



**FCC 47 CFR PART 15 SUBPART C
INDUSTRY CANADA RSS-210 ISSUE 8**

CERTIFICATION TEST REPORT

FOR

LTE PHONE BLUETOOTH, WLAN (2.4GHZ & 5GHZ) AND NFC

**MODEL NUMBER: LG-D500, LGD500, D500, LGMS500,
LG-MS500, MS500**

FCC ID: ZNFD500

REPORT NUMBER: 13U14980-1

ISSUE DATE: MAY 14, 2013

Prepared for
**LG ELECTRONICS MOBILECOMM U.S.A., INC.
1000 SYLVAN AVENUE
ENGLEWOOD CLIFFS, NEW JERSEY 07632**

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: LG ELECTRONICS MOBILECOMM U.S.A., INC.
1000 SYLVAN AVENUE
ENGLEWOOD CLIFFS, NEW JERSEY 07632

EUT DESCRIPTION: LTE Phone Bluetooth, WLAN(2.4GHz & 5GHz) and NFC

MODEL: LG-D500, LGD500, D500, LGMS500, LG-MS500, MS500

SERIAL NUMBER: 303KPHG337169

DATE TESTED: APRIL 18 ~ MAY 4, 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 CCS based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

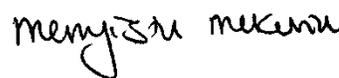
Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL CCS and all revisions are duly noted in the revisions section. Any alteration of this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

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UL Verification Services Inc. By:



PHILIP KIM
WISE PROGRAM MANAGER
UL Verification Services Inc.

Tested By:



MENGISTU MEKURIA
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:

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

4.3. MEASUREMENT UNCERTAINTY

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

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

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC capabilities.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2412 - 2462	802.11b	16.47	44.36
2412 - 2462	802.11g	14.23	26.49
2412 - 2462	802.11n HT20	12.04	16.00
5745 - 5825	802.11a	11.19	13.15
5745 - 5825	802.11n HT20	10.12	10.28
5755 - 5795	802.11n HT40	11.57	14.35

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an PIFA antenna, with a maximum gain of 1.04 dBi for 2.4GHz & 2.44dBi for 5GHz.

5.4. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was kernel, Version 3.4.0.

The EUT driver software installed during testing was Android Version 4.1.2.

The test utility software used during testing was LG870LAP8960JR121210A.

5.5. WORST-CASE CONFIGURATION AND MODE

Radiated emission and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

The fundamental of the EUT was investigated in three orthogonal orientations X,Y,Z, it was determined that X orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in X orientation.

Worst-case data rates as provided by the client were:
Based on the baseline scan, the worst-case data rates were:

802.11b mode: 1 Mbps
802.11g mode: 6 Mbps
802.11a mode: 6 Mbps
802.11n HT20mode: MCS0
802.11n HT40mode: MCS0

Radiated emissions for EUT with antenna was performed and passed; therefore, antenna port spurious was not performed.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	LG	MCS-01WR	RB320071516	N/A
Earphone	I-SOUND CO. LTD	HC-MYD-LG113	N/A	N/A

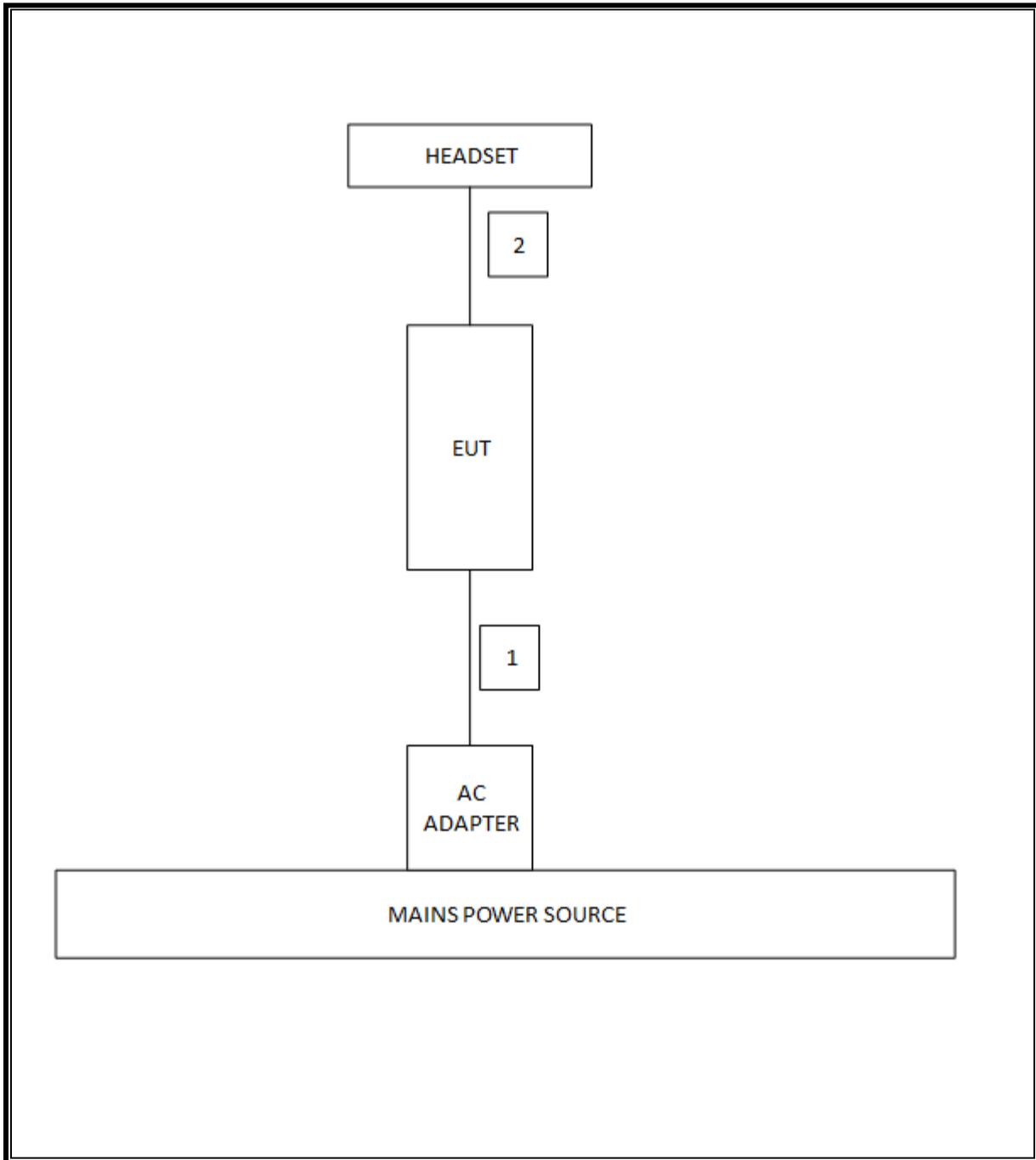
I/O CABLES

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	DC Power	1	Mini-USB	Shielded	1.2m	N/A
2	Audio	1	Mini-Jack	Unshielded	1.0m	N/A

TEST SETUP

The EUT is setup as a stand-alone device.

SETUP DIAGRAM FOR TESTS



6. TEST AND MEASUREMENT EQUIPMENT

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

Test Equipment List					
Description	Manufacturer	Model	Asset	Cal Date	Cal Due
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C00986	03/22/12	10/21/13
Antenna, Horn, 18 GHz	ETS	3117	C01022	02/21/13	02/21/14
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01176	12/13/12	12/13/13
Single Channel PK Power Meter	Agilent	N1911A		02/18/13	02/18/14
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01159	04/09/12	04/09/13
P-Series single channel Power Meter	Agilent / HP	N1911A		10/12/12	10/12/13
Peak / Average Power Sensor	Agilent / HP	E9323A		10/11/12	10/11/13

7. MEASUREMENT METHODS

KDB 558074 Measurement Procedure PK2 is used for power and PKPSD is used for power spectral density.

KDB 558074 Measurement Procedure AVG1 is used for power and PKAVG is used for power spectral density.

KDB 558074 Measurement Procedure AVG2 is used for power and PKAVG is used for power spectral density.

Unwanted emissions within Restricted Bands are measured using traditional radiated procedures.

8. ANTENNA PORT TEST RESULTS

8.1. 802.11b MODE IN THE 2.4 GHz BAND

8.1.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

The minimum 6 dB bandwidth shall be at least 500 kHz.

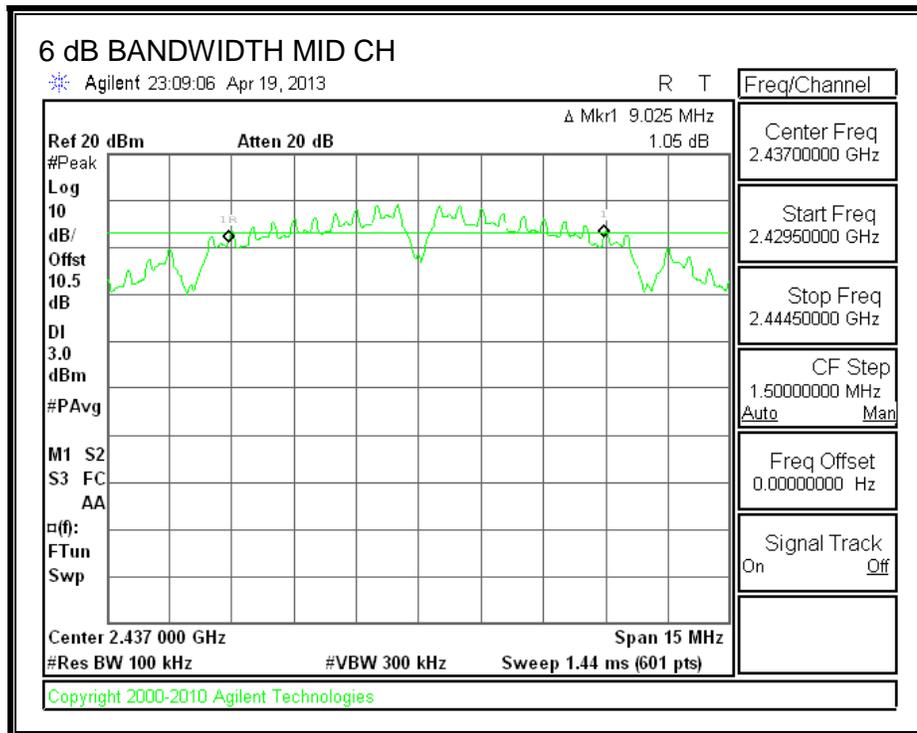
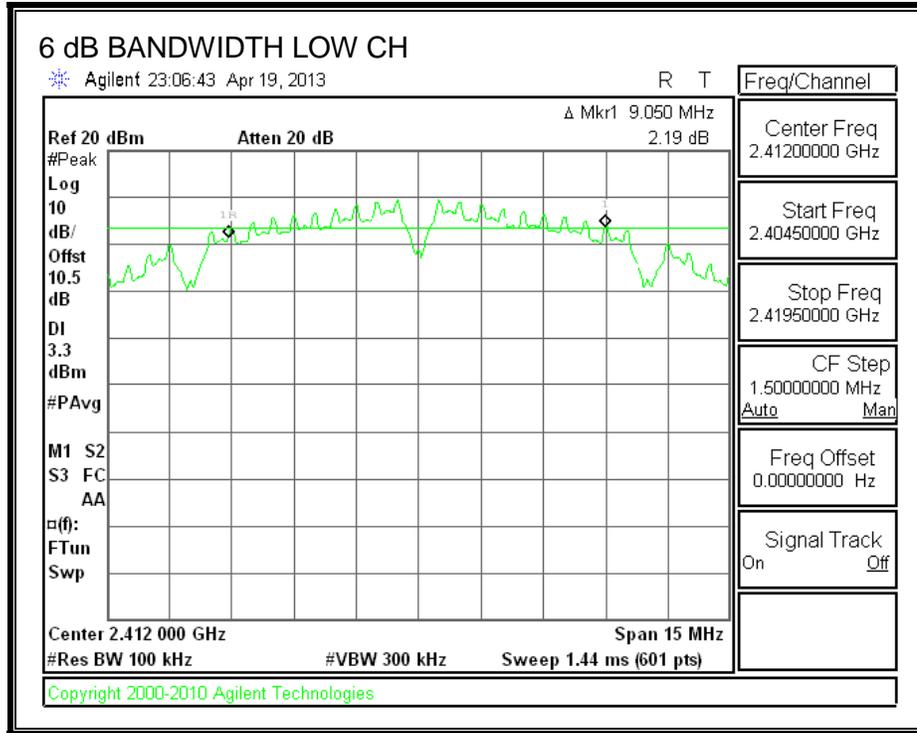
TEST PROCEDURE

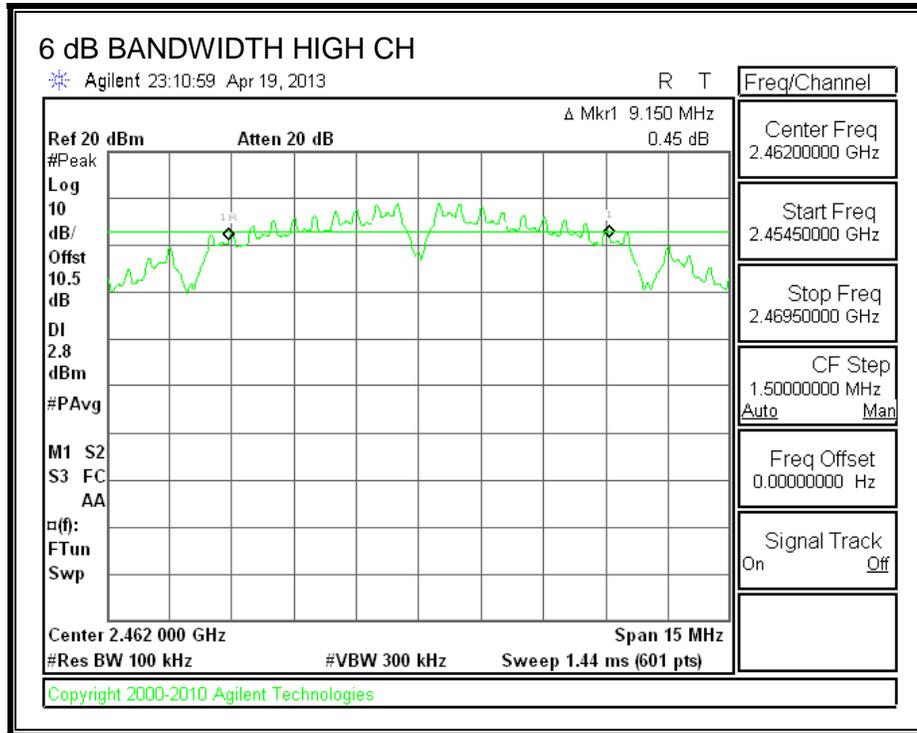
The transmitter output is connected to a spectrum analyzer with the RBW set between 1% and 5% of the EBW, the VBW $\geq 3 \times$ RBW, peak detector and max hold.

RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	9.050	0.5
Mid	2437	9.025	0.5
High	2462	9.150	0.5

6 dB BANDWIDTH





8.1.2. 99% BANDWIDTH

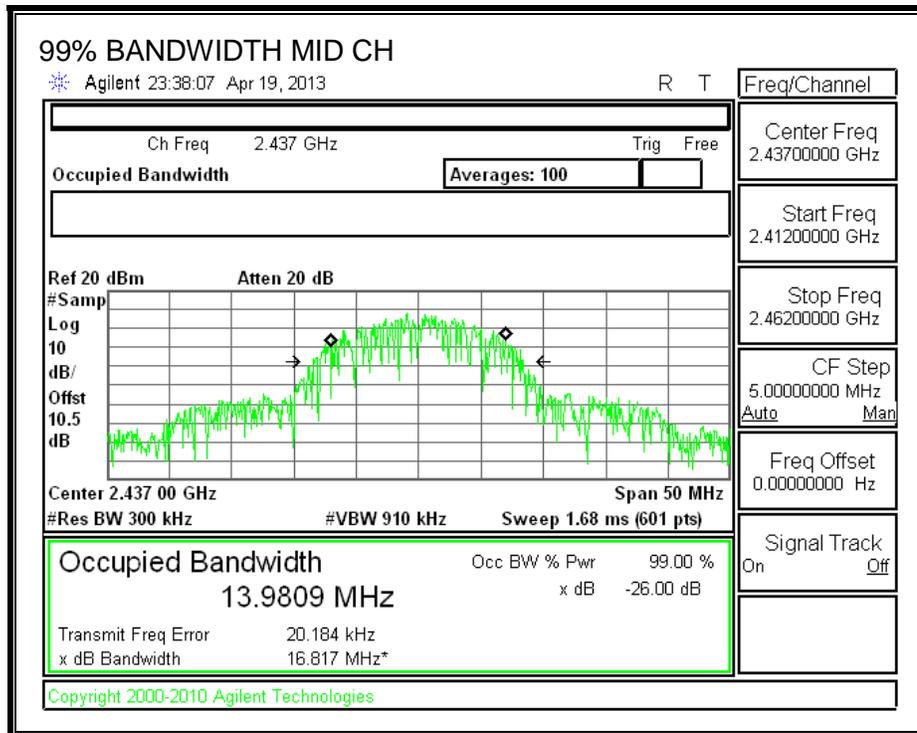
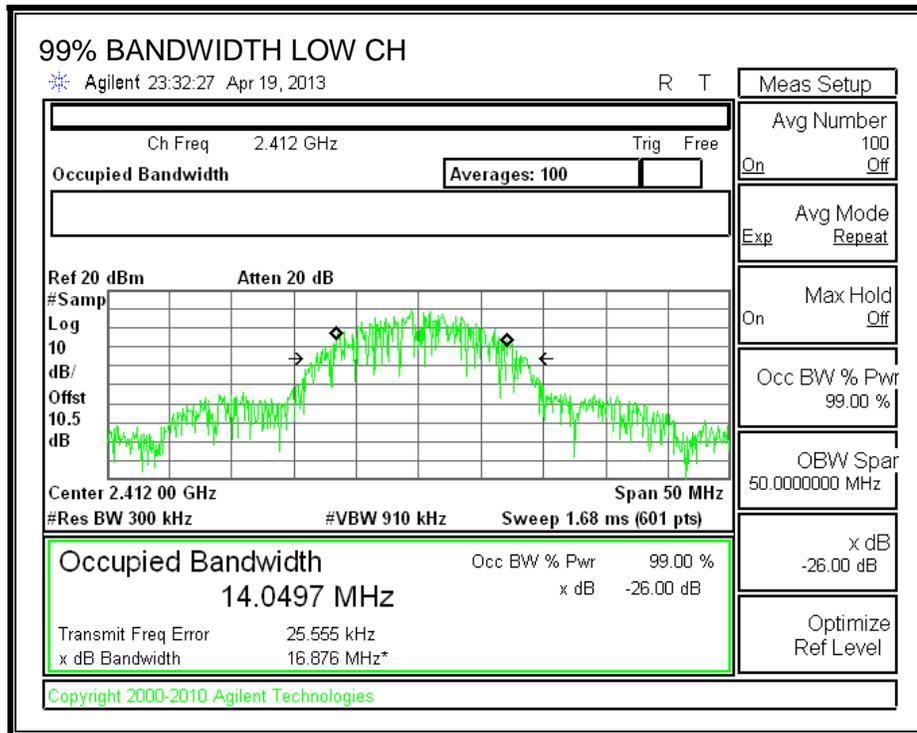
LIMITS

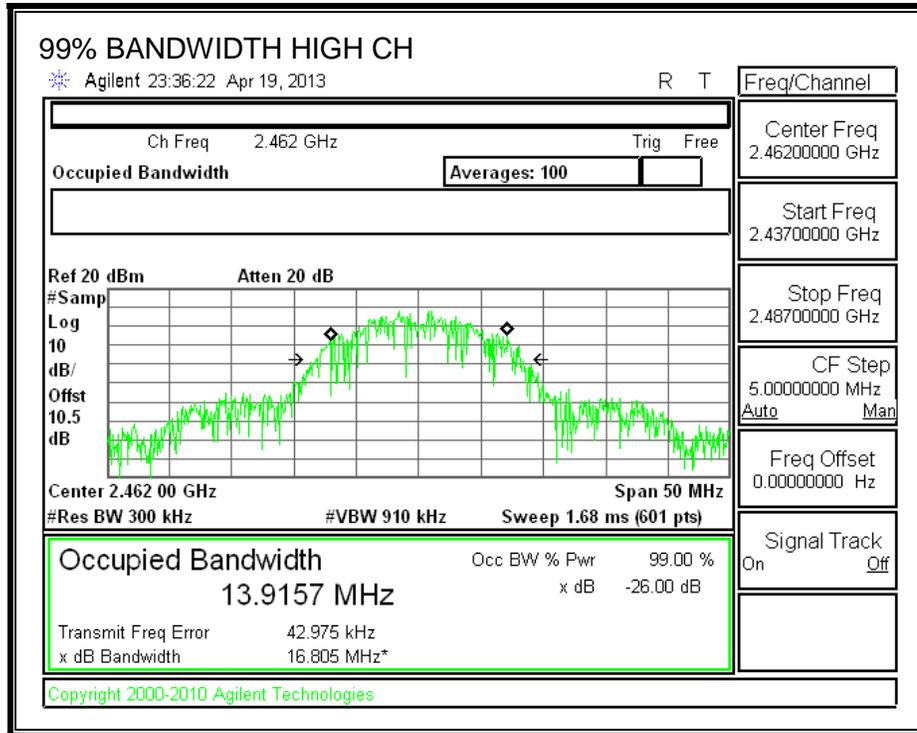
None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	14.0497
Mid	2437	13.9809
High	2462	13.0157

99% BANDWIDTH





8.1.3. 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 10.5 dB (including 10 dB pad and 0.5 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	16.47
Mid	2437	16.20
High	2462	16.02

8.1.4. 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

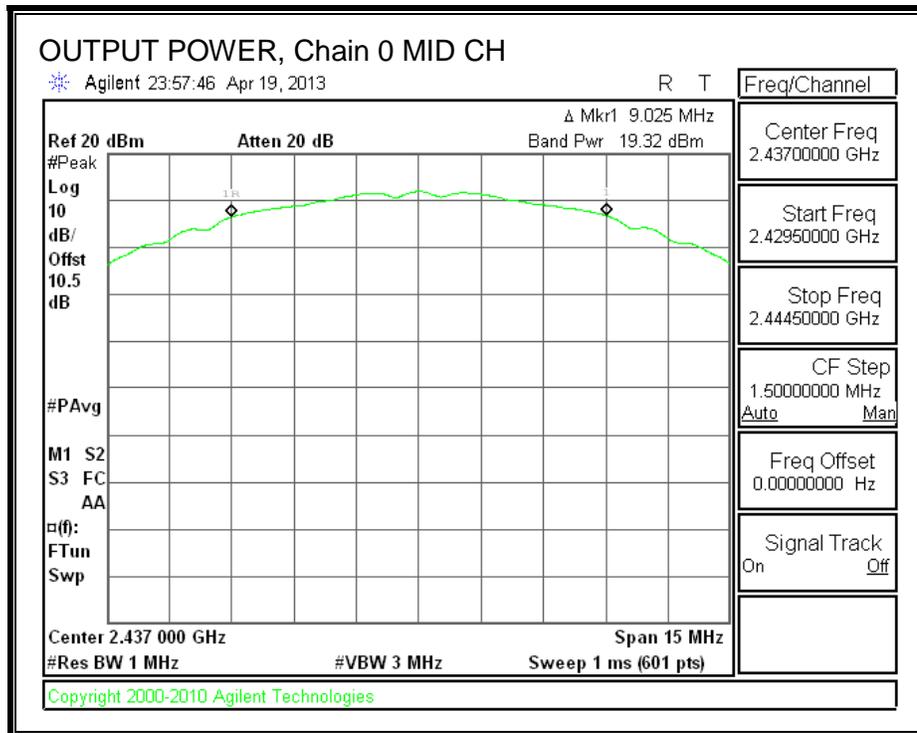
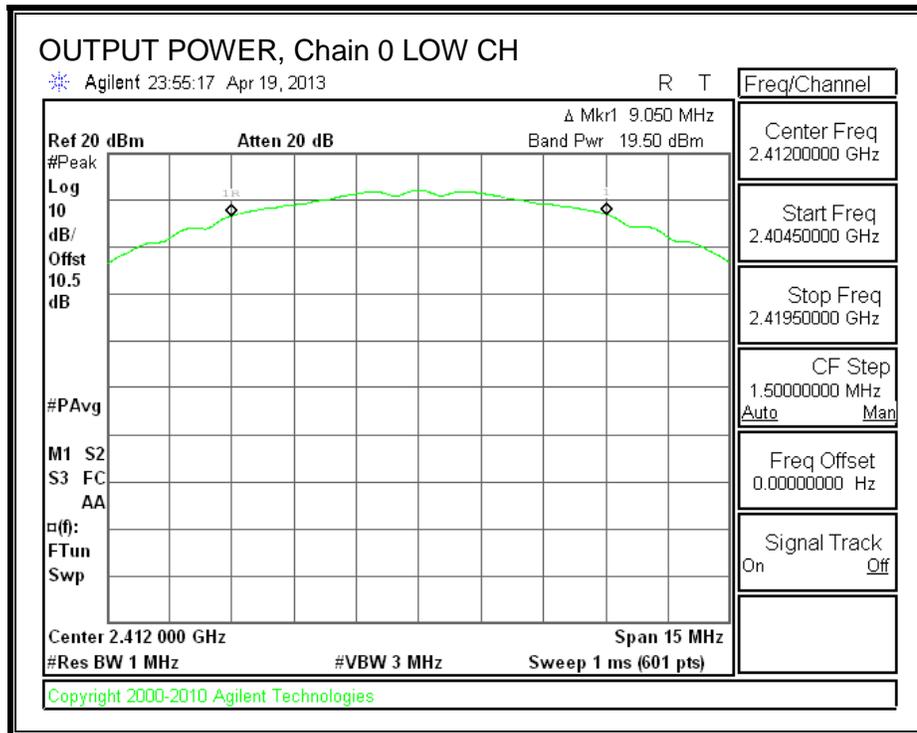
Limits

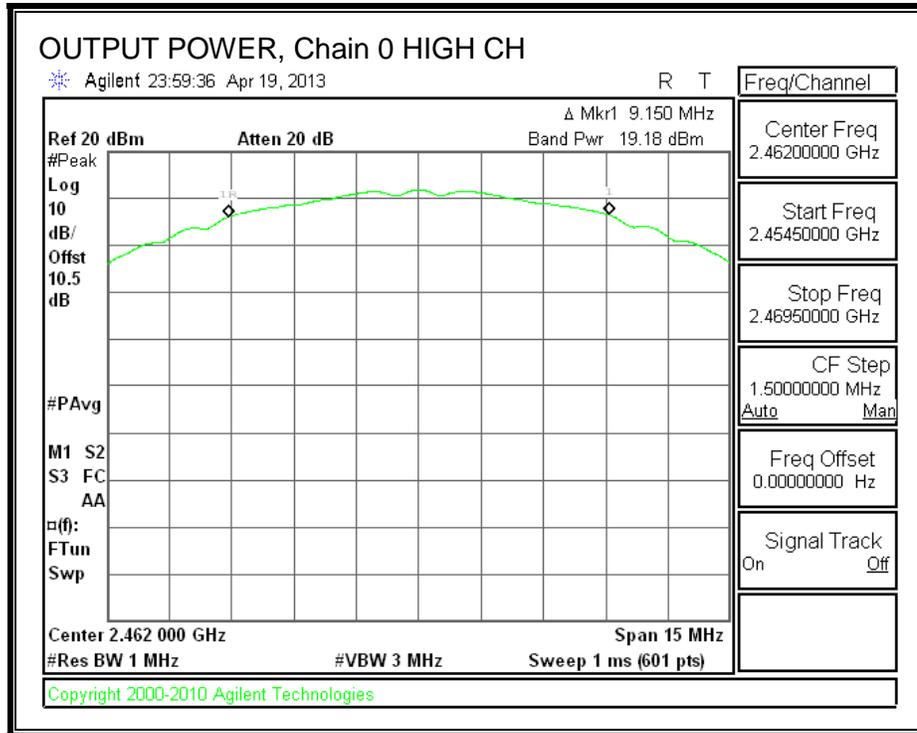
Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2412	1.04	30.00	30	36	30.00
Mid	2437	1.04	30.00	30	36	30.00
High	2462	1.04	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	19.50	19.50	30.00	-10.50
Mid	2437	19.32	19.32	30.00	-10.68
High	2462	19.18	19.18	30.00	-10.82

OUTPUT POWER, Chain 0





8.1.5. PSD

LIMITS

FCC §15.247

IC RSS-210 A8.2

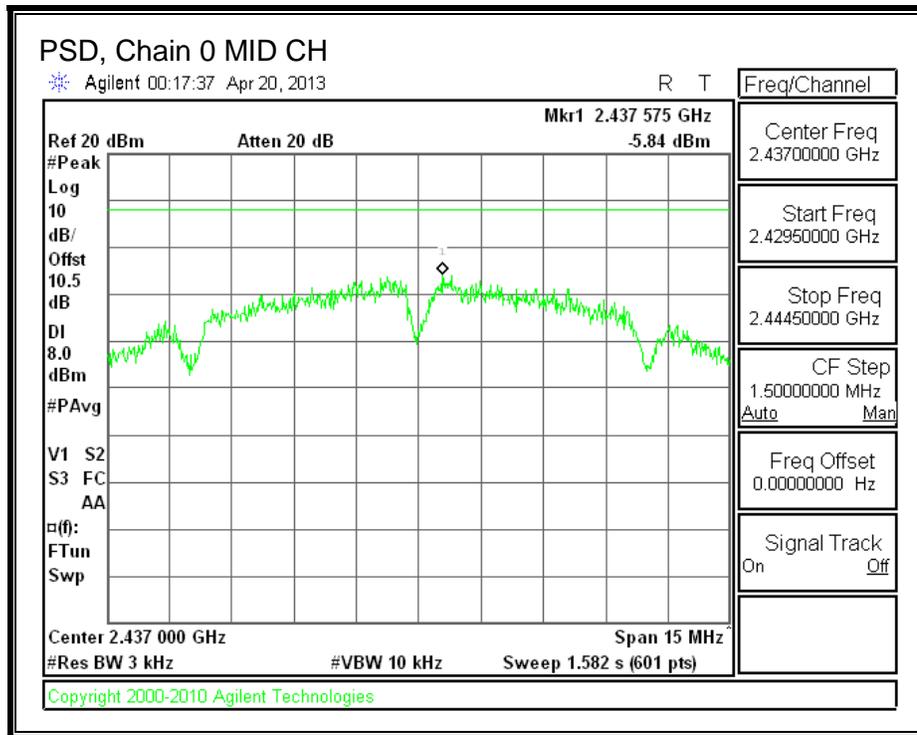
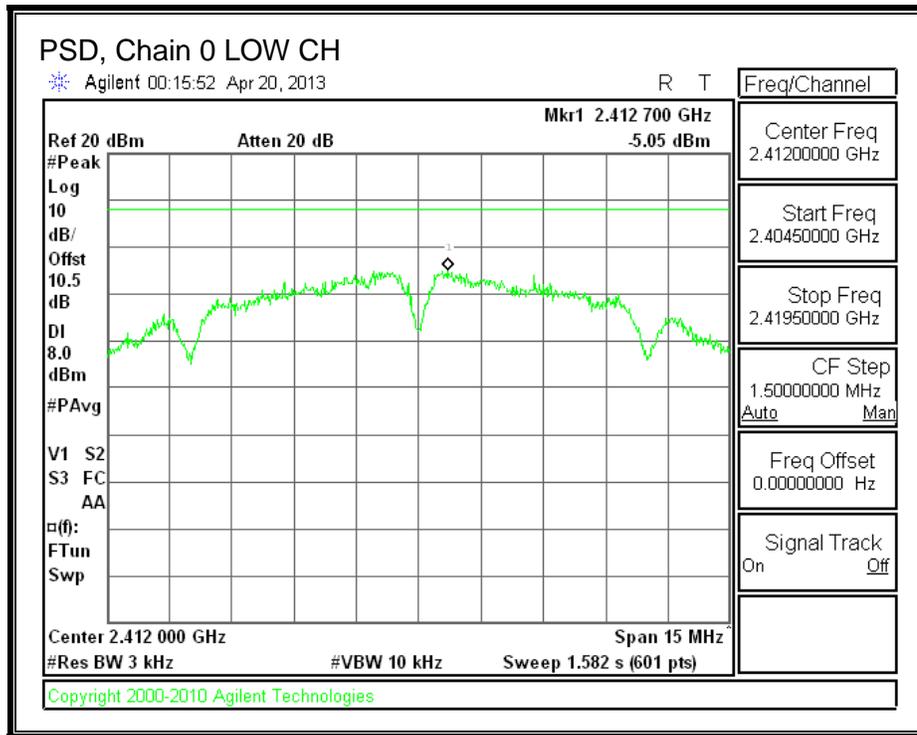
The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

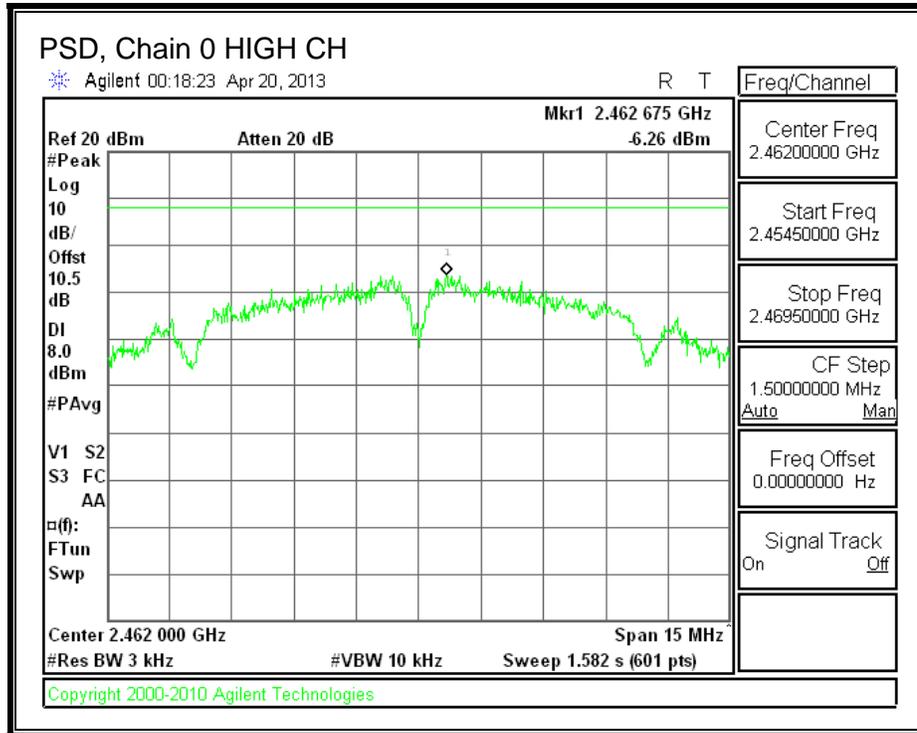
RESULTS

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-5.05	8.0	-13.1
Mid	2437	-5.84	8.0	-13.8
High	2462	-6.26	8.0	-14.3

PSD, Chain 0





8.1.6. OUT-OF-BAND EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

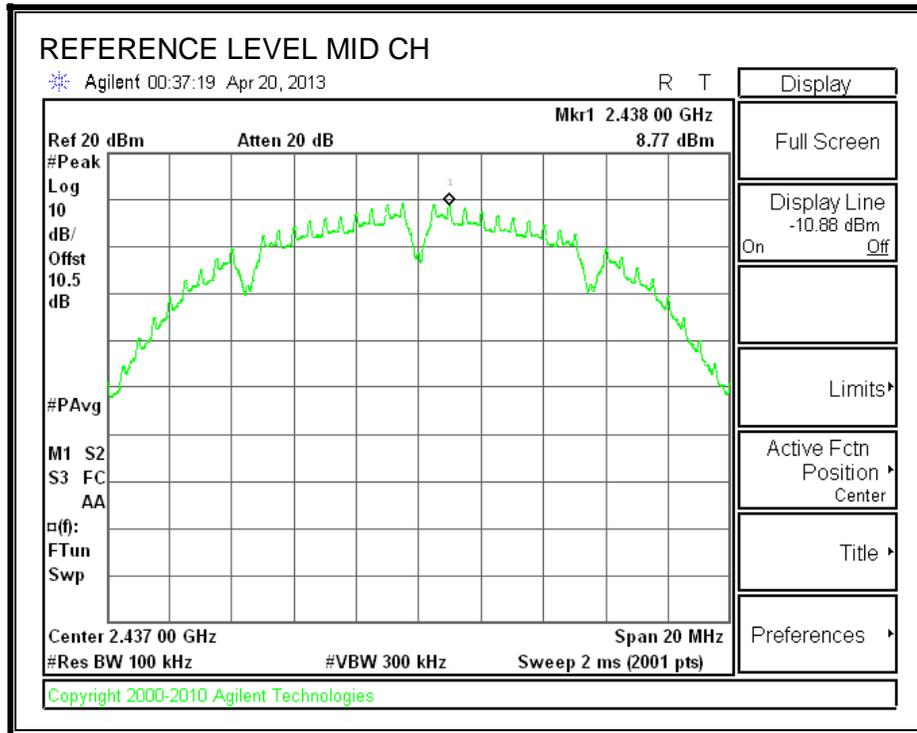
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the 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

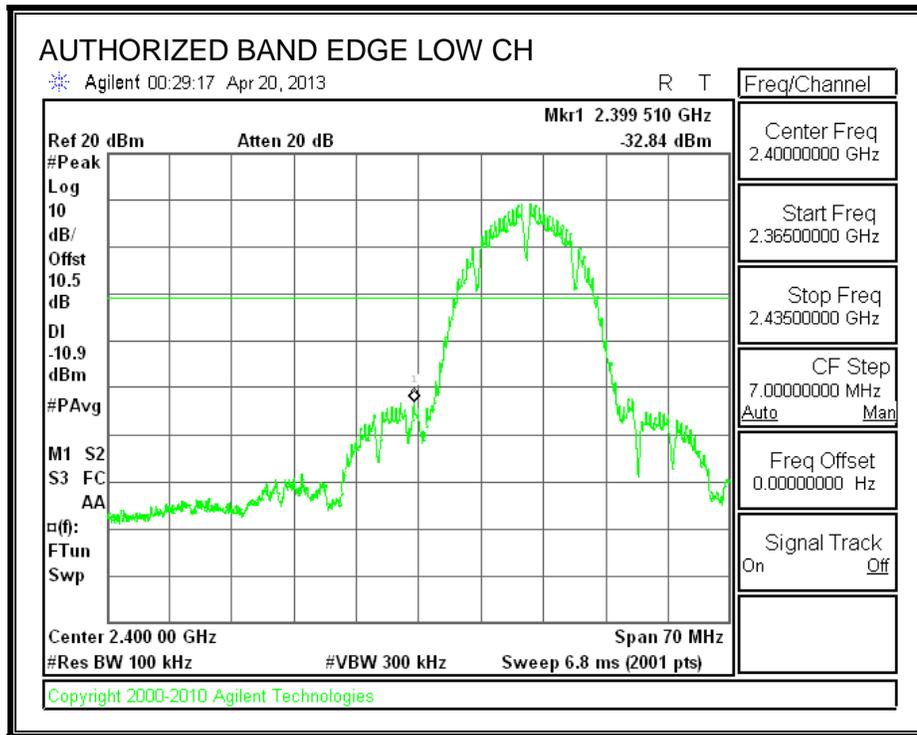
The transmitter output is connected to a spectrum analyzer with RBW = 100 kHz, VBW = 300 kHz, peak detector, and max hold. Measurements utilizing these settings are made of the in-band reference level, bandedge (where measurements to the general radiated limits will not be made) and out-of-band emissions.

RESULTS

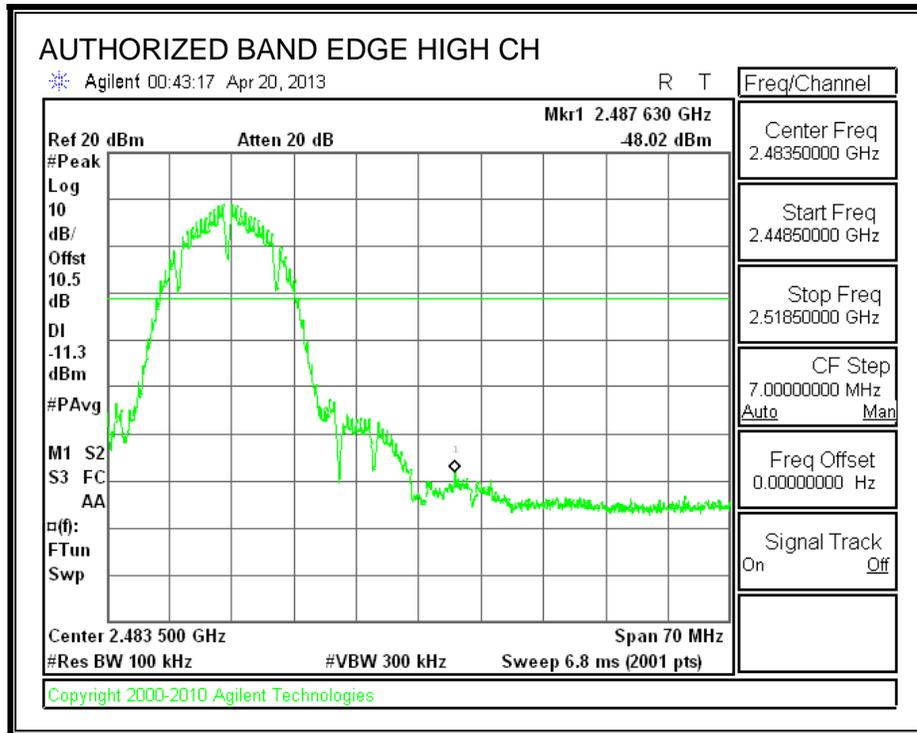
IN-BAND REFERENCE LEVEL



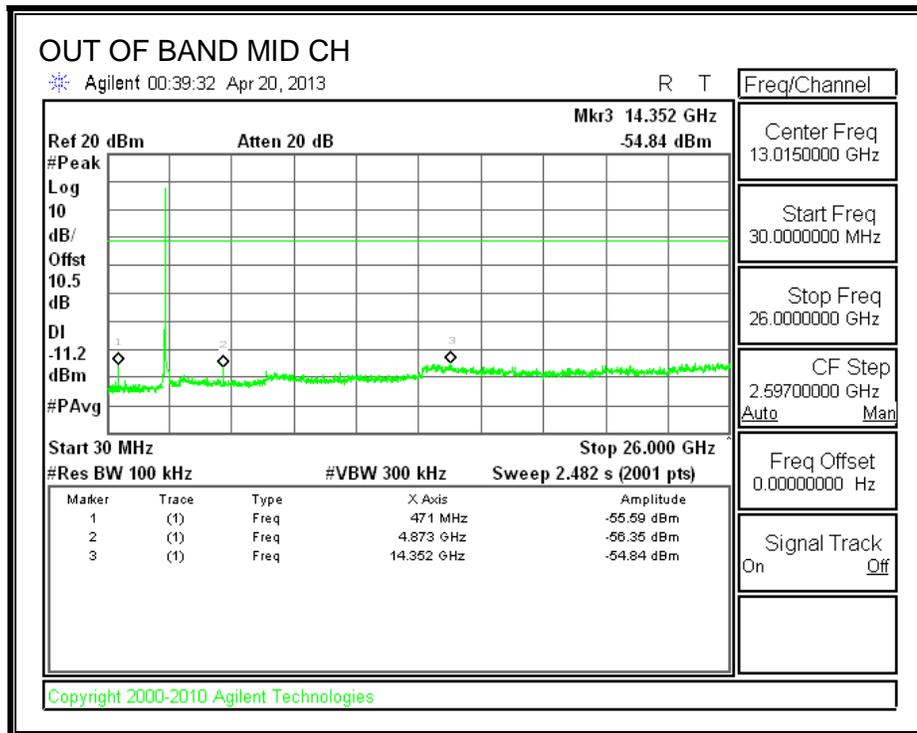
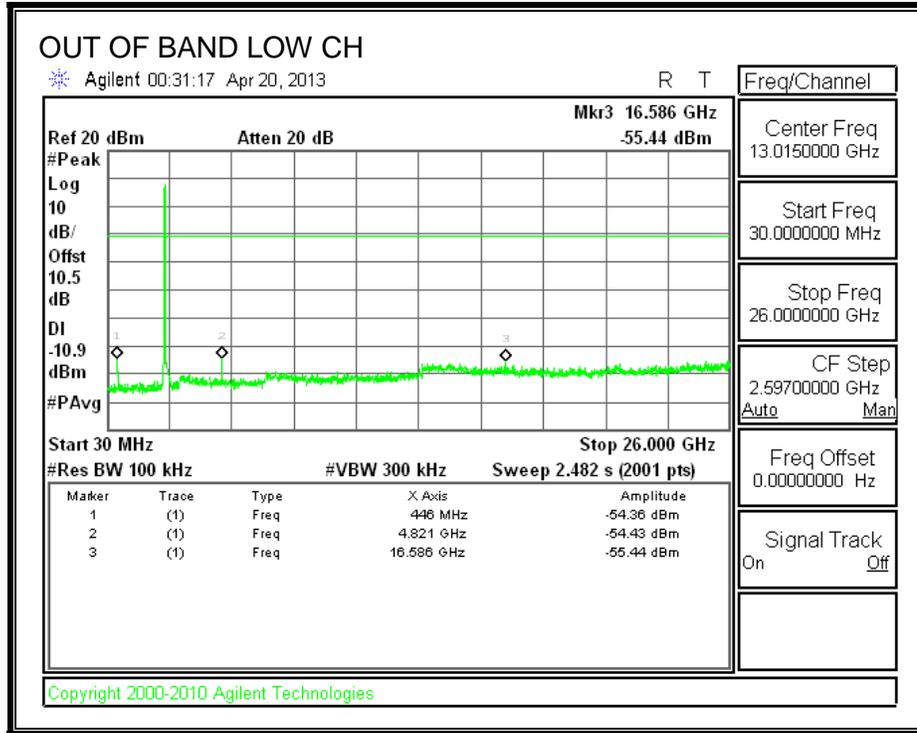
LOW CHANNEL BANDEDGE

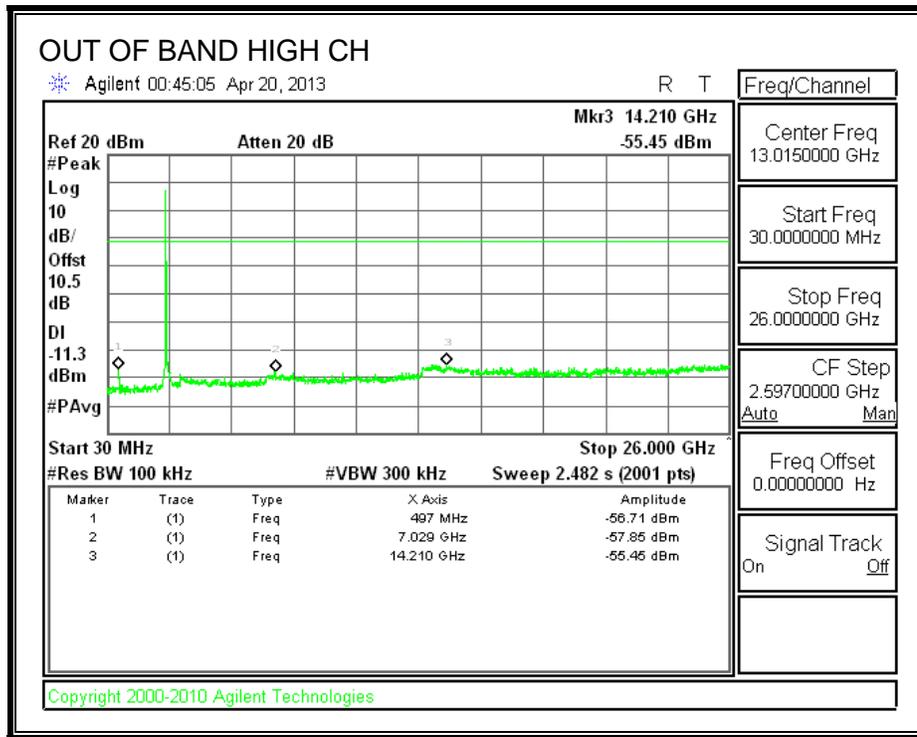


HIGH CHANNEL BANDEDGE



OUT-OF-BAND EMISSIONS





8.2. 802.11g MODE IN THE 2.4 GHz BAND

8.2.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

The minimum 6 dB bandwidth shall be at least 500 kHz.

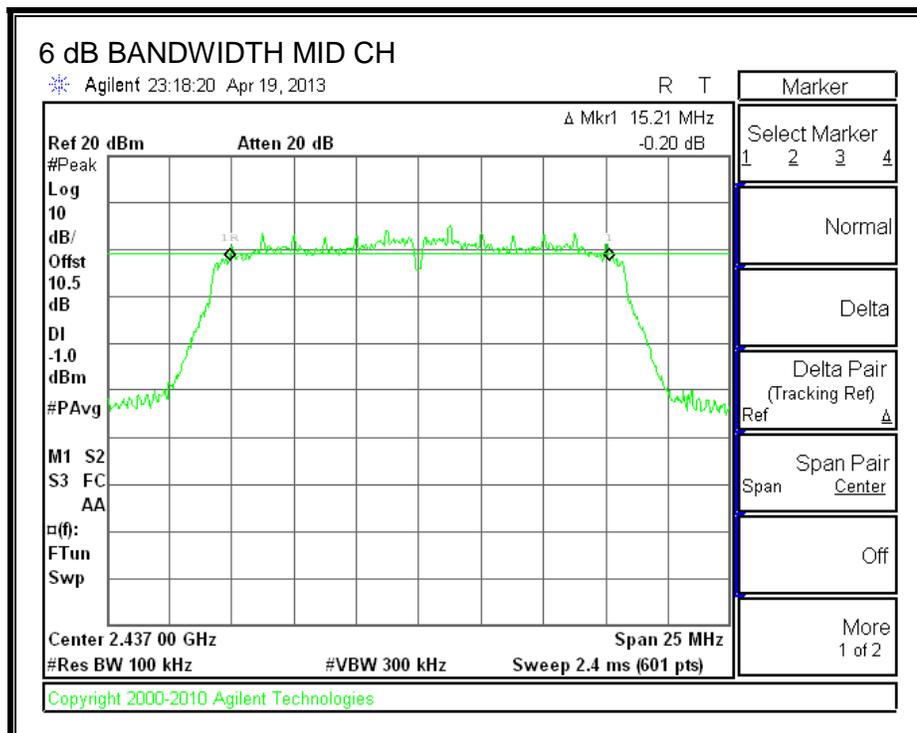
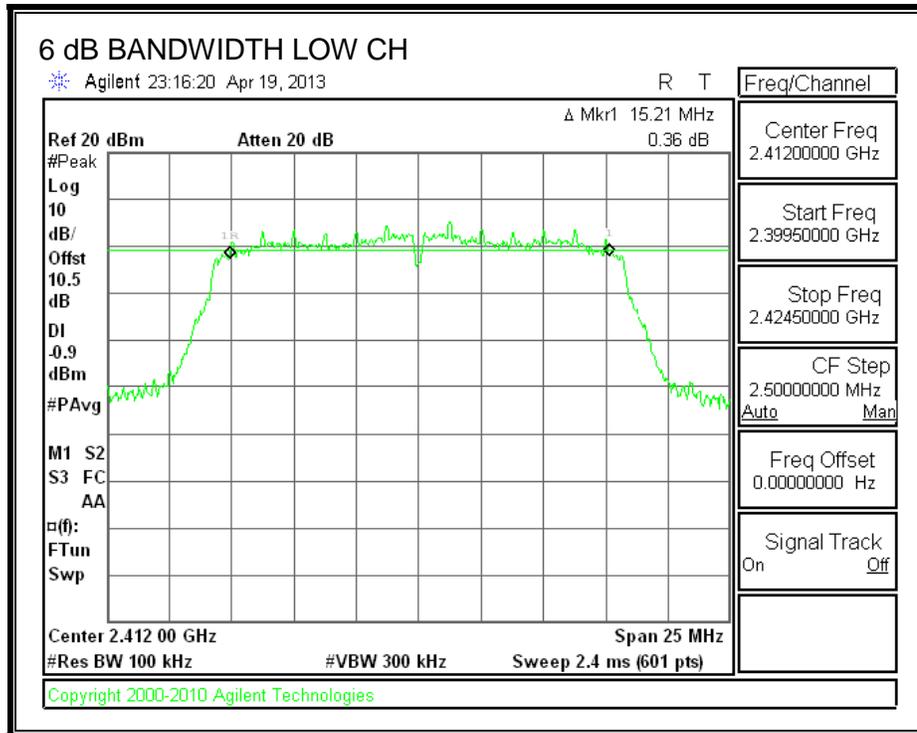
TEST PROCEDURE

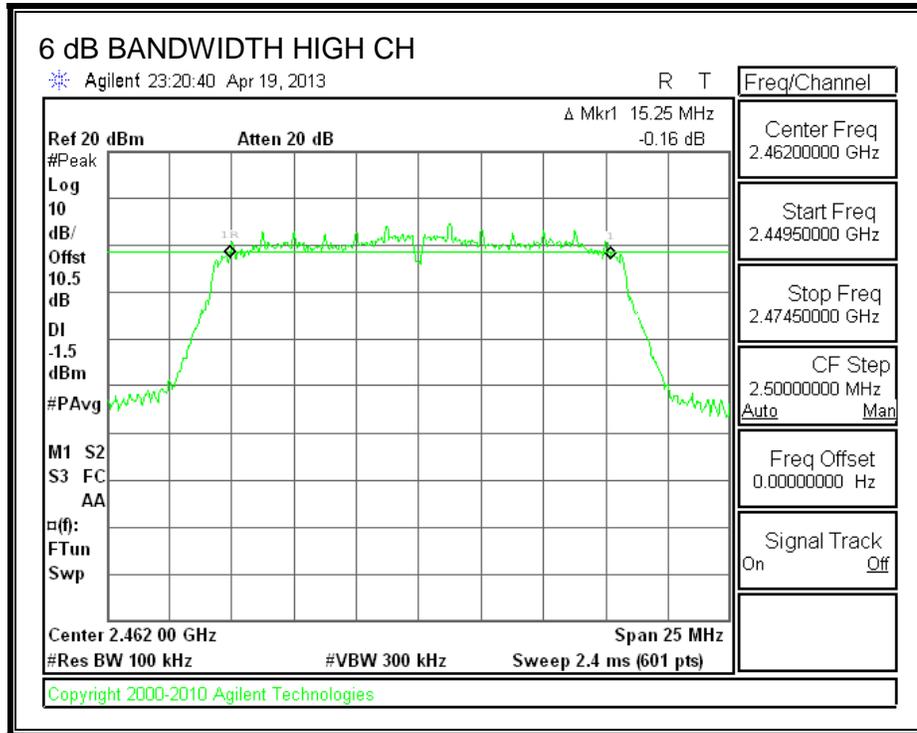
The transmitter output is connected to a spectrum analyzer with the RBW set between 1% and 5% of the EBW, the VBW $\geq 3 \times$ RBW, peak detector and max hold.

RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	15.210	0.5
Mid	2437	15.210	0.5
High	2462	15.250	0.5

6 dB BANDWIDTH





8.2.2. 99% BANDWIDTH

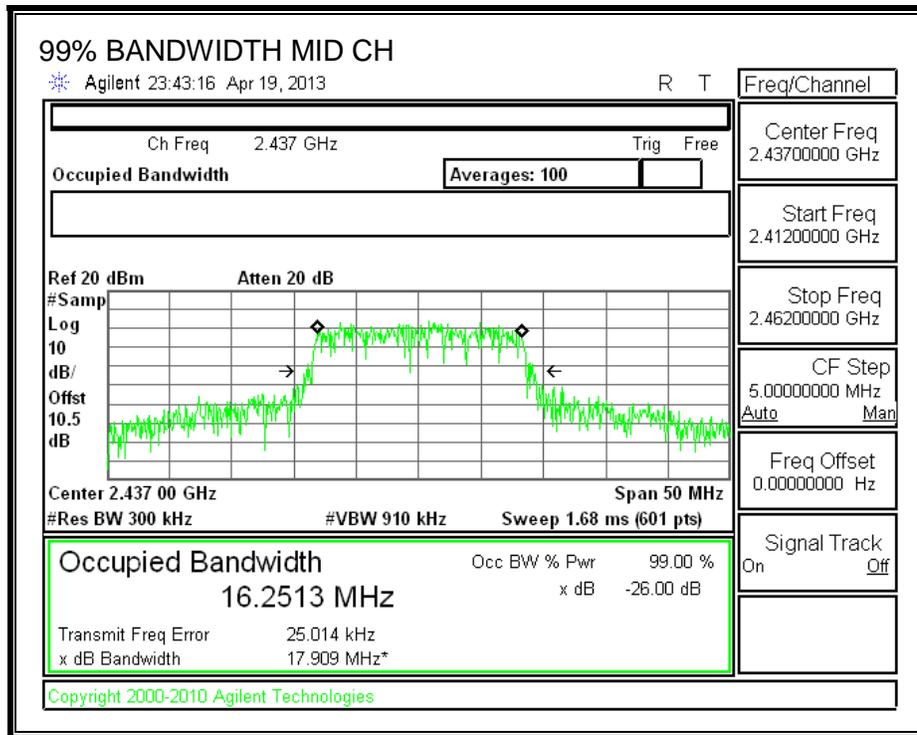
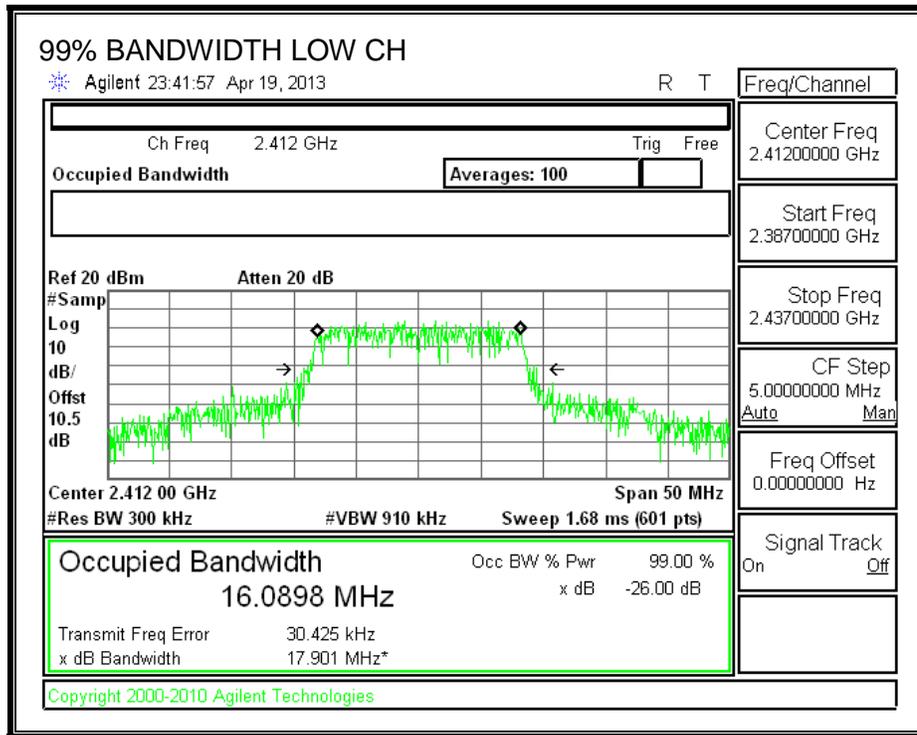
LIMITS

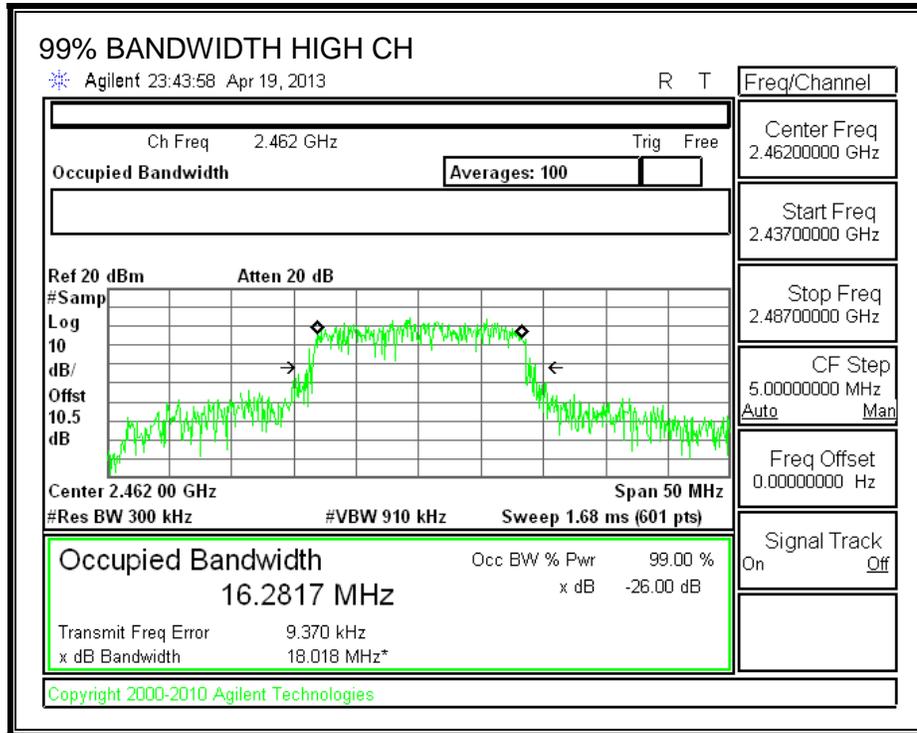
None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	16.0998
Mid	2437	16.2513
High	2462	16.2817

99% BANDWIDTH





8.2.3. 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 10.5 dB (including 10 dB pad and 0.5 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	14.05
Mid	2437	14.23
High	2462	13.85

8.2.4. 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

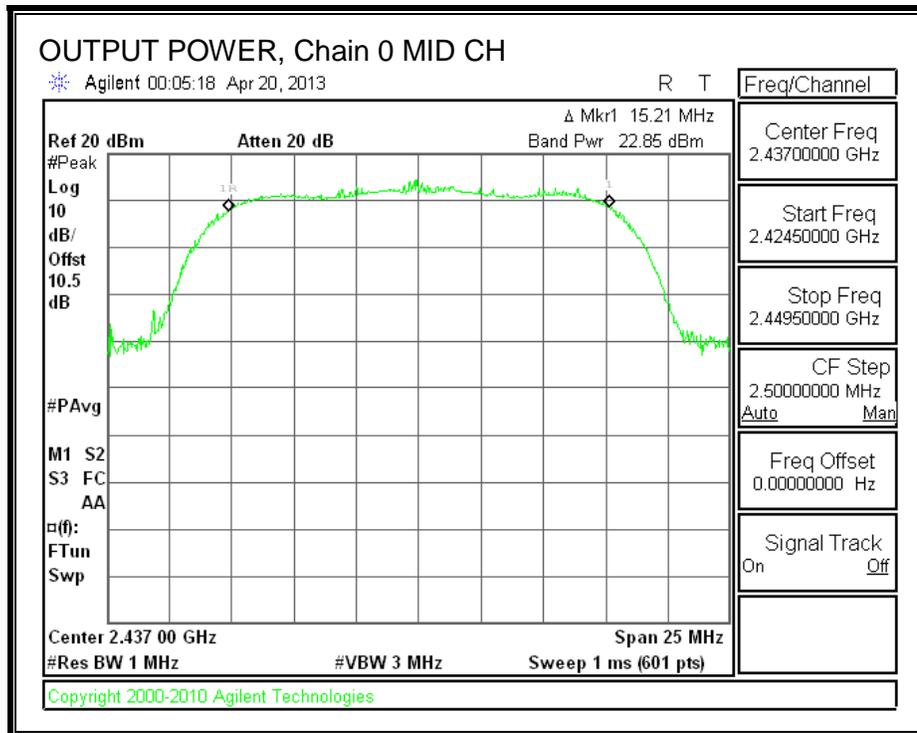
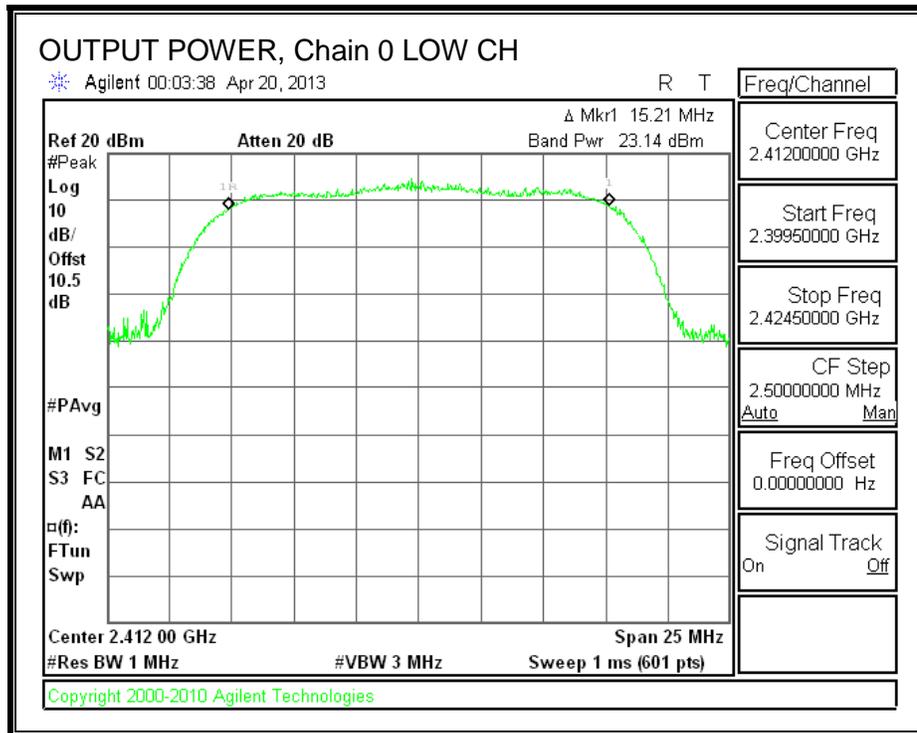
Limits

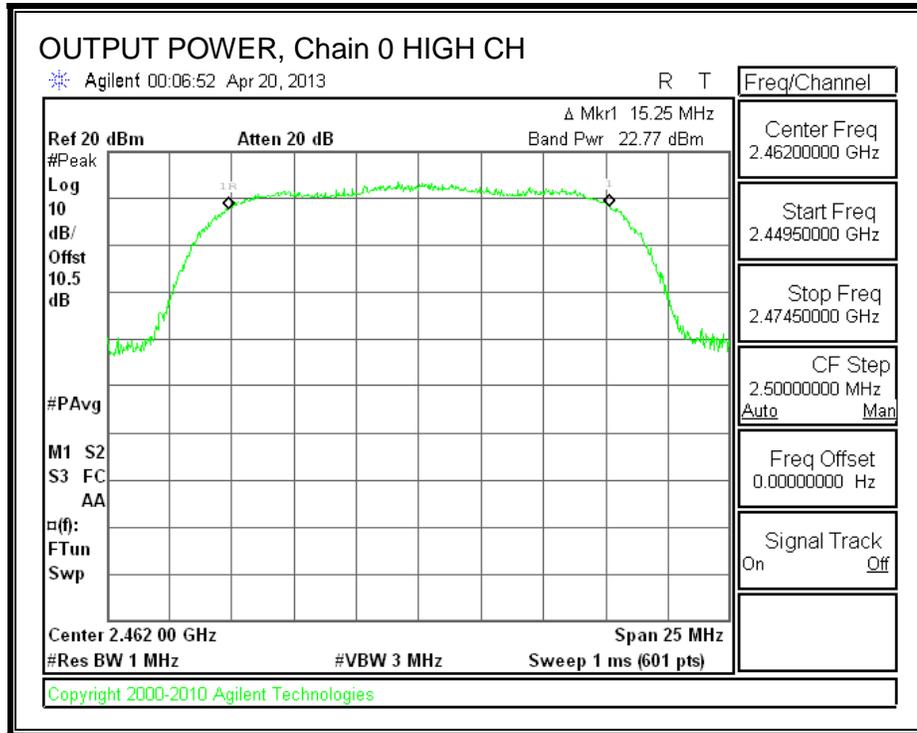
Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2412	1.04	30.00	30	36	30.00
Mid	2437	1.04	30.00	30	36	30.00
High	2462	1.04	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	23.14	23.14	30.00	-6.86
Mid	2437	22.85	22.85	30.00	-7.15
High	2462	22.77	22.77	30.00	-7.23

OUTPUT POWER, Chain 0





8.2.5. PSD

LIMITS

FCC §15.247

IC RSS-210 A8.2

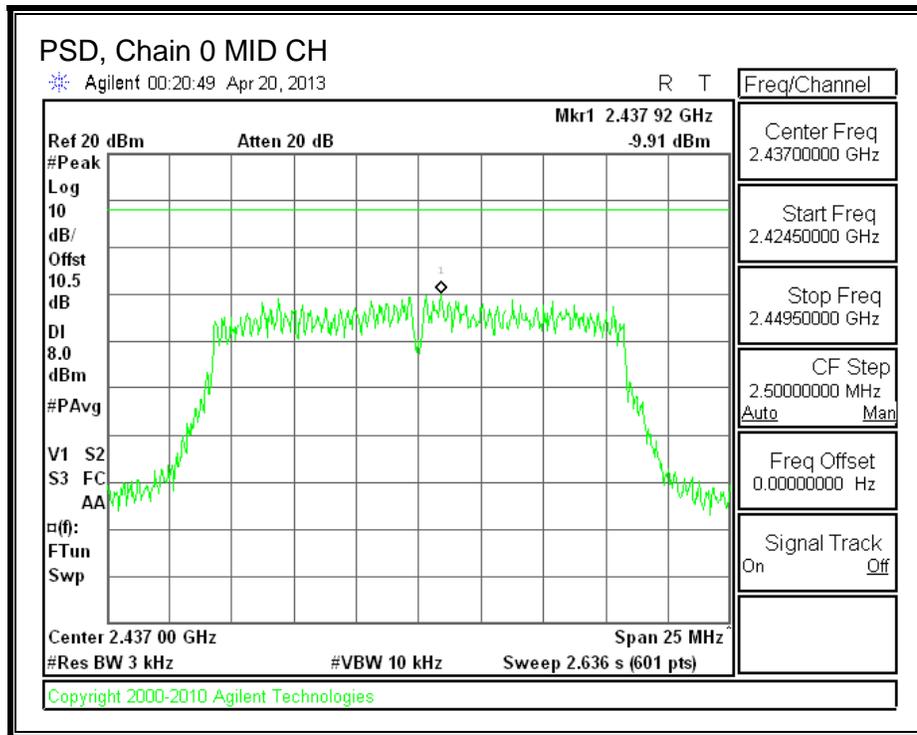
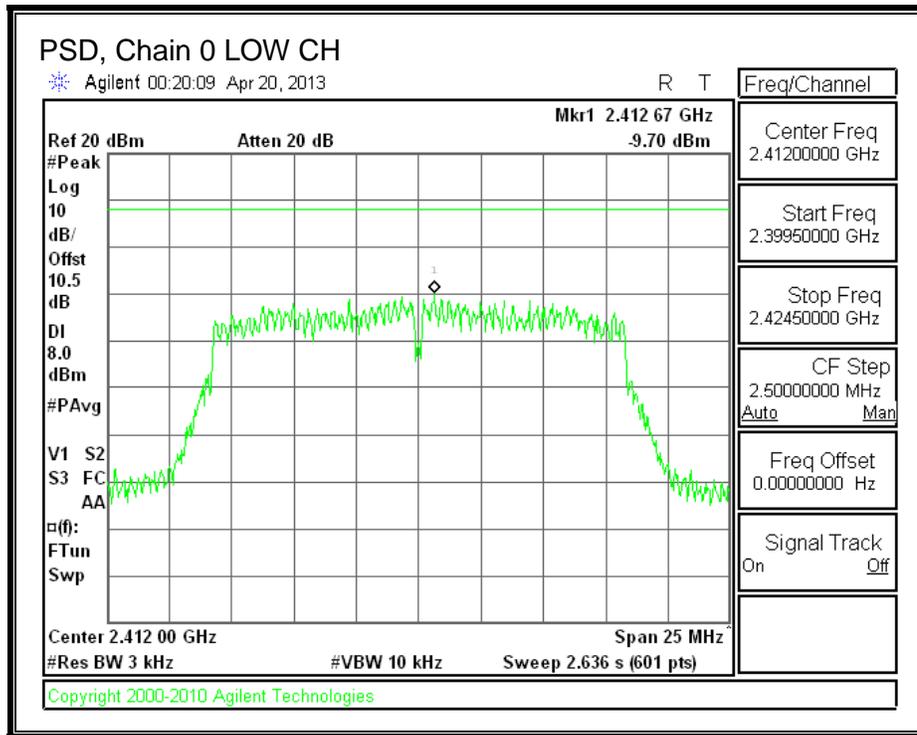
The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

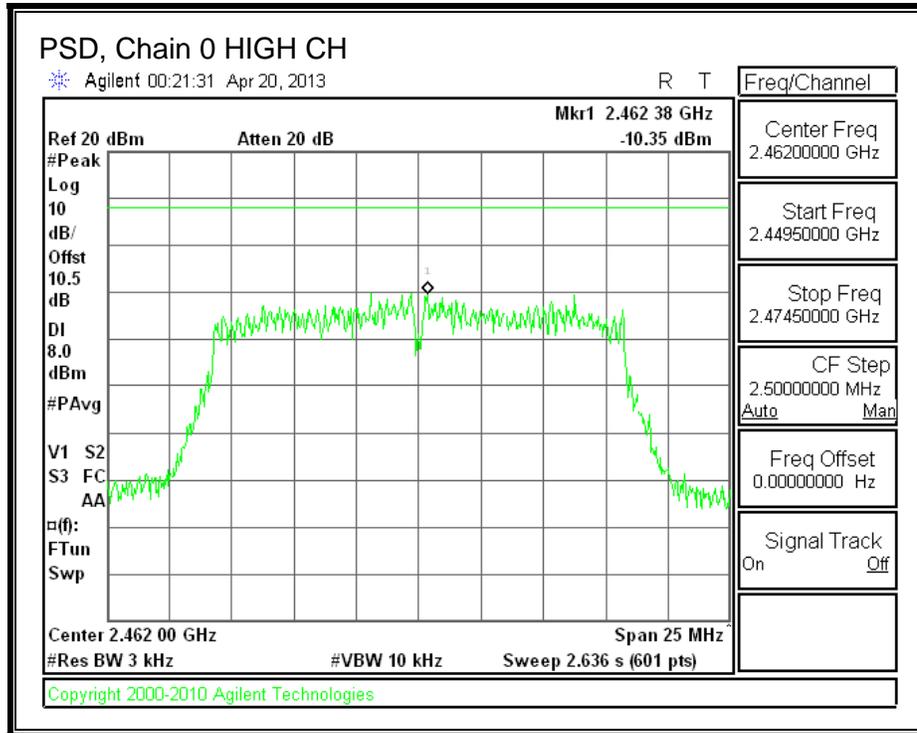
RESULTS

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-9.70	8.0	-17.7
Mid	2437	-9.91	8.0	-17.9
High	2462	-10.35	8.0	-18.4

PSD, Chain 0





8.2.6. OUT-OF-BAND EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

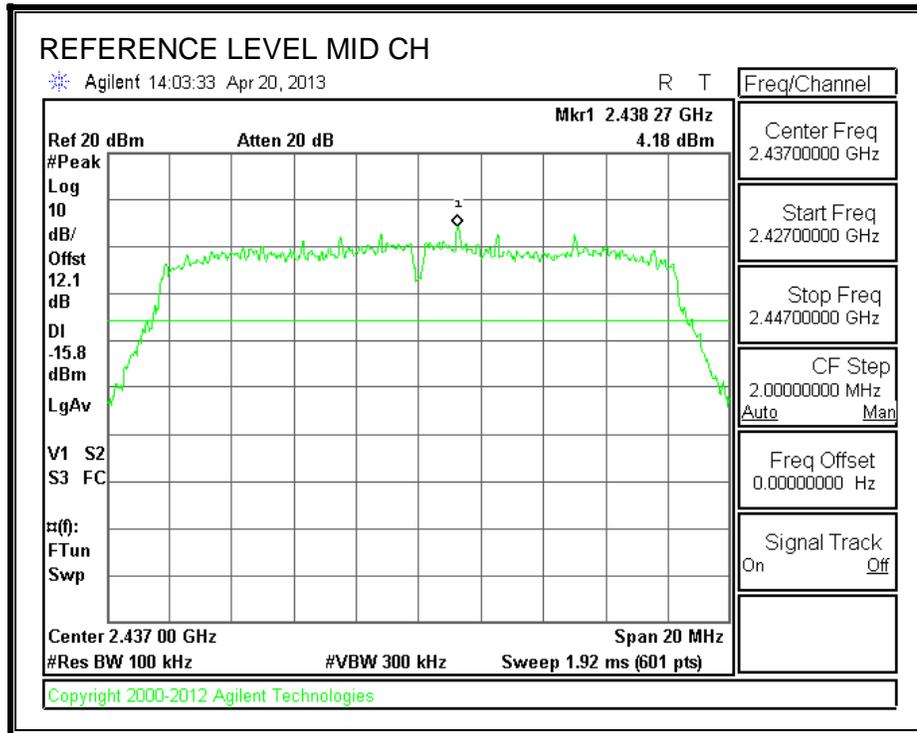
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the 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

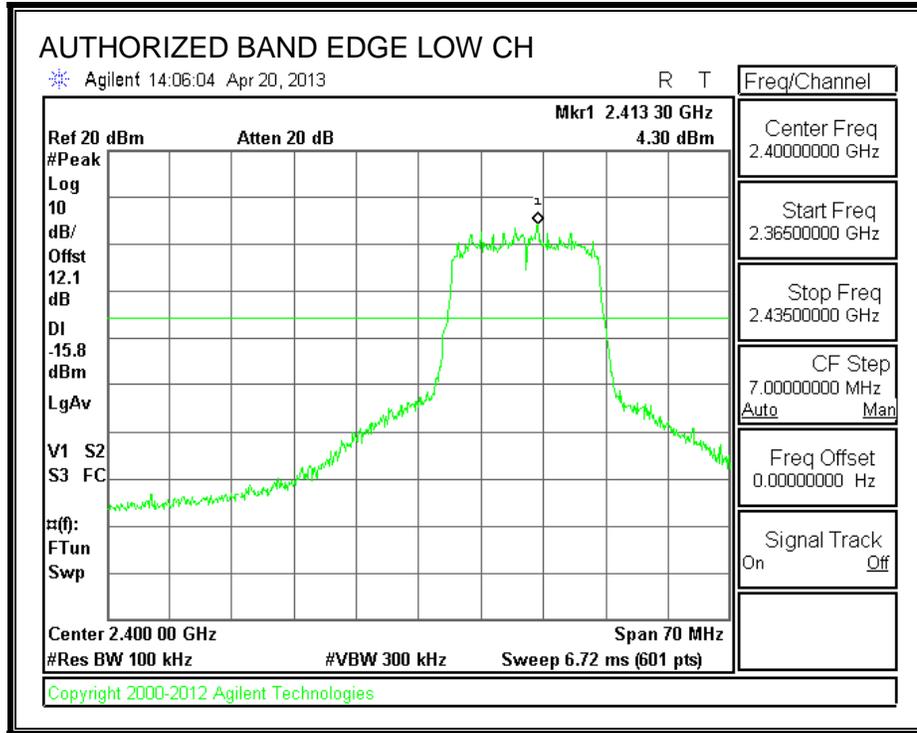
The transmitter output is connected to a spectrum analyzer with RBW = 100 kHz, VBW = 300 kHz, peak detector, and max hold. Measurements utilizing these settings are made of the in-band reference level, bandedge (where measurements to the general radiated limits will not be made) and out-of-band emissions.

RESULTS

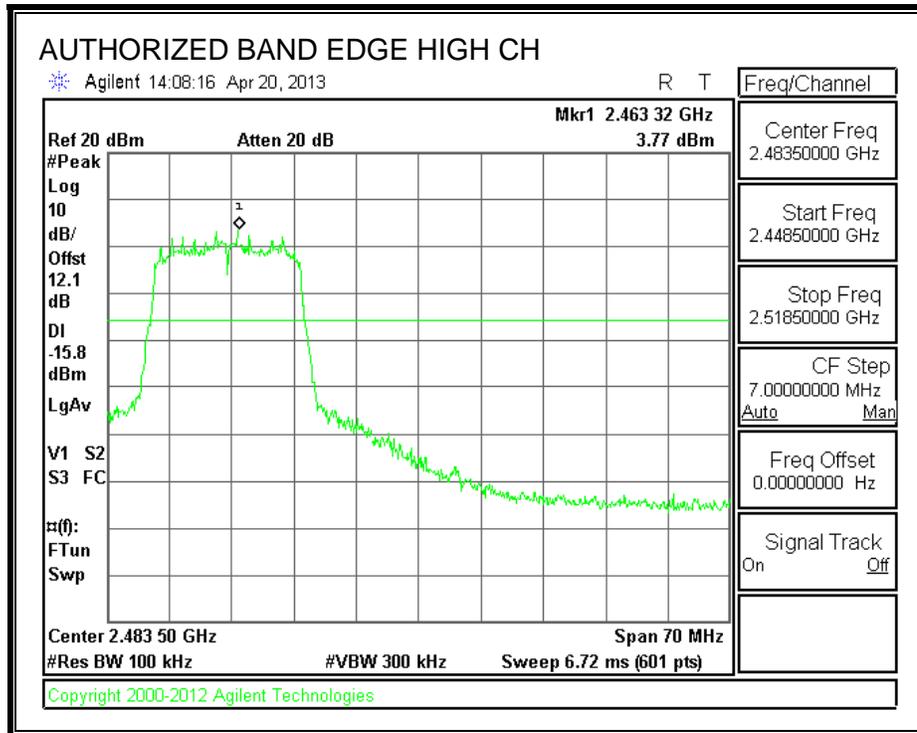
IN-BAND REFERENCE LEVEL

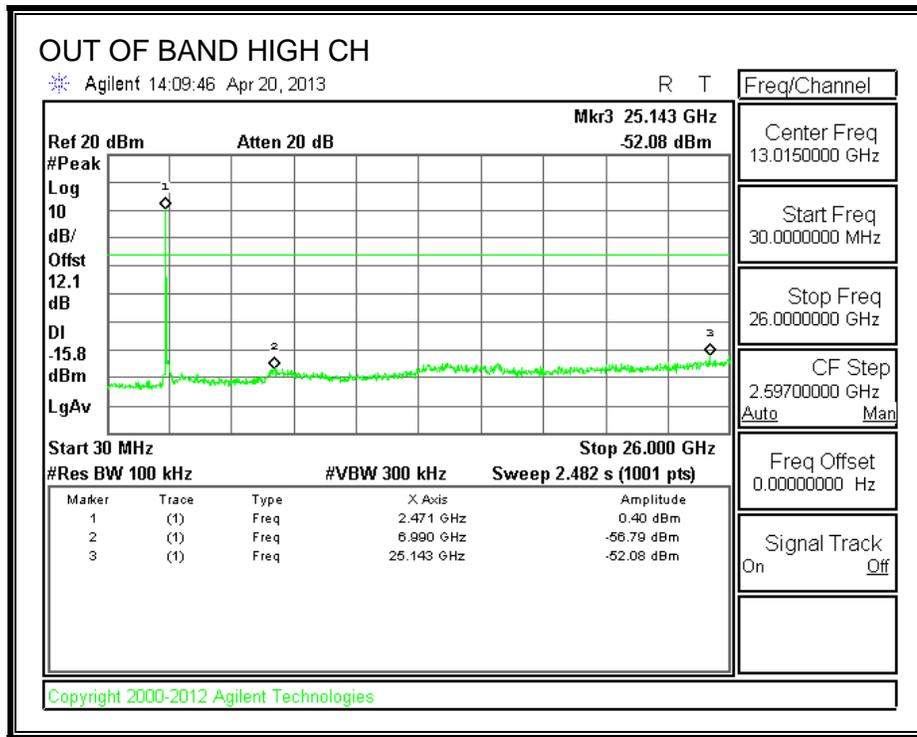


LOW CHANNEL BANDEDGE



HIGH CHANNEL BANDEDGE





8.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

8.3.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

The minimum 6 dB bandwidth shall be at least 500 kHz.

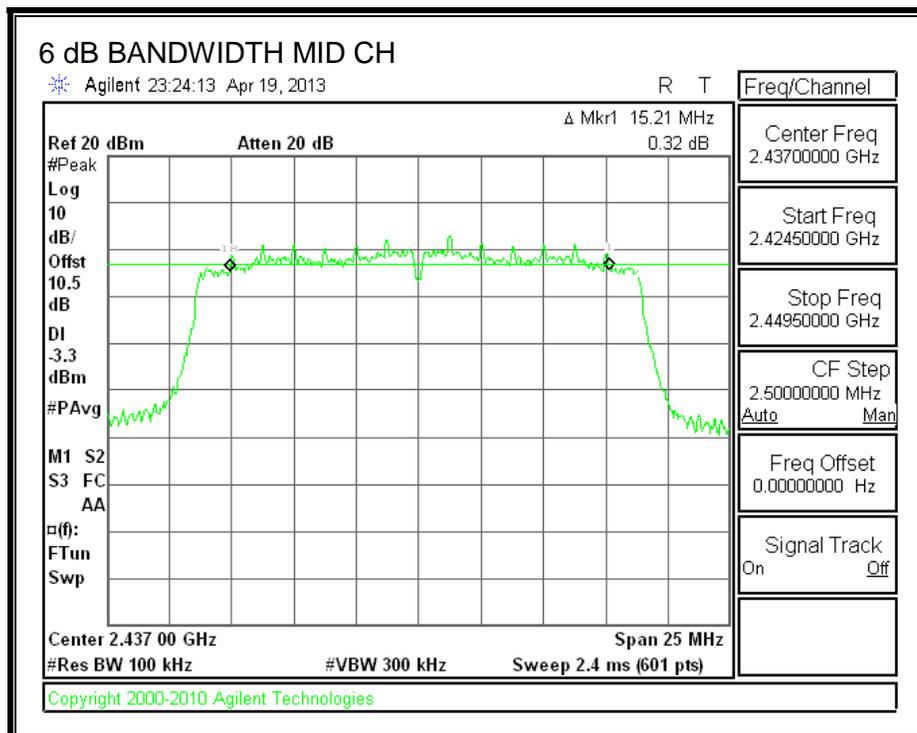
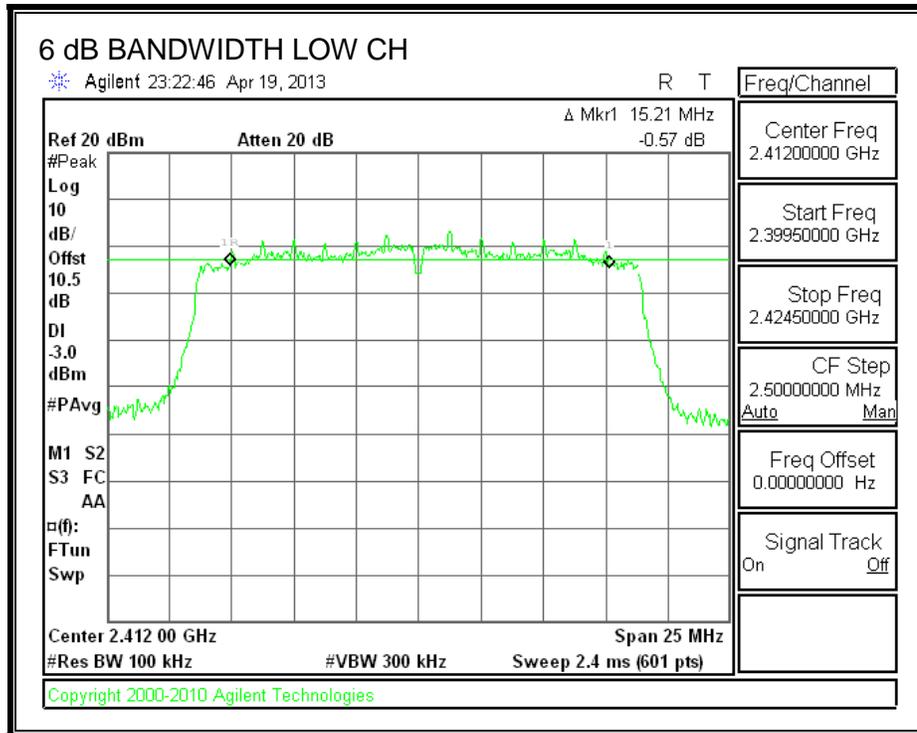
TEST PROCEDURE

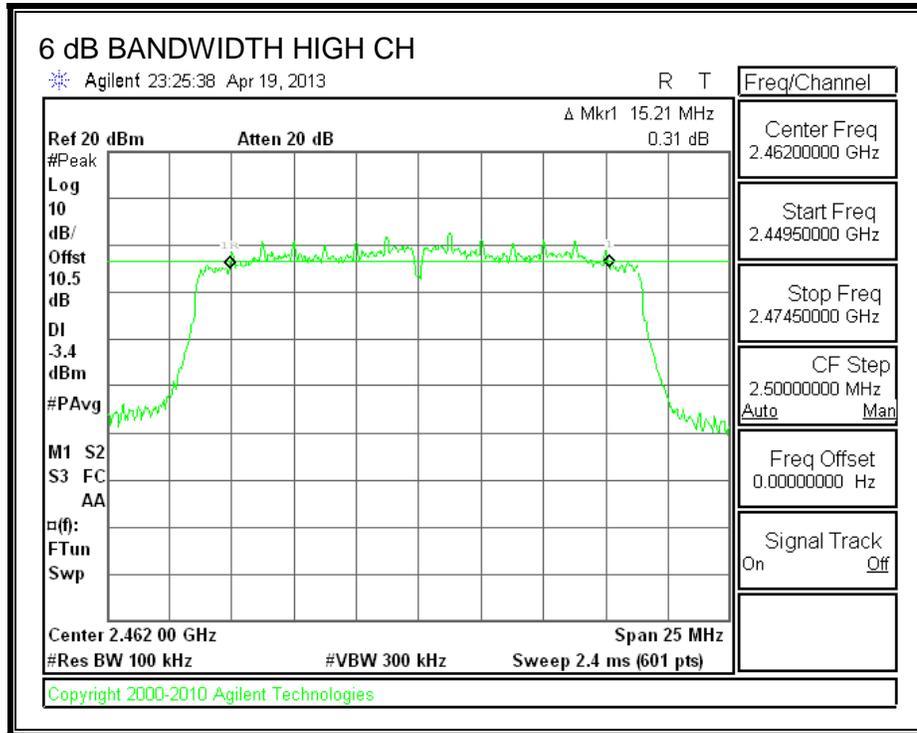
The transmitter output is connected to a spectrum analyzer with the RBW set between 1% and 5% of the EBW, the VBW $\geq 3 \times$ RBW, peak detector and max hold.

RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	15.210	0.5
Mid	2437	15.210	0.5
High	2462	15.210	0.5

6 dB BANDWIDTH





8.3.2. 99% BANDWIDTH

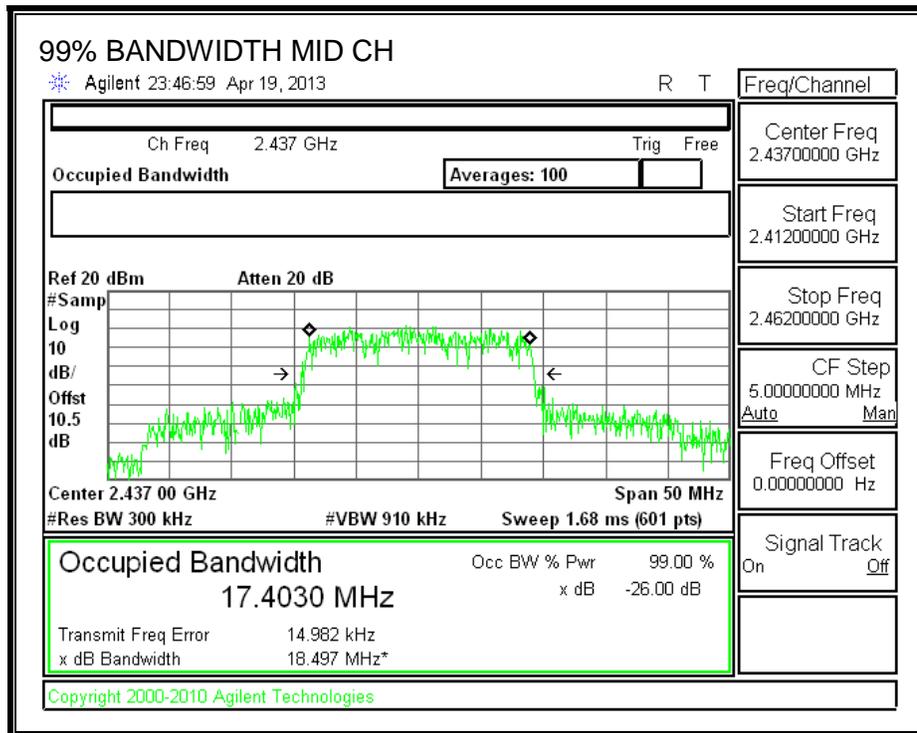
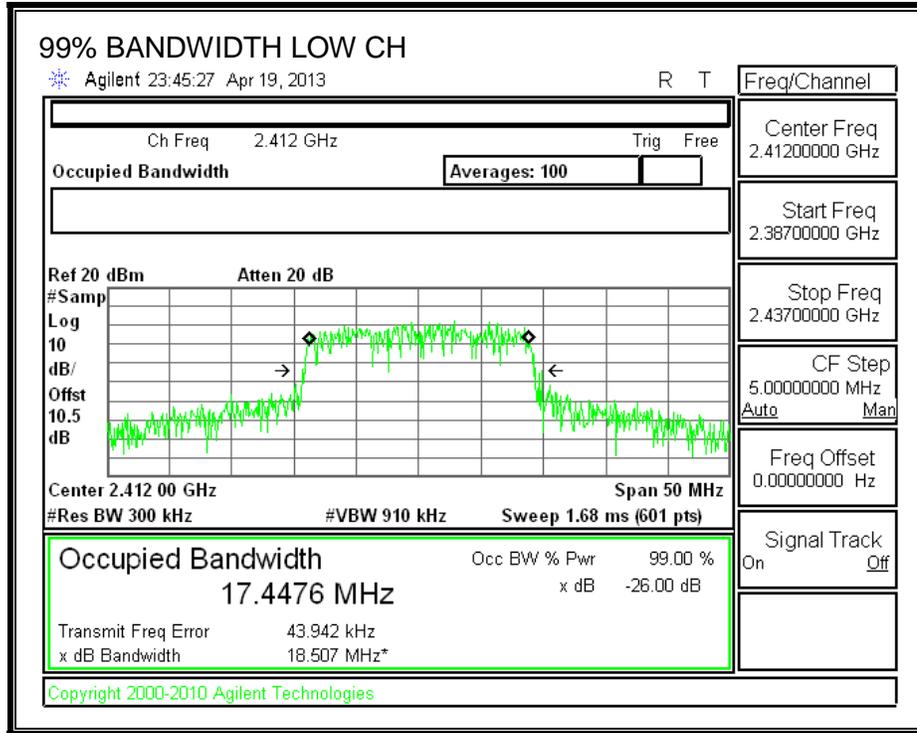
LIMITS

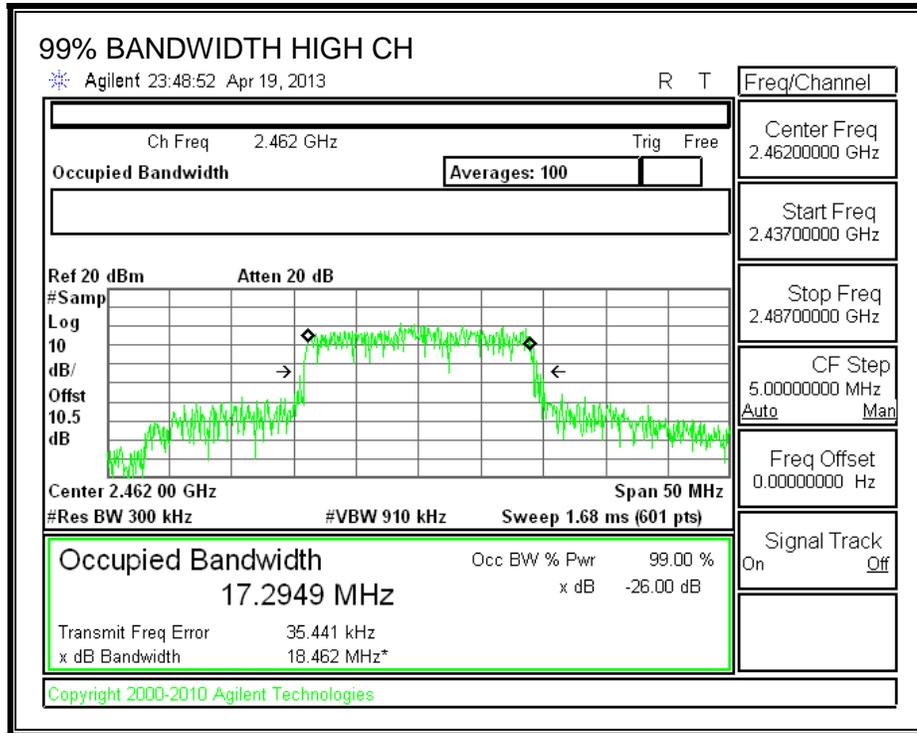
None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	17.4476
Mid	2437	17.4030
High	2462	17.2949

99% BANDWIDTH





8.3.3. 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 0.2 dB (including 10 dB pad and 0.2 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	12.04
Mid	2437	11.84
High	2462	11.65

8.3.4. 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

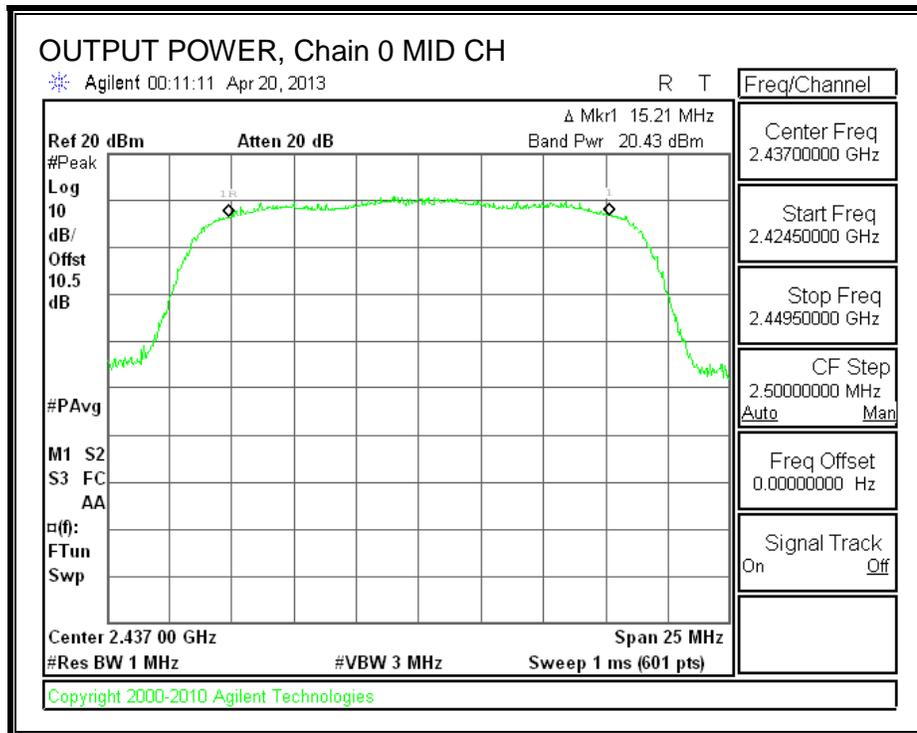
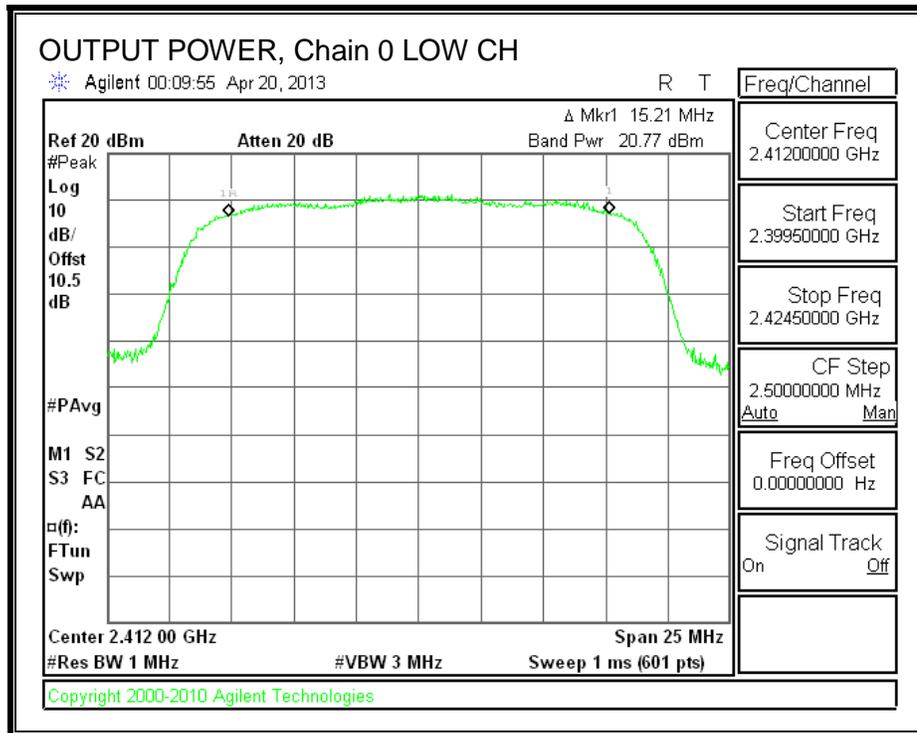
Limits

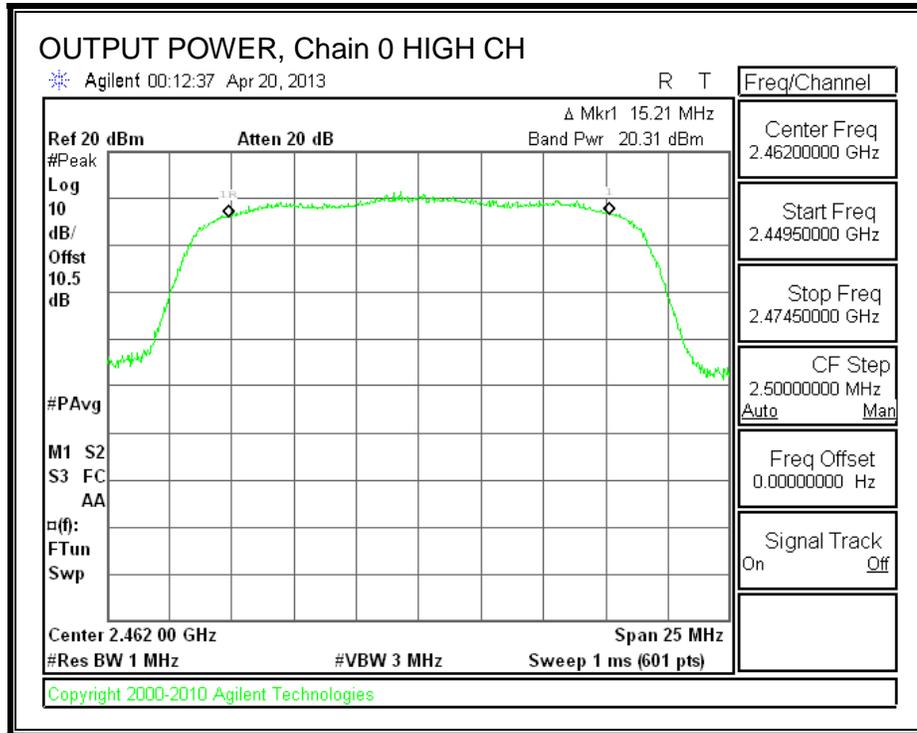
Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2412	1.04	30.00	30	36	30.00
Mid	2437	1.04	30.00	30	36	30.00
High	2462	1.04	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	20.77	20.77	30.00	-9.23
Mid	2437	20.43	20.43	30.00	-9.57
High	2462	20.31	20.31	30.00	-9.69

