FCC 47 CFR PART 22 SUBPART H
FCC 47 CFR PART 24 SUBPART E
FCC 47 CFR PART 27 SUBPART M
FCC 47 CFR PART 90 SUBPART S

CERTIFICATION TEST REPORT

FOR

GSM/CDMA/WCDMA/LTE Phone + Bluetooth, DTS/UNII a/b/g/n/ac and NFC

MODEL NUMBER: LGLS990, LG-LS990, LS990

FCC ID: ZNFLS990

REPORT NUMBER: 14U17501-1 REVISION A

ISSUE DATE: MAY 28, 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
47173 BENICIA STREET
FREMONT, CA 94538, U.S.A.
TEL: (510) 771-1000
FAX: (510) 661-0888

NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	5/5/14	Initial Issue	P. Zhang
A	5/28/14	Updated LTE B26	P. Zhang

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS 5

2. TEST METHODOLOGY 7

3. FACILITIES AND ACCREDITATION 7

4. CALIBRATION AND UNCERTAINTY 7

4.1. MEASURING INSTRUMENT CALIBRATION 7

4.2. SAMPLE CALCULATION 7

4.3. MEASUREMENT UNCERTAINTY 7

5. EQUIPMENT UNDER TEST 8

5.1. DESCRIPTION OF EUT 8

5.2. MAXIMUM OUTPUT POWER 8

5.3. MAXIMUM OUTPUT POWER (LTE) 9

5.4. DESCRIPTION OF AVAILABLE ANTENNAS 12

5.5. DESCRIPTION OF TEST SETUP 13

6. TEST AND MEASUREMENT EQUIPMENT 16

7. Summary Table 17

8. RF POWER OUTPUT VERIFICATION 18

8.1. GSM/GPRS/EDGE 18

8.1.1. GSM OUTPUT POWER RESULT 19

8.2. UMTS REL 99 20

8.2.1. UMTS REL 99 OUTPUT POWER RESULT 20

8.3. UMTS HSDPA 21

8.3.1. UMTS HSDPA OUTPUT POWER RESULT 21

8.3.2. UMTS HSUPA 23

8.3.3. UMTS HSUPA OUTPUT POWER RESULT 24

8.4. CDMA2000 25

8.4.1. 1xRTT 25

8.4.2. CDMA2000 OUTPUT POWER RESULT 26

8.4.3. 1xEV-DO Release 0 27

8.4.4. 1XEVDO REL 0 OUTPUT POWER RESULT 28

8.4.5. 1xEV-DO Rev. A 29

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

8.4.6. 1xEVDO REV A OUTPUT RESULT 30
8.5. LTE OUTPUT VERIFICATION 31
8.5.1. LTE OUTPUT RESULT 31
9. PEAK TO AVERAGE RATIO 36
9.1. CONDUCTED PEAK TO AVERAGE RESULT 36
10. LIMITS AND CONDUCTED RESULTS 45
10.1. OCCUPIED BANDWIDTH 45
10.1.1. OCCUPIED BANDWIDTH RESULTS 46
10.1.2. LTE OCCUPIED BANDWIDTH RESULTS 48
10.1.3. OCCUPIED BANDWIDTH PLOTS 51
10.2. BAND EDGE EMISSIONS 60
10.2.1. BAND EDGE PLOTS 61
10.2.2. EMISSION MASK PLOTS 88
10.3. OUT OF BAND EMISSIONS 96
10.3.1. OUT OF BAND EMISSIONS RESULT 97
10.3.2. OUT OF BAND EMISSIONS PLOTS 101
10.4. FREQUENCY STABILITY 110
10.4.1. FREQUENCY STABILITY RESULTS 111
11. RADIATED TEST RESULTS 116
11.1. RADIATED POWER (ERP & EIRP) 116
11.1.1. ERP/EIRP Results 116
11.1.2. LTE ERP/EIRP Results 119
11.1.3. ERP/EIRP data 122
RADIATED POWER (ERP & EIRP) for WPC CHARGER AND COVER 156
11.2. FIELD STRENGTH OF SPURIOUS RADIATION 162
11.2.1. SPURIOUS RADIATION DATA 163
11.2.1. SPURIOUS RADIATION DATA (WPC CHARGER WITH COVER) 197
12. SETUP PHOTOS 204

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1. ATTESTATION OF TEST RESULTS

COMPANY NAME:	LG ELECTRONICS MOBILECOMM U.S.A., INC.
EUT DESCRIPTION:	GSM/CDMA/WCDMA/LTE Phone + Bluetooth, DTS/UNII a/b/g/n/ac and NFC.
MODEL:	LGLS990, LG-LS990, LS990
SERIAL NUMBER:	133E3 (Conducted), 133E4 (Radiated)
DATE TESTED:	APRIL 16- MAY 5, 2014

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC PART 22H, 24E,27M AND 90S	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.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Approved & Released For

UL Verification Services Inc. By:

Tested By:

PENG ZHANG

CONSUMER TECHNOLOGY DIVISION
PROJECT LEAD
UL Verification Services Inc.

CHARLES VERGONIO

CONSUMER TECHNOLOGY DIVISION
LAB ENGINEER
UL Verification Services Inc.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with TIA-603-C, FCC CFR 47 Part 2, Part 22, Part 24, Part 27 and Part 90.

Test Procedure: Reference KDB 971168 D01 Power Meas License Digital Systems v02r01 6/7/2013

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.ul.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:

EIRP = PSA reading with EUT worst orientation (dBm) + Path loss (dB) – cable loss(between the SG and substitution antenna) + Substitution Antenna Factor (dBi)

ERP = PSA reading with EUT worst orientation (dBm) + Path loss (dB) – cable loss(between the SG and substitution antenna)

(Path loss = Signal generator output – PSA reading with substitution antenna)

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%.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a GSM/CDMA/WCDMA/LTE Phone + Bluetooth, DTS/UNII a/b/g/n/ac and NFC.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum peak conducted and radiated ERP / EIRP output powers as follows:

FCC Part 22/24						
Band	Frequency Range(MHz)	Modulation Peak	Conducted		Radiated	
			Peak (dBm)	Peak (mW)	Peak (dBm)	Peak (mW)
GSM850	824~849	GMSK	33.1	2041.74		
	824~849	GPRS	33.1	2041.74	29.551	901.78
	824~849	EGPRS	27.7	588.84	24.251	266.13
GSM1900	1850~1910	GMSK	30.2	1047.13		
	1850~1910	GPRS	30.2	1047.13	28.04	636.8
	1850~1910	EGPRS	26.2	416.87	24.95	312.61

FCC Part 22/24/90						
Band	Frequency Range(MHz)	Modulation Peak	Conducted		Radiated	
			Avg (dBm)	Avg (mW)	Avg (dBm)	Avg (mW)
Band 5	824~849	REL99	23.7	234.42	20.041	100.95
	824~849	HSDPA	23.7	234.42	19.671	92.7
	824~849	HSUPA	23.4	218.78		
Band 2	1850~1910	REL99	23.7	234.42	23.13	205.59
	1850~1910	HSDPA	23.7	234.42	22.92	195.88
	1850~1910	HSUPA	23.5	223.87		
BC10	816~824	1xRTT	25.2	331.13	22.192	165.65
	816~824	EVDO REL. 0	25.2	331.13	22.051	160.36
	816~824	EVDO REV. A	25.1	323.59		

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

BC0	824~849	1xRTT	25.5	354.81	21.34	136.14
	824~849	EVDO REL. 0	25.5	354.81	21.04	127.06
	824~849	EVDO REV. A	25.4	346.74		
BC1	1850~1910	1xRTT	24.9	309.03	22.8	190.55
	1850~1910	EVDO REL. 0	24.8	302.00	21.861	153.5
	1850~1910	EVDO REV. A	24.8	302.00		

5.3. MAXIMUM OUTPUT POWER (LTE)

The transmitter has a maximum peak conducted and radiated ERP/EIRP output powers as follows:

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
			Peak	Avg (dBm)	Avg (mW)	Avg (dBm)	Avg (mW)
LTE41	2496~2690	20MHz	QPSK	24.2	263.03	22.49	177.42
	2496~2690	20MHz	16QAM	22.8	190.55	21.48	140.6

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
			Peak	Avg (dBm)	Avg (mW)	Avg (dBm)	Avg (mW)
LTE41	2496~2690	15MHz	QPSK	24.1	257.04	21.64	145.88
	2496~2690	15MHz	16QAM	23.1	204.17	21.04	127.06

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
			Peak	Avg (dBm)	Avg (mW)	Avg (dBm)	Avg (mW)
LTE41	2496~2690	10MHz	QPSK	24.2	263.03	20.56	113.76
	2496~2690	10MHz	16QAM	23.1	204.17	19.84	96.38

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

FCC Part 90/22							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
			Peak	Avg (dBm)	Avg (mW)	Avg (dBm)	Avg (mW)
LTE26	814~824	10MHz	QPSK	23.6	229.09	18.131	65.03
		10MHz	16QAM	22.3	169.82	17.101	51.3
LTE26	824~849	10MHz	QPSK	23.6	229.09	20.731	118.33
		10MHz	16QAM	22.3	169.82	19.551	90.18

FCC Part 90/22							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
			Peak	Avg (dBm)	Avg (mW)	Avg (dBm)	Avg (mW)
LTE26	814~824	5MHz	QPSK	23.5	223.87	18.601	72.46
		5MHz	16QAM	22.5	177.83	17.551	56.9
LTE26	824~849	5MHz	QPSK	23.6	229.09	20.751	118.88
		5MHz	16QAM	22.3	169.82	19.801	95.52

FCC Part 90/22							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
			Peak	Avg (dBm)	Avg (mW)	Avg (dBm)	Avg (mW)
LTE26	814~824	3MHz	QPSK	23.6	229.09	18.441	69.84
		3MHz	16QAM	22.7	186.21	17.561	57.03
LTE26	824~849	3MHz	QPSK	23.6	229.09	20.821	120.81
		3MHz	16QAM	22.3	169.82	19.831	96.18

FCC Part 90/22							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
			Peak	Avg (dBm)	Avg (mW)	Avg (dBm)	Avg (mW)
LTE26	814~824	1.4MHz	QPSK	23.6	229.09	17.521	56.51
		1.4MHz	16QAM	22.6	181.97	16.561	45.3
LTE26	824~849	1.4MHz	QPSK	23.6	229.09	20.381	109.17
		1.4MHz	16QAM	22.3	169.82	19.521	89.56

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

FCC Part 24							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
			Peak	Avg (dBm)	Avg (mW)	Avg (dBm)	Avg (mW)
LTE25	1850~1915	10MHz	QPSK	23.7	234.42	22.48	177.01
	1850~1915	10MHz	16QAM	22.7	186.21	21.79	151.01

FCC Part 24							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
			Peak	Avg (dBm)	Avg (mW)	Avg (dBm)	Avg (mW)
LTE25	1850~1915	5MHz	QPSK	23.6	229.09	21.99	158.12
	1850~1915	5MHz	16QAM	22.5	177.83	20.88	122.46

FCC Part 24							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
			Peak	Avg (dBm)	Avg (mW)	Avg (dBm)	Avg (mW)
LTE25	1850~1915	3MHz	QPSK	23.7	234.42	22.91	195.43
	1850~1915	3MHz	16QAM	22.4	173.78	21.9	154.88

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

5.4. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a PIFA antenna for the [List the bands supported] with a maximum peak gain as follow:

Frequency (MHz)	Peak Gain (dBi)
CDMA 0, Band 5, 824~849MHz	-7.2
CDMA BC1, Band 2, LTE25, 1850~1915MHz	-0.7
CDMA BC10, LTE26, 814~849MHz	-7.2
LTE41, 2496~2690MHz	0.43

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	LG	MCS-04WT2	TA350000050	N/A
Earphone	LG	N/A	N/A	N/A
WPC Cover	LG	N/A	N/A	N/A
WPC Charger	LG	WPC-300	304HYBF00069	BEJWCP300

I/O CABLES (CONDUCTED SETUP)

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	RF Out	1	Spectrum Analyzer	Shielded	None	NA
2	Antenna Port	1	EUT	Shielded	0.1m	NA
3	RF In/Out	1	Communication Test Set	Shielded	1m	NA

I/O CABLES (RADIATED SETUP)

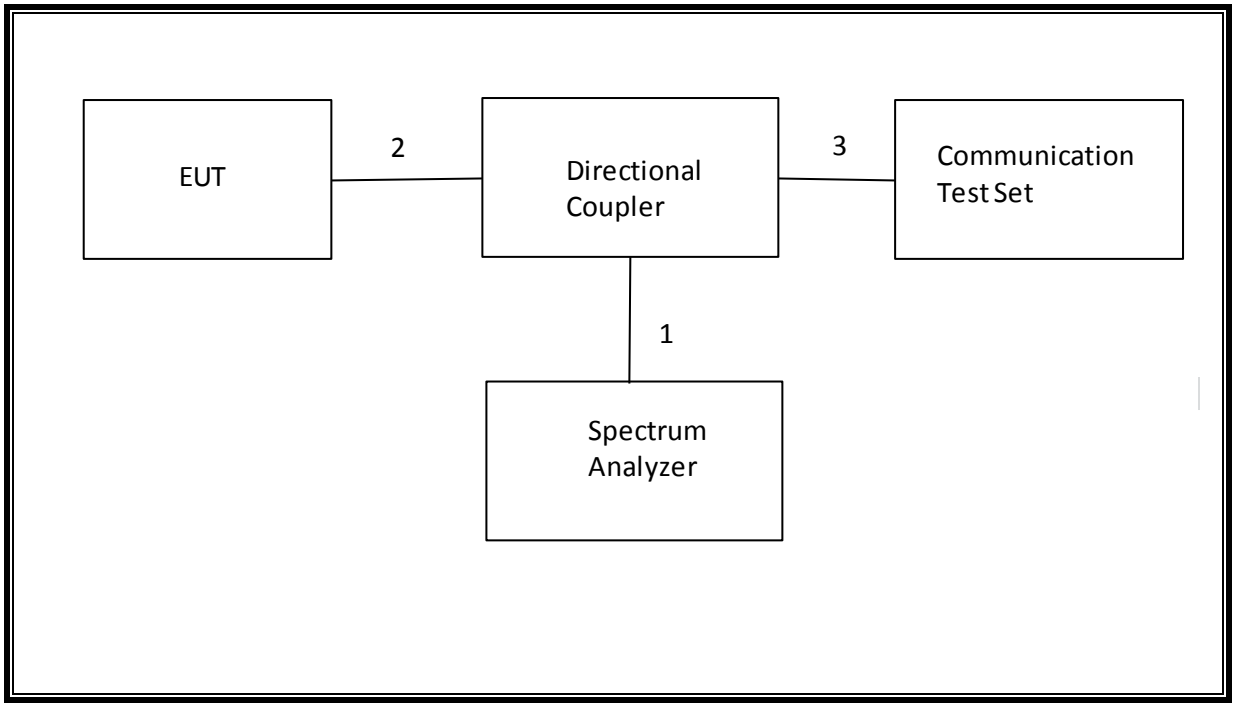
I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	USB	1	AC Adapter	Un-shielded	1.2m	No
2	Jack	1	Headset	Shielded	1m	No
3	RF In/out	1	Communication Test Set	Un-shielded	2m	Yes

TEST SETUP

The EUT is continuously communicated to the call box during the tests.

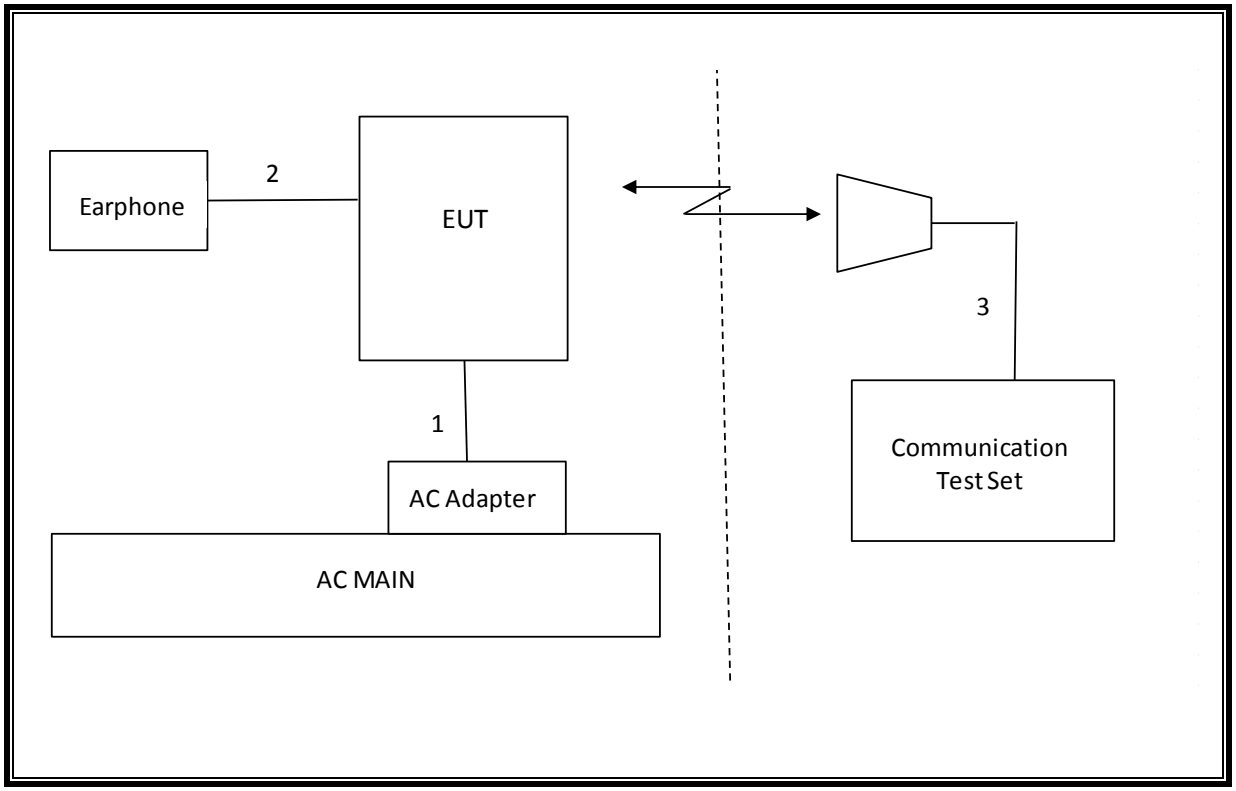
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

SETUP DIAGRAM FOR TESTS (CONDUCTED TEST SETUP)



This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

SETUP DIAGRAM FOR TESTS (RADIATED TEST SETUP)



This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

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 Due**
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01179	02/26/15
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01011	08/14/14
Antenna, Horn, 18 GHz	EMCO	3115	C00783	10/25/14
Antenna, Horn, 18 GHz	EMCO	3115	C00784	09/25/14
Highpass Filter, 2.7 GHz	Micro-Tronics	HPM13194	N02687	CNR
Highpass Filter, 1.5 GHz	Micro-Tronics	HPM13193	N02688	CNR
Temperature / Humidity Chamber	Thermotron	SE 600-10-10	C00930	01/09/15
Communications Test Set	R&S	CMW500	T159	07/02/14
DC power supply, 8 V @ 3 A or 15 V	Agilent / HP	E3610A	None	CNR
Vector signal generator, 6 GHz	Agilent / HP	E4438C	None	07/06/14
Antenna, Tuned Dipole 400~1000	ETS	3121C DB4	C00993	02/14/15
Antenna, Horn, 25.5 GHz	ARA	MWH-1826/B	C00980	11/14/14
Directional Coupler	RF-Lambda	RFDC5M06G15	None	CNR

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

7. Summary Table

FCC Part Section	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Worst Case
22.917(a) 24.238(a)	N/A	Occupied Band width (99%)	N/A	Conducted	Pass	17.83MHz
22.917(a) 24.238(a) 27.53(g) 90.691	RSS-132(4.5.1) RSS-133(6.5.1) RSS-139(6.5.1)	Band Edge / Conducted Spurious Emission	-13dBm		Pass	-14.081dBm
2.1046	N/A	Conducted output power	N/A		Pass	33.1dBm
27.53(g) 90.691	RSS-139(6.5.1)	Emission Mask	-13dBm		Pass	
22.355 24.235 27.54	RSS-132(4.3) RSS-133(6.3) RSS-139(6.3)	Frequency Stability	2.5PPM		Pass	0.007PPM
22.913(a)(2)	RSS-132(4.4)	Effective Radiated Power	38 dBm		Pass	29.55dBm
90.635			50dBm	Radiated	Pass	17.521dBm
24.232(c)	RSS-133(6.4) RSS-139(6.4)	Equivalent Isotropic Radiated Power	33dBm		Pass	28.01dBm
22.917(a) 24.238(a) 27.53(g)	RSS-132(4.5.1) RSS-133(6.5.1) RSS-139(6.5.1)	Radiated Spurious Emission	-13dBm		Pass	-29.8dBm

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

8. RF POWER OUTPUT VERIFICATION

8.1. GSM/GPRS/EDGE

Function: Menu select > GSM Mobile Station > GSM 850/900/1800/1900

Press Connection control to choose the different menus

Press RESET > choose all to reset all settings

Connection Press Signal Off to turn off the signal and change settings

Network Support > GSM+GPRS or GSM+EGPRS

Main Service > Packet Data

Service selection > Test Mode A – Auto Slot Config. off

MS Signal Press Slot Config bottom on the right twice to select and change the number of time slots and power setting

> Slot configuration > Uplink/Gamma

> 33 dBm for GPRS 850/900

> 30 dBm for GPRS1800/1900

BS Signal Enter the same channel number for TCH channel (test channel) and BCCH channel

Frequency Offset > + 0 Hz

Mode > BCCH and TCH

BCCH Level > -85 dBm (May need to adjust if link is not stable)

BCCH Channel > choose desire test channel [Enter the same channel number for TCH channel (test channel) and BCCH channel]

Channel Type > Off

P0> 4 dB

Slot Config > Unchanged (if already set under MS Signal)

TCH > choose desired test channel

Hopping > Off

Main Timeslot > 3 (Default)

Network Coding Scheme > CS4 (GPRS) and MCS5 ~ MCS9 (EGPRS)

Bit Stream > 2E9-1PSR Bit Pattern

AF/RF Enter appropriate offsets for Ext. Att. Output and Ext. Att. Input

Connection Press Signal On to turn on the signal and change settings

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

8.1.1. GSM OUTPUT POWER RESULT

Band	Mode	Ch.	f(MHz)	1 time slot	2 time slot
				Peak (dBm)	Peak (dBm)
GSM850	GMSK	128	824.2	32.9	
		190	836.6	33.0	
		251	848.8	33.1	
	GPRS	128	824.2	32.9	31.2
		190	836.6	33.0	31.2
		251	848.8	33.1	31.7
	EGPRS	128	824.2	27.5	27.2
		190	836.6	27.5	27.2
		251	848.8	27.7	27.4
GSM1900	GMSK	512	1850.2	30.2	
		661	1880	30.2	
		810	1909.8	30.0	
	GPRS	512	1850.2	30.1	28.7
		661	1880	30.2	28.6
		810	1909.8	30.0	28.5
	EGPRS	512	1850.2	26.2	25.9
		661	1880	26.1	25.9
		810	1909.8	26.1	26.0

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

8.2. UMTS REL 99

TEST PROCEDURE

The following summary of these settings are illustrated below:

	Mode	Rel99
	Subtest	-
WCDMA General Settings	Loopback Mode	Test Mode 1
	Rel99 RMC	12.2kbps RMC
	HSDPA FRC	Not Applicable
	HSUPA Test	Not Applicable
	Power Control Algorithm	Algorithm2
	βc	Not Applicable
	βd	Not Applicable
	βec	Not Applicable
	βc/βd	8/15
	βhs	Not Applicable
	βed	Not Applicable

8.2.1. UMTS REL 99 OUTPUT POWER RESULT

Band	Mode	Ch.	f(MHz)	Conducted Power (dBm) Avg (dBm)
Band 5	REL99	4132	826.4	23.7
		4183	836.6	23.6
		4233	846.6	23.7
Band 2	REL99	9262	1852.4	23.7
		9400	1880	23.6
		9538	1907.6	23.6

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

8.3. UMTS HSDPA

The following 4 Sub-tests were completed according to Release 5 procedures in section 5.2 of 3GPP TS34.121. A summary of these settings are illustrated below:

	Mode	Rel5 HSDPA			
	Subtest	1	2	3	4
WCDMA General Settings	Loopback Mode	Test Mode 1			
	Rel99 RMC	12.2kbps RMC			
	HSDPA FRC	H-Set1			
	Power Control Algorithm	Algorithm 2			
	βc	2/15	12/15	15/15	15/15
	βd	15/15	15/15	8/15	4/15
	Bd (SF)	64			
	βc/βd	2/15	12/15	15/8	15/4
	βhs	4/15	24/15	30/15	30/15
	MPR (dB)	0	0	0.5	0.5
HSDPA Specific Settings	D_{ACK}	8			
	D_{NAK}	8			
	DCQI	8			
	Ack-Nack repetition factor	3			
	CQI Feedback (Table 5.2B.4)	4ms			
	CQI Repetition Factor (Table 5.2B.4)	2			
	Ahs =βhs/βc	30/15			

8.3.1. UMTS HSDPA OUTPUT POWER RESULT

Band	Mode	Subset	Ch.	f(MHz)	Conducted Power (dBm) Avg (dBm)
Band 5	HSDPA	1	4132	826.4	23.6
			4183	836.6	23.6
			4233	846.6	23.7
		2	4132	826.4	23.6
			4183	836.6	23.7
			4233	846.6	23.7
		3	4132	826.4	23.1
			4183	836.6	23.2
			4233	846.6	23.2
		4	4132	826.4	23.1
			4183	836.6	23.2

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

			4233	846.6	23.2
Band 2	HSDPA	1	9262	1852.4	23.7
			9400	1880	23.6
			9538	1907.6	23.6
		2	9262	1852.4	23.7
			9400	1880	23.7
			9538	1907.6	23.7
		3	9262	1852.4	23.2
			9400	1880	23.1
			9538	1907.6	23.2
		4	9262	1852.4	23.1
			9400	1880	23.1
			9538	1907.6	23.2

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

8.3.2. UMTS HSUPA

TEST PROCEDURE

The following summary of these settings are illustrated below: (ETSI TS 134.121-1 Table C.11.1)

	Mode	Rel6 HSUPA	Rel6 HSUPA	Rel6 HSUPA	Rel6 HSUPA	Rel6 HSUPA
	Subtest	1	2	3	4	5
WCDMA General Settings	Loopback Mode	Test Mode 1				
	P-CPICH (dB)	-10				
	P-CCPCH (dB)	-12				
	SCH (dB)	-12				
	PICH(dB)	-15				
	DPCH (dB)	-9				
	HS-SCCH_1 (dB)	-8				
	HS-PDSCH (dB)	-3				
	Rel99 RMC	12.2kbps RMC				
	HSDPA FRC	H-Set1				
	HSUPA Test	HSUPA Loopback				
	Power Control Algorithm	Algorithm2				
	Bc	11/15	6/15	15/15	2/15	15/15
	Bd	15/15	15/15	9/15	15/15	15/15
	Bec	209/225	12/15	30/15	2/15	5/15
	βc/βd	11/15	6/15	15/9	2/15	15/15
	Bhs	22/15	12/15	30/15	4/15	30/15
	βed (note1)	1309/225	94/75	47/15 47/15	56/75	134/15
	MPR	0	2	1	2	0
HSDPA Specific Settings	DACK	8				
	DNAK	8				
	DCQI	8				
	Ack-Nack repetition factor	3				
	CQI Feedback (Table 5.2B.4)	4ms				
	CQI Repetition Factor (Table 5.2B.4)	2				
	Ahs = βhs/βc	30/15				
HSUPA Specific Settings	D E-DPCCH	6	8	8	5	7
	DHARQ	0	0	0	0	0
	AG Index	20	12	15	17	21
	Reference E-TFCIs	5	5	2	5	5
	ETFCI (from 34.121 Table C.11.1.3)	75	67	92	71	81
	Associated Max UL Data Rate kbps	242.1	174.9	482.8	205.8	308.9
	Reference E_TFCIs	E-TFCI 11 E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18 E-TFCI 71 E-TFCI PO 23 E-TFCI 75 E-TFCI PO 26 E-TFCI 81 E-TFCI PO 27		E-TFCI 11 E-TFCI PO 4 E-TFCI 92 E-TFCI PO 18	E-TFCI 11 E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18 E-TFCI 71 E-TFCI PO 23 E-TFCI 75 E-TFCI PO 26 E-TFCI 81 E-TFCI PO 27	

Note1: βed cannot be set directly, it is set by Absolute Grant Value.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

8.3.3. UMTS HSUPA OUTPUT POWER RESULT

Band	Mode	Subset	Ch.	f(MHz)	Conducted Power (dBm) Avg (dBm)
Band 5	HSUPA	1	4132	826.4	23.4
			4183	836.6	23.0
			4233	846.6	23.1
		2	4132	826.4	21.7
			4183	836.6	22.0
			4233	846.6	22.1
		3	4132	826.4	22.6
			4183	836.6	22.3
			4233	846.6	21.5
		4	4132	826.4	22.1
			4183	836.6	22.3
			4233	846.6	22.4
		5	4132	826.4	23.1
			4183	836.6	22.8
			4233	846.6	23.2
Band 2	HSUPA	1	9262	1852.4	23.2
			9400	1880	23.3
			9538	1907.6	23.5
		2	9262	1852.4	22.2
			9400	1880	22.2
			9538	1907.6	22.3
		3	9262	1852.4	22.3
			9400	1880	21.6
			9538	1907.6	22.6
		4	9262	1852.4	22.4
			9400	1880	22.6
			9538	1907.6	22.3
		5	9262	1852.4	23.3
			9400	1880	23.4

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

8.4. CDMA2000

8.4.1. 1xRTT

TEST PROCEDURE

This procedure assumes the Agilest 8960 Test Set has the following applications installed and with valid license.

Application	Rev, License
CDMA2000 Mobile Test	B.13.08, L

- Call Setup > Shift & Preset
- Cell Info > Cell Parameters > System ID (SID) > 7
  > Network ID (NID) > 1
- Protocol Rev > 6 (IS-2000-0)
- Radio Config (RC) > Please see following table or details
- FCH Service Option (SO) Setup > Please see following table or details
- Traffic Data Rate > Full
- TDSO SCH Info > F-SCH Parameters > F-SCH Data Rate > 153.6 kbps
  > R-SCH Parameters > R-SCH Data Rate > 153.6 kbps
- Rvs Power Ctrl > Active bits
  - Rvs Power Ctrl > All Up bits (Maximum TxPout)

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

8.4.2. CDMA2000 OUTPUT POWER RESULT

1xRTT

Band	Mode	Ch	Freq. (MHz)	Avg Pwr (dBm)
BC0	RC1, SO55 (Loopback)	1013	824.70	25.4
		384	836.52	24.5
		777	848.31	24.4
	RC3, SO55 (Loopback)	1013	824.70	25.4
		384	836.52	25.5
		777	848.31	25.5
	RC3, SO32 (+F-SCH)	1013	824.70	25.4
		384	836.52	25.5
		777	848.31	25.4

Band	Mode	Ch	Freq. (MHz)	Avg Pwr (dBm)
BC1	RC1, SO55 (Loopback)	25	1851.25	24.9
		600	1880.00	24.9
		1175	1908.75	24.9
	RC3, SO55 (Loopback)	25	1851.25	24.8
		600	1880.00	24.8
		1175	1908.75	24.9
	RC3, SO32 (+F-SCH)	25	1851.25	24.8
		600	1880.00	24.8
		1175	1908.75	24.9

Band	Mode	Ch	Freq. (MHz)	Avg Pwr (dBm)
BC10	RC1, SO55 (Loopback)	476	817.90	25.2
		580	820.50	25.2
		684	823.10	25.2
	RC3, SO55 (Loopback)	476	817.90	25.2
		580	820.50	25.2
		684	823.10	25.2
	RC3, SO32 (+F-SCH)	476	817.90	25.2
		580	820.50	25.2
		684	823.10	25.2

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

8.4.3. 1xEV-DO Release 0

TEST PROCEDURE

This procedure assumes the Agilent 8960 Test Set has the following applications installed and with valid license.

Application	Rev, License
1xEV-DO Terminal Test	A.09.13

EVDO Release 0 - RTAP

- Call Setup > Shift & Preset
- Call Control:
  - Access Network Info > Cell Parameters > Sector ID > 00000000 > Subnet Mask > 0
  - Generator Info > Termination Parameters > Max Forward Packet Duration > 16 Slots
- Call Parms:
  - Cell Power > -105.5 dBm/1.23 MHz
  - Cell Band > (Select US Cellular or US PCS)
  - Channel > (Enter channel number)
  - Application Config > Enhanced Test Application Protocol > RTAP
  - RTAP Rate > 153.6 kbps
  - Rvs Power Ctrl > Active bits
  - Protocol Rel > 0 (1xEV-DO)
- Press “Start Data Connection” when “Session Open” appear in “Active Cell”
- Rvs Power Ctrl > All Up bits (Maximum TxPout)

EVDO Release 0 - FTAP

- Call Setup > Shift & Preset
- Call Control:
  - Access Network Info > Cell Parameters > Sector ID > 00000000 > Subnet Mask > 0
  - Generator Info > Termination Parameters > Max Forward Packet Duration > 16 Slots
- Call Parms:
  - Cell Power > -105.5 dBm/1.23 MHz
  - Cell Band > (Select US Cellular or US PCS)
  - Channel > (Enter channel number)
  - Application Config > Enhanced Test Application Protocol > FTAP (default)
  - FTAP Rate > 307.2 kbps (2 Slot, QPSK)
  - Rvs Power Ctrl > Active bits
  - Protocol Rel > 0 (1xEV-DO)
- Press “Start Data Connection” when “Session Open” appear in “Active Cell”
- Rvs Power Ctrl > All Up bits (Maximum TxPout)

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

8.4.4. 1XEVDO REL 0 OUTPUT POWER RESULT

1xEv-Do Rel. 0

Band	FTAP Rate	Channel	f (MHz)	Avg Pwr (dBm)
BC0	307.2 kbps (2 slot, QPSK)	1013	824.70	25.4
		384	836.52	25.5
		777	848.31	25.5

Band	FTAP Rate	Channel	f (MHz)	Avg Pwr (dBm)
BC1	307.2 kbps (2 slot, QPSK)	25	1851.25	24.8
		600	1880.00	24.8
		1175	1908.75	24.8

Band	FTAP Rate	Channel	f (MHz)	Avg Pwr (dBm)
BC10	307.2 kbps (2 slot, QPSK)	476	817.90	25.2
		580	820.50	25.2
		684	823.10	25.2

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

8.4.5. 1xEV-DO Rev. A

TEST PROCEDURE

This procedure assumes the Agilent 8960 Test Set has the following applications installed and with valid license.

Application	Rev, License
1xEV-DO Terminal Test	A.09.13

EVDO Release A – RETAP

- Call Setup > Shift & Preset
- Cell Power > -60 dBm/1.23 MHz
- Protocol Rev > A (1xEV-DO-A)
- Application Config > Enhanced Test Application Protocol > RETAP
- R-Data Pkt Size > 4096
- Protocol Subtype Config > Release A Physical Layer Subtype > Subtype 2

> PL Subtype 2 Access Channel MAC Subtype > Default (Subtype 0)

- Access Network Info > Cell Parameters > Sector ID > 00000000 > Subnet Mask > 0
- Generator Info > Termination Parameters > Max Forward Packet Duration >16 Slots > ACK R-Data After > Subpacket 0 (All ACK)
- Rvs Power Ctrl > All Up bits (to get the maximum power)

EVDO Release A - FETAP

- Call Setup > Shift & Preset
- Cell Power > -60 dBm/1.23 MHz
- Protocol Rev > A (1xEV-DO-A)
- Application Config > Enhanced Test Application Protocol > FETAP
- F-Traffic Format > 4 (1024, 2,128) Canonical (307.2k, QPSK)
- Protocol Subtype Config > Release A Physical Layer Subtype > Subtype 2

> PL Subtype 2 Access Channel MAC Subtype > Default (Subtype 0)

- Access Network Info > Cell Parameters > Sector ID > 00000000 > Subnet Mask > 0
- Generator Info > Termination Parameters > Max Forward Packet Duration >16 Slots > ACK R-Data After > Subpacket 0 (All ACK)
- Rvs Power Ctrl > All Up bits (to get the maximum power)

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

8.4.6. 1xEVDO REV A OUTPUT RESULT

1xEv-Do Rev. A

Band	FETAP Traffic Format	Channel	f (MHz)	Avg Pwr (dBm)
BC0	307.2k, QPSK/ ACK channel is transmitted at all the slots	1013	824.70	25.4
		384	836.52	25.4
		777	848.31	25.4

Band	FETAP Traffic Format	Channel	f (MHz)	Avg Pwr (dBm)
BC1	307.2k, QPSK/ ACK channel is transmitted at all the slots	25	1851.25	24.8
		600	1880.00	24.8
		1175	1908.75	24.7

Band	FETAP Traffic Format	Channel	f (MHz)	Avg Pwr (dBm)
BC10	307.2k, QPSK/ ACK channel is transmitted at all the slots	476	817.90	25.1
		580	820.50	25.1
		684	823.10	25.1

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

8.5. LTE OUTPUT VERIFICATION

8.5.1. LTE OUTPUT RESULT

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						26090	26365	26640
						1855 MHz	1882.5 MHz	1910 MHz
LTE Band 25	10	QPSK	1	0	0	23.6	23.6	23.4
			1	25	0	23.7	23.5	23.4
			1	49	0	23.6	23.5	23.5
			25	0	1	22.6	22.6	22.4
			25	12	1	22.6	22.6	22.4
			25	25	1	22.6	22.6	22.4
			50	0	1	22.7	22.6	22.5
		16QAM	1	0	1	22.3	22.7	22.2
			1	25	1	22.4	22.7	22.2
			1	49	1	22.4	22.7	22.3
			25	0	2	21.6	21.5	21.6
			25	12	2	21.5	21.6	21.5
			25	25	2	21.5	21.6	21.5
			50	0	2	21.6	21.6	21.5
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						26065	26365	26665
						1852.5 MHz	1882.5 MHz	1912.5 MHz
LTE Band 25	5	QPSK	1	0	0	23.4	23.6	23.4
			1	12	0	23.5	23.6	23.4
			1	24	0	23.5	23.6	23.5
			12	0	1	22.5	22.6	22.5
			12	7	1	22.6	22.5	22.5
			12	13	1	22.6	22.5	22.5
			25	0	1	22.6	22.6	22.5
		16QAM	1	0	1	22.2	22.5	22.3
			1	12	1	22.3	22.5	22.2
			1	24	1	22.4	22.6	22.4
			12	0	2	21.5	21.6	21.6
			12	7	2	21.6	21.6	21.6
			12	13	2	21.6	21.6	21.6
			25	0	2	21.6	21.5	21.6
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						26055	26365	26675
						1851.5 MHz	1882.5 MHz	1913.5 MHz
LTE Band 25	3	QPSK	1	0	0	23.4	23.7	23.7
			1	8	0	23.5	23.6	23.7

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

			1	14	0	23.6	23.7	23.7
			8	0	1	22.5	22.6	22.6
			8	4	1	22.5	22.6	22.5
			8	7	1	22.6	22.7	22.6
			15	0	1	22.6	22.7	22.7
		16QAM	1	0	1	22.2	22.4	22.3
			1	8	1	22.2	22.3	22.3
			1	14	1	22.3	22.3	22.4
			8	0	2	21.5	21.5	21.6
			8	4	2	21.5	21.5	21.6
			8	7	2	21.6	21.5	21.6
			15	0	2	21.4	21.5	21.6

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						26740	26865	26990
						819 MHz	831.5 MHz	844 MHz
LTE Band 26	10	QPSK	1	0	0	23.5	23.6	23.6
			1	25	0	23.5	23.6	23.5
			1	49	0	23.5	23.6	23.6
			25	0	1	22.7	22.6	22.6
			25	12	1	22.6	22.6	22.6
			25	25	1	22.6	22.6	22.5
			50	0	1	22.7	22.7	22.6
		16QAM	1	0	1	22.2	22.3	22.3
			1	25	1	22.3	22.3	22.2
			1	49	1	22.2	22.3	22.2
			25	0	2	21.7	21.5	21.6
			25	12	2	21.7	21.6	21.6
			25	25	2	21.7	21.5	21.5
			50	0	2	21.7	21.6	21.6
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						26715	26865	27015
						816.5 MHz	831.5 MHz	846.5 MHz
LTE Band 26	5	QPSK	1	0	0	23.5	23.5	23.5
			1	12	0	23.4	23.5	23.5
			1	24	0	23.6	23.5	23.5
			12	0	1	22.5	22.5	22.6
			12	7	1	22.6	22.6	22.5
			12	13	1	22.6	22.6	22.5
			25	0	1	22.6	22.6	22.5
		16QAM	1	0	1	22.4	22.2	22.4
			1	12	1	22.3	22.2	22.4
			1	24	1	22.5	22.2	22.4

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

			12	0	2	21.5	21.6	21.6
			12	7	2	21.6	21.5	21.5
			12	13	2	21.6	21.6	21.5
			25	0	2	21.5	21.6	21.5
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						26705	26865	27025
						815.5 MHz	831.5 MHz	847.5 MHz
LTE Band 26	3	QPSK	1	0	0	23.5	23.6	23.5
			1	8	0	23.5	23.5	23.5
			1	14	0	23.6	23.5	23.6
			8	0	1	22.6	22.5	22.5
			8	4	1	22.5	22.5	22.5
			8	7	1	22.6	22.6	22.5
			15	0	1	22.6	22.6	22.5
		16QAM	1	0	1	22.6	22.3	22.7
			1	8	1	22.6	22.2	22.6
			1	14	1	22.6	22.2	22.6
			8	0	2	21.6	21.5	21.5
			8	4	2	21.6	21.5	21.5
			8	7	2	21.6	21.5	21.5
			15	0	2	21.5	21.5	21.6
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						26697	26865	27033
						814.7 MHz	831.5 MHz	848.3 MHz
LTE Band 26	1.4	QPSK	1	0	0	23.5	23.6	23.5
			1	3	0	23.5	23.5	23.5
			1	5	0	23.5	23.6	23.5
			3	0	0	23.5	23.5	23.6
			3	1	0	23.5	23.5	23.5
			3	3	0	23.4	23.6	23.5
			6	0	1	22.6	22.6	22.5
		16QAM	1	0	1	22.5	22.6	22.6
			1	3	1	22.5	22.5	22.6
			1	5	1	22.5	22.5	22.6
			3	0	1	22.4	22.4	22.4
			3	1	1	22.4	22.4	22.3
			3	3	1	22.4	22.4	22.3
			6	0	2	21.6	21.6	21.3

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						39750	40620	41490

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

						2506 MHz	2593 MHz	2680 MHz
LTE Band 41	20	QPSK	1	0	0	24.0	24.2	24.2
			1	49	0	23.9	24.0	24.1
			1	99	0	23.9	24.0	24.0
			50	0	1	23.0	23.1	23.0
			50	24	1	23.1	23.1	22.8
			50	50	1	23.0	23.0	23.0
			100	0	1	23.0	23.1	22.9
		16QAM	1	0	1	22.8	22.5	22.7
			1	49	1	22.7	22.4	22.8
			1	99	1	22.7	22.4	22.7
			50	0	2	22.0	22.1	22.0
			50	24	2	22.0	22.0	21.9
			50	50	2	21.9	22.0	22.0
			100	0	2	22.0	22.0	21.9
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						39725	40620	41515
						2503.5 MHz	2593 MHz	2682.5 MHz
LTE Band 41	15	QPSK	1	0	0	24.0	24.1	23.9
			1	37	0	24.0	24.0	23.8
			1	74	0	23.9	24.1	23.8
			36	0	1	23.0	23.2	22.9
			36	20	1	23.0	23.0	22.9
			36	39	1	23.1	23.0	23.0
			75	0	1	23.0	23.1	22.9
		16QAM	1	0	1	23.1	23.0	22.8

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

			1	37	1	23.0	22.8	22.8
			1	74	1	23.1	22.8	22.7
			36	0	2	21.8	22.1	21.8
			36	20	2	21.8	22.0	21.8
			36	39	2	21.8	22.0	21.9
			75	0	2	21.9	22.0	21.9
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						39700	40620	41540
						2501 MHz	2593 MHz	2685 MHz
LTE Band 41	10	QPSK	1	0	0	24.0	24.2	23.9
			1	25	0	23.9	24.1	23.8
			1	49	0	23.9	24.0	23.7
			25	0	1	23.0	23.2	22.9
			25	12	1	23.0	23.0	23.0
			25	25	1	23.0	23.1	23.0
			50	0	1	23.1	23.0	23.0
		16QAM	1	0	1	23.1	22.8	22.3
			1	25	1	23.0	22.8	22.3
			1	49	1	23.0	22.8	22.4
			25	0	2	21.9	22.0	21.9
			25	12	2	22.0	21.8	22.0
			25	25	2	21.9	21.8	21.9
			50	0	2	21.9	21.9	22.1

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9. PEAK TO AVERAGE RATIO

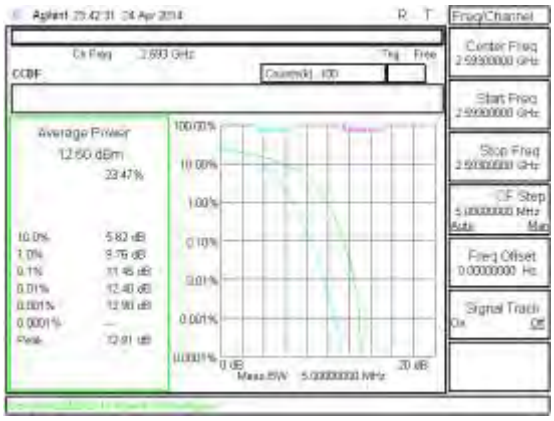
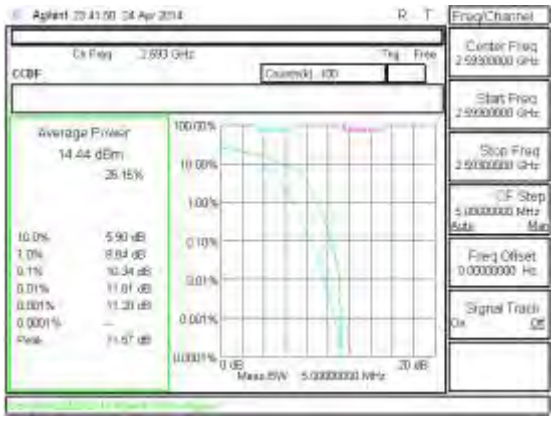
Test Procedure

Per KDB 971168 D01 Power Meas License Digital Systems v02r01

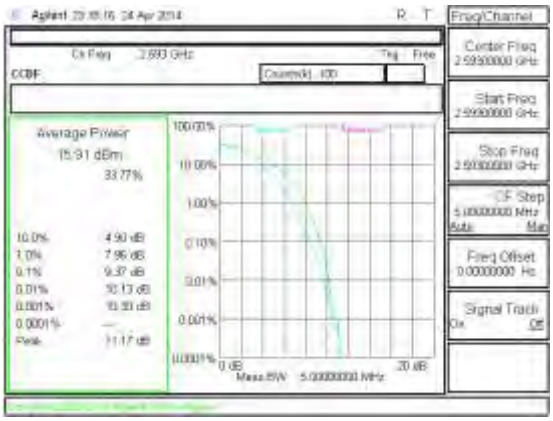
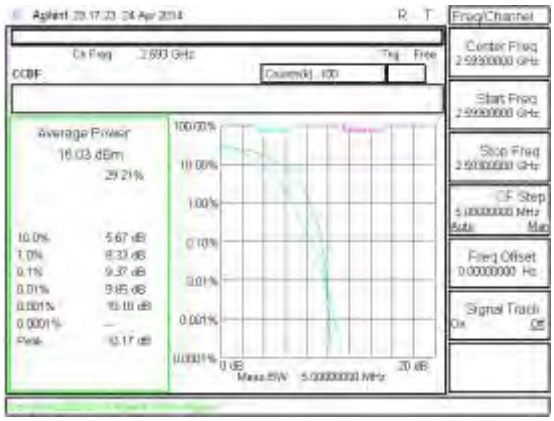
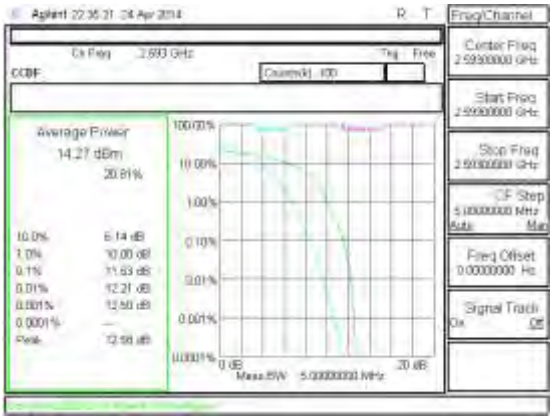
Test Spec

In addition, when the transmitter power is measured in terms of average value, the peak-to-average ratio of the power shall not exceed 13 dB.

