FCC CFR47 PART 15 SUBPART C
INDUSTRY CANADA RSS-210 ISSUE 7
CLASS II PERMISSIVE CHANGE

CERTIFICATION TEST REPORT

FOR

WIRELESS LAN MODULE

MODEL NUMBER: DWM-W024

FCC ID: EW4DWMW024
IC: 4250A-DWMW024

REPORT NUMBER: 09J12729-1

ISSUE DATE: AUGUST 3, 2009

Prepared for
MITSUMI ELECTRIC CO., LTD.
2-11-2, TSURUMAKI
TAMA, TOKYO 206-8567, JAPAN

Prepared by
COMPLIANCE CERTIFICATION SERVICES
47173 BENICIA STREET
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	08/03/09	Initial Issue	T. Chan

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: MITSUMI ELECTRIC CO., LTD.
2-11-2, TSURUMAKI
TAMA, TOKYO 206-8567, JAPAN

EUT DESCRIPTION: WIRELESS LAN MODULE

MODEL: DWM-W024

SERIAL NUMBER: WJN000000789 / WJN000001175

DATE TESTED: JULY 24 TO 26, 2009

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart C	Pass
INDUSTRY CANADA RSS-210 Issue 7 Annex 8	Pass
INDUSTRY CANADA RSS-GEN Issue 2	Pass

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:

THU CHAN
EMC MANAGER
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, 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:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)

36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

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 a WIRELESS LAN MODULE (802.11 + 802.11b/g).
The radio module is manufactured by Mitsumi Electric Co., Ltd.

5.2. DESCRIPTION OF CLASS II PERMISSIVE CHANGE

The major change filed under this application is adding a new host.

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes one type of antenna, with a gain of 0.751 dBi for Foxconn antenna (Dipole).

5.4. SOFTWARE AND FIRMWARE

The EUT test utility software installed in the host computer during testing was Atheros Radio Test (ART) 6000, revision 1.5.1, BUILD MnM.

5.5. WORST-CASE CONFIGURATION AND MODE

The worst-case data rate for each mode is determined to be as follows, based on preliminary tests of the chipset utilized in this radio.

All final tests in the 802.11 mode were made at 2 Mb/s.
All final tests in the 802.11b mode were made at 1 Mb/s.
All final tests in the 802.11g mode were made at 6 Mb/s.

For AC line conducted and radiated emissions below 1 GHz. To determine the worst-case, the EUT was investigated with two different AC/DC adapters, and the worst-case configuration is turned out to be a Tabuchi AC/DC adapter

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Notebool PC	HP	Compaq 6710b	CNU80800TB	DoC
AC Adapter 2	HP	PA-1900-18H2	W97950ELLVI0VM	DoC
EUT AC Adapter	Mitsumi	WAP-002 (USA)	M1	DoC
EUT AC Adapter	Tabuchi	WAP-002 (USA)	T2	DoC
USB Adapter Board	NA	NA	NA	NA

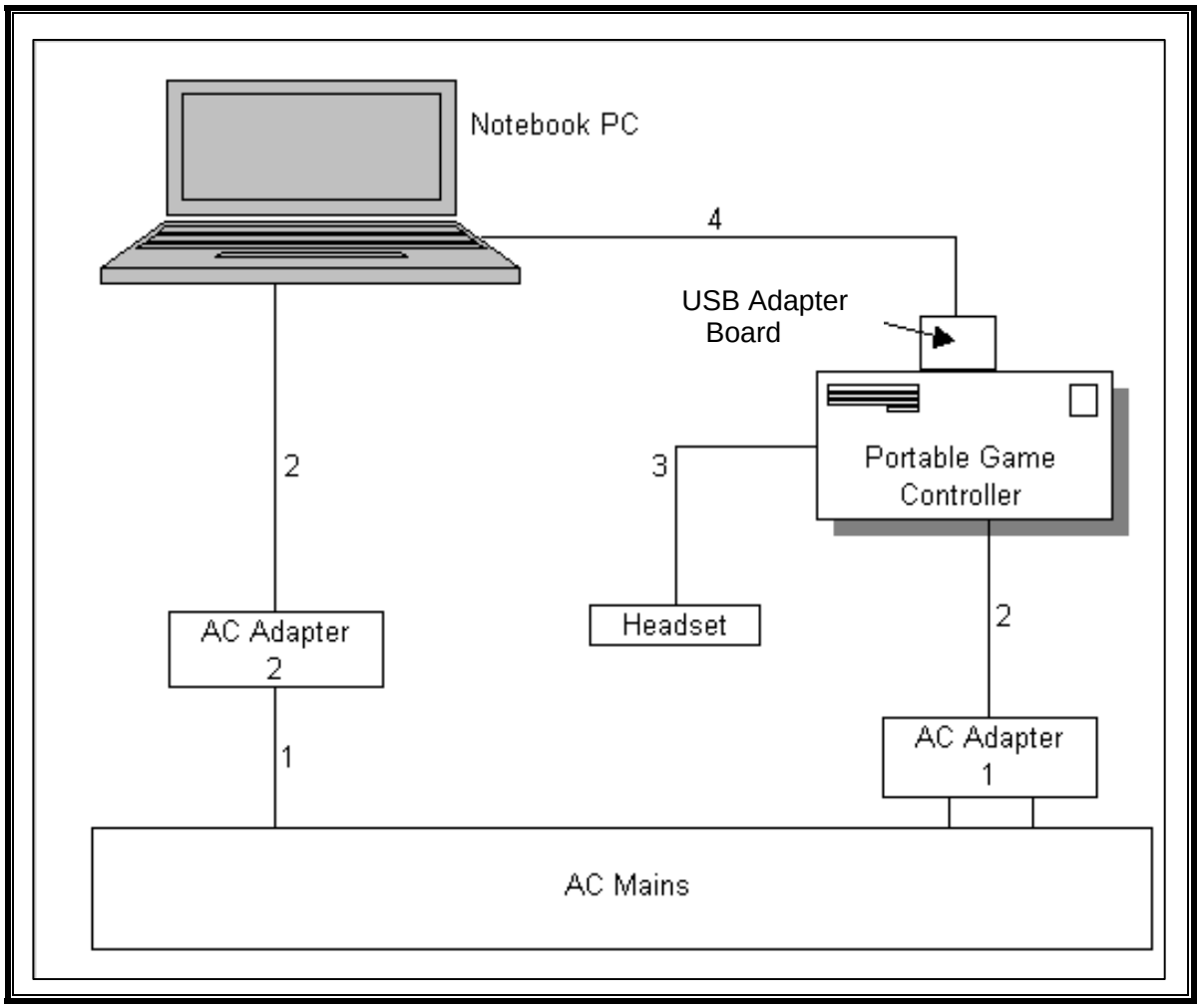
I/O CABLES

I/O CABLE LIST						
Cable No.	**Port**	**# of Identical Ports**	**Connector Type**	**Cable Type**	**Cable Length**	**Remarks**
1	AC Input	1	US 115V	Un-Shielded	2m	N
2	DC Input	2	DC	Un-Shielded	1m	N
3	Audio	1	Earphone	Un-Shielded	1m	N
4	USB	1	USB	Un-Shielded	0.5m	Y

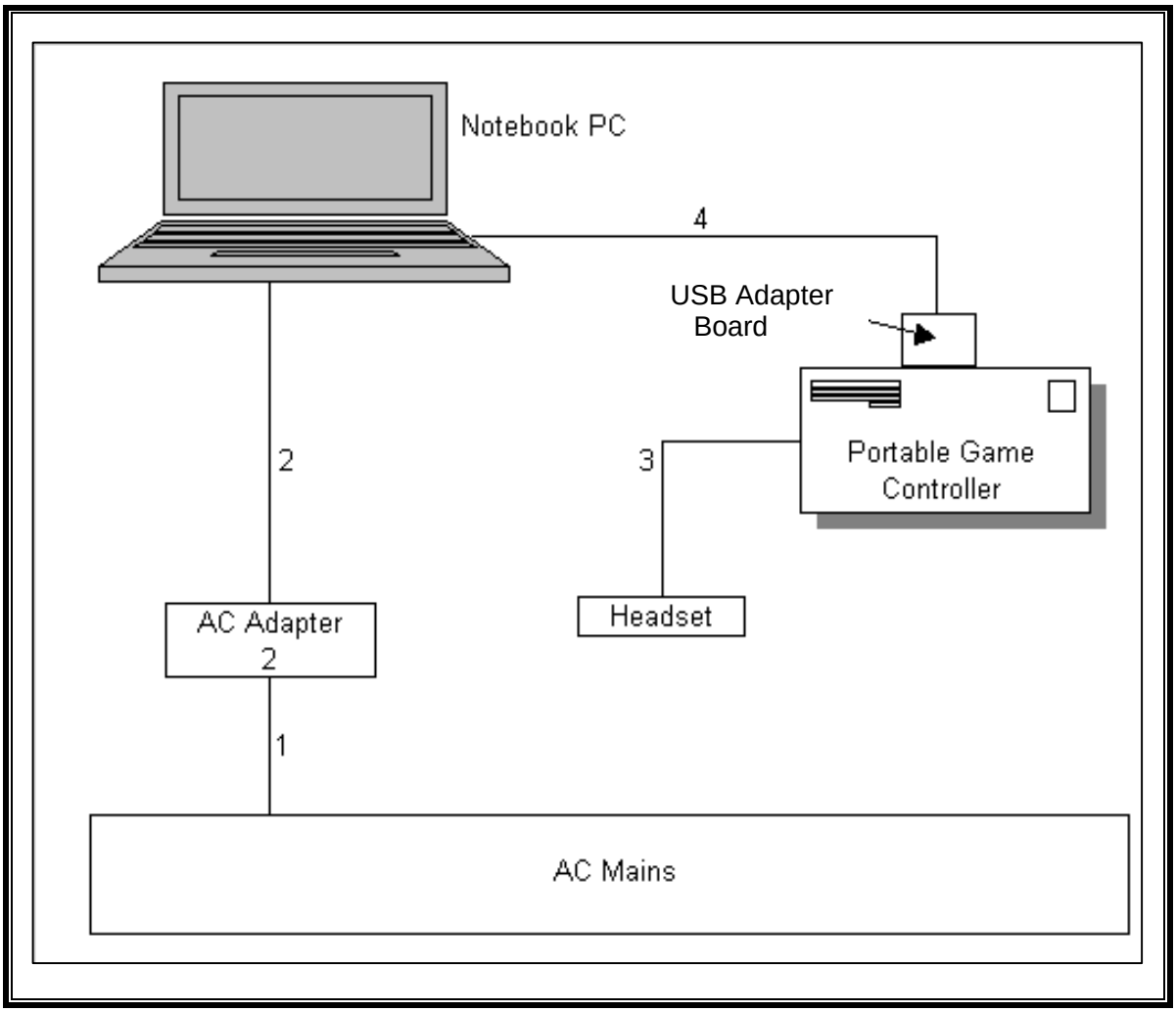
TEST SETUP

The EUT is a stand-alone unit, but connected to the laptop to the support laptop for the setup purpose only. Test software exercised the radio card.

SETUP DIAGRAM FOR TESTS WITH AC ADAPTER



SETUP DIAGRAM FOR TESTS WITHOUT AC ADAPTER



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
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01069	01/05/10
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01011	01/14/10
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00885	12/16/09
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C00986	02/03/10
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01016	01/14/10
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00558	12/16/09
Antenna, Horn, 18 GHz	EMCO	3115	C00783	01/29/10
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01063	02/04/10
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
EMI Test Receiver, 30 MHz	R&S	ESHS 20	N02396	08/06/09

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.

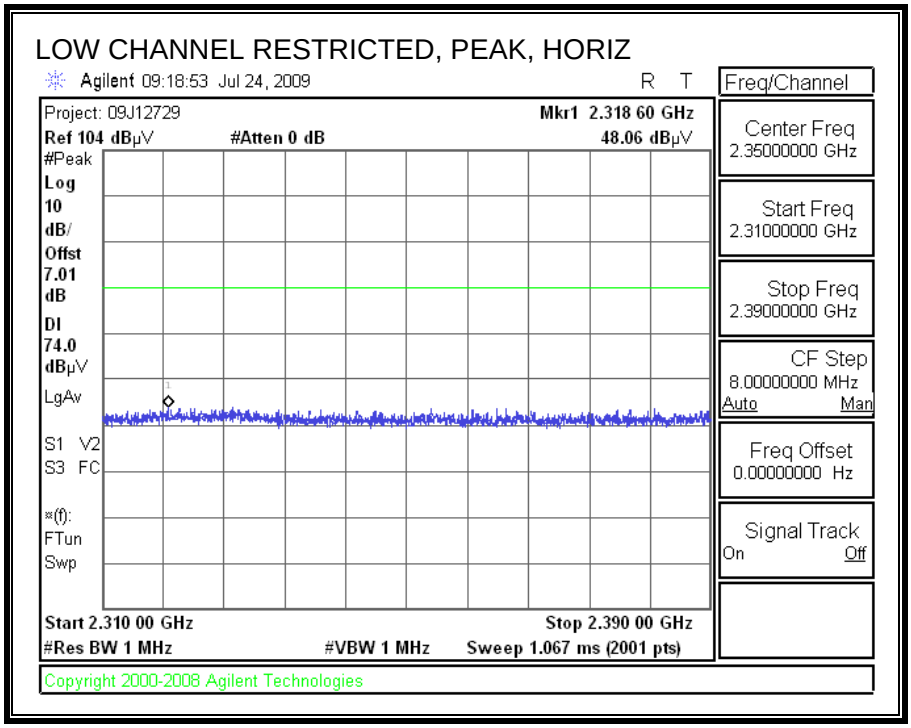
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each appplicable band.

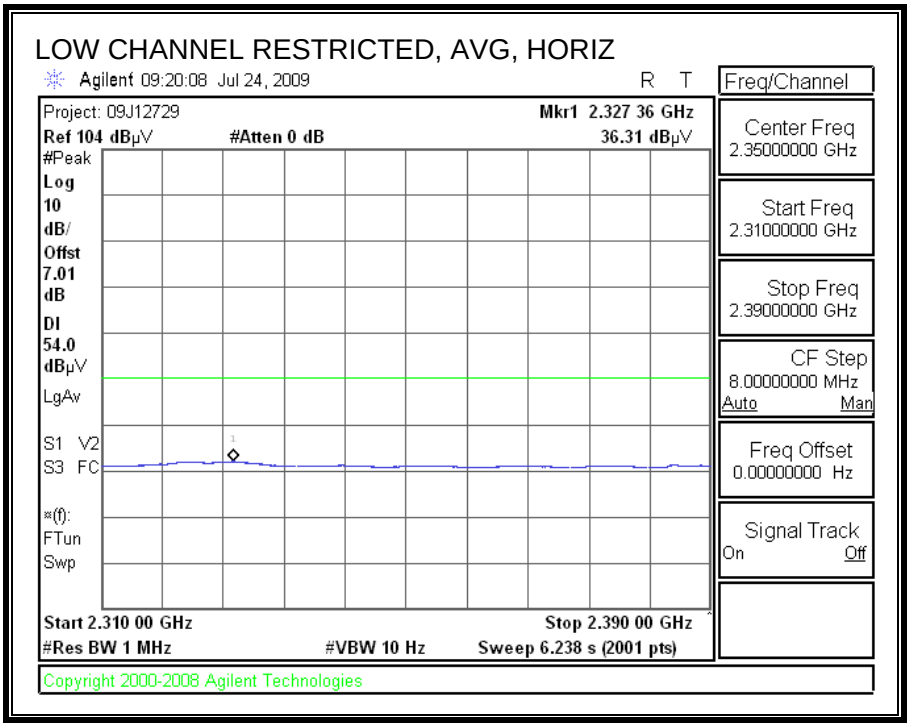
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

7.2. TRANSMITTER ABOVE 1 GHz

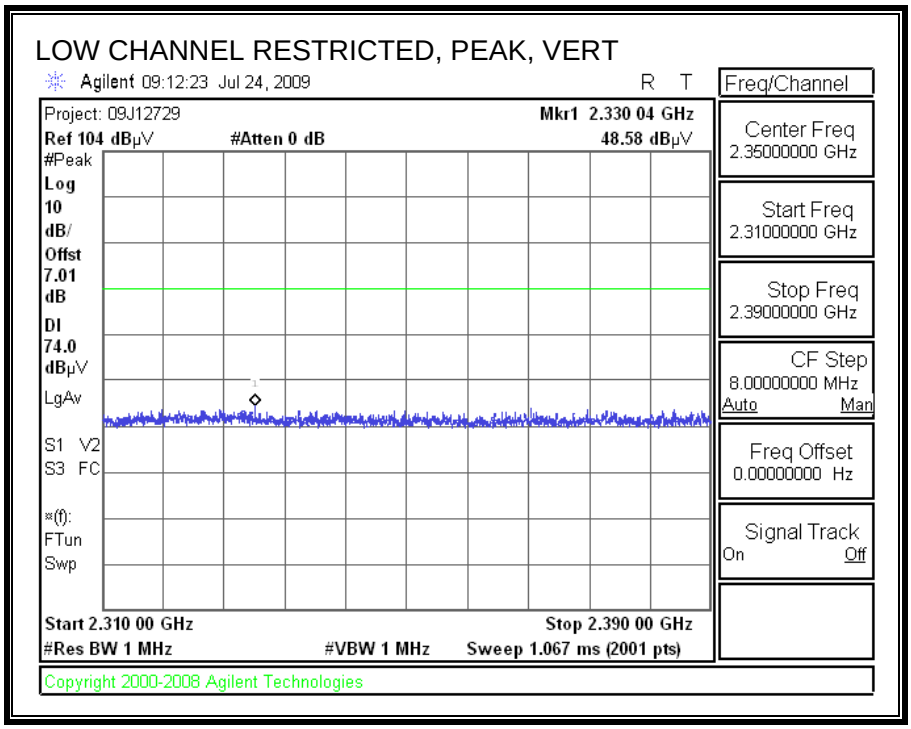
7.2.1. TRANSMITTER ABOVE 1 GHz FOR 802.11 MODE IN THE 2.4 GHz BAND WITH AC ADAPTER