OUTPUT POWER, Chain 0





8.3.5. PSD

LIMITS

FCC §15.247

IC RSS-210 A8.2

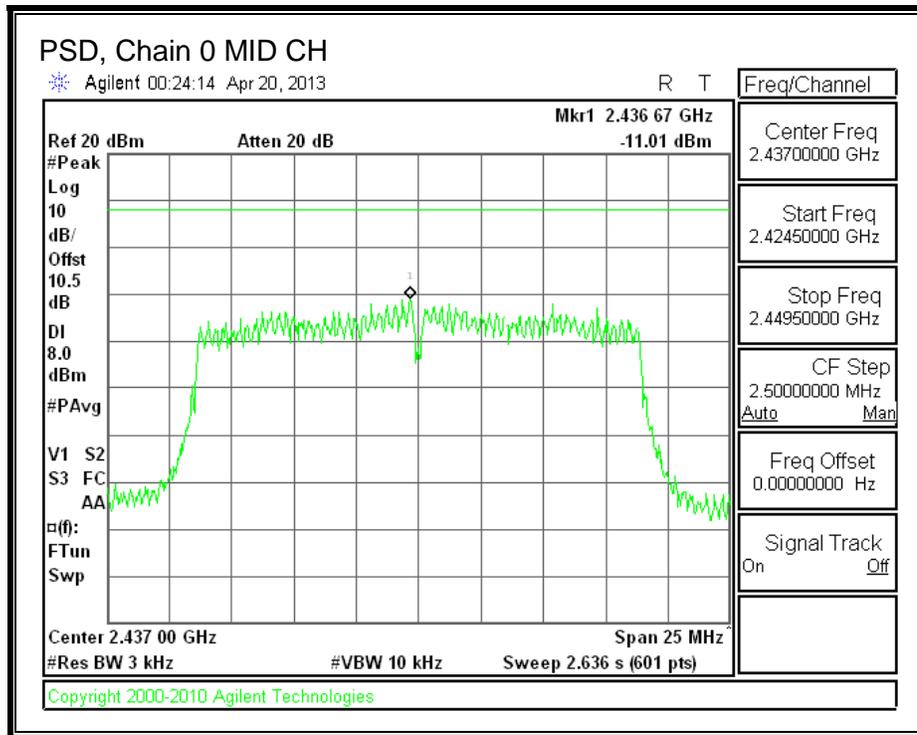
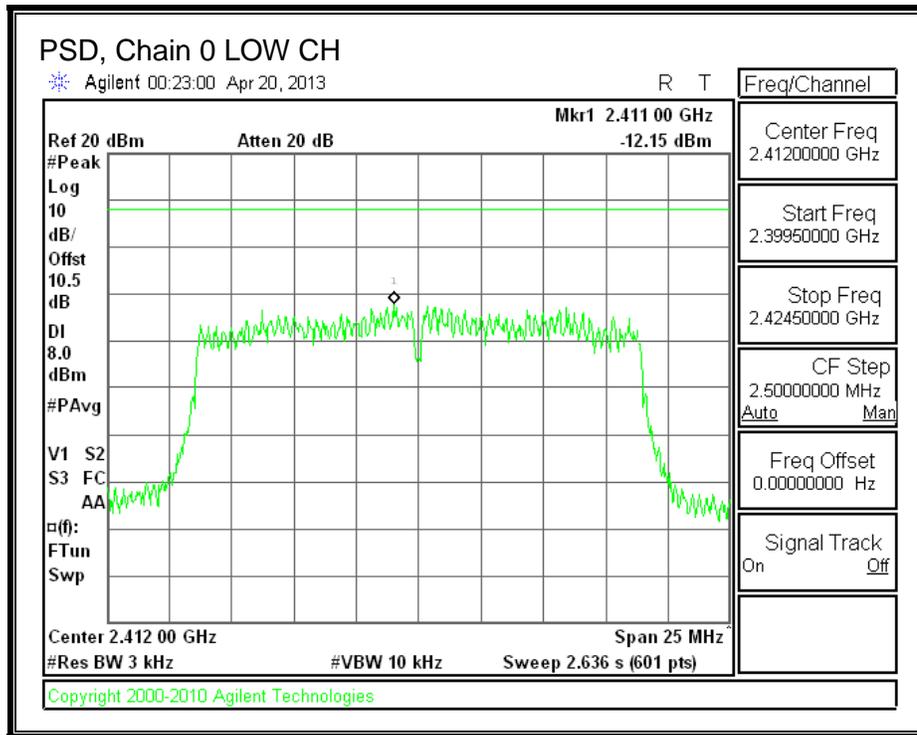
The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

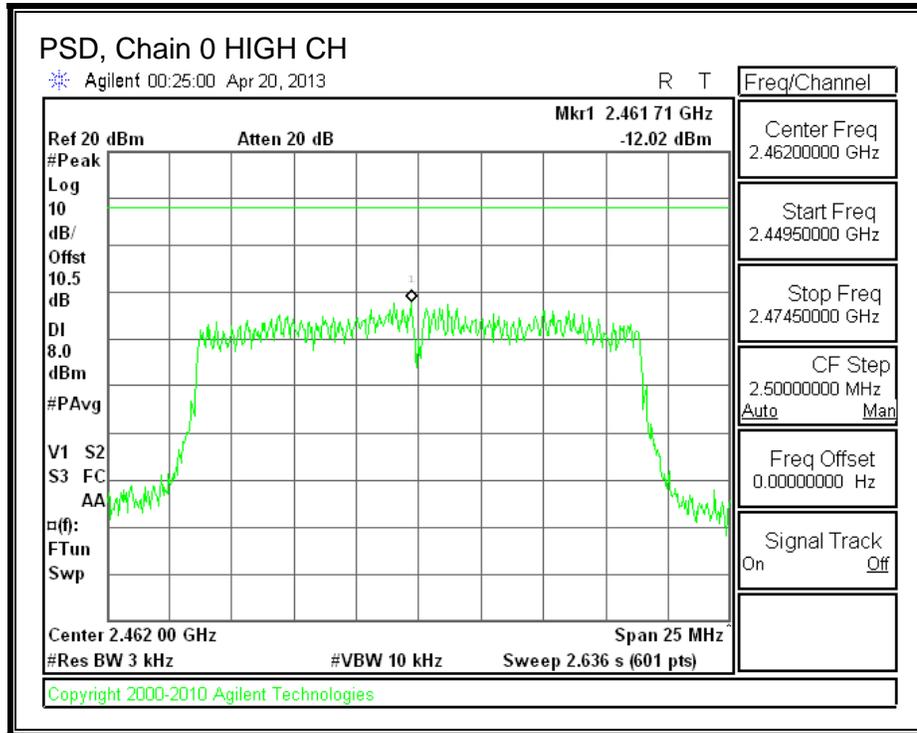
RESULTS

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-12.15	8.0	-20.2
Mid	2437	-11.01	8.0	-19.0
High	2462	-12.02	8.0	-20.0

PSD, Chain 0





8.3.6. OUT-OF-BAND EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

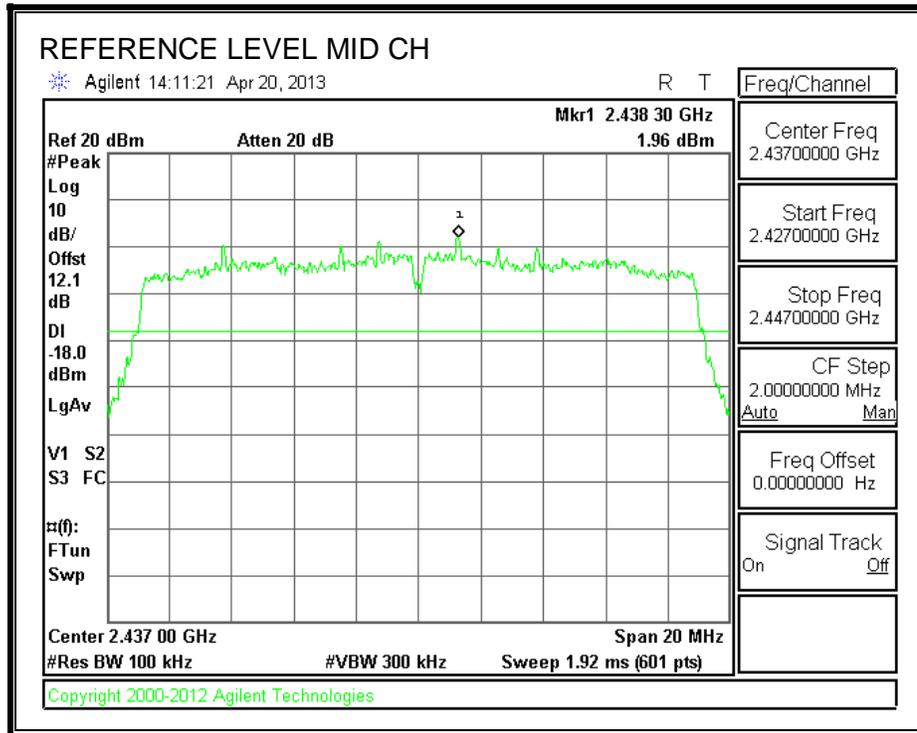
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the 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

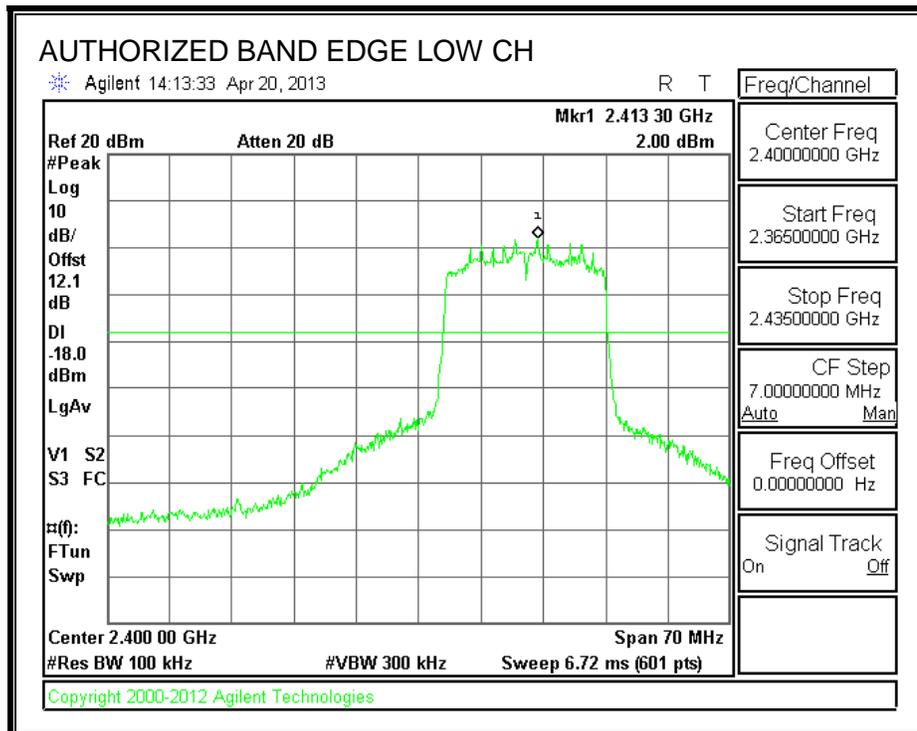
The transmitter output is connected to a spectrum analyzer with RBW = 100 kHz, VBW = 300 kHz, peak detector, and max hold. Measurements utilizing these settings are made of the in-band reference level, bandedge (where measurements to the general radiated limits will not be made) and out-of-band emissions.

RESULTS

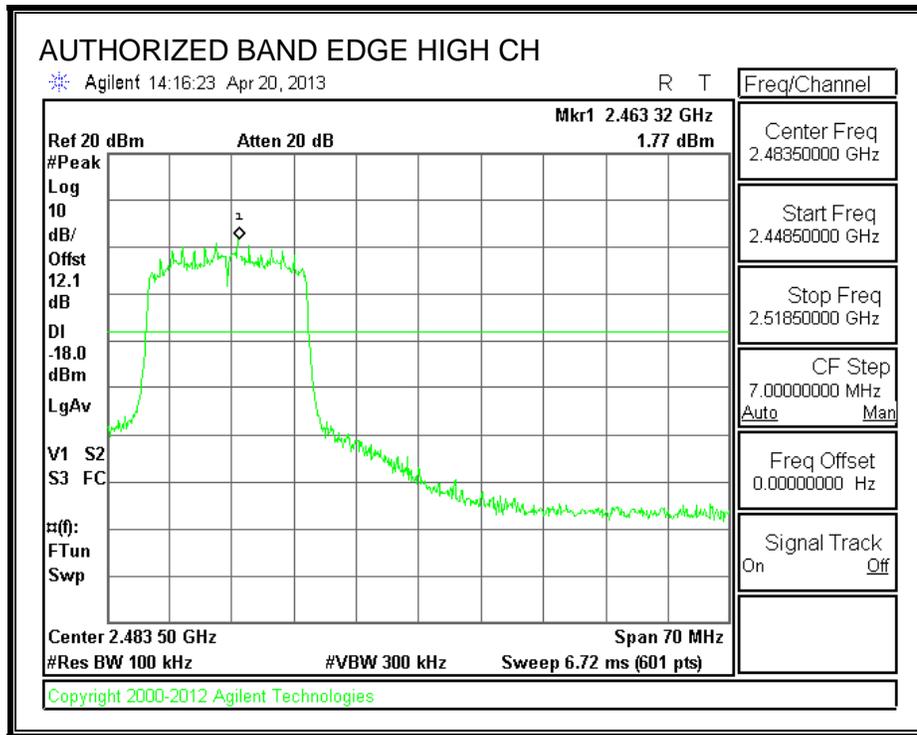
IN-BAND REFERENCE LEVEL



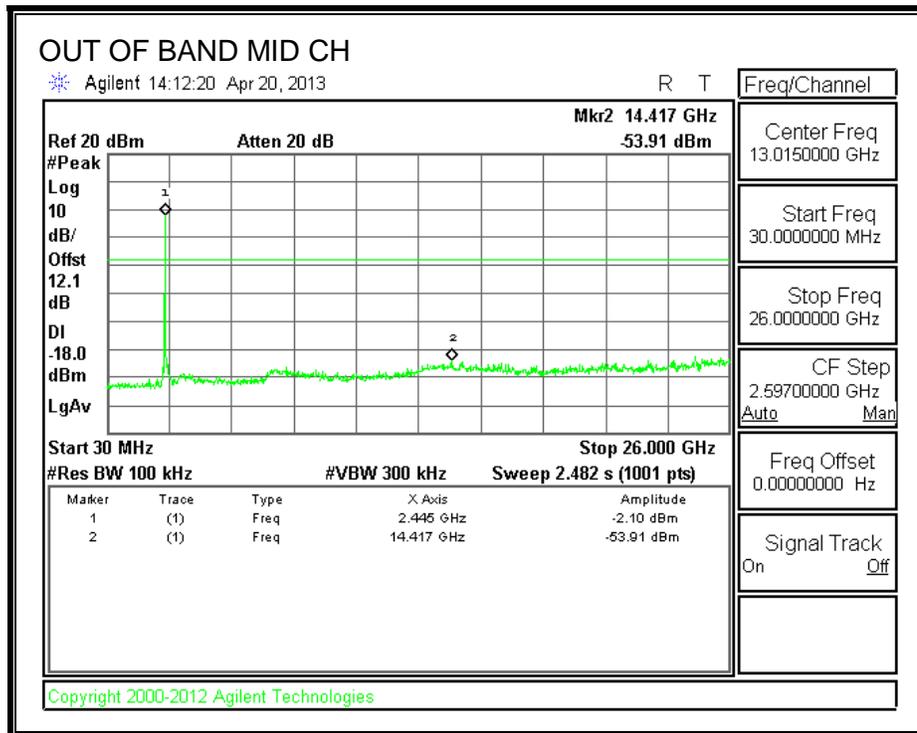
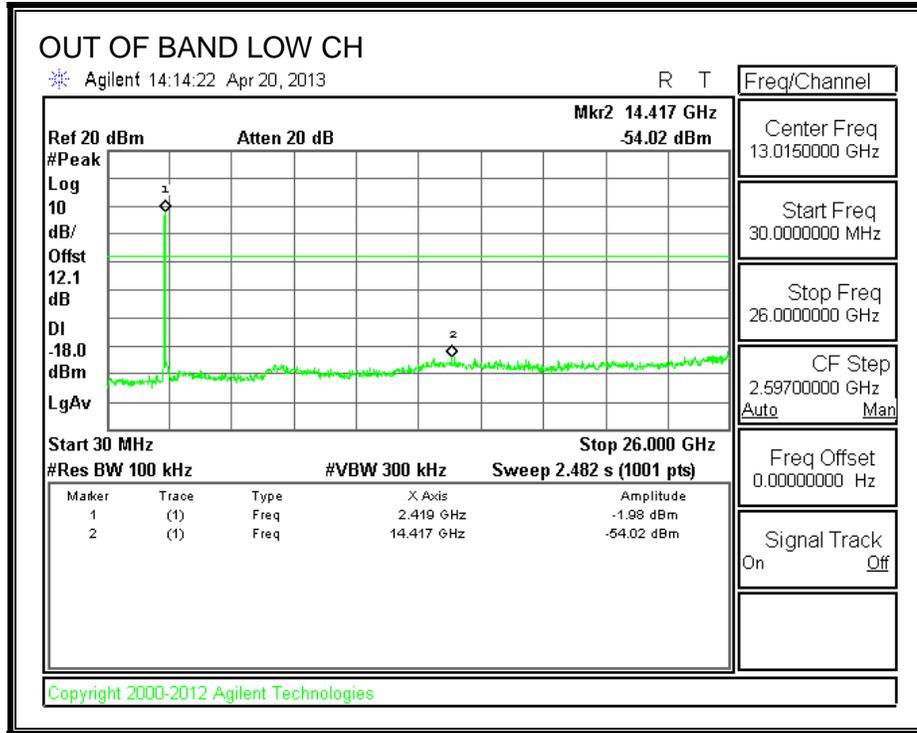
LOW CHANNEL BANDEDGE



HIGH CHANNEL BANDEDGE



OUT-OF-BAND EMISSIONS



8.4. 802.11A MODE IN THE 5.8 GHz BAND

8.4.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

The minimum 6 dB bandwidth shall be at least 500 kHz.

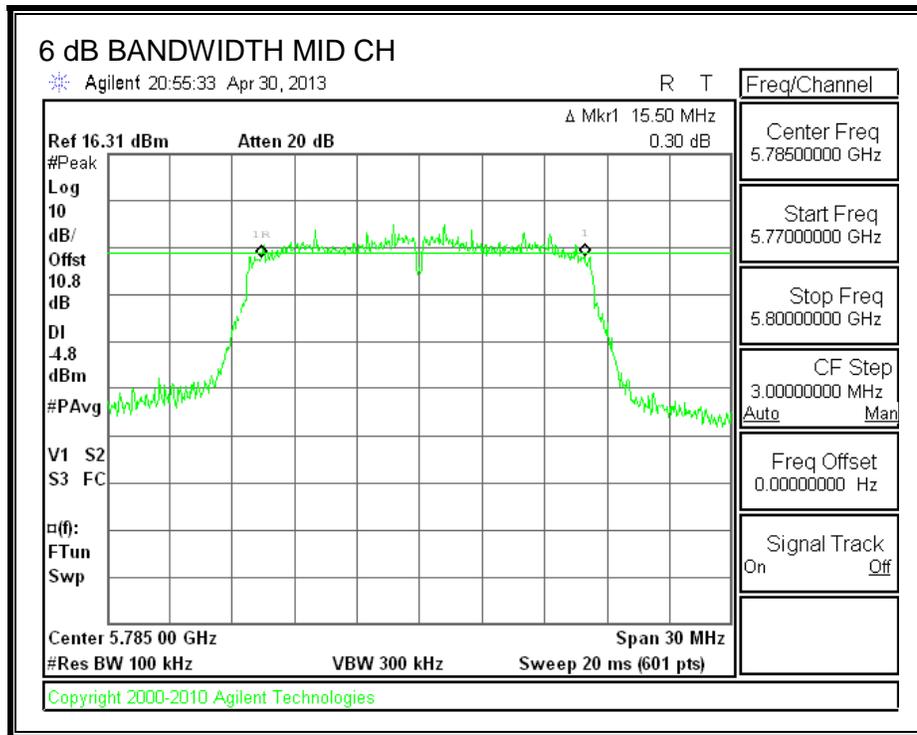
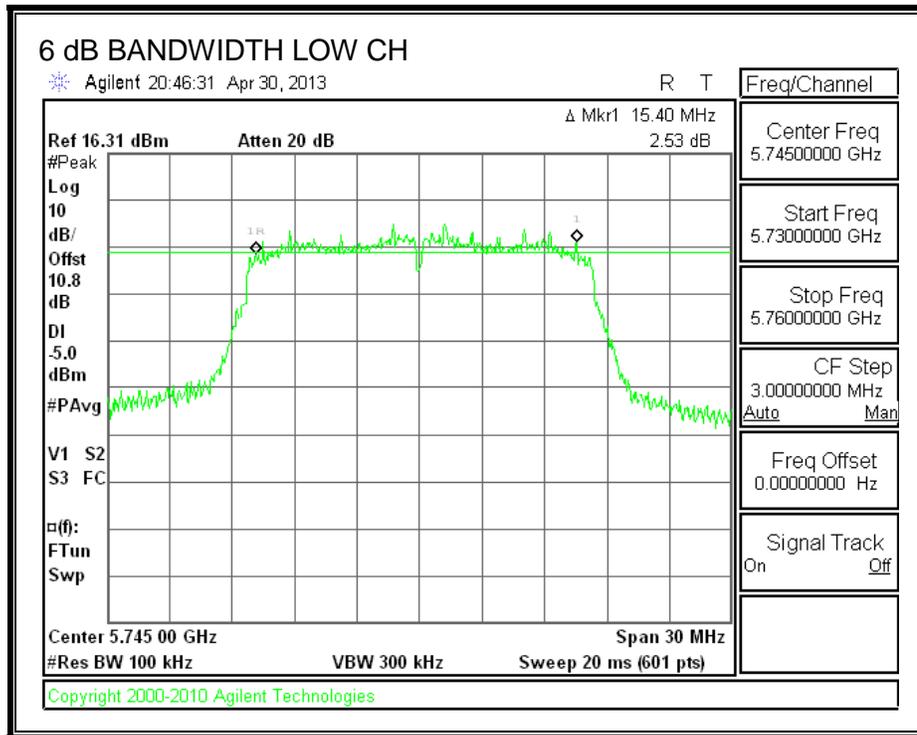
TEST PROCEDURE

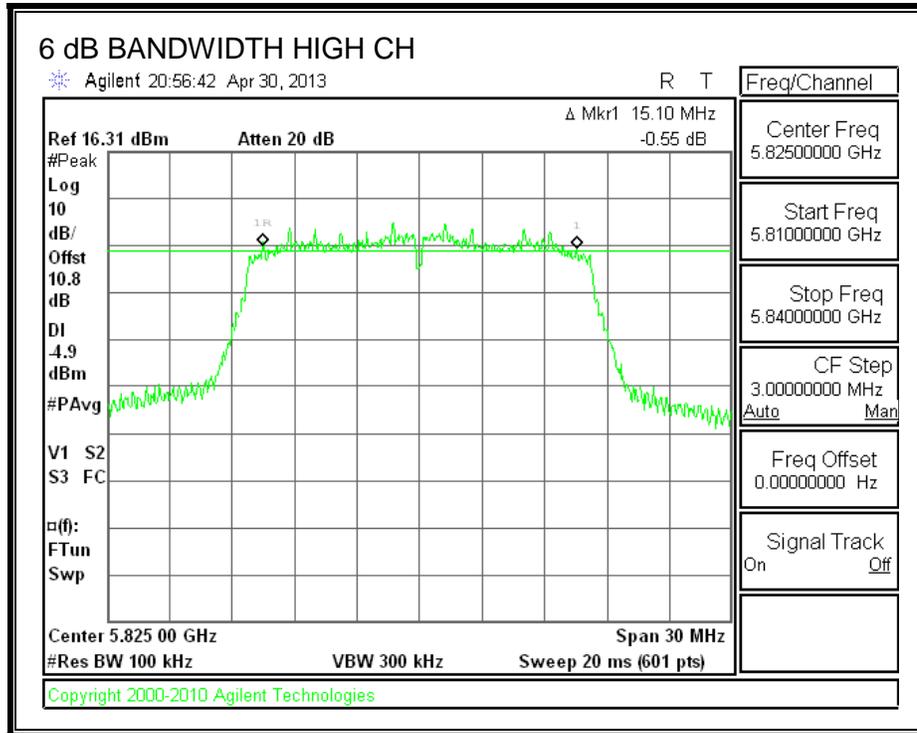
The transmitter output is connected to a spectrum analyzer with the RBW set between 1% and 5% of the EBW, the VBW $\geq 3 \times$ RBW, peak detector and max hold.

RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5745	15.40	0.5
Mid	5785	15.50	0.5
High	5825	15.10	0.5

6 dB BANDWIDTH





8.4.2. 99% BANDWIDTH

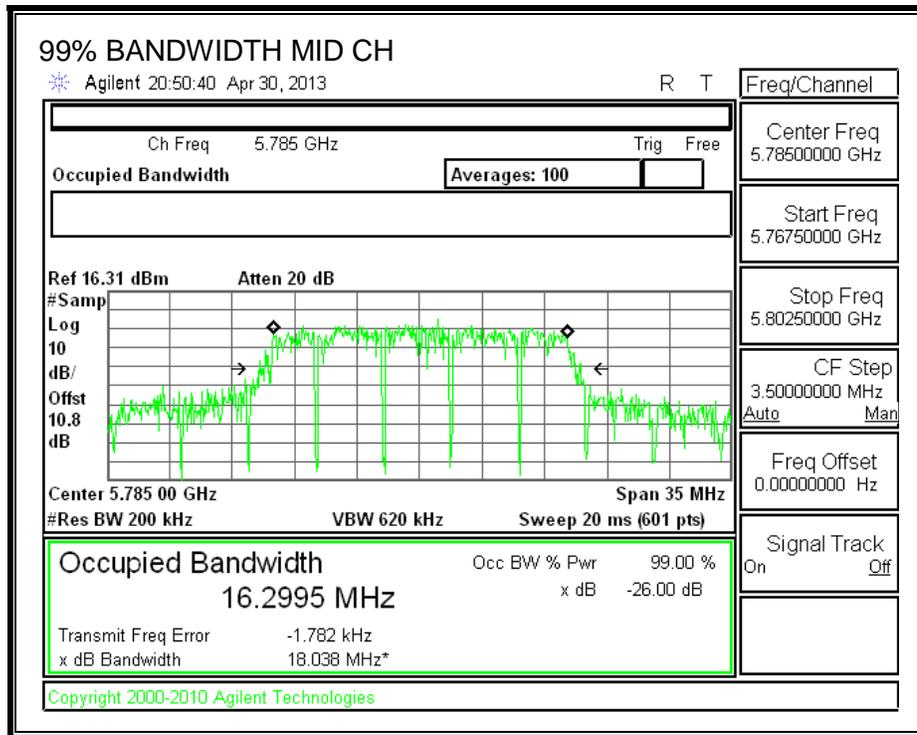
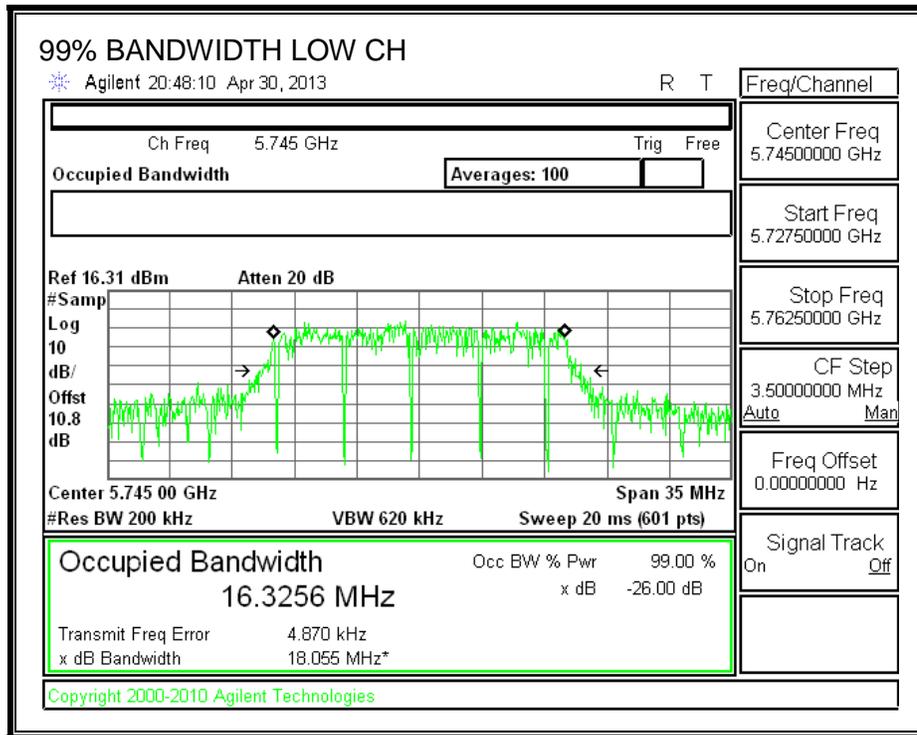
LIMITS

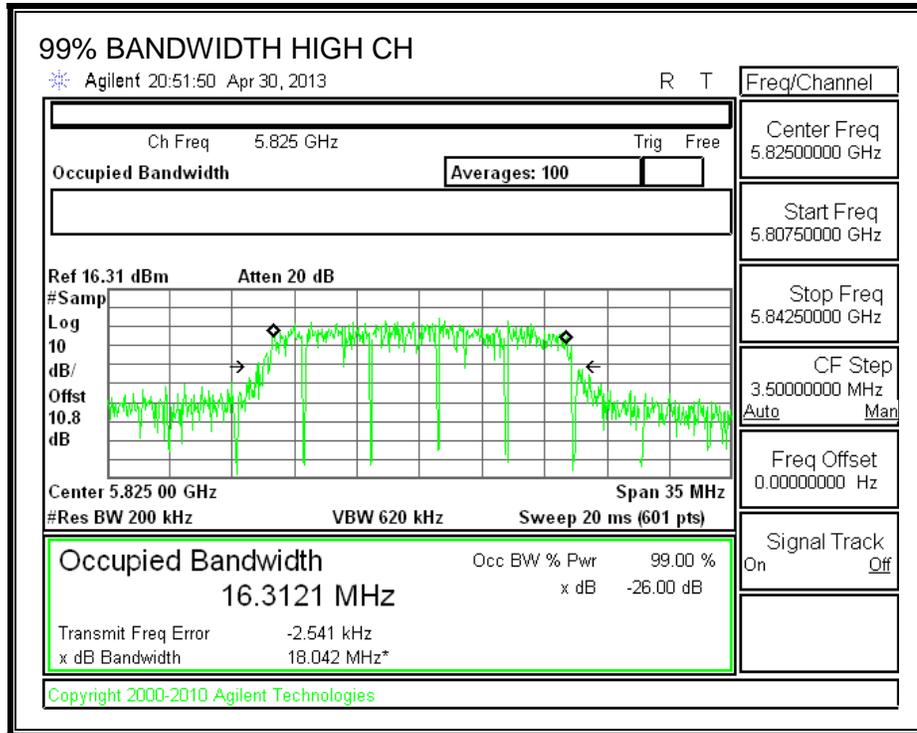
None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5745	16.3256
Mid	5785	16.2995
High	5825	16.3121

99% BANDWIDTH





8.4.3. 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 10.8 dB (including 10 dB pad and 0.8 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	5745	11.19
Mid	5785	11.15
High	5825	11.16

8.4.4. 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

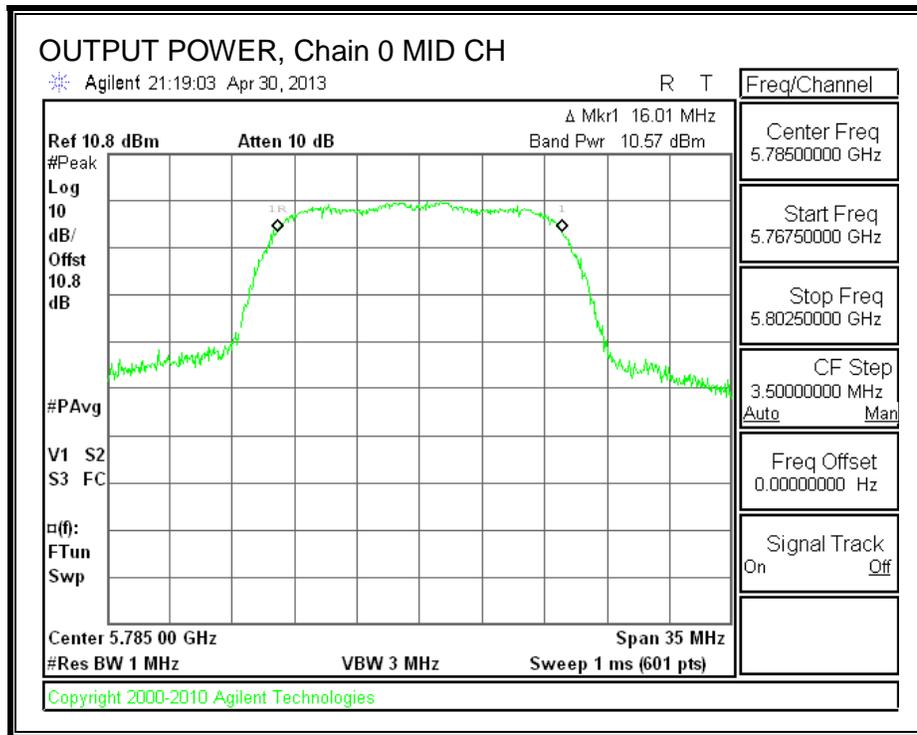
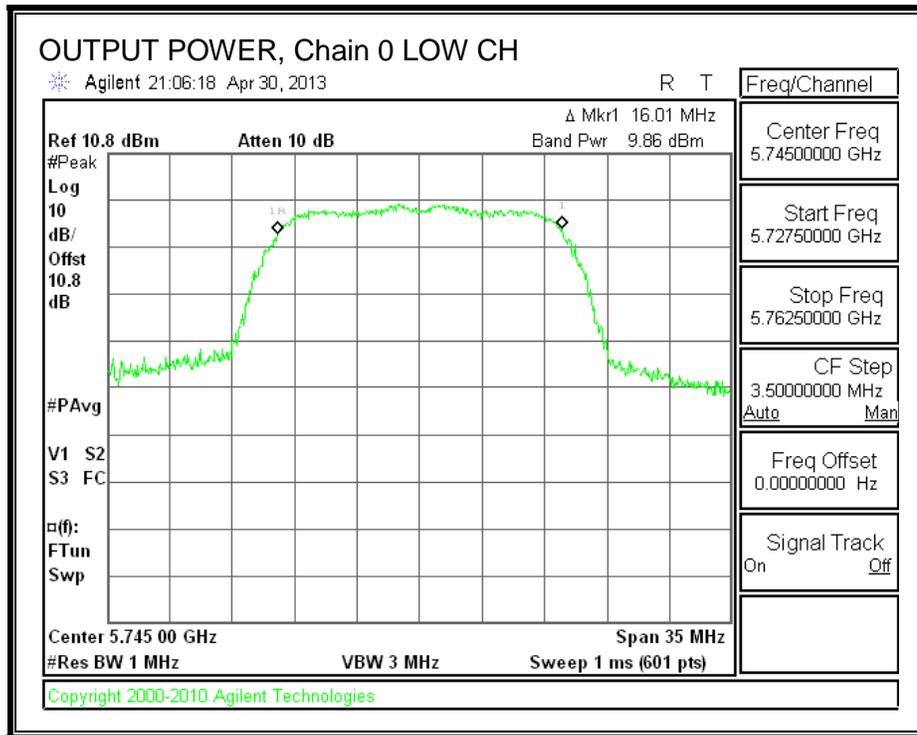
Limits

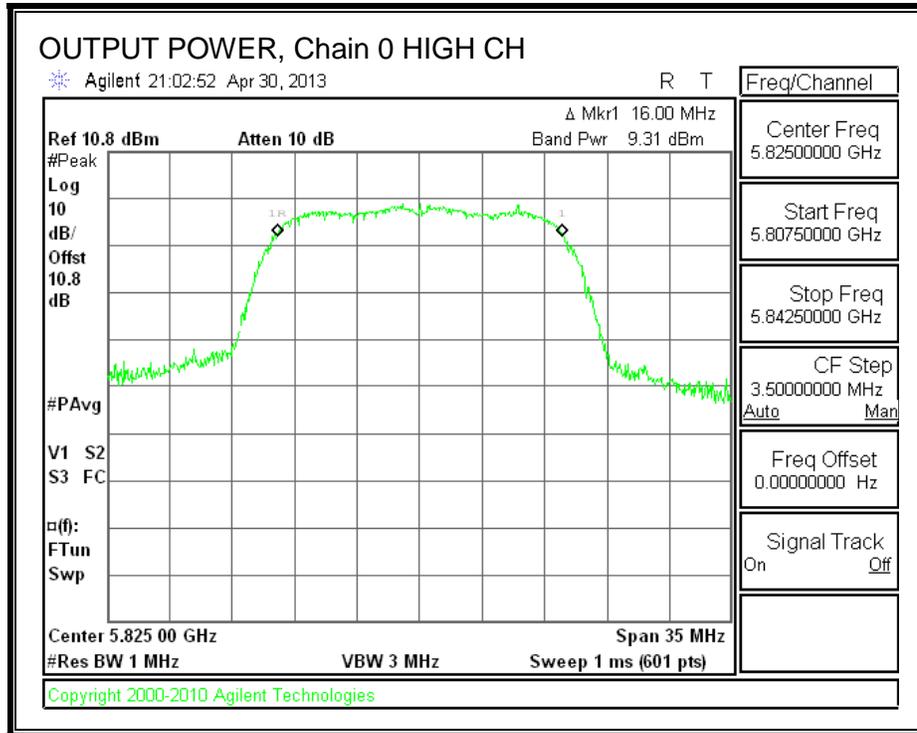
Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	5745	2.44	30.00	30	36	30.00
Mid	5785	2.44	30.00	30	36	30.00
High	5825	2.44	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	5745	9.86	9.86	30.00	-20.14
Mid	5785	10.57	10.57	30.00	-19.43
High	5825	10.31	10.31	30.00	-19.69

OUTPUT POWER, Chain 0





8.4.5. PSD

LIMITS

FCC §15.247

IC RSS-210 A8.2

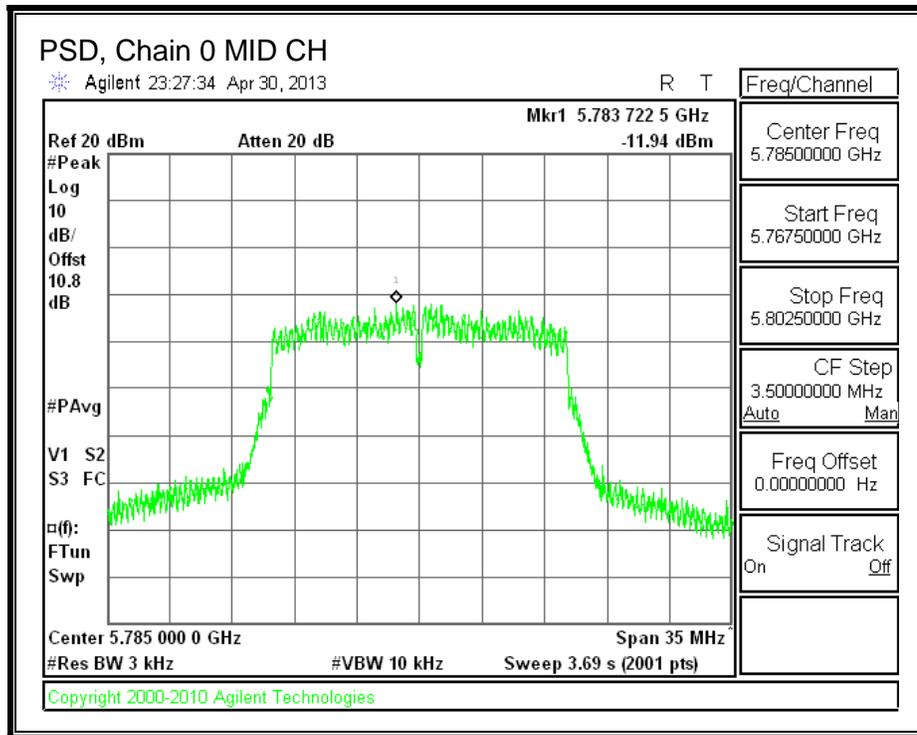
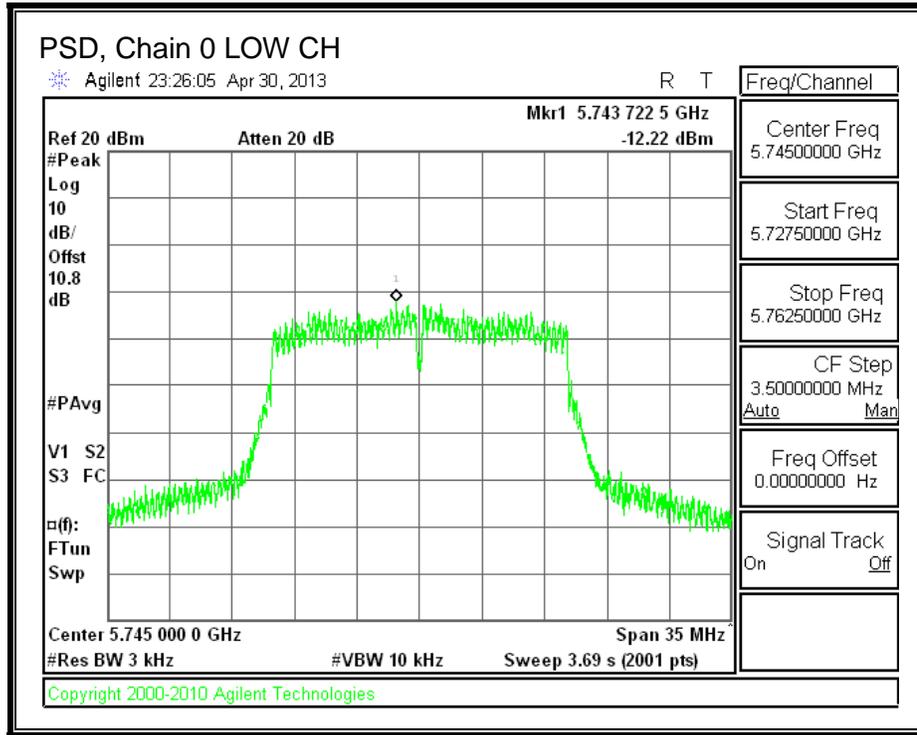
The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

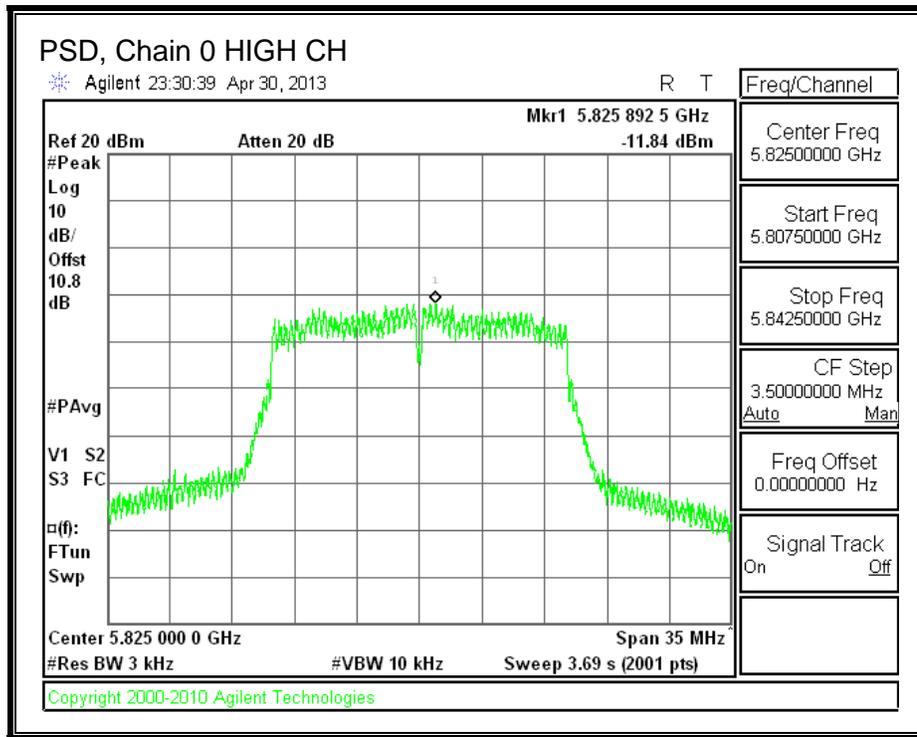
RESULTS

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	5745	-12.22	8.0	-20.2
Mid	5785	-11.94	8.0	-19.9
High	5825	-11.84	8.0	-19.8

PSD, Chain 0





8.4.6. OUT-OF-BAND EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

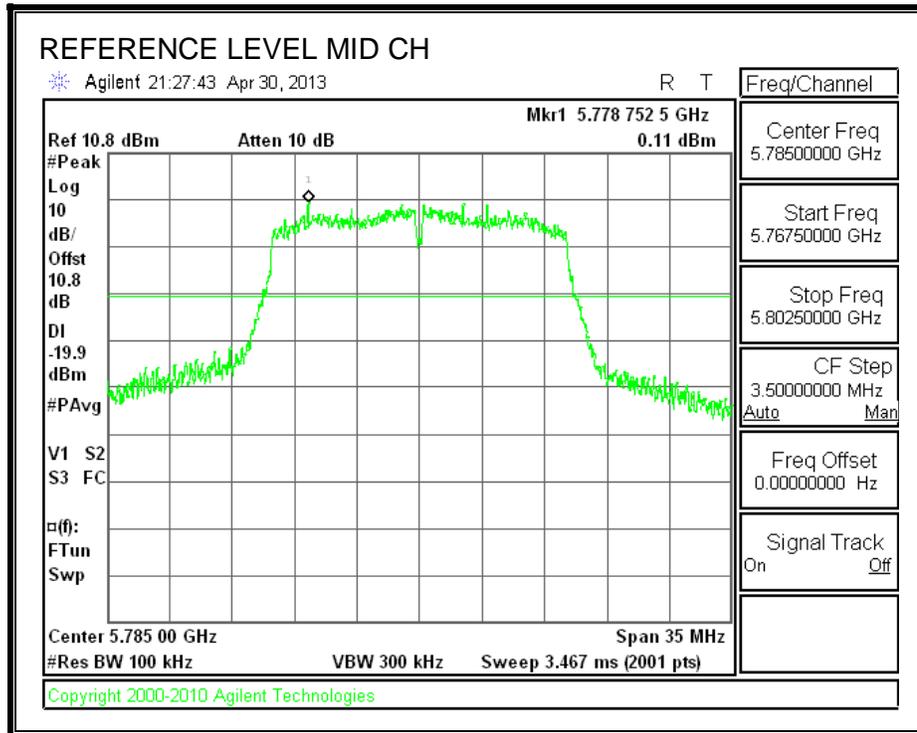
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the 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

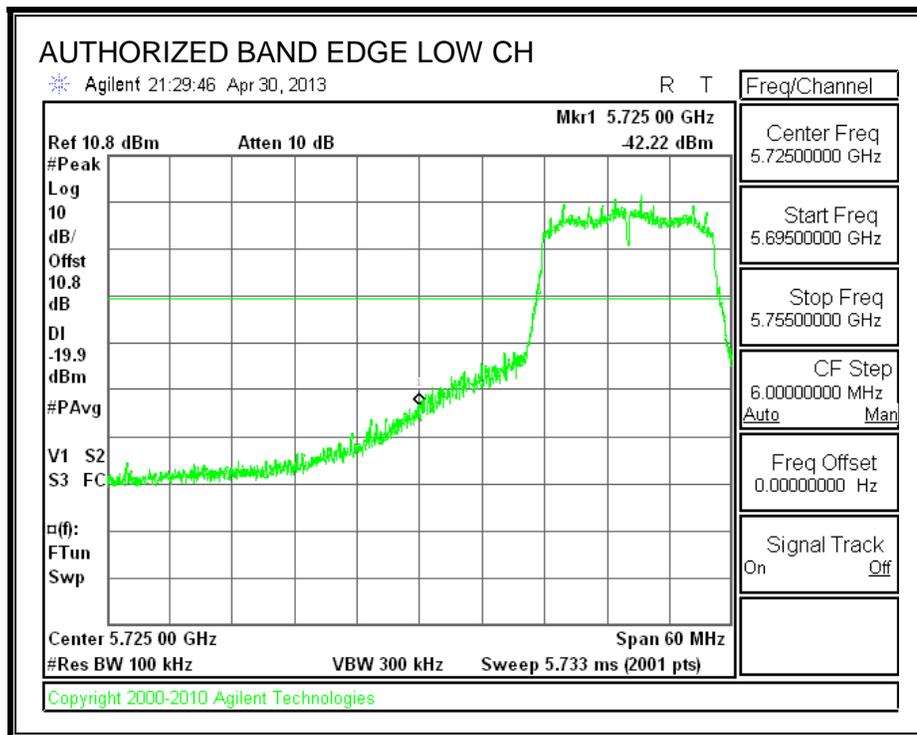
The transmitter output is connected to a spectrum analyzer with RBW = 100 kHz, VBW = 300 kHz, peak detector, and max hold. Measurements utilizing these settings are made of the in-band reference level, bandedge (where measurements to the general radiated limits will not be made) and out-of-band emissions.

RESULTS

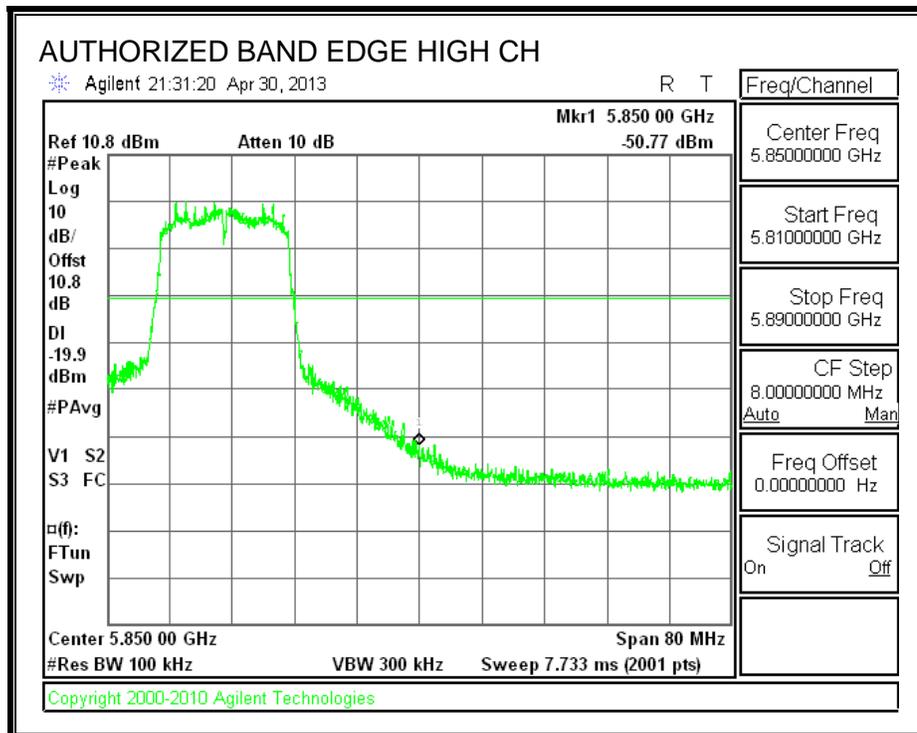
IN-BAND REFERENCE LEVEL



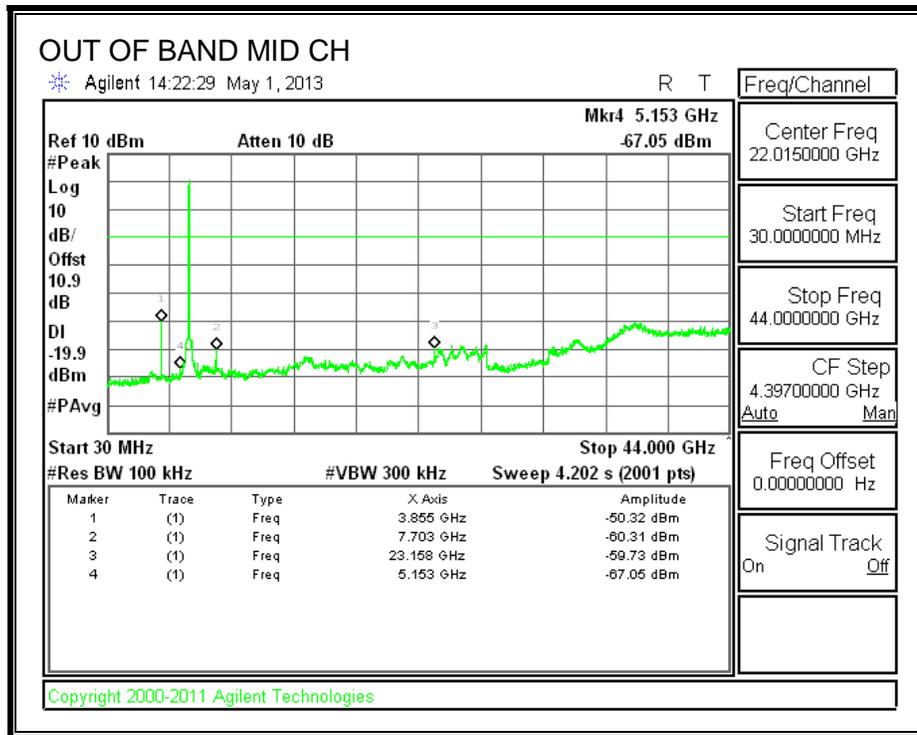
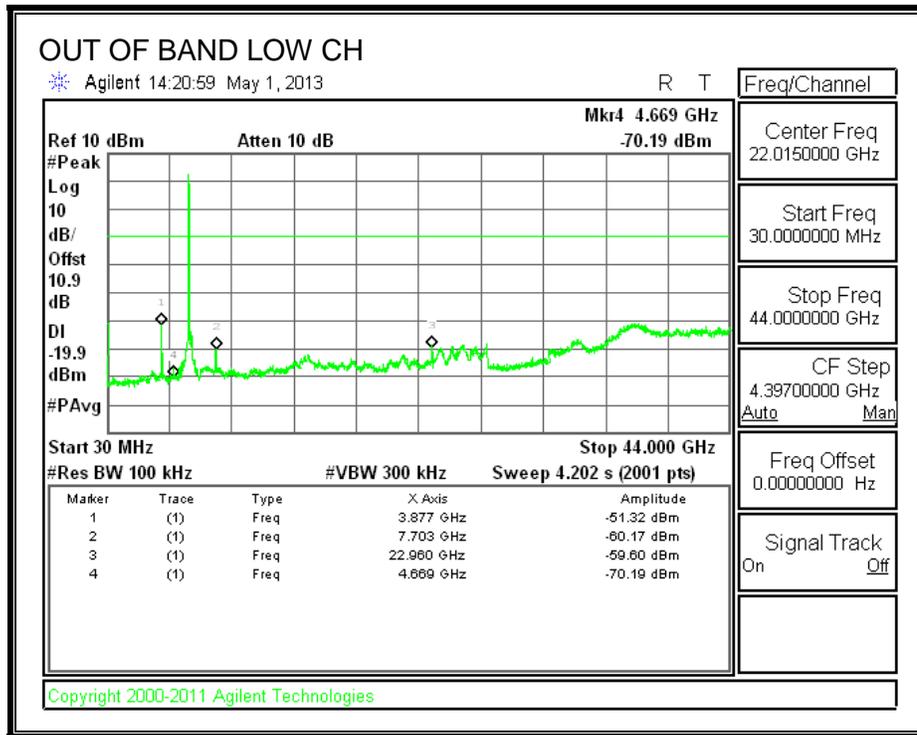
LOW CHANNEL BANDEDGE

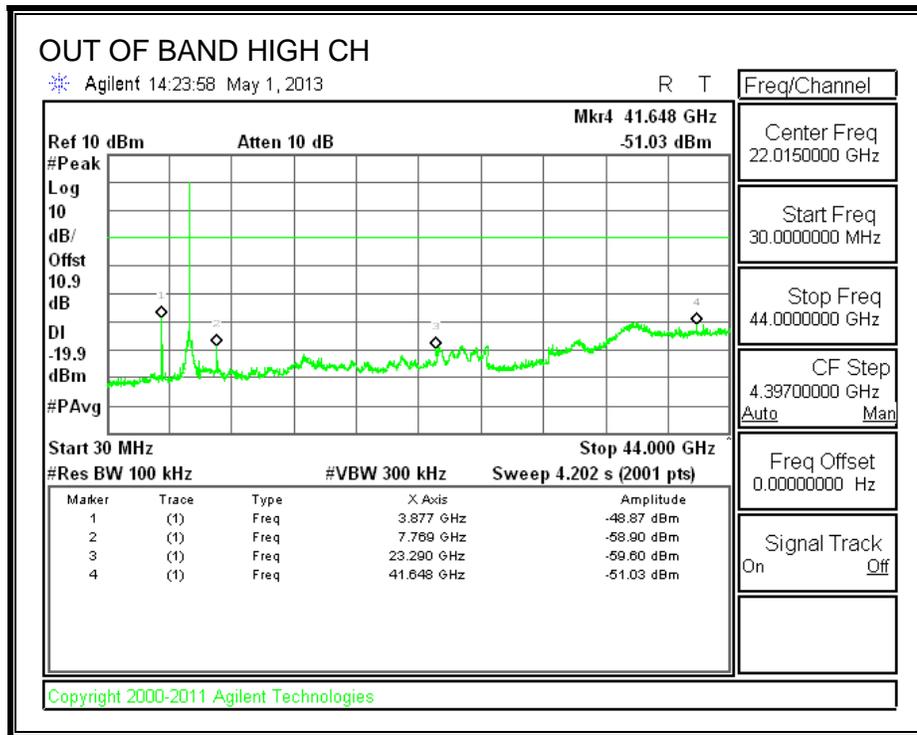


HIGH CHANNEL BANDEDGE



OUT-OF-BAND EMISSIONS





8.5. 802.11n HT20 MODE IN THE 5.8 GHz BAND

8.5.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

The minimum 6 dB bandwidth shall be at least 500 kHz.