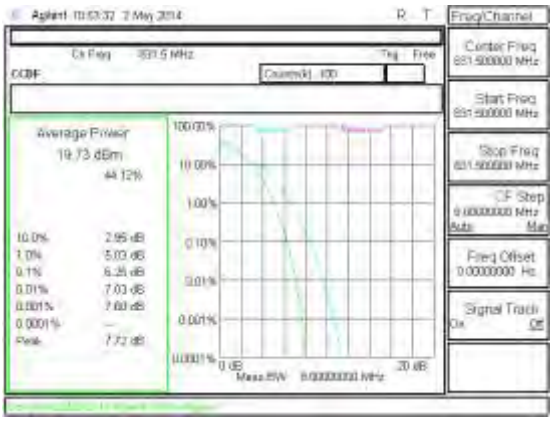
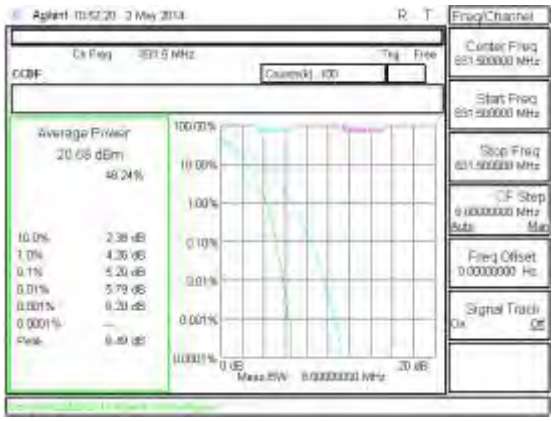
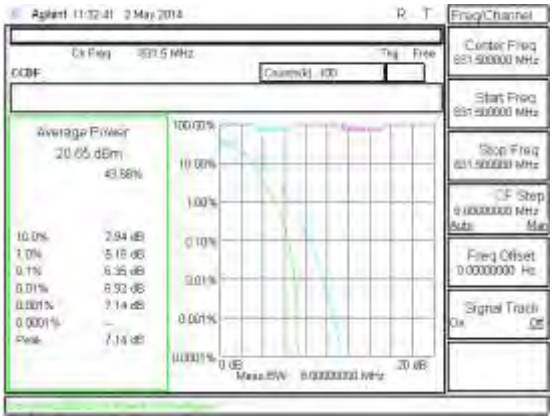
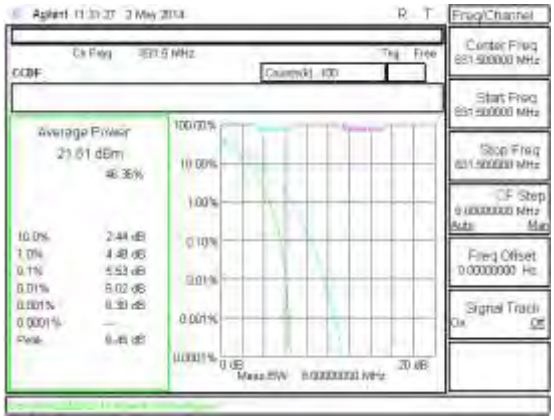
9.1. CONDUCTED PEAK TO AVERAGE RESULT

Band LTE41 20MHz	 Band LTE41 20MHz 16QAM Mid channel	 Band LTE41 20MHz QPSK Mid channel

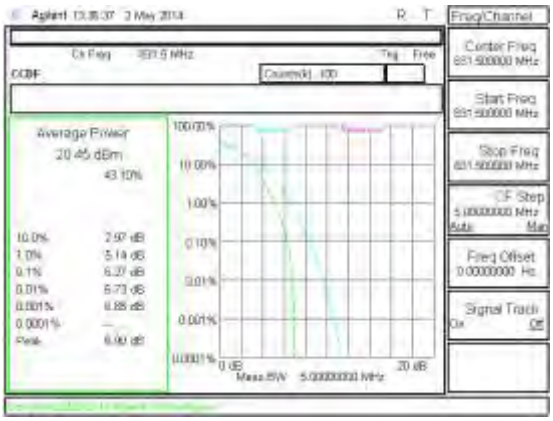
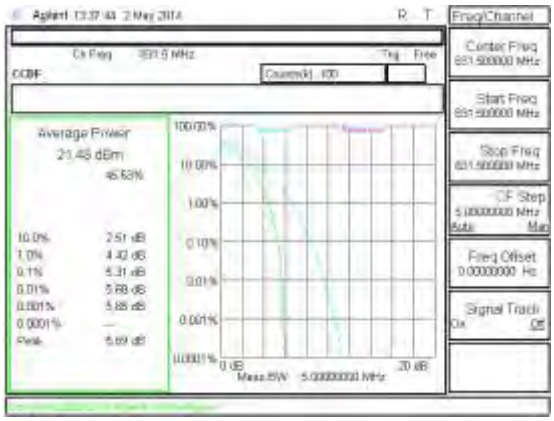
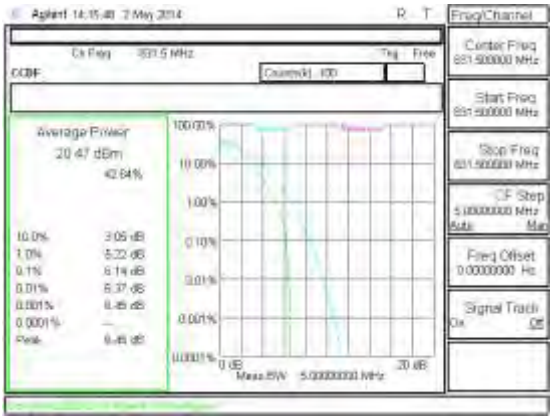
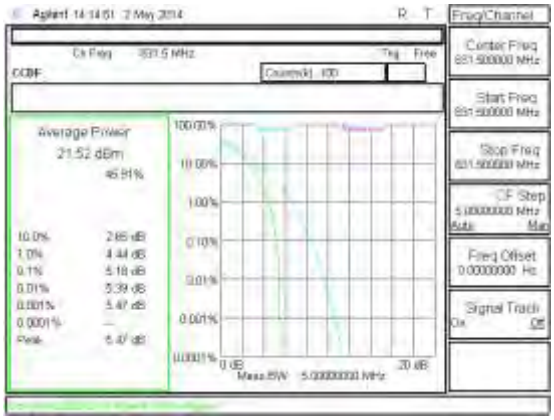
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE41 15MHz	 Band LTE41 15MHz 16QAM Mid channel	 Band LTE41 15MHz QPSK Mid channel
Band LTE41 10MHz	 Band LTE41 10MHz 16QAM Mid channel	 Band LTE41 10MHz QPSK Mid channel

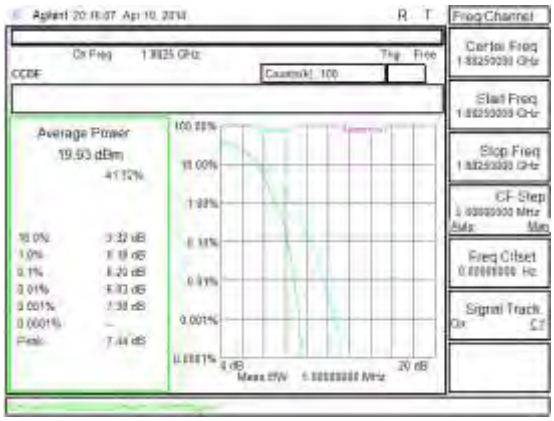
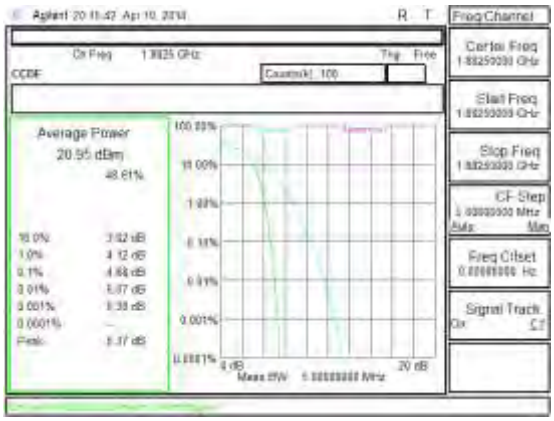
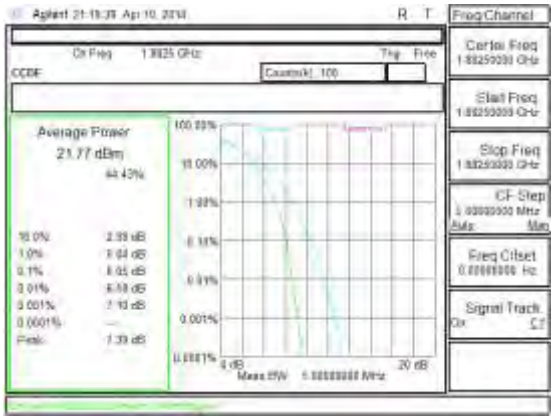
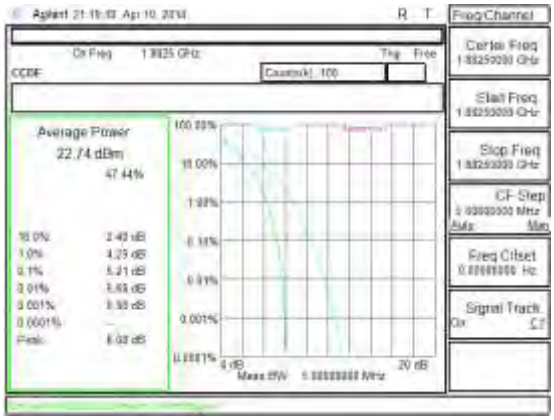
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE26 10MHz	 Band LTE26 10MHz 16QAM Mid channel	 Band LTE26 10MHz QPSK Mid channel
Band LTE26 5MHz	 Band LTE26 5MHz 16QAM Mid channel	 Band LTE26 5MHz QPSK Mid channel

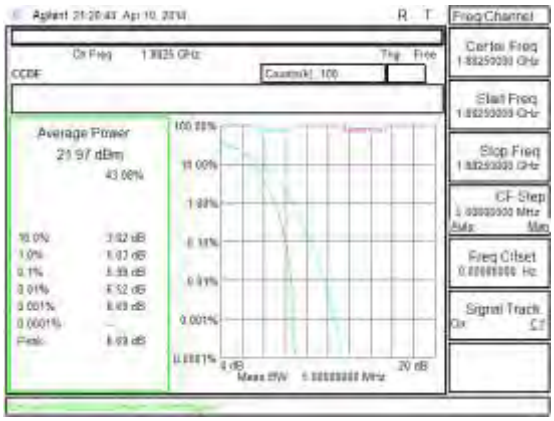
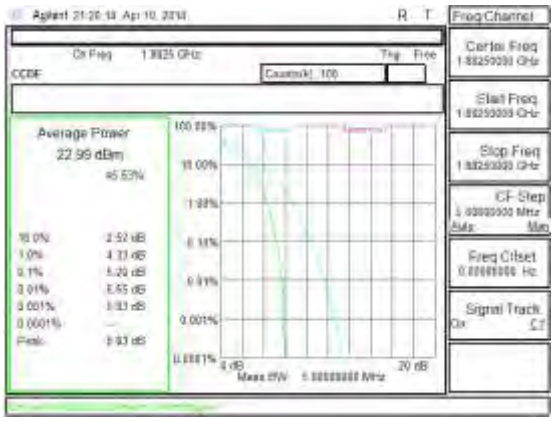
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE26 3MHz	 Band LTE26 3MHz 16QAM Mid channel	 Band LTE26 3MHz QPSK Mid channel
Band LTE26 1.4MHz	 Band LTE26 1.4MHz 16QAM Mid channel	 Band LTE26 1.4MHz QPSK Mid channel

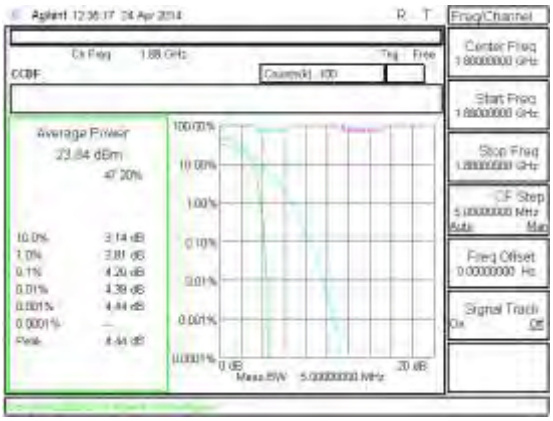
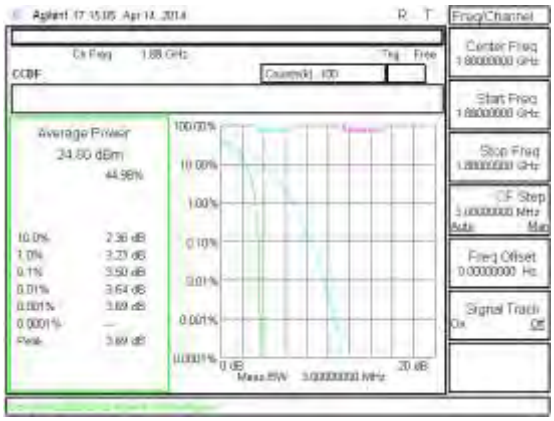
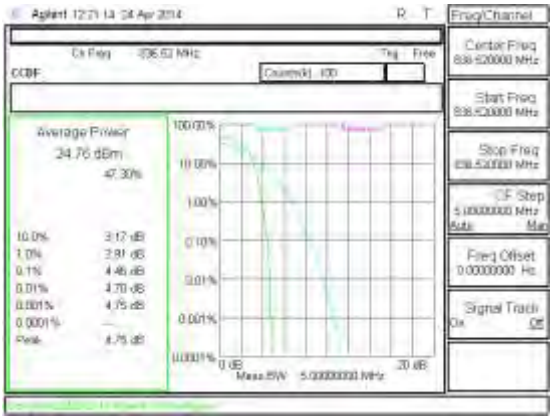
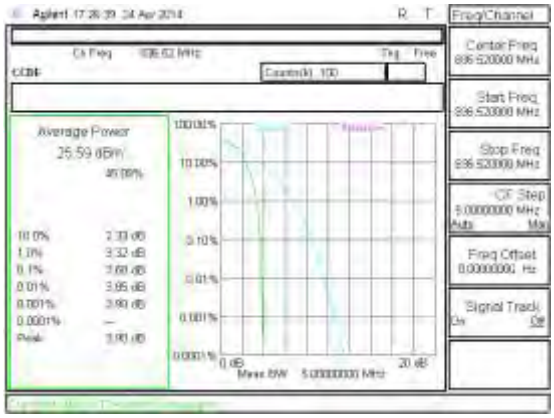
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE25 10MHz	 Band LTE25 10MHz 16QAM Mid channel	 Band LTE25 10MHz QPSK Mid channel
Band LTE25 16QAM	 Band LTE25 5MHz 16QAM Mid channel	 Band LTE25 5MHz QPSK Mid channel

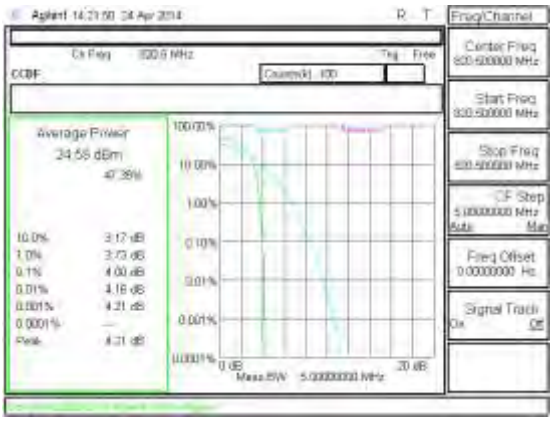
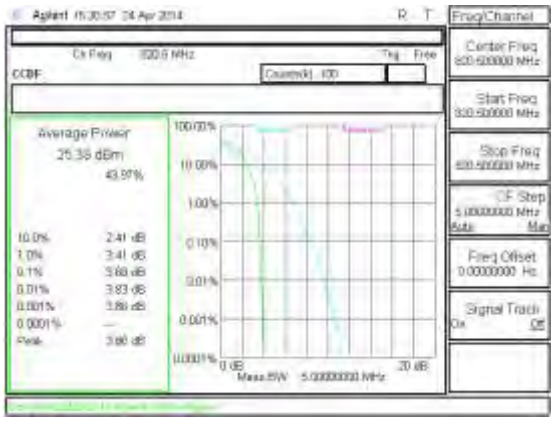
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE25 3MHz	 Band LTE25 3MHz 16QAM Mid channel	 Band LTE25 3MHz QPSK Mid channel

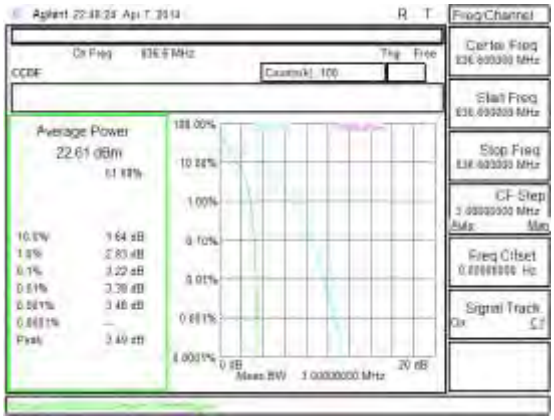
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band BC1 EVDO REL. 0	 Band BC1 EVDO Rel. 0 Mid channel	 Band BC1 1xRTT Mid channel
Band BC0 EVDO REL. 0	 Band BC0 EVDO Rel. 0 Mid channel	 Band BC0 1xRTT Mid channel

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band BC10 EVDO REL. 0	 Band BC10 EVDO Rel. 0 Mid channel	 Band BC10 1xRTT Mid channel

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band Band 2	 Band WCDMA B2 HSDPA	 Band WCDMA B2 REL99
Band Band 5	 Band WCDMA B5 HSDPA	 Band WCDMA B5 REL99

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

10. LIMITS AND CONDUCTED RESULTS

10.1. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049
IC: RSS-132, 4.5; RSS-133, 6.5

LIMITS

For reporting purposes only

TEST PROCEDURE

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at the low, middle and high channel in each band. The -26dB bandwidth was also measured and recorded.

(KDB 971168 D01 Power Meas License Digital Systems v02r01 - 06/07/2013)

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

10.1.1. OCCUPIED BANDWIDTH RESULTS

Band	Mode	Channel	f (MHz)	99% BW (KHz)	-26dB BW (KHz)
GSM850	GPRS	128	824.2	253.2	334.6
		190	836.6	247.5	335.3
		251	848.8	253.2	331.7
	EGPRS	128	824.2	248.3	331.3
		190	836.6	248.3	331.3
		251	848.8	247.3	307.5
GSM1900	GPRS	512	1850.2	247.4	321.1
		661	1880	251.3	329.4
		810	1909.8	251.7	332.6
	EGPRS	512	1850.2	257.0	327.9
		661	1880	253.7	332.5
		810	1909.8	249.7	334.8

Band	Mode	Channel	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
Band 5	REL99	4132	826.4	4.14	4.62
		4183	836.6	4.15	4.64
		4233	846.6	4.2	4.63
	HSDPA	4132	826.4	4.15	4.65
		4183	836.6	4.16	4.61
		4233	846.6	4.15	4.63
Band 2	REL99	9262	1852.4	4.19	4.64
		9400	1880	4.16	4.62
		9538	1907.6	4.16	4.63
	HSDPA	9262	1852.4	4.17	4.64
		9400	1880	4.16	4.61
		9538	1907.6	4.18	4.62
BC10	1xRTT	476	817.9	1.28	1.43
		580	820.5	1.28	1.43
		684	823.1	1.28	1.43
	EVDO REL. 0	476	817.9	1.27	1.44
		580	820.5	1.27	1.43

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

		684	823.1	1.28	1.43
BC0	1xRTT	1013	824.7	1.28	1.43
		384	836.52	1.28	1.43
		777	848.31	1.28	1.45
	EVDO REL. 0	1013	824.7	1.27	1.43
		384	836.52	1.28	1.44
		777	848.31	1.28	1.44
BC1	1xRTT	25	1851.25	1.29	1.47
		600	1880	1.28	1.44
		1175	1908.75	1.28	1.46
	EVDO REL. 0	25	1851.25	1.28	1.44
		600	1880	1.27	1.44
		1175	1908.75	1.28	1.43

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

10.1.2. LTE OCCUPIED BANDWIDTH RESULTS

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE41	20	QPSK	100/0	2506	17.78	18.73
			100/0	2593	17.76	18.73
			100/0	2680	17.83	18.83
		16QAM	100/0	2506	17.77	18.95
			100/0	2593	17.8	18.7
			100/0	2680	17.75	18.88

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE41	15	QPSK	75/0	2503.5	13.31	14.23
			75/0	2593	13.35	14.18
			75/0	2682.5	13.41	14.32
		16QAM	75/0	2503.5	13.39	14.23
			75/0	2593	13.4	14
			75/0	2682.5	13.4	14.23

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE41	10	QPSK	50/0	2501	8.92	9.68
			50/0	2593	8.93	9.54
			50/0	2685	8.92	9.5
		16QAM	50/0	2501	8.92	9.62
			50/0	2593	8.93	9.7
			50/0	2685	8.93	9.67

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE26	10	QPSK	50/0	819	8.79	9.22
			50/0	831.5	8.79	9.21
			50/0	844	8.9	9.24
		16QAM	50/0	819	8.86	9.31
			50/0	831.5	8.92	9.19
			50/0	844	8.67	9.53

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE26	5	QPSK	25/0	816.5	4.44	4.74
			25/0	831.5	4.42	4.63
			25/0	846.5	4.45	4.71
		16QAM	25/0	816.5	4.42	4.59
			25/0	831.5	4.39	4.66
			25/0	846.5	4.46	4.59

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE26	3	QPSK	15/0	815.5	2.65	2.79
			15/0	831.5	2.68	2.85
			15/0	847.5	2.69	2.85
		16QAM	15/0	815.5	2.63	2.76
			15/0	831.5	2.66	2.8
			15/0	847.5	2.63	2.85

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE26	1.4	QPSK	6/0	814.7	1.07	1.17
			6/0	831.5	1.07	1.18
			6/0	848.3	1.05	1.17
		16QAM	6/0	814.7	1.07	1.17
			6/0	831.5	1.07	1.22
			6/0	848.3	1.07	1.22

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE25	10	QPSK	50/0	1855	8.89	9.38
			50/0	1882.5	8.91	9.21
			50/0	1910	8.86	9.3
		16QAM	50/0	1855	8.89	9.38
			50/0	1882.5	8.91	9.21

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

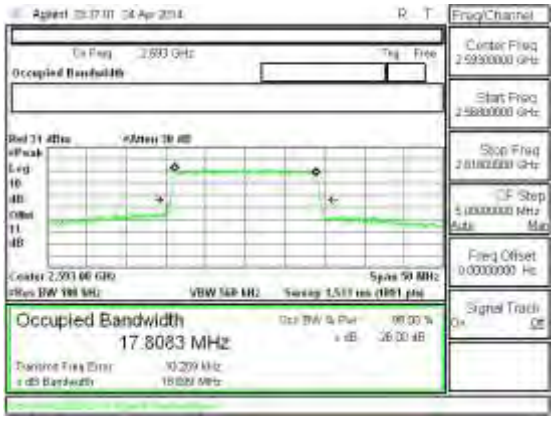
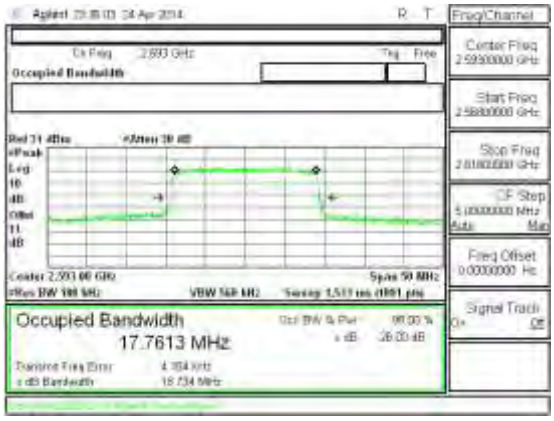
			50/0	1910	8.86	9.3

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE25	5	QPSK	25/0	1852.5	4.45	4.57
			25/0	1882.5	4.48	4.71
			25/0	1912.5	4.55	4.64
		16QAM	25/0	1852.5	4.46	4.61
			25/0	1882.5	4.4	4.66
			25/0	1912.5	4.39	4.71

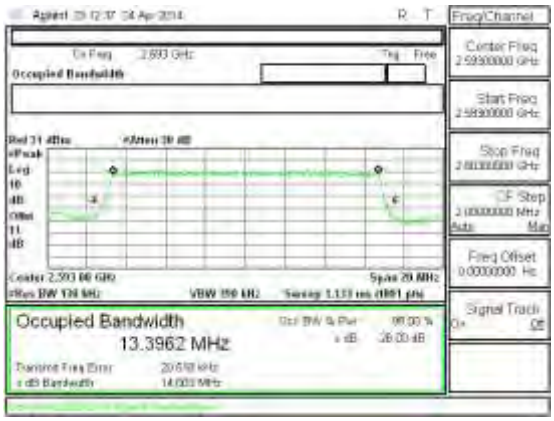
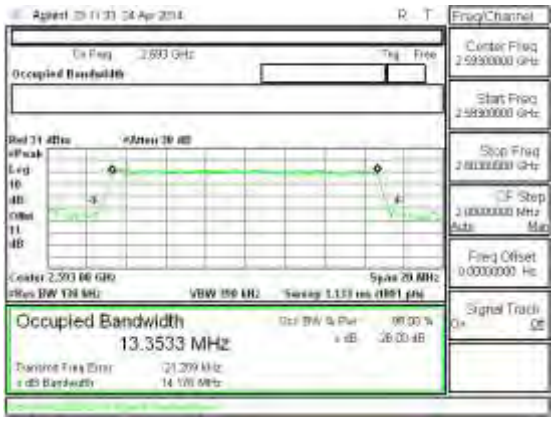
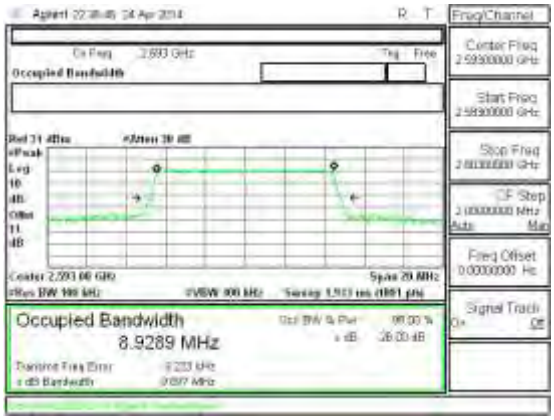
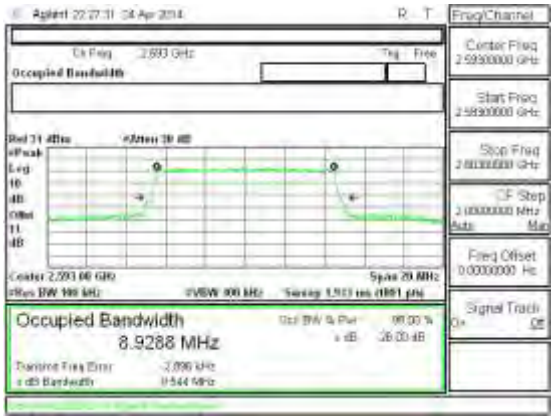
Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE25	3	QPSK	15/0	1851.5	2.7	2.78
			15/0	1882.5	2.7	2.79
			15/0	1913.5	2.62	2.84
		16QAM	15/0	1851.5	2.66	2.84
			15/0	1882.5	2.66	2.85
			15/0	1913.5	2.65	2.8

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

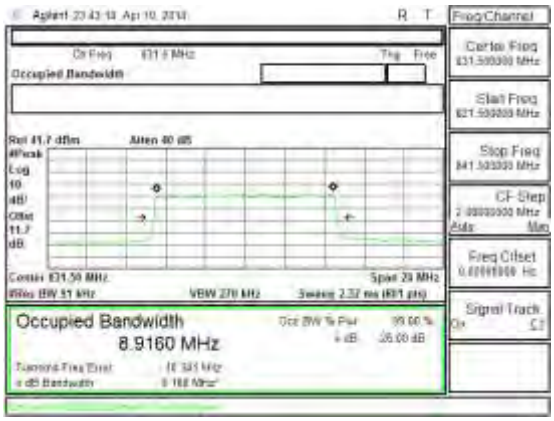
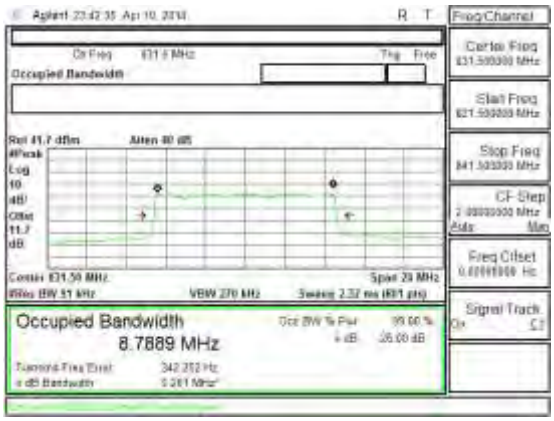
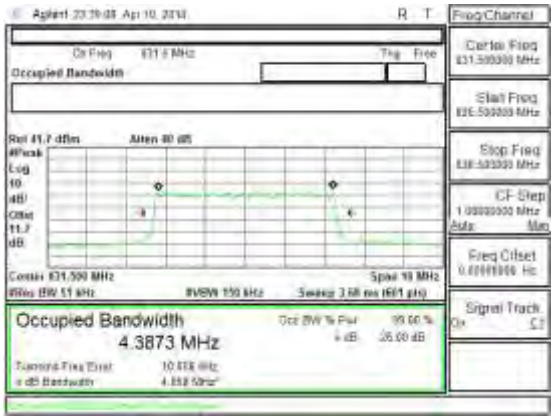
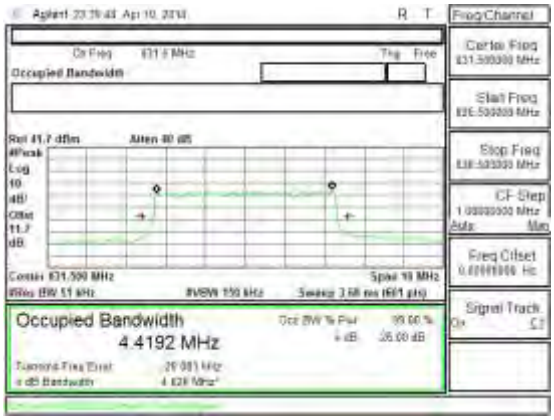
10.1.3. OCCUPIED BANDWIDTH PLOTS

Band LTE41 20MHz	 Band LTE41 20MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE41 20MHz OBW QPSK Mid Channel FRB.gif

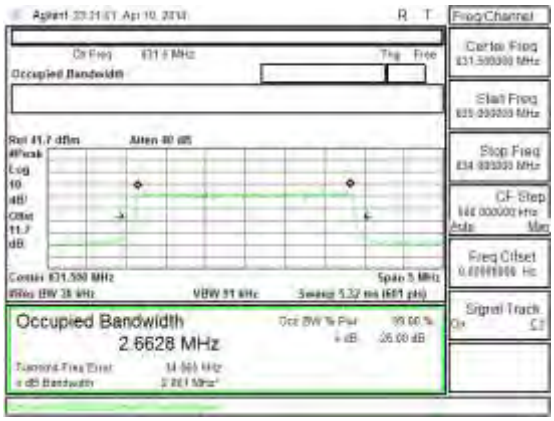
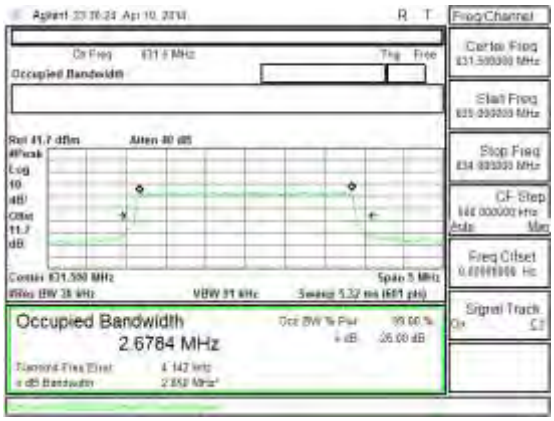
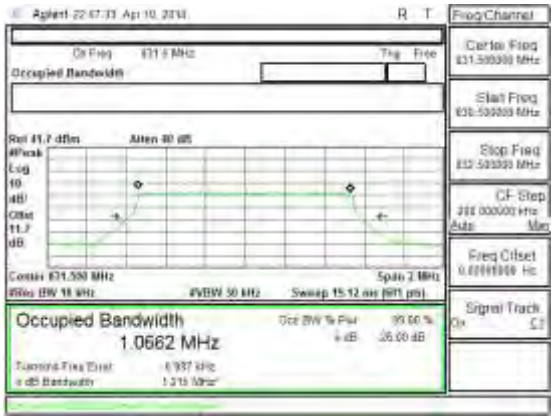
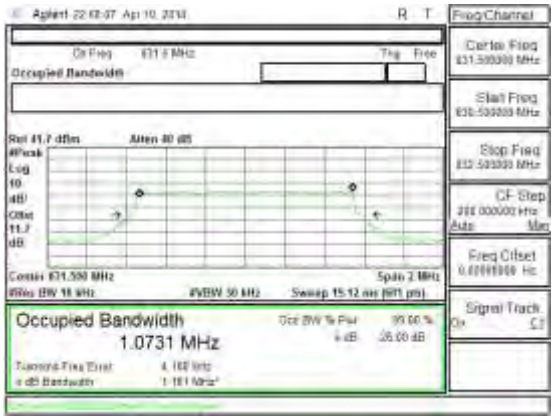
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE41 15MHz	 Band LTE41 15MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE41 15MHz OBW QPSK Mid Channel FRB.gif
Band LTE41 10MHz	 Band LTE41 10MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE41 10MHz OBW QPSK Mid Channel FRB.gif

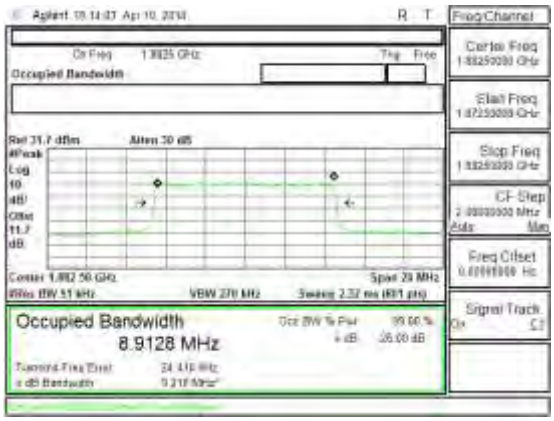
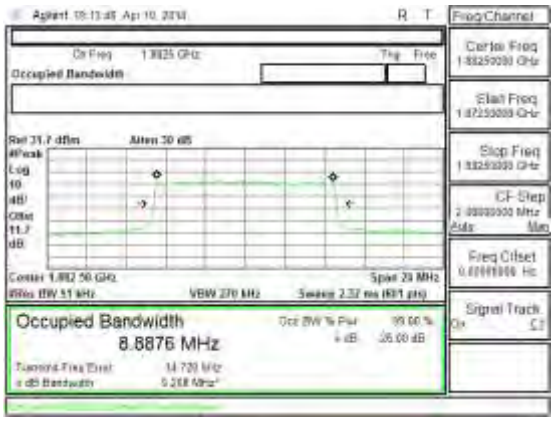
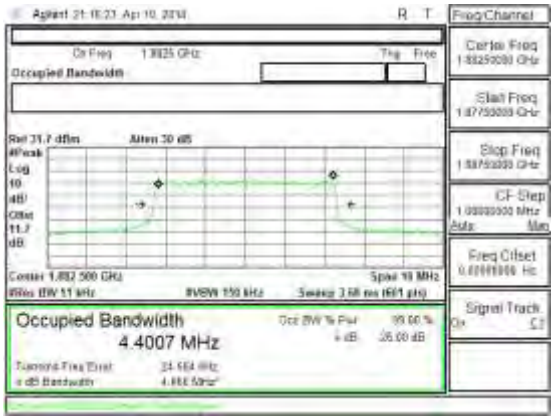
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE26 10MHz	 Band LTE26 10MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE26 10MHz OBW QPSK Mid Channel FRB.gif
Band LTE26 5MHz	 Band LTE26 5MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE26 5MHz OBW QPSK Mid Channel FRB.gif

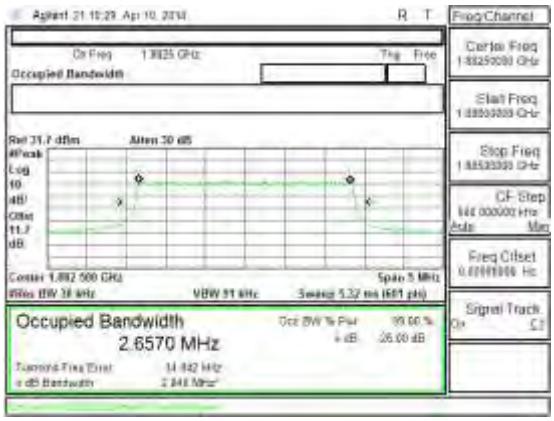
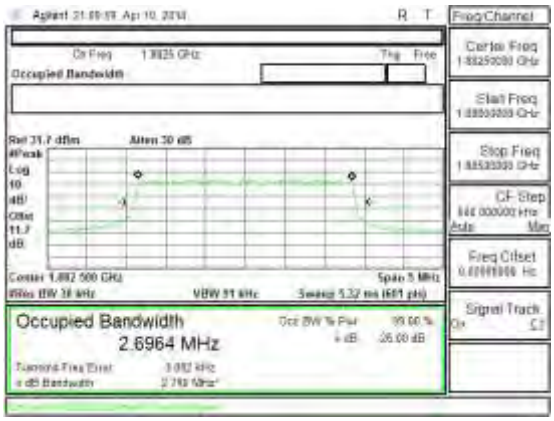
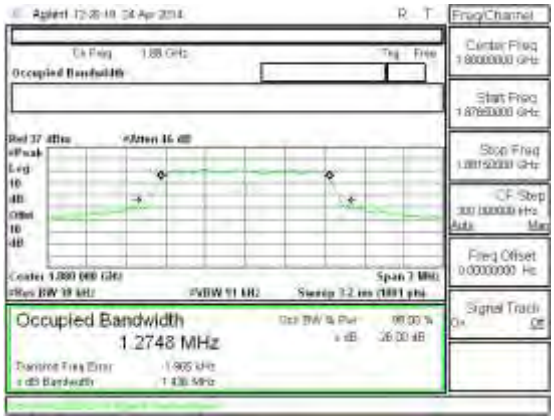
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE26 3MHz	 Band LTE26 3MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE26 3MHz OBW QPSK Mid Channel FRB.gif
Band LTE26 1.4MHz 16QAM	 Band LTE26 1.4MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE26 1.4MHz OBW QPSK Mid Channel FRB.gif

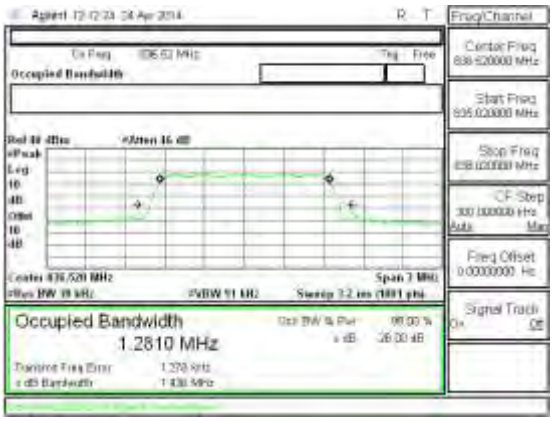
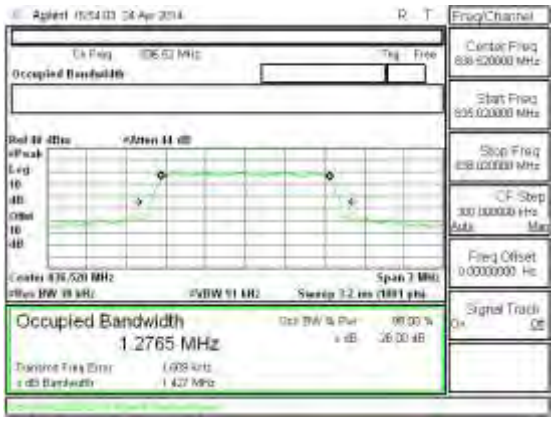
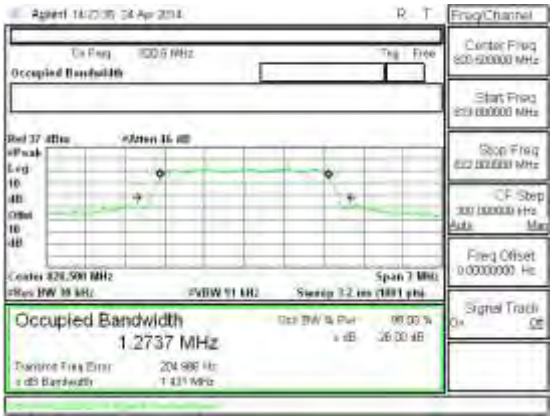
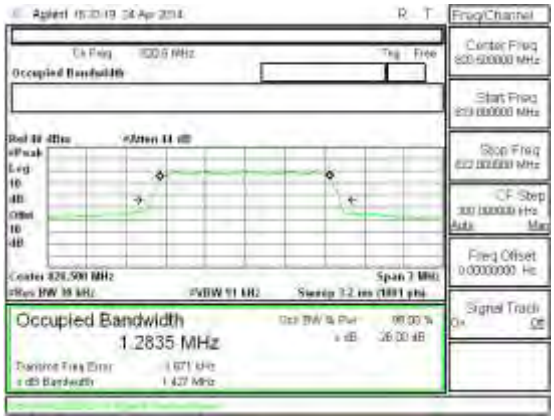
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE25 10MHz	 Band LTE25 10MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE25 10MHz OBW QPSK Mid Channel FRB.gif
Band LTE25 5MHz	 Band LTE25 5MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE25 5MHz OBW QPSK Mid Channel FRB.gif

