FCC CFR47 PART 15 SUBPART C
INDUSTRY CANADA RSS-210 ISSUE 8
CLASS II PERMISSIVE CHANGE

CERTIFICATION TEST REPORT

FOR

WIFI MODULE

MODEL NUMBER: DWM-W051

FCC ID: EW4DWMW051
IC: 420A-DWMW051

REPORT NUMBER: 13J15187-1

ISSUE DATE: JULY 31, 2013

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

Prepared by
UL VERIFICATION SERVICES INC.
47173 BENICIA STREET
FREMONT, CA 94538, U.S.A.
TEL: (510) 771-1000
FAX: (510) 661-0888

NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	07/31/2013	Initial Issue	G. Quizon

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1. ATTESTATION OF TEST RESULTS

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

EUT DESCRIPTION: WIFI MODULE

MODEL: DWM-W051

SERIAL NUMBER: 9CE635125886

DATE TESTED: June 26 – July 22, 2013

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart C	Pass
INDUSTRY CANADA RSS-210 Issue 8 Annex 8	Pass
INDUSTRY CANADA RSS-GEN Issue 3	Pass

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

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

Approved & Released For
UL Verification Services Inc. By:

George Quizon
EMC SUPERVISOR
UL Verification Services Inc.

Tested By:

Lieu Nguyen
EMC ENGINEER
UL Verification Services Inc.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, ANSI C63.10-2009, RSS-GEN Issue 3, and RSS-210 Issue 8.

3. FACILITIES AND ACCREDITATION

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

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

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

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

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

4.3. MEASUREMENT UNCERTAINTY

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

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

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is WiFi Module with 802.11bgn(HT20).

The radio module is manufactured by Mitsumi Electric Co., Ltd.

5.1. DESCRIPTION OF CLASS II PERMISSIVE CHANGE

The major changes filed under this application are noted in the following table:

Type of change	Detail	EUT Part affected
Change parts	Alternate power inductor (L8)	DC Power
Change parts	Alternate RF connector (J3A, J4A)	RF
Change RF Switch	Alternate RF switch (U2, U3)	RF
Change X'tal	Alternate crystal manufacturer (Y1)	RF

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum peak conducted output power as follows. All power measurements are less than the output power measurements from the original report. Reference Document no. 12J14449-1.

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)	Output Power (dBm) - Doc no. 12J14449-1	Output Power (mW) - Doc no. 12J14449-1
2412 - 2462	802.11b	18.74	74.82	19.49	88.92
2412 - 2462	802.11g	23.04	201.37	24.14	259.42
2412 - 2462	802.11n HT20	22.61	182.39	23.25	211.35

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a PIFA antenna for TX/RX diversity, with a maximum peak gain of 2.05dBi.

5.4. SOFTWARE AND FIRMWARE

The EUT test utility software installed in the host computer during testing was Broadcom test program BCM43362SDGN6L version 5.90.153.37 WLTEST.

5.5. WORST-CASE CONFIGURATION AND MODE

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

All final tests in the 802.11b mode were made at 1 Mb/s.
All final tests in the 802.11g mode were made at 6 Mb/s.
All final tests in the 802.11n HT20 SISO mode were made at MCS0.

For radiated emissions below 1 GHz the worst-case configuration is determined to be the mode and channel with the highest output power

To determine the worst position of highest emissions, the EUT's antenna was investigated for X, Y, Z positions, and the worst was determined to be the Y-position with the long end positioned at the left side.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Laptop	Dell	Latitude D430	27410471709	N/A
AC Adapter	Dell	SA65NSO-00	CN-OYT886-73245-81S-319	DoC
Adapter Board	Mitsumi	DWM-W051	N/A	N/A

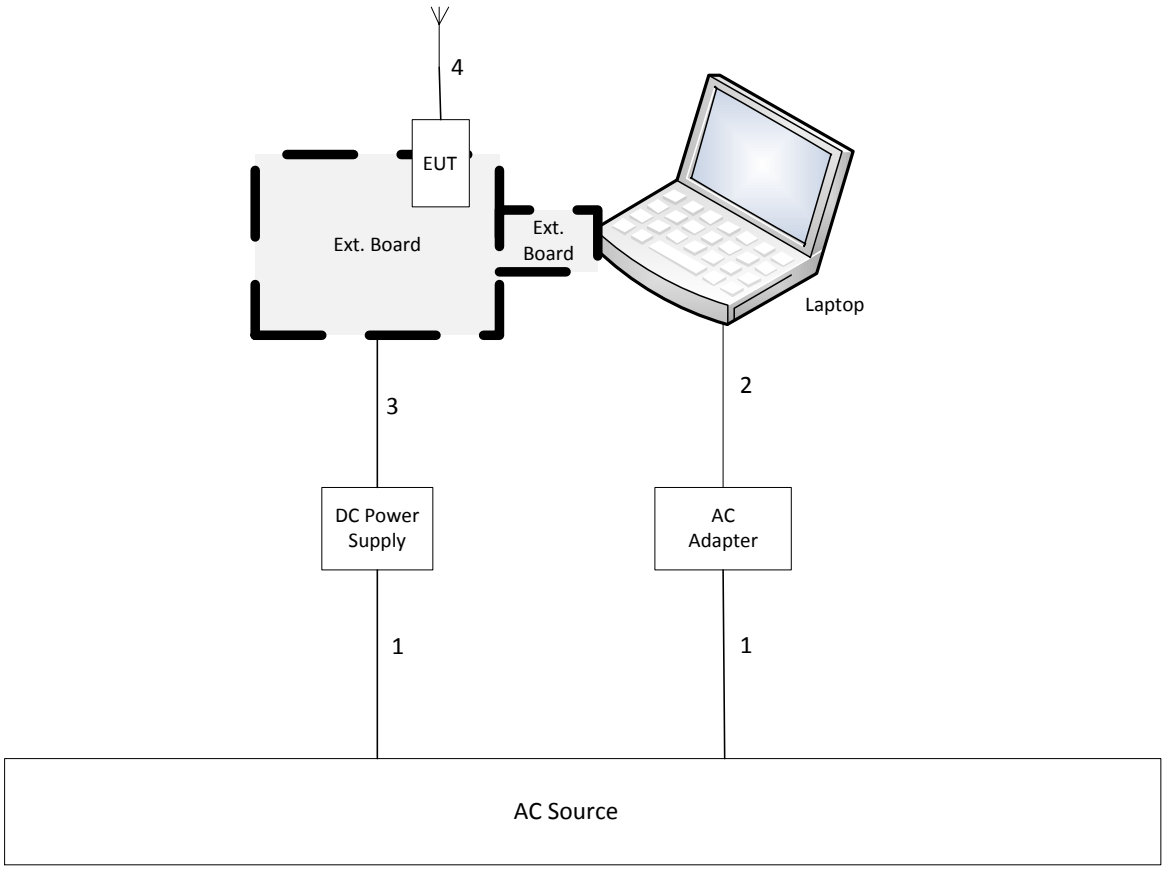
I/O CABLES

I/O Cable List						
Cable No	**Port**	**# of identical ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	AC	1	3-pong AC	Un-Shielded	2	N/A
2	DC	1	DC	Un-Shielded	2	N/A
3	DC	1	Clips	Unshielded	1.5	N/A
4	Antenna	1	RF	Shielded	1	N/A

TEST SETUP

The EUT is installed in a host laptop computer during the tests. Test software exercised the radio card.

SETUP DIAGRAM FOR TESTS



Note: For Radiated Emissions below 1 GHz, the laptop was disconnected from the EUT.

6. TEST AND MEASUREMENT EQUIPMENT

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

Test Equipment List					
Description	**Manufacturer**	**Model**	**Asset**	**Cal Date**	**Cal Due**
Power Meter	Agilent / HP	N1911A	MY45100242	7/27/2012	7/27/2013
Peak / Average Power Sensor	Agilent / HP	E9323A	US40411556	7/26/2012	7/26/2013
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C00986	8/22/2012	8/22/2013
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01176	12/13/2012	12/13/2013
Antenna, Bilog, 30MHz-1 GHz	Sunol Sciences	JB1	C01011	3/23/2013	3/23/2014
Antenna, Horn, 18 GHz	EMCO	3115	C00945	11/12/2012	11/12/2013
Antenna, Horn, 18 GHz	ETS	3117	C01005	4/23/2012	2/21/2014
Antenna, Horn, 26.5 GHz	ARA	MWH-1826/B	C00946	11/12/2012	11/12/2013
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00580	1/14/2013	1/14/2014
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01052	10/22/2012	10/22/2013
Temperature / Humidity Chambe	Thermotron	SE 600-10-10	C00930	11/1/2012	11/1/2013

7. ANTENNA PORT TEST RESULTS

7.1. 802.11b MODE IN THE 2.4 GHz BAND

7.1.1. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 10.68 dB (including 10 dB pad and .68 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

Channel	Frequency (MHz)	Chain 0 Power (dBm)
Low	2412	15.74
Mid	2437	15.82
High	2462	15.78

7.1.2. OUTPUT POWER

LIMITS

FCC §15.247

IC RSS-210 A8.4

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

RESULTS

RESULTS

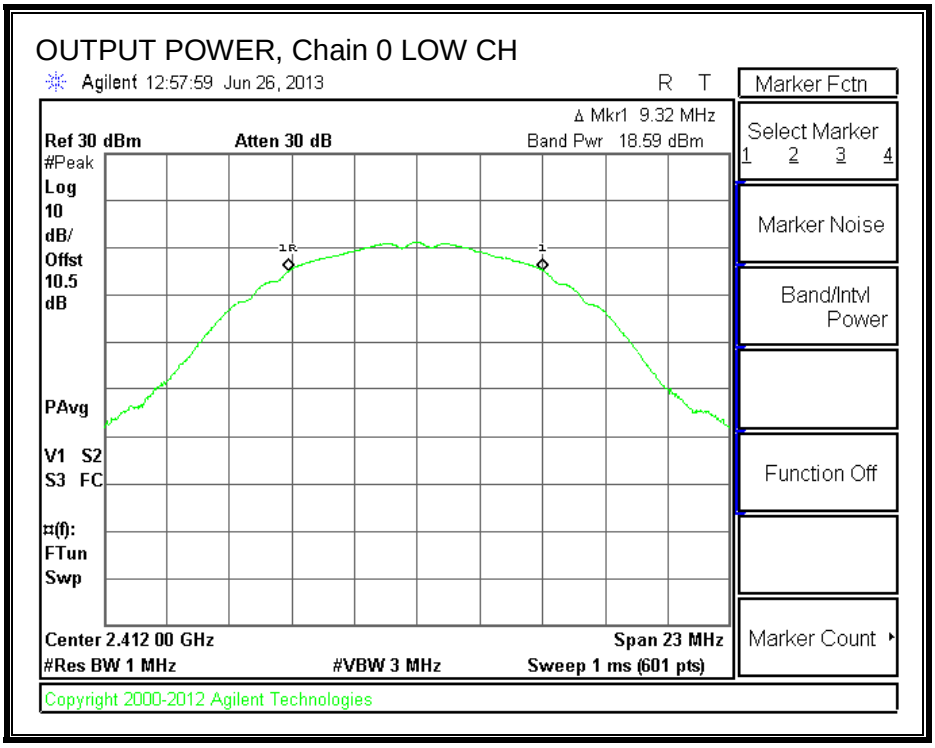
Limits

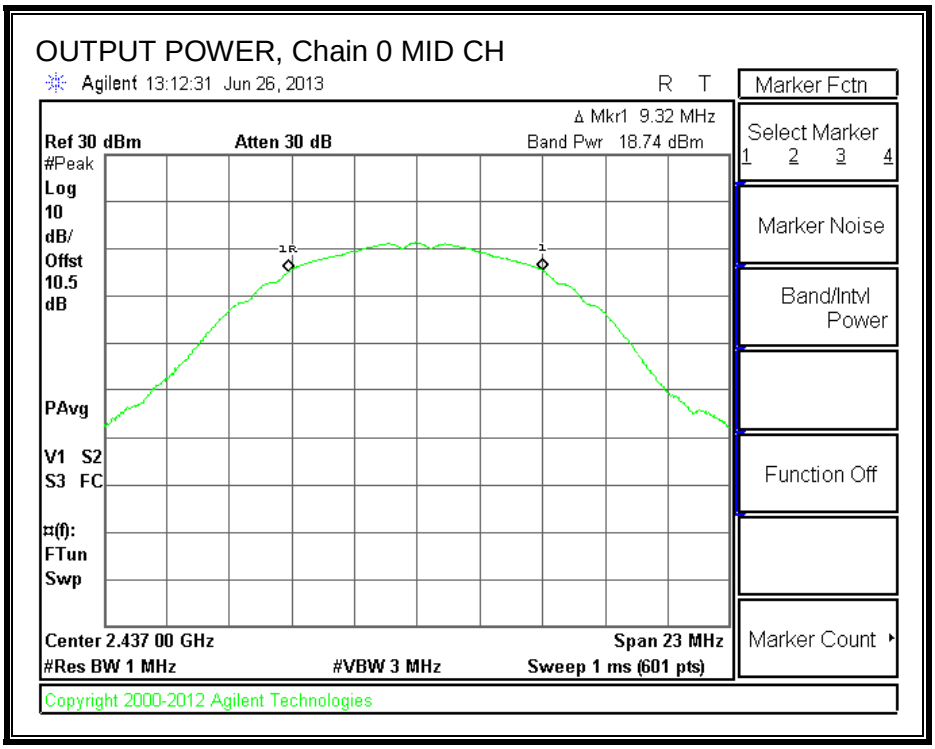
Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2412	2.05	30.00	30	36	30.00
Mid	2437	2.05	30.00	30	36	30.00
High	2462	2.05	30.00	30	36	30.00

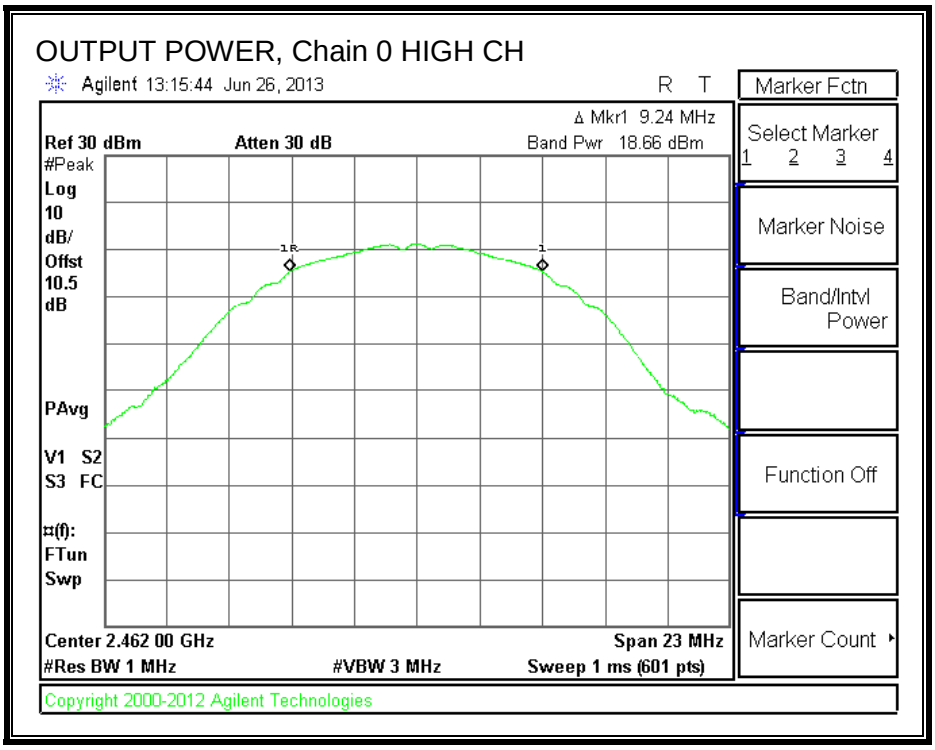
Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	18.59	18.59	30.00	-11.41
Mid	2437	18.74	18.74	30.00	-11.26
High	2462	18.66	18.66	30.00	-11.34

OUTPUT POWER, Chain 0







7.1.3. PSD

LIMITS

FCC §15.247

IC RSS-210 A8.2

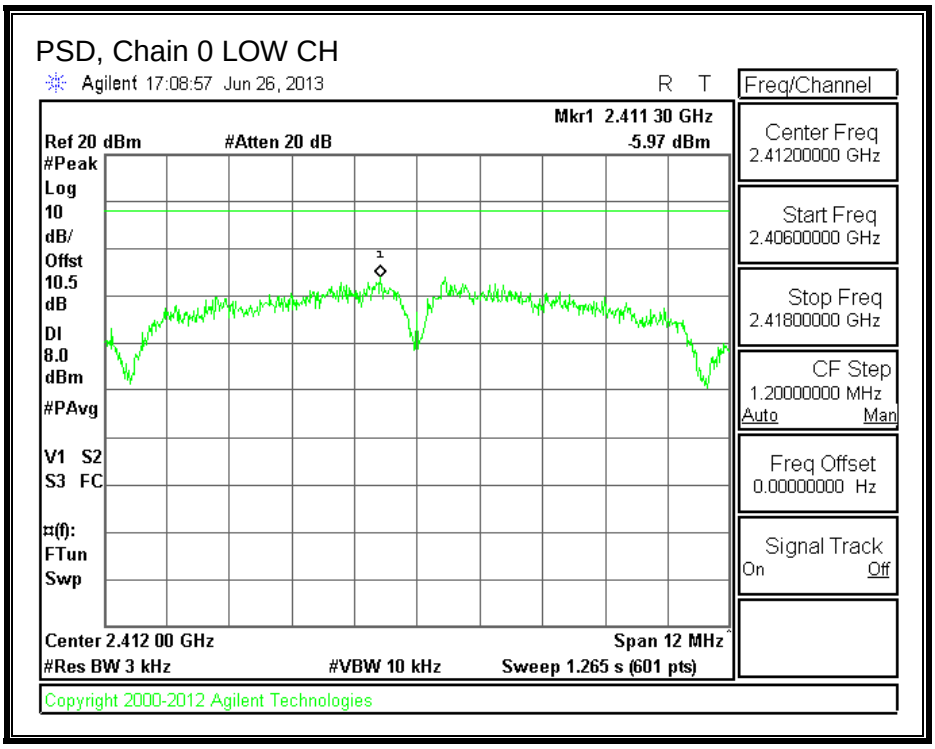
The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

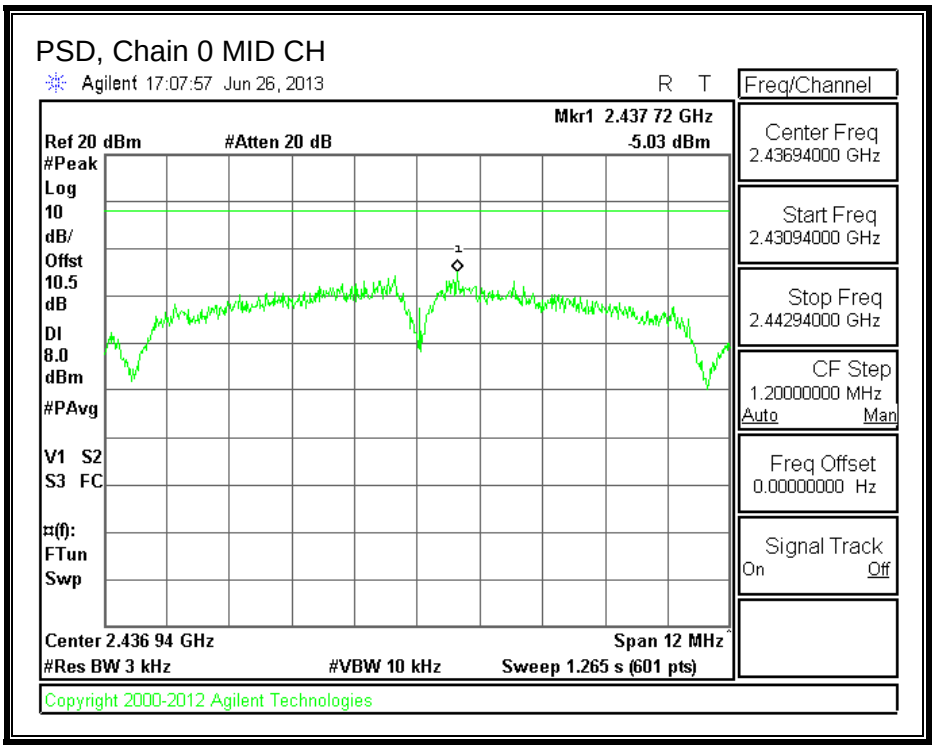
RESULTS

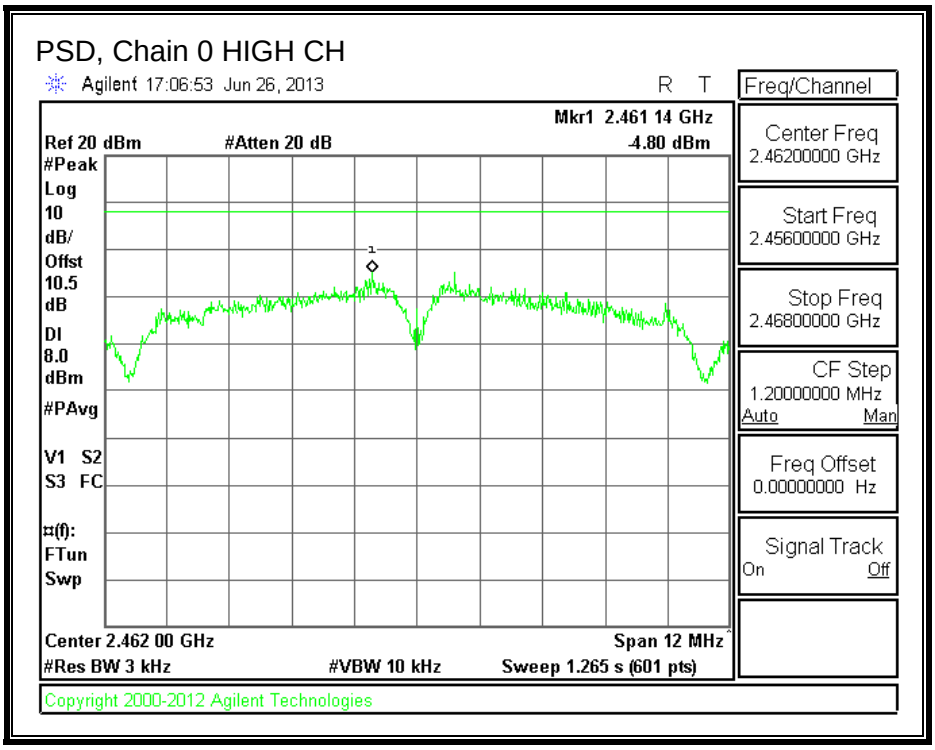
PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-5.97	8.0	-14.0
Mid	2437	-5.03	8.0	-13.0
High	2462	-4.80	8.0	-12.8

PSD







7.1.4. OUT-OF-BAND EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

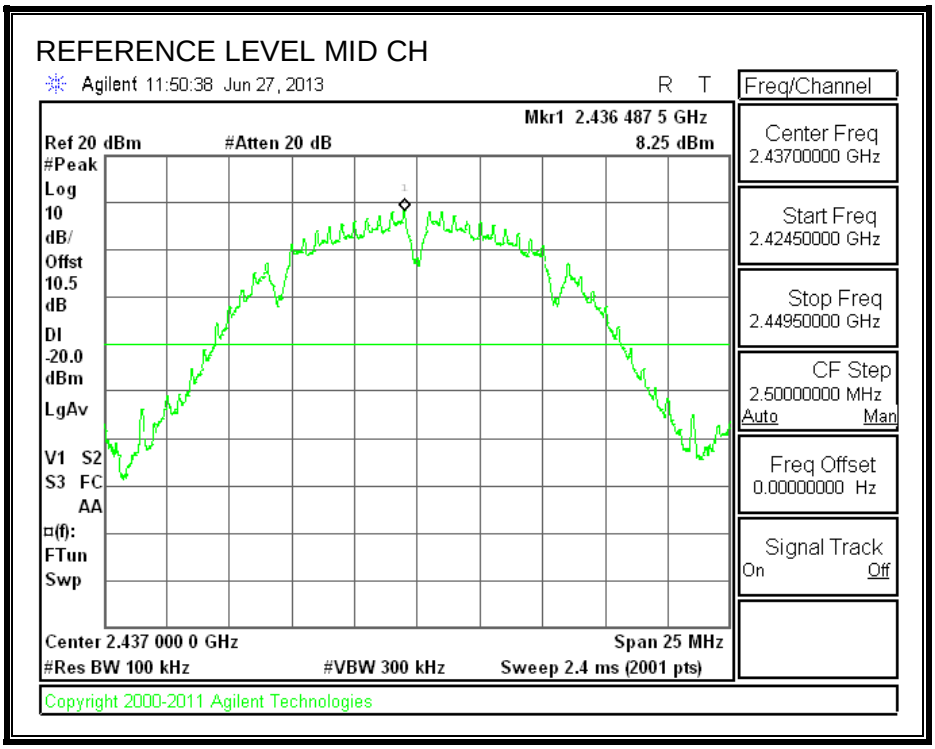
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

TEST PROCEDURE

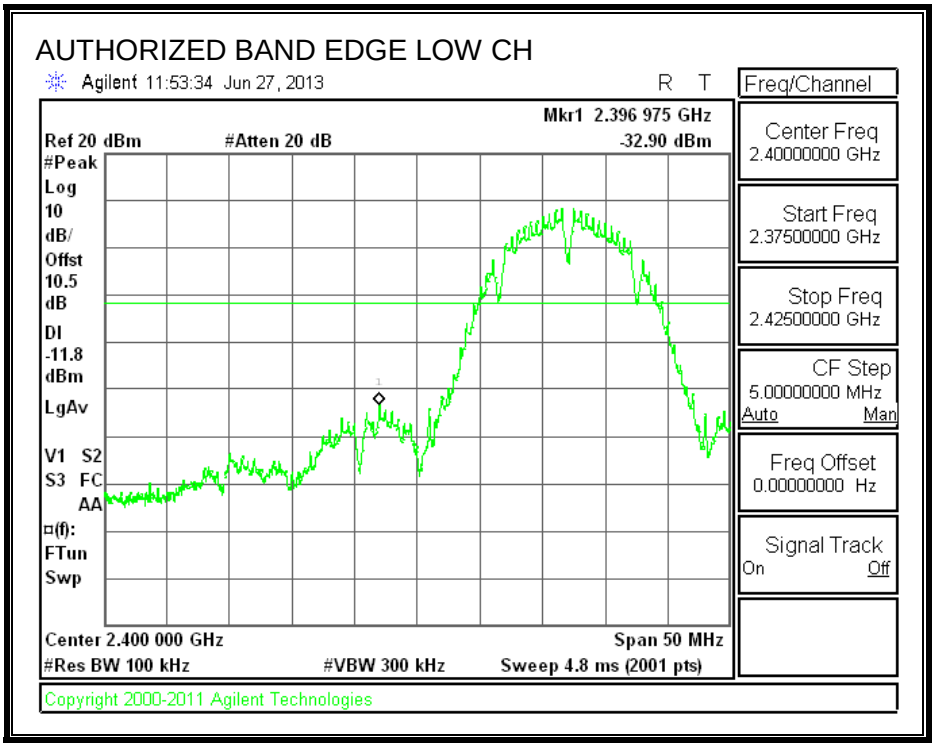
The transmitter output is connected to a spectrum analyzer with RBW = 100 kHz, VBW = 300 kHz, peak detector, and max hold. Measurements utilizing these settings are made of the in-band reference level, band edge (where measurements to the general radiated limits will not be made) and out-of-band emissions.

