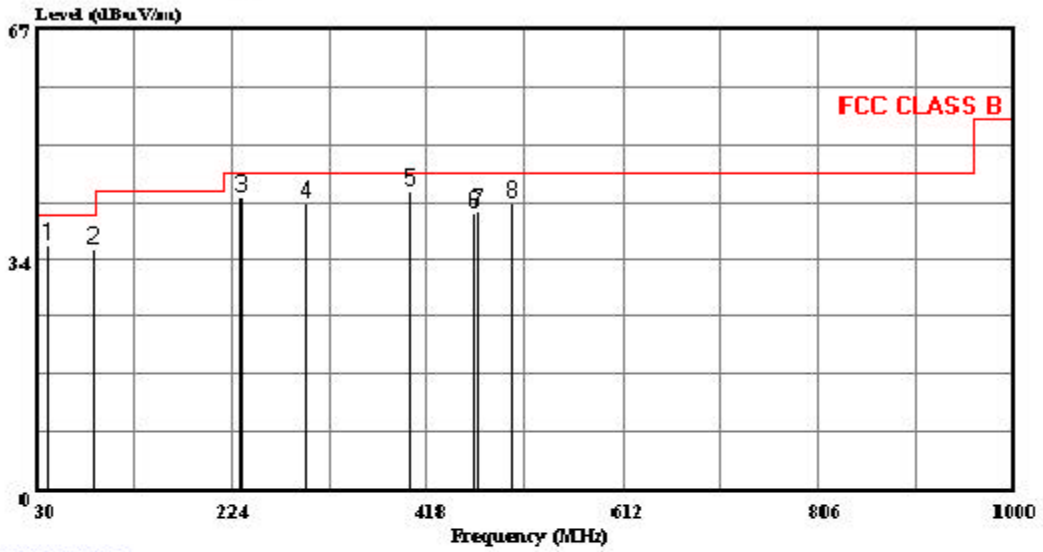
Page: 1

	Freq	Read Level	Probe Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	65.890	28.41	9.38	0.77	0.00	38.56	40.00	-1.44	Peak
2	90.140	33.05	8.03	0.91	0.00	41.99	43.50	-1.51	Peak
3	109.540	29.77	9.71	1.01	0.00	40.49	43.50	-3.01	Peak
4	133.790	30.34	9.40	1.11	0.00	40.85	43.50	-2.65	Peak
5	201.690	30.34	9.08	1.38	0.00	40.80	43.50	-2.70	Peak
6	298.690	28.34	12.05	1.73	0.00	42.12	46.00	-3.88	Peak
7	502.390	25.59	16.57	2.31	0.00	44.47	46.00	-1.53	Peak

SPURIOUS EMISSIONS BELOW 1 GHZ (WORST-CASE CONFIGURATION, VERTICAL)

COMPLIANCE Engineering Services, Inc.
561F Monterey Road
Morgan Hill, CA 95037, U.S.A.
Tel: (408) 463-0885
Fax:(408) 463-0888

Data#: 3 File#: 051203_aMode.EMI Date: 05-12-2003 Time: 10:00:55



(Audix ATC)

Trace: Ref Trace:

Condition: FCC CLASS B 3m CHAMBER 030306 1185 VERTICAL
Company : TOSHIBA AMERICA INFORMATION SYSTEMS, INC
EUT Description : 802.11a Combo Module
Model Number : PA3297U-1MPC (FCC ID: CJ6UPA3297WL
Test Configurtion: EUT is Plug in the extended card to LapT
Test Target : FCC Class B
Mode of Operation: Transmit worst Case
Project No : 03U1876-2

Page: 1

	Freq	Read Level	Probe Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	41.640	18.70	16.48	0.62	0.00	35.81	40.00	-4.19	Peak
2	87.230	26.68	7.58	0.86	0.00	35.12	40.00	-4.88	Peak
3	232.730	30.38	10.85	1.50	0.00	42.73	46.00	-3.27	Peak
4	298.690	27.85	12.05	1.73	0.00	41.63	46.00	-4.37	Peak
5	400.540	26.94	14.45	2.01	0.00	43.40	46.00	-2.60	Peak
6	463.590	22.33	15.84	2.22	0.00	40.39	46.00	-5.61	Peak
7	468.440	22.37	15.94	2.22	0.00	40.53	46.00	-5.47	Peak
8	502.390	22.87	16.57	2.31	0.00	41.75	46.00	-4.25	Peak

7.12. CO-LOCATED RADIATED EMISSIONS

TEST SETUP

The EUT is placed on the wooden table. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.4.

Both transmitters in the EUT are set to transmit simultaneously in a continuous mode.

TEST PROCEDURE

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.

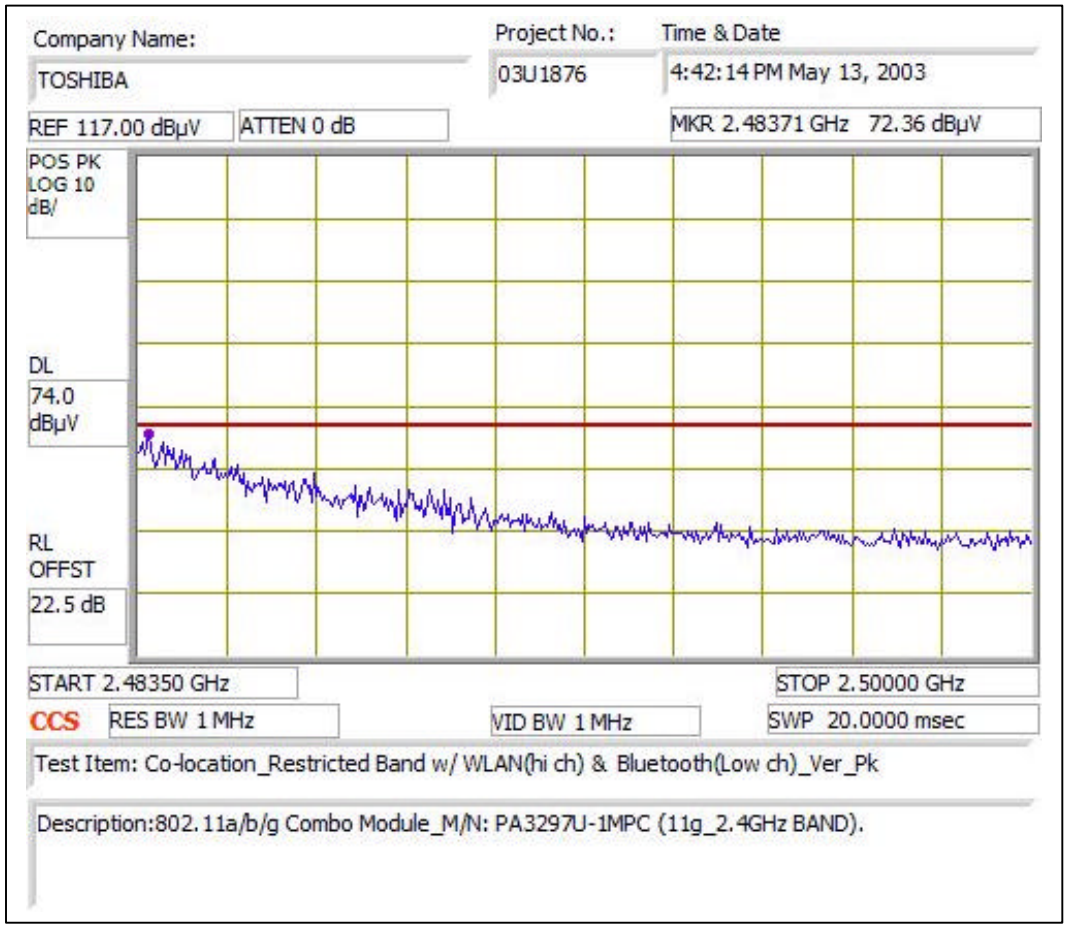
For measurements above 1 GHz within restricted bands, the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The frequency span is set small enough to easily differentiate between broadcast stations, intermittent ambient signals and EUT emissions. 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 suspected signal. Measurements were made with the antenna polarized in both the vertical and the horizontal positions.

