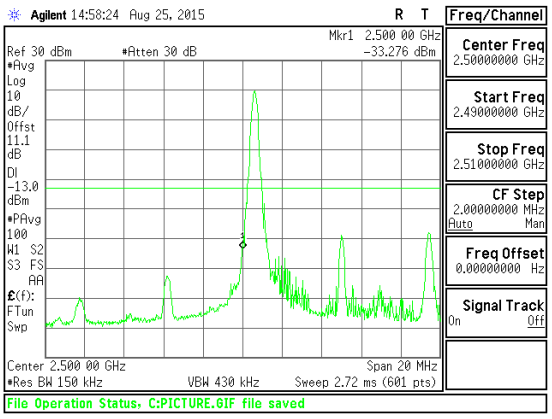
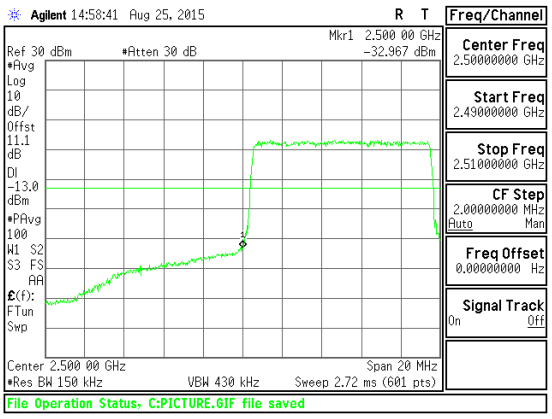
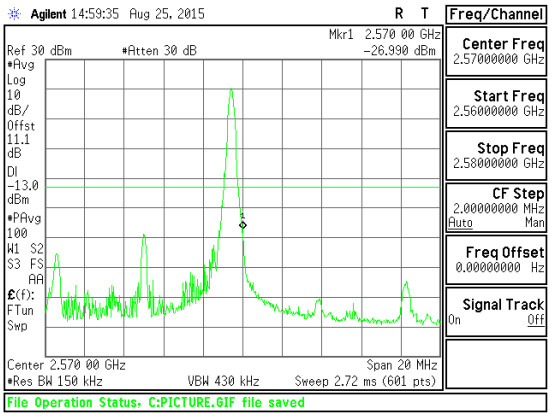
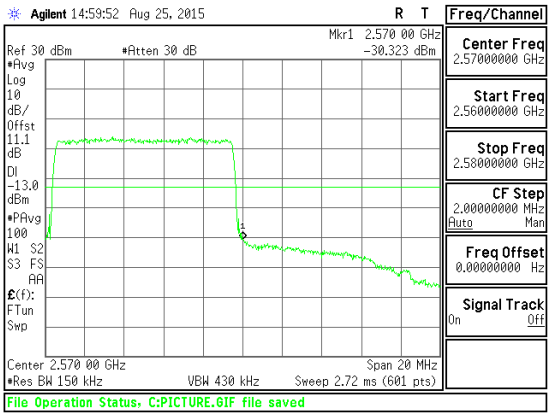
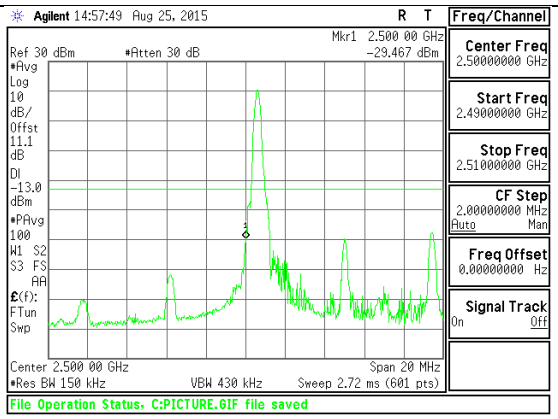
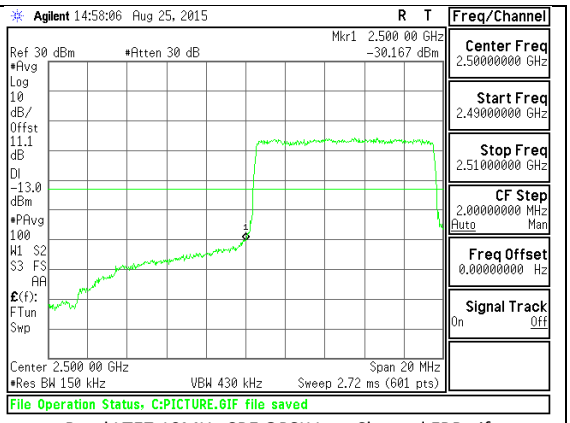
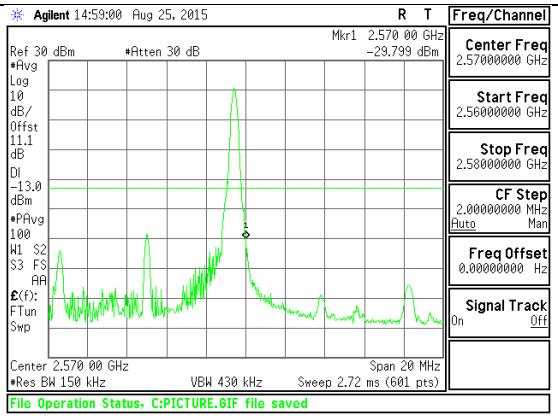
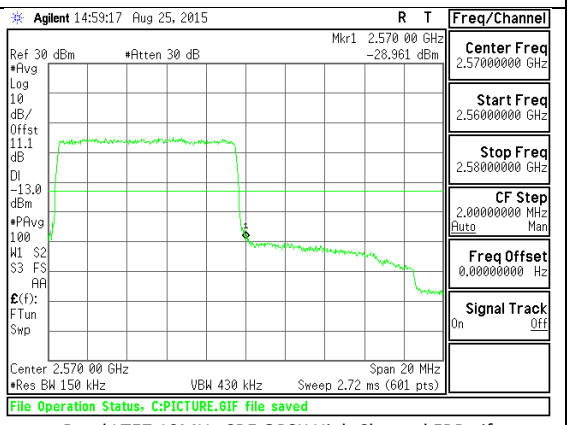
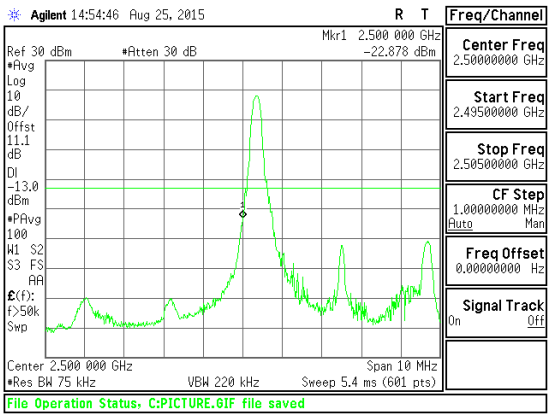
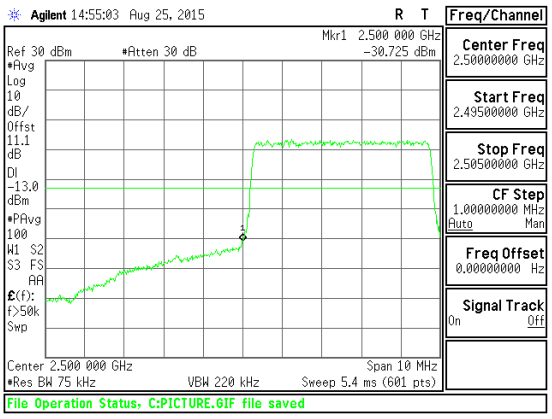
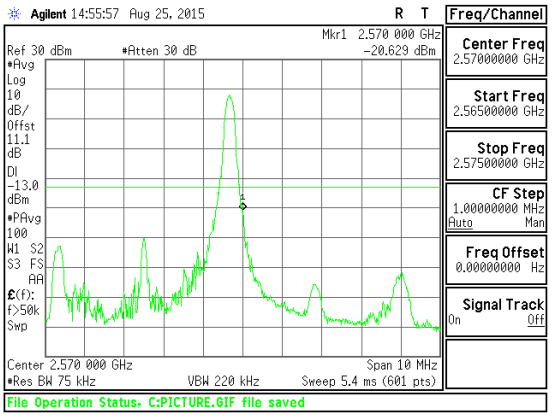
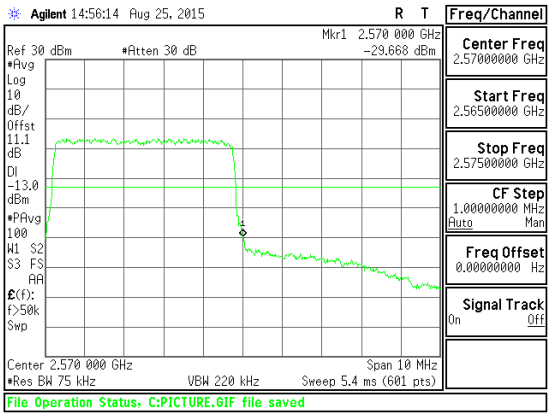
Band LTE7 10MHz 16QAM	 Band LTE7 10MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE7 10MHz CBE 16QAM Low Channel FRB.gif
Band LTE7 10MHz 16QAM	 Band LTE7 10MHz CBE 16QAM High Channel 1RB.gif	 Band LTE7 10MHz CBE 16QAM High Channel FRB.gif

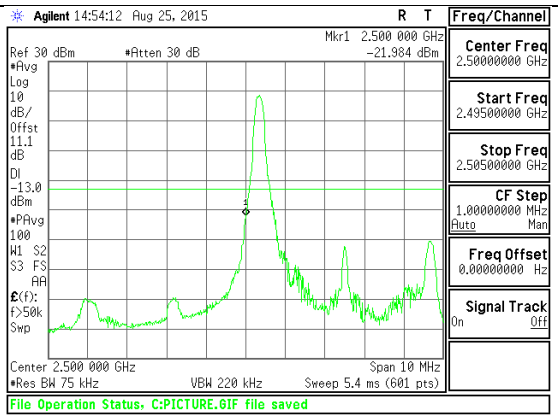
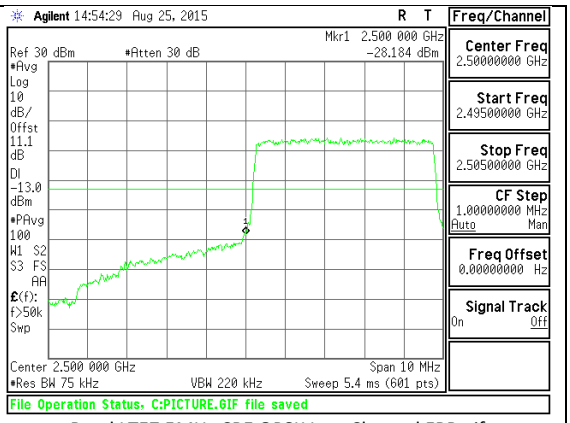
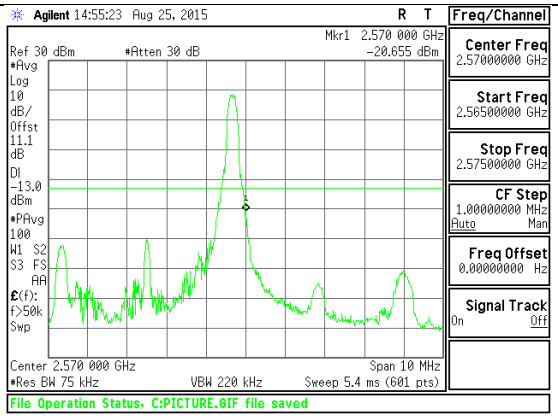
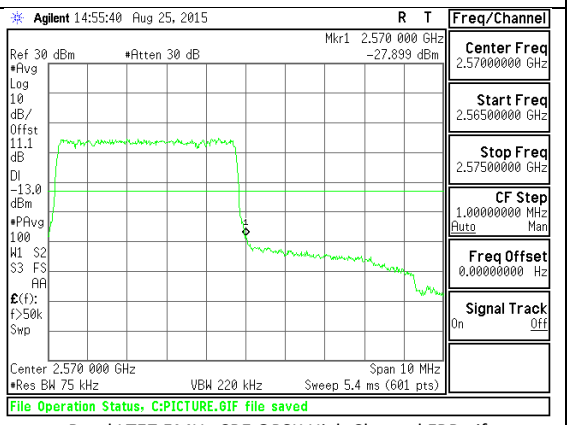
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE7 10MHz QPSK	 Band LTE7 10MHz CBE QPSK Low Channel 1RB.gif	 Band LTE7 10MHz CBE QPSK Low Channel FRB.gif
Band LTE7 10MHz QPSK	 Band LTE7 10MHz CBE QPSK High Channel 1RB.gif	 Band LTE7 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.

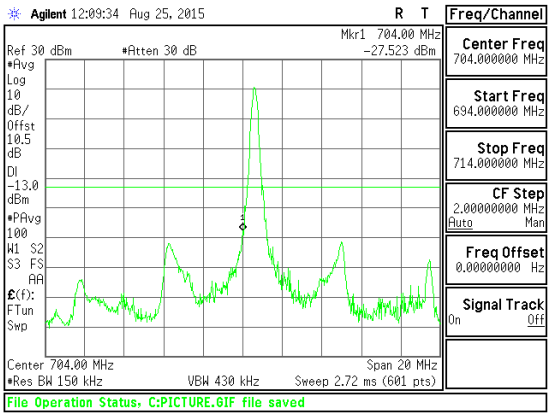
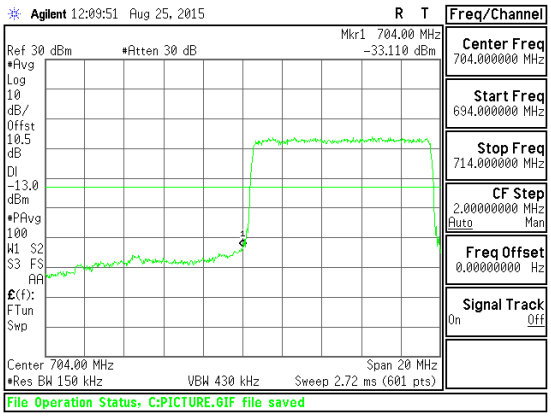
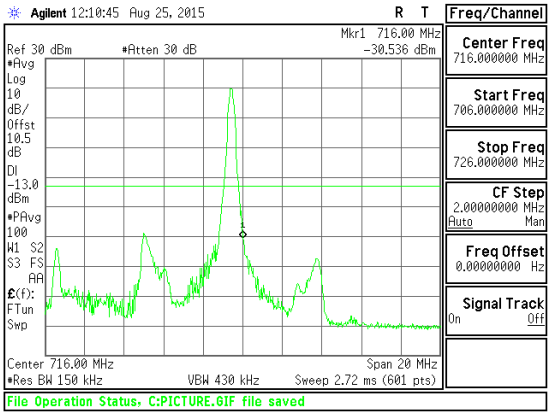
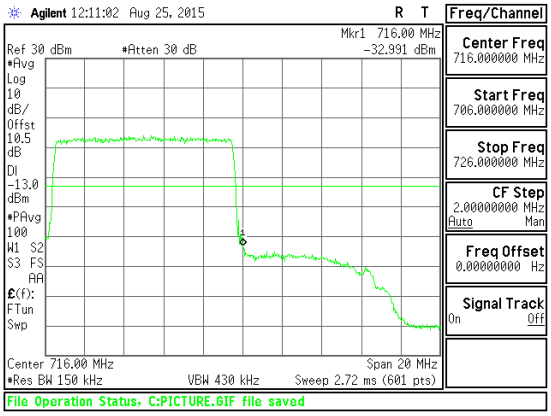
Band LTE7 5MHz 16QAM	 Band LTE7 5MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE7 5MHz CBE 16QAM Low Channel FRB.gif
Band LTE7 5MHz 16QAM	 Band LTE7 5MHz CBE 16QAM High Channel 1RB.gif	 Band LTE7 5MHz CBE 16QAM High Channel FRB.gif

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

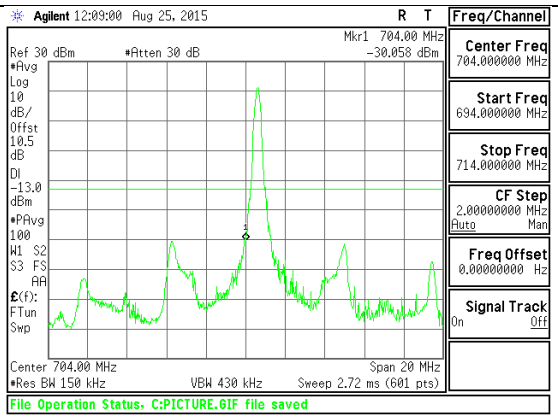
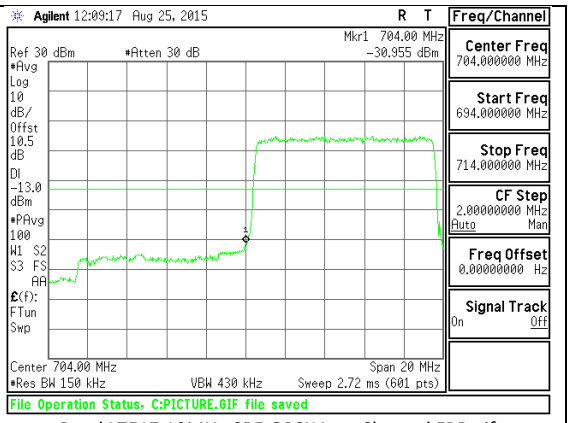
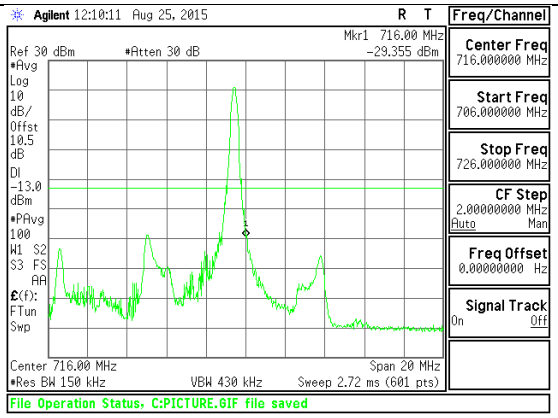
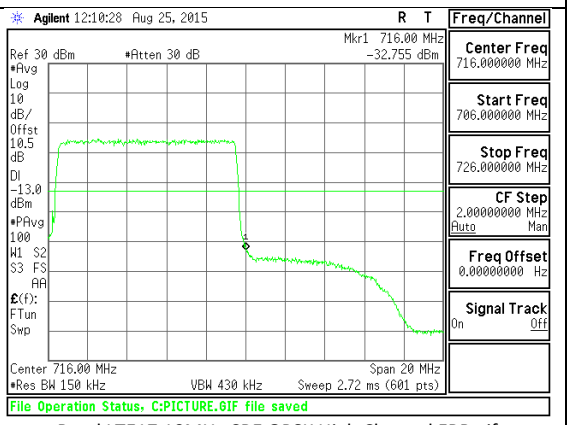
Band LTE7 5MHz QPSK	 Band LTE7 5MHz CBE QPSK Low Channel 1RB.gif	 Band LTE7 5MHz CBE QPSK Low Channel FRB.gif
Band LTE7 5MHz QPSK	 Band LTE7 5MHz CBE QPSK High Channel 1RB.gif	 Band LTE7 5MHz CBE QPSK High Channel FRB.gif

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

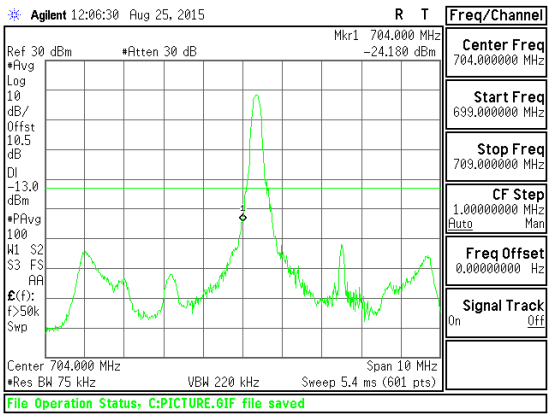
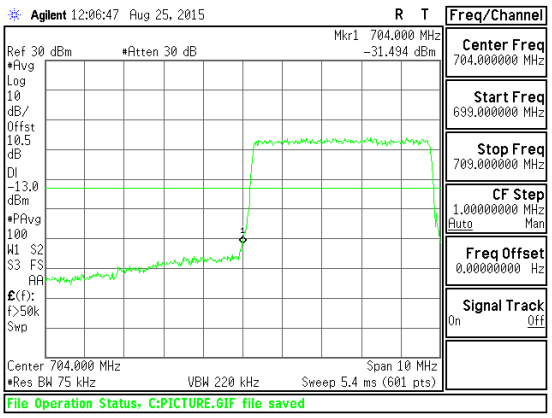
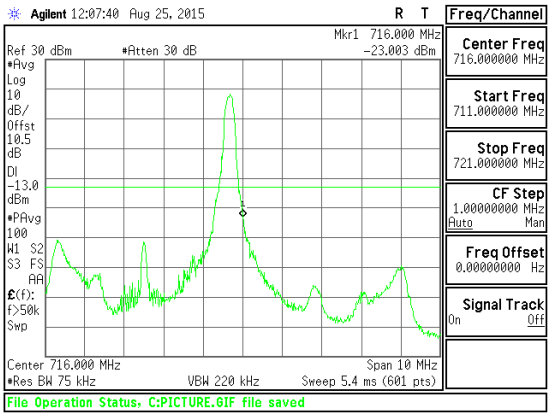
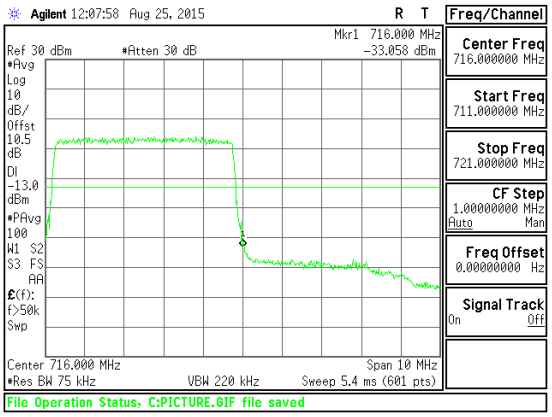
LTE Band 17

Band LTE17 10MHz 16QAM	 Band LTE17 10MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE17 10MHz CBE 16QAM Low Channel FRB.gif
Band LTE17 10MHz 16QAM	 Band LTE17 10MHz CBE 16QAM High Channel 1RB.gif	 Band LTE17 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.

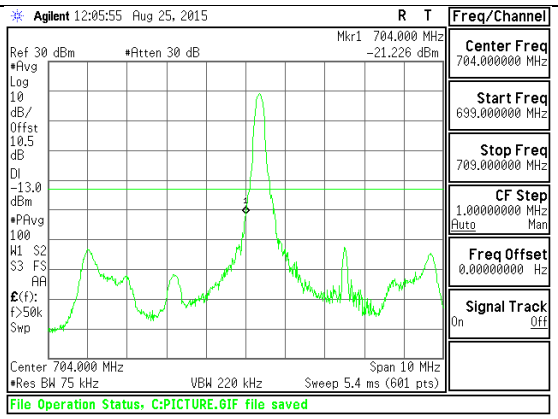
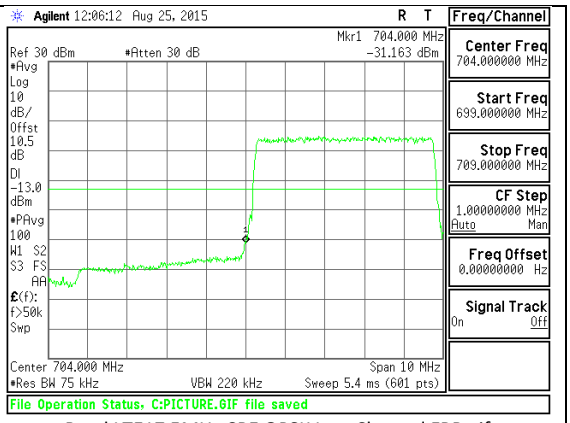
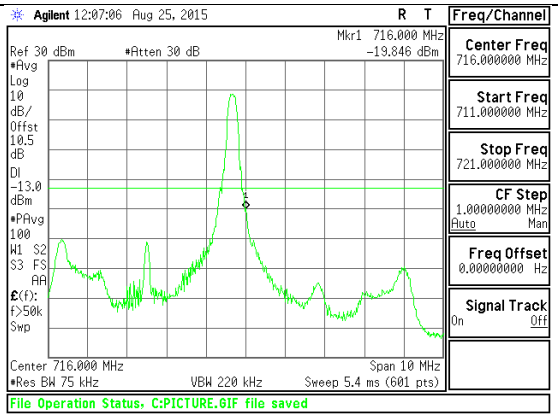
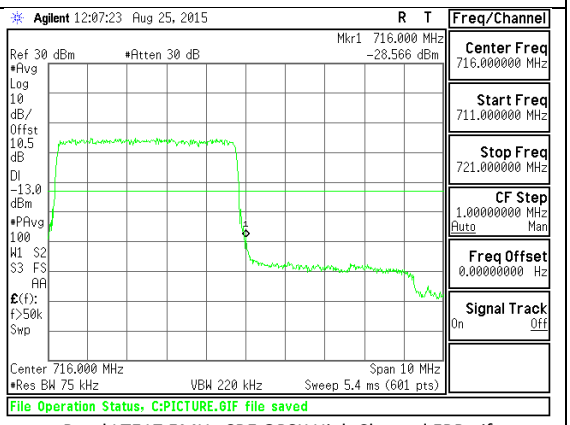
Band LTE17 10MHz QPSK	 Band LTE17 10MHz CBE QPSK Low Channel 1RB.gif	 Band LTE17 10MHz CBE QPSK Low Channel FRB.gif
Band LTE17 10MHz QPSK	 Band LTE17 10MHz CBE QPSK High Channel 1RB.gif	 Band LTE17 10MHz CBE QPSK High Channel FRB.gif

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

Band LTE17 5MHz 16QAM	 Band LTE17 5MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE17 5MHz CBE 16QAM Low Channel FRB.gif
Band LTE17 5MHz 16QAM	 Band LTE17 5MHz CBE 16QAM High Channel 1RB.gif	 Band LTE17 5MHz CBE 16QAM High Channel FRB.gif

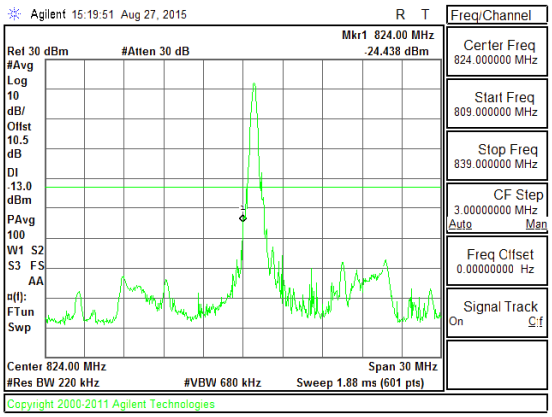
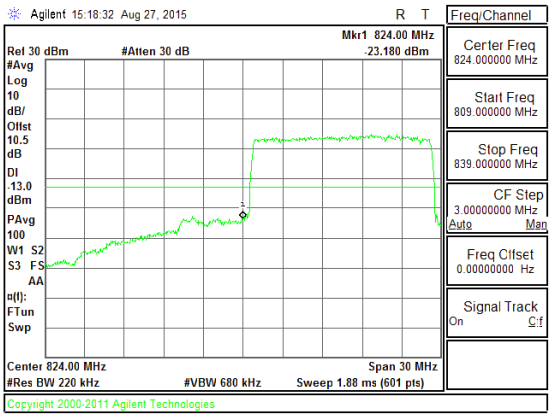
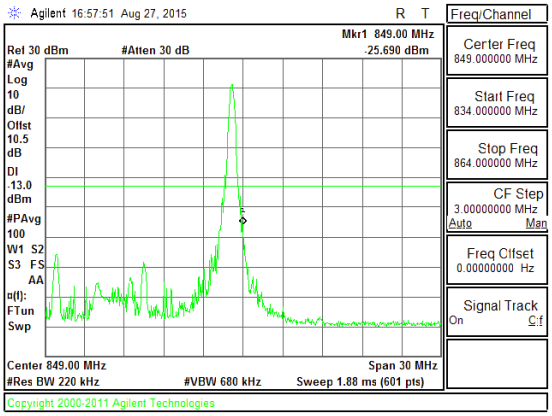
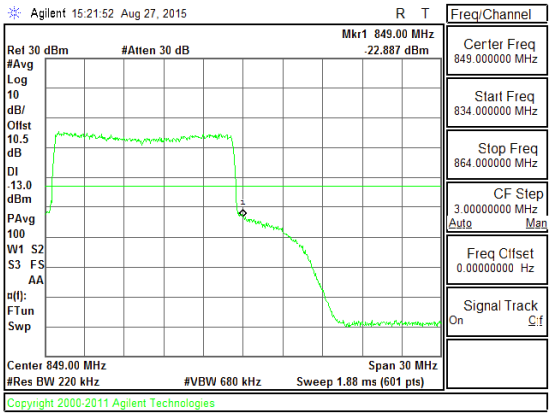
UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

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

Band LTE17 5MHz QPSK	 Band LTE17 5MHz CBE QPSK Low Channel 1RB.gif	 Band LTE17 5MHz CBE QPSK Low Channel FRB.gif
Band LTE17 5MHz QPSK	 Band LTE17 5MHz CBE QPSK High Channel 1RB.gif	 Band LTE17 5MHz CBE QPSK High Channel FRB.gif

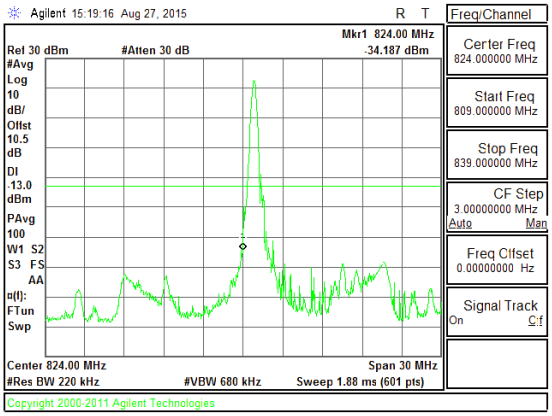
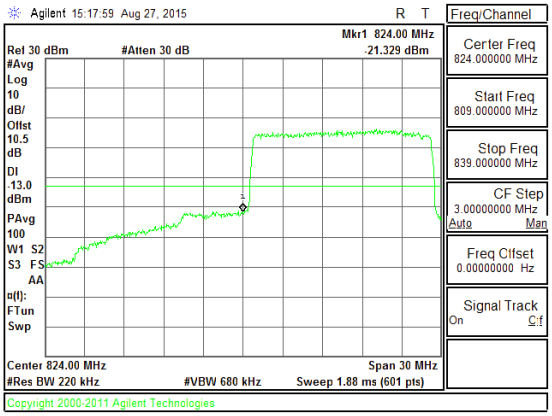
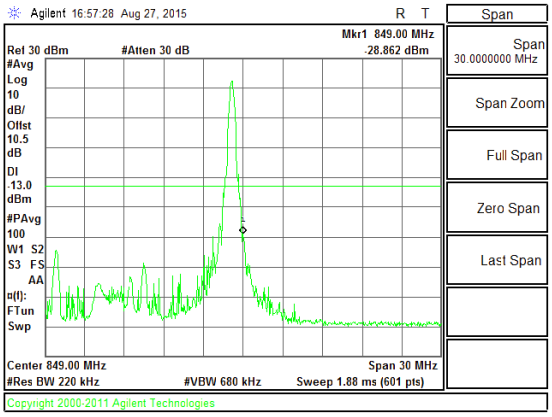
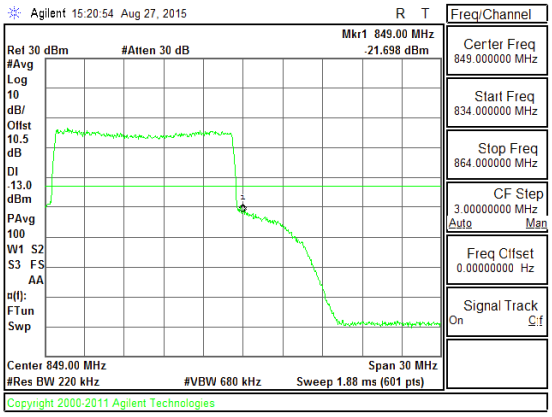
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

LTE Band 26

Band LTE26 15MHz 16QAM	 Band LTE26 15MHz CBE 16QAM Low Channel FRB.gif	 Band LTE26 15MHz CBE 16QAM High Channel FRB.gif
Band LTE26 15MHz 16QAM	 Band LTE26 15MHz CBE 16QAM Low Channel FRB.gif	 Band LTE26 15MHz CBE 16QAM High Channel FRB.gif

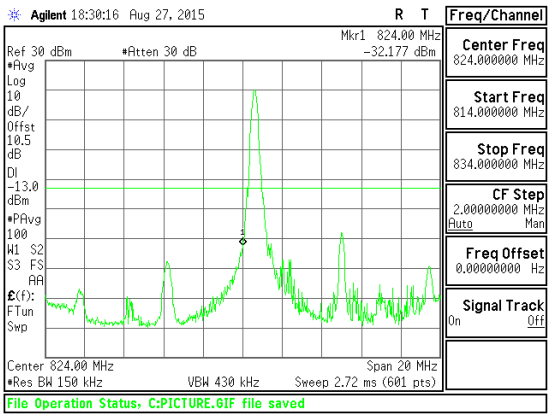
UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

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

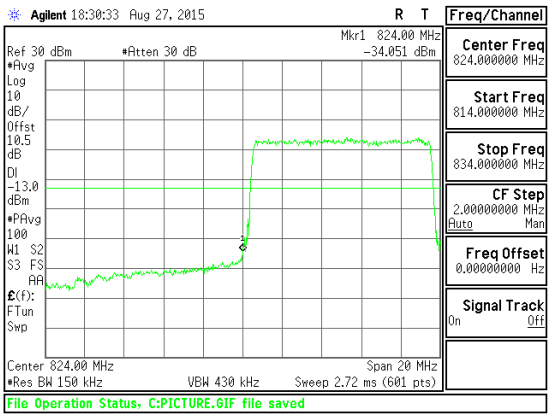
Band LTE26 15MHz QPSK	 Band LTE26 15MHz CBE QPSK Low Channel 1RB.gif	 Band LTE26 15MHz CBE QPSK High Channel 1RB.gif
Band LTE26 15MHz QPSK	 Band LTE26 15MHz CBE QPSK Low Channel 1RB.gif	 Band LTE26 15MHz CBE QPSK High Channel 1RB.gif