RESULTS

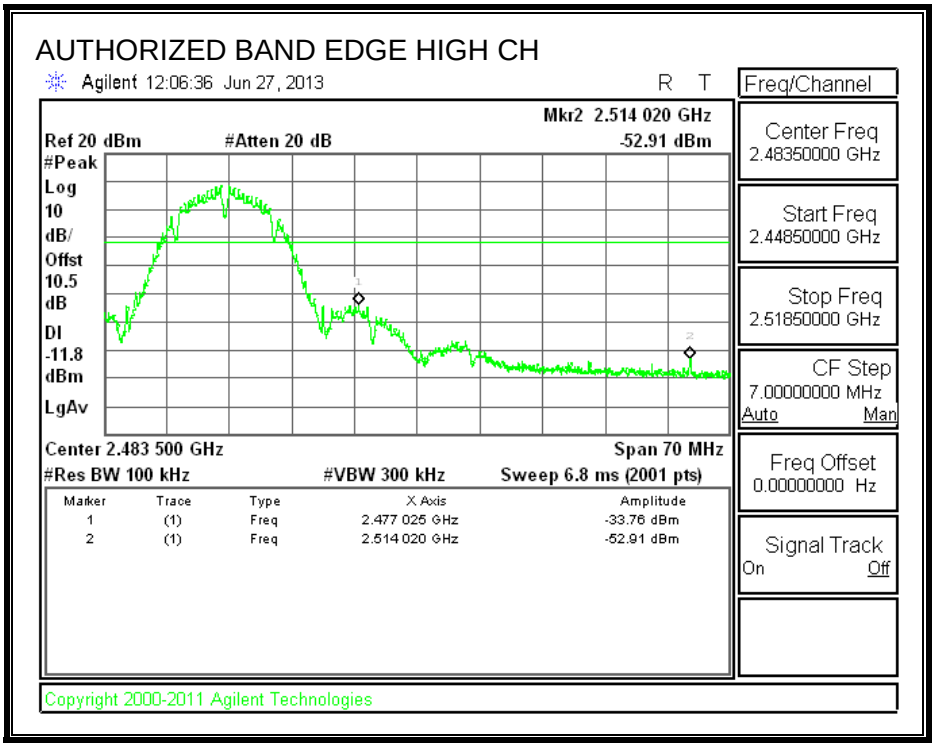
IN-BAND REFERENCE LEVEL



LOW CHANNEL BANDEDGE

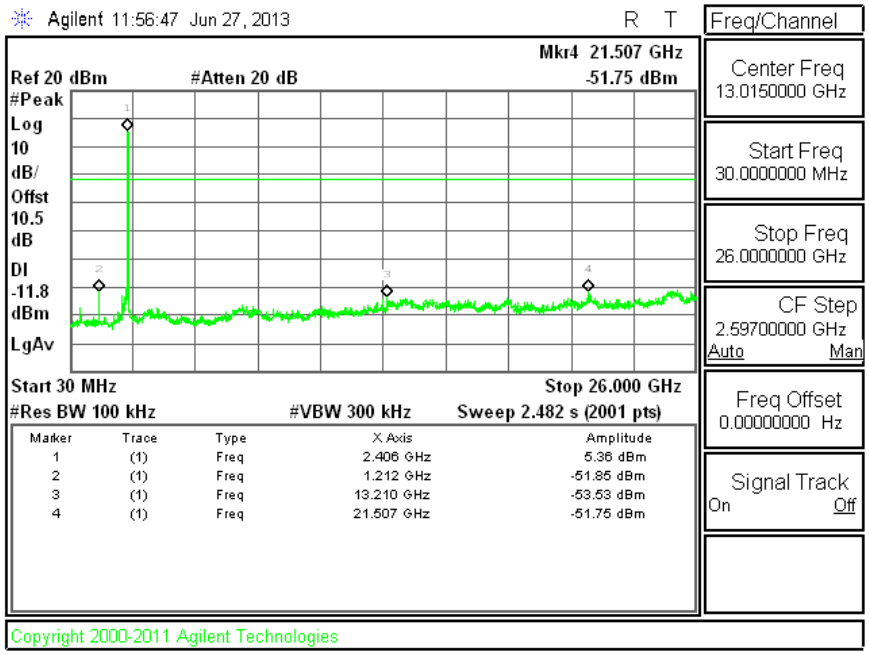


HIGH CHANNEL BANDEDGE

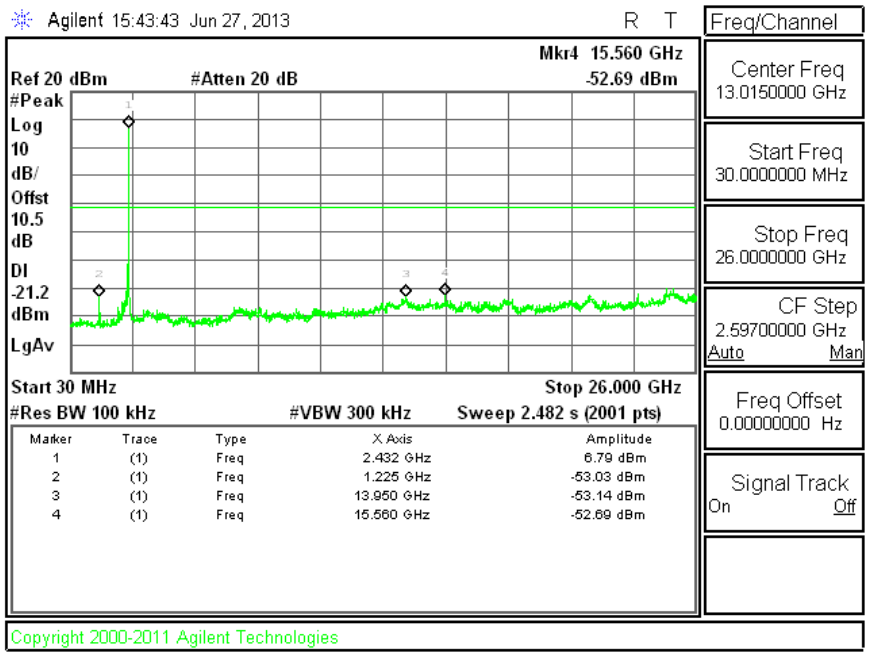


OUT-OF-BAND EMISSIONS

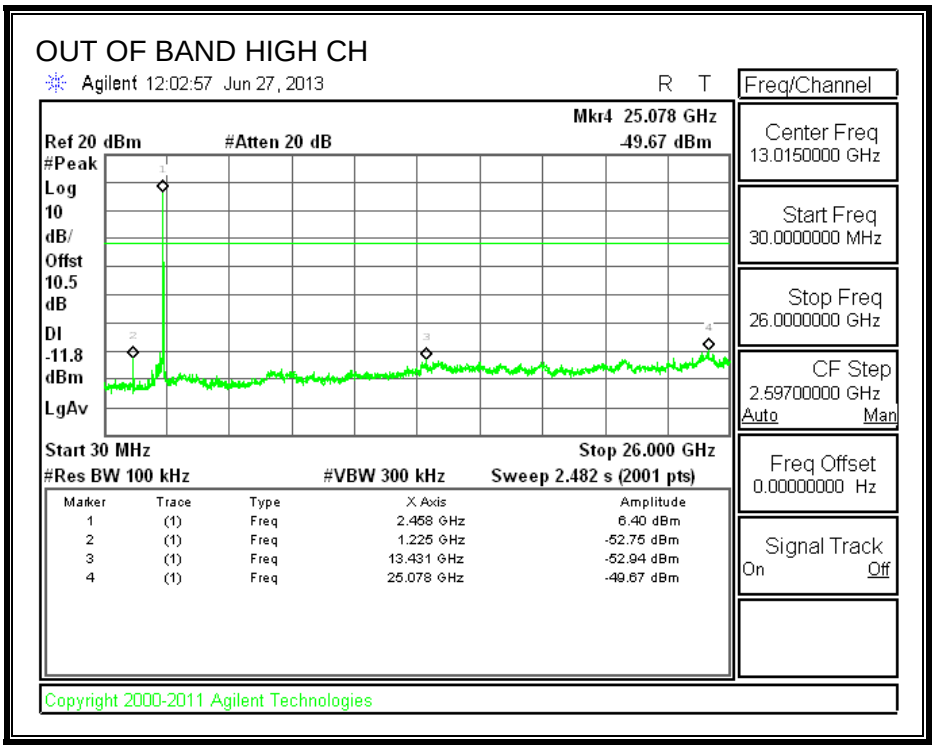
OUT OF BAND LOW CH



OUT OF BAND MID CH



Marker should be set to -11.8 dBm per the mid-reference. Referenced line is worse case and results remain acceptable.



7.2. 802.11g MODE IN THE 2.4 GHz BAND

7.2.1. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 10.68 dB (including 10 dB pad and .68 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

Channel	Frequency (MHz)	Chain 0 Power (dBm)
Low	2412	15.11
Mid	2437	15.01
High	2462	14.58

7.2.2. OUTPUT POWER

LIMITS

FCC §15.247

IC RSS-210 A8.4

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

RESULTS

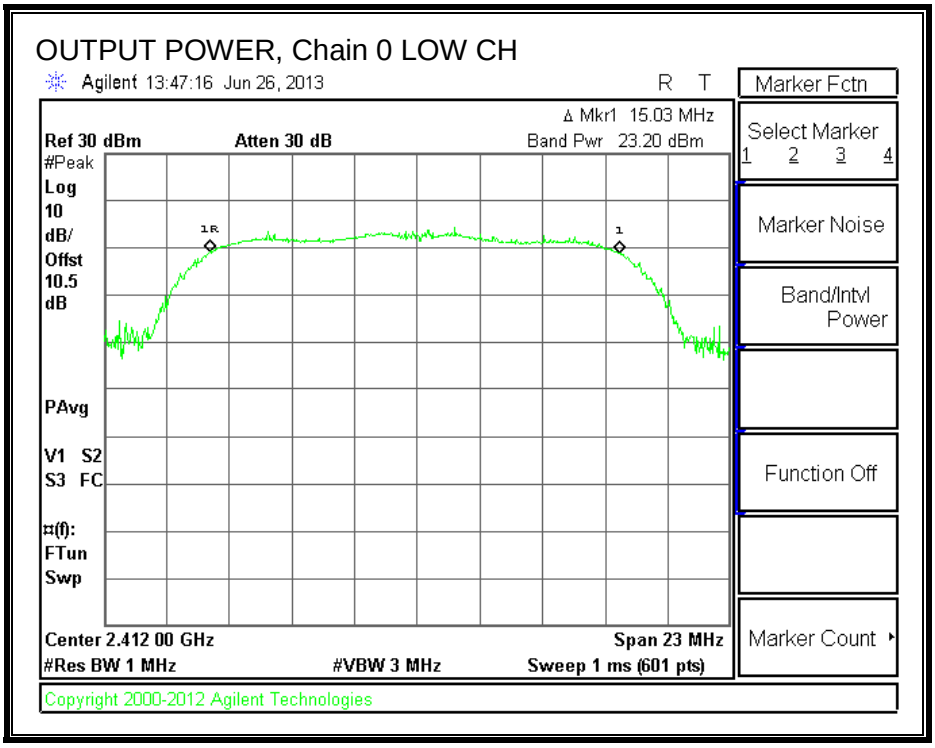
Limits

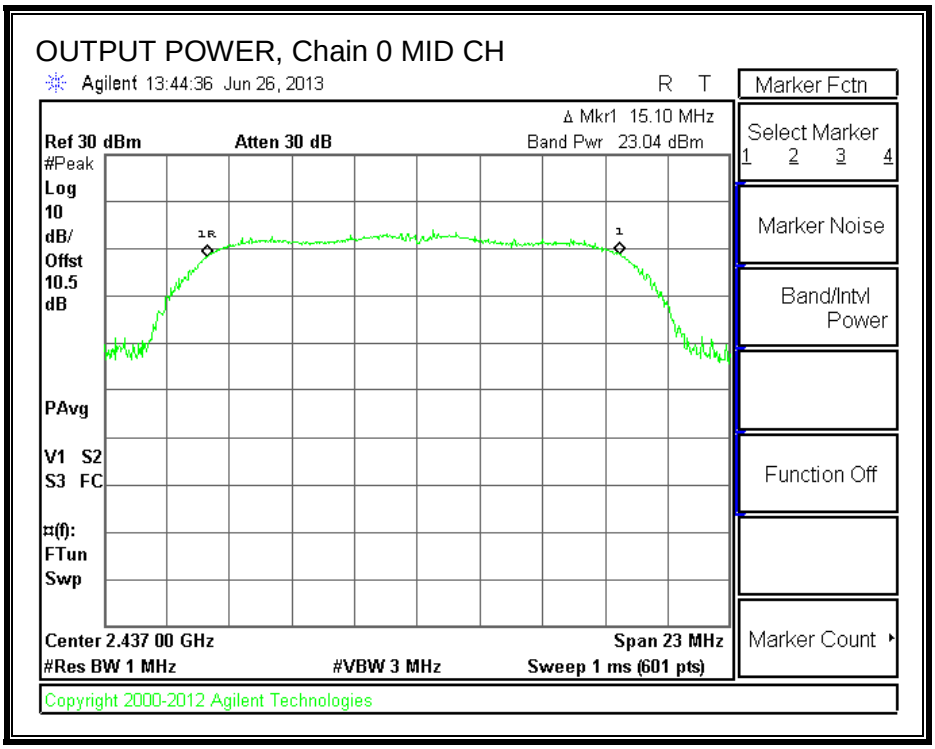
Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2412	2.05	30.00	30	36	30.00
Mid	2437	2.05	30.00	30	36	30.00
High	2462	2.05	30.00	30	36	30.00

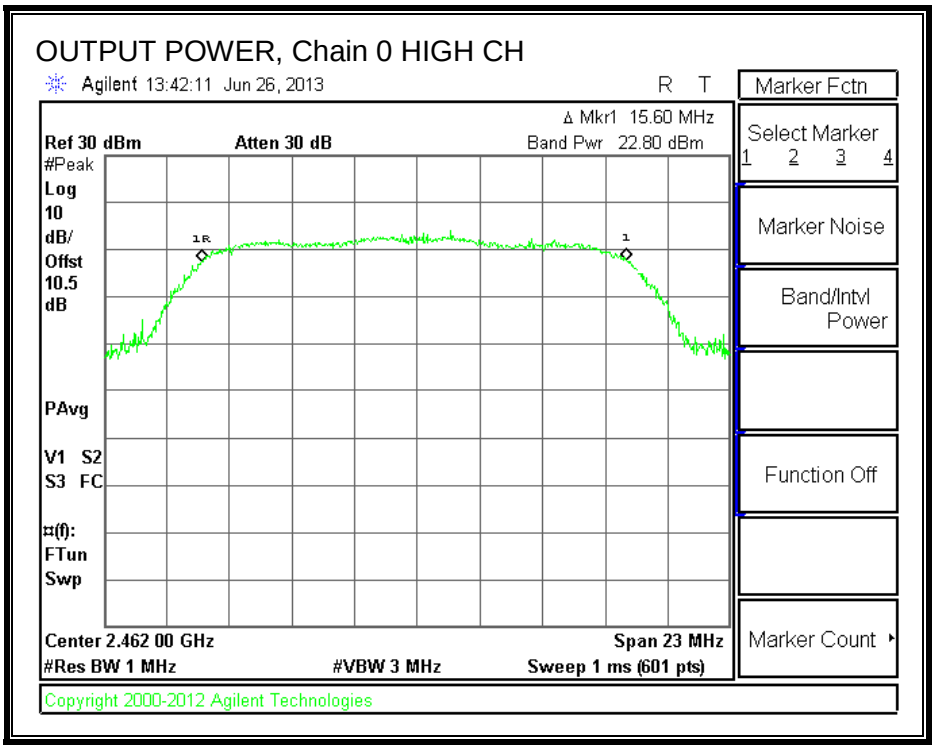
Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	23.20	23.20	30.00	-6.80
Mid	2437	23.04	23.04	30.00	-6.96
High	2462	22.80	22.80	30.00	-7.20

OUTPUT POWER, Chain 0







7.2.3. PSD

LIMITS

FCC §15.247

IC RSS-210 A8.2

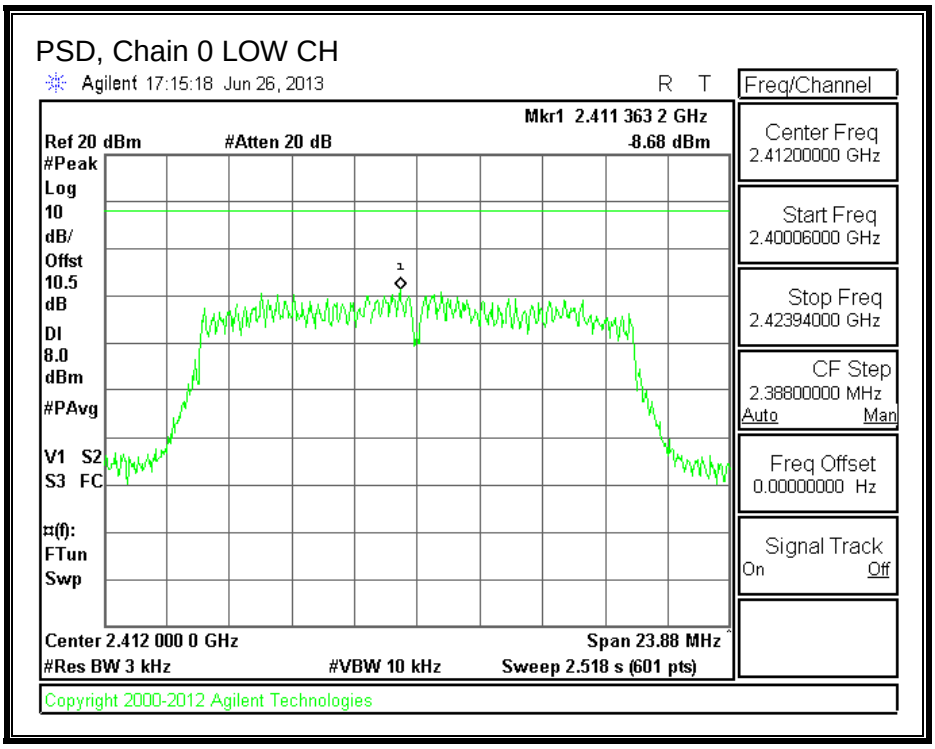
The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

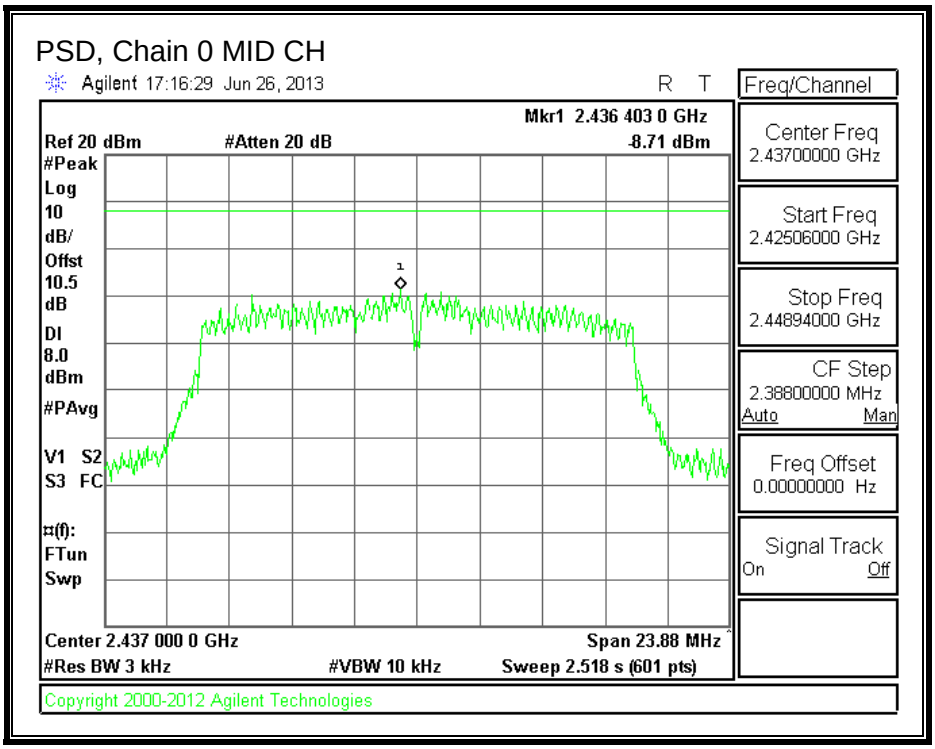
RESULTS

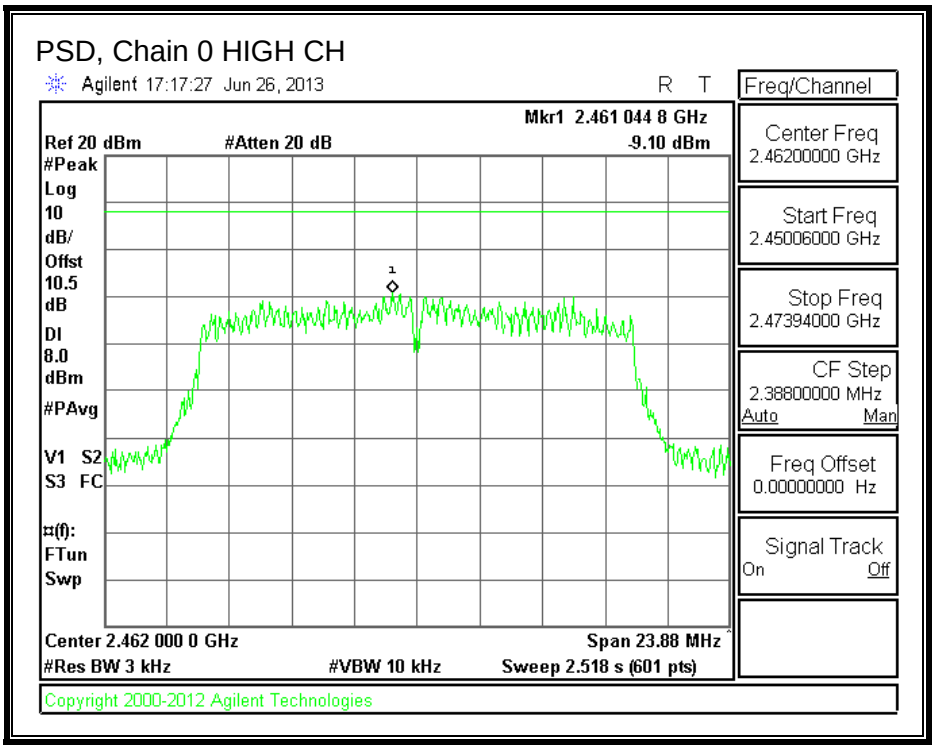
PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Chain 1 Meas (dBm)	Total PSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-8.68	-8.79	-5.72	8.0	-13.7
Mid	2437	-8.71	-9.88	-6.25	8.0	-14.2
High	2462	-9.10	-8.99	-6.03	8.0	-14.0

PSD, Chain 0







7.2.4. OUT-OF-BAND EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

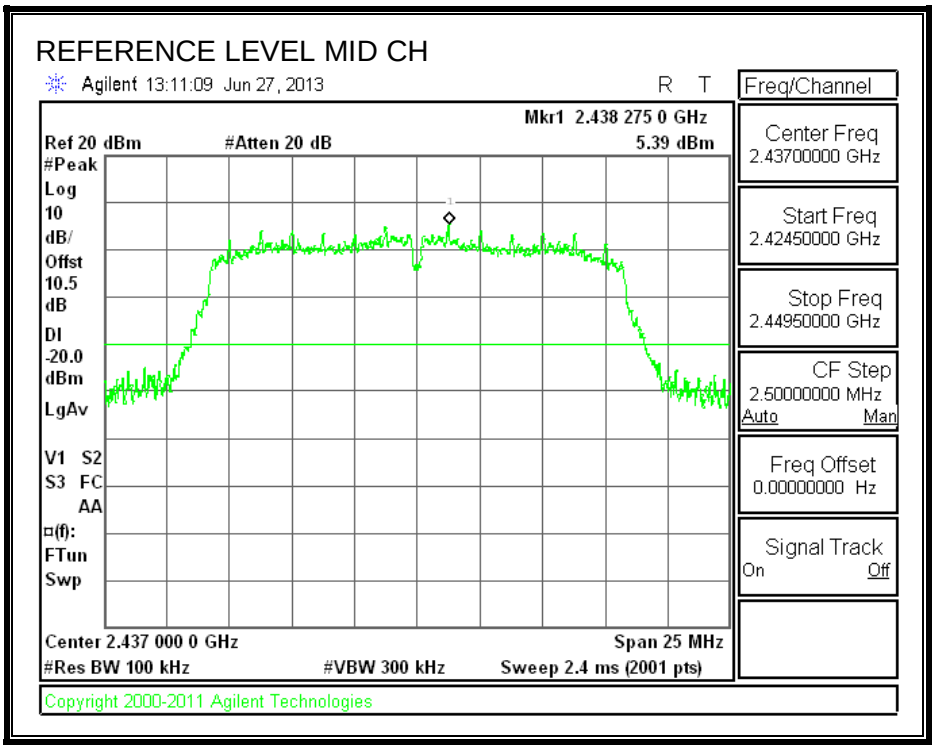
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

TEST PROCEDURE

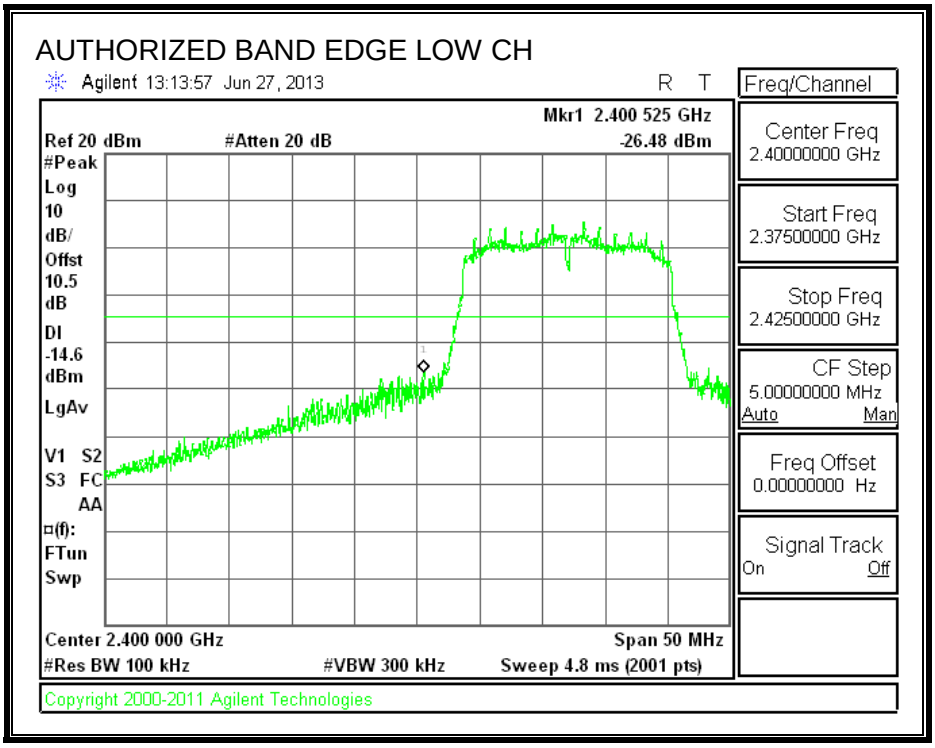
The transmitter output is connected to a spectrum analyzer with RBW = 100 kHz, VBW = 300 kHz, peak detector, and max hold. Measurements utilizing these settings are made of the in-band reference level, band edge (where measurements to the general radiated limits will not be made) and out-of-band emissions.

