FCC CFR47 PART 15 SUBPART C

BLUETOOTH LOW ENERGY CERTIFICATION TEST REPORT

FOR

GSM/CDMA/WCDMA + LTE Phone Bluetooth, WLAN (2.4GHz & 5GHz) and NFC

MODEL NUMBER: VS980, LGVS980 and LG-VS980

FCC ID: ZNFVS980

REPORT NUMBER: 13U15118-5, Revision C

ISSUE DATE: JULY 15, 2013

Prepared for
LG ELECTRONICS MOBILECOMM U.S.A., INC.
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	06/26/13	Initial Issue	P. Kim
A	07/08/13	Update Antenna gain information and method used.	P. Kim
B	07/09/13	Updated administrative information	P. Kim
C	07/15/13	Update accessory information, Section 5.6 Description of Test Set Up - Support Equipment	P. Kim

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ATTESTATION OF TEST RESULTS

COMPANY NAME:	LG ELECTRONICS MOBILECOMM U.S.A., INC. 1000 SYLVAN AVENUE ENGLEWOOD CLIFFS, NEW JERSEY 07632
EUT DESCRIPTION:	GSM/CDMA/WCDMA + LTE Phone Bluetooth, WLAN (2.4GHz & 5GHz) and NFC
MODEL:	VS90, LGVS980 and LG-VS980
SERIAL NUMBER:	99000250000211(CONDUCTED) AND 256691464000002160 (RADIATED)
DATE TESTED:	MAY 25 – JUNE 12, 2013

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

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

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

Approved & Released For
UL Verification Services Inc. By:

PHILIP KIM
WiSE OPERATIONS MANAGER
UL Verification Services Inc.

Tested By:

STEVEN TRAN
WiSE LAB TECHNICIAN
UL Verification Services Inc.

1. TEST METHODOLOGY

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

2. 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.

3. CALIBRATION AND UNCERTAINTY

3.1. 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.

3.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)
36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

3.3. 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%.

4. EQUIPMENT UNDER TEST

4.1. DESCRIPTION OF EUT

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

4.2. MAXIMUM OUTPUT POWER

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

Frequency Range (MHz)	Output Power (dBm)	Output Power (mW)
2402	4.91	3.10
2440	4.32	2.70
2480	4.58	2.87

4.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an FPCB antenna, with a maximum gain of -1.05 dBi.

4.4. SOFTWARE AND FIRMWARE

The test utility software used during was VS9800RA and firmware used was g2_vzw-userdebug 4.2.2 JDQ39B VS9800RA.1368678220.

4.5. 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.

4.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
AC Adapter	TEN PAO	MCS-04WT2	N/A	N/A
Earphone	I-SOUND	EAB62729001	N/A	N/A

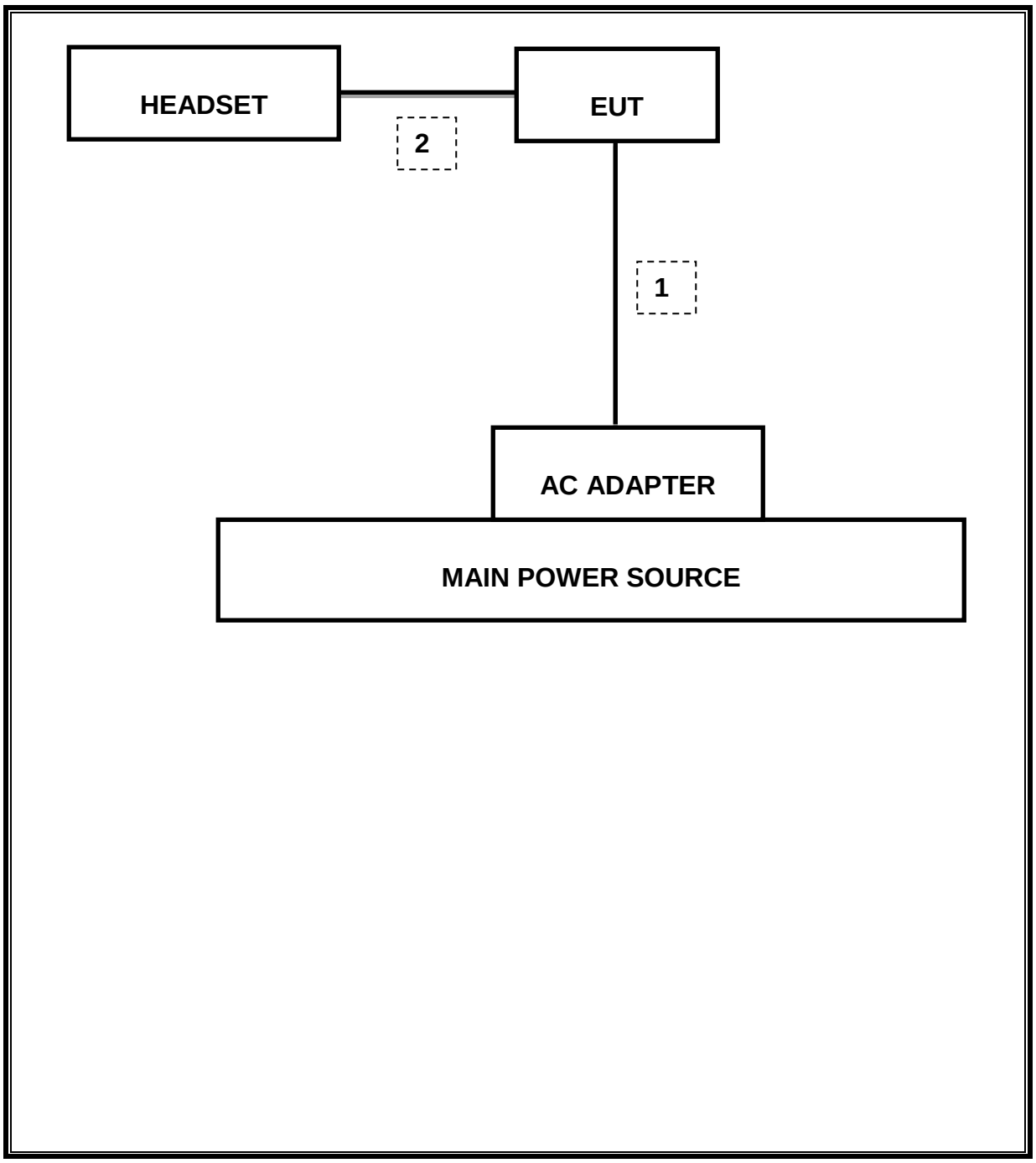
I/O CABLES

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	1m	N/A

TEST SETUP

The EUT is continuously communicating to the Bluetooth tester during the tests.
EUT was set in the Hidden menu mode to enable BLE communications.

SETUP DIAGRAM FOR TESTS



5. 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**
Antenna, Biconolog, 30MHz-1 GHz	Sunol Sciences	JB1	C01171	03/23/12	02/13/14
Antenna, Horn, 18GHz	EMCO	3115	C00783	10/25/12	10/25/13
Antenna, Horn, 25.5 GHz	ARA	MWH-1826/B	C00980	11/14/12	11/14/13
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00580	01/28/13	01/28/14
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01052	10/22/12	10/22/13
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01069	12/20/12	12/20/13
CBT Bluetooth Tester	R & S	CBT	None	05/15/12	05/15/13
Peak Power Meter	Agilent / HP	E4416A	C00963	12/13/12	12/13/13
Peak / Average Power Sensor	Agilent / HP	E9327A	C00964	12/13/12	12/13/13
LISN, 30 MHz	FCC	50/250-25-2	C00626	01/14/13	01/14/14
Reject Filter, 2.4GHz	Micro-Tronics	BRM50702	N02684	CNR	CNR

6. ANTENNA PORT TEST RESULTS

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.

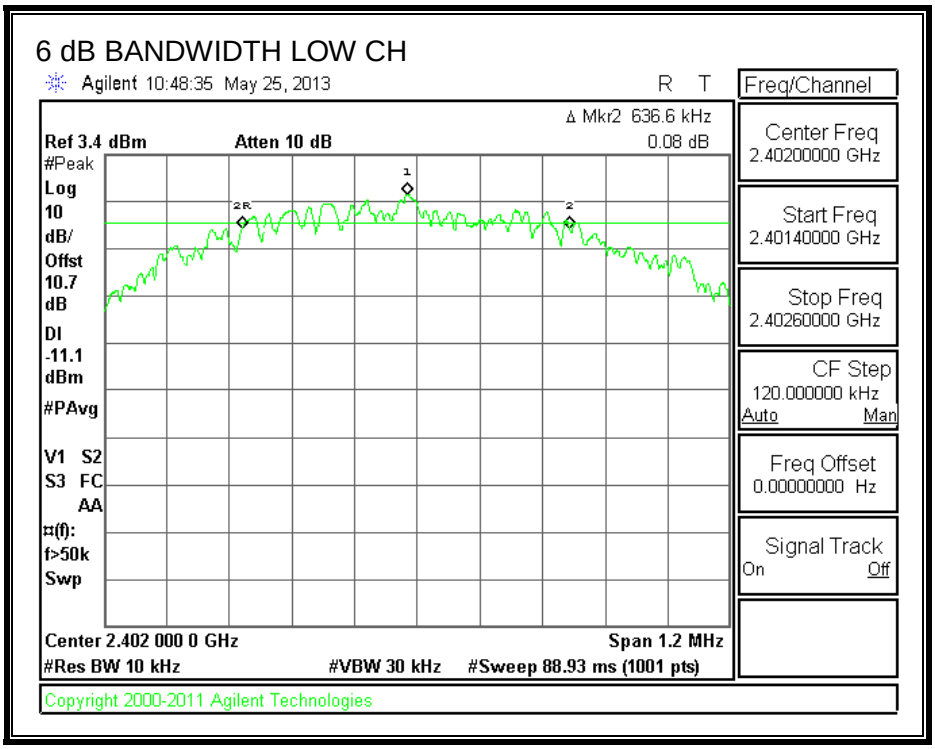
TEST PROCEDURE

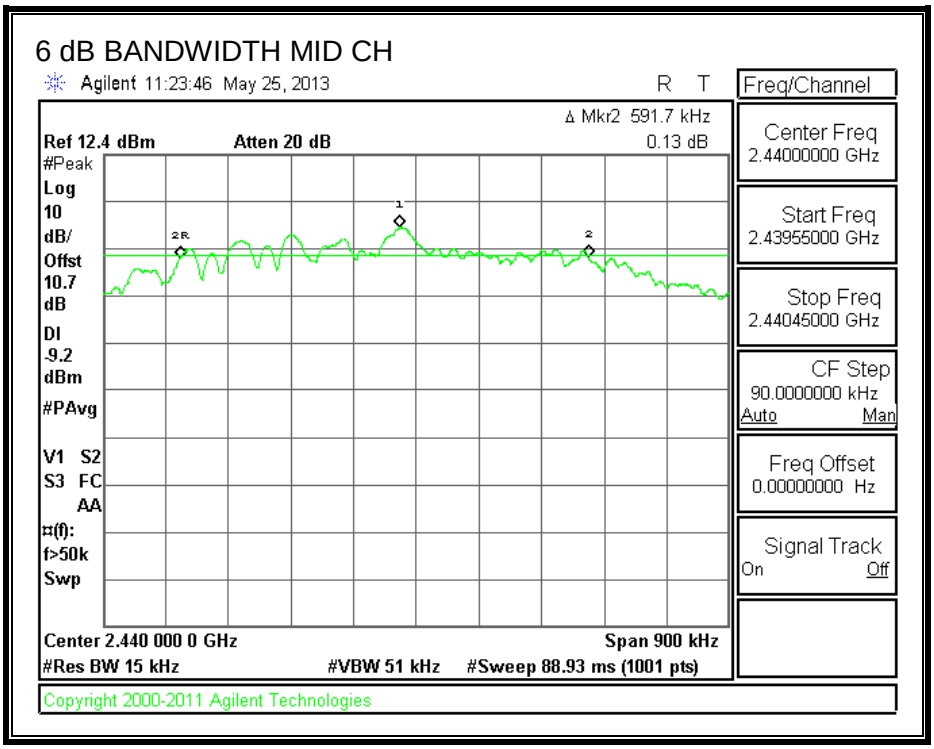
The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

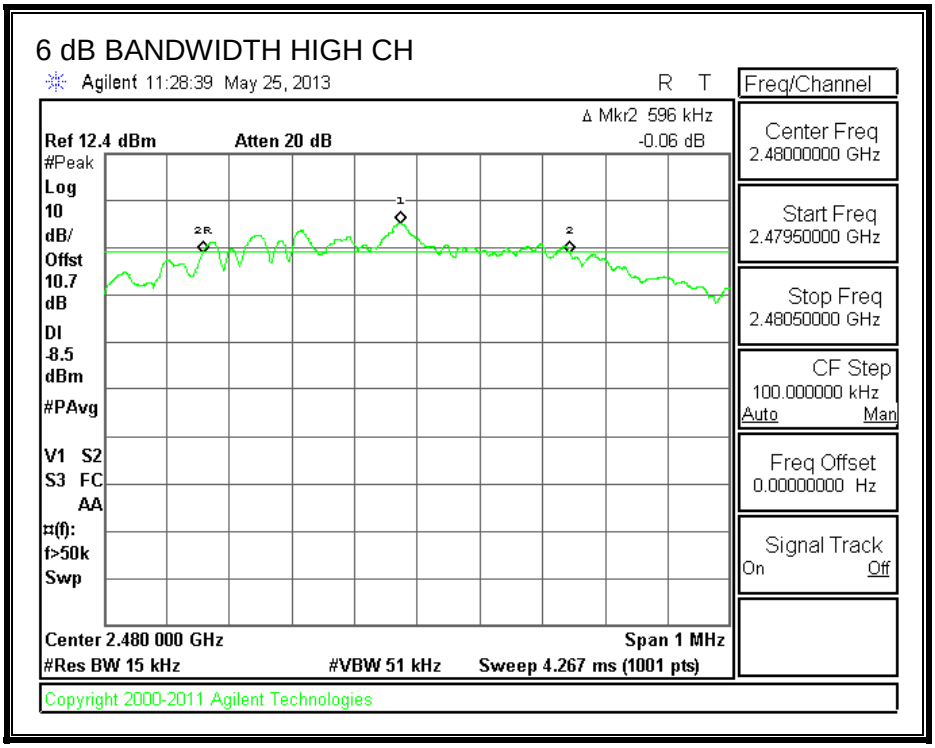
RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2402	0.6366	0.5
Middle	2440	0.5917	0.5
High	2480	0.5960	0.5