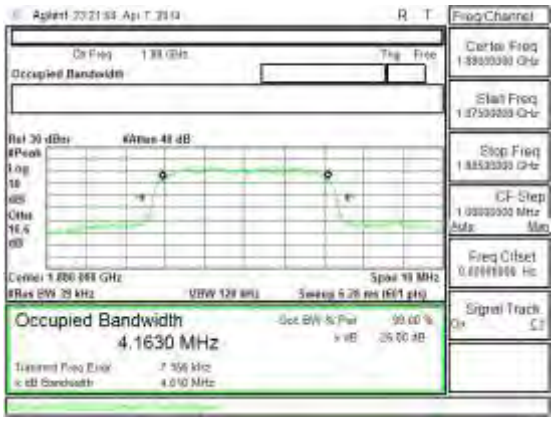
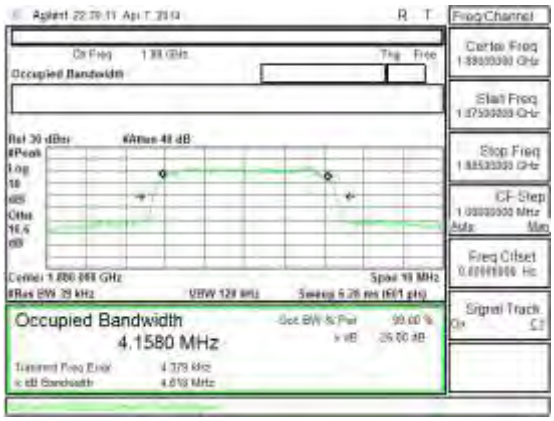
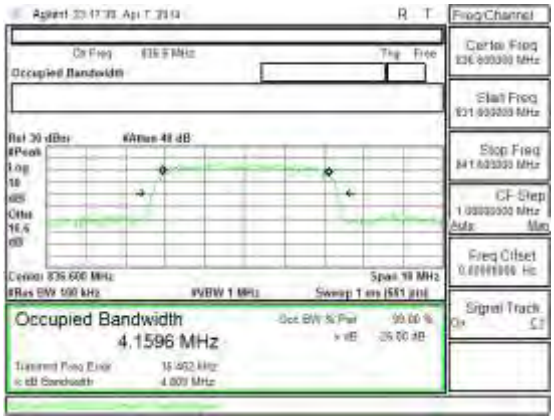
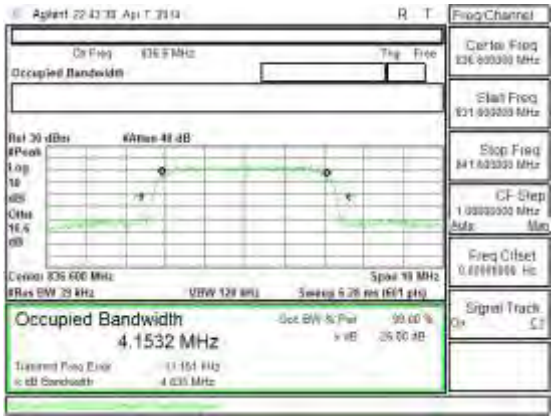
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE25 3MHz	 Band LTE25 3MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE25 3MHz OBW QPSK Mid Channel FRB.gif
Band BC1	 Band BC1 EVDO Rel. 0 OBW Mid channel	 Band BC1 1xRTT OBW Mid channel

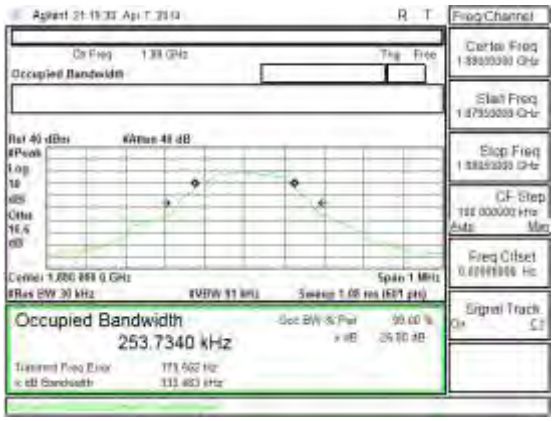
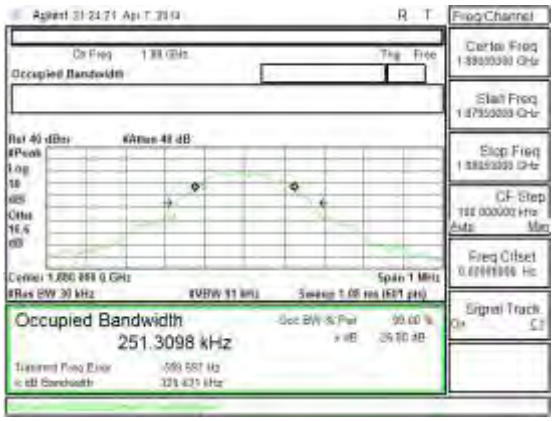
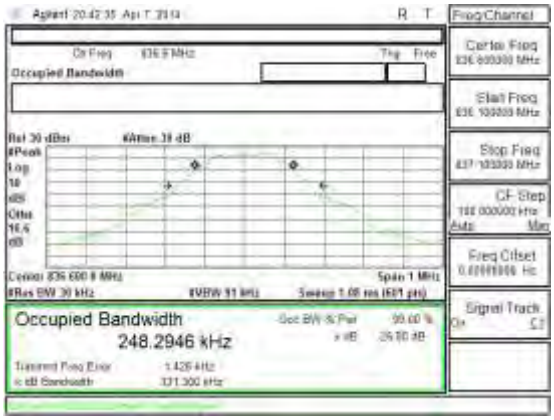
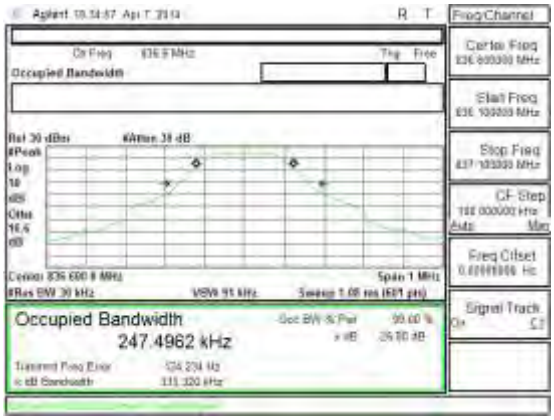
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band BC0	 Band BC0 EVDO Rel. 0 OBW Mid channel	 Band BC0 1xRTT OBW Mid channel
Band BC10	 Band BC10 EVDO Rel. 0 OBW Mid channel	 Band BC10 1xRTT OBW Mid channel

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band Band 2	 Band WCDMA B2 HSDPA OBW	 Band WCDMA B2 REL99 OBW
Band Band 5	 Band WCDMA B5 HSDPA OBW	 Band WCDMA B5 REL99 OBW

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band GSM1900	 Band GSM1900 EGPRS OBW Mid channel	 Band GSM1900 GPRS OBW Mid channel
Band GSM850 EGPRS	 Band GSM850 EGPRS OBW Mid channel	 Band GSM850 GPRS OBW Mid channel

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

10.2. BAND EDGE EMISSIONS

RULE PART(S)

FCC: §22.359, §24.238, §27 and § 90.691

LIMITS

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

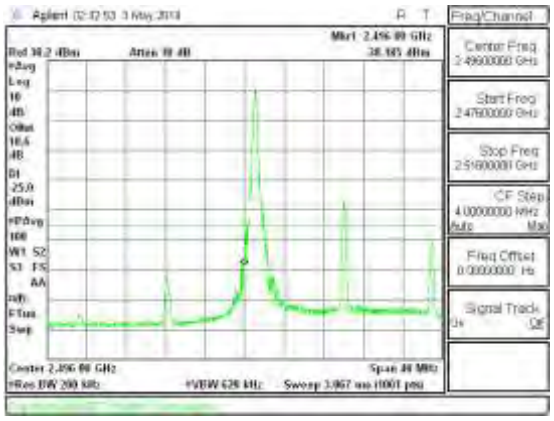
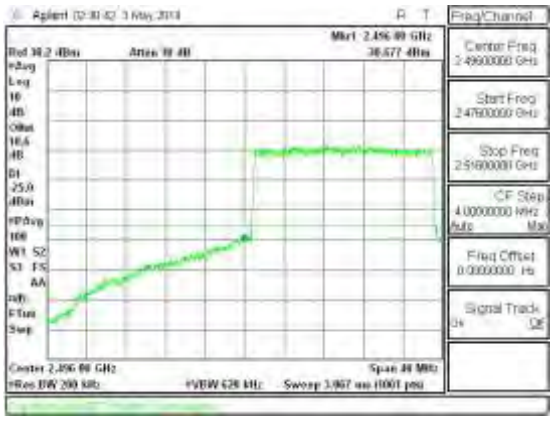
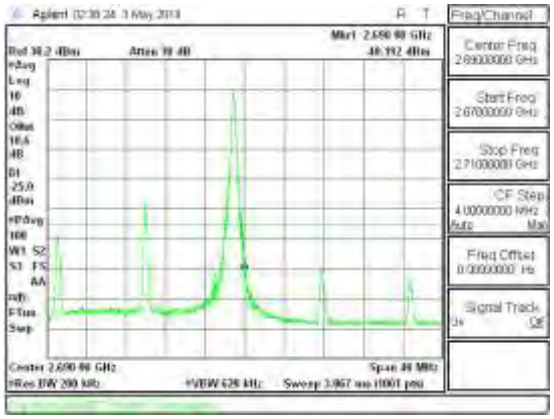
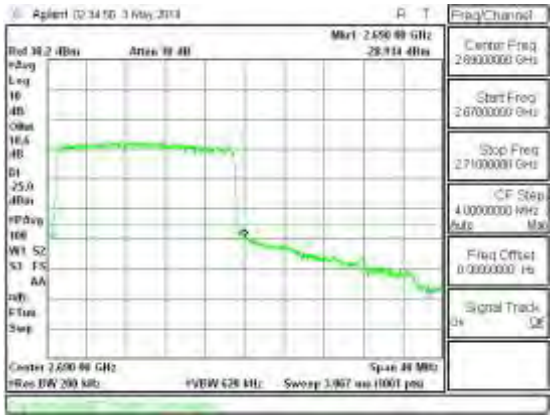
TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v02r01
The transmitter output was connected to an Agilent 8960 or a CMW500 Test Set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.

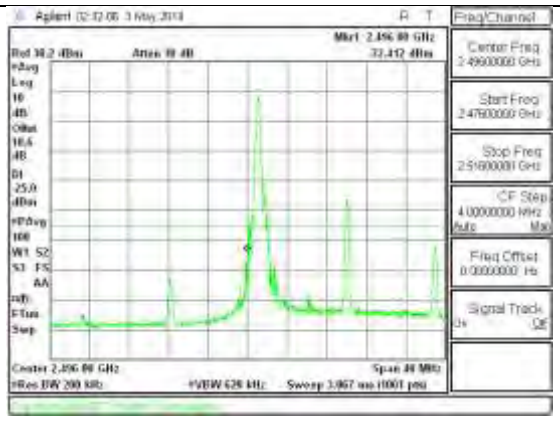
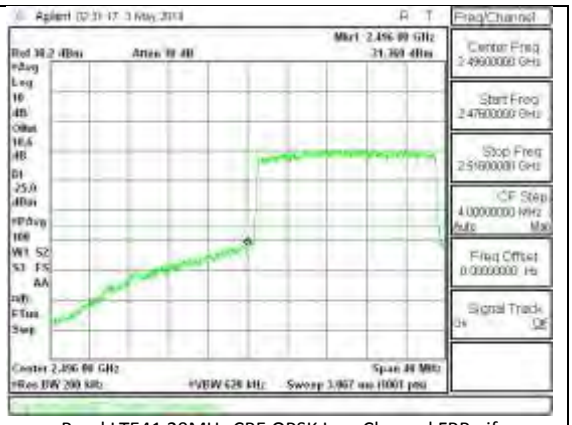
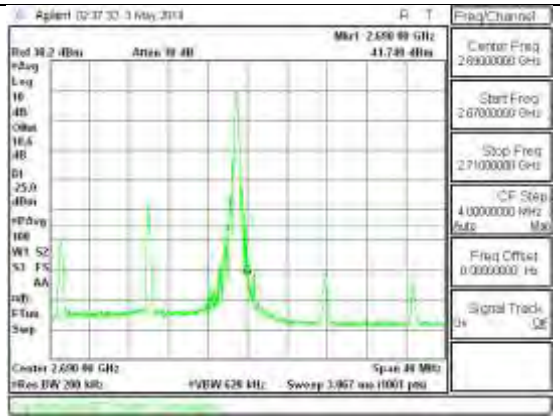
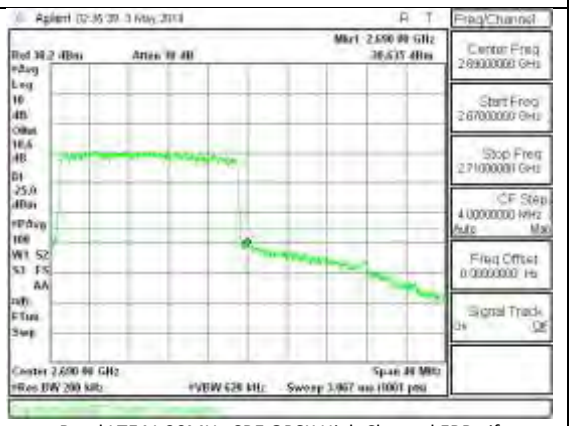
RESULTS

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

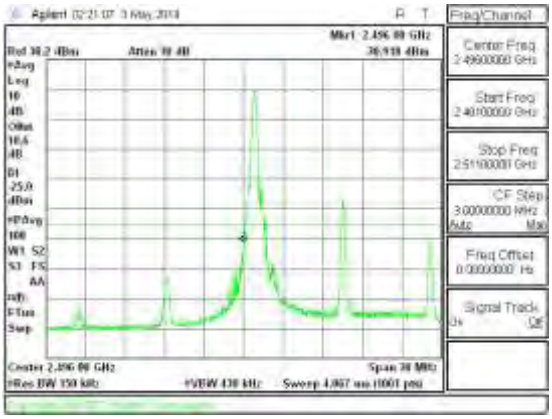
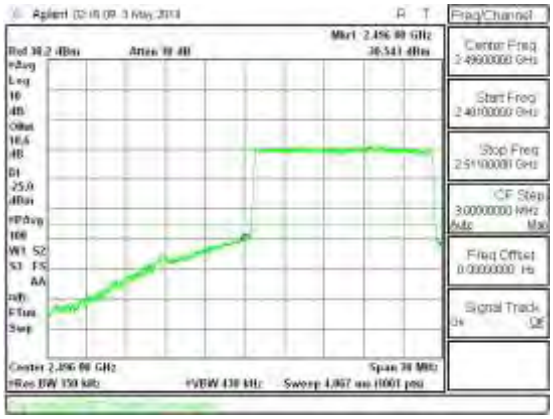
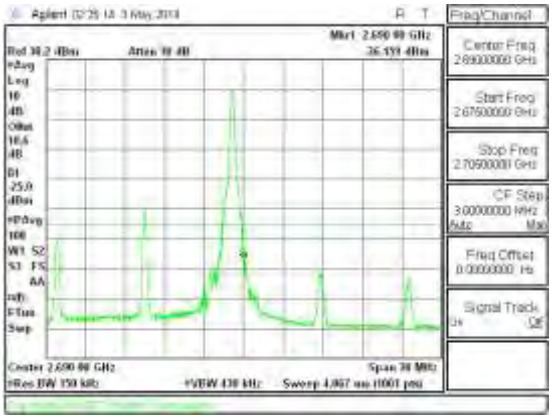
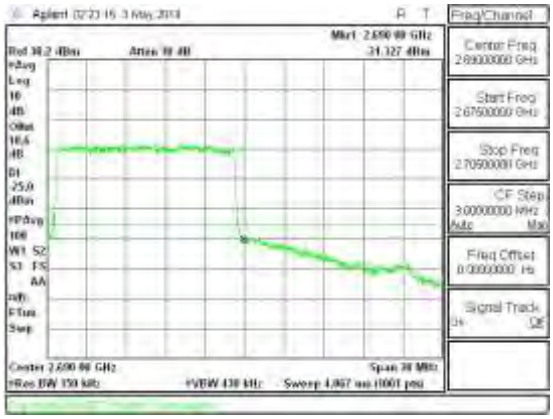
10.2.1. BAND EDGE PLOTS

Band LTE41 20MHz 16QAM	 Band LTE41 20MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE41 20MHz CBE 16QAM Low Channel FRB.gif
Band LTE41 20MHz 16QAM	 Band LTE41 20MHz CBE 16QAM High Channel 1RB.gif	 Band LTE41 20MHz CBE 16QAM High Channel FRB.gif

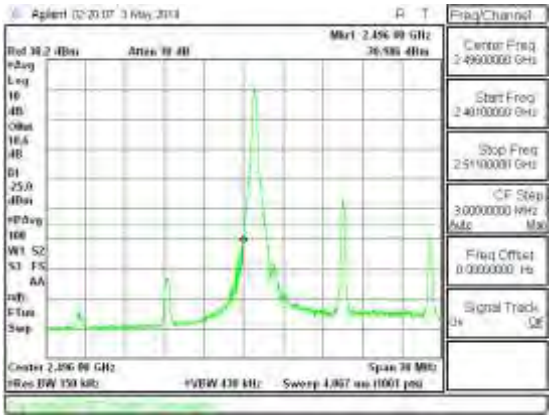
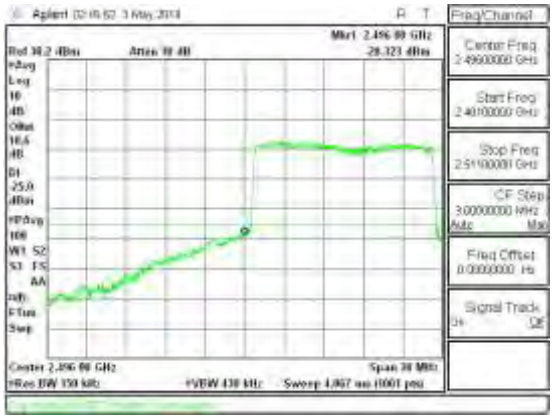
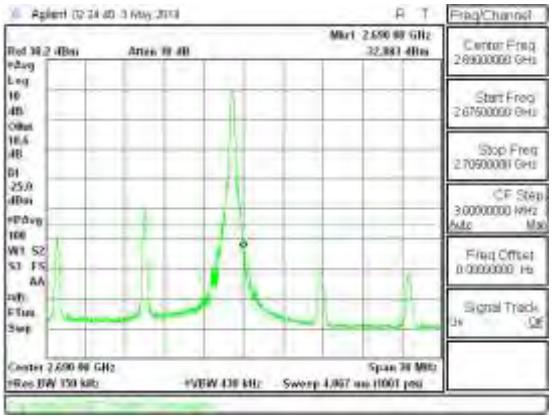
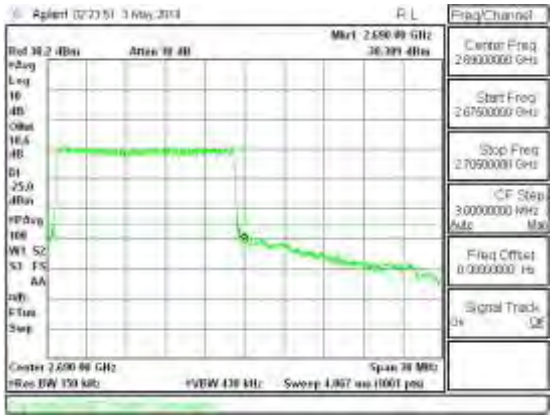
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE41 20MHz QPSK	 Band LTE41 20MHz CBE QPSK Low Channel 1RB.gif	 Band LTE41 20MHz CBE QPSK Low Channel FRB.gif
Band LTE41 20MHz QPSK	 Band LTE41 20MHz CBE QPSK High Channel 1RB.gif	 Band LTE41 20MHz CBE QPSK High Channel FRB.gif

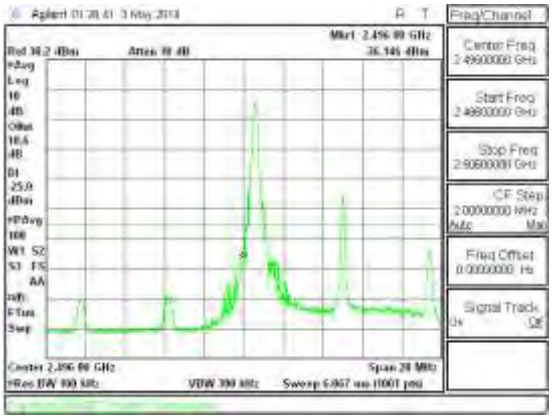
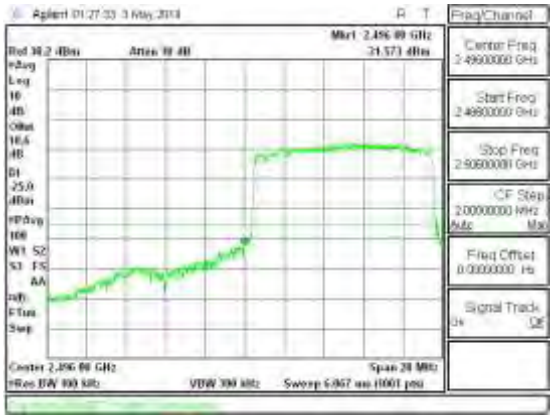
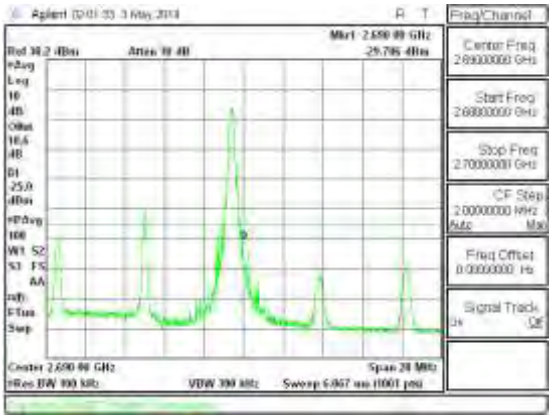
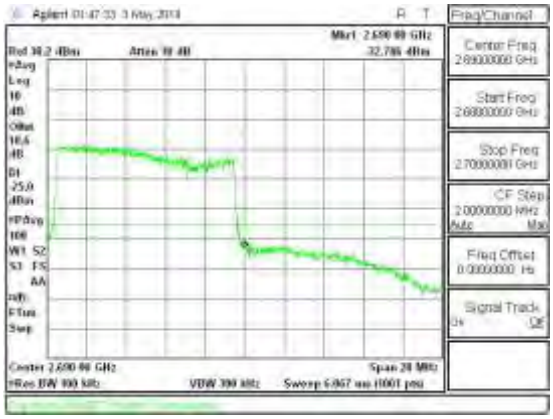
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE41 15MHz 16QAM	 Band LTE41 15MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE41 15MHz CBE 16QAM Low Channel FRB.gif
Band LTE41 15MHz 16QAM	 Band LTE41 15MHz CBE 16QAM High Channel 1RB.gif	 Band LTE41 15MHz CBE 16QAM High Channel FRB.gif

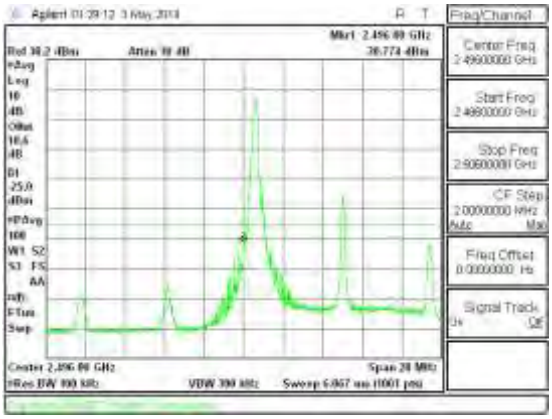
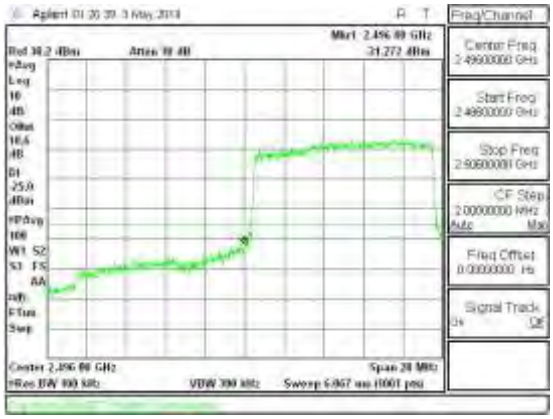
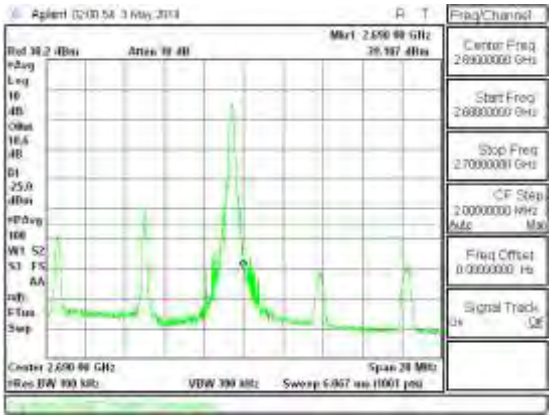
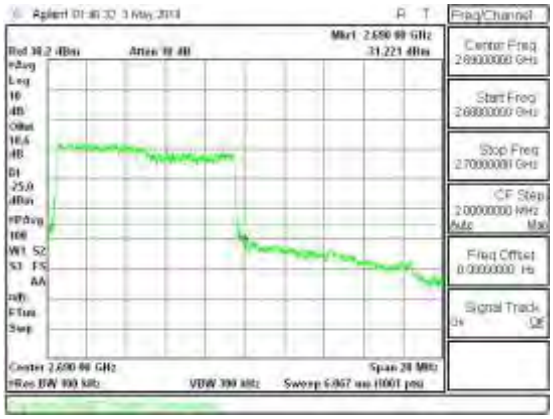
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE41 15MHz QPSK	 Band LTE41 15MHz CBE QPSK Low Channel 1RB.gif	 Band LTE41 15MHz CBE QPSK Low Channel FRB.gif
Band LTE41 15MHz QPSK	 Band LTE41 15MHz CBE QPSK High Channel 1RB.gif	 Band LTE41 15MHz CBE QPSK High Channel FRB.gif

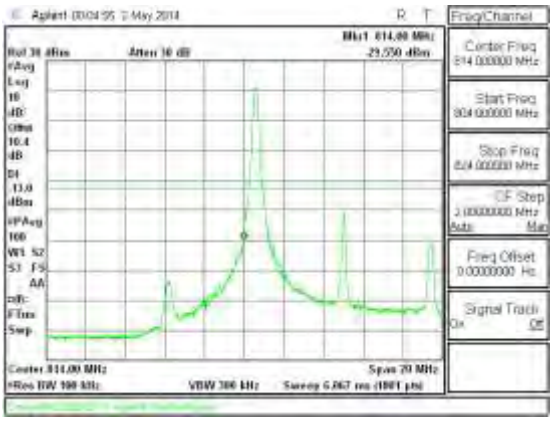
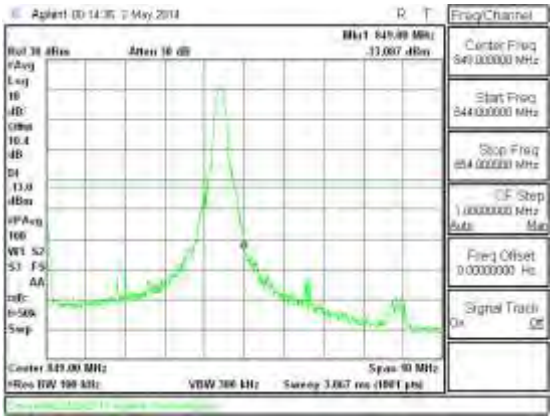
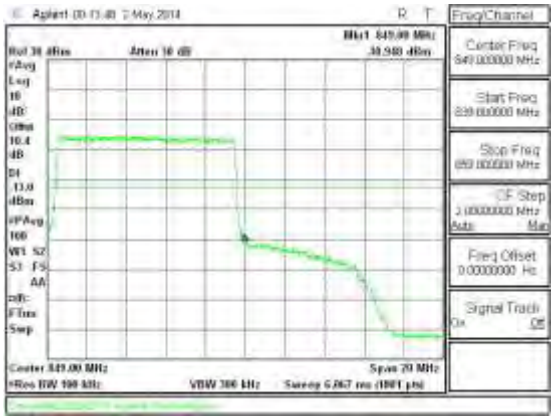
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE41 10MHz 16QAM	 Band LTE41 10MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE41 10MHz CBE 16QAM Low Channel FRB.gif
Band LTE41 15MHz 16QAM	 Band LTE41 10MHz CBE 16QAM High Channel 1RB.gif	 Band LTE41 10MHz CBE 16QAM High Channel FRB.gif

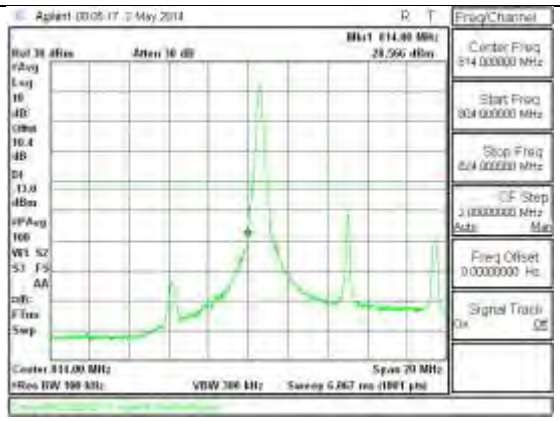
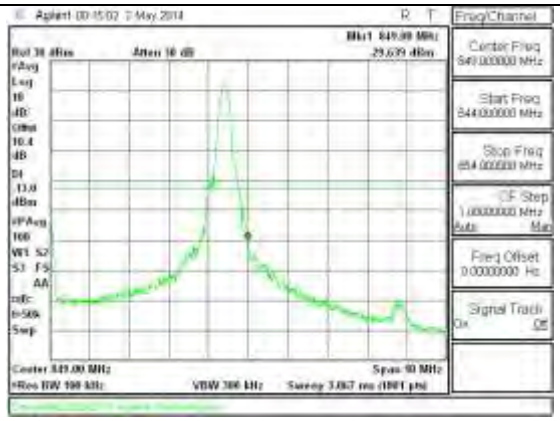
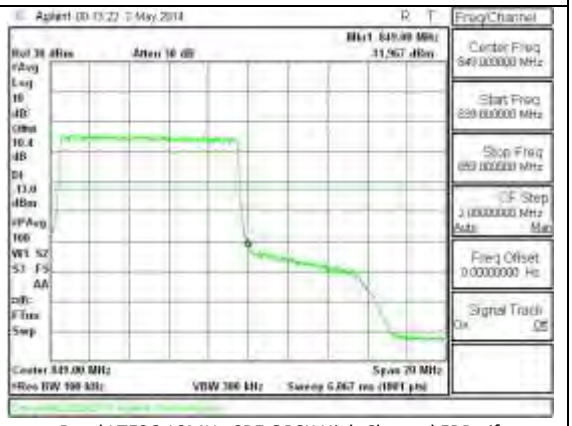
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE41 10MHz QPSK	 Band LTE41 10MHz CBE QPSK Low Channel 1RB.gif	 Band LTE41 10MHz CBE QPSK Low Channel FRB.gif
Band LTE41 10MHz QPSK	 Band LTE41 10MHz CBE QPSK High Channel 1RB.gif	 Band LTE41 10MHz CBE QPSK High Channel FRB.gif

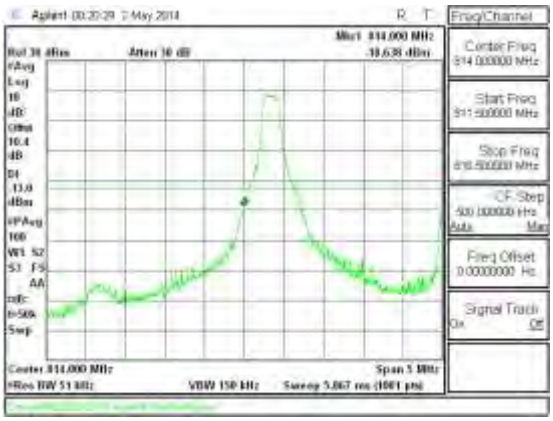
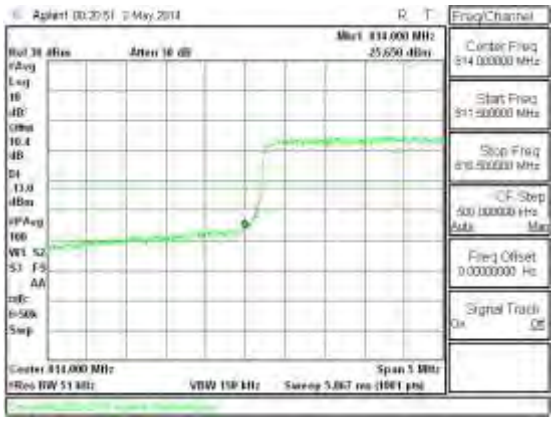
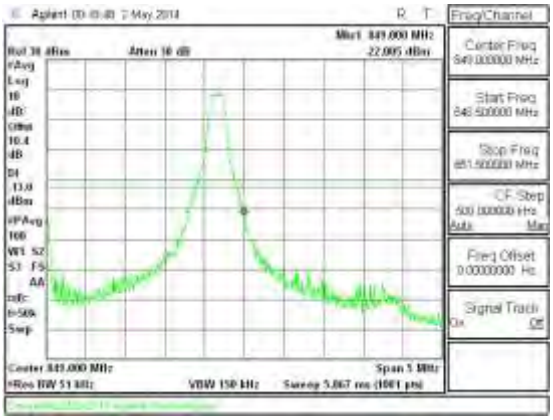
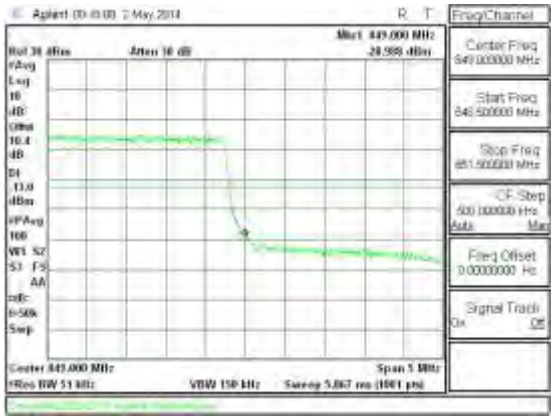
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE26 10MHz 16QAM	 Band LTE26 10MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE26 10MHz CBE 16QAM Low Channel FRB.gif
Band LTE26 10MHz 16QAM	 Band LTE26 10MHz CBE 16QAM High Channel 1RB.gif	 Band LTE26 10MHz CBE 16QAM High Channel FRB.gif

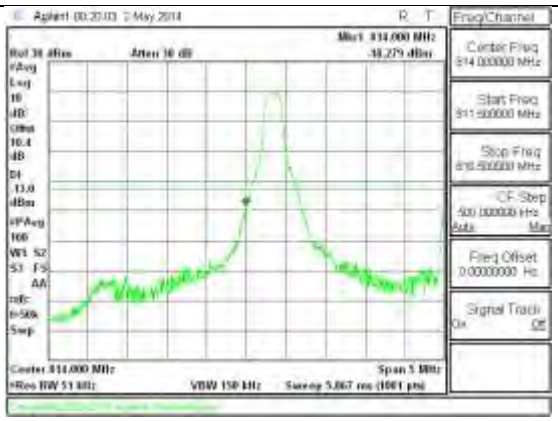
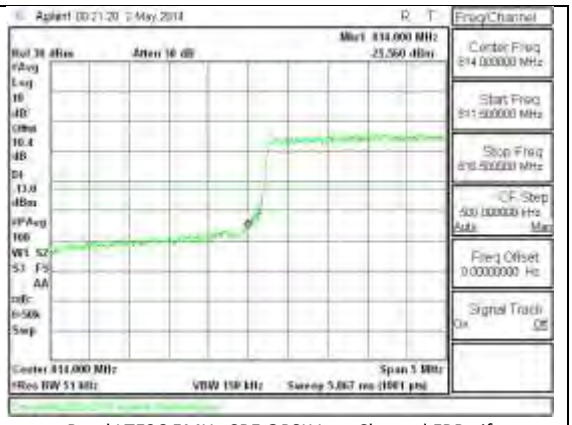
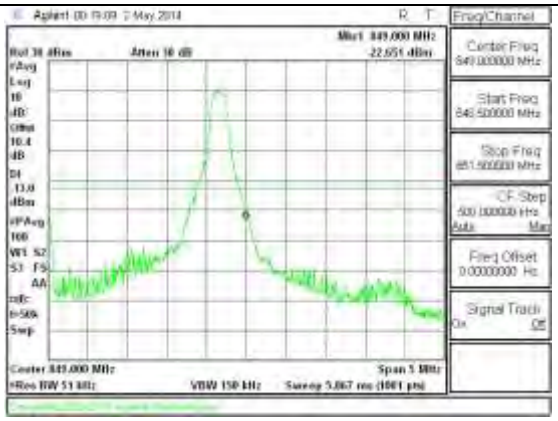
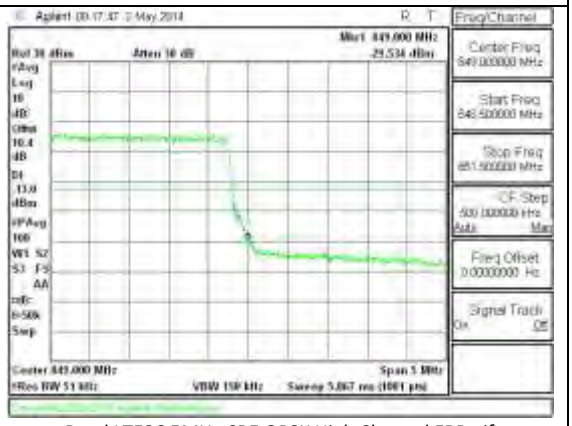
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE26 10MHz QPSK	 Band LTE26 10MHz CBE QPSK Low Channel 1RB.gif	 Band LTE26 10MHz CBE QPSK Low Channel FRB.gif
Band LTE26 10MHz QPSK	 Band LTE26 10MHz CBE QPSK High Channel 1RB.gif	 Band LTE26 10MHz CBE QPSK High Channel FRB.gif

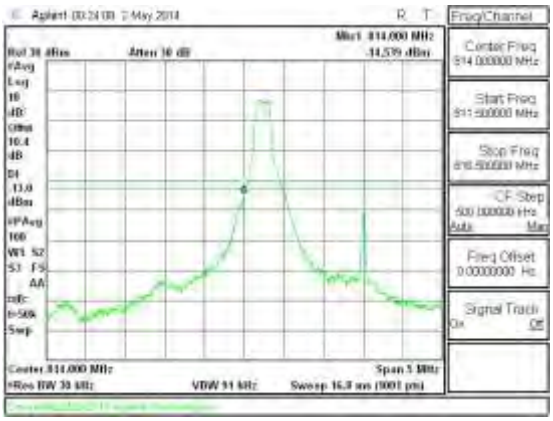
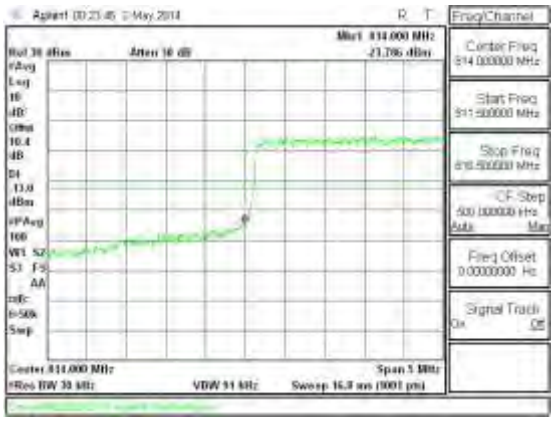
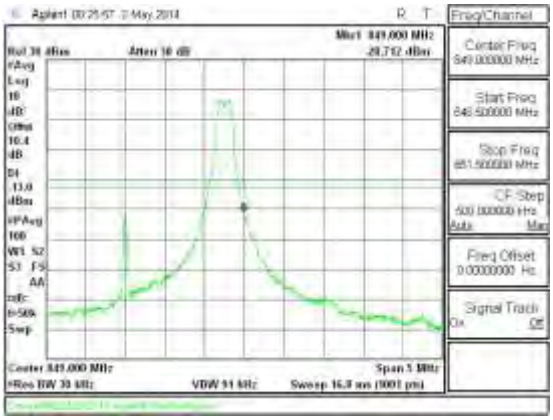
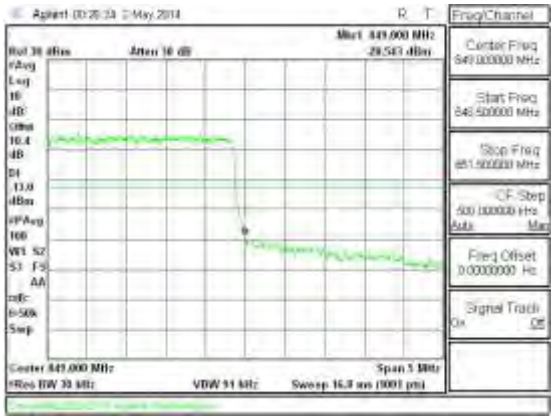
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE26 5MHz 16QAM	 Band LTE26 5MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE26 5MHz CBE 16QAM Low Channel FRB.gif
Band LTE26 5MHz 16QAM	 Band LTE26 5MHz CBE 16QAM High Channel 1RB.gif	 Band LTE26 5MHz CBE 16QAM High Channel FRB.gif

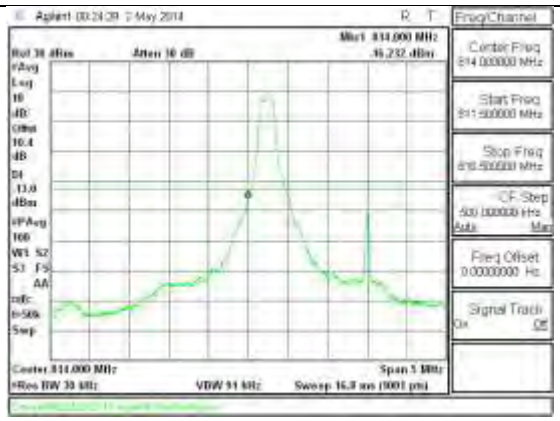
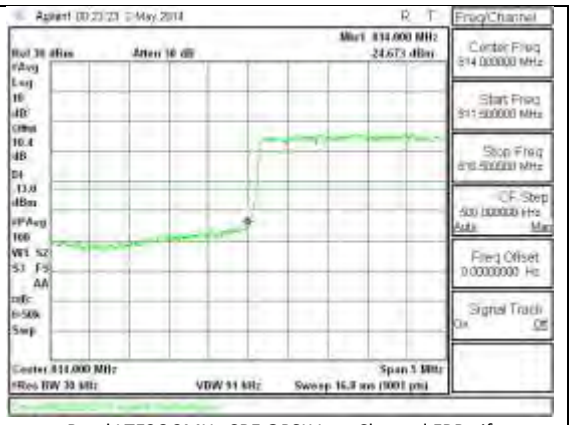
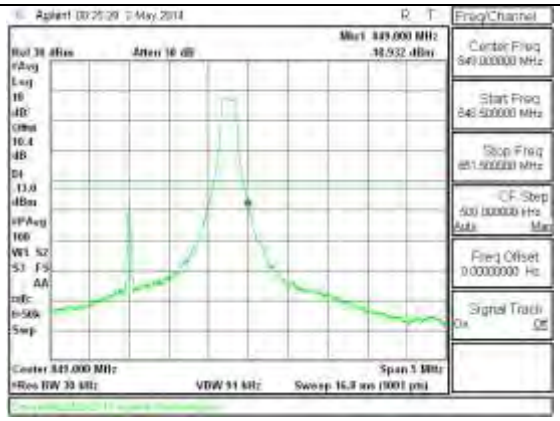
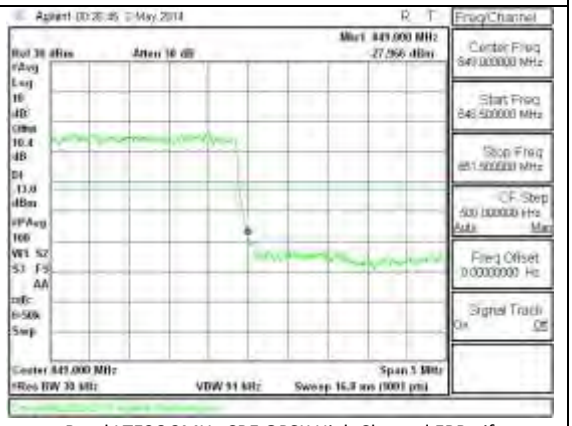
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE26 5MHz QPSK	 Band LTE26 5MHz CBE QPSK Low Channel 1RB.gif	 Band LTE26 5MHz CBE QPSK Low Channel FRB.gif
Band LTE26 5MHz QPSK	 Band LTE26 5MHz CBE QPSK High Channel 1RB.gif	 Band LTE26 5MHz CBE QPSK High Channel FRB.gif

