



FCC CFR47 PART 15 SUBPART C

CERTIFICATION TEST REPORT

**FOR
LTE Phone Bluetooth and WLAN**

**MODEL NUMBER: LG-MS659
FCC ID: ZNFMS659**

REPORT NUMBER: 13U14916-7

ISSUE DATE: April 16, 2013

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

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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	04/01/13	Initial Issue	

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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 and WLAN

MODEL: LG-MS659

SERIAL NUMBER: 302KPTM334913

DATE TESTED: March 14 – April 16, 2013

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Pass

UL CCS tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by 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.

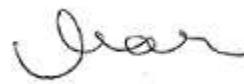
Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL CCS and all revisions are duly noted in the revisions section. Any alteration of this 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.

Approved & Released For UL CCS By:

Tested By:



TIM LEE
WISE PROGRAM MANAGER
UL CCS



MONA HUA
EMC ENGINEER
UL CCS

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

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

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

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 an LTE Phone with Bluetooth and WLAN capability that is manufactured by LG Electronics.

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)
2402 - 2480	BT LE	6.90	4.90

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an INTEGRATED antenna, with a maximum gain of -0.5 dBi.

5.4. SOFTWARE AND FIRMWARE

The test utility software used during testing was MS795_LAP8930JR130304.

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 Y orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in Y orientation with AC adapter and headset.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Power Adapter	LG	MCS-01WR	RB310020452	DoC
Headphones	Cresyn	EAB62410801	NA	NA

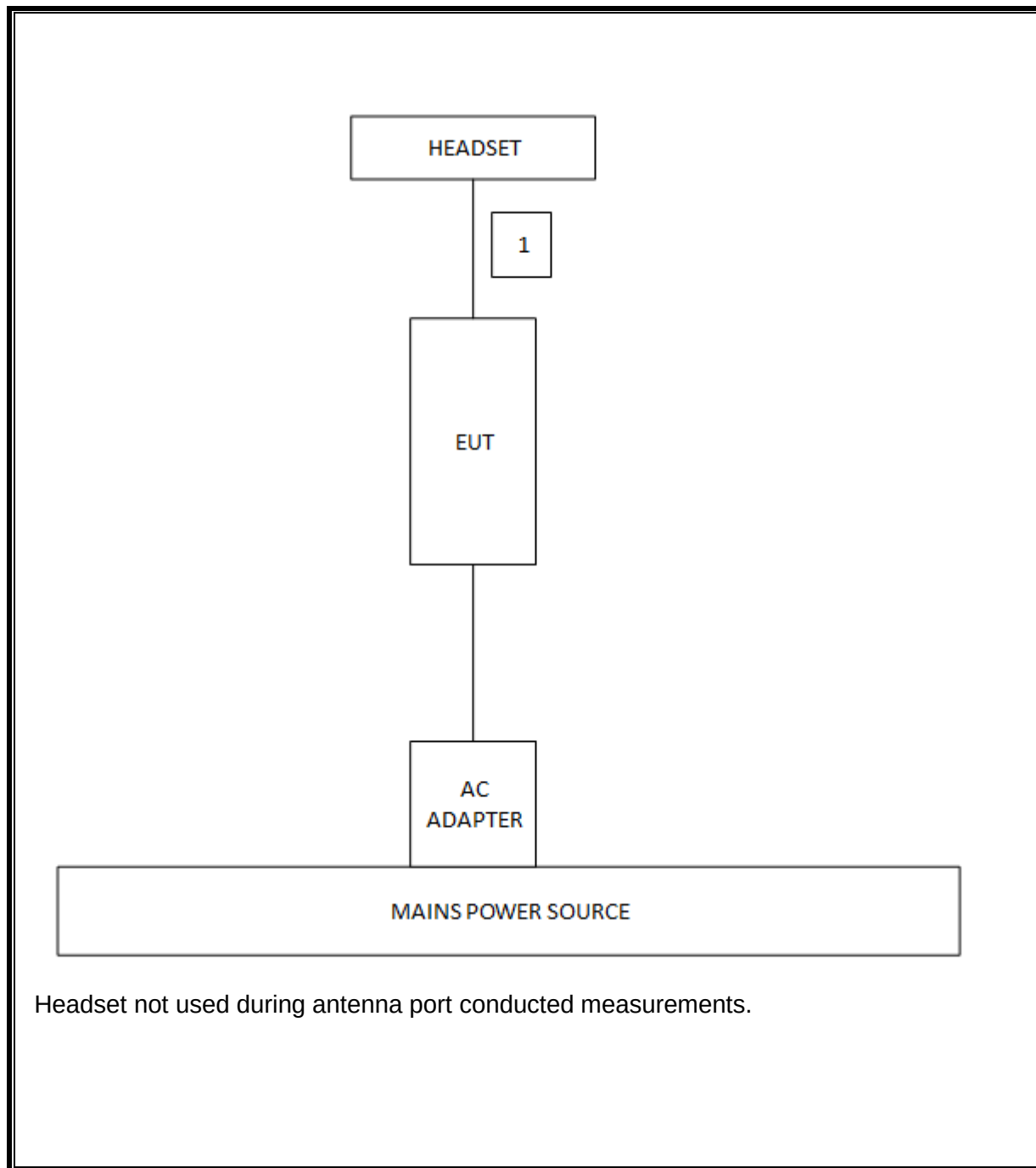
I/O CABLES

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	USB	1	USB	Shielded	1.6m	N/A
2	Headset	1	Audio	Shielded	1.5m	N/A

TEST SETUP

The EUT is a stand-alone unit that was tested in the worst case orientation and configuration, where applicable, during the tests. Test software exercised the radio.

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, 26.5 GHz	Agilent / HP	E4440A	C01176	12/13/2012	12/13/2013
Antenna, Horn, 18 GHz	ETS	3117	C01022	2/21/2013	2/21/2014
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01052	10/22/2012	10/22/2013
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00558	02/21/12	02/21/14
Power Sensor, 18 GHz	Agilent / HP	8481A	N02781	9/24/2012	9/24/2013
Power Meter	Agilent / HP	437B	NA	8/9/2012	8/9/2013
Reject Filter, 2.4-2.5 GHz	Micro-Tronics	BRM50702	N02685	NA	CNR
Antenna, Bilog, 30MHz-1 GHz	Sunol Sciences	JB1	C01011	3/6/2013	3/6/2014
EMI Test Receiver, 30 MHz	R & S	ESHS 20	N02396	08/08/12	08/08/13
LISN, 30 MHz	FCC	50/250-25-2	C00626	01/14/13	01/14/14

7. ON TIME, DUTY CYCLE AND MEASUREMENT METHODS

LIMITS

None; for reporting purposes only.

PROCEDURE

KDB 789033 Zero-Span Spectrum Analyzer Method.

7.1.1. ON TIME AND DUTY CYCLE RESULTS

Mode 2.4GHz	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/B Minimum VBW (kHz)
BLE	0.10	1	0.162	16.2%	7.90	9.872

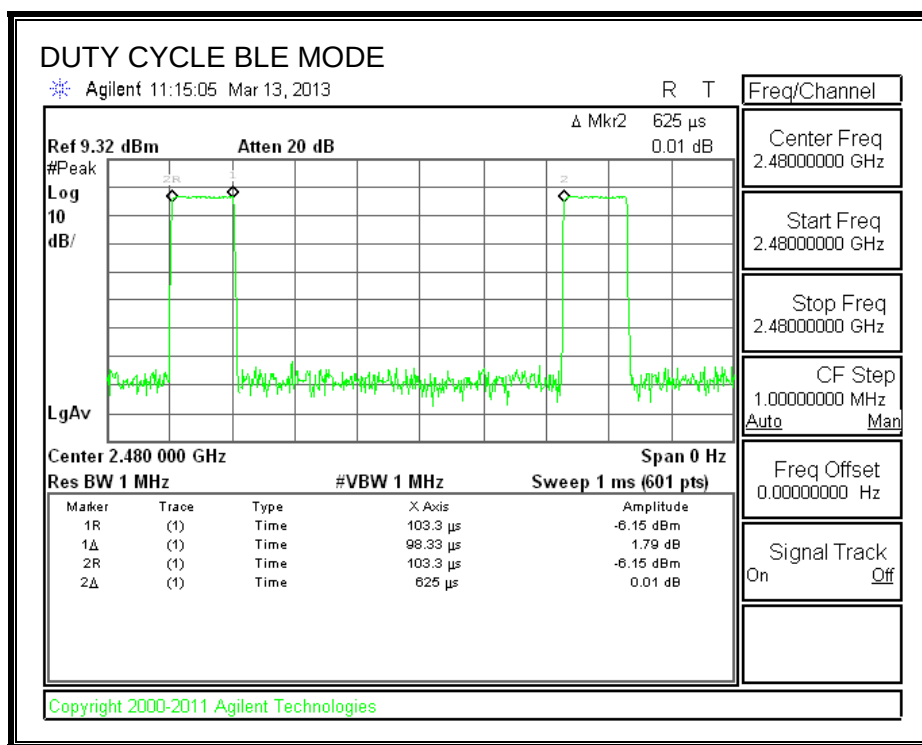
7.1.2. MEASUREMENT METHOD FOR POWER AND PPSD

The Duty Cycle is less than 98% and consistent therefore KDB 789033 Method SA-2 is used.

7.1.3. MEASUREMENT METHOD FOR AVERAGE SPURIOUS EMISSIONS ABOVE 1 GHz

The Duty Cycle is less than 98% and consistent, KDB 789033 Method AD with Power RMS Averaging and duty cycle correction is used.

7.1.4. DUTY CYCLE PLOTS



8. ANTENNA PORT TEST RESULTS – LE (LOW ENERGY) MODULATION

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.

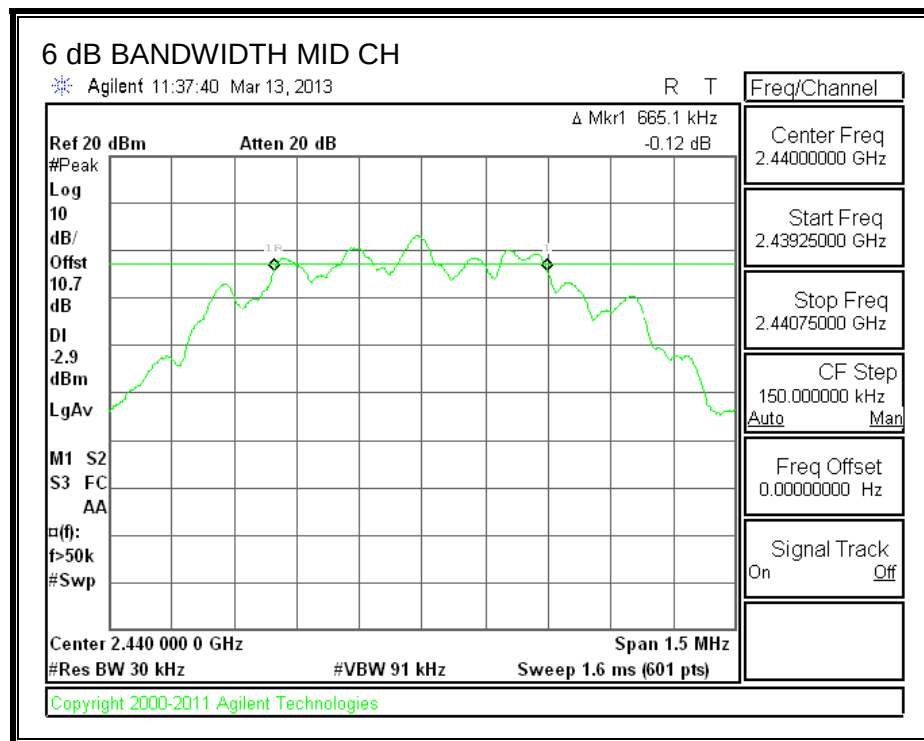
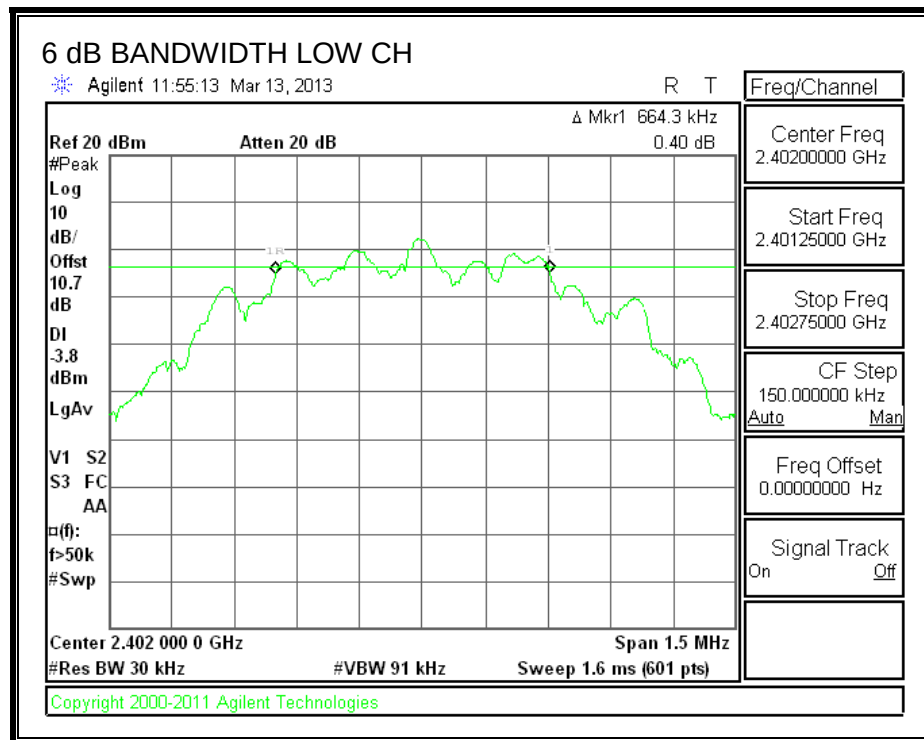
TEST PROCEDURE

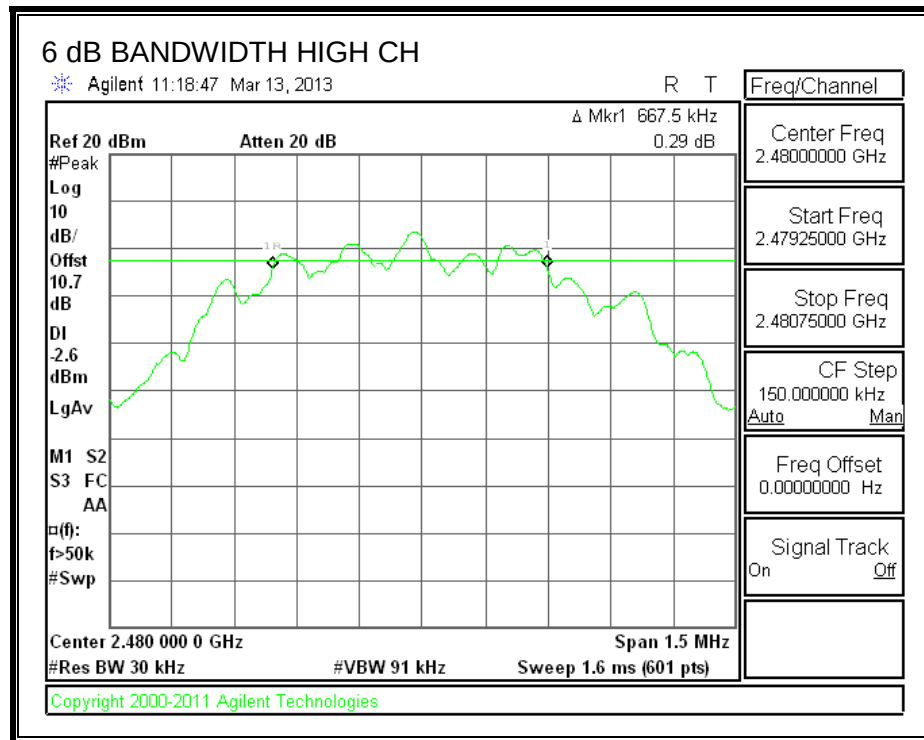
The transmitter output is connected to a spectrum analyzer with the RBW set between 1% and 5% of the EBW, the VBW $\geq 3 \times$ RBW, peak detector and max hold.

RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2402	0.6643	0.5
Mid	2440	0.6651	0.5
High	2480	0.6675	0.5

6 dB BANDWIDTH





8.1.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

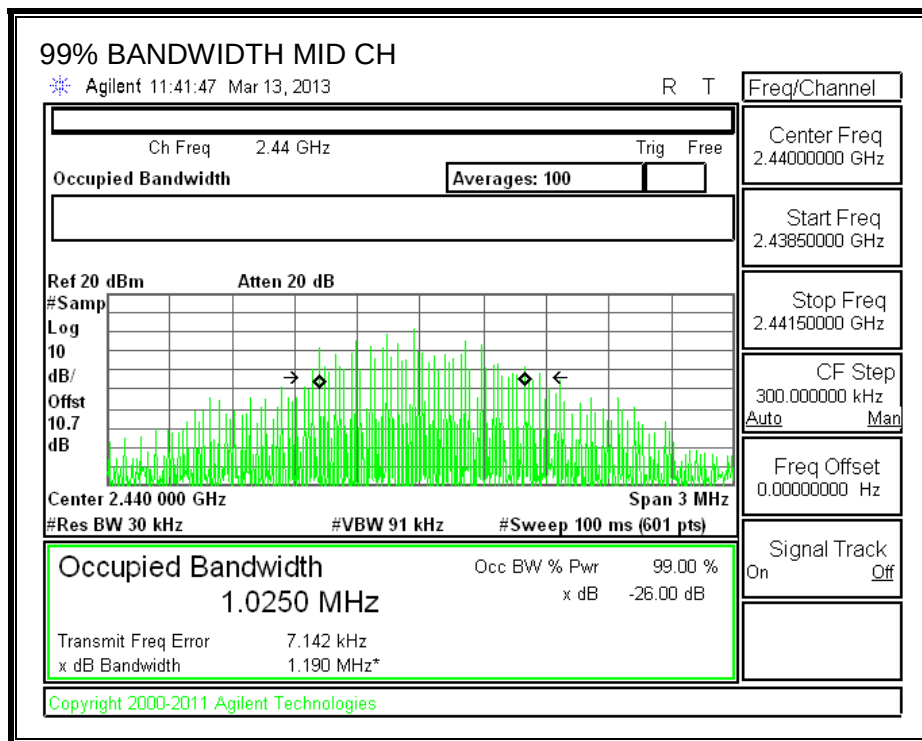
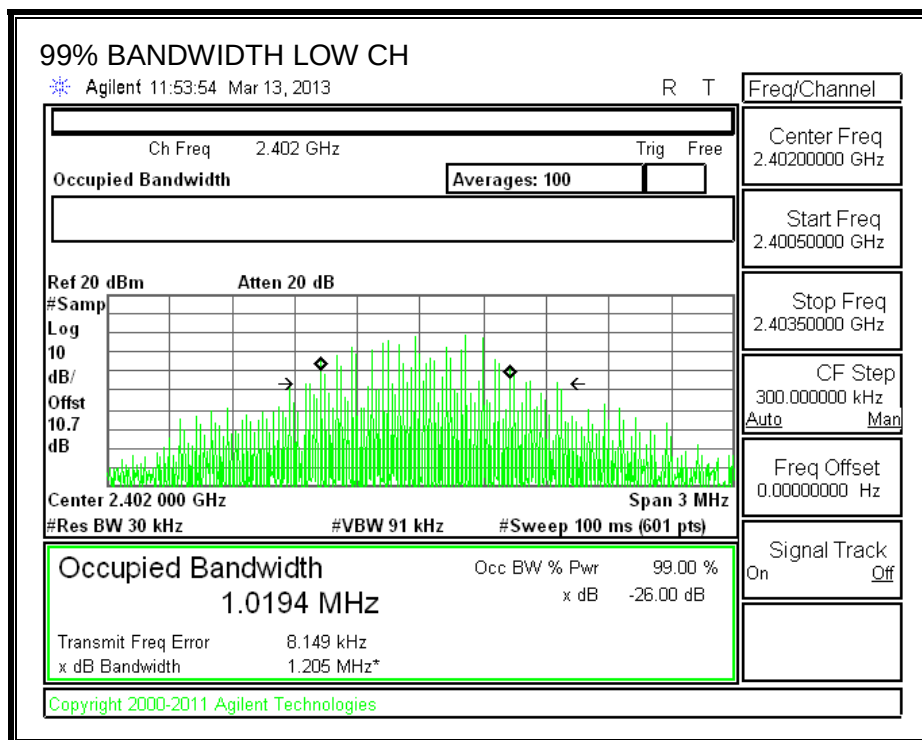
TEST PROCEDURE

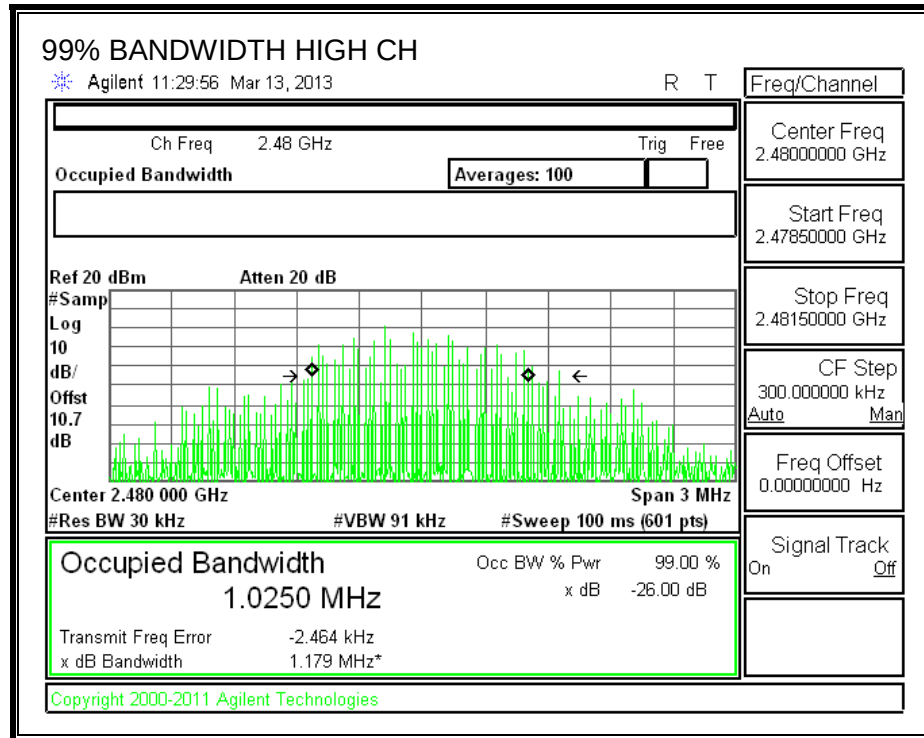
The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth and to 1% of the span. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	1.0194
Middle	2440	1.0250
High	2480	1.0250

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 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency (MHz)	AV power (dBm)
Low	2402	5.11
Middle	2440	5.97
High	2480	6.39

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.

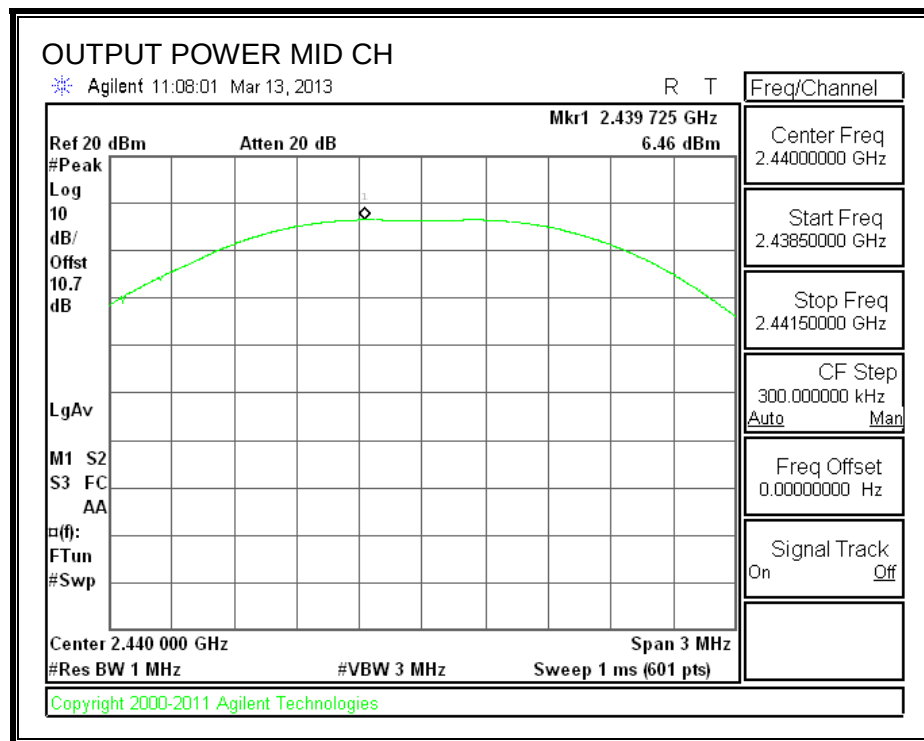
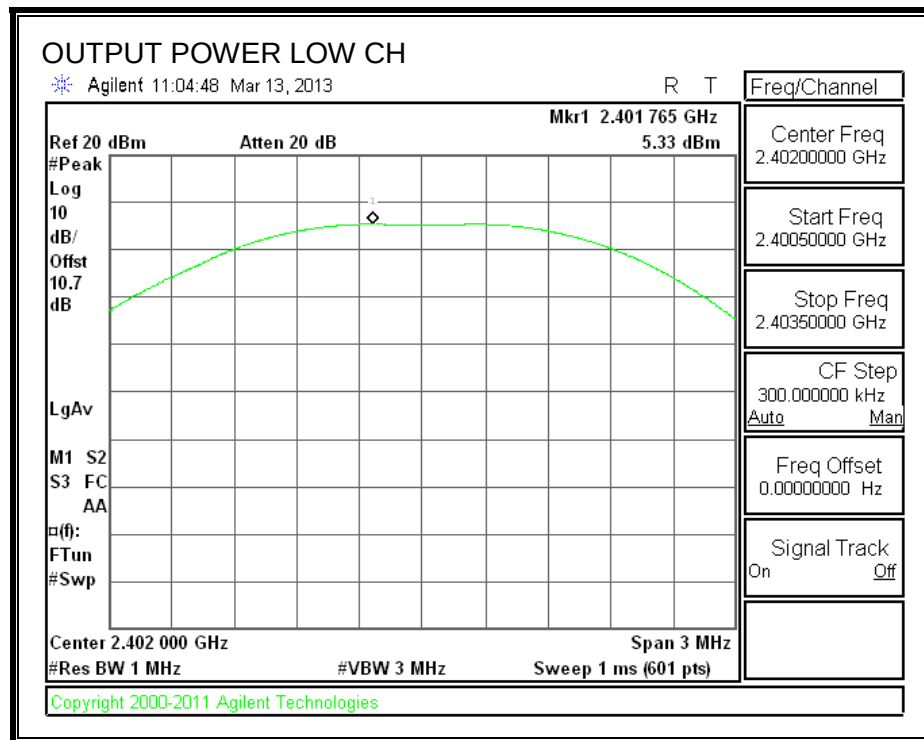
DIRECTIONAL ANTENNA GAIN

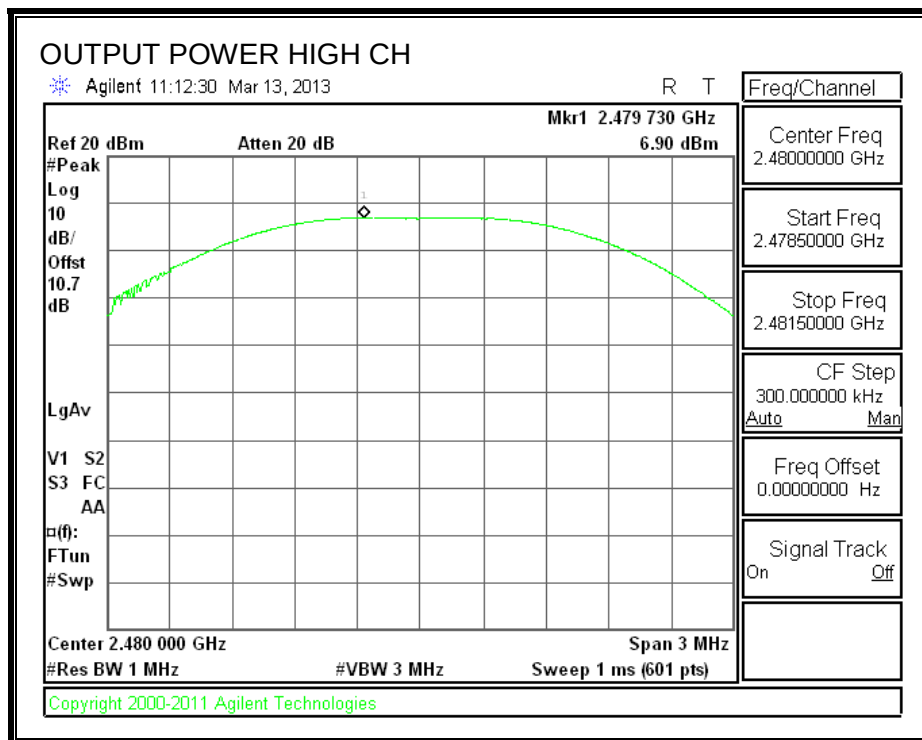
There is only one transmitter output therefore the directional gain is equal to the antenna gain.

RESULTS

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2402	5.330	30	-24.670
Middle	2440	6.460	30	-23.540
High	2480	6.900	30	-23.100

OUTPUT POWER





8.1.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247

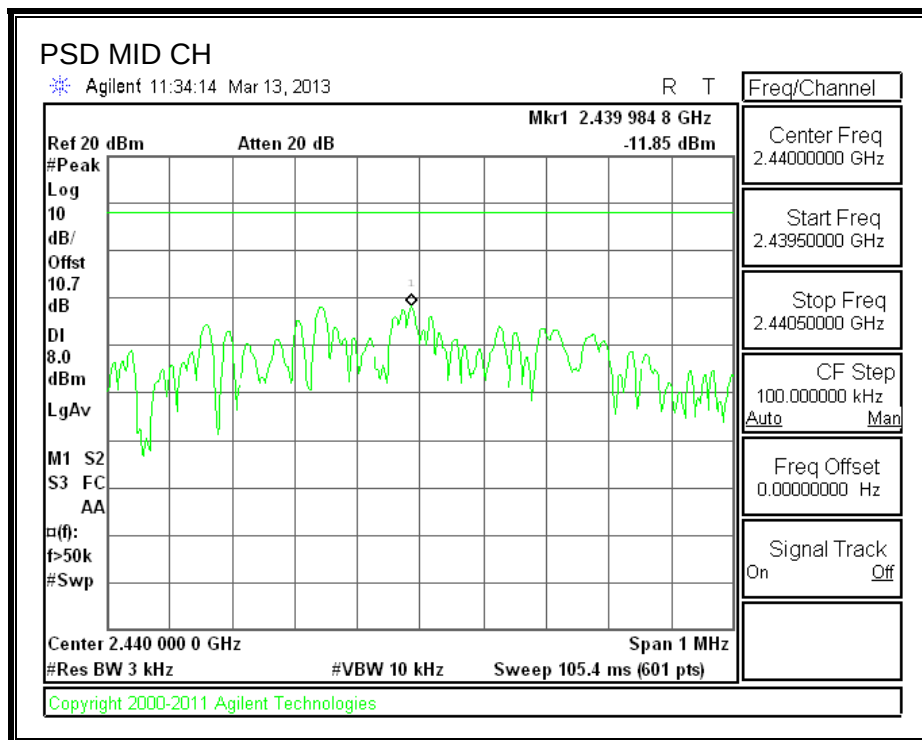
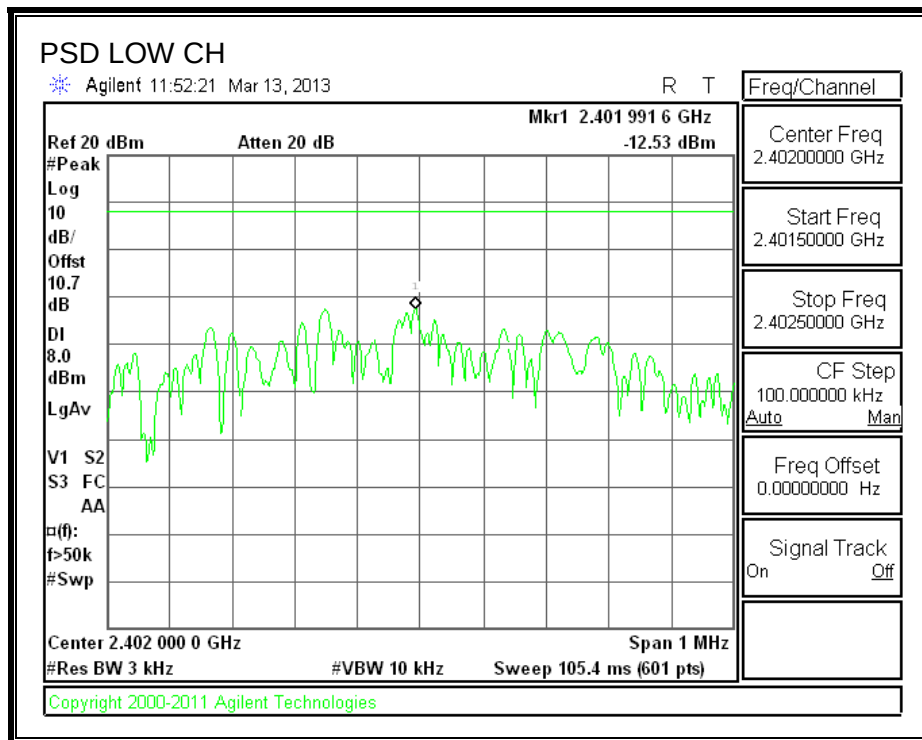
IC RSS-210 A8.2

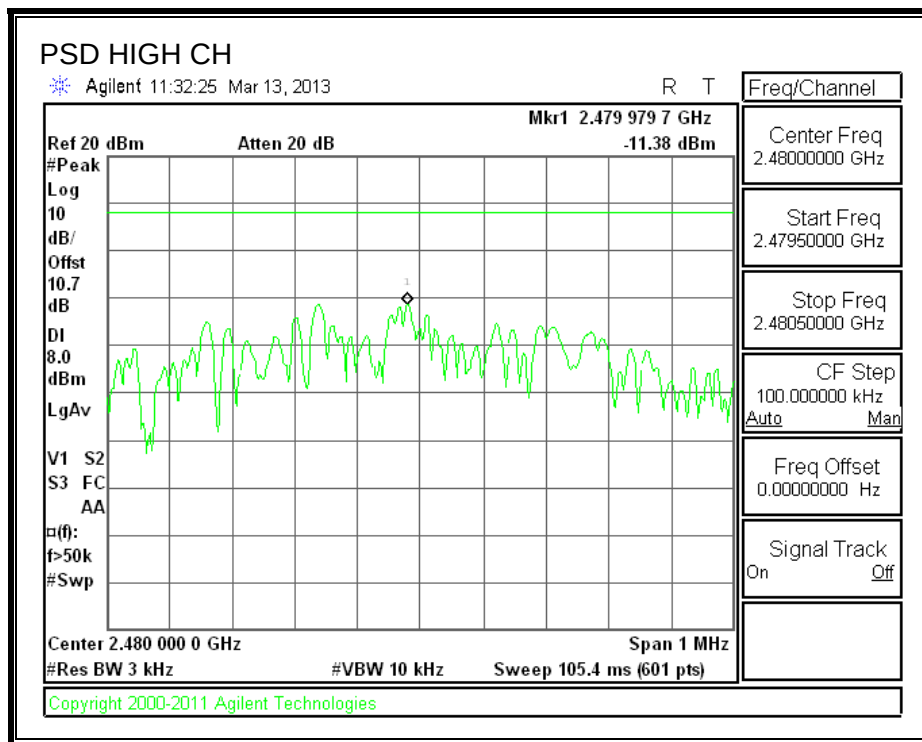
The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

RESULTS

Channel	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Margin (dB)
Low	2402	-12.53	8	-20.53
Middle	2440	-11.85	8	-19.85
High	2480	-11.38	8	-19.38

POWER SPECTRAL DENSITY





8.1.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

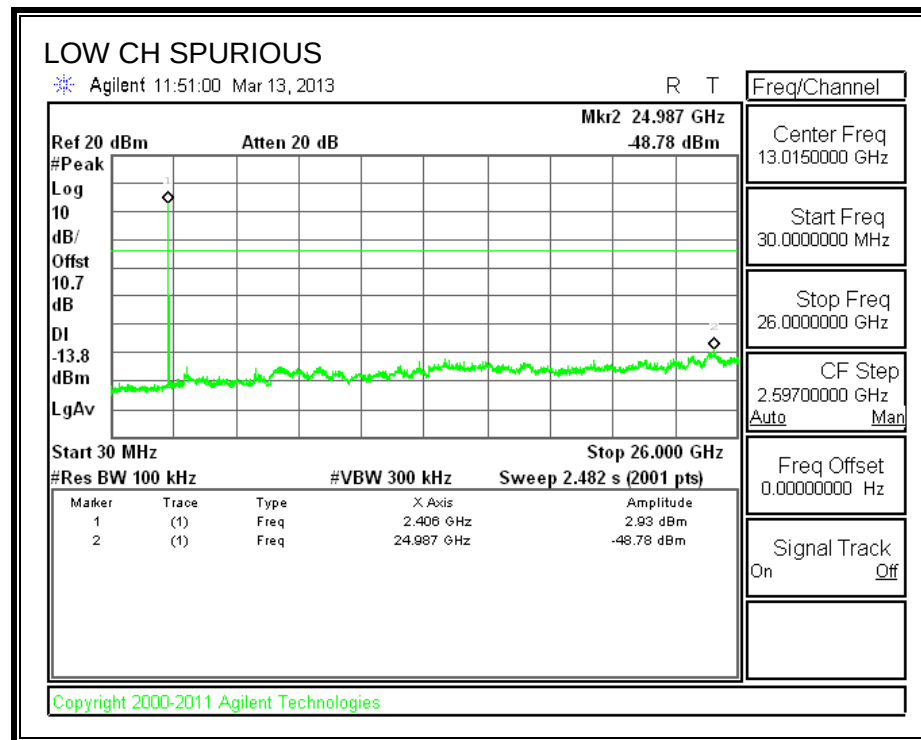
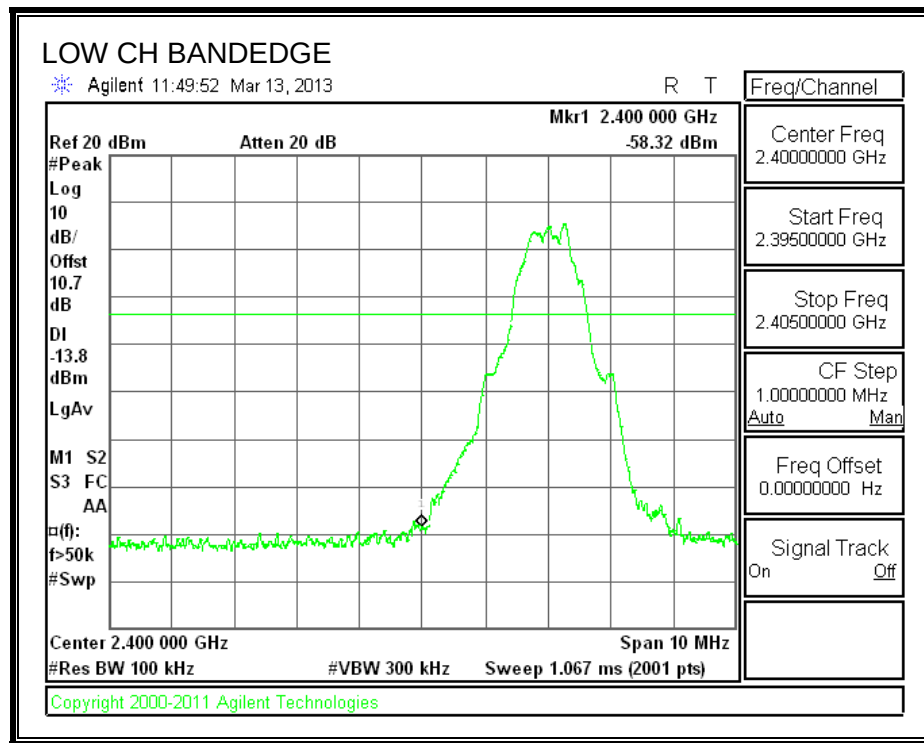
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the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

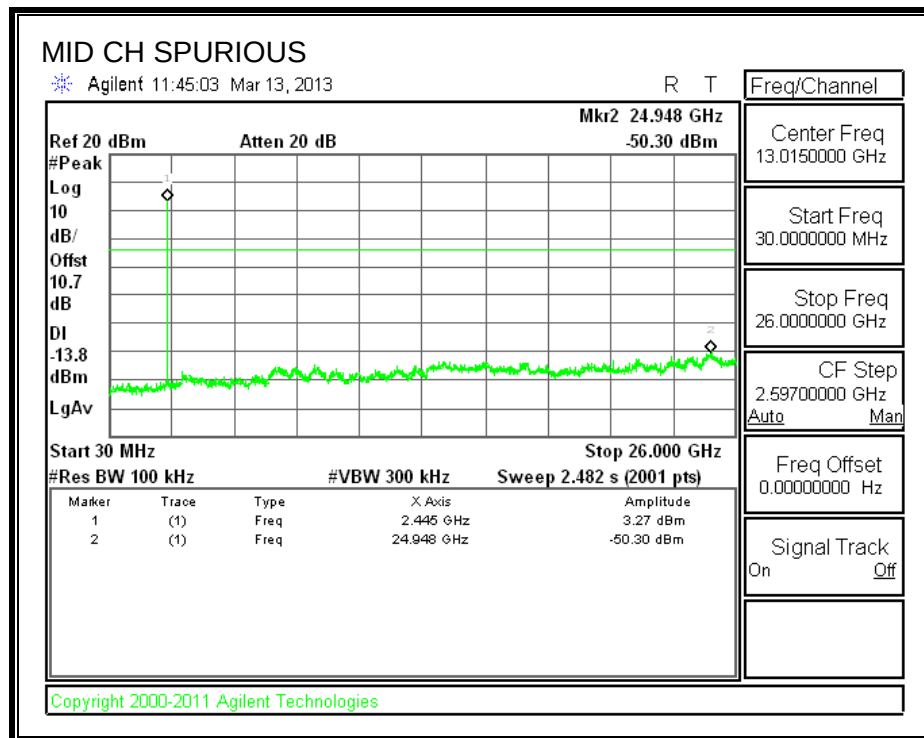
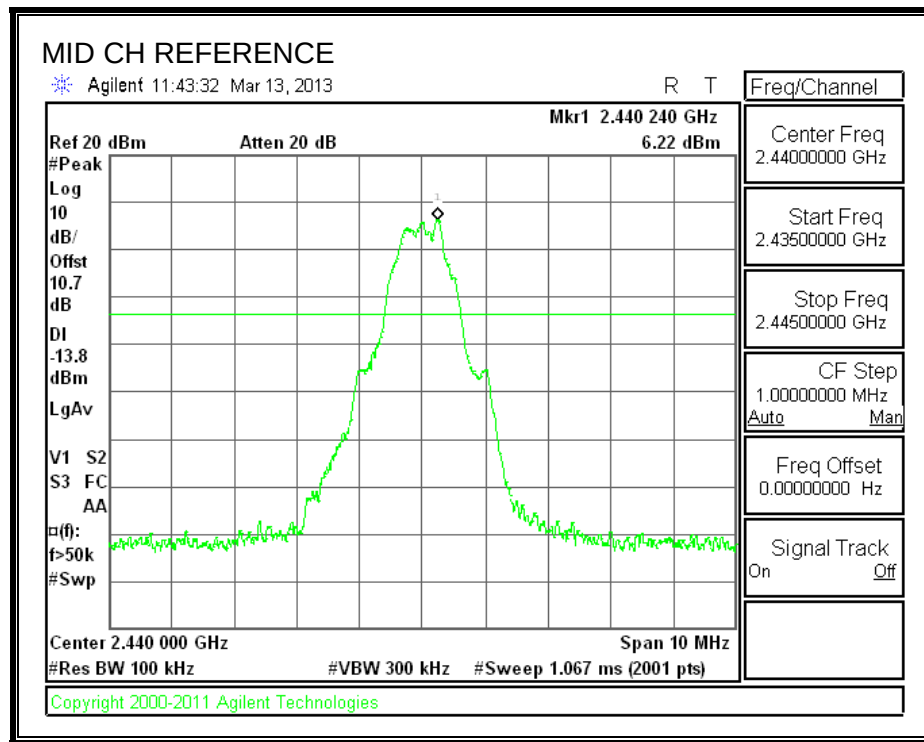
The transmitter output is connected to a spectrum analyzer with RBW = 100 kHz, VBW = 300 kHz, peak detector, and max hold. Measurements utilizing these settings are made of the in-band reference level, bandedge (where measurements to the general radiated limits will not be made) and out-of-band emissions.

RESULTS

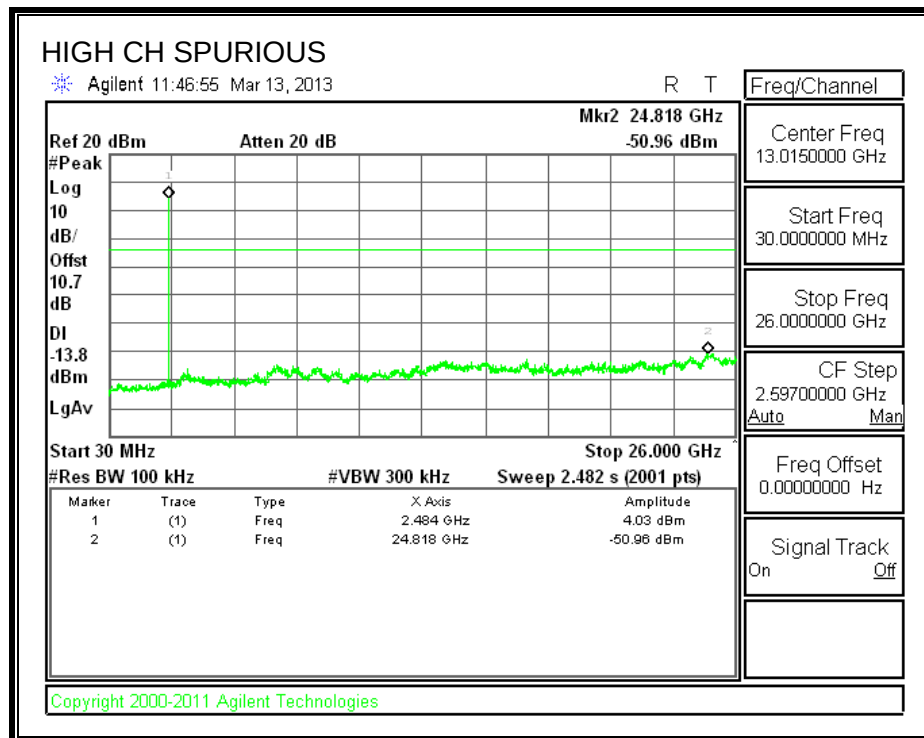
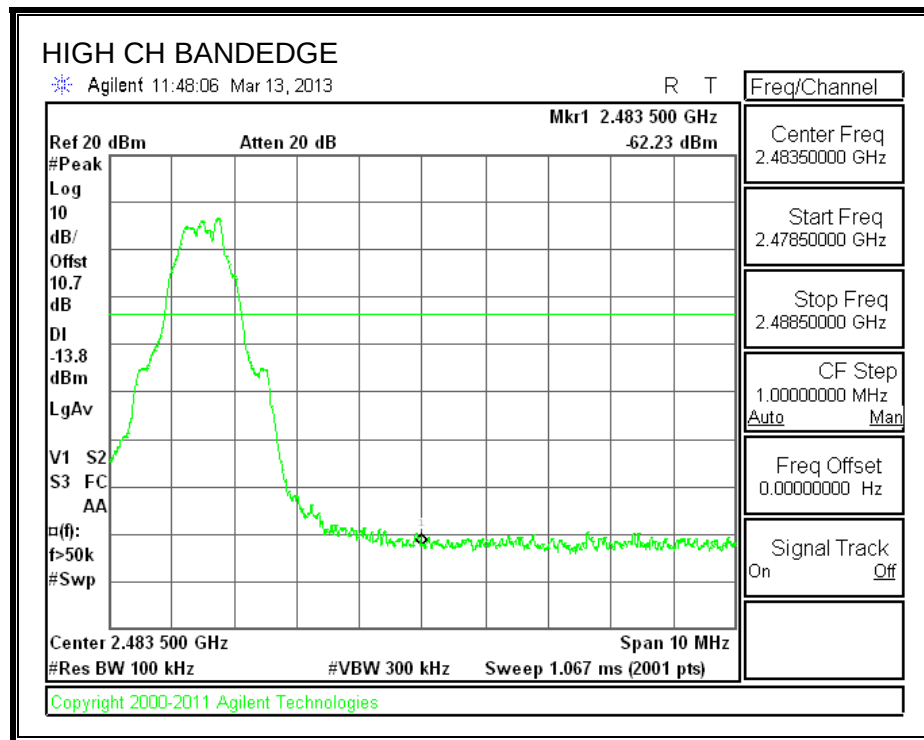
SPURIOUS EMISSIONS, LOW CHANNEL



SPURIOUS EMISSIONS, MID CHANNEL



SPURIOUS EMISSIONS, HIGH CHANNEL



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.

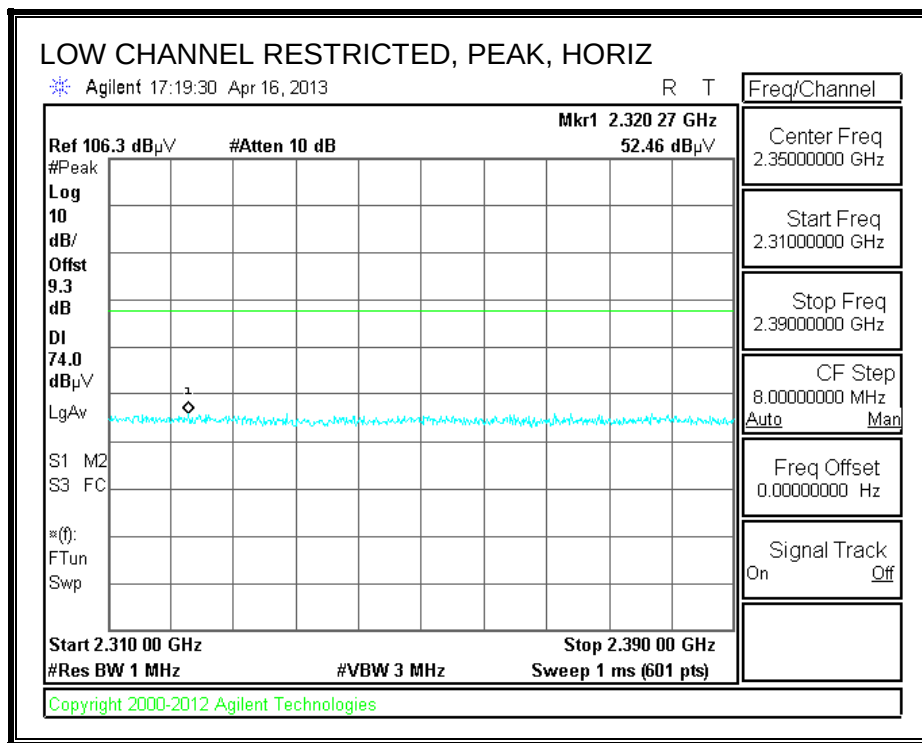
For measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 1 MHz for peak measurements and as applicable for average measurements.

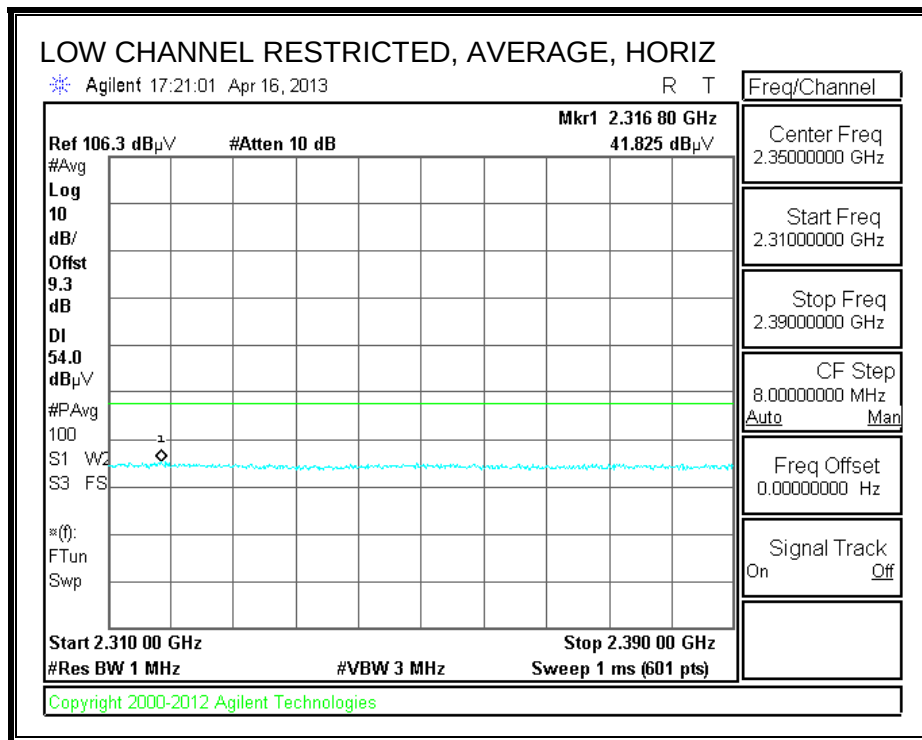
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

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.

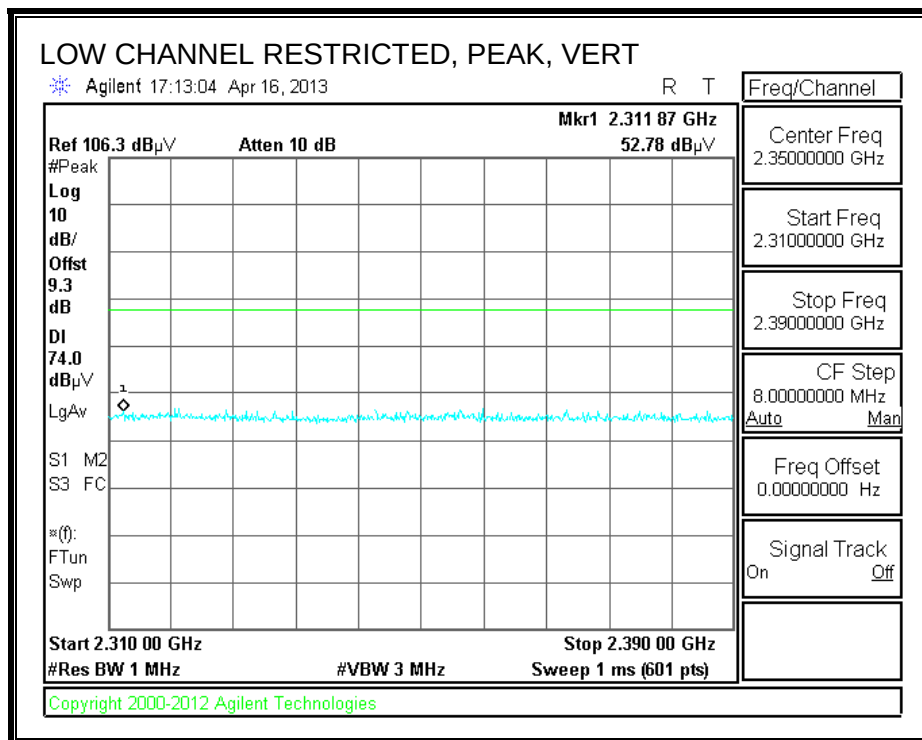
9.2. TX ABOVE 1 GHz FOR BLUETOOTH LOW ENERGY MODE IN THE 2.4 GHz BAND

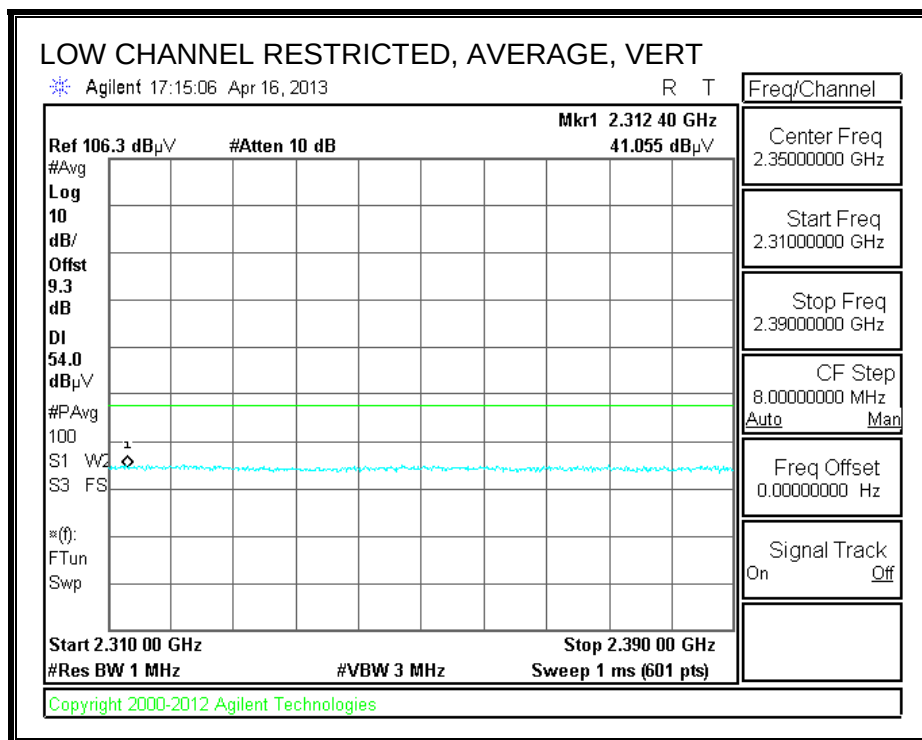
RESTRICTED BANDEDGE (LOW CHANNEL)





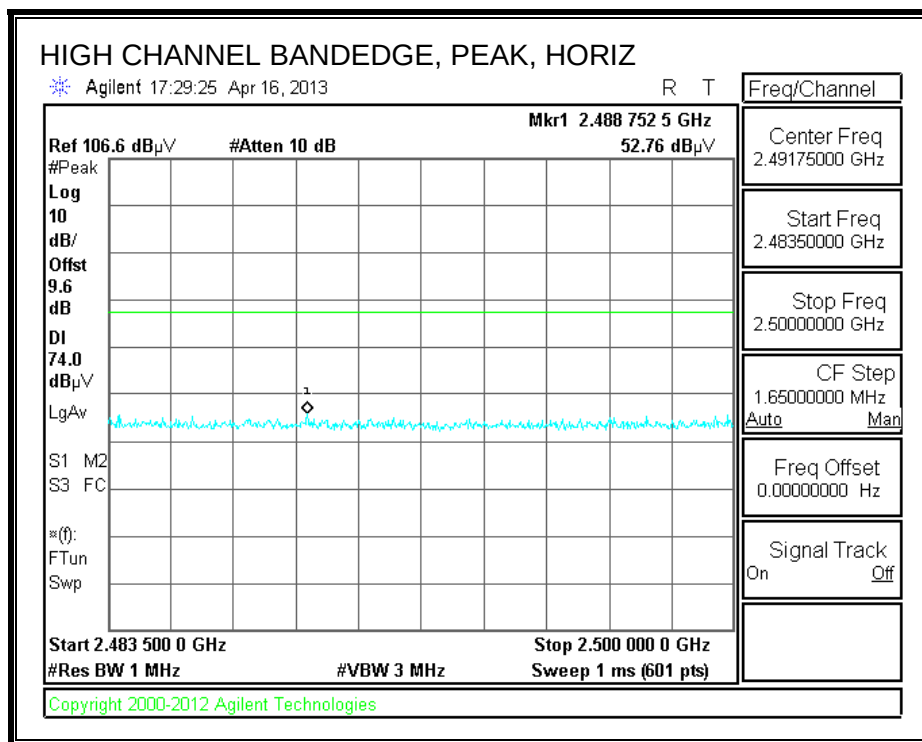
$$\begin{aligned}
 \text{Actual Average} &= \text{Measured Average} + \text{Correction Factor} \\
 &= 41.825 \text{ dB}\mu\text{V} + 7.90 \\
 &= 49.725 \text{ dB}\mu\text{V}
 \end{aligned}$$

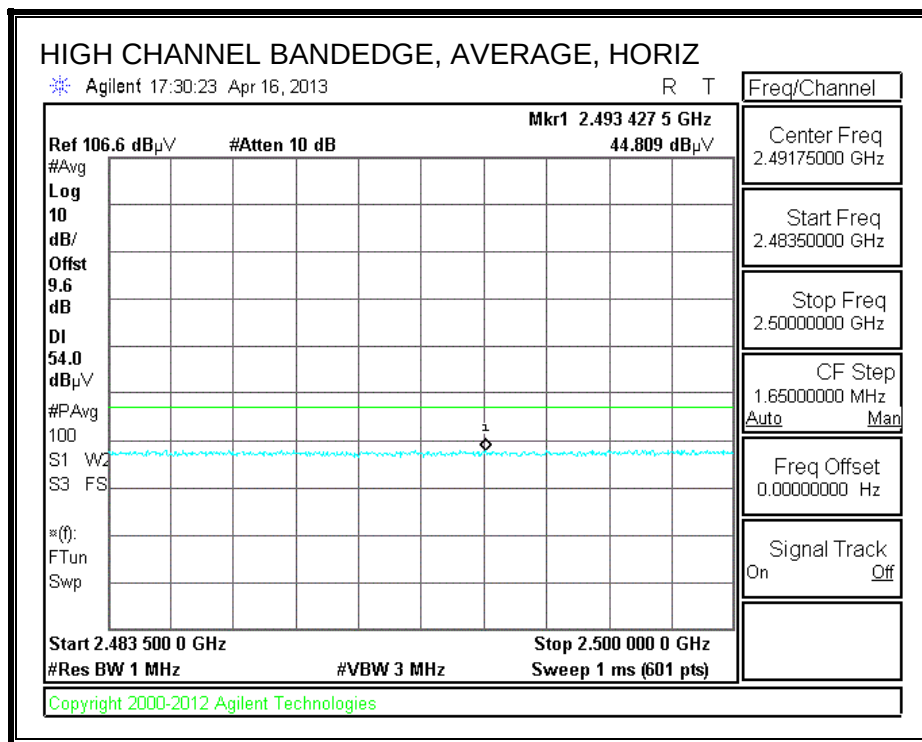




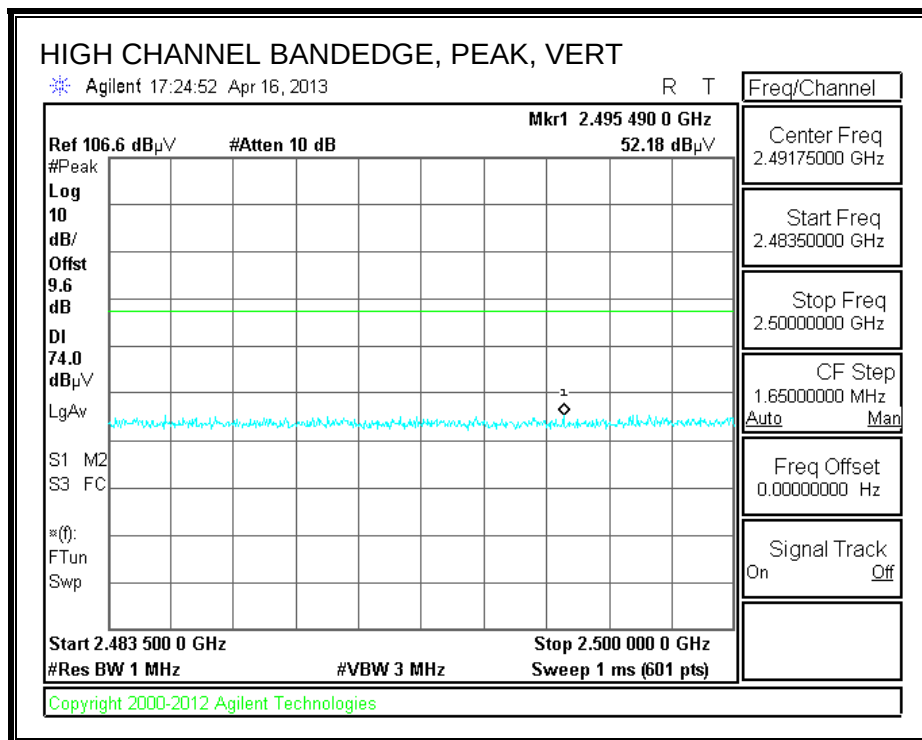
$$\begin{aligned}
 \text{Actual Average} &= \text{Measured Average} + \text{Correction Factor} \\
 &= 41.055 \text{ dB}\mu\text{V} + 7.90 \\
 &= 48.955 \text{ dB}\mu\text{V}
 \end{aligned}$$

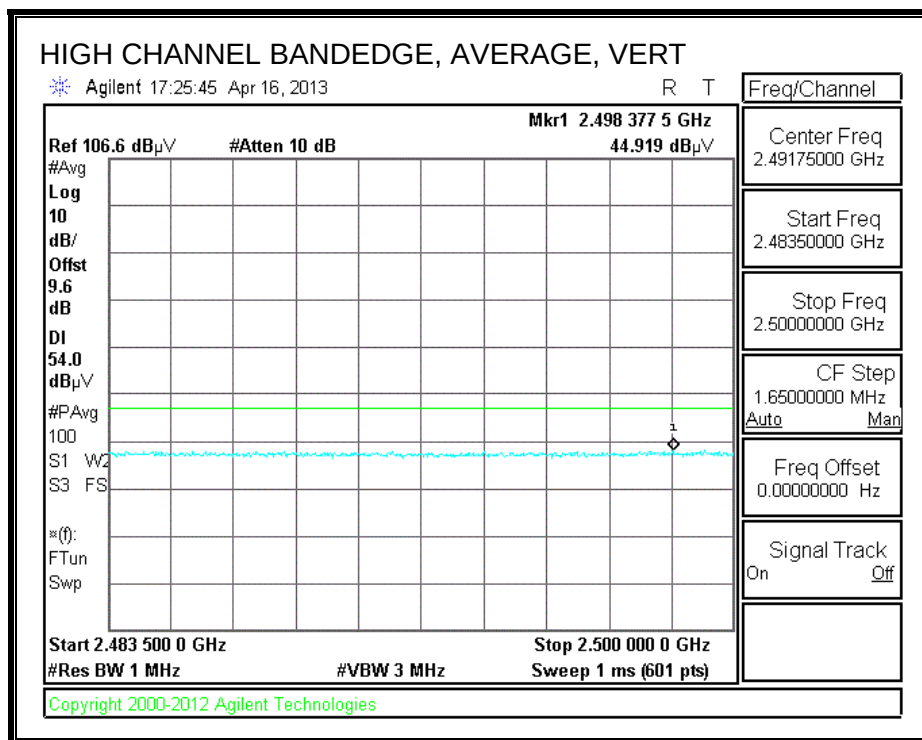
RESTRICTED BANDEDGE (HIGH CHANNEL)





$$\begin{aligned}
 \text{Actual Average} &= \text{Measured Average} + \text{Correction Factor} \\
 &= 44.809 \text{ dB}\mu\text{V} + 7.90 \\
 &= 52.709 \text{ dB}\mu\text{V}
 \end{aligned}$$

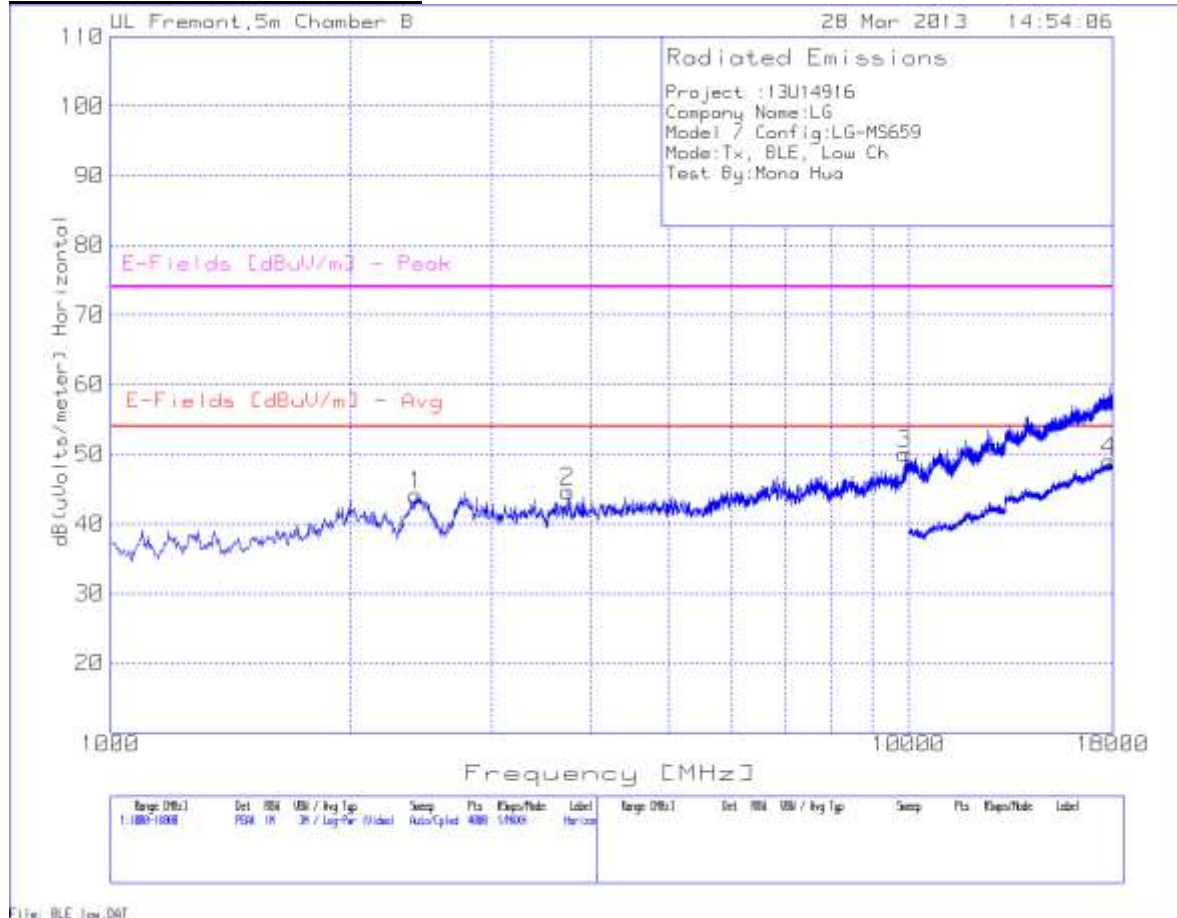




$$\begin{aligned}
 \text{Actual Average} &= \text{Measured Average} + \text{Correction Factor} \\
 &= 44.919 \text{ dB}\mu\text{V} + 7.90 \\
 &= 52.819 \text{ dB}\mu\text{V}
 \end{aligned}$$

HARMONICS AND SPURIOUS EMISSIONS

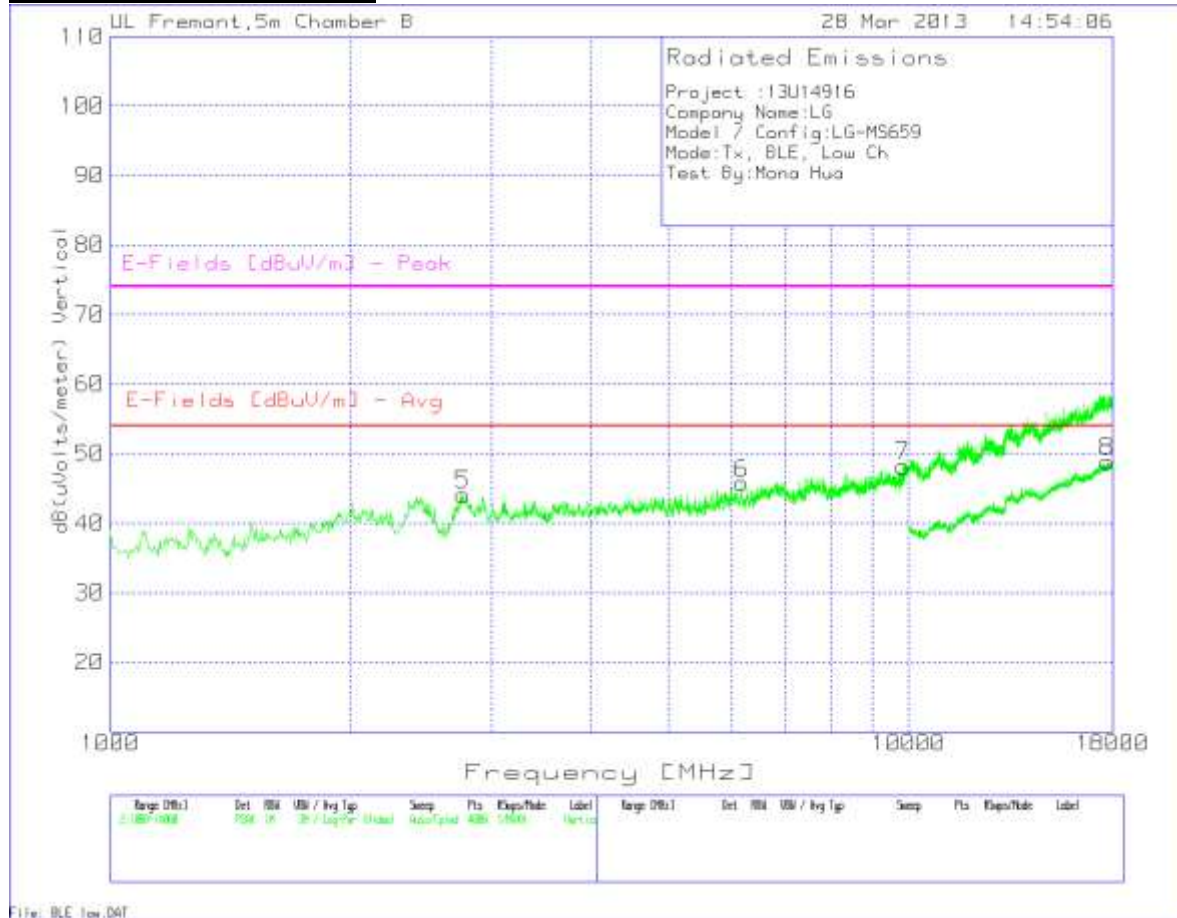
LOW CHANNEL HORIZONTAL



Horizontal 1000 - 18000MHz												
Marker No.	Test Frequency (MHz)	Meter Reading (dBuV)	Detector	Ant Factor [dB/m]	Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	dB(uVolts/ meter)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
1	2418.436	41.17	PK	32.4	-35	4.6	0.9	44.07	74	-29.93	100	Horz
2	3747.689	39.38	PK	33.8	-34.9	6	0.3	44.58	74	-29.42	200	Horz
3	9897.077	36.5	PK	37.7	-34.9	10.4	0.4	50.1	74	-23.9	200	Horz

Horizontal 10000 - 18000MHz												
Marker No.	Test Frequency (MHz)	Meter Reading (dBuV)	Detector	Ant Factor [dB/m]	Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	dB(uVolts/ meter)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
4	17836.082	22.85	PK	42.2	-31.3	14.7	0.5	48.95	74	-25.05	100	Horz

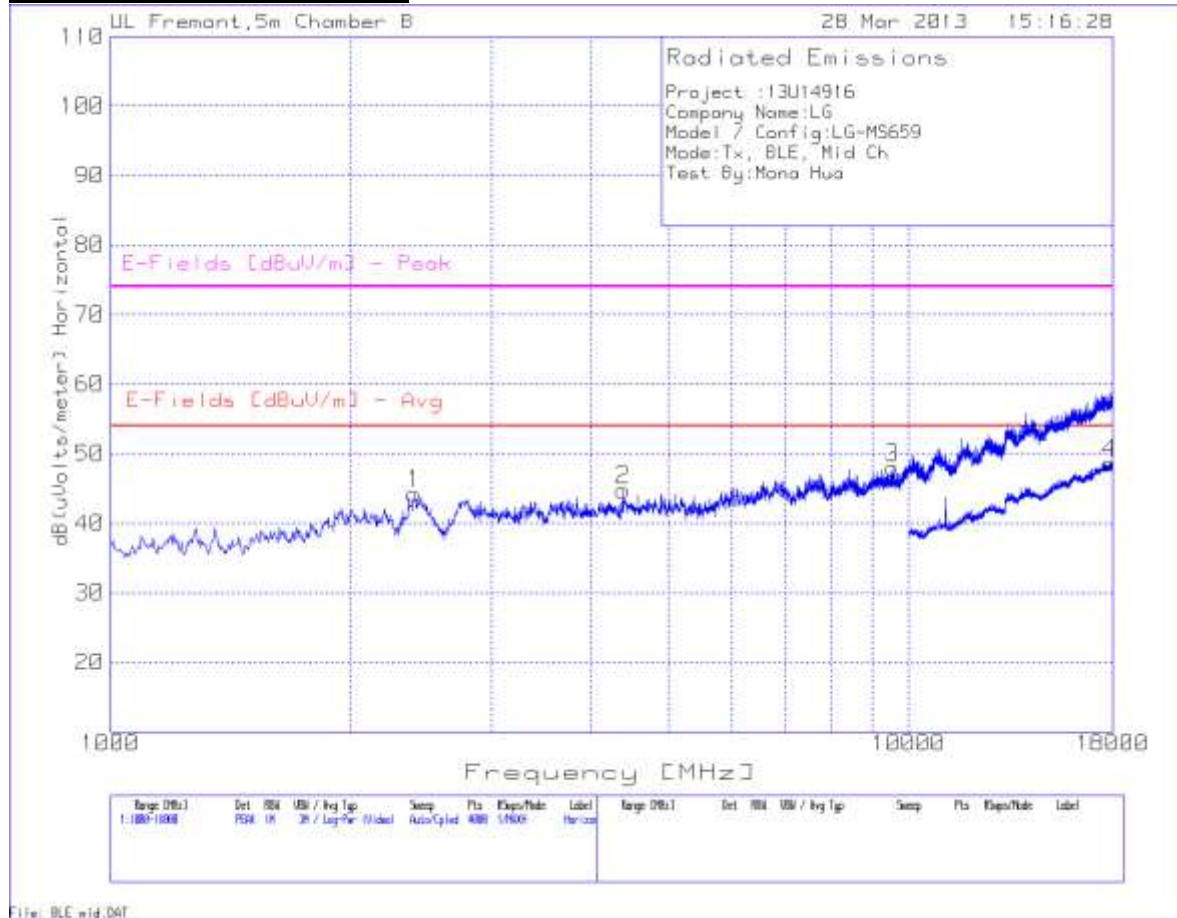
LOW CHANNEL VERTICAL



Vertical 1000 - 18000MHz												
Marker No.	Test Frequency (MHz)	Meter Reading (dBuV)	Detector	Ant Factor [dB/m]	Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	dB(uVolts/ meter)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
5	2762.428	40.51	PK	32.8	-35.1	5	0.9	44.11	74	-29.89	100	Vert
6	6185.361	36.35	PK	36	-34.9	8.1	0.2	45.75	74	-28.25	200	Vert
7	9833.375	34.7	PK	37.6	-34.9	10.4	0.4	48.2	74	-25.8	100	Vert

Vertical 10000 - 18000MHz												
Marker No.	Test Frequency (MHz)	Meter Reading (dBuV)	Detector	Ant Factor [dB/m]	Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	dB(uVolts/ meter)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
8	17748.126	22.84	PK	42.2	-31.4	14.7	0.5	48.84	74	-25.16	100	Vert

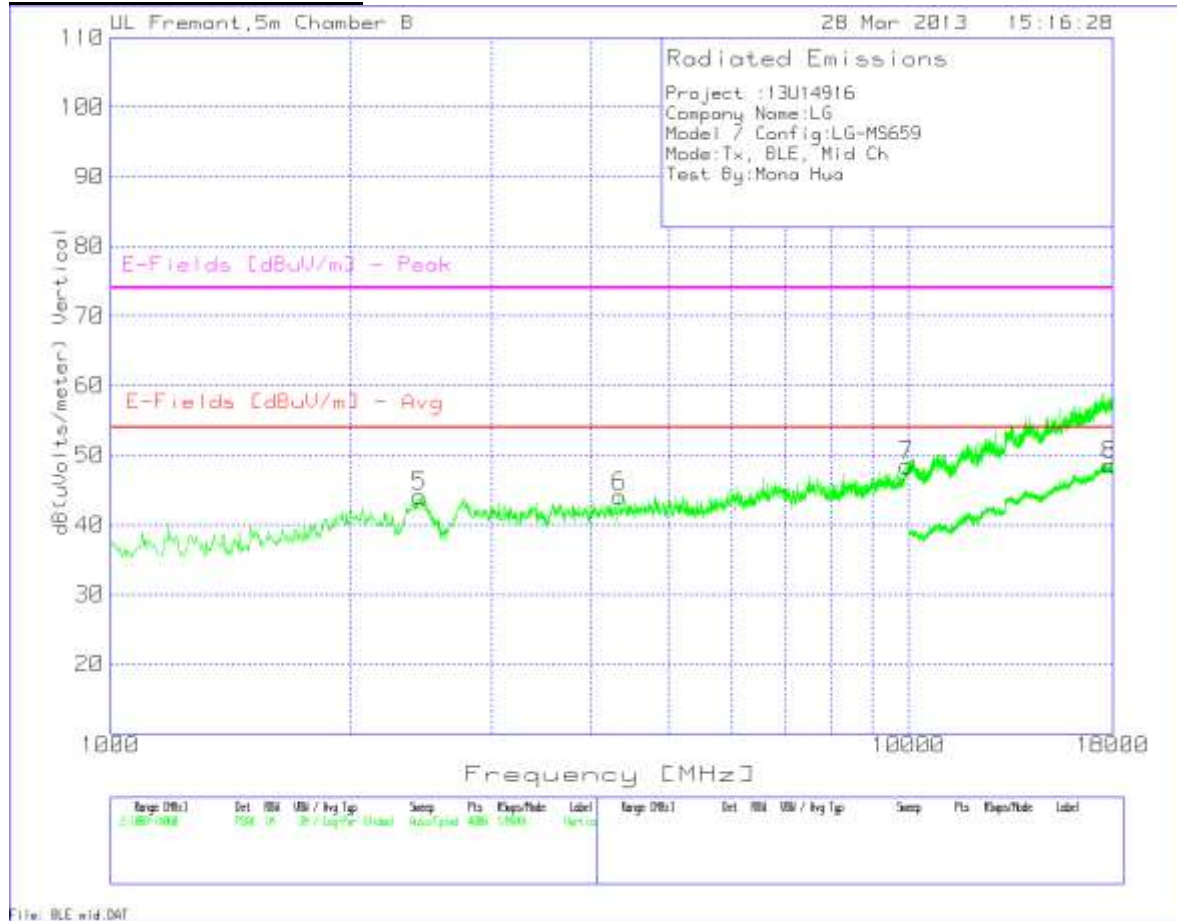
MID CHANNEL HORIZONTAL



Horizontal 1000 - 18000MHz												
Marker No.	Test Frequency (MHz)	Meter Reading (dBuV)	Detector	Ant Factor [dB/m]	Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	dB(uVolts/ meter)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
1	2405.696	41.39	PK	32.3	-35	4.6	0.9	44.19	74	-29.81	100	Horz
2	4384.711	38.53	PK	34.3	-34.9	6.6	0.2	44.73	74	-29.27	200	Horz
3	9540.345	34.96	PK	37.2	-35	10.2	0.6	47.96	74	-26.04	200	Horz

Horizontal 10000 - 18000MHz												
Marker No.	Test Frequency (MHz)	Meter Reading (dBuV)	Detector	Ant Factor [dB/m]	Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	dB(uVolts/ meter)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
4	17892.054	22.35	PK	42.2	-31.3	14.8	0.6	48.65	74	-25.35	200	Horz

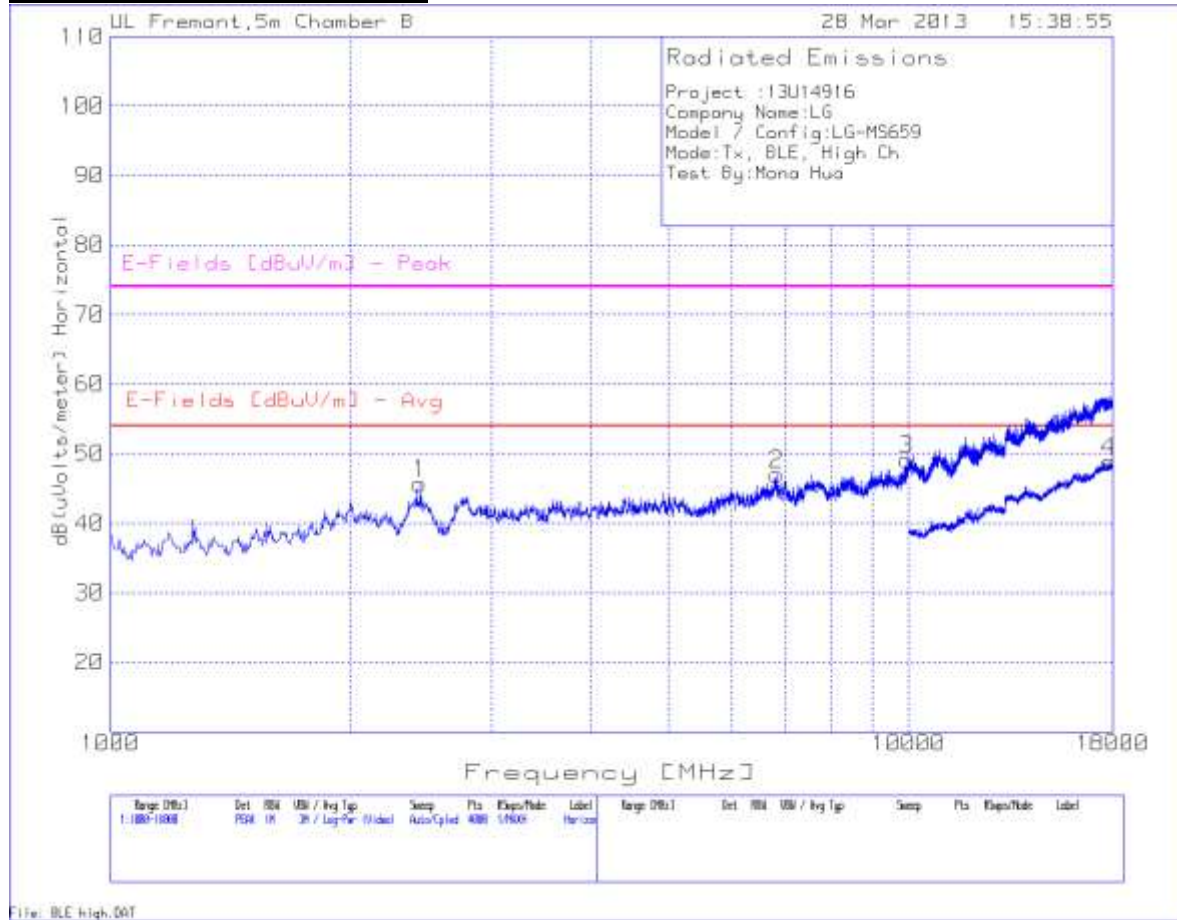
MID CHANNEL VERTICAL



Vertical 1000 - 18000MHz												
Marker No.	Test Frequency (MHz)	Meter Reading (dBuV)	Detector	Ant Factor [dB/m]	Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	dB(uVolts/ meter)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
5	2439.67	41.14	PK	32.4	-35	4.7	0.9	44.14	74	-29.86	100	Vert
6	4342.243	37.95	PK	34.2	-34.9	6.6	0.3	44.15	74	-29.85	200	Vert
7	9931.052	34.91	PK	37.7	-34.9	10.4	0.4	48.51	74	-25.49	200	Vert

Vertical 10000 - 18000MHz												
Marker No.	Test Frequency (MHz)	Meter Reading (dBuV)	Detector	Ant Factor [dB/m]	Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	dB(uVolts/ meter)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
8	17848.076	22.54	PK	42.2	-31.3	14.7	0.5	48.64	74	-25.36	200	Vert

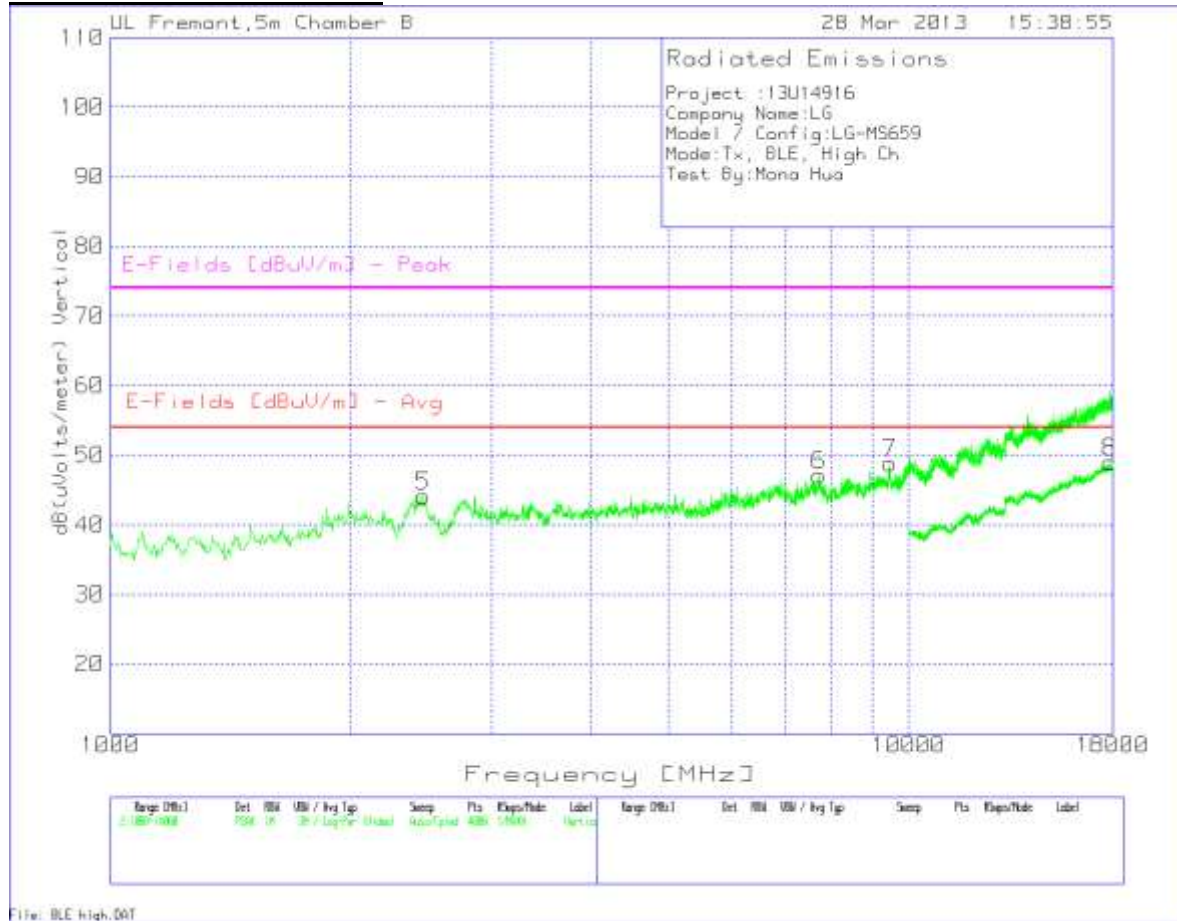
HIGH CHANNEL HORIZONTAL



Horizontal 1000 - 18000MHz												
Marker No.	Test Frequency (MHz)	Meter Reading (dBuV)	Detector	Ant Factor [dB/m]	Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	dB(uVolts/ meter)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
1	2443.917	42.7	PK	32.4	-35	4.7	0.9	45.7	74	-28.3	100	Horz
2	6830.877	37.36	PK	35.8	-35	8.6	0.3	47.06	74	-26.94	200	Horz
3	9943.792	35.47	PK	37.7	-34.9	10.4	0.5	49.17	74	-24.83	200	Horz

Horizontal 10000 - 18000MHz												
Marker No.	Test Frequency (MHz)	Meter Reading (dBuV)	Detector	Ant Factor [dB/m]	Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	dB(uVolts/ meter)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
4	17816.092	22.71	PK	42.2	-31.4	14.7	0.7	48.91	74	-25.09	100	Horz

HIGH CHANNEL VERTICAL



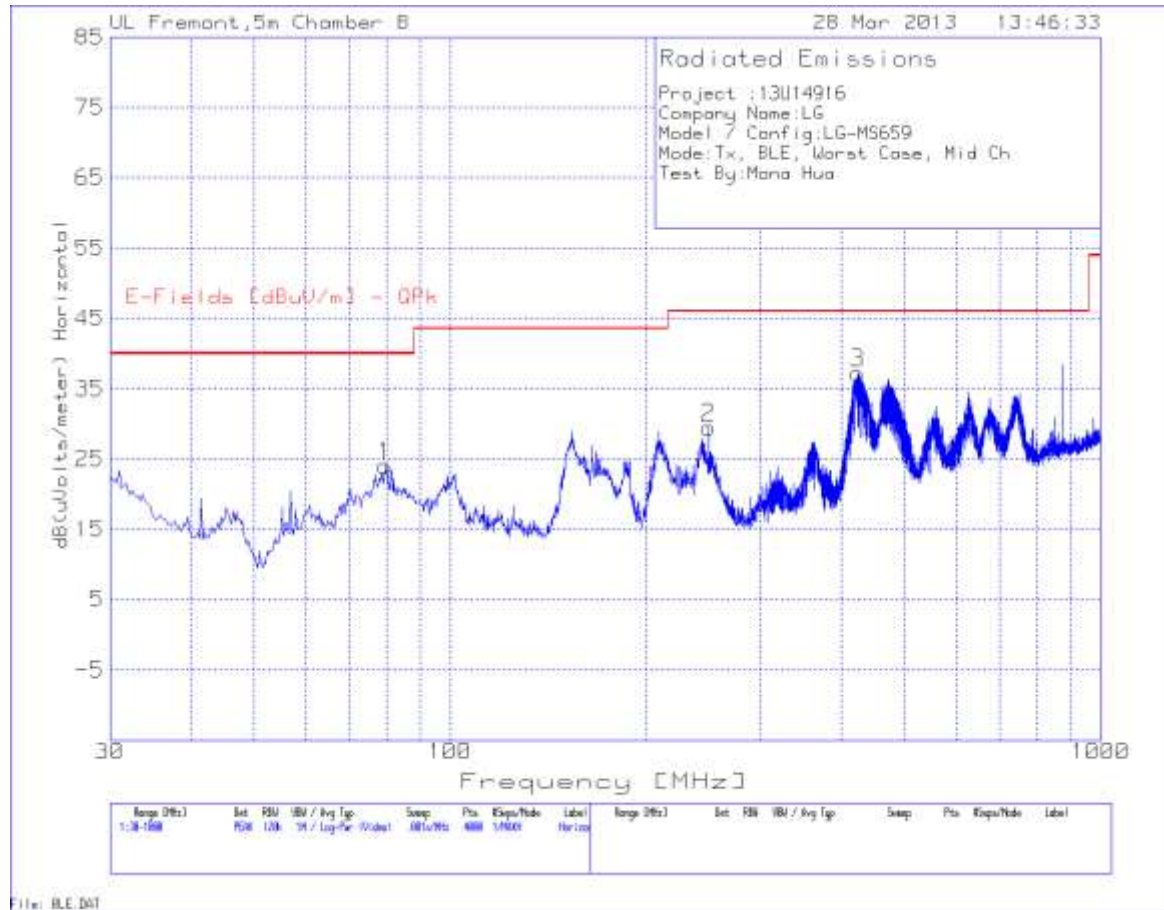
Vertical 1000 - 18000MHz												
Marker No.	Test Frequency (MHz)	Meter Reading (dBuV)	Detector	Ant Factor [dB/m]	Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	dB(uVolts/ meter)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
5	2469.398	41.02	PK	32.5	-35	4.7	0.9	44.12	74	-29.88	200	Vert
6	7718.461	36.79	PK	36.2	-35.1	9.1	0.2	47.19	74	-26.81	200	Vert
7	9472.396	36.05	PK	37.2	-35.1	10.2	0.5	48.85	74	-25.15	100	Vert

Vertical 10000 - 18000MHz												
Marker No.	Test Frequency (MHz)	Meter Reading (dBuV)	Detector	Ant Factor [dB/m]	Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	dB(uVolts/ meter)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
8	17868.066	22.64	PK	42.2	-31.3	14.8	0.6	48.94	74	-25.06	100	Vert

9.3. WORST-CASE BELOW 1 GHz

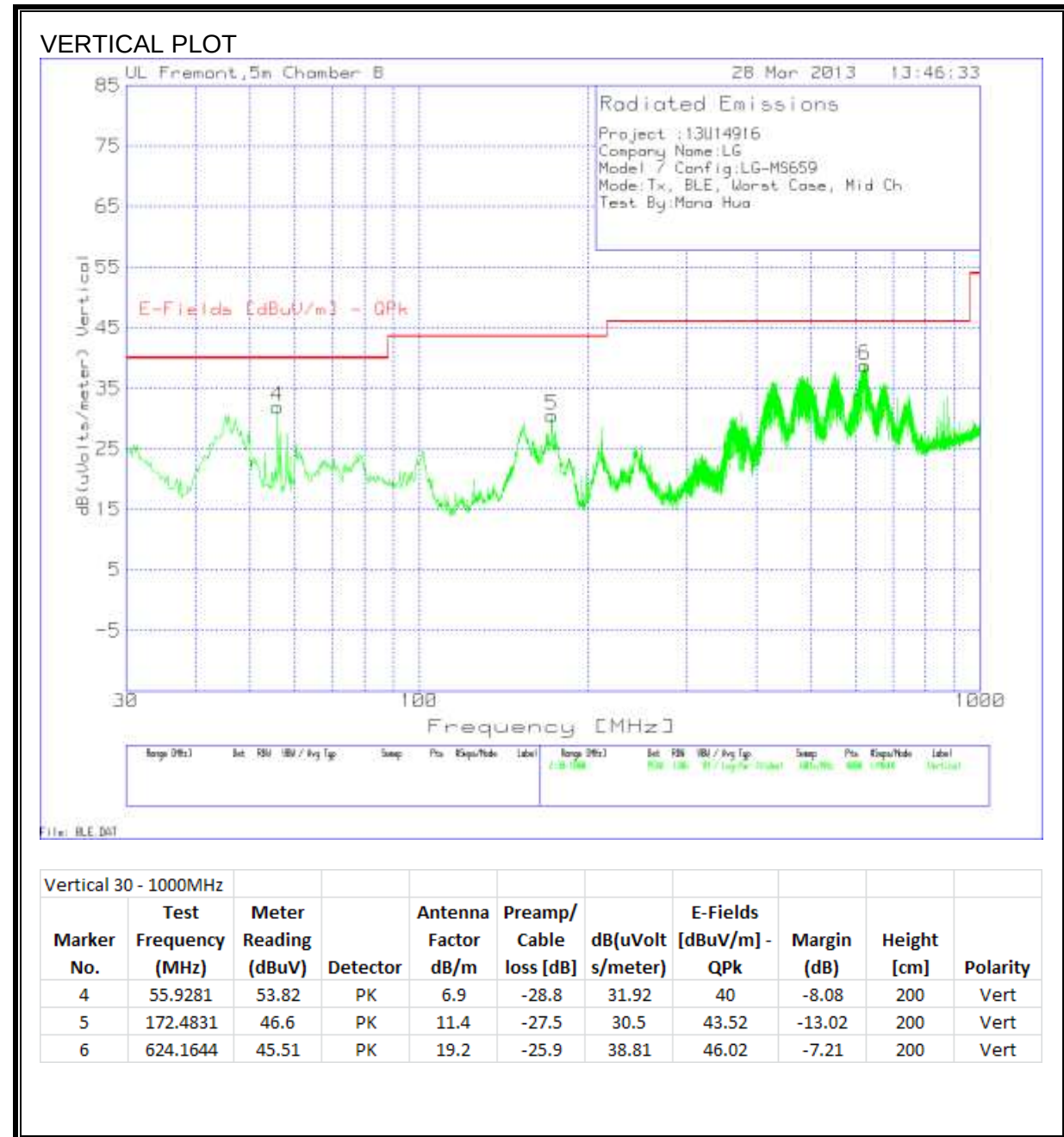
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)

HORIZONTAL PLOT



Horizontal 30 - 1000MHz										
Marker No.	Test Frequency (MHz)	Meter Reading (dBuV)	Detector	Antenna Factor dB/m	Preamp/ Cable loss [dB]	dB(uVolts s/meter)	E-Fields [dBuV/m] - QPk	Margin (dB)	Height [cm]	Polarity
1	79.4329	45.12	PK	7.5	-28.6	24.02	40	-15.98	200	Horz
2	249.7827	44.84	PK	11.5	-26.9	29.44	46.02	-16.58	100	Horz
3	423.7672	47.37	PK	16.4	-26.5	37.27	46.02	-8.75	200	Horz

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



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.

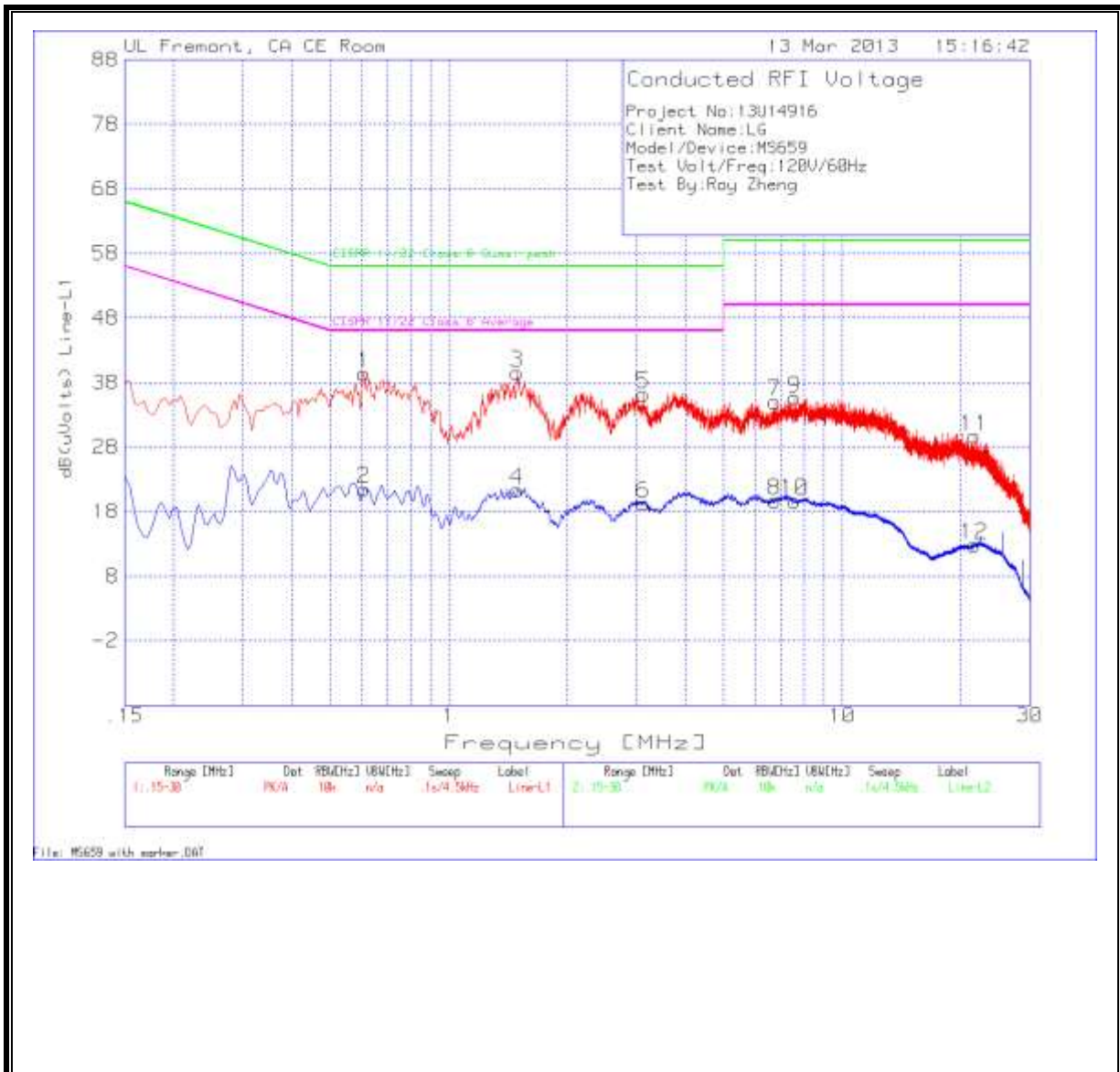
Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

6 WORST EMISSIONS

Project No:		13U14916							
Client Name:		LG							
Model/Device:		MS659							
Test Volt/Freq:		120V/60Hz							
Test By:		Roy Zheng							
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									
0.609	39.26	PK	0.1	0	39.36	56	-16.64	-	-
0.609	21.32	Av	0.1	0	21.42	-	-	46	-24.58
1.4955	39.3	PK	0.1	0.1	39.5	56	-16.5	-	-
1.4955	21.09	Av	0.1	0.1	21.29	-	-	46	-24.71
3.129	35.94	PK	0.1	0.1	36.14	56	-19.86	-	-
3.129	19.07	Av	0.1	0.1	19.27	-	-	46	-26.73
6.7605	34.77	PK	0.1	0.1	34.97	60	-25.03	-	-
6.7605	19.45	Av	0.1	0.1	19.65	-	-	50	-30.35
7.575	35.39	PK	0.1	0.1	35.59	60	-24.41	-	-
7.575	19.47	Av	0.1	0.1	19.67	-	-	50	-30.33
21.6645	29.16	PK	0.3	0.2	29.66	60	-30.34	-	-
21.6645	12.29	Av	0.3	0.2	12.79	-	-	50	-37.21
Line-L2 .15 - 30MHz									
0.339	37.75	PK	0.1	0	37.85	59.2	-21.35	-	-
0.339	21	Av	0.1	0	21.1	-	-	49.2	-28.1
0.9735	33.54	PK	0.1	0.1	33.74	56	-22.26	-	-
0.9735	14.34	Av	0.1	0.1	14.54	-	-	46	-31.46
1.3965	37.31	PK	0.1	0.1	37.51	56	-18.49	-	-
1.3965	20.24	Av	0.1	0.1	20.44	-	-	46	-25.56
2.283	35.4	PK	0.1	0.1	35.6	56	-20.4	-	-
2.283	19.02	Av	0.1	0.1	19.22	-	-	46	-26.78
5.937	35.04	PK	0.1	0.1	35.24	60	-24.76	-	-
5.937	16.81	Av	0.1	0.1	17.01	-	-	50	-32.99
23.5635	36.46	PK	0.4	0.2	37.06	60	-22.94	-	-
23.5635	15.4	Av	0.4	0.2	16	-	-	50	-34
PK - Peak detector									
QP - Quasi-Peak detector									
Av - Average detector									

LINE 1 RESULTS



LINE 2 RESULTS