6 dB BANDWIDTH







6.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

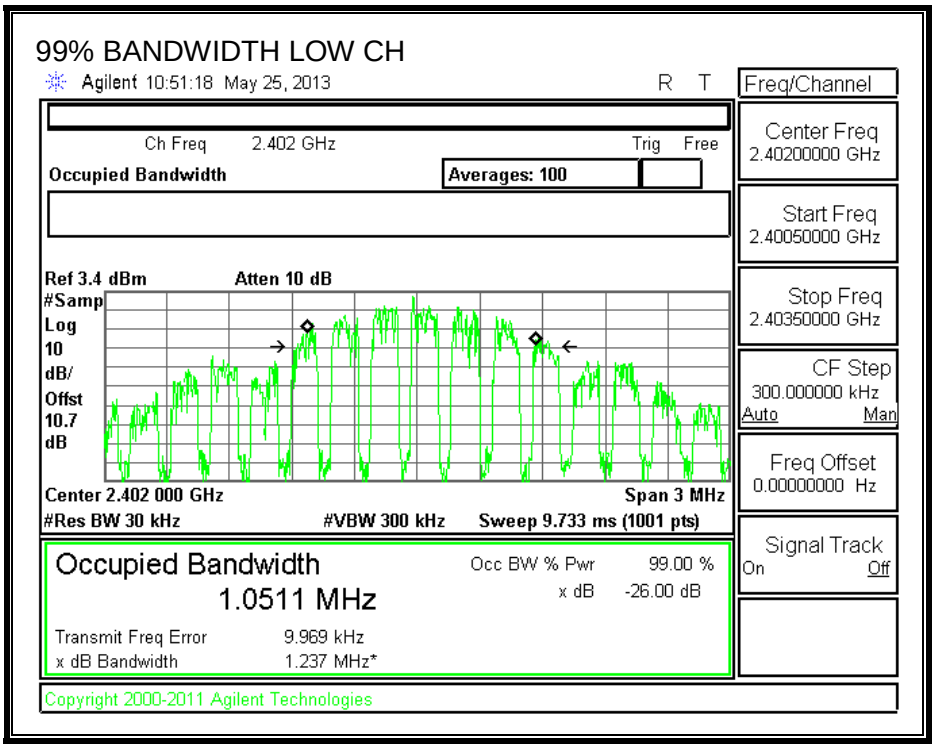
TEST PROCEDURE

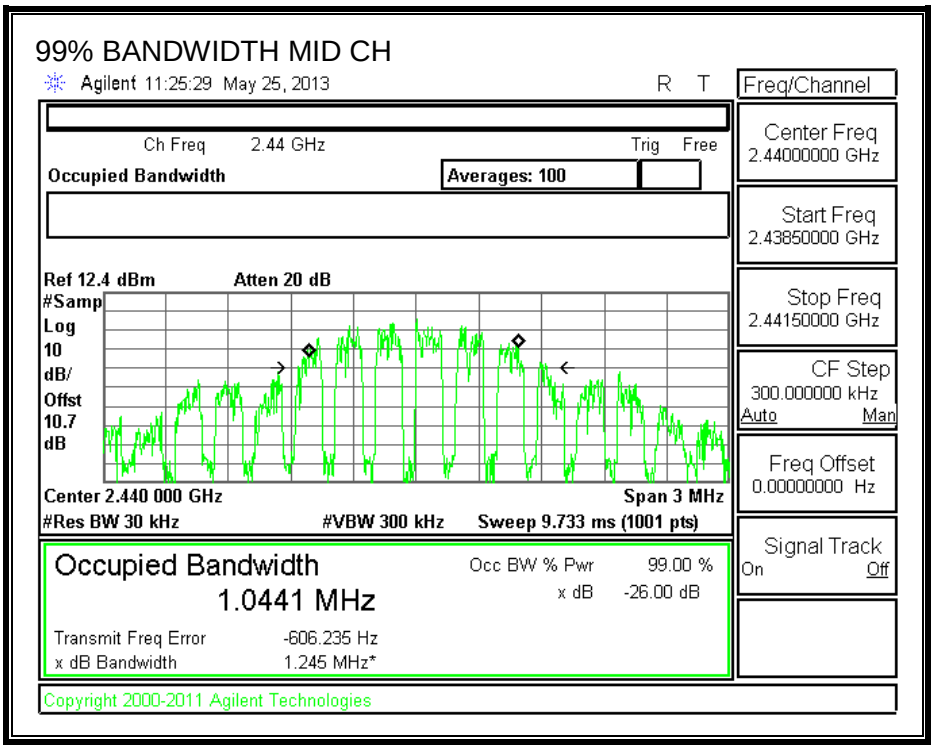
The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth and to 1% of the span. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

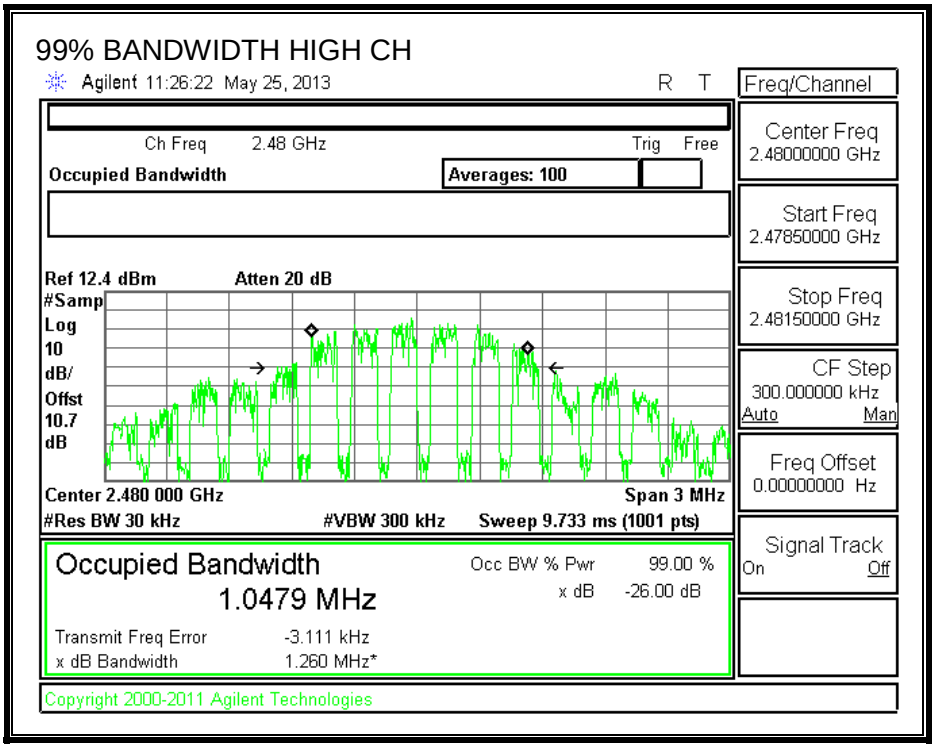
RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	1.0511
Middle	2440	1.0441
High	2480	1.0479

99% BANDWIDTH







6.3. OUTPUT POWER

LIMITS

FCC §15.247 (b)

IC RSS-210 A8.4

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 21 dBm.

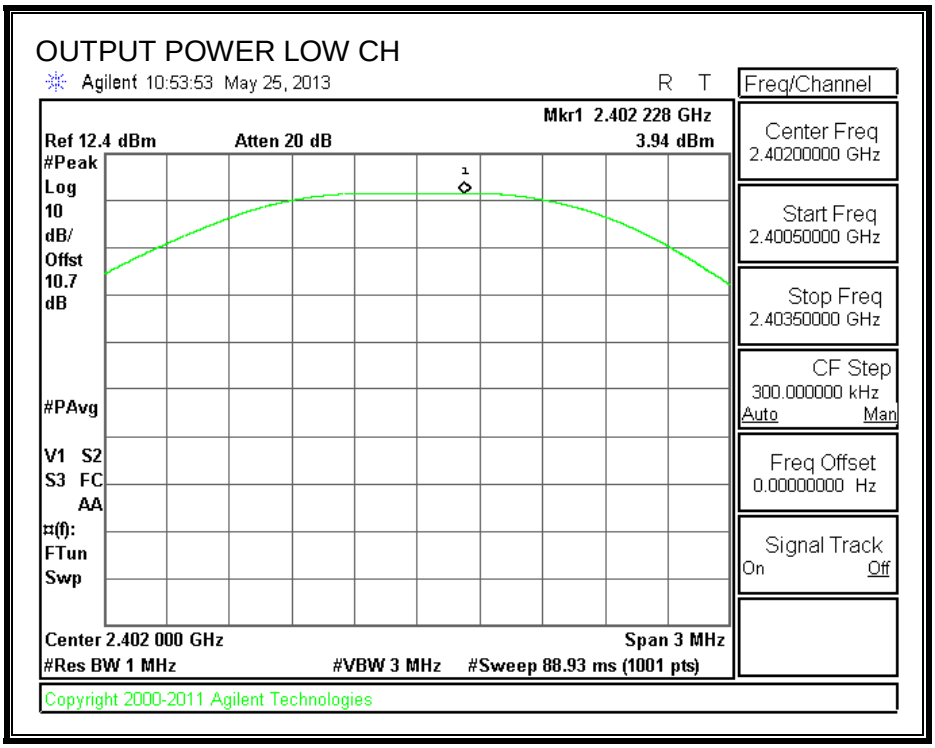
TEST PROCEDURE

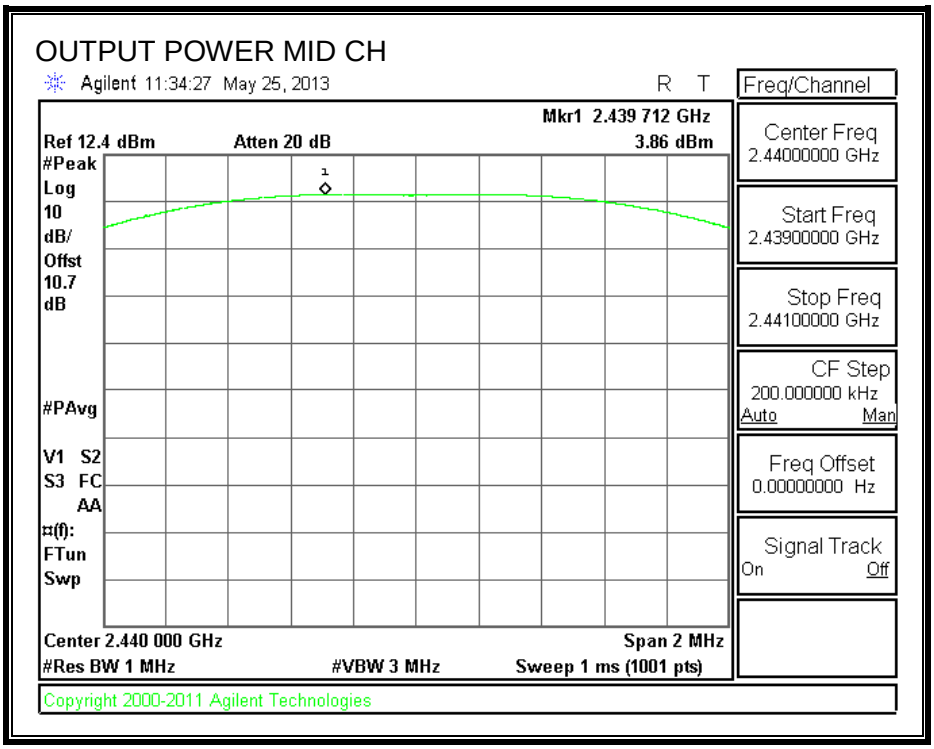
Peak power is measured using KDB558074 April 9, 2013 under section 9.1.1 utilizing spectrum analyze.

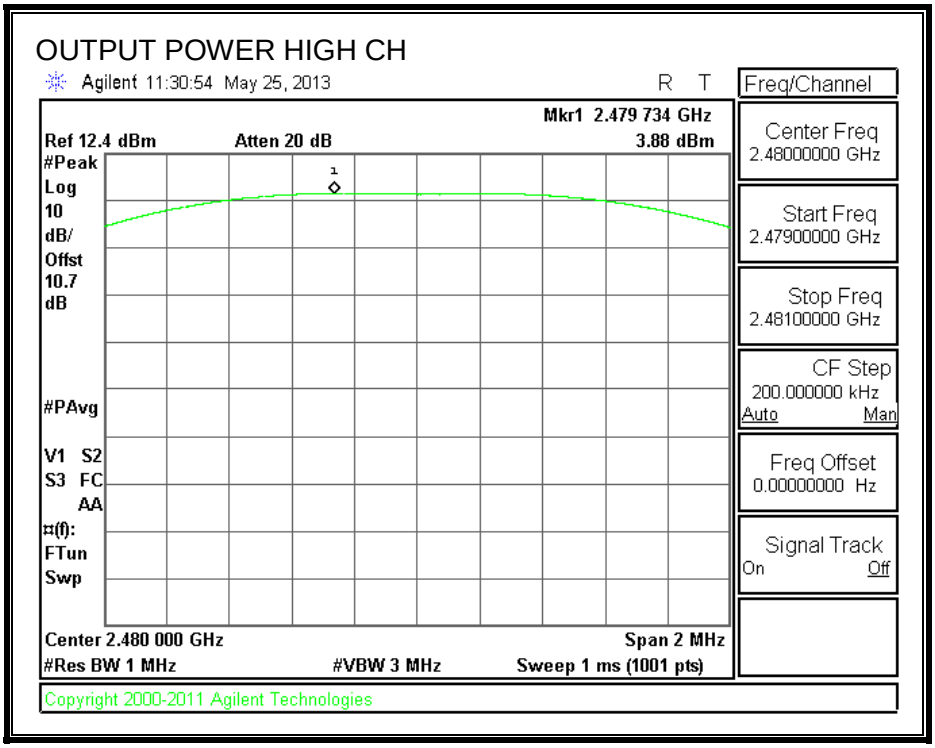
RESULTS

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2402	3.940	30	-26.060
Middle	2440	3.860	30	-26.140
High	2480	3.880	30	-26.120

OUTPUT POWER







6.4. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 0.5 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.

