FCC CFR47 PART 15 SUBPART C
CERTIFICATION
TEST REPORT

FOR

WIRELESS LAN MODULE

MODEL NUMBER: DWM-W006

FCC ID: EW4DWMW006

REPORT NUMBER: 06J10546-1

ISSUE DATE: SEPTEMBER 14, 2006

Prepared for
MITSUMI ELECTRIC CO., LTD
1601, SAKAI, ATSUGI-SHI, KANAGAWA, 243-8533
JAPAN

Prepared by
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Revision History

Rev.	Issue Date	Revisions	Revised By
--	9/14/06	Initial Issue	A. Ilarina

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: MITSUMI ELECTRIC CO., LTD
1601, SAKAI, ATSUGI-SHI, KANAGAWA, 243-8533
JAPAN

EUT DESCRIPTION: WIRELESS LAN MODULE

MODEL: DWM-W006

SERIAL NUMBER: 001656A1D059

DATE TESTED: SEPTEMBER 5-7, 2006

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

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

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

Approved & Released For CCS By: Tested By:

ALVIN ILARINA
EMC SUPERVISOR
COMPLIANCE CERTIFICATION SERVICES

THANH NGUYEN
EMC ENGINEER
COMPLIANCE CERTIFICATION SERVICES

2. TEST METHODOLOGY

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

3. FACILITIES AND ACCREDITATION

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

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

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. MEASUREMENT UNCERTAINTY

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

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

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a wireless LAN transceiver, installed in a portable game machine, operating in the 2400-2483.5MHz band with 13 channels.

5.2. MAXIMUM OUTPUT POWER

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

2400 to 2483.5 MHz Authorized Band

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2412 - 2472	802.11	4.02	2.52

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a sleeve antenna, with a maximum gain of –0.73 dBi.

5.4. SOFTWARE AND FIRMWARE

The test utility software, which was used during testing, was WM Test.

5.5. WORST-CASE CONFIGURATION AND MODE

The worst-case channel is determined as the channel with the highest output power. The highest measured output power was at 2412 MHz.

The worst-case data rate for this channel is determined to be 1 Mb/s, based on previous experience with 802.11 WLAN product design architectures.

Thus all emissions tests were made in the 802.11 mode, 2412MHz, 1 Mb/s.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST			
Description	**Manufacturer**	**Model**	**Serial Number**
Portable Game Machine	Nintendo	USG-001	UJH10688391
Game Card	Nintendo	NTR-005	WM TEST
AC Adapter	Nintendo	USG-002	none

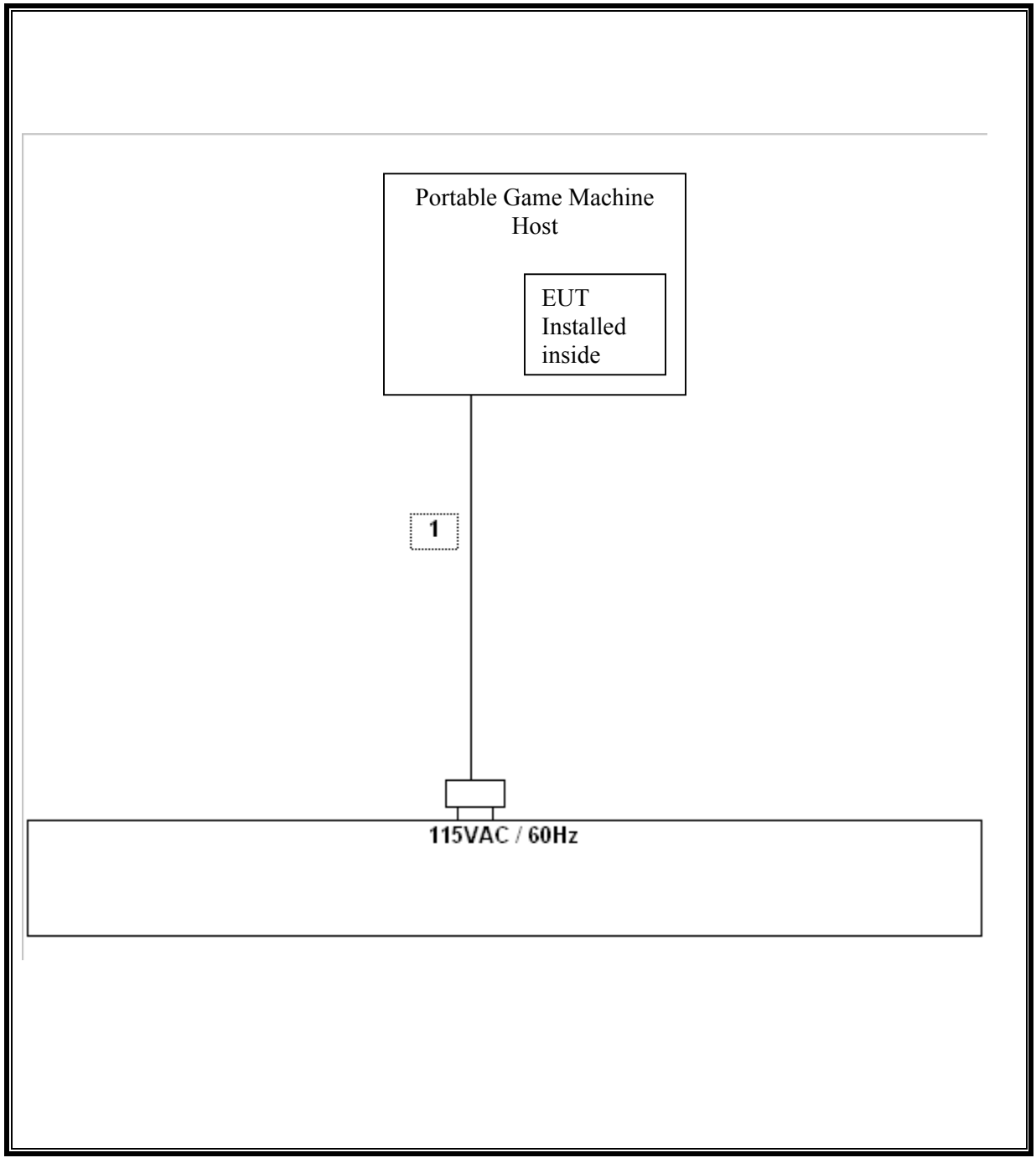
I/O CABLES

I/O CABLE LIST						
Cable No.	**Port**	**# of Identical Ports**	**Connector Type**	**Cable Type**	**Cable Length**	**Remarks**
1	Power	1	DC	Unshielded	2m	N/A

TEST SETUP

The EUT was set in continuous transmit mode. X, Y, and Z positions were investigated; "X" position was found to be worst case.

SETUP DIAGRAM FOR TESTS



6. TEST AND MEASUREMENT EQUIPMENT

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

TEST EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Serial Number**	**Cal Due**
Spectrum Analyzer 3 Hz ~ 44 GHz	Agilent / HP	E4446A	US42510266	10/19/06
Power Meter	HP	438A	2822A05684	01/11/07
Power Sensor 10MHz - 18GHz	Agilent / HP	8481A	2349A36506	01/11/07
EMI Receiver, 9 kHz ~ 2.9 GHz	Agilent / HP	8542E	3942A00286	02/04/07
RF Filter Section	Agilent / HP	85420E	3705A00256	02/04/07
Antenna, Bilog 30 MHz ~ 2 Ghz	Sunol Sciences	JB1	A121003	09/03/06
Antenna, Horn 1 ~ 18 GHz	ETS	3117	29301	04/22/07
Preamplifier, 1 ~ 26.5 GHz	Agilent / HP	8449B	3008A00561	10/03/07
LISN, 10 kHz ~ 30 MHz	FCC	LISN-50/250-25	2023	09/30/06
LISN, 10 kHz ~ 30 MHz	Solar	8012-50-R-24-B	8379443	09/30/06
EMI Test Receiver	R & S	ESHS 20	827129/006	11/03/06

7. LIMITS AND RESULTS

7.1. CHANNEL TESTS FOR THE 2400 TO 2483.5 MHz BAND

7.1.1. 6 dB BANDWIDTH

LIMIT

§15.247 (a) (2) For direct sequence systems, the minimum 6 dB bandwidth shall be at least 500 kHz.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

RESULTS

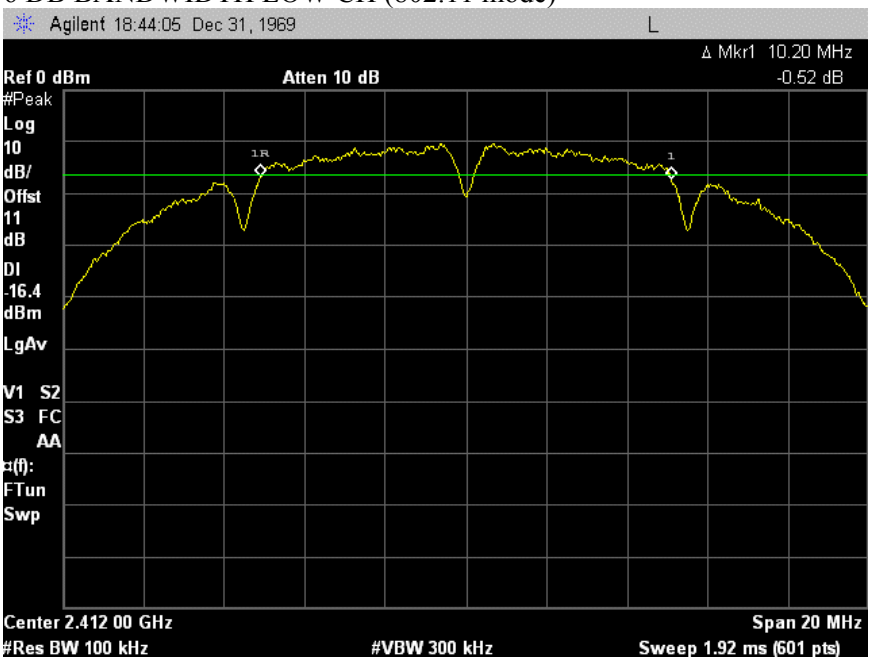
No non-compliance noted:

802.11 Mode

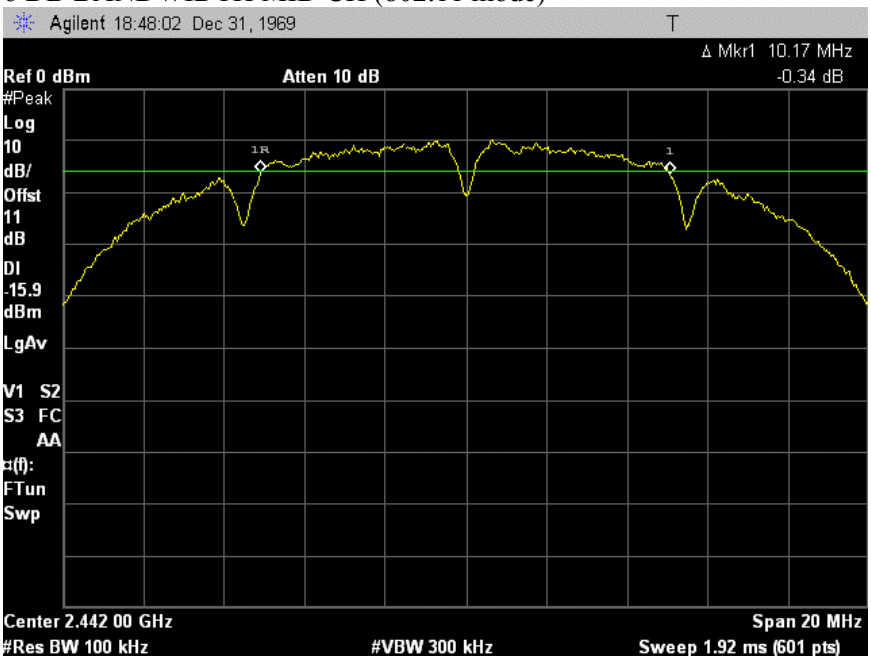
Channel	Frequency (MHz)	6 dB Bandwidth (kHz)	Minimum Limit (kHz)	Margin (kHz)
Low	2412	10200	500	9700
Middle	2442	10170	500	9670
High	2472	10170	500	9670

6 DB BANDWIDTH (802.11 MODE)

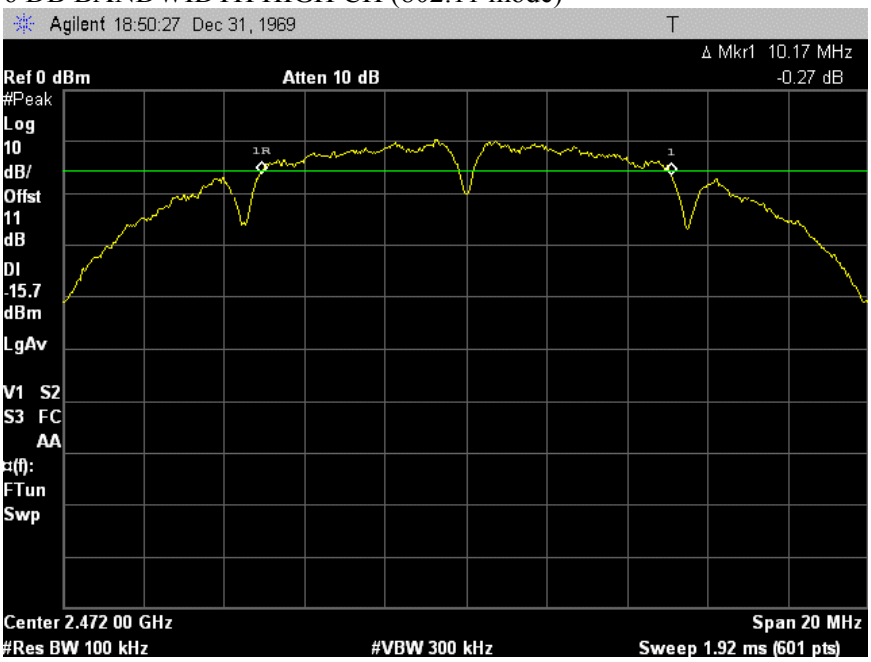
6 DB BANDWIDTH LOW CH (802.11 mode)



6 DB BANDWIDTH MID CH (802.11 mode)



6 DB BANDWIDTH HIGH CH (802.11 mode)



7.1.2. 99% BANDWIDTH

LIMIT

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

RESULTS

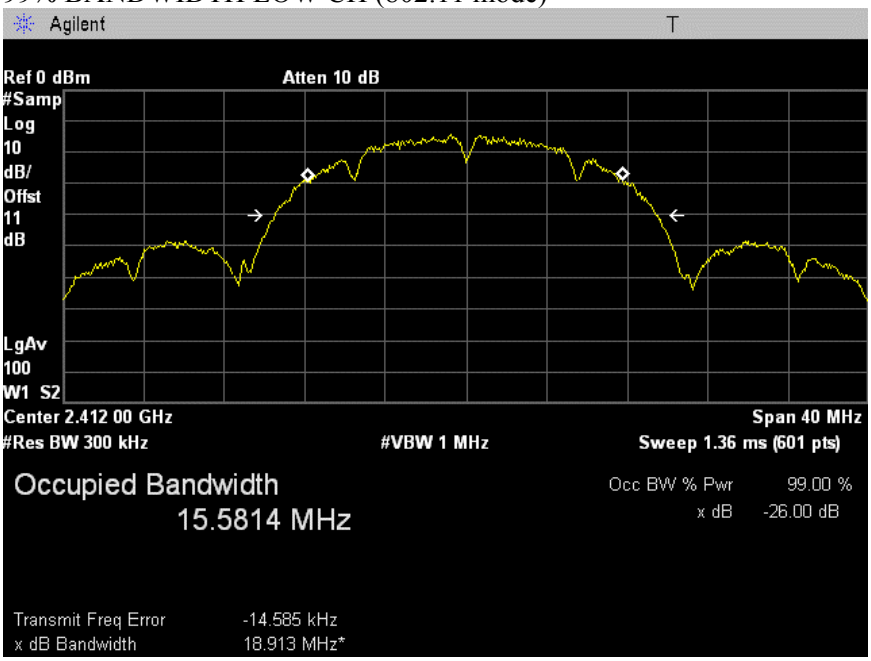
No non-compliance noted:

802.11 Mode

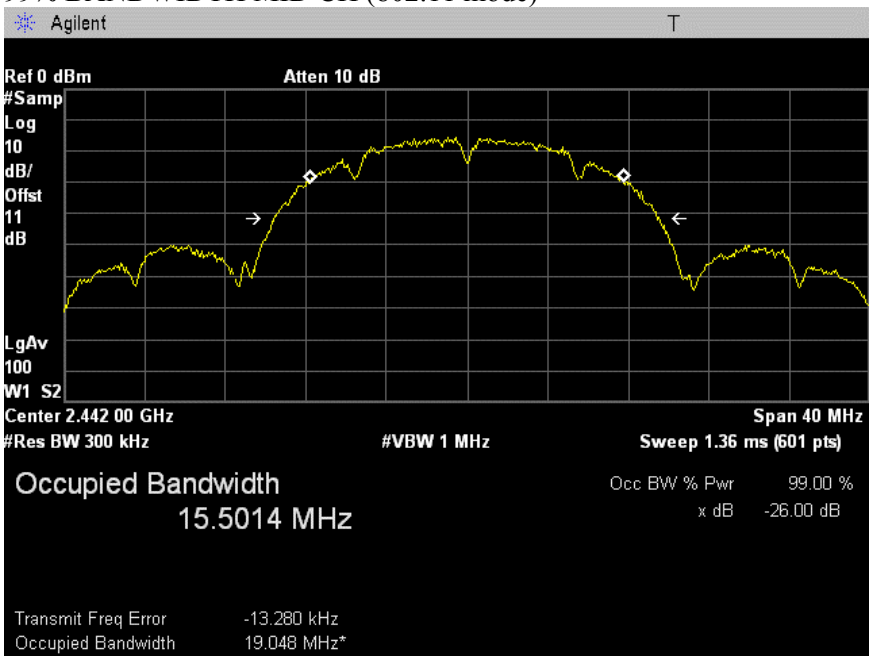
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	15.5814
Middle	2442	15.5014
High	2472	15.4458

99% BANDWIDTH (802.11 MODE)

