



**RADIATED SPURIOUS EMISSIONS PORTIONS OF
FCC CFR47 PART 15 SUBPART C**

CERTIFICATION TEST REPORT

NETBOOK

MODEL: TOSHIBA NB200 / NB205

FCC ID: CJ6UPLL20PC

REPORT NUMBER: 09U12710-2

ISSUE DATE: JULY 21, 2009

Prepared for

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

Prepared by

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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	07/21/09	Initial Issue	T. Chan

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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: NETBOOK

MODEL: TOSHIBA NB200/NB205

SERIAL NUMBER: WL K000072100 WK 927K

DATE TESTED: JULY 15 – 20, 2009

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Pass (Radiated Portions)

Compliance Certification Services, Inc. (CCS) tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by CCS based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

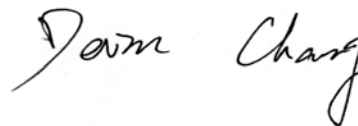
Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by CCS and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by CCS will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released For CCS By:

Tested By:



THU CHAN
EMC MANAGER
COMPLIANCE CERTIFICATION SERVICES



DEVIN CHANG
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, FCC CFR 47 Part 15, RSS-GEN Issue 2, and RSS-210 Issue 7.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

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. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

$$\begin{aligned} \text{Field Strength (dBuV/m)} &= \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \\ &\text{Cable Loss (dB)} - \text{Preamp Gain (dB)} \\ 36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} &= 28.9 \text{ dBuV/m} \end{aligned}$$

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.52 dB
Radiated Disturbance, 30 to 1000 MHz	4.94 dB

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is an 802.11b/g/n transceiver module.
The radio module is manufactured by Atheros.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum peak conducted output power as follows:

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2412 - 2462	802.11b	21.56	143.22
2412 - 2462	802.11g	25.23	333.43
2412 - 2462	802.11n HT20	25.15	327.34
2422 - 2452	802.11n HT40	22.06	160.69

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a PIFA antenna, with a maximum gain of -1.45 dBi.

5.4. SOFTWARE AND FIRMWARE

The test utility and driver software used during testing was AR5002 ANWI Diagnostic Kernel Driver and Devlib Revision 0.9 Build #7 Art_11n.

5.5. WORST-CASE CONFIGURATION AND MODE

The worst-case channel is determined as the channel with the highest output power.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
Laptop PC	TOSHIBA	NB205	6AD927105086	Doc
AC adapter	TOSHIBA	PA3742U-1ACA	G71C0009S118	Doc

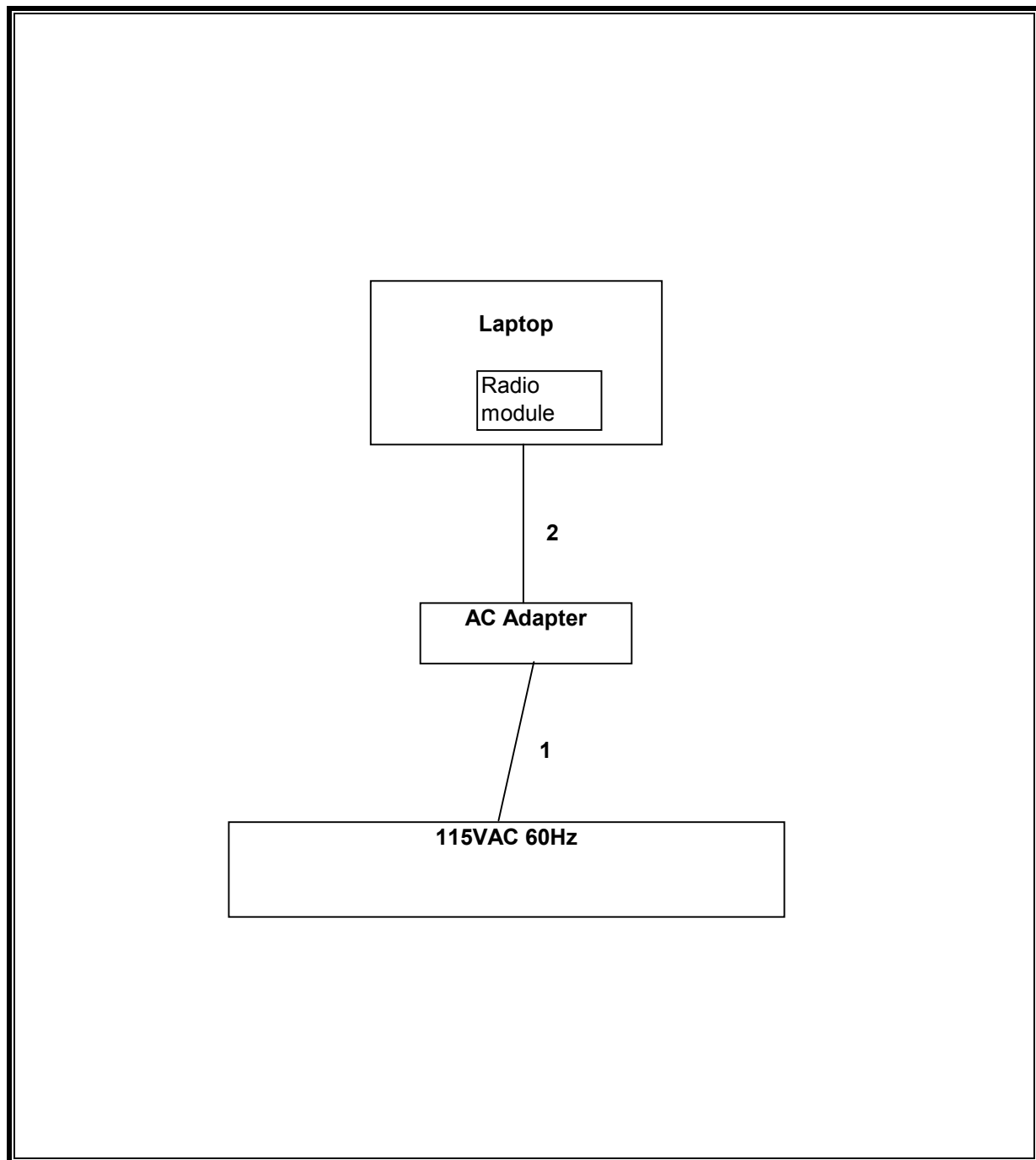
I/O CABLES

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	AC	1	US 115V	Un-shielded	1.7m	NA
2	DC	1	DC	Un-shielded	1.5m	Ferrite at laptop's end

TEST SETUP

The EUT is a host laptop computer during the tests. 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	Asset	Cal Due
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C00749	02/04/10
Antenna, Bilog, 2 GHz	Sundt Sciences	JB1	C01171	01/14/10
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00580	12/16/09
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01012	04/20/10
Antenna, Horn, 18 GHz	EMCO	3115	C00872	04/22/10
EMI Test Receiver, 30 MHz	R & S	ESHS 20	N02396	08/06/09
LISN, 30 MHz	FCC	LISN-50/250-25-2	N02625	10/29/09
LISN, 10 kHz ~ 30 MHz	Solar	8012-50-R-24-BNC	N02481	10/29/09
Peak Power Meter	Boonton	4541	N/A	01/15/10
Peak / Average Power Sensor	Boonton	57318	N/A	02/02/10
2.4 - 2.5 Reject Filter	Micro Tronics	BRM50702	N/A	N/A

7. RADIATED TEST RESULTS

7.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

IC RSS-210 Clause 2.6 (Transmitter)

IC RSS-GEN Clause 6 (Receiver)

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

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.

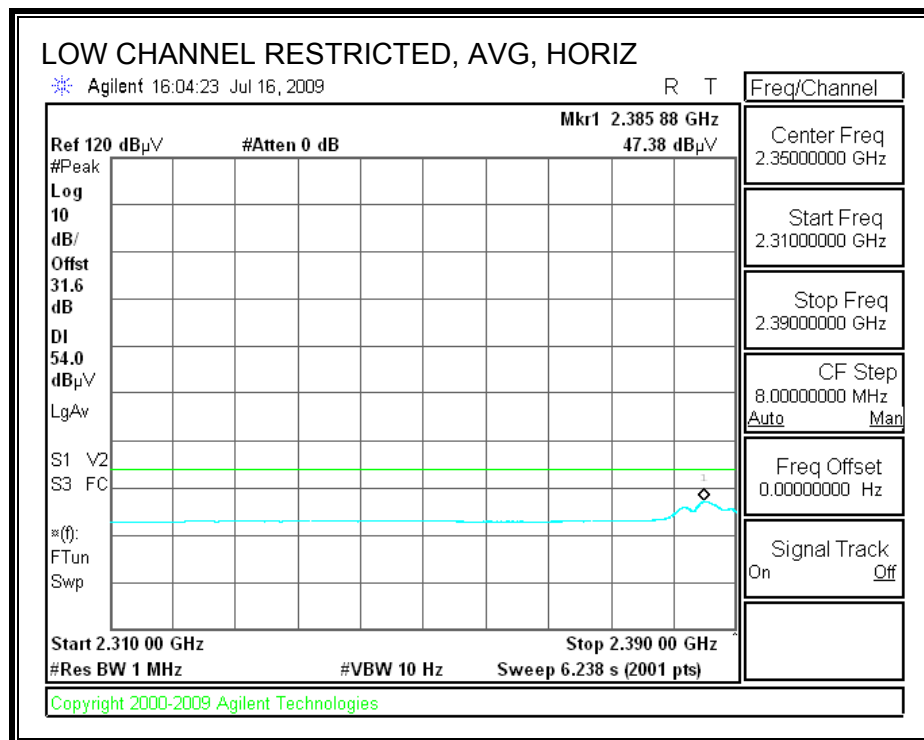
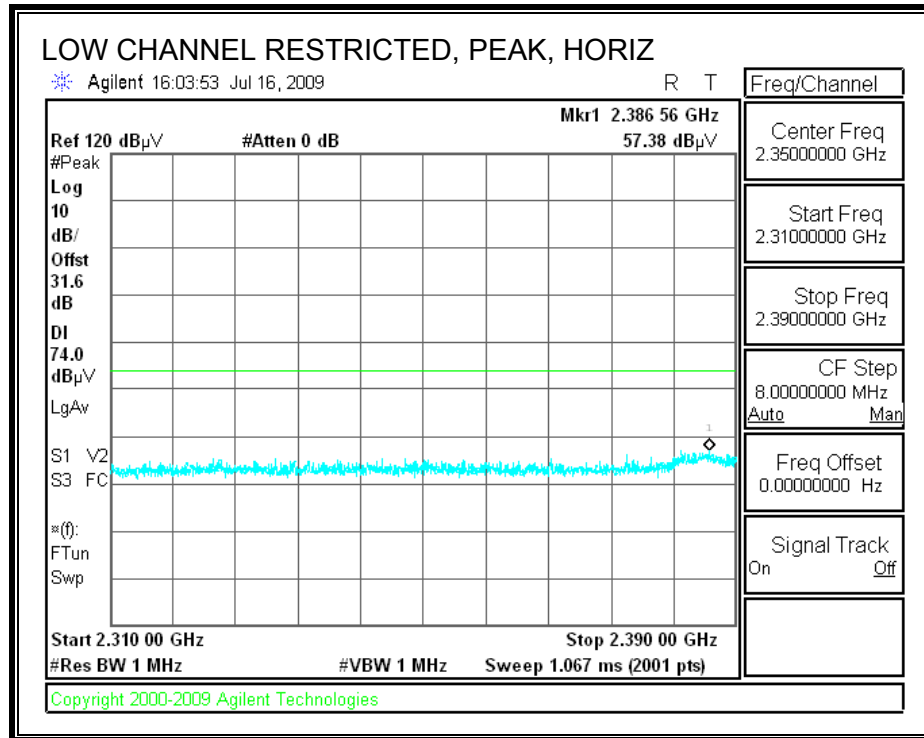
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

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.