Channel	Frequency (MHz)	AV power (dBm)
Low	2402	4.71
Middle	2440	4.13
High	2480	4.39

6.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

IC RSS-210 A8.2 (b)

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.

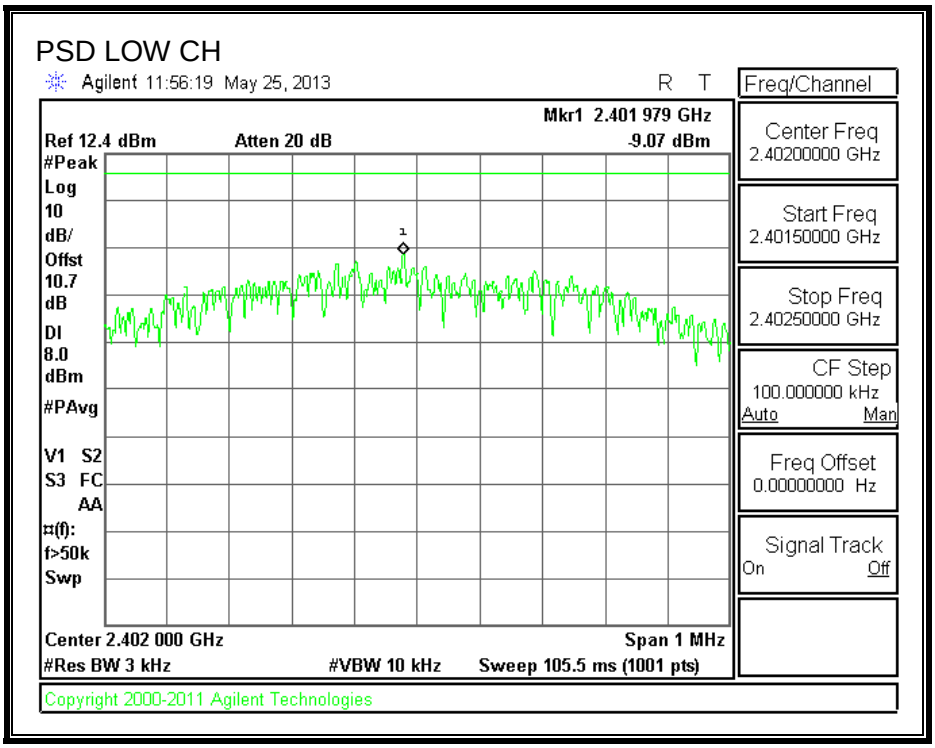
TEST PROCEDURE

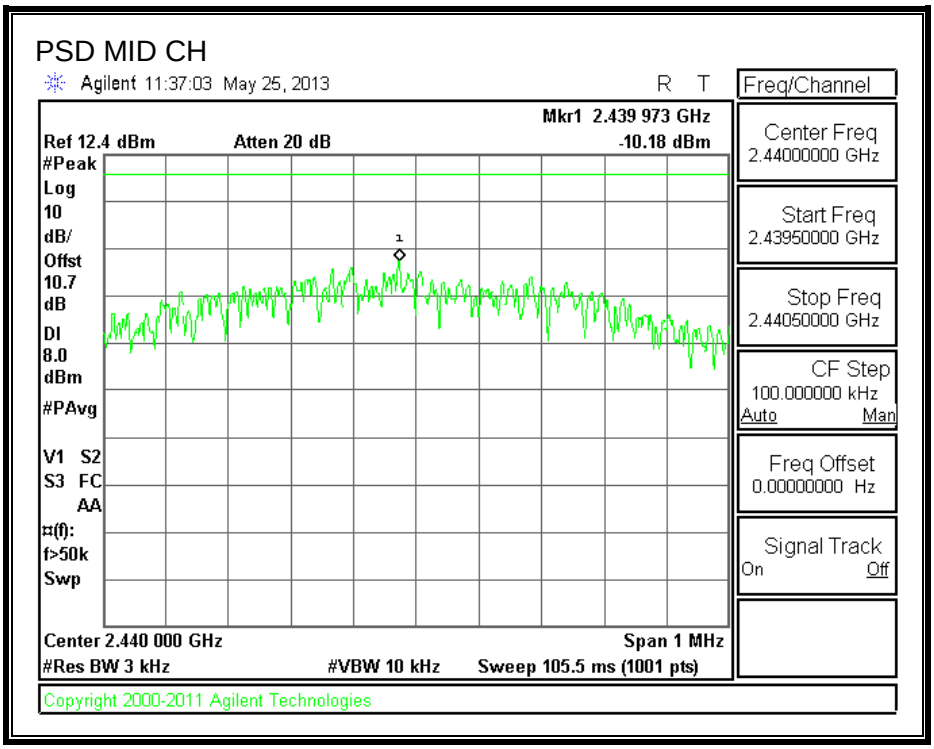
Power Spectral Density was performed utilizing the "Method PKPSD (Peak PSD)" under KDB558074, April 9, 2013

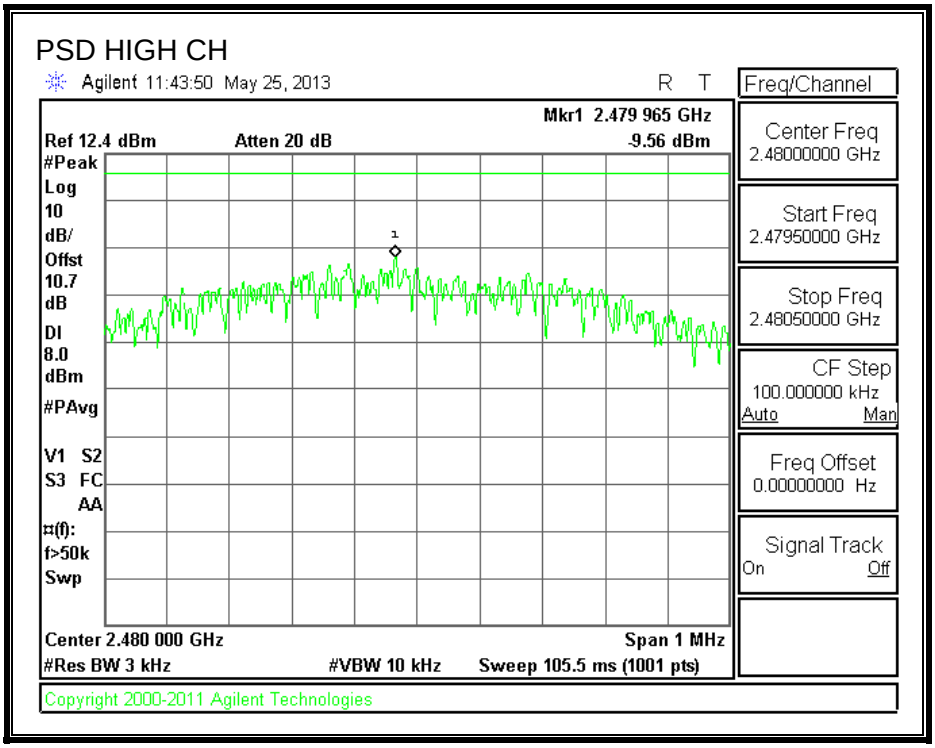
RESULTS

Channel	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Margin (dB)
Low	2402	-9.07	8	-17.07
Middle	2440	-10.18	8	-18.18
High	2480	-9.56	8	-17.56

POWER SPECTRAL DENSITY







6.6. CONDUCTED SPURIOUS EMISSIONS and BANDEDGE

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

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

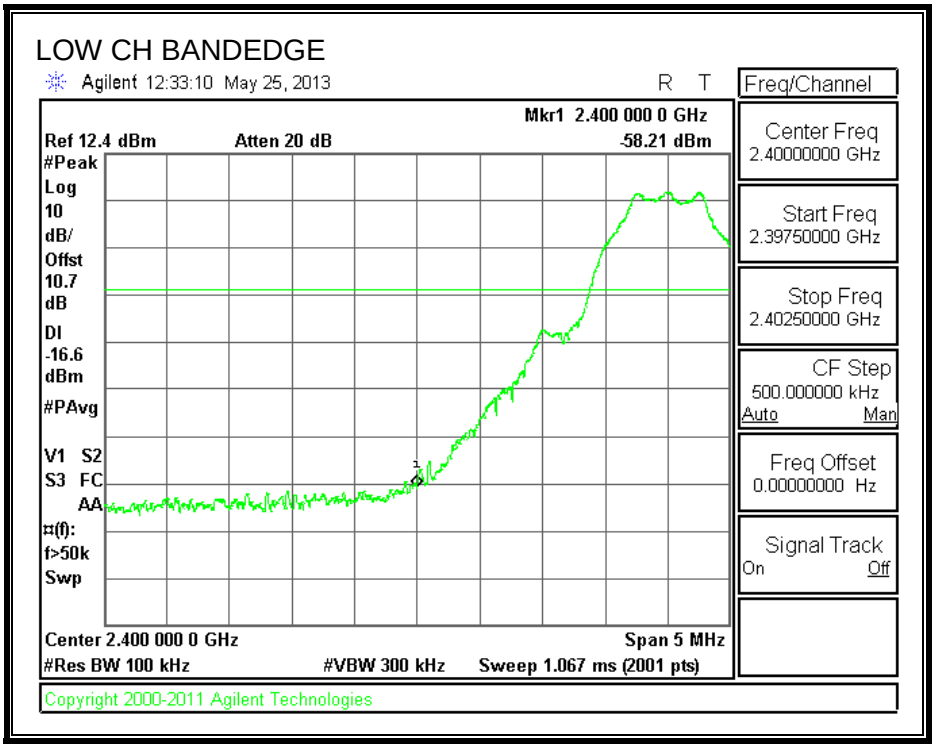
TEST PROCEDURE

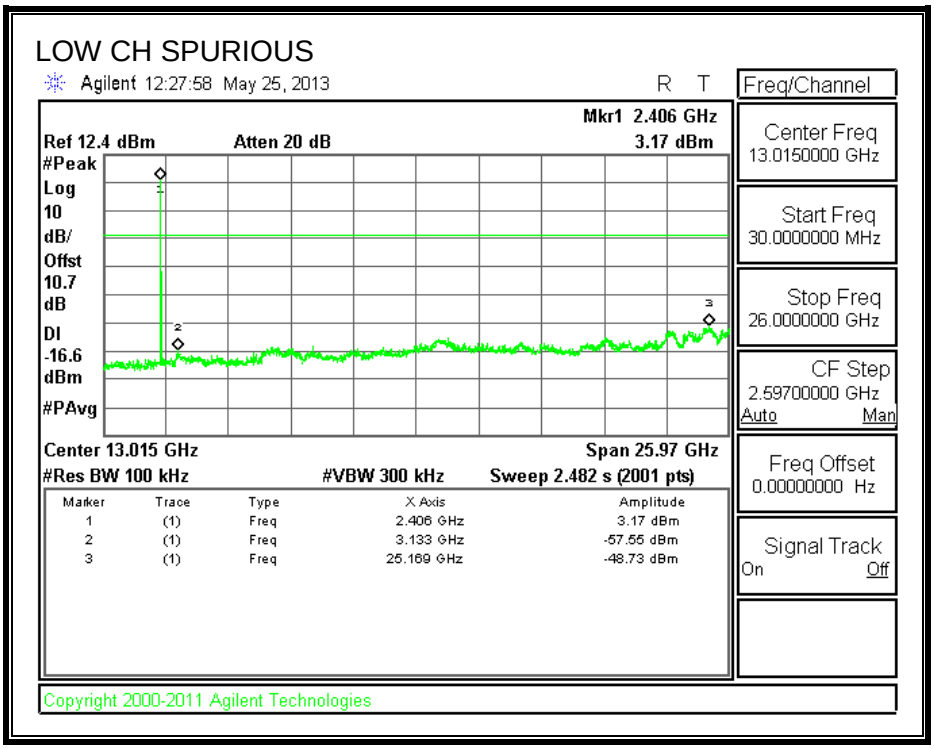
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