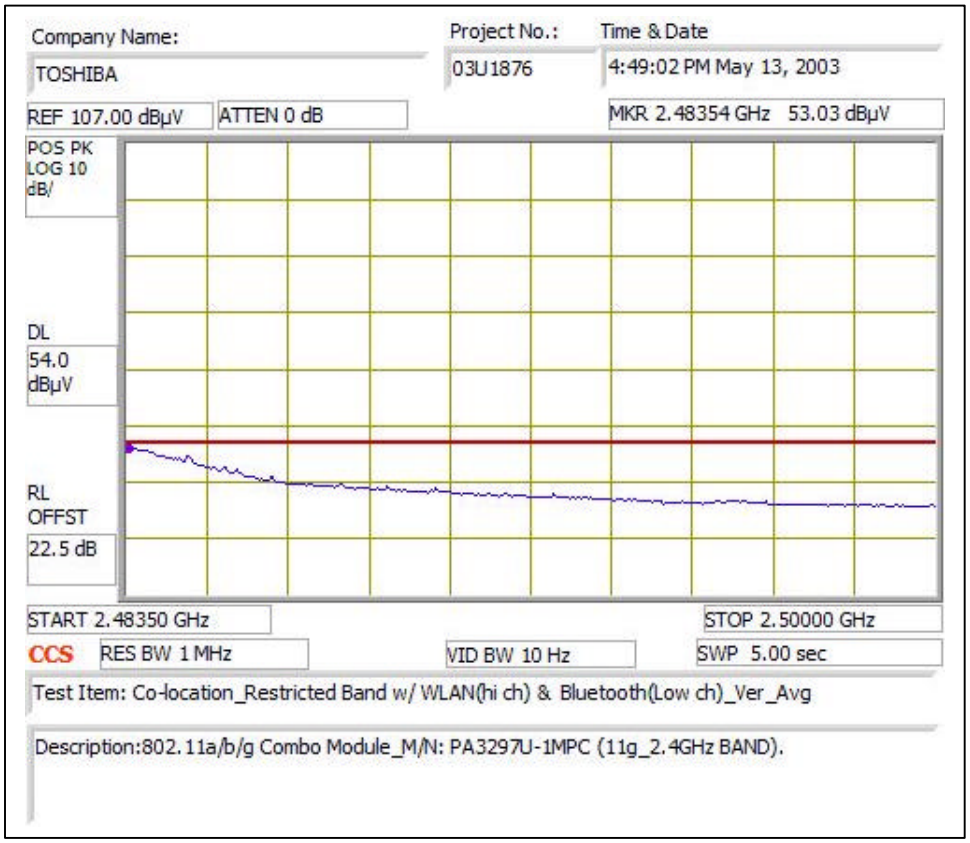
TEST RESULTS

Worst-case results are reported. No non-compliance noted:

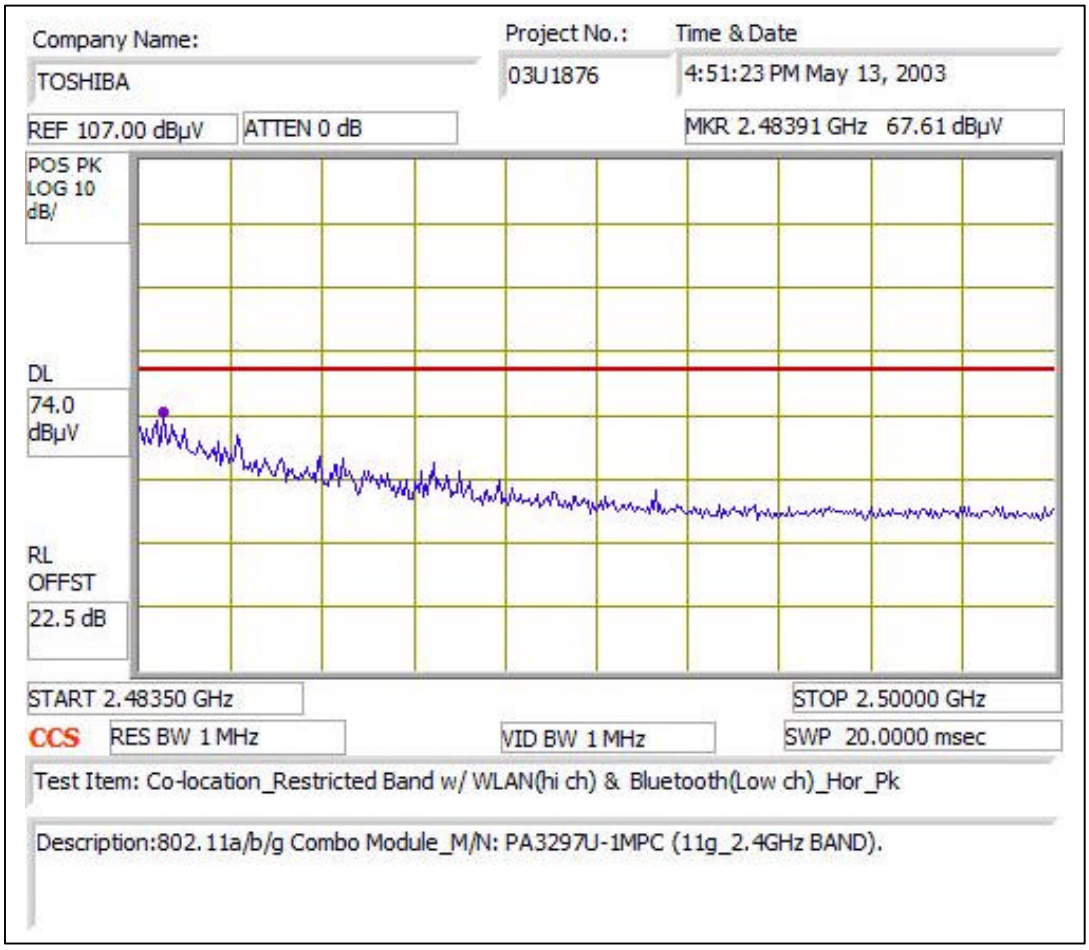
WORST CASE LOWER RESTRICTED BAND WITH CO-LOCATED BLUETOOTH AND WLAN OPERATING SIMULTANEOUSLY AT THEIR LOW FREQUENCY CHANNELS – VERTICAL PEAK



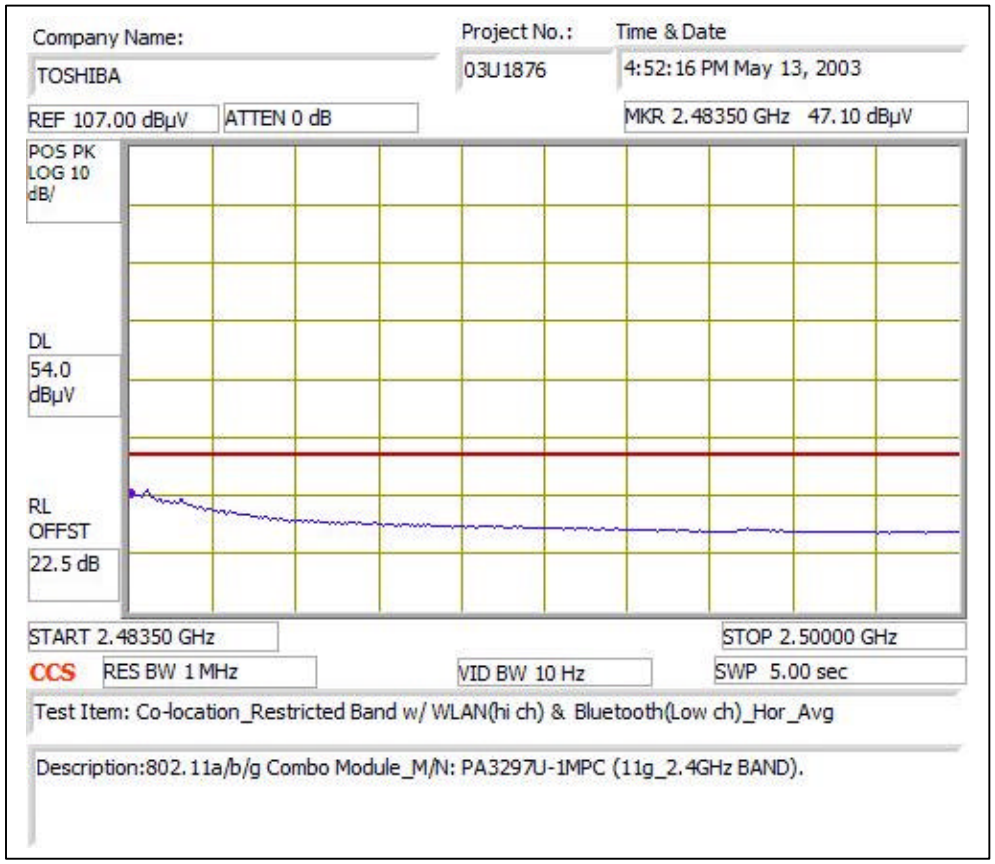
WORST CASE LOWER RESTRICTED BAND WITH CO-LOCATED BLUETOOTH AND WLAN OPERATING SIMULTANEOUSLY AT THEIR LOW FREQUENCY CHANNELS – VERTICAL AVERAGE