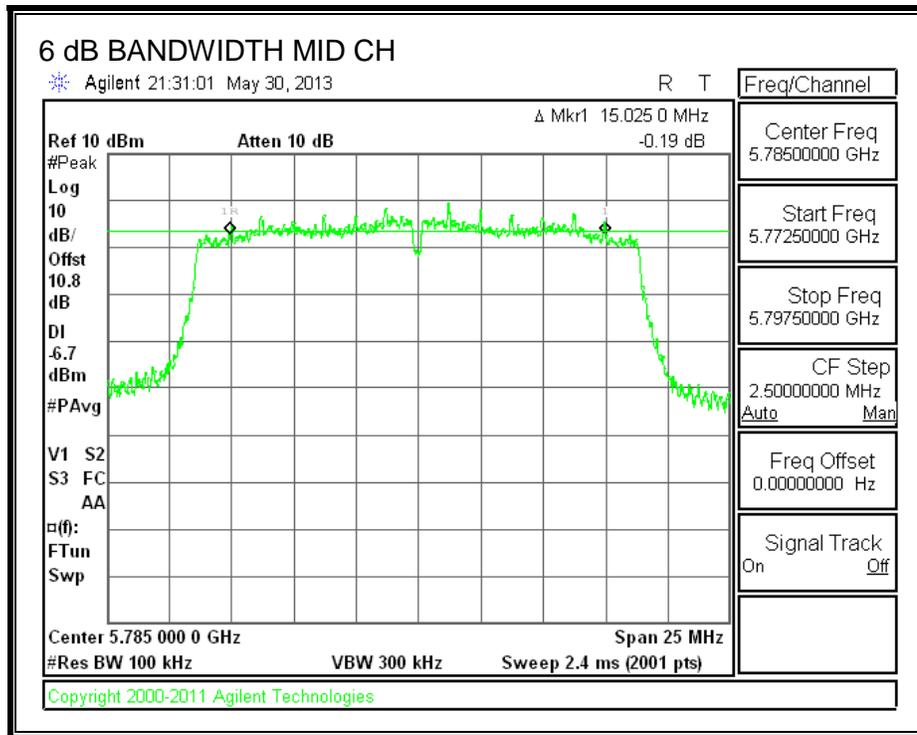
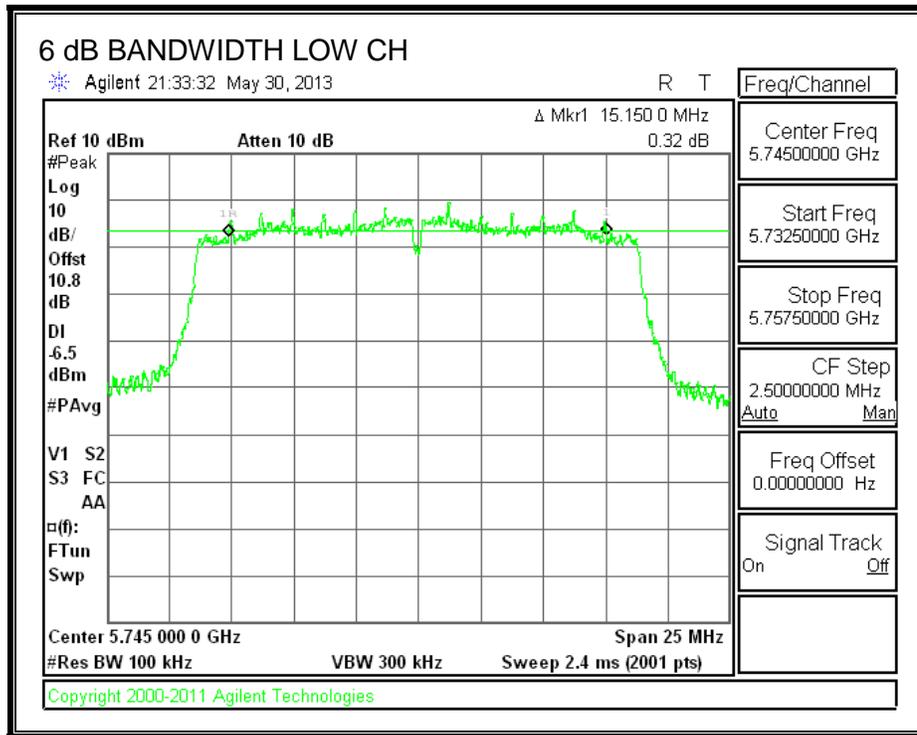
TEST PROCEDURE

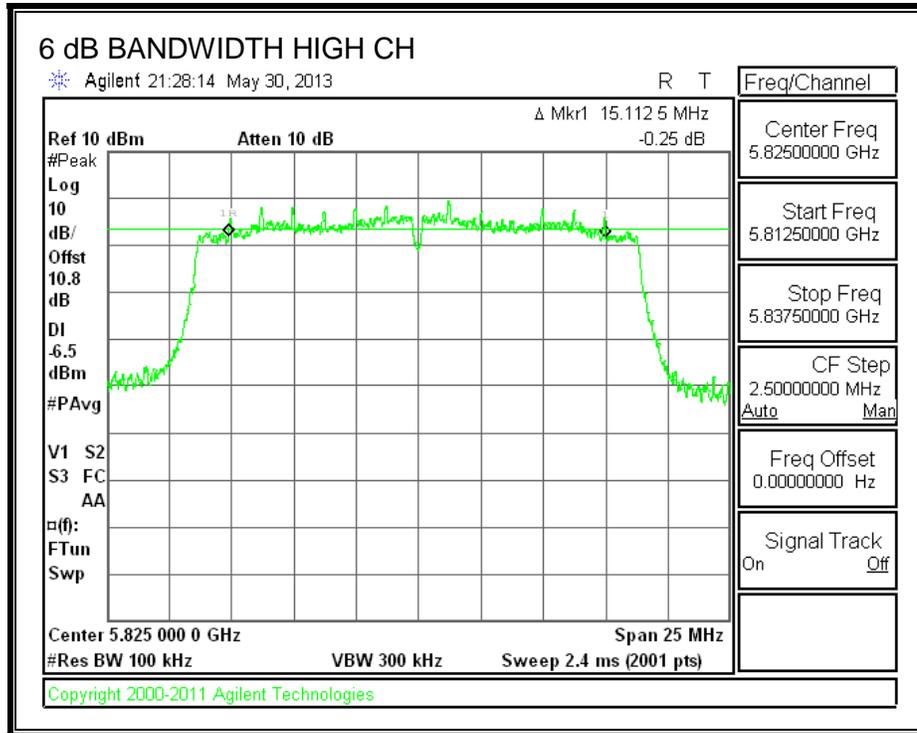
The transmitter output is connected to a spectrum analyzer with the RBW set between 1% and 5% of the EBW, the VBW $\geq 3 \times$ RBW, peak detector and max hold.

RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5745	15.150	0.5
Mid	5785	15.025	0.5
High	5825	15.113	0.5

6 dB BANDWIDTH





8.5.2. 99% BANDWIDTH

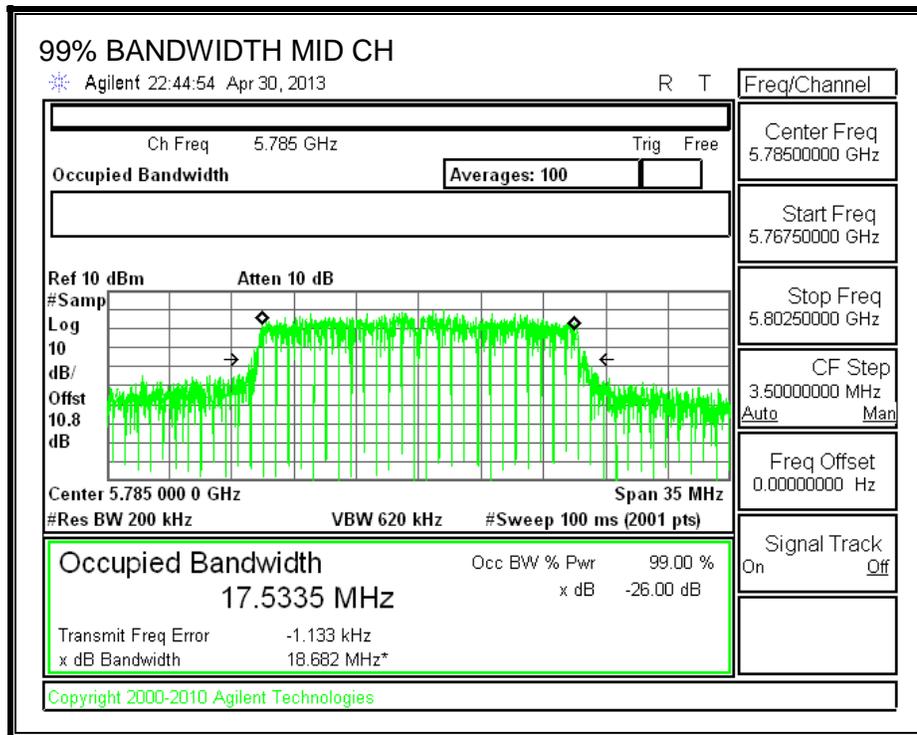
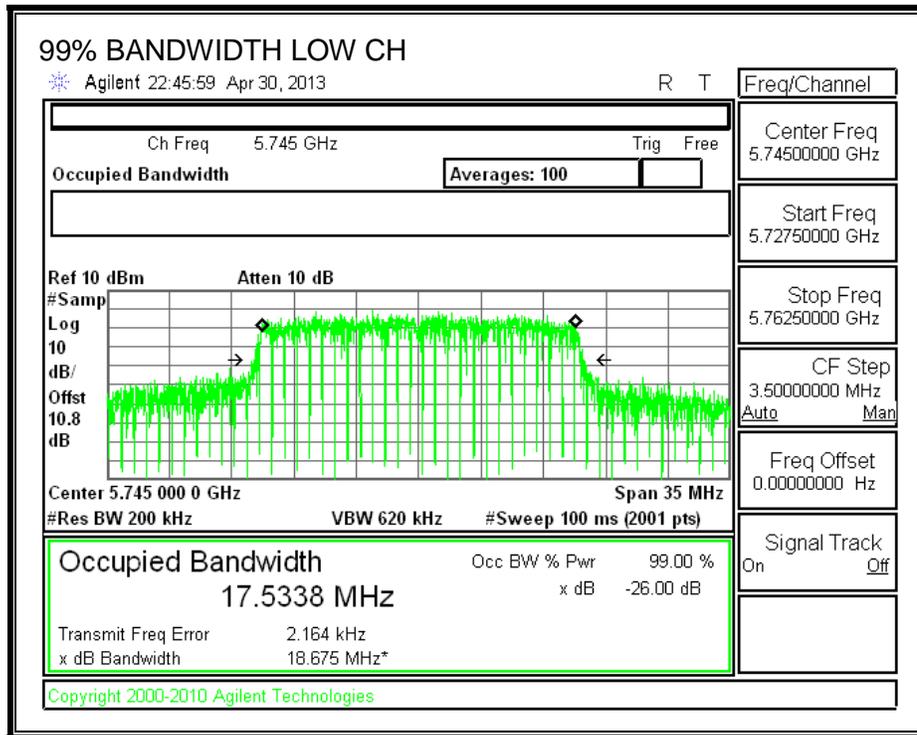
LIMITS

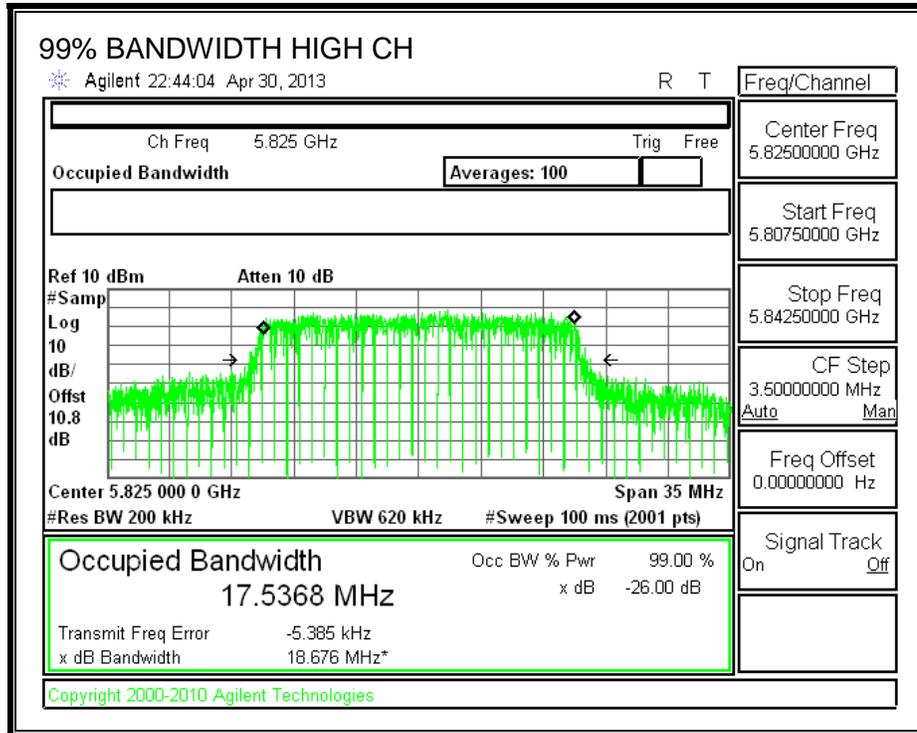
None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5745	17.5338
Mid	5785	17.5335
High	5825	17.5368

99% BANDWIDTH





8.5.3. 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 10.8 dB (including 10 dB pad and 0.8 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	5745	10.12
Mid	5785	10.05
High	5825	10.01

8.5.4. 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

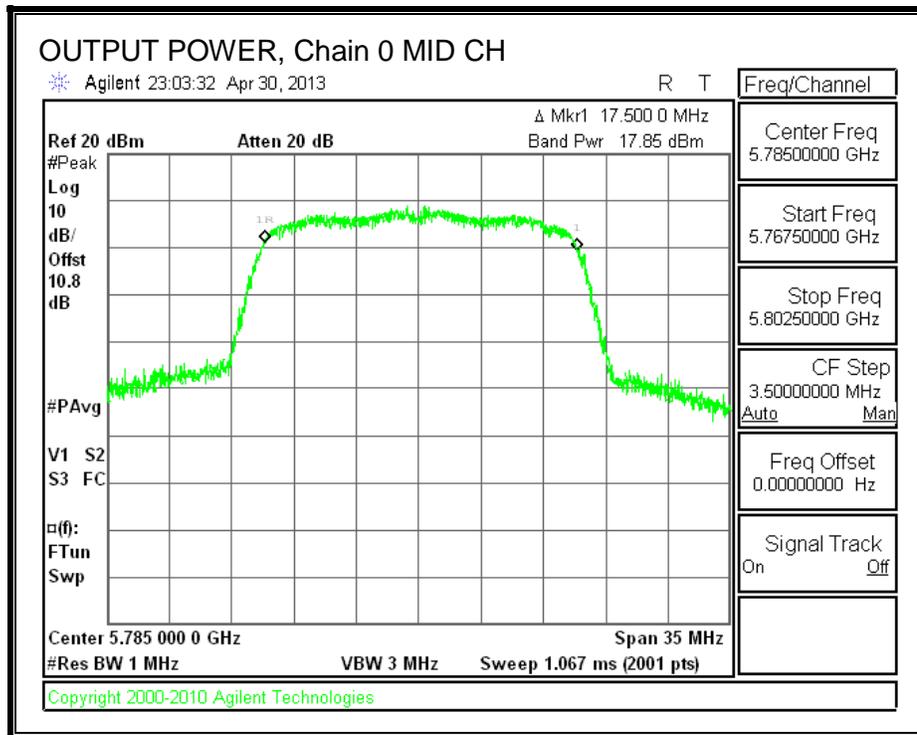
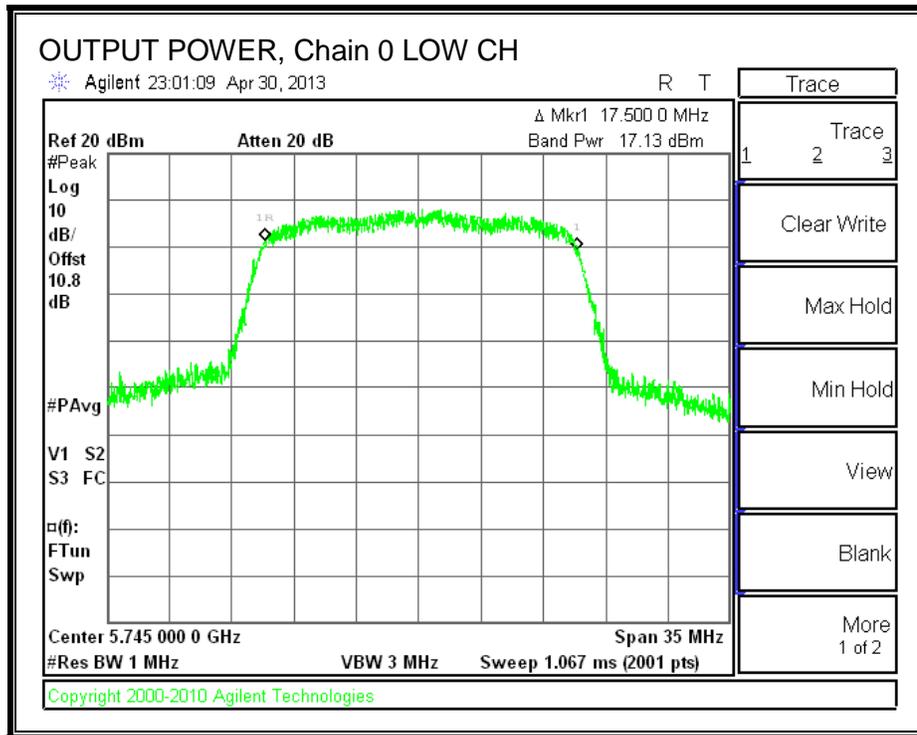
Limits

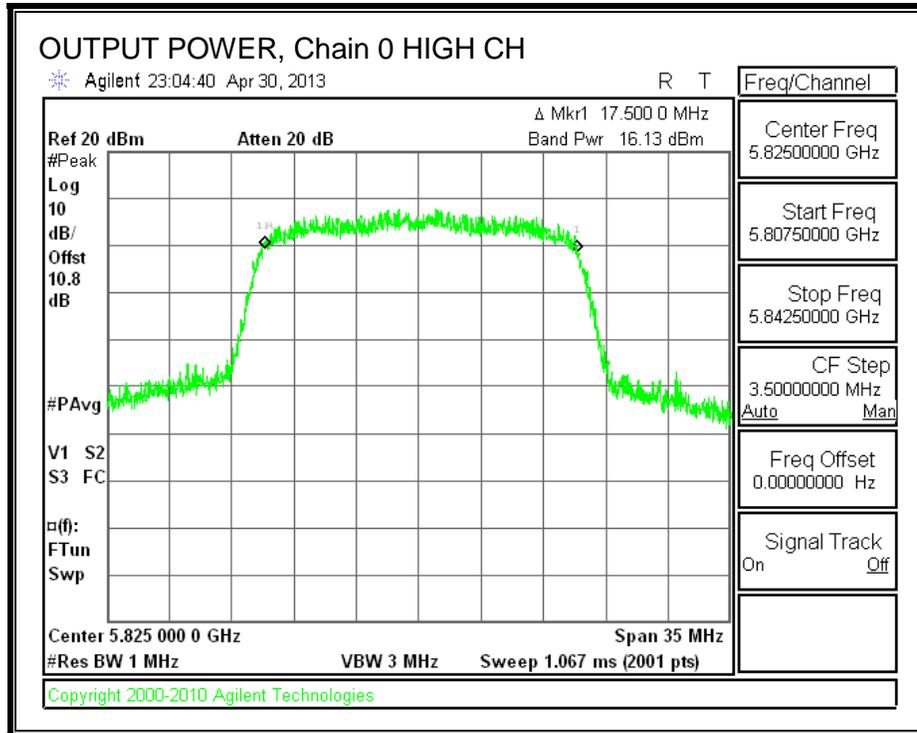
Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	5745	2.44	30.00	30	36	30.00
Mid	5785	2.44	30.00	30	36	30.00
High	5825	2.44	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	5745	17.13	17.13	30.00	-12.87
Mid	5785	17.85	17.85	30.00	-12.15
High	5825	16.13	16.13	30.00	-13.87

OUTPUT POWER, Chain 0





8.5.5. PSD

LIMITS

FCC §15.247

IC RSS-210 A8.2

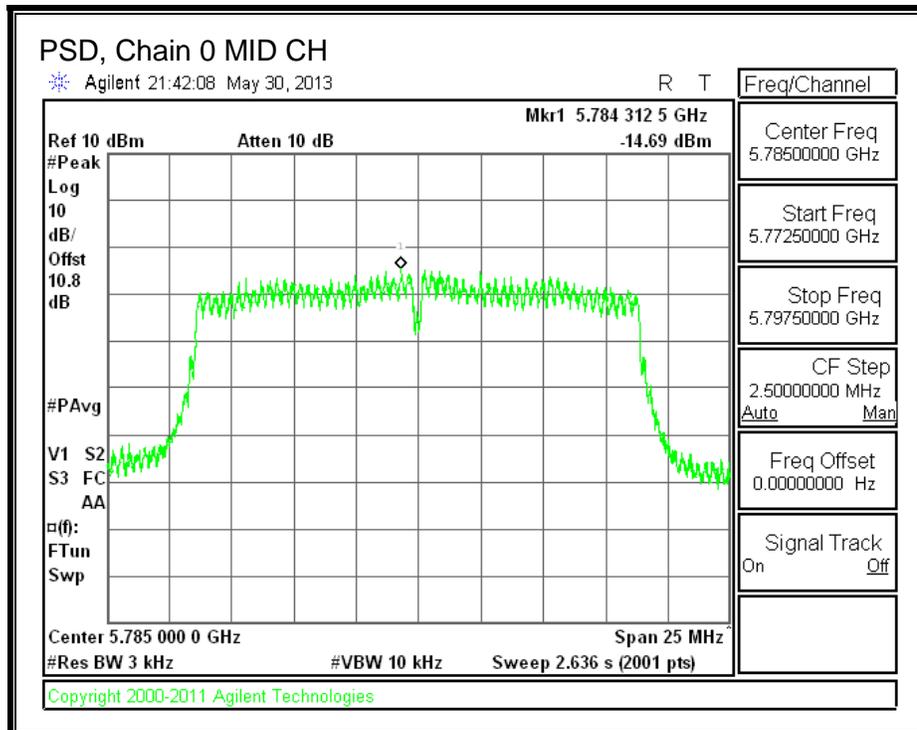
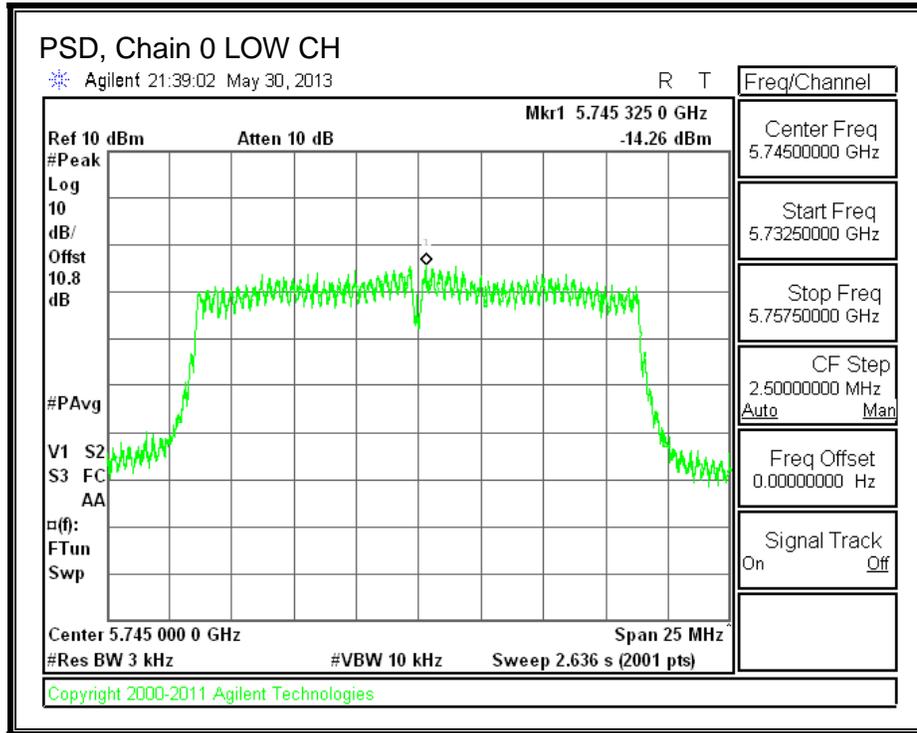
The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

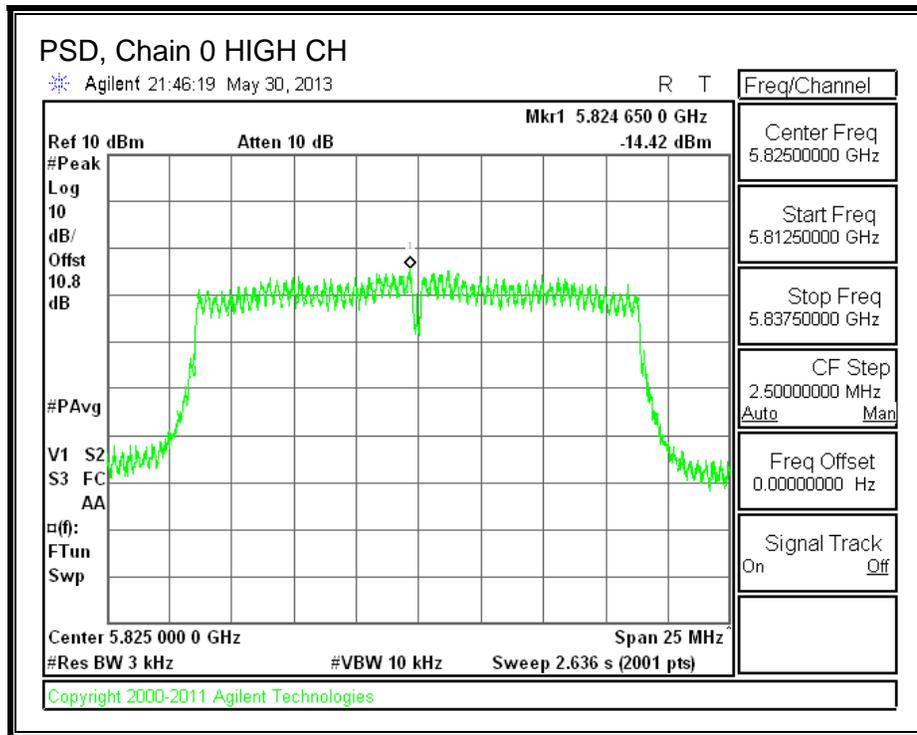
RESULTS

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	5745	-14.42	8.0	-22.4
Mid	5785	-14.69	8.0	-22.7
High	5825	-14.42	8.0	-22.4

PSD, Chain 0





8.5.6. OUT-OF-BAND EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

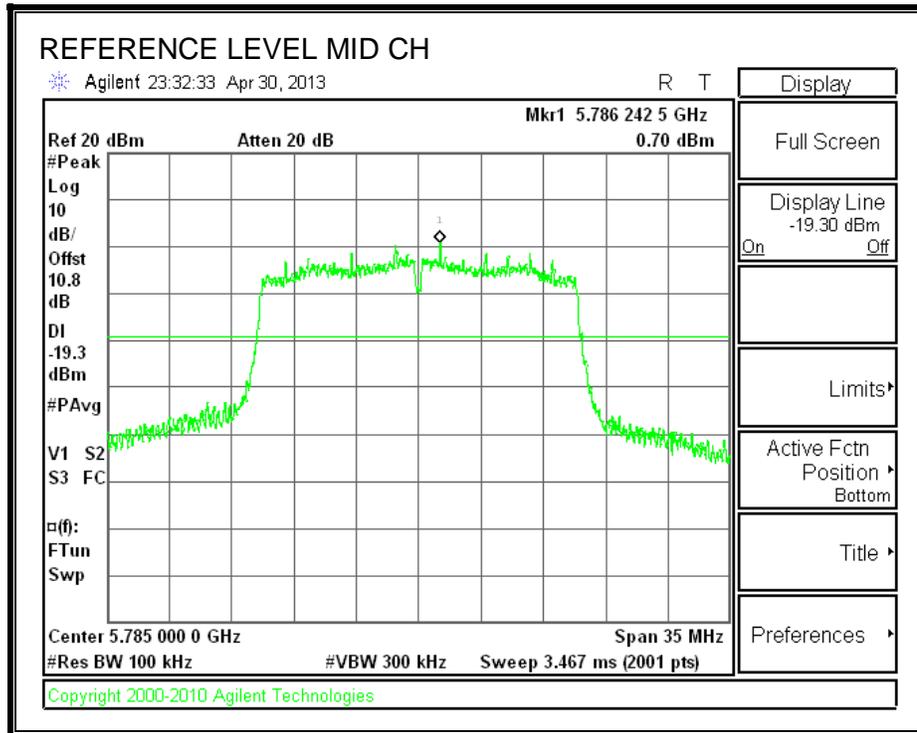
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the 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

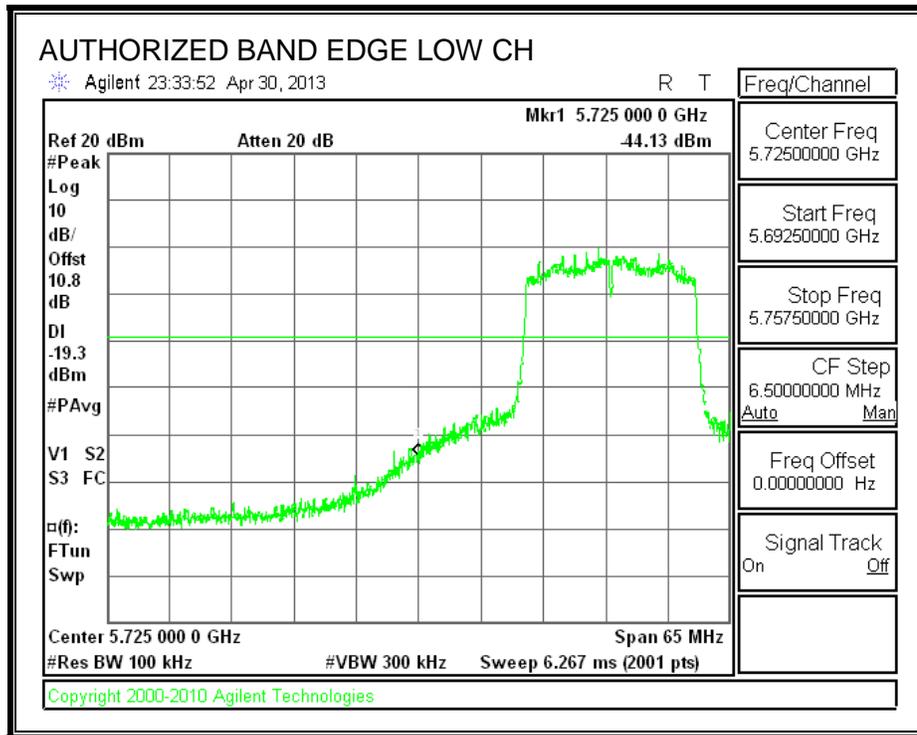
The transmitter output is connected to a spectrum analyzer with RBW = 100 kHz, VBW = 300 kHz, peak detector, and max hold. Measurements utilizing these settings are made of the in-band reference level, bandedge (where measurements to the general radiated limits will not be made) and out-of-band emissions.

RESULTS

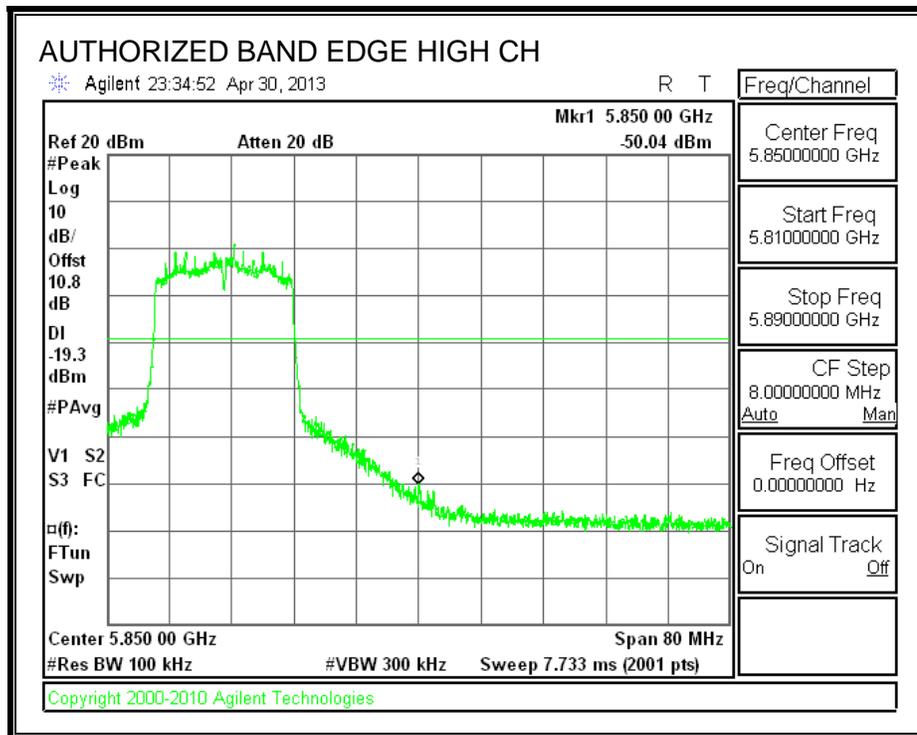
IN-BAND REFERENCE LEVEL



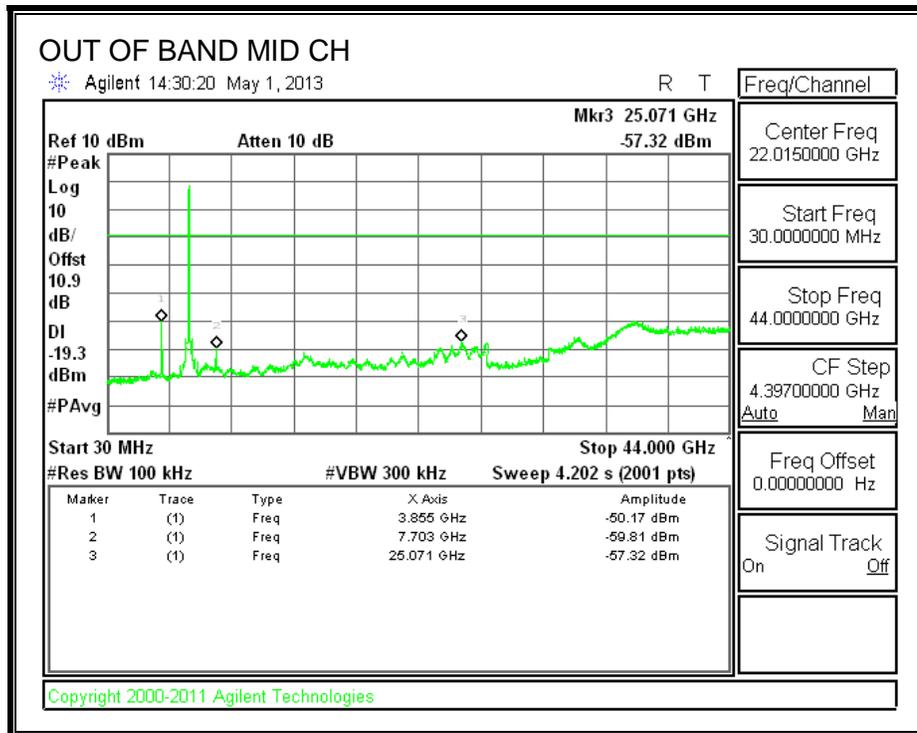
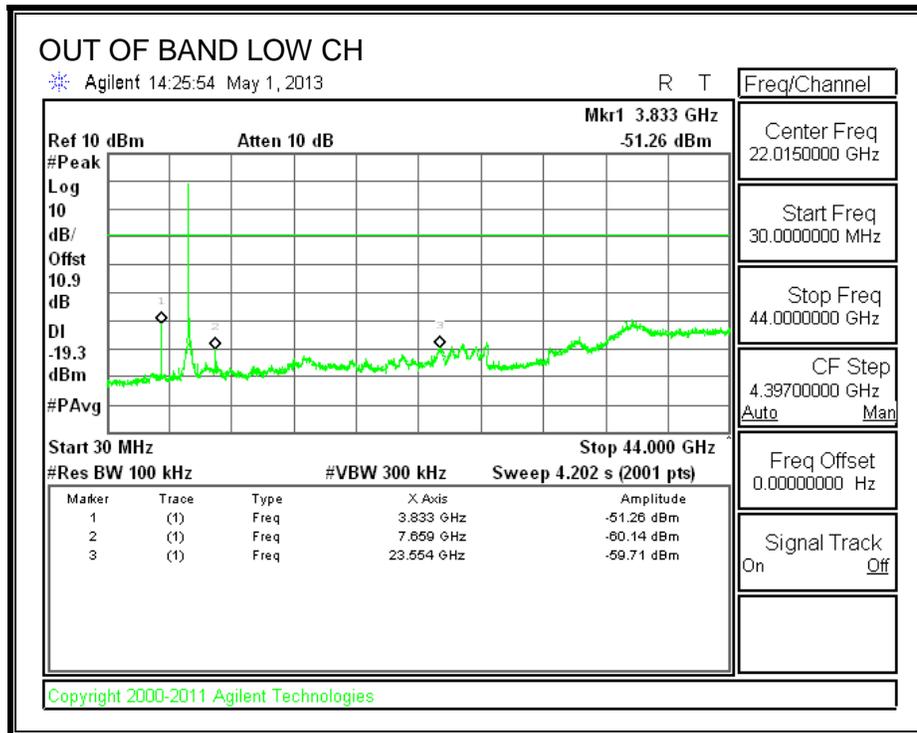
LOW CHANNEL BANDEDGE

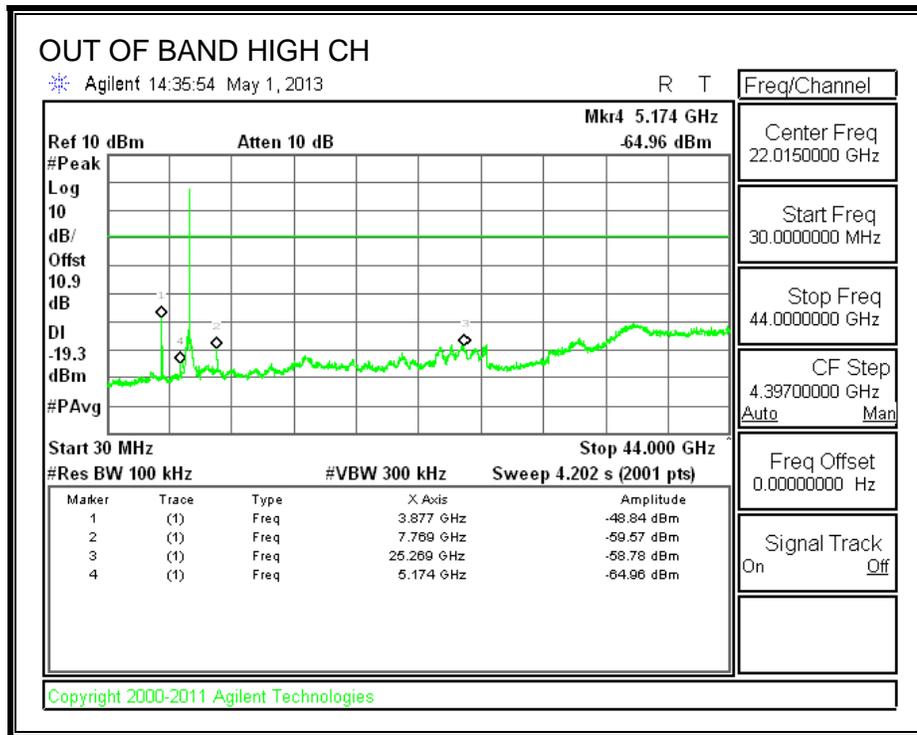


HIGH CHANNEL BANDEDGE



OUT-OF-BAND EMISSIONS





8.6. 802.11n HT40 MODE IN THE 5.8 GHz BAND

8.6.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

The minimum 6 dB bandwidth shall be at least 500 kHz.

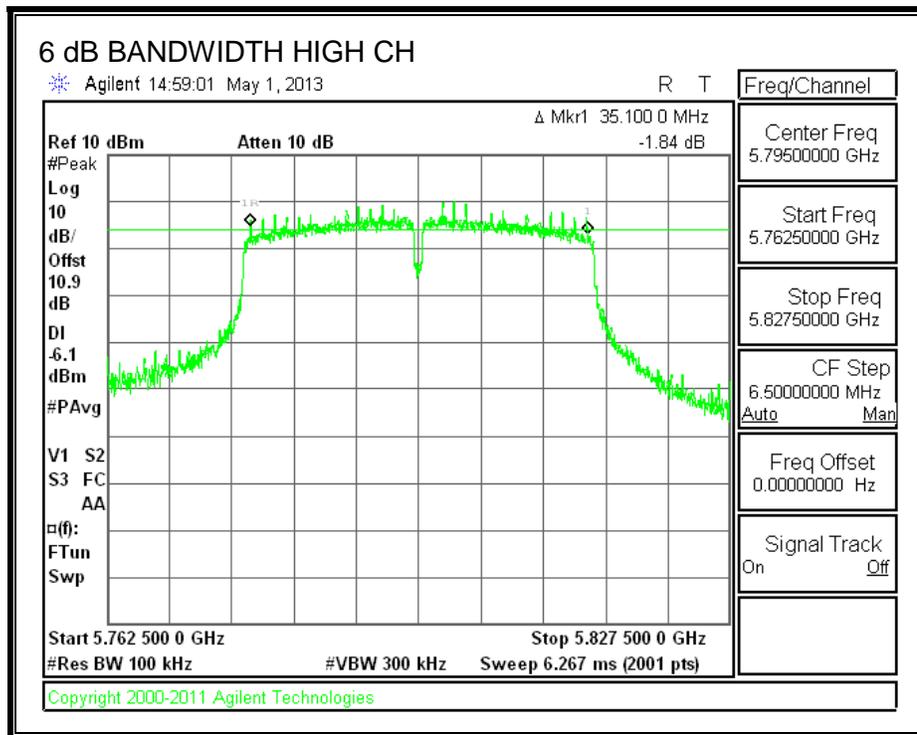
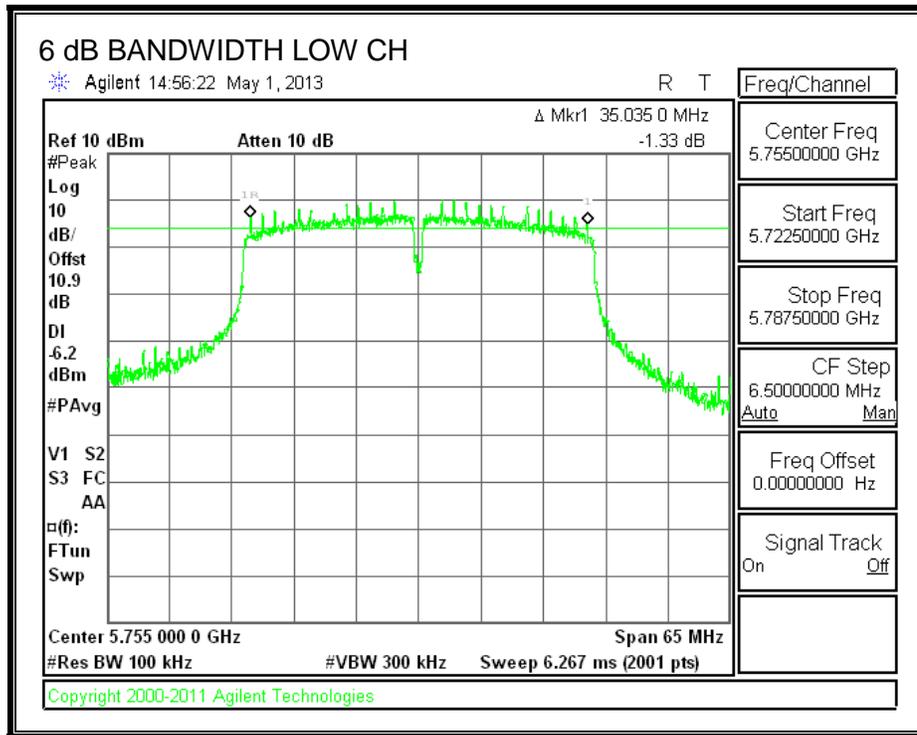
TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer with the RBW set between 1% and 5% of the EBW, the VBW $\geq 3 \times$ RBW, peak detector and max hold.

RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5755	35.035	0.5
High	5795	35.100	0.5

6 dB BANDWIDTH



8.6.2. 99% BANDWIDTH

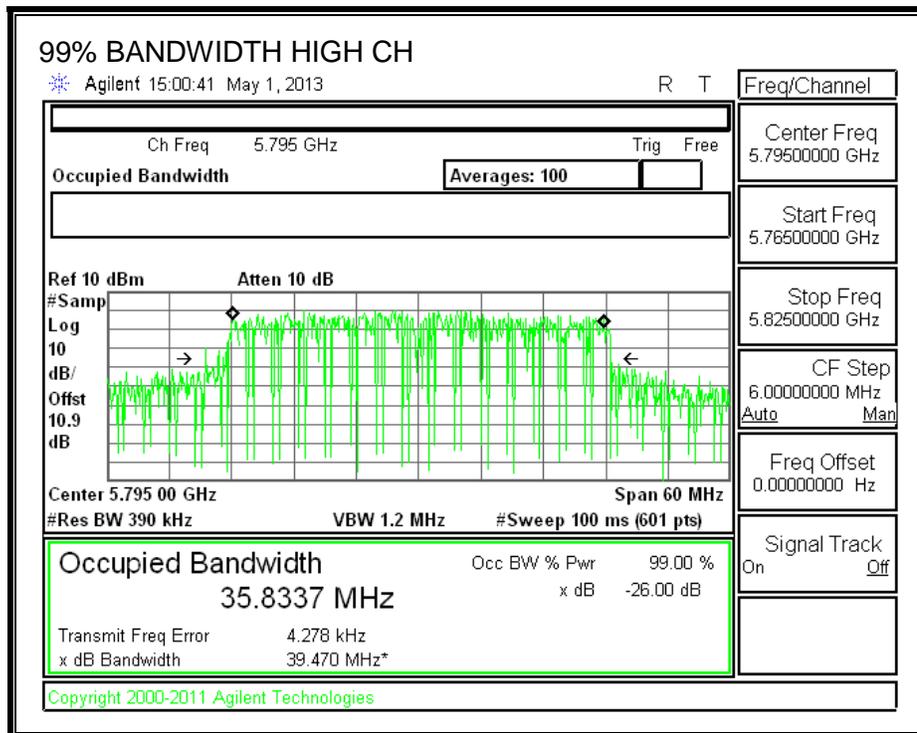
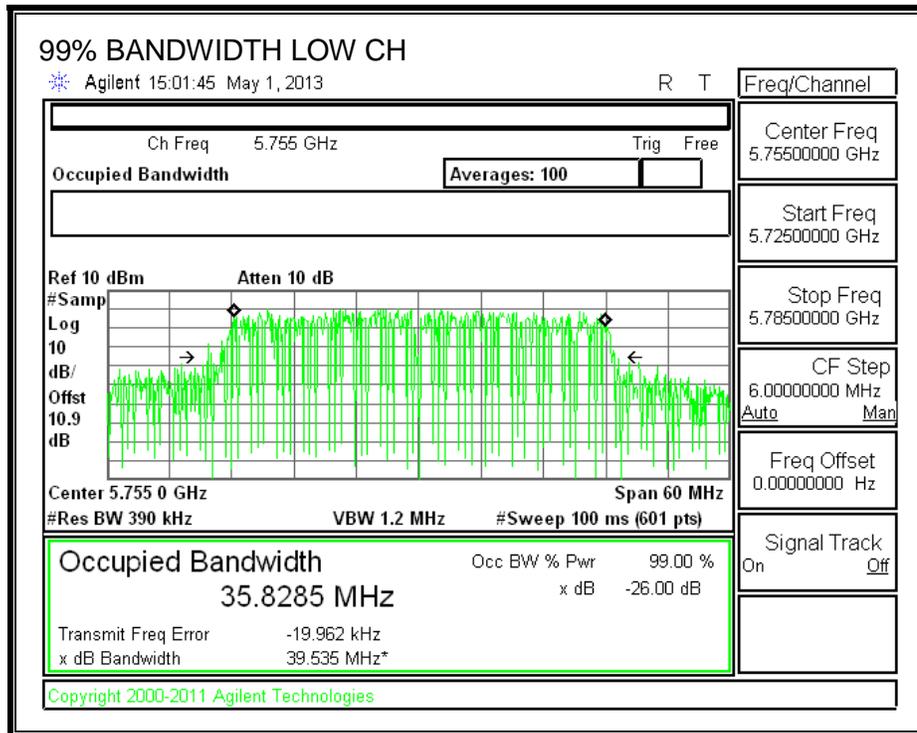
LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5755	35.8285
High	5795	35.8337

99% BANDWIDTH



8.6.3. 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 10.9 dB (including 10 dB pad and 0.9 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	5755	11.54
High	5795	11.62

8.6.4. 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

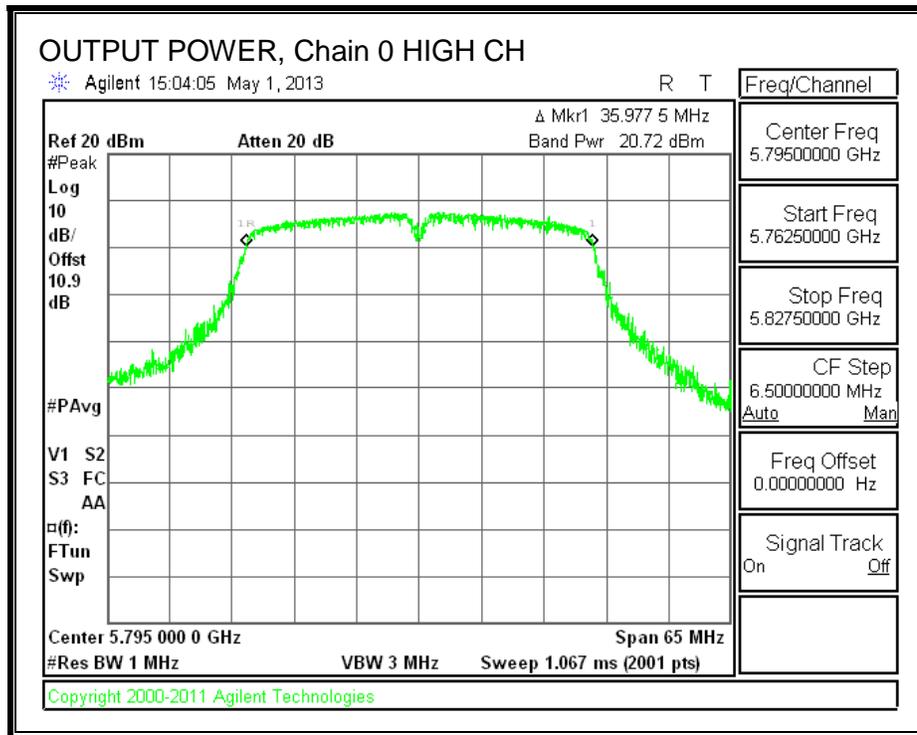
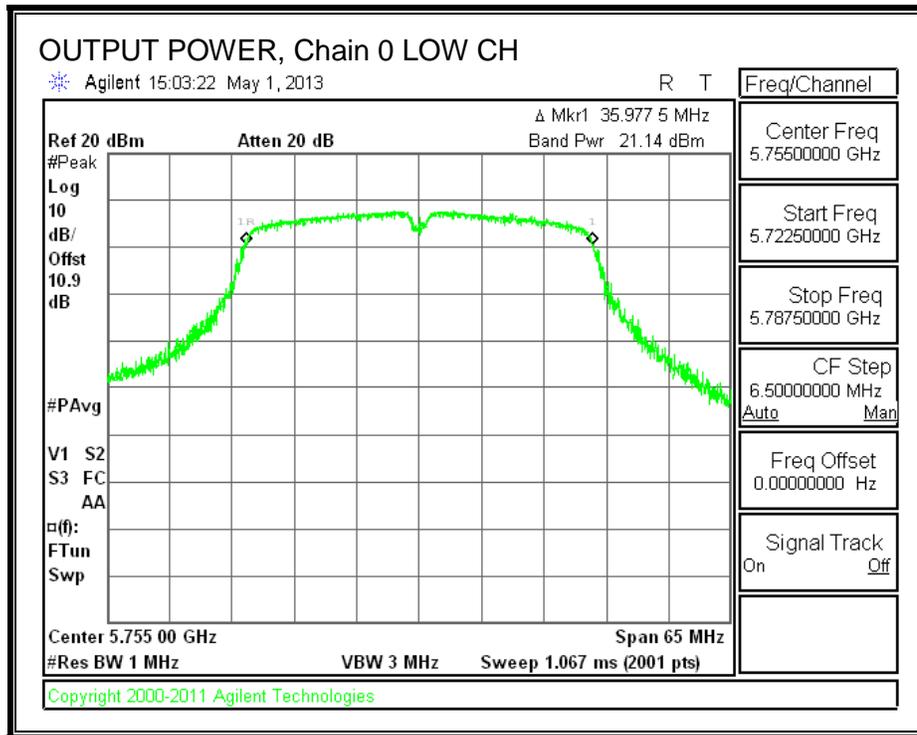
Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	5755	1.04	30.00	30	36	30.00
High	5795	1.04	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	5755	21.14	21.14	30.00	-8.86
High	5795	20.72	20.72	30.00	-9.28

OUTPUT POWER, Chain 0



8.6.5. PSD

LIMITS

FCC §15.247

IC RSS-210 A8.2

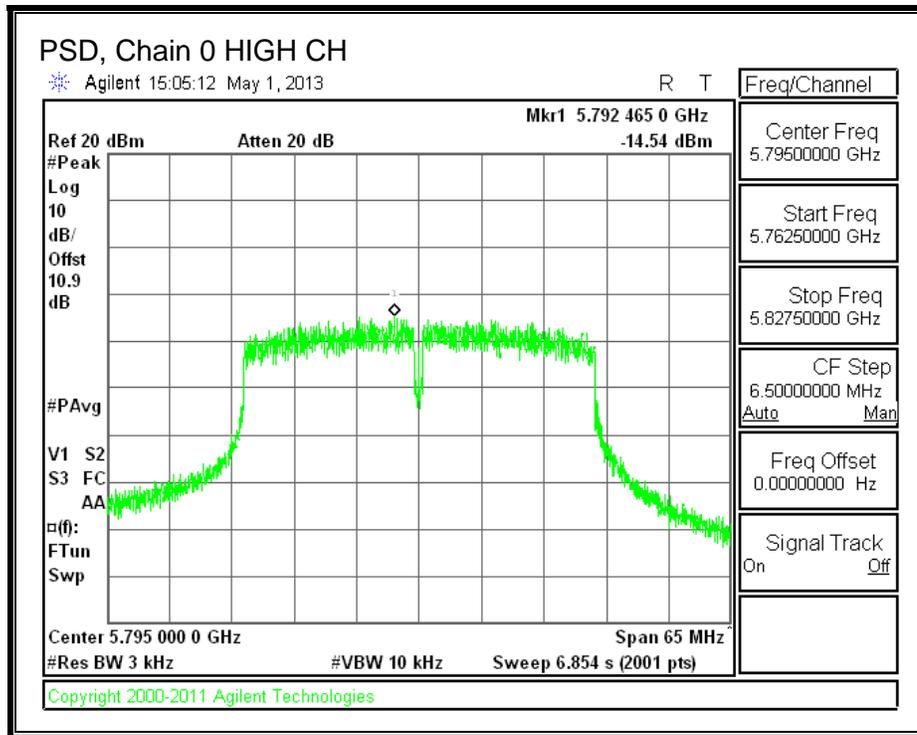
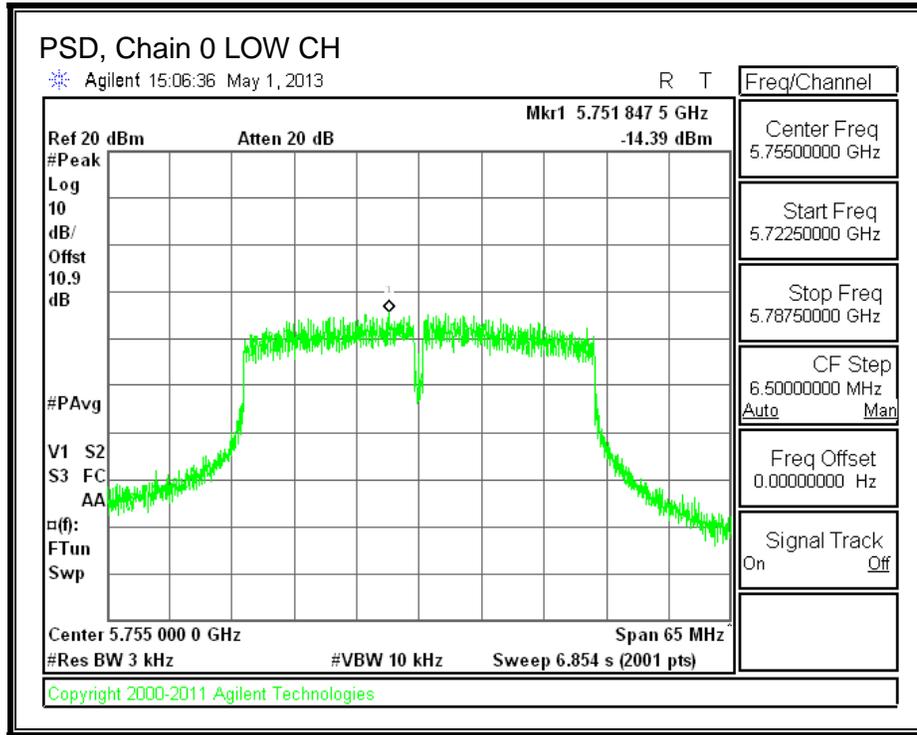
The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

RESULTS

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	5755	-14.39	8.0	-22.4
High	5795	-14.54	8.0	-22.5

PSD, Chain 0



8.6.6. OUT-OF-BAND EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

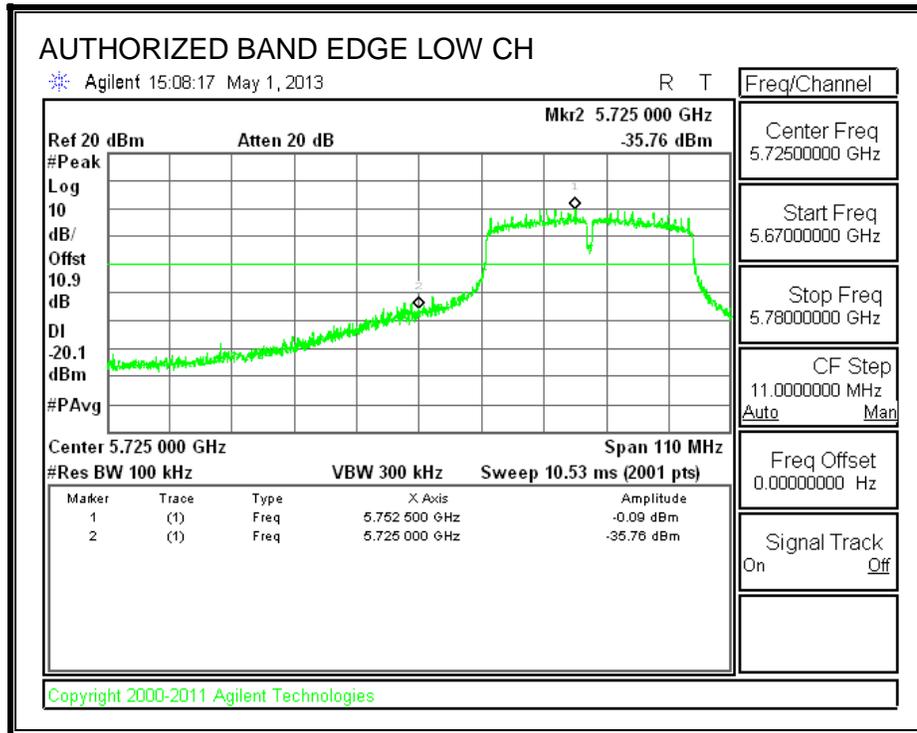
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the 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

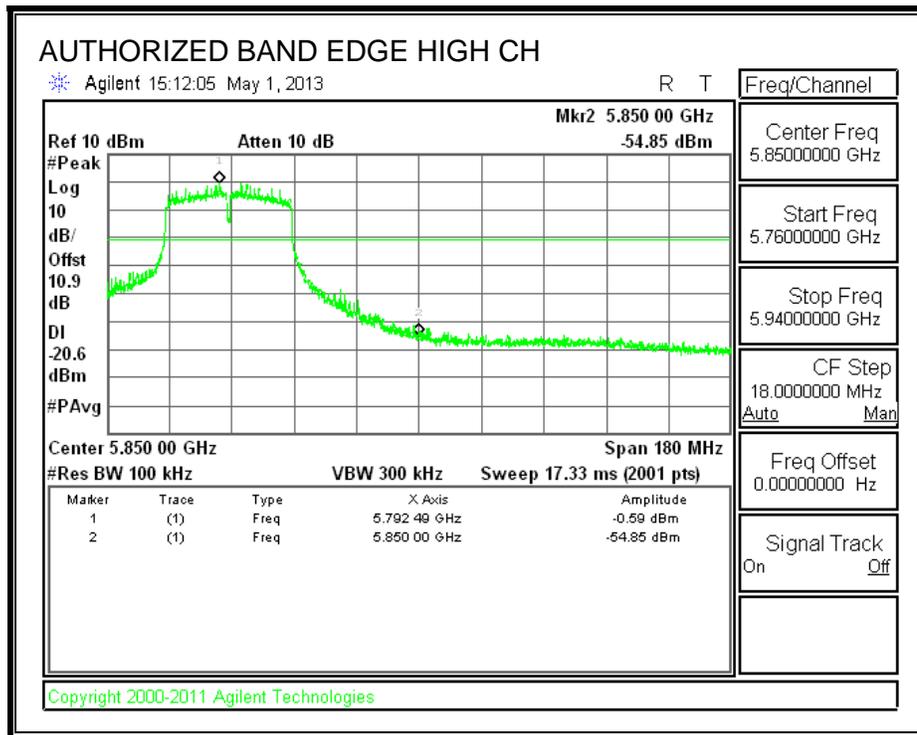
The transmitter output is connected to a spectrum analyzer with RBW = 100 kHz, VBW = 300 kHz, peak detector, and max hold. Measurements utilizing these settings are made of the in-band reference level, bandedge (where measurements to the general radiated limits will not be made) and out-of-band emissions.

RESULTS

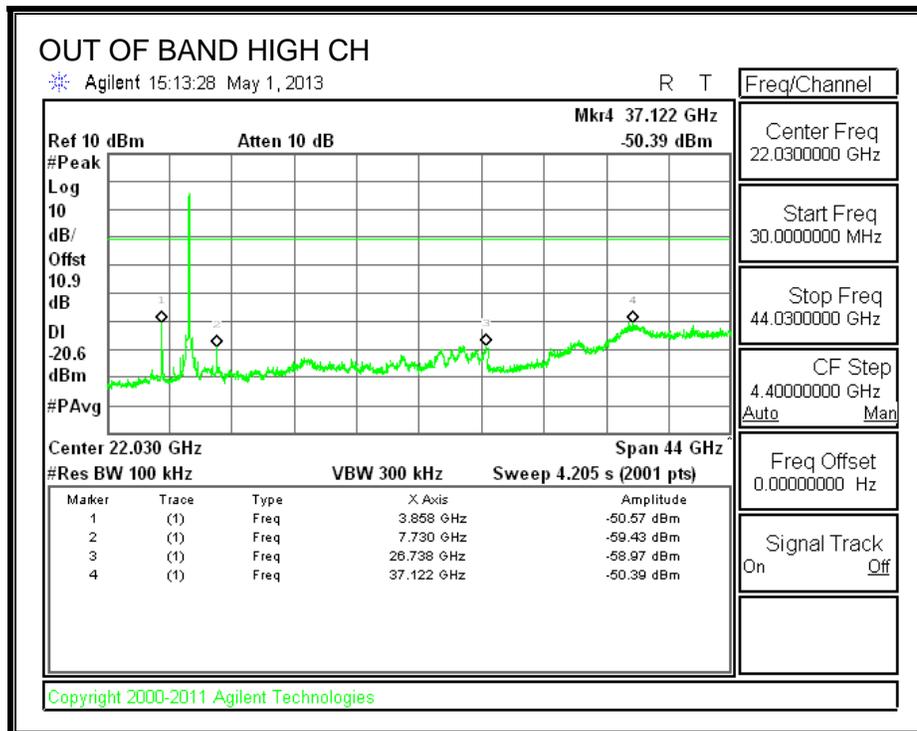
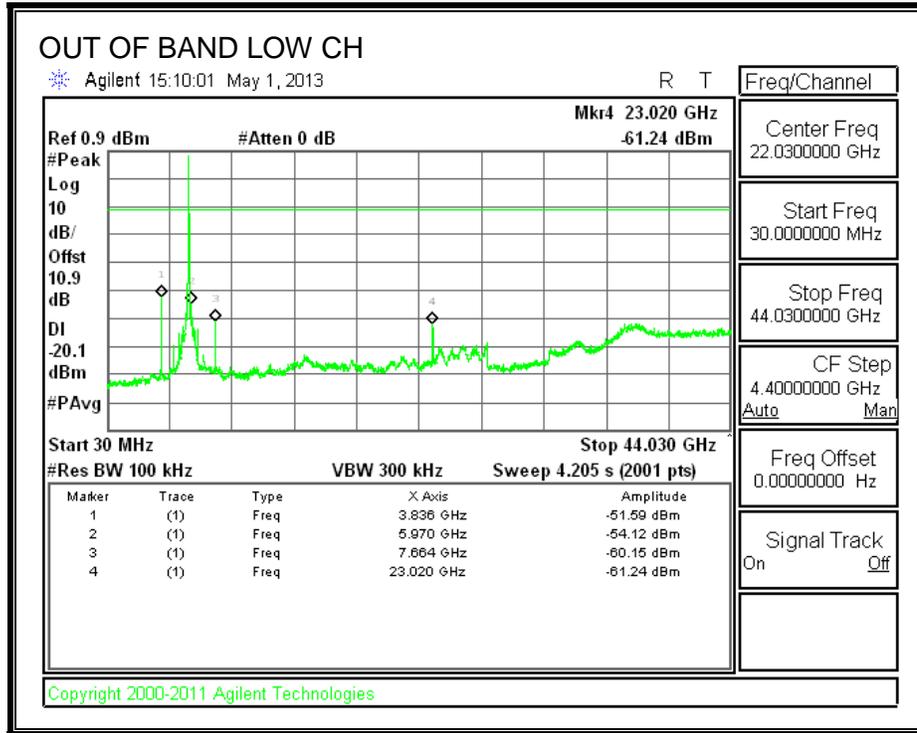
LOW CHANNEL BANDEDGE



HIGH CHANNEL BANDEDGE



OUT-OF-BAND EMISSIONS



9. RADIATED TEST RESULTS

9.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

IC RSS-210 Clause 2.6 (Transmitter)

IC RSS-GEN Clause 6 (Receiver)

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

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters.

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.

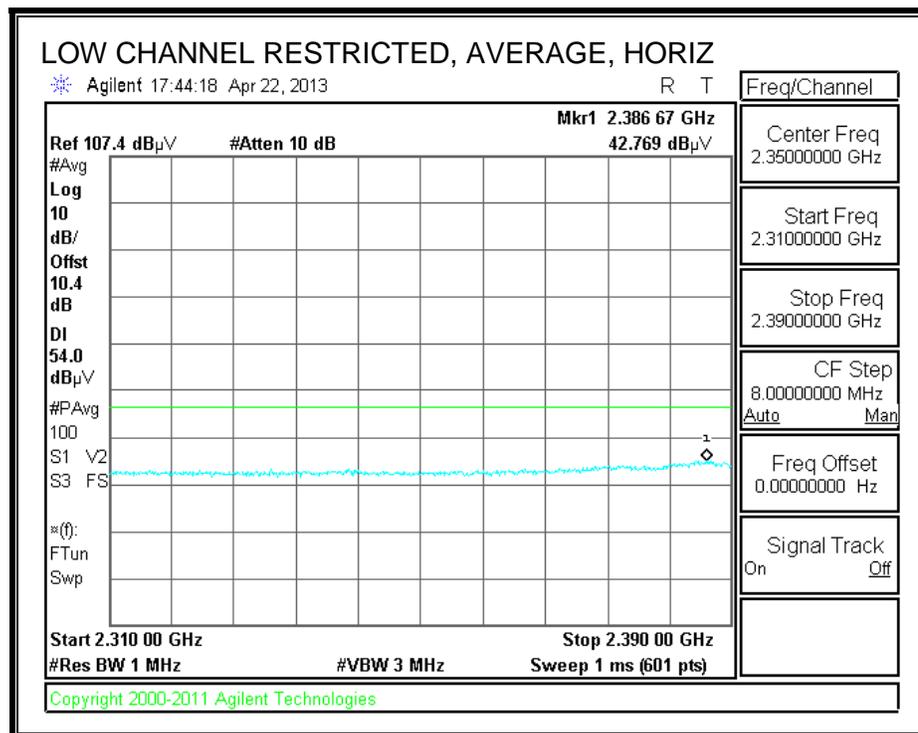
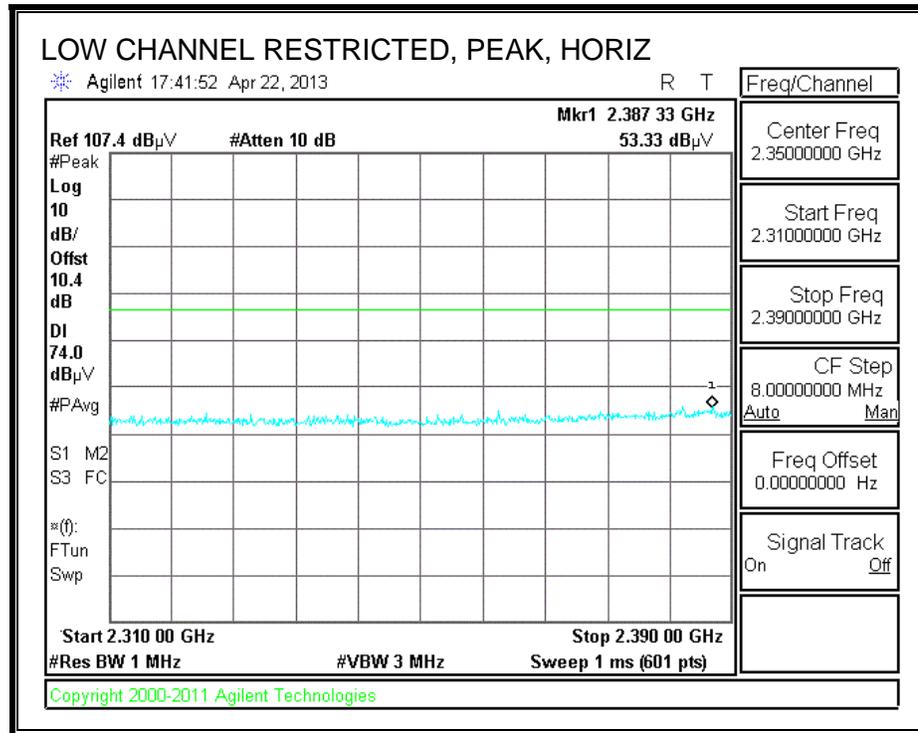
For measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 1 MHz for peak measurements and as applicable for average measurements.

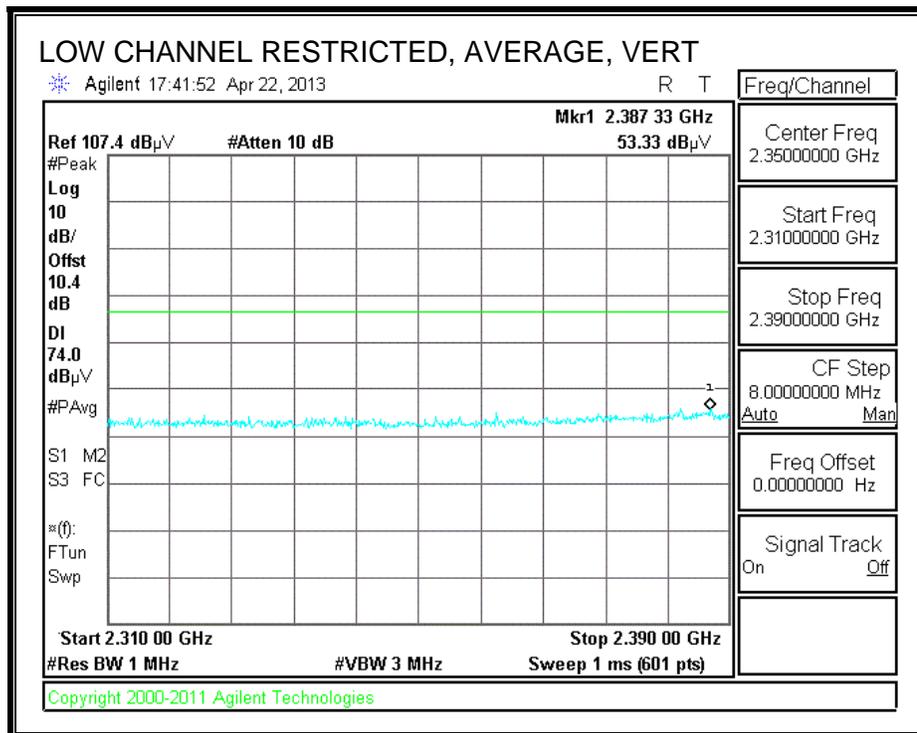
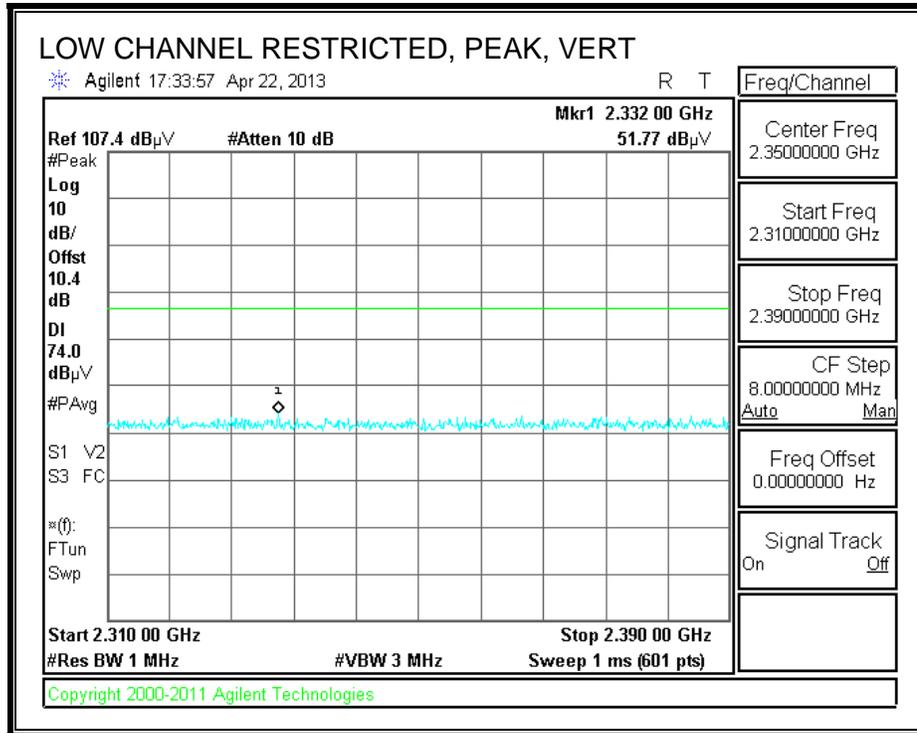
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

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.

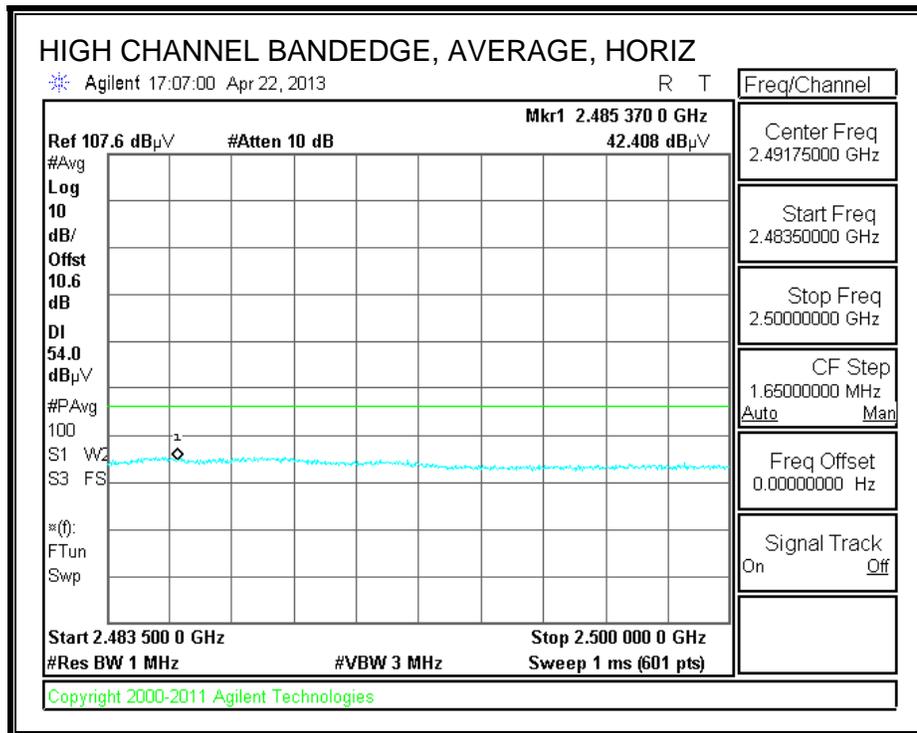
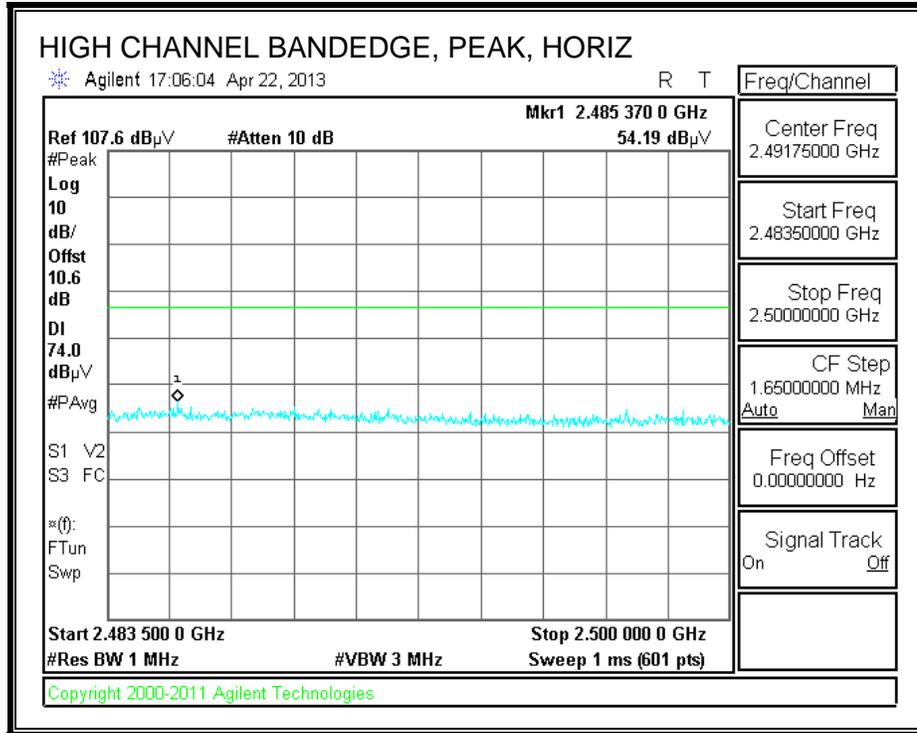
9.2. TRANSMITTER ABOVE 1 GHz

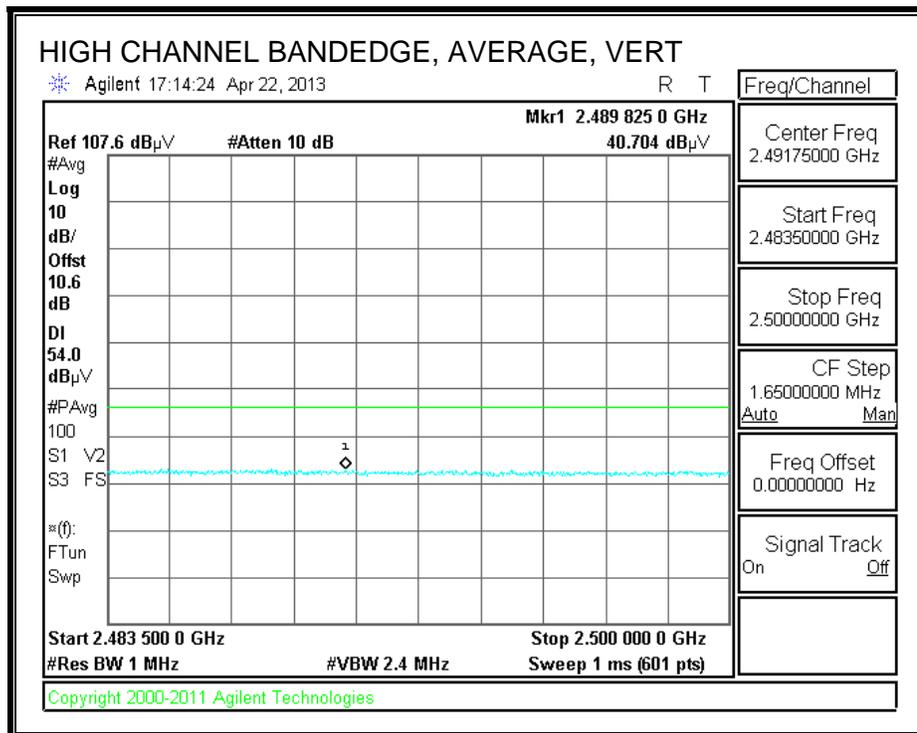
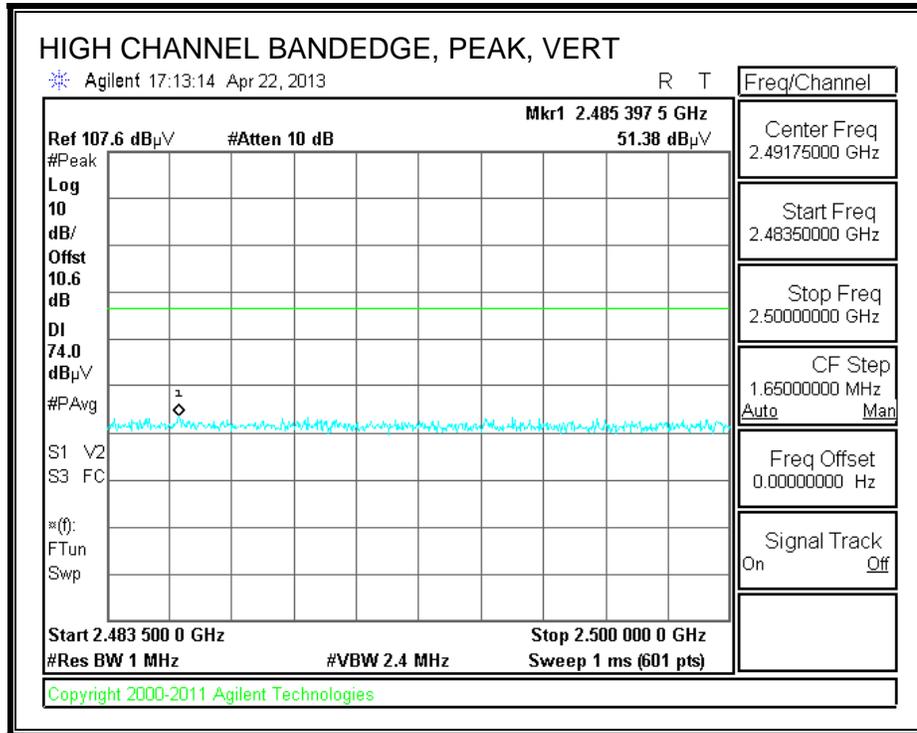
9.2.1. TX ABOVE 1 GHz 802.11b MODE IN THE 2.4 GHz BAND RESTRICTED BANDEDGE (LOW CHANNEL)





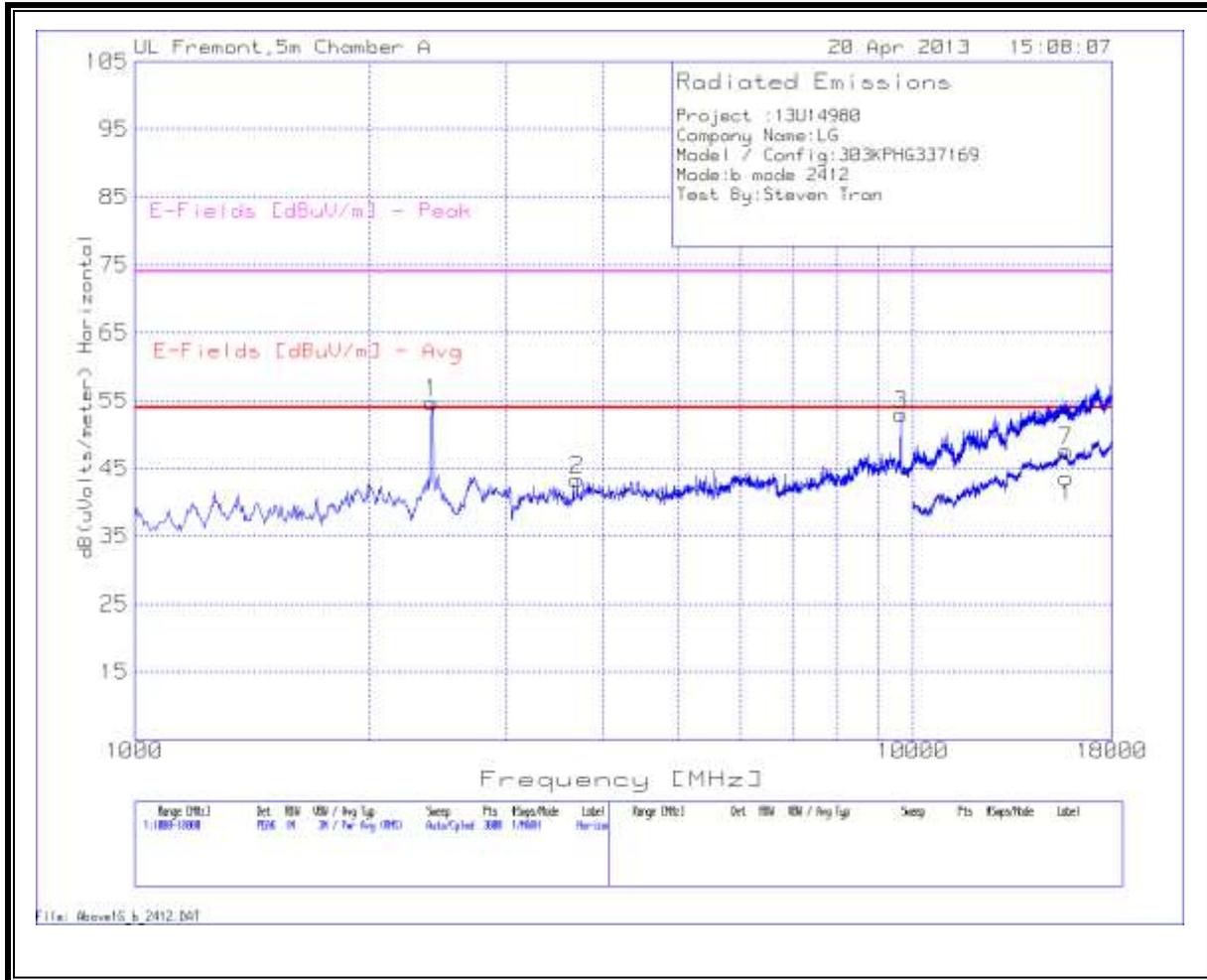
AUTHORIZED BANDEDGE (HIGH CHANNEL)



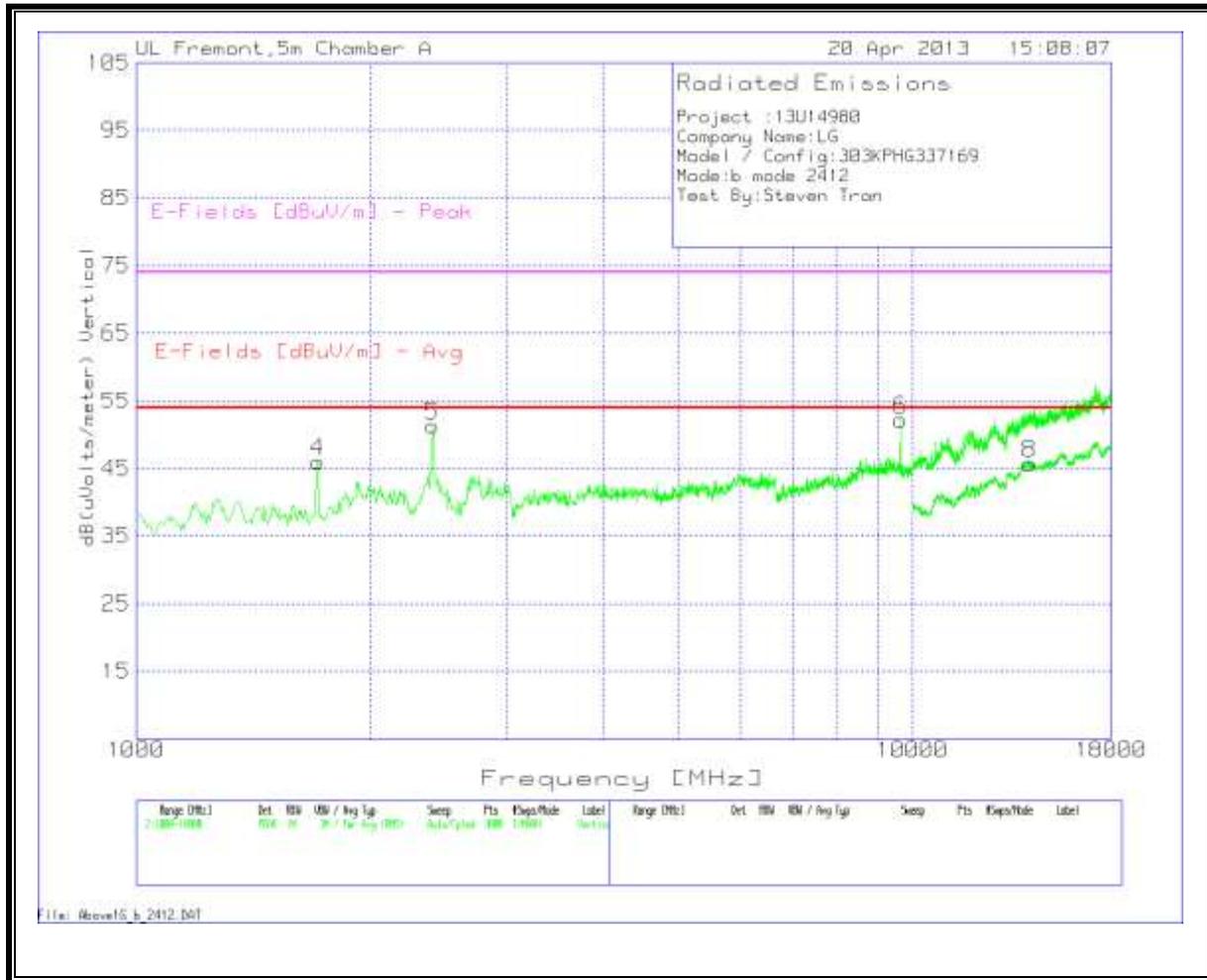


HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL
 HORIZONTAL



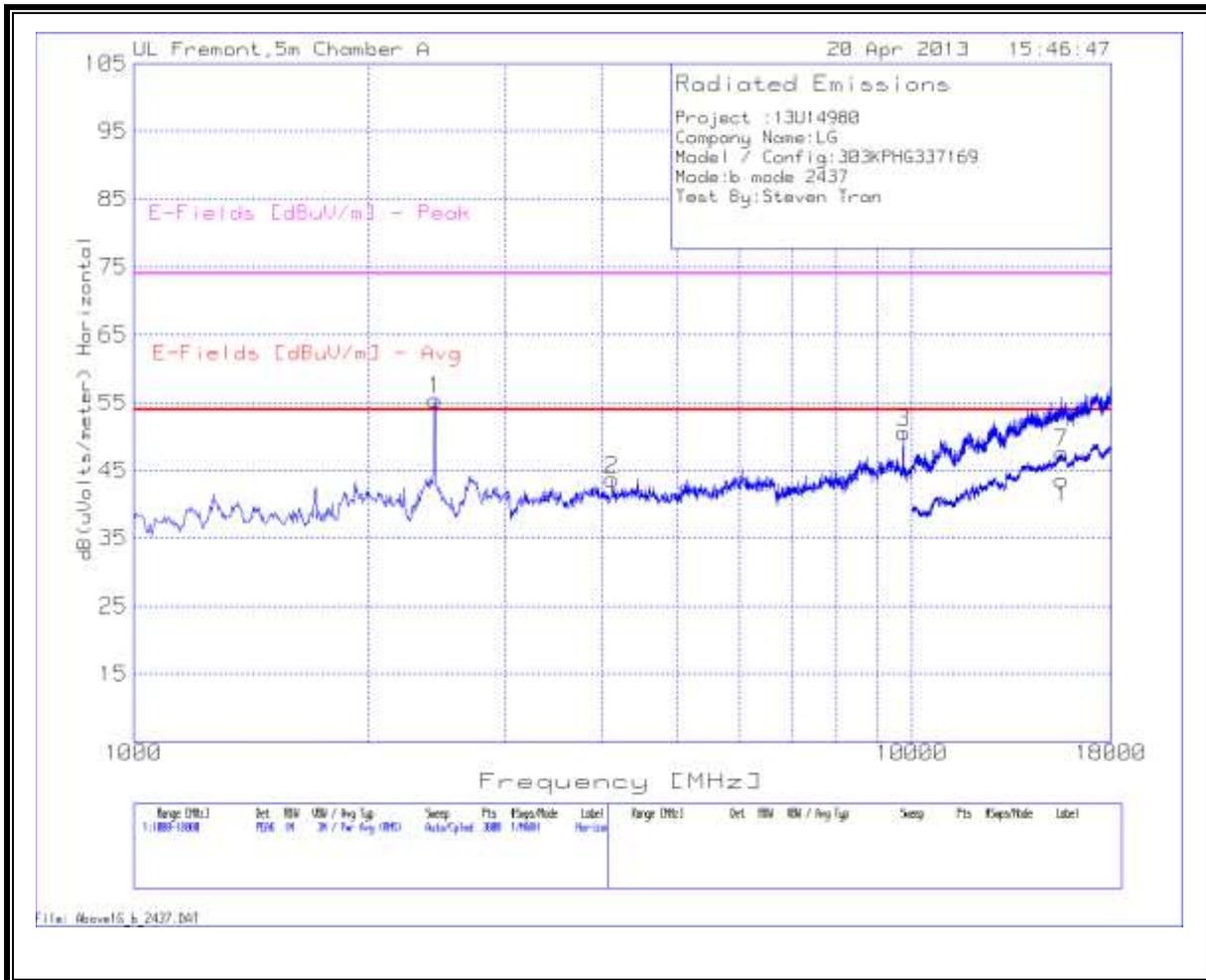
VERTICAL



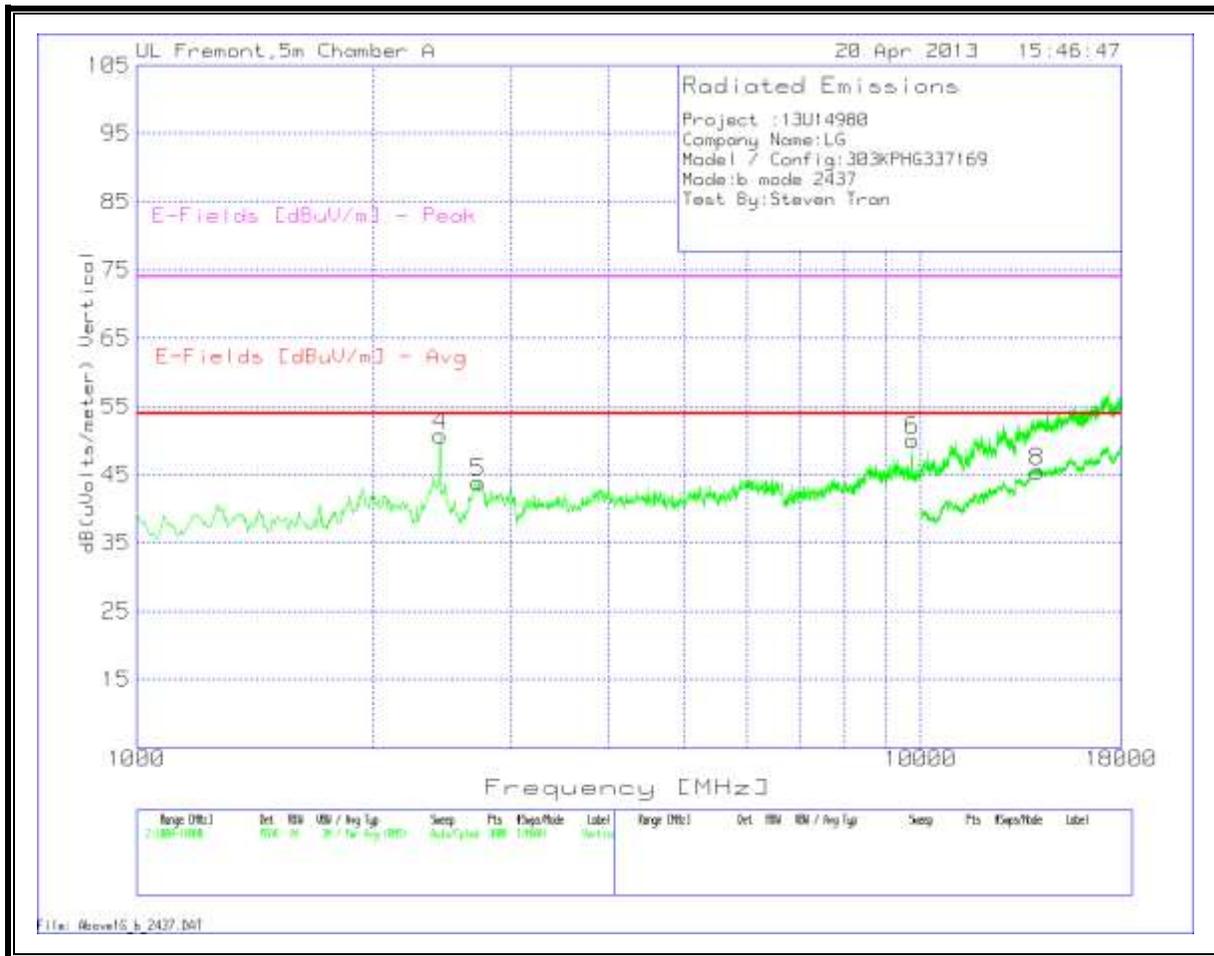
LOW CHANNEL DATA

Project :13U14980														
Company Name:LG														
Model / Config:303KPHG337169														
Mode:b mode 2412														
Test By:Steven Tran														
Marker No.	Test Frequency	Meter Reading	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	dB(uVolts/meter)	E-Fields [dBuV/m] Avg	Margin (dB)	E-Fields [dBuV/m] Peak	Margin (dB)	Height [cm]	Polarity
Horizontal 1000 - 18000MHz														
1	2410.06	54.09	PK	32.2	-36.9	4.4	0.9	54.69	53.97	0.72	74	-19.31	100	Horz
2	3701.199	40.14	PK	33.3	-36.2	5.8	0.3	43.34	53.97	-10.63	74	-30.66	100	Horz
3	9647.235	41.96	PK	36.7	-36.3	10.2	0.4	52.96	53.97	-1.01	74	-21.04	100	Horz
Vertical 1000 - 18000MHz														
4	1713.524	49.53	PK	29.5	-37.5	3.7	0.7	45.93	53.97	-8.04	74	-28.07	200	Vert
5	2410.06	50.73	PK	32.2	-36.9	4.4	0.9	51.33	53.97	-2.64	74	-22.67	200	Vert
6	9647.235	41.23	PK	36.7	-36.3	10.2	0.4	52.23	53.97	-1.74	74	-21.77	100	Vert
Horizontal 10000 - 18000MHz														
7	15741.129	28.63	PK	40.4	-35.2	13.3	0.4	47.53	53.97	-6.44	74	-26.47	200	Horz
Vertical 10000 - 18000MHz														
8	14153.923	27.47	PK	39.3	-33.9	12.5	0.4	45.77	53.97	-8.2	74	-28.23	200	Vert
PK - Peak detector														
Av - Average detector														