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

Band LTE26 10MHz 16QAM

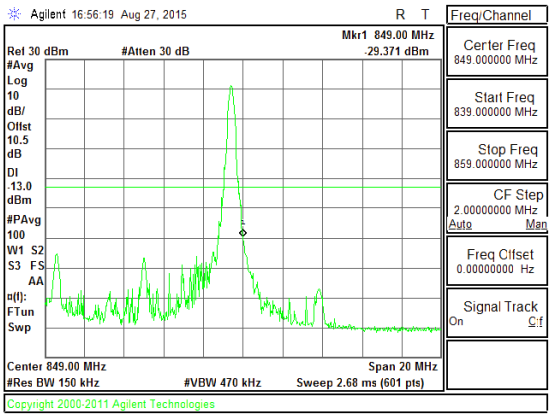


Band LTE26 10MHz CBE 16QAM Low Channel 1RB.gif

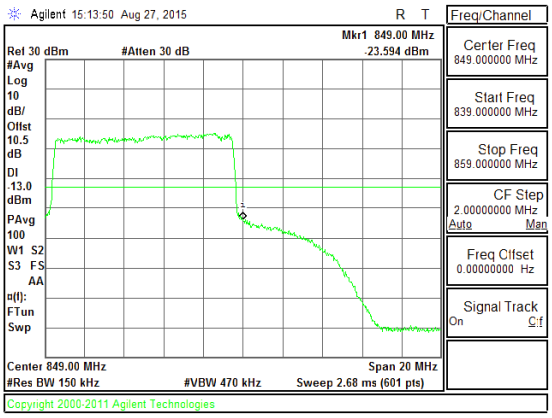


Band LTE26 10MHz CBE 16QAM Low Channel FRB.gif

Band LTE26 10MHz 16QAM

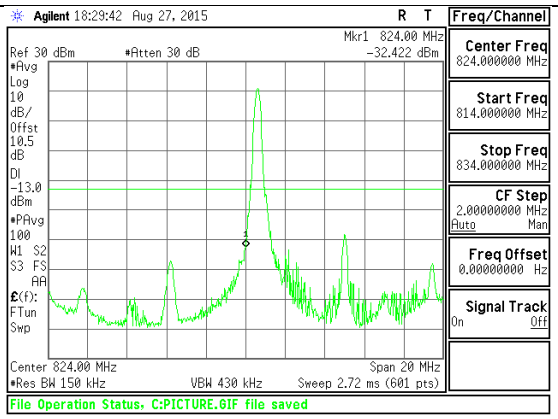
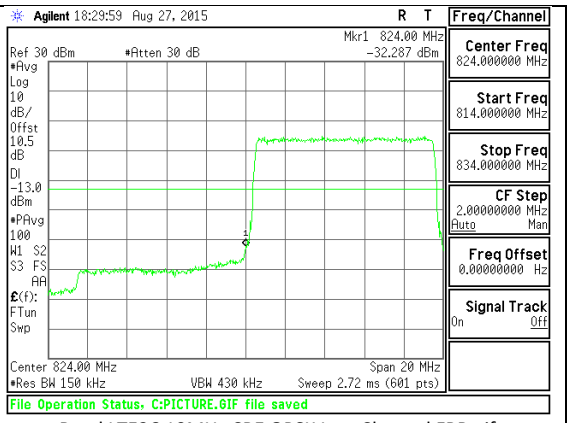
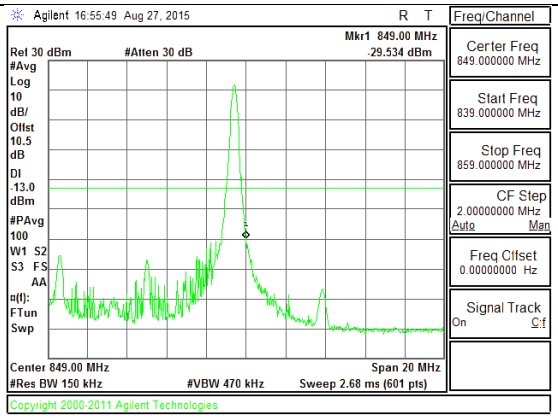
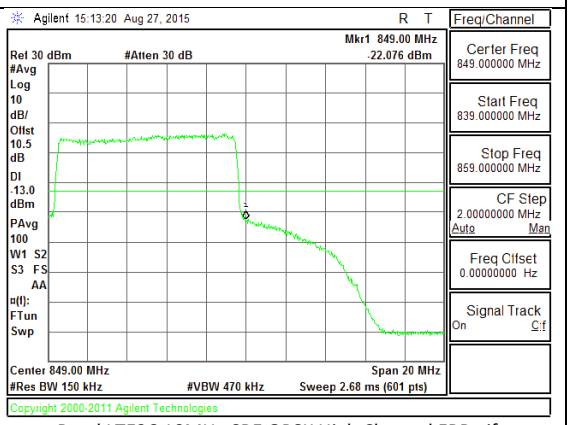


Band LTE26 10MHz CBE 16QAM High Channel 1RB.gif

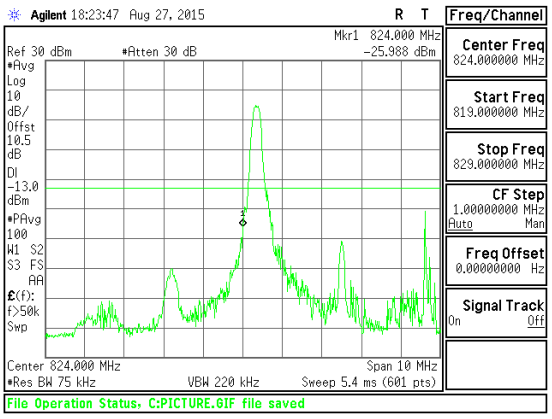
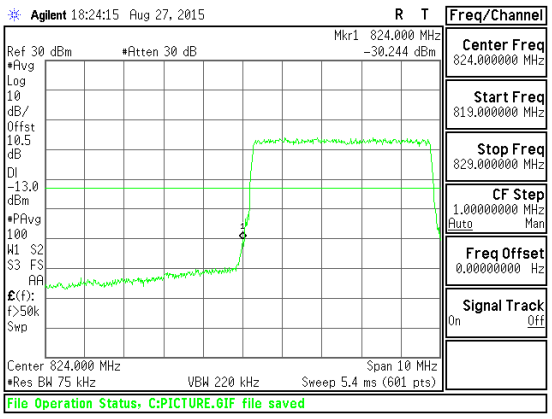
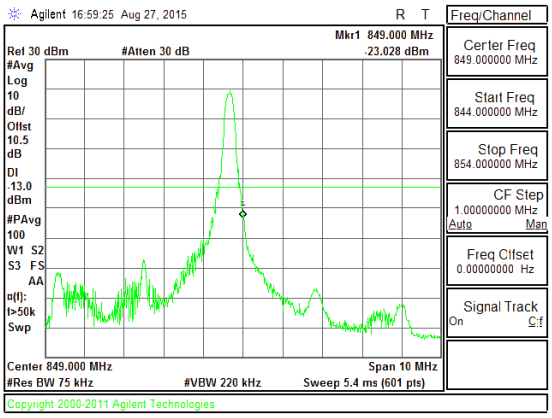
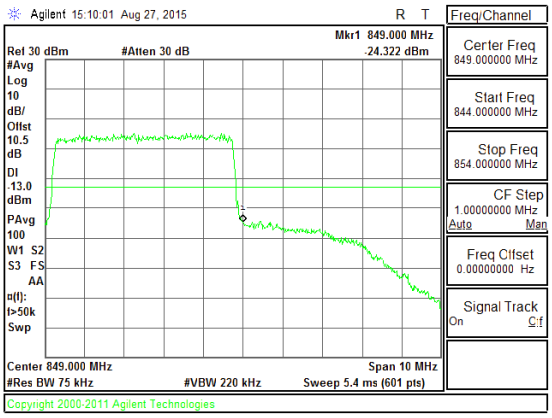


Band LTE26 10MHz CBE 16QAM High Channel FRB.gif

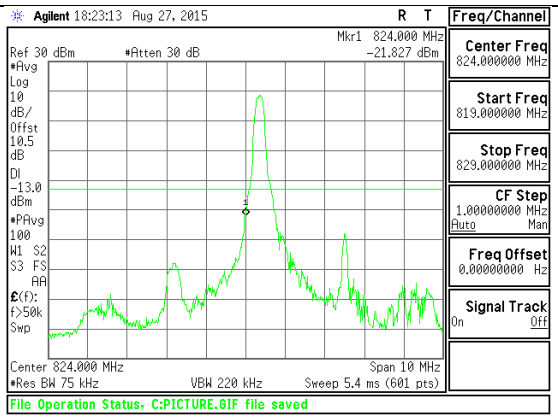
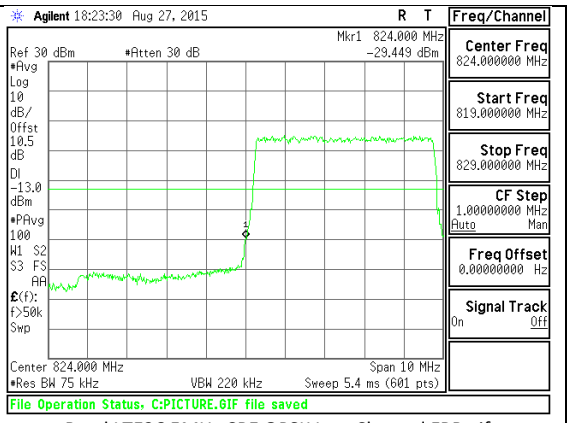
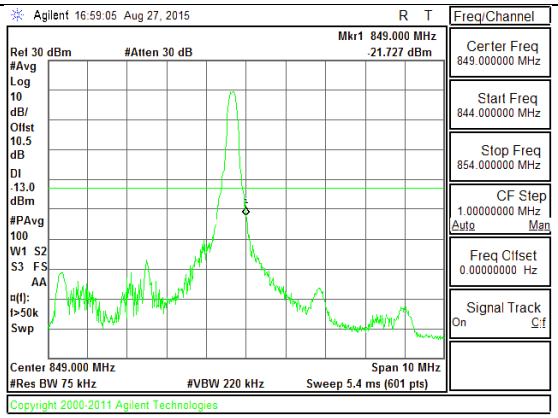
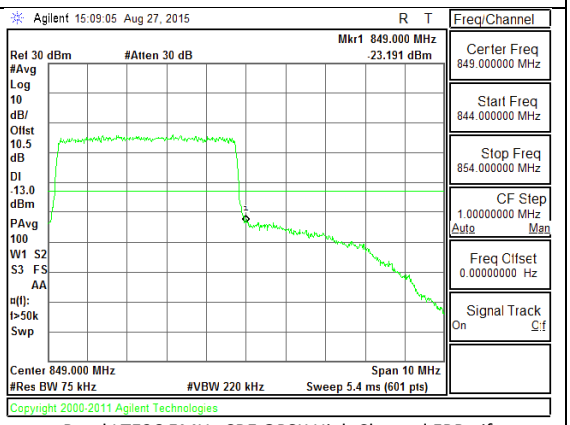
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

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

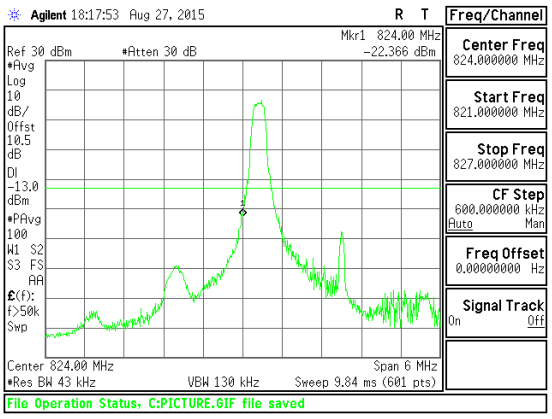
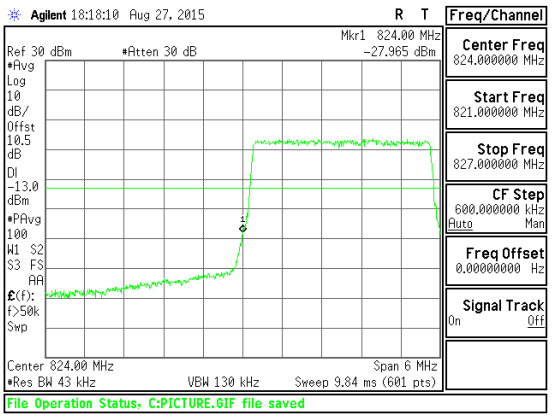
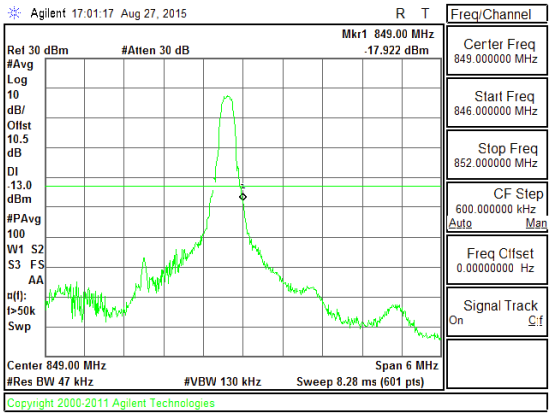
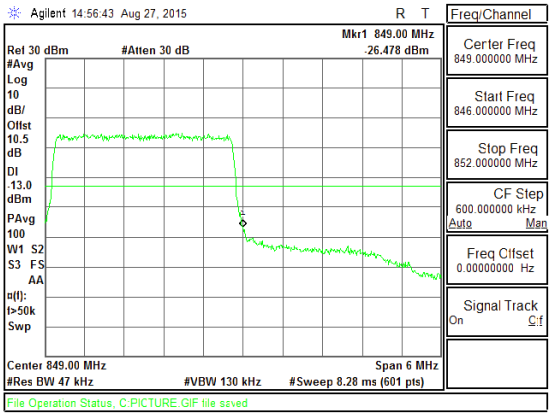
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

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

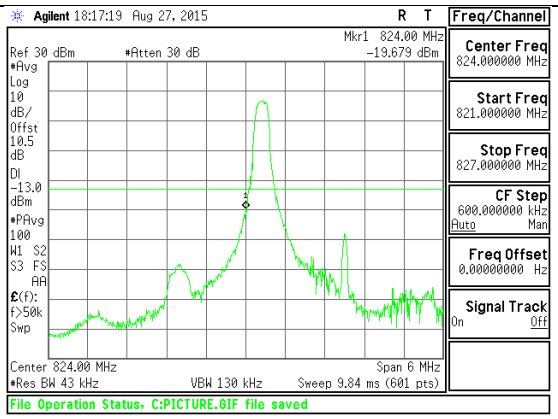
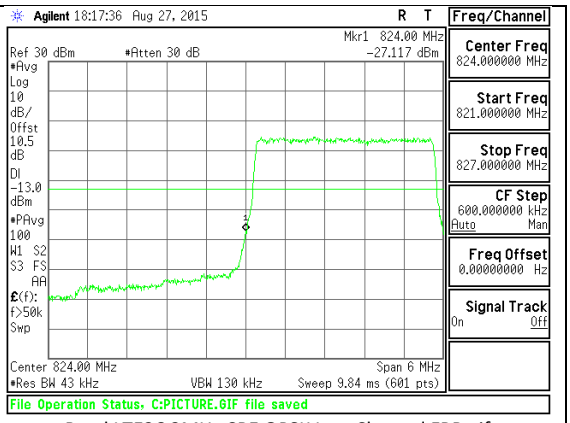
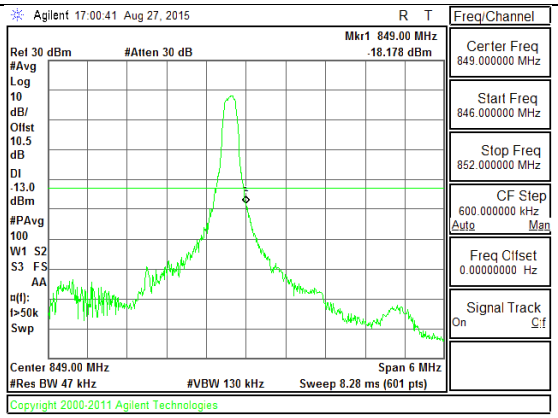
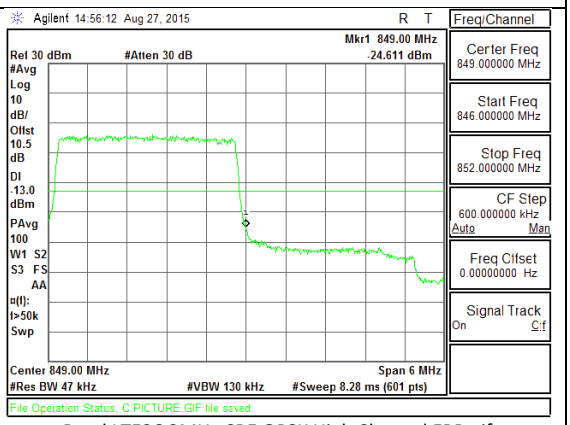
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

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.

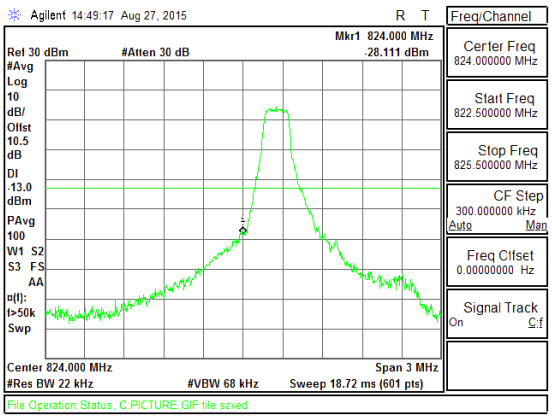
Band LTE26 3MHz 16QAM	 Band LTE26 3MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE26 3MHz CBE 16QAM Low Channel FRB.gif
Band LTE26 3MHz 16QAM	 Band LTE26 3MHz CBE 16QAM High Channel 1RB.gif	 Band LTE26 3MHz CBE 16QAM High Channel FRB.gif

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

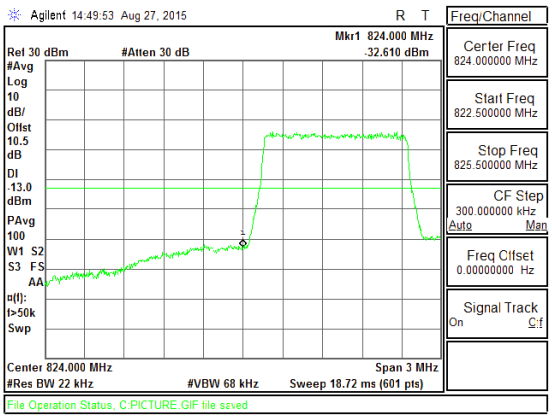
Band LTE26 3MHz QPSK	 Band LTE26 3MHz CBE QPSK Low Channel 1RB.gif	 Band LTE26 3MHz CBE QPSK Low Channel FRB.gif
Band LTE26 3MHz QPSK	 Band LTE26 3MHz CBE QPSK High Channel 1RB.gif	 Band LTE26 3MHz CBE QPSK High Channel FRB.gif

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

Band LTE26 1.4MHz 16QAM

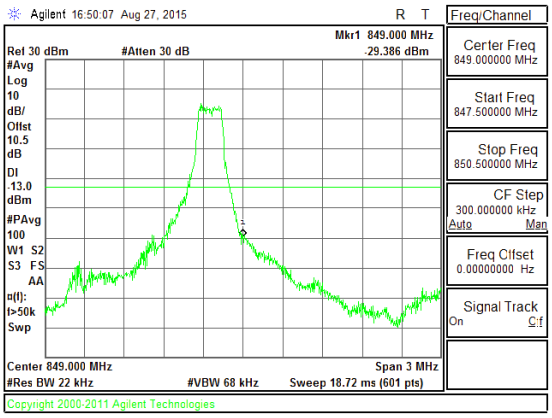


Band LTE26 1.4MHz CBE 16QAM Low Channel 1RB.gif

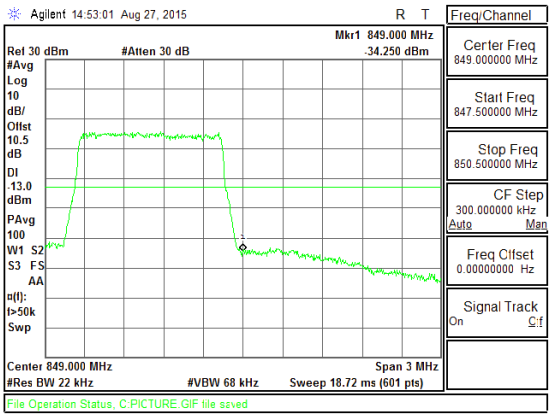


Band LTE26 1.4MHz CBE 16QAM Low Channel FRB.gif

Band LTE26 1.4MHz 16QAM

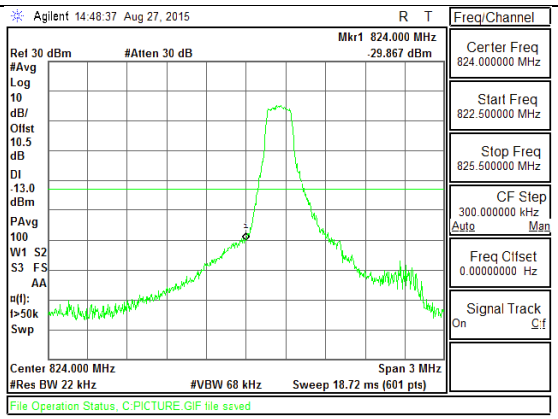
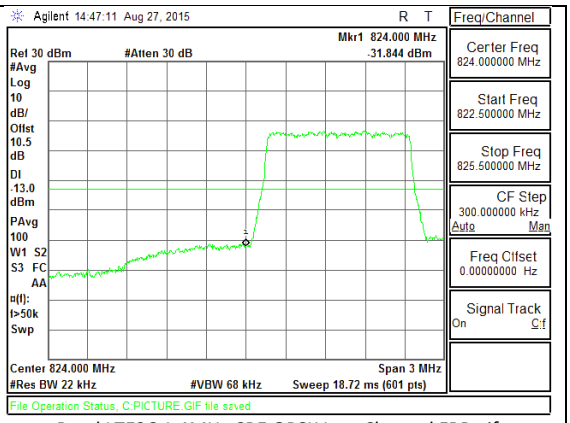
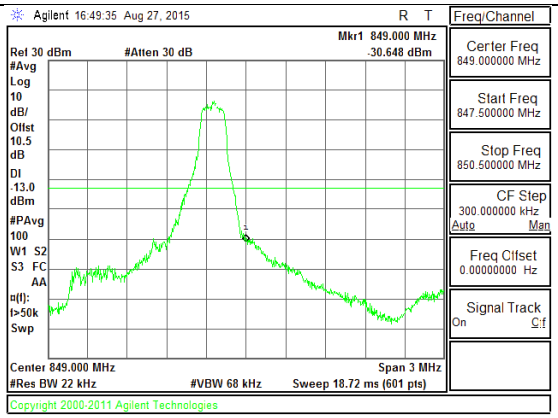
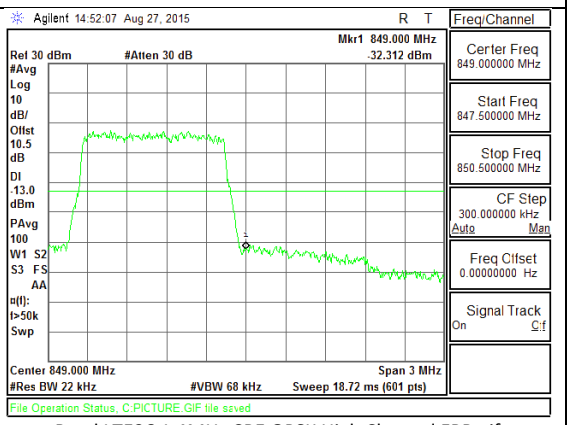


Band LTE26 1.4MHz CBE 16QAM High Channel 1RB.gif



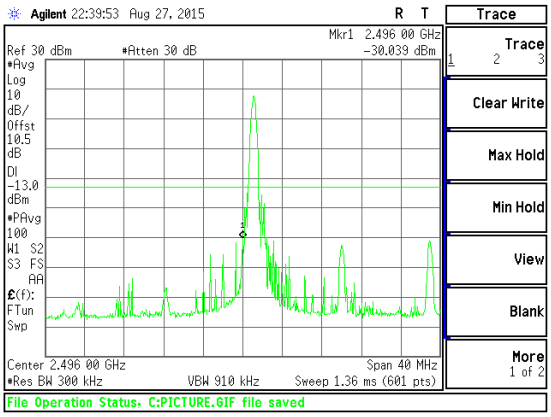
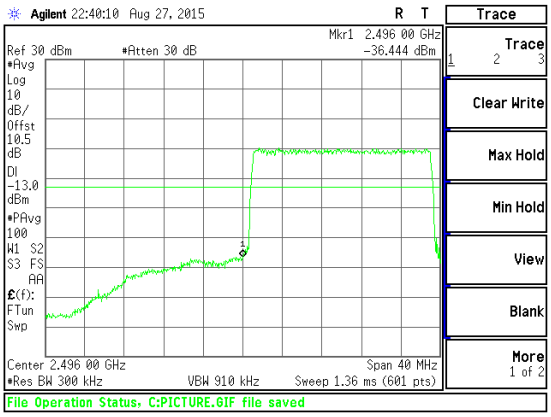
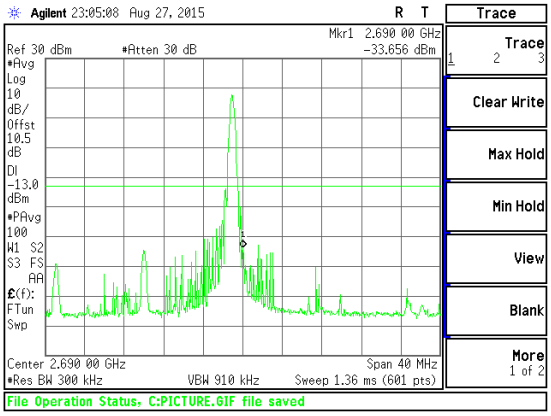
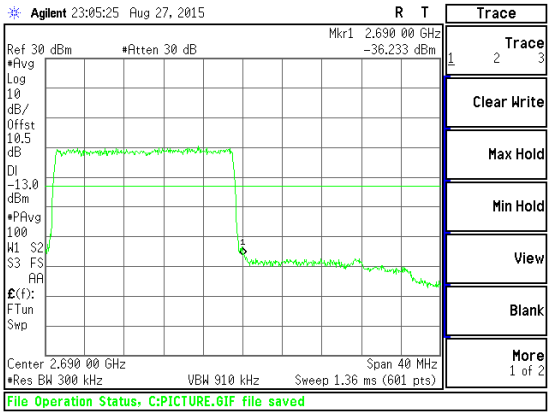
Band LTE26 1.4MHz CBE 16QAM High Channel FRB.gif

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

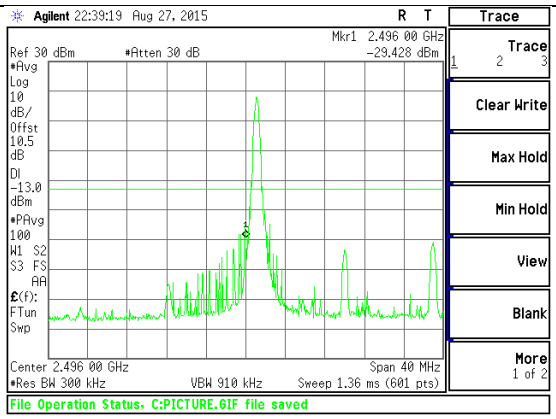
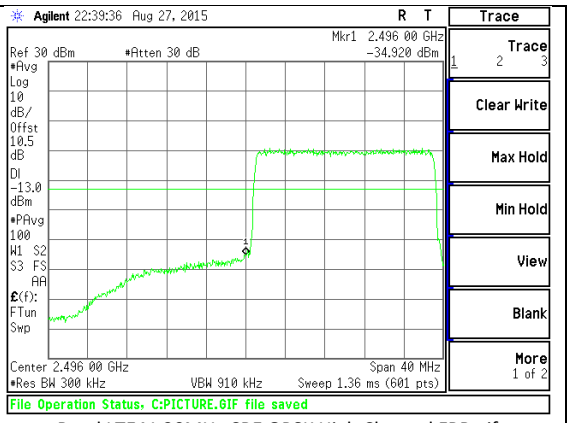
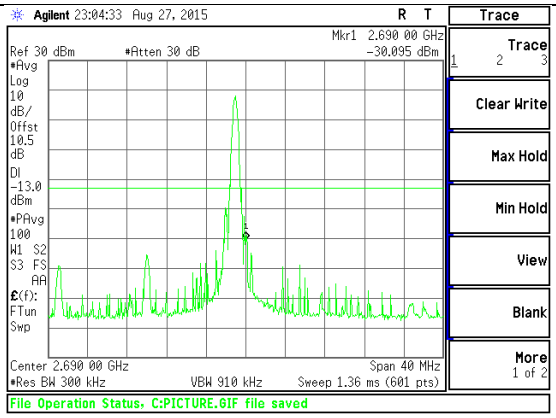
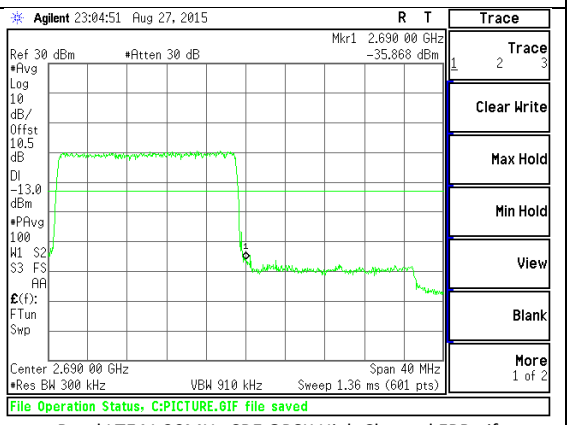
Band LTE26 1.4MHz QPSK	 Band LTE26 1.4MHz CBE QPSK Low Channel 1RB.gif	 Band LTE26 1.4MHz CBE QPSK Low Channel FRB.gif
Band LTE26 1.4MHz QPSK	 Band LTE26 1.4MHz CBE QPSK High Channel 1RB.gif	 Band LTE26 1.4MHz CBE QPSK High Channel FRB.gif

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

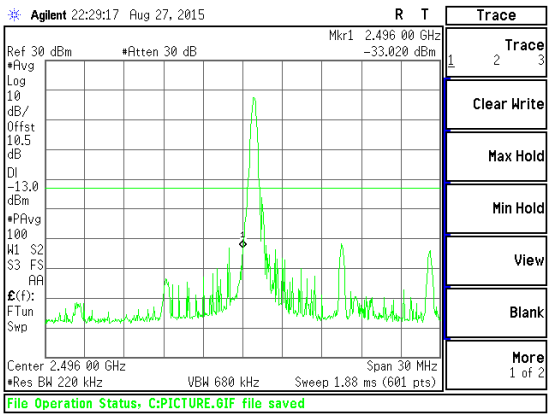
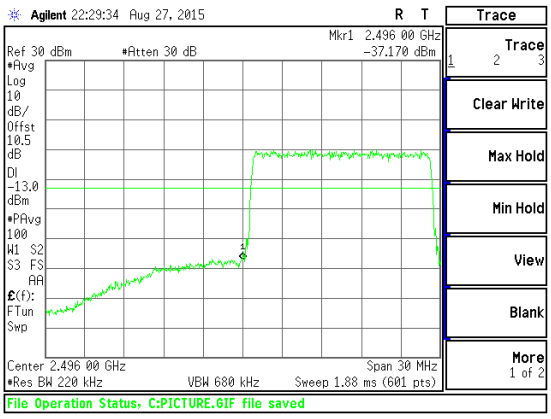
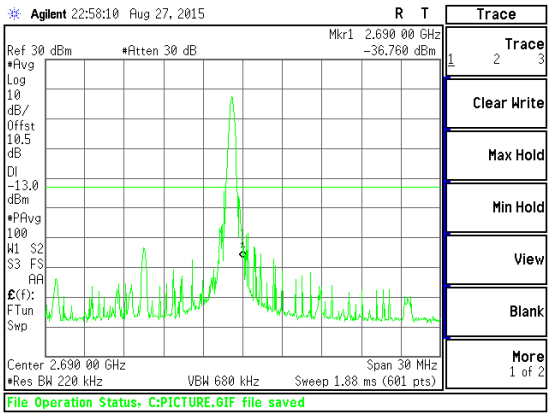
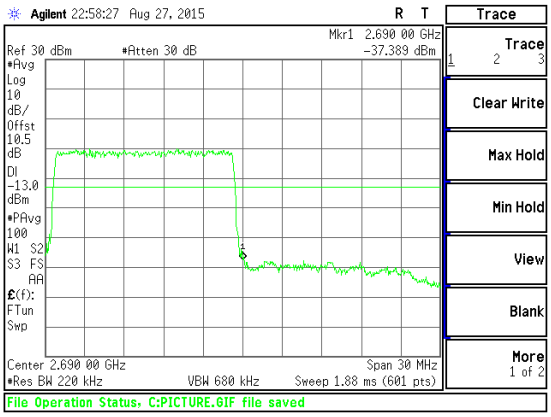
LTE Band 41

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

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

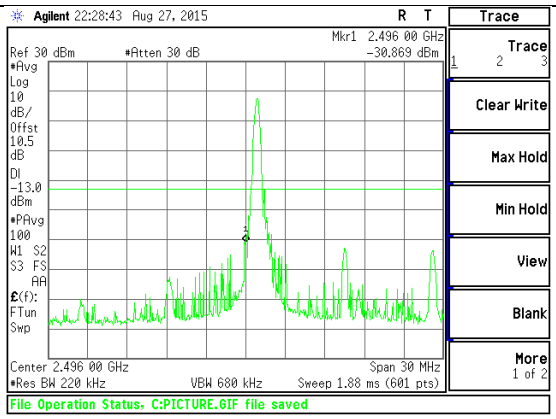
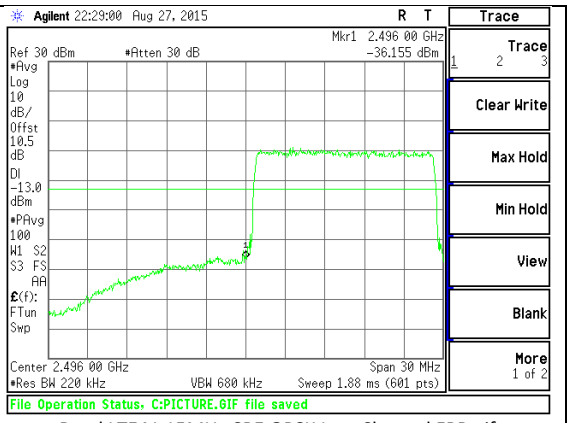
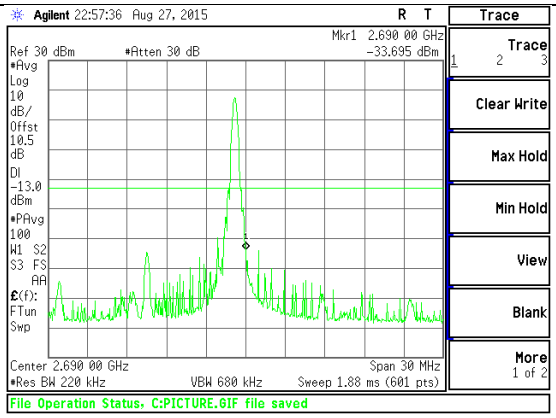
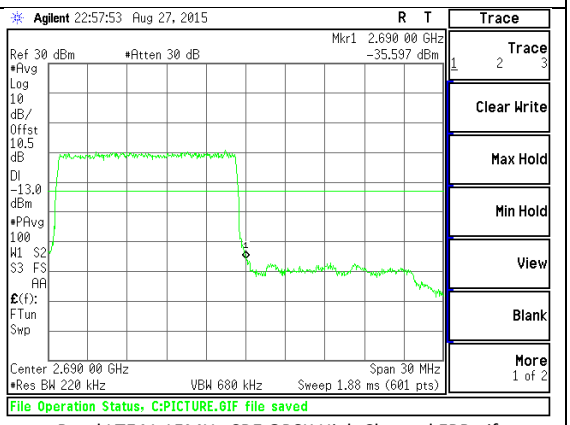
Band LTE41 20MHz QPSK	 Band LTE41 20MHz CBE QPSK High Channel 1RB.gif	 Band LTE41 20MHz CBE QPSK High Channel FRB.gif
Band LTE41 20MHz QPSK	 Band LTE41 20MHz CBE QPSK High Channel 1RB.gif	 Band LTE41 20MHz CBE QPSK High Channel FRB.gif

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

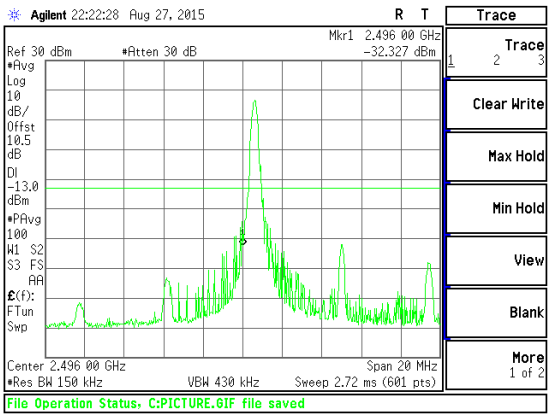
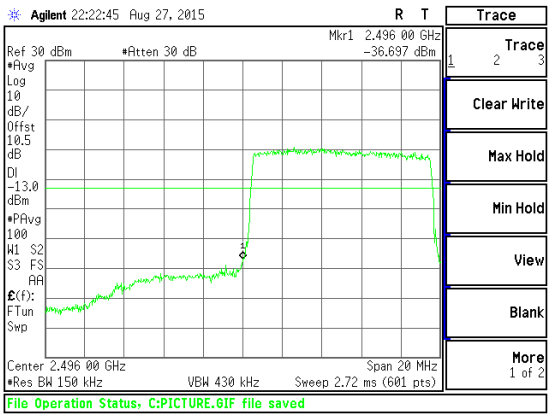
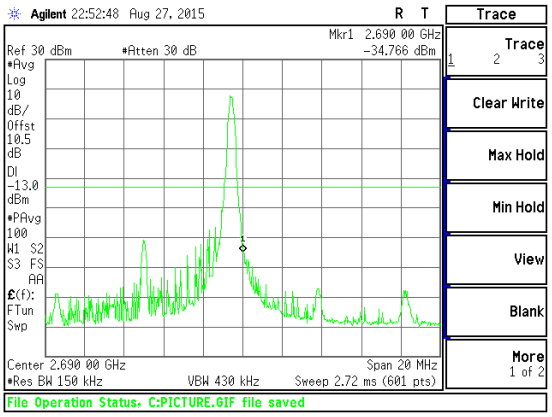
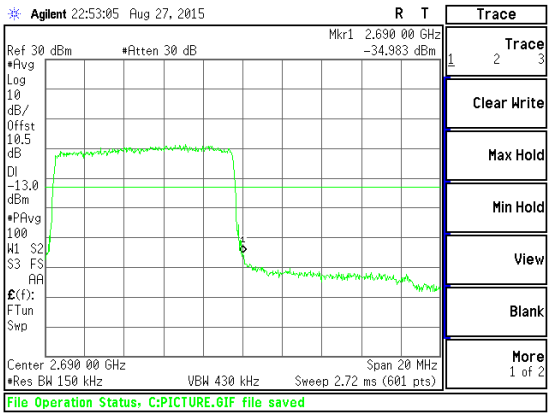
Band LTE41 15MHz 16QAM	 Band LTE41 15MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE41 15MHz CBE 16QAM Low Channel FRB.gif
Band LTE41 15MHz 16QAM	 Band LTE41 15MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE41 15MHz CBE 16QAM Low Channel FRB.gif