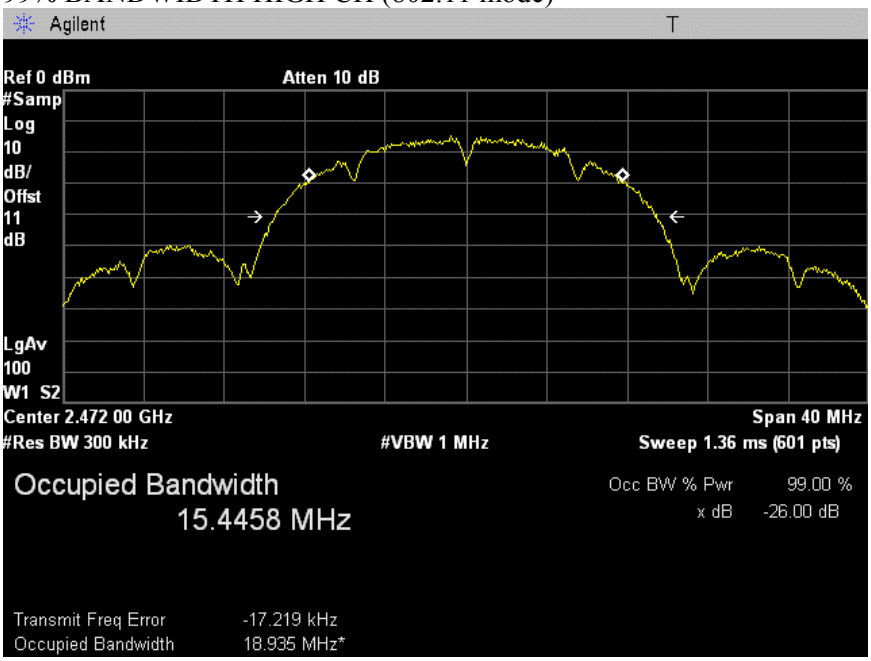
99% BANDWIDTH LOW CH (802.11 mode)



99% BANDWIDTH MID CH (802.11 mode)



99% BANDWIDTH HIGH CH (802.11 mode)



7.1.3. PEAK OUTPUT POWER

PEAK POWER LIMIT

§15.247 (b) The maximum peak output power of the intentional radiator shall not exceed the following:

§15.247 (b) (3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz , and 5725-5850 MHz bands: 1 watt.

§15.247 (b) (3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz , and 5725-5850 MHz bands: 1 watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

§15.247 (b) (4) (i) Systems operating in the 2400–2483.5 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum peak output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer and the analyzer's internal channel power integration function is used to integrate the power over a bandwidth greater than or equal to the 99% bandwidth.

RESULTS

The maximum antenna gain is –0.73 dBi for other than fixed, point-to-point operations, therefore the limit is 30 dBm.

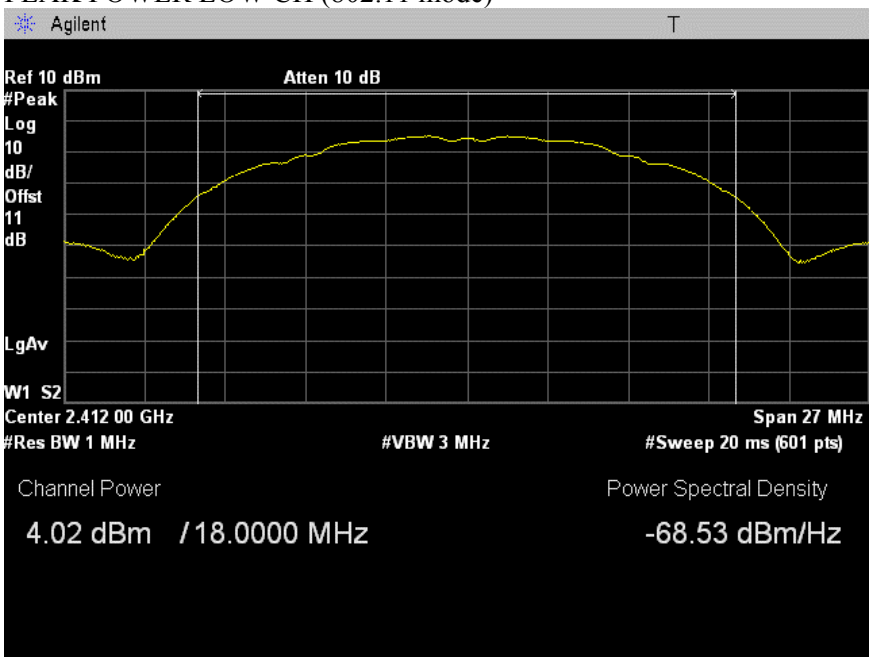
No non-compliance noted:

802.11 Mode

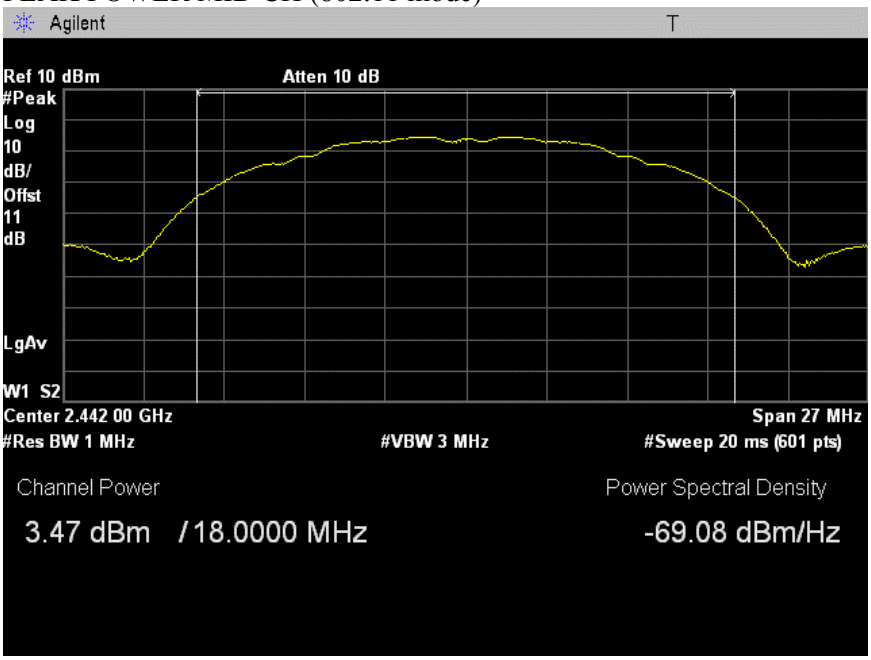
Channel	Frequency (MHz)	Peak Power (dBm)	Limit (dBm)	Margin (dB)
Low	2412	4.02	30	-25.98
Middle	2442	3.47	30	-26.53
High	2472	3.60	30	-26.40

OUTPUT POWER (802.11 MODE)

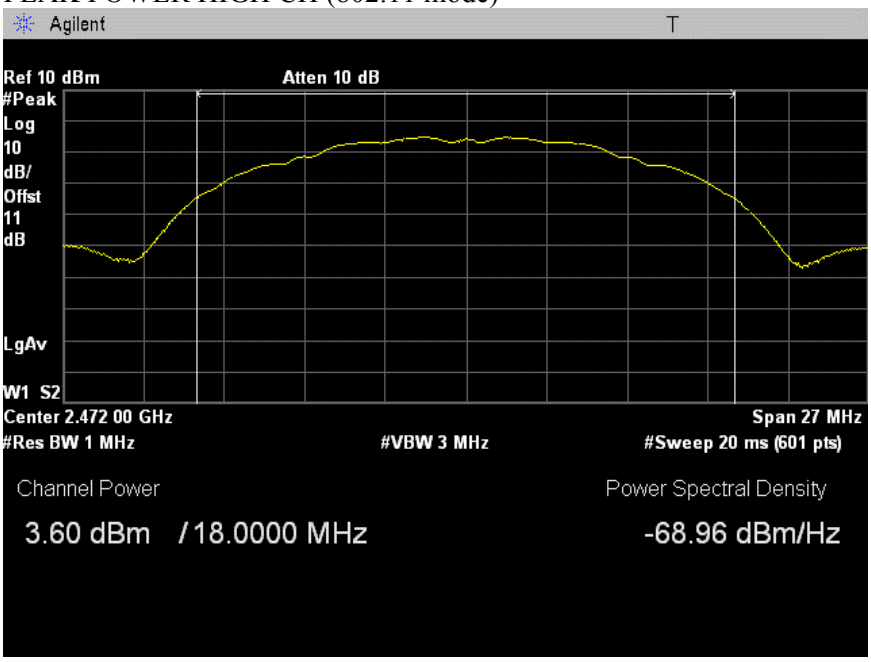
PEAK POWER LOW CH (802.11 mode)



PEAK POWER MID CH (802.11 mode)



PEAK POWER HIGH CH (802.11 mode)



7.1.4. AVERAGE POWER

AVERAGE POWER LIMIT

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

No non-compliance noted:

The cable assembly insertion loss of 11dB was entered as an offset in the power meter to allow for direct reading of power.

802.11 Mode

Channel	Frequency (MHz)	Power (dBm)
Low	2412	0.80
Middle	2442	0.26
High	2472	-0.03

7.1.5. PEAK POWER SPECTRAL DENSITY

LIMIT

§15.247 (d) For direct sequence systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer, the maximum level in a 3 kHz bandwidth is measured with the spectrum analyzer using RBW = 3 kHz and VBW > 3 kHz, sweep time = span / 3 kHz, and video averaging is turned off. The PPSD is the highest level found across the emission in any 3 kHz band.