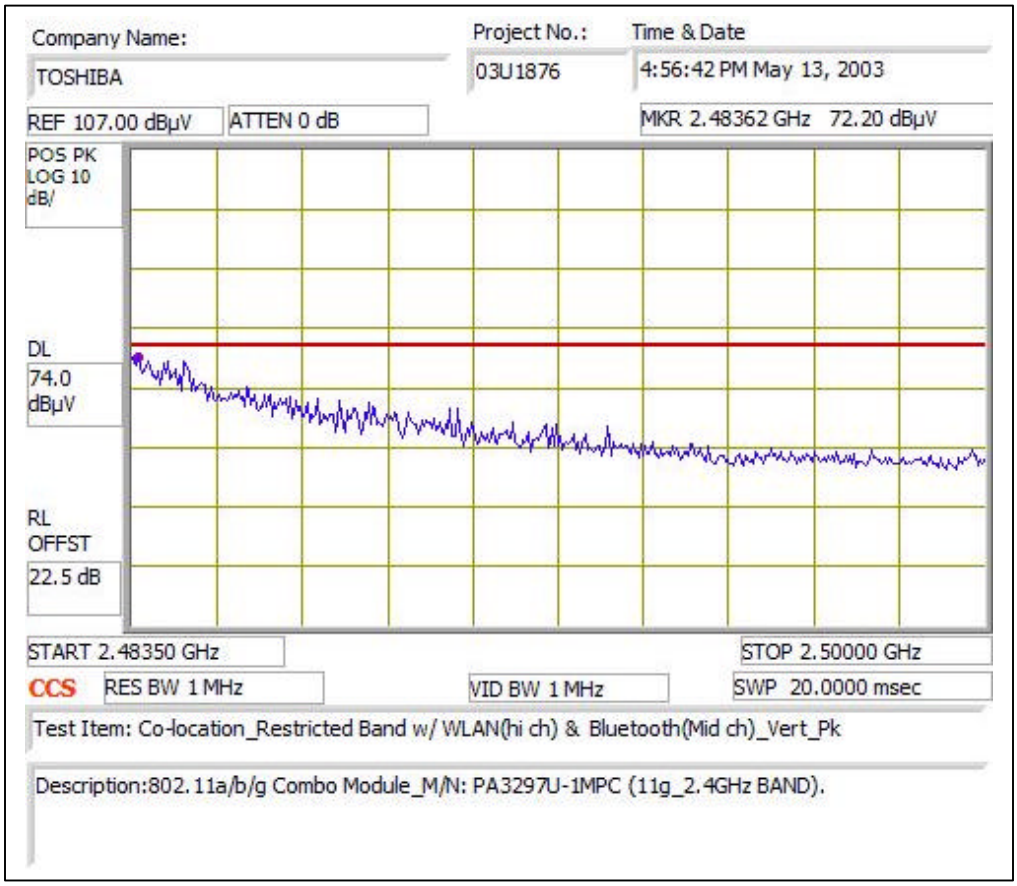
WORST CASE LOWER RESTRICTED BAND WITH CO-LOCATED BLUETOOTH AND WLAN OPERATING SIMULTANEOUSLY AT THEIR LOW FREQUENCY CHANNELS – HORIZONTAL PEAK



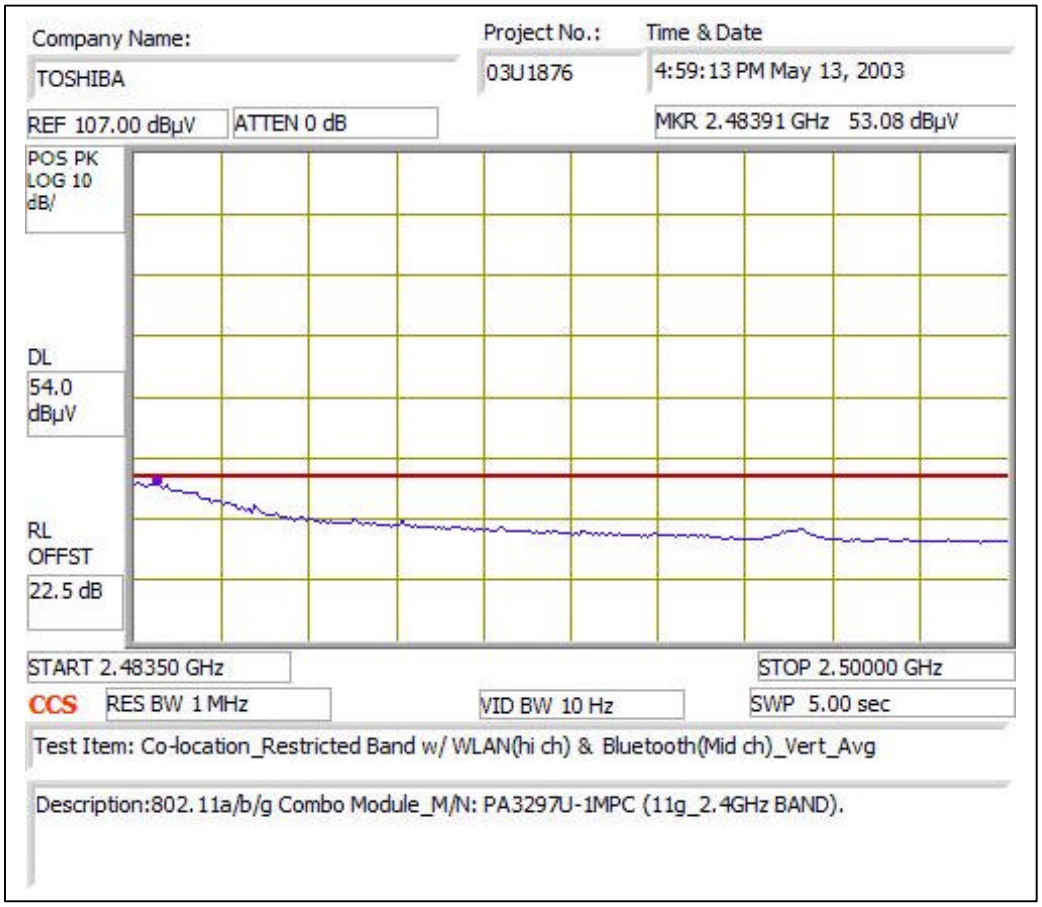
WORST CASE LOWER RESTRICTED BAND WITH CO-LOCATED BLUETOOTH AND WLAN OPERATING SIMULTANEOUSLY AT THEIR LOW FREQUENCY CHANNELS – HORIZONTAL AVERAGE



WORST CASE MIDDLE RESTRICTED BAND WITH CO-LOCATED BLUETOOTH AND WLAN OPERATING SIMULTANEOUSLY AT THEIR HIGH FREQUENCY CHANNELS – VERTICAL PEAK



WORST CASE MIDDLE RESTRICTED BAND WITH CO-LOCATED BLUETOOTH AND WLAN OPERATING SIMULTANEOUSLY AT THEIR HIGH FREQUENCY CHANNELS – VERTICAL AVERAGE