RESULTS

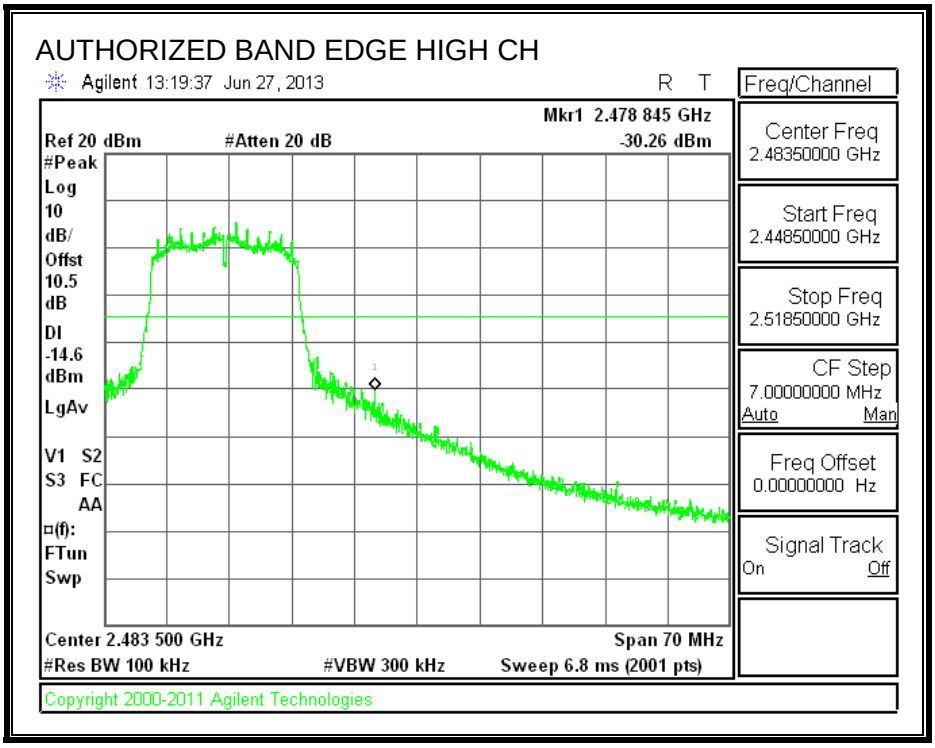
IN-BAND REFERENCE LEVEL



LOW CHANNEL BANDEDGE

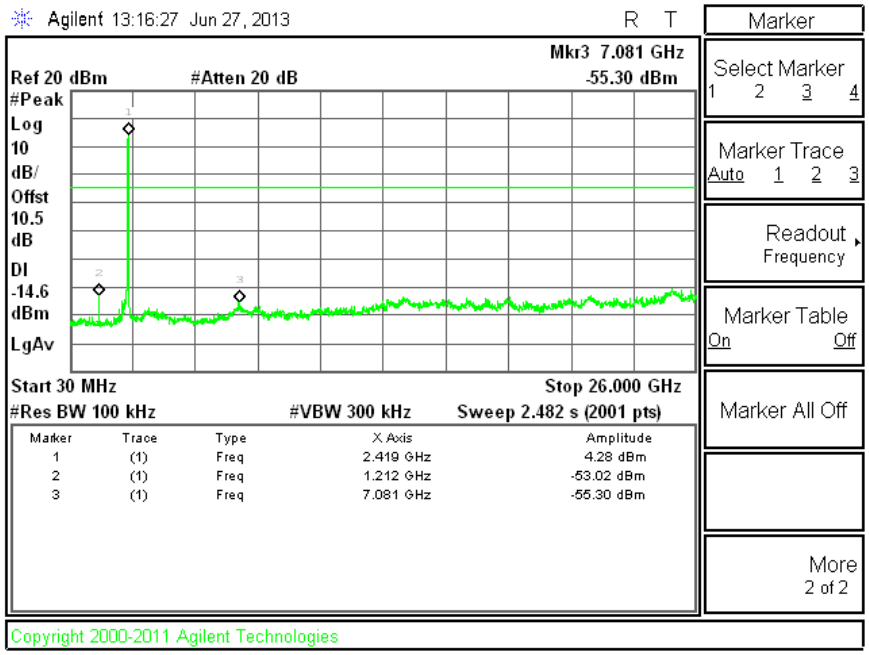


HIGH CHANNEL BANDEDGE

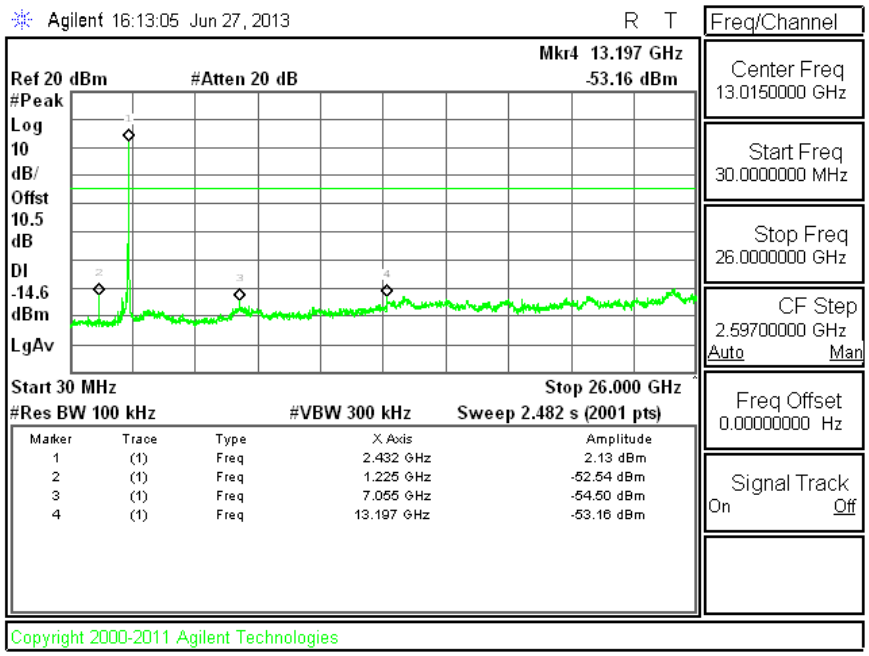


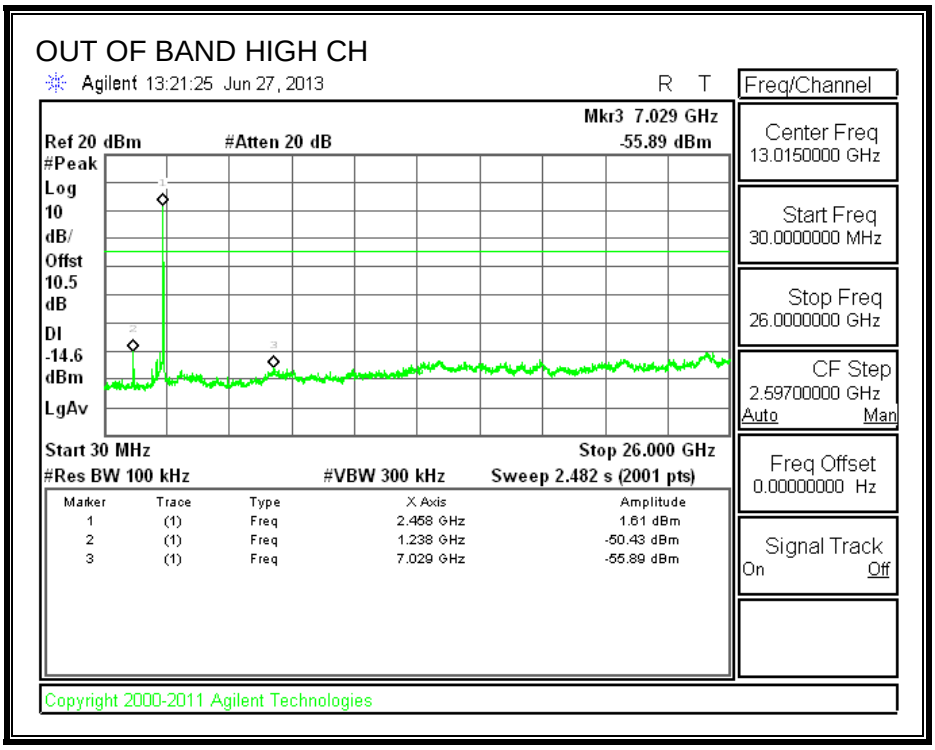
OUT-OF-BAND EMISSIONS

OUT OF BAND LOW CH



OUT OF BAND MID CH





7.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

7.3.1. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 10.68 dB (including 10 dB pad and .68 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

Channel	Frequency (MHz)	Power (dBm)
Low	2412	14.48
Mid	2437	14.46
High	2462	14.30

7.3.2. OUTPUT POWER

LIMITS

FCC §15.247

IC RSS-210 A8.4

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

RESULTS

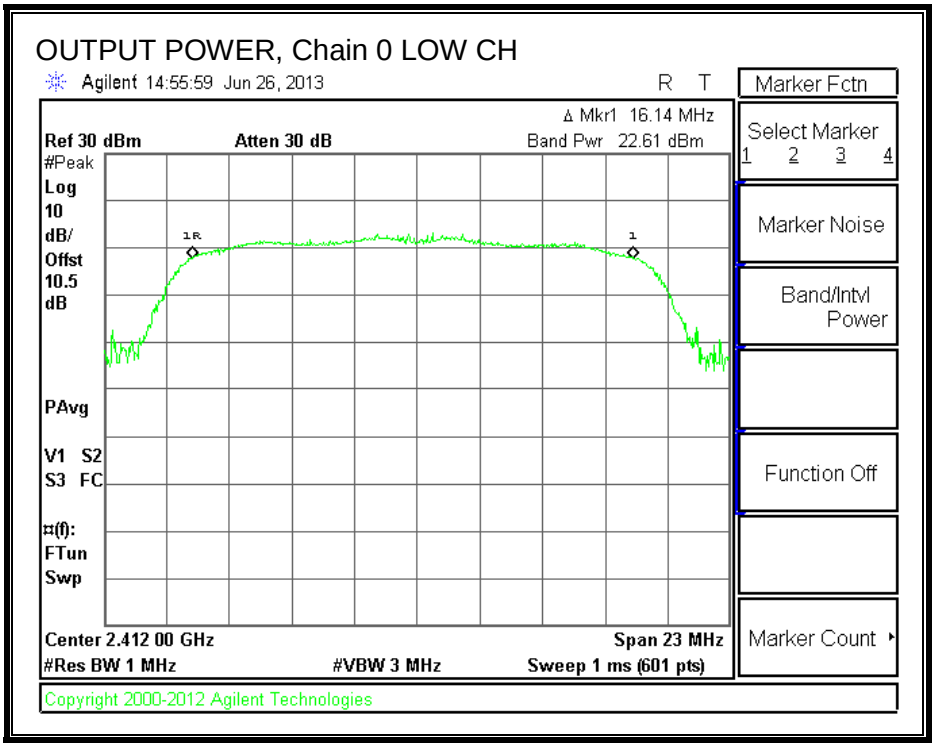
Limits

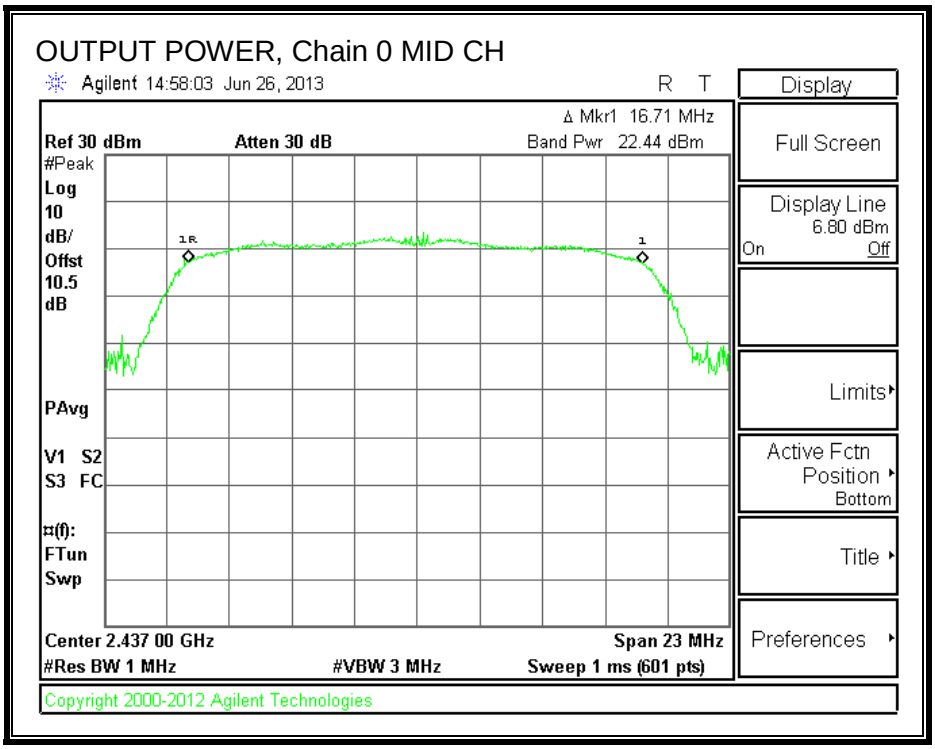
Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2412	2.05	30.00	30	36	30.00
Mid	2437	2.05	30.00	30	36	30.00
High	2462	2.05	30.00	30	36	30.00

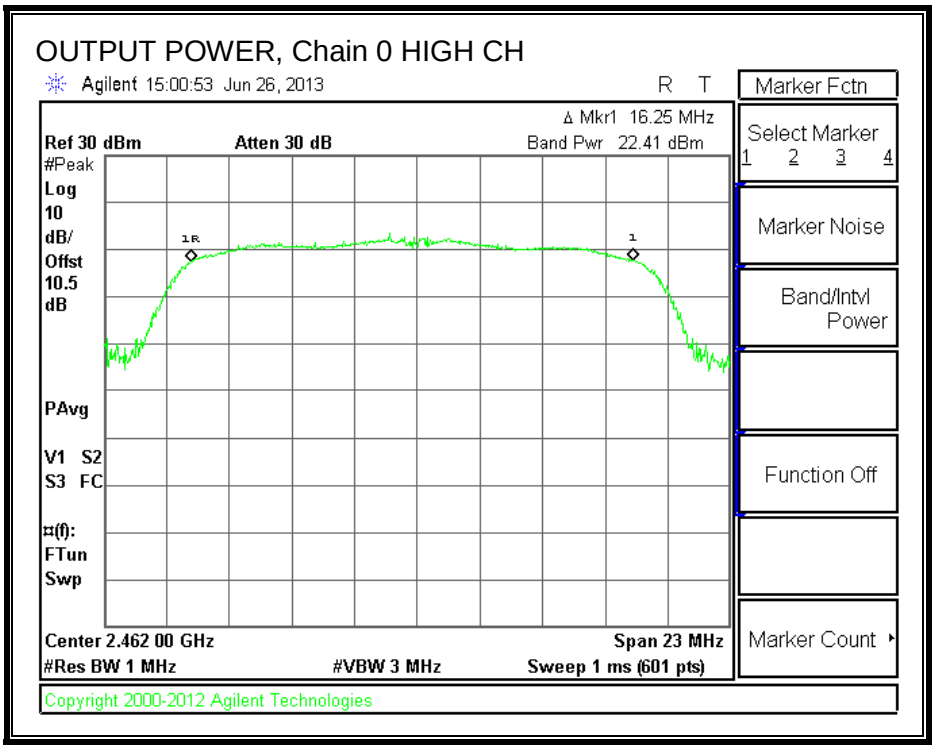
Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	22.61	22.61	30.00	-7.39
Mid	2437	22.44	22.44	30.00	-7.56
High	2462	22.41	22.41	30.00	-7.59

OUTPUT POWER, Chain 0







7.3.3. PSD

LIMITS

FCC §15.247

IC RSS-210 A8.2

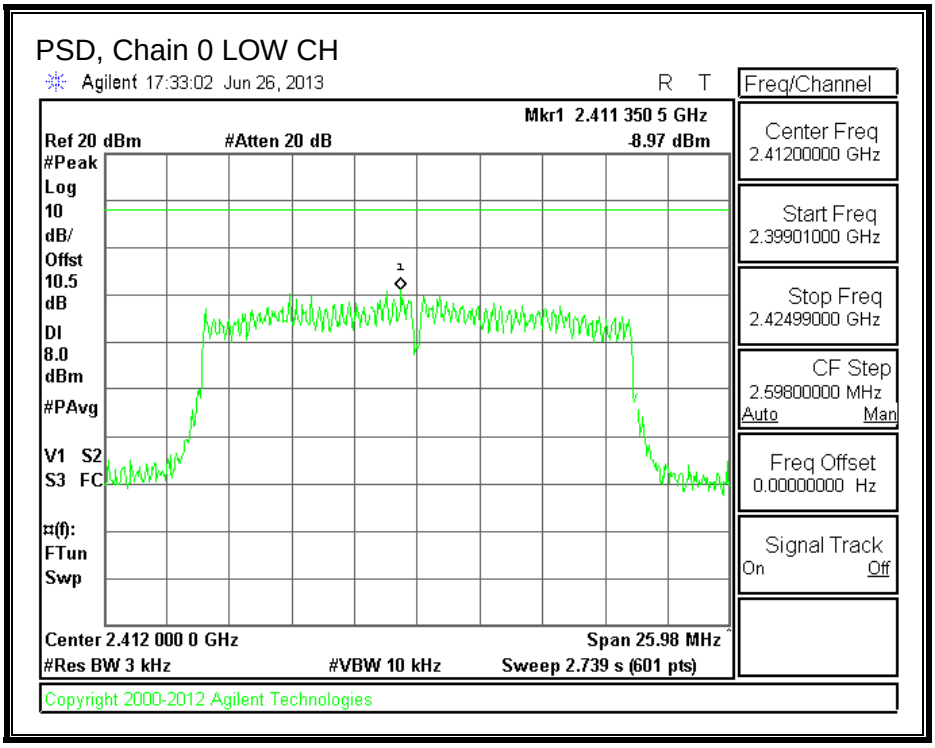
The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

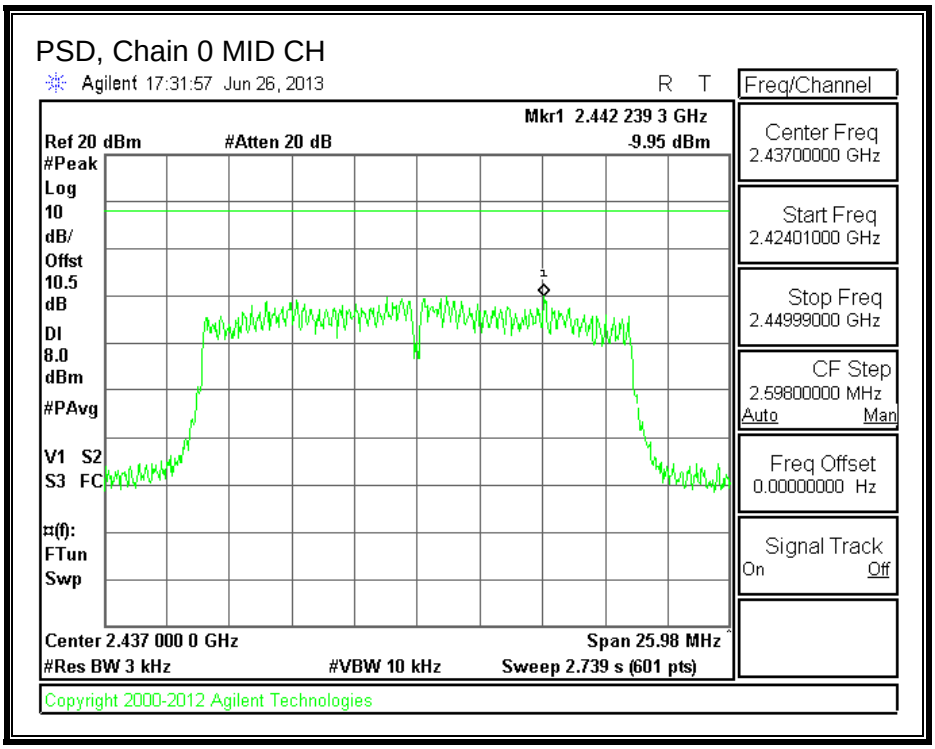
RESULTS

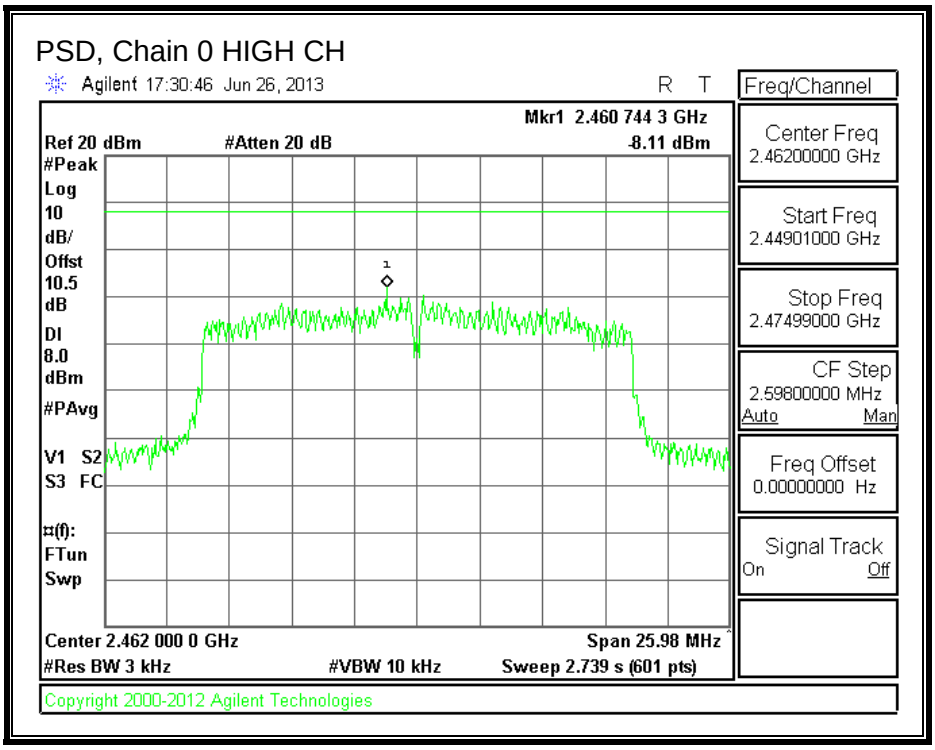
PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-8.97	8.0	-17.0
Mid	2437	-9.95	8.0	-18.0
High	2462	-8.11	8.0	-16.1

PSD, Chain 0







7.3.4. OUT-OF-BAND EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

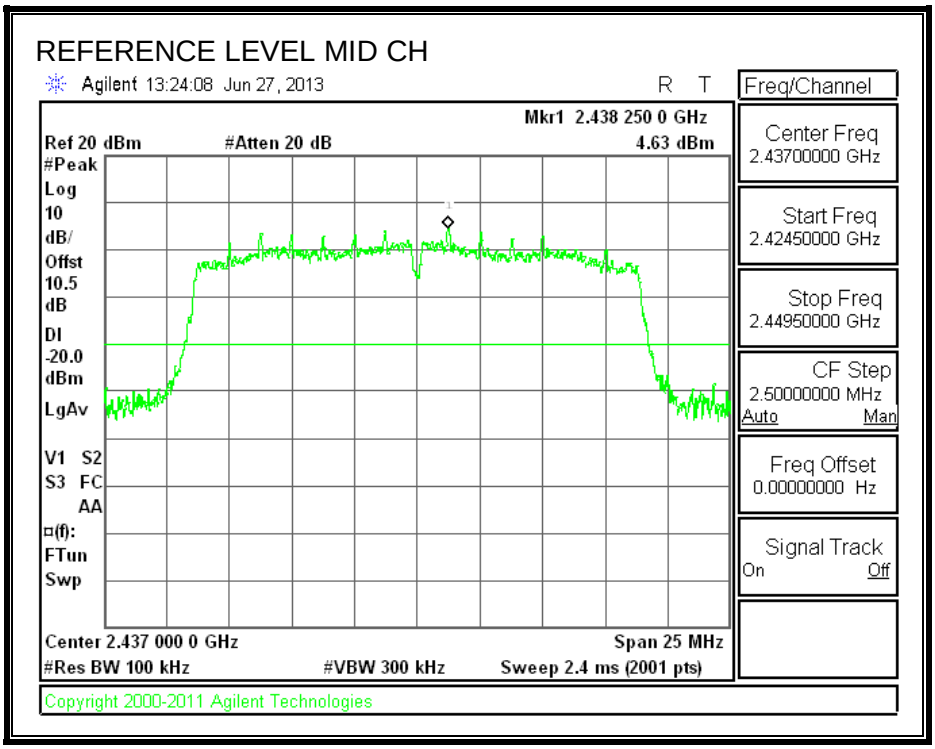
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

TEST PROCEDURE

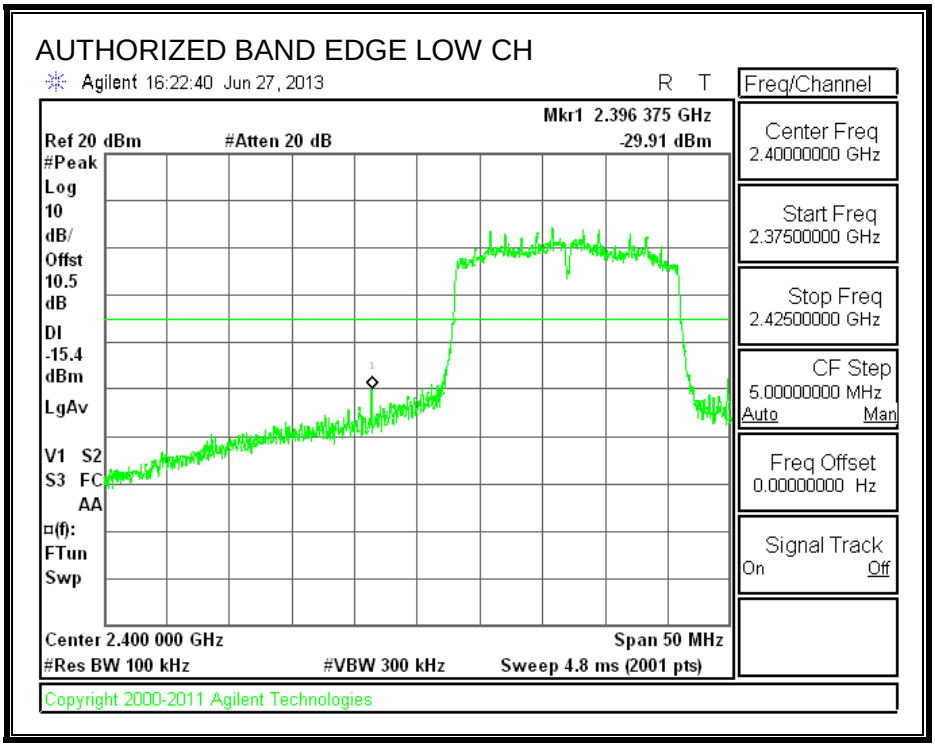
The transmitter output is connected to a spectrum analyzer with RBW = 100 kHz, VBW = 300 kHz, peak detector, and max hold. Measurements utilizing these settings are made of the in-band reference level, band edge (where measurements to the general radiated limits will not be made) and out-of-band emissions.

RESULTS

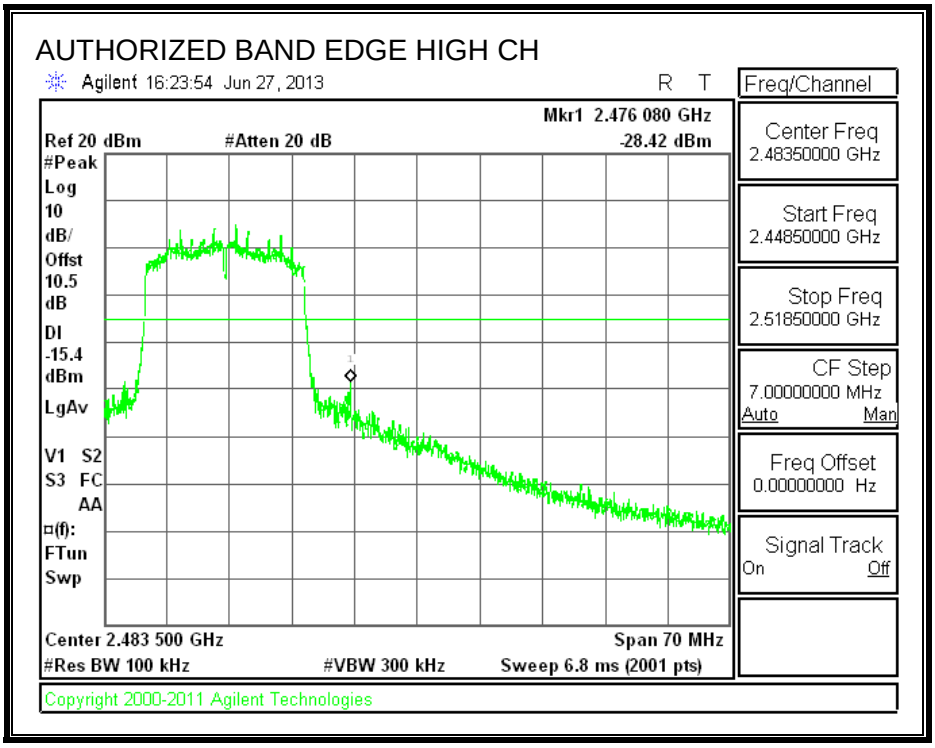
IN-BAND REFERENCE LEVEL



LOW CHANNEL BANDEDGE

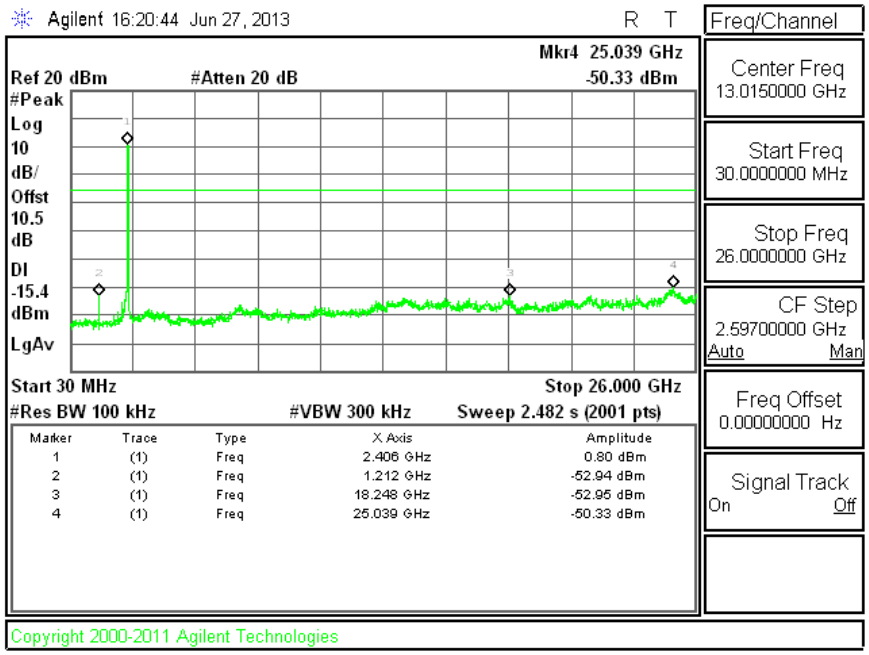


HIGH CHANNEL BANDEDGE

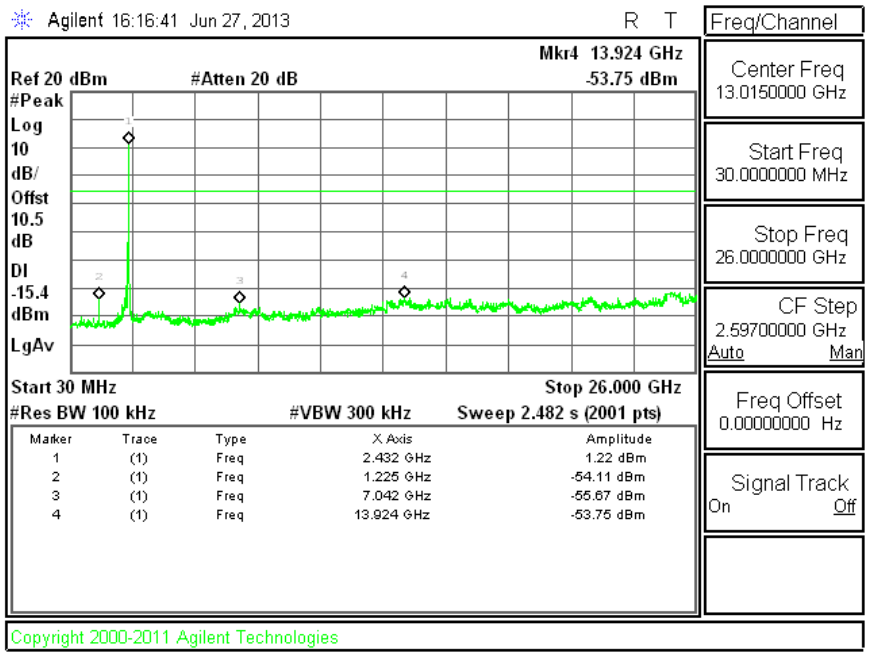


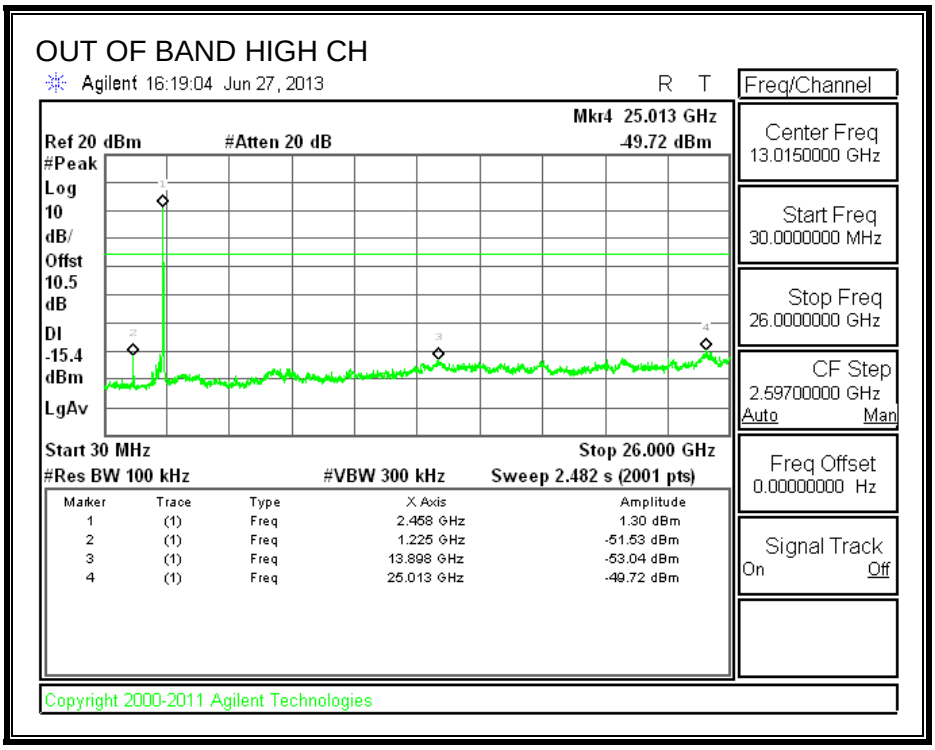
OUT-OF-BAND EMISSIONS

OUT OF BAND LOW CH



OUT OF BAND MID CH





8. RADIATED TEST RESULTS

8.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

IC RSS-210 Clause 2.5 (Transmitter)