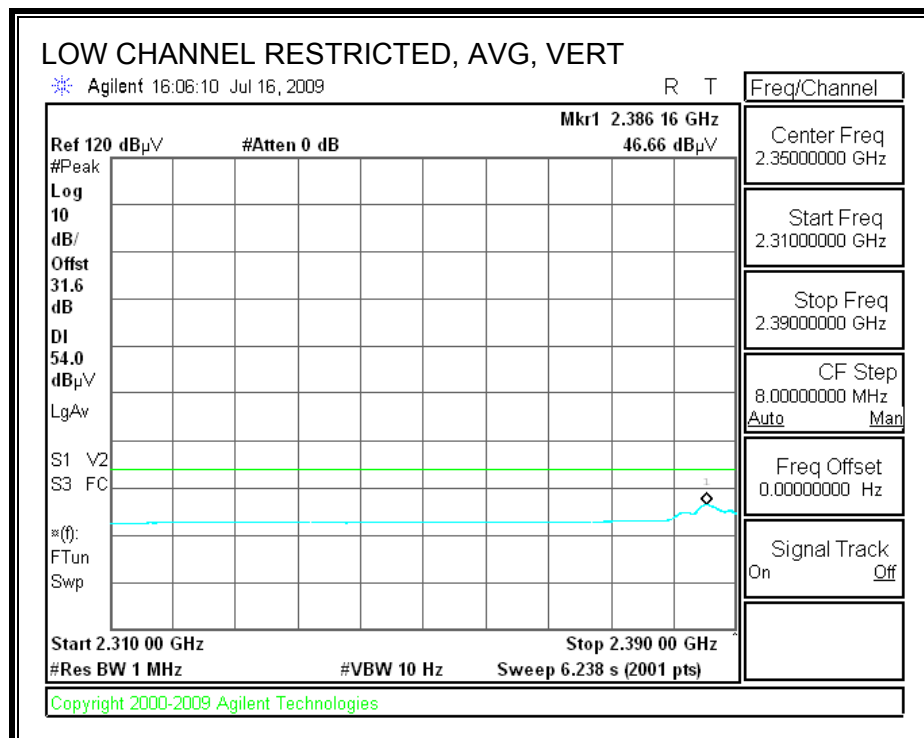
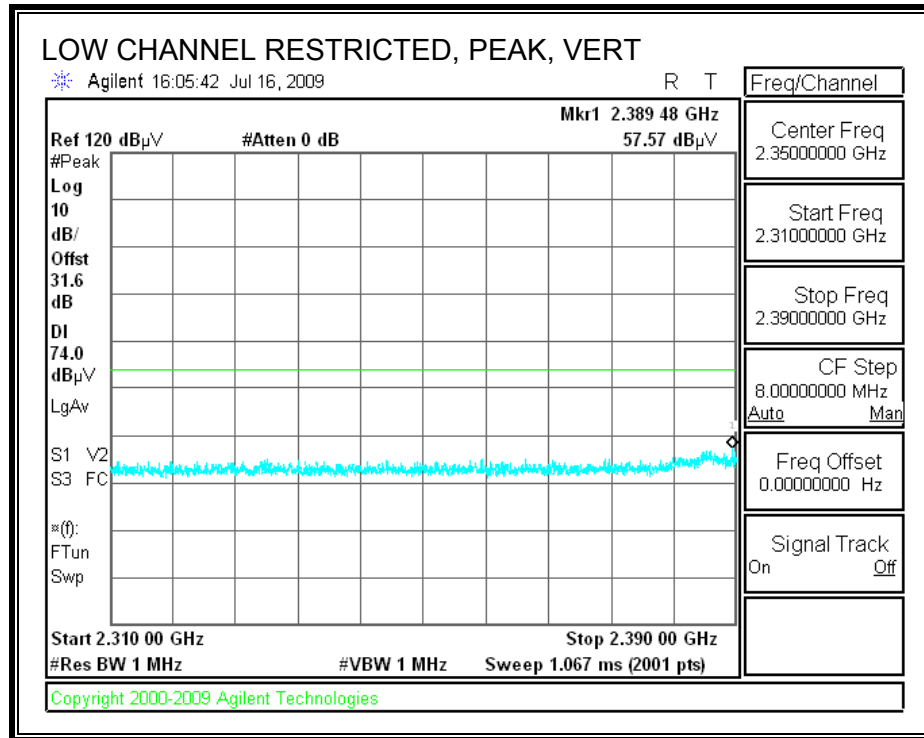
7.2. TRANSMITTER ABOVE 1 GHz

7.2.1. TRANSMITTER ABOVE 1 GHz FOR 802.11b MODE

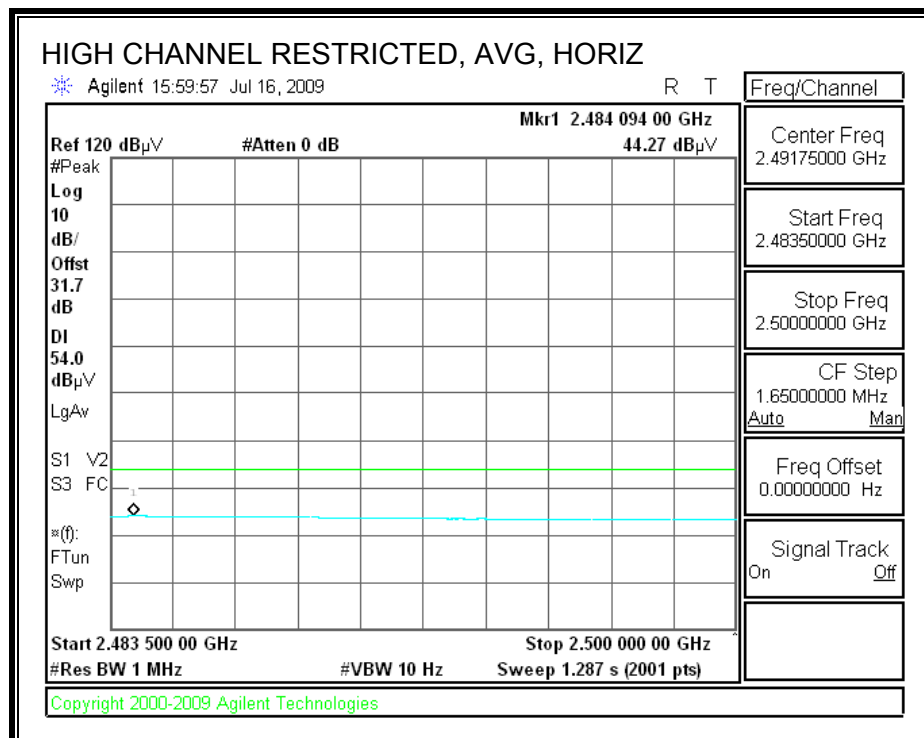
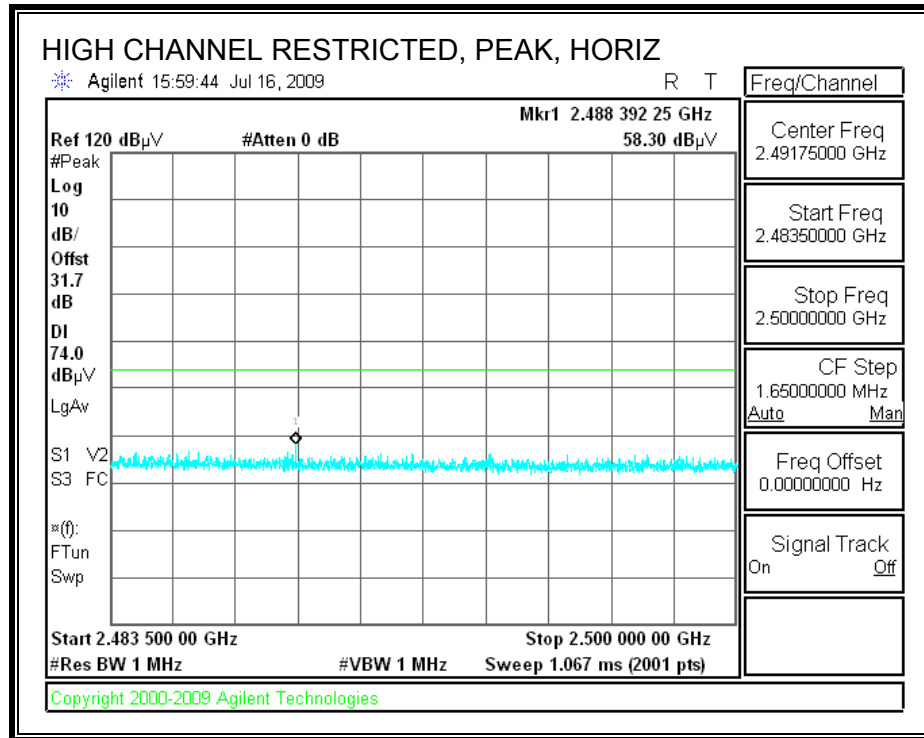
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



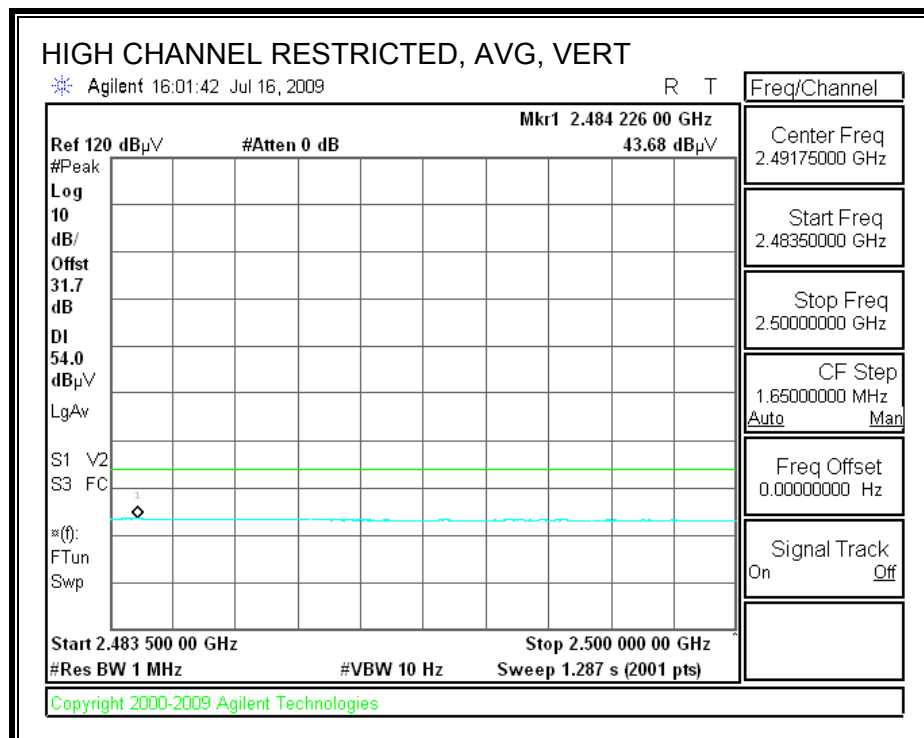
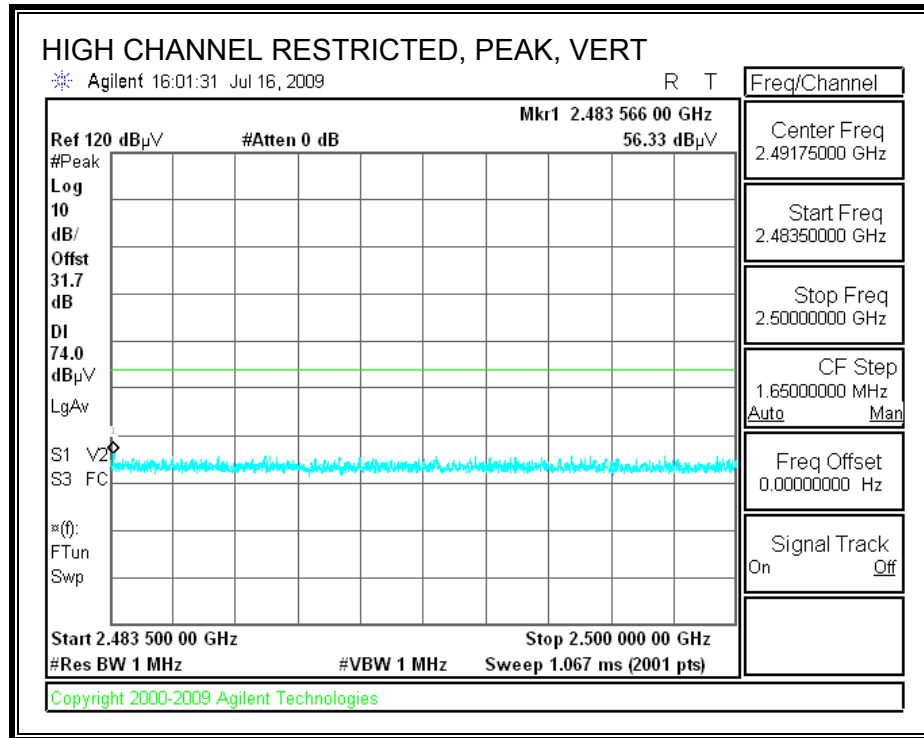
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement Compliance Certification Services, Fremont 5m Chamber

Test Engr: Devin Chang
Date: 07/17/09
Project #: 09U12710
Company: Toshiba
EUT Description: EUT only
Mode Oper: b mode