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

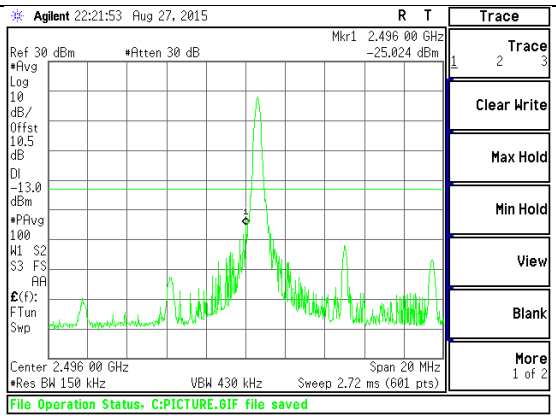
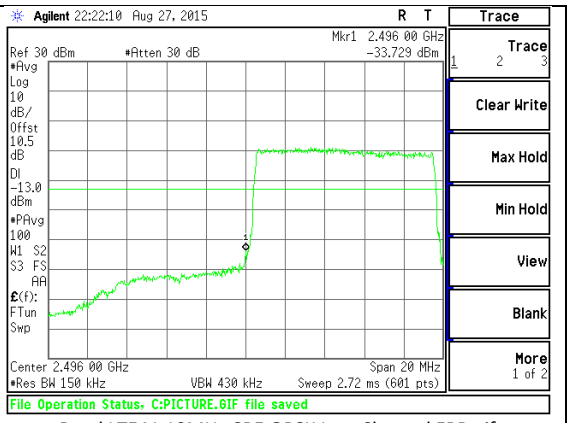
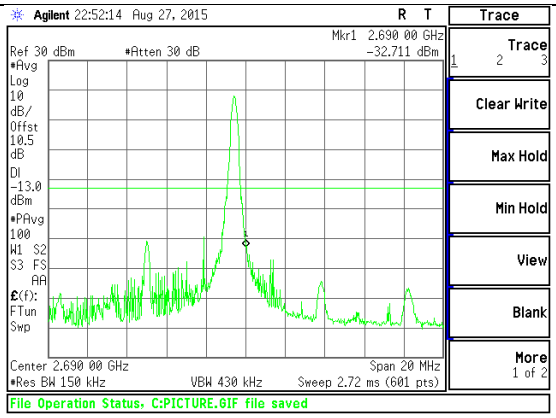
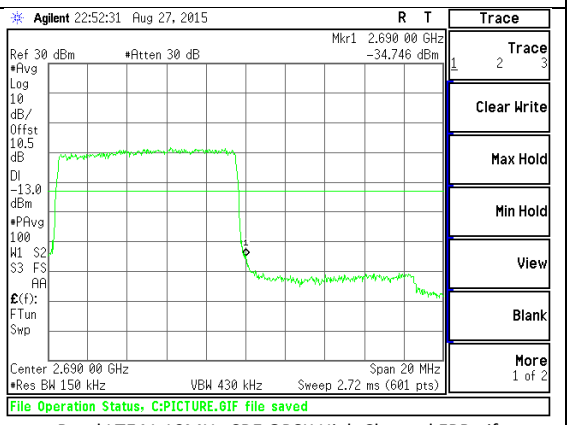
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE41 15MHz QPSK	 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

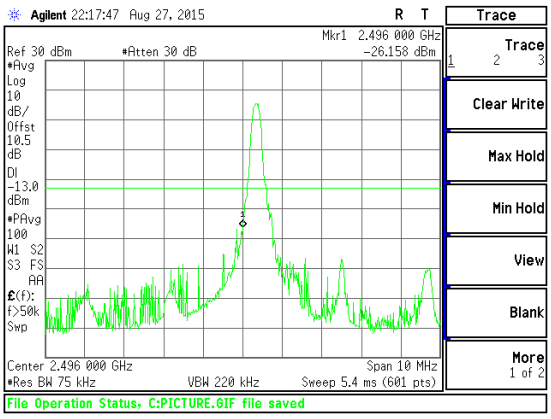
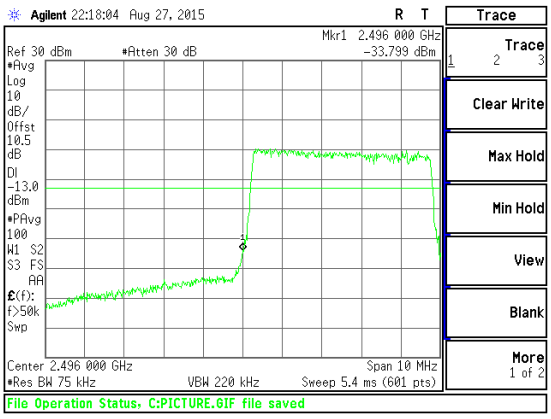
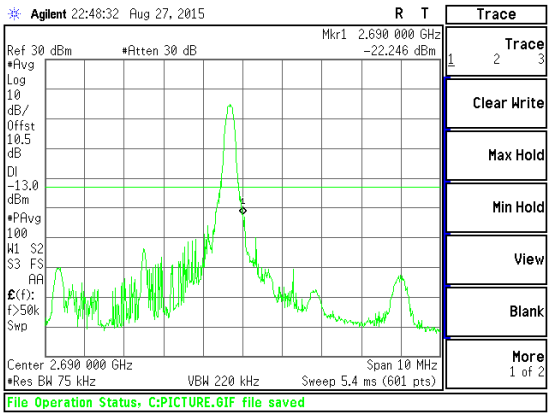
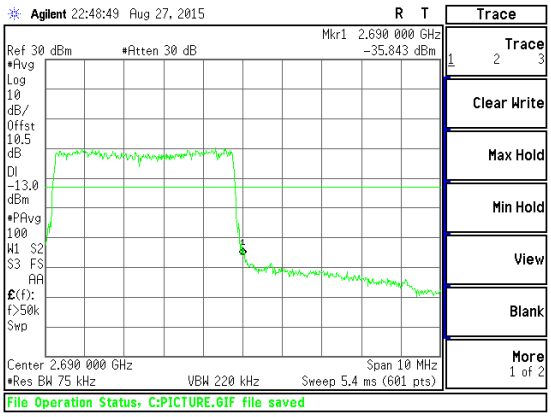
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

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

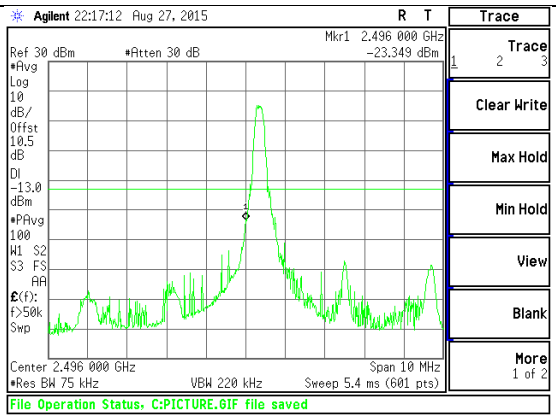
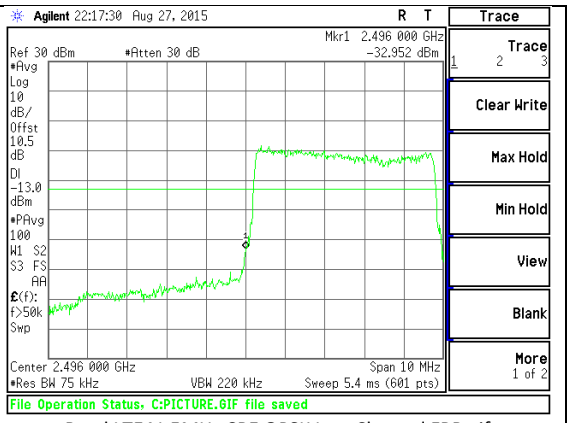
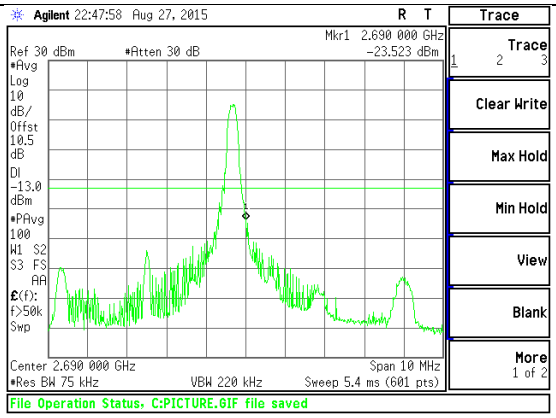
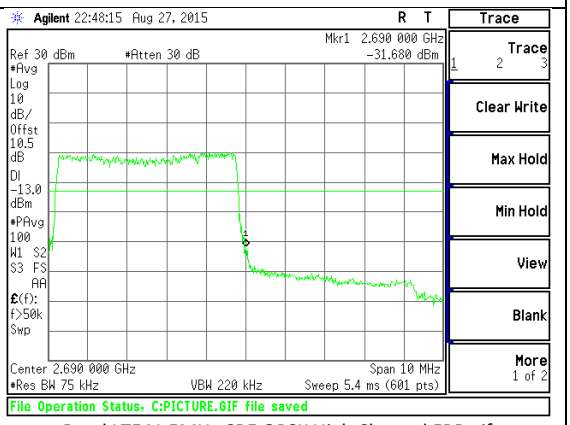
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

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 LTE41 5MHz 16QAM	 Band LTE41 5MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE41 5MHz CBE 16QAM Low Channel FRB.gif
Band LTE41 5MHz 16QAM	 Band LTE41 5MHz CBE 16QAM High Channel 1RB.gif	 Band LTE41 5MHz CBE 16QAM High Channel FRB.gif

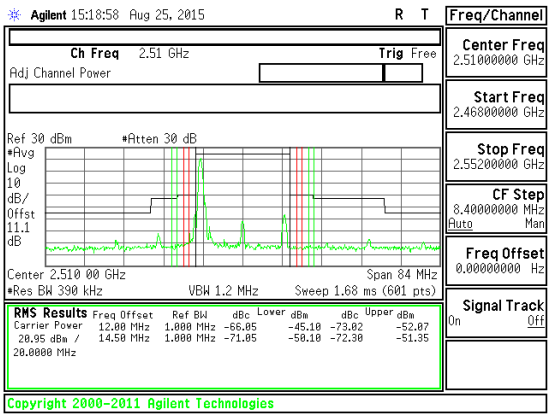
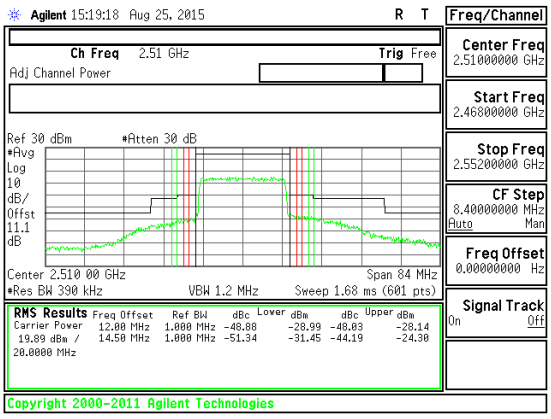
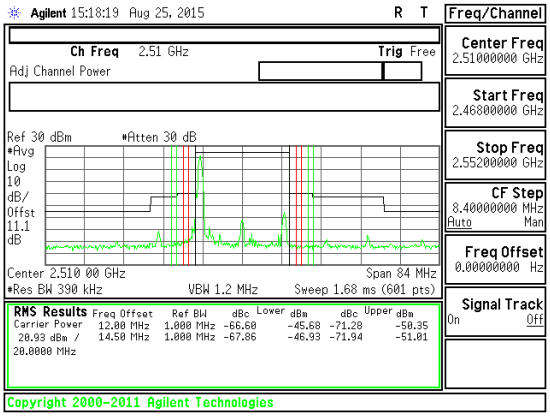
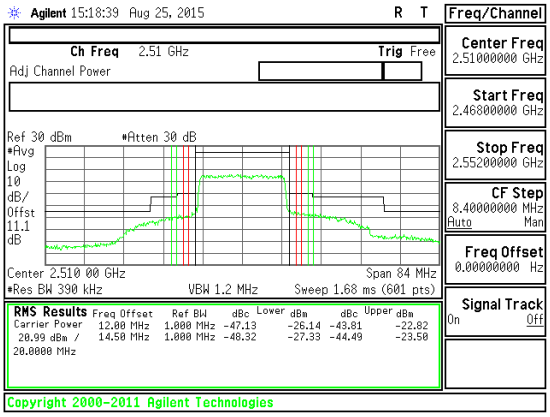
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE41 5MHz QPSK	 Band LTE41 5MHz CBE QPSK Low Channel 1RB.gif	 Band LTE41 5MHz CBE QPSK Low Channel FRB.gif
Band LTE41 5MHz QPSK	 Band LTE41 5MHz CBE QPSK High Channel 1RB.gif	 Band LTE41 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.

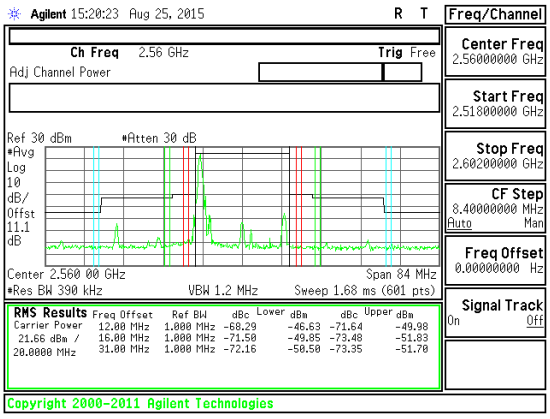
10.2.2. EMISSION MASK PLOTS

LTE Band 7

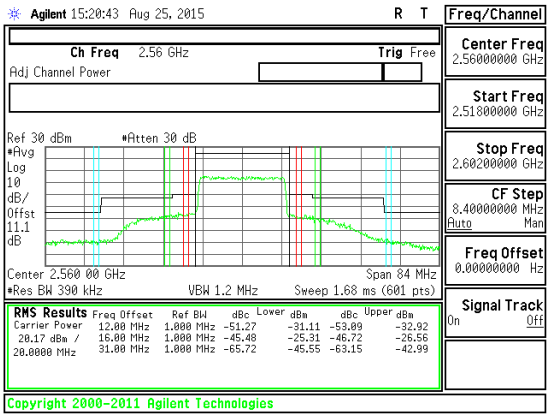
Band LTE7 20MHz 16QAM	 Band LTE7 20MHz EM 16QAM Low Channel 1RB.gif	 Band LTE7 20MHz EM 16QAM Low Channel FRB.gif
Band LTE7 20MHz QPSK	 Band LTE7 20MHz EM QPSK Low Channel 1RB.gif	 Band LTE7 20MHz EM QPSK Low Channel FRB.gif

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

Band LTE7 20MHz 16QAM

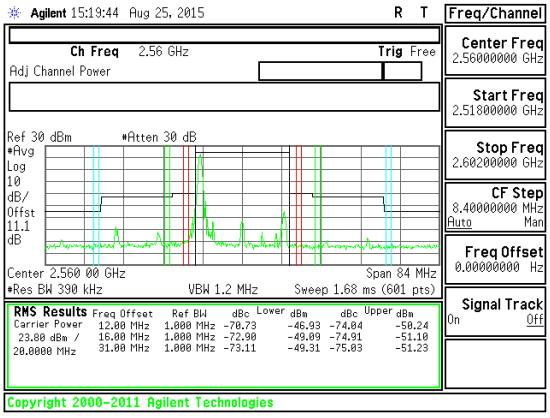


Band LTE7 20MHz EM 16QAM High Channel 1RB.gif

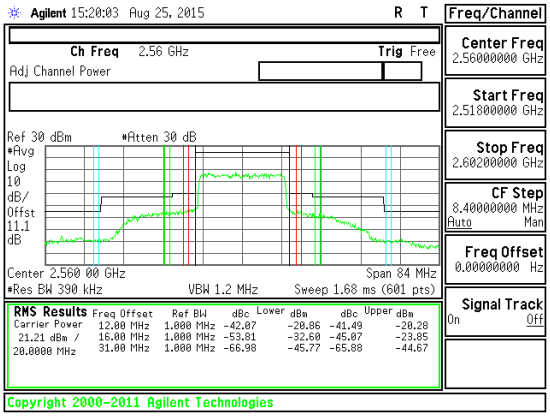


Band LTE7 20MHz EM 16QAM High Channel FRB.gif

Band LTE7 20MHz QPSK

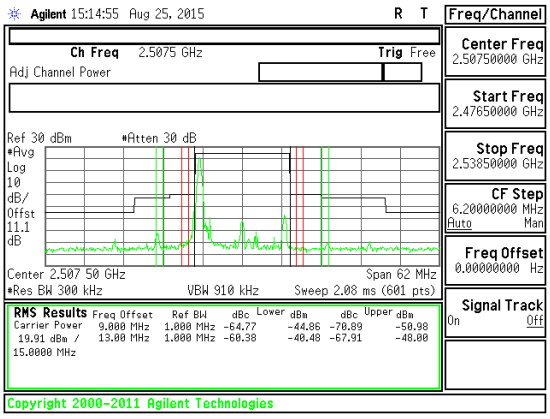
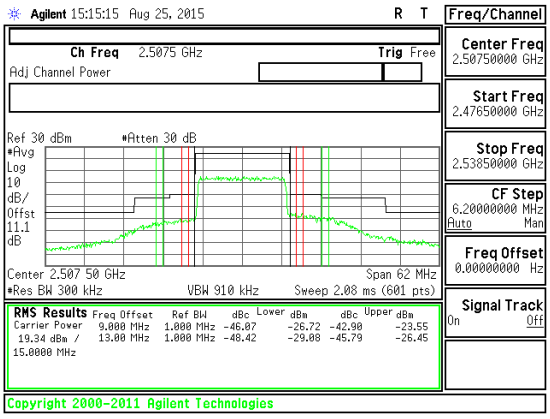
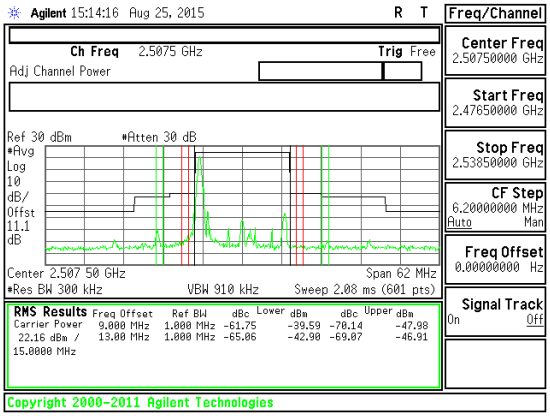
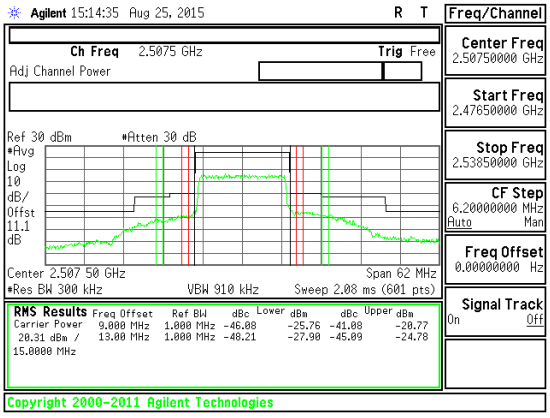


Band LTE7 20MHz EM QPSK High Channel 1RB.gif



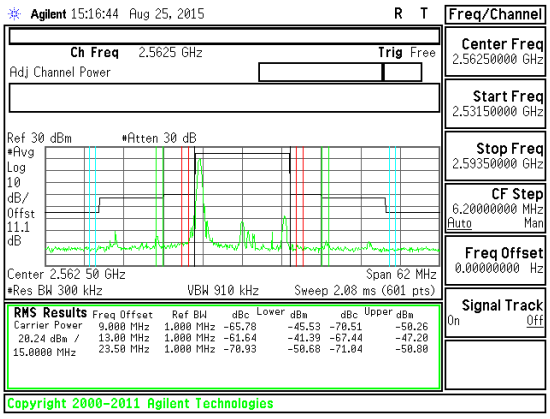
Band LTE7 20MHz EM QPSK High Channel FRB.gif

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

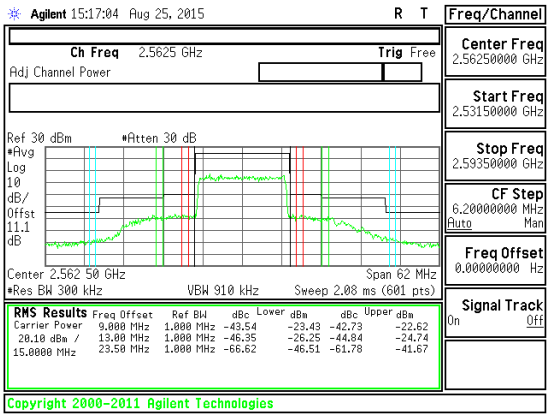
Band LTE7 15MHz 16QAM	 Band LTE7 15MHz EM 16QAM Low Channel 1RB.gif	 Band LTE7 15MHz EM 16QAM Low Channel FRB.gif
Band LTE7 15MHz QPSK	 Band LTE7 15MHz EM QPSK Low Channel 1RB.gif	 Band LTE7 15MHz EM QPSK Low Channel FRB.gif

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

Band LTE7 15MHz 16QAM

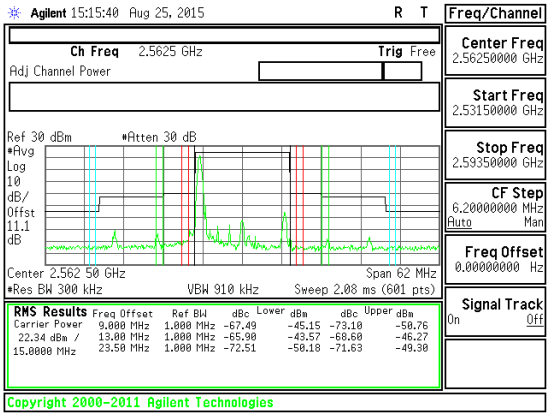


Band LTE7 15MHz EM 16QAM High Channel 1RB.gif

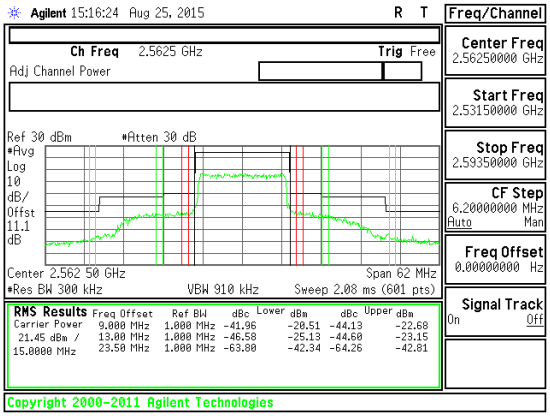


Band LTE7 15MHz EM 16QAM High Channel FRB.gif

Band LTE7 15MHz QPSK



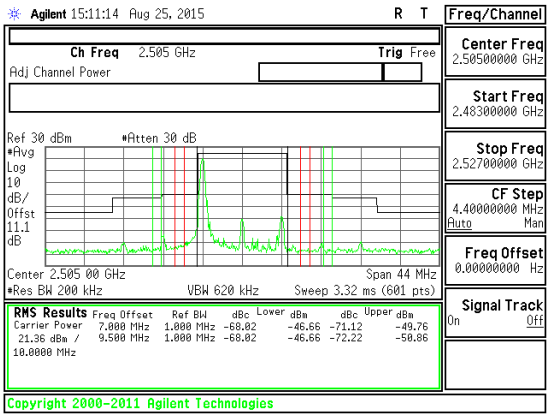
Band LTE7 15MHz EM QPSK High Channel 1RB.gif



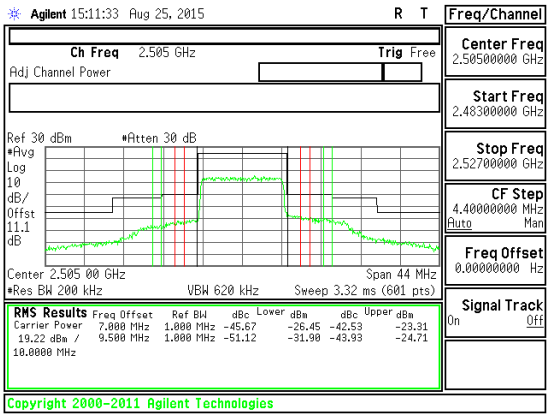
Band LTE7 15MHz EM QPSK High Channel FRB.gif

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

Band LTE7 10MHz 16QAM

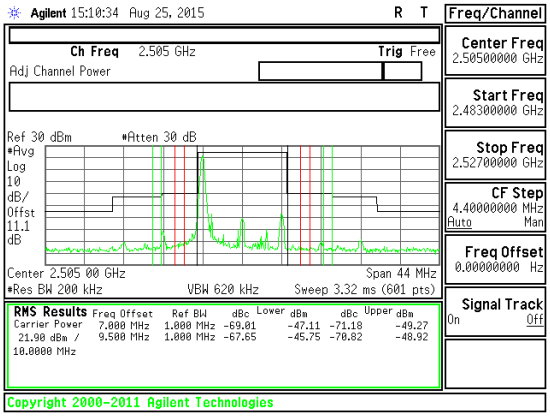


Band LTE7 10MHz EM 16QAM Low Channel 1RB.gif

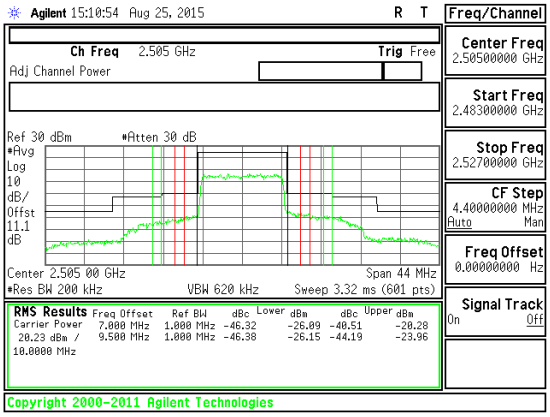


Band LTE7 10MHz EM 16QAM Low Channel FRB.gif

Band LTE7 10MHz QPSK



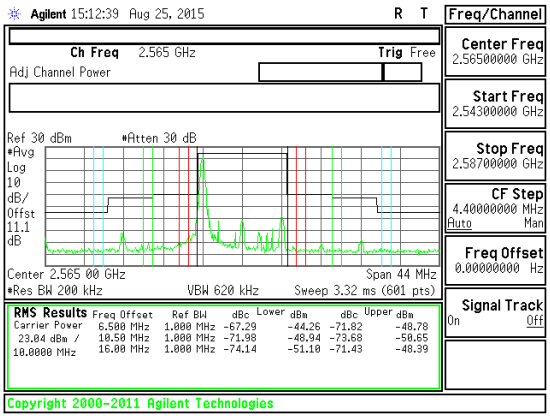
Band LTE7 10MHz EM QPSK Low Channel 1RB.gif



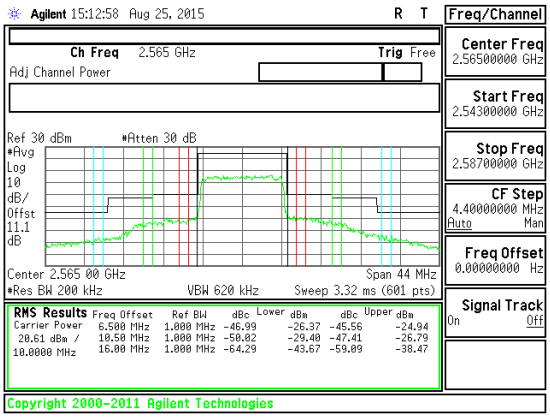
Band LTE7 10MHz EM QPSK Low Channel FRB.gif

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

Band LTE7 10MHz 16QAM

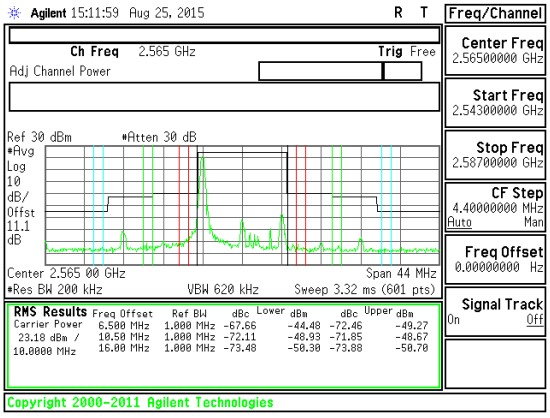


Band LTE7 10MHz EM 16QAM High Channel 1RB.gif

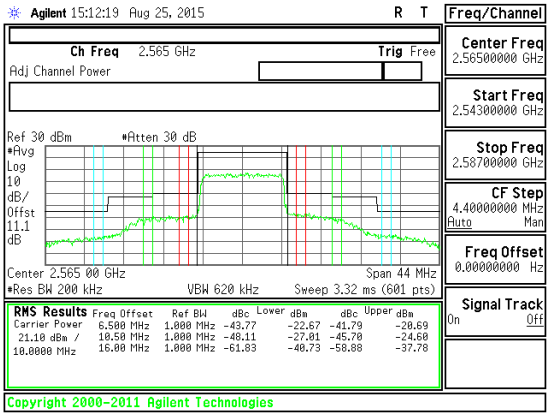


Band LTE7 10MHz EM 16QAM High Channel FRB.gif

Band LTE7 10MHz QPSK



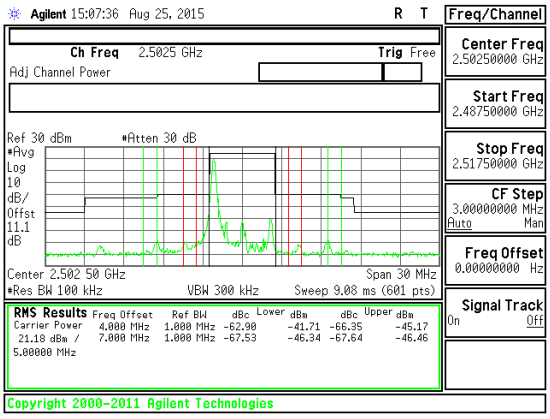
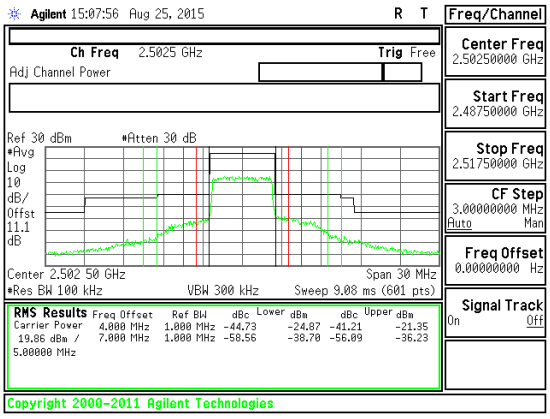
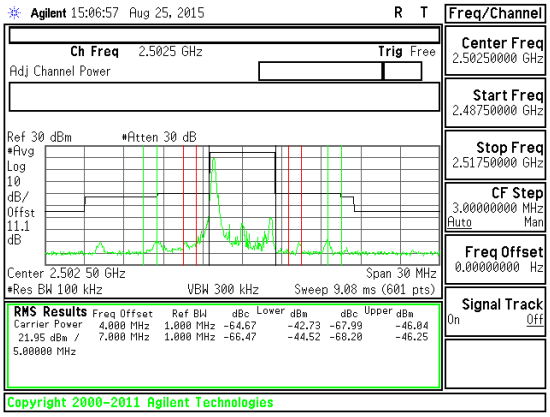
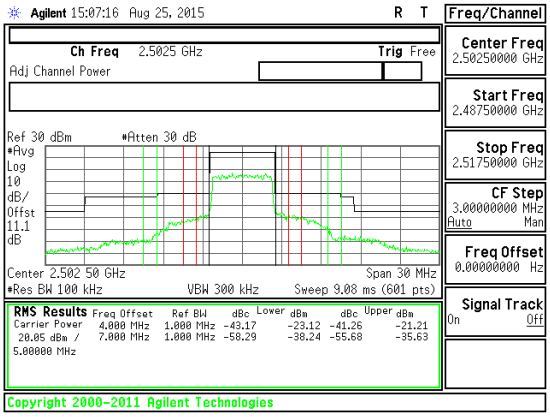
Band LTE7 10MHz EM QPSK High Channel 1RB.gif



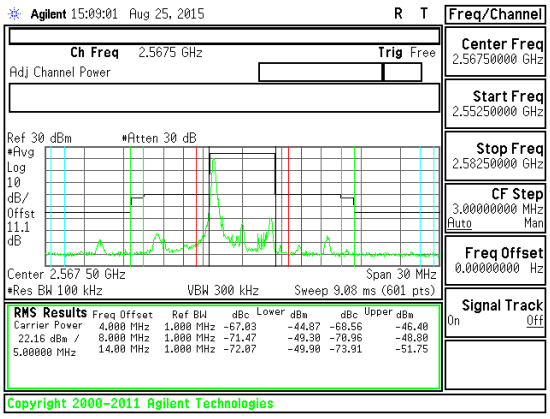
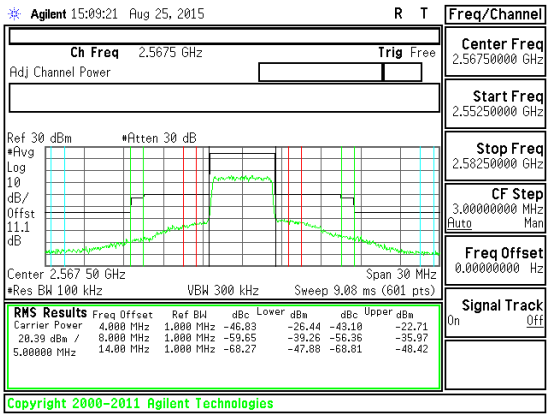
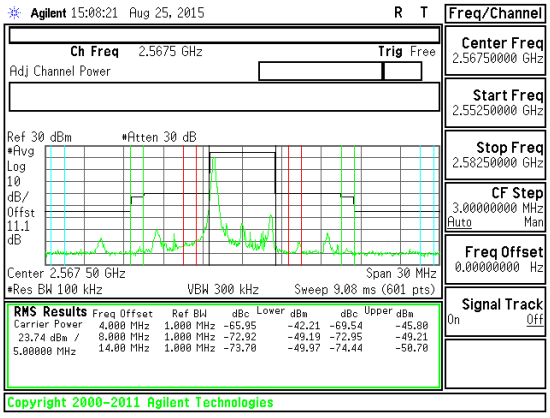
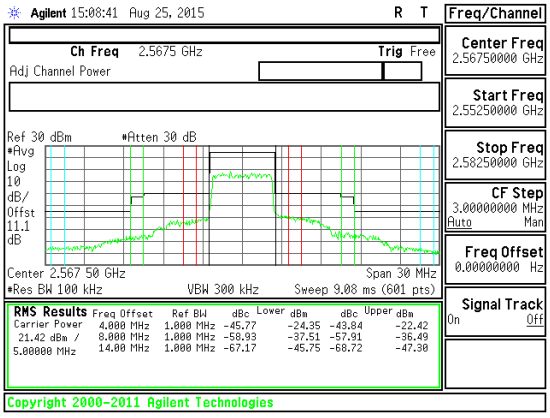
Band LTE7 10MHz EM QPSK High Channel FRB.gif

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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 LTE7 5MHz 16QAM	 Band LTE7 5MHz EM 16QAM Low Channel 1RB.gif	 Band LTE7 5MHz EM 16QAM Low Channel FRB.gif
Band LTE7 5MHz QPSK	 Band LTE7 5MHz EM QPSK Low Channel 1RB.gif	 Band LTE7 5MHz EM QPSK Low Channel FRB.gif