RESULTS

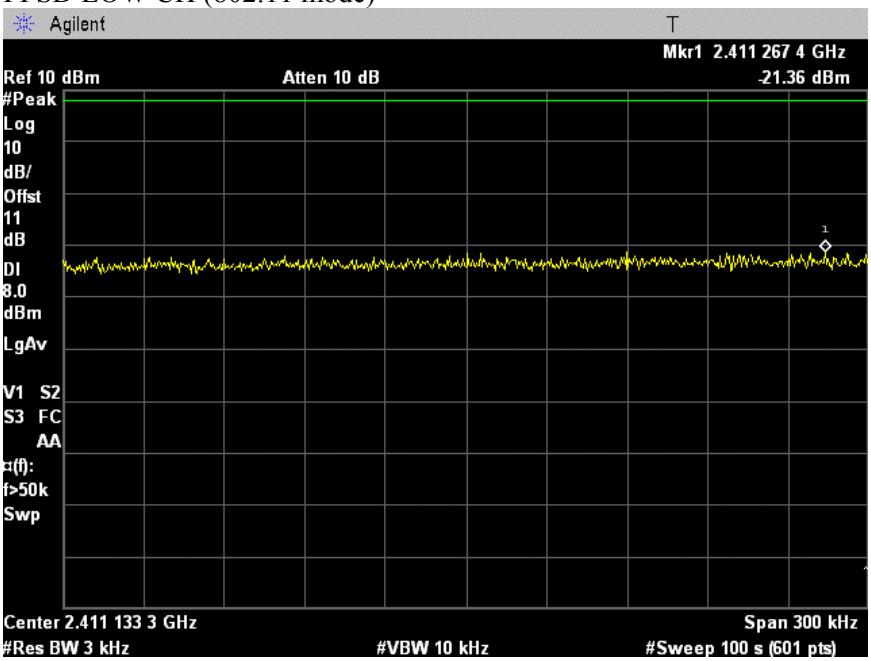
No non-compliance noted:

802.11 Mode

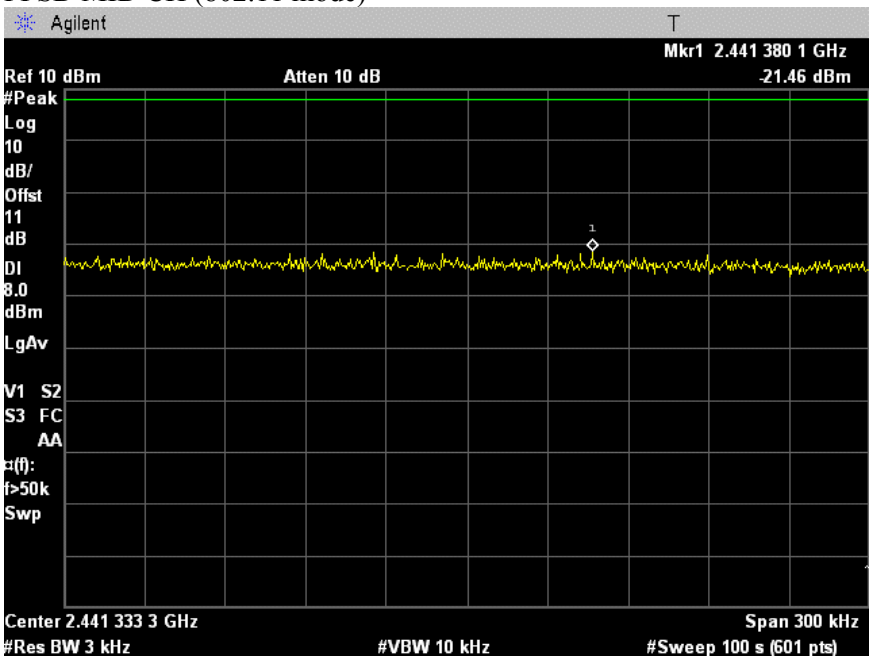
Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-21.36	8	-29.36
Middle	2442	-21.46	8	-29.46
High	2472	-22.05	8	-30.05

PEAK POWER SPECTRAL DENSITY (802.11 MODE)

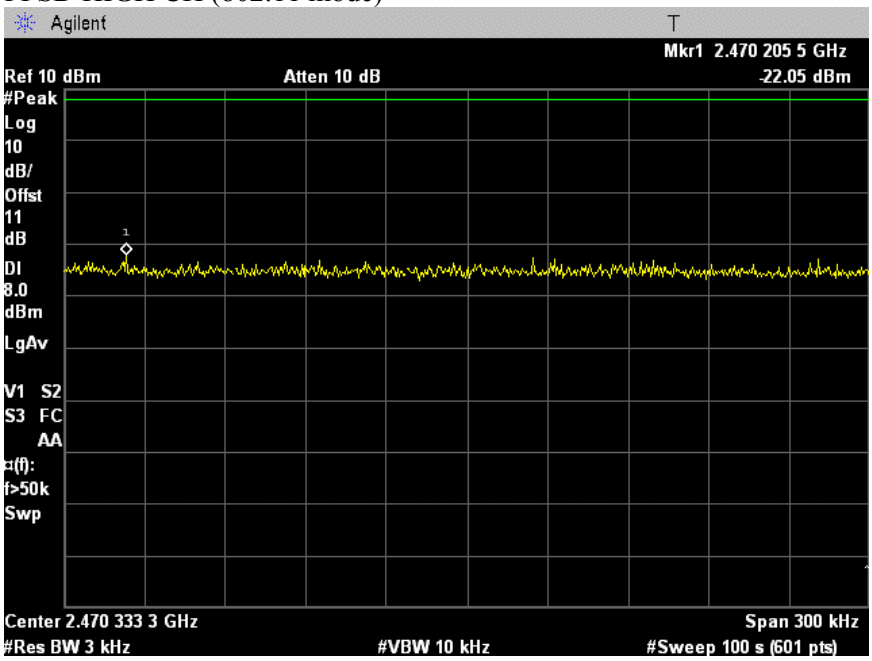
PPSD LOW CH (802.11 mode)



PPSD MID CH (802.11 mode)



PPSD HIGH CH (802.11 mode)



7.1.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

§15.247 (c) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions, which fall in the restricted bands, as defined in§15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

Conducted power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

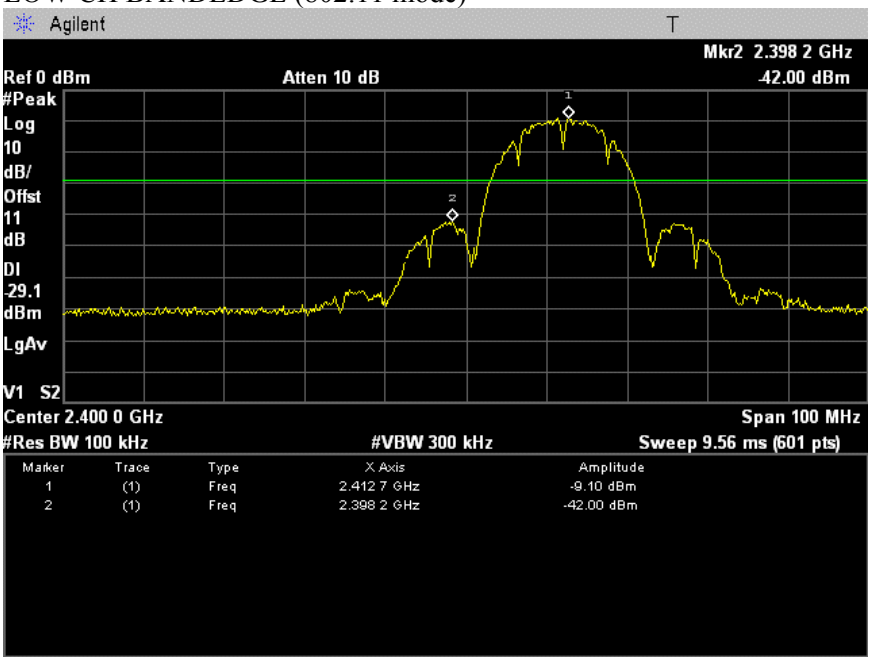
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

RESULTS

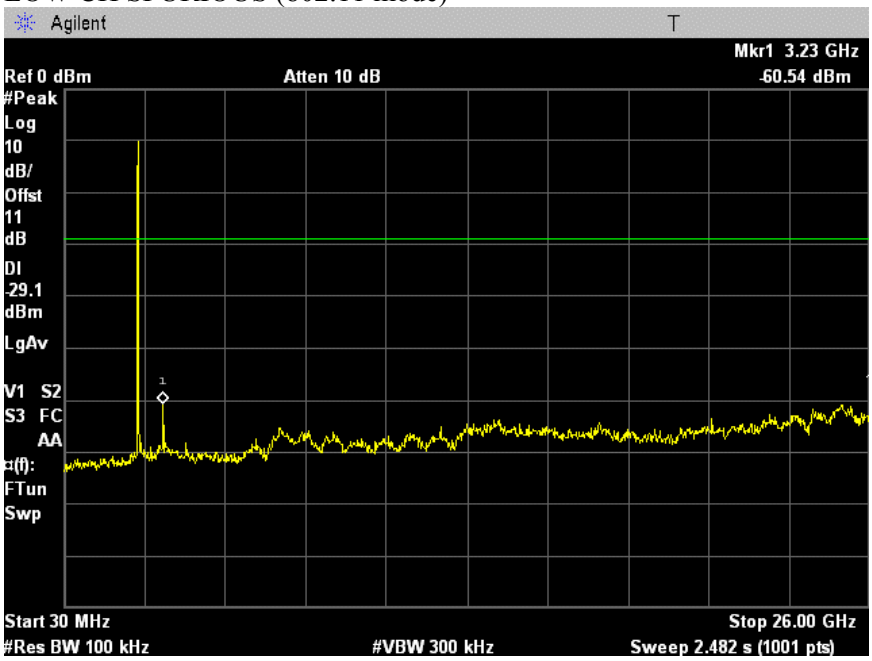
No non-compliance noted:

SPURIOUS EMISSIONS, LOW CHANNEL (802.11 MODE)

LOW CH BANDEDGE (802.11 mode)