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

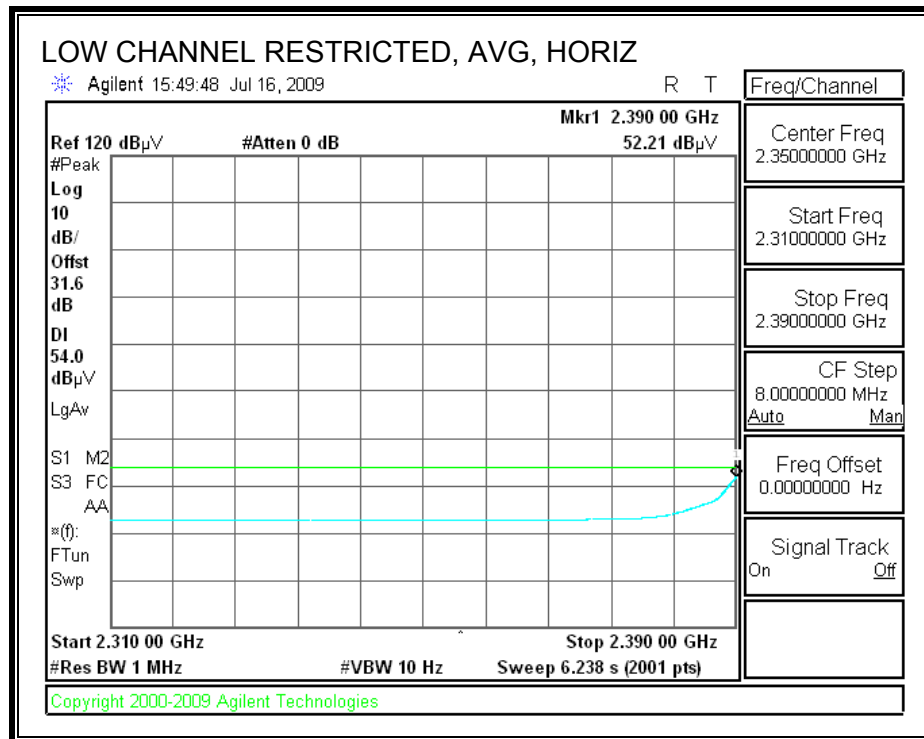
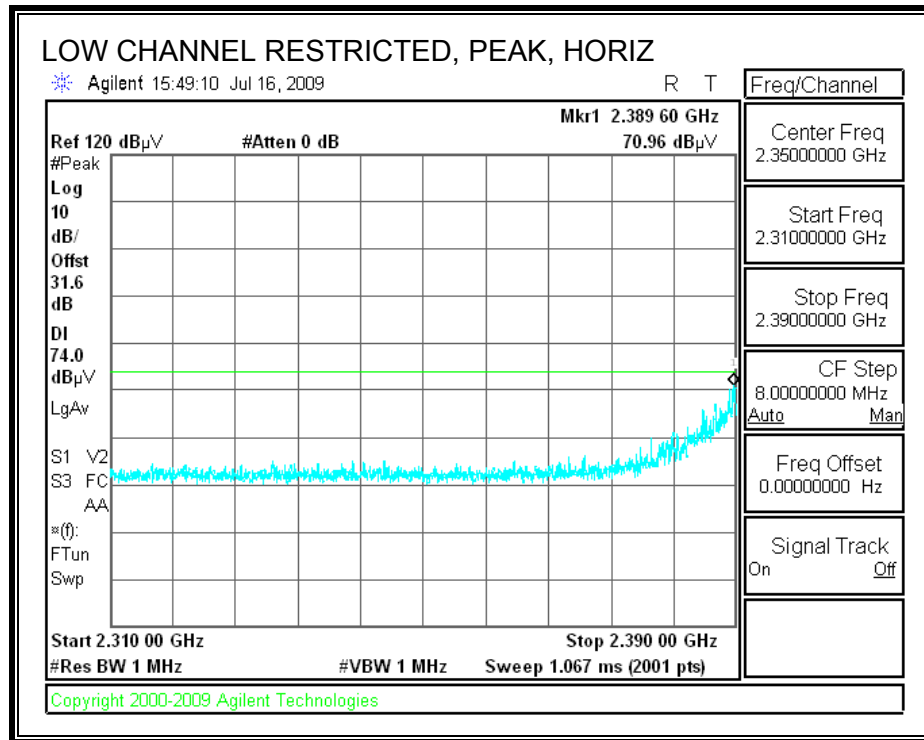
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fitr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
2412MHz															
4.824	3.0	52.0	32.8	5.8	-34.8	0.0	0.0	55.7	74.0	-18.3	V	P	112.0	316.8	
4.824	3.0	49.8	32.8	5.8	-34.8	0.0	0.0	53.6	54.0	-0.4	V	A	112.0	316.8	
4.824	3.0	44.8	32.8	5.8	-34.8	0.0	0.0	48.5	74.0	-25.5	H	P	117.1	136.4	
4.824	3.0	41.5	32.8	5.8	-34.8	0.0	0.0	45.2	54.0	-8.8	H	A	117.1	136.4	
2437MHz															
4.874	3.0	50.0	32.8	5.8	-34.9	0.0	0.0	53.8	74.0	-20.2	V	P	111.1	304.3	
4.874	3.0	48.3	32.8	5.8	-34.9	0.0	0.0	52.1	54.0	-1.9	V	A	111.1	304.3	
4.874	3.0	43.7	32.8	5.8	-34.9	0.0	0.0	47.5	74.0	-26.5	H	P	115.0	137.5	
4.874	3.0	38.8	32.8	5.8	-34.9	0.0	0.0	42.6	54.0	-11.4	H	A	115.0	137.5	
2462MHz															
4.924	3.0	44.1	32.8	5.9	-34.9	0.0	0.0	48.0	74.0	-26.0	V	P	101.7	350.8	
4.924	3.0	40.1	32.8	5.9	-34.9	0.0	0.0	44.0	54.0	-10.0	V	A	101.7	350.8	
4.924	3.0	40.6	32.8	5.9	-34.9	0.0	0.0	44.5	74.0	-29.5	H	P	100.4	141.8	
4.924	3.0	32.2	32.8	5.9	-34.9	0.0	0.0	36.1	54.0	-17.9	H	A	100.4	141.8	

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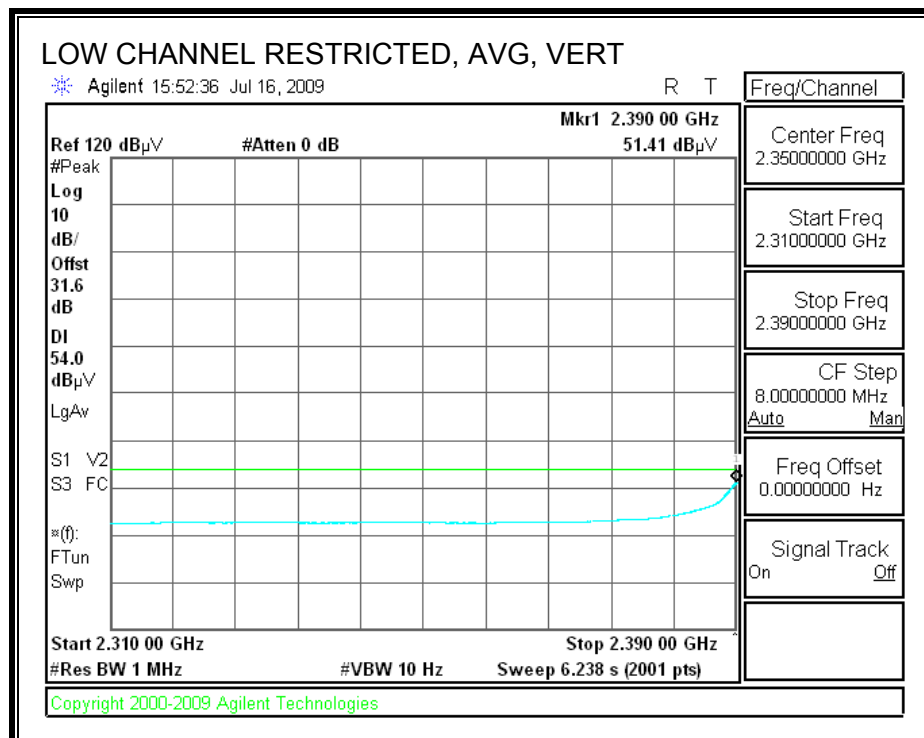
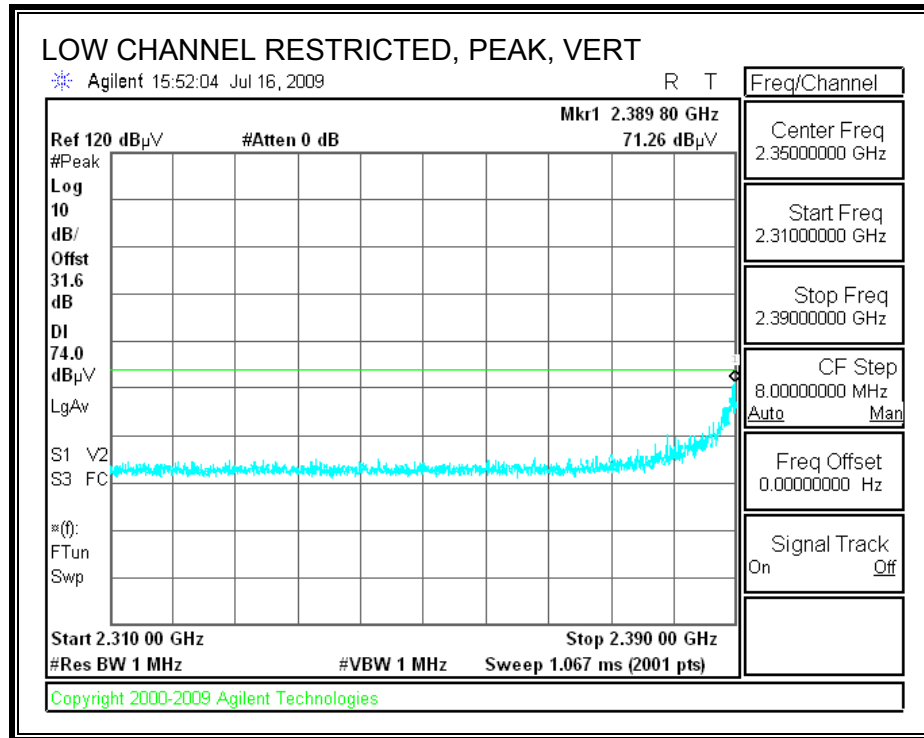
Note: No other emissions were detected above the system noise floor.

7.2.2. TRANSMITTER ABOVE 1 GHz FOR 802.11g MODE

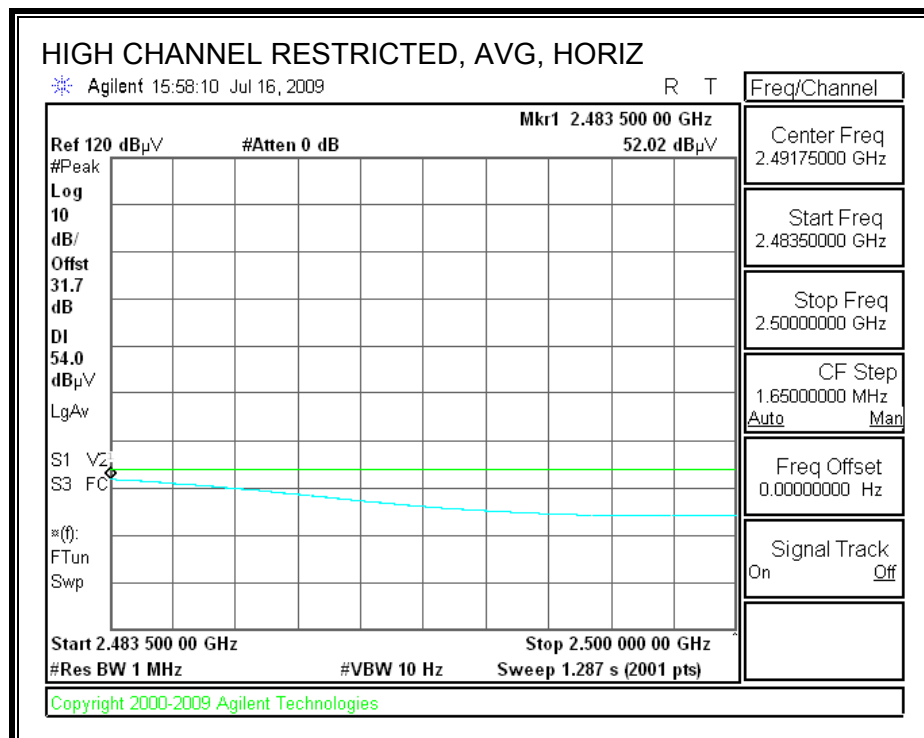
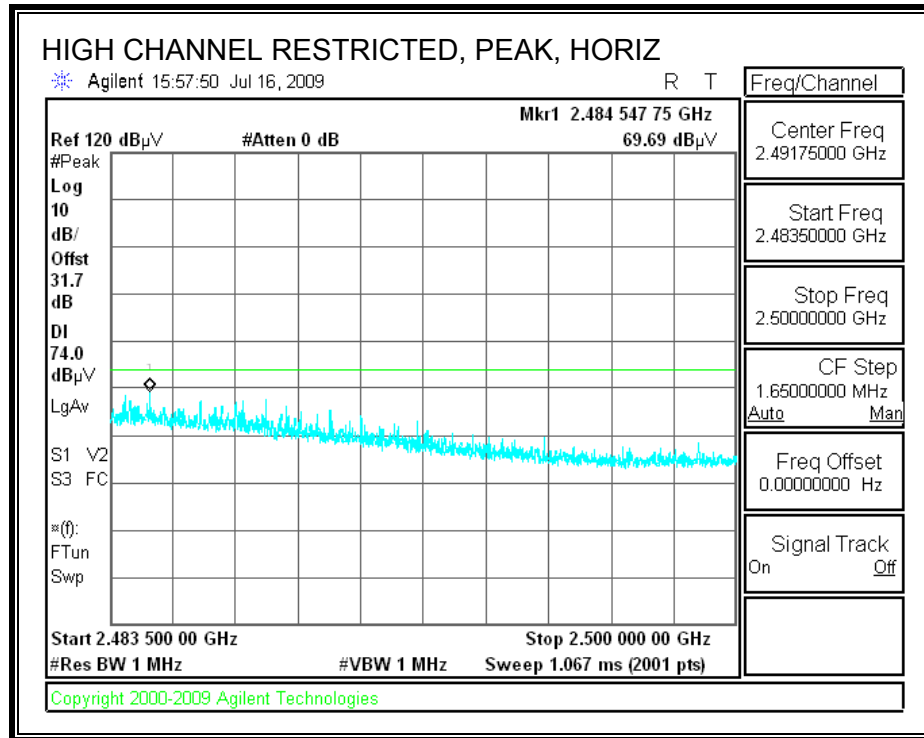
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