MID CHANNEL
 HORIZONTAL



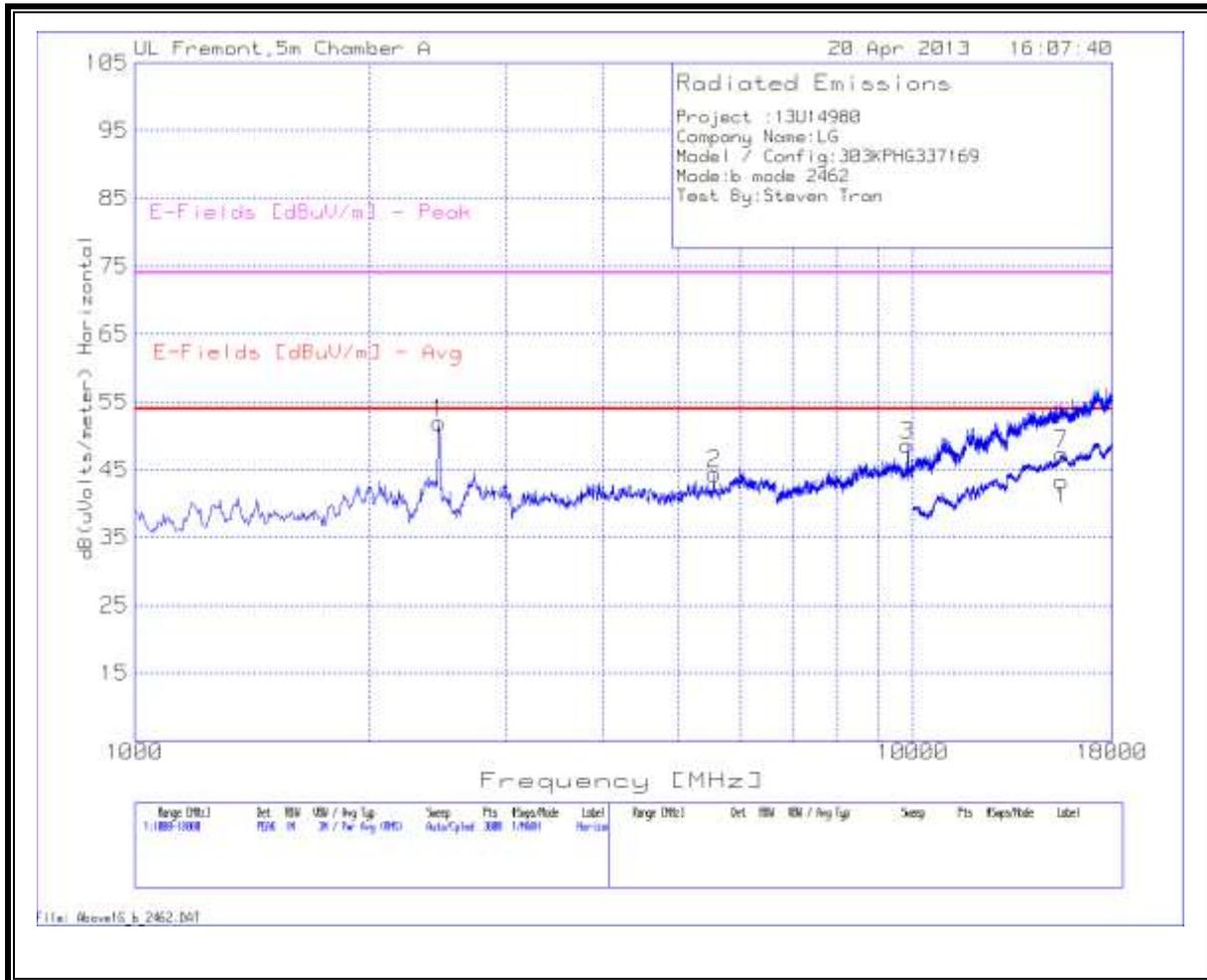
VERTICAL



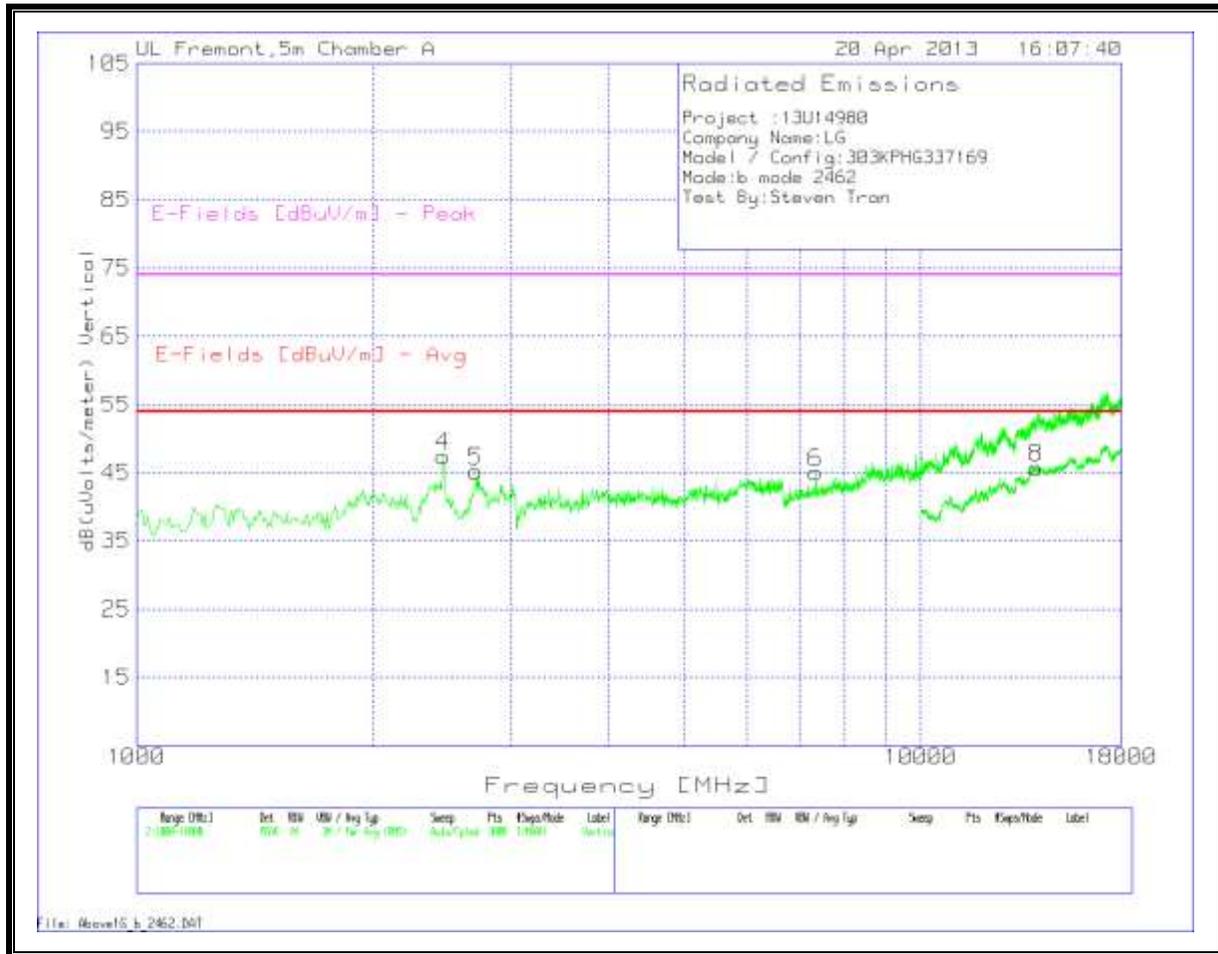
MID CHANNEL DATA

Project :13U14980															
Company Name:LG															
Model / Config:303KPHG337169															
Mode:b mode 2437															
Test By:Steven Tran															
Marker No.	Test Frequency (MHz)	Meter Reading (dBuV)	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity	
Horizontal 1000 - 18000MHz															
1	2438.374	54.55	PK	32.3	-36.9	4.5	0.9	55.35	53.97	1.38	74	-18.65	112	Horz	
2	4120.253	39.46	PK	33.7	-35.9	6.2	0.2	43.66	53.97	-10.31	74	-30.34	200	Horz	
3	9749.167	39.52	PK	36.8	-36.3	10.2	0.4	50.62	53.97	-3.35	74	-23.38	112	Horz	
Vertical 1000 - 18000MHz															
4	2438.374	49.89	PK	32.3	-36.9	4.5	0.9	50.69	53.97	-3.28	74	-23.31	100	Vert	
5	2727.182	42.24	PK	32.7	-36.8	4.8	0.9	43.84	53.97	-10.13	74	-30.16	200	Vert	
6	9749.167	39.03	PK	36.8	-36.3	10.2	0.4	50.13	53.97	-3.84	74	-23.87	100	Vert	
Horizontal 10000 - 18000MHz															
7	15581.209	28.47	PK	40.5	-35.1	13.3	0.4	47.57	53.97	-6.4	74	-26.43	200	Horz	
Vertical 10000 - 18000MHz															
8	14089.955	27.29	PK	39.2	-33.9	12.5	0.4	45.49	53.97	-8.48	74	-28.51	200	Vert	
PK - Peak detector															
Av - Average detector															

HIGH CHANNEL
 HORIZONTAL



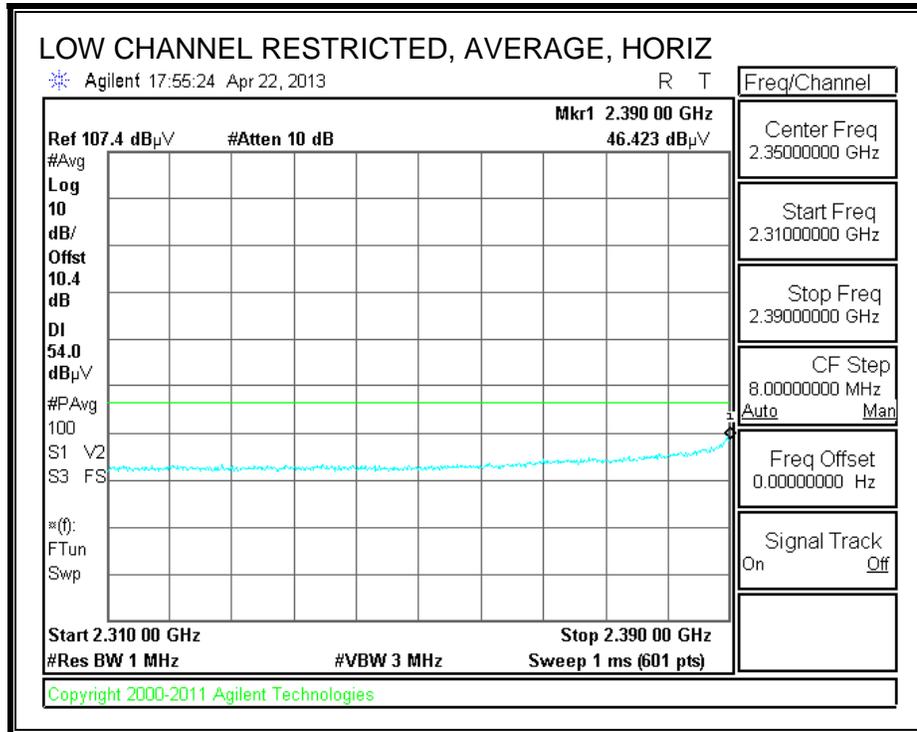
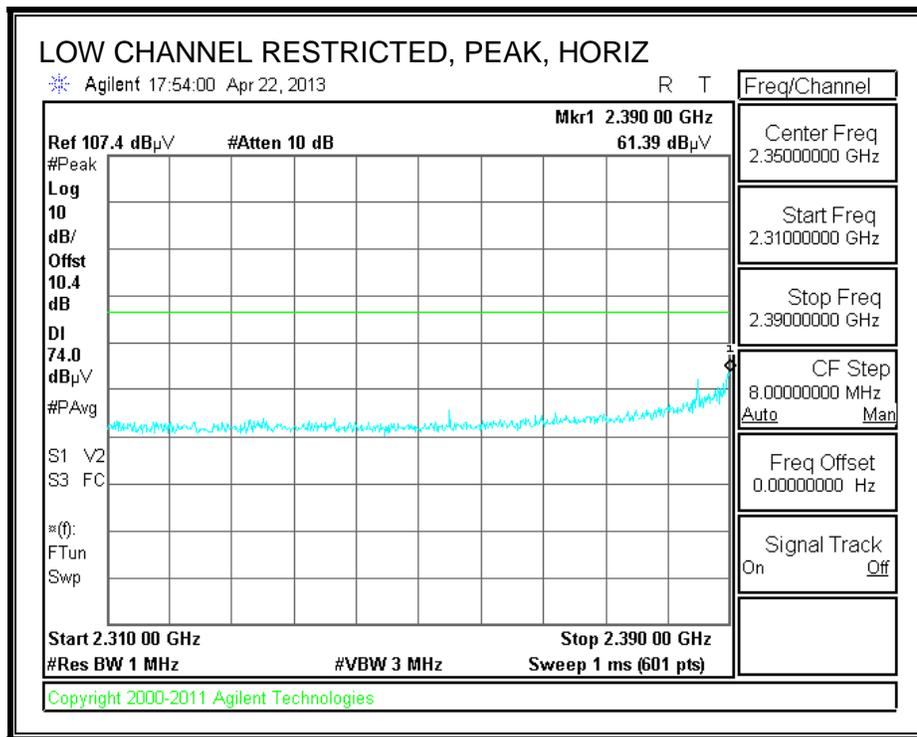
VERTICAL

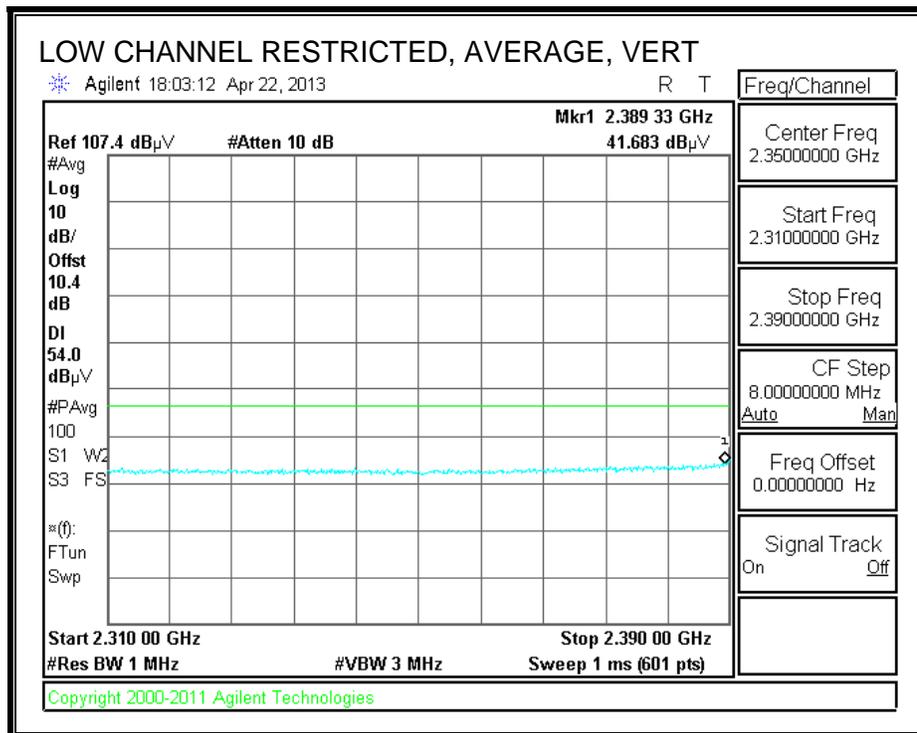
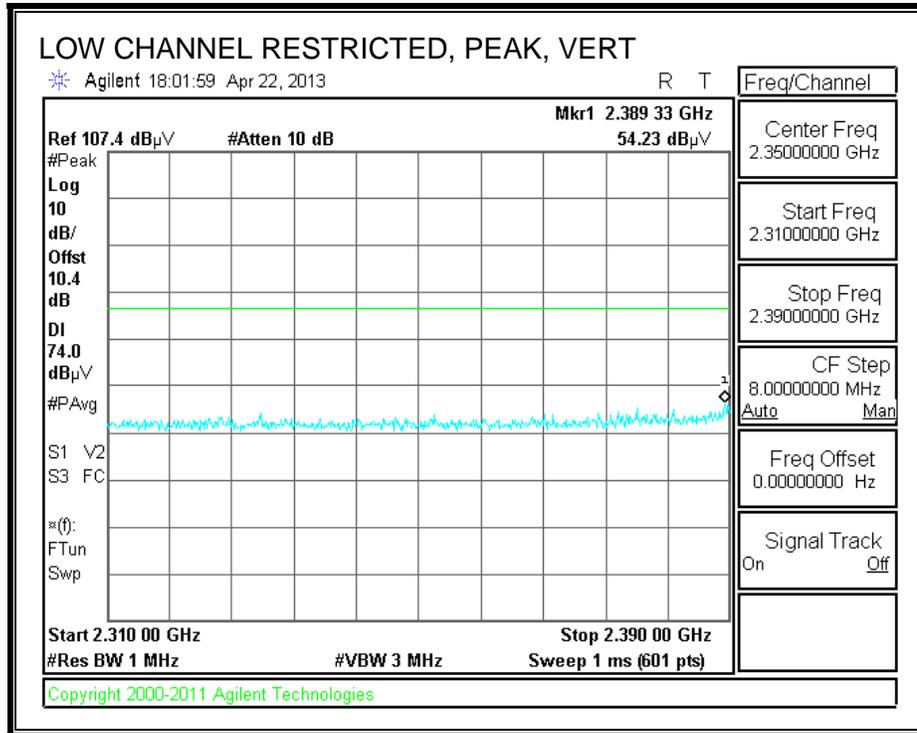


HIGH CHANNEL DATA

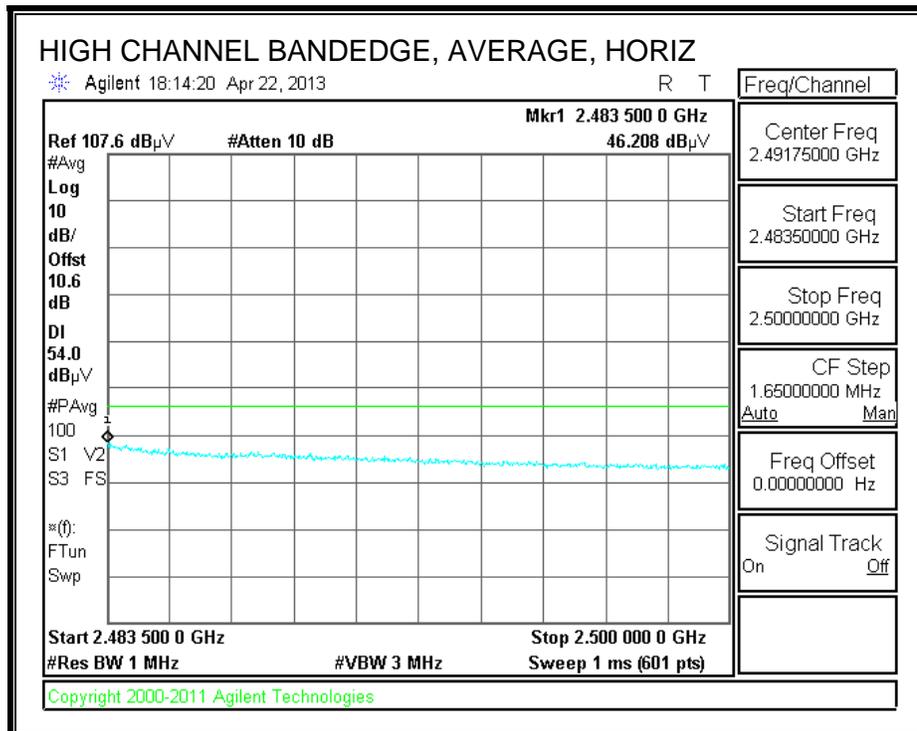
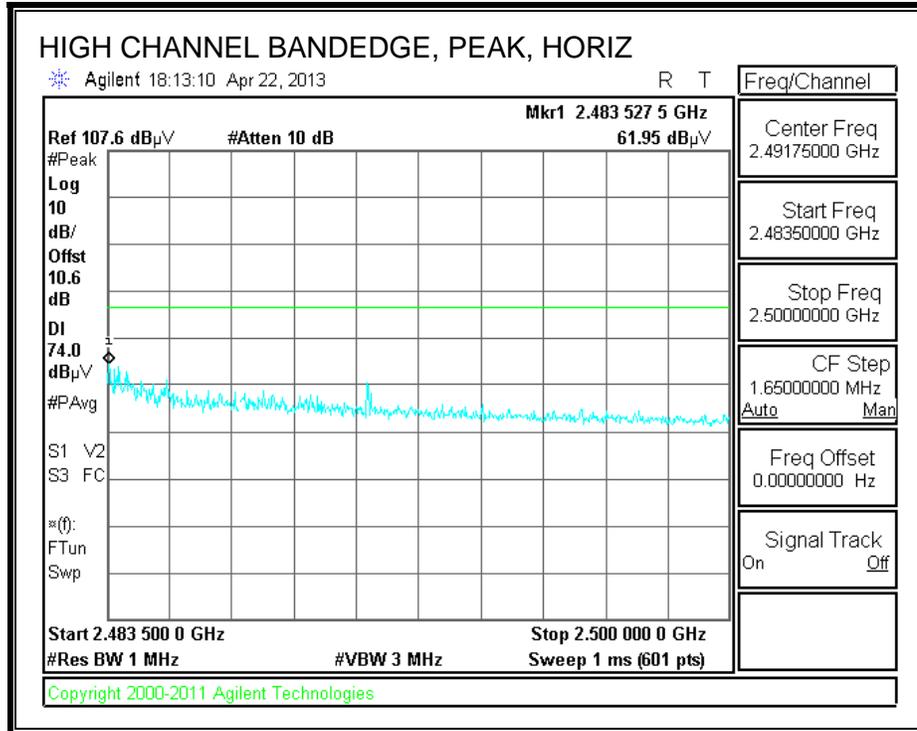
Project :13U14980														
Company Name:LG														
Model / Config:303KPHG337169														
Mode:b mode 2462														
Test By:Steven Tran														
Marker No.	Test Frequency (MHz)	Meter Reading (dBuV)	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	dB(uVolts/meter)	E-Fields [dBuV/m] Avg	Margin (dB)	E-Fields [dBuV/m] Peak	Margin (dB)	Height [cm]	Polarity
Horizontal 1000 - 18000MHz														
1	2461.026	50.97	PK	32.4	-36.8	4.5	0.9	51.97	53.97	-2	74	-22.03	100	Horz
2	5558.628	37.98	PK	34.4	-35.5	7.3	0.2	44.38	53.97	-9.59	74	-29.62	200	Horz
3	9845.436	37.26	PK	36.9	-36.3	10.3	0.5	48.66	53.97	-5.31	74	-25.34	100	Horz
Vertical 1000 - 18000MHz														
4	2461.026	46.46	PK	32.4	-36.8	4.5	0.9	47.46	53.97	-6.51	74	-26.54	100	Vert
5	2710.193	43.63	PK	32.7	-36.8	4.8	0.9	45.23	53.97	-8.74	74	-28.77	100	Vert
6	7353.764	36.55	PK	35.4	-35.8	8.7	0.2	45.05	53.97	-8.92	74	-28.95	100	Vert
Horizontal 10000 - 18000MHz														
7	15517.241	28.16	PK	40.6	-35.1	13.2	0.4	47.26	53.97	-6.71	74	-26.74	100	Horz
Vertical 10000 - 18000MHz														
8	14049.975	27.56	PK	39.1	-33.8	12.5	0.4	45.76	53.97	-8.21	74	-28.24	200	Vert
PK - Peak detector														
Av - Average detector														

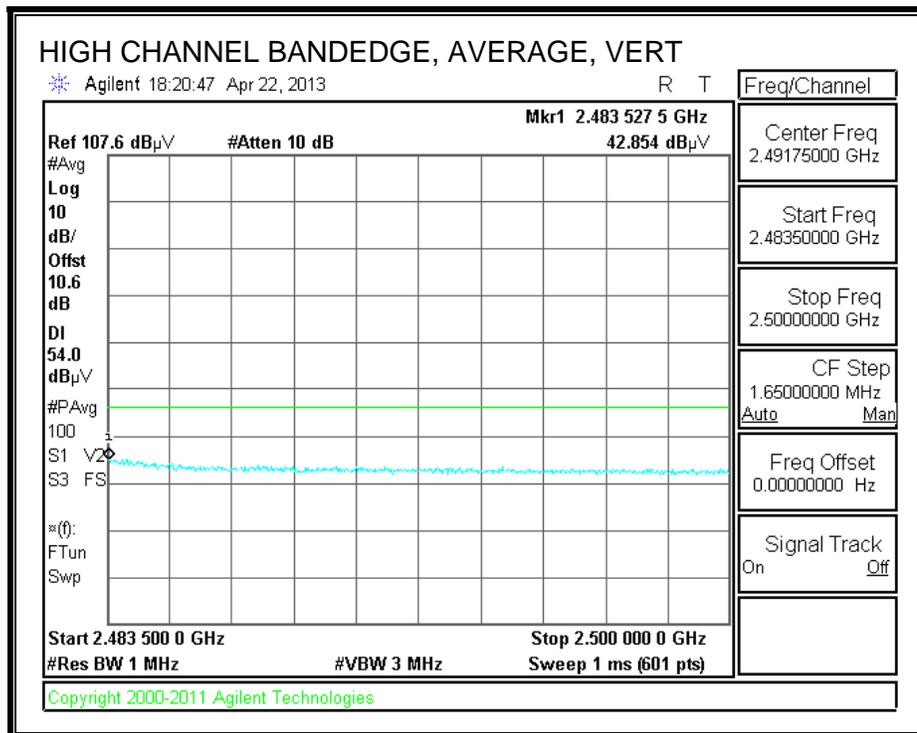
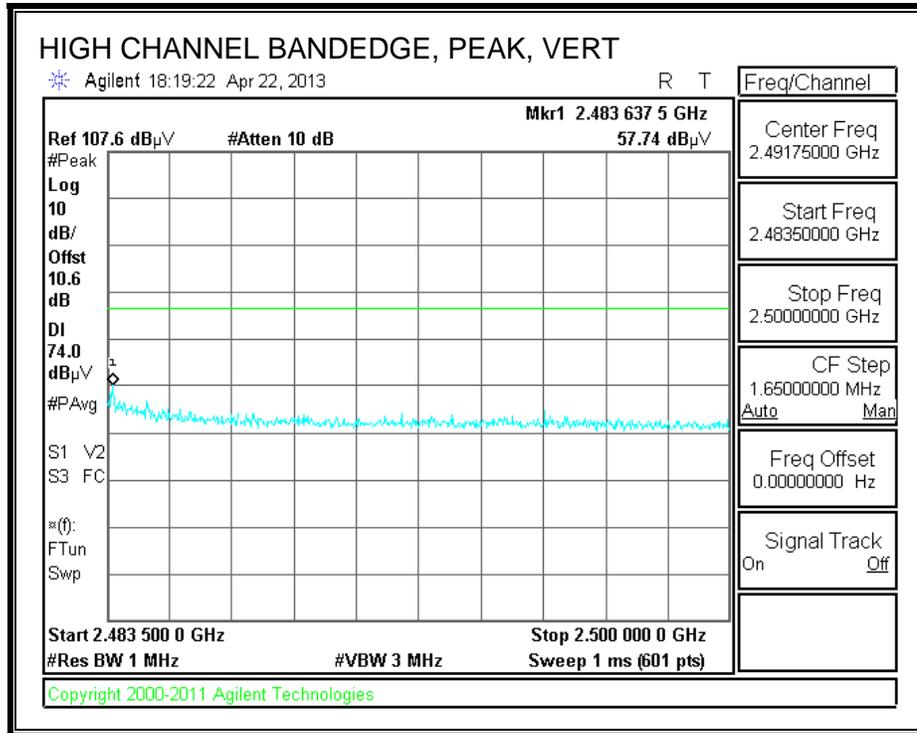
9.2.2. TX ABOVE 1 GHz 802.11g MODE IN THE 2.4 GHz BAND RESTRICTED BANDEDGE (LOW CHANNEL)





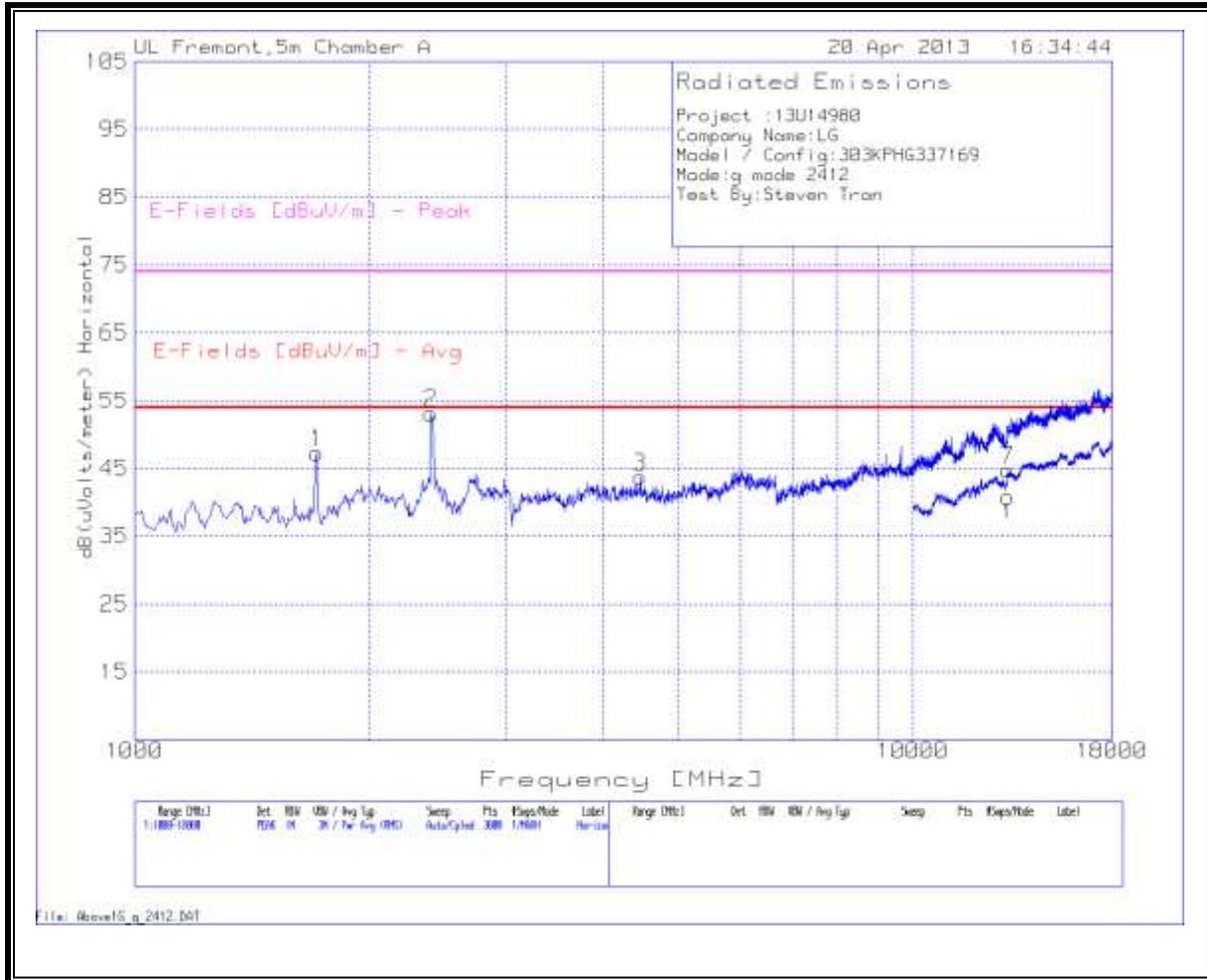
AUTHORIZED BANDEDGE (HIGH CHANNEL)



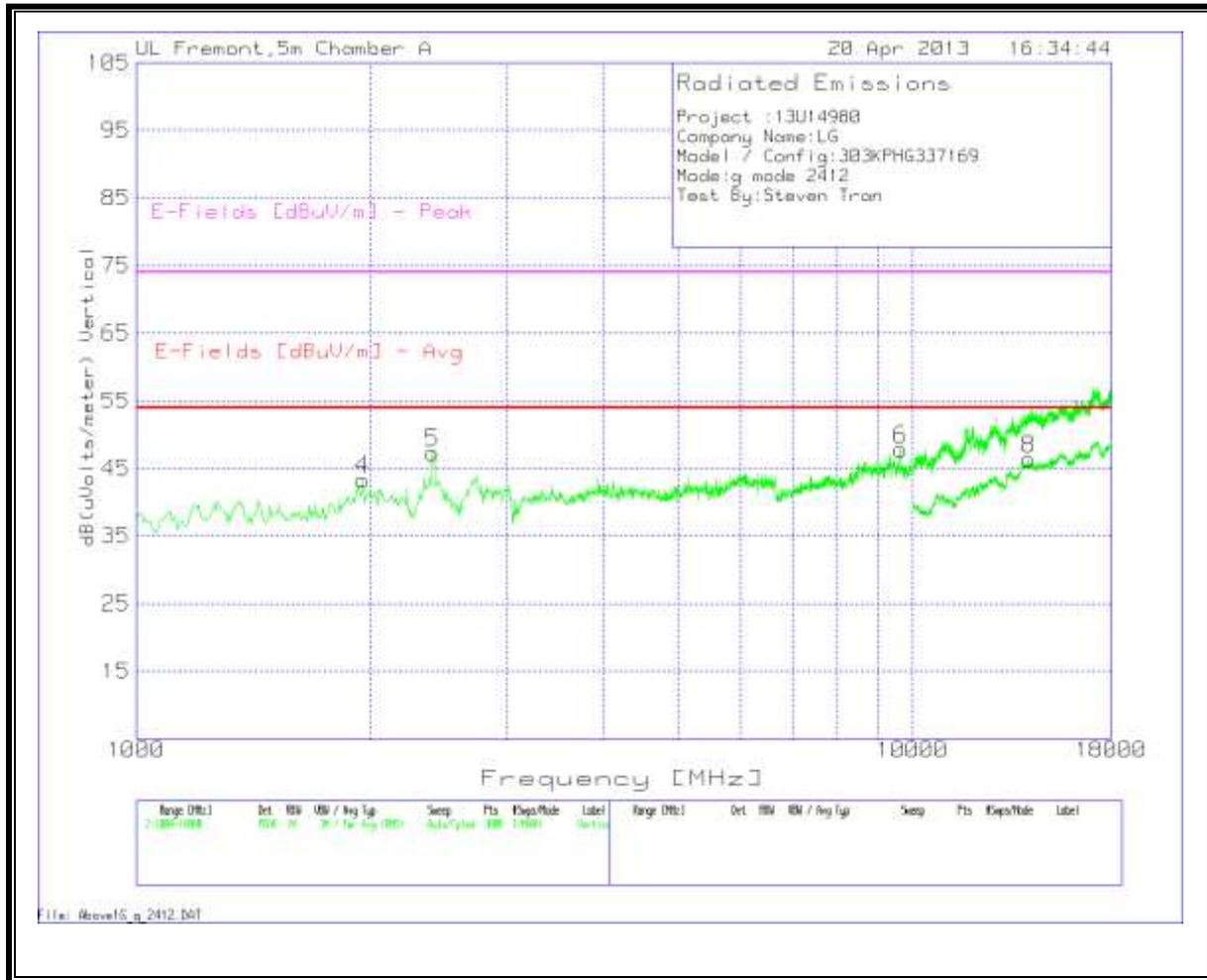


HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL
 HORIZONTAL



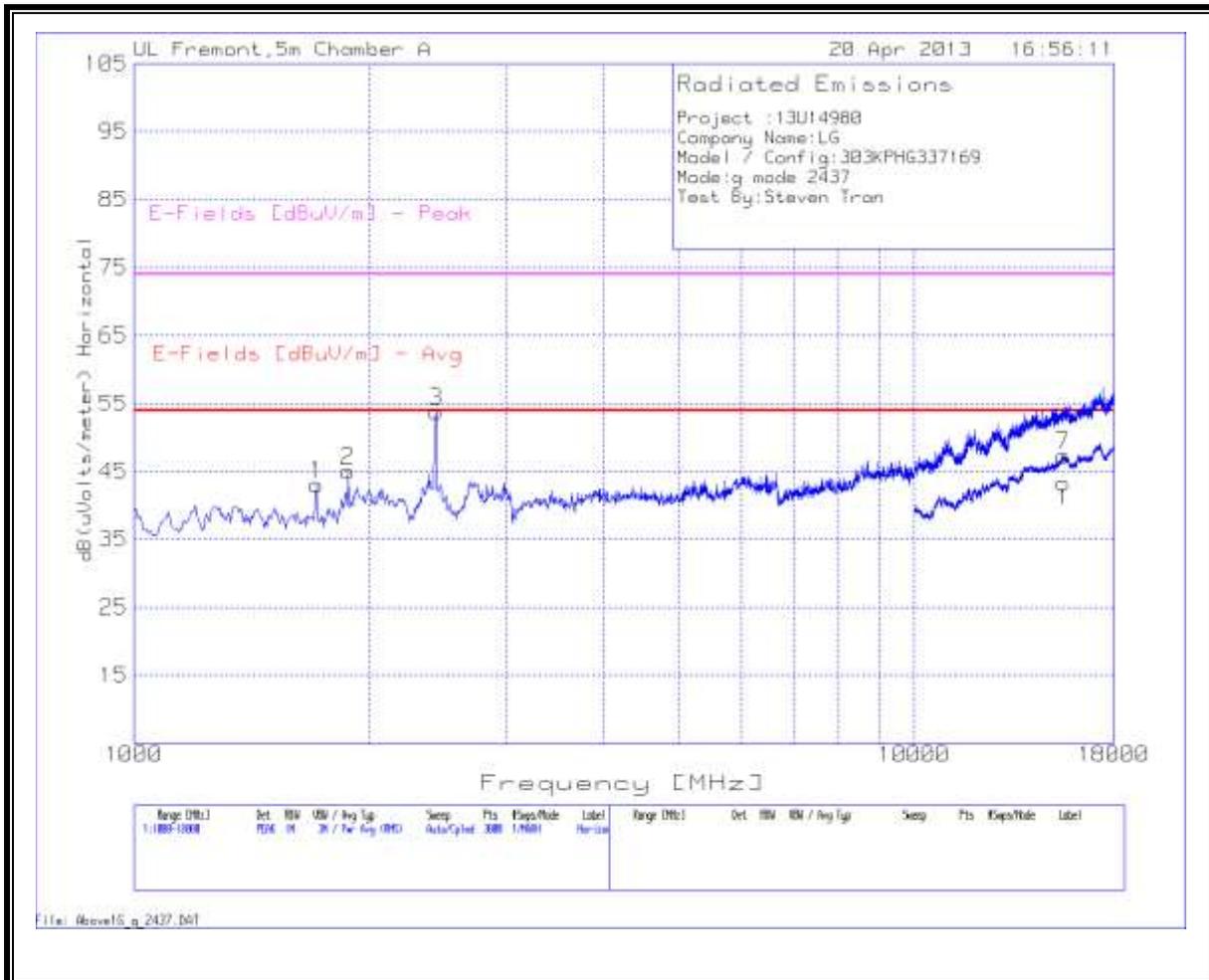
VERTICAL



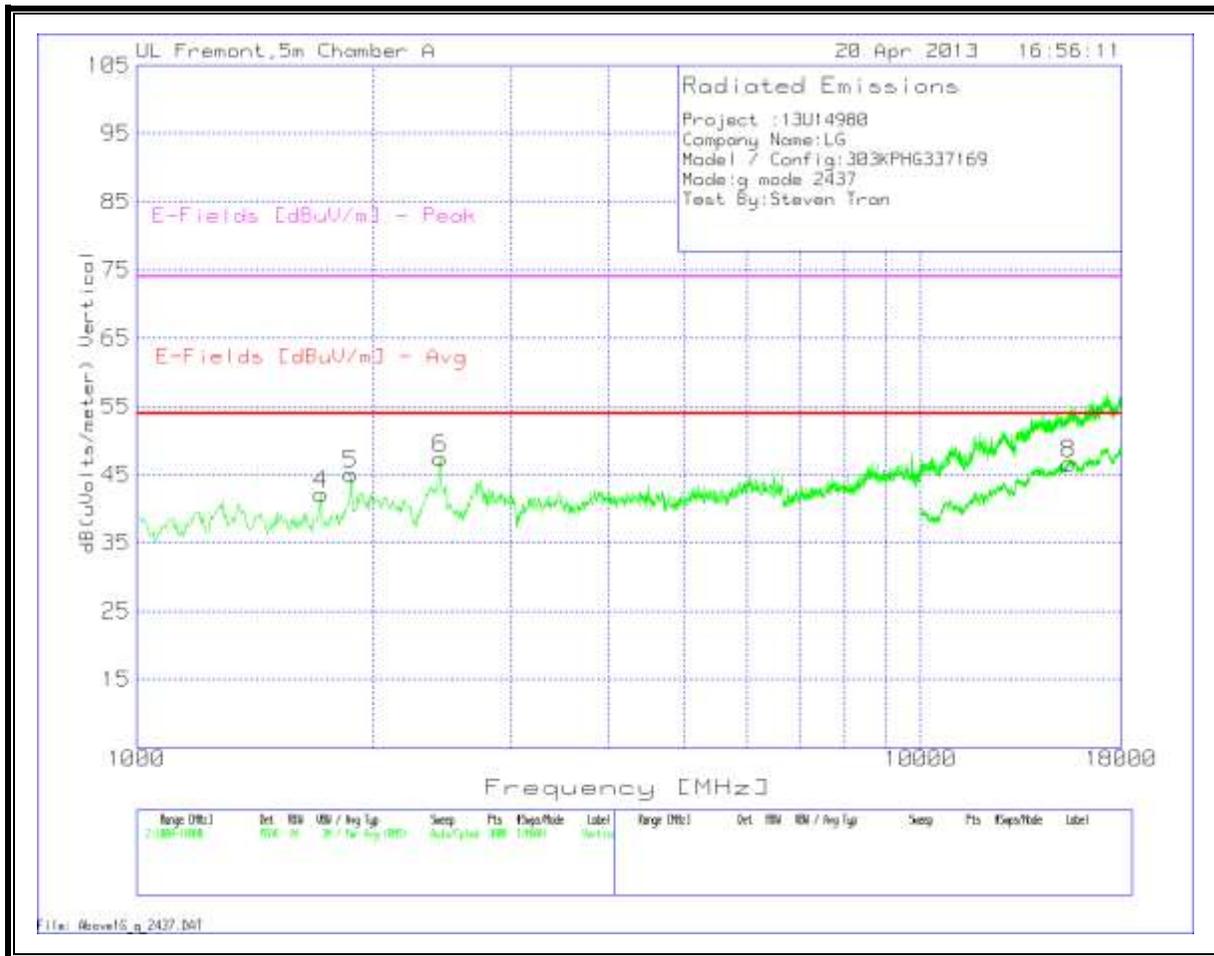
LOW CHANNEL DATA

Project :13U14980														
Company Name:LG														
Model / Config:303KPHG337169														
Mode:g mode 2412														
Test By:Steven Tran														
Marker No.	Test Frequency	Meter Reading	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	dB(uVolts/meter)	E-Fields [dBuV/m] Avg	Margin (dB)	E-Fields [dBuV/m] Peak	Margin (dB)	Height [cm]	Polarity
Horizontal 1000 - 18000MHz														
1	1713.524	50.85	PK	29.5	-37.5	3.7	0.7	47.25	53.97	-6.72	74	-26.75	200	Horz
2	2404.397	52.61	PK	32.1	-36.9	4.4	0.9	53.11	53.97	-0.86	74	-20.89	100	Horz
3	4465.69	39.01	PK	33.7	-35.8	6.5	0.3	43.71	53.97	-10.26	74	-30.29	100	Horz
Vertical 1000 - 18000MHz														
4	1957.029	43.71	PK	31.8	-37.1	4	0.9	43.31	53.97	-10.66	74	-30.69	200	Vert
5	2410.06	46.74	PK	32.2	-36.9	4.4	0.9	47.34	53.97	-6.63	74	-26.66	200	Vert
6	9652.898	36.68	PK	36.8	-36.3	10.2	0.5	47.88	53.97	-6.09	74	-26.12	100	Vert
Horizontal 10000 - 18000MHz														
7	13238.381	27.15	PK	39.1	-34.1	12.1	0.5	44.75	53.97	-9.22	74	-29.25	100	Horz
Vertical 10000 - 18000MHz														
8	14101.949	28.22	PK	39.2	-33.9	12.5	0.4	46.42	53.97	-7.55	74	-27.58	200	Vert
PK - Peak detector														
Av - Average detector														

MID CHANNEL
 HORIZONTAL



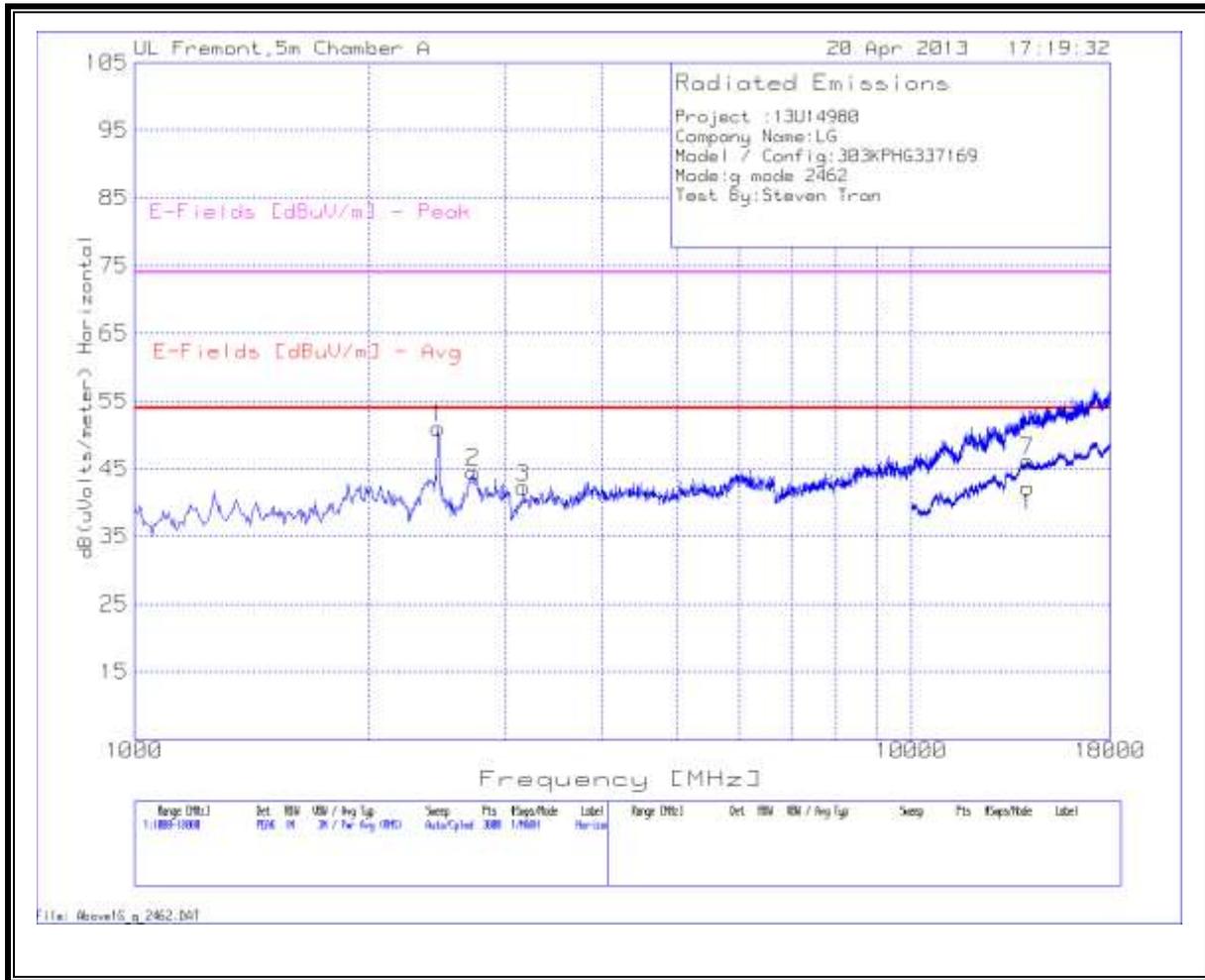
VERTICAL



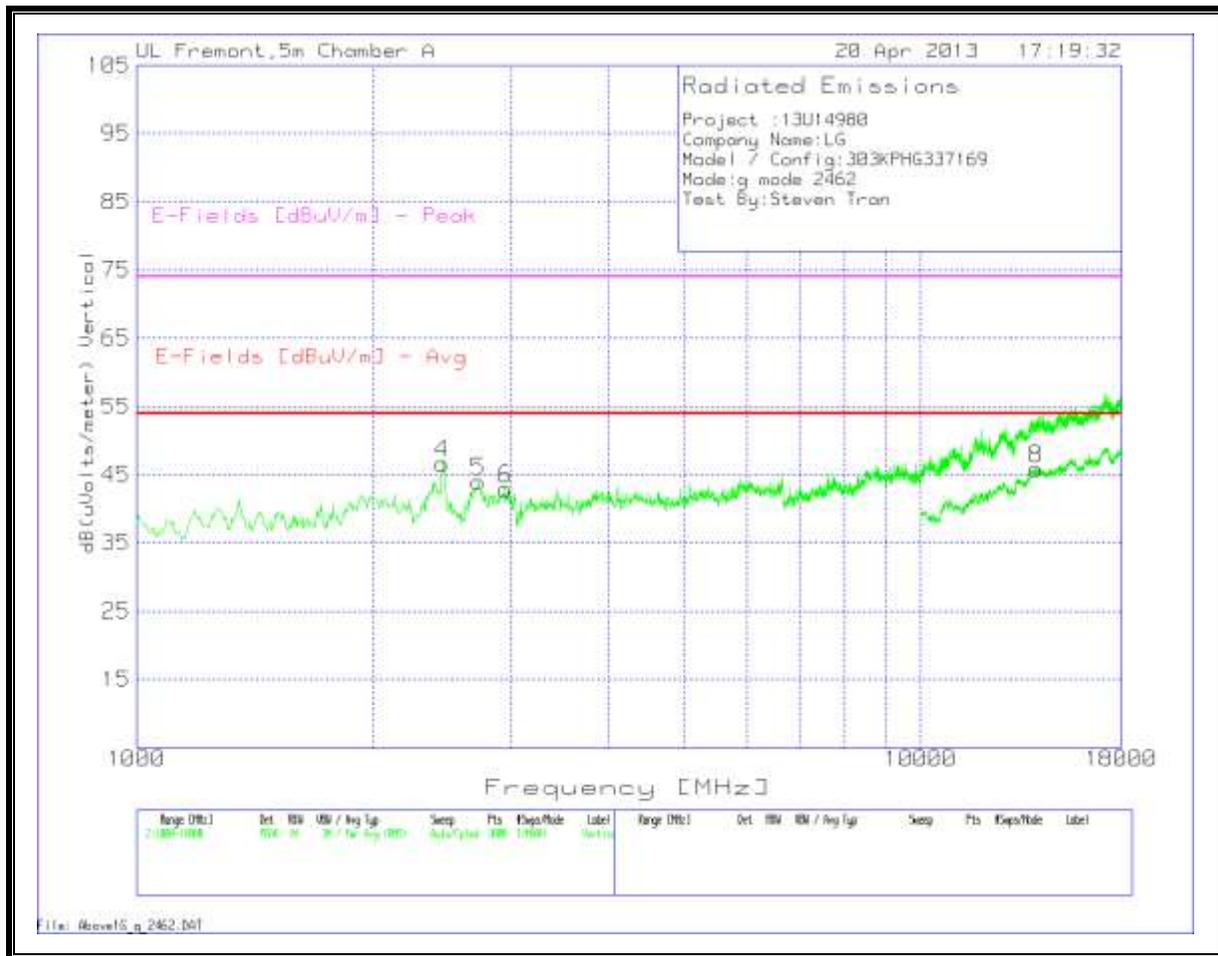
MID CHANNEL DATA

Project :13U14980														
Company Name:LG														
Model / Config:303KPHG337169														
Mode:g mode 2437														
Test By:Steven Tran														
Marker No.	Test Frequency	Meter Reading	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	dB(uVols/meter)	E-Fields [dBuV/m] Avg	Margin (dB)	E-Fields [dBuV/m] Peak	Margin (dB)	Height [cm]	Polarity
Horizontal 1000 - 18000MHz														
1	1713.524	46.69	PK	29.5	-37.5	3.7	0.7	43.09	53.97	-10.88	74	-30.91	100	Horz
2	1883.411	46.05	PK	31.5	-37.2	3.9	0.8	45.05	53.97	-8.92	74	-28.95	200	Horz
3	2438.374	52.97	PK	32.3	-36.9	4.5	0.9	53.77	53.97	-0.2	74	-20.23	100	Horz
Vertical 1000 - 18000MHz														
4	1719.187	45.66	PK	29.6	-37.5	3.7	0.7	42.16	53.97	-11.81	74	-31.84	200	Vert
5	1877.748	46.15	PK	31.4	-37.2	3.9	0.8	45.05	53.97	-8.92	74	-28.95	100	Vert
6	2438.374	46.65	PK	32.3	-36.9	4.5	0.9	47.45	53.97	-6.52	74	-26.55	200	Vert
Horizontal 10000 - 18000MHz														
7	15533.233	28.23	PK	40.6	-35.1	13.2	0.4	47.33	53.97	-6.64	74	-26.67	100	Horz
Vertical 10000 - 18000MHz														
8	15445.277	27.46	PK	40.7	-35.1	13.2	0.4	46.66	53.97	-7.31	74	-27.34	200	Vert
PK - Peak detector														
Av - Average detector														