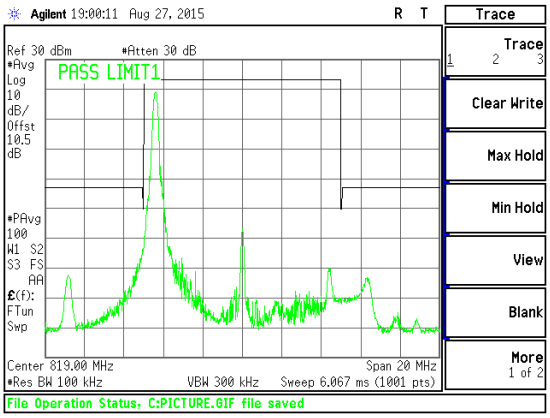
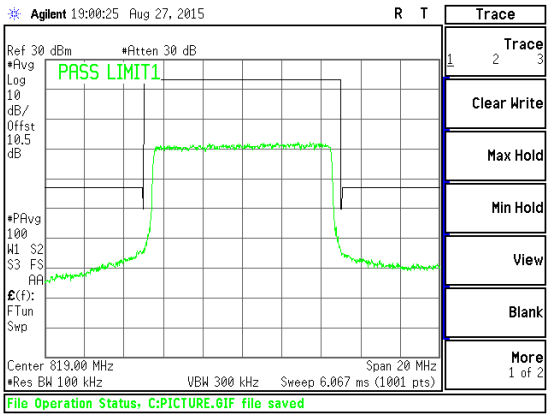
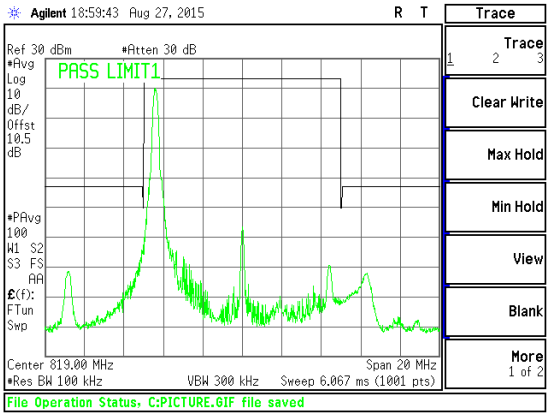
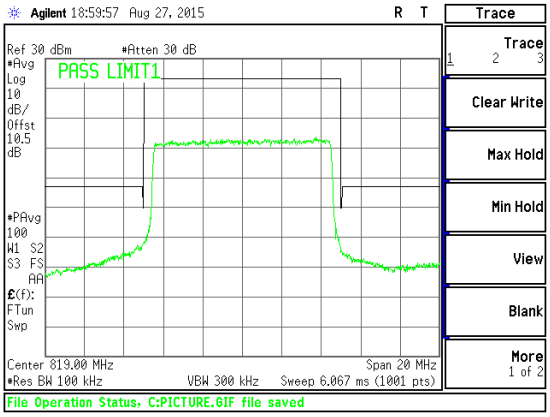
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE7 5MHz 16QAM	 Band LTE7 5MHz EM 16QAM High Channel 1RB.gif	 Band LTE7 5MHz EM 16QAM High Channel FRB.gif
Band LTE7 5MHz QPSK	 Band LTE7 5MHz EM QPSK High Channel 1RB.gif	 Band LTE7 5MHz EM QPSK High Channel FRB.gif

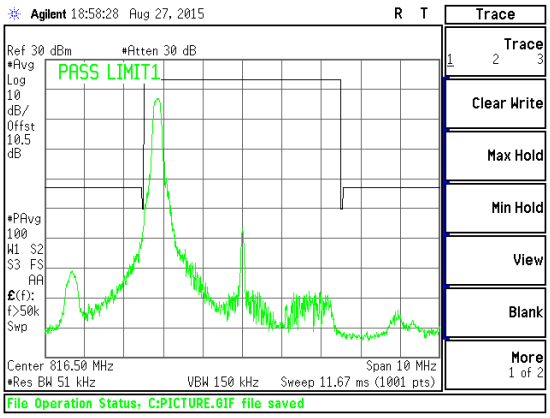
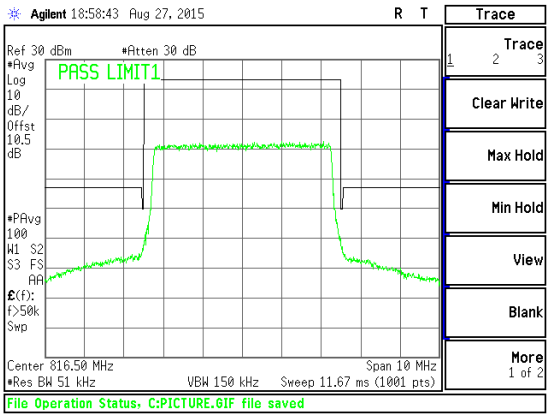
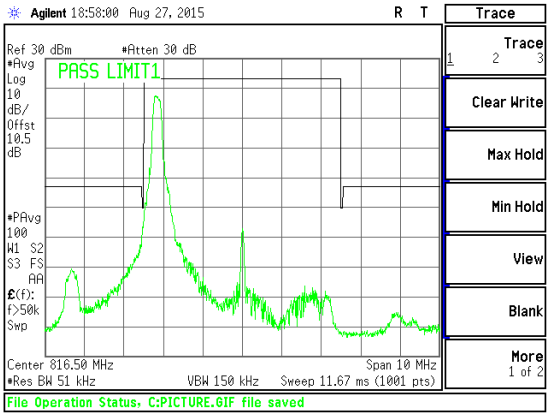
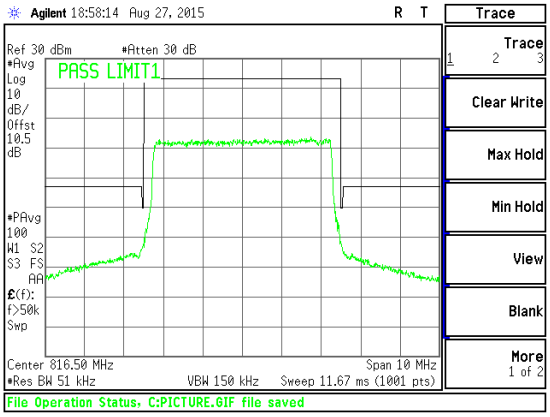
UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

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

LTE Band 26

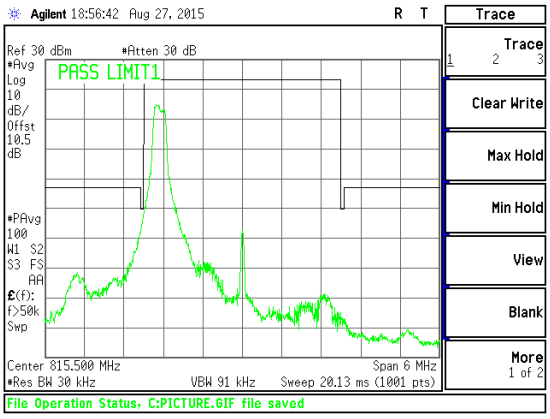
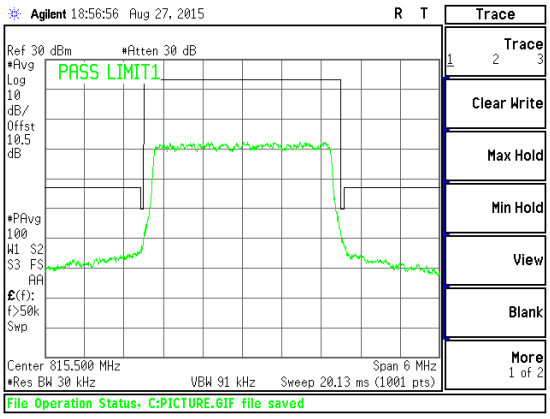
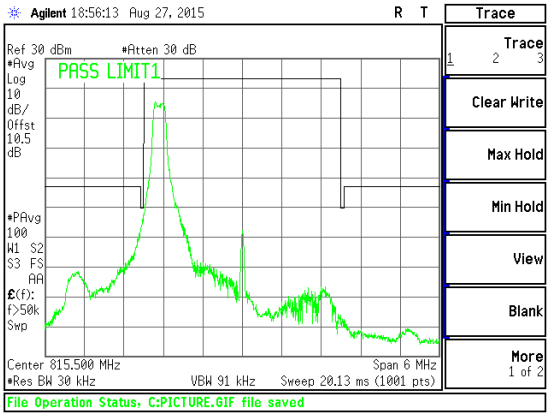
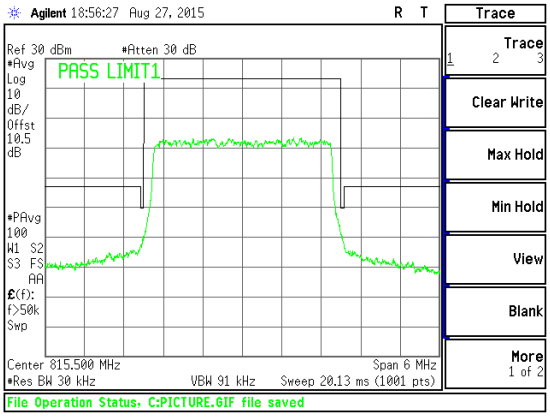
Band LTE26 10MHz 16QAM	 Band LTE26 10MHz EM 16QAM Low Channel 1RB.gif	 Band LTE26 10MHz EM 16QAM Low Channel FRB.gif
Band LTE26 10MHz QPSK	 Band LTE26 10MHz EM QPSK Low Channel 1RB.gif	 Band LTE26 10MHz EM QPSK Low Channel FRB.gif

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

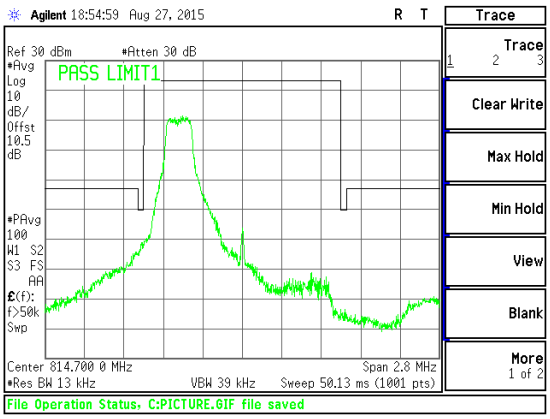
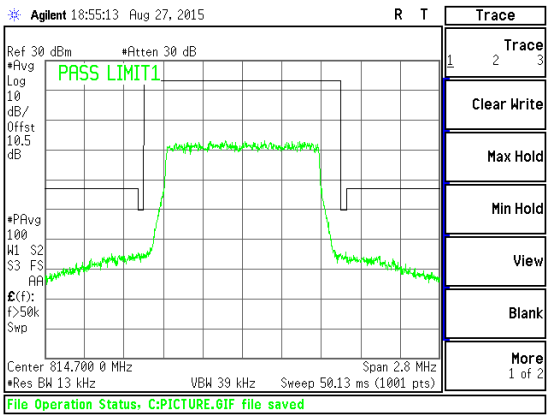
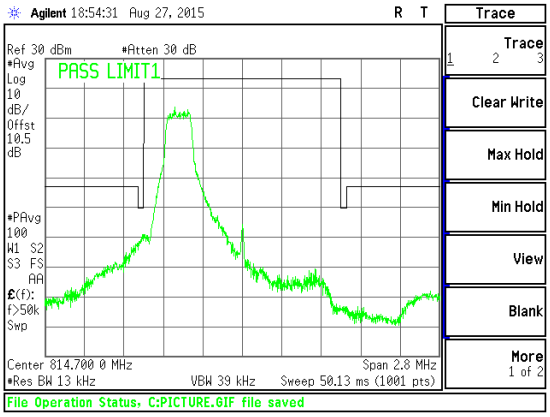
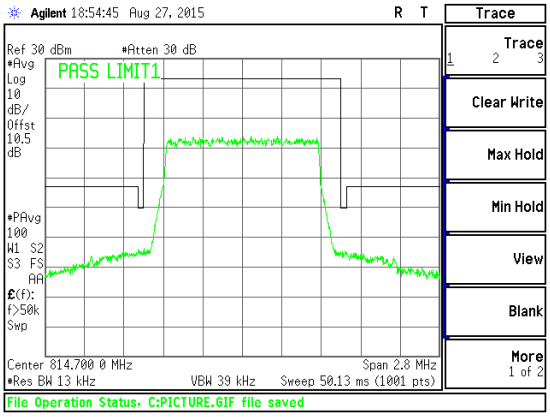
Band LTE26 5MHz 16QAM	 Band LTE26 5MHz EM 16QAM Low Channel 1RB.gif	 Band LTE26 5MHz EM 16QAM Low Channel FRB.gif
Band LTE26 5MHz QPSK	 Band LTE26 5MHz EM QPSK Low Channel 1RB.gif	 Band LTE26 5MHz EM QPSK Low Channel FRB.gif

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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.

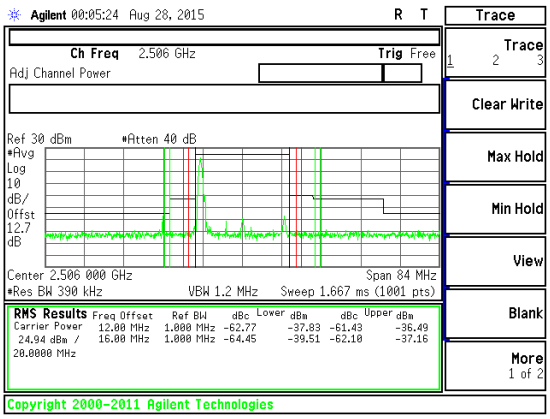
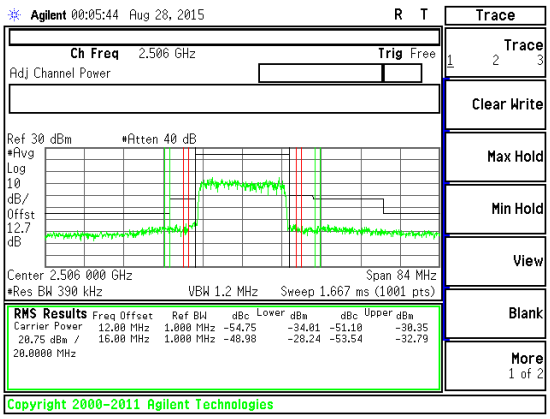
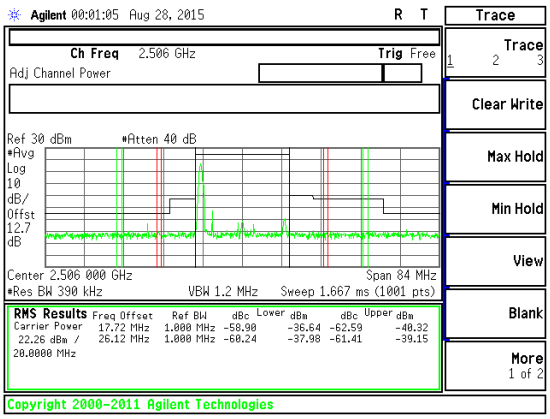
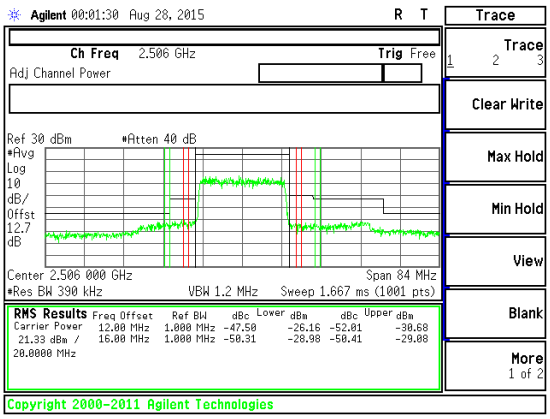
Band LTE26 3MHz 16QAM	 Band LTE26 3MHz EM 16QAM Low Channel 1RB.gif	 Band LTE26 3MHz EM 16QAM Low Channel FRB.gif
Band LTE26 3MHz QPSK	 Band LTE26 5MHz EM QPSK Low Channel 1RB.gif	 Band LTE26 3MHz EM QPSK Low Channel FRB.gif

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

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

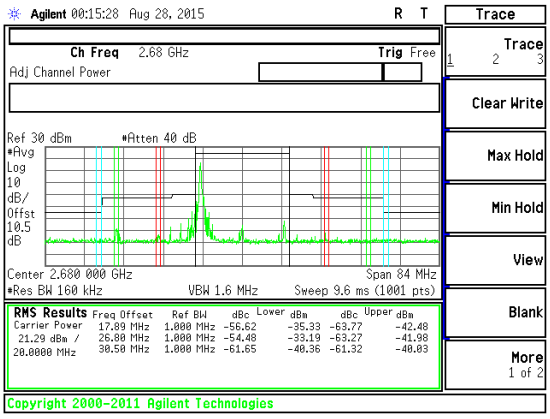
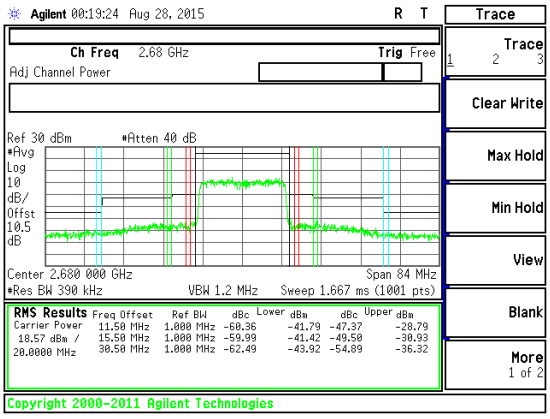
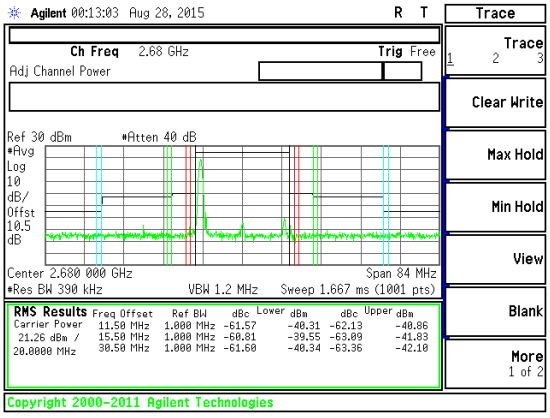
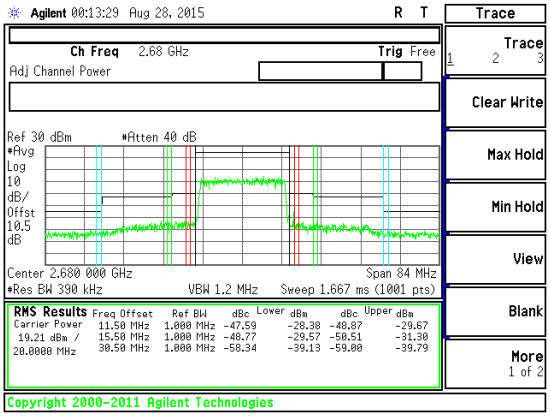
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

LTE Band 41

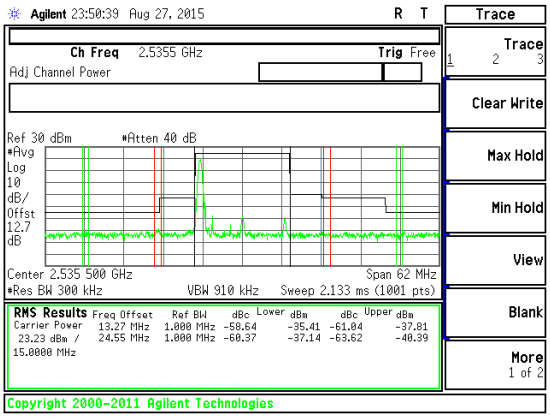
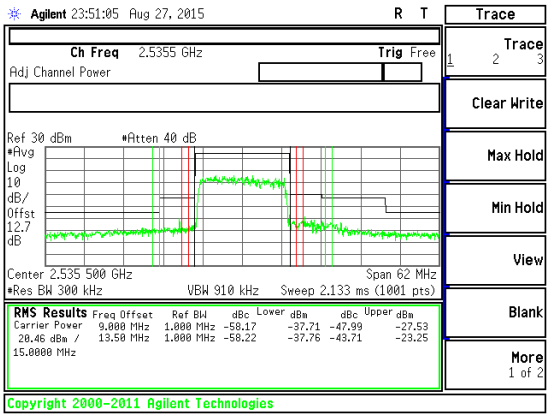
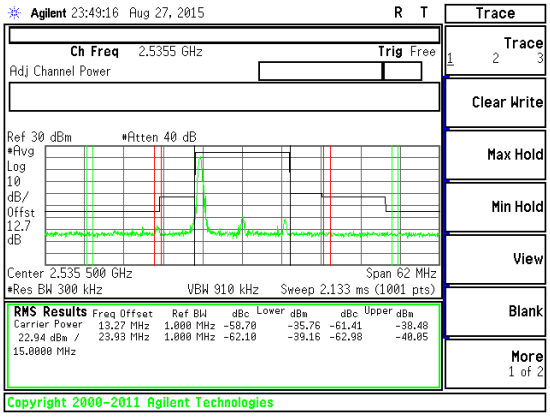
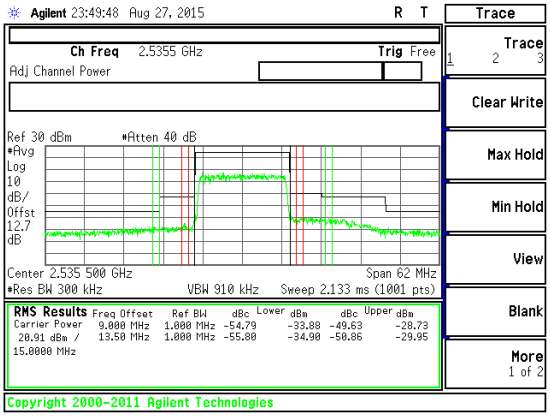
Band LTE41 20MHz 16QAM	 Band LTE41 20MHz EM 16QAM Low Channel 1RB.gif	 Band LTE41 20MHz EM 16QAM Low Channel FRB.gif
Band LTE41 20MHz QPSK	 Band LTE41 20MHz EM QPSK Low Channel 1RB.gif	 Band LTE41 20MHz EM QPSK Low Channel FRB.gif

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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.

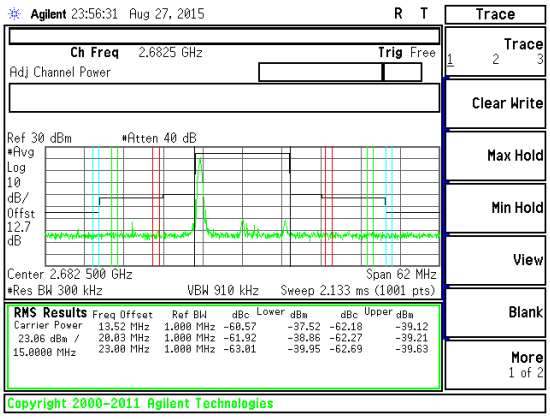
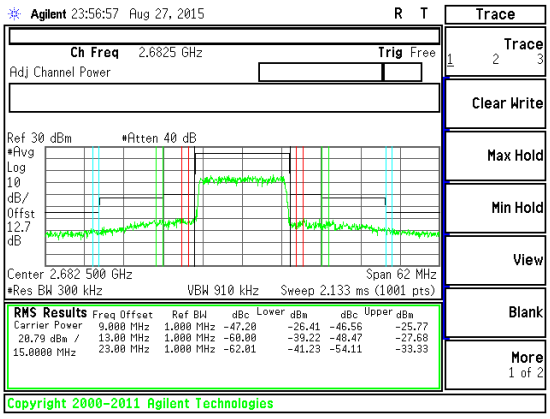
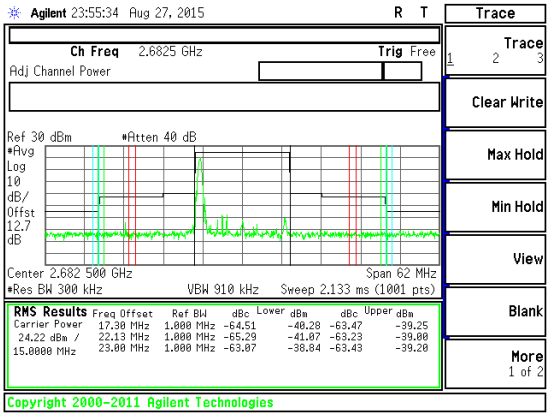
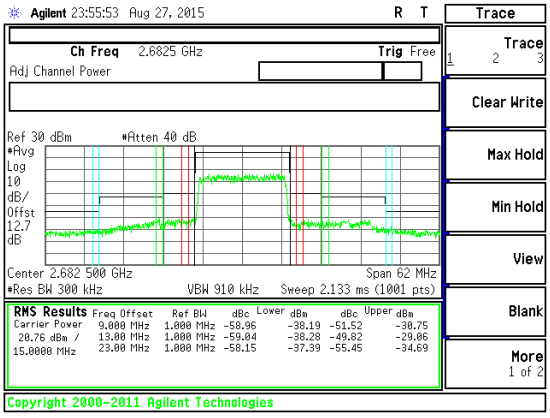
Band LTE41 20MHz 16QAM	 Band LTE41 20MHz EM 16QAM High Channel 1RB.gif	 Band LTE41 20MHz EM 16QAM High Channel FRB.gif
Band LTE41 20MHz QPSK	 Band LTE41 20MHz EM QPSK High Channel 1RB.gif	 Band LTE41 20MHz EM QPSK High Channel FRB.gif

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

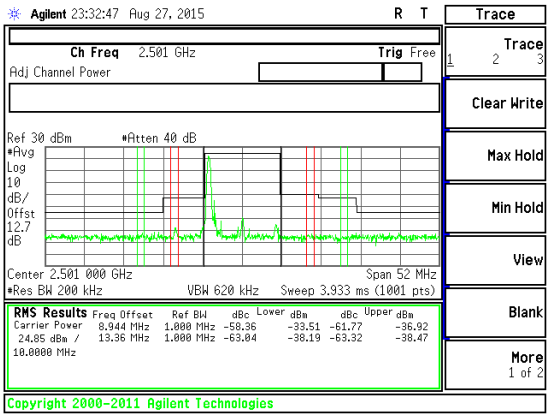
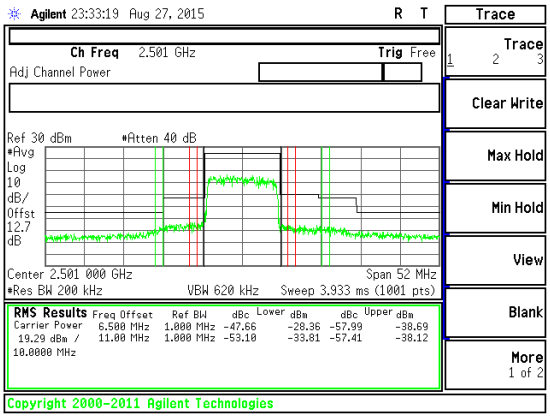
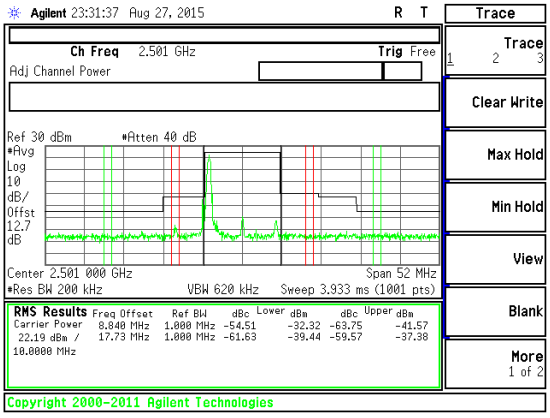
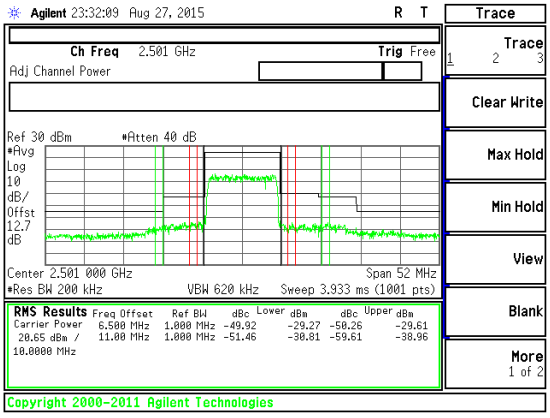
Band LTE41 15MHz 16QAM	 Band LTE41 15MHz EM 16QAM Low Channel 1RB.gif	 Band LTE41 15MHz EM 16QAM Low Channel FRB.gif
Band LTE41 15MHz QPSK	 Band LTE41 15MHz EM QPSK Low Channel 1RB.gif	 Band LTE41 15MHz EM QPSK Low Channel FRB.gif

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

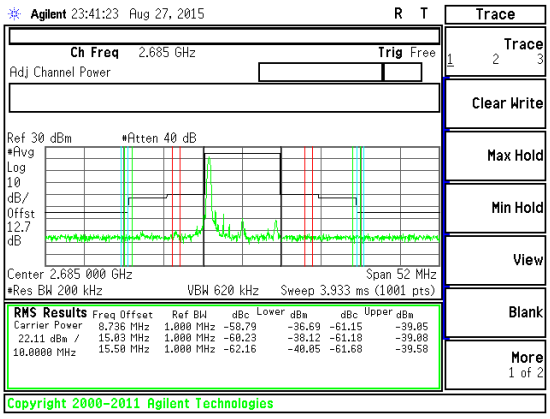
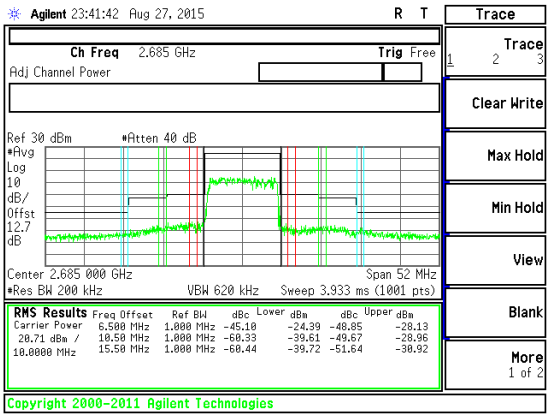
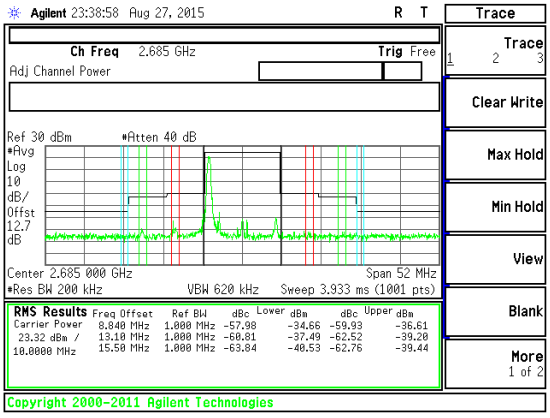
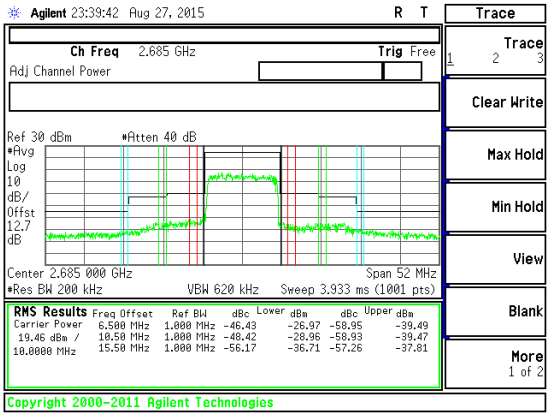
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

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

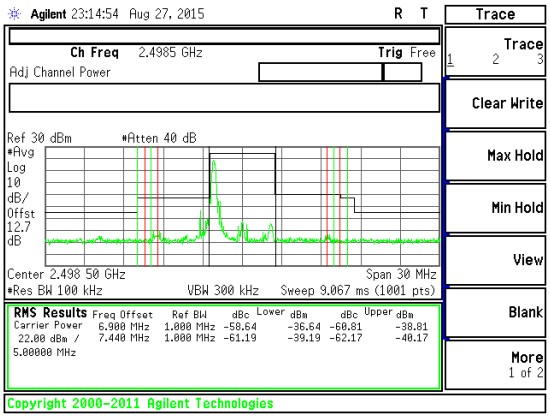
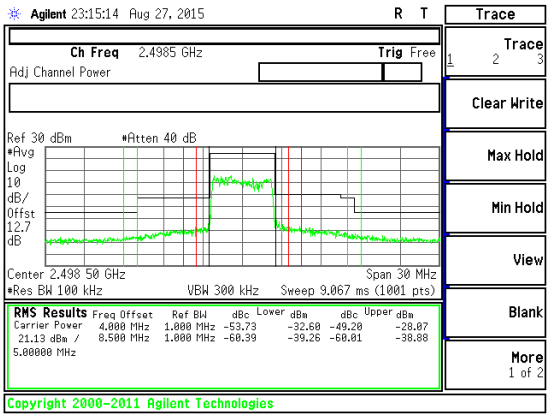
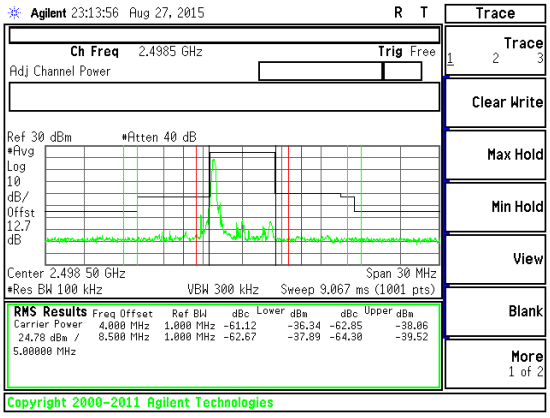
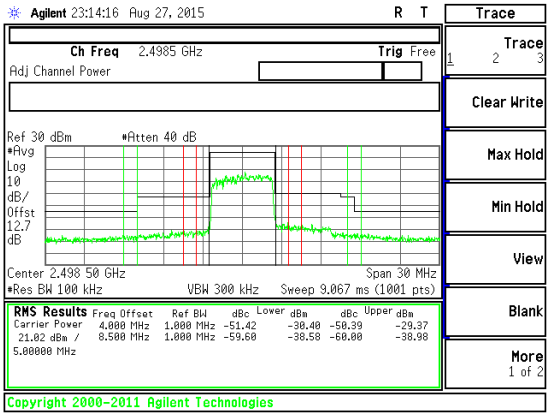
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

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

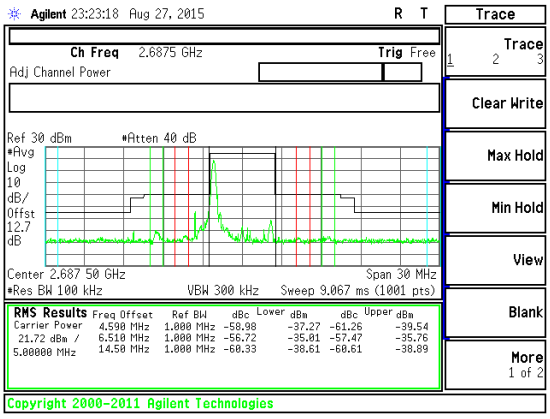
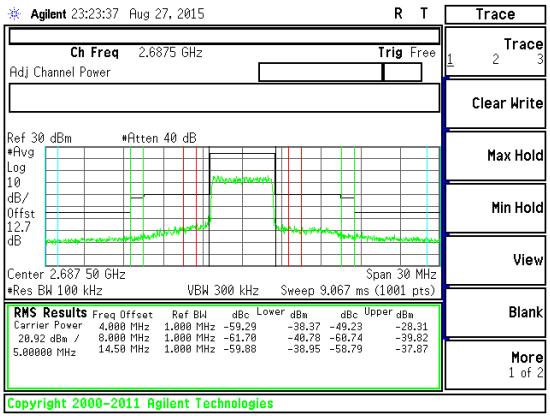
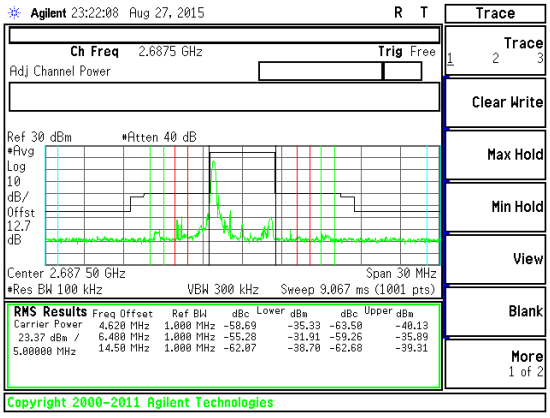
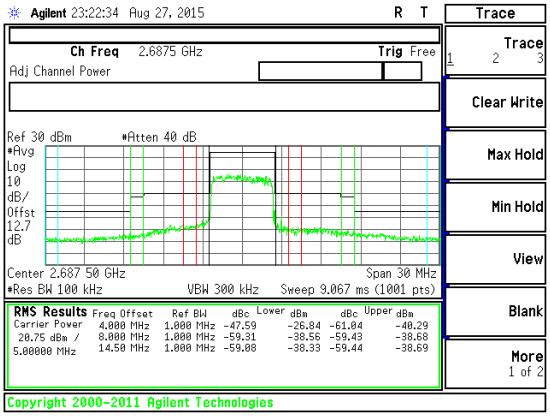
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE41 10MHz 16QAM	 Band LTE41 10MHz EM 16QAM High Channel 1RB.gif	 Band LTE41 10MHz EM 16QAM High Channel FRB.gif
Band LTE41 10MHz QPSK	 Band LTE41 10MHz EM QPSK High Channel 1RB.gif	 Band LTE41 10MHz EM 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 5MHz 16QAM	 Band LTE41 5MHz EM 16QAM Low Channel 1RB.gif	 Band LTE41 5MHz EM 16QAM Low Channel FRB.gif
Band LTE41 5MHz QPSK	 Band LTE41 5MHz EM QPSK Low Channel 1RB.gif	 Band LTE41 5MHz 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 LTE41 5MHz 16QAM	 Band LTE41 5MHz EM 16QAM High Channel 1RB.gif	 Band LTE41 5MHz EM 16QAM High Channel FRB.gif
Band LTE41 5MHz QPSK	 Band LTE41 5MHz EM QPSK High Channel 1RB.gif	 Band LTE41 5MHz EM QPSK High Channel 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, §27.53 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.