IC RSS-GEN Clause 6 (Receiver)

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

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

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

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

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

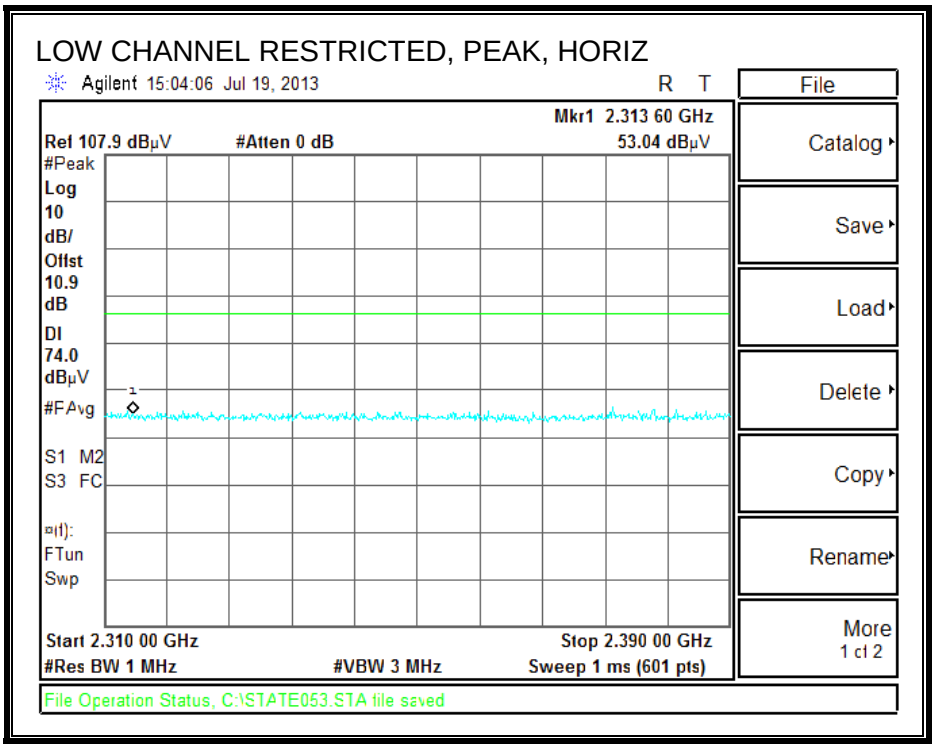
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

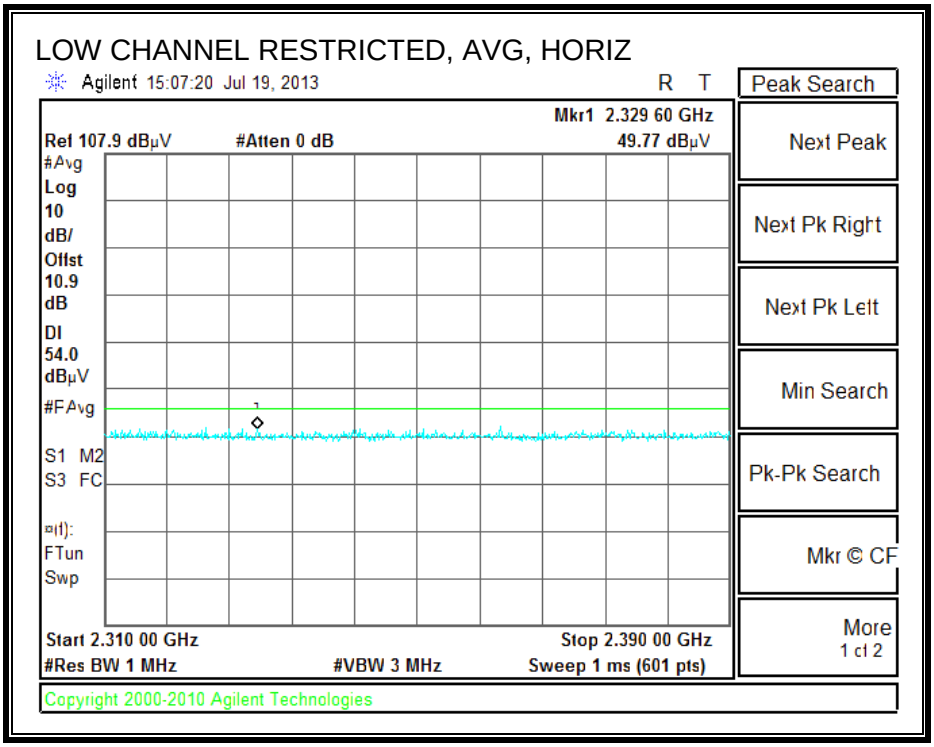
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

8.2. TRANSMITTER ABOVE 1 GHz

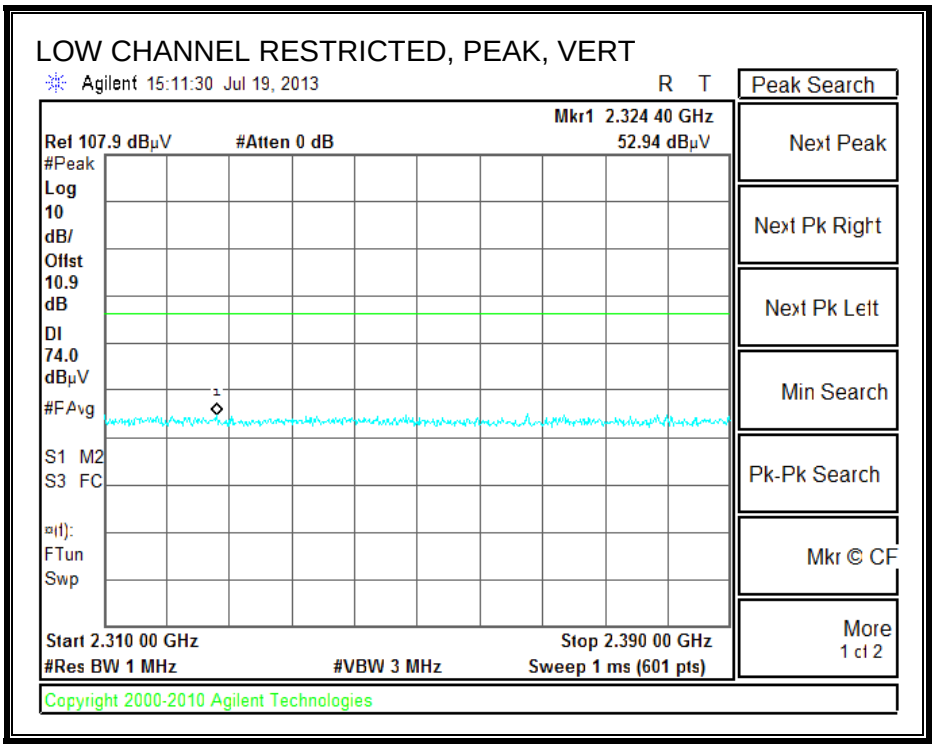
8.2.1. TX ABOVE 1 GHz FOR 802.11b 1TX MODE IN THE 2.4 GHz BAND

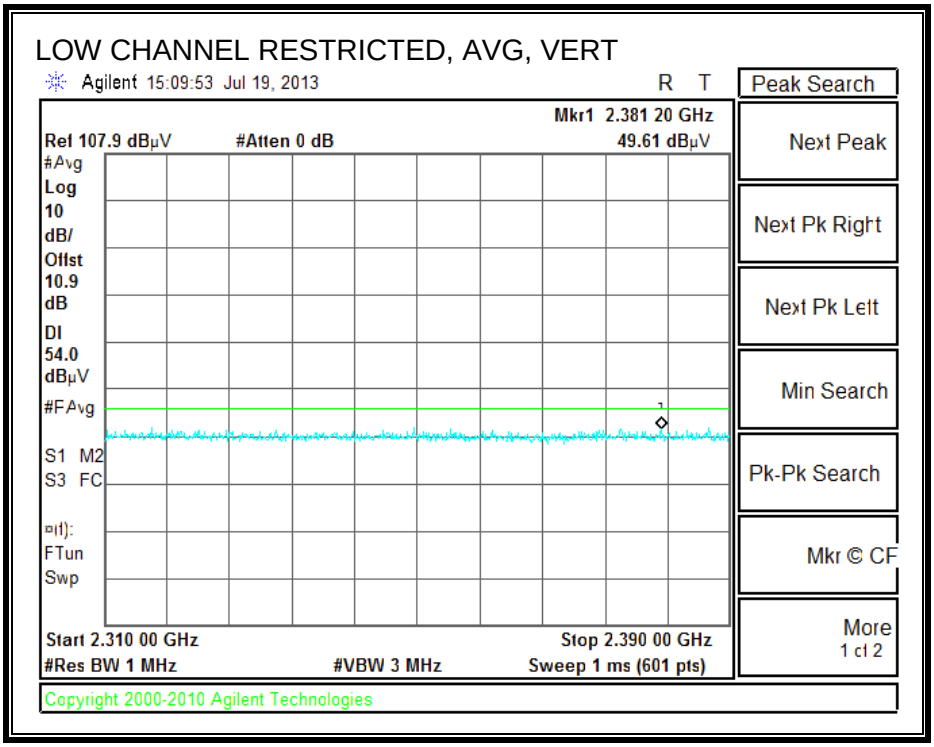
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



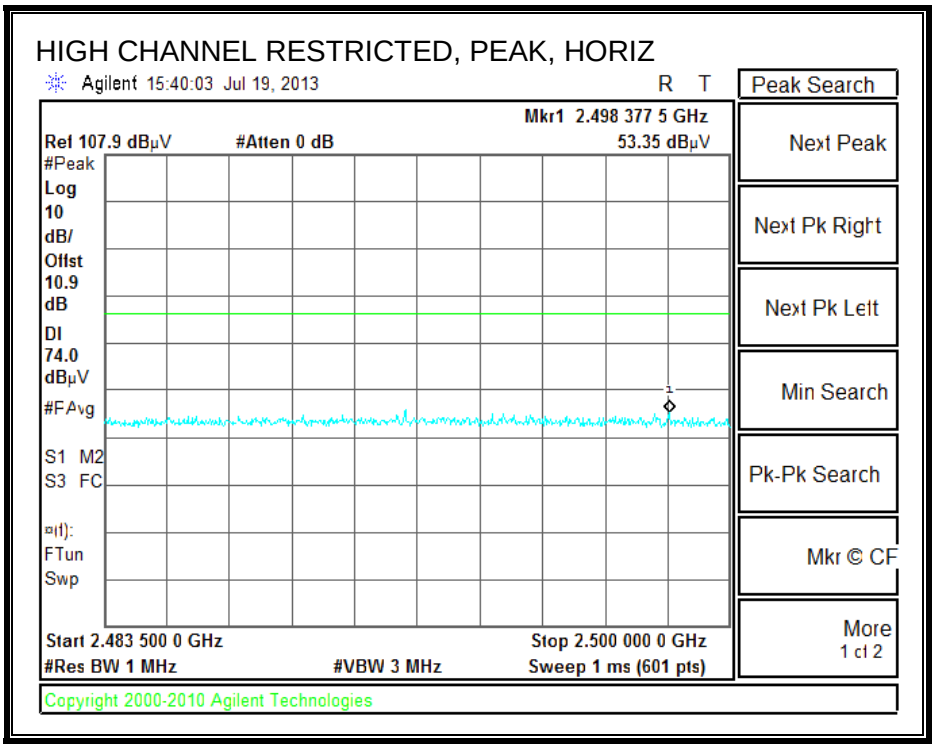


RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

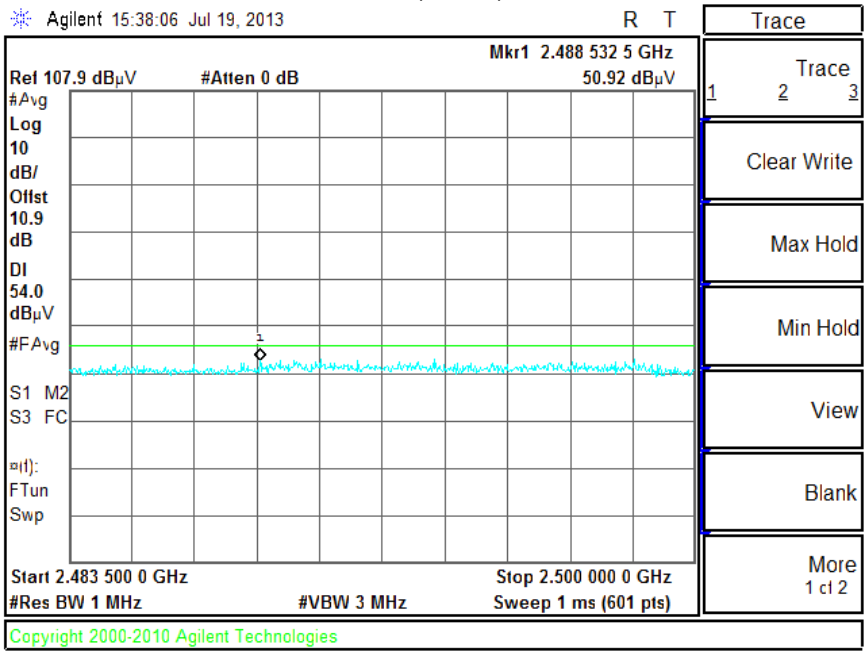




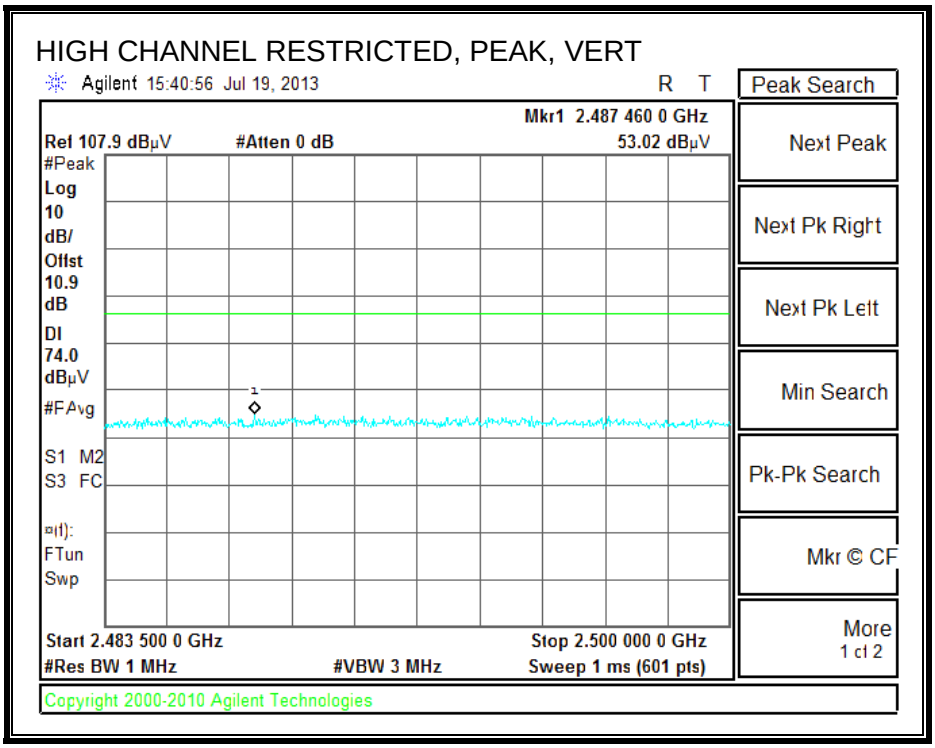
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



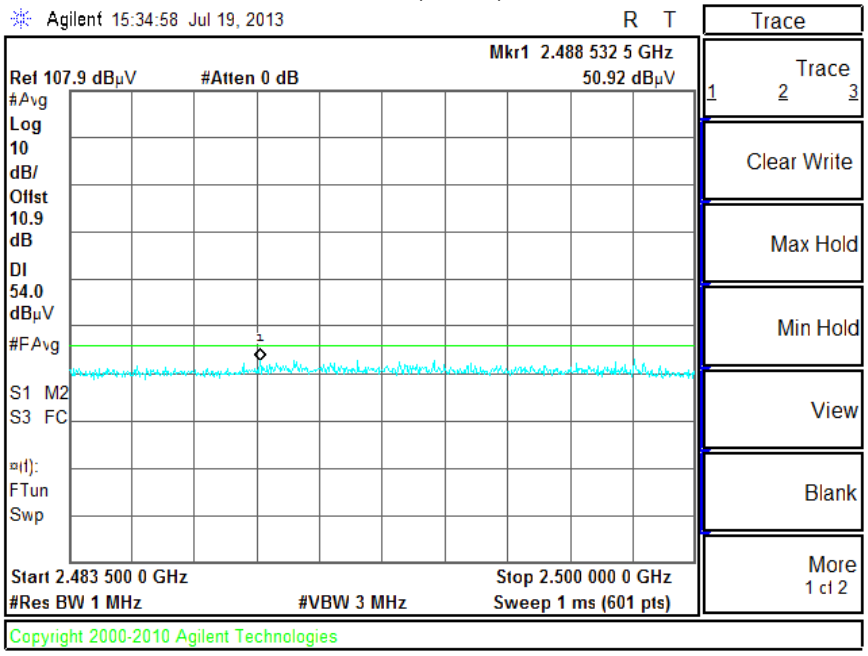
HIGH CHANNEL RESTRICTED, AVG, HORIZ



RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

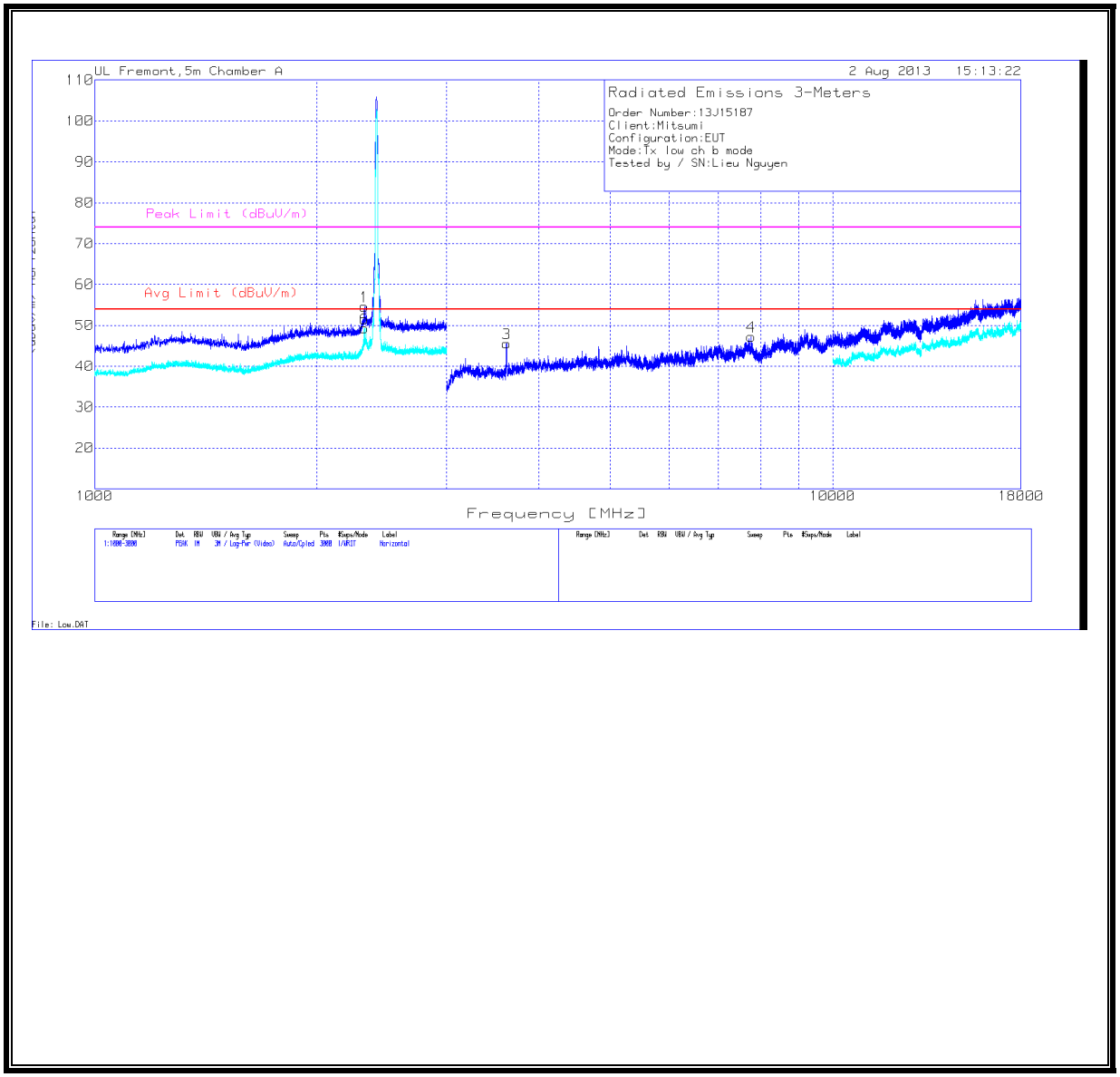


HIGH CHANNEL RESTRICTED, AVG, VERT

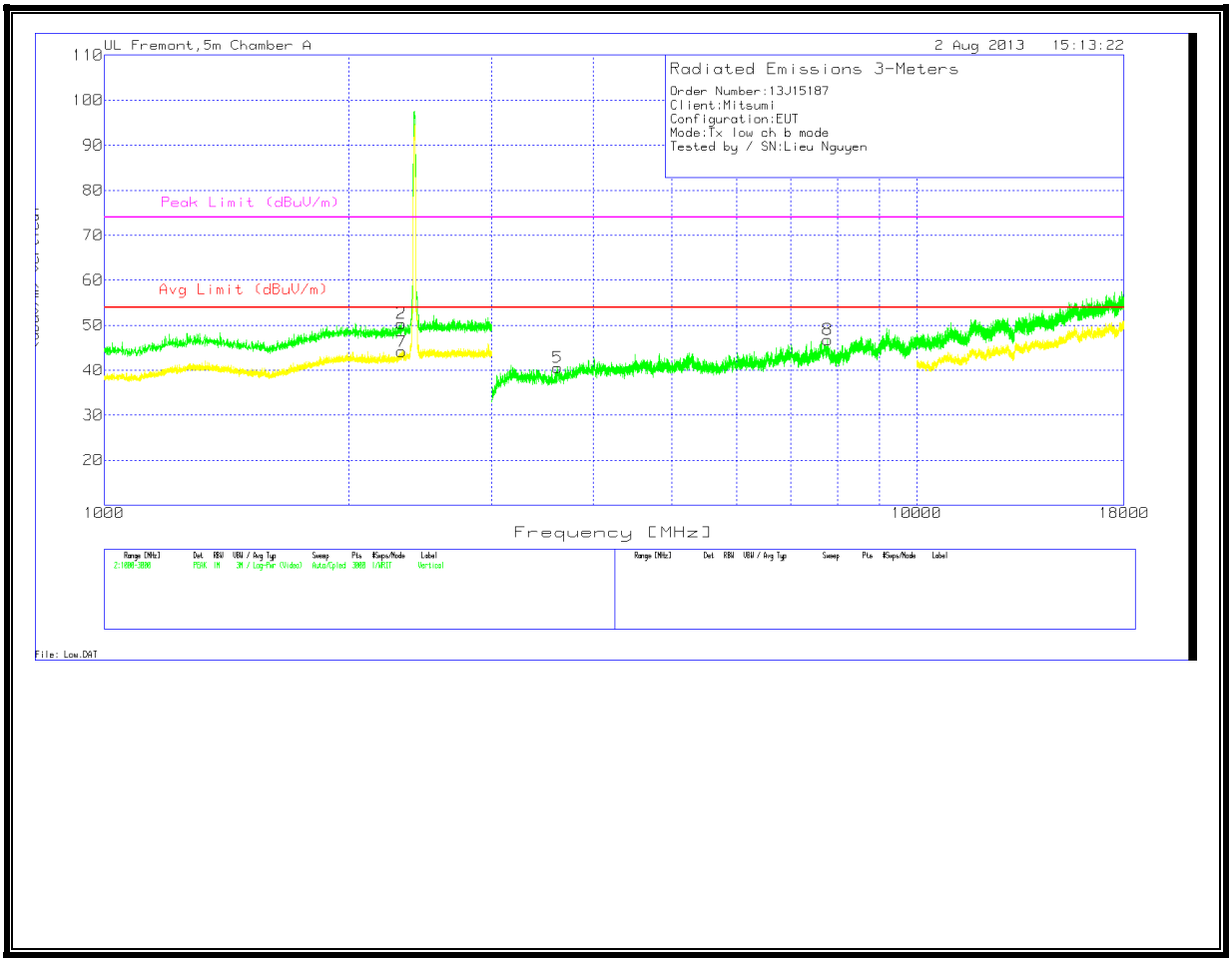


HARMONICS AND SPURIOUS EMISSIONS

HORIZONTAL PLOT



VERTICAL PLOT



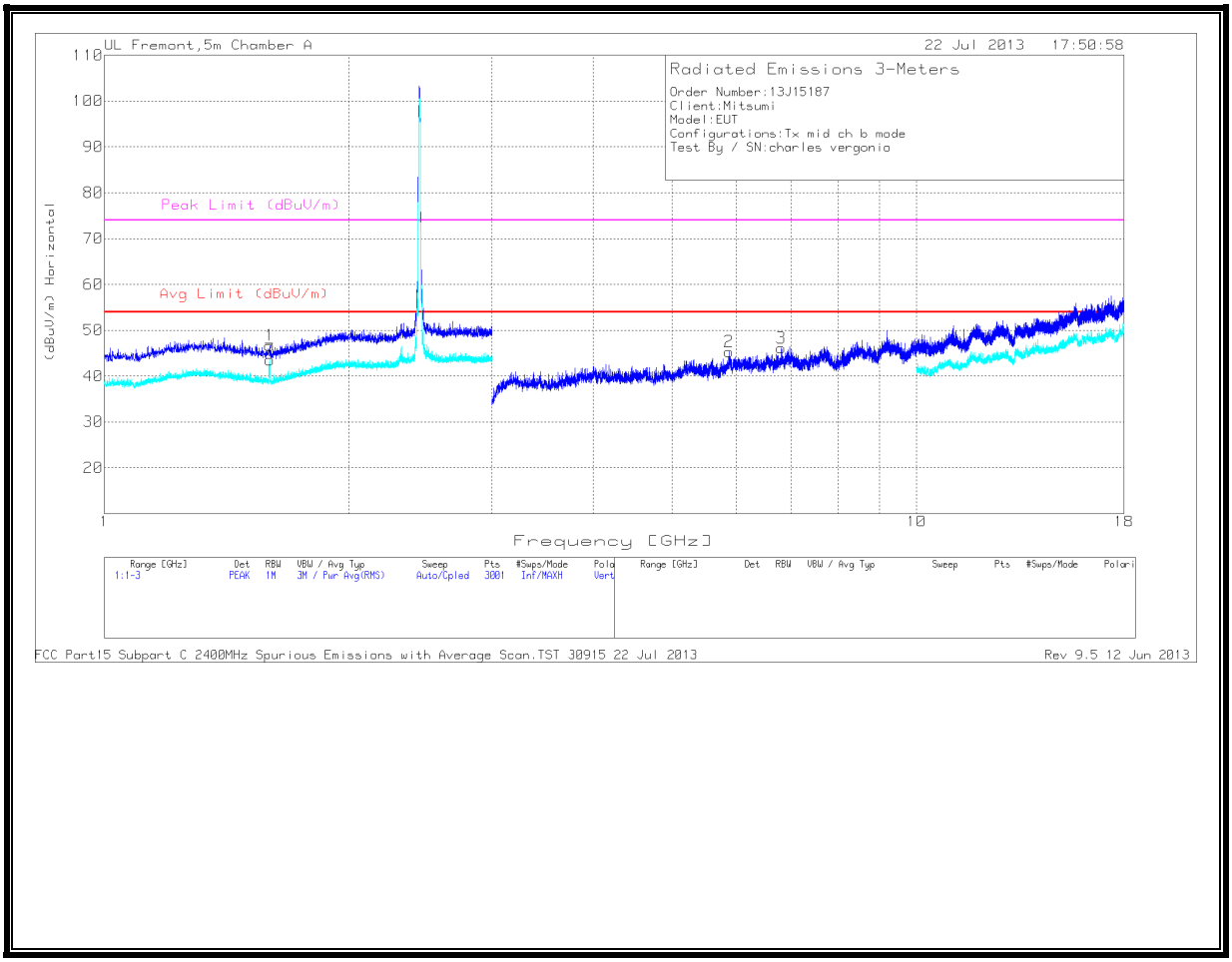
LOW CHANNEL DATA

Marker No.	Test Frequency MHz	Meter Reading	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin	Peak Limit (dBuV/m)	Margin	Height [cm]
Horizontal 1000 - 3000MHz											
1	2320	45.94	PK	31.7	-23	54.64	54	0.64	74	-19.36	100
Vertical 1000 - 3000MHz											
2	2321.333	41.57	PK	31.7	-22.9	50.37	54	-3.63	74	-23.63	100
Horizontal 3000 - 18000MHz											
3	3615.899	42.56	PK	33.1	-30.1	45.56	54	-8.44	74	-28.44	100
4	7755.64	36.88	PK	35.5	-25.1	47.28	54	-6.72	74	-26.72	100
Vertical 3000 - 18000MHz											
5	3614.024	37.7	PK	33.1	-30.2	40.6	54	-13.4	74	-33.4	200
8	7769.702	36	PK	35.5	-24.7	46.8	54	-7.2	74	-27.2	100
Horizontal 1000 - 3000MHz											
6	2319.75	40.58	PK	31.7	-23	49.28	54	-4.72	74	-24.72	100
Vertical 1000 - 3000MHz											
7	2322.75	35.34	PK	31.7	-22.9	44.14	54	-9.86	74	-29.86	200