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

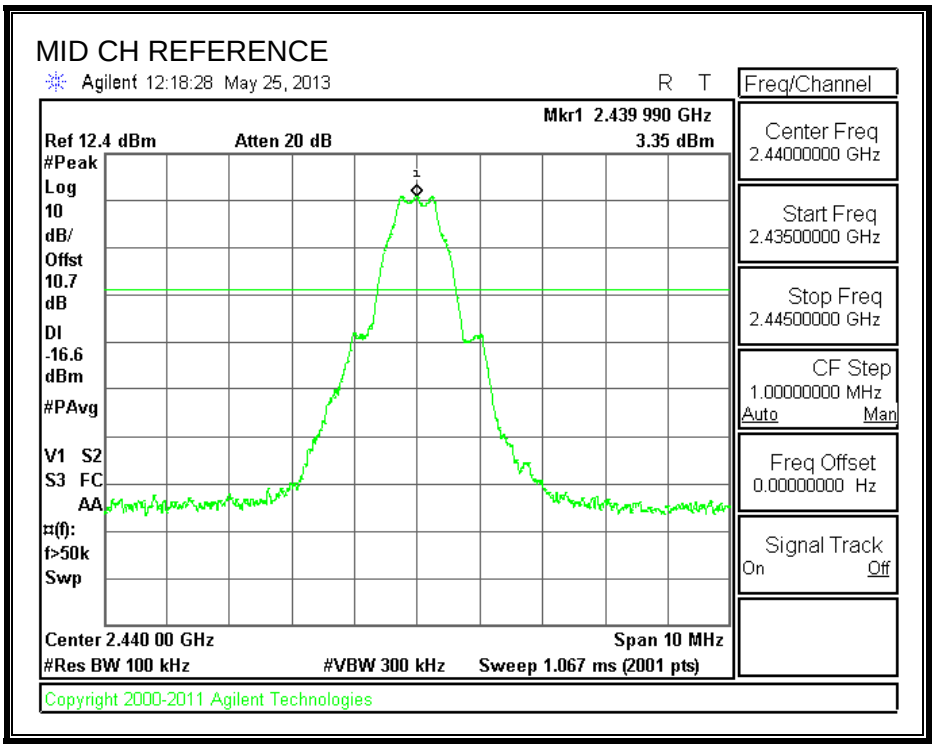
RESULTS

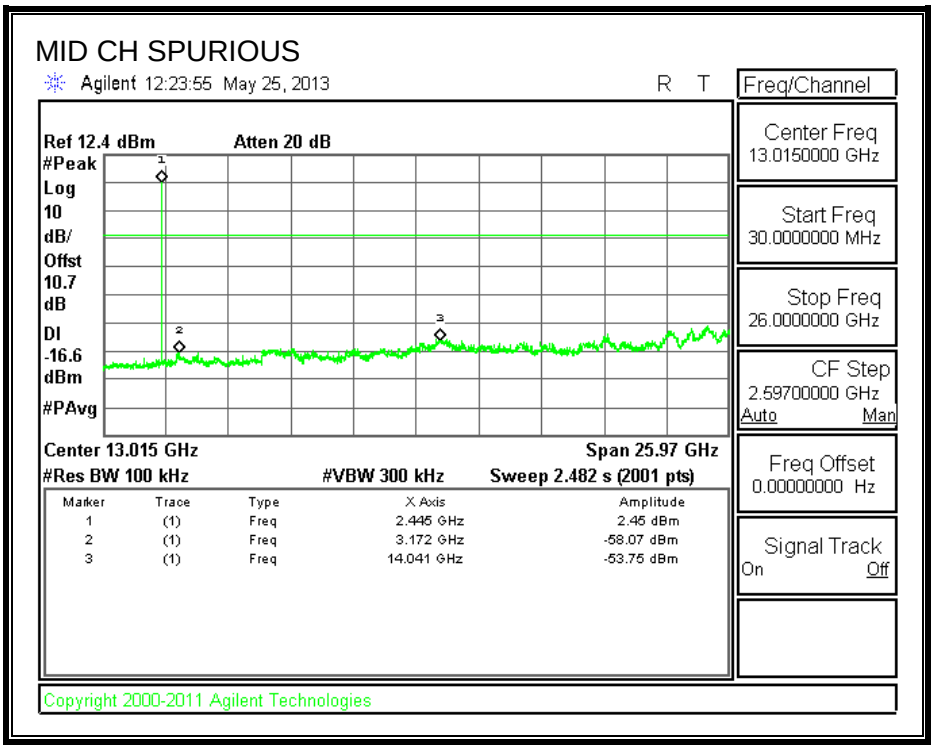
SPURIOUS EMISSIONS, LOW CHANNEL



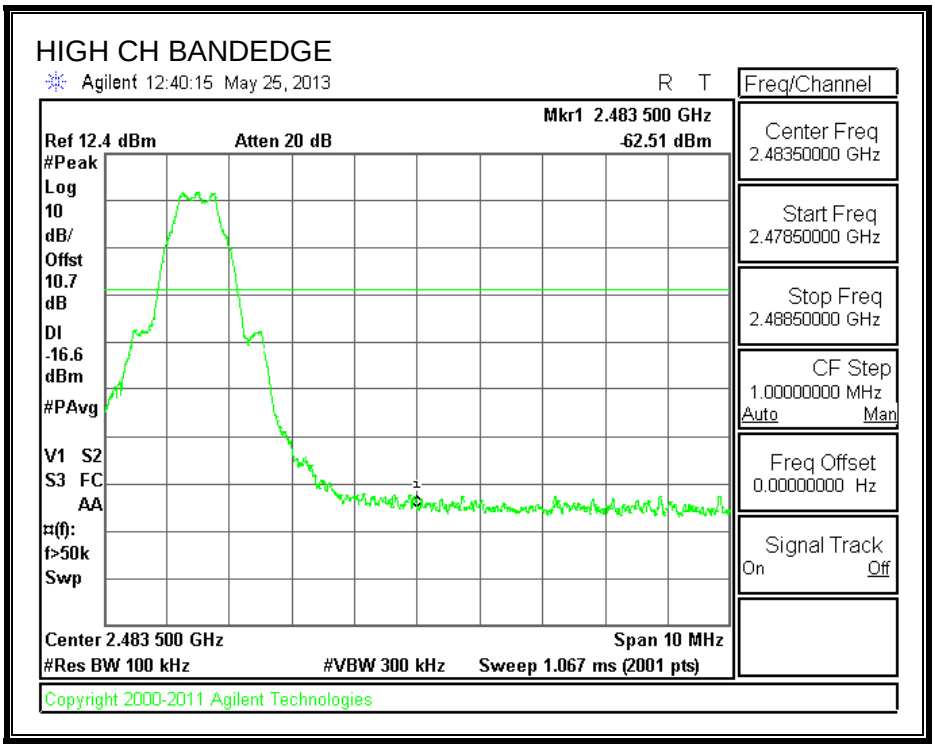


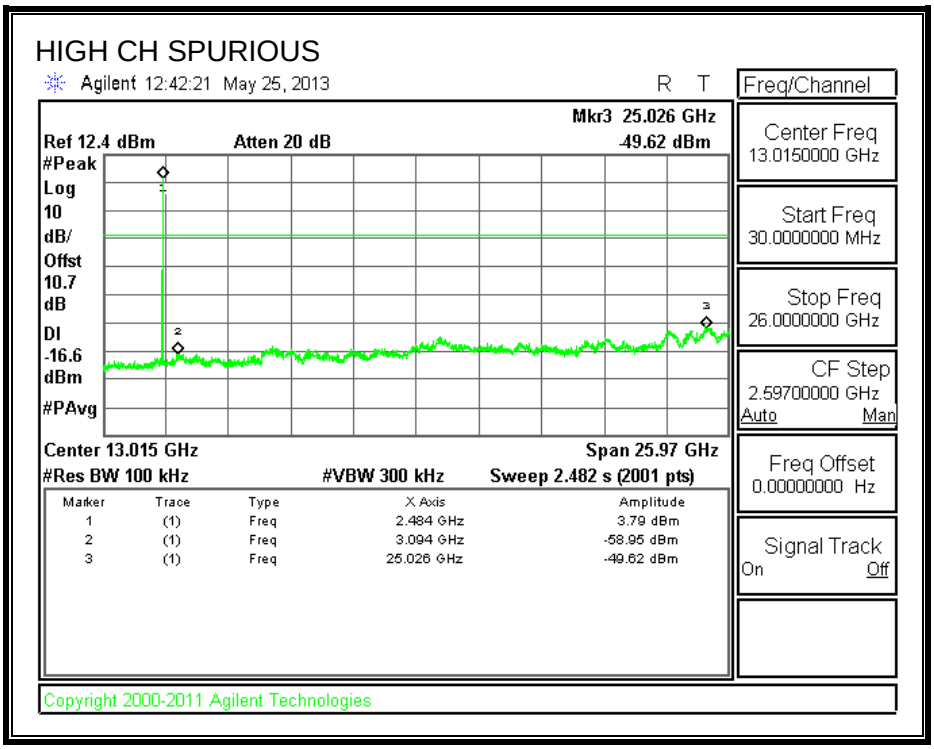
SPURIOUS EMISSIONS, MID CHANNEL





SPURIOUS EMISSIONS, HIGH CHANNEL





7. RADIATED TEST RESULTS

7.1. 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. The EUT is configured in accordance with ANSI C63.4. The EUT is set to transmit in a continuous mode.

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

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

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

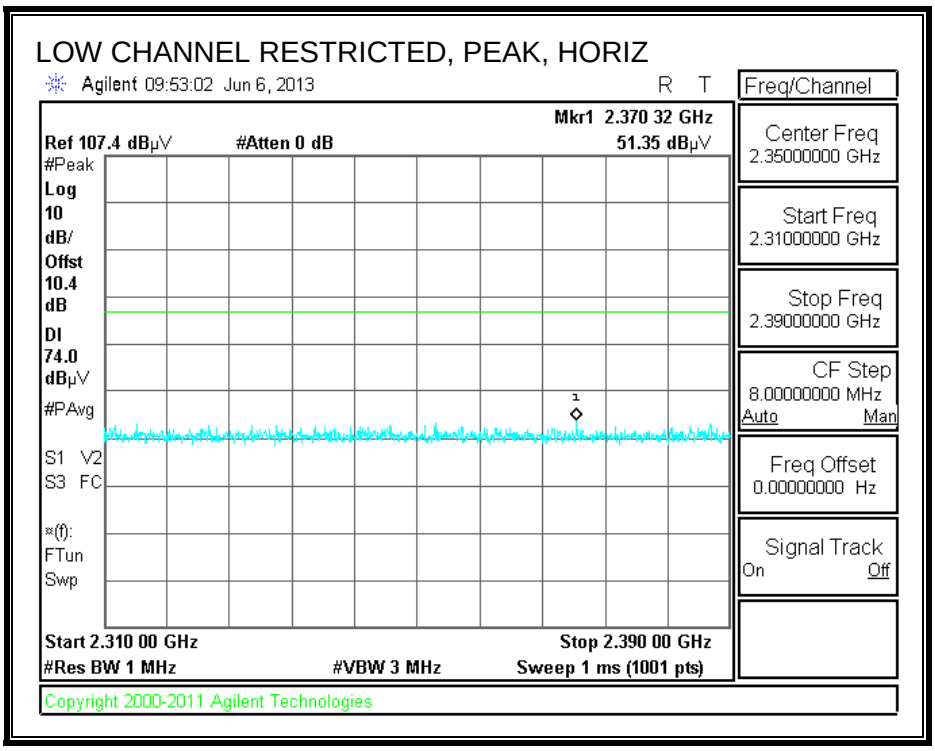
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

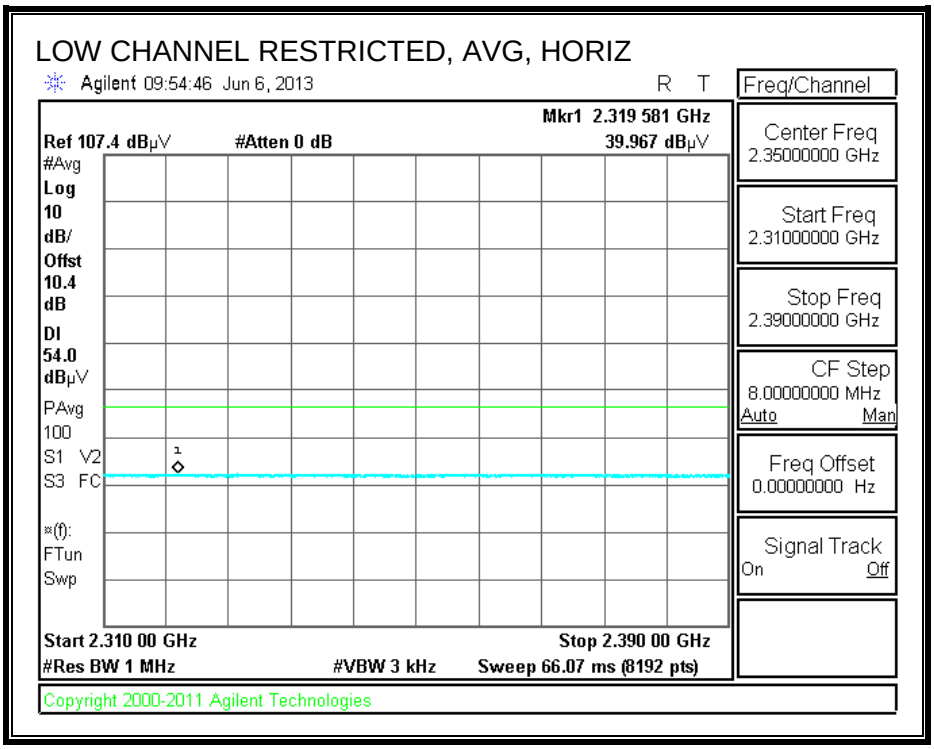
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