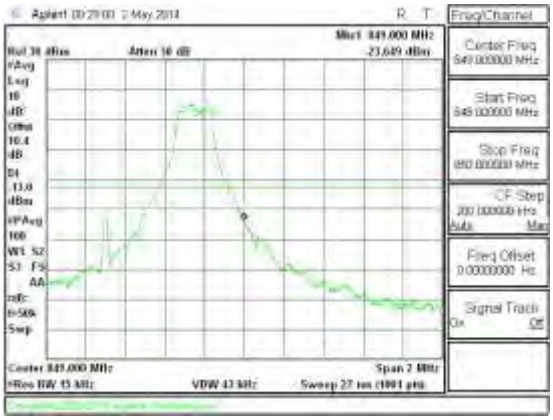
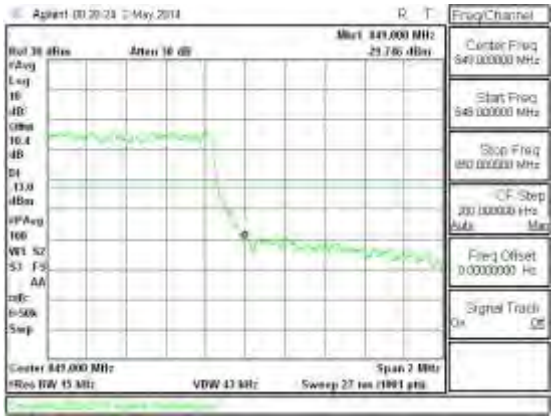
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE26 3MHz 16QAM	 Band LTE26 3MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE26 3MHz CBE 16QAM Low Channel FRB.gif
Band LTE26 3MHz 16QAM	 Band LTE26 3MHz CBE 16QAM High Channel 1RB.gif	 Band LTE26 3MHz CBE 16QAM High Channel FRB.gif

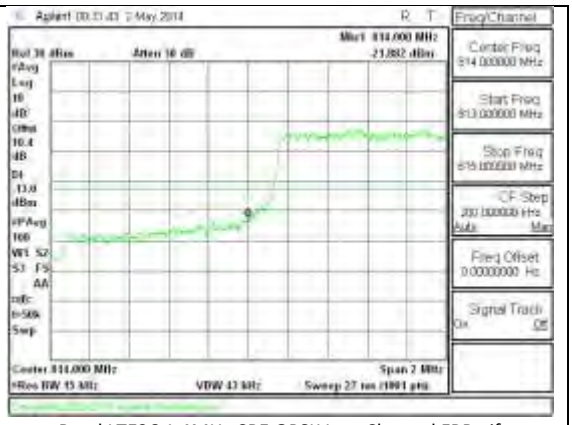
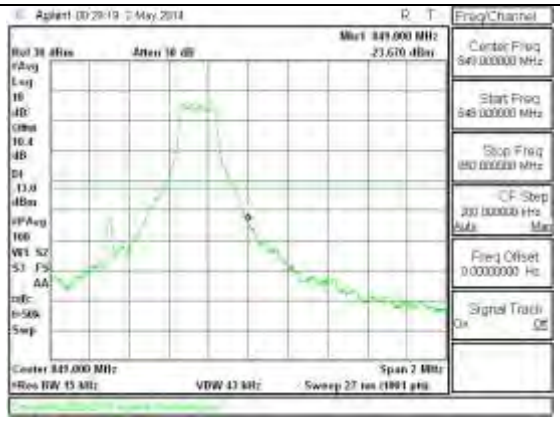
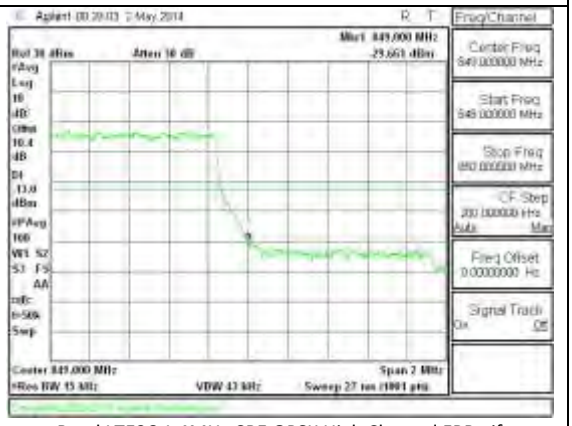
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE26 3MHz QPSK	 Band LTE26 3MHz CBE QPSK Low Channel 1RB.gif	 Band LTE26 3MHz CBE QPSK Low Channel FRB.gif
Band LTE26 3MHz QPSK	 Band LTE26 3MHz CBE QPSK High Channel 1RB.gif	 Band LTE26 3MHz CBE QPSK High Channel FRB.gif

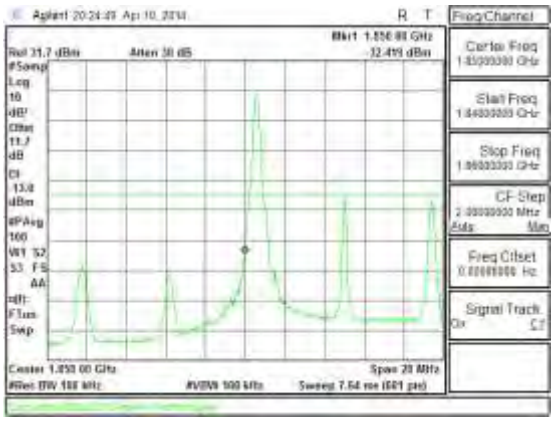
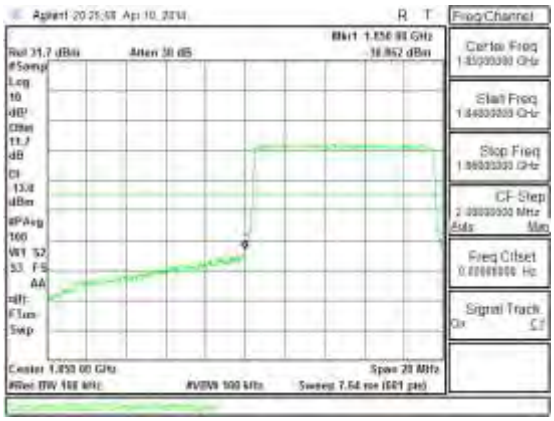
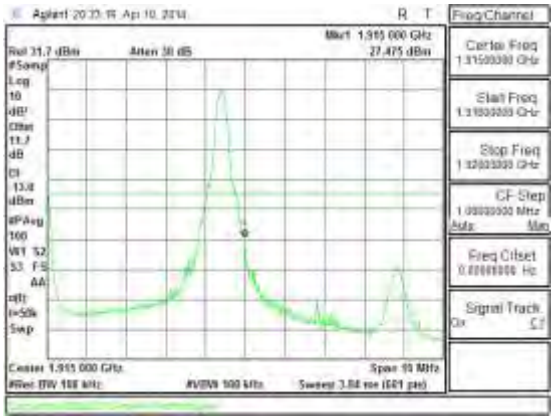
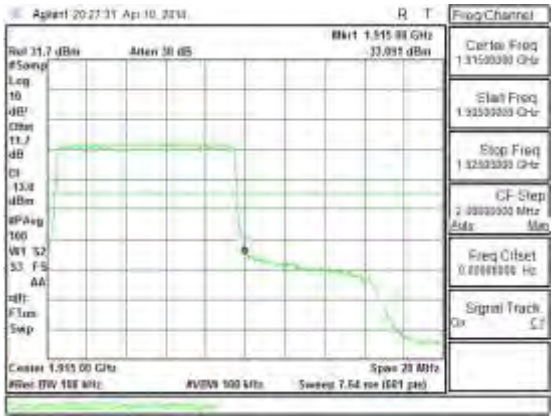
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE26 1.4MHz 16QAM	 Band LTE26 1.4MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE26 1.4MHz CBE 16QAM Low Channel FRB.gif
Band LTE26 1.4MHz 16QAM	 Band LTE26 1.4MHz CBE 16QAM High Channel 1RB.gif	 Band LTE26 1.4MHz CBE 16QAM High Channel FRB.gif

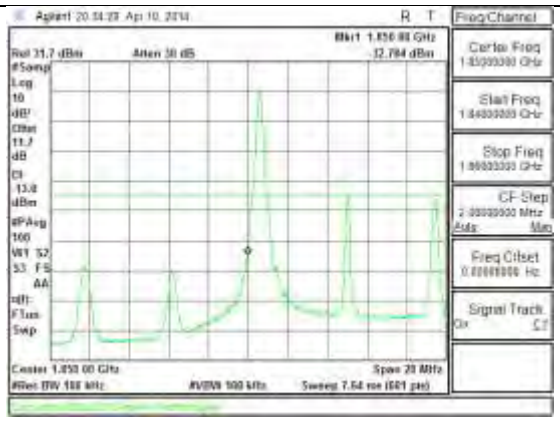
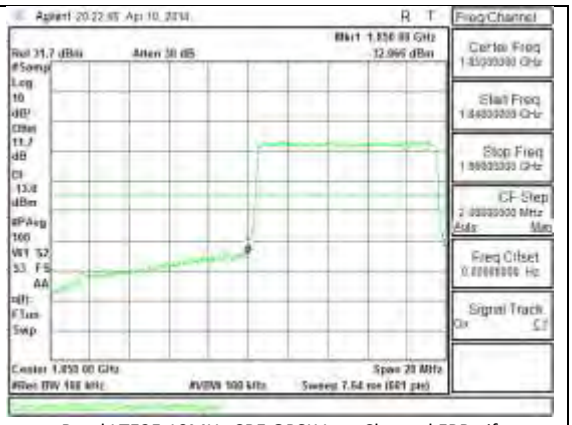
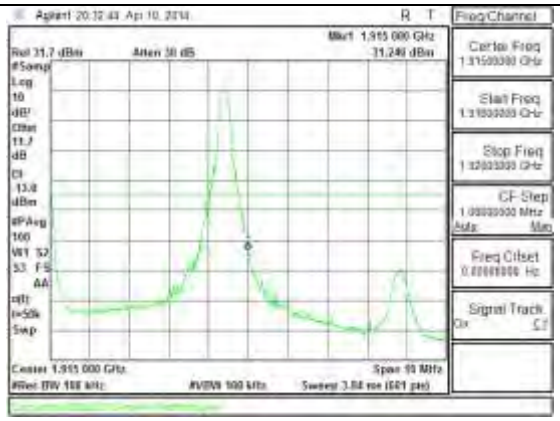
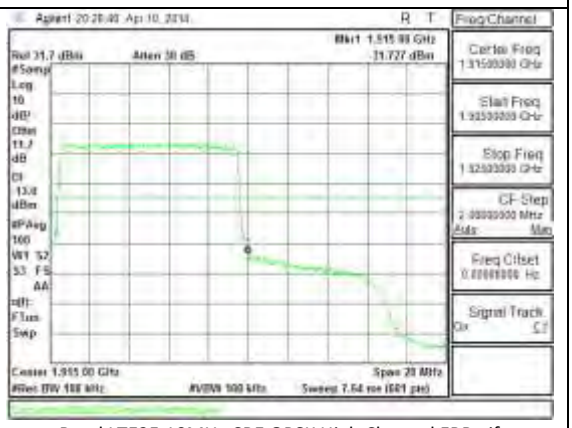
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE26 1.4MHz QPSK	 Band LTE26 1.4MHz CBE QPSK Low Channel 1RB.gif	 Band LTE26 1.4MHz CBE QPSK Low Channel FRB.gif
Band LTE26 1.4MHz QPSK	 Band LTE26 1.4MHz CBE QPSK High Channel 1RB.gif	 Band LTE26 1.4MHz CBE QPSK High Channel FRB.gif

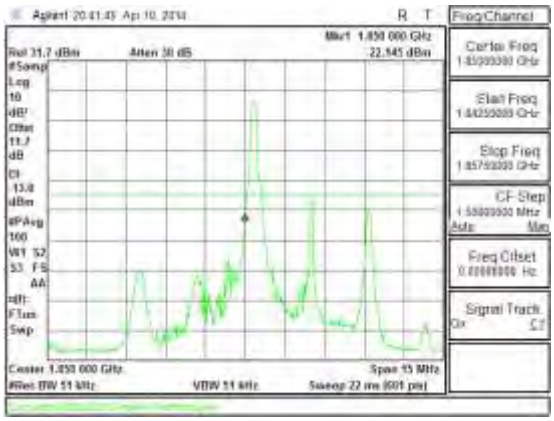
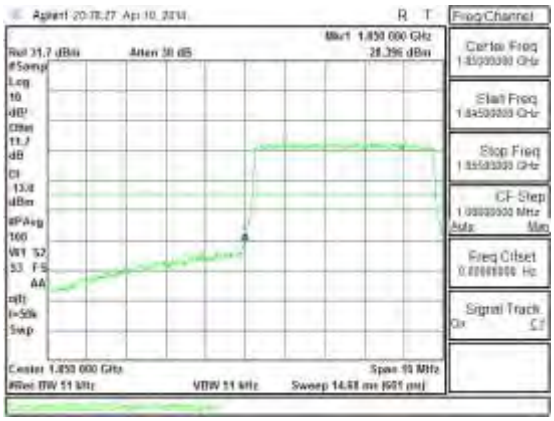
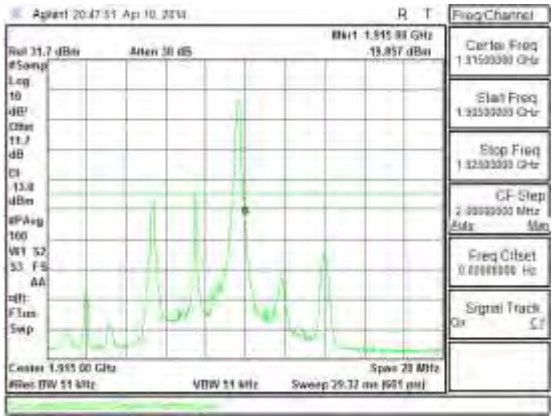
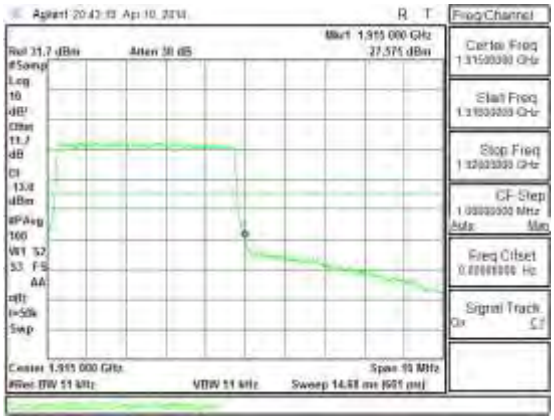
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE25 10MHz 16QAM	 Band LTE25 10MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE25 10MHz CBE 16QAM Low Channel FRB.gif
Band LTE25 10MHz 16QAM	 Band LTE25 10MHz CBE 16QAM High Channel 1RB.gif	 Band LTE25 10MHz CBE 16QAM High Channel FRB.gif

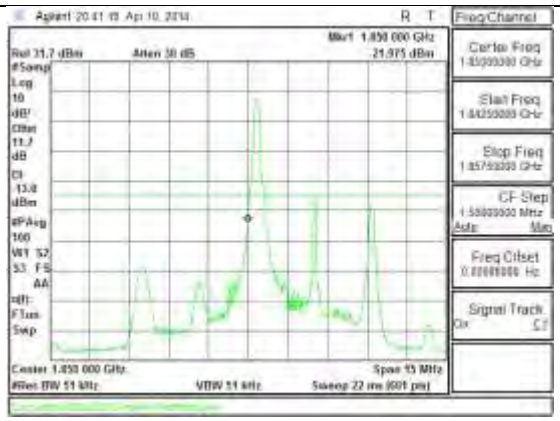
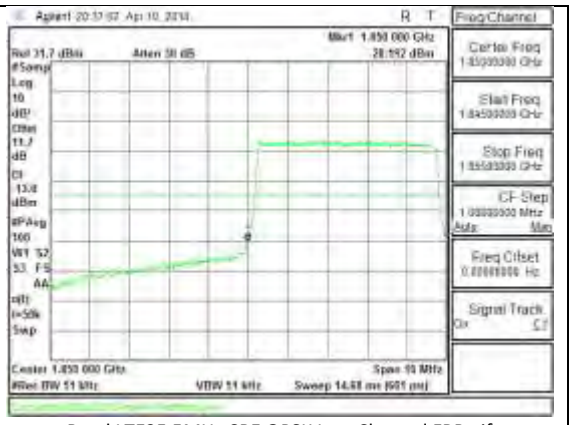
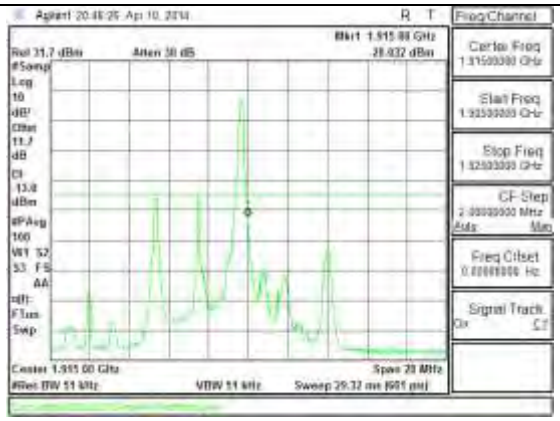
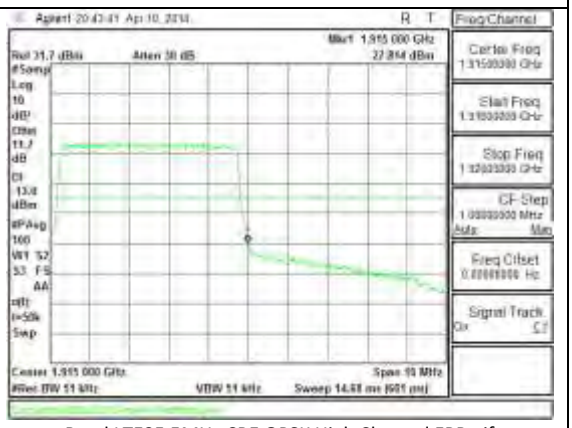
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE25 10MHz QPSK	 Band LTE25 10MHz CBE QPSK Low Channel 1RB.gif	 Band LTE25 10MHz CBE QPSK Low Channel FRB.gif
Band LTE25 10MHz QPSK	 Band LTE25 10MHz CBE QPSK High Channel 1RB.gif	 Band LTE25 10MHz CBE QPSK High Channel FRB.gif

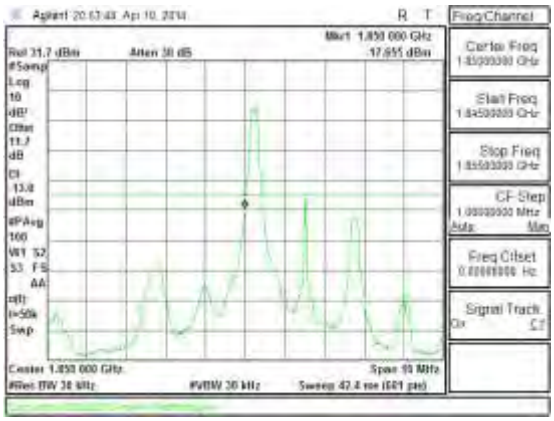
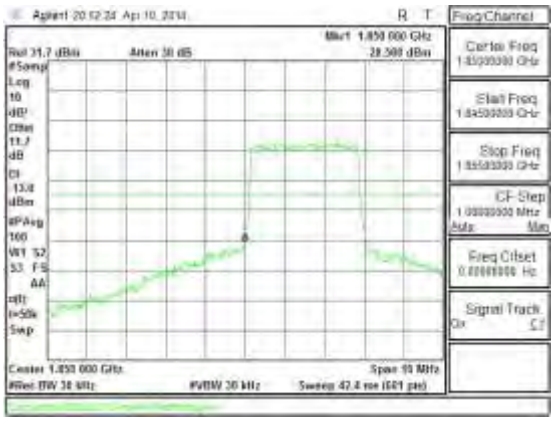
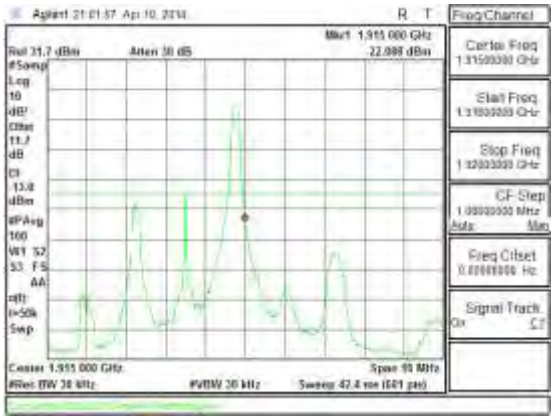
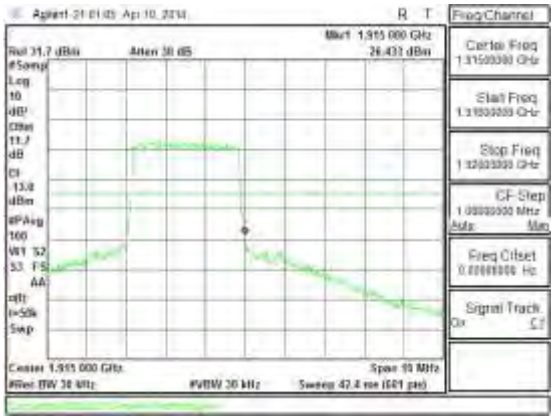
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE25 5MHz 16QAM	 Band LTE25 5MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE25 5MHz CBE 16QAM Low Channel FRB.gif
Band LTE25 5MHz 16QAM	 Band LTE25 5MHz CBE 16QAM High Channel 1RB.gif	 Band LTE25 5MHz CBE 16QAM High Channel FRB.gif

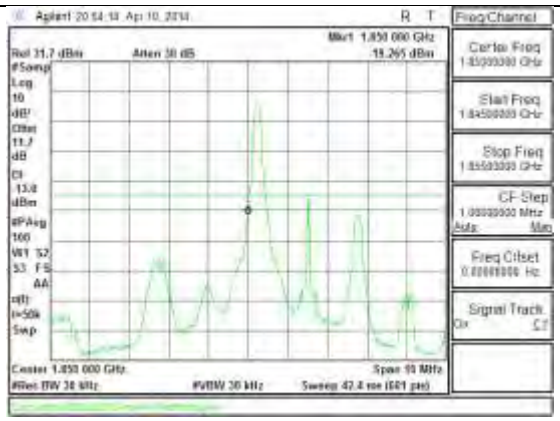
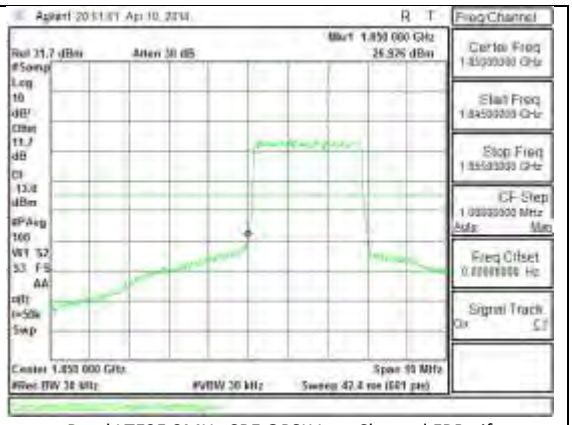
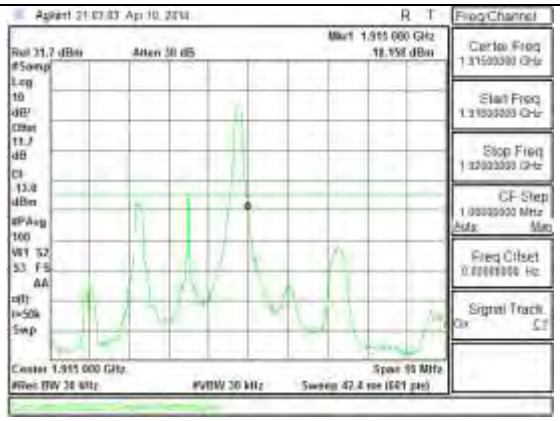
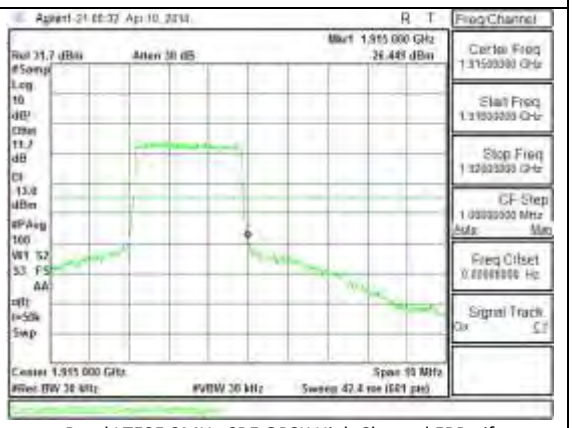
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE25 5MHz QPSK	 Band LTE25 5MHz CBE QPSK Low Channel 1RB.gif	 Band LTE25 5MHz CBE QPSK Low Channel FRB.gif
Band LTE25 5MHz QPSK	 Band LTE25 5MHz CBE QPSK High Channel 1RB.gif	 Band LTE25 5MHz CBE QPSK High Channel FRB.gif

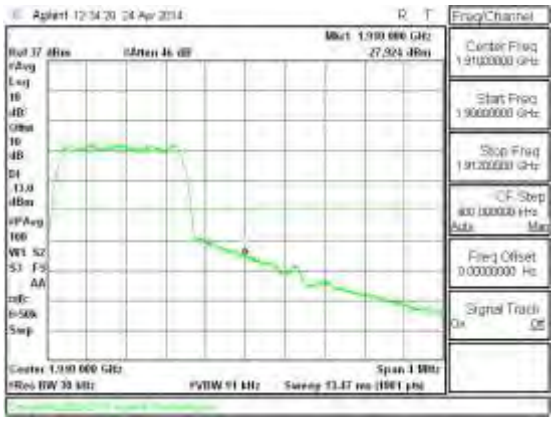
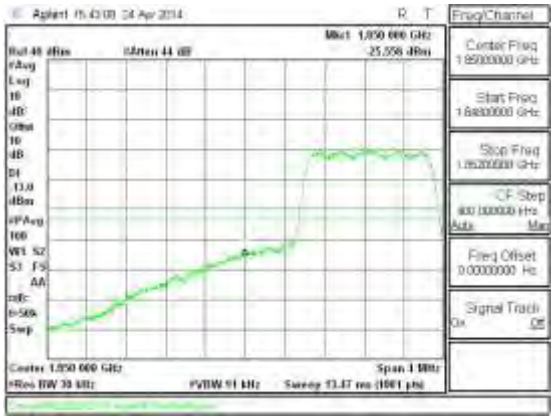
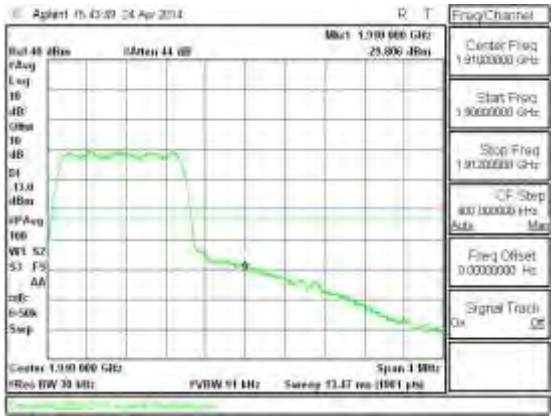
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE25 3MHz 16QAM	 Band LTE25 3MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE25 3MHz CBE 16QAM Low Channel FRB.gif
Band LTE25 3MHz 16QAM	 Band LTE25 3MHz CBE 16QAM High Channel 1RB.gif	 Band LTE25 3MHz CBE 16QAM High Channel FRB.gif

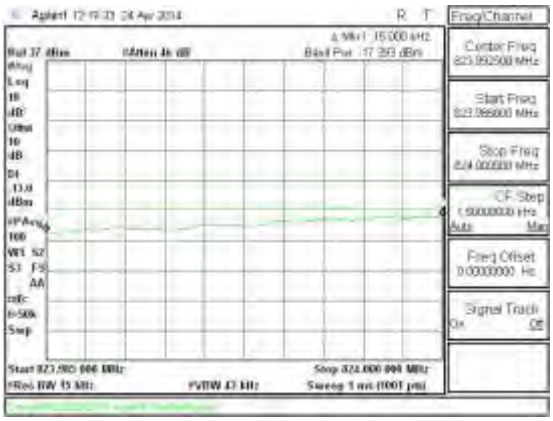
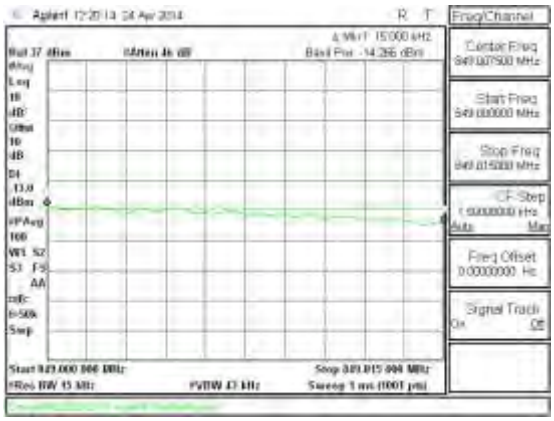
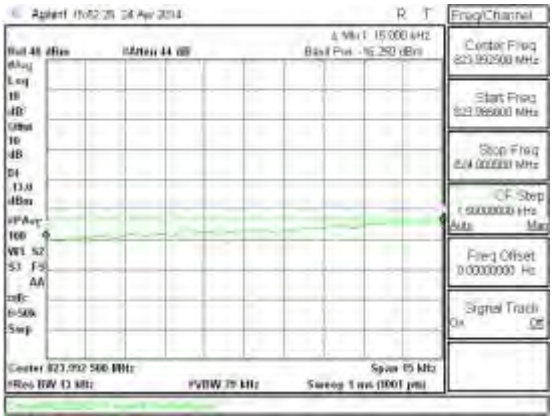
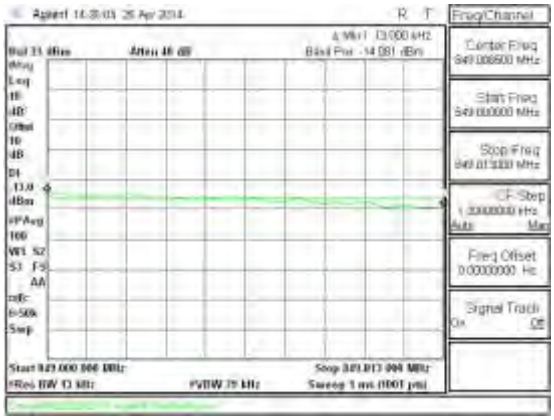
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE25 3MHz QPSK	 Band LTE25 3MHz CBE QPSK Low Channel 1RB.gif	 Band LTE25 3MHz CBE QPSK Low Channel FRB.gif
Band LTE25 3MHz QPSK	 Band LTE25 3MHz CBE QPSK High Channel 1RB.gif	 Band LTE25 3MHz CBE QPSK High Channel FRB.gif

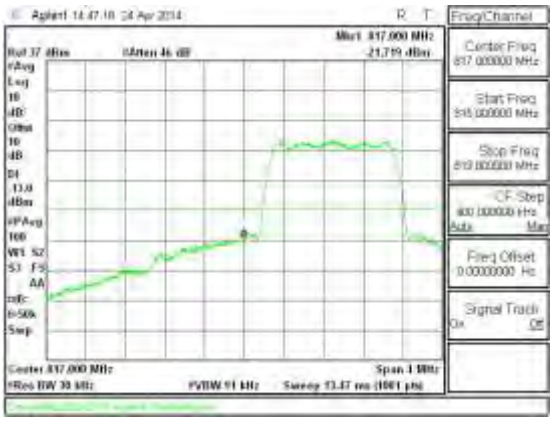
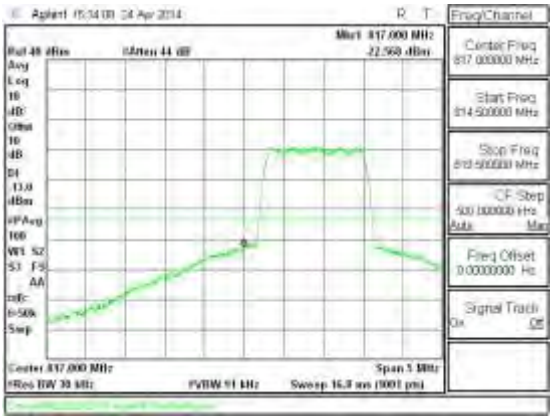
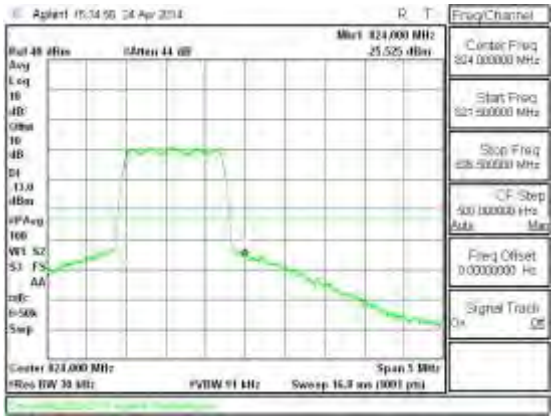
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band BC1 EVDO REL. 0	 Band BC1 EVDO Rel. 0 CBE Low channel	 Band BC1 EVDO Rel. 0 CBE High channel
Band BC1 1xRTT	 Band BC1 1xRTT CBE Low channel	 Band BC1 1xRTT CBE High channel

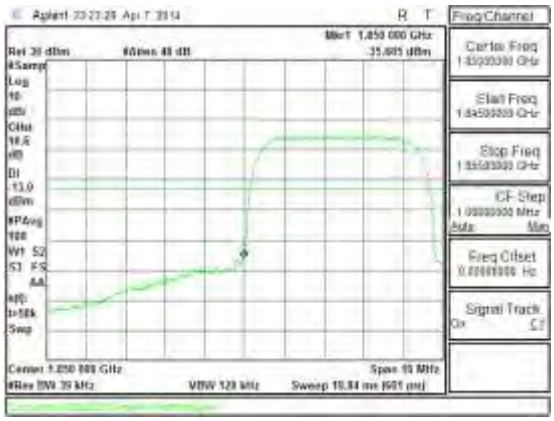
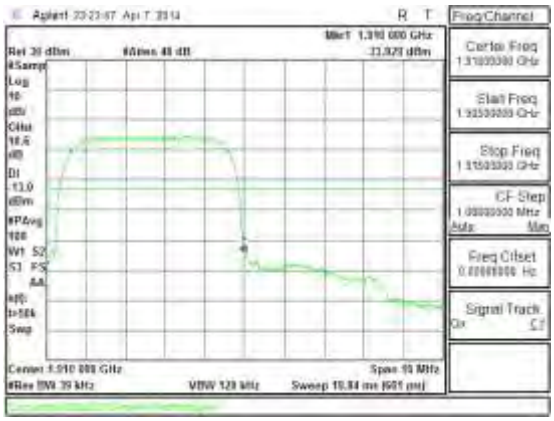
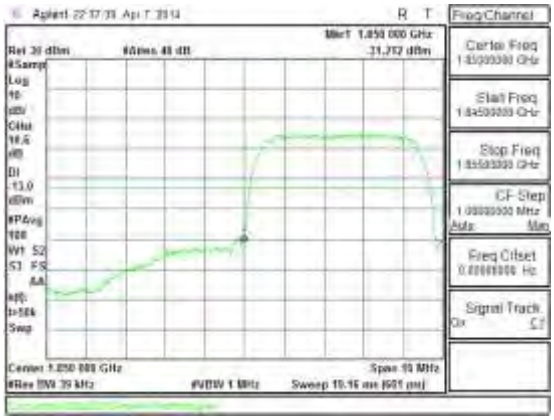
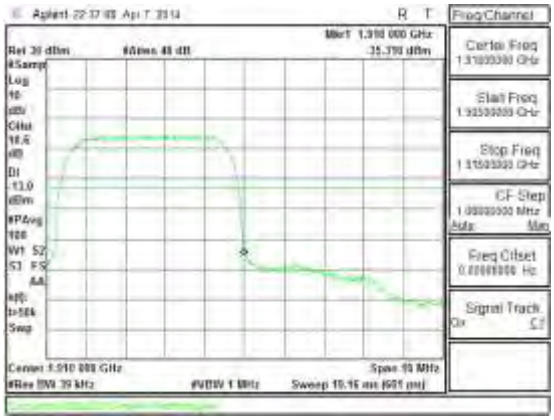
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band BC0 EVDO REL. 0	 Band BC0 EVDO Rel. 0 CBE Low channel	 Band BC0 EVDO Rel. 0 CBE High channel
Band BC0 1xRTT	 Band BC0 1xRTT CBE Low channel	 Band BC0 1xRTT CBE High channel

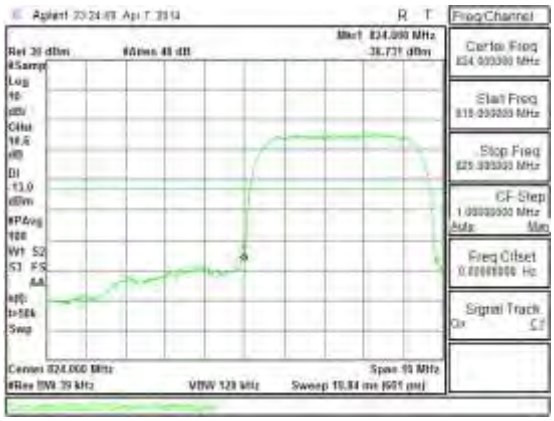
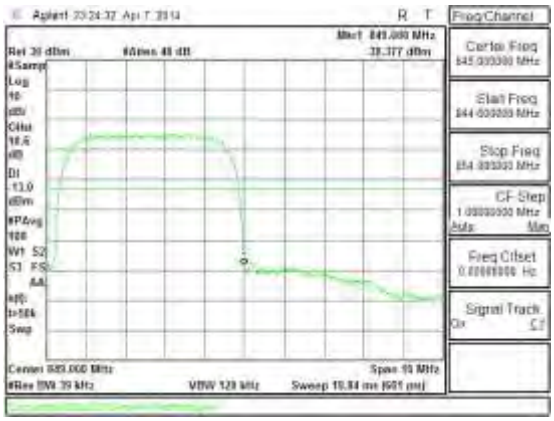
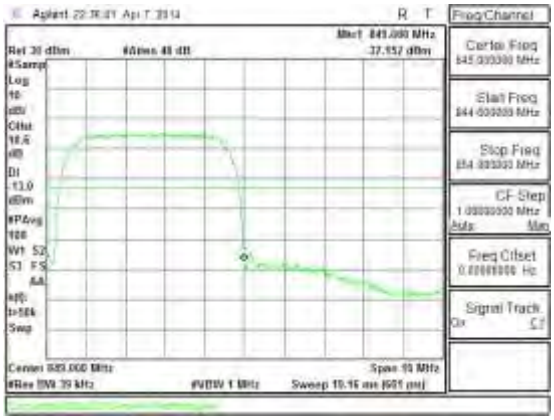
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band BC10 EVDO REL. 0	 Band BC10 EVDO Rel. 0 CBE Low channel	 Band BC10 EVDO Rel. 0 CBE High channel
Band BC10 1xRTT	 Band BC10 1xRTT CBE Low channel	 Band BC10 1xRTT CBE High channel

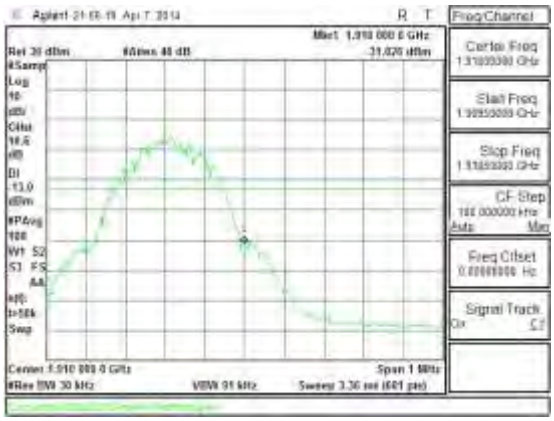
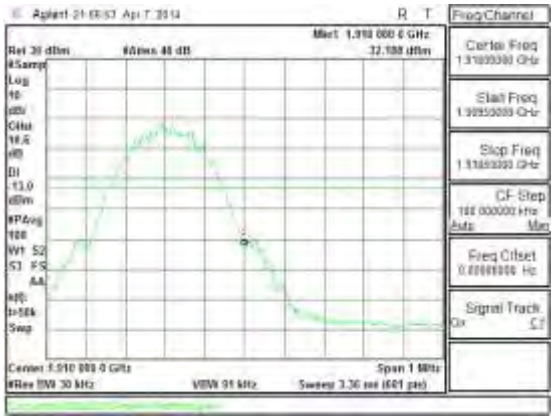
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band Band 2 HSDPA	 Band WCDMA B2 HSDPA CBE	 Band WCDMA B2 HSDPA CBE
Band Band 2 REL99	 Band WCDMA B2 REL99 CBE	 Band WCDMA B2 REL99 CBE

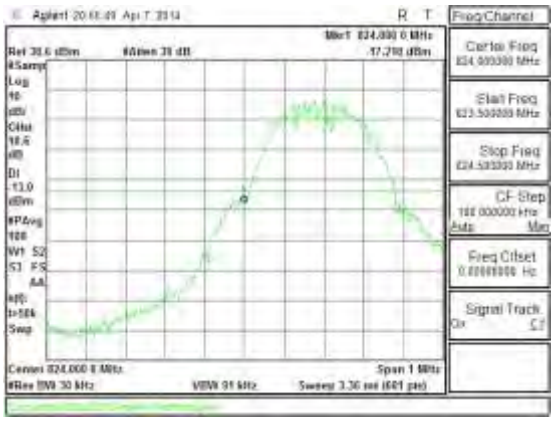
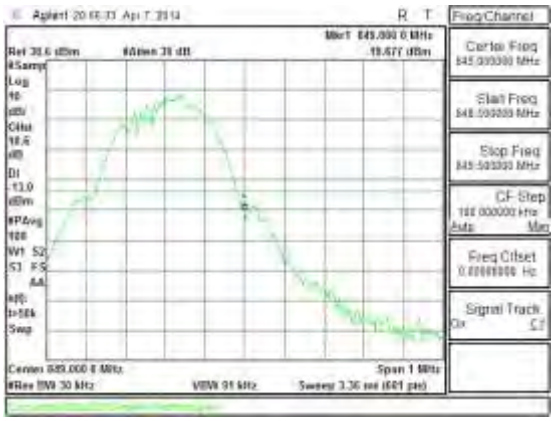
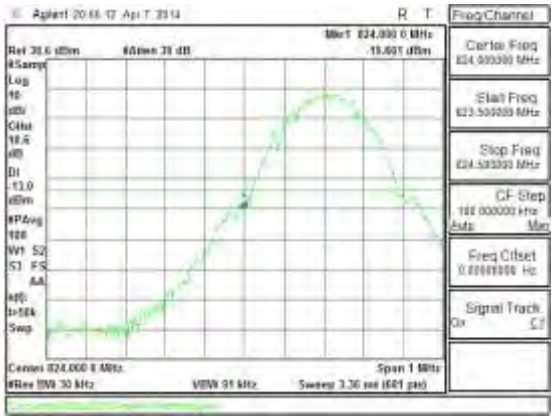
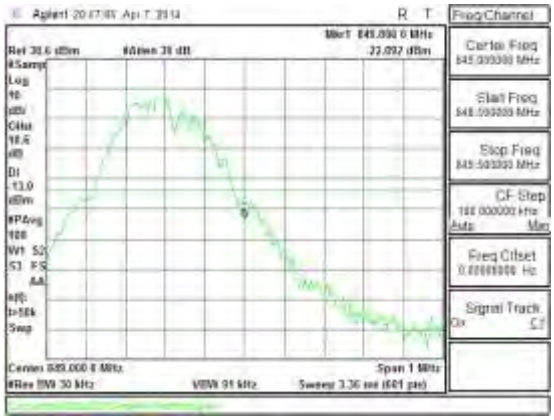
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band Band 5 HSDPA	 Band WCDMA B5 HSDPA CBE	 Band WCDMA B5 HSDPA CBE
Band Band 5 REL99	 Band WCDMA B5 REL99 CBE	 Band WCDMA B5 REL99 CBE

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band GSM1900 EGPRS	 Band GSM1900 EGPRS CBE Low channel	 Band GSM1900 EGPRS CBE High channel
Band GSM1900 GPRS	 Band GSM1900 GPRS CBE Low channel	 Band GSM1900 GPRS CBE High channel

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band GSM850 EGPRS	 Band GSM850 EGPRS CBE Low channel	 Band GSM850 EGPRS CBE High channel
Band GSM850 GPRS	 Band GSM850 GPRS CBE Low channel	 Band GSM850 GPRS CBE High channel

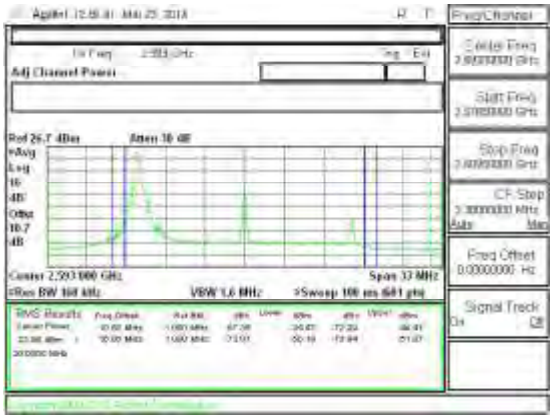
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

10.2.2. EMISSION MASK PLOTS

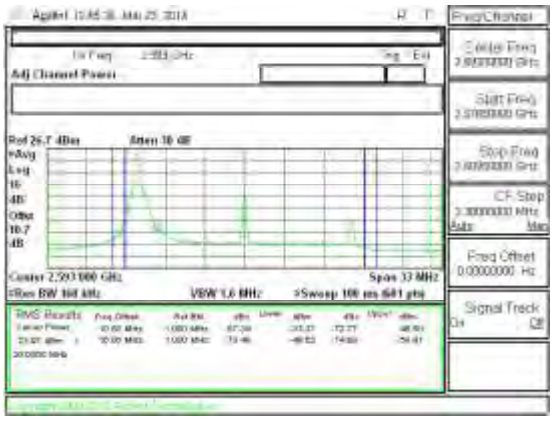
Test Specification

- FCC: §27.53 (LTE BAND 41)
- (m)(4) For mobile station, the attenuation factor shall be not less than 43+10Log(P)dB at the channel edge and (55+10Log(P)dB) at 5.5MHz from the channel edges.