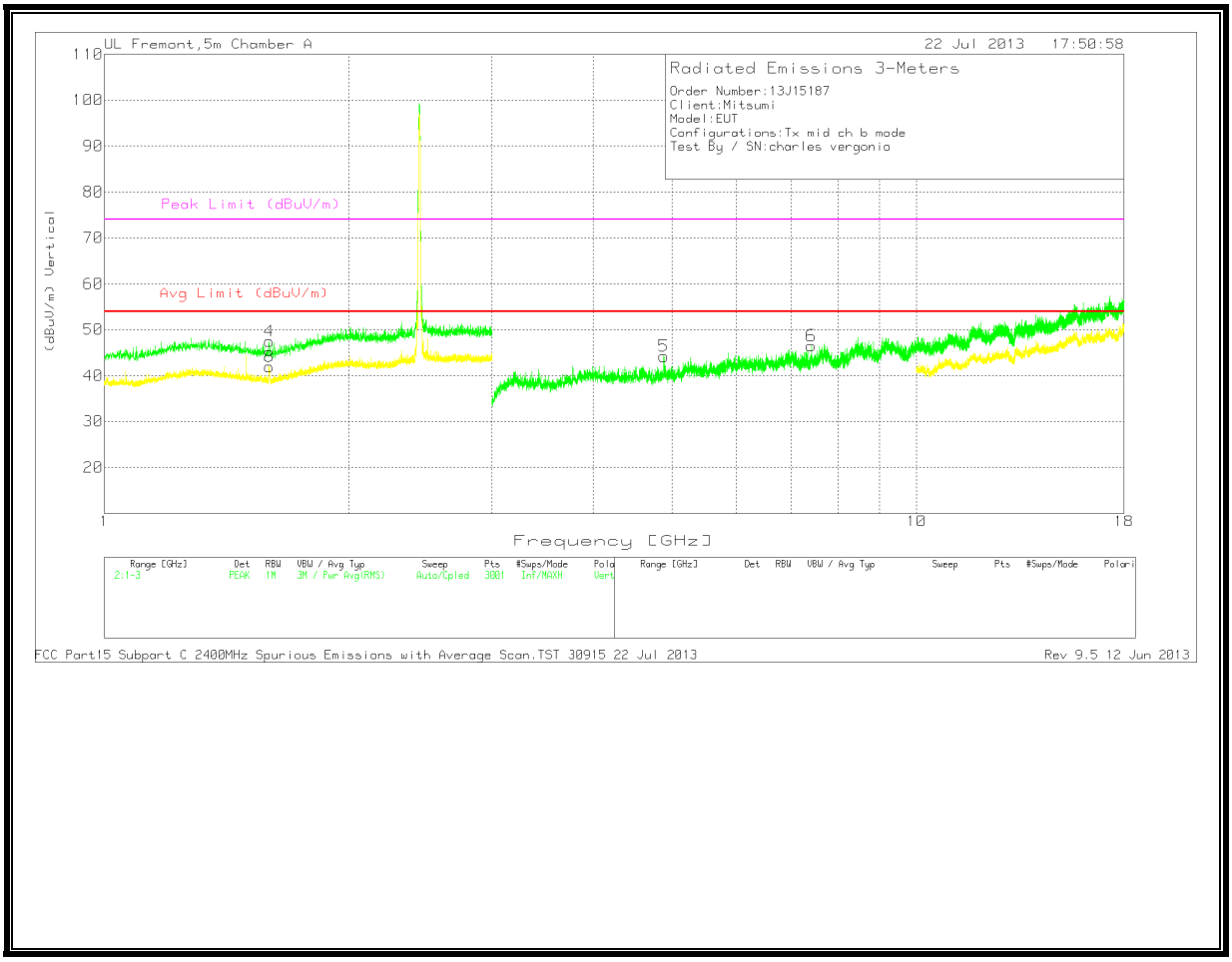
PK - Peak detector

VB1 - KDB 789033 v01r02 Method: VB Alternative Reduced Video

HORIZONTAL PLOT



VERTICAL PLOT



MID CHANNEL DATA

Order Number:13J15187
Client:Mitsumi
Model:EUT
Configurations:Tx mid ch b mode
Test By / SN:charles vergonio

Trace Markers

Horizontal 1 - 3MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
1	1.598	42.9	PK	28.3	-24.5	46.7	53.97	-7.27	74	-27.3	0-360	100	H

Vertical 1 - 3MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
4	1.596	43.6	PK	28.3	-24.4	47.5	53.97	-6.47	74	-26.5	0-360	100	V

Horizontal 3 - 18MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
2	5.8742	36.84	PK	35	-26.5	45.34	53.97	-8.63	74	-28.66	0-360	100	H
3	6.8144	37.33	PK	35.4	-26.6	46.13	53.97	-7.84	74	-27.87	0-360	100	H

Vertical 3 - 18MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
5	4.8833	37.23	PK	34	-27	44.23	53.97	-9.74	74	-29.77	0-360	100	V
6	7.4191	36.09	PK	35.4	-25	46.49	53.97	-7.48	74	-27.51	0-360	100	V

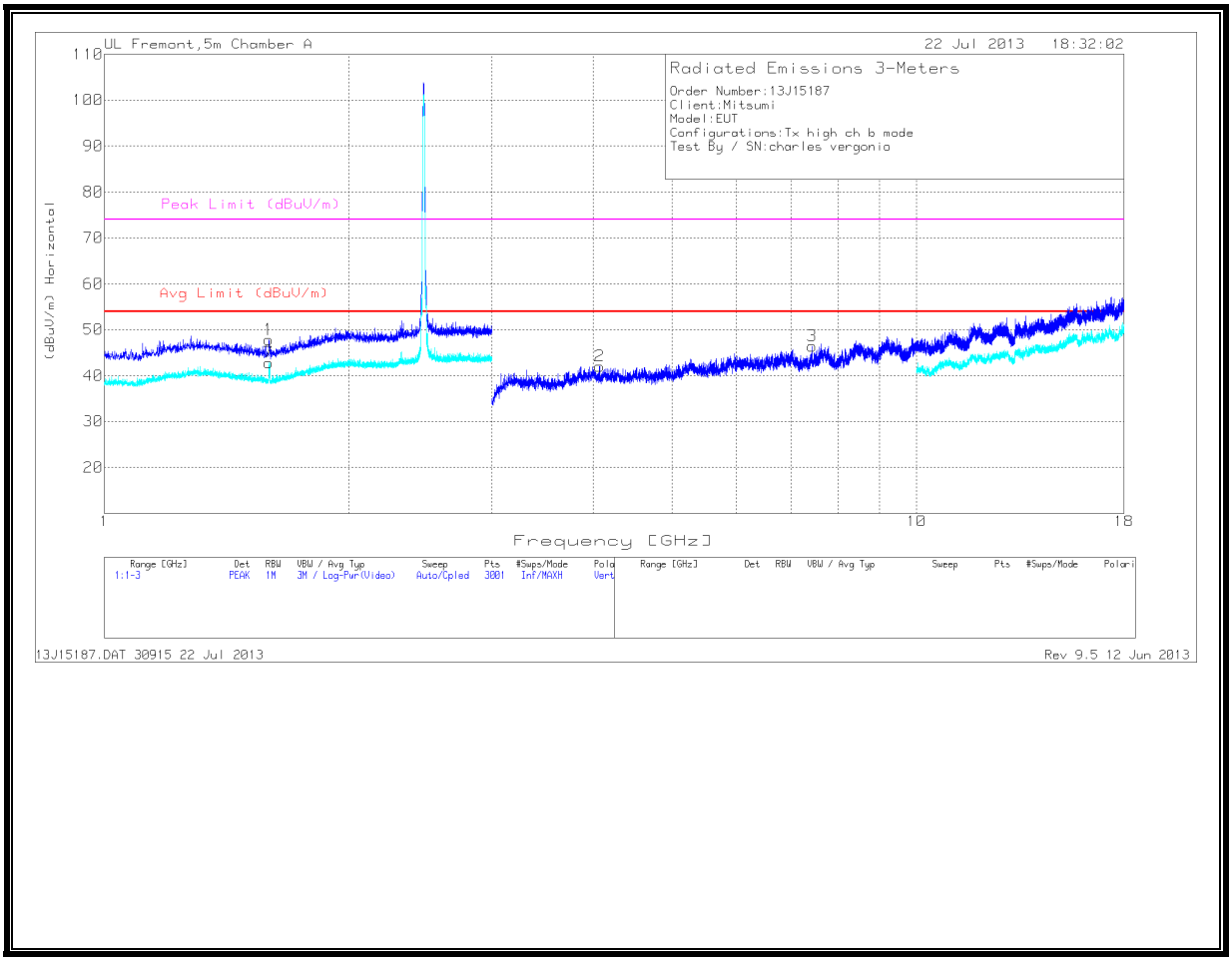
Horizontal 1 - 3MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
7	1.599	39.76	PK	28.3	-24.5	43.56	53.97	-10.41	74	-30.44	0-360	200	H

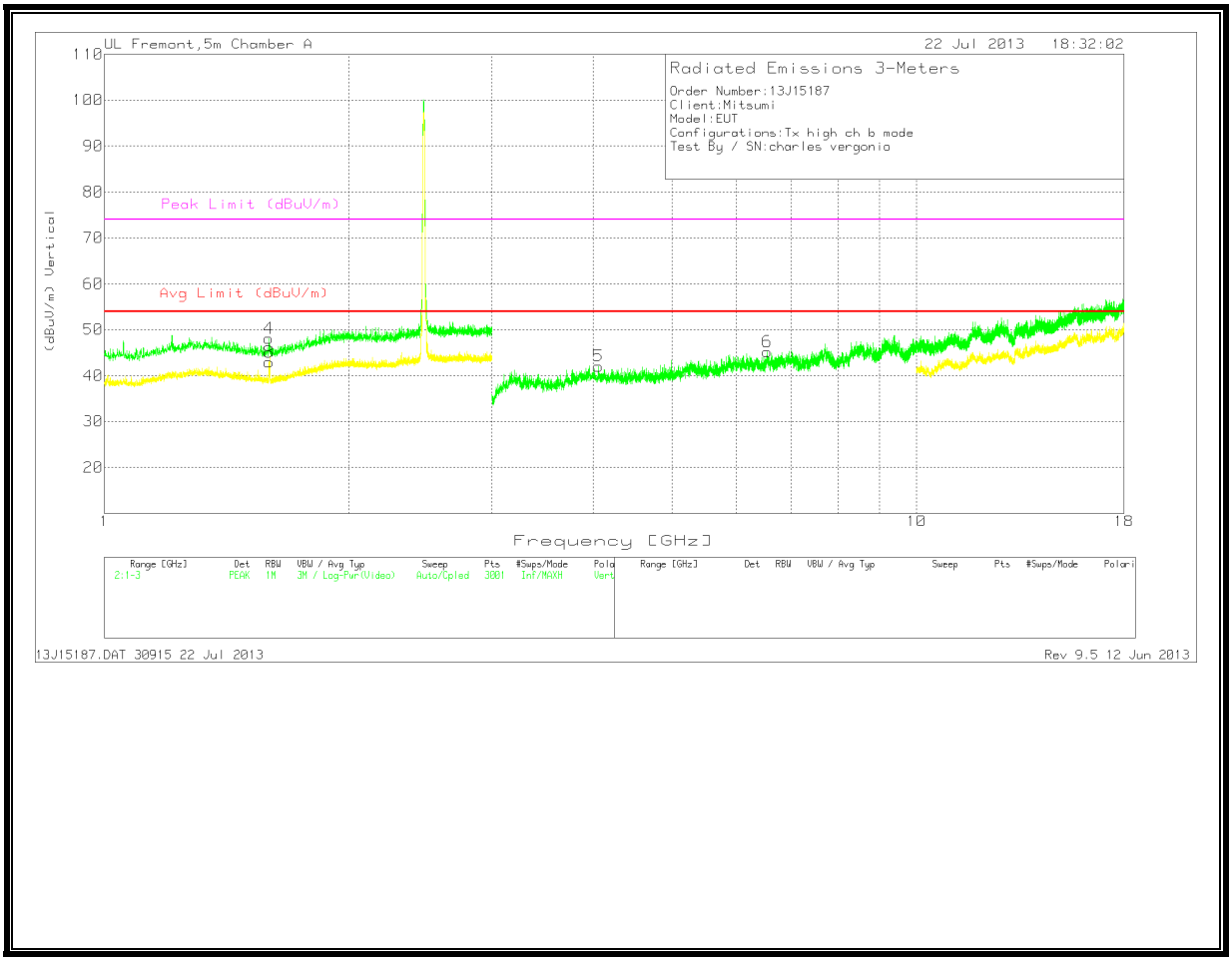
Vertical 1 - 3MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
8	1.5958	38.04	PK	28.3	-24.4	41.94	53.97	-12.03	74	-32.06	0-360	100	V

HORIZONTAL PLOT



VERTICAL PLOT



HIGH CHANNEL DATA

Order Number:13J15187
Client:Mitsumi
Model:EUT
Configurations:Tx high ch b mode
Test By / SN:charles vergonio

Trace Markers

Horizontal 1 - 3MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
1	1.5933	43.94	PK	28.3	-24.4	47.84	53.97	-6.13	74	-26.16	0-360	100	H

Vertical 1 - 3MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
4	1.594	44.18	PK	28.3	-24.4	48.08	53.97	-5.89	74	-25.92	0-360	100	V

Horizontal 3 - 18MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
2	4.0715	37.75	PK	33.8	-29.5	42.05	53.97	-11.92	74	-31.95	0-360	100	H
3	7.435	36.74	PK	35.4	-25.7	46.44	53.97	-7.53	74	-27.56	0-360	200	H

Vertical 3 - 18MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
5	4.0565	38.17	PK	33.8	-29.9	42.07	53.97	-11.9	74	-31.93	0-360	100	V
6	6.5492	35.81	PK	35.5	-26.1	45.21	53.97	-8.76	74	-28.79	0-360	200	V

Horizontal 1 - 3MHz

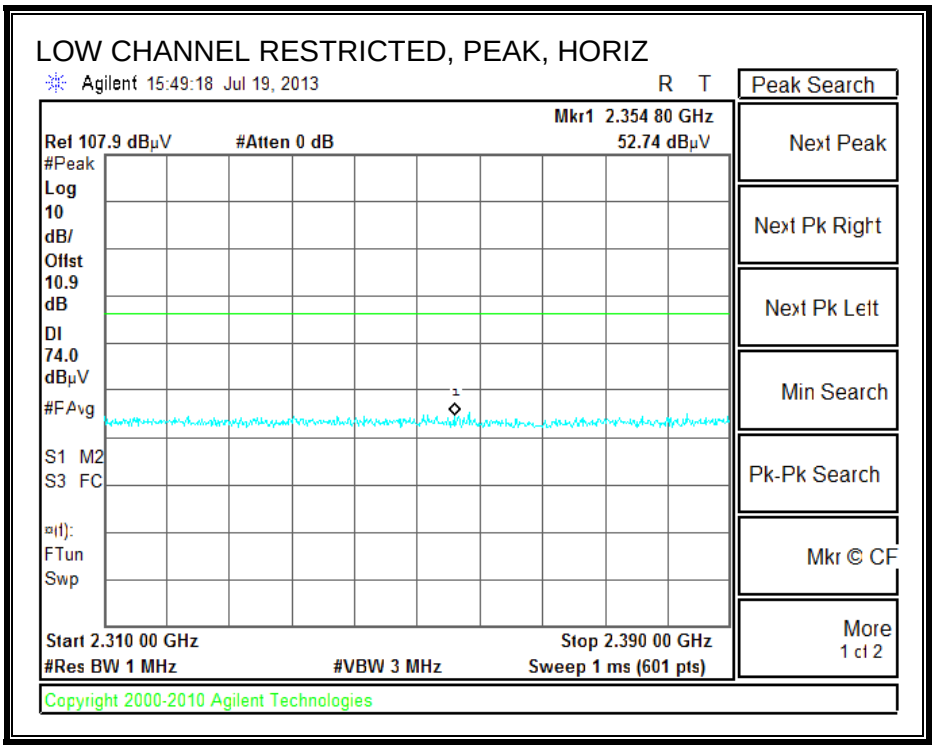
Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
7	1.5935	38.96	PK	28.3	-24.4	42.86	53.97	-11.11	74	-31.14	0-360	200	H

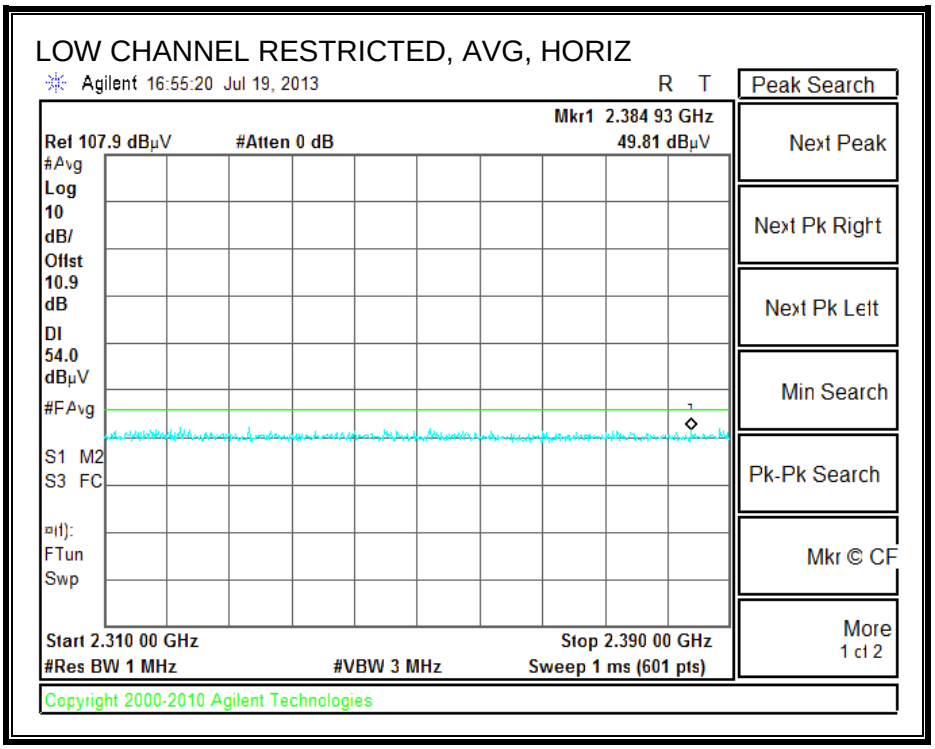
Vertical 1 - 3MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
8	1.5943	39.02	PK	28.3	-24.4	42.92	53.97	-11.05	74	-31.08	0-360	100	V

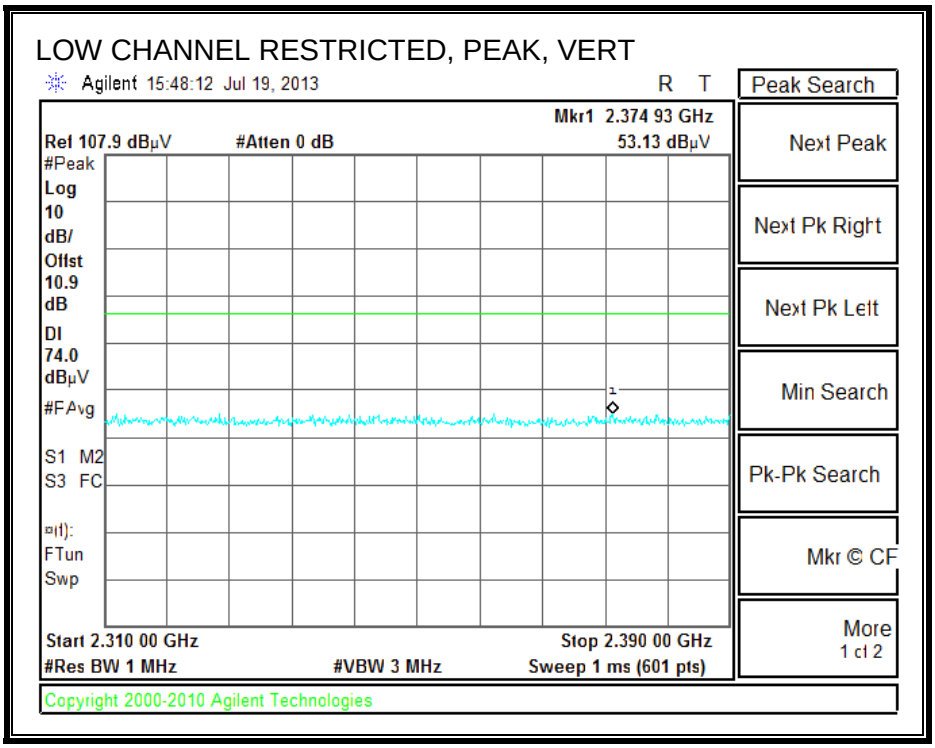
8.2.2. TX ABOVE 1 GHz FOR 802.11g 1TX MODE IN THE 2.4 GHz BAND

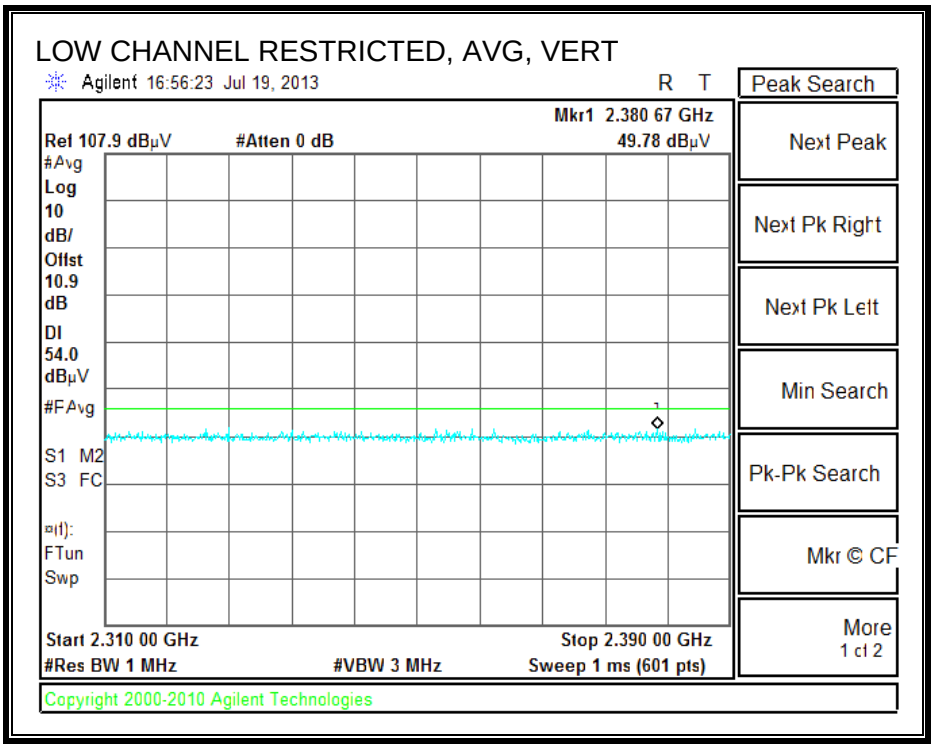
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



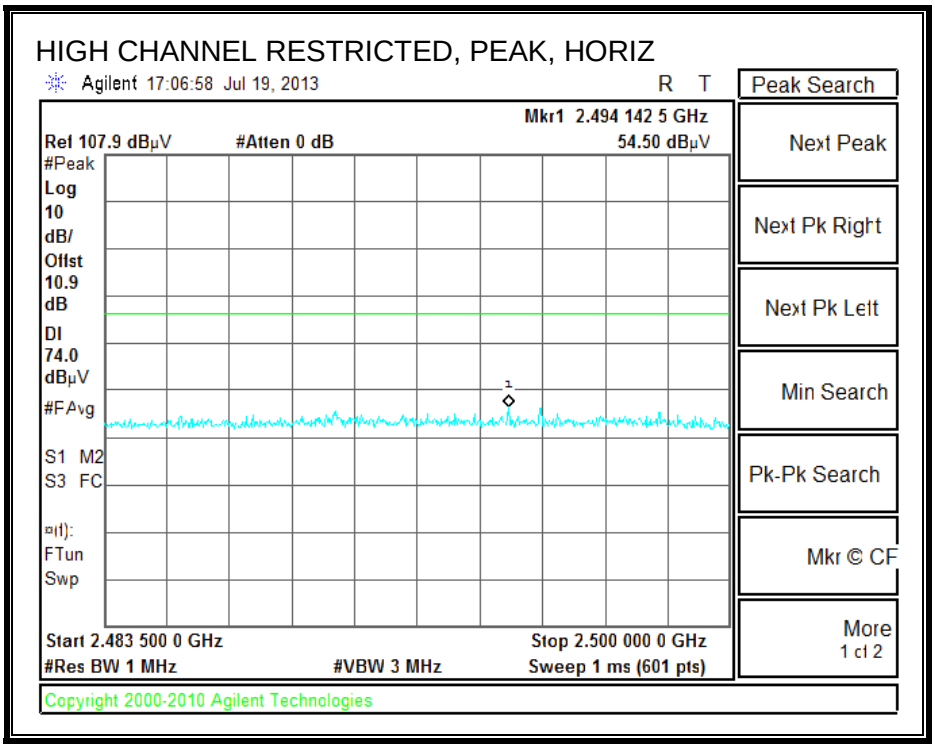


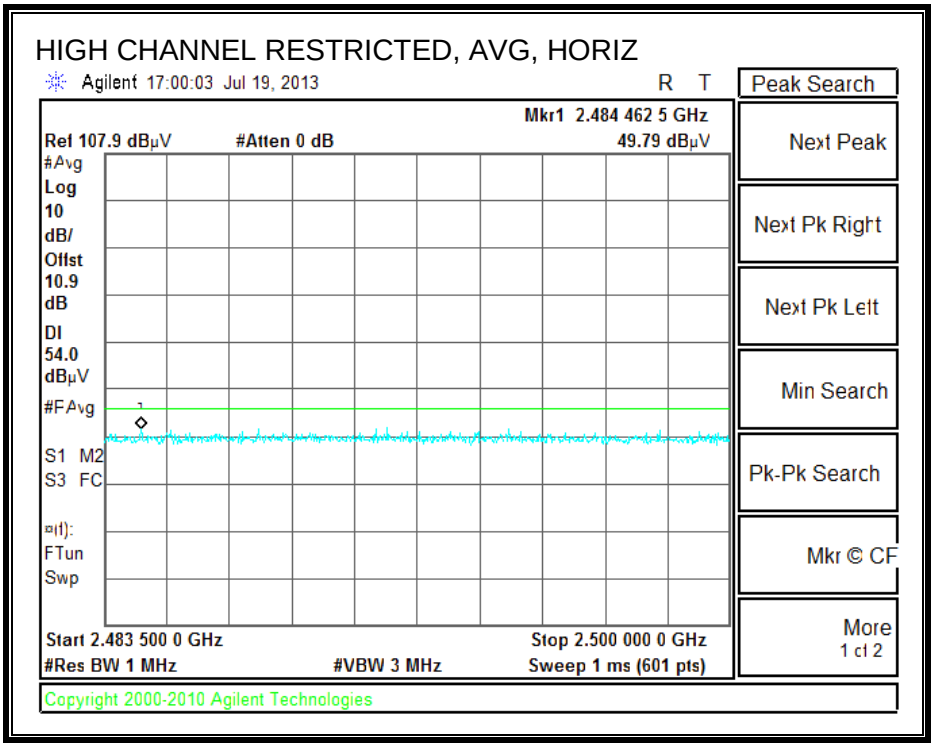
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