7.2. TRANSMITTER ABOVE 1 GHz

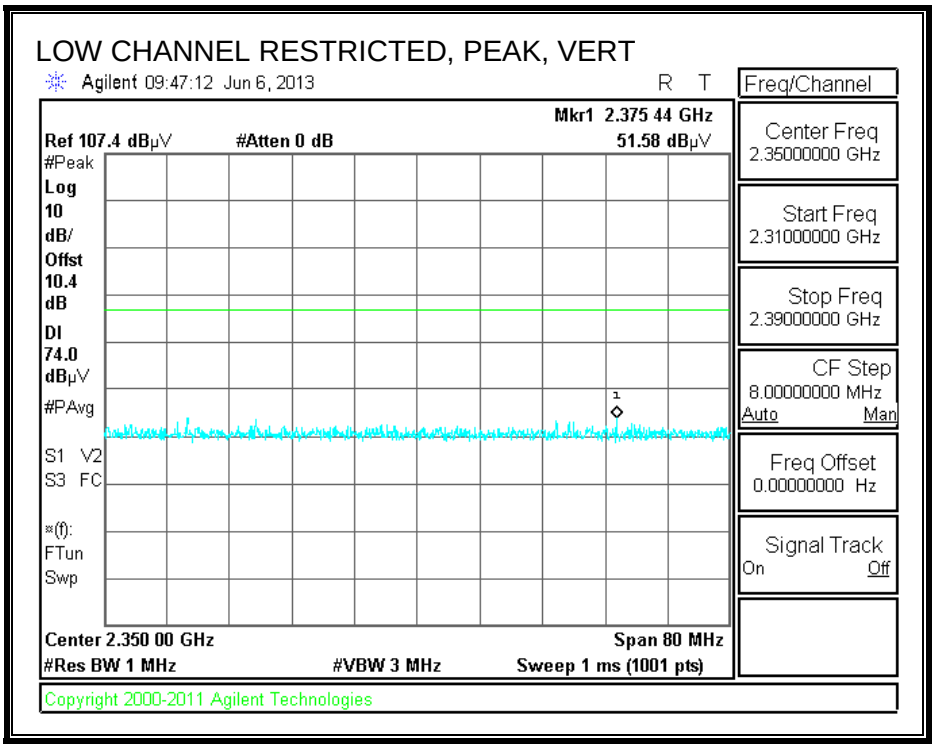
7.3. TX ABOVE 1 GHz FOR BLUETOOTH LOW ENERGY MODE IN THE 2.4 GHz BAND

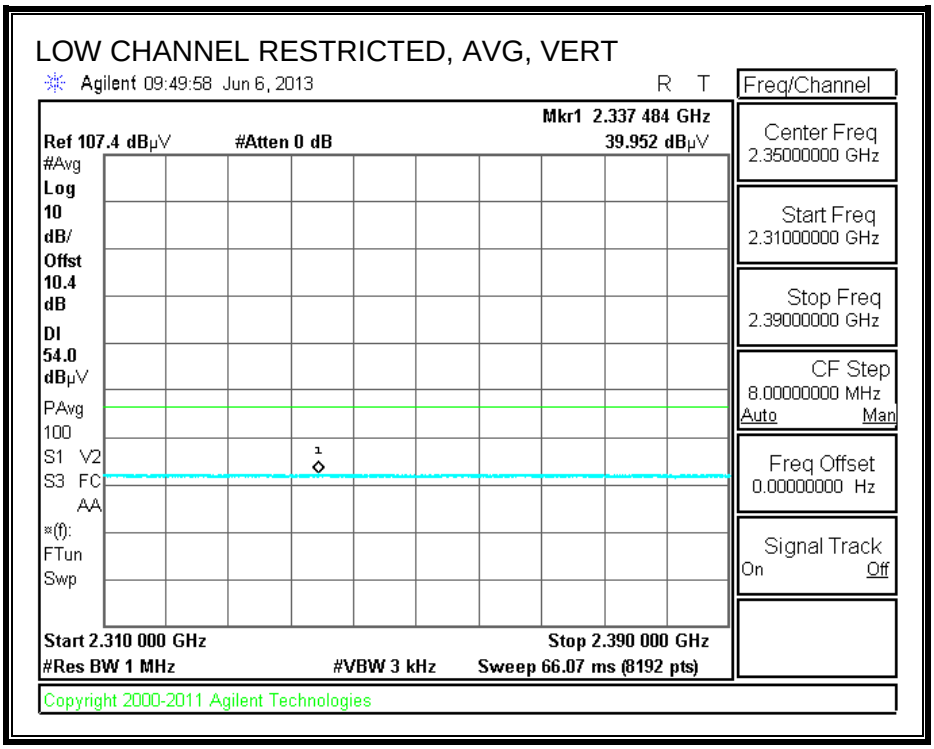
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



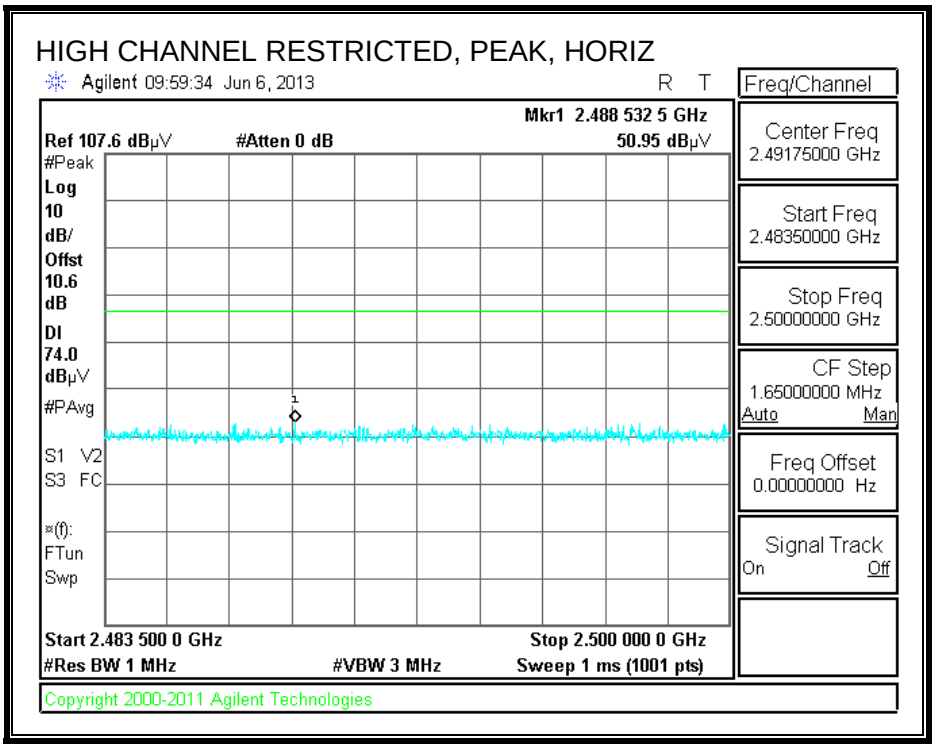


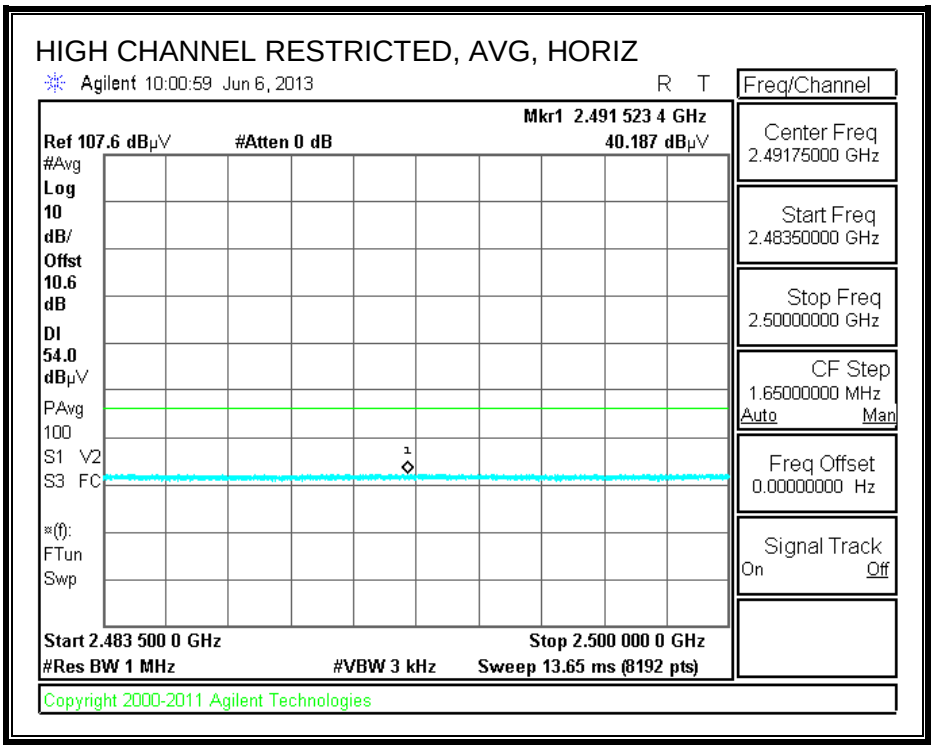
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



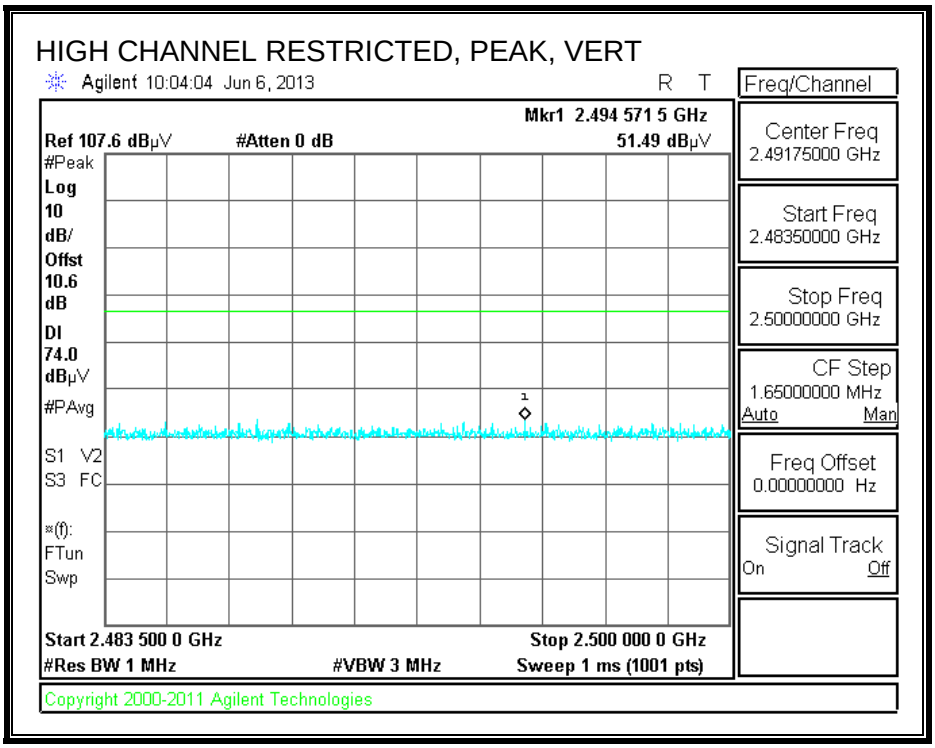


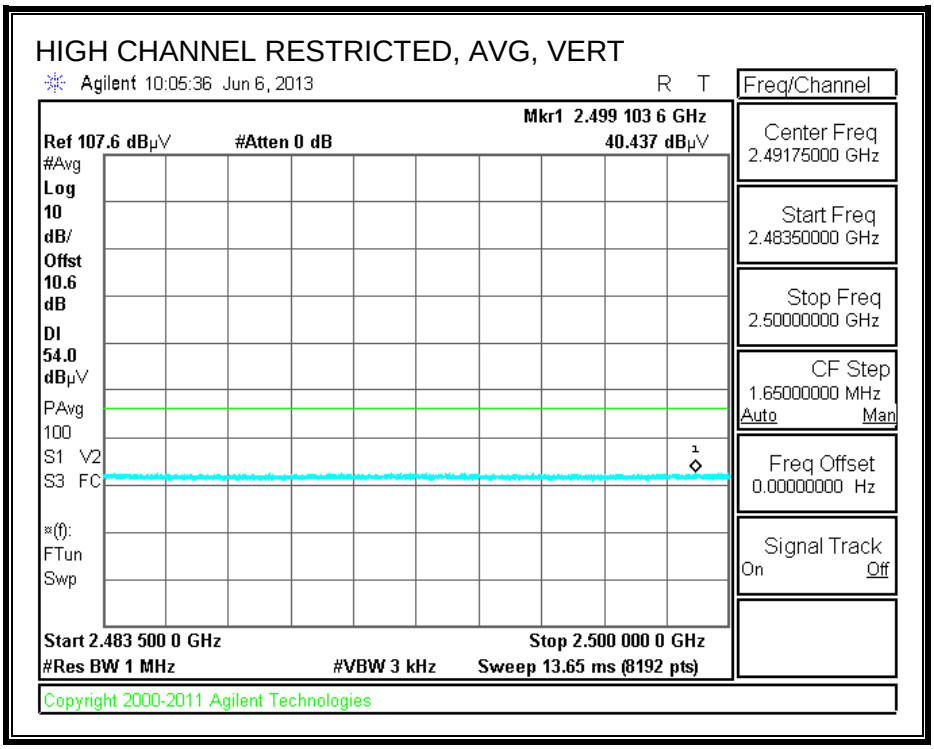
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)