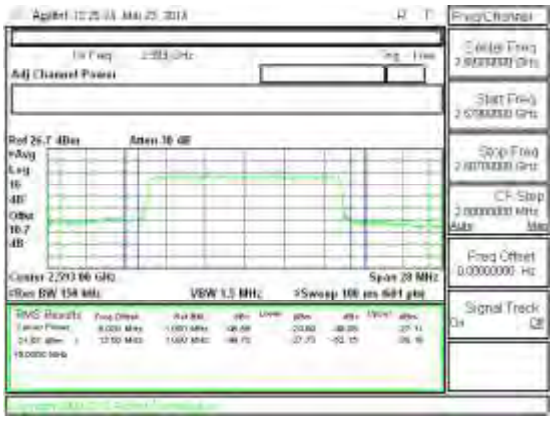
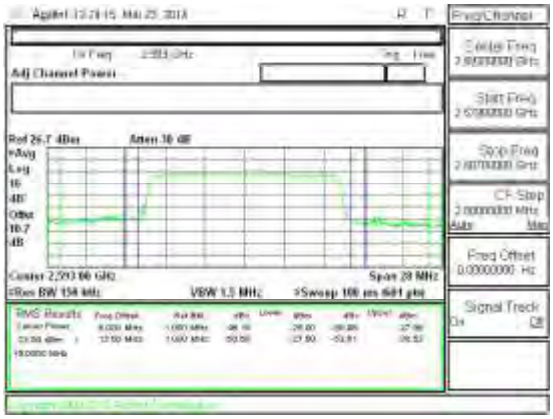
- FCC: §90.210, and §90.691 (LTE BAND 26)
- (a)(1)For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116 Log10(f/6.1) decibels or 50 + 10 Log10(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.
- (a)(2)For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 43 + 10Log10(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz. {NOTE: Use 100 kHz reference bandwidth.}

Band LTE41 20MHz 16QAM	 Band LTE41 20MHz EM 16QAM 1RB.gif	 Band LTE41 20MHz EM 16QAM FRB.gif

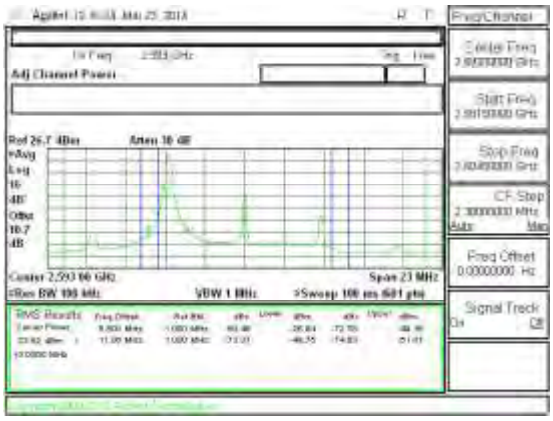
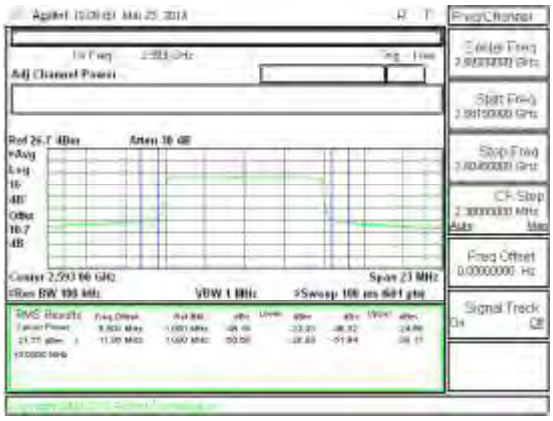
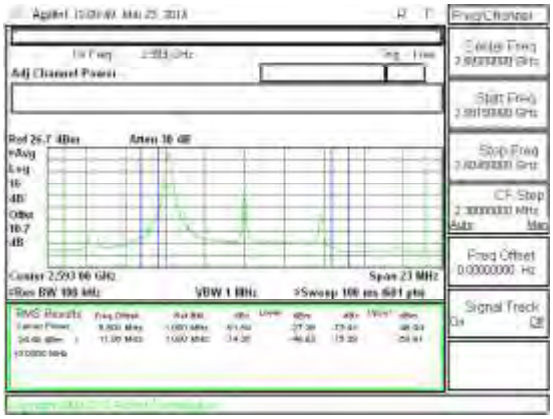
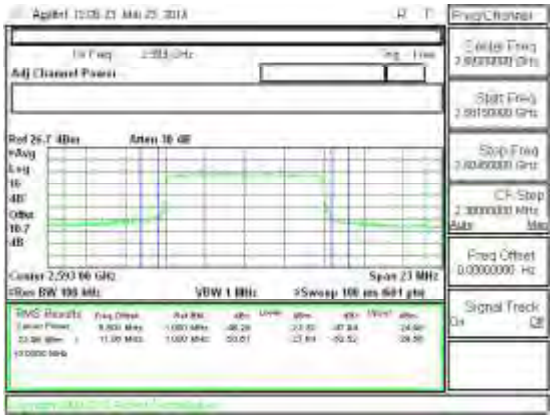
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE41 20MHz QPSK	 Band LTE41 20MHz EM QPSK 1RB.gif	 Band LTE41 20MHz EM QPSK FRB.gif

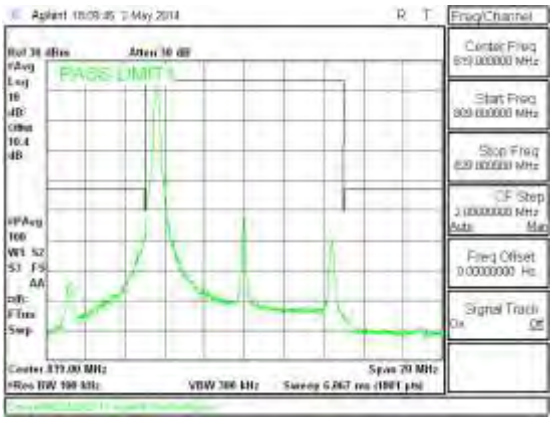
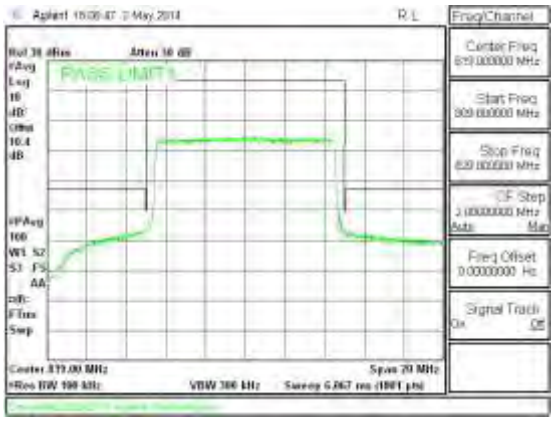
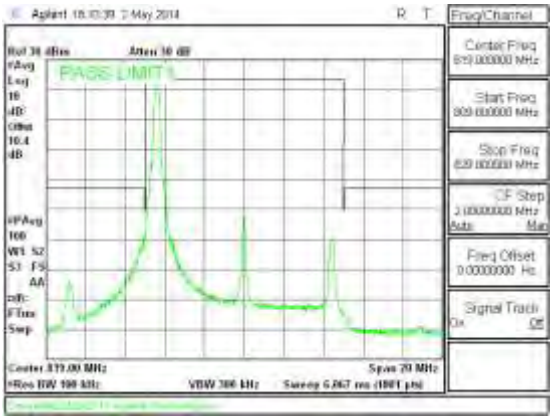
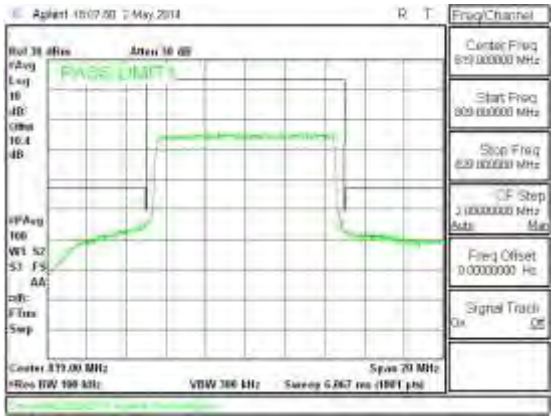
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE41 15MHz 16QAM	 Band LTE41 15MHz EM 16QAM 1RB.gif	 Band LTE41 15MHz EM 16QAM FRB.gif
Band LTE41 15MHz QPSK	 Band LTE41 15MHz EM QPSK 1RB.gif	 Band LTE41 15MHz EM QPSK FRB.gif

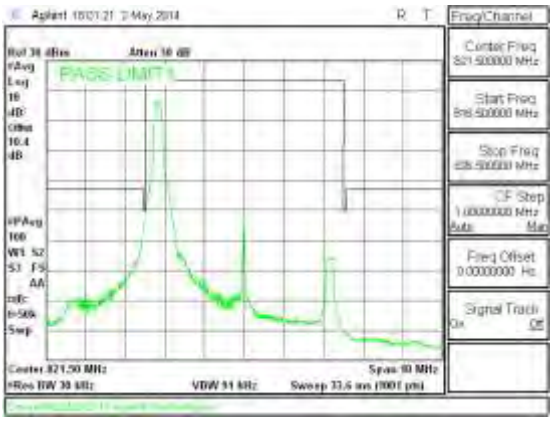
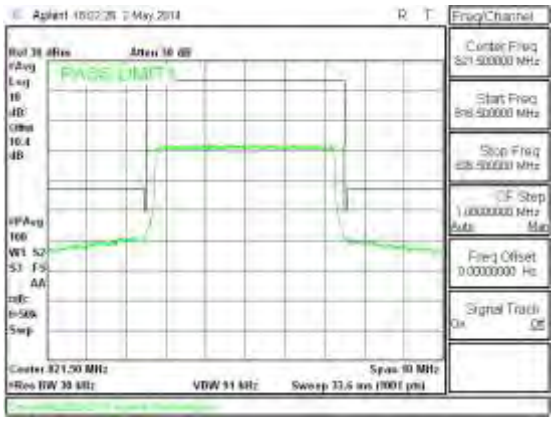
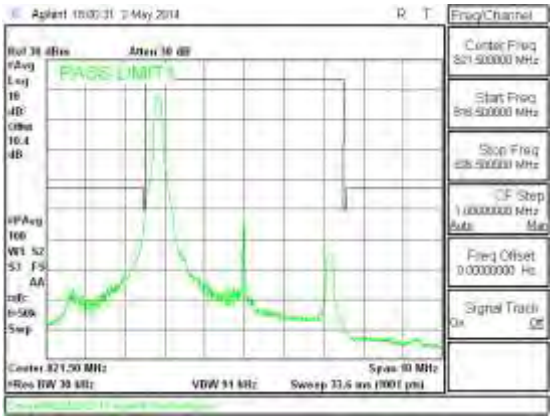
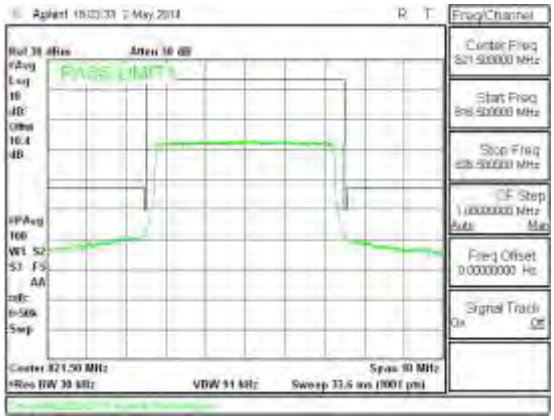
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE41 10MHz 16QAM	 Band LTE41 10MHz EM 16QAM 1RB.gif	 Band LTE41 10MHz EM 16QAM FRB.gif
Band LTE41 10MHz QPSK	 Band LTE41 10MHz EM QPSK 1RB.gif	 Band LTE41 10MHz EM QPSK FRB.gif

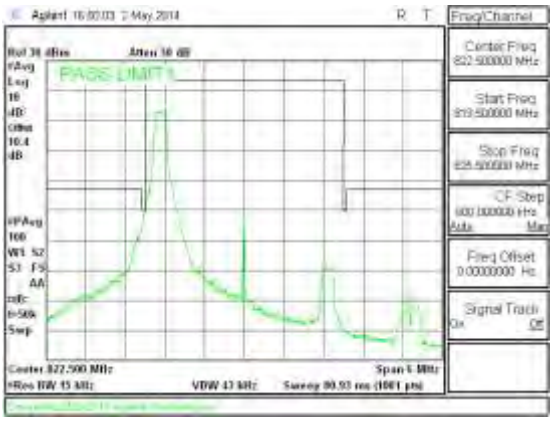
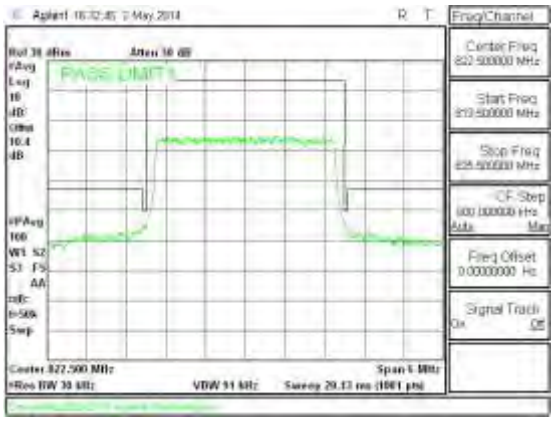
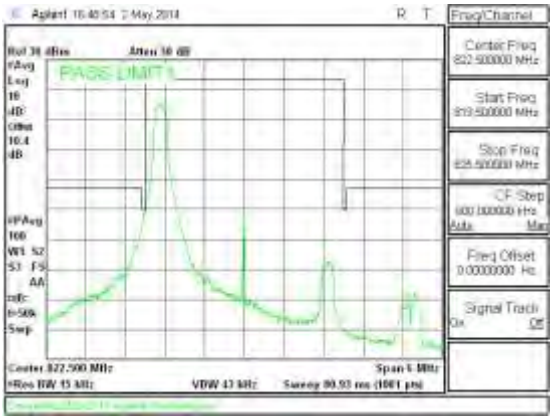
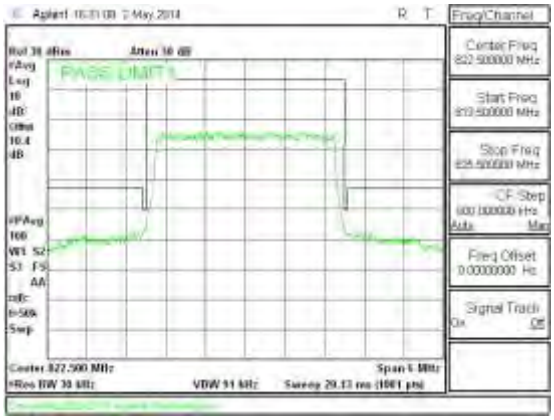
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE26 10MHz 16QAM	 Band LTE26 10MHz EM 16QAM Low Channel 1RB.gif	 Band LTE26 10MHz EM 16QAM Low Channel FRB.gif
Band LTE26 10MHz QPSK	 Band LTE26 10MHz EM QPSK Low Channel 1RB.gif	 Band LTE26 10MHz EM QPSK Low Channel FRB.gif

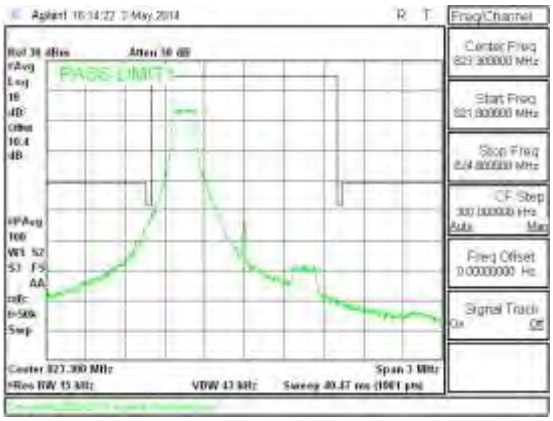
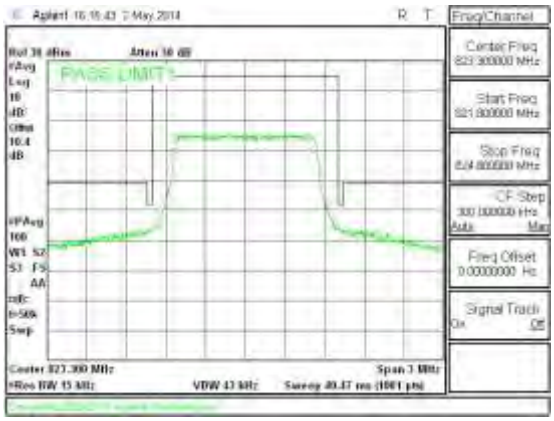
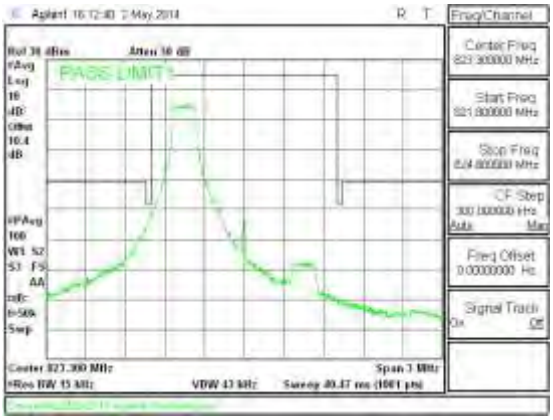
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE26 5MHz 16QAM	 Band LTE26 5MHz EM 16QAM 1RB.gif	 Band LTE26 5MHz EM 16QAM FRB.gif
Band LTE26 5MHz QPSK	 Band LTE26 5MHz EM QPSK 1RB.gif	 Band LTE26 5MHz EM QPSK FRB.gif

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE26 3MHz 16QAM	 Band LTE26 3MHz EM 16QAM 1RB.gif	 Band LTE26 3MHz EM 16QAM FRB.gif
Band LTE26 3MHz QPSK	 Band LTE26 3MHz EM QPSK 1RB.gif	 Band LTE26 3MHz EM QPSK FRB.gif

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE26 1.4MHz 16QAM	 Band LTE26 1.4MHz EM 16QAM 1RB.gif	 Band LTE26 1.4MHz EM 16QAM FRB.gif
Band LTE26 1.4MHz QPSK	 Band LTE26 1.4MHz EM QPSK 1RB.gif	 Band LTE26 1.4MHz EM QPSK FRB.gif

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

10.3. OUT OF BAND EMISSIONS

RULE PART(S)

FCC: §2.1051, §22.901, §22.917, §24.238, §27and §90.691

LIMITS

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v02r01

The RF output of the transmitter was connected to a spectrum analyzer through a calibrated coaxial cable. Sufficient scans were taken to show the out-of-band Emissions, if any, up to 10th harmonic. Multiple sweeps were recorded in maximum hold mode using a peak detector to ensure that the worst-case emissions were caught.

RESULTS

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

10.3.1. OUT OF BAND EMISSIONS RESULT

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE41	20	QPSK	2506	-30.01	-25	-5.01
			2593	-30.88	-25	-5.88
			2680	-29.35	-25	-4.35
		16QAM	2506	-29.45	-25	-4.45
			2593	-30.33	-25	-5.33
			2680	-29.58	-25	-4.58
Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE41	15	QPSK	2503.5	-29.87	-25	-4.87
			2593	-30.16	-25	-5.16
			2682.5	-30.26	-25	-5.26
		16QAM	2503.5	-30.18	-25	-5.18
			2593	-32.14	-25	-7.14
			2682.5	-30.31	-25	-5.31
Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE41	10	QPSK	2501	-30.14	-25	-5.14
			2593	-29.7	-25	-4.7
			2685	-29.94	-25	-4.94
		16QAM	2501	-29.42	-25	-4.42
			2593	-28.85	-25	-3.85
			2685	-30.12	-25	-5.12
Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE26	10	QPSK	819	-25.8	-13	-12.8
			831.5	-26.3	-13	-13.3
			844	-26.79	-13	-13.79
		16QAM	819	-26.26	-13	-13.26
			831.5	-25.82	-13	-12.82
			844	-26.24	-13	-13.24
Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE26	5	QPSK	816.5	-25.32	-13	-12.32

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

			831.5	-26.45	-13	-13.45
			846.5	-24.3	-13	-11.3
		16QAM	816.5	-25.91	-13	-12.91
			831.5	-25.09	-13	-12.09
			846.5	-24.95	-13	-11.95
Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE26	3	QPSK	815.5	-24.6	-13	-11.6
			831.5	-25.35	-13	-12.35
			847.5	-24.76	-13	-11.76
		16QAM	815.5	-25.15	-13	-12.15
			831.5	-25.32	-13	-12.32
			847.5	-25.35	-13	-12.35
Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE26	1.4	QPSK	814.7	-25.36	-13	-12.36
			831.5	-23.96	-13	-10.96
			848.3	-25.28	-13	-12.28
		16QAM	814.7	-23.35	-13	-10.35
			831.5	-25.62	-13	-12.62
			848.3	-24.79	-13	-11.79
Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE25	10	QPSK	1855	-25.32	-13	-12.32
			1882.5	-26	-13	-13
			1910	-24.73	-13	-11.73
		16QAM	1855	-26.01	-13	-13.01
			1882.5	-25.12	-13	-12.12
			1910	-25.73	-13	-12.73
Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE25	5	QPSK	1852.5	-25.36	-13	-12.36
			1882.5	-25.08	-13	-12.08
			1912.5	-24.85	-13	-11.85
		16QAM	1852.5	-25.18	-13	-12.18
			1882.5	-24.89	-13	-11.89
			1912.5	-24.47	-13	-11.47

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE25	3	QPSK	1851.5	-24.68	-13	-11.68
			1882.5	-25.25	-13	-12.25
			1913.5	-25.11	-13	-12.11
		16QAM	1851.5	-23.9	-13	-10.9
			1882.5	-26.29	-13	-13.29
			1913.5	-25.42	-13	-12.42

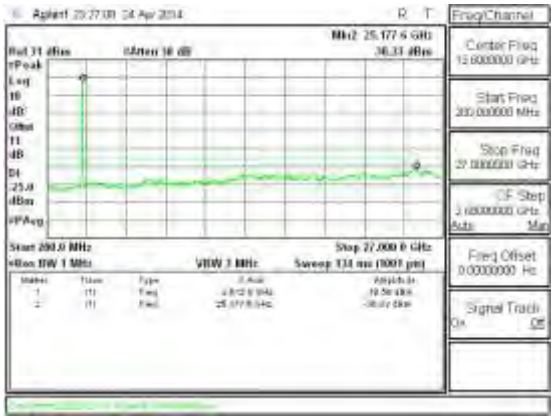
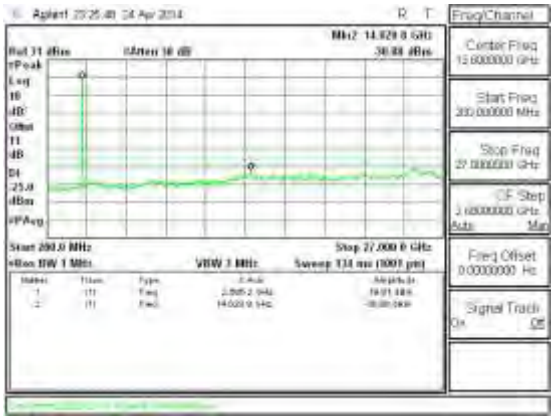
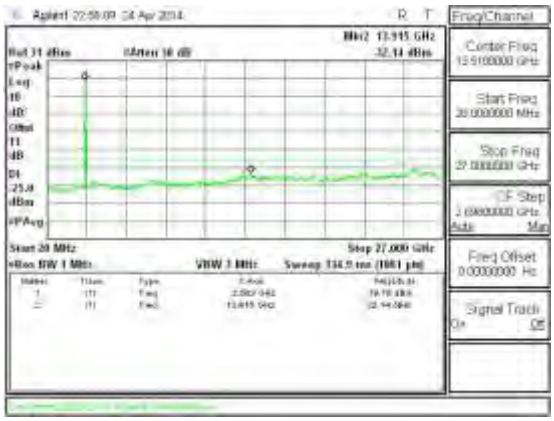
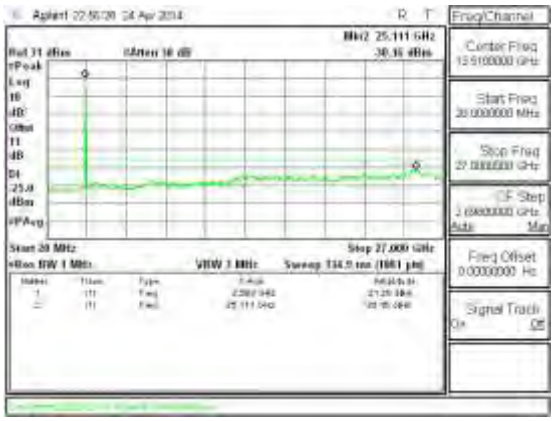
Band	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
GSM850	GPRS	824.2	-33.36	-13	-20.36
		836.6	-36.13	-13	-23.13
		848.8	-28.49	-13	-15.49
	EGPRS	824.2	-35.9	-13	-22.9
		836.6	-31.48	-13	-18.48
		848.8	-33.98	-13	-20.98
GSM1900	GPRS	1850.2	-30.45	-13	-17.45
		1880	-31.6	-13	-18.6
		1909.8	-28.41	-13	-15.41
	EGPRS	1850.2	-30.88	-13	-17.88
		1880	-31.45	-13	-18.45
		1909.8	-31.67	-13	-18.67
Band 5	REL99	826.4	-28.3	-13	-15.3
		836.6	-28.24	-13	-15.24
		846.6	-29.7	-13	-16.7
	HSDPA	826.4	-25.68	-13	-12.68
		836.6	-28.78	-13	-15.78
		846.6	-28.44	-13	-15.44
Band 2	REL99	1852.4	-30.9	-13	-17.9
		1880	-32.01	-13	-19.01
		1907.6	-31.81	-13	-18.81
	HSDPA	1852.4	-28.45	-13	-15.45
		1880	-25.6	-13	-12.6
		1907.6	-27.3	-13	-14.3
BC10	1xRTT	817.9	-20.29	-13	-7.29

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

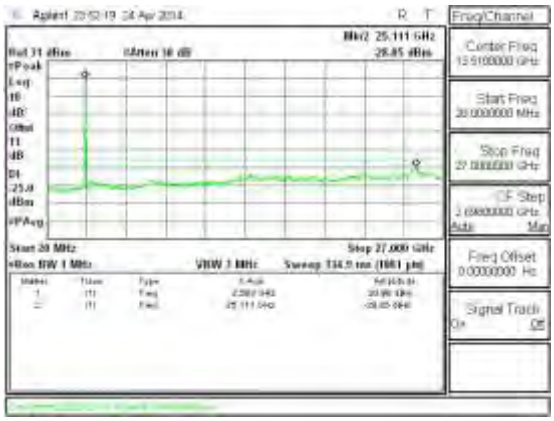
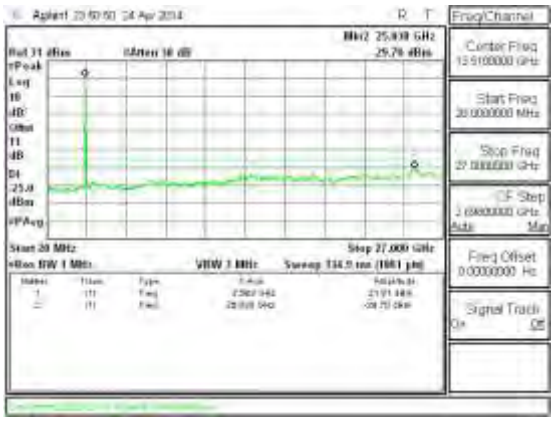
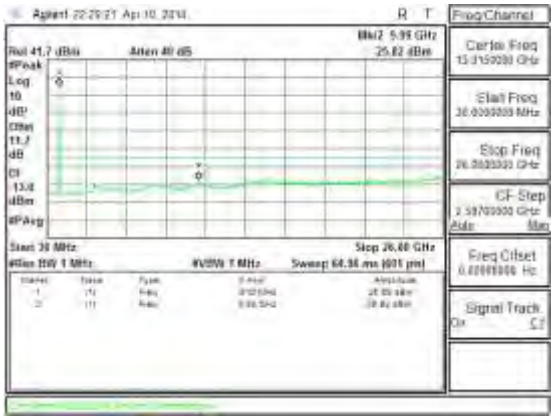
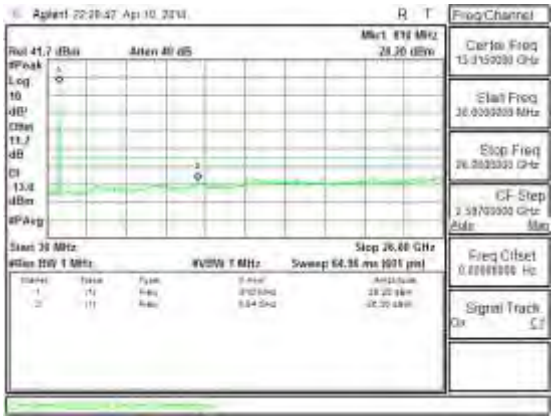
		820.5	-18.96	-13	-5.96
		823.1	-19.26	-13	-6.26
	EVDO A	817.9	-17.71	-13	-4.71
		820.5	-18.99	-13	-5.99
		823.1	-21.26	-13	-8.26
BC0	1xRTT	824.7	-27.67	-13	-14.67
		836.52	-28.89	-13	-15.89
		848.31	-27.75	-13	-14.75
	EVDO A	824.7	-18.89	-13	-5.89
		836.52	-17.81	-13	-4.81
		848.31	-19.01	-13	-6.01
BC1	1xRTT	1851.25	-20.46	-13	-7.46
		1880	-20.18	-13	-7.18
		1908.75	-20.41	-13	-7.41
	EVDO A	1851.25	-18.25	-13	-5.25
		1880	-17.9	-13	-4.9
		1908.75	-17.58	-13	-4.58

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

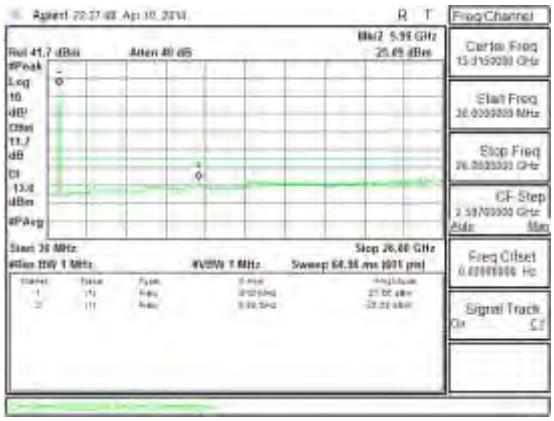
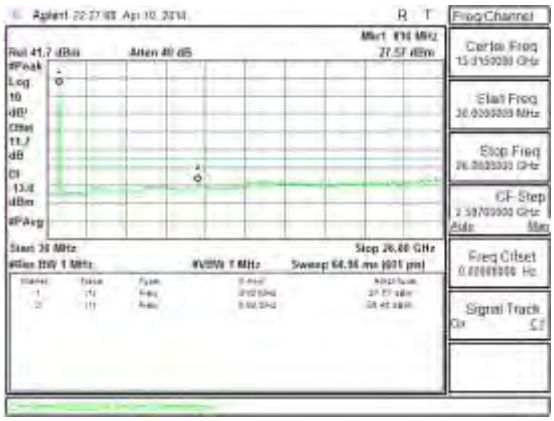
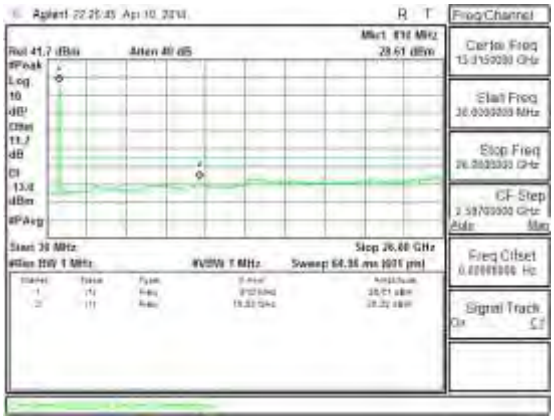
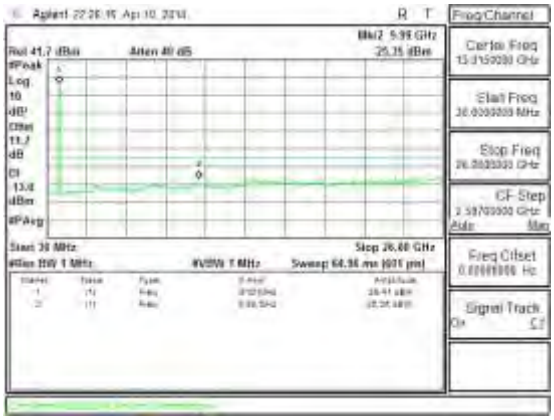
10.3.2. OUT OF BAND EMISSIONS PLOTS

Band LTE41 20MHz	 Band LTE41 20MHz CSE 16QAM Mid channel	 Band LTE41 20MHz CSE QPSK Mid channel
Band LTE41 15MHz	 Band LTE41 15MHz CSE 16QAM Mid channel	 Band LTE41 15MHz CSE QPSK Mid channel

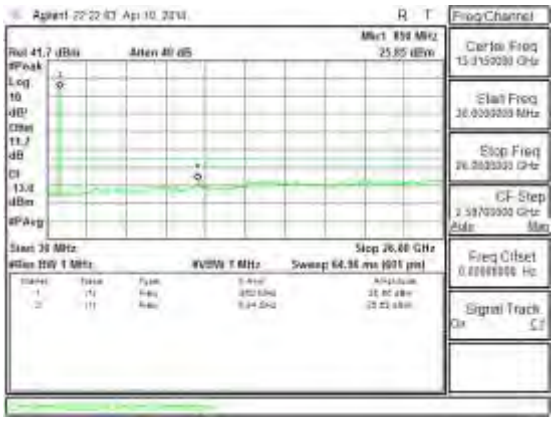
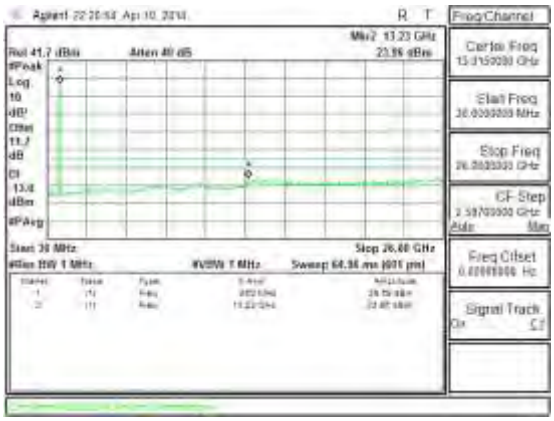
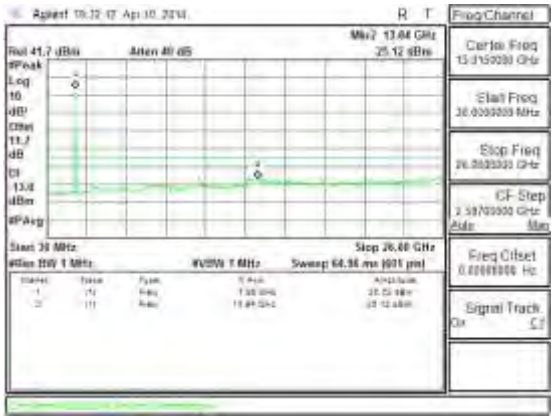
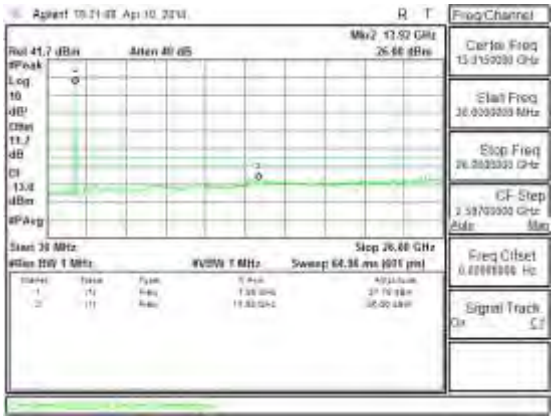
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE41 10MHz	 Band LTE41 10MHz CSE 16QAM Mid channel	 Band LTE41 10MHz CSE QPSK Mid channel
Band LTE26 10MHz	 Band LTE26 10MHz CSE 16QAM Mid channel	 Band LTE26 10MHz CSE QPSK Mid channel

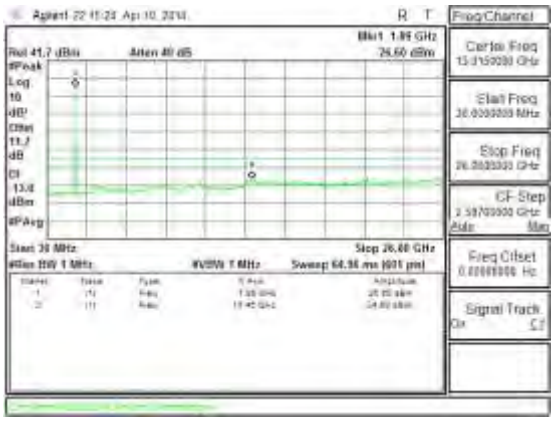
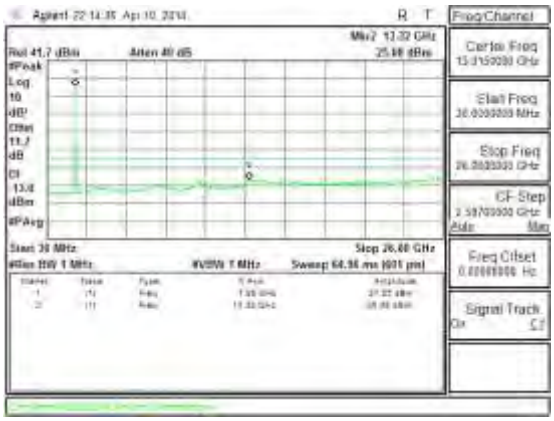
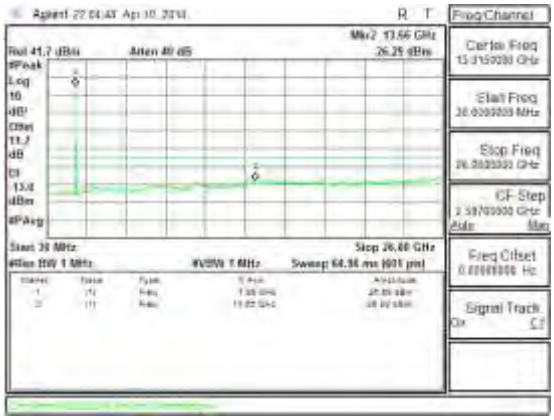
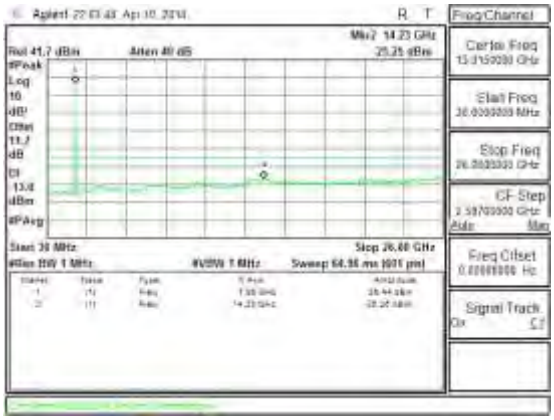
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE26 5MHz	 Band LTE26 5MHz CSE 16QAM Mid channel	 Band LTE26 5MHz CSE QPSK Mid channel
Band LTE26 3MHz	 Band LTE26 3MHz CSE 16QAM Mid channel	 Band LTE26 3MHz CSE QPSK Mid channel

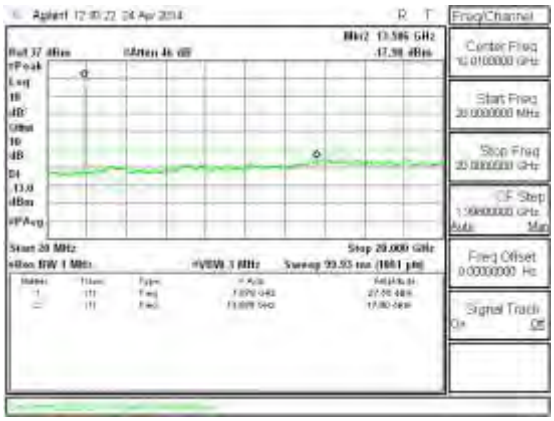
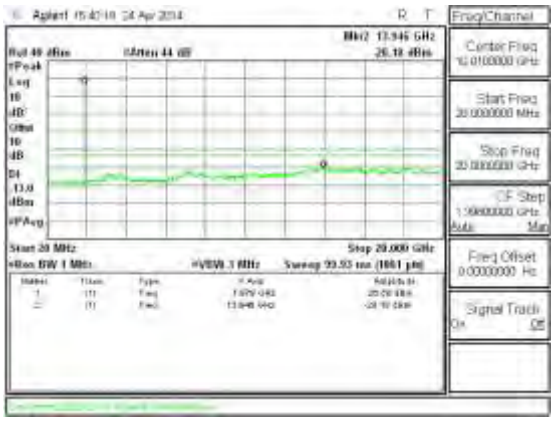
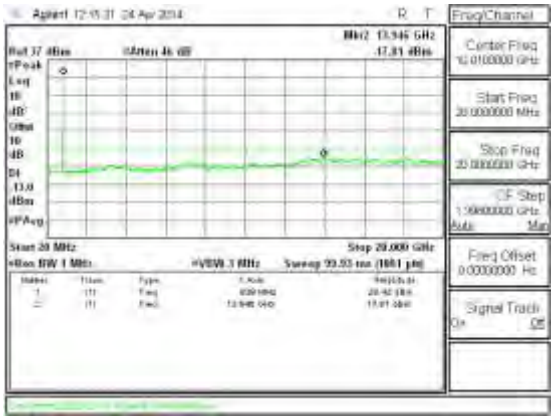
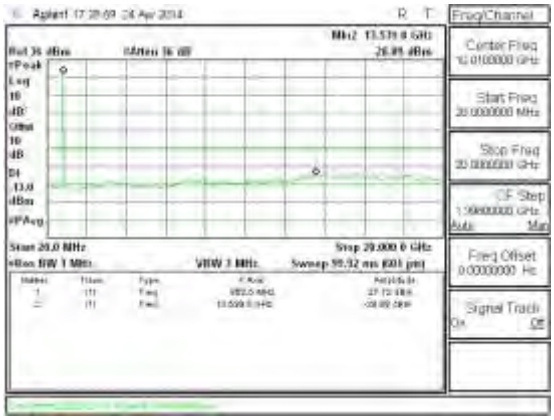
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE26 1.4MHz	 Band LTE26 1.4MHz CSE 16QAM Mid channel	 Band LTE26 1.4MHz CSE QPSK Mid channel
Band LTE25 10MHz	 Band LTE25 10MHz CSE 16QAM Mid channel	 Band LTE25 10MHz CSE QPSK Mid channel