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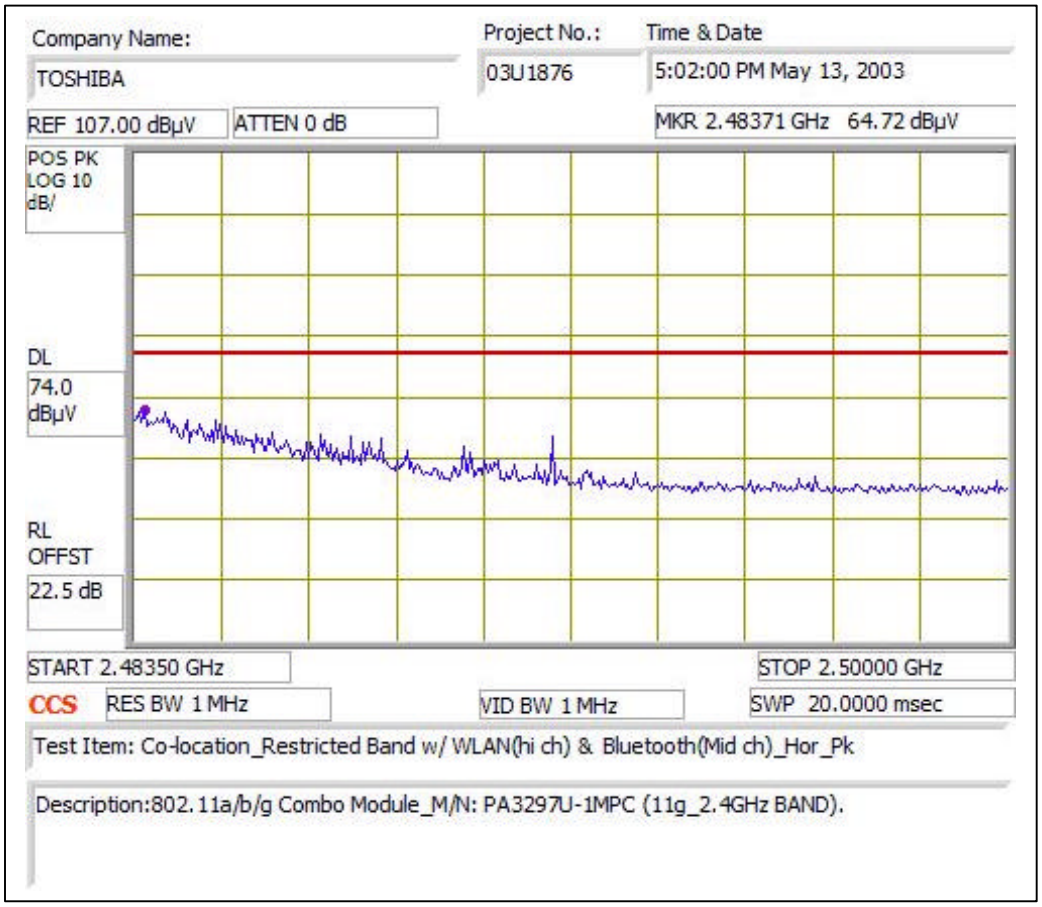
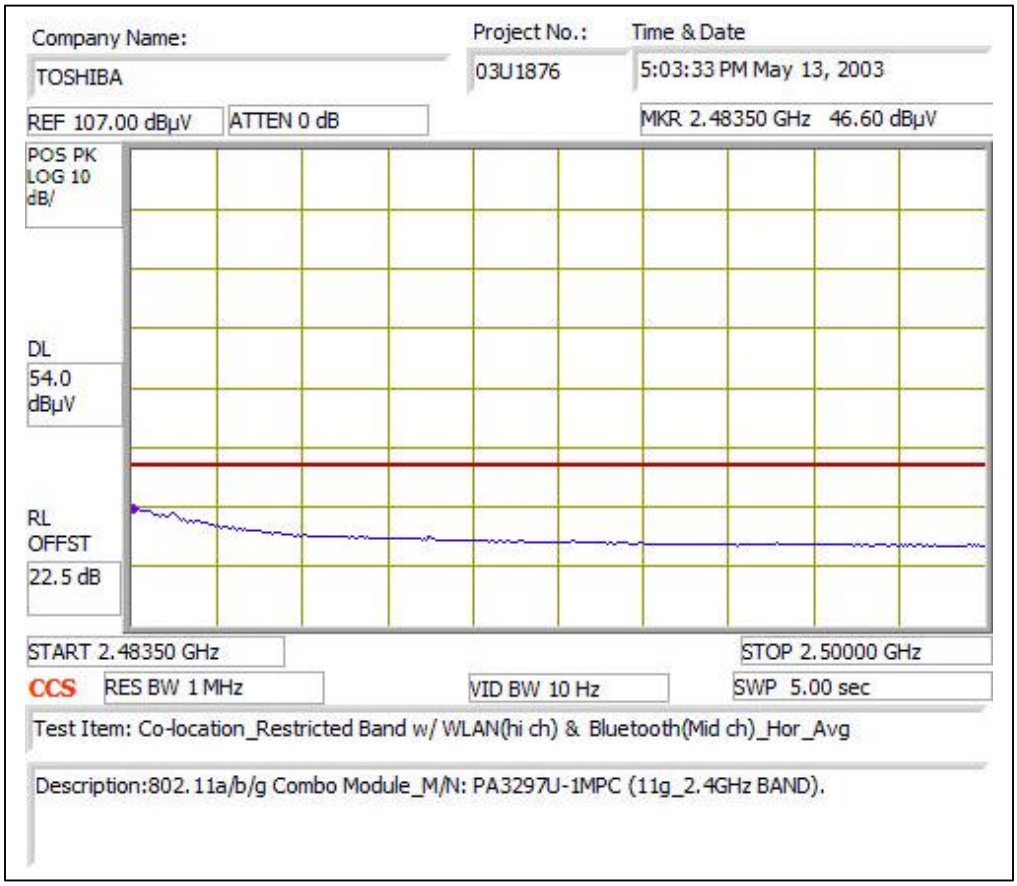
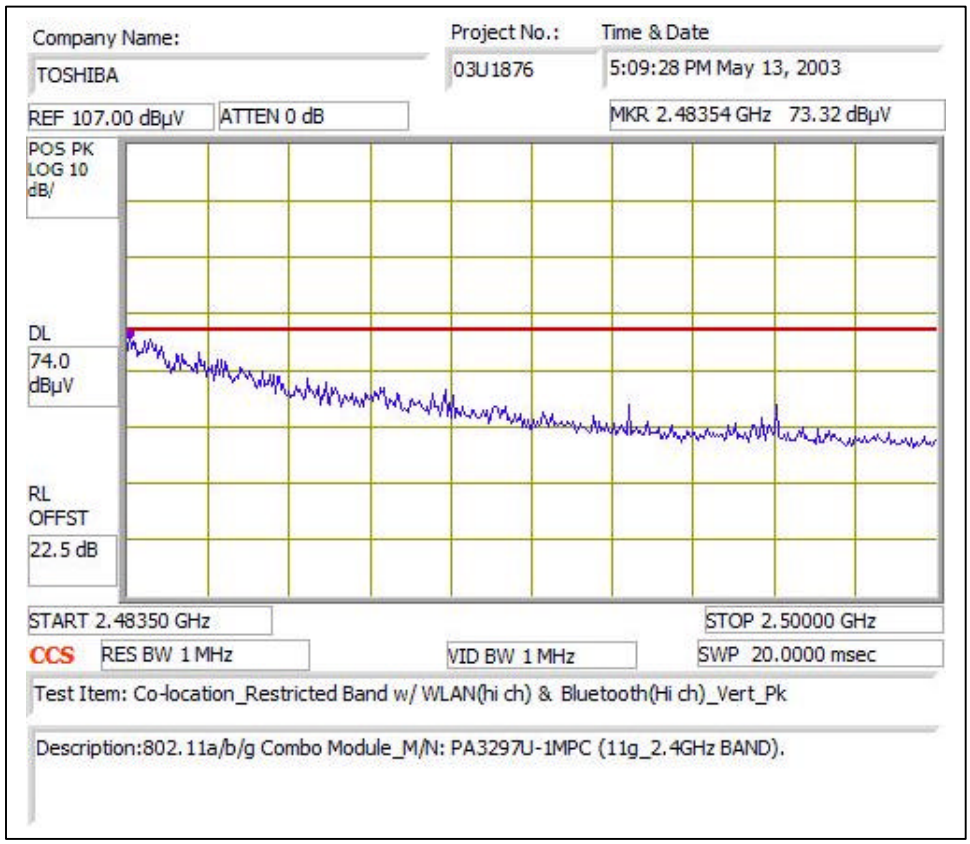