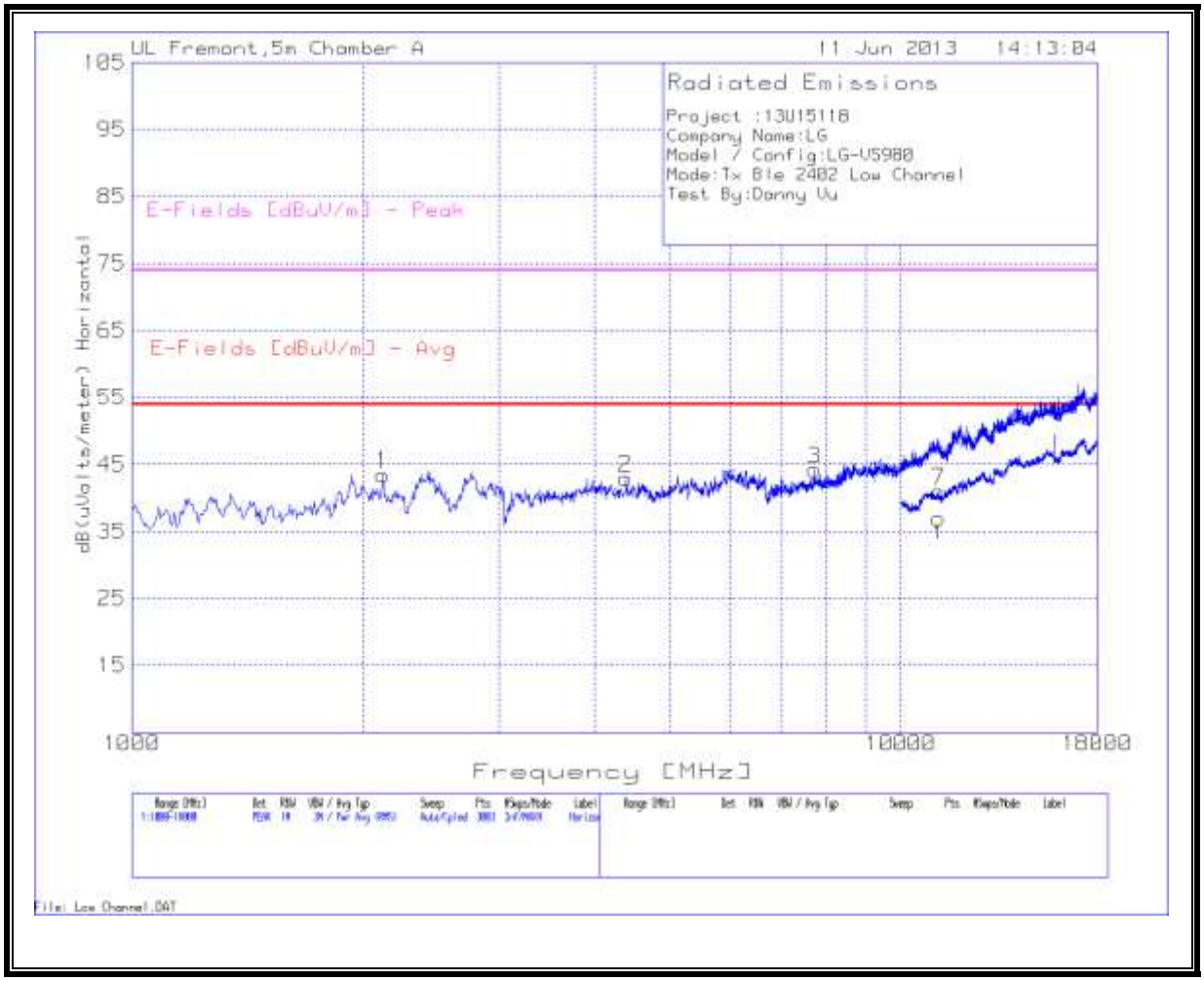
RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



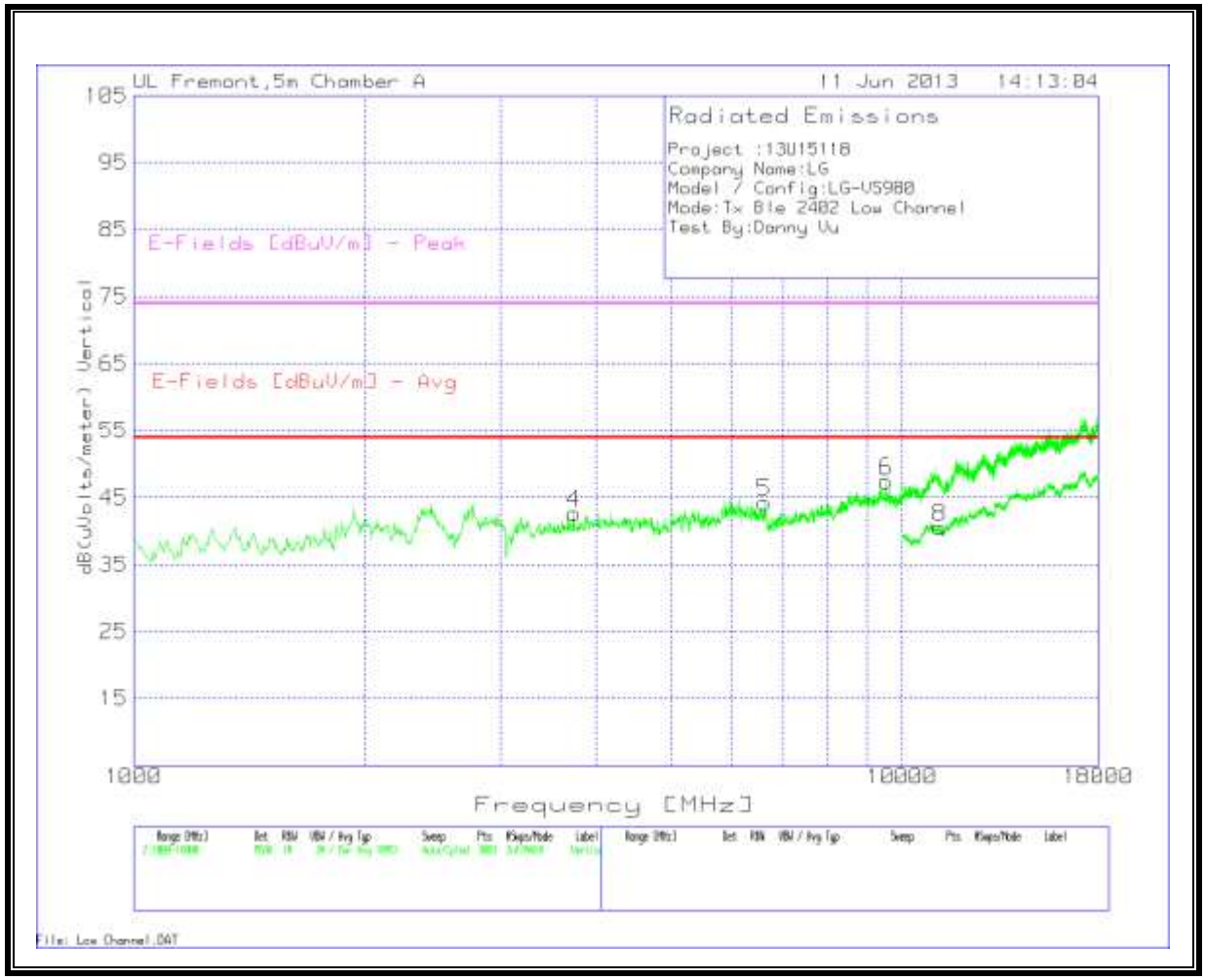


HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL
HORIZONTAL



VERTICAL



LOW CHANNEL DATA

Project :13U15118
Company Name:LG
Model / Config:LG-VS980
Mode:Tx Ble 2402 Low Channel
Test By:Danny Vu

Horizontal 1000 - 18000MHz

Marker No.	Test Frequency (MHz)	Meter Reading (dBuV)	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	DC Corr [dB]	dB(uVolts /meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
1	2121.252	43.9	PK	31.6	-37	4.1	0.9	0	43.5	53.97	-10.47	74	-30.5	200	Horz
2	4392.072	38.43	PK	33.6	-35.8	6.4	0.3	0	42.93	53.97	-11.04	74	-31.07	101	Horz
3	7727.515	35.39	PK	35.5	-35.9	9	0.2	0	44.19	53.97	-9.78	74	-29.81	200	Horz

Vertical 1000 - 18000MHz

Marker No.	Test Frequency	Meter Reading	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	DC Corr [dB]	dB(uVolts /meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
4	3740.839	39.33	PK	33.4	-36.2	5.8	0.3	0	42.63	53.97	-11.34	74	-31.37	200	Vert
5	6623.251	35.88	PK	35.5	-35.6	8.2	0.3	0	44.28	53.97	-9.69	74	-29.72	100	Vert
6	9539.64	36.37	PK	36.6	-36.2	10.1	0.6	0	47.47	53.97	-6.5	74	-26.53	200	Vert

Horizontal 10000 - 18000MHz

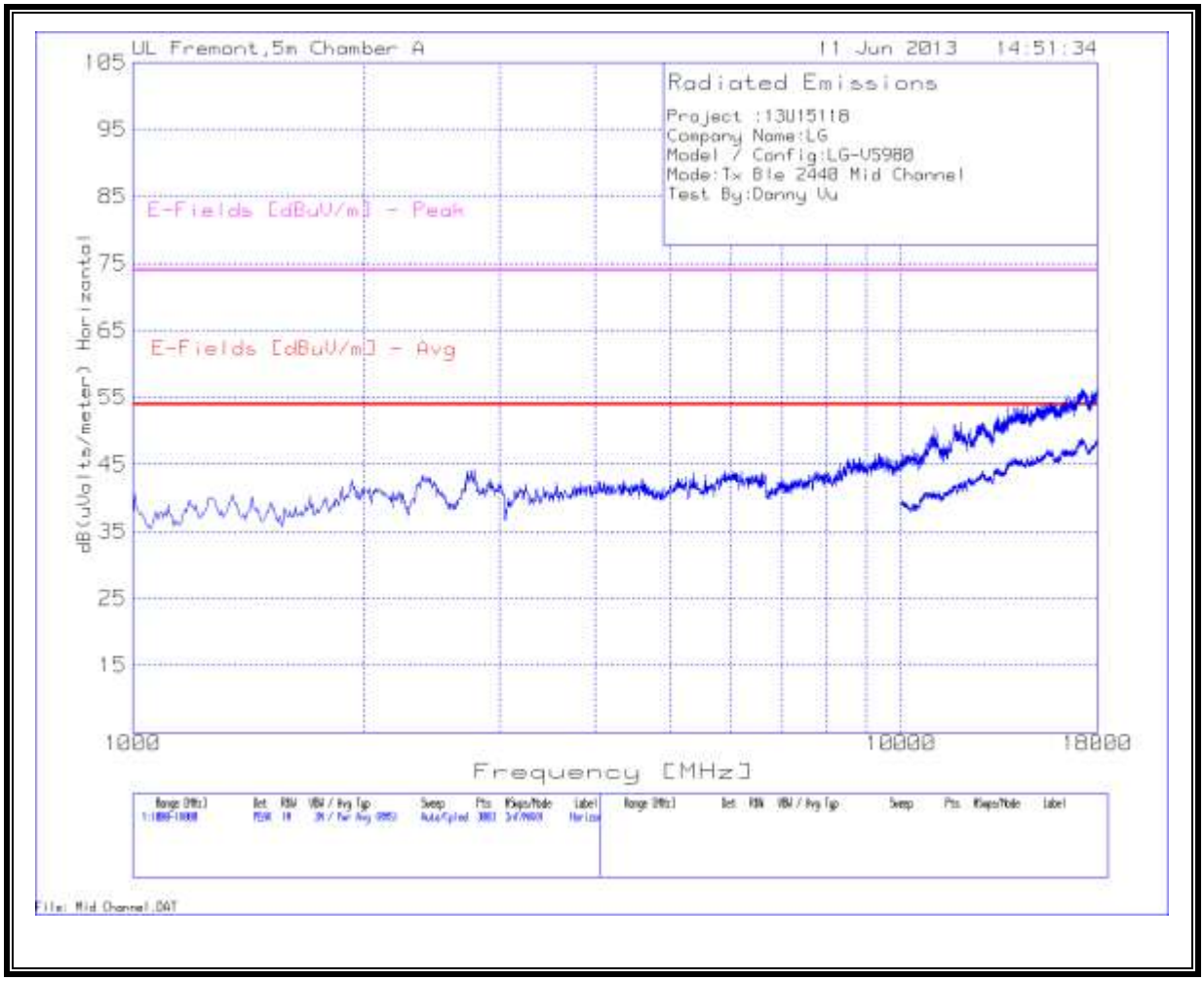
Marker No.	Test Frequency	Meter Reading	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	DC Corr [dB]	dB(uVolts /meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
7	11191.404	26.92	PK	37.9	-35.6	11	0.7	0	40.92	53.97	-13.05	74	-33.08	100	Horz