HIGH CHANNEL
 HORIZONTAL



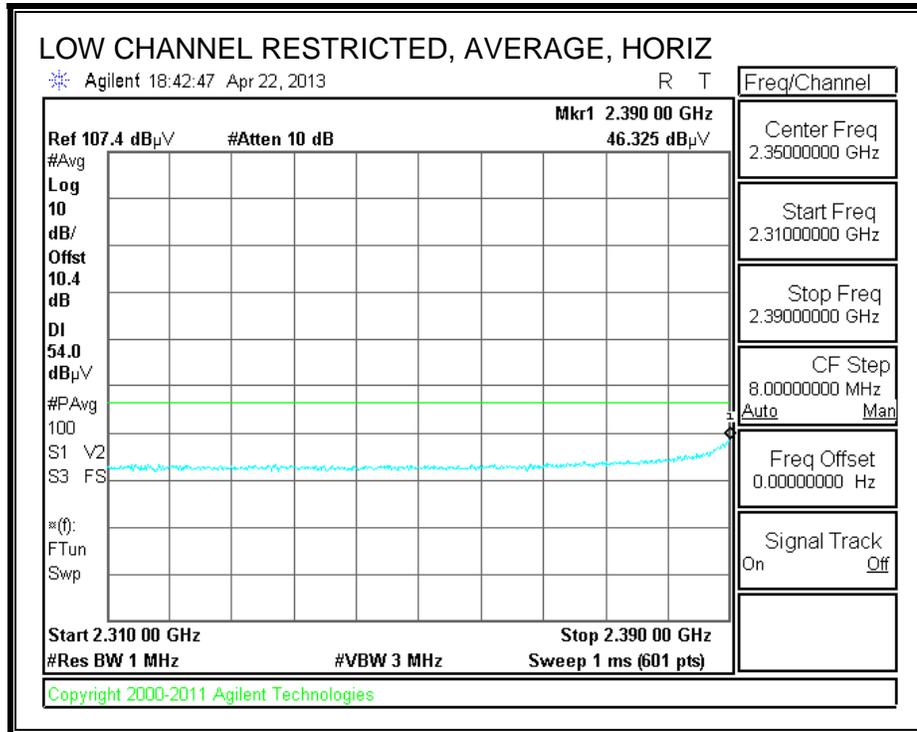
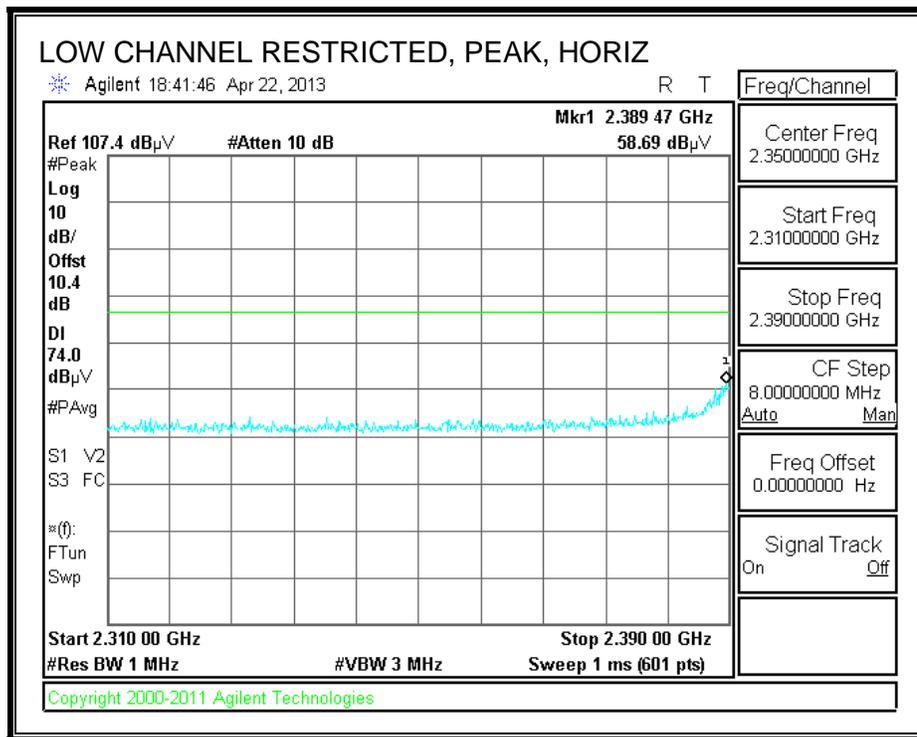
VERTICAL

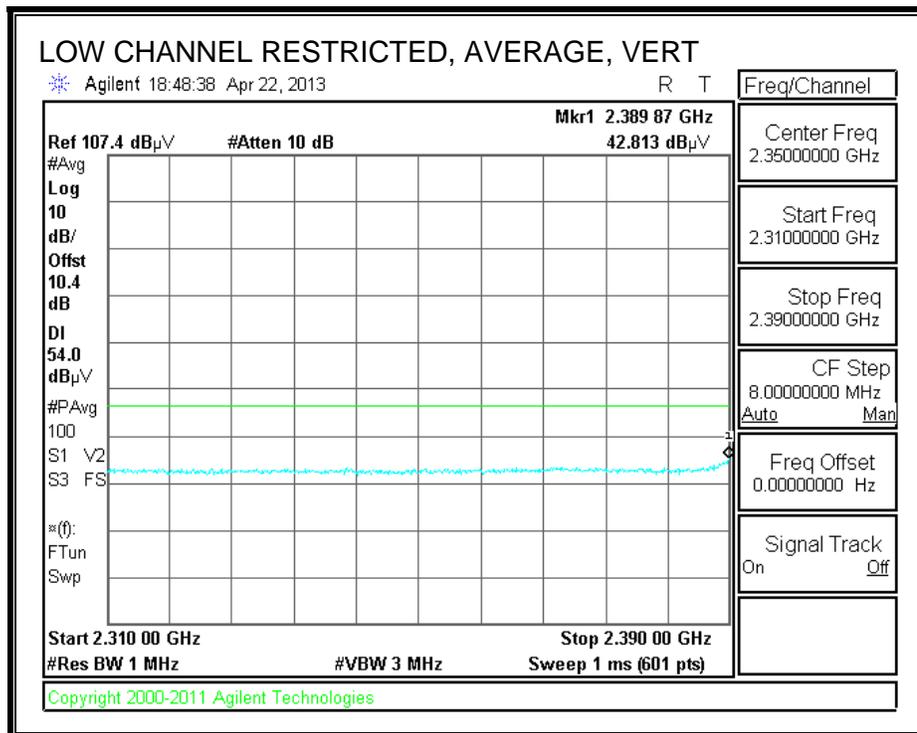
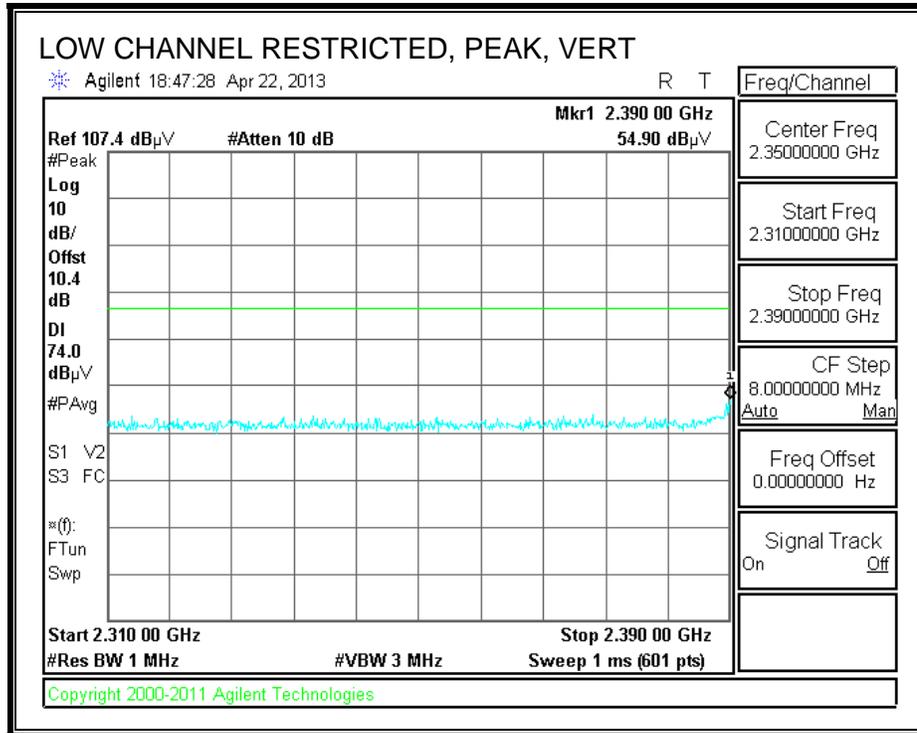


HIGH CHANNEL DATA

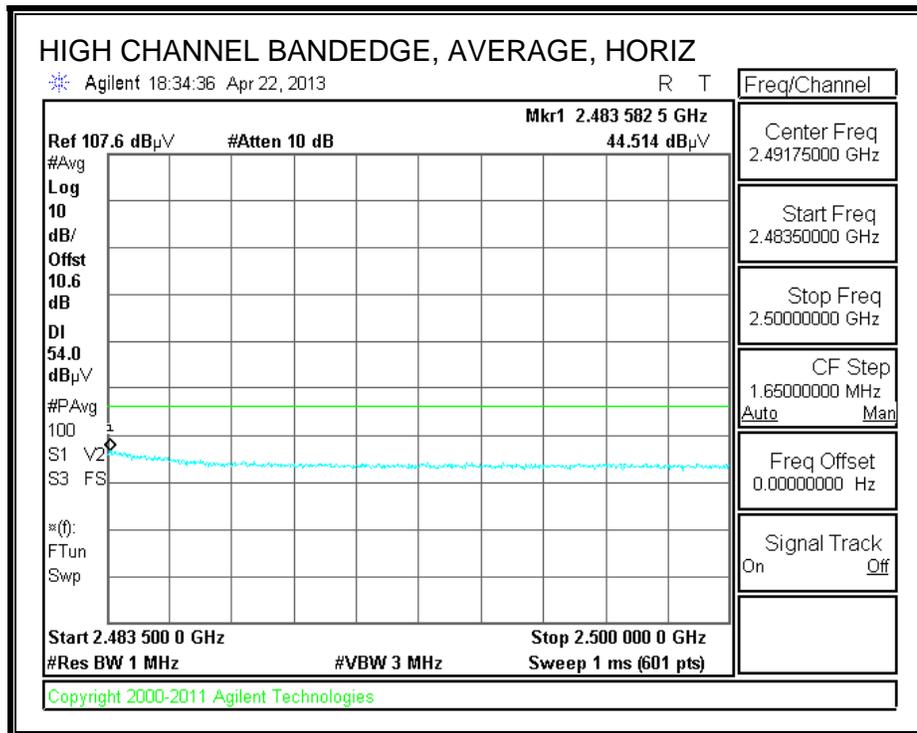
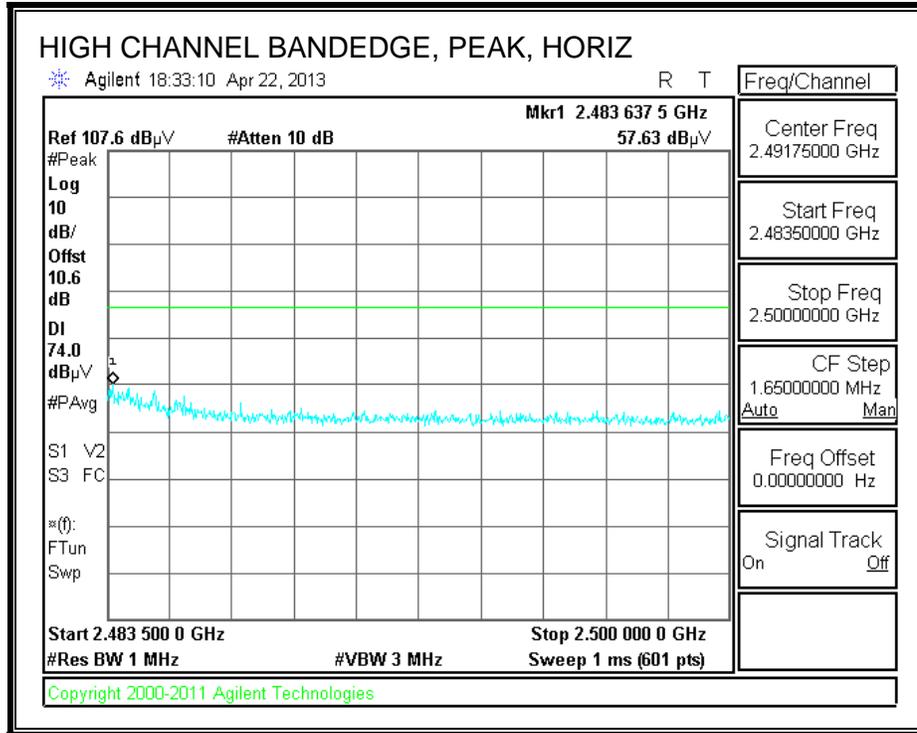
Project :13U14980														
Company Name:LG														
Model / Config:303KPHG337169														
Mode:g mode 2462														
Test By:Steven Tran														
Marker No.	Test Frequency	Meter Reading	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRf [dB]	dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
Horizontal 1000 - 18000MHz														
1	2461.026	50.06	PK	32.4	-36.8	4.5	0.9	51.06	53.97	-2.91	74	-22.94	100	Horz
2	2727.182	42.89	PK	32.7	-36.8	4.8	0.9	44.49	53.97	-9.48	74	-29.51	100	Horz
3	3168.887	39.61	PK	33.4	-36.6	5.2	0.6	42.21	53.97	-11.76	74	-31.79	200	Horz
Vertical 1000 - 18000MHz														
4	2455.363	45.64	PK	32.4	-36.8	4.5	0.9	46.64	53.97	-7.33	74	-27.36	200	Vert
5	2732.845	42.44	PK	32.7	-36.8	4.8	0.9	44.04	53.97	-9.93	74	-29.96	100	Vert
6	2959.36	41.11	PK	32.6	-36.7	5	0.9	42.91	53.97	-11.06	74	-31.09	200	Vert
Horizontal 10000 - 18000MHz														
7	14101.949	27.96	PK	39.2	-33.9	12.5	0.4	46.16	53.97	-7.81	74	-27.84	200	Horz
Vertical 10000 - 18000MHz														
8	14049.975	27.63	PK	39.1	-33.8	12.5	0.4	45.83	53.97	-8.14	74	-28.17	100	Vert
PK - Peak detector														
Av - Average detector														

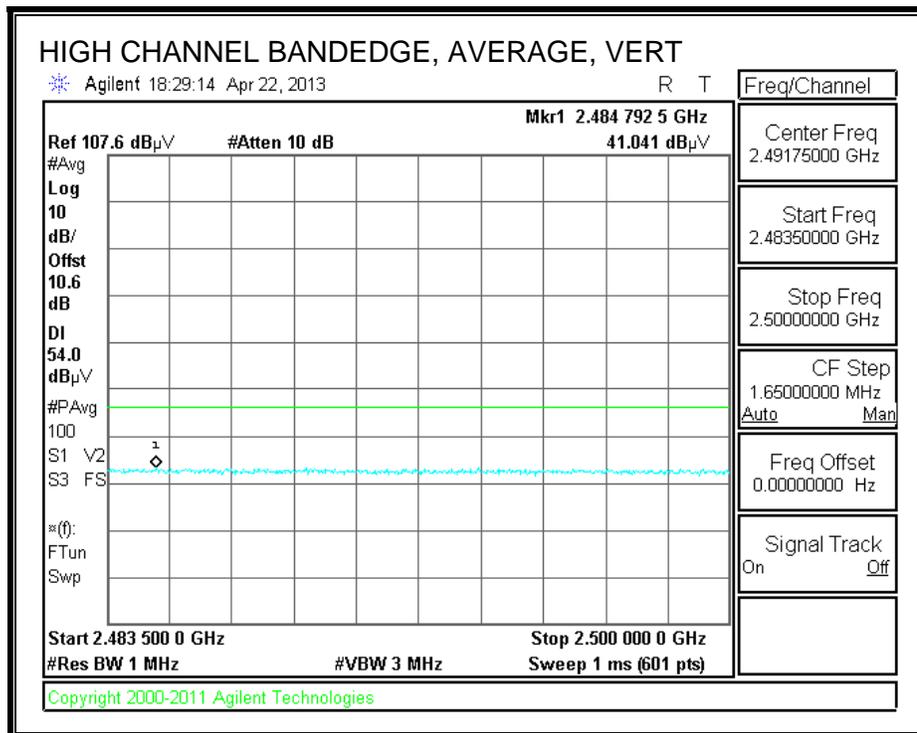
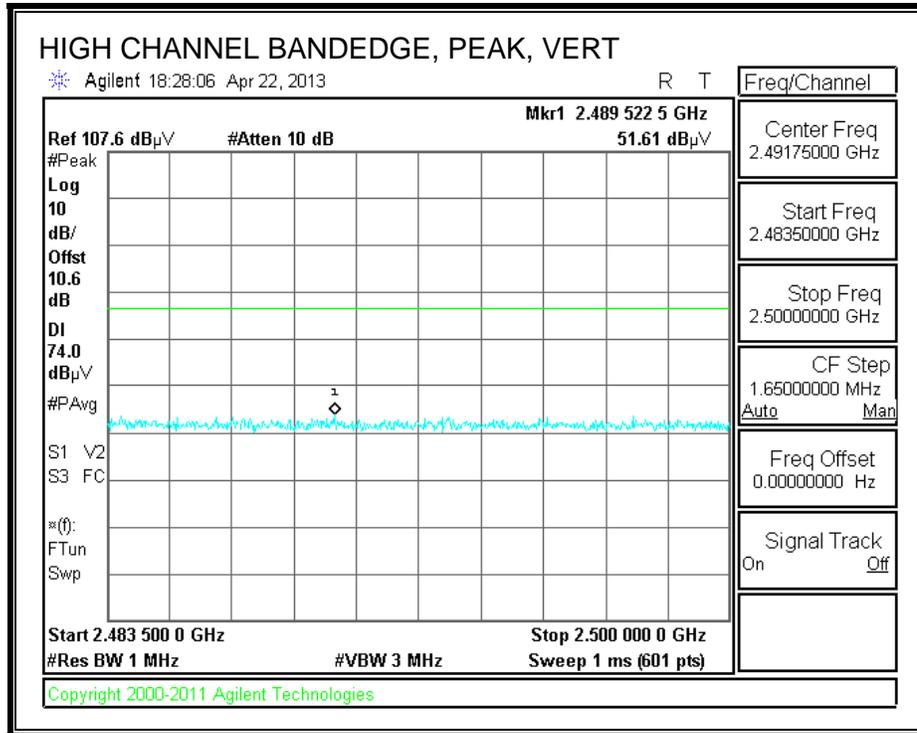
9.2.3. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 2.4 GHz BAND RESTRICTED BANDEDGE (LOW CHANNEL)





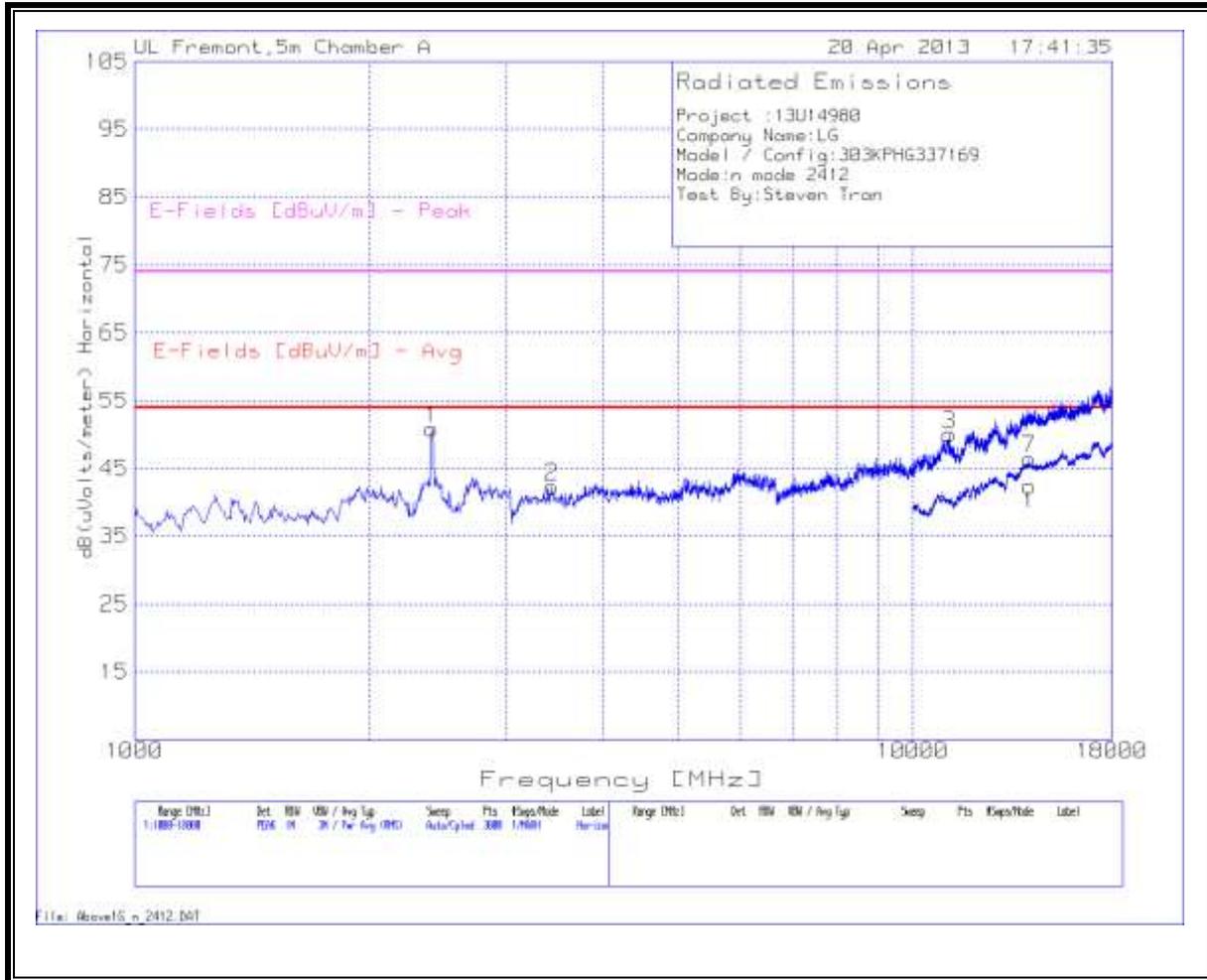
AUTHORIZED BANDEDGE (HIGH CHANNEL)



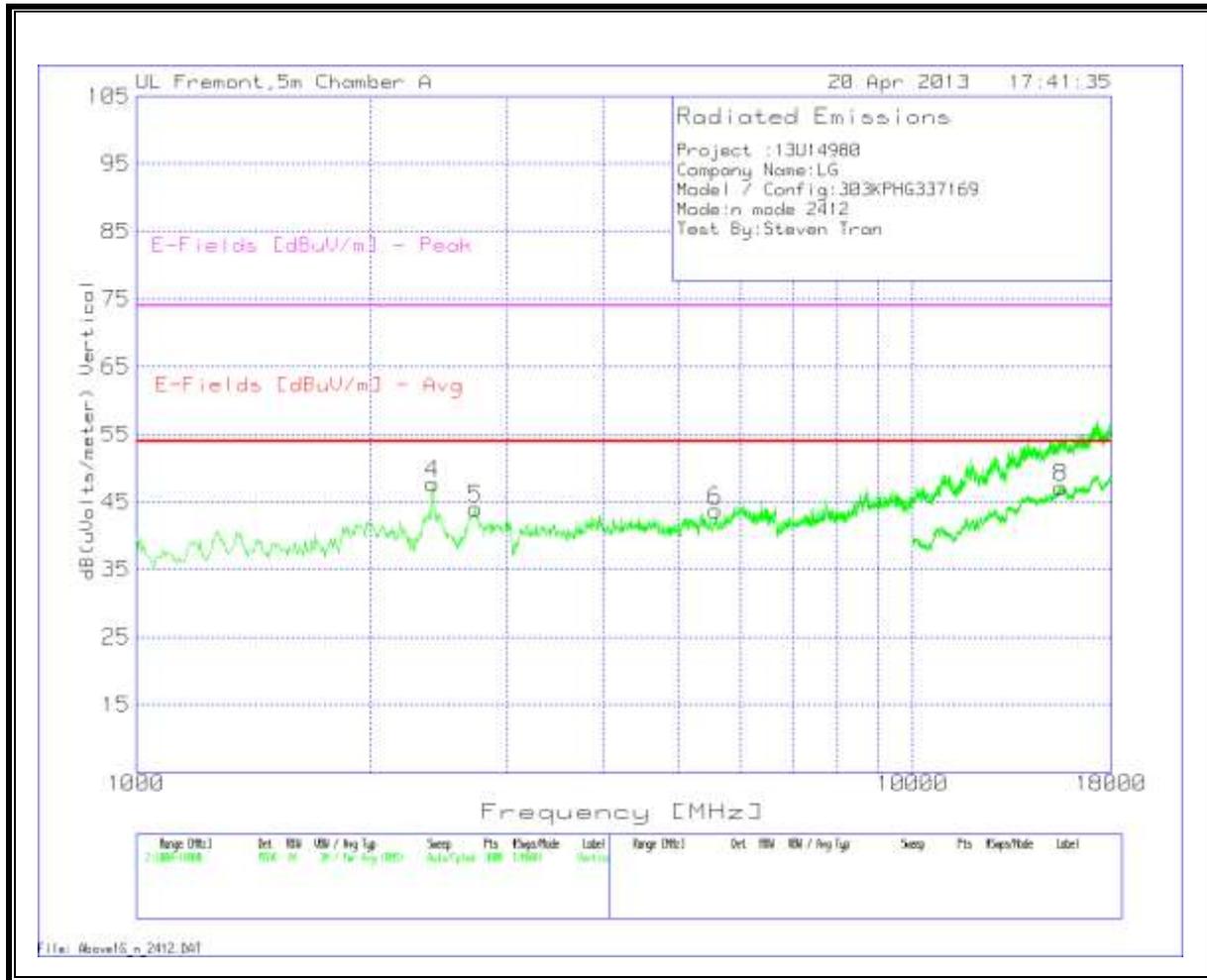


HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL
 HORIZONTAL



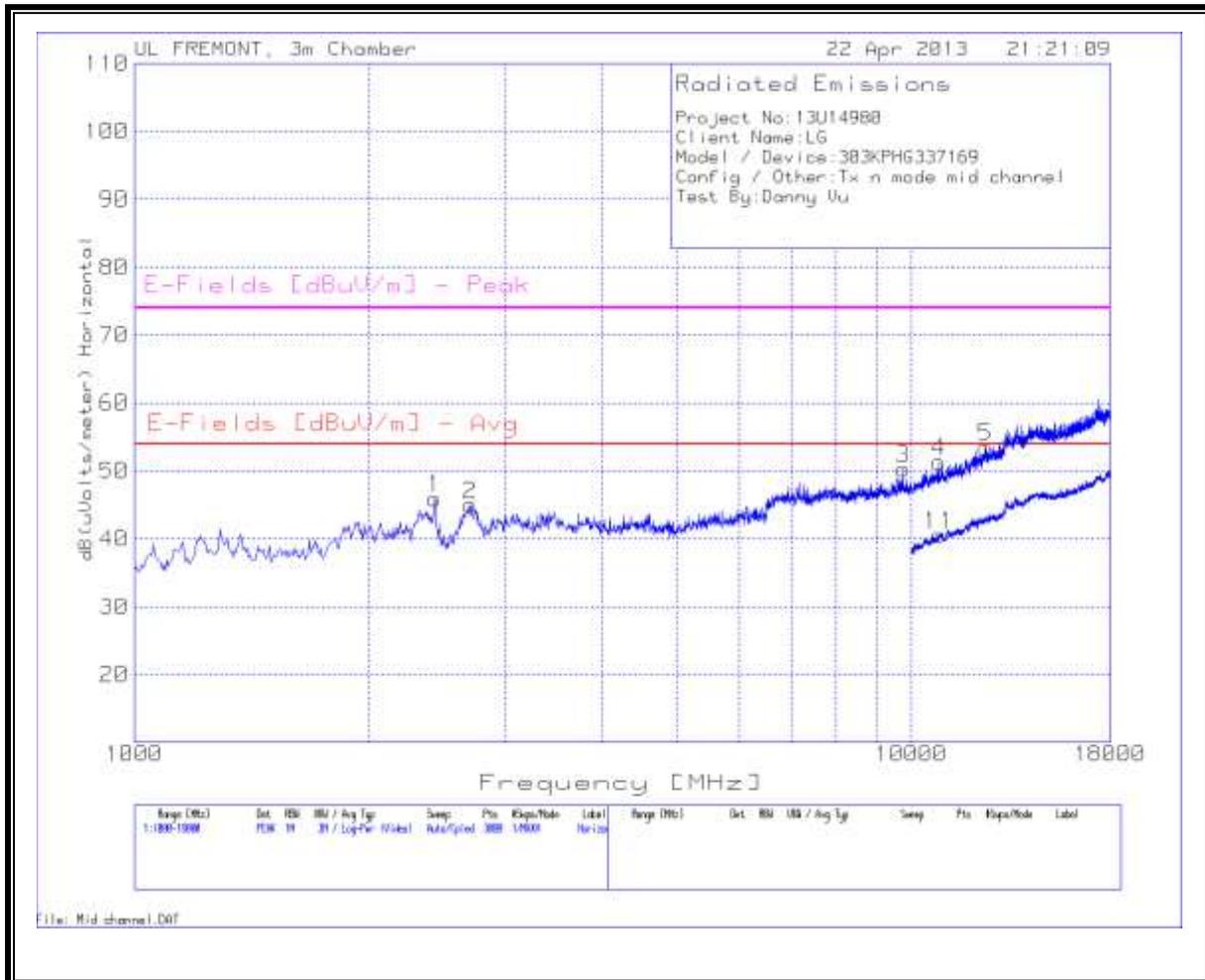
VERTICAL



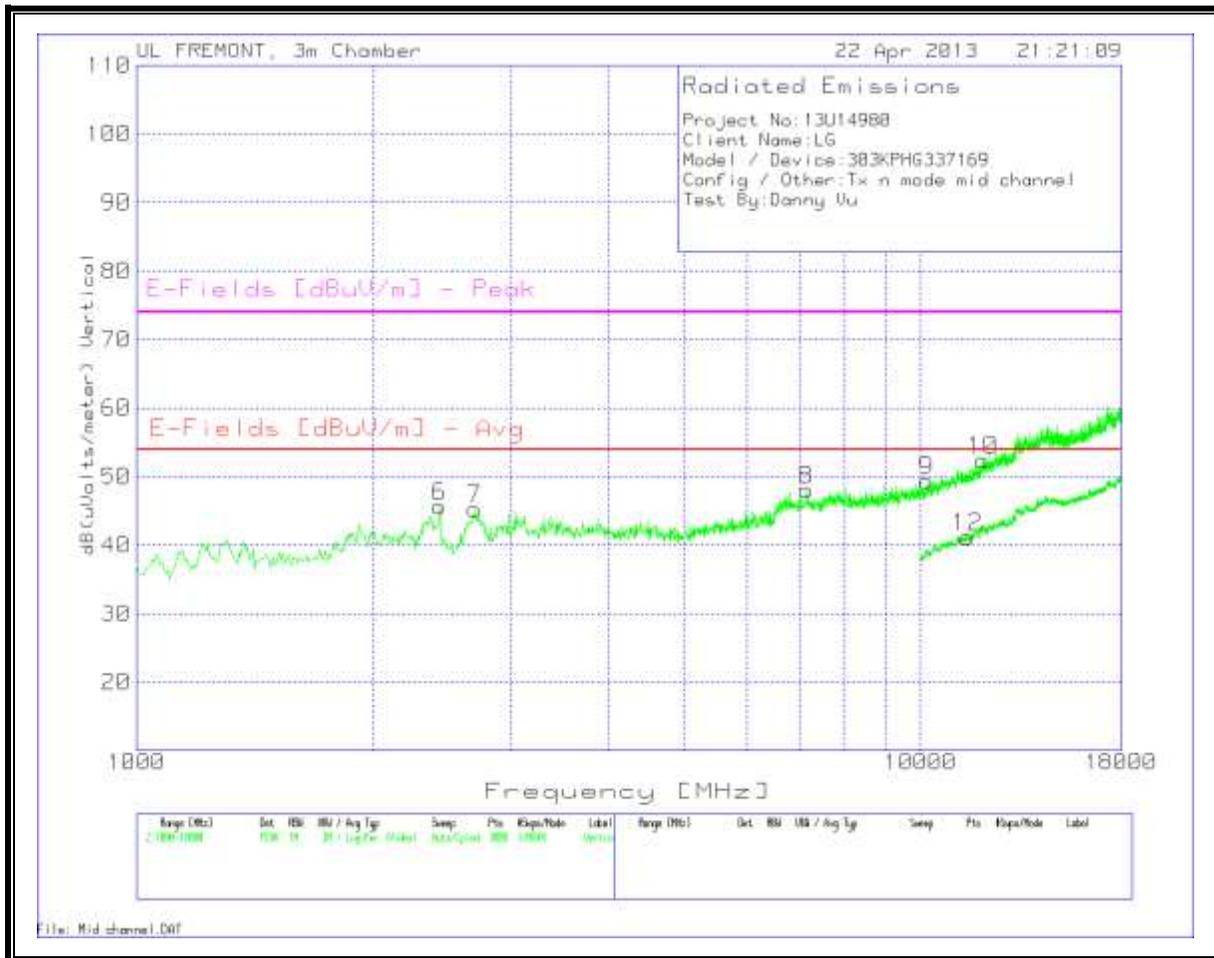
LOW CHANNEL DATA

Project :13U14980														
Company Name:LG														
Model / Config:303KPHG337169														
Mode:n mode 2412														
Test By:Steven Tran														
Marker No.	Test Frequency	Meter Reading	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	dB(uV/s/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
Horizontal 1000 - 18000MHz														
1	2410.06	50.21	PK	32.2	-36.9	4.4	0.9	50.81	53.97	-3.16	74	-23.19	100	Horz
2	3440.706	39.78	PK	33	-36.4	5.5	0.4	42.28	53.97	-11.69	74	-31.72	200	Horz
3	11142.239	36.21	PK	37.8	-35.6	11	0.6	50.01	53.97	-3.96	74	-23.99	100	Horz
Vertical 1000 - 18000MHz														
4	2410.06	47.11	PK	32.2	-36.9	4.4	0.9	47.71	53.97	-6.26	74	-26.29	100	Vert
5	2738.508	42.44	PK	32.7	-36.8	4.8	0.9	44.04	53.97	-9.93	74	-29.96	200	Vert
6	5575.616	37.27	PK	34.4	-35.5	7.4	0.2	43.77	53.97	-10.2	74	-30.23	200	Vert
Horizontal 10000 - 18000MHz														
7	14109.945	28.17	PK	39.2	-33.9	12.5	0.4	46.37	53.97	-7.6	74	-27.63	200	Horz
Vertical 10000 - 18000MHz														
8	15529.235	28.07	PK	40.6	-35.1	13.2	0.4	47.17	53.97	-6.8	74	-26.83	200	Vert
PK - Peak detector														
Av - Average detector														

MID CHANNEL
 HORIZONTAL



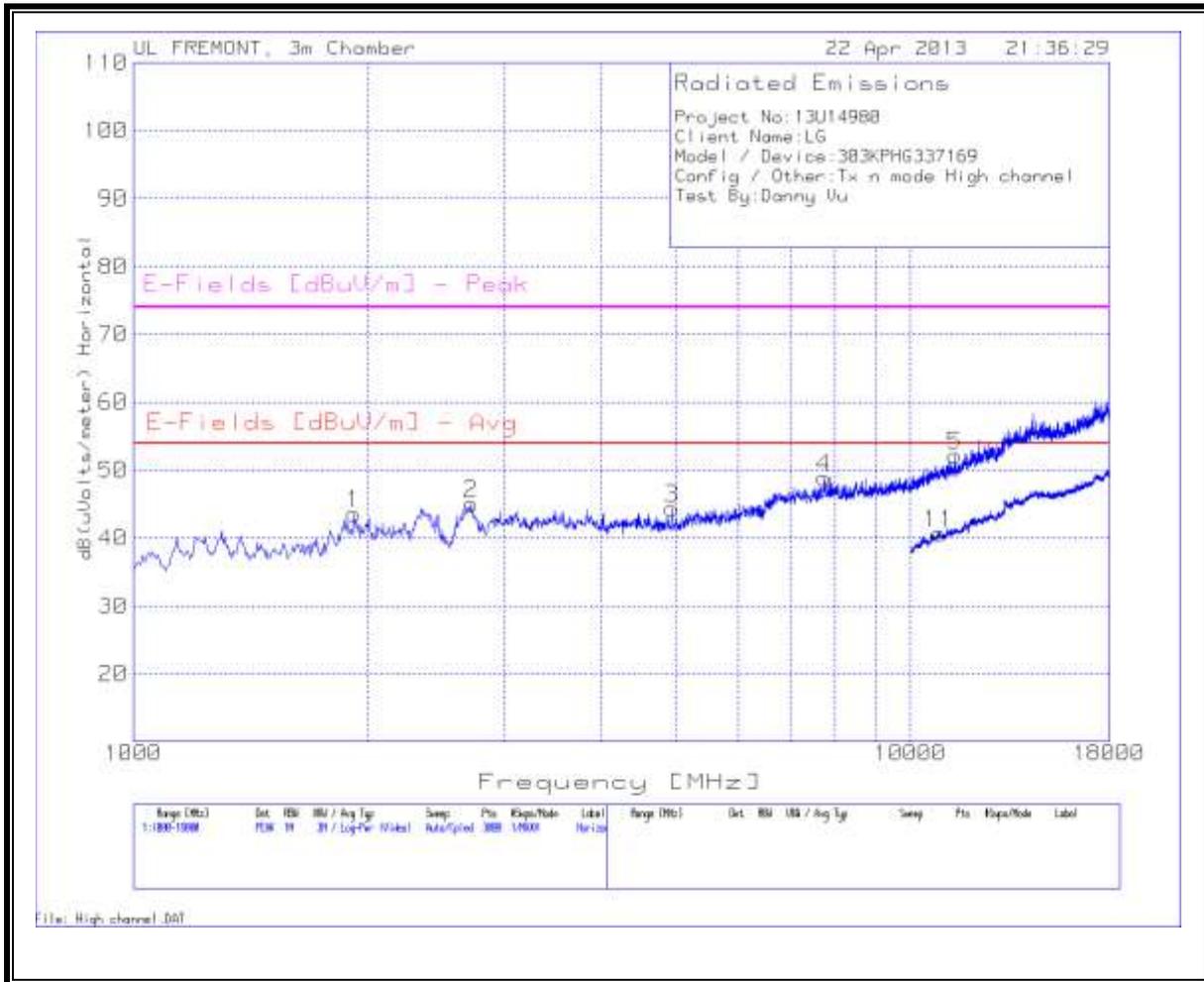
VERTICAL



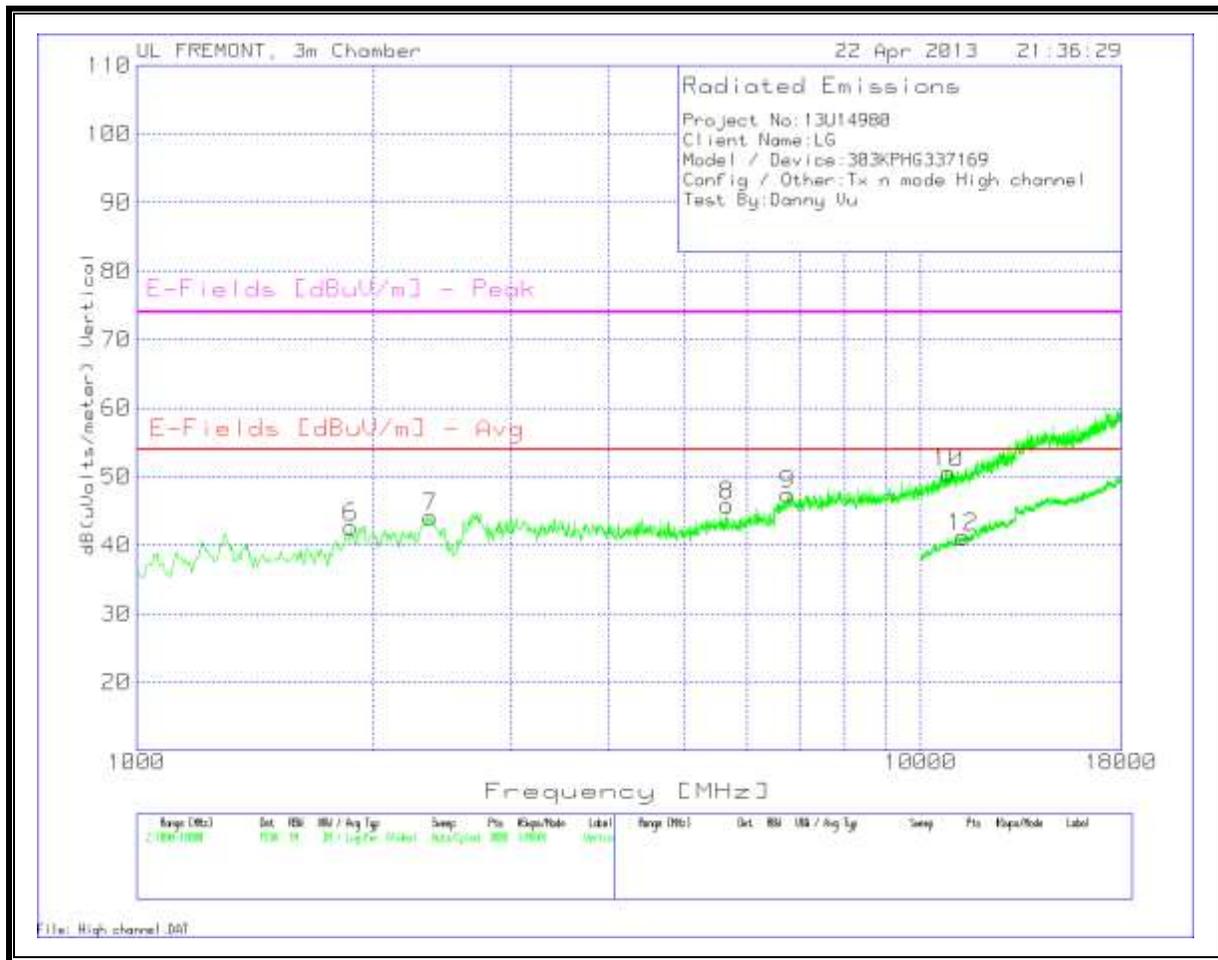
MID CHANNEL DATA

Project No:13U14980													
Client Name:LG													
Model / Device:303KPHG337169													
Config / Other:Tx n mode mid channel													
Test By:Danny Vu													
Marker No.	Test Frequency	Meter Reading	Detector	T119 Ant Factor [dB/m]	T34 Preamp/ Cable Loss [dB]	T160 BRFB [dB]	dB(uVolts/meter)	E-Fields [dBuV/m] Avg	Margin (dB)	E-Fields [dBuV/m] Peak	Margin (dB)	Height [cm]	Polarity
Horizontal 1000 - 18000MHz													
1	2432.712	42.62	PK	32.2	-29.7	0.9	46.02	54	-7.98	74	-27.98		Hor
2	2710.193	40.47	PK	32.6	-29	0.9	44.97	54	-9.03	74	-29.03		Hor
3	9749.167	34.63	PK	36.9	-21.6	0.4	50.33	54	-3.67	74	-23.67		Hor
4	10836.442	32.99	PK	37.9	-20.1	0.6	51.39	54	-2.61	74	-22.61		Hor
5	12450.366	32.16	PK	39.1	-18.4	0.6	53.46	54	-0.54	74	-20.54		Hor
Vertical 1000 - 18000MHz													
6	2432.712	42.29	PK	32.2	-29.7	0.9	45.69	54	-8.31	74	-28.31		Ver
7	2698.867	40.78	PK	32.6	-29	0.9	45.28	54	-8.72	74	-28.72		Ver
8	7155.563	35.37	PK	35.6	-23.1	0.2	48.07	54	-5.93	74	-25.93		Ver
9	10173.884	33.15	PK	37	-21.2	0.5	49.45	54	-4.55	74	-24.55		Ver
10	11997.335	31.57	PK	39.1	-18.9	0.7	52.47	54	-1.53	74	-21.53		Ver
Horizontal 10000 - 18000MHz													
11	10855.572	22.09	PK	37.9	-20.1	0.6	40.49	54	-13.51	74	-33.51		Hor
Vertical 10000 - 18000MHz													
12	11483.258	21.83	PK	38.2	-19.4	0.6	41.23	54	-12.77	74	-32.77		Ver
PK - Peak detector													
Av - Average detector													

HIGH CHANNEL
 HORIZONTAL



VERTICAL



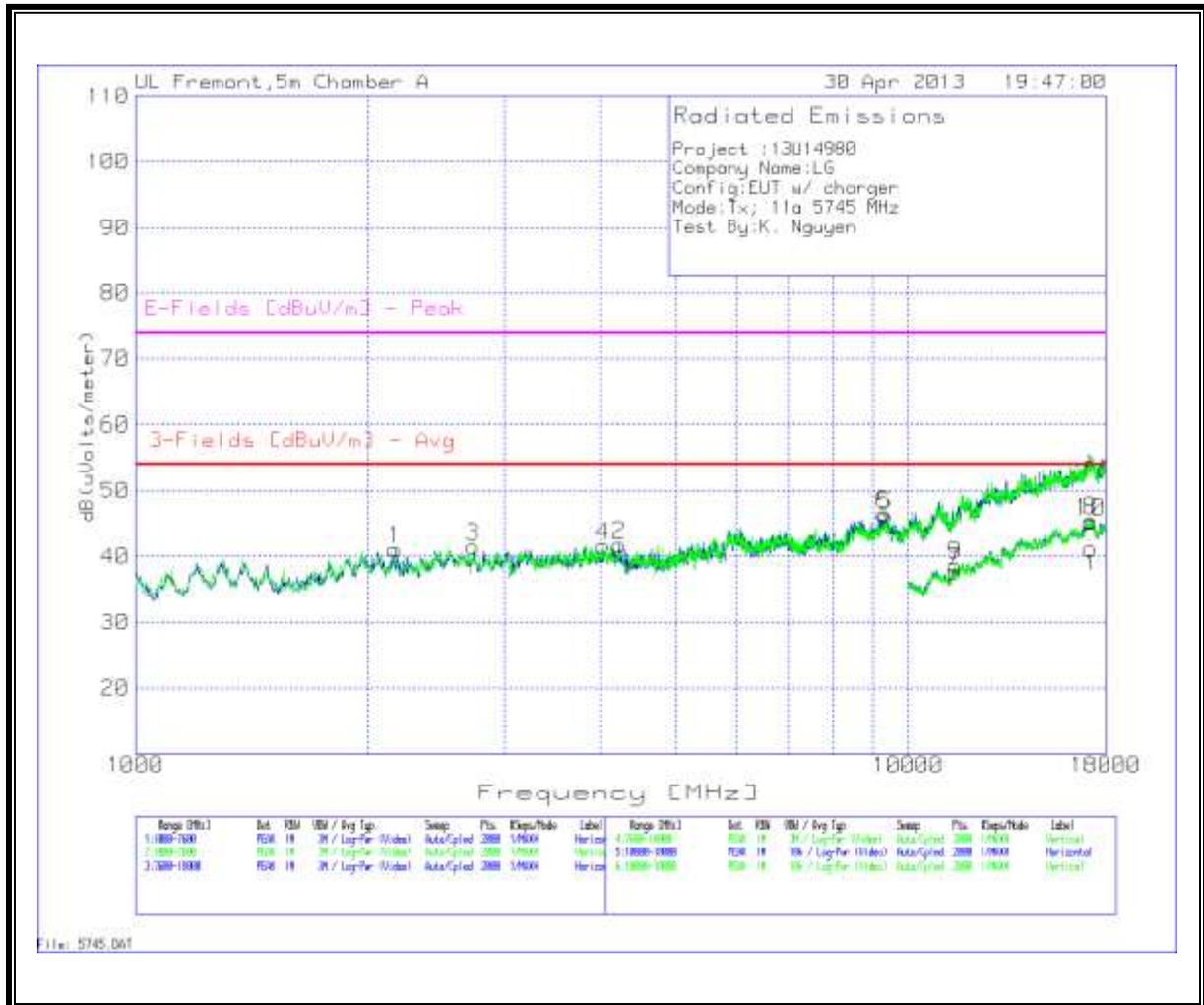
HIGH CHANNEL DATA

Project No:13U14980													
Client Name:LG													
Model / Device:303KPHG337169													
Config / Other:Tx n mode High channel													
Test By:Danny Vu													
Marker No.	Test Frequency	Meter Reading	Detector	T119 Ant Factor [dB/m]	T34 Preamp/ Cable Loss [dB]	T160 BRF [dB]	dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
Horizontal 1000 - 18000MHz													
1	1923.051	42.17	PK	31.3	-30.8	0.9	43.57	54	-10.43	74	-30.43		Hor
2	2721.519	40.58	PK	32.6	-29	0.9	45.08	54	-8.92	74	-28.92		Hor
3	4935.71	35.29	PK	34	-25.1	0.2	44.39	54	-9.61	74	-29.61		Hor
4	7750.167	35.49	PK	35.8	-22.7	0.3	48.89	54	-5.11	74	-25.11		Hor
5	11414.057	32.88	PK	38.1	-19.4	0.6	52.18	54	-1.82	74	-21.82		Hor
Vertical 1000 - 18000MHz													
6	1877.748	41.9	PK	31	-31	0.8	42.7	54	-11.3	74	-31.3		Ver
7	2370.42	40.96	PK	32	-29.7	0.9	44.16	54	-9.84	74	-29.84		Ver
8	5654.897	35.22	PK	34.8	-24.4	0.2	45.82	54	-8.18	74	-28.18		Ver
9	6770.486	34.75	PK	35.6	-23.3	0.3	47.35	54	-6.65	74	-26.65		Ver
10	10847.768	32.09	PK	37.9	-20.1	0.7	50.59	54	-3.41	74	-23.41		Ver
Horizontal 10000 - 18000MHz													
11	10875.562	22.23	PK	37.9	-20.1	0.7	40.73	54	-13.27	74	-33.27		Hor
Vertical 10000 - 18000MHz													
12	11307.346	22.15	PK	38	-19.5	0.5	41.15	54	-12.85	74	-32.85		Ver
PK - Peak detector													
Av - Average detector													

9.3. TX ABOVE 1 GHz 802.11a MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

Low Channel



Trace Markers

Horizontal 1000 - 7600MHz														
Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T163 BRP [dB]	dB(uVolts/meter)	3-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
1	2164.318	42.3	PK	31.5	-37	4.2	0.1	41.1	54	-12.9	74	-32.9	200	Horz
2	4225.787	37.72	PK	33.5	-35.9	6.3	0.1	41.72	54	-12.28	74	-32.28	100	Horz

Vertical 1000 - 7600MHz														
Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T163 BRP [dB]	dB(uVolts/meter)	3-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
3	2734.933	40.61	PK	32.7	-36.8	4.8	0.2	41.51	54	-12.49	74	-32.49	100	Vert
4	4027.886	37.67	PK	33.8	-36	6.1	0.1	41.67	54	-12.33	74	-32.33	200	Vert

Horizontal 7600 - 18000MHz														
Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T193 HPF [dB]	dB(uVolts/meter)	3-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
5	9356.722	35.75	PK	36.4	-36.2	10	0.3	46.25	54	-7.75	74	-27.75	100	Horz

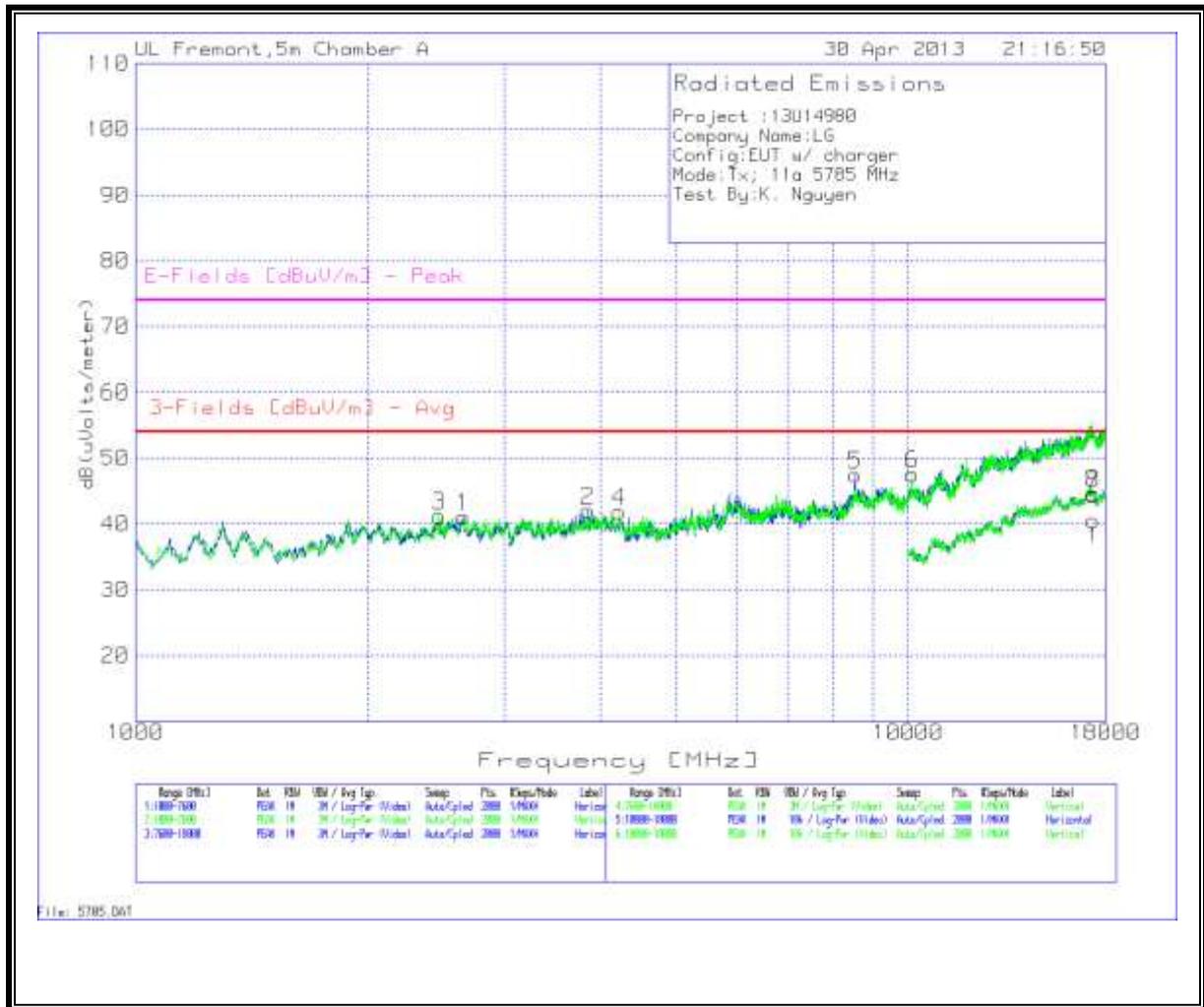
Vertical 7600 - 18000MHz														
Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T193 HPF [dB]	dB(uVolts/meter)	3-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
6	9309.945	36.24	PK	36.3	-36.2	10	0.2	46.54	54	-7.46	74	-27.46	100	Vert