WORST CASE MIDDLE RESTRICTED BAND WITH CO-LOCATED BLUETOOTH AND WLAN OPERATING SIMULTANEOUSLY AT THEIR HIGH FREQUENCY CHANNELS – HORIZONTAL AVERAGE



WORST CASE UPPER RESTRICTED BAND WITH CO-LOCATED BLUETOOTH AND WLAN OPERATING SIMULTANEOUSLY AT THEIR HIGH FREQUENCY CHANNELS – VERTICAL -- PEAK



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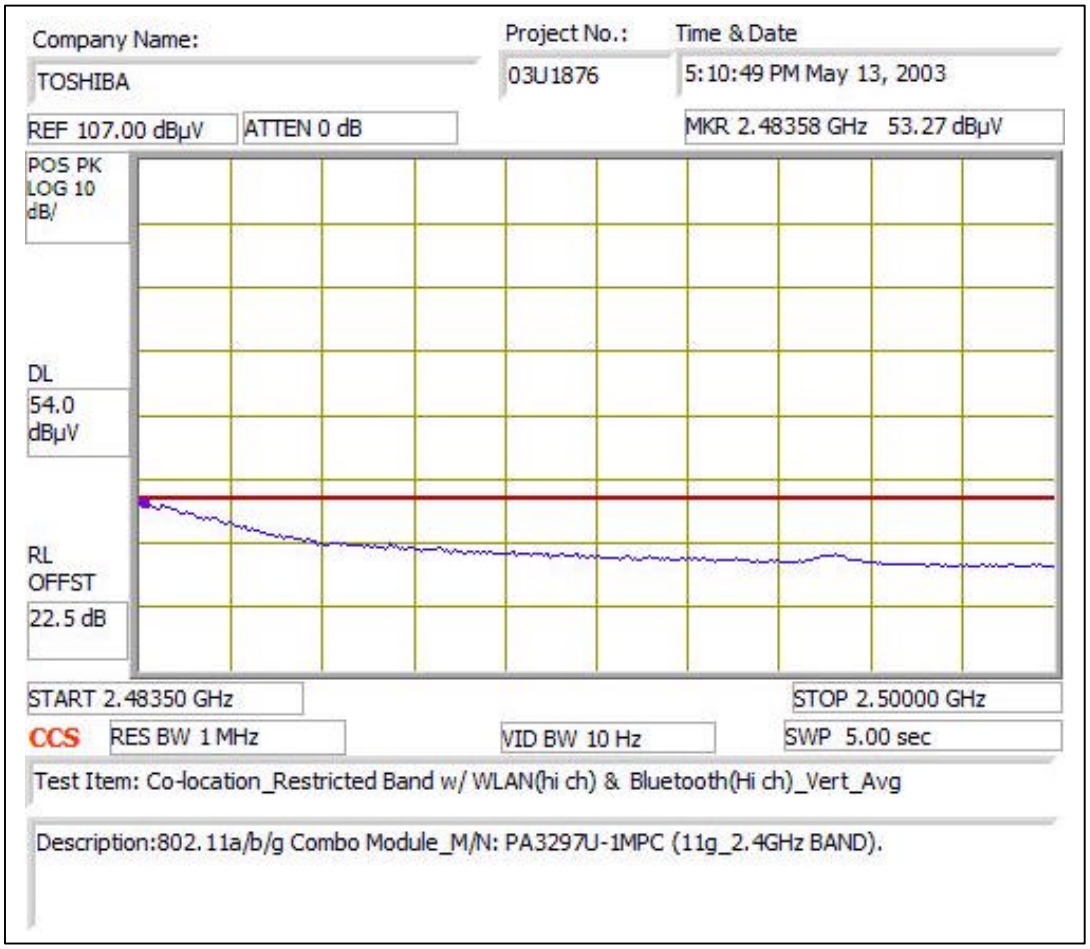

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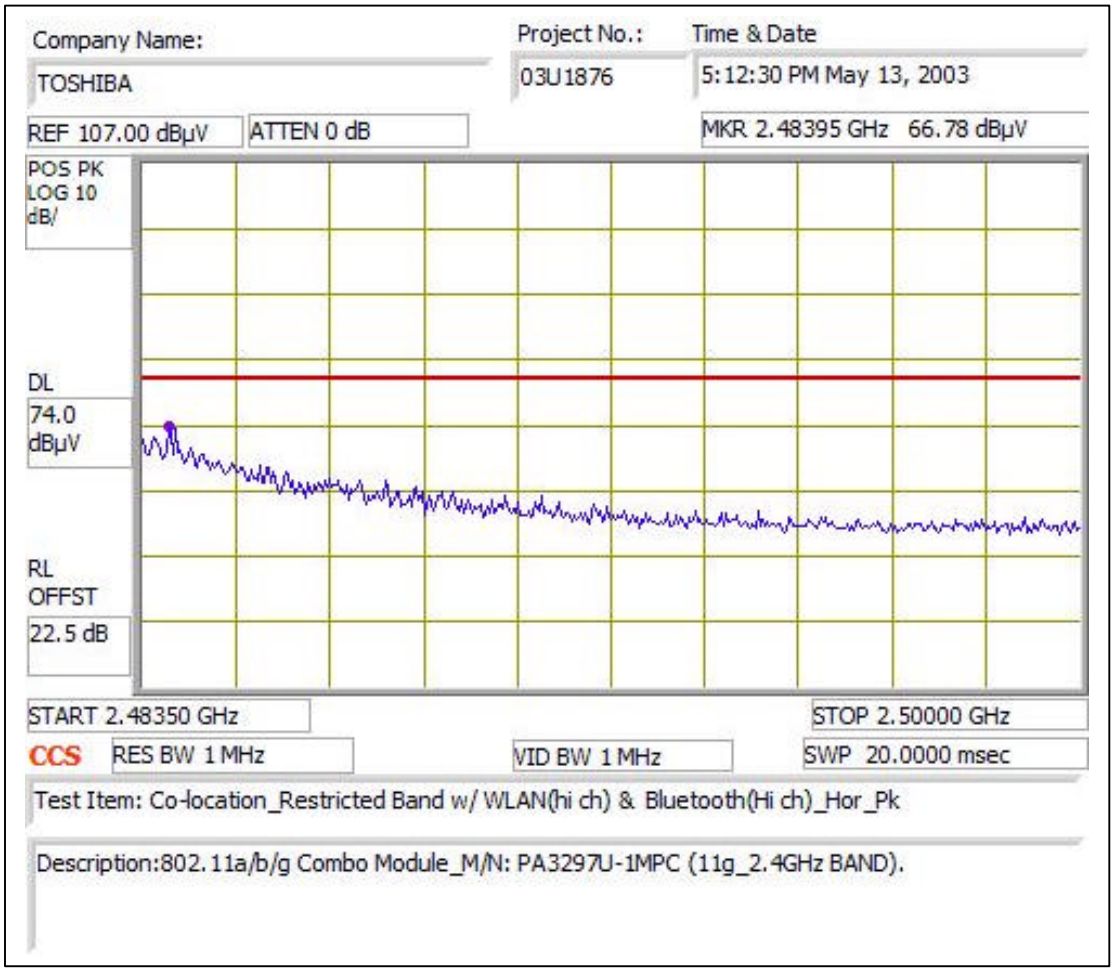
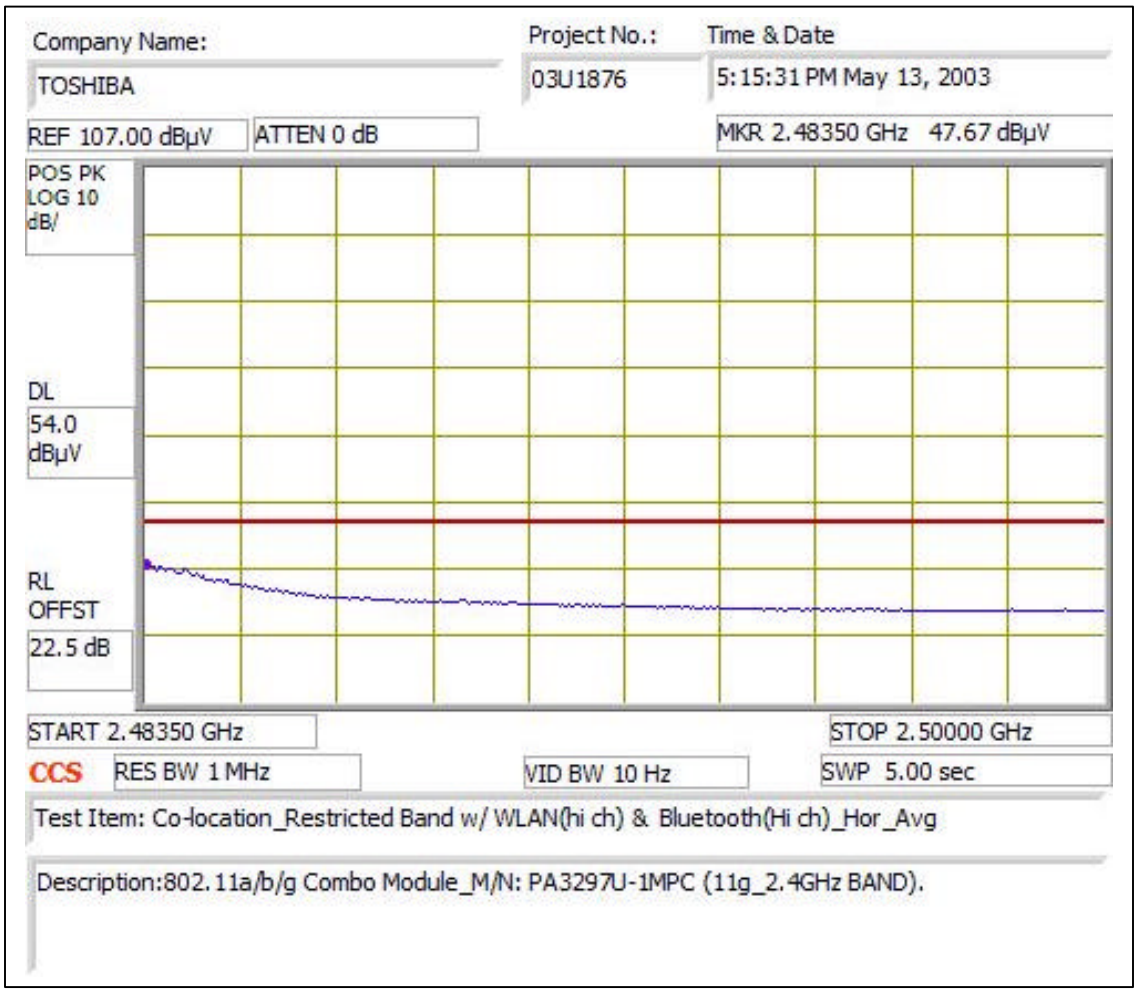