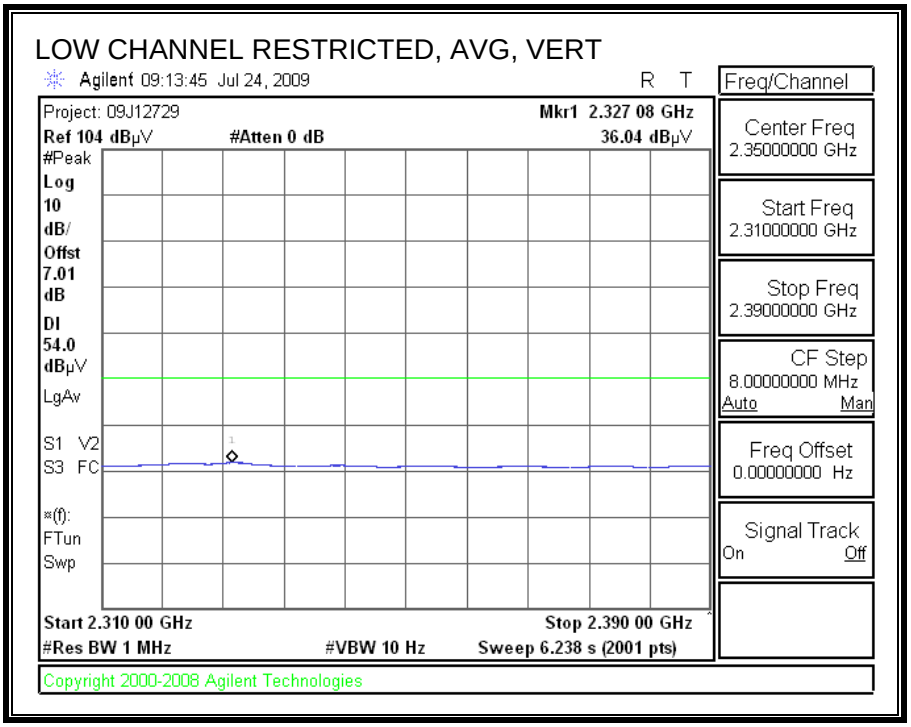
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



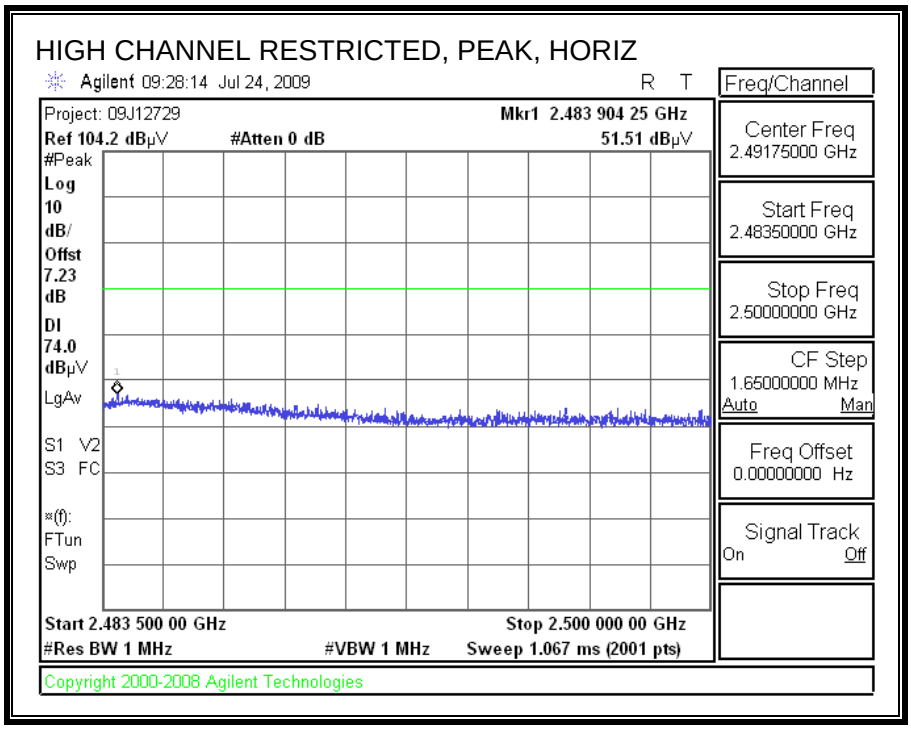


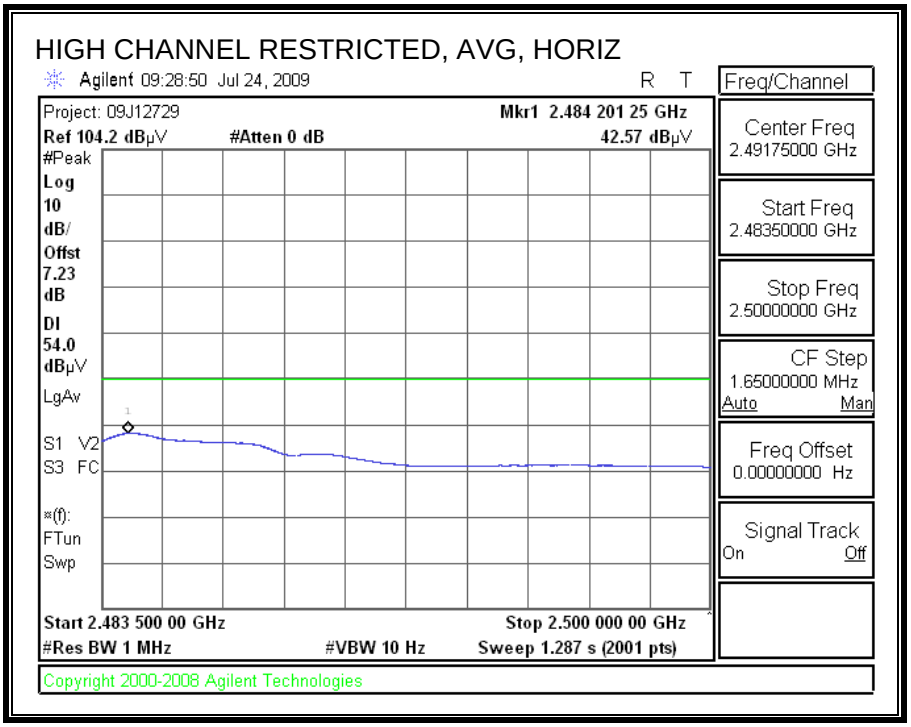
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



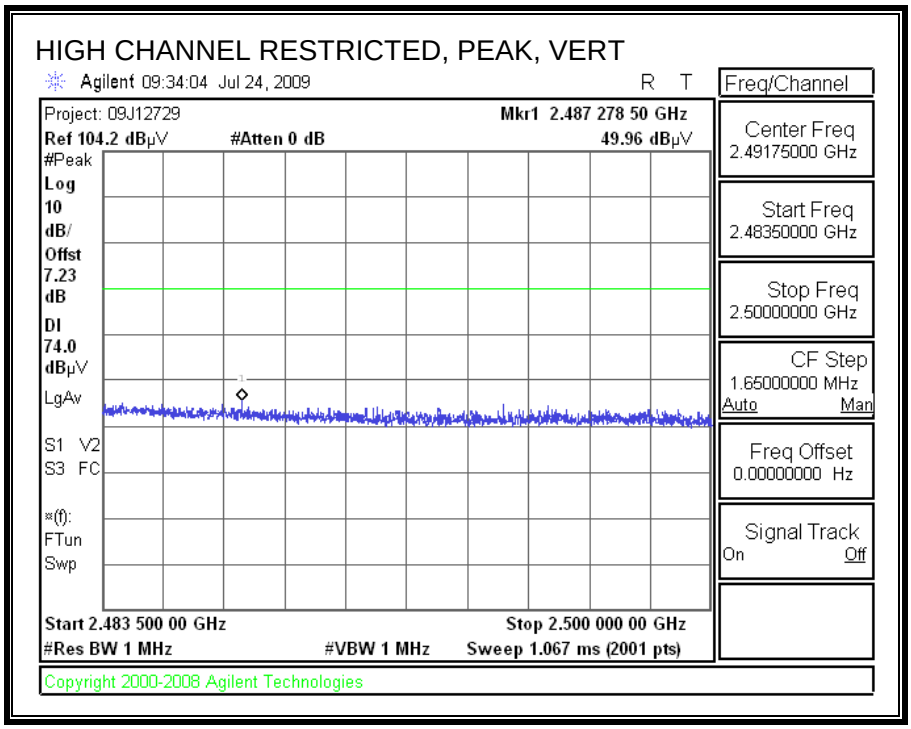


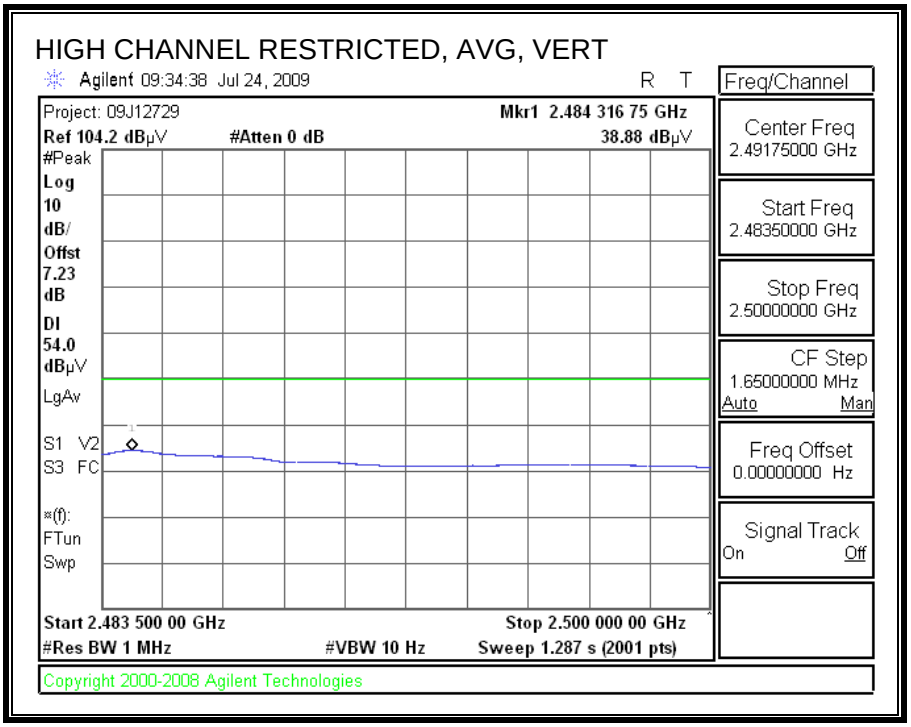
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)





HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Company: NINTENDO
Project #: 09J12729
Date: 7/26/2009
Test Engineer: MENGISTU MEKURIA
Configuration: EUT with AC Adapter
Mode: TX, 802.11 MODE

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T59; S/N: 3245 @3m	T145 Agilent 3008A005(			FCC 15.209

Hi Frequency Cables

3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter
3' cable 22807700	12' cable 22807600	20' cable 22807500		R_001

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

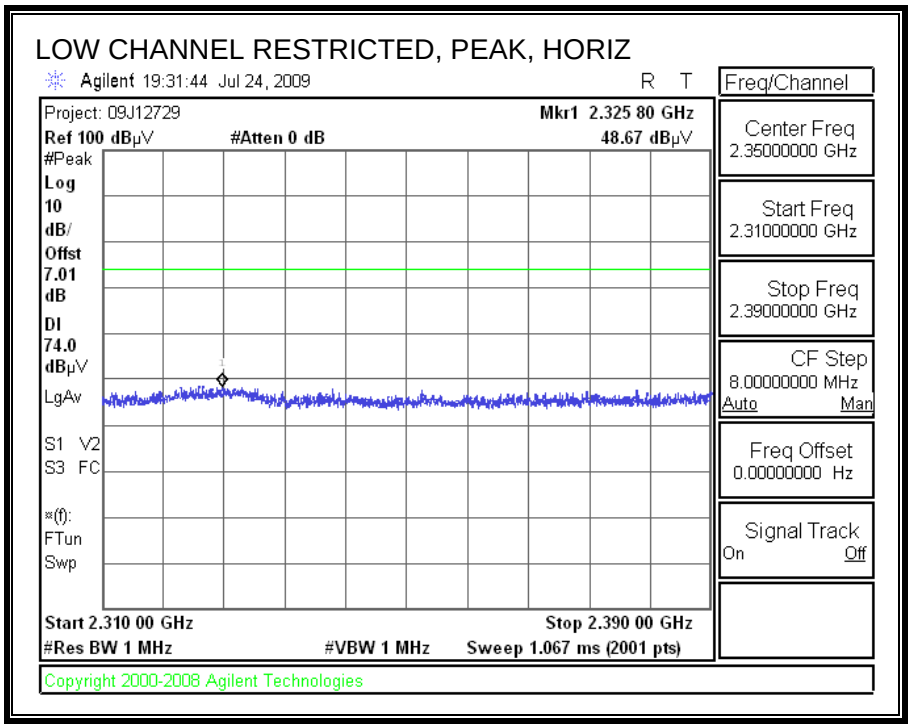
f GHz	Dist (m)	Read Pk dBuV	Read Avg dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low Ch. (2412 MHz)															
4.824	3.0	40.1	27.7	32.8	5.8	-34.8	0.0	0.0	43.8	31.4	74	54	-30.2	-22.6	V
4.824	3.0	38.5	25.9	32.8	5.8	-34.8	0.0	0.0	42.2	29.6	74	54	-31.8	-24.4	H
Mid Ch. (2442 MHz)															
4.884	3.0	38.8	26.7	32.8	5.8	-34.9	0.0	0.0	42.6	30.5	74	54	-31.4	-23.5	V
4.884	3.0	38.7	26.4	32.8	5.8	-34.9	0.0	0.0	42.5	30.2	74	54	-31.5	-23.8	H
Hi Ch. (2472 MHz)															
4.944	3.0	37.8	26.5	32.9	5.9	-34.9	0.0	0.0	41.7	30.4	74	54	-32.3	-23.6	V
4.944	3.0	38.8	26.2	32.9	5.9	-34.9	0.0	0.0	42.7	30.1	74	54	-31.3	-23.9	H

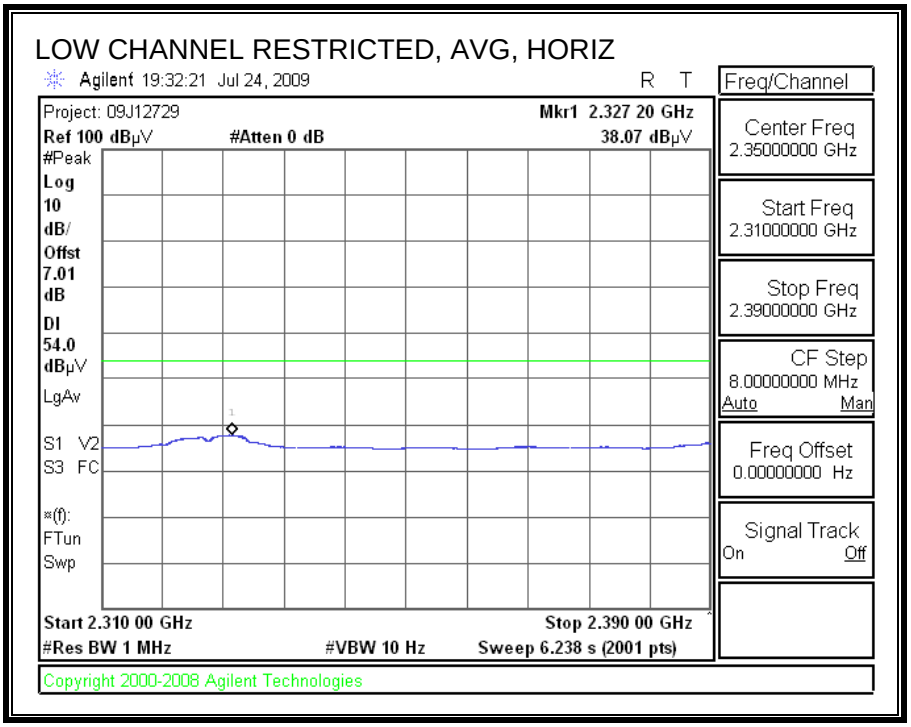
Rev. 11.10.08

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		

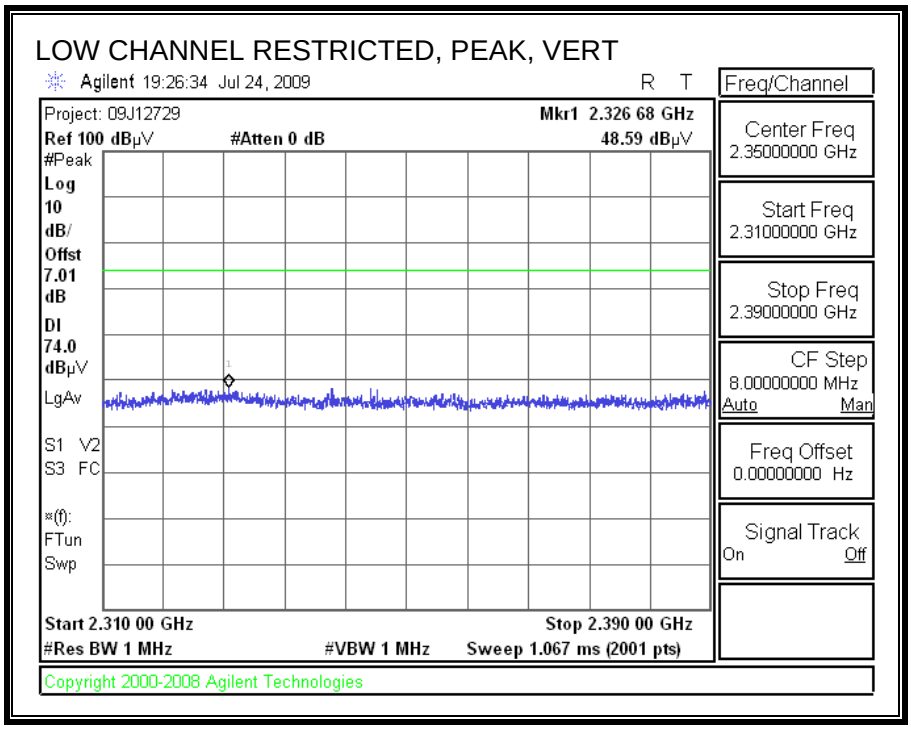
7.2.2. TRANSMITTER ABOVE 1 GHz FOR 802.11b MODE IN THE 2.4 GHz BAND WITH AC ADAPTER