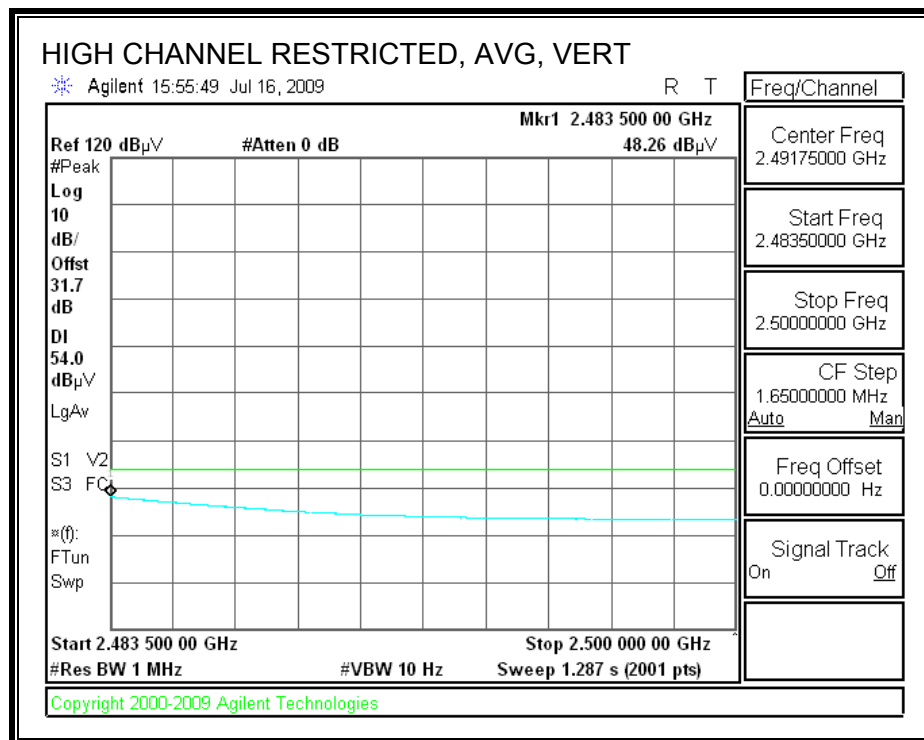
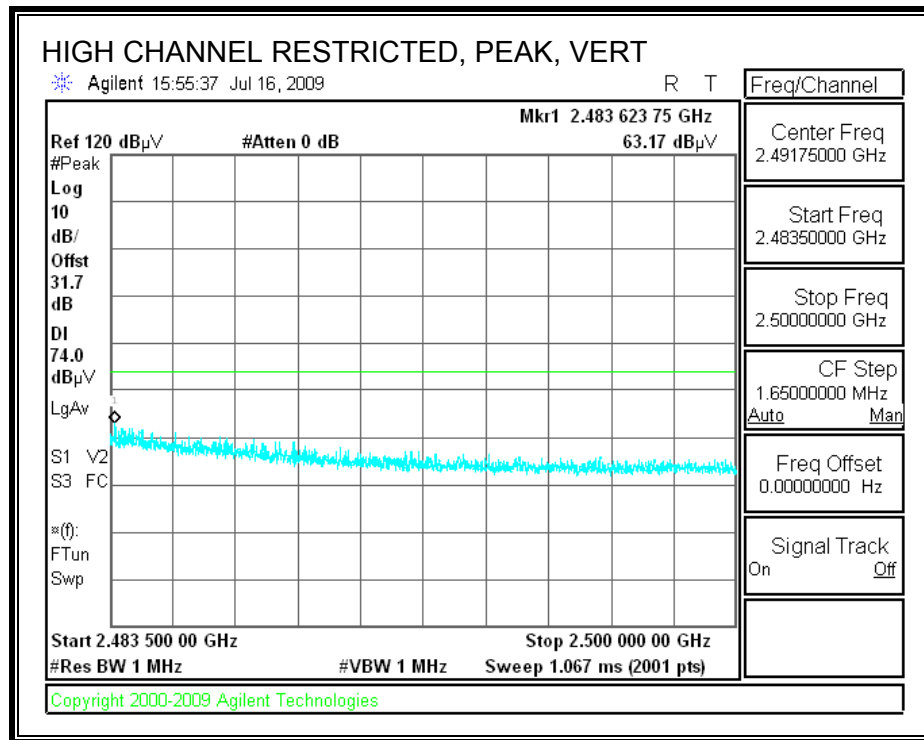
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement

Compliance Certification Services, Fremont 5m Chamber

Test Engr: Devin Chang

Date: 07/17/09

Project #: 09U12710

Company: Toshiba

EUT Description: EUT only

Mode Oper: g mode

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

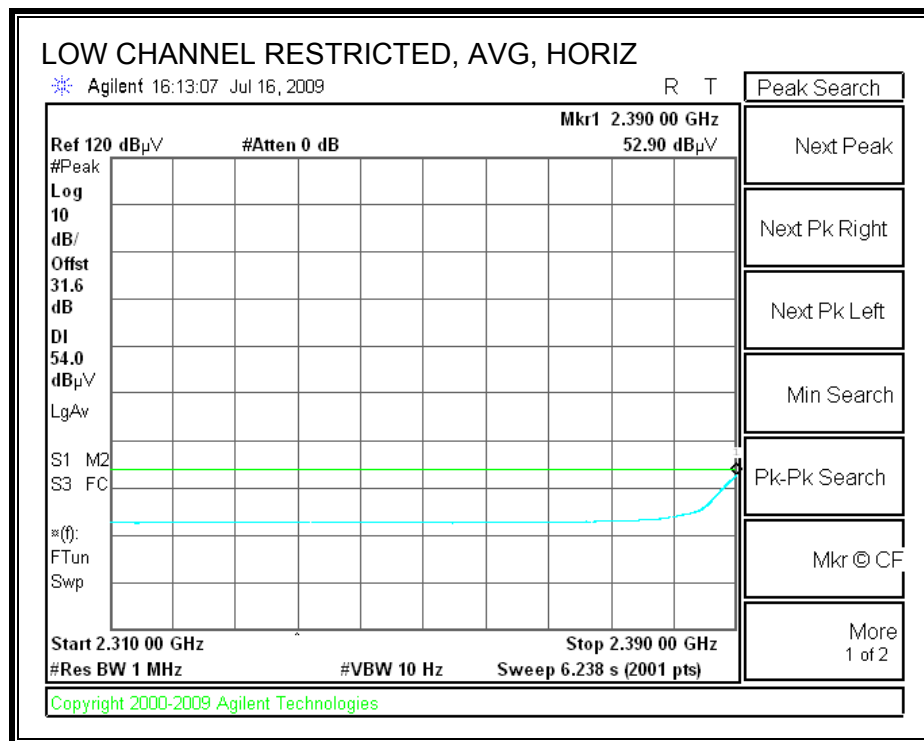
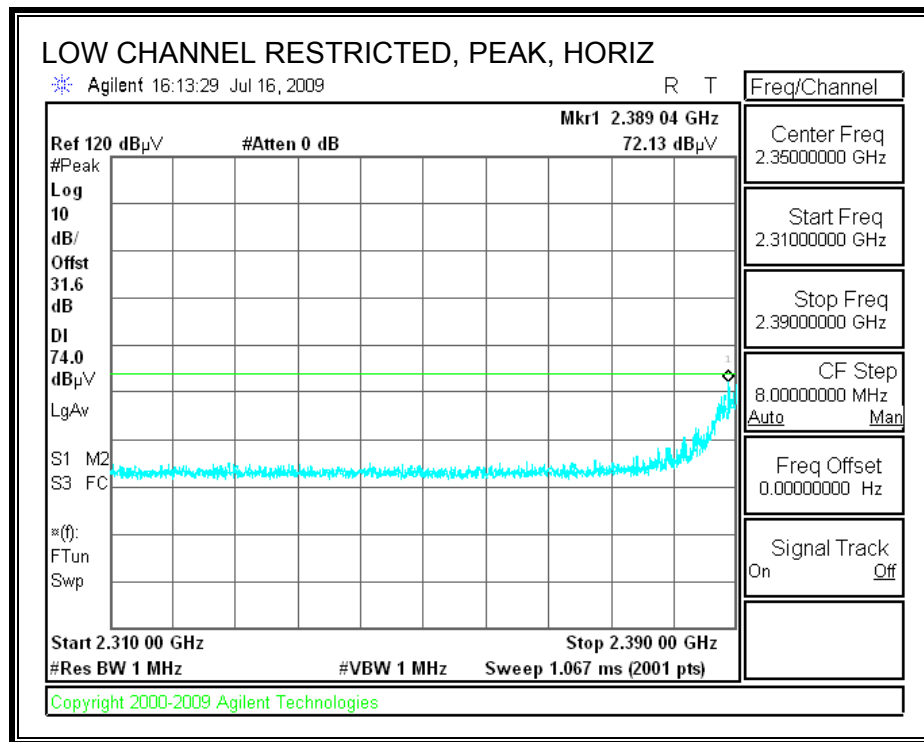
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Notes
2412MHz													
4.824	3.0	54.0	32.8	5.8	-34.8	0.0	0.0	57.7	74.0	-16.3	V	P	
4.824	3.0	40.7	32.8	5.8	-34.8	0.0	0.0	44.4	54.0	-9.6	V	A	
4.824	3.0	47.3	32.8	5.8	-34.8	0.0	0.0	51.0	74.0	-23.0	H	P	
4.824	3.0	33.5	32.8	5.8	-34.8	0.0	0.0	37.3	54.0	-16.7	H	A	
2437MHz													
4.874	3.0	51.7	32.8	5.8	-34.9	0.0	0.0	55.4	74.0	-18.6	V	P	
4.874	3.0	38.3	32.8	5.8	-34.9	0.0	0.0	42.1	54.0	-11.9	V	A	
4.874	3.0	44.2	32.8	5.8	-34.9	0.0	0.0	48.0	74.0	-26.0	H	P	
4.874	3.0	30.7	32.8	5.8	-34.9	0.0	0.0	34.5	54.0	-19.5	H	A	
2462MHz													
4.924	3.0	46.0	32.8	5.9	-34.9	0.0	0.0	49.9	74.0	-24.1	V	P	
4.924	3.0	32.3	32.8	5.9	-34.9	0.0	0.0	36.2	54.0	-17.8	V	A	
4.924	3.0	39.6	32.8	5.9	-34.9	0.0	0.0	43.4	74.0	-30.6	H	P	
4.924	3.0	26.9	32.8	5.9	-34.9	0.0	0.0	30.8	54.0	-23.2	H	A	

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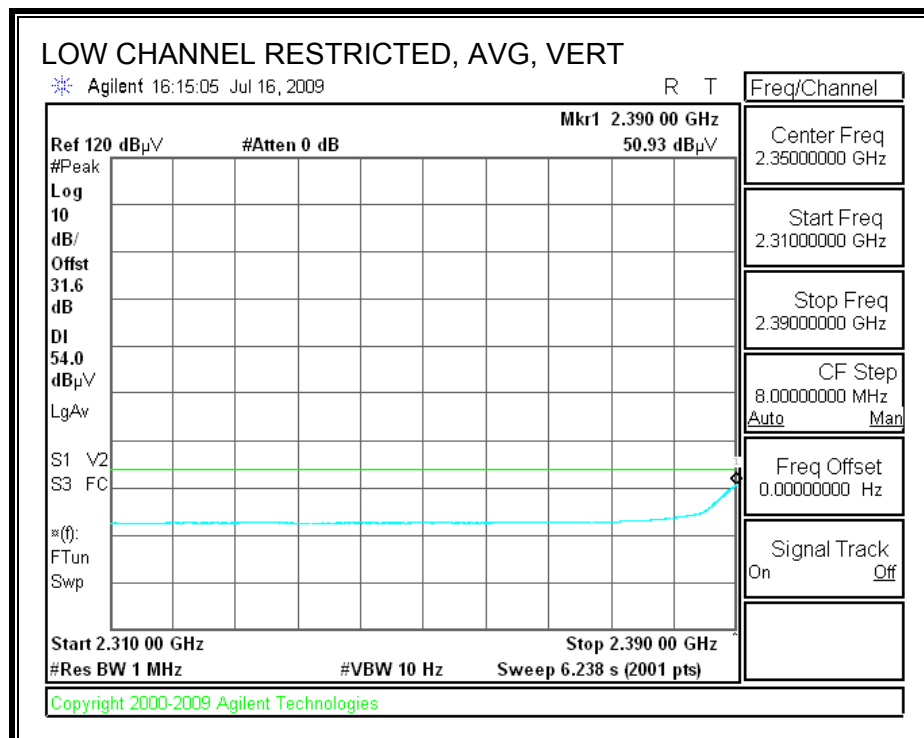
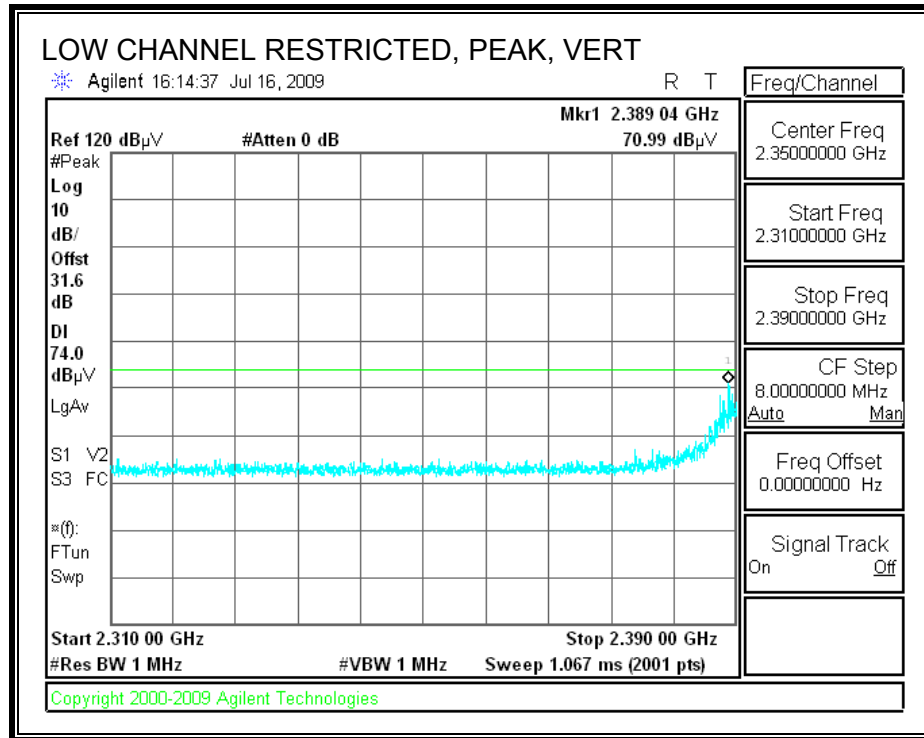
Note: No other emissions were detected above the system noise floor.