WORST CASE UPPER RESTRICTED BAND WITH CO-LOCATED BLUETOOTH AND WLAN OPERATING SIMULTANEOUSLY AT THEIR HIGH FREQUENCY CHANNELS – HORIZONTAL AVERAGE



WORST CASE HARMONICS AND SPURIOUS WITH CO-LOCATED BLUETOOTH AND WLAN

05/13/03 **High Frequency Measurement**
Compliance Certification Services, Morgan Hill Open Field Site

Test Engr: VIEN TRAN
Project #: 03U1867-2
Company: TOSHIBA
EUT Descrip.: 802.11a/b/g Combo Module
EUT M/N: M/N3297U-1MPC
Test Target: FCC 15.247 (Co-Location)
Mode Oper: Tx at H Channel (Worst case Harmonics and Spurious) _11g Hi channel 2.4GHz

Test Equipment:

EMCO Horn 1-18GHz	Pre-amplifer 1-26GHz	Spectrum Analyzer	Horn > 18GHz
T73; S/N: 6717 @3m	Miteq NSP2600-44	8593EM 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 WORST-CASE CH (2.462GHz) WITH BLUETOOTH LOW CH (2.402GHz)															
4.924	9.8	47.0	33.1	33.5	3.5	-36.1	0.0	1.0	48.8	34.9	74.0	54.0	-25.2	-19.1	V
7.386	9.8	46.7	32.3	36.0	4.4	-36.2	0.0	1.0	51.9	37.4	74.0	54.0	-22.1	-16.6	V
4.924	9.8	46.1	33.4	33.5	3.5	-36.1	0.0	1.0	47.9	35.2	74.0	54.0	-26.1	-18.8	H
7.386	9.8	45.6	33.0	36.0	4.4	-36.2	0.0	1.0	50.8	38.1	74.0	54.0	-23.2	-15.9	H
NO OTHER EMSSION FOUND AFTER 3rd HARMONIC															
WLAN WORST-CASE CH (2.462GHz) WITH BLUETOOTH MID CH (2.441GHz)															
4.924	9.8	45.4	32.5	33.5	3.5	-36.1	0.0	1.0	47.2	34.3	74.0	54.0	-26.8	-19.7	V
7.386	9.8	46.0	32.7	36.0	4.4	-36.2	0.0	1.0	51.1	37.8	74.0	54.0	-22.9	-16.2	V
4.924	9.8	43.2	30.7	33.5	3.5	-36.1	0.0	1.0	45.0	32.5	74.0	54.0	-29.0	-21.5	H
7.386	9.8	42.0	29.1	36.0	4.4	-36.2	0.0	1.0	47.2	34.2	74.0	54.0	-26.8	-19.8	H
NO OTHER EMSSION FOUND AFTER 3rd HARMONIC															
WLAN WORST-CASE CH (2.462GHz) WITH BLUETOOTH HIGH CH (2.480GHz)															
4.924	9.8	45.1	32.7	33.5	3.5	-36.1	0.0	1.0	46.9	34.5	74.0	54.0	-27.1	-19.5	V
7.386	9.8	45.9	33.1	36.0	4.4	-36.2	0.0	1.0	51.1	38.2	74.0	54.0	-22.9	-15.8	V
4.924	9.8	42.1	29.1	33.5	3.5	-36.1	0.0	1.0	43.9	30.9	74.0	54.0	-30.1	-23.1	H
7.386	9.8	43.8	32.0	36.0	4.4	-36.2	0.0	1.0	48.9	37.1	74.0	54.0	-25.1	-16.9	H
NO OTHER EMSSION FOUND AFTER 3rd HARMONIC															

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		

7.13. 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 µH/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 frequencies 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 wooden table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane on the floor.

The EUT is set to transmit in a continuous mode.

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

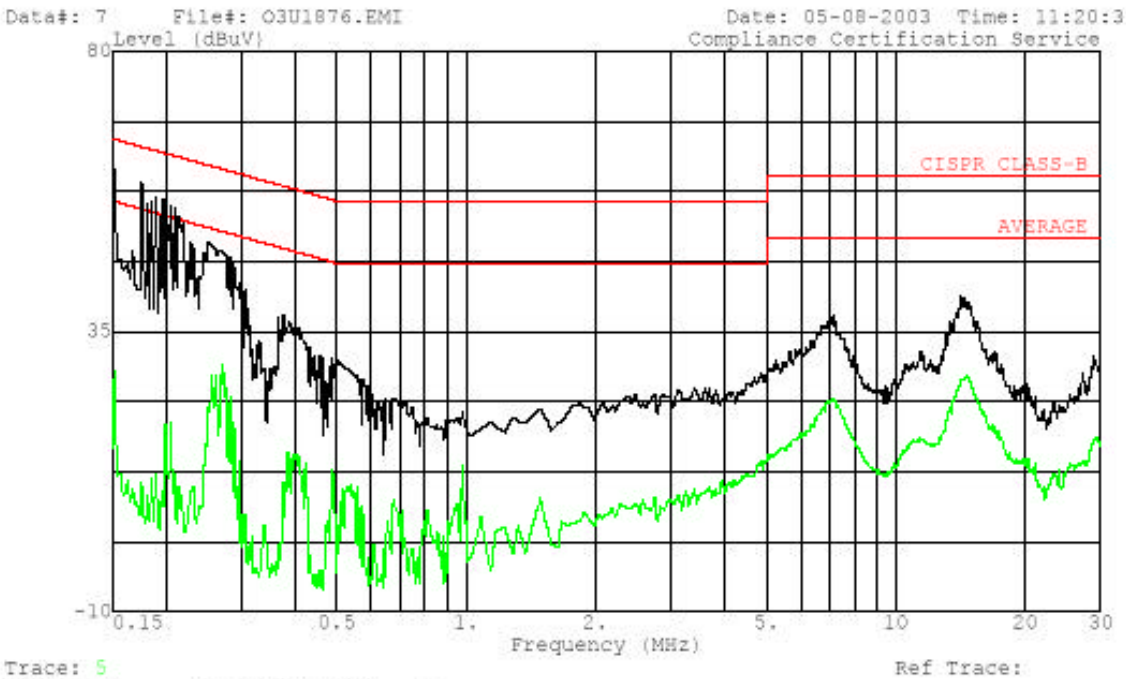
No non-compliance noted:

AC MAINS LINE CONDUCTED _ FCC

CONDUCTED EMISSIONS DATA (115VAC 60Hz)

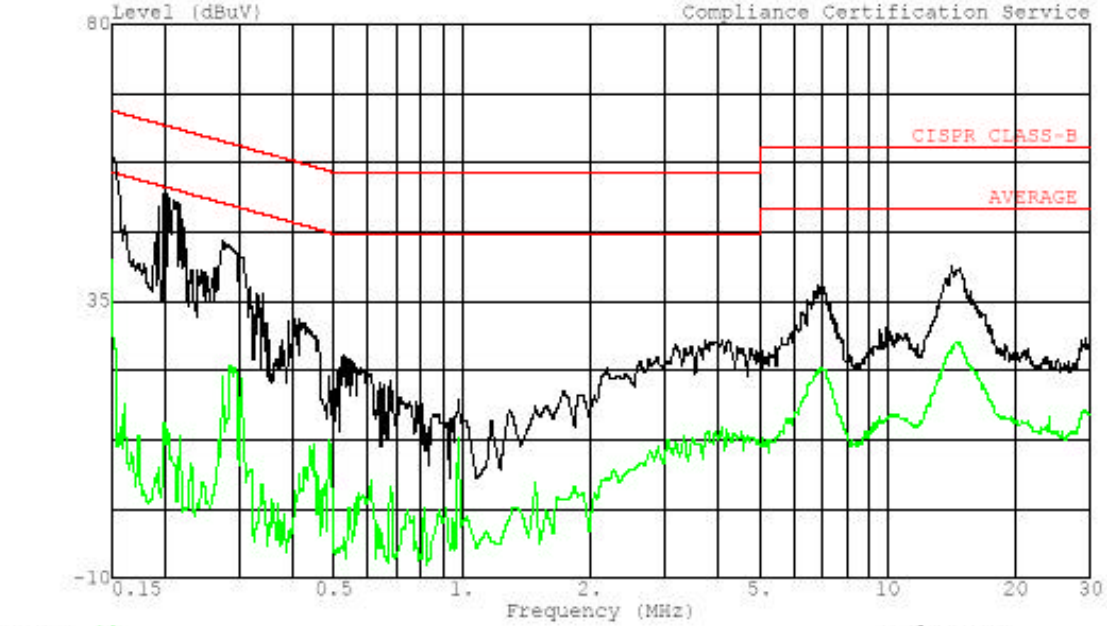
Freq.	Reading			Closs	Limit	EN_B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
0.15	61.18	--	29.00	0.00	65.94	55.94	-4.76	-26.94	L1
0.26	49.27	--	30.77	0.00	62.86	52.86	-13.59	-22.09	L1
14.36	40.20	--	24.80	0.00	60.00	50.00	-19.80	-25.20	L1
0.15	59.34	--	41.70	0.00	65.94	55.94	-6.60	-14.24	L2
0.26	45.26	--	24.45	0.00	62.86	52.86	-17.60	-28.41	L2
14.36	40.98	--	28.39	0.00	60.00	50.00	-19.02	-21.61	L2
6 Worst Data									

COMPLIANCE Engineering Services, Inc.
561F Monterey Road,
San Jose, CA 95037 USA
Tel: (408) 463-0885
Fax: (408) 463-0888



Trace: 5 Ref Trace:
Project # : 03U1876-1,2,3 _ L1
Test Engineer : Vien Tran
Company : Toshiba
EUT : 802.11a/b/g Combo Module
Model : PA3297U-1MPC
Configuration : EUT with external antenna
Target of Test: EN55022 Class B
: L1: Peak (Black), Average (Green)
: 115Vac, 60Hz

COMPLIANCE Engineering Services, Inc.
561F Monterey Road,
San Jose, CA 95037 USA
Tel: (408) 463-0885
Fax: (408) 463-0888



