



**FCC CFR47 PART 15 SUBPART C
CLASS II PERMISSIVE CHANGE
TEST REPORT**

FOR

WIRELESS LAN MINI-PCI EXPRESS, 802.11a/b/g

MODEL NUMBER: PA3489U-1MPC

FCC ID: CJ6UPA3489WL

REPORT NUMBER: 06U10660-1

ISSUE DATE: OCTOBER 30, 2006

Prepared for
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Revision History

Rev.	Issue Date	Revisions	Revised By
--	10/30/06	Initial Issue	Thu

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: TOSHIBA CORPORATION
 DIGITAL MEDIA NETWORK COMPANY
 2-9 SUEHIRO-CHO, OME
 TOKYO, 198-8710, JAPAN

EUT DESCRIPTION: WIRELESS LAN MINI-PCI EXPRESS, 802.11a/b/g

MODEL: PA3489U-1MPC

SERIAL NUMBER: 76019908J

DATE TESTED: OCTOBER 20 - 24, 2006

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 15 SUBPART C	NO NON-COMPLIANCE NOTED

Compliance Certification Services, Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

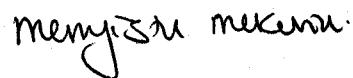
Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by Compliance Certification Services and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Compliance Certification Services will constitute fraud and shall nullify the document. No part of this report may be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any government agency.

Approved & Released For CCS By:



THU CHAN
 EMC SUPERVISOR
 COMPLIANCE CERTIFICATION SERVICES

Tested By:



MENGISTU MEKURIA
 EMC ENGINEER
 COMPLIANCE CERTIFICATION SERVICES

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4-2003, FCC CFR 47 Part 2 and FCC CFR 47 Part 15.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 561F Monterey Road, Morgan Hill, California, USA. The sites are constructed in conformance with the requirements of ANSI C63.4, ANSI C63.7 and CISPR Publication 22. All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <http://www.ccsemc.com>.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Radiated Emission, 30 to 200 MHz	+/- 3.3 dB
Radiated Emission, 200 to 1000 MHz	+4.5 / -2.9 dB
Radiated Emission, 1000 to 2000 MHz	+4.5 / -2.9 dB
Power Line Conducted Emission	+/- 2.9 dB

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is an 802.11a/b/g WLAN transceiver in Toshiba Protégé R400 Tablet

5.2. DESCRIPTION OF CLASS II CHANGE

The major changes filed under this application include:

Change #1: The EUT module is being used in a different host;

Change #2: Collocation with BT module;

Change #3: Collocation with WWAN module.

5.3. MAXIMUM OUTPUT POWER

The transmitter has a same conducted output power on the original grant of FCC ID: CJ6UPA3489WL.

5.4. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes two PIFA antennas, each with a maximum gain of 1.1dBi @ 2.4GHz and 1.3dBi @ 5.8GHz bands.

5.5. SOFTWARE AND FIRMWARE

The EUT driver software installed in the host support equipment during testing was CRTU, rev. 4.0.18.0000

The test utility software used during testing was CRTU, rev. 4.0.18.0000

5.6. WORST-CASE CONFIGURATION AND MODE

The mobile position and portable X, Y and Z positions have been investigated; the worst-case configuration has been evaluated at mobile position for both bands of @ 2.4GHz band and @ 5.8GHz

The worst-case channel is determined as the channel with the highest output power. The highest measured output powers were at 2437 MHz for 11b mode, 2437 MHz for 11g mode and 5825 MHz for 11a.

The worst-case data rate for these channels are determined to be 1 Mb/s for 11b mode, 6 Mb/s for 11g mode, and 6 Mb/s for 11a mode based on previous experience with WLAN product design architectures

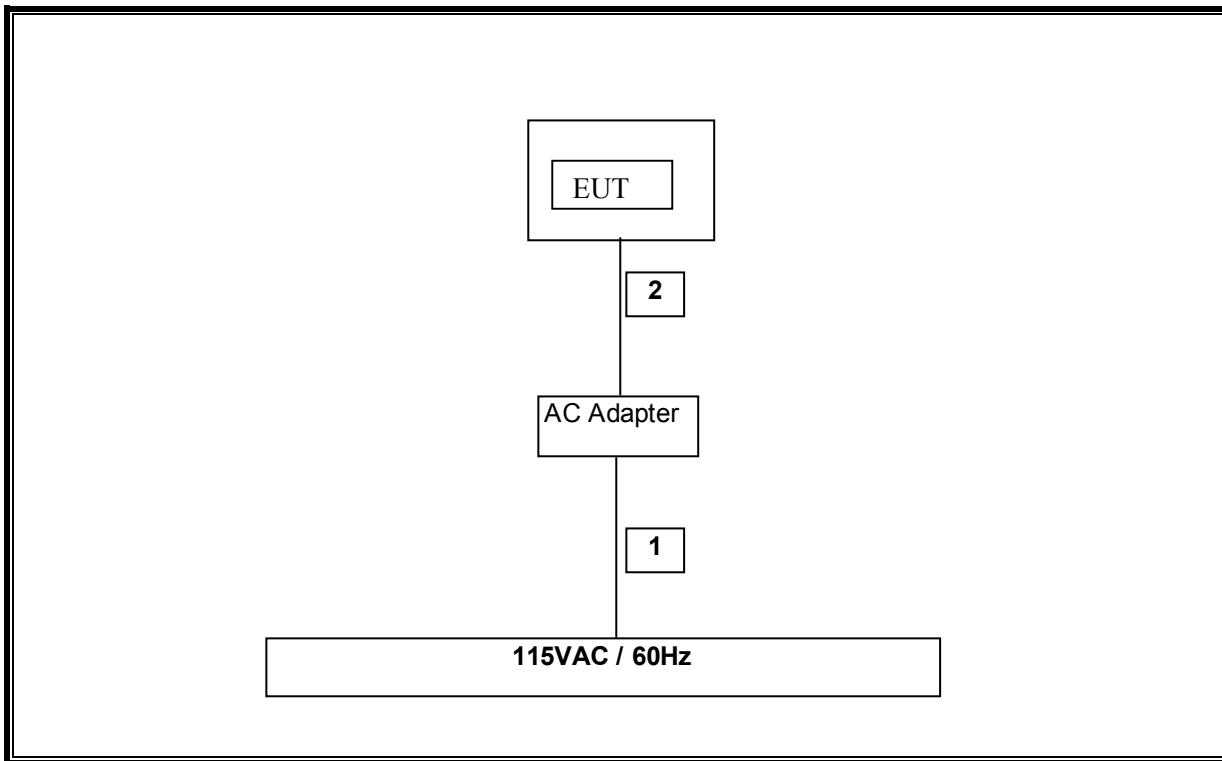
5.7. DESCRIPTION OF TEST SETUP

I/O CABLES

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	AC	1	US 115V	Un-shielded	2m	N/A
2	DC	1	DC	Un-shielded	2m	N/A

TEST SETUP

The EUT is installed in a host laptop computer. Test software exercised the radio card.

SETUP DIAGRAM FOR TESTS

6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	Cal Due
Antenna, Horn 1 ~ 18 GHz	EMCO	3115	2238	4/22/2007
Preamplifier, 1 ~ 26.5 GHz	Agilent / HP	8449B	3008A00561	10/3/2007
Antenna, Bilog 30 MHz ~ 2 Ghz	Sunol Sciences	JB1	A121003	9/3/2007
EMI Receiver, 9 kHz ~ 2.9 GHz	Agilent / HP	8542E	3942A00286	2/4/2007
RF Filter Section	Agilent / HP	85420E	3705A00256	2/4/2007
EMI Test Receiver	R & S	ESHS 20	827129/006	6/3/2007
LISN, 10 kHz ~ 30 MHz	FCC	LISN-50/250-25-2	2023	8/30/2007
Spectrum Analyzer 3 Hz ~ 44 GHz	Agilent / HP	E4446A	MY43360112	5/3/2007
Antenna, Horn 1 ~ 18 GHz	ETS	3117	29310	4/22/2007
Preamplifier, 1 ~ 26.5 GHz	Agilent / HP	8449B	3008A00561	10/3/2007
Spectrum Analyzer 3 Hz ~ 44 GHz	Agilent / HP	E4446A	MY43360112	5/3/2007
Antenna, Horn 1 ~ 18 GHz	EMCO	3115	2238	4/22/2007
7.6 Highpass Filter	Micro-Tronics	HPM13195	1	CNR

7. LIMITS AND RESULTS

7.1. AVERAGE POWER

AVERAGE POWER LIMIT

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

No non-compliance noted:

The cable assembly insertion loss of 11.5 dB (including 10 dB pad and 1dB cable) was entered as an offset in the power meter to allow for direct reading of power.

802.11b Mode

Channel	Frequency (MHz)	Power (dBm)
Low	2412	17.20
Middle	2437	18.40
High	2462	18.20

802.11g Mode

Channel	Frequency (MHz)	Power (dBm)
Low	2412	16.86
Middle	2437	17.80
High	2462	15.60

802.11a Mode

Channel	Frequency (MHz)	Average Power (dBm)
Low	5745	17.50
Middle	5785	17.80
High	5825	17.40

7.2. RADIATED EMISSIONS

7.2.1. TRANSMITTER RADIATED SPURIOUS 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
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 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 in the 2.4 GHz band.