7.2.3. TRANSMITTER ABOVE 1 GHz FOR 802.11n HT20 MODE

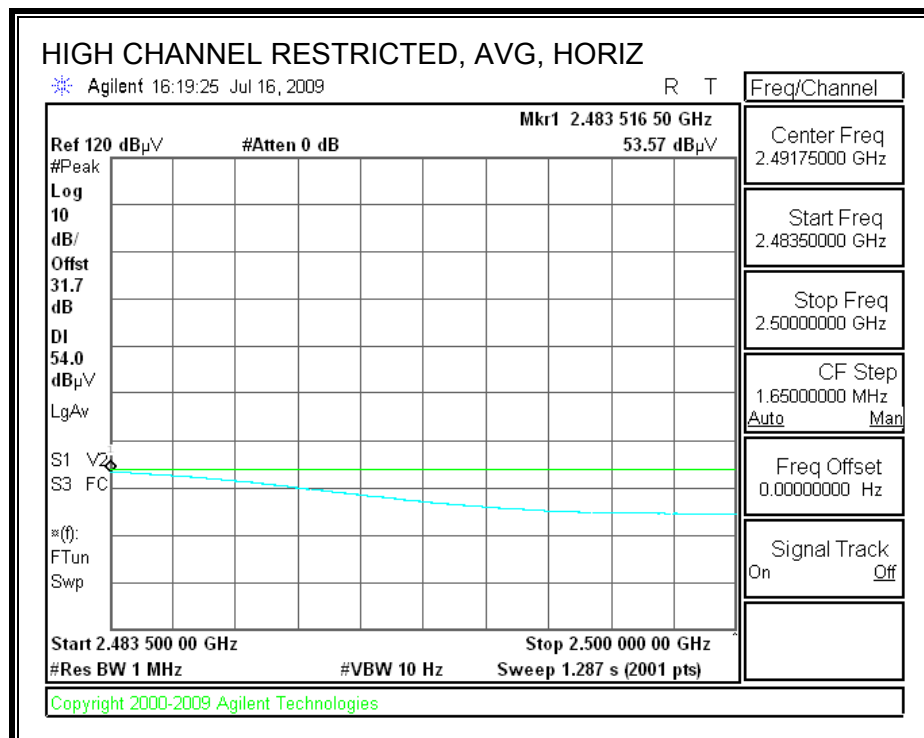
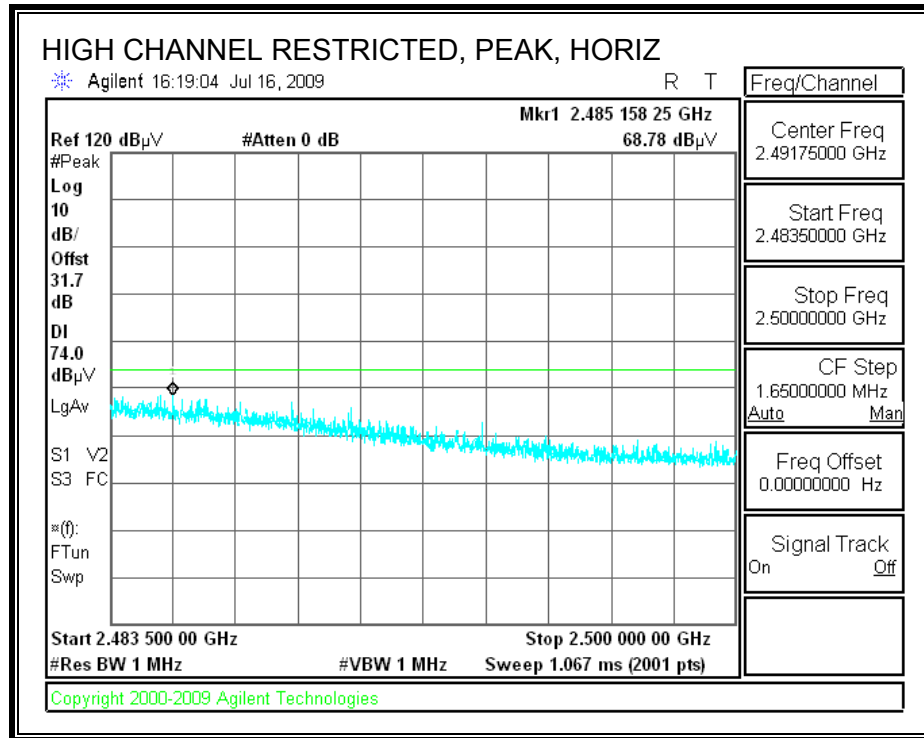
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



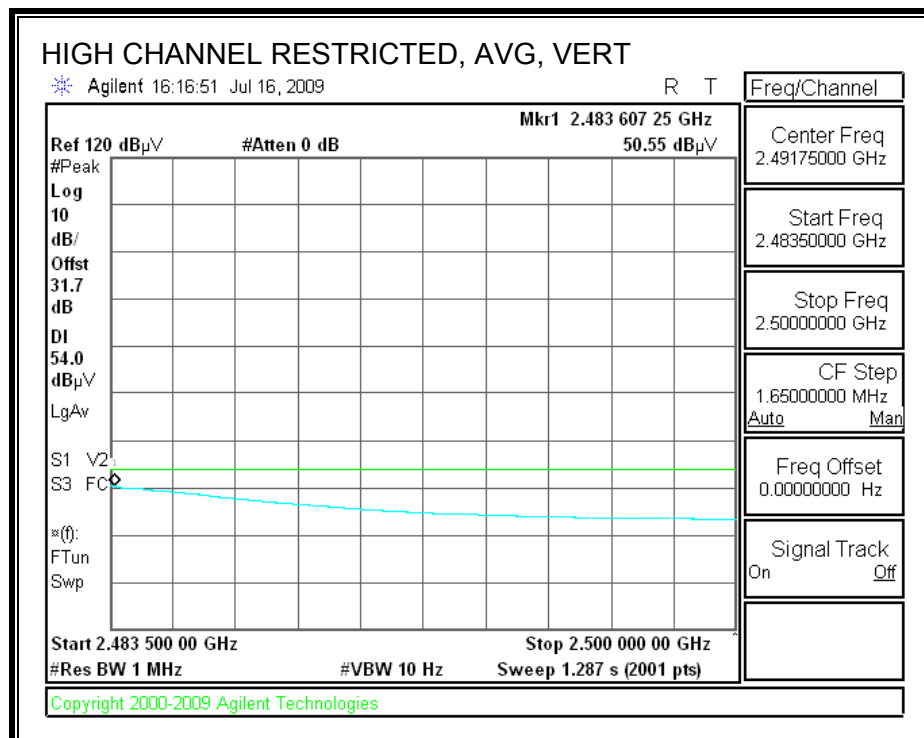
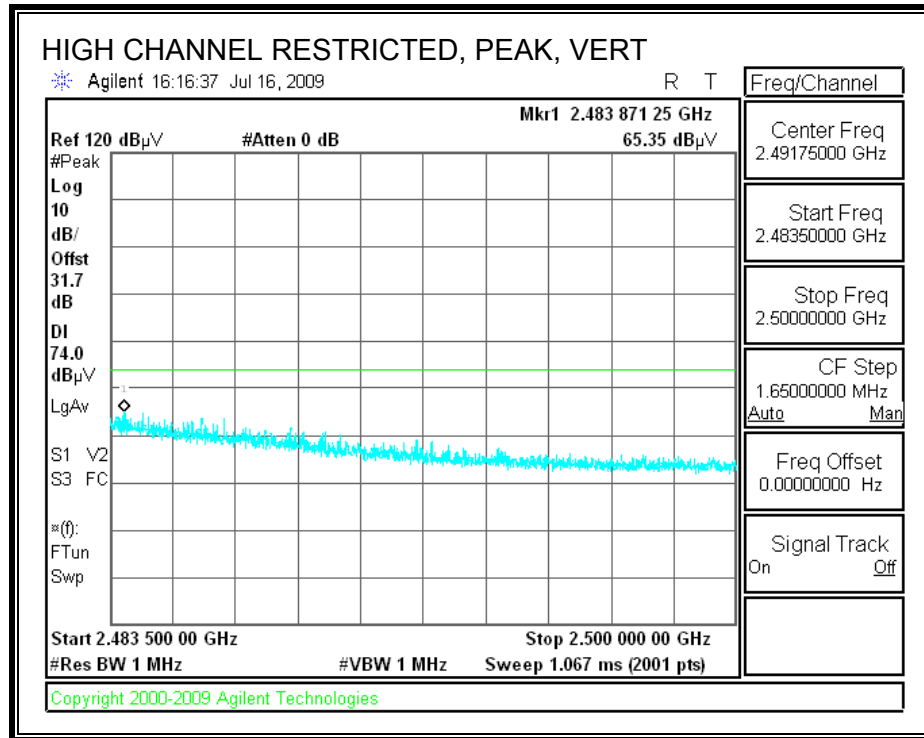
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement

Compliance Certification Services, Fremont 5m Chamber

Test Engr: Devin Chang

Date: 07/17/09

Project #: 09U12710

Company: Toshiba

EUT Description: EUT only

Mode Oper: HT20 mode

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

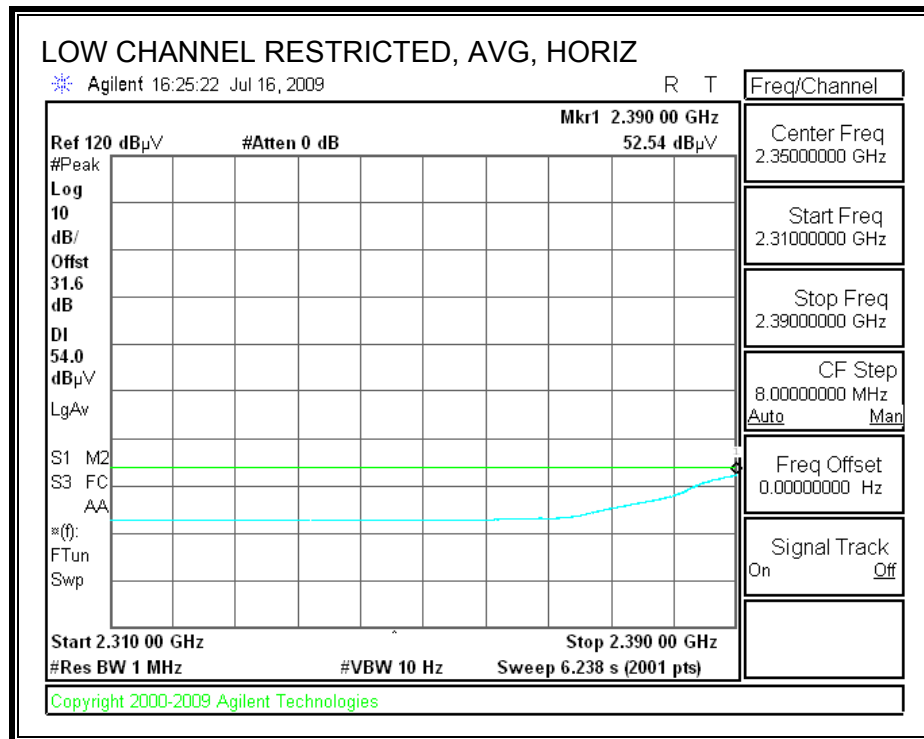
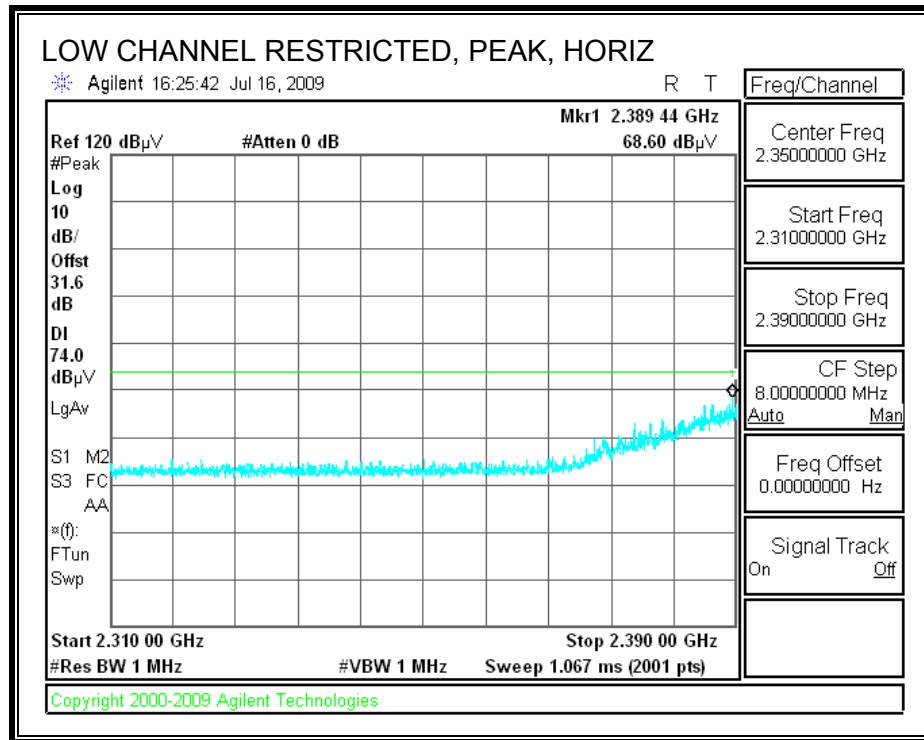
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Notes
2412MHz													
4.824	3.0	44.9	32.8	5.8	-34.8	0.0	0.0	48.6	74.0	-25.4	H	P	
4.824	3.0	31.1	32.8	5.8	-34.8	0.0	0.0	34.8	54.0	-19.2	H	A	
4.824	3.0	54.1	32.8	5.8	-34.8	0.0	0.0	57.9	74.0	-16.1	V	P	
4.824	3.0	38.9	32.8	5.8	-34.8	0.0	0.0	42.6	54.0	-11.4	V	A	
2437MHz													
4.874	3.0	51.4	32.8	5.8	-34.9	0.0	0.0	55.2	74.0	-18.8	V	P	
4.874	3.0	38.2	32.8	5.8	-34.9	0.0	0.0	42.0	54.0	-12.0	V	A	
4.874	3.0	44.2	32.8	5.8	-34.9	0.0	0.0	48.0	74.0	-26.0	H	P	
4.874	3.0	30.7	32.8	5.8	-34.9	0.0	0.0	34.5	54.0	-19.5	H	A	
2462MHz													
4.924	3.0	39.1	32.8	5.9	-34.9	0.0	0.0	43.0	74.0	-31.0	H	P	
4.924	3.0	26.9	32.8	5.9	-34.9	0.0	0.0	30.8	54.0	-23.2	H	A	
4.924	3.0	45.7	32.8	5.9	-34.9	0.0	0.0	49.5	74.0	-24.5	V	P	
4.924	3.0	31.8	32.8	5.9	-34.9	0.0	0.0	35.6	54.0	-18.4	V	A	

Rev. 4.1.2.7

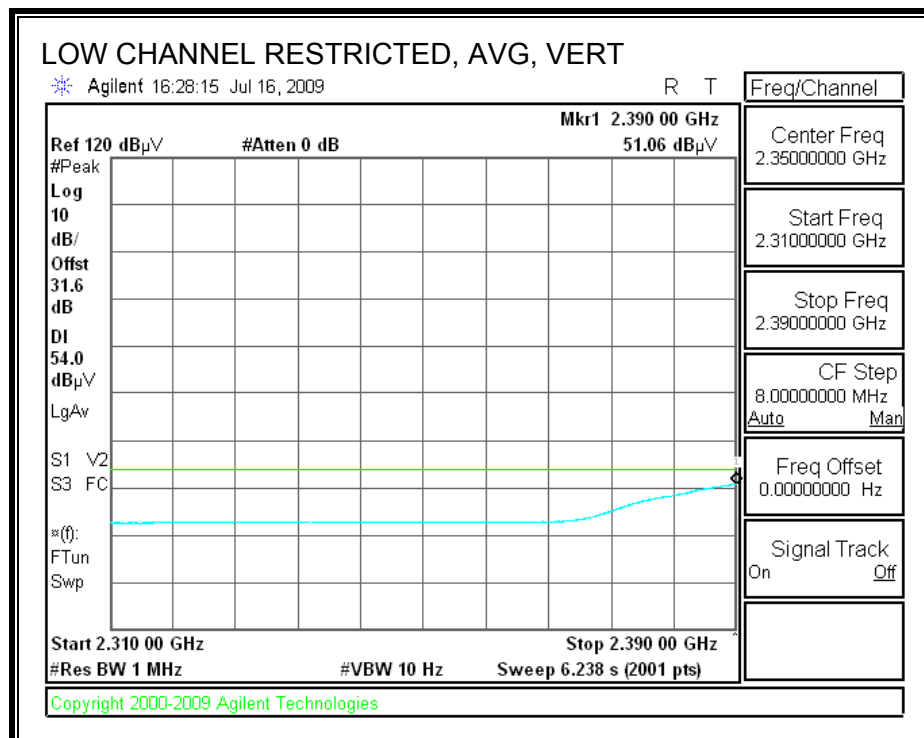
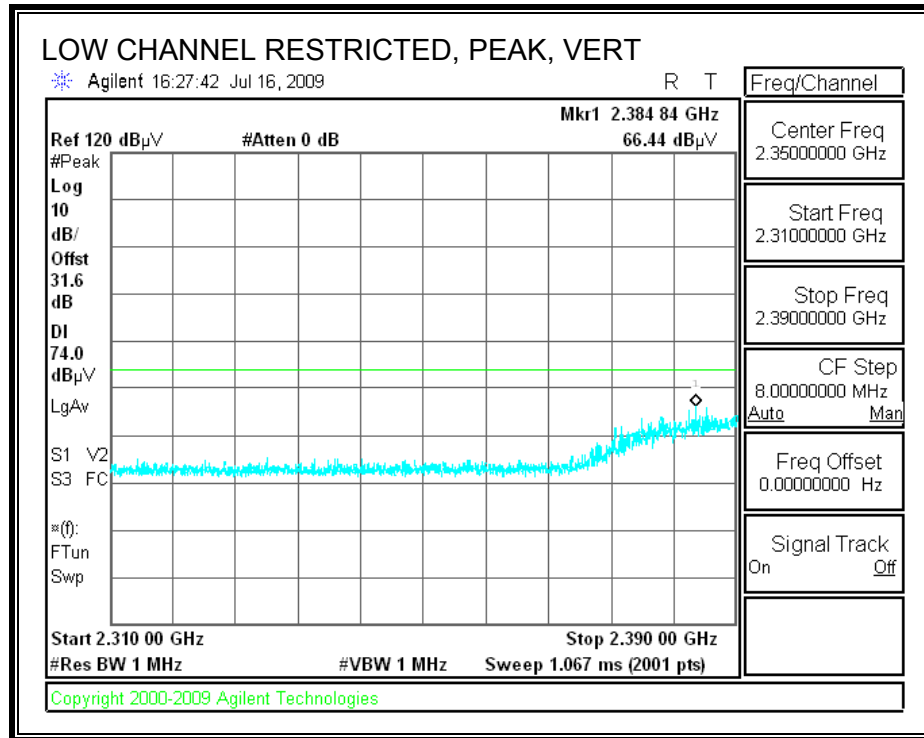
Note: No other emissions were detected above the system noise floor.

7.2.4. TRANSMITTER ABOVE 1 GHz FOR 802.11n HT40 MODE

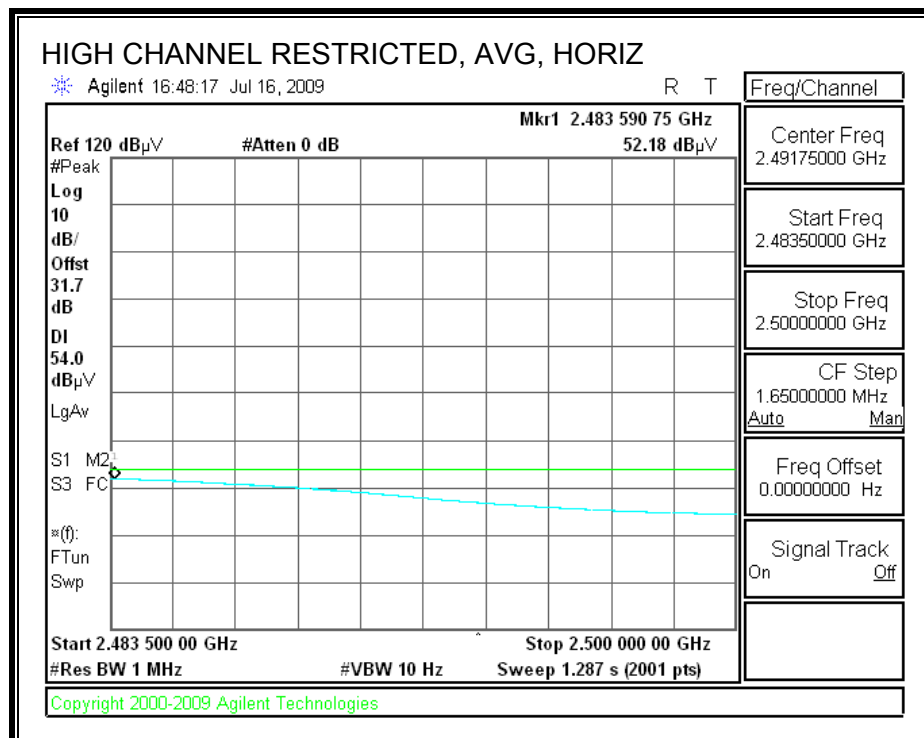
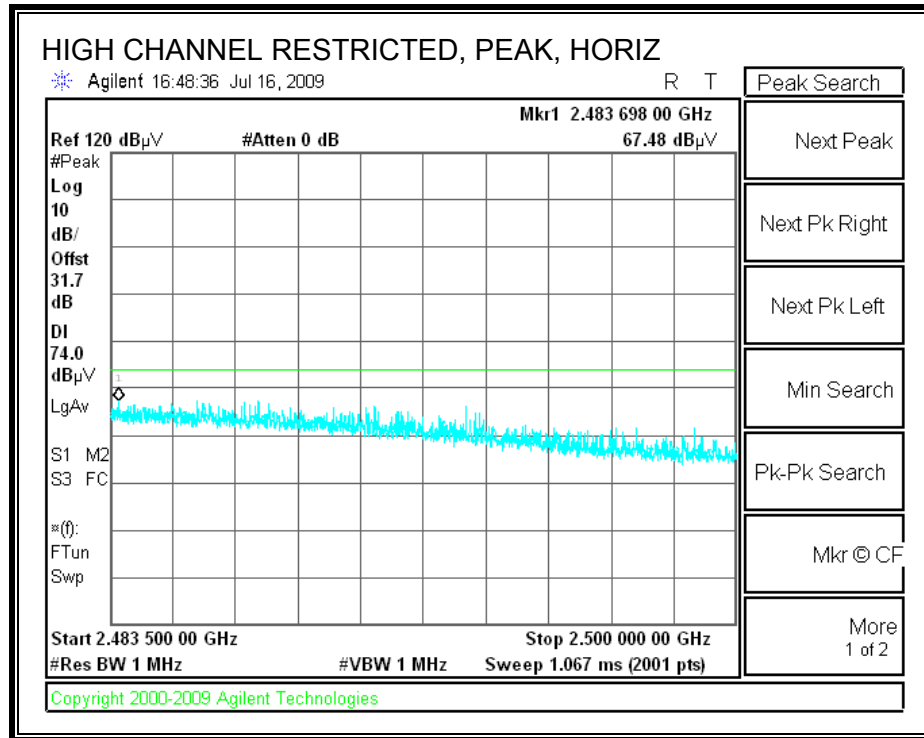
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