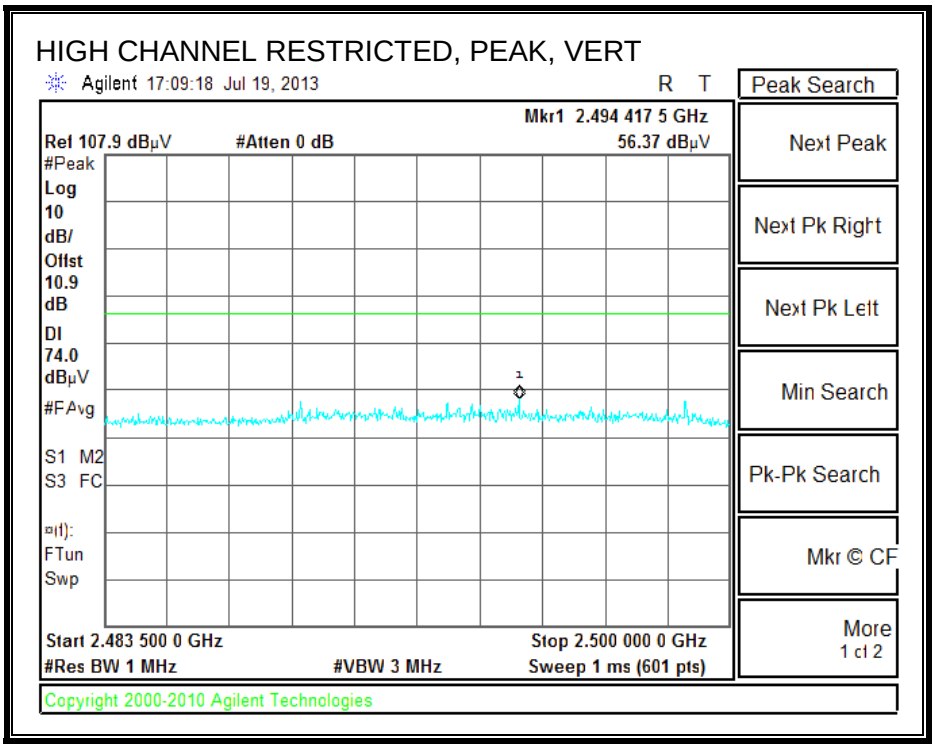


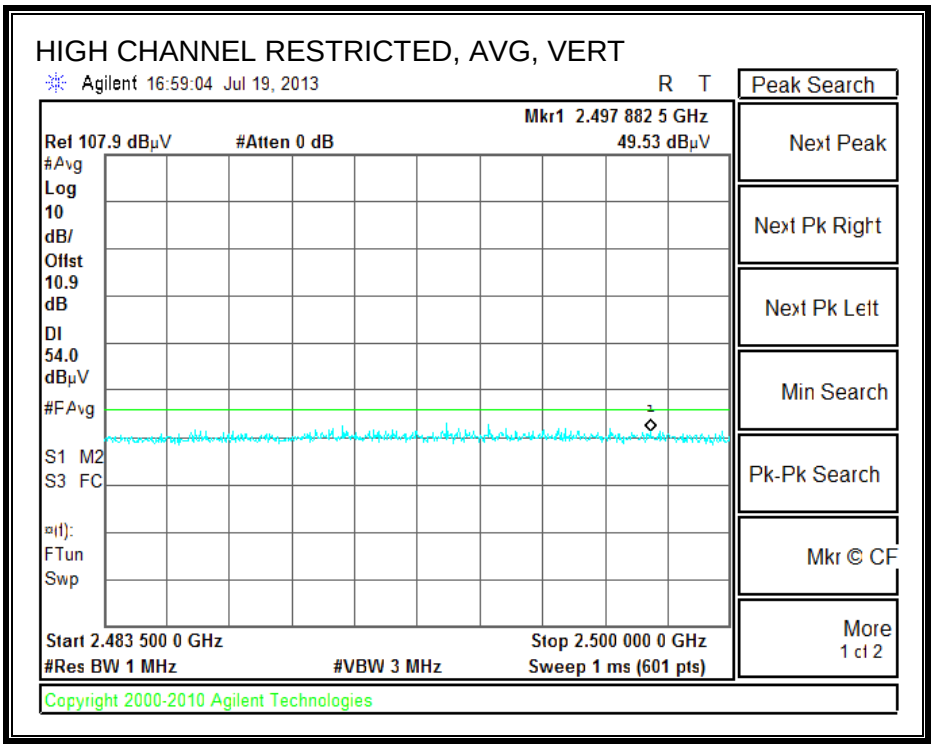
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)





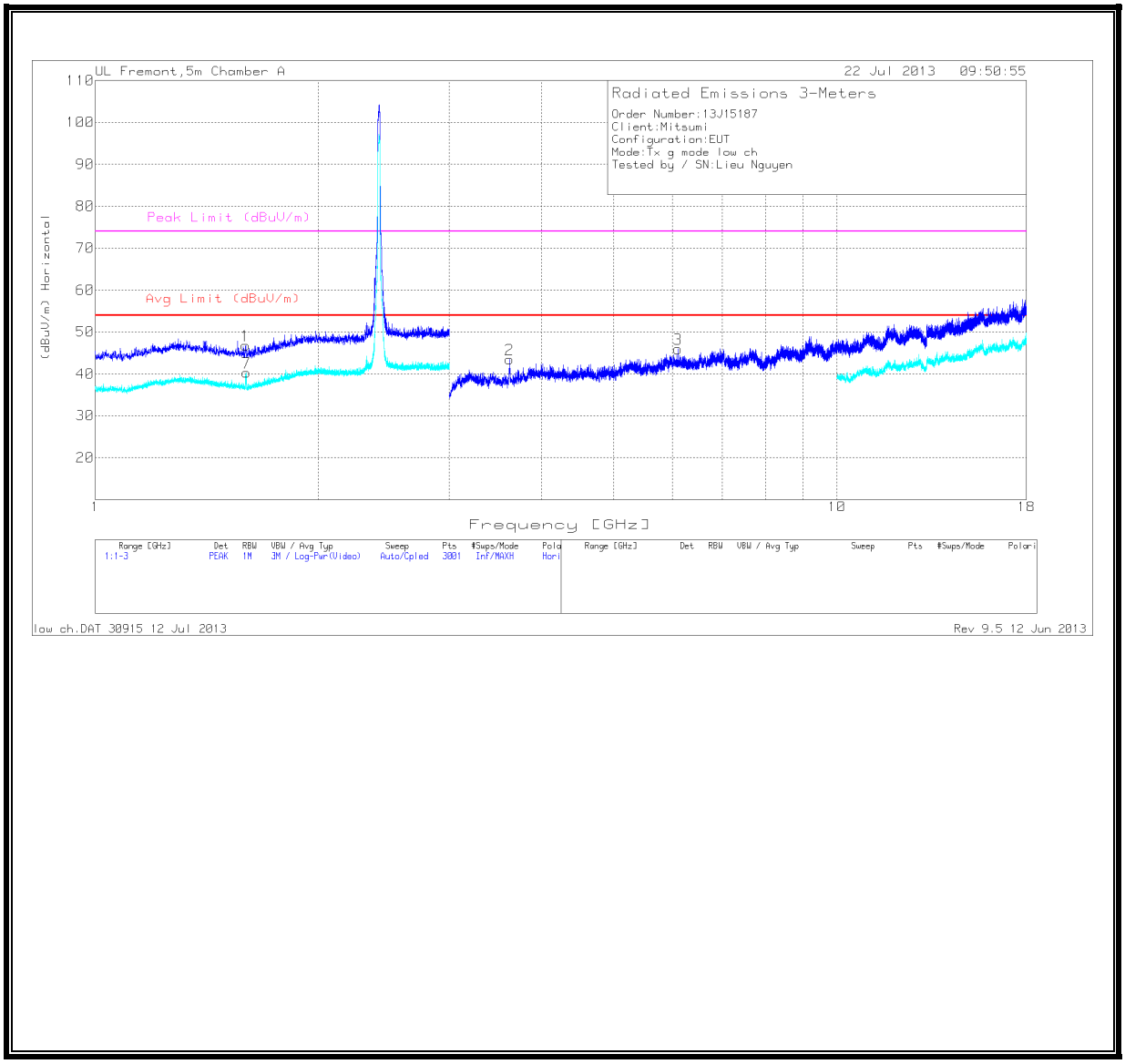
RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



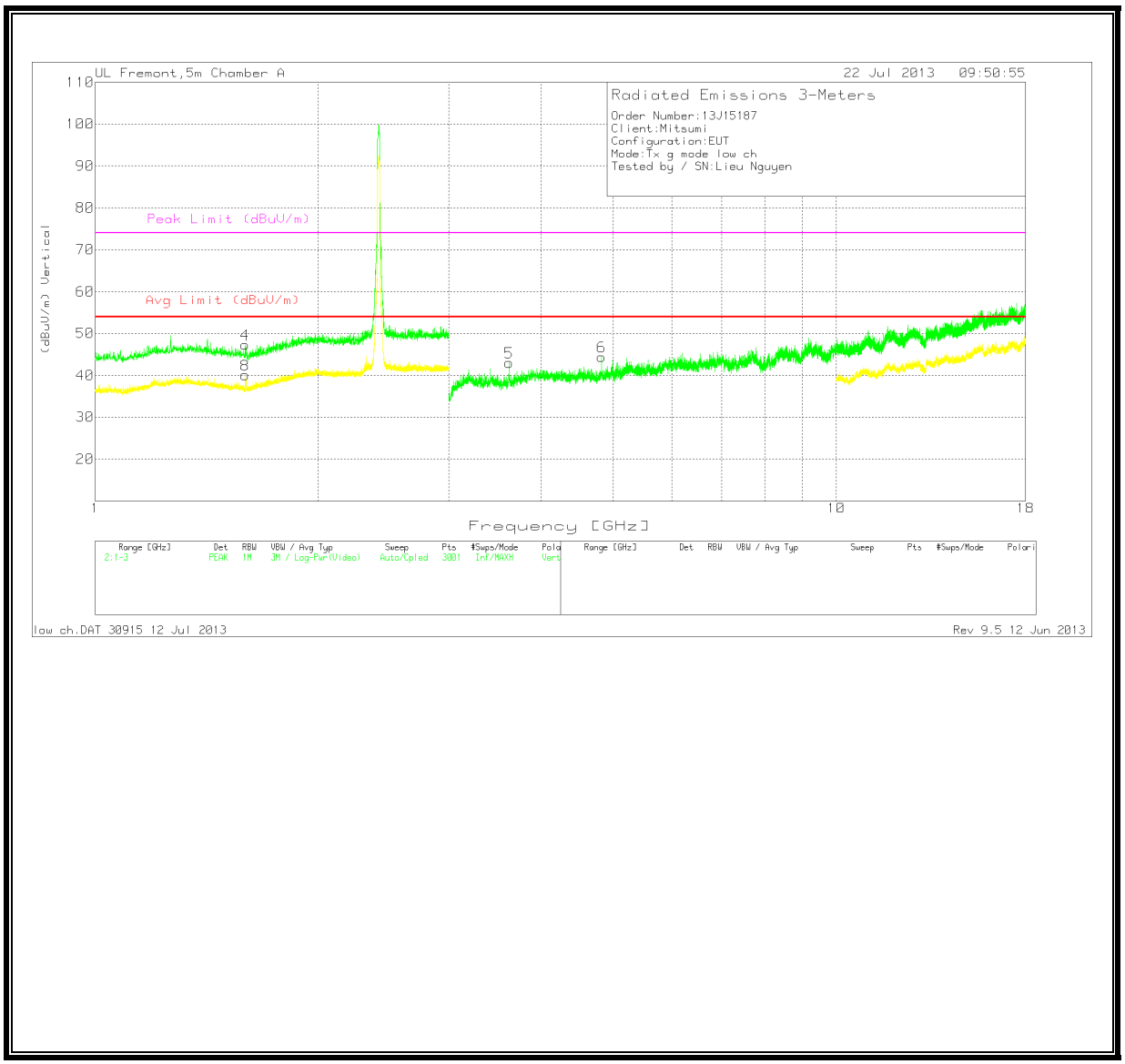


HARMONICS AND SPURIOUS EMISSIONS

HORIZONTAL PLOT



VERTICAL PLOT



LOW CHANNEL DATA

Order Number:13J15187
Client:Mitsumi
Configuration:EUT
Mode:Tx g mode low ch
Tested by / SN:Lieu Nguyen

Trace Markers

Horizontal 1 - 3MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
1	1.5947	42.89	PK	28.3	-24.4	46.79	53.97	-7.18	74	-27.21	0-360	200	H

Vertical 1 - 3MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
4	1.594	43.42	PK	28.3	-24.4	47.32	53.97	-6.65	74	-26.68	0-360	200	V

Horizontal 3 - 18MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
2	3.6187	40.46	PK	33.1	-30.1	43.46	53.97	-10.51	74	-30.54	0-360	200	H
3	6.102	38.55	PK	35.3	-27.9	45.95	53.97	-8.02	74	-28.05	0-360	200	H

Vertical 3 - 18MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
5	3.6178	40.03	PK	33.1	-30.1	43.03	53.97	-10.94	74	-30.97	0-360	100	V
6	4.8214	37.84	PK	33.9	-27.3	44.44	53.97	-9.53	74	-29.56	0-360	100	V

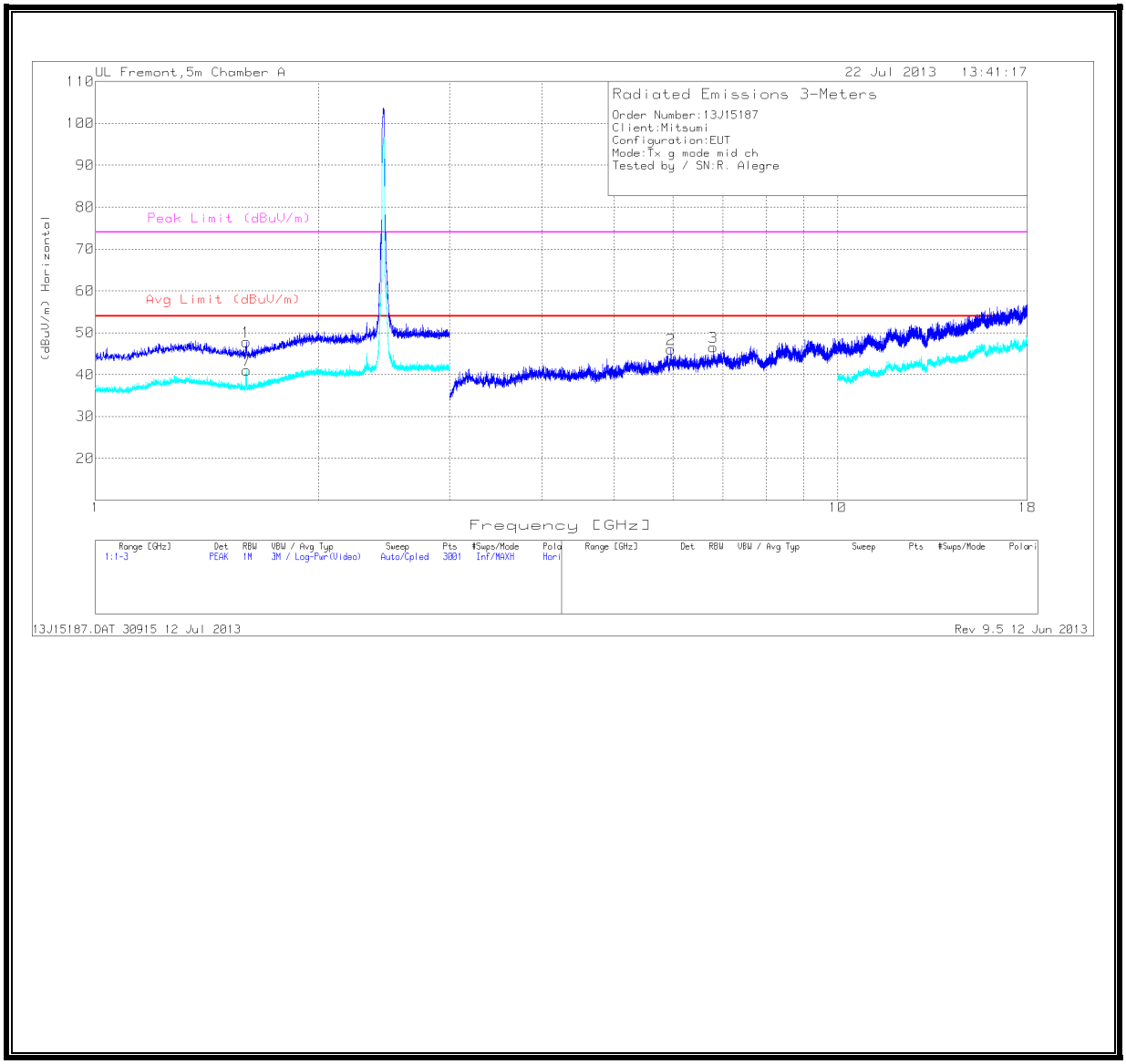
Horizontal 1 - 3MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
7	1.5985	36.49	PK	28.3	-24.5	40.29	53.97	-13.68	74	-33.71	0-360	200	H

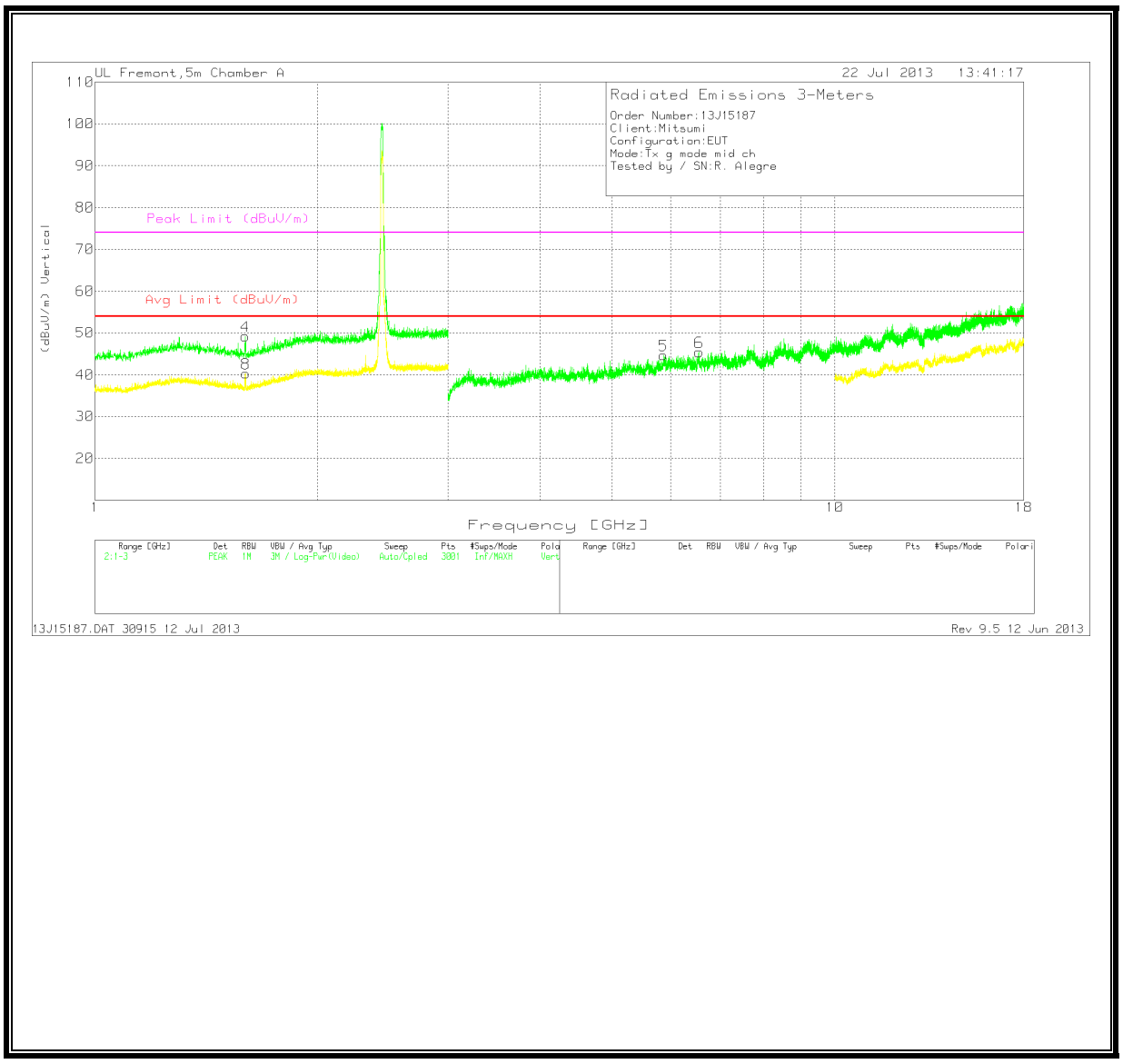
Vertical 1 - 3MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
8	1.5938	36.2	PK	28.3	-24.4	40.1	53.97	-13.87	74	-33.9	0-360	200	V

HORIZONTAL PLOT



VERTICAL PLOT



MID CHANNEL DATA

Order Number:13J15187
Client:Mitsumi
Configuration:EUT
Mode:Tx g mode mid ch
Tested by / SN:R. Alegre

Trace Markers

Horizontal 1 - 3MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
1	1.5973	44.01	PK	28.3	-24.5	47.81	53.97	-6.16	74	-26.19	0-360	100	H

Vertical 1 - 3MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
4	1.5967	45.32	PK	28.3	-24.4	49.22	53.97	-4.75	74	-24.78	0-360	100	V

Horizontal 3 - 18MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
2	5.9604	37.58	PK	35.2	-26.7	46.08	53.97	-7.89	74	-27.92	0-360	100	H
3	6.7948	38.16	PK	35.4	-27	46.56	53.97	-7.41	74	-27.44	0-360	200	H

Vertical 3 - 18MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
5	5.8676	36.36	PK	35	-26.7	44.66	53.97	-9.31	74	-29.34	0-360	100	V
6	6.5548	35.82	PK	35.5	-25.9	45.42	53.97	-8.55	74	-28.58	0-360	100	V

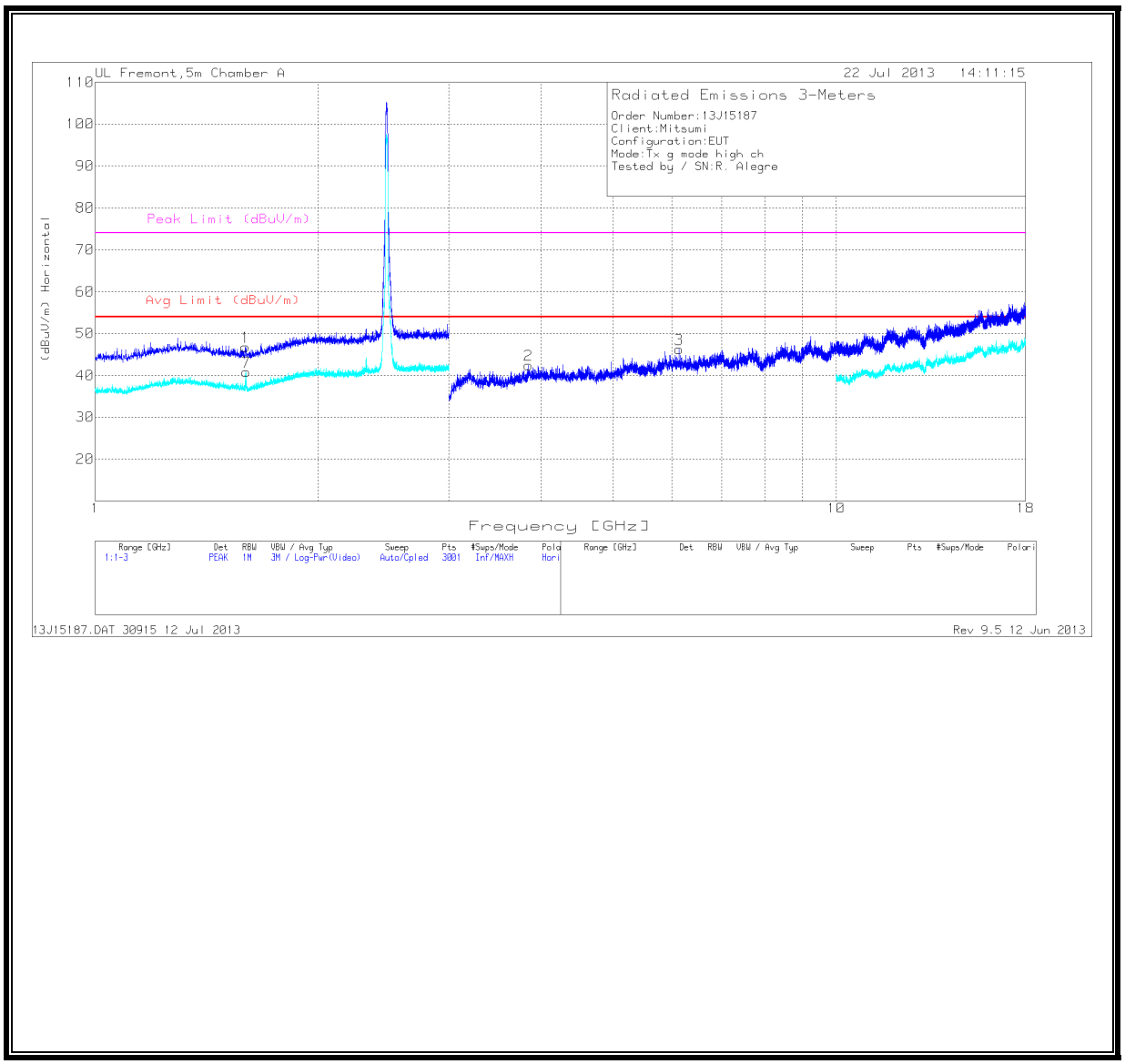
Horizontal 1 - 3MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
7	1.5985	37.23	PK	28.3	-24.5	41.03	53.97	-12.94	74	-32.97	0-360	200	H

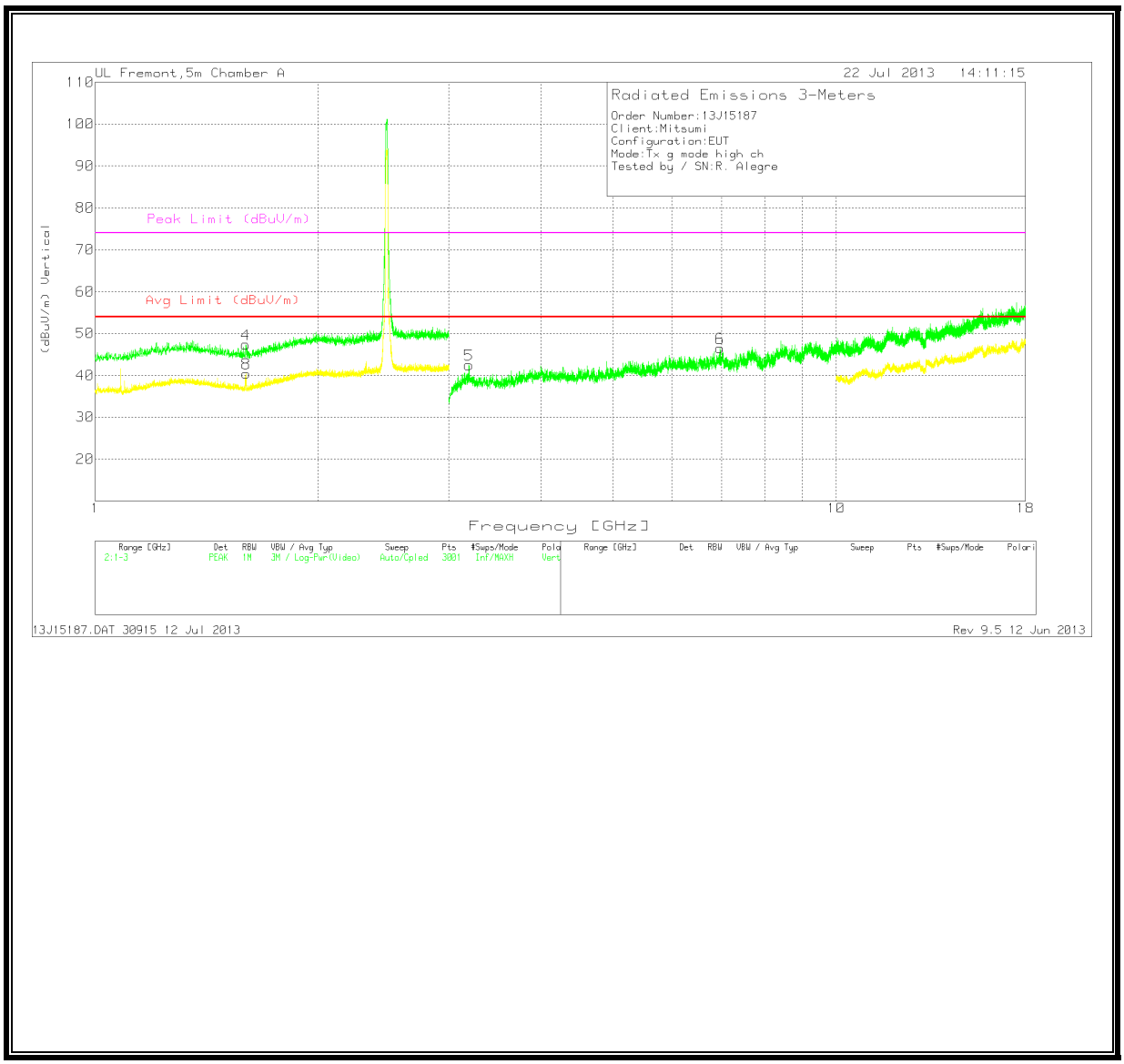
Vertical 1 - 3MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
8	1.5985	36.5	PK	28.3	-24.5	40.3	53.97	-13.67	74	-33.7	0-360	100	V