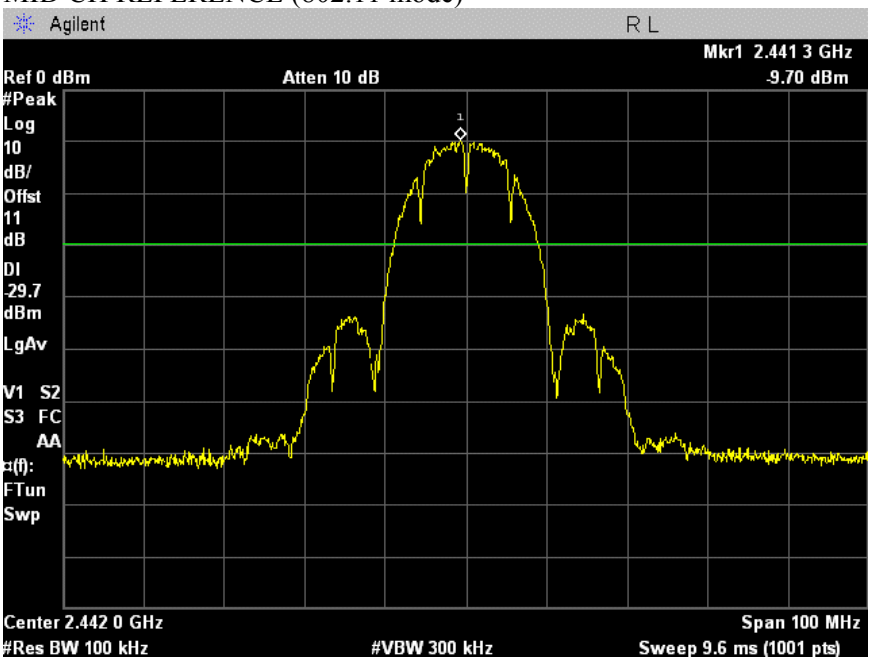


LOW CH SPURIOUS (802.11 mode)

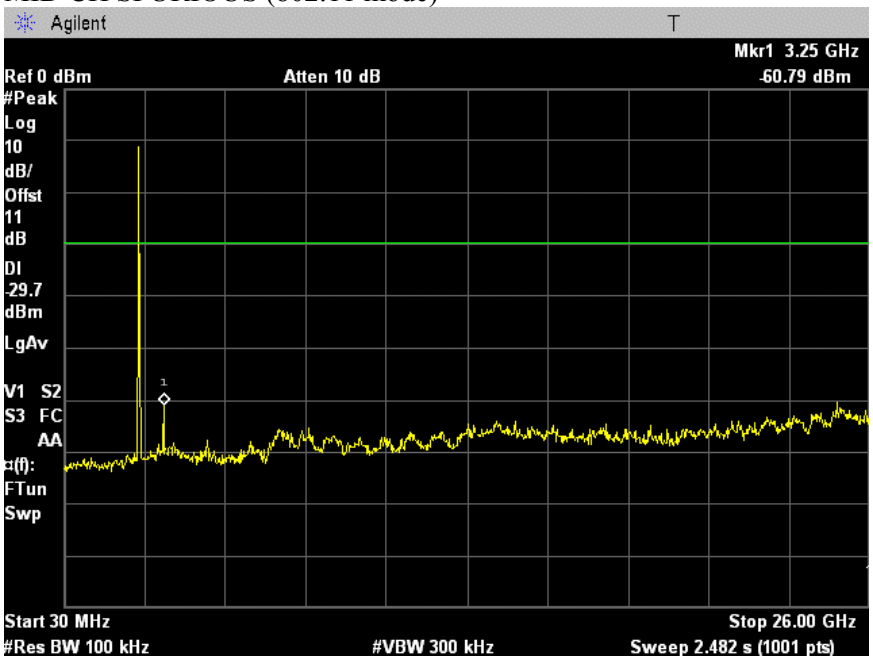


SPURIOUS EMISSIONS, MID CHANNEL (802.11 MODE)

MID CH REFERENCE (802.11 mode)

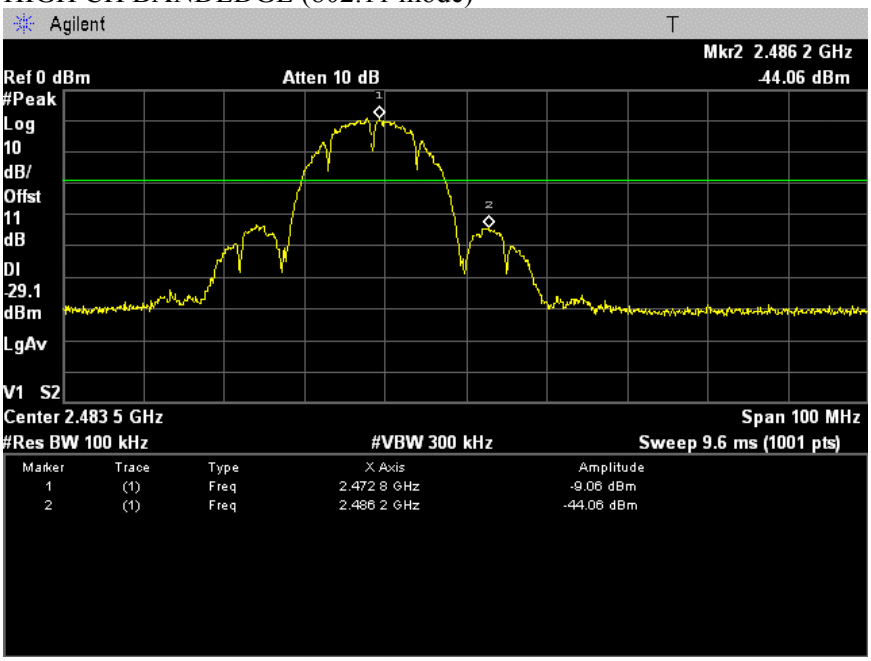


MID CH SPURIOUS (802.11 mode)

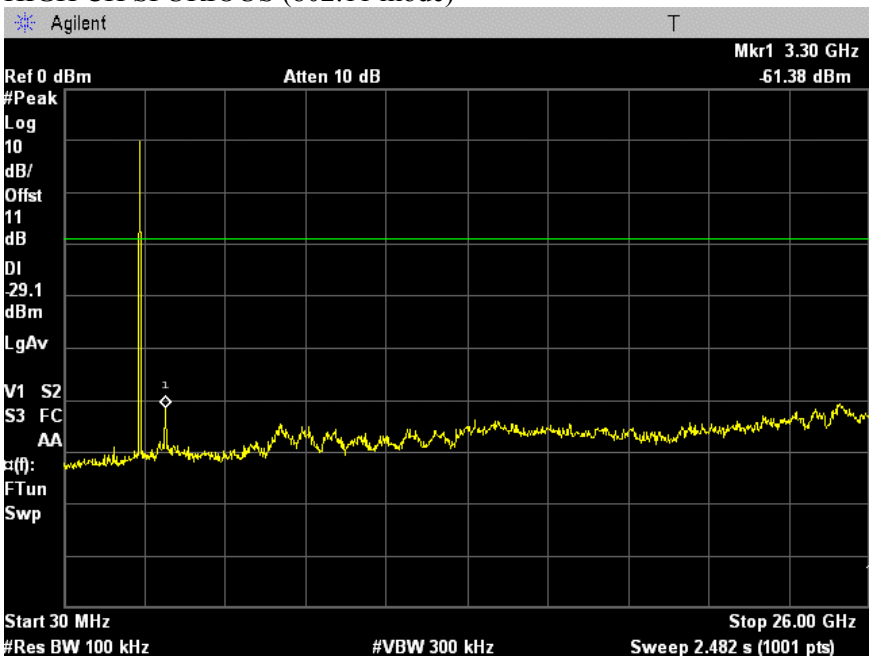


SPURIOUS EMISSIONS, HIGH CHANNEL (802.11 MODE)

HIGH CH BANDEDGE (802.11 mode)



HIGH CH SPURIOUS (802.11 mode)



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.

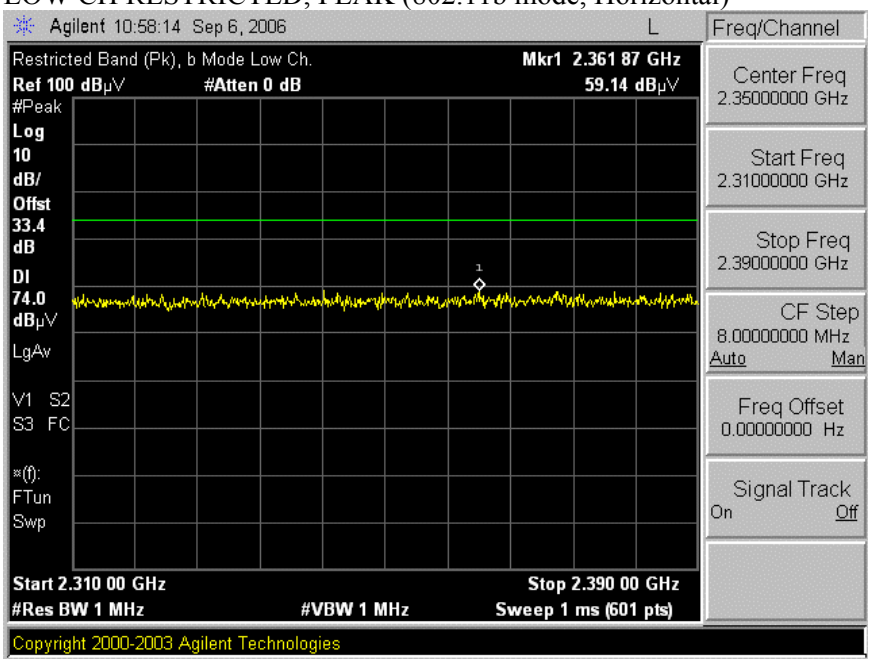
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each 5 GHz band.