Part 27: (m)(4) (4) For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v02r02

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.

MODES TESTED

GSM, WCDMA, and LTE

RESULTS

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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.

10.3.1. OUT OF BAND EMISSIONS RESULT

GSM

Band	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
GSM 850	GPRS	824.2	-22.509	-13	-9.509
		836.6	-23.191	-13	-10.191
		848.8	-22.548	-13	-9.548
	EGPRS	824.2	-22.475	-13	-9.475
		836.6	-22.685	-13	-9.685
		848.8	-22.428	-13	-9.428
GSM 1900	GPRS	1850.2	-23.038	-13	-10.038
		1880	-22.573	-13	-9.573
		1909.8	-21.442	-13	-8.442
	EGPRS	1850.2	-21.185	-13	-8.185
		1880	-22.504	-13	-9.504
		1909.8	-22.853	-13	-9.853

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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.

WCDMA

Band	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
Band 5	REL99	826.4	-25.079	-13	-12.079
		836.6	-25.212	-13	-12.212
		846.6	-24.562	-13	-11.562
	HSDPA	826.4	-25.362	-13	-12.362
		836.6	-26.083	-13	-13.083
		846.6	-24.88	-13	-11.88
Band 4	REL99	1712.4	-22.071	-13	-9.071
		1732.6	-22.702	-13	-9.702
		1752.6	-22.862	-13	-9.862
	HSDPA	1712.4	-22.343	-13	-9.343
		1732.6	-22.197	-13	-9.197
		1752.6	-22.951	-13	-9.951
Band 2	REL99	1852.4	-23.091	-13	-10.091
		1880	-22.368	-13	-9.368
		1907.6	-22.748	-13	-9.748
	HSDPA	1852.4	-22.954	-13	-9.954
		1880	-22.262	-13	-9.262
		1907.6	-22.935	-13	-9.935

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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.

LTE Band 2

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE2	20	16QAM	1860	-28.92	-13	-15.92
			1880	-29.22	-13	-16.22
			1900	-29.73	-13	-16.73
		QPSK	1860	-30.13	-13	-17.13
			1880	-28.7	-13	-15.7
			1900	-29.53	-13	-16.53
	15	16QAM	1857.5	-30.15	-13	-17.15
			1880	-29.87	-13	-16.87
			1902.5	-30.22	-13	-17.22
		QPSK	1857.5	-29.909	-13	-16.909
			1880	-29.84	-13	-16.84
			1902.5	-29.48	-13	-16.48
	10	16QAM	1855	-30.13	-13	-17.13
			1880	-29.87	-13	-16.87
			1905	-30.05	-13	-17.05
		QPSK	1855	-30.01	-13	-17.01
			1880	-30	-13	-17
			1905	-30.05	-13	-17.05
	5	16QAM	1852.5	-29.826	-13	-16.826
			1880	-29.249	-13	-16.249
			1907.5	-29.443	-13	-16.443
		QPSK	1852.5	-29.629	-13	-16.629
			1880	-29.942	-13	-16.942
			1907.5	-29.9	-13	-16.9

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE2	3	16QAM	1851.5	-30.07	-13	-17.07
			1880	-29.639	-13	-16.639
			1908.5	-29.974	-13	-16.974
		QPSK	1851.5	-29.78	-13	-16.78
			1880	-29.652	-13	-16.652
			1908.5	-28.819	-13	-15.819
	1.4	16QAM	1850.7	-30.326	-13	-17.326
			1880	-30.223	-13	-17.223
			1909.3	-29.939	-13	-16.939
		QPSK	1850.7	-29.834	-13	-16.834
			1880	-29.497	-13	-16.497
			1909.3	-29.789	-13	-16.789

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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.

LTE Band 4

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE4	20	16QAM	1720	-30.156	-13	-17.156
			1732.5	-29.134	-13	-16.134
			1745	-29.46	-13	-16.46
		QPSK	1720	-29.82	-13	-16.82
			1732.5	-29.924	-13	-16.924
			1745	-29.247	-13	-16.247
	15	16QAM	1717.5	-30.3	-13	-17.3
			1732.5	-30.34	-13	-17.34
			1747.5	-29.42	-13	-16.42
		QPSK	1717.5	-30.023	-13	-17.023
			1732.5	-30.24	-13	-17.24
			1747.5	-30.5	-13	-17.5
	10	16QAM	1715	-29.59	-13	-16.59
			1732.5	-29.846	-13	-16.846
			1750	-30.2	-13	-17.2
		QPSK	1715	-30.08	-13	-17.08
			1732.5	-29.06	-13	-16.06
			1750	-29.84	-13	-16.84
	5	16QAM	1712.5	-28.699	-13	-15.699
			1732.5	-30.265	-13	-17.265
			1752.5	-29.218	-13	-16.218
		QPSK	1712.5	-29.266	-13	-16.266
			1732.5	-30.166	-13	-17.166
			1752.5	-30.798	-13	-17.798

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE4	3	16QAM	1711.5	-30.034	-13	-17.034
			1732.5	-30.076	-13	-17.076
			1753.5	-29.27	-13	-16.27
		QPSK	1711.5	-29.807	-13	-16.807
			1732.5	-29.944	-13	-16.944
			1753.5	-29.52	-13	-16.52
	1.4	16QAM	1710.7	-29.464	-13	-16.464
			1732.5	-30.092	-13	-17.092
			1754.3	-29.943	-13	-16.943
		QPSK	1710.7	-30.076	-13	-17.076
			1732.5	-30.292	-13	-17.292
			1754.3	-29.978	-13	-16.978

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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.

LTE Band 5

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE5	10	16QAM	829	-29.16	-13	-16.16
			836.5	-29.029	-13	-16.029
			844	-29.957	-13	-16.957
		QPSK	829	-30.155	-13	-17.155
			836.5	-30.121	-13	-17.121
			844	-29.797	-13	-16.797
	5	16QAM	826.5	-29.681	-13	-16.681
			836.5	-29.746	-13	-16.746
			846.5	-30.032	-13	-17.032
		QPSK	826.5	-29.895	-13	-16.895
			836.5	-29.34	-13	-16.34
			846.5	-30.45	-13	-17.45
	3	16QAM	825.5	-29.906	-13	-16.906
			836.5	-30.11	-13	-17.11
			847.5	-30.408	-13	-17.408
		QPSK	825.5	-29.685	-13	-16.685
			836.5	-29.351	-13	-16.351
			847.5	-29.497	-13	-16.497
	1.4	16QAM	824.7	-30.393	-13	-17.393
			836.5	-30.2	-13	-17.2
			848.3	-29.705	-13	-16.705
		QPSK	824.7	-29.735	-13	-16.735
			836.5	-29.595	-13	-16.595
			848.3	-30.33	-13	-17.33

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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.

LTE Band 7

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE7	20	16QAM	2510	-30.079	-25	-5.079
			2535	-30.199	-25	-5.199
			2560	-28.821	-25	-3.821
		QPSK	2510	-29.371	-25	-4.371
			2535	-29.986	-25	-4.986
			2560	-30.374	-25	-5.374
	15	16QAM	2507.5	-29.912	-25	-4.912
			2535	-30.338	-25	-5.338
			2562.5	-29.04	-25	-4.04
		QPSK	2507.5	-29.902	-25	-4.902
			2535	-30.178	-25	-5.178
			2562.5	-29.825	-25	-4.825
	10	16QAM	2505	-29.451	-25	-4.451
			2535	-29.475	-25	-4.475
			2565	-29.179	-25	-4.179
		QPSK	2505	-30.162	-25	-5.162
			2535	-29.994	-25	-4.994
			2565	-28.95	-25	-3.95
	5	16QAM	2502.5	-29.741	-25	-4.741
			2535	-29.64	-25	-4.64
			2567.5	-29.111	-25	-4.111
		QPSK	2502.5	-29.91	-25	-4.91
			2535	-29.026	-25	-4.026
			2567.5	-29.76	-25	-4.76

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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.

LTE Band 17

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE17	10	16QAM	709	-30.746	-13	-17.746
			710	-30.475	-13	-17.475
			711	-30.79	-13	-1.424
		QPSK	709	-29.934	-13	-16.934
			710	-30.655	-13	-17.655
			711	-30.55	-13	-17.55
	5	16QAM	706.5	-30.432	-13	-17.432
			710	-30.337	-13	-17.337
			713.5	-30.026	-13	-17.026
		QPSK	706.5	-30.749	-13	-17.749
			710	-30.651	-13	-17.651
			713.5	-30.828	-13	-17.828

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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.

LTE Band 26

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE26	15	16QAM	831.5	-29.68	-13	-16.68
			836.5	-30.15	-13	-17.15
			841.5	-29.42	-13	-16.42
		QPSK	831.5	-29.78	-13	-16.78
			836.5	-30.82	-13	-17.82
			841.5	-30.33	-13	-17.33
	10	16QAM	819	-30.22	-13	-17.22
			831.5	-30.89	-13	-17.89
			844	-30.21	-13	-17.21
		QPSK	819	-30.38	-13	-17.38
			831.5	-30.78	-13	-17.78
			844	-30.2	-13	-17.2
	5	16QAM	816.5	-30.55	-13	-17.55
			831.5	-30.74	-13	-17.74
			846.5	-30.13	-13	-17.13
		QPSK	816.5	-30.51	-13	-17.51
			831.5	-30.1	-13	-17.1
			846.5	-30.84	-13	-17.84
	3	16QAM	815.5	-35.53	-13	-22.53
			831.5	-30.86	-13	-17.86
			847.5	-30.14	-13	-17.14
		QPSK	815.5	-35.14	-13	-22.14
			831.5	-29.7	-13	-16.7
			847.5	-30.53	-13	-17.53
	1.4	16QAM	814.7	-36.69	-13	-23.69
			831.5	-38.83	-13	-25.83
			848.3	-35.83	-13	-22.83
		QPSK	814.7	-35.03	-13	-22.03
			831.5	-35.86	-13	-22.86
			848.3	-36.04	-13	-23.04

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

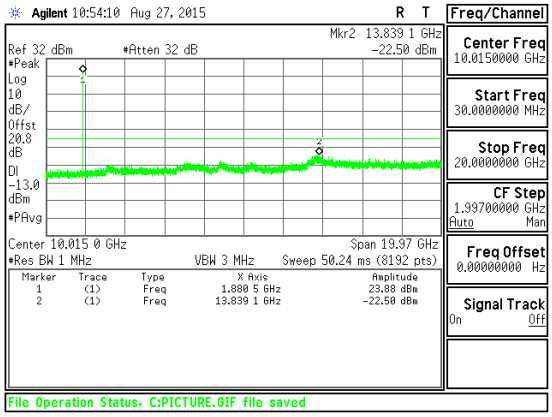
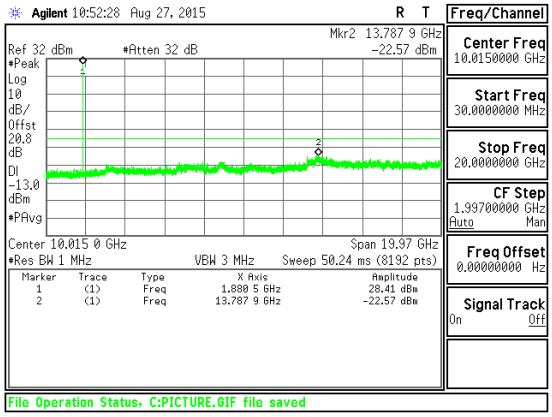
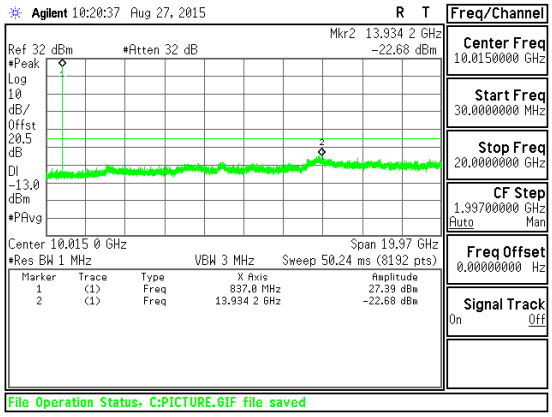
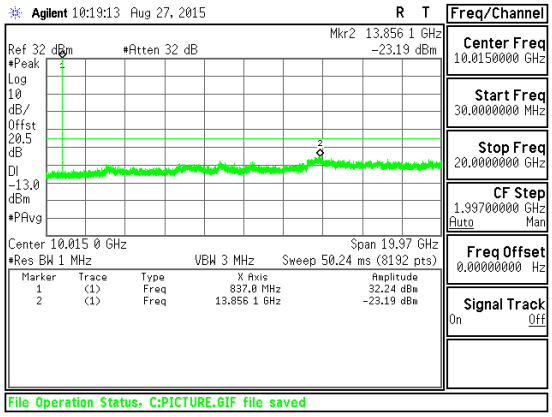
LTE Band 41

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE41	20	16QAM	2506	-29.94	-25	-4.94
			2593	-30.56	-25	-5.56
			2680	-29.42	-25	-4.42
		QPSK	2506	-30.37	-25	-5.37
			2593	-30.76	-25	-5.76
			2680	-30.79	-25	-5.79
	15	16QAM	2503.5	-29.5	-25	-4.5
			2593	-29.95	-25	-4.95
			2682.5	-28.67	-25	-3.67
		QPSK	2503.5	-30.44	-25	-5.44
			2593	-30.85	-25	-5.85
			2682.5	-30.06	-25	-5.06
	10	16QAM	2501	-29.48	-25	-4.48
			2593	-29.96	-25	-4.96
			2685	-30.65	-25	-5.65
		QPSK	2501	-30.42	-25	-5.42
			2593	-30.93	-25	-5.93
			2685	-30.2	-25	-5.2
	5	16QAM	2498.5	-29.57	-25	-4.57
			2593	-30.36	-25	-5.36
			2687.5	-30.11	-25	-5.11
		QPSK	2498.5	-30.9	-25	-5.9
			2593	-30.34	-25	-5.34
			2687.5	-30.38	-25	-5.38

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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.

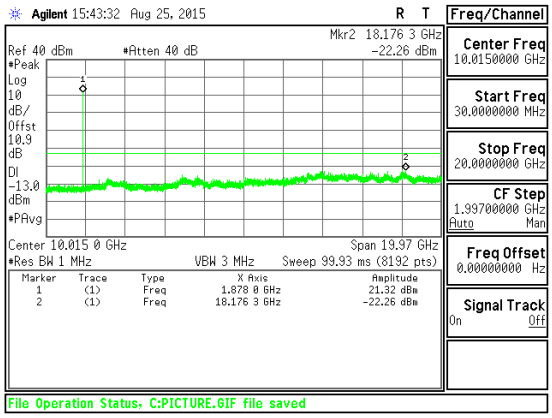
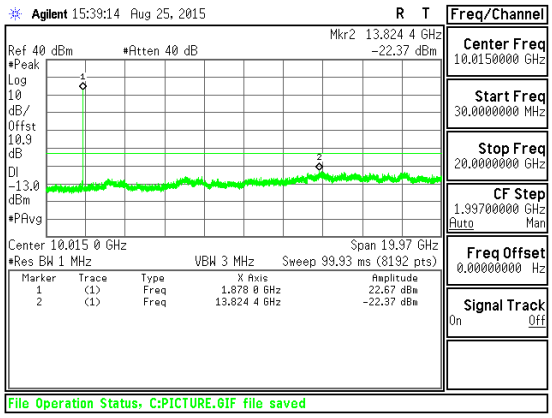
10.3.2. OUT OF BAND EMISSIONS PLOTS

GSM

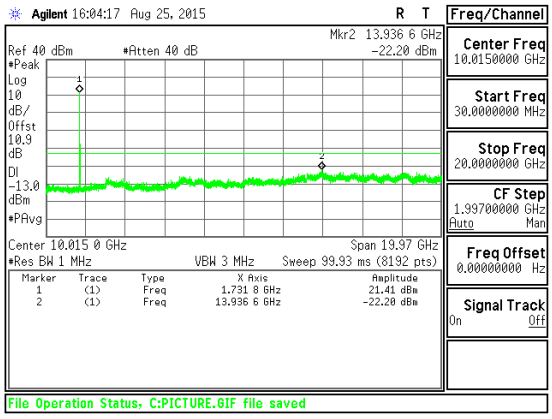
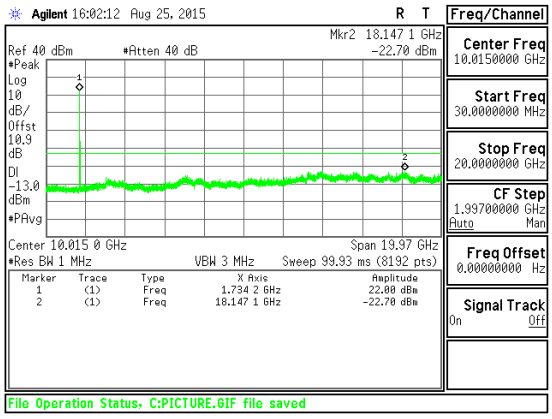
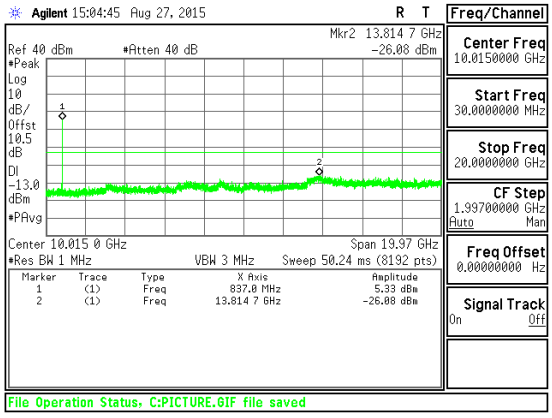
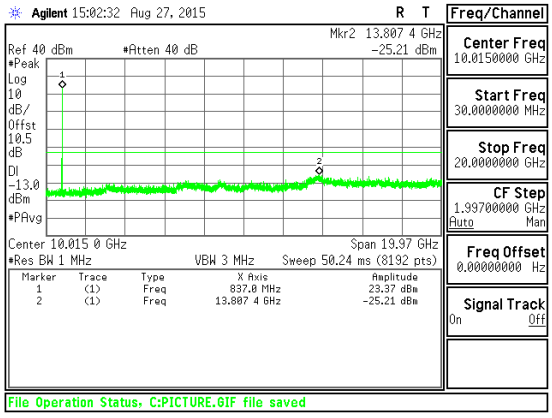
Band GSM1900	 Band GSM1900 EGPRS CSE Mid channel	 Band GSM1900 GPRS CSE Mid channel
Band GSM850	 Band GSM850 EGPRS CSE Mid channel	 Band GSM850 GPRS CSE Mid channel

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

WCDMA

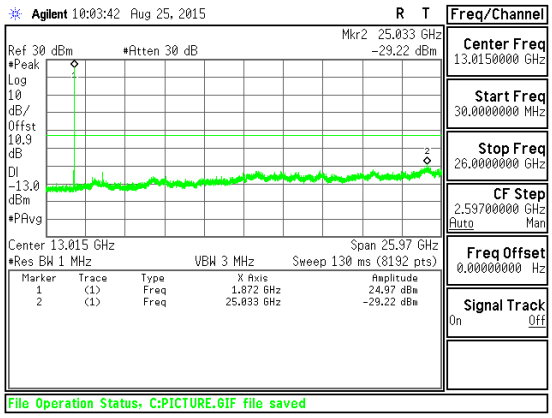
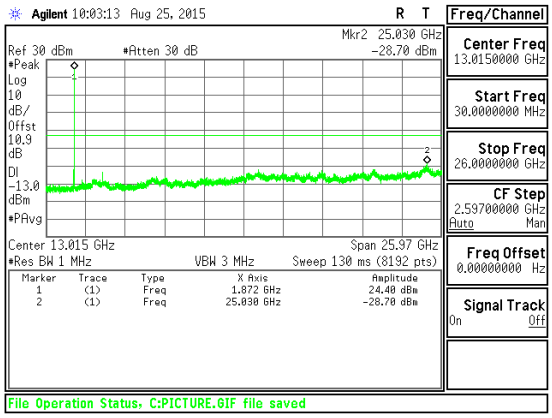
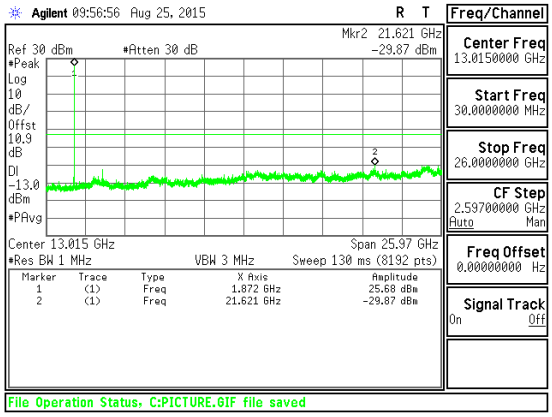
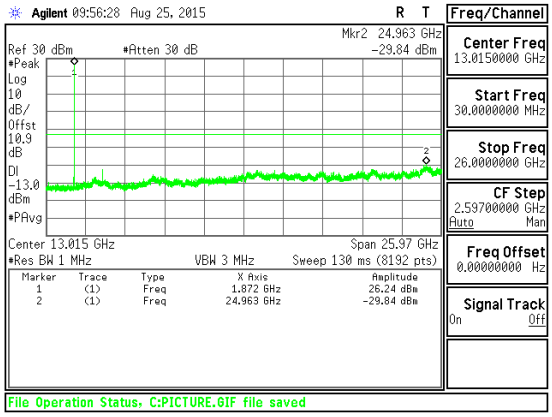
Band Band 2	 Band WCDMA B2 HSDPA CSE	 Band WCDMA B2 REL99 CSE

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

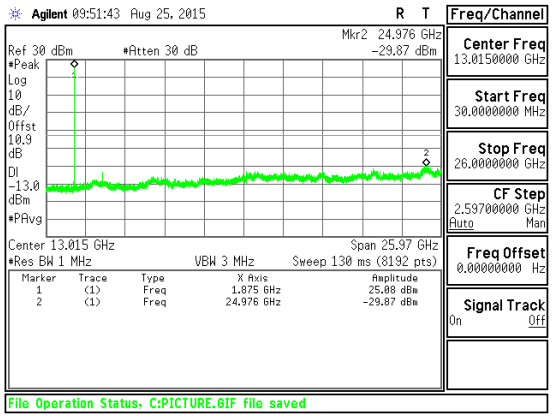
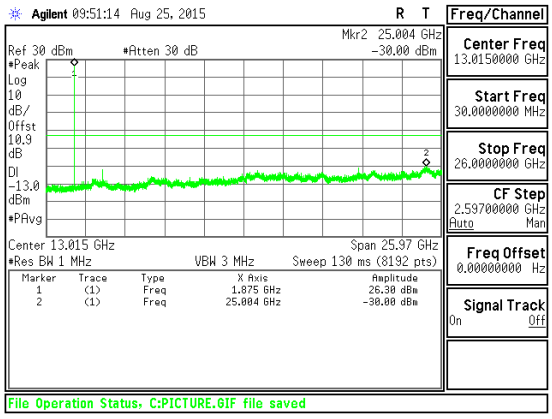
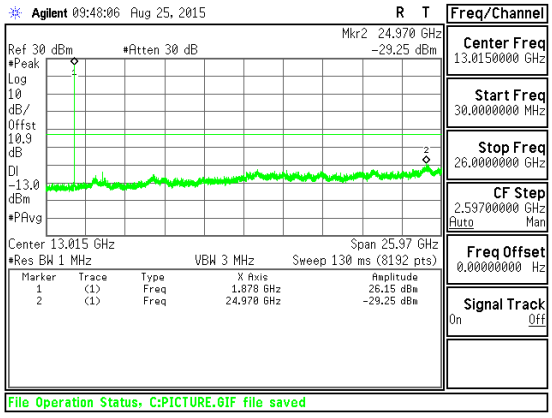
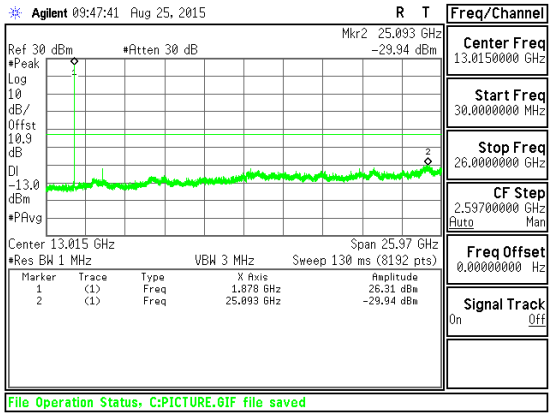
Band Band 4	 Band WCDMA B4 HSDPA CSE	 Band WCDMA B4 REL99 CSE
Band Band 5	 Band WCDMA B5 HSDPA CSE	 Band WCDMA B5 REL99 CSE

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

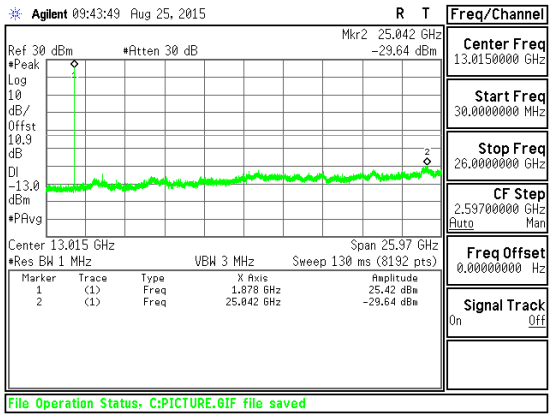
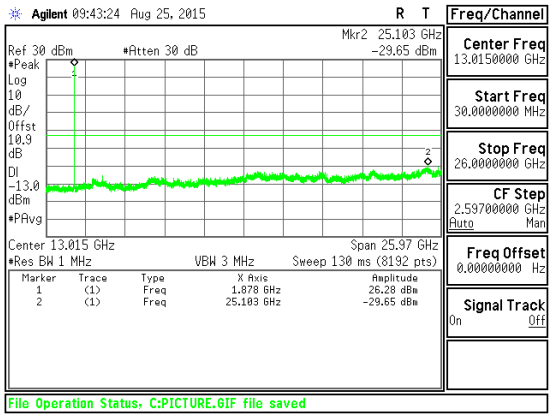
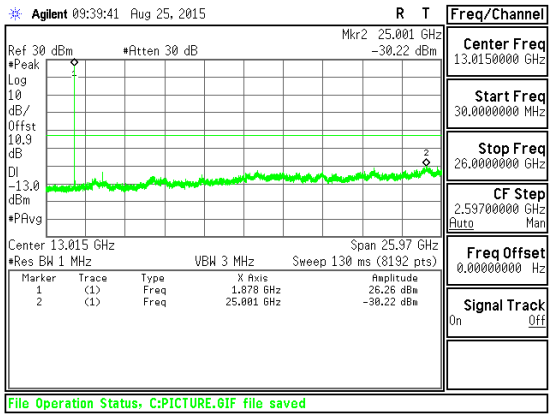
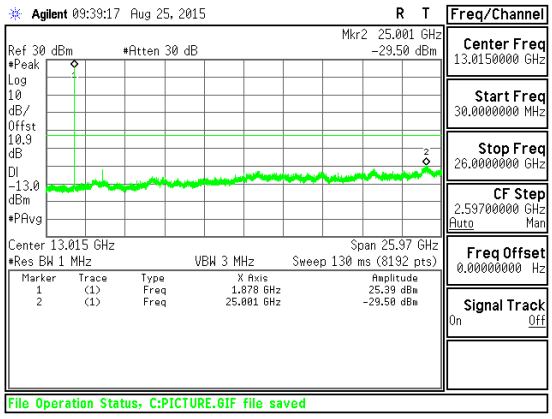
LTE Band 2

Band LTE2 20MHz	 Band LTE2 20MHz CSE 16QAM Mid channel	 Band LTE2 20MHz CSE QPSK Mid channel
Band LTE2 15MHz	 Band LTE2 15MHz CSE 16QAM Mid channel	 Band LTE2 15MHz CSE QPSK Mid channel

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

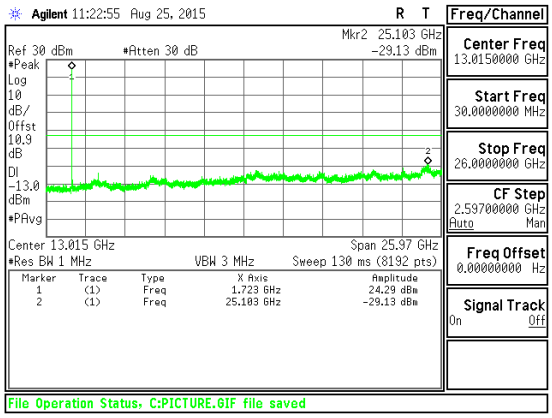
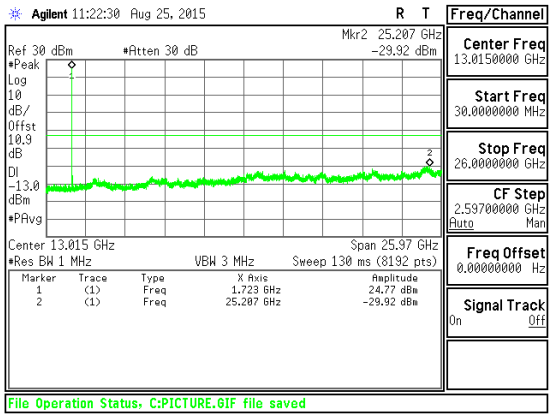
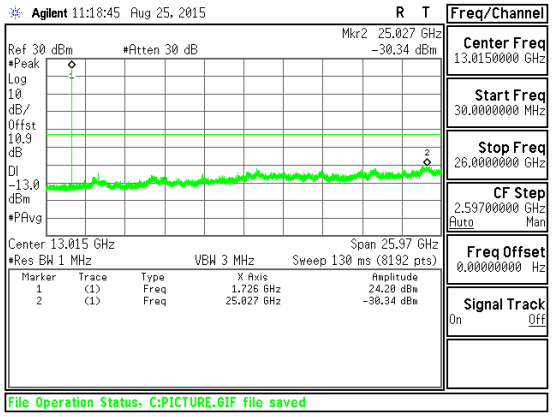
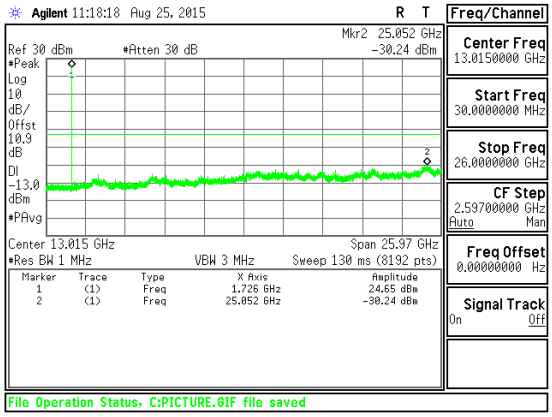
Band LTE2 10MHz	 Band LTE2 10MHz CSE 16QAM Mid channel	 Band LTE2 10MHz CSE QPSK Mid channel
Band LTE2 5MHz	 Band LTE2 5MHz CSE 16QAM Mid channel	 Band LTE2 5MHz CSE QPSK Mid channel

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

Band LTE2 3MHz	 Band LTE2 3MHz CSE 16QAM Mid channel	 Band LTE2 3MHz CSE QPSK Mid channel
Band LTE2 1.4MHz	 Band LTE2 1.4MHz CSE 16QAM Mid channel	 Band LTE2 1.4MHz CSE QPSK Mid channel

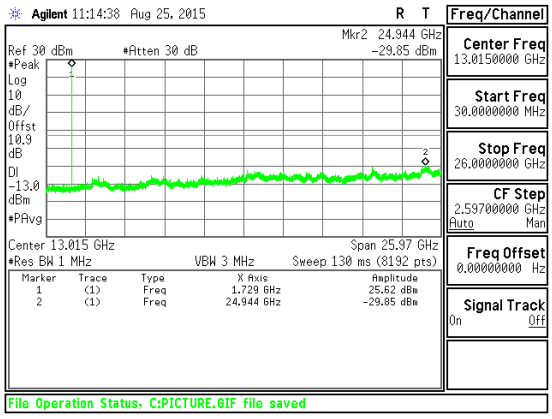
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

LTE Band 4

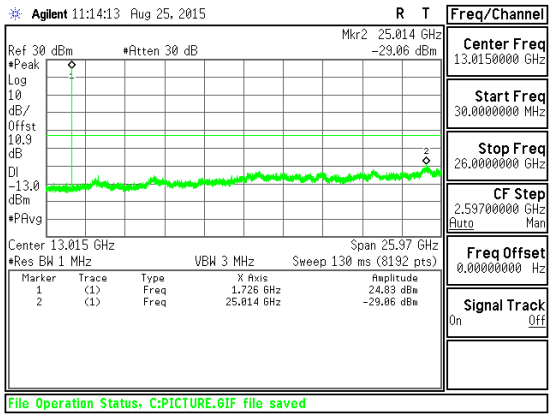
Band LTE4 20MHz	 Band LTE4 20MHz CSE 16QAM Mid channel	 Band LTE4 20MHz CSE QPSK Mid channel
Band LTE4 15MHz	 Band LTE4 15MHz CSE 16QAM Mid channel	 Band LTE4 15MHz CSE QPSK Mid channel