HORIZONTAL PLOT



VERTICAL PLOT



HIGH CHANNEL DATA

Order Number:13J15187
Client:Mitsumi
Configuration:EUT
Mode:Tx g mode high ch
Tested by / SN:R. Alegre

Trace Markers

Horizontal 1 - 3MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
1	1.5953	42.9	PK	28.3	-24.4	46.8	53.97	-7.17	74	-27.2	0-360	100	H

Vertical 1 - 3MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
4	1.5967	43.47	PK	28.3	-24.4	47.37	53.97	-6.6	74	-26.63	0-360	100	V

Horizontal 3 - 18MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
2	3.8418	38.44	PK	33.6	-29.6	42.44	53.97	-11.53	74	-31.56	0-360	100	H
3	6.1339	38.96	PK	35.3	-28	46.26	53.97	-7.71	74	-27.74	0-360	100	H

Vertical 3 - 18MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
5	3.1931	40	PK	33.5	-31	42.5	53.97	-11.47	74	-31.5	0-360	200	V
6	6.9635	37.59	PK	35.4	-26.5	46.49	53.97	-7.48	74	-27.51	0-360	200	V

Horizontal 1 - 3MHz

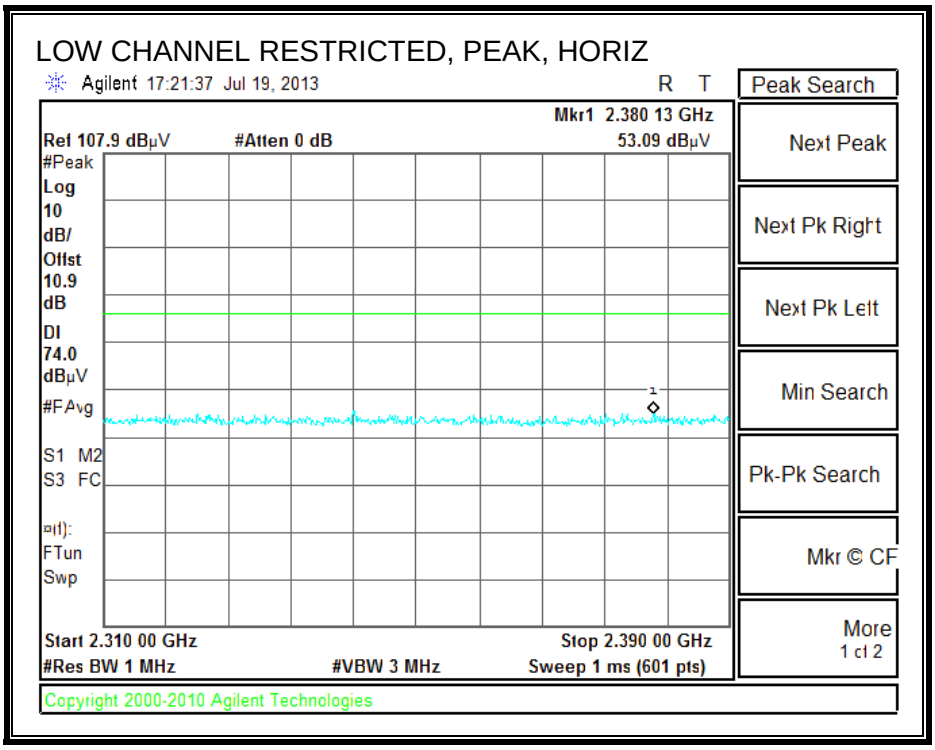
Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
7	1.5983	37.02	PK	28.3	-24.5	40.82	53.97	-13.15	74	-33.18	0-360	200	H

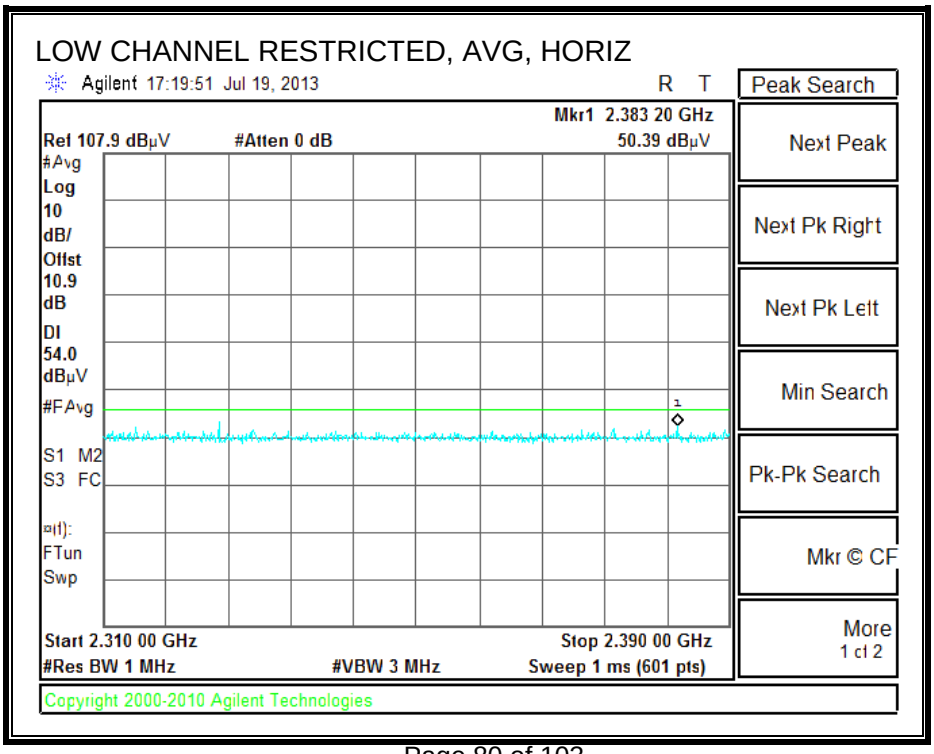
Vertical 1 - 3MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
8	1.5983	36.63	PK	28.3	-24.5	40.43	53.97	-13.54	74	-33.57	0-360	100	V

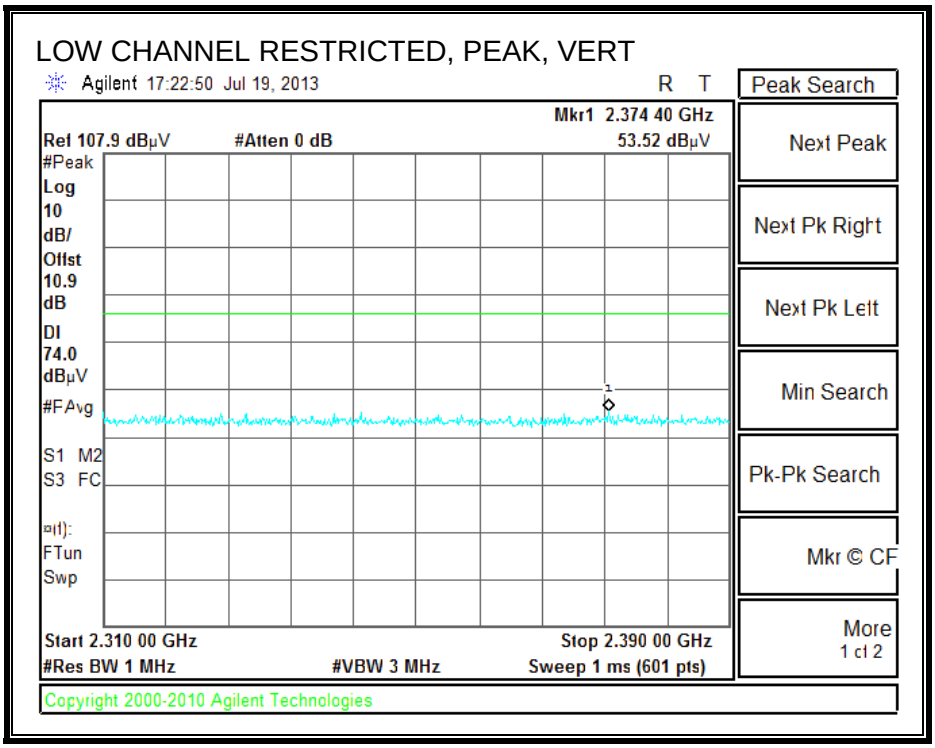
8.2.3. TX ABOVE 1 GHz FOR 802.11n HT20 1TX MODE IN THE 2.4 GHz BAND

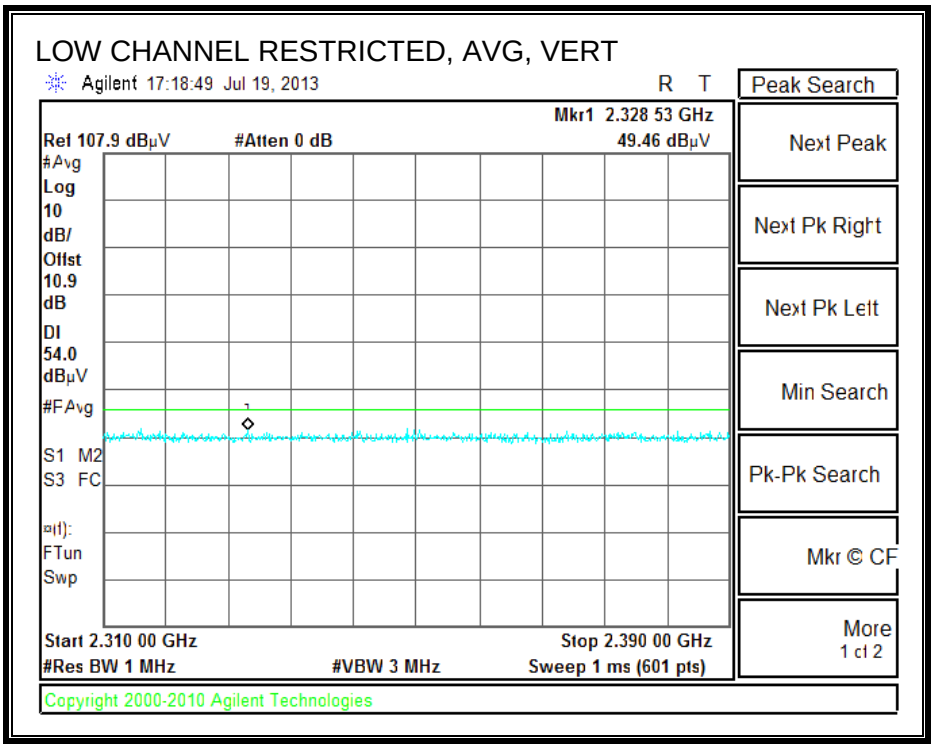
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



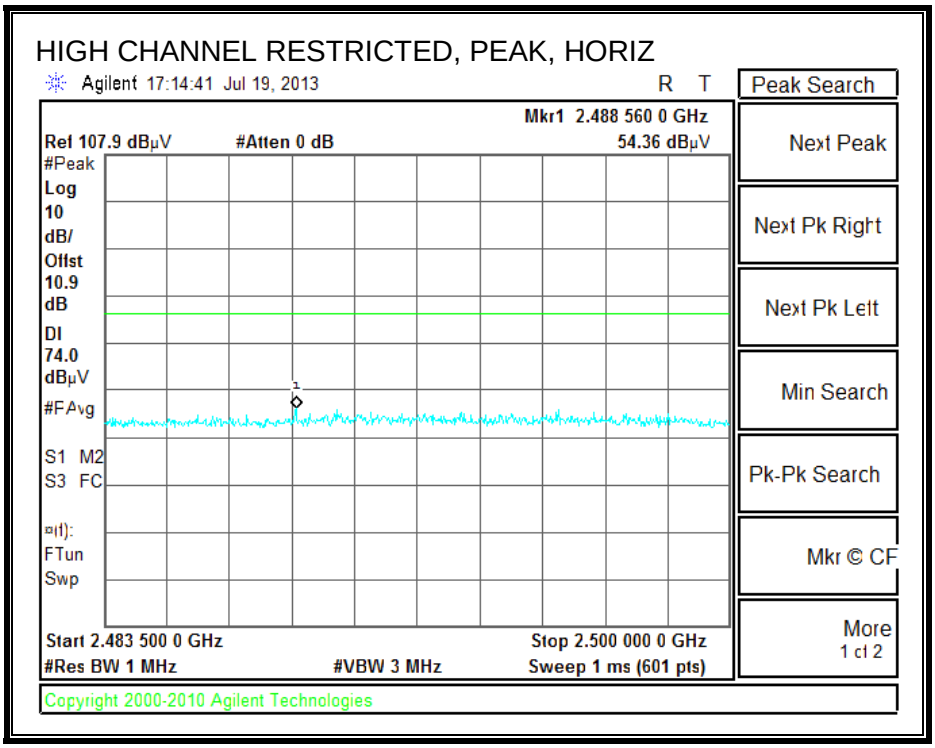


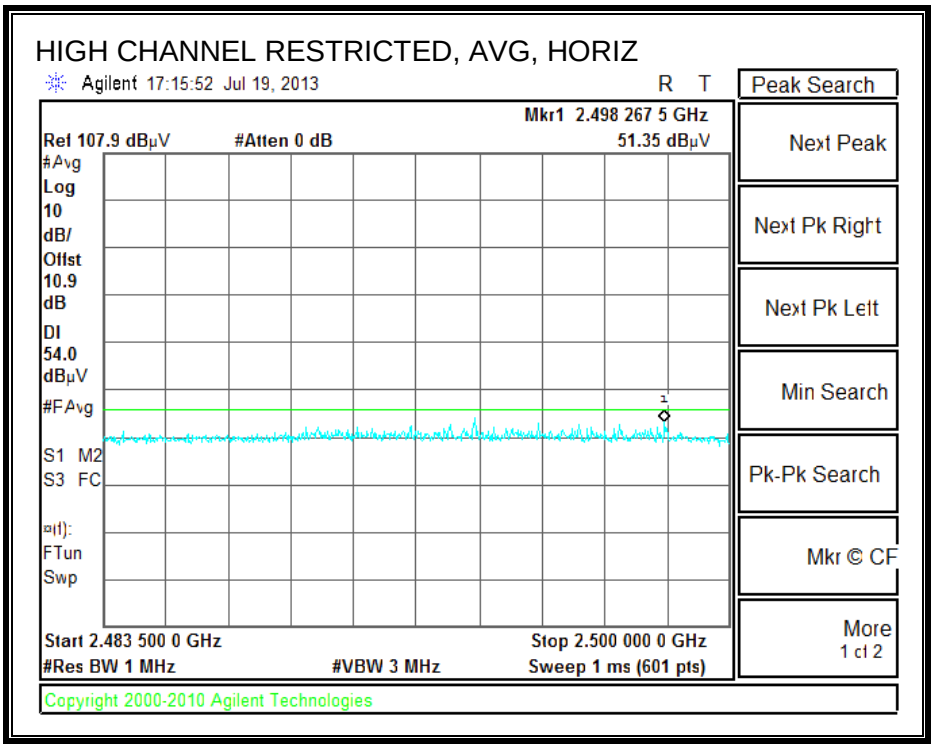
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



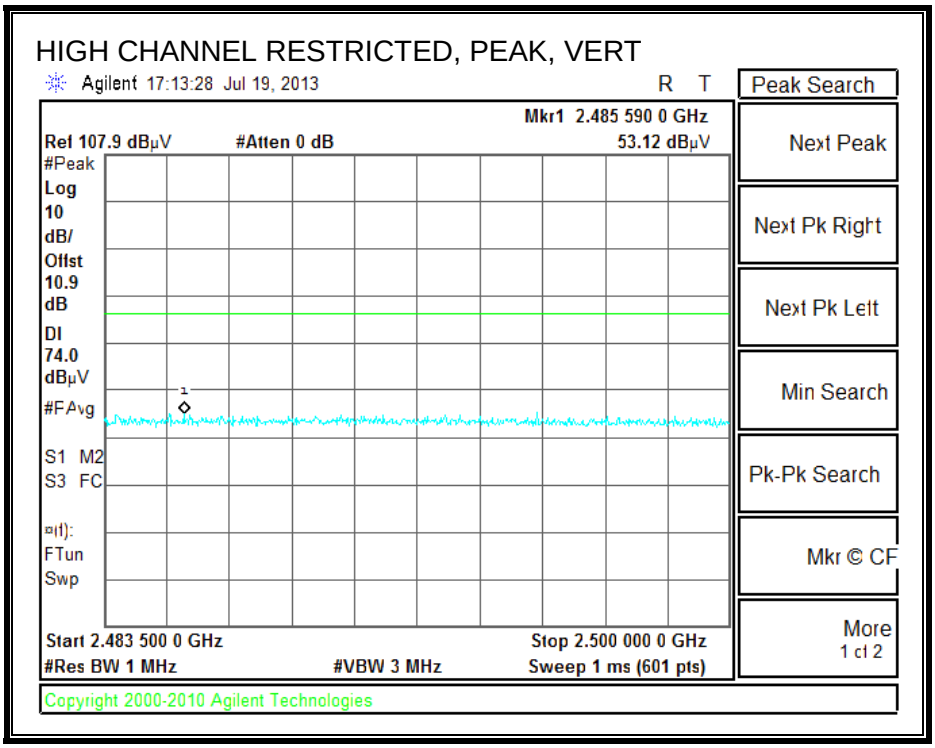


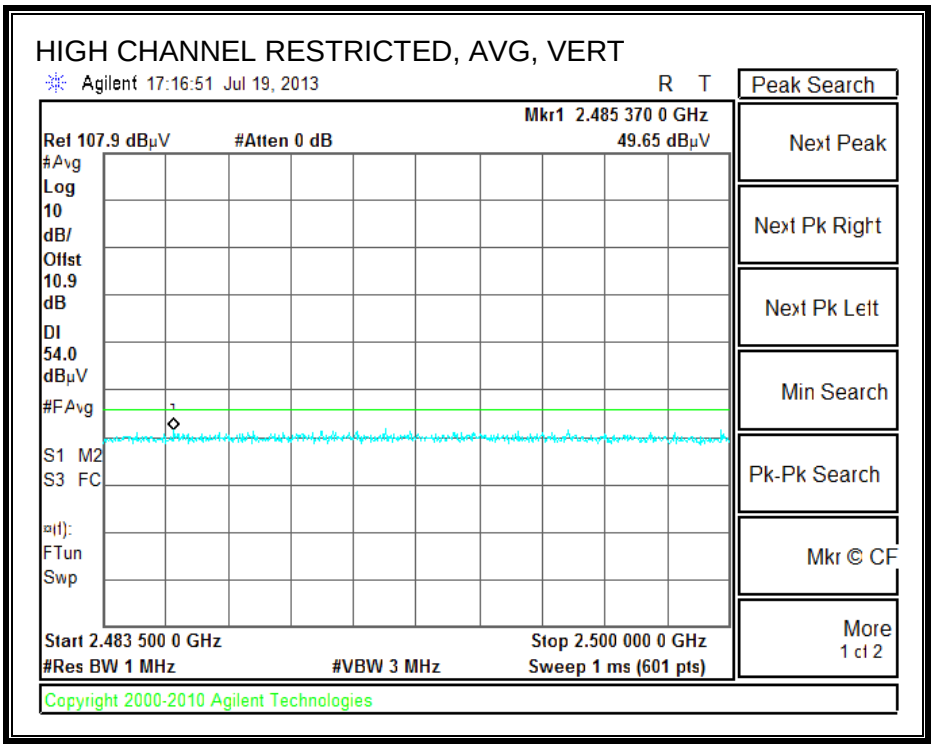
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)





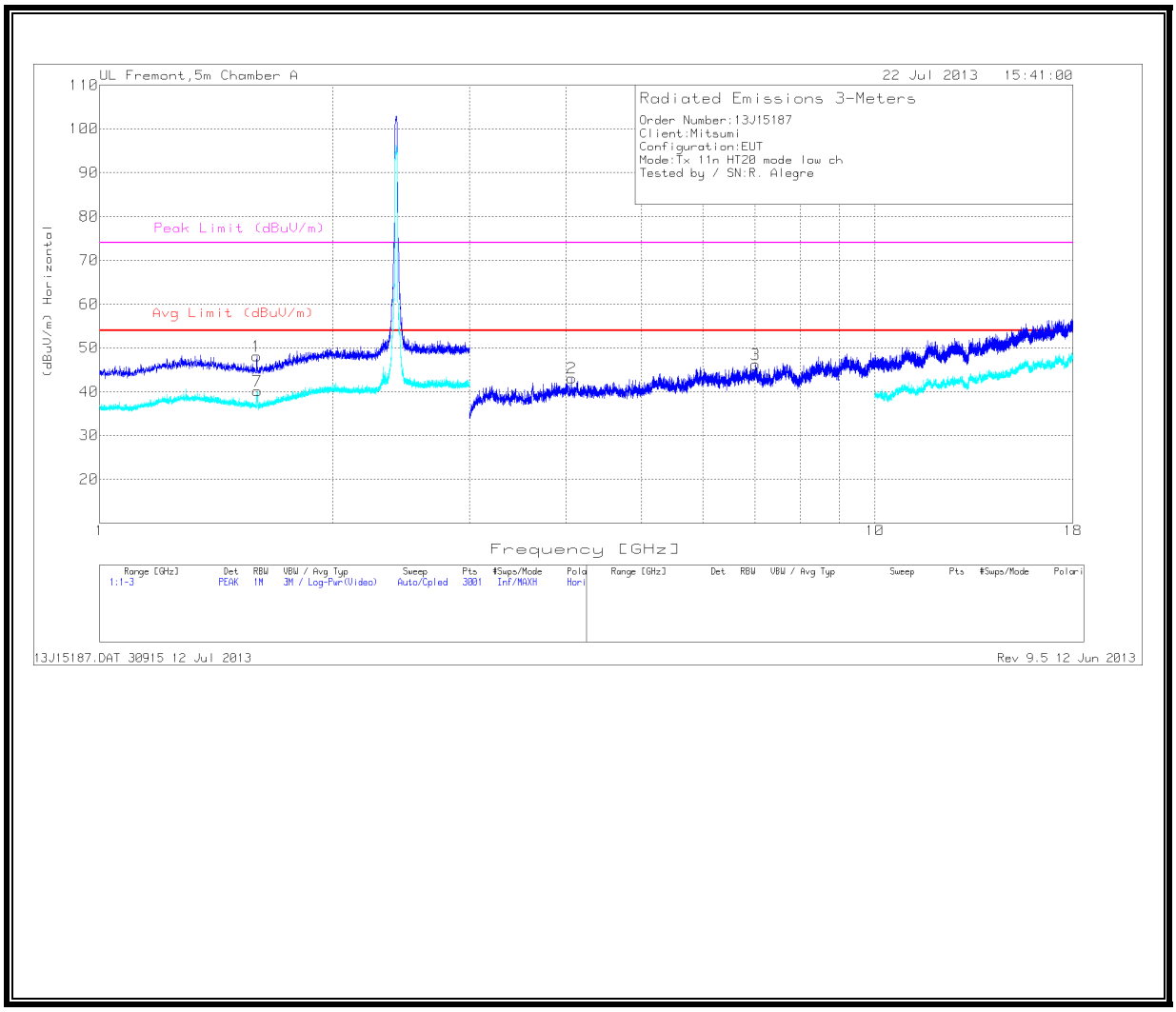
RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



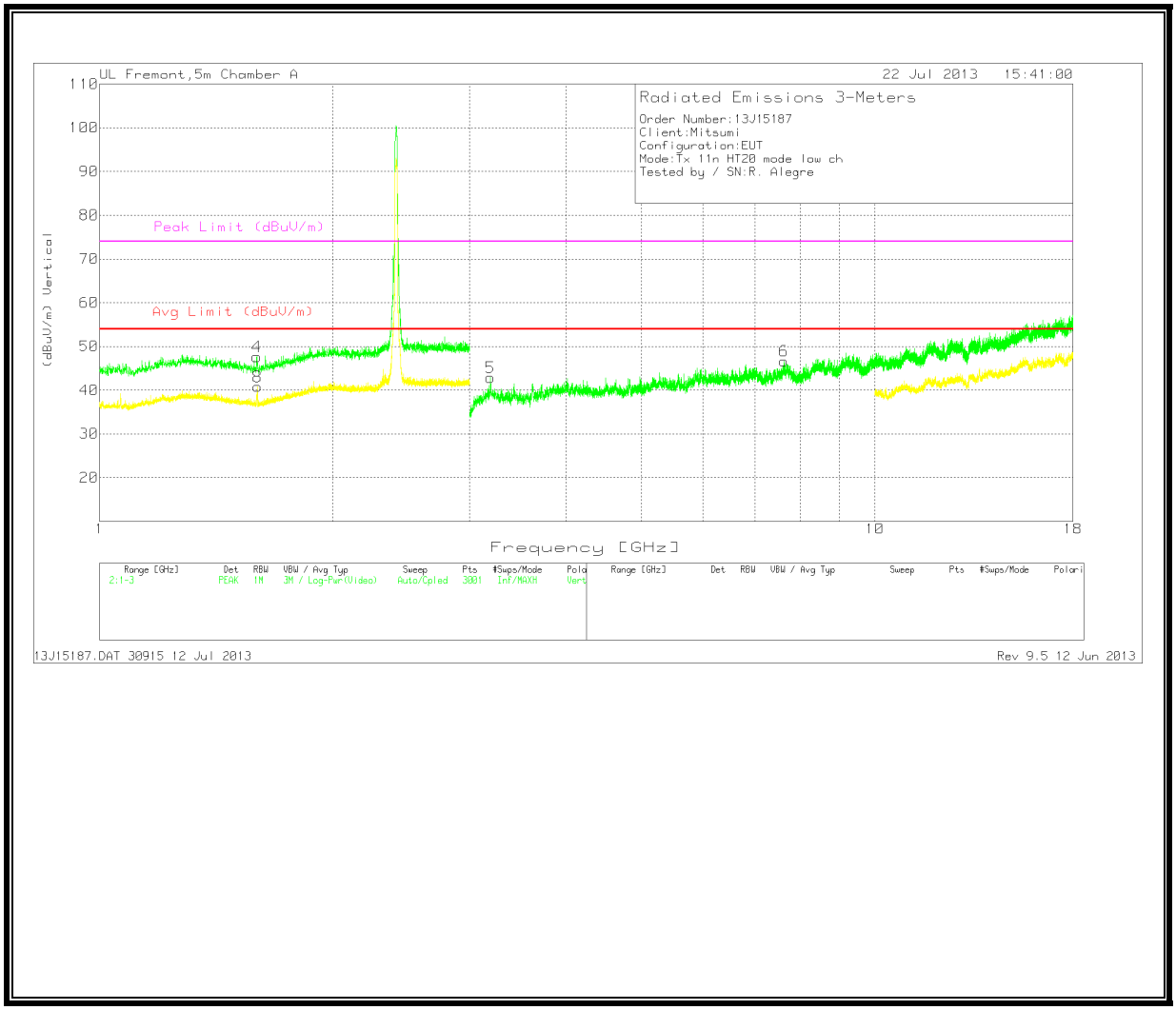


HARMONICS AND SPURIOUS EMISSIONS

HORIZONTAL PLOT



VERTICAL PLOT



LOW CHANNEL DATA

Order Number:13J15187
Client:Mitsumi
Configuration:EUT
Mode:Tx 11n HT20 mode low ch
Tested by / SN:R. Alegre

Trace Markers

Horizontal 1 - 3MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
1	1.5947	44.2	PK	28.3	-24.4	48.1	53.97	-5.87	74	-25.9	0-360	200	H

Vertical 1 - 3MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
4	1.5947	43.75	PK	28.3	-24.4	47.65	53.97	-6.32	74	-26.35	0-360	100	V

Horizontal 3 - 18MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
2	4.0621	39	PK	33.8	-29.7	43.1	53.97	-10.87	74	-30.9	0-360	200	H
3	7.0151	35.89	PK	35.4	-25.1	46.19	53.97	-7.78	74	-27.81	0-360	100	H

Vertical 3 - 18MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
5	3.1912	40.39	PK	33.5	-31	42.89	53.97	-11.08	74	-31.11	0-360	200	V
6	7.6347	36.28	PK	35.5	-25.1	46.68	53.97	-7.29	74	-27.32	0-360	200	V