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.

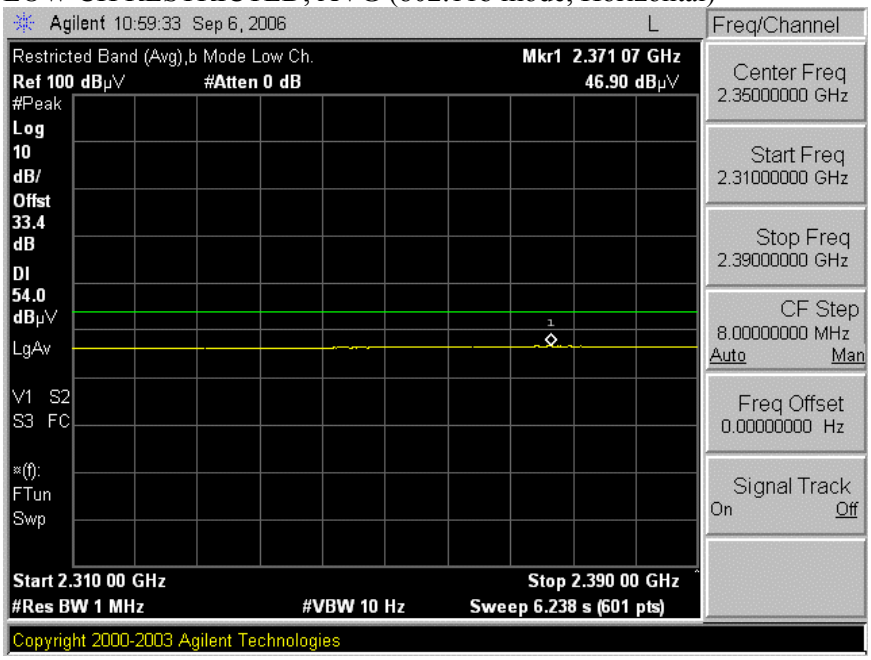
7.2.2. TRANSMITTER ABOVE 1 GHz FOR 2400 TO 2483.5 MHz BAND

RESTRICTED BANDEDGE (801.11 b MODE, LOW CHANNEL, HORIZONTAL)

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

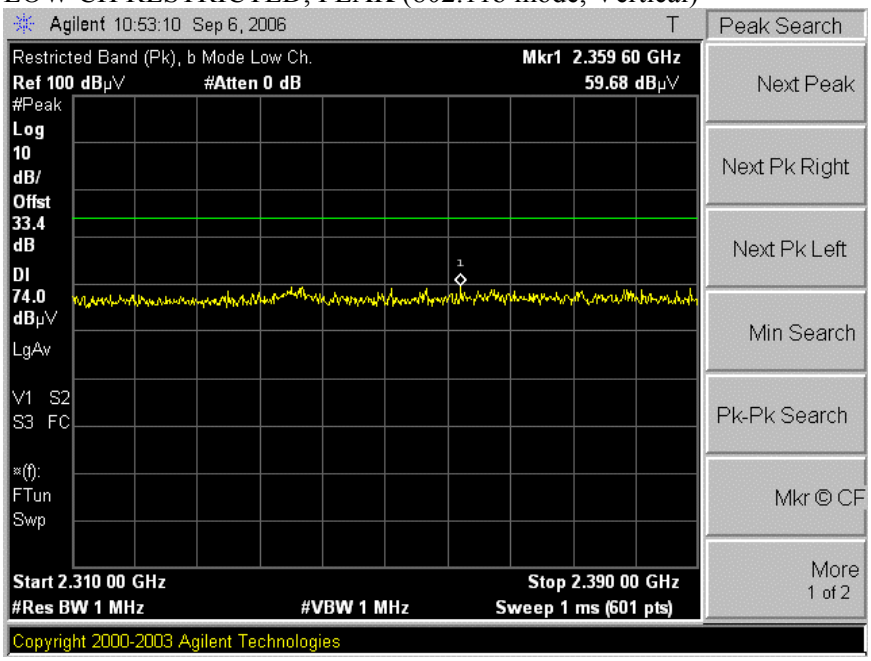


LOW CH RESTRICTED, AVG (802.11b mode, Horizontal)

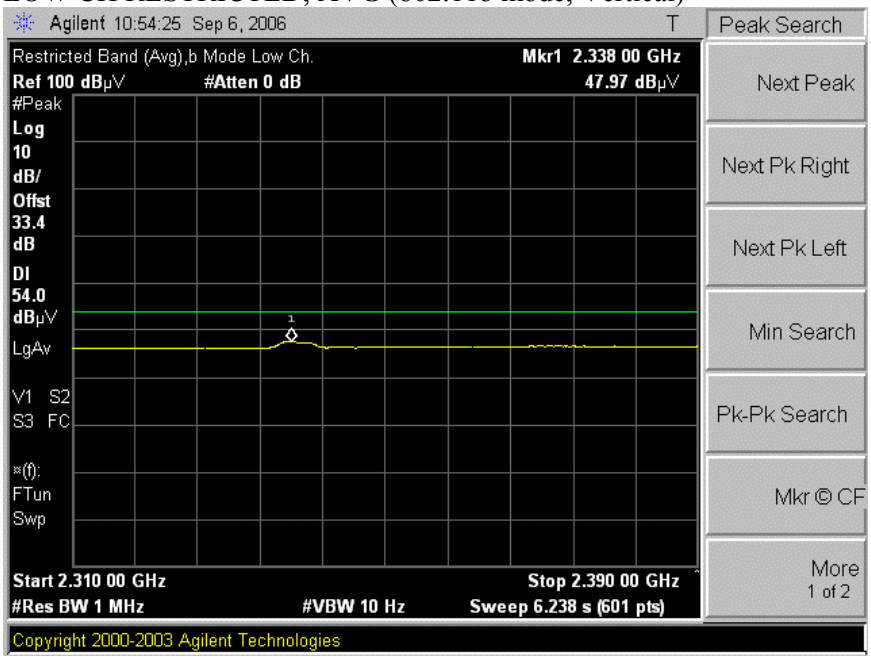


RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

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

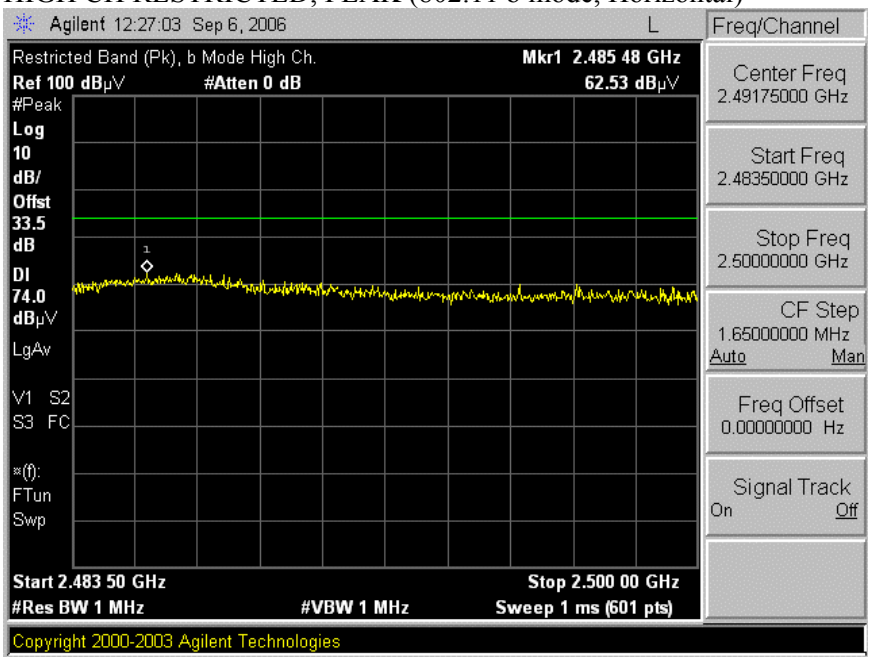


LOW CH RESTRICTED, AVG (802.11b mode, Vertical)