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

Band LTE4 10MHz

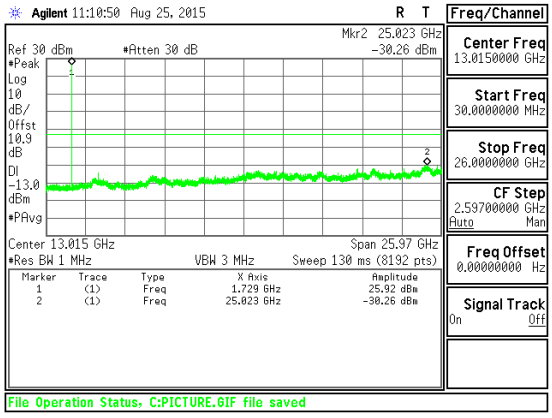


Band LTE4 10MHz CSE 16QAM Mid channel

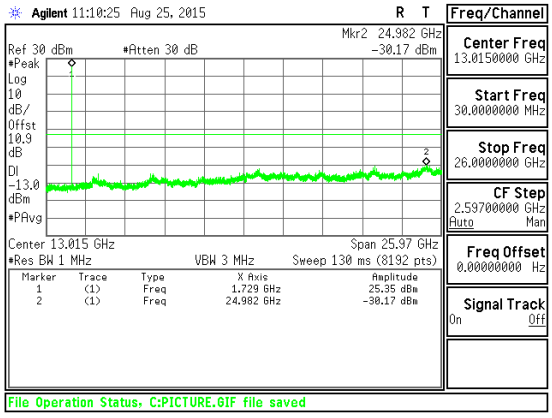


Band LTE4 10MHz CSE QPSK Mid channel

Band LTE4 5MHz



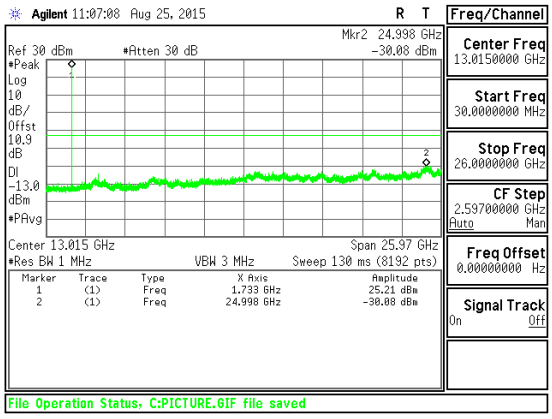
Band LTE4 5MHz CSE 16QAM Mid channel



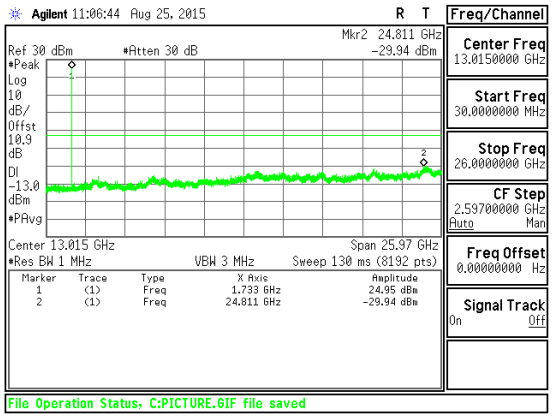
Band LTE4 5MHz CSE QPSK Mid channel

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

Band LTE4 3MHz

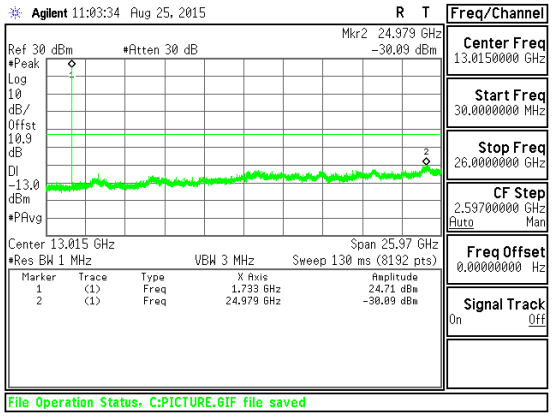


Band LTE4 3MHz CSE 16QAM Mid channel

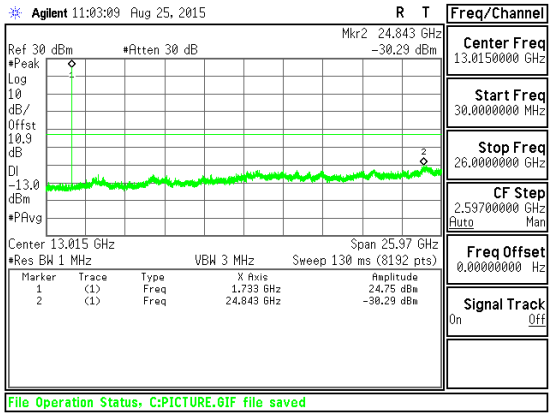


Band LTE4 3MHz CSE QPSK Mid channel

Band LTE4 1.4MHz



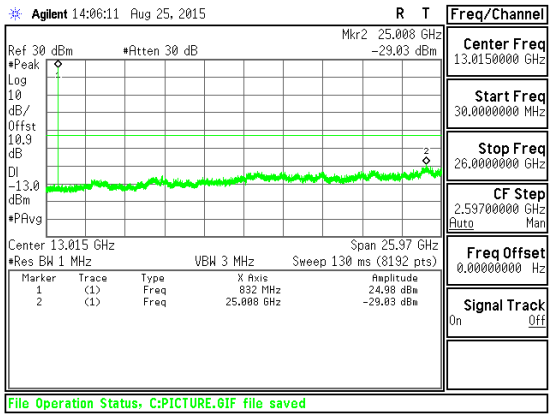
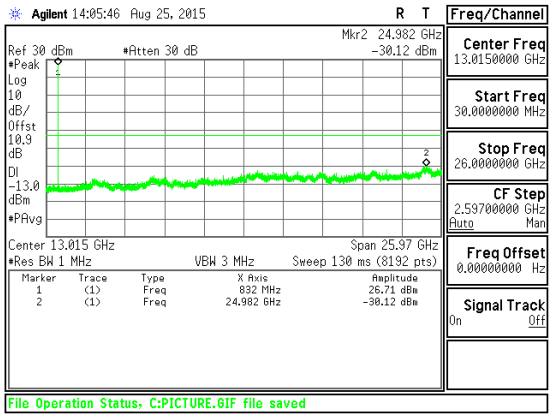
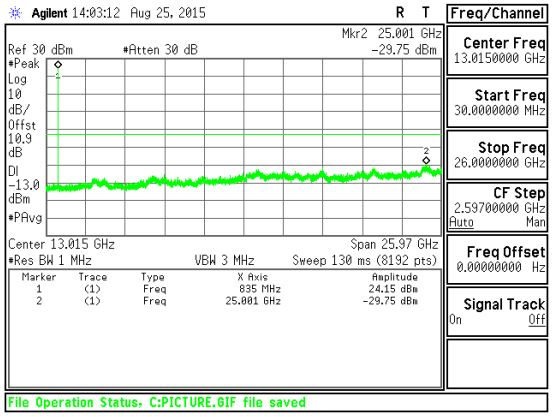
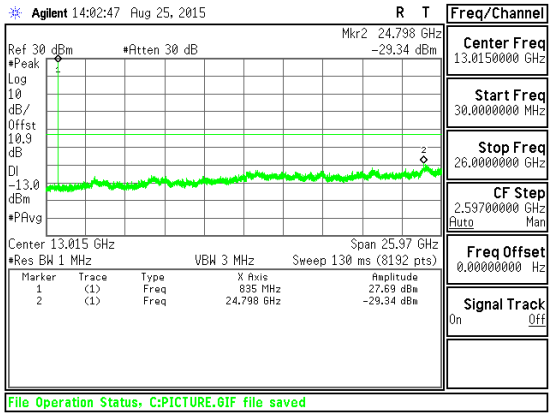
Band LTE4 1.4MHz CSE 16QAM Mid channel



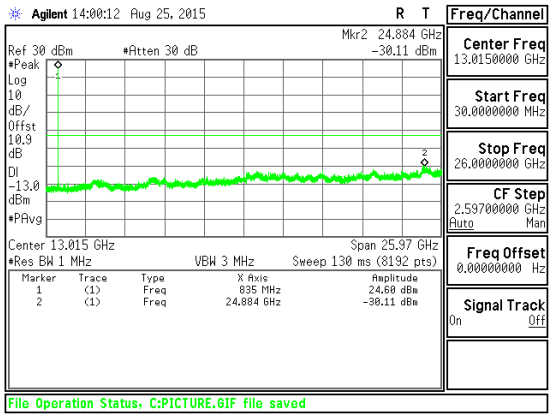
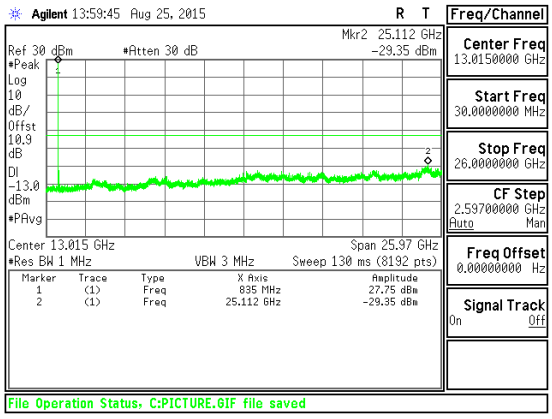
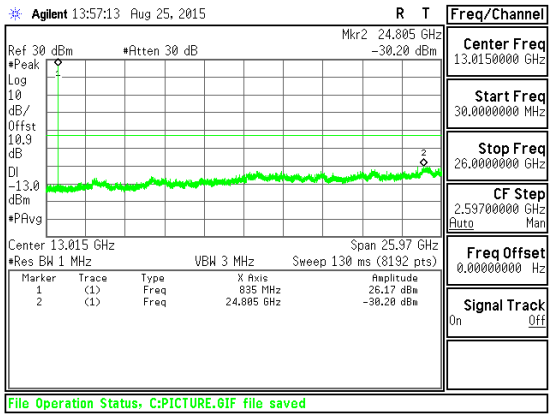
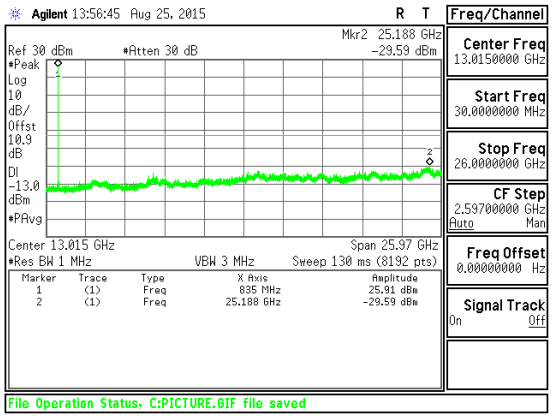
Band LTE4 1.4MHz CSE QPSK Mid channel

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

LTE Band 5

Band LTE5 10MHz	 Band LTE5 10MHz CSE 16QAM Mid channel	 Band LTE5 10MHz CSE QPSK Mid channel
Band LTE5 5MHz	 Band LTE5 5MHz CSE 16QAM Mid channel	 Band LTE5 5MHz CSE QPSK Mid channel

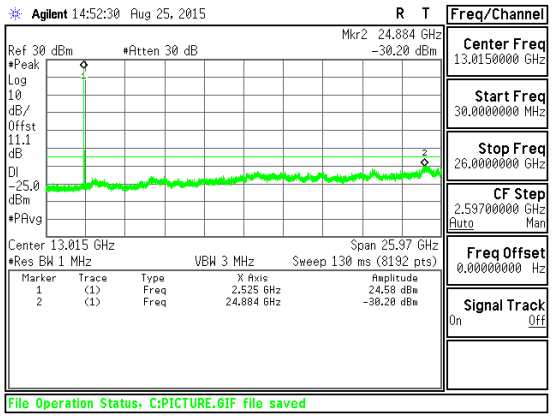
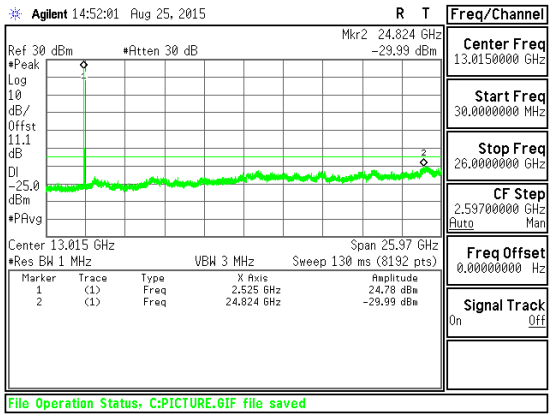
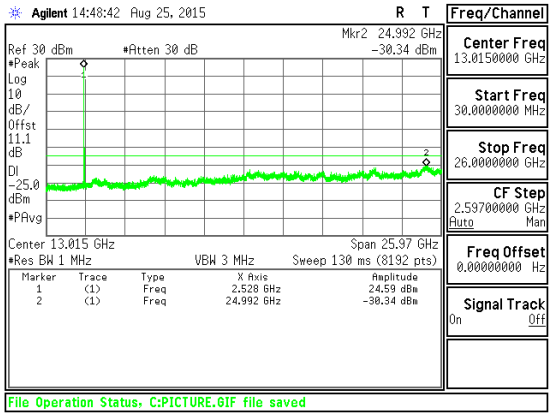
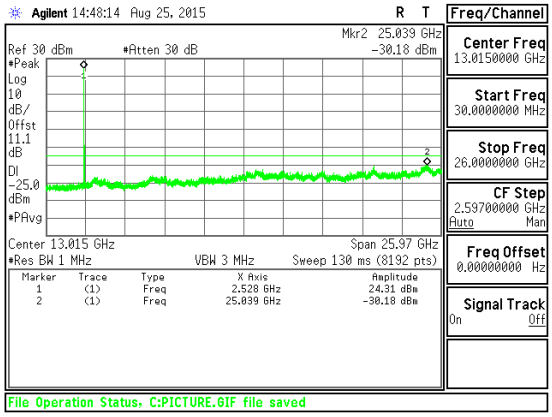
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Band LTE5 3MHz	 Band LTE5 3MHz CSE 16QAM Mid channel	 Band LTE5 3MHz CSE QPSK Mid channel
Band LTE5 1.4MHz	 Band LTE5 1.4MHz CSE 16QAM Mid channel	 Band LTE5 1.4MHz CSE QPSK Mid channel

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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.

LTE Band 7

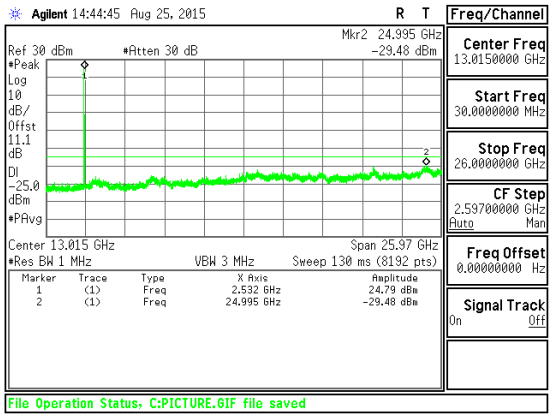
Band LTE7 20MHz	 Band LTE7 20MHz CSE 16QAM Mid channel	 Band LTE7 20MHz CSE QPSK Mid channel
Band LTE7 15MHz	 Band LTE7 15MHz CSE 16QAM Mid channel	 Band LTE7 15MHz CSE QPSK Mid channel

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

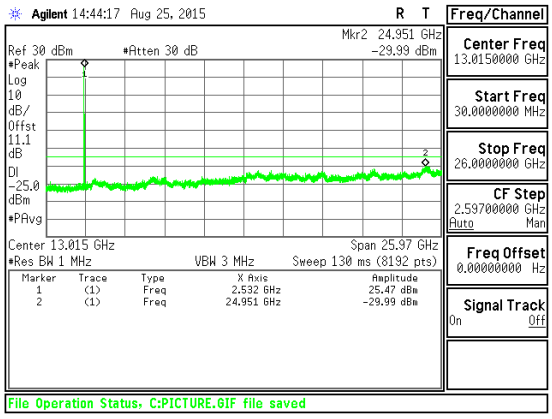
Band

LTE7

10MHz



Band LTE7 10MHz CSE 16QAM Mid channel

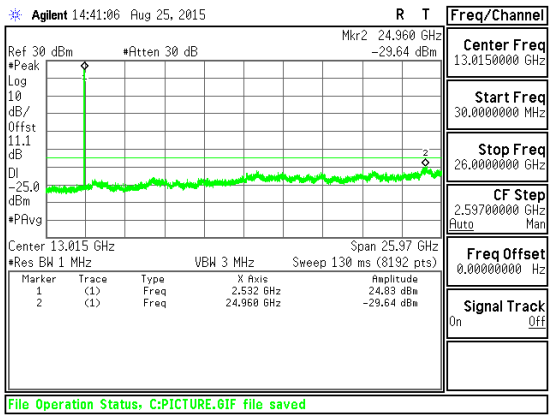


Band LTE7 10MHz CSE QPSK Mid channel

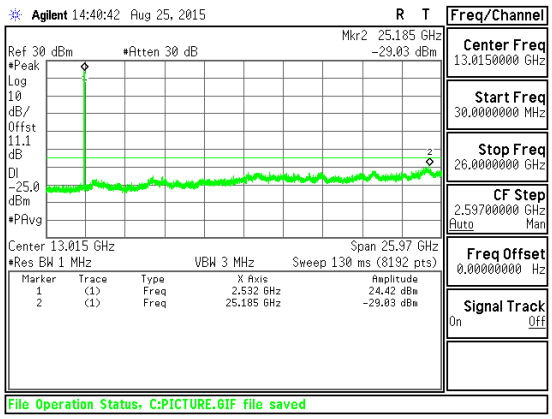
Band

LTE7

5MHz



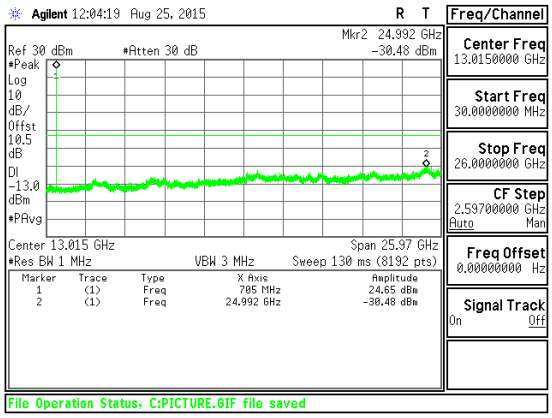
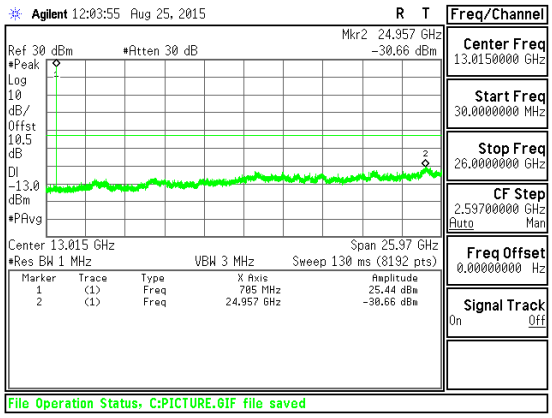
Band LTE7 5MHz CSE 16QAM Mid channel

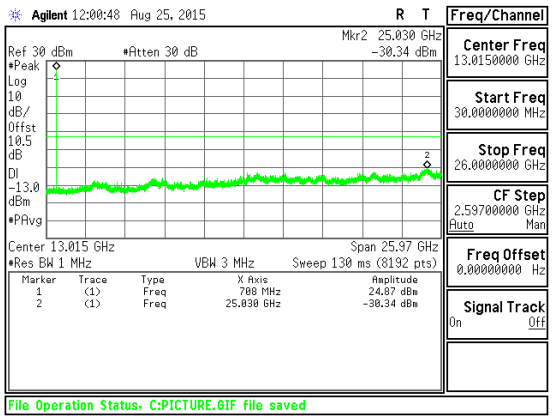
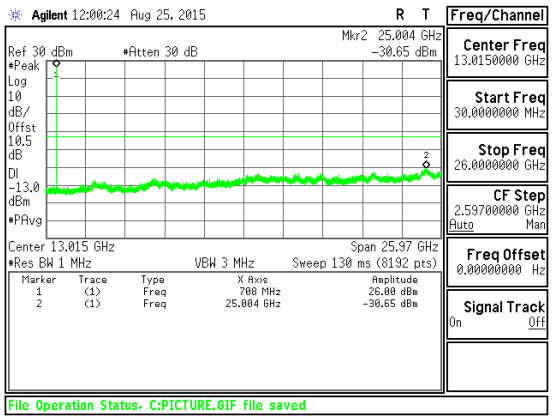


Band LTE7 5MHz CSE QPSK Mid channel

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

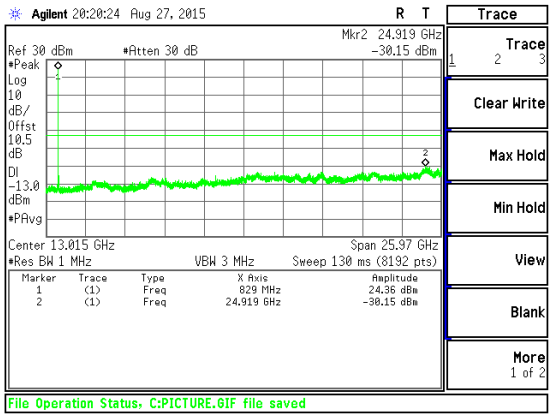
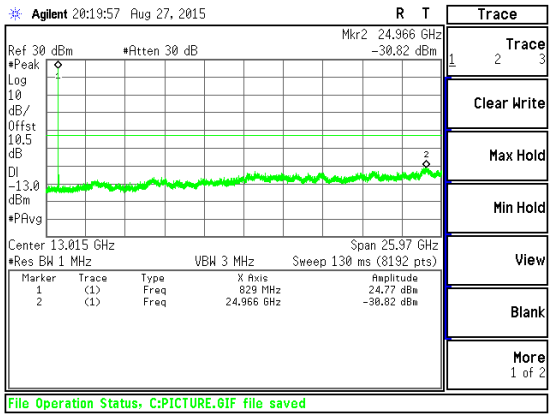
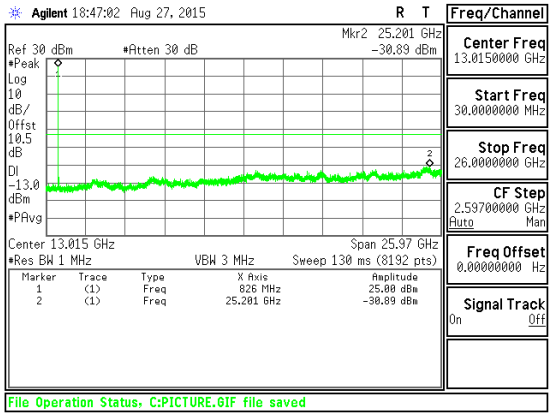
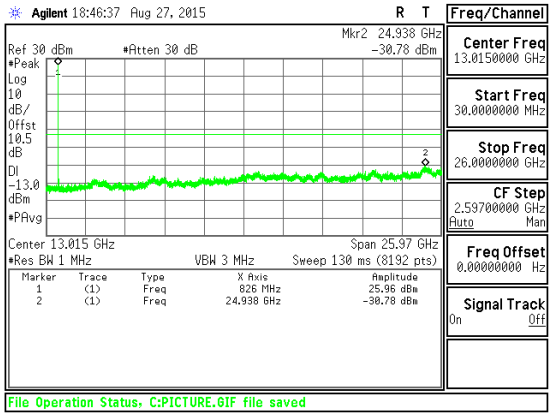
LTE Band 17

Band LTE17 10MHz	 Band LTE17 10MHz CSE 16QAM Mid channel	 Band LTE17 10MHz CSE QPSK Mid channel

Band LTE17 5MHz	 Band LTE17 5MHz CSE 16QAM Mid channel	 Band LTE17 5MHz CSE QPSK Mid channel

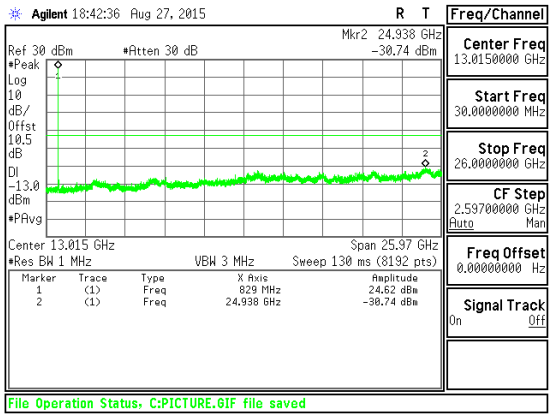
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

LTE Band 26

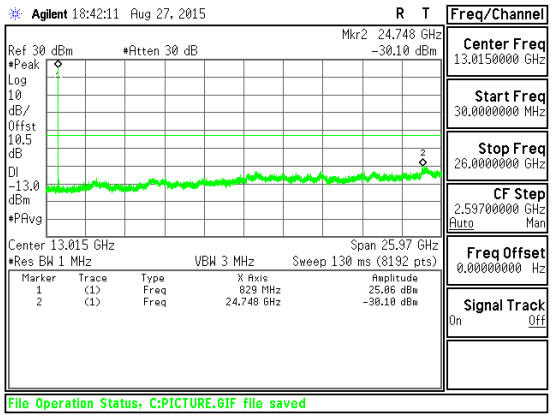
Band LTE26 15MHz	 Band LTE26 15MHz CSE 16QAM Mid channel	 Band LTE26 15MHz CSE QPSK Mid channel
Band LTE26 10MHz	 Band LTE26 10MHz CSE 16QAM Mid channel	 Band LTE26 10MHz CSE QPSK Mid channel

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

Band LTE26 5MHz

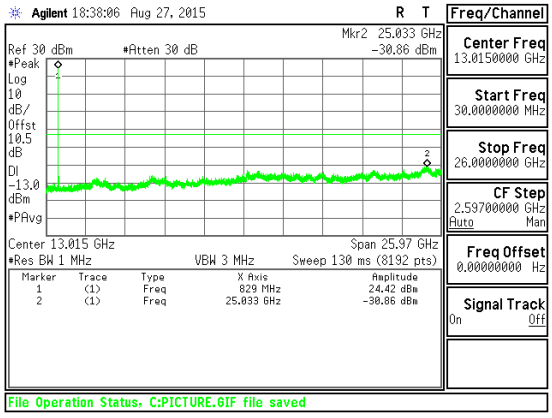


Band LTE26 5MHz CSE 16QAM Mid channel

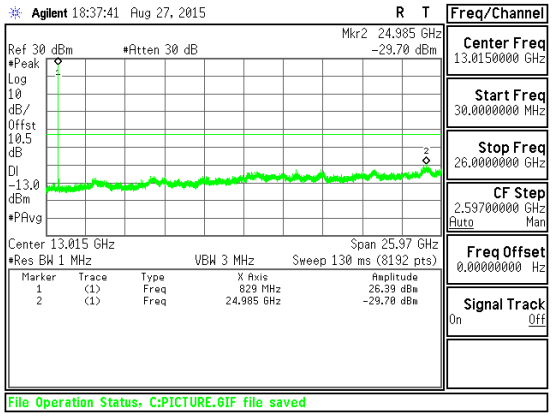


Band LTE26 5MHz CSE QPSK Mid channel

Band LTE26 3MHz



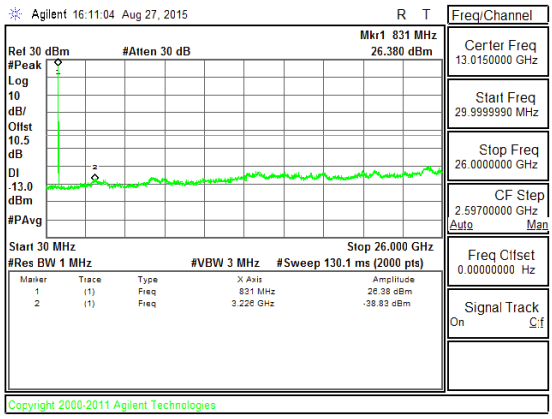
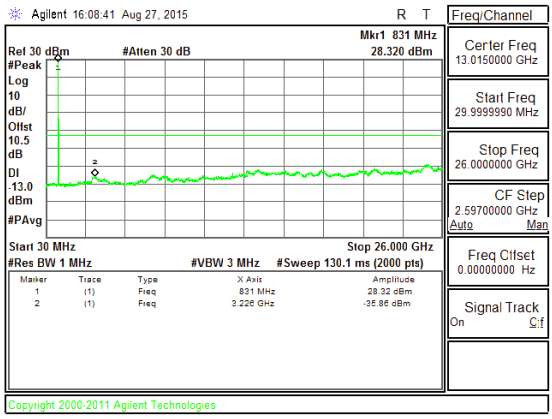
Band LTE26 3MHz CSE 16QAM Mid channel



Band LTE26 3MHz CSE QPSK Mid channel

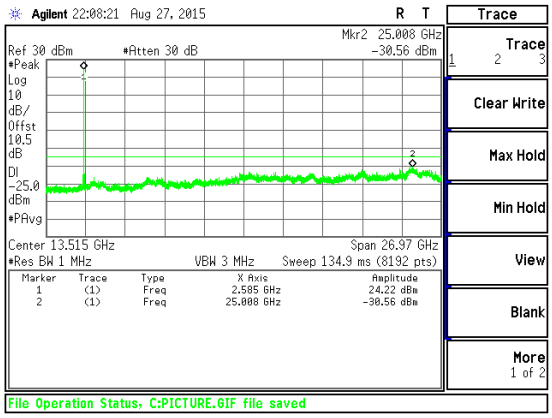
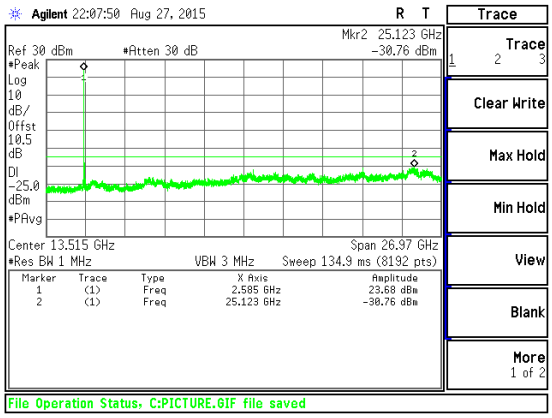
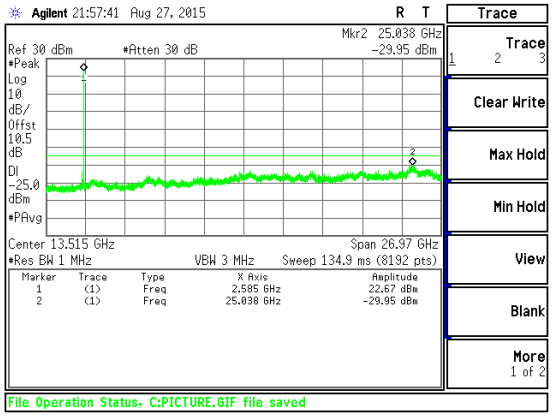
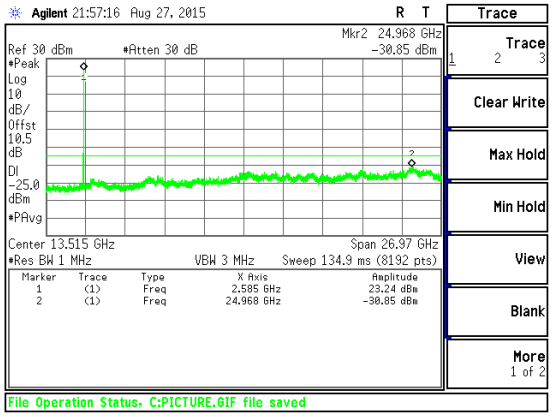
UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

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

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

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

LTE Band 41

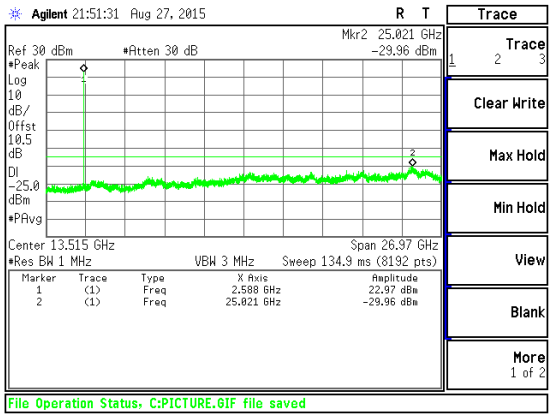
Band LTE41 20MHz	 Band LTE41 20MHz CSE 16QAM Mid channel	 Band LTE41 20MHz CSE QPSK Mid channel
Band LTE41 15MHz	 Band LTE41 15MHz CSE 16QAM Mid channel	 Band LTE41 15MHz CSE QPSK Mid channel

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

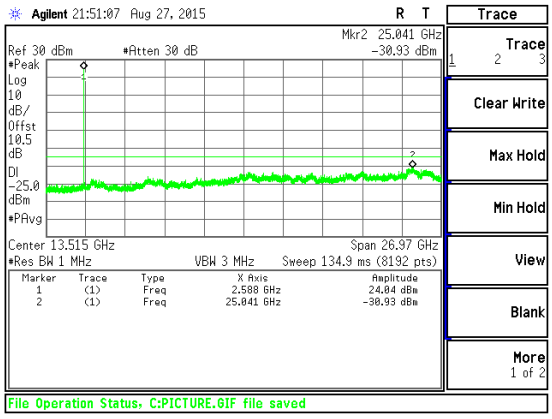
Band

LTE41

10MHz



Band LTE41 10MHz CSE 16QAM Mid channel

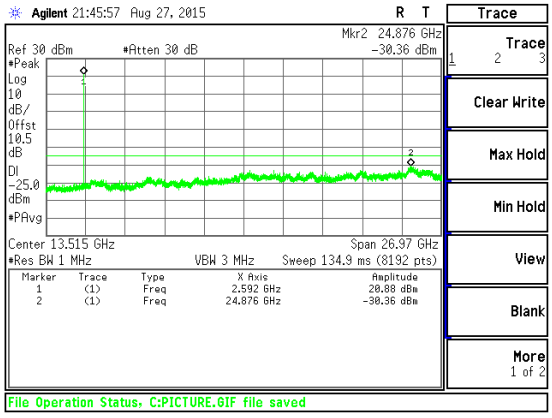


Band LTE41 10MHz CSE QPSK Mid channel

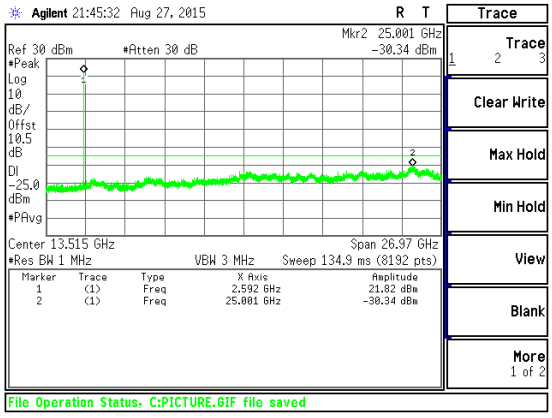
Band

LTE41

5MHz



Band LTE41 5MHz CSE 16QAM Mid channel



Band LTE41 5MHz CSE QPSK Mid channel

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.

27.50(b) - (10) Portable stations (hand-held devices) transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP. (LTE B13)

27.50(c) - (10) Portable stations (hand-held devices) are limited to 3 watts ERP; (LTE B17)

27.50(d) - (4) Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.(Band 4)

27.50(h) - (2) Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.(LTE B41 & 7)

90.635(b) - The maximum output power of the transmitter for mobile stations is 100 watts (20 dBw). (LTE B26)

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; PSA setting reference to 971168 D01 v02r02

For peak power measurement with a PSA:

a) Set the RBW ≥ OBW; b) Set VBW ≥ 3 × RBW; c) Set span ≥ 2 x RBW; d) Sweep time = auto couple; e) Detector = peak; f) Ensure that the number of measurement points ≥ span/RBW; g) Trace mode = max hold;

For average power measurement with a PSA:

a) Set span to at least 1.5 times the OBW; b) Set RBW = 1-5% of the OBW, not to exceed 1 MHz; c) Set VBW ≥ 3 x RBW; d) Set number of points in sweep ≥ 2 × span / RBW; e) Sweep time = auto-couple; f) Detector = RMS (power averaging); g) Use free run trigger If burst duty cycle ≥ 98; h) Use trigger to capture bursts If burst duty cycle < 98; i) Trace average at least 100 traces in power averaging (*i.e.*, RMS) mode. j) Compute the power by integrating the spectrum across the OBW of the signal using the instrument's band power measurement function.

MODES TESTED

GSM, WCDMA, and LTE

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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.

TEST RESULTS

11.1.1. ERP/EIRP Results

GSM

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
GSM1900	GPRS	512	1850.2	30.89	1227.44
		661	1880	31.04	1270.57
		810	1909.8	30.22	1051.96
	EGPRS	512	1850.2	26.02	399.94
		661	1880	26.44	440.55
		810	1909.8	26.12	409.26

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
GSM850	GPRS	128	824.2	29.95	988.55
		190	836.6	29.35	860.99
		251	848.8	29.05	803.53
	EGPRS	128	824.2	25.52	356.45
		190	836.6	24.95	312.61
		251	848.8	24.65	291.74

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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.

WCDMA

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
Band 2	REL99	9262	1852.4	25.17	328.85
		9400	1880	24.69	294.44
		9538	1907.6	24.31	269.77
	HSDPA	9262	1852.4	24.88	307.61
		9400	1880	24.36	272.90
		9538	1907.6	24.06	254.68

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
Band 4	REL99	1312	1712.4	22.70	186.21
		1413	1732.6	22.81	190.99
		1513	1752.6	22.66	184.50
	HSDPA	1312	1712.4	22.04	159.96
		1413	1732.6	21.96	157.04
		1513	1752.6	21.51	141.58

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
Band 5	REL99	4132	826.4	19.90	97.72
		4183	836.6	19.30	85.11
		4233	846.6	19.0	79.43
	HSDPA	4132	826.4	19.4	87.10
		4183	836.6	19.0	79.43
		4233	846.6	19.0	79.43

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

LTE Band 2

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE2	20	QPSK	1/0	1860	24.17	261.22
			1/0	1880	24.47	279.90
			1/0	1900	24.30	269.15
		16QAM	1/0	1860	23.26	211.84
			1/0	1880	23.87	243.78
			1/0	1900	23.25	211.35

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE2	15	QPSK	1/0	1857.5	24.27	267.30
			1/0	1880	24.10	257.04
			1/0	1902.5	24.20	263.03
		16QAM	1/0	1857.5	23.07	202.77
			1/0	1880	23.86	243.22
			1/0	1902.5	22.98	198.61

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE2	10	QPSK	1/0	1855	24.37	273.53
			1/0	1880	24.54	284.45
			1/0	1905	24.45	278.61
		16QAM	1/0	1855	23.05	201.84
			1/0	1880	23.90	245.47
			1/0	1905	23.30	213.80

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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)	ERP / EIRP	
					dBm	mW
LTE2	5	QPSK	1/0	1852.5	24.25	266.07
			1/0	1880	24.69	294.44
			1/0	1907.5	24.21	263.63
		16QAM	1/0	1852.5	23.07	202.77
			1/0	1880	23.75	237.14
			1/0	1907.5	23.30	213.80

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE2	3	QPSK	1/0	1851.5	24.17	261.22
			1/0	1880	24.74	297.85
			1/0	1908.5	24.53	283.79
		16QAM	1/0	1851.5	23.31	214.29
			1/0	1880	23.54	225.94
			1/0	1908.5	23.28	212.81

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE2	1.4	QPSK	1/0	1850.7	24.25	266.07
			1/0	1880	24.69	294.44
			1/0	1909.3	24.23	264.85
		16QAM	1/0	1850.7	23.07	202.77
			1/0	1880	23.71	234.96
			1/0	1909.3	23.58	228.03

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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.

