FCC CFR47 CERTIFICATION
CLASS II PERMISSIVE CHANGE
TEST REPORT

FOR

WIRELESS LAN MINI-PCI EXPRESS, 802.11A/B/G

MODEL NUMBER: PA3489U-1MPC & PA3441U-1MPC (Optional)

FCC ID: CJ6UPA3489WL

REPORT NUMBER: 06U10441-2

ISSUE DATE: AUGUST 11, 2006

Prepared for
TOSHIBA CORPORATION DIGITAL MEDIA NETWORK COMPANY
OME COMPLEX, 2-9, SUEHIRO-CHO
TOKYO, 198-8710, JAPAN

Prepared by
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Revision History

Rev.	Issue Date	Revisions	Revised By
--	8/11/2006	Initial Release	A. Ilarina

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME:	TOSHIBA CORPORATION DIGITAL MEDIA NETWORK COMPANY OME COMPLEX, 2-9, SUEHIRO-CHO TOKYO, 198-8710, JAPAN
EUT DESCRIPTION:	WIRELESS LAN MINI-PCI EXPRESS, 802.11A/B/G
MODEL:	PA3489U-1MPC & PA3441U-1MPC (OPTIONAL)
SERIAL NUMBER:	WC3604110164
DATE TESTED:	JULY 14-16, 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: Tested By:

ALVIN ILARINA
EMC SUPERVISOR
COMPLIANCE CERTIFICATION SERVICES

CHIN PANG
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

Wireless LAN Mini-PCI Express, 802.11a/b/g module.

5.2. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes PIFA antenna model number HFT40 manufactured by Hitachi Cable, Ltd with a peak gain of 0.32 dBi in the 2400-2500MHz band and 3.06 dBi in the 5725-5850MHz band.

5.3. DESCRIPTION OF CLASS II PERMISSIVE CHANGE

Change #1 The subject approved module is being used in a different host.
Change #2 Collocation with CDMA CELL-PCS module.
Change #3 Collocation with Bluetooth Module.

5.4. SOFTWARE AND FIRMWARE

The EUT driver software installed in the host support equipment during testing were CRTU rev. 4.0.22.0.

5.5. WORST-CASE CONFIGURATION AND MODE

Radiated emissions tests above 1 GHz were performed on each applicable L/M/H channel.

The worst-case channel is determined as the channel with the highest output power. The highest measured output power was at 2437 MHz in 11g mode. The worst-case data rate for this channel is determined to be 6 Mb.

Thus worst-case radiated emissions below 1 GHz and power line conducted emissions tests were made at 2437 MHz in the 802.11g mode, at 6 Mb/s.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Laptop	Toshiba	Satellite	NA	DoC
AC Adapter	Toshiba	PA3283U-3ACA	G71C00043310	DoC

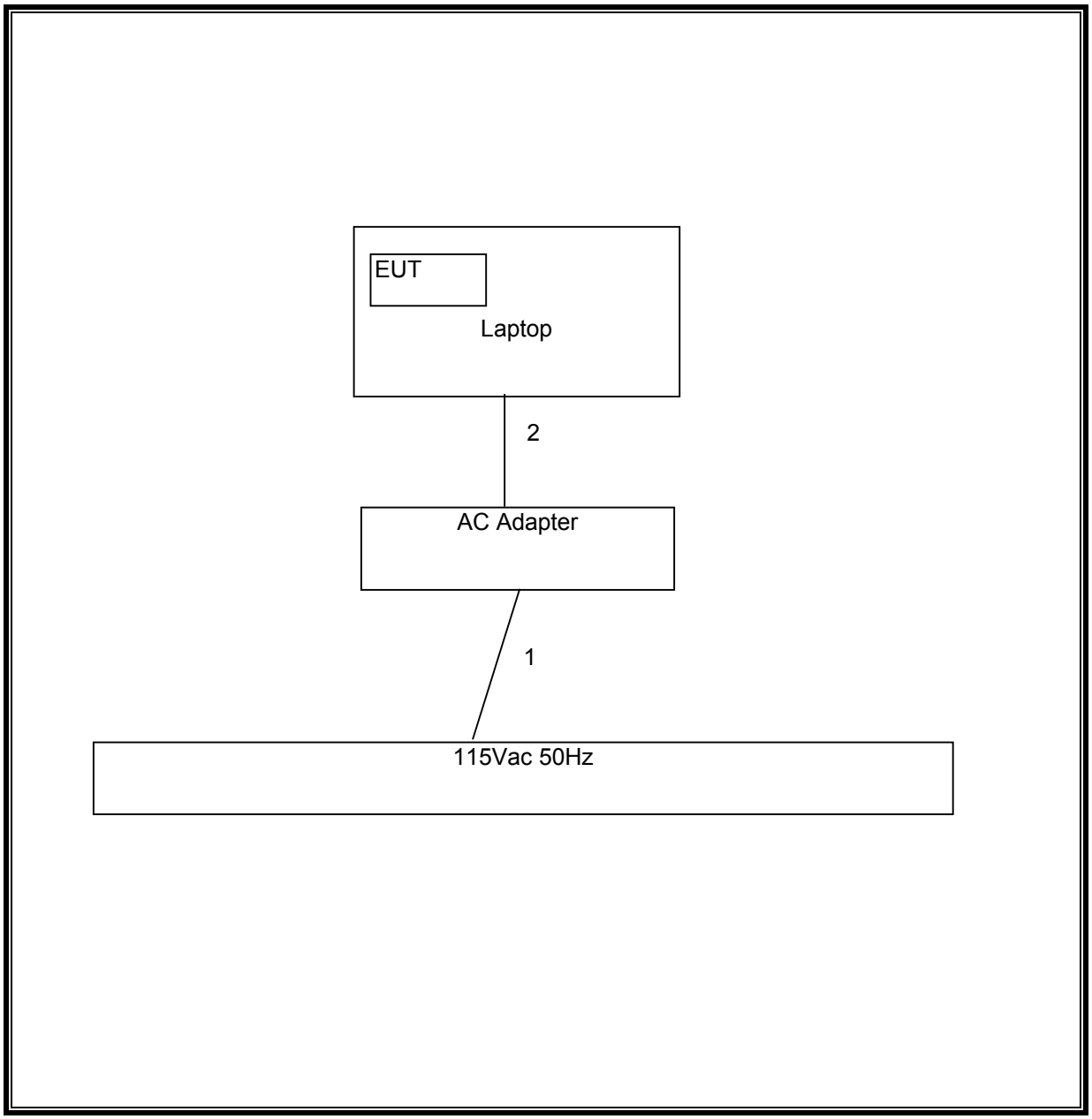
I/O CABLES

I/O CABLE LIST						
Cable No.	**Port**	**# of Identical Ports**	**Connector Type**	**Cable Type**	**Cable Length**	**Remarks**
1	AC	1	AC	Unshielded	2m	N/A
2	DC	1	DC	Unshielded	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	5/22/1918	4/22/2007
Preamplifier, 1 ~ 26.5 GHz	Agilent / HP	8449B	3008A00561	10/3/2007
Antenna, Horn 18 ~ 26 GHz	ARA	MWH-1826/B	1049	9/12/2006
Spectrum Analyzer 3 Hz ~ 44 GHz	Agilent / HP	E4446A	MY45300064	12/19/2006
EMI Test Receiver	R & S	ESHS 20	827129/006	6/3/2007
LISN, 10 kHz ~ 30 MHz	FCC	LISN-50/250-25-2	2023	8/30/2006
Preamplifier, 26 ~ 40 GHz	Miteq	NSP4000-SP2	924343	8/18/2006
Wireless CommunicationTest Set	Agilent	8960 Series 10	E6515C	6/28/2007
Peak / Average Power Sensor	Agilent	E9327A	US40440755	12/2/2007
Peak Power Meter	Agilent / HP	E4416A	GB41291160	12/2/2007
Preamplifier, 1 ~ 26 GHz	Miteq	NSP2600-SP	924342	9/2/2006
Preamplifier, 26 ~ 40 GHz	Miteq	NSP4000-SP2	924343	8/18/2006
7.6 GHz High Pass Filter	Micro-Tronics	HPM13195	001	C.N.R.

7. LIMITS AND RESULTS

7.1. CHANNEL TESTS FOR THE 2400 TO 2483.5 MHz BAND

7.1.1. AVERAGE POWER

AVERAGE POWER LIMIT

None: for reporting purposes only. The average power for each channel was set to the average power specified in the original filing.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

No non-compliance noted:

The cable assembly insertion loss of 11.6 dB (including 10 dB pad and 1.6 dB 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	18.00
High	2462	17.90

802.11g Mode

Channel	Frequency (MHz)	Power (dBm)
Low	2412	16.80
Middle	2437	17.30
High	2462	15.40

7.2. CHANNEL TESTS FOR THE 5725 TO 5850 MHz BAND

7.2.1. AVERAGE POWER

AVERAGE POWER LIMIT

None: for reporting purposes only. The average power for each channel was set to the average power specified in the original filing.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

No non-compliance noted:

The cable assembly insertion loss of 12.2 dB (including 10 dB pad and 2.2 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

802.11a Mode

Channel	Frequency (MHz)	Average Power (dBm)
Low	5745	16.90
Middle	5785	17.30
High	5825	17.20

7.3. RADIATED EMISSIONS

7.3.1. 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 25 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.

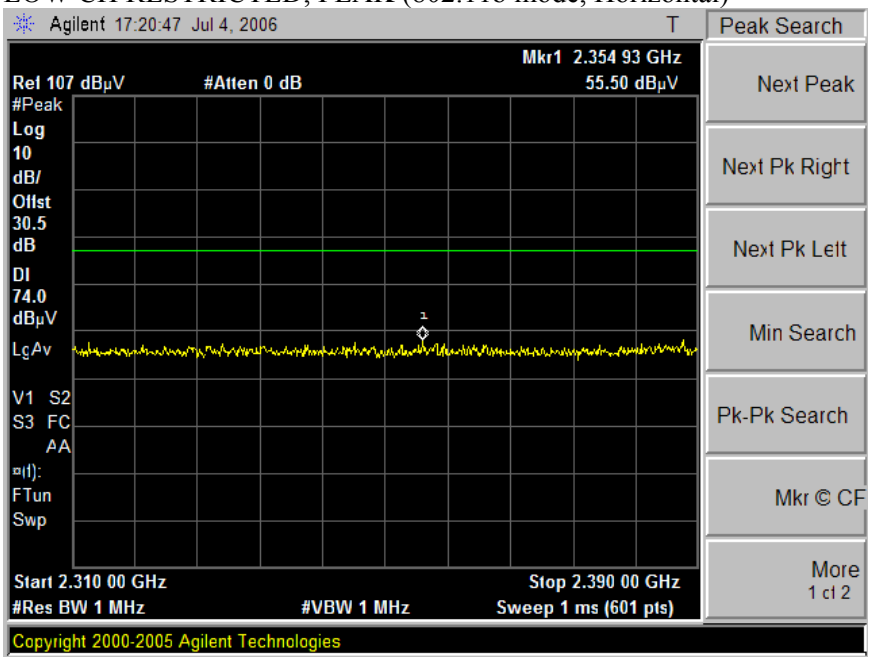
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

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

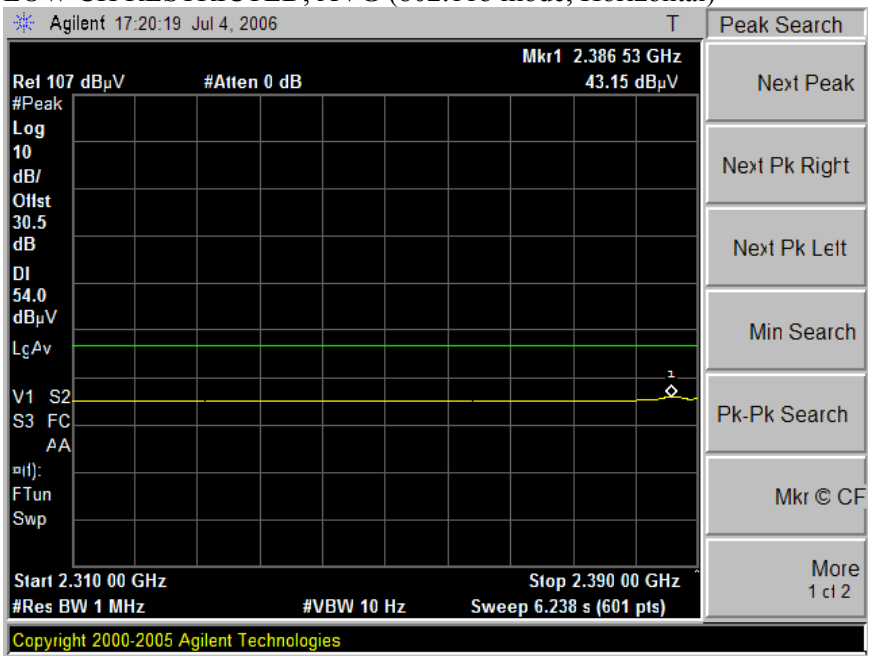
PORTABLE CONFIGURATION

RESTRICTED BANDEDGE (b MODE, LOW CHANNEL, HORIZONTAL)

LOW CH RESTRICTED, PEAK (802.11b mode, Horizontal)

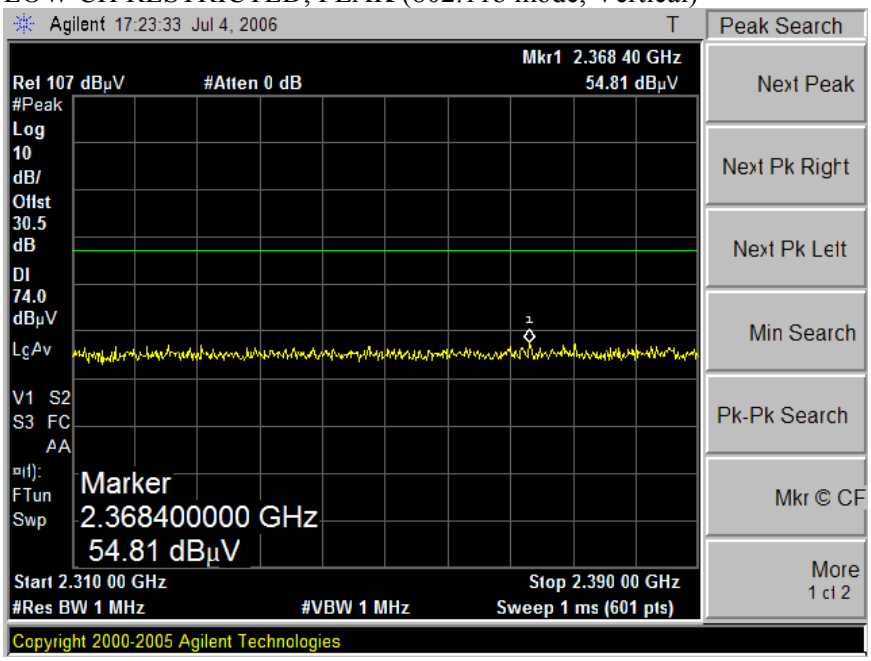


LOW CH RESTRICTED, AVG (802.11b mode, Horizontal)

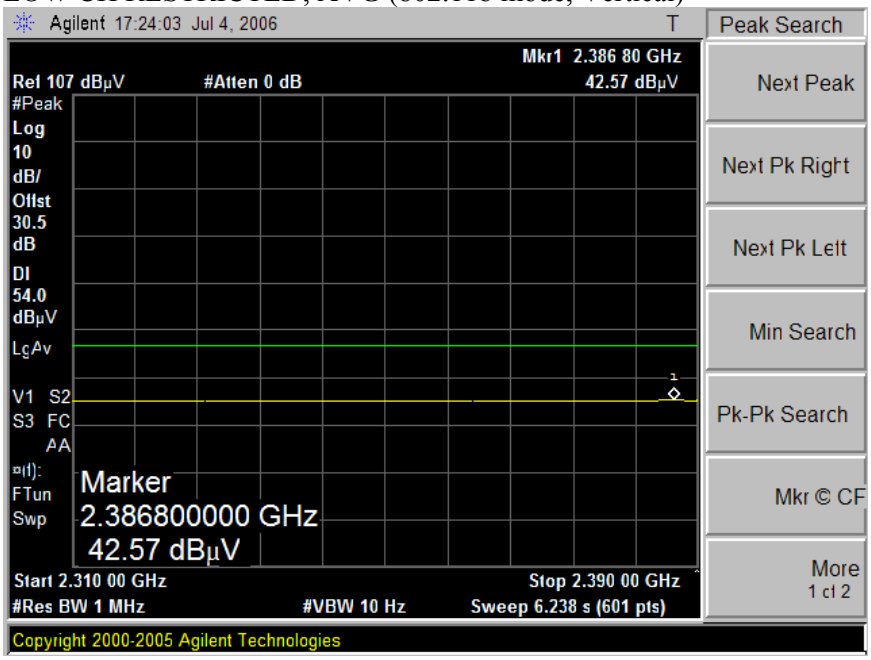


RESTRICTED BANDEDGE (b MODE, LOW CHANNEL, VERTICAL)

LOW CH RESTRICTED, PEAK (802.11b mode, Vertical)

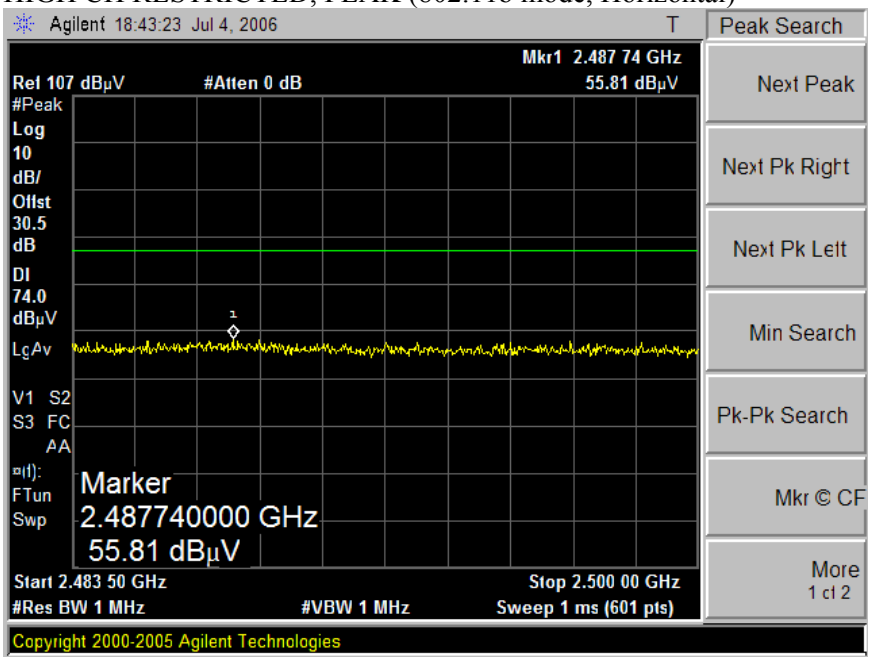


LOW CH RESTRICTED, AVG (802.11b mode, Vertical)

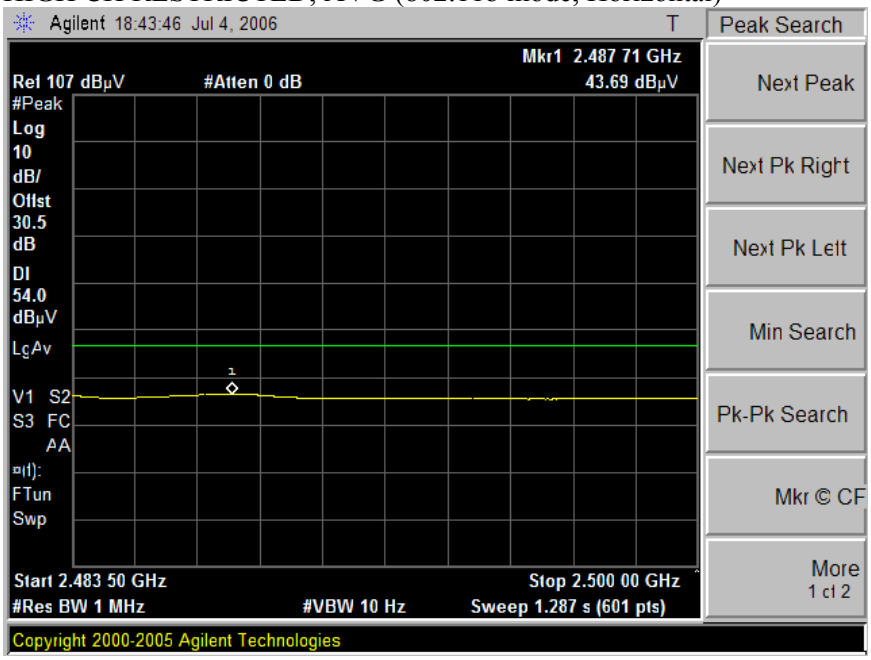


RESTRICTED BANDEDGE (b MODE, HIGH CHANNEL, HORIZONTAL)

HIGH CH RESTRICTED, PEAK (802.11b mode, Horizontal)

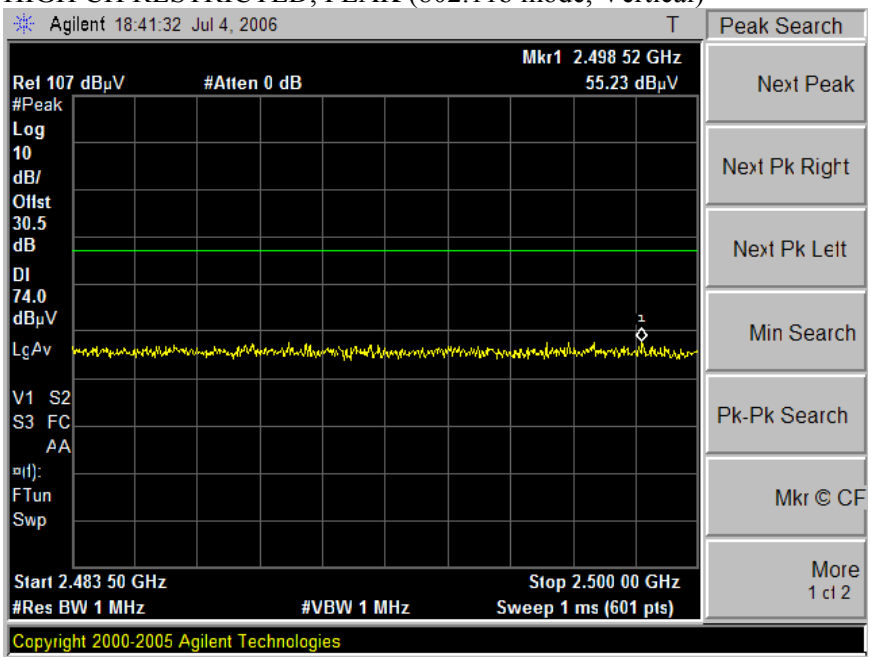


HIGH CH RESTRICTED, AVG (802.11b mode, Horizontal)

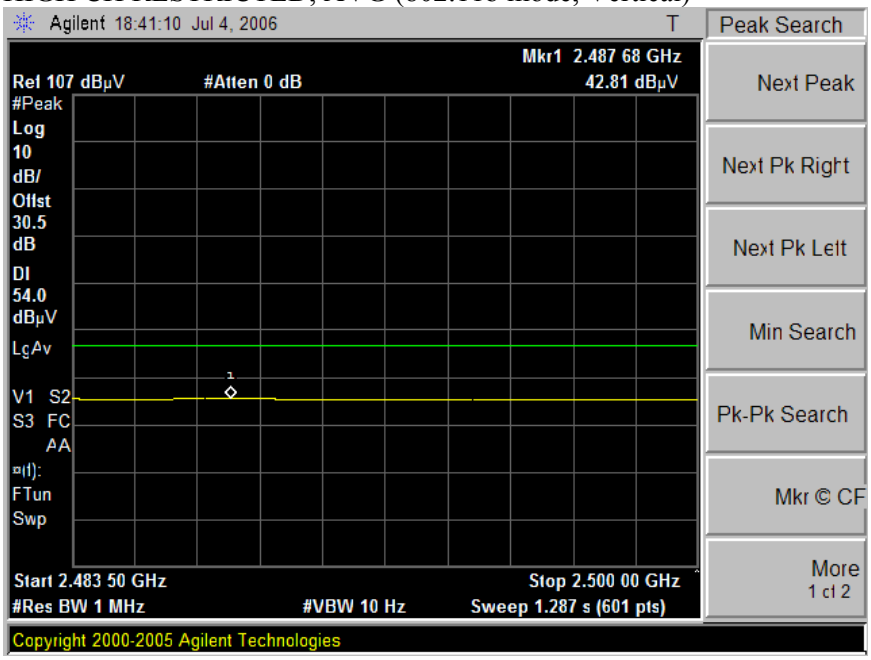


RESTRICTED BANDEDGE (b MODE, HIGH CHANNEL, VERTICAL)

HIGH CH RESTRICTED, PEAK (802.11b mode, Vertical)



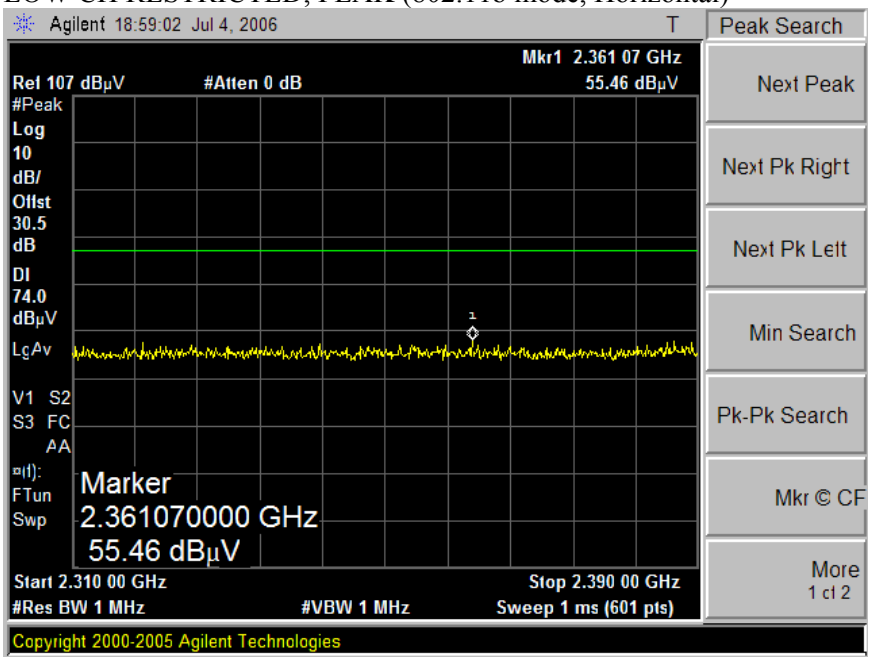
HIGH CH RESTRICTED, AVG (802.11b mode, Vertical)



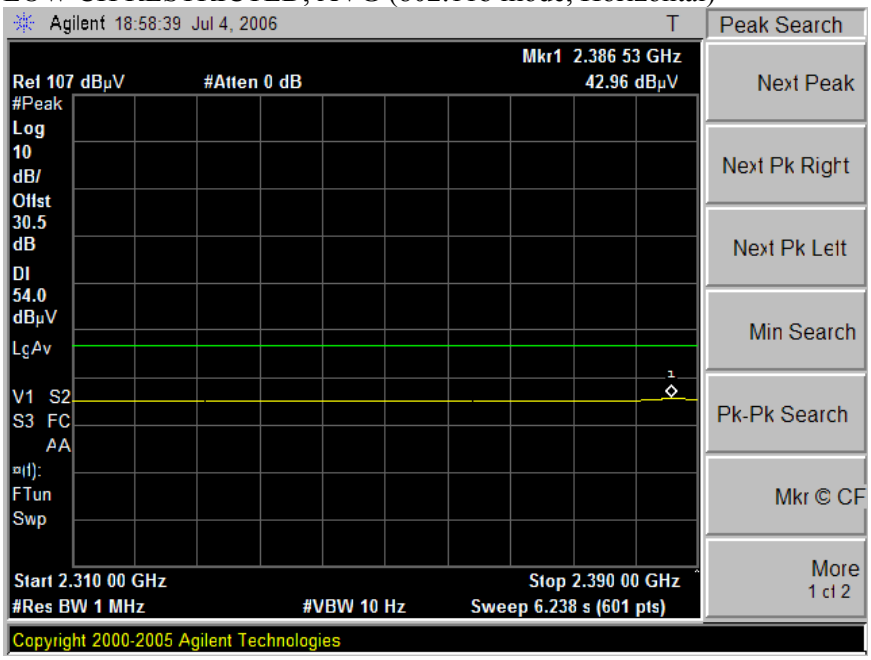
MOBILE CONFIGURATION

RESTRICTED BANDEDGE (b MODE, LOW CHANNEL, HORIZONTAL)

LOW CH RESTRICTED, PEAK (802.11b mode, Horizontal)

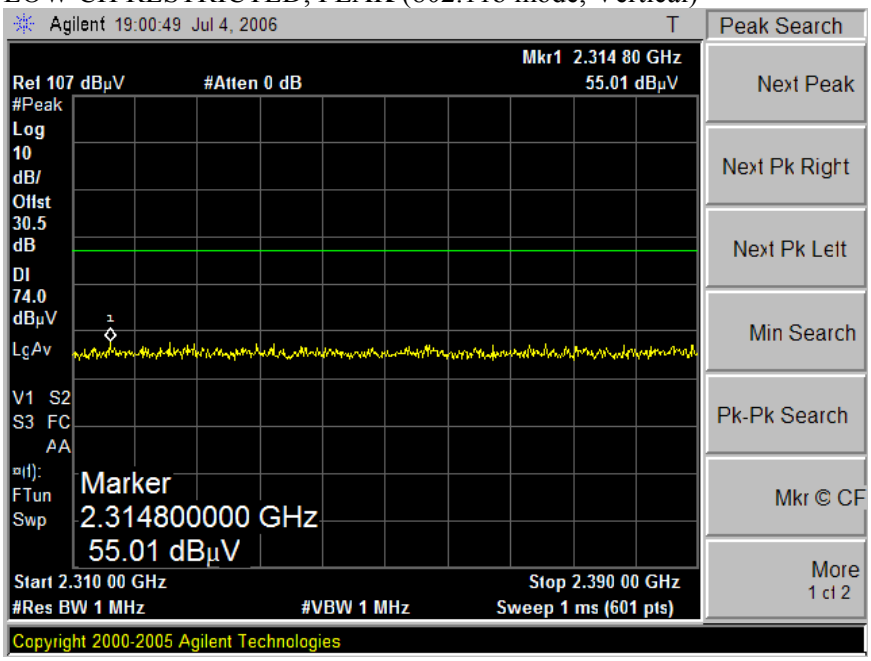


LOW CH RESTRICTED, AVG (802.11b mode, Horizontal)

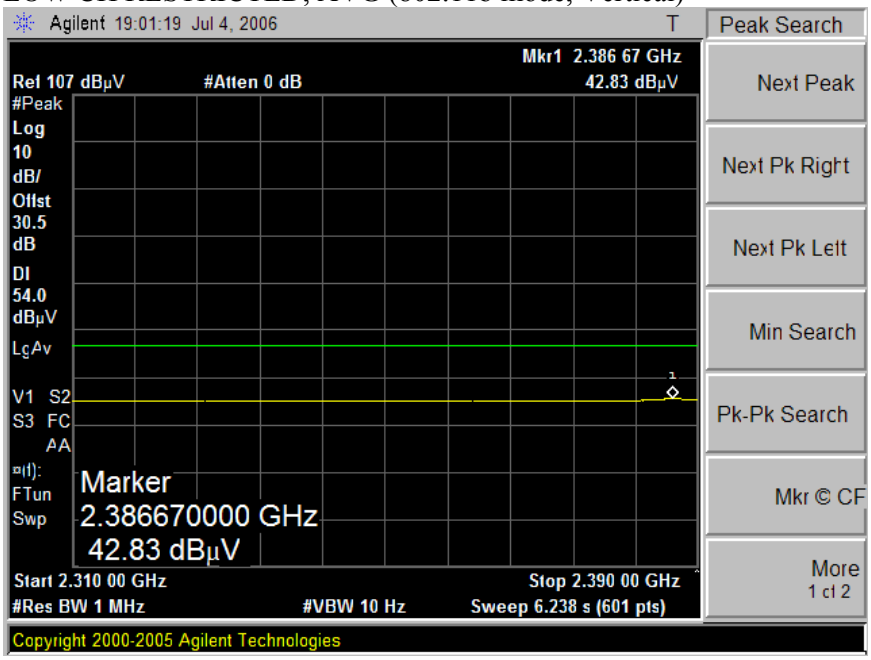


RESTRICTED BANDEDGE (b MODE, LOW CHANNEL, VERTICAL)

LOW CH RESTRICTED, PEAK (802.11b mode, Vertical)

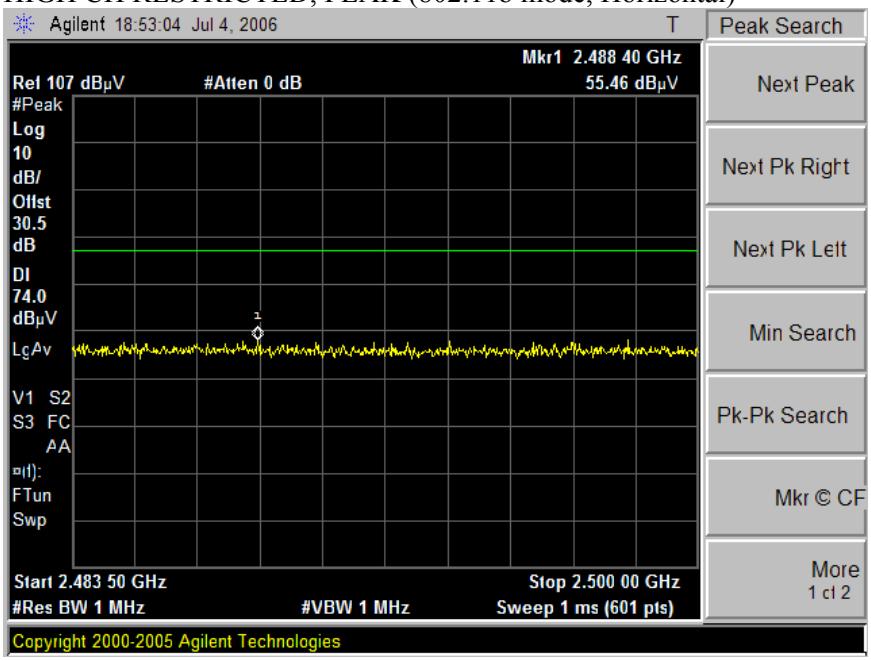


LOW CH RESTRICTED, AVG (802.11b mode, Vertical)

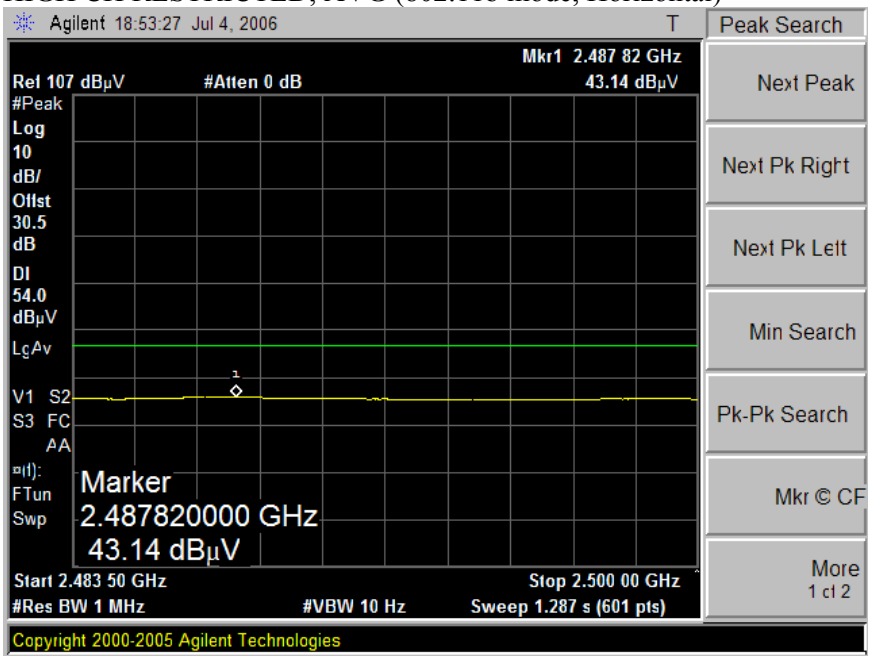


RESTRICTED BANDEDGE (b MODE, HIGH CHANNEL, HORIZONTAL)

HIGH CH RESTRICTED, PEAK (802.11b mode, Horizontal)

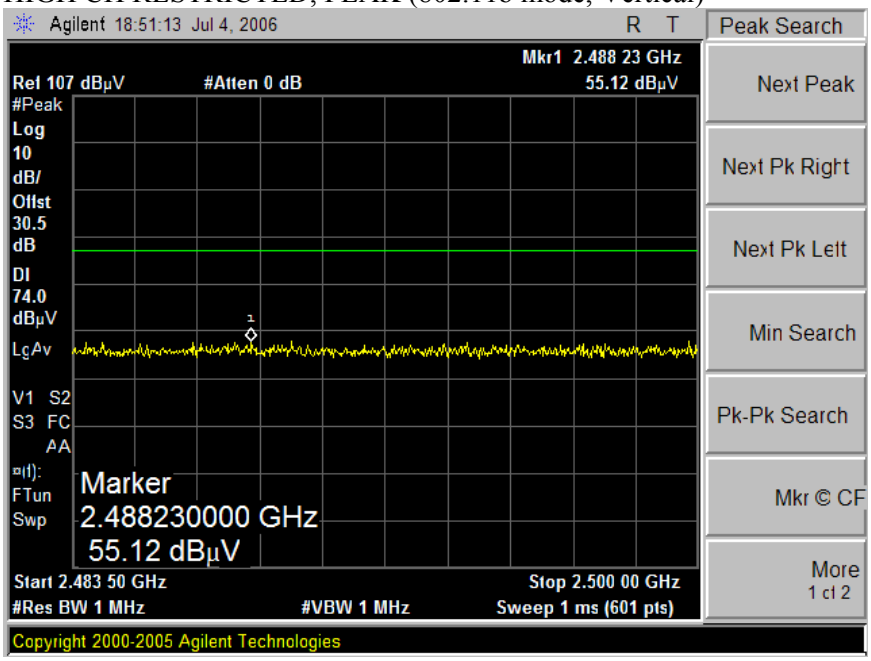


HIGH CH RESTRICTED, AVG (802.11b mode, Horizontal)

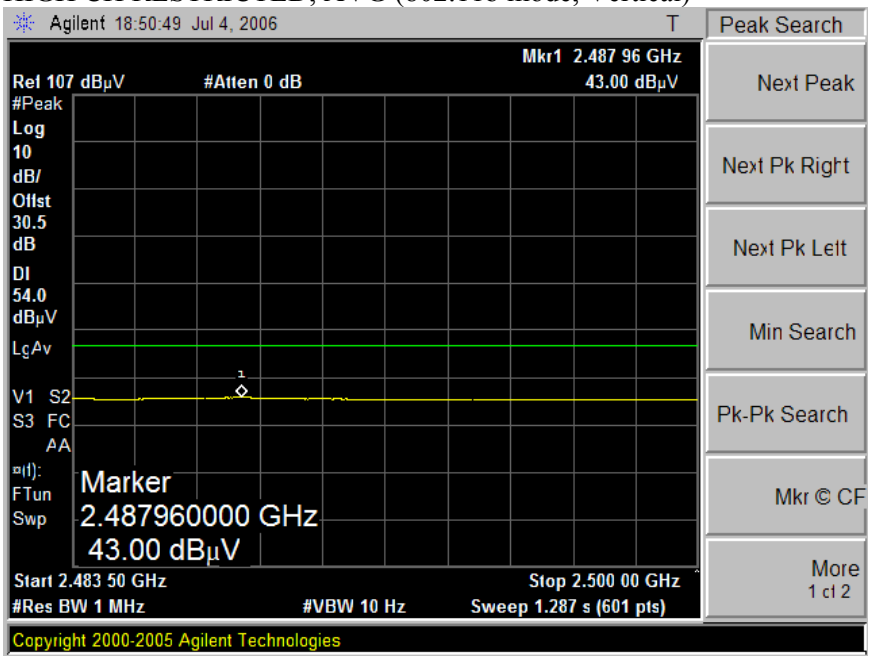


RESTRICTED BANDEDGE (b MODE, HIGH CHANNEL, VERTICAL)

HIGH CH RESTRICTED, PEAK (802.11b mode, Vertical)



HIGH CH RESTRICTED, AVG (802.11b mode, Vertical)



PORTABLE CONFIGURATION HARMONICS AND SPURIOUS EMISSIONS (b MODE)

High Frequency Measurement
Compliance Certification Services, Morgan Hill Open Field Site

Company:Toshiba
Project #:
Date:7/13/06
Test Engineer:Chin Pang
Configuration:Portable Configuration (Worse Case Position)
Mode:TX, b mode

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T73; S/N: 6717 @3m	T144 Miteq 3008A00931			FCC 15.205

Hi Frequency Cables

2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter
Frank 177079007		Chin 200354001		R_001

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 Ch															
4.824	3.0	44.8	33.0	33.3	3.5	-36.5	0.0	0.0	45.1	33.3	74	54	-28.9	-20.7	V
4.824	3.0	43.7	32.0	33.3	3.5	-36.5	0.0	0.0	44.0	32.3	74	54	-30.0	-21.7	H
Mid Ch															
4.874	3.0	45.6	34.3	33.4	3.5	-36.5	0.0	0.0	46.0	34.7	74	54	-28.0	-19.3	V
7.311	3.0	44.2	31.0	35.0	4.0	-36.2	0.0	0.0	47.0	33.8	74	54	-27.0	-20.2	V
4.874	3.0	45.0	34.0	33.4	3.5	-36.5	0.0	0.0	45.4	34.4	74	54	-28.6	-19.6	H
7.311	3.0	43.5	30.5	35.0	4.0	-36.2	0.0	0.0	46.3	33.3	74	54	-27.7	-20.7	H
High Ch															
4.924	3.0	44.6	33.2	33.4	3.5	-36.5	0.0	0.0	45.1	33.7	74	54	-28.9	-20.3	V
7.386	3.0	43.7	31.0	35.0	4.0	-36.2	0.0	0.0	46.5	33.8	74	54	-27.5	-20.2	V
4.924	3.0	44.0	32.5	33.4	3.5	-36.5	0.0	0.0	44.5	33.0	74	54	-29.5	-21.0	H
7.386	3.0	43.0	30.3	35.0	4.0	-36.2	0.0	0.0	45.8	33.1	74	54	-28.2	-20.9	H

Rev. 5.1.6
Note: No other emissions were detected 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		

PORTABLE CONFIGURATION HARMONICS AND SPURIOUS EMISSIONS (b MODE)

High Frequency Measurement
Compliance Certification Services, Morgan Hill Open Field Site

Company:Toshiba
Project #:
Date:7/13/06
Test Engineer:Chin Pang
Configuration:Mobile Configuration
Mode:TX, b mode

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T73; S/N: 6717 @3m	T144 Miteq 3008A00931			FCC 15.205

Hi Frequency Cables

2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter
Frank 177079007		Chin 200354001		R_001

Peak Measurements
RBW=VBW=1MHz
Average Measurements
RBW=1MHz ; VBW=10Hz

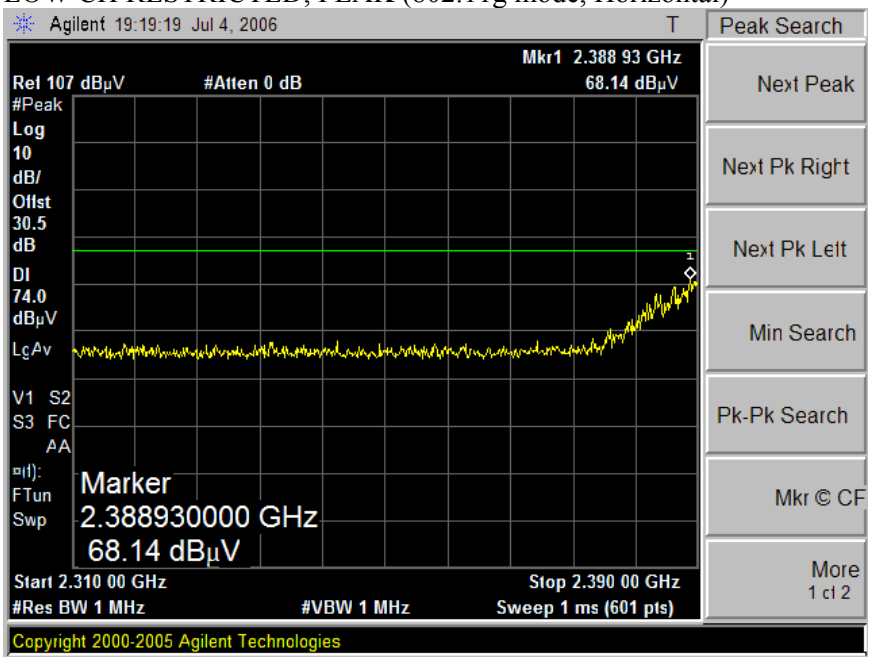
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low Ch															
4.824	3.0	45.0	34.0	33.3	3.5	-36.5	0.0	0.0	45.3	34.3	74	54	-28.7	-19.7	V
4.824	3.0	43.7	32.0	33.3	3.5	-36.5	0.0	0.0	44.0	32.3	74	54	-30.0	-21.7	H
Mid Ch															
4.874	3.0	46.3	35.3	33.4	3.5	-36.5	0.0	0.0	46.7	35.7	74	54	-27.3	-18.3	V
7.311	3.0	44.0	31.0	35.0	4.0	-36.2	0.0	0.0	46.8	33.8	74	54	-27.2	-20.2	V
4.874	3.0	45.0	34.0	33.4	3.5	-36.5	0.0	0.0	45.4	34.4	74	54	-28.6	-19.6	H
7.311	3.0	43.8	30.4	35.0	4.0	-36.2	0.0	0.0	46.6	33.2	74	54	-27.4	-20.8	H
High Ch															
4.924	3.0	45.2	34.0	33.4	3.5	-36.5	0.0	0.0	45.7	34.5	74	54	-28.3	-19.5	V
7.386	3.0	44.4	31.3	35.0	4.0	-36.2	0.0	0.0	47.2	34.1	74	54	-26.8	-19.9	V
4.924	3.0	44.5	33.2	33.4	3.5	-36.5	0.0	0.0	45.0	33.7	74	54	-29.0	-20.3	H
7.386	3.0	43.0	30.5	35.0	4.0	-36.2	0.0	0.0	45.8	33.3	74	54	-28.2	-20.7	H

Rev. 5.1.6
Note: No other emissions were detected above the system noise floor.

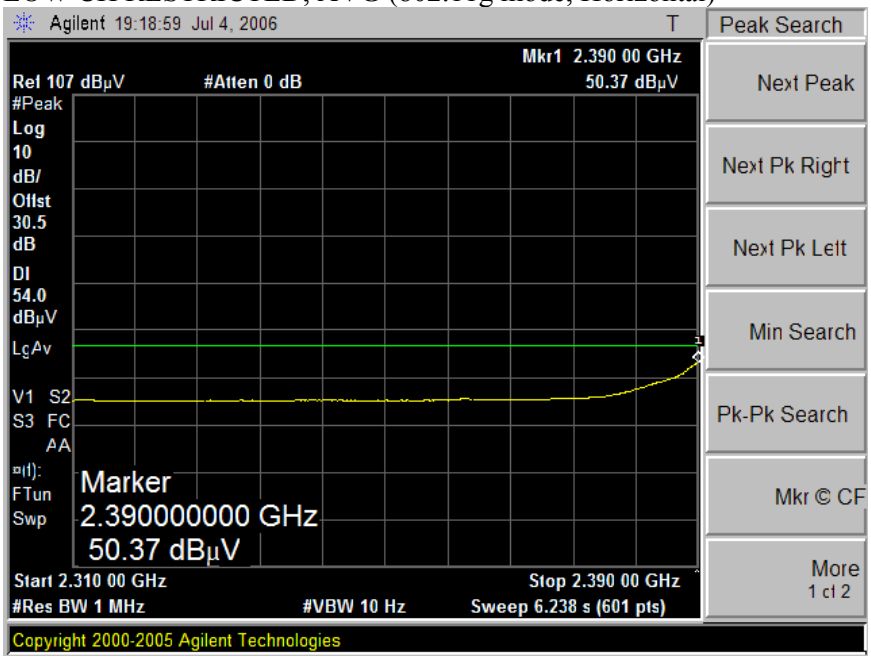
f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field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

RESTRICTED BANDEDGE (g MODE, LOW CHANNEL, HORIZONTAL)

LOW CH RESTRICTED, PEAK (802.11g mode, Horizontal)

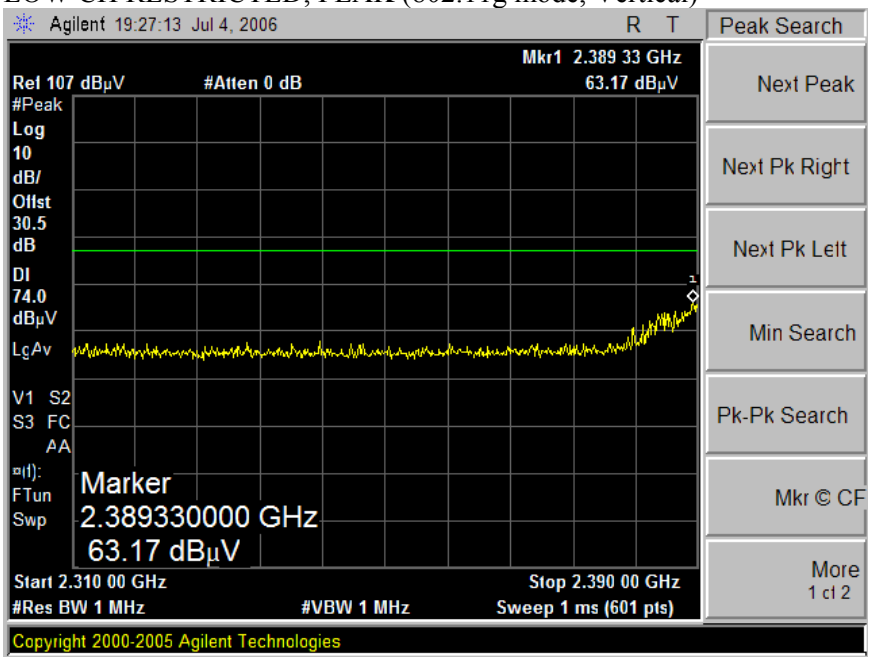


LOW CH RESTRICTED, AVG (802.11g mode, Horizontal)

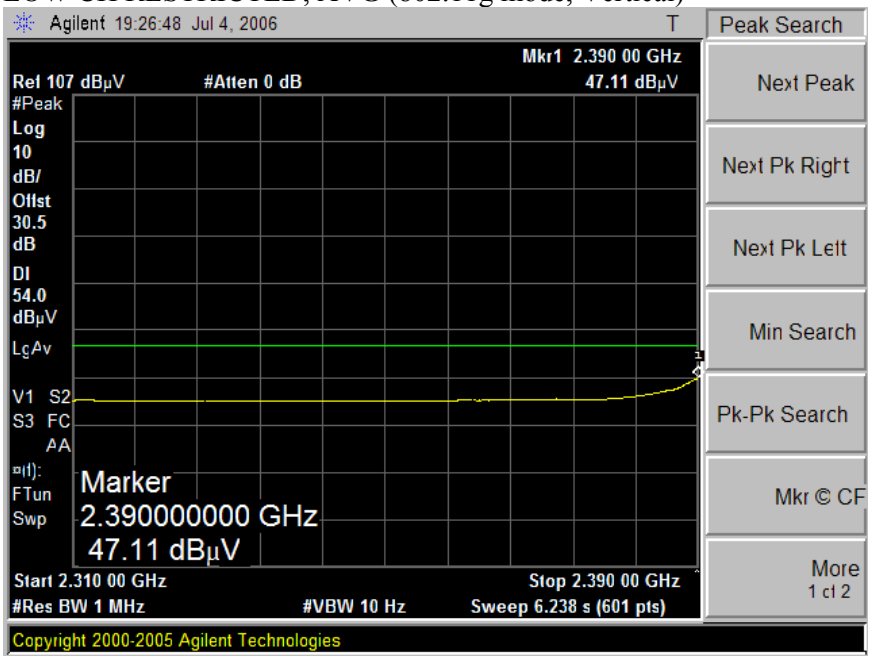


RESTRICTED BANDEDGE (g MODE, LOW CHANNEL, VERTICAL)

LOW CH RESTRICTED, PEAK (802.11g mode, Vertical)

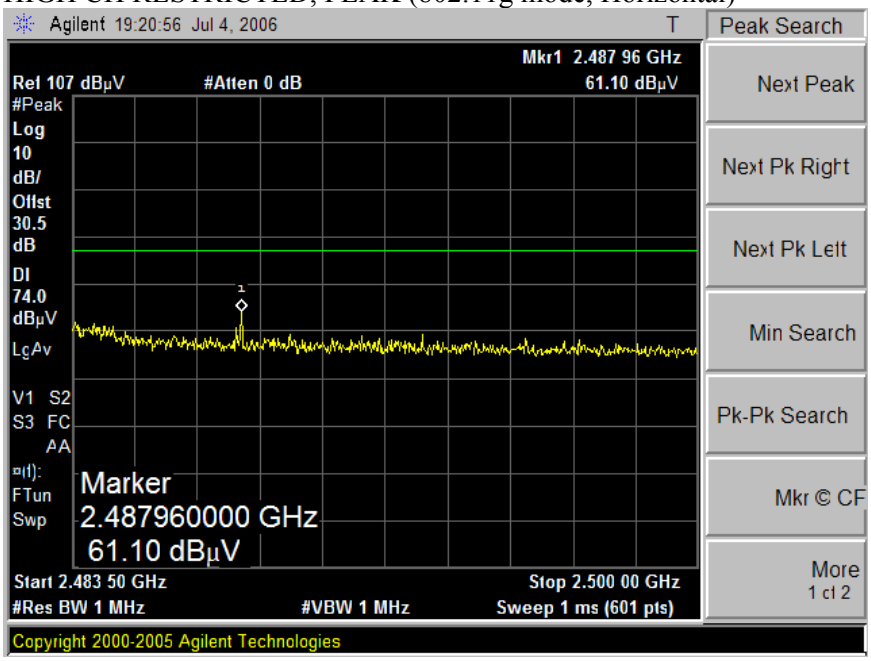


LOW CH RESTRICTED, AVG (802.11g mode, Vertical)

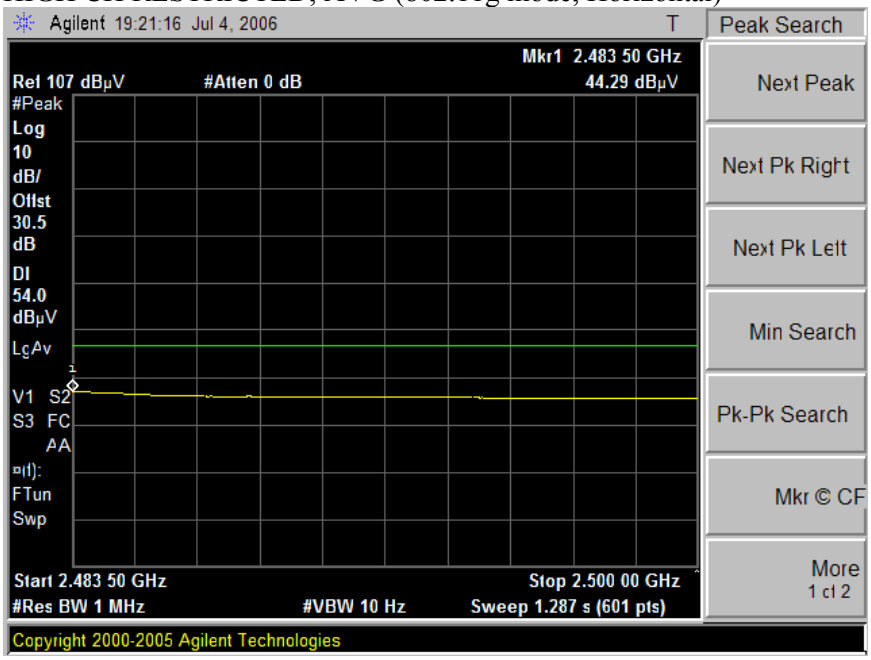


RESTRICTED BANDEDGE (g MODE, HIGH CHANNEL, HORIZONTAL)

HIGH CH RESTRICTED, PEAK (802.11g mode, Horizontal)

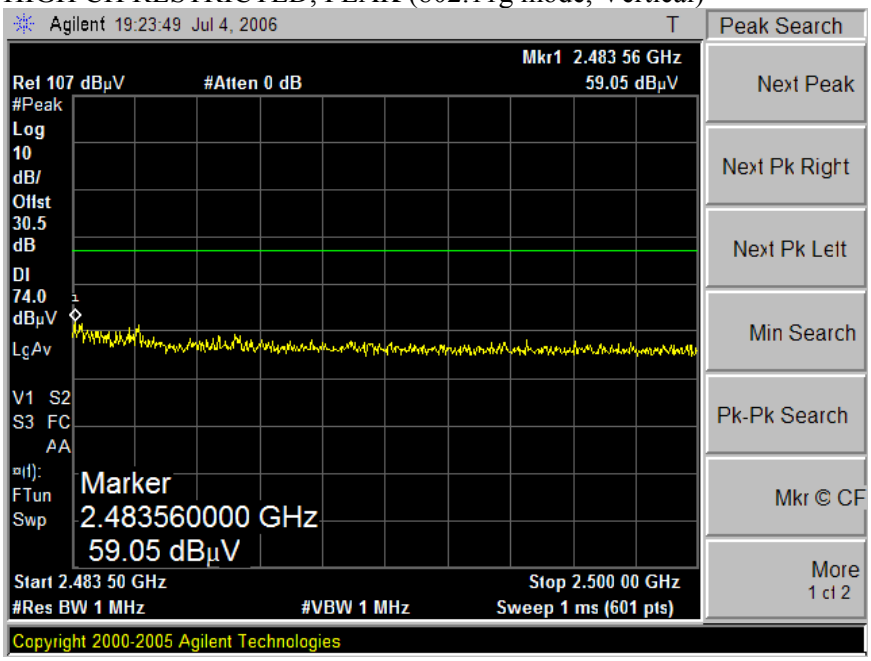


HIGH CH RESTRICTED, AVG (802.11g mode, Horizontal)

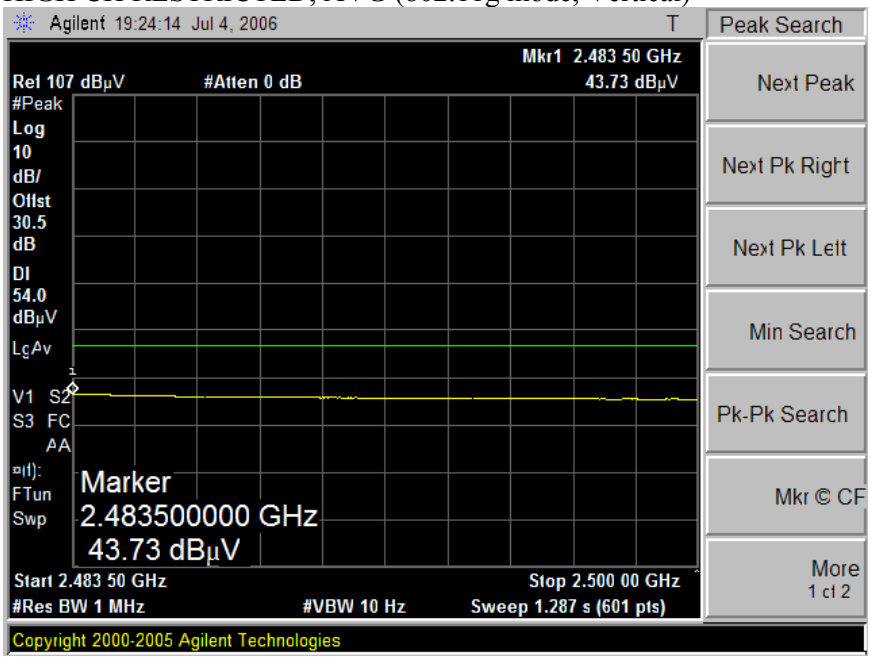


RESTRICTED BANDEDGE (g MODE, HIGH CHANNEL, VERTICAL)

HIGH CH RESTRICTED, PEAK (802.11g mode, Vertical)



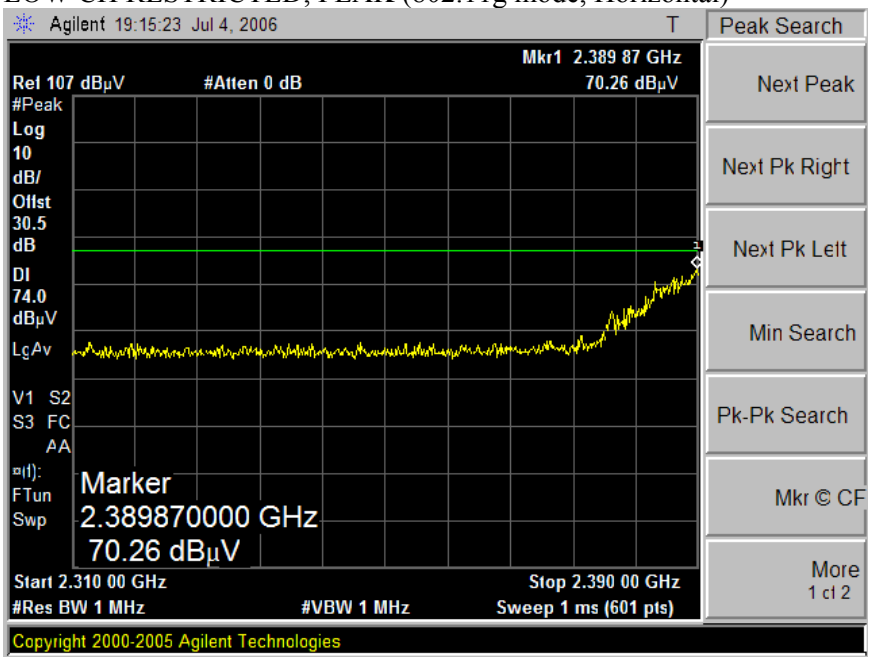
HIGH CH RESTRICTED, AVG (802.11g mode, Vertical)



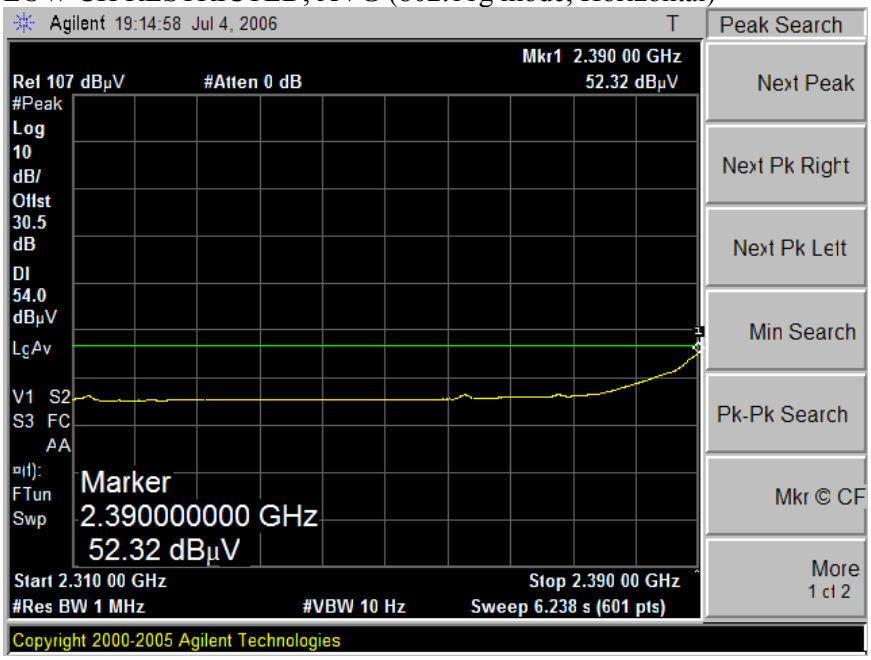
MOBILE CONFIGURATION

RESTRICTED BANDEDGE (g MODE, LOW CHANNEL, HORIZONTAL)

LOW CH RESTRICTED, PEAK (802.11g mode, Horizontal)

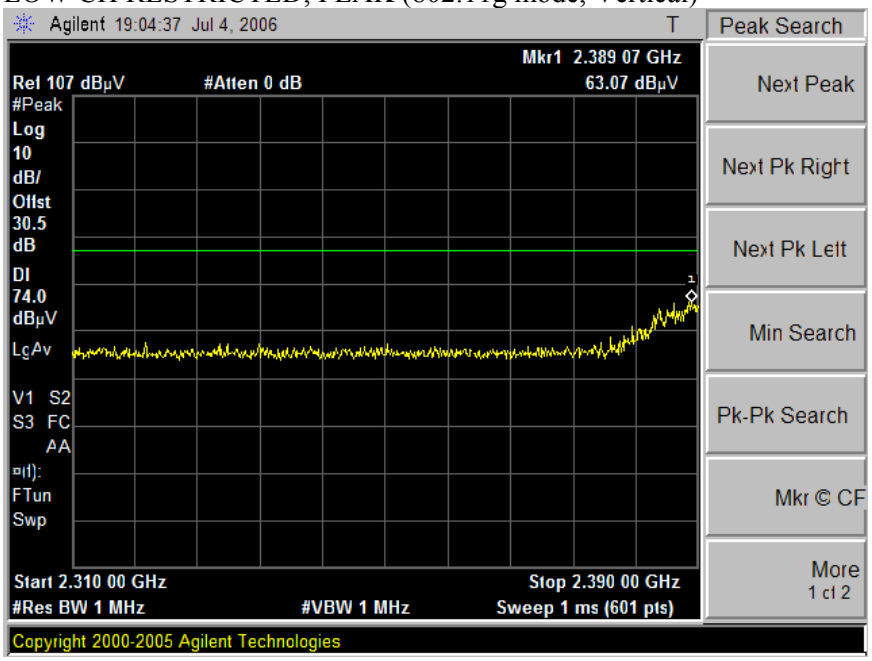


LOW CH RESTRICTED, AVG (802.11g mode, Horizontal)

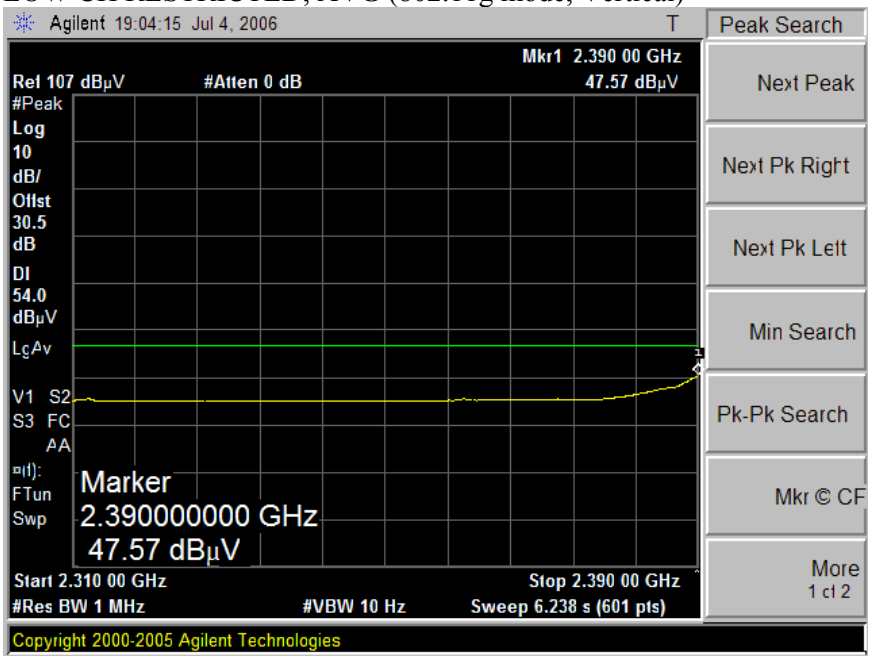


RESTRICTED BANDEDGE (g MODE, LOW CHANNEL, VERTICAL)

LOW CH RESTRICTED, PEAK (802.11g mode, Vertical)

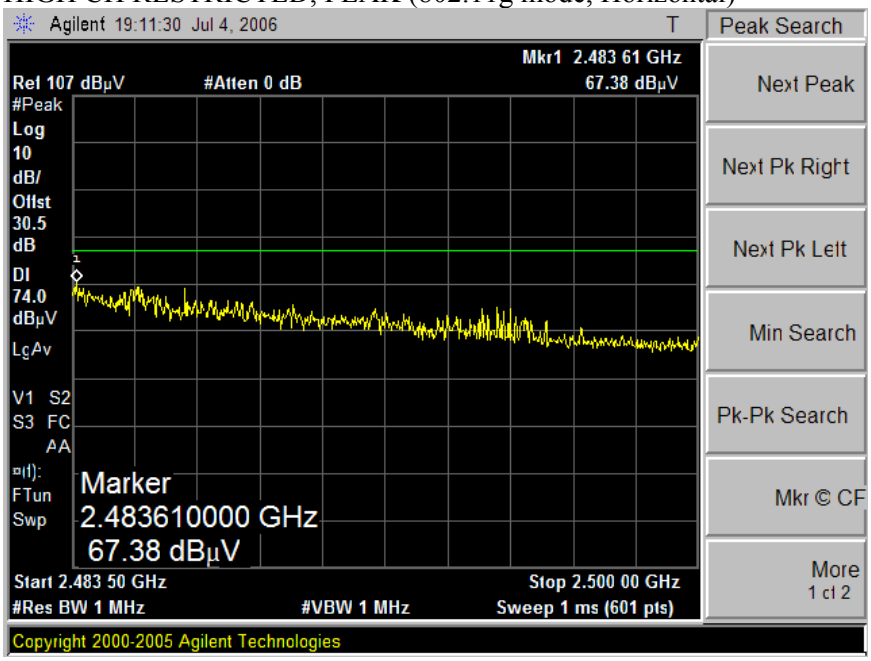


LOW CH RESTRICTED, AVG (802.11g mode, Vertical)

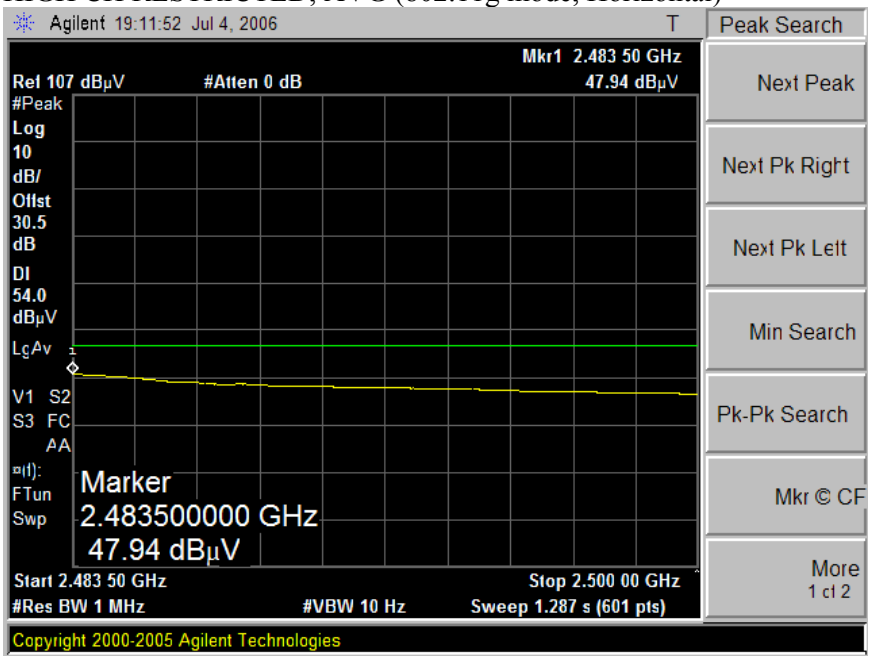


RESTRICTED BANDEDGE (g MODE, HIGH CHANNEL, HORIZONTAL)

HIGH CH RESTRICTED, PEAK (802.11g mode, Horizontal)

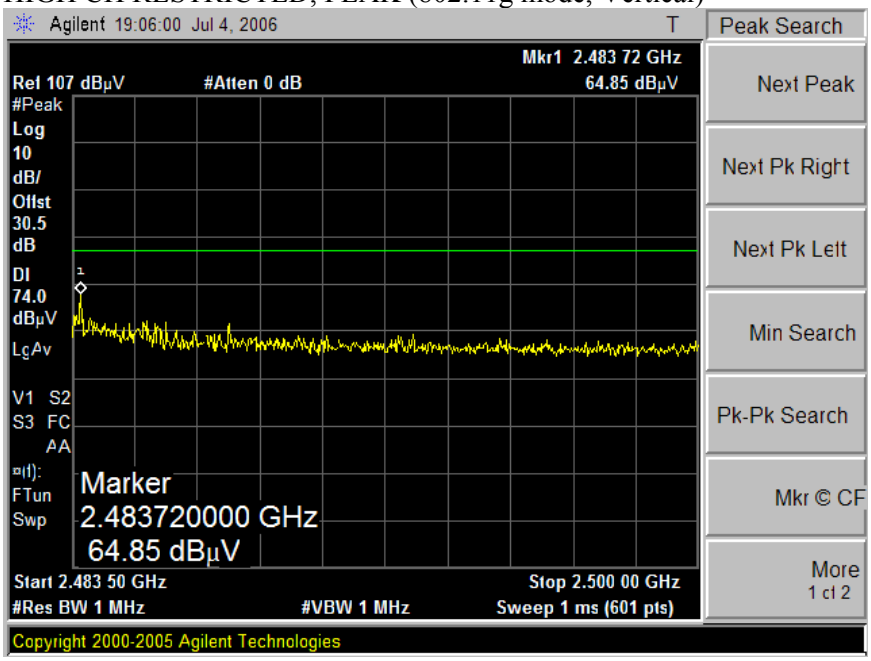


HIGH CH RESTRICTED, AVG (802.11g mode, Horizontal)

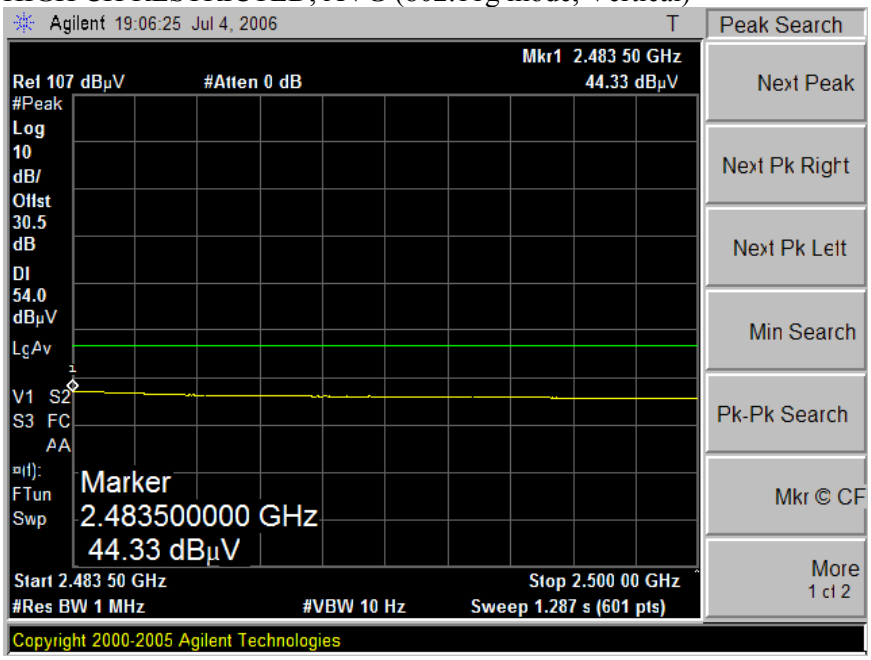


RESTRICTED BANDEDGE (g MODE, HIGH CHANNEL, VERTICAL)

HIGH CH RESTRICTED, PEAK (802.11g mode, Vertical)



HIGH CH RESTRICTED, AVG (802.11g mode, Vertical)



POTABLE CONFIGURATION HARMONICS AND SPURIOUS EMISSIONS (g MODE)

High Frequency Measurement
Compliance Certification Services, Morgan Hill Open Field Site

Company:Toshiba
Project #:06Uxxx
Date:7/13/06
Test Engineer:Chin Pang
Configuration: Portable Configuration (Worse Case)
Mode:TX, g mode

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T73; S/N: 6717 @3m	T144 Miteq 3008A00931			FCC 15.205

Hi Frequency Cables

2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter
Frank 177079007		Chin 200354001		R_001

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 Ch															
4.824	3.0	44.6	32.8	33.3	3.5	-36.5	0.0	0.0	44.9	33.1	74	54	-29.1	-20.9	V
4.824	3.0	43.8	32.3	33.3	3.5	-36.5	0.0	0.0	44.1	32.6	74	54	-29.9	-21.4	H
Mid Ch															
4.874	3.0	44.9	31.0	33.4	3.5	-36.5	0.0	0.0	45.2	31.4	74	54	-28.8	-22.6	V
7.311	3.0	44.0	30.7	35.0	4.0	-36.2	0.0	0.0	46.8	33.5	74	54	-27.2	-20.5	V
4.874	3.0	43.7	30.6	33.4	3.5	-36.5	0.0	0.0	44.1	31.0	74	54	-29.9	-23.0	H
7.311	3.0	43.5	30.4	35.0	4.0	-36.2	0.0	0.0	46.3	33.2	74	54	-27.7	-20.8	H
High Ch															
4.924	3.0	45.0	32.0	33.4	3.5	-36.5	0.0	0.0	45.5	32.5	74	54	-28.5	-21.5	V
7.386	3.0	44.5	31.2	35.0	4.0	-36.2	0.0	0.0	47.3	34.0	74	54	-26.7	-20.0	V
4.924	3.0	43.5	31.3	33.4	3.5	-36.5	0.0	0.0	44.0	31.8	74	54	-30.0	-22.2	H
7.386	3.0	43.2	30.3	35.0	4.0	-36.2	0.0	0.0	46.0	33.1	74	54	-28.0	-20.9	H

Rev. 5.1.6
Note: No other emissions were detected 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		

MOBILE CONFIGURATION HARMONICS AND SPURIOUS EMISSIONS (g MODE)

High Frequency Measurement
Compliance Certification Services, Morgan Hill Open Field Site

Company:Toshiba
Project #:
Date:7/13/06
Test Engineer:Chin Pang
Configuration:Mobile Configuration
Mode:TX, g mode

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T73; S/N: 6717 @3m	T144 Miteq 3008A00931			FCC 15.205

Hi Frequency Cables

2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter
Frank 177079007		Chin 200354001		R_001

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 Ch															
4.824	3.0	44.0	33.0	33.3	3.5	-36.5	0.0	0.0	44.3	33.3	74	54	-29.7	-20.7	V
4.824	3.0	44.0	31.0	33.3	3.5	-36.5	0.0	0.0	44.3	31.3	74	54	-29.7	-22.7	H
Mid Ch															
4.874	3.0	45.7	31.6	33.4	3.5	-36.5	0.0	0.0	46.1	32.0	74	54	-27.9	-22.0	V
7.311	3.0	44.2	31.0	35.0	4.0	-36.2	0.0	0.0	47.0	33.8	74	54	-27.0	-20.2	V
4.874	3.0	45.0	31.0	33.4	3.5	-36.5	0.0	0.0	45.4	31.4	74	54	-28.6	-22.6	H
7.311	3.0	43.5	30.5	35.0	4.0	-36.2	0.0	0.0	46.3	33.3	74	54	-27.7	-20.7	H
High Ch															
4.924	3.0	45.0	31.3	33.4	3.5	-36.5	0.0	0.0	45.5	31.8	74	54	-28.5	-22.2	V
7.386	3.0	44.0	30.8	35.0	4.0	-36.2	0.0	0.0	46.8	33.6	74	54	-27.2	-20.4	V
4.924	3.0	44.2	30.7	33.4	3.5	-36.5	0.0	0.0	44.7	31.2	74	54	-29.3	-22.8	H
7.386	3.0	43.6	30.4	35.0	4.0	-36.2	0.0	0.0	46.4	33.2	74	54	-27.6	-20.8	H

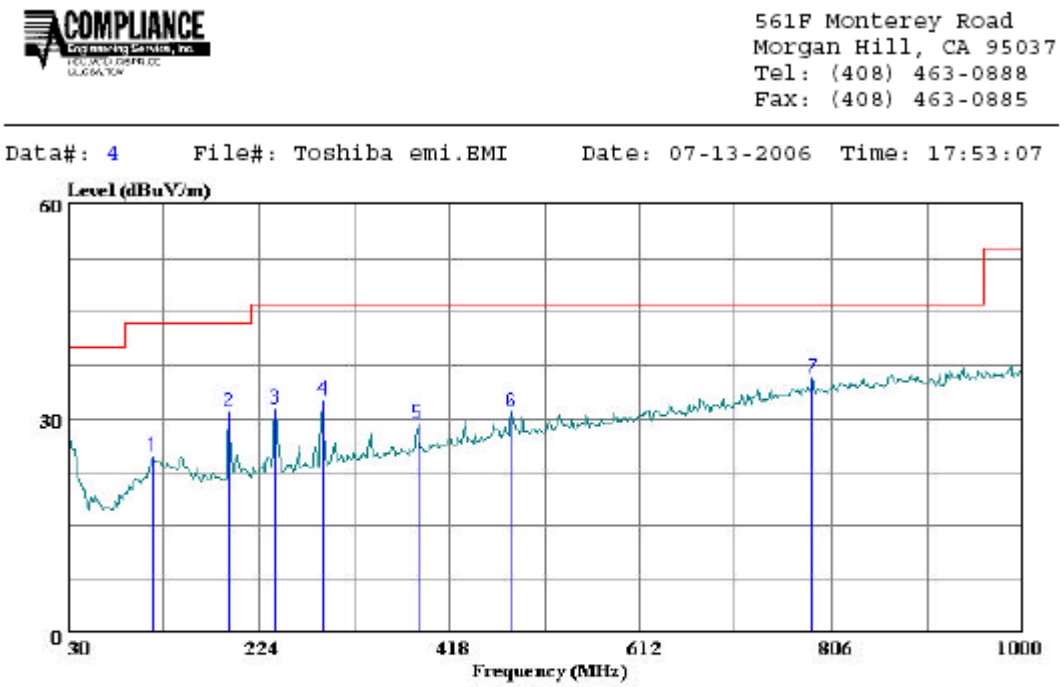
Rev. 5.1.6
Note: No other emissions were detected above the system noise floor.

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		

7.3.3. WORST-CASE RADIATED EMISSIONS BELOW 1 GHz

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

HORIZONTAL PLOT



HORIZONTAL DATA

Page: 1

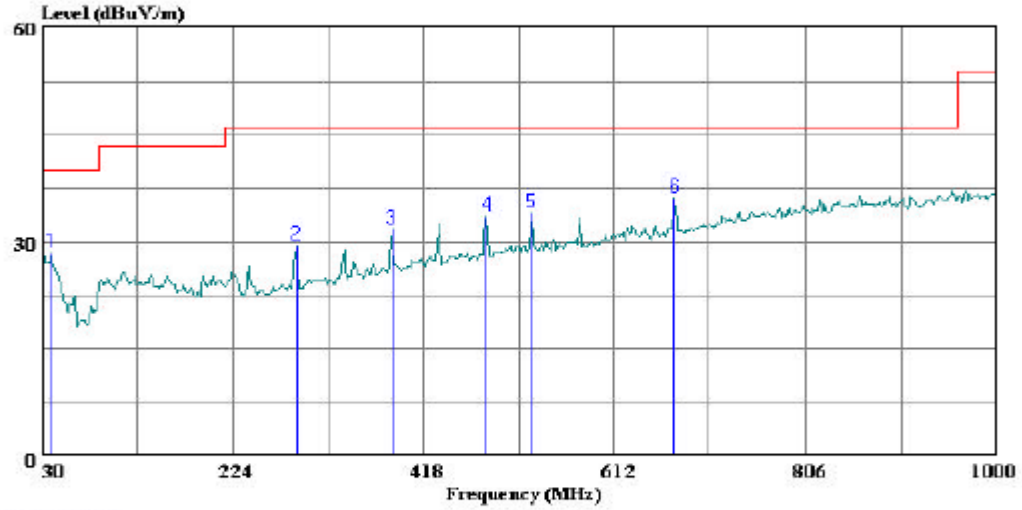
	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	116.330	9.91	14.71	24.62	43.50	-18.88	Peak
2	193.930	17.41	13.56	30.97	43.50	-12.53	Peak
3	240.490	17.73	13.54	31.27	46.00	-14.73	Peak
4	288.990	17.31	15.26	32.57	46.00	-13.43	Peak
5	385.990	11.57	17.73	29.30	46.00	-16.70	Peak
6	482.020	11.01	19.87	30.88	46.00	-15.12	Peak
7	785.630	11.47	24.35	35.82	46.00	-10.18	Peak

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION

VERTICAL PLOT

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

Data#: 2 File#: Toshiba emi.EMI Date: 07-13-2006 Time: 17:49:26



(Audix ATC)
Trace: 1 Ref Trace:

Condition: FCC CLASS-B VERTICAL
Test Operator: : Chin Pang
Company: : Toshiba
Project #: : 06U10441
Model: : Canary Tablet with intel abg module
Configuration: : EUT inside the Laptop
Mode of Operation: TX (Worst Case)

VERTICAL DATA

Page: 1

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	38.730	12.37	16.12	28.49	40.00	-11.51	Peak
2	288.990	14.31	15.26	29.57	46.00	-16.43	Peak
3	385.990	13.99	17.73	31.72	46.00	-14.28	Peak
4	482.990	13.79	19.89	33.68	46.00	-12.32	Peak
5	528.580	13.49	20.63	34.12	46.00	-11.88	Peak
6	674.080	13.39	22.71	36.10	46.00	-9.90	Peak

7.4. 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 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:

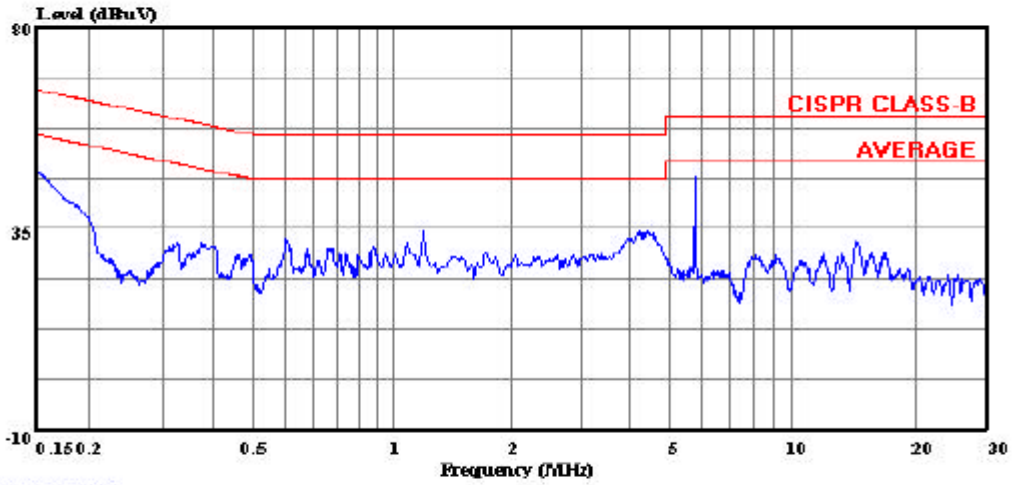
6 WORST EMISSIONS

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
0.15	47.11	--	--	0.00	65.84	55.84	-18.73	-8.73	L1
1.29	34.46	--	--	0.00	56.00	46.00	-21.54	-11.54	L1
5.90	46.32	--	--	0.00	60.00	50.00	-13.68	-3.68	L1
0.16	47.52	--	--	0.00	65.67	55.67	-18.15	-8.15	L2
0.49	32.28	--	--	0.00	56.24	46.24	-23.96	-13.96	L2
4.25	36.16	--	--	0.00	56.00	46.00	-19.84	-9.84	L2
6 Worst Data									

LINE 1 RESULTS

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

Data#: 7 File#: Toshiba LC.EMI Date: 07-13-2006 Time: 19:22:23



Trace: Ref Trace:

Condition: CISPR CLASS-B
Test Operator : Chin Pang
Project # : 06U10441
Company : Toshiba
EUT configuration: EUT inside the Laptop
EUT mode : TX (Worst Case)
Power Source : 115 VAC, 60 Hz
: Line 1: Peak:(Black)

LINE 2 RESULTS