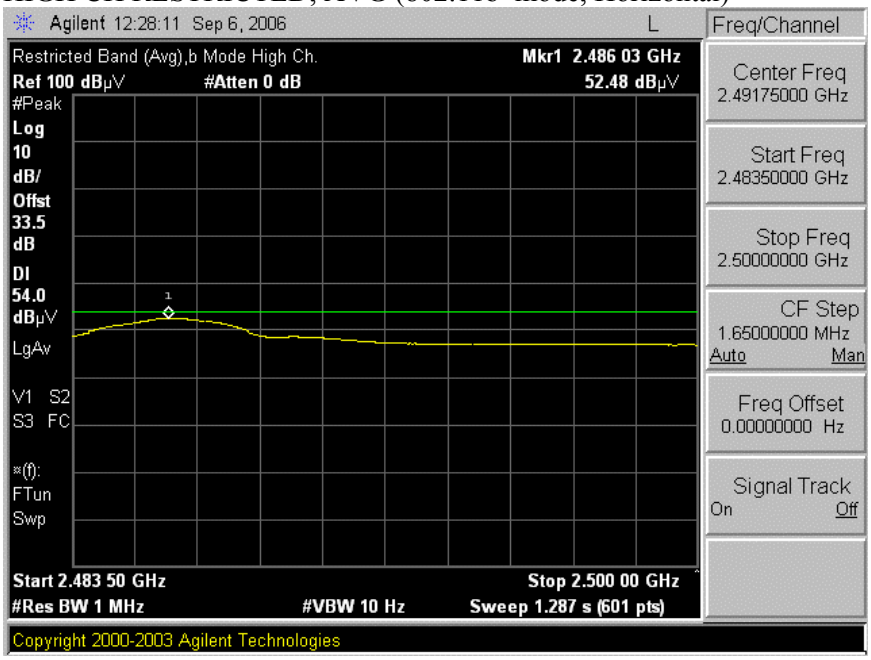


RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

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

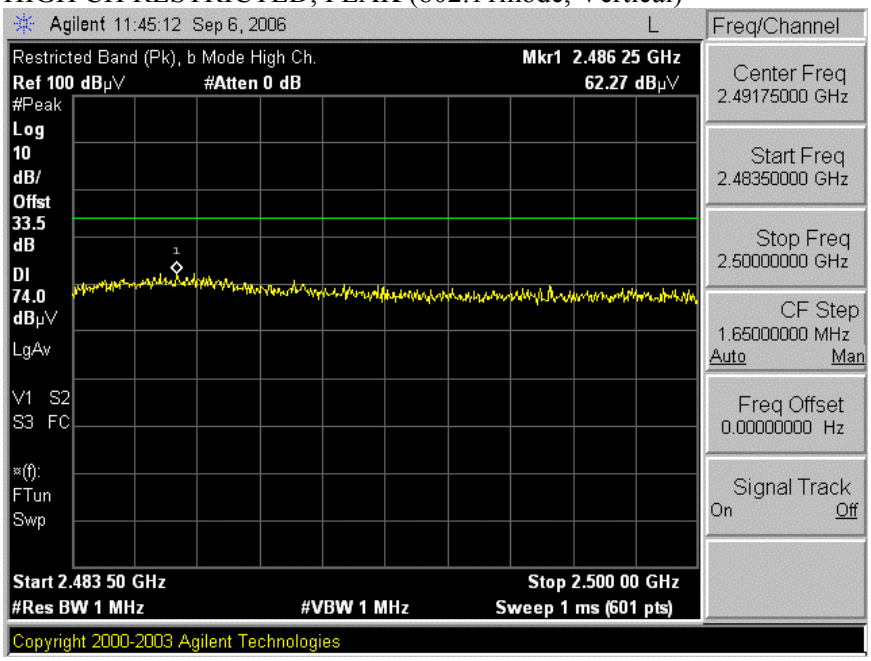


HIGH CH RESTRICTED, AVG (802.11b mode, Horizontal)

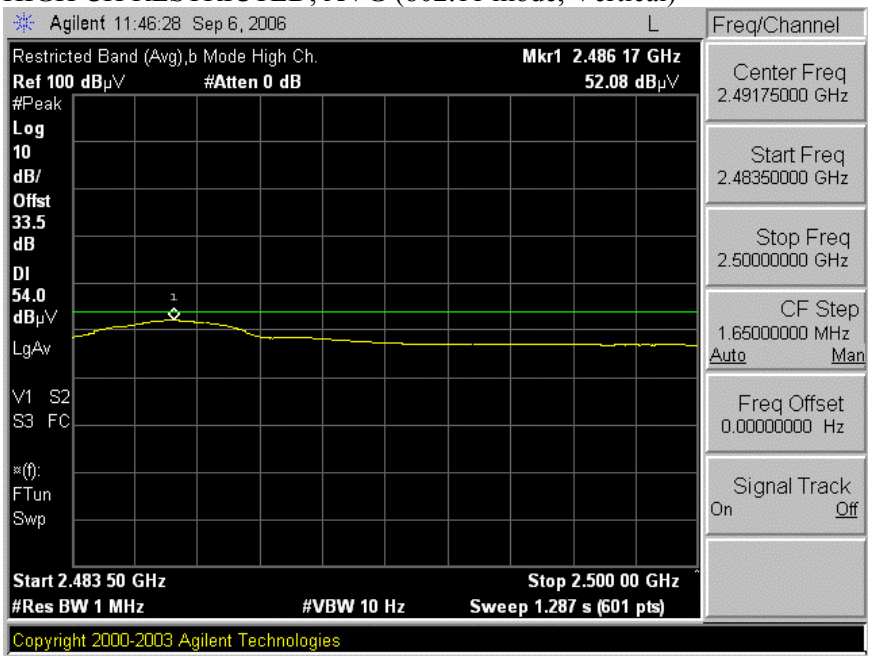


RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

HIGH CH RESTRICTED, PEAK (802.11mode, Vertical)



HIGH CH RESTRICTED, AVG (802.11 mode, Vertical)



HARMONICS AND SPURIOUS EMISSIONS)

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

Company: MITSUMI ELECTRIC CO.;LTD
Project #: O6J10546-1
Date:09/06/2006
Test Engineer:Thanh Nguyen
Configuration:EUT only
Mode: Transmitting

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T119; S/N: 29301 @3m	T145 Agilent 3008A005(			FCC 15.209

Hi Frequency Cables

2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter
	Thanh 187215003	Thanh 208946003	HPF_4.0GHz	

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)
High Channel 2472MHz															
4.944	3.0	45.2	36.5	33.8	2.7	-34.9	0.0	0.6	47.5	38.7	74	54	-26.5	-15.3	V
7.416	3.0	43.4	30.0	35.2	3.7	-34.6	0.0	0.6	48.3	34.9	74	54	-25.7	-19.1	V
9.888	3.0	43.4	30.1	36.5	4.0	-35.1	0.0	0.8	49.7	36.4	74	54	-24.3	-17.6	Noise Floor
4.944	3.0	43.0	29.9	33.8	2.7	-34.9	0.0	0.6	45.2	32.1	74	54	-28.8	-21.9	H
7.416	3.0	43.6	30.3	35.2	3.7	-34.6	0.0	0.6	48.4	35.2	74	54	-25.6	-18.8	Noise Floor
Mid Ch 2442MHz															
4.884	3.0	42.5	31.4	33.7	2.6	-34.9	0.0	0.6	44.6	33.5	74	54	-29.4	-20.5	H
7.326	3.0	42.8	29.3	35.2	3.7	-34.7	0.0	0.6	47.6	34.2	74	54	-26.4	-19.8	Noise Floor
4.884	3.0	45.8	38.2	33.7	2.6	-34.9	0.0	0.6	48.0	40.4	74	54	-26.0	-13.6	V
7.326	3.0	43.8	29.6	35.2	3.7	-34.7	0.0	0.6	48.7	34.4	74	54	-25.3	-19.6	Noise Floor
Low Ch 2412MHz															
4.824	3.0	44.8	35.6	33.7	2.6	-34.8	0.0	0.6	46.8	37.6	74	54	-27.2	-16.4	V
7.236	3.0	43.3	30.6	35.2	3.7	-34.7	0.0	0.6	48.1	35.4	74	54	-25.9	-18.6	Noise Floor
4.824	3.0	44.6	34.5	33.7	2.6	-34.8	0.0	0.6	46.6	36.5	74	54	-27.4	-17.5	H
7.236	3.0	42.8	30.7	35.2	3.7	-34.7	0.0	0.6	47.6	35.4	74	54	-26.4	-18.6	Noise Floor