Horizontal 10000 - 18000MHz														
Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T193 HPF [dB]	dB(uVolts/meter)	3-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
7	11487.256	23.56	PK	38.3	-35.6	11.2	0.3	37.76	54	-16.24	74	-36.24	100	Horz
8	17220.39	24.27	PK	40.9	-34.3	14.1	0.4	45.37	54	-8.63	74	-28.63	200	Horz

Vertical 10000 - 18000MHz														
Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T193 HPF [dB]	dB(uVolts/meter)	3-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
9	11491.254	24.51	PK	38.3	-35.6	11.2	0.2	38.61	54	-15.39	74	-35.39	100	Vert
10	17240.38	24.17	PK	40.9	-34.3	14.1	0.4	45.27	54	-8.73	74	-28.73	200	Vert

PK - Peak detector

Mid Channel



Trace Markers

Horizontal 1000 - 7600MHz

Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T163 BRP [dB]	dB(uVolts/meter)	3-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
1	2659.07	40.37	PK	32.7	-36.8	4.7	0.1	41.07	54	-12.93	74	-32.93	200	Horz
2	3856.372	38.55	PK	33.6	-36.1	5.9	0.1	42.05	54	-11.95	74	-31.95	100	Horz

Vertical 1000 - 7600MHz

Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T163 BRP [dB]	dB(uVolts/meter)	3-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
3	2474.363	40.92	PK	32.5	-36.8	4.5	0.1	41.22	54	-12.78	74	-32.78	100	Vert
4	4225.787	37.86	PK	33.5	-35.9	6.3	0.1	41.86	54	-12.14	74	-32.14	200	Vert

Horizontal 7600 - 18000MHz

Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T193 HPF [dB]	dB(uVolts/meter)	3-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
5	8535.532	38.02	PK	35.7	-36	9.5	0.3	47.52	54	-6.48	74	-26.48	100	Horz

Vertical 7600 - 18000MHz

Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T193 HPF [dB]	dB(uVolts/meter)	3-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
6	10115.542	36.1	PK	37.2	-36.3	10.4	0.2	47.6	54	-6.4	74	-26.4	100	Vert

Horizontal 10000 - 18000MHz

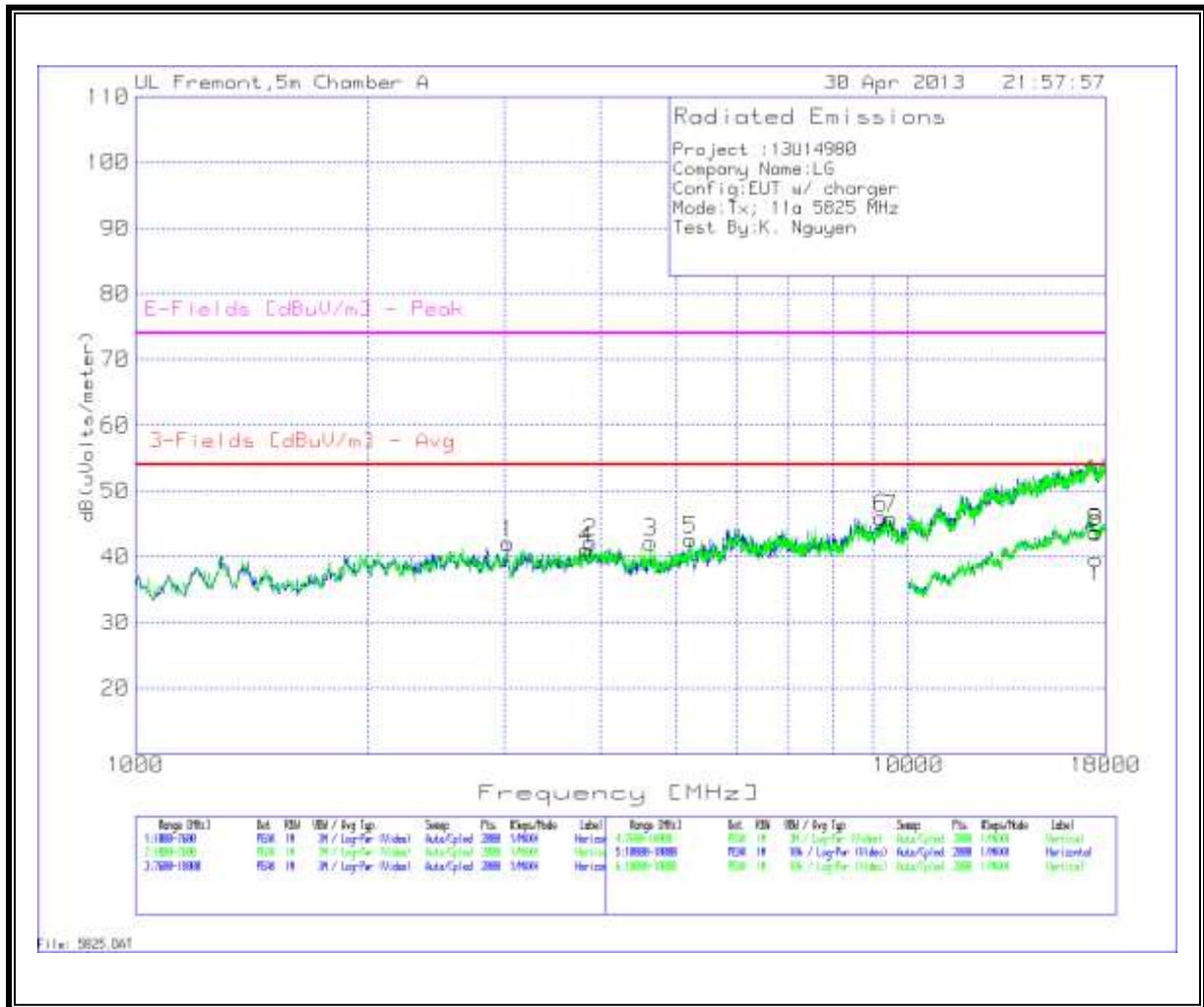
Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T193 HPF [dB]	dB(uVolts/meter)	3-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
7	17364.318	23.38	PK	40.9	-34.4	14.2	0.4	44.48	54	-9.52	74	-29.52	100	Horz

Vertical 10000 - 18000MHz

Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T193 HPF [dB]	dB(uVolts/meter)	3-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
8	17372.314	23.47	PK	40.9	-34.4	14.2	0.4	44.57	54	-9.43	74	-29.43	100	Vert

PK - Peak detector

High Channel



Trace Markers

Horizontal 1000 - 7600MHz

Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T163 BRP [dB]	dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
1	3035.082	40.72	PK	32.7	-36.7	5.1	0.2	42.02	54	-11.98	74	-31.98	200	Horz
2	3882.759	38.4	PK	33.7	-36	6	0.1	42.2	54	-11.8	74	-31.8	100	Horz
3	4641.379	37.24	PK	33.9	-35.8	6.6	0.2	42.14	54	-11.86	74	-31.86	200	Horz
4	3829.985	37.44	PK	33.6	-36.1	5.9	0.2	41.04	54	-12.96	74	-32.96	200	Horz

Vertical 1000 - 7600MHz

Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T163 BRP [dB]	dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
5	5231.784	36.61	PK	34.2	-35.5	7.1	0.2	42.61	54	-11.39	74	-31.39	100	Vert

Horizontal 7600 - 18000MHz

Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T193 HPF [dB]	dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
6	9226.787	35.52	PK	36.2	-36.1	10	0.3	45.92	54	-8.08	74	-28.08	200	Horz

Vertical 7600 - 18000MHz

Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T193 HPF [dB]	dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
7	9491.854	35.15	PK	36.6	-36.2	10.1	0.2	45.85	54	-8.15	74	-28.15	200	Vert

Horizontal 10000 - 18000MHz

Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T193 HPF [dB]	dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
8	17488.256	23.16	PK	40.9	-34.5	14.2	0	43.76	54	-10.24	74	-30.24	100	Horz

Vertical 10000 - 18000MHz

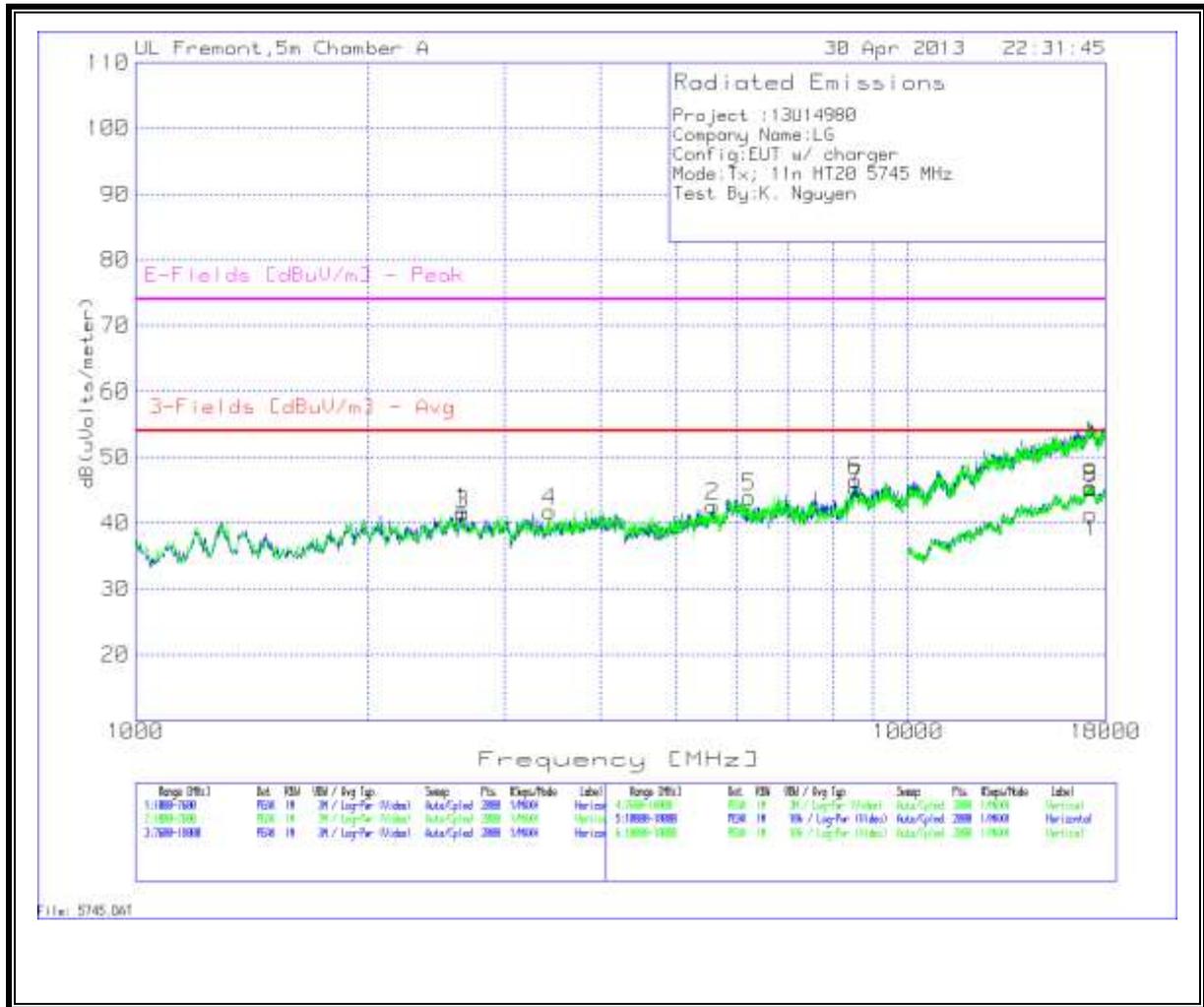
Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T193 HPF [dB]	dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
9	17476.262	23.12	PK	40.9	-34.5	14.2	-0.1	43.62	54	-10.38	74	-30.38	100	Vert

PK - Peak detector

9.4. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

Low Channel



Trace Markers

Horizontal 1000 - 7600MHz

Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T163 BRF [dB]	dB(uVolts/m eter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
1	2649.175	40.95	PK	32.7	-36.8	4.7	0.2	41.75	54	-12.25	74	-32.25	200	Horz
2	5584.708	35.33	PK	34.4	-35.5	7.4	0.9	42.53	54	-11.47	74	-31.47	100	Horz

Vertical 1000 - 7600MHz

Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T163 BRF [dB]	dB(uVolts/m eter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
3	2649.175	40.51	PK	32.7	-36.8	4.7	0.2	41.31	54	-12.69	74	-32.69	200	Vert
4	3434.183	39.57	PK	33	-36.4	5.5	0.1	41.77	54	-12.23	74	-32.23	100	Vert
5	6224.588	35.95	PK	35.4	-35.6	7.9	0.3	43.95	54	-10.05	74	-30.05	100	Vert

Horizontal 7600 - 18000MHz

Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T193 HPF [dB]	dB(uVolts/m eter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
6	8551.124	37.09	PK	35.7	-36	9.5	0.2	46.49	54	-7.51	74	-27.51	200	Horz

Vertical 7600 - 18000MHz

Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T193 HPF [dB]	dB(uVolts/m eter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
7	8566.717	35.89	PK	35.7	-36	9.5	0.2	45.29	54	-8.71	74	-28.71	100	Vert

Horizontal 10000 - 18000MHz

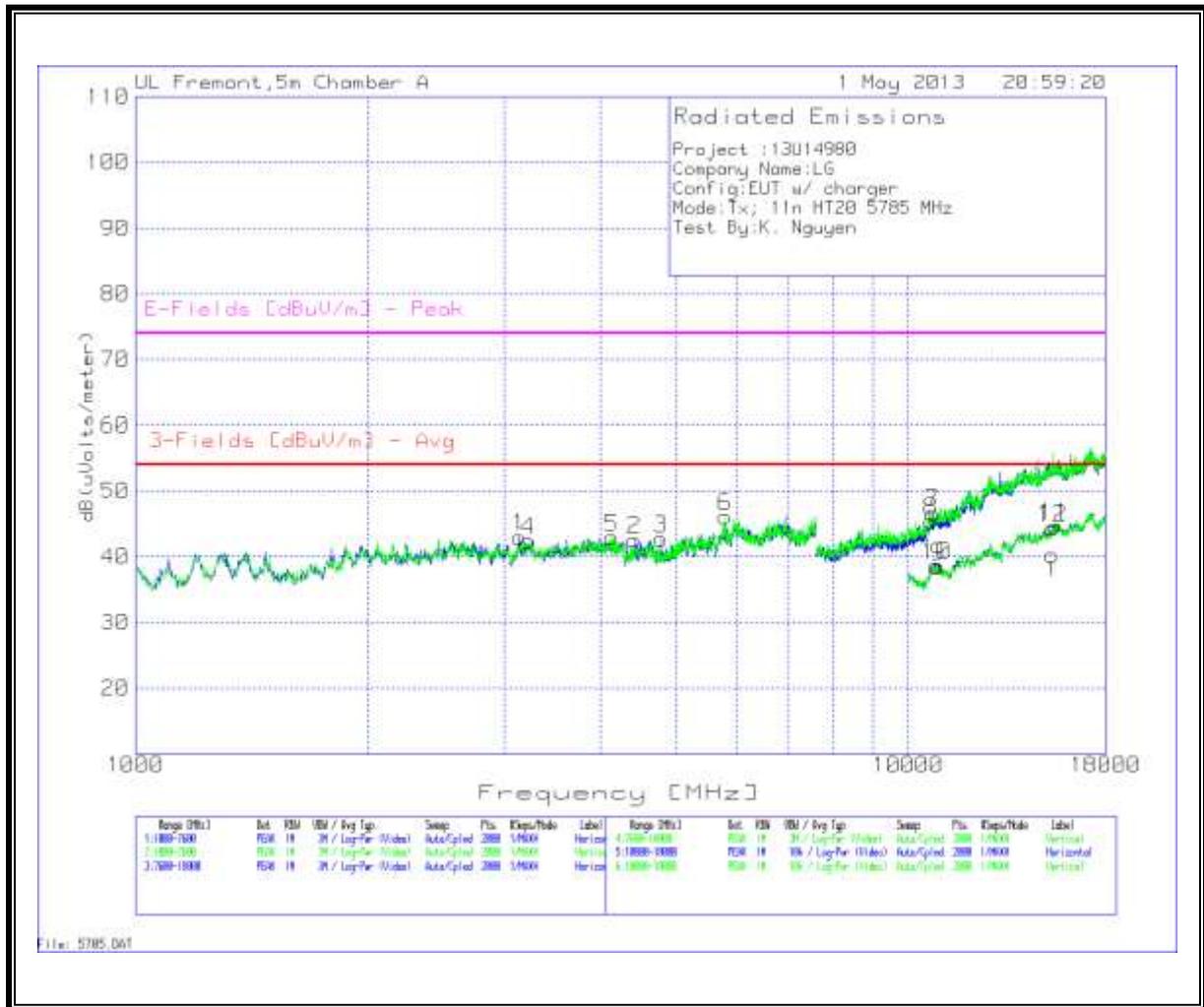
Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T193 HPF [dB]	dB(uVolts/m eter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
8	17224.388	24.22	PK	40.9	-34.3	14.1	0.4	45.32	54	-8.68	74	-28.68	200	Horz

Vertical 10000 - 18000MHz

Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T193 HPF [dB]	dB(uVolts/m eter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
9	17240.38	24.32	PK	40.9	-34.3	14.1	0.4	45.42	54	-8.58	74	-28.58	200	Vert

PK - Peak detector

Mid Channel



Trace Markers

Horizontal 1000 - 7600MHz

Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T163 BRF [dB]	dB(μVolts/m eter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
1	3140.63	41.03	PK	33.1	-36.6	5.2	0.2	42.93	54	-11.07	74	-31.07	100	Horz
2	4423.688	38.2	PK	33.6	-35.8	6.4	0.2	42.6	54	-11.4	74	-31.4	200	Horz
3	4789.805	37.74	PK	33.9	-35.7	6.7	0.1	42.74	54	-11.26	74	-31.26	100	Horz

Vertical 1000 - 7600MHz

Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T163 BRF [dB]	dB(μVolts/m eter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
4	3226.387	40.16	PK	33.4	-36.5	5.3	0.1	42.46	54	-11.54	74	-31.54	200	Vert
5	4143.328	38.82	PK	33.7	-35.9	6.2	0.1	42.92	54	-11.08	74	-31.08	100	Vert
6	5792.504	38.42	PK	34.8	-35.5	7.5	0.9	46.12	54	-7.88	74	-27.88	200	Vert

Horizontal 7600 - 18000MHz

Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T193 HPF [dB]	dB(μVolts/m eter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
7	10754.823	33.59	PK	38	-35.8	10.8	0.1	46.69	54	-7.31	74	-27.31	100	Horz

Vertical 7600 - 18000MHz

Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T193 HPF [dB]	dB(μVolts/m eter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
8	10697.651	32.38	PK	37.9	-35.8	10.7	0.3	45.48	54	-8.52	74	-28.52	200	Vert

Horizontal 10000 - 18000MHz

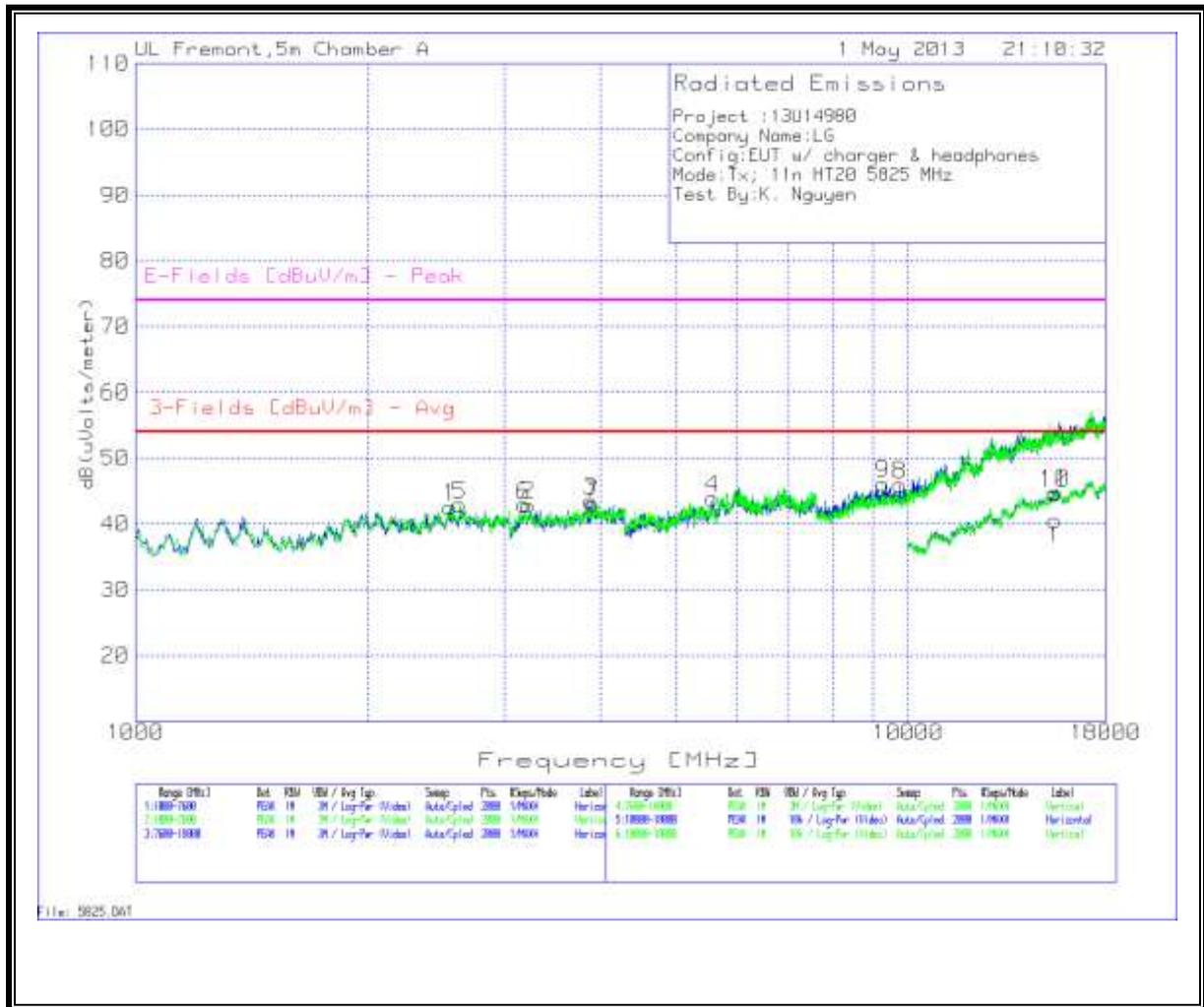
Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T193 HPF [dB]	dB(μVolts/m eter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
9	10943.528	25.06	PK	37.9	-35.6	10.9	0.3	38.56	54	-15.44	74	-35.44	100	Horz
11	15501.249	25.64	PK	40.6	-35.1	13.2	0.3	44.64	54	-9.36	74	-29.36	100	Horz

Vertical 10000 - 18000MHz

Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T193 HPF [dB]	dB(μVolts/m eter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
10	10887.556	25.5	PK	37.9	-35.7	10.8	0.1	38.6	54	-15.4	74	-35.4	100	Vert
12	15361.319	25.27	PK	40.7	-35	13.1	0.3	44.37	54	-9.63	74	-29.63	200	Vert

PK - Peak detector

High Channel



Trace Markers

Horizontal 1000 - 7600MHz

Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T163 BRF [dB]	dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
1	2553.523	41.87	PK	32.7	-36.8	4.6	0.2	42.57	54	-11.43	74	-31.43	100	Horz
2	3226.387	40.52	PK	33.4	-36.5	5.3	0.1	42.82	54	-11.18	74	-31.18	200	Horz
3	3882.759	39.67	PK	33.7	-36	6	0.1	43.47	54	-10.53	74	-30.53	100	Horz
4	5594.603	36.78	PK	34.4	-35.5	7.4	0.9	43.98	54	-10.02	74	-30.02	200	Horz

Vertical 1000 - 7600MHz

Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T163 BRF [dB]	dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
5	2632.684	42.22	PK	32.7	-36.8	4.7	0.1	42.92	54	-11.08	74	-31.08	200	Vert
6	3180.21	40.72	PK	33.4	-36.6	5.2	0.2	42.92	54	-11.08	74	-31.08	200	Vert
7	3909.145	39.26	PK	33.7	-36	6	0.1	43.06	54	-10.94	74	-30.94	200	Vert

Horizontal 7600 - 18000MHz

Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T193 HPF [dB]	dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
8	9751.724	34.88	PK	36.9	-36.3	10.2	0.3	45.98	54	-8.02	74	-28.02	100	Horz

Vertical 7600 - 18000MHz

Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T193 HPF [dB]	dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
9	9268.366	36.03	PK	36.2	-36.2	10	0.1	46.13	54	-7.87	74	-27.87	200	Vert

Horizontal 10000 - 18000MHz

Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T193 HPF [dB]	dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
10	15493.253	25.74	PK	40.6	-35.1	13.2	0.3	44.74	54	-9.26	74	-29.26	200	Horz

Vertical 10000 - 18000MHz

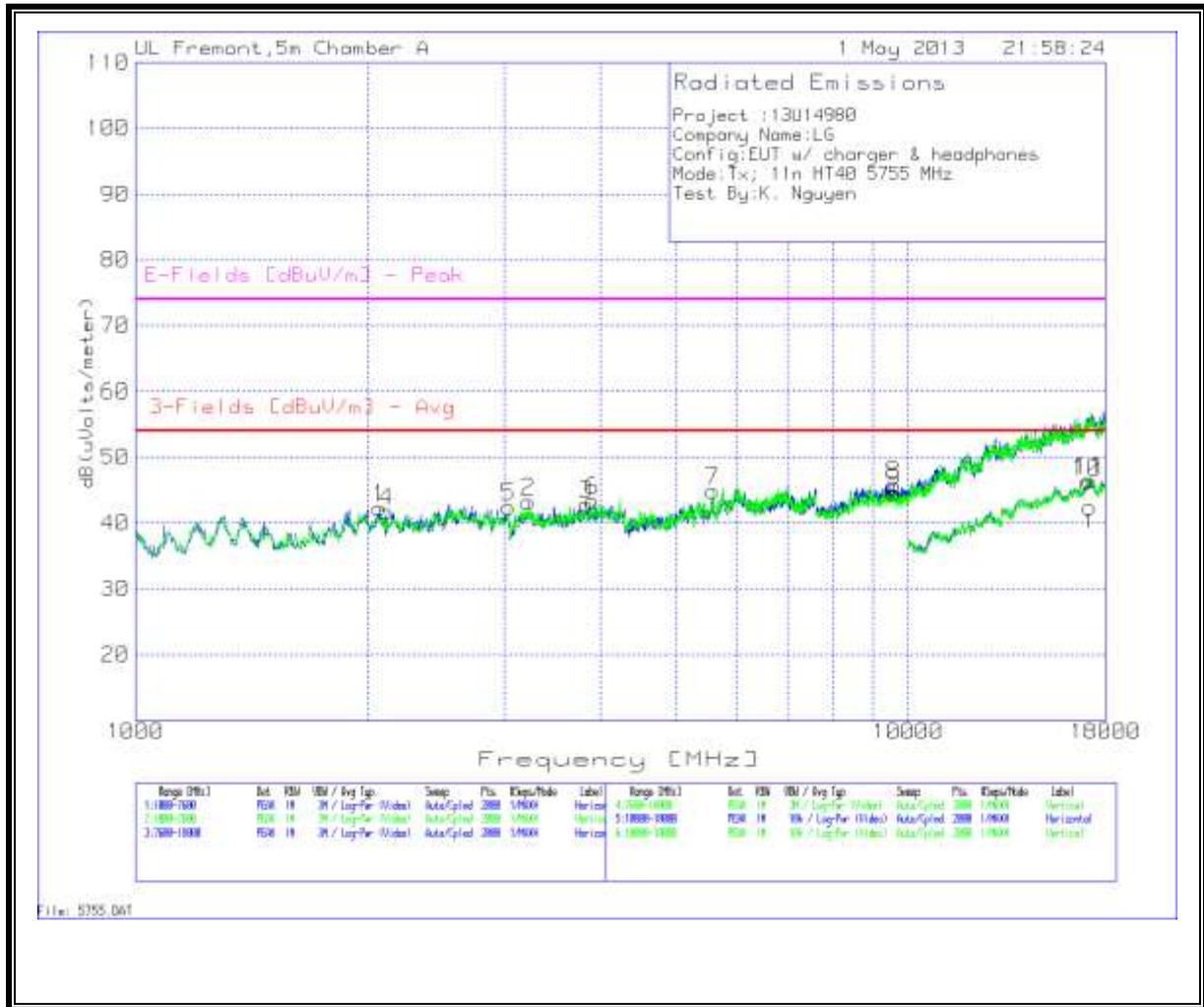
Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T193 HPF [dB]	dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
11	15477.261	25.75	PK	40.6	-35.1	13.2	0.2	44.65	54	-9.35	74	-29.35	100	Vert

PK - Peak detector

9.5. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

Low Channel



Trace Markers

Horizontal 1000 - 7600MHz

Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T163 BRF [dB]	dB(μ Volts/m eter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
1	2071.964	43.4	PK	31.7	-37	4.1	0.1	42.3	54	-11.7	74	-31.7	100	Horz
2	3226.387	41.01	PK	33.4	-36.5	5.3	0.1	43.31	54	-10.69	74	-30.69	200	Horz
3	3833.283	39.25	PK	33.6	-36.1	5.9	0.2	42.85	54	-11.15	74	-31.15	100	Horz

Vertical 1000 - 7600MHz

Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T163 BRF [dB]	dB(μ Volts/m eter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
4	2118.141	42.99	PK	31.6	-37	4.1	0.1	41.79	54	-12.21	74	-32.21	200	Vert
5	3044.978	41.3	PK	32.7	-36.7	5.1	0.1	42.5	54	-11.5	74	-31.5	100	Vert
6	3905.847	39.62	PK	33.7	-36	6	0.1	43.42	54	-10.58	74	-30.58	200	Vert
7	5581.409	37.7	PK	34.4	-35.5	7.4	0.9	44.9	54	-9.1	74	-29.1	100	Vert

Horizontal 7600 - 18000MHz

Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T193 HPF [dB]	dB(μ Volts/m eter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
8	9569.815	35.16	PK	36.7	-36.2	10.1	0.1	45.86	54	-8.14	74	-28.14	100	Horz

Vertical 7600 - 18000MHz

Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T193 HPF [dB]	dB(μ Volts/m eter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
9	9575.012	33.9	PK	36.7	-36.2	10.1	0.1	44.6	54	-9.4	74	-29.4	100	Vert

Horizontal 10000 - 18000MHz

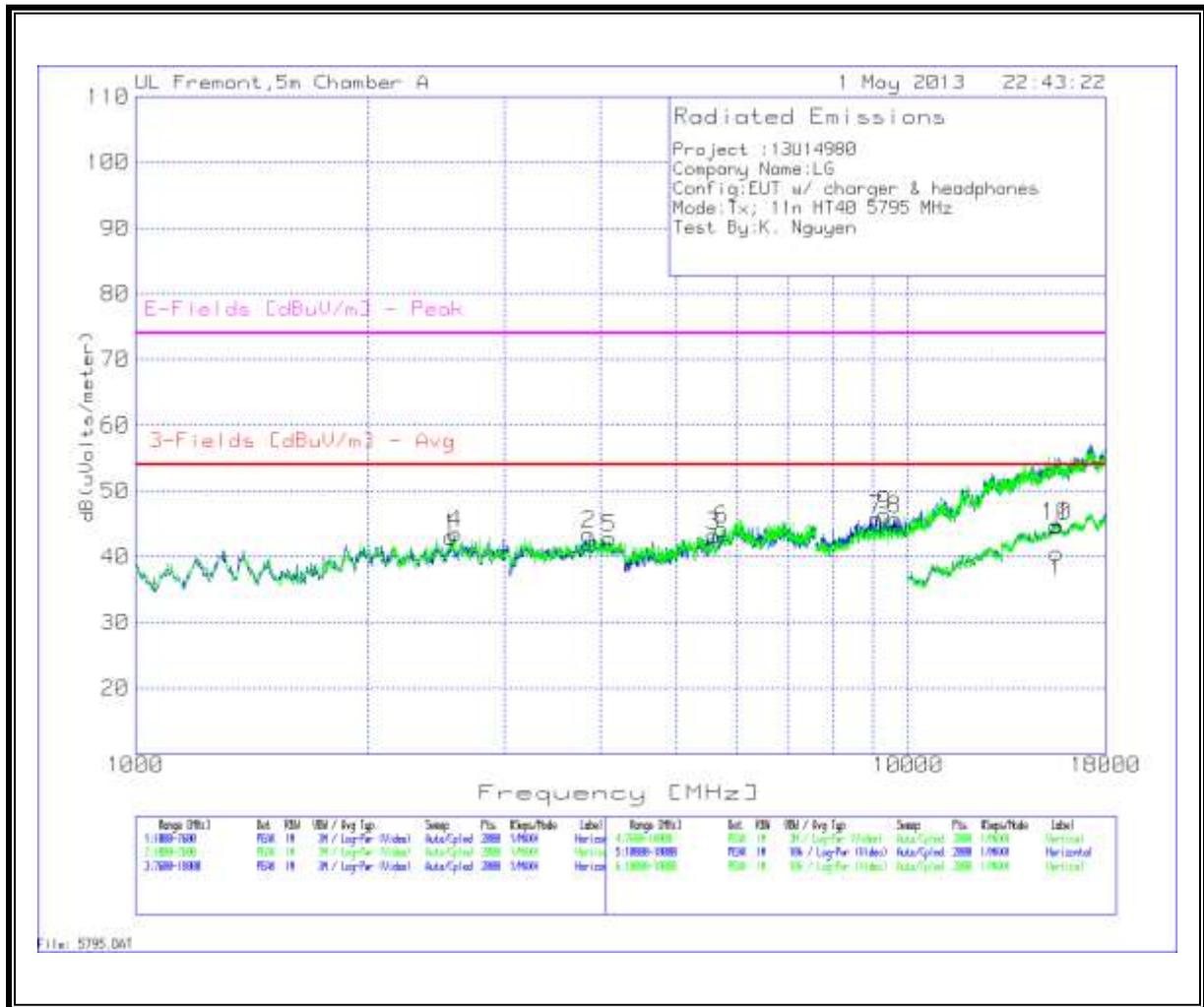
Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T193 HPF [dB]	dB(μ Volts/m eter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
10	17028.486	25.14	PK	40.9	-34.1	14	0.3	46.24	54	-7.76	74	-27.76	200	Horz

Vertical 10000 - 18000MHz

Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T193 HPF [dB]	dB(μ Volts/m eter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
11	17168.416	25.62	PK	40.9	-34.3	14.1	0.2	46.52	54	-7.48	74	-27.48	200	Vert

PK - Peak detector

High Channel



Trace Markers

Horizontal 1000 - 7600MHz

Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T163 BRF [dB]	dB(uVolts/m eter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
1	2560.12	42.38	PK	32.7	-36.8	4.6	0.1	42.98	54	-11.02	74	-31.02	200	Horz
2	3862.969	39.88	PK	33.6	-36.1	5.9	0.1	43.38	54	-10.62	74	-30.62	100	Horz
3	5597.901	36.01	PK	34.4	-35.5	7.4	0.9	43.21	54	-10.79	74	-30.79	200	Horz

Vertical 1000 - 7600MHz

Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T163 BRF [dB]	dB(uVolts/m eter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
4	2593.103	42.95	PK	32.7	-36.8	4.6	0.1	43.55	54	-10.45	74	-30.45	200	Vert
5	4107.046	38.62	PK	33.8	-35.9	6.2	0.1	42.82	54	-11.18	74	-31.18	200	Vert
6	5736.432	36.59	PK	34.7	-35.5	7.5	0.9	44.19	54	-9.81	74	-29.81	100	Vert

Horizontal 7600 - 18000MHz

Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T193 HPF [dB]	dB(uVolts/m eter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
7	9096.852	35.68	PK	36	-36.1	9.9	0.3	45.78	54	-8.22	74	-28.22	200	Horz
8	9616.592	34.7	PK	36.7	-36.3	10.2	0.4	45.7	54	-8.3	74	-28.3	100	Horz

Vertical 7600 - 18000MHz

Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T193 HPF [dB]	dB(uVolts/m eter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
9	9325.537	36.15	PK	36.3	-36.2	10	0.1	46.35	54	-7.65	74	-27.65	100	Vert

Horizontal 10000 - 18000MHz

Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T193 HPF [dB]	dB(uVolts/m eter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
10	15577.211	25.89	PK	40.5	-35.1	13.3	0.2	44.79	54	-9.21	74	-29.21	200	Horz

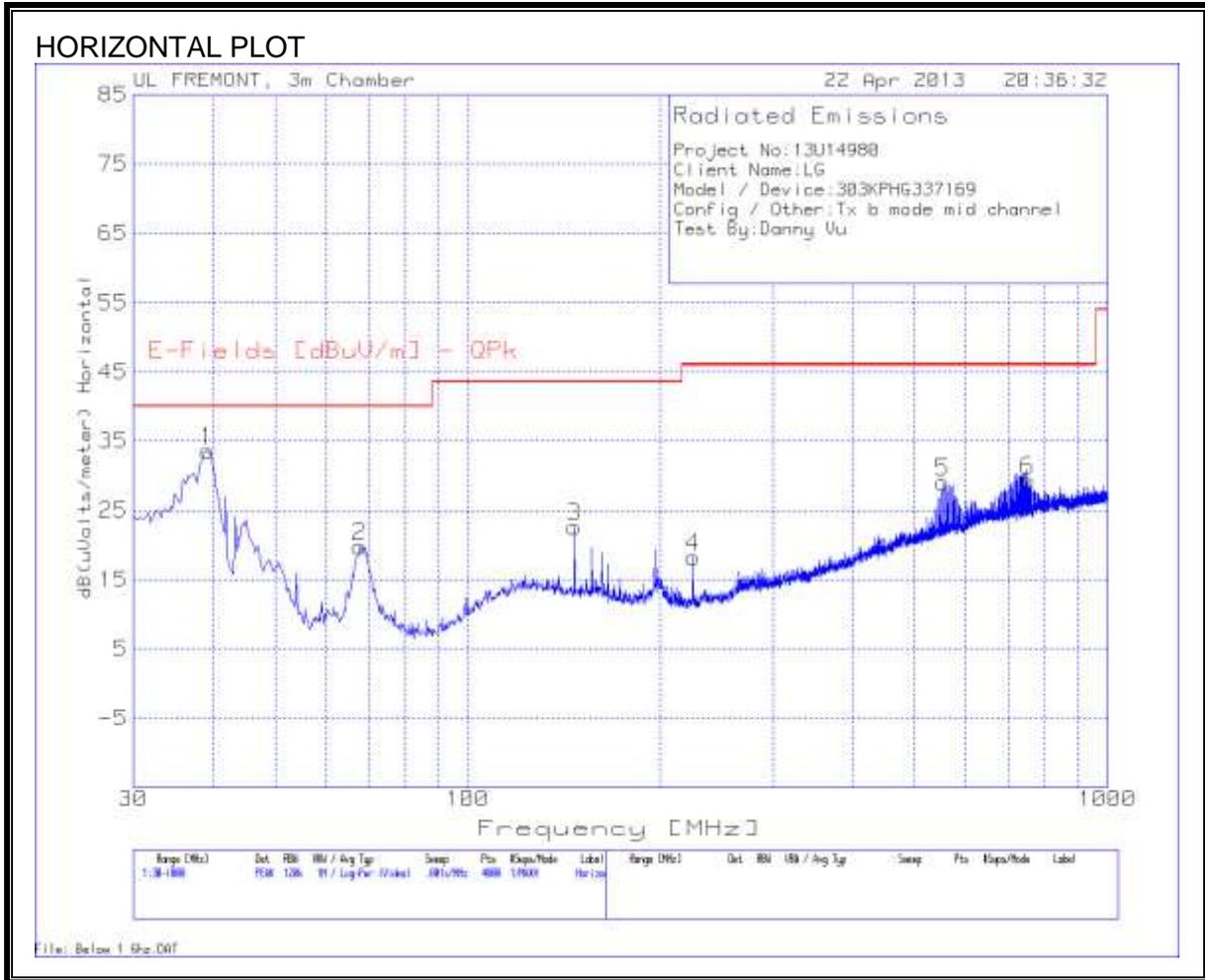
Vertical 10000 - 18000MHz

Marker	Frequency (MHz)	Meter Reading	Det	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T193 HPF [dB]	dB(uVolts/m eter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
11	15557.221	25.7	PK	40.5	-35.1	13.2	0.3	44.6	54	-9.4	74	-29.4	200	Vert

PK - Peak detector

9.6. WORST-CASE BELOW 1 GHz

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



HORIZONTAL DATA

Project No: 13U14980											
Client Name: LG											
Model / Device: 303KPHG337169											
Config / Other: Tx b mode mid channel											
Test By: Danny Vu											

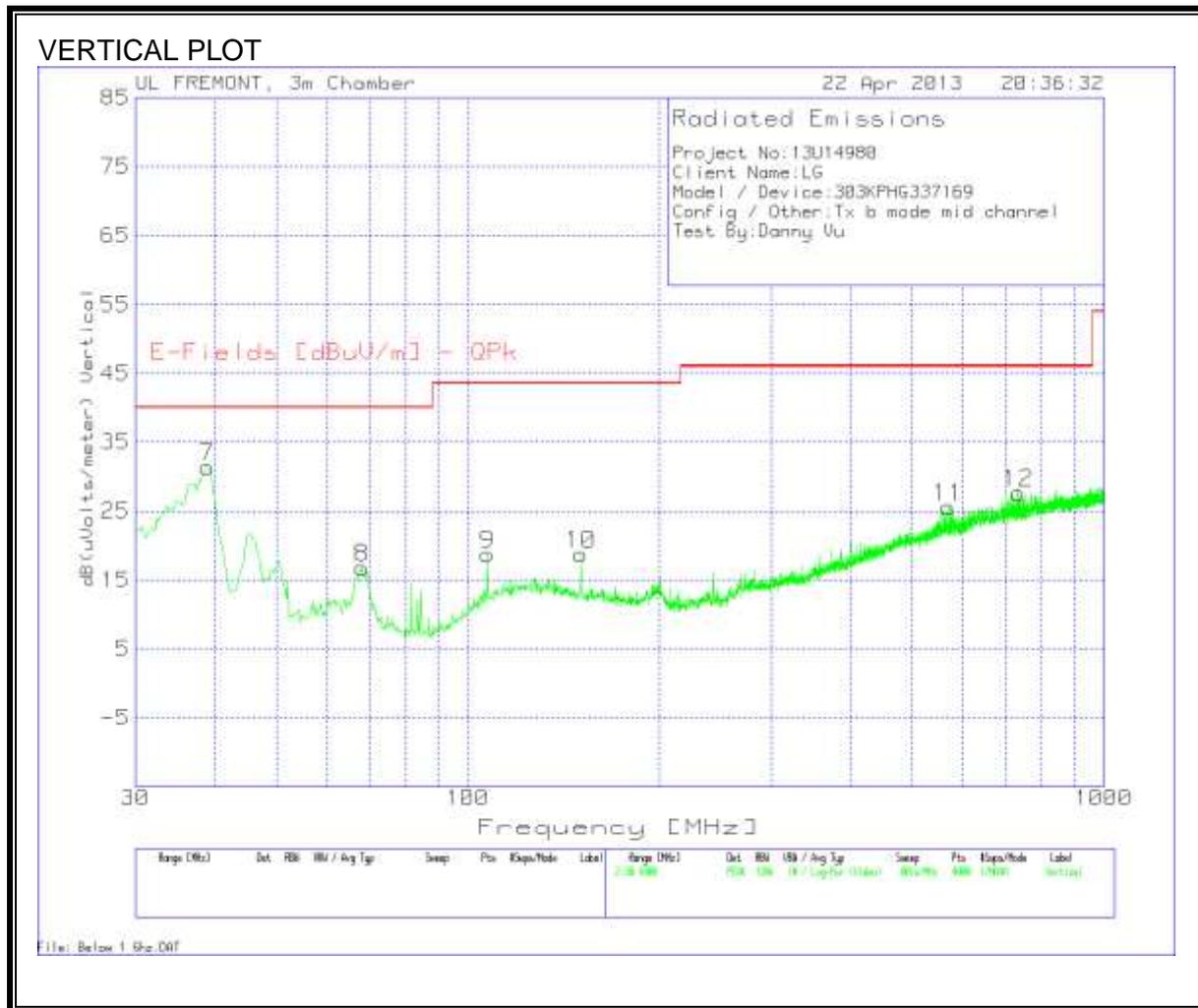
Horizontal 30 - 1000MHz

Marker No.	Test Frequency	Meter Reading	Detector	T130 Ant Factor [dB/m]	T64 preamp/cable loss [dB]	dB(uVolts/meter)	E-Fields [dBuV/m] QPk	Margin (dB)	Height [cm]	Polarity
1	39.2081	46.89	PK	14.2	-27.5	33.59	40	-6.41	400	Horz
2	67.8016	39.11	PK	8.1	-27.4	19.81	40	-20.19	301	Horz
3	147.0397	36.61	PK	12.7	-26.7	22.61	43.52	-20.91	99	Horz
4	225.0662	33.28	PK	10.9	-25.9	18.28	46.02	-27.74	99	Horz
5	553.6498	34.67	PK	18.5	-24.1	29.07	46.02	-16.95	201	Horz
6	751.8661	31.69	PK	20.7	-23	29.39	46.02	-16.63	99	Horz

PK - Peak Detector

AVG - Average Detector

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



VERTICAL DATA

Project No: 13U14980										
Client Name: LG										
Model / Device: 303KPHG337169										
Config / Other: Tx b mode mid channel										
Test By: Danny Vu										

Vertical 30 - 1000MHz

Marker No.	Test Frequency	Meter Reading	Detector	T130 Ant Factor [dB/m]	T64 preamp/ cable loss [dB]	dB(uVolts/meter)	E-Fields [dBuV/m] QPk	Margin (dB)	Height [cm]	Polarity
7	38.9658	44.6	PK	14.3	-27.5	31.4	40	-8.6	199	Vert
8	68.2863	36.01	PK	8.1	-27.3	16.81	40	-23.19	299	Vert
9	107.2995	33.6	PK	12	-26.9	18.7	43.52	-24.82	199	Vert
10	150.6745	32.92	PK	12.4	-26.6	18.72	43.52	-24.8	299	Vert
11	569.6428	30.78	PK	18.7	-23.9	25.58	46.02	-20.44	199	Vert
12	735.8731	30.03	PK	20.6	-23	27.63	46.02	-18.39	199	Vert

PK - Peak Detector

AVG - Average Detector

10. 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 C63.4.

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

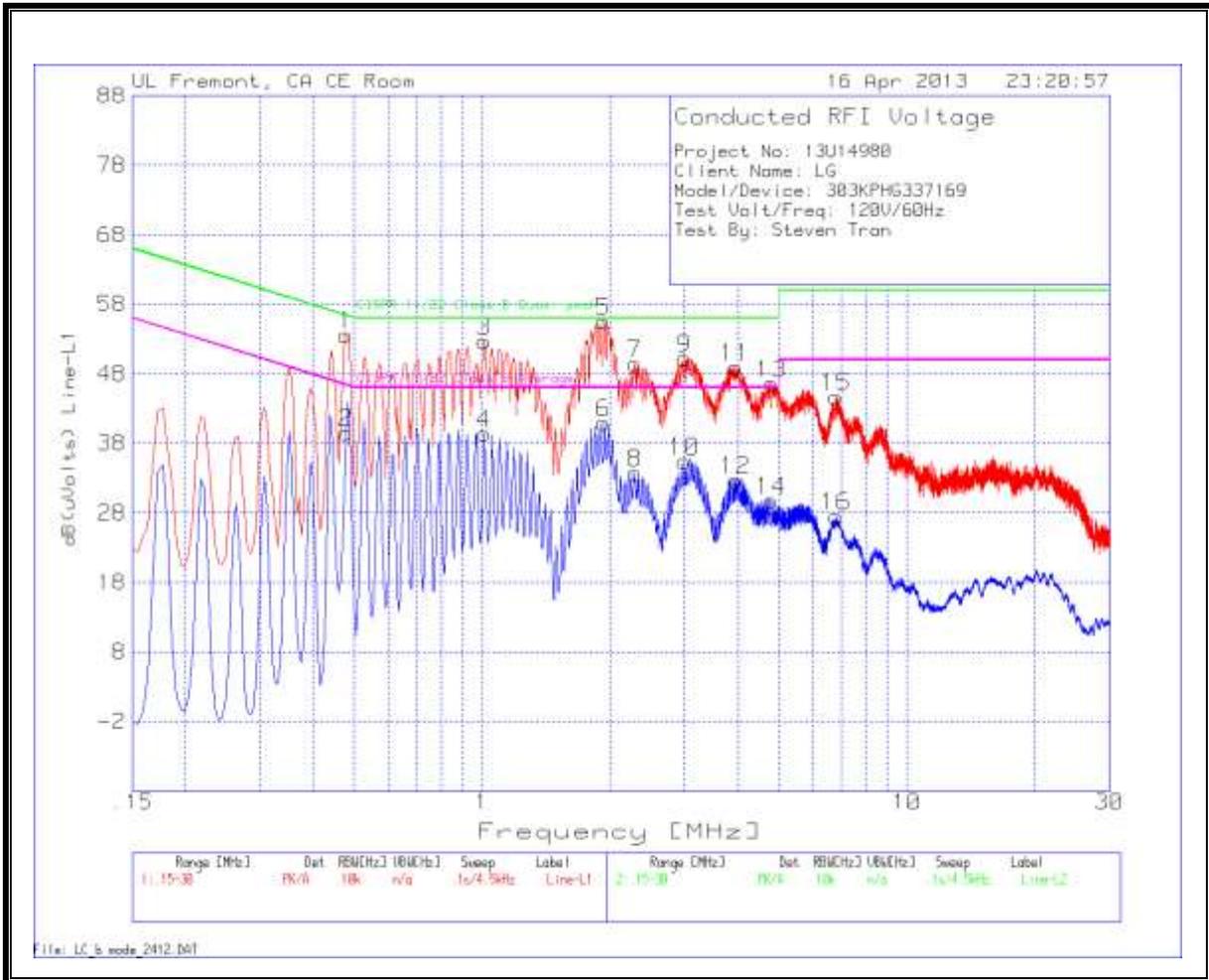
Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

6 WORST EMISSIONS

Project No: 13U14980									
Client Name: LG									
Model/Device: 303KPHG337169									
Test Volt/Freq: 120V/60Hz									
Test By: Steven Tran									
Test Frequency	Meter Reading	Detector	T24 IL L1.TXT (dB)	LC Cables 1&3.TXT (dB)	dB(uVolts)	CISPR 11/22 Class B Quasi-peak	Margin	CISPR 11/22 Class B Average	Margin
Line-L1 .15 - 30MHz									
0.4785	53.43	PK	0.1	0	53.53	56.4	-2.87	-	-
0.4785	39.48	Av	0.1	0	39.58	-	-	46.4	-6.82
1.0095	52.54	PK	0.1	0	52.64	56	-3.36	-	-
1.0095	39.34	Av	0.1	0	39.44	-	-	46	-6.56
1.9365	55.25	PK	0.1	0.1	55.45	56	-0.55	-	-
1.9365	40.71	Av	0.1	0.1	40.91	-	-	46	-5.09
2.2875	49.22	PK	0.1	0.1	49.42	56	-6.58	-	-
2.2875	33.48	Av	0.1	0.1	33.68	-	-	46	-12.32
2.994	49.98	PK	0.1	0.1	50.18	56	-5.82	-	-
2.994	35.16	Av	0.1	0.1	35.36	-	-	46	-10.64
3.957	48.68	PK	0.1	0.1	48.88	56	-7.12	-	-
3.957	32.54	Av	0.1	0.1	32.74	-	-	46	-13.26
4.7985	46.35	PK	0.1	0.1	46.55	56	-9.45	-	-
4.7985	29.57	Av	0.1	0.1	29.77	-	-	46	-16.23
6.8145	44.47	PK	0.1	0.1	44.67	60	-15.33	-	-
6.8145	27.28	Av	0.1	0.1	27.48	-	-	50	-22.52
Line-L2 .15 - 30MHz									
0.474	51.24	PK	0.1	0	51.34	56.4	-5.06	-	-
0.474	32.47	Av	0.1	0	32.57	-	-	46.4	-13.83
1.8465	50.69	PK	0.1	0.1	50.89	56	-5.11	-	-
1.8465	37.64	Av	0.1	0.1	37.84	-	-	46	-8.16
2.256	45.79	PK	0.1	0.1	45.99	56	-10.01	-	-
2.256	28.88	Av	0.1	0.1	29.08	-	-	46	-16.92
2.994	47.26	PK	0.1	0.1	47.46	56	-8.54	-	-
2.994	31.88	Av	0.1	0.1	32.08	-	-	46	-13.92
3.8175	43.38	PK	0.1	0.1	43.58	56	-12.42	-	-
3.8175	27.76	Av	0.1	0.1	27.96	-	-	46	-18.04
5.7255	41.82	PK	0.1	0.1	42.02	60	-17.98	-	-
5.7255	24.39	Av	0.1	0.1	24.59	-	-	50	-25.41
21.0525	38.78	PK	0.3	0.2	39.28	60	-20.72	-	-
21.0525	20.62	Av	0.3	0.2	21.12	-	-	50	-28.88
PK - Peak detector									
Av - Average detector									

LINE 1 RESULTS



LINE 2 RESULTS