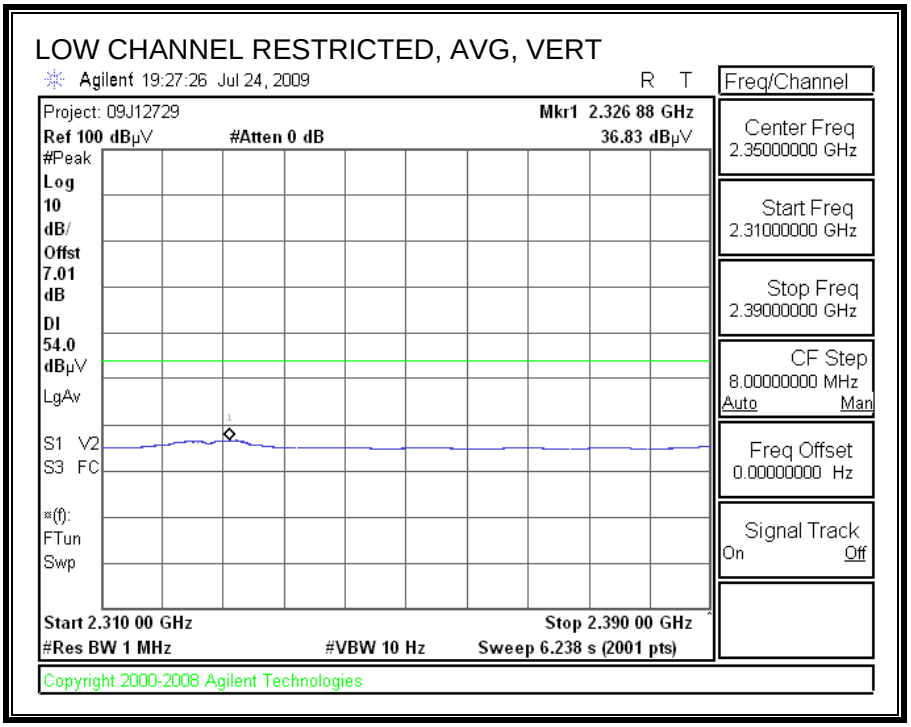
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



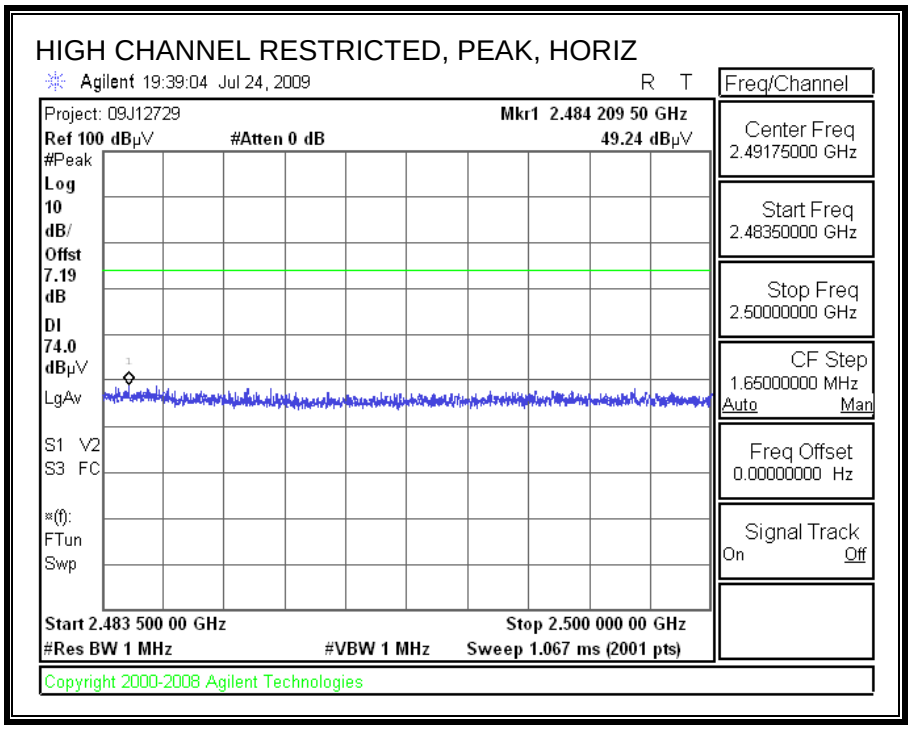


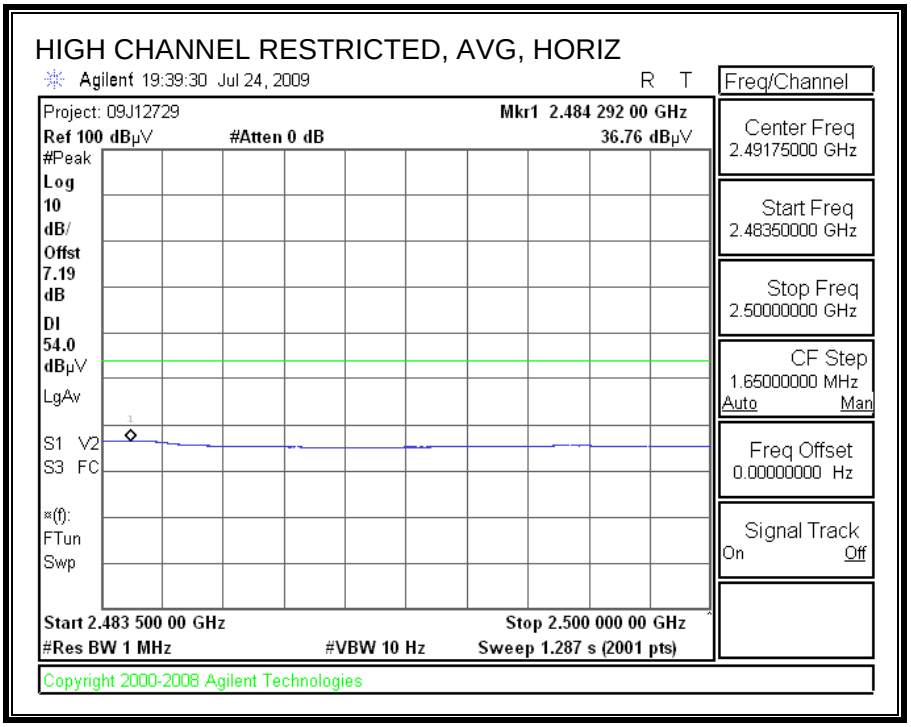
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



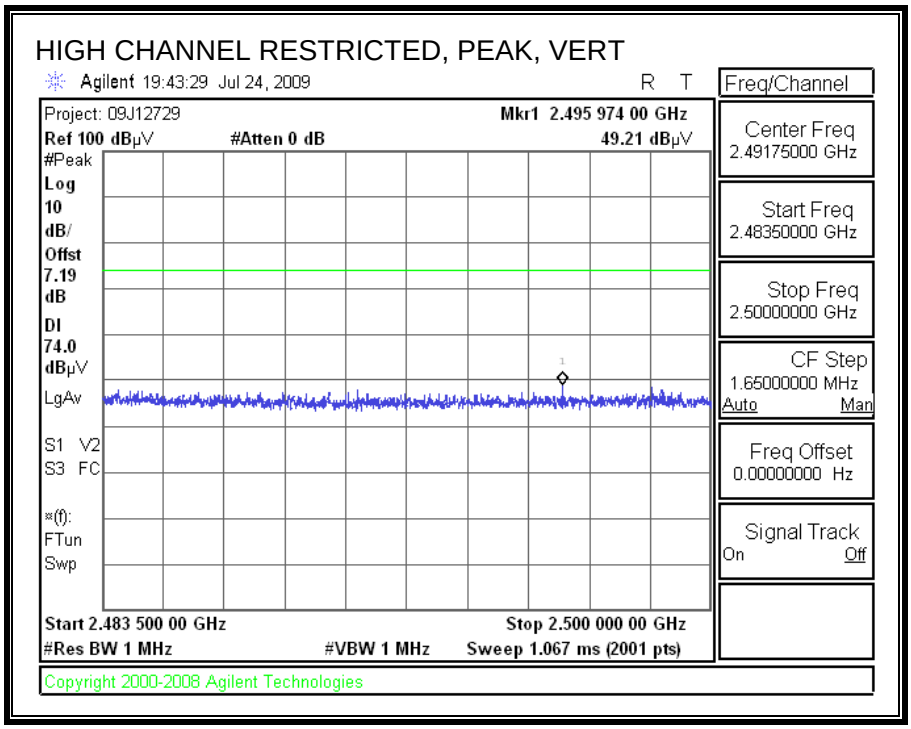


RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

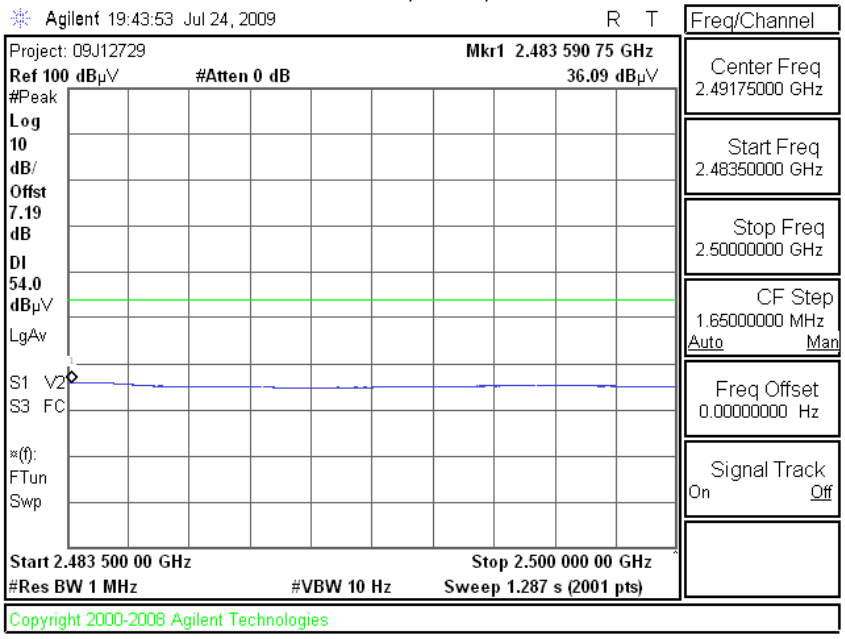




RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



HIGH CHANNEL RESTRICTED, AVG, VERT



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Configuration: EUT with AC Adapter
Mode: TX, 802.11 b MPDE

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T59; S/N: 3245 @3m	T145 Agilent 3008A005(			FCC 15.209

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

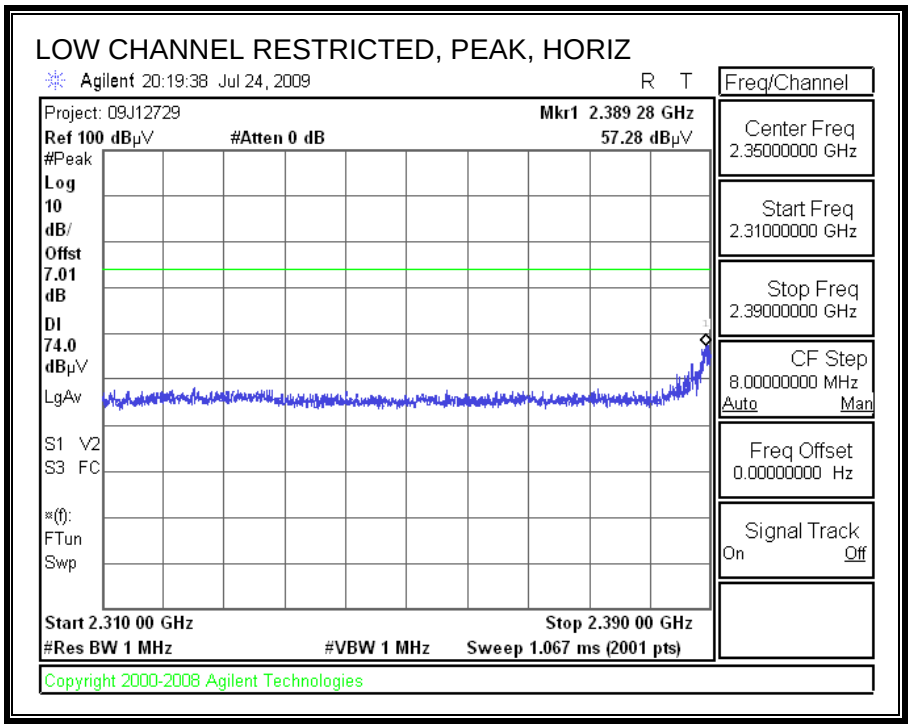
f GHz	Dist (m)	Read Pk dBuV	Read Avg dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low Ch. (2412 MHz)															
4.824	3.0	40.7	30.4	32.8	5.8	-34.8	0.0	0.0	44.4	34.2	74	54	-29.6	-19.8	V
4.824	3.0	38.5	26.4	32.8	5.8	-34.8	0.0	0.0	42.2	30.1	74	54	-31.8	-23.9	H
Mid Ch. (2437 MHz)															
4.874	3.0	40.1	28.5	32.8	5.8	-34.9	0.0	0.0	43.9	32.3	74	54	-30.1	-21.7	V
4.874	3.0	39.0	26.6	32.8	5.8	-34.9	0.0	0.0	42.8	30.4	74	54	-31.2	-23.6	H
Hi Ch. (2462 MHz)															
4.924	3.0	41.1	29.4	32.8	5.9	-34.9	0.0	0.0	44.9	33.3	74	54	-29.1	-20.7	V
4.924	3.0	38.3	26.2	32.8	5.9	-34.9	0.0	0.0	42.1	30.1	74	54	-31.9	-23.9	H

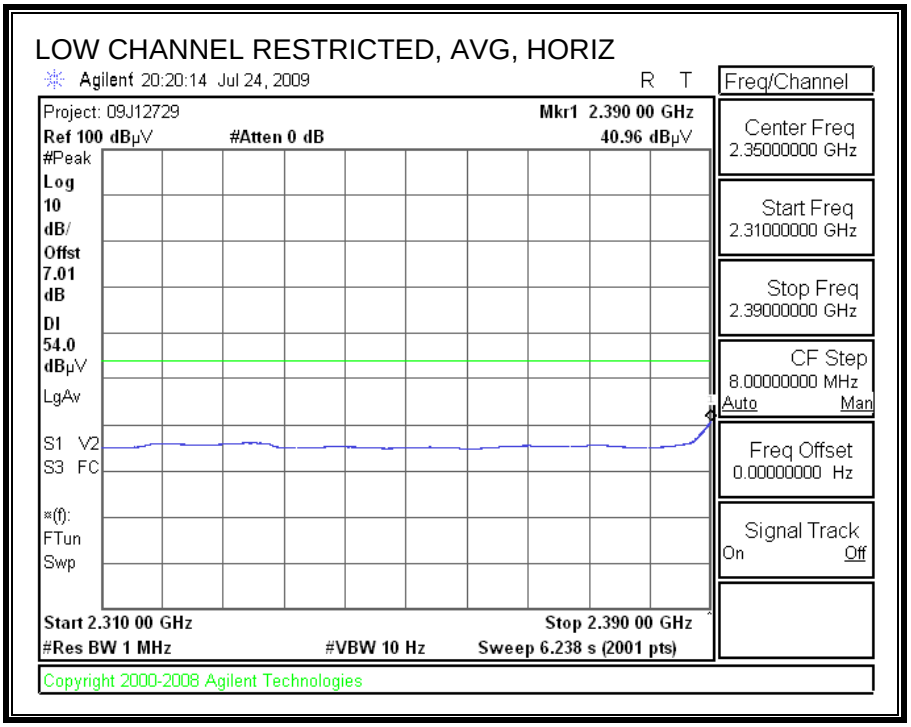
Rev. 11.10.08

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		

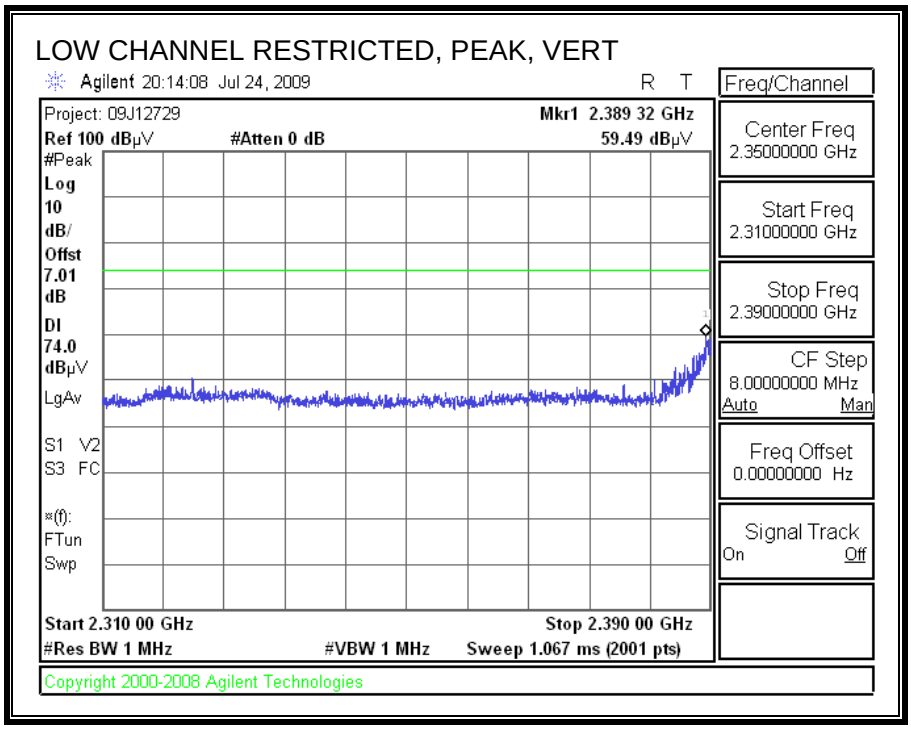
7.2.3. TRANSMITTER ABOVE 1 GHz FOR 802.11g MODE IN THE 2.4 GHz BAND WITH AC ADAPTER