LTE Band 4

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE4	20	QPSK	1/0	1720	25.98	396.28
			1/0	1732.5	25.80	380.19
			1/0	1745	24.53	283.79
		16QAM	1/0	1720	25.38	345.14
			1/0	1732.5	25.0	316.23
			1/0	1745	23.49	223.36

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE4	15	QPSK	1/0	1717.5	25.94	392.64
			1/0	1732.5	25.81	381.07
			1/0	1747.5	24.61	289.07
		16QAM	1/0	1717.5	25.46	351.56
			1/0	1732.5	25.02	317.69
			1/0	1747.5	23.67	232.81

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE4	10	QPSK	1/0	1715	26.05	402.72
			1/0	1732.5	25.81	381.07
			1/0	1750	24.62	289.73
		16QAM	1/0	1715	25.44	349.95
			1/0	1732.5	25.05	319.89
			1/0	1750	23.71	234.96

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
LTE4	5	QPSK	1/0	1712.5	26.05	402.72
			1/0	1732.5	25.81	381.07
			1/0	1752.5	24.51	282.49
		16QAM	1/0	1712.5	25.41	347.54
			1/0	1732.5	25.08	322.11
			1/0	1752.5	23.90	245.47

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE4	3	QPSK	1/0	1711.5	26.07	404.58
			1/0	1732.5	25.82	381.94
			1/0	1753.5	24.52	283.14
		16QAM	1/0	1711.5	25.43	349.14
			1/0	1732.5	25.03	318.42
			1/0	1753.5	23.69	233.88

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE4	1.4	QPSK	1/0	1710.7	26.1	407.38
			1/0	1732.5	25.76	376.70
			1/0	1754.3	24.51	282.49
		16QAM	1/0	1710.7	25.45	350.75
			1/0	1732.5	25.03	318.42
			1/0	1754.3	23.66	232.27

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

LTE Band 5

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE5	10	QPSK	1/0	829	21.59	144.21
			1/0	836.5	21.14	130.02
			1/0	844	21.26	133.66
		16QAM	1/0	829	21.28	134.28
			1/0	836.5	20.89	122.74
			1/0	844	20.98	125.31

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE5	5	QPSK	1/0	826.5	21.08	128.23
			1/0	836.5	20.90	123.03
			1/0	846.5	20.68	116.95
		16QAM	1/0	826.5	20.73	118.30
			1/0	836.5	20.75	118.85
			1/0	846.5	20.46	111.17

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE5	3	QPSK	1/0	825.5	21.50	141.25
			1/0	836.5	20.66	116.41
			1/0	847.5	21.69	147.57
		16QAM	1/0	825.5	21.25	133.35
			1/0	836.5	20.09	102.09
			1/0	847.5	21.37	137.09

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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)	ERP / EIRP	
					dBm	mW
LTE5	1.4	QPSK	1/0	824.7	21.77	150.31
			1/0	836.5	21.54	142.56
			1/0	848.3	22.17	164.82
		16QAM	1/0	824.7	21.58	143.88
			1/0	836.5	20.69	117.22
			1/0	848.3	21.76	149.97

LTE Band 7

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP (Peak)	
					dBm	mW
LTE7	20	QPSK	1/0	2510	20.35	108.39
			1/0	2535	20.51	112.46
			1/0	2560	20.86	121.90
		16QAM	1/0	2510	19.80	95.50
			1/0	2535	19.90	97.72
			1/0	2560	19.74	94.19

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP (Peak)	
					dBm	mW
LTE7	15	QPSK	1/0	2507.5	20.48	111.69
			1/0	2535	20.42	110.15
			1/0	2562.5	20.91	123.31
		16QAM	1/0	2507.5	19.97	99.31
			1/0	2535	19.57	90.57
			1/0	2562.5	20.12	102.80

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 (Peak)	
					dBm	mW
LTE7	10	QPSK	1/0	2505	20.45	110.92
			1/0	2535	20.58	114.29
			1/0	2565	20.71	117.76
		16QAM	1/0	2505	19.82	95.94
			1/0	2535	19.90	97.72
			1/0	2565	19.87	97.05

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP (Peak)	
					dBm	mW
LTE7	5	QPSK	1/0	2502.5	20.38	109.14
			1/0	2535	20.65	116.14
			1/0	2567.5	20.68	116.95
		16QAM	1/0	2502.5	19.85	96.61
			1/0	2535	19.95	98.86
			1/0	2567.5	19.93	98.40

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

LTE Band 17

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE17	10	QPSK	1/0	709	17.20	52.48
			1/0	710	17.0	50.12
			1/0	711	17.21	52.60
		16QAM	1/0	709	16.39	43.55
			1/0	710	16.34	43.05
			1/0	711	16.43	43.95

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE17	5	QPSK	1/0	706.5	17.11	51.40
			1/0	710	17.1	51.29
			1/0	713.5	17.11	51.40
		16QAM	1/0	706.5	16.31	42.76
			1/0	710	16.35	43.15
			1/0	713.5	16.30	42.66

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

LTE Band 26

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE26	15	QPSK	1/0	831.5	21.20	131.83
			1/0	836.5	21.18	131.22
			1/0	841.5	21.0	125.89
		16QAM	1/0	831.5	20.90	123.03
			1/0	836.5	20.88	122.46
			1/0	841.5	20.70	117.49

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE26	10	QPSK	1/0	819	20.90	123.03
			1/0	831.5	21.08	128.23
			1/0	844	20.30	107.15
		16QAM	1/0	819	20.70	117.49
			1/0	831.5	20.78	119.67
			1/0	844	20.10	102.33

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE26	5	QPSK	1/0	816.5	22.31	170.22
			1/0	831.5	20.78	119.67
			1/0	846.5	20.0	100.00
		16QAM	1/0	816.5	21.63	145.55
			1/0	831.5	20.92	123.59
			1/0	846.5	20.30	107.15

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
LTE26	3	QPSK	1/0	815.5	21.93	155.96
			1/0	831.5	20.98	125.31
			1/0	847.5	20.20	104.71
		16QAM	1/0	815.5	21.73	148.94
			1/0	831.5	20.58	114.29
			1/0	847.5	19.90	97.72

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE26	1.4	QPSK	1/0	814.7	21.73	148.94
			1/0	831.5	20.88	122.46
			1/0	848.3	20.10	102.33
		16QAM	1/0	814.7	21.43	139.00
			1/0	831.5	20.68	116.95
			1/0	848.3	19.90	97.72

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

LTE Band 41

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP (Peak)	
					dBm	mW
LTE41	20	QPSK	1/0	2506	18.47	70.31
			1/0	2593	21.0	125.89
			1/0	2680	20.22	105.20
		16QAM	1/0	2506	17.95	62.37
			1/0	2593	20.47	111.43
			1/0	2680	19.44	87.90

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP (Peak)	
					dBm	mW
LTE41	15	QPSK	1/0	2503.5	18.96	78.70
			1/0	2593	21.45	139.64
			1/0	2682.5	20.34	108.14
		16QAM	1/0	2503.5	17.71	59.02
			1/0	2593	20.59	114.55
			1/0	2682.5	18.85	76.74

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP (Peak)	
					dBm	mW
LTE41	10	QPSK	1/0	2501	18.31	67.76
			1/0	2593	21.02	126.47
			1/0	2685	19.49	88.92
		16QAM	1/0	2501	17.50	56.23
			1/0	2593	20.47	111.43
			1/0	2685	18.95	78.52

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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)	ERP / EIRP (Peak)	
					dBm	mW
LTE41	5	QPSK	1/0	2498.5	18.57	71.94
			1/0	2593	20.40	109.65
			1/0	2687.5	19.39	86.90
		16QAM	1/0	2498.5	17.64	58.08
			1/0	2593	20.02	100.46
			1/0	2687.5	18.78	75.51

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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.

11.1.2. ERP/EIRP PLOTS

GSM

Band

GSM 1900

EGPRS

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

Company: LG
Project #: 15I21552
Date: 08/21/15
Test Engineer: Charles Vergonio
Configuration: EUT X-Position Only
Mode: EGPRS 1900

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, T1096 SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1850.20	9.75	V	0.9	8.5	17.41	33.0	-15.6	
1850.20	18.36	H	0.9	8.5	26.02	33.0	-7.0	
Mid Ch								
1880.00	9.59	V	0.9	8.5	17.24	33.0	-15.8	
1880.00	18.79	H	0.9	8.5	26.44	33.0	-6.6	
High Ch								
1909.80	9.64	V	0.9	8.5	17.33	33.0	-15.7	
1909.80	18.43	H	0.9	8.5	26.12	33.0	-6.9	

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

GSM 1900

GPRS

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

Company: LG
Project #: 15I21552
Date: 08/21/15
Test Engineer: Charles Vergonio
Configuration: EUT X-Position Only
Mode: GPRS 1900

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, T1096 SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1850.20	14.30	V	0.9	8.5	21.96	33.0	-11.0	
1850.20	23.23	H	0.9	8.5	30.89	33.0	-2.1	
Mid Ch								
1880.00	13.15	V	0.9	8.5	20.80	33.0	-12.2	
1880.00	23.39	H	0.9	8.5	31.04	33.0	-2.0	
High Ch								
1909.80	13.85	V	0.9	8.5	21.54	33.0	-11.5	
1909.80	22.53	H	0.9	8.5	30.22	33.0	-2.8	

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

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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

GSM 850

EGPRS

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

Company: LG
Project #: 15I21552
Date: 5/26/2015
Test Engineer: Jude Semana
Configuration: X-pos EUT only
Mode: EGPRS 850

Test Equipment:
Receiving: Horn T243, and Chamber A SMA Cables
Substitution: Horn T416 Substitution, T1096 SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
824.20	23.20	V	0.9		22.35	38.5	-16.2	
824.20	26.37	H	0.9		25.52	38.5	-13.0	
Mid Ch								
836.60	22.40	V	0.9		21.55	38.5	-17.0	
836.60	25.80	H	0.9		24.95	38.5	-13.6	
High Ch								
848.80	22.80	V	0.9		21.95	38.5	-16.6	
848.80	25.50	H	0.9		24.65	38.5	-13.9	

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

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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

GSM 850

GPRS

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

Company: LG
Project #: 15I21552
Date: 5/26/2015
Test Engineer: Jude Semana
Configuration: X-pos EUT only
Mode: GPRS 850

Test Equipment:
Receiving: Horn T243, and Chamber A SMA Cables
Substitution: Horn T416 Substitution, T1096 SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
824.20	24.10	V	0.9		23.25	38.5	-15.3	
824.20	30.80	H	0.9		29.95	38.5	-8.6	
Mid Ch								
836.60	23.20	V	0.9		22.35	38.5	-16.2	
836.60	30.20	H	0.9		29.35	38.5	-9.2	
High Ch								
848.80	22.60	V	0.9		21.75	38.5	-16.8	
848.80	29.90	H	0.9		29.05	38.5	-9.5	

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

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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.

WCDMA

Band

Band 2

HSDPA

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

Company: LG
Project #: 15I21552
Date: 08/21/15
Test Engineer: Charles Vergonio
Configuration: EUT X-Position Only
Mode: WCDMA B2 HSDPA

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, T1096 SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1852.40	6.99	V	0.9	8.5	14.65	33.0	-18.4	
1852.40	17.22	H	0.9	8.5	24.88	33.0	-8.1	
Mid Ch								
1880.00	6.85	V	0.9	8.5	14.50	33.0	-18.5	
1880.00	16.71	H	0.9	8.5	24.36	33.0	-8.6	
High Ch								
1907.60	7.19	V	0.9	8.5	14.88	33.0	-18.1	
1907.60	16.37	H	0.9	8.5	24.06	33.0	-8.9	

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

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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 2

REL99

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

Company: LG
Project #: 15I21552
Date: 08/21/15
Test Engineer: Charles Vergonio
Configuration: EUT X-Position Only
Mode: WCDMA B2 REL. 99

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, T1096 SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1852.40	8.23	V	0.9	8.5	15.89	33.0	-17.1	
1852.40	17.51	H	0.9	8.5	25.17	33.0	-7.8	
Mid Ch								
1880.00	7.20	V	0.9	8.5	14.85	33.0	-18.2	
1880.00	17.04	H	0.9	8.5	24.69	33.0	-8.3	
High Ch								
1907.60	7.56	V	0.9	8.5	15.25	33.0	-17.7	
1907.60	16.62	H	0.9	8.5	24.31	33.0	-8.7	

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

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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 4

HSDPA

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

Company: LG
Project #: 15I21552
Date: 08/21/15
Test Engineer: Charles Vergonio
Configuration: EUT Y-Position Only
Mode: WCDMA B4 HSDPA

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T60 Substitution, T1096 SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1712.40	16.69	V	0.9	6.2	22.04	33.0	-11.0	
1712.40	14.87	H	0.9	6.2	20.22	33.0	-12.8	
Mid Ch								
1732.60	16.61	V	0.9	6.2	21.96	33.0	-11.0	
1732.60	15.02	H	0.9	6.2	20.37	33.0	-12.6	
High Ch								
1752.60	16.16	V	0.9	6.2	21.51	33.0	-11.5	
1752.60	15.22	H	0.9	6.2	20.57	33.0	-12.4	

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

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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 4

REL99

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

Company: LG
Project #: 15I21552
Date: 08/21/15
Test Engineer: Charles Vergonio
Configuration: EUT Y-Position Only
Mode: WCDMA B4 REL. 99

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T60 Substitution, T1096 SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1712.40	17.35	V	0.9	6.2	22.70	33.0	-10.3	
1712.40	15.21	H	0.9	6.2	20.56	33.0	-12.4	
Mid Ch								
1732.60	17.46	V	0.9	6.2	22.81	33.0	-10.2	
1732.60	14.84	H	0.9	6.2	20.19	33.0	-12.8	
High Ch								
1752.60	17.31	V	0.9	6.2	22.66	33.0	-10.3	
1752.60	14.31	H	0.9	6.2	19.66	33.0	-13.3	

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

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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 B

Company: LG
Project #: 15I21552
Date: 5/26/2015
Test Engineer: Jude Semana
Configuration: EUT Only X-Pos
Mode: HSDPA B5 FUND

Test Equipment:
Receiving: Horn T243, and Chamber B SMA Cables
Substitution: Horn T416 Substitution, T1096 SMA Cable 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	17.40	V	0.9	0.0	16.50	38.5	-21.9	
826.40	20.30	H	0.9	0.0	19.40	38.5	-19.0	
Mid Ch								
836.60	16.90	V	0.9	0.0	16.00	38.5	-22.4	
836.60	19.90	H	0.9	0.0	19.00	38.5	-19.4	
High Ch								
846.60	16.70	V	0.9	0.0	15.80	38.5	-22.6	
846.60	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

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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 B

Company: LG
Project #: 15I21552
Date: 5/26/2015
Test Engineer: Jude Semana
Configuration: EUT Only X-Pos
Mode: Rel.99 B5 FUND

Test Equipment:
Receiving: Horn T243, and Chamber B SMA Cables
Substitution: Horn T416 Substitution, T1096 SMA Cable 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	13.20	V	0.9	0.0	12.30	38.5	-26.1	
826.40	20.80	H	0.9	0.0	19.90	38.5	-18.5	
Mid Ch								
836.60	12.20	V	0.9	0.0	11.30	38.5	-27.1	
836.60	20.20	H	0.9	0.0	19.30	38.5	-19.1	
High Ch								
846.60	11.70	V	0.9	0.0	10.80	38.5	-27.6	
846.60	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.

LTE Band 2

Band

LTE2

20MHz

16QAM

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

Company: LG
Project #: 15I21552
Date: 08/21/15
Test Engineer: Charles Vergonio
Configuration: EUT X-Position Only
Mode: LTE_16QAM Band 2 Fundamental, 20 MHz Bandwidth

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, T1096 SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1860.00	7.81	V	0.9	8.5	15.47	33.0	-17.5	
1860.00	15.60	H	0.9	8.5	23.26	33.0	-9.7	
Mid Ch								
1880.00	7.41	V	0.9	8.5	15.06	33.0	-17.9	
1880.00	16.22	H	0.9	8.5	23.87	33.0	-9.1	
High Ch								
1900.00	7.72	V	0.9	8.5	15.41	33.0	-17.6	
1900.00	15.56	H	0.9	8.5	23.25	33.0	-9.7	

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

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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

LTE2

20MHz

QPSK

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

Company: LG
Project #: 15I21552
Date: 08/21/15
Test Engineer: Charles Vergonio
Configuration: EUT X-Position Only
Mode: LTE_QPSK Band 2 Fundamental, 20 MHz Bandwidth

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, T1096 SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1860.00	8.95	V	0.9	8.5	16.61	33.0	-16.4	
1860.00	16.51	H	0.9	8.5	24.17	33.0	-8.8	
Mid Ch								
1880.00	8.71	V	0.9	8.5	16.36	33.0	-16.6	
1880.00	16.82	H	0.9	8.5	24.47	33.0	-8.5	
High Ch								
1900.00	9.01	V	0.9	8.5	16.70	33.0	-16.3	
1900.00	16.61	H	0.9	8.5	24.30	33.0	-8.7	

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

LTE2

15MHz

16QAM

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

Company: LG
Project #: 15I21552
Date: 08/21/15
Test Engineer: Charles Vergonio
Configuration: EUT X-Position Only
Mode: LTE_16QAM Band 2 Fundamental, 15 MHz Bandwidth

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, T1096 SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1857.50	7.51	V	0.9	8.5	15.17	33.0	-17.8	
1857.50	15.41	H	0.9	8.5	23.07	33.0	-9.9	
Mid Ch								
1880.00	7.42	V	0.9	8.5	15.07	33.0	-17.9	
1880.00	16.21	H	0.9	8.5	23.86	33.0	-9.1	
High Ch								
1902.50	7.71	V	0.9	8.5	15.40	33.0	-17.6	
1902.50	15.29	H	0.9	8.5	22.98	33.0	-10.0	

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

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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

LTE2

15MHz

QPSK

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

Company: LG
Project #: 15I21552
Date: 08/21/15
Test Engineer: Charles Vergonio
Configuration: EUT X-Position Only
Mode: LTE_QPSK Band 2 Fundamental, 15 MHz Bandwidth

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, T1096 SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1857.50	8.85	V	0.9	8.5	16.51	33.0	-16.5	
1857.50	16.61	H	0.9	8.5	24.27	33.0	-8.7	
Mid Ch								
1880.00	7.89	V	0.9	8.5	15.54	33.0	-17.5	
1880.00	16.45	H	0.9	8.5	24.10	33.0	-8.9	
High Ch								
1902.50	8.76	V	0.9	8.5	16.45	33.0	-16.5	
1902.50	16.51	H	0.9	8.5	24.20	33.0	-8.8	

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

LTE2

10MHz

16QAM

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

Company: LG
Project #: 15I21552
Date: 08/21/15
Test Engineer: Charles Vergonio
Configuration: EUT X-Position Only
Mode: LTE_16QAM Band 2 Fundamental, 10 MHz Bandwidth

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, T1096 SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1855.00	7.51	V	0.9	8.5	15.17	33.0	-17.8	
1855.00	15.39	H	0.9	8.5	23.05	33.0	-10.0	
Mid Ch								
1880.00	7.74	V	0.9	8.5	15.39	33.0	-17.6	
1880.00	16.25	H	0.9	8.5	23.90	33.0	-9.1	
High Ch								
1905.00	7.73	V	0.9	8.5	15.42	33.0	-17.6	
1905.00	15.61	H	0.9	8.5	23.30	33.0	-9.7	

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

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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

LTE2

10MHz

QPSK

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

Company: LG
Project #: 15I21552
Date: 08/21/15
Test Engineer: Charles Vergonio
Configuration: EUT X-Position Only
Mode: LTE_QPSK Band 2 Fundamental, 10 MHz Bandwidth

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, T1096 SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1855.00	8.52	V	0.9	8.5	16.18	33.0	-16.8	
1855.00	16.71	H	0.9	8.5	24.37	33.0	-8.6	
Mid Ch								
1880.00	8.74	V	0.9	8.5	16.39	33.0	-16.6	
1880.00	16.89	H	0.9	8.5	24.54	33.0	-8.5	
High Ch								
1905.00	8.65	V	0.9	8.5	16.34	33.0	-16.7	
1905.00	16.76	H	0.9	8.5	24.45	33.0	-8.5	

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

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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

LTE2

5MHz

16QAM

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

Company: LG
Project #: 15I21552
Date: 08/21/15
Test Engineer: Charles Vergonio
Configuration: EUT X-Position Only
Mode: LTE_16QAM Band 2 Fundamental, 5 MHz Bandwidth

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, T1096 SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1852.50	7.42	V	0.9	8.5	15.08	33.0	-17.9	
1852.50	15.41	H	0.9	8.5	23.07	33.0	-9.9	
Mid Ch								
1880.00	7.46	V	0.9	8.5	15.11	33.0	-17.9	
1880.00	16.10	H	0.9	8.5	23.75	33.0	-9.3	
High Ch								
1907.50	7.75	V	0.9	8.5	15.44	33.0	-17.6	
1907.50	15.61	H	0.9	8.5	23.30	33.0	-9.7	

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

LTE2

5MHz

QPSK

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

Company: LG
Project #: 15I21552
Date: 08/21/15
Test Engineer: Charles Vergonio
Configuration: EUT X-Position Only
Mode: LTE_QPSK Band 2 Fundamental, 5 MHz Bandwidth

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, T1096 SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1852.50	8.39	V	0.9	8.5	16.05	33.0	-17.0	
1852.50	16.59	H	0.9	8.5	24.25	33.0	-8.8	
Mid Ch								
1880.00	8.19	V	0.9	8.5	15.84	33.0	-17.2	
1880.00	17.04	H	0.9	8.5	24.69	33.0	-8.3	
High Ch								
1907.50	8.41	V	0.9	8.5	16.10	33.0	-16.9	
1907.50	16.52	H	0.9	8.5	24.21	33.0	-8.8	

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

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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

LTE2

3MHz

16QAM

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

Company: LG
Project #: 15I21552
Date: 08/21/15
Test Engineer: Charles Vergonio
Configuration: EUT X-Position Only
Mode: LTE_16QAM Band 2 Fundamental, 3 MHz Bandwidth

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, T1096 SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1857.50	7.51	V	0.9	8.5	15.17	33.0	-17.8	
1857.50	15.65	H	0.9	8.5	23.31	33.0	-9.7	
Mid Ch								
1880.00	7.56	V	0.9	8.5	15.21	33.0	-17.8	
1880.00	15.89	H	0.9	8.5	23.54	33.0	-9.5	
High Ch								
1902.50	7.61	V	0.9	8.5	15.30	33.0	-17.7	
1902.50	15.59	H	0.9	8.5	23.28	33.0	-9.7	

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

LTE2

3MHz

QPSK

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

Company: LG
Project #: 15I21552
Date: 08/21/15
Test Engineer: Charles Vergonio
Configuration: EUT X-Position Only
Mode: LTE_QPSK Band 2 Fundamental, 3 MHz Bandwidth

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, T1096 SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1851.50	8.43	V	0.9	8.5	16.09	33.0	-16.9	
1851.50	16.51	H	0.9	8.5	24.17	33.0	-8.8	
Mid Ch								
1880.00	8.56	V	0.9	8.5	16.21	33.0	-16.8	
1880.00	17.09	H	0.9	8.5	24.74	33.0	-8.3	
High Ch								
1908.50	8.65	V	0.9	8.5	16.34	33.0	-16.7	
1908.50	16.84	H	0.9	8.5	24.53	33.0	-8.5	

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

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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

LTE2

1.4MHz

16QAM

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

Company: LG
Project #: 15I21552
Date: 08/21/15
Test Engineer: Charles Vergonio
Configuration: EUT X-Position Only
Mode: LTE_16QAM Band 2 Fundamental, 1.4 MHz Bandwidth

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, T1096 SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1850.70	7.51	V	0.9	8.5	15.17	33.0	-17.8	
1850.70	15.41	H	0.9	8.5	23.07	33.0	-9.9	
Mid Ch								
1880.00	7.34	V	0.9	8.5	14.99	33.0	-18.0	
1880.00	16.06	H	0.9	8.5	23.71	33.0	-9.3	
High Ch								
1909.30	8.04	V	0.9	8.5	15.73	33.0	-17.3	
1909.30	15.89	H	0.9	8.5	23.58	33.0	-9.4	

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

LTE2

1.4MHz

QPSK

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

Company: LG
Project #: 15I21552
Date: 08/21/15
Test Engineer: Charles Vergonio
Configuration: EUT X-Position Only
Mode: LTE_QPSK Band 2 Fundamental, 1.4 MHz Bandwidth

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, T1096 SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1850.70	8.62	V	0.9	8.5	16.28	33.0	-16.7	
1850.70	16.59	H	0.9	8.5	24.25	33.0	-8.8	
Mid Ch								
1880.00	8.59	V	0.9	8.5	16.24	33.0	-16.8	
1880.00	17.04	H	0.9	8.5	24.69	33.0	-8.3	
High Ch								
1909.30	8.53	V	0.9	8.5	16.22	33.0	-16.8	
1909.30	16.54	H	0.9	8.5	24.23	33.0	-8.8	

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

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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.

LTE Band 4

Band

LTE4

20MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 8/25/2015
Test Engineer: R.Alegre
Configuration: EUT only
Location: Chamber C
Mode: LTE_16QAM Band 4 Fundamentals, 20MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, Xft SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1720.00	18.06	V	0.9	8.2	25.38	30.0	-4.6	
1720.00	16.07	H	0.9	8.2	23.39	30.0	-6.6	
Mid Ch								
1732.50	17.73	V	0.9	8.2	25.00	30.0	-5.0	
1732.50	15.78	H	0.9	8.2	23.05	30.0	-6.9	
High Ch								
1745.00	16.26	V	0.9	8.1	23.49	30.0	-6.5	
1745.00	13.35	H	0.9	8.1	20.58	30.0	-9.4	

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

Band

LTE4

20MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 8/25/2015
Test Engineer: R.Alegre
Configuration: EUT only
Location: Chamber C
Mode: LTE_QPSK Band 4 Fundamentals, 20MHz Bandwidth

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, Xft SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1720.00	18.66	V	0.9	8.2	25.98	30.0	-4.0	
1720.00	17.07	H	0.9	8.2	24.39	30.0	-5.6	
Mid Ch								
1732.50	18.53	V	0.9	8.2	25.80	30.0	-4.2	
1732.50	16.60	H	0.9	8.2	23.87	30.0	-6.1	
High Ch								
1745.00	17.30	V	0.9	8.1	24.53	30.0	-5.5	
1745.00	14.02	H	0.9	8.1	21.25	30.0	-8.8	

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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

LTE4

15MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 8/25/2015
Test Engineer: R.Alegre
Configuration: EUT only
Location: Chamber C
Mode: LTE_16QAM Band 4 Fundamentals, 15MHz Bandwidth

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, Xft SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1717.50	18.13	V	0.9	8.2	25.46	30.0	-4.5	
1717.50	16.16	H	0.9	8.2	23.49	30.0	-6.5	
Mid Ch								
1732.50	17.75	V	0.9	8.2	25.02	30.0	-5.0	
1732.50	15.75	H	0.9	8.2	23.02	30.0	-7.0	
High Ch								
1747.50	16.45	V	0.9	8.1	23.67	30.0	-6.3	
1747.50	13.37	H	0.9	8.1	20.59	30.0	-9.4	

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

Band

LTE4

15MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 8/25/2015
Test Engineer: R.Alegre
Configuration: EUT only
Location: Chamber C
Mode: LTE_QPSK Band 4 Fundamentals, 15MHz Bandwidth

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, Xft SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1717.50	18.61	V	0.9	8.2	25.94	30.0	-4.1	
1717.50	17.05	H	0.9	8.2	24.38	30.0	-5.6	
Mid Ch								
1732.50	18.54	V	0.9	8.2	25.81	30.0	-4.2	
1732.50	16.60	H	0.9	8.2	23.87	30.0	-6.1	
High Ch								
1747.50	17.39	V	0.9	8.1	24.61	30.0	-5.4	
1747.50	13.99	H	0.9	8.1	21.21	30.0	-8.8	

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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

LTE4

10MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 8/25/2015
Test Engineer: R.Alegre
Configuration: EUT only
Location: Chamber C
Mode: LTE_16QAM Band 4 Fundamentals, 10MHz Bandwidth

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, Xft SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1715.00	18.10	V	0.9	8.2	25.44	30.0	-4.6	
1715.00	16.09	H	0.9	8.2	23.43	30.0	-6.6	
Mid Ch								
1732.50	17.78	V	0.9	8.2	25.05	30.0	-4.9	
1732.50	15.87	H	0.9	8.2	23.14	30.0	-6.9	
High Ch								
1750.00	16.50	V	0.9	8.1	23.71	30.0	-6.3	
1750.00	13.32	H	0.9	8.1	20.53	30.0	-9.5	

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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

LTE4

10MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 8/25/2015
Test Engineer: R.Alegre
Configuration: EUT only
Location: Chamber C
Mode: LTE_QPSK Band 4 Fundamentals, 10MHz Bandwidth

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, Xft SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1715.00	18.71	V	0.9	8.2	26.05	30.0	-4.0	
1715.00	17.11	H	0.9	8.2	24.45	30.0	-5.6	
Mid Ch								
1732.50	18.54	V	0.9	8.2	25.81	30.0	-4.2	
1732.50	16.78	H	0.9	8.2	24.05	30.0	-5.9	
High Ch								
1750.00	17.41	V	0.9	8.1	24.62	30.0	-5.4	
1750.00	14.05	H	0.9	8.1	21.26	30.0	-8.7	

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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

LTE4

5MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 8/25/2015
Test Engineer: R.Alegre
Configuration: EUT only
Location: Chamber C
Mode: LTE_16QAM Band 4 Fundamentals, 5MHz Bandwidth

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, Xft SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1712.50	18.07	V	0.9	8.2	25.41	30.0	-4.6	
1712.50	16.10	H	0.9	8.2	23.44	30.0	-6.6	
Mid Ch								
1732.50	17.81	V	0.9	8.2	25.08	30.0	-4.9	
1732.50	15.85	H	0.9	8.2	23.12	30.0	-6.9	
High Ch								
1752.50	16.70	V	0.9	8.1	23.90	30.0	-6.1	
1752.50	13.36	H	0.9	8.1	20.56	30.0	-9.4	

0

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

Band

LTE4

5MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 8/25/2015
Test Engineer: R.Alegre
Configuration: EUT only
Location: Chamber C
Mode: LTE_QPSK Band 4 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, Xft SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1712.50	18.71	V	0.9	8.2	26.05	30.0	-3.9	
1712.50	17.11	H	0.9	8.2	24.45	30.0	-5.5	
Mid Ch								
1732.50	18.54	V	0.9	8.2	25.81	30.0	-4.2	
1732.50	16.62	H	0.9	8.2	23.89	30.0	-6.1	
High Ch								
1752.50	17.31	V	0.9	8.1	24.51	30.0	-5.5	
1752.50	14.10	H	0.9	8.1	21.30	30.0	-8.7	

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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

LTE4

3MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 8/25/2015
Test Engineer: R.Alegre
Configuration: EUT only
Location: Chamber C
Mode: LTE_16QAM Band 4 Fundamentals, 3MHz Bandwidth

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, Xft SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1711.50	18.08	V	0.9	8.2	25.43	30.0	-4.6	
1711.50	16.13	H	0.9	8.2	23.48	30.0	-6.5	
Mid Ch								
1732.50	17.76	V	0.9	8.2	25.03	30.0	-5.0	
1732.50	15.84	H	0.9	8.2	23.11	30.0	-6.9	
High Ch								
1753.50	16.50	V	0.9	8.1	23.69	30.0	-6.3	
1753.50	13.36	H	0.9	8.1	20.55	30.0	-9.4	

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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

LTE4

3MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 8/25/2015
Test Engineer: R.Alegre
Configuration: EUT only
Location: Chamber C
Mode: LTE_QPSK Band 4 Fundamentals, 3MHz Bandwidth

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, Xft SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1711.50	18.72	V	0.9	8.2	26.07	30.0	-3.9	
1711.50	17.16	H	0.9	8.2	24.51	30.0	-5.5	
Mid Ch								
1732.50	18.55	V	0.9	8.2	25.82	30.0	-4.2	
1732.50	16.61	H	0.9	8.2	23.88	30.0	-6.1	
High Ch								
1753.50	17.33	V	0.9	8.1	24.52	30.0	-5.5	
1753.50	14.12	H	0.9	8.1	21.31	30.0	-8.7	

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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

LTE4

1.4MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 8/25/2015
Test Engineer: R.Alegre
Configuration: EUT only
Location: Chamber C
Mode: LTE_16QAM Band 4 Fundamentals, 1.4MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, Xft SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1710.70	18.10	V	0.9	8.3	25.45	30.0	-4.5	
1710.70	16.12	H	0.9	8.3	23.47	30.0	-6.5	
Mid Ch								
1732.50	17.76	V	0.9	8.2	25.03	30.0	-5.0	
1732.50	15.80	H	0.9	8.2	23.07	30.0	-6.9	
High Ch								
1754.30	16.47	V	0.9	8.1	23.66	30.0	-6.3	
1754.30	13.33	H	0.9	8.1	20.52	30.0	-9.5	

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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

LTE4

1.4MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 8/25/2015
Test Engineer: R.Alegre
Configuration: EUT only
Location: Chamber C
Mode: LTE_QPSK Band 4 Fundamentals, 1.4MHz Bandwidth

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, Xft SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1710.70	18.75	V	0.9	8.3	26.10	30.0	-3.9	
1710.70	17.15	H	0.9	8.3	24.50	30.0	-5.5	
Mid Ch								
1732.50	18.49	V	0.9	8.2	25.76	30.0	-4.2	
1732.50	16.59	H	0.9	8.2	23.86	30.0	-6.1	
High Ch								
1754.30	17.32	V	0.9	8.1	24.51	30.0	-5.5	
1754.30	14.11	H	0.9	8.1	21.30	30.0	-8.7	

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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.