Vertical 10000 - 18000MHz

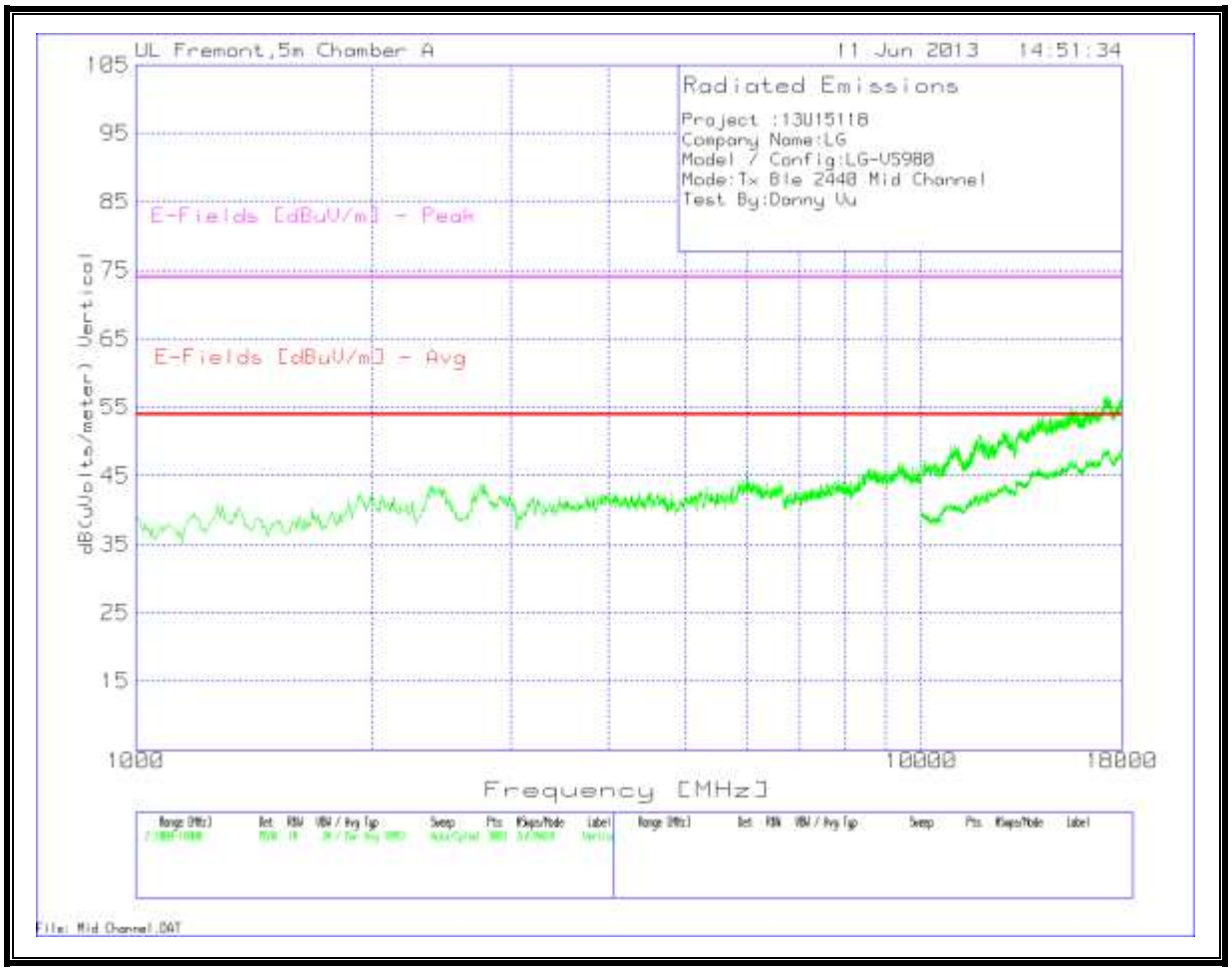
Marker No.	Test Frequency	Meter Reading	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	DC Corr [dB]	dB(uVolts /meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
8	11195.402	26.58	PK	37.9	-35.6	11	0.7	0	40.58	53.97	-13.39	74	-33.42	200	Vert

PK - Peak detector
QP - Quasi-Peak detector

MID CHANNEL
HORIZONTAL



VERTICAL



MID CHANNEL DATA

Project :13U15118
Company Name:LG
Model / Config:LG-VS980
Mode:Tx Ble 2440 Mid Channel
Test By:Danny Vu

Horizontal 1000 - 18000MHz

Marker No.	Test Frequency (MHz)	Meter Reading (dBuV)	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	DC Corr [dB]	dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
1	5371.752	37.55	PK	34.4	-35.5	7.2	0.2	0	43.85	53.97	-10.12	74	-30.15	101	Horz
2	11057.295	36.87	PK	37.8	-35.6	10.9	0.6	0	50.57	53.97	-3.4	74	-23.43	101	Horz

Vertical 1000 - 18000MHz

Marker No.	Test Frequency (MHz)	Meter Reading (dBuV)	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	DC Corr [dB]	dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
3	5989.007	38	PK	35.2	-35.6	7.7	0.2	0	45.5	53.97	-8.47	74	-28.5	100	Vert
4	11872.751	35.9	PK	38.7	-35.7	11.4	0.7	0	51	53.97	-2.97	74	-23	100	Vert

Horizontal 10000 - 18000MHz

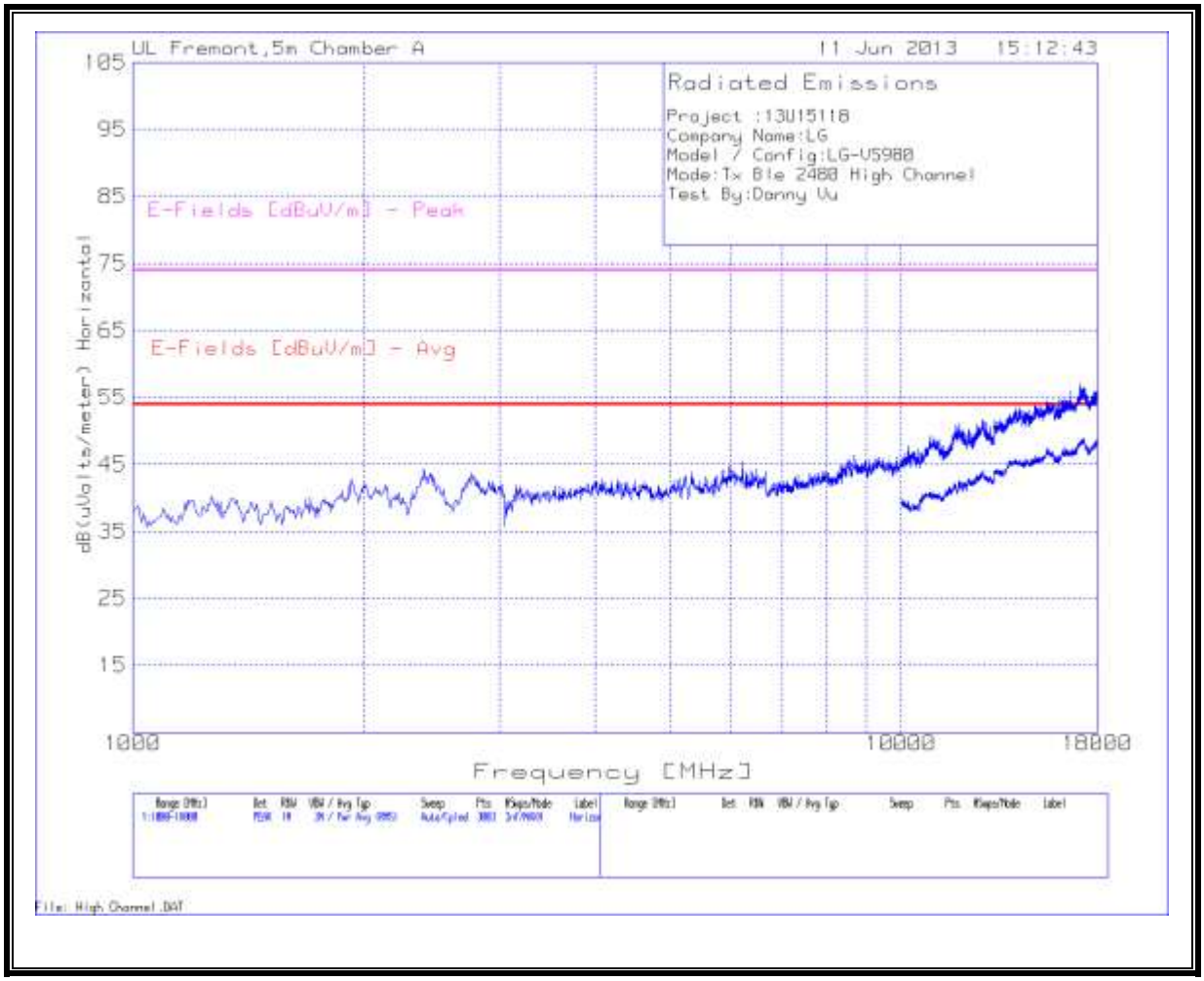
Marker No.	Test Frequency (MHz)	Meter Reading (dBuV)	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	DC Corr [dB]	dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
5	10443.778	26.52	PK	37.4	-36	10.6	0.6	0	39.12	53.97	-14.85	74	-34.88	100	Horz

Vertical 10000 - 18000MHz

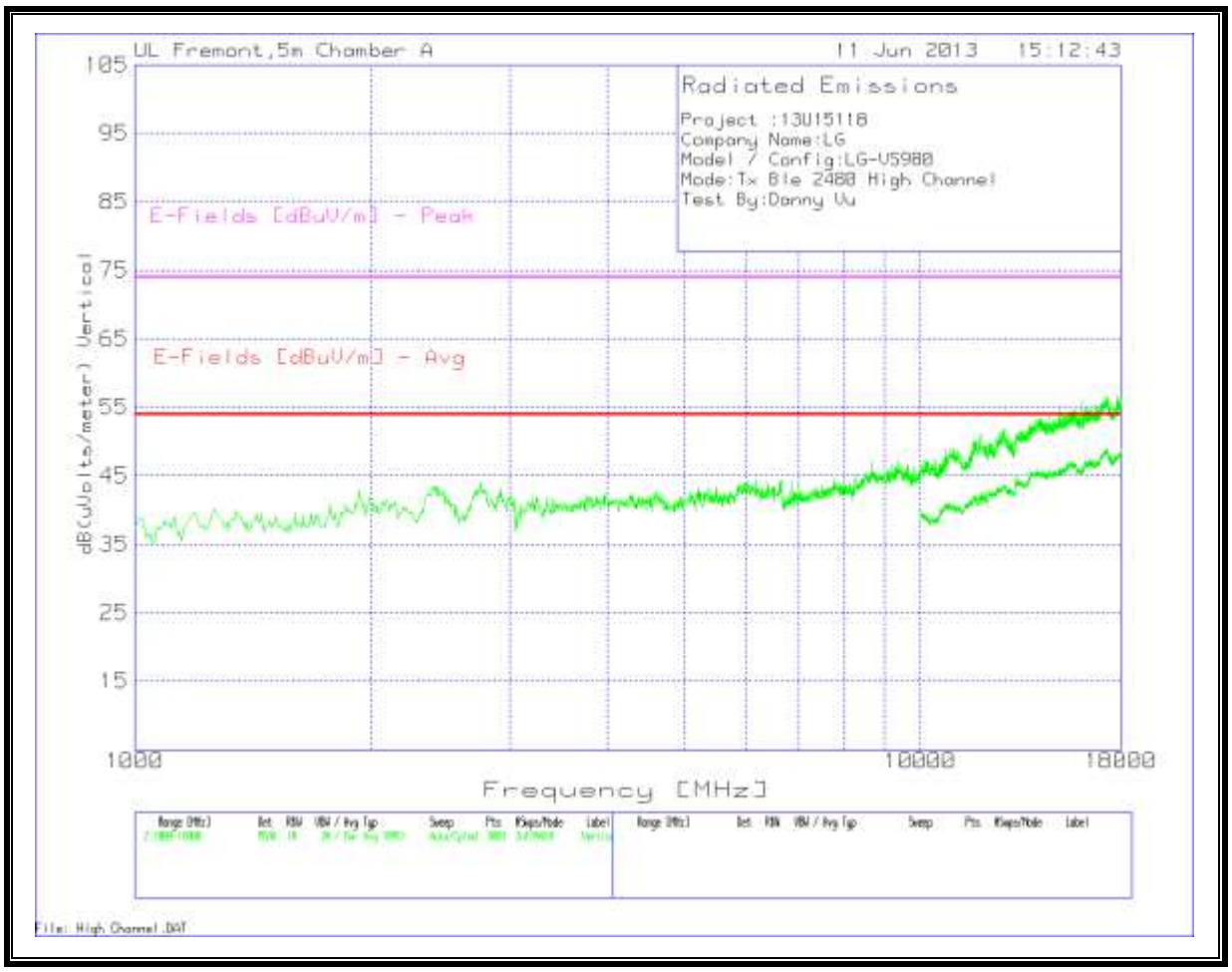
Marker No.	Test Frequency (MHz)	Meter Reading (dBuV)	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	DC Corr [dB]	dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
6	10519.74	26.63	PK	37.6	-36	10.6	0.5	0	39.33	53.97	-14.64	74	-34.67	100	Vert

PK - Peak detector
QP - Quasi-Peak detector

HIGH CHANNEL
HORIZONTAL



VERTICAL



HIGH CHANNEL DATA

Project :13U15118
Company Name:LG
Model / Config:LG-VS980
Mode:Tx Ble 2480 High Channel
Test By:Danny Vu

Horizontal 1000 - 18000MHz

Marker No.	Test Frequency (MHz)	Meter Reading (dBuV)	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	DC Corr [dB]	dB(uVolts/ meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
1	2393.071	43.95	PK	32.1	-36.9	4.4	0.9	0	44.45	53.97	-9.52	74	-29.55	200	Horz
2	6221.186	37.55	PK	35.4	-35.6	7.9	0.2	0	45.45	53.97	-8.52	74	-28.55	101	Horz

Vertical 1000 - 18000MHz

Marker No.	Test Frequency (MHz)	Meter Reading (dBuV)	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	DC Corr [dB]	dB(uVolts/ meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
3	2755.496	42.64	PK	32.6	-36.8	4.8	0.9	0	44.14	53.97	-9.83	74	-29.86	100	Vert
4	6634.577	35.92	PK	35.5	-35.6	8.2	0.3	0	44.32	53.97	-9.65	74	-29.68	200	Vert

Horizontal 10000 - 18000MHz

Marker No.	Test Frequency (MHz)	Meter Reading (dBuV)	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	DC Corr [dB]	dB(uVolts/ meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
5	11007.496	27.22	PK	37.8	-35.6	10.9	0.6	0	40.92	53.97	-13.05	74	-33.08	100	Horz