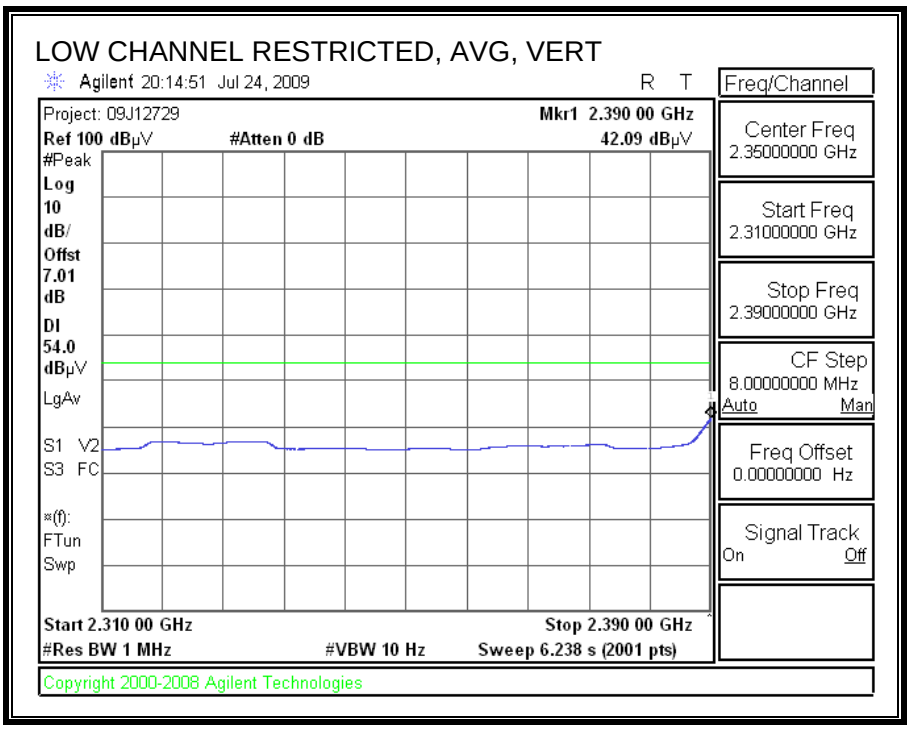
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



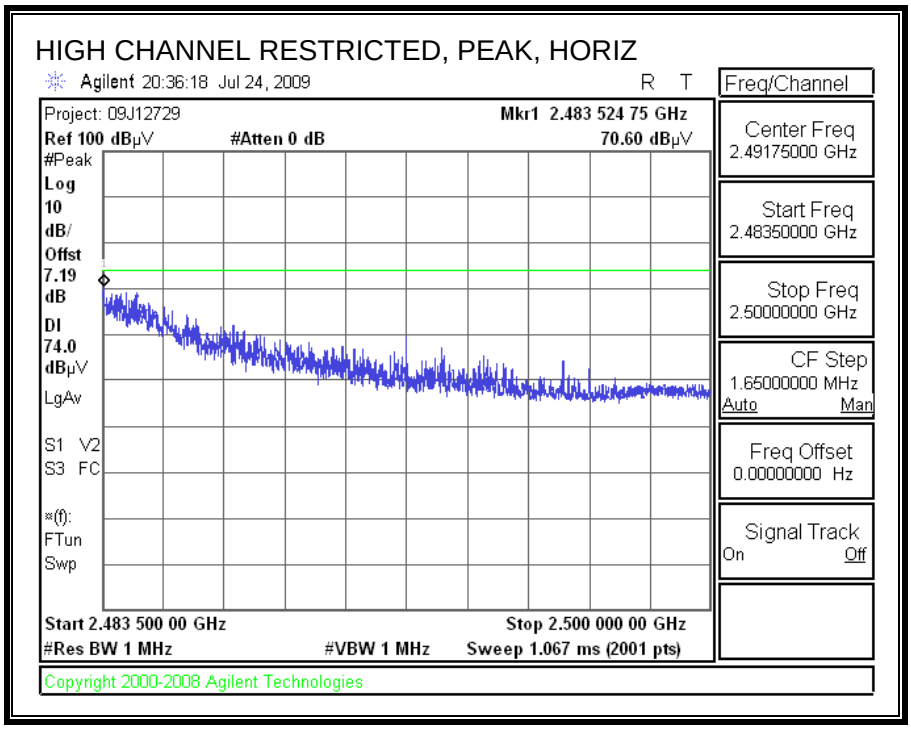


RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

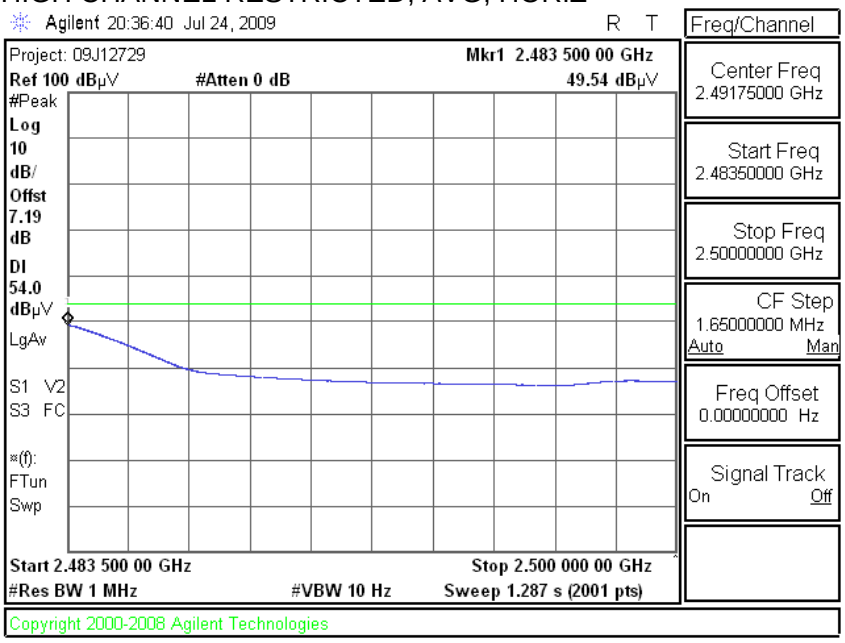




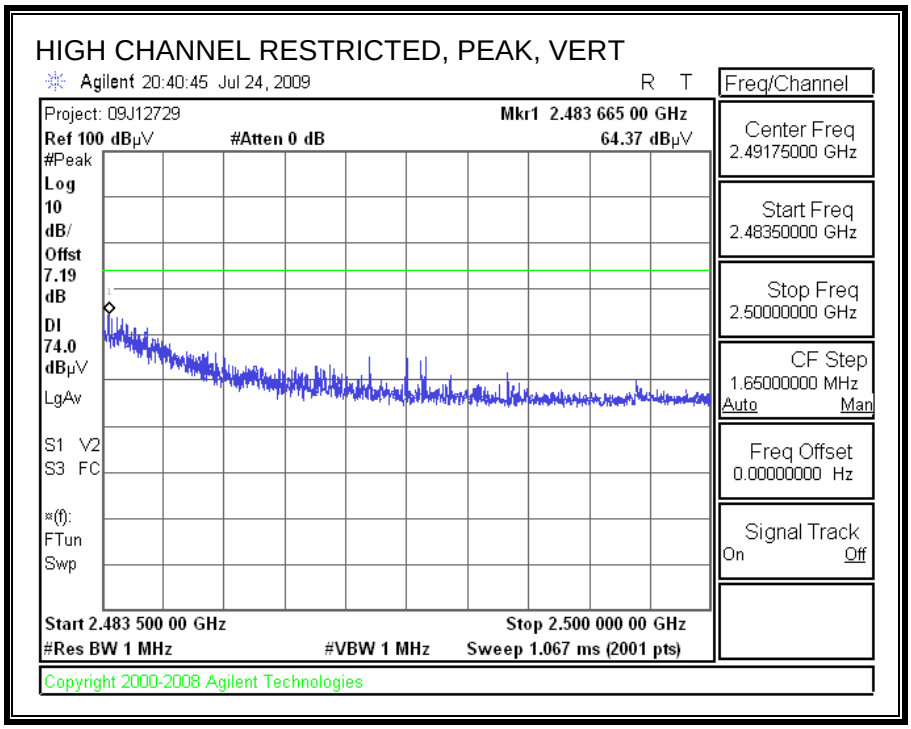
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



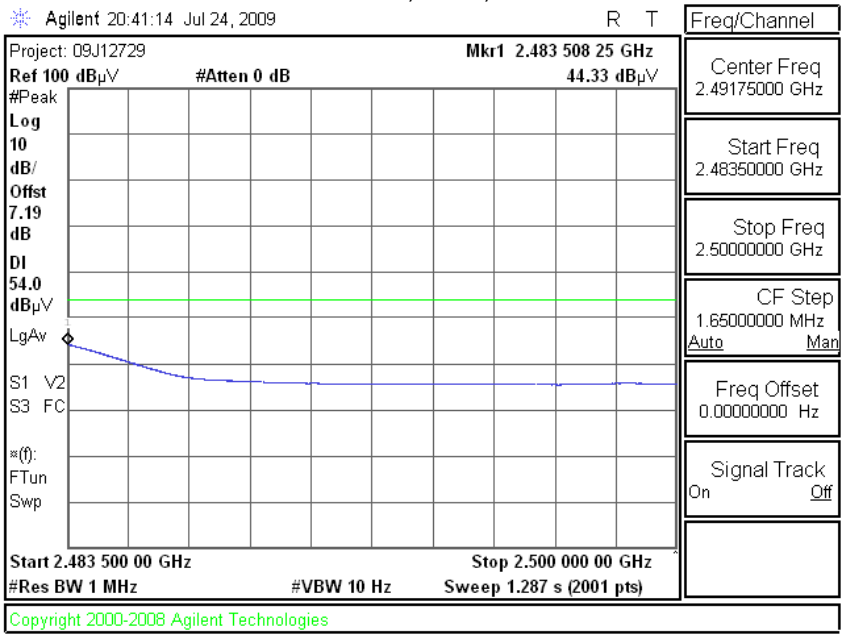
HIGH CHANNEL RESTRICTED, AVG, HORIZ



RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



HIGH CHANNEL RESTRICTED, AVG, VERT



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Company: NINTENDO
Project #: 09J12729
Date: 7/26/2009
Test Engineer: MENGISTU MEKURIA
Configuration: EUT with AC Adapter
Mode: TX, 802.11 g MODE

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T59; S/N: 3245 @3m	T145 Agilent 3008A005(			FCC 15.209

Hi Frequency Cables

3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter
3' cable 22807700	12' cable 22807600	20' cable 22807500		R_001

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

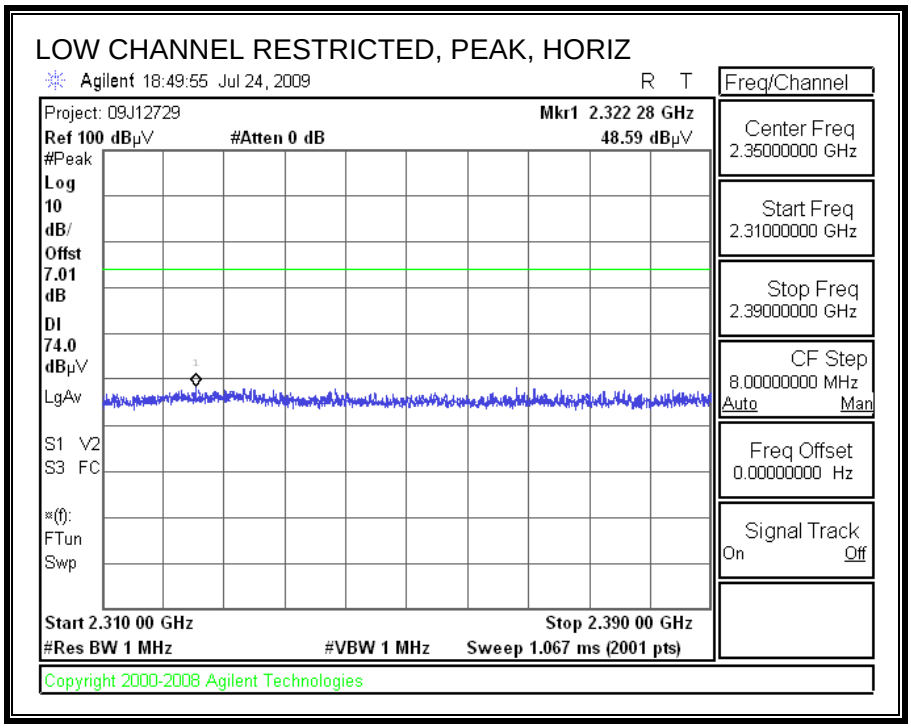
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low Ch. (2412 MHz)															
4.824	3.0	42.2	29.0	32.8	5.8	-34.8	0.0	0.0	45.9	32.7	74	54	-28.1	-21.3	V
4.824	3.0	39.2	26.3	32.8	5.8	-34.8	0.0	0.0	43.0	30.0	74	54	-31.0	-24.0	H
	3.0														
Mid Ch. (2437 MHz)															
4.874	3.0	41.9	28.3	32.8	5.8	-34.9	0.0	0.0	45.7	32.1	74	54	-28.3	-21.9	V
4.874	3.0	38.5	26.8	32.8	5.8	-34.9	0.0	0.0	42.3	30.6	74	54	-31.7	-23.4	H
Hi Ch. (2462 MHz)															H
4.924	3.0	43.3	29.4	32.8	5.9	-34.9	0.0	0.0	47.2	33.3	74	54	-26.8	-20.7	V
4.924	3.0	39.1	26.3	32.8	5.9	-34.9	0.0	0.0	43.0	30.2	74	54	-31.0	-23.8	H

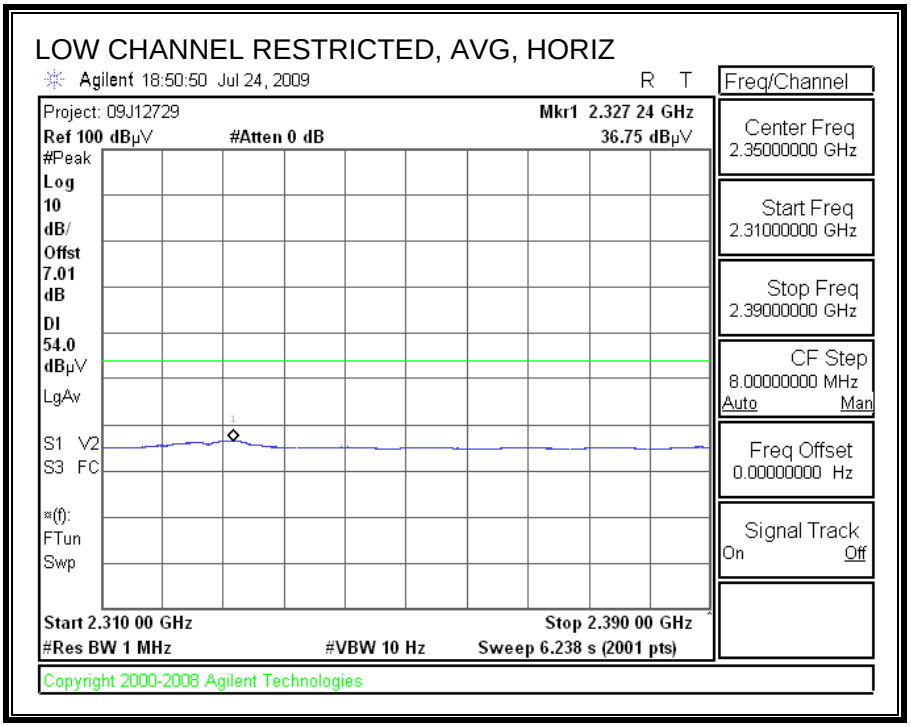
Rev. 11.10.08

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		

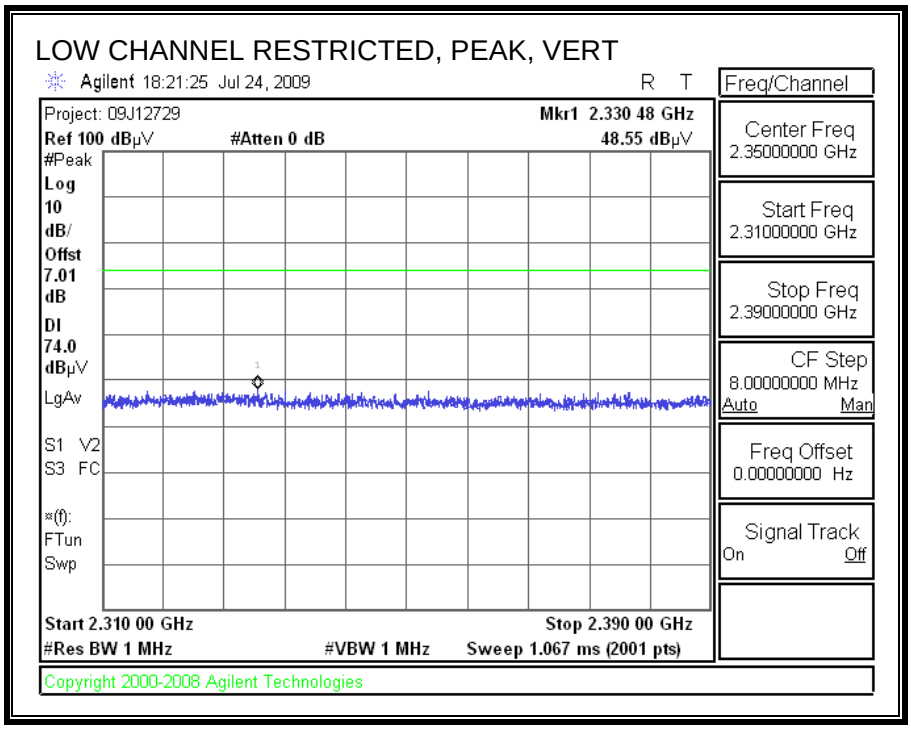
7.2.4. TRANSMITTER ABOVE 1 GHz FOR 802.11 MODE IN THE 2.4 GHz BAND WITHOUT AC ADAPTER