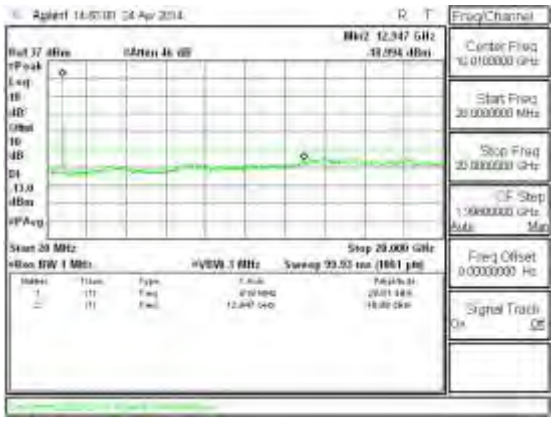
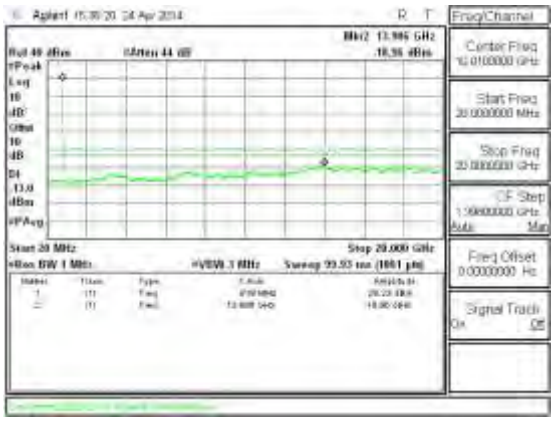
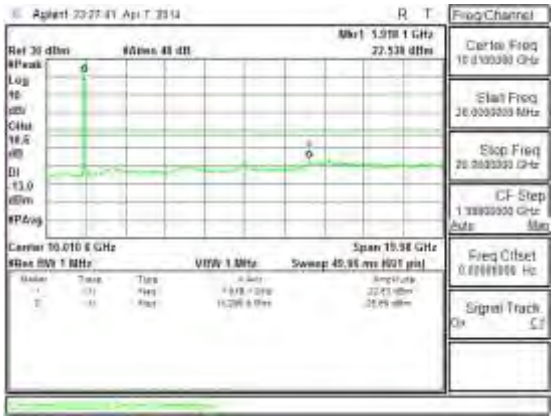
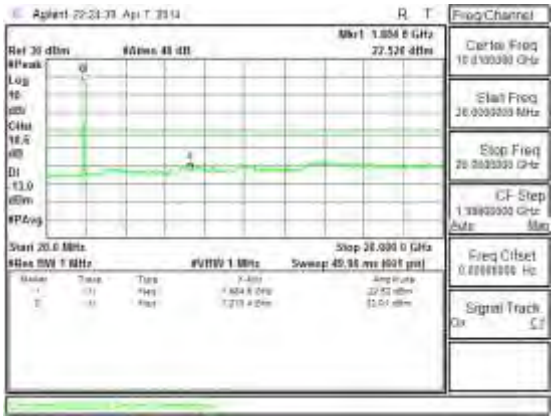
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE25 5MHz	 Band LTE25 5MHz CSE 16QAM Mid channel	 Band LTE25 5MHz CSE QPSK Mid channel
Band LTE25 3MHz	 Band LTE25 3MHz CSE 16QAM Mid channel	 Band LTE25 3MHz CSE QPSK Mid channel

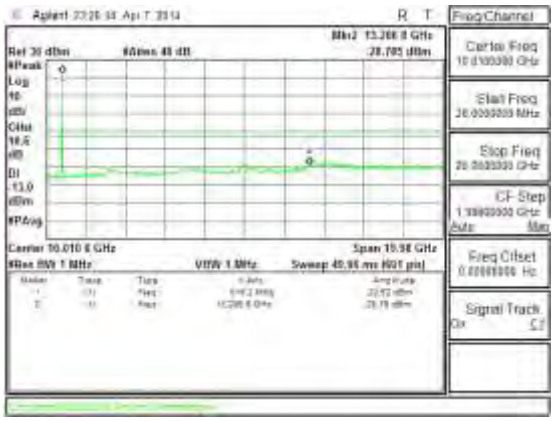
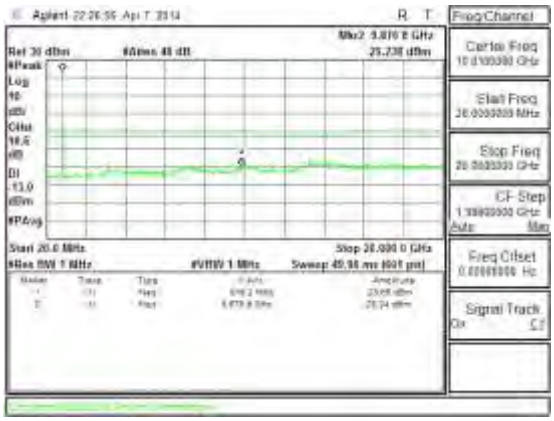
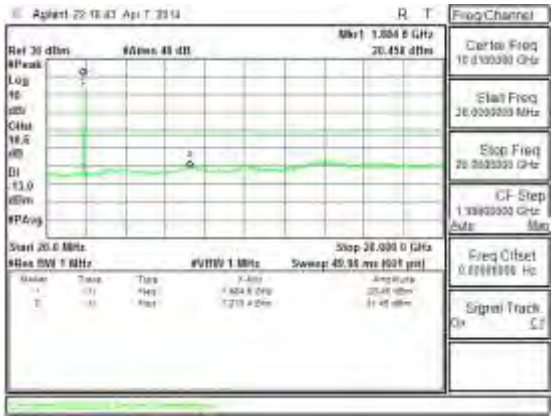
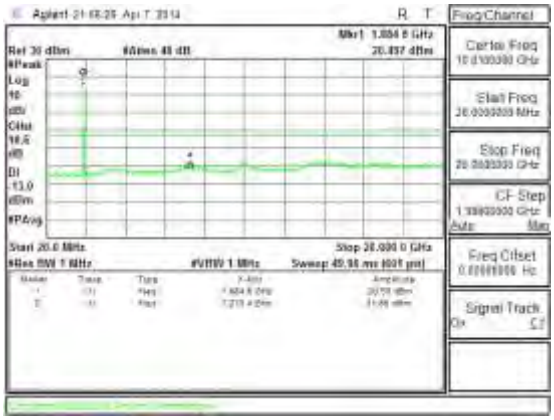
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band BC1	 Band BC1 EVDO Rel. 0 CSE Mid channel	 Band BC1 1xRTT CSE Mid channel
Band BC0	 Band BC0 EVDO Rel. 0 CSE Mid channel	 Band BC0 1xRTT CSE Mid channel

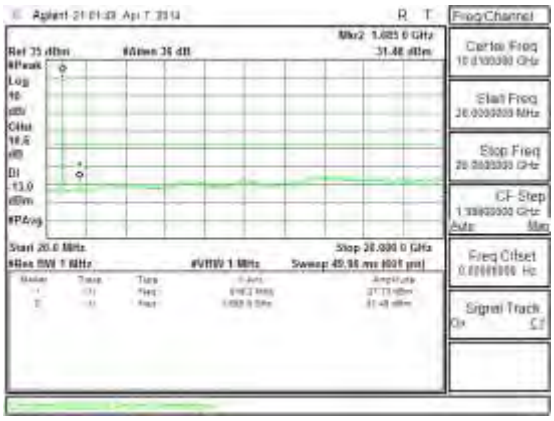
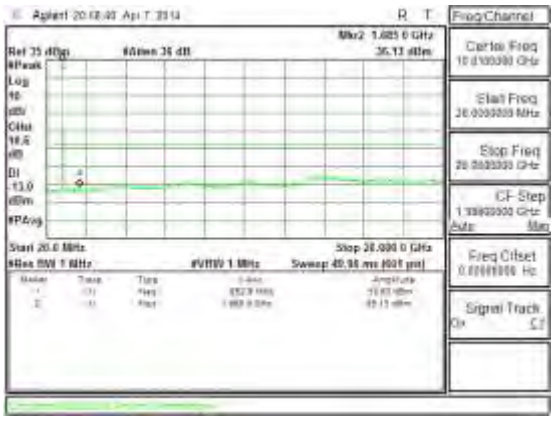
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band BC10	 Band BC10 EVDO Rel. 0 CSE Mid channel	 Band BC10 1xRTT CSE Mid channel
Band Band 2	 Band WCDMA B2 HSDPA CSE	 Band WCDMA B2 REL99 CSE

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band Band 5	 Band WCDMA B5 HSDPA CSE	 Band WCDMA B5 REL99 CSE
Band GSM1900	 Band GSM1900 EGPRS CSE Mid channel	 Band GSM1900 GPRS CSE Mid channel

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band GSM850	 Band GSM850 EGPRS CSE Mid channel	 Band GSM850 GPRS CSE Mid channel

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

10.4. FREQUENCY STABILITY

RULE PART(S)

FCC: §2.1055, §22.355, §24.235, §27.54 and §90

LIMITS

§22.355 - The carrier frequency shall not depart from the reference frequency in excess of ±2.5 ppm for mobile stations.

§24.235 - The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

§27.54 - The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v02r01

RESULTS

See the following pages.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

10.4.1. FREQUENCY STABILITY RESULTS

B2, Channel 661 Freq: 1880MHz– MID CHANNEL

Reference Frequency: GSM1900 Channel 661 Freq : 1880MHz @ 20°C Limit: to stay +- 2.5 ppm = 4700.000 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measureed with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.80	50	1880.000077	-0.001	2.5
3.80	40	1880.000074	0.001	2.5
3.80	30	1880.000073	0.001	2.5
3.80	***20***	***1880.000075***	***0***	***2.5***
3.80	10	1880.000071	0.002	2.5
3.80	0	1880.000072	0.002	2.5
3.80	-10	1880.000068	0.004	2.5
3.80	-20	1880.000069	0.003	2.5
3.80	-30	1880.000069	0.003	2.5

Reference Frequency: GSM1900 Channel 661 Freq : 1880MHz @ 20°C Limit: to stay +- 2.5 ppm = 4700.000 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measureed with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.80	***20***	***1880.000075***	***0***	***2.5***
3.30	20	1880.000073	*0.001*	2.5
4.20	20	1880.000070	0.003	2.5

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

B5, – MID CHANNEL190, Frequency 836.6MHz

Reference Frequency: GSM850 Channel 190 Freq : 836.6 MHz @ 20ºC				
Limit: +- 2.5 ppm = 2091.500 Hz				
Power Supply (Vdc)	Environment Temperature (*C)	Frequency Deviation Measureed with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.80	50	836.600029	0.006	2.5
3.80	40	836.600030	0.005	2.5
3.80	30	836.600028	0.007	2.5
3.80	***20***	***836.600034***	***0***	***2.5***
3.80	10	836.600028	0.007	2.5
3.80	0	836.600032	0.002	2.5
3.80	-10	836.600030	0.005	2.5
3.80	-20	836.600030	0.005	2.5
3.80	-30	836.600029	0.006	2.5

Reference Frequency: GSM850 Channel 190 Freq : 836.6 MHz @ 20ºC				
Limit: +- 2.5 ppm = 2091.500 Hz				
Power Supply (Vdc)	Environment Temperature (*C)	Frequency Deviation Measureed with Time Elapse		
			Delta (ppm)	Limit (ppm)
3.80	***20***	***836.600034***	***0.00000***	***2.5***
3.30	20	836.600032	*0.00239*	2.5
4.20	20	836.600030	*0.00478*	2.5

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

LTE41 Channel 40620 Freq: 2593 MHz– MID CHANNEL

Reference Frequency: LTE41 Channel 40620 Freq : 2593 MHz @ 20°C Limit: to stay +- 2.5 ppm = 6482.500 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measureed with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.80	50	2593.000016	0.000	2.5
3.80	40	2593.000017	0.000	2.5
3.80	30	2593.000015	0.000	2.5
3.80	***20***	2593.000016	***0***	***2.5***
3.80	10	2593.000014	0.001	2.5
3.80	0	2593.000014	0.001	2.5
3.80	-10	2593.000015	0.000	2.5
3.80	-20	2593.000016	0.000	2.5
3.80	-30	2593.000014	0.001	2.5

Reference Frequency: LTE41 Channel 40620 Freq : 2593 MHz @ 20°C Limit: to stay +- 2.5 ppm = 6482.500 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measureed with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.80	***20***	2593.000016	***0***	***2.5***
3.30	20	2593.000016	*0.000*	2.5
4.20	20	2593.000014	0.001	2.5

LTE26 Channel 26864 Freq: 831.5 MHz– MID CHANNEL

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Reference Frequency: LTE26 Channel 26864 Freq : 831.5 MHz @ 20°C Limit: to stay +- 2.5 ppm = 2078.75 Hz				
Power Supply (Vdc)	**Environment Temperature (°C)**	**Frequency Deviation Measureed with Time Elapse**		
		(MHz)	**Delta (ppm)**	**Limit (ppm)**
3.80	50	831.500004	0.002	2.5
3.80	40	831.500003	0.004	2.5
3.80	30	831.500007	-0.001	2.5
3.80	***20***	831.500006	***0***	***2.5***
3.80	10	831.500005	0.001	2.5
3.80	0	831.500004	0.002	2.5
3.80	-10	831.500006	0.000	2.5
3.80	-20	831.500005	0.001	2.5
3.80	-30	831.500007	-0.001	2.5

Reference Frequency: LTE26 Channel 26864 Freq : 831.5 MHz @ 20°C Limit: to stay +- 2.5 ppm = 2078.75 Hz				
Power Supply (Vdc)	**Environment Temperature (°C)**	**Frequency Deviation Measureed with Time Elapse**		
		(MHz)	**Delta (ppm)**	**Limit (ppm)**
3.80	***20***	831.500006	***0***	***2.5***
3.30	20	831.500004	*0.002*	2.5
4.20	20	831.500004	0.002	2.5

LTE25 Channel 26364 Freq: 831.5 MHz– MID CHANNEL

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Reference Frequency: LTE25 Channel 26364 Freq : 1882.5 MHz @ 20°C Limit: to stay +- 2.5 ppm = 4706.25 Hz				
Power Supply (Vdc)	**Environment Temperature (°C)**	**Frequency Deviation Measureed with Time Elapse**		
		(MHz)	**Delta (ppm)**	**Limit (ppm)**
3.80	50	1882.500011	0.001	2.5
3.80	40	1882.500008	0.003	2.5
3.80	30	1882.500013	0.000	2.5
3.80	***20***	1882.500013	***0***	***2.5***
3.80	10	1882.500009	0.002	2.5
3.80	0	1882.500011	0.001	2.5
3.80	-10	1882.500008	0.003	2.5
3.80	-20	1882.500012	0.001	2.5
3.80	-30	1882.500009	0.002	2.5

Reference Frequency: LTE25 Channel 26364 Freq : 1882.5 MHz @ 20°C Limit: to stay +- 2.5 ppm = 4706.25 Hz				
Power Supply (Vdc)	**Environment Temperature (°C)**	**Frequency Deviation Measureed with Time Elapse**		
		(MHz)	**Delta (ppm)**	**Limit (ppm)**
3.80	***20***	1882.500013	***0***	***2.5***
3.30	20	1882.500008	*0.003*	2.5
4.20	20	1882.500007	0.003	2.5

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

11. RADIATED TEST RESULTS

11.1. RADIATED POWER (ERP & EIRP)

RULE PART(S)

FCC: §2.1046, §22.913, §24.232, §27 and § 90.635.

LIMITS

22.913(a) - The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

24.232(c) - Mobile/portable stations are limited to 2 watts e.i.r.p. peak power and the equipment must employ means to limit the power to the minimum necessary for successful communications.

In addition, when the transmitter power is measured in terms of average value, the peak-to-average ratio of the power shall not exceed 13dB.

TEST PROCEDURE

ANSI / TIA / EIA 603C Clause 2.2.17

TEST RESULTS

11.1.1. ERP/EIRP Results

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
BC1	1xRTT	25	1851.25	19.46	88.31
		600	1880	22.45	175.79
		1175	1908.75	22.8	190.55
	EVDO REL. 0	25	1851.25	21.13	129.72
		600	1880	21.861	153.5
		1175	1908.75	21.848	153.04

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
BC0	1xRTT	1013	824.7	20.951	124.48
		384	836.52	21.002	125.95
		777	848.31	21.34	136.14
	EVDO REL. 0	1013	824.7	20.798	120.17
		384	836.52	20.967	124.94
		777	848.31	21.04	127.06

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
BC10	1xRTT	476	817.9	21.231	132.77
		580	820.5	22.048	160.25
		684	823.1	22.192	165.65
	EVDO REL. 0	476	817.9	20.57	114.02
		580	820.5	21.781	150.7
		684	823.1	22.051	160.36

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
Band 2	REL99	9262	1852.4	19.25	84.14
		9400	1880	21.74	149.28
		9538	1907.6	23.13	205.59
	HSDPA	9262	1852.4	19.41	87.3
		9400	1880	22.16	164.44
		9538	1907.6	22.92	195.88

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
Band 5	REL99	4132	826.4	19.591	91.01
		4183	836.6	20.041	100.95
		4233	846.6	19.581	90.8
	HSDPA	4132	826.4	19.671	92.7
		4183	836.6	18.741	74.83
		4233	846.6	19.621	91.64

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
GSM1900	GPRS	512	1850.2	26.69	466.66
		661	1880	27.73	592.93
		810	1909.8	28.04	636.8
	EGPRS	512	1850.2	24.35	272.27
		661	1880	24.95	312.61
		810	1909.8	24.85	305.49

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

GSM850	GPRS	128	824.2	28.351	684.07
		190	836.6	28.941	783.61
		251	848.8	29.551	901.78
	EGPRS	128	824.2	24.251	266.13
		190	836.6	24.251	266.13
		251	848.8	24.151	260.08

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

11.1.2. LTE ERP/EIRP Results

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE41	20	QPSK	1/0	2506	21.38	137.4
			1/0	2593	21.35	136.46
			1/0	2680	22.49	177.42
		16QAM	1/0	2506	19.88	97.27
			1/0	2593	19.85	96.61
			1/0	2680	21.48	140.6

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE41	15	QPSK	1/0	2503.5	20.37	108.89
			1/0	2593	20.43	110.41
			1/0	2682.5	21.64	145.88
		16QAM	1/0	2503.5	19.27	84.53
			1/0	2593	19.56	90.36
			1/0	2682.5	21.04	127.06

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE41	10	QPSK	1/0	2501	19.07	80.72
			1/0	2593	20.56	113.76
			1/0	2685	19.83	96.16
		16QAM	1/0	2501	18.1	64.57
			1/0	2593	19.84	96.38
			1/0	2685	18.94	78.34

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE26	10	QPSK	1/0	819	18.131	65.03
			1/0	831.5	20.731	118.33

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

			1/0	844	19.001	79.45
		16QAM	1/0	819	17.101	51.3
			1/0	831.5	19.551	90.18
			1/0	844	18.071	64.14

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE26	5	QPSK	1/0	816.5	18.601	72.46
			1/0	831.5	20.751	118.88
			1/0	846.5	18.901	77.64
		16QAM	1/0	816.5	17.551	56.9
			1/0	831.5	19.801	95.52
			1/0	846.5	17.851	60.97

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE26	3	QPSK	1/0	815.5	18.441	69.84
			1/0	831.5	20.821	120.81
			1/0	847.5	19.741	94.21
		16QAM	1/0	815.5	17.561	57.03
			1/0	831.5	19.831	96.18
			1/0	847.5	18.221	66.39

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE26	1.4	QPSK	1/0	814.7	17.521	56.51
			1/0	831.5	20.381	109.17
			1/0	848.3	18.821	76.23
		16QAM	1/0	814.7	16.561	45.3
			1/0	831.5	19.521	89.56
			1/0	848.3	18.081	64.28

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE25	10	QPSK	1/0	1855	17.9	61.66
			1/0	1882.5	21.59	144.21
			1/0	1910	22.48	177.01
		16QAM	1/0	1855	16.64	46.13
			1/0	1882.5	20.81	120.50
			1/0	1910	21.79	151.01

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE25	5	QPSK	1/0	1852.5	19.09	81.1
			1/0	1882.5	21.1	128.82
			1/0	1912.5	21.99	158.12
		16QAM	1/0	1852.5	17.91	61.8
			1/0	1882.5	19.82	95.94
			1/0	1912.5	20.88	122.46

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE25	3	QPSK	1/0	1851.5	21.06	127.64
			1/0	1882.5	20.85	121.62
			1/0	1913.5	22.91	195.43
		16QAM	1/0	1851.5	19.72	93.76
			1/0	1882.5	19.56	90.36
			1/0	1913.5	21.9	154.88

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

11.1.3. ERP/EIRP data

Band

LTE41

20MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: LG Electronics
Project #: 14U17501
Date: 04/17/14
Test Engineer: Charles Vergonio
Configuration: EUT ONLY / Y Orientation
Mode: LTE B41 20MHz 16QAM

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2506.00	11.23	V	0.9	9.5	19.88	33.0	-13.1	
2506.00	8.59	H	0.9	9.5	17.24	33.0	-15.8	
Mid Ch								
2593.00	11.20	V	0.9	9.5	19.85	33.0	-13.2	
2593.00	9.10	H	0.9	9.5	17.75	33.0	-15.3	
High Ch								
2680.00	12.73	V	0.9	9.6	21.48	33.0	-11.5	
2680.00	9.82	H	0.9	9.6	18.57	33.0	-14.4	

Rev. 3.17.11
Note: For Band 4 EIRP limit is 30dBm

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

LTE41

20MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: LG Electronics
Project #: 14U17501
Date: 04/17/14
Test Engineer: Charles Vergonio
Configuration: EUT ONLY / Y Orientation
Mode: LTE B41 20MHz QPSK

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2506.00	12.73	V	0.9	9.5	21.38	33.0	-11.6	
2506.00	9.24	H	0.9	9.5	17.89	33.0	-15.1	
Mid Ch								
2593.00	12.70	V	0.9	9.5	21.35	33.0	-11.7	
2593.00	10.30	H	0.9	9.5	18.95	33.0	-14.1	
High Ch								
2680.00	13.74	V	0.9	9.6	22.49	33.0	-10.5	
2680.00	11.22	H	0.9	9.6	19.97	33.0	-13.0	

Rev. 3.17.11
Note: For Band 4 EIRP limit is 30dBm

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

LTE41

15MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: LG Electronics
Project #: 14U17501
Date: 04/17/14
Test Engineer: Charles Vergonio
Configuration: EUT ONLY / Y Orientation
Mode: LTE B41 15MHz 16QAM

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2503.50	10.62	V	0.9	9.5	19.27	33.0	-13.7	
2503.50	8.56	H	0.9	9.5	17.21	33.0	-15.8	
Mid Ch								
2593.00	10.91	V	0.9	9.5	19.56	33.0	-13.4	
2593.00	8.92	H	0.9	9.5	17.57	33.0	-15.4	
High Ch								
2682.50	12.29	V	0.9	9.6	21.04	33.0	-12.0	
2682.50	10.00	H	0.9	9.6	18.75	33.0	-14.3	

Rev. 3.17.11
Note: For Band 4 EIRP limit is 30dBm

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

LTE41

15MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: LG Electronics
Project #: 14U17501
Date: 04/17/14
Test Engineer: Charles Vergonio
Configuration: EUT ONLY / Y Orientation
Mode: LTE B41 15MHz QPSK

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2503.50	11.72	V	0.9	9.5	20.37	33.0	-12.6	
2503.50	8.96	H	0.9	9.5	17.61	33.0	-15.4	
Mid Ch								
2593.00	11.78	V	0.9	9.5	20.43	33.0	-12.6	
2593.00	9.36	H	0.9	9.5	18.01	33.0	-15.0	
High Ch								
2682.50	12.89	V	0.9	9.6	21.64	33.0	-11.4	
2682.50	10.20	H	0.9	9.6	18.95	33.0	-14.1	

Rev. 3.17.11
Note: For Band 4 EIRP limit is 30dBm

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

LTE41

10MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: LG Electronics
Project #: 14U17501
Date: 04/17/14
Test Engineer: Charles Vergonio
Configuration: EUT ONLY / Y Orientation
Mode: LTE B41 10MHz 16QAM

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2501.00	9.45	V	0.9	9.5	18.10	33.0	-14.9	
2501.00	7.85	H	0.9	9.5	16.50	33.0	-16.5	
Mid Ch								
2593.00	11.19	V	0.9	9.5	19.84	33.0	-13.2	
2593.00	9.80	H	0.9	9.5	18.45	33.0	-14.6	
High Ch								
2685.00	10.19	V	0.9	9.6	18.94	33.0	-14.1	
2685.00	9.15	H	0.9	9.6	17.90	33.0	-15.1	

Rev. 3.17.11
Note: For Band 4 EIRP limit is 30dBm

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

LTE41

10MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: LG Electronics
Project #: 14U17501
Date: 04/17/14
Test Engineer: Charles Vergonio
Configuration: EUT ONLY / Y Orientation
Mode: LTE B41 10MHz QPSK

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2501.00	10.42	V	0.9	9.5	19.07	33.0	-13.9	
2501.00	8.22	H	0.9	9.5	16.87	33.0	-16.1	
Mid Ch								
2593.00	11.91	V	0.9	9.5	20.56	33.0	-12.4	
2593.00	10.30	H	0.9	9.5	18.95	33.0	-14.1	
High Ch								
2685.00	11.08	V	0.9	9.6	19.83	33.0	-13.2	
2685.00	10.06	H	0.9	9.6	18.81	33.0	-14.2	

Rev. 3.17.11
Note: For Band 4 EIRP limit is 30dBm

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

LTE26

10MHz

16QAM

High Frequency Substitution Measurement
Compliance Certification Services Chamber C

Company: LG
Project #: 14U17501
Date: 04/10/14
Test Engineer: R. Alegre
Configuration: EUT only
Mode: LTE band 26, 10MHz BW
16QAM, Average, RB1-0

Test Equipment:
Receiving: Sunol T407, and 3m Chamber N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, 4ft SMA Cable (SN # 245200 001) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
819.00	11.39	V	0.9	0.0	10.49	38.5	-28.0	
819.00	18.00	H	0.9	0.0	17.10	38.5	-21.3	
Mid Ch								
831.50	11.42	V	0.9	0.0	10.52	38.5	-27.9	
831.50	20.45	H	0.9	0.0	19.55	38.5	-18.9	
High Ch								
844.00	13.21	V	0.9	0.0	12.31	38.5	-26.1	
844.00	18.97	H	0.9	0.0	18.07	38.5	-20.4	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

LTE26

10MHz

QPSK

High Frequency Substitution Measurement
Compliance Certification Services Chamber C

Company: LG
Project #: 14U17501
Date: 04/10/14
Test Engineer: R. Alegre
Configuration: EUT only
Mode: LTE band 26, 10MHz BW
QPSK, Average, RB1-0

Test Equipment:
Receiving: Sunol T407, and 3m Chamber N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, 4ft SMA Cable (SN # 245200 001) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
819.00	12.36	V	0.9	0.0	11.46	38.5	-27.0	
819.00	19.03	H	0.9	0.0	18.13	38.5	-20.3	
Mid Ch								
831.50	12.22	V	0.9	0.0	11.32	38.5	-27.1	
831.50	21.63	H	0.9	0.0	20.73	38.5	-17.7	
High Ch								
844.00	14.01	V	0.9	0.0	13.11	38.5	-25.3	
844.00	19.90	H	0.9	0.0	19.00	38.5	-19.4	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

LTE26

5MHz

16QAM

High Frequency Substitution Measurement
Compliance Certification Services Chamber C

Company: LG
Project #: 14U17501
Date: 04/10/14
Test Engineer: R. Alegre
Configuration: EUT only
Mode: LTE band 26, 5MHz BW
16QAM, Average, RB1-0

Test Equipment:
Receiving: Sunol T407, and 3m Chamber N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, 4ft SMA Cable (SN # 245200 001) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
816.50	11.35	V	0.9	0.0	10.45	38.5	-28.0	
816.50	18.45	H	0.9	0.0	17.55	38.5	-20.9	
Mid Ch								
831.50	11.22	V	0.9	0.0	10.32	38.5	-28.1	
831.50	20.70	H	0.9	0.0	19.80	38.5	-18.6	
High Ch								
846.50	13.13	V	0.9	0.0	12.23	38.5	-26.2	
846.50	18.75	H	0.9	0.0	17.85	38.5	-20.6	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

LTE26

5MHz

QPSK

High Frequency Substitution Measurement
Compliance Certification Services Chamber C

Company: LG
Project #: 14U17501
Date: 04/10/14
Test Engineer: R. Alegre
Configuration: EUT only
Mode: LTE band 26, 5MHz BW
QPSK, Average, RB1-0

Test Equipment:
Receiving: Sunol T407, and 3m Chamber N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, 4ft SMA Cable (SN # 245200 001) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
816.50	12.50	V	0.9	0.0	11.60	38.5	-26.8	
816.50	19.50	H	0.9	0.0	18.60	38.5	-19.8	
Mid Ch								
831.50	12.38	V	0.9	0.0	11.48	38.5	-27.0	
831.50	21.65	H	0.9	0.0	20.75	38.5	-17.7	
High Ch								
846.50	14.23	V	0.9	0.0	13.33	38.5	-25.1	
846.50	19.80	H	0.9	0.0	18.90	38.5	-19.5	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

LTE26

3MHz

16QAM

High Frequency Substitution Measurement
Compliance Certification Services Chamber C

Company: LG
Project #: 14U17501
Date: 04/10/14
Test Engineer: R. Alegre
Configuration: EUT only
Mode: LTE band 26, 3MHz BW
16QAM, Peak, RB1-0

Test Equipment:
Receiving: Sunol T407, and 3m Chamber N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, 4ft SMA Cable (SN # 245200 001) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
815.50	11.43	V	0.9	0.0	10.53	38.5	-27.9	
815.50	18.46	H	0.9	0.0	17.56	38.5	-20.9	
Mid Ch								
831.50	11.18	V	0.9	0.0	10.28	38.5	-28.2	
831.50	20.73	H	0.9	0.0	19.83	38.5	-18.6	
High Ch								
847.50	13.25	V	0.9	0.0	12.35	38.5	-26.1	
847.50	19.12	H	0.9	0.0	18.22	38.5	-20.2	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

LTE26

3MHz

QPSK

High Frequency Substitution Measurement
Compliance Certification Services Chamber C

Company: LG
Project #: 14U17501
Date: 04/10/14
Test Engineer: R. Alegre
Configuration: EUT only
Mode: LTE band 26, 3MHz BW
QPSK, Peak, RB1-0

Test Equipment:
Receiving: Sunol T407, and 3m Chamber N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, 4ft SMA Cable (SN # 245200 001) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
815.50	12.09	V	0.9	0.0	11.19	38.5	-27.3	
815.50	19.34	H	0.9	0.0	18.44	38.5	-20.0	
Mid Ch								
831.50	12.28	V	0.9	0.0	11.38	38.5	-27.1	
831.50	21.72	H	0.9	0.0	20.82	38.5	-17.6	
High Ch								
847.50	14.00	V	0.9	0.0	13.10	38.5	-25.3	
847.50	20.64	H	0.9	0.0	19.74	38.5	-18.7	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

LTE26

1.4MHz

16QAM

High Frequency Substitution Measurement
Compliance Certification Services Chamber C

Company: LG
Project #: 14U17501
Date: 04/10/14
Test Engineer: R. Alegre
Configuration: EUT only
Mode: LTE band 26, 1.4MHz BW
16QAM, Average, RB1-0

Test Equipment:
Receiving: Sunol T407, and 3m Chamber N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, 4ft SMA Cable (SN # 245200 001) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
814.70	11.08	V	0.9	0.0	10.18	38.5	-28.3	
814.70	17.46	H	0.9	0.0	16.56	38.5	-21.9	
Mid Ch								
831.50	10.45	V	0.9	0.0	9.55	38.5	-28.9	
831.50	20.42	H	0.9	0.0	19.52	38.5	-18.9	
High Ch								
848.30	12.20	V	0.9	0.0	11.30	38.5	-27.1	
848.30	18.98	H	0.9	0.0	18.08	38.5	-20.4	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

LTE26

1.4MHz

QPSK

High Frequency Substitution Measurement
Compliance Certification Services Chamber C

Company: LG
Project #: 14U17501
Date: 04/10/14
Test Engineer: R. Alegre
Configuration: EUT only
Mode: LTE band 26, 1.4MHz BW
QPSK, Average, RB1-0

Test Equipment:
Receiving: Sunol T407, and 3m Chamber N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, 4ft SMA Cable (SN # 245200 001) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
814.70	12.20	V	0.9	0.0	11.30	38.5	-27.1	
814.70	18.42	H	0.9	0.0	17.52	38.5	-20.9	
Mid Ch								
831.50	11.32	V	0.9	0.0	10.42	38.5	-28.0	
831.50	21.28	H	0.9	0.0	20.38	38.5	-18.1	
High Ch								
848.30	13.19	V	0.9	0.0	12.29	38.5	-26.2	
848.30	19.72	H	0.9	0.0	18.82	38.5	-19.6	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

LTE25

10MHz

16QAM

High Frequency Fundamental Measurement
Compliance Certification Services Chamber C

Company: LG
Project #: 14U17501
Date: 04/09/14
Test Engineer: R. Alegre
Configuration: EUT only
Mode: LTE band 25, 10MHz BW
16QAM,Average, RB1-0

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable Warehouse

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1.855	8.6	V	0.85	7.85	15.61	33.0	-17.4	
1.855	9.6	H	0.85	7.85	16.64	33.0	-16.4	
Mid Ch								
1.883	9.6	V	0.85	7.85	16.58	33.0	-16.4	
1.883	13.8	H	0.85	7.85	20.81	33.0	-12.2	
High Ch								
1.910	10.4	V	0.85	7.85	17.43	33.0	-15.6	
1.910	14.8	H	0.85	7.85	21.79	33.0	-11.2	

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

LTE25

10MHz

QPSK

High Frequency Fundamental Measurement
Compliance Certification Services Chamber C

Company: LG
Project #: 14U17501
Date: 04/09/14
Test Engineer: R. Alegre
Configuration: EUT only
Mode: LTE band 25, 10MHz BW
QPSK,Average, RB1-0

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable Warehouse

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1.855	9.6	V	0.85	7.85	16.56	33.0	-16.4	
1.855	10.9	H	0.85	7.85	17.90	33.0	-15.1	
Mid Ch								
1.883	10.8	V	0.85	7.85	17.77	33.0	-15.2	
1.883	14.6	H	0.85	7.85	21.59	33.0	-11.4	
High Ch								
1.910	11.4	V	0.85	7.85	18.38	33.0	-14.6	
1.910	15.5	H	0.85	7.85	22.48	33.0	-10.5	

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

LTE25

5MHz

16QAM

High Frequency Fundamental Measurement
Compliance Certification Services Chamber C

Company: LG
Project #: 14U17501
Date: 04/09/14
Test Engineer: R. Alegre
Configuration: EUT only
Mode: LTE band 25, 5MHz BW
16QAM,Average, RB1-0

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable Warehouse

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1.853	8.9	V	0.85	7.85	15.94	33.0	-17.1	
1.853	10.9	H	0.85	7.85	17.91	33.0	-15.1	
Mid Ch								
1.883	9.1	V	0.85	7.85	16.11	33.0	-16.9	
1.883	12.8	H	0.85	7.85	19.82	33.0	-13.2	
High Ch								
1.913	11.3	V	0.85	7.85	18.29	33.0	-14.7	
1.913	13.9	H	0.85	7.85	20.88	33.0	-12.1	

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

LTE25

5MHz

QPSK

High Frequency Fundamental Measurement
Compliance Certification Services Chamber C

Company: LG
Project #: 14U17501
Date: 04/09/14
Test Engineer: R. Alegre
Configuration: EUT only
Mode: LTE band 25, 5MHz BW
QPSK,Average, RB1-0

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable Warehouse

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1.853	9.7	V	0.85	7.85	16.72	33.0	-16.3	
1.853	12.1	H	0.85	7.85	19.09	33.0	-13.9	
Mid Ch								
1.883	10.0	V	0.85	7.85	17.00	33.0	-16.0	
1.883	14.1	H	0.85	7.85	21.10	33.0	-11.9	
High Ch								
1.913	12.3	V	0.85	7.85	19.27	33.0	-13.7	
1.913	15.0	H	0.85	7.85	21.99	33.0	-11.0	

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

LTE25

3MHz

16QAM

High Frequency Fundamental Measurement
Compliance Certification Services Chamber C

Company: LG
Project #: 14U17501
Date: 04/09/14
Test Engineer: R. Alegre
Configuration: EUT only
Mode: LTE band 25, 3MHz BW
16QAM, Average, RB1-0

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable Warehouse

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1.852	10.0	V	0.85	7.85	16.96	33.0	-16.0	
1.852	12.7	H	0.85	7.85	19.72	33.0	-13.3	
Mid Ch								
1.883	10.6	V	0.85	7.85	17.58	33.0	-15.4	
1.883	12.6	H	0.85	7.85	19.56	33.0	-13.4	
High Ch								
1.914	11.8	V	0.85	7.85	18.78	33.0	-14.2	
1.914	14.9	H	0.85	7.85	21.90	33.0	-11.1	

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

LTE25

3MHz

QPSK

High Frequency Fundamental Measurement
Compliance Certification Services Chamber C

Company: LG
Project #: 14U17501
Date: 04/09/14
Test Engineer: R. Alegre
Configuration: EUT only
Mode: LTE band 25, 3MHz BW
QPSK, Average, RB1-0

Test Equipment:
Receiving: Horn T119, and Chamber F SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable Warehouse

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1.852	11.0	V	0.85	7.85	17.98	33.0	-15.0	
1.852	14.1	H	0.85	7.85	21.06	33.0	-11.9	
Mid Ch								
1.883	11.6	V	0.85	7.85	18.55	33.0	-14.5	
1.883	13.9	H	0.85	7.85	20.85	33.0	-12.2	
High Ch								
1.914	13.1	V	0.85	7.85	20.10	33.0	-12.9	
1.914	15.9	H	0.85	7.85	22.91	33.0	-10.1	

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

BC1

EVDO
REL. 0

High Frequency Fundamental Measurement
Compliance Certification Services Chamber A

Company: LG
Project #: 14U17501
Date: 5\3\14
Test Engineer: D. Soper, O. Stoelting
Configuration: EUT, Z Position
Mode: CDMA EVDOR0 BC1

Test Equipment:
Receiving: T136, and Chamber A SMA Cables
Substitution: Horn T711 Substitution, 4ft SMA Cable (244640002) Warehouse

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1.851	16.9	V	0.67	4.80	21.05	33.0	-12.0	
1.851	17.0	H	0.67	4.80	21.13	33.0	-11.9	
Mid Ch								
1.880	17.4	V	0.67	4.80	21.58	33.0	-11.4	
1.880	17.7	H	0.67	4.80	21.86	33.0	-11.1	
High Ch								
1.909	15.9	V	0.67	4.80	20.07	33.0	-12.9	
1.909	17.7	H	0.67	4.80	21.85	33.0	-11.2	

Rev. 3.17.11

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

BC1

1xRTT

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: LG
Project #: 14U17501
Date: 4\29\14
Test Engineer: D. Soper
Configuration: EUT, Z Position
Mode: CDMA RTT BC1

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T217 Substitution, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1851.25	6.54	V	0.6	7.9	13.82	33.0	-19.2	
1851.25	12.18	H	0.6	7.9	19.46	33.0	-13.5	
Mid Ch								
1880.00	7.24	V	0.6	7.9	14.52	33.0	-18.5	
1880.00	15.17	H	0.6	7.9	22.45	33.0	-10.6	
High Ch								
1908.75	10.01	V	0.7	7.9	17.26	33.0	-15.7	
1908.75	15.55	H	0.7	7.9	22.80	33.0	-10.2	

Rev. 3.17.11
Note: For Band 4 EIRP limit is 30dBm

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

BC0

EVDO
REL. 0

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber A

Company: LG
Project #: 14U17501
Date: 5\2\14
Test Engineer: D. Soper, O. Stoelting
Configuration: EUT, Y Position
Mode: CDMA EVDOR0 BC0

Test Equipment:
Receiving: Sunol T130, and 3m Chamber A N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022724, 4ft SMA Cable (SN # 244640 002) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
824.70	21.25	V	0.5	0.0	20.80	38.5	-17.7	
824.70	4.86	H	0.5	0.0	4.41	38.5	-34.0	
Mid Ch								
836.52	21.42	V	0.5	0.0	20.97	38.5	-17.5	
836.52	9.18	H	0.5	0.0	8.73	38.5	-29.7	
High Ch								
848.31	21.49	V	0.5	0.0	21.04	38.5	-17.4	
848.31	5.28	H	0.5	0.0	4.83	38.5	-33.6	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

BC0

1xRTT

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: LG
Project #: 14U17501
Date: 04\29\14
Test Engineer: D. Soper
Configuration: EUT, Y Position
Mode: CDMA RTT BC0

Test Equipment:
Receiving: Sunol T185, and 3m Chamber N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022724, 4ft SMA Cable (SN # 244640 002) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
824.70	21.40	V	0.5	0.0	20.95	38.5	-17.5	
824.70	5.55	H	0.5	0.0	5.10	38.5	-33.3	
Mid Ch								
836.52	21.45	V	0.5	0.0	21.00	38.5	-17.4	
836.52	7.58	H	0.5	0.0	7.13	38.5	-31.3	
High Ch								
848.31	21.79	V	0.5	0.0	21.34	38.5	-17.1	
848.31	6.10	H	0.5	0.0	5.65	38.5	-32.8	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

BC10

EVDO
REL. 0

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: LG
Project #: 14U17501
Date: 5\2\14
Test Engineer: D. Soper, O. Stoelting
Configuration: EUT, Y Position
Mode: CDMA EVDOR0 BC0

Test Equipment:
Receiving: Sunol T130, and 3m Chamber A N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022724, 4ft SMA Cable (SN # 244640 002) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
817.90	17.29	V	0.5	0.0	16.84	38.5	-21.6	
817.90	21.02	H	0.5	0.0	20.57	38.5	-17.9	
Mid Ch								
820.50	18.48	V	0.5	0.0	18.03	38.5	-20.4	
820.50	22.23	H	0.5	0.0	21.78	38.5	-16.7	
High Ch								
823.10	18.70	V	0.5	0.0	18.25	38.5	-20.2	
823.10	22.50	H	0.5	0.0	22.05	38.5	-16.4	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

BC10

1xRTT

High Frequency Substitution Measurement
Compliance Certification Services Chamber A

Company: LG
Project #: 14U17501
Date: 5\3\14
Test Engineer: D. Soper, O. Stoelting
Configuration: EUT with AC adapter & HS
Mode: CDMA RTT BC10

Test Equipment:
Receiving: Sunol T136, and Chamber A Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022724, 4ft SMA Cable (SN # 244640 002) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
817.90	16.96	V	0.5	0.0	16.47	38.5	-22.0	
817.90	21.73	H	0.5	0.0	21.23	38.5	-17.2	
Mid Ch								
820.50	17.58	V	0.5	0.0	17.08	38.5	-21.4	
820.50	22.55	H	0.5	0.0	22.05	38.5	-16.4	
High Ch								
823.10	18.28	V	0.5	0.0	17.78	38.5	-20.7	
823.10	22.69	H	0.5	0.0	22.19	38.5	-16.3	

Rev. 3.17.11

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

Band 2

HSDPA

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: LG
Project #: 14U17501
Date: 04/08/14
Test Engineer: R. Alegre
Configuration: Z Position, EUT only
Mode: WCDMA_HSDPA_1900

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1852.40	10.92	V	0.85	7.9	17.92	33.0	-15.1	
1852.40	12.41	H	0.85	7.9	19.41	33.0	-13.6	
Mid Ch								
1880.00	12.90	V	0.85	7.9	19.90	33.0	-13.1	
1880.00	15.16	H	0.85	7.9	22.16	33.0	-10.8	
High Ch								
1907.60	12.79	V	0.85	7.9	19.79	33.0	-13.2	
1907.60	15.92	H	0.85	7.9	22.92	33.0	-10.1	

Rev. 3.17.11
Note: For Band 4 EIRP limit is 30dBm

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

Band 2

REL99

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: LG
Project #: 14U17501
Date: 04/08/14
Test Engineer: R. Alegre
Configuration: Z Position, EUT only
Mode: WCDMA_Rel 99_1900