LTE Band 5

Band

LTE5

10MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 8/27/2015
Test Engineer: D. Mun & J, Ko
Configuration: EUT only
Location: Chamber B
Mode: LTE_16QAM Band 5 Fundamentals, 10MHz Bandwidth

Test Equipment:
Receiving: Hybrid T243, and Chamber B SMA Cables
Substitution: Dipole T416, Xft SMA Cable (SN # SERIALNUMBER) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
829.00	14.67	V	0.9	0.0	13.77	38.5	-24.7	
829.00	22.18	H	0.9	0.0	21.28	38.5	-17.2	
Mid Ch								
836.50	14.77	V	0.9	0.0	13.87	38.5	-24.6	
836.50	21.79	H	0.9	0.0	20.89	38.5	-17.6	
High Ch								
844.00	13.92	V	0.9	0.0	13.02	38.5	-25.5	
844.00	21.88	H	0.9	0.0	20.98	38.5	-17.5	

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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

LTE5

10MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 8/27/2015
Test Engineer: D. Mun & J, Ko
Configuration: EUT only
Location: Chamber B
Mode: LTE_QPSK Band 5 Fundamentals, 10MHz Bandwidth

Test Equipment:
Receiving: Hybrid T243, and Chamber B SMA Cables
Substitution: Dipole T416, Xft SMA Cable (SN # SERIALNUMBER) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
829.00	14.96	V	0.9	0.0	14.06	38.5	-24.4	
829.00	22.49	H	0.9	0.0	21.59	38.5	-16.9	
Mid Ch								
836.50	14.68	V	0.9	0.0	13.78	38.5	-24.7	
836.50	22.04	H	0.9	0.0	21.14	38.5	-17.4	
High Ch								
844.00	14.08	V	0.9	0.0	13.18	38.5	-25.3	
844.00	22.16	H	0.9	0.0	21.26	38.5	-17.2	

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

Band

LTE5

5MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 8/27/2015
Test Engineer: D. Mun & J, Ko
Configuration: EUT only
Location: Chamber B
Mode: LTE_16QAM Band 5 Fundamentals, 5MHz Bandwidth

Test Equipment:
Receiving: Hybrid T243, and Chamber B SMA Cables
Substitution: Dipole T416, Xft SMA Cable (SN # SERIALNUMBER) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
826.50	13.74	V	0.9	0.0	12.84	38.5	-25.7	
826.50	21.63	H	0.9	0.0	20.73	38.5	-17.8	
Mid Ch								
836.50	13.65	V	0.9	0.0	12.75	38.5	-25.8	
836.50	21.65	H	0.9	0.0	20.75	38.5	-17.8	
High Ch								
846.50	13.18	V	0.9	0.0	12.28	38.5	-26.2	
846.50	21.36	H	0.9	0.0	20.46	38.5	-18.0	

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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

LTE5

5MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 8/27/2015
Test Engineer: D. Mun & J, Ko
Configuration: EUT only
Location: Chamber B
Mode: LTE_QPSK Band 5 Fundamentals, 5MHz Bandwidth

Test Equipment:
Receiving: Hybrid T243, and Chamber B SMA Cables
Substitution: Dipole T416, Xft SMA Cable (SN # SERIALNUMBER) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
826.50	14.70	V	0.9	0.0	13.80	38.5	-24.7	
826.50	21.98	H	0.9	0.0	21.08	38.5	-17.4	
Mid Ch								
836.50	14.06	V	0.9	0.0	13.16	38.5	-25.3	
836.50	21.80	H	0.9	0.0	20.90	38.5	-17.6	
High Ch								
846.50	13.48	V	0.9	0.0	12.58	38.5	-25.9	
846.50	21.58	H	0.9	0.0	20.68	38.5	-17.8	

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

Band

LTE5

3MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 8/27/2015
Test Engineer: D. Mun & J, Ko
Configuration: EUT only
Location: Chamber B
Mode: LTE_16QAM Band 5 Fundamentals, 3MHz Bandwidth

Test Equipment:
Receiving: Hybrid T243, and Chamber B SMA Cables
Substitution: Dipole T416, Xft SMA Cable (SN # SERIALNUMBER) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
825.50	14.73	V	0.9	0.0	13.83	38.5	-24.7	
825.50	22.15	H	0.9	0.0	21.25	38.5	-17.3	
Mid Ch								
836.50	13.26	V	0.9	0.0	12.36	38.5	-26.1	
836.50	20.99	H	0.9	0.0	20.09	38.5	-18.4	
High Ch								
847.50	14.19	V	0.9	0.0	13.29	38.5	-25.2	
847.50	22.27	H	0.9	0.0	21.37	38.5	-17.1	

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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

LTE5

3MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 8/27/2015
Test Engineer: D. Mun & J, Ko
Configuration: EUT only
Location: Chamber B
Mode: LTE_QPSK Band 5 Fundamentals, 3MHz Bandwidth

Test Equipment:
Receiving: Hybrid T243, and Chamber B SMA Cables
Substitution: Dipole T416, Xft SMA Cable (SN # SERIALNUMBER) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
825.50	13.78	V	0.9	0.0	12.88	38.5	-25.6	
825.50	22.40	H	0.9	0.0	21.50	38.5	-17.0	
Mid Ch								
836.50	13.45	V	0.9	0.0	12.55	38.5	-26.0	
836.50	21.56	H	0.9	0.0	20.66	38.5	-17.8	
High Ch								
847.50	14.68	V	0.9	0.0	13.78	38.5	-24.7	
847.50	22.59	H	0.9	0.0	21.69	38.5	-16.8	

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

Band

LTE5

1.4MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 8/27/2015
Test Engineer: D. Mun & J, Ko
Configuration: EUT only
Location: Chamber B
Mode: LTE_16QAM Band 5 Fundamentals, 1.4MHz Bandwidth

Test Equpment:
Receiving: Hybrid T243, and Chamber B SMA Cables
Substitution: Dipole T416, Xft SMA Cable (SN # SERIALNUMBER) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
824.70	14.76	V	0.9	0.0	13.86	38.5	-24.6	
824.70	22.48	H	0.9	0.0	21.58	38.5	-16.9	
Mid Ch								
836.50	14.24	V	0.9	0.0	13.34	38.5	-25.2	
836.50	21.59	H	0.9	0.0	20.69	38.5	-17.8	
High Ch								
848.30	14.89	V	0.9	0.0	13.99	38.5	-24.5	
848.30	22.66	H	0.9	0.0	21.76	38.5	-16.7	

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

Band

LTE5

1.4MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 8/27/2015
Test Engineer: D. Mun & J, Ko
Configuration: EUT only
Location: Chamber B
Mode: LTE_QPSK Band 5 Fundamentals, 1.4MHz Bandwidth

Test Equpment:
Receiving: Hybrid T243, and Chamber B SMA Cables
Substitution: Dipole T416, Xft SMA Cable (SN # SERIALNUMBER) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
824.70	14.89	V	0.9	0.0	13.99	38.5	-24.5	
824.70	22.67	H	0.9	0.0	21.77	38.5	-16.7	
Mid Ch								
836.50	14.45	V	0.9	0.0	13.55	38.5	-25.0	
836.50	22.44	H	0.9	0.0	21.54	38.5	-17.0	
High Ch								
848.30	14.78	V	0.9	0.0	13.88	38.5	-24.6	
848.30	23.07	H	0.9	0.0	22.17	38.5	-16.3	

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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.

LTE Band 7

Band

LTE7

20MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 8/26/2015
Test Engineer: R.Alegre
Configuration: EUT Only
Location: Chamber C
Mode: LTE_16QAM Band 7 Fundamentals, 20MHz Bandwidth

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59,SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2510.00	9.67	V	0.9	9.5	18.25	33.0	-14.7	
2510.00	11.22	H	0.9	9.5	19.80	33.0	-13.2	
Mid Ch								
2535.00	9.47	V	0.9	9.5	18.06	33.0	-14.9	
2535.00	11.31	H	0.9	9.5	19.90	33.0	-13.1	
High Ch								
2560.00	9.29	V	0.9	9.5	17.89	33.0	-15.1	
2560.00	11.14	H	0.9	9.5	19.74	33.0	-13.3	

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

Band

LTE7

20MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 8/26/2015
Test Engineer: R.Alegre
Configuration: EUT Only
Location: Chamber C
Mode: LTE_QPSK Band 7 Fundamentals, 20MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59,SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2510.00	10.50	V	0.9	9.5	19.08	33.0	-13.9	
2510.00	11.77	H	0.9	9.5	20.35	33.0	-12.6	
Mid Ch								
2535.00	10.27	V	0.9	9.5	18.86	33.0	-14.1	
2535.00	11.92	H	0.9	9.5	20.51	33.0	-12.5	
High Ch								
2560.00	10.25	V	0.9	9.5	18.85	33.0	-14.2	
2560.00	12.26	H	0.9	9.5	20.86	33.0	-12.1	

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

Band

LTE7

15MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 8/26/2015
Test Engineer: R.Alegre
Configuration: EUT Only
Location: Chamber C
Mode: LTE_16QAM Band 7 Fundamentals, 15MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59,SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2507.50	9.64	V	0.9	9.5	18.22	33.0	-14.8	
2507.50	11.39	H	0.9	9.5	19.97	33.0	-13.0	
Mid Ch								
2535.00	9.51	V	0.9	9.5	18.10	33.0	-14.9	
2535.00	10.98	H	0.9	9.5	19.57	33.0	-13.4	
High Ch	0.00							
2562.50	9.26	V	0.9	9.5	17.86	33.0	-15.1	
2562.50	11.52	H	0.9	9.5	20.12	33.0	-12.9	

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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

LTE7

15MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 8/26/2015
Test Engineer: R.Alegre
Configuration: EUT Only
Location: Chamber C
Mode: LTE_QPSK Band 7 Fundamentals, 15MHz Bandwidth

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59,SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2507.50	10.49	V	0.9	9.5	19.07	33.0	-13.9	
2507.50	11.90	H	0.9	9.5	20.48	33.0	-12.5	
Mid Ch								
2535.00	10.38	V	0.9	9.5	18.97	33.0	-14.0	
2535.00	11.83	H	0.9	9.5	20.42	33.0	-12.6	
High Ch	0.00							
2562.50	10.25	V	0.9	9.5	18.85	33.0	-14.2	
2562.50	12.31	H	0.9	9.5	20.91	33.0	-12.1	

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

Band

LTE7

10MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 8/26/2015
Test Engineer: R.Alegre
Configuration: EUT Only
Location: Chamber C
Mode: LTE_16QAM Band 7 Fundamentals, 10MHz Bandwidth

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59,SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2505.00	10.24	V	0.9	9.5	18.82	33.0	-14.2	
2505.00	11.24	H	0.9	9.5	19.82	33.0	-13.2	
Mid Ch								
2535.00	9.49	V	0.9	9.5	18.08	33.0	-14.9	
2535.00	11.31	H	0.9	9.5	19.90	33.0	-13.1	
High Ch								
2565.00	9.70	V	0.9	9.5	18.30	33.0	-14.7	
2565.00	11.27	H	0.9	9.5	19.87	33.0	-13.1	

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

Band

LTE7

10MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 8/26/2015
Test Engineer: R.Alegre
Configuration: EUT Only
Location: Chamber C
Mode: LTE_QPSK Band 7 Fundamentals, 10MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59,SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2505.00	10.79	V	0.9	9.5	19.37	33.0	-13.6	
2505.00	11.87	H	0.9	9.5	20.45	33.0	-12.6	
Mid Ch								
2535.00	10.27	V	0.9	9.5	18.86	33.0	-14.1	
2535.00	11.99	H	0.9	9.5	20.58	33.0	-12.4	
High Ch								
2565.00	10.44	V	0.9	9.5	19.04	33.0	-14.0	
2565.00	12.11	H	0.9	9.5	20.71	33.0	-12.3	

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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

LTE7

5MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 8/26/2015
Test Engineer: R.Alegre
Configuration: EUT Only
Location: Chamber C
Mode: LTE_16QAM Band 7 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59,SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2502.50	10.16	V	0.9	9.5	18.74	33.0	-14.3	
2502.50	11.27	H	0.9	9.5	19.85	33.0	-13.2	
Mid Ch								
2535.00	9.49	V	0.9	9.5	18.08	33.0	-14.9	
2535.00	11.36	H	0.9	9.5	19.95	33.0	-13.1	
High Ch								
2567.50	9.47	V	0.9	9.5	18.07	33.0	-14.9	
2567.50	11.33	H	0.9	9.5	19.93	33.0	-13.1	

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

Band

LTE7

5MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 8/26/2015
Test Engineer: R.Alegre
Configuration: EUT Only
Location: Chamber C
Mode: LTE_QPSK Band 7 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59,SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2502.50	10.79	V	0.9	9.5	19.37	33.0	-13.6	
2502.50	11.80	H	0.9	9.5	20.38	33.0	-12.6	
Mid Ch								
2535.00	10.06	V	0.9	9.5	18.65	33.0	-14.4	
2535.00	12.06	H	0.9	9.5	20.65	33.0	-12.4	
High Ch								
2567.50	10.40	V	0.9	9.5	19.00	33.0	-14.0	
2567.50	12.08	H	0.9	9.5	20.68	33.0	-12.3	

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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.

LTE Band 17

Band

LTE17

10MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 8/26/2015
Test Engineer: R.Alegre
Configuration: EUT only
Location: Chamber C
Mode: LTE_16QAM Band 17 Fundamentals, 10MHz Bandwidth

Test Equipment:
Receiving: Hybrid T185, and Chamber C SMA Cables
Substitution: Dipole T416, 4ft SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
709.00	6.02	V	0.9	0.0	5.12	34.8	-29.7	
709.00	17.29	H	0.9	0.0	16.39	34.8	-18.4	
Mid Ch								
710.00	6.01	V	0.9	0.0	5.11	34.8	-29.7	
710.00	17.24	H	0.9	0.0	16.34	34.8	-18.4	
High Ch								
711.00	6.13	V	0.9	0.0	5.23	34.8	-29.5	
711.00	17.33	H	0.9	0.0	16.43	34.8	-18.3	

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

Band

LTE17

10MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 8/26/2015
Test Engineer: R.Alegre
Configuration: EUT only
Location: Chamber C
Mode: LTE_QPSK Band 17 Fundamentals, 10MHz Bandwidth

Test Equpment:
Receiving: Hybrid T185, and Chamber C SMA Cables
Substitution: Dipole T416, 4ft SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
709.00	7.10	V	0.9	0.0	6.20	34.8	-28.6	
709.00	18.10	H	0.9	0.0	17.20	34.8	-17.6	
Mid Ch								
710.00	6.71	V	0.9	0.0	5.81	34.8	-29.0	
710.00	17.90	H	0.9	0.0	17.00	34.8	-17.8	
High Ch								
711.00	7.09	V	0.9	0.0	6.19	34.8	-28.6	
711.00	18.11	H	0.9	0.0	17.21	34.8	-17.6	

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

Band

LTE17

5MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 8/26/2015
Test Engineer: R.Alegre
Configuration: EUT only
Location: Chamber C
Mode: LTE_16QAM Band 17 Fundamentals, 5MHz Bandwidth

Test Equipment:
Receiving: Hybrid T185, and Chamber C SMA Cables
Substitution: Dipole T416, 4ft SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
706.50	6.10	V	0.9	0.0	5.20	34.8	-29.6	
706.50	17.21	H	0.9	0.0	16.31	34.8	-18.5	
Mid Ch								
710.00	6.06	V	0.9	0.0	5.16	34.8	-29.6	
710.00	17.25	H	0.9	0.0	16.35	34.8	-18.4	
High Ch								
713.50	6.11	V	0.9	0.0	5.21	34.8	-29.6	
713.50	17.20	H	0.9	0.0	16.30	34.8	-18.5	

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

Band

LTE17

5MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 8/26/2015
Test Engineer: R.Alegre
Configuration: EUT only
Location: Chamber C
Mode: LTE_QPSK Band 17 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Hybrid T185, and Chamber C SMA Cables
Substitution: Dipole T416, 4ft SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
706.50	7.04	V	0.9	0.0	6.14	34.8	-28.6	
706.50	18.01	H	0.9	0.0	17.11	34.8	-17.7	
Mid Ch								
710.00	6.73	V	0.9	0.0	5.83	34.8	-28.9	
710.00	18.00	H	0.9	0.0	17.10	34.8	-17.7	
High Ch								
713.50	7.02	V	0.9	0.0	6.12	34.8	-28.7	
713.50	18.01	H	0.9	0.0	17.11	34.8	-17.7	

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

LTE Band 26

Band

LTE26

15MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 5/26/2015
Test Engineer: Jude Semana
Configuration: EUT Only
Location: Chamber B
Mode: LTE_16QAM Band 26 Fundamentals, 15MHz Bandwidth

Test Equipment:
Receiving: Horn T243, and Chamber B SMA Cables
Substitution: Horn T416 Substitution, T1096 SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
831.50	13.90	V	0.9	0.0	13.00	38.5	-25.5	
831.50	21.80	H	0.9	0.0	20.90	38.5	-17.6	
Mid Ch								
836.50	14.00	V	0.9	0.0	13.10	38.5	-25.4	
836.50	21.78	H	0.9	0.0	20.88	38.5	-17.6	
High Ch								
841.50	11.70	V	0.9	0.0	10.80	38.5	-27.7	
841.50	21.60	H	0.9	0.0	20.70	38.5	-17.8	

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

Band

LTE26

15MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 5/26/2015
Test Engineer: Jude Semana
Configuration: EUT Only
Location: Chamber B
Mode: LTE_QPSK Band 26 Fundamentals, 15MHz Bandwidth

Test Equipment:
Receiving: Horn T243, and Chamber B SMA Cables
Substitution: Horn T416 Substitution, T1096 SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
831.50	14.20	V	0.9	0.0	13.30	38.5	-25.2	
831.50	22.10	H	0.9	0.0	21.20	38.5	-17.3	
Mid Ch								
836.50	14.30	V	0.9	0.0	13.40	38.5	-25.1	
836.50	22.08	H	0.9	0.0	21.18	38.5	-17.3	
High Ch								
841.50	12.20	V	0.9	0.0	11.30	38.5	-27.2	
841.50	21.90	H	0.9	0.0	21.00	38.5	-17.5	

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 5/26/2015
Test Engineer: Jude Semana
Configuration: EUT Only
Location: Chamber C
Mode: LTE_16QAM Band 26 Fundamentals, 10MHz Bandwidth

Test Equipment:
Receiving: Horn T243, and Chamber B SMA Cables
Substitution: Horn T416 Substitution, T1096 SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
819.00	13.70	V	0.9	0.0	12.80	50.0	-37.2	
819.00	21.60	H	0.9	0.0	20.70	50.0	-29.3	
Mid Ch								
831.50	13.70	V	0.9	0.0	12.80	38.5	-25.7	
831.50	21.68	H	0.9	0.0	20.78	38.5	-17.7	
High Ch								
844.00	11.30	V	0.9	0.0	10.40	38.5	-28.1	
844.00	21.00	H	0.9	0.0	20.10	38.5	-18.4	

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 5/26/2015
Test Engineer: Jude Semana
Configuration: EUT Only
Location: Chamber B
Mode: LTE_QPSK Band 26 Fundamentals, 10MHz Bandwidth

Test Equipment:
Receiving: Horn T243, and Chamber B SMA Cables
Substitution: Horn T416 Substitution, T1096 SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
819.00	13.90	V	0.9	0.0	13.00	50.0	-37.0	
819.00	21.80	H	0.9	0.0	20.90	50.0	-29.1	
Mid Ch								
831.50	14.00	V	0.9	0.0	13.10	38.5	-25.4	
831.50	21.98	H	0.9	0.0	21.08	38.5	-17.4	
High Ch								
844.00	11.30	V	0.9	0.0	10.40	38.5	-28.1	
844.00	21.20	H	0.9	0.0	20.30	38.5	-18.2	

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
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 5/26/2015
Test Engineer: Jude Semana
Configuration: EUT Only
Location: Chamber B
Mode: LTE_16QAM Band 26 Fundamentals, 5MHz Bandwidth

Test Equipment:
Receiving: Horn T243, and Chamber B SMA Cables
Substitution: Horn T416 Substitution, T1096 SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
816.50	14.60	V	0.9	0.0	13.70	50.0	-36.3	
816.50	22.53	H	0.9	0.0	21.63	50.0	-28.4	
Mid Ch								
831.50	13.70	V	0.9	0.0	12.80	38.5	-25.7	
831.50	21.82	H	0.9	0.0	20.92	38.5	-17.6	
High Ch								
846.50	12.25	V	0.9	0.0	11.35	38.5	-27.2	
846.50	21.20	H	0.9	0.0	20.30	38.5	-18.2	

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
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 5/26/2015
Test Engineer: Jude Semana
Configuration: EUT Only
Location: Chamber B
Mode: LTE_QPSK Band 26 Fundamentals, 5MHz Bandwidth

Test Equipment:
Receiving: Horn T243, and Chamber B SMA Cables
Substitution: Horn T416 Substitution, T1096 SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
816.50	14.10	V	0.9	0.0	13.20	50.0	-36.8	
816.50	23.21	H	0.9	0.0	22.31	50.0	-27.7	
Mid Ch								
831.50	13.80	V	0.9	0.0	12.90	38.5	-25.6	
831.50	21.68	H	0.9	0.0	20.78	38.5	-17.7	
High Ch								
846.50	12.05	V	0.9	0.0	11.15	38.5	-27.4	
846.50	20.90	H	0.9	0.0	20.00	38.5	-18.5	

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
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 5/26/2015
Test Engineer: Jude Semana
Configuration: EUT Only
Location: Chamber B
Mode: LTE_16QAM Band 26 Fundamentals, 3MHz Bandwidth

Test Equipment:
Receiving: Horn T243, and Chamber B SMA Cables
Substitution: Horn T416 Substitution, T1096 SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
815.50	14.70	V	0.9	0.0	13.80	50.0	-36.2	
815.50	22.63	H	0.9	0.0	21.73	50.0	-28.3	
Mid Ch								
831.50	13.40	V	0.9	0.0	12.50	38.5	-26.0	
831.50	21.48	H	0.9	0.0	20.58	38.5	-17.9	
High Ch								
847.50	12.05	V	0.9	0.0	11.15	38.5	-27.4	
847.50	20.80	H	0.9	0.0	19.90	38.5	-18.6	

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
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 5/26/2015
Test Engineer: Jude Semana
Configuration: EUT Only
Location: Chamber B
Mode: LTE_QPSK Band 26 Fundamentals, 3MHz Bandwidth

Test Equipment:
Receiving: Horn T243, and Chamber B SMA Cables
Substitution: Horn T416 Substitution, T1096 SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
815.50	14.90	V	0.9	0.0	14.00	50.0	-36.0	
815.50	22.83	H	0.9	0.0	21.93	50.0	-28.1	
Mid Ch								
831.50	13.70	V	0.9	0.0	12.80	38.5	-25.7	
831.50	21.88	H	0.9	0.0	20.98	38.5	-17.5	
High Ch								
847.50	12.15	V	0.9	0.0	11.25	38.5	-27.3	
847.50	21.10	H	0.9	0.0	20.20	38.5	-18.3	

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 5/26/2015
Test Engineer: Jude Semana
Configuration: EUT Only
Location: Chamber B
Mode: LTE_16QAM Band 26 Fundamentals, 1.4MHz Bandwidth

Test Equipment:
Receiving: Horn T243, and Chamber B SMA Cables
Substitution: Horn T416 Substitution, T1096 SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
814.70	13.60	V	0.9	0.0	12.70	50.0	-37.3	
814.70	22.33	H	0.9	0.0	21.43	50.0	-28.6	
Mid Ch								
831.50	12.70	V	0.9	0.0	11.80	38.5	-26.7	
831.50	21.58	H	0.9	0.0	20.68	38.5	-17.8	
High Ch								
848.30	12.15	V	0.9	0.0	11.25	38.5	-27.3	
848.30	20.80	H	0.9	0.0	19.90	38.5	-18.6	

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 5/26/2015
Test Engineer: Jude Semana
Configuration: EUT Only
Location: Chamber B
Mode: LTE_QPSK Band 26 Fundamentals, 1.4MHz Bandwidth

Test Equipment:
Receiving: Horn T243, and Chamber B SMA Cables
Substitution: Horn T416 Substitution, T1096 SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
814.70	14.60	V	0.9	0.0	13.70	50.0	-36.3	
814.70	22.63	H	0.9	0.0	21.73	50.0	-28.3	
Mid Ch								
831.50	13.80	V	0.9	0.0	12.90	38.5	-25.6	
831.50	21.78	H	0.9	0.0	20.88	38.5	-17.6	
High Ch								
848.30	12.25	V	0.9	0.0	11.35	38.5	-27.2	
848.30	21.00	H	0.9	0.0	20.10	38.5	-18.4	

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

LTE Band 41

Band

LTE41

20MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 8/24/2015
Test Engineer: Charles Vergonio
Configuration: Y-Pos, EUT Only
Location: Chamber C
Mode: LTE_16QAM Band 41 Fundamentals, 20MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, Xft SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2506.00	9.37	V	0.9	9.5	17.95	33.0	-15.1	
2506.00	4.37	H	0.9	9.5	12.95	33.0	-20.1	
Mid Ch								
2593.00	11.86	V	0.9	9.5	20.47	33.0	-12.5	
2593.00	6.95	H	0.9	9.5	15.55	33.0	-17.4	
High Ch								
2680.00	10.61	V	0.9	9.7	19.44	33.0	-13.6	
2680.00	5.44	H	0.9	9.7	14.26	33.0	-18.7	

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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

20MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 8/24/2015
Test Engineer: Charles Vergonio
Configuration: Y-Pos, EUT Only
Location: Chamber C
Mode: LTE_QPSK Band 41 Fundamentals, 20MHz Bandwidth

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, Xft SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2506.00	9.89	V	0.9	9.5	18.47	33.0	-14.5	
2506.00	4.92	H	0.9	9.5	13.50	33.0	-19.5	
Mid Ch								
2593.00	12.39	V	0.9	9.5	21.00	33.0	-12.0	
2593.00	7.54	H	0.9	9.5	16.14	33.0	-16.9	
High Ch								
2680.00	11.39	V	0.9	9.7	20.22	33.0	-12.8	
2680.00	6.34	H	0.9	9.7	15.16	33.0	-17.8	

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.

Company: LG
Project #: 15I21552
Date: 8/24/2015
Test Engineer: Charles Vergonio
Configuration: Y-Pos, EUT Only
Location: Chamber C
Mode: LTE_16QAM Band 41 Fundamentals, 15MHz Bandwidth

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, Xft SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2503.50	9.13	V	0.9	9.5	17.71	33.0	-15.3	
2503.50	4.25	H	0.9	9.5	12.83	33.0	-20.2	
Mid Ch								
2593.00	11.98	V	0.9	9.5	20.59	33.0	-12.4	
2593.00	6.90	H	0.9	9.5	15.50	33.0	-17.5	
High Ch								
2682.50	10.02	V	0.9	9.7	18.85	33.0	-14.1	
2682.50	5.81	H	0.9	9.7	14.64	33.0	-18.4	

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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.

Company: LG
Project #: 15I21552
Date: 8/24/2015
Test Engineer: Charles Vergonio
Configuration: Y-Pos, EUT Only
Location: Chamber C
Mode: LTE_QPSK Band 41 Fundamentals, 15MHz Bandwidth

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, Xft SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2503.50	10.38	V	0.9	9.5	18.96	33.0	-14.0	
2503.50	5.45	H	0.9	9.5	14.03	33.0	-19.0	
Mid Ch								
2593.00	12.84	V	0.9	9.5	21.45	33.0	-11.6	
2593.00	7.99	H	0.9	9.5	16.59	33.0	-16.4	
High Ch								
2682.50	11.51	V	0.9	9.7	20.34	33.0	-12.7	
2682.50	6.64	H	0.9	9.7	15.47	33.0	-17.5	

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.

Company: LG
Project #: 15I21552
Date: 8/24/2015
Test Engineer: Charles Vergonio
Configuration: Y-Pos, EUT Only
Location: Chamber C
Mode: LTE_16QAM Band 41 Fundamentals, 10MHz Bandwidth

Test Equipment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, Xft SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2501.00	8.92	V	0.9	9.5	17.50	33.0	-15.5	
2501.00	4.15	H	0.9	9.5	12.73	33.0	-20.3	
Mid Ch								
2593.00	11.86	V	0.9	9.5	20.47	33.0	-12.5	
2593.00	6.64	H	0.9	9.5	15.24	33.0	-17.8	
High Ch								
2685.00	10.11	V	0.9	9.7	18.95	33.0	-14.1	
2685.00	5.05	H	0.9	9.7	13.89	33.0	-19.1	

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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.

Company: LG
Project #: 15I21552
Date: 8/24/2015
Test Engineer: Charles Vergonio
Configuration: Y-Pos, EUT Only
Location: Chamber C
Mode: LTE_QPSK Band 41 Fundamentals, 10MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, Xft SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2501.00	9.73	V	0.9	9.5	18.31	33.0	-14.7	
2501.00	4.92	H	0.9	9.5	13.50	33.0	-19.5	
Mid Ch								
2593.00	12.41	V	0.9	9.5	21.02	33.0	-12.0	
2593.00	7.54	H	0.9	9.5	16.14	33.0	-16.9	
High Ch								
2685.00	10.65	V	0.9	9.7	19.49	33.0	-13.5	
2685.00	5.15	H	0.9	9.7	13.99	33.0	-19.0	

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

Band

LTE41

5MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 8/24/2015
Test Engineer: Charles Vergonio
Configuration: Y-Pos, EUT Only
Location: Chamber C
Mode: LTE_16QAM Band 41 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, Xft SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2498.50	9.07	V	0.9	9.5	17.64	33.0	-15.4	
2498.50	4.07	H	0.9	9.5	12.64	33.0	-20.4	
Mid Ch								
2593.00	11.41	V	0.9	9.5	20.02	33.0	-13.0	
2593.00	6.78	H	0.9	9.5	15.38	33.0	-17.6	
High Ch								
2687.50	9.93	V	0.9	9.7	18.78	33.0	-14.2	
2687.50	5.06	H	0.9	9.7	13.90	33.0	-19.1	

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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

5MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I21552
Date: 8/24/2015
Test Engineer: Charles Vergonio
Configuration: Y-Pos, EUT Only
Location: Chamber C
Mode: LTE_QPSK Band 41 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59, Xft SMA Cable (SN # 506392) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2498.50	10.00	V	0.9	9.5	18.57	33.0	-14.4	
2498.50	4.98	H	0.9	9.5	13.55	33.0	-19.4	
Mid Ch								
2593.00	11.79	V	0.9	9.5	20.40	33.0	-12.6	
2593.00	6.69	H	0.9	9.5	15.29	33.0	-17.7	
High Ch								
2687.50	10.54	V	0.9	9.7	19.39	33.0	-13.6	
2687.50	5.64	H	0.9	9.7	14.48	33.0	-18.5	

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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.

11.2. FIELD STRENGTH OF SPURIOUS RADIATION

RULE PART(S)

FCC: §2.1053, §22.917, §24.238, §27.53 and §90.691

LIMIT

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.

Part 27: (m)(4) (4) For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

TEST PROCEDURE

For Cellular equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 100 kHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

For PCS equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 MHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

MODES TESTED

GSM, WCDMA, and LTE

RESULTS

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

11.2.1. SPURIOUS RADIATION PLOTS

GSM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 15I21552
Date: 27-Aug
Test Engineer: D. Mun & J. Ko
Configuration: EUT + Earphones + AC Adapter
Location: Chamber B
Mode: EGPRS 1900 MHz Harmonics

Band

GSM 1900

EGPRS

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1850.2									
3700.40	-14.5	V	3.0	35.9	1.0	-49.3	-13.0	-36.3	
5550.60	-28.1	V	3.0	35.5	1.0	-62.6	-13.0	-49.6	
7400.80	-26.9	V	3.0	35.7	1.0	-61.7	-13.0	-48.7	
3700.40	10.5	H	3.0	35.9	1.0	-24.4	-13.0	-11.4	
5550.60	-5.4	H	3.0	35.5	1.0	-39.8	-13.0	-26.8	
7400.80	-26.1	H	3.0	35.7	1.0	-60.8	-13.0	-47.8	
Mid Ch, 1880									
3760.00	-19.7	V	3.0	35.8	1.0	-54.5	-13.0	-41.5	
5640.00	-27.8	V	3.0	35.5	1.0	-62.3	-13.0	-49.3	
7520.00	-27.2	V	3.0	35.7	1.0	-61.9	-13.0	-48.9	
3760.00	1.1	H	3.0	35.8	1.0	-33.7	-13.0	-20.7	
5640.00	-15.0	H	3.0	35.5	1.0	-49.5	-13.0	-36.5	
7520.00	-25.7	H	3.0	35.7	1.0	-60.4	-13.0	-47.4	
High Ch, 1909.8									
3819.60	-19.4	V	3.0	35.8	1.0	-54.2	-13.0	-41.2	
5729.40	-28.5	V	3.0	35.5	1.0	-63.0	-13.0	-50.0	
7639.20	-26.8	V	3.0	35.8	1.0	-61.6	-13.0	-48.6	
3819.60	2.3	H	3.0	35.8	1.0	-32.4	-13.0	-19.4	
5729.40	-15.0	H	3.0	35.5	1.0	-49.5	-13.0	-36.5	
7639.20	-23.9	H	3.0	35.8	1.0	-58.6	-13.0	-45.6	

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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.

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 15I21552
Date: 8/27/2015
Test Engineer: D. Mun & J. Ko
Configuration: EUT + Earphones + AC Adapter
Location: Chamber B
Mode: GPRS 1900 MHz Harmonics

Band

GSM 1900

GPRS

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1850.2									
3700.40	-15.9	V	3.0	35.9	1.0	-50.8	-13.0	-37.8	
5550.60	-19.6	V	3.0	35.5	1.0	-54.1	-13.0	-41.1	
7400.80	-25.9	V	3.0	35.7	1.0	-60.6	-13.0	-47.6	
3700.40	12.5	H	3.0	35.9	1.0	-22.3	-13.0	-9.3	
5550.60	-0.7	H	3.0	35.5	1.0	-35.2	-13.0	-22.2	
7400.80	-25.6	H	3.0	35.7	1.0	-60.3	-13.0	-47.3	
Mid Ch, 1880									
3760.00	-16.9	V	3.0	35.8	1.0	-51.7	-13.0	-38.7	
5640.00	-27.5	V	3.0	35.5	1.0	-62.0	-13.0	-49.0	
7520.00	-26.5	V	3.0	35.7	1.0	-61.2	-13.0	-48.2	
3760.00	9.9	H	3.0	35.8	1.0	-25.0	-13.0	-12.0	
5640.00	-3.5	H	3.0	35.5	1.0	-38.0	-13.0	-25.0	
7520.00	-25.5	H	3.0	35.7	1.0	-60.2	-13.0	-47.2	
High Ch, 1909.8									
3819.60	-9.7	V	3.0	35.8	1.0	-44.5	-13.0	-31.5	
5729.40	-27.6	V	3.0	35.5	1.0	-62.1	-13.0	-49.1	
7639.20	-26.3	V	3.0	35.8	1.0	-61.0	-13.0	-48.0	
3819.60	7.6	H	3.0	35.8	1.0	-27.2	-13.0	-14.2	
5729.40	-9.5	H	3.0	35.5	1.0	-44.0	-13.0	-31.0	
7639.20	-24.3	H	3.0	35.8	1.0	-59.0	-13.0	-46.0	

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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.

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 15I21523
Date: 8/27/2015
Test Engineer: D. Mun
Configuration: EUT + Earphones + Charger
Location: Chamber B
Mode: EGPRS 850 MHz Harmonics

Band

GSM 850

EGPRS

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 824.2									
1648.40	-28.8	V	3.0	37.0	1.0	-64.9	-13.0	-51.9	
2472.60	-25.0	V	3.0	36.4	1.0	-60.5	-13.0	-47.5	
3296.80	-24.7	V	3.0	36.2	1.0	-59.9	-13.0	-46.9	
1648.40	-29.8	H	3.0	37.0	1.0	-65.8	-13.0	-52.8	
2472.60	-27.1	H	3.0	36.4	1.0	-62.5	-13.0	-49.5	
3296.80	-25.1	H	3.0	36.2	1.0	-60.3	-13.0	-47.3	
Mid Ch, 836.6									
1673.20	-26.3	V	3.0	37.0	1.0	-62.3	-13.0	-49.3	
2509.80	-25.1	V	3.0	36.4	1.0	-60.5	-13.0	-47.5	
3346.40	-24.4	V	3.0	36.1	1.0	-59.5	-13.0	-46.5	
1673.20	-27.7	H	3.0	37.0	1.0	-63.7	-13.0	-50.7	
2509.80	-26.4	H	3.0	36.4	1.0	-61.8	-13.0	-48.8	
3346.40	-24.8	H	3.0	36.1	1.0	-59.9	-13.0	-46.9	
High Ch, 848.8									
1697.60	-28.8	V	3.0	37.0	1.0	-64.8	-13.0	-51.8	
2546.40	-25.6	V	3.0	36.4	1.0	-61.0	-13.0	-48.0	
3395.20	-24.1	V	3.0	36.1	1.0	-59.2	-13.0	-46.2	
1697.60	-27.0	H	3.0	37.0	1.0	-63.0	-13.0	-50.0	
2546.40	-25.2	H	3.0	36.4	1.0	-60.6	-13.0	-47.6	
3395.20	-26.0	H	3.0	36.1	1.0	-61.1	-13.0	-48.1	

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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.

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 15I21523
Date: 8/27/2015
Test Engineer: D. Mun
Configuration: EUT + Earphones + Charger
Location: Chamber B
Mode: GPRS 850 MHz Harmonics

Band

GSM 850

GPRS

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 824.2									
1648.40	-27.5	V	3.0	37.0	1.0	-63.5	-13.0	-50.5	
2472.60	-24.2	V	3.0	36.4	1.0	-59.6	-13.0	-46.6	
3296.80	-24.1	V	3.0	36.2	1.0	-59.3	-13.0	-46.3	
1648.40	-28.5	H	3.0	37.0	1.0	-64.5	-13.0	-51.5	
2472.60	-26.4	H	3.0	36.4	1.0	-61.8	-13.0	-48.8	
3296.80	-23.8	H	3.0	36.2	1.0	-58.9	-13.0	-45.9	
Mid Ch, 836.6									
1673.20	-25.2	V	3.0	37.0	1.0	-61.2	-13.0	-48.2	
2509.80	-23.7	V	3.0	36.4	1.0	-59.1	-13.0	-46.1	
3346.40	-23.3	V	3.0	36.1	1.0	-58.5	-13.0	-45.5	
1673.20	-26.7	H	3.0	37.0	1.0	-62.7	-13.0	-49.7	
2509.80	-25.6	H	3.0	36.4	1.0	-61.0	-13.0	-48.0	
3346.40	-23.8	H	3.0	36.1	1.0	-58.9	-13.0	-45.9	
High Ch, 848.8									
1697.60	-28.1	V	3.0	37.0	1.0	-64.1	-13.0	-51.1	
2546.40	-24.5	V	3.0	36.4	1.0	-59.9	-13.0	-46.9	
3395.20	-23.9	V	3.0	36.1	1.0	-58.9	-13.0	-45.9	
1697.60	-26.9	H	3.0	37.0	1.0	-62.8	-13.0	-49.8	
2546.40	-24.2	H	3.0	36.4	1.0	-59.6	-13.0	-46.6	
3395.20	-24.3	H	3.0	36.1	1.0	-59.4	-13.0	-46.4	

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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.