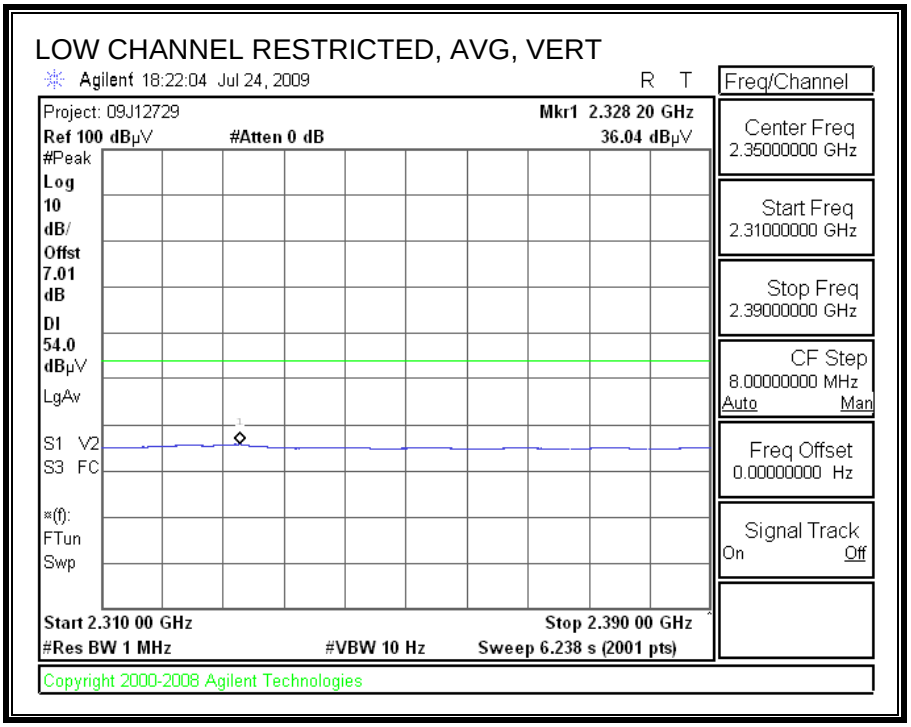
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



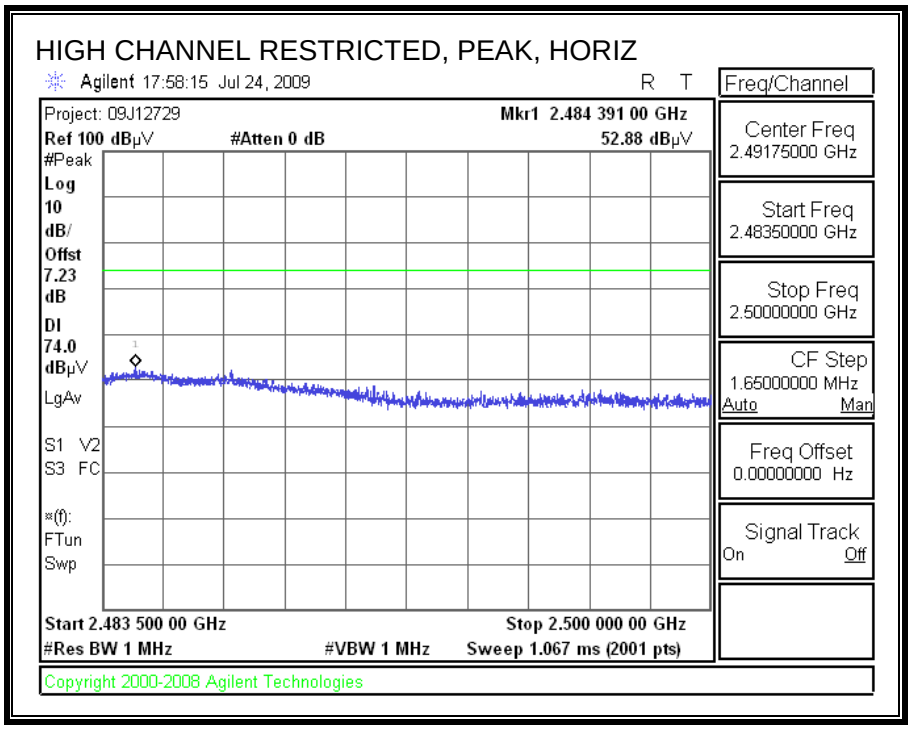


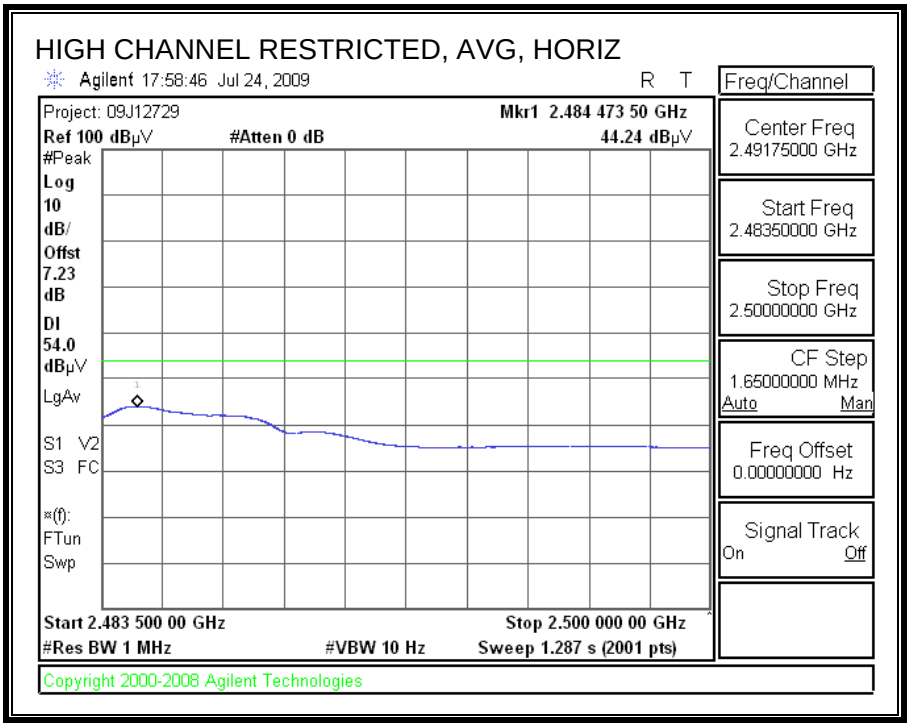
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



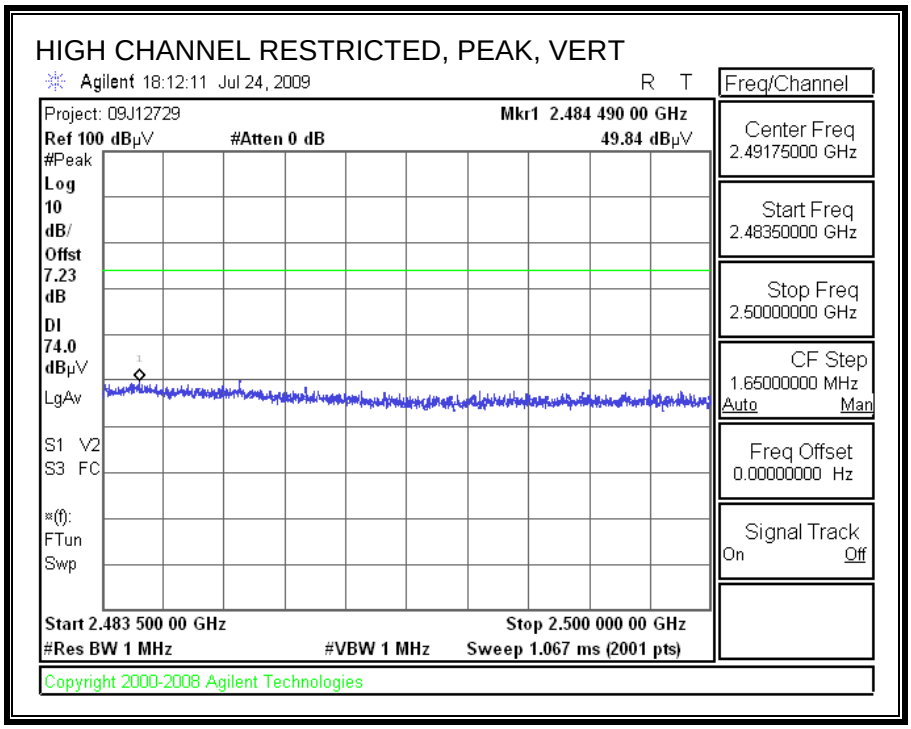


RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

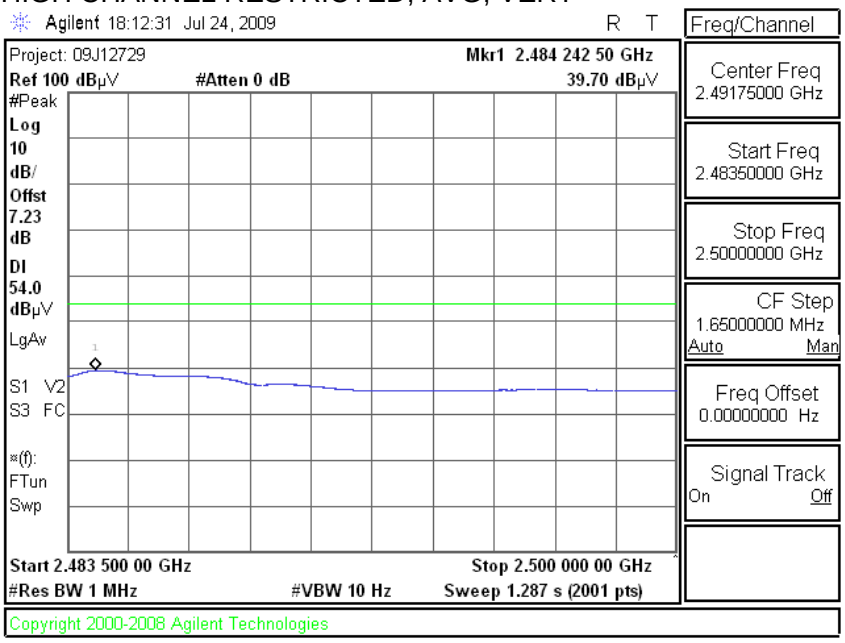




RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



HIGH CHANNEL RESTRICTED, AVG, VERT



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Company: NINTENDO
Project #: 09J12729
Date: 7/26/2009
Test Engineer: MENGISTU MEKURIA
Configuration: EUT ALONE
Mode: TX, 802.11 MODE

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T59; S/N: 3245 @3m	T145 Agilent 3008A005(			FCC 15.209

Hi Frequency Cables

3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter
3' cable 22807700	12' cable 22807600	20' cable 22807500		R_001

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

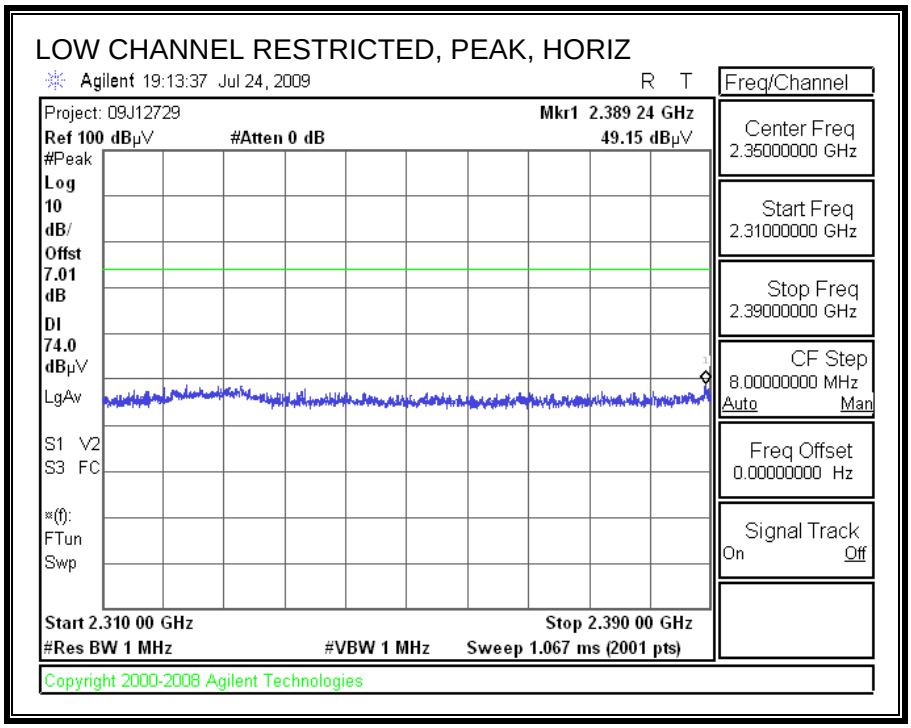
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low Ch. (2412 MHz)															
4.824	3.0	39.2	27.7	32.8	5.8	-34.8	0.0	0.0	42.9	31.4	74	54	-31.1	-22.6	V
4.824	3.0	39.5	27.0	32.8	5.8	-34.8	0.0	0.0	43.2	30.7	74	54	-30.8	-23.3	H
Mid Ch. (2442 MHz)															
4.884	3.0	38.7	26.6	32.8	5.8	-34.9	0.0	0.0	42.5	30.4	74	54	-31.5	-23.6	V
4.884	3.0	38.7	26.4	32.8	5.8	-34.9	0.0	0.0	42.5	30.2	74	54	-31.5	-23.8	H
Hi Ch. (2472 MHz)															
4.944	3.0	38.5	26.5	32.9	5.9	-34.9	0.0	0.0	42.4	30.3	74	54	-31.6	-23.7	V
4.944	3.0	38.5	26.2	32.9	5.9	-34.9	0.0	0.0	42.4	30.1	74	54	-31.6	-23.9	H

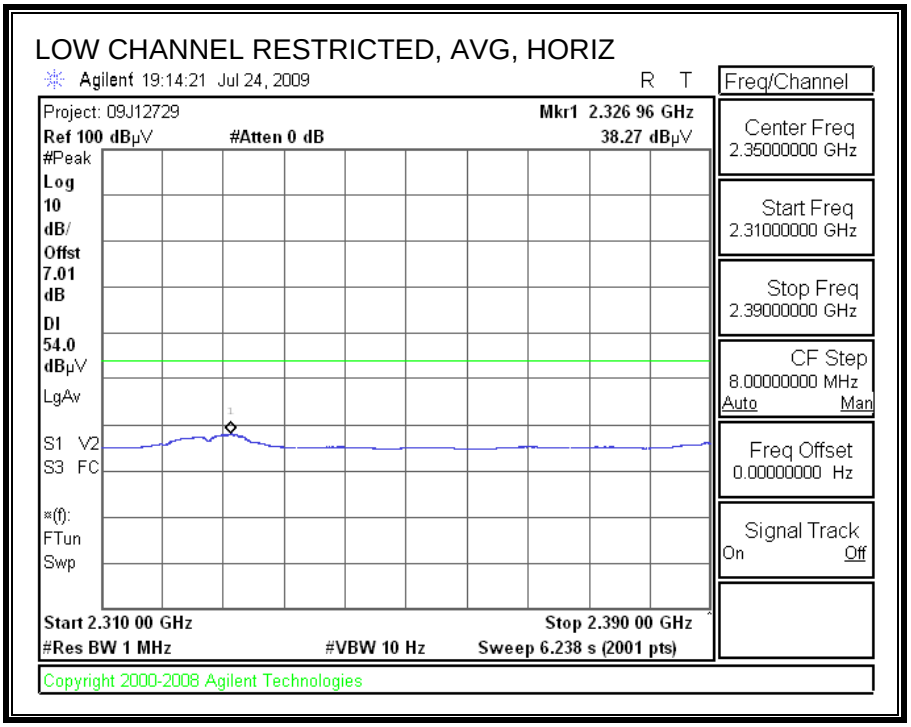
Rev. 11.10.08

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		

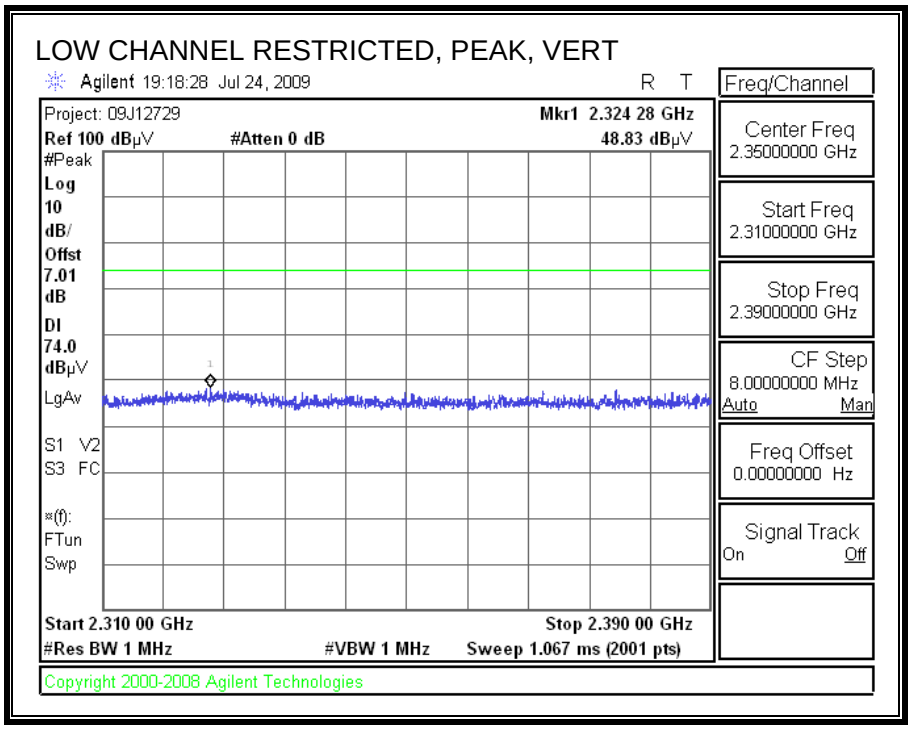
7.2.5. TRANSMITTER ABOVE 1 GHz FOR 802.11b MODE IN THE 2.4 GHz BAND WITHOUT AC ADAPTER