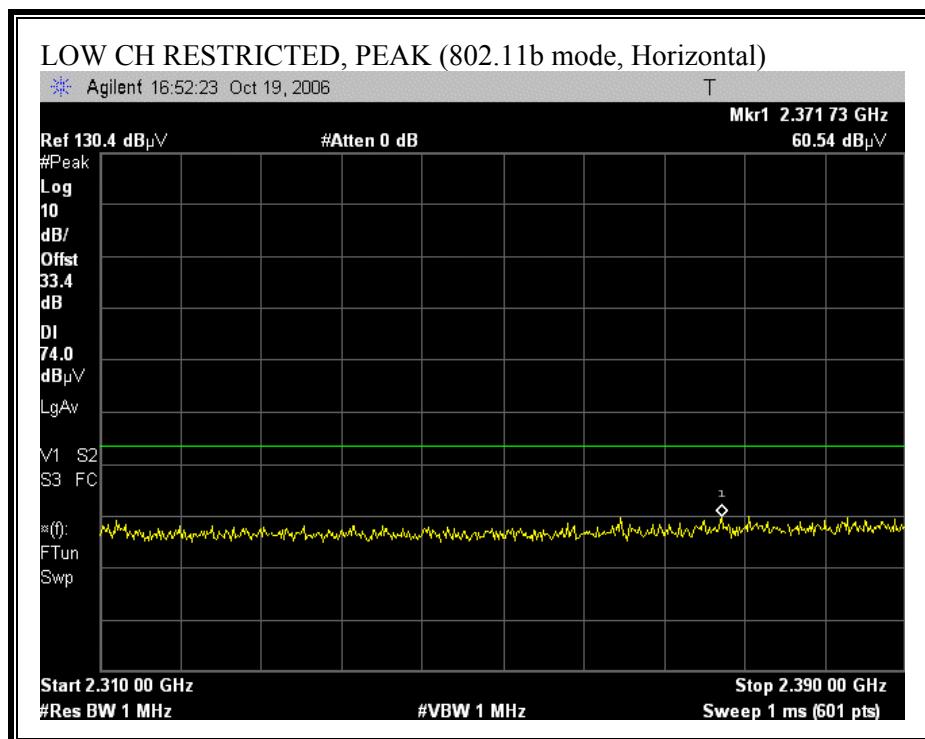
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each 5 GHz band.

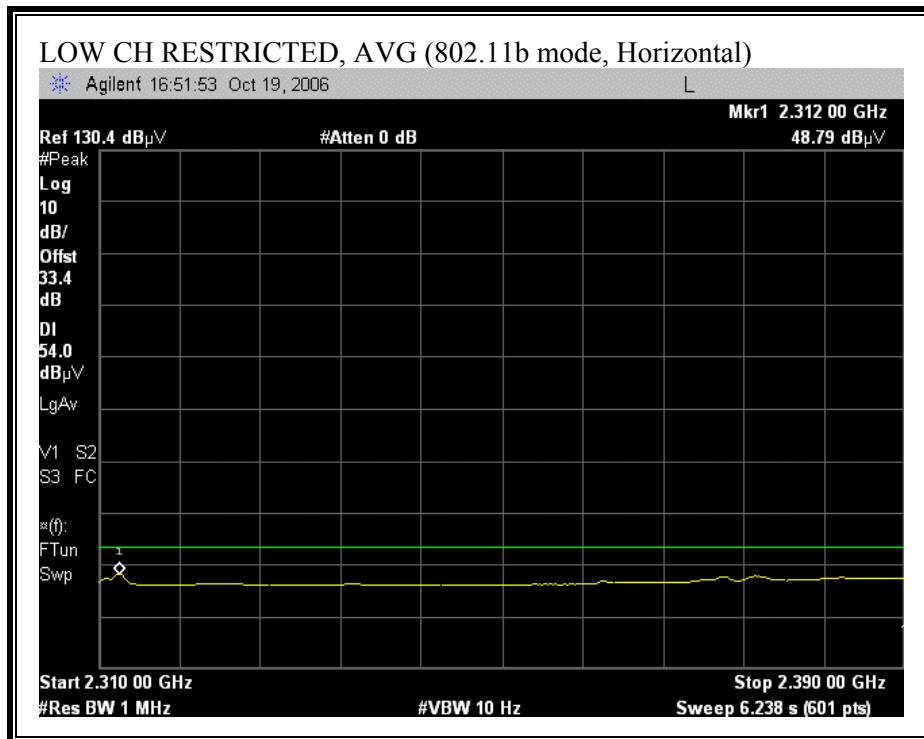
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

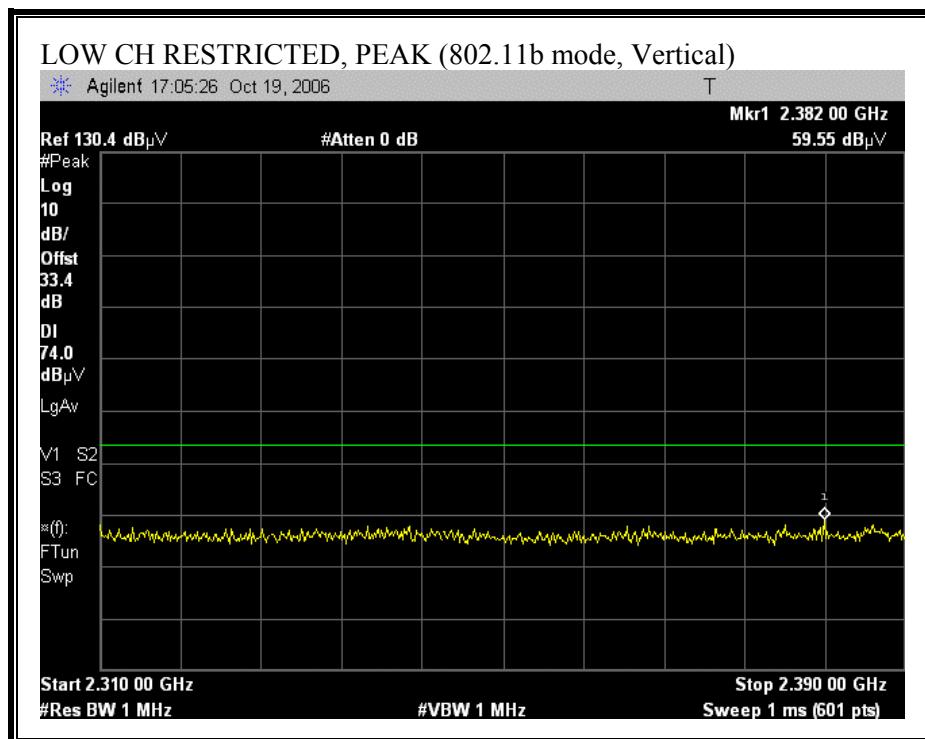
7.3. CHANNEL TESTS FOR THE 2400 TO 2483.5 MHz BAND

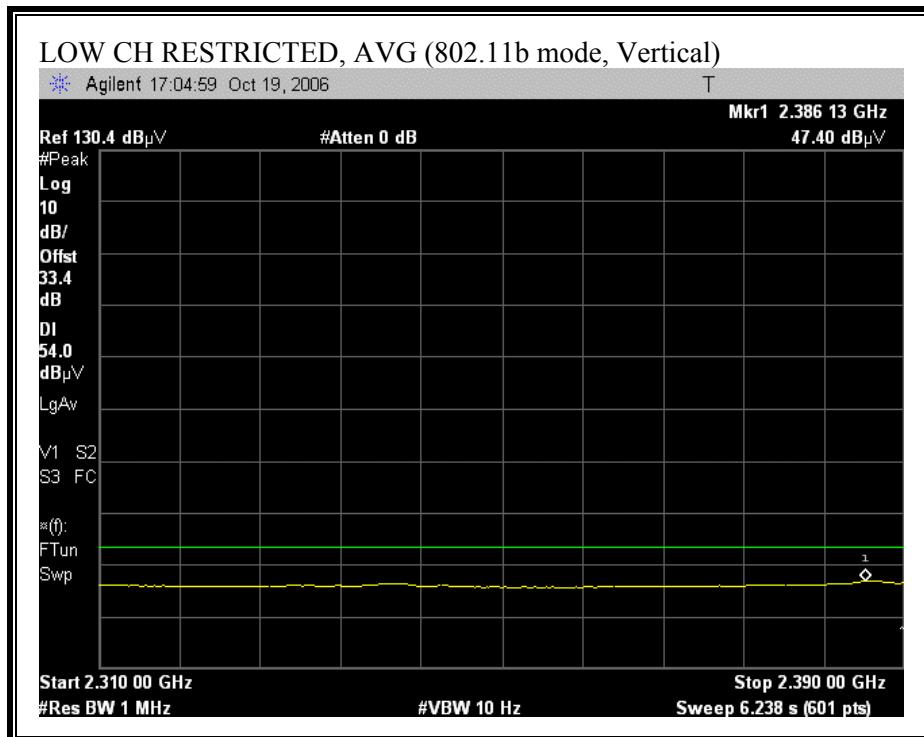
7.3.1. TRANSMITTER ABOVE 1 GHz FOR 2400 TO 2483.5 MHz BAND

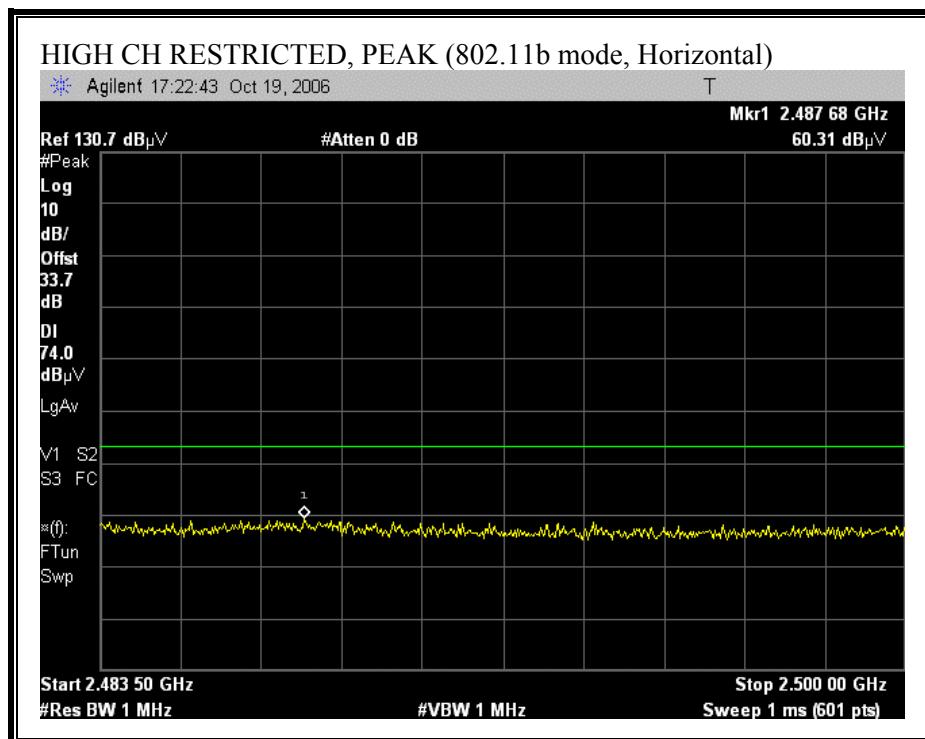
RESTRICTED BANDEDGE (b MODE, LOW CHANNEL, HORIZONTAL)

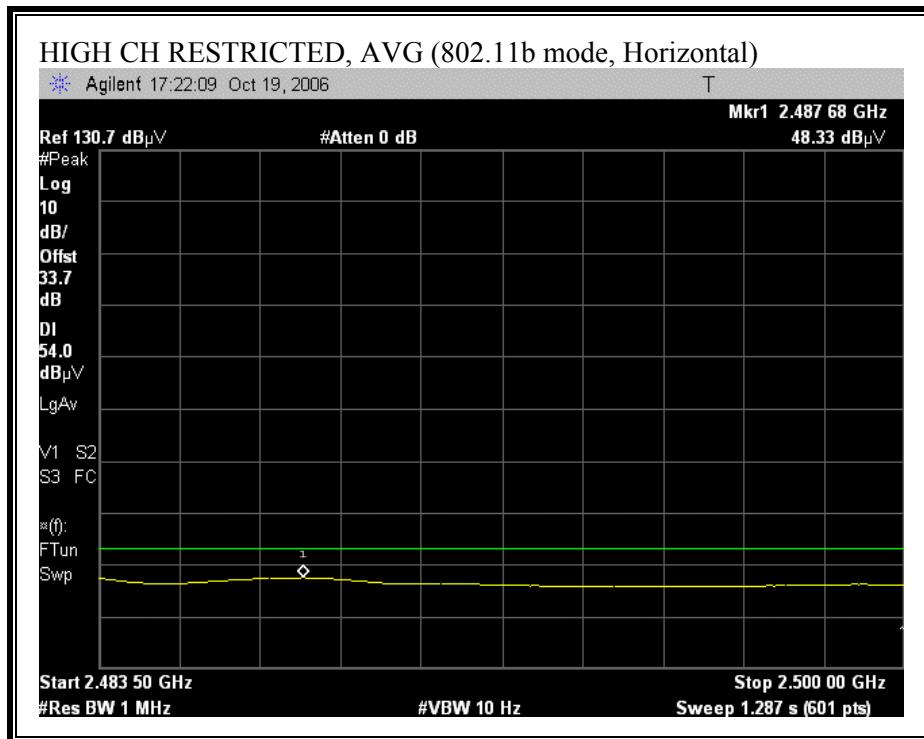


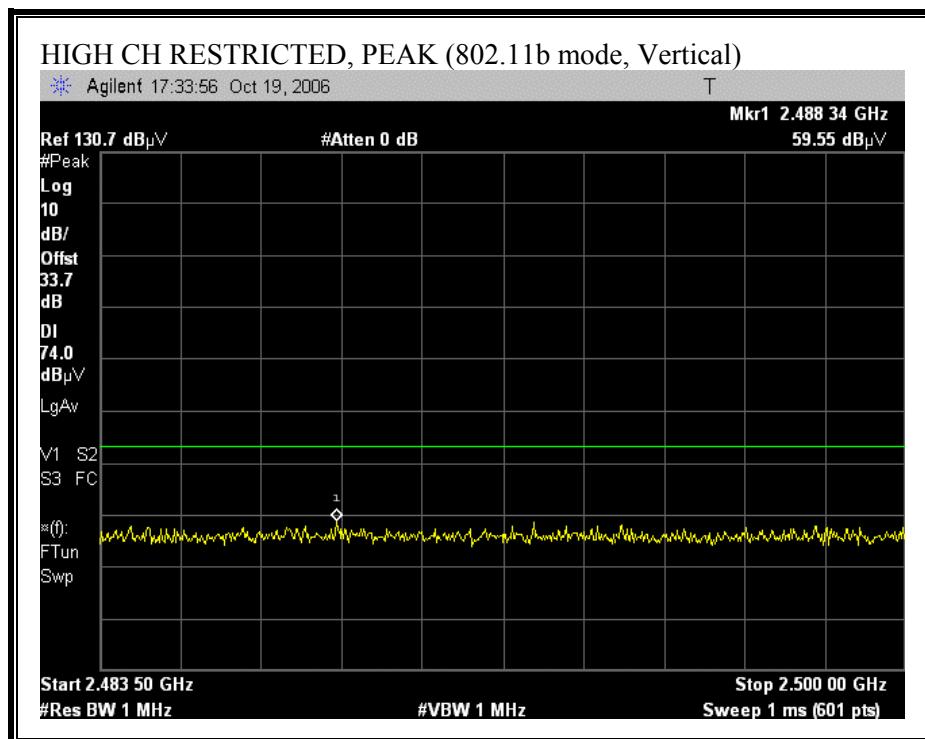


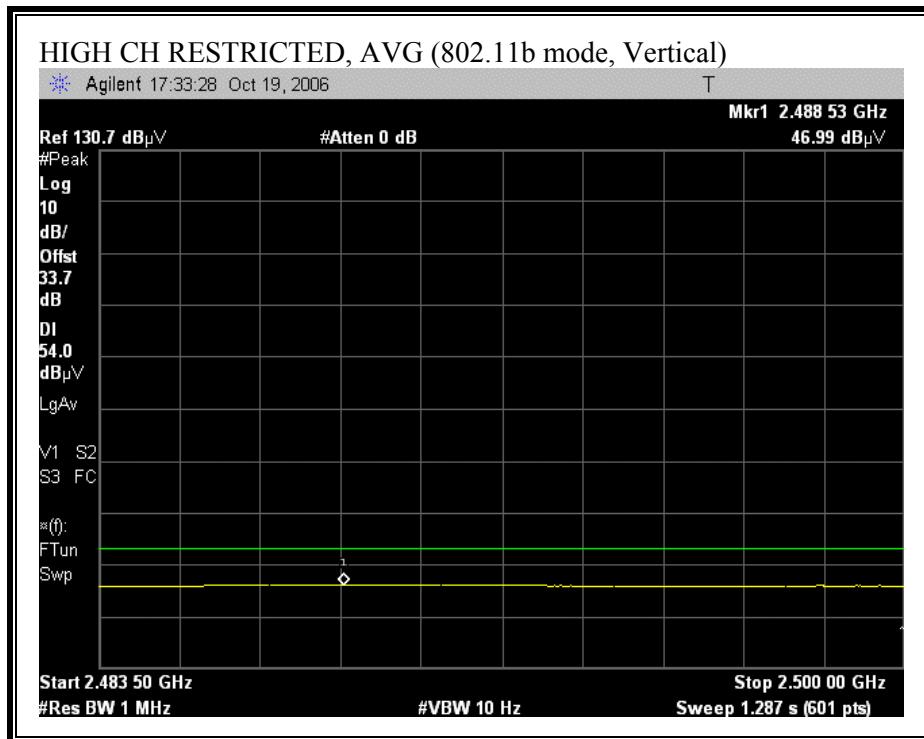
RESTRICTED BANDEDGE (b MODE, LOW CHANNEL, VERTICAL)



RESTRICTED BANDEDGE (b MODE, HIGH CHANNEL, HORIZONTAL)

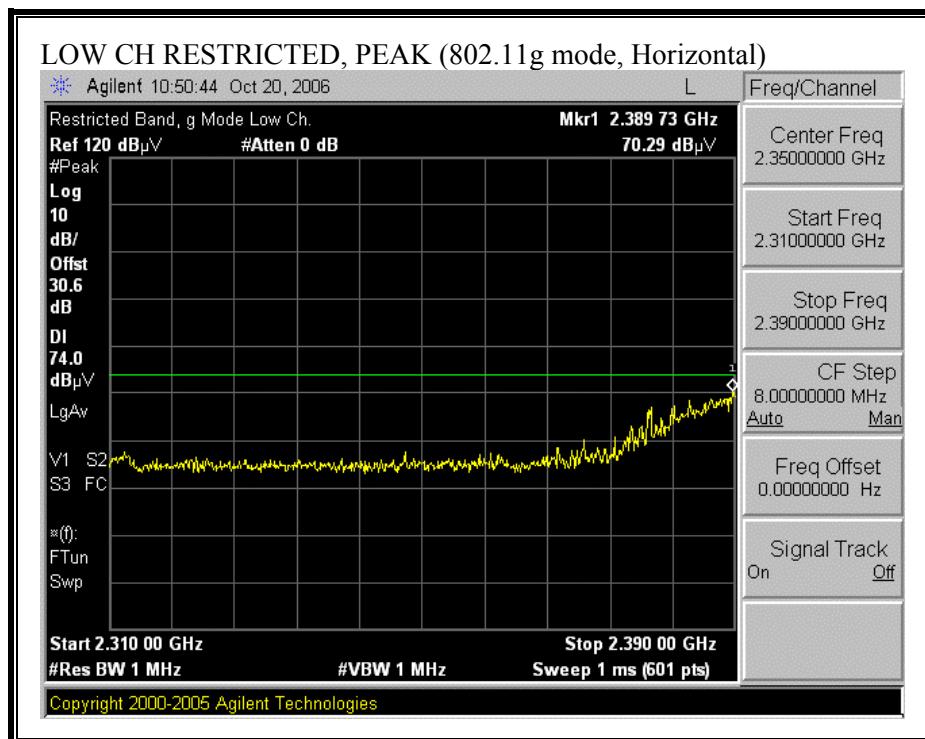


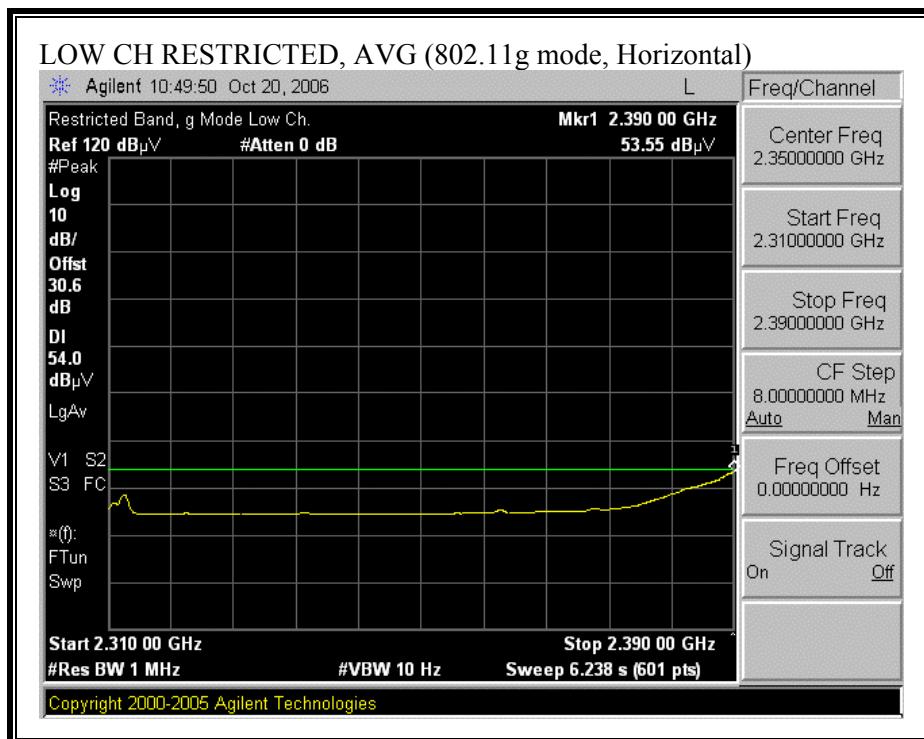
RESTRICTED BANDEDGE (b MODE, HIGH CHANNEL, VERTICAL)

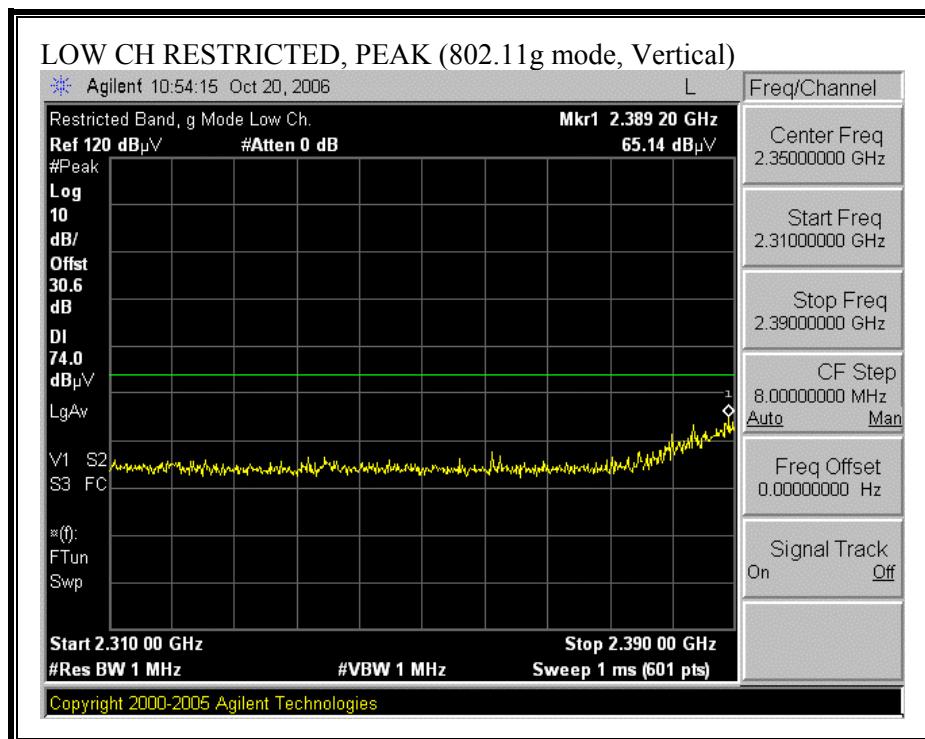


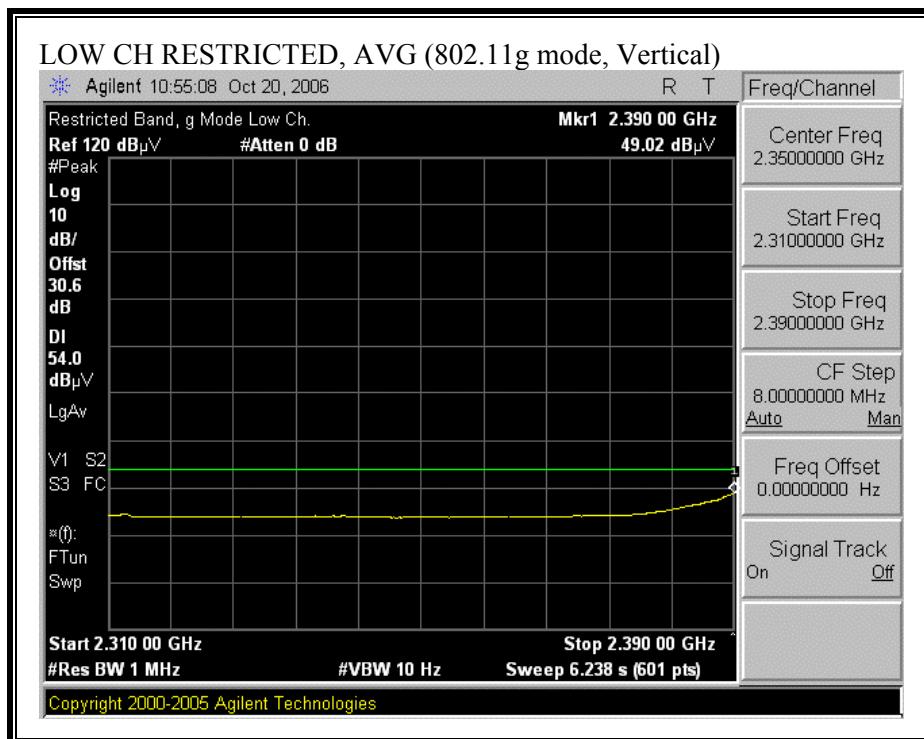
HARMONICS AND SPURIOUS EMISSIONS (b MODE)

High Frequency Measurement Compliance Certification Services, Morgan Hill Open Field Site															
Company:	Toshiba														
Project #:	06U10660														
Date:	10/19/06														
Test Engineer:	Frank Ibrahim														
Configuration:	EUT inside host Laptop PC, Mobile configuration (worst orientation)														
Mode:	TX ON in 11b mode														
Test Equipment:															
Horn 1-18GHz			Pre-amplifier 1-26GHz			Pre-amplifier 26-40GHz			Horn > 18GHz			Limit			
T120; S/N: 29310 @3m			T145 Agilent 3008A005t						T39; ARA 18-26GHz; S/N:1013			FCC 15.205			
Hi Frequency Cables –															
2 foot cable			3 foot cable			12 foot cable			HPF			Reject Filter			Peak Measurements RBW=VBW=1MHz
			Frank 177080001			Frank 187209001						R_001			Average Measurements RBW=1MHz ; VBW=10Hz
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low Channel (2412 MHz)															
4.824	3.0	46.3	36.8	33.7	4.0	-34.8	0.0	0.0	49.2	39.6	74	54	-24.8	-14.4	V
12.060	3.0	46.7	37.8	37.7	5.3	-32.4	0.0	0.0	57.3	48.4	74	54	-16.7	-5.6	V
1.080	3.0	53.6	49.5	28.2	2.1	-36.1	0.0	0.0	47.8	43.7	74	54	-26.2	-10.3	H
4.824	3.0	45.9	34.9	33.7	4.0	-34.8	0.0	0.0	48.7	37.7	74	54	-25.3	-16.3	H
12.060	3.0	47.3	39.0	37.7	5.3	-32.4	0.0	0.0	57.9	49.6	74	54	-16.1	-4.4	H
Mid Channel (2437 MHz)															
4.874	3.0	46.7	38.4	33.7	4.0	-34.9	0.0	0.0	49.6	41.3	74	54	-24.4	-12.7	V
12.185	3.0	48.1	41.0	37.7	5.4	-32.4	0.0	0.0	58.7	51.6	74	54	-15.3	-2.4	V
4.874	3.0	46.2	37.1	33.7	4.0	-34.9	0.0	0.0	49.1	40.0	74	54	-24.9	-14.0	H
12.185	3.0	49.0	41.2	37.7	5.4	-32.4	0.0	0.0	59.6	51.8	74	54	-14.4	-2.2	H
High Channel (2462 MHz)															
4.924	3.0	45.9	36.7	33.8	4.0	-34.9	0.0	0.0	48.9	39.7	74	54	-25.1	-14.3	V
7.386	3.0	47.6	38.4	35.2	4.6	-34.6	0.0	0.0	52.8	43.5	74	54	-21.2	-10.5	V
12.310	3.0	45.9	35.8	37.6	5.4	-32.4	0.0	0.0	56.5	46.4	74	54	-17.5	-7.6	V
4.924	3.0	47.0	37.8	33.8	4.0	-34.9	0.0	0.0	50.0	40.8	74	54	-24.0	-13.2	H
7.386	3.0	48.8	36.4	35.2	4.6	-34.6	0.0	0.0	54.0	41.6	74	54	-20.0	-12.4	H
12.310	3.0	48.8	41.0	37.6	5.4	-32.4	0.0	0.0	59.4	51.6	74	54	-14.6	-2.4	H
Note: EUT was scanned from 1 GHz to 18 GHz, no other emissions were detected.															
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										

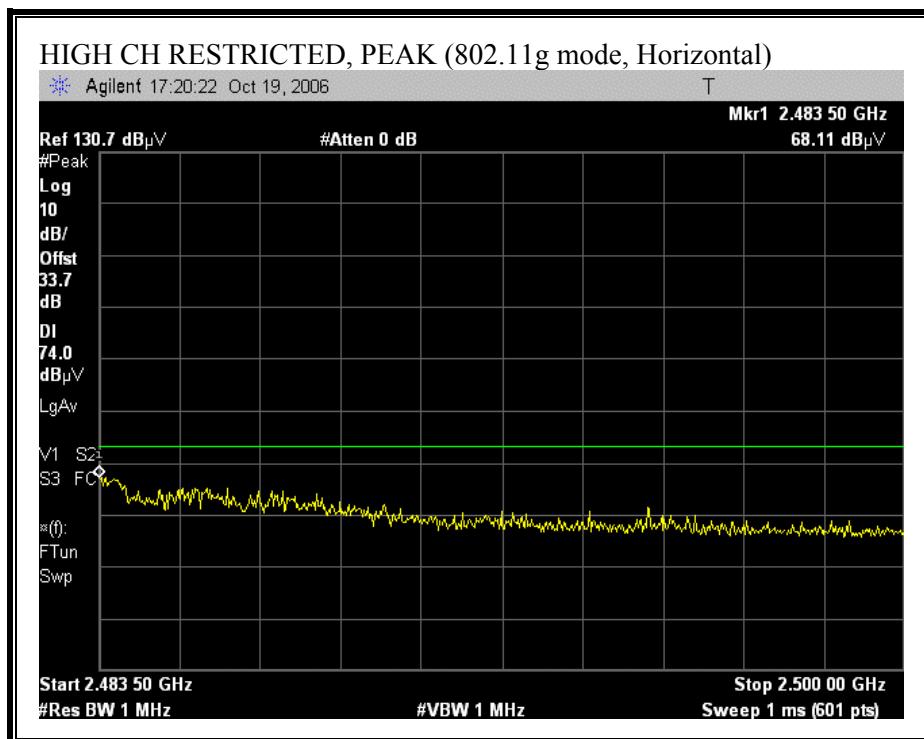
RESTRICTED BANDEDGE (g MODE, LOW CHANNEL, HORIZONTAL)

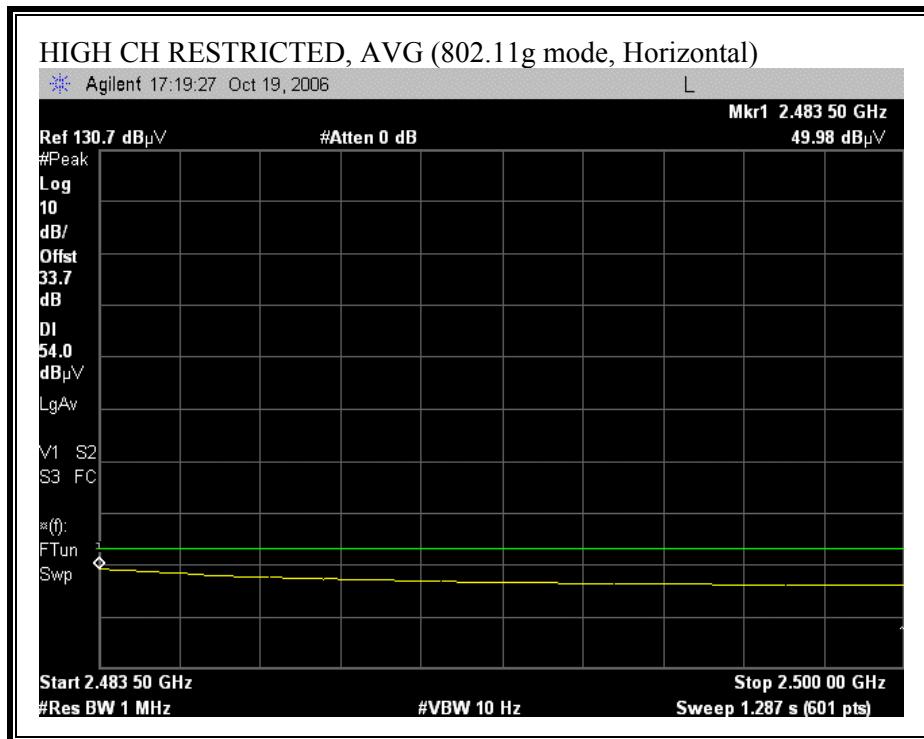


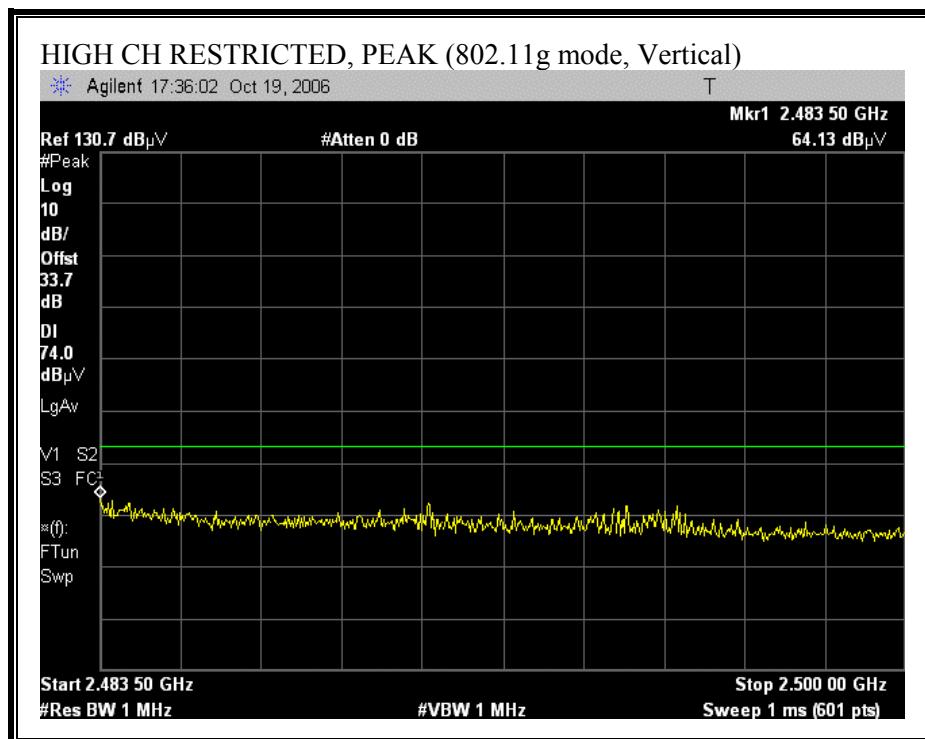
RESTRICTED BANDEDGE (g MODE, LOW CHANNEL, VERTICAL)

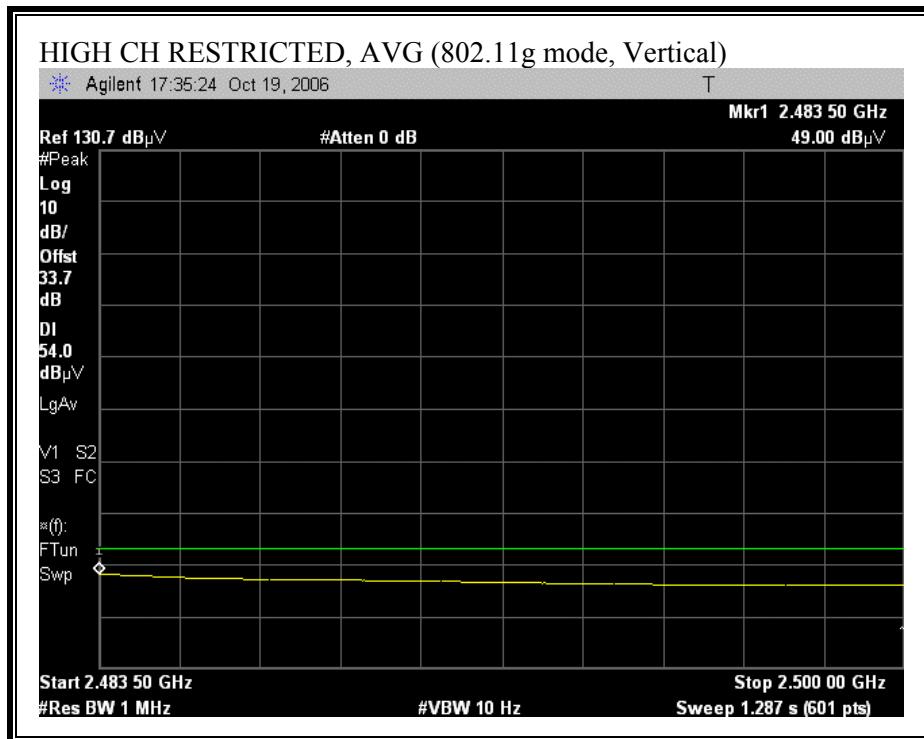


RESTRICTED BANDEDGE (g MODE, HIGH CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE (g MODE, HIGH CHANNEL, VERTICAL)



HARMONICS AND SPURIOUS EMISSIONS (g MODE)

High Frequency Measurement Compliance Certification Services, Morgan Hill Open Field Site															
Company:	Toshiba														
Project #:	06U10660														
Date:	10/20/06														
Test Engineer:	William Zhuang														
Configuration:	EUT inside host Laptop PC, Mobile configuration (worst orientation)														
Mode:	TX ON in 11g mode														
Test Equipment:															
Horn 1-18GHz			Pre-amplifier 1-26GHz			Pre-amplifier 26-40GHz			Horn > 18GHz			Limit			
T119; S/N: 29301 @3m			T87 Miteq 924342			T88 Miteq 26-40GHz			T39; ARA 18-26GHz; S/N:1013			FCC 15.205			
Hi Frequency Cables															
2 foot cable			3 foot cable			12 foot cable			HPF			Reject Filter			
William 177080003			William 187209004									R_002			
Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz ; VBW=10Hz															
f GHz	Dist (m)	Read Pk dBuV	Read Avg dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low Channel (2412 MHz)															
4.824	3.0	50.7	39.0	33.7	3.1	-45.3	0.0	0.0	42.2	30.5	74	54	-31.8	-23.5	H
4.824	3.0	50.3	39.0	33.7	3.1	-45.3	0.0	0.0	41.8	30.5	74	54	-32.2	-23.5	V
Mid Channel (2437 MHz)															
4.874	3.0	51.5	38.9	33.7	3.2	-45.3	0.0	0.0	43.0	30.5	74	54	-31.0	-23.5	V
7.311	3.0	49.8	38.5	35.2	4.2	-43.2	0.0	0.0	45.9	34.6	74	54	-28.1	-19.4	V
4.874	3.0	51.5	38.9	33.7	3.2	-45.3	0.0	0.0	43.0	30.5	74	54	-31.0	-23.5	H
7.311	3.0	50.5	38.5	35.2	4.2	-43.2	0.0	0.0	46.6	34.6	74	54	-27.4	-19.4	H
High Channel (2462 MHz)															
4.924	3.0	51.4	39.0	33.8	3.2	-45.4	0.0	0.0	43.0	30.7	74	54	-31.0	-23.3	V
7.386	3.0	50.9	39.2	35.2	4.2	-43.1	0.0	0.0	47.2	35.5	74	54	-26.8	-18.5	V
4.924	3.0	51.5	38.9	33.8	3.2	-45.4	0.0	0.0	43.1	30.5	74	54	-30.9	-23.5	H
7.386	3.0	51.1	38.5	35.2	4.2	-43.1	0.0	0.0	47.4	34.8	74	54	-26.6	-19.2	H
Note: EUT was scanned from 1 GHz to 18 GHz, no other emissions were detected.															
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									

7.4. CHANNEL TESTS FOR THE 5725 TO 5850 MHz BAND

7.4.1. TRANSMITTER ABOVE 1 GHz FOR 5725 TO 5850 MHz BAND

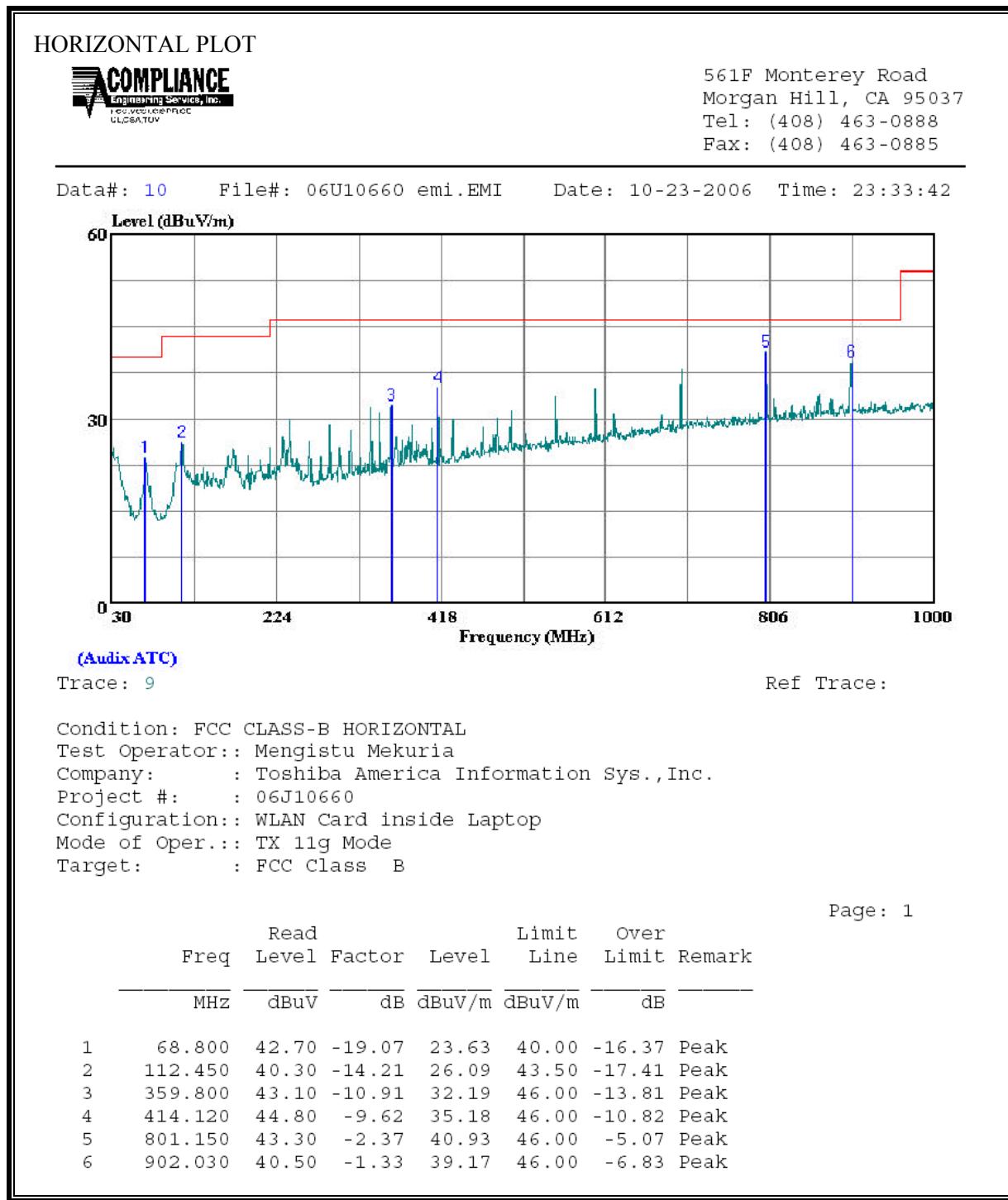
HARMONICS AND SPURIOUS EMISSIONS (802.11a MODE)

High Frequency Measurement Compliance Certification Services, Morgan Hill Open Field Site															
Company: Toshiba America Information Systems, Inc. Project #: 06U10660 Date: 10/23/2007 Test Engineer: Mengistu Mekuria Configuration: EUT Mode: Tx															
Test Equipment:															
Horn 1-18GHz		Pre-amplifier 1-26GHz		Pre-amplifier 26-40GHz		Horn > 18GHz					Limit				
T120; S/N: 29310 @3m		T34 HP 8449B		T88 Miteq 26-40GHz		T89; ARA 18-26GHz; S/N:1049					FCC 15.205				
Hi Frequency Cables															
2 foot cable		3 foot cable		12 foot cable		HPF		Reject Filter		Peak Measurements RBW=VBW=1MHz					
Joseph 187207005				Gordon 203134001		HPF_7.6GHz				Average Measurements RBW=1MHz ; VBW=10Hz					
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low Ch (5745 MHz)															
11.490	3.0	46.3	34.3	37.6	4.4	-32.5	0.0	0.7	56.4	44.4	74	54	-17.6	-9.6	V
11.490	3.0	45.7	33.7	37.6	4.4	-32.5	0.0	0.7	55.9	43.9	74	54	-18.1	-10.1	H
Mid Ch (5785 MHz)															
11.570	3.0	51.3	36.6	37.6	4.4	-32.5	0.0	0.7	61.5	46.8	74	54	-12.5	-7.2	V
11.570	3.0	50.4	36.2	37.6	4.4	-32.5	0.0	0.7	60.6	46.4	74	54	-13.4	-7.6	H
Hi Ch (5825 MHz)															
11.650	3.0	51.5	37.0	37.7	4.4	-32.5	0.0	0.7	61.7	47.3	74	54	-12.3	-6.7	V
11.650	3.0	51.6	37.9	37.7	4.4	-32.5	0.0	0.7	61.8	48.2	74	54	-12.2	-5.8	H
Rev. 5.1.6 Note: No other emissions were detected above the system noise floor.															
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					

7.5. WORST-CASE RADIATED EMISSIONS BELOW 1 GHz

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

2.4 GHz BAND



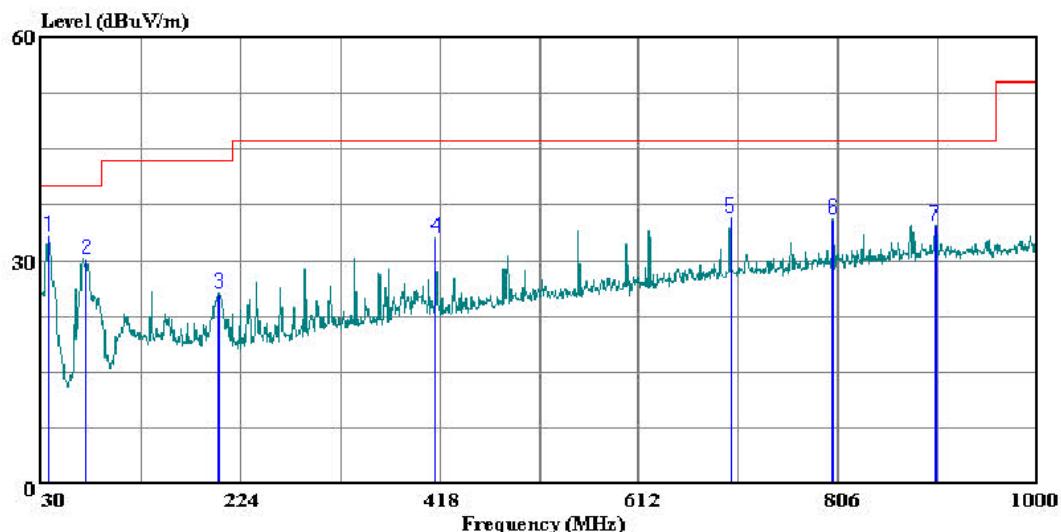
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)

VERTICAL PLOT



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

Data#: 12 File#: 06U10660 emi.EMI Date: 10-23-2006 Time: 23:38:16



(Audix ATC)

Trace: 11

Ref Trace:

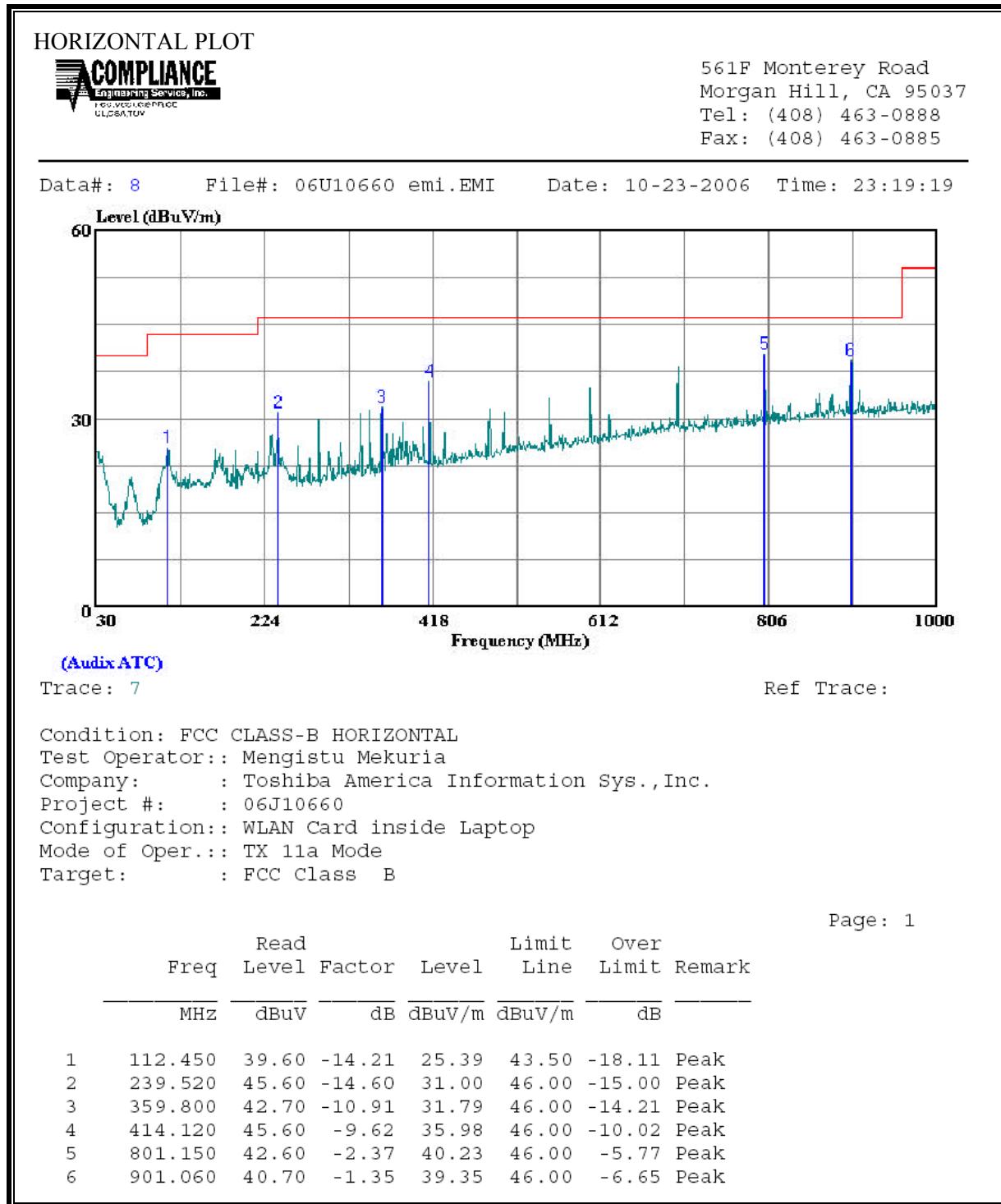
Condition: FCC CLASS-B VERTICAL
Test Operator:: Mengistu Mekuria
Company: : Toshiba America Information Sys., Inc.
Project #: : 06J10660
Configuration:: WLAN Card inside Laptop
Mode of Oper.: TX 11g Mode
Target: : FCC Class B

Page: 1

Freq	Read		Limit	Over	Line	Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	36.790	44.30	-10.98	33.32	40.00	-6.68	Peak
2	73.650	49.20	-19.11	30.09	40.00	-9.91	Peak
3	202.660	39.50	-13.91	25.59	43.50	-17.91	Peak
4	414.120	42.60	-9.62	32.98	46.00	-13.02	Peak
5	701.240	39.70	-3.90	35.80	46.00	-10.20	Peak
6	801.150	37.80	-2.37	35.43	46.00	-10.57	Peak
7	901.060	36.10	-1.35	34.75	46.00	-11.25	Peak

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

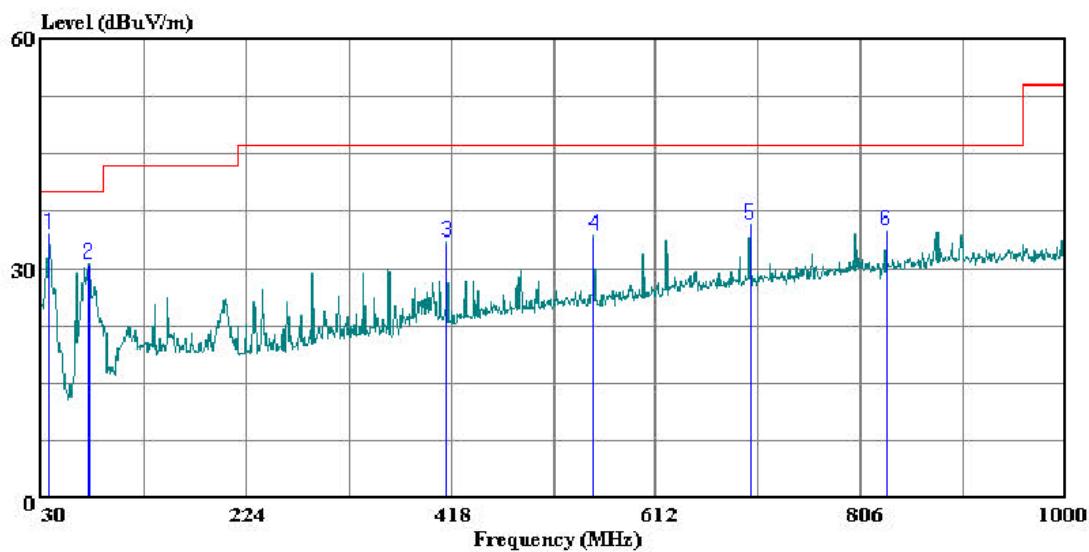
5 GHz BAND



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

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

Data#: 6 File#: 06U10660 emi.EMI Date: 10-23-2006 Time: 23:12:12



(Audix ATC)

Trace: 5

Ref Trace:

Condition: FCC CLASS-B VERTICAL
Test Operator: Mengistu Mekuria
Company: Toshiba America Information Sys., Inc.
Project #: 06J10660
Configuration: WLAN Card inside Laptop
Mode of Oper.: TX 11a Mode
Target: FCC Class B

Page: 1

Freq	Read	Factor	Level	Limit	Over	Remark
	MHz			dB	dB _{uV/m}	
				dB _{uV/m}	dB _{uV/m}	
1	36.790	45.40	-10.98	34.42	40.00	-5.58 Peak
2	74.620	49.70	-19.16	30.54	40.00	-9.46 Peak
3	414.120	43.00	-9.62	33.38	46.00	-12.62 Peak
4	552.830	40.90	-6.68	34.22	46.00	-11.78 Peak
5	701.240	39.60	-3.90	35.70	46.00	-10.30 Peak
6	830.250	37.10	-2.11	34.99	46.00	-11.01 Peak

7.6. 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.

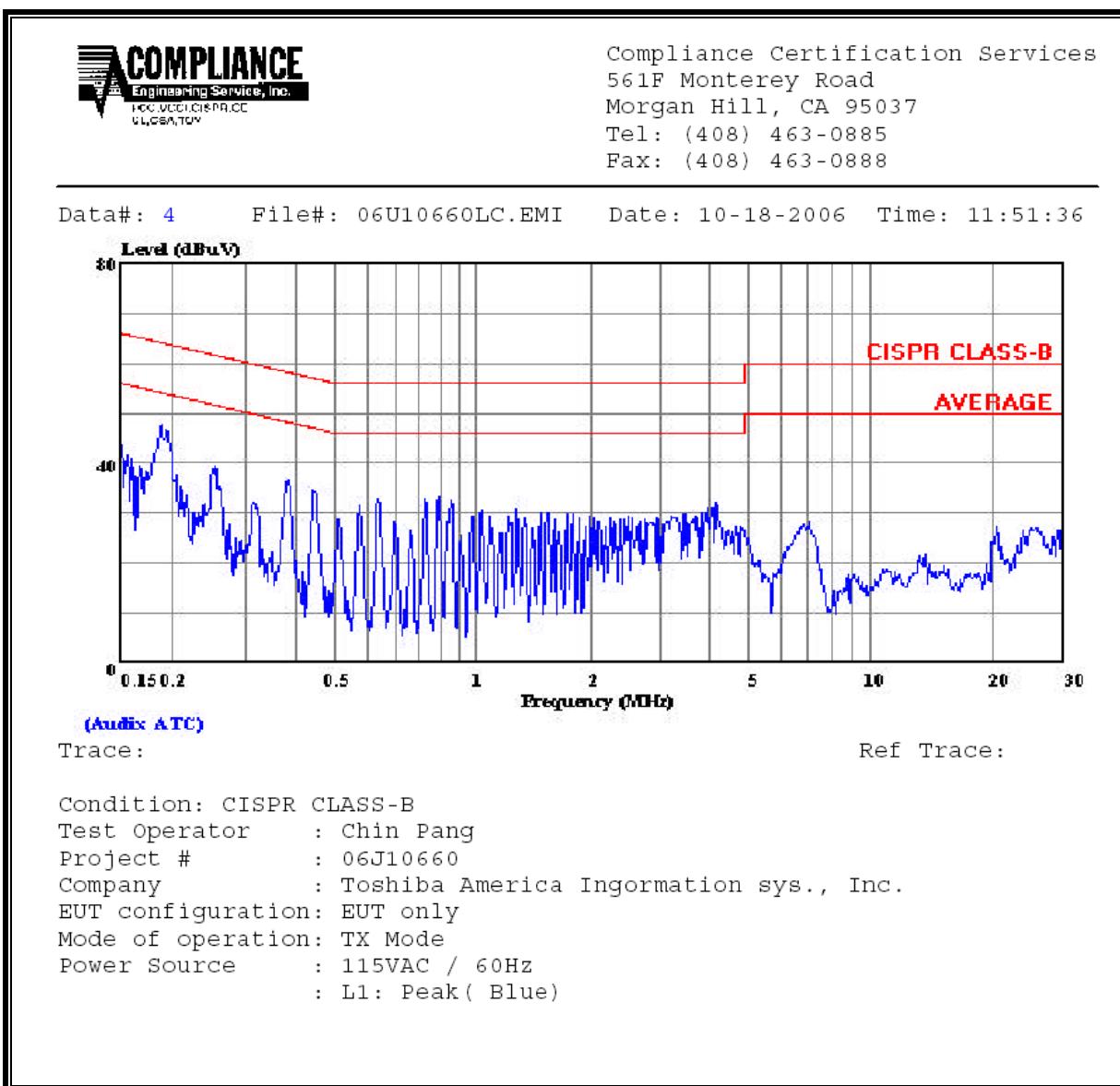
Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

No non-compliance noted:

6 WORST EMISSIONS

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq. (MHz)	Reading			Closs (dB)	Limit QP	EN_B AV	Margin		Remark L1 / L2
	PK (dBuV)	QP (dBuV)	AV (dBuV)				QP (dB)	AV (dB)	
0.19	47.96	--	--	0.00	64.12	54.12	-16.16	-6.16	L1
0.39	36.61	--	--	0.00	58.13	48.13	-21.52	-11.52	L1
4.25	32.17	--	--	0.00	56.00	46.00	-23.83	-13.83	L1
0.19	47.47	--	--	0.00	64.04	54.04	-16.57	-6.57	L2
0.45	32.83	--	--	0.00	56.89	46.89	-24.06	-14.06	L2
1.32	32.45	--	--	0.00	56.00	46.00	-23.55	-13.55	L2
6 Worst Data									

LINE 1 RESULTS

LINE 2 RESULTS