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1852.40	11.48	V	0.85	7.9	18.48	33.0	-14.5	
1852.40	12.25	H	0.85	7.9	19.25	33.0	-13.8	
Mid Ch								
1880.00	11.62	V	0.85	7.9	18.62	33.0	-14.4	
1880.00	14.74	H	0.85	7.9	21.74	33.0	-11.3	
High Ch								
1907.60	12.63	V	0.85	7.9	19.63	33.0	-13.4	
1907.60	16.13	H	0.85	7.9	23.13	33.0	-9.9	

Rev. 3.17.11
Note: For Band 4 EIRP limit is 30dBm

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

Band 5

HSDPA

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: LG
Project #: 14U17501
Date: 04/09/14
Test Engineer: R. Alegre
Configuration: EUT, Position
Mode: WCDMA_HSDPA_850

Test Equipment:
Receiving: Sunol T407, and 3m Chamber N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, 4ft SMA Cable (SN # 245200 001) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
826.40	14.03	V	0.9	0.0	13.13	38.5	-25.3	
826.40	20.57	H	0.9	0.0	19.67	38.5	-18.8	
Mid Ch								
836.60	13.57	V	0.9	0.0	12.67	38.5	-25.8	
836.60	19.64	H	0.9	0.0	18.74	38.5	-19.7	
High Ch								
846.60	14.18	V	0.9	0.0	13.28	38.5	-25.2	
846.60	20.52	H	0.9	0.0	19.62	38.5	-18.8	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

Band 5

REL99

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: LG
Project #: 14U17501
Date: 04/09/14
Test Engineer: R. Alegre
Configuration: EUT, Position
Mode: WCDMA_Rel99_850

Test Equipment:
Receiving: Sunol T407, and 3m Chamber N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, 4ft SMA Cable (SN # 245200 001) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
826.40	13.92	V	0.9	0.0	13.02	38.5	-25.4	
826.40	20.49	H	0.9	0.0	19.59	38.5	-18.9	
Mid Ch								
836.60	13.51	V	0.9	0.0	12.61	38.5	-25.8	
836.60	20.94	H	0.9	0.0	20.04	38.5	-18.4	
High Ch								
846.60	14.01	V	0.9	0.0	13.11	38.5	-25.3	
846.60	20.48	H	0.9	0.0	19.58	38.5	-18.9	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

GSM1900

EGPRS

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: LG
Project #: 14U17501
Date: 4\29\14
Test Engineer: D. Soper
Configuration: EUT, Z Position
Mode: EGPRS 1900Mhz

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T217 Substitution, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1850.20	10.40	V	0.85	7.9	17.45	33.0	-15.6	
1850.20	17.30	H	0.85	7.9	24.35	33.0	-8.7	
Mid Ch								
1880.00	10.50	V	0.85	7.9	17.55	33.0	-15.5	
1880.00	17.90	H	0.85	7.9	24.95	33.0	-8.1	
High Ch								
1909.80	12.90	V	0.85	7.9	19.95	33.0	-13.1	
1909.80	17.80	H	0.85	7.9	24.85	33.0	-8.2	

Rev. 3.17.11
Note: For Band 4 EIRP limit is 30dBm

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

GSM1900

GPRS

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: LG
Project #: 14U17501
Date: 04/09/14
Test Engineer: R. Alegre
Configuration: Z Position, EUT only
Mode: GPRS 1900MHz

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1850.20	16.55	V	0.85	7.9	23.55	33.0	-9.5	
1850.20	19.69	H	0.85	7.9	26.69	33.0	-6.3	
Mid Ch								
1880.00	18.16	V	0.85	7.9	25.16	33.0	-7.8	
1880.00	20.73	H	0.85	7.9	27.73	33.0	-5.3	
High Ch								
1909.80	19.08	V	0.85	7.9	26.08	33.0	-6.9	
1909.80	21.04	H	0.85	7.9	28.04	33.0	-5.0	

Rev. 3.17.11
Note: For Band 4 EIRP limit is 30dBm

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

GSM850

EGPRS

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: LG
Project #: 14U17501
Date: 04\29\14
Test Engineer: D. Soper
Configuration: EUT, Y Position
Mode: EGPRS 850Mhz

Test Equipment:
Receiving: Sunol T185, and 3m Chamber N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022724, 4ft SMA Cable (SN # 244640 002) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
824.20	19.20	V	0.5	0.0	18.75	38.5	-19.7	
824.20	24.70	H	0.5	0.0	24.25	38.5	-14.2	
Mid Ch								
836.60	20.16	V	0.5	0.0	19.71	38.5	-18.7	
836.60	24.70	H	0.5	0.0	24.25	38.5	-14.2	
High Ch								
848.80	19.30	V	0.5	0.0	18.85	38.5	-19.6	
848.80	24.60	H	0.5	0.0	24.15	38.5	-14.3	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

GSM850

GPRS

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: LG
Project #: 14U17501
Date: 04\29\14
Test Engineer: D. Soper
Configuration: EUT, Y Position
Mode: GPRS 850Mhz

Test Equipment:
Receiving: Sunol T185, and 3m Chamber N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022724, 4ft SMA Cable (SN # 244640 002) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
824.20	21.40	V	0.5	0.0	20.95	38.5	-17.5	
824.20	28.80	H	0.5	0.0	28.35	38.5	-10.1	
Mid Ch								
836.60	24.07	V	0.5	0.0	23.62	38.5	-14.8	
836.60	29.39	H	0.5	0.0	28.94	38.5	-9.5	
High Ch								
848.80	23.60	V	0.5	0.0	23.15	38.5	-15.3	
848.80	30.00	H	0.5	0.0	29.55	38.5	-8.9	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

RADIATED POWER (ERP & EIRP) for WPC CHARGER AND COVER

Band

GSM850

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: LG
Project #: 14U17501
Date: 04\29\14
Test Engineer: D. Soper
Configuration: EUT, Y Position
Mode: GPRS 850Mhz

Test Equipment:
Receiving: Sunol T185, and 3m Chamber N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022724, 4ft SMA Cable (SN # 244640 002) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
824.20	20.50	V	0.5	0.0	20.05	38.5	-18.4	
824.20	28.10	H	0.5	0.0	27.65	38.5	-10.8	
Mid Ch								
836.60	23.27	V	0.5	0.0	22.82	38.5	-15.6	
836.60	28.39	H	0.5	0.0	27.94	38.5	-10.5	
High Ch								
848.80	22.60	V	0.5	0.0	22.15	38.5	-16.3	
848.80	29.60	H	0.5	0.0	29.15	38.5	-9.3	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

GSM1900

GPRS

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: LG
Project #: 14U17501
Date: 04/09/14
Test Engineer: R. Alegre
Configuration: Z Position, EUT only
Mode: GPRS 1900MHz

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1850.20	16.05	V	0.85	7.9	23.05	33.0	-10.0	
1850.20	19.16	H	0.85	7.9	26.16	33.0	-6.8	
Mid Ch								
1880.00	17.72	V	0.85	7.9	24.72	33.0	-8.3	
1880.00	20.35	H	0.85	7.9	27.35	33.0	-5.7	
High Ch								
1909.80	18.81	V	0.85	7.9	25.81	33.0	-7.2	
1909.80	20.34	H	0.85	7.9	27.34	33.0	-5.7	

Rev. 3.17.11
Note: For Band 4 EIRP limit is 30dBm

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

BC10

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: LG
Project #: 14U17501
Date: 5\2\14
Test Engineer: D. Soper, O. Stoelting
Configuration: EUT, Y Position
Mode: CDMA EVDOR0 BC0

Test Equipment:
Receiving: Sunol T130, and 3m Chamber A N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022724, 4ft SMA Cable (SN # 244640 002) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
817.90	16.89	V	0.5	0.0	16.44	38.5	-22.0	
817.90	20.47	H	0.5	0.0	20.02	38.5	-18.4	
Mid Ch								
820.50	17.73	V	0.5	0.0	17.28	38.5	-21.2	
820.50	21.62	H	0.5	0.0	21.17	38.5	-17.3	
High Ch								
823.10	18.32	V	0.5	0.0	17.87	38.5	-20.6	
823.10	22.05	H	0.5	0.0	21.60	38.5	-16.8	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

LTE41

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: LG Electronics
Project #: 14U17501
Date: 04/17/14
Test Engineer: Charles Vergonio
Configuration: EUT ONLY / Y Orientation
Mode: LTE B41 20MHz QPSK

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2506.00	12.23	V	0.9	9.5	20.88	33.0	-12.1	
2506.00	9.04	H	0.9	9.5	17.69	33.0	-15.3	
Mid Ch								
2593.00	12.32	V	0.9	9.5	20.97	33.0	-12.0	
2593.00	9.92	H	0.9	9.5	18.57	33.0	-14.4	
High Ch								
2680.00	13.49	V	0.9	9.6	22.24	33.0	-10.8	
2680.00	10.75	H	0.9	9.6	19.50	33.0	-13.5	

Rev. 3.17.11
Note: For Band 4 EIRP limit is 30dBm

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

LTE26

High Frequency Substitution Measurement
Compliance Certification Services Chamber C

Company: LG
Project #: 14U17501
Date: 04/10/14
Test Engineer: R. Alegre
Configuration: EUT only
Mode: LTE band 26, 3MHz BW
QPSK, Peak, RB1-0

Test Equipment:
Receiving: Sunol T407, and 3m Chamber N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, 4ft SMA Cable (SN # 245200 001) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
815.50	11.73	V	0.9	0.0	10.83	38.5	-27.6	
815.50	18.95	H	0.9	0.0	18.05	38.5	-20.4	
Mid Ch								
831.50	12.01	V	0.9	0.0	11.11	38.5	-27.3	
831.50	21.30	H	0.9	0.0	20.40	38.5	-18.0	
High Ch								
847.50	13.59	V	0.9	0.0	12.69	38.5	-25.8	
847.50	20.32	H	0.9	0.0	19.42	38.5	-19.0	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

High Frequency Fundamental Measurement
Compliance Certification Services Chamber C

Company: LG
Project #: 14U17501
Date: 04/09/14
Test Engineer: R. Alegre
Configuration: EUT only
Mode: LTE band 25, 3MHz BW
QPSK, Average, RB1-0

Test Equipment:
Receiving: Horn T119, and Chamber F SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable Warehouse

Band

LTE25

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1.852	10.5	V	0.85	7.85	17.53	33.0	-15.5	
1.852	13.6	H	0.85	7.85	20.62	33.0	-12.4	
Mid Ch								
1.883	11.3	V	0.85	7.85	18.31	33.0	-14.7	
1.883	13.6	H	0.85	7.85	20.56	33.0	-12.4	
High Ch								
1.914	12.8	V	0.85	7.85	19.81	33.0	-13.2	
1.914	15.5	H	0.85	7.85	22.52	33.0	-10.5	

Rev. 3.17.11
Note: For Band 4 EIRP limit is 30dBm

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

11.2. FIELD STRENGTH OF SPURIOUS RADIATION

RULE PART(S)

FCC: §2.1053, §22.917, §24.238, &27 and §90.691

LIMIT

§22.917 (e) and §24.238 (a): Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB

§ 90.691 Emission mask requirements for EA-based systems.

(a) Out-of-band emission requirement shall apply only to the “outer” channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:

(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116 Log10 (f/6.1) decibels or 50 + 10 Log10 (P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 43 + 10Log10 (P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

(b) When an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in this section.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

RESULTS

11.2.1. SPURIOUS RADIATION DATA

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG Electronics
Project #: 14U17501
Date: 05/03/14
Test Engineer: CHARLES VERGONIO
Configuration: EUT with AC CHARGER
Mode: LTE B41 20M 16QAM HARM

Chamber	Pre-amplifer	Filter	Limit
5m Chamber A	T145 8449B	Filter 1	

Band: LTE41 20MHz 16QAM

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (2506 MHz)									
5.012	-38.3	V	3.0	28.9	1.0	-66.2	-25.0	-41.2	
7.518	-34.8	V	3.0	26.3	1.0	-60.2	-25.0	-35.2	
10.553	-36.6	V	3.0	22.9	1.0	-58.5	-25.0	-33.5	
5.012	-37.4	H	3.0	28.9	1.0	-65.3	-25.0	-40.3	
7.518	-34.8	H	3.0	26.3	1.0	-60.1	-25.0	-35.1	
10.553	-36.1	H	3.0	22.9	1.0	-58.0	-25.0	-33.0	
Mid Ch, (2593 MHz)									
5.186	-34.3	V	3.0	28.7	1.0	-62.1	-25.0	-37.1	
7.779	-36.0	V	3.0	26.0	1.0	-61.0	-25.0	-36.0	
10.372	-35.2	V	3.0	23.0	1.0	-57.1	-25.0	-32.1	
5.186	-35.6	H	3.0	28.7	1.0	-63.3	-25.0	-38.3	
7.779	-35.0	H	3.0	26.0	1.0	-60.0	-25.0	-35.0	
10.372	-34.9	H	3.0	23.0	1.0	-56.9	-25.0	-31.9	
High Ch, (2680 MHz)									
5.360	-34.0	V	3.0	28.5	1.0	-61.5	-25.0	-36.5	
8.040	-34.8	V	3.0	25.6	1.0	-59.5	-25.0	-34.5	
10.720	-35.7	V	3.0	22.9	1.0	-57.5	-25.0	-32.5	
5.360	-31.0	H	3.0	28.5	1.0	-58.6	-25.0	-33.6	
8.040	-34.9	H	3.0	25.6	1.0	-59.6	-25.0	-34.6	
10.720	-35.9	H	3.0	22.9	1.0	-57.8	-25.0	-32.8	

Rev. 03.03.09

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG Electronics
Project #: 14U17501
Date: 05/03/14
Test Engineer: CHARLES VERGONIO
Configuration: EUT with AC CHARGER
Mode: LTE B41 20M QPSK HARM

Chamber	Pre-amplifer	Filter	Limit
5m Chamber A	T145 8449B	Filter 1	

Band: LTE41 20MHz QPSK

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (2506 MHz)									
5.012	-37.3	V	3.0	28.9	1.0	-65.2	-25.0	-40.2	
7.518	-33.8	V	3.0	26.3	1.0	-59.2	-25.0	-34.2	
10.553	-35.6	V	3.0	22.9	1.0	-57.5	-25.0	-32.5	
5.012	-36.4	H	3.0	28.9	1.0	-64.3	-25.0	-39.3	
7.518	-33.8	H	3.0	26.3	1.0	-59.1	-25.0	-34.1	
10.553	-35.1	H	3.0	22.9	1.0	-57.0	-25.0	-32.0	
Mid Ch, (2593 MHz)									
5.186	-33.3	V	3.0	28.7	1.0	-61.1	-25.0	-36.1	
7.779	-35.0	V	3.0	26.0	1.0	-60.0	-25.0	-35.0	
10.372	-34.2	V	3.0	23.0	1.0	-56.1	-25.0	-31.1	
5.186	-34.6	H	3.0	28.7	1.0	-62.3	-25.0	-37.3	
7.779	-34.0	H	3.0	26.0	1.0	-59.0	-25.0	-34.0	
10.372	-33.9	H	3.0	23.0	1.0	-55.9	-25.0	-30.9	
High Ch, (2680 MHz)									
5.360	-33.0	V	3.0	28.5	1.0	-60.5	-25.0	-35.5	
8.040	-33.8	V	3.0	25.6	1.0	-58.5	-25.0	-33.5	
10.720	-34.7	V	3.0	22.9	1.0	-56.5	-25.0	-31.5	
5.360	-30.0	H	3.0	28.5	1.0	-57.6	-25.0	-32.6	
8.040	-33.9	H	3.0	25.6	1.0	-58.6	-25.0	-33.6	
10.720	-34.9	H	3.0	22.9	1.0	-56.8	-25.0	-31.8	

Rev. 03.03.09

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG Electronics
Project #: 14U17501
Date: 05/03/14
Test Engineer: CHARLES VERGONIO
Configuration: EUT with AC CHARGER
Mode: LTE B41 15M 16QAM HARM

Chamber	Pre-amplifer	Filter	Limit
5m Chamber A	T145 8449B	Filter 1	

Band	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, (2503.5 MHz)									
LTE41	5.007	-34.9	V	3.0	28.9	1.0	-62.8	-25.0	-37.8	
	7.511	-34.4	V	3.0	26.3	1.0	-59.8	-25.0	-34.8	
15MHz	10.014	-33.0	V	3.0	23.1	1.0	-55.1	-25.0	-30.1	
	5.007	-31.3	H	3.0	28.9	1.0	-59.2	-25.0	-34.2	
16QAM	7.511	-34.7	H	3.0	26.3	1.0	-60.0	-25.0	-35.0	
	10.014	-33.3	H	3.0	23.1	1.0	-55.4	-25.0	-30.4	
	Mid Ch, (2593 MHz)									
	5.186	-34.3	V	3.0	28.7	1.0	-62.0	-25.0	-37.0	
	7.779	-35.9	V	3.0	26.0	1.0	-60.9	-25.0	-35.9	
	10.372	-33.3	V	3.0	23.0	1.0	-55.3	-25.0	-30.3	
	5.186	-31.4	H	3.0	28.7	1.0	-59.1	-25.0	-34.1	
	7.779	-34.8	H	3.0	26.0	1.0	-59.8	-25.0	-34.8	
	10.372	-34.1	H	3.0	23.0	1.0	-56.1	-25.0	-31.1	
	High Ch, (2682.5 MHz)									
	5.365	-33.2	V	3.0	28.5	1.0	-60.7	-25.0	-35.7	
	8.052	-36.2	V	3.0	25.6	1.0	-60.9	-25.0	-35.9	
	10.730	-36.0	V	3.0	22.9	1.0	-57.9	-25.0	-32.9	
	5.365	-32.7	H	3.0	28.5	1.0	-60.2	-25.0	-35.2	
	8.052	-34.7	H	3.0	25.6	1.0	-59.4	-25.0	-34.4	
	10.730	-34.8	H	3.0	22.9	1.0	-56.7	-25.0	-31.7	

Rev. 03.03.09

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG Electronics
Project #: 14U17501
Date: 05/03/14
Test Engineer: CHARLES VERGONIO
Configuration: EUT with AC CHARGER
Mode: LTE B41 15M QPSK HARM

Chamber	Pre-amplifer	Filter	Limit
5m Chamber A	T145 8449B	Filter 1	

Band	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, (2503.5 MHz)									
LTE41	5.007	-35.0	V	3.0	28.9	1.0	-62.9	-25.0	-37.9	
	7.511	-35.2	V	3.0	26.3	1.0	-60.5	-25.0	-35.5	
15MHz	10.014	-32.0	V	3.0	23.1	1.0	-54.1	-25.0	-29.1	
	5.007	-30.3	H	3.0	28.9	1.0	-58.2	-25.0	-33.2	
QPSK	7.511	-34.5	H	3.0	26.3	1.0	-59.8	-25.0	-34.8	
	10.014	-32.3	H	3.0	23.1	1.0	-54.4	-25.0	-29.4	
	Mid Ch, (2593 MHz)									
	5.186	-32.5	V	3.0	28.7	1.0	-60.2	-25.0	-35.2	
	7.779	-34.9	V	3.0	26.0	1.0	-59.9	-25.0	-34.9	
	10.372	-32.3	V	3.0	23.0	1.0	-54.3	-25.0	-29.3	
	5.186	-30.4	H	3.0	28.7	1.0	-58.1	-25.0	-33.1	
	7.779	-33.8	H	3.0	26.0	1.0	-58.8	-25.0	-33.8	
	10.372	-34.1	H	3.0	23.0	1.0	-56.1	-25.0	-31.1	
	High Ch, (2682.5 MHz)									
	5.365	-33.7	V	3.0	28.5	1.0	-61.2	-25.0	-36.2	
	8.052	-35.2	V	3.0	25.6	1.0	-59.9	-25.0	-34.9	
	10.730	-35.0	V	3.0	22.9	1.0	-56.9	-25.0	-31.9	
	5.365	-33.3	H	3.0	28.5	1.0	-60.8	-25.0	-35.8	
	8.052	-33.7	H	3.0	25.6	1.0	-58.4	-25.0	-33.4	
	10.730	-35.0	H	3.0	22.9	1.0	-56.9	-25.0	-31.9	

Rev. 03.03.09

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG Electronics
Project #: 14U17501
Date: 05/03/14
Test Engineer: CHARLES VERGONIO
Configuration: EUT with AC CHARGER
Mode: LTE B41 10M 16QAM HARM

Chamber	Pre-amplifer	Filter	Limit
5m Chamber A	T145 8449B	Filter 1	

Band: LTE41 10MHz 16QAM

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (2501 MHz)									
5.002	-34.9	V	3.0	28.9	1.0	-62.8	-25.0	-37.8	
7.503	-33.3	V	3.0	26.3	1.0	-58.7	-25.0	-33.7	
10.004	-30.0	V	3.0	23.1	1.0	-52.1	-25.0	-27.1	
5.002	-33.8	H	3.0	28.9	1.0	-61.7	-25.0	-36.7	
7.503	-35.7	H	3.0	26.3	1.0	-61.1	-25.0	-36.1	
10.004	-32.1	H	3.0	23.1	1.0	-54.2	-25.0	-29.2	
Mid Ch, (2593 MHz)									
5.186	-32.9	V	3.0	28.7	1.0	-60.7	-25.0	-35.7	
7.779	-32.5	V	3.0	26.0	1.0	-57.5	-25.0	-32.5	
10.372	-32.5	V	3.0	23.0	1.0	-54.5	-25.0	-29.5	
5.186	-33.9	H	3.0	28.7	1.0	-61.6	-25.0	-36.6	
7.779	-34.9	H	3.0	26.0	1.0	-59.9	-25.0	-34.9	
10.372	-35.4	H	3.0	23.0	1.0	-57.4	-25.0	-32.4	
High Ch, (2685 MHz)									
5.375	-35.1	V	3.0	28.5	1.0	-62.7	-25.0	-37.7	
8.055	-31.7	V	3.0	25.6	1.0	-56.3	-25.0	-31.3	
10.740	-35.1	V	3.0	22.9	1.0	-57.0	-25.0	-32.0	
5.375	-32.7	H	3.0	28.5	1.0	-60.2	-25.0	-35.2	
8.055	-34.8	H	3.0	25.6	1.0	-59.4	-25.0	-34.4	
10.740	-33.7	H	3.0	22.9	1.0	-55.5	-25.0	-30.5	

Rev. 03.03.09

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG Electronics
Project #: 14U17501
Date: 05/03/14
Test Engineer: CHARLES VERGONIO
Configuration: EUT with AC CHARGER
Mode: LTE B41 10M QPSK HARM

Chamber	Pre-amplifer	Filter	Limit
5m Chamber A	T145 8449B	Filter 1	

Band: LTE41 10MHz QPSK

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (2501 MHz)									
5.002	-33.8	V	3.0	28.9	1.0	-61.7	-25.0	-36.7	
7.503	-35.5	V	3.0	26.3	1.0	-60.8	-25.0	-35.8	
10.004	-29.1	V	3.0	23.1	1.0	-51.2	-25.0	-26.2	
5.002	-32.5	H	3.0	28.9	1.0	-60.4	-25.0	-35.4	
7.503	-34.8	H	3.0	26.3	1.0	-60.1	-25.0	-35.1	
10.004	-31.1	H	3.0	23.1	1.0	-53.2	-25.0	-28.2	
Mid Ch, (2593 MHz)									
5.186	-32.4	V	3.0	28.7	1.0	-60.2	-25.0	-35.2	
7.779	-31.5	V	3.0	26.0	1.0	-56.5	-25.0	-31.5	
10.372	-31.5	V	3.0	23.0	1.0	-53.5	-25.0	-28.5	
5.186	-33.8	H	3.0	28.7	1.0	-61.5	-25.0	-36.5	
7.779	-33.9	H	3.0	26.0	1.0	-58.9	-25.0	-33.9	
10.372	-34.5	H	3.0	23.0	1.0	-56.4	-25.0	-31.4	
High Ch, (2685 MHz)									
5.375	-34.3	V	3.0	28.5	1.0	-61.8	-25.0	-36.8	
8.055	-30.7	V	3.0	25.6	1.0	-55.4	-25.0	-30.4	
10.740	-34.2	V	3.0	22.9	1.0	-56.0	-25.0	-31.0	
5.375	-32.6	H	3.0	28.5	1.0	-60.1	-25.0	-35.1	
8.055	-30.4	H	3.0	25.6	1.0	-55.0	-25.0	-30.0	
10.740	-34.9	H	3.0	22.9	1.0	-56.8	-25.0	-31.8	

Rev. 03.03.09

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG Electronics
Project #: 14U17501
Date: 05/03/14
Test Engineer: CHARLES VERGONIO
Configuration: EUT with AC CHARGER
Mode: LTE B26 10M 16QAM HARM

Chamber	Pre-amplifer	Filter	Limit
5m Chamber A	T145 8449B	Filter 1	Part 22

Band	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, (819MHz)									
LTE26	1.638	-22.8	V	3.0	32.7	1.0	-54.5	-13.0	-41.5	
	2.457	-21.3	V	3.0	31.3	1.0	-51.6	-13.0	-38.6	
10MHz	3.276	-25.9	V	3.0	30.6	1.0	-55.5	-13.0	-42.5	
	1.638	-23.5	H	3.0	32.7	1.0	-55.2	-13.0	-42.2	
	2.457	-24.2	H	3.0	31.3	1.0	-54.4	-13.0	-41.4	
16QAM	3.276	-27.2	H	3.0	30.6	1.0	-56.8	-13.0	-43.8	
	Mid Ch, (831.5MHz)									
	1.663	-22.7	V	3.0	32.6	1.0	-54.3	-13.0	-41.3	
	2.495	-22.1	V	3.0	31.5	1.0	-52.6	-13.0	-39.6	
	3.327	-27.4	V	3.0	30.5	1.0	-56.9	-13.0	-43.9	
	1.663	-25.2	H	3.0	32.6	1.0	-56.8	-13.0	-43.8	
	2.495	-24.2	H	3.0	31.5	1.0	-54.6	-13.0	-41.6	
	3.327	-27.1	H	3.0	30.5	1.0	-56.6	-13.0	-43.6	
	High Ch, (844MHz)									
	1.688	-22.0	V	3.0	32.6	1.0	-53.5	-13.0	-40.5	
	2.532	-23.6	V	3.0	31.5	1.0	-54.1	-13.0	-41.1	
	3.376	-27.8	V	3.0	30.5	1.0	-57.3	-13.0	-44.3	
	1.688	-24.8	H	3.0	32.6	1.0	-56.4	-13.0	-43.4	
	2.532	-24.3	H	3.0	31.5	1.0	-54.7	-13.0	-41.7	
	3.376	-27.6	H	3.0	30.5	1.0	-57.1	-13.0	-44.1	

Rev. 03.03.09

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG Electronics
Project #: 14U17501
Date: 05/03/14
Test Engineer: CHARLES VERGONIO
Configuration: EUT with AC CHARGER
Mode: LTE B26 10M QPSK HARM

Chamber	Pre-amplifer	Filter	Limit
5m Chamber A	T145 8449B	Filter 1	Part 22

Band: LTE26 10MHz QPSK

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (829MHz)									
1.638	-22.8	V	3.0	32.7	1.0	-54.5	-13.0	-41.5	
2.457	-21.3	V	3.0	31.3	1.0	-51.6	-13.0	-38.6	
3.276	-26.0	V	3.0	30.6	1.0	-55.6	-13.0	-42.6	
1.638	-22.6	H	3.0	32.7	1.0	-54.3	-13.0	-41.3	
2.457	-23.8	H	3.0	31.3	1.0	-54.1	-13.0	-41.1	
3.276	-26.3	H	3.0	30.6	1.0	-55.9	-13.0	-42.9	
Mid Ch, (831.5MHz)									
1.663	-22.7	V	3.0	32.6	1.0	-54.3	-13.0	-41.3	
2.495	-22.5	V	3.0	31.5	1.0	-53.0	-13.0	-40.0	
3.327	-27.1	V	3.0	30.5	1.0	-56.7	-13.0	-43.7	
1.663	-24.1	H	3.0	32.6	1.0	-55.7	-13.0	-42.7	
2.495	-23.2	H	3.0	31.5	1.0	-53.7	-13.0	-40.7	
3.327	-26.2	H	3.0	30.5	1.0	-55.8	-13.0	-42.8	
High Ch, (844MHz)									
1.688	-22.5	V	3.0	32.6	1.0	-54.1	-13.0	-41.1	
2.532	-21.1	V	3.0	31.5	1.0	-51.6	-13.0	-38.6	
3.376	-25.7	V	3.0	30.5	1.0	-55.2	-13.0	-42.2	
1.688	-24.8	H	3.0	32.6	1.0	-56.3	-13.0	-43.3	
2.532	-23.3	H	3.0	31.5	1.0	-53.7	-13.0	-40.7	
3.376	-26.8	H	3.0	30.5	1.0	-56.2	-13.0	-43.2	

Rev. 03.03.09

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG Electronics
Project #: 14U17501
Date: 05/03/14
Test Engineer: CHARLES VERGONIO
Configuration: EUT with AC CHARGER
Mode: LTE B26 5M 16QAM HARM

Chamber	Pre-amplifer	Filter	Limit
5m Chamber A	T145 8449B	Filter 1	Part 22

Band: LTE26 5MHz 16QAM

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (816.5MHz)									
1.633	-21.8	V	3.0	32.7	1.0	-53.5	-13.0	-40.5	
2.450	-23.9	V	3.0	31.2	1.0	-54.1	-13.0	-41.1	
3.267	-27.1	V	3.0	30.6	1.0	-56.7	-13.0	-43.7	
1.633	-22.4	H	3.0	32.7	1.0	-54.1	-13.0	-41.1	
2.450	-23.8	H	3.0	31.2	1.0	-54.0	-13.0	-41.0	
3.267	-27.0	H	3.0	30.6	1.0	-56.6	-13.0	-43.6	
Mid Ch, (831.5MHz)									
1.663	-24.5	V	3.0	32.6	1.0	-56.1	-13.0	-43.1	
2.495	-23.5	V	3.0	31.5	1.0	-53.9	-13.0	-40.9	
3.327	-27.8	V	3.0	30.5	1.0	-57.3	-13.0	-44.3	
1.663	-24.8	H	3.0	32.6	1.0	-56.4	-13.0	-43.4	
2.495	-25.4	H	3.0	31.5	1.0	-55.9	-13.0	-42.9	
3.327	-27.9	H	3.0	30.5	1.0	-57.4	-13.0	-44.4	
High Ch, (846.5MHz)									
1.693	-23.0	V	3.0	32.6	1.0	-54.6	-13.0	-41.6	
2.540	-22.3	V	3.0	31.4	1.0	-52.7	-13.0	-39.7	
3.387	-27.0	V	3.0	30.5	1.0	-56.4	-13.0	-43.4	
1.693	-26.6	H	3.0	32.6	1.0	-58.1	-13.0	-45.1	
2.540	-24.6	H	3.0	31.4	1.0	-55.0	-13.0	-42.0	
3.387	-27.7	H	3.0	30.5	1.0	-57.2	-13.0	-44.2	

Rev. 03.03.09

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG Electronics
Project #: 14U17501
Date: 05/03/14
Test Engineer: CHARLES VERGONIO
Configuration: EUT with AC CHARGER
Mode: LTE B26 5M QPSK HARM

Chamber	Pre-amplifer	Filter	Limit
5m Chamber A	T145 8449B	Filter 1	Part 22

Band	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, (816.5MHz)									
LTE26	1.633	-22.7	V	3.0	32.7	1.0	-54.4	-13.0	-41.4	
	2.450	-23.0	V	3.0	31.2	1.0	-53.2	-13.0	-40.2	
5MHz	3.267	-26.9	V	3.0	30.6	1.0	-56.5	-13.0	-43.5	
	1.633	-21.5	H	3.0	32.7	1.0	-53.2	-13.0	-40.2	
QPSK	2.450	-24.1	H	3.0	31.2	1.0	-54.3	-13.0	-41.3	
	3.267	-27.3	H	3.0	30.6	1.0	-56.9	-13.0	-43.9	
	Mid Ch, (831.5MHz)									
	1.663	-24.4	V	3.0	32.6	1.0	-56.0	-13.0	-43.0	
	2.495	-22.7	V	3.0	31.5	1.0	-53.2	-13.0	-40.2	
	3.327	-27.2	V	3.0	30.5	1.0	-56.7	-13.0	-43.7	
	1.663	-23.8	H	3.0	32.6	1.0	-55.5	-13.0	-42.5	
	2.495	-24.5	H	3.0	31.5	1.0	-55.0	-13.0	-42.0	
	3.327	-27.0	H	3.0	30.5	1.0	-56.5	-13.0	-43.5	
	High Ch, (846.5MHz)									
	1.693	-23.9	V	3.0	32.6	1.0	-55.4	-13.0	-42.4	
	2.540	-22.4	V	3.0	31.4	1.0	-52.8	-13.0	-39.8	
	3.387	-26.5	V	3.0	30.5	1.0	-55.9	-13.0	-42.9	
	1.693	-24.7	H	3.0	32.6	1.0	-56.2	-13.0	-43.2	
	2.540	-24.5	H	3.0	31.4	1.0	-55.0	-13.0	-42.0	
	3.387	-26.5	H	3.0	30.5	1.0	-55.9	-13.0	-42.9	

Rev. 03.03.09

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG Electronics
Project #: 14U17501
Date: 05/03/14
Test Engineer: CHARLES VERGONIO
Configuration: EUT with AC CHARGER
Mode: LTE B26 3M 16QAM HARM

Chamber	Pre-amplifer	Filter	Limit
5m Chamber A	T145 8449B	Filter 1	Part 22

Band: LTE26 3MHz 16QAM

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (815.5MHz)									
1.631	-25.0	V	3.0	32.7	1.0	-56.7	-13.0	-43.7	
2.447	-23.5	V	3.0	31.2	1.0	-53.7	-13.0	-40.7	
3.263	-26.1	V	3.0	30.6	1.0	-55.7	-13.0	-42.7	
1.631	-23.4	H	3.0	32.7	1.0	-55.1	-13.0	-42.1	
2.447	-25.2	H	3.0	31.2	1.0	-55.4	-13.0	-42.4	
3.263	-26.5	H	3.0	30.6	1.0	-56.1	-13.0	-43.1	
Mid Ch, (831.5MHz)									
1.663	-24.3	V	3.0	32.6	1.0	-55.9	-13.0	-42.9	
2.495	-23.3	V	3.0	31.5	1.0	-53.8	-13.0	-40.8	
3.327	-26.1	V	3.0	30.5	1.0	-55.7	-13.0	-42.7	
1.663	-24.6	H	3.0	32.6	1.0	-56.2	-13.0	-43.2	
2.495	-25.1	H	3.0	31.5	1.0	-55.6	-13.0	-42.6	
3.327	-27.5	H	3.0	30.5	1.0	-57.0	-13.0	-44.0	
High Ch, (847.5MHz)									
1.695	-25.2	V	3.0	32.6	1.0	-56.7	-13.0	-43.7	
2.543	-20.0	V	3.0	31.4	1.0	-50.4	-13.0	-37.4	
3.391	-27.3	V	3.0	30.5	1.0	-56.7	-13.0	-43.7	
1.695	-23.6	H	3.0	32.6	1.0	-55.2	-13.0	-42.2	
2.543	-21.8	H	3.0	31.4	1.0	-52.3	-13.0	-39.3	
3.391	-28.1	H	3.0	30.5	1.0	-57.6	-13.0	-44.6	

Rev. 03.03.09

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG Electronics
Project #: 14U17501
Date: 05/03/14
Test Engineer: CHARLES VERGONIO
Configuration: EUT with AC CHARGER
Mode: LTE B26 3M QPSK HARM

Chamber	Pre-amplifer	Filter	Limit
5m Chamber A	T145 8449B	Filter 1	Part 22

Band	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, (815.5MHz)									
LTE26	1.631	-22.7	V	3.0	32.7	1.0	-54.4	-13.0	-41.4	
	2.447	-22.4	V	3.0	31.2	1.0	-52.7	-13.0	-39.7	
3MHz	3.263	-26.1	V	3.0	30.6	1.0	-55.6	-13.0	-42.6	
	1.631	-22.3	H	3.0	32.7	1.0	-54.0	-13.0	-41.0	
QPSK	2.447	-22.7	H	3.0	31.2	1.0	-52.9	-13.0	-39.9	
	3.263	-26.4	H	3.0	30.6	1.0	-55.9	-13.0	-42.9	
	Mid Ch, (831.5MHz)									
	1.663	-21.8	V	3.0	32.6	1.0	-53.4	-13.0	-40.4	
	2.495	-22.2	V	3.0	31.5	1.0	-52.7	-13.0	-39.7	
	3.327	-26.0	V	3.0	30.5	1.0	-55.5	-13.0	-42.5	
	1.663	-23.5	H	3.0	32.6	1.0	-55.2	-13.0	-42.2	
	2.495	-24.2	H	3.0	31.5	1.0	-54.7	-13.0	-41.7	
	3.327	-26.4	H	3.0	30.5	1.0	-55.9	-13.0	-42.9	
	High Ch, (847.5MHz)									
	1.695	-22.6	V	3.0	32.6	1.0	-54.2	-13.0	-41.2	
	2.543	-22.6	V	3.0	31.4	1.0	-53.0	-13.0	-40.0	
	3.391	-26.0	V	3.0	30.5	1.0	-55.5	-13.0	-42.5	
	1.695	-24.6	H	3.0	32.6	1.0	-56.1	-13.0	-43.1	
	2.543	-24.9	H	3.0	31.4	1.0	-55.3	-13.0	-42.3	
	3.391	-26.7	H	3.0	30.5	1.0	-56.1	-13.0	-43.1	

Rev. 03.03.09

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG Electronics
Project #: 14U17501
Date: 05/03/14
Test Engineer: CHARLES VERGONIO
Configuration: EUT with AC CHARGER
Mode: LTE B26 1.4M 16QAM HARM

Chamber	Pre-amplifer	Filter	Limit
5m Chamber A	T145 8449B	Filter 1	Part 22

Band	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, (814.7MHz)									
LTE26	1.629	-24.4	V	3.0	32.7	1.0	-56.1	-13.0	-43.1	
	2.444	-23.5	V	3.0	31.2	1.0	-53.7	-13.0	-40.7	
1.4MHz	3.259	-27.2	V	3.0	30.6	1.0	-56.8	-13.0	-43.8	
	1.629	-23.9	H	3.0	32.7	1.0	-55.6	-13.0	-42.6	
16QAM	2.444	-25.7	H	3.0	31.2	1.0	-55.9	-13.0	-42.9	
	3.259	-28.7	H	3.0	30.6	1.0	-58.3	-13.0	-45.3	
	Mid Ch, (831.5MHz)									
	1.663	-24.8	V	3.0	32.6	1.0	-56.4	-13.0	-43.4	
	2.495	-23.4	V	3.0	31.5	1.0	-53.9	-13.0	-40.9	
	3.327	-27.5	V	3.0	30.5	1.0	-57.0	-13.0	-44.0	
	1.663	-24.6	H	3.0	32.6	1.0	-56.2	-13.0	-43.2	
	2.495	-24.5	H	3.0	31.5	1.0	-55.0	-13.0	-42.0	
	3.327	-27.1	H	3.0	30.5	1.0	-56.6	-13.0	-43.6	
	High Ch, (848.3MHz)									
	1.697	-25.3	V	3.0	32.6	1.0	-56.8	-13.0	-43.8	
	2.545	-23.3	V	3.0	31.4	1.0	-53.8	-13.0	-40.8	
	3.393	-26.7	V	3.0	30.5	1.0	-56.1	-13.0	-43.1	
	1.697	-27.3	H	3.0	32.6	1.0	-58.8	-13.0	-45.8	
	2.545	-26.2	H	3.0	31.4	1.0	-56.6	-13.0	-43.6	
	3.393	-27.5	H	3.0	30.5	1.0	-57.0	-13.0	-44.0	

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG Electronics
Project #: 14U17501
Date: 05/03/14
Test Engineer: CHARLES VERGONIO
Configuration: EUT with AC CHARGER
Mode: LTE B26 1.4M QPSK HARM

Chamber	Pre-amplifer	Filter	Limit
5m Chamber A	T145 8449B	Filter 1	Part 22

Band	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, (814.7MHz)									
LTE26	1.629	-23.5	V	3.0	32.7	1.0	-55.2	-13.0	-42.2	
	2.444	-22.6	V	3.0	31.2	1.0	-52.8	-13.0	-39.8	
1.4MHz	3.259	-24.4	V	3.0	30.6	1.0	-54.0	-13.0	-41.0	
	1.629	-23.0	H	3.0	32.7	1.0	-54.7	-13.0	-41.7	
QPSK	2.444	-24.7	H	3.0	31.2	1.0	-54.9	-13.0	-41.9	
	3.259	-24.8	H	3.0	30.6	1.0	-54.4	-13.0	-41.4	
	Mid Ch, (831.5MHz)									
	1.663	-23.7	V	3.0	32.6	1.0	-55.3	-13.0	-42.3	
	2.495	-22.4	V	3.0	31.5	1.0	-52.8	-13.0	-39.8	
	3.327	-27.0	V	3.0	30.5	1.0	-56.5	-13.0	-43.5	
	1.663	-23.7	H	3.0	32.6	1.0	-55.3	-13.0	-42.3	
	2.495	-23.5	H	3.0	31.5	1.0	-54.0	-13.0	-41.0	
	3.327	-28.1	H	3.0	30.5	1.0	-57.7	-13.0	-44.7	
	High Ch, (848.3MHz)									
	1.697	-24.3	V	3.0	32.6	1.0	-55.9	-13.0	-42.9	
	2.545	-22.5	V	3.0	31.4	1.0	-52.9	-13.0	-39.9	
	3.393	-24.5	V	3.0	30.5	1.0	-53.9	-13.0	-40.9	
	1.697	-26.3	H	3.0	32.6	1.0	-57.9	-13.0	-44.9	
	2.545	-25.0	H	3.0	31.4	1.0	-55.4	-13.0	-42.4	
	3.393	-24.7	H	3.0	30.5	1.0	-54.2	-13.0	-41.2	

Rev. 03.03.09

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 14U17501
Date: 05/03/14
Test Engineer: D. Soper, O. Stoelting
Configuration: EUT , AC Adapter & HS
Mode: TX, LTE band 25, 10MHz, 16QAM

Chamber	Pre-amplifer	Filter	Limit
5m Chamber A	T145 8449B	Filter 1	Part 24

Band: LTE25 10MHz 16QAM

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (1855 MHz)									
3.710	-21.7	V	3.0	30.2	1.0	-50.9	-13.0	-37.9	
5.565	-22.4	V	3.0	28.4	1.0	-49.7	-13.0	-36.7	
7.420	-24.8	V	3.0	26.5	1.0	-50.3	-13.0	-37.3	
3.710	-19.0	H	3.0	30.2	1.0	-48.2	-13.0	-35.2	
5.565	-19.8	H	3.0	28.4	1.0	-47.2	-13.0	-34.2	
7.420	-23.2	H	3.0	26.5	1.0	-48.7	-13.0	-35.7	
Mid Ch, (1882.5 MHz)									
3.765	-19.1	V	3.0	30.1	1.0	-48.2	-13.0	-35.2	
5.648	-28.4	V	3.0	28.3	1.0	-55.6	-13.0	-42.6	
7.530	-23.0	V	3.0	26.3	1.0	-48.3	-13.0	-35.3	
3.765	-15.7	H	3.0	30.1	1.0	-44.9	-13.0	-31.9	
5.648	-22.0	H	3.0	28.3	1.0	-49.2	-13.0	-36.2	
7.530	-27.3	H	3.0	26.3	1.0	-52.6	-13.0	-39.6	
High Ch, (1910 MHz)									
3.820	-18.2	V	3.0	30.1	1.0	-47.3	-13.0	-34.3	
5.730	-22.2	V	3.0	28.2	1.0	-49.4	-13.0	-36.4	
7.640	-30.1	V	3.0	26.2	1.0	-55.3	-13.0	-42.3	
3.820	-13.9	H	3.0	30.1	1.0	-43.0	-13.0	-30.0	
5.730	-17.8	H	3.0	28.2	1.0	-45.0	-13.0	-32.0	
7.640	-25.6	H	3.0	26.2	1.0	-50.8	-13.0	-37.8	

Rev. 03.03.09

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 14U17501
Date: 05/03/14
Test Engineer: D. Soper, O. Stoelting
Configuration: EUT , AC Adapter & HS
Mode: TX, LTE band 25, 10MHz, QPSK

Chamber	Pre-amplifer	Filter	Limit
5m Chamber A	T145 8449B	Filter 1	Part 24

Band
LTE25
10MHz
QPSK

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (1855 MHz)									
3.710	-21.9	V	3.0	30.2	1.0	-51.1	-13.0	-38.1	
5.565	-23.8	V	3.0	28.4	1.0	-51.2	-13.0	-38.2	
7.420	-26.7	V	3.0	26.5	1.0	-52.2	-13.0	-39.2	
3.710	-16.1	H	3.0	30.2	1.0	-45.3	-13.0	-32.3	
5.565	-22.8	H	3.0	28.4	1.0	-50.1	-13.0	-37.1	
7.420	-26.9	H	3.0	26.5	1.0	-52.3	-13.0	-39.3	
Mid Ch, (1882.5 MHz)									
3.765	-16.2	V	3.0	30.1	1.0	-45.3	-13.0	-32.3	
5.648	-26.9	V	3.0	28.3	1.0	-54.2	-13.0	-41.2	
7.530	-28.3	V	3.0	26.3	1.0	-53.6	-13.0	-40.6	
3.765	-13.9	H	3.0	30.1	1.0	-43.0	-13.0	-30.0	
5.648	-23.9	H	3.0	28.3	1.0	-51.2	-13.0	-38.2	
7.530	-26.1	H	3.0	26.3	1.0	-51.4	-13.0	-38.4	
High Ch, (1910 MHz)									
3.820	-18.5	V	3.0	30.1	1.0	-47.6	-13.0	-34.6	
5.730	-23.1	V	3.0	28.2	1.0	-50.3	-13.0	-37.3	
7.640	-31.0	V	3.0	26.2	1.0	-56.2	-13.0	-43.2	
3.820	-14.6	H	3.0	30.1	1.0	-43.7	-13.0	-30.7	
5.730	-19.5	H	3.0	28.2	1.0	-46.7	-13.0	-33.7	
7.640	-26.3	H	3.0	26.2	1.0	-51.5	-13.0	-38.5	