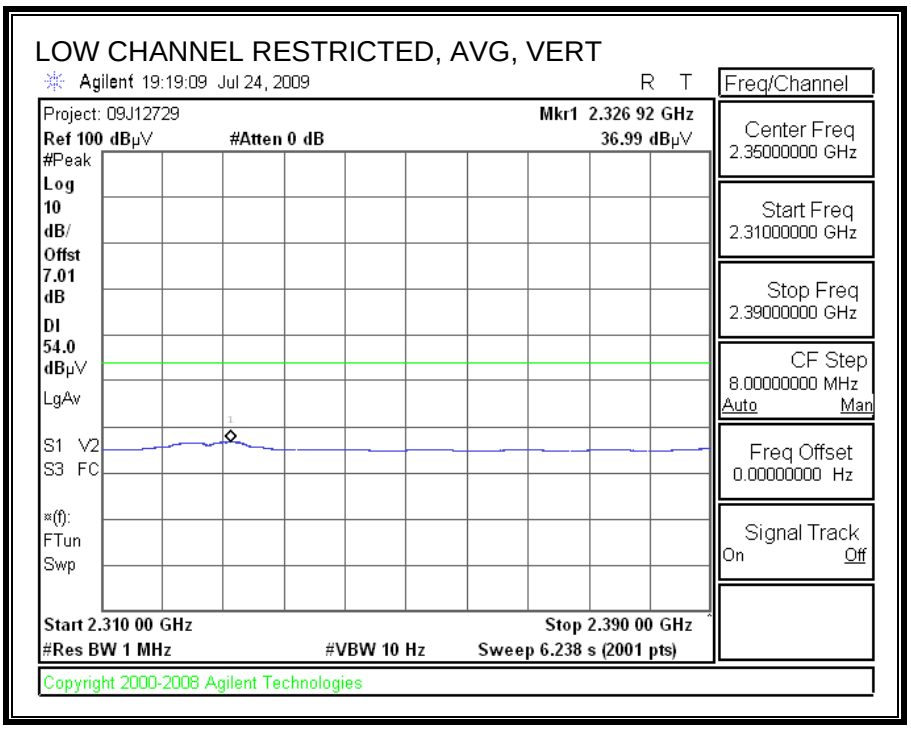
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



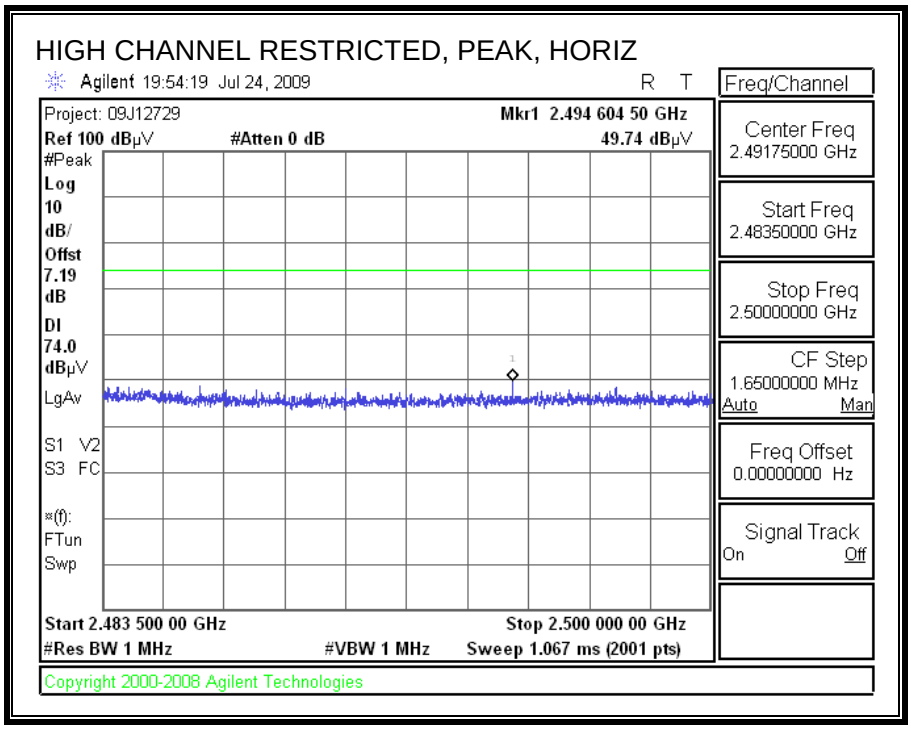


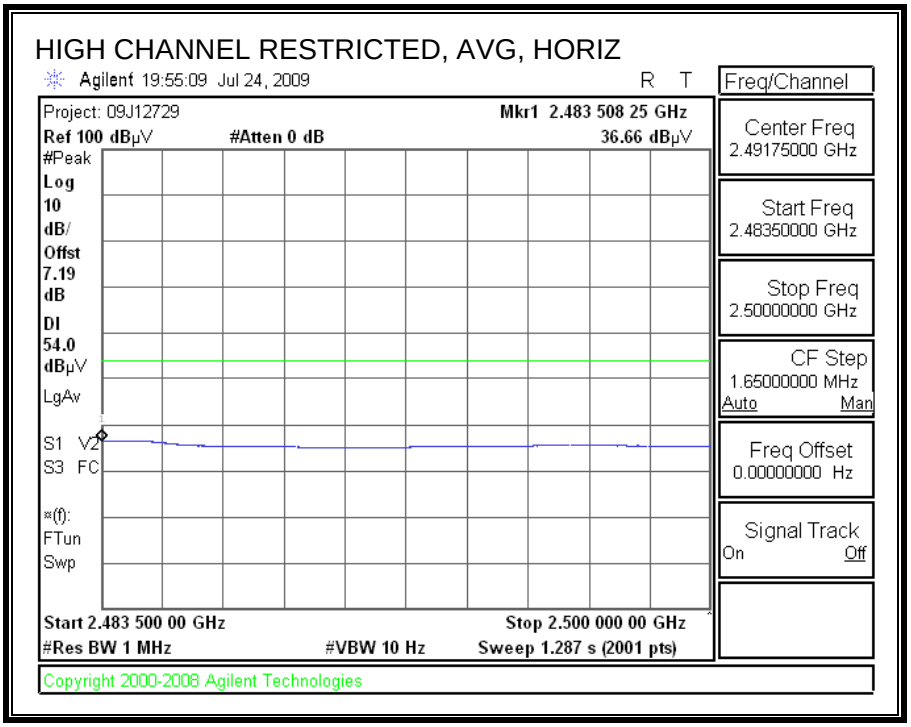
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



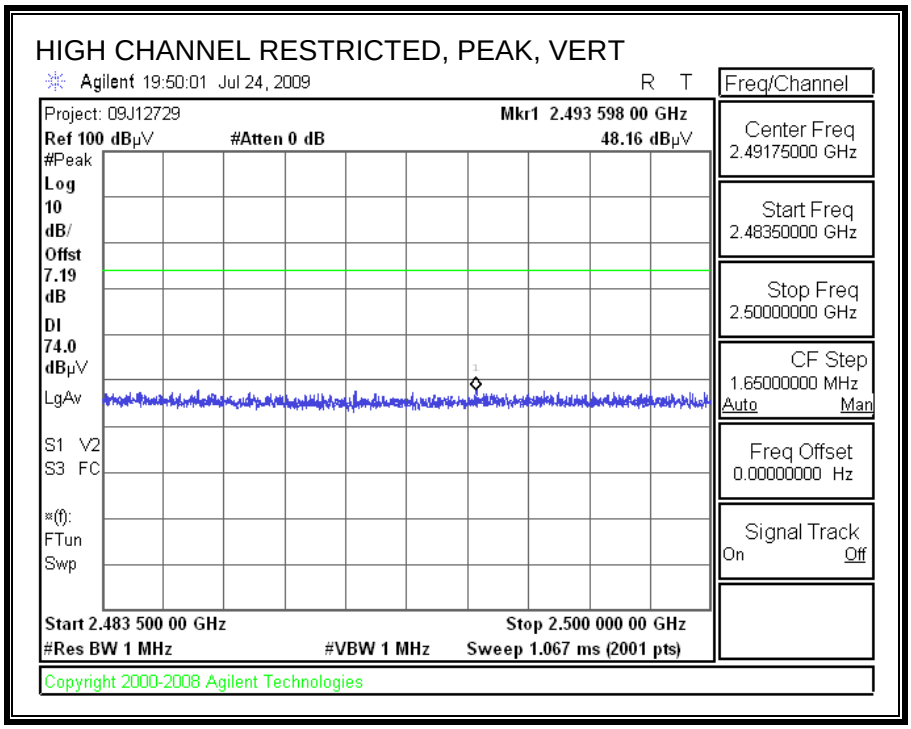


RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

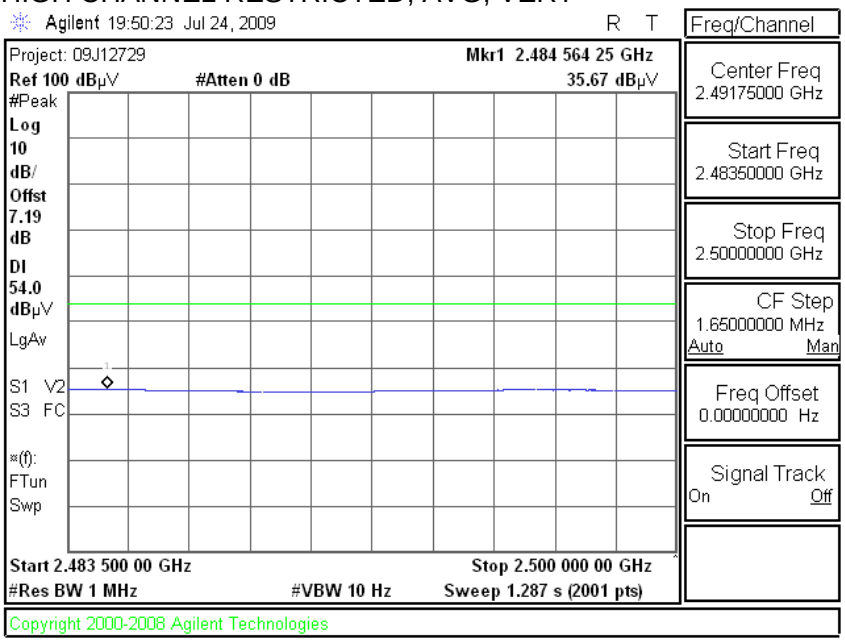




RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



HIGH CHANNEL RESTRICTED, AVG, VERT



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Company: NINTENDO
Project #: 09J12729
Date: 7/26/2009
Test Engineer: MENGISTU MEKURIA
Configuration: EUT ALONE
Mode: TX, 802.11b MODE

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T59; S/N: 3245 @3m	T145 Agilent 3008A005(			FCC 15.209

Hi Frequency Cables

3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter
3' cable 22807700	12' cable 22807600	20' cable 22807500		R_001

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

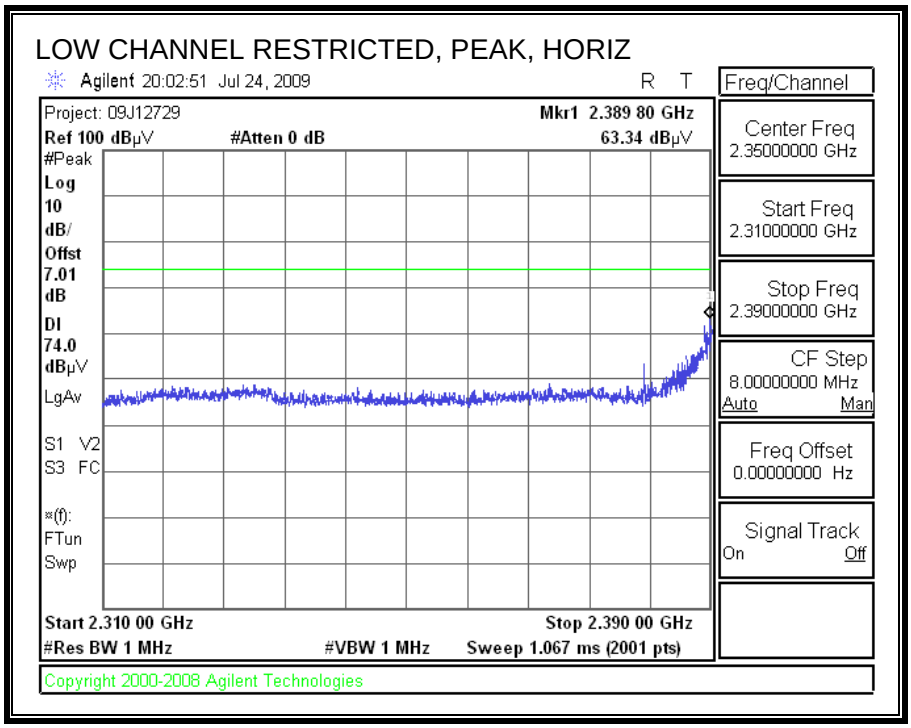
f GHz	Dist (m)	Read Pk dBuV	Read Avg dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low Ch. (2412 MHz)															
4.824	3.0	41.0	30.4	32.8	5.8	-34.8	0.0	0.0	44.7	34.1	74	54	-29.3	-19.9	V
4.824	3.0	38.4	26.2	32.8	5.8	-34.8	0.0	0.0	42.1	29.9	74	54	-31.9	-24.1	H
Mid Ch. (2437 MHz)															
4.874	3.0	40.0	28.4	32.8	5.8	-34.9	0.0	0.0	43.7	32.2	74	54	-30.3	-21.8	V
4.874	3.0	38.8	26.7	32.8	5.8	-34.9	0.0	0.0	42.6	30.5	74	54	-31.4	-23.5	H
Hi Ch. (2462 MHz)															
4.924	3.0	40.2	29.4	32.8	5.9	-34.9	0.0	0.0	44.1	33.3	74	54	-29.9	-20.7	V
4.924	3.0	38.6	26.1	32.8	5.9	-34.9	0.0	0.0	42.4	30.0	74	54	-31.6	-24.0	H

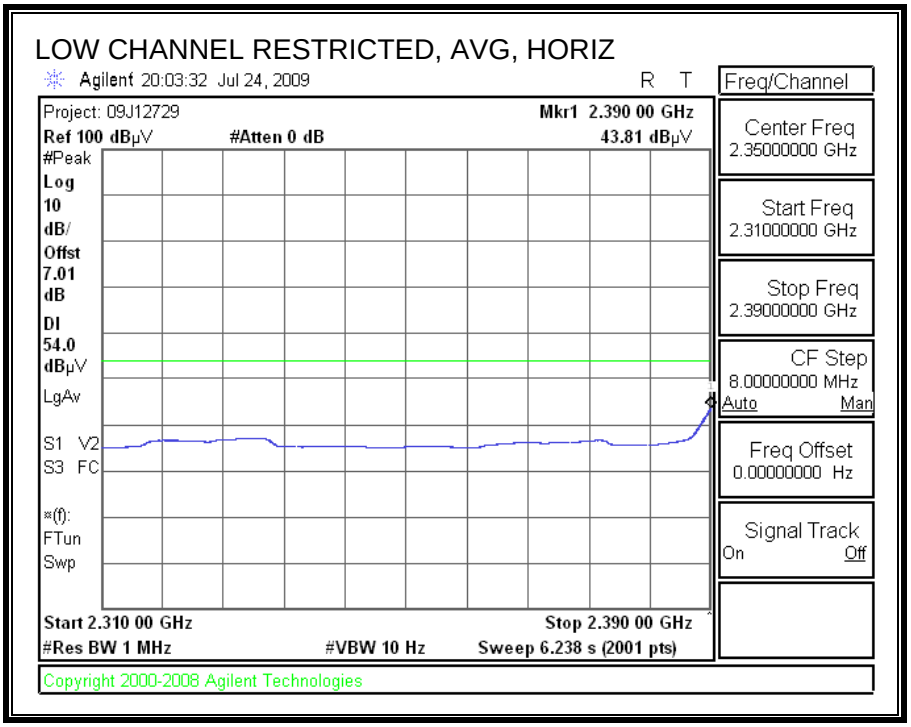
Rev. 11.10.08

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		

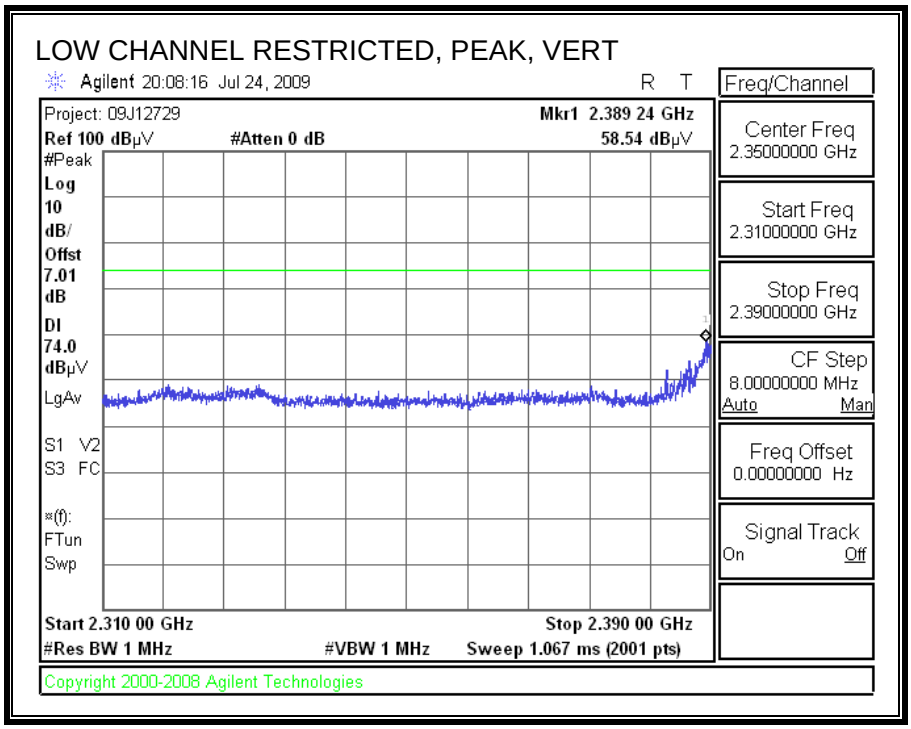
7.2.6. TRANSMITTER ABOVE 1 GHz FOR 802.11g MODE IN THE 2.4 GHz BAND WITHOUT AC ADAPTER