Vertical 10000 - 18000MHz

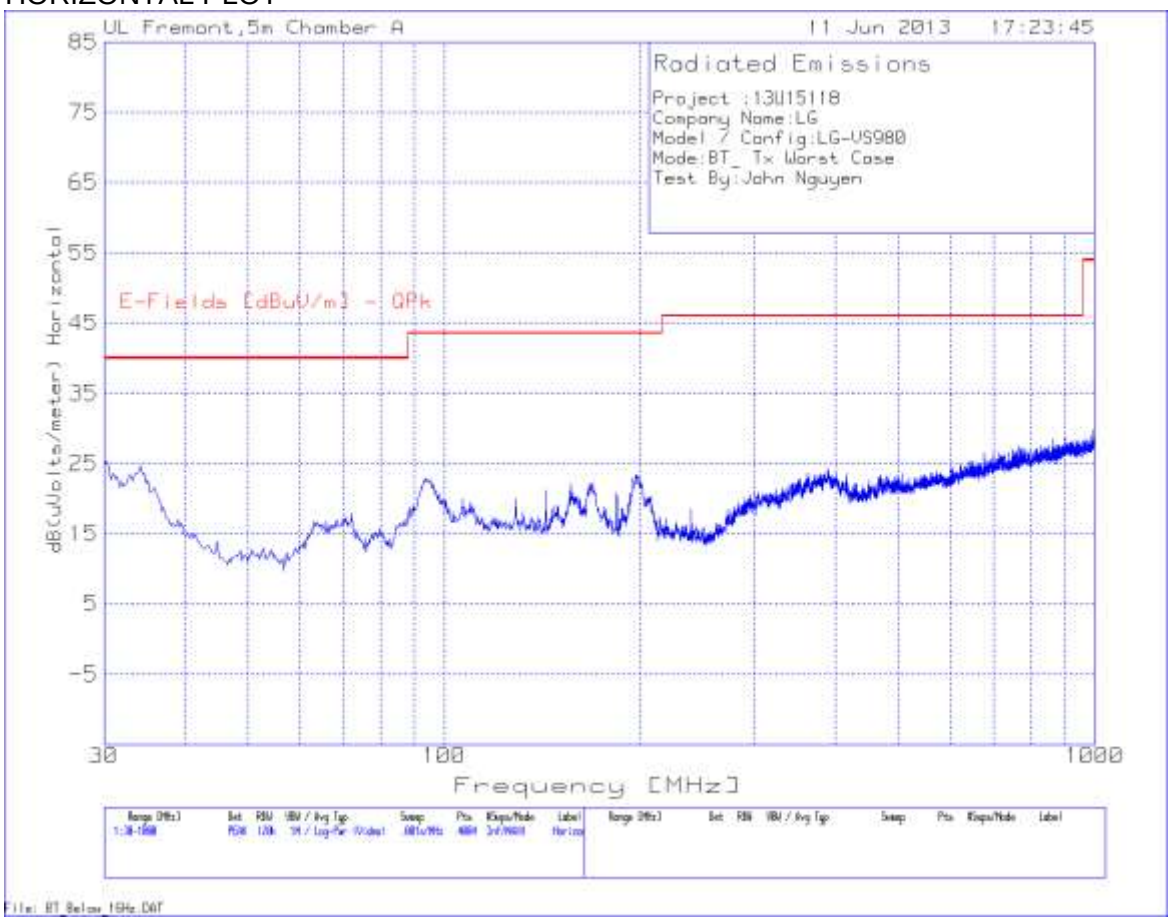
Marker No.	Test Frequency (MHz)	Meter Reading (dBuV)	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	DC Corr [dB]	dB(uVolts/ meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
6	11027.486	27.1	PK	37.8	-35.6	10.9	0.7	0	40.9	53.97	-13.07	74	-33.1	100	Vert

PK - Peak detector
QP - Quasi-Peak detector

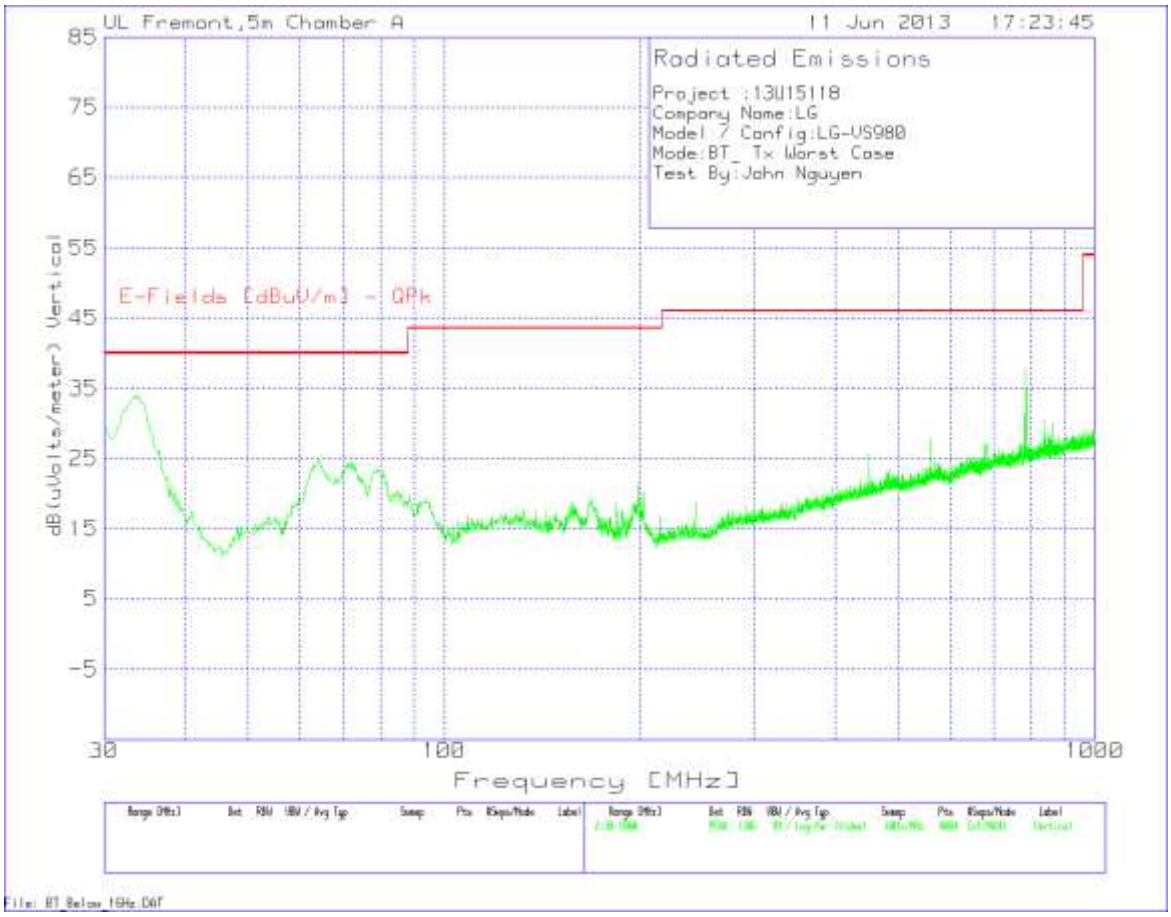
7.4. WORST-CASE BELOW 1 GHz

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

HORIZONTAL PLOT



VERTICAL PLOT



DATA

Project :13U15118
Company Name:LG
Model / Config:LG-VS980
Mode:BT_ Tx Worst Case
Test By:John Nguyen

Marker No.	Test Frequency	Meter Reading	Detector	T185 Antenna Factor dB/m	T64 preamp/ cable loss [dB]	dB(uVolts/ meter)	E-Fields [dBuV/m] - QPk	Margin (dB)	Height [cm]	Polarity
Horizontal 30 - 1000MHz										
1	34.1194	34.21	PK	18.1	-27.6	24.71	40	-15.29	400	Horz
2	197.8054	37.48	PK	12	-26.2	23.28	43.52	-20.24	100	Horz
3	784.0944	28.95	PK	21.2	-23	27.15	46.02	-18.87	100	Horz
Vertical 30 - 1000MHz										
4	33.8771	43.28	PK	18.3	-27.6	33.98	40	-6.02	200	Vert
5	64.1669	44.6	PK	7.6	-27.3	24.9	40	-15.1	200	Vert
6	782.8828	39.46	PK	21.2	-22.9	37.76	46.02	-8.26	200	Vert

PK - Peak detector
QP - Quasi-Peak detector

8. 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

ANSI C63.4

RESULTS

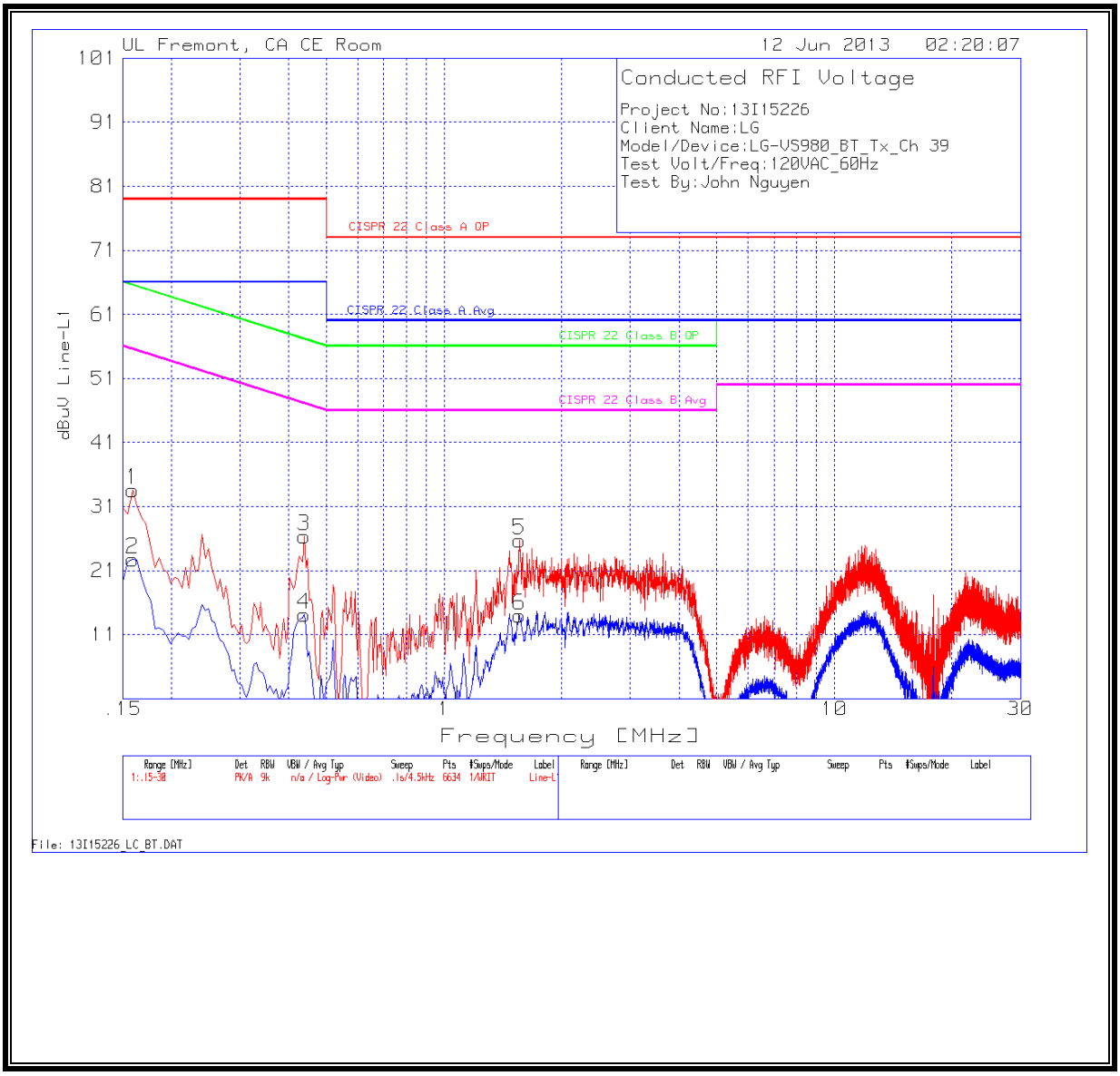
6 WORST EMISSIONS

Project No:13I15226
Client Name:LG
Model/Device:LG-VS980_BT_Tx_Ch 39
Test Volt/Freq:120VAC_60Hz
Test By:John Nguyen

Marker No.	Test Frequency	Meter Reading	Detector	T24 IL L1.TXT	LC Cables 1&3.TXT	dBuV	CISPR 22 Class B QP	Margin	CISPR 22 Class B Avg	Margin	CISPR 22 Class A QP	Margin	CISPR 22 Class A Avg	Margin
Line-L1 .15 - 30MHz														
1	0.159	33.47	PK	0.1	0	33.57	65.5	-31.93	55.5	-21.93	79	-45.43	66	-32.43
2	0.159	22.67	Av	0.1	0	22.77	65.5	-42.73	55.5	-32.73	79	-56.23	66	-43.23
3	0.438	26.24	PK	0.1	0	26.34	57.1	-30.76	47.1	-20.76	79	-52.66	66	-39.66
4	0.438	14.06	Av	0.1	0	14.16	57.1	-42.94	47.1	-32.94	79	-64.84	66	-51.84
5	1.5585	25.47	PK	0.1	0.1	25.67	56	-30.33	46	-20.33	73	-47.33	60	-34.33
6	1.5585	13.74	Av	0.1	0.1	13.94	56	-42.06	46	-32.06	73	-59.06	60	-46.06
Line-L2 .15 - 30MHz														
7	0.1635	34.89	PK	0.1	0	34.99	65.3	-30.31	55.3	-20.31	79	-44.01	66	-31.01
8	0.1635	23.9	Av	0.1	0	24	65.3	-41.3	55.3	-31.3	79	-55	66	-42
9	0.249	30.73	PK	0.1	0	30.83	61.8	-30.97	51.8	-20.97	79	-48.17	66	-35.17
10	0.249	19.76	Av	0.1	0	19.86	61.8	-41.94	51.8	-31.94	79	-59.14	66	-46.14
11	0.438	28.09	PK	0.1	0	28.19	57.1	-28.91	47.1	-18.91	79	-50.81	66	-37.81
12	0.438	18.62	Av	0.1	0	18.72	57.1	-38.38	47.1	-28.38	79	-60.28	66	-47.28

PK - Peak detector
QP - Quasi-Peak detector

LINE 1 RESULTS



LINE 2 RESULTS