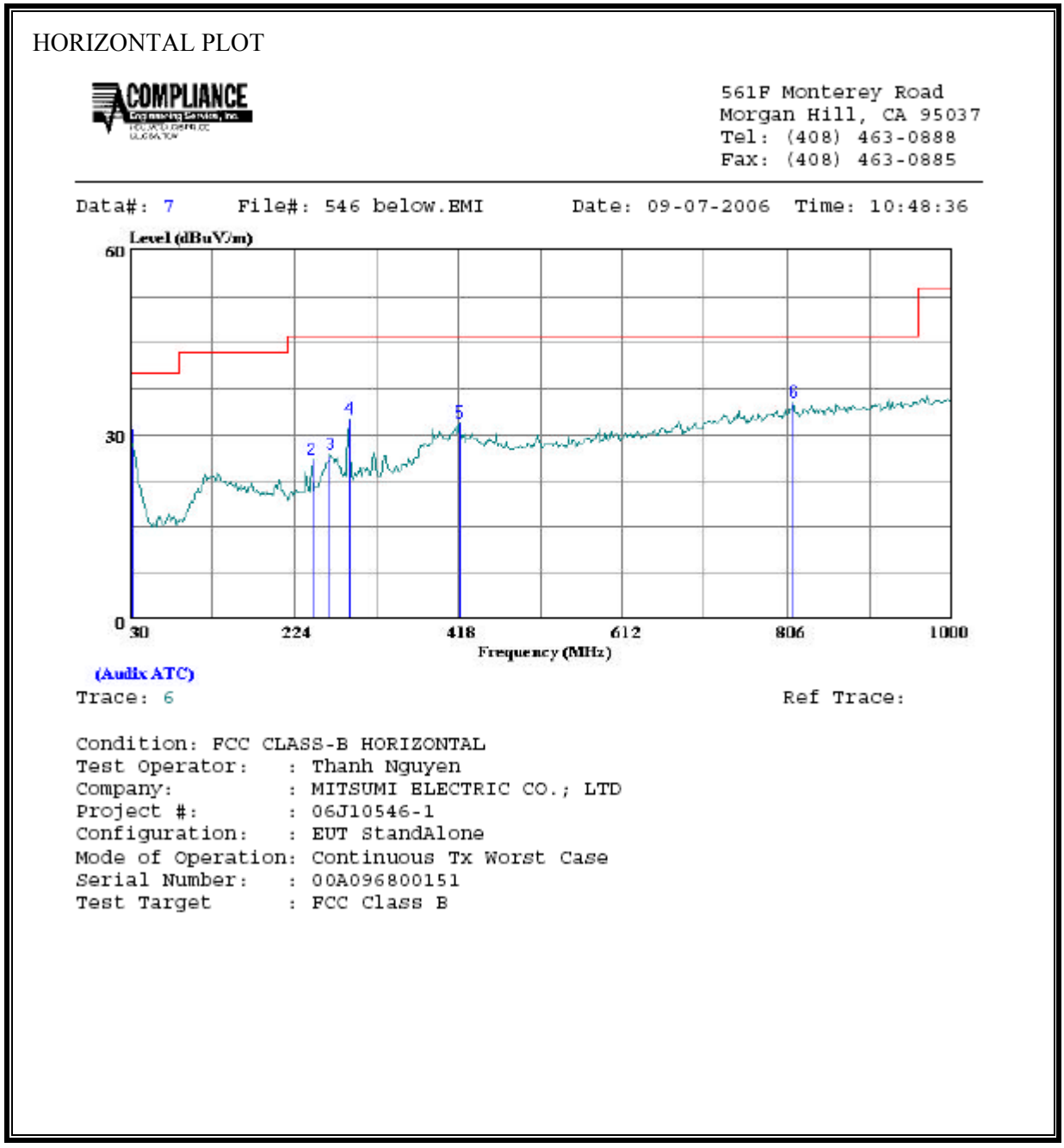
Rev. 5.1.6

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		

7.2.3. WORST-CASE RADIATED EMISSIONS BELOW 1 GHz

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

HORIZONTAL PLOT



HORIZONTAL DATA

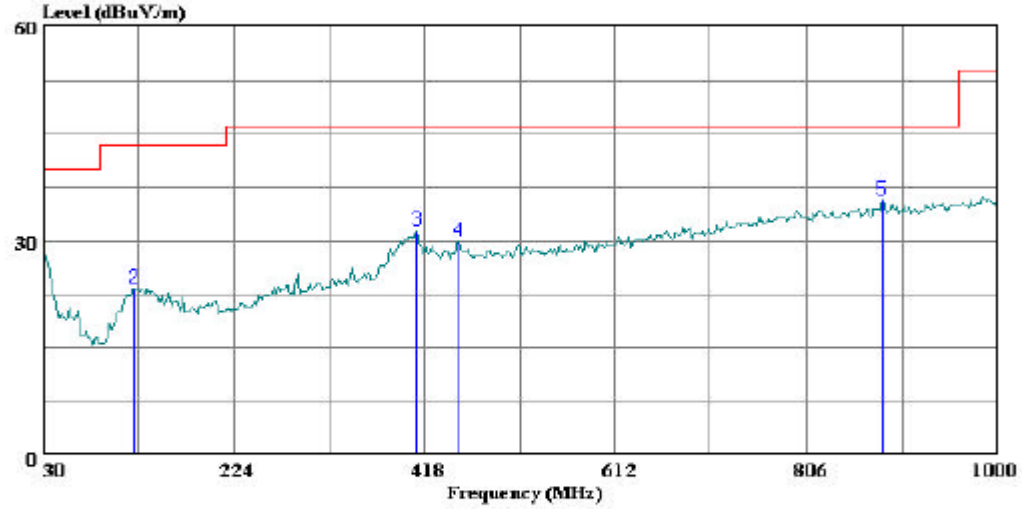
	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	33.880	7.51	20.59	28.10	40.00	-11.90	Peak
2	245.340	12.18	13.69	25.87	46.00	-20.13	Peak
3	266.680	12.06	14.64	26.70	46.00	-19.30	Peak
4	288.990	17.20	15.45	32.65	46.00	-13.35	Peak
5	419.940	13.68	18.40	32.08	46.00	-13.92	Peak
6	812.790	10.44	24.82	35.26	46.00	-10.74	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#: 9 File#: 546 below.EMI Date: 09-07-2006 Time: 10:53:18



(Audix ATC)
Trace: 8 Ref Trace:

Condition: FCC CLASS-B VERTICAL
Test Operator : Thanh Nguyen
Company : MITSUMI ELECTRIC CO.; LTD
Project # : 06J10546-1
Configuration : EUT StandAlone
Mode of Operation: Continuous Tx Worst Case
Serial Number : 00A096800151
Test Target : FCC Class B

VERTICAL DATA

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	30.000	6.56	22.85	29.41	40.00	-10.59	Peak
2	122.150	8.23	15.01	23.24	43.50	-20.26	Peak
3	410.240	13.07	18.21	31.28	46.00	-14.72	Peak
4	452.920	10.64	19.20	29.84	46.00	-16.16	Peak
5	882.630	10.08	25.59	35.67	46.00	-10.33	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 µH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal.

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

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

* Decreases with the logarithm of the frequency.

TEST PROCEDURE

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

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

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

RESULTS

No non-compliance noted:

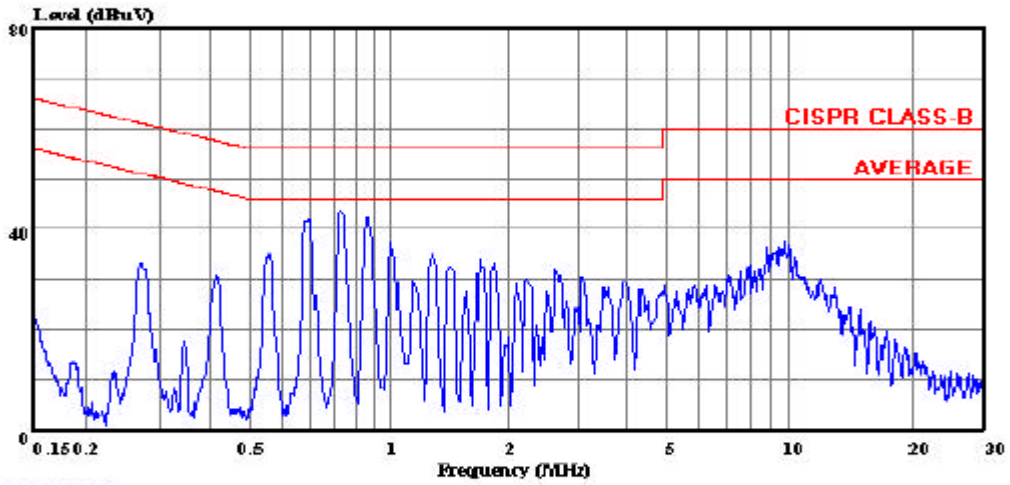
6 WORST EMISSIONS

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit	EN_B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
0.82	43.78	--	--	0.00	56.00	46.00	-12.22	-2.22	L1
1.79	33.82	--	--	0.00	56.00	46.00	-22.18	-12.18	L1
9.86	37.84	--	--	0.00	60.00	50.00	-22.16	-12.16	L1
0.29	35.94	--	--	0.00	60.50	50.50	-24.56	-14.56	L2
0.87	40.84	--	--	0.00	56.00	46.00	-15.16	-5.16	L2
10.13	33.22	--	--	0.00	60.00	50.00	-26.78	-16.78	L2
6 Worst Data									

LINE 1 RESULTS

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

Data#: 3 File#: LineConduct.EMI Date: 09-06-2006 Time: 16:36:39



(Audix ATC)

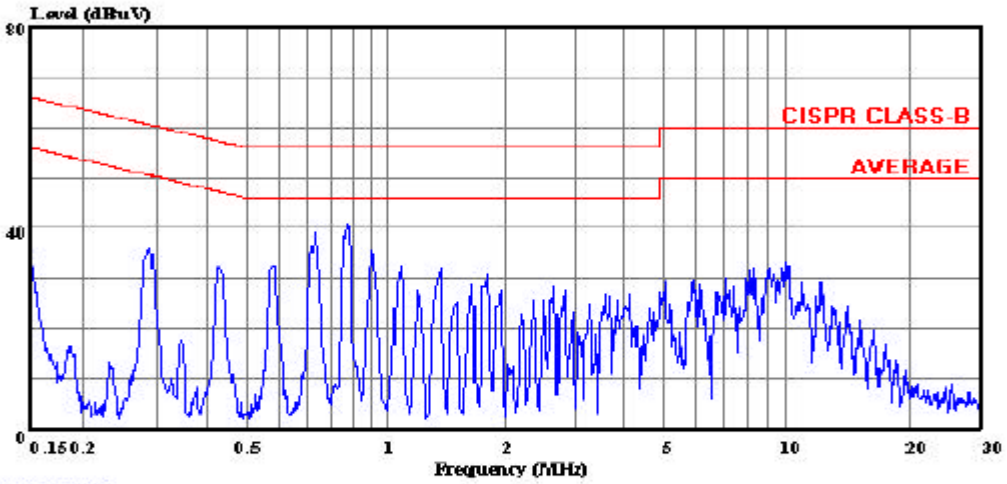
Trace: Ref Trace:

Condition: CISPR CLASS-B
Test Operator : Thanh Nguyen
Project # : 06J10456-1
Company : Mitsumi Electronic Co. LTD
EUT configuration: EUT StandAlone
Mode of operation: Transmit worst case
Power Source : 115VAC/ 60Hz
: L1: Peak(Blue)

LINE 2 RESULTS

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

Data#: 6 File#: LineConduct.EMI Date: 09-06-2006 Time: 16:48:39



(Audix ATC)

Trace: Ref Trace:

Condition: CISPR CLASS-B
Test Operator : Thanh Nguyen
Project # : 06J10456-1
Company : Mitsumi Electronic Co. LTD
EUT configuration: EUT, StandAlone
Mode of operation: Transmit worst case
Power Source : 115VAC/ 60Hz
: L2: Peak(Blue)

Please note that pages 54 through 61 have been extracted as a separate file.