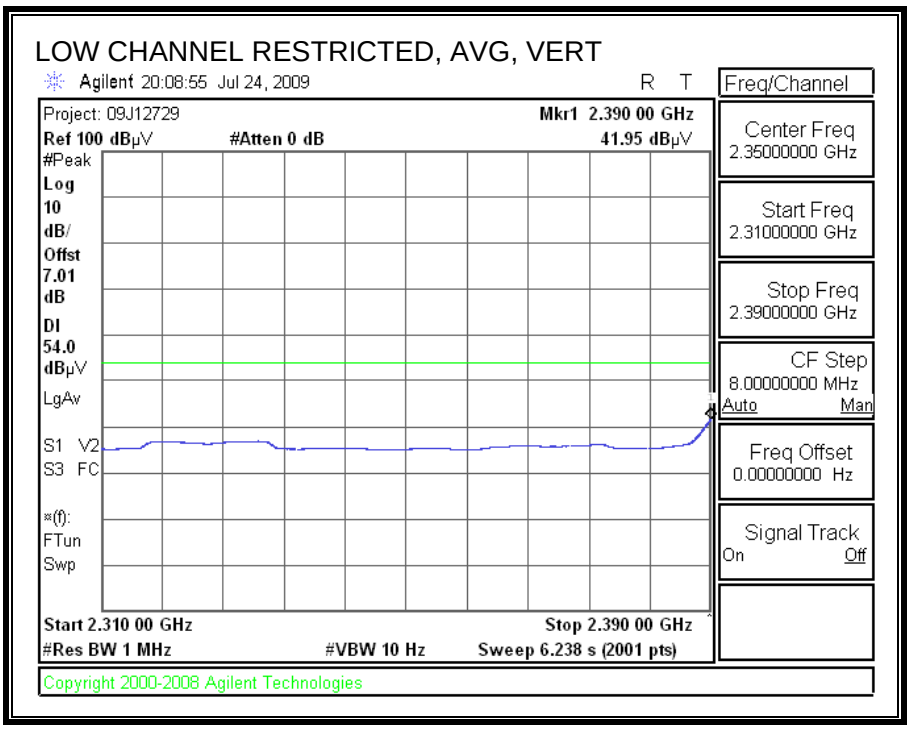
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



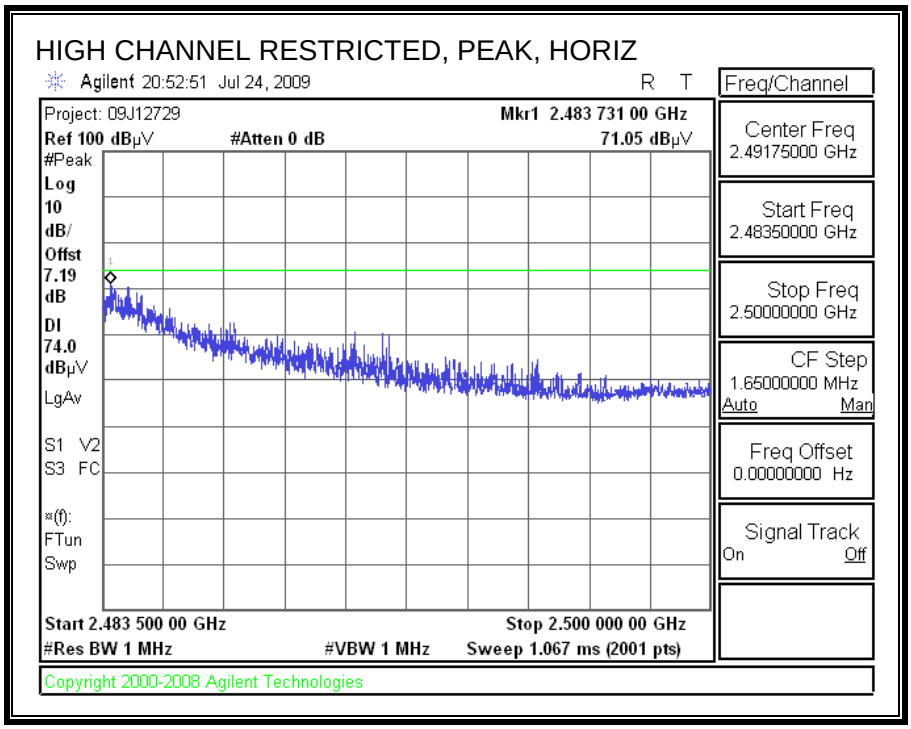


RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

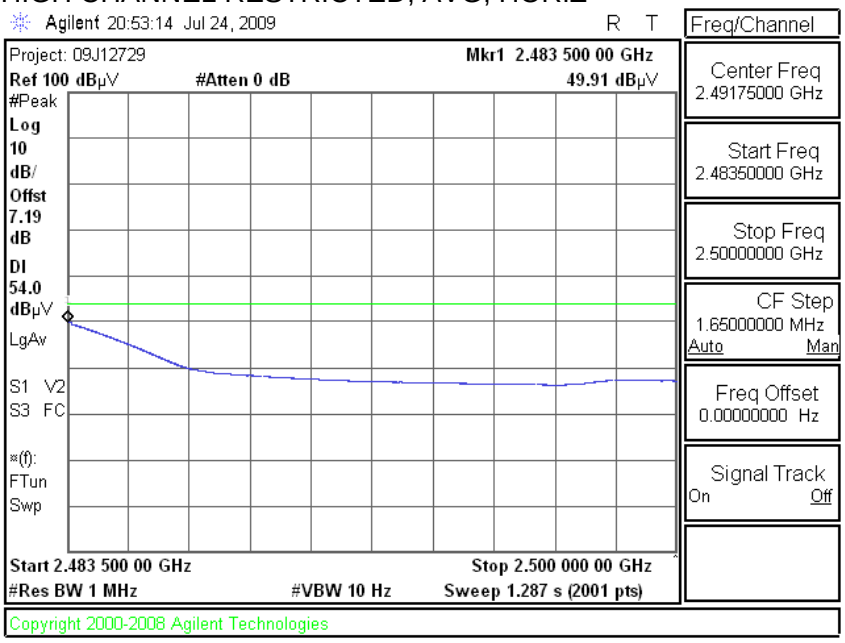




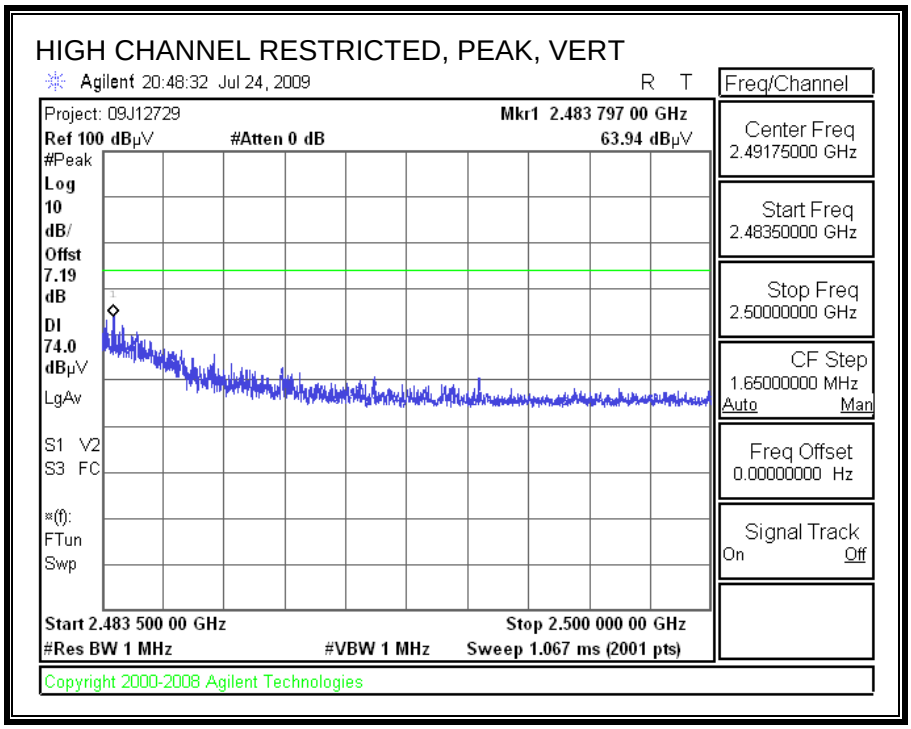
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



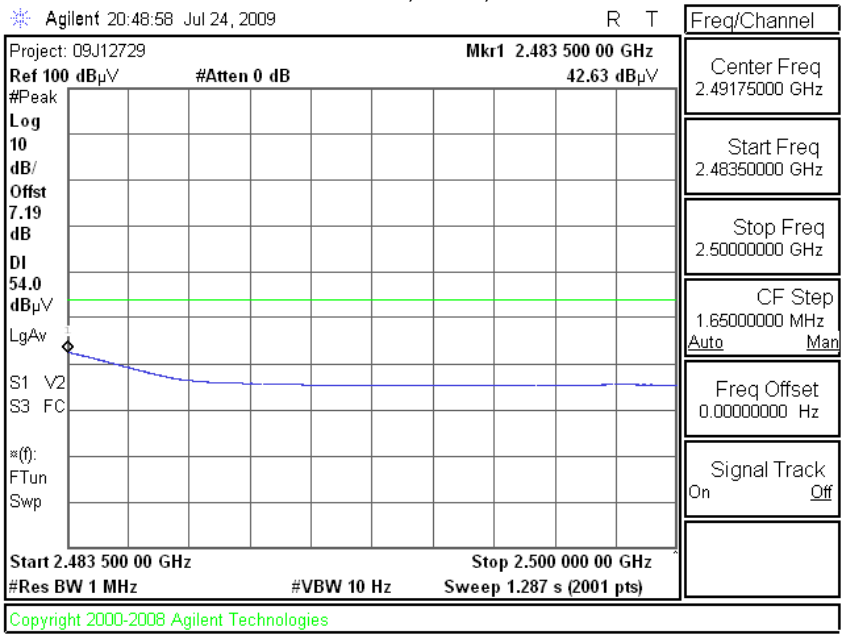
HIGH CHANNEL RESTRICTED, AVG, HORIZ



RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



HIGH CHANNEL RESTRICTED, AVG, VERT



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Company: NINTENDO
Project #: 09J12729
Date: 7/24/2009
Test Engineer: MENGISTU MEKURIA
Configuration: EUT ALONE
Mode: TX, 802.11 g MPDE

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T59; S/N: 3245 @3m	T145 Agilent 3008A005(			FCC 15.209

Hi Frequency Cables

3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter
3' cable 22807700	12' cable 22807600	20' cable 22807500		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. (2412 MHz)															
4.824	3.0	41.2	28.5	32.8	5.8	-34.8	0.0	0.0	44.9	32.3	74	54	-29.1	-21.7	V
4.824	3.0	39.1	26.8	32.8	5.8	-34.8	0.0	0.0	42.8	30.5	74	54	-31.2	-23.5	H
Mid Ch. (2437 MHz)															
4.874	3.0	40.7	28.2	32.8	5.8	-34.9	0.0	0.0	44.5	32.0	74	54	-29.5	-22.0	V
4.874	3.0	38.9	26.5	32.8	5.8	-34.9	0.0	0.0	42.7	30.3	74	54	-31.3	-23.7	H
Hi Ch. (2462 MHz)															
4.924	3.0	41.4	28.5	32.8	5.9	-34.9	0.0	0.0	45.2	32.4	74	54	-28.8	-21.6	V
4.924	3.0	38.6	26.6	32.8	5.9	-34.9	0.0	0.0	42.4	30.5	74	54	-31.6	-23.5	H

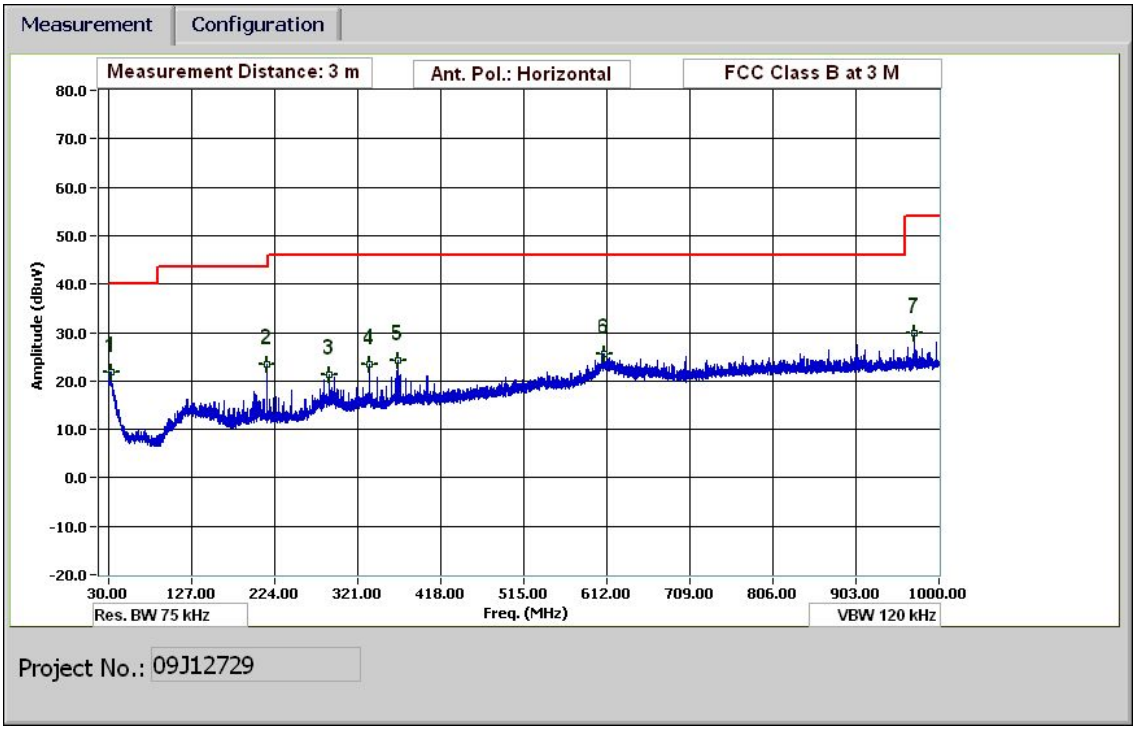
Rev. 11.10.08

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		

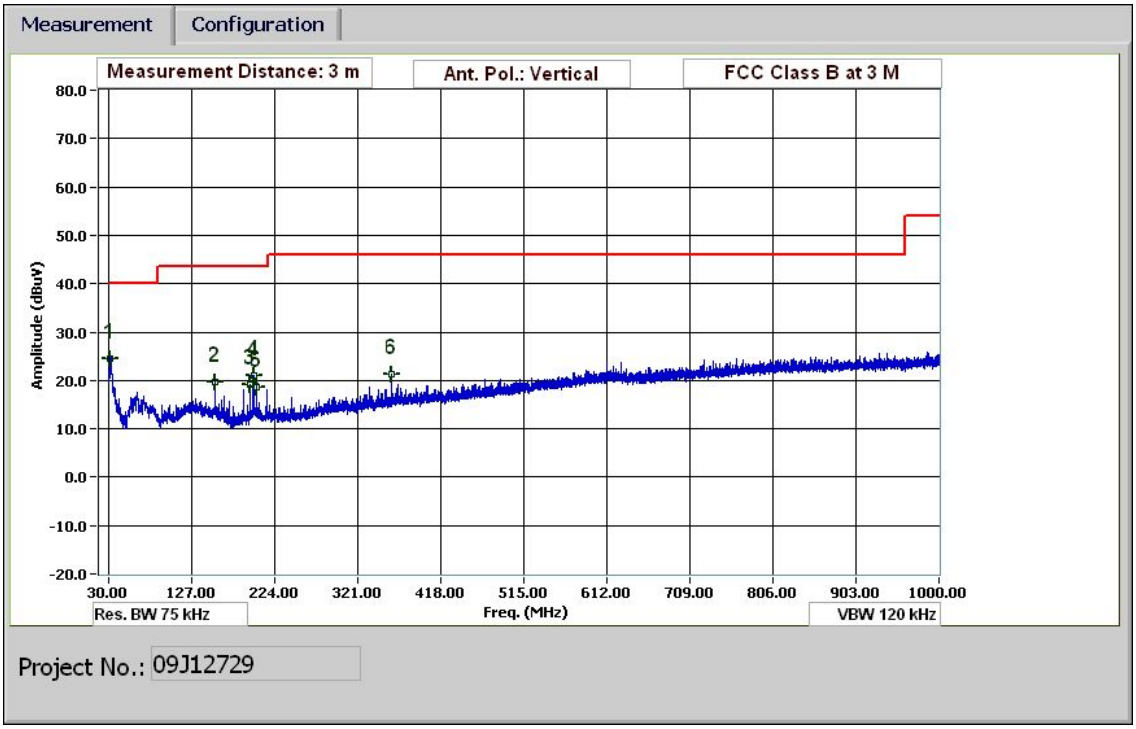
7.2.7. TX SPURIOUS EMISSION 30 TO 1000 MHz WITH TABUCHI AC ADAPTER

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

HORIZONTAL PLOT



VERTICAL PLOT



TABULATED DATA

30-1000MHz Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: Doug Anderson
Date: 07/23/09
Project #: 09J12729
Company: Nintendo
EUT Description: 802.11 +802.11b/g Radio Module in Game Controller
EUT M/N: DMW-W024
Test Target: FCC Class B
Mode Oper: Contiuous Tx