Rev. 03.03.09

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 14U17501
Date: 05/03/14
Test Engineer: R. Alegre
Configuration: EUT , AC Adapter
Mode: TX, LTE band 25, 5MHz, 16QAM

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T145 8449B	Filter 1	Part 24

Band: LTE25 5MHz 16QAM

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (1852.5 MHz)									
3.705	-16.5	V	3.0	30.2	1.0	-45.7	-13.0	-32.7	
5.558	-7.7	V	3.0	28.4	1.0	-35.1	-13.0	-22.1	
7.410	-14.4	V	3.0	26.5	1.0	-39.9	-13.0	-26.9	
3.705	-3.8	H	3.0	30.2	1.0	-33.0	-13.0	-20.0	
5.558	-13.4	H	3.0	28.4	1.0	-40.8	-13.0	-27.8	
7.410	-11.5	H	3.0	26.5	1.0	-37.0	-13.0	-24.0	
Mid Ch, (1882.5 MHz)									
3.765	-17.4	V	3.0	30.1	1.0	-46.6	-13.0	-33.6	
5.648	-8.0	V	3.0	28.3	1.0	-35.3	-13.0	-22.3	
7.530	-12.7	V	3.0	26.3	1.0	-38.0	-13.0	-25.0	
3.765	-2.0	H	3.0	30.1	1.0	-31.1	-13.0	-18.1	
5.648	-13.8	H	3.0	28.3	1.0	-41.1	-13.0	-28.1	
7.530	-10.2	H	3.0	26.3	1.0	-35.5	-13.0	-22.5	
High Ch, (1912.5 MHz)									
3.825	-9.5	V	3.0	30.1	1.0	-38.6	-13.0	-25.6	
5.738	-11.6	V	3.0	28.2	1.0	-38.8	-13.0	-25.8	
7.650	-12.3	V	3.0	26.2	1.0	-37.4	-13.0	-24.4	
3.825	-4.2	H	3.0	30.1	1.0	-33.3	-13.0	-20.3	
5.738	-13.2	H	3.0	28.2	1.0	-40.4	-13.0	-27.4	
7.650	-11.0	H	3.0	26.2	1.0	-36.1	-13.0	-23.1	

Rev. 03.03.09

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 14U17501
Date: 05/03/14
Test Engineer: R. Alegre
Configuration: EUT , AC Adapter
Mode: TX, LTE band 25, 5MHz, QPSK

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T145 8449B	Filter 1	Part 24

Band: LTE25 5MHz QPSK

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (1852.5 MHz)									
3.705	-16.3	V	3.0	30.2	1.0	-45.5	-13.0	-32.5	
5.558	-8.3	V	3.0	28.4	1.0	-35.6	-13.0	-22.6	
7.410	-14.0	V	3.0	26.5	1.0	-39.5	-13.0	-26.5	
3.705	-3.8	H	3.0	30.2	1.0	-33.0	-13.0	-20.0	
5.558	-12.7	H	3.0	28.4	1.0	-40.0	-13.0	-27.0	
7.410	-11.1	H	3.0	26.5	1.0	-36.6	-13.0	-23.6	
Mid Ch, (1882.5 MHz)									
3.765	-17.3	V	3.0	30.1	1.0	-46.5	-13.0	-33.5	
5.648	-7.9	V	3.0	28.3	1.0	-35.2	-13.0	-22.2	
7.530	-13.2	V	3.0	26.3	1.0	-38.5	-13.0	-25.5	
3.765	-1.9	H	3.0	30.1	1.0	-31.1	-13.0	-18.1	
5.648	-14.4	H	3.0	28.3	1.0	-41.6	-13.0	-28.6	
7.530	-10.3	H	3.0	26.3	1.0	-35.6	-13.0	-22.6	
High Ch, (1912.5 MHz)									
3.825	-9.5	V	3.0	30.1	1.0	-38.6	-13.0	-25.6	
5.738	-10.8	V	3.0	28.2	1.0	-38.0	-13.0	-25.0	
7.650	-12.1	V	3.0	26.2	1.0	-37.3	-13.0	-24.3	
3.825	-4.0	H	3.0	30.1	1.0	-33.1	-13.0	-20.1	
5.738	-12.9	H	3.0	28.2	1.0	-40.1	-13.0	-27.1	
7.650	-10.5	H	3.0	26.2	1.0	-35.7	-13.0	-22.7	

Rev. 03.03.09

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 14U17501
Date: 05/03/14
Test Engineer: R. Alegre
Configuration: EUT , AC Adapter
Mode: TX, LTE band 25, 3MHz, 16QAM

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T145 8449B	Filter 1	Part 24

Band: LTE25, 3MHz, 16QAM

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (1851.5 MHz)									
3.703	-19.0	V	3.0	30.2	1.0	-48.2	-13.0	-35.2	
5.555	-13.1	V	3.0	28.4	1.0	-40.4	-13.0	-27.4	
7.406	-14.0	V	3.0	26.5	1.0	-39.5	-13.0	-26.5	
3.703	-10.0	H	3.0	30.2	1.0	-39.2	-13.0	-26.2	
5.555	-13.1	H	3.0	28.4	1.0	-40.5	-13.0	-27.5	
7.406	-12.1	H	3.0	26.5	1.0	-37.5	-13.0	-24.5	
Mid Ch, (1882.5 MHz)									
3.765	-16.4	V	3.0	30.1	1.0	-45.6	-13.0	-32.6	
5.647	-16.4	V	3.0	28.3	1.0	-43.6	-13.0	-30.6	
7.530	-15.1	V	3.0	26.3	1.0	-40.4	-13.0	-27.4	
3.765	-7.1	H	3.0	30.1	1.0	-36.3	-13.0	-23.3	
5.647	-15.2	H	3.0	28.3	1.0	-42.5	-13.0	-29.5	
7.530	-12.5	H	3.0	26.3	1.0	-37.8	-13.0	-24.8	
High Ch, (1913.5 MHz)									
3.828	-17.0	V	3.0	30.1	1.0	-46.1	-13.0	-33.1	
5.741	-14.8	V	3.0	28.2	1.0	-41.9	-13.0	-28.9	
7.654	-14.0	V	3.0	26.1	1.0	-39.1	-13.0	-26.1	
3.828	-9.5	H	3.0	30.1	1.0	-38.6	-13.0	-25.6	
5.743	-15.1	H	3.0	28.2	1.0	-42.3	-13.0	-29.3	
7.654	-13.1	H	3.0	26.1	1.0	-38.3	-13.0	-25.3	

Rev. 03.03.09

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 14U17501
Date: 05/03/14
Test Engineer: R. Alegre
Configuration: EUT , AC Adapter
Mode: TX, LTE band 25, 3MHz, QPSK

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T145 8449B	Filter 1	Part 24

Band: LTE25, 3MHz, QPSK

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (1851.5 MHz)									
3.703	-18.5	V	3.0	30.2	1.0	-47.7	-13.0	-34.7	
5.555	-13.3	V	3.0	28.4	1.0	-40.6	-13.0	-27.6	
7.406	-13.7	V	3.0	26.5	1.0	-39.1	-13.0	-26.1	
3.703	-9.6	H	3.0	30.2	1.0	-38.8	-13.0	-25.8	
5.555	-12.9	H	3.0	28.4	1.0	-40.2	-13.0	-27.2	
7.406	-12.7	H	3.0	26.5	1.0	-38.2	-13.0	-25.2	
Mid Ch, (1882.5 MHz)									
3.765	-16.2	V	3.0	30.1	1.0	-45.4	-13.0	-32.4	
5.648	-16.3	V	3.0	28.3	1.0	-43.5	-13.0	-30.5	
7.530	-14.7	V	3.0	26.3	1.0	-40.0	-13.0	-27.0	
3.765	-7.6	H	3.0	30.1	1.0	-36.7	-13.0	-23.7	
5.648	-15.5	H	3.0	28.3	1.0	-42.8	-13.0	-29.8	
7.530	-12.6	H	3.0	26.3	1.0	-37.9	-13.0	-24.9	
High Ch, (1913.5 MHz)									
3.828	-16.9	V	3.0	30.1	1.0	-46.0	-13.0	-33.0	
5.741	-16.2	V	3.0	28.2	1.0	-43.4	-13.0	-30.4	
7.654	-13.7	V	3.0	26.1	1.0	-38.9	-13.0	-25.9	
3.828	-9.5	H	3.0	30.1	1.0	-38.6	-13.0	-25.6	
5.743	-14.9	H	3.0	28.2	1.0	-42.1	-13.0	-29.1	
7.654	-12.8	H	3.0	26.1	1.0	-37.9	-13.0	-24.9	

Rev. 03.03.09

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

BC1

EVDO
REL. 0

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 14U17501
Date: 5\3\14
Test Engineer: D. Soper, O. Stoelting
Configuration: EUT with AC adapter & HS
Mode: EVDO BC01 HARM

Chamber	Pre-amplifer	Filter	Limit
5m Chamber A	T343 8449B	Filter 1	Part 24

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1851.25MHz									
3.703	-5.6	V	3.0	35.4	1.0	-40.0	-13.0	-27.0	
5.554	-20.9	V	3.0	34.7	1.0	-54.6	-13.0	-41.6	
7.405	-18.2	V	3.0	34.9	1.0	-52.1	-13.0	-39.1	
3.703	-5.4	H	3.0	35.4	1.0	-39.8	-13.0	-26.8	
5.554	-15.0	H	3.0	34.7	1.0	-48.8	-13.0	-35.8	
7.405	-12.4	H	3.0	34.9	1.0	-46.4	-13.0	-33.4	
Mid Ch, 1880.0MHz									
3.760	-8.3	V	3.0	35.3	1.0	-42.6	-13.0	-29.6	
5.640	-16.3	V	3.0	34.7	1.0	-50.0	-13.0	-37.0	
7.520	-16.9	V	3.0	34.9	1.0	-50.9	-13.0	-37.9	
3.760	-3.9	H	3.0	35.3	1.0	-38.2	-13.0	-25.2	
5.640	-15.6	H	3.0	34.7	1.0	-49.4	-13.0	-36.4	
7.520	-11.4	H	3.0	34.9	1.0	-45.3	-13.0	-32.3	
High Ch, 1908.75 MHz									
3.818	-7.3	V	3.0	35.3	1.0	-41.5	-13.0	-28.5	
5.726	-19.2	V	3.0	34.7	1.0	-52.9	-13.0	-39.9	
7.635	-18.6	V	3.0	34.9	1.0	-52.6	-13.0	-39.6	
3.818	-5.8	H	3.0	35.3	1.0	-40.0	-13.0	-27.0	
5.726	-11.7	H	3.0	34.7	1.0	-45.4	-13.0	-32.4	
7.635	-17.6	H	3.0	34.9	1.0	-51.5	-13.0	-38.5	

Rev. 03.03.09

Note: No other emissions were detected above the system noise floor.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 14U17501
Date: 05/02/14
Test Engineer: O. Stoelting, D. Soper
Configuration: EUT with AC charger & HS
Mode: RTT BC1

Chamber	Pre-amplifer	Filter	Limit
5m Chamber A	T34 8449B	Filter 1	Part 24

Band	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	Low Ch, 1851.25 MHz									
	3.703	-3.1	V	3.0	35.4	1.0	-37.5	-13.0	-24.5	
BC1	5.554	-11.9	V	3.0	34.7	1.0	-45.6	-13.0	-32.6	
	7.405	-10.9	V	3.0	34.9	1.0	-44.8	-13.0	-31.8	
	3.703	-1.1	H	3.0	35.4	1.0	-35.5	-13.0	-22.5	
1xRTT	5.554	-10.2	H	3.0	34.7	1.0	-43.9	-13.0	-30.9	
	7.405	-9.5	H	3.0	34.9	1.0	-43.4	-13.0	-30.4	
	Mid Ch, 1880 MHz									
	3.760	-0.4	V	3.0	35.3	1.0	-34.7	-13.0	-21.7	
	5.640	-15.0	V	3.0	34.7	1.0	-48.7	-13.0	-35.7	
	7.520	-8.3	V	3.0	34.9	1.0	-42.3	-13.0	-29.3	
	3.760	4.5	H	3.0	35.3	1.0	-29.8	-13.0	-16.8	
	5.640	-9.7	H	3.0	34.7	1.0	-43.4	-13.0	-30.4	
	7.520	-6.9	H	3.0	34.9	1.0	-40.8	-13.0	-27.8	
	High Ch, 1908.75 MHz									
	3.818	-3.1	V	3.0	35.3	1.0	-37.4	-13.0	-24.4	
	5.726	-9.9	V	3.0	34.7	1.0	-43.6	-13.0	-30.6	
	7.635	-10.6	V	3.0	34.9	1.0	-44.5	-13.0	-31.5	
	3.818	-1.0	H	3.0	35.3	1.0	-35.3	-13.0	-22.3	
	5.726	-13.3	H	3.0	34.7	1.0	-47.1	-13.0	-34.1	
	7.635	-11.7	H	3.0	34.9	1.0	-45.7	-13.0	-32.7	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

BC0

EVDO REL. 0

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 14U17501
Date: 5\3\14
Test Engineer: D. Soper, O. Stoelting
Configuration: EUT with AC adapter & HS
Mode: EVDOR0 BC0 HARM

Chamber	Pre-amplifer	Filter	Limit
5m Chamber A	T343 8449B	Filter 1	Part 24

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 824.7MHz									
1.650	-22.1	V	3.0	37.4	1.0	-58.5	-13.0	-45.5	
2.474	-25.2	V	3.0	36.4	1.0	-60.6	-13.0	-47.6	
3.298	-25.9	V	3.0	35.8	1.0	-60.7	-13.0	-47.7	
1.650	-21.9	H	3.0	37.4	1.0	-58.3	-13.0	-45.3	
2.474	-23.4	H	3.0	36.4	1.0	-58.8	-13.0	-45.8	
3.298	-20.4	H	3.0	35.8	1.0	-55.2	-13.0	-42.2	
Mid Ch, 836.52MHz									
1.673	-12.1	V	3.0	37.3	1.0	-48.5	-13.0	-35.5	
2.509	-11.9	V	3.0	36.4	1.0	-47.3	-13.0	-34.3	
3.346	-21.3	V	3.0	35.8	1.0	-56.0	-13.0	-43.0	
1.673	-18.8	H	3.0	37.3	1.0	-55.2	-13.0	-42.2	
2.509	-21.0	H	3.0	36.4	1.0	-56.4	-13.0	-43.4	
3.346	-23.6	H	3.0	35.8	1.0	-58.3	-13.0	-45.3	
High Ch, 848.31 MHz									
1.696	-21.2	V	3.0	37.3	1.0	-57.5	-13.0	-44.5	
2.544	-12.7	V	3.0	36.3	1.0	-48.0	-13.0	-35.0	
3.393	-19.2	V	3.0	35.7	1.0	-53.9	-13.0	-40.9	
1.696	-23.0	H	3.0	37.3	1.0	-59.3	-13.0	-46.3	
2.544	-10.1	H	3.0	36.3	1.0	-45.5	-13.0	-32.5	
3.393	-19.4	H	3.0	35.7	1.0	-54.1	-13.0	-41.1	

Rev. 03.03.09

Note: No other emissions were detected above the system noise floor.

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 14U17501
Date: 05/02/14
Test Engineer: O. Stoelting, D. Soper
Configuration: EUT with AC charger & HS
Mode: RTT BC0

Chamber	Pre-amplifer	Filter	Limit
5m Chamber A	T34 8449B	Filter 1	Part 24

Band

BC0

1xRTT

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 824.2MHz									
1.648	-14.4	V	3.0	37.4	1.0	-50.8	-13.0	-37.8	
2.473	-6.9	V	3.0	36.4	1.0	-42.3	-13.0	-29.3	
3.297	-4.5	V	3.0	35.8	1.0	-39.3	-13.0	-26.3	
1.648	-14.0	H	3.0	37.4	1.0	-50.3	-13.0	-37.3	
2.473	-8.6	H	3.0	36.4	1.0	-44.0	-13.0	-31.0	
3.297	-4.8	H	3.0	35.8	1.0	-39.6	-13.0	-26.6	
Mid Ch, 836.52MHz									
1.673	-13.8	V	3.0	37.3	1.0	-50.2	-13.0	-37.2	
2.510	-7.5	V	3.0	36.4	1.0	-42.8	-13.0	-29.8	
3.346	-5.0	V	3.0	35.8	1.0	-39.7	-13.0	-26.7	
1.673	-22.3	H	3.0	37.3	1.0	-58.6	-13.0	-45.6	
2.510	-18.3	H	3.0	36.4	1.0	-53.7	-13.0	-40.7	
3.346	-14.7	H	3.0	35.8	1.0	-49.5	-13.0	-36.5	
High Ch, 848.31MHz									
1.697	-13.3	V	3.0	37.3	1.0	-49.6	-13.0	-36.6	
2.545	-7.1	V	3.0	36.3	1.0	-42.5	-13.0	-29.5	
3.393	-5.1	V	3.0	35.7	1.0	-39.8	-13.0	-26.8	
1.697	-14.0	H	3.0	37.3	1.0	-50.3	-13.0	-37.3	
2.545	-8.9	H	3.0	36.3	1.0	-44.2	-13.0	-31.2	
3.393	-5.0	H	3.0	35.7	1.0	-39.8	-13.0	-26.8	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 14U17501
Date: 5\3\14
Test Engineer: D. Soper, O. Stoelting
Configuration: EUT with AC adapter & HS
Mode: EVDOR0 BC10 HARM

Chamber	Pre-amplifer	Filter	Limit
5m Chamber A	T343 8449B	Filter 1	Part 24

Band

BC10

EVDO
REL. 0

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 817.9MHz									
1.635	-18.7	V	3.0	37.4	1.0	-55.1	-13.0	-42.1	
2.453	-24.1	V	3.0	36.4	1.0	-59.5	-13.0	-46.5	
3.271	-23.0	V	3.0	35.8	1.0	-57.8	-13.0	-44.8	
1.635	-17.9	H	3.0	37.4	1.0	-54.3	-13.0	-41.3	
2.453	-27.2	H	3.0	36.4	1.0	-62.6	-13.0	-49.6	
3.271	-23.0	H	3.0	35.8	1.0	-57.8	-13.0	-44.8	
Mid Ch, 820.5MHz									
1.641	-13.7	V	3.0	37.4	1.0	-50.1	-13.0	-37.1	
2.461	-22.8	V	3.0	36.4	1.0	-58.2	-13.0	-45.2	
3.280	-23.0	V	3.0	35.8	1.0	-57.8	-13.0	-44.8	
1.641	-20.0	H	3.0	37.4	1.0	-56.4	-13.0	-43.4	
2.461	-26.9	H	3.0	36.4	1.0	-62.3	-13.0	-49.3	
3.280	-23.1	H	3.0	35.8	1.0	-57.9	-13.0	-44.9	
High Ch, 823.1 MHz									
1.646	-20.9	V	3.0	37.4	1.0	-57.3	-13.0	-44.3	
2.469	-24.1	V	3.0	36.4	1.0	-59.5	-13.0	-46.5	
3.292	-22.8	V	3.0	35.8	1.0	-57.6	-13.0	-44.6	
1.646	-19.4	H	3.0	37.4	1.0	-55.8	-13.0	-42.8	
2.469	-26.9	H	3.0	36.4	1.0	-62.3	-13.0	-49.3	
3.292	-22.8	H	3.0	35.8	1.0	-57.6	-13.0	-44.6	

Rev. 03.03.09

Note: No other emissions were detected above the system noise floor.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 14U17501
Date: 5\3\14
Test Engineer: D. Soper, O. Stoelting
Configuration: EUT with AC adapter & HS
Mode: RTT BC10 HARM

Chamber	Pre-amplifer	Filter	Limit
5m Chamber A	T343 8449B	Filter 1	Part 24

Band

BC10

1xRTT

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 817.9MHz									
1.635	-6.7	V	3.0	37.4	1.0	-43.1	-13.0	-30.1	
2.453	-22.7	V	3.0	36.4	1.0	-58.1	-13.0	-45.1	
3.271	-21.0	V	3.0	35.8	1.0	-55.8	-13.0	-42.8	
1.635	-5.0	H	3.0	37.4	1.0	-41.4	-13.0	-28.4	
2.453	-25.5	H	3.0	36.4	1.0	-61.0	-13.0	-48.0	
3.271	-21.3	H	3.0	35.8	1.0	-56.1	-13.0	-43.1	
Mid Ch, 820.5MHz									
1.641	-18.2	V	3.0	37.4	1.0	-54.6	-13.0	-41.6	
2.461	-23.9	V	3.0	36.4	1.0	-59.4	-13.0	-46.4	
3.280	-21.2	V	3.0	35.8	1.0	-56.0	-13.0	-43.0	
1.641	-10.9	H	3.0	37.4	1.0	-47.3	-13.0	-34.3	
2.461	-23.8	H	3.0	36.4	1.0	-59.2	-13.0	-46.2	
3.280	-21.3	H	3.0	35.8	1.0	-56.1	-13.0	-43.1	
High Ch, 823.1 MHz									
1.646	-3.4	V	3.0	37.4	1.0	-39.8	-13.0	-26.8	
2.469	-18.8	V	3.0	36.4	1.0	-54.2	-13.0	-41.2	
3.292	-21.1	V	3.0	35.8	1.0	-55.9	-13.0	-42.9	
1.646	-5.4	H	3.0	37.4	1.0	-41.8	-13.0	-28.8	
2.469	-20.6	H	3.0	36.4	1.0	-56.0	-13.0	-43.0	
3.292	-21.4	H	3.0	35.8	1.0	-56.2	-13.0	-43.2	

Rev. 03.03.09

Note: No other emissions were detected above the system noise floor.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

Band 2

HSDPA

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 14U17501
Date: 04/30/14
Test Engineer: R. Alegre
Configuration: EUT with AC charger
Mode: Tx, 1900MHz HSDPA

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T34 8449B	Filter 1	Part 24

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1852.4MHz									
3.705	-22.0	V	3.0	35.4	1.0	-56.4	-13.0	-43.4	
5.557	-19.1	V	3.0	34.7	1.0	-52.9	-13.0	-39.9	
7.409	-15.7	V	3.0	34.9	1.0	-49.6	-13.0	-36.6	
3.705	-22.6	H	3.0	35.4	1.0	-57.0	-13.0	-44.0	
5.557	-15.6	H	3.0	34.7	1.0	-49.3	-13.0	-36.3	
7.409	-13.8	H	3.0	34.9	1.0	-47.7	-13.0	-34.7	
Mid Ch, 1880MHz									
3.760	-21.2	V	3.0	35.3	1.0	-55.6	-13.0	-42.6	
5.640	-19.5	V	3.0	34.7	1.0	-53.3	-13.0	-40.3	
7.520	-15.4	V	3.0	34.9	1.0	-49.3	-13.0	-36.3	
3.760	-18.3	H	3.0	35.3	1.0	-52.6	-13.0	-39.6	
5.640	-17.8	H	3.0	34.7	1.0	-51.5	-13.0	-38.5	
7.520	-15.1	H	3.0	34.9	1.0	-49.0	-13.0	-36.0	
High Ch, 1907.6MHz									
3.815	-21.5	V	3.0	35.3	1.0	-55.8	-13.0	-42.8	
5.723	-18.8	V	3.0	34.7	1.0	-52.5	-13.0	-39.5	
7.630	-15.4	V	3.0	34.9	1.0	-49.3	-13.0	-36.3	
3.815	-21.4	H	3.0	35.3	1.0	-55.7	-13.0	-42.7	
5.723	-17.5	H	3.0	34.7	1.0	-51.2	-13.0	-38.2	
7.630	-15.4	H	3.0	34.9	1.0	-49.3	-13.0	-36.3	

Rev. 03.03.09

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 14U17501
Date: 04/30/14
Test Engineer: R. Alegre
Configuration: EUT with AC charger
Mode: Tx, 1900MHz Rel 99

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T34 8449B	Filter 1	Part 24

Band

Band 2

REL99

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1852.4MHz									
3.705	-21.7	V	3.0	35.4	1.0	-56.1	-13.0	-43.1	
5.557	-18.6	V	3.0	34.7	1.0	-52.4	-13.0	-39.4	
7.409	-16.4	V	3.0	34.9	1.0	-50.3	-13.0	-37.3	
3.705	-21.7	H	3.0	35.4	1.0	-56.1	-13.0	-43.1	
5.557	-16.1	H	3.0	34.7	1.0	-49.8	-13.0	-36.8	
7.409	-14.3	H	3.0	34.9	1.0	-48.2	-13.0	-35.2	
Mid Ch, 1880MHz									
3.760	-20.3	V	3.0	35.3	1.0	-54.6	-13.0	-41.6	
5.640	-18.4	V	3.0	34.7	1.0	-52.2	-13.0	-39.2	
7.520	-15.9	V	3.0	34.9	1.0	-49.8	-13.0	-36.8	
3.760	-17.2	H	3.0	35.3	1.0	-51.5	-13.0	-38.5	
5.640	-18.3	H	3.0	34.7	1.0	-52.0	-13.0	-39.0	
7.520	-14.3	H	3.0	34.9	1.0	-48.3	-13.0	-35.3	
High Ch, 1907.6MHz									
3.815	-22.4	V	3.0	35.3	1.0	-56.7	-13.0	-43.7	
5.723	-18.9	V	3.0	34.7	1.0	-52.7	-13.0	-39.7	
7.630	-15.3	V	3.0	34.9	1.0	-49.2	-13.0	-36.2	
3.815	-20.6	H	3.0	35.3	1.0	-54.9	-13.0	-41.9	
5.723	-18.2	H	3.0	34.7	1.0	-51.9	-13.0	-38.9	
7.630	-15.1	H	3.0	34.9	1.0	-49.0	-13.0	-36.0	

Rev. 03.03.09

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

Band 5

HSDPA

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 14U17501
Date: 04/30/14
Test Engineer: R. Alegre
Configuration: EUT with AC charger
Mode: WCDMA_HSDPA_ 850

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T34 8449B	Filter 1	Part 24

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 826.40MHz									
1.652	-27.5	V	3.0	37.4	1.0	-63.9	-13.0	-50.9	
2.479	-24.6	V	3.0	36.4	1.0	-60.0	-13.0	-47.0	
3.306	-23.5	V	3.0	35.8	1.0	-58.3	-13.0	-45.3	
1.652	-26.6	H	3.0	37.4	1.0	-62.9	-13.0	-49.9	
2.479	-24.9	H	3.0	36.4	1.0	-60.3	-13.0	-47.3	
3.306	-23.2	H	3.0	35.8	1.0	-57.9	-13.0	-44.9	
Mid Ch, 836.6MHz									
1.673	-28.0	V	3.0	37.3	1.0	-64.4	-13.0	-51.4	
2.510	-24.1	V	3.0	36.4	1.0	-59.4	-13.0	-46.4	
3.346	-23.4	V	3.0	35.8	1.0	-58.1	-13.0	-45.1	
1.673	-28.7	H	3.0	37.3	1.0	-65.0	-13.0	-52.0	
2.510	-26.5	H	3.0	36.4	1.0	-61.8	-13.0	-48.8	
3.346	-23.2	H	3.0	35.8	1.0	-57.9	-13.0	-44.9	
High Ch, 846.6MHz									
1.693	-27.5	V	3.0	37.3	1.0	-63.8	-13.0	-50.8	
2.539	-24.3	V	3.0	36.3	1.0	-59.6	-13.0	-46.6	
3.386	-23.1	V	3.0	35.7	1.0	-57.8	-13.0	-44.8	
1.693	-27.2	H	3.0	37.3	1.0	-63.5	-13.0	-50.5	
2.539	-25.3	H	3.0	36.3	1.0	-60.6	-13.0	-47.6	
3.386	-23.7	H	3.0	35.7	1.0	-58.4	-13.0	-45.4	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 14U17501
Date: 04/30/14
Test Engineer: R. Alegre
Configuration: EUT with AC charger
Mode: WCDMA_Rel 99_ 850

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T34 8449B	Filter 1	Part 24

Band

Band 5

REL99

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 826.40MHz									
1.652	-27.8	V	3.0	37.4	1.0	-64.1	-13.0	-51.1	
2.479	-24.2	V	3.0	36.4	1.0	-59.6	-13.0	-46.6	
3.306	-22.5	V	3.0	35.8	1.0	-57.3	-13.0	-44.3	
1.652	-27.2	H	3.0	37.4	1.0	-63.6	-13.0	-50.6	
2.479	-25.0	H	3.0	36.4	1.0	-60.4	-13.0	-47.4	
3.306	-22.6	H	3.0	35.8	1.0	-57.3	-13.0	-44.3	
Mid Ch, 836.6MHz									
1.673	-28.2	V	3.0	37.3	1.0	-64.6	-13.0	-51.6	
2.510	-23.9	V	3.0	36.4	1.0	-59.2	-13.0	-46.2	
3.346	-22.8	V	3.0	35.8	1.0	-57.5	-13.0	-44.5	
1.673	-27.3	H	3.0	37.3	1.0	-63.6	-13.0	-50.6	
2.510	-26.3	H	3.0	36.4	1.0	-61.6	-13.0	-48.6	
3.346	-23.1	H	3.0	35.8	1.0	-57.9	-13.0	-44.9	
High Ch, 846.6MHz									
1.693	-27.9	V	3.0	37.3	1.0	-64.2	-13.0	-51.2	
2.539	-24.1	V	3.0	36.3	1.0	-59.4	-13.0	-46.4	
3.386	-22.9	V	3.0	35.7	1.0	-57.6	-13.0	-44.6	
1.693	-26.4	H	3.0	37.3	1.0	-62.7	-13.0	-49.7	
2.539	-25.2	H	3.0	36.3	1.0	-60.5	-13.0	-47.5	
3.386	-23.0	H	3.0	35.7	1.0	-57.7	-13.0	-44.7	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

GSM1900

EGPRS

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 14U17501
Date: 04/30/14
Test Engineer: R. Alegre
Configuration: EUT with AC charger
Mode: EGPRS 1900

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T343 8449B	Filter 1	Part 24

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1850MHz									
3.700	-22.6	V	3.0	35.4	1.0	-57.0	-13.0	-44.0	
5.550	-19.5	V	3.0	34.7	1.0	-53.2	-13.0	-40.2	
7.400	-15.3	V	3.0	34.9	1.0	-49.2	-13.0	-36.2	
3.700	-22.6	H	3.0	35.4	1.0	-57.0	-13.0	-44.0	
5.550	-18.0	H	3.0	34.7	1.0	-51.8	-13.0	-38.8	
7.400	-14.3	H	3.0	34.9	1.0	-48.2	-13.0	-35.2	
Mid Ch, 1880.0MHz									
3.760	-22.5	V	3.0	35.3	1.0	-56.8	-13.0	-43.8	
5.640	-18.8	V	3.0	34.7	1.0	-52.5	-13.0	-39.5	
7.520	-15.4	V	3.0	34.9	1.0	-49.3	-13.0	-36.3	
3.760	-21.9	H	3.0	35.3	1.0	-56.2	-13.0	-43.2	
5.640	-18.7	H	3.0	34.7	1.0	-52.4	-13.0	-39.4	
7.520	-15.7	H	3.0	34.9	1.0	-49.6	-13.0	-36.6	
High Ch, 1909.8 MHz									
3.820	-21.6	V	3.0	35.3	1.0	-55.8	-13.0	-42.8	
5.729	-19.2	V	3.0	34.7	1.0	-52.9	-13.0	-39.9	
7.639	-15.8	V	3.0	35.0	1.0	-49.7	-13.0	-36.7	
3.820	-22.2	H	3.0	35.3	1.0	-56.5	-13.0	-43.5	
5.729	-18.6	H	3.0	34.7	1.0	-52.3	-13.0	-39.3	
7.639	-13.4	H	3.0	35.0	1.0	-47.3	-13.0	-34.3	

Rev. 03.03.09

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 14U17501
Date: 04/30/14
Test Engineer: R. Alegre
Configuration: EUT with AC charger
Mode: GPRS 1900

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T343 8449B	Filter 1	Part 24

Band

GSM1900

GPRS

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1850MHz									
3.700	-22.3	V	3.0	35.4	1.0	-56.7	-13.0	-43.7	
5.550	-19.3	V	3.0	34.7	1.0	-53.0	-13.0	-40.0	
7.400	-15.5	V	3.0	34.9	1.0	-49.4	-13.0	-36.4	
3.700	-22.4	H	3.0	35.4	1.0	-56.8	-13.0	-43.8	
5.550	-18.0	H	3.0	34.7	1.0	-51.7	-13.0	-38.7	
7.400	-14.7	H	3.0	34.9	1.0	-48.6	-13.0	-35.6	
Mid Ch, 1880.0MHz									
3.760	-22.1	V	3.0	35.3	1.0	-56.5	-13.0	-43.5	
5.640	-18.9	V	3.0	34.7	1.0	-52.6	-13.0	-39.6	
7.520	-14.6	V	3.0	34.9	1.0	-48.5	-13.0	-35.5	
3.760	-21.7	H	3.0	35.3	1.0	-56.1	-13.0	-43.1	
5.640	-18.3	H	3.0	34.7	1.0	-52.0	-13.0	-39.0	
7.520	-14.5	H	3.0	34.9	1.0	-48.4	-13.0	-35.4	
High Ch, 1909.8 MHz									
3.820	-22.1	V	3.0	35.3	1.0	-56.3	-13.0	-43.3	
5.729	-19.4	V	3.0	34.7	1.0	-53.2	-13.0	-40.2	
7.639	-15.7	V	3.0	35.0	1.0	-49.6	-13.0	-36.6	
3.820	-21.9	H	3.0	35.3	1.0	-56.1	-13.0	-43.1	
5.729	-18.7	H	3.0	34.7	1.0	-52.5	-13.0	-39.5	
7.639	-14.1	H	3.0	35.0	1.0	-48.1	-13.0	-35.1	

Rev. 03.03.09

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

GSM850

EGPRS

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 14U17501
Date: 04/30/14
Test Engineer: R. Alegre
Configuration: EUT with AC charger
Mode: EGPRS 850

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T34 8449B	Filter 1	Part 24

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 824.2MHz									
1.648	-28.8	V	3.0	37.4	1.0	-65.2	-13.0	-52.2	
2.473	-24.1	V	3.0	36.4	1.0	-59.5	-13.0	-46.5	
3.297	-22.8	V	3.0	35.8	1.0	-57.6	-13.0	-44.6	
1.648	-24.5	H	3.0	37.4	1.0	-60.9	-13.0	-47.9	
2.473	-25.7	H	3.0	36.4	1.0	-61.0	-13.0	-48.0	
3.297	-23.2	H	3.0	35.8	1.0	-58.0	-13.0	-45.0	
Mid Ch, 836.6MHz									
1.673	-28.4	V	3.0	37.3	1.0	-64.7	-13.0	-51.7	
2.510	-23.7	V	3.0	36.4	1.0	-59.0	-13.0	-46.0	
3.346	-23.2	V	3.0	35.8	1.0	-58.0	-13.0	-45.0	
1.673	-27.9	H	3.0	37.3	1.0	-64.3	-13.0	-51.3	
2.510	-25.2	H	3.0	36.4	1.0	-60.6	-13.0	-47.6	
3.346	-24.1	H	3.0	35.8	1.0	-58.9	-13.0	-45.9	
High Ch, 848.8MHz									
1.698	-24.8	V	3.0	37.3	1.0	-61.1	-13.0	-48.1	
2.547	-19.8	V	3.0	36.3	1.0	-55.2	-13.0	-42.2	
3.395	-16.6	V	3.0	35.7	1.0	-51.3	-13.0	-38.3	
1.698	-19.5	H	3.0	37.3	1.0	-55.8	-13.0	-42.8	
2.547	-20.8	H	3.0	36.3	1.0	-56.2	-13.0	-43.2	
3.395	-16.4	H	3.0	35.7	1.0	-51.1	-13.0	-38.1	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

GSM850

GPRS

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 14U17501
Date: 04/30/14
Test Engineer: R. Alegre
Configuration: EUT with AC charger
Mode: GPRS 850

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T34 8449B	Filter 1	Part 24

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 824.2MHz									
1.648	-28.8	V	3.0	37.4	1.0	-65.2	-13.0	-52.2	
2.473	-23.3	V	3.0	36.4	1.0	-58.7	-13.0	-45.7	
3.297	-23.6	V	3.0	35.8	1.0	-58.4	-13.0	-45.4	
1.648	-25.1	H	3.0	37.4	1.0	-61.4	-13.0	-48.4	
2.473	-25.6	H	3.0	36.4	1.0	-61.0	-13.0	-48.0	
3.297	-23.1	H	3.0	35.8	1.0	-57.9	-13.0	-44.9	
Mid Ch, 836.6MHz									
1.673	-29.0	V	3.0	37.3	1.0	-65.3	-13.0	-52.3	
2.510	-23.0	V	3.0	36.4	1.0	-58.3	-13.0	-45.3	
3.346	-23.4	V	3.0	35.8	1.0	-58.2	-13.0	-45.2	
1.673	-27.8	H	3.0	37.3	1.0	-64.2	-13.0	-51.2	
2.510	-23.3	H	3.0	36.4	1.0	-58.6	-13.0	-45.6	
3.346	-23.7	H	3.0	35.8	1.0	-58.4	-13.0	-45.4	
High Ch, 848.8MHz									
1.698	-23.9	V	3.0	37.3	1.0	-60.2	-13.0	-47.2	
2.547	-19.4	V	3.0	36.3	1.0	-54.8	-13.0	-41.8	
3.395	-16.0	V	3.0	35.7	1.0	-50.7	-13.0	-37.7	
1.698	-19.1	H	3.0	37.3	1.0	-55.4	-13.0	-42.4	
2.547	-20.0	H	3.0	36.3	1.0	-55.4	-13.0	-42.4	
3.395	-16.5	H	3.0	35.7	1.0	-51.2	-13.0	-38.2	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

11.2.1. SPURIOUS RADIATION DATA (WPC CHARGER WITH COVER)

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 14U17501
Date: 05/03/14
Test Engineer: Charles Vergonio
Configuration: EUT with WPC
Mode: GPRS 850

Chamber	Pre-amplifer	Filter	Limit
5m Chamber A	T34 8449B	Filter 1	Part 24

Band	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
GSM850	Low Ch, 824.2MHz									
	Mid Ch, 836.6MHz									
	1.673	-29.0	V	3.0	37.3	1.0	-65.4	-13.0	-52.4	
	2.510	-26.0	V	3.0	36.4	1.0	-61.4	-13.0	-48.4	
	3.346	-23.8	V	3.0	35.8	1.0	-58.5	-13.0	-45.5	
	1.673	-28.8	H	3.0	37.3	1.0	-65.1	-13.0	-52.1	
	2.510	-26.7	H	3.0	36.4	1.0	-62.0	-13.0	-49.0	
	3.346	-23.5	H	3.0	35.8	1.0	-58.3	-13.0	-45.3	
	High Ch, 848.8MHz									

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

GSM1900

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 14U17501
Date: 05/03/14
Test Engineer: Charles Vergonio
Configuration: EUT with WPC
Mode: GPRS 1900

Chamber	Pre-amplifer	Filter	Limit
5m Chamber A	T343 8449B	Filter 1	Part 24

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1850MHz									
Mid Ch, 1880.0MHz									
3.760	-23.7	V	3.0	35.3	1.0	-58.0	-13.0	-45.0	
5.640	-19.5	V	3.0	34.7	1.0	-53.2	-13.0	-40.2	
7.520	-17.1	V	3.0	34.9	1.0	-51.1	-13.0	-38.1	
3.760	-21.7	H	3.0	35.3	1.0	-56.1	-13.0	-43.1	
5.640	-19.0	H	3.0	34.7	1.0	-52.8	-13.0	-39.8	
7.520	-16.0	H	3.0	34.9	1.0	-49.9	-13.0	-36.9	
High Ch, 1909.8 MHz									

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

GSM1900

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 14U17501
Date: 05/03/14
Test Engineer: Charles Vergonio
Configuration: EUT with WPC
Mode: GPRS 1900

Chamber	Pre-amplifer	Filter	Limit
5m Chamber A	T343 8449B	Filter 1	Part 24

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1850MHz									
Mid Ch, 1880.0MHz									
3.760	-23.7	V	3.0	35.3	1.0	-58.0	-13.0	-45.0	
5.640	-19.5	V	3.0	34.7	1.0	-53.2	-13.0	-40.2	
7.520	-17.1	V	3.0	34.9	1.0	-51.1	-13.0	-38.1	
3.760	-21.7	H	3.0	35.3	1.0	-56.1	-13.0	-43.1	
5.640	-19.0	H	3.0	34.7	1.0	-52.8	-13.0	-39.8	
7.520	-16.0	H	3.0	34.9	1.0	-49.9	-13.0	-36.9	
High Ch, 1909.8 MHz									

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band

CDMA BC10

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 14U17501
Test Engineer: Charles Vergonio
Configuration: EUT with WPC
Mode: RTT BC10 HARM

Chamber	Pre-amplifer	Filter	Limit
5m Chamber A	T343 8449B	Filter 1	Part 24

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 817.9MHz									
Mid Ch, 820.5MHz									
1.641	-19.0	V	3.0	37.4	1.0	-55.4	-13.0	-42.4	
2.461	-24.6	V	3.0	36.4	1.0	-60.0	-13.0	-47.0	
3.280	-22.3	V	3.0	35.8	1.0	-57.1	-13.0	-44.1	
1.641	-12.3	H	3.0	37.4	1.0	-48.7	-13.0	-35.7	
2.461	-24.2	H	3.0	36.4	1.0	-59.6	-13.0	-46.6	
3.280	-21.6	H	3.0	35.8	1.0	-56.5	-13.0	-43.5	
High Ch, 823.1 MHz									

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 14U17501
Date: 05/03/14
Test Engineer: Charles Vergonio
Configuration: EUT , with WPC
Mode: TX, LTE band 25, QPSK

Chamber	Pre-amplifer	Filter	Limit
5m Chamber A	T145 8449B	Filter 1	Part 24

Band

LTE 25

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (1852.5 MHz)									
Mid Ch, (1882.5 MHz)									
3.765	-25.7	V	3.0	30.1	1.0	-54.8	-13.0	-41.8	
5.648	-23.5	V	3.0	28.3	1.0	-50.8	-13.0	-37.8	
7.530	-17.6	V	3.0	26.3	1.0	-42.9	-13.0	-29.9	
3.765	-14.5	H	3.0	30.1	1.0	-43.7	-13.0	-30.7	
5.648	-28.5	H	3.0	28.3	1.0	-55.8	-13.0	-42.8	
7.530	-24.8	H	3.0	26.3	1.0	-50.1	-13.0	-37.1	
High Ch, (1912.5 MHz)									

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG Electronics
Project #: 14U17501
Date: 05/03/14
Test Engineer: CHARLES VERGONIO
Configuration: EUT with WPC
Mode: LTE B26 QPSK HARM

Chamber	Pre-amplifer	Filter	Limit
5m Chamber A	T145 8449B	Filter 1	Part 22

Band

LTE 26

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (815.5MHz)									
Mid Ch, (831.5MHz)									
1.663	-22.8	V	3.0	32.6	1.0	-54.4	-13.0	-41.4	
2.495	-23.1	V	3.0	31.5	1.0	-53.6	-13.0	-40.6	
3.327	-27.2	V	3.0	30.5	1.0	-56.8	-13.0	-43.8	
1.663	-25.2	H	3.0	32.6	1.0	-56.8	-13.0	-43.8	
2.495	-24.5	H	3.0	31.5	1.0	-55.0	-13.0	-42.0	
3.327	-26.9	H	3.0	30.5	1.0	-56.4	-13.0	-43.4	
High Ch, (847.5MHz)									

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG Electronics
Project #: 14U17501
Date: 05/03/14
Test Engineer: CHARLES VERGONIO
Configuration: EUT with WPC
Mode: LTE B41 HARM

Chamber	Pre-amplifer	Filter	Limit
5m Chamber A	T145 8449B	Filter 1	Part 24

Band

LTE 26

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (2506 MHz)									
Mid Ch, (2593 MHz)									
5.186	-35.3	V	3.0	28.7	1.0	-63.0	-25.0	-38.0	
7.779	-36.7	V	3.0	26.0	1.0	-61.7	-25.0	-36.7	
10.372	-35.3	V	3.0	23.0	1.0	-57.3	-25.0	-32.3	
5.186	-36.1	H	3.0	28.7	1.0	-63.9	-25.0	-38.9	
7.779	-35.2	H	3.0	26.0	1.0	-60.2	-25.0	-35.2	
10.372	-34.9	H	3.0	23.0	1.0	-56.9	-25.0	-31.9	
High Ch, (2680 MHz)									

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.