Trace: 12 Ref Trace:
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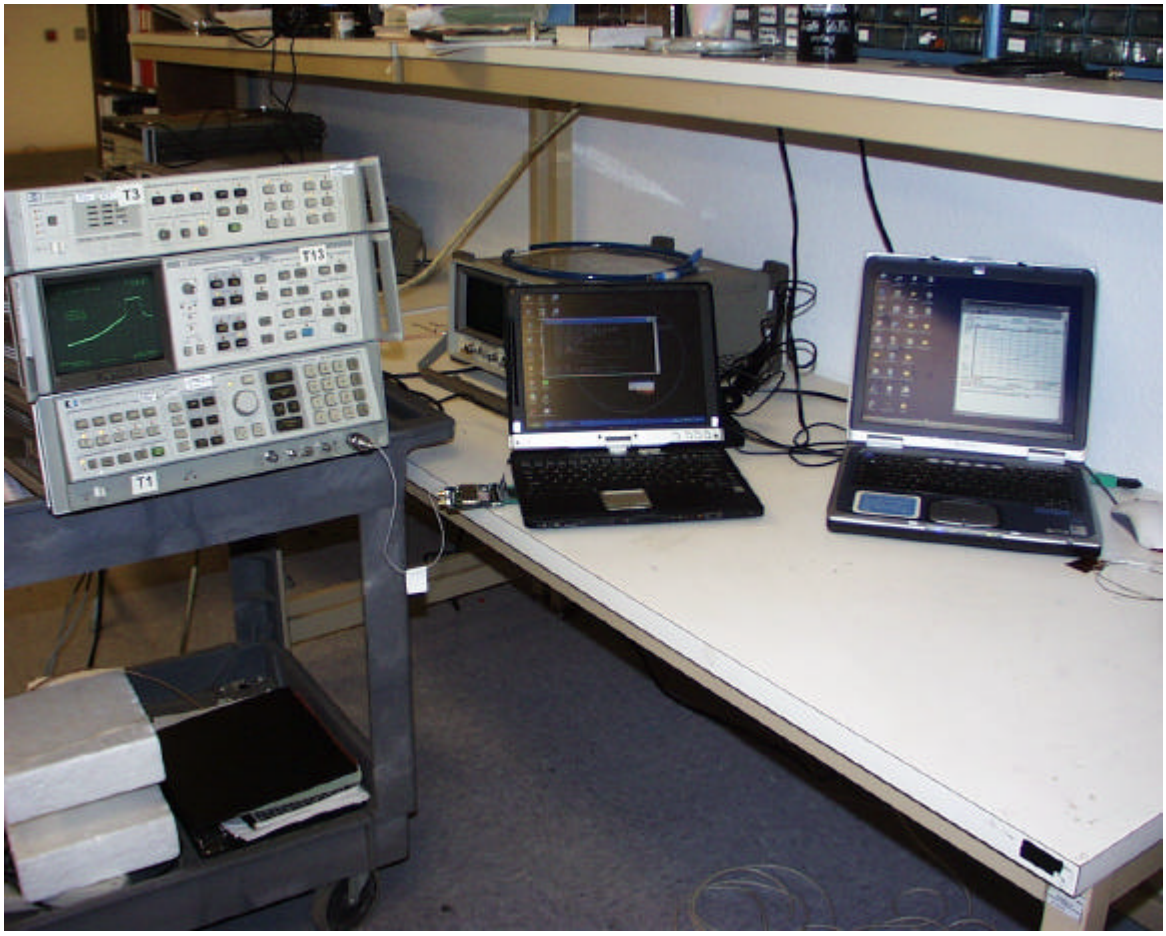
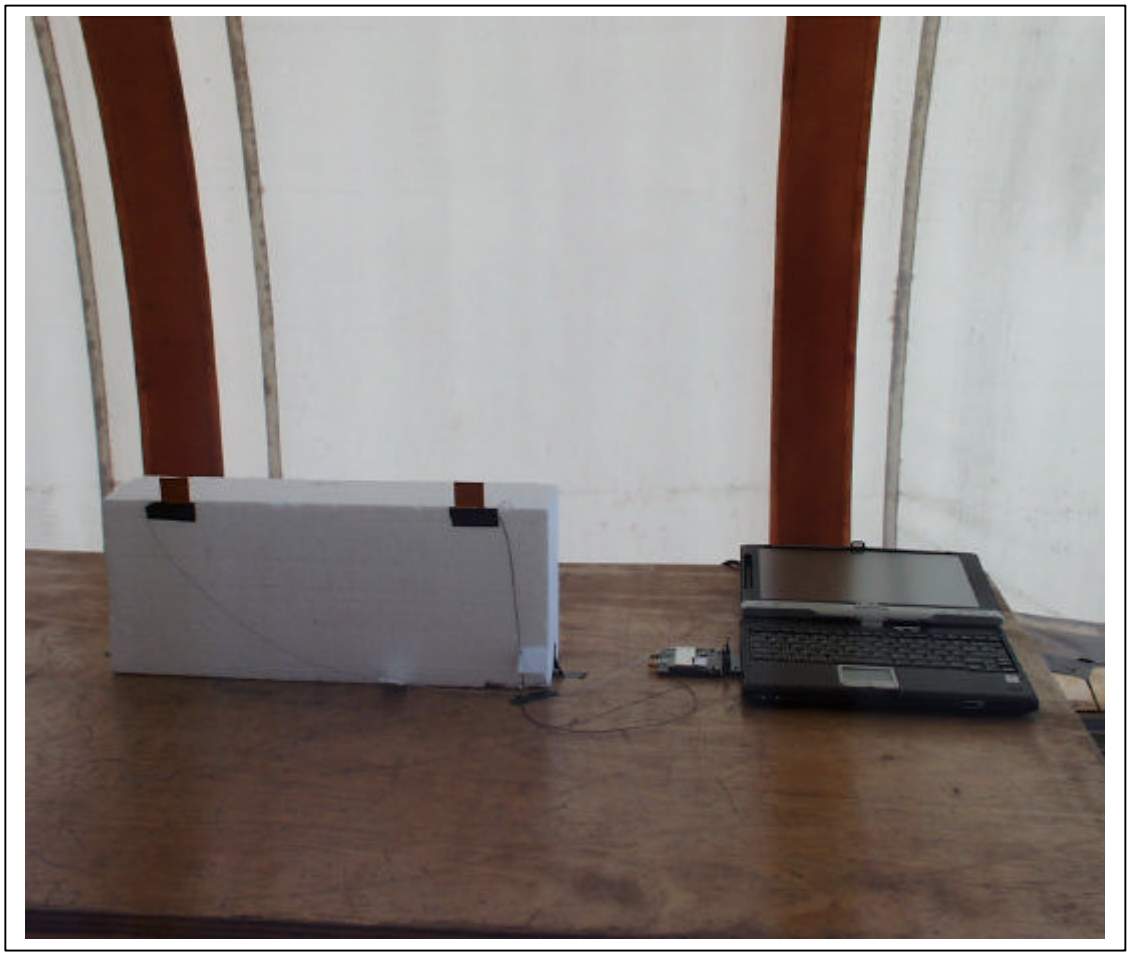
Test Engineer : Vien Tran
Company : Toshiba
EUT : 802.11a/b/g Combo Module
Model : PA3297U-1MPC
Configuration : EUT with external antenna
Target of Test: EN55022 CLASS B
: L2: Peak(Black), Average(Green)
: 115Vac, 60Hz

8.3. SETUP PHOTOS

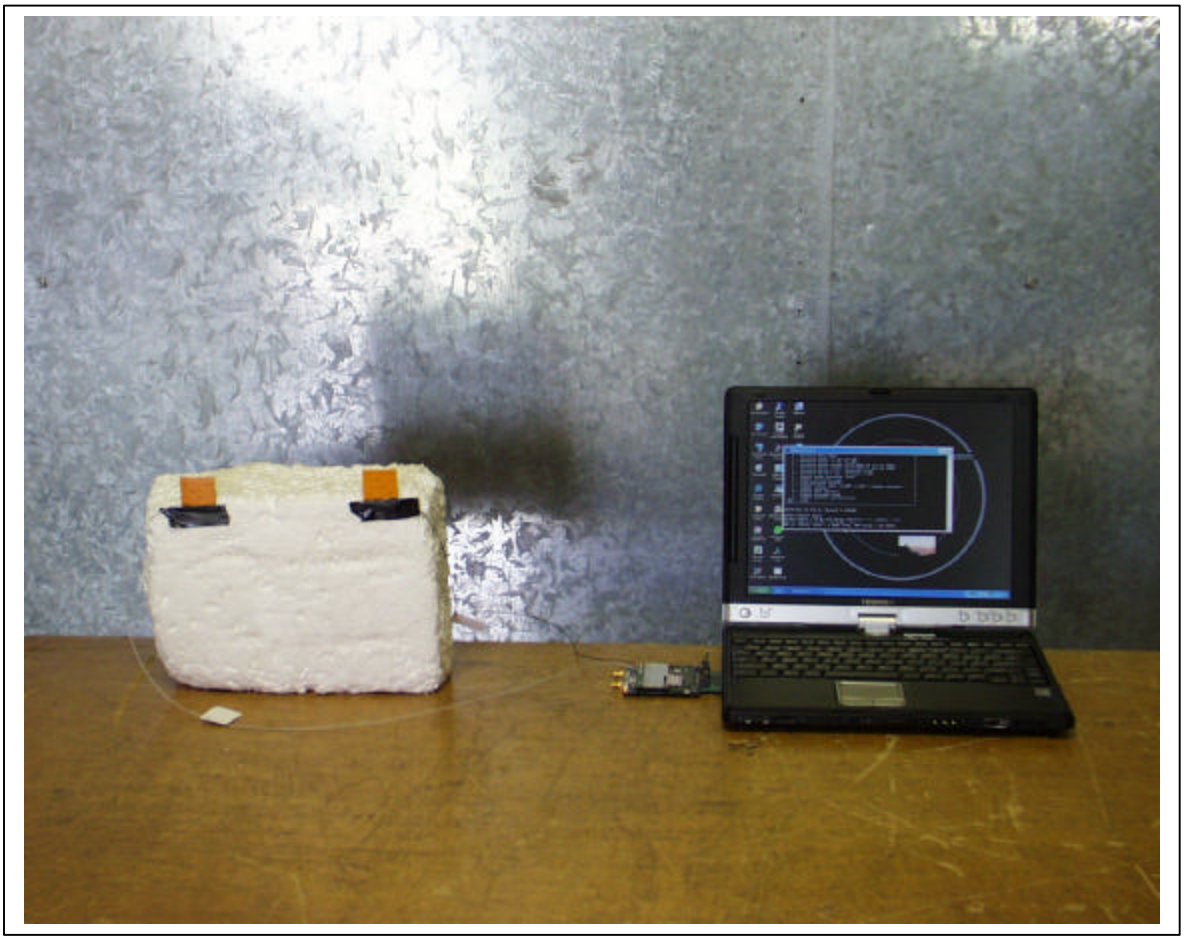
ANTENNA PORT CONDUCTED RF MEASUREMENT SETUP



RADIATED RF MEASUREMENT SETUP



POWERLINE CONDUCTED EMISSIONS MEASUREMENT SETUP



END OF REPORT