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		

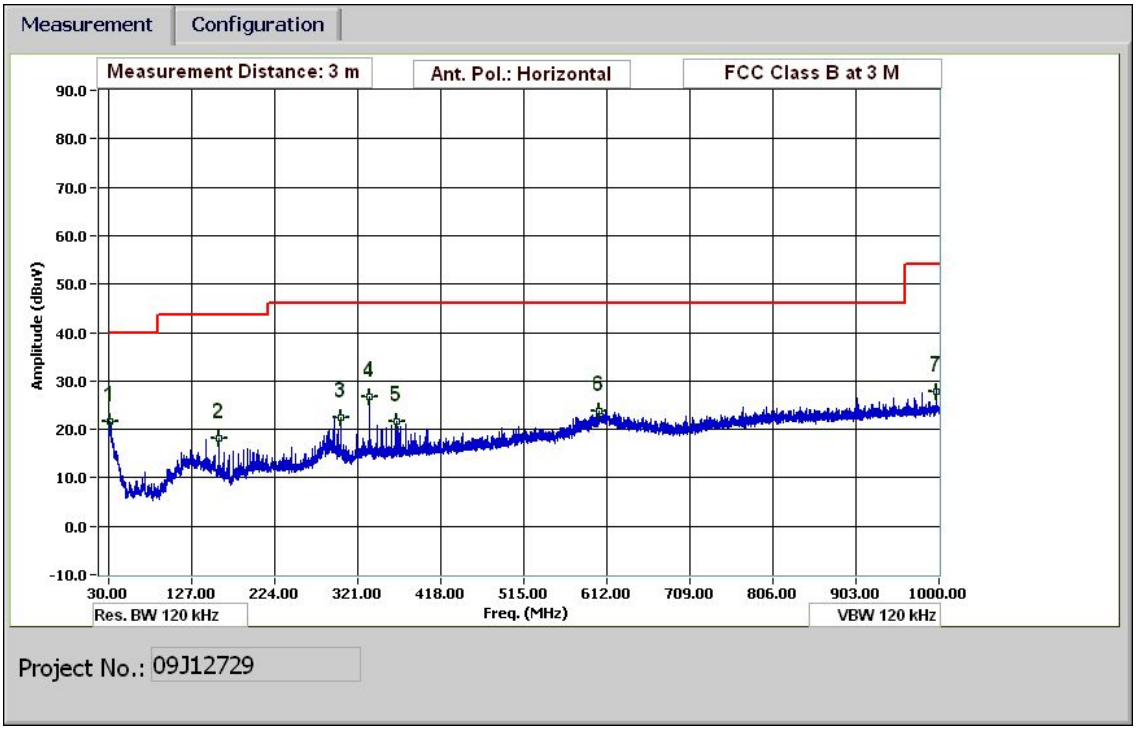
f MHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filter dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant. High cm	Table Angle Degree	Notes
With AC Adapter: Horizontal															
32.280	3.0	30.7	19.1	0.5	28.4	0.0	0.0	21.9	40.0	-18.1	H	P	121.0	183.5	
214.808	3.0	38.5	11.9	1.3	28.2	0.0	0.0	23.5	43.5	-20.0	H	P	132.6	346.6	
287.651	3.0	34.8	13.0	1.5	28.1	0.0	0.0	21.2	46.0	-24.8	H	P	118.2	104.7	
335.173	3.0	36.0	13.9	1.6	28.1	0.0	0.0	23.4	46.0	-22.6	H	P	112.1	37.4	
368.654	3.0	36.2	14.4	1.7	28.1	0.0	0.0	24.3	46.0	-21.7	H	P	100.0	110.1	
609.624	3.0	32.3	18.5	2.3	27.5	0.0	0.0	25.6	46.0	-20.4	H	P	108.4	137.5	
971.919	3.0	32.6	22.3	2.9	27.9	0.0	0.0	30.0	54.0	-24.0	H	P	155.5	178.3	
With AC Adapter: Vertical															
32.160	3.0	33.2	19.2	0.5	28.4	0.0	0.0	24.5	40.0	-15.5	V	P	121.0	186.2	
154.805	3.0	34.5	12.2	1.1	28.3	0.0	0.0	19.6	43.5	-23.9	V	P	127.4	45.2	
195.367	3.0	34.4	11.7	1.2	28.2	0.0	0.0	19.1	43.5	-24.4	V	P	115.0	360.0	
199.087	3.0	36.0	11.9	1.2	28.2	0.0	0.0	20.9	43.5	-22.6	V	P	100.0	357.8	
202.687	3.0	33.6	12.0	1.3	28.2	0.0	0.0	18.7	43.5	-24.8	V	P	104.0	358.2	
360.254	3.0	33.4	14.3	1.7	28.1	0.0	0.0	21.3	46.0	-24.7	V	P	117.0	0.0	

Rev. 1.27.09
Note: No other emissions were detected above the system noise floor.

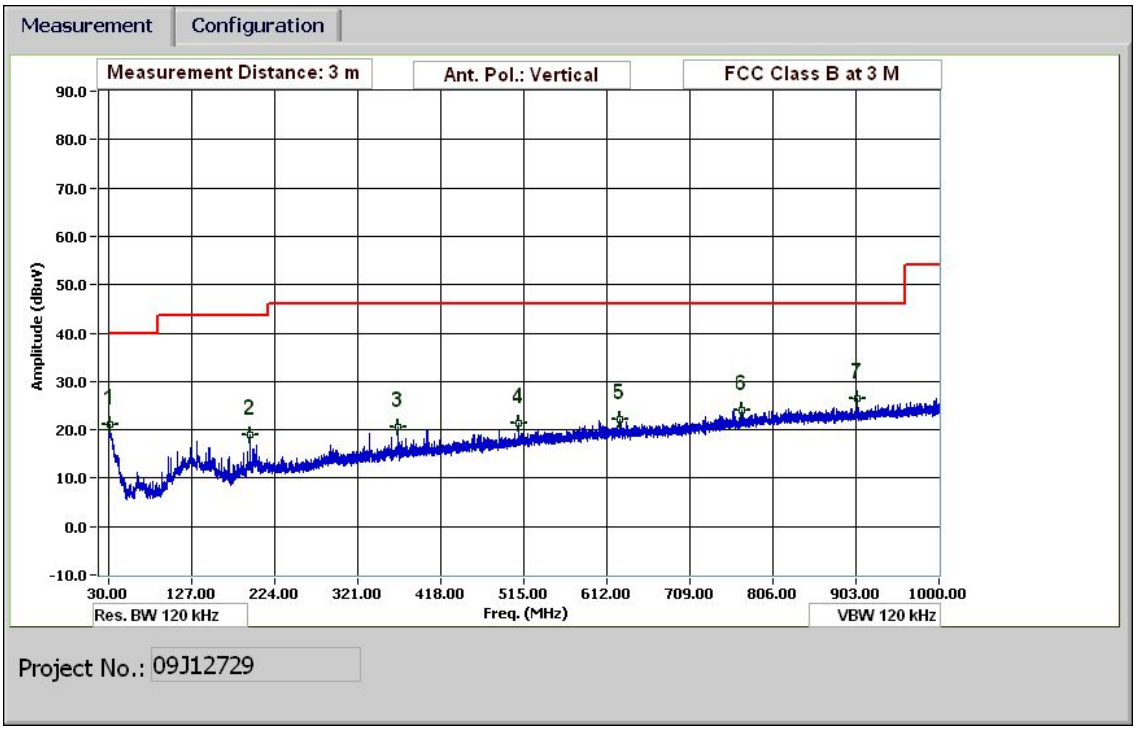
7.2.8. TX SPURIOUS EMISSION 30 TO 1000 MHz WITHOUT TABUCHI AC ADAPTER

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

HORIZONTAL PLOT



VERTICAL PLOT



TABULATED DATA

30-1000MHz Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: Doug Anderson
Date: 07/24/09
Project #: 09J12729
Company: Nintendo
EUT Description: 802.11 +802.11b/g Radio Module in Game Controller
EUT M/N: DMW-W024
Test Target: FCC Class B
Mode Oper: Contiuous Tx

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	Ant. High cm	Table Angle Degree	Notes
Battery Power: Horizontal															
31.200	3.0	30.9	19.8	0.5	29.7	0.0	0.0	21.5	40.0	-18.5	H	P	100.0	339.6	
159.245	3.0	35.2	10.9	1.1	29.3	0.0	0.0	18.1	43.5	-25.4	H	P	142.6	127.0	
301.691	3.0	36.4	13.3	1.6	28.8	0.0	0.0	22.5	46.0	-23.5	H	P	125.1	235.4	
335.173	3.0	40.0	13.9	1.7	29.0	0.0	0.0	26.6	46.0	-19.4	H	P	121.2	245.7	
365.894	3.0	34.5	14.4	1.8	29.1	0.0	0.0	21.6	46.0	-24.4	H	P	119.8	251.3	
603.264	3.0	32.7	18.3	2.4	29.6	0.0	0.0	23.7	46.0	-22.3	H	P	115.7	235.8	
997.000	3.0	30.4	22.6	3.2	28.4	0.0	0.0	27.8	54.0	-26.2	H	P	100.0	290.4	
Battery Power: Vertical															
31.440	3.0	30.5	19.7	0.5	29.7	0.0	0.0	21.0	40.0	-19.0	V	P	100.0	0.0	
195.367	3.0	35.0	11.6	1.3	28.9	0.0	0.0	18.9	43.5	-24.6	V	P	104.0	59.5	
368.654	3.0	33.5	14.5	1.8	29.1	0.0	0.0	20.7	46.0	-25.3	V	P	114.2	360.0	
508.700	3.0	32.1	16.9	2.2	29.7	0.0	0.0	21.4	46.0	-24.6	V	P	100.0	9.2	
627.745	3.0	30.9	18.5	2.4	29.6	0.0	0.0	22.3	46.0	-23.7	V	P	122.2	346.3	
770.311	3.0	30.0	20.5	2.7	29.3	0.0	0.0	23.9	46.0	-22.1	V	P	106.4	0.0	
904.836	3.0	30.3	21.6	3.0	28.6	0.0	0.0	26.4	46.0	-19.6	V	P	100.0	50.0	

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

MITSUMI AC/DC ADAPTER:

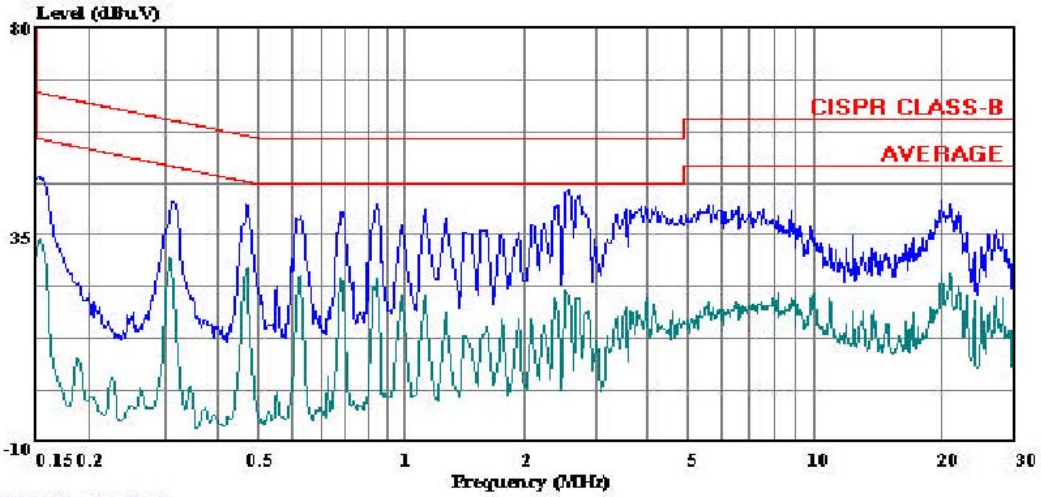
6 WORST EMISSIONS

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
0.47	41.79	--	27.62	0.00	56.58	46.58	-14.79	-18.96	L1
0.94	41.83	--	25.52	0.00	56.00	46.00	-14.17	-20.48	L1
2.68	44.78	--	22.99	0.00	56.00	46.00	-11.22	-23.01	L1
0.51	43.70	--	29.97	0.00	56.00	46.00	-12.30	-16.03	L2
0.84	43.78	--	34.35	0.00	56.00	46.00	-12.22	-11.65	L2
2.69	44.81	--	29.35	0.00	56.00	46.00	-11.19	-16.65	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#: 09J12729LC.EMI Date: 07-22-2009 Time: 13:46:04



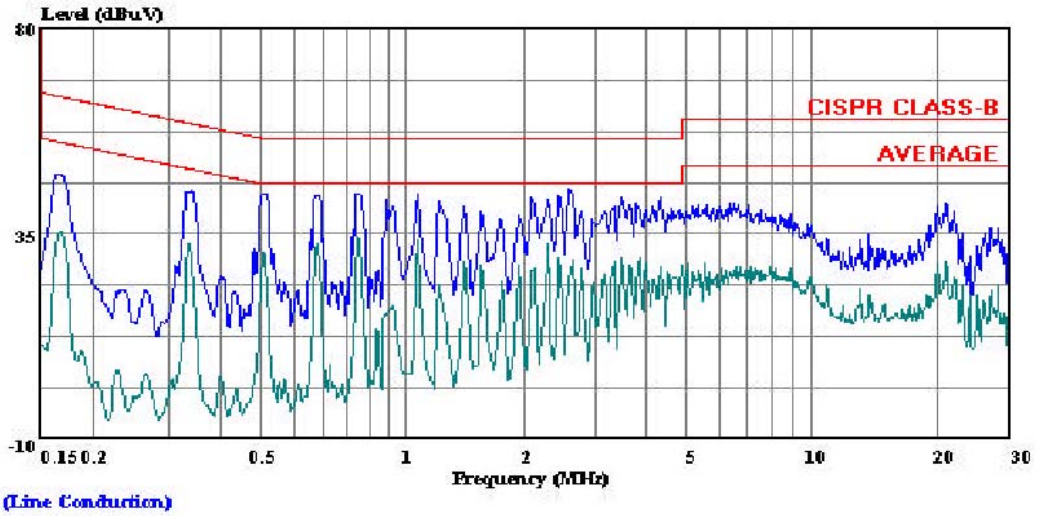
Trace: 5 Ref Trace:

Condition: CISPR CLASS-B
Test Operator: : Doug Anderson
Project #: : 09J12729
Company: : Nintendo
EUT Description:: Game System w/802.11 + 802.11 b/g
: Radio Module w/Mitsumi AC Adapter
Mode: : Continuous Tx
Target: : FCC Class B
Voltage: : 115 VAC / 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#: 09J12729LC.EMI Date: 07-22-2009 Time: 13:57:07



(Line Conduction)

Trace: 12 Ref Trace:

Condition: CISPR CLASS-B
Test Operator : Doug Anderson
Project #: : 09J12729
Company: : Nintendo
EUT Description: : Game System w/802.11 + 802.11 b/g
: Radio Module w/Mitsumi AC Adapter
Mode: : Continuous Tx
Target: : FCC Class B
Voltage: : 115 VAC / 60Hz
: L2: Peak (Blue) , Average (Green)

TABUCHI AC/DC ADAPTER:

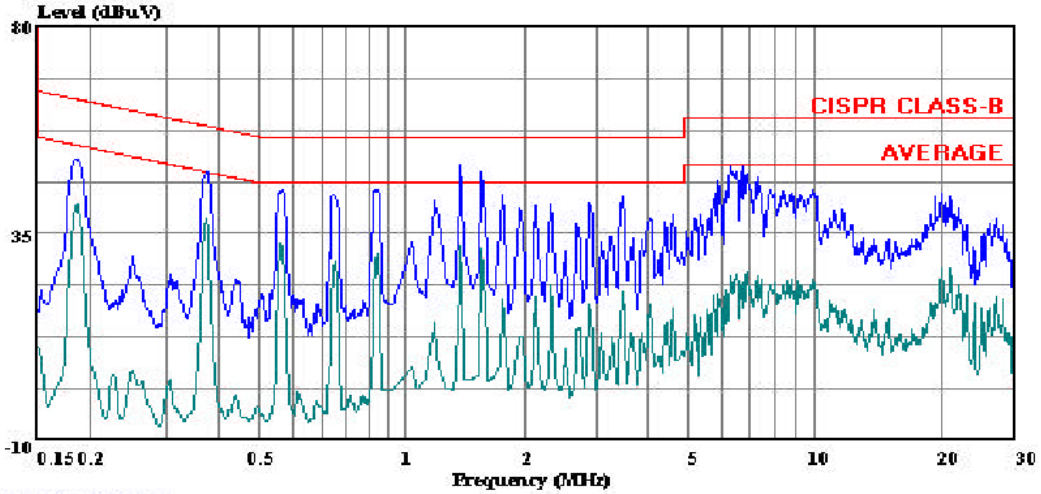
6 WORST EMISSIONS

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
0.38	48.38	--	38.21	0.00	58.39	48.39	-10.01	-10.18	L1
1.49	49.81	--	32.51	0.00	56.00	46.00	-6.19	-13.49	L1
1.66	48.30	--	31.57	0.00	56.00	46.00	-7.70	-14.43	L1
0.39	48.90	--	38.12	0.00	58.17	48.17	-9.27	-10.05	L2
1.32	48.05	--	33.53	0.00	56.00	46.00	-7.95	-12.47	L2
1.52	47.07	--	34.85	0.00	56.00	46.00	-8.93	-11.15	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#: 21 File#: 09J12729LC.EMI Date: 07-22-2009 Time: 14:15:38



(Line Conduction)

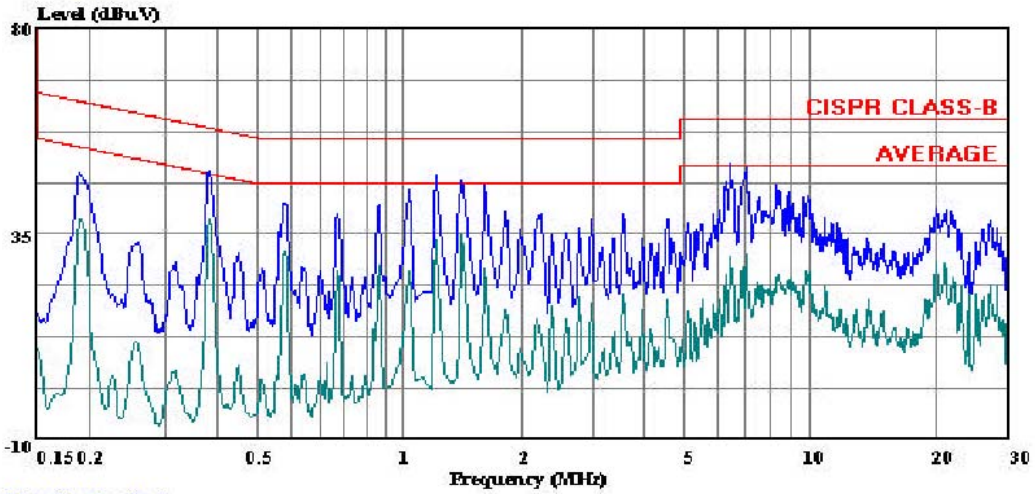
Trace: 19 Ref Trace:

Condition: CISPR CLASS-B
Test Operator: : Doug Anderson
Project #: : 09J12729
Company: : Nintendo
EUT Description:: Game System w/802.11 + 802.11 b/g
: Radio Module w/Tabuchi AC Adapter
Mode: : Continuous Tx
Target: : FCC Class B
Voltage: : 115 VAC / 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#: 28 File#: 09J12729LC.EMI Date: 07-22-2009 Time: 14:24:25



(Line Conduction)

Trace: 26 Ref Trace:

Condition: CISPR CLASS-B
Test Operator: : Doug Anderson
Project #: : 09J12729
Company: : Nintendo
EUT Description:: Game System w/802.11 + 802.11 b/g
: Radio Module w/Tabuchi AC Adapter
Mode: : Continuous Tx
Target: : FCC Class B
Voltage: : 115 VAC / 60Hz
: L2: Peak (Blue) , Average (Green)