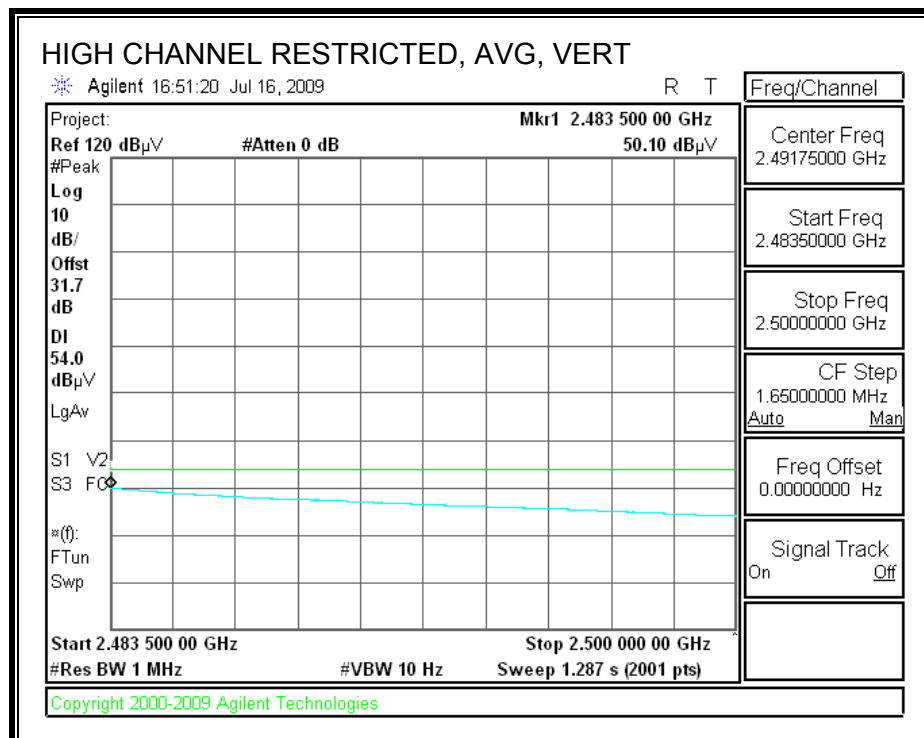
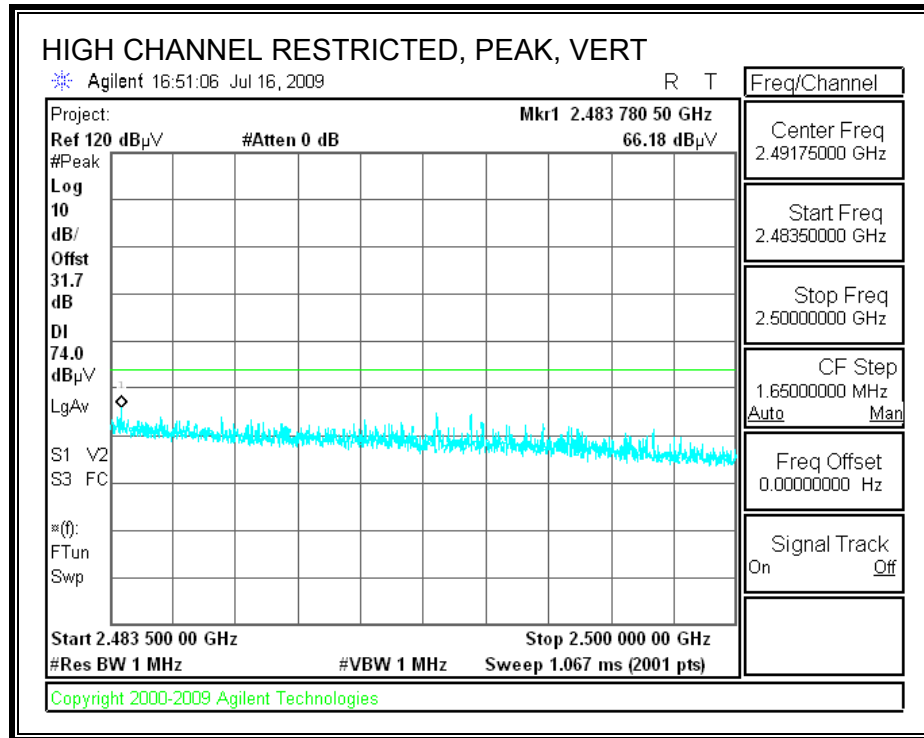
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement

Compliance Certification Services, Fremont 5m Chamber

Test Engr: Devin Chang

Date: 07/17/09

Project #: 09U12710

Company: Toshiba

EUT Description: EUT only

Mode Oper: HT40 mode

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

f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Notes
2422MHz													
4.844	3.0	39.2	32.8	5.8	-34.8	0.0	0.0	43.0	74.0	-31.0	H	P	
4.844	3.0	26.6	32.8	5.8	-34.8	0.0	0.0	30.3	54.0	-23.7	H	A	
4.844	3.0	44.8	32.8	5.8	-34.8	0.0	0.0	48.6	74.0	-25.4	V	P	
4.844	3.0	30.0	32.8	5.8	-34.8	0.0	0.0	33.7	54.0	-20.3	V	A	
2437MHz													
4.874	3.0	44.6	32.8	5.8	-34.9	0.0	0.0	48.4	74.0	-25.6	V	P	
4.874	3.0	31.0	32.8	5.8	-34.9	0.0	0.0	34.8	54.0	-19.2	V	A	
4.874	3.0	38.9	32.8	5.8	-34.9	0.0	0.0	42.7	74.0	-31.3	H	P	
4.874	3.0	26.4	32.8	5.8	-34.9	0.0	0.0	30.2	54.0	-23.8	H	A	
2452MHz													
4.904	3.0	38.9	32.8	5.9	-34.9	0.0	0.0	42.7	74.0	-31.3	H	P	
4.904	3.0	26.2	32.8	5.9	-34.9	0.0	0.0	30.1	54.0	-23.9	H	A	
4.904	3.0	42.2	32.8	5.9	-34.9	0.0	0.0	46.0	74.0	-28.0	V	P	
4.904	3.0	28.7	32.8	5.9	-34.9	0.0	0.0	32.5	54.0	-21.5	V	A	

Rev. 4.1.2.7

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

7.3. RECEIVER ABOVE 1 GHz

7.3.1. RECEIVER ABOVE 1 GHz FOR 20 MHz BANDWIDTH

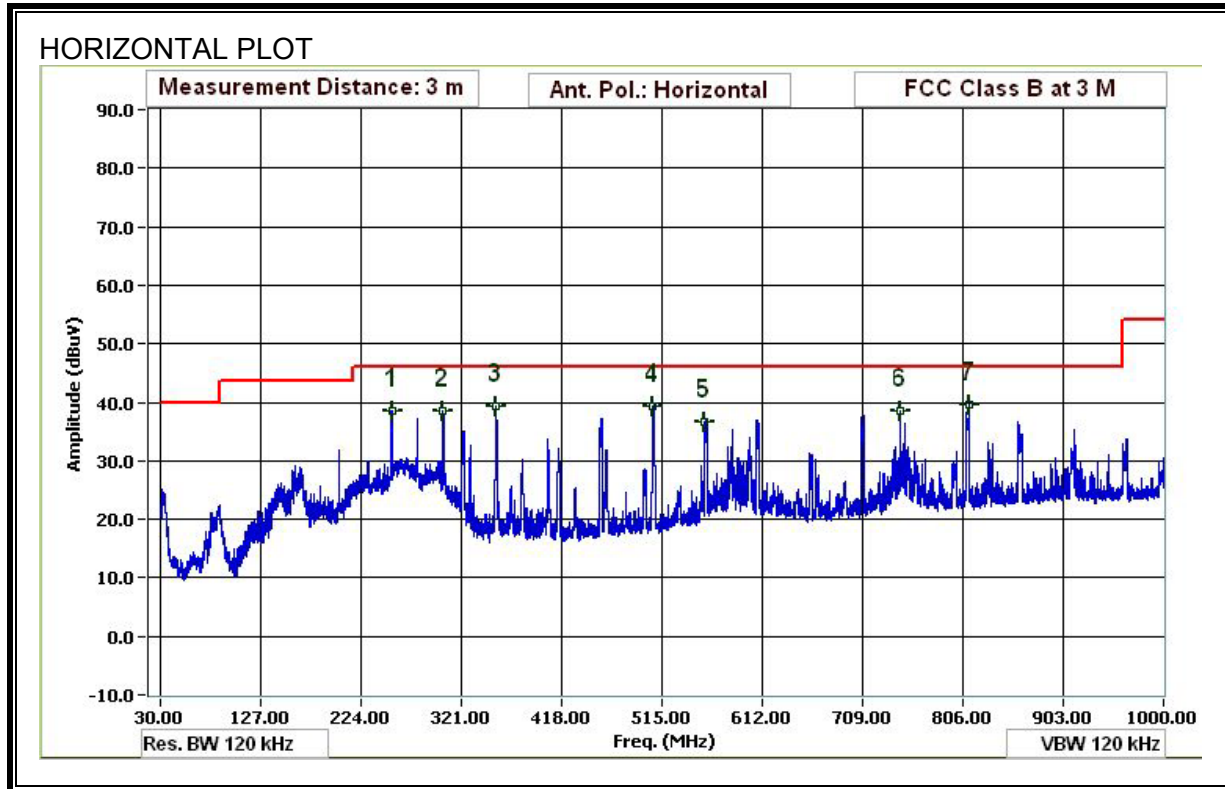
High Frequency Measurement																
Compliance Certification Services, Fremont 5m Chamber																
Test Engr:		Devin Chang														
Date:		7/17/2009														
Project #:		09U12710														
Company:		Toshiba														
EUT Description:		EUT only														
Mode Oper:		BW = 20MHz														
Test Equipment:																
Horn 1-18GHz			Pre-amplifier 1-26GHz			Pre-amplifier 26-40GHz			Horn > 18GHz			Limit				
T59; S/N: 3245 @3m			T145 Agilent 3008A0050									FCC 15.209				
Hi Frequency Cables																
3' cable 22807700			12' cable 22807600			20' cable 22807500			HPF		Reject Filter		Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz ; VBW=10Hz			
3' cable 22807700			12' cable 22807600			20' cable 22807500										
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filtr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)	
1.329	3.0	53.9	40.1	25.1	2.7	-35.9	0.0	0.0	45.9	32.1	74	54	-28.1	-21.9	V	
1.420	3.0	58.9	41.7	25.5	2.9	-35.8	0.0	0.0	51.4	34.2	74	54	-22.6	-19.8	V	
2.130	3.0	53.4	34.2	27.8	3.6	-35.3	0.0	0.0	49.5	30.3	74	54	-24.5	-23.7	V	
1.064	3.0	52.2	37.6	24.2	2.4	-36.1	0.0	0.0	42.7	28.1	74	54	-31.3	-25.9	H	
1.867	3.0	54.7	38.7	27.1	3.3	-35.5	0.0	0.0	49.7	33.7	74	54	-24.3	-20.3	H	
2.124	3.0	46.7	33.9	27.8	3.6	-35.3	0.0	0.0	42.7	30.0	74	54	-31.3	-24.0	H	
Rev. 11.10.08																
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											

7.3.2. RECEIVER ABOVE 1 GHz FOR 40 MHz BANDWIDTH

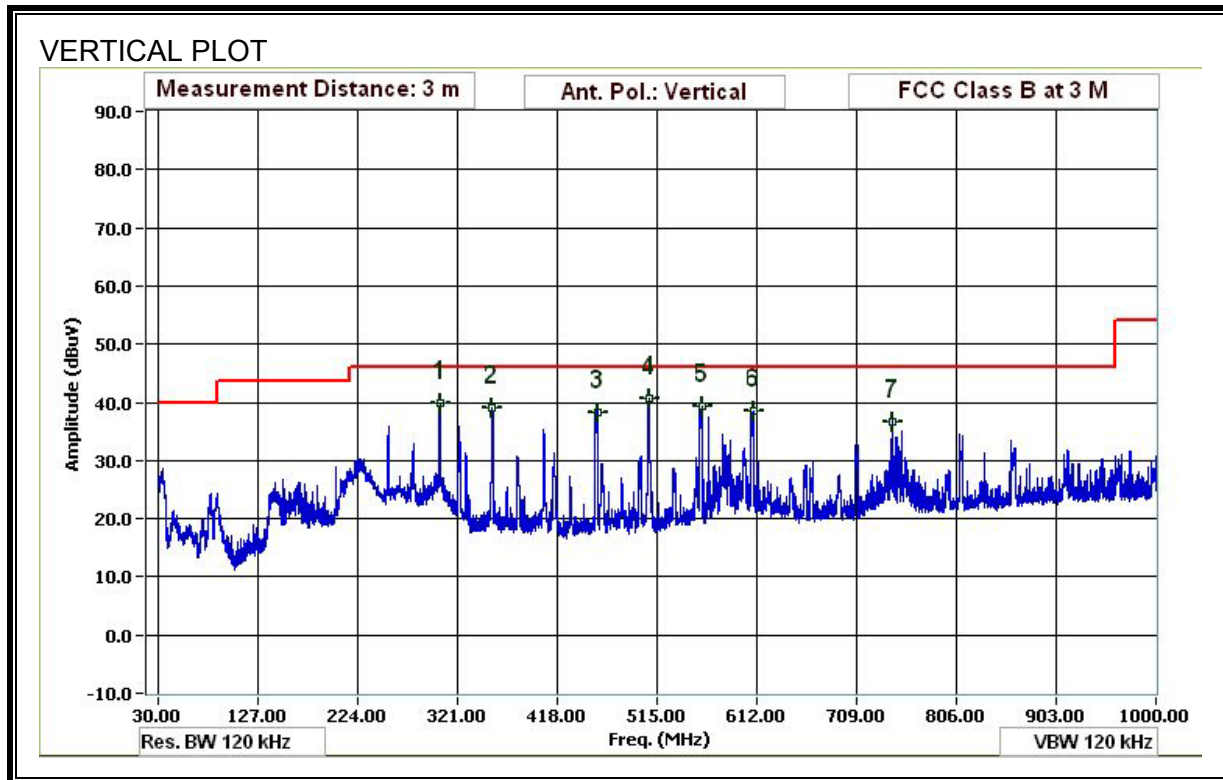
High Frequency Measurement																	
Compliance Certification Services, Fremont 5m Chamber																	
Test Engr:		Devin Chang															
Date:		7/17/2009															
Project #:		09U12710															
Company:		Toshiba															
EUT Description:		EUT only															
Mode Oper:		BW = 20MHz															
Test Equipment:																	
Horn 1-18GHz				Pre-amplifier 1-26GHz				Pre-amplifier 26-40GHz				Horn > 18GHz				Limit	
T59; S/N: 3245 @3m				T145 Agilent 3008A0056												FCC 15.209	
Hi Frequency Cables																	
3' cable 22807700				12' cable 22807600				20' cable 22807500				HPF		Reject Filter		Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz ; VBW=10Hz	
3' cable 22807700				12' cable 22807600				20' cable 22807500									
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filtr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)		
1.328	3.0	52.9	41.3	25.1	2.7	-35.9	0.0	0.0	44.9	33.3	74	54	-29.1	-20.7	V		
1.420	3.0	59.1	42.1	25.5	2.9	-35.8	0.0	0.0	51.6	34.6	74	54	-22.4	-19.4	V		
2.260	3.0	54.0	35.0	28.0	3.7	-35.2	0.0	0.0	50.5	31.5	74	54	-23.5	-22.5	V		
1.065	3.0	52.1	37.4	24.2	2.4	-36.1	0.0	0.0	42.6	27.9	74	54	-31.4	-26.1	H		
1.867	3.0	54.7	37.8	27.1	3.3	-35.5	0.0	0.0	49.7	32.8	74	54	-24.3	-21.2	H		
2.124	3.0	45.3	33.7	27.8	3.6	-35.3	0.0	0.0	41.4	29.8	74	54	-32.6	-24.2	H		
Rev. 11.10.08																	
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. WORST-CASE BELOW 1 GHz