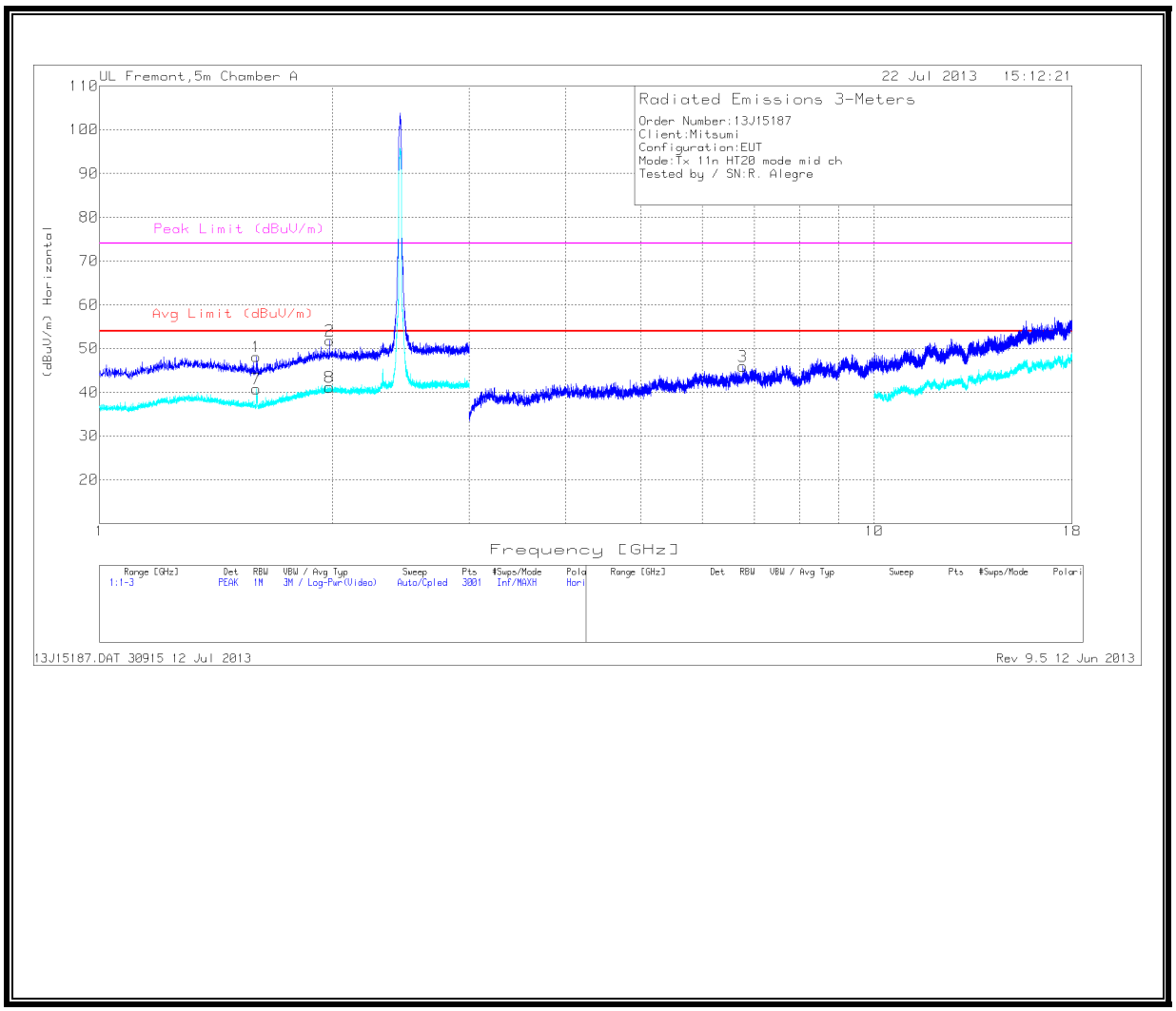
Horizontal 1 - 3MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
7	1.5975	36.36	PK	28.3	-24.5	40.16	53.97	-13.81	74	-33.84	0-360	200	H

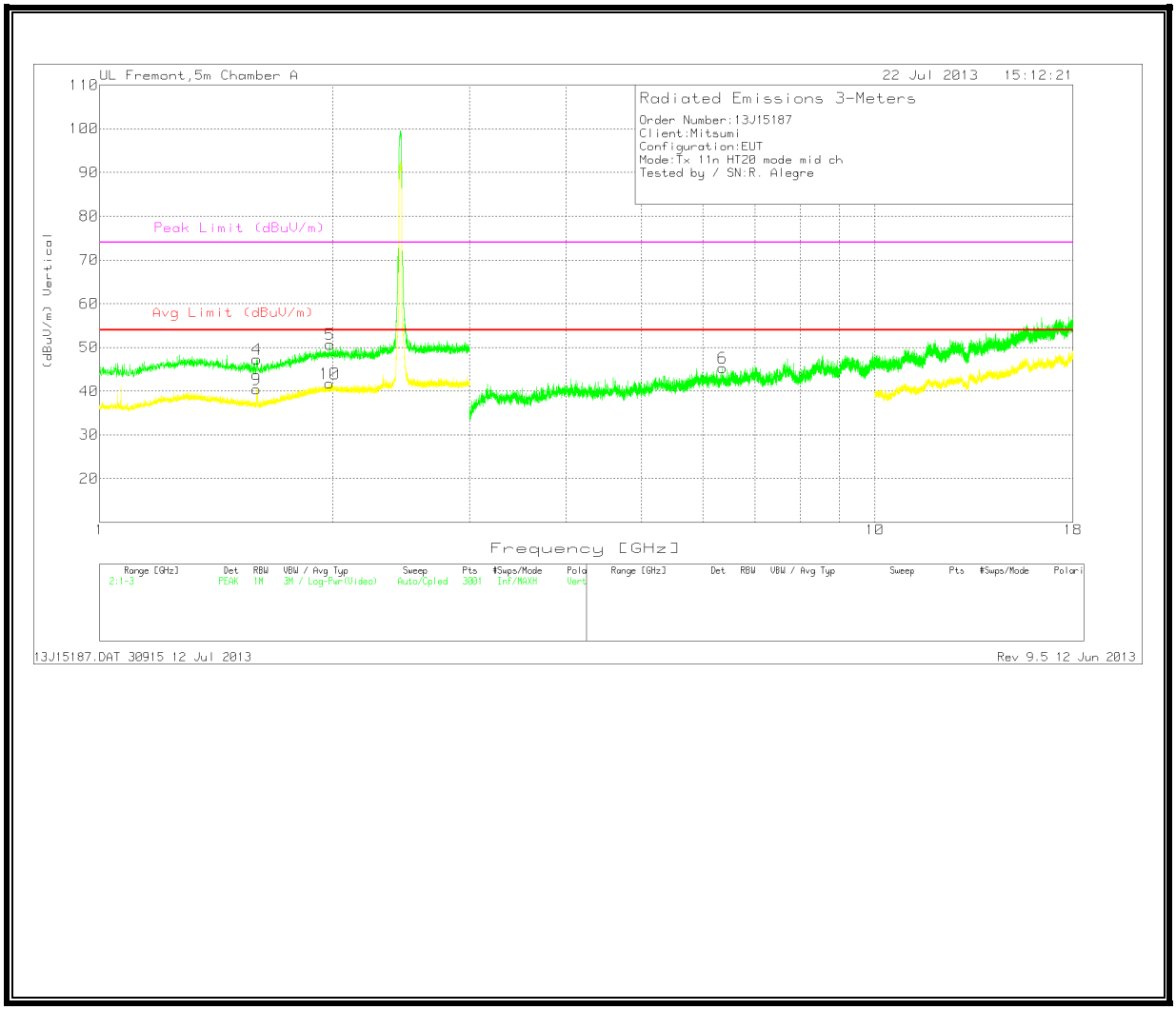
Vertical 1 - 3MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
8	1.5988	37	PK	28.3	-24.5	40.8	53.97	-13.17	74	-33.2	0-360	200	V

HORIZONTAL PLOT



VERTICAL PLOT



MID CHANNEL DATA

Order Number:13J15187
Client:Mitsumi
Configuration:EUT
Mode:Tx 11n HT20 mode mid ch
Tested by / SN:R. Alegre

Trace Markers

Horizontal 1 - 3MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
1	1.5933	44.23	PK	28.3	-24.4	48.13	53.97	-5.84	74	-25.87	0-360	200	H
2	1.9813	43.51	PK	31.9	-23.6	51.81	53.97	-2.16	74	-22.19	0-360	200	H

Vertical 1 - 3MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
4	1.5947	43.42	PK	28.3	-24.4	47.32	53.97	-6.65	74	-26.68	0-360	100	V
5	1.9827	42.41	PK	31.9	-23.6	50.71	53.97	-3.26	74	-23.29	0-360	100	V

Horizontal 3 - 18MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
3	6.7629	37.83	PK	35.4	-27.3	45.93	53.97	-8.04	74	-28.07	0-360	100	H

Vertical 3 - 18MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
6	6.3617	37.14	PK	35.5	-27.3	45.34	53.97	-8.63	74	-28.66	0-360	100	V

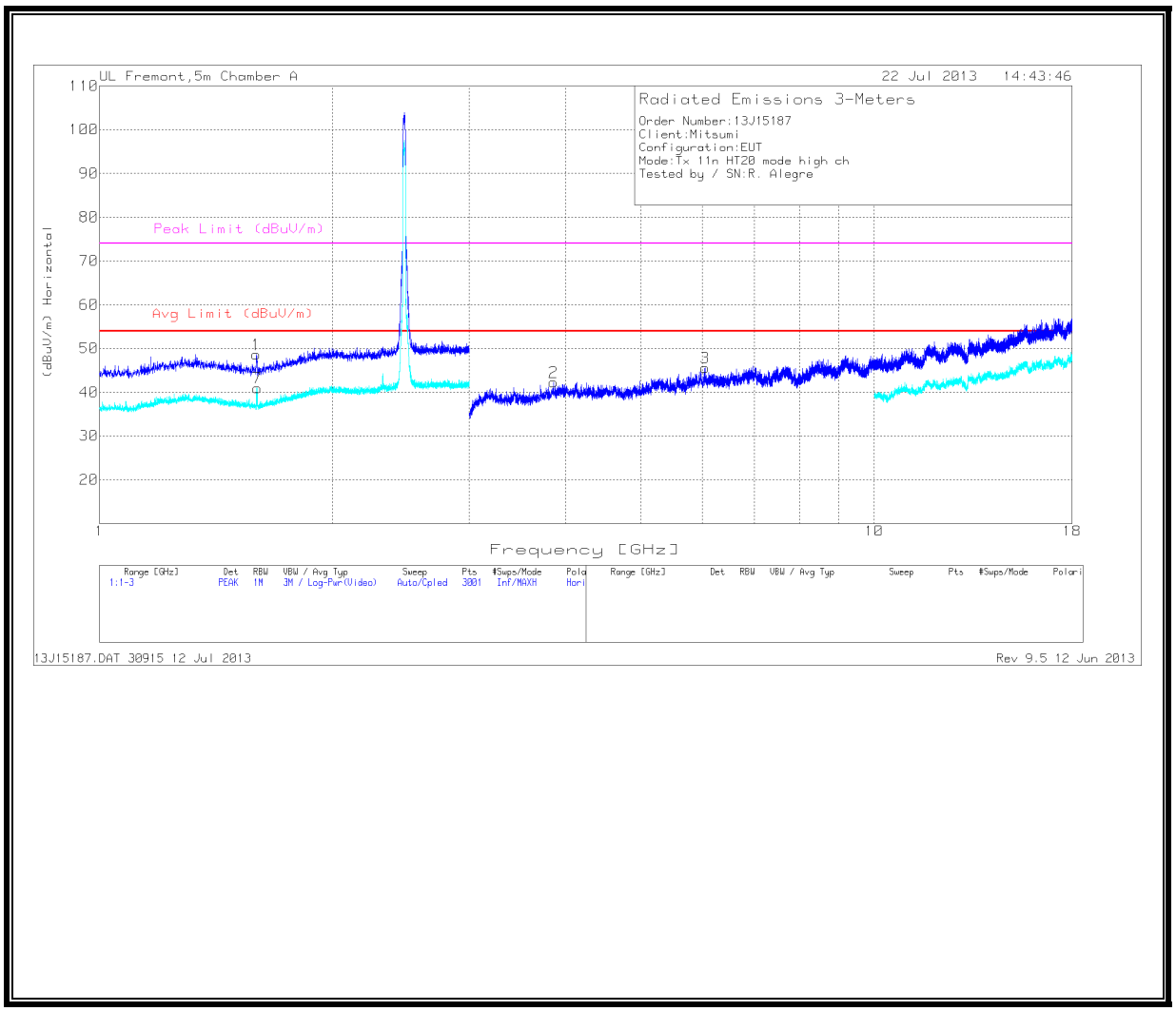
Horizontal 1 - 3MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
7	1.5933	36.87	PK	28.3	-24.4	40.77	53.97	-13.2	74	-33.23	0-360	200	H
8	1.9808	32.87	PK	31.9	-23.6	41.17	53.97	-12.8	74	-32.83	0-360	200	H

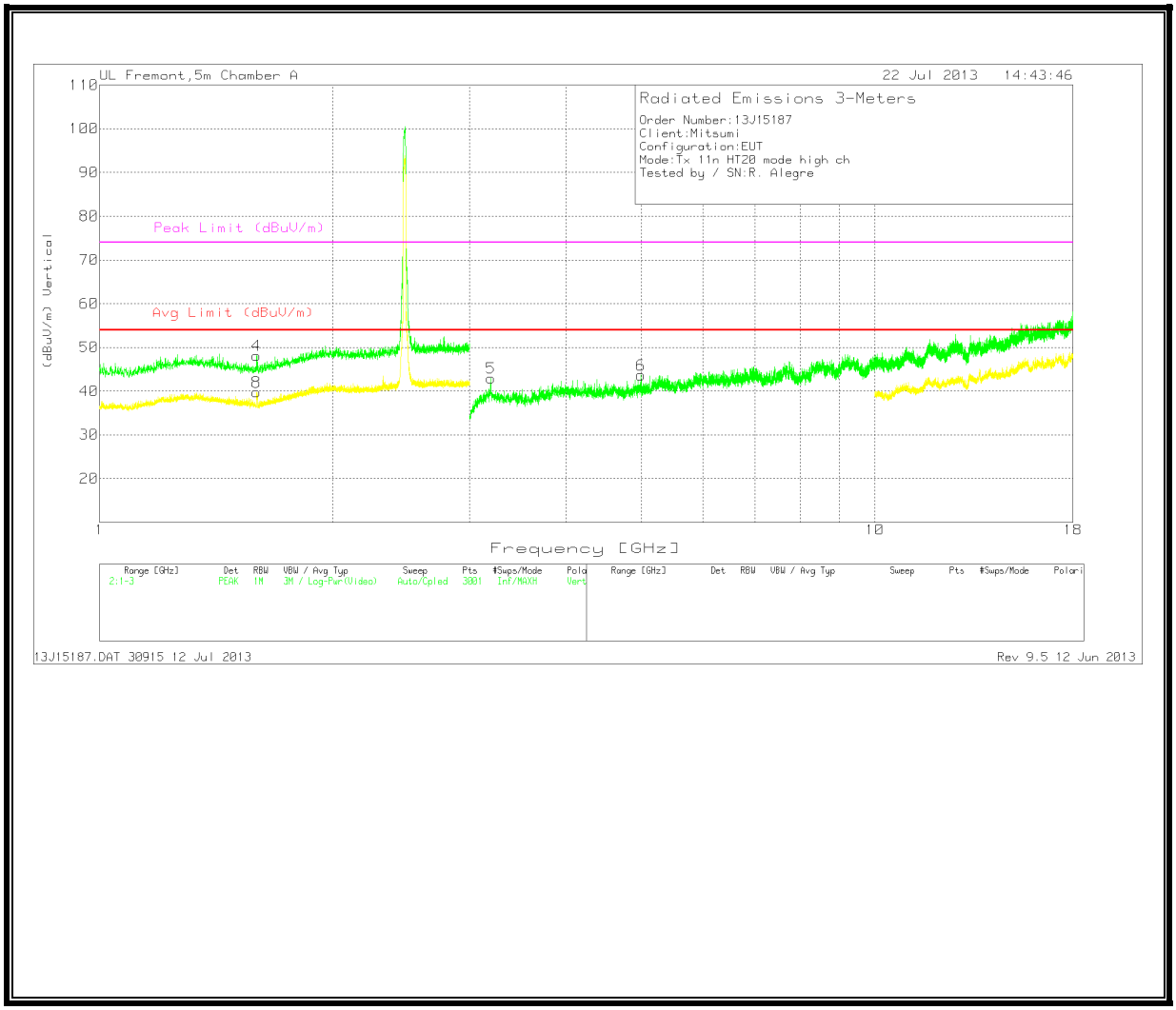
Vertical 1 - 3MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
9	1.5938	36.52	PK	28.3	-24.4	40.42	53.97	-13.55	74	-33.58	0-360	100	V
10	1.9793	33.46	PK	31.9	-23.6	41.76	53.97	-12.21	74	-32.24	0-360	200	V

HORIZONTAL PLOT



VERTICAL PLOT



Order Number:13J15187
Client:Mitsumi
Configuration:EUT
Mode:Tx 11n HT20 mode high ch
Tested by / SN:R. Alegre

Trace Markers

Horizontal 1 - 3MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
1	1.594	44.71	PK	28.3	-24.4	48.61	53.97	-5.36	74	-25.39	0-360	200	H

Vertical 1 - 3MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
4	1.594	44.24	PK	28.3	-24.4	48.14	53.97	-5.83	74	-25.86	0-360	100	V

Horizontal 3 - 18MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
2	3.8559	38.19	PK	33.6	-29.5	42.29	53.97	-11.68	74	-31.71	0-360	200	H
3	6.0476	38.64	PK	35.2	-28.2	45.64	53.97	-8.33	74	-28.36	0-360	100	H

Vertical 3 - 18MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
5	3.1978	40.37	PK	33.6	-31	42.97	53.97	-11	74	-31.03	0-360	100	V
6	4.9883	37.67	PK	33.9	-27.9	43.67	53.97	-10.3	74	-30.33	0-360	200	V

Horizontal 1 - 3MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
7	1.599	37.2	PK	28.3	-24.5	41	53.97	-12.97	74	-33	0-360	200	H

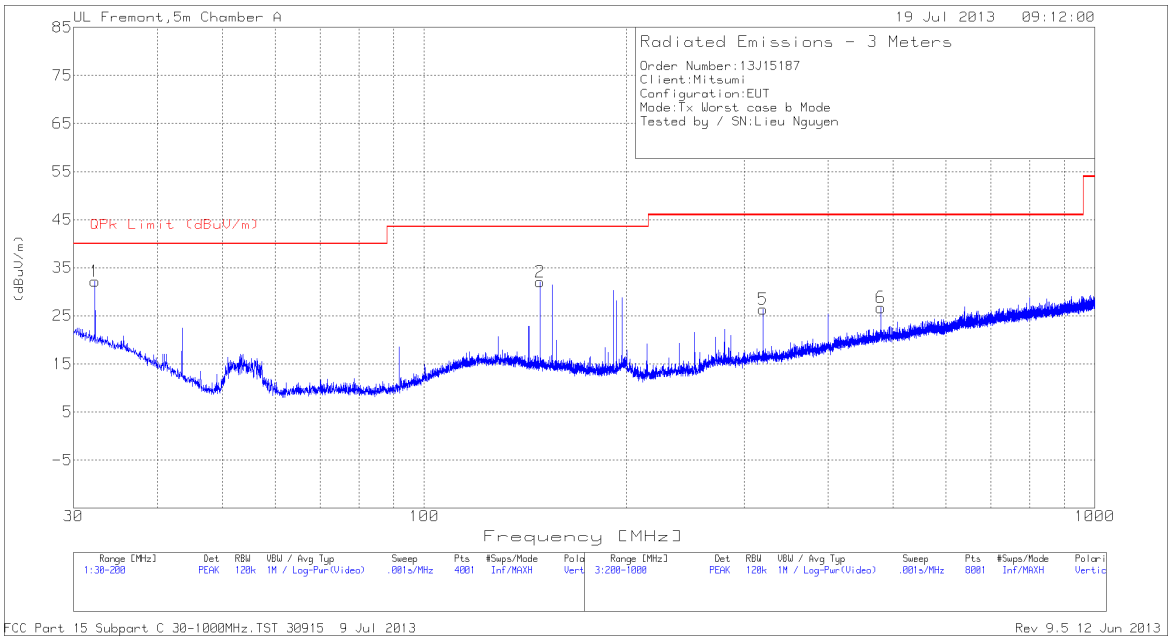
Vertical 1 - 3MHz

Marker No.	Test Frequency (GHz)	Meter Reading(dBuV)	Detector	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
8	1.5935	35.88	PK	28.3	-24.4	39.78	53.97	-14.19	74	-34.22	0-360	100	V

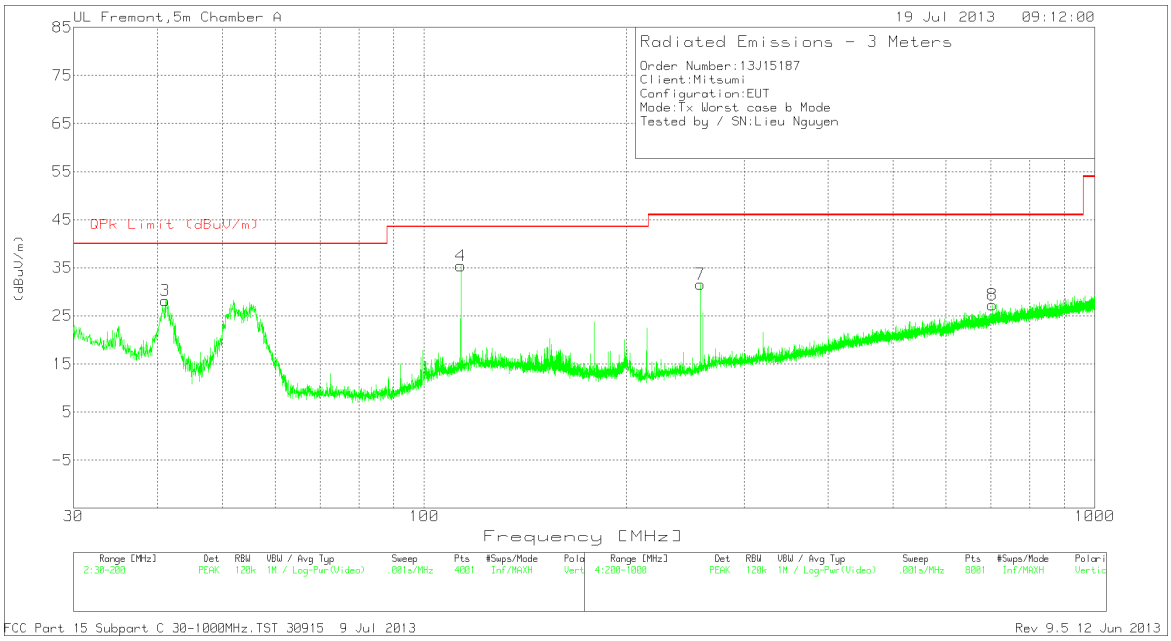
8.3. WORST-CASE BELOW 1 GHz

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

HORIZONTAL PLOT



VERTICAL PLOT



HORIZONTAL AND VERTICAL DATA

Trace Markers											
Horizontal 30 - 200MHz											
Marker No.	Test Frequency (MHz)	Meter Reading(dBuV)	Detector	AF T130 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
1	32.295	40.5	PK	19.3	-27.6	32.2	40	-7.8	0-360	300	H
2	148.83	46.05	PK	12.5	-26.5	32.05	43.52	-11.47	0-360	100	H
Vertical 30 - 200MHz											
Marker No.	Test Frequency (MHz)	Meter Reading(dBuV)	Detector	AF T130 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
3	41.0925	42.88	PK	12.7	-27.4	28.18	40	-11.82	0-360	100	V
4	113.385	49.11	PK	13.1	-26.8	35.41	43.52	-8.11	0-360	100	V
Horizontal 200 - 1000MHz											
Marker No.	Test Frequency (MHz)	Meter Reading(dBuV)	Detector	AF T130 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
5	320	37.88	PK	14	-25.5	26.38	46.02	-19.64	0-360	100	H
6	480	33.5	PK	17.8	-24.6	26.7	46.02	-19.32	0-360	200	H
Vertical 200 - 1000MHz											
Marker No.	Test Frequency (MHz)	Meter Reading(dBuV)	Detector	AF T130 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
7	258.2	45.43	PK	11.9	-25.8	31.53	46.02	-14.49	0-360	300	V
8	703.5	29.57	PK	20.4	-22.7	27.27	46.02	-18.75	0-360	400	V

9. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 7.2.2

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

* Decreases with the logarithm of the frequency.

TEST PROCEDURE

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 C63.10.

The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

RESULTS

6 WORST EMISSIONS

Line-L1 .15 - 30MHz

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L1 (dB)	LC Cables 1&3 (dB)	Corrected Reading dB(uVolts)	CISPR 11/22 Class B Quasi-peak	Margin to Limit (dB)	CISPR 11/22 Class B Average	Margin to Limit (dB)
1	.186	56.99	PK	.1	0	57.09	64.2	-7.11	-	-
2	.186	51.46	Av	.1	0	51.56	-	-	54.2	-2.64
3	1.374	25.59	PK	.1	.1	25.79	56	-30.21	-	-
4	1.374	19.15	Av	.1	.1	19.35	-	-	46	-26.65
5	27.645	43.45	PK	.5	.3	44.25	60	-15.75	-	-
6	27.645	38.3	Av	.5	.3	39.1	-	-	50	-10.9

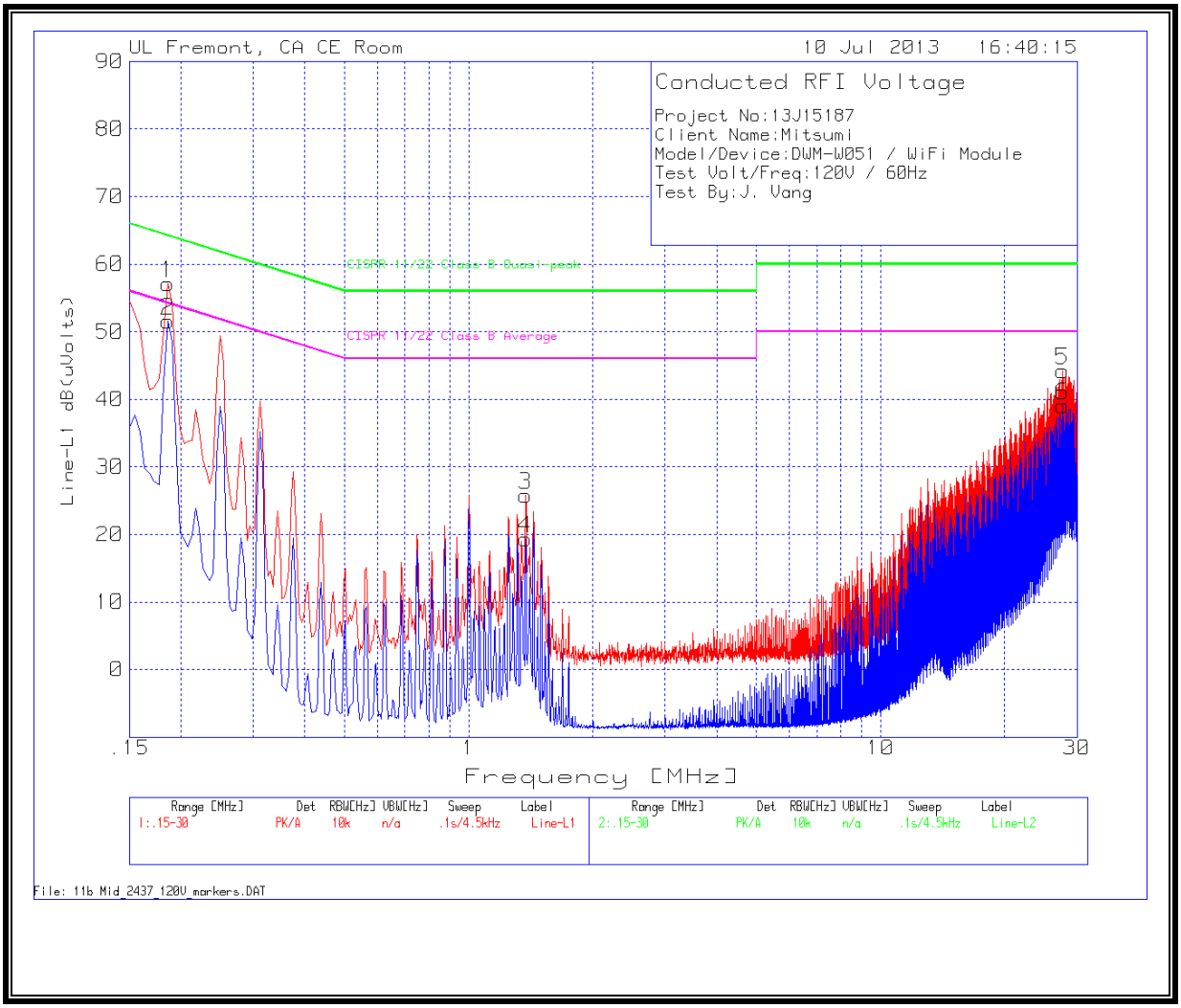
Line-L2 .15 - 30MHz

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L2 (dB)	LC Cables 2&3 (dB)	Corrected Reading dB(uVolts)	CISPR 11/22 Class B Quasi-peak	Margin to Limit (dB)	CISPR 11/22 Class B Average	Margin to Limit (dB)
7	.186	56.44	PK	.1	0	56.54	64.2	-7.66	-	-
8	.186	50.22	Av	.1	0	50.32	-	-	54.2	-3.88
9	1.0005	25.82	PK	.1	0	25.92	56	-30.08	-	-
10	1.0005	24.39	Av	.1	0	24.49	-	-	46	-21.51
11	27.771	42.87	PK	.5	.3	43.67	60	-16.33	-	-
12	27.771	36.78	Av	.5	.3	37.58	-	-	50	-12.42

PK - Peak detector
Av - Average detection

LINE 1 RESULTS



LINE 2 RESULTS