

## FCC 47 CFR PART 15 SUBPART C

C2PC CERTIFICATION TEST REPORT FOR

CDMA/WCDMA/LTE Phone + Bluetooth & WLAN 2.4GHz and NFC

MODEL NUMBER: LG-LS740, LGLS740, LS740

FCC ID: ZNFLS740

REPORT NUMBER: 14U16944-2

**ISSUE DATE: JANUARY 27, 2014** 

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

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

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NVLAP LAB CODE 200065-0

## **Revision History**

Rev.	lssue Date	Revisions	Revised By
	1/27/14	Initial Issue	P. Kim

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## **1. ATTESTATION OF TEST RESULTS**

COMPANY NAME:	LG ELECTRONICS MOBILECO 1000 SYLVAN AVENUE ENGLEWOOD CLIFFS, NEW J	·
EUT DESCRIPTION:	CDMA/LTE Phone + Bluetoot	h & WLAN 2.4GHz and NFC
MODEL:	LG-LS740, LGLS740, LS740	0
SERIAL NUMBER:	1801185	
DATE TESTED:	JANUARY 21 - 27, 2014	
	APPLICABLE STANDARDS	
S	TANDARD	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:

Tested By:

Prin hi

PHILIP KIM WISE PROGRAM MANAGER UL Verification Services Inc.

torion 1 .

STEVEN TRAN WISE LAB TECHNICIAN UL Verification Services Inc.

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# 2. 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.

# 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 <u>http://www.ccsemc.com</u>.

# 4. CALIBRATION AND UNCERTAINTY

# 4.1. MEASURING INSTRUMENT CALIBRATION

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

# 4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

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

# 4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.52 dB
Radiated Disturbance, 30 to 18000 MHz	4.94 dB

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

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# 5. EQUIPMENT UNDER TEST

# 5.1. DESCRIPTION OF EUT

The EUT is a CDMA/LTE Phone Bluetooth, WLAN(2.4GHz) and NFC

## 5.2. MAXIMUM OUTPUT POWER

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

Frequency Range	Mode	Output Power	Output Power
(MHz)		(dBm)	(mW)
2402 - 2480	Basic GFSK	9.02	7.98
2402 - 2480	Enhanced 8PSK	8.94	7.83

Note: GFSK, Pi/4-DQPSK, 8PSK average Power are all investigated, The GFSK & 8PSK Power are the worst case. Testing is based on this mode to showing compliance. For average power data please refer to section 8.6.

# 5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an FPCB antenna, with a maximum gain of -1 dBi.

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# 5.4. 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.

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# 5.5. DESCRIPTION OF TEST SETUP

#### SUPPORT EQUIPMENT

Support Equipment List					
Description	Manufacturer	Model	Serial Number	FCC ID	
AC Adapter	LG	MCS-01WD	DB83Y00000030	N/A	

#### I/O CABLES

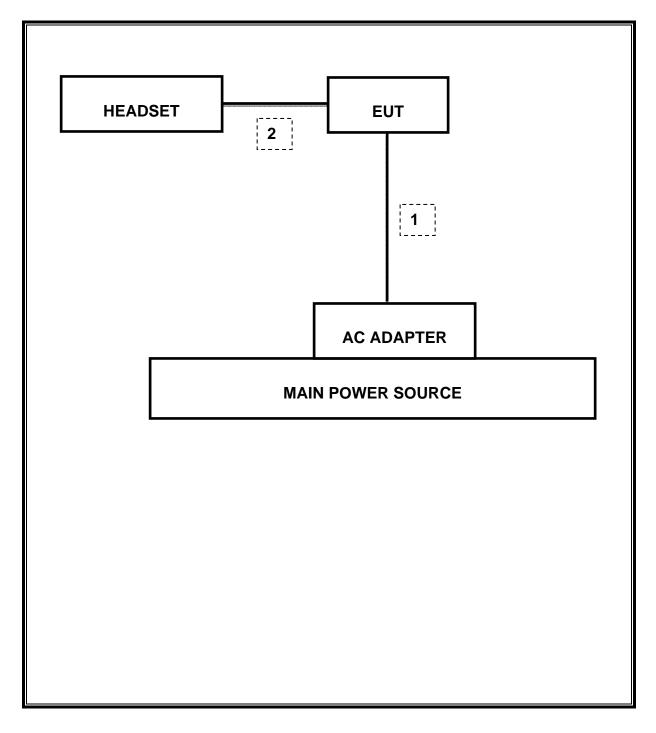
	I/O Cable List						
Cable	Port	# of identical	Connector	Cable Type	<b>Cable Length</b>	Remarks	
No		ports	Туре		(m)		
1	DC Power	1	Mini-USB	Shielded	1.2m	N/A	
2	Audio	1	Mini-Jack	Unshielded	1m	N/A	

#### TEST SETUP

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

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### **SETUP DIAGRAM FOR TESTS**



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# 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		
Antenna, Biconolog, 30MHz-1 GHz	Sunol Sciences	JB1	C01171	03/23/13	02/13/14		
Antenna, Horn, 18GHz	EMCO	3117	C01006	10/25/13	02/19/14		
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00580	01/28/13	01/28/14		
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01069	12/20/13	12/20/14		
CBT Bluetooth Tester	R & S	CBT	None	07/12/13	07/12/14		
Peak Power Meter	Agilent / HP	E4416A	C00963	12/13/13	12/13/14		
Peak / Average Power Sensor	Agilent / HP	E9327A	C00964	12/13/13	12/13/14		
LISN, 30 MHz	FCC	50/250-25-2	C00626	01/14/14	01/14/15		
Reject Filter, 2.4GHz	Micro-Tronics	BRM50702	N02684	CNR	CNR		

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# 7. SUMMARY TABLE

FCC Part Section	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Worst Case
2.1049	RSS-GEN 4.6	Occupied Band width (99%)	N/A		Pass	See original
2.1051, 15.247 (d)	RSS-210 A8.5	Band Edge / Conducted Spurious Emission	-20dBc		Pass	See original
15.247 (b)(1)	RSS-210 A8.4	TX conducted output power	<21dBm		Pass	See original
15.247 (a)(1)	RSS-210 A8.1(b)	Hopping frequency separation	> 25KHz	Conducted	Pass	See original
15.247 (a)(1)(iii)	RSS-210 A8.1(d)	Number of Hopping channels	More than 15 non- overlapping channels		Pass	See original
15.247 (a)(1)(iii)	RSS-210 A8.1(d)	Avg Time of Occupancy	< 0.4sec		Pass	See original
15.207 (a)	RSS-GEN 7.2.2	AC Power Line conducted emissions	Section 10		Pass	See original
15.205, 15.209	RSS-210 Clause 2.6, RSS-210 Clause 6	Radiated Spurious Emission	< 54dBuV/m	Radiated	Pass	47.02dBuV/m

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# 8. RADIATED TEST RESULTS

## 8.1. LIMITS AND PROCEDURE

## <u>LIMITS</u>

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 1/T (on time) for average measurement.

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 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.

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# 8.2. TRANSMITTER ABOVE 1 GHz

## 8.2.1. BASIC DATA RATE GFSK MODULATION

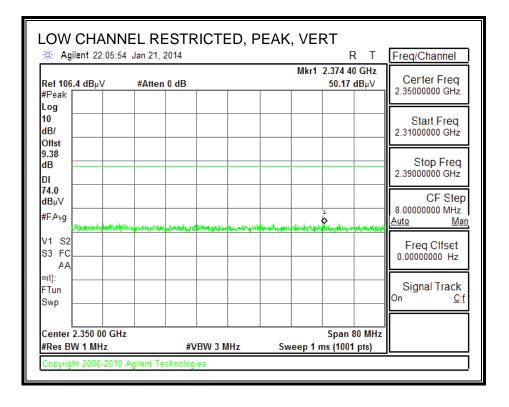
## **RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)**

Agilent 22:23	.30 381 21, 20	14		Mkr1 3	R .327 44 G	<u> </u>	Freq/Channel
e <b>f 106.4 dB</b> µV <sup>D</sup> eak □	#Atten 0	dB			52.13 dB	uV	Certer Freq 2.35000000 GHz
9g 3/							Start Freq 2.31000000 GHz
38							Stop Freq 2.3900000 GHz
1.0 3μV <sup>2</sup> Δvg	-1	and states from all states	يوبيغ فحافر ورزيدهم ورويده		-	[	CF Ste 8.00000000 MHz Auto M
1 S2 3 FC							Freq Clfset 0.00000000 Hz
l): [un							Signal Track <sup>On <u>C</u></sup>
enter 2.350 00 G Res BW 1 MHz	iHz	#VBW 3 M	IHz #Swei	ep 50.13 ms	Span 80 I		

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Agilent 22:2	6:12 Jan 21, 2014			RT	Freq/Channel
Ref 106.4 dBµV #Peak □ □	#Atten 0 dB		Mkr1 2.315 40.04	i 68 GHz 13 dBμV	Certer Freq 2.35000000 GHz
Log 10 dB/					Start Freq 2.31000000 GHz
9.38 dB DI					Stop Freq 2.3900000 GHz
54.0 dBµV #FAvg					CF Step 8.00000000 MHz <u>Auto Mar</u>
100 W1 S2	·····		·		Freq Clfset 0.00000000 Hz
¤(1): =Tun Swp					Signal Track <sup>On <u>C</u>:f</sup>
Center 2.350 00 ( #Res BW 1 MHz		510 Hz Sw	Spa veep 122.3 ms (10	n 80 MHz 01 nts)	

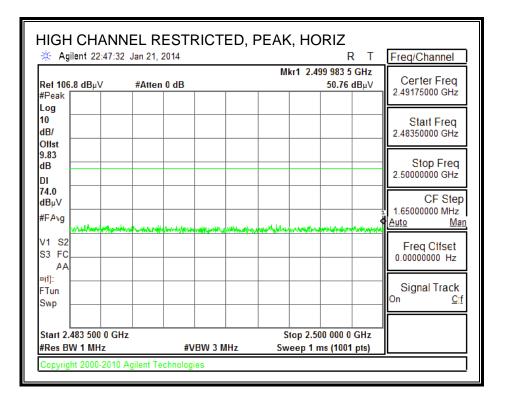
## **RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)**



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Agilent 22:10:	15 Jan 21, 2014		R	T Freq/Channel
<b>Rei 106.4 dB</b> µ∨ #Peak	#Atten 0 dB		Mkr1 2.311 12 0 40.026 dB	Contex Fred
Log 10 dB/ Offst				Start Freq 2.31000000 GHz
9.38 dB DI 54.0				Stop Freq 2.39000000 GHz
dBμV #FAvg 100				CF Step 8.00000000 MHz <u>Auto Man</u>
W1 S2 S3 FS AA				Freq Clifset
¤(1): FTun Swp				Signal Track On <u>C</u> :f
Center 2.350 00 G #Res BW 1 MHz	lz #VBW 5	10 Hz Sw	Span 80 eep 122.3 ms (1001 pt	

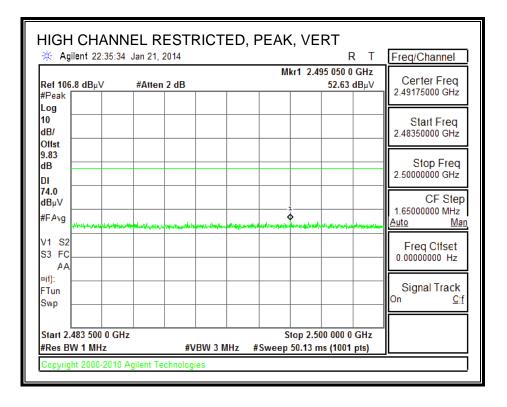
## **RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)**



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Agilent 22:52	2:00 Jan 21, 2014			RT	Freq/Channel
Rei 106.8 dBµV #Peak □	#Atten 0 dB		Mkr1 2.484 226 40.115		Center Freq 2.49175000 GHz
Log 10 dB/ 011st					Start Freq 2.48350000 GHz
9.83 dB DI					Stop Freq 2.5000000 GHz
54.0 dBμV #FAvg					CF Step 1.6500000 MHz
100 100 100 100 100 100 100 100 100 100					Auto Man Freq Olfset
S3 FS					0.00000000 Hz
FTun Swp					Signal Track <sup>On <u>C</u>!f</sup>
Start 2.483 500 0 #Res BW 1 MHz	GHz #VBW 5	10 Hz Sw	Stop 2.500 000 eep 25.27 ms (100		

## **RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)**



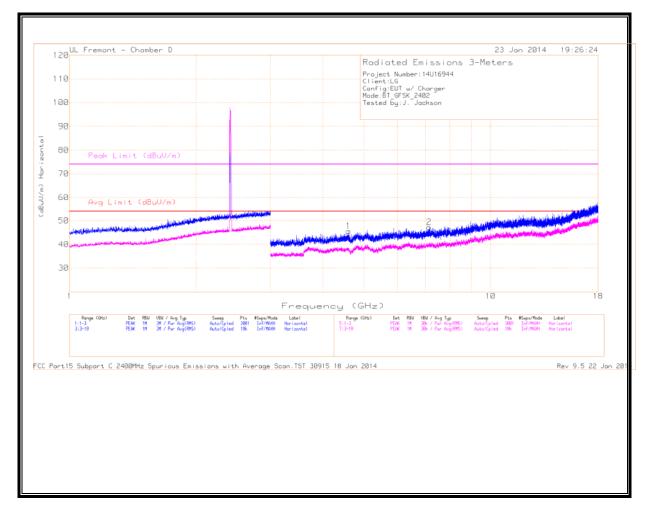
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Agilent 22:39:	46 Jan 21, 2014	R T	Freq/Channel
Ref 106.8 dBµV	#Atten 2 dB	Mkr1 2.484 440 5 GHz 39.941 dBµ∨	Certer Freq 2,49175000 GHz
#Peak			2.40 11 3000 0112
10 dB/			Start Freq 2.48350000 GHz
).83 1B			- Stop Freq 2.5000000 GHz
54.0 dBμV			CF Step 1.6500000 MHz
#FAvg 100			Auto Ma
N1 S2			Freq Clfset 0.00000000 Hz
a(1): = Tun Swp			Signal Track
Start 2.483 500 0 0	GHz #VBW 510 Hz	Stop 2.500 000 0 GHz #Sweep 50.13 ms (1001 pts)	

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### HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL

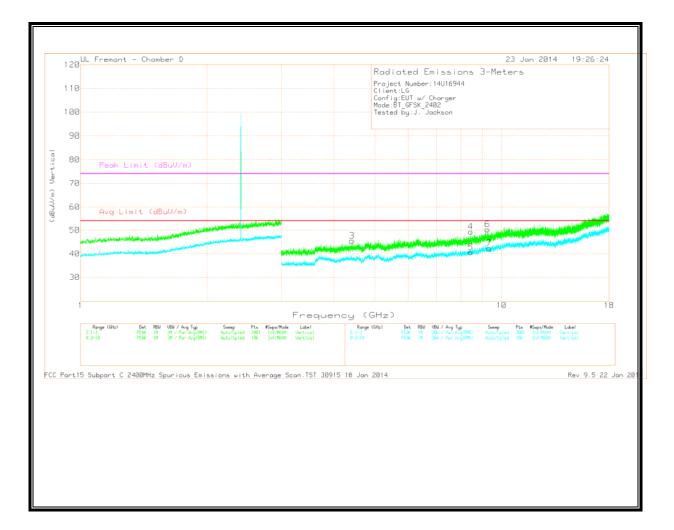


Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

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#### REPORT NO: 14U16944-2 FCC ID: ZNFLS740

## VERTICAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

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## LOW CHANNEL DATA

Marker	Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T344 (db/m)	Amp/Cbl/ Fltr/Pad (dB)	Correcte d Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	4.413	39.64	PK	34.1	-28.3	45.44	-	-	74	-28.56	0-360	201	V
1	4.599	37.99	PK	34.3	-26.8	45.49	-	-	74	-28.51	0-360	201	Н
2	7.151	36.63	PK	35.9	-25.3	47.23	-	-	74	-26.77	0-360	100	Н
4	8.448	36.94	PK	36.2	-23.8	49.34	-	-	74	-24.66	0-360	201	V
5	8.448	28.15	Avg	36.2	-23.8	40.55	53.97	-13.42	74	-33.45	0-360	201	V
6	9.26	35.13	PK	36.9	-21.7	50.33	-	-	74	-23.67	0-360	201	V
7	9.336	27.55	Avg	37	-22.3	42.25	53.97	-11.72	74	-31.75	0-360	201	V

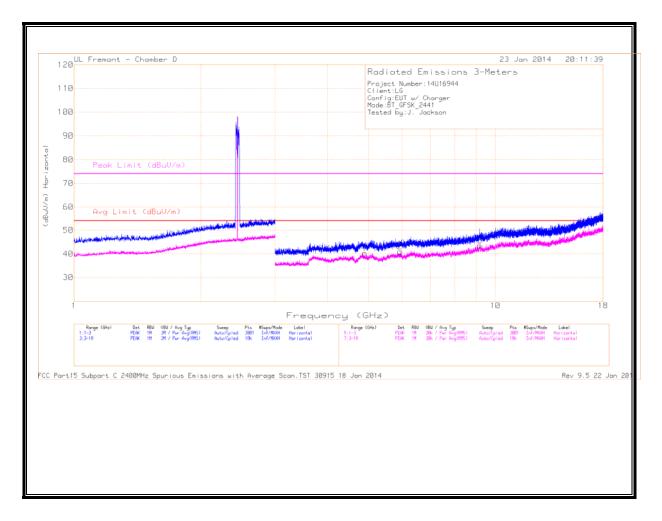
PK - Peak detector

Avg - Video bandwidth < Resolution bandwidth

FCC Part15 Subpart C 2400MHz Spurious Emissions with Average Scan.TST 30915 18 Jan 2014 Rev 9.5 22 Jan 2014

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#### MID CHANNEL HORIZONTAL

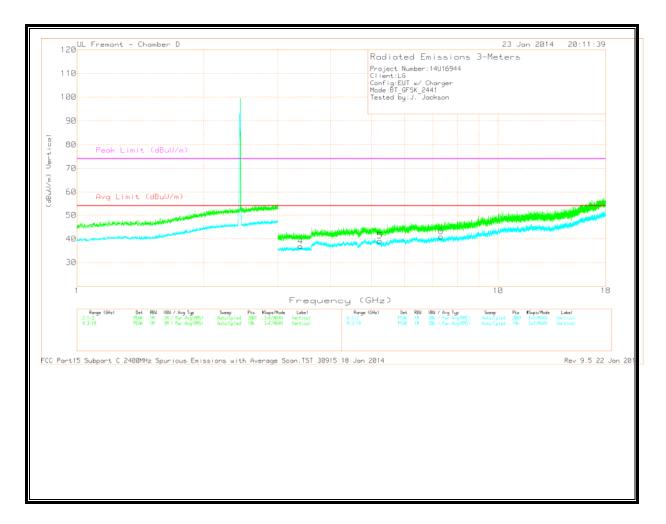


Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

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#### REPORT NO: 14U16944-2 FCC ID: ZNFLS740

## VERTICAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

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## MID CHANNEL DATA

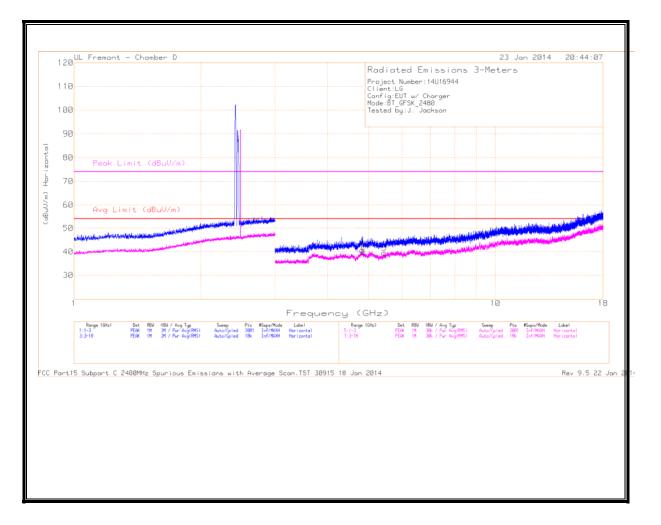
Marker	Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T344 (db/m)	Amp/Cbl/ Fltr/Pad (dB)	Correcte d Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	3.395	31.55	Avg	33.3	-28	36.85	53.97	-17.12	74	-37.15	0-360	100	V
1	4.899	33.37	Avg	34.3	-27.4	40.27	53.97	-13.7	74	-33.73	0-360	201	Н
5	5.241	31.96	Avg	34.7	-27.5	39.16	53.97	-14.81	74	-34.84	0-360	201	V
2	5.942	31.64	Avg	35.6	-26.3	40.94	53.97	-13.03	74	-33.06	0-360	201	Н
6	7.321	30.13	Avg	35.9	-25	41.03	53.97	-12.94	74	-32.97	0-360	201	V
3	9.182	27.89	Avg	36.8	-21.2	43.49	53.97	-10.48	74	-30.51	0-360	100	Н

Avg - Video bandwidth < Resolution bandwidth

FCC Part15 Subpart C 2400MHz Spurious Emissions with Average Scan.TST 30915 18 Jan 2014 Rev 9.5 22 Jan 2014

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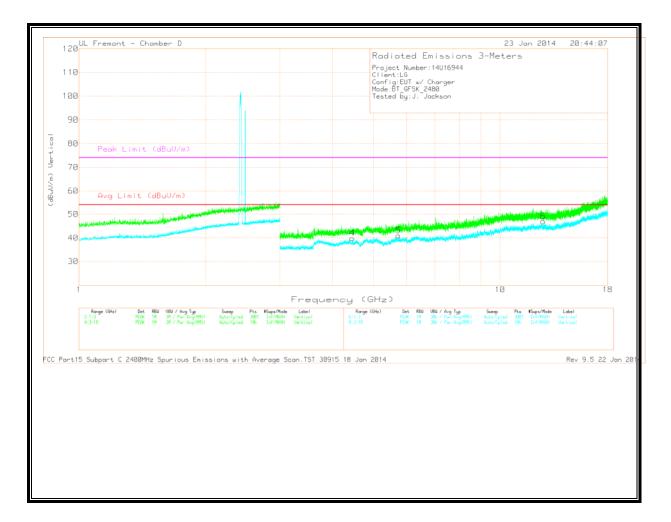
#### HIGH CHANNEL HORIZONTAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

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## VERTICAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

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## HIGH CHANNEL DATA

Marker	Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T344 (db/m)	Amp/Cbl/ Fltr/Pad (dB)	Correcte d Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	4.46	34.02	Avg	34.2	-28.4	39.82	53.97	-14.15	74	-34.18	0-360	100	V
1	4.827	32.9	Avg	34.4	-26.7	40.6	53.97	-13.37	74	-33.4	0-360	100	Н
2	4.865	32.47	Avg	34.4	-26.9	39.97	53.97	-14	74	-34.03	0-360	201	Н
3	5.443	31.91	Avg	34.8	-27.2	39.51	53.97	-14.46	74	-34.49	0-360	201	Н
5	5.737	32.38	Avg	35.3	-26.7	40.98	53.97	-12.99	74	-33.02	0-360	201	V
6	12.661	29.72	Avg	39.2	-21.9	47.02	53.97	-6.95	74	-26.98	0-360	201	V

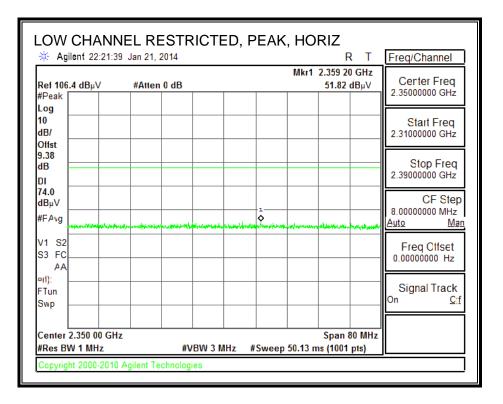
Avg - Video bandwidth < Resolution bandwidth

FCC Part15 Subpart C 2400MHz Spurious Emissions with Average Scan.TST 30915 18 Jan 2014 Rev 9.5 22 Jan 2014

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## 8.2.2. ENHANCED DATA RATE 8PSK MODULATION

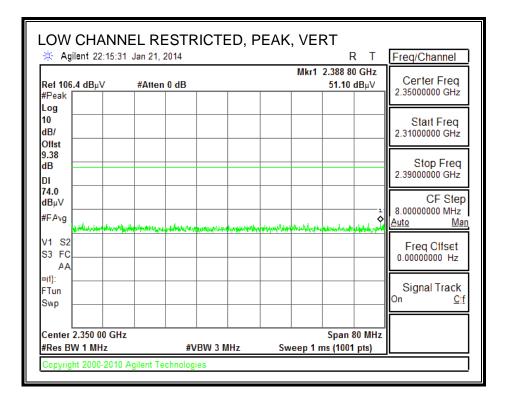
## **RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)**



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🔆 Agilent 22:28:	48 Jan 21, 2014		R T Freq/Channel
Ref 106.4 dBµV #Peak □ □	#Atten 0 dB	Mkr1 2.316 40.07	6 00 GHz 79 dBμV 2.35000000 GHz
Log 10 1B/ Difst			Start Freq 2.31000000 GHz
9.38 JB DI 54.0			Stop Freq 2.39000000 GHz CF Step
1BμV #FAvg 100			8.00000000 MHz <u>Auto Ma</u>
№1 S2 ↓ S3 FS AA			Freq Clifset 0.00000000 Hz
×(1): =Tun Swp			Signal Track On <u>Cif</u>
Center 2.350 00 G Res BW 1 MHz	Hz #VBW 510	•	n 80 MHz 01 pts)

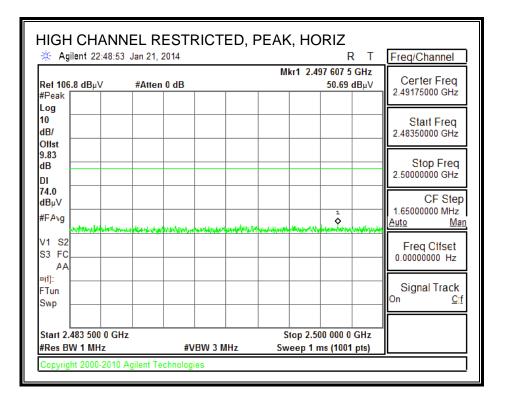
## **RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)**



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🔆 Agilent 22:1	3:14 Jan 21, 2014			RT	Freq/Channel
Ref 106.4 dBµV #Peak	#Atten 0 dE	3	Mkr1	2.316 08 GHz 40.041 dBµ∨	Certer Freq 2.35000000 GHz
Log 10 dB/ Offst					Start Freq 2.31000000 GHz
9.38 dB DI 54.0					Stop Freq 2.39000000 GHz
dBμV #FAvg					CF Step 8.00000000 MHz <u>Auto Man</u>
W1 S2 👌 S3 FS AA					Freq Clfset 0.00000000 Hz
¤l1): =Tun Swp					Signal Track On <u>Cif</u>
Center 2.350 00 ( #Res BW 1 MHz		#VBW 510 Hz	Sweep 122.3 r	Span 80 MHz stan 80 MHz	

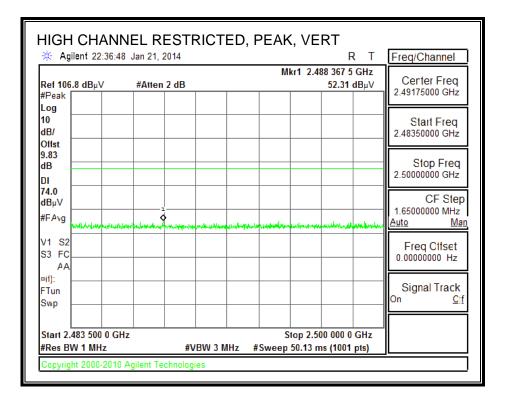
## **RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)**



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🔆 Agilent 22:50:	13 Jan 21, 2014	R T	Freq/Channel
Ref 106.8 dBµ∨ #Peak	#Atten 0 dB	Mkr1 2.484 094 0 GHz 40.130 dBµ∨	Certer Freq 2.49175000 GHz
Log 10 dB/ Otist			Start Freq 2.48350000 GHz
9.83 1B DI 54.0			Stop Freq 2.5000000 GHz
4.0 1BμV #FAvg			CF Step 1.65000000 MHz <u>Auto Ma</u>
N1 S2 &			Freq Clfset 0.00000000 Hz
a(1): =Tun Swp			Signal Track On <u></u> Cif
Start 2.483 500 0 0	GHz #VBW 510	Stop 2.500 000 0 GHz Hz Sweep 25.27 ms (1001 pts)	

## **RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)**



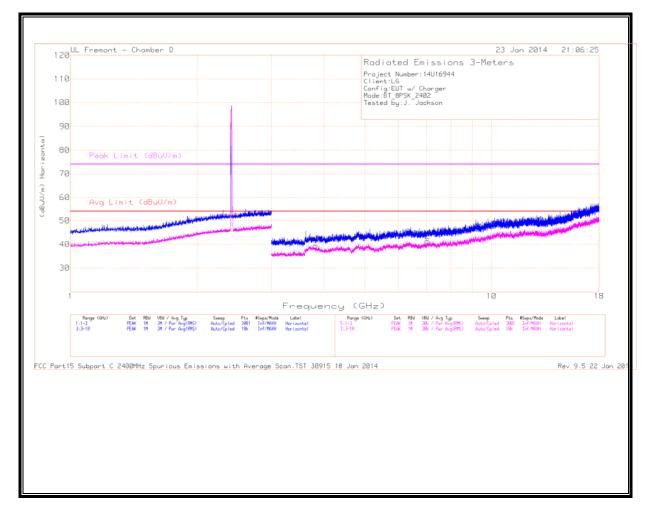
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🔆 Agilent 22:38		R T	Freq/Channel
Ref 106.8 dBµ∨	#Atten 2 dB	Mkr1 2.483 929 0 GHz 39.978 dBμV	Center Freq 2.49175000 GHz
#Peak			2.40113000 012
10 dB/			Start Freq 2.48350000 GHz
Offst 9.83 dB			Stop Freq
DI 54.0 dBµV			CF Step
#FAvg			1.65000000 MHz Auto Ma
W1 S2 S3 FS			Freq Clfset 0.00000000 Hz
¤(1): FTun Swp			Signal Track
Start 2.483 500 0	GHz #VBW 510 Hz	Stop 2.500 000 0 GHz #Sweep 50.13 ms (1001 pts)	

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### HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL

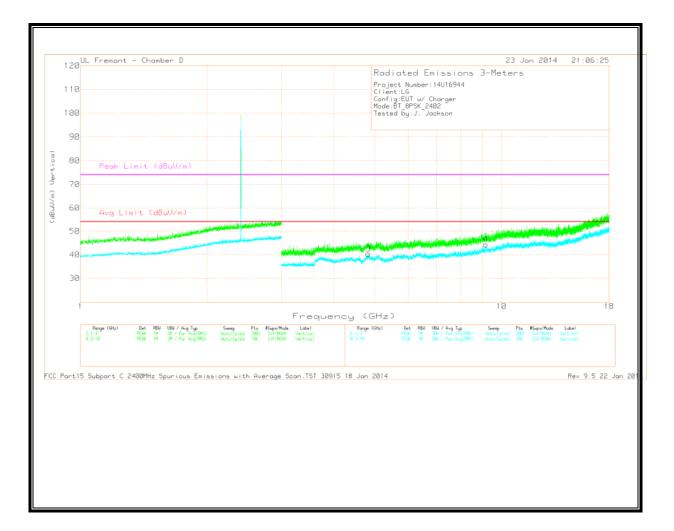


Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

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#### REPORT NO: 14U16944-2 FCC ID: ZNFLS740

## VERTICAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

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## LOW CHANNEL DATA

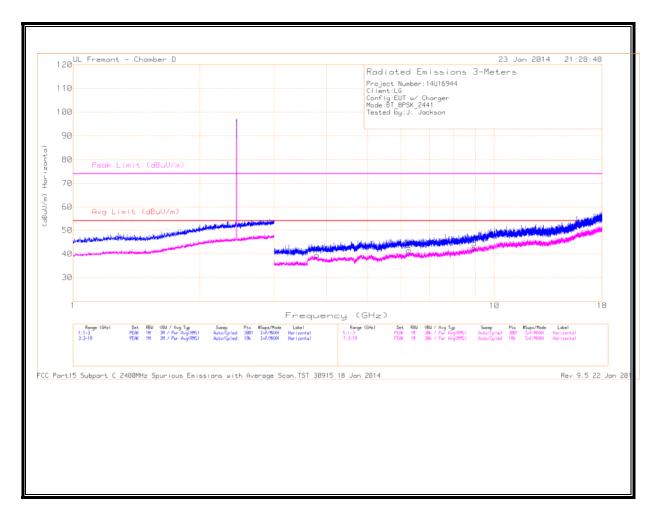
Marker	Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T344 (db/m)	Amp/Cbl/ Fltr/Pad (dB)	Correcte d Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	3.818	34.37	Avg	33.8	-28.8	39.37	53.97	-14.6	74	-34.63	0-360	201	Н
3	4.826	32.71	Avg	34.4	-26.7	40.41	53.97	-13.56	74	-33.59	0-360	100	V
2	7.044	30.92	Avg	35.9	-25.5	41.32	53.97	-12.65	74	-32.68	0-360	100	Н
4	9.175	28.82	Avg	36.8	-21.3	44.32	53.97	-9.65	74	-29.68	0-360	201	V

Avg - Video bandwidth < Resolution bandwidth

FCC Part15 Subpart C 2400MHz Spurious Emissions with Average Scan.TST 30915 18 Jan 2014 Rev 9.5 22 Jan 2014

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#### MID CHANNEL HORIZONTAL

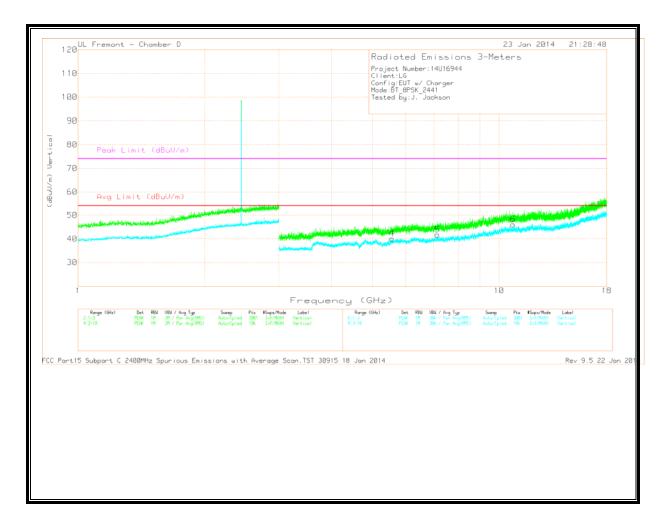


Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

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#### REPORT NO: 14U16944-2 FCC ID: ZNFLS740

## VERTICAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

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## MID CHANNEL DATA

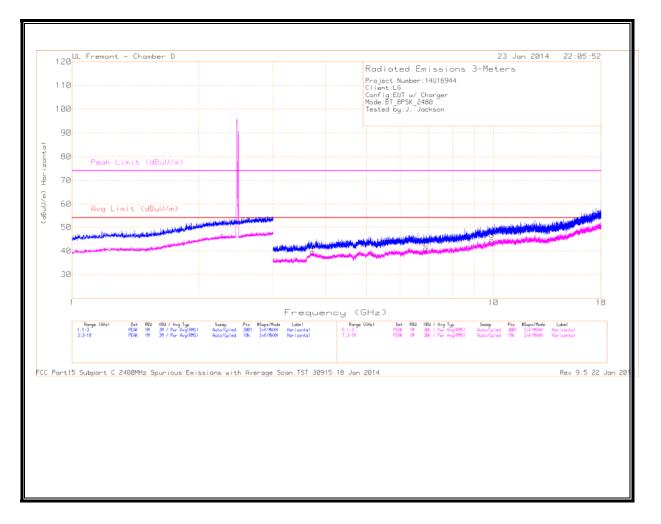
Marker	Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T344 (db/m)	Amp/Cbl/ Fltr/Pad (dB)	Correcte d Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	3.792	34.26	Avg	33.8	-28.7	39.36	53.97	-14.61	74	-34.64	0-360	201	Н
4	5.567	32.56	Avg	34.9	-27.4	40.06	53.97	-13.91	74	-33.94	0-360	201	V
2	6.266	31.66	Avg	36	-26.2	41.46	53.97	-12.51	74	-32.54	0-360	201	Н
5	7.137	31.11	Avg	35.9	-25.3	41.71	53.97	-12.26	74	-32.29	0-360	100	V
3	8.945	28.92	Avg	36.6	-23.2	42.32	53.97	-11.65	74	-31.68	0-360	201	Н
6	10.79	28.96	Avg	38.5	-21.4	46.06	53.97	-7.91	74	-27.94	0-360	100	V

Avg - Video bandwidth < Resolution bandwidth

FCC Part15 Subpart C 2400MHz Spurious Emissions with Average Scan.TST 30915 18 Jan 2014 Rev 9.5 22 Jan 2014

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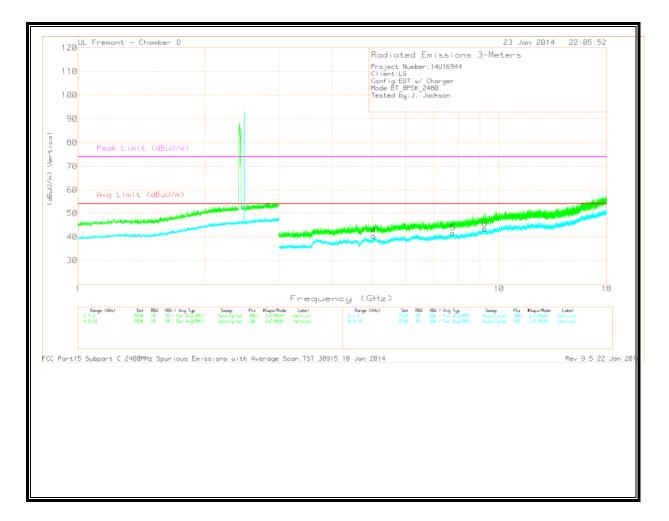
#### HIGH CHANNEL HORIZONTAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

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## VERTICAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

### HIGH CHANNEL DATA

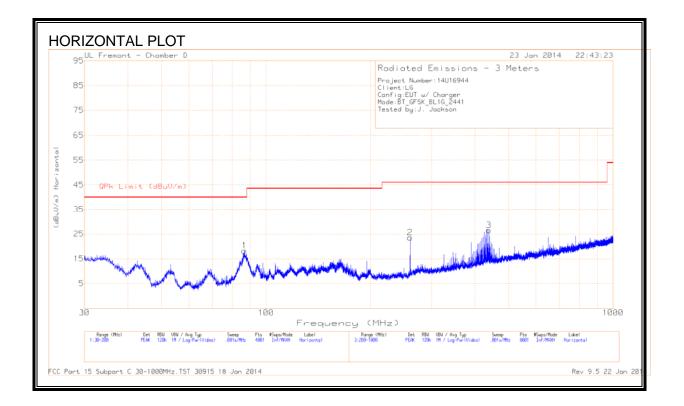
Marker	Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T344 (db/m)	Amp/Cbl/ Fltr/Pad (dB)	Correcte d Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	3.726	34.12	Avg	33.8	-28.3	39.62	53.97	-14.35	74	-34.38	0-360	100	Н
4	5.036	33.01	Avg	34.4	-27.1	40.31	53.97	-13.66	74	-33.69	0-360	201	V
2	6.924	30.8	Avg	35.8	-25.6	41	53.97	-12.97	74	-33	0-360	100	Н
5	7.763	29.87	Avg	36.1	-24.3	41.67	53.97	-12.3	74	-32.33	0-360	201	V
6	9.25	27.86	Avg	36.9	-21.4	43.36	53.97	-10.61	74	-30.64	0-360	201	V
3	9.915	28.39	Avg	37.7	-21.6	44.49	53.97	-9.48	74	-29.51	0-360	100	Н

Avg - Video bandwidth < Resolution bandwidth FCC Part15 Subpart C 2400MHz Spurious Emissions with Average Scan.TST 30915 18 Jan 2014 Rev 9.5 22 Jan 2014

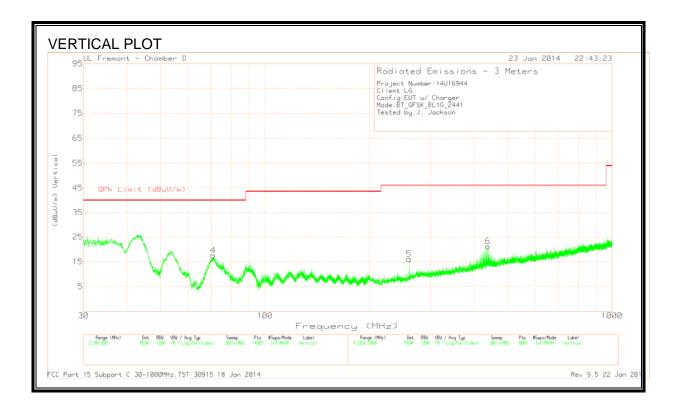
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# 8.3. WORST-CASE BELOW 1 GHz

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



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## Trace Markers

Marker	Frequenc y (MHz)	Meter Reading (dBuV)	Det	AF T407 dB/m	Amp/Cbl (dB)	Correcte d Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	70.9275	40.79	PK	8.3	-31.6	17.49	40	-22.51	0-360	100	V
1	86.6525	41.5	PK	7.7	-31	18.2	40	-21.8	0-360	200	Н
2	260.2	42.11	PK	12.1	-30.7	23.51	46.02	-22.51	0-360	100	Н
5	260.2	34.64	PK	12.1	-30.7	16.04	46.02	-29.98	0-360	200	V
3	438.4	39.5	PK	16.9	-29.9	26.5	46.02	-19.52	0-360	201	Н
6	438.4	34.21	PK	16.9	-29.9	21.21	46.02	-24.81	0-360	100	V

PK - Peak detector

FCC Part 15 Subpart C 30-1000MHz.TST 30915 18 Jan 2014 Rev 9.5 22 Jan 2014

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