



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

FOR

MC85 MINI CARD 11b/g/a/n RADIO CARD

MODEL NUMBER: MC85

FCC ID: UAY-MMC85PG

REPORT NUMBER: 06U10462-1B

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Revision History

Rev.	Issue Date	Revisions	Revised By
--	7/31/2006	Initial Issue	A. Ilarina
B	8/14/2006	<ul style="list-style-type: none">- Clarify Tx Low, Mid, and High channels in tables on pages 44 and 62.- Update antenna gain in section 5.3.	A. Ilarina

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS.....	4
2. TEST METHODOLOGY	5
3. FACILITIES AND ACCREDITATION	5
4. CALIBRATION AND UNCERTAINTY.....	5
4.1. <i>MEASURING INSTRUMENT CALIBRATION.....</i>	<i>5</i>
4.2. <i>MEASUREMENT UNCERTAINTY.....</i>	<i>5</i>
5. EQUIPMENT UNDER TEST.....	6
5.1. <i>DESCRIPTION OF EUT</i>	<i>6</i>
5.2. <i>CLASS II PERMISSIVE CHANGE DESCRIPTION</i>	<i>6</i>
5.3. <i>DESCRIPTION OF AVAILABLE ANTENNAS.....</i>	<i>6</i>
5.4. <i>SOFTWARE AND FIRMWARE</i>	<i>6</i>
5.5. <i>WORST-CASE CONFIGURATION AND MODE.....</i>	<i>7</i>
5.6. <i>MODIFICATIONS.....</i>	<i>7</i>
5.7. <i>DESCRIPTION OF TEST SETUP</i>	<i>8</i>
6. TEST AND MEASUREMENT EQUIPMENT	10
7. LIMITS AND RESULTS	11
7.1.1. AVERAGE POWER 2400 TO 2483.5 MHZ BAND	11
7.1.2. AVERAGE POWER 5725 TO 5850 MHZ BAND	13
7.2. <i>RADIATED EMISSIONS.....</i>	<i>15</i>
7.2.1. TRANSMITTER RADIATED SPURIOUS EMISSIONS	15
7.2.2. TRANSMITTER ABOVE 1 GHz FOR 2400 TO 2483.5 MHz BAND	18
7.2.3. TRANSMITTER ABOVE 1 GHz FOR 5725 TO 5850 MHz BAND	63
7.2.4. WORST-CASE RADIATED EMISSIONS BELOW 1 GHz.....	67
7.3. <i>POWERLINE CONDUCTED EMISSIONS</i>	<i>71</i>
8. SETUP PHOTOS	75

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: MARVELL SEMICONDUCTOR, INC.
5488 MARVELL LANE
SANTA CLARA, CA, 95054, USA

EUT DESCRIPTION: MC85 MINI CARD 11b/g/a/n RADIO CARD

MODEL: MC85

SERIAL NUMBER: 032

DATE TESTED: JULY 24 – JULY 28, 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:



ALVIN ILARINA
EMC SUPERVISOR
COMPLIANCE CERTIFICATION SERVICES

Tested By:



THANH NGUYEN
EMC TECHNICIAN
COMPLIANCE CERTIFICATION SERVICES

2. TEST METHODOLOGY

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

3. FACILITIES AND ACCREDITATION

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

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

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. MEASUREMENT UNCERTAINTY

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

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

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is an 802.11a/b/g/n transceiver.

The radio module is manufactured by Marvell Semiconductor.

5.2. CLASS II PERMISSIVE CHANGE DESCRIPTION

Change #1 Use GATEWAY Laptop PIFA Antenna

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes PIFA antenna manufactured by Well Green Technologies, Model W740 maximum gain of 2.27 dBi in the 2.4 GHz band, and 2.5 dBi in the 5.8 GHz band.

5.4. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was PCI rev. 1.0.0.0.2, MFG 2.1.0.36

The EUT driver software installed in the Laptop during testing was Marvell Semiconductor, Inc. Labtools rev. 1.0.3.p3.

The board revision of the EUT tested is 1.8.

The test utility software used during testing was PCI.exe.

5.5. WORST-CASE CONFIGURATION AND MODE

The 2x3 configuration was used for all testing in this report.

The worst- case data rates are determined to be as follows for each mode based on investigation by measuring the average power, peak power and PPSD across all data rates, bandwidths, and modulations.

The worst-case data rates for the 2GHz bands are: 11 Mbps for 802.11b; 54Mbps for 802.11g; MCS11 for 802.11n HT20; MCS15 for 802.11n HT40. These are based on baseline testing with this chipset.

The worst-case data rates for the 5GHz bands are: 9 Mbps for 802.11a 20MHz and 802.11a 40MHz; MCS0 for 802.11n HT20 and 802.11n HT40. These are based on baseline testing with this chipset.

All emissions tests were made with the worst-case data rates.

5.6. MODIFICATIONS

There were no modifications made to the revision EUT during the testing.

5.7. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
Laptop PC	Gateway	W740	NB677407602R	DoC
Power Adapter	Gateway	PA-1211-06	640001700A	N/A

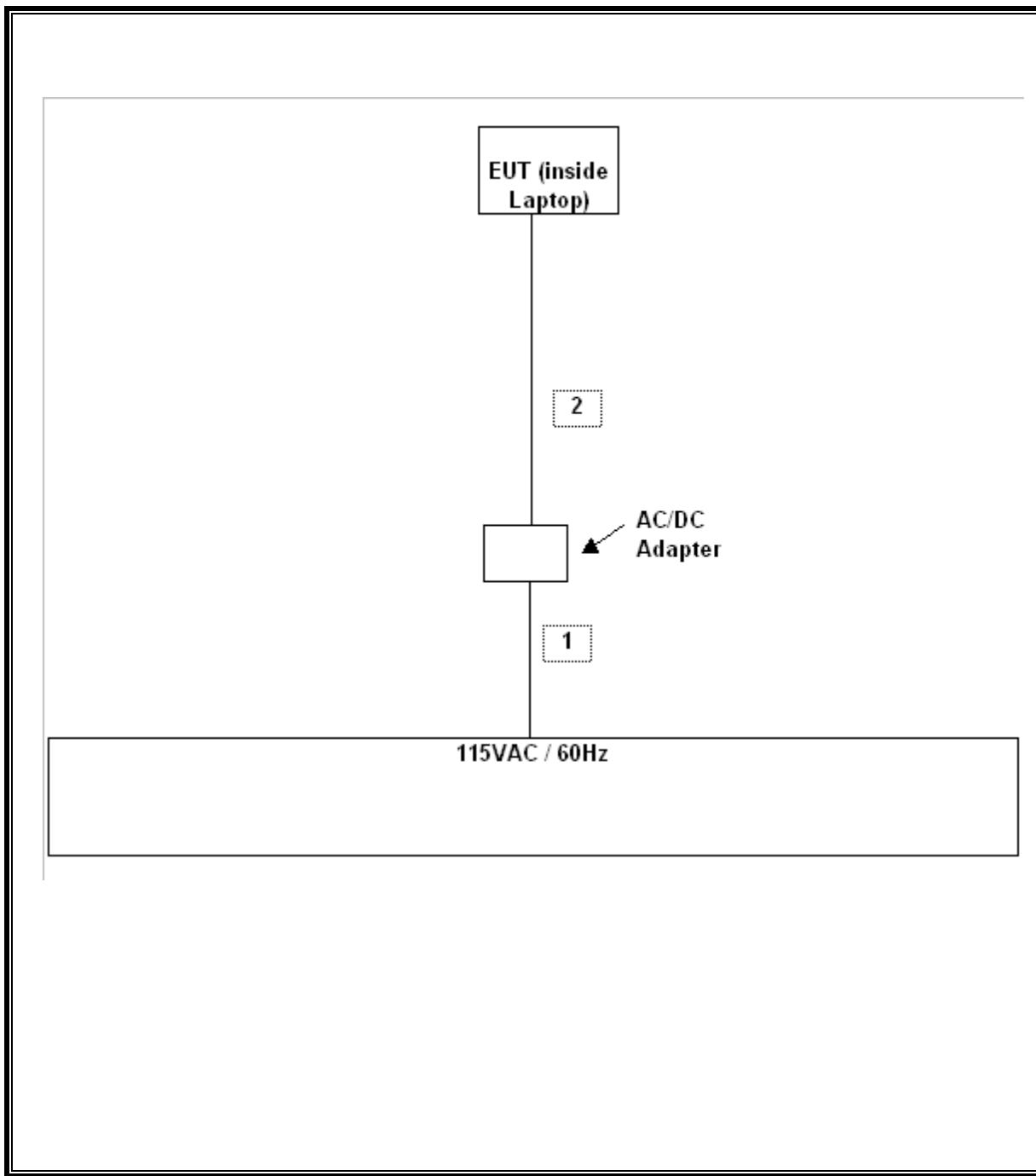
I/O CABLES

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	AC	1	US 115V	Un-shielded	1.2m	N/A
2	DC	1	DC Plug	Un-shielded	2m	Ferrites bead at 2 ends

TEST SETUP

The EUT is installed inside 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
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
EMI Receiver, 9 kHz ~ 2.9 GHz	Agilent / HP	8542E	3942A00286	2/4/2007
RF Filter Section	Agilent / HP	85420E	3705A00256	2/4/2007
Antenna, Bilog 30 MHz ~ 2 GHz	Sunol Sciences	JB1	A121003	9/3/2006
Peak Power Meter	Agilent / HP	E4416A	GB41291160	12/2/2007
Peak / Average Power Sensor	Agilent	E9327A	US40440755	12/2/2007
Antenna, Horn 1 ~ 18 GHz	EMCO	3115	2238	4/22/2007
Antenna, Horn 18 ~ 26 GHz	ARA	MWH-1826/B	1049	9/12/2006
Preamplifier, 1 ~ 26 GHz	Miteq	NSP2600-SP	924342	9/2/2006
Antenna, Horn 26 ~ 40 GHz	ARA	MWH-2640/B	1029	4/13/2007
Preamplifier, 26 ~ 40 GHz	Miteq	NSP4000-SP2	924343	8/18/2006
5.15-5.35 GHz Reject Filter	Micro-Tronics	BRC13190	1	CNR
5.725-5.825 GHz Reject Filter	Micro-Tronics	BRC13192	1	CNR
4.0 High Pass Filter	Micro Tronics	HPM13351	3	CNR
Spectrum Analyzer 3 Hz ~ 44 GHz	Agilent / HP	E4446A	MY45300064	12/19/2006

7. LIMITS AND RESULTS

7.1.1. AVERAGE POWER 2400 TO 2483.5 MHZ BAND

AVERAGE POWER LIMIT

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

Each chain is measured separately and the total power is calculated using:

Total Power = $10 \log (10^8 (\text{Chain 0 Power} / 10) + 10^8 (\text{Chain 2 Power} / 10))$

RESULTS

No non-compliance noted:

The cable assembly insertion loss of 10.7 dB (including 10 dB pad and 1.5 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Mode Channel	Frequency (MHz)	Average Power Chain A (dBm)	Average Power Chain B (dBm)	Average Power Total (dBm)
-----------------	--------------------	-----------------------------------	-----------------------------------	---------------------------------

802.11b Mode

Low	2412	18.5	17.5	21.0
Middle	2437	17.5	18.0	20.8
High	2462	18.5	18.2	21.4

802.11g 20MHz Mode

Low	2412	15.6	15.4	18.5
Middle	2437	17.4	17.5	20.4
High	2462	16.2	15.1	18.7

802.11g 40MHz Mode

Low	2422	12.6	12.7	15.6
Middle	2437	12.5	12.1	15.3
High	2452	11.7	10.6	14.2

802.11n HT20 Mode

Low	2412	14.8	14.8	17.8
Middle	2437	16.9	16.9	19.9
High	2462	14.2	13.8	17.0

802.11n HT40 Mode

Low	2422	14.0	14.1	17.0
Middle	2437	12.2	12.7	15.5
High	2452	12.5	12.2	15.4

7.1.2. AVERAGE POWER 5725 TO 5850 MHZ BAND

AVERAGE POWER LIMIT

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

Each chain is measured separately and the total power is calculated using:

$$\text{Total Power} = 10 \log (10^{\wedge} (\text{Chain 0 Power} / 10) + 10^{\wedge} (\text{Chain 2 Power} / 10))$$

RESULTS

No non-compliance noted:

The cable assembly insertion loss of 10.6 dB (including 10 dB pad and 0.6 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Mode Channel	Frequency (MHz)	Average Power Chain A (dBm)	Average Power Chain B (dBm)	Average Power Total (dBm)
-------------------------	----------------------------	--------------------------------------------	--------------------------------------------	------------------------------------------

802.11a 20M Mode

Low	5745	17.2	17.3	20.3
Middle	5785	17.1	17.1	20.1
High	5825	17.1	17.0	20.0

802.11a 40M Mode

Low	5755	12.8	12.5	15.6
High	5795	16.9	16.9	19.9

802.11n HT20 Mode

Low	5745	17.2	16.9	20.1
Middle	5785	17.2	17.1	20.2
High	5825	16.9	17.0	20.0

802.11n HT40 Mode

Low	5755	14.5	14.6	17.6
High	5795	17.1	17.0	20.1

7.2. RADIATED EMISSIONS

7.2.1. TRANSMITTER RADIATED SPURIOUS EMISSIONS

LIMITS

§15.205 (a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	(²)
13.36 - 13.41			

¹ Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

² Above 38.6

§15.205 (b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

§15.209 (a) Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
30 - 88	100 **	3
88 - 216	150 **	3
216 - 960	200 **	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

§15.209 (b) In the emission table above, the tighter limit applies at the band edges.

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.4. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

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

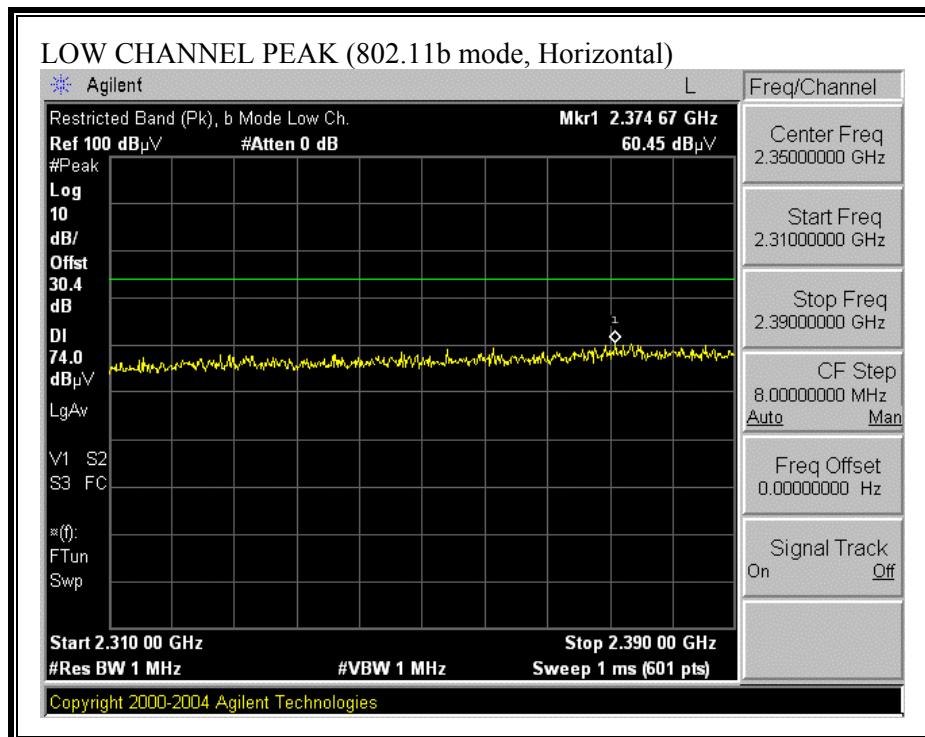
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

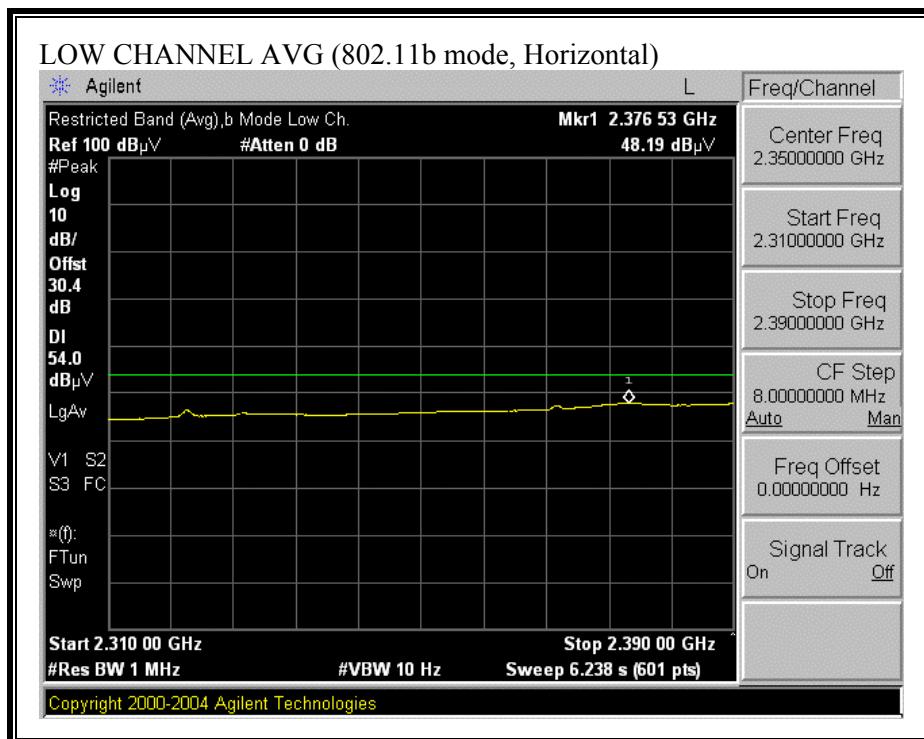
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each 5 GHz band.

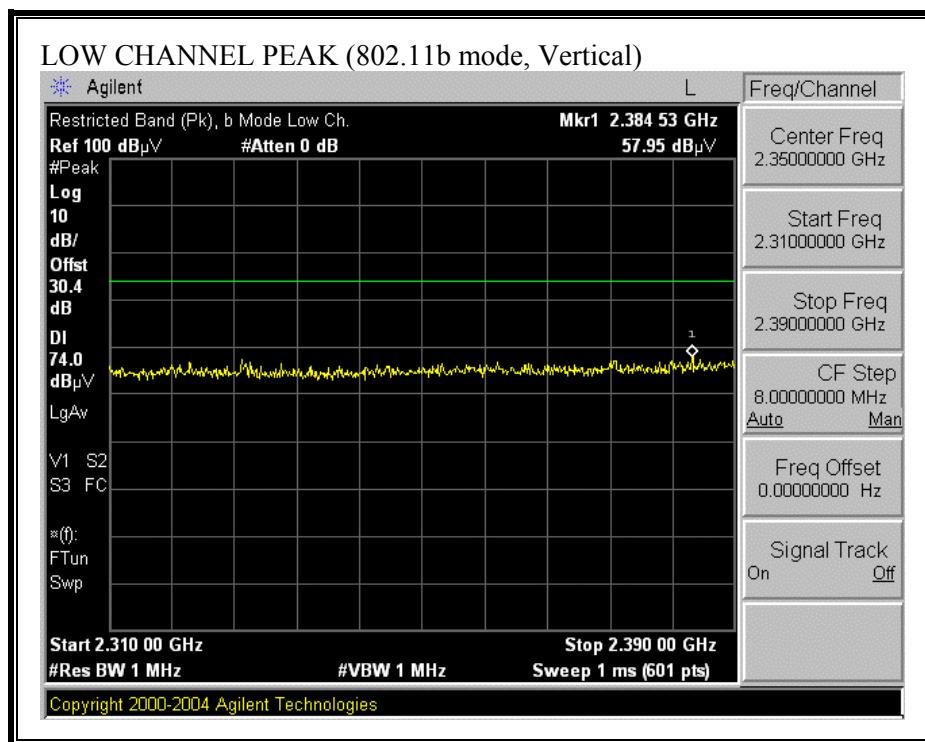
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

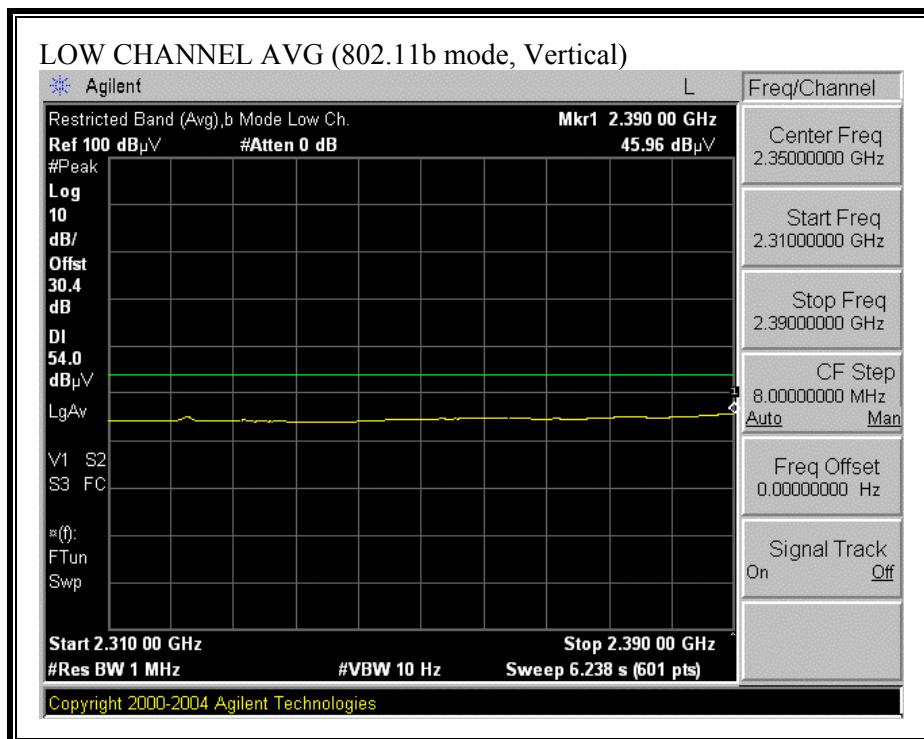
7.2.2. TRANSMITTER ABOVE 1 GHz FOR 2400 TO 2483.5 MHz BAND

RESTRICTED BANDEDGE (802.11b MODE, LOW CHANNEL)

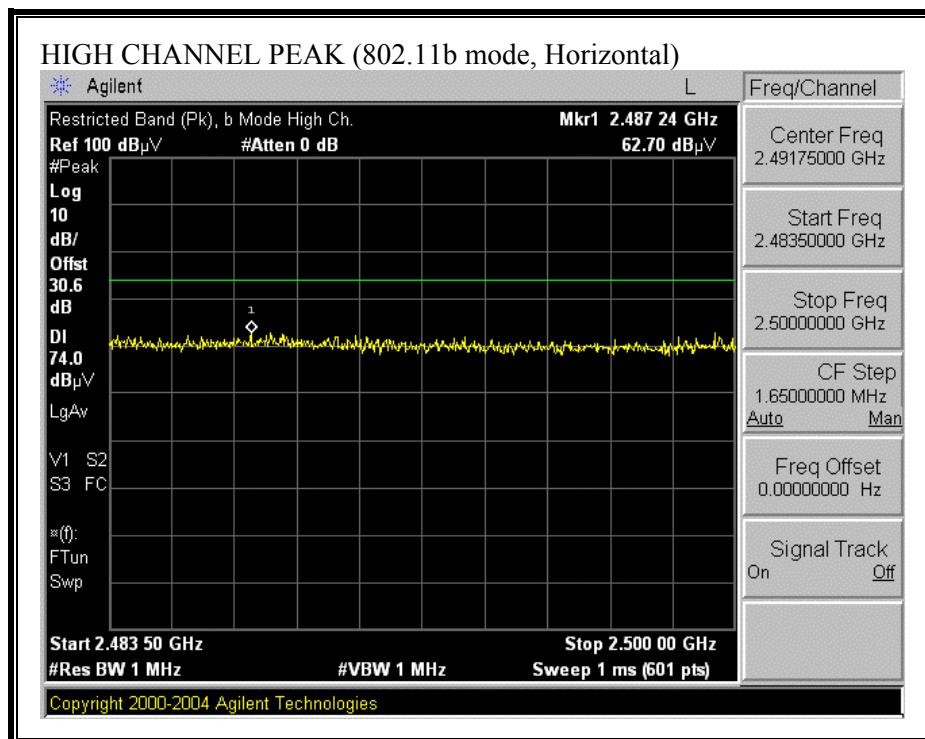


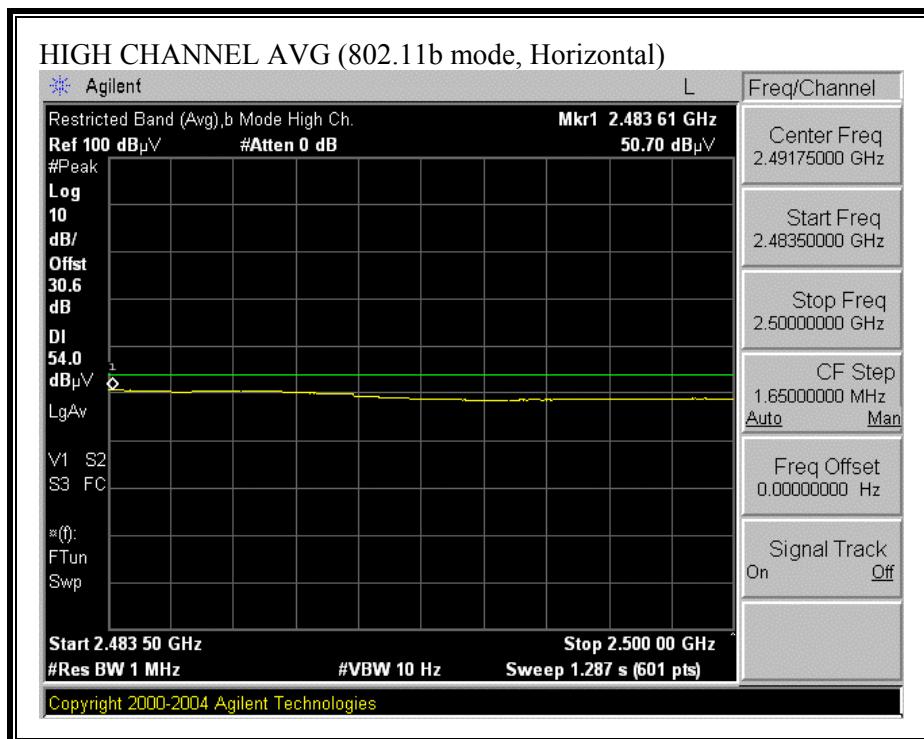


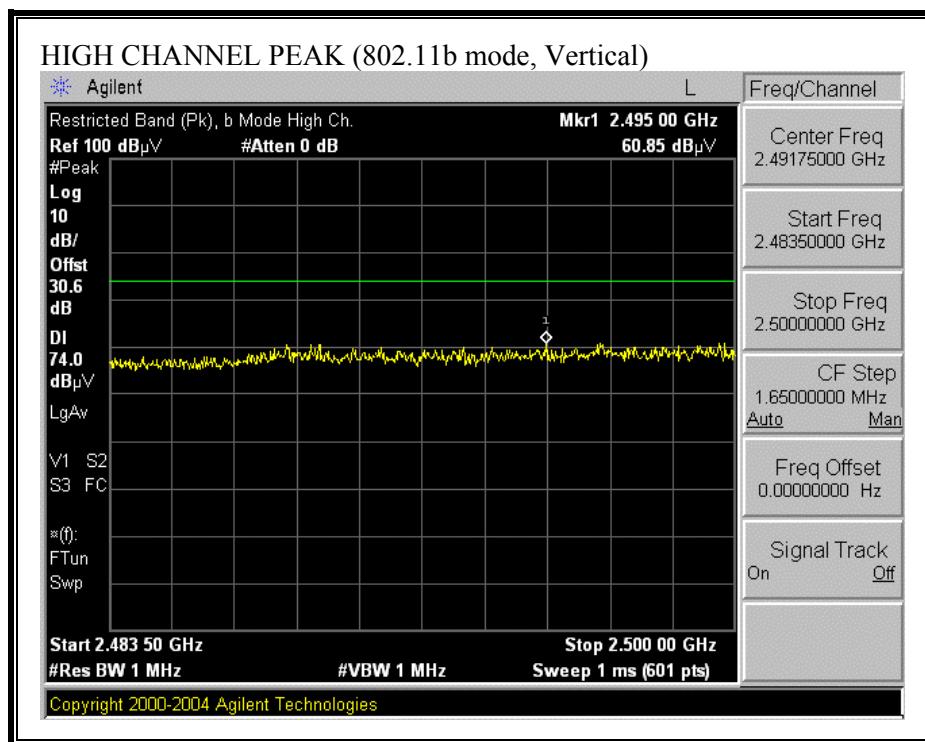


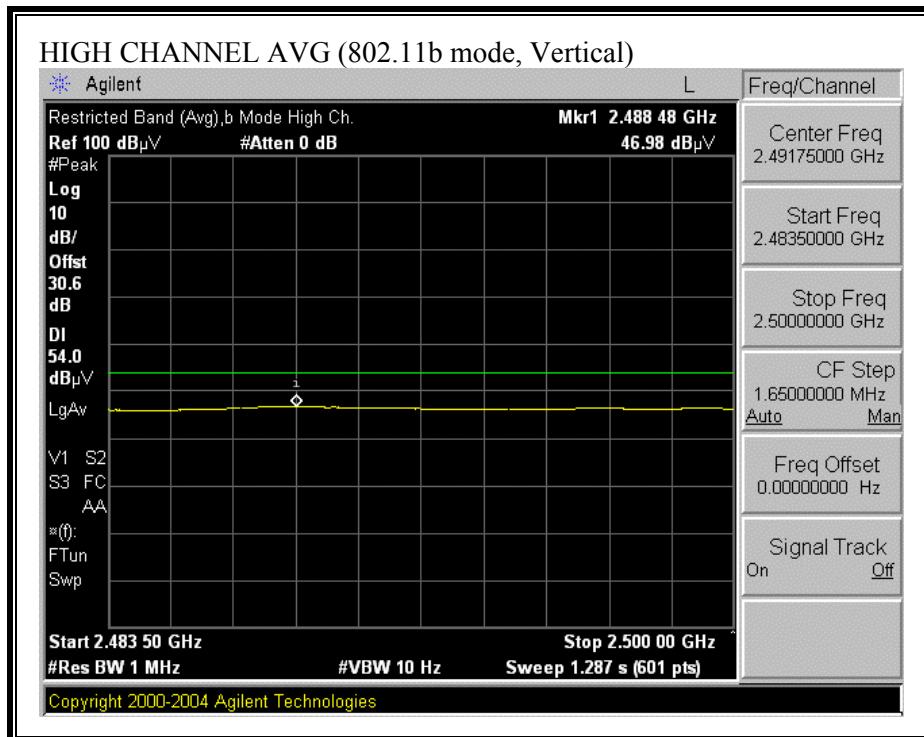


RESTRICTED BANDEDGE (802.11b MODE, HIGH CHANNEL)





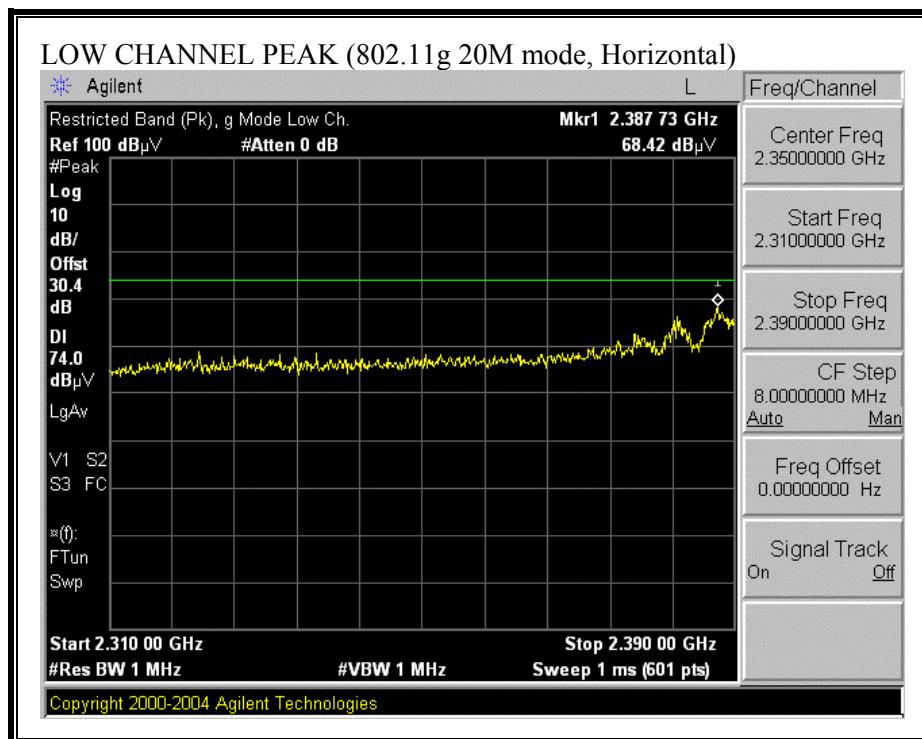


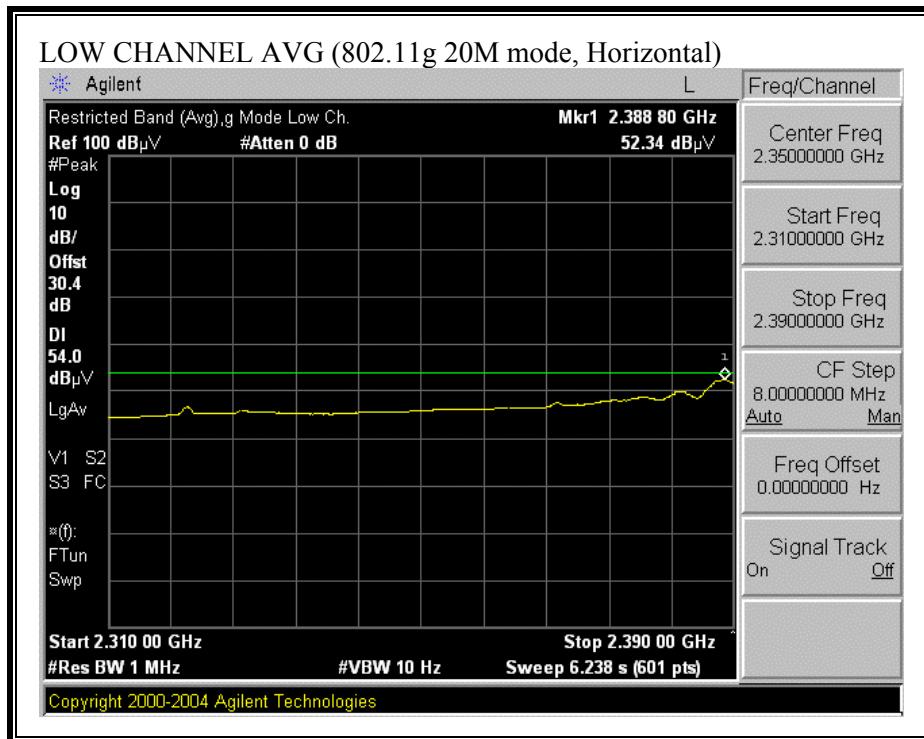


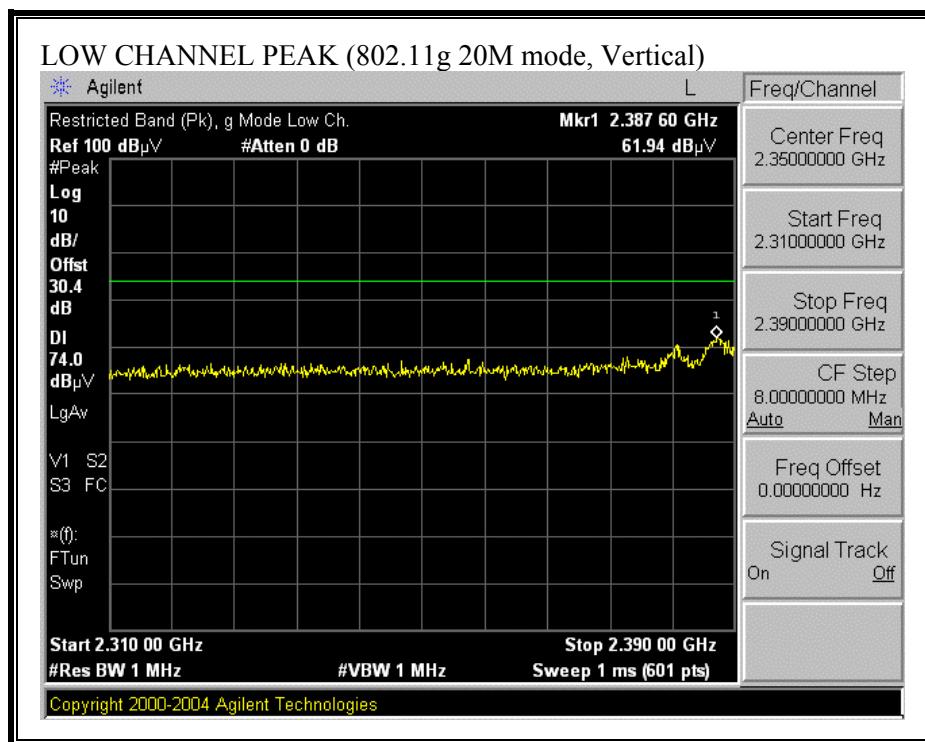
HARMONICS AND SPURIOUS EMISSIONS (802.11b MODE)

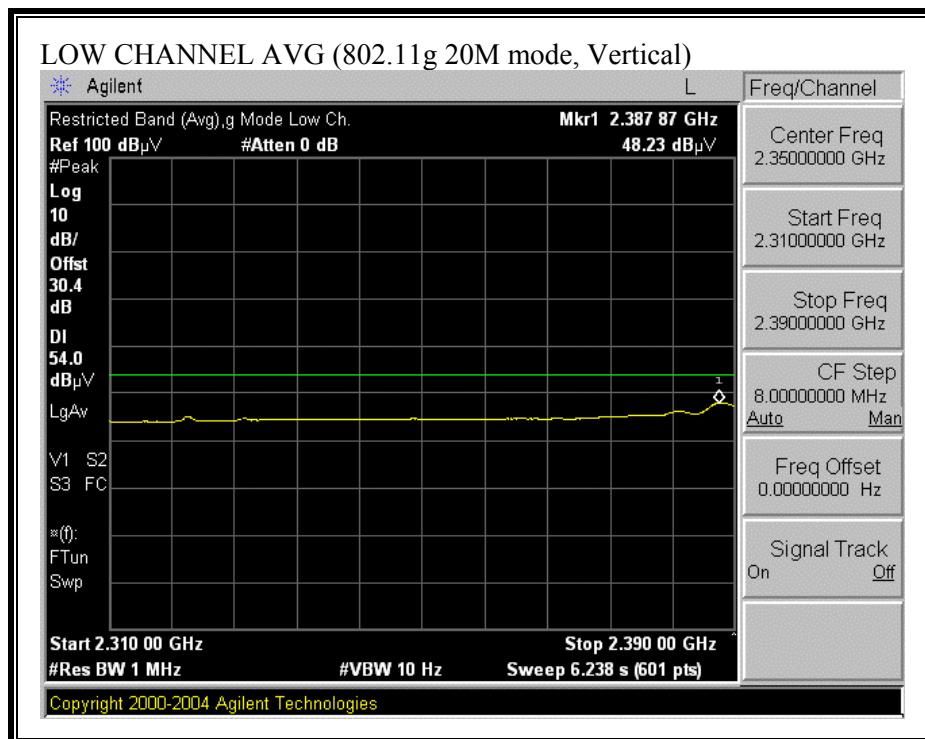
High Frequency Measurement Compliance Certification Services, Morgan Hill Open Field Site															
<p>Company: MARVELL SEMICONDUCTOR INC. Project #: 06U10462 Date: 07/26/2006 Test Engineer: THANH NGUYEN Configuration: EUT inside GATEWAY Laptop. Mode: Continously Transmitting b mode.</p>															
Test Equipment:															
Horn 1-18GHz		Pre-amplifier 1-26GHz		Pre-amplifier 26-40GHz		Horn > 18GHz				Limit					
T119; S/N: 29301 @3m		T87 Miteq 924342								FCC 15.209					
Hi Frequency Cables															
2 foot cable		3 foot cable		12 foot cable		HPF		Reject Filter		Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz ; VBW=10Hz					
Thanh 177079008				Thanh 208946003		HPF_4.0GHz									
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)
Tx Ch 1															
4.824	3.0	56.52	42.85	33.7	2.8	-45.3	0.0	0.6	48.3	34.6	74	54	-25.7	-19.4	V
7.236	3.0	51.54	40.00	35.2	3.3	-43.3	0.0	0.6	47.3	35.8	74	54	-26.7	-18.2	V
9.648	3.0	45.27	35.24	36.2	3.7	-39.9	0.0	0.8	46.2	36.1	74	54	-27.8	-17.9	Noise floor
4.824	3.0	62.12	50.07	33.7	2.8	-45.3	0.0	0.6	53.9	41.9	74	54	-20.1	-12.1	H
7.236	3.0	54.95	43.68	35.2	3.3	-43.3	0.0	0.6	50.7	39.4	74	54	-23.3	-14.6	H
9.648	3.0	48.83	35.65	36.2	3.7	-39.9	0.0	0.8	49.7	36.5	74	54	-24.3	-17.5	Noise floor
Tx Ch 6															
4.874	3.0	56.39	44.69	33.7	2.8	-45.3	0.0	0.6	48.2	36.5	74	54	-25.8	-17.5	V
7.311	3.0	52.47	41.13	35.2	3.3	-43.2	0.0	0.6	48.4	37.0	74	54	-25.6	-17.0	V
9.784	3.0	47.79	35.48	36.4	3.7	-39.6	0.0	0.8	49.2	36.8	74	54	-24.8	-17.2	V
4.874	3.0	62.37	50.95	33.7	2.8	-45.3	0.0	0.6	54.2	42.8	74	54	-19.8	-11.2	H
7.311	3.0	54.11	43.06	35.2	3.3	-43.2	0.0	0.6	50.0	39.0	74	54	-24.0	-15.0	H
9.784	3.0	48.63	35.48	36.4	3.7	-39.6	0.0	0.8	50.0	36.8	74	54	-24.0	-17.2	H
Tx Ch11															
4.924	3.0	57.40	43.40	33.8	2.8	-45.4	0.0	0.6	49.2	35.2	74	54	-24.8	-18.8	V
7.386	3.0	52.63	39.61	35.2	3.3	-43.1	0.0	0.6	48.7	35.7	74	54	-25.3	-18.3	V
9.848	3.0	47.81	35.41	36.4	3.7	-39.4	0.0	0.8	49.4	37.0	74	54	-24.6	-17.0	Noise floor
4.924	3.0	59.49	48.32	33.8	2.8	-45.4	0.0	0.6	51.3	40.2	74	54	-22.7	-13.8	H
7.386	3.0	53.01	42.34	35.2	3.3	-43.1	0.0	0.6	49.1	38.4	74	54	-24.9	-15.6	H
9.848	3.0	46.00	34.96	36.4	3.7	-39.4	0.0	0.8	47.6	36.5	74	54	-26.4	-17.5	Noise floor
No other emissions were detected above 10GHz															
Rev. 5.1.6															
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 (802.11g 20M MODE, LOW CHANNEL)

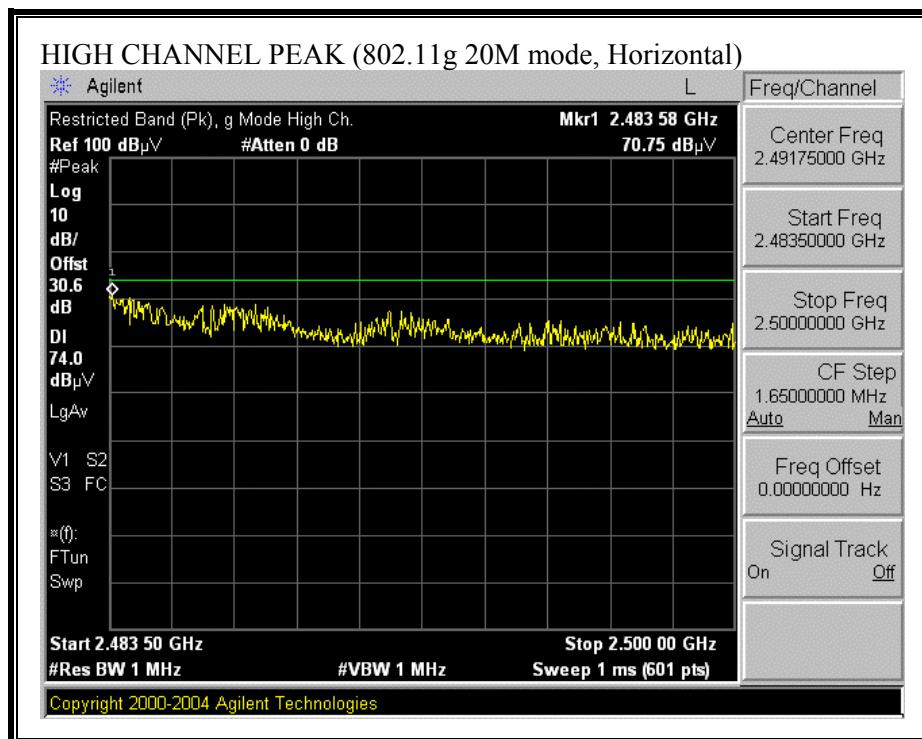


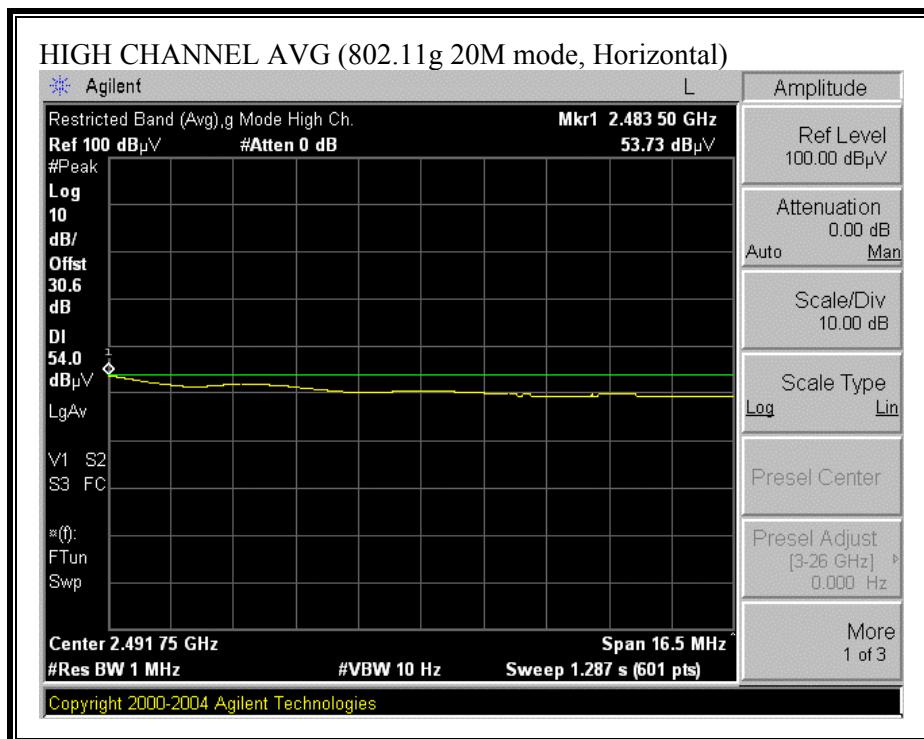


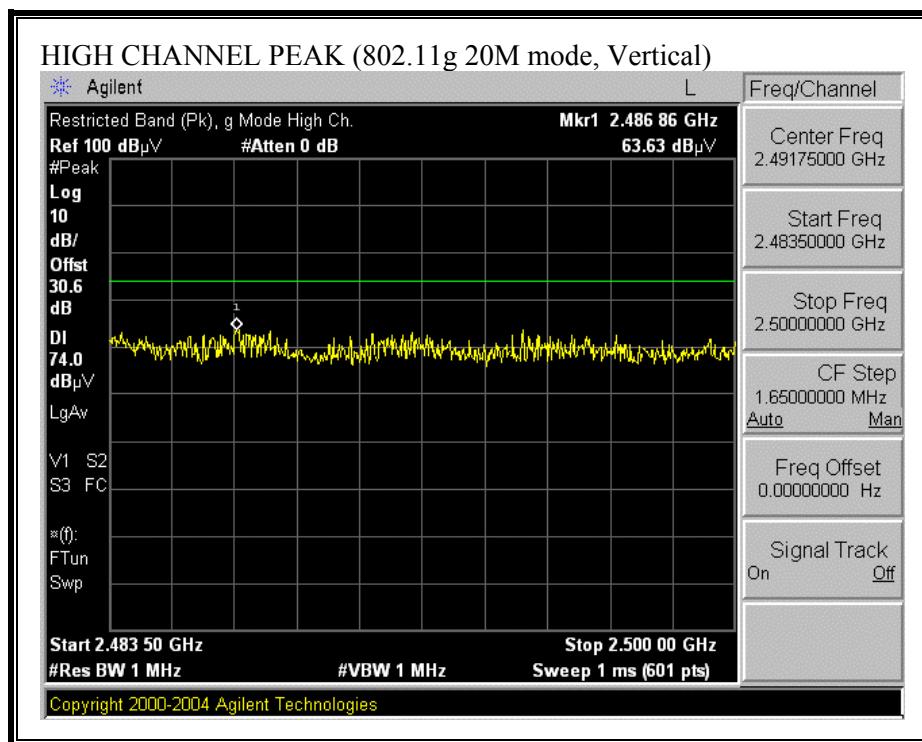


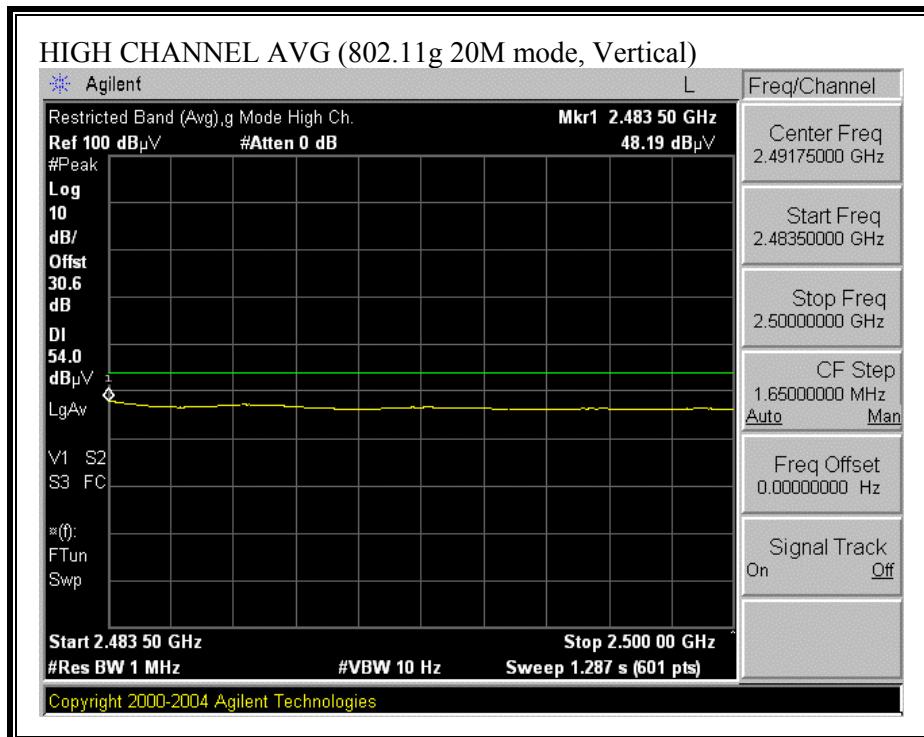


RESTRICTED BANDEDGE (802.11g 20M MODE, HIGH CHANNEL)





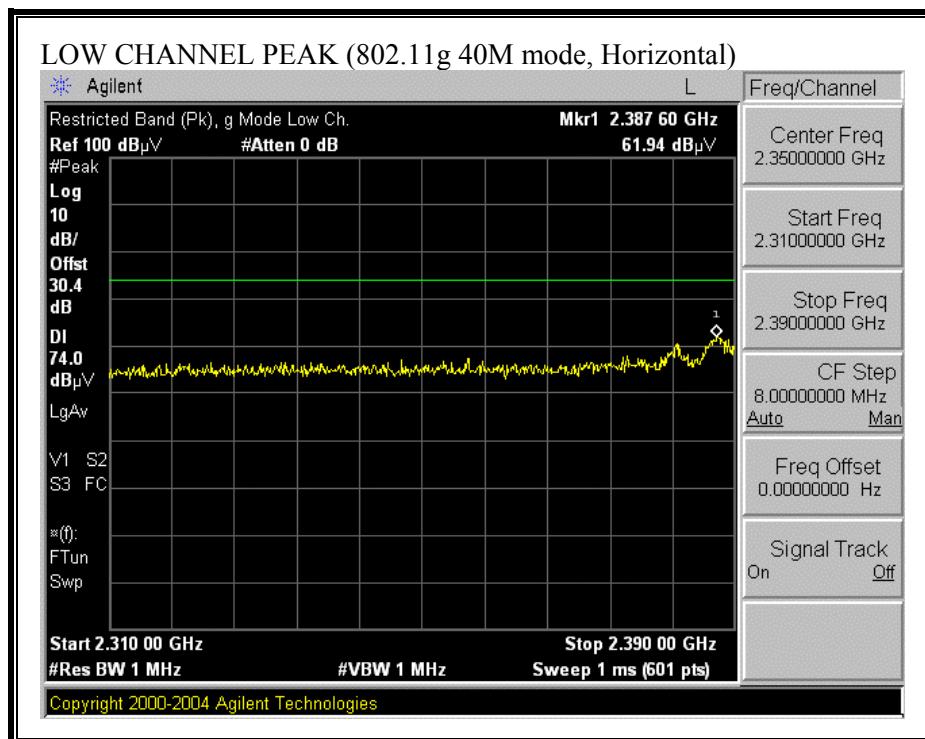


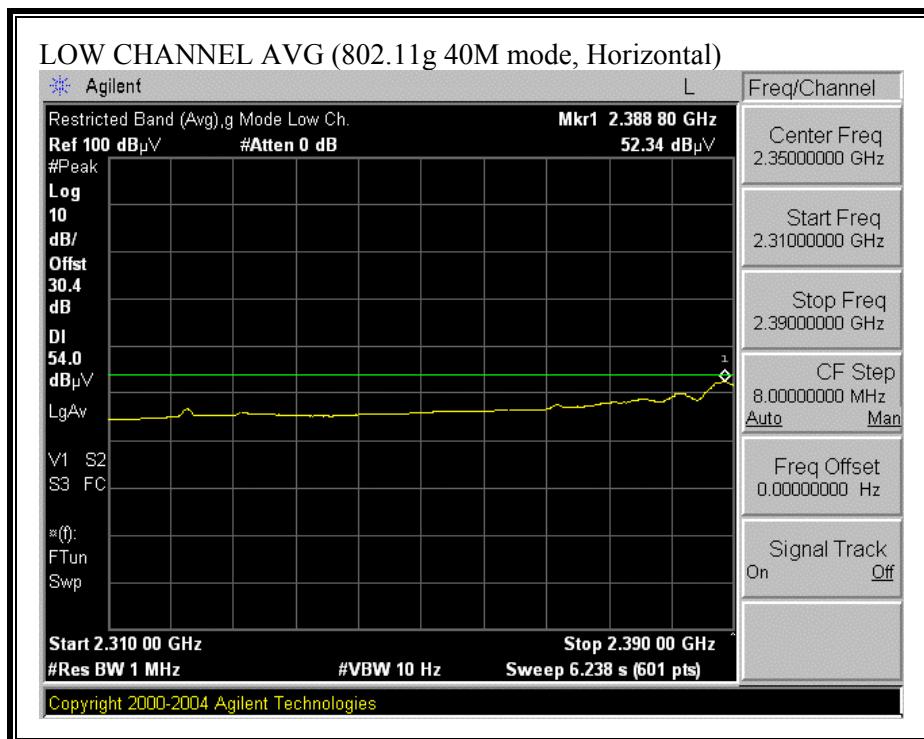


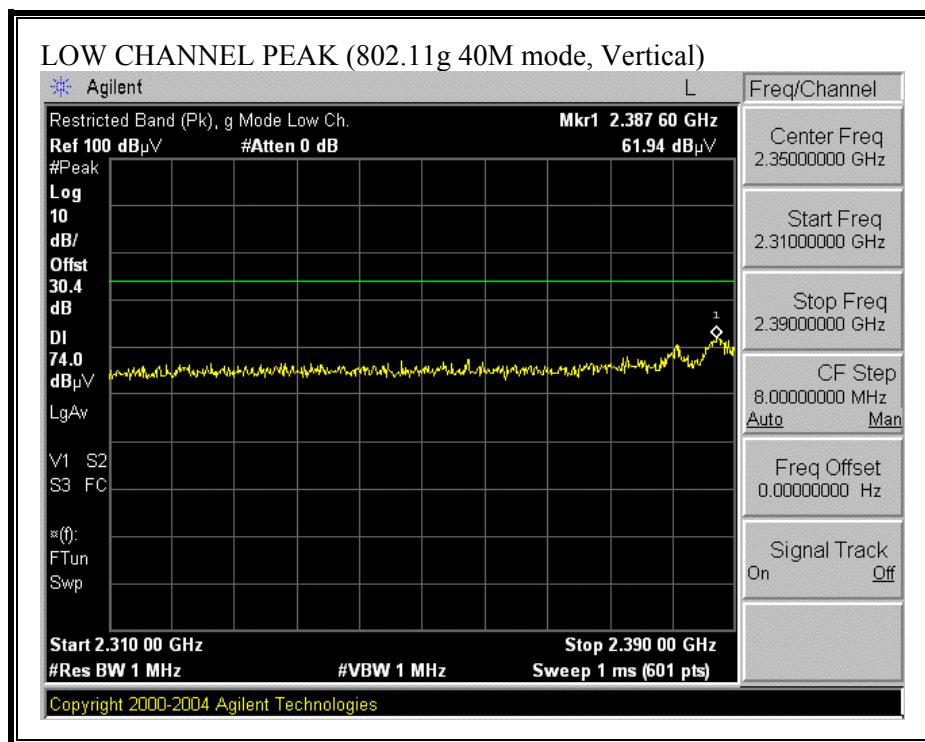
HARMONICS AND SPURIOUS EMISSIONS (802.11g 20M MODE)

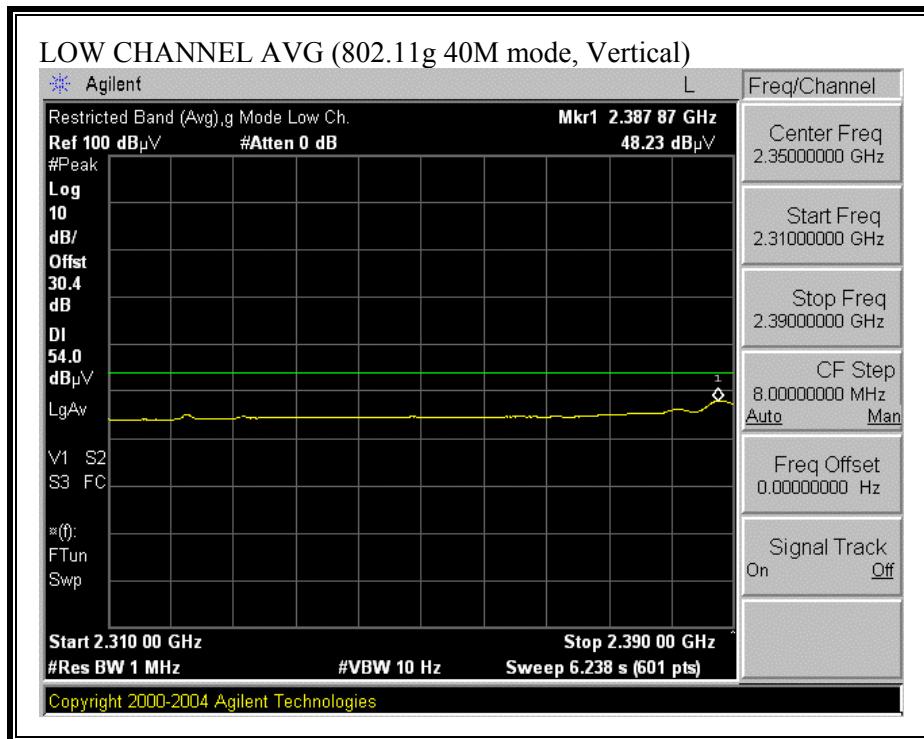
High Frequency Measurement Compliance Certification Services, Morgan Hill Open Field Site															
Company: MARVELL SEMICONDUCTOR INC. Project #: 06U10462 Date:07/26/2006 Test Engineer: THANH NGUYEN Configuration: EUT inside GATEWAY Laptop. Mode: Continuously Transmitting g mode.															
Test Equipment:															
Horn 1-18GHz		Pre-amplifier 1-26GHz		Pre-amplifier 26-40GHz		Horn > 18GHz		Limit							
T119; S/N: 29301 @3m		T87 Miteq 924342						FCC 15.209							
Hi Frequency Cables															
2 foot cable		3 foot cable		12 foot cable		HPF		Reject Filter		Peak Measurements RBW=VBW=1MHz					
Thanh 177079008				Thanh 208946003		HPF_4.0GHz				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)
Tx Ch 1															
4.824	3.0	56.26	42.13	33.7	2.8	-45.3	0.0	0.6	48.0	33.9	74	54	-26.0	-20.1	V
7.236	3.0	51.61	39.32	35.2	3.3	-43.3	0.0	0.6	47.4	35.1	74	54	-26.6	-18.9	V
9.648	3.0	46.65	35.64	36.2	3.7	-39.9	0.0	0.8	47.5	36.5	74	54	-26.5	-17.5	Noise floor
4.924	3.0	61.80	48.90	33.8	2.8	-45.4	0.0	0.6	53.6	40.7	74	54	-20.4	-13.3	H
7.236	3.0	54.86	39.90	35.2	3.3	-43.3	0.0	0.6	50.6	35.7	74	54	-23.4	-18.3	H
9.648	3.0	48.69	35.69	36.2	3.7	-39.9	0.0	0.8	49.6	36.6	74	54	-24.4	-17.4	Noise floor
Tx Ch 6															
4.874	3.0	51.55	38.93	33.7	2.8	-45.3	0.0	0.6	43.4	30.7	74	54	-30.6	-23.3	V
7.311	3.0	50.97	38.78	35.2	3.3	-43.2	0.0	0.6	46.9	34.7	74	54	-27.1	-19.3	V
9.784	3.0	47.63	35.55	36.4	3.7	-39.6	0.0	0.8	49.0	36.9	74	54	-25.0	-17.1	Noise floor
4.874	3.0	57.68	45.90	33.7	2.8	-45.3	0.0	0.6	49.5	37.7	74	54	-24.5	-16.3	H
7.311	3.0	52.57	38.06	35.2	3.3	-43.2	0.0	0.6	48.5	34.0	74	54	-25.5	-20.0	H
9.784	3.0	46.54	35.25	36.4	3.7	-39.6	0.0	0.8	47.9	36.6	74	54	-26.1	-17.4	Noise floor
Tx Ch11															
4.924	3.0	52.83	41.19	33.8	2.8	-45.4	0.0	0.6	44.7	33.0	74	54	-29.3	-21.0	V
7.386	3.0	50.81	39.22	35.2	3.3	-43.1	0.0	0.6	46.9	35.3	74	54	-27.1	-18.7	V
9.848	3.0	47.82	35.46	36.4	3.7	-39.4	0.0	0.8	49.4	37.0	74	54	-24.6	-17.0	Noise floor
4.924	3.0	56.85	45.89	33.8	2.8	-45.4	0.0	0.6	48.7	37.7	74	54	-25.3	-16.3	H
7.386	3.0	53.69	40.66	35.2	3.3	-43.1	0.0	0.6	49.7	36.7	74	54	-24.3	-17.3	H
9.848	3.0	47.12	35.41	36.4	3.7	-39.4	0.0	0.8	48.7	37.0	74	54	-25.3	-17.0	Noise floor
No other emissions were detected above 10GHz															
Rev. 5.1.6															
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 (802.11g 40M MODE, LOW CHANNEL)

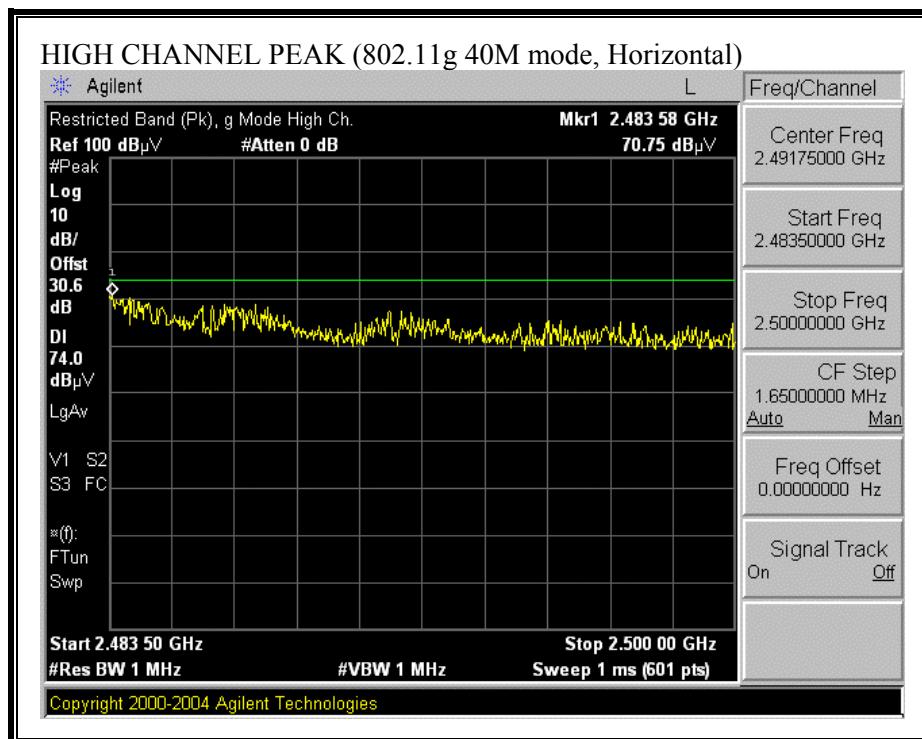


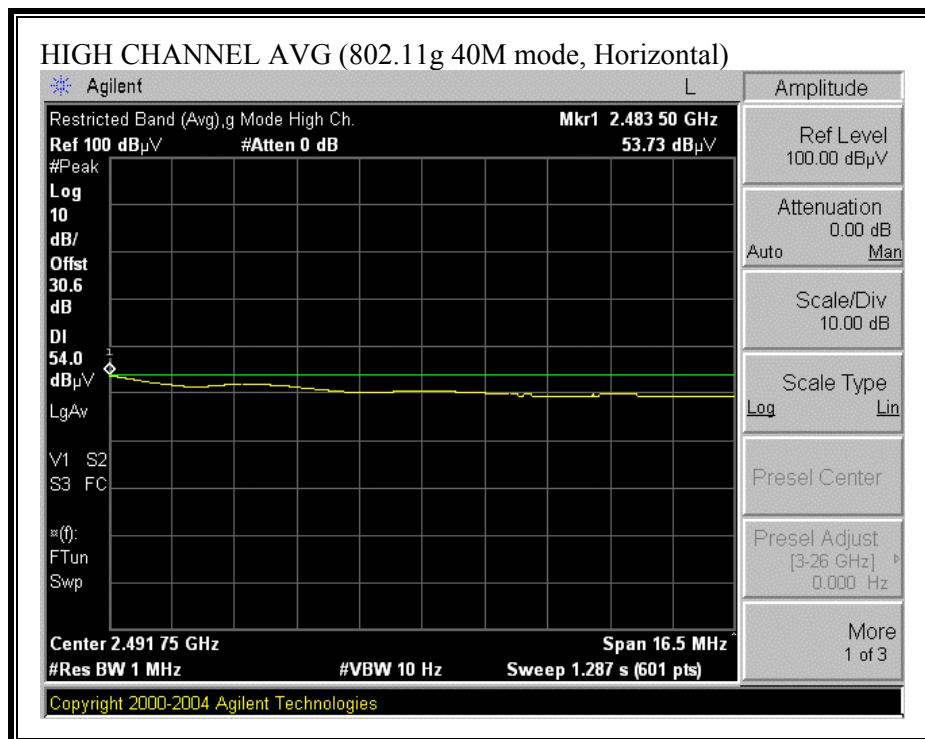


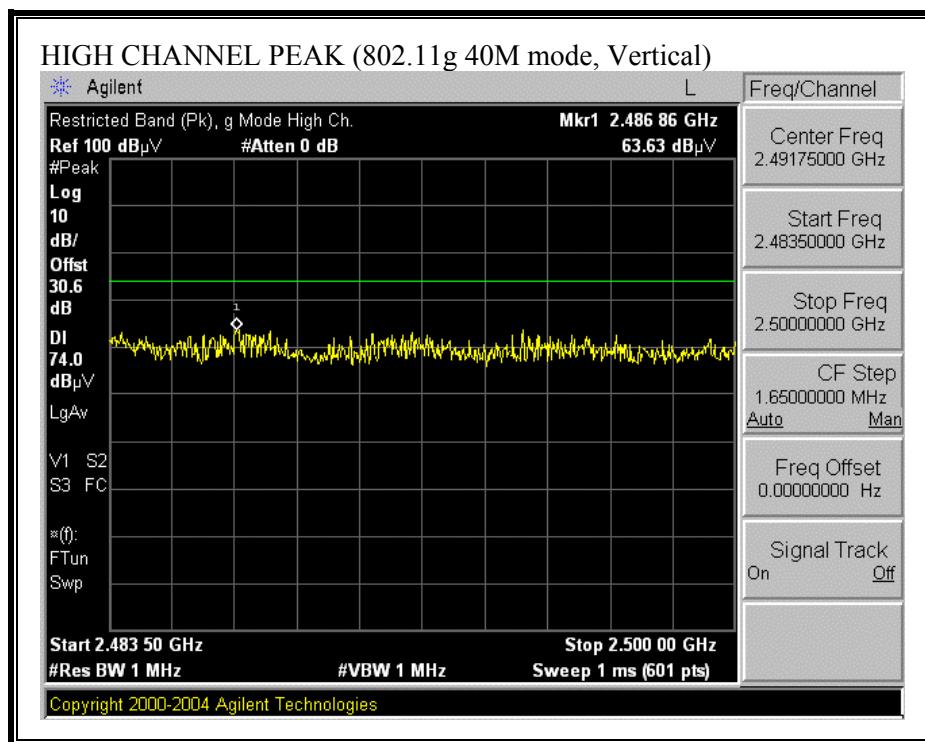


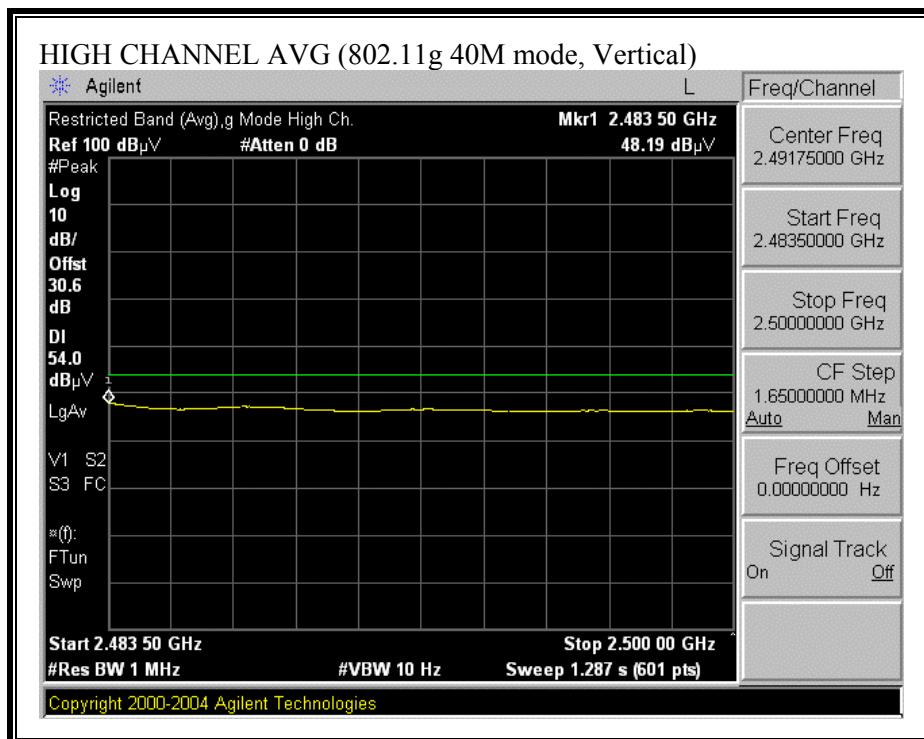


RESTRICTED BANDEDGE (802.11g 40M MODE, HIGH CHANNEL)





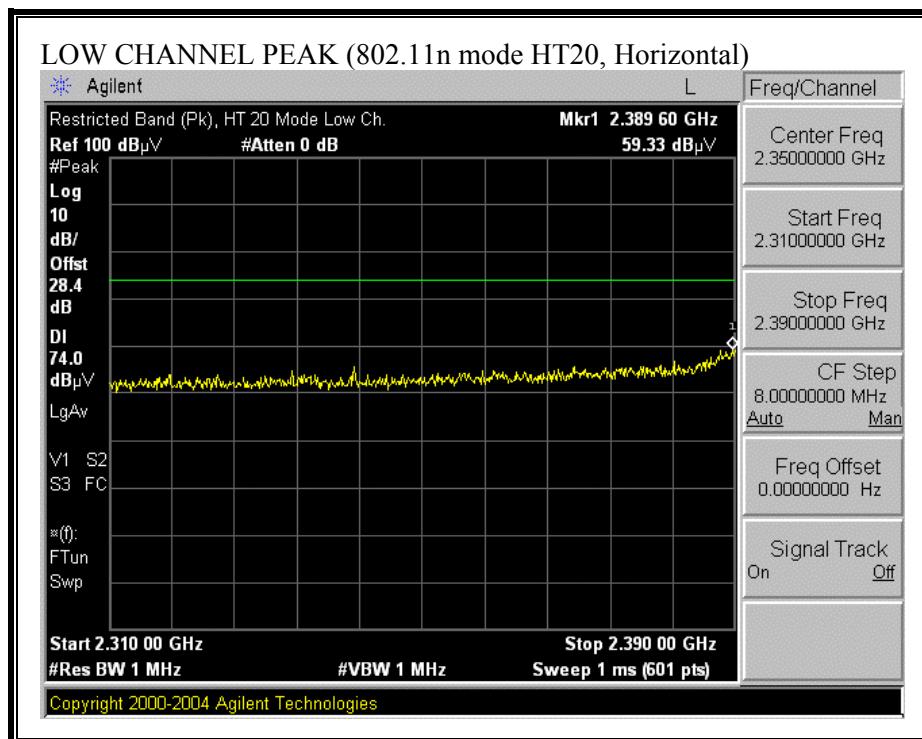


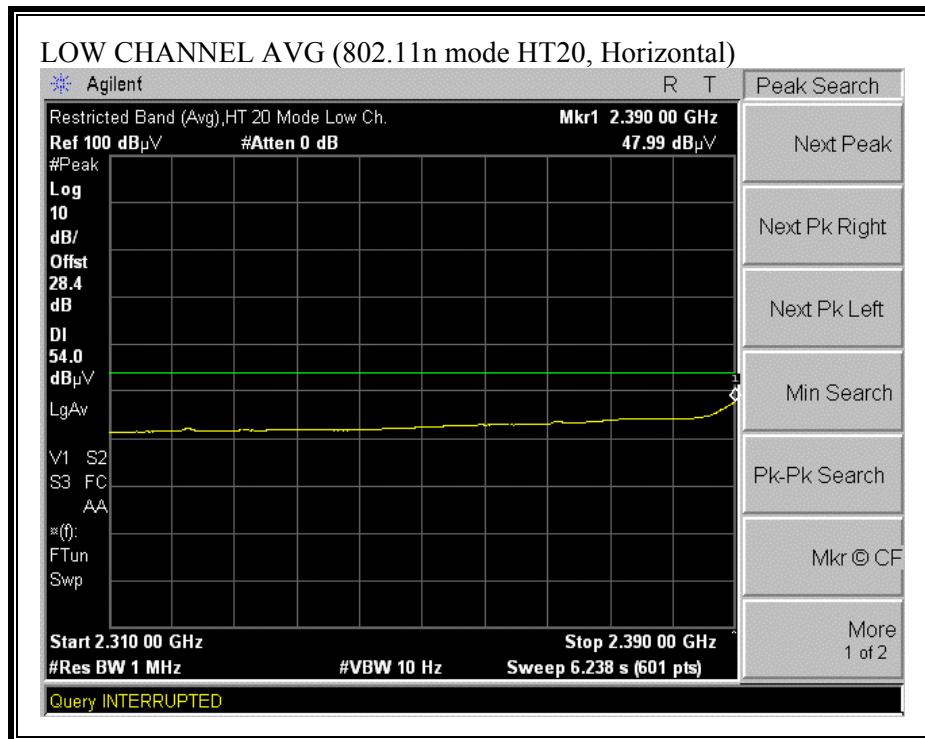


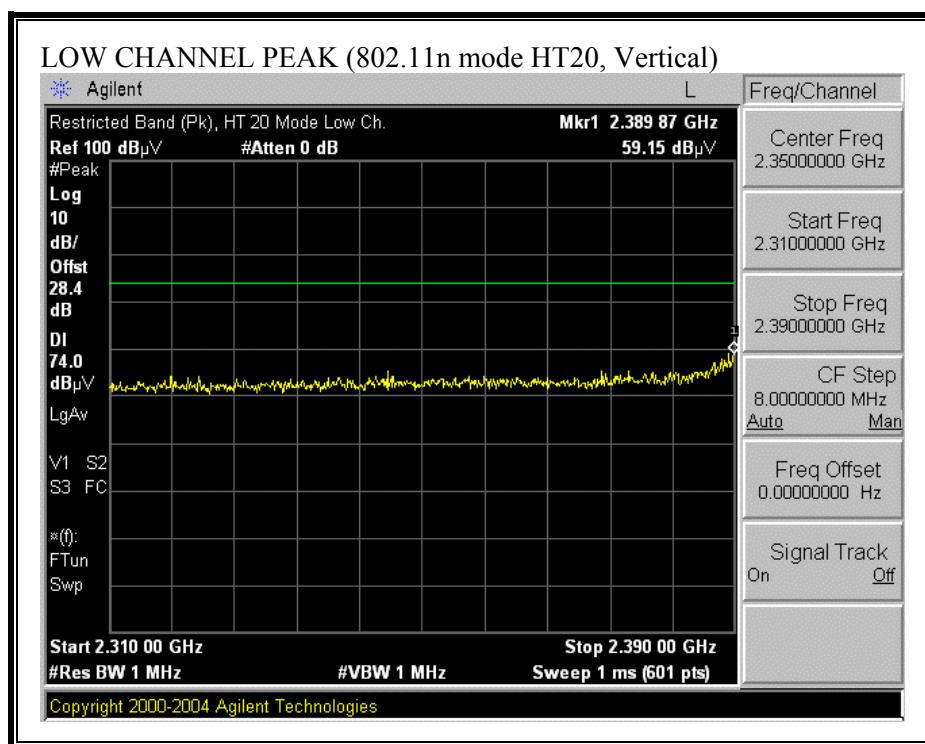
HARMONICS AND SPURIOUS EMISSIONS (802.11g 40M MODE)

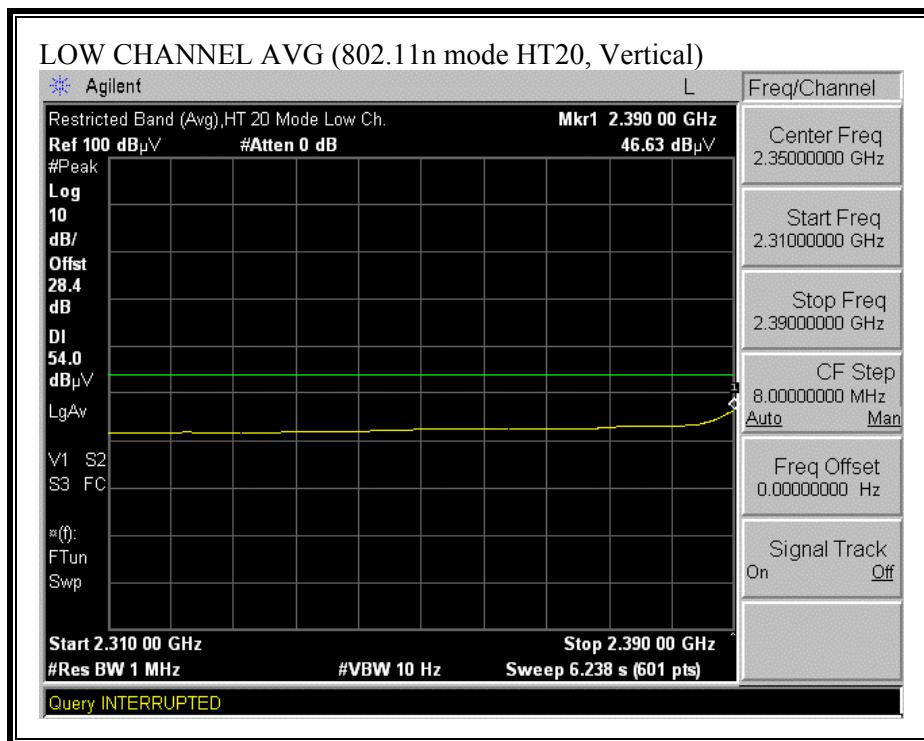
High Frequency Measurement Compliance Certification Services, Morgan Hill Open Field Site																																																																																			
Company: MARVELL SEMICONDUCTOR INC. Project #: 06U10462 Date: 07/26/2006 Test Engineer: THANH NGUYEN Configuration: EUT inside GATEWAY Laptop. Mode: Continuously Transmitting g 40 MHz mode.																																																																																			
Test Equipment: <table border="1"> <tr> <td>Horn 1-18GHz</td> <td>Pre-amplifier 1-26GHz</td> <td>Pre-amplifier 26-40GHz</td> <td colspan="9">Horn > 18GHz</td> </tr> <tr> <td>T73; S/N: 6717 @3m</td> <td>T87 Miteq 924342</td> <td></td> <td colspan="9"></td> </tr> <tr> <td colspan="15">Hi Frequency Cables</td> </tr> <tr> <td>2 foot cable</td> <td>3 foot cable</td> <td>12 foot cable</td> <td colspan="3">HPF</td> <td colspan="3">Reject Filter</td> <td colspan="6"> Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz ; VBW=10Hz </td> </tr> <tr> <td>Thanh 177079008</td> <td></td> <td>Thanh 208946003</td> <td colspan="3">HPF_4.0GHz</td> <td colspan="3"></td> <td colspan="6"></td> </tr> </table>															Horn 1-18GHz	Pre-amplifier 1-26GHz	Pre-amplifier 26-40GHz	Horn > 18GHz									T73; S/N: 6717 @3m	T87 Miteq 924342											Hi Frequency Cables															2 foot cable	3 foot cable	12 foot cable	HPF			Reject Filter			Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz ; VBW=10Hz						Thanh 177079008		Thanh 208946003	HPF_4.0GHz											
Horn 1-18GHz	Pre-amplifier 1-26GHz	Pre-amplifier 26-40GHz	Horn > 18GHz																																																																																
T73; S/N: 6717 @3m	T87 Miteq 924342																																																																																		
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2 foot cable	3 foot cable	12 foot cable	HPF			Reject Filter			Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz ; VBW=10Hz																																																																										
Thanh 177079008		Thanh 208946003	HPF_4.0GHz																																																																																
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)																																																																				
Tx Low																																																																																			
4.844	3.0	52.67	39.66	33.3	2.8	-45.3	0.0	0.6	44.1	31.1	74	54	-29.9	-22.9	V																																																																				
7.266	3.0	49.04	36.40	35.0	3.3	-43.3	0.0	0.6	44.7	32.0	74	54	-29.3	-22.0	V																																																																				
9.688	3.0	50.01	36.23	36.7	3.7	-39.8	0.0	0.8	51.5	37.7	74	54	-22.5	-16.3	Noise floor																																																																				
4.844	3.0	57.88	45.88	33.3	2.8	-45.3	0.0	0.6	49.3	37.3	74	54	-24.7	-16.7	H																																																																				
7.266	3.0	53.88	40.12	35.0	3.3	-43.3	0.0	0.6	49.5	35.7	74	54	-24.5	-18.3	H																																																																				
9.642	3.0	48.92	36.75	36.7	3.7	-39.9	0.0	0.8	50.3	38.1	74	54	-23.7	-15.9	Noise floor																																																																				
Tx Mid																																																																																			
4.874	3.0	51.40	39.25	33.4	2.8	-45.3	0.0	0.6	42.8	30.7	74	54	-31.2	-23.3	V																																																																				
7.311	3.0	51.52	38.42	35.0	3.3	-43.2	0.0	0.6	47.2	34.1	74	54	-26.8	-19.9	V																																																																				
9.784	3.0	46.88	35.50	36.8	3.7	-39.6	0.0	0.8	48.7	37.3	74	54	-25.3	-16.7	Noise floor																																																																				
4.874	3.0	54.50	43.30	33.4	2.8	-45.3	0.0	0.6	45.9	34.7	74	54	-28.1	-19.3	H																																																																				
7.311	3.0	50.73	38.41	35.0	3.3	-43.2	0.0	0.6	46.5	34.1	74	54	-27.5	-19.9	H																																																																				
9.784	3.0	47.01	35.49	36.8	3.7	-39.6	0.0	0.8	48.8	37.3	74	54	-25.2	-16.7	Noise floor																																																																				
Tx High																																																																																			
4.904	3.0	52.07	39.89	33.4	2.8	-45.3	0.0	0.6	43.5	31.4	74	54	-30.5	-22.6	V																																																																				
7.356	3.0	52.49	38.75	35.0	3.3	-43.1	0.0	0.6	48.3	34.6	74	54	-25.7	-19.4	V																																																																				
9.808	3.0	47.78	35.37	36.8	3.7	-39.5	0.0	0.8	49.6	37.2	74	54	-24.4	-16.8	Noise floor																																																																				
4.904	3.0	51.56	40.41	33.4	2.8	-45.3	0.0	0.6	43.0	31.9	74	54	-31.0	-22.1	H																																																																				
7.356	3.0	50.85	38.60	35.0	3.3	-43.1	0.0	0.6	46.7	34.4	74	54	-27.3	-19.6	H																																																																				
9.808	3.0	47.47	35.65	36.8	3.7	-39.5	0.0	0.8	49.3	37.5	74	54	-24.7	-16.5	Noise floor																																																																				
No other emissions were detected above 10GHz																																																																																			
Rev. 5.1.6																																																																																			
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 (802.11n MODE HT20, LOW CHANNEL)

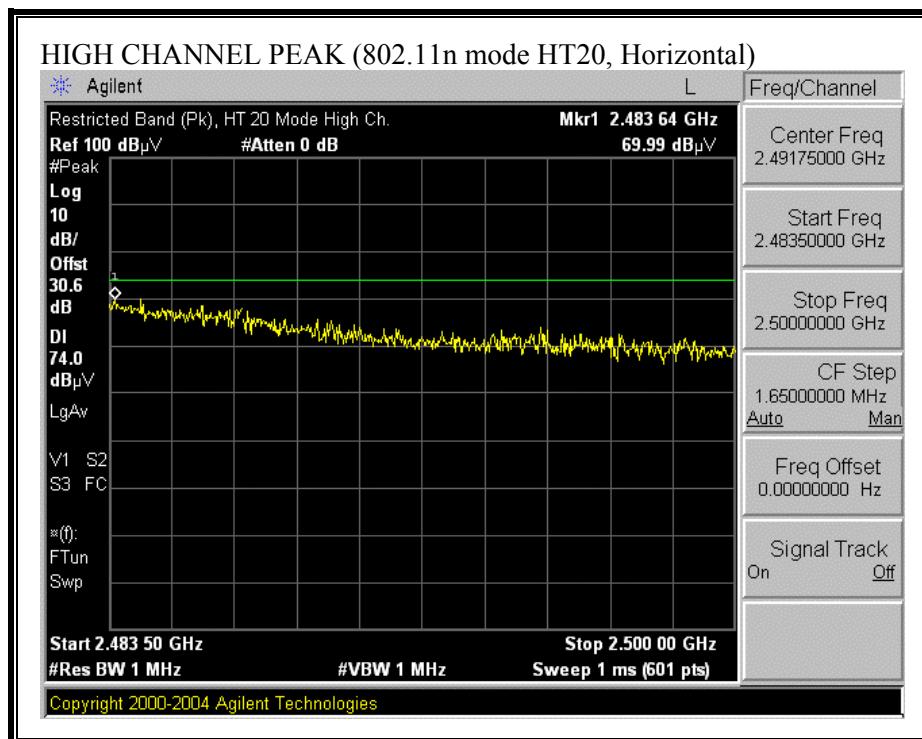


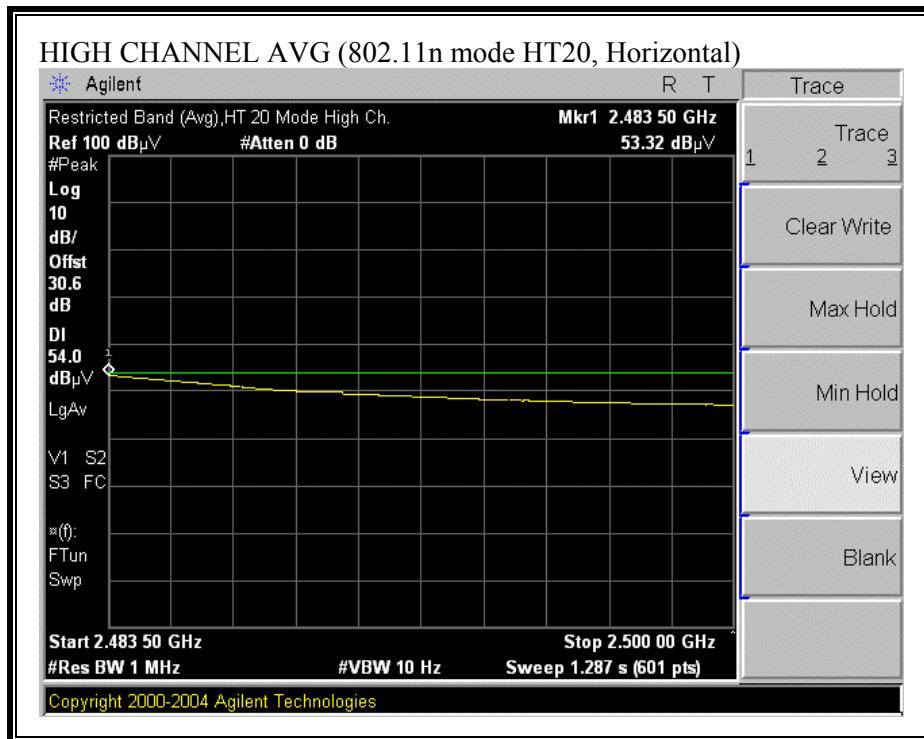


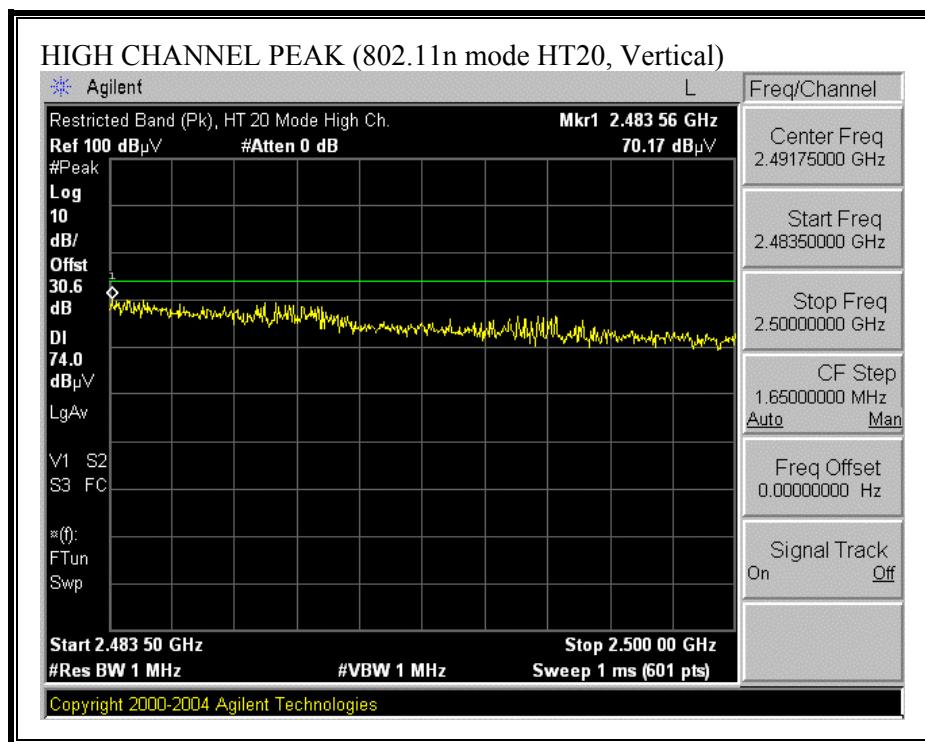


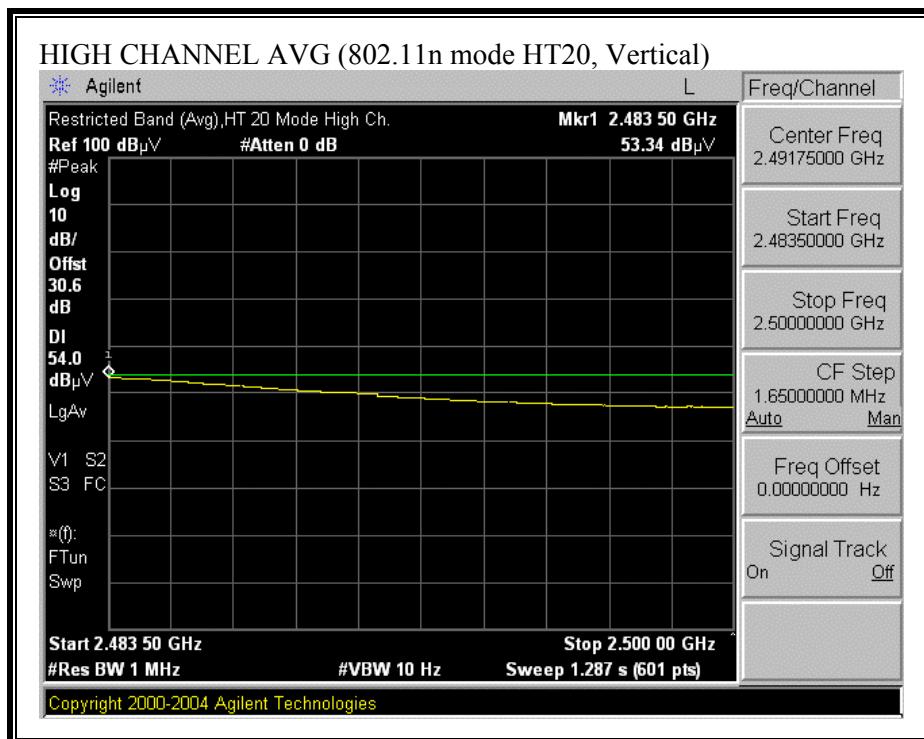


RESTRICTED BANDEDGE (802.11n MODE HT20, HIGH CHANNEL)





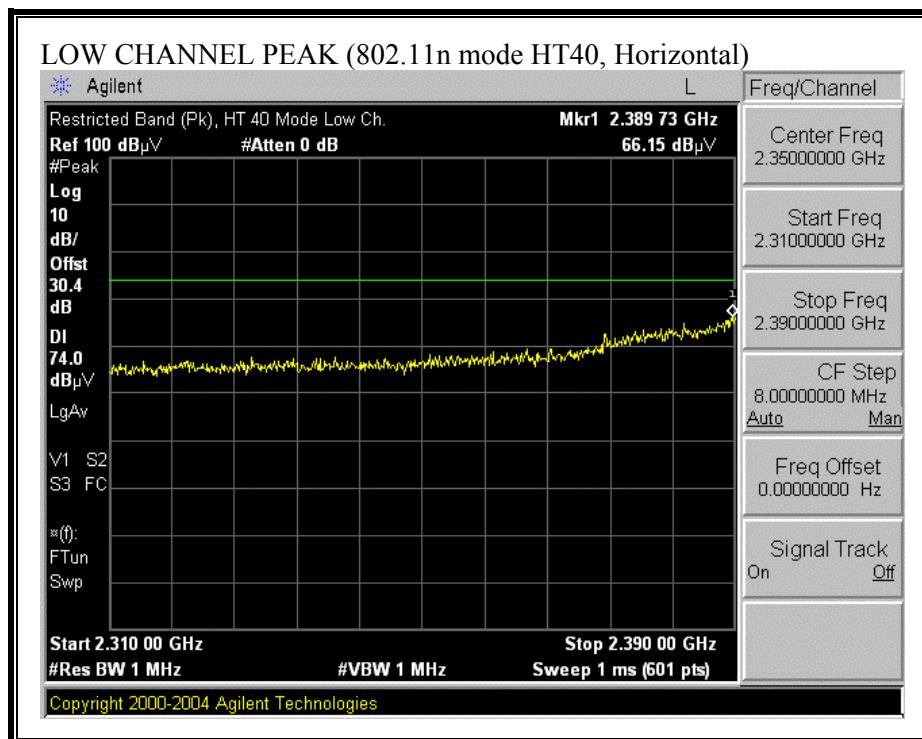


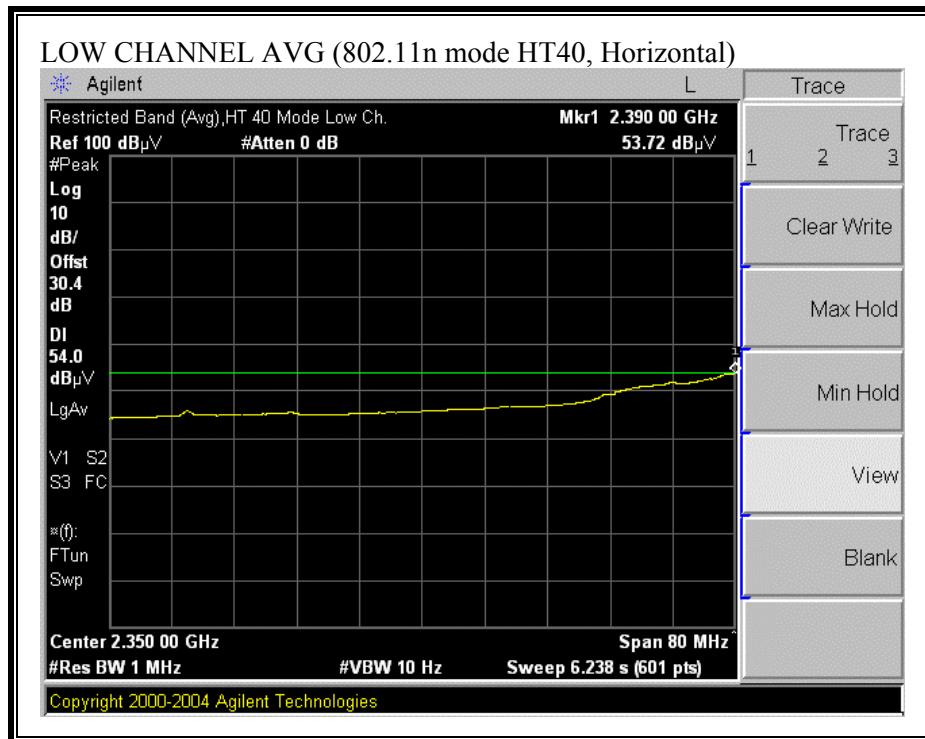


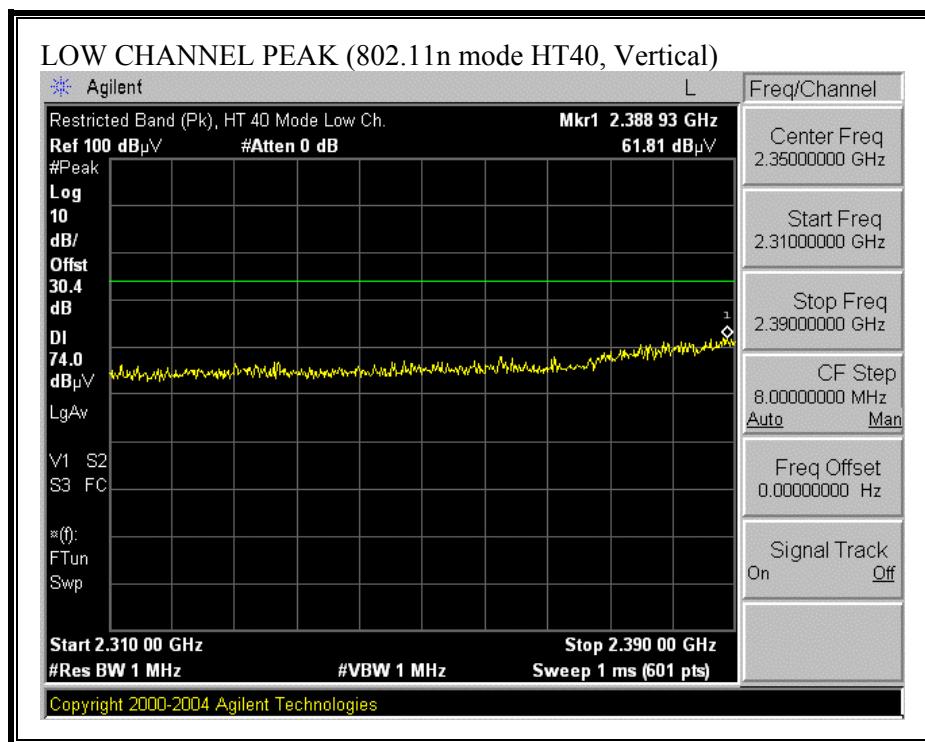
HARMONICS AND SPURIOUS EMISSIONS (802.11n MODE HT20)

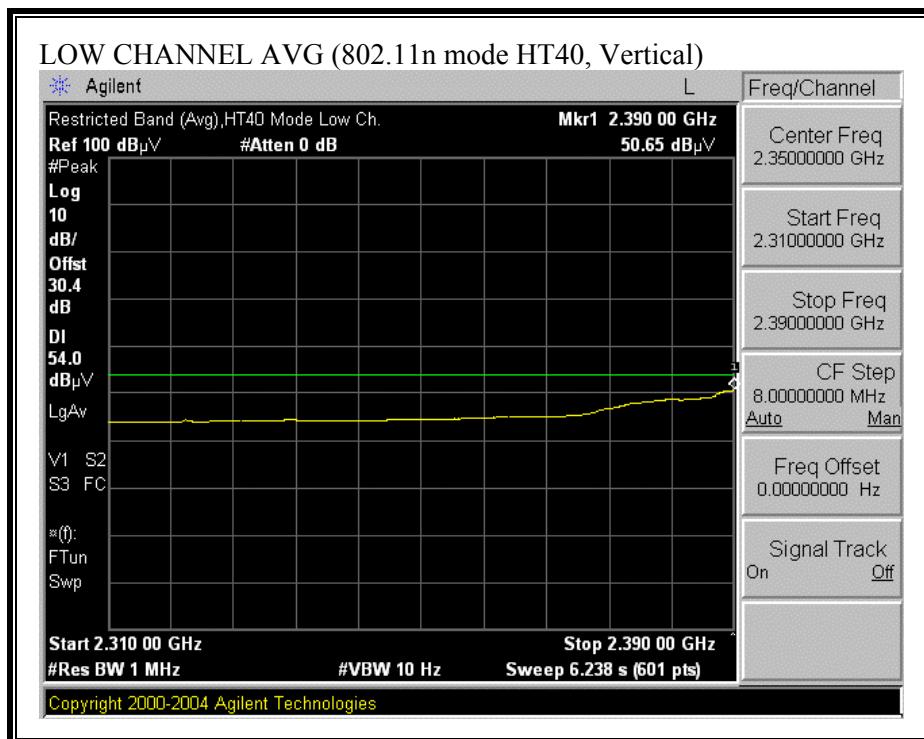
High Frequency Measurement Compliance Certification Services, Morgan Hill Open Field Site															
Company: MARVELL SEMICONDUCTOR INC. Project #: 06U10462 Date: 07/26/2006 Test Engineer: THANH NGUYEN Configuration: EUT inside GATEWAY Laptop. Mode: Continuously Transmitting MCS11.															
Test Equipment:															
Horn 1-18GHz		Pre-amplifier 1-26GHz		Pre-amplifier 26-40GHz		Horn > 18GHz		Limit							
T119; S/N: 29301 @3m		T87 Miteq 924342						FCC 15.209							
Hi Frequency Cables															
2 foot cable		3 foot cable		12 foot cable		HPF		Reject Filter		Peak Measurements RBW=VBW=1MHz					
Thanh 177079008				Thanh 208946003		HPF_4.0GHz				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)
Tx Ch 1															
4.824	3.0	51.49	39.38	33.7	2.8	-45.3	0.0	0.6	43.3	31.2	74	54	-30.7	-22.8	V
7.236	3.0	50.53	38.26	35.2	3.3	-43.3	0.0	0.6	46.3	34.0	74	54	-27.7	-20.0	V
9.648	3.0	47.96	35.36	36.2	3.7	-39.9	0.0	0.8	48.8	36.2	74	54	-25.2	-17.8	Noise floor
4.824	3.0	55.71	43.68	33.7	2.8	-45.3	0.0	0.6	47.5	35.5	74	54	-26.5	-18.5	H
7.236	3.0	50.94	38.27	35.2	3.3	-43.3	0.0	0.6	46.7	34.0	74	54	-27.3	-20.0	H
9.648	3.0	47.17	35.39	36.2	3.7	-39.9	0.0	0.8	48.1	36.3	74	54	-25.9	-17.7	Noise floor
Tx Ch 6															
4.874	3.0	53.87	40.82	33.7	2.8	-45.3	0.0	0.6	45.7	32.6	74	54	-28.3	-21.4	V
7.311	3.0	52.50	40.84	35.2	3.3	-43.2	0.0	0.6	48.4	36.7	74	54	-25.6	-17.3	V
9.784	3.0	47.99	32.25	36.4	3.7	-39.6	0.0	0.8	49.4	33.6	74	54	-24.6	-20.4	Noise floor
4.874	3.0	57.76	44.47	33.7	2.8	-45.3	0.0	0.6	49.6	36.3	74	54	-24.4	-17.7	H
7.311	3.0	53.63	40.94	35.2	3.3	-43.2	0.0	0.6	49.5	36.8	74	54	-24.5	-17.2	H
9.784	3.0	47.35	35.20	36.4	3.7	-39.6	0.0	0.8	48.7	36.6	74	54	-25.3	-17.4	Noise floor
Tx Ch11															
4.924	3.0	58.16	46.21	33.8	2.8	-45.4	0.0	0.6	50.0	38.1	74	54	-24.0	-15.9	V
7.386	3.0	54.76	43.08	35.2	3.3	-43.1	0.0	0.6	50.8	39.1	74	54	-23.2	-14.9	V
9.848	3.0	47.27	36.07	36.4	3.7	-39.4	0.0	0.8	48.9	37.7	74	54	-25.1	-16.3	Noise floor
4.924	3.0	62.14	50.06	33.8	2.8	-45.4	0.0	0.6	54.0	41.9	74	54	-20.0	-12.1	H
7.386	3.0	56.39	44.15	35.2	3.3	-43.1	0.0	0.6	52.4	40.2	74	54	-21.6	-13.8	H
9.848	3.0	47.39	35.23	36.4	3.7	-39.4	0.0	0.8	49.0	36.8	74	54	-25.0	-17.2	Noise floor
No other emissions were detected above 10GHz															
Rev. 5.1.6															
f Measurement Frequency	Amp Preamp Gain	D Corr Distance Correct to 3 meters	Avg Lim Average Field Strength Limit												
Dist Distance to Antenna			Pk Lim Peak Field Strength Limit												
Read Analyzer Reading			Avg Mar Margin vs. Average Limit												
AF Antenna Factor			Pk Mar Margin vs. Peak Limit												
CL Cable Loss															
		HPF High Pass Filter													

RESTRICTED BANDEDGE (802.11n MODE HT40, LOW CHANNEL)

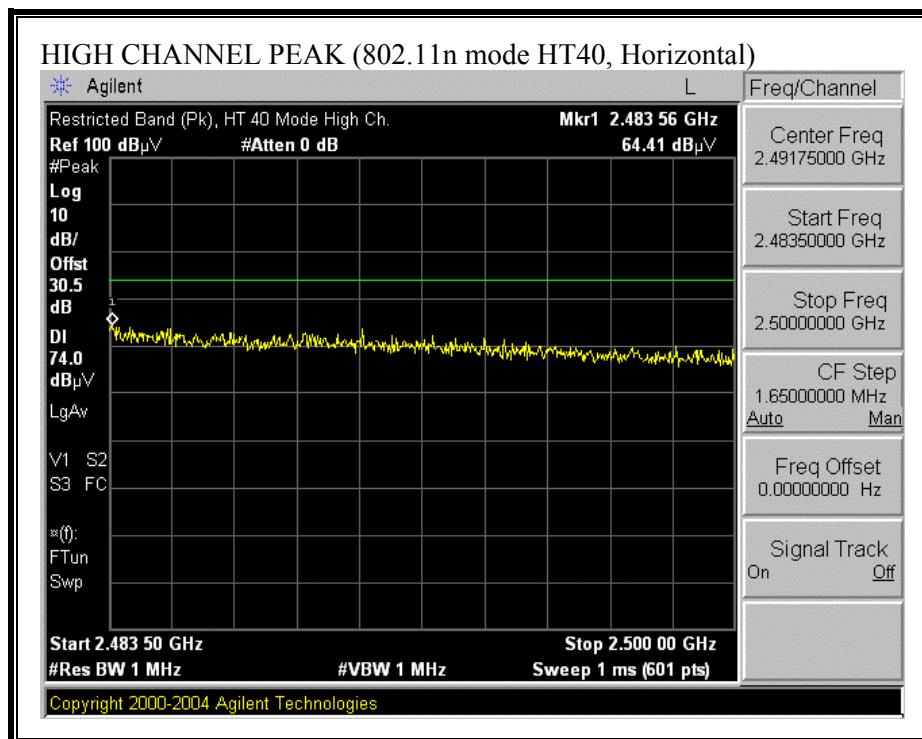


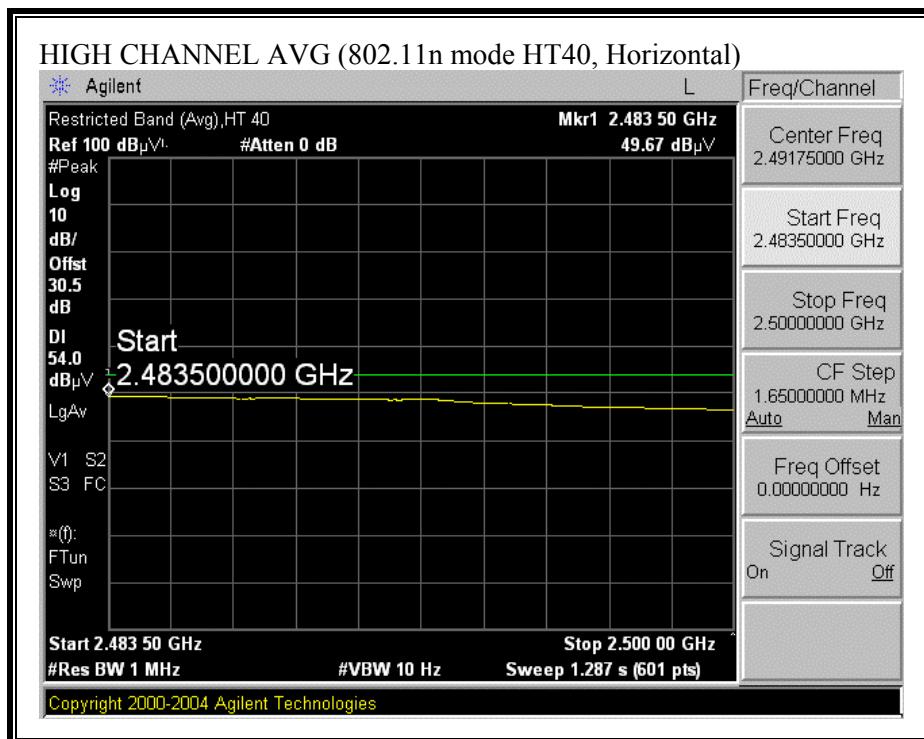


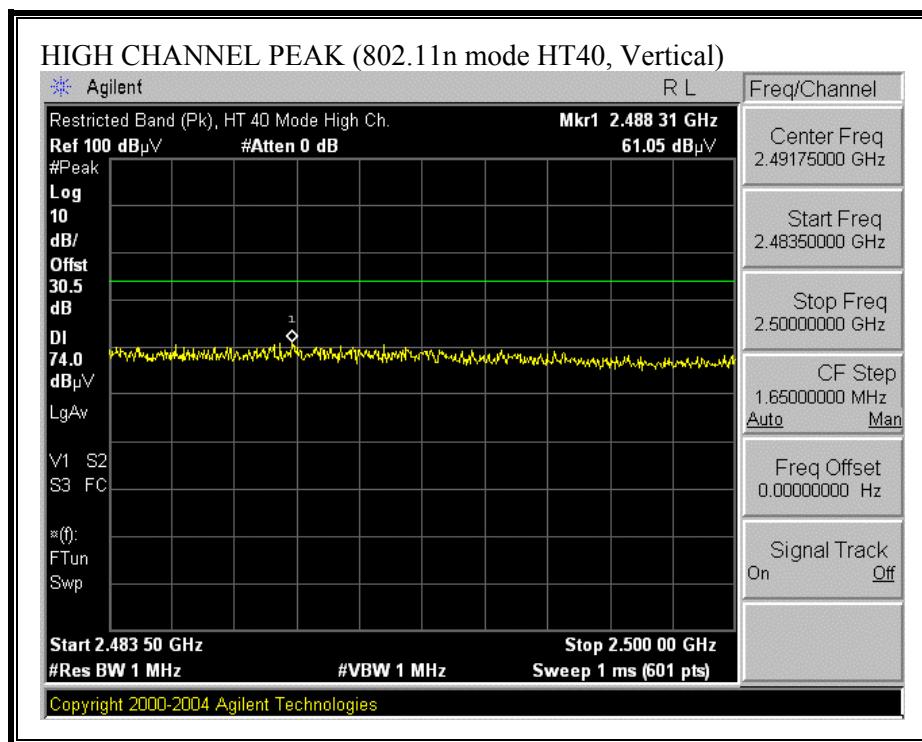


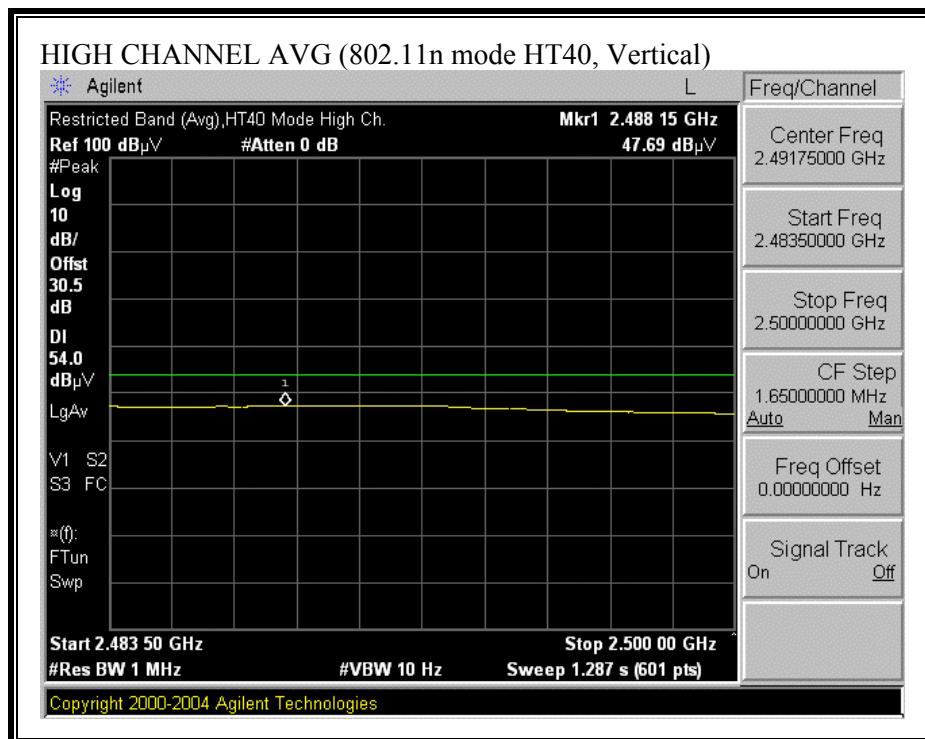


RESTRICTED BANDEDGE (802.11n MODE HT40, HIGH CHANNEL)









HARMONICS AND SPURIOUS EMISSIONS (802.11n MODE HT40)

High Frequency Measurement Compliance Certification Services, Morgan Hill Open Field Site																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
<p>Company: MARVELL SEMICONDUCTOR INC. Project #: 06U10462 Date: 07/26/2006 Test Engineer: THANH NGUYEN Configuration: EUT inside GATEWAY Laptop. Mode: Continuously Transmitting MCS15 mode</p> <p>Test Equipment:</p> <table border="1"> <tr> <td>Horn 1-18GHz</td> <td>Pre-amplifier 1-26GHz</td> <td>Pre-amplifier 26-40GHz</td> <td colspan="3">Horn > 18GHz</td> </tr> <tr> <td>T73; S/N: 6717 @3m</td> <td>T87 Miteq 924342</td> <td></td> <td colspan="3"></td> </tr> <tr> <td colspan="6">Hi Frequency Cables</td> </tr> <tr> <td>2 foot cable</td> <td>3 foot cable</td> <td>12 foot cable</td> <td>HPF</td> <td>Reject Filter</td> <td>Peak Measurements RBW=VBW=1MHz</td> </tr> <tr> <td>Thanh 177079008</td> <td></td> <td>Thanh 208946003</td> <td>HPF_4.0GHz</td> <td></td> <td>Average Measurements RBW=1MHz ; VBW=10Hz</td> </tr> </table> <p>Measurement Data:</p> <table border="1"> <thead> <tr> <th>f GHz</th> <th>Dist (m)</th> <th>Read Pk dBuV</th> <th>Read Avg. dBuV</th> <th>AF dB/m</th> <th>CL dB</th> <th>Amp dB</th> <th>D Corr dB</th> <th>Fltr dB</th> <th>Peak dBuV/m</th> <th>Avg dBuV/m</th> <th>Pk Lim dBuV/m</th> <th>Avg Lim dBuV/m</th> <th>Pk Mar dB</th> <th>Avg Mar dB</th> <th>Notes (V/H)</th> </tr> </thead> <tbody> <tr> <td>Tx Low</td> <td></td> </tr> <tr> <td>4.844</td> <td>3.0</td> <td>55.33</td> <td>42.66</td> <td>33.3</td> <td>2.8</td> <td>-45.3</td> <td>0.0</td> <td>0.6</td> <td>46.7</td> <td>34.1</td> <td>74</td> <td>54</td> <td>-27.3</td> <td>-19.9</td> <td>V</td> </tr> <tr> <td>7.266</td> <td>3.0</td> <td>51.81</td> <td>40.24</td> <td>35.0</td> <td>3.3</td> <td>-43.3</td> <td>0.0</td> <td>0.6</td> <td>47.4</td> <td>35.9</td> <td>74</td> <td>54</td> <td>-26.6</td> <td>-18.1</td> <td>V</td> </tr> <tr> <td>9.688</td> <td>3.0</td> <td>47.39</td> <td>35.44</td> <td>36.7</td> <td>3.7</td> <td>-39.8</td> <td>0.0</td> <td>0.8</td> <td>48.9</td> <td>36.9</td> <td>74</td> <td>54</td> <td>-25.1</td> <td>-17.1</td> <td>Noise floor</td> </tr> <tr> <td>4.844</td> <td>3.0</td> <td>62.34</td> <td>49.02</td> <td>33.3</td> <td>2.8</td> <td>-45.3</td> <td>0.0</td> <td>0.6</td> <td>53.7</td> <td>40.4</td> <td>74</td> <td>54</td> 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<td>V</td> </tr> <tr> <td>9.784</td> <td>3.0</td> <td>48.18</td> <td>35.33</td> <td>36.8</td> <td>3.7</td> <td>-39.6</td> <td>0.0</td> <td>0.8</td> <td>50.0</td> <td>37.1</td> <td>74</td> <td>54</td> <td>-24.0</td> <td>-16.9</td> <td>Noise floor</td> </tr> <tr> <td>4.874</td> <td>3.0</td> <td>52.13</td> <td>40.77</td> <td>33.4</td> <td>2.8</td> <td>-45.3</td> <td>0.0</td> <td>0.6</td> <td>43.6</td> <td>32.2</td> <td>74</td> <td>54</td> <td>-30.4</td> <td>-21.8</td> <td>H</td> </tr> <tr> <td>7.311</td> <td>3.0</td> <td>51.06</td> <td>38.19</td> <td>35.0</td> <td>3.3</td> <td>-43.2</td> <td>0.0</td> <td>0.6</td> <td>46.8</td> <td>33.9</td> <td>74</td> <td>54</td> <td>-27.2</td> <td>-20.1</td> <td>H</td> </tr> <tr> <td>9.784</td> <td>3.0</td> <td>46.49</td> <td>35.29</td> <td>36.8</td> <td>3.7</td> <td>-39.6</td> <td>0.0</td> <td>0.8</td> <td>48.3</td> <td>37.1</td> <td>74</td> <td>54</td> <td>-25.7</td> <td>-16.9</td> <td>Noise floor</td> </tr> <tr> <td>Tx High</td> <td></td> </tr> <tr> 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floor	4.844	3.0	62.34	49.02	33.3	2.8	-45.3	0.0	0.6	53.7	40.4	74	54	-20.3	-13.6	H	7.266	3.0	55.57	40.63	35.0	3.3	-43.3	0.0	0.6	49.2	36.2	74	54	-24.8	-17.8	H	9.688	3.0	47.21	35.38	36.7	3.7	-39.8	0.0	0.8	48.7	36.9	74	54	-25.3	-17.1	Noise floor	Tx Mid																4.874	3.0	51.60	38.20	33.4	2.8	-45.3	0.0	0.6	43.0	29.6	74	54	-31.0	-24.4	V	7.311	3.0	51.09	38.21	35.0	3.3	-43.2	0.0	0.6	46.8	33.9	74	54	-27.2	-20.1	V	9.784	3.0	48.18	35.33	36.8	3.7	-39.6	0.0	0.8	50.0	37.1	74	54	-24.0	-16.9	Noise floor	4.874	3.0	52.13	40.77	33.4	2.8	-45.3	0.0	0.6	43.6	32.2	74	54	-30.4	-21.8	H	7.311	3.0	51.06	38.19	35.0	3.3	-43.2	0.0	0.6	46.8	33.9	74	54	-27.2	-20.1	H	9.784	3.0	46.49	35.29	36.8	3.7	-39.6	0.0	0.8	48.3	37.1	74	54	-25.7	-16.9	Noise floor	Tx High																4.904	3.0	51.34	38.33	33.4	2.8	-45.3	0.0	0.6	42.8	29.8	74	54	-31.2	-24.2	V	7.356	3.0	49.91	37.96	35.0	3.3	-43.1	0.0	0.6	45.7	33.8	74	54	-28.3	-20.2	V	9.808	3.0	46.59	35.37	36.8	3.7	-39.5	0.0	0.8	48.4	37.2	74	54	-25.6	-16.8	Noise floor	4.904	3.0	54.26	41.20	33.4	2.8	-45.3	0.0	0.6	45.7	32.7	74	54	-28.3	-21.3	H	7.356	3.0	51.29	38.28	35.0	3.3	-43.1	0.0	0.6	47.1	34.1	74	54	-26.9	-19.9	H	9.808	3.0	47.35	35.44	36.8	3.7	-39.5	0.0	0.8	49.2	37.3	74	54	-24.8	-16.7	Noise floor	No other emissions were detected above 10GHz																																																												Rev. 5.1.6															f Measurement Frequency Dist Distance to Antenna Read Analyzer Reading AF Antenna Factor CL Cable Loss				Amp Preamp Gain D Corr Distance Correct to 3 meters Avg Average Field Strength @ 3 m Peak Calculated Peak Field Strength HPF High Pass Filter				Avg Lim Average Field Strength Limit Pk Lim Peak Field Strength Limit Avg Mar Margin vs. Average Limit Pk Mar Margin vs. Peak Limit						
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9.808	3.0	46.59	35.37	36.8	3.7	-39.5	0.0	0.8	48.4	37.2	74	54	-25.6	-16.8	Noise floor																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
4.904	3.0	54.26	41.20	33.4	2.8	-45.3	0.0	0.6	45.7	32.7	74	54	-28.3	-21.3	H																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
7.356	3.0	51.29	38.28	35.0	3.3	-43.1	0.0	0.6	47.1	34.1	74	54	-26.9	-19.9	H																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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No other emissions were detected above 10GHz																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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f Measurement Frequency Dist Distance to Antenna Read Analyzer Reading AF Antenna Factor CL Cable Loss				Amp Preamp Gain D Corr Distance Correct to 3 meters Avg Average Field Strength @ 3 m Peak Calculated Peak Field Strength HPF High Pass Filter				Avg Lim Average Field Strength Limit Pk Lim Peak Field Strength Limit Avg Mar Margin vs. Average Limit Pk Mar Margin vs. Peak Limit																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														

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

HARMONICS AND SPURIOUS EMISSIONS (802.11a 20M MODE)

High Frequency Measurement Compliance Certification Services, Morgan Hill Open Field Site																																												
Company:	Marvell																																											
Project #:	06U10462																																											
Date:	07/27/06																																											
Test Engineer:	Thanh Nguyen																																											
Configuration:	EUT inside GATEWAY Laptop																																											
S/N:	032																																											
Mode:	TX ON in 11a mode, 20 MHz BW																																											
Test Equipment:																																												
Horn 1-18GHz			Pre-amplifier 1-26GHz			Pre-amplifier 26-40GHz			Horn > 18GHz			Limit																																
T119; S/N: 29301 @3m			T87 Miteq 924342						T89; ARA 18-26GHz; S/N:1049			FCC 15.205																																
Hi Frequency Cables																																												
2 foot cable			3 foot cable			12 foot cable			HPF			Reject Filter																																
Thanh 177079008						Thanh 208946003			HPF_7.6GHz																																			
<table border="1"> <thead> <tr> <th colspan="2">Peak Measurements</th> </tr> <tr> <td colspan="2">RBW=VBW=1MHz</td> </tr> </thead> <tbody> <tr> <td colspan="2">Average Measurements</td> </tr> <tr> <td colspan="2">RBW=1MHz, VBW=10Hz</td> </tr> </tbody> </table>															Peak Measurements		RBW=VBW=1MHz		Average Measurements		RBW=1MHz, VBW=10Hz																							
Peak Measurements																																												
RBW=VBW=1MHz																																												
Average Measurements																																												
RBW=1MHz, VBW=10Hz																																												
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)																													
Low Channel (5745 MHz)																																												
11.490	3.0	58.67	45.75	37.2	4.2	-39.8	0.0	0.7	61.0	48.0	74	54	-13.0	-6.0	V, Settings 69 6D																													
11.490	3.0	53.47	42.28	37.2	4.2	-39.8	0.0	0.7	55.8	44.6	74	54	-18.2	-9.4	H, Settings 69 6D																													
Middle Channel (5785 MHz)																																												
11.570	3.0	55.46	43.68	37.2	4.2	-39.8	0.0	0.7	57.8	46.0	74	54	-16.2	-8.0	V, Settings 6A 6D																													
11.570	3.0	55.34	43.16	37.2	4.2	-39.8	0.0	0.7	57.6	45.5	74	54	-16.4	-8.5	H, Settings 6A 6D																													
High Channel (5825 MHz)																																												
11.650	3.0	54.27	42.47	37.2	4.2	-39.8	0.0	0.7	56.6	44.8	74	54	-17.4	-9.2	V, Settings 6A 6F																													
11.650	3.0	52.26	39.46	37.2	4.2	-39.8	0.0	0.7	54.6	41.8	74	54	-19.4	-12.2	H, Settings 6A 6F																													
<table border="1"> <thead> <tr> <td>f</td> <td>Measurement Frequency</td> <td>Amp</td> <td>Preamp Gain</td> <td>Avg Lim</td> <td>Average Field Strength Limit</td> </tr> <tr> <td>Dist</td> <td>Distance to Antenna</td> <td>D Corr</td> <td>Distance Correct to 3 meters</td> <td>Pk Lim</td> <td>Peak Field Strength Limit</td> </tr> <tr> <td>Read</td> <td>Analyzer Reading</td> <td>Avg</td> <td>Average Field Strength @ 3 m</td> <td>Avg Mar</td> <td>Margin vs. Average Limit</td> </tr> <tr> <td>AF</td> <td>Antenna Factor</td> <td>Peak</td> <td>Calculated Peak Field Strength</td> <td>Pk Mar</td> <td>Margin vs. Peak Limit</td> </tr> <tr> <td>CL</td> <td>Cable Loss</td> <td>HPF</td> <td>High Pass Filter</td> <td></td> <td></td> </tr> </thead> </table>															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		
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																																									

HARMONICS AND SPURIOUS EMISSIONS (802.11a 40M MODE)

High Frequency Measurement Compliance Certification Services, Morgan Hill Open Field Site															
Company:	Marvell														
Project #:	06U10462														
Date:	07/27/06														
Test Engineer:	Thanh Nguyen														
Configuration:	EUT Inside the Gateway Laptop.														
S/N:	032														
Mode:	TX ON in 11a mode, 40 MHz BW														
Test Equipment:															
Horn 1-18GHz		Pre-amplifier 1-26GHz		Pre-amplifier 26-40GHz		Horn > 18GHz					Limit				
T119; S/N: 29301 @3m		T87 Miteq 924342				T89; ARA 18-26GHz; S/N:1049					FCC 15.205				
Hi Frequency Cables															
2 foot cable		3 foot cable		12 foot cable		HPF		Reject Filter		Peak Measurements RBW=VBW=1MHz					
Thanh 177079008				Thanh 208946003		HPF_7.6GHz				Average Measurements RBW=1MHz, VBW=10Hz					
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low Channel (5755 MHz)															
11.510	3.0	52.36	41.87	37.2	4.2	-39.8	0.0	0.7	54.7	44.2	74	54	-19.3	-9.8	V, Settings 60 63
11.510	3.0	53.26	42.55	37.2	4.2	-39.8	0.0	0.7	55.6	44.8	74	54	-18.4	-9.2	H, Settings 60 63
High Channel (5795 MHz)															
11.590	3.0	56.26	43.27	37.2	4.2	-39.8	0.0	0.7	58.6	45.6	74	54	-15.4	-8.4	V, Settings 6C 71
11.590	3.0	54.28	43.45	37.2	4.2	-39.8	0.0	0.7	56.6	45.8	74	54	-17.4	-8.2	H, Settings 6C 71
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													

HARMONICS AND SPURIOUS EMISSIONS (802.11n MODE HT20)

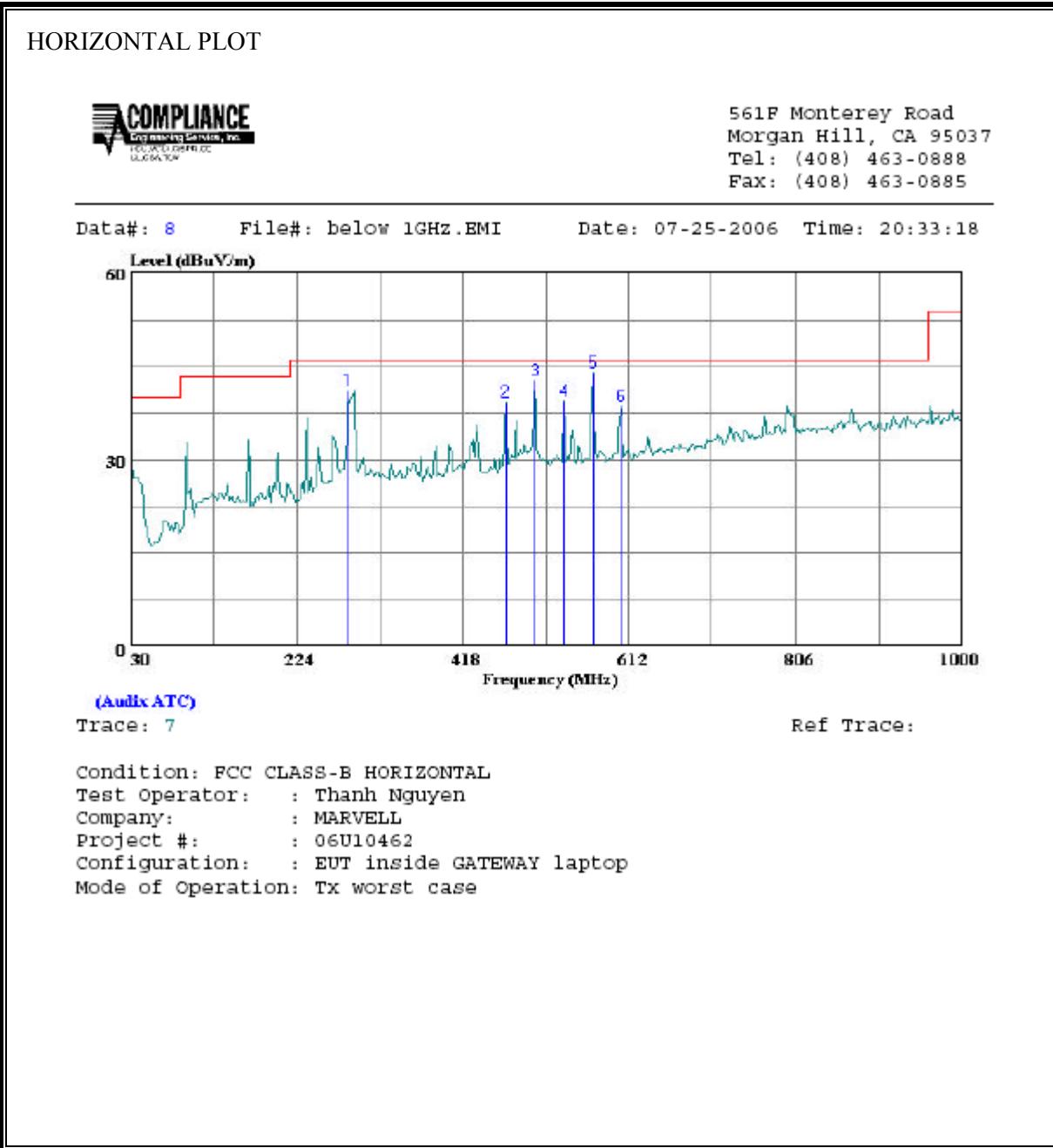
High Frequency Measurement Compliance Certification Services, Morgan Hill Open Field Site															
Company:	Marvell														
Project #:	06U10462														
Date:	07/27/06														
Test Engineer:	Thanh Nguyen														
Configuration:	EUT inside GATEWAY Laptop														
S/N:	032														
Mode:	TX ON in HT20 mode, 20 MHz BW														
Test Equipment:															
Horn 1-18GHz		Pre-amplifier 1-26GHz		Pre-amplifier 26-40GHz		Horn > 18GHz		Limit							
T119; S/N: 29301 @3m		T87 Miteq 924342				T89; ARA 18-26GHz; S/N:1049		FCC 15.205							
Hi Frequency Cables															
2 foot cable		3 foot cable		12 foot cable		HPF		Reject Filter		Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz; VBW=10Hz					
Thanh 177079008				Thanh 208946003		HPF_7.6GHz									
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low Channel (5745 MHz)															
11.490	3.0	52.26	41.75	37.2	4.2	-39.8	0.0	0.7	54.6	44.0	74	54	-19.4	-10.0	V, Settings 67 6C
11.490	3.0	53.57	42.75	37.2	4.2	-39.8	0.0	0.7	55.9	45.0	74	54	-18.1	-9.0	H, Settings 67 6C
Middle Channel (5785 MHz)															
11.570	3.0	55.37	43.60	37.2	4.2	-39.8	0.0	0.7	57.7	45.9	74	54	-16.3	-8.1	V, Settings 69 6D
11.570	3.0	53.27	41.28	37.2	4.2	-39.8	0.0	0.7	55.6	43.6	74	54	-18.4	-10.4	H, Settings 69 6D
High Channel (5825 MHz)															
11.650	3.0	54.27	42.35	37.2	4.2	-39.8	0.0	0.7	56.6	44.7	74	54	-17.4	-9.3	V, Settings 6A 6E
11.650	3.0	52.37	31.35	37.2	4.2	-39.8	0.0	0.7	54.7	33.7	74	54	-19.3	-20.3	H, Settings 6A 6E
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										

HARMONICS AND SPURIOUS EMISSIONS (802.11n MODE HT40)

High Frequency Measurement Compliance Certification Services, Morgan Hill Open Field Site																																																						
Company:	Marvell 06U10462																																																					
Project #:	06U10462																																																					
Date:	07/27/06																																																					
Test Engineer:	Thanh Nguyen																																																					
Configuration:	EUT inside GATEWAY Laptop																																																					
S/N:	032																																																					
Mode:	TX ON in HT 40 mode																																																					
Test Equipment:																																																						
Horn 1-18GHz			Pre-amplifier 1-26GHz			Pre-amplifier 26-40GHz			Horn > 18GHz			Limit																																										
T119; S/N: 29301 @3m			T87 Miteq 924342						T89; ARA 18-26GHz; S/N:1049			FCC 15.205																																										
Hi Frequency Cables																																																						
2 foot cable			3 foot cable			12 foot cable			HPF			Reject Filter																																										
Thanh 177079008						Thanh 208946003			HPF_7.6GHz																																													
<table border="1"> <thead> <tr> <th colspan="2">Peak Measurements</th> </tr> <tr> <td colspan="2">RBW=VBW=1MHz</td> </tr> </thead> <tbody> <tr> <td colspan="2">Average Measurements</td> </tr> <tr> <td colspan="2">RBW=1MHz, VBW=10Hz</td> </tr> </tbody> </table>															Peak Measurements		RBW=VBW=1MHz		Average Measurements		RBW=1MHz, VBW=10Hz																																	
Peak Measurements																																																						
RBW=VBW=1MHz																																																						
Average Measurements																																																						
RBW=1MHz, VBW=10Hz																																																						
f GHz	Dist (m)	Read Pk dBuV	Read Avg dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)																																							
Low Channel (5755 MHz)																																																						
11.510	3.0	49.5	38.3	37.2	4.2	-39.8	0.0	0.7	51.8	40.6	74	54	-22.2	-13.4	V, Settings 63 66																																							
11.510	3.0	48.4	37.6	37.2	4.2	-39.8	0.0	0.7	50.6	39.9	74	54	-23.4	-14.1	H, Settings 63 66																																							
High Channel (5795 MHz)																																																						
11.590	3.0	48.7	38.3	37.2	4.2	-39.8	0.0	0.7	51.0	40.6	74	54	-23.0	-13.4	V, Settings 6A 6E																																							
11.590	3.0	50.3	37.5	37.2	4.2	-39.8	0.0	0.7	52.6	39.8	74	54	-21.4	-14.2	H, Settings 6A 6E																																							
<table border="1"> <thead> <tr> <th>f</th> <th>Measurement Frequency</th> <th>Amp</th> <th>Preamp Gain</th> <th colspan="2">Avg Lim</th> <th colspan="2">Average Field Strength Limit</th> </tr> <tr> <th>Dist</th> <th>Distance to Antenna</th> <th>D Corr</th> <th>Distance Correct to 3 meters</th> <th colspan="2">Pk Lim</th> <th colspan="2">Peak Field Strength Limit</th> </tr> <tr> <th>Read</th> <th>Analyzer Reading</th> <th>Avg</th> <th>Average Field Strength @ 3 m</th> <th colspan="2">Avg Mar</th> <th colspan="2">Margin vs. Average Limit</th> </tr> <tr> <th>AF</th> <th>Antenna Factor</th> <th>Peak</th> <th>Calculated Peak Field Strength</th> <th colspan="2">Pk Mar</th> <th colspan="2">Margin vs. Peak Limit</th> </tr> <tr> <th>CL</th> <th>Cable Loss</th> <th>HPF</th> <th>High Pass Filter</th> <td colspan="2"></td> <td colspan="2"></td> </tr> </thead> </table>															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				
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. WORST-CASE RADIATED EMISSIONS BELOW 1 GHz

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



HORIZONTAL DATA

		Read		Limit		Over	
	Freq	Level	Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	284.140	25.94	15.08	41.02	46.00	-4.98	Peak
2	468.440	19.74	19.61	39.35	46.00	-6.65	Peak
3	502.390	22.44	20.24	42.68	46.00	-3.32	Peak
4	536.340	18.65	20.73	39.38	46.00	-6.62	Peak
5	570.290	22.87	21.14	44.01	46.00	-1.99	Peak
6	604.240	16.96	21.58	38.54	46.00	-7.46	Peak

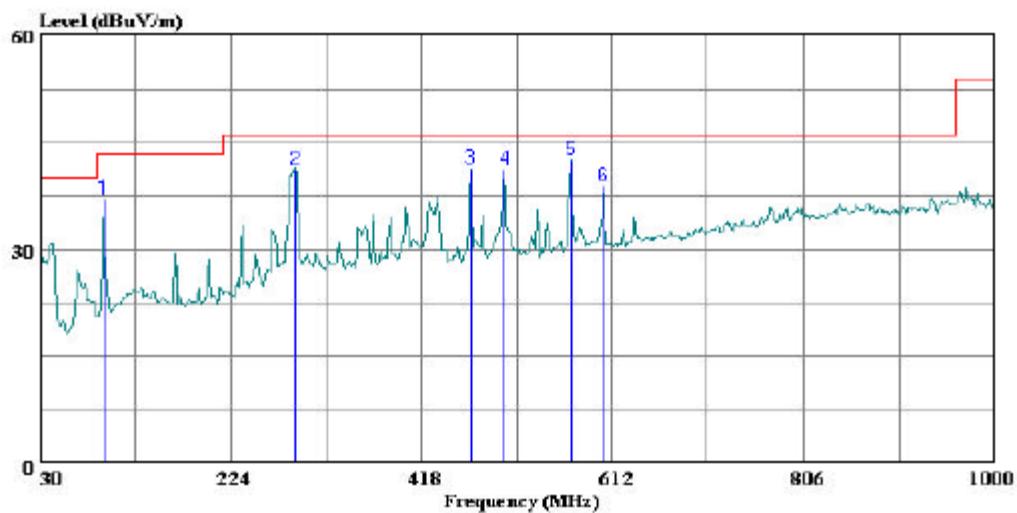
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)

VERTICAL PLOT



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

Data#: 6 File#: below 1GHz.EMI Date: 07-25-2006 Time: 20:29:55



Trace: 5

Ref Trace:

Condition: FCC CLASS-B VERTICAL
Test Operator: : Thanh Nguyen
Company: : MARVELL
Project #: : 06U10462
Configuration: : EUT inside GATEWAY laptop
Mode of Operation: Tx worst case

VERTICAL DATA

Freq	Read			Limit	Over	Remark
	Level	Factor	Level	Line	Limit	
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB
1	94.990	26.75	10.12	36.87	43.50	-6.63 Peak
2	289.960	25.85	15.29	41.14	46.00	-4.86 Peak
3	468.440	21.80	19.61	41.41	46.00	-4.59 Peak
4	502.390	20.93	20.24	41.17	46.00	-4.83 Peak
5	570.290	21.50	21.14	42.64	46.00	-3.36 Peak
6	604.240	17.15	21.58	38.73	46.00	-7.27 Peak

7.3. POWERLINE CONDUCTED EMISSIONS

LIMIT

§15.207 (a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal.

The lower limit applies at the boundary between the frequency ranges.

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 [*]	56 to 46 [*]
0.5-5	56	46
5-30	60	50

^{*} Decreases with the logarithm of the frequency.

TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.4.

The resolution bandwidth is set to 9 kHz for both peak detection and quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

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

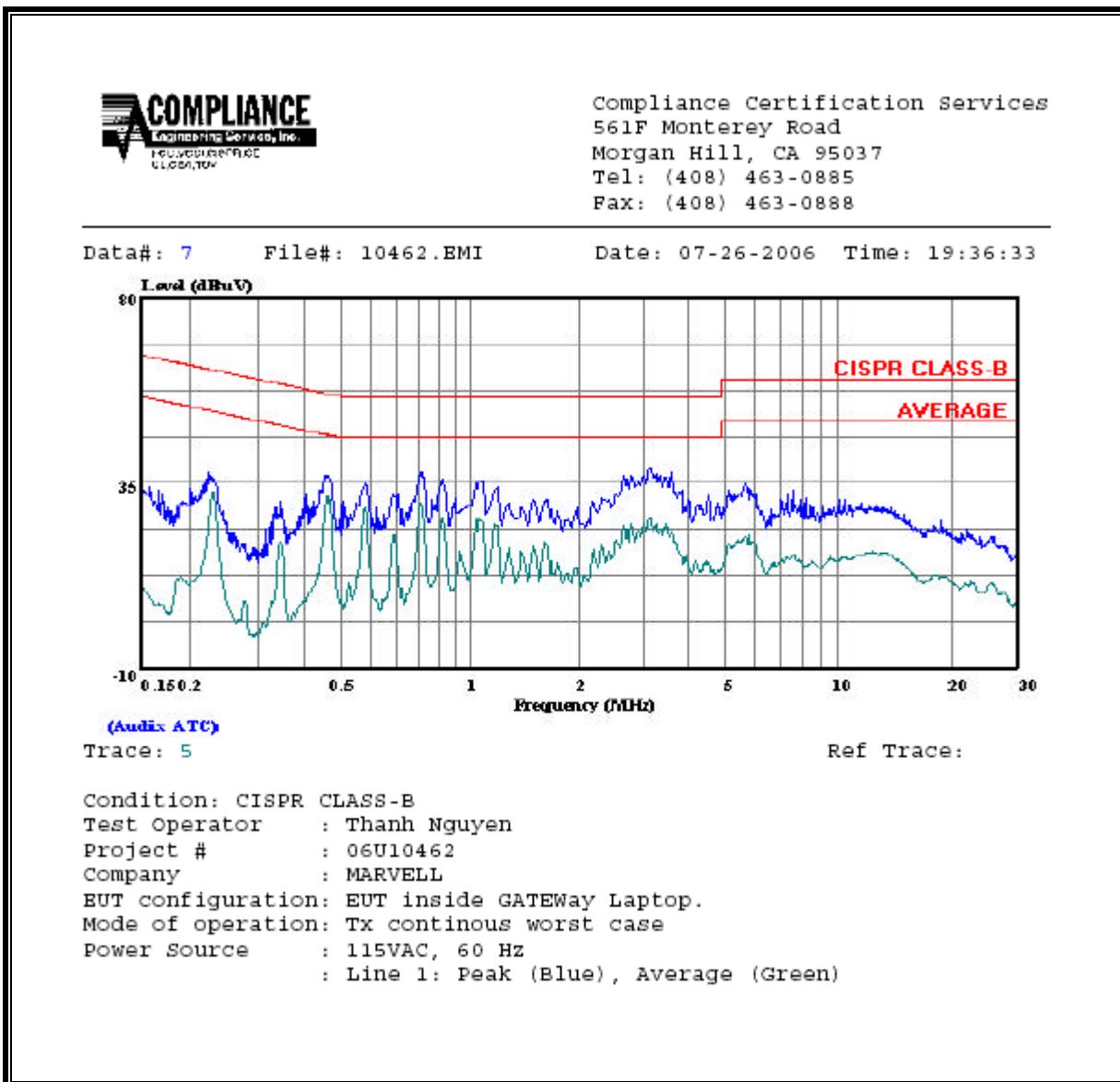
RESULTS

No non-compliance noted:

6 WORST EMISSIONS

CONDUCTED EMISSIONS DATA (115VAC 60Hz)										
Freq. (MHz)	Reading			Closs (dB)	Limit	EN_B		Margin		Remark
	PK (dBuV)	QP (dBuV)	AV (dBuV)			QP	AV	QP (dB)	AV (dB)	
0.22	37.54	--	--	0.00	62.67	52.67	-25.13	-15.13	L1	
0.81	37.60	--	--	0.00	56.00	46.00	-18.40	-8.40	L1	
3.22	38.63	--	--	0.00	56.00	46.00	-17.37	-7.37	L1	
0.46	38.80	--	--	0.00	56.77	46.77	-17.97	-7.97	L2	
1.14	38.50	--	--	0.00	56.00	46.00	-17.50	-7.50	L2	
3.17	39.26	--	--	0.00	56.00	46.00	-16.74	-6.74	L2	
6 Worst Data										

LINE 1 RESULTS



LINE 2 RESULTS