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



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



30-1000MHz Frequency Measurement														
Compliance Certification Services, Fremont 5m Chamber														
Test Engr:		Devin Chang												
Date:		07/16/09												
Project #:		09U12710												
Company:		Toshiba												
EUT Description:		EUT only												
Mode Oper:		Worst case												
	f	Measurement Frequency	Amp	Preamp Gain		Margin	Margin vs. Limit							
	Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters										
	Read	Analyzer Reading	Filter	Filter Insert Loss										
	AF	Antenna Factor	Corr.	Calculated Field Strength										
	CL	Cable Loss	Limit	Field Strength Limit										
f MHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filter dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Notes	
304.571	3.0	52.2	13.6	1.5	27.4	0.0	0.0	39.8	46.0	-6.2	V	EP		
354.253	3.0	50.8	14.3	1.6	27.7	0.0	0.0	39.0	46.0	-7.0	V	EP		
456.858	3.0	48.7	16.1	1.9	28.4	0.0	0.0	38.3	46.0	-7.7	V	EP		
507.500	3.0	50.4	17.0	2.0	28.6	0.0	0.0	40.7	46.0	-5.3	V	EP		
507.500	3.0	46.5	17.0	2.0	28.6	0.0	0.0	36.8	46.0	-9.2	V	QP		
558.382	3.0	47.9	17.8	2.1	28.6	0.0	0.0	39.2	46.0	-6.8	V	EP		
609.144	3.0	46.5	18.5	2.2	28.6	0.0	0.0	38.6	46.0	-7.4	V	EP		
743.429	3.0	42.7	19.8	2.5	28.4	0.0	0.0	36.5	46.0	-9.5	V	EP		
253.569	3.0	52.6	11.9	1.3	27.4	0.0	0.0	38.5	46.0	-7.5	H	EP		
303.371	3.0	51.0	13.6	1.5	27.4	0.0	0.0	38.6	46.0	-7.4	H	EP		
354.013	3.0	51.2	14.3	1.6	27.7	0.0	0.0	39.4	46.0	-6.6	H	EP		
505.700	3.0	49.0	16.9	2.0	28.6	0.0	0.0	39.3	46.0	-6.7	H	EP		
556.342	3.0	45.3	17.8	2.1	28.6	0.0	0.0	36.6	46.0	-9.4	H	EP		
744.749	3.0	44.6	19.8	2.5	28.4	0.0	0.0	38.5	46.0	-7.5	H	EP		
812.072	3.0	44.2	21.0	2.6	28.2	0.0	0.0	39.6	46.0	-6.4	H	EP		

Rev. 1.27.09

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

8. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 7.2.2

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

ANSI C63.4

RESULTS

6 WORST EMISSIONS

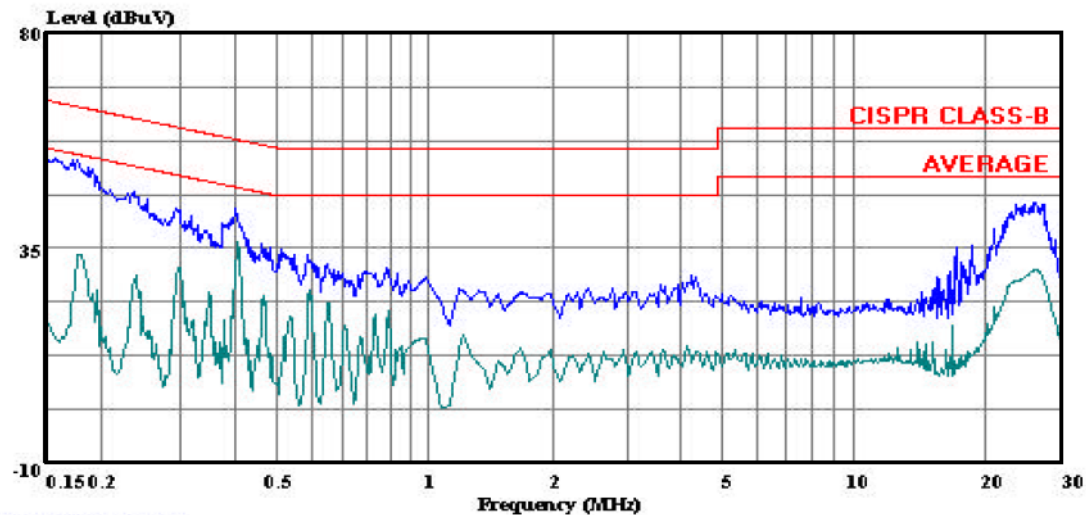
CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit	FCC B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
0.18	53.58	--	33.68	0.00	64.53	54.53	-10.95	-20.85	L1
0.41	42.24	--	36.17	0.00	57.73	47.73	-15.49	-11.56	L1
26.42	44.69	--	30.38	0.00	60.00	50.00	-15.31	-19.62	L1
0.18	53.58	--	34.18	0.00	64.67	54.67	-11.09	-20.49	L2
0.41	43.74	--	38.06	0.00	57.73	47.73	-13.99	-9.67	L2
26.14	45.59	--	30.98	0.00	60.00	50.00	-14.41	-19.02	L2
6 Worst Data									

LINE 1 RESULTS



Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 7 File#: 09U12710.EMI Date: 07-20-2009 Time: 14:44:18



(Line Conduction)

Trace: 5

Ref Trace:

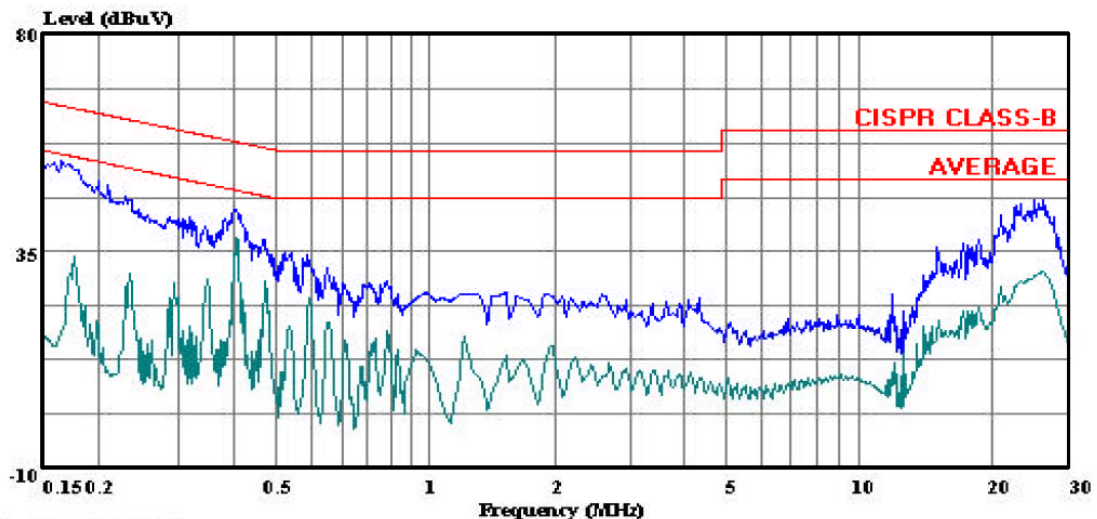
Condition: CISPR CLASS-B
Test Operator: : Devin Chang
Project #: : 09U12710
Company: : Toshiba
EUT Description: : Laptop PC
Mode: : TX Mode
Target: : FCC Class B
Voltage: : 115VAC, 60Hz
: L1: Peak (Blue) , Average (Green)

LINE 2 RESULTS



Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 14 File#: 09U12710.EMI Date: 07-20-2009 Time: 14:52:05



(Line Conduction)

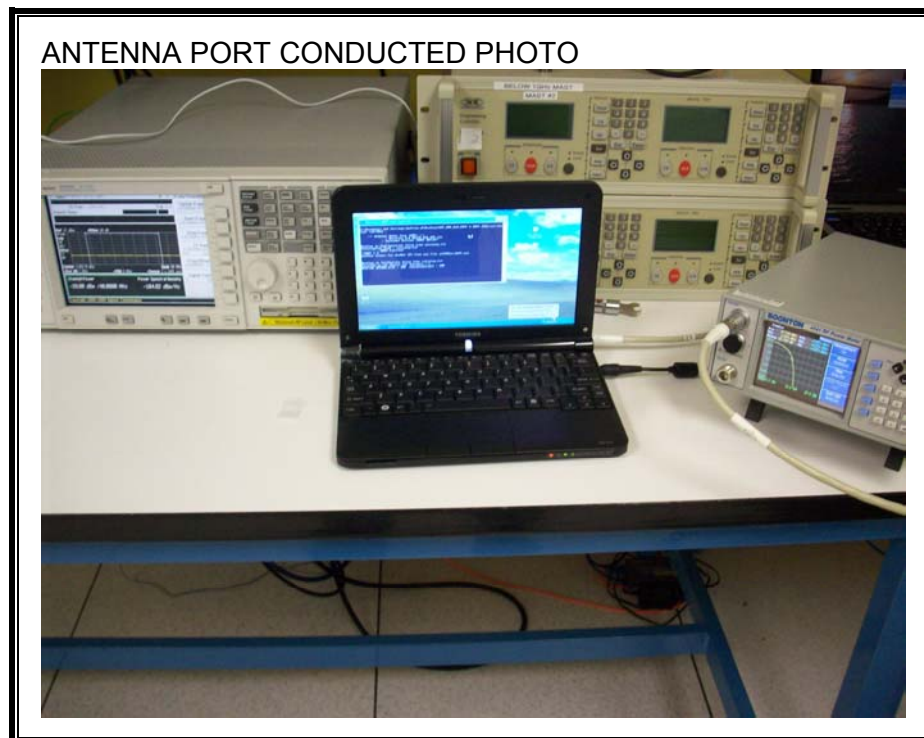
Trace: 12

Ref Trace:

Condition: CISPR CLASS-B
Test Operator: : Devin Chang
Project #: : 09U12710
Company: : Toshiba
EUT Description: : Laptop PC
Mode: : TX Mode
Target: : FCC Class B
Voltage: : 115VAC, 60Hz
: L2: Peak (Blue) , Average (Green)

9. SETUP PHOTOS

ANTENNA PORT CONDUCTED RF MEASUREMENT SETUP



RADIATED RF MEASUREMENT SETUP

RADIATED FRONT PHOTO



RADIATED BACK PHOTO

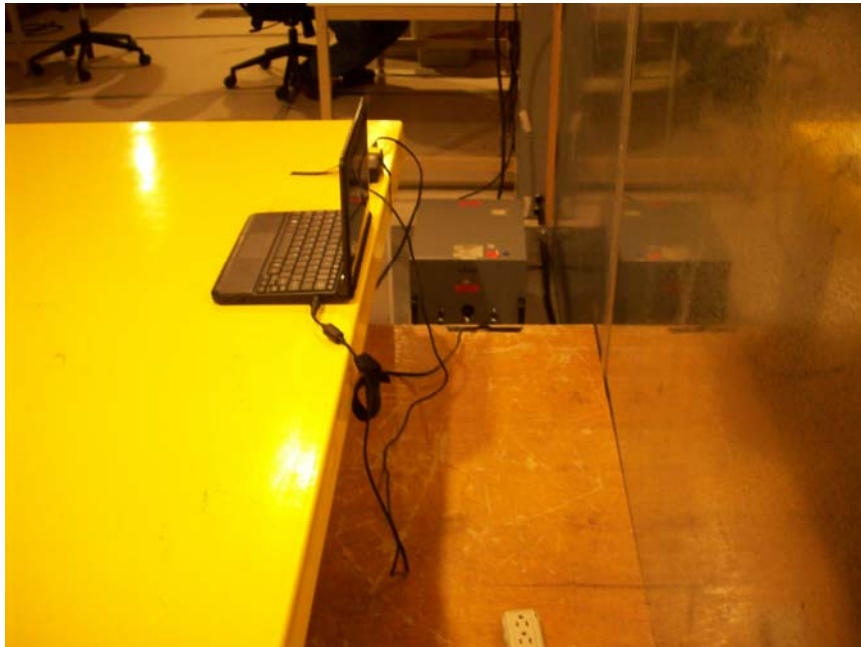


POWERLINE CONDUCTED EMISSIONS MEASUREMENT SETUP

LINE CONDUCTED FRONT PHOTO



LINE CONDUCTED BACK PHOTO